

# **SIEMENS**

## **Service Manual**

**Hicom 150 E Office**  
Release 2.0-3.0

**August 2000**

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**May 2000**

**Revision 1   August 2000**

Job No. 5006

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## Name Change from Hicom 150 E Office to Hicom 150 H

**HiPath** is the **Siemens Enterprise Convergence Architecture** of the future and represents:

- Hicom and HiNet convergence
- Business over IP
- Smooth migration
- Highly integrated communication

Hicom 150 E Office Release 3.0 is an essential component of the HiPath strategy. In order to document this in the product names as well, they have been modified as follows:

|                                |    |                                  |
|--------------------------------|----|----------------------------------|
| Hicom 150 E Office Release 3.0 | —> | Hicom 150 <b>H</b> V1.0          |
| Hicom 150 E OfficePro          | —> | Hicom 150 <b>H</b> OfficePro     |
| Hicom 150 E OfficeCom          | —> | Hicom 150 <b>H</b> OfficeCom     |
| Hicom 150 E OfficePoint        | —> | Hicom 150 <b>H</b> OfficePoint   |
| Hicom 150 E OfficePoint C      | —> | Hicom 150 <b>H</b> OfficePoint C |
| Hicom 150 E OfficeOne          | —> | Hicom 150 <b>H</b> OfficeOne     |
| Hicom 150 E OfficeStart        | —> | Hicom 150 <b>H</b> OfficeStart   |

The contents of this Service Manual have not been adapted to the new product names. Note that all the **services provided** by **Release 3.0** of the **Hicom 150 E Office** system are also included in **Version 1.0** of the **Hicom 150 H** system.

# Major New Features in Release 3.0 of Hicom 150 E Office



Unless otherwise indicated, the new features listed below are available in Release 3.0.

- New boards

| OfficePro                           | OfficeCom | OfficePoint |
|-------------------------------------|-----------|-------------|
| <u>CR8N</u> *                       |           |             |
| <u>Comm.<br/>server<br/>adapter</u> |           |             |

\* Release 1.0 and later.

- Hicom cordless EM base stations receive power from EPSU1/EPSU2 ([page 3-84](#)).
- Information on upgrading the software to Release 3.0 ([Section 6.3.2.2 on Page 6-24](#)).
- Dual assignment of function keys on optiset E telephones and key modules ([Section 9.2 on Page 9-3](#)).
- Additional Hicom Attendant P Office functions ([Section 9.8 on Page 9-41](#))
- New features in Release 3.0
  - Ability to remove individual members from a group ([Section 7.3.12 on Page 7-75](#))
  - Mobile PIN ([Section 7.4.5 on Page 7-142](#))
  - Team/top configurations ([Section 7.12.15 on Page 7-352](#))  
The current executive/secretary functions (see [Section 7.12.5 on Page 7-327](#)) are available in Release 2.2 and earlier versions. Release 3.0 and later versions use top configurations for executive/secretary functions.
  - Ability to delete station numbers ([Section 7.12.14 on Page 7-350](#))
  - Additional QSig features: Message waiting indication (MWI), central cross-system busy signaling (possible in Octopus E 300/800 direction only) ([Section 7.13.19 on Page 7-409](#))
  - Hicom 150 E Office on the LAN: CSTA over IP and CDRC over IP ([Chapter 13](#)).
  - Euro-ISDN feature AOC-S (advice of charges at start of call) ([Section 7.15.8 on page 7-468](#))

- CSTA phase III protocol ([Section 7.18 on page 7-529](#))
- Hicom cordless EM: Mobile telephones have the same user interface as optiset E telephones. Details can be found in the operating instructions (see [Related Documents](#)).
- Features and add-ons that apply to Release 2.2 SMR-H and later (for ROW, excluding the U.S.) and Release 1.0 SMR-R (U.S. only), including:
  - Automatic line seizure (Prime Line): Users can configure multiple trunk groups when Prime Line is active.
  - Tenant service: Users can define six MOH devices for the six possible internal traffic restriction groups.
  - ACD/UCD: Internal callers can hear a greeting (announcement before answering) while their calls are being transferred.
  - optiset E entry/optiset E basic: Users can configure “Park”, “Accept waiting call”, “Toggle”, and “Conference” function keys.
  - Call forwarding to ACD/UCD groups.
  - DTMF transmission during a call: DTMF mode remains active even when the “park”, “toggle”, “consultation”, “conference”, and “recall” features are active.
  - Reactivation of the RS232 interface is reported as class B error 20-11.
- The optiset E control adapter and optiset E data adapter support the connection of TAPI applications via an external TAPI 3.0 driver (see [Section 9.3.2.5 on page 9-21](#)).
- System software upgrades in OfficeOne/OfficeStart:
  - Using a software loader in Release 2.2 and earlier ([Section 12.2.2.3 on Page 12-7](#))
  - By APS transfer in Release 3.0 and later ([Section 12.2.2.4 on Page 12-8](#)).
- Faster APS transfer ([Section 12.2.2.7 on page 12-12](#))
- As of Release 3.0 SMR-C, it is possible to choose from among the following security concepts when performing country initialization the first time the system is booted ([Section 12.7 on page 12-38](#)):
  - Variable password concept (default)
  - Fixed password concept
- Improved trace capabilities in the system ([Section 12.3.4.3 on Page 12-21](#))
- New and modified codes in expert mode ([Table A-4 on page A-8](#))



# 1 Important Notices (for U.S. and Canada Only)

## 1.1 Safety

The following information is included in this publication for the use and safety of installation and maintenance personnel.

### 1.1.1 General Safety

- Do not attempt to lift objects that you think are too heavy for you; use a hand truck or get help.
- Do not wear loose clothing; tie back your hair while working on machines.
- Wear eye protection when you are working in any conditions that might be hazardous to your eyes.
- After maintenance, reinstall all safety devices such as shields, guards, labels, and ground wires. Replace worn safety devices.
- If you feel any action is unsafe, notify your manager before proceeding.
- Do not use a telephone to report a gas leak while in the vicinity of the leak.
- Ensure you are familiar with the site safety procedures of the location where you are performing installation or maintenance.

### 1.1.2 Safety With Electricity

**DANGER**

Do not take chances with your life. Follow these safety guidelines carefully.

#### 1.1.2.1 High Voltages

- Observe all safety regulations and read the warnings, cautions, and notes posted on the equipment.
- Follow lockout/tagout (LOTO) procedures.
- Find the switch to power off the cabinet. Read the posted instructions.
- Ensure that a machine cannot be powered on from another source or controlled from a different circuit breaker or disconnecting switch.
- When a procedure requires that you power off the system:
  - Lockout the wall box-switch in the off position.

- Attach a DO NOT OPERATE tag to the wall box-switch.
- ***Never assume*** that the power is turned off. Always test to ensure that a circuit does not have power.
- Do not work alone. Work with another person who knows the locations of the power-off switches.
- Isolate or insulate yourself from exposed circuits.
- Follow the instructions in the manual carefully, especially when working with circuits that are powered. Disconnect power when instructed to do so in the procedures.
- Disconnect all power before working near power supplies unless otherwise instructed by a maintenance procedure.
- Disconnect all power before installing changes in machine circuits unless otherwise instructed by a maintenance procedure.
- High voltages capable of causing shock are used in this equipment. Be extremely careful when measuring high voltages and when servicing cards, panels, and boards while the system is powered on.
- Be sure to remove rings, watches, and other jewelry when working with electrical circuits and components.
- Use caution when installing or modifying telephone lines. Never install telephone wiring during an electrical storm.
- Never install a telephone jack where it can get wet unless the jack is specifically designed for wet conditions.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Avoid using a telephone (other than the cordless type) during an electrical storm due to the remote risk of shock from lightning.

### 1.1.2.2 Equipment Room

- Look for hazards in your area and eliminate them. Examples are moist floors, ungrounded power extension cables, power surges, and missing safety grounds.
- Rubber electrostatic mats will not protect you from electrical shock. Do not use them for this purpose. Stand on suitable rubber mats to insulate you from grounds such as metal floor strips and machine frames.
- Use only tools and testers suitable for the job, approved by Siemens® Communications. Do not use worn or broken tools or testers; inspect them regularly.
- Set controls on testers correctly and use approved probe leads and accessories intended for that tester.

- The surface of a mirror is conductive. Do not touch powered circuits with a mirror. To do so can cause personal injury and machine damage.
- Do not store combustible gases or flammable materials in cabinets near the site.

### 1.1.2.3 Emergencies

- Ensure you are familiar with the site emergency procedures of the location where you are performing installation or maintenance.
- Be familiar with first aid for electrical shock. This includes resuscitation methods, heartbeat restoration, and burn treatment.
- Use caution if an accident occurs. Disconnect the power before touching the victim.
- If you do not know how to disconnect the power, use a nonconductive object, such as a wooden rod, to push or pull the victim away from electrical contact.
- Administer resuscitation if the person is not breathing.
- If you are trained and certified, administer cardiac compression if the heart is not beating.
- Call a rescue group, an ambulance, or a hospital immediately.

### 1.1.3 Reporting Accidents

- Report to your manager all accidents, near accidents, and possible hazards to ensure their causes are resolved as soon as possible.
- Report any electric shock, no matter how small.

## 1.2 About This Book

This manual provides overview information and instructions for installing, testing, and servicing the Hicom<sup>®</sup> 150 E communications server (CS) Version 1.0, models Hicom 150 E OfficePoint<sup>™</sup>, Hicom 150 E OfficeCom<sup>™</sup>, and Hicom 150 E OfficePro<sup>™</sup>.

**Note:** Except as indicated, the abbreviation “U.S.” also refers to Canada in indications on product availability and procedures in this book (such as “for U.S. only”); the term “Listed” indicates “Certified” in Canada.

The overview information includes a general description of each model, functional and physical descriptions of system hardware, and a summary of system software.

The service information includes information for maintaining the Hicom 150 E CS, including removing, replacing, verifying, and troubleshooting system hardware components and peripheral equipment. System database recovery and manual trunk testing information are also included. The service information is written for Siemens-trained personnel who service and maintain the Hicom 150 E systems.

Full names of the three Hicom 150 E models and their shortened names are:

- Hicom 150 E OfficePoint, shortened to OfficePoint
- Hicom 150 E OfficeCom, shortened to OfficeCom
- Hicom 150 E OfficePro, shortened to OfficePro

## 1.2.1 Prerequisite Knowledge

Persons installing or servicing an OfficePoint, OfficeCom, or OfficePro system must have basic telephony and trunking knowledge and experience.

### Safety Symbols

This manual uses the following symbols to indicate potential hazards:



**Danger**

This symbol warns that a situation may cause death or serious injury.



**Warning**

This symbol indicates hazard which may lead to serious injury.



**Caution**

This symbol indicates a risk of damage to hardware or software.



This symbol identifies useful information.

### Additional Symbols Identifying Sources of Potential Hazard

These symbols are not generally used in this manual, but may appear on the equipment.



Electricity



Weight



Heat



Fire



Chemicals



ESD\*



Laser

\* electrostatically sensitive devices



## 1.2.2 How to Use This Book

This manual is organized as follows:

Chapter 1, *Important Notices (for U.S. and Canada Only)*, provides safety information, general information about this book and Hicom 150 E, and FCC and Industry Canada statements.

Chapter 2, *System Data*, contains information about design and system data for each of the three Hicom 150 E system models.

Chapter 3, *Boards*, provides an overview of all boards and components used in the three systems, then presents drawings and details of the boards.

Chapter 4, *Installation*, provides the procedures for unpacking and installing the OfficePoint, the OfficeCom, and the OfficePro.

Chapter 5, *Startup*, contains information on how to start up the OfficePoint, the OfficeCom, and the OfficePro, including supplying power, entering data, configuring the trunks, doing system programming, and performing a quick check of the system.

Chapter 6, *Expanding and Upgrading the System*, contains information on expanding and upgrading the three Hicom 150 E systems.

Chapter 7, *Implementing Features*, provides information on features for all traffic types. For each feature, there is a definition of the feature, any model-specific data, requirements and conditions for the feature, configuration options, and procedures for programming the feature.

Chapter 8, *Configuration Guidelines*, provides details for configuring the features.

Chapter 9, *Desktop Equipment*, contains features and key assignments of the optiset E telephones, and descriptions of Optiset E adapters.

Chapter 10, *Special Equipment*, provides information for connecting special equipment, such as answering machines, voice mail, and entrance telephones.

Chapter 11, *Hicom cordless EM (Not for U.S.)*, provides system-specific cordless telephone information for the OfficePro.

Chapter 12, *Service*, provides information for troubleshooting and clearing faults, and for performing service and maintenance.

Appendix A, *System Programming Codes*, lists codes for activating and deactivating features and programming the system.

### **1.2.3 Related Information**

Related publications include the following manuals and guides:

- Hicom 150 E Office System Description, G281-0670
- Hicom 150 E Office Installation Guide Hicom 150 E Office Com/Point, G281-0663
- Basic Documentation CD, G281-0658
- Hicom 150 E Office Assistant TC System Administration and User Manual, G281-0659
- Hicom 150 E Office Attendant P Installation and User Manual, G281-0661
- Hicom 150 E Office optiset E Attendant C User Manual, G281-0660
- Hicom 150 E Office optiset E Telephones—User Manual, G281-0668
- Hicom 150 E Office optiset E Telephones—basic, G281-0662
- Hicom 150 E Office optiset E Telephones—entry, G281-0665
- Hicom 150 E Office optiset E Telephones—standard, advance plus/comfort, advance conference/conference, G281-0669
- Hicom 150 E Office optiset E memory Operating Instructions, G281-0667
- Hicom 150 E Office Analog Telephone Operating Instructions, G281-0664

### **1.3 FCC and Industry Canada Compliance**

This section describes the requirements for compliance with Federal Communications Commission (FCC) Rules and Industry Canada Standard for the following Siemens system(s):

- Hicom 150 E communications server (CS), OfficePro
- Hicom 150 E CS, OfficeCom
- Hicom 150 E CS, OfficePoint

#### **1.3.1 FCC Compliance**

#### **Service and Repairs**

If you experience problems with the Hicom 150 E CS, call Siemens at 1-800-406-7656 for service and repairs.

If you experience problems with any Siemens system discussed in this section, call Siemens at 1-800-835-7656 for service and repairs.

The telephone company can ask you to disconnect the equipment from the network until the problem is corrected or until you are sure that the equipment is not malfunctioning.

### **1.3.1.1 FCC Rules, Part 15**

Each Siemens system discussed in this section, *except the Hicom 150 E CS OfficePoint*, has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

The Hicom 150 E CS OfficePoint has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### **1.3.1.2 FCC Rules, Part 68**

Each Siemens system discussed in this section complies with FCC Rules, Part 68. A label on the outside back of the cabinet identifies the FCC registration number, the ringer equivalence number (REN), and other information. If requested, this information must be given to the telephone company.

## **Disruption of the Network and T1**

For networked systems using 1.544 Megabits per second (Mbps) T1 service, notify the telephone company when the equipment is disconnected from the network. If any Siemens system discussed in this section disrupts the telephone network, the telephone company can discontinue your service temporarily. If possible, the telephone company will notify you in advance. If advance notice is not practical, they will notify you as soon as possible. You will also be informed of your right to file a complaint with the FCC.

## **Telephone Company Facility Changes**

The telephone company can make changes in its facilities, equipment, operations, or procedures that can affect the operation of your equipment. If they do, you should be notified in advance so you can maintain uninterrupted telephone service.

## **Nonlive Voice Equipment**

Nonlive voice equipment such as music-on-hold devices and recorded announcements for systems must be approved by Siemens and registered in accordance with the rules and regulations of Subpart C of the FCC Rules, Part 68; or it must be connected through protective circuitry that is approved by Siemens and registered in accordance with the rules and regulations in Subpart C of the FCC Rules, Part 68.

## **REN**

The REN is used to determine the number of devices that can be connected to a telephone line so that all the devices ring when that telephone number is called. In most areas, but not all, the sum of the RENs of all devices connected to a line should not exceed five. Contact the local telephone company to determine the maximum REN for your calling area.

## **Newly Established Network Area and Exchange Codes**

The off-net routing feature, also known as the least-cost routing (LCR) software feature, which allows user access to the public switched network, must be reconfigured to recognize newly established network area codes and exchange codes as they are placed in service.

Failure to reconfigure the customer premises equipment to recognize the new codes as they are established restricts the customer and the customer's employees from gaining access to the network and to these codes.

## **Hearing Aid Compatibility**

Telephones for emergency use and telephones installed in common areas such as lobbies, hospital rooms, elevators, and hotel rooms must have handsets that are compatible with magnetically coupled hearing aids. Persons who are not in common areas also must be provided with hearing-aid compatible handsets, if needed.

For the hearing impaired, all Siemens digital telephones manufactured after August 16, 1989, are hearing aid compatible and comply with FCC Rules, Part 68, Section 68.316.

## **Preprogrammed Dialer Features**

When you program emergency numbers or make test calls to emergency numbers using Siemens products with preprogrammed dialer features, stay on the line and briefly explain to the dispatcher the reason for the call before hanging up. Perform these activities in off-peak hours, such as early morning or late evening.

## **Connecting Off-Premises Station Facilities**

Customers who intend to connect off-premises station (OPS) facilities must inform the telephone company of the OPS class for which the equipment is registered and the connection desired.

## **Direct Inward Dialing Answer Supervision**

Customers operating any Siemens system discussed in this section without providing proper answer supervision are in violation of Part 68 of the FCC rules.

- Each Siemens system discussed in this section returns proper answer supervision to the public switched telephone network (PSTN) when DID calls are:
  - Answered by the called station
  - Answered by the attendant
  - Routed to a recorded announcement that can be administered by the customer
- Each Siemens system discussed in this section returns proper answer supervision on all DID calls forwarded to the PSTN. Permissible exceptions are when:
  - A call is unanswered
  - A busy tone is received
  - A reorder tone is received

## **Equal Access Requirements**

Call aggregators such as hotels, hospitals, airports, colleges and universities, and so on must provide the end user equal access to the carriers of the user's choice. The current equal access codes (also known as carrier access codes [CACs]) are 10xxx and 101xxxx, and 800/888 and 950, where xxx or xxxx represents the carrier identification code.

To select the carrier of choice for a call, the user dials the equal access code before dialing the called party number. Equal access is also obtained by dialing the 800/888 or 950 number of the carrier of choice.

Each Siemens system discussed in this section is capable of providing user access to interstate providers of operator services through the use of equal access codes. Modifications by aggregators to alter these capabilities are a violation of the Telephone Operator Consumer Services Improvement Act of 1990 and Part 68 of the FCC Rules.

## **Electrical Safety Advisory**

While each Siemens system discussed in this section is fully compliant with FCC Rules and Regulations, it is recommended that an alternating current (ac) surge arrester of the form and capability suitable for the model of the system purchased be installed in the ac outlet to which the system is connected. Consult with your Siemens representative or distributor to determine the surge protector requirements for your system.

## **Facility Interface Information for the Hicom 150 E CS, OfficePro**

The following tables list facility interfaces, manufacturer's network interface port designations, RENs or service codes, and network jacks.

- This table lists the network trunk interfaces for loop-start and ground-start services.

| <b>Facility Interface</b> | <b>Manufacturer's Network Interface Port Designation</b> | <b>REN</b> | <b>Network Jacks</b> |
|---------------------------|----------------------------------------------------------|------------|----------------------|
| 02LS2                     | TMGL8                                                    | 1.2B       | RJ21X                |
| 02GS2                     | TMGL8                                                    | 1.2B       | RJ21X                |
| 02RV2-T                   | TMDID8                                                   | 0.0        | RJ21X                |

- This table lists the station interfaces for analog private line (PL) services.

| <b>Analog PL Facility Interface</b> | <b>Manufacturer's Network Interface Port Designation</b> | <b>Service Code</b> | <b>Network Jacks</b> |
|-------------------------------------|----------------------------------------------------------|---------------------|----------------------|
| OL13B                               | SLA16 (OPS)                                              | 9.0F                | RJ21X                |
| OL13B                               | SLA24N (OPS)                                             | 9.0F                | RJ21X                |

| <b>Analog PL Facility Interface</b> | <b>Manufacturer's Network Interface Port Designation</b> | <b>Service Code</b> | <b>Network Jacks</b> |
|-------------------------------------|----------------------------------------------------------|---------------------|----------------------|
| TL11M                               | TIEL4                                                    | 9.0F                | RJ2EX                |
| TL11E                               | TIEL4                                                    | 9.0F                | RJ2FX                |
| TL12M                               | TIEL4                                                    | 9.0F                | RJ2GX                |
| TL12E                               | TIEL4                                                    | 9.0F                | RJ2HX                |
| TL31M                               | TIEL4                                                    | 9.0F                | RJ2EX                |
| TL31E                               | TIEL4                                                    | 9.0F                | RJ2FX                |
| TL31M                               | TIEL4                                                    | 9.0F                | RJ2GX                |
| TL31E                               | TIEL4                                                    | 9.0F                | RJ2HX                |

- This table lists the network digital trunk interfaces for digital services.

| <b>Digital Facility Interface</b>                                                                               | <b>Manufacturer's Network Interface Port Designation</b> | <b>Service Code</b> | <b>Network Jacks</b> |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------|----------------------|
| 04DU9-BN                                                                                                        | TMST1                                                    | 6.0P                | Refer to note        |
| 04DU9-DN                                                                                                        | TMST1                                                    | 6.0P                | Refer to note        |
| 04DU9-1KN                                                                                                       | TMST1                                                    | 6.0P                | Refer to note        |
| 04DU9-1SN                                                                                                       | TMST1                                                    | 6.0P                | Refer to note        |
| <b>Note:</b> Always use this product with network channel terminating equipment that specifies the jack to use. |                                                          |                     |                      |

- This table lists the answer supervision codes for network DID interfaces.

| <b>Digital Facility Interface</b>                                                                               | <b>Manufacturer's Network Interface Port Designation</b> | <b>Service Code</b> | <b>Network Jacks</b> |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------|----------------------|
| 02RV-T                                                                                                          | TMDID                                                    | AS.2                | RJ21X                |
| 04DU9-BN                                                                                                        | TMST1                                                    | AS.2                | Refer to note        |
| 04DU9-DN                                                                                                        | TMST1                                                    | AS.2                | Refer to note        |
| 04DU9-1KN                                                                                                       | TMST1                                                    | AS.2                | Refer to note        |
| 04DU9-1SN                                                                                                       | TMST1                                                    | AS.2                | Refer to note        |
| <b>Note:</b> Always use this product with network channel terminating equipment that specifies the jack to use. |                                                          |                     |                      |

## Facility Interface Information for the Hicom 150 E CS, OfficeCom

The following tables list facility interfaces, manufacturer's network interface port designations, RENs or service codes, and network jacks.

- This table lists the network trunk interfaces for loop-start and ground-start services.

| Facility Interface | Manufacturer's Network Interface Port Designation | REN  | Network Jacks |
|--------------------|---------------------------------------------------|------|---------------|
| 02LS2              | TMGL4                                             | 0.4B | RJ21X         |
| 02GS2              | TMGL4                                             | 0.4B | RJ21X         |

- This table lists the station interfaces for analog private line (PL) services.

| Analog PL Facility Interface | Manufacturer's Network Interface Port Designation | Service Code | Network Jacks |
|------------------------------|---------------------------------------------------|--------------|---------------|
| OL13B                        | 8SLA (OPS)                                        | 9.0 F        | RJ21X         |
| OL13B                        | 4SLA (OPS)                                        | 9.0 F        | RJ2GX         |
| OL13B                        | SLA24N (OPS)                                      | 9.0 F        | RJ21X         |

- This table lists the network digital trunk interfaces for digital services.

| Digital Facility Interface | Manufacturer's Network Interface Port Designation | Service Code | Network Jacks |
|----------------------------|---------------------------------------------------|--------------|---------------|
| 02IS5                      | TMQ4 board                                        | 6.0 Y        | RJ49          |
| 04DU9-BN                   | TST1                                              | 6.0 P        | Refer to note |
| 04DU9-DN                   | TST1                                              | 6.0 P        | Refer to note |
| 04DU9-1KN                  | TST1                                              | 6.0 P        | Refer to note |
| 04DU9-1SN                  | TST1                                              | 6.0 P        | Refer to note |

**Note:** Always use this product with network channel terminating equipment that specifies the jack to use.



**Facility Interface Information for the Hicom 150 E CS, OfficePoint**

The following tables list facility interfaces, manufacturer's network interface port designations, RENs or service codes, and network jacks.

- This table lists the network trunk interfaces for loop-start and ground-start services.

| <b>Facility Interface</b> | <b>Manufacturer's Network Interface Port Designation</b> | <b>REN</b> | <b>Network Jacks</b> |
|---------------------------|----------------------------------------------------------|------------|----------------------|
| 02LS2                     | TMGL4                                                    | 0.4B       | RJ21X                |
| 02GS2                     | TMGL4                                                    | 0.4B       | RJ21X                |

- This table lists the station interfaces for analog private line (PL) services.

| <b>Analog PL Facility Interface</b> | <b>Manufacturer's Network Interface Port Designation</b> | <b>Service Code</b> | <b>Network Jacks</b> |
|-------------------------------------|----------------------------------------------------------|---------------------|----------------------|
| OL13B                               | 8SLA (OPS)                                               | 9.0 F               | RJ21X                |
| OL13B                               | 4SLA (OPS)                                               | 9.0 F               | RJ2GX                |

- This table lists the network digital trunk interfaces for digital services.

| <b>Digital Facility Interface</b> | <b>Manufacturer's Network Interface Port Designation</b> | <b>Service Code</b> | <b>Network Jacks</b> |
|-----------------------------------|----------------------------------------------------------|---------------------|----------------------|
| 02IS5                             | TMQ4 board                                               | 6.0 Y               | RJ49                 |

## **1.3.2 Industry Canada Compliance**

The following paragraphs describe requirements for and present information based on the Industry Canada standards.

### **1.3.2.1 REN**

The REN assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed five.

### **1.3.2.2 Equipment Attachment Limitations**

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements as described in the appropriate Terminal Equipment Technical Requirement documents. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with these conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure, for their own protection, that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



#### **DANGER**

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate

## 2 System Data

### 2.1 Overview

#### Chapter Contents

This chapter discusses the following topics:

| Topic                                                     | Page |
|-----------------------------------------------------------|------|
| <u>Introduction</u> (System Models)                       | 2-2  |
| Design and Dimensions                                     |      |
| • <u>Hicom 150 E OfficePro</u>                            | 2-3  |
| • <u>Hicom 150 E OfficeCom</u>                            | 2-5  |
| • <u>Hicom 150 E OfficePoint</u>                          | 2-6  |
| • <u>Hicom 150 E OfficeOne/OfficeStart</u> (not for U.S.) | 2-7  |
| System Environment, Boards Required                       |      |
| • <u>Hicom 150 E OfficePro</u>                            | 2-8  |
| • <u>Hicom 150 E OfficeCom</u>                            | 2-9  |
| • <u>Hicom 150 E OfficePoint</u>                          | 2-10 |
| • <u>Hicom 150 E OfficeOne</u> (not for U.S.)             | 2-11 |
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| <u>System-specific capacity limits</u>                    | 2-15 |
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## 2.2 Introduction

Hicom 150 E Office is intended for use in dwellings, businesses, and industry. When the system is operated in an industrial environment, additional measures may be necessary for ensuring immunity from electromagnetic radiation (refer to Section 2.10.4, *Environmental Conditions, on page 2-21*).

### System Models

Hicom 150 E Office is a single product line consisting of the following communications servers, which can meet the needs of a wide range of customers:

- **Hicom 150 E OfficePro**, which consists of a basic cabinet and up to 2 expansion cabinets with a maximum of 250 subscriber lines, is the most powerful and comprehensive system in the product line. Hicom 150 E OfficePro “Extended” provides up to 384 subscriber lines and is released separately per country.
- **Hicom 150 E OfficeCom**, which can have up to 156 subscriber lines (including 64 CMI users), is a communications server for medium capacity requirements. This very compact one-cabinet system with an integrated main distribution frame is designed for mounting on the wall.
- **Hicom 150 E OfficePoint** provides a maximum of 20 subscriber lines. Mechanically, it is a smaller version of the OfficeCom.
- **Hicom 150 E OfficeOne** is a single-board model with a capacity of eight subscriber lines and two digital trunk connections. An external local power supply provides power.
- **Hicom 150 E OfficeStart** is the smallest system in the product line. The single-board model (compact configuration of the OfficeOne board) offers a capacity of 6 subscriber lines and one digital trunk connection. An external local power supply provides power.



This service manual contains information on the complete range of the Hicom 150 E Office product line. Please contact your local marketing department for information on the availability of individual models in the various countries.

## 2.3 Design and Dimensions

### 2.3.1 Design and Dimensions of the Hicom 150 E OfficePro

#### Three Configurations

Depending on the requirements, Hicom 150 E OfficePro can be used as:

- A one-cabinet system (basic cabinet: BC)
- A two-cabinet system (basic cabinet plus one expansion cabinet: BC + EC1)
- A three-cabinet system (basic cabinet plus two expansion cabinets: BC + EC1 + EC2)

#### Design

Hicom 150 E OfficePro uses two different types of cabinets which differ in terms of the number of slots they provide for peripheral boards. Both types have the same external design, dimensions, and installation technique.

- “7-slot” cabinets  
The basic cabinet (BC) and expansion cabinet 1 (EC1) have the same design. Expansion cabinet 2 (EC2) differs from the other two cabinets in that it contains no terminating resistors.

In each cabinet, six slots (2-7) are available for peripheral boards. The PSUI/UPSM power supply unit (in each cabinet), the CBMOD central controller (BC only), and the CONBO board (EC2 only) have fixed slot assignments.

- “8-slot” cabinets (not released for use in Germany as of January 2000.)  
Expansion cabinet 1 (EB1) and expansion cabinet 2 (EB2) have exactly the same design in Hicom 150 E OfficePro “Extended”.

Seven slots in the basic cabinet and eight slots in the expansion cabinets are available for peripheral boards. The PSUI/UPSM power supply unit (in each cabinet) and the CBMOD central controller (BC only) have fixed slot assignments.

Up to two cabinets can be stacked.

A main distribution frame unit (MDFU/MDFU-E) is needed to complete the communication system.

## Dimensions

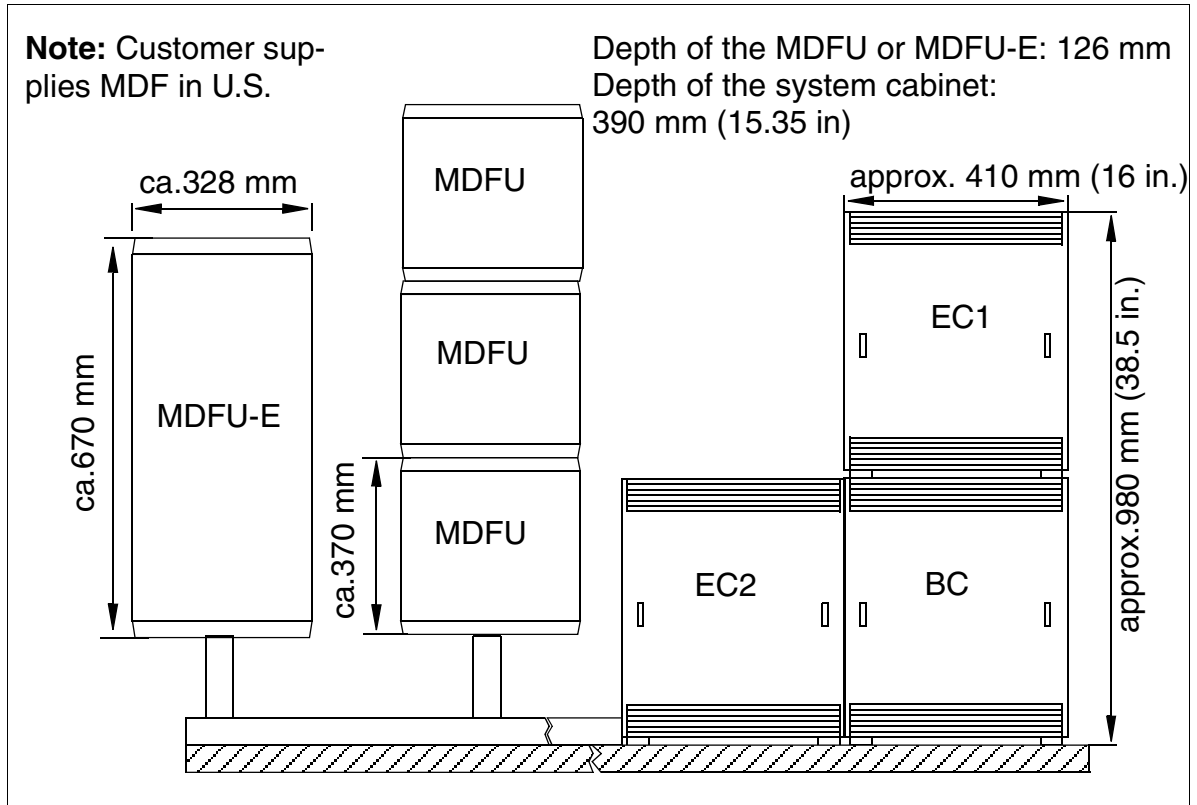


Figure 2-1 Hicom 150 E OfficePro Dimensions

## 2.3.2 Design and Dimensions of the Hicom 150 E OfficeCom

### Design

The Hicom 150 E OfficeCom is a one-cabinet system for mounting on the wall. The housing contains six slot levels in a shelf. The slot levels (shown in [Figure 4-49](#)), numbered in ascending order from the attachment side, have the following assignments:

- Slot levels 1 to 3: peripheral boards (two slots per level).
- Slot level 4: CBPC control board only.
- Slot level 5: SIPAC slot (for OfficePro boards).
- Slot level 6: optional boards (up to 5 boards).

Either the power supply unit (PSUC) or the uninterruptible power supply (USVC; not for U.S.) is located on the back of the subrack.

The connecting cables to the peripherals (telephones, trunk connections) can be connected directly. Use an external MDFU in certain situations (CMI).

### Dimensions

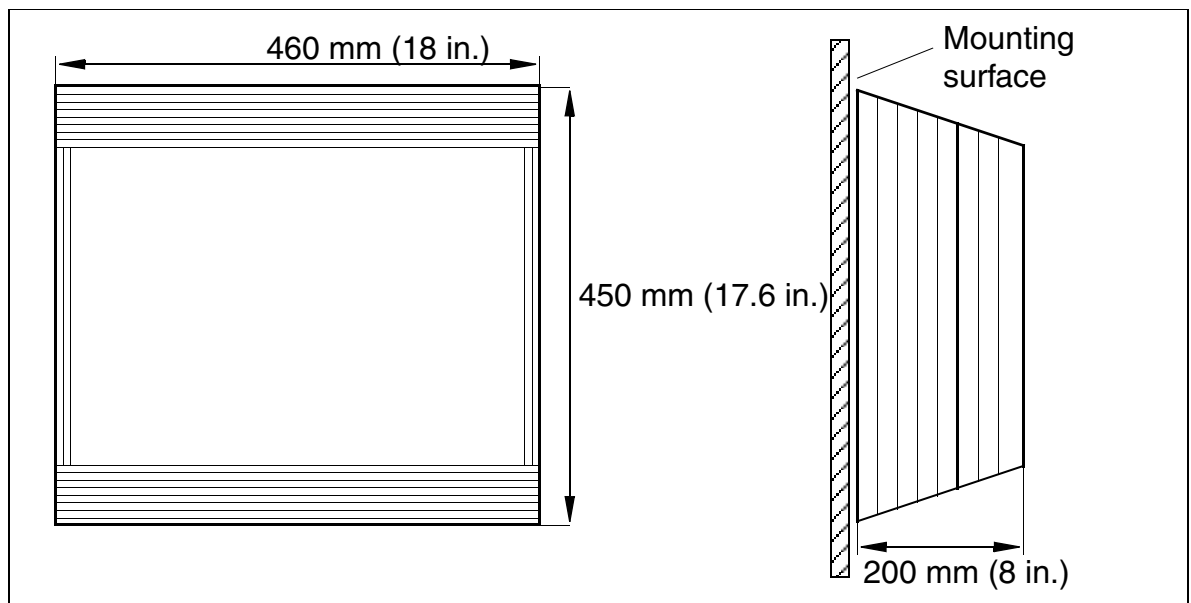


Figure 2-2 Hicom 150 E OfficeCom Dimensions

### 2.3.3 Design and Dimensions of the Hicom 150 E OfficePoint

#### Design

The Hicom 150 E OfficePoint has the same basic dimensions as the Hicom 150 E OfficeCom. Only the depth of the system differs, because the Hicom 150 E OfficePoint has fewer slot levels.

Hicom 150 E OfficePoint is a modular system with two slots that can be equipped with peripheral boards. The slot levels (shown in [Figure 4-52](#)) have the following assignments:

- Slot level 1: peripheral boards (two slots)
- Slot level 2: CBPC central board only
- Slot level 3: optional boards (up to 5 boards)

The PSU or UPS power supply unit (UPS not for U.S.) is located on the back of the subrack. Outside the U.S., the Hicom 150 E OfficePoint does not need an external main distribution frame; the connecting to the peripherals (such as telephones or trunks) connect directly to the boards.

In the U.S.: A main distribution frame (MDF) must be added to complete the communication system.

#### Dimensions

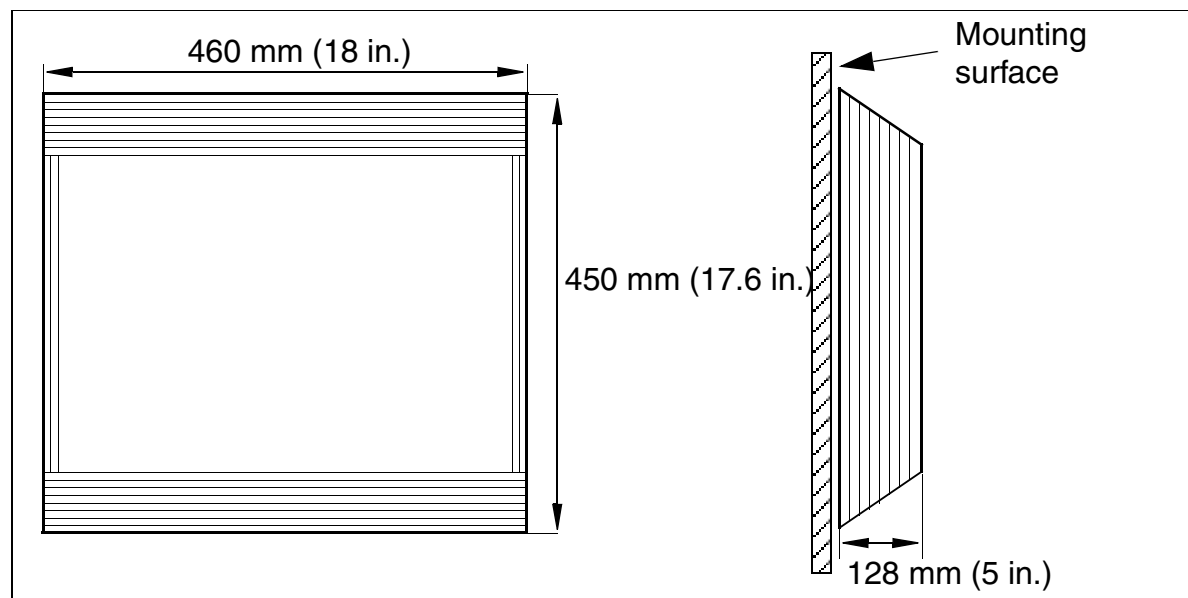


Figure 2-3 Hicom 150 E OfficePoint Dimensions



### 2.3.4 Design and Dimensions of the Hicom 150 E OfficeOne/Start (not for U.S.)

#### Design

Hicom 150 E OfficeOne/OfficeStart is a one-cabinet system for wall mounting. The flat housing contains a single-board system and connections for the trunks and stations.

The cables to the peripherals (such as telephones and trunks) connect directly to the board.

#### Dimensions

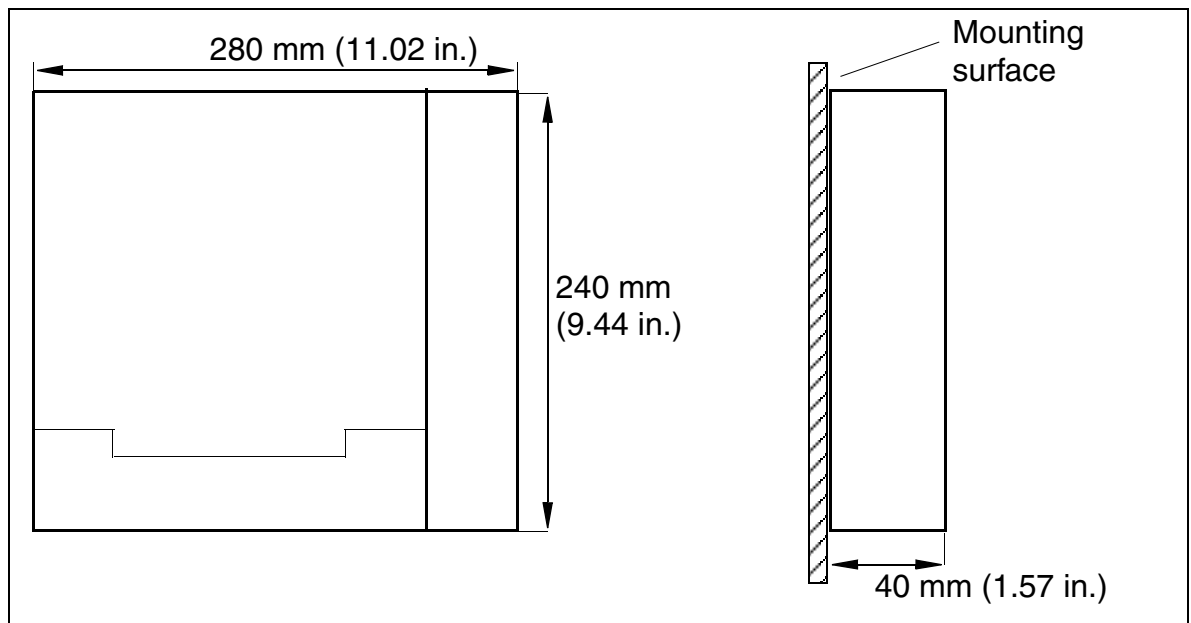


Figure 2-4 Hicom 150 E OfficeOne/OfficeStart Dimensions (Not for U.S.)

## 2.4 System Environment

### 2.4.1 Hicom 150 E OfficePro System Environment

Table 2-1 Boards for Hicom 150 E OfficePro

| <b>Hicom 150 E OfficePro</b>   |             |                                   |             |                     |              |
|--------------------------------|-------------|-----------------------------------|-------------|---------------------|--------------|
| <b>Subscriber Line Modules</b> |             | <b>Central Boards and Options</b> |             | <b>Trunk Boards</b> |              |
| <b>ROW*</b>                    | <b>U.S.</b> | <b>ROW</b>                        | <b>U.S.</b> | <b>ROW</b>          | <b>U.S.</b>  |
| <u>HXGM</u>                    |             | <u>CBMOD</u>                      |             | <u>STMD8</u>        | <u>TMGL8</u> |
| <u>SLA8N</u>                   |             | <u>CGM</u>                        |             | <u>TIEL</u>         |              |
| <u>SLA16N</u>                  |             | <u>CGMC</u>                       |             | <u>TML8W</u>        | <u>TMDID</u> |
| <u>SLA24N</u>                  |             | <u>CONBO</u>                      |             | <u>TMOM</u>         | <u>TMST1</u> |
| <u>SLC16</u>                   |             | <u>CR8N</u>                       |             | <u>TMS2</u>         |              |
| <u>SLMO8</u>                   |             | <u>IMOD</u>                       |             |                     |              |
| <u>SLMO24</u>                  |             | <u>PSUI</u>                       |             |                     |              |
| <u>STMD8</u>                   |             | <u>USVI</u>                       |             |                     |              |
| <u>TMAME**</u>                 |             | <u>UPSM</u>                       |             |                     |              |
|                                |             | <u>FMC</u>                        |             |                     |              |
|                                |             | <u>GEE8</u>                       |             |                     |              |
|                                |             | <u>PFT1/PFT4</u>                  |             |                     |              |
|                                |             | <u>REAL</u>                       |             |                     |              |
|                                |             | <u>Comm. server adapter</u>       |             |                     |              |

\* ROW = rest of world

\*\* For Brazil, India, Malaysia, Singapore and ATEA countries only

**2.4.2 Hicom 150 E OfficeCom System Environment**

Table 2-2 Boards for Hicom 150 E OfficeCom

| <b>Hicom 150 E OfficeCom</b>   |             |                                   |              |                     |              |
|--------------------------------|-------------|-----------------------------------|--------------|---------------------|--------------|
| <b>Subscriber Line Modules</b> |             | <b>Central Boards and Options</b> |              | <b>Trunk Boards</b> |              |
| <b>ROW<sup>*</sup></b>         | <b>U.S.</b> | <b>ROW</b>                        | <b>U.S.</b>  | <b>ROW</b>          | <b>U.S.</b>  |
| <u>LAN Bridge</u>              |             | <u>CBPC</u>                       |              | <u>STLS2</u>        | <u>TMGL4</u> |
| <u>SLA8N</u>                   |             | <u>CGMC</u>                       |              | <u>STLS4</u>        | <u>TMQ4</u>  |
| <u>SLA16N</u>                  |             | <u>CGUM</u>                       |              | <u>TLA2</u>         | <u>TST1</u>  |
| <u>SLA24N</u>                  |             | <u>CUC</u>                        |              | <u>TLA4</u>         |              |
| <u>SLC16</u>                   |             | <u>FMC</u>                        |              | <u>TLA8</u>         |              |
| <u>SLMO24</u>                  |             | <u>IMOD</u>                       |              | <u>TS2</u>          |              |
| <u>SLU8</u>                    |             | <u>PSUC</u>                       |              |                     |              |
| <u>STLS2</u>                   |             | <u>USVC</u>                       |              |                     |              |
| <u>STLS4</u>                   |             | <u>ALUM4</u>                      |              |                     |              |
| <u>4SLA</u>                    |             | <u>EXM</u>                        | <u>ANI4</u>  |                     |              |
| <u>8SLA</u>                    |             | <u>GEE12</u>                      | <u>EXMNA</u> |                     |              |
| <u>16SLA</u>                   |             | <u>GEE16</u>                      |              |                     |              |
| <u>HXGS</u>                    |             | <u>GEE50</u>                      |              |                     |              |
| <u>SLAS16</u> <sup>**</sup>    |             | <u>MPPI</u>                       |              |                     |              |
|                                |             | <u>STBG4</u> <sup>***</sup>       |              |                     |              |
|                                |             | <u>OPAL</u>                       |              |                     |              |
|                                |             | <u>STRB</u>                       |              |                     |              |
|                                |             | <u>V24/1</u>                      |              |                     |              |
|                                |             | <u>V24/2</u>                      |              |                     |              |
|                                |             | <u>V24/E</u>                      |              |                     |              |

\* ROW = rest of world

\*\* for Brazil only

\*\*\*for France only

## 2.4.3 Hicom 150 E OfficePoint System Environment

Table 2-3 Boards for Hicom 150 E OfficePoint

| Hicom 150 E OfficePoint |      |                            |              |              |              |
|-------------------------|------|----------------------------|--------------|--------------|--------------|
| Subscriber Line Modules |      | Central Boards and Options |              | Trunk Boards |              |
| ROW*                    | U.S. | ROW                        | U.S.         | ROW          | U.S.         |
| <u>LAN Bridge</u>       |      | <u>CBPC</u>                |              | <u>STLS2</u> | <u>TMGL4</u> |
| <u>SLU8</u>             |      | <u>CUP</u>                 |              | <u>STLS4</u> | <u>TMQ4</u>  |
| <u>STLS2</u>            |      | <u>FMC</u>                 |              | <u>TLA2</u>  |              |
| <u>STLS4</u>            |      | <u>IMOD</u>                |              | <u>TLA4</u>  |              |
| <u>4SLA</u>             |      | <u>PSUF</u>                |              | <u>TLA8</u>  |              |
| <u>8SLA</u>             |      | <u>USVF</u>                |              |              |              |
| <u>HXGS</u>             |      | <u>ALUM4</u>               |              |              |              |
|                         |      |                            | <u>ANI4</u>  |              |              |
|                         |      | <u>EXM</u>                 | <u>EXMNA</u> |              |              |
|                         |      | <u>GEE12</u>               |              |              |              |
|                         |      | <u>GEE16</u>               |              |              |              |
|                         |      | <u>GEE50</u>               |              |              |              |
|                         |      | <u>MPPI</u>                |              |              |              |
|                         |      | <u>OPAL</u>                |              |              |              |
|                         |      | <u>STBG4</u> **            |              |              |              |
|                         |      | <u>STRB</u>                |              |              |              |
|                         |      | <u>V24/1</u>               |              |              |              |
|                         |      | <u>V24/2</u>               |              |              |              |
|                         |      | <u>V24/E</u>               |              |              |              |

\* ROW = rest of world

\*\* for France only

## 2.4.4 Hicom 150 E OfficeOne System Environment (Not for U.S.)

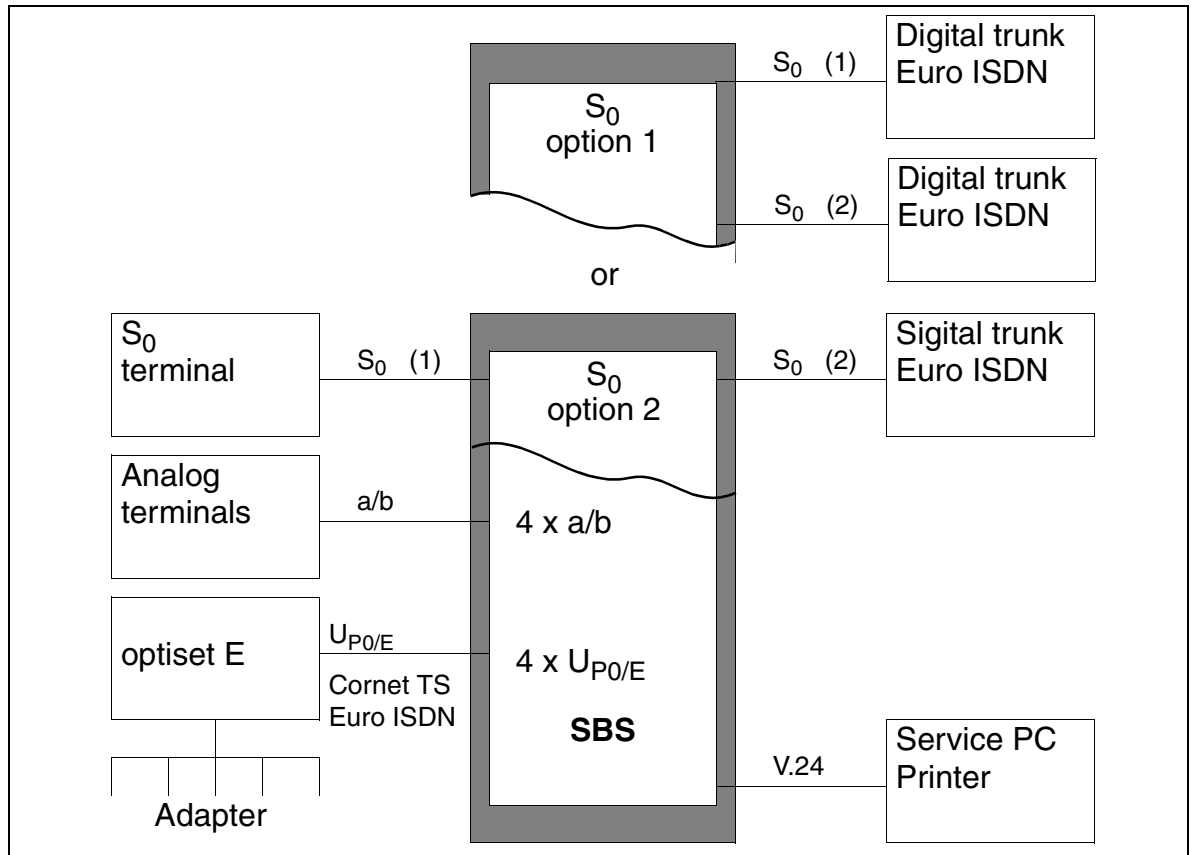


Figure 2-5 Hicom 150 E OfficeOne System Environment

The existing  $S_0$  interfaces can be used as follows:

**Option 1:**

- $S_0$  (1) for use as a digital trunk circuit
- $S_0$  (2) for use as a digital trunk circuit

**Option 2:**

- $S_0$  (1) for connecting an  $S_0$  terminal (not fed from the system)
- $S_0$  (2) for use as a digital trunk circuit

## 2.4.5 Hicom 150 E OfficeStart System Environment (not for U.S.)

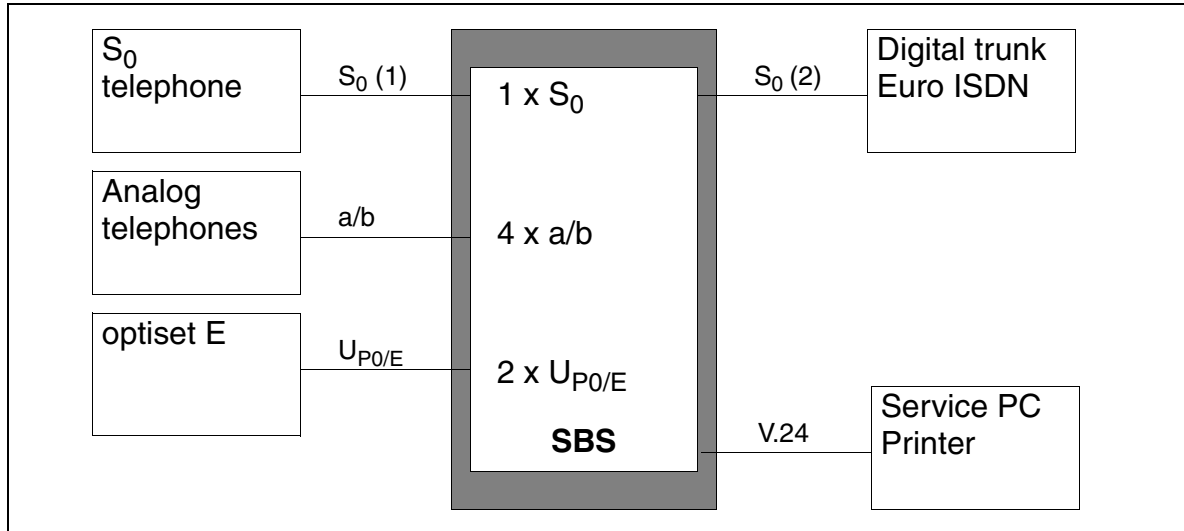


Figure 2-6 Hicom 150 E OfficeStart System Environment

- $S_0$  (1) for connecting an  $S_0$  terminal (not fed from the system!)
- $S_0$  (2) for use as digital trunk circuit

## 2.5 System-Related Capacity Limits

### Fully equipped systems

- Hicom 150 E OfficePro, including basic and expansion cabinets
- Hicom 150 E OfficeCom
- Hicom 150 E OfficePoint / OfficePoint C
- Hicom 150 E OfficeOne
- Hicom 150 E OfficeStart

### Capacity Limits

Table 2-4 Hicom 150 E Office - System-related capacity limits

| System                                                 | Telephones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                        |        |        |                                          | Trunks and tie trunks              |                            |                                               |   | Hicom Attendant P | V.24 (RS-232) interfaces |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------|--------|------------------------------------------|------------------------------------|----------------------------|-----------------------------------------------|---|-------------------|--------------------------|
|                                                        | Total (incl. primary + secondary, mobile and analog)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | optiset E                              | Mobile | Analog | Data terminals / data adapters (TA 232D) | Total (total number of B channels) | Trunks (digital or analog) | Tie trunks: digital (CorNet-N) / analog (E&M) |   |                   |                          |
| Hicom 150 E OfficePro                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                        |        |        |                                          |                                    |                            |                                               |   |                   |                          |
| Standard configuration<br>("7 slot" cabinets, max. 3)  | 250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 250<br>(max. 116 secondary telephones) | 64     | 250    | 50                                       | 120                                | 120                        | 120 / 120                                     | 6 | 2                 |                          |
| Standard configuration<br>("8 slot" cabinets, max. 3)  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                        |        |        |                                          |                                    |                            |                                               |   |                   |                          |
| "Extended" configuration<br>("8 slot cabinets, max. 3) | 384                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 384<br>(max. 116 secondary telephones) |        | 384    |                                          |                                    |                            |                                               |   |                   |                          |
|                                                        | Maximum system configuration for Hicom 150 E OfficePro "Extended" with analog connections = 56 trunk or tie trunk + 384 telephones. Depending on the system configuration, up to 120 can be installed provided that the station capacity is reduced at the same time. The "Extended" station capacity shall only be used in the following countries where the number of analog connections is very high (dated 06.99): Argentina, ATEA countries (Africa [without South Africa], Middle East and Near East), Brazil, China, India, Malaysia, Russia, South Africa, Thailand, Ukraine, Belorussia. |                                        |        |        |                                          |                                    |                            |                                               |   |                   |                          |

Table 2-4 Hicom 150 E Office - System-related capacity limits

| System                                | Telephones                                                                                                                                                                                                                                                                                         |                                                  |        |        | Data terminals / data adapters (TA 232D) | Trunks and tie trunks              |                            |                                               | Hicom Attendant P | V.24 (RS-232) interfaces |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------|--------|------------------------------------------|------------------------------------|----------------------------|-----------------------------------------------|-------------------|--------------------------|
|                                       | Total (incl. primary + secondary, mobile and analog)                                                                                                                                                                                                                                               | optiset E                                        | Mobile | Analog |                                          | Total (total number of B channels) | Trunks (digital or analog) | Tie trunks: digital (CorNet-N) / analog (E&M) |                   |                          |
| Hicom 150 E OfficeCom                 |                                                                                                                                                                                                                                                                                                    |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
| Station capacity variant, digital 1 1 | 100                                                                                                                                                                                                                                                                                                | 72 primary telephones<br>24 secondary telephones | –      | 4      | 50                                       | 60                                 | 60                         | 60 / –                                        | 6                 | 2                        |
| Station capacity variant, digital 2   | 164                                                                                                                                                                                                                                                                                                | 48 primary telephones<br>48 secondary telephones | 64     | 4      |                                          |                                    |                            |                                               |                   |                          |
| Station capacity variant, analog 1    | 116                                                                                                                                                                                                                                                                                                | 8 primary telephones                             | –      | 108    |                                          |                                    |                            |                                               |                   |                          |
| Station capacity variant, analog 2    | 156                                                                                                                                                                                                                                                                                                | 8 primary telephones                             | 64     | 84     |                                          |                                    |                            |                                               |                   |                          |
|                                       | With a station capacity of more than 68 optiset E telephones, any additional optiset E telephones must be powered by means of plug-in power supply units.<br>Station capacity variant, digital 1 is only possible with SLMO24.<br>Station capacity variant, analog 1 is only possible with SLA24N. |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
| Hicom 150 E OfficePoint               |                                                                                                                                                                                                                                                                                                    |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
| Station capacity variant, digital     | 36                                                                                                                                                                                                                                                                                                 | 16 primary telephones<br>16 secondary telephones | –      | 4      | 8                                        | 16                                 | 16                         | 16 / –                                        | –                 | 2                        |
| Station capacity variant, analog      | 28<br>(not U.S.)                                                                                                                                                                                                                                                                                   | 8 primary telephones<br>8 secondary telephones   |        | 12     |                                          |                                    |                            |                                               |                   |                          |
|                                       | 20<br>(U.S. only)                                                                                                                                                                                                                                                                                  |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
|                                       | The numbering plan for primary telephones is limited to 20 telephones. With a maximum configuration of the system (= 20 secondary telephones), any additional S <sub>0</sub> buses can only be connected via an optiset E ISDN adapter and not via an STLS2/4 board.                               |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
| Hicom 150 E OfficePoint C             |                                                                                                                                                                                                                                                                                                    |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
| Station capacity variant, digital     | 68                                                                                                                                                                                                                                                                                                 | 16 primary telephones<br>16 secondary telephones | 32     | 4      | 8                                        | 16                                 | 16                         | 16 / –                                        | –                 | 2                        |
| Station capacity variant, analog      | 60                                                                                                                                                                                                                                                                                                 | 8 primary telephones<br>8 secondary telephones   |        | 12     |                                          |                                    |                            |                                               |                   |                          |
|                                       | The numbering plan for primary telephones is limited to 20 telephones. With the maximum configuration of the system (= 20 secondary telephones), any additional S <sub>0</sub> buses can only be connected via an optiset E ISDN adapter and not via an STLS2/4 board.                             |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
| Hicom 150 E OfficeOne                 |                                                                                                                                                                                                                                                                                                    |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
|                                       | 12                                                                                                                                                                                                                                                                                                 | 4 primary telephones<br>4 secondary telephones   | –      | 4      | 4                                        | 4                                  | 4                          | – / –                                         | –                 | 1                        |
| Hicom 150 E OfficeStart               |                                                                                                                                                                                                                                                                                                    |                                                  |        |        |                                          |                                    |                            |                                               |                   |                          |
|                                       | 6                                                                                                                                                                                                                                                                                                  | 2 primary telephones                             |        | 4      | –                                        | 2                                  | 1                          | – / –                                         | –                 | 1                        |



**2.6 Capacity Limits for Fully Equipped Systems (for U.S. Only)**

Table 2-5      Hicom 150 E—System-Specific Capacity Limits (for U.S. Only)

| <b>Maximum Values</b>                     | <b>OfficePro</b> | <b>OfficeCom</b> | <b>OfficePoint</b> |
|-------------------------------------------|------------------|------------------|--------------------|
| Telephones (total)*:                      | 250              | 92               | 20                 |
| • optiset E telephones                    | 250**            | 48               | 16                 |
| • Analog telephones                       | 250              | 44               | 20                 |
| Data terminals or data adapters (TA 232D) | 50***            | 50               | 8                  |
| optiset E control adapter (TA API)        | 250****          | 40               | 16                 |
| Trunks and tie trunks (total):            | 120              | 56               | 16                 |
| • Trunks (digital or analog)              | 120              | 60               | 16                 |
| • Tie trunks:                             |                  |                  |                    |
| – Digital (CorNet-N)                      | 120              | 24               | –                  |
| – Analog (E&M)                            | 120              | –                | –                  |
| Hicom Attendant P                         | 6                | 6                | –                  |
| V.24 (RS-232) interfaces                  | 2                | 2                | 2                  |
| System cabinets                           | 3                | 1                | 1                  |

\* Including secondary telephones connected via the optiset E phone adapter (PA) and analog telephones connected via the optiset E analog adapter (TA analog)

\*\* Up to 120 optiset E telephones per cabinet

\*\*\* More than 50 optiset E data adapters (TA 232D) or optiset E ISDN adapters (TA S<sub>0</sub>) can be connected. Each adapter connected reduces the maximum number of optiset E telephones by one.

\*\*\*\*optiset E control adapters not used for CSTA applications do not count as data terminals

## 2.7 Technical Specifications

Table 2-6      Technical Specifications

| <b>Maximum system values</b> | <b>Pro</b>                                                 | <b>Com</b>          | <b>Point</b>        | <b>One</b>                   | <b>Start</b>                 |
|------------------------------|------------------------------------------------------------|---------------------|---------------------|------------------------------|------------------------------|
| Power consumption of PSU     | PSUI:<br>310 W<br>424 W*                                   | PSUC:<br>145 W      | PSUF:<br>70 W       | External<br>adapter:<br>25 W | External<br>adapter:<br>25 W |
| Power consumption of UPS**   | —                                                          | 180 W               | 90 W                | —                            | —                            |
| Line voltage                 | 88 Vac to 264 Vac (not for U.S.); 120 Vac (for U.S. only)  |                     |                     |                              |                              |
| AC line frequency            | 47 Hz to 63 Hz (not for U.S.); 60 Hz (for U.S. only)       |                     |                     |                              |                              |
| Weight                       | 22 kg<br>(48.46 lb.)<br>(per fully<br>equipped<br>cabinet) | 8 kg<br>(17.62 lb.) | 6 kg<br>(13.22 lb.) | 0.7 kg<br>(1.54 lb.)         | 0.7 kg<br>(1.54 lb.)         |

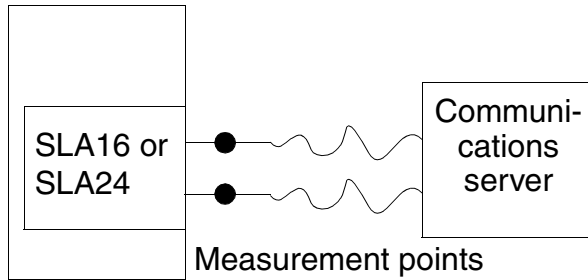
\* with USVI connected

\*\* UPS not for U.S.

### 2.7.1 Transmission Data for Hicom 150 E OfficePro

The transmission settings can be configured country-specifically by entering the country code. The following are the default values (at 220 ohms + 820 ohms II 115 nF) for Hicom 150 E Office (system-specific):

Hicom 150 E OfficePro



| <b>Germany: Default tone (level measured at T/R wires of SLA16)</b> |          |
|---------------------------------------------------------------------|----------|
| Internal dial tone                                                  | - 10 dBm |
| External dial tone                                                  | - 10 dBm |
| DISA dial tone                                                      | - 10 dBm |
| Ring tone                                                           | - 10 dBm |
| Busy tone                                                           | - 10 dBm |
| Override tone from AC                                               | - 10 dBm |
| Tone during call override/ intrusion                                | - 18 dBm |
| Conference tone                                                     | - 18 dBm |
| Hold tone                                                           | - 18 dBm |

Activation Threshold DTMF level > - 34 dBm (system-specific)



All values are approximate and should be viewed as such under operating conditions. Always allow a tolerance range with technical equipment.

## 2.8 Interface-to-Interface Ranges

### Telephone Interface-to-Interface Ranges

Table 2-7 Telephone Interface-to-Interface Ranges (with J-Y (ST) 2x2x0,6, 0.6 mm diameter)

| Telephone Interfaces                             | Range in m | Loop Resistance in Ohms |
|--------------------------------------------------|------------|-------------------------|
| ISDN-S <sub>0</sub> point-to-point               | < 600      | 156                     |
| ISDN-S <sub>0</sub> point-to-multipoint          | < 150      | 39                      |
| ISDN-S <sub>0</sub> wall outlet to terminal      | < 10       | –                       |
| Analog users                                     | < 2000     | 520                     |
| U <sub>P0/E</sub> exchange to primary telephone  | < 1000     | 230                     |
| U <sub>P0/E</sub> primary to secondary telephone | < 100      | 23                      |

### Trunk and CorNet-N Ranges

The table below provides the maximum cable lengths for direct trunk and CorNet-N wiring. The values apply to ideal conditions, which means that there can be no joints. The real conditions must be measured on-site.

Table 2-8 Cable Lengths for Direct Trunk and CorNet-N Wiring

| Inter-face      | Cable                                                   | Diameter | Attenuation per km  | Max. Cable Length |
|-----------------|---------------------------------------------------------|----------|---------------------|-------------------|
| S <sub>0</sub>  | ICCS cable<br>J-2Y(ST)Y4x2x0,51 LG<br>ICCS Data5        | 0.51 mm  | 7.5 dB<br>at 96 kHz | 800 m             |
|                 | Installation cable<br>J-2Y(ST)Y ≥ 10x2x0,6 ST<br>III BD | 0.6 mm   | 6.0 dB<br>at 96 kHz | 1000 m            |
| S <sub>2M</sub> | A-2Y0F(L)2Y ≥ 10x2x0,6<br>(full PE insulation, filled)  | 0.6 mm   | 17 dB<br>at 1 MHz   | 350 m             |

## 2.9 Numbering Plan

Hicom 150 E Office provides one default numbering plan for users.

Table 2-9          Numbering Plan for Hicom 150 E Office

| Station Numbers                                                                                                                        | Pro                    |                          | Com                                  | Point    | One | Start |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------|--------------------------------------|----------|-----|-------|
|                                                                                                                                        | Standard configuration | “Extended” configuration |                                      |          |     |       |
| Station numbers for users (U <sub>P0/E</sub> primary, analog, S <sub>0</sub> , CMI)                                                    | 250                    | 384                      | 140<br>Rel. 2.2<br>and later:<br>188 | 20       | 12  | 12    |
| Station numbers for adapters or data terminals (U <sub>P0/E</sub> secondary, TA analog, TA S <sub>0</sub> , TA RS232, S <sub>0</sub> ) | 250                    | 116                      | 100<br>Rel. 2.2<br>and later:<br>188 | 20       | 20  | 0     |
| Station numbers for hunt groups                                                                                                        | 150                    |                          |                                      | 20       | 20  | 20    |
| Station numbers for users                                                                                                              | 3 digits               |                          |                                      | 2 digits |     |       |
| Maximum length of station numbers                                                                                                      | 6 digits               |                          |                                      |          |     |       |
| Maximum length of numbers for direct inward dialing (DID)                                                                              | 11 digits              |                          |                                      |          |     |       |

Table 2-10          Hicom 150 E OfficePro Distribution of Station Numbers

| Port Type                                              | Station Number | Logical Port Number |
|--------------------------------------------------------|----------------|---------------------|
| <b>Hicom 150 E OfficePro, Standard configuration</b>   |                |                     |
| Primary ports                                          | 100 - 349      | 0 - 249             |
| Secondary ports                                        | 500 - 749      | 250 - 499           |
| Groups                                                 | 350 - 499      | 620 - 769           |
| <b>Hicom 150 E OfficePro, "Extended" configuration</b> |                |                     |
| Primary ports                                          | 100 - 349      | 0 - 249             |
| Primary ports                                          | 500 - 633      | 250 - 383           |
| Secondary ports                                        | 633 - 749      | 384 - 499           |
| Groups                                                 | 350 - 499      | 620 - 769           |

## 2.10 Compliance

### 2.10.1 CE Compliance (Not for U.S.)

The system conforms to the following guidelines:

Table 2-11 CE Compliance (Not for U.S.)

| Guideline                                           | Standard                                                                             |
|-----------------------------------------------------|--------------------------------------------------------------------------------------|
| EMC - 89/336/EWG<br>(Electromagnetic Compatibility) | <ul style="list-style-type: none"><li>• EN 50081, 50082</li><li>• EN 50022</li></ul> |
| SAFETY - 73/23/EWG<br>(Product Safety)              | <ul style="list-style-type: none"><li>• EN 60950</li></ul>                           |
| TELECOMMUNICATION - 91/263/EWG                      | <ul style="list-style-type: none"><li>• I-CTR 3, 4</li><li>• CTR 6, 8</li></ul>      |

### 2.10.2 U.S. and Canadian Regulatory Compliance

Table 2-12 U.S. and Canadian Regulatory Compliance

| Category                               | OfficePro                              | OfficeCom                              | OfficePoint |
|----------------------------------------|----------------------------------------|----------------------------------------|-------------|
| Electrical compliance                  | UL 1459<br>CSA C22.2<br>No. 225-M90    | UL 1950<br>CSA C22.2 No. 950           |             |
| FCC Part 68 registration               | AY3USA-33046-MF-E<br>AY3USA-33047-KF-E | AY3USA-25214-MF-E<br>AY3USA-25215-KF-E |             |
| Industry Canada<br>CS-03 certification | 267 9147A                              | 267 8782A                              |             |
| Ringer equivalency<br>number (REN)     | 1.2                                    | 0.4                                    |             |

## 2.10.3 SAFETY International

IEC 60950

## 2.10.4 Environmental Conditions

### Operating Conditions (Electrical)

- Operating limits  
Room temperature: + 5 to + 40 °C (+ 41 to + 104° F)  
Absolute humidity: 2 to 25 g H<sub>2</sub>O/m<sup>3</sup>  
Relative humidity: 5 to 80%
- System ventilation is by convection only. Forced-air ventilation is not required.



#### **Caution**

Avoid exposing the system to direct sunlight and heaters (excessive heat may damage the system).

If condensation has formed on a system, do not start up the system until the it has thoroughly dried.

### Operating Conditions (Mechanical)

The system is intended for stationary use.





## 3 Boards

**WARNING**

The system must be powered down and de-energized before removing or inserting **all boards** in the Hicom 150 E OfficeCom, OfficePoint, OfficePoint C and before removing or inserting the **central boards** of the Hicom 150 E OfficePro.

### 3.1 Overview

#### Functional Overview of all Boards and Components Used

Table 3-1 Hicom 150 E Office – Functional Overview of All Boards and Components Used (Sheet 1 of 7)

| Board or Component    | Part Number                            | Hicom 150 E Model                              |
|-----------------------|----------------------------------------|------------------------------------------------|
| <b>Central Boards</b> |                                        |                                                |
| <u>CBPC</u>           | S30810-Q2932-A201                      | OfficeCom                                      |
| <u>CBPC</u>           | S30810-Q2932-B201                      | OfficePoint                                    |
| <u>CBMOD</u>          | S30810-Q2960-X100<br>S30810-Q2960-X200 | OfficePro (not for U.S.)                       |
| <u>CBMOD</u>          | S30810-K2960-X                         | OfficePro (for U.S. only)                      |
| <u>CGM</u>            | S30807-Q6906-X                         | OfficePro                                      |
| <u>CGMC</u>           | S30807-Q6924-X                         | OfficeCom/OfficePoint C                        |
| <u>CGMC</u>           | S30807-Q6924-X100                      | OfficePro                                      |
| <u>CGUM</u>           | S30807-Q6909-X                         | OfficeCom (not for U.S.)                       |
| <u>CONBO</u>          | S30810-Q2924-X                         | OfficePro                                      |
| <u>CR8N</u>           | S30810-Q2513-X100                      | OfficePro                                      |
| <u>CUC</u>            | S30777-Q0750-X                         | OfficeCom                                      |
| <u>CUP</u>            | S30777-Q0751-X                         | OfficePoint                                    |
| <u>FMC</u>            | S30807-Q6910-Xxxx                      | OfficePro/OfficeCom/OfficePoint (not for U.S.) |
| <u>FMC</u>            | P30370-P700-C600                       | OfficePro (for U.S. only)                      |
| <u>FMC</u>            | P30370-P701-C600                       | OfficeCom (for U.S. only)                      |
| <u>FMC</u>            | P30370-P702-C600                       | OfficePoint (for U.S. only)                    |
| <u>IMOD</u>           | S30807-Q9607-                          | OfficePro/OfficeCom/OfficePoint                |

Table 3-1 Hicom 150 E Office – Functional Overview of All Boards and Components Used (Sheet 2 of 7)

| <b>Board or Component</b> | <b>Part Number</b>                                             | <b>Hicom 150 E Model</b>   |
|---------------------------|----------------------------------------------------------------|----------------------------|
| <u>PSUC</u>               | S30122-K5661-xxx                                               | OfficeCom                  |
| <u>PSUF</u>               | S30122-K5658-xxx                                               | OfficePoint                |
| <u>PSUI</u>               | S30122-K5083-L301<br>S30122-K5083-X301                         | OfficePro                  |
| <u>SBS</u>                | S30817-Q905-Axxx                                               | OfficeOne (not for U.S.)   |
| <u>SBS</u>                | S30817-Q905-Cxxx                                               | OfficeStart (not for U.S.) |
| <u>USVC</u>               | S30122-K5660-xxx                                               | OfficeCom (not for U.S.)   |
| <u>USVF</u>               | S30122-K5659-                                                  | OfficePoint (not for U.S.) |
| <u>USVI</u>               | L30250-R600-A300<br>(< 10 Ah)<br>L30250-R600-A301<br>(> 10 Ah) | OfficePro (not for U.S.)   |

Table 3-1 Hicom 150 E Office – Functional Overview of All Boards and Components Used (Sheet 3 of 7)

| Board or Component                                                                                                                                                                                        | Part Number                         | Hicom 150 E Model                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------|
| <b>Peripheral Boards</b><br><b>Caution:</b> The OfficeCom, OfficePoint, and OfficePoint C peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure. |                                     |                                                             |
| <u>HXGM</u>                                                                                                                                                                                               | S30810-Q2930-X<br>S30810-Q2930-X100 | OfficePro                                                   |
| <u>HXGS</u>                                                                                                                                                                                               | S30810-Q2931-X<br>S30810-Q2931-X100 | OfficeCom/OfficePoint                                       |
| <u>LAN Bridge</u>                                                                                                                                                                                         | S30817-Q955-Axxx                    | OfficeCom/OfficePoint                                       |
| <u>SLA8N</u>                                                                                                                                                                                              | S30810-Q2929-Xxxx                   | OfficePro/OfficeCom (not for U.S.)                          |
| <u>SLA16N</u>                                                                                                                                                                                             | S30810-Q2929-Xxxx                   | OfficePro/OfficeCom                                         |
| <u>SLA24N</u>                                                                                                                                                                                             | S30810-Q2929-X                      | OfficePro/OfficeCom                                         |
| <u>SLAS16</u>                                                                                                                                                                                             | S30817-Q925-A301                    | OfficeCom                                                   |
| <u>SLC16</u>                                                                                                                                                                                              | S30810-Q2922-X                      | OfficePro/OfficeCom (not for U.S.)                          |
| <u>SLMO8</u>                                                                                                                                                                                              | S30810-Q2901-X                      | OfficePro (not for U.S.)                                    |
| <u>SLMO24</u>                                                                                                                                                                                             | S30810-Q2901-Xxxx                   | OfficePro/OfficeCom                                         |
| <u>SLU8</u>                                                                                                                                                                                               | S30817-Q922-Axxx                    | OfficeCom/OfficePoint                                       |
| <u>STLS2</u>                                                                                                                                                                                              | S30817-Q924-Bxxx                    | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>STLS4</u>                                                                                                                                                                                              | S30817-Q924-Axxx                    | OfficeCom/OfficePoint                                       |
| <u>STMD8</u>                                                                                                                                                                                              | S30810-Q2558-Xxxx                   | OfficePro                                                   |
| <u>TIEL</u>                                                                                                                                                                                               | S30810-Q2520-X                      | OfficePro                                                   |
| <u>TLA2</u>                                                                                                                                                                                               | S30817-Q923-Bxxx                    | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>TLA4</u>                                                                                                                                                                                               | S30817-Q923-Axxx                    | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>TLA8</u>                                                                                                                                                                                               | S30817-Q926-Axxx                    | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>TMAMF</u>                                                                                                                                                                                              | S30810-Q2587-Axxx                   | OfficePro (for Brazil, India, Malaysia, and Singapore only) |
| <u>TMDID</u>                                                                                                                                                                                              | S30810-Q2507-X                      | OfficePro (for U.S. only)                                   |
| <u>TMGL4</u>                                                                                                                                                                                              | S30810-Q2918-X                      | OfficeCom/OfficePoint (for U.S. only)                       |
| <u>TMGL8</u>                                                                                                                                                                                              | S30810-Q2703-X                      | OfficePro (for U.S. only)                                   |
| <u>TML8W</u>                                                                                                                                                                                              | S30817-Q626-Axxx/<br>Bxxx           | OfficePro (not for U.S.)                                    |
| <u>TMOM</u>                                                                                                                                                                                               | S30810-Q2535-X                      | OfficePro (not for U.S.)                                    |

Table 3-1 Hicom 150 E Office – Functional Overview of All Boards and Components Used (Sheet 4 of 7)

| Board or Component | Part Number          | Hicom 150 E Model                     |
|--------------------|----------------------|---------------------------------------|
| <u>TMQ4</u>        | S30810-Q2917-X       | OfficeCom/OfficePoint (for U.S. only) |
| <u>TMST1</u>       | S30810-Q2920-X       | OfficePro (for U.S. only)             |
| <u>TMS2</u>        | S30810-Q2915-X       | OfficePro (not for U.S.)              |
| <u>TST1</u>        | S30810-Q2919-X       | OfficeCom (for U.S. only)             |
| <u>TS2</u>         | S30810-Q2913-X/-X100 | OfficeCom (not for U.S.)              |
| <u>4SLA</u>        | S30810-Q2925-Xxxx    | OfficeCom/OfficePoint (not for U.S.)  |
| <u>8SLA</u>        | S30810-Q2925-X       | OfficeCom/OfficePoint                 |
| <u>16SLA</u>       | S30810-Q2923-X       | OfficeCom (not for U.S.)              |



**DANGER (for U.S. Only)**

To protect against surge voltage caused by lightning, the following boards require secondary protection when their wiring leaves the building where the main distribution frame is housed:

- SLA16
- SLA16N
- SLA24N
- TMDID8
- TMGL8
- TIEL4\*
- TMST1\*\*
- TST1\*\*

\*If not connected to facility provider terminal equipment.

\*\*When this module is connected to the public network, secondary protection must be provided by the CSU.

Table 3-1 Hicom 150 E Office – Functional Overview of All Boards and Components Used (Sheet 5 of 7)

| Board or Component        | Part Number                    | Hicom 150 E Model                     |
|---------------------------|--------------------------------|---------------------------------------|
| <b>Options</b>            |                                |                                       |
| <u>ALUM4</u>              | S30817-Q935-A                  | OfficeCom/OfficePoint                 |
| <u>AM</u>                 | S30122-X7217-X100              | OfficeOne/OfficeStart                 |
| <u>ANI4</u>               | S30807-Q6917-Axxx              | OfficeCom/OfficePoint (for U.S. only) |
| <u>Com server adapter</u> | WIS:58211                      | OfficePro (not for U.S.)              |
| <u>EXM</u>                | S30817-Q902-Bxxx               | OfficeCom/OfficePoint                 |
| <u>EXMNA</u>              | S30817-Q6923-X-1               | OfficeCom/OfficePoint (for U.S. only) |
| <u>GEE8</u>               | S30817-Q664-xxxx               | OfficePro (not for U.S.)              |
| <u>GEE12</u>              | S30817-Q951-Mxxx               | OfficeCom/OfficePoint (not for U.S.)  |
| <u>GEE16</u>              | S30817-Q951-Mxxx               | OfficeCom/OfficePoint (not for U.S.)  |
| <u>GEE50</u>              | S30817-Q951-Mxxx               | OfficeCom/OfficePoint (not for U.S.)  |
| <u>HOPE board</u>         | S30122-Q7078-X                 | OfficeCom/OfficePoint (not for U.S.)  |
| <u>HOPE board</u>         | S30122-Q7079-X                 | OfficeCom/OfficePoint (for U.S. only) |
| <u>MPPI</u>               | S30122-K5380-X200              | OfficeCom/OfficePoint (not for U.S.)  |
| <u>MPPI</u>               | S30122-X7275-X                 | OfficeOne/OfficeStart (not for U.S.)  |
| <u>OPAL</u>               | C39195-A7001-B130              | OfficeCom/OfficePoint                 |
| <u>PFT1/PFT4</u>          | S30777-Q539-X<br>S30777-Q540-X | OfficePro (not for U.S.)              |
| <u>REAL</u>               | S30807-Q5913-X                 | OfficePro                             |
| <u>STBG4</u>              | S30817-Q934-A                  | OfficeCom/OfficePoint (France only)   |
| <u>STRB</u>               | S30817-Q932-M                  | OfficeCom/OfficePoint                 |
| <u>UAM</u>                | S30122-X7217-X                 | OfficeCom/OfficePoint                 |
| <u>V24/1</u>              | S30807-Q6916-Xxxx              | OfficeCom/OfficePoint (not for U.S.)  |
| <u>V24/2</u>              | S30807-Q6916-X                 | OfficeCom/OfficePoint                 |
| <u>V24/E</u>              | S30122-K7236-X                 | OfficeCom/OfficePoint                 |
| <u>V24 adapter cable</u>  | S30122-X5468-X3                | OfficeOne/OfficeStart (not for U.S.)  |
| <u>V24 cable</u>          | C39195-Z7267-C13               | OfficePro (not for U.S.)              |

Table 3-1 Hicom 150 E Office – Functional Overview of All Boards and Components Used (Sheet 6 of 7)

| Board or Component                                                 | Part Number        | Hicom 150 E Model               |
|--------------------------------------------------------------------|--------------------|---------------------------------|
| <b>For U.S. Only: Other Field-Replaceable Units for All Models</b> |                    |                                 |
| RS-232 cable                                                       | –                  | OfficePro/OfficeCom/OfficePoint |
| <u>Basic cabinet or first expansion cabinet</u>                    | S30777-U709-X      | OfficePro                       |
| <u>Second expansion cabinet</u>                                    | S30777-U709-X100   | OfficePro                       |
| <u>Backplane</u>                                                   | S30777-Q709-X      | OfficePro                       |
| Cabinet                                                            | S30777-U711-X      | OfficeCom                       |
| Cabinet                                                            | S30777-U712-X      | OfficePoint                     |
| MDF cables                                                         | S30267-Z321-A3     | OfficeCom/OfficePoint           |
| <u>System cable set 1</u>                                          | S30267-Z199-A      | OfficePro                       |
| <u>Inter-cabinet cable set 2</u>                                   | S30267-Z194-A11    | OfficePro                       |
| <u>Inter-cabinet cable set 3</u>                                   | S30267-Z195-A11    | OfficePro                       |
| Cable TST1 to CSU                                                  | S30269-27256-A     | OfficePro                       |
| <u>Seismic anchor kit</u>                                          | S30777-D41-X       | OfficePro                       |
| <u>Wall mount kit</u>                                              | S30777-D40-X       | OfficePro                       |
| Power supply cord                                                  | C39195-Z7001-C19   | OfficeCom/OfficePoint           |
| Ribbon cable <u>CBPC to V24/2</u>                                  | C39195-Z7001-B118  | OfficeCom/OfficePoint           |
| <u>ALUM4</u> adapter cable                                         | C39195-A7001-B105  | OfficeCom/OfficePoint           |
| Ribbon cable <u>ANI4 to TMGL4</u>                                  | C39195-A7001-B87-1 | OfficeCom/OfficePoint           |
| Cable <u>TST1</u> to CSU                                           | S30122-K7031-X     | OfficeCom                       |

Table 3-1      Hicom 150 E Office – Functional Overview of All Boards and Components Used (Sheet 7 of 7)

| <b>Board or Component</b>                         | <b>Part Number</b> | <b>Hicom 150 E Model</b> |
|---------------------------------------------------|--------------------|--------------------------|
| RS-232 administration cable for <u>LAN Bridge</u> | S30122-X5468-X     | OfficeCom/OfficePoint    |

## Model Overview of all Boards and Components Used

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 1 of 9)

| Board or Component           | Part Number                            | Function                             |
|------------------------------|----------------------------------------|--------------------------------------|
| <b>Hicom 150 E OfficePro</b> |                                        |                                      |
| <u>CBMOD</u>                 | S30810-Q2960-X100<br>S30810-Q2960-X200 | Central board (not for U.S.)         |
| <u>CBMOD</u>                 | S30810-K2960-X                         | Central board (for U.S. only)        |
| <u>CGM</u>                   | S30807-Q6906-X                         | Central board                        |
| <u>CGMC</u>                  | S30807-Q6924-X100                      | Central board                        |
| <u>Com server adapter</u>    | WIS:58211                              | Option (not for U.S.)                |
| <u>CONBO</u>                 | S30810-Q2924-X                         | Central board                        |
| <u>CR8N</u>                  | S30810-Q2513-X100                      | Central board                        |
| <u>FMC</u>                   | S30807-Q6910-Xxxx                      | Central board                        |
| <u>GEE8</u>                  | S30817-Q664-xxxx                       | Option (not for U.S.)                |
| <u>HXGM</u>                  | S30810-Q2930-X<br>S30810-Q2930-X100    | Peripheral board<br>Peripheral board |
| <u>IMOD</u>                  | S30807-Q9607-X                         | Central board                        |
| <u>PFT1/PFT4</u>             | S30777-Q539-X<br>S30777-Q540-X         | Option (not for U.S.)                |
| <u>PSUI</u>                  | S30122-K5083-L301<br>S30122-K5083-X301 | Central board                        |
| <u>REAL</u>                  | S30807-Q5913-X                         | Option                               |
| <u>SLA8N</u>                 | S30810-Q2929-Xxxx                      | Peripheral board (not for U.S.)      |
| <u>SLA16N</u>                | S30810-Q2929-Xxxx                      | Peripheral board                     |
| <u>SLA24N</u>                | S30810-Q2929-X                         | Peripheral board                     |
| <u>SLC16</u>                 | S30810-Q2922-X                         | Peripheral board (not for U.S.)      |
| <u>SLMO8</u>                 | S30810-Q2901-X                         | Peripheral board (not for U.S.)      |
| <u>SLMO24</u>                | S30810-Q2901-Xxxx                      | Peripheral board                     |
| <u>STMD8</u>                 | S30810-Q2558-Xxxx                      | Peripheral board                     |
| <u>TIEL</u>                  | S30810-Q2520-X                         | Peripheral board                     |
| <u>TMAMF</u>                 | S30810-Q2587-Axxx                      | Peripheral board                     |



Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 2 of 9)

| <b>Board or Component</b>                                                     | <b>Part Number</b>                                             | <b>Function</b>                  |
|-------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------|
| <u>TMDID</u>                                                                  | S30810-Q2507-X                                                 | Peripheral board (for U.S. only) |
| <u>TMGL8</u>                                                                  | S30810-Q2703-X                                                 | Peripheral board (for U.S. only) |
| <u>TML8W</u>                                                                  | S30817-Q626-Axxx/<br>Bxxx                                      | Peripheral board                 |
| <u>TMOM</u>                                                                   | S30810-Q2535-X                                                 | Peripheral board (not for U.S.)  |
| <u>TMST1</u>                                                                  | S30810-Q2920-X                                                 | Peripheral board (for U.S. only) |
| <u>TMS2</u>                                                                   | S30810-Q2915-X                                                 | Peripheral board (not for U.S.)  |
| <u>UPSM</u>                                                                   | S30122-K5950-A100<br>S30122-K5950-S100                         | Power supply                     |
| <u>USVI</u>                                                                   | L30250-R600-A300<br>(< 10 Ah)<br>L30250-R600-A301<br>(> 10 Ah) | Power supply (not for U.S.)      |
| <u>V24 cable</u>                                                              | C39195-Z7267-C13                                               | Option (not for U.S.)            |
| <b>For U.S. Only: Other Field-Replaceable Units for Hicom 150 E OfficePro</b> |                                                                |                                  |
| V.24 (RS232) cable                                                            | –                                                              | Cable                            |
| <u>Basic cabinet or first expansion cabinet</u>                               | S30777-U709-X                                                  | Cabinet 1 or 2                   |
| <u>Second expansion cabinet</u>                                               | S30777-U709-X100                                               | Cabinet 3                        |
| <u>Backplane</u>                                                              | S30777-Q709-X                                                  | Backplane                        |
| <u>System cable set 1</u>                                                     | S30267-Z199-A                                                  | Cable                            |
| <u>Inter-cabinet cable set 2</u>                                              | S30267-Z194-A11                                                | Cable                            |
| <u>Inter-cabinet cable set 3</u>                                              | S30267-Z195-A11                                                | Cable                            |
| Cable TST1 to CSU                                                             | S30269-27256-A                                                 | Cable                            |
| <u>Seismic anchor kit</u>                                                     | S30777-D41-X                                                   | Anchors                          |

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 3 of 9)

| Board or Component    | Part Number  | Function |
|-----------------------|--------------|----------|
| <u>Wall mount kit</u> | S30777-D40-X | Bracket  |



**DANGER (for U.S. Only)**

To protect against surge voltage caused by lightning, the following boards require secondary protection when their wiring leaves the building where the main distribution frame is housed:

- SLA16
- SLA16N
- SLA24N
- TMDID8
- TMGL8
- TIEL4\*
- TMST1\*\*

\*If not connected to facility provider terminal equipment.

\*\*When this module is connected to the public network, secondary protection must be provided by the CSU.

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 4 of 9)

| Board or Component                                                                                                                                                                                                                        | Part Number                         | Function                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------|
| <b>Hicom 150 E OfficeCom / Hicom 150 E OfficePoint C</b><br><b>Caution:</b> The OfficeCom, OfficePoint, and OfficePoint C peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure. |                                     |                                      |
| <u>ALUM4</u>                                                                                                                                                                                                                              | S30817-Q935-A                       | Option                               |
| <u>ANI4</u>                                                                                                                                                                                                                               | S30807-Q6917-Axxx                   | Option (for U.S. only)               |
| <u>CBPC</u>                                                                                                                                                                                                                               | S30810-Q2932-Axxx                   | Central board                        |
| <u>CGMC</u>                                                                                                                                                                                                                               | S30807-Q6924-X                      | Central board                        |
| <u>CGUM</u>                                                                                                                                                                                                                               | S30807-Q6909-X                      | Central board (not for U.S.)         |
| <u>CUC</u>                                                                                                                                                                                                                                | S30777-Q0750-X                      | Central board                        |
| <u>EXM</u>                                                                                                                                                                                                                                | S30817-Q902-Bxxx                    | Option (not for U.S.)                |
| <u>EXMNA</u>                                                                                                                                                                                                                              | S30817-Q6923-X-1                    | Option (for U.S. Only)               |
| <u>FMC</u>                                                                                                                                                                                                                                | S30807-Q6910-Xxxx                   | Central board (not for U.S.)         |
| <u>FMC</u>                                                                                                                                                                                                                                | P30370-P701-C600                    | Central board (for U.S. only)        |
| <u>GEE12</u>                                                                                                                                                                                                                              | S30817-Q951-Mxxx                    | Option (not for U.S.)                |
| <u>GEE16</u>                                                                                                                                                                                                                              | S30817-Q951-Mxxx                    | Option (not for U.S.)                |
| <u>GEE50</u>                                                                                                                                                                                                                              | S30817-Q951-Mxxx                    | Option (not for U.S.)                |
| <u>HOPE board</u>                                                                                                                                                                                                                         | S30122-Q7078-X                      | Option (not for U.S.)                |
| <u>HOPE board</u>                                                                                                                                                                                                                         | S30122-Q7079-X                      | Option (for U.S. only)               |
| <u>IMOD</u>                                                                                                                                                                                                                               | S30807-Q9607-X                      | Central board                        |
| <u>HXGS</u>                                                                                                                                                                                                                               | S30810-Q2931-X<br>S30810-Q2931-X100 | Peripheral board<br>Peripheral board |
| <u>LAN Bridge</u>                                                                                                                                                                                                                         | S30817-Q955-Axxx                    | Peripheral board                     |
| <u>MPPI</u>                                                                                                                                                                                                                               | S30122-K5380-X200                   | Option (not for U.S.)                |
| <u>OPAL</u>                                                                                                                                                                                                                               | C39195-A7001-B130                   | Cable                                |
| <u>PSUC</u>                                                                                                                                                                                                                               | S30122-K5661-xxx                    | Central board                        |
| <u>SLA8N</u>                                                                                                                                                                                                                              | S30810-Q2929-Xxxx                   | Peripheral board (not for U.S.)      |
| <u>SLA16N</u>                                                                                                                                                                                                                             | S30810-Q2929-Xxxx                   | Peripheral board                     |
| <u>SLA24N</u>                                                                                                                                                                                                                             | S30810-Q2929-X                      | Peripheral board                     |
| <u>SLAS16</u>                                                                                                                                                                                                                             | S30817-Q925-A301                    | Peripheral board                     |
| <u>SLC16</u>                                                                                                                                                                                                                              | S30810-Q2922-X                      | Peripheral board (not for U.S.)      |

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 5 of 9)

| <b>Board or Component</b> | <b>Part Number</b>   | <b>Function</b>                  |
|---------------------------|----------------------|----------------------------------|
| <u>SLMO24</u>             | S30810-Q2901-Xxxx    | Peripheral board                 |
| <u>SLU8</u>               | S30817-Q922-Axxx     | Peripheral board                 |
| <u>STBG4</u>              | S30817-Q934-A        | Option (France only)             |
| <u>STLS2</u>              | S30817-Q924-Bxxx     | Peripheral board (not for U.S.)  |
| <u>STLS4</u>              | S30817-Q924-Axxx     | Peripheral board                 |
| <u>STRB</u>               | S30817-Q932-M        | Option                           |
| <u>TLA2</u>               | S30817-Q923-Bxxx     | Peripheral board (not for U.S.)  |
| <u>TLA4</u>               | S30817-Q923-Axxx     | Peripheral board (not for U.S.)  |
| <u>TLA8</u>               | S30817-Q926-Axxx     | Peripheral board (not for U.S.)  |
| <u>TMGL4</u>              | S30810-Q2918-X       | Peripheral board (for U.S. only) |
| <u>TMQ2</u>               | S30810-Q2917-X100    | Peripheral board (not for U.S.)  |
| <u>TMQ4</u>               | S30810-Q2917-X       | Peripheral board (for U.S. only) |
| <u>TST1</u>               | S30810-Q2919-X       | Peripheral board (for U.S. only) |
| <u>TS2</u>                | S30810-Q2913-X/-X100 | Peripheral board (not for U.S.)  |
| <u>UAM</u>                | S30122-X7217-X       | OfficeCom/OfficePoint            |
| <u>USVC</u>               | S30122-K5660-xxx     | Power supply (not for U.S.)      |
| <u>V24/1</u>              | S30807-Q6916-Xxxx    | Option (not for U.S.)            |
| <u>V24/2</u>              | S30807-Q6916-X       | Option                           |
| <u>V24/E</u>              | S30122-K7236-X       | Option                           |
| <u>4SLA</u>               | S30810-Q2925-Xxxx    | Peripheral board (not for U.S.)  |
| <u>8SLA</u>               | S30810-Q2925-X       | Peripheral board                 |

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 6 of 9)

| Board or Component                                                            | Part Number        | Function |
|-------------------------------------------------------------------------------|--------------------|----------|
| <b>For U.S. Only: Other Field-Replaceable Units for Hicom 150 E OfficeCom</b> |                    |          |
| Cabinet                                                                       | S30777-U711-X      | Cabinet  |
| Power supply cord                                                             | C39195-Z7001-C19   | Cord     |
| V.24 (RS232) cable                                                            | –                  | Cable    |
| Ribbon cable<br><u>CBPC</u> to <u>V24/2</u>                                   | C39195-Z7001-B118  | Cable    |
| MDF cables                                                                    | S30267-Z321-A3     | Cable    |
| <u>ALUM4</u> adapter cable                                                    | C39195-A7001-B105  | Cable    |
| Ribbon cable<br><u>ANI4</u> to <u>TMGL4</u>                                   | C39195-A7001-B87-1 | Cable    |
| Cable TST1 to CSU                                                             | S30122-K7031-X     | Cable    |
| RS-232 administration cable for <u>LAN Bridge</u>                             | S30122-X5468-X     | Cable    |

**DANGER (for U.S. Only)**

To protect against surge voltage caused by lightning, the following OfficeCom boards require secondary protection when their wiring leaves the building where the main distribution frame is housed:

- CBPC
- SLU8
- 8SLA
- SLA16N
- SLA24N
- STLS4
- TST1\*

\*When this module is connected to the public network, secondary protection must be provided by the CSU.

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 7 of 9)

| Board or Component                                                                                                                                                                                              | Part Number                         | Function                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------|
| <b>Hicom 150 E OfficePoint</b><br><b>Caution:</b> The OfficeCom, OfficePoint, and OfficePoint C peripheral boards must be firmly inserted into their slots; otherwise contact problems can cause board failure. |                                     |                                      |
| <u>ALUM4</u>                                                                                                                                                                                                    | S30817-Q935-A                       | Option                               |
| <u>ANI4</u>                                                                                                                                                                                                     | S30807-Q6917-Axxx                   | Option (for U.S. only)               |
| <u>CBPC</u>                                                                                                                                                                                                     | S30810-Q2932-Axxx                   | Central board (not for U.S.)         |
| <u>CBPC</u>                                                                                                                                                                                                     | S30810-Q2932-B                      | Central board (for U.S. only)        |
| <u>CUP</u>                                                                                                                                                                                                      | S30777-Q0751-X                      | Central board                        |
| <u>EXM</u>                                                                                                                                                                                                      | S30817-Q902-Bxxx                    | Option (not for U.S.)                |
| <u>EXMNA</u>                                                                                                                                                                                                    | S30817-Q6923-X-1                    | Option (for U.S. only)               |
| <u>FMC</u>                                                                                                                                                                                                      | S30807-Q6910-Xxxx                   | Central board (not for U.S.)         |
| <u>FMC</u>                                                                                                                                                                                                      | P30370-P702-C600                    | Central board (for U.S. only)        |
| <u>GEE12</u>                                                                                                                                                                                                    | S30817-Q951-Mxxx                    | Option (not for U.S.)                |
| <u>GEE16</u>                                                                                                                                                                                                    | S30817-Q951-Mxxx                    | Option (not for U.S.)                |
| <u>GEE50</u>                                                                                                                                                                                                    | S30817-Q951-Mxxx                    | Option (not for U.S.)                |
| <u>HOPE board</u>                                                                                                                                                                                               | S30122-Q7078-X                      | Option (not for U.S.)                |
| <u>HOPE board</u>                                                                                                                                                                                               | S30122-Q7079-X                      | Option (for U.S. only)               |
| <u>IMOD</u>                                                                                                                                                                                                     | S30807-Q9607-X                      | Central board                        |
| <u>HXGS</u>                                                                                                                                                                                                     | S30810-Q2931-X<br>S30810-Q2931-X100 | Peripheral board<br>Peripheral board |
| <u>LAN Bridge</u>                                                                                                                                                                                               | S30817-Q955-Axxx                    | Peripheral board                     |
| <u>MPPI</u>                                                                                                                                                                                                     | S30122-K5380-X200                   | Option (not for U.S.)                |
| <u>OPAL</u>                                                                                                                                                                                                     | C39195-A7001-B130                   | Cable                                |
| <u>PSUF</u>                                                                                                                                                                                                     | S30122-K5658-xxx                    | Central board                        |
| <u>SLU8</u>                                                                                                                                                                                                     | S30817-Q922-Axxx                    | Peripheral board                     |
| <u>STBG4</u>                                                                                                                                                                                                    | S30817-Q934-A                       | Option (France only)                 |
| <u>STLS2</u>                                                                                                                                                                                                    | S30817-Q924-Bxxx                    | Peripheral board (not for U.S.)      |
| <u>STLS4</u>                                                                                                                                                                                                    | S30817-Q924-Axxx                    | Peripheral board                     |
| <u>STRB</u>                                                                                                                                                                                                     | S30817-Q932-M                       | Option                               |
| <u>TLA2</u>                                                                                                                                                                                                     | S30817-Q923-Bxxx                    | Peripheral board (not for U.S.)      |

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 8 of 9)

| <b>Board or Component</b>                                                       | <b>Part Number</b> | <b>Function</b>                  |
|---------------------------------------------------------------------------------|--------------------|----------------------------------|
| <u>TLA4</u>                                                                     | S30817-Q923-Axxx   | Peripheral board (not for U.S.)  |
| <u>TLA8</u>                                                                     | S30817-Q926-Axxx   | Peripheral board (not for U.S.)  |
| <u>TMGL4</u>                                                                    | S30810-Q2918-X     | Peripheral board (for U.S. only) |
| <u>TMQ4</u>                                                                     | S30810-Q2917-X     | Peripheral board (for U.S. only) |
| <u>UAM</u>                                                                      | S30122-X7217-X     | OfficeCom/OfficePoint            |
| <u>USVF</u>                                                                     | S30122-K5659-      | Power supply (not for U.S.)      |
| <u>V24/1</u>                                                                    | S30807-Q6916-Xxxx  | Option (not for U.S.)            |
| <u>V24/2</u>                                                                    | S30807-Q6916-X     | Option                           |
| <u>V24/E</u>                                                                    | S30122-K7236-X     | Option                           |
| <u>4SLA</u>                                                                     | S30810-Q2925-Xxxx  | Peripheral board (not for U.S.)  |
| <u>8SLA</u>                                                                     | S30810-Q2925-X     | Peripheral board                 |
| <b>For U.S. Only: Other Field-Replaceable Units for Hicom 150 E OfficePoint</b> |                    |                                  |
| Cabinet                                                                         | S30777-U712-X      | Cabinet                          |
| Power supply cord                                                               | C39195-Z7001-C19   | Cord                             |
| RS-232 cable                                                                    | C39195-A7001-B119  | Cable                            |
| Ribbon cable<br><u>CBPC</u> to <u>V24/2</u>                                     | C39195-Z7001-B119  | Cable                            |
| MDF cables                                                                      | S30267-Z321-A3     | Cable                            |
| <u>ALUM4</u> adapter cable                                                      | C39195-A7001-B105  | Cable                            |
| Ribbon cable<br><u>ANI4</u> to <u>TMGL4</u>                                     | C39195-A7001-B87-1 | Cable                            |
| RS-232 administration cable for <u>LAN Bridge</u>                               | S30122-X5468-X     | Cable                            |

Table 3-2 Hicom 150 E Office – Model Overview of all Boards and Components Used (Sheet 9 of 9)

| Board or Component                                                                | Part Number                                                                                                                                                                                                                                                                                                                                       | Function      |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|  | <b>DANGER (for U.S. Only)</b><br>To protect against surge voltage caused by lightning, the following OfficePoint boards require secondary protection when their wiring leaves the building where the main distribution frame is housed: <ul style="list-style-type: none"> <li>• CBPC</li> <li>• SLU8</li> <li>• 8SLA</li> <li>• STLS4</li> </ul> |               |
|                                                                                   | <b>Hicom 150 E OfficeOne (Not for U.S.)</b>                                                                                                                                                                                                                                                                                                       |               |
| <u>AM</u>                                                                         | S30122-X7217-X100                                                                                                                                                                                                                                                                                                                                 | Option        |
| <u>MPPI</u>                                                                       | S30122-X7275-X                                                                                                                                                                                                                                                                                                                                    | Option        |
| <u>SBS</u>                                                                        | S30817-Q905-Axxx                                                                                                                                                                                                                                                                                                                                  | Central board |
| <u>V24-Adapter</u>                                                                | S30122-X5468-X3                                                                                                                                                                                                                                                                                                                                   | Option        |
| <b>Hicom 150 E OfficeStart (Not for U.S.)</b>                                     |                                                                                                                                                                                                                                                                                                                                                   |               |
| <u>AM</u>                                                                         | S30122-X7217-X100                                                                                                                                                                                                                                                                                                                                 | Option        |
| <u>MPPI</u>                                                                       | S30122-X7275-X                                                                                                                                                                                                                                                                                                                                    | Option        |
| <u>SBS</u>                                                                        | S30817-Q905-Cxxx                                                                                                                                                                                                                                                                                                                                  | Central board |
| <u>V24-Adapter</u>                                                                | S30122-X5468-X3                                                                                                                                                                                                                                                                                                                                   | Option        |



## 3.2 Central Boards

### 3.2.1 CBPC

#### Introduction

The CBPC (Central Board Point and Com) is the central board for the OfficePoint and OfficeCom models. Note that the fully equipped OfficeCom CBPC model (S30810-Q2932-A201) can be used in both systems, while the underequipped model (S30810-Q2932-B201) works in OfficePoint only.

#### Functions

- Supplies audible tones (signalling interface unit)
- Provides PCM highway switching and conference circuit
- Provides system timing (real-time clock with NC battery)



Disconnecting the battery buffer on the CBPC by unplugging the jumper is necessary only for testing (module test at the factory). Disconnection does not necessarily delete the customer database (CDB). To delete the CDB, use the reset switch.

#### Interfaces

- Digital U<sub>P0/E</sub> subscriber lines
- Analog a/b (T/R) subscriber lines
- Control for slots 2 and 3
- CGMC/CGUM (Clock Generator Modul Combined) for OfficeCom only (not for U.S.)
- External music on hold (through MPPI or EXM [not for U.S.] EXMNA [for U.S. only] module)
- Options bus (O-bus)
- V.24 (RS-232) (through V.24 module)
- Flash memory card (application processor software)
- Integrated modem card (IMOD)

#### Switches and Indicators

- Reset switch
- LEDs

## CBPC Interfaces

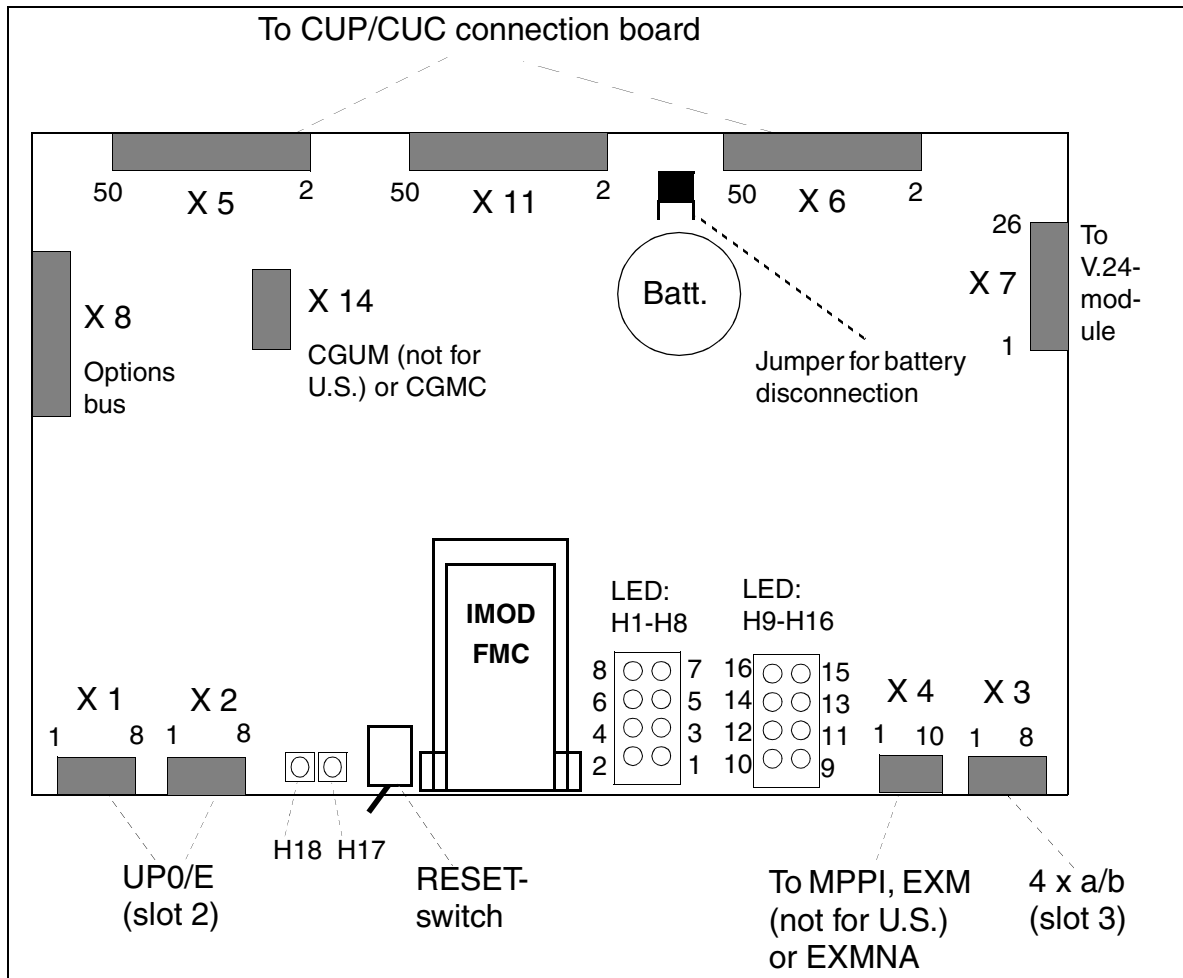


Figure 3-1 CBPC Interfaces—OfficeCom/OfficePoint (S30810-Q2932-A201/B201)

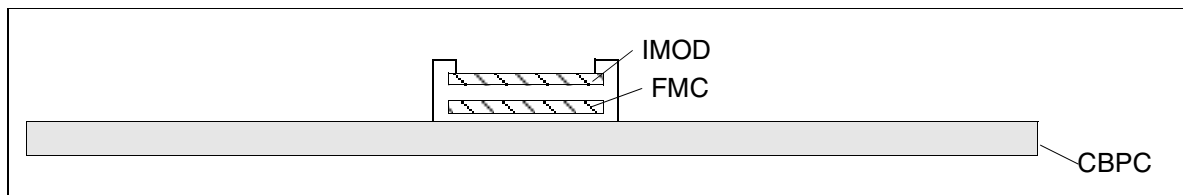


Figure 3-2 IMOD and FMC - Dual-Board Connector

**Note:** The underequipped CBPC board for the OfficePoint does not include the CGMC interface (X14) or the LEDs (H9 to H16) for the OfficeCom expansion board slots.

Table 3-3 LED Indicators on the CBPC

| <b>LED<br/>(Green)</b>                                                                  | <b>LED<br/>(Red)</b> | <b>Assignment</b>                                |
|-----------------------------------------------------------------------------------------|----------------------|--------------------------------------------------|
| H 18                                                                                    |                      | IMOD LED                                         |
| H 17                                                                                    |                      | RUN LED                                          |
| H 16                                                                                    | H 15                 | Board in slot 9 (OfficeCom only)                 |
| H 14                                                                                    | H 13                 | Board in slot 8 (OfficeCom only)                 |
| H 12                                                                                    | H 11                 | Board in slot 7 (OfficeCom only)                 |
| H 10                                                                                    | H 9                  | Board in slot 6 (OfficeCom only)                 |
| H8                                                                                      | H7                   | Board in slot 5                                  |
| H6                                                                                      | H5                   | Board in slot 4                                  |
| H4                                                                                      | H3                   | Analog ports (virtual slot 3)                    |
| H2                                                                                      | H1                   | Digital U <sub>P0/E</sub> ports (virtual slot 2) |
| For slot assignments, see <a href="#">Figure 4-49</a> and <a href="#">Figure 4-52</a> . |                      |                                                  |

See [Section 12.3.1](#) and [Section 12.3.2.2](#) for an explanation of LED signaling.

**CBPC Contact Assignments (OfficeCom and OfficePoint; Not for U.S.)**

Table 3-4 Contact Assignments (OfficeCom and OfficePoint; Not for U.S.)

|            | <b>Slot 2</b>             |                           | <b>Slot 3</b>       | <b>--</b>                     |
|------------|---------------------------|---------------------------|---------------------|-------------------------------|
| <b>Pin</b> | <b>Connector X1</b>       | <b>Connector X2</b>       | <b>Connector X3</b> | <b>Connector X4</b>           |
| 1          | U <sub>P0/E</sub> port 1b | U <sub>P0/E</sub> port 5b | a/b port 1a         | GND                           |
| 2          | U <sub>P0/E</sub> port 1a | U <sub>P0/E</sub> port 5a | a/b port 1b         | Not assigned                  |
| 3          | U <sub>P0/E</sub> port 2b | U <sub>P0/E</sub> port 6b | a/b port 2a         | Not assigned                  |
| 4          | U <sub>P0/E</sub> port 2a | U <sub>P0/E</sub> port 6a | a/b port 2b         | EXMCL<br>(512 kHz data cycle) |
| 5          | U <sub>P0/E</sub> port 3b | U <sub>P0/E</sub> port 7b | a/b port 3a         | EXMDIR<br>(8 kHz frame cycle) |
| 6          | U <sub>P0/E</sub> port 3a | U <sub>P0/E</sub> port 7a | a/b port 3b         | EXMRES<br>(high-active reset) |
| 7          | U <sub>P0/E</sub> port 4b | U <sub>P0/E</sub> port 8b | a/b port 4a         | EXMD<br>(data line)           |
| 8          | U <sub>P0/E</sub> port 4a | U <sub>P0/E</sub> port 8a | a/b port 4b         | EXMDET<br>(detect signal)     |
| 9          |                           |                           |                     | +5V                           |
| 10         |                           |                           |                     | Not assigned                  |

**CBPC Interface Assignments (OfficeCom and OfficePoint; for U.S. Only)**

Table 3-5 Interface Assignments (OfficeCom and OfficePoint; for U.S. Only)

| <b>Pin</b> | <b>Connector X1<br/>(Optiset)</b> | <b>Connector X2<br/>(Optiset)</b> | <b>Connector X3<br/>(analog)</b> | <b>Connector X4<br/>(to EXMNA Module)</b> |
|------------|-----------------------------------|-----------------------------------|----------------------------------|-------------------------------------------|
| 1          | R1 - Port 1                       |                                   | R1 - Port 1                      | GND                                       |
| 2          | T1 - Port 1                       |                                   | T1 - Port 1                      | Not assigned                              |
| 3          | R2 - Port 2                       |                                   | R2 - Port 2                      | Not assigned                              |
| 4          | T2 - Port 2                       |                                   | T2 - Port 2                      | EXMCL                                     |
| 5          | R3 - Port 3                       |                                   | R3 - Port 3                      | EXMDIR                                    |
| 6          | T3 - Port 3                       |                                   | T3 - Port 3                      | HRES                                      |
| 7          | R4 - Port 4                       |                                   | R4 - Port 4                      | EXMD                                      |
| 8          | T4 - Port 4                       |                                   | T4 - Port 4                      | EXMDET                                    |
| 9          |                                   | R5 - Port 5                       |                                  | +5 V                                      |
| 10         |                                   | T5 - Port 5                       |                                  | Not assigned                              |
| 11         |                                   | R6 - Port 6                       |                                  |                                           |
| 12         |                                   | T6 - Port 6                       |                                  |                                           |
| 13         |                                   | R7 - Port 7                       |                                  |                                           |
| 14         |                                   | T7 - Port 7                       |                                  |                                           |
| 15         |                                   | R8 - Port 8                       |                                  |                                           |
| 16         |                                   | T8 - Port 8                       |                                  |                                           |

**CBPC Default Numbering Plan (OfficeCom and OfficePoint)**

Table 3-6      Numbering plan (OfficeCom and OfficePoint)

| Office-<br>Com<br>Office-<br>Point              | Stn. no.<br><br>Com/Point | Int. stn. no.<br><br>Com/Point | DID no.<br><br>Com/Point | Port num-<br>bering<br>system<br>Com/Point | Type                |                                     |
|-------------------------------------------------|---------------------------|--------------------------------|--------------------------|--------------------------------------------|---------------------|-------------------------------------|
| <b>CBPC</b><br><br>Digital<br>U <sub>P0/E</sub> | 100/11                    | 100/11                         | 100/11                   | 100/11                                     | U <sub>P0/E</sub> M | U <sub>P0/E</sub><br>primary        |
|                                                 | 101/12                    | 101/12                         | 101/12                   | 101/12                                     | U <sub>P0/E</sub> M |                                     |
|                                                 | 102/13                    | 102/13                         | 102/13                   | 102/13                                     | U <sub>P0/E</sub> M |                                     |
|                                                 | 103/14                    | 103/14                         | 103/14                   | 103/14                                     | U <sub>P0/E</sub> M |                                     |
|                                                 | 104/15                    | 104/15                         | 104/15                   | 104/15                                     | U <sub>P0/E</sub> M |                                     |
|                                                 | 105/16                    | 105/16                         | 105/16                   | 105/16                                     | U <sub>P0/E</sub> M |                                     |
|                                                 | 106/17                    | 106/17                         | 106/17                   | 106/17                                     | U <sub>P0/E</sub> M |                                     |
|                                                 | 107/18                    | 107/18                         | 107/18                   | 107/18                                     | U <sub>P0/E</sub> M |                                     |
|                                                 | 500/51                    | 500/51                         | 500/51                   | 500/51                                     | U <sub>P0/E</sub> S | U <sub>P0/E</sub><br>second-<br>ary |
|                                                 | 501/52                    | 501/52                         | 501/52                   | 501/52                                     | U <sub>P0/E</sub> S |                                     |
|                                                 | 502/53                    | 502/53                         | 502/53                   | 502/53                                     | U <sub>P0/E</sub> S |                                     |
|                                                 | 503/54                    | 503/54                         | 503/54                   | 503/54                                     | U <sub>P0/E</sub> S |                                     |
|                                                 | 504/55                    | 504/55                         | 504/55                   | 504/55                                     | U <sub>P0/E</sub> S |                                     |
|                                                 | 505/56                    | 505/56                         | 505/56                   | 505/56                                     | U <sub>P0/E</sub> S |                                     |
|                                                 | 506/57                    | 506/57                         | 506/57                   | 506/57                                     | U <sub>P0/E</sub> S |                                     |
|                                                 | 507/58                    | 507/58                         | 507/58                   | 507/58                                     | U <sub>P0/E</sub> S |                                     |
| Analog<br>a/b<br>(T/R)                          | 108/19                    | 108/19                         | 108/19                   | 108/19                                     | a/b                 |                                     |
|                                                 | 109/20                    | 109/20                         | 109/20                   | 109/20                                     | a/b                 |                                     |
|                                                 | 110/21                    | 110/21                         | 110/21                   | 110/21                                     | a/b                 |                                     |
|                                                 | 111/22                    | 111/22                         | 111/22                   | 111/22                                     | a/b                 |                                     |

### 3.2.2 CBMOD

#### Introduction

The CBMOD board (shown in [Figure 3-3](#)) performs all control and switching functions for Hicom 150 E OfficePro. The following CBMOD versions support the following releases:

- Release 1.0/2.0/2.2 – S30810-Q2960-X100 and S30810-Q2960-X200
- Release 3.0 and later – S30810-Q2960-X200 only

#### CBMOD Issues of version X100

| If                                      | Then                                                                                                                                                                            |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CBMOD = S30810-Q2960-X100,<br>< issue 3 | ISDN systems should not have a connected Integrated Modem Card (IMOD), since this will block access to the remote service via the integrated digital modem (Bpcxhannel access). |
| CBMOD = S30810-Q2960-X100,<br>≥ issue 3 | Remote service is possible via both the integrated analog modem (IMOD) and the integrated digital modem (even when IMOD is installed).                                          |

#### Subboards

Depending on the application, the following subboards can be used:

- Clock Generator Modul Combined (CGMC) or Clock Generator Modul (CGM), optional
- Flash memory card FMC
- Integrated modem card IMOD (optional)

#### Application Notes

- To connect a service pc, you can access the V.24 (RS-232) interface on the CBMOD from the front of the basic cabinet (after removing the cover). (See [Figure 3-3](#)).
- The DRAM capacity is 2 MB in CBMOD version X100 and 4 MB in version X200. In the event of a power failure, the contents of the entire DRAM (CBMOD X100) or only the first DRAM half (CBMOD X200) are retained for approximately 100 hours by a maintenance-free NiCd battery. The charging time at initial activation is approximately 24 hours.

- The real-time clock (with combined calendar function) integrated on the CBMOD has battery backup that maintains power for 100 hours in the event of a power outage.

### **Switches and Indicators**

- Reset/reload switch
  - Up: Default setting
  - Down:
    - Switch pressed < 5 seconds = Reset activated
    - Switch pressed > 5 seconds = Reload activated (RUN LED out indicates that a reload is in progress)
- RUN LED
  - Signals the current status of the CBMOD board (refer to Table 5-2 on page 5-2).
- IMOD LED
  - Indicates the current status of the integrated modem (refer to Table 5-3 on page 5-3).
- Seven-segment display - For the meanings of the display values, refer to Table 5-4 on page 5-3.



## Switches and Indicators on the CBMOD Board

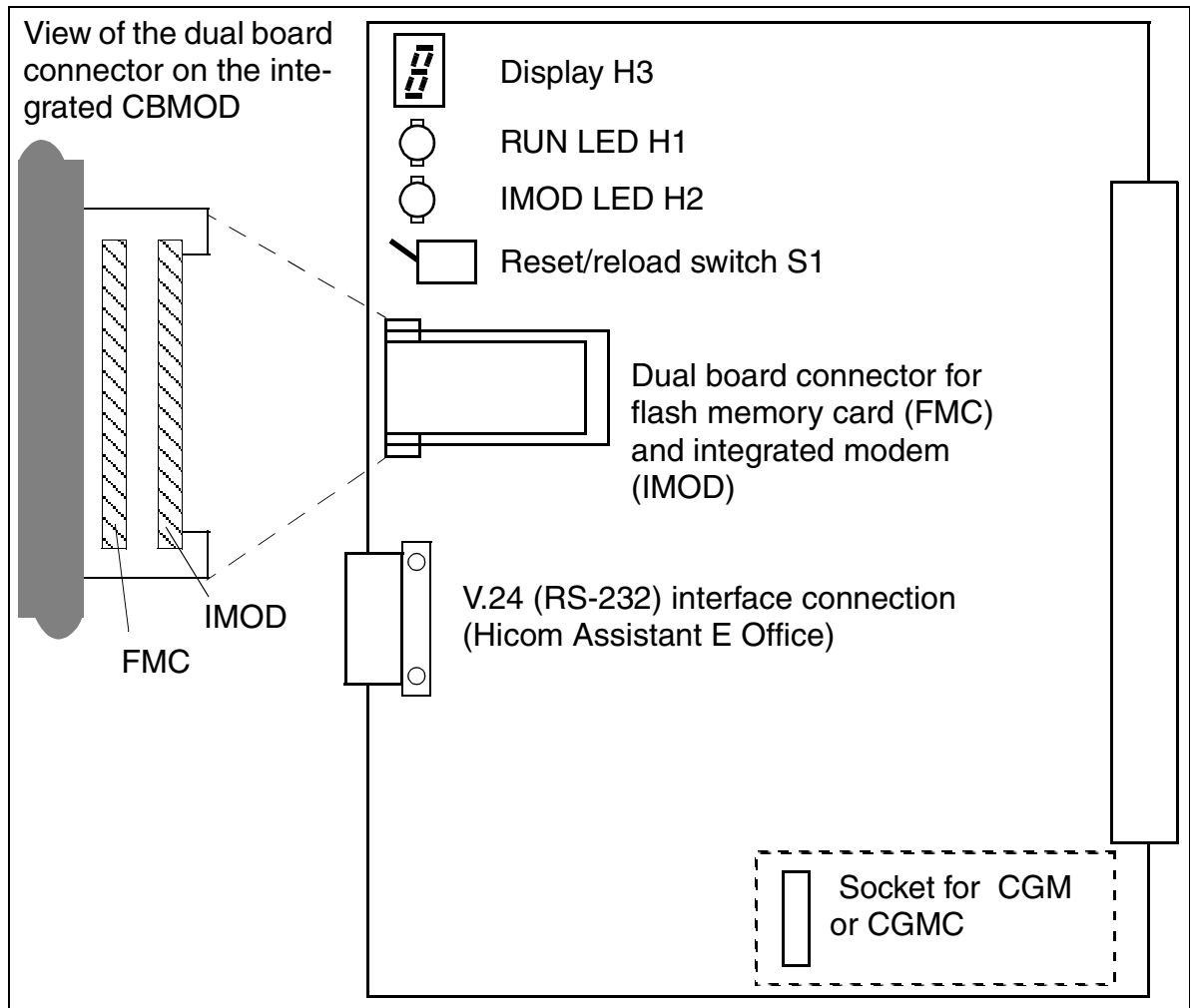


Figure 3-3 CBMOD Board (S30810-Q2960-X100/-X200) Switches and Indicators

### 3.2.3 CGM

#### Introduction

The clock generator module (CGM) (S30807-Q6906-X) is an optional plug-in module for the CBMOD control board (Hicom 150 E OfficePro).

The CGM must be inserted for applications that require greater clock accuracy:

- Hicom cordless EM (CGM Version 3.0 or later)
- Digital tie traffic (CorNet-N, QSIG), exclusively in the main CS (clock master)

In the U.S., the CGM Module may also be required for primary rate interface ISDN (PRI).

There are plans to replace the CGM board (S30807-Q6906-X) with CGMC (S30807-Q6924-X100).

### 3.2.4 CGMC

#### Introduction

The clock generator module combined (CGMC) is an optional plug-in module for the central control boards

- CBPC (Hicom 150 E OfficeCom/OfficePoint C): CGMC S30807-Q6924-X
- CBMOD (Hicom 150 E OfficePro): CGMC S30807-Q6924-X100.

The CGMC must be inserted for applications that require greater clock accuracy:

- Hicom cordless EM.
- Digital tie traffic (CorNet-N, QSIG), exclusively in the main CS (clock master).

CGMC will replace CGUM for OfficeCom (S30807-Q6909-X) and CGM for OfficePro (S30807-Q6906-X).

### 3.2.5 CGUM (Not for U.S.)

#### Introduction

The clock generator upside-down module (CGUM) (S30807-Q6909-X) is an optional plug-in module for the CBPC control board (Hicom 150 E OfficeCom).

The CGUM must be inserted for applications that require greater clock accuracy:

- Hicom cordless EM
- Digital tie traffic (CorNet-N, QSIG), exclusively in the main CS (clock master)

There are plans to replace the CGUM board (S30807-Q6909-X) with CGMC (S30807-Q6924-X).

### 3.2.6 CONBO

#### Introduction

Configuring the Hicom 150 E OfficePro with three cabinets ("7-slot" cabinets) requires that the CONBO (connection board) be inserted in the first slot in EC2. This board

- Supplies the HDLC, PCM and clock signals from the first expansion cabinet (EC1) to the second (EC2).
- Generates an ID signal that informs the CBMOD of the existence of a third cabinet

You do not need a CONBO board if you are using Hicom 150 E OfficePro "Extended" ("8-slot" cabinets).

### **3.2.7 CR8N**

#### **Introduction**

In Release 1.0 (SMR-Q) and Release 2.2 (SMR-H) and later, you can install CR8N (Code Receiver) in any slot in all OfficePro cabinets. The board cannot be used in Release 1.1, which must first be upgraded to Release 2.2 software.

The CR8N board is required for:

- A high outgoing traffic load and a large number of analog subscribers exist.
- A Hicom Phonemail system with more than six ports and the automatic attendant function is connected.
- An external automatic attendant is being used as a virtual attendant and the system has a large number of analog trunks.

In these cases, the six code receivers (for tone dialing on analog telephones) that are already present in the system on the CBMOD are not sufficient. Adding a CR8N board provides another eight code receivers and eight code transmitters. Up to two CR8Ns can be installed in each system. A CR8N board and a CR8 board (S30810-Q2513-X) cannot be used in the same system simultaneously.

You can also install or remove a CR8N board during operation. If you remove it while the system is in the operating state, you risk interrupting DTMF signal processing. It is always recommended that you remove or install the board only while the system is switched off.

Note the following recommendations for using the CR8N board if a Hicom Phonemail system, voice mail system, or automatic attendant is connected:

- Up to 8 ports: No CR8N board required.
- 9 to 24 ports: One CR8N board required.
- Over 24 ports: Two CR8N boards required.

These are general recommendations only. In some cases, a CR8N board may already be required for six ports under extreme load conditions.

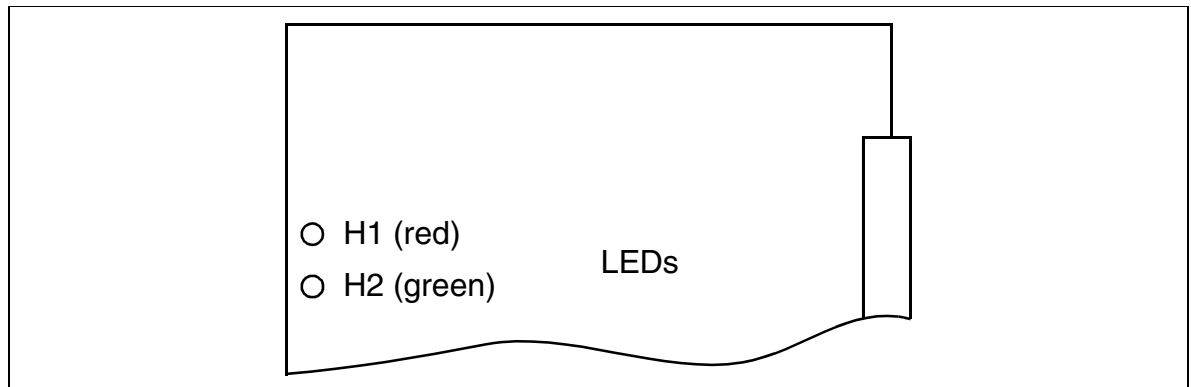
**Switches and LEDs**

Figure 3-4 CR8N (S30810-Q2513-X100)

**LED Statuses and Their Meanings**

Table 3-7 CR8N - LED Statuses

| Red LED  | Green LED | Status                                                                                            | Action                         |
|----------|-----------|---------------------------------------------------------------------------------------------------|--------------------------------|
| Off      | Off       | Board is not connected to the power source or is not inserted correctly. Board is out of service. | Check board connector contact. |
| On       | Off       | Board is receiving power and board test is in progress.                                           | Wait                           |
|          |           | If the status does not change, the loadware did not load correctly. Board is defective.           | Replace board                  |
| Flashing | Off       | Loadware is loading.                                                                              |                                |
| On       | On        | Board test failed. Board is defective.                                                            | Replace board                  |
| Off      | On        | Board test completed successfully and board is OK (temporary transition).                         |                                |
| Off      | Flashing  | Board ready.                                                                                      |                                |

**3.2.8 .CUC**

Backplane of the OfficeCom (connection unit com - CUC), connector designations and slot assignments

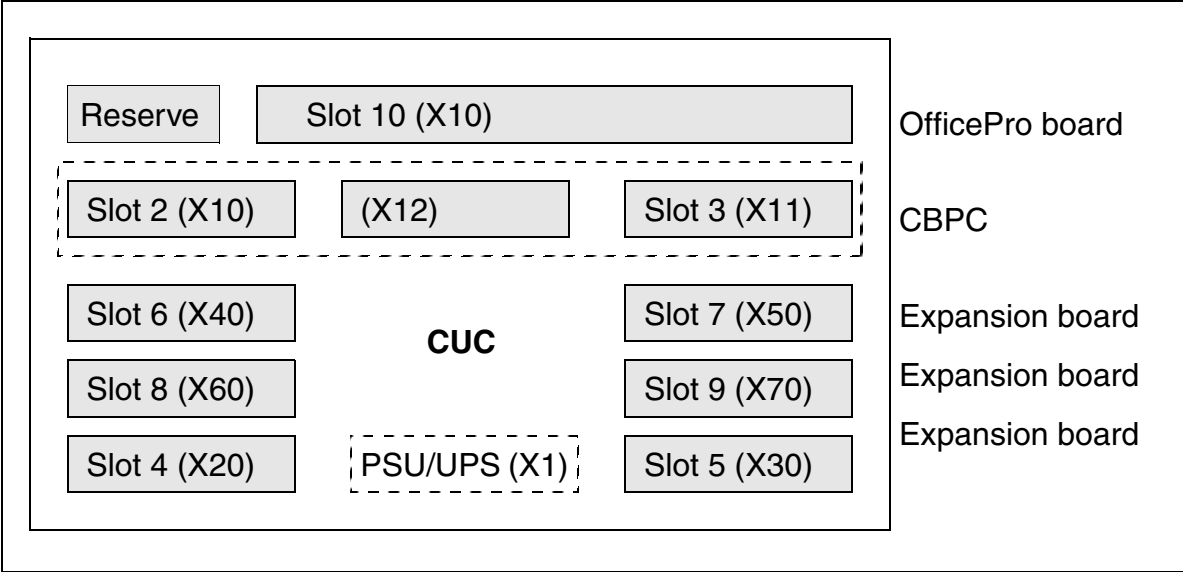


Figure 3-5 Backplane CUC (S30777-Q0750-X)

**3.2.9 CUP**

Backplane of the OfficePoint (connection unit point - CUP), connector designation and slot assignments

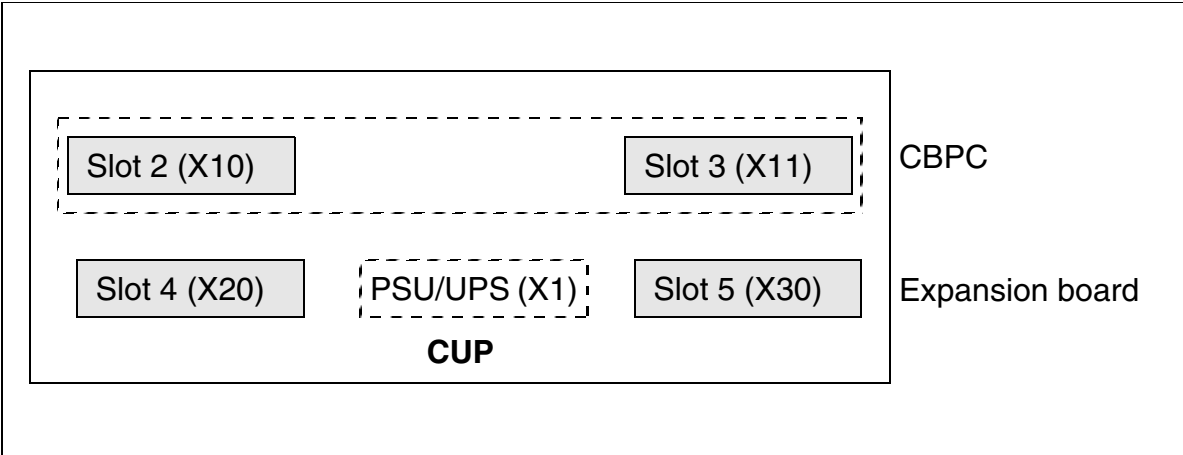


Figure 3-6 Backplane CUP (S30777-Q0751-X)

### 3.2.10 FMC

#### Introduction

The flash memory card (FMC) is a plug-in PCMCIA memory card for the CBPC (Hicom 150 E OfficePoint, OfficeCom) and CBMOD (Hicom 150 E OfficePro). The FMC contains the country- and release-specific application processor software (APS).

Table 3-8 Flash Memory Card Models and Applications

| FMC           | Part Number                         | Country                | Application in Hicom 150 E    |                                                     |                             |                             |             |
|---------------|-------------------------------------|------------------------|-------------------------------|-----------------------------------------------------|-----------------------------|-----------------------------|-------------|
|               |                                     |                        | OfficePro<br>Standard Config. | OfficePro<br>“Extended” config,<br>“8-slot” cabinet | OfficeCom<br>Release 2.2 HW | OfficeCom<br>Release 1.0 HW | OfficePoint |
| Release 2.2   |                                     |                        |                               |                                                     |                             |                             |             |
| FMC8 (8 MB)   | S30807-Q6910-X100 (empty basic FMC) | World                  | X                             | X                                                   | X                           | X                           | X           |
|               | P30370-P720-A680                    | World, excl.<br>U.S.   | X                             |                                                     |                             |                             |             |
|               | P30370-P721-A680                    |                        |                               |                                                     | X                           |                             |             |
|               | P30370-P722-A680                    |                        |                               |                                                     |                             |                             | X           |
|               | P30370-P723-A680                    |                        |                               |                                                     |                             | X                           |             |
|               | P30370-P720-P680                    | Special coun-<br>tries |                               | X                                                   |                             |                             |             |
| FMC10 (10 MB) | S30807-Q6910-X (empty basic FMC)    | World                  | X                             | X                                                   | X                           | X                           | X           |
|               | P30370-P720-A600                    | World, excl.<br>U.S.   | X                             |                                                     |                             |                             |             |
|               | P30370-P721-A600                    |                        |                               |                                                     | X                           |                             |             |
|               | P30370-P722-A600                    |                        |                               |                                                     |                             |                             | X           |
|               | P30370-P723-A600                    |                        |                               |                                                     |                             | X                           |             |
|               | P30370-P720-C600                    | U.S. only              | X                             |                                                     |                             |                             |             |
|               | P30370-P721-C600                    |                        |                               |                                                     | X                           |                             |             |
|               | P30370-P722-C600                    |                        |                               |                                                     |                             |                             | X           |
|               | P30370-P723-C600                    |                        |                               |                                                     |                             | X                           |             |
|               | P30370-P720-P600                    | Special coun-<br>tries |                               | X                                                   |                             |                             |             |

Table 3-8 Flash Memory Card Models and Applications

| FMC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Part Number                         | Country                | Application in Hicom 150 E    |                                                     |                             |                             |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------|-------------------------------|-----------------------------------------------------|-----------------------------|-----------------------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |                        | OfficePro<br>Standard Config. | OfficePro<br>“Extended” config,<br>“8-slot” cabinet | OfficeCom<br>Release 2.2 HW | OfficeCom<br>Release 1.0 HW | OfficePoint |
| Release 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                     |                        |                               |                                                     |                             |                             |             |
| FMC8 (8 MB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | S30807-Q6907-X100 (empty basic FMC) | World                  | X                             | X                                                   | X                           |                             | X           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P800-A680                    | World, excl.<br>U.S.   | X                             |                                                     |                             |                             |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P801-A680                    |                        |                               |                                                     | X                           |                             |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P802-A680                    |                        |                               |                                                     |                             |                             | X           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P800-P680                    | Special coun-<br>tries |                               | X                                                   |                             |                             |             |
| FMC10 (10 MB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | S30807-Q6907-X (empty basic FMC)    | World                  | X                             | X                                                   | X                           |                             | X           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P800-A600                    | World, excl.<br>U.S.   | X                             |                                                     |                             |                             |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P801-A600                    |                        |                               |                                                     | X                           |                             |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P802-A600                    |                        |                               |                                                     |                             |                             | X           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P800-C600                    | U.S. only              | X                             |                                                     |                             |                             |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P801-C600                    |                        |                               |                                                     | X                           |                             |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P802-C600                    |                        |                               |                                                     |                             |                             | X           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | P30370-P800-P600                    | Special coun-<br>tries |                               | X                                                   |                             |                             |             |
| Explanatory notes on table:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                     |                        |                               |                                                     |                             |                             |             |
| <ul style="list-style-type: none"><li>● <b>FMC8</b><br/>FMC8 is the default version and supports the <u>APS transfer</u> feature. It includes a backup of the customer database.</li><li>● <b>FMC10</b><br/>The system stores the LOG file (see <u>Section 12.8, Logging Administrative Procedures</u>) in the additional 2 MB memory area.</li><li>● <b>USA</b><br/>All systems come equipped with an FMC10.</li><li>● <b>Special countries</b><br/>The “Extended” configuration is released only for the following countries with mainly analog technology (status: June 1999): Argentina, ATEA countries (Africa (excluding South Africa), Middle and Near East), Brazil, China, India, Malaysia, Russia, South Africa, Thailand, Ukraine, Byelorussia.</li></ul> |                                     |                        |                               |                                                     |                             |                             |             |



### **3.2.11 IMOD**

#### **Introduction**

The integrated modem card (IMOD; S30807-Q9607-X) is an optional plug-in card (PCMCIA format) for the CBPC (Hicom 150 E OfficePoint, OfficeCom) and CBMOD (Hicom 150 E OfficePro). It permits the use of remote service (analog mode up to 14.4 kbps) without an external modem.

## 3.2.12 PSUC

### Introduction

The PSUC power supply for the OfficeCom system plugs into a special slot and is secured by screws. It connects to the power outlet using a modular power cord.

### Functions

- Nominal voltage range: 100 VAC - 240 VAC
- Nominal frequency: 50 Hz - 60 Hz
- Ring generator: 75 VAC, 20/25/50 Hz
- Partial voltages: +5 VDC, -48 V
- Power consumption: 145 W

### Interfaces

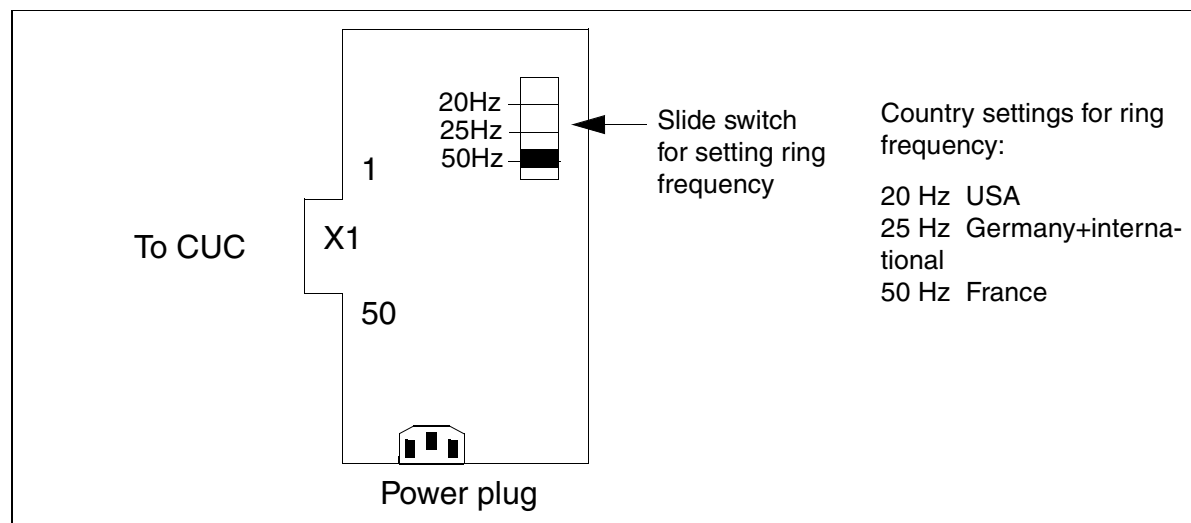


Figure 3-7 PSUC Interfaces (S30122-K5661-xxx)



#### **DANGER**

System voltage can only be switched on or off by plugging in or unplugging the power cord.

## **Servicing the Power Supply**



### **DANGER**

Before beginning work, make sure that the system is grounded and the system power cord is disconnected from the outlet. Use lockout/tagout (LOTO) procedures.

The PSUC contains no field-serviceable components. You must replace the entire power supply.

### 3.2.13 PSUF

#### Introduction

The PSUF power supply for the OfficePoint system plugs into a special slot and is secured by screws. It connects to the power outlet using a modular power cord.

#### Functions

- Nominal voltage range: 100 VAC - 240 VAC
- Nominal frequency: 50 Hz - 60 Hz
- Ring generator: 75 VAC, 20/25/50 Hz
- Partial voltages: +5 VDC, -48 V
- Power consumption: 70 W

#### Interfaces

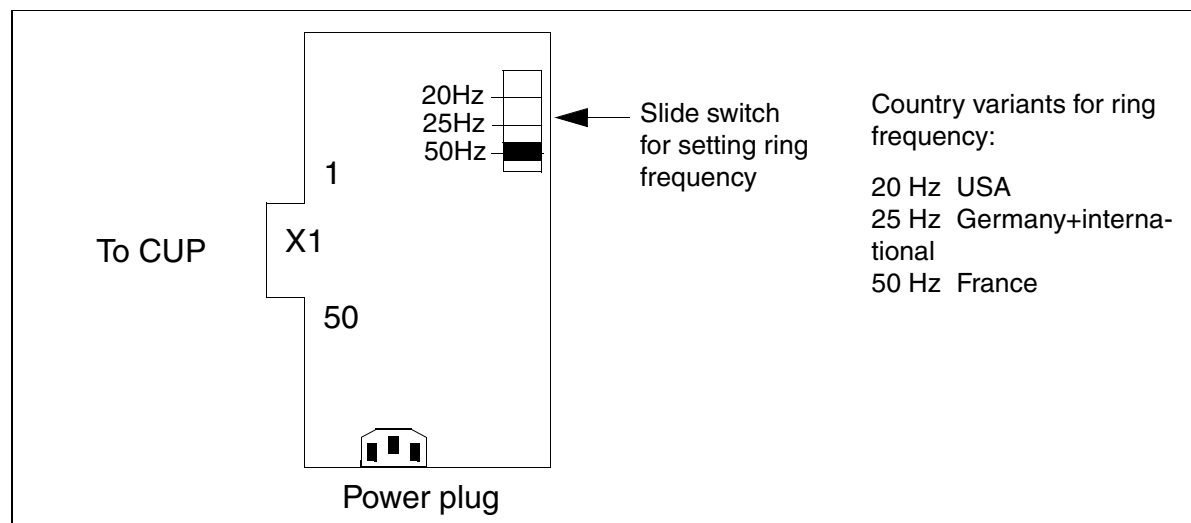


Figure 3-8 PSUF Interfaces (S30122-K5658-xxx)



#### **DANGER**

System voltage can only be switched on or off by plugging in or unplugging the power cord.

## **Servicing the Power Supply**



### **DANGER**

Before beginning work, make sure that the system is grounded and the system power cord is disconnected from the outlet. Use lockout/tagout (LOTO) procedures.

The PSUF contains no field-serviceable components. You must replace the entire power supply.

### **3.2.14 PSUI**

#### **Introduction**

Each cabinet in Hicom 150 E OfficePro requires one PSUI power supply module. A cumulative LED indicates the presence of all the necessary secondary voltages. When a PSUI fails, it must be replaced. Do not attempt to replace individual fuses within the PSUI. Service technicians should not open or repair the board.

The PSUI is used in the OfficePro models for every country. The ring frequency and ring voltage of the integrated ring generator can be adjusted country-specifically.

For production reasons, two different PSUI units with the same function exist. The two PSUI units are interchangeable and differ only in the location of the ring-current switch.

UPSM and PSUI cannot both be used in the same system.

#### **Part Numbers of the Two PSUI Units**

- S30122-K5083-L301 ([Figure 3-9](#))
- S30122-K5083-X301 ([Figure 3-10](#))

#### **Specifications**

- Nominal voltage range: 100 VAC - 240 VAC
- Nominal frequency: 50 Hz - 60 Hz
- Max, power consumption: 310 W (424 W is operated with USVI)

#### **Data for the Integrated Ring Generator**

- Nominal output voltages: 60/75 V<sub>eff</sub>
- Output frequencies: 20/25/50 Hz
- Output power
  - Normal load: 4.0 VA
  - Peak load: 8.0 VA short-time (3 minutes at peak load with 15 minutes at normal load)

## Front and Rear Views of the PSUI (S30122-K5083-L301)

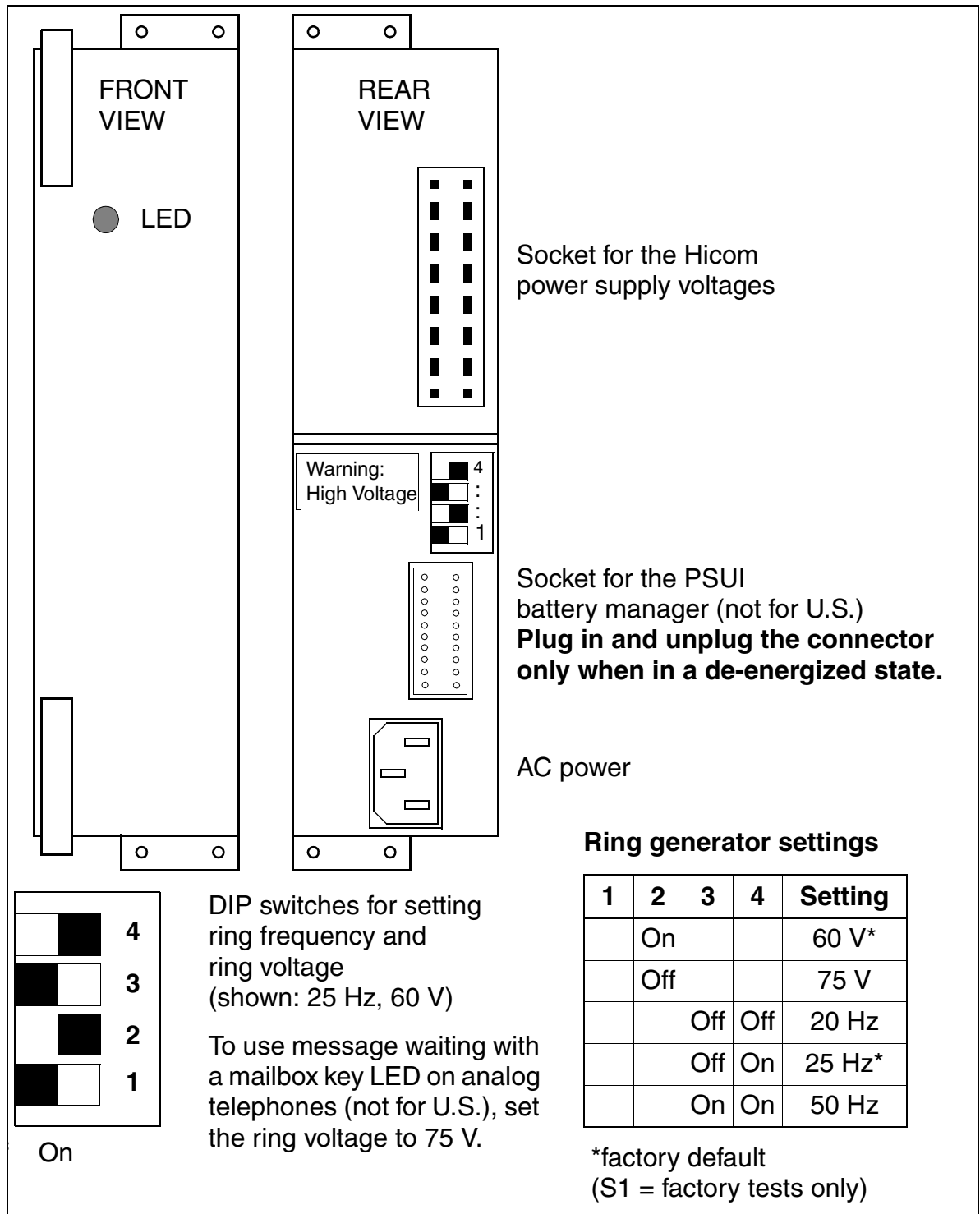


Figure 3-9 Front and Rear Views of the PSUI (S30122-K5083-L301)

Front and Rear Views of the PSUI (S30122-K5083-X301)

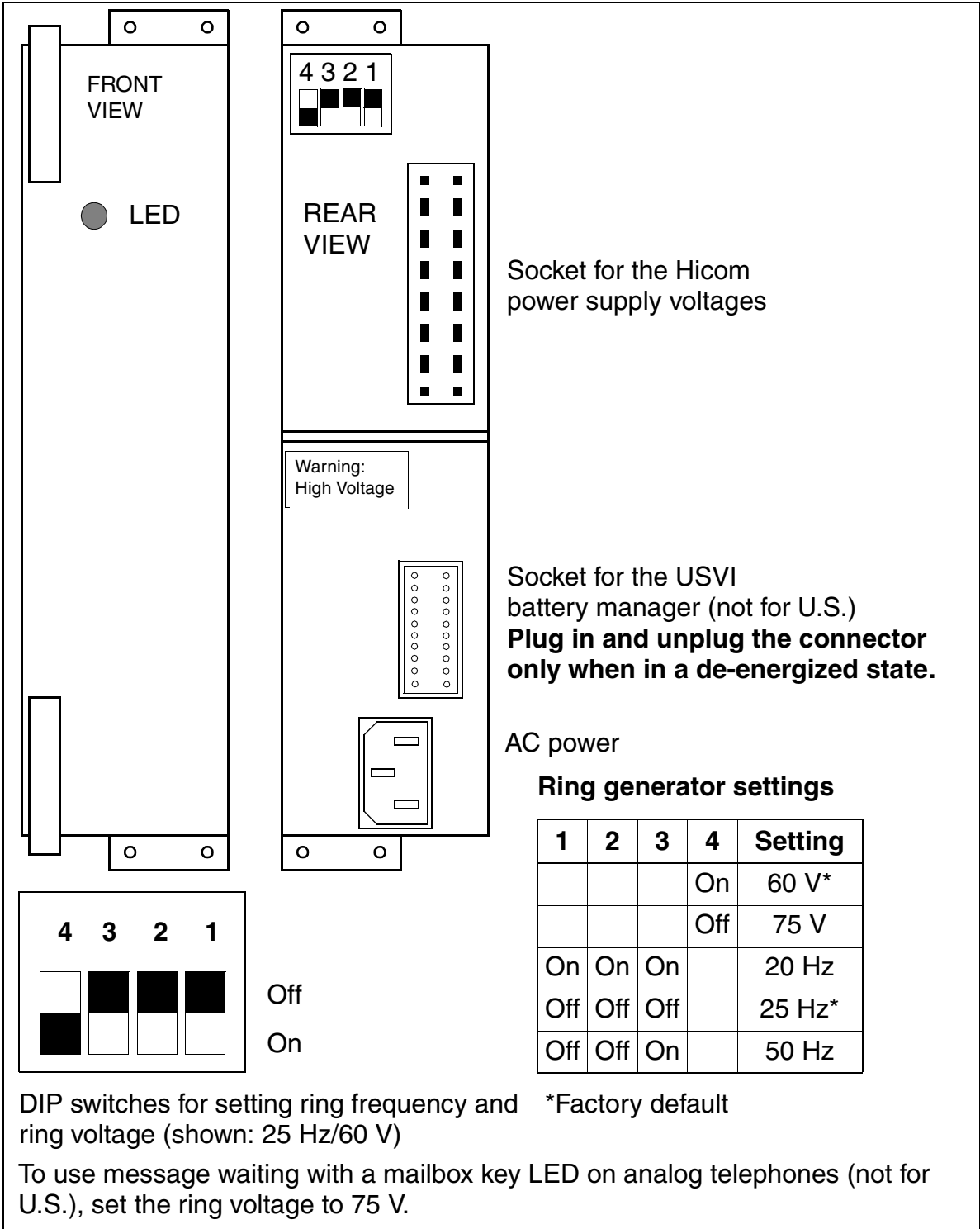


Figure 3-10 Front and Rear Views of the PSUI (S30122-K5083-X301)



### **3.2.15 SBS, OfficeOne (not for U.S.)**

#### **Introduction**

The SBS (**s**ingle **b**oard **s**ystem) is the single-board module for Hicom 150 E OfficeOne. The board provides the following features and outputs:

#### **Functions**

- Signalling (SIU)
- System timing using real-time clock with vanadium-lithium battery (rechargeable)
- PCM highway switching and conferencing on conference circuit

#### **Interfaces**

- Digital  $U_{P0/E}$  subscriber lines
- Analog a/b subscriber lines
- V.24 (RS-232)
- 2  $S_0$  interfaces for either trunks or subscriber lines

## SBS interfaces

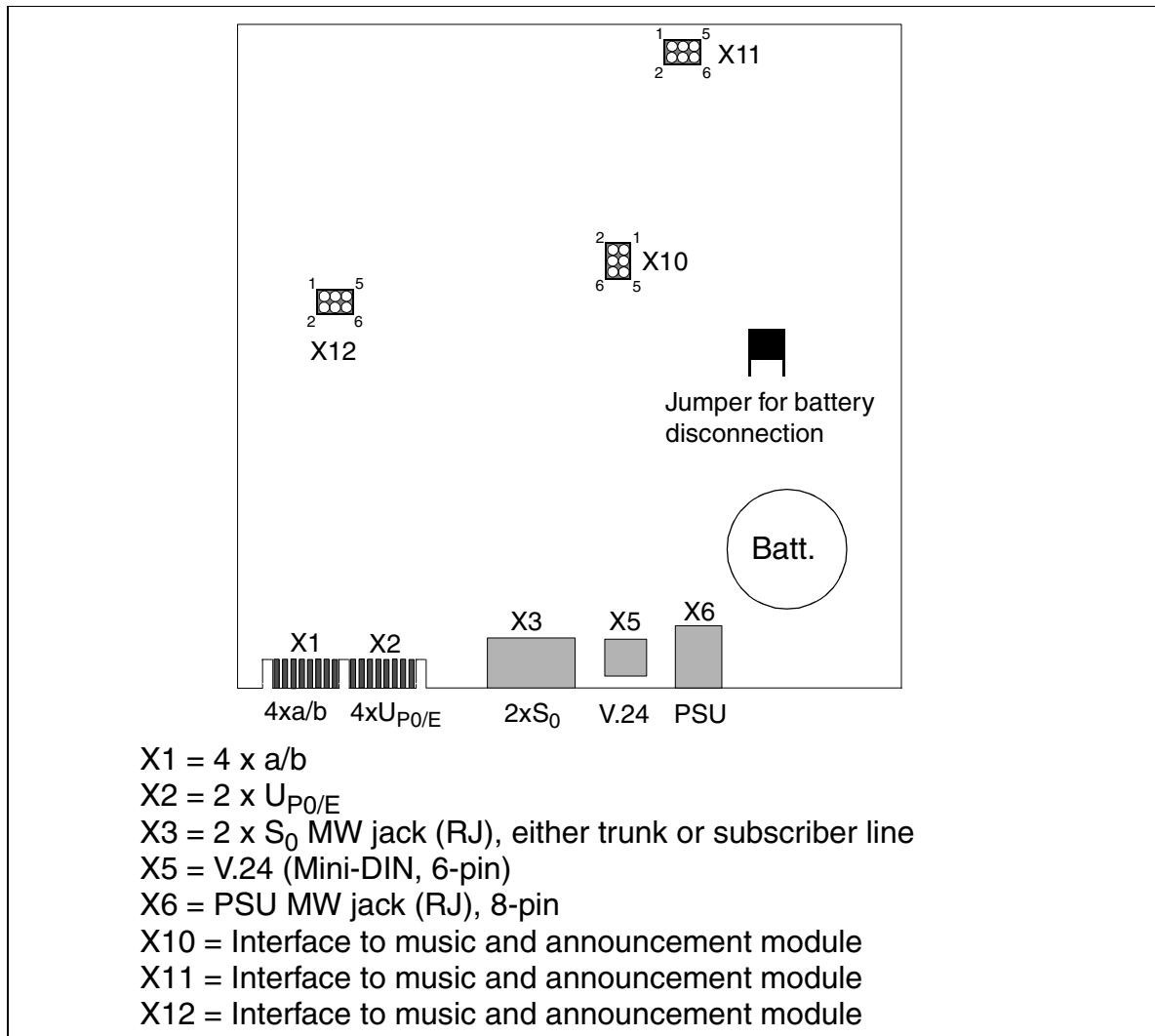


Figure 3-11 SBS Interfaces in OfficeOne (S30817-Q905-A)

**SBS Contact Assignments for the Music and Announcement Module**

Table 3-9 OfficeOne Contact Assignments for the Music and Announcement Module

| Pin | Connector X10               | Connector X11 | Connector X12        |
|-----|-----------------------------|---------------|----------------------|
| 1   | P5V                         | GND           | RING4 (a/b port 4 b) |
| 2   | GND                         | GND           | TIP4 (a/b port 4 a)  |
| 3   | EXMD (data line)            | GND           | N.C.                 |
| 4   | EXMDIR (frame cycle, 8 kHz) | GND           | N.C.                 |
| 5   | EXMCL (data cycle, 512 kHz) | P5V           | N.C.                 |
| 6   | EXMDET (detect signal)      | P5V           | N.C.                 |

**SBS Contact Assignments**

Table 3-10 OfficeOne Contact Assignments (Not for U.S.)

| Contact | Conn. X1<br>ab | Conn. X2<br>U <sub>P0/E</sub> | Conn. X3<br>S <sub>0</sub> | Conn. X5<br>V.24 |
|---------|----------------|-------------------------------|----------------------------|------------------|
| 1       | a1 - Port 1    | b1 - Port 1                   |                            | GND              |
| 2       | b1 - Port 1    | a1 - Port 1                   | SX+                        | TxD              |
| 3       | a2 - Port 2    | b2 - Port 2                   | SR+                        | CTS              |
| 4       | b2 - Port 2    | a2 - Port 2                   | SR-                        | RxD              |
| 5       | a3 - Port 3    | b3 - Port 3                   | SX-                        | RTS              |
| 6       | b3 - Port 3    | a3 - Port 3                   |                            | VCC              |
| 7       | a4 - Port 4    | b4 - Port 4                   |                            |                  |
| 8       | b4 - Port 4    | a4 - Port 4                   |                            |                  |

## SBS Numbering Plan

Table 3-11 OfficeOne Numbering Plan (Not for U.S.)

| OfficeOne                                      | Stn. no. | Int.call no. | DID no. | Port numbering system | Type                |                                |
|------------------------------------------------|----------|--------------|---------|-----------------------|---------------------|--------------------------------|
| <b>SBS</b><br><br>Digital<br>U <sub>P0/E</sub> | 11       | 11           | 11      | 1                     | U <sub>P0/E</sub> M | U <sub>P0/E</sub><br>primary   |
|                                                | 12       | 12           | 12      | 2                     | U <sub>P0/E</sub> M |                                |
|                                                | 13       | 13           | 13      | 3                     | U <sub>P0/E</sub> M |                                |
|                                                | 14       | 14           | 14      | 4                     | U <sub>P0/E</sub> M |                                |
|                                                | 51       | 51           | 51      | 1                     | U <sub>P0/E</sub> S | U <sub>P0/E</sub><br>secondary |
|                                                | 52       | 52           | 52      | 2                     | U <sub>P0/E</sub> S |                                |
|                                                | 53       | 53           | 53      | 3                     | U <sub>P0/E</sub> S |                                |
|                                                | 54       | 54           | 54      | 4                     | U <sub>P0/E</sub> S |                                |
| Analog a/b                                     | 15       | 15           | 15      | 1                     | a/b                 |                                |
|                                                | 16       | 16           | 16      | 2                     | a/b                 |                                |
|                                                | 17       | 17           | 17      | 3                     | a/b                 |                                |
|                                                | 18       | 18           | 18      | 4                     | a/b                 |                                |

### **3.2.16 SBS, OfficeStart (not for U.S.)**

#### **Introduction**

The SBS (single board system, S30817-Q905-Cxxx) is the underequipped version of the OfficeOne central board for OfficeStart. The board provides the following features and outputs:

#### **Functions**

- Signaling unit (SIU)
- Real-time clock with vanadium lithium battery (rechargeable)
- PCM highway switching and conferencing on conferencing circuit

#### **Ports**

- 2 digital  $U_{P0/E}$  subscriber line interfaces
- 4 analog a/b subscriber line interfaces
- 1 V.24 port
- 1 fixed  $S_0$  interface for trunk access
- 1 fixed  $S_0$  interface for subscriber lines

## SBS interfaces

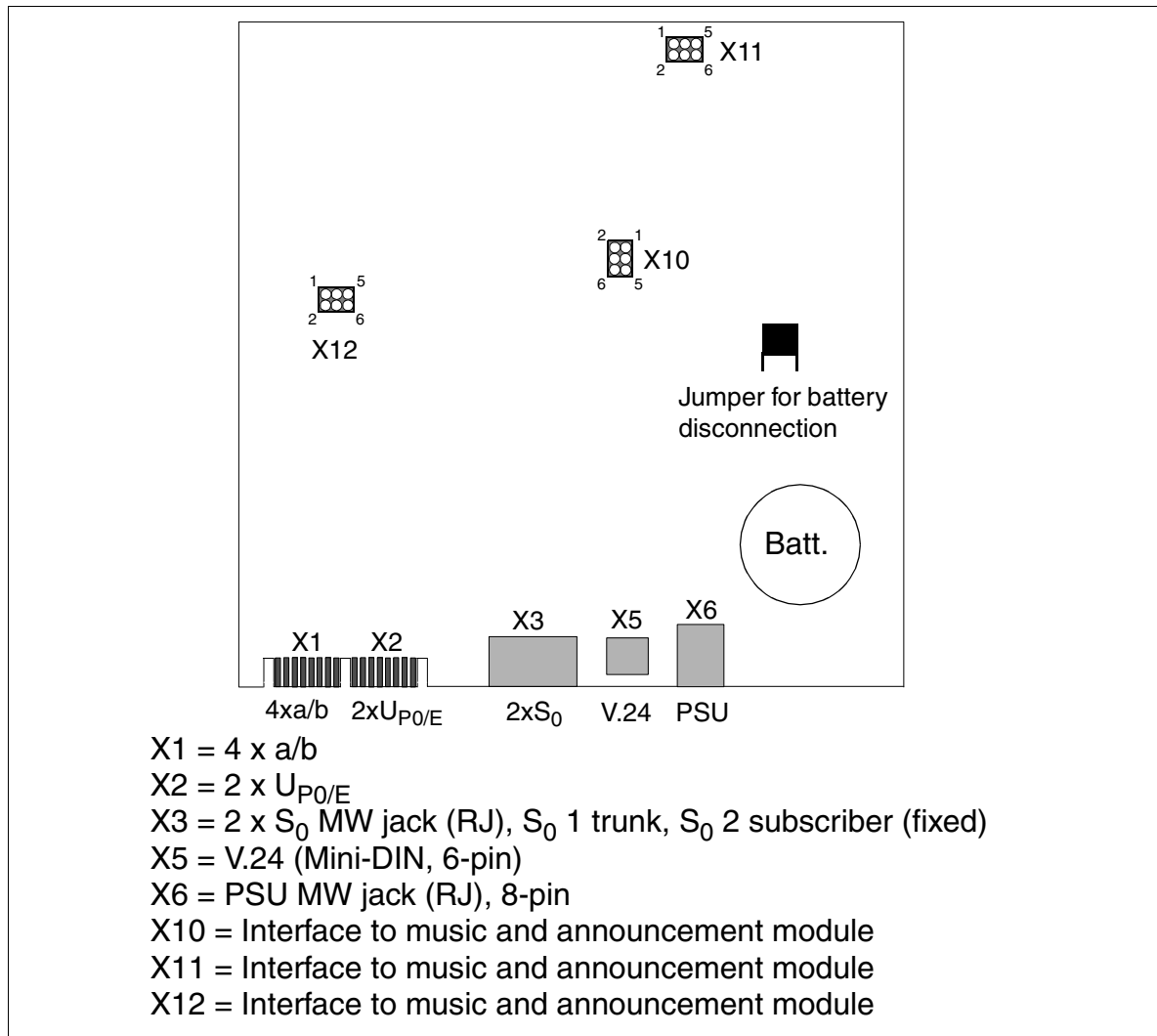


Figure 3-12 SBS Interfaces in OfficeStart (S30817-Q905-Cxxx)

**SBS Contact Assignments**

Table 3-12 OfficeStart Contact Assignments

| Pin | Conn. X1 (ab)                   | Conn. X2 (U <sub>P0/E</sub> ) | Conn. X5 (V.24) |
|-----|---------------------------------|-------------------------------|-----------------|
| 1   | a1 - Port 1                     | b1 - Port 1                   | GND             |
| 2   | b1 - Port 1                     | a1 - Port 1                   | TxD             |
| 3   | a2 - Port 2                     | b2 - Port 2                   | CTS             |
| 4   | b2 - Port 2                     | a2 - Port 2                   | RxD             |
| 5   | a3 - Port 3                     |                               | RTS             |
| 6   | b3 - Port 3                     |                               | VCC             |
| 7   | a4 - Port 4                     |                               |                 |
| 8   | b4 - Port 4                     |                               |                 |
| Pin | Function                        | Conn X3 (S <sub>0</sub> )     |                 |
| 11  | 1st S <sub>0</sub> trunk        | SX1+ (S <sub>0</sub> port 1)  |                 |
| 12  | 1st S <sub>0</sub> trunk        | SR2+ (S <sub>0</sub> port 1)  |                 |
| 13  | 1st S <sub>0</sub> trunk        | SR1- (S <sub>0</sub> port 1)  |                 |
| 14  | 1st S <sub>0</sub> trunk        | SX2- (S <sub>0</sub> port 1)  |                 |
| 21  | 2nd internal S <sub>0</sub> bus | SX1+ (S <sub>0</sub> port 2)  |                 |
| 22  | 2nd internal S <sub>0</sub> bus | SR2+ (S <sub>0</sub> port 2)  |                 |
| 23  | 2nd internal S <sub>0</sub> bus | SR1- (S <sub>0</sub> port 2)  |                 |
| 24  | 2nd internal S <sub>0</sub> bus | SX2- (S <sub>0</sub> port 2)  |                 |

## SBS Contact Assignments for the Music and Announcement Module

Table 3-13 OfficeStart Contact Assignments for the Music and Announcement Module

| Pin | Connector X10               | Connector X11 | Connector X12        |
|-----|-----------------------------|---------------|----------------------|
| 1   | P5V                         | GND           | RING4 (a/b port 4 b) |
| 2   | GND                         | GND           | TIP4 (a/b port 4 a)  |
| 3   | EXMD (data line)            | GND           | N.C.                 |
| 4   | EXMDIR (frame cycle, 8 kHz) | GND           | N.C.                 |
| 5   | EXMCL (data cycle, 512 kHz) | P5V           | N.C.                 |
| 6   | EXMDET (detect signal)      | P5V           | N.C.                 |

## SBS Numbering Plan

Table 3-14 OfficeStart Numbering Plan

| OfficeStart                     | Stn. no. | Int. call no. | DID no. | Port numbering system | Type                |                              |
|---------------------------------|----------|---------------|---------|-----------------------|---------------------|------------------------------|
| <b>SBS</b><br>U <sub>P0/E</sub> | 11       | 11            | 11      | 1                     | U <sub>P0/E</sub> M | U <sub>P0/E</sub><br>primary |
|                                 | 12       | 12            | 12      | 2                     | U <sub>P0/E</sub> M |                              |
| a/b                             | 13       | 19            | 19      | 1                     | a/b                 |                              |
|                                 | 14       | 20            | 20      | 2                     | a/b                 |                              |
|                                 | 15       | 21            | 21      | 3                     | a/b                 |                              |
|                                 | 16       | 22            | 22      | 4                     | a/b                 |                              |



### 3.2.17 UPSM

#### Introduction

Each cabinet in Hicom 150 E OfficePro requires one UPSM (**un**interruptible **p**ower **s**upply **m**odular). This board integrates the power supply and battery management functions. No other components are required if operated on a network.

To maintain short-term battery emergency operation after a power failure, that is, to use uninterruptible power supply functions, you must also connect one of the following to the UPSM:

- One battery pack per system cabinet
- One battery cabinet (BSG 48/38), including battery charger, or
- One 48 Vdc network



Each connection must have a ferrite bead provided between the UPSM and battery pack, battery cabinet or 48 V dc network. Insert the ferrite bead (Würth 742 7113 or C39022-Z7000-C7) with two windings into the connecting cable at the UPSM output.

UPSM and PSUI must not be used together in one and the same system.

For production-related reasons there are two different UPSM models. Technically identical, the two models have minor mechanical differences and are fully compatible with each other.



The UPSM necessitates a modification to the sheet-metal rear of the cabinet. The UPSM can be installed in the following cabinets:

- Basic cabinet
- Expansion cabinet 1: S30777-U706-X, status 10 and later
- Expansion cabinet 2: S30777-U706-X100, status 2 and later

**For U.S. only:**

The UPSM can be installed in the following cabinets:

- Basic cabinet
- Expansion cabinet 1: S30777-U709-X
- Expansion cabinet 2: S30777-U709-X100

The UPSM can also be installed on new backplanes with re-oriented Champ connectors. The battery back-up function of the UPSM is not used in the U.S.

An LED lights up to indicate that the UPSM is in operation. The UPSM must be replaced when defective (LED does not light up).  
The UPSM is used in models for all countries. The ring frequency of the modular ring generator can be parameterized to suit requirements.



**Caution**

When mounting the UPSM on the cabinet frame, be careful to prevent screws from falling into the power supply unit through the ring generator opening. If a screw falls inside the UPSM, remove the screw before starting up the unit.

**Part Numbers**

- UPSM: S30122-K5950-S100 ([Figure 3-13](#)), S30122-K5950-A100 ([Figure 3-14](#))
- Akkupack 4 x 12 V / 7 Ah: S30122-K5950-Y200  
(The connecting cable for the UPSM is built into the battery pack.)

**Specifications**

- Nominal voltage range: 100 VAC - 240 VAC
- Nominal frequency: 50 Hz - 60 Hz
- Max. input current consumption: 5.4 A - 2.7 A
- Max. power consumption: around 430 W
- Output voltage (battery charging voltage): 42.5 - 55.2 VDC
- Output current (battery charge current):  $\geq 0.8$  A  
(sufficient for battery set rating) = 7 Ah)
- Bridging time (see [page 3-60](#))

**Specifications of the Modular Ring Generator**

- Rated output voltages: 60 / 75 V<sub>act</sub>
- Output frequencies: 20 / 25 / 50 Hz
- Output power
  - continuous: 4.0 VA
  - peak: 8.0 VA (3 minutes load/ 15 minutes pause)

## Front and Rear Views of the UPSM (S30122-K5950-S100)

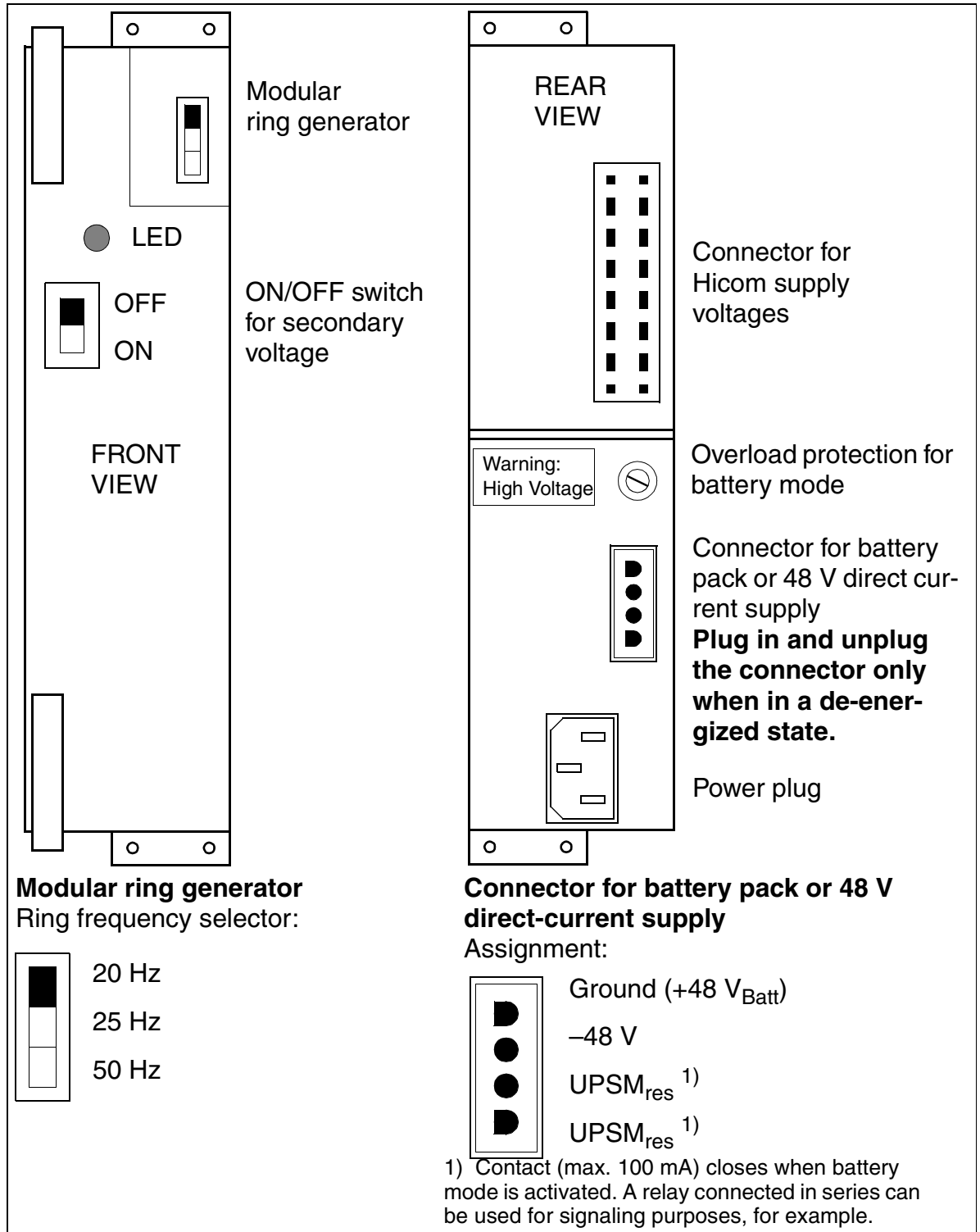


Figure 3-13 UPSM Front and Rear Views (S30122-K5950-S100) (Not for U.S.)

## Front and Rear Views of the UPSM (S30122-K5950-A100)

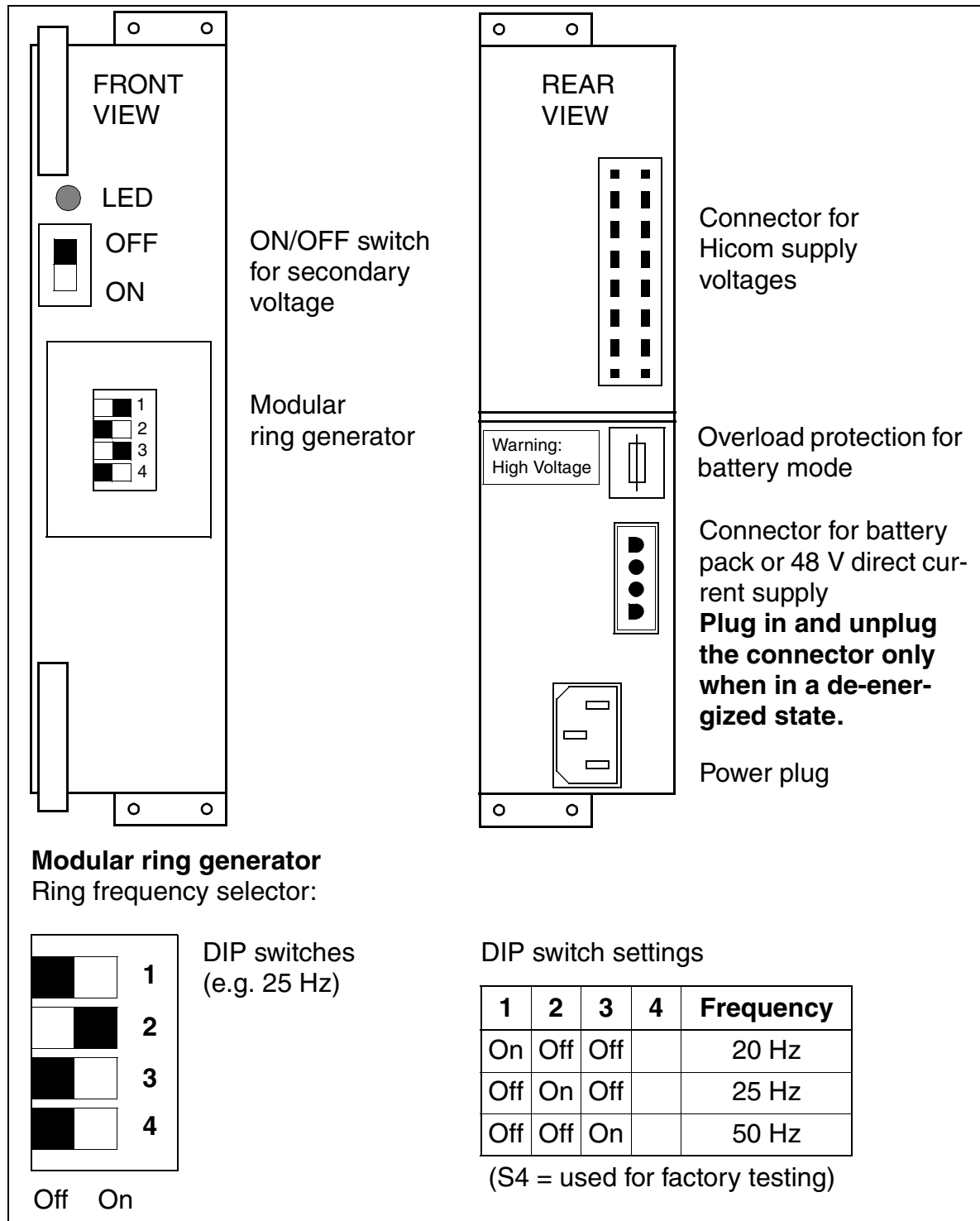


Figure 3-14 Front and Rear Views of the UPSM (S30122-K5950-A100)

**BSG 48/38**

You can use a BSG 48/38 battery cabinet in an upright housing instead of the battery pack or a 48 V direct current supply to extend the bridging time in the event of a power failure. The BSG 48/38 battery cabinet (S30122-X5950-F300) consists of

- an upright housing
- a charging rectifier
- a 38 Ah/48 V battery set

The battery cabinet is designed for direct connection to the Hicom 150 E OfficePro communication system. The DC power cable (S30122-X5950-F310) provided lets you connect any UPSM to the battery cabinet (do not connect to extension cables).



For detailed information about safety precautions as well as using and connecting the battery cabinet, refer to the installation and startup instructions that came with the cabinet.

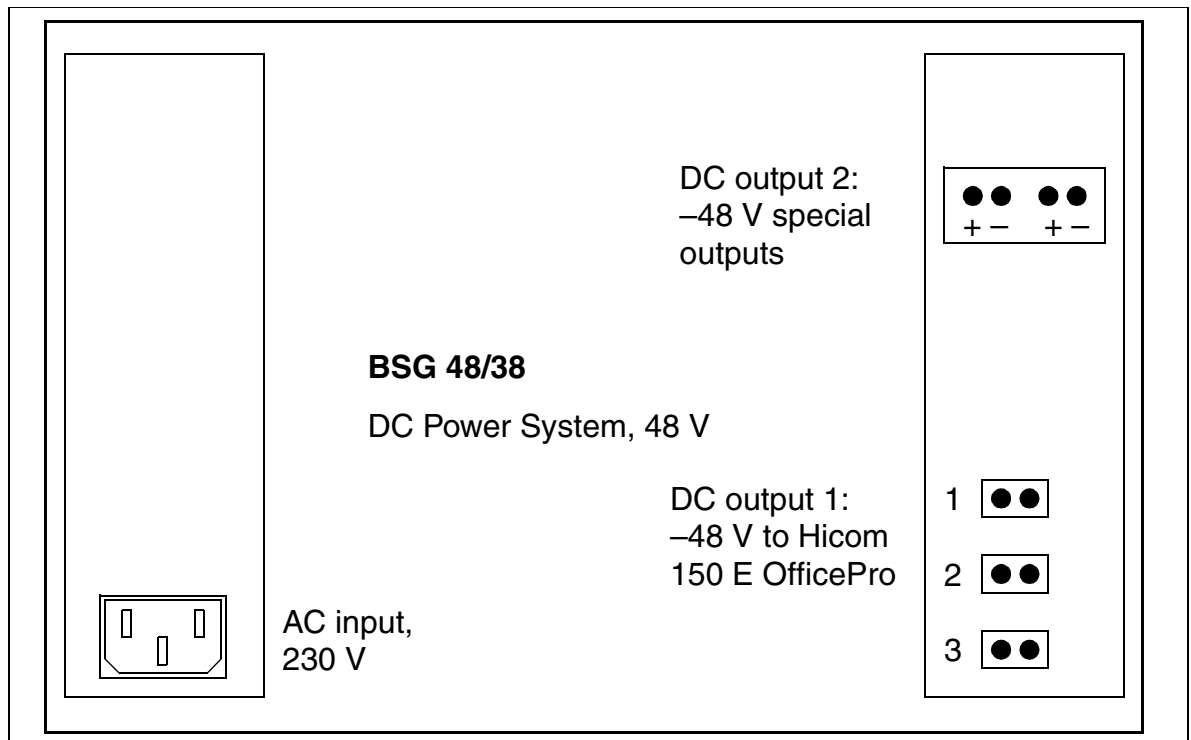


Figure 3-15 Rear View of the BSG 48/38 Battery Cabinet (S30122-X5950-F300)

### 3.2.18 USVC (Not for U.S.)

#### Introduction

The uninterruptible power supply (USVC) for the OfficeCom system plugs into a special slot and is secured by screws. It connects to the power supply using a modular power cord.

#### Functions

- Nominal voltage range: 100 VAC - 240 VAC
- Nominal frequency: 50 Hz - 60 Hz
- Ring generator: 75 VAC, 20/25/50 Hz
- Partial voltages: +5 VDC, -48 V
- Battery charger: 4 x 12 V (40.8 V-55.2 V)
- Power consumption: 180 W

#### Interfaces

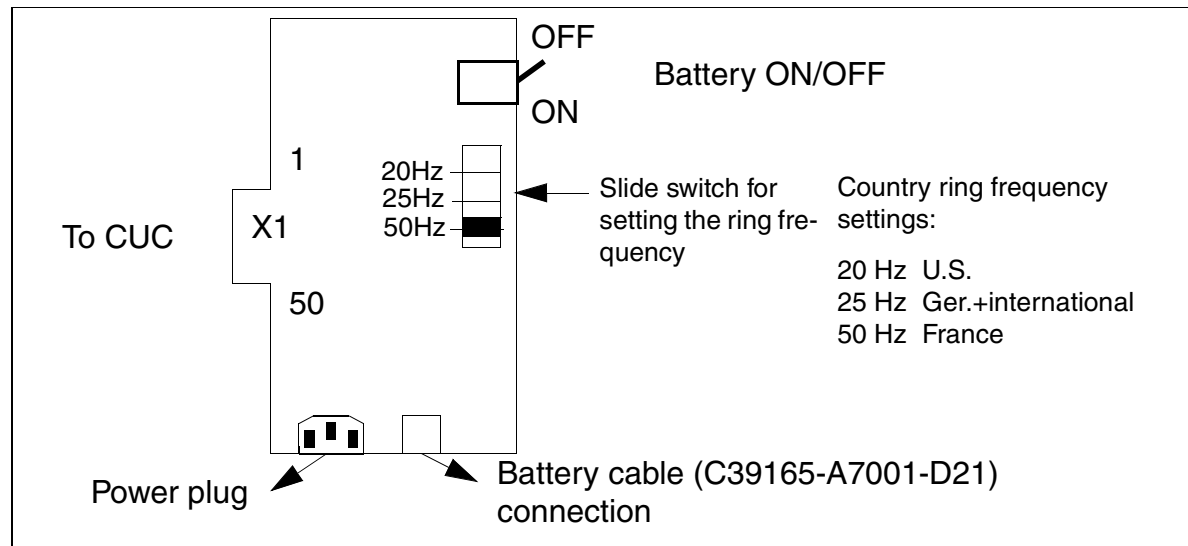


Figure 3-16 USVC Interfaces (S30122-K5660-xxx)



#### **DANGER**

System voltage can only be switched on or off by plugging in or unplugging the power plug. If using a USVC, deactivate battery mode first.

### 3.2.19 USVF (Not for U.S.)

#### Introduction

The uninterruptible power supply (USVF) for the OfficePoint system plugs into a special slot and is secured by screws. It connects to the power outlet using a modular power cord.

#### Functions

- Nominal voltage range: 100 VAC - 240 VAC
- Nominal frequency: 50 Hz - 60 Hz
- Ring generator: 75 VAC, 20/25/50 Hz
- Partial voltages: +5 VDC, -48 V
- Battery charger: 2 x 12 V (20.4 V-27.6 V)
- Power consumption: 90 W

#### Interfaces

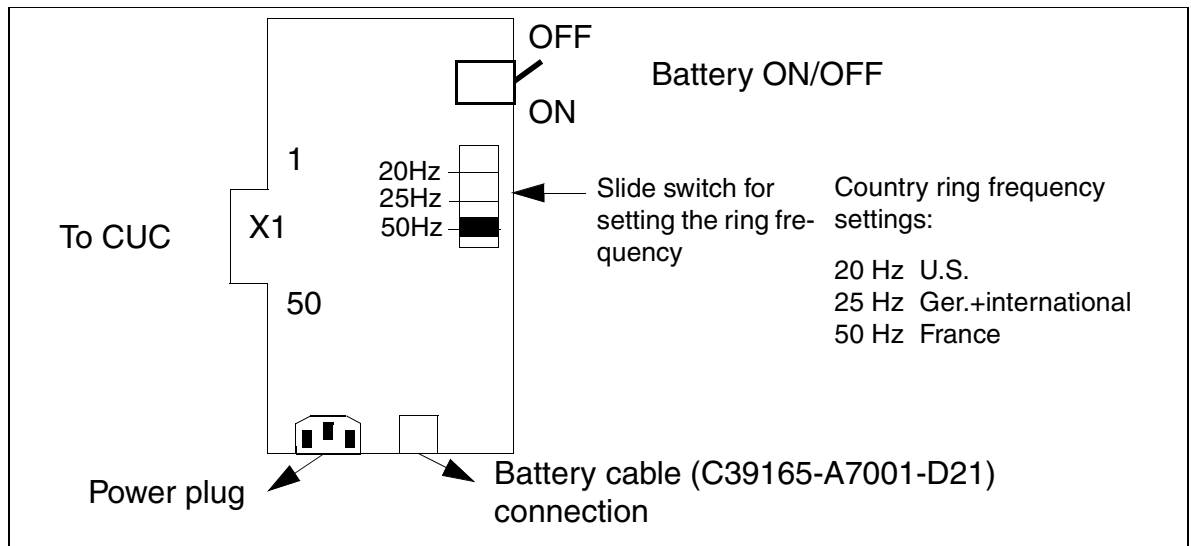


Figure 3-17 USVF Interfaces (S30122-K5659-)

**DANGER**

System voltage can only be switched on or off by plugging in or unplugging the power plug. If using a USVF, deactivate battery mode first.

## Capacities and Bridging Times for Uninterruptible Power Supplies

The battery bridging times during power outages are determined under the following conditions for the USVC in OfficeCom and the USVF in OfficePoint:

- The power supply units in the system are operating at 60% of capacity.
- The battery ambient temperature is +20 degrees Celsius.
- The cut-off voltage is 1.7 volts per cell.
- The batteries are fully charged at the beginning of the power outage.

The following reference values apply to the bridging times, based on the conditions listed above:

Table 3-15 Capacities and Bridging Times for USVC/USVF

| Communication Server | Capacity/<br>Battery Voltage | Bridging Time |
|----------------------|------------------------------|---------------|
| OfficeCom            | 1.2 Ah/48V                   | 15 minutes    |
| OfficeCom            | 7 Ah/48V                     | 3 hours       |
| OfficeCom            | 12 Ah/48V                    | 6 hours       |
| OfficePoint          | 1.2 Ah/24V                   | 15 minutes    |
| OfficePoint          | 7 Ah/24V                     | 3 hours       |
| OfficePoint          | 12 Ah/24V                    | 6 hours       |

## Voltages per Battery Cell (example: Yuasa)

|                                           |         |
|-------------------------------------------|---------|
| Charging current with current limiting:   | 2.4 V   |
| Charging current without current limiting | 2.275 V |
| Discharging current                       | 1.7 V   |

The battery cell voltage is 2.0 V, and the available capacity sampled between 2.3V and 1.7V.



Follow the manufacturer's instructions for charging and discharging the batteries.



### 3.2.20 USVI (Not for U.S.)

#### Introduction

An interruptible power supply (USVI) for Hicom 150 E OfficePro consists of the following components ([Figure 3-18](#)):

- USVI cabinet (room for two battery managers and two battery sets)
- Battery manager board (charging and control electronics)
- Battery set board (four maintenance-free, 12 V lead storage batteries).

Two fully compatible battery managers from two different manufacturers are used. The two types can be used simultaneously in one USVI cabinet.

The battery manager is connected to the PSUI via a connecting cable. A separate battery manager with a battery set is required for each PSUI. A port for connecting an external charging rectifier or 48 V DC network system is provided on the back of the battery manager.

For information on how to operate the USVI in connection with an external 48 V DC network system and on how to use an uninterruptible power supply provided by the customer, refer to [Section 6.1.1](#).

#### Part Numbers

- USVI cabinet: S30777-U710-X
- Connecting cable between PSUI and USVI (battery manager): C31043-Z1200-B5
- Battery manager: S30122-K5083-L302 or S30122-K5083-X302
- Battery set: S30122-X5083-X303

Distribution frame (for connecting an existing external battery):  
C39165-A7200-B10

### **Specifications for the USVI**

- PSUI in normal mode
  - Input voltage (from PSUI): Approx. 380 Vdc (0.27 A maximum)
  - Output voltage (charging voltage for batteries): 54 or 55.2 Vdc (1.6 A maximum)
- Power failure mode
  - Input voltage (from battery): 42 V to 56 Vdc
  - Output voltage (to PSUI): Approx. 340 Vdc (1.1 A maximum)
- Battery set rating: 12 Ah or 7 Ah
- Bridging time (see page 3-60)

## Front and Rear Views of the USV

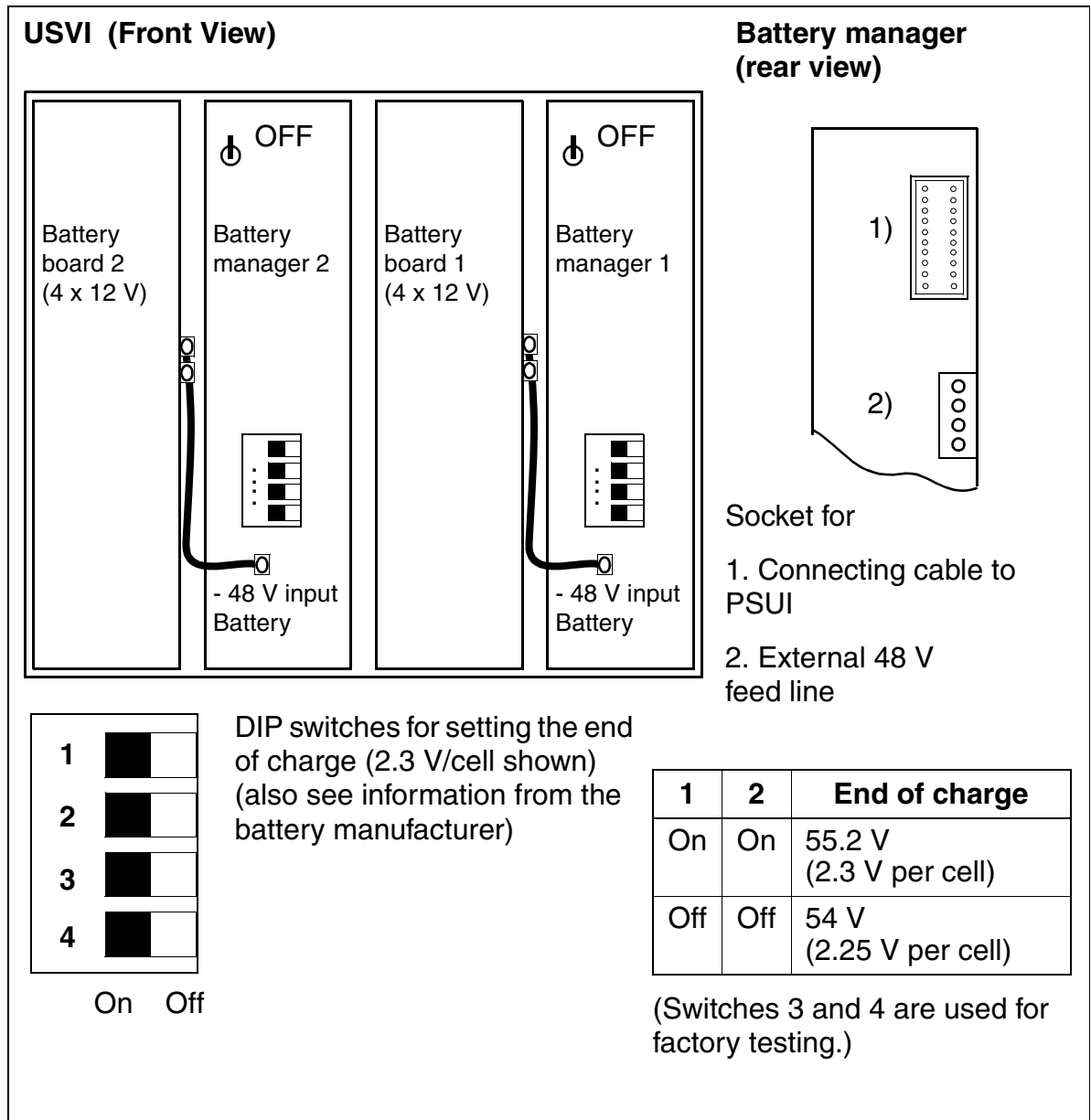


Figure 3-18 Front and Rear Views of the USVI (Not for U.S.)



Batteries manufactured by Sonnenschein and Yuasa require a setting of 2.3 V per cell.

## Calculating the Bridging Time

The bridging time during a power failure depends on the system configuration, the number of analog and/or digital telephones, the uninterruptible power supply connected, and the rating of the batteries.

The consumption values and diagrams below were determined by measuring one board each. The power consumption for the boards in the field may differ slightly from the measured values due to board-specific tolerances.

The following conditions apply for the discharge rates in [Figure 3-19](#):

- New batteries
- Ambient temperature. Approximately 23 °C (73 °F)  
(Low temperatures and deviations in temperature reduce capacity.)
- Constant load conditions
- Charging voltage: 55.2 Vdc

### Discharge Rates for Battery Pack: Hicom 150 E OfficePro

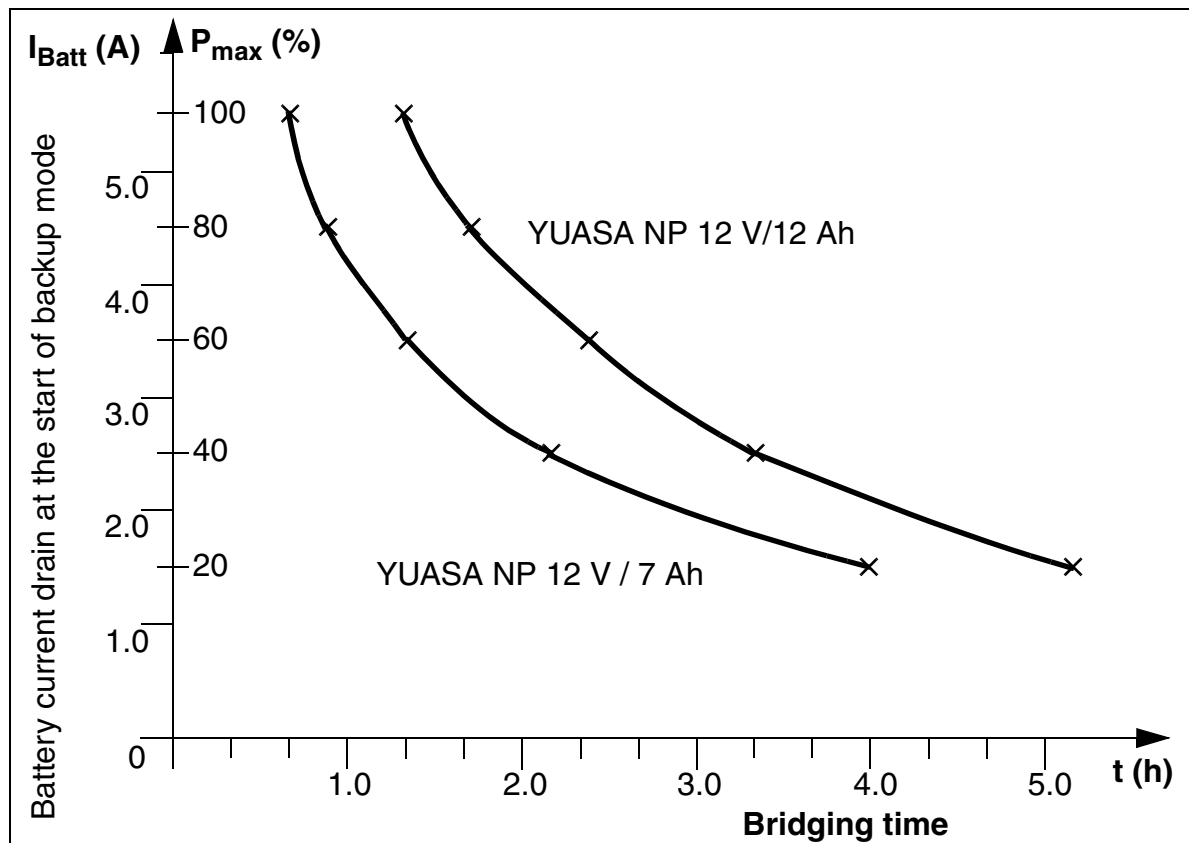


Figure 3-19 Discharge Rates for Battery Pack—OfficePro (Not for U.S.)

The bridging time for a system cabinet is determined by adding together all the currents of the boards and the power requirements of the connected telephones (determined based on [Figure 3-20](#)).

### Battery Current Drain of Telephones

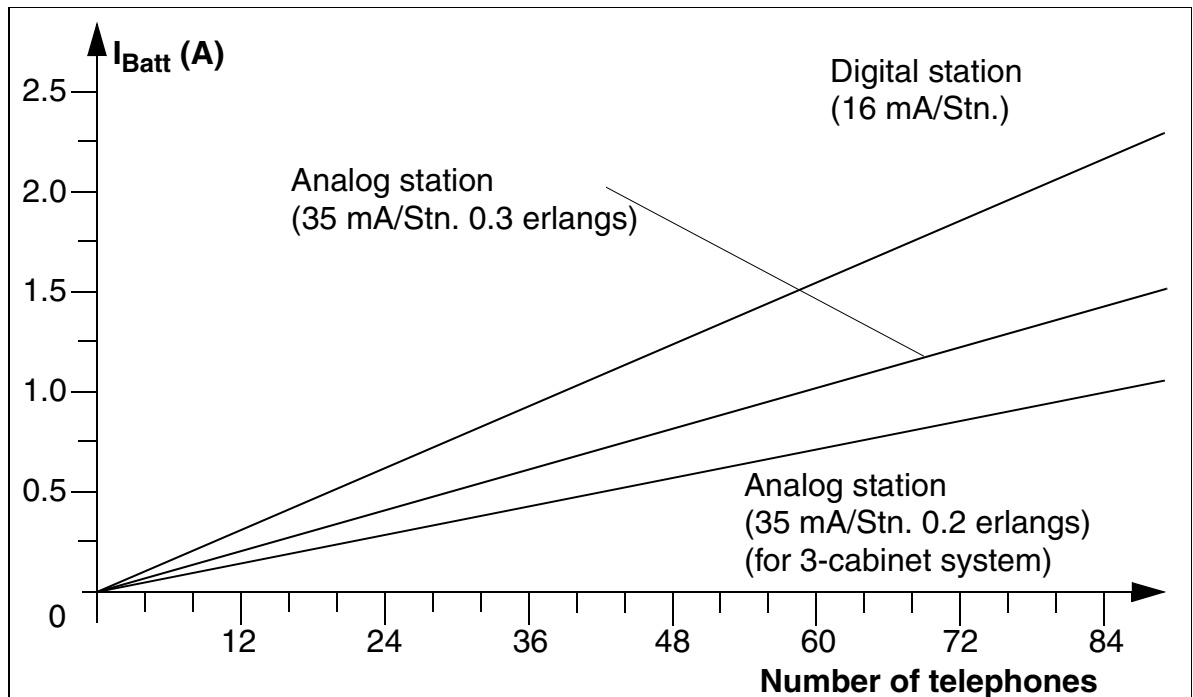


Figure 3-20 Battery Current Drain of Telephones—OfficePro

### Formula for Calculating Battery Power Requirements

- |   |                                                                  |
|---|------------------------------------------------------------------|
|   | Power requirements of the system boards                          |
| + | Power requirements of the analog telephones                      |
| + | Power requirements of the digital telephones                     |
| + | Power requirements of additional external loads, if any          |
| = | Initial battery power requirements for <b>one</b> system cabinet |

The bridging time is determined on the basis of [Figure 3-19](#).



In the case of multi-cabinet systems, the cabinet with the greatest load determines the overall system bridging time. Any additional external loads (such as an NT 1) that are fed by the USVI must be assessed at 0.04 A per Watt for each load.

Table 3-16 Hicom 150 E OfficePro—Board Power Requirements (Not for U.S.)

| Board  |         | Power requirements |
|--------|---------|--------------------|
| CBMOD  | -Q2960- | 0.80 A             |
| SLA16  | -Q2702- | 0.10 A             |
| SLMC8  | -Q2911- | 0.10 A             |
| SLMO24 | -Q2901- | 0.08 A             |
| STMD8  | -Q2558- | 0.06 A             |
| TML8W  | -Q626-  | 0.04 A             |
| TMS2   | -Q2915- | Not yet known      |

**Sample Calculation (Worst Case System Configuration) for a System Cabinet (Not for U.S.)**

|   |                                                                  |          |        |
|---|------------------------------------------------------------------|----------|--------|
|   | CBMOD -Q2960-                                                    | 1 unit   | 0.80 A |
| + | SLMC8 -Q2911-                                                    | 1 unit   | 0.10 A |
| + | TMS2M -Q2537-                                                    | 1 unit   | 0.15 A |
| + | SLMO24 -Q2901-                                                   | 4 units  | 0.32 A |
| = | Total power requirement for the boards                           |          | 1.37 A |
| + | Power requirements of analog telephones                          | 0 units  | 0      |
| + | Power requirements of digital telephones                         | 80 units | 2.10 A |
| + | Power req. for NT 1 (7 W at 48 V DC)                             | 1 unit   | 0.28 A |
| = | Initial battery power requirements for <b>one</b> system cabinet |          | 3.75 A |

Based on the discharge rates in [Figure 3-19](#), the following are the bridging times for the battery packs:

- YUASA NP 12 V/12 Ah - Approximately 2 hours 15 minutes
- YUASA NP 12 V/7 Ah - Approximately 1 hour 15 minutes

## Extending the Bridging Time

The backup time can be doubled by connecting two battery packs in parallel using proper cabling.



### **Caution**

Battery packs connected in parallel must contain batteries of the same type from the same manufacturer.

Disadvantages:

- Longer battery recharging time. (The battery manager must recharge two battery packs. The charging current of the battery manager is divided between the two battery packs.)
- One USVI cabinet is required per system cabinet.

Other ways of increasing bridging time are to provide an external power supply of 48 V using a separate charging rectifier with external batteries or to connect the system to an external 48 V DC network system.

## 3.3 Peripheral Boards



**Caution**

The peripheral boards must be firmly inserted in their slots; otherwise, contact problems can cause board failure.

### 3.3.1 HXGM

#### Introduction

The Hicom Xpress @LAN board (HXGM) establishes the connection between Hicom 150 E OfficePro and the LAN environment. The board can provide a total of 16 B channels.

There are two versions of this board:

Hicom Xpress @LAN HXGM Voice and Data (S30810-Q2930-X)

Hicom Xpress @LAN HXGM Data only (S30810-Q2930-X100)

#### Board Slot

Table 3-17 HXGM Application and Slot

| System                                            | Can be used in                                       | Boards | Slots               |
|---------------------------------------------------|------------------------------------------------------|--------|---------------------|
| OfficePro                                         | Hicom 150 E Rel. 2.2 or later<br>P30370-P720-A580-G1 | 3 *    | All slots, except 2 |
| * = Multiple boards cannot be used simultaneously |                                                      |        |                     |

Table 3-18 HXGM Hardware Versions

| CS Type   | Services   | DSPs | Board Name |
|-----------|------------|------|------------|
| OfficePro | Data only  | 0    | HXGM       |
| OfficePro | Voice/data | 8    | HXGM       |

Two simultaneous Voice-over-LAN connections are possible per DSP (digital signal processor).



**Interfaces and Connectors**

- X2: 6-pin shielded Mini-DIN jack for V.24; see [Section 3.4.14](#) for cable.
- The board connects to the system via the backplane. Use an adapter (part number C39228-A7195-A10) for the backplane to connect the LAN to an RJ45 connector.

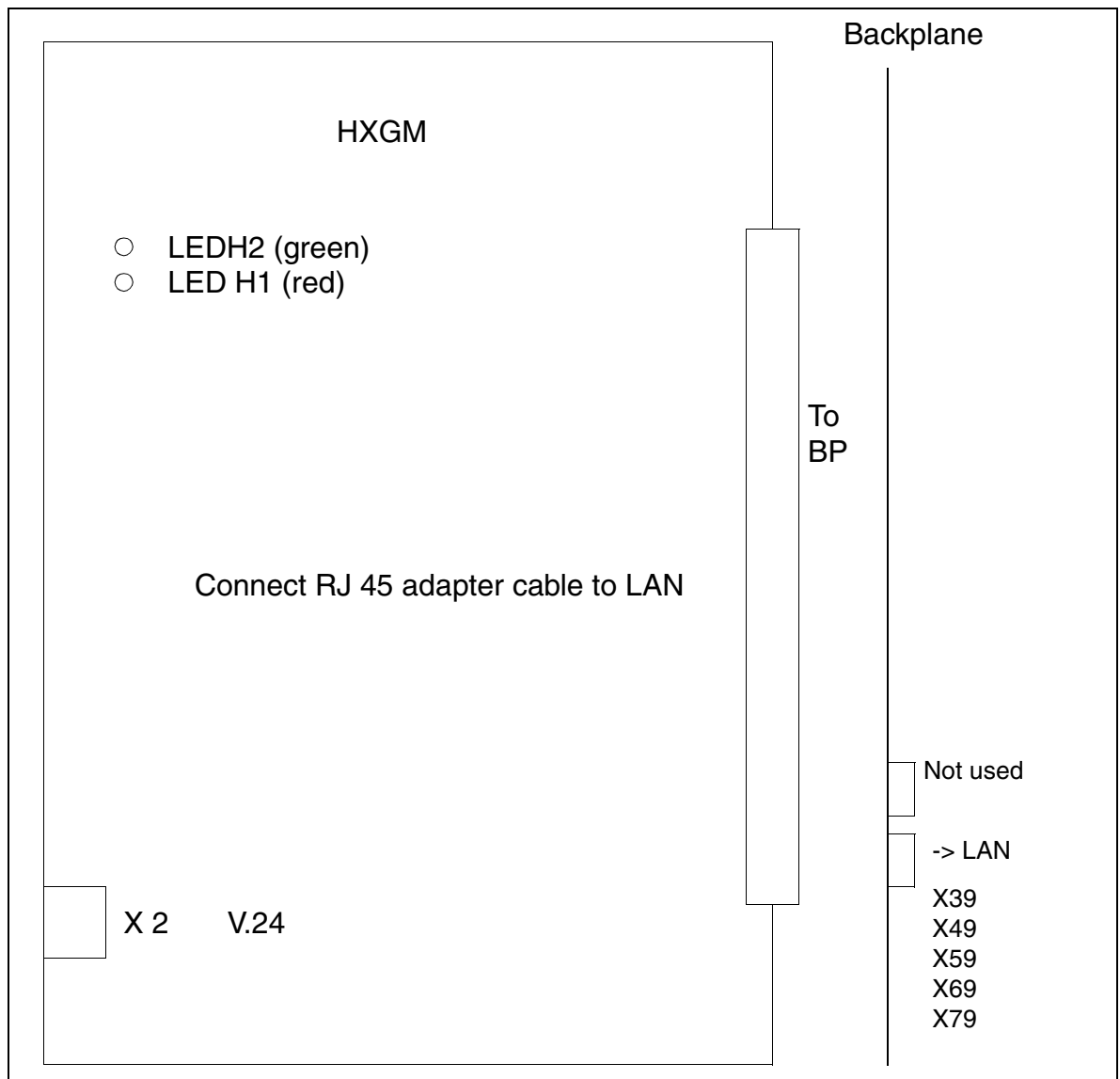


Figure 3-21 HXGM Interfaces (S30810-Q2930-X/X100)

Table 3-19 HXGM LEDs

| H1 (Red)  | H2 (Green) | Meaning                                                                                                                    |
|-----------|------------|----------------------------------------------------------------------------------------------------------------------------|
| Flashing  | Off        | Board running firmware, no valid software on board, thus V.24 charging mode                                                |
| On        | Off        | BG running firmware after a reset or startup                                                                               |
| On -> off | Off        | Board has started software, starting up                                                                                    |
| Off       | Off -> on  | Board has reached idle state after startup (router number logon)                                                           |
| Off       | On         | At least one B channel is seized                                                                                           |
| On        | On         | For 20 seconds: board trying to trigger a reset after an APS transfer or a FATAL error and is waiting for reset from Hicom |

Table 3-20 Contact Assignments of the 10/100 BaseT Interface

| X3<br>8-pin MW Jack (RJ) | Function         |
|--------------------------|------------------|
| 1                        | Transmit: + wire |
| 2                        | Transmit: - wire |
| 3                        | Receive: + wire  |
| 6                        | Receive: - wire  |
| 4+5+7+8                  | Not used         |

**Note**

To connect an Ethernet twisted pair directly to Hicom Xpress @LAN

Cross-connect the RJ45 cable as follows:

|        |        |        |        |
|--------|--------|--------|--------|
| 1 <> 3 | 2 <> 6 | 3 <> 1 | 6 <> 2 |
|--------|--------|--------|--------|

### 3.3.2 HXGS

#### Introduction

The Hicom Xpress @LAN board (HXGS) establishes the connection between Hicom 150 E OfficeCom/OfficePoint and the LAN environment. The board can provide up to 16 B-channels.

There are two versions of this board:

- Hicom Xpress @LAN HXGS Voice and Data (S30810-Q2931-X)
- Hicom Xpress @LAN HXGS Data only (S30810-Q2931-X100)

#### Board Slot

Table 3-21 HXGS Application and Slot

| <b>System</b>                                                                                                                                | <b>Can be used in</b>                                | <b>Boards</b> | <b>Slots</b>       |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------|--------------------|
| OfficePoint                                                                                                                                  | Hicom 150 E Rel. 2.2 or later<br>P30370-P722-A680-G1 | 1             | All slots          |
| OfficeCom<br>old HW<br>CBFC                                                                                                                  | Hicom 150 E Rel. 2.2 or later<br>P30370-P723-A680-G1 | 2 *           | Slots 4 and 5 only |
| OfficeCom<br>new HW<br>CBPC                                                                                                                  | Hicom 150 E Rel. 2.2 or later<br>P30370-P721-A680-G1 | 2 *           | All slots          |
| * = Two boards cannot be used simultaneously<br>OfficeCom, old HW, CBFC: S30810-Q2950-X000-X<br>OfficeCom, new HW, CBPC: S30810-Q2932-A201-X |                                                      |               |                    |

Table 3-22 HXGS Hardware Versions

| <b>CS Type</b>  | <b>Services</b> | <b>DSPs</b> | <b>Board Name</b> |
|-----------------|-----------------|-------------|-------------------|
| OfficeCom/Point | Data only       | 0           | HXGS              |
| OfficeCom/Point | Voice/data      | 4           | HXGS              |

Two simultaneous Voice-over-LAN connections are possible per DSP (digital signal processor).

## Interfaces and Connectors

Connect the LAN to connector X3. [Table 3-23](#) contains the connector assignments.

The board has a 50-pin edge connector to the system, two MW jacks (8-pin and 10-pin, shielded) to the LAN, and one shielded Mini-DIN jack (6-pin) for the V.24 interface.

- X1: 50-pin to system
- X2: 6-pin shielded Mini-DIN jack for V.24, see [Section 3.4.16](#)

The following connections are pre-installed for connecting a LAN:

- X3: 8-pin MW jack for LAN 10/100 BaseT, RJ45 jack (twisted pair)

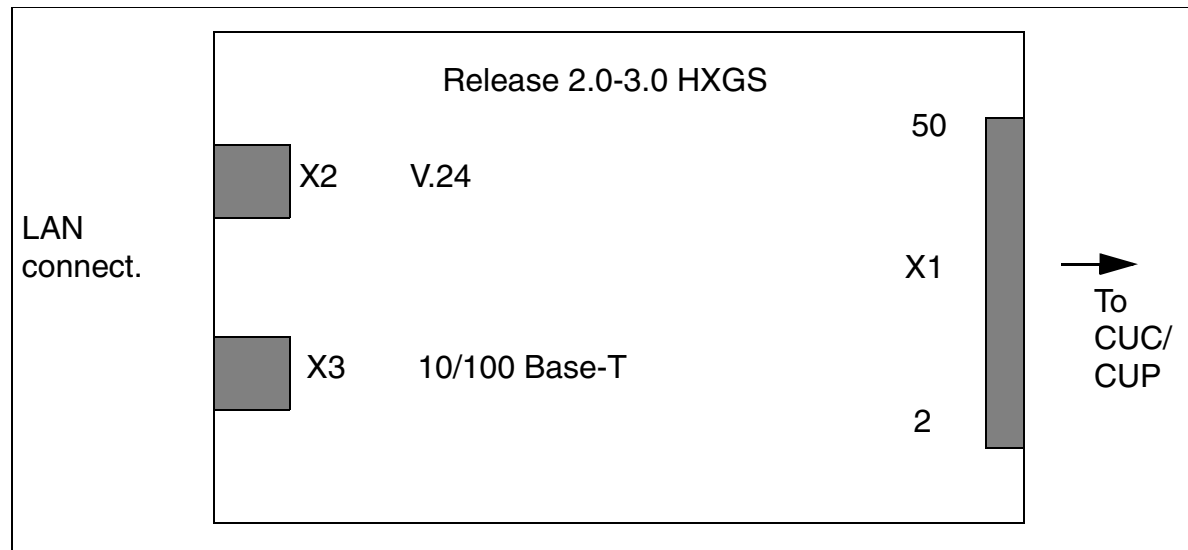


Figure 3-22 HXGS Interfaces (S30810-Q2931-X/X100)

The transmission medium for 10/100 BaseT™ is a twisted pair cable.

To physically connect the cable to Hicom Xpress @LAN HXGS (OfficeCom and OfficePoint), use the 8-pin MW jack X3 provided on the MDF side of the board; see [Figure 3-22](#).

Table 3-23 Contact Assignments for the 10/100 BaseT Interface

| <b>X3<br/>8-Pin MW Jack (RJ)</b> | <b>Function</b>  |
|----------------------------------|------------------|
| 1                                | Transmit: + wire |
| 2                                | Transmit: - wire |
| 3                                | Receive: + wire  |
| 6                                | Receive: - wire  |
| 4+5+7+8                          | Not used         |

**Note**

To connect an Ethernet twisted pair directly to Hicom Xpress @LAN

Cross-connect the RJ45 cable as follows:

|        |        |        |        |
|--------|--------|--------|--------|
| 1 <> 3 | 2 <> 6 | 3 <> 1 | 6 <> 2 |
|--------|--------|--------|--------|

### 3.3.3 LAN Bridge

#### Introduction

With LAN Bridge, the internal LAN in Hicom 150 E OfficeCom or OfficePoint (software release 2.2 or earlier) can be connected to an external LAN via the public ISDN network.

The board is installed the same as an S<sub>0</sub> board, connecting the system with the LAN environment.



Only one board can be installed in an OfficeCom or OfficePoint system.  
Do not install the board in slot 5.

#### Board Slot

- OfficeCom: slots 4, 6, 7, 8, 9
- OfficePoint: slot 4

#### Interfaces

- X1: 50-pin connection to the system
- X2: 6-pin shielded Mini DIN jack for V.24 (RS-232)
- X3: LAN port, 10-pin shielded, coded RJ45 jack for LAN 10Base-5, Not for U.S.: AUI (15-pin Cannon connector via cable adapter)
- X4: LAN port, 8-pin RJ45 jack for LAN 10Base-T (twisted pair)

#### Installation, Servicing, and Connectivity

For information on installing, connecting, and servicing Hicom LAN Bridge, refer to the manual *Hicom 100 E, Hicom 150 E Office Hicom LAN Bridge Release 1.01*, part number A31001-K5010-S100-\*-7620. This book is shipped with every LAN Bridge.

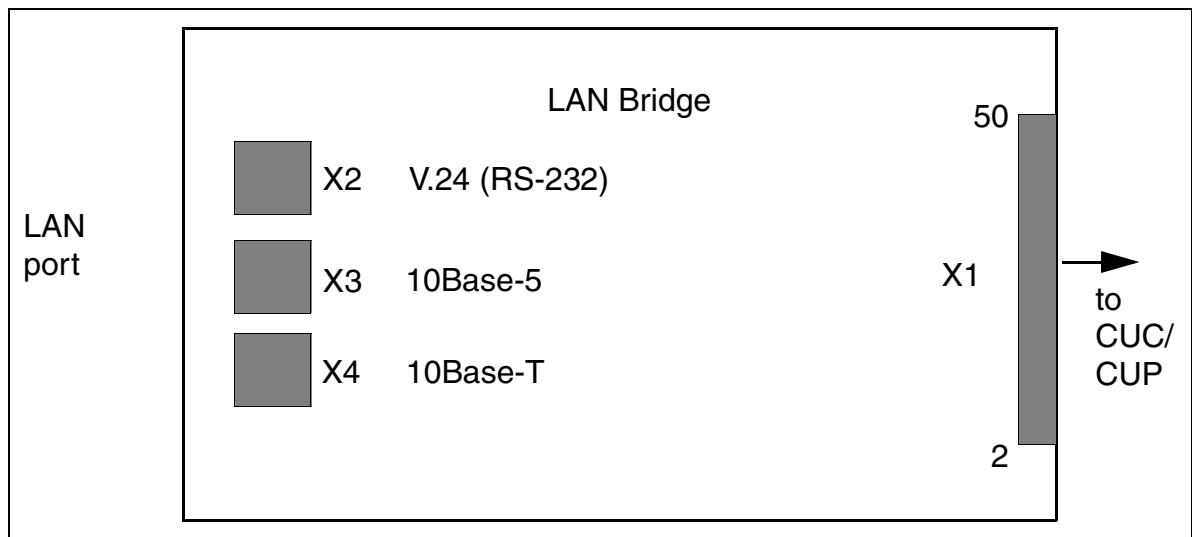


Figure 3-23 LAN Bridge Interfaces (S30817-Q955-Axxx)

Table 3-24 Pin Assignment of AUI (10Base-5) Interface (X3)

| <b>X3<br/>10-Pin<br/>RJ45 Jack</b> | <b>15-Pin<br/>SUB-D Jack<br/>(not for U.S.)</b> | <b>Function</b>                 |
|------------------------------------|-------------------------------------------------|---------------------------------|
| 1                                  | 9                                               | Collision detect: - wire        |
| 2                                  | 2                                               | Collision detect: + wire        |
| 3                                  | 12                                              | Receive: - wire                 |
| 4                                  | 5                                               | Receive: + wire                 |
| 5+6                                | 1+4+8+11+14                                     | GND(AUI)                        |
| 7                                  | 10                                              | Transmit: - wire                |
| 8                                  | 3                                               | Transmit: + wire                |
| 9                                  | 6                                               | GND(AUI)                        |
| 10                                 | 13                                              | +12V AUI - power supply voltage |
| (11+12)                            | Shielding                                       | GND(AUI)                        |

Table 3-25      Contact Assignment of 10Base-T interface (X4)

| <b>X4: 8-Pin<br/>RJ45 Jack</b> | <b>Function</b>  |
|--------------------------------|------------------|
| 1                              | Transmit: + wire |
| 2                              | Transmit: - wire |
| 3                              | Receive: + wire  |
| 6                              | Receive: - wire  |
| 4+5+7+8                        | Not used         |



### 3.3.4 SLA8N (Not for U.S.), SLA16N, and SLA24N

#### Introduction

The following boards can be used in Hicom 150 E OfficePro and Hicom 150 E Office-Com (Slot 10 only):

- SLA8N (subscriber line module analog with 8 analog interfaces; not for U.S.)
- SLA16N (16 analog interfaces)
- SLA24N (24 analog interfaces)

You can use SLA16N in Hicom 150 E OfficePro Release 1.0, starting with SMR-S.

#### Switches and LEDs

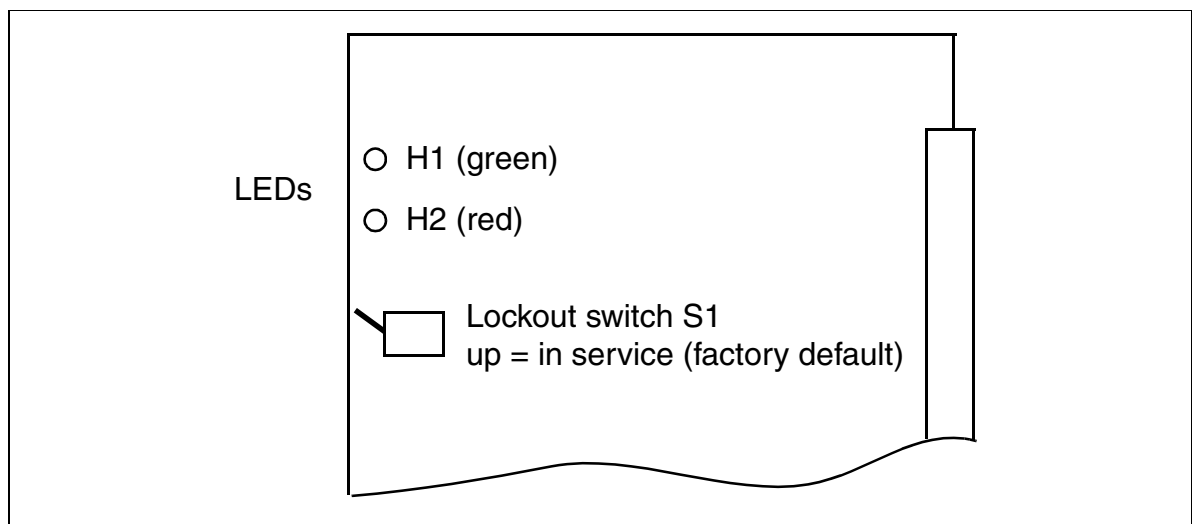


Figure 3-24 SLA8N (Not for U.S.), SLA16N, and SLA24N (S30810-Q2929-Xxxx/-Xxxx/-X)

## LED Statuses and Their Meanings

Table 3-26 SLA8N (Not for U.S.), SLA16N, and SLA24N—LED Statuses

| Red LED  | Green LED | Status                                                                                                                                                       | Action                                                                                  |
|----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Off      | Off       | Board not receiving power or not plugged in correctly.<br>Board is deactivated.                                                                              | Check plug contact on board.                                                            |
| On       | Off       | Board is receiving power and board test in progress.<br>If status remains the same (board test unsuccessful), board is defective.                            | Replace board.                                                                          |
|          |           | Loadware loading was not successfully completed. Board is defective.                                                                                         | Replace board.                                                                          |
|          |           | Error was detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using Hicom Assistant E Office. | Check whether board was deactivated by Hicom Assistant E Office. If not, replace board. |
| Flashing | Off       | Loadware is being loaded.                                                                                                                                    |                                                                                         |
| Off      | On        | Loading was successfully completed and board is OK (idle state).                                                                                             |                                                                                         |
| Off      | Flashing  | At least one station is activated.                                                                                                                           |                                                                                         |

**Cable and SU Connector Assignment (Backplane) (not for U.S.)**

Table 3-27 SLA8N, SLA16N, and SLA24N—Cable1 Assignment (Not for U.S.)

| Color-Group | Pair | a-Wire  | b-Wire  | SU Conn. | SLA8N, SLA16N, and SLA24N |         | Notes             |
|-------------|------|---------|---------|----------|---------------------------|---------|-------------------|
|             |      |         |         | BP: X8   |                           |         |                   |
| 1           | 1    | wht/blu |         | 19       | 1a                        | Port 1  |                   |
|             |      |         | blu/wht | 39       | 1b                        |         |                   |
|             | 2    | wht/ora |         | 38       | 2a                        | Port 2  |                   |
|             |      |         | ora/wht | 48       | 2b                        |         |                   |
|             | 3    | wht/gm  |         | 27       | 3a                        | Port 3  |                   |
|             |      |         | gm/wht  | 47       | 3b                        |         |                   |
|             | 4    | wht/bm  |         | 16       | 4a                        | Port 4  |                   |
|             |      |         | bm/wht  | 46       | 4b                        |         |                   |
|             | 5    | wht/gry |         | 05       | 5a                        | Port 5  |                   |
|             |      |         | gry/wht | 45       | 5b                        |         |                   |
| 2           | 6    | red/blu |         | 14       | 6a                        | Port 6  |                   |
|             |      |         | blu/red | 44       | 6b                        |         |                   |
|             | 7    | red/ora |         | 23       | 7a                        | Port 7  |                   |
|             |      |         | ora/red | 43       | 7b                        |         |                   |
|             | 8    | red/gm  |         | 32       | 8a                        | Port 8  |                   |
|             |      |         | gm/red  | 42       | 8b                        |         |                   |
|             | 9    | red/bm  |         | 11       | 9a                        | Port 9  | not used by SLA8N |
|             |      |         | bm/red  | 31       | 9b                        |         |                   |
|             | 10   | red/gry |         | 02       | 10a                       | Port 10 | not used by SLA8N |
|             |      |         | gry/red | 22       | 10b                       |         |                   |
| 3           | 11   | blk/blu |         | 13       | 11a                       | Port 11 | not used by SLA8N |
|             |      |         | blu/blk | 33       | 11b                       |         |                   |
|             | 12   | blk/ora |         | 04       | 12a                       | Port 12 | not used by SLA8N |
|             |      |         | ora/blk | 24       | 12b                       |         |                   |
|             | 13   | blk/gm  |         | 15       | 13a                       | Port 13 | not used by SLA8N |
|             |      |         | gm/blk  | 35       | 13b                       |         |                   |
|             | 14   | blk/bm  |         | 06       | 14a                       | Port 14 | not used by SLA8N |
|             |      |         | bm/blk  | 26       | 14b                       |         |                   |
|             | 15   | blk/gry |         | 17       | 15a                       | Port 15 | not used by SLA8N |
|             |      |         | gry/blk | 37       | 15b                       |         |                   |
| 4           | 16   | yel/blu |         | 08       | 16a                       | Port 16 | not used by SLA8N |
|             |      |         | blu/yel | 28       | 16b                       |         |                   |
| Color-Group | Pair | a-Wire  | b-Wire  | SU Conn. | SLA8N, SLA16N, and SLA24N |         | Notes             |
|             |      |         |         | BP: X8   |                           |         |                   |

Table 3-28 SLA8N, SLA16N, and SLA24N—Cable 2 Assignment (Not for U.S.)

| Color-Group | Pair    | a-Wire  | b-Wire  | SU Conn. | SLA8N, SLA16N, and SLA24N |         | Notes                        |
|-------------|---------|---------|---------|----------|---------------------------|---------|------------------------------|
|             |         |         |         | BP: X9   |                           |         |                              |
| 1           | 1       | wht/blu |         |          |                           | free    |                              |
|             |         |         | blu/wht |          |                           |         |                              |
|             | 2       | wht/ora |         |          |                           | free    |                              |
|             |         |         | ora/wht |          |                           |         |                              |
|             | 3       | wht/gm  |         |          |                           | free    |                              |
|             |         |         | gm/wht  |          |                           |         |                              |
|             | 4       | wht/bm  |         |          |                           | free    |                              |
|             |         |         | bm/wht  |          |                           |         |                              |
| 5           | wht/gry |         |         |          | free                      |         |                              |
|             |         | gry/wht |         |          |                           |         |                              |
| 2           | 6       | red/blu |         |          |                           | free    |                              |
|             |         |         | blu/red |          |                           |         |                              |
|             | 7       | red/ora |         |          |                           | free    |                              |
|             |         |         | ora/red |          |                           |         |                              |
|             | 8       | red/gm  |         |          |                           | free    |                              |
|             |         |         | gm/red  |          |                           |         |                              |
|             | 9       | red/bm  |         | 11       | 17a                       | Port 17 | not used by<br>SLA8N, SLA16N |
|             |         |         | bm/red  | 31       | 17b                       |         |                              |
|             | 10      | red/gry |         | 02       | 18a                       | Port 18 | not used by<br>SLA8N, SLA16N |
|             |         |         | gry/red | 22       | 18b                       |         |                              |
| 3           | 11      | blk/blu |         | 13       | 19a                       | Port 19 | not used by<br>SLA8N, SLA16N |
|             |         |         | blu/blk | 33       | 19b                       |         |                              |
|             | 12      | blk/ora |         | 04       | 20a                       | Port 20 | not used by<br>SLA8N, SLA16N |
|             |         |         | ora/blk | 24       | 20b                       |         |                              |
|             | 13      | blk/gm  |         | 15       | 21a                       | Port 21 | not used by<br>SLA8N, SLA16N |
|             |         |         | gm/blk  | 35       | 21b                       |         |                              |
|             | 14      | blk/bm  |         | 06       | 22a                       | Port 22 | not used by<br>SLA8N, SLA16N |
|             |         |         | bm/blk  | 26       | 22b                       |         |                              |
|             | 15      | blk/gry |         | 17       | 23a                       | Port 23 | not used by<br>SLA8N, SLA16N |
|             |         |         | gry/blk | 37       | 23b                       |         |                              |
| 4           | 16      | yel/blu |         | 08       | 24a                       | Port 24 | not used by<br>SLA8N, SLA16N |
|             |         |         | blu/yel | 28       | 24b                       |         |                              |
| Color-Group | Pair    | Tip     | Ring    | SU Conn. | SLA8N, SLA16N, SLA24N     |         | Notes                        |
|             |         |         |         | BP: X9   |                           |         |                              |

**Cable and Connector Assignment (Backplane) (for U.S. Only)**

Table 3-29 SLA16N and SLA24N—Cable Assignment (for U.S. Only)

| Pair | Color Code | Backplane Connector Pins | SLA16N and SLA24N |         | Pair | Color Code | Backplane Connector Pins | SLA16N and SLA24N |         |
|------|------------|--------------------------|-------------------|---------|------|------------|--------------------------|-------------------|---------|
| 1    | wht/blu    | 26                       | T                 | Port 1  | 13   | blk/grn    | 38                       | T                 | Port 13 |
|      | blu/wht    | 1                        | R                 |         |      | grn/blk    | 13                       | R                 |         |
| 2    | wht/ora    | 27                       | T                 | Port 2  | 14   | blk/brn    | 39                       | T                 | Port 14 |
|      | ora/wht    | 2                        | R                 |         |      | brn/blk    | 14                       | R                 |         |
| 3    | wht/grn    | 28                       | T                 | Port 3  | 15   | blk/slt    | 40                       | T                 | Port 15 |
|      | grn/wht    | 3                        | R                 |         |      | slt/blk    | 15                       | R                 |         |
| 4    | wht/brn    | 29                       | T                 | Port 4  | 16   | yel/blu    | 41                       | T                 | Port 16 |
|      | brn/wht    | 4                        | R                 |         |      | blu/yel    | 16                       | R                 |         |
| 5    | wht/slat   | 30                       | T                 | Port 5  | 17   | yel/ora    | 42                       | T                 | Port 17 |
|      | slat/wht   | 5                        | R                 |         |      | ora/yel    | 17                       | R                 |         |
| 6    | red/blu    | 31                       | T                 | Port 6  | 18   | yel/grn    | 43                       | T                 | Port 18 |
|      | blu/red    | 6                        | R                 |         |      | grn/yel    | 18                       | R                 |         |
| 7    | red/ora    | 32                       | T                 | Port 7  | 19   | yel/brn    | 44                       | T                 | Port 19 |
|      | ora/red    | 7                        | R                 |         |      | brn/yel    | 19                       | R                 |         |
| 8    | red/grn    | 33                       | T                 | Port 8  | 20   | yel/slt    | 45                       | T                 | Port 20 |
|      | grn/red    | 8                        | R                 |         |      | slt/yel    | 20                       | R                 |         |
| 9    | red/brn    | 34                       | T                 | Port 9  | 21   | vio/blu    | 46                       | T                 | Port 21 |
|      | brn/red    | 9                        | R                 |         |      | blu/vio    | 21                       | R                 |         |
| 10   | red/slat   | 35                       | T                 | Port 10 | 22   | vio/ora    | 47                       | T                 | Port 22 |
|      | slat/red   | 10                       | R                 |         |      | ora/vio    | 22                       | R                 |         |
| 11   | blk/blu    | 36                       | T                 | Port 11 | 23   | vio/grn    | 48                       | T                 | Port 23 |
|      | blu/blk    | 11                       | R                 |         |      | grn/vio    | 23                       | R                 |         |
| 12   | blk/ora    | 37                       | T                 | Port 12 | 24   | vio/brn    | 49                       | T                 | Port 24 |
|      | ora/blk    | 12                       | R                 |         |      | brn/vio    | 24                       | R                 |         |

**Note:** The SLA16N does not use pairs 17 through 24.

**Technical Connection Conditions**

- Maximum supply current: Approximately 34 mA;  
Supply voltage: Approximately 40 Vdc
- Ring voltage against negative supply voltage (a/b or tip/ring) for a maximum of two telephones
- Range: see Section 2.8 on page 2-18
- Loop current detection > 10 mA
- Ground button detection > 20 mA
- The transmission method can be selected country-specifically (see Section 2.7.1 on Page 2-17)

### 3.3.5 SLAS16 (For Brazil Only)

#### Introduction

Hicom 150 E OfficeCom supports the use of the SLAS16 (**S**ubscriber **L**ine Module **A**nalog **S**ingle Slic) peripheral board, which has 16 analog a/b (T/R) interfaces.

#### Interfaces

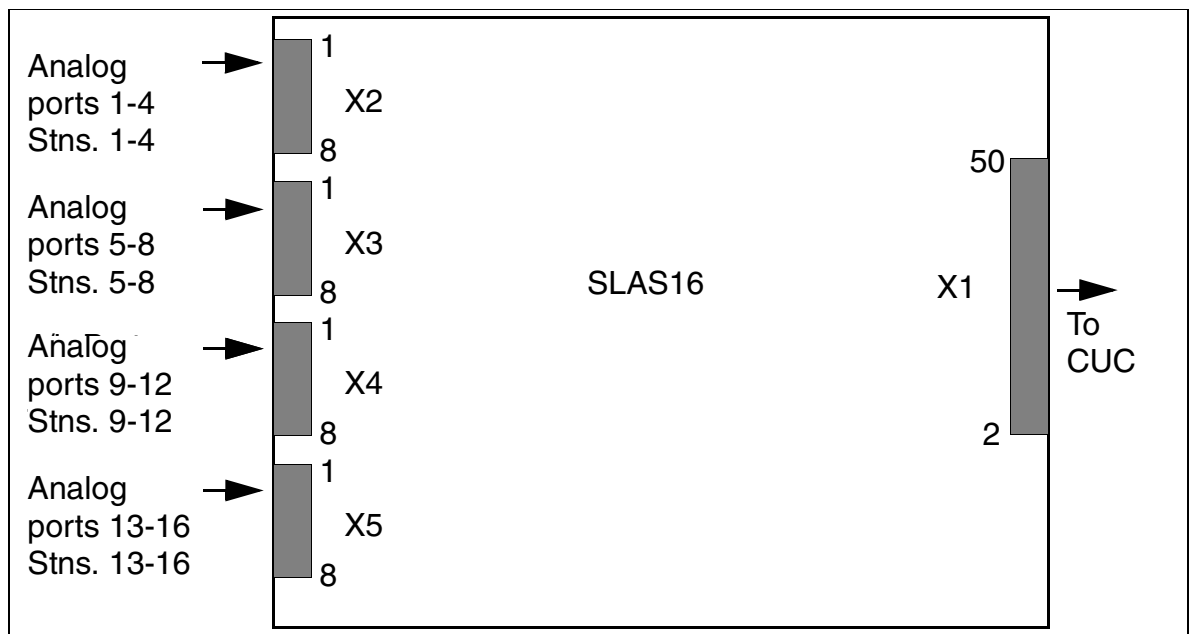


Figure 3-25 SLAS16 Interfaces (S30817-Q925-A301)

## Pin Assignments

Tabelle 3-30 SLAS16 Pin Assignments

| Pin | X2<br>(Analog Ports<br>1-4) | X3<br>(Analog Ports<br>5-8) | X4<br>(Analog Ports<br>9-12) | X5<br>(Analog Ports<br>13-16) |
|-----|-----------------------------|-----------------------------|------------------------------|-------------------------------|
| 1   | a 1                         | a 5                         | a 9                          | a 13                          |
| 2   | b 1                         | b 5                         | b 9                          | b 13                          |
| 3   | a 2                         | a 6                         | a 1                          | a 14                          |
| 4   | b 2                         | b 6                         | b 10                         | b 14                          |
| 5   | a 3                         | a 7                         | a 11                         | a 15                          |
| 6   | b 3                         | b 7                         | b 11                         | b 15                          |
| 7   | a 4                         | a 8                         | a 12                         | a 16                          |
| 8   | b 4                         | b 8                         | b 12                         | b 16                          |

## Technical Connection Conditions

- Maximum supply current: Approximately 34 mA;  
Supply voltage: Approximately 40 V DC
- Ring voltage against negative supply voltage (a/b or tip/ring) for a maximum of two telephones
- Range: See [Section 2.7](#)
- Loop current detection > 10 mA
- The transmission is selected country-specifically, based on the [country code](#) entered.



### 3.3.6 SLC16 (Not for U.S.)

#### Introduction

The SLC16 board (Subscriber Line Module Cordless) connects up to 16 Hicom cordless EM base stations to Hicom 150 E OfficePro and Hicom 150 E OfficeCom (slot 10 only). This configuration supports up to 64 simultaneous connections with active stations.



When Hicom cordless EM is initially installed, the Hicom cordless system number (DECT ID) is supplied along with the SLC16. Replacement boards are always delivered without a Hicom cordless system number.

Installing the SLC16 and entering the Hicom cordless system number releases 16 mobile units for use (PIN numbers are assigned). These mobile units can then be logged on to the system. Any additional mobile units to be used must first be released (refer to [Section 8.37](#)).

Base stations must be clocked with a high degree of accuracy for Hicom cordless EM. Install the plug-in CGMC/CGM module on the CBMOD board (OfficePro) or the plug-in CGMC/CGUM module on the CBPC board (OfficeCom) to ensure clock accuracy.

#### Switches and LEDs

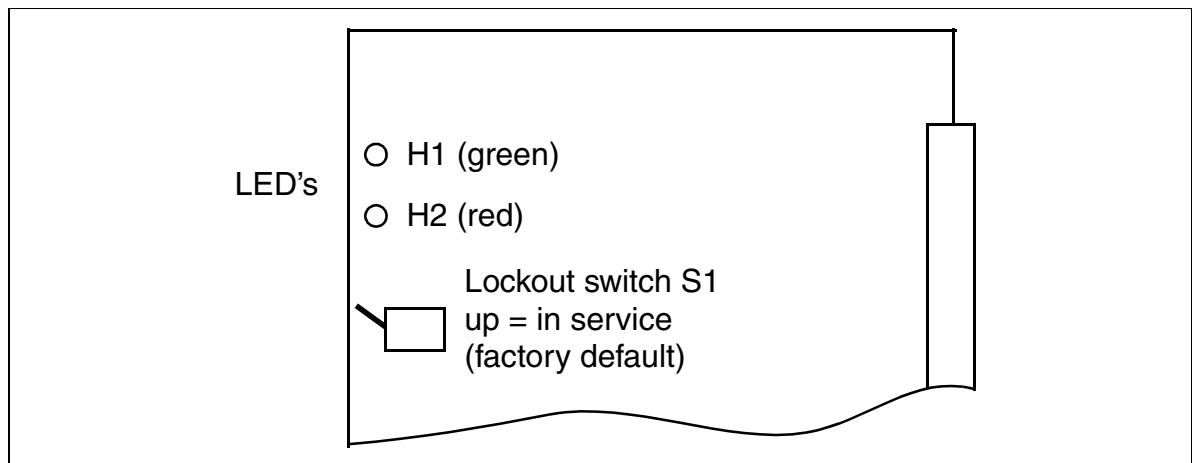


Figure 3-26 SLC16 (S30810-Q2922-X) (Not for U.S.)



When you activate the lockout switch (switch down), all idle mobile telephones are locked. Active mobile telephones are not locked until their release keys are pressed. Before unplugging the SLC16 board, always activate the lockout switch and wait until green LED H1 stops flashing. This precaution ensures that none of the mobile telephones are active.

## LED Statuses and Their Meanings

Table 3-31 SLC16—LED Statuses (Not for U.S.)

| Red LED  | Green LED | Status                                                                                                                                                       | Action                                                                                  |
|----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Off      | Off       | Board not receiving power or not plugged in correctly.<br>Board is deactivated.                                                                              | Check plug contact on board.                                                            |
| On       | Off       | Board is receiving power and board test in progress.<br>If status remains the same (board test unsuccessful), board is defective.                            | Replace board.                                                                          |
|          |           | Loadware loading was not successfully completed. Board is defective.                                                                                         | Replace board.                                                                          |
|          |           | Error was detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using Hicom Assistant E Office. | Check whether board was deactivated by Hicom Assistant E Office. If not, replace board. |
| Flashing | Off       | Loadware is being loaded.                                                                                                                                    |                                                                                         |
| Off      | On        | Loading was successfully completed and board is OK.                                                                                                          |                                                                                         |
| Off      | Flashing  | At least one subscriber line is activated.                                                                                                                   |                                                                                         |

**Cable and SU Connector Assignment (Backplane)**

Table 3-32 SLC16—Cable Assignment (Not for U.S.)

| Color Group | Pair | a-Wire  | b-Wire  | SU Conn. | SLC16 |         | Notes           |
|-------------|------|---------|---------|----------|-------|---------|-----------------|
|             |      |         |         | BP: X8   |       |         |                 |
| 1           | 1    | wht/blu |         | 19       | 1a    | Port 1  | Base station 1  |
|             |      |         | blu/wht | 39       | 1b    |         |                 |
|             | 2    | wht/ora |         | 38       | 2a    | Port 2  | Base station 2  |
|             |      |         | ora/wht | 48       | 2b    |         |                 |
|             | 3    | wht/grn |         | 27       | 3a    | Port 3  | Base station 3  |
|             |      |         | grn/wht | 47       | 3b    |         |                 |
|             | 4    | wht/brn |         | 16       | 4a    | Port 4  | Base station 4  |
|             |      |         | brn/wht | 46       | 4b    |         |                 |
|             | 5    | wht/gry |         | 05       | 5a    | Port 5  | Base station 5  |
|             |      |         | gry/wht | 45       | 5b    |         |                 |
| 2           | 6    | red/blu |         | 14       | 6a    | Port 6  | Base station 6  |
|             |      |         | blu/red | 44       | 6b    |         |                 |
|             | 7    | red/ora |         | 23       | 7a    | Port 7  | Base station 7  |
|             |      |         | ora/red | 43       | 7b    |         |                 |
|             | 8    | red/grn |         | 32       | 8a    | Port 8  | Base station 8  |
|             |      |         | grn/red | 42       | 8b    |         |                 |
|             | 9    | red/brn |         | 11       | 9a    | Port 9  | Base station 9  |
|             |      |         | brn/red | 31       | 9b    |         |                 |
|             | 10   | red/gry |         | 02       | 10a   | Port 10 | Base station 10 |
|             |      |         | gry/red | 22       | 10b   |         |                 |
| 3           | 11   | blk/blu |         | 13       | 11a   | Port 11 | Base station 11 |
|             |      |         | blu/blk | 33       | 11b   |         |                 |
|             | 12   | blk/ora |         | 04       | 12a   | Port 12 | Base station 12 |
|             |      |         | ora/blk | 24       | 12b   |         |                 |
|             | 13   | blk/grn |         | 15       | 13a   | Port 13 | Base station 13 |
|             |      |         | grn/blk | 35       | 13b   |         |                 |
|             | 14   | blk/brn |         | 06       | 14a   | Port 14 | Base station 14 |
|             |      |         | brn/blk | 26       | 14b   |         |                 |
|             | 15   | blk/gry |         | 17       | 15a   | Port 15 | Base station 15 |
|             |      |         | gry/blk | 37       | 15b   |         |                 |
| 4           | 16   | yel/blu |         | 08       | 16a   | Port 16 | Base station 16 |
|             |      |         | blu/yel | 28       | 16b   |         |                 |
| Color Group | Pair | a-Wire  | b-Wire  | SU Conn. | SLC16 |         | Notes           |
|             |      |         |         | BP: X8   |       |         |                 |

## Options for Supplying Power to Base Stations



For information on connecting the base stations, refer to the Hicom cordless EM service manual.

Each base station must be connected to the SLC16 via the main distribution frame (MDFU or MDFU-E).

Signal propagation times differ due to the varying distances between the base stations, the system, and the connecting cables used (refer to the Hicom cordless EM service manual). The SLC16 automatically equalizes these propagation times.

The distance between the base station, the system, and the connecting cables also determines which base station power-supply method should be used. The power supplied must not exceed the 35 V minimum input voltage for a base station.

The following options are available for supplying power to the base stations:

- Base station power supply via one  $U_{P0/E}$  interface and EPSU1 ([page 3-85](#))
- Power supply to the base station via EPSU1 and the outdoor cover heating unit via EPSU2 ([page 3-86](#))

Base station power supply via two  $U_{P0/E}$  interfaces ([page 3-87](#))



Always route the  $U_{P0/E}$  interfaces on the SLC16 via a splitting strip to ensure that surges due to lightning will be arrested. To do so, insert the polarized surge protectors (supplied) in the plugging locations on the splitting strip.

**Base Station Power Supply Via One  $U_{P0/E}$  Interface and EPSU1**

Connect the base station to a free interface on the SLC16 and to the EPSU1, as shown in [Figure 3-27](#). Be careful not to exceed the maximum connecting cable lengths (1,000 m for 2x2x0.6 mm).

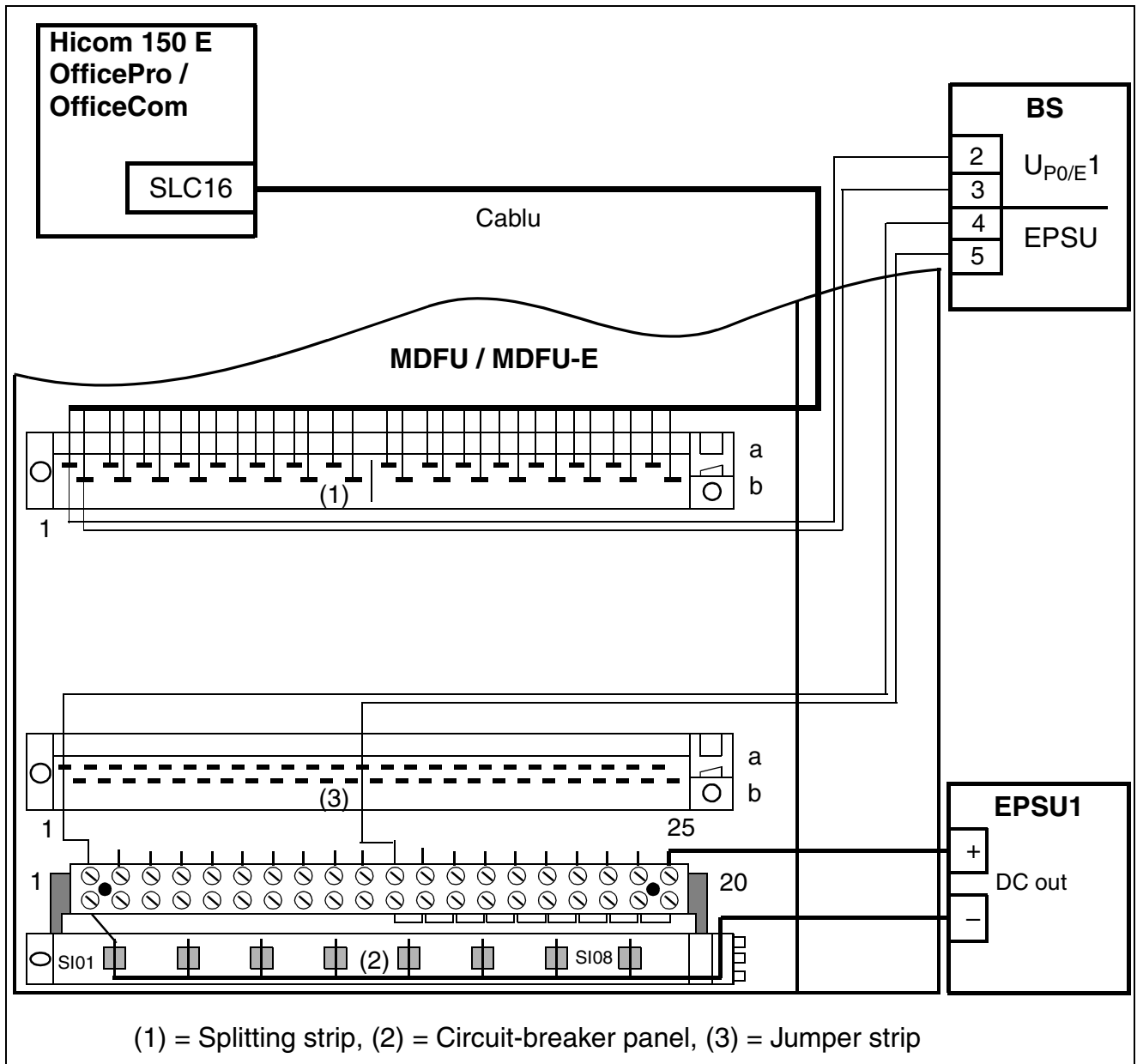


Figure 3-27 Base Station Power Supply Via One  $U_{P0/E}$  Interface and EPSU1

## Power Supply to the Base Station Via EPSU1 and the Outdoor Cover Heating Unit Via EPSU2

Connect the base station to a free interface on the SLC16 and to the EPSU1 or EPSU2, as shown in [Figure 3-28](#). Route all EPSU1/2 connections via the circuit-breaker panel. Be careful not to exceed the maximum connecting cable lengths (1,000 m for 2x2x0.6 mm).

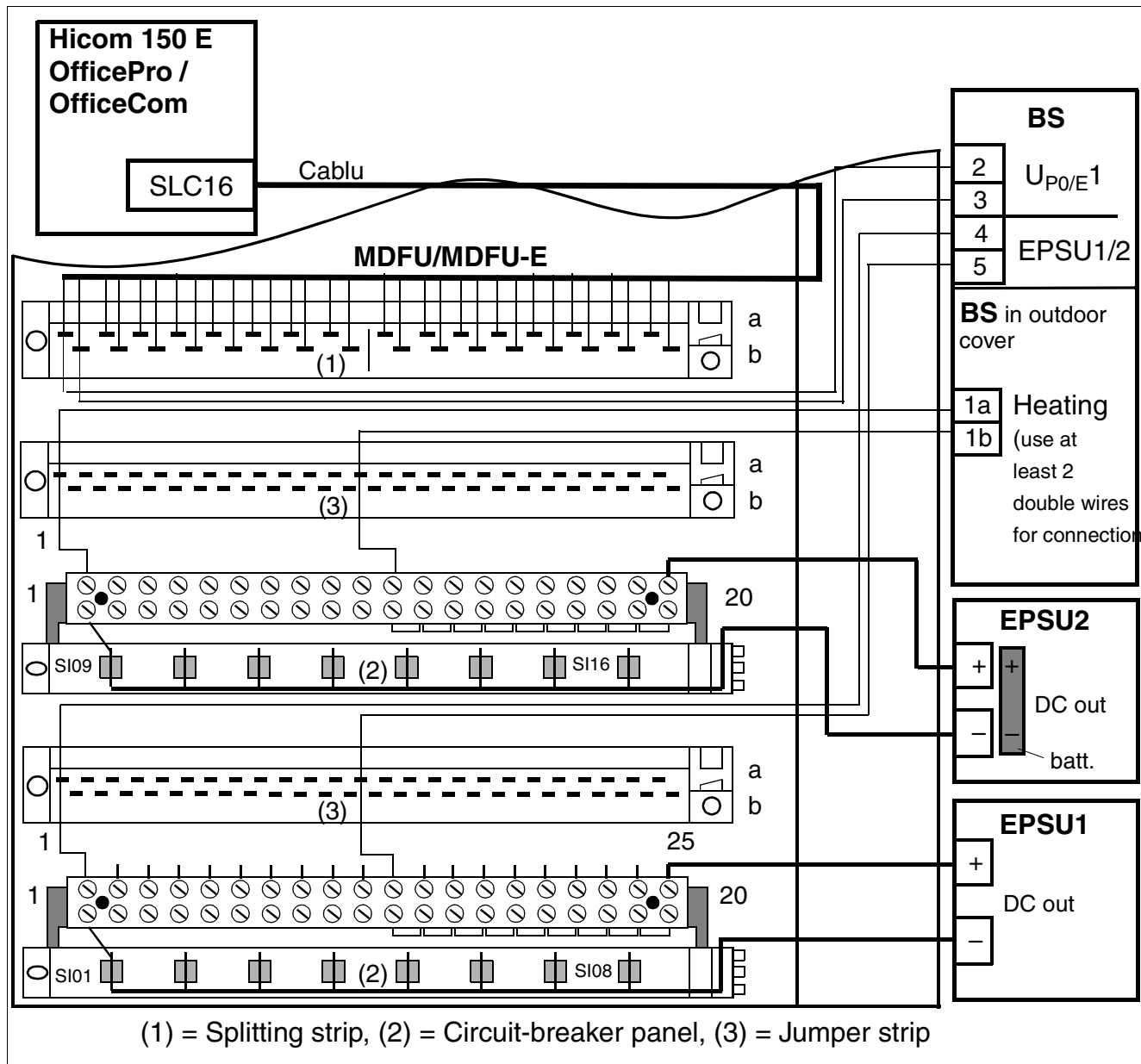


Figure 3-28 Power Supply to the Base Station and Outdoor Cover (Heating Unit) Via EPSU1/2

### Base Station Power Supply via Two $U_{P0/E}$ Interfaces

Connect the base station to two free interfaces on the SLC16 as shown in [Figure 3-29](#). Be careful not to exceed the maximum connecting cable lengths (1,000 m for 2x2x0.6mm).

Use two  $U_{P0/E}$  interfaces to increase the base station traffic capacity.

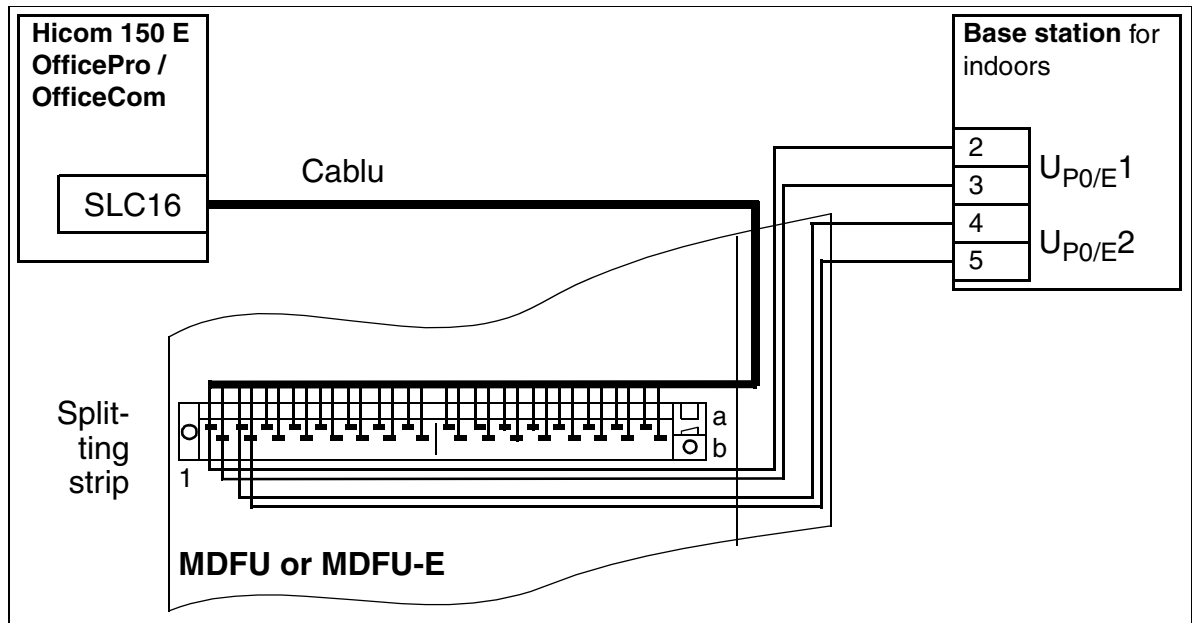


Figure 3-29 Base Station Power Supply via Two  $U_{P0/E}$  Interfaces (Not for U.S.)

## EPSU1 and EPSU2 External Power Supplies

The EPSU1 and 2 AC/DC converters are external power supply units for remote power supply to the base station. EPSU2 also supplies power to the outdoor cover heating unit.

The external power supply unit is a permanent part of Hicom cordless EM and comes with the system.

### Configuration Rules for Using EPSU1 and EPSU2

The table below shows the configurations which require the use of one or more EPSU1 or one EPSU2 converters.

Table 3-33 EPSU Configuration Rules

| System Configuration                                                                                                                        | EPSU1 | Second EPSU1 | EPSU2 |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|-------|
| 1 to 4 base stations and cable length* < 500 m                                                                                              | —     | —            | —     |
| 1 to 4 base stations and cable length* > 500 m                                                                                              | X     | —            | —     |
| 5 to 8 base stations                                                                                                                        | X     | —            | —     |
| 9 to 16 base stations                                                                                                                       | X     | X            | —     |
| Base station with remote power supply to outdoor cover heating unit                                                                         | —     | —            | X     |
| USP operation                                                                                                                               | —     | —            | X     |
| The cable length is based on a J-Y(ST)Y, 2 x 2 x 0,6 mm (0.6 to 1.2 mm) and on a standard wire diameter between the SLC16 and base station. |       |              |       |

### EPSU1

An EPSU1 supplies power to an ECBPE circuit-breaker panel for a total of eight connected base stations. It cannot be used for remote power supply to an outdoor cover heating unit.

Each additional circuit-breaker panel for a total of eight connected base stations needs another EPSU1.



Circuit-breaker panels associated with different EPSU2s must not be interconnected, that is, you must not connect the EPSU2 outputs in parallel.

In exceptional cases, an EPSU1 can supply power to a total of 12 base stations (without remote power supply to an outdoor cover heating unit), that is, a fully equipped circuit-breaker panel with eight base stations and another under-equipped circuit-breaker panel with four base stations.



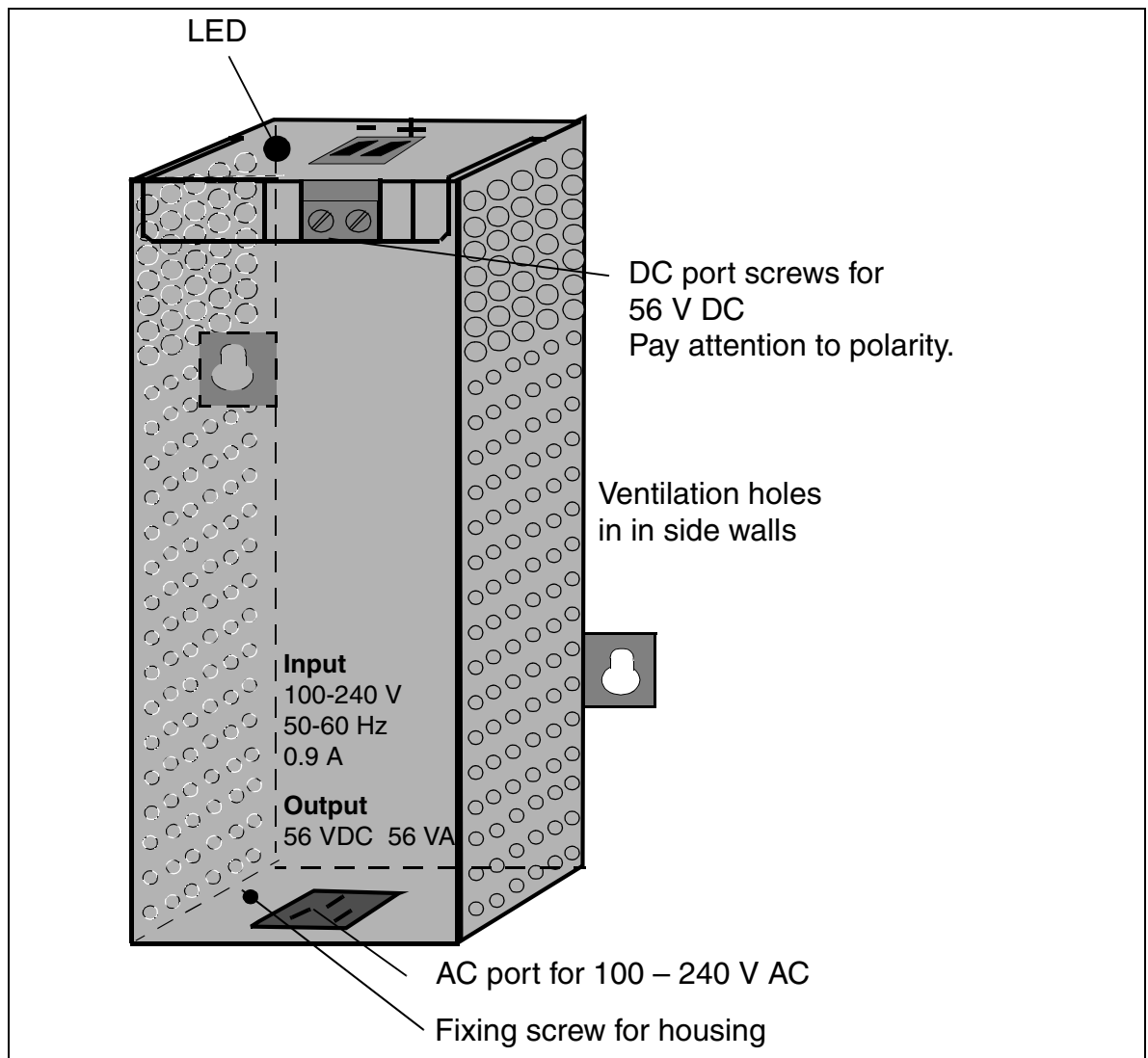


Figure 3-30 EPSU1 Indicators and Ports

Table 3-34 EPSU1 Indicators and Ports

| Indicator or Port | Explanation                                                                                                                                          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| LED               | Operation: <ul style="list-style-type: none"> <li>LED on: EPSU1 system operating within the valid AC range</li> <li>LED off: Malfunctions</li> </ul> |
| AC port           | IEC 320/16 (protective grounding power cable/IEC)                                                                                                    |
| DC port           | 56 V/56 W                                                                                                                                            |

## **EPSU2**

An EPSU2 powers up to 30 base stations (without remote power supply to the outdoor cover heating unit), that is, four ECBPE circuit-breaker panels, each with eight base stations, and the fourth circuit-breaker panel being equipped with only six base stations.

The following applies to external power to the base station and remote power supply to the outdoor cover heating unit:

To calculate consumption, the outdoor cover heating unit corresponds to two base stations (without remote power supply to the external panel heating unit). One base station with remote power supply to the external cover heating unit is therefore equivalent to three base stations without remote power supply to the external cover heating unit.

Assuming a value > 30 base stations (for example, a large number of base stations with remote power supply to the external cover heating unit), you will need to provide a second EPSU2, which must power a separate group of circuit-breaker panels.



Circuit-breaker panels associated with different EPSU2s must not be interconnected, that is, do not connect the EPSU2 outputs in parallel.

The EPSU2 always comes with UPS batteries installed. In the event of a power outage, these batteries maintain power for a 30-minute bridging time.

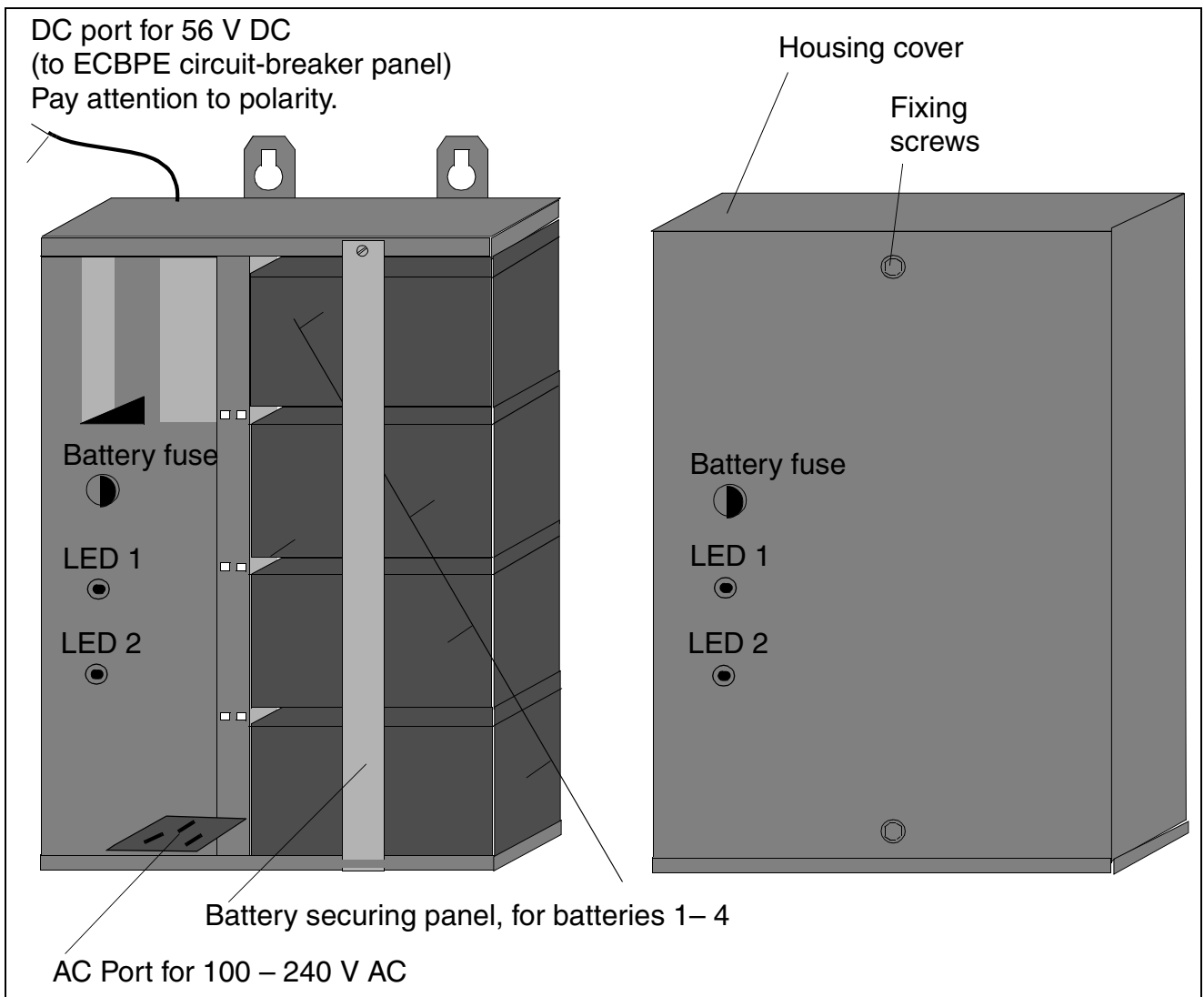


Figure 3-31 EPSU2 - Indicators and Ports

Table 3-35 EPSU2 - Indicators and Ports

| LED 1<br>(DC Output) | LED 2<br>(AC Input) | Explanation                                             |
|----------------------|---------------------|---------------------------------------------------------|
| On                   | On                  | DC output and AC input voltages are OK.                 |
| Off                  | On                  | No DC voltage at output<br>(rectifier short-circuited). |

Table 3-35 EPSU2 - Indicators and Ports

| <b>LED 1<br/>(DC Output)</b> | <b>LED 2<br/>(AC Input)</b> | <b>Explanation</b>                                                                                                                       |
|------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| On                           | Off                         | No AC voltage at input<br>(power outage, circuit-breaker panel receiving battery power).                                                 |
| Off                          | Off                         | No AC input voltage (power outage) and batteries are empty, or<br>the battery fuse is defective or was removed (by turning to the left). |
| <b>Ports</b>                 |                             | <b>Explanation</b>                                                                                                                       |
| Battery fuse                 |                             | Melting fuse: 5 x 20 mm, 6.3 A/slow-blowing                                                                                              |
| AC port                      |                             | IEC 320/16 (protective grounding power cable/IEC)                                                                                        |
| DC port                      |                             | 56 V / 140 W (2-wire connecting cable set, tin-plated ends)                                                                              |

**EPSU1 and EPSU2 Specifications**

Table 3-36 EPSU1 / EPSU2 - Specifications

|                                                                                                                                                                                                                                                      | <b>EPSU1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>EPSU2</b>                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Siemens item numbers                                                                                                                                                                                                                                 | S30122-X7221-X                                                                                                                                                                                                                                                                                                                                                                                                                                                | S30122-X7221-X1 (with UPS/battery packs)                                                                                                                                                                                                                                                                       |
| Siemens item numbers, power cable                                                                                                                                                                                                                    | C39195-Z7001-C17 Euro angled<br>C39195-Z7001-C20 GBR angled                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                |
| EPSU2 batteries                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | V39113-W5123-E891                                                                                                                                                                                                                                                                                              |
| Scope of delivery                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• EPSU1/EPSU2 AC/DC converter (EPSU2 with UPS batteries loaded)</li> <li>• Operating instructions</li> <li>• AC connecting cable (protective grounding plug, IEC-320 socket)</li> <li>• DC cable to MDFU/MDFU-E (1 m/0.75mm<sup>2</sup>, flexible, tin-plated at both ends)</li> </ul> <p>Note: If this cable is not long enough, you can also use a rigid 1.5 mm<sup>2</sup> cable up to a maximum length of 3 m.</p> |                                                                                                                                                                                                                                                                                                                |
| AC power                                                                                                                                                                                                                                             | 110 V / 115 V or 230 V                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                |
| Frequency range                                                                                                                                                                                                                                      | 47 to 63 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                |
| Connected output                                                                                                                                                                                                                                     | 80 W                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 200 W                                                                                                                                                                                                                                                                                                          |
| Output power consumption/nominal output                                                                                                                                                                                                              | 56 W                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 140 W                                                                                                                                                                                                                                                                                                          |
| Mains/nominal voltage                                                                                                                                                                                                                                | 56 V                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                |
| Battery operation/EPSU2 only: <ul style="list-style-type: none"> <li>• Permitted batteries<br/>Manufacturer/type number</li> <li>• Number of battery packs</li> <li>• Size (Ah)</li> <li>• Nominal voltage</li> <li>• Overload protection</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• CSB/EVX-1270, Hitachi/HP6.5-12, Yuasa/NP6-12, Varta/Noack 43720303, Sonnenschein/0719143200</li> <li>• 4 units, 12 V each</li> <li>• 1.25 Ah</li> <li>• 48 V (fully charged 54 V, discharge to 44 V)</li> <li>• Melting fuse 5 x 20 mm, 6.3 A/slow-blowing</li> </ul> |
| Nominal current                                                                                                                                                                                                                                      | 1.0 A                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.5 A                                                                                                                                                                                                                                                                                                          |
| Overload protection                                                                                                                                                                                                                                  | Electronic current limiting circuit                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                |

Table 3-36 EPSU1 / EPSU2 - Specifications

|                                      | EPSU1                                                                                                                                                                      | EPSU2              |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Ambient temperature                  | In buildings, + 5 to +45 °C                                                                                                                                                |                    |
| Humidity                             | 95 % / non-condensing                                                                                                                                                      |                    |
| Cooling                              | Natural convection                                                                                                                                                         |                    |
| Protection                           | IP 21 (DIN 40050)                                                                                                                                                          |                    |
| AC port (input)                      | IEC 320/16 (protective grounding power cable/IEC)                                                                                                                          |                    |
| DC port (output)                     | Screw terminals for insulated lines:<br><ul style="list-style-type: none"> <li>• Rigid = 0.5 – 2.5 mm<sup>2</sup></li> <li>• Flexile = 0.5 – 2.5 mm<sup>2</sup></li> </ul> |                    |
| Housing dimensions (W x D x H in mm) | 65 x 40 x 138                                                                                                                                                              | 250 x 114 x 317    |
| Weight                               | approx. 0.5 kg                                                                                                                                                             | approx. 14.1 kg    |
| Symbol                               | CE                                                                                                                                                                         |                    |
| Personal safety, insulation          | EN60950 and IEC950                                                                                                                                                         | EN60950 and IEC950 |
| Grounding, shielding                 | Protection class 1, output is floating against ground.                                                                                                                     |                    |

### Installation Notes

- The EPSU1/2 AC/DC converters are designed for installation indoors.
- The units are suitable only for mounting on the wall (vertically, with AC port on bottom).
- Always install the units in a dry, dust-free area where there is no danger of vibrations.
- Always make sure there is sufficient air circulation around the units. Do not block the ventilation holes.
- When selecting the location and position for installing the EPSU1/2 unit, keep in mind the necessary lengths of the following cables:
  - AC cable (protective grounding plug, IEC 320 socket)
  - DC cable to MDFU/MDFU-E

**Mounting the EPSU1 and EPSU2 on the Wall**

| Step | Action                                                                                                                                                                                                                                                                             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Drill two holes for anchors (5 mm in diameter) in the wall, as shown in <a href="#">Figure 3-32</a> (EPSU1) and <a href="#">Figure 3-33</a> (EPSU2) . Depending on the wall materials, you may have to use a different kind of attachment, such as wooden screws for wooden walls. |
| 2.   | Insert the anchors and insert two screws (3.5 mm in diameter), leaving 5 mm projecting from the wall.                                                                                                                                                                              |
| 3.   | Mount the EPSU1/2 onto the screws and tighten them all the way.                                                                                                                                                                                                                    |

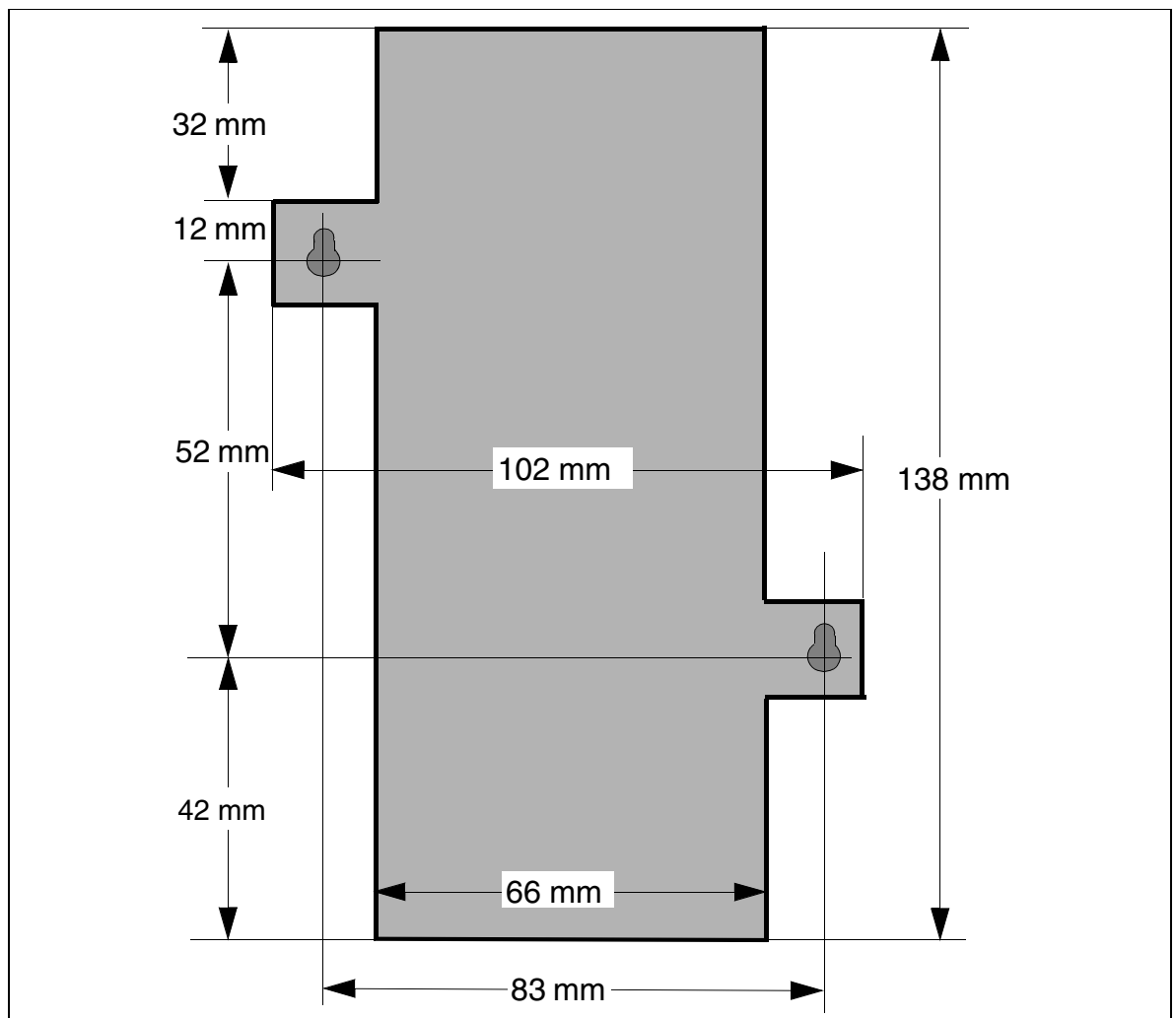


Figure 3-32 EPSU1 - Holes for Mounting on the Wall

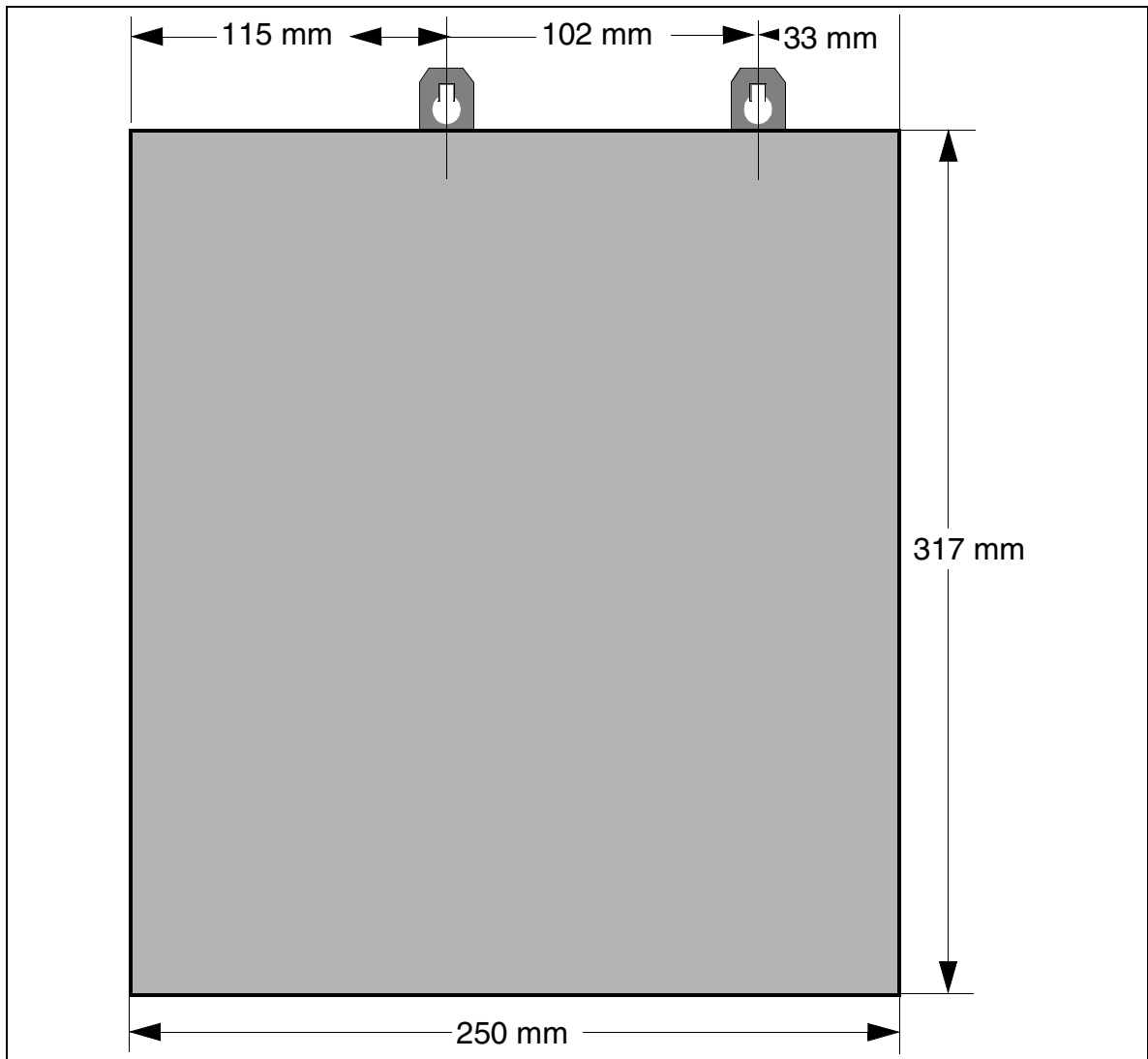


Figure 3-33 EPSU2 - Holes for Mounting on the Wall



**ECBPE Circuit Breaker Panel**

To protect the base station power supply via the EPSU 1/2, the ECBPE (external power supply circuit breaker panel for cordless **E**) must always be used in the MDFU or MDFU-E. The power supply for the outdoor cover heater must also be routed via the ECBPE.

A push button (see [Figure 3-36](#)) indicates the status of each automatic circuit breaker as follows:

- Button pressed = Automatic circuit breaker in the operating (default) position
- Button not pressed = Automatic circuit breaker was tripped  
You can also trip the automatic circuit breaker manually when performing maintenance.

Hicom cordless EM V2.2 is delivered with the following items:

- SLC16
- Hicom cordless system number
- Cablu
- EPSU1 or EPSU2
- One to four ECBPE circuit breaker panels, each with eight automatic circuit breakers
- One 25-pin jumper strip per EPSU1/2
- EPSU1/2 cable

If the MDFU or MDFU-E does not have enough free slots, you must add another cabinet.

## ECBPE Installation in MDFU (not for U.S.)

Figure 3-34 shows an example of an ECBPE with a jumper strip installed in MDFU slots 7 to 9.

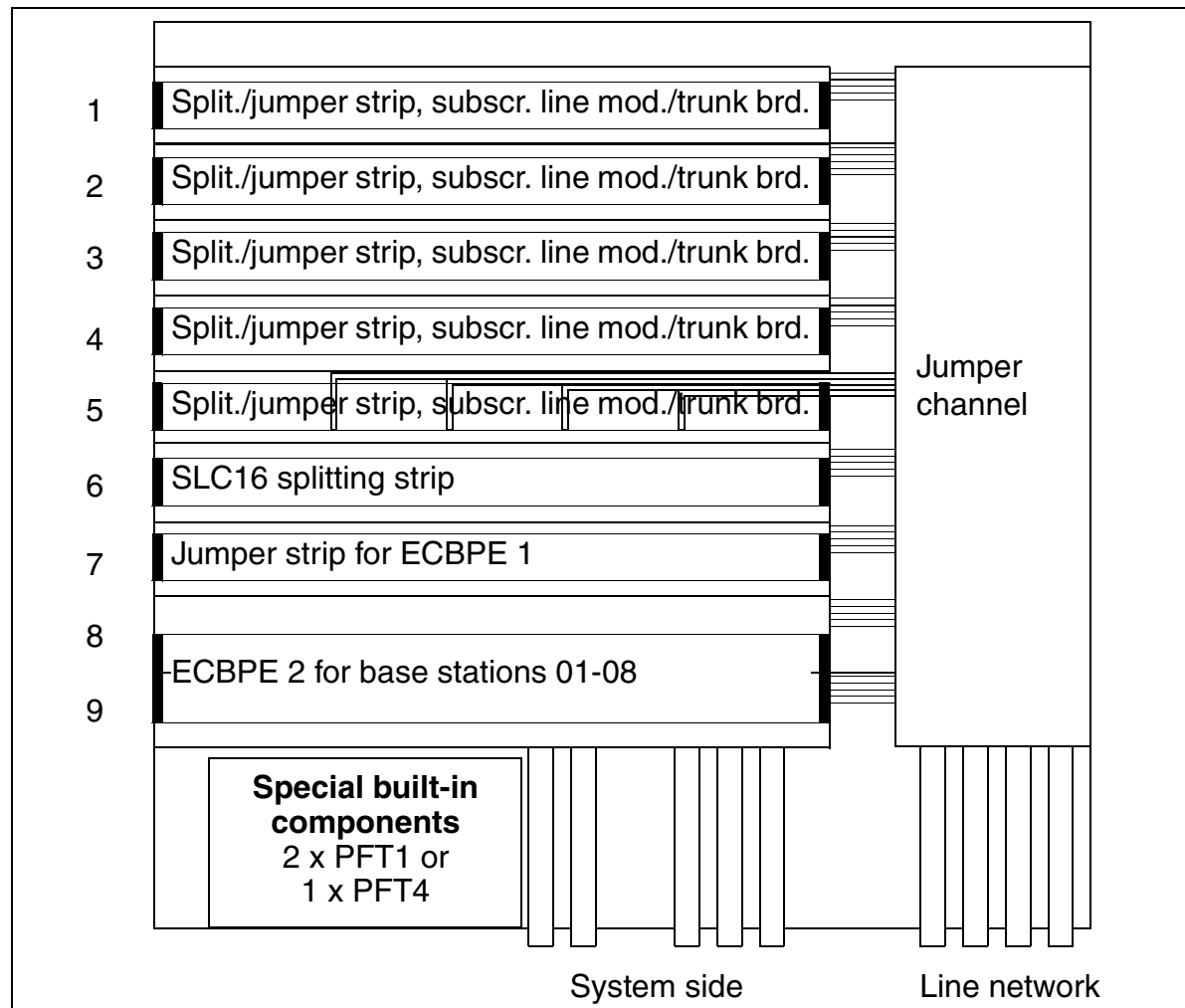


Figure 3-34 Example of ECBPE Installation in MDFU (Not for U.S.)



The ECBPE circuit-breaker panel has a great mounting depth. If the MDFU is fully equipped with splitting and jumper strips, the circuit-breaker panel may damage the cables of these lines. If so, insert the circuit-breaker panel into one of the upper slots.

**ECBPE Installation in MDFU-E (not for U.S.)**

Figure 3-35 shows an example of two ECBPEs with one jumper strip installed in MDFU-E slots 17 to 21.

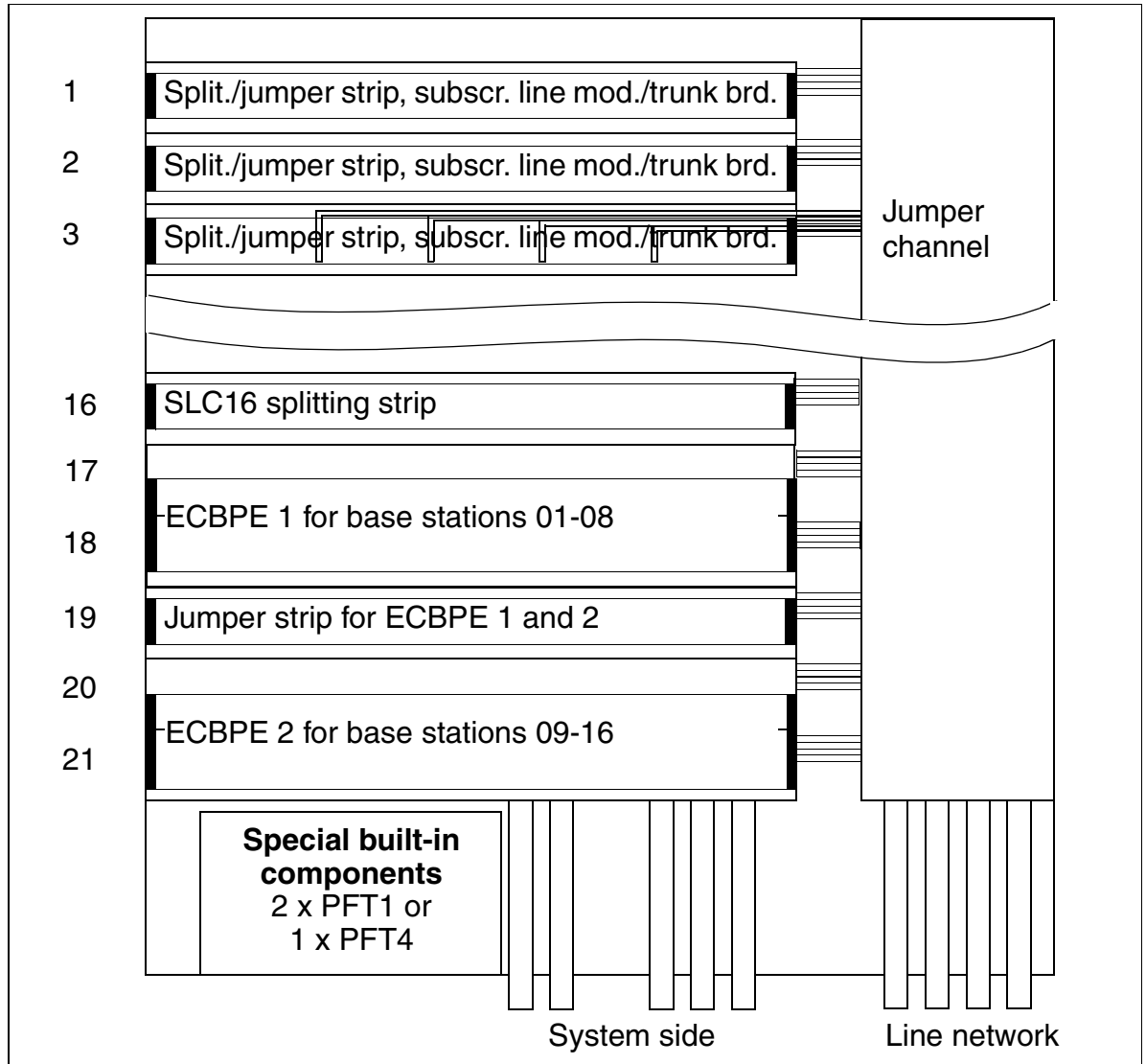


Figure 3-35 Example of ECBPE Installation in MDFU-E (Not for U.S.)



The ECBPE circuit-breaker panel has a great mounting depth. If the MDFU-E is fully equipped with splitting and jumper strips, the circuit-breaker panel may damage the cables of these lines. If so, insert the circuit-breaker panel into one of the upper slots.

### **Routing the Power Cables Between the EPSU1/2, ECBPE, and Base Station**

Lay the supply cables as shown in in [Figure 3-27](#) and [Figure 3-28](#). Be careful not to exceed the maximum connecting cable lengths.

### **Connecting the Cables**

| <b>Step</b> | <b>Action</b>                                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | For EPSU2 only: Remove the battery fuse.                                                                                                                                                                                |
| 2.          | Lay the DC cable from the DC port on the EPSU1 ( <a href="#">Figure 3-30</a> ) or EPSU2 ( <a href="#">Figure 3-31</a> ) to the circuit-breaker panel ( <a href="#">Figure 3-36</a> ), paying attention to the polarity. |
| 3.          | Lay the cables from the circuit-breaker panel to the jumper strip ( <a href="#">Figure 3-27</a> and <a href="#">Figure 3-28</a> ).                                                                                      |
| 4.          | Lay the power cables from the jumper strip to the base stations ( <a href="#">Figure 3-27</a> and <a href="#">Figure 3-28</a> ).<br>Lay the cables to the outdoor cover heating unit (if provided).                     |
| 5.          | Connect the AC connecting cable of the EPSU1/2 to the power supply.<br>After a brief EPSU1/2 startup time, power is supplied to the base stations and the outdoor cover (if provided) (56 VDC $\pm$ 2 V).               |
| 6.          | For EPSU2 only: Insert the battery fuse.<br>Empty batteries take roughly 10 hours to charge, which means that the UPS is operational only after 10 hours.                                                               |



#### **Attention**

Always remove the battery fuse from the EPSU2 when working on the EPSU2 DC power circuits. Only the EPSU2 power adapter is short-circuit-proof.  
You can replace the battery fuse after completing all the work and reconnecting the unit to the power supply (LED lights up).

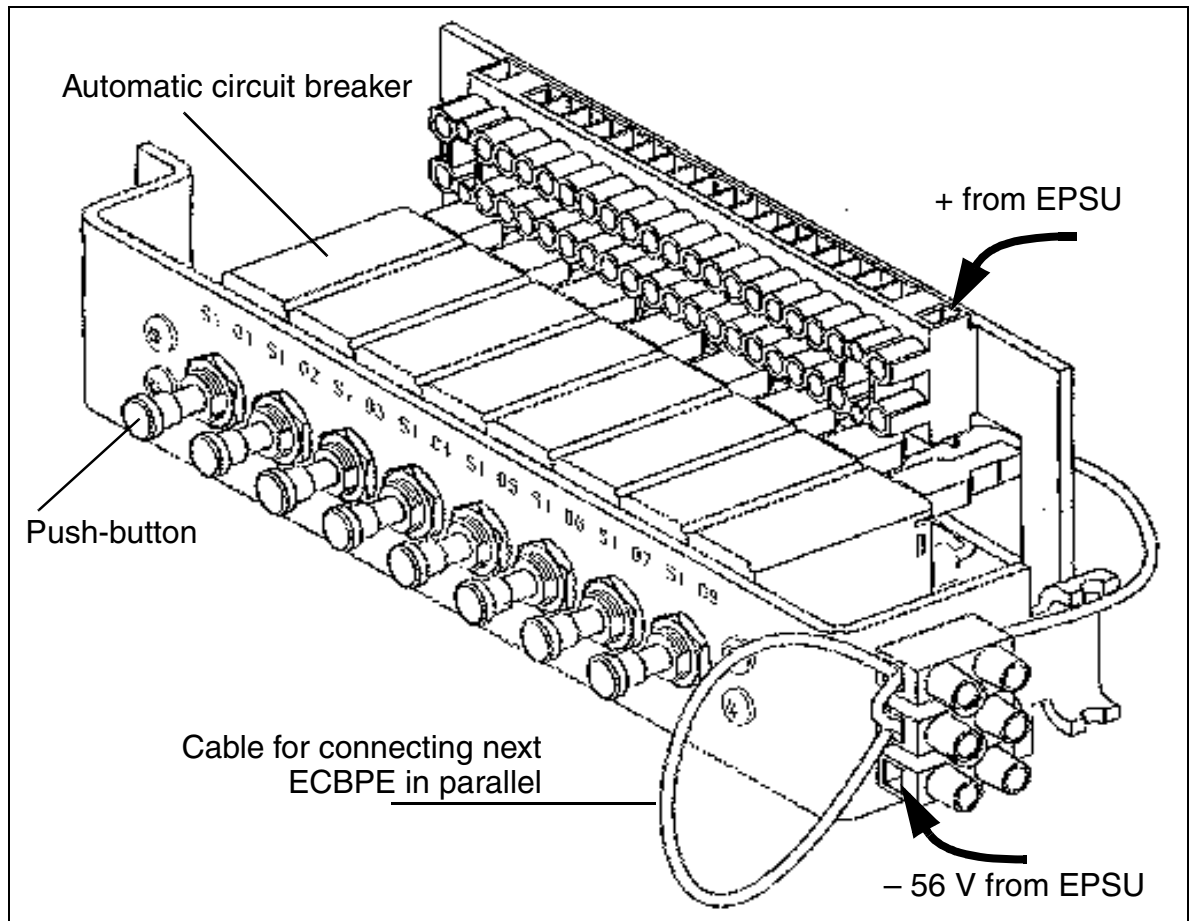


Figure 3-36 ECBPE Circuit Breaker Panel and Cabling (Not for U.S.)



Do not interconnect the circuit-breaker panels of different EPSU1 or EPSU2 units. This means that you cannot parallel-connect the EPSU1 outputs or the EPSU2 outputs.

### 3.3.7 SLMO8 (Not for U.S.) and SLMO24

#### Introduction

The SLMO8 and SLMO24 boards (subscriber line module cost optimized  $U_{P0/E}$ ) provide either 8 or 24 ports for connecting optiset E telephones to Hicom 150 E OfficePro.

The SLMO24 board also be connects to Hicom 150 E OfficeCom Rel. 2.0 and later (slot 10 only).

The SLMO8 is not currently supported in the U.S.

#### Switches and LEDs

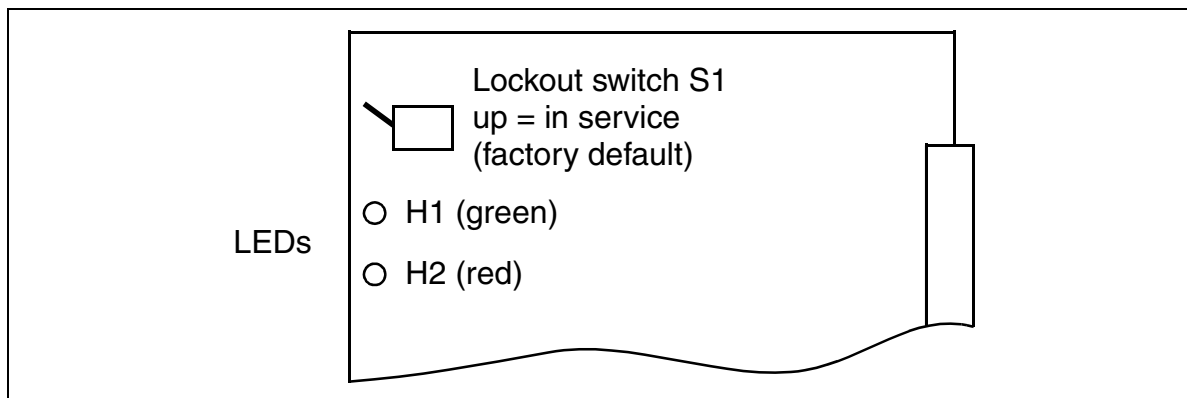


Figure 3-37 SLMO8 and SLMO24 (S30810-Q2901-X/S30810-Q2901-Xxxx)

**LED Statuses and Their Meanings**

Table 3-37 SLMO8 and SLMO24—LED Statuses

| <b>Red LED</b> | <b>Green LED</b> | <b>Status</b>                                                                                                                                            | <b>Action</b>                                                                              |
|----------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Off            | Off              | Board not receiving power or not properly seated.<br>Board is deactivated.                                                                               | Check plug contact on board.                                                               |
| On             | Off              | Board is receiving power or board test in progress.<br>If status remains the same (board test unsuccessful), board is defective.                         | Replace board.                                                                             |
|                |                  | Loadware loading not successfully completed. Board is defective.                                                                                         | Replace board.                                                                             |
|                |                  | Error detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using Hicom Assistant E Office. | Check whether board was deactivated using Hicom Assistant E Office. If not, replace board. |
| Flashing       | Off              | Loadware being loaded.                                                                                                                                   |                                                                                            |
| Off            | On               | Loading successfully completed and board is OK (idle).                                                                                                   |                                                                                            |
| Off            | Flashing         | At least one subscriber line circuit is activated.                                                                                                       |                                                                                            |

**Cable and SU Connector Assignment (Backplane) (Not for U.S.)**

Table 3-38 SLMO8 and SLMO24—Cable 1 Assignment for OfficeCom and OfficePro (SU X8) (Not for U.S.)

| Color Group | Pair | a-Wire  | b-Wire  | SU conn. | SLMO8<br>SLMO24 |         | Notes                |
|-------------|------|---------|---------|----------|-----------------|---------|----------------------|
|             |      |         |         | BP: X8   |                 |         |                      |
| 1           | 1    | wht/blu |         | 19       | 1a              | Port 1  |                      |
|             |      |         | blu/wht | 39       | 1b              |         |                      |
|             | 2    | wht/ora |         | 38       | 2a              | Port 2  |                      |
|             |      |         | ora/wht | 48       | 2b              |         |                      |
|             | 3    | wht/grn |         | 27       | 3a              | Port 3  |                      |
|             |      |         | grn/wht | 47       | 3b              |         |                      |
|             | 4    | wht/brn |         | 16       | 4a              | Port 4  |                      |
|             |      |         | brn/wht | 46       | 4b              |         |                      |
|             | 5    | wht/gry |         | 05       | 5a              | Port 5  |                      |
|             |      |         | gry/wht | 45       | 5b              |         |                      |
| 2           | 6    | red/blu |         | 14       | 6a              | Port 6  |                      |
|             |      |         | blu/red | 44       | 6b              |         |                      |
|             | 7    | red/ora |         | 23       | 7a              | Port 7  |                      |
|             |      |         | ora/red | 43       | 7b              |         |                      |
|             | 8    | red/grn |         | 32       | 8a              | Port 8  |                      |
|             |      |         | grn/red | 42       | 8b              |         |                      |
|             | 9    | red/brn |         | 11       | 9a              | Port 9  | Not used by<br>SLMO8 |
|             |      |         | brn/red | 31       | 9b              |         |                      |
|             | 10   | red/gry |         | 02       | 10a             | Port 10 | Not used by<br>SLMO8 |
|             |      |         | gry/red | 22       | 10b             |         |                      |
| 3           | 11   | blk/blu |         | 13       | 11a             | Port 11 | Not used by<br>SLMO8 |
|             |      |         | blu/blk | 33       | 11b             |         |                      |
|             | 12   | blk/ora |         | 04       | 12a             | Port 12 | Not used by<br>SLMO8 |
|             |      |         | ora/blk | 24       | 12b             |         |                      |
|             | 13   | blk/grn |         | 15       | 13a             | Port 13 | Not used by<br>SLMO8 |
|             |      |         | grn/blk | 35       | 13b             |         |                      |
|             | 14   | blk/brn |         | 06       | 14a             | Port 14 | Not used by<br>SLMO8 |
|             |      |         | brn/blk | 26       | 14b             |         |                      |
|             | 15   | blk/gry |         | 17       | 15a             | Port 15 | Not used by<br>SLMO8 |
|             |      |         | gry/blk | 37       | 15b             |         |                      |
| 4           | 16   | yel/blu |         | 08       | 16a             | Port 16 | Not used by<br>SLMO8 |
|             |      |         | blu/yel | 28       | 16b             |         |                      |
| Color Group | Pair | a-Wire  | b-Wire  | SU conn. | SLMO8<br>SLMO24 |         | Notes                |
|             |      |         |         | BP: X8   |                 |         |                      |



Table 3-39 SLMO8 and SLMO24—Cable 2 Assignment for OfficeCom and OfficePro (SU X9) (Not for U.S.)

| Color Group | Pair    | a-Wire  | b-Wire  | SU conn.           | SLMO8<br>SLMO24 |         | Notes                |
|-------------|---------|---------|---------|--------------------|-----------------|---------|----------------------|
|             |         |         |         | BP: X9             |                 |         |                      |
| 1           | 1       | wht/blu |         |                    |                 | Free    |                      |
|             |         |         | blu/wht |                    |                 |         |                      |
|             | 2       | wht/ora |         |                    |                 | Free    |                      |
|             |         |         | ora/wht |                    |                 |         |                      |
|             | 3       | wht/grn |         |                    |                 | Free    |                      |
|             |         |         | grn/wht |                    |                 |         |                      |
|             | 4       | wht/brn |         |                    |                 | Free    |                      |
|             |         |         | brn/wht |                    |                 |         |                      |
| 5           | wht/gry |         |         |                    | Free            |         |                      |
|             |         | gry/wht |         |                    |                 |         |                      |
| 2           | 6       | red/blu |         |                    |                 | Free    |                      |
|             |         |         | blu/red |                    |                 |         |                      |
|             | 7       | red/ora |         |                    |                 | Free    |                      |
|             |         |         | ora/red |                    |                 |         |                      |
|             | 8       | red/grn |         |                    |                 | Free    |                      |
|             |         |         | grn/red |                    |                 |         |                      |
|             | 9       | red/brn |         | 11                 | 17a             | Port 17 | Not used by<br>SLMO8 |
|             |         |         | brn/red | 31                 | 17b             |         |                      |
|             | 10      | red/gry |         | 02                 | 18a             | Port 18 | Not used by<br>SLMO8 |
|             |         |         | gry/red | 22                 | 18b             |         |                      |
| 3           | 11      | blk/blu |         | 13                 | 19a             | Port 19 | Not used by<br>SLMO8 |
|             |         |         | blu/blk | 33                 | 19b             |         |                      |
|             | 12      | blk/ora |         | 04                 | 20a             | Port 20 | Not used by<br>SLMO8 |
|             |         |         | ora/blk | 24                 | 20b             |         |                      |
|             | 13      | blk/grn |         | 15                 | 21a             | Port 21 | Not used by<br>SLMO8 |
|             |         |         | grn/blk | 35                 | 21b             |         |                      |
|             | 14      | blk/brn |         | 06                 | 22a             | Port 22 | Not used by<br>SLMO8 |
|             |         |         | brn/blk | 26                 | 22b             |         |                      |
|             | 15      | blk/gry |         | 17                 | 23a             | Port 23 | Not used by<br>SLMO8 |
|             |         |         | gry/blk | 37                 | 23b             |         |                      |
| 4           | 16      | yel/blu |         | 08                 | 24a             | Port 24 | Not used by<br>SLMO8 |
|             |         |         | blu/yel | 28                 | 24b             |         |                      |
| Color Group | Pair    | a-Wire  | b-Wire  | SU conn.<br>BP: X9 | SLMO8<br>SLMO24 |         | Notes                |

## Cable and Connector Assignment (Backplane) (for U.S. Only)

Table 3-40 SLMO24 Module—OfficeCom and OfficePro Cable Assignment (for U.S. Only)

| Pair | Color Code | Backplane Connector Pins | SLMO24 Module |         | Pair | Color Code | Backplane Connector Pins | SLMO24 Module |         |
|------|------------|--------------------------|---------------|---------|------|------------|--------------------------|---------------|---------|
| 1    | wht/blu    | 26                       | T             | Port 1  | 13   | blk/grn    | 38                       | T             | Port 13 |
|      | blu/wht    | 1                        | R             |         |      | grn/blk    | 13                       | R             |         |
| 2    | wht/ora    | 27                       | T             | Port 2  | 14   | blk/brn    | 39                       | T             | Port 14 |
|      | ora/wht    | 2                        | R             |         |      | brn/blk    | 14                       | R             |         |
| 3    | wht/grn    | 28                       | T             | Port 3  | 15   | blk/slt    | 40                       | T             | Port 15 |
|      | grn/wht    | 3                        | R             |         |      | slt/blk    | 15                       | R             |         |
| 4    | wht/brn    | 29                       | T             | Port 4  | 16   | yel/blu    | 41                       | T             | Port 16 |
|      | brn/wht    | 4                        | R             |         |      | blu/yel    | 16                       | R             |         |
| 5    | wht/slat   | 30                       | T             | Port 5  | 17   | yel/ora    | 42                       | T             | Port 17 |
|      | slat/wht   | 5                        | R             |         |      | ora/yel    | 17                       | R             |         |
| 6    | red/blu    | 31                       | T             | Port 6  | 18   | yel/grn    | 43                       | T             | Port 18 |
|      | blu/red    | 6                        | R             |         |      | grn/yel    | 18                       | R             |         |
| 7    | red/ora    | 32                       | T             | Port 7  | 19   | yel/brn    | 44                       | T             | Port 19 |
|      | ora/red    | 7                        | R             |         |      | brn/yel    | 19                       | R             |         |
| 8    | red/grn    | 33                       | T             | Port 8  | 20   | yel/slt    | 45                       | T             | Port 20 |
|      | grn/red    | 8                        | R             |         |      | slt/yel    | 20                       | R             |         |
| 9    | red/brn    | 34                       | T             | Port 9  | 21   | vio/blu    | 46                       | T             | Port 21 |
|      | brn/red    | 9                        | R             |         |      | blu/vio    | 21                       | R             |         |
| 10   | red/slat   | 35                       | T             | Port 10 | 22   | vio/ora    | 47                       | T             | Port 22 |
|      | slat/red   | 10                       | R             |         |      | ora/vio    | 22                       | R             |         |
| 11   | blk/blu    | 36                       | T             | Port 11 | 23   | vio/grn    | 48                       | T             | Port 23 |
|      | blu/blk    | 11                       | R             |         |      | grn/vio    | 23                       | R             |         |
| 12   | blk/ora    | 37                       | T             | Port 12 | 24   | vio/brn    | 49                       | T             | Port 24 |
|      | ora/blk    | 12                       | R             |         |      | brn/vio    | 24                       | R             |         |

**Note:** Pair 25 is not used.

### 3.3.8 SLU8

#### Introduction

The SLU8 board provides the OfficeCom and OfficePoint with 8 digital subscriber line interfaces, allowing up to 16 digital telephones in primary-secondary mode (using an adapter on the primary phone).

#### Interfaces

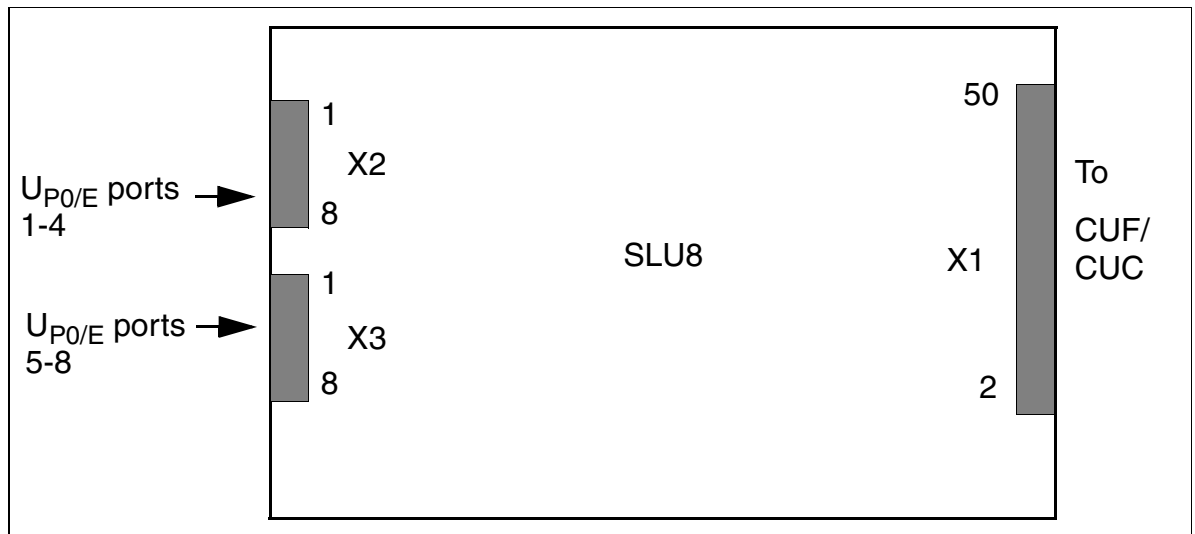


Figure 3-38 SLU8 Interfaces (S30817-Q922-Axxx)

**Caution**

After disconnecting the system electrical plug, you must wait a few minutes before you remove or insert the SLU8. Otherwise, you may damage the CBPC.

Table 3-41 SLU8 Contact Assignments (Not for U.S.)

| Pin | X2 (U <sub>P0/E</sub> Ports 1 to 4) | X3 (U <sub>P0/E</sub> Ports 5 to 8) |
|-----|-------------------------------------|-------------------------------------|
| 1   | a1                                  | a5                                  |
| 2   | b1                                  | b5                                  |
| 3   | a2                                  | a6                                  |
| 4   | b2                                  | b6                                  |
| 5   | a3                                  | a7                                  |
| 6   | b3                                  | b7                                  |
| 7   | a4                                  | a8                                  |
| 8   | b4                                  | b8                                  |

Table 3-42 SLU8 Interface Assignments (for U.S. Only)

| Pin | X2 (U <sub>P0/E</sub> ports 1 to 4) | X3 (U <sub>P0/E</sub> ports 5 to 8) |
|-----|-------------------------------------|-------------------------------------|
| 1   | R1                                  | R5                                  |
| 2   | T1                                  | T5                                  |
| 3   | R2                                  | R6                                  |
| 4   | T2                                  | T6                                  |
| 5   | R3                                  | R7                                  |
| 6   | T3                                  | T7                                  |
| 7   | R4                                  | R8                                  |
| 8   | T4                                  | T8                                  |

**Note:** Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

### 3.3.9 STLS2 (Not for U.S.) and STLS4

#### Introduction

The STLS4 board for OfficeCom and OfficePoint has four  $S_0$  ports that can be operated either as external trunk interfaces in TE (terminal equipment) mode or as interfaces to internal  $S_0$  busses in NT (network terminator) mode (with cross-connected RX TX lines).

The STLS2 is an underequipped variant with two  $S_0$  ports. It is not currently supported in the U.S.

#### Interfaces



The STLS2 or STLS4 does **not** supply terminals with power; power must be supplied locally using an optiset E local power supply or a bus power supply unit.

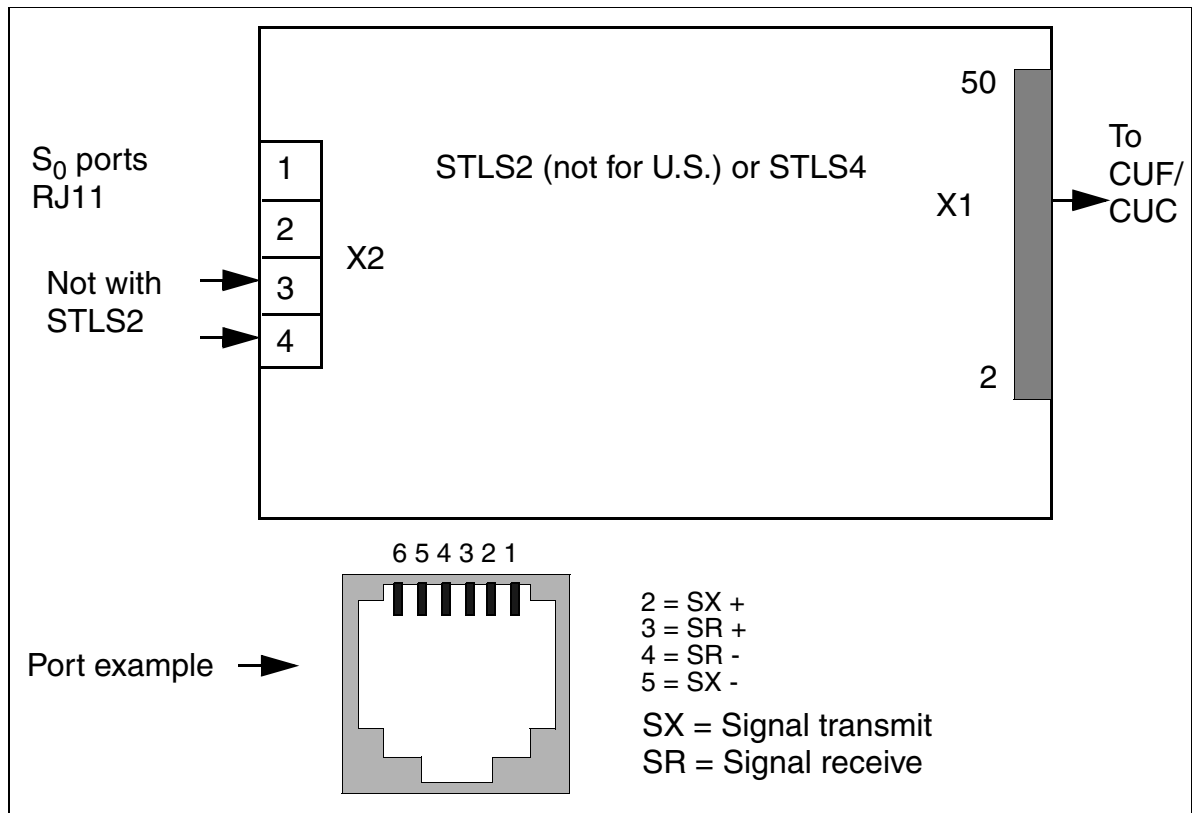


Figure 3-39 STLS2 (Not for U.S.) and STLS4 Interfaces (S30817-Q924-Bxxx/Axxx)

## Interface Assignments (for U.S. Only)

Table 3-43 STLS4 Module Interface Assignments (for U.S. Only)

| Pin | Port | Assignment      | Pin | Port | Assignment      |
|-----|------|-----------------|-----|------|-----------------|
| 2   | 1    | Signal transmit | 2   | 3    | Signal transmit |
| 3   |      | Signal receive  | 3   |      | Signal receive  |
| 4   |      | Signal receive  | 4   |      | Signal receive  |
| 5   |      | Signal transmit | 5   |      | Signal transmit |
| 2   | 2    | Signal transmit | 2   | 4    | Signal transmit |
| 3   |      | Signal receive  | 3   |      | Signal receive  |
| 4   |      | Signal receive  | 4   |      | Signal receive  |
| 5   |      | Signal transmit | 5   |      | Signal transmit |

**Note:** The STLS4 Module serves the trunk side in Europe, so the transmit and receive signals must be reversed before the first device on the  $S_0$  bus. In contrast, the optiset E ISDN adapter uses a straight-through connection because it is always a station-only device. See [Figure 3-41 on page 3-112](#) for details.

The ISDN terminals must have their own local power supply. Refer to [Section 9.6.1](#) for information on setting up an  $S_0$  bus.

The system assigns the MSN only after the  $S_0$  port is configured on the Euro-bus (not for U.S.) and can be read out via the administration (Assistant T: code 20 4 3  $S_0$  bus MSN).

**Connecting ISDN Terminals to OfficeCom and OfficePoint****S<sub>0</sub> Bus With RJ45 (MW8) Jack**Connecting S<sub>0</sub>1 to S<sub>0</sub>4:

- Connect the provided, silver-satin connector cord to each port on the STLS4 Module. Connect the other end to a surface-mounted RJ45X jack, reversing the transmit and receive wires as shown in [Figure 3-41 on page 3-112](#).
- Contact is always established using the center pins of RJ jacks. [Figure 3-40](#) shows the pin assignments for jacks of different sizes.
- The ISDN terminals must have their own local power supply. Refer to [Section 9.6.1](#) for information on setting up an S<sub>0</sub> bus.
- Plug the ISDN terminal (connecting cord) into the RJ45 jack. Connecting an ISDN S<sub>0</sub> telephone requires a local power supply (e.g. manufactured by Sedlbauer); see [Figure 9-9 on page 9-25](#).

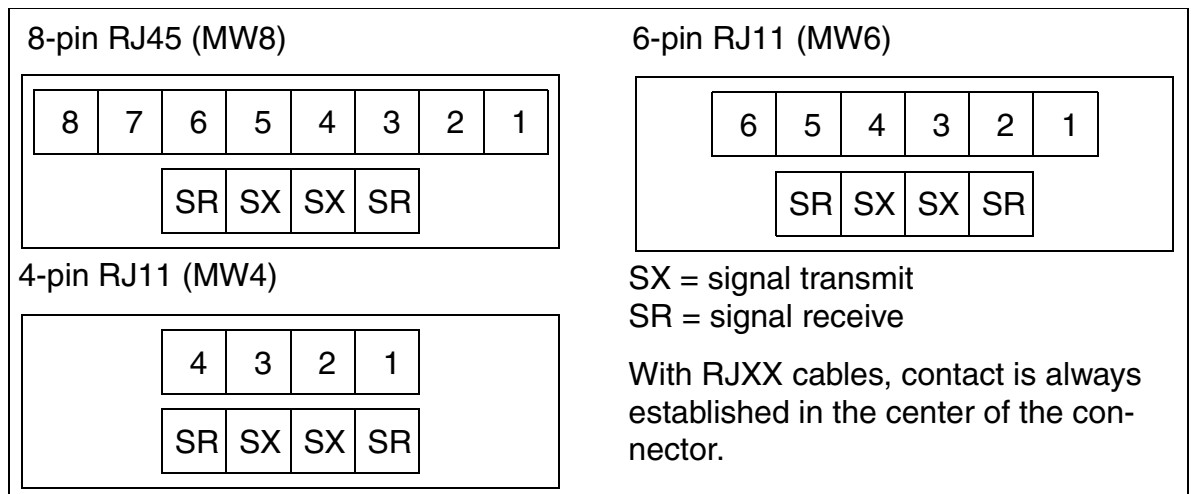
**Pin Assignment of RJXX Jacks**

Figure 3-40 RJXX Jack Pin Assignment

## S<sub>0</sub> Bus Wiring From STLS4 Port or optiset E ISDN adapter

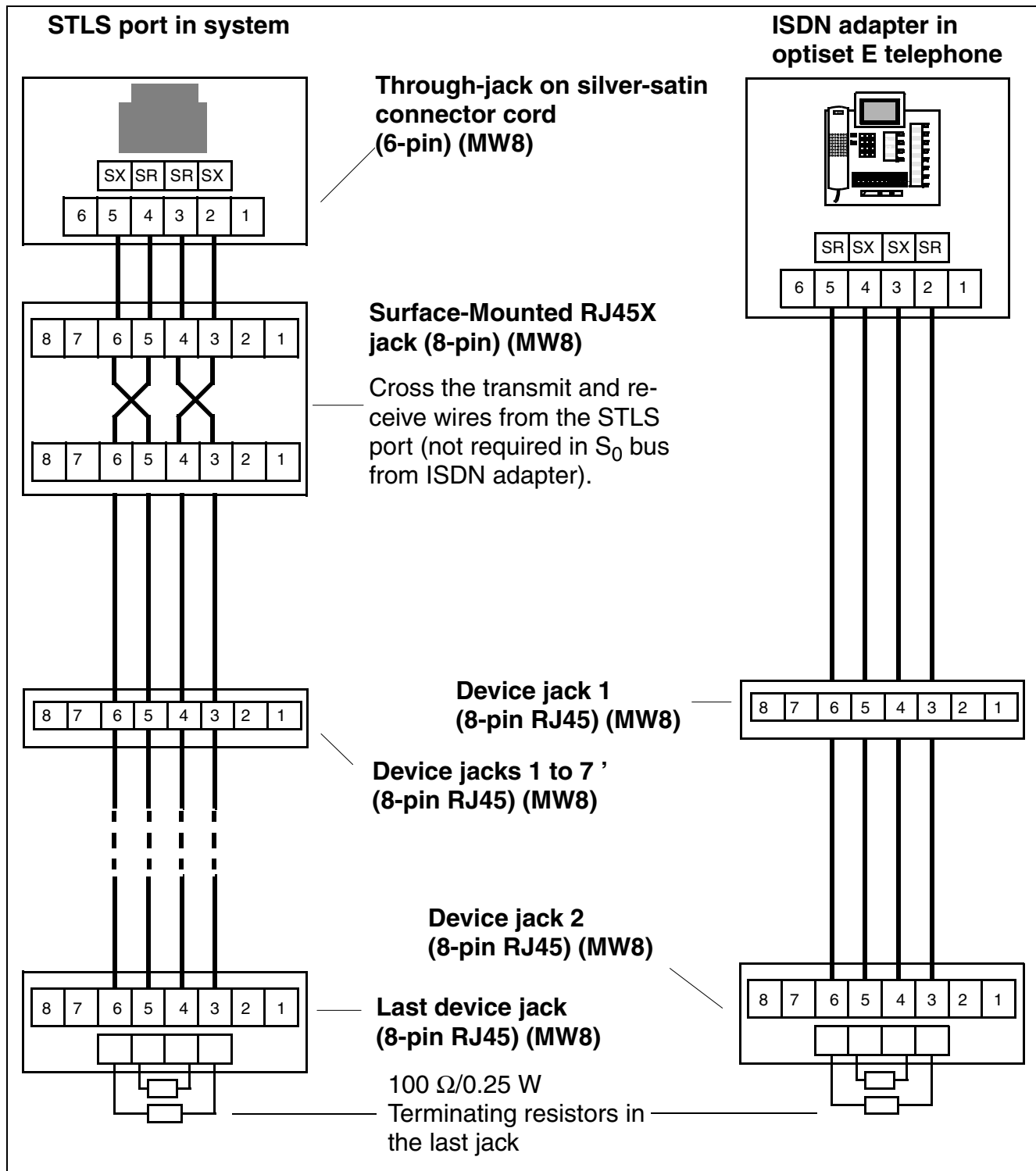


Figure 3-41 S<sub>0</sub> Bus Wiring From STLS4 Port or optiset E ISDN adapter



### 3.3.10 STMD8

#### Introduction

The STMD8 board (subscriber and trunk module digital  $S_0$ ) provides eight  $S_0$  ports in Hicom 150 E OfficePro, which can be used

- for  $S_0$  trunk connections (via NT) (not for U.S.)
- for an for point-to-point or point-to-multipoint connection ( $S_0$  bus) to the central office (not for U.S.)
- for  $S_0$  networking via  $S_0$  lines (CorNet-N or QSig) (not for U.S.)
- for an  $S_0$  bus for connecting ISDN terminals (separate power supply required)

#### Switches and LEDs

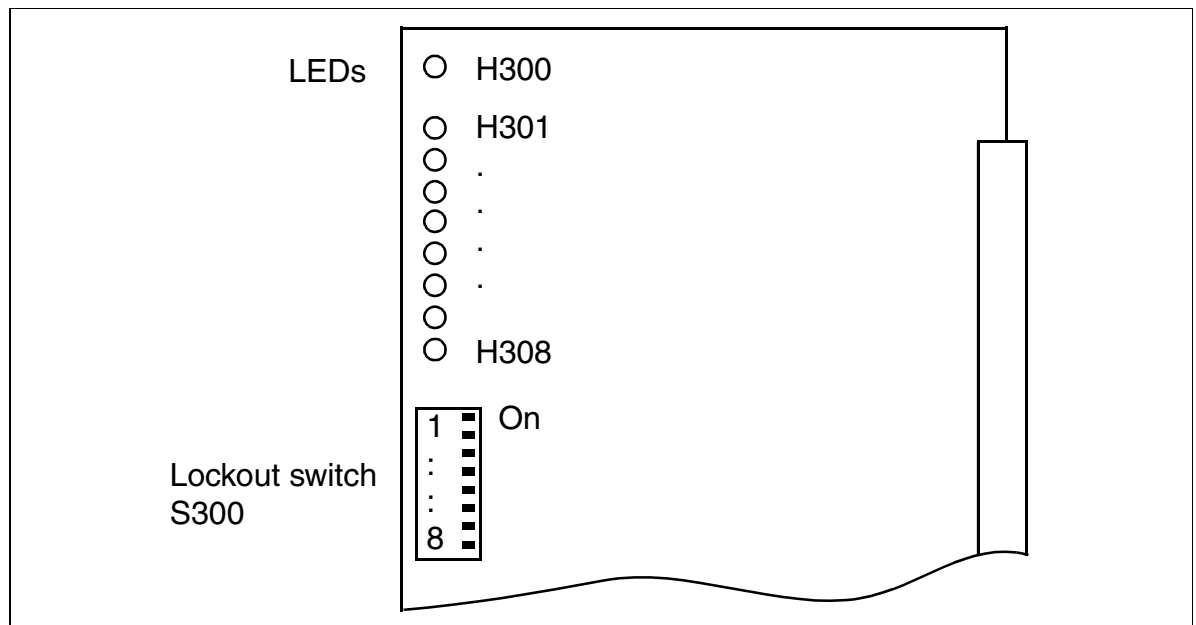


Figure 3-42 STMD8 (S30810-Q2558-Xxxx)

## LED Statuses and Their Meanings

- LED H300 (see [Figure 3-42](#)): Reference clock display (clock is generated if this feature has been configured using Hicom Assistant E Office.)
  - On: Reference clock for clock generator is generated.
  - Off: No reference clock
- LEDs H301 to H308 (see [Figure 3-42](#))

Table 3-44 STMD8— LED Statuses (H301 to H308)

| LED Status<br>(on/off)                          | Meaning                                        | Action                                                                                          |
|-------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>During the Boot Phase and Initialization</b> |                                                |                                                                                                 |
| Flickering<br>(50/50 ms)                        | Board test not successful                      | Replace board                                                                                   |
| Flashing<br>(100/100 ms)                        | Board not configured                           | Inspect visually; remove and re-seat board if required.<br>Replace board if flashing continues. |
| On                                              | Loading in progress                            |                                                                                                 |
| Flashing<br>(100/100 ms)                        | Code could not be loaded                       | Replace board                                                                                   |
| Off                                             | Board loaded                                   |                                                                                                 |
| Flashing<br>(500/500 ms)                        | Board loaded, but not yet activated            |                                                                                                 |
| <b>During Operation</b>                         |                                                |                                                                                                 |
| On                                              | ISDN layer 2 activated                         |                                                                                                 |
| Flickering<br>(450/50 ms)                       | Dependability test (loopback test) in progress |                                                                                                 |
| Flashing<br>(500/500 ms)                        | Board is out of service (e.g. S300/x “closed”) | Check whether the board was deactivated using Hicom Assistant E Office or lockout switch.       |
| Off                                             | ISDN layer 2 not activated                     |                                                                                                 |

**S<sub>0</sub> trunk Connection (Not for U.S.)**

Table 2-7 on page 2-18 lists examples of maximum line lengths for connecting trunks.

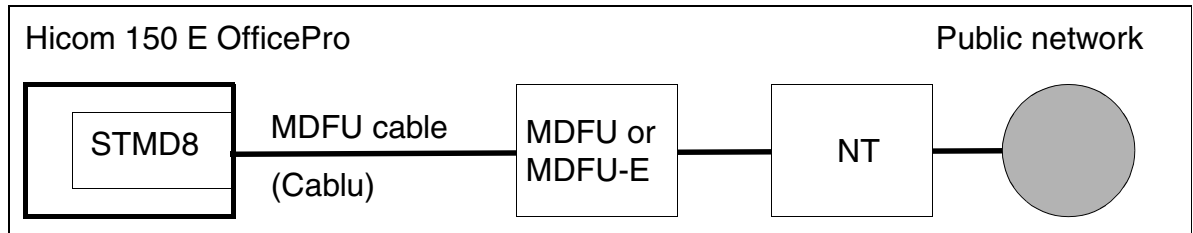


Figure 3-43 S<sub>0</sub> Trunk Connection (Not for U.S.)

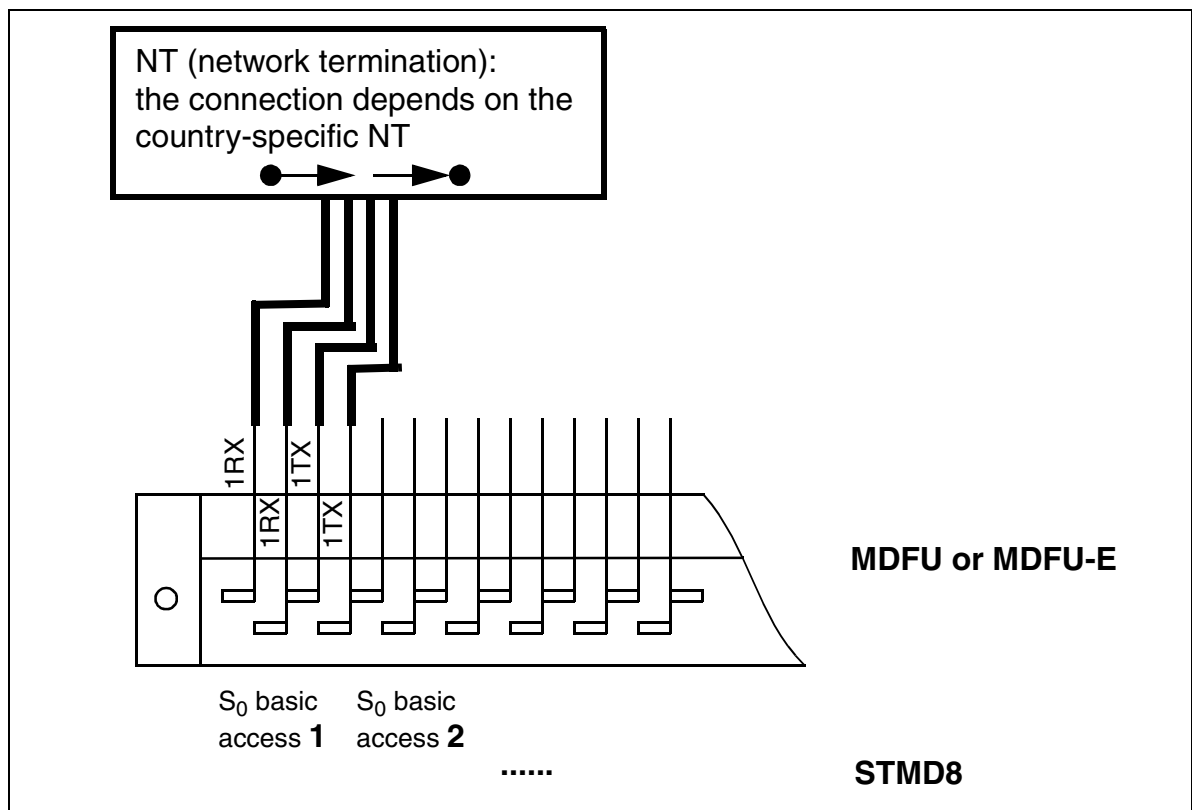


Figure 3-44 S<sub>0</sub> Connection to NT (Not for U.S.)



Not for U.S.: When starting up S<sub>0</sub> ports during operation with PABXs, it is important to ensure that the NT switch is in the *POINT-TO-POINT* position.

**Point-to-Point or Point-to-Multipoint Connection**

- Point-to-multipoint connection (available in Release 2.2 SMR-G and later)  
You can connect OfficePro on an ISDN multi-device connection ( $S_0$  bus) to the central office, allowing you to use it simultaneously with other ISDN devices on the same connection.

Note the following:

- Maintain the correct polarity on the T/R wires.
  - The phone company assigns an 11-digit DID number (MSN or multiple subscriber number) for telephones to be connected to the  $S_0$  bus. There are usually at least three MSNs per basic access.
  - When setting the system-wide ISDN parameters, select *DSS1 trunk PMP* under *Port configuration* (code 20 4 1) for the port you are using.
  - Enter the MSN in the table for DID numbers. For each MSN assigned, callers can directly dial a station, group, or hunt group in the OfficePro system.
  - Leave the *System number* parameter unchanged.
  - Always configure Hicom 150 E OfficePro as the last station on the  $S_0$  bus because terminating resistors ( $2 \times 100 \Omega$ ) are permanently installed in the trunk connection of the communications server. Remove any terminating resistors from the last socket.
- Point-to-point connection  
Use a point-to-point connection if you have a dedicated line (trunk/tie circuit) or to extend the range if only one telephone is connected to the  $S_0$  bus.

**S<sub>0</sub> Networking (Not for U.S.)**

For examples of the maximum cable lengths for direct CorNet-N networking, refer to [Table 2-7](#) on page 2-18.

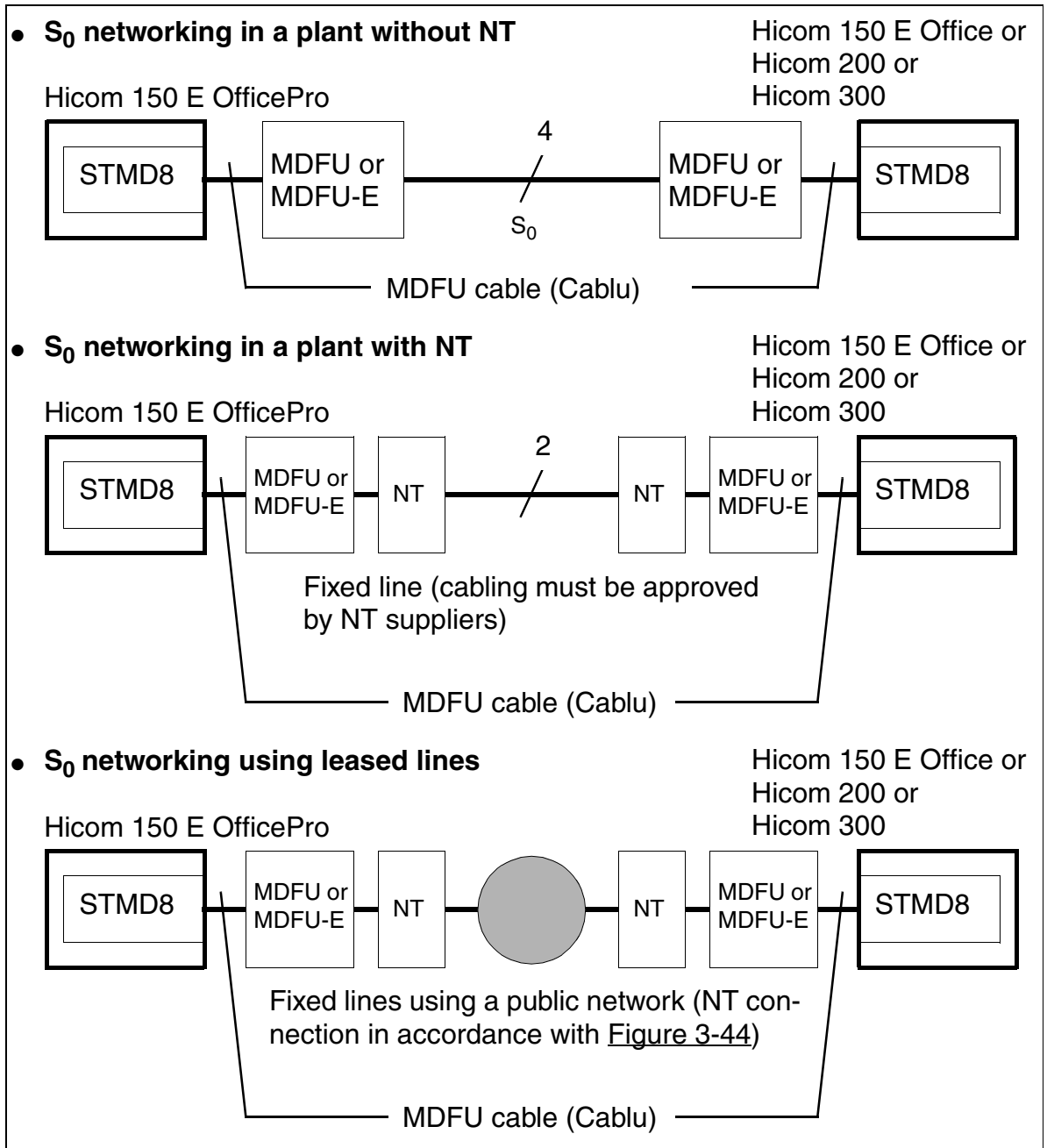


Figure 3-45 S<sub>0</sub> Networking Options (Not for U.S.)

## S<sub>0</sub> Bus for Connecting ISDN Telephones (Not for U.S.)

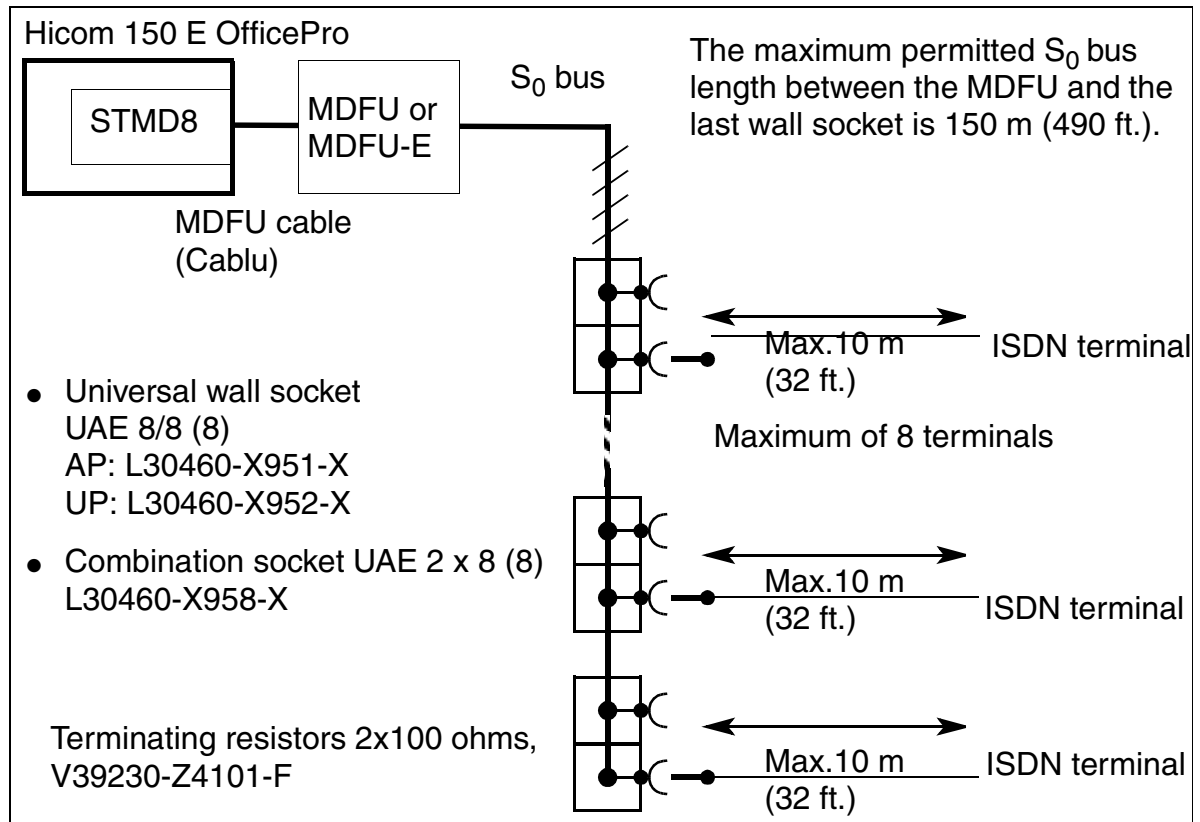


Figure 3-46 S<sub>0</sub> bus to the STMD8 via the MDFU or MDFU-E (Not for U.S.)

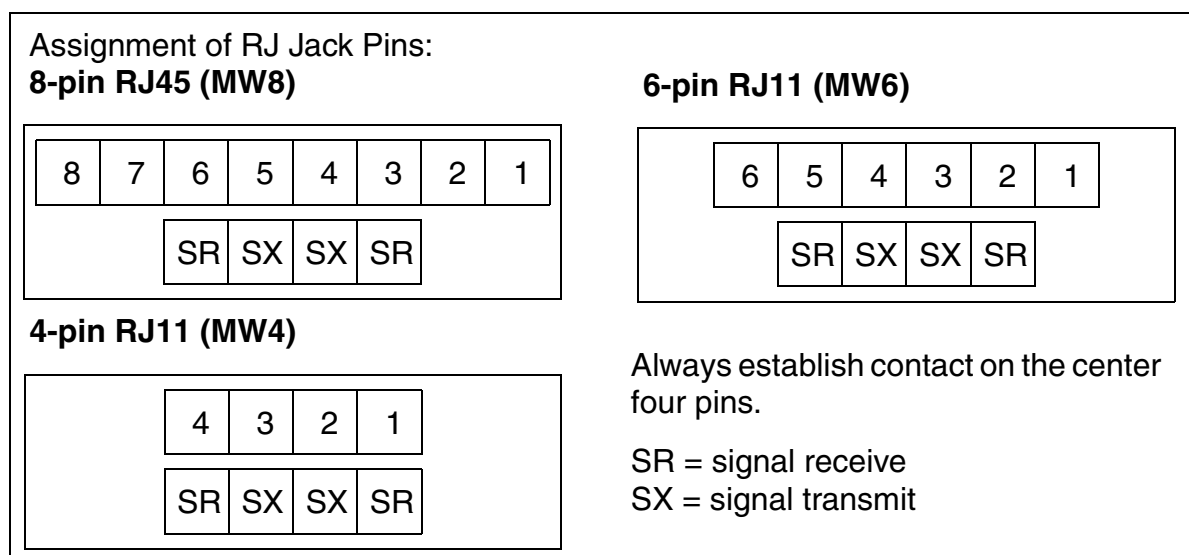
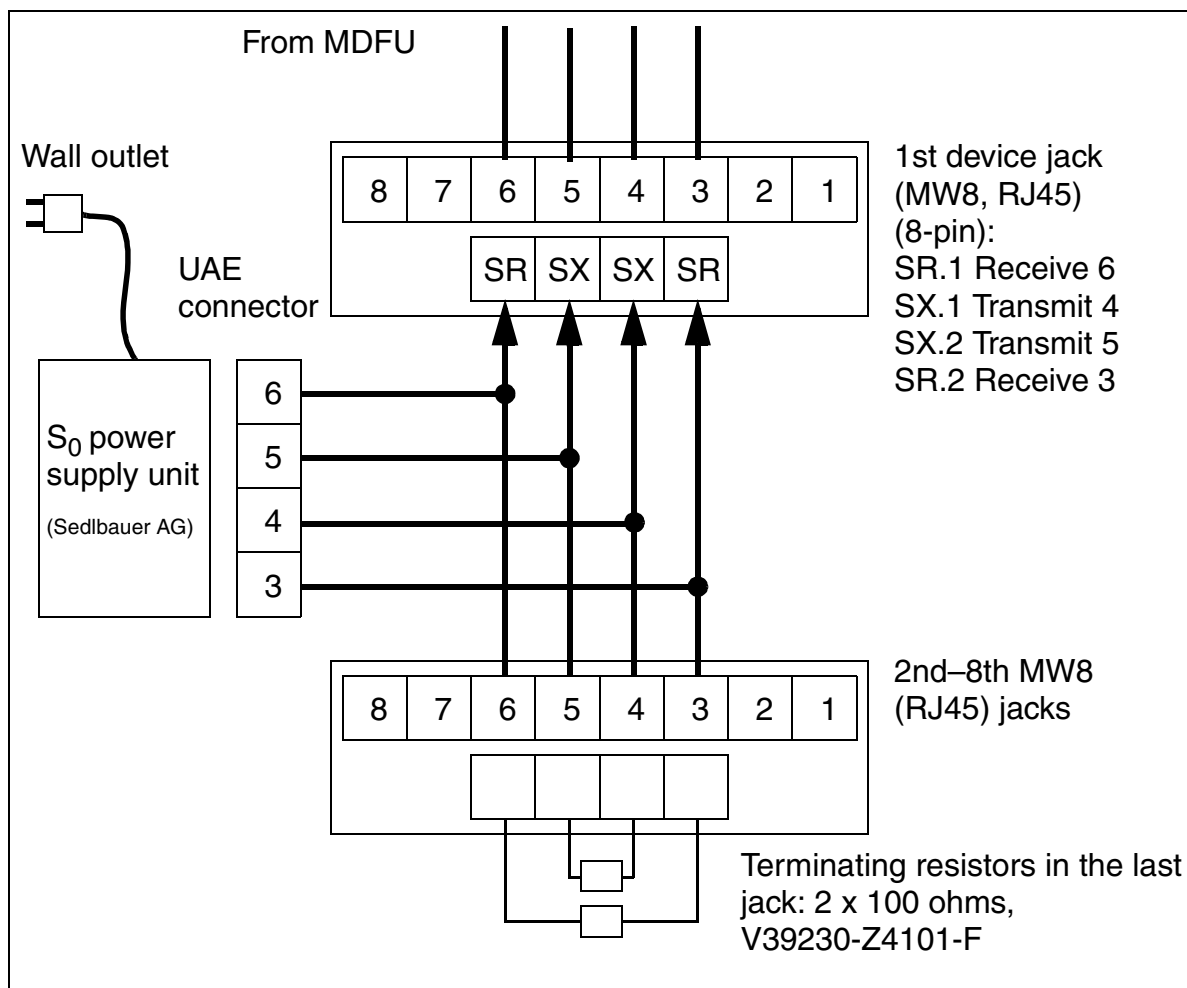


Figure 3-47 Jack Pin Assignments

**S<sub>0</sub> Bus—Example of Wall Jack Assignment (Not for U.S.)**Figure 3-48 S<sub>0</sub> Bus—Example of Wall Jack Assignment (Not for U.S.)

ISDN terminals can also be connected to optiset E telephones (except for entry and standard) using an optiset E ISDN Adapter (permissible configurations are listed in [Section 9.3.2.15 on Page 9-27](#)).

**Cable and SU Connector Assignment (Backplane) (Not for U.S.)**

Table 3-45 STMD8—Cable Assignment (Not for U.S.)

| Color Group | Pair | a-Wire  | b-Wire  | SU Conn. | STMD8 |                 | Notes                           |                                 |
|-------------|------|---------|---------|----------|-------|-----------------|---------------------------------|---------------------------------|
|             |      |         |         | BP: X8   |       |                 |                                 |                                 |
| 1           | 1    | wht/blu |         | 19       | 1Ea   | Basic access 1  | Receive<br>(3/4 TAE8/4/5 RJ45)  |                                 |
|             |      |         | blu/wht | 39       | 1Eb   |                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |                                 |
|             | 2    | wht/ora |         | 38       | 1Sa   |                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |                                 |
|             |      |         | ora/wht | 48       | 1Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 3    | wht/grn |         | 27       | 2Ea   | Basic access 2  | Receive<br>(3/4 TAE8/4/5 RJ45)  |                                 |
|             |      |         | grn/wht | 47       | 2Eb   |                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |                                 |
|             | 4    | wht/brn |         | 16       | 2Sa   |                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |                                 |
|             |      |         | brn/wht | 46       | 2Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 5    | wht/gry |         | 05       | 3Ea   | Basic access 3  | Receive<br>(3/4 TAE8/4/5 RJ45)  |                                 |
|             |      |         | gry/wht | 45       | 3Eb   |                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |                                 |
| 2           | 6    | red/blu |         | 14       | 3Sa   |                 | Basic access 4                  | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | blu/red | 44       | 3Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 7    | red/ora |         | 23       | 4Ea   | Basic access 5  |                                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | ora/red | 43       | 4Eb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 8    | red/grn |         | 32       | 4Sa   |                 | Basic access 6                  | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | grn/red | 42       | 4Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 9    | red/brn |         | 11       | 5Ea   | Basic access 7  |                                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | brn/red | 31       | 5Eb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 10   | red/gry |         | 02       | 5Sa   |                 | Basic access 8                  | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | gry/red | 22       | 5Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
| 3           | 11   | blk/blu |         | 13       | 6Ea   | Basic access 9  |                                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | blu/blk | 33       | 6Eb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 12   | blk/ora |         | 04       | 6Sa   |                 | Basic access 10                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | ora/blk | 24       | 6Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 13   | blk/grn |         | 15       | 7Ea   | Basic access 11 |                                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | grn/blk | 35       | 7Eb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 14   | blk/brn |         | 06       | 7Sa   |                 | Basic access 12                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | brn/blk | 26       | 7Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
|             | 15   | blk/gry |         | 17       | 8Ea   | Basic access 13 |                                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | gry/blk | 37       | 8Eb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
| 4           | 16   | yel/blu |         | 08       | 8Sa   |                 | Basic access 14                 | Receive<br>(3/4 TAE8/4/5 RJ45)  |
|             |      |         | blu/yel | 28       | 8Sb   |                 |                                 | Transmit<br>(6/5 TAE8/3/6 RJ45) |
| Group       | Pair | Tip     | Ring    | SU Conn. | STMD8 |                 | Notes                           |                                 |
|             |      |         |         | BP: X8   |       |                 |                                 |                                 |



**Cable and Connector Assignment (Backplane) (for U.S. Only)**

Table 3-46 STMD8 Module—Cable Assignment (for U.S. Only)

| Pair | Color Code | Backplane Connector Pins | STMD8    |        | Pair | Color Code | Backplane Connector Pins | STMD8    |        |
|------|------------|--------------------------|----------|--------|------|------------|--------------------------|----------|--------|
| 1    | wht/blu    | 26                       | Receive  | Port 1 | 9    | red/brn    | 34                       | Receive  | Port 5 |
|      | blu/wht    | 1                        | Receive  |        |      | brn/red    | 9                        | Receive  |        |
| 2    | wht/ora    | 27                       | Transmit |        | 10   | red/slat   | 35                       | Transmit |        |
|      | ora/wht    | 2                        | Transmit |        |      | slat/red   | 10                       | Transmit |        |
| 3    | wht/grn    | 28                       | Receive  | Port 2 | 11   | blk/blu    | 36                       | Receive  | Port 6 |
|      | grn/wht    | 3                        | Receive  |        |      | blk/blk    | 11                       | Receive  |        |
| 4    | wht/brn    | 29                       | Transmit |        | 12   | blk/ora    | 37                       | Transmit |        |
|      | brn/wht    | 4                        | Transmit |        |      | ora/blk    | 12                       | Transmit |        |
| 5    | wht/slat   | 30                       | Receive  | Port 3 | 13   | blk/grn    | 38                       | Receive  | Port 7 |
|      | slat/wht   | 5                        | Receive  |        |      | grn/blk    | 13                       | Receive  |        |
| 6    | red/blu    | 31                       | Transmit |        | 14   | blk/brn    | 39                       | Transmit |        |
|      | blu/red    | 6                        | Transmit |        |      | brn/blk    | 14                       | Transmit |        |
| 7    | red/ora    | 32                       | Receive  | Port 4 | 15   | blk/slt    | 40                       | Receive  | Port 8 |
|      | ora/red    | 7                        | Receive  |        |      | slt/blk    | 15                       | Receive  |        |
| 8    | red/grn    | 33                       | Transmit |        | 16   | yel/blu    | 41                       | Transmit |        |
|      | grn/red    | 8                        | Transmit |        |      | blu/yel    | 16                       | Transmit |        |

**Note:** Pairs 17 through 25 are not used.

**Connecting ISDN Terminals to OfficePro (for U.S. Only)****S<sub>0</sub> Bus With RJ45 Jack**

To connect ISDN terminals, you must change the signal order so that the transmit wires are on the inside and the receive wires are on the outside, as shown in [Figure 3-49 on page 3-122](#).

To do so, jumper the four wires on the provided line cord to the pins for the STMD8 ports on the main distribution frame (MDF).

The ISDN terminals must have their own local power supply. Refer to [Section 9.6.1, \*General S<sub>0</sub> Wiring \(for U.S. Only\)\*](#) for information on setting up an S<sub>0</sub> bus.

**S<sub>0</sub> Bus Wiring From STMD8 Port on MDF or From optiset E ISDN adapter (for U.S. Only)**

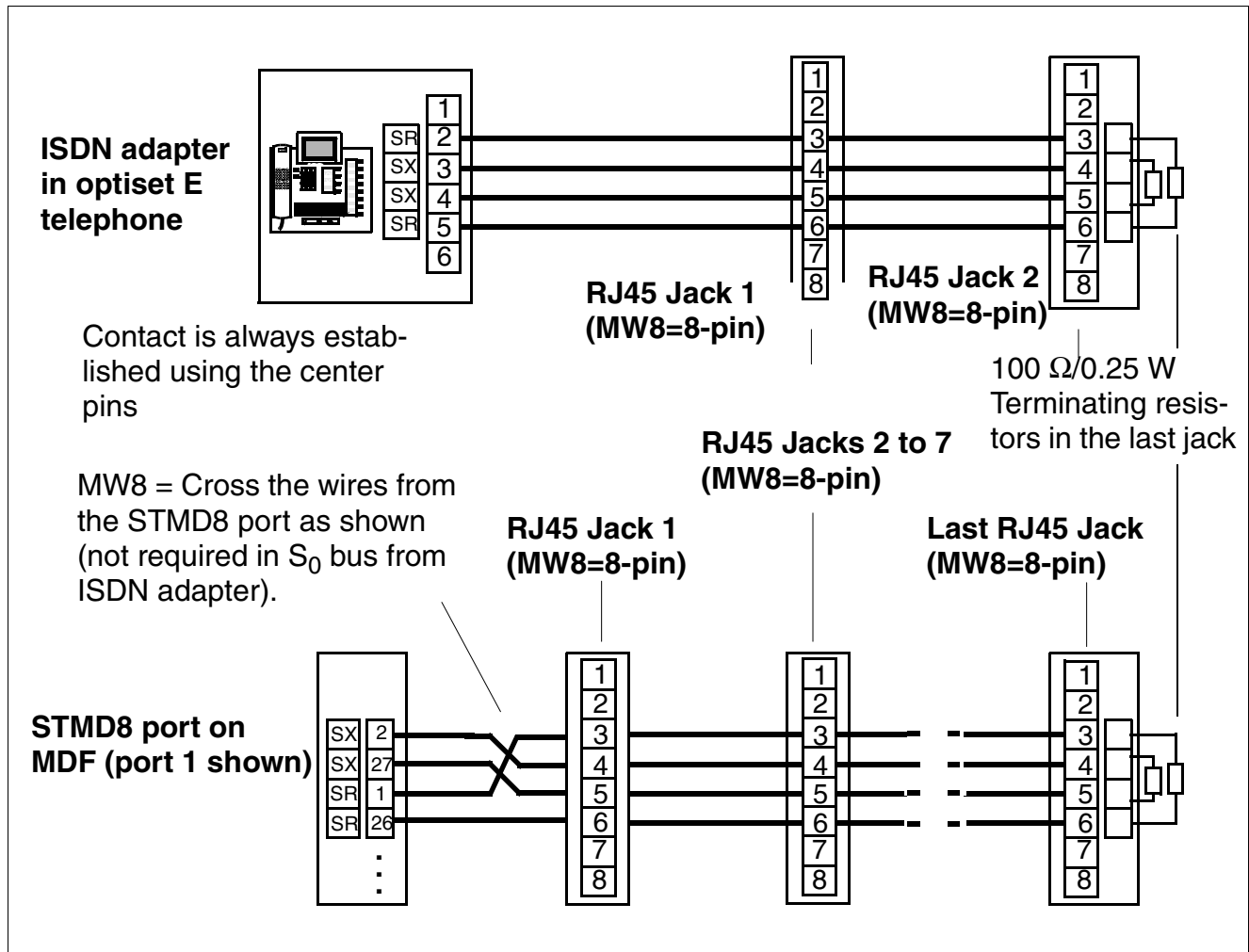


Figure 3-49 S<sub>0</sub> Bus Wiring From STMD8 Port or ISDN adapter (for U.S. Only)

### **3.3.11 TIEL**

#### **Introduction**

The TIEL board (tie line E & M) provides four analog tie trunk circuits for E&M signaling for Hicom 150 E OfficePro. The circuits can be configured for one- or two-way operation. They convert incoming analog signals into PCM (pulse-code modulation) signals and convert outgoing PCM signals into analog signals for tie-trunk traffic.

#### **Speech Paths**

The speech paths can be set to four-wire or two-wire mode. Four-wire connections should be used for high transmission quality on analog networks (this description deals only with four-wire mode).

The advantage of separate speech paths for the incoming and outgoing directions is that the stability (echo) of a connection is not adversely affected. In addition, repeaters in the transmission equipment compensate for attenuation loss on the line.

#### **E&M Signaling Paths**

The E&M signaling paths carry the signals that control connection setup and clear-down. Various interfaces can be selected, depending on the requirements of the remote system or transmission equipment. These interface types have different numbers of wires and different potentials.

#### **Starting Up a Tie Trunk**

Before you can start up a tie trunk, you must determine the type of interface supported by the two systems. Type 2 is preferable because it virtually excludes problems with longitudinal voltages.

## Characteristics of the Interface Types

- **E&M interface type 1** ([Figure 3-51](#))

The interface in the transmission equipment does not require negative power feeding. This type uses only two signal wires; the communication system and transmission equipment are non-floating, so they are not protected from longitudinal voltage.

- **E&M interface type 1A** ([Figure 3-52](#))

Same as type 1, but without a 0 V rest potential on the M-wire.

- **E&M interface type 1B or 5** ([Figure 3-53](#))

The interfaces in both the transmission equipment and the communication system require negative power feeding. This type uses only two signal wires. The two M-wires are connected to 0 V potential only, meaning that no special measures are required to prevent short-circuit currents in the event of ground leakage. The communication system and transmission equipment are non-floating, so they are not protected from longitudinal voltage.

- **E&M interface type 2** ([Figure 3-54](#))

The interfaces in both the transmission equipment and the communication system require negative power feeding. This type uses four signal wires. The M-contacts are floating, so there is no non-floating link between the communication system and transmission equipment.



Interface type 2 is recommended; it provides the best longitudinal voltage protection.

- **E&M interface type 3**

This type uses four signal wires. The M-signal has GND or  $V_{\text{battery}}$  (- 48 V) for direct TIEL-to-TIEL connection (without converter).

**Interface Specifications****Transmit path**

|                                                    |                                               |
|----------------------------------------------------|-----------------------------------------------|
| Four-wire transmit level                           | -3.5 dBr                                      |
| Four-wire receive level                            | -3.5 dBr                                      |
| Characteristic impedance                           | 600 ohms                                      |
| Frequency range                                    | 0.3 to 3.4 kHz, +/- 1 dB                      |
| Dielectric strength of speech wires against ground | 1 kV surge, 1.2/50 $\mu$ s and 10/700 $\mu$ s |

**Signaling**

|                                      |                    |
|--------------------------------------|--------------------|
| Type of E&M interface (programmable) | 1, 1A, 1B, 2, 3, 5 |
|--------------------------------------|--------------------|

**Protocols**

|                                     |                                                |
|-------------------------------------|------------------------------------------------|
| To ANSI/EIA/TIA-464-A, configurable | Immediate start<br>Wink signal<br>Delay signal |
| Signaling method                    | DP or DTMF                                     |

## **Characteristics of the Signaling Protocols**

Connecting two switching units via a tie trunk requires a protocol supported by both systems. Hicom 150 E OfficePro supports:

- **Immediate start protocol**

No seizure acknowledgment; with answer signal. This is the most widely used protocol internationally.

- **Wink signal protocol**

Proceed-to-send signal by means of wink signal; with answer signal. This protocol is the same as immediate start with the addition of a proceed-to-send signal. It is most useful for connecting systems that are not immediately ready for digit input.

- **Delay signal protocol**

Dialing delay time by means of delay signal; with answer signal. This protocol permits the transmission of dialing information to be delayed until the receiving exchange is ready. It differs from the wink signal protocol only in that the remote system returns a backward signal immediately after seizure even if it is not ready for digit input.

## Switches and LEDs

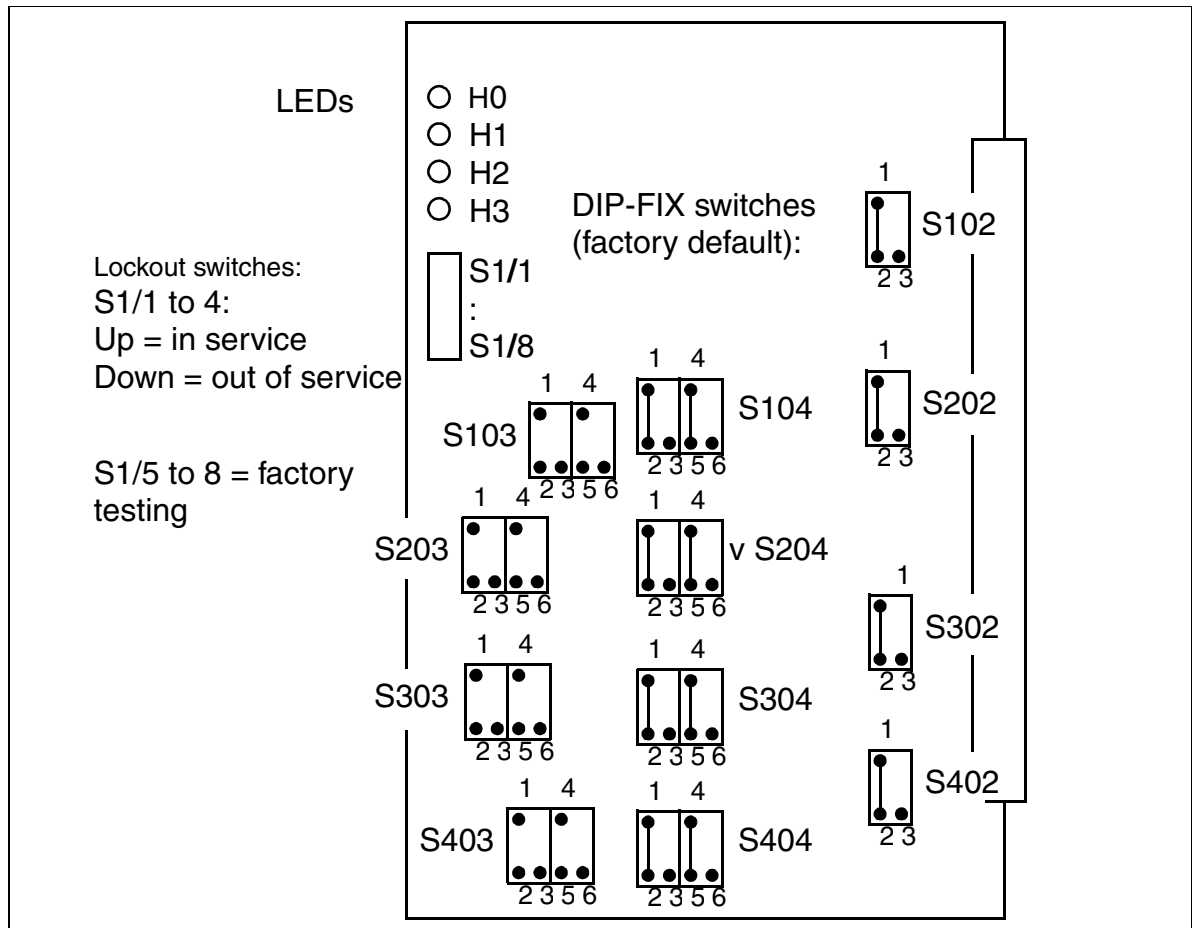


Figure 3-50 TIEL (S30810-Q2520-X)

## DIP-FIX Switch Positions

Table 3-47 TIEL—Functions of the DIP-FIX Switches

| Function                                                           | Circuit 1 |          | Circuit 2 |          | Circuit 3 |          | Circuit 4 |          |
|--------------------------------------------------------------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
|                                                                    | Switch    | Position | Switch    | Position | Switch    | Position | Switch    | Position |
| Type 1<br>(Figure 3-51)                                            | S103      | 1-2      | S203      | 1-2      | S303      | 1-2      | S403      | 1-2      |
|                                                                    | S102      | 4-6      | S202      | 4-6      | S302      | 4-6      | S402      | 4-6      |
| Type 1A<br>(Figure 3-52)                                           | S103      | 1-2      | S203      | 1-2      | S303      | 1-2      | S403      | 1-2      |
|                                                                    | S102      | 1-2      | S202      | 1-2      | S302      | 1-2      | S402      | 1-2      |
| Type 1B or 5<br>(Figure 3-53)                                      | S103      | 1-3      | S203      | 1-3      | S303      | 1-3      | S403      | 1-3      |
|                                                                    | S102      | 4-5      | S202      | 4-5      | S302      | 4-5      | S402      | 4-5      |
| Type 2<br>(Figure 3-54<br>and<br>Figure 3-55)<br>(factory default) | S103      | 1-2      | S203      | 1-2      | S303      | 1-2      | S403      | 1-2      |
|                                                                    | S102      | Open     | S202      | Open     | S302      | Open     | S402      | Open     |
| Type 3                                                             | S103      | 1-2      | S203      | 1-2      | S303      | 1-2      | S403      | 1-2      |
|                                                                    | S102      | 4-6      | S202      | 4-6      | S302      | 4-6      | S402      | 4-6      |
| 2-wire speech<br>lines                                             | S104      | 1-3      | S204      | 1-3      | S304      | 1-3      | S404      | 1-3      |
|                                                                    |           | 4-6      |           | 4-6      |           | 4-6      |           | 4-6      |
| 4-wire speech<br>lines<br>(factory default)                        | S104      | 1-2      | S204      | 1-2      | S304      | 1-2      | S404      | 1-2      |
|                                                                    |           | 4-5      |           | 4-5      |           | 4-5      |           | 4-5      |



## Signal Wire Connection



The following maximum ranges (without converter) must be taken into account:

- 4-wire speech: 8 km (5 miles) with 0.6 mm diameter (22 AWG) wire
- 2-wire speech: 6 km (3.75 miles) with 0.6 mm diameter (22 AWG) wire

## E&amp;M Interface Type 1 (Not for U.S.)

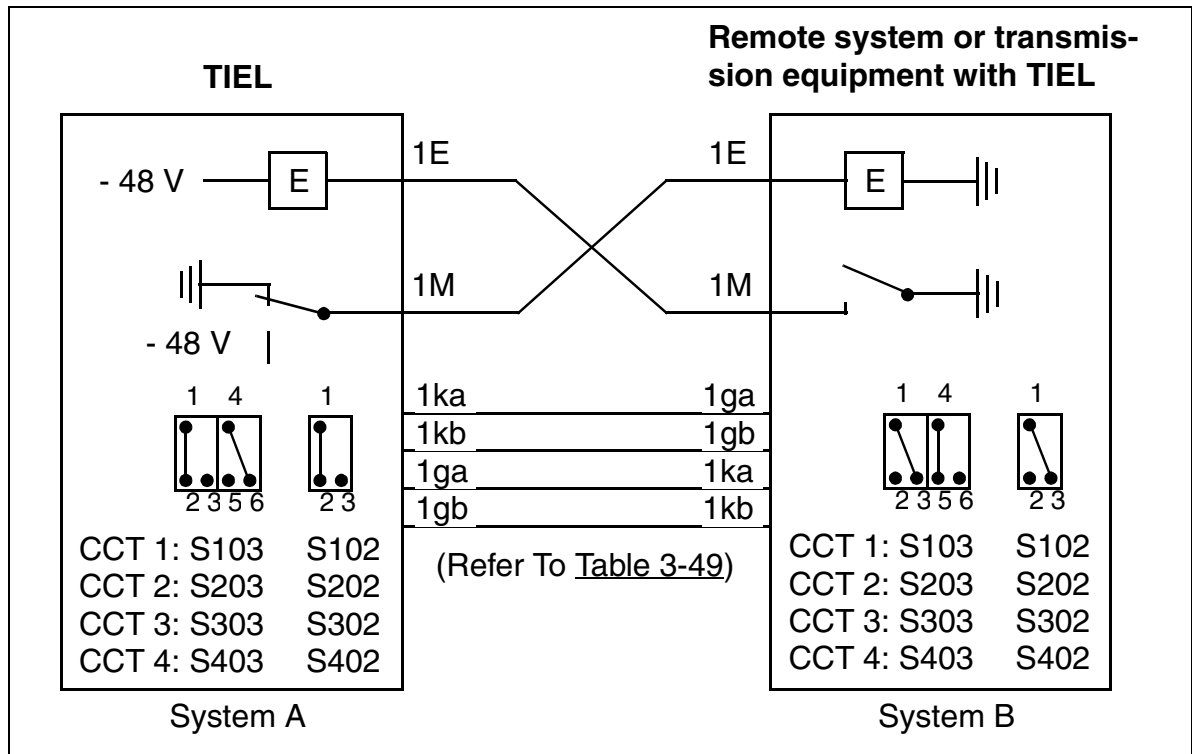


Figure 3-51 E&M Interface Type 1 (Not for U.S.)

**E&M Interface Type 1A (Not for U.S.)**

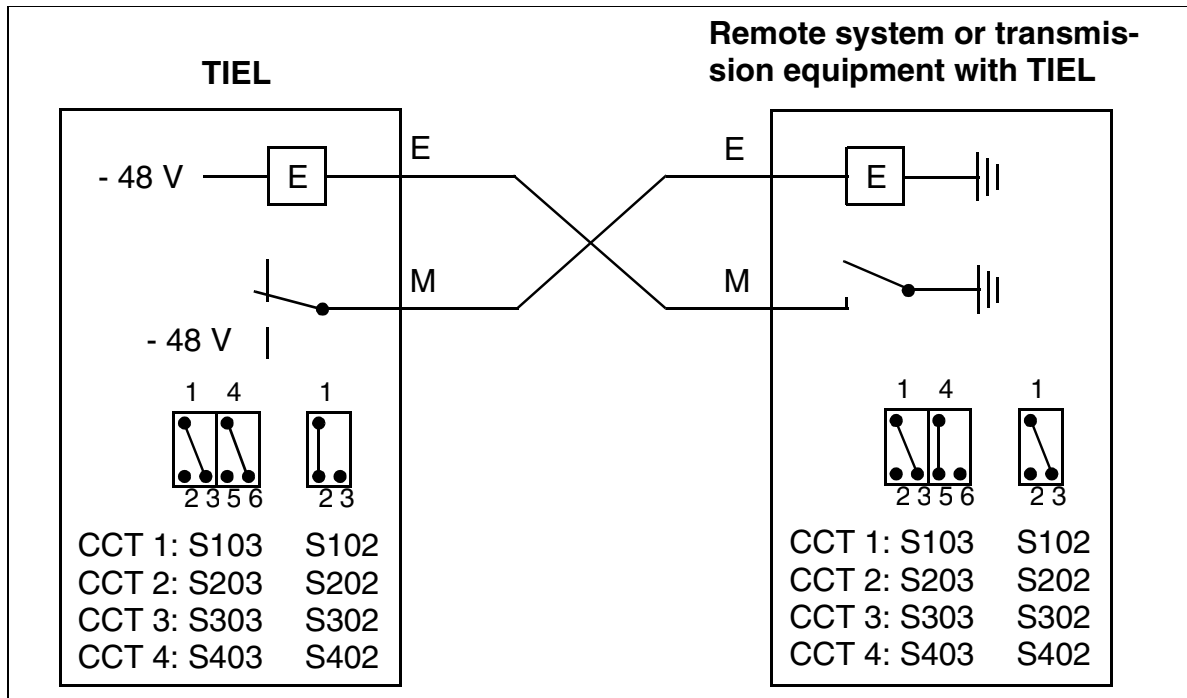


Figure 3-52 E&M Interface Type 1A (Not for U.S.)

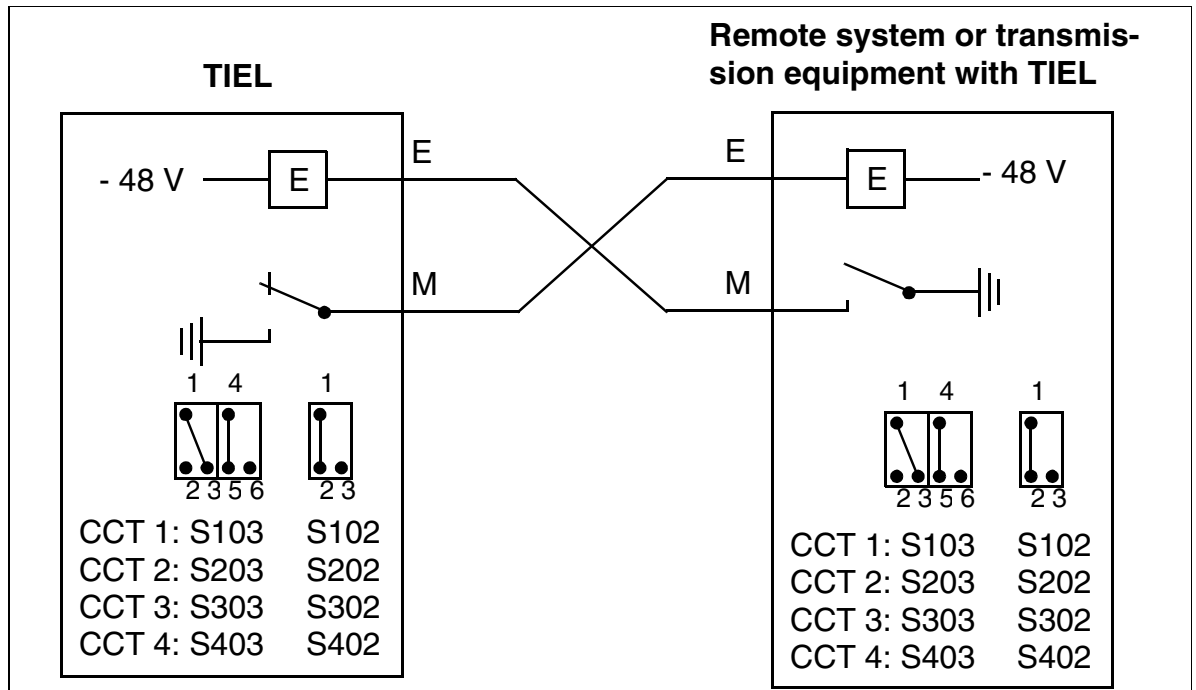
**E&M Interface Type 1B or 5 (Not for U.S.)**


Figure 3-53 E&M Interface Type 1B or 5 (Not for U.S.)

**E&M Interface Type 2 (Not for U.S.)**

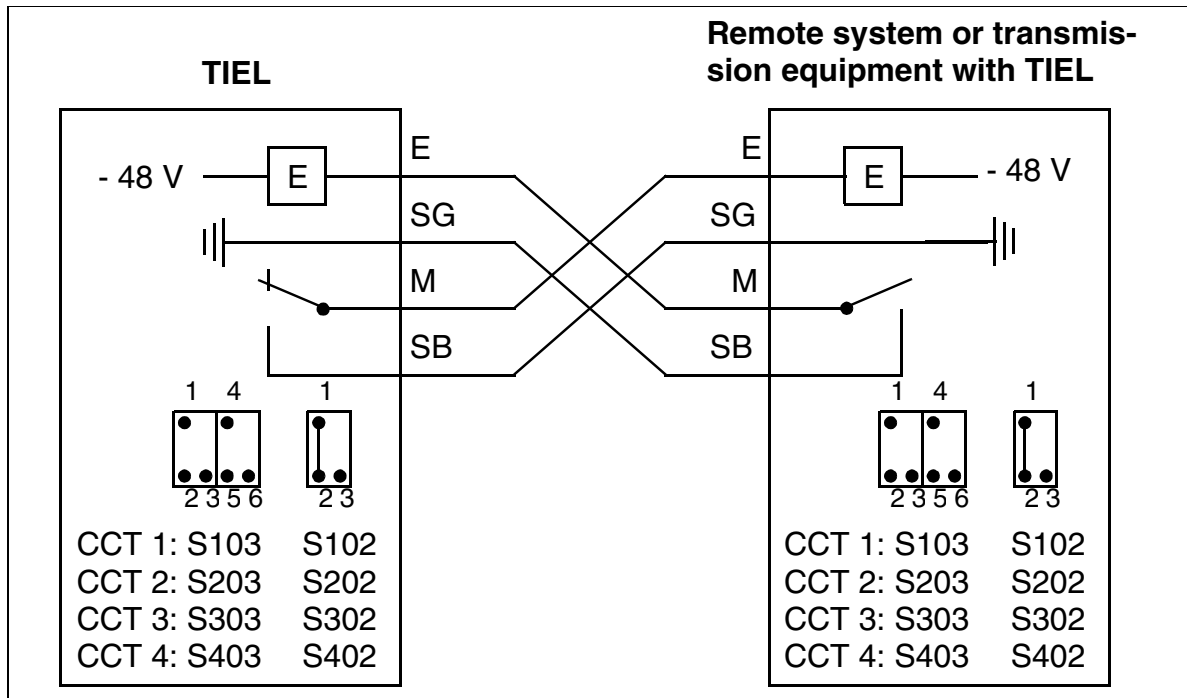


Figure 3-54 E&M Interface Type 2 (Not for U.S.)

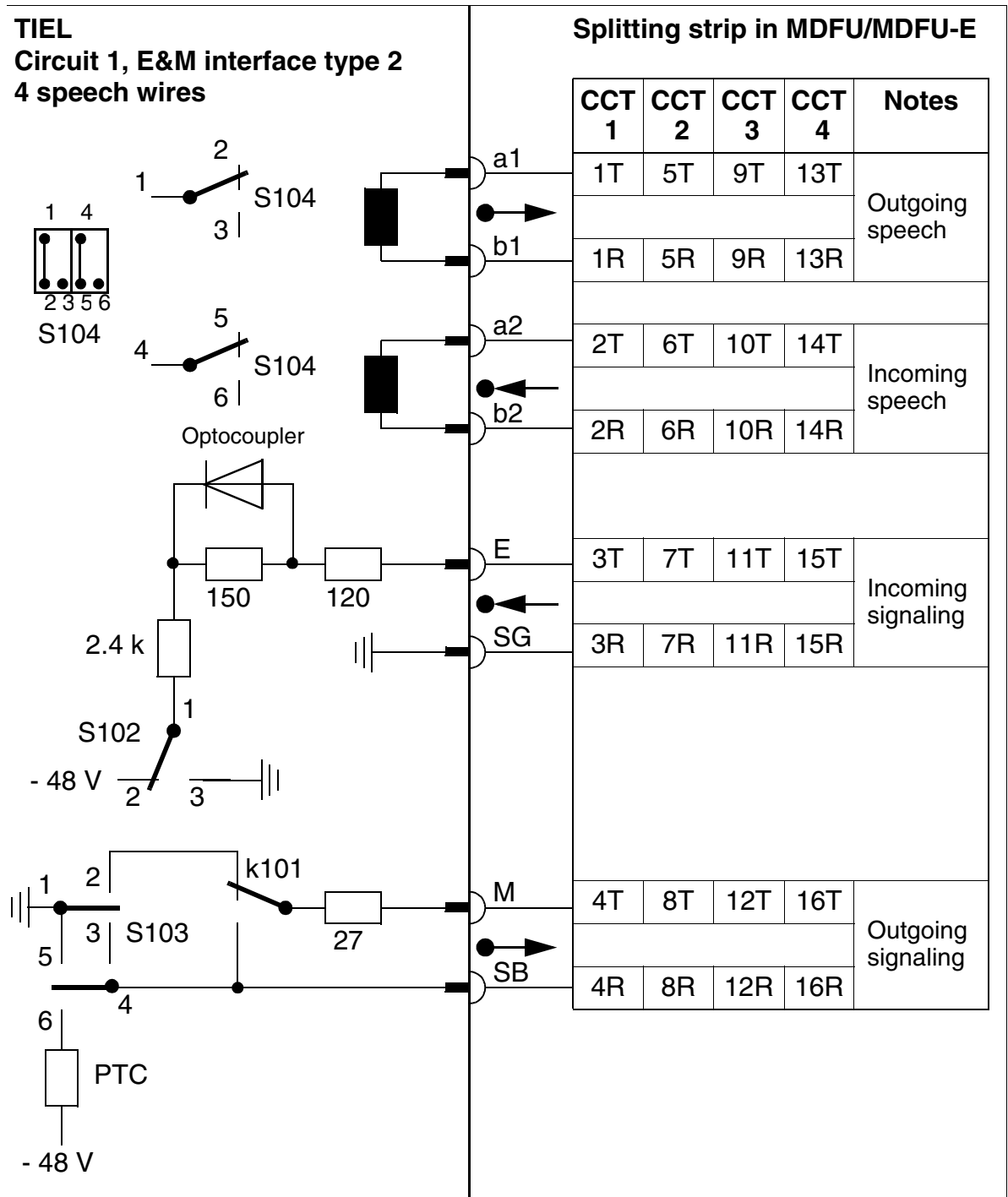
**E&M Interface Type 2 Circuit Diagram, MDFU or MDFU-E Numbering (Not for U.S.)**

Figure 3-55 E&M Interface Type 2 Circuit Diagram, MDFU or MDFU-E Numbering (Not for U.S.)

## LED Statuses and Their Meanings

Table 3-48 TIEL—LED Statuses

| LED status (on/off)                         | Meaning                                             | Action                                                                                     |
|---------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>During Boot Phase and Initialization</b> |                                                     |                                                                                            |
| Flickering (50/50 ms)                       | Board test not successful                           | Replace board.                                                                             |
| Flashing (100/100 ms)                       | Board not configured                                | Inspect visually; if necessary, remove/insert board. If status continues, replace board.   |
| On                                          | Loading operation in progress                       |                                                                                            |
| Flashing (100/100 ms)                       | Code could not be loaded                            | Replace board.                                                                             |
| Off                                         | Board loaded                                        |                                                                                            |
| Flashing (500/500 ms)                       | Board loaded but not yet activated                  |                                                                                            |
| <b>During Operation</b>                     |                                                     |                                                                                            |
| On                                          | Circuit seized                                      |                                                                                            |
| Flashing in ring cadence                    | Circuit in ringing state                            |                                                                                            |
| Flickering (450/50 ms)                      | Dependability test (loopback test) in progress      |                                                                                            |
| Flashing (500/500 ms)                       | Circuit out of service (e.g. S1/x in “on” position) | Check whether the circuit was deactivated with Hicom Assistant E Office or lockout switch. |
| Off                                         | Circuit is idle, no seizure                         |                                                                                            |

**Cable and SU Connector Assignment (Backplane) (Not for U.S.)**

Table 3-49 TIEL—Cable Assignment (Not for U.S.)

| Color group | Pair | a-Wire  | b-Wire  | SU connector | TIEL |        | Notes          |                                                                                                                              |
|-------------|------|---------|---------|--------------|------|--------|----------------|------------------------------------------------------------------------------------------------------------------------------|
|             |      |         |         | BP: X8       |      |        |                |                                                                                                                              |
| 1           | 1    | wht/blu |         | 19           | 1ka  | Port 1 | Ring           | <ul style="list-style-type: none"> <li>Transmit with 4-wire speech</li> <li>Transmit + receive with 2-wire speech</li> </ul> |
|             |      |         | blu/wht | 39           | 1kb  |        | Tip            |                                                                                                                              |
|             | 2    | wht/ora |         | 38           | 1ga  |        | Ring           | Receive with 4-wire speech                                                                                                   |
|             |      |         | ora/wht | 48           | 1gb  |        | Tip            |                                                                                                                              |
|             | 3    | wht/grn |         | 27           | 1E   |        | E              | Signal wires                                                                                                                 |
|             |      |         | grn/wht | 47           | 1SG  |        | System ground  |                                                                                                                              |
|             | 4    | wht/brn |         | 16           | 1M   |        | M              |                                                                                                                              |
|             |      |         | brn/wht | 46           | 1SB  |        | System battery |                                                                                                                              |
|             | 5    | wht/gry |         | 05           | 2ka  | Port 2 | Ring           | <ul style="list-style-type: none"> <li>Transmit with 4-wire speech</li> <li>Transmit + receive with 2-wire speech</li> </ul> |
|             |      |         | gry/wht | 45           | 2kb  |        | Tip            |                                                                                                                              |
| 2           | 6    | red/blu |         | 14           | 2ga  |        | Ring           | Receive with 4-wire speech                                                                                                   |
|             |      |         | blu/red | 44           | 2gb  |        | Tip            |                                                                                                                              |
|             | 7    | red/ora |         | 23           | 2E   |        | E              | Signal wires                                                                                                                 |
|             |      |         | ora/red | 43           | 2SG  |        | System ground  |                                                                                                                              |
|             | 8    | red/grn |         | 32           | 2M   |        | M              |                                                                                                                              |
|             |      |         | grn/red | 42           | 2SB  |        | System battery |                                                                                                                              |

Table 3-49 TIEL—Cable Assignment (Not for U.S.)

| Color group | Pair | a-Wire  | b-Wire  | SU connector | TIEL |        | Notes          |                                                                                                                              |
|-------------|------|---------|---------|--------------|------|--------|----------------|------------------------------------------------------------------------------------------------------------------------------|
|             |      |         |         | BP: X8       |      |        |                |                                                                                                                              |
| 2           | 9    | red/brn |         | 11           | 3ka  | Port 3 | Ring           | <ul style="list-style-type: none"> <li>Transmit with 4-wire speech</li> <li>Transmit + receive with 2-wire speech</li> </ul> |
|             |      |         | brn/red | 31           | 3kb  |        | Tip            |                                                                                                                              |
|             | 10   | red/gry |         | 02           | 3ga  |        | Ring           | Receive with 4-wire speech                                                                                                   |
|             |      |         | gry/red | 22           | 3gb  |        | Tip            |                                                                                                                              |
| 3           | 11   | blk/blu |         | 13           | 3E   |        | E              | Signal wires                                                                                                                 |
|             |      |         | blu/blk | 33           | 3SG  |        | System ground  |                                                                                                                              |
|             | 12   | blk/ora |         | 04           | 3M   |        | M              |                                                                                                                              |
|             |      |         | ora/blk | 24           | 3SB  |        | System battery |                                                                                                                              |
|             | 13   | blk/grn |         | 15           | 4ka  | Port 4 | Ring           | <ul style="list-style-type: none"> <li>Transmit with 4-wire speech</li> <li>Transmit + receive with 2-wire speech</li> </ul> |
|             |      |         | grn/blk | 35           | 4kb  |        | Tip            |                                                                                                                              |
|             | 14   | blk/brn |         | 06           | 4ga  |        | Ring           | Receive with 4-wire speech                                                                                                   |
|             |      |         | brn/blk | 26           | 4gb  |        | Tip            |                                                                                                                              |
|             | 15   | blk/gry |         | 17           | 4E   |        | E              | Signal wires                                                                                                                 |
|             |      |         | gry/blk | 37           | 4SG  |        | System ground  |                                                                                                                              |
| 4           | 16   | yel/blu |         | 08           | 4M   |        | M              |                                                                                                                              |
|             |      |         | blu/yel | 28           | 4SB  |        | System battery |                                                                                                                              |



**Cable and Connector Assignment (Backplane) (for U.S. Only)**

Table 3-50 TIEL—Cable Assignment (Sheet 1 of 2) (for U.S. Only)

| Pair | Color Code | Backplane Connector Pins | TIEL |        | Notes          |                                                                                                                            |
|------|------------|--------------------------|------|--------|----------------|----------------------------------------------------------------------------------------------------------------------------|
| 1    | wht/blu    | 26                       | T    | Port 1 | Tip            | <ul style="list-style-type: none"> <li>Transmit for 4-wire speech</li> <li>Transmit + receive for 2-wire speech</li> </ul> |
|      | blu/wht    | 1                        | R    |        | Ring           |                                                                                                                            |
| 2    | wht/ora    | 27                       | T1   |        | Tip 1          | Receive for 4-wire speech                                                                                                  |
|      | ora/wht    | 2                        | R1   |        | Ring 1         |                                                                                                                            |
| 3    | wht/grn    | 28                       | SG   |        | System ground  | Signal wires                                                                                                               |
|      | grn/wht    | 3                        | E    |        | E              |                                                                                                                            |
| 4    | wht/brn    | 29                       | SB   |        | System battery |                                                                                                                            |
|      | brn/wht    | 4                        | M    |        | M              |                                                                                                                            |
| 5    | wht/slat   | 30                       | T    | Port 2 | Tip            | <ul style="list-style-type: none"> <li>Transmit for 4-wire speech</li> <li>Transmit + receive for 2-wire speech</li> </ul> |
|      | slat/wht   | 5                        | R    |        | Ring           |                                                                                                                            |
| 6    | red/blu    | 31                       | T1   |        | Tip 1          | Receive for 4-wire speech                                                                                                  |
|      | blu/red    | 6                        | R1   |        | Ring 1         |                                                                                                                            |
| 7    | red/ora    | 32                       | SG   |        | System ground  | Signal wires                                                                                                               |
|      | ora/red    | 7                        | E    |        | E              |                                                                                                                            |
| 8    | red/grn    | 33                       | SB   |        | System battery |                                                                                                                            |
|      | grn/red    | 8                        | M    |        | M              |                                                                                                                            |

Table 3-50 TIEL—Cable Assignment (Sheet 2 of 2) (for U.S. Only)

| Pair | Color Code | Backplane Connector Pins | TIEL |        | Notes          |                                                                                                                            |
|------|------------|--------------------------|------|--------|----------------|----------------------------------------------------------------------------------------------------------------------------|
| 9    | red/brn    | 34                       | T    | Port 3 | Tip            | <ul style="list-style-type: none"> <li>Transmit for 4-wire speech</li> <li>Transmit + receive for 2-wire speech</li> </ul> |
|      | brn/red    | 9                        | R    |        | Ring           |                                                                                                                            |
| 10   | red/slat   | 35                       | T1   |        | Tip 1          | Receive for 4-wire speech                                                                                                  |
|      | slat/red   | 10                       | R1   |        | Ring 1         |                                                                                                                            |
| 11   | blk/blu    | 36                       | SG   |        | System ground  | Signal wires                                                                                                               |
|      | blu/blk    | 11                       | E    |        | E              |                                                                                                                            |
| 12   | blk/ora    | 37                       | SB   |        | System battery |                                                                                                                            |
|      | ora/blk    | 12                       | M    |        | M              |                                                                                                                            |
| 13   | blk/grn    | 38                       | T    | Port 4 | Tip            | <ul style="list-style-type: none"> <li>Transmit for 4-wire speech</li> <li>Transmit + receive for 2-wire speech</li> </ul> |
|      | grn/blk    | 13                       | R    |        | Ring           |                                                                                                                            |
| 14   | blk/brn    | 39                       | T1   |        | Tip 1          | Receive for 4-wire speech                                                                                                  |
|      | brn/blk    | 14                       | R1   |        | Ring 1         |                                                                                                                            |
| 15   | blk/slat   | 40                       | SG   |        | System ground  | Signal wires                                                                                                               |
|      | slat/blk   | 15                       | E    |        | E              |                                                                                                                            |
| 16   | yel/blu    | 41                       | SB   |        | System battery |                                                                                                                            |
|      | blu/yel    | 16                       | M    |        | M              |                                                                                                                            |

**Note:** Pairs 17 through 25 are not used.

### 3.3.12 TLA2 and TLA4 and /TLA8 (Not for U.S.)

#### Introduction

The loop start boards TLA2, TLA4, and TLA8 connect 2, 4, or 8 analog trunks using DP and DTMF signalling in OfficeCom and OfficePoint.

#### Interfaces

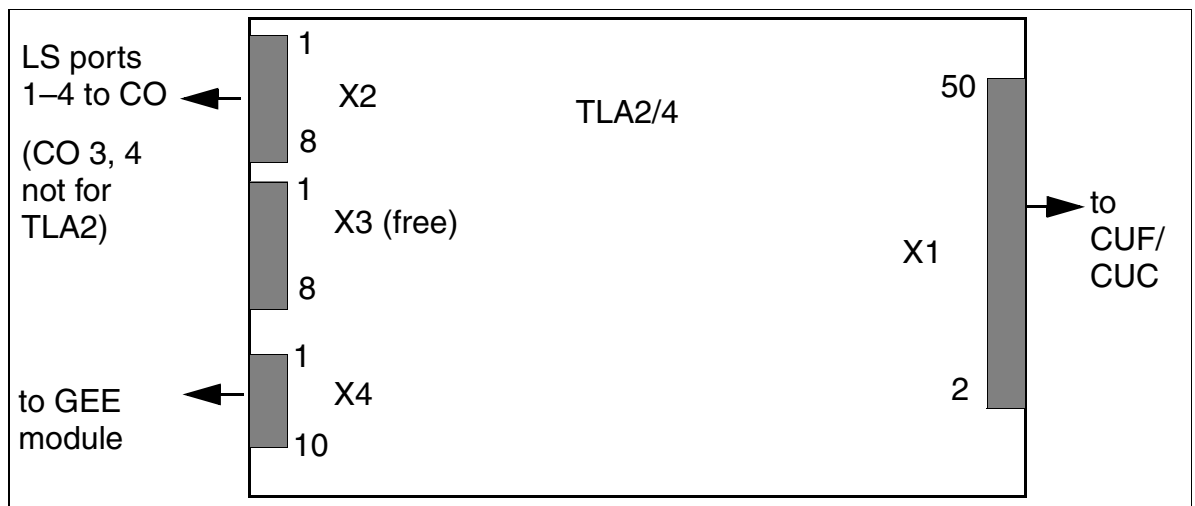


Figure 3-56 TLA2 and TLA4 Interfaces (S30817-Q923-Bxxx/Axxx) (Not for U.S.)

Table 3-51 TLA2 and TLA4—Contact Assignments (Not for U.S.)

| Contact | Connector X2                 | Connector X4                          |
|---------|------------------------------|---------------------------------------|
| 1       | a trunk 1                    | GND for GEE50 FKR, otherwise free     |
| 2       | b trunk 1                    | b trunk 1                             |
| 3       | a trunk 2                    | a trunk 1                             |
| 4       | b trunk 2                    | b trunk 2                             |
| 5       | a trunk 3                    | a trunk 2                             |
| 6       | b trunk 3                    | b trunk 3                             |
| 7       | a trunk 4                    | a trunk 3                             |
| 8       | b trunk 4                    | b trunk 4                             |
| 9       |                              | a trunk 4                             |
| 10      |                              | Call charging module assignment (GMZ) |
|         | for TLA2 trunks 1 and 2 only |                                       |

The loop start board TLA8 connects 8 analog trunks using DP and DTMF signalling in OfficeCom and OfficePoint.

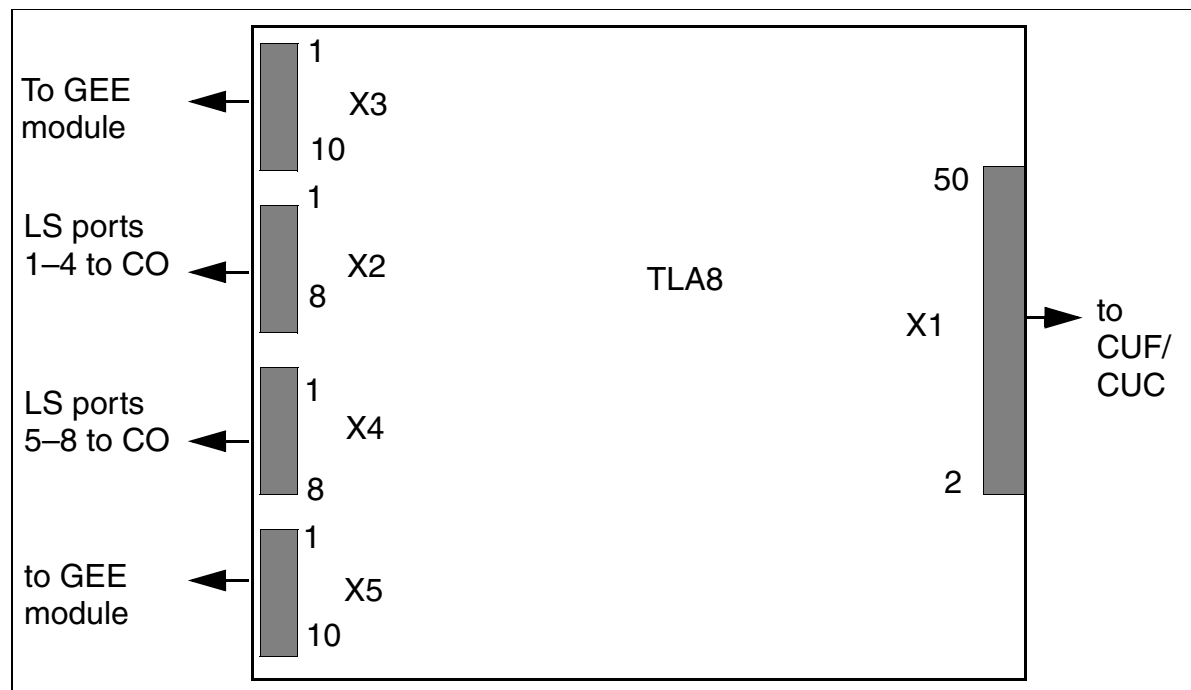


Figure 3-57 TLA8 Interfaces (S30817-Q926-Axxx) (Not for U.S.)

Table 3-52 TLA8—Contact Assignments (Not for U.S.)

| Contact                                                                       | Conn. X3  | Conn. X2  | Conn. X4  | Conn. X5  |
|-------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|
| 1                                                                             | GND       | a trunk1  | a trunk5  | GND       |
| 2                                                                             | b trunk 1 | b trunk 1 | b trunk 5 | b trunk 5 |
| 3                                                                             | a trunk 1 | a trunk 2 | a trunk 6 | a trunk 5 |
| 4                                                                             | b trunk 2 | b trunk 2 | b trunk 6 | b trunk 6 |
| 5                                                                             | a trunk 2 | a trunk 3 | a trunk 7 | a trunk 6 |
| 6                                                                             | b trunk 3 | b trunk 3 | b trunk 7 | b trunk 7 |
| 7                                                                             | a trunk 3 | a trunk 4 | a trunk 8 | a trunk 7 |
| 8                                                                             | b trunk 4 | b trunk 4 | b trunk 8 | b trunk 8 |
| 9                                                                             | a trunk 4 |           |           | a trunk 8 |
| 10                                                                            | GMZ 1     |           |           | GMZ 2     |
| GMZ= Call charging module assignment<br>GND=GND for GEE50 FKR, otherwise free |           |           |           |           |

### 3.3.13 TMAMF (for selected countries only)

#### Introduction

The TMAMF (Trunk Module Analog for Multifrequency Code Signaling) board contains eight trunks for analog direct inward dialing. The system supports MFC-R2 signaling (default setting), MFC-R2 with caller ID, tone dialing, and dial pulsing. It is not possible to use DTMF and MFC-R2 (with or without caller ID) simultaneously.

You can use this board in Hicom 150 E OfficePro only.

#### Switches and LEDs

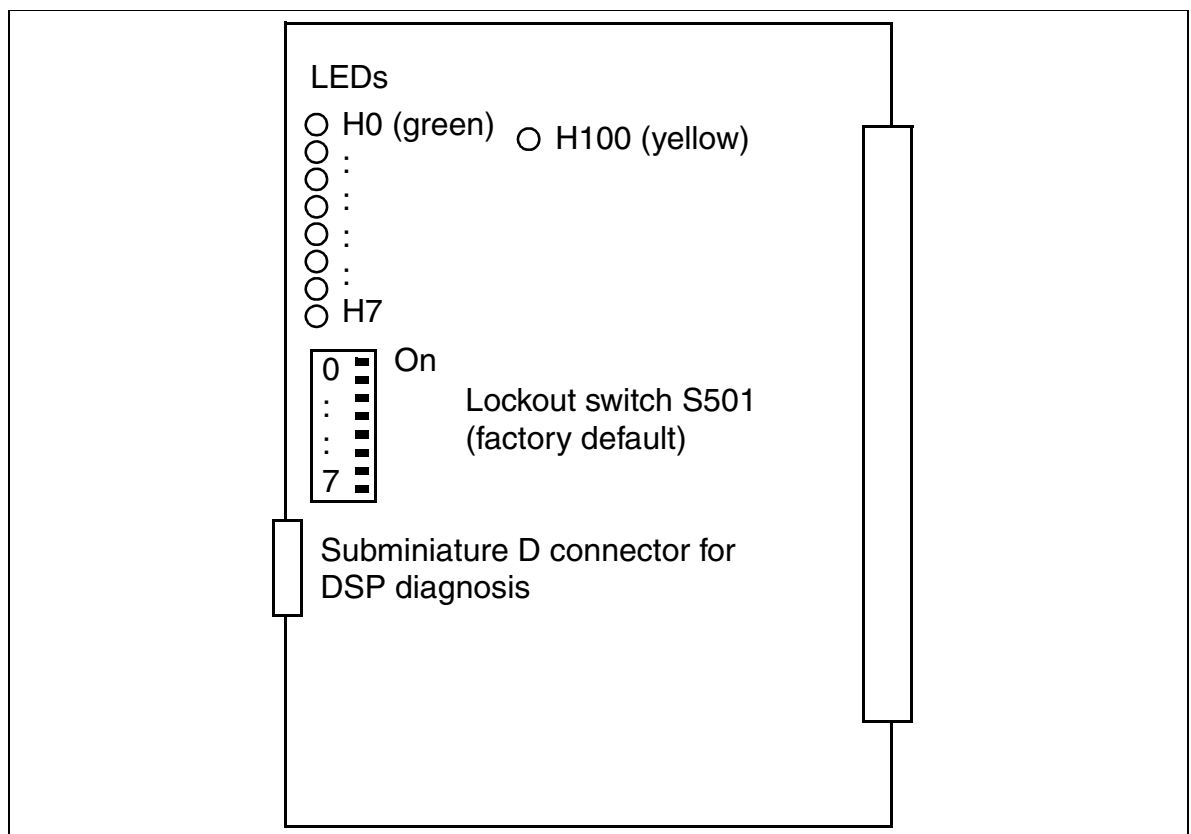


Figure 3-58 TMAMF (S30810-Q2587-Axxx)

## Notes on DSP Diagnosis

You can use the trace function built into the TMAMF module to diagnose malfunctions or obtain more precise error analysis. After you run the trace, the subminiature D connector provides information about MFC-R2 signaling. To activate the trace function, you must connect a PC with a terminal emulation program (such as Microsoft HyperTerminal).

### Terminal Configuration:

- Bits per second = 19,200
- Data bits = 8
- Stop bit = 1
- Parity = none
- Flow control = none

## Pin Assignments of the Diagnostic Cable

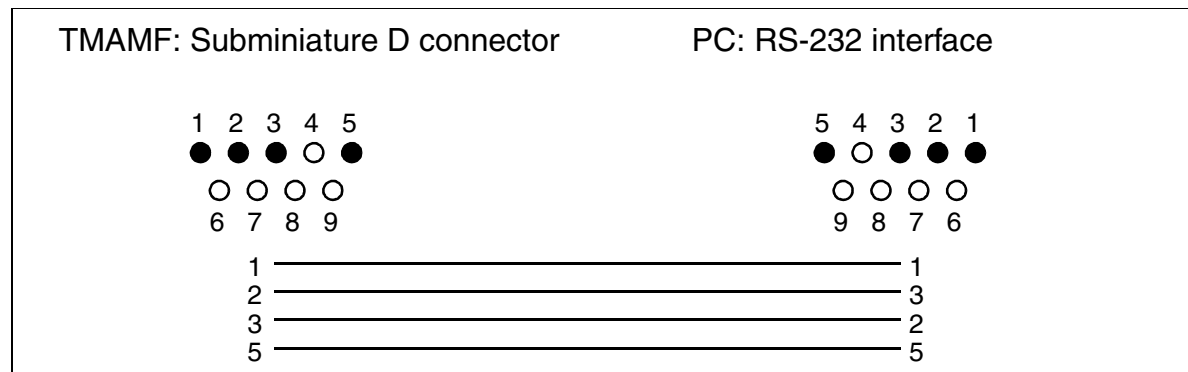


Figure 3-59 Pin Assignments of the TMAMF Diagnostic Cable

**LED Statuses and Their Meanings**

- LED H100 (see Figure 3-58): signal processor status

Table 3-53 TMAMF—LED Statuses (H100)

| LED Status (On/Off)                      | Meaning                                                      | Action         |
|------------------------------------------|--------------------------------------------------------------|----------------|
| <b>During Startup and Initialization</b> |                                                              |                |
| Off                                      | —                                                            |                |
| Flashing (250/250 ms)                    | The DSP (digital signal processor) is waiting for DID digits |                |
| On                                       | The DSP is being reset                                       |                |
| <b>During Operation</b>                  |                                                              |                |
| Off                                      | The DSP is idle                                              |                |
| Flashing (250/250 ms)                    | Error: the DSP has not yet received the DID digits.          | Replace board. |
| On                                       | The MFC-R2 filter is on                                      |                |

- LEDs H0 to H7 (see Figure 3-58): trunk status

Table 3-54 TMAMF—LED Statuses (H0 to H7)

| LED Status (On/Off)     | Meaning                                   | Action                                                                                        |
|-------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>During Operation</b> |                                           |                                                                                               |
| Off                     | The trunk is idle; no seizure             |                                                                                               |
| On                      | The trunk was seized                      |                                                                                               |
| Flashing (500/500 ms)   | Trunk out of service (e.g. S1/x “closed”) | Check whether the trunk was deactivated using Hicom Assistant E Office or the lockout switch. |

**Cable and SU Connector Assignments (Backplane)**

Table 3-55 TMAMF—Cable Assignments

| Color Group | Pair | A-Wire  | B-Wire  | SU Conn. | TMAMF |        | Notes |
|-------------|------|---------|---------|----------|-------|--------|-------|
|             |      |         |         | BP: X8   |       |        |       |
| 1           | 1    | wht/blu |         | 19       | 1a    | Port 1 |       |
|             |      |         | blu/wht | 39       | 1b    |        |       |
|             | 2    | wht/ora |         | 38       | 2a    | Port 2 |       |
|             |      |         | ora/wht | 48       | 2b    |        |       |
|             | 3    | wht/grn |         | 27       | 3a    | Port 3 |       |
|             |      |         | grn/wht | 47       | 3b    |        |       |
|             | 4    | wht/brn |         | 16       | 4a    | Port 4 |       |
|             |      |         | brn/wht | 46       | 4b    |        |       |
|             | 5    | wht/gry |         | 05       | 5a    | Port 5 |       |
|             |      |         | gry/wht | 45       | 5b    |        |       |
| 2           | 6    | red/blu |         | 14       | 6a    | Port 6 |       |
|             |      |         | blu/red | 44       | 6b    |        |       |
|             | 7    | red/ora |         | 23       | 7a    | Port 7 |       |
|             |      |         | ora/red | 43       | 7b    |        |       |
|             | 8    | red/grn |         | 32       | 8a    | Port 8 |       |
|             |      |         | grn/red | 42       | 8b    |        |       |
|             | 9    | red/brn |         | 11       |       | Free   |       |
|             |      |         | brn/red | 31       |       |        |       |
|             | 10   | red/gry |         | 02       |       | Free   |       |
|             |      |         | gry/red | 22       |       |        |       |
| 3           | 11   | blk/blu |         | 13       |       | Free   |       |
|             |      |         | blu/blk | 33       |       |        |       |
|             | 12   | blk/ora |         | 04       |       | Free   |       |
|             |      |         | ora/blk | 24       |       |        |       |
|             | 13   | blk/grn |         | 15       |       | Free   |       |
|             |      |         | grn/blk | 35       |       |        |       |
|             | 14   | blk/brn |         | 06       |       | Free   |       |
|             |      |         | brn/blk | 26       |       |        |       |
|             | 15   | blk/gry |         | 17       |       | Free   |       |
|             |      |         | gry/blk | 37       |       |        |       |
| 4           | 16   | yel/blu |         | 08       |       | Free   |       |
|             |      |         | blu/yel | 28       |       |        |       |
| Color Group | Pair | A-Wire  | B-Wire  | SU Conn. | TMAMF |        | Notes |
|             |      |         |         | BP: X8   |       |        |       |



### 3.3.14 TMDID8 (for U.S. Only)

#### Introduction

The TMDID8 board (**t**runk **m**odule **d**irect **i**nward **d**ialing) provides direct inward dialing from the central office (CO) to the OfficePro.

The TMDID8 Module has eight trunk circuits that connect to analog trunks. The circuits convert incoming analog signals into pulse-code modulation (PCM) for processing by the digital OfficePro system.

The circuits can be set up for immediate start or wink start.

#### Switches and LEDs

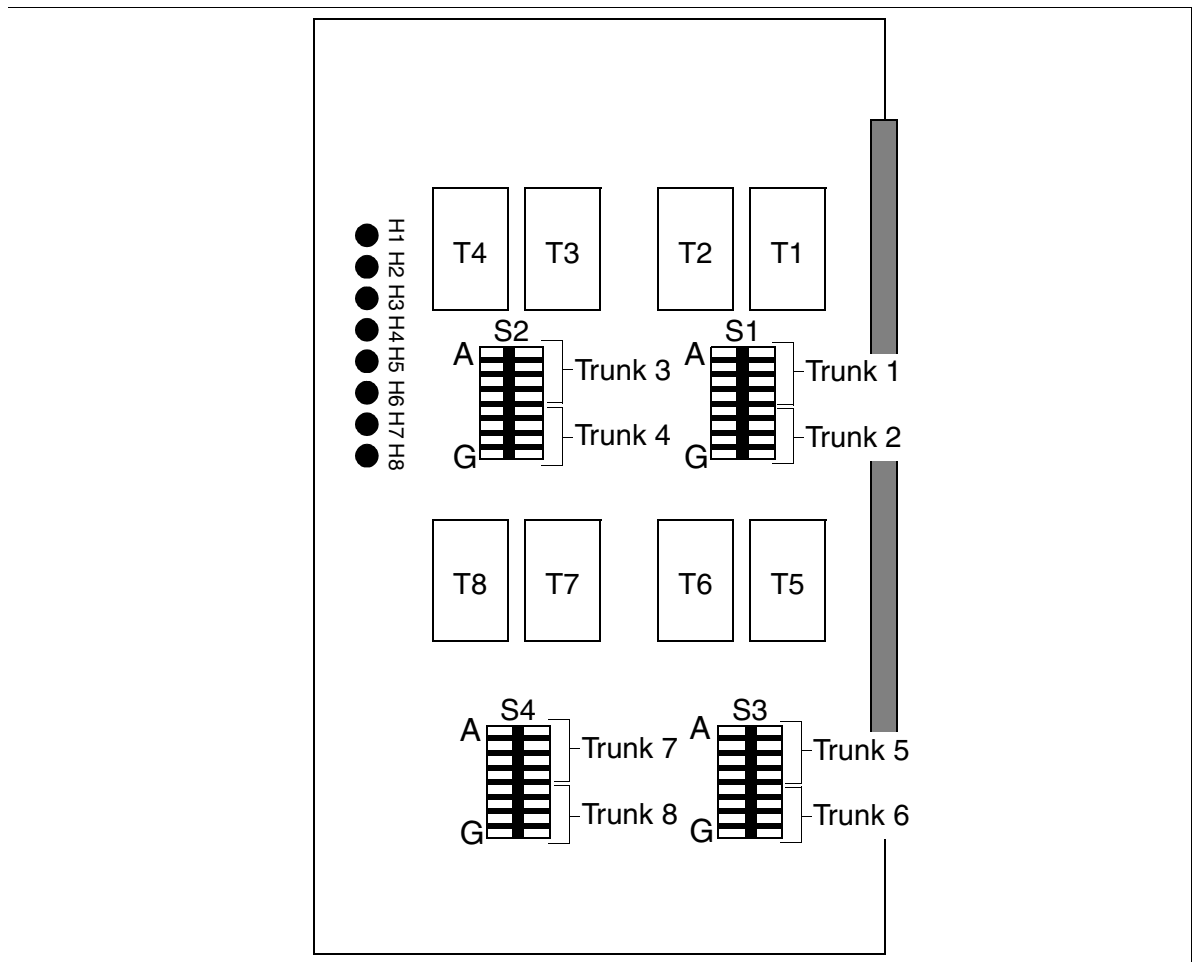


Figure 3-60 TMDID8 Switches and Indicators (for U.S. Only)

## Switches

Adjust switches S1 to S4 to compensate for trunk loop resistance.

Table 3-56 Trunk Conditions for Setting TMDID8 Switches (for U.S. Only)

| Trunk | Loop < 1800 Ohms:<br>Open Switches | Loop > 1800 Ohms:<br>Close Switches |
|-------|------------------------------------|-------------------------------------|
| 1     | S1A, S1B, S1C, S1D                 | S1A, S1B, S1C, S1D                  |
| 2     | S1E, S1F, S1G, S1H                 | S1E, S1F, S1G, S1H                  |
| 3     | S2A, S2B, S2C, S2D                 | S2A, S2B, S2C, S2D                  |
| 4     | S2E, S2F, S2G, S2H                 | S2E, S2F, S2G, S2H                  |
| 5     | S3A, S3B, S3C, S3D                 | S3A, S3B, S3C, S3D                  |
| 6     | S3E, S3F, S3G, S3H                 | S3E, S3F, S3G, S3H                  |
| 7     | S4A, S4B, S4C, S4D                 | S4A, S4B, S4C, S4D                  |
| 8     | S4E, S4F, S4G, S4H                 | S4E, S4F, S4G, S4H                  |

## LED Statuses and Their Meanings

Table 3-57 TMDID8—LED Statuses (for U.S. Only)

| Status of LEDs 1–8 | Meaning                          |
|--------------------|----------------------------------|
| Off                | Channel is idle, ready to use    |
| On                 | Channel is seized                |
| Flashing           | Channel is deactivated           |
| Winking            | System software test in progress |

**Cable and Connector Assignment (Backplane)**

Table 3-58 TMDID8—Cable Assignment (for U.S. Only)

| Pair | Color Code | Backplane<br>Connector Pins | TMDID8 Module |        |
|------|------------|-----------------------------|---------------|--------|
| 1    | wht/blu    | 26                          | T             | Port 1 |
|      | blu/wht    | 1                           | R             |        |
| 2    | wht/ora    | 27                          | T             | Port 2 |
|      | ora/wht    | 2                           | R             |        |
| 3    | wht/grn    | 28                          | T             | Port 3 |
|      | grn/wht    | 3                           | R             |        |
| 4    | wht/brn    | 29                          | T             | Port 4 |
|      | brn/wht    | 4                           | R             |        |
| 5    | wht/slat   | 30                          | T             | Port 5 |
|      | slat/wht   | 5                           | R             |        |
| 6    | red/blu    | 31                          | T             | Port 6 |
|      | blu/red    | 6                           | R             |        |
| 7    | red/ora    | 32                          | T             | Port 7 |
|      | ora/red    | 7                           | R             |        |
| 8    | red/grn    | 33                          | T             | Port 8 |
|      | grn/red    | 8                           | R             |        |

**Note:** Pairs 9 through 25 are not used.

### 3.3.15 TMGL4 (for U.S. Only)

#### Introduction

A central office trunk module (TMGL4) connects up to four analog ground-start or loop-start trunks to the OfficeCom and OfficePoint.

Use Hicom Assistant E to select ground start or loop start. Ground start is the default.



#### **Caution**

You must disconnect the power and remove the slip-on connectors from the TMGL4 Module before removing it from the system.

Do not connect the slip-on connectors to the TMGL4 Module until the board is seated in its slot and the system power is on.

Failure to follow these instructions may severely damage the system.

#### Interfaces

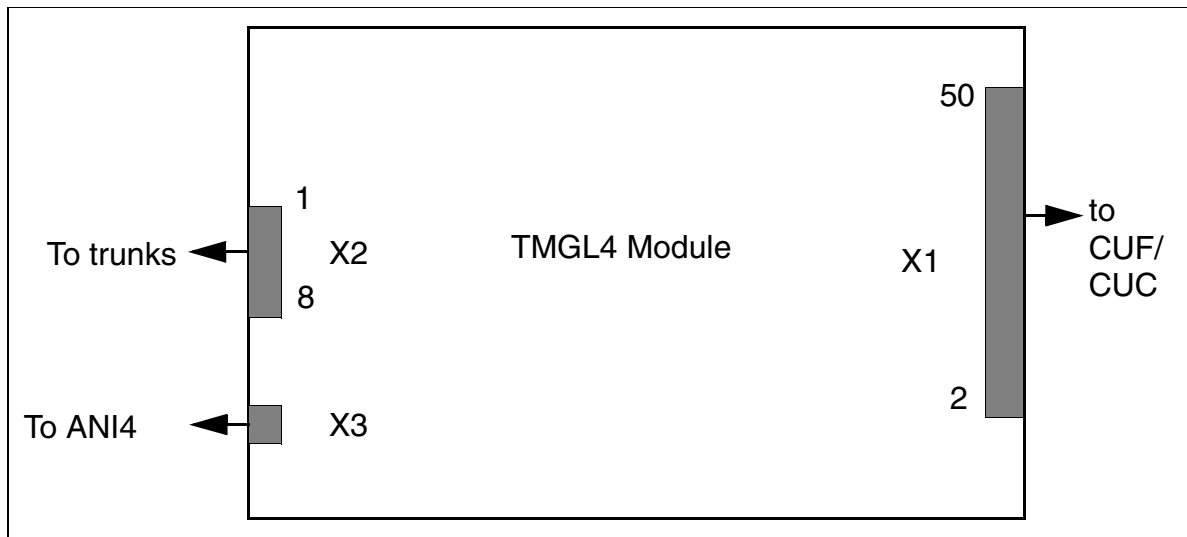


Figure 3-61 TMGL4 Module Interfaces (for U.S. Only)

**Interface Assignments**

Table 3-59 TMGL4 Module Interface Assignments (for U.S. Only)

| Pin | Connector X2 | Port |
|-----|--------------|------|
| 1   | R trunk 1    | 1    |
| 2   | T trunk 1    |      |
| 3   | R trunk 2    | 2    |
| 4   | T trunk 2    |      |
| 5   | R trunk 3    | 3    |
| 6   | T trunk 3    |      |
| 7   | R trunk 4    | 4    |
| 8   | T trunk 4    |      |

**Note:** Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

### 3.3.16 TMGL8 Module (for U.S. Only)

#### Introduction

A central office trunk module (TMGL8) connects up to eight analog ground-start or loop-start trunks to the OfficePro.

Use Hicom Assistant E to select ground start or loop start. Ground start is the default.

#### Switches and LEDs

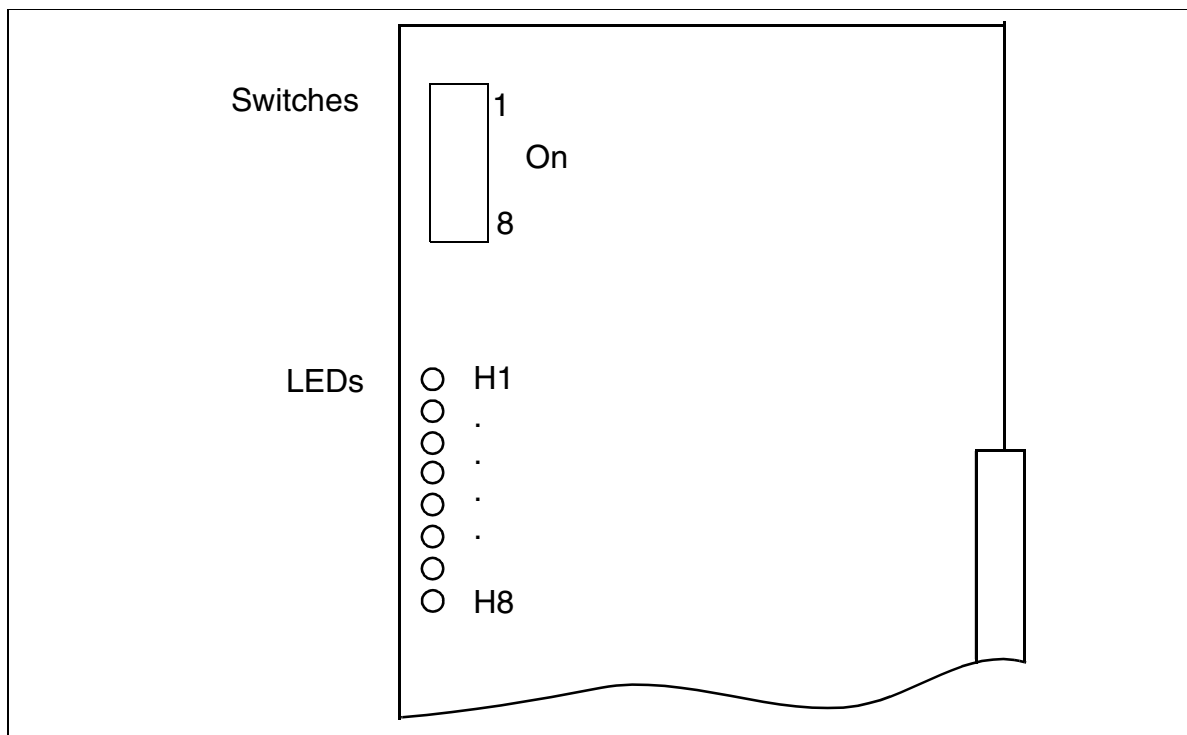


Figure 3-62 TMGL8 Module (S30810-Q2703-X) (for U.S. Only)

**Switches**

The TMGL8 Module has an eight-path microswitch under a flip-up cover. For each channel:

- ON (right): Channel is enabled.
- OFF (left): Channel is disabled; no new seizures are permitted.

**LED Statuses and Their Meanings**

Table 3-60 TMGL8—LED Statuses (for U.S. Only)

| Status of LEDs 1–8 | Meaning                          |
|--------------------|----------------------------------|
| Off                | Channel is idle, ready to use    |
| On                 | Channel is seized                |
| Flashing           | Channel is deactivated           |
| Winking            | System software test in progress |

**Cable and Connector Assignment (Backplane)**

Table 3-61 TMGL8—Cable Assignment (for U.S. Only)

| Pair | Color Code | Backplane Connector Pins | TMGL8 Module |        | Pair | Color Code | Backplane Connector Pins | TMGL8 Module |        |
|------|------------|--------------------------|--------------|--------|------|------------|--------------------------|--------------|--------|
| 1    | wht/blu    | 26                       | T            | Port 1 | 5    | wht/slat   | 30                       | T            | Port 5 |
|      | blu/wht    | 1                        | R            |        |      | slat/wht   | 5                        | R            |        |
| 2    | wht/ora    | 27                       | T            | Port 2 | 6    | red/blu    | 31                       | T            | Port 6 |
|      | ora/wht    | 2                        | R            |        |      | blu/red    | 6                        | R            |        |
| 3    | wht/grn    | 28                       | T            | Port 3 | 7    | red/ora    | 32                       | T            | Port 7 |
|      | grn/wht    | 3                        | R            |        |      | ora/red    | 7                        | R            |        |
| 4    | wht/brn    | 29                       | T            | Port 4 | 8    | red/grn    | 33                       | T            | Port 8 |
|      | brn/wht    | 4                        | R            |        |      | grn/red    | 8                        | R            |        |

**Note:** Pairs 9 through 25 are not used.

### 3.3.17 TML8W (Not for U.S.)

#### Introduction

A TML8W (trunk module loop start world) board connects up to eight analog trunks for Hicom 150 E OfficePro using the loop-start protocol.

The jumpers on the TML8W must be adjusted for call detail recording with a GEE8 plug-in board.

#### Jumpers on TML8W

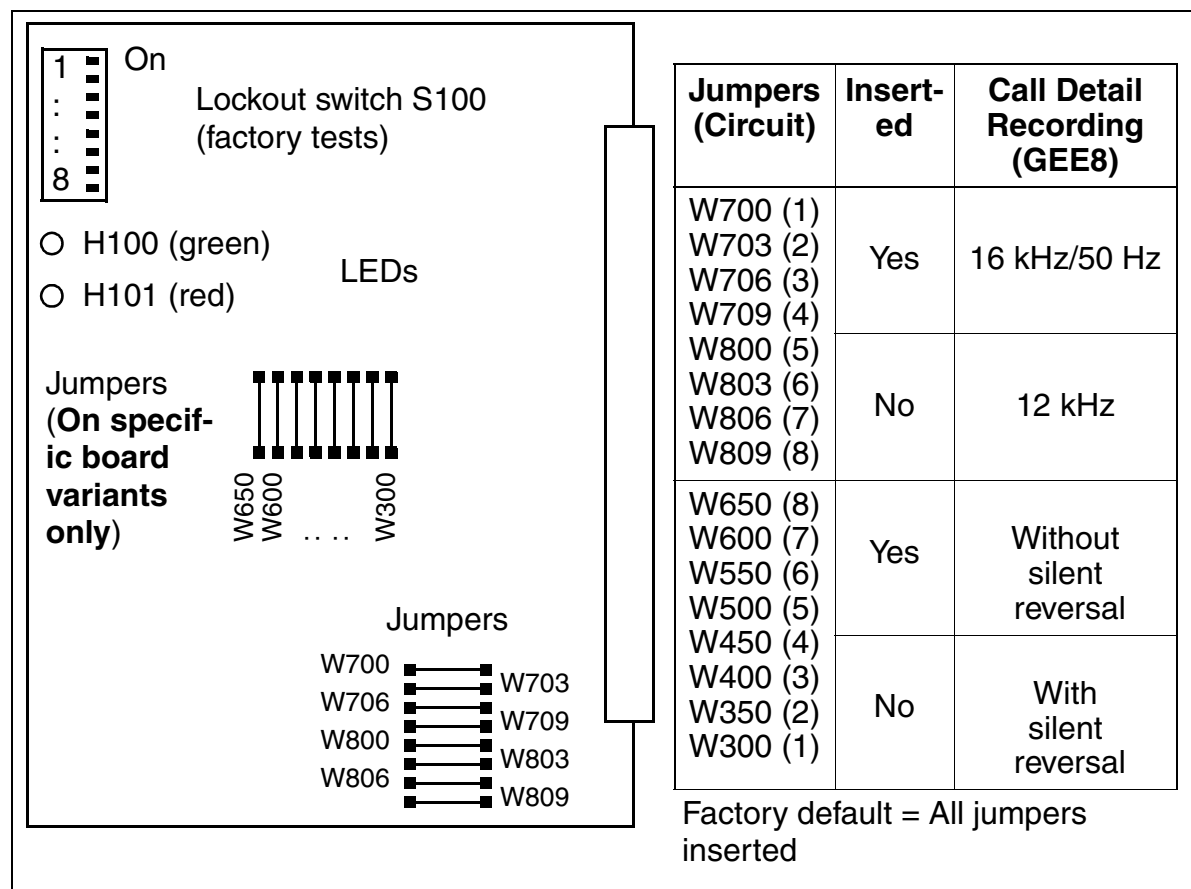


Figure 3-63 TML8W (S30817-Q626-Axxx/Bxxx) (Not for U.S.)



For Austria only: If a ÜFS trunk is connected to the TML8W, remove the jumpers (W300 to W650) to activate silent reversal. If silent reversal is inactive, users in the Hicom 150 E Office would hear a busy signal following backward release instead of being released.



**LED Statuses and Their Meanings**

Table 3-62 TML8W—LED Statuses (Not for U.S.)

| <b>Red LED</b> | <b>Green LED</b> | <b>Status</b>                                                                                                                                                | <b>Action</b>                                                                              |
|----------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Off            | Off              | Board not receiving power or not plugged in correctly.<br>Board is deactivated.                                                                              | Check plug contact on board.                                                               |
| On             | Off              | Board is receiving power and board test in progress.<br>If status remains the same (board test unsuccessful), board is defective.                            | Replace board.                                                                             |
|                |                  | Loadware loading was not successfully completed. Board is defective.                                                                                         | Replace board.                                                                             |
|                |                  | Error was detected on board. Board is deactivated (not applicable to errors detected by test loops) or board was deactivated using Hicom Assistant E Office. | Check whether board was deactivated using Hicom Assistant E Office. If not, replace board. |
| Flashing       | Off              | Loadware is being loaded.                                                                                                                                    |                                                                                            |
| Off            | On               | Loading was successfully completed and board is OK (idle state).                                                                                             |                                                                                            |
| Off            | Flashing         | At least one circuit is activated.                                                                                                                           |                                                                                            |

### Cable and SU Connector Assignment (Backplane)

Table 3-63 TML8W—Cable Assignment (Not for U.S.)

| Color Group | Pair | a-Wire  | b-Wire  | SU conn.<br>(BP: X8) | TML8W |        | Notes |
|-------------|------|---------|---------|----------------------|-------|--------|-------|
| 1           | 1    | wht/blu |         | 19                   | 1a    | Port 1 |       |
|             |      |         | blu/wht | 39                   | 1b    |        |       |
|             | 2    | wht/ora |         | 38                   | 2a    | Port 2 |       |
|             |      |         | ora/wht | 48                   | 2b    |        |       |
|             | 3    | wht/grn |         | 27                   | 3a    | Port 3 |       |
|             |      |         | grn/wht | 47                   | 3b    |        |       |
|             | 4    | wht/brn |         | 16                   | 4a    | Port 4 |       |
|             |      |         | brn/wht | 46                   | 4b    |        |       |
|             | 5    | wht/gry |         | 05                   | 5a    | Port 5 |       |
|             |      |         | gry/wht | 45                   | 5b    |        |       |
| 2           | 6    | red/blu |         | 14                   | 6a    | Port 6 |       |
|             |      |         | blu/red | 44                   | 6b    |        |       |
|             | 7    | red/ora |         | 23                   | 7a    | Port 7 |       |
|             |      |         | ora/red | 43                   | 7b    |        |       |
|             | 8    | red/grn |         | 32                   | 8a    | Port 8 |       |
|             |      |         | grn/red | 42                   | 8b    |        |       |
|             | 9    | red/brn |         | 11                   |       | Free   |       |
|             |      |         | brn/red | 31                   |       |        |       |
|             | 10   | red/gry |         | 02                   |       | Free   |       |
|             |      |         | gry/red | 22                   |       |        |       |
| 3           | 11   | blk/blu |         | 13                   |       | Free   |       |
|             |      |         | blu/blk | 33                   |       |        |       |
|             | 12   | blk/ora |         | 04                   |       | Free   |       |
|             |      |         | ora/blk | 24                   |       |        |       |
|             | 13   | blk/grn |         | 15                   |       | Free   |       |
|             |      |         | grn/blk | 35                   |       |        |       |
|             | 14   | blk/brn |         | 06                   |       | Free   |       |
|             |      |         | brn/blk | 26                   |       |        |       |
|             | 15   | blk/gry |         | 17                   |       | Free   |       |
|             |      |         | gry/blk | 37                   |       |        |       |
| 4           | 16   | yel/blu |         | 08                   |       | Free   |       |
|             |      |         | blu/yel | 28                   |       |        |       |
| Color Group | Pair | a-Wire  | b-Wire  | SU conn.<br>(BP: X8) | TML8W |        | Notes |

### 3.3.18 TMOM (Not for U.S.)

#### Introduction

The TMOM board (trunk module outgoing multipurpose) provides interfaces for connecting radio paging equipment (PSE) to Hicom 150 E OfficePro.

#### Application Information

- Hicom 150 E OfficePro may be equipped with a maximum of one TMOM.
- Enhanced radio paging equipment can also be connected.

#### Switch Functions (Figure 3-64)

- Lockout switch S1
  - On (down): Board locked
  - Off (up): Normal mode
- DIP-FIX switches S2, S3 for a/b port changeover for split, incoming, and outgoing traffic with an 8-wire connection in accordance with ESPA 4.4.3.
  - 2-wire (factory default): S2 in position 1-3, S3 in position 1-3
  - 4-wire: S2 in position 1-2, S3 in position 1-2
- DIP-FIX switch S4 for potential changeover for KX1 to KX16 relay contacts and indicators 1 to 4 (not supported).
  - Position 1-2: Internal earth terminator (0 V)
  - Position 1-3: External potential (from MDFU, factory default)
- DIP-FIX switches S5 to S8 for activating indicators 1-4 (not supported)
- DIP-FIX switches S9, S10 for potential connection for relay contacts KX1 to KX16 and indicators 1 to 4 (not supported)

## Switches on TMOM

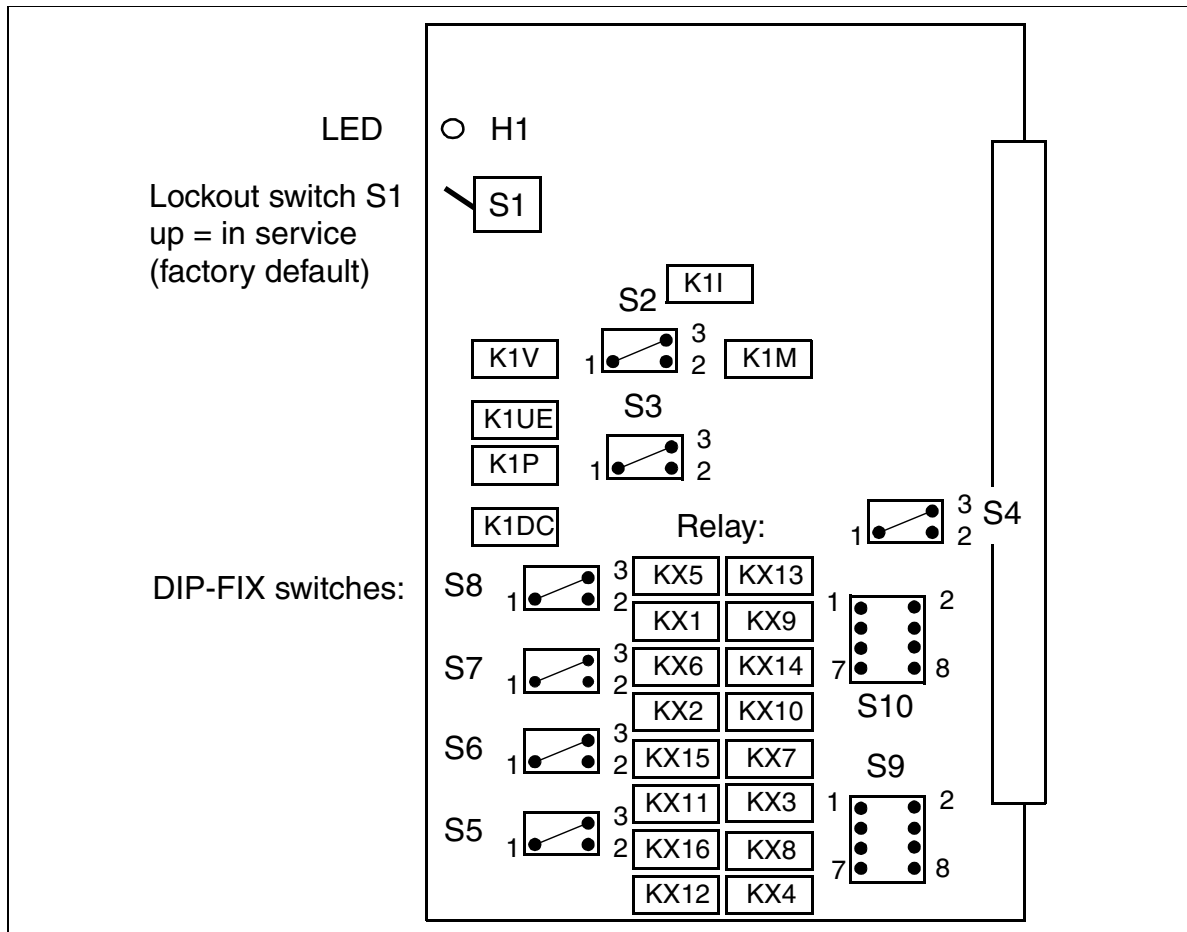


Figure 3-64 TMOM (S30810-Q2535-X) (Not for U.S.)



The relays shown in [Figure 3-64](#) are not supported.

**PSE Interface**

The following standards have been implemented for single-call and enhanced radio paging equipment:

- ESPA 4.4.3
- ESPA 4.4.5 (6-wire)
- a, b, c, d interface

Figure 3-65 shows a simplified representation of the PSE interface with all signals. The type of signalling depends on the PSE type.

- A1/B1: Outgoing and bidirectional traffic, loop current = 14 to 60 mA
- A2/B2: Incoming traffic, loop current = 14 to 60 mA
- C1: Busy signal with a/b/c connection:  
Loop current with low impedance = 390 W, loop current = 14 to 60 mA  
Loop current with high impedance = Approx. 8.7 kW, loop current = 3 to 7 mA
- D1: Busy signal with a, b, or c connection. Potential = - 48 V.  
This can be used as a return line for the c-wire.
- E1H/E1L: Busy signal with ESPA connection.
- M1H/M1L: Busy signal with ESPA connection.

**TMOM—PSE Interface**

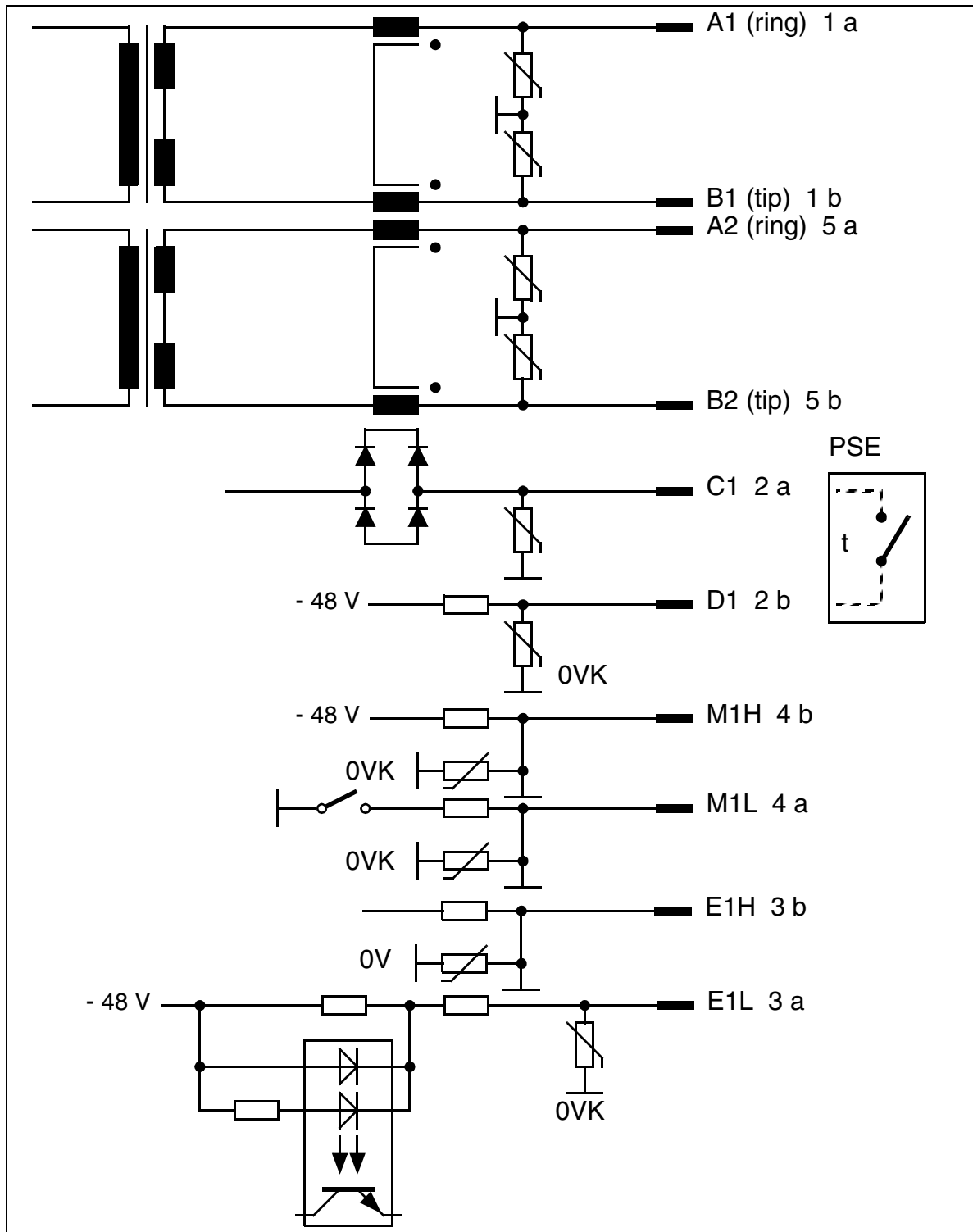


Figure 3-65 TMOM—PSE Interface (Not for U.S.)

## LED Statuses and Their Meanings

Table 3-64 TMOM—LED Statuses (Not for U.S.)

| LED State (On/Off)                          | Meaning                                            | Action                                                                                    |
|---------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>During Boot Phase and Initialization</b> |                                                    |                                                                                           |
| Flickering (50/50 ms)                       | Board test unsuccessful                            | Replace board                                                                             |
| Flashing (100/100 ms)                       | Board not configured                               | Visual inspection, plug board in or out if required. Replace board if flashing continues. |
| On                                          | Loading operation in progress                      |                                                                                           |
| Flashing (100/100 ms)                       | Code could not be loaded                           | Replace board                                                                             |
| Off                                         | Board loaded                                       |                                                                                           |
| Flashing (500/500 ms)                       | Board loaded but not yet activated                 |                                                                                           |
| <b>During Operation</b>                     |                                                    |                                                                                           |
| On                                          | Board seized                                       |                                                                                           |
| Flashing in ring cadence                    | Board in ringing state                             |                                                                                           |
| Flickering (450/50 ms)                      | Dependability test (loopback test) in progress     |                                                                                           |
| Flashing (500/500 ms)                       | Board out of service (e.g. S1 is in down position) | Check whether the board was deactivated using Hicom Assistant E Office or lockout switch. |
| Off                                         | Board in idle state, no seizure                    |                                                                                           |

**Cable and SU Connector Assignment (Backplane)**

Table 3-65 TMOM—Cable Assignment (Not for U.S.)

| Color Group | Pair | a-Wire  | b-Wire  | SU Conn. | TMOM |     | Notes                                                       |
|-------------|------|---------|---------|----------|------|-----|-------------------------------------------------------------|
|             |      |         |         | BP: X8   |      |     |                                                             |
| 1           | 1    | wht/blu |         | 19       | 1a   | A1  | TMOM-to-PSE interface<br>(see <a href="#">Figure 3-65</a> ) |
|             |      |         | blu/wht | 39       | 1b   | B1  |                                                             |
|             | 2    | wht/ora |         | 38       | 2a   | C1  |                                                             |
|             |      |         | ora/wht | 48       | 2b   | D1  |                                                             |
|             | 3    | wht/grn |         | 27       | 3a   | E1L |                                                             |
|             |      |         | grn/wht | 47       | 3b   | E1H |                                                             |
|             | 4    | wht/brn |         | 16       | 4a   | M1L |                                                             |
|             |      |         | brn/wht | 46       | 4b   | M1H |                                                             |
|             | 5    | wht/gry |         | 05       | 5a   | A2  |                                                             |
|             |      |         | gry/wht | 45       | 5b   | B2  |                                                             |
| 2           | 6    | red/blu |         | 14       | 6a   | —   |                                                             |
|             |      |         | blu/red | 44       | 6b   | —   |                                                             |
|             | 7    | red/ora |         | 23       | 7a   | —   |                                                             |
|             |      |         | ora/red | 43       | 7b   | —   |                                                             |
|             | 8    | red/grn |         | 32       | 8a   | —   |                                                             |
|             |      |         | grn/red | 42       | 8b   | —   |                                                             |
|             | 9    | red/brn |         | 11       | 9a   | —   |                                                             |
|             |      |         | brn/red | 31       | 9b   | —   |                                                             |
|             | 10   | red/gry |         | 02       | 10a  | —   |                                                             |
|             |      |         | gry/red | 22       | 10b  | —   |                                                             |
| 3           | 11   | blk/blu |         | 13       | 11a  | —   | Relay contacts<br>(not supported)                           |
|             |      |         | blu/blk | 33       | 11b  | —   |                                                             |
|             | 12   | blk/ora |         | 04       | 12a  | —   |                                                             |
|             |      |         | ora/blk | 24       | 12b  | —   |                                                             |
|             | 13   | blk/grn |         | 15       | 13a  | —   |                                                             |
|             |      |         | grn/blk | 35       | 13b  | —   |                                                             |
|             | 14   | blk/brn |         | 06       | 14a  | —   |                                                             |
|             |      |         | brn/blk | 26       | 14b  | —   |                                                             |
|             | 15   | blk/gry |         | 17       | 15a  | —   |                                                             |
|             |      |         | gry/blk | 37       | 15b  | —   |                                                             |
| 4           | 16   | yel/blu |         | 08       | 16a  | —   |                                                             |
|             |      |         | blu/yel | 28       | 16b  | —   |                                                             |
| Color Group | Pair | a-Wire  | b-Wire  | SU Conn. | TMOM |     | Notes                                                       |
|             |      |         |         | BP: X8   |      |     |                                                             |



### 3.3.19 TMQ4 (for U.S. Only)

#### Introduction

An ISDN BRI trunk module (TMQ4) connects up to four digital trunks to the Office-Com and OfficePoint.

The TMQ4 Module provides basic rate interface (BRI) ISDN via a U2B<sub>1</sub>Q interface. The interface supports the following central office protocols:

- AT&T 5Ess NI-1
- AT&T 5ESS Custom
- Nortel DMS100 NI-1
- Siemens EWSD NI-1

#### Interfaces

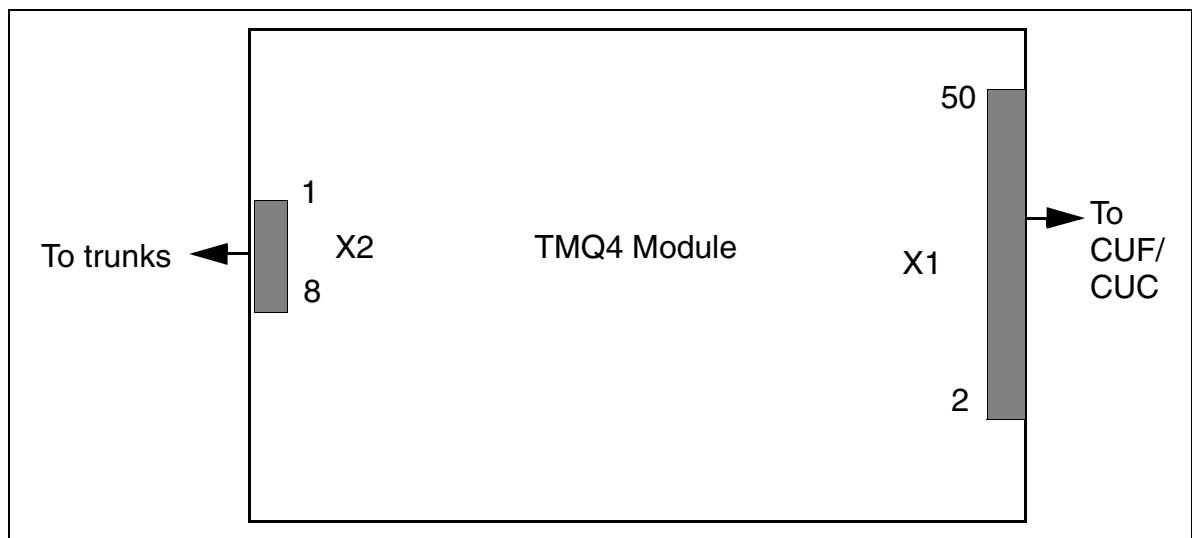


Figure 3-66 TMQ4 Module Interfaces (for U.S. Only)

## Interface Assignments

Table 3-66      TMQ4 Module Interface Assignments (for U.S. Only)

| Pin | Connector X2 | Port |  | Pin | Connector X2 | Port |
|-----|--------------|------|--|-----|--------------|------|
| 1   | R trunk 1    | 1    |  | 5   | R trunk 3    | 3    |
| 2   | T trunk 1    |      |  | 6   | T trunk 3    |      |
| 3   | R trunk 2    | 2    |  | 7   | R trunk 4    | 4    |
| 4   | T trunk 2    |      |  | 8   | T trunk 4    |      |

**Note:** Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

### 3.3.20 TMST1 (for U.S. Only)

#### Introduction

A Digital T1 PRI trunk module (TMST1) connects a digital trunk to the OfficePro to provide primary-rate interface (PRI) ISDN via a T1 interface. It can also be used for the following:

- SF
- ESF

A maximum of five TMST1 Modules can be used in the OfficePro system.

Rather than connecting to a main distribution frame (MDF), the TMST1 Module connects to a channel service unit (CSU). The CSU supplies the required secondary protection.

#### Switches and LEDs

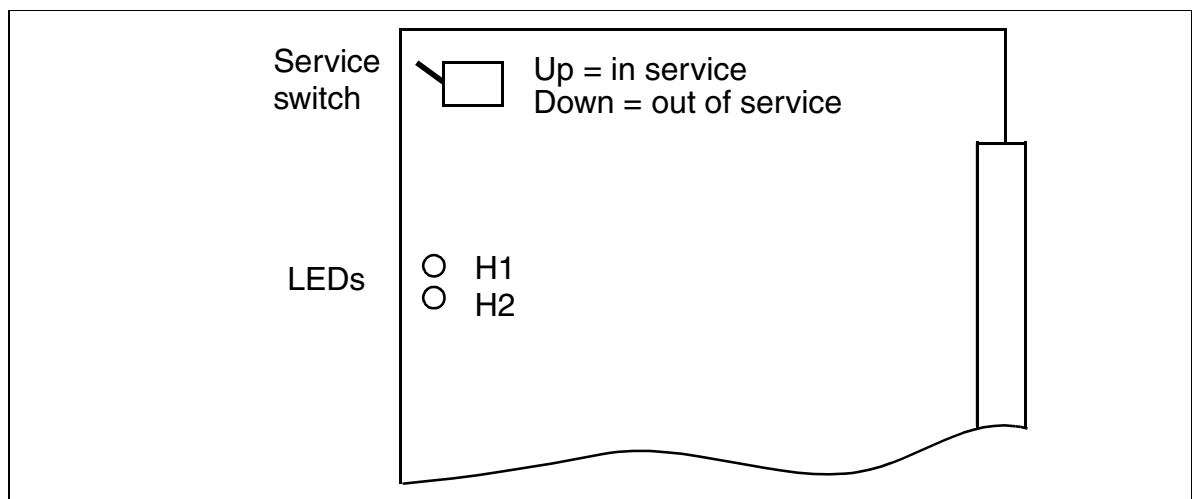


Figure 3-67 TMST1 (S30810-Q2920-X) (for U.S. Only)

The TMST1 includes a service switch. The switch alerts the system software that the Module will be removed so that no new calls are routed to the board.

## LED Statuses and Their Meanings

Table 3-67 TMST1—LED Statuses (for U.S. Only)

| Red LED  | Green LED | State                                                                                                                                                   | Action                                                                                     |
|----------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Off      | Off       | Board not receiving power or not plugged in correctly.<br>Board is deactivated.                                                                         | Check plug contact on board.                                                               |
| On       | Off       | Board is receiving power and board test in progress.<br>Board is defective if status remains unchanged (board test unsuccessful).                       | Replace board.                                                                             |
|          |           | Loadware loading was not successfully completed. Board is defective.                                                                                    | Replace board.                                                                             |
|          |           | Error detected on board. Board is deactivated (does not apply to errors detected by test loops) / board was deactivated using Hicom Assistant E Office. | Check whether board was deactivated using Hicom Assistant E Office. If not, replace board. |
| Flashing | Off       | Loadware being loaded.                                                                                                                                  |                                                                                            |
| Off      | On        | Loading operation was successfully completed and board is functional (idle state).                                                                      |                                                                                            |
| Off      | Flashing  | At least one subscriber line circuit is activated.                                                                                                      |                                                                                            |
| On       | On        | Board error                                                                                                                                             | Replace board.                                                                             |

## Cable and Connector Assignment (Backplane)

Table 3-68 TMST1—Cable Assignment (for U.S. Only)

| Pair | Color Code | Backplane Connector Pins | TMST1         |
|------|------------|--------------------------|---------------|
| 18   | blu/wht    | 43                       | Receive ring  |
|      | wht/blu    | 18                       | Receive tip   |
| 22   | ora/wht    | 47                       | Transmit ring |
|      | wht/ora    | 22                       | Transmit tip  |

### 3.3.21 TMS2 (Not for U.S.)

#### Introduction

The TMS2 board (trunk module **S<sub>2M</sub>**) provides 30 B-channels (ISDN voice channels) for Hicom 150 E OfficePro. These channels can be used for the following:

- **S<sub>2m</sub>** trunk connections (via NT)
- **S<sub>2M</sub>** networking via **S<sub>2M</sub>** lines

You can use the Euro-ISDN CAS gateway (ECG) to support country-specific CAS protocols. The ECG is a protocol converter that converts the Euro-ISDN subset to channel-associated signaling (CAS). Refer to the installation instructions that come with each ECG for information on connecting the unit and supplying it with power.

#### Switches and LEDs

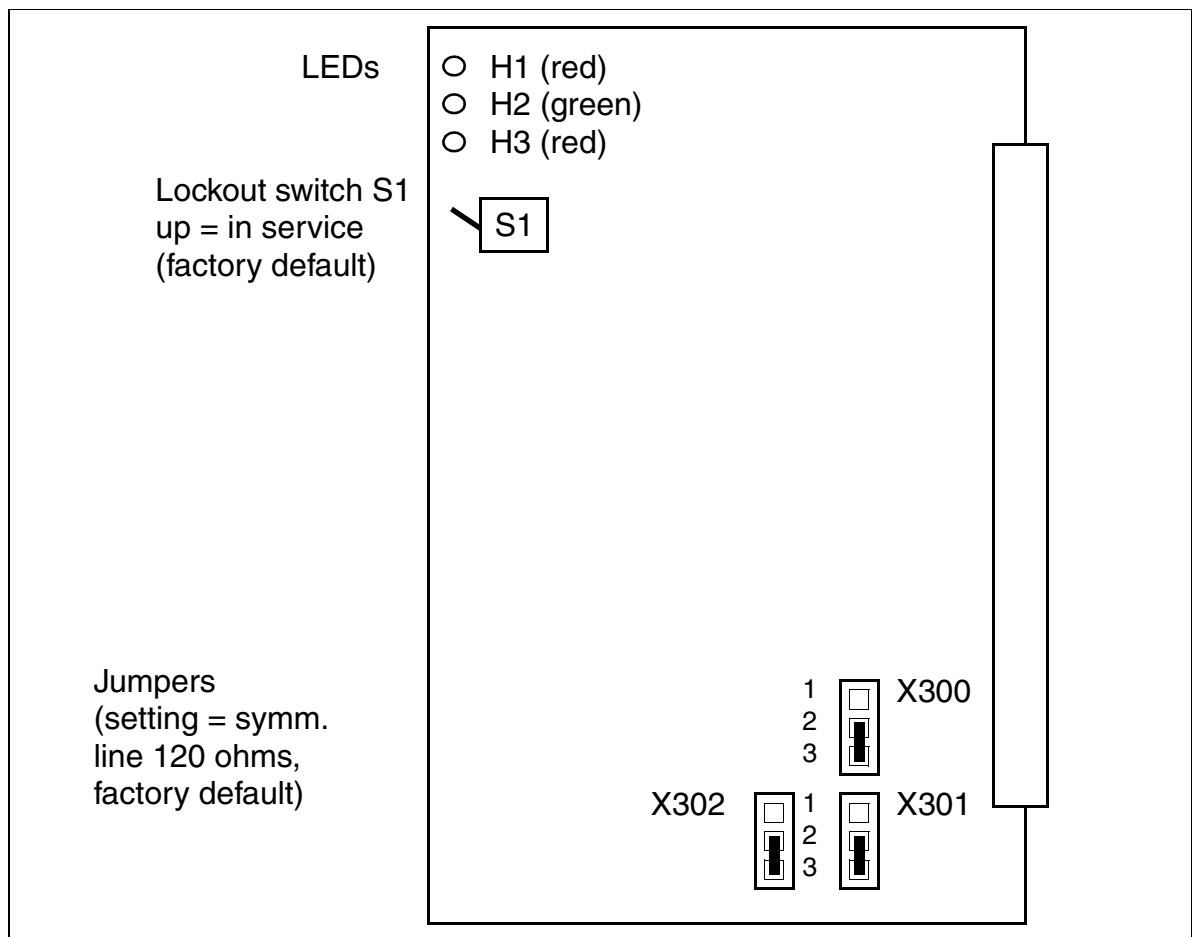


Figure 3-68 TMS2 (S30810-Q2915-X) (Not for U.S.)

## Jumper Settings

The X300 or X302 jumpers are used to set the TMS2 interface for the connection of this interface to NT1. The following can be set:

- Symmetrical line (120 ohms)  
Use only pre-formed cables S30267-Z57-Axxx to guarantee problem-free operation (length = 6 m (not available in BRD), 10 m or 20 m).
- Coaxial line (75 ohms)

Table 3-69 TMS2—Jumper Settings (Not for U.S.)

| <b>TMS2 Interface</b>      | <b>Jumper X300</b> | <b>Jumper X301</b> | <b>Jumper X302</b> |
|----------------------------|--------------------|--------------------|--------------------|
| 120 ohms = factory default | 2 - 3              | 2 - 3              | 2 - 3              |
| 75 ohms                    | 1 - 2              | 1 - 2              | 1 - 2              |

## SU Connector Assignments (Backplane) and Cable Color Codes

Table 3-70 TMS2—SU connector assignments and cable color codes

| <b>SU Connector Xx8/Xx9<sup>*</sup> Pin</b> | <b>Function</b>      | <b>Cable S30267-Z57-Axxx Color Code</b> |                           |
|---------------------------------------------|----------------------|-----------------------------------------|---------------------------|
|                                             |                      | <b>Up to and Including Status 6</b>     | <b>Status 7 and Later</b> |
| 2                                           | a (T) wire, receive  | grn                                     | wht/ora                   |
| 22                                          | b (R) wire, receive  | blk                                     | ora/wht                   |
| 6                                           | a (T) wire, transmit | red                                     | wht/blu                   |
| 26                                          | b (R) wire, transmit | blk                                     | blu/wht                   |

\* SU connector Xx9 with board status 5 or later



Note that the SU connector Xx9 was used in the old TMS2M board.

**LED Statuses and their Meanings**

- H1 LED (see [Figure 3-68](#)): Reference clock display (clock is generated if this feature has been configured using Hicom Assistant E Office.)
  - On: Reference clock for clock generator is generated.
  - Off: No reference clock
- H2 (green) and H3 (red) LEDs

Table 3-71 TMS2—LED Statuses (Not for U.S.)

| Red LED  | Green LED | State                                                                                                                                                  | Action                                                                                     |
|----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Off      | Off       | Board not receiving power or not plugged in correctly.<br>Board is deactivated.                                                                        | Check plug contact on board.                                                               |
| On       | Off       | Board is receiving power and board test in progress.<br>Board is defective if status remains unchanged (board test unsuccessful).                      | Replace board.                                                                             |
|          |           | Loadware loading was not successfully completed. Board is defective.                                                                                   | Replace board.                                                                             |
|          |           | Error detected on board. Board is deactivated (does not apply to errors detected by test loops). Board was deactivated using Hicom Assistant E Office. | Check whether board was deactivated using Hicom Assistant E Office. If not, replace board. |
| Flashing | Off       | Loadware being loaded.                                                                                                                                 |                                                                                            |
| Off      | On        | Loading operation was successfully completed and board is functional (idle state).                                                                     |                                                                                            |
| Off      | Flashing  | At least one subscriber line circuit is activated.                                                                                                     |                                                                                            |

## S<sub>2M</sub> Trunk Connection

Table 2-8 on page 2-19 lists examples of the maximum cable lengths for connecting trunks.

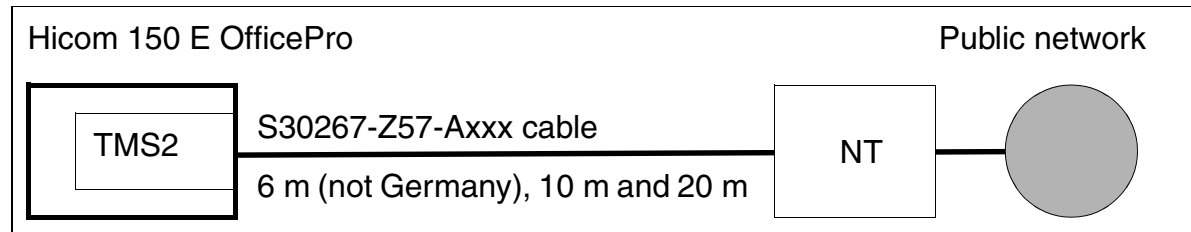


Figure 3-69 S<sub>2M</sub> Trunk Connection (Not for U.S.)

Observe the following when connecting NTs using the S30267-Z57-Axxx cable:

- Keep the cable from the NT to Hicom 150 E OfficePro as short as possible to ensure proper operation.
- Hicom 150 E OfficePro must always be grounded (whether the line used by the network provider is copper or optical fiber). (See 1 TR 211 item 2.4, Protective Measures and Grounding.). The diameter of the earth conductor must be at least 2.5 mm<sup>2</sup>. Grounding the system using sheath wires is not sufficient. Keep the earth connection from the NT to Hicom 150 E-M as short as possible to ensure proper operation.



### Caution

In order to guarantee successful operation, you must ensure that the NT is grounded on the network provider side.

- Power feeding
  - The following information applies to systems that are supplied with power directly from the site electrical system (without uninterruptible power supply; (see Figure 3-70):

Use an optiset E local power supply (S30122-K5061-X<sup>1</sup>). A UAE 8/8 socket (L30460-X951-X = exposed, L30460-X952-X = concealed, L30460-X958-X<sup>1</sup> = exposed/concealed) is required to connect the local power supply.

You must connect the external local power supply to the same site power phase as the system and the local power supply's plus pole to the system earth.

1. To be supplied



- The following information applies to systems equipped with an uninterruptible power supply (see [Figure 3-71](#)):

The NT must be supplied with power using the  $-48\text{ V}$  from the PSUI/UPSM (**15 W maximum**; note the power requirements of the NTs). This ensures that the NTs will be supplied with power and the connected  $S_{2M}$  lines will function in the event of a power failure.

Route the supply voltage through backplane connector X06 (pins 17 and 37 =  $-48\text{ V}$ ). Do not use the supplied CABLU to connect the system and the MDFU. This energizes pair no. 15 ( $-48\text{ V}$ ) of the splitting strip.

The CABLU is not supplied if the REAL board was ordered or is already being used (the parts supplied for the Trunk power failure transfer using REAL feature include the required CABLU).

### Supplying NTs Via $S_{2M}$ in Systems Without Uninterruptible Power Supplies

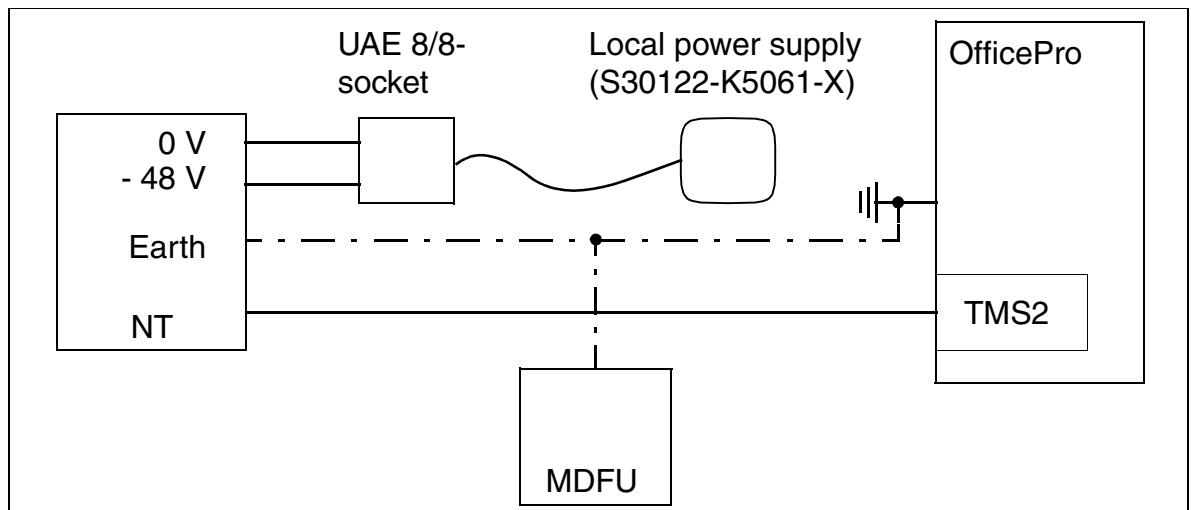


Figure 3-70 Supplying NTs in Systems Without Uninterruptible Power Supplies

### Supplying NTs Via $S_{2M}$ in Systems With Uninterruptible Power Supplies

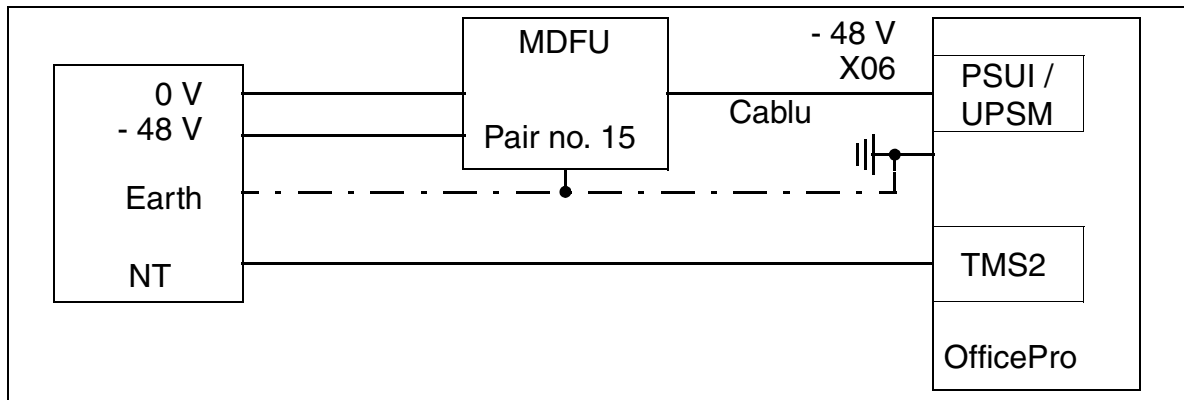
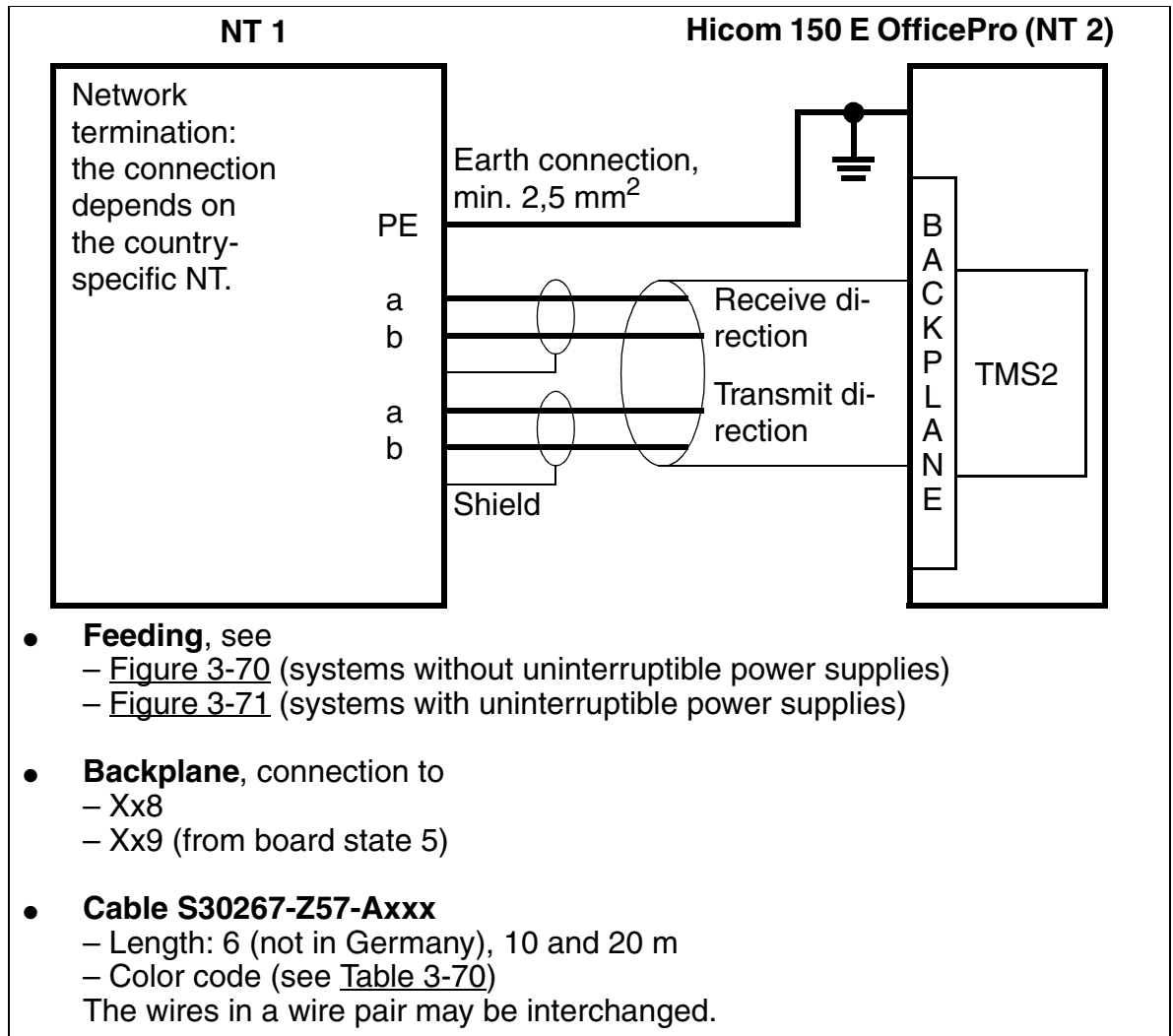


Figure 3-71 Supplying NTs Via  $S_{2M}$  in Systems With Uninterruptible Power Supplies

**S<sub>2M</sub>—NT Connection**Figure 3-72 S<sub>2M</sub>—NT Connection (Not for U.S.)

**S<sub>2M</sub> Connection to Deutsche Telekom NT (for Germany only)**

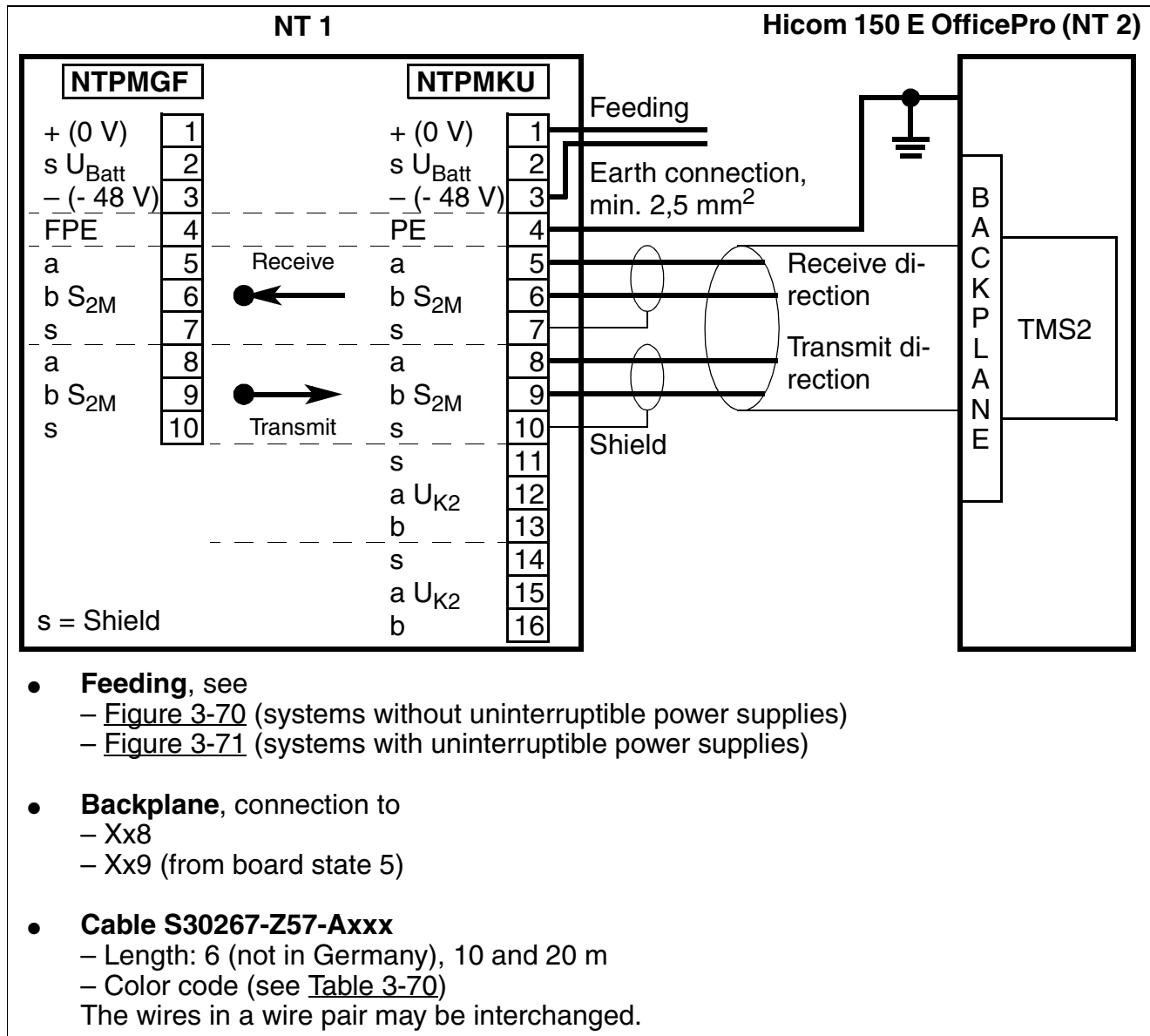


Figure 3-73 S<sub>2M</sub> - NT Connection Deutsche Telekom (for Germany only)

**S<sub>2M</sub> Networking**

For examples of the maximum cable lengths for direct CorNet-N networking, refer to [Table 2-8 on page 2-18](#).

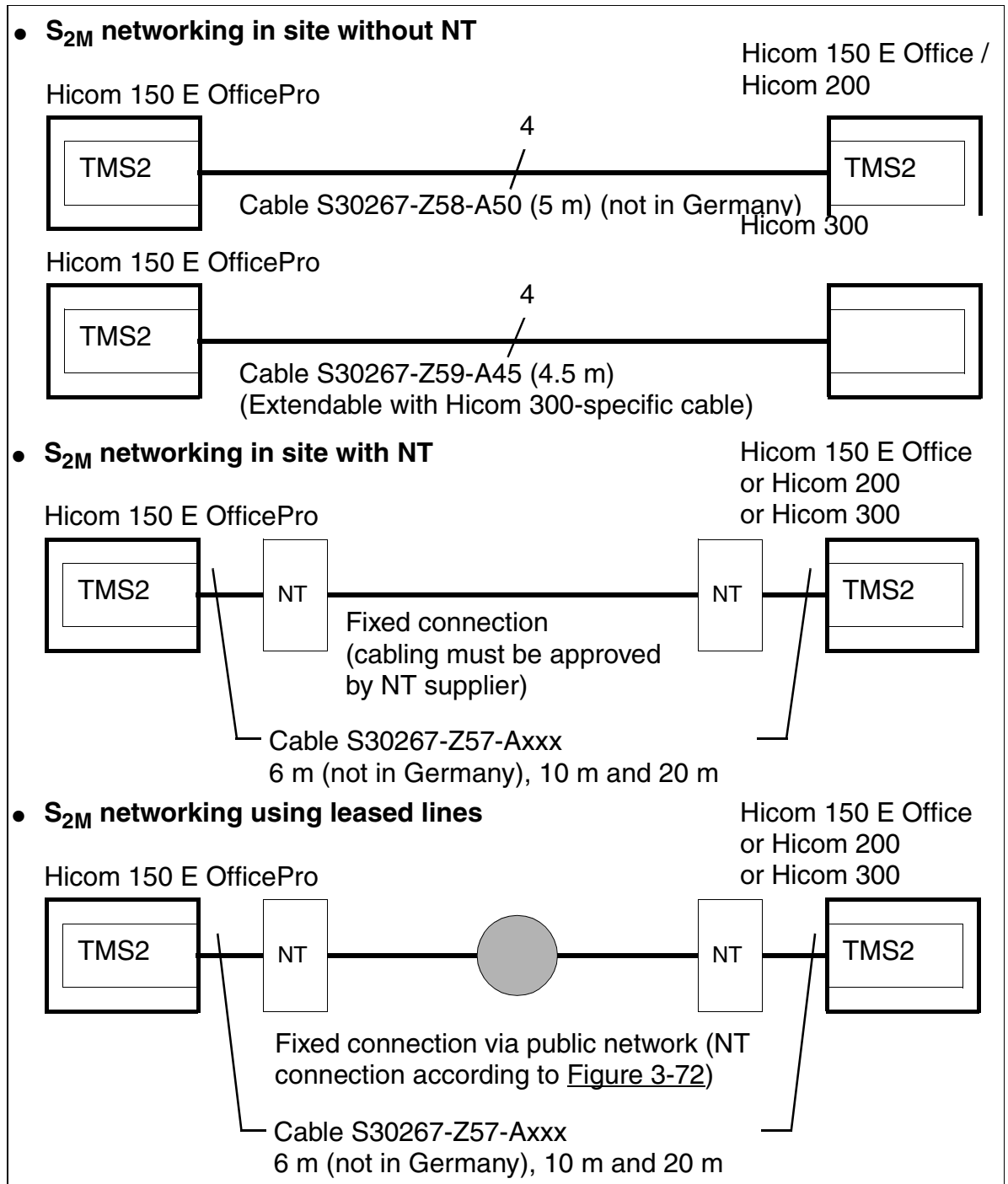


Figure 3-74 S<sub>2M</sub> Networking Options (Not for U.S.)

### 3.3.22 TST1 (for U.S. Only)

#### Introduction

The Digital T1/PRI trunk module (TST1) connects the OfficeCom to primary rate interface (PRI) ISDN via a T1 interface. The TST1 can also connect to the following:

- SF
- ESF

The TST1 can be installed in:

- Rel.2.2 hardware and Rel.2.2 software: Slot 7 or Slot 9.
- Rel.1.0 hardware and Rel.2.2 software: Slot 6 only.

Rather than connecting to a main distribution frame (MDF), the TST1 connects to a channel service unit (CSU). The CSU supplies the required secondary protection.

#### Interfaces

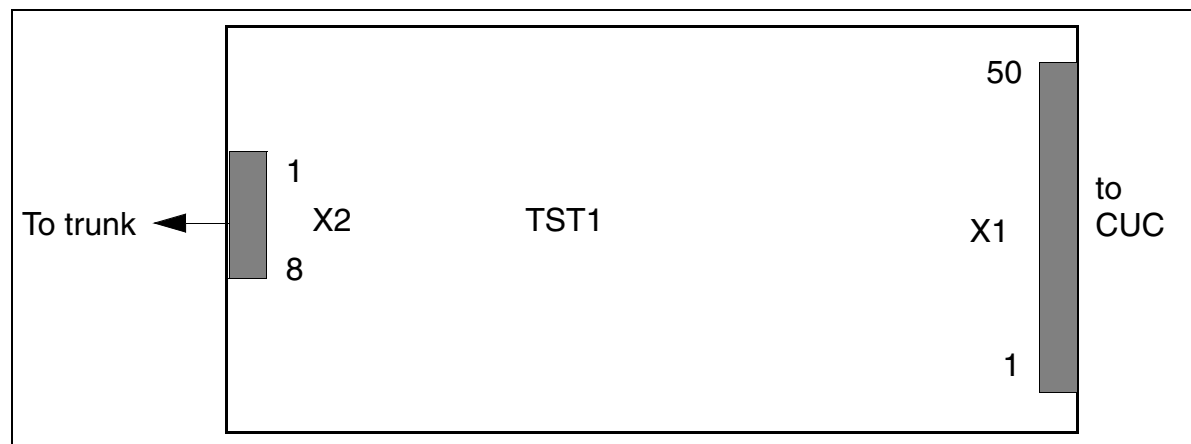


Figure 3-75 TST1 Interfaces (for U.S. Only)

#### Interface Assignments

Table 3-72 TST1 Interface Assignments (for U.S. Only)

| Pin | X2            |  | Pin | X2            |
|-----|---------------|--|-----|---------------|
| 1   | receive ring  |  | 5   | transmit tip  |
| 2   | receive tip   |  | 6   | not connected |
| 3   | not connected |  | 7   | not connected |
| 4   | transmit ring |  | 8   | not connected |

### 3.3.23 TS2 (Not for U.S.)

#### Introduction

The TS2 board (trunk module **S2M**) for OfficeCom connects the system to an NT1 (network transfer point) via a symmetrical line (four-wire, twisted-pair cable) or a co-axial line for the simultaneous transfer of up to 30 B channels (ISDN voice channels).

The total transmission speed including signalling and synchronization is 2,048 Mbit/s.

- Only one TS2 board allowed (primary multiplex access)
- For slot 7 or 9 only (Rel. 2.0 or later)
- The maximum cable length depends on the quality of the cable used and its signal attenuation (max. 6 dB).



Use shielded cables only to guarantee proper operation.

You can use the Euro-ISDN CAS gateway (ECG) to support country-specific CAS protocols. The ECG is a protocol converter that converts the Euro-ISDN subset to channel-associated signaling (CAS). Refer to the installation instructions that come with each ECG for information on connecting the unit and supplying it with power.

#### Interfaces

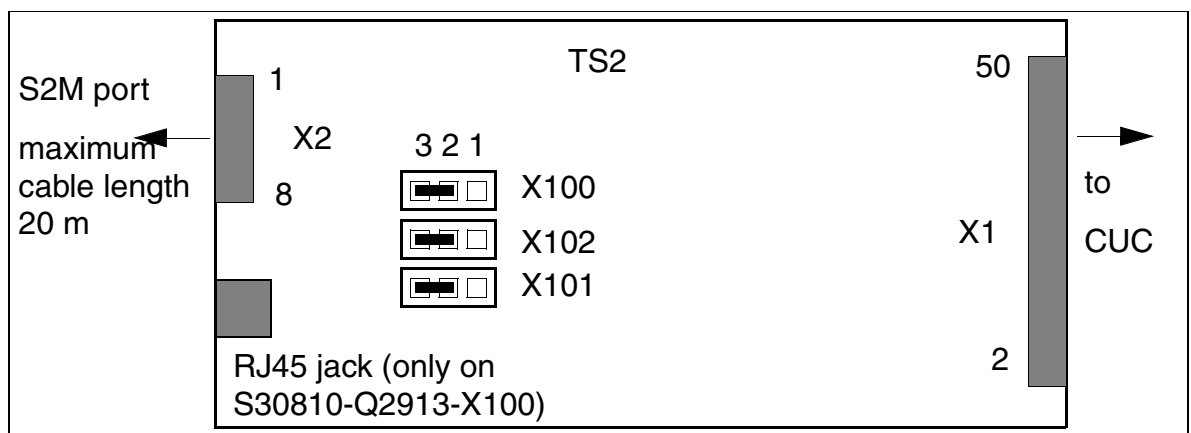


Figure 3-76 TS2-Interfaces (S30810-Q2913-X) (Not for U.S.)

## Symmetrical Line (120 ohms)

The 120 ohm-variant is preset in the factory (jumper setting, refer to [Table 3-74 on page 3-176](#)). Connect the shielded cable to the X2 connector using an 8-pin Wieland terminal.

Table 3-73 TS2 Interface Assignments for Symmetrical Lines (Not for U.S.)

| Pin | X2                 |
|-----|--------------------|
| 1   | -48V (NT1 feeding) |
| 2   | GNDA (NT1 feeding) |
| 3   | GND shield         |
| 4   | GND shield         |
| 5   | Transmit a-wire    |
| 6   | Transmit b-wire    |
| 7   | Receive a-wire     |
| 8   | Receive b-wire     |

## Coaxial Line (75 ohms)

Connect the coaxial line to the X2 connector using the 8-pin Wieland terminal. Adjust the jumpers on plug connectors X100 to X102 as shown in the Jumper Settings table.

Note: Use the connection kits listed on [page 3-179](#) for NT connections in Spain and Portugal.

## Jumper Settings

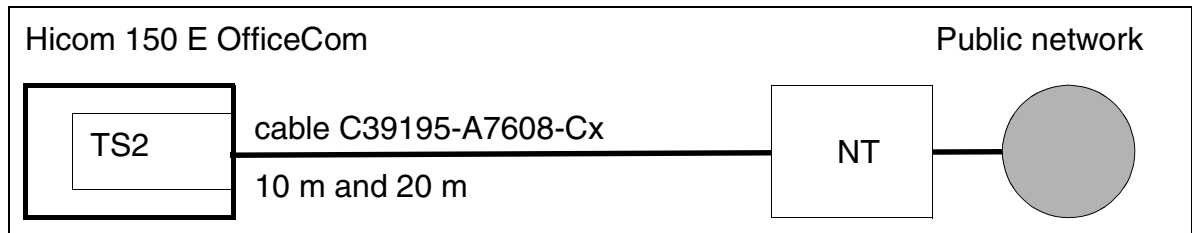
The TS2 interface setting for connecting to the NT1 can be selected using jumpers X100 to X102. Use the jumpers to set:

- Symmetrical lines (120 ohms).  
Cable C39195-A7608-C1 (10 m long) is shipped with the TS2 board. Cable C39195-A7608-C2 (20 m long) is available for greater distances. To ensure proper operation, use only these cables.
- Coaxial lines (75 ohms).

Table 3-74 TS2 Jumper Settings (Not for U.S.)

| TS2 Interface              | X100 Jumper | X101 Jumper | X102 Jumper |
|----------------------------|-------------|-------------|-------------|
| 120 ohms = factory setting | 2 - 3       | 2 - 3       | 2 - 3       |
| 75 ohms                    | 1 - 2       | 1 - 2       | 1 - 2       |



**S<sub>2M</sub> Trunk Connection**Figure 3-77 S<sub>2M</sub> Trunk Connection (Not for U.S.)

Observe the following when connecting NTs using cable C39195-A7608-Cx:

- Keep the cable from the NT to Hicom 150 E OfficeCom as short as possible to ensure proper operation.

**DANGER**

**No** ground connection may be made between Hicom 150 E OfficeCom and the NT. Do not connect the shields on cable C39195-A7608-Cx on the OfficeCom side or the NT side.

- Feeding
  - The following applies to systems that are fed exclusively from the site electrical system without USVC (see [Figure 3-78](#)):  
Use a local power supply (such as S30122-K5061-X).  
You must connect the external local power supply to the same site power phase as the system and the local power supply's plus pole to the system earth.
  - The following applies to systems that have an uninterruptible power supply (see [Figure 3-71](#)):  
The NT must be fed via the –48 V from the PSUI/UPSM (**15 W maximum**; note the NT power requirement). This ensures that the NT will be supplied with power and the connected S<sub>2M</sub> will function in the event of a power failure.

### Supplying NTs via S<sub>2M</sub> in Systems Without USVC

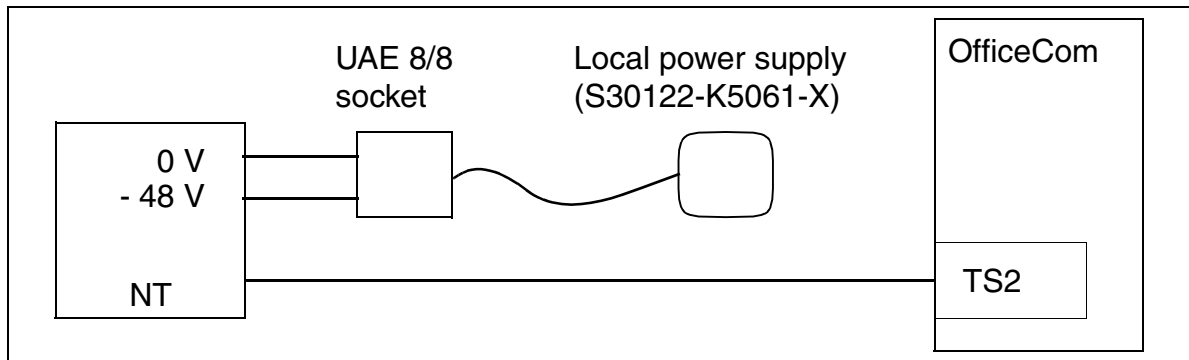


Figure 3-78 Supplying NTs via S<sub>2M</sub> in Systems Without USVC (Not for U.S.)

### Supplying NTs via S<sub>2M</sub> in Systems With USVC

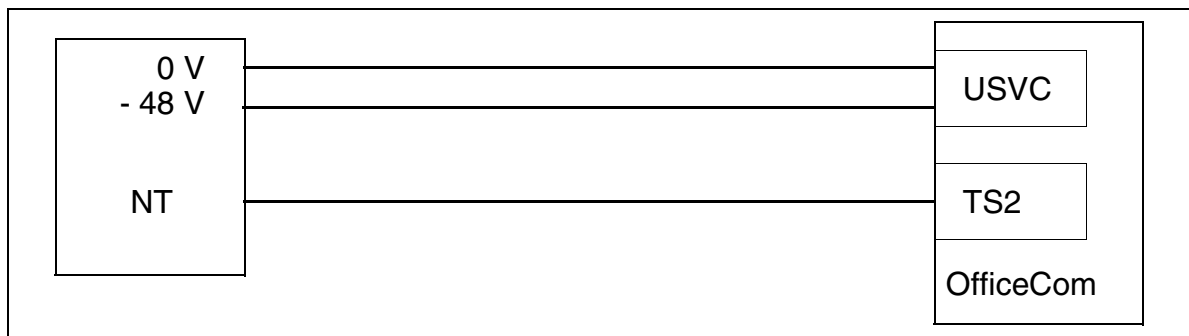


Figure 3-79 Supplying NTs via S<sub>2M</sub> in Systems With USVC (Not for U.S.)

**Cable Set for NT Connections (Spain and Portugal Only)**

Set the jumpers on pin connectors X100 to X102 to “symmetrical line (120 ohms)” as shown in the “Jumper Settings” table (page 3-151).

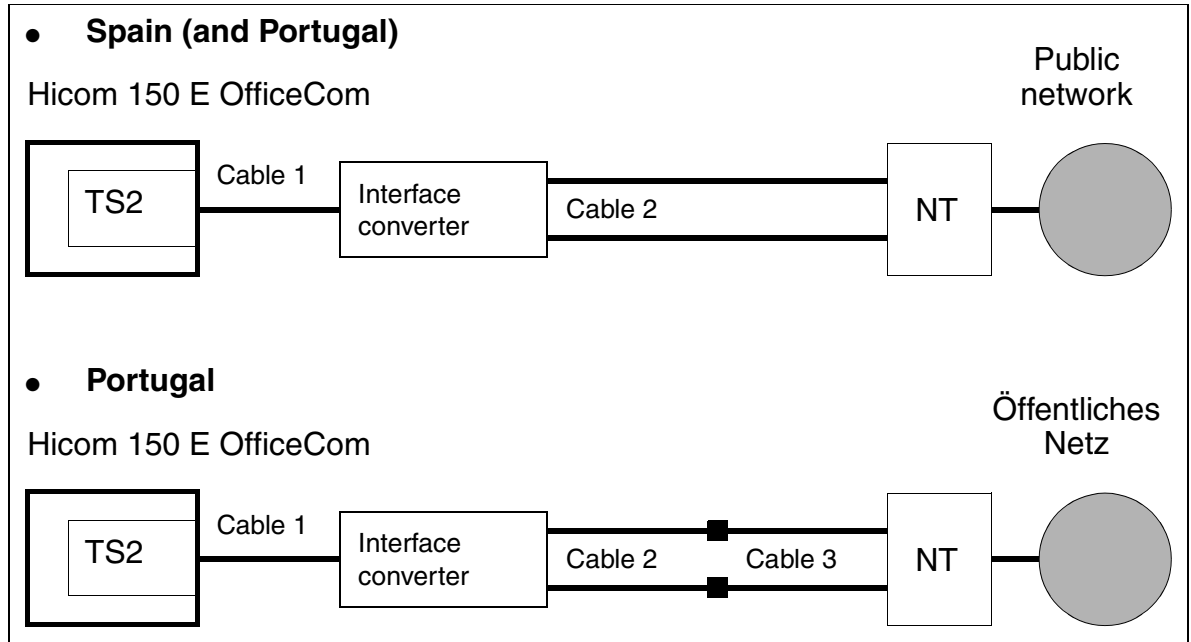


Figure 3-80 S<sub>2M</sub> - NT Connections for Spain and Portugal

Connection kit contents and part numbers:

- TS2 connection kit for Spain and Portugal: F50035-E2-X63, containing the following:
  - Interface converter: S30122-X7357-X
  - Cable 1 = Patch cable RJ45, 10 m: C39195-Z7208-A100
  - Cable 2 (2 units) = coaxial adapter cable, 30 cm: S30267-Z354-A3
- TS2 upgrade kit for Portugal: L30252-U600-A190, containing the following:
  - Cable 3 (2 units) = Mini-coaxial cable, 10 cm: S30267-Z353-A1

### 3.3.24 4SLA (Not for U.S.), 8SLA, (for All Countries) and 16SLA (Not for U.S.)

#### Introduction

The 4SLA, 8SLA, and 16SLA (subscriber line analog) modules connect OfficeCom and OfficePoint (not 16SLA) to analog telephones and supplementary equipment (such as group 3 fax machines and entrance telephone adapters) via analog interfaces.

The 8SLA is supported in the U.S.; the 4SLA and 16SLA are not.

#### Interfaces

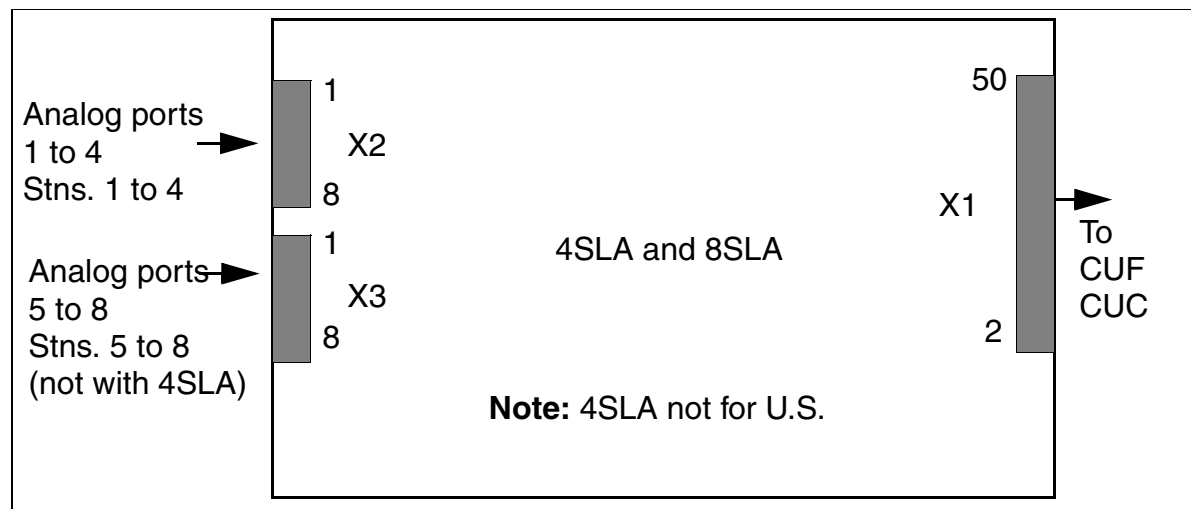


Figure 3-81 4SLA and 8SLA Interfaces (S30810-Q2925-X)

#### Interface Assignments

Table 3-75 4SLA and 8SLA Interface Assignments (Not for U.S.)

| Pin | X2 (Analog Ports 1 to 4) | X3 (Analog Ports 5 to 8) |
|-----|--------------------------|--------------------------|
| 1   | a 1                      | a 5                      |
| 2   | b 1                      | b 5                      |
| 3   | a 2                      | a 6                      |
| 4   | b 2                      | b 6                      |
| 5   | a 3                      | a 7                      |
| 6   | b 3                      | b 7                      |
| 7   | a 4                      | a 8                      |
| 8   | b 4                      | b 8                      |

Table 3-76 4SLA/8SLA Contact Assignments, 8SLA Interface Assignments (for U.S. Only)

| Pin | X2 (Ports 1-4) | X3 (Ports 5-8) |
|-----|----------------|----------------|
| 1   | R1             | R5             |
| 2   | T1             | T5             |
| 3   | R2             | R6             |
| 4   | T2             | T6             |
| 5   | R3             | R7             |
| 6   | T3             | T7             |
| 7   | R4             | R8             |
| 8   | T4             | T8             |

**Note:** Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order before the MDF.

Not for U.S.: The 16SLA subscriber line module connects OfficeCom to conventional standard telephones and supplementary equipment (such as group 3 fax machines and entrance telephone adapters) via 16 analog interfaces.

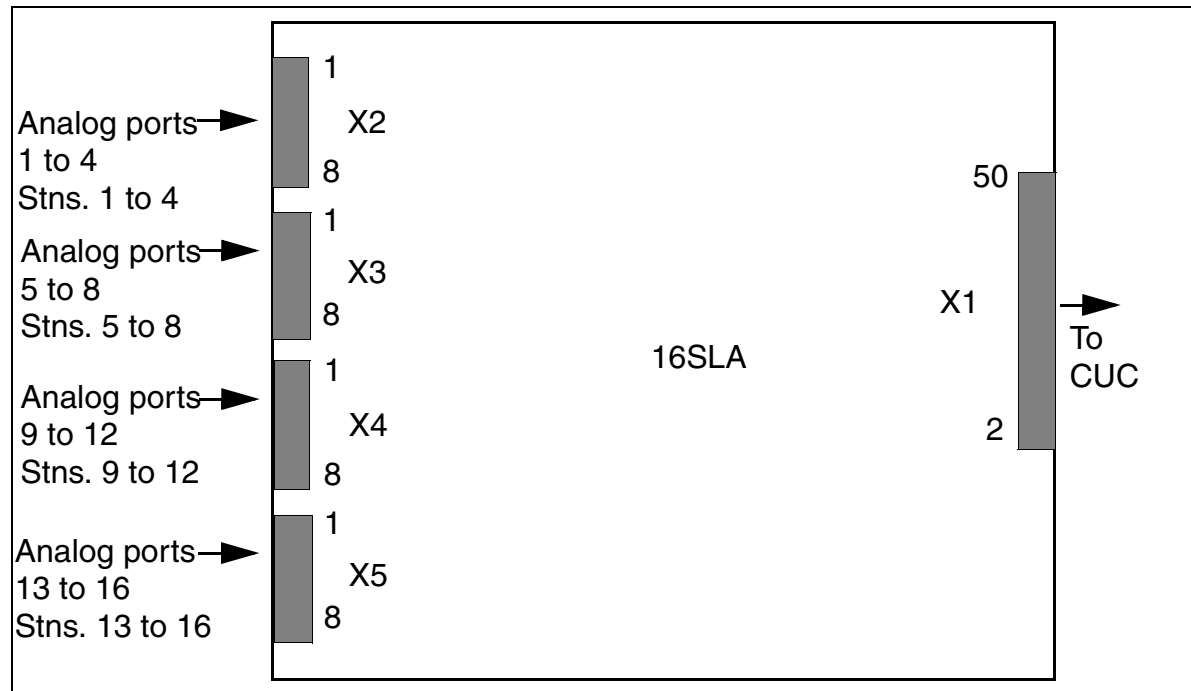


Figure 3-82 16SLA Interfaces (S30810-Q2923-X) (Not for U.S.)

Table 3-77 16SLA Interface Assignments (Not for U.S.)

| Pin | X2<br>(Analog Ports<br>1 to 4) | X3<br>(Analog Ports<br>5 to 8) | X4<br>(Analog Ports<br>9 to 12) | X5<br>(Analog Ports<br>13 to 16) |
|-----|--------------------------------|--------------------------------|---------------------------------|----------------------------------|
| 1   | a 1                            | a 5                            | a 9                             | a 13                             |
| 2   | b 1                            | b 5                            | b 9                             | b 13                             |
| 3   | a 2                            | a 6                            | a 1                             | a 14                             |
| 4   | b 2                            | b 6                            | b 10                            | b 14                             |
| 5   | a 3                            | a 7                            | a 11                            | a 15                             |
| 6   | b 3                            | b 7                            | b 11                            | b 15                             |
| 7   | a 4                            | a 8                            | a 12                            | a 16                             |
| 8   | b 4                            | b 8                            | b 12                            | b 16                             |

## **SLA Module Specifications**

- Maximum supply current: Approximately 34 mA
- Maximum supply voltage: Approximately 40 Vdc
- Ring voltage against negative supply voltage (tip wire/RING):  
Two telephones maximum
- Range, see Section 2.8
- Loop current detection: > 10 mA
- Ground button detection: > 20 mA
- The transmission method can be configured country-specifically (by entering the country code).

## 3.4 Options

### 3.4.1 ALUM4

#### Introduction

In the event that OfficeCom/OfficePoint experiences a voltage drop, voltage dip or unrecoverable system errors, the ALUM module can transfer up to four analog trunks directly to four analog telephones, bypassing the system.

The ALUM4 Module provides power failure transfer for MSI ground-start or loop-start trunks, but ground-start trunks require a physical ground-actuator button.

When the system is deactivated or when an error occurs, the trunks are connected directly to the telephones. When normal operation resumes, the trunks are again routed through the system.

Only analog telephones can be used for the transfer, and they must use the same signaling method as the trunk; otherwise, dialing is not possible.

#### ALUM4 Module Function

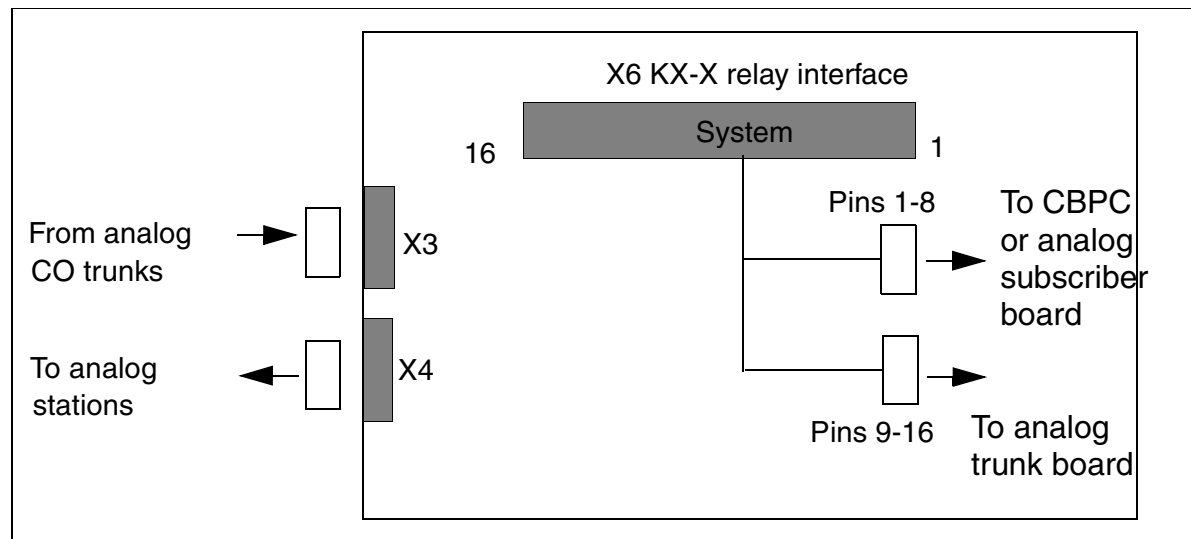


Figure 3-83 ALUM4 Function



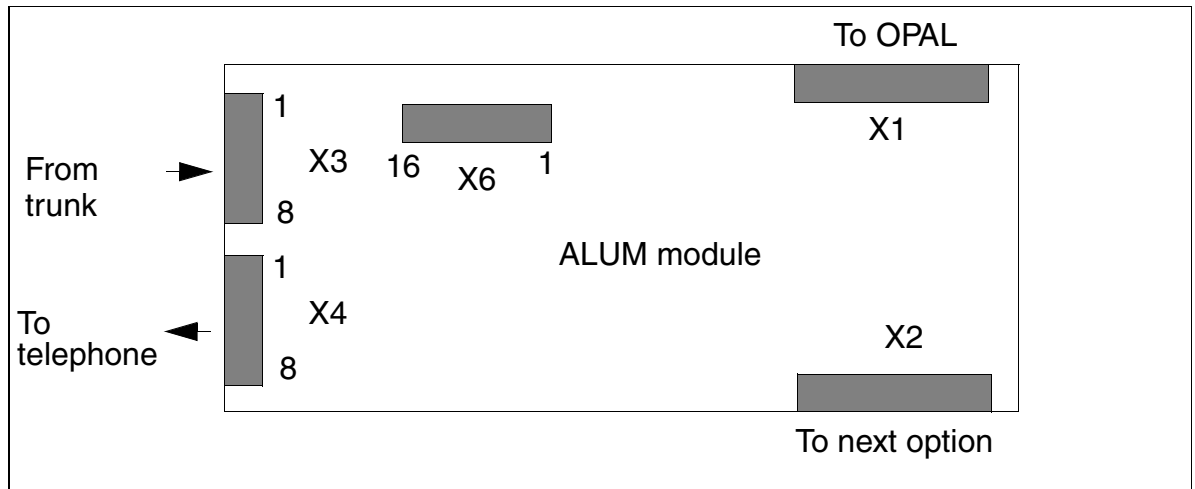
**Interfaces**

Figure 3-84 ALUM4 Interfaces (S30817-Q935-A)



Split the cable from X6 and connect half to the analog trunk board and half to the CBPC analog ports or analog subscriber boards.

**ALUM Module Interface Assignments**

Table 3-78 ALUM4 Interface Assignments (Not for U.S.)

| Pin | Connector X3     | Connector X4   | Connector X6  |
|-----|------------------|----------------|---------------|
| 1   | R1 from trunk 1a | AE1 to Stn. 1a | AT1 to TLA a  |
| 2   | T1 from trunk 1b | BE1 to Stn. 1b | BT1 to TLA b  |
| 3   | R2 from trunk 2a | AE2 to Stn. 2a | AT2 to TLA a  |
| 4   | T2 from trunk 2b | BE2 to Stn. 2b | BT2 to TLA b  |
| 5   | R3 from trunk 3a | AE3 to Stn. 3a | AT3 to TLA a  |
| 6   | T3 from trunk 3b | BE3 to Stn. 3b | BT3 to TLA b  |
| 7   | R4 from trunk 4a | AE4 to Stn. 4a | AT4 to TLA a  |
| 8   | T4 from trunk 4b | BE4 to Stn. 4b | BT4 to TLA b  |
| 9   |                  |                | TA1 to SLA* a |
| 10  |                  |                | TB1 to SLA* b |
| 11  |                  |                | TA2 to SLA* a |

Table 3-78 ALUM4 Interface Assignments (Not for U.S.)

| Pin                        | Connector X3 | Connector X4 | Connector X6  |
|----------------------------|--------------|--------------|---------------|
| 12                         |              |              | TB2 to SLA* b |
| 13                         |              |              | TA3 to SLA* a |
| 14                         |              |              | TB3 to SLA* b |
| 15                         |              |              | TA4 to SLA* a |
| 16                         |              |              | TB4 to SLA* b |
| * = or to free analog port |              |              |               |

Table 3-79 ALUM4 Interface Assignments (for U.S. Only)

| Pin | X3<br>(to MDF) | X4<br>(to MDF) | Y-Cable from X6 to<br>TMGL4 |                   | Y-Cable from X6 to<br>Analog Ports* |                    |
|-----|----------------|----------------|-----------------------------|-------------------|-------------------------------------|--------------------|
|     |                |                | Pin                         | Assignment        | Pin                                 | Assignment         |
| 1   | R from trunk 1 | R to station 1 | 1                           | T to TMGL4 port 1 | 9                                   | T to analog port 1 |
| 2   | T from trunk 1 | T to station 1 | 2                           | R to TMGL4 port 1 | 10                                  | R to analog port 1 |
| 3   | R from trunk 2 | R to station 2 | 3                           | T to TMGL4 port 2 | 11                                  | T to analog port 2 |
| 4   | T from trunk 2 | T to station 2 | 4                           | R to TMGL4 port 2 | 12                                  | R to analog port 2 |
| 5   | R from trunk 3 | R to station 3 | 5                           | T to TMGL4 port 3 | 13                                  | T to analog port 3 |
| 6   | T from trunk 3 | T to station 3 | 6                           | R to TMGL4 port 3 | 14                                  | R to analog port 3 |
| 7   | R from trunk 4 | R to station 4 | 7                           | T to TMGL4 port 4 | 15                                  | T to analog port 4 |
| 8   | T from trunk 4 | T to station 4 | 8                           | R to TMGL4 port 4 | 16                                  | R to analog port 4 |

\* To the analog station ports on the CBPC (recommended) or to four consecutive ports on an 8SLA.

**Note:** Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signal order for X3 and X4 before the MDF.

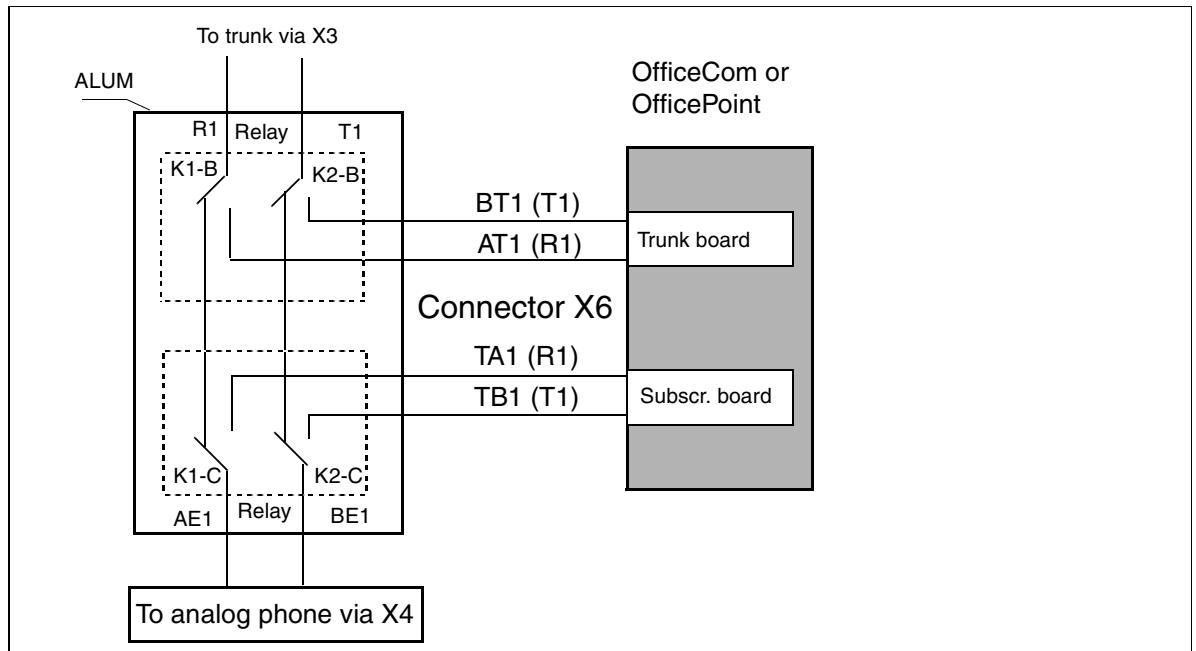
**ALUM4 Module Block Diagram**

Figure 3-85 ALUM4 Circuit in Power Failure Mode

### 3.4.2 ANI4 (for U.S. Only)

#### Introduction

The ANI4 (automatic number identification) module is responsible for receiving station numbers using the CPFSK method, demodulating them, and forwarding them to the Hicom 150 E OfficeCom or OfficePoint base system.

Each ANI4 module can serve four trunks. It contains the external trunk board hardware interfaces (TMGL4) as well as a trunk and options bus interface. It connects to the trunk board (TMGL4), to the trunks, and to the options bus interface, providing the connection between the trunks and the trunk board by means of the system.

#### Requirements for using the ANI4 module

| If                                                 | Then                                         |
|----------------------------------------------------|----------------------------------------------|
| System HW = Release 1.0<br>System SW = Release 1.0 | ANI4 is not supported.                       |
| System HW = Release 1.0<br>System SW = Release 2.2 | ANI4 can be used from Rev 4 of TMGL4 board.  |
| System HW = Release 2.2<br>System SW = Release 2.2 | ANI4 can be used from Rev E1 of TMGL4 board. |

#### Interfaces on the ANI4 Module

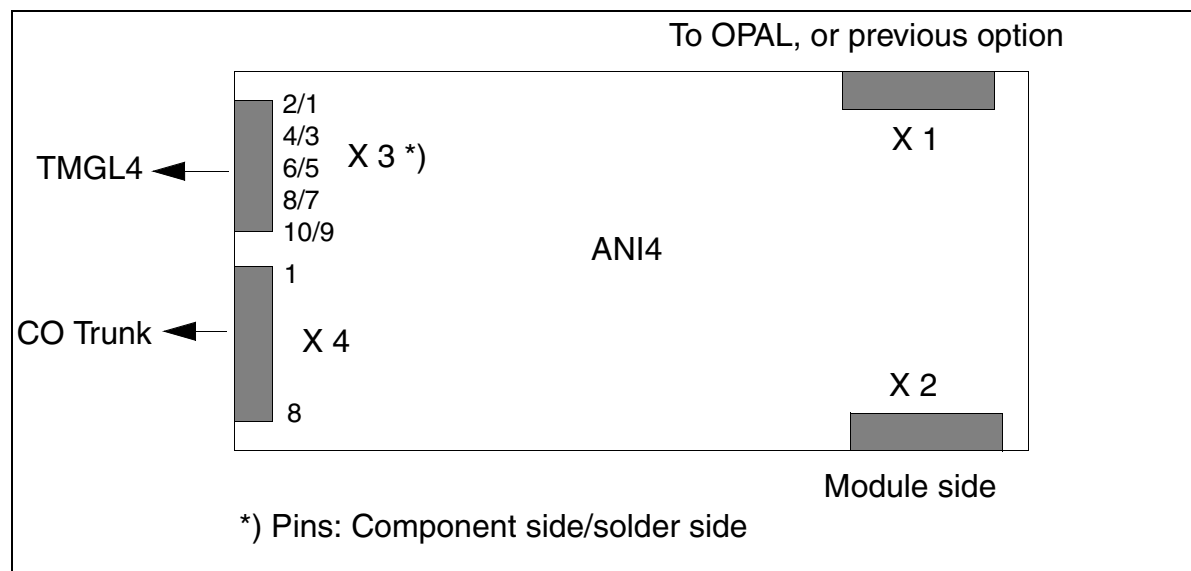


Figure 3-86 ANI4 Interface (S30807-Q6917-Axxx) (for U.S. Only)

**ANI4 Module Contact Assignments**

Table 3-80 ANI4 Pin Assignments (for U.S. Only)

| <b>Pin</b> | <b>Connector X3<br/>Component Side</b> | <b>Connector X3<br/>Solder Side</b> | <b>Connector X4</b> |
|------------|----------------------------------------|-------------------------------------|---------------------|
| 1          | --                                     | Not assigned                        | Tip, trunk 1        |
| 2          | Ring, trunk 1                          | --                                  | Ring, trunk 1       |
| 3          | --                                     | Tip, trunk 1                        | Tip, trunk 2        |
| 4          | Ring, trunk 2                          | --                                  | Ring, trunk 2       |
| 5          | --                                     | Tip, trunk 2                        | Tip, trunk 3        |
| 6          | Ring, trunk 3                          | --                                  | Ring, trunk 3       |
| 7          | --                                     | Tip, trunk 3                        | Tip, trunk 4        |
| 8          | Ring, trunk 4                          | --                                  | Ring, trunk 4       |
| 9          | --                                     | Tip, trunk 4                        |                     |
| 10         | Not used                               | --                                  |                     |

## ANI4 Installation Instructions

Follow the steps below to install ANI4 in the OfficeCom or OfficePoint system.



### Caution

Remove the trunk slip-on connectors from the TMGL4 board before starting to work on the system.  
Be sure to reinstall the ANI4 and TMGL4 boards in their slots before reconnecting the trunks.

1. Disconnect the trunks from the TMGL4 board (Figure 3-87, fig. 1).
2. Unplug the system from the power supply.
3. Install the ANI4 board in the system.
4. Connect the OPAL adapter cable to the ANI4 board.
5. Use the ribbon cable supplied with the board to connect the ANI4 to the TMGL4, making sure that the color markings (Pin 1) at both ends of the cable are facing up (Figure 3-87, fig. 2).
6. Connect the trunk slip-on connectors to the ANI4 board (Figure 3-87, fig. 3).
7. Restart the system by reconnecting the power plug.

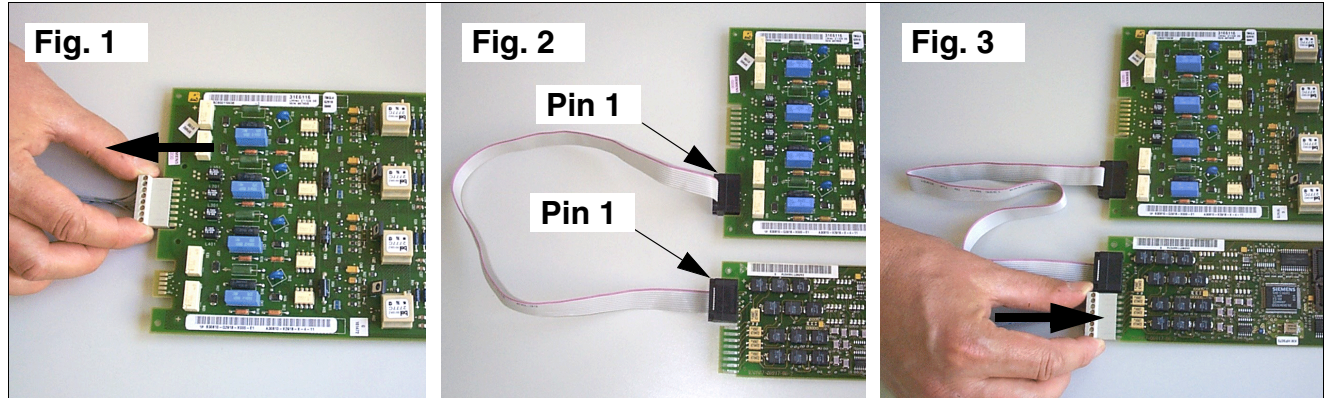


Figure 3-87 ANI4 - Installation Steps

### 3.4.3 Announcement and Music Modules

#### Introduction

The OfficeCom, OfficePoint, OfficeOne, and OfficeStart systems use different modules or boards for playing announcements and music on hold. For details on connecting these boards, refer to the manufacturer's installation instructions.

Table 3-81 Announcement and Music Modules

| Board | Part Number       | Used for               |
|-------|-------------------|------------------------|
| EXM   | S30817-Q902-Bxxx  | OfficeCom, OfficePoint |
| UAM   | S30122-X7217-X    | OfficeCom, OfficePoint |
| AM    | S30122-X7217-X100 | OfficeOne, OfficeStart |
| MPPI  | S30122-X7275-X    | OfficeOne, OfficeStart |
| MPPI  | S30122-K5380-X200 | OfficeCom, OfficePoint |

#### Slots

- The AM and MPPI modules plug directly onto the motherboard.
- The UAM option board connects to the options bus.
- The EXM module connects directly to the X4 port on the CBPC using a cable.

All announcement and music modules are identified by expert mode codes 29-31 (formerly Hicom Assistant T).

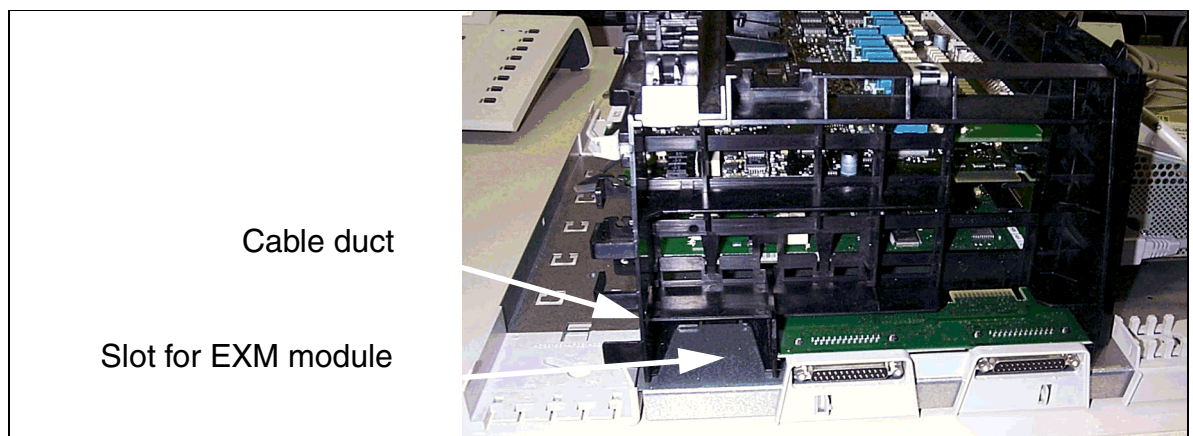


Figure 3-88 EXM Slot for OfficeCom/OfficePoint (Not for U.S.)

### 3.4.4 EXMNA (for U.S. Only)

#### Introduction

The EXMNA (external music on hold) module provides a connection for external music on hold in OfficeCom and OfficePoint.

The EXMNA connects to the CBPC board (connector X4) by means of a ribbon cable.

- Ribbon cable connected = External music
- Ribbon cable not connected = Internal music

Expert mode code 22 11 allows you to choose between music on, music off, ring tone, or music on unscreened transfer. If the EXMNA module is connected, you must select Music on using Hicom Assistant E or Hicom Assistant T. The module is operational as soon as it is plugged in.

#### Interfaces

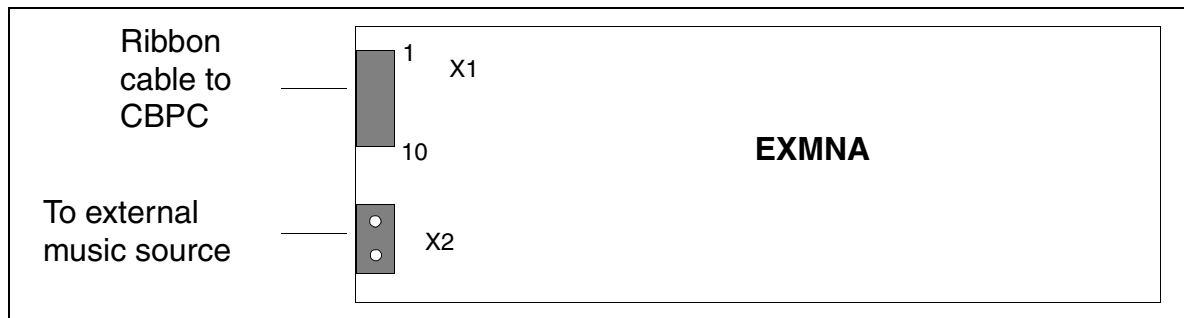


Figure 3-89 EXMNA Interfaces (S30807-Q6923-x-1) (for U.S. Only)

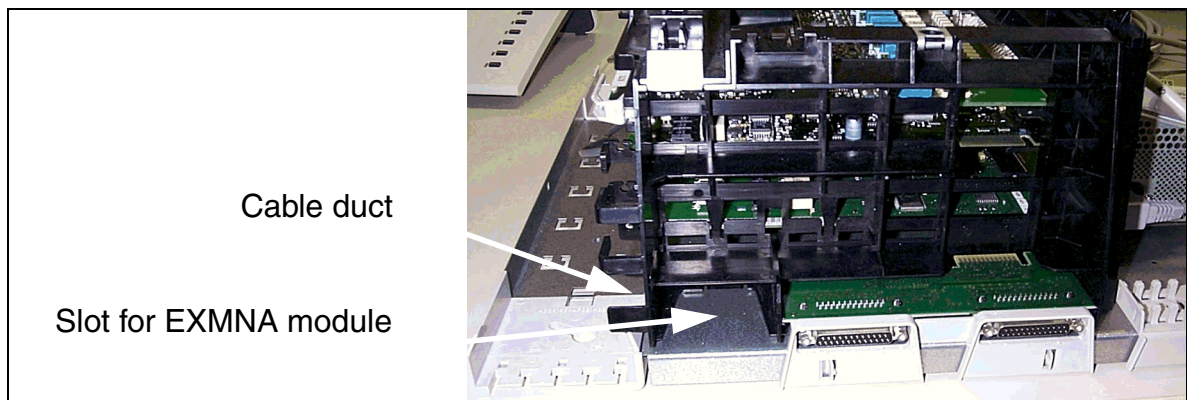


Figure 3-90 EXMNA Slot for OfficeCom/OfficePoint (for U.S. Only)



Table 3-82 EXMNA Interface Assignments (for U.S. Only)

| <b>Pin</b> | <b>Connector X1</b> | <b>Connector X2</b> |
|------------|---------------------|---------------------|
| 1          | GND                 | Input               |
| 2          | Not assigned        | Input               |
| 3          | Not assigned        | Not assigned        |
| 4          | EXMCL               | Not assigned        |
| 5          | EXMDIR              |                     |
| 6          | HRES                |                     |
| 7          | EXMD                |                     |
| 8          | EXMDET              |                     |
| 9          | +5 V                |                     |
| 10         | Not assigned        |                     |

### 3.4.5 Com Server Adapter (not for U.S.)

#### Introduction

The Com Server Adapter provides an Ethernet (10BaseT/10 MB) interface for OfficePro. You can use Ethernet for TCP/IP-compatible administration over a LAN or WAN.

A local power supply that comes with the unit connects the adapter to the power source.

Refer to [Chapter 13](#) for information on SNMP as well as the CSTA over IP and CDRC over IP features.

#### Interfaces

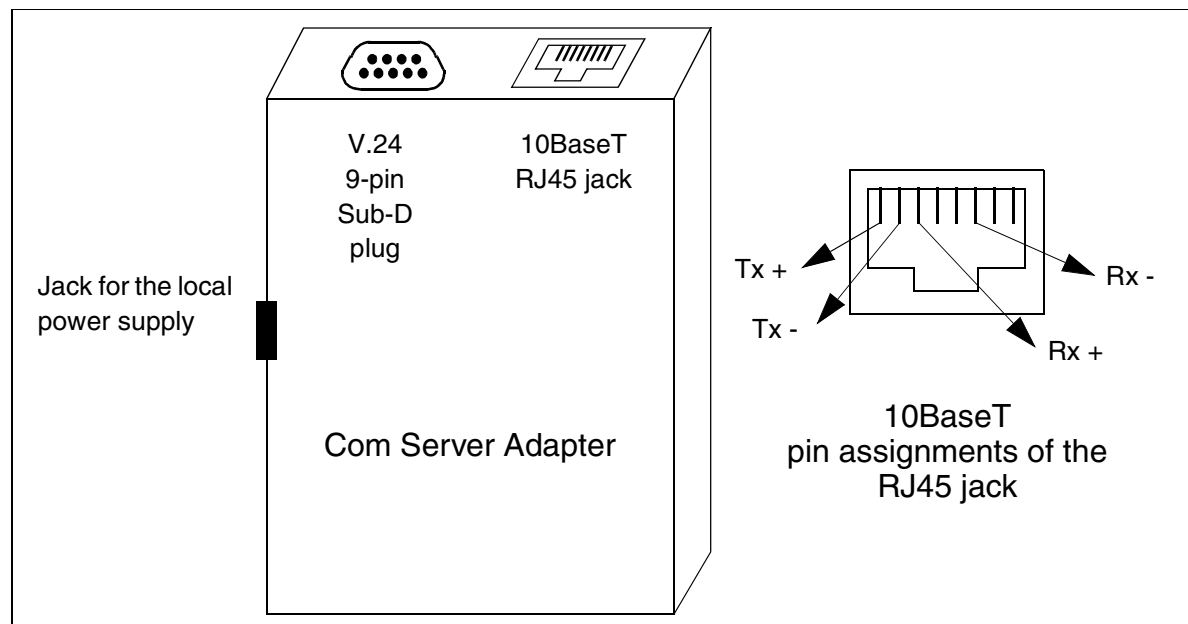


Figure 3-91 Com Server-Adapter (WIS:58211)

#### Connection to the V.24 Interface

The Com Server Adapter always connects to the V.24 interface on the front of the CB-MOD board. Feed the ribbon cable (order number C39195-Z7267-C13) that comes with the unit through the lower metal grill at the back of the Com Server Adapter.

Always use a cable strap to attach the Com Server Adapter to the ventilation grill of the metal backplane.

### 3.4.6 GEE8 (Not for U.S.)

#### Introduction

In Hicom 150 E OfficePro, the GEE8 module (12/16 kHz) can be plugged into the TML8W board to record call charge pulses. Interfaces X10 and X11 connect to the board.

#### Switch for Setting the Level per Circuit

- On = – 24 dBm
- Off = – 10 dBm

#### Switch on GEE8

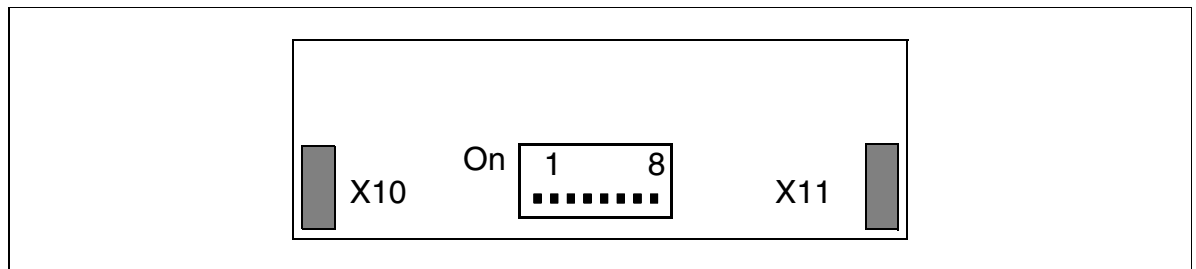


Figure 3-92 GEE8 (S30817-Q664-xxxx) (Not for U.S.)

### 3.4.7 GEE12, GEE16, and GEE50 (Not for U.S.)

#### Introduction

Each of the modules listed below supports four call-metering receiving units for recording and preprocessing call charge pulses in OfficeCom and OfficePoint.

Table 3-83 GEE12, GEE16, and GEE50 Modules (Not for U.S.)

| Module | Frequency | Remarks                  |
|--------|-----------|--------------------------|
| GEE 12 | 12 kHz    | also for Silent Reversal |
| GEE 16 | 16 kHz    |                          |
| GEE 50 | 50 Hz     |                          |

The call charge detection channel is looped in the trunk and then routed to the TLA

#### Interfaces

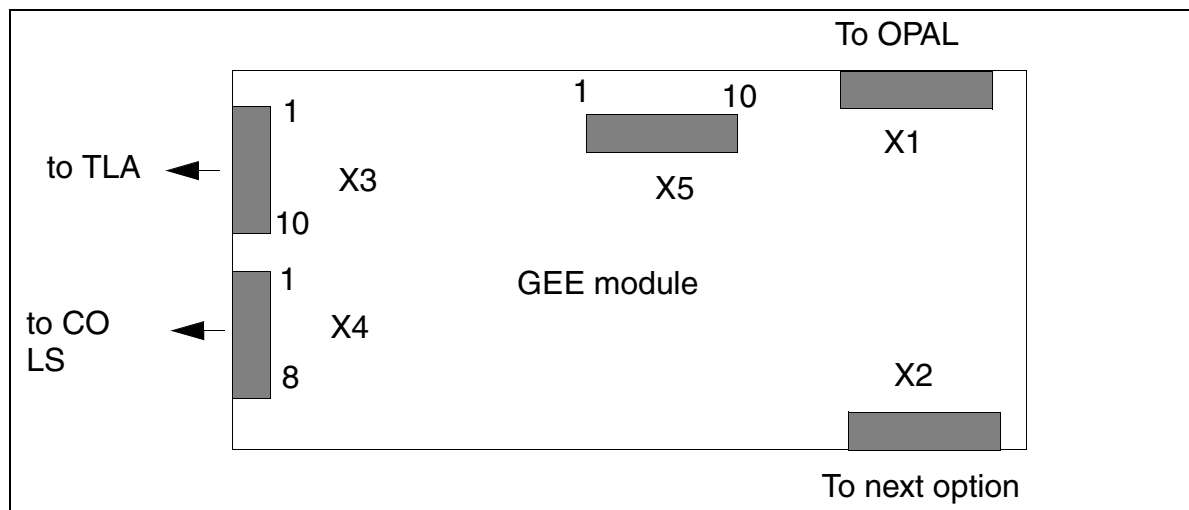


Figure 3-93 GEE12, GEE16, and GEE50 Interfaces (S30817-Q951-Mxxx)

**Contact Assignments**

Table 3-84 GEE12, GEE16, and GEE50 Interface Assignments (Not for U.S.)

| Pin                                    |   | Connector X3                    | Conn. X4   | Conn. X5 |
|----------------------------------------|---|---------------------------------|------------|----------|
| 1                                      | a | GND *                           | CO 1 (AL1) | 0V       |
| 2                                      | b | CO 1 (BN 1)                     | CO 1 (BL1) | 0V       |
| 3                                      | a | CO 1 (AN 1)                     | CO 2 (AL2) | RTS      |
| 4                                      | b | CO 2 (BN 2)                     | CO 2 (BL2) | CTS      |
| 5                                      | a | CO 2 (AN 2)                     | CO 3 (AL3) | RXD      |
| 6                                      | b | CO 3 (BN 3)                     | CO 3 (BL3) | TXD      |
| 7                                      | a | CO 3 (AN 3)                     | CO 4 (AL4) | 0V       |
| 8                                      | b | CO 4 (BN 4)                     | CO 4 (BL4) | +5V      |
| 9                                      | a | CO 4 (AN 4)                     |            | 0V       |
| 10                                     |   | Call charging module assignment |            | +5V      |
| * for GEE 50 in France; otherwise free |   |                                 |            |          |

## 3.4.8 HOPE Board

### Introduction

The HOPE (Hicom Office PhoneMail Entry) board provides Hicom Office PhoneMail Entry voicemail system functions.

**Caution:** The HOPE board does not identify itself to the system and is therefore not visible in the Assistant E card map. When expanding a system (such as OfficePoint and OfficeCom), ensure that a free slot is indeed available.

### Interfaces

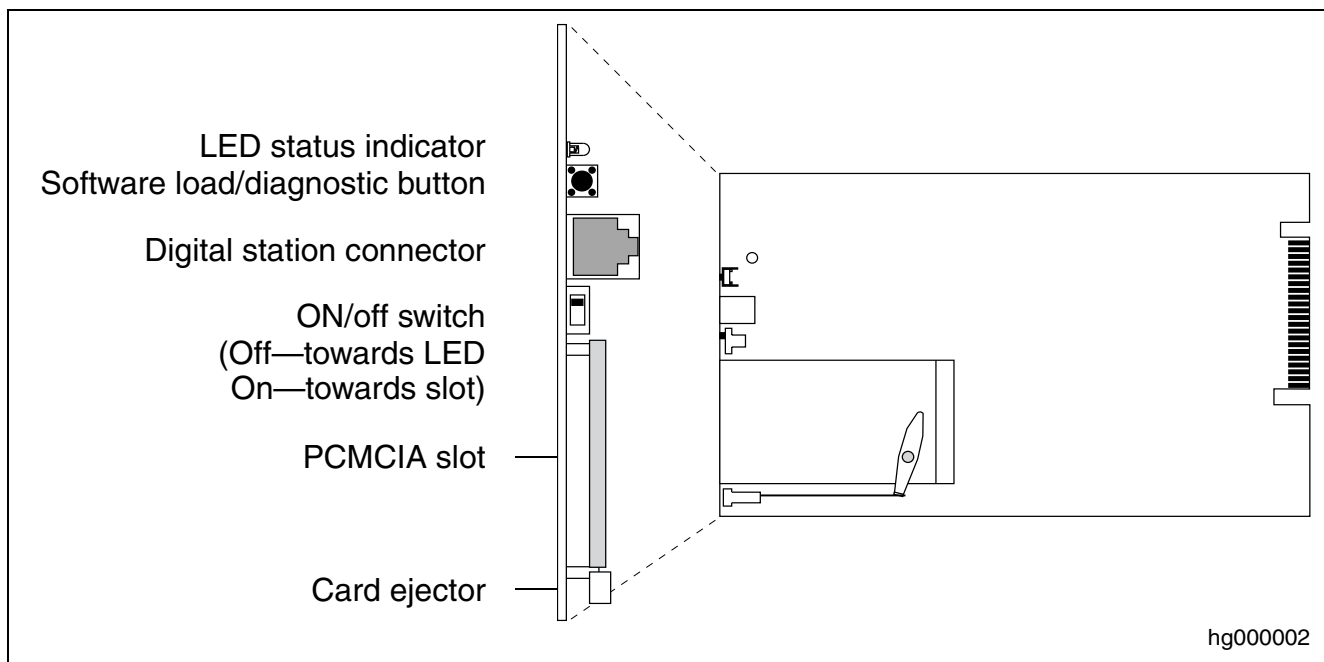


Figure 3-94 HOPE Board (S30122-Q7078-X; S30122-Q7079-X—in U.S.)

### Board Components

The following list describes the purpose of the components on the HOPE board:

- The LED status indicator signals the state of the Hicom Office PhoneMail system
- The software load/diagnostic button is for software loads (for example, loading a language)
- The digital station connector connects the HOPE board to the corresponding digital ports, using a modular cable
- The on/off switch turns Office PhoneMail on and off

- The PCMCIA slot is for Office PhoneMail software cards (for example, language cards)
- The card ejector ejects the software cards from the PMCIA slot

### **Installation, Servicing, and Connectivity (for U.S. Only)**

For information on installing, connecting, and servicing the HOPE board, refer to the manual Installation and System Administration Guide, Hicom Office PhoneMail Entry part number G281-0561-00. This book is shipped with every Hicom Office PhoneMail Entry unit.

### 3.4.9 OPAL

#### Introduction

The OPAL (C39195-A7001-B130) options adapter (long) connects the CBPC to the first option board in OfficeCom and OfficePoint.

#### Interfaces

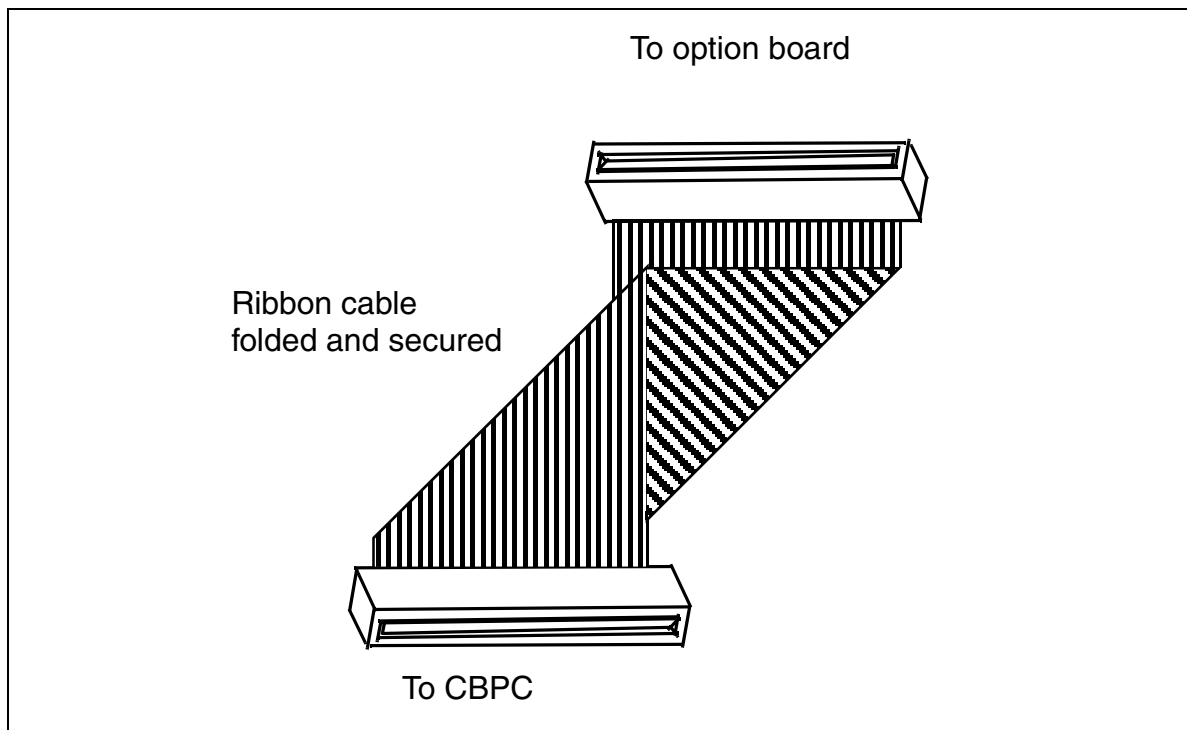


Figure 3-95 OPAL (B132/B130)



### 3.4.10 PFT1 and PFT4 (Not for U.S.)

#### Introduction

In the event of a power failure or system error in Hicom 150 E OfficePro, up to

- 1 analog trunk with a PFT1 (trunk failure transfer) board
- 4 analog trunks with a PFT4 board

can be transferred (ALUM) to designated analog telephones (Figure 3-96). When using an analog telephone for outgoing calls, you may need to adapt its signaling method to match the signaling method of the connected trunk..

#### Trunk Failure Transfer Using PFT1 or PFT4

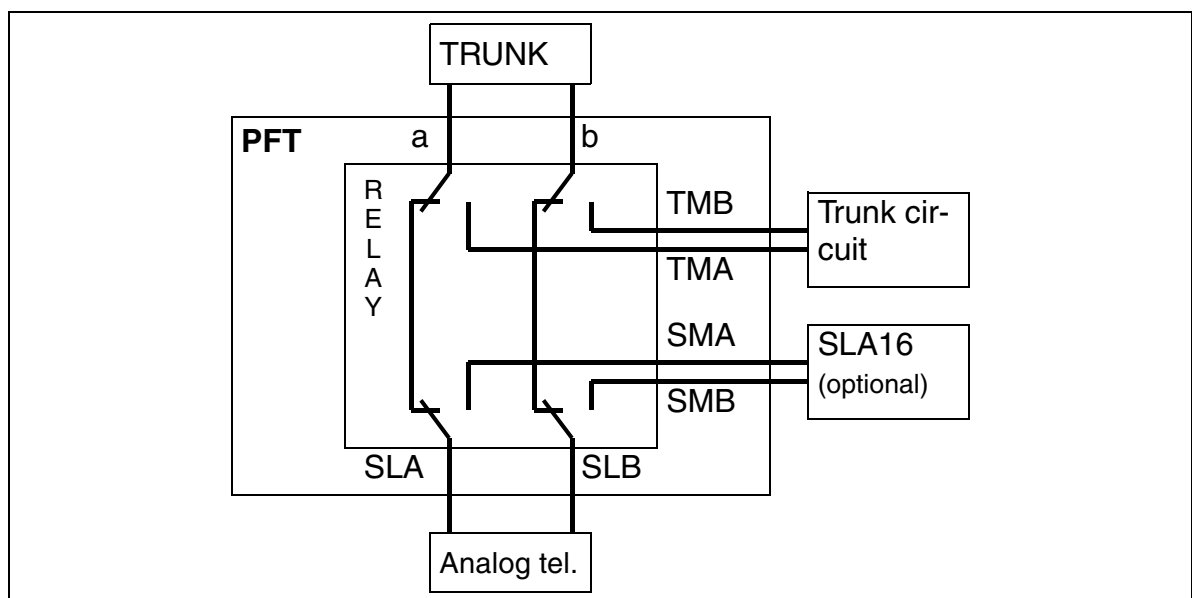


Figure 3-96 Trunk Failure Transfer Using PFT1/PFT4 (Not for U.S.)

### Installation Location of the PFT1 or PFT4 Board (MDFU or MDFU-E)

Wire PFT1 or PFT4 into the MDFU or MDFU-E. The boards require -48 V. For the assignments of both boards, see [Figure 3-98](#).

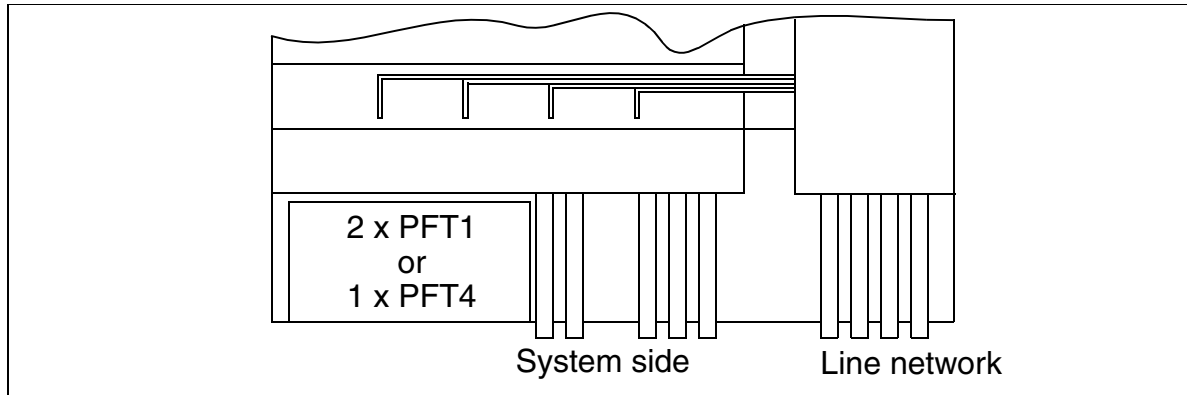


Figure 3-97 Installation Location of PFT1 and PFT4 (MDFU or MDFU-E) (Not for U.S.)

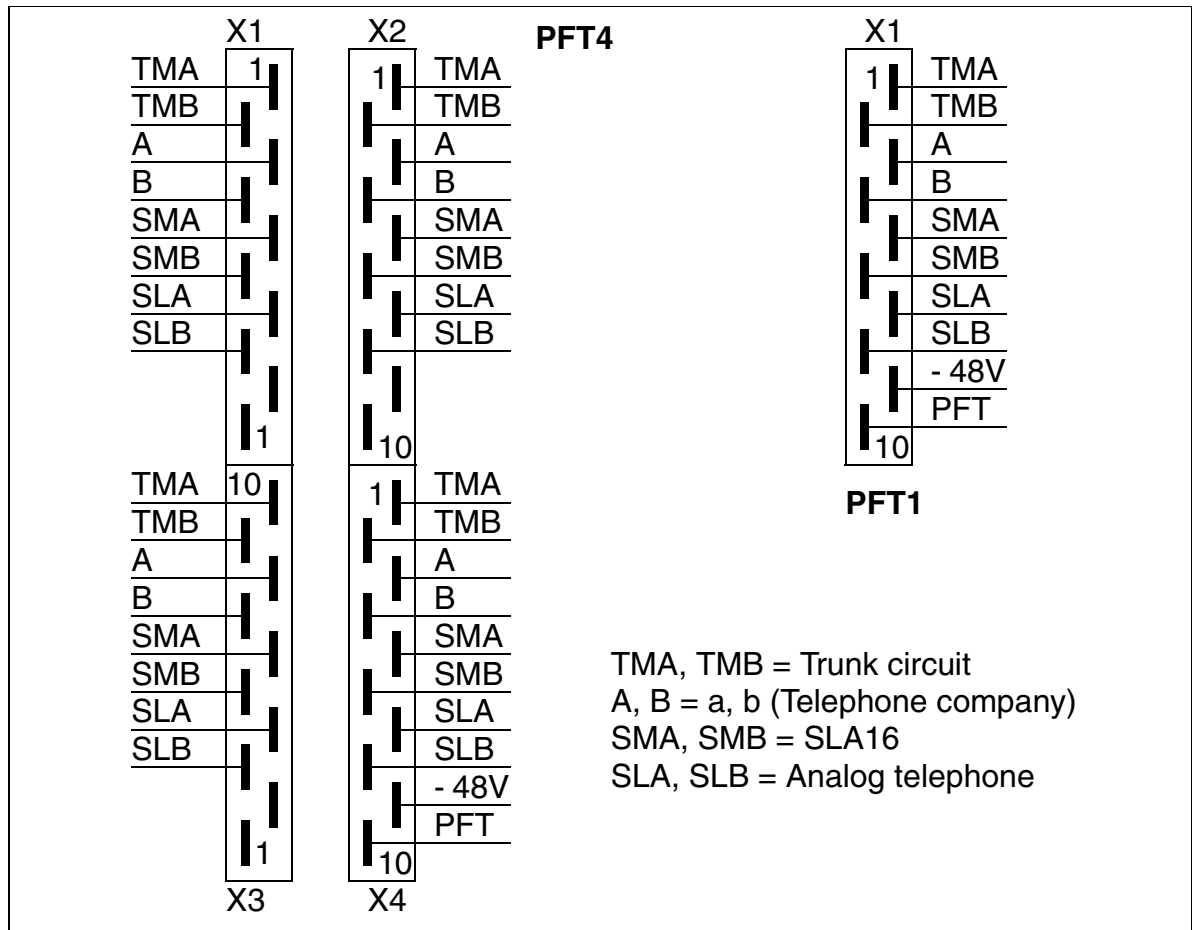
**PFT1 and PFT4 Board Assignment**

Figure 3-98 PFT1 (S30777-Q539-X) and PFT4 (S30777-Q540-X) Board Assignment (Not for U.S.)

### 3.4.11 REAL

#### Functions

The tasks of the REAL (S30807-Q5913-X) board in Hicom 150 E OfficePro are divided into two functional areas (see [Figure 3-102](#)):

- **Relay**

Four individual, controllable relays (K1 to K4) are available for special connections. The relays are energized by the CBMOD board via the REAL socket X05 connecting cable. The switch contacts for all relays are floating and protected by surge protectors.

In addition, a -48 V line protected by positive-temperature-coefficient resistors is routed to the main distribution frame and can be used there for external applications (80 mA maximum).

- **Trunk failure transfer**

This function is provided by two relays (K5, K6) with two switch contacts each. In the event of a power failure or a system restart or reload, an analog trunk is transferred from the system to an analog telephone. The system monitors the line's loop current to avoid disconnecting any trunk calls in progress when the power is restored.

In normal mode, the relays are activated:

- The trunk is connected to the line trunk module.
- The subscriber line is connected to the SLA16 subscriber line module.

In the event of a power failure or during a restart or reload (low potential of trunk failure transfer signal from CBMOD), the relays are deactivated:

- As a result, the signals to the line trunk module and subscriber line module are split and the trunk is connected directly to the subscriber line. (This is the way you must wire the connections as well).

If the power supply voltage returns after an interruption and a trunk call is in progress, activation of the trunk failure transfer relay is prevented (by optocoupler).

## Relay Specifications

The electrical characteristics of the relays are as follows:

- Operating voltage: 12 Vdc
- Trunk failure transfer power consumption: 40 mA at 12 V nominal voltage
- Power consumption per relay: 20 mA at 12 V nominal voltage
- Trunk failure transfer contact load: 60 mA at -60 V nominal voltage
- Maximum trunk failure transfer contact load with atmospheric influence: 8 A
- Contact load for relays K1 to K4: 1 A at 250 V AC
- Maximum current drain at -48 VF: 80 mA

## Installation of the REAL Board (Backplane)

The REAL board is connected to the backplane (basic cabinet only) via a ribbon cable (X05) and to the main distribution frame.

Outside the U.S.: via an SU cable connector (X06, [Figure 3-99](#)).

In the U.S.: via a 25-pair cable connector (X8 REAL MDF, [Figure 3-100](#))

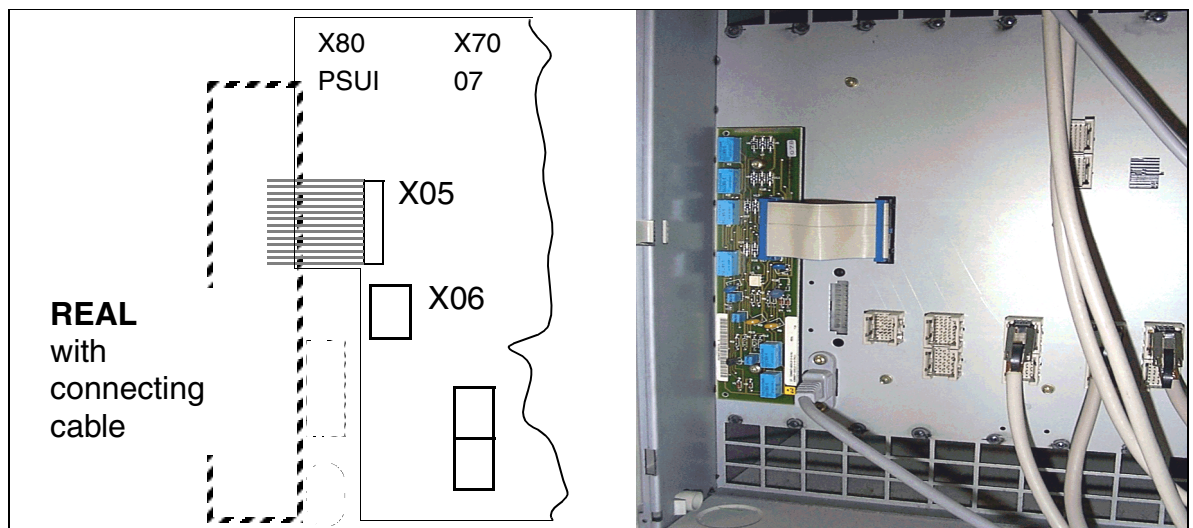


Figure 3-99 Installation Location of the REAL Board (Not for U.S.)

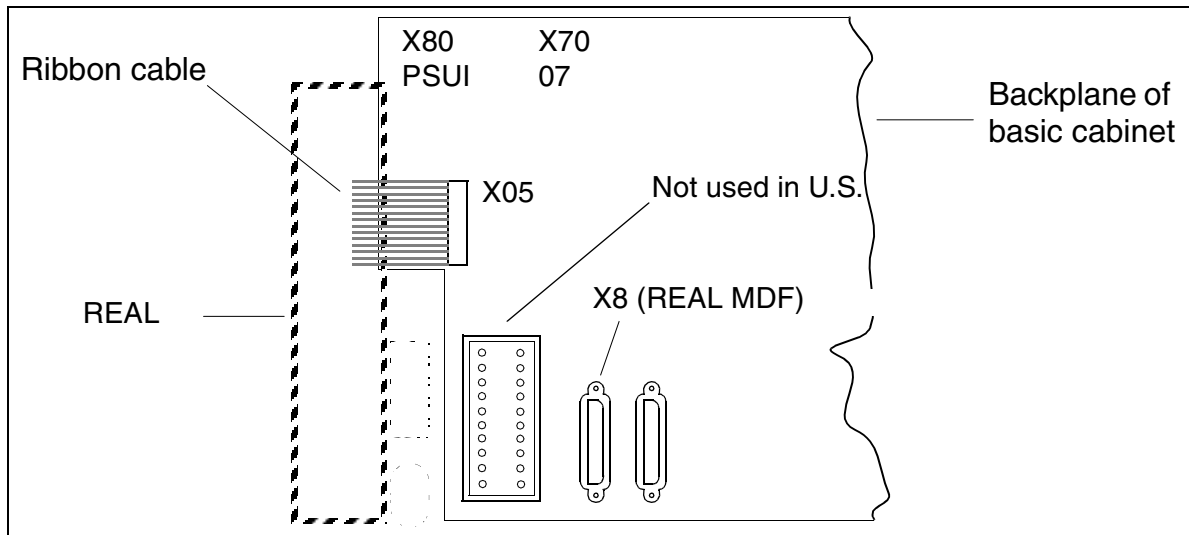


Figure 3-100 Installation Location of the REAL Board (for U.S. Only)

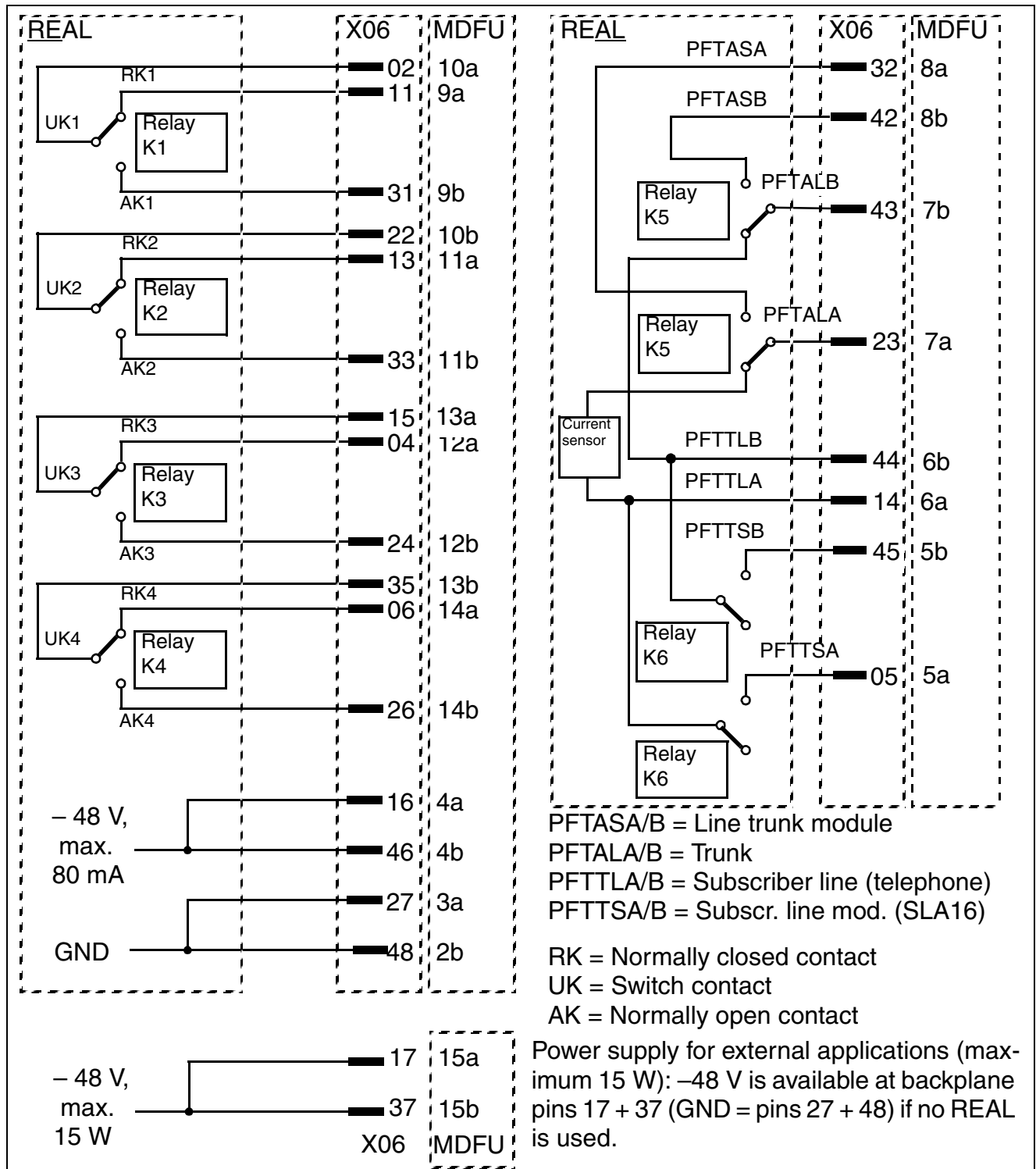
**Relay Contacts of the REAL Board (Not for U.S.)**

Figure 3-101 Relay Contacts (De-Energized) and MDFU Interfaces (Not for U.S.)

**REAL Module Relay Contacts (Backplane and MDF) (for U.S. Only)**

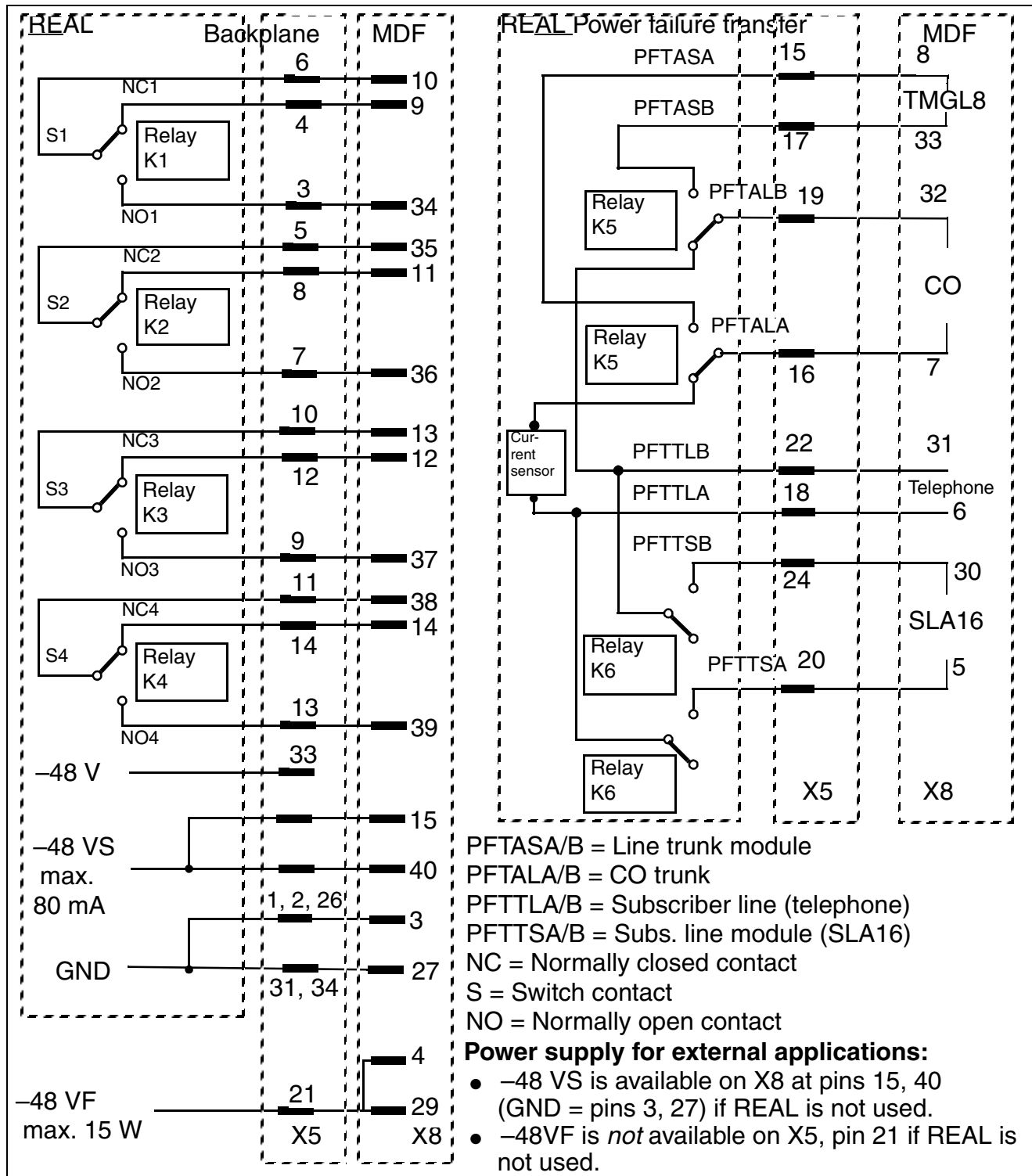


Figure 3-102 Relay Contacts (De-Energized: Power-Failure Mode) (for U.S. Only)



### 3.4.12 STBG4 (For France Only)

This current limiting board is for connecting loop start trunks in France. It includes the current limiting components and surge protection elements required by law.

No options bus lines are needed.

The slot X3 wiring is polarized.

The STBG4 channel is looped between TLA and the trunk.

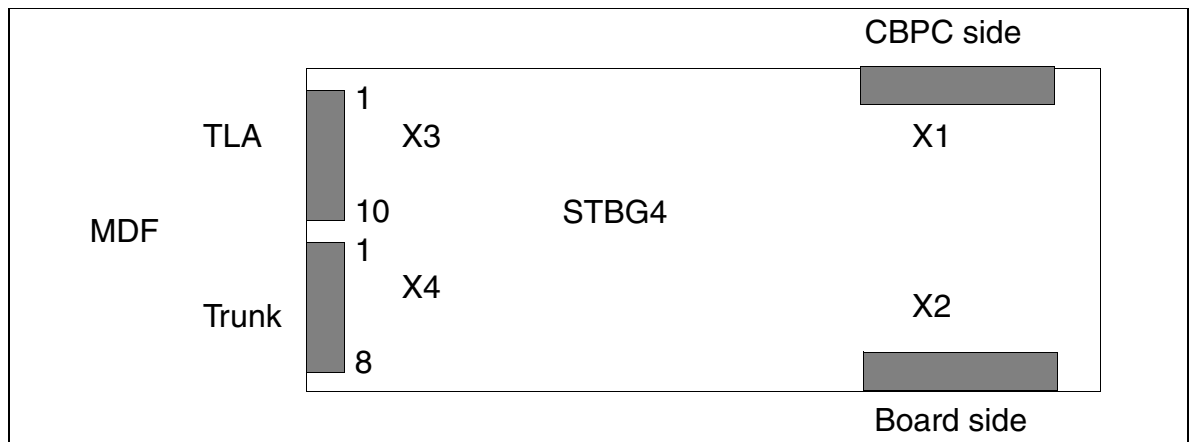


Figure 3-103 STBG4 interfaces (S30817-Q934-A)

Table 3-85 STBG4 Contact Assignments

| Contact | Connector X3 | Connector X4 |
|---------|--------------|--------------|
| 1       | Not assigned | AL 1         |
| 2       | BL 1         | BL 1         |
| 3       | AN 1         | AL 2         |
| 4       | BL 2         | BL 2         |
| 5       | AN 2         | AL 3         |
| 6       | BL 3         | BL 3         |
| 7       | AN 3         | AL 4         |
| 8       | BL 4         | BL 4         |
| 9       | AN 4         |              |
| 10      | Not assigned |              |

### 3.4.13 STRB

#### Introduction

In the OfficeCom and OfficePoint, the STRB control relay board connects actuators and sensors for monitoring, alerting, and controlling in OfficeCom and OfficePoint.

Actuators are relays that can be energized from any station by means of a code (such as a door opener). Sensors (such as thermostats or motion detectors) can detect a change of status in the connected equipment and activate a feature or dial a station number stored in the system. The STRB has four double-pole, double-throw relays as shown in Figure 3-105 on page 3-212.

The board has a total of 4 outputs (in the form of 2 floating switch contacts each) for externally activating an electrically isolated normally open (NO) contact. It also has 4 control inputs in the form of optocouplers. A diode is required to isolate the contact from the external power supply.



#### **Caution**

CDBase data is stored on the board. When replacing the board, be sure to store the CDBase data elsewhere. If a used board is used, old data may still be present on the board.

Only factory technicians should use the *Reset options* procedure (code 29-3-3 in expert mode). Using the procedure during operation returns all options to their factory defaults, and they must be reset before they can accept data again from the CBPC.

#### Application

You can route the +12 V signal for power failure alert to the control input of the optocoupler for connector X4 or X6. Route the signal through a normally open (NO) contact that is electrically isolated from the external device, then program the alert type.

For safety, the control voltage for the optocoupler is electrically isolated from the system's other partial voltages.

For the manual relay on/off function and door opener, you must enter the desired switching time (expert mode code 26 2).

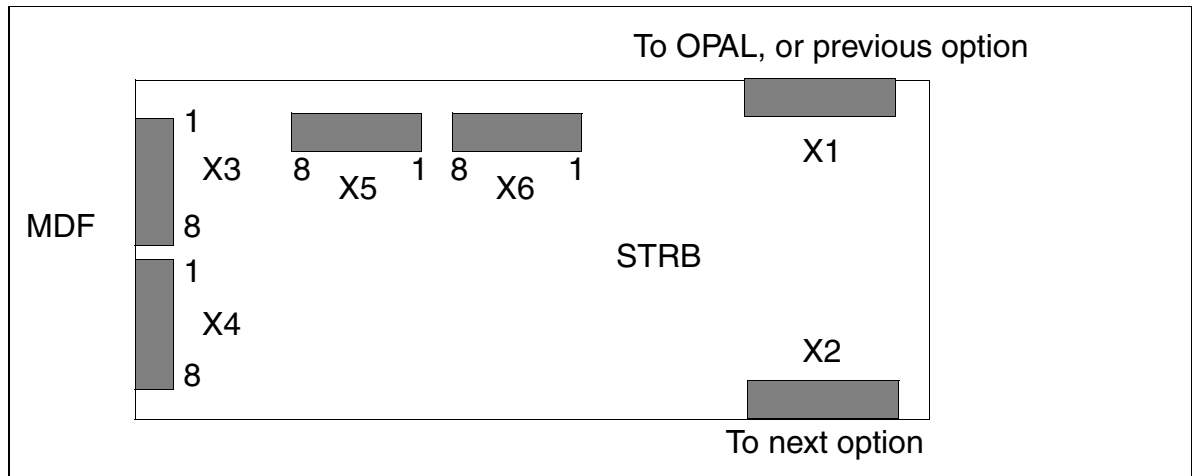
**Interfaces**

Figure 3-104 STRB Interfaces (S30817-Q932-M)

**Control Relay Connection Values****Attention**

The STRB interface is a SELV (**S**afety **E**xtra-**L**ow **V**oltage Circuit) interface, as defined by IEC 60950.

Do not connect any circuits whose voltages exceed the following limit values:

Maximum of 30 VAC (42 V<sub>peak</sub>) or 60 VDC.

## STRB Board Relay and Sensor Functions

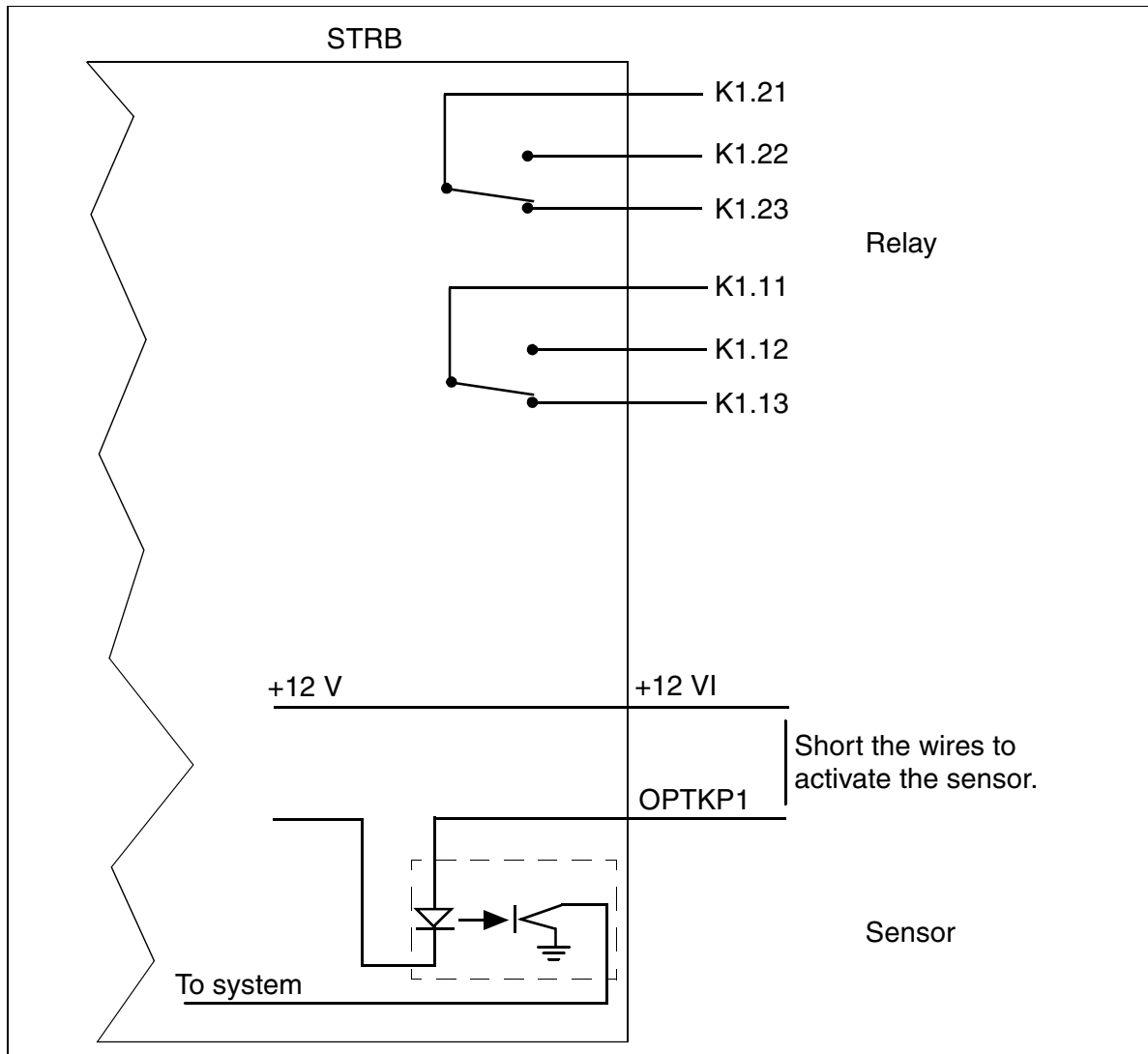


Figure 3-105 STRB Board Relay and Sensor Functions

**Interface Assignments**

Table 3-86 STRB Board Interface Assignments (Sheet 1 of 2)

| Connector | Pin | Signal Name | Function                             |
|-----------|-----|-------------|--------------------------------------|
| X3        | 1   | K 4.21      | Relay contact (common)               |
|           | 2   | K 4.22      | Relay contact (NO)                   |
|           | 3   | K 4.23      | Relay contact (NC)                   |
|           | 4   | K 3.21      | Relay contact (common)               |
|           | 5   | K 3.22      | Relay contact (NO)                   |
|           | 6   | K 3.23      | Relay contact (NC)                   |
|           | 7   | K 2.21      | Relay contact (common)               |
|           | 8   | K 2.22      | Relay contact (NO)                   |
|           |     |             |                                      |
| X4        | 1   | K 2.23      | Relay contact (NC)                   |
|           | 2   | K 1.21      | Relay contact (common)               |
|           | 3   | K 1.22      | Relay contact (NO)                   |
|           | 4   | K 1.23      | Relay contact (NC)                   |
|           | 5   | +12VI       | +12 V control voltage<br>optocoupler |
|           | 6   | OPTKP 2     | Control input optocoupler 2          |
|           | 7   | +12VI       | +12 V control voltage<br>optocoupler |
|           | 8   | OPTKP 1     | Control input optocoupler 1          |

**Note for U.S. only:** Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signals from pins:

- 1 and 2
- 3 and 4
- 5 and 6
- 7 and 8

Table 3-86 STRB Board Interface Assignments (Sheet 2 of 2)

| Connector | Pin | Signal Name | Function                         |
|-----------|-----|-------------|----------------------------------|
| X5        | 1   | K 3.12      | Relay contact (NO)               |
|           | 2   | K 3.13      | Relay contact (NC)               |
|           | 3   | K 2.11      | Relay contact (common)           |
|           | 4   | K 2.12      | Relay contact (NO)               |
|           | 5   | K 2.13      | Relay contact (NC)               |
|           | 6   | K 1.11      | Relay contact (common)           |
|           | 7   | K 1.12      | Relay contact (NO)               |
|           | 8   | K 1.13      | Relay contact (NC)               |
|           |     |             |                                  |
| X6        | 1   | OPTKP 3     | Control input optocoupler 3      |
|           | 2   | +12VI       | +12V control voltage optocoupler |
|           | 3   | OPTKP 4     | Control input optocoupler 4      |
|           | 4   | +12VI       | +12V control voltage optocoupler |
|           | 5   | K 4.11      | Relay contact (common)           |
|           | 6   | K 4.12      | Relay contact (NO)               |
|           | 7   | K 4.13      | Relay contact (NC)               |
|           | 8   | K 3.11      | Relay contact (common)           |

**Note for U.S. only:** Pinouts shown are at the board itself. The supplied main distribution frame cable (MDF cable) reverses the signals from pins:

- 1 and 2
- 3 and 4
- 5 and 6
- 7 and 8

### 3.4.14 V24/1 (Not for U.S.) and V24/2

#### Introduction

In OfficeCom OfficePoint, the V24/2 module provides two serial V.24 (RS-232) interfaces for connecting a PC, a printer, or Plus Products (such as Uniform Call Distribution).

The V24/1 (not for U.S.) is an underequipped version with only one V.24 (RS-232) interface.

#### Interfaces

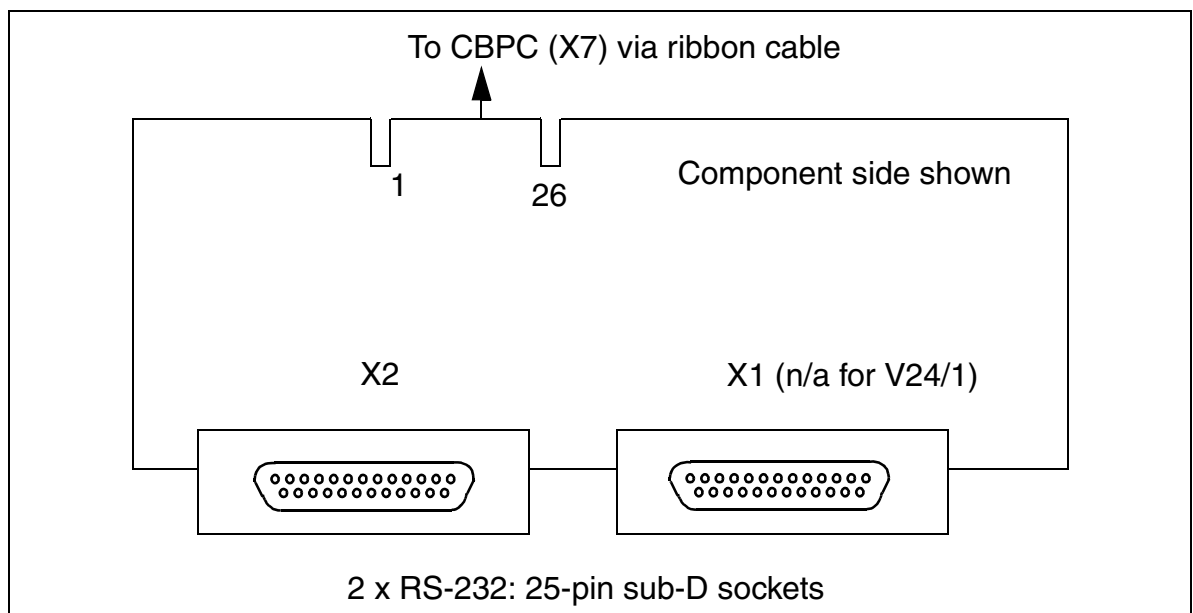


Figure 3-106 V24 Interfaces (S30807-Q6916-Xxxx)

**Note:** We recommend setting up call detail recording central (CDRC) on interface X2 of OfficeCom and OfficePoint (software configuration required) if a V24/2 module is installed.

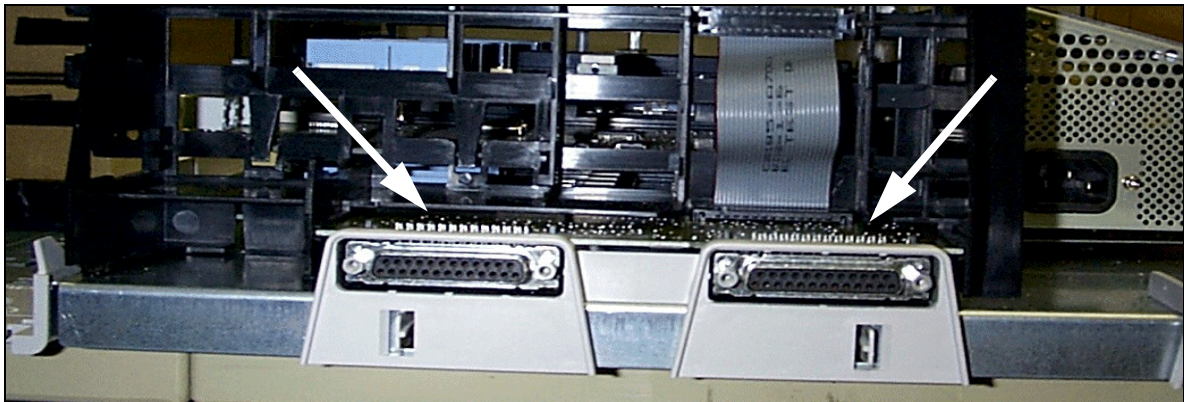


Figure 3-107 OfficeCom/OfficePoint - V.24 connections

**Connector Assignment**

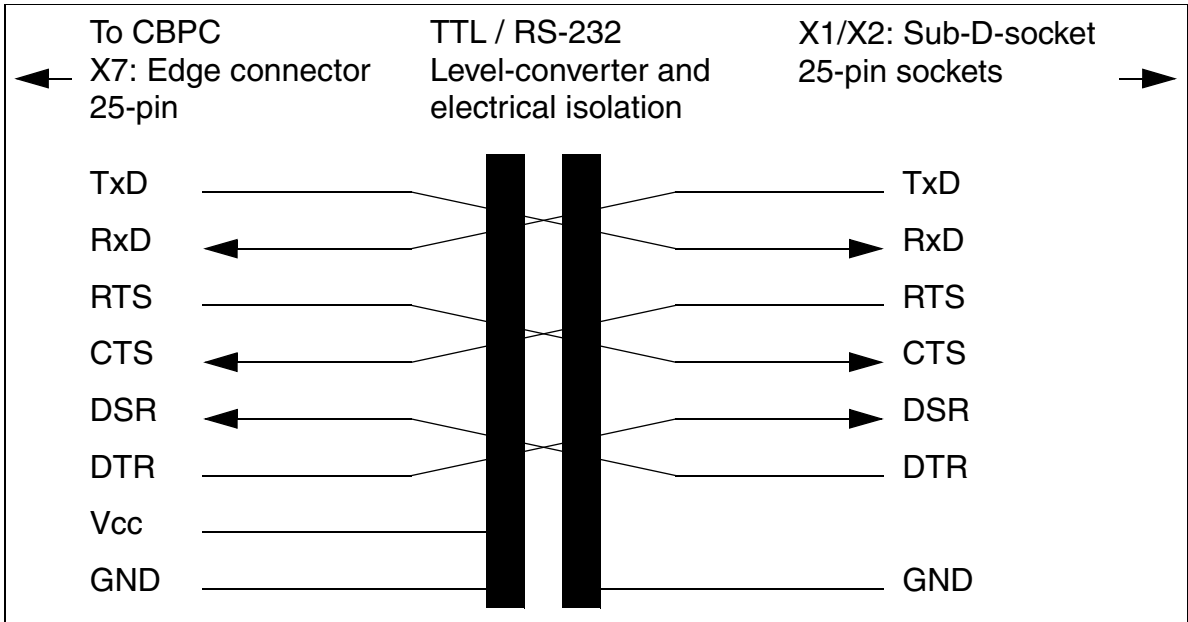


Figure 3-108 V.24 (RS-232) Contact Assignments, OfficeCom and OfficePoint



Table 3-87 Pin Assignments of the V.24 Sockets

| Connector X1                                    | Signal | I/O |  | Connector X2 | Signal | I/O |
|-------------------------------------------------|--------|-----|--|--------------|--------|-----|
| 2                                               | TxD_A  | O   |  | 2            | TxD_B  | O   |
| 3                                               | RxD_A  | I   |  | 3            | RxD_B  | I   |
| 4                                               | RTS_A  | O   |  | 4            | RTS_B  | O   |
| 5                                               | CTS_A  | I   |  | 5            | CTS_B  | I   |
| 6                                               | DSR_A  | I   |  | 6            | DSR_B  | I   |
| 20                                              | DTR_A  | O   |  | 20           | DTR_B  | O   |
| 7                                               | 0V     | -   |  | 7            | 0V     | -   |
| No other pins in connectors X1 and X2 are used. |        |     |  |              |        |     |

### 3.4.15 V24/E

#### Introduction

The V24/E module provides an Ethernet (10BaseT/10 MB) and a V.24 interface (default baud rate 19200 bd) for OfficeCom and OfficePoint. You can use the Ethernet for TCP/IP-compatible administration over a LAN or WAN.

Refer to [Chapter 13](#) for information on SNMP as well as the CSTA over IP and CDRC over IP features.

#### Interfaces

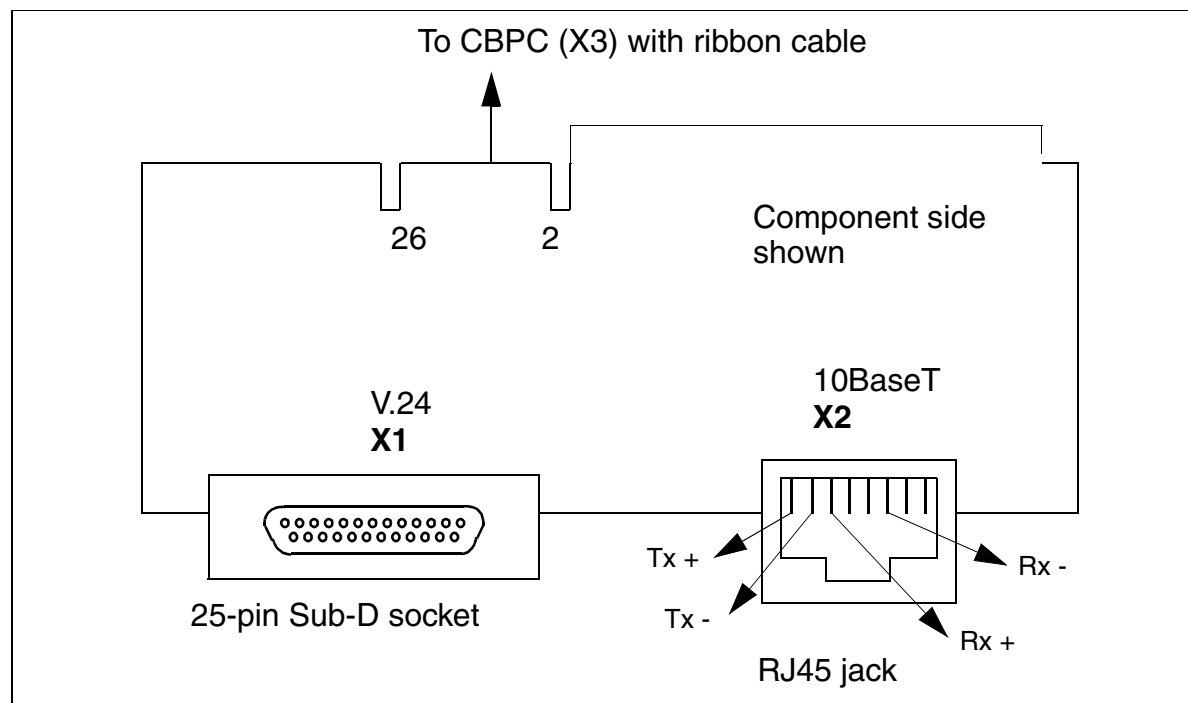


Figure 3-109 V24/E Interface (S30122-K7236-X)

[Figure 3-108](#) shows the pin assignments for the 25-pin Sub-D socket X1.

### 3.4.16 V24 Adapter (Not for U.S.)

The V.24 (RS-232) adapter cable connects PC directly to Hicom 150 E OfficeOne and Start. An additional electronic unit in the cable provides level adaptation. V.24 (RS-232) operation is not possible without level adaptation.

Use adapters with appropriate wiring configurations between the cable's 9-pole SubD socket and the device interface when connecting printers or modems.

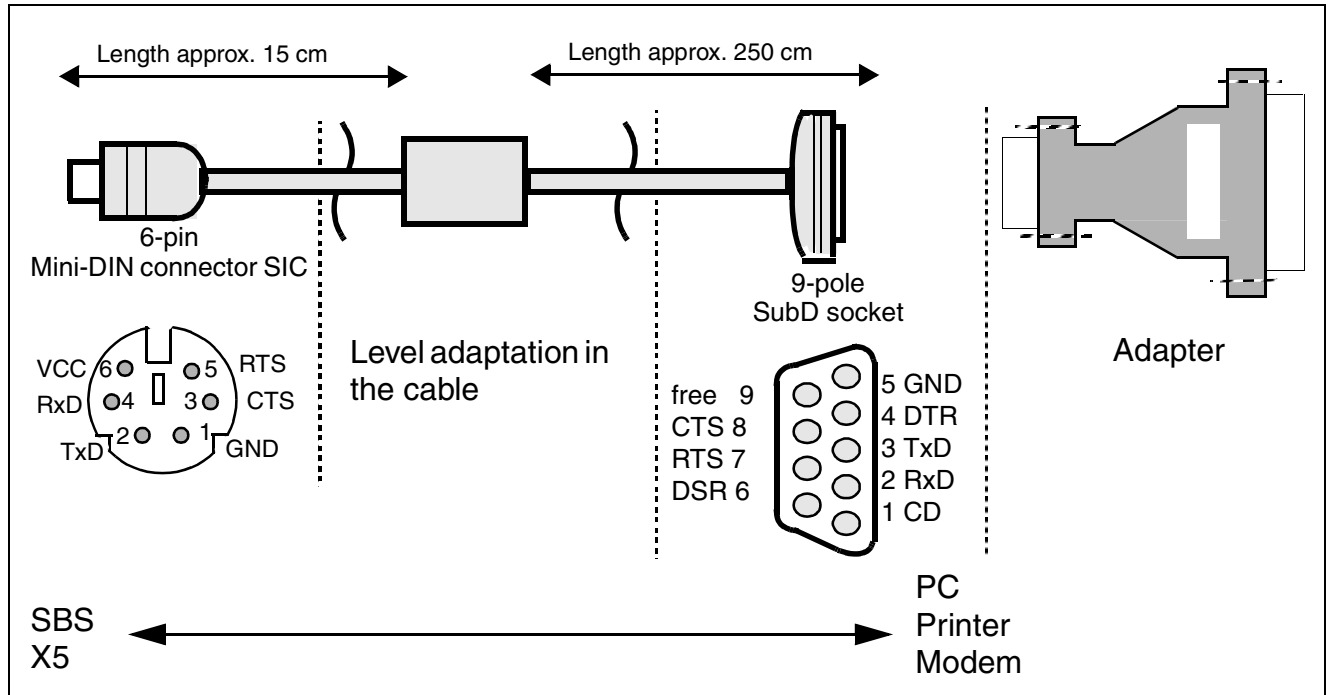


Figure 3-110 V.24 (RS-232) Adapter Cable (S30122-X5468-X3) Pin Assignments for OfficeOne and Start (Not for U.S.)

|     |                     |
|-----|---------------------|
| CD  | Carrier Detect      |
| CTS | Clear To Send       |
| DSR | Data Send Ready     |
| DTR | Data Terminal Ready |
| GND | Earth               |
| RTS | Request To Send     |
| RxD | Receive Data        |
| TxD | Transmit Data       |

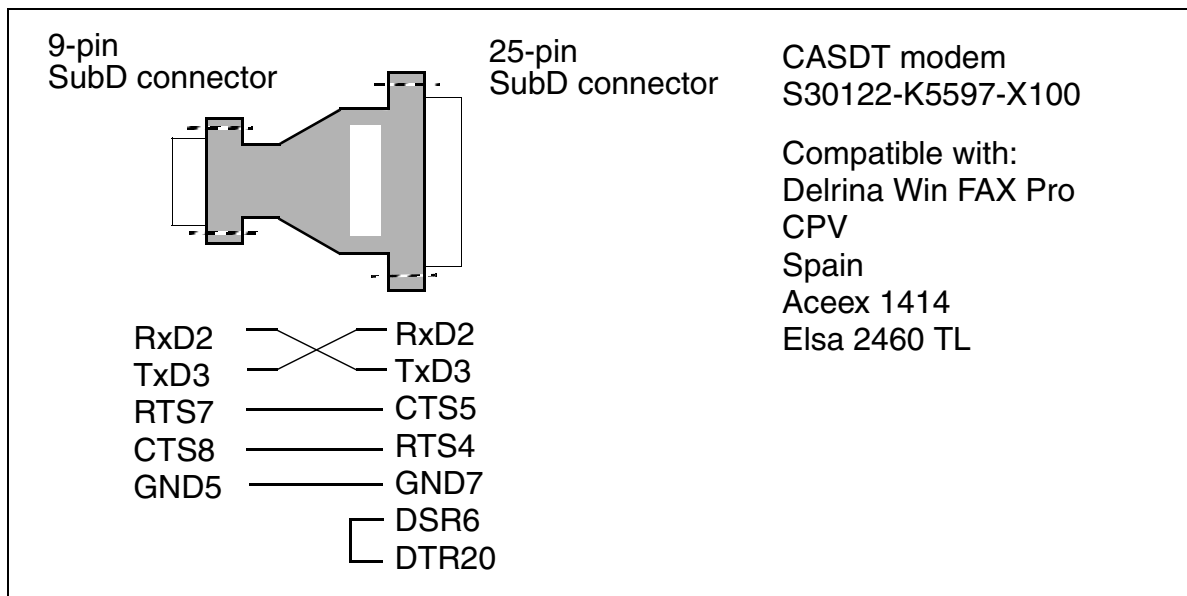


Figure 3-111 Modem Adapter Pin Assignments for OfficeOne and Start Only  
(Not for U.S.)

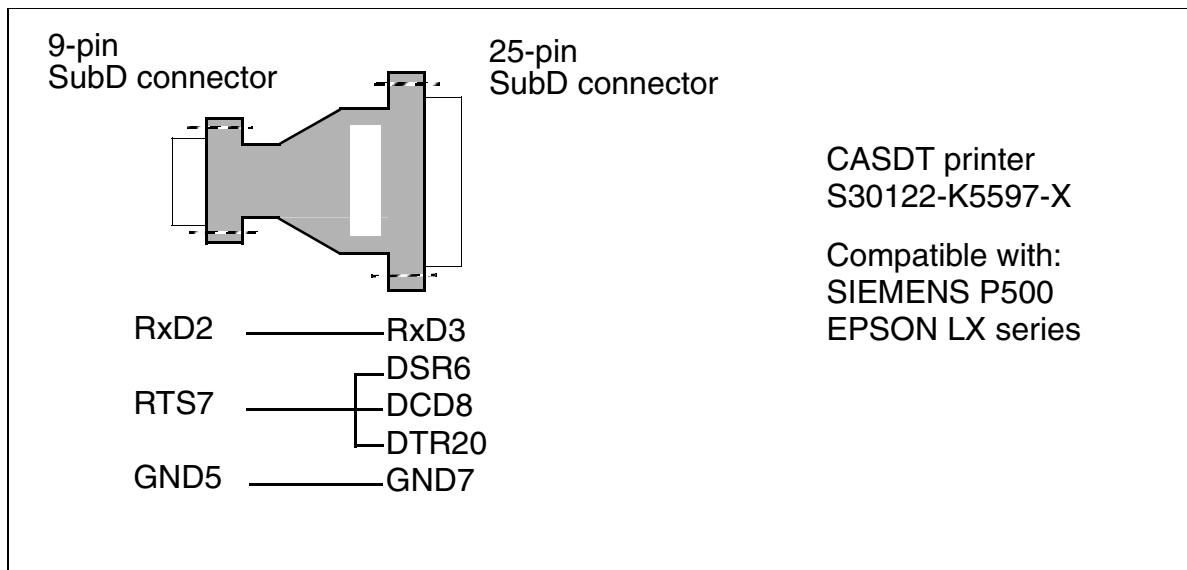


Figure 3-112 Printer Adapter Pin Assignments for OfficeOne and Start Only  
(Not for U.S.)

### 3.4.17 V.24 (RS-232) Cable

#### Introduction

The V.24 cable (C39195-Z7267-C13) connects a service PC to Hicom 150 E OfficePro.

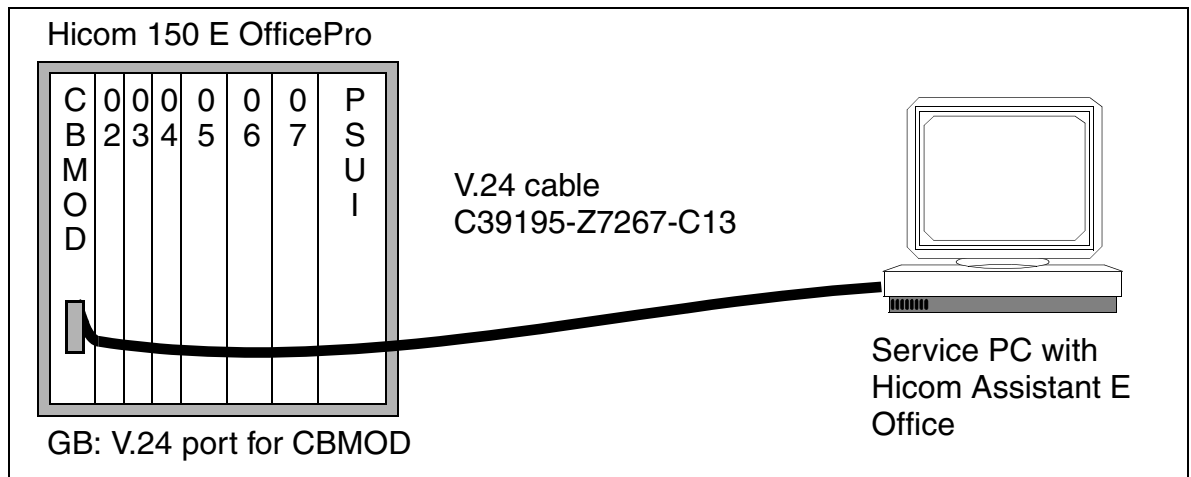


Figure 3-113 Connecting a Service PC to Hicom 150 E OfficePro

If a ready-made connecting cable is not available, use the wiring specifications in [Figure 3-114](#) and [Table 3-88](#) to build an equivalent cable.

Use a shielded 9-pin cable as a connecting cable. The wires must be twisted and have a diameter of at least 0.5 mm (24 AWG). The integrated wire shielding must be soldered onto the connector and socket housing of both cable ends. Short-haul modems must be provided if the cable length exceeds 15 m (50 ft.).

## V.24 (RS-232) Cable Assignment

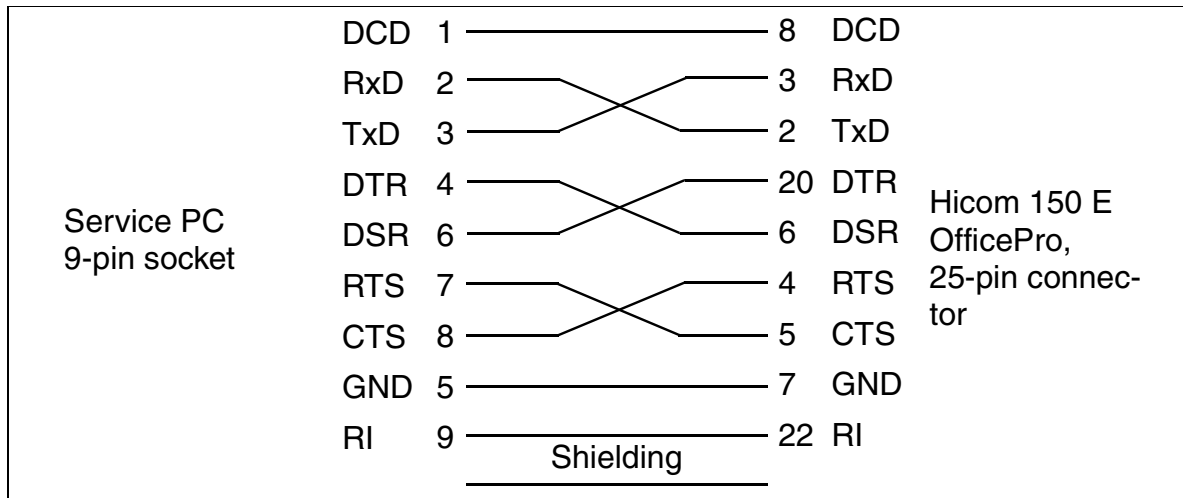


Figure 3-114 Assignment of V.24 Cable (C39195-Z7267-C13) for OfficePro

## Pin Assignment of the 9-Pin Socket and 25-Pin Connector

Table 3-88 Pin Assignment of the 9-Pin Socket and 25-pin Connector on the V.24 (RS-232) Cable for OfficePro

| 9-Pin Sub-D Socket | 25-Pin Sub-D Connector | Signal                    |
|--------------------|------------------------|---------------------------|
| 1                  | 8                      | DCD (Data Carrier Detect) |
| 2                  | 3                      | RxD (Receive Data)        |
| 3                  | 2                      | TxD (Transmit Data)       |
| 4                  | 20                     | DTR (Data Terminal Ready) |
| 5                  | 7                      | GND (Signal Ground)       |
| 6                  | 6                      | DSR (Data Set Ready)      |
| 7                  | 4                      | RTS (Request To Send)     |
| 8                  | 5                      | CTS (Clear To Send)       |
| 9                  | 22                     | RI (Ring Indicator)       |

### 3.5 Using Boards from Hicom 150 E, Hicom 100 E (Non-U.S. Releases) and Hicom 150 E Office

#### Overview

The tables below show which boards in the following systems can be used in Hicom 150 E Office Release 2.0/2.2:

- Hicom 150 E Modular, Releases 1.0, 2.0, 2.1
- Hicom 100 E Releases 2.02, 2.1 (not for U.S.)
- Hicom 150 E Office Release 1.0 (in U.S.: Hicom 150 E Version 1.0)



Do not use any boards not listed in the tables in Hicom 150 E Office Release 2.0-3.0.

#### Boards From Hicom 150 E Non-U.S. Releases 1.0, 2.0, 2.1

Table 3-89 Boards from Hicom 150 E Modular. Releases 1.0, 2.0, 2.1

| Board or component   | Part number                            | Use in Hicom 150 E OfficePro                                        |
|----------------------|----------------------------------------|---------------------------------------------------------------------|
| <u>CGM</u>           | S30807-Q6906-X                         | yes                                                                 |
| <u>CONBO</u>         | S30810-Q2924-X                         | yes                                                                 |
| <u>FMC</u>           | S30807-Q6910-X                         | yes (not for U.S.)                                                  |
| <u>GEE8</u>          | S30817-Q664-Xxxx                       | yes (not for U.S.)                                                  |
| <u>IMOD</u>          | S30807-Q6907-X                         | yes                                                                 |
| MDFU                 | S30805-U5140-X                         | yes (not for U.S.)                                                  |
| MDFU-E               | S30805-U5283-X                         | yes (not for U.S.)                                                  |
| <u>PFT1 and PFT4</u> | S30777-Q539-X<br>S30777-Q540-X         | yes (not for U.S.)                                                  |
| <u>PSUI</u>          | S30122-K5083-L301<br>S30122-K5083-X301 | yes                                                                 |
| <u>REAL</u>          | S30807-Q5913-X                         | yes                                                                 |
| <u>SLMO8</u>         | S30810-Q2901-X                         | yes (not for U.S.)                                                  |
| <u>SLMO24</u>        | S30810-Q2901-Xxxx                      | yes (can also be used in OfficeCom)                                 |
| <u>STMD8</u>         | S30810-Q2558-Xxxx                      | Board supported as of model S30810-Q2558-X200-B1/-B4/-B6, status 7. |

Table 3-89 Boards from Hicom 150 E Modular. Releases 1.0, 2.0, 2.1

| Board or component        | Part number                                              | Use in Hicom 150 E OfficePro                                          |
|---------------------------|----------------------------------------------------------|-----------------------------------------------------------------------|
| <u>TIEL</u>               | S30810-Q2520-X                                           | yes                                                                   |
| <u>TML8W</u>              | S30817-Q626-Axxx                                         | Must be equipped with firmware Version V30113-D835-G001; not for U.S. |
| <u>TMOM</u>               | S30810-Q2535-X                                           | yes (not for U.S.)                                                    |
| TMS2M                     | S30810-Q2537-X                                           | yes (not for U.S.)                                                    |
| <u>USVI</u>               | L30250-R600-A300 (< 10 Ah)<br>L30250-R600-A301 (> 10 Ah) | yes (not for U.S.)                                                    |
| <u>V24 (RS-232) cable</u> | C39195-Z7267-C13                                         | Version V30113-D835-G001 (not for U.S.)                               |

**Boards from Hicom 100 E Releases 2.02, 2.1**

Table 3-90 Boards from Hicom 100 E Releases 2.02, 2.1

| Board or component | Part number                          | Use in Hicom 150 E OfficeCom, OfficePoint    |
|--------------------|--------------------------------------|----------------------------------------------|
| <u>ALUM4</u>       | S30817-Q935-A                        | yes                                          |
| EXM                | S30817-H902-Axxx<br>S30817-Q902-Bxxx | yes (not for U.S.)<br>yes (for U.S. only)    |
| <u>GEE12</u>       | S30817-Q931-Axxx                     | yes (not for U.S.)                           |
| <u>GEE16</u>       | S30817-Q951-Mxxx                     | yes (not for U.S.)                           |
| <u>GEE50</u>       | S30817-Q931-Bxxx                     | yes (not for U.S.)                           |
| <u>LAN Bridge</u>  | S30817-Q955-Axxx                     | yes (note: customize firmware; not for U.S.) |
| MPPI               | S30817-K5380-Xxxx                    | yes (-X200 or later) (not for U.S.)          |
| <u>SLAS16</u>      | S30817-Q925-A301                     | yes                                          |
| <u>SLU8</u>        | S30817-Q922-Axxx                     | yes                                          |
| STBG4              | S30817-Q934-A                        | yes (not for U.S.)                           |
| <u>STLS2</u>       | S30817-Q924-Bxxx                     | yes (status 7 or later; not for U.S.)        |
| <u>STLS4</u>       | S30817-Q924-Axxx                     | yes (status 7 or later)                      |
| <u>STRB</u>        | S30817-Q932-M                        | yes                                          |



*Using Boards from Hicom 150 E, Hicom 100 E (Non-U.S. Releases) and Hicom 150 E Office*

Table 3-90 Boards from Hicom 100 E Releases 2.02, 2.1

| Board or component | Part number      | Use in Hicom 150 E OfficeCom, OfficePoint |
|--------------------|------------------|-------------------------------------------|
| <u>TLA2</u>        | S30817-Q923-Bxxx | yes (not for U.S.)                        |
| <u>TLA4</u>        | S30817-Q923-Axxx | yes (not for U.S.)                        |
| <u>TLA8</u>        | S30817-Q926-Axxx | yes (not for U.S.)                        |

### Boards from Hicom 150 E Office Release 1.0 (in U.S.: Hicom 150 E Version 1.0)

Table 3-91 Boards from Hicom 150 E Office Release 1.0

| Board or Component   | Part Number                    | Can Be Used in                       |
|----------------------|--------------------------------|--------------------------------------|
| <u>ALUM4</u>         | S30817-Q935-A                  | OfficeCom/OfficePoint                |
| <u>CBMOD</u>         | S30810-Q2960-X100              | OfficePro                            |
| <u>CGM</u>           | S30807-Q6906-X                 | OfficePro                            |
| <u>CR8</u>           | S30810-Q2513-X                 | OfficePro                            |
| <u>CONBO</u>         | S30810-Q2924-X                 | OfficePro                            |
| <u>EXM</u>           | S30817-Q902-Bxxx               | OfficeCom/OfficePoint                |
| <u>FMC</u>           | S30807-Q6910-Xxxx              | OfficePro/OfficeCom/OfficePoint      |
| <u>GEE8</u>          | S30817-Q664-xxxx               | OfficePro (not for U.S.)             |
| <u>GEE12</u>         | S30817-Q951-Mxxx               | OfficeCom/OfficePoint (not for U.S.) |
| <u>GEE16</u>         | S30817-Q951-Mxxx               | OfficeCom/OfficePoint (not for U.S.) |
| <u>GEE50</u>         | S30817-Q951-Mxxx               | OfficeCom/OfficePoint (not for U.S.) |
| <u>IMOD</u>          | S30807-Q9607-                  | OfficePro/OfficeCom/OfficePoint      |
| <u>LAN Bridge</u>    | S30817-Q955-Axxx               | OfficeCom/OfficePoint                |
| <u>MDFU</u>          | S30805-U5140-X                 | OfficePro/OfficeCom (not for U.S.)   |
| <u>MDFU-E</u>        | S30805-U5283-X                 | OfficePro (not for U.S.)             |
| <u>MPPI</u>          | S30817-Q5380-X                 | OfficeCom/OfficePoint (not for U.S.) |
| <u>OPA</u>           | S30807-Q6920-X                 | OfficePoint                          |
| <u>PFT1 and PFT4</u> | S30777-Q539-X<br>S30777-Q540-X | OfficePro (not for U.S.)             |
| <u>PSUC</u>          | S30122-K5661-xxx               | OfficeCom                            |
| <u>PSUF</u>          | S30122-K5658-xxx               | OfficePoint                          |

**Boards**

For internal distribution only

*Using Boards from Hicom 150 E, Hicom 100 E (Non-U.S. Releases) and Hicom 150 E Office*

Table 3-91 Boards from Hicom 150 E Office Release 1.0

| <b>Board or Component</b> | <b>Part Number</b>                     | <b>Can Be Used in</b>                                       |
|---------------------------|----------------------------------------|-------------------------------------------------------------|
| <u>PSUI</u>               | S30122-K5083-L301<br>S30122-K5083-X301 | OfficePro                                                   |
| <u>REAL</u>               | S30807-Q5913-X                         | OfficePro                                                   |
| <u>SLA16</u>              | S30810-Q2702-X                         | OfficePro/OfficeCom                                         |
| <u>SLC16</u>              | S30810-Q2922-X                         | OfficePro                                                   |
| <u>SLMO8</u>              | S30810-Q2901-X                         | OfficePro (not for U.S.)                                    |
| <u>SLMO24</u>             | S30810-Q2901-Xxxx                      | OfficePro/OfficeCom                                         |
| <u>SLU8</u>               | S30817-Q922-Axxx                       | OfficeCom/OfficePoint                                       |
| <u>STLS2</u>              | S30817-Q924-Bxxx                       | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>STLS4</u>              | S30817-Q924-Axxx                       | OfficeCom/OfficePoint                                       |
| <u>STMD8</u>              | S30810-Q2558-Xxxx                      | OfficePro                                                   |
| <u>STRB</u>               | S30817-Q932-M                          | OfficeCom/OfficePoint                                       |
| <u>TIEL</u>               | S30810-Q2520-X                         | OfficePro                                                   |
| <u>TLA2</u>               | S30817-Q923-Bxxx                       | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>TLA4</u>               | S30817-Q923-Axxx                       | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>TLA8</u>               | S30817-Q926-Axxx                       | OfficeCom/OfficePoint (not for U.S.)                        |
| <u>TMAMF</u>              | S30810-Q2587-Axxx                      | OfficePro (for Brazil, India, Malaysia, and Singapore only) |
| <u>TMDID</u>              | S30810-Q2507-X                         | OfficePro (for U.S. only)                                   |
| <u>TMGL4</u>              | S30810-Q2918-X                         | OfficeCom/OfficePoint (for U.S. only)                       |
| <u>TMGL8</u>              | S30810-Q2703-X                         | OfficePro (for U.S. only)                                   |
| <u>TML8W</u>              | S30817-Q626-Axxx or Bxxx               | OfficePro (not for U.S.)                                    |
| <u>TMOM</u>               | S30810-Q2535-X                         | OfficePro (not for U.S.)                                    |
| <u>TMQ4</u>               | S30810-Q2917-X                         | OfficeCom/OfficePoint (for U.S. only)                       |
| <u>TMS2</u>               | S30810-Q2915-X                         | OfficePro (not for U.S.)                                    |
| <u>TMST1</u>              | S30810-Q2920-X                         | OfficePro (for U.S. only)                                   |
| <u>IST1</u>               | S30810-Q2919-X                         | OfficeCom (for U.S. only)                                   |
| <u>TS2</u>                | S30810-Q2913-X                         | OfficeCom (not for U.S.)                                    |
| <u>USVC</u>               | S30122-K5660-xxx                       | OfficeCom (not for U.S.)                                    |
| <u>USVF</u>               | S30122-K5659-                          | OfficePoint (not for U.S.)                                  |

Table 3-91      Boards from Hicom 150 E Office Release 1.0

| <b>Board or Component</b>  | <b>Part Number</b>                                             | <b>Can Be Used in</b>                |
|----------------------------|----------------------------------------------------------------|--------------------------------------|
| <u>USVI</u>                | L30250-R600-A300<br>(< 10 Ah)<br>L30250-R600-A301<br>(> 10 Ah) | OfficePro (not for U.S.)             |
| <u>V24/1</u>               | S30807-Q6916-Xxxx                                              | OfficeCom/OfficePoint                |
| <u>V24/2</u>               | S30807-Q6916-X                                                 | OfficeCom/OfficePoint                |
| <u>V.24 (RS-232) cable</u> | C39195-Z7267-C13                                               | OfficePro                            |
| <u>4SLA</u>                | S30810-Q2925-Xxxx                                              | OfficeCom/OfficePoint (not for U.S.) |
| <u>8SLA</u>                | S30810-Q2925-X                                                 | OfficeCom/OfficePoint                |
| <u>16SLA</u>               | S30810-Q2923-X                                                 | OfficeCom (not for U.S.)             |

## **Boards**

For internal distribution only

*Using Boards from Hicom 150 E, Hicom 100 E (Non-U.S. Releases) and Hicom 150 E Office*

## 4 Installation

### 4.1 Hicom 150 E OfficePro Installation

#### 4.1.1 Overview

##### Chapter Contents

This chapter contains information on:

- Installing the Hicom 150 E OfficePro communication system

This chapter describes the standard installation procedures for the basic system. Refer to Section 6.1 on page 6-2 for information about supplementary equipment and expansions

- Configuring the boards



##### **DANGER**

The system may be installed by authorized service personnel only.

##### Tools and help needed

The following are needed for installing the Hicom 150 E OfficePro system:

- **Tools:**
  - Hex or open-end wrench, 8 mm
  - Diagonal cutting pliers, telephone pliers, wire stripper, flat-nosed pliers
  - Slotted screwdrivers, from 2 to 8 mm ( $\frac{1}{4}$ " to  $\frac{5}{16}$ " )
  - Phillips or cross-point screwdrivers, sizes 1 and 2
  - TORX screwdriver, size TX20
  - Wire stripper (Part No. C39407-A139-A11, not for U.S.)
  - Electric drill
  - Hammer
  - Level
  - Tape measure
  - Special tool for mounting the Hicom cordless 150 E base station (not for U.S.)

- **Help:**

- Hicom Assistant T or Hicom Assistant E Office
- Hand-held telephone test set
- Digital-multimeter for testing ground connections and partial voltages
- Not for U.S.: ISDN tester (such as K3000 or Aurora)
- For U.S. only: Aurora<sup>Duet</sup>, or similar, ISDN protocol analyzer (for PRI)
- For U.S. only: Punch-down tool suitable for the block used (such as 66 block)

## 4.1.2 Installation Procedure

Table 4-1 Hicom 150 E OfficePro—System Installation Procedure

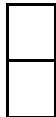
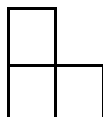
| Step | Installation Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Page |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 1.   | <u>Select the installation site</u><br>(usually predetermined)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4-5  |
| 2.   | <u>Unpack the components</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4-7  |
| 3.   | <u>Mount the main distribution frame (MDFU or MDFU-E)</u><br>(in the U.S., the customer supplies the MDF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4-8  |
| 4.   | Set up the system cabinets:<br><u>Remove the cabinet covers</u><br><br><u>Single cabinet</u>  <br><u>Two cabinets (stacked)</u><br><br><u>Two cabinets (side-by-side)</u>  <br><u>Three cabinets (only as shown)</u><br><br><u>Mount the stabilizer feet</u><br>(for stacked system cabinets) (not for U.S.) | 4-9  |
| 5.   | <u>Mount on the wall if desired</u> (for U.S. only)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4-11 |
| 6.   | <u>Install the seismic anchors if required</u> (for U.S. only)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4-24 |
| 7.   | <u>Ground the system</u><br><u>Check the protective grounding</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4-27 |
| 8.   | <u>Connect the cables</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4-34 |
| 9.   | <u>Lay out the cable network and (not for U.S.) set the jumpers</u><br>on the MDFU or MDFU-E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4-50 |
| 10.  | <u>Load System Software</u><br>(Flash Memory Card)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4-55 |
| 11.  | <u>Install and initialize the boards if required</u><br>(already completed in non-U.S. systems)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4-57 |
| 12.  | <u>Connect the telephones and other devices</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4-66 |
| 13.  | <u>Conduct a visual inspection</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4-66 |
| 14.  | Test and ring out all telephones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | —    |
| 15.  | Test all option modules connected                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | —    |

Table 4-1      Hicom 150 E OfficePro—System Installation Procedure

| <b>Step</b> | <b>Installation Activity</b>                     | <b>Page</b> |
|-------------|--------------------------------------------------|-------------|
| 16.         | Test features programmed at optiset E telephones | —           |
| 17.         | Test public network connections                  | —           |
| 18.         | Test least cost routing if used                  | —           |
| 19.         | Conduct a visual inspection                      | —           |



### 4.1.3 Selecting the installation site

#### Selecting a Site

The customer usually has a preferred installation site in mind. Make sure that the customer's site meets the following guidelines:

- Do not expose the systems to direct sources of heat (such as sunlight and heaters)
- Do not expose the systems to extremely dusty environments
- Avoid contact with chemicals
- Take every precaution to prevent the formation of condensation on the system during operation. If condensation forms on a system, make sure the system has time to dry completely before starting it up
- Observe the environmental conditions specified in Section 2.10.4

For installation outside the U.S., there are no specifications for minimum distances to be maintained between system cabinets and walls or ceilings in terms of functionality and environmental conditions.

#### For U.S. Only:

- Install secondary-protection equipment
- Avoid standard carpeting, as it tends to produce electrostatic charges
- Ensure the availability of a power source that meets the requirements described in Section 4.1.3.1 on page 4-6
- Ensure that Siemens equipment is 40 in. (101.6 cm) from other electrical equipment. The National Electrical Code (NEC) requires 36 in. (91.44 cm) of clearance in front of electrical equipment and 40 in. (101.6 cm) of clearance from other electrical service equipment.

The equipment room for the system should provide adequate space for installation and maintenance activities (such as removing and replacing boards). Leave at least 16 in. (42 cm) on all sides of the system, and 36 in. (91.44 cm) in front.

**Note:** Refer to Section 2.3.1 for Information on Hicom 150 E OfficePro design and dimensions.

#### 4.1.3.1 AC Power (for U.S. Only)

One ac power source is required for each cabinet. The ac power source must meet the requirements specified in [Table 4-2](#).

Table 4-2 AC Power Requirements (for U.S. Only)

| Normal Input  | Voltage |         | Frequency |         |
|---------------|---------|---------|-----------|---------|
|               | Minimum | Maximum | Minimum   | Maximum |
| 120 Vac/60 Hz | 110 Vac | 130 Vac | 47 Hz     | 63 Hz   |



#### **WARNING**

Under no circumstances should any OfficePro system or combination of OfficePro systems be connected directly to a wall outlet; use a UL Listed or CSA Certified transient surge protector for every two cabinets.

#### AC Power Outlet Requirements (for U.S. Only)

- Must have a UL Listed or CSA Certified transient surge protector between the outlet and the system. Up to two cabinets can be connected to the surge protector. Under no circumstances should any OfficePro system or combination of systems be connected directly to a wall outlet.
- Must not be located more than 8 feet (2.4 m) from the system
- Must provide fused 120 Vac (single-phase) power at 50 to 60 Hz capable of delivering 20 amperes
- Should have a warning attached to the circuit breaker that controls it to prevent accidental removal of power
- Should be on a dedicated circuit with an isolated ground

Do not connect the power until the system is properly grounded as described in [Section 4.1.8 on page 4-27](#). Refer to [Section 5.1.3 on page 5-2](#) for more information about connecting the power supply.

## 4.1.4 Unpacking the Components

### Procedure

| Step | Activity                                                                                                                |
|------|-------------------------------------------------------------------------------------------------------------------------|
| 1.   | Compare the components with the packing slip or customer receipt to make sure that they are correct and complete.       |
| 2.   | Determine whether any damage has occurred during transport and report it to the appropriate departments or the shipper. |
| 3.   | Dispose of the packing materials properly.                                                                              |

**WARNING**

Use only equipment and materials that are in perfect working order. Do not start up equipment with visible damage.

## **4.1.5 Mounting the Main Distribution Frame (MDFU or MDFU-E) (Not for U.S.)**

### **Introduction**

In the U.S., customers supply their own main distribution frames. Follow the manufacturer's instructions for installation.

Outside the U.S., the following are used as main distribution frames:

- MDFU-E, which is shipped with new systems (see [Figure 4-30](#)).
- MDFU (one MDFU unit per system cabinet), which was used for non-U.S. Hicom 150 E OfficePro systems in Release 2.0 and earlier (see [Figure 4-29](#)).

### **Installation Notes (Not for U.S.)**

The MDFU or MDFU-E should be installed in the direct vicinity of the system (note length of connecting cable) and at eye level. Mount it on the wall according to the instructions that came with it. The bag attached to the cover contains a drill template and screws and wall anchors for attaching the MDF to the wall.

### **Procedure for Mounting the MDF on the Wall (Not for U.S.)**

| <b>Step</b> | <b>Activity</b>                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| 1.          | Use the template to drill holes.                                                     |
| 2.          | Insert the wall anchors and screw in the screws, leaving 5 mm projecting.            |
| 3.          | Mount the MDFU or MDFU-E on the brackets and remove the packing protection covering. |
| 4.          | Remove the housing cover and tighten the screws through the holes.                   |

## 4.1.6 Setting up the System Cabinets

### Introduction

Outside the U.S., the cabinets are already equipped with the boards needed for the customer's specific requirements. In the U.S., you may need to install the boards.


**Hazard**

Be sure to ground the system properly before starting it up and connecting the stations.

### 4.1.6.1 Overview

#### System configurations


**WARNING**

A fully equipped OfficePro cabinet weighs 22 kg (48.46 lb.). We recommend lifting cabinets only before they are equipped. Do not attempt to lift objects that you think are too heavy for you; use a hand truck or get assistance.

The following setup options are possible for system cabinets:

| <b>System</b>                                               | <b>Page</b> |
|-------------------------------------------------------------|-------------|
| <u>One cabinet on a horizontal surface</u>                  | 4-11        |
| <u>One cabinet on a wall</u> (for U.S. only)                | 4-11        |
| <u>Two cabinets stacked on a horizontal surface</u>         | 4-14        |
| <u>Two cabinets stacked on a wall</u> (for U.S. only)       | 4-16        |
| <u>Two cabinets side-by-side on a horizontal surface</u>    | 4-21        |
| <u>Three cabinets on a horizontal surface (two stacked)</u> | 4-22        |

The horizontal surface may be floor or a table.

#### 4.1.6.2 Removing the Cabinet Covers

##### How the Covers Are Secured

The front cabinet cover (for board servicing) and the rear cabinet cover (for cable servicing) are each secured by two snap fasteners.

You can remove the upper and lower grills in both covers. This facilitates routing the cables to the MDF.

To replace a cover, position the snap fasteners in the two guides and press down on the cover until it snaps into place.

##### Procedure (Figure 4-1)

| Step | Activity                                                                                                                               |
|------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Insert a slotted screwdriver (with the blade vertical) into a recess (1).                                                              |
| 2.   | Carefully swing the handle of the screwdriver toward the center of the cabinet (2) until the fastener snaps out and the cover loosens. |
| 3.   | Then insert the screwdriver in the second recess (3), loosen its snap fastener. You can then remove the cover.                         |

##### Mounting the Cover

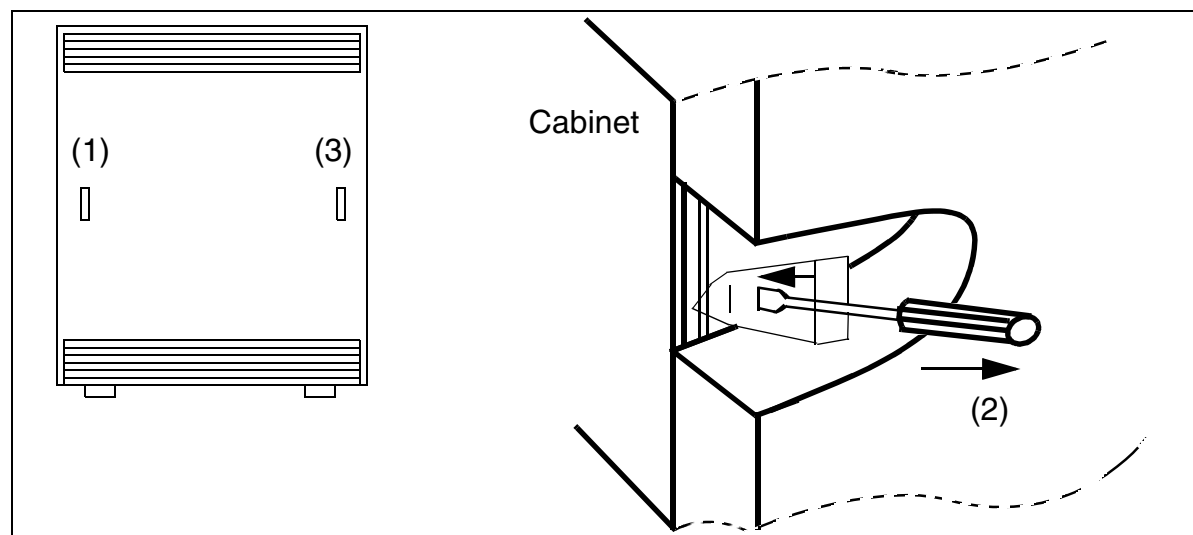


Figure 4-1 Hicom 150 E OfficePro—Removing the Front and Rear Covers

### 4.1.6.3 Setting Up a One-Cabinet System

#### Procedure

| Step | Activity                                                                                                                                                  |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Remove the front and rear <u>cabinet covers</u> .                                                                                                         |
| 2.   | Place the system cabinet in the installation site and make sure that it is level and stable.<br>U.S. only: For wall mounting, refer to <u>page 4-11</u> . |

#### Mounting a One-Cabinet System on the Wall (for U.S. Only)

You can mount a one-cabinet system on the wall using the wall-mount kit.

#### Wall-Mount Kit

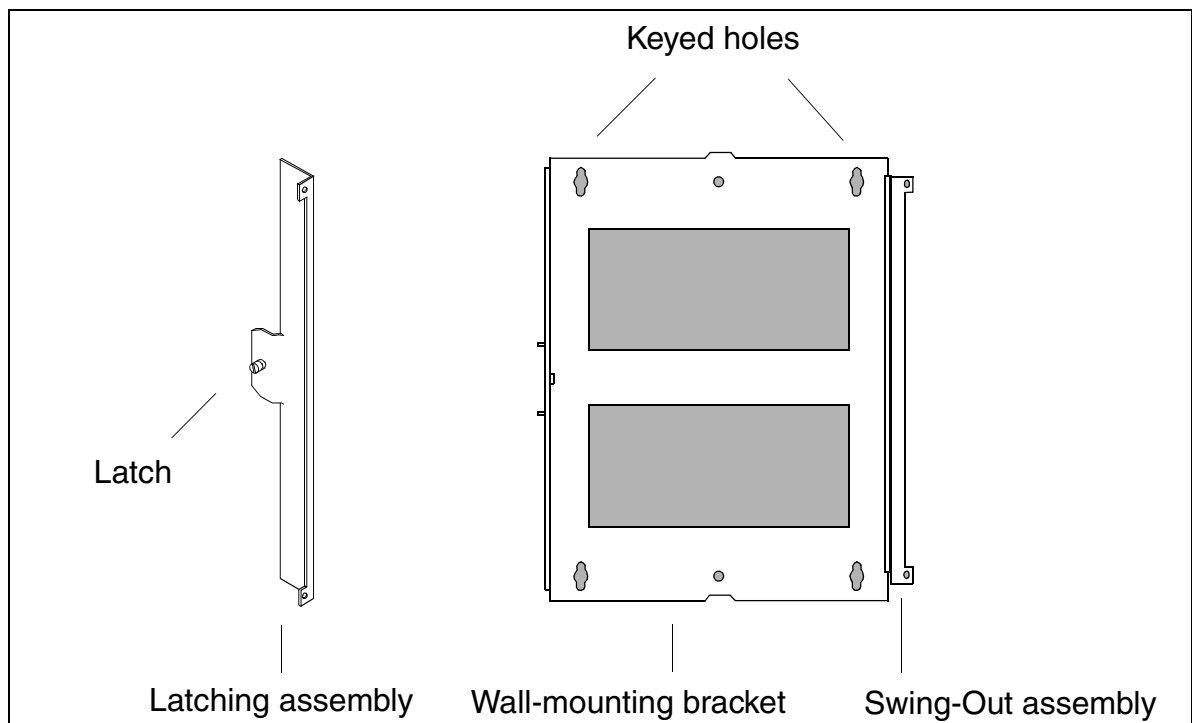


Figure 4-2 Hicom 150 E OfficePro Wall-Mount Kit (for U.S. Only)

**Procedure (Figure 4-3 on page 4-13)****WARNING**

An empty OfficePro cabinet weighs 32 lb. (14.53 kg). Mount the cabinets before equipping them with boards and do not attempt to lift objects that you think are too heavy for you; get help.

| Step | Activity                                                                                                                                                                          |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Install a plywood backboard at least 0.75 in. (19.05 mm) thick.                                                                                                                   |
| 2.   | Use the wall-mounting bracket as a template to drill three holes in the backboard. Use the keyed holes in the top of the bracket and the round hole in the bottom of the bracket. |
| 3.   | Install the screws in the top two holes, tightening them until 0.25 in. (6.35 mm) is protruding.                                                                                  |
| 4.   | Bolt the swing-out assembly on the wall-mounting bracket to the back of the cabinet.                                                                                              |
| 5.   | Close the swing-out assembly and hang the bracket and cabinet on the top screws.                                                                                                  |
| 6.   | Swing the cabinet open and tighten the top screws completely.                                                                                                                     |
| 7.   | Insert and fully tighten the bottom screw in the round hole.                                                                                                                      |
| 8.   | Bolt the latching assembly to the opposite edge of the cabinet.                                                                                                                   |

You can invert the bracket to have the cabinet swing out in the opposite direction.

**WARNING**

Do not fasten power cords to building surfaces when mounting cabinets on the wall.



## Wall Mounting (One-Cabinet System)

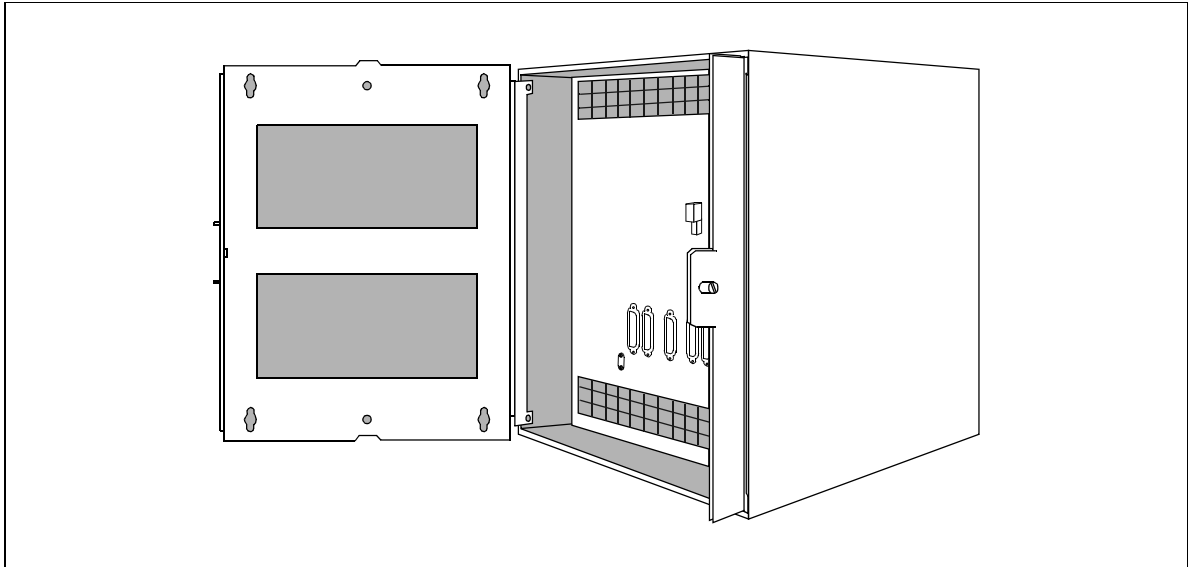


Figure 4-3      Wall Mounting for a One-Cabinet System (for U.S. Only)

#### 4.1.6.4 Setting up a Stacked Two-Cabinet System

##### Procedure

| Step | Activity                                                                                                                                                                                                                                                                                                                                              |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Remove the front and rear <u>cabinet covers</u> .                                                                                                                                                                                                                                                                                                     |
| 2.   | Mount the <u>stabilizer feet</u> (not for U.S.) on the basic cabinet (BC). Place the basic cabinet in the installation site and make sure that it is level and stable.                                                                                                                                                                                |
| 3.   | Place the expansion cabinet (EC) on the basic cabinet. Make sure that the EC feet slide into the depressions in the top of the BC.                                                                                                                                                                                                                    |
| 4.   | If mounting the system on the floor or on a table, attach the two cabinets using the four connecting plates each held by two screws with washers (Figure 4-4 on page 4-15). Be sure to fasten all four of the adjoining corners. Make sure that the connecting plates are mounted in the correct direction (inside the cabinets and pointing inward). |
| 5.   | For U.S. only: If mounting the system on the wall, refer to page 4-16.                                                                                                                                                                                                                                                                                |

##### For U.S. Only



##### **DANGER**

The connecting plates must be installed to ensure proper grounding for systems mounted on a floor or other horizontal surface.



You can install seismic anchors for greater stability, as is required in some installations. Refer to Section 4.1.7 on page 4-24 for more information and take note that the bolts and inserts included in the seismic anchor kit are suitable for concrete floors; bolts for other surfaces must be supplied separately.

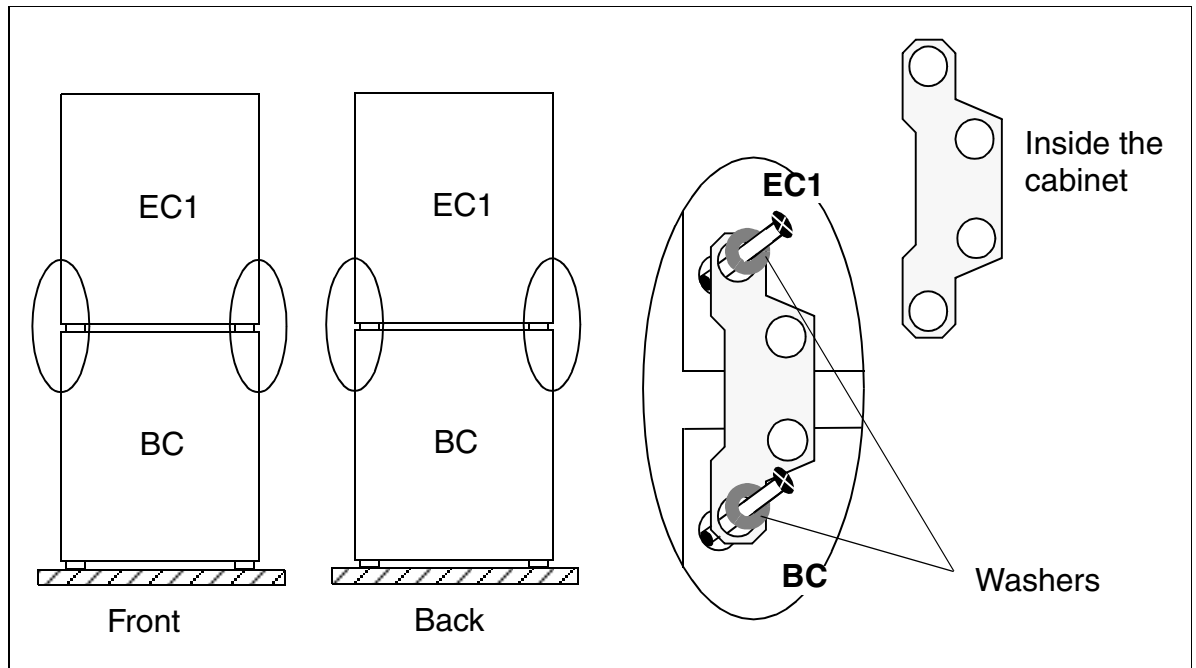
**Installing a Stacked Two-Cabinet System**

Figure 4-4 Hicom 150 E OfficePro—Installing a Two-Cabinet System (Stacked)

**Laying the Connecting Cables**

To lay the connecting cables between the two cabinets, you can cut out the pre-stamped recesses in the bottom of EC1 and the top of the BC with a pair of diagonal cutting pliers and break them out with a pair of flat-nosed pliers.

**WARNING**

Be careful when breaking out the recesses. Remove any sharp edges and corners.

## Mounting Two Cabinets Stacked on the Wall (for U.S. Only)

You can mount two cabinets stacked on the wall using the wall-mount kit.



### **DANGER**

The second cabinet also requires an earth ground as described on page 4-32. Do not fasten wall-mounted cabinets with the connecting plates, as this will interfere with the earth ground.

## Wall-Mount Kit

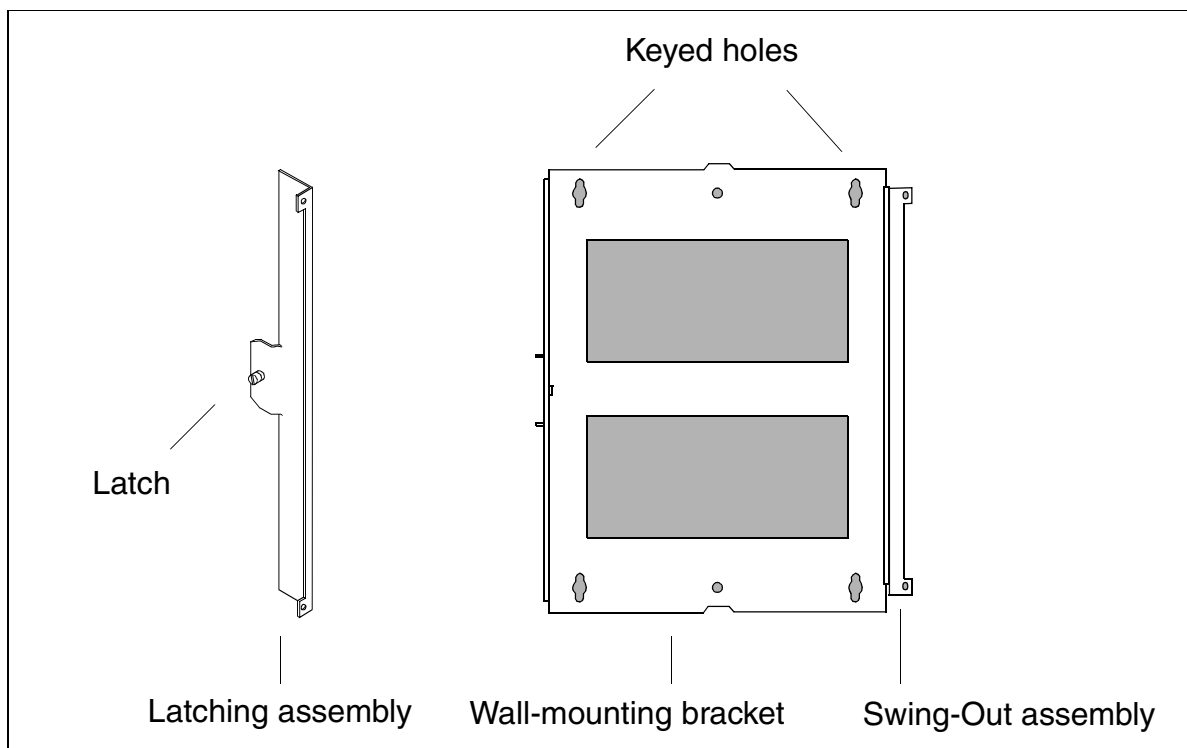


Figure 4-5 Hicom 150 E OfficePro Wall-Mount Kit (for U.S. Only)



### **WARNING**

An empty OfficePro cabinet weighs 32 lb. (14.53 kg). Mount the cabinets before equipping them with boards and do not attempt to lift objects that you think are too heavy for you; get help.

**Procedure (Figure 4-6 on page 4-18)**

| Step | Activity                                                                                                                                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Install a plywood backboard at least 0.75 in. (19.05 mm) thick.                                                                                                                                  |
| 2.   | Use a wall-mounting bracket as a template to drill three holes in the backboard for each cabinet. Use the keyed holes in the top of the bracket and the round hole in the bottom of the bracket. |
| 3.   | Install the screws in the top two holes for each bracket, tightening them until 0.25 in. (6.35 mm) is protruding.                                                                                |
| 4.   | Bolt the swing-out assembly on the wall-mounting bracket to the back of each cabinet.                                                                                                            |
| 5.   | Close the swing-out assembly and hang each bracket and cabinet on the top screws.                                                                                                                |
| 6.   | Swing each cabinet open and tighten the top screws completely.                                                                                                                                   |
| 7.   | Insert and fully tighten the bottom screws in the round holes.                                                                                                                                   |
| 8.   | Bolt the latching assembly to the opposite edge of each cabinet.                                                                                                                                 |

You can invert the brackets to have the cabinets swing out in the opposite direction.

**WARNING**

Do not fasten power cords to building surfaces when mounting cabinets on the wall.

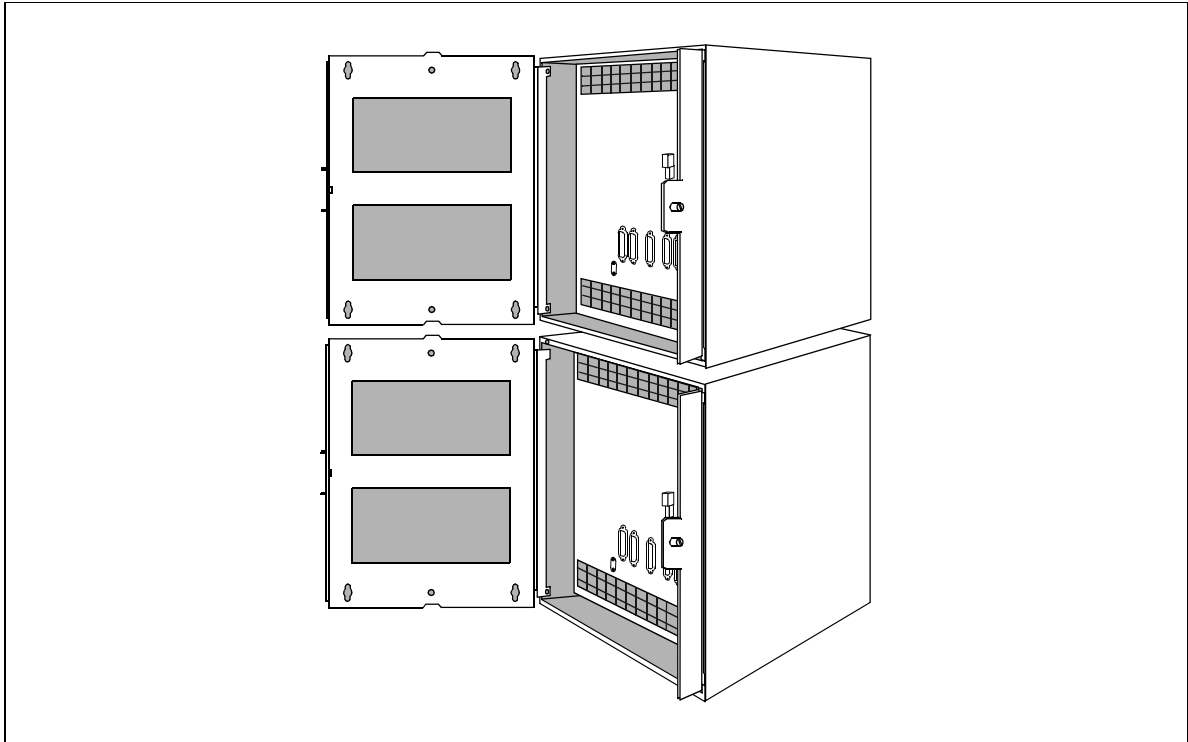
**Wall Mounting (Stacked Two-cabinet System)**

Figure 4-6 Wall Mounting for a Stacked Two-Cabinet System (for U.S. Only)

**Laying the Connecting Cables**

To lay the connecting cables between the two cabinets, you can cut out the pre-stamped recesses in the bottom of EC1 and the top of the BC with a pair of diagonal cutting pliers and break them out with a pair of flat-nosed pliers.

**WARNING**

Be careful when breaking out the recesses. Remove any sharp edges and corners.

**Procedure: Mounting the Stabilizer Feet (Not for U.S.)****WARNING (Not for U.S.)**

Always mount the stabilizer feet on stacked, surface-mounted system cabinets to ensure stability (Figure 4-7).

| Step | Activity                                                                                                                                                 |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Place the stabilizer feet beneath the right and left outer edges of the cabinets. Insert the cabinet feet into the two holes in the stabilizer feet (1). |
| 2.   | Attach the stabilizer feet to the metal housing of the cabinet (2) by inserting two screws per foot into the pre-drilled holes in the housing.           |
| 3.   | Continue installing the system.                                                                                                                          |



For U.S. only: You can install seismic anchors for greater stability, as is required in some installations. Refer to Section 4.1.7 on page 4-24 for more information and note that the bolts and inserts included in the seismic anchor kit are suitable for concrete floors; bolts for other surfaces must be supplied separately.

**Mounting the Stabilizer Feet (Not for U.S.)**

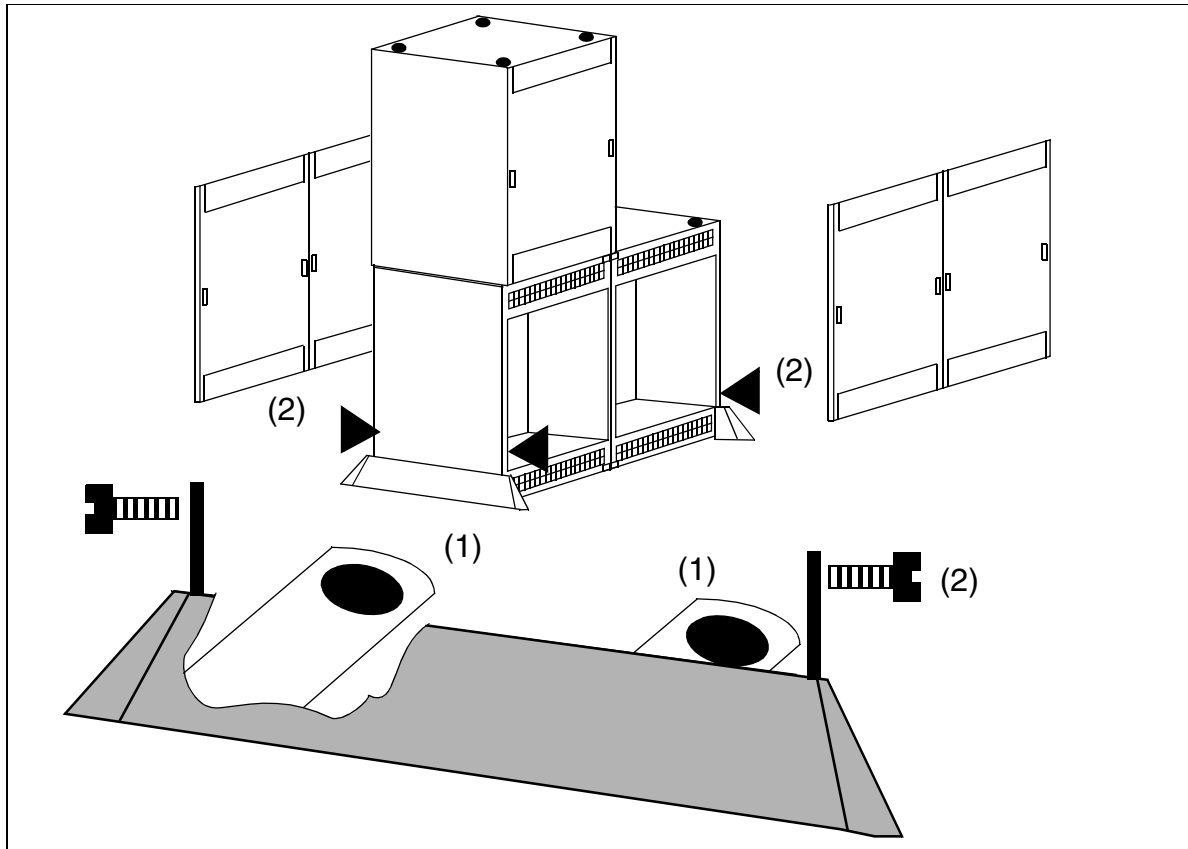


Figure 4-7

Hicom 150 E OfficePro—Mounting the Stabilizer Feet (Three-Cabinet System Shown)



#### 4.1.6.5 Setting Up a Two-Cabinet System Side by Side

##### Procedure

| Step | Activity                                                                                                                                                                                                                                                                                                                             |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Remove the front and rear <u>cabinet covers</u> .                                                                                                                                                                                                                                                                                    |
| 2.   | Place the system cabinets side by side in the installation site and make sure that they are level and stable. Correct any differences in height.                                                                                                                                                                                     |
| 3.   | If mounting the system on the floor or on a table, attach the two cabinets using four connecting plates each held by two screws with washers (Figure 4-8). Be sure to fasten all four of the adjoining corners. Make sure that the connecting plates are mounted in the correct direction (inside the cabinets and pointing inward). |


**DANGER (for U.S. Only)**

The connecting plates must be installed to ensure proper grounding for systems mounted on a floor or other horizontal surface.

##### Installing a Two-Cabinet System

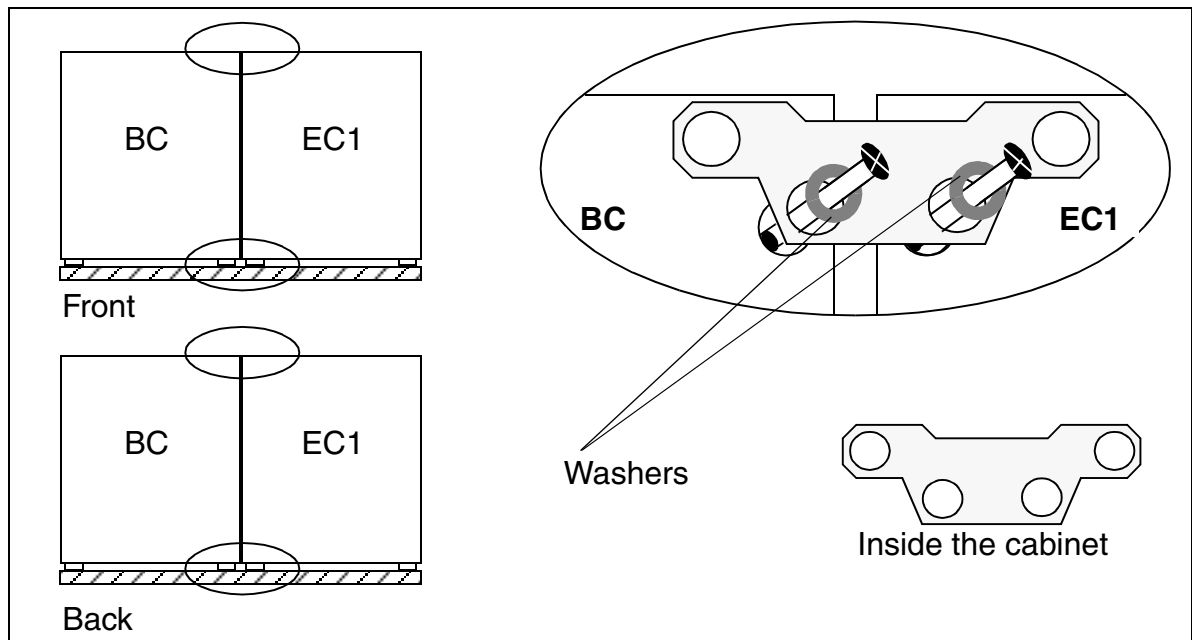


Figure 4-8 Hicom 150 E OfficePro—Installing a Two-Cabinet System (Side by Side)

## Laying the Connecting Cables

To lay the connecting cables between the cabinets, first remove the lower grills in the rear covers.

### 4.1.6.6 Setting Up a Stacked Three-Cabinet System



#### **WARNING**

Only two cabinets may be stacked vertically. When setting up a three-cabinet system place EC2 next to the BC.

## Procedure

| Step | Activity                                                                                                                                                                                                                                                                                                                  |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Remove the front and rear <u>cabinet covers</u> .                                                                                                                                                                                                                                                                         |
| 2.   | Mount one <u>stabilizer foot</u> (not for U.S.) on the basic cabinet and one on the expansion cabinet (EC2). Place EC2 next to the BC in the installation site and make sure that it is level and stable. Correct any differences in height.                                                                              |
| 3.   | Place expansion cabinet EC1 on the basic cabinet. Insert the feet of EC1 into the depressions in the top of the BC.                                                                                                                                                                                                       |
| 4.   | Attach the three cabinets using four connecting plates, each held by two screws with washers (two plates on each adjoining corner; see <a href="#">Figure 4-9</a> ). Be sure to use all eight plates. Make sure that the connecting plates are mounted in the correct direction (inside the cabinet and pointing inward). |



#### **DANGER (for U.S. Only)**

The connecting plates must be installed to ensure proper grounding for systems mounted on a floor or other horizontal surface.



You can install seismic anchors for greater stability, as is required in some installations. Refer to [Section 4.1.7 on page 4-24](#) for more information and take note that the bolts and inserts included in the seismic anchor kit are suitable for concrete floors; bolts for other surfaces must be supplied separately.

## Installing a Three-Cabinet System

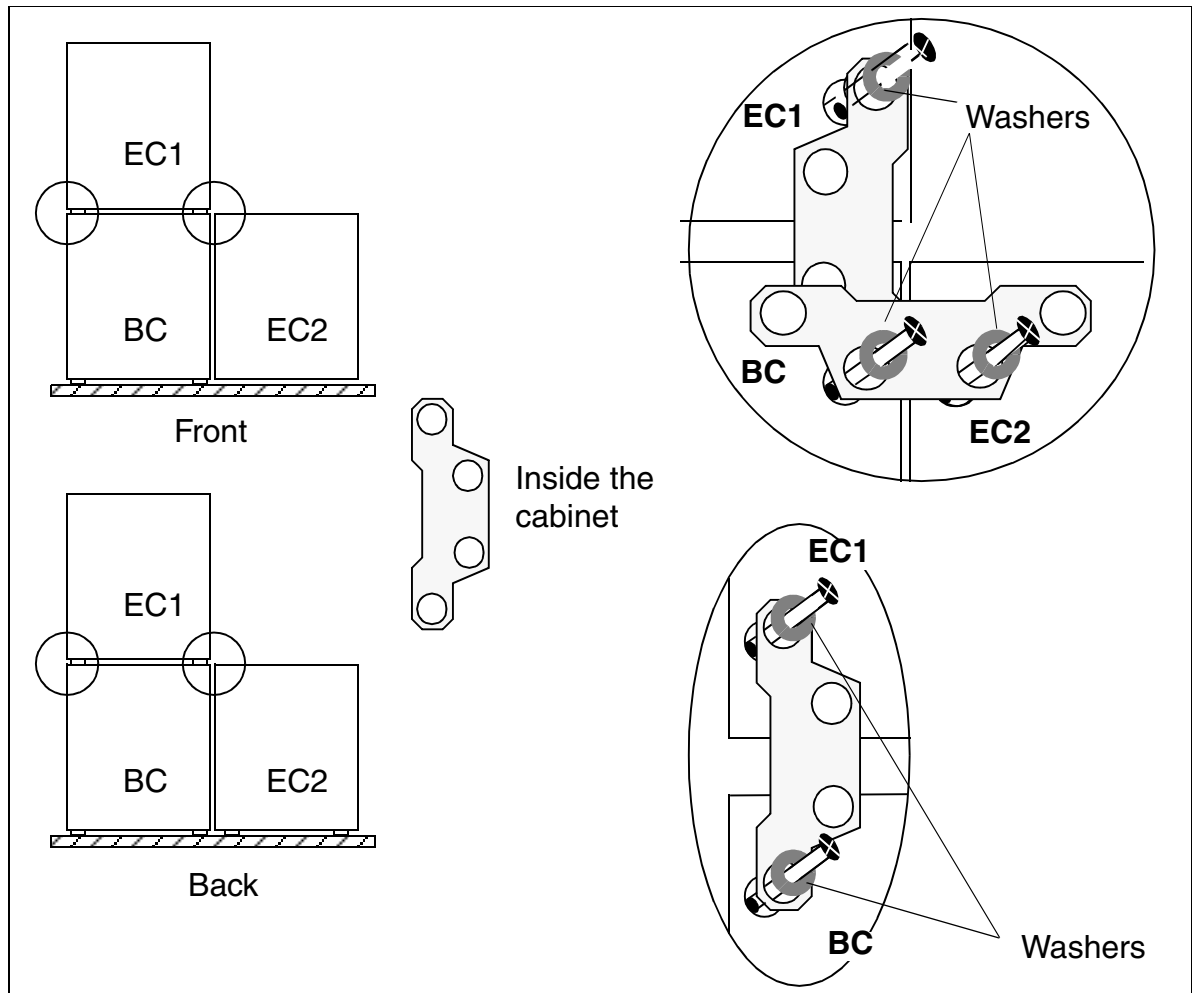


Figure 4-9 Hicom 150 E OfficePro—Installing a Three-Cabinet System (Stacked)



A three-cabinet system cannot be mounted on a wall.

## Laying the Connecting Cables

- To lay the cables between the BC and EC2, remove the lower grills in the two rear covers.
- To lay the connecting cables between the BC and EC1, cut out the pre-stamped recesses in the bottom of EC1 and top of the BC with a pair of diagonal cutting pliers and break them out with a pair of flat-nosed pliers.

**WARNING**

Be careful when breaking out the recesses. Remove any sharp edges and corners.

### 4.1.7 Installing the Seismic Anchors (for U.S. Only)

Seismic anchors can be used for additional stability if desired by the customer or required by code.



Local building codes may require the use of seismic anchors in critical locations, such as hospitals. The OfficePro seismic anchor kit includes bolts and inserts suitable for concrete floors. Consult the site planner for code requirements, or if the customer wishes to install the seismic anchors on another type of floor.

#### Procedure (Figure 4-10 on page 4-25)

| Step | Activity                                                                                  |
|------|-------------------------------------------------------------------------------------------|
| 1.   | Hook the anchor into the center holes in the lower grill on each cabinet, front and back. |
| 2.   | Bolt the anchor to the floor using the holes provided.                                    |

The anchor for the back of the cabinets is wider to provide space for cables.

## Seismic Anchoring

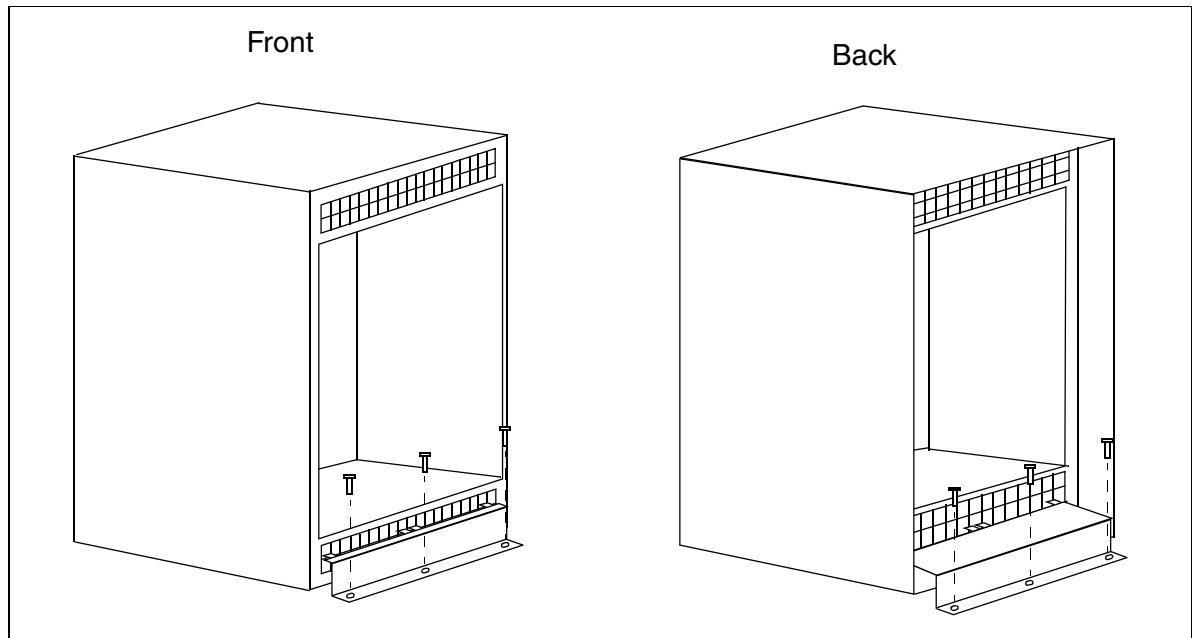


Figure 4-10 Hicom 150 E OfficePro Seismic Anchors

## Seismic Anchors for Multiple Cabinets

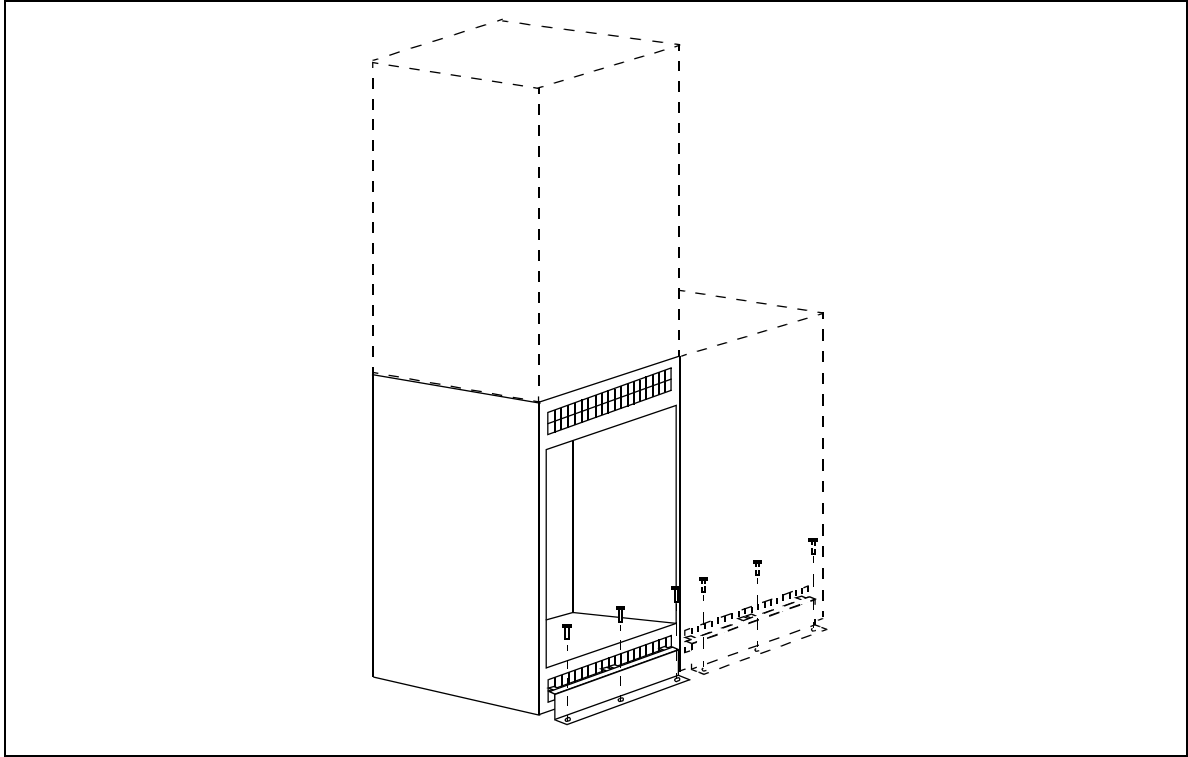


Figure 4-11      Seismic Anchoring for Multiple Cabinets (Front View)

## 4.1.8 Grounding the System (Not for U.S.)

### Note on Possible Ground Loops



To avoid ground loops from remotely operated devices (V.24 [RS-232] system peripherals), the devices should be connected to the same low-voltage network (sub-distribution board) if possible.

If the building floor plan does not permit this, you may need a line driver to isolate the external devices if any malfunctions occur.



#### **DANGER**

If one or two surface-mounted expansion cabinets are used in addition to the base cabinet, the metal connecting plates must be installed to properly ground the expansion cabinets.

Failure to follow these instructions can result in electrical shock.

The Hicom 150 E OfficePro system and the MDFU or MDFU-E must be grounded by a separate protective ground conductor (minimum cross-section: 2.5 mm<sup>2</sup>) as shown in [Figure 4-12](#). Make sure that the ground conductor is securely installed and strain-relieved.

### Protective Grounding Options (Not for U.S.)

The illustrations starting with [Figure 4-13](#) show different grounding options.



#### **DANGER**

If your personnel are not qualified to work on the low-voltage network (230 Vac), you must hire a licensed electrician to install the ground using option 1b ([Figure 4-14](#)) or option 2 ([Figure 4-15](#)).

**Grounding the System and Main Distribution Frame (Not for U.S.)**

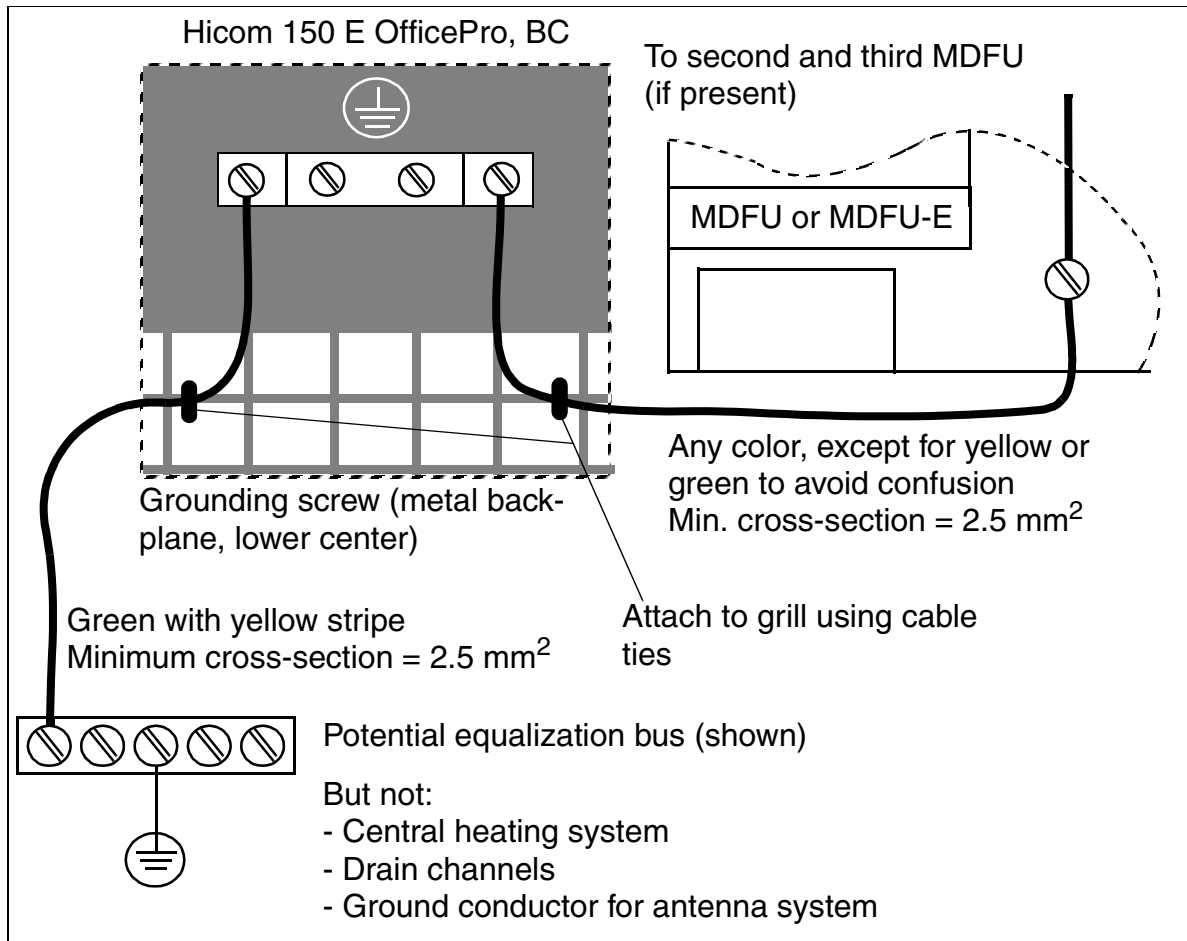


Figure 4-12 Hicom 150 E OfficePro—Grounding the System and Main Distribution Frame (Not for U.S.)



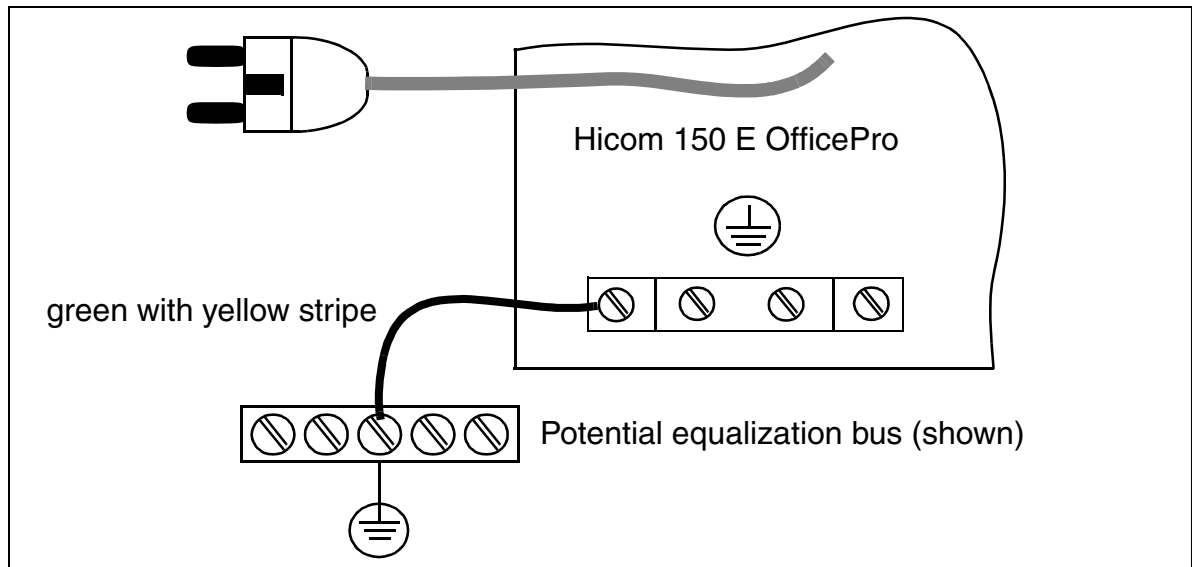
**Protective Grounding Option 1a (Not for U.S.)**

Figure 4-13 Hicom 150 E OfficePro—Protective Grounding Option 1a (Not for U.S.)

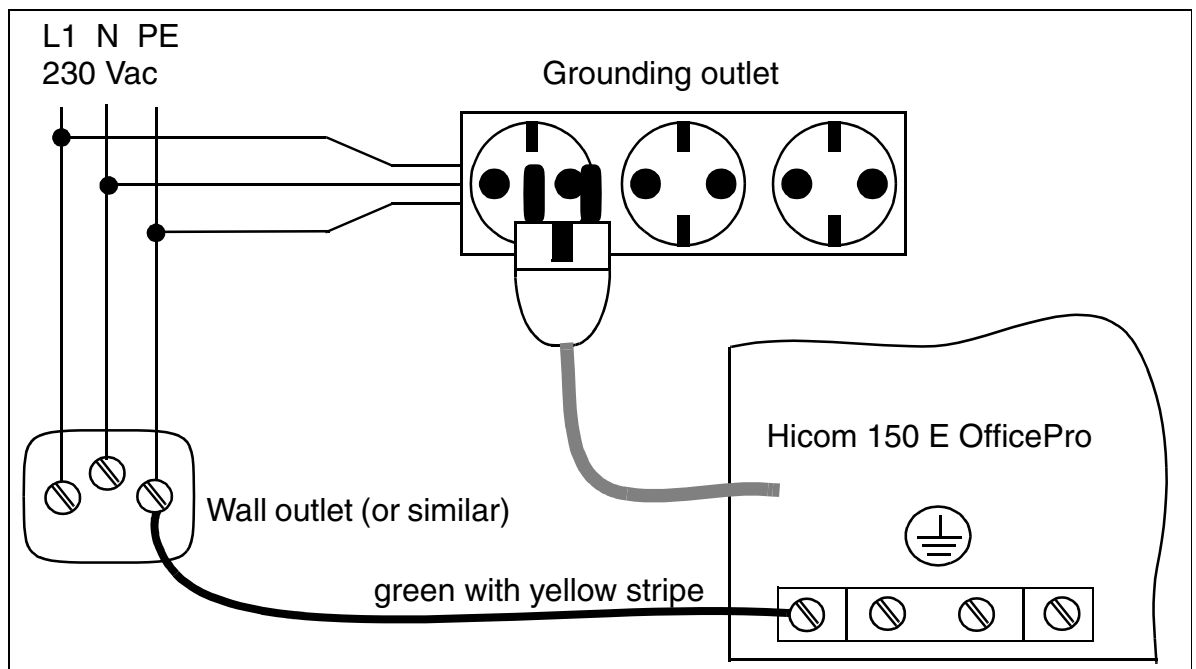
**Protective Grounding Option 1b (Not for U.S.)**

Figure 4-14 Hicom 150 E OfficePro—Protective Grounding Option 1b (Not for U.S.)

**Protective Grounding Option 2 (Not for U.S.)**

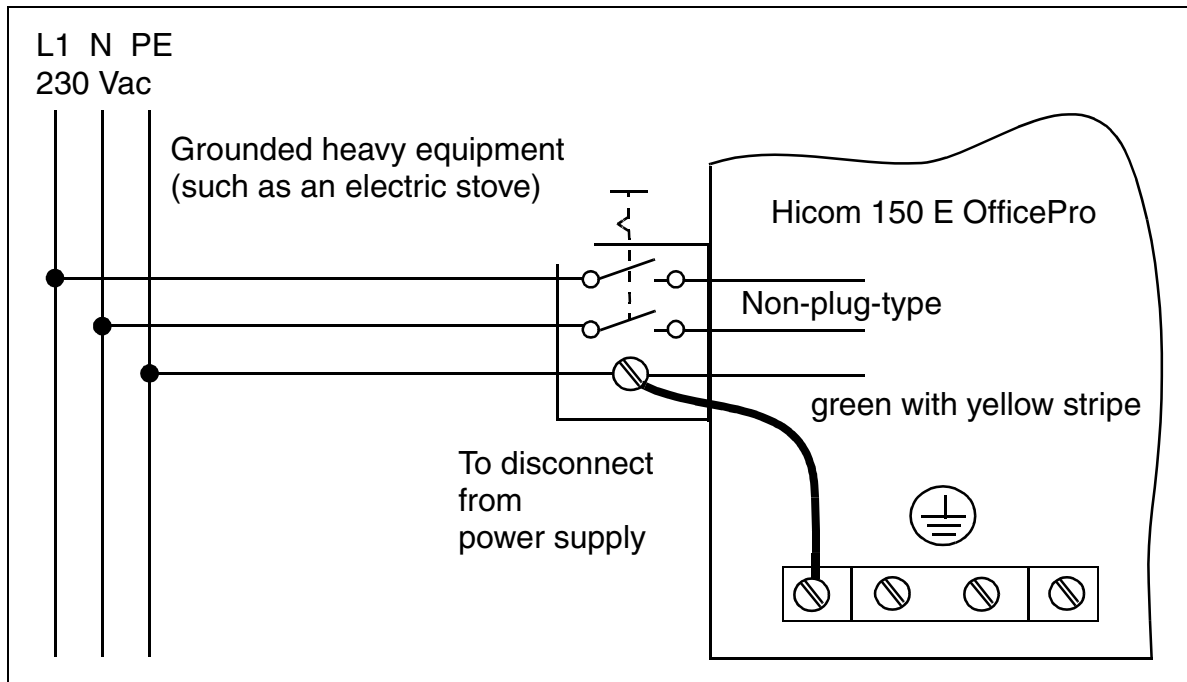


Figure 4-15 Hicom 150 E OfficePro—Protective Grounding Option 2 (Not for U.S.)

## **4.1.9 Grounding the System (for U.S. Only)**

### **Grounding the System Cabinets**

The system cabinets are grounded by their power cord, but an earth ground is also required. Choose an earth ground with less than 2 ohms of resistance, such as:

- Master ground busbar
- Ground field
- Copper ground rod

Run an earth ground conductor from the earth ground to the cabinet frame ground located in the center of the backplane. The minimum cross-section required is 14 AWG.

Figure 4-16 on page 4-32 shows the earth ground connections for the basic cabinet (BC). If expansion cabinets are added to surface-mounted systems, the metal connecting plates bond them to the basic cabinet. If two cabinets are mounted on the wall, the second cabinet requires an earth ground as well. Do not use the metal connecting plates on wall-mounted systems.

## Earth Ground (for U.S. Only)

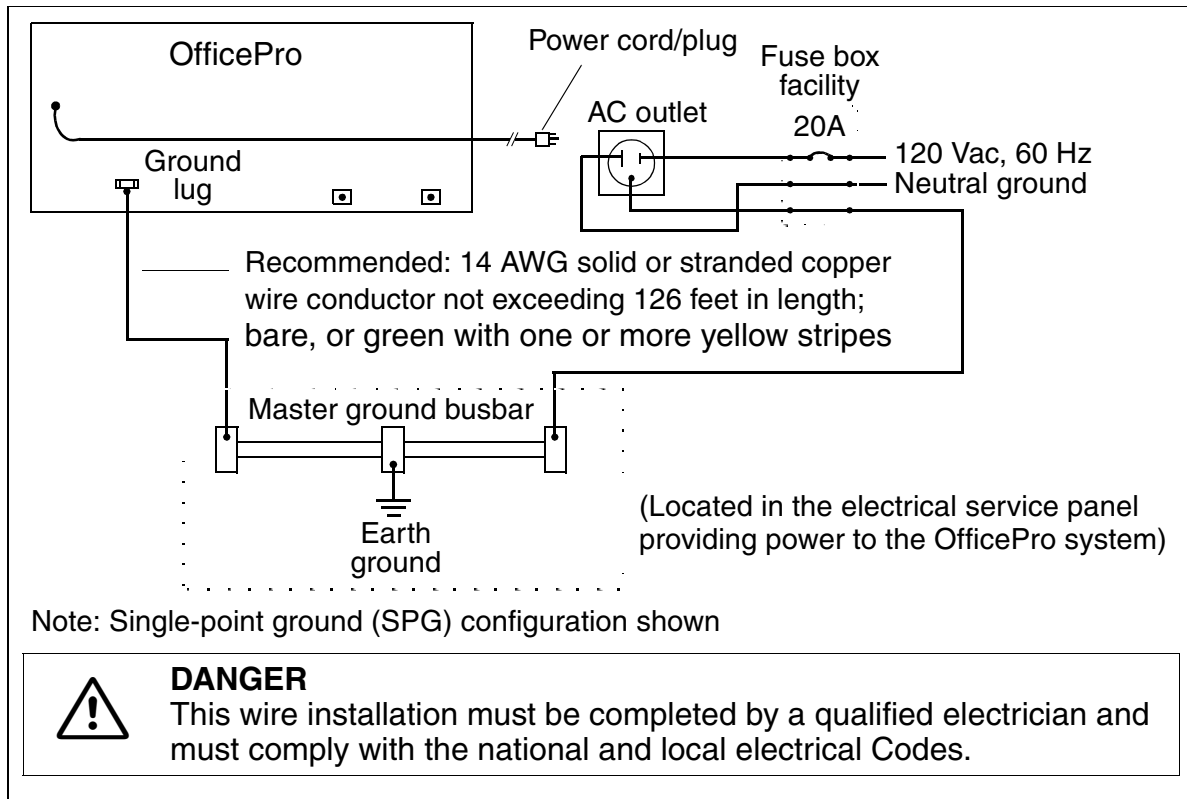


Figure 4-16 Basic Cabinet Earth Ground (for U.S. Only)

## Grounding the Main Distribution Frame (for U.S. Only)

Follow the manufacturer's instructions for grounding the main distribution frame.

## 4.1.10 Checking the Protective Grounding

### Procedure

Perform the tests in the table below to ensure that the system is properly grounded before startup.

| Step | Activity                                                                                                                                                        | Target    |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1.   | Measure the ohmic resistance of the ground connection between the ground bus and the system.                                                                    | < 1 ohm   |
| 2.   | Measure the ohmic resistance of the ground connection between the protective ground conductor or PE of the ac power cable and the metal frames of the cabinets. | < 1 ohm   |
| 3.   | Measure the ohmic resistance to ground from the supplementary ground or PEN (protective earth neutral) conductor of the socket used.                            | < 10 ohms |

## 4.1.11 Connecting the Cables (Not for U.S.)

### Introduction



All cables that leave the cabinet must be attached to the ventilation grill of the metal back panel using cable straps.

Set up the connection between the MDFU or MDFU-E and the system using CABLUs (prefabricated cabling units) with the following characteristics:

- System side: SIPAC 1 SU connector
- Cable: 16 x 2 x 0.4 (the standard cable length is 2 m.)
- MDFU-/MDFU-E side: Different distribution strips or carriers ([Figure 4-28](#))

You can use up to 9 CABLUs per MDFU ([Figure 4-29](#)) and 21 CABLUs per MDFU-E ([Figure 4-30](#)), each with a 16 TW terminal strip or a 25 TW terminal strip (9 x 30 mm).

Use open-end cables for special applications in which the prefabricated CABLUs cannot be used.

### CABLUs for the Slots Containing Peripheral Boards

(see [Figure 4-33](#) for “7-slot” cabinets and [Figure 4-34](#) for “8-slot” cabinets)

| If                                               | Then                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Slot with SLMO8, SLMO24, SLA8N, SLA16N or SLA24N | Route 16 TW to the MDFU or MDFU-E via SU_Xx8 and 8 TW via SU_Xx9, using a standard cable (with 16 TW) for each connection. Connect both cables (= 1 CABLU with SU connectors labeled 8 and 9) to the same jumper strip (25 TW).<br>If replacing an old system, you can use existing standard CABLUs with splitting strips for 16 TW. If an SLMO24 board is used, you must lay an additional CABLU (SU Xx9) to the MDFU or MDFU-E. |
| Slot with TMS2                                   | Set up S <sub>2M</sub> connection via SU Xx9 (not via MDFU or MDFU-E).                                                                                                                                                                                                                                                                                                                                                            |
| Slot with any other peripheral board             | Route 16 TW to the MDFU or MDFU-E via SU_Xx8 using a CABLU.                                                                                                                                                                                                                                                                                                                                                                       |

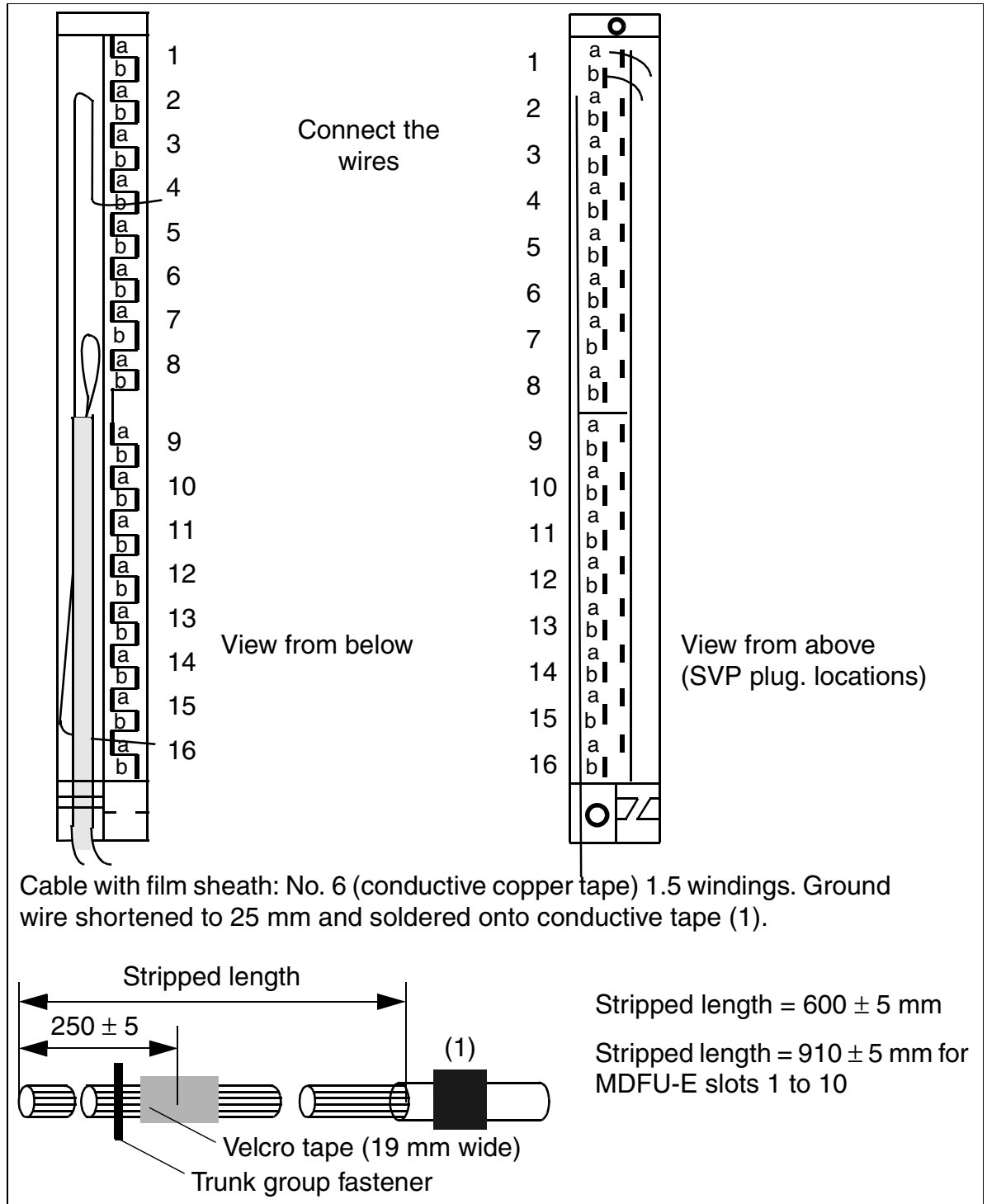
**Stripping the Open-End Cable (Not for U.S.)**


Figure 4-17 Stripping the Open-End Cable (Not for U.S.)

**Color Codes for the Open-End Cable (Not for U.S.)**

Table 4-3 Color Codes for the Open-End Cable (Not for U.S.)

| Color Group | Pair | a-Wire  | b-Wire  | Group | Pair | a-Wire  | b-Wire  |
|-------------|------|---------|---------|-------|------|---------|---------|
| 1           | 1    | wht/blu |         | 3     | 11   | blk/blu |         |
|             |      |         | blu/wht |       |      |         | blu/blk |
|             | 2    | wht/ora |         |       | 12   | blk/ora |         |
|             |      |         | ora/wht |       |      |         | ora/blk |
|             | 3    | wht/grn |         |       | 13   | blk/grn |         |
|             |      |         | grn/wht |       |      |         | grn/blk |
|             | 4    | wht/brn |         |       | 14   | blk/brn |         |
|             |      |         | brn/wht |       |      |         | brn/blk |
| 2           | 5    | wht/gry |         | 4     | 15   | blk/gry |         |
|             |      |         | gry/wht |       |      |         | gry/blk |
|             | 6    | red/blu |         |       | 16   | yel/blu |         |
|             |      |         | blu/red |       |      |         | blu/yel |
|             | 7    | red/ora |         |       |      |         |         |
|             |      |         | ora/red |       |      |         |         |
|             | 8    | red/grn |         |       |      |         |         |
|             |      |         | grn/red |       |      |         |         |
|             | 9    | red/brn |         |       |      |         |         |
|             |      |         | brn/red |       |      |         |         |
|             | 10   | red/grn |         |       |      |         |         |
|             |      |         | grn/red |       |      |         |         |



#### 4.1.11.1 7-Slot Cabinets



The “7-slot” basic and expansion cabinets each have six slots for peripheral boards. You cannot install both “7-slot” cabinets and “8-slot” cabinets in the same system.

#### Backplane of the “7-Slot” Basic and Expansion Cabinets

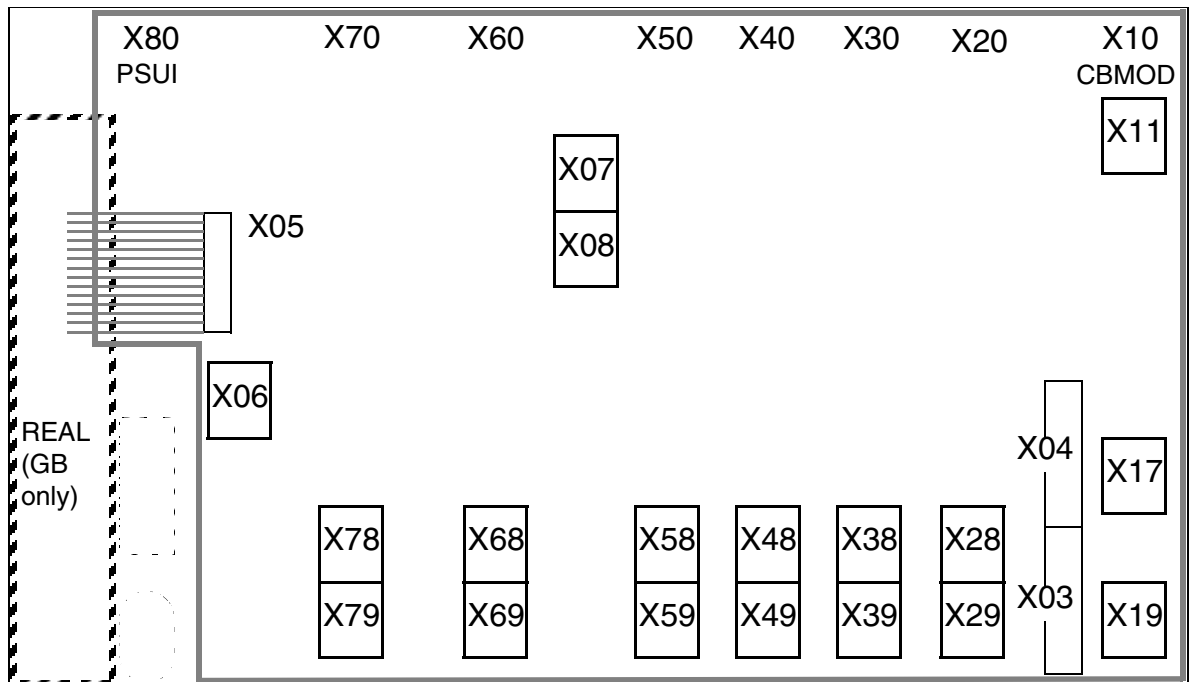


Figure 4-18 Hicom 150 E OfficePro - Backplane of the “7-Slot” Basic and Expansion Cabinets

#### Connector Assignments on the “7-slot” Backplane

Table 4-4 Connector Assignments on the “7-Slot” Backplane

| Connector | Cabinet | Function                                                                                                           |
|-----------|---------|--------------------------------------------------------------------------------------------------------------------|
| X03       | BC      | Second V.24 (no electrical isolation) via 25-pin socket: Connection for printer, Plus products, and other devices. |
| X04       | BC      | First V.24 (no electrical isolation) via 25-pin socket: No function (second V.24 is accessed from the front.)      |
| X05       | BC      | Cable connector to REAL                                                                                            |

Table 4-4 Connector Assignments on the “7-Slot” Backplane

| Connector | Cabinet           | Function                                                                                                                                                                  |
|-----------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X06       | BC                | MDFU-to-REAL connection via SU connector                                                                                                                                  |
| X07       | EC1<br>EC1<br>EC2 | Cable connector to BC, X11 (two-cabinet system only)<br>Cable connector to EC2, X11 (three-cabinet system only)<br>Cable connector to BC, X11 (three-cabinet system only) |
| X08       | EC1<br>EC1<br>EC2 | Cable connector to BC, X17 (two-cabinet system only)<br>Cable connector to EC2, X17 (three-cabinet system only)<br>Cable connector to BC, X17 (three-cabinet system only) |
| X11       | BC<br>BC          | Cable connector to EC1, X07 (two-cabinet system only)<br>Cable connector to EC2, X07 (three-cabinet system only)                                                          |
| X17       | BC<br>BC          | Cable connector to BC, X08 (two-cabinet system only)<br>Cable connector to EC2, X08 (three-cabinet system only)                                                           |
| X19       | BC<br>EC2         | Cable connector to EC2, X19 (three-cabinet system only)<br>Cable connector to BC, X19 (three-cabinet system only)                                                         |
| X28 - X78 | All               | 1 SU connector each (16 TW) to MDFU or MDFU-E                                                                                                                             |
| X28 - X78 | All               | 1 SU connector each (8 TW) to MDFU or MDFU-E (not for S <sub>2M</sub> )                                                                                                   |

### Connecting Cables Between the “7-Slot” Basic and Expansion Cabinets

If installing a multi-cabinet system, you must also connect the cables between the BC and ECs.

| If                   | Then                                                                                                                                                                                                                    |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Two-cabinet system   | Connect BC to EC1 = 2 cables (S30267-Z191-A; <a href="#">Figure 4-19 on page 4-39</a> )                                                                                                                                 |
| Three-cabinet system | <ul style="list-style-type: none"> <li>Connect BC to EC2 = 3 cables (2 x S30267-Z191-A, 1 x S330287-Z195-A)</li> <li>Connect EC2 to EC1 = 2 cables (S30267-Z194-A; <a href="#">Figure 4-20 on page 4-40</a>)</li> </ul> |

**Connecting Cables for a Two-Cabinet “7-Slot” System (see Table 4-4) (Not for U.S.)**

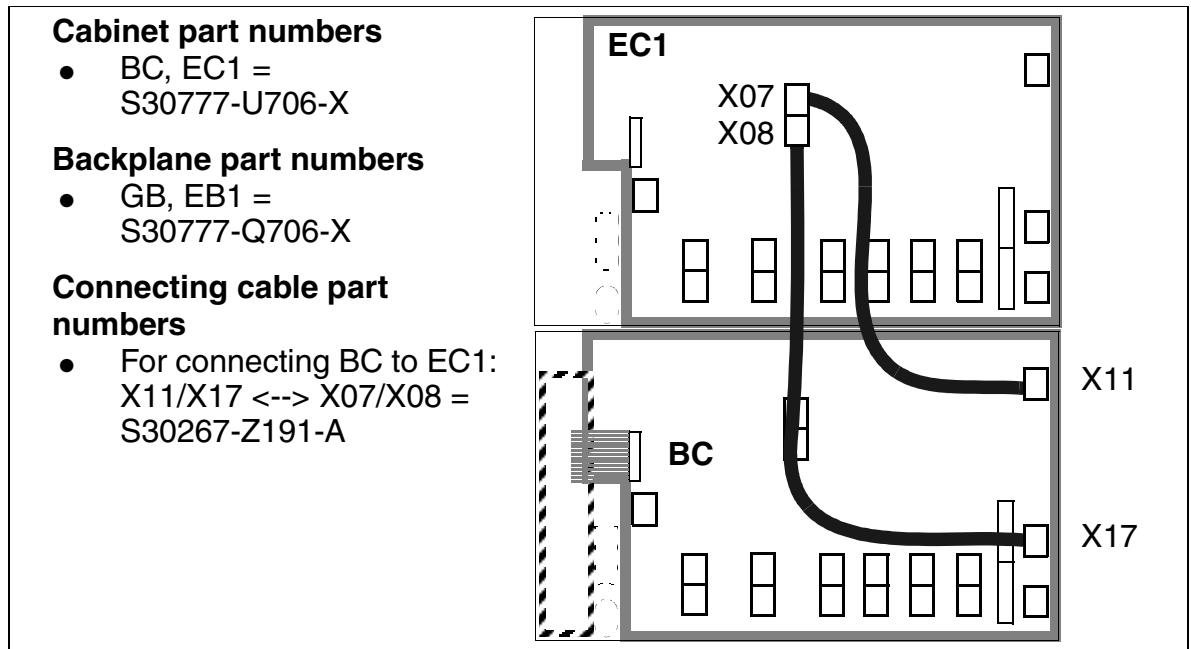


Figure 4-19 Two-Cabinet “7-slot” System - Connecting Cables Between BC and EC1

## Connecting Cables for a Three-Cabinet “7-Slot” System (see Table 4-4) (Not for U.S.)

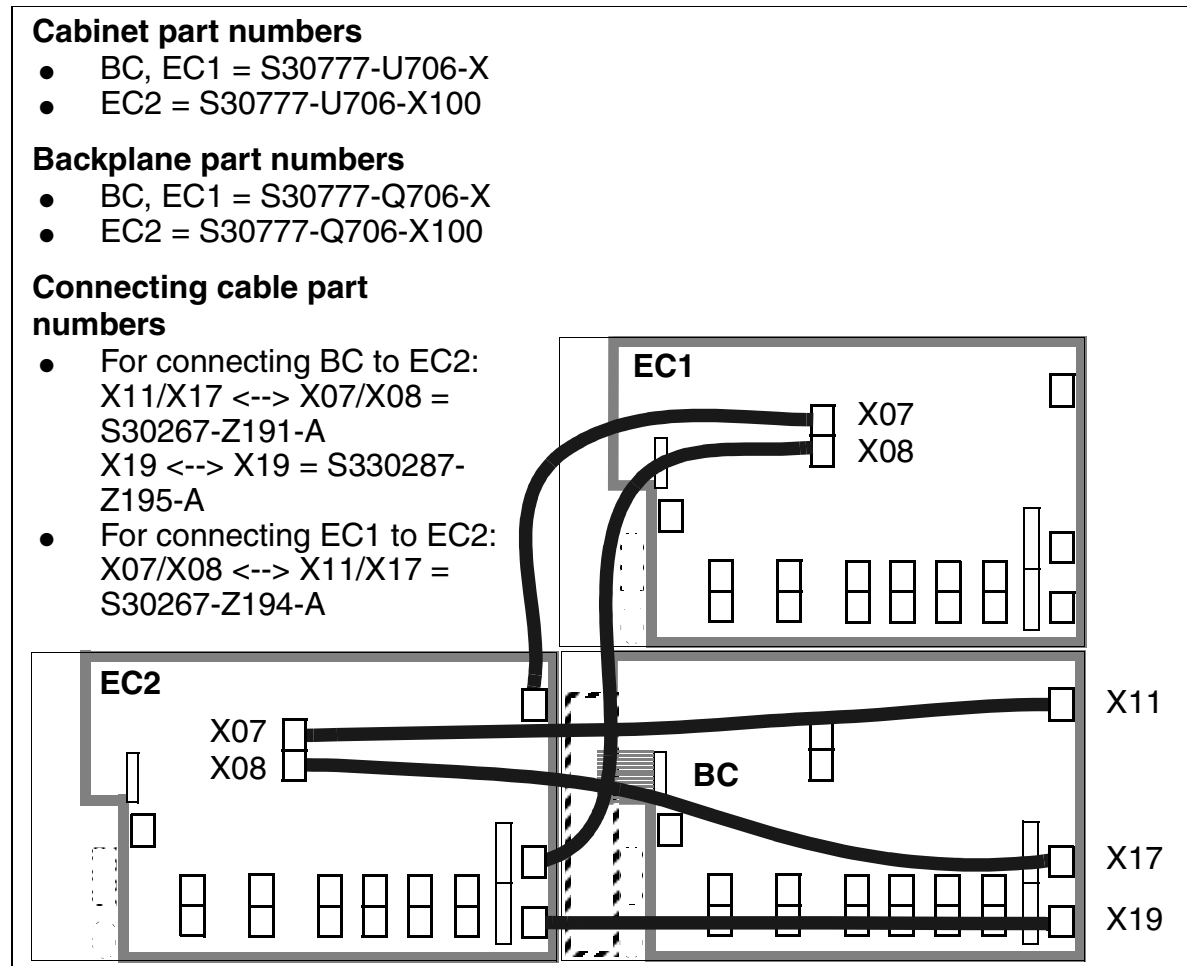


Figure 4-20 Three-Cabinet “7-Slot” System - Connecting Cable Between BC, EC1, and EC2



From the hardware point of view, EC2 is installed between the BC and EC1.

## Expanding a Two-Cabinet “7-Slot” System to a Three-Cabinet “7-Slot” System (Not for U.S.)

The new cabinet (EC2) is already equipped with a CONBO board (slot 17). Because it does not have terminating resistors, EC2 must be installed between the BC and EC1.

### Terminating Resistors in “7-Slot” Cabinets

- BC: Between slots 3 + 4 and 7 + PSUI/UPSM
- EC1: Between slots 11 + 12 and 15 + PSUI/UPSM
- EC2: No terminating resistors

#### 4.1.11.2 “8-Slot” Cabinets



The “8-slot” basic cabinet has seven slots, while the expansion cabinets each have eight slots for peripheral boards. You cannot install both “7-slot” cabinets and “8-slot” cabinets in the same system.

### Backplane of the “8-Slot” Basic Cabinet

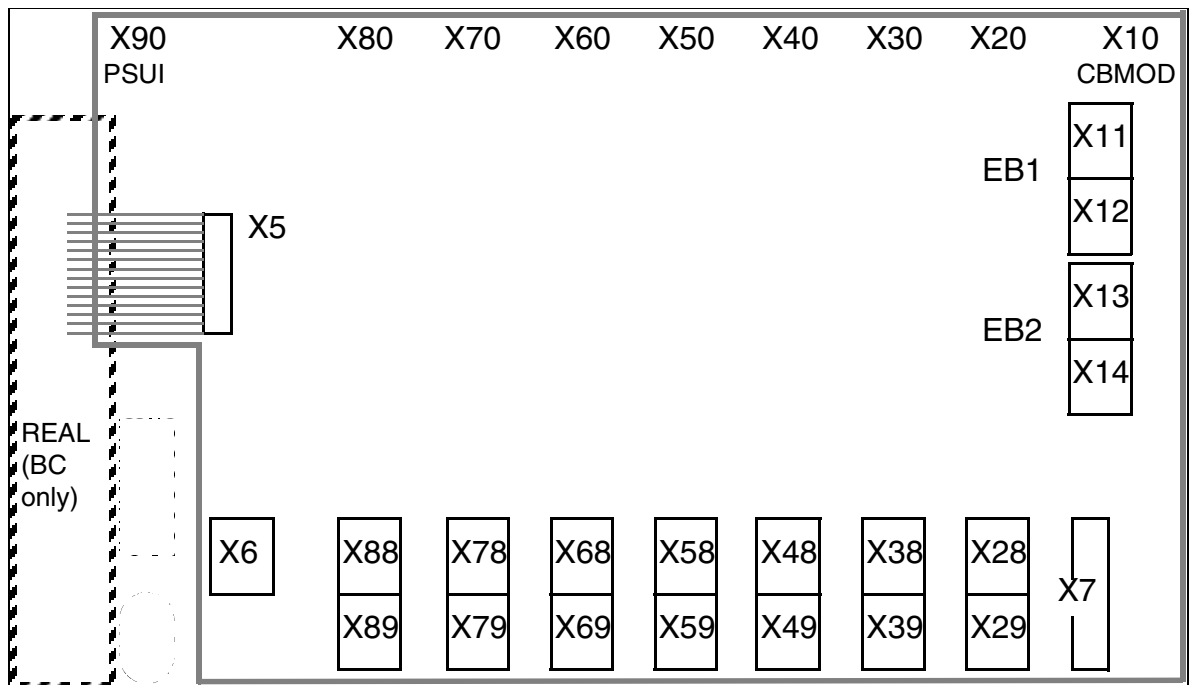


Figure 4-21 Hicom 150 E OfficePro - Backplane of the “8-Slot” Basic Cabinet

## Backplane of the “8-Slot” Expansion Cabinets

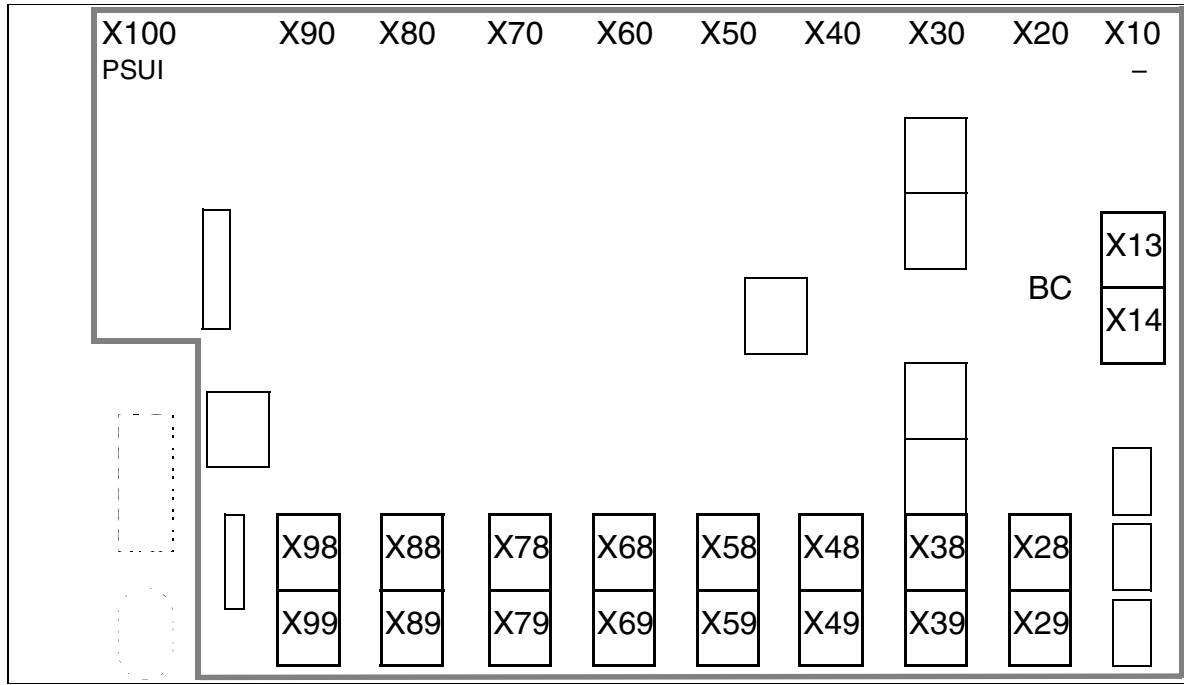


Figure 4-22 Hicom 150 E OfficePro - Backplane of the “8-Slot” Expansion Cabinets

## Connector Assignments on the “8-Slot” Backplan

Table 4-5 Connector Assignments on the “8-Slot Backplane

| Connector | Cabinet          | Function                                                                                                       |
|-----------|------------------|----------------------------------------------------------------------------------------------------------------|
| X7        | BC               | V.24 (no electrical isolation) via 25-pin socket:<br>Connection for printer, Plus products, and other devices. |
| X5        | BC               | Cable connector to REAL                                                                                        |
| X6        | BC               | MDFU-to-REAL connection via SU connector                                                                       |
| X11       | BC               | Cable connector to EC1: X13                                                                                    |
| X12       | BC               | Cable connector to EC1: X14                                                                                    |
| X13       | BC<br>EC1<br>EC2 | Cable connector to EC2: X13<br>Cable connector to BC: X11<br>Cable connector to BC: X13                        |
| X14       | BC<br>EC1<br>EC2 | Cable connector to EC2: X14<br>Cable connector to BC: X12<br>Cable connector to BC: X14                        |

Table 4-5 Connector Assignments on the “8-Slot Backplane

| Connector | Cabinet    | Function                                                                |
|-----------|------------|-------------------------------------------------------------------------|
| X28 - X88 | All        | 1 SU connector each (16 TW) to MDFU/MDFU-E                              |
| X98       | EC1<br>EC2 | 1 SU connector each (16 TW) to MDFU/MDFU-E                              |
| X29 - X89 | All        | 1 SU connector each (8 TW) to MDFU/MDFU-E<br>(not for S <sub>2M</sub> ) |
| X99       | EC1<br>EC2 | 1 SU connector each (8 TW) to MDFU/MDFU-E<br>(not for S <sub>2M</sub> ) |

### Connecting Cables between “8-Slot” Basic and Expansion Cabinets

In multi-cabinet systems, connect the cables between the BC and EC(s).

| If                   | Then                                                                                                                                                                                        |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Two-cabinet system   | Connect BC to EC1 = 2 cables (S30267-Z178-A13)<br>(see <a href="#">Figure 4-26</a> )                                                                                                        |
| Three-cabinet system | <ul style="list-style-type: none"> <li>Connect BC to EC1 = 2 cables (S30267-Z178-A13)</li> <li>Connect BC to EC2 = 2 cables (S30267-Z178-A13)</li> </ul> (see <a href="#">Figure 4-27</a> ) |

**Connecting Cables for a Two-Cabinet “8-Slot” System (see Table 4-5)**

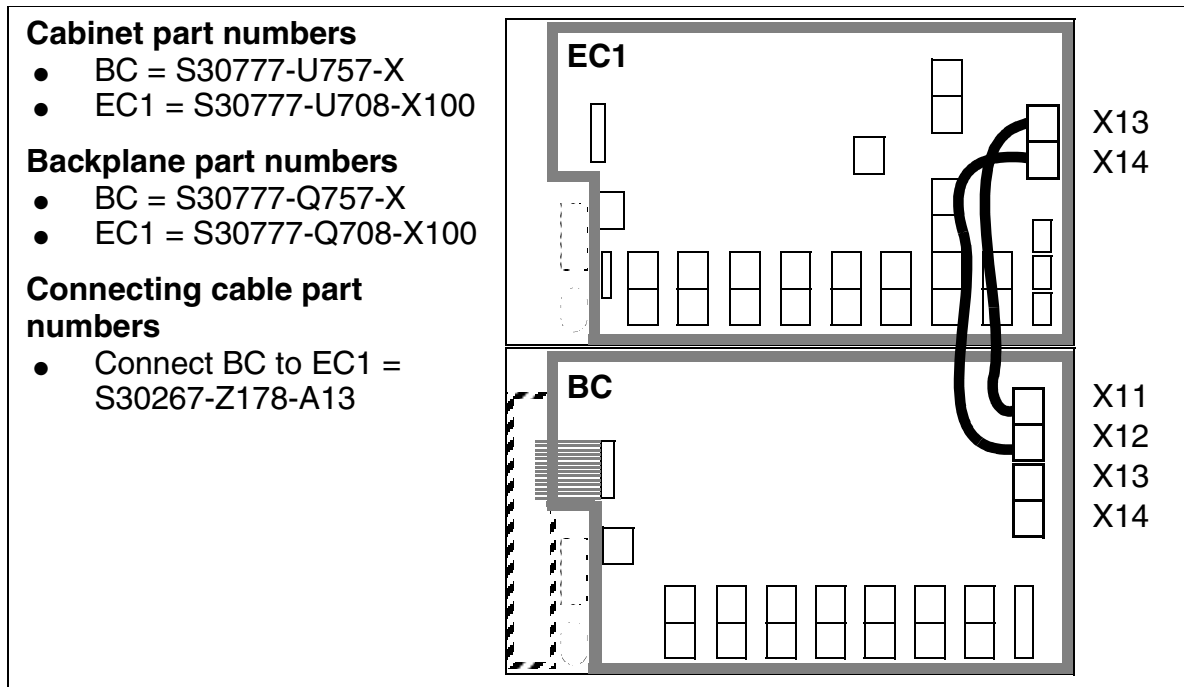


Figure 4-23 Two-Cabinet “8-Slot” System - Connecting Cables between BC and EC11



### Connecting Cables for a Three-Cabinet “8-Slot” System (see [Table 4-5](#))

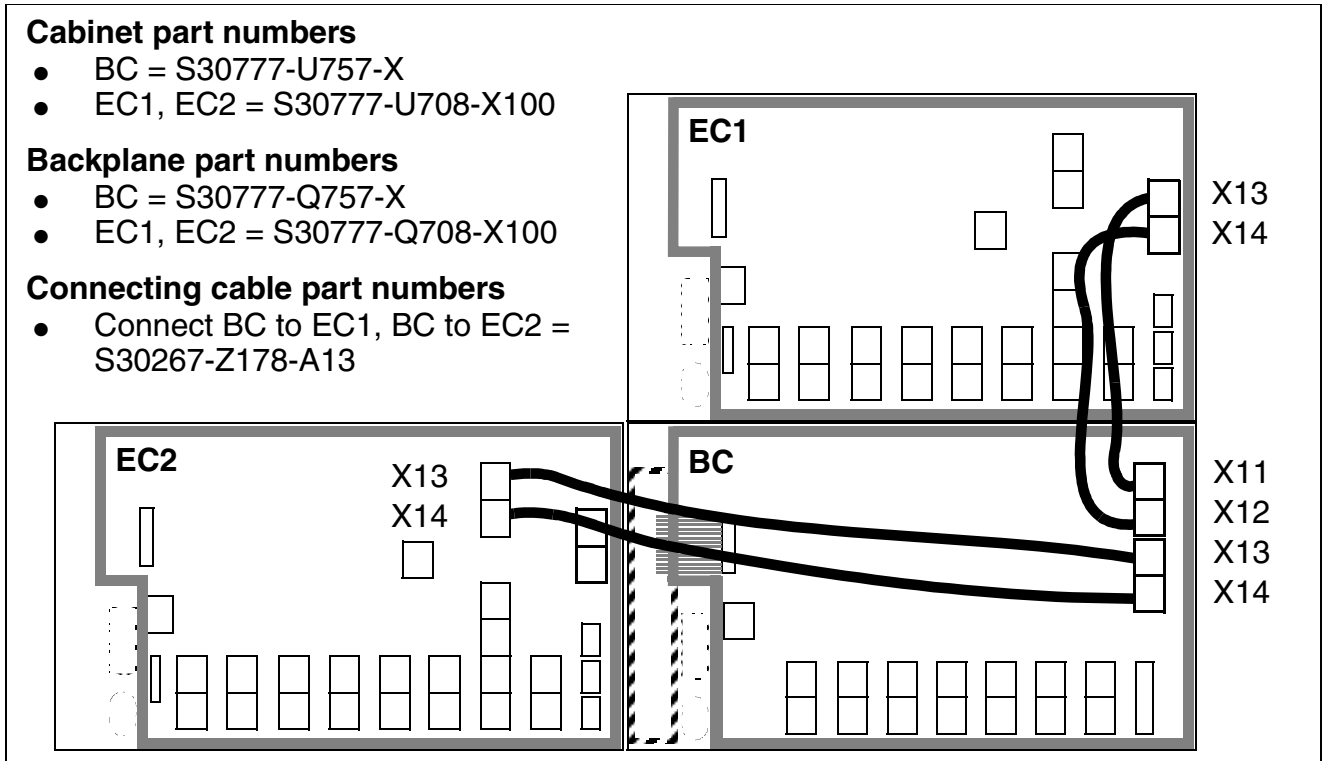


Figure 4-24 Three-Cabinet “8-Slot” System - Connecting Cables Between BC, EC1, and EC2

The cables between the basic cabinet and the extended cabinets are connected in a star configuration.

### Terminating Resistors in “8-Slot” Cabinets

- BC: Between slots CBMOD + 2 and 3 + 4 and 8 + PSUI/UPSM
- EC1: Between slots 11 + 12 and 13 + 14 and 15 + 16 and 17 + PSUI/UPSM
- EC2: Between slots 20 + 21 and 22 + 23 and 24 + 25 and 26 + PSUI/UPSM

## 4.1.12 Connecting the Cables (for U.S. Only)

### Introduction



All cables that leave the cabinet must be attached to the ventilation grill of the metal back panel using cable straps.

### Backplanes of the Basic Cabinet and Expansion Cabinets (for U.S. Only)

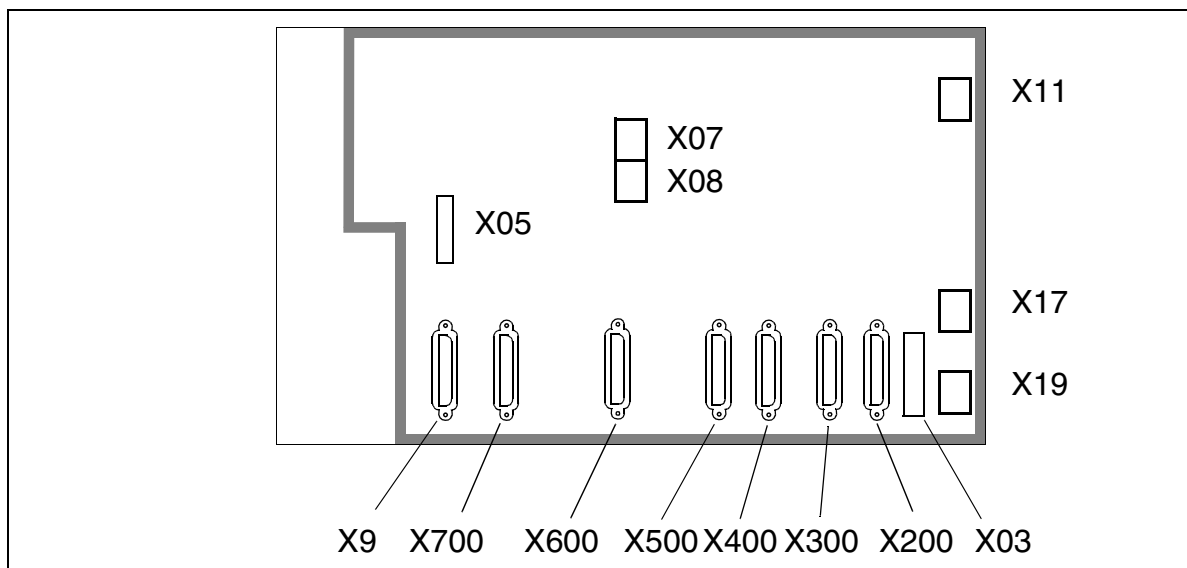


Figure 4-25 OfficePro—Backplane Connectors (for U.S. Only)

**Connector Assignments on the Backplane (for U.S. Only)**

Table 4-6 Backplane Connector Assignments (for U.S. Only)

| Conn. | Cabinet           | Function                                                                                                                                                                  |
|-------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X03   | BC                | RS-232 (no electrical isolation) via 25-pin socket: Connection for printer, Plus products, and other devices.                                                             |
| X05   | BC                | Cable connector to REAL                                                                                                                                                   |
| X9    | BC                | MDF-to-REAL connection via Champ connector                                                                                                                                |
| X07   | EC1<br>EC1<br>EC2 | Cable connector to BC, X11 (two-cabinet system only)<br>Cable connector to EC2, X11 (three-cabinet system only)<br>Cable connector to BC, X11 (three-cabinet system only) |
| X08   | EC1<br>EC1<br>EC2 | Cable connector to BC, X17 (two-cabinet system only)<br>Cable connector to EC2, X17 (three-cabinet system only)<br>Cable connector to BC, X17 (three-cabinet system only) |
| X11   | BC<br>BC          | Cable connector to EC1, X07 (two-cabinet system only)<br>Cable connector to EC2, X07 (three-cabinet system only)                                                          |
| X17   | BC<br>BC          | Cable connector to BC, X08 (two-cabinet system only)<br>Cable connector to EC2, X08 (three-cabinet system only)                                                           |
| X19   | BC<br>EC2         | Cable connector to EC2, X19 (three-cabinet system only)<br>Cable connector to BC, X19 (three-cabinet system only)                                                         |
| X200  | All               | 25-pair Amp/Champ connector* to MDF                                                                                                                                       |
| X300  | All               | 25-pair Amp/Champ connector* to MDF                                                                                                                                       |
| X400  | All               | 25-pair Amp/Champ connector* to MDF                                                                                                                                       |
| X500  | All               | 25-pair Amp/Champ connector* to MDF                                                                                                                                       |
| X600  | All               | 25-pair Amp/Champ connector* to MDF                                                                                                                                       |
| X700  | All               | 25-pair Amp/Champ connector* to MDF                                                                                                                                       |

\* Connects to the MDF by means of a 25-pair modular MDF cable

## Connecting Cables Between the Basic and Expansion Cabinets (for U.S. Only)

In the case of multi-cabinet systems, connecting cables must be installed between the BC and ECs.

| If                   | Then                                                                                                                                                                                                       |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Two-cabinet system   | Connect BC to EC1 = 2 cables (S30267-Z199-A)<br>(Figure 4-26 on page 4-48)                                                                                                                                 |
| Three-cabinet system | <ul style="list-style-type: none"> <li>Connect BC to EC2 = 3 cables (2x S30267-Z199-A, 1x S330287-Z195-A)</li> <li>Connect EC2 to EC1 = 2 cables (S30267-Z194-A)<br/>(Figure 4-27 on page 4-49)</li> </ul> |

## Cables for a Two-Cabinet System (for U.S. Only)

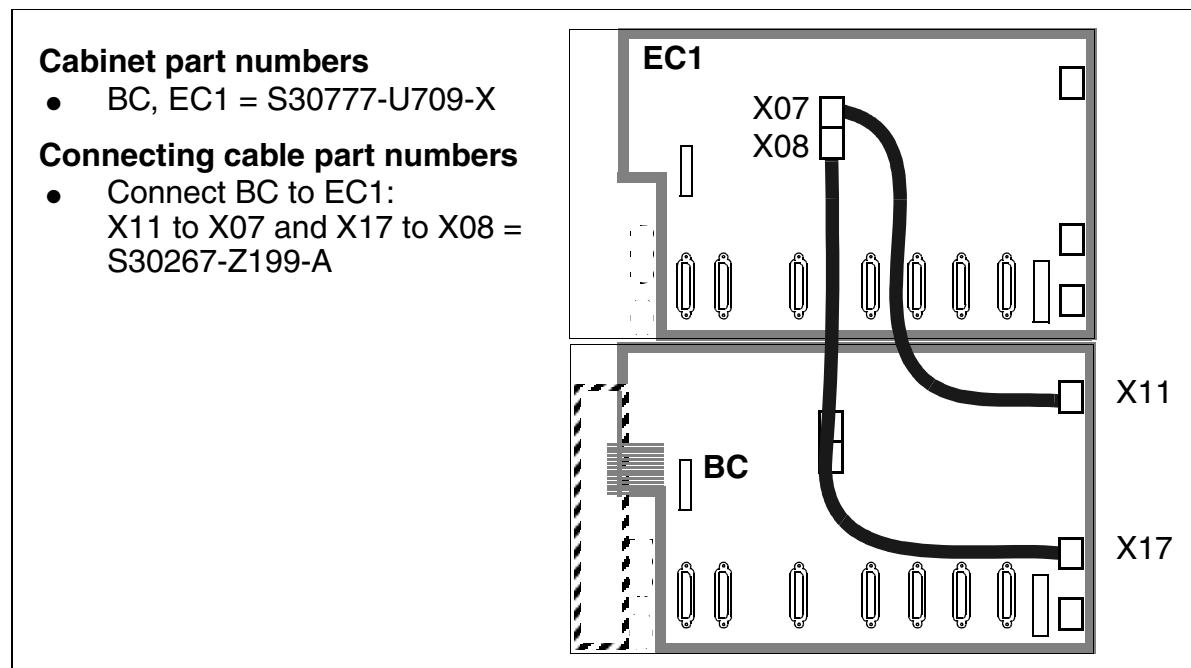


Figure 4-26 Two-Cabinet System: Cables Between BC and EC1 (for U.S. Only)

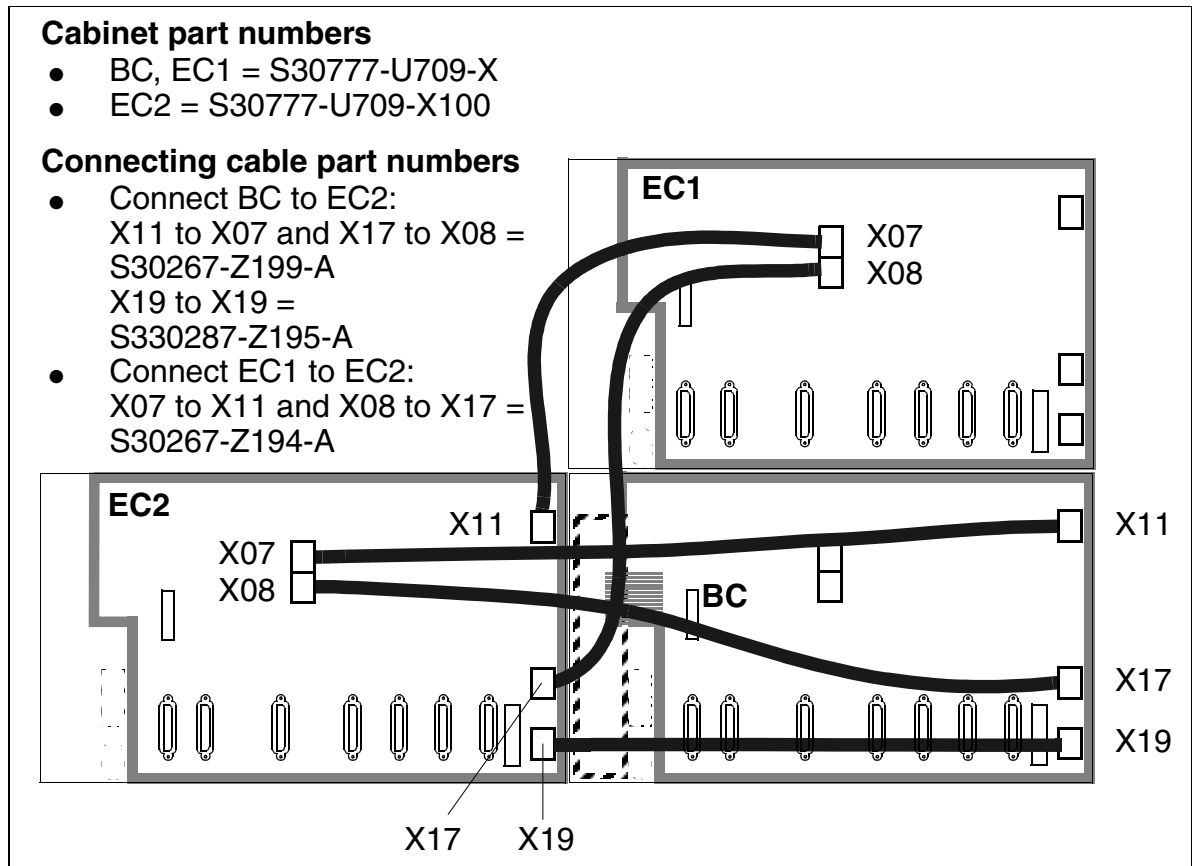
**Cables for a Three-Cabinet System (for U.S. Only)**


Figure 4-27 Three-Cabinet System: Cables Between BC, EC1, and EC2 (for U.S. Only)



From the hardware point of view, EC2 is installed between the BC and EC1.

**Expanding a Two-Cabinet System to a Three-Cabinet System (for U.S. Only)**

The new cabinet (EC2) is already equipped with a CONBO board (Slot 17). Because it does not have terminating resistors, EC2 must be physically installed between the BC and EC1 by re-running the cables from BC to EC1 so that they now run from BC to EC2 (compare [Figure 4-26 on page 4-48](#) and [Figure 4-27](#)).

### 4.1.13 Laying the Line Network and Connecting Network Facilities

#### MDFU and MDFU-E Jumpers, External Line Network (Not for U.S.)

**DANGER**

Connect the system to protective ground before connecting the stations.

Most main distribution frames do not have an external side. You must jumper them to the incoming line network (see jumpering duct: [Figure 4-29](#) for MDFU, [Figure 4-30](#) for MDFU-E). Use a standard wiring tool for laying the cable wires.



If you jumper stations on the MDFU or MDFU-E (for example, with an ICCS network) without first entering the relocate code, when you reconnect them the stations affected will go into operation with the data of the stations originally installed.

#### Surge Protector (Not for U.S.)

To protect against surge voltage caused by lightning strikes, use the supplied surge protectors for analog subscriber boards (SLA16, SLA8N, SLA16N, and SLA24N), the CMI board (SLC16 or SLMC8) and loop start boards (TML8W). Connect the polarized surge protectors to the plugging locations on the splitting strip described above.

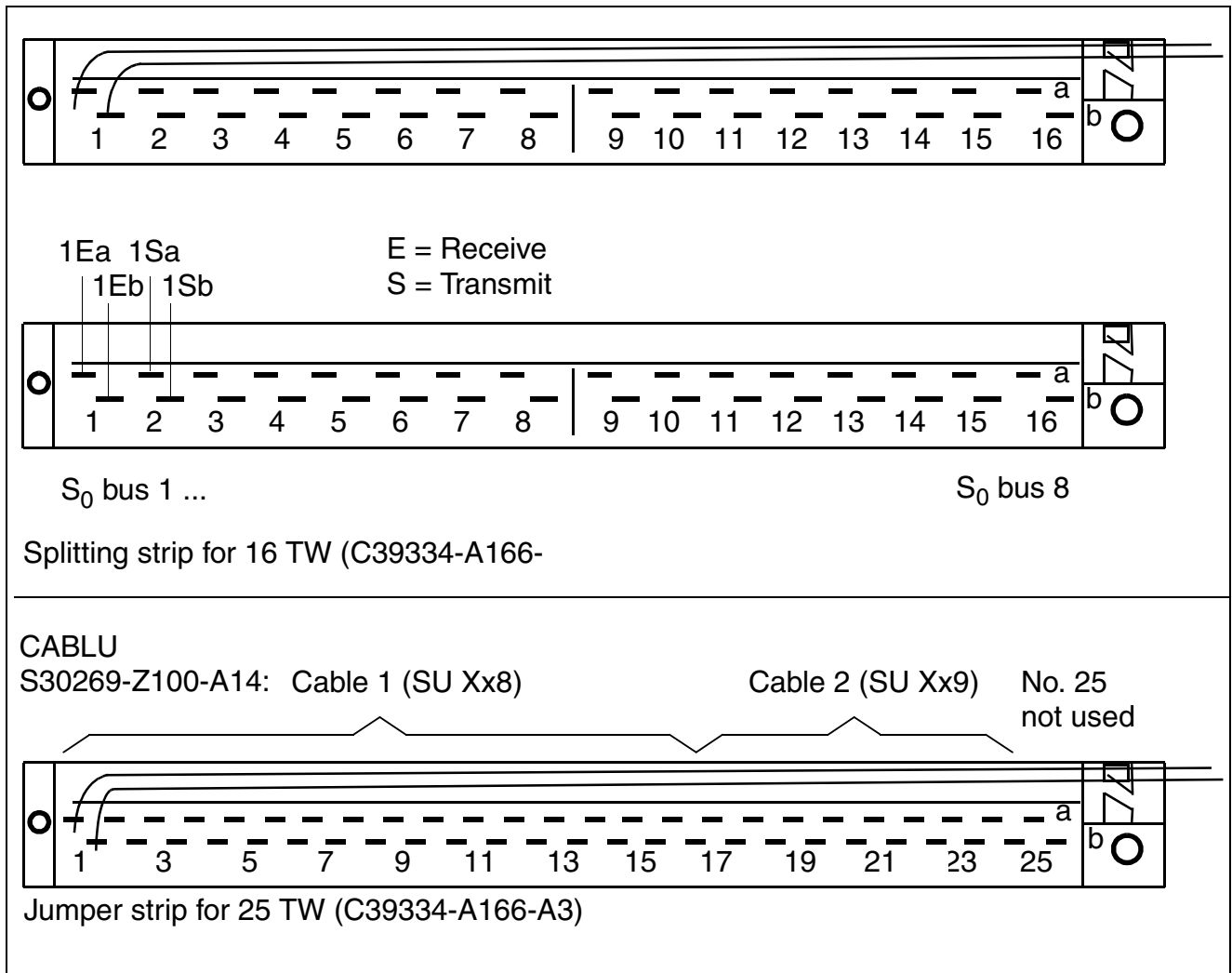
**Splitting and Jumper Strips (View From Above) (Not for U.S.)**


Figure 4-28 Assignments (Numbering) of the Splitting/Jumper Strips (Not for U.S.)

**Layout and Dimensions of the MDFU (Not for U.S.)**

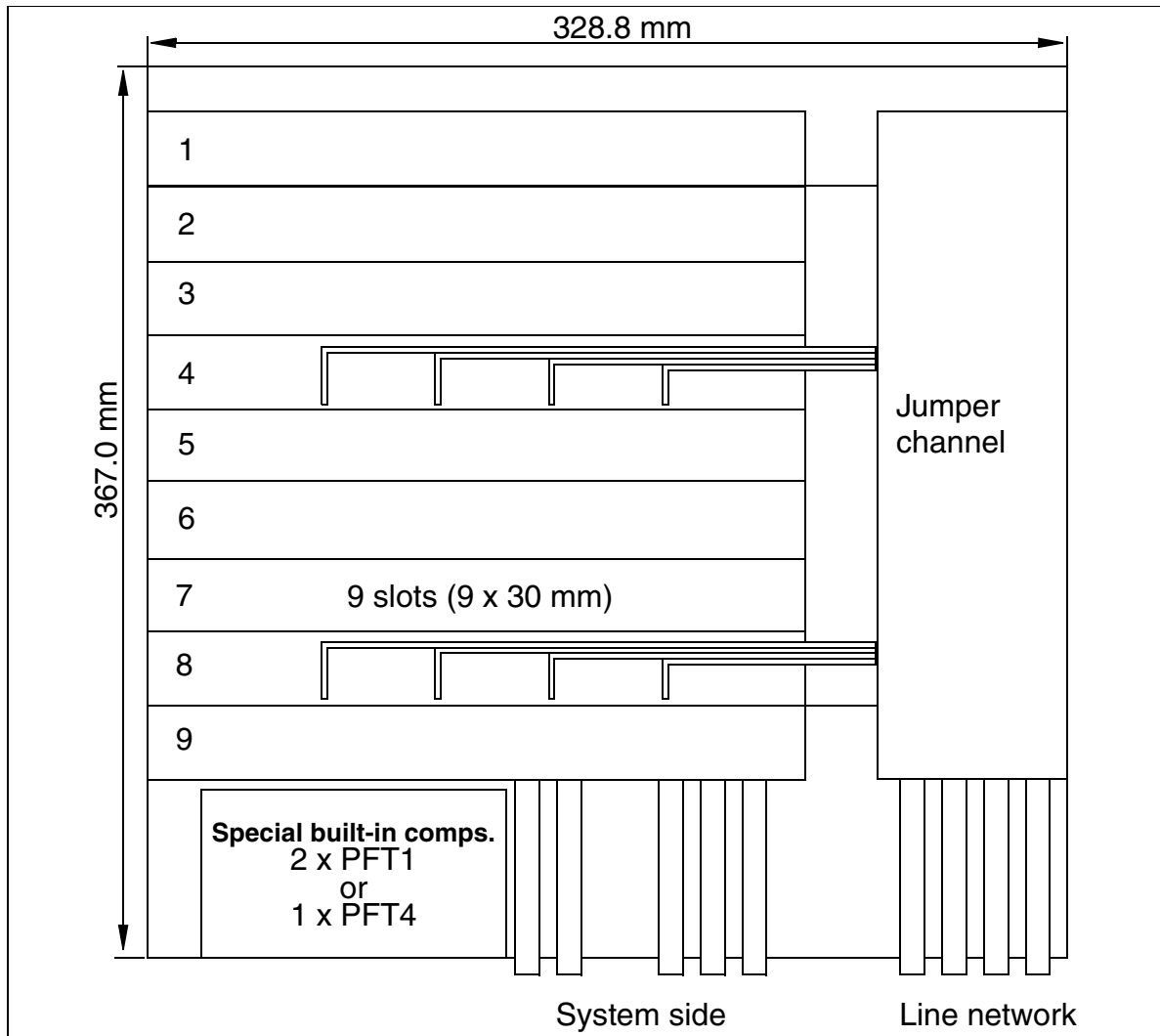


Figure 4-29 MDFU—Layout and Dimensions (367.0 x 328.8 x 125.4 mm) (Not for U.S.)



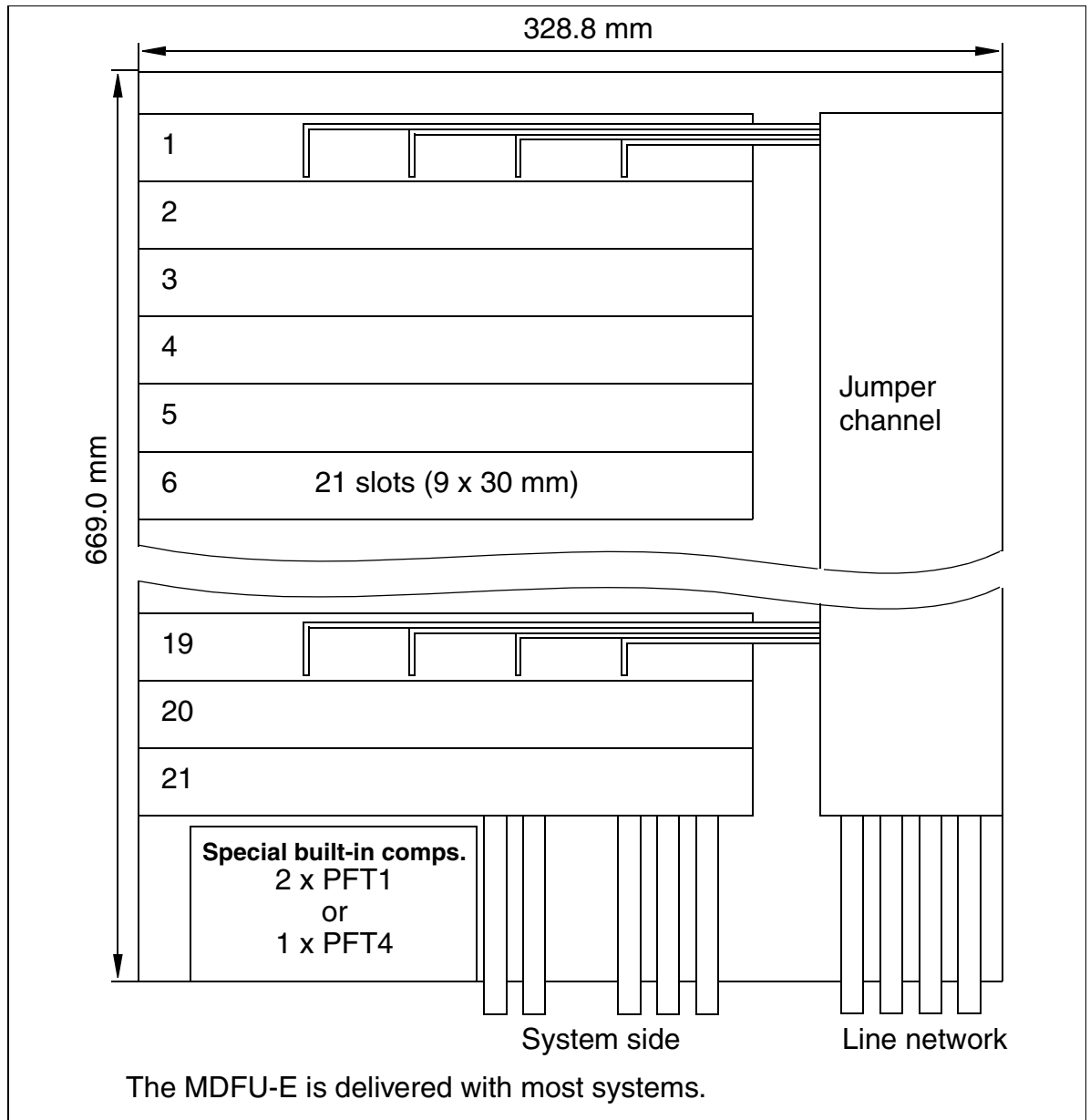
**Layout and Dimensions of the MDFU-E (Not for U.S.)**

Figure 4-30 MDFU-E—Layout and Dimensions (669.0 x 328.8 x 125.4 mm) (Not for U.S.)

**Connecting Network Facilities (for U.S. Only)****DANGER**

Ground the system properly before connecting the stations.

**Connecting to the Point of Demarcation (for U.S. Only)**

Most main distribution frames (MDFs) are designed with a network demarcation block. You must cross-connect the MDF to the incoming trunks. Use a standard wiring tool for laying the cable wires.

**Connecting to T1, PRI, or CorNet (for U.S. Only)****Caution**

The TMST1 Module can be installed only in conjunction with a Listed channel service unit (CSU).

**Secondary Protection (for U.S. Only)****DANGER**

To protect against surge voltage caused by lightning, use secondary protection for the following OfficePro boards when their wiring leaves the building where the main distribution frame is housed:

- SLA16
- SLA16N
- SLA24N
- TMDID8
- TMGL8
- TIEL4 (if not connected to facility provider terminal equipment)
- TMST1 (When this module is connected to the public network, secondary protection must be provided by the CSU.)

## 4.1.14 Installing the Flash Memory Card

### Introduction

**Caution**

Always wear an antistatic wristband when working on the system (especially when handling boards). Connect the wristband to the slide-in shelf in the cabinet using the alligator clip.

Outside the U.S., the cabinets are already equipped with the boards needed for the customer-specific requirements when the system is delivered.

In the U.S., you may need to install the boards.

The central board (CBMOD) is not always fully equipped when delivered. Optional plug-in boards are packaged individually.

### Dual Board Connector for Flash Memory and Modem Cards on the CBMOD

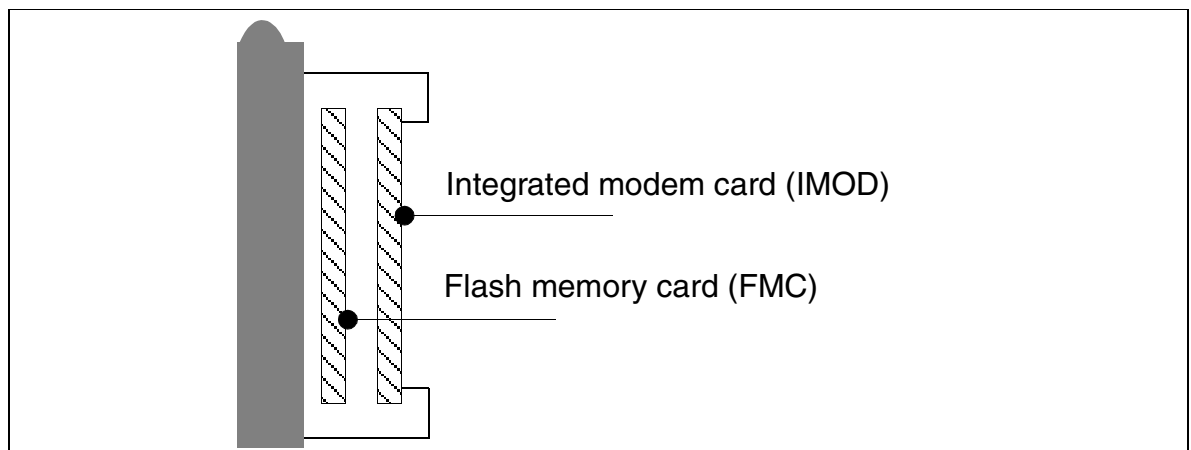


Figure 4-31 View of the Dual Board Connector for the Flash Memory and Modem Cards on the CBMOD

- Insert the FMC in the left connector on the CBMOD (see Figure 4-31).
- Insert the IMOD (if used) in the right connector on the CBMOD (see Figure 4-31).



Be sure to observe the information on the different CBMOD versions.

**Socket for Clock Generator Module on the CBMOD Board**

Connect the CGM board (if used) to the plug contact provided for it on the CBMOD. Control Board CBMOD (see Figure 4-32).

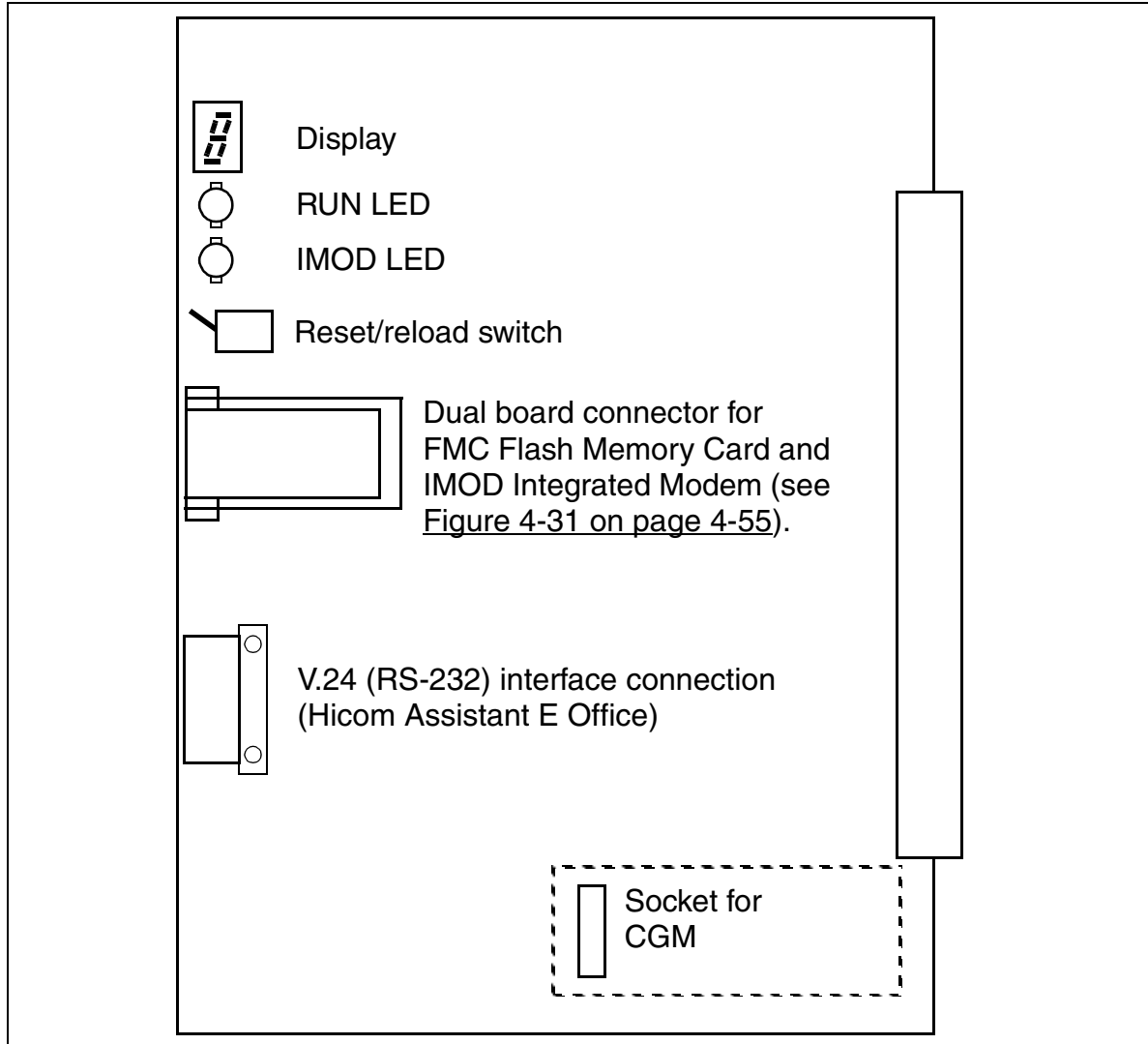


Figure 4-32 CBMOD Board With Socket for CGM

## 4.1.15 Configuration Notes

### Introduction

Outside the U.S., the cabinets are already equipped with the boards needed for the customer-specific requirements when the system is delivered. In the U.S., you may need to install the boards.

### Board Slots in “7-Slot” Cabinets

Eight board slots are available in each cabinet. The following boards are assigned permanent slots:

- CBMOD central processor board -> slot 01 in the BC
- CONBO connection board (in a three-cabinet system only) -> slot 17 in EC2
- PSUI/UPSM power supply unit -> slot 08 in the BC, slot 16 in EC1, slot 24 in EC2

Do not place boards in slot 09 in EC1 (two-cabinet system).

Depending on their width, peripheral boards can be inserted in slots 02 to 07 in the BC, 10 to 15 in EC1 and 18 to 23 in EC2 (the adhesive label beneath each slot identifies the slot) (see [Figure 4-33](#)).

### Slots in “7-Slot” Basic and Expansion Cabinets

|      |       |     |     |     |     |     |     |      |
|------|-------|-----|-----|-----|-----|-----|-----|------|
| BC:  | CBMOD | 02  | 03  | 04  | 05  | 06  | 07  | PSUI |
| EC1: | —     | 10  | 11  | 12  | 13  | 14  | 15  | PSUI |
| EC2: | CONBO | 18  | 19  | 20  | 21  | 22  | 23  | PSUI |
| mm   | 45    | 30  | 30  | 30  | 45  | 45  | 45  | 90   |
|      | X10   | X20 | X30 | X40 | X50 | X60 | X70 | X80  |

Figure 4-33 Slot Numbers and Widths in BC, EC1 and EC2 “7-Slot”

## Board Slots in “8-Slot” Cabinets

Nine board slots are available in each cabinet. The following boards are assigned permanent slots:

- CBMOD central processor board -> slot 01 in the BC
- PSUI/UPSM power supply unit -> slot 09 in the BC, slot 18 in EC1, slot 27 in EC2

Depending on their width, peripheral boards can be inserted in slots 02 to 08 in the BC, 10 to 17 in EC1 and 19 to 26 in EC2 (the adhesive label beneath each slot identifies the slot) (see [Figure 4-34](#)).



Because system administration can only be performed using an optiset E telephone, an SLMO board must always be located in the first slot for peripheral boards (BC, slot 02).

## Slots in “8-Slot” Basic and Expansion Cabinets

|      |       |     |     |     |     |     |     |       |      |
|------|-------|-----|-----|-----|-----|-----|-----|-------|------|
| BC:  | CBMOD | 02  | 03  | 04  | 05  | 06  | 07  | 08    | PSUI |
| EC1: | 10    | 11  | 12  | 13  | 14  | 15  | 16  | 17    | PSUI |
| EC2: | 19    | 20  | 21  | 22  | 23  | 24  | 25  | 26    | PSUI |
| mm   | 45/30 | 30  | 30  | 30  | 30  | 30  | 30  | 45/30 | 90   |
|      | X10   | X20 | X30 | X40 | X50 | X60 | X70 | X80   | X90  |

Figure 4-34 Slot Numbers and Widths in “8-Slot” BC, EC1, and EC2

## Width of the Peripheral Boards

Peripheral boards are divided into

- Wide boards requiring a slot 45 mm (1.75 in.) wide  
(Not for U.S.: TML8W with GEE8)
- Not for U.S.: Use a 45 mm slot for the TML8W even if you are not installing a GEE8 so that you can easily add a GEE8 later.
- Narrow boards requiring a slot 30 mm (1.2 in.) wide  
(all other boards)

You can insert wide boards into a 30 mm (1.2 in.) slot, but if you do so, you can no longer use the adjacent slot.



### **Caution**

Always wear an antistatic wristband when working on the system (especially when handling boards).

## Initializing the Boards

The first time the system starts up, the system software detects the boards in ascending order, starting with the lowest installation position. The system initializes subscriber line circuits and ports the direction of the arrow ([Figure 4-35](#)).

The system activates all connected boards in the following situations:

- The maximum configuration has not yet been reached. While sequentially scanning the slots for each board, the system software checks whether the maximum number of stations or trunks has been exceeded. If it has, the board is not activated. The board LED shows the board's status.
- At least one B channel on line trunk modules is available for the slot (only the available number of B channels is activated).

## Initialization of Subscriber Line Circuits and Ports

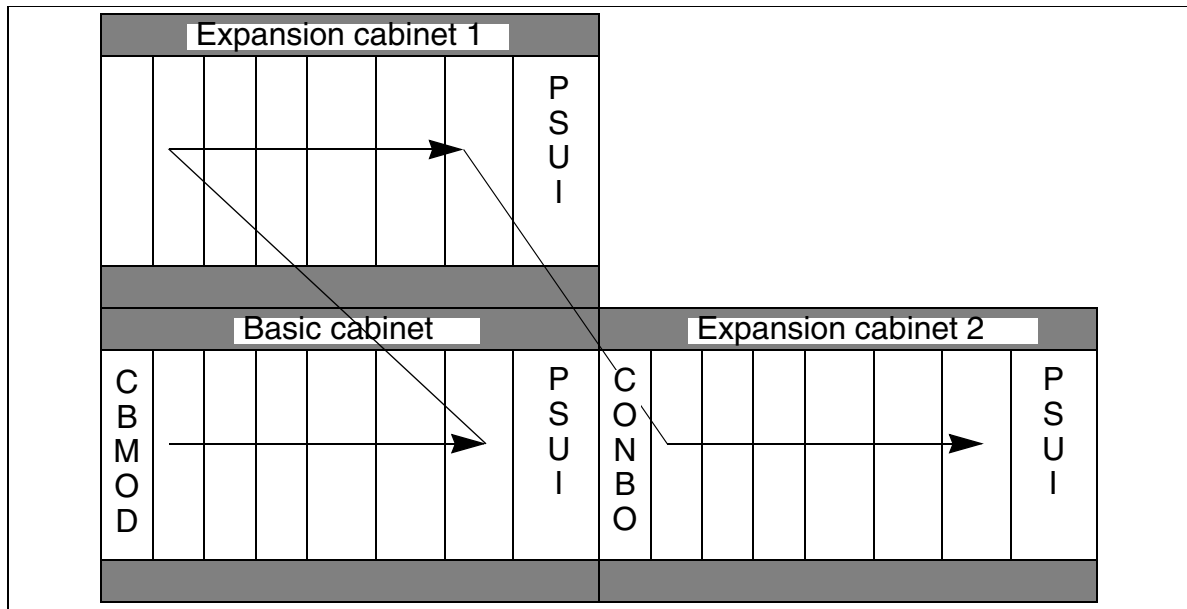


Figure 4-35 Hicom 150 E OfficePro—Initialization of Subscriber Line Circuits and Ports

### Recommended Configuration (for U.S. Only)

To avoid B-channel blocking, install the TMST1 board only in the BC or in the first two slots of the ECs. Hicom Assistant E Office observes this rule when performing off-line configuration.



## Distribution of the PCM Segments

The figures below show the PCM segments (64 time-division multiplex channels each) for the different OfficePro system configurations.



### Caution

To ensure smooth system operation, observe the following rules for inserting boards:

- Do not install more than one SLMO24 per PCM segment
- Do not install an SLC16 or TS2 together with an SLMO24 on the same PCM segment
- Do not install an SLC16 and TS2 on the same PCM segment

## PCM Segments for a One-Cabinet System:

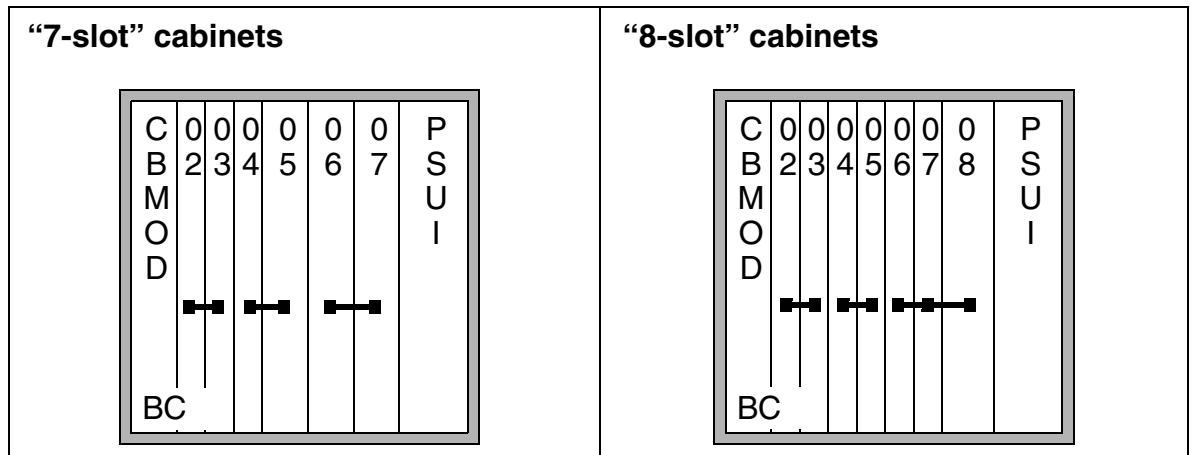


Figure 4-36 PCM Segments for a One-Cabinet System

PCM Segments for a Two-Cabinet System

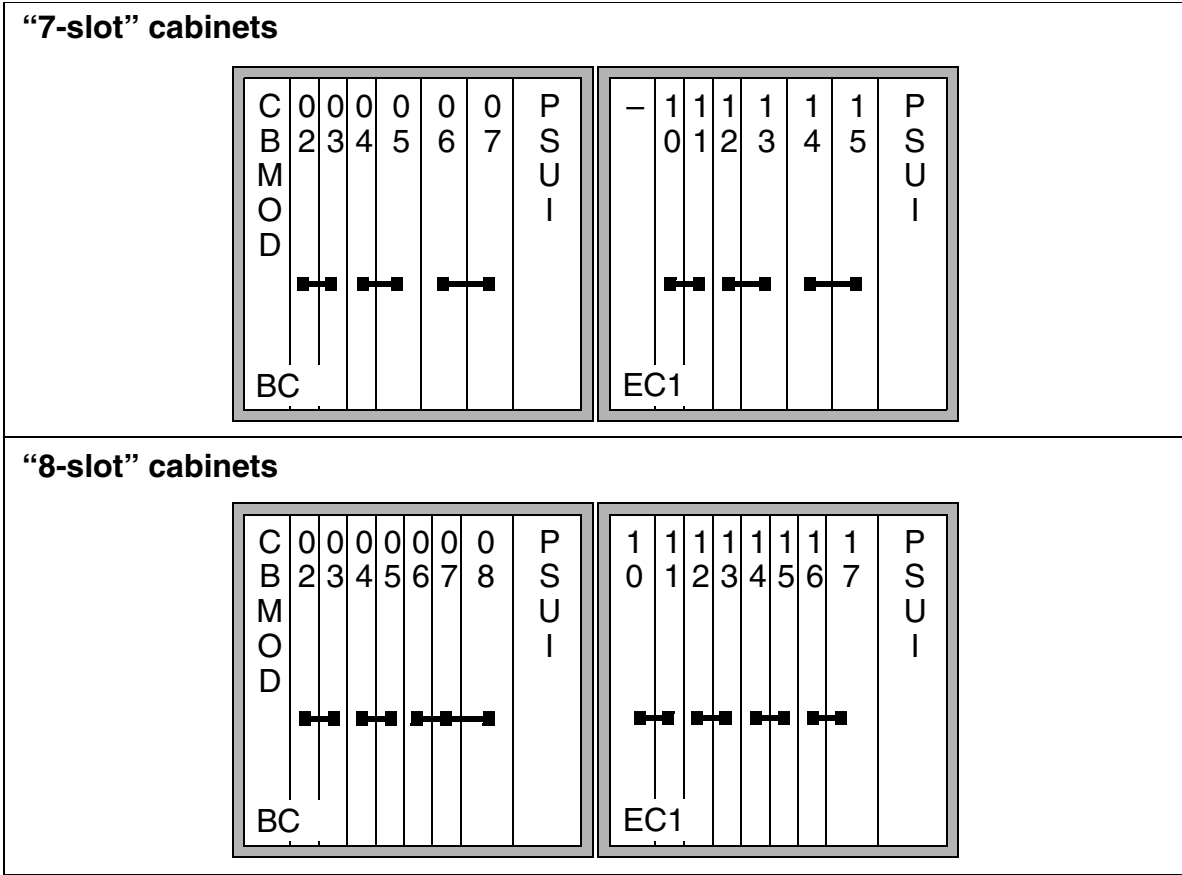


Figure 4-37      PCM Segments for a Two-Cabinet System

### PCM Segments for a Three-Cabinet System

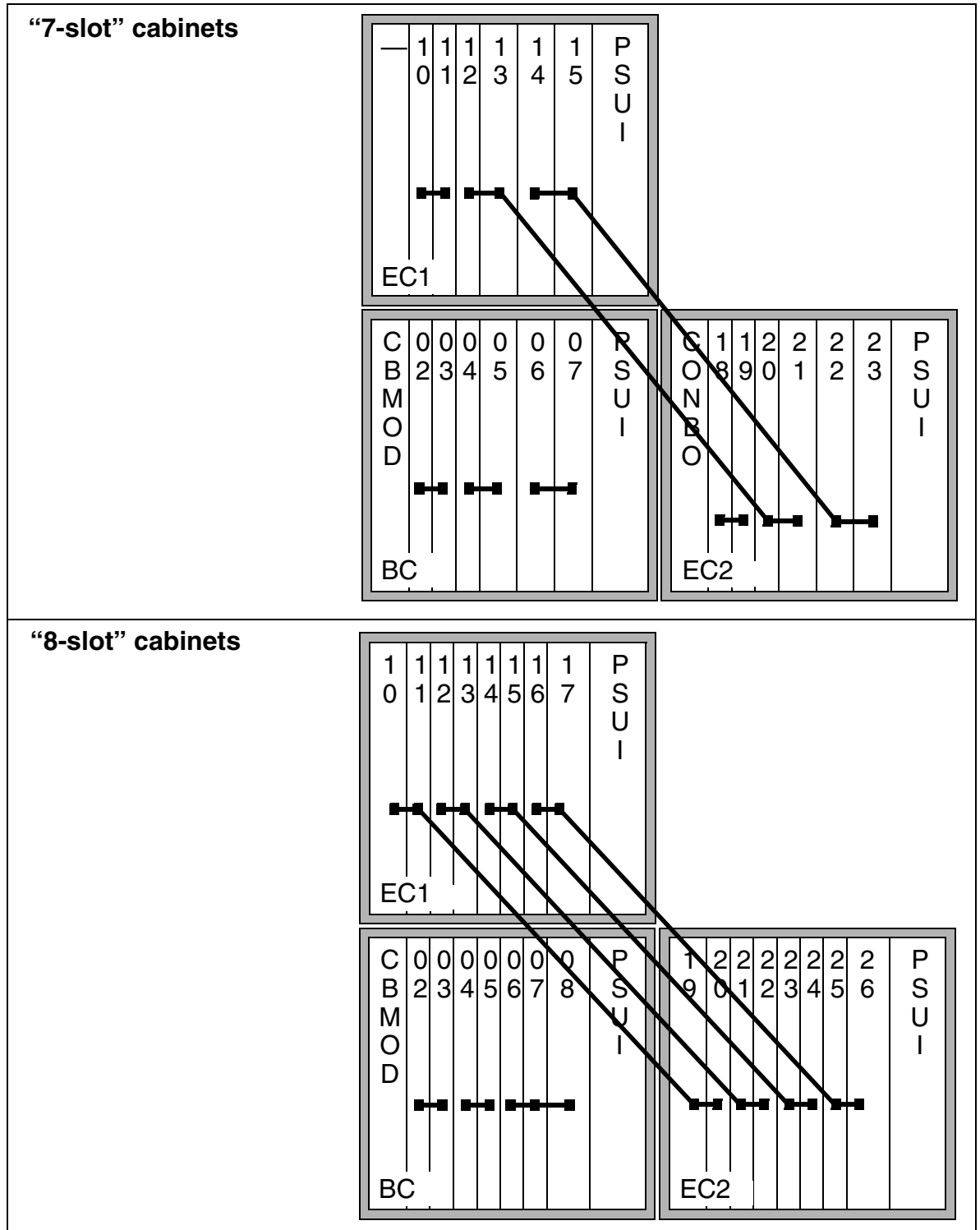


Figure 4-38 PCM Segments for a Three-Cabinet System

## **4.1.16 Inserting and Removing Boards**

### **Introduction**

Peripheral boards can be inserted and removed while the power is connected (OfficePro only).

Be sure to disconnect the system power before removing or replacing the following. In the U.S., use lockout/tagout (LOTO) procedures.

- CBMOD
- CONBO
- REAL
- FMC
- IMOD

Two levers are attached to the front corners of the boards for inserting and removing the boards. When closed, these levers engage with the board, locking it in place.

See [Section 6.1.2](#) for information on how to add new peripheral boards.

### Procedure for Inserting and Removing the Boards (Figure 4-39)

| If                      | Then                                                                                                                                                                                                                             |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unlocking the board (1) | Swing both plastic levers outward simultaneously. You can now pull the board out of the system on its guide rails.                                                                                                               |
| Locking the board (2)   | Slide the board into the system using its guide rails. Insert the hooks on the locking levers into the recesses in the shelf. Press down on both levers simultaneously in the direction of the shelf until they snap into place. |

### Locking and Unlocking Boards

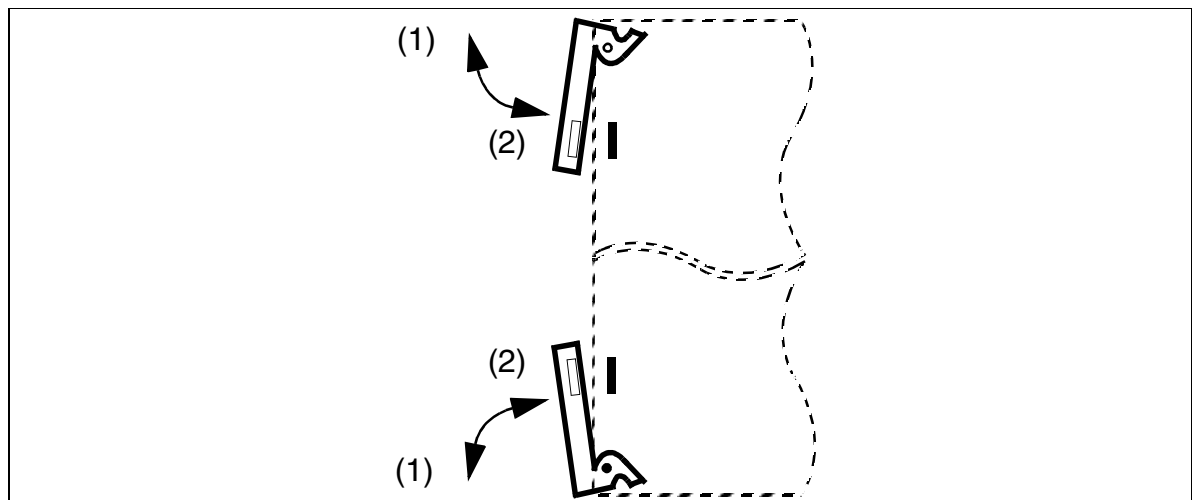


Figure 4-39 Locking and Unlocking Boards

### Special Board Attachments

The power supply is screwed onto the grill of each cabinet.

The special REAL board is mounted on the metal back panel (basic cabinet only) and connected to the backplane with a ribbon cable.

## 4.1.17 Connecting Telephones and Other Devices

Refer to Chapter 9, *Desktop Equipment*, for details.

## 4.1.18 Performing a Visual Inspection

### Introduction

Before starting up the system, you must perform a visual inspection of the hardware, cables and the power supply. The procedure is shown in Table 4-7. The visual inspection must be performed while the system is disconnected from the power supply.



#### **DANGER**

Before beginning work, make sure that the system is grounded and disconnected from the power supply. Use lockout/tagout (LOTO) procedures. Observe the measures for protecting electrostatically sensitive devices.

### Visual Inspection Procedure

Table 4-7      Visual Inspection Procedure

| Step | Activity                                                     | Materials                                                                                   | Action                                                           |
|------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 1.   | Compare the slots for the existing boards with the card map. | Card map                                                                                    | Correct the board configuration and notify the sales department. |
| 2.   | Check all boards for proper seating.                         | Refer to <u>page 4-64</u><br>Check the additional mechanical attachments for the PSUI/UPSM. | Reconnect and fasten the boards.                                 |
| 3.   | Check the local line voltage.                                | Digital multimeter                                                                          |                                                                  |



After finishing the visual inspection, you can begin starting up the system as described in Section 5.1, "Hicom 150 E OfficePro Startup," on page 55-1.



## 4.2 Hicom 150 E OfficeCom and OfficePoint Installation

### 4.2.1 Overview

#### Chapter Contents

This chapter contains information on:

- Installing the Hicom 150 E OfficeCom and OfficePoint communication systems
- Configuring the boards

This chapter describes the standard installation procedures for the basic system. For information on supplementary equipment and expansions, refer to Section 6.2, on page 6-19 and Chapter 10, *Special Equipment*.

**DANGER**

The system may be installed by authorized service personnel only.

#### Tools and Help Needed

The following are needed for installing the Hicom 150 E OfficeCom and OfficePoint systems:

- **Tools:**
  - Diagonal cutting pliers, telephone pliers, wire stripper, flat-nosed pliers
  - Slotted screwdrivers from 2 to 8 mm (1/4 to 5/16 in.)
  - Phillips or cross-point screwdrivers, sizes 1 and 2
  - Electric drill
  - Hammer
  - Level
  - Metric tape measure



- **Help:**

- Hicom Assistant T or Hicom Assistant E Office
- Hand-held telephone test set
- Digital-multimeter for testing ground connections and partial voltages
- Not for U.S.: ISDN tester (such as K3000 or Aurora)
- For U.S. only: Trend Communications aurora<sup>plus</sup>, or similar, ISDN protocol analyzer (for BRI)
- For U.S. only: Aurora<sup>Duet</sup>, or similar, ISDN protocol analyzer (for PRI)

**4.2.2 Procedure for installing Hicom 150 E OfficeCom and OfficePoint**

| <b>Step</b> | <b>Installation activity</b>                            |
|-------------|---------------------------------------------------------|
| 1.          | Select the installation site (usually predetermined)    |
| 2.          | Unpack the components                                   |
| 3.          | Mount the MDFU (OfficeCom only; not for U.S.)           |
| 4.          | Attach the system to the wall                           |
| 5.          | Mount the PSU or UPS (not for U.S.)                     |
| 6.          | Mount the main distribution frame (for U.S. only)       |
| 7.          | Install the boards if required (for U.S. only)          |
| 8.          | Check the board connections (including optional boards) |
| 9.          | Lay out the line network and connect the cables         |
| 10.         | Install the system software (flash memory card)         |
| 11.         | Connect the telephones                                  |
| 12.         | Conduct a visual inspection                             |
| 13.         | Install the housing cover                               |

**After Starting Up the System (Refer to Section 5.2, Hicom 150 E OfficeCom, Point, One, and Start Startup)**

|     |                                                  |
|-----|--------------------------------------------------|
| 14. | Test and ring out all telephones                 |
| 15. | Test all option modules connected                |
| 16. | Test features programmed at optiset E telephones |
| 17. | Test public network connections                  |
| 18. | Test least cost routing if used                  |

## 4.2.3 Selecting the Installation Site

### Selecting a Site

Determine the installation site ahead of time in coordination with the customer. Be sure to observe the following guidelines when selecting the site:

- Do not expose the systems to direct sources of heat (such as sunlight or heaters).
- Do not expose the systems to extremely dusty environments such as home workshops.
- Avoid contact with chemicals, including fuels such as gasoline and household cleaners such as bleach.
- Take every precaution to prevent the formation of condensation on the system during operation. If condensation forms on the system, make sure the system has time to dry completely before starting it up.
- Observe the environmental conditions specified in [Section 2.10.4](#).

### For U.S. Only

- Ensure that the installation site is in the immediate vicinity of an electrical outlet
- Allow space for a main distribution frame or other additional equipment
- Install lightning and surge arrester equipment
- Avoid standard carpeting, as it tends to produce electrostatic charges
- Ensure that Siemens equipment is 40 in. (101.6 cm) from other electrical equipment. The National Electrical Code (NEC) requires 36 in. (91.44 cm) of clearance in front of electrical equipment and 40 in. (101.6 cm) of clearance from other electrical service equipment.
- Ensure that the equipment room for the system provides adequate space for installation and maintenance activities, including removing and replacing the cover. See [Figure 4-40 on page 4-72](#) for space requirements on the sides of the system. We recommend using a plywood backboard at least 0.5 in. (127 mm) thick and measuring at least 4 ft. (122 cm) by 4 ft. (122 cm).

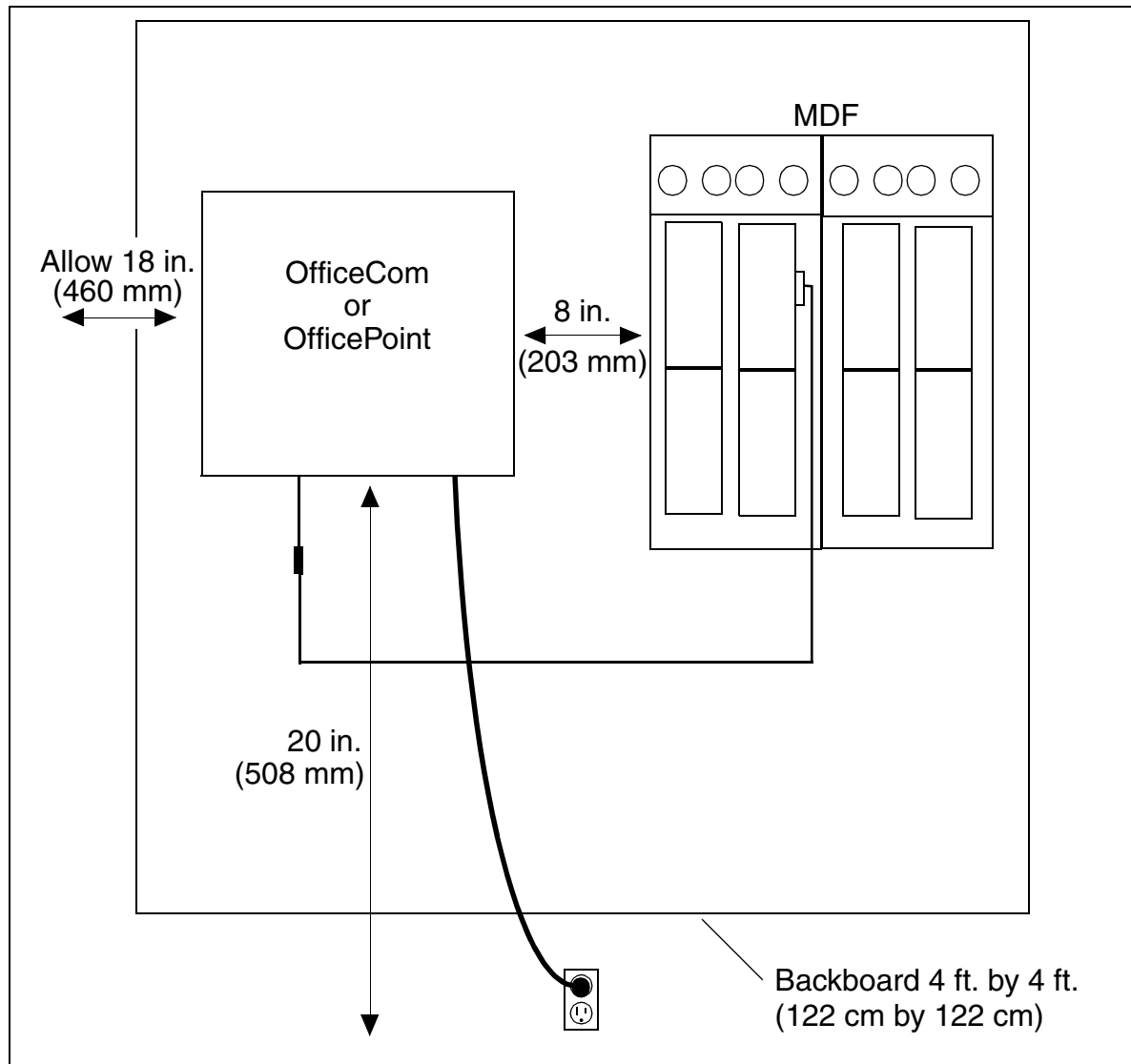
**OfficeCom and OfficePoint Space Requirements (for U.S. Only)**

Figure 4-40 OfficeCom and OfficePoint Space Requirements (for U.S. Only)

For U.S. only: The system measures 18 by 17.7 inches (460 x 450 mm). It requires 18 in. (460 mm) of clearance on the left, and at least 8 in. (203 mm) of clearance on the top and right. Allow 20 in. (508 mm) of clearance on the bottom (for cords). Observe also the NEC requirements on page 4-71.

**AC Power Outlet Requirements (for U.S. Only)**

- Must not be located more than 6 feet (2 m) from the system
- Must provide fused 120 Vac (single-phase) power at 60 Hz
- Should be on a dedicated circuit with an isolated ground
- Should have a warning attached to the circuit breaker that controls it to prevent accidental removal of power
- Recommended: Add a power surge protector between the outlet and the system

Note: Information on system design and dimensions can be found in the following sections:

- Hicom 150 E OfficeCom: [Section 2.3.2](#)
- Hicom 150 E OfficePoint: [Section 2.3.3](#)

**4.2.4 Unpacking the Components****Procedure**

| Step | Installation activity                                                                                                          |
|------|--------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Compare the components included in the delivery with the packing slip or customer receipt to make sure that they are complete. |
| 2.   | Determine whether any damage has occurred during transport and report it to the responsible department or the shipper.         |
| 3.   | Dispose of the packing materials properly in accordance with local regulations.                                                |

**Caution**

Use only equipment and help materials that are in perfect working order. Do not start up equipment with visible damage.

## 4.2.5 Mounting the OfficeCom Main Distribution Frame Unit (Not for U.S.)

### Introduction

The main distribution frame unit (MDFU) (see [Figure 4-41 on page 4-75](#)) is the main distribution frame used.

### Installation Notes

The main distribution frame unit (MDFU) should be mounted at eye level close to the system (note the connecting cable length). Attach the unit to the wall as described in the instructions shipped with it. A bag attached to the cover contains a drill template as well as screws and wall anchors for attaching the unit to the wall.

The MDFU must be grounded. Refer to [Section 4.2.7](#) for an explanation of the procedure.

### Procedure for Mounting the MDFU on the Wall

| Step | Activity                                                                  |
|------|---------------------------------------------------------------------------|
| 1.   | Use the drill template to drill holes                                     |
| 2.   | Insert the wall anchors and screw in the screws, leaving 5 mm projecting. |
| 3.   | Mount the MDFU on the brackets and remove the packing material            |
| 4.   | Remove the housing cover and tighten the screws through the holes         |

## MDFU Layout and Dimensions

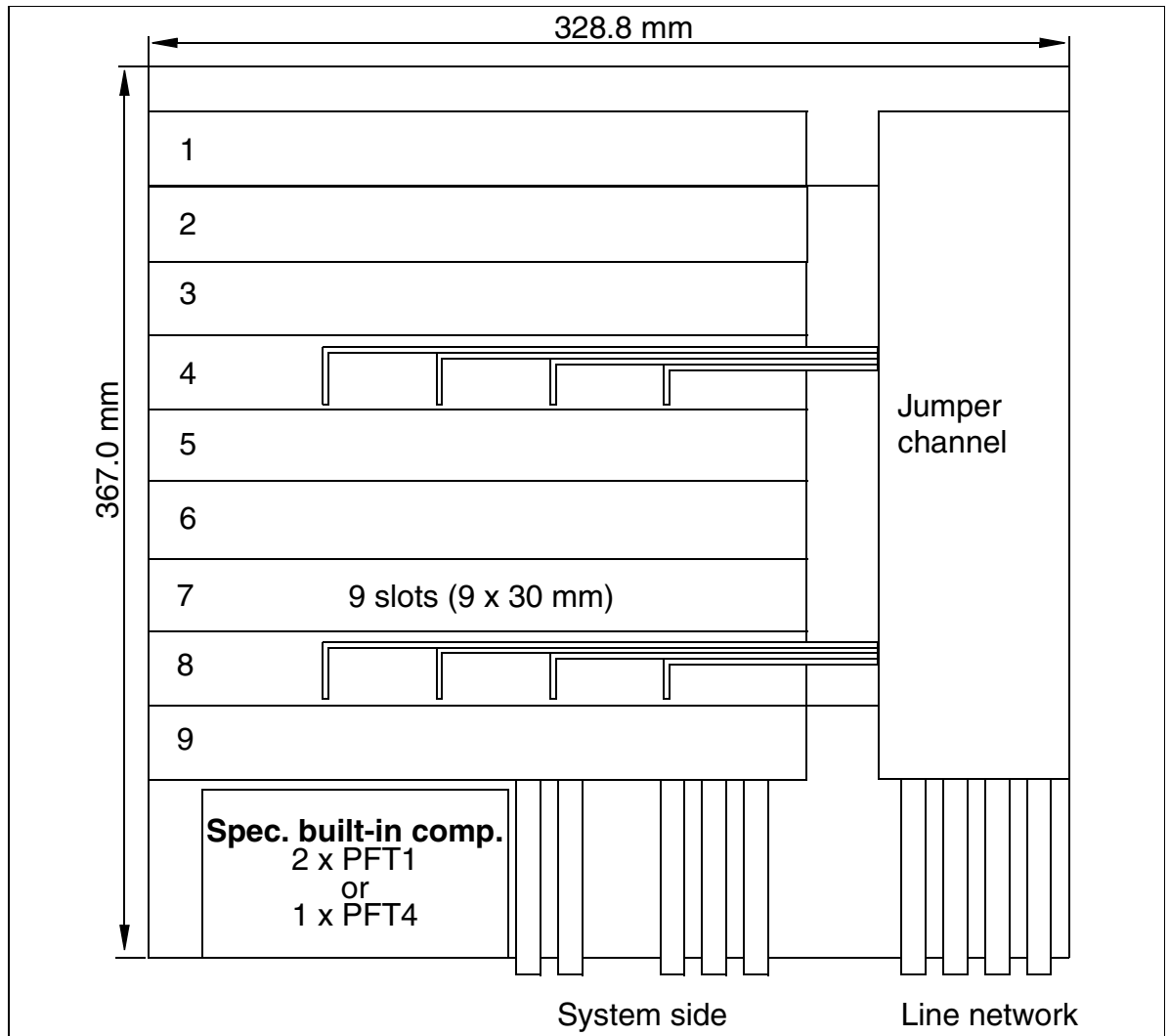


Figure 4-41 MDFU Layout and Dimensions (367.0 x 328.8 x 125.4 mm) (Not for U.S.)

## 4.2.6 Attaching the System to the Wall

Attach the system to the wall as shown in [Figure 4-42](#).

### Attaching the OfficeCom or OfficePoint Housing to the Wall

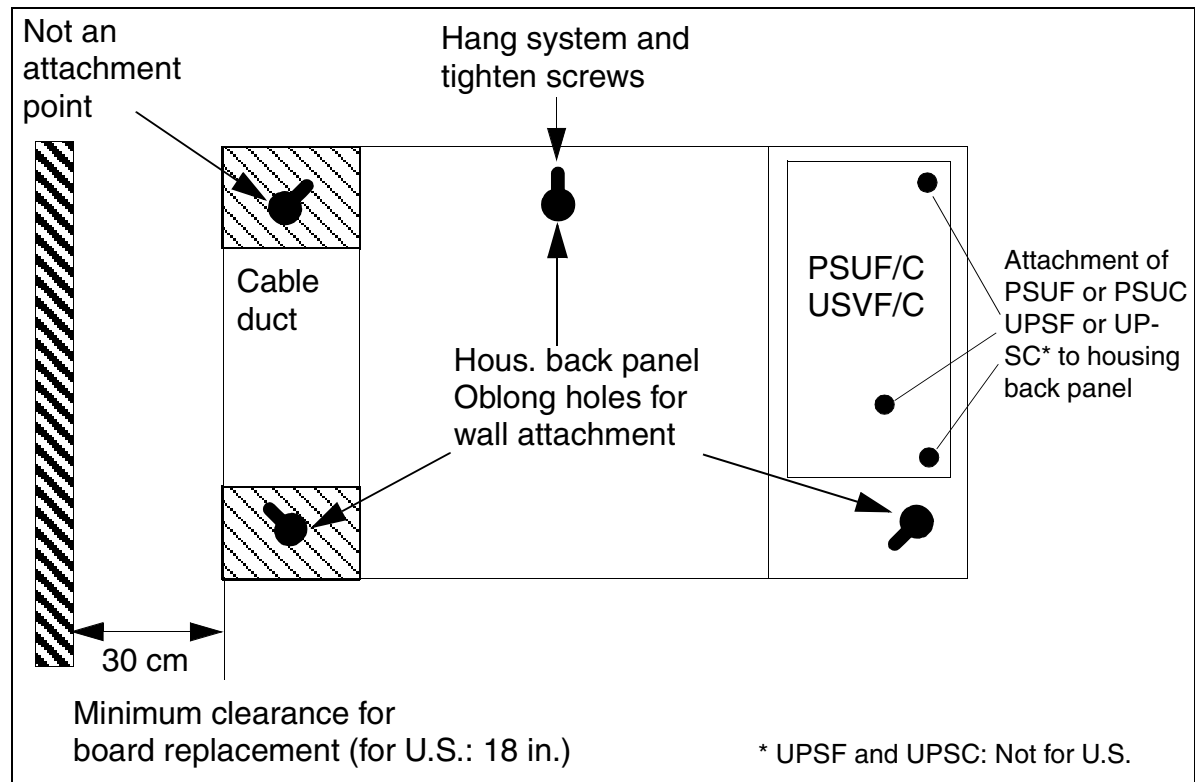


Figure 4-42 OfficeCom and OfficePoint—Wall attachments



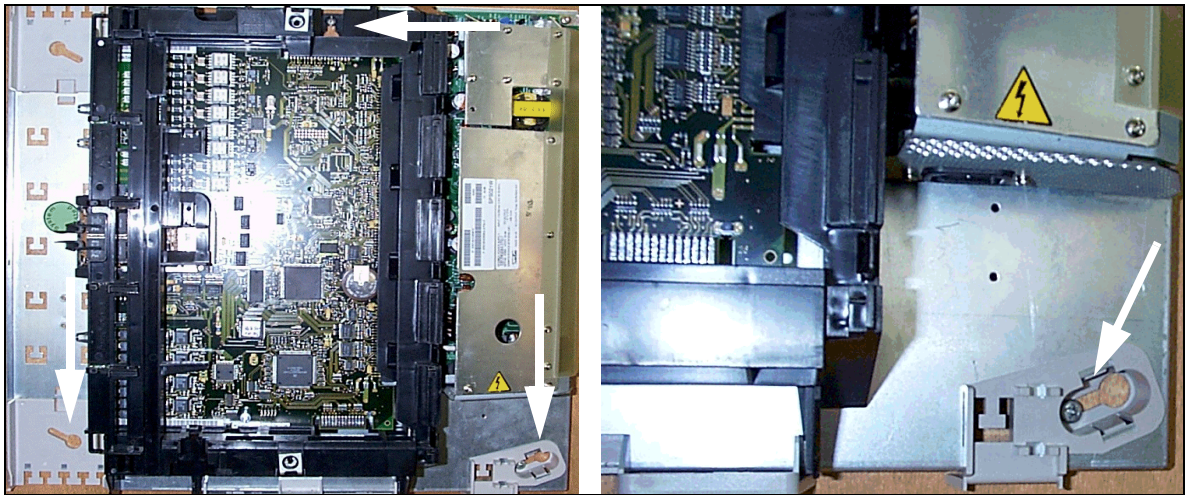


Figure 4-43 OfficeCom/OfficePoint—Mounting Holes

## 4.2.7 Grounding the External Main Distribution Frame (Not for U.S.)



Because of their protection class, the OfficeCom and OfficePoint systems do not have to be grounded.

### Grounding the System (for U.S. and Canada Only)

The system power cord on the OfficeCom and OfficePoint system is grounded, but the systems also require an earth ground, as do all digital switching systems. The earth ground must meet the requirements of the U.S. National Electrical Code or Canadian Electrical Code. The earth ground must be connected between the lug provided on the OfficeCom or OfficePoint rear panel and the electrical service panel that supplies the OfficeCom or OfficePoint with power, using wire no smaller than 14 AWG.

### External Main Distribution Frame

#### For U.S. Only

The customer supplies a main distribution frame (MDF) to complete the communications system. Mount and ground the MDF in accordance with the manufacturer's instructions.

#### Not for U.S.

- Hicom 150 E OfficeCom: Shipments of Release 2.0 and later always include an MDFU and two grounding cables (Germany only). Use one of the cables to ground the MDFU. It is not necessary to ground the connection between the MDFU and OfficeCom (see [Figure 4-44](#)).
- Hicom 150 E OfficePoint: This system type does not require an external main distribution frame. The connecting cables to the peripherals are attached directly to the boards and routed to the outside via a cable duct inside the housing.



#### Danger

An external main distribution frame which requires grounding (if the existing ground connection is marked “⊕”) must be grounded by a separate ground wire (minimum cross section= 2.5 mm<sup>2</sup>).

Failure to observe this requirement may cause irreversible damage to the system.

Refer to [Figure 4-44 on page 4-79](#) when replacing a customer system using the existing external main distribution frame.

## Grounding an External Main Distribution Frame

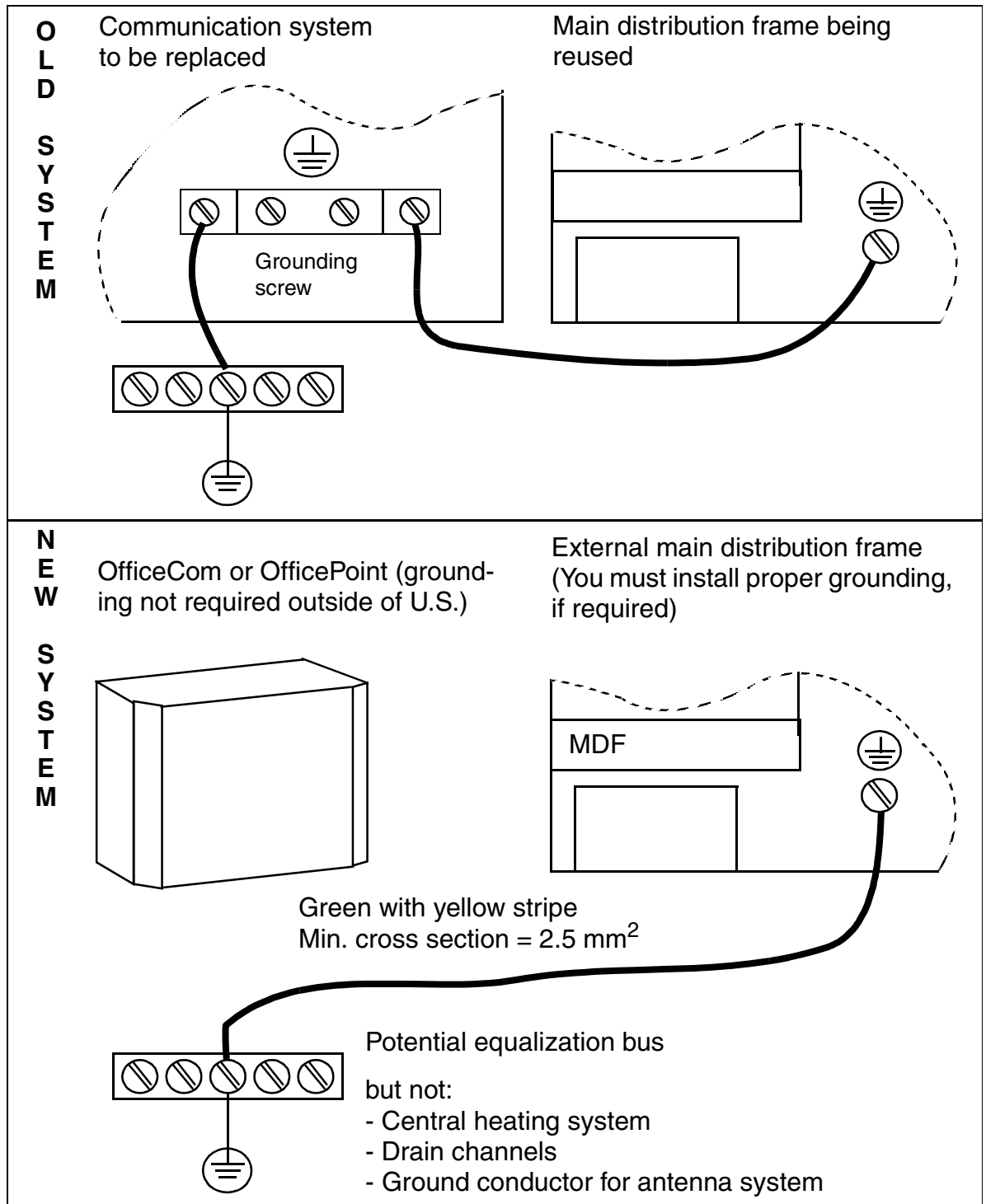


Figure 4-44 Hicom 150 E OfficeCom and OfficePoint—Grounding an External Main Distribution Frame

## **4.2.8 Installing the Boards (for U.S. Only)**

Refer to the Installation Guide, OfficeCom and OfficePoint, for Hicom 150 E (G281-0582-00) for information on installing or replacing boards. The Installation Guide is shipped with every OfficeCom and OfficePoint system.

### **Connecting to T1, PRI, or CorNet (for U.S. Only)**



**Caution**

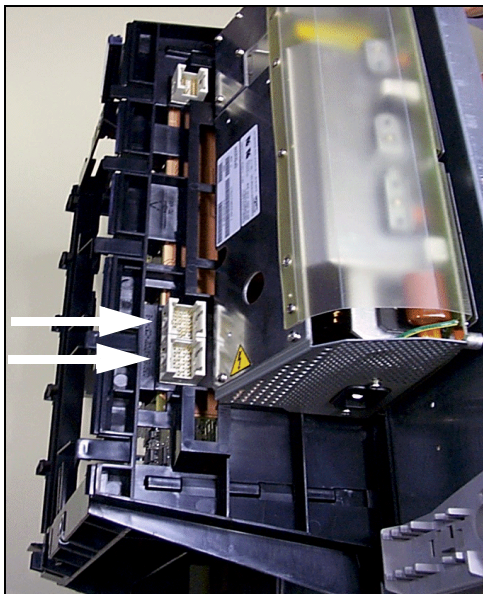
The TST1 Module (OfficeCom) can be installed only in conjunction with a Listed channel service unit (CSU).

## 4.2.9 Laying the Line Network and Connecting the Cables

### Hicom 150 E OfficeCom (Not for U.S.)

| If                                           | Then                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SLA8N<br>SLA16N<br>SLA24N<br>SLC16<br>SLMO24 | Route 16 TW to the MDFU via SU_X8 and 8 TW via SU_X9 (see <a href="#">Figure 4-45</a> ), using a standard cable (with 16 TW) for each connection. Connect both cables (1 CABLU with SU connectors labeled 8 and 9) to the same jumper strip (25 TW).                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Slot with any other peripheral board         | <ul style="list-style-type: none"> <li>Without an external main distribution frame (MDFU): You can attach cables for the peripheral boards directly to the boards (see <a href="#">Figure 4-47 on page 4-83</a> for the slip-on connectors) and route them to the MDFU through the cable duct inside the housing.</li> <li>With an external main distribution frame (MDFU): Use CABLU S30269-Z41-A30 (<a href="#">Figure 4-46 on page 4-82</a>) to connect the peripheral boards to the customer's line network. As shown in <a href="#">Figure 4-47 on page 4-83</a>, you can connect the eight-pin slip-on connectors to the boards directly. The line network connects directly to the jumper strip.</li> </ul> |

### Hicom 150 E OfficeCom — MDFU Connections for Peripheral Boards in OfficePro Format



The two arrows on the left mark the connections for the cables coming from the main distribution frame (MDFU).

Figure 4-45 OfficeCom—Backplane Connection for a Peripheral Board in OfficePro Format

## OfficeCom/OfficePoint - Cablu for Connection to the External Main Distribution Frame

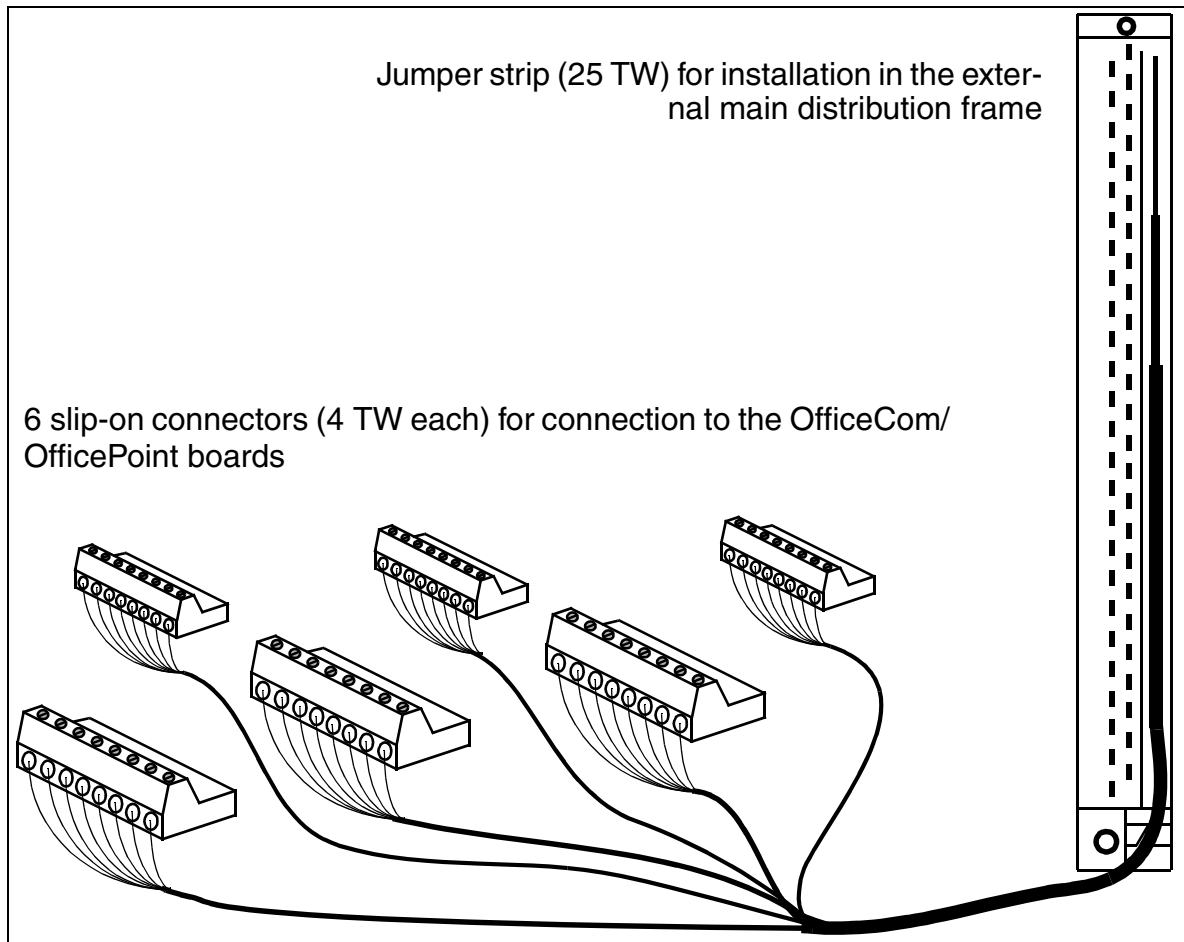


Figure 4-46 Layout of CABLU S30269-Z41-A30 ( 3 m long)

**Hicom 150 E OfficePoint (Not for U.S.)**

The **integrated distribution frame** of the OfficePoint system allows you to connect the cable network to the strunk and the stations using screw connections on slip-on connectors that can be easily removed for easy system connection and disconnection.

The peripheral boards and optional boards contain a distribution frame component in the form of edge connectors on the boards; the slip-on connectors for these edge connectors are supplied with the boards. You insert the wires into the screw connections on the slip-on connectors, tighten, and then slide the slip-on connectors onto the board edge connectors.

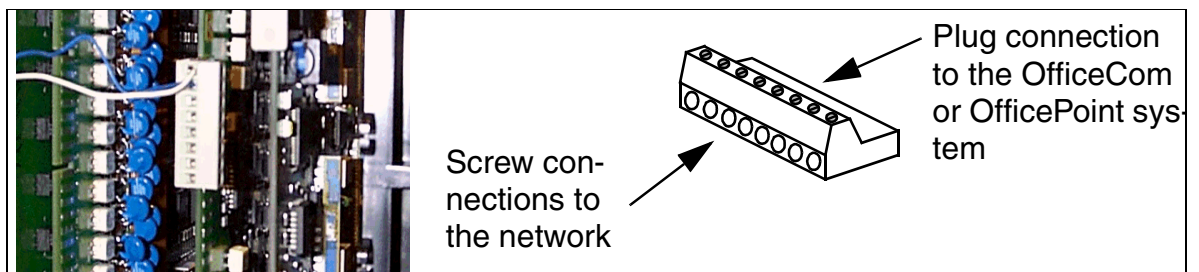


Figure 4-47 Integrated Distribution Frame—Slip-on Connector Screw Connections

If you have an **external main distribution frame** (MDFU), use CABLU S30269-Z41-A30 ([Figure 4-46 on page 4-82](#)) to connect the peripheral boards to the customer's line network. As shown in [Figure 4-47 on page 4-83](#), you can connect the 8-pin slip-on connectors directly to the boards. The line network connects to the jumper strip.

## 4.2.10 Connecting the Cabling (For U.S. Only)

If the boards are not already connected to the appropriate cables leaving the system, you need to connect them.

- The TST1 Module (OfficeCom) connects to a customer-supplied channel service unit (CSU) using the supplied cable. The CSU provides the required secondary protection.
- Each port on the STLS4 Module connects to an S<sub>0</sub> bus using the supplied, silver-satin connector cord and a surface-mounted RJ45X jack (a biscuit block). The surface-mounted RJ45X jack is not supplied.

The signals must be reversed in the RJ45X jack; see [Figure 3-41 on page 3-112](#).

- The board in Slot 10 of OfficeCom connects using a special cable from the back-plane to the main distribution frame (MDF).
- The remaining peripheral boards and options connect to a customer-supplied main distribution frame (MDF) or similar equipment using the supplied MDF cables (octopus cables terminated in Amphenol connectors). You select the output pattern on the Amphenol connector by which slip-on connector you use on each board edge connector.

Note that the MDF cables reverse the order of the signals from the boards, so that R/T at the board interface becomes T/R at the Amphenol connector.

Refer to the *Installation Guide, OfficeCom and OfficePoint, for Hicom 150 E* (G281-0582-00) for connection details.



## 4.2.11 Configuration Notes

### OfficeCom System Overview and Slots

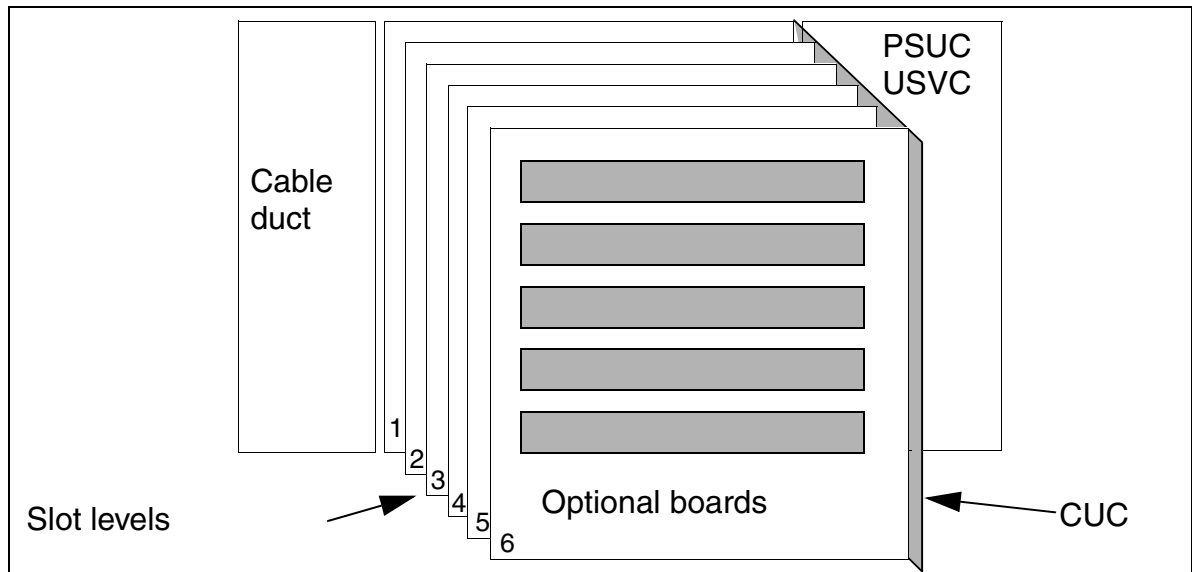


Figure 4-48 OfficeCom—System Overview

## Hicom 150 E OfficeCom and OfficePoint Installation

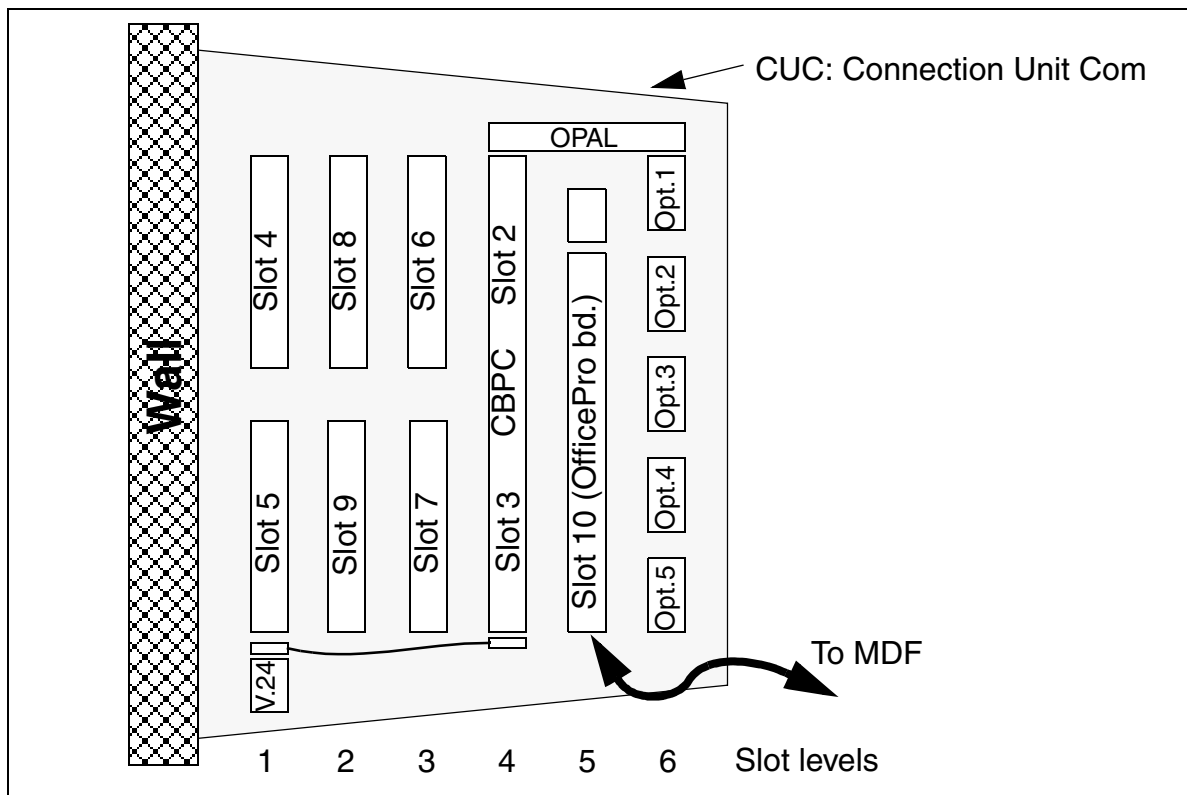


Figure 4-49 Hicom 150 E OfficeCom—Slots

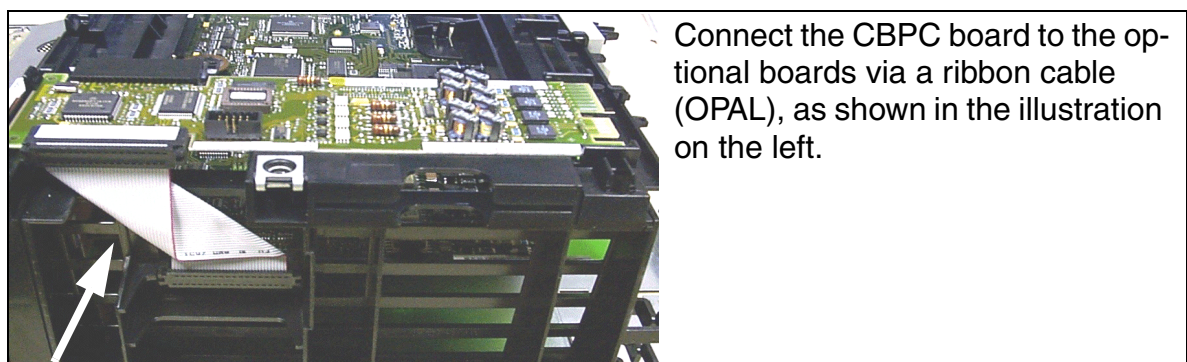


Figure 4-50 Hicom 150 E OfficeCom—Options Adapter Long (OPAL)



Not for U.S.: Install the TS2 board in slots 7 and 9 only.  
 For U.S. only: Install the TST1 board in slots 7 and 9 only.  
 Each OfficeCom or OfficePoint system can have only one **LAN Bridge** board, and it should not be installed in slot 5.

## OfficePoint System Overview and Slots

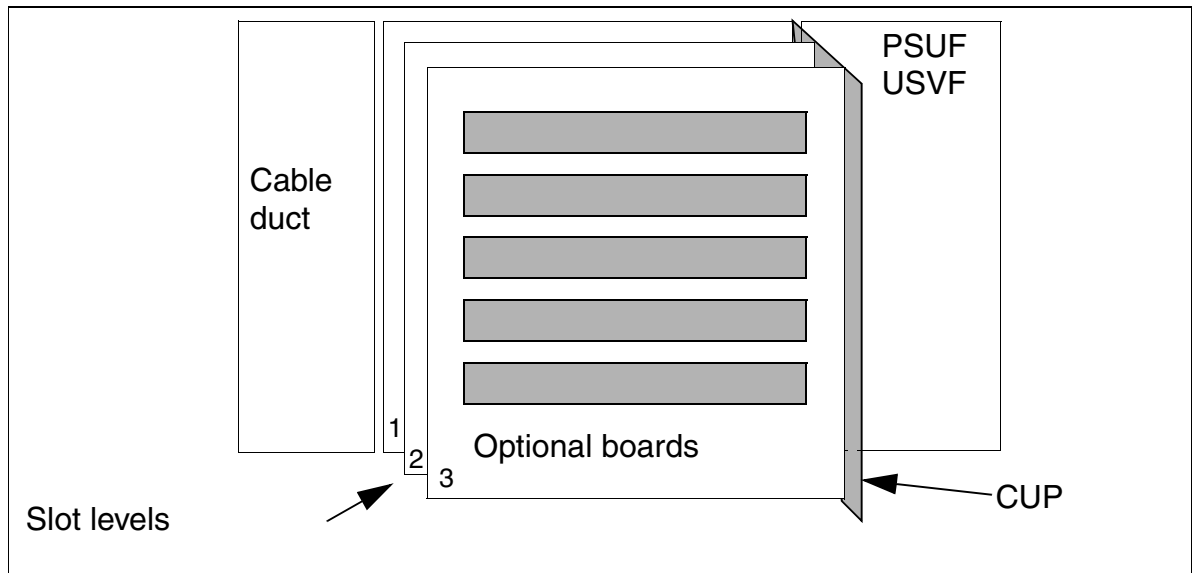


Figure 4-51 OfficePoint—System Overview

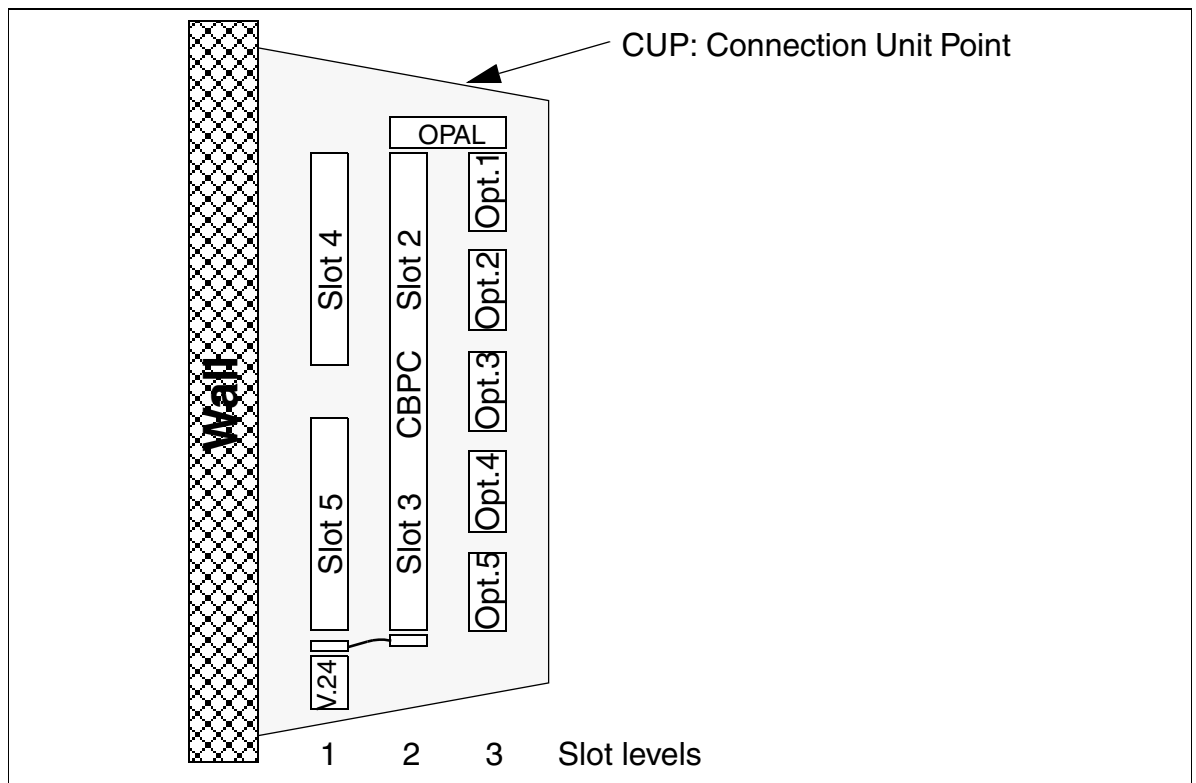


Figure 4-52 Hicom 150 E OfficePoint—Slots

## 4.2.12 Connecting Telephones

Refer to Chapter 9, *Desktop Equipment*, for details.

## 4.2.13 Conducting a Visual Inspection

Before starting up the system, you must perform a visual inspection of the hardware, cables, and power supply. Conduct the visual inspection only while the system is disconnected from the power supply. Use lockout/tagout (LOTO) procedures.



### **DANGER**

Before beginning the work, make sure that the system is grounded and disconnected from the power supply. Use lockout/tagout (LOTO) procedures. Always wear an antistatic wristband and observe the measures for protecting electrostatically sensitive devices.

| Step | Activity                                                      | Materials          | Possible remedies                                                |
|------|---------------------------------------------------------------|--------------------|------------------------------------------------------------------|
| 1.   | Compare the slots for the installed boards with the card map. | Card map           | Correct the board configuration and notify the sales department. |
| 2.   | Check the local line voltage.                                 | Digital multimeter |                                                                  |



After finishing the visual inspection, you can begin starting up the system as described in Section 5.2.2, *Startup Procedure*, on page 5-11.

## 4.3 Installing Hicom 150 E OfficeOne and OfficeStart

### 4.3.1 Procedure for Installing Hicom 150 E OfficeOne and OfficeStart

| Step | Installation Activity                                |
|------|------------------------------------------------------|
| 1.   | Select the installation site (usually predetermined) |
| 2.   | Unpack the components                                |
| 3.   | Attach the system to the wall                        |
| 4.   | Lay the cables                                       |
| 5.   | Connect the telephones                               |
| 6.   | Connect the plug-in power supply unit                |
| 7.   | Perform a visual inspection                          |
| 8.   | Close the hinged cover                               |

### 4.3.2 Selecting the Installation Site

#### Selecting a Site

Determine the installation site ahead of time in coordination with the customer. You must observe the following guidelines when selecting the site:

- Do not expose the systems to direct sources of heat (such as sunlight or heaters).
- Do not expose the systems to extremely dusty environments.
- Avoid contact with chemicals.
- Take every precaution to prevent the formation of condensation on the system during operation. If condensation forms on the system, make sure that the system has time to dry completely before starting it up.
- Observe the environmental conditions specified in [Section 2.10.4](#).

You will find information on the design and dimensions in the following section:

- Hicom 150 E OfficeOne/OfficeStart: [Section 2.3.4](#)

### 4.3.3 Unpacking the Components

#### Procedure

| Step | Installation Activity                                                                                 |
|------|-------------------------------------------------------------------------------------------------------|
| 1.   | Compare the components included in the delivery with the packing slip to make sure they are complete. |
| 2.   | Determine whether any damage has occurred during transport and report it to the proper departments.   |
| 3.   | Dispose of the packing materials properly according to local regulations.                             |

**Caution**

Use only equipment and materials that are in perfect working order. Do not start up equipment with visible damage.

### 4.3.4 Attaching the System to the Wall

Attach the system to the wall as shown in [Figure 4-53](#).

#### System Overview

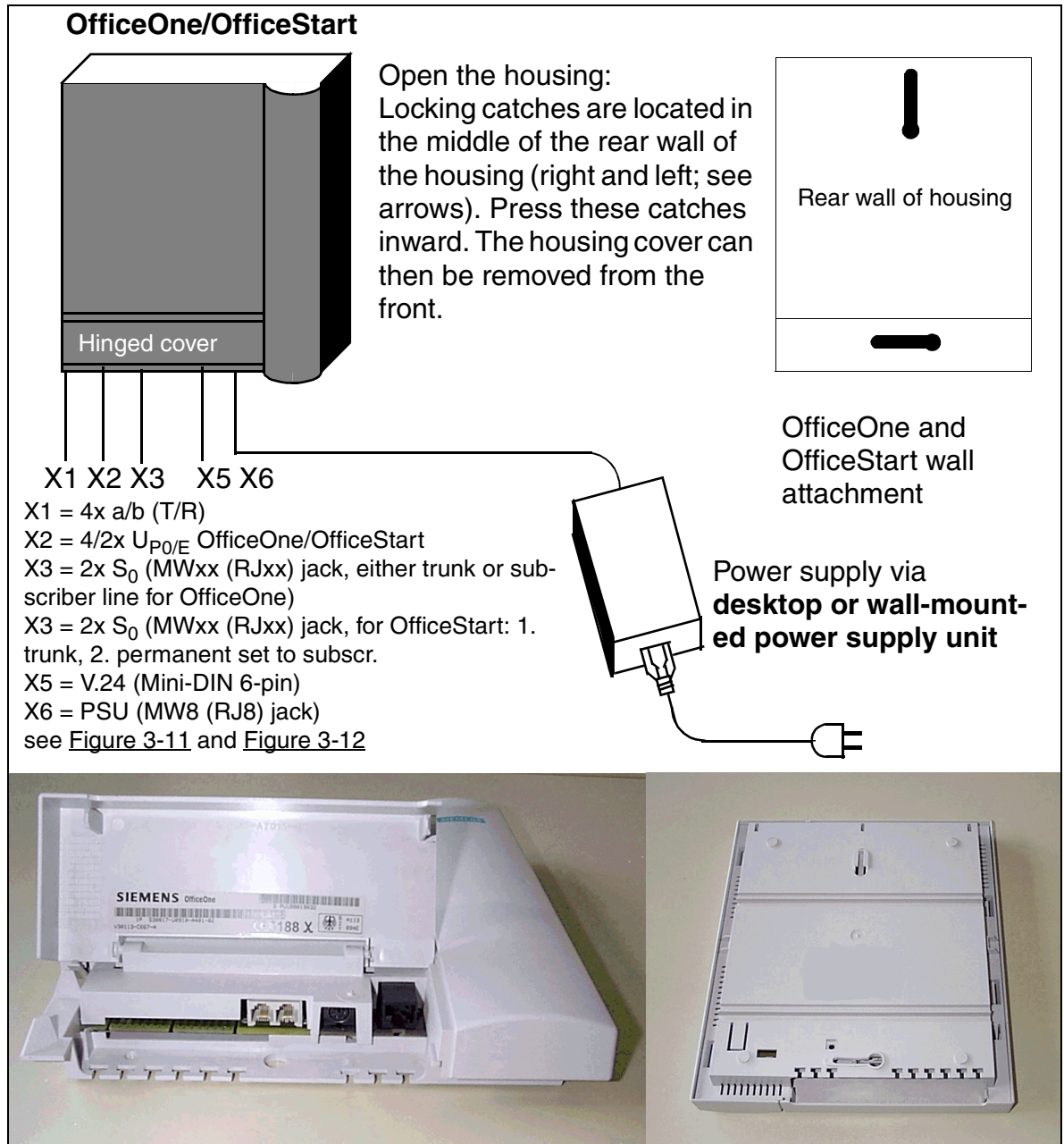


Figure 4-53 OfficeOne, OfficeStart - System Overview

## SBS Station Number Assignments

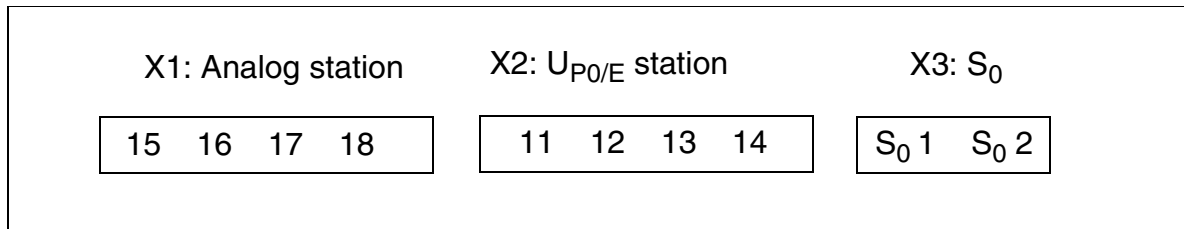


Figure 4-54 SBS Station Number Assignments in OfficeOne

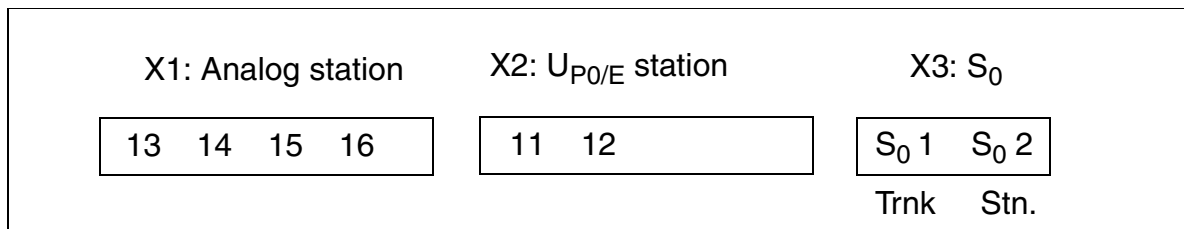


Figure 4-55 SBS Station Number Assignments in OfficeStart

### 4.3.5 Performing a Visual Inspection

Before starting up the system, you must perform a visual inspection of the hardware, cables, and the power supply. The visual inspection must be performed while the system is disconnected from the power supply.



After completing the visual inspection, you can start up the system as described in Section 5.2.2, *Startup Procedure*, on page 5-11.



## 5 Startup

### 5.1 Hicom 150 E OfficePro Startup

#### 5.1.1 Overview

##### Section Contents

This section contains information on how to start up the Hicom 150 E Office communication systems.

**WARNING**

Only authorized service personnel should start up the system.

#### 5.1.2 Startup Procedure

Table 5-1 Hicom 150 E OfficePro—Startup

| Step | Startup Activity                                                                                      | Page |
|------|-------------------------------------------------------------------------------------------------------|------|
| 1.   | <u>Supplying the system with power</u><br>(Plugging in the power supply unit -> starting system boot) | 5-2  |
| 2.   | <u>Carrying out a reload</u>                                                                          | 5-7  |
| 3.   | <u>Carrying out the country initialization</u>                                                        | 5-7  |
| 4.   | <u>Entering the system number (not for U.S.)</u>                                                      | 5-8  |
| 5.   | <u>Conducting customer-specific programming</u>                                                       | 5-9  |
| 6.   | <u>Carrying out a system check</u>                                                                    | 5-10 |

## 5.1.3 Supplying the System With Power

### Procedure

| Step | Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Verify the voltage and plug in the power supply cable for each cabinet                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2.   | <p>Watch the seven-segment display on the CBMOD to observe the individual steps of system boot (<a href="#">Table 5-4 on page 5-3</a>).</p> <p>The central processing unit (CPU) is tested after the system starts. All LED segments of the seven-segment display are activated by hardware default. If a period appears following the CPU test, it indicates an error.</p> <p>For example, if the system detects an error during the RAM test, a 2 and a period are displayed continuously. If this occurs, replace the CBMOD.</p> |

### OfficePro LED Status Display

The CBMOD central board has two LEDs that indicate the status of the board and the integrated analog modem.

### CBMOD Status Display

Table 5-2      CBMOD—Board Status Display

| <b>RUN LED<br/>(green)</b> | <b>Function</b>                                                                                                   |
|----------------------------|-------------------------------------------------------------------------------------------------------------------|
| Off                        | No power                                                                                                          |
| On                         | Power on, reset switch pressed briefly                                                                            |
| Off                        | Power on, reset switch held down more than 5 seconds (LED is extinguished to acknowledge that a reload has begun) |
| On                         | System boot                                                                                                       |
| Flashing                   | Normal operating state                                                                                            |

## Integrated Modem Status Display

Table 5-3      CBMOD-Status Display for the Integrated Modem

| IMOD LED<br>(green) | Function                           |
|---------------------|------------------------------------|
| Off                 | No integrated modem is installed.  |
| On                  | Integrated modem is ready.         |
|                     | Data traffic via integrated modem. |



The system also supports digital modem access via B channel. The IMOD-LED does not display the status of this type of modem.

## Displays During System Boot

Table 5-4      CBMOD—Seven-Segment Display During System Boot

| Display | Meaning                                                                                              |
|---------|------------------------------------------------------------------------------------------------------|
| 8.      | CPU test, initializing processor                                                                     |
| 2       | Initializing RAM (reload only)                                                                       |
| 3       | Detecting flash card type, detecting cabinet type                                                    |
| 4       | Processor timer test (executed only after a power failure/switched reload)                           |
| 5       | Not used                                                                                             |
| 6       | HDLC test (ELIC), MTSC test, serial reset test (executed only after a power failure/switched reload) |
| 7       | Not used                                                                                             |
| 8       | Not used                                                                                             |
| 9       | Not used                                                                                             |

Table 5-4      CBMOD—Seven-Segment Display During System Boot

| Display                                                                             | Meaning                                        |
|-------------------------------------------------------------------------------------|------------------------------------------------|
|    | Not used                                       |
|    | Initializing integrated analog modem (if used) |
|    | Not used                                       |
|    | Not used                                       |
|    | Not used                                       |
|    | Starting operating system                      |
|    | Initializing database                          |
|   | Initializing IOP processes                     |
|  | Downloading board codes                        |
|  | Downloading board data, initializing L3_ORG    |
|  | Initializing remaining tasks                   |
|  | Idle bars (cycling clockwise):<br>System ready |



The Hicom 150 E OfficePro is ready when the date “1. JAN 00” and the time “00.00” appear in the display on the system telephone.

### 5.1.3.1 Assigning Station Numbers

The first time the system is initialized, the system determines its capacity and stores the result in the CDB (customer database). After each system reset, the system accesses this data and generates a continuous numbering plan.

If the system detects changes to the board configuration during startup, the following occurs:

| If                          | Then                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Missing or defective board  | No action.                                                                                                                                                                                                                                                                                                                                                             |
| Different board type        | Board is not activated.                                                                                                                                                                                                                                                                                                                                                |
| Underequipped board variant | Board is activated with fewer ports. A gap remains in the database.                                                                                                                                                                                                                                                                                                    |
| Over-equipped board variant | Board is activated with the number of ports stored in the database. The additional ports are not activated.                                                                                                                                                                                                                                                            |
| New board in empty slot     | <ul style="list-style-type: none"><li>• Board was the last one installed in accordance with the placement sequence:<br/>All boards are activated and the numbering plan continues without a gap.</li><li>• Board was inserted ahead of another board in the placement sequence:<br/>Board is activated and appended to the last board in the numbering plan.</li></ul> |

### Procedure: reinitialization

Proceed as follows if measures to expand the system configuration require reinitialization of the numbering plan:

| Step | Activity                                                                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Disconnect the system from the power supply. Check that the system is de-energized. Expand as required. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2.   | Connect system to power supply                                                                          | <ul style="list-style-type: none"><li>• A continuous numbering plan is generated (as was the case when the system was first initialized).</li></ul> <b>Notes:</b> <ul style="list-style-type: none"><li>• Changes to the extension numbers result in changes to the individual, extension-specific data.</li><li>• Only those ports provided for in accordance with the maximum configuration are activated if the maximum line configuration is exceeded (too many trunk boards).</li><li>• A mixture of subscriber line circuits and trunk lines on one STMD8 can result in gaps in line numbering. This is because all STMD8 ports are initially activated as trunks and are only subsequently reconfigured.</li></ul> |

### 5.1.4 Carrying Out a System Reload

After supplying the system with power, you must carry out a system reload.

#### Procedure

Press and hold the reset switch on the CBMOD for at least 5 seconds (RUN LED goes out).

If you do not hold the reset switch for a full 5 seconds, the system may reset rather than reloading, or may not reload properly.

## 5.1.5 Carrying Out the Country Initialization



In Release 2.2 and later (Issue 6), the system software no longer provides all languages. This means that some systems no longer start up in the customary local language after the country code is entered. You must now load the local language **prior to country initialization**, using Hicom Assistant E Office (see [Section 7.12.6](#)). After carrying out the country initialization, but before loading the required local language, the displays come up in German.

The first time the system boots, the displays come up in German. Carry out the country initialization on the system telephone with internal station number 100 (port 01). This process loads the country-specific language and features and ensures that the system meets the country's conditions for approval.

In Germany, no country adaptation is required after a reload because the system boots with the German country code by default.

### Input Procedure

Table 5-5 Entering the Country Code

| Step | Input   | Description                                                                                                                   |
|------|---------|-------------------------------------------------------------------------------------------------------------------------------|
| 1.   | *95     | System administration code                                                                                                    |
| 2.   | xxxxx ✓ | User: 31994 (default)                                                                                                         |
| 3.   | xxxxx ✓ | Password: 31994 (default)                                                                                                     |
| 4.   | xxxx ✓  | Enter new password                                                                                                            |
| 5.   | 29-5 *  | Country initialization: Select a country code (refer to table <a href="#">Table A-4 on page A-8</a> ) such as 52 for the U.S. |

Entering the country code starts the system. Any data that has already been stored, such as system speed-dialing destinations and classes of service, is deleted or reset to the default value.



After you enter a country code, the default data is guaranteed to load correctly only if the system software has been officially released for that country.

## 5.1.6 Entering the System Number (Not for U.S.)

### Introduction

Depending on the configuration, enter one of the following on the system telephone with the internal station number 100:

- System number (without DID number and attendant code), or
- Tie trunk number, as when networking with Hicom 300

The system number is defined by the carrier or the responsible facility provider.

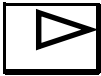
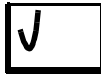
**System numbers cannot be entered with point-to-multipoint operation or tie trunks, such as Hicom 300 (depending on the configuration).**

### Example

- Port number: 98008
- National number: 2302 (prefix without 0)
- International number: 49 (country code)
- Station number type: International

### Input Procedure

Table 5-6 Entering the System Number

| Step | Input                                                                                                                                                                   | Description                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | *95                                                                                                                                                                     | System administration code                                                                                                                                          |
| 2.   | Service                                                                                                                                                                 | User name (identification)                                                                                                                                          |
| 3.   | XXXXX                                                                                                                                                                   | Enter password                                                                                                                                                      |
| 4.   |   | Watch the display.<br>Scroll until "ISDN parameters" and "System stn. number" appear.<br>Confirm your selection.<br>Or:<br>Expert mode: Enter the code 20 2 1 to 4. |
| 5.   |                                                                                                                                                                         | Follow the user prompting on the display.                                                                                                                           |



### 5.1.7 Conducting Customer-Specific Programming

You can program the system using one of the following tools:

- Hicom Assistant T (programming telephone)
- Hicom Assistant E Office (PC tool)
- Hicom Assistant C (customer PC tool)—for basic changes after installation



Changes to the system (such as key programming) that were made using Hicom Assistant E Office during an offline programming session will be lost when the database is loaded.

When you program the system offline, the assignments of trunk and subscriber ports depend on the order in which the boards are inserted. Usually, the boards are inserted from the lowest slot to the highest.

Refer to [Chapter 7, \*Implementing Features\*](#), for information on how to program individual features.

#### Meaning of Call Charge and Hardware Options in the *Transmission* Dialog Box of Hicom Assistant E Office

| If                                                                 | Then                                                                                                                                               |
|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| You want to transfer the most recent CDB to a bootstrapped system. | Activate the call charge and hardware options (using Hicom Assistant E Office). This returns the system to the status it had before bootstrapping. |
| CDB already in the system.                                         | Transfer changes to the CDB without using the call charge and hardware options (in Hicom Assistant E Office). Make sure you select delta mode.     |

Activate the call charge option to transfer the following additional information to the system:

- Station call forwarding destinations (using \*1)
- Station PINs
- Text and advisory messages sent
- Call charges for trunks and stations
- Feature counters

Activate the hardware option to transfer the following additional data to the system:

- V.24 (RS-232) throughput rates
- Active callbacks
- Status of external call forwarding (\*64)
- Telephone settings (contrast, ringer volume, and ringer pitch)
- Assignment between physical ports and logical ports
- Status of physical ports (active or inactive)
- Login information for Hicom cordless telephones

The system restarts when you transfer the CDB with the hardware option activated.

## **5.1.8 Carrying out a System Check**

### **Checking the Telephones**

- Check the time and date display on each optiset E telephone. If a display does not appear, the telephone or the link may be defective. Check if either the terminal or the link is defective. Replace the terminal or fix the link.
- Carry out the telephone test described in Section 12.3.3 on page 12-20 on all telephones.

### **Checking for Proper System Booting**

Set up internal and external calls at random to check if the system is functioning properly.

## 5.2 Hicom 150 E OfficeCom, Point, One, and Start Startup

\*OfficeOne/OfficeStart not available in the U.S.

### 5.2.1 Overview

#### Section Contents

This section contains information on how to start up the Hicom 150 E OfficeCom, Point, One, and Start communication systems.



#### **WARNING**

Only authorized service personnel should start up the system.

### 5.2.2 Startup Procedure

Table 5-7 Hicom 150 E OfficeCom, OfficePoint, and OfficeOne—Startup

| Step                                                                                                           | Activity                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                                                                                                             | <u>Checking the LED status after supplying the system with power</u>                                                                                                                                         |
| 2.                                                                                                             | <u>Carrying out a reload</u>                                                                                                                                                                                 |
| 3.                                                                                                             | <u>Carrying out the country initialization</u>                                                                                                                                                               |
| 4.                                                                                                             | <u>Entering the system number</u> (not for U.S.)                                                                                                                                                             |
| 5.                                                                                                             | <u>Conducting customer-specific system programming.</u> You can carry out the system programming either at the programming telephone, using Hicom Assistant T, or with the Hicom Assistant E Office PC tool. |
| 6.                                                                                                             | <u>Carrying out a system check</u>                                                                                                                                                                           |
| When the date 1. JAN 00 and the time 00.00 appear in the display on the system telephone, the system is ready. |                                                                                                                                                                                                              |



Changes to the system (such as key programming) made during an offline programming session will be lost when data is restored to the PC.

### 5.2.3 OfficeCom and OfficePoint LED Status Display

The CBPC central board is equipped with two green LEDs that indicate the status of the board (H9) and of the integrated analog modem (H10).

#### CBPC Status Display

Table 5-8 CBPC—Board Status Display

| LED H9 (green) | Function                                                       |
|----------------|----------------------------------------------------------------|
| Off            | No power                                                       |
| On             | Power on, reset switch pressed                                 |
| Off            | Power on, reset switch held down for approximately 5 s; reload |
| On             | System boot                                                    |
| Flashing       | Normal operating state                                         |

#### Integrated Modem Status Display

Table 5-9 CBPC—Status Display for the Integrated Modem

| LED H10 (green) | Function                          |
|-----------------|-----------------------------------|
| Off             | Integrated modem not installed.   |
| On              | Integrated modem is ready.        |
|                 | Data traffic via integrated modem |

For more information about LED signaling, refer to [Section 12.3.1 on page 12-18](#) and [Section 12.3.2 on page 12-19](#).



The system also supports digital modem access via B channel. The green LED does not indicate the status of this modem.

## 5.2.4 Carrying Out a System Reload

After supplying the system with power, you must carry out a system reload.

### Procedure

Press and hold the reset switch on the CBPC for at least 5 seconds.

If you do not hold the reset switch for a full 5 seconds, the system may reset rather than reloading, or may not reload properly.

## 5.2.5 Carrying Out the Country Initialization



In Release 2.2 and later, the system software no longer provides all languages. This means that some systems no longer start up in the customary local language after the country code is entered. You must now load the local language **prior to country initialization**, using Hicom Assistant E Office (see [Section 7.12.6](#)). After carrying out the country initialization, but before loading the required local language, the displays come up in German.

The first time the system boots, the displays come up in German. Carry out the country initialization on the system telephone with the internal station number **100** (OfficeCom) or **11** for (OfficePoint, OfficeOne and Office Start) (port 01). This process loads the country-specific language and features and ensures that the system meets the country's conditions for approval.

In Germany, no country initialization is required following a reload because the system boots with the German country code by default.

### Input Procedure

Table 5-10 Entering the Country Code

| Step                                                                                     | Input   | Description                                |
|------------------------------------------------------------------------------------------|---------|--------------------------------------------|
| 1.                                                                                       | *95     | System administration code                 |
| 2.                                                                                       | 31994 ✓ | Enter default user name and confirm        |
| 3.                                                                                       | 31994 ✓ | Enter default user name and confirm        |
| 4.                                                                                       | xxxx ✓  | Enter new password                         |
| <b>Note:</b> Steps 2 and 3 are for the first time you access system administration only. |         |                                            |
| 5.                                                                                       | 29      | Enter 29 to access <i>System details</i> . |

*Hicom 150 E OfficeCom, Point, One, and Start Startup*

Table 5-10 Entering the Country Code

| Step | Input  | Description                                                                                                                                 |
|------|--------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 6.   | 5 * 52 | Enter 5 to select <i>Country initialization</i> , press * to change the country code from Germany, and enter the country code (52 for U.S.) |

**Note:** Entering the country code initiates a hard reset. Any data that has already been stored, such as system speed-dialing destinations and classes of service, is deleted or reset to its default value.



After you enter a country code, the default data is guaranteed to load correctly only if the system software has been officially released for that country. Hicom 150 E OfficeCom, OfficePoint, OfficeOne, and OfficeStart have not been introduced in some of the countries listed in [Table A-4 on page A-8](#). The correct loading of the default data is not guaranteed for those countries.

## 5.2.6 Entering the System Number (Not for U.S.)

### Introduction

Depending on the configuration, enter one of the following on the system telephone with internal station number 100 (OfficeCom) or 11 (OfficePoint):

- System number (without DID number and attendant code) or
- Tie trunk number, as when networking with Hicom 300.

The system number is defined by the carrier or the responsible facility provider.

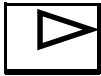
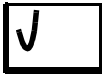
**System numbers cannot be entered with point-to-multipoint operation or tie trunks, such as Hicom 300 (depending on the configuration).**

### Example

- Port number: 98008
- National number: 2302 (prefix without 0)
- International number: 49 (country code)
- Station number type: International

### Input Procedure

Table 5-11 Entering the system number

| Step | Input                                                                                                                                                                   | Description                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | *95                                                                                                                                                                     | System administration code                                                                                                                                          |
| 2.   | Service                                                                                                                                                                 | User name (identification)                                                                                                                                          |
| 3.   | XXXXX                                                                                                                                                                   | Enter password                                                                                                                                                      |
| 4.   |   | Watch the display.<br>Scroll until "ISDN parameters" and "System stn. number" appear.<br>Confirm your selection.<br>Or:<br>Expert mode: Enter the code 20 2 1 to 4. |
| 5.   |                                                                                                                                                                         | Follow the user prompting on the display.                                                                                                                           |

## 5.2.7 Conducting Customer-Specific Programming

You can program the system using one of the following tools:

- Hicom Assistant T (programming telephone, refer to [Section A.3 on page A-6](#))
- Hicom Assistant E Office (PC tool)



Changes to the system (such as key programming) made using Hicom Assistant E Office during an offline programming session will be lost when the database is loaded.

When you program the system offline, the assignments of trunk and subscriber ports depend on the order in which the boards are inserted. Usually, the boards are inserted from the lowest slot to the highest.

Refer to [Chapter 7, \*Implementing Features\*](#), for information on how to program individual features.

### Meaning of Call Charge and Hardware Options in the *Transmission* Dialog Box of Hicom Assistant E Office

| If                                                                 | Then                                                                                                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| You want to transfer the most recent CDB to a bootstrapped system. | Activate the call charge and hardware options (using Hicom Assistant E Office). This returns the system to the status it had before bootstrapping.   |
| CDB already in the system.                                         | Transfer changes to the CDB without using the call charge and hardware options (in Hicom Assistant E Office). Make sure that delta mode is selected. |

Activate the call charge option to transfer the following additional information to the system:

- Station call forwarding destinations (using \*1)
- Station PINs
- Text and advisory messages sent
- Call charges for trunks and stations
- Feature counters



Activate the hardware option to transfer the following additional data to the system:

- V.24 (RS-232) throughput rates
- Active callbacks
- Status of external call forwarding (\*64)
- Telephone settings (contrast, ringer volume, and ringer pitch)
- Assignment between physical ports and logical ports
- Status of physical ports (active or inactive)
- Login information for Hicom cordless telephones

The system restarts when you transfer the CDB with the hardware option activated.

## **5.2.8 Carrying out a System Check**

### **Checking the Telephones**

Check the time and date display on each optiset E telephone. If a display does not appear, the telephone or the link may be defective. Check

- The telephone
- The jack
- The cabling
- The power connection

Carry out the telephone test described in Section 12.3.3 on page 12-20 on all telephones.

### **Checking for Proper System Booting**

Set up internal and external calls at random to check if the system is functioning properly.

## 5.2.9 Station and Line Number Assignment

The station and line numbers are assigned consecutively when the system is booted.

This consecutive station number assignment proceeds according to the following rules:

- The first time the system is initialized, its capacity is determined and stored in the CDB (customer database). After each system reset, this data is accessed and used to generate the numbering plan.
- If a change in the board configuration is detected during booting:
  - Missing or defective board: No action.
  - Different board type detected: Board is not activated.
  - Same board type detected but with fewer channels: Board is activated with fewer ports, leaving a gap.
  - Same board type detected but with a greater number of channels: Board is activated with the number of channels stored in memory (EEPROM); the additional ports are not activated.
  - New board in empty slot:
    - Board was inserted as the last in the board placement sequence: All boards are activated and the numbering plan continues without a gap.
    - Board was inserted before another board in the board placement sequence: It is activated and appended to the last board in the numbering plan.
- Reinitialization: With newly defined passwords, the system is returned to its original, preinitialization state. The system configuration data stored in the CDB is deleted; you can make changes to the capacity stage.

If you expand the system configuration, proceed as follows:

- Switch off the system, (also make sure the battery switch is in the OFF position on the USVC and USVF) and insert the new boards.
- Switch the system back on. the numbering plan continues without a gap, just like during initial activation.



When the station numbering plan changes, the station-specific data also changes.

- If the configuration exceeds the capacity limit for trunks, the ports are activated only up to the capacity limit.

- (Not for U.S.) Combining subscriber lines and trunks on the same  $S_0$  board can result in gaps in trunk numbering because all the ports on the board are initially activated as trunks and are not reconfigured until later on.
- $S_0$  stations: If ISDN terminals are connected to an STLS board ( $S_0$  bus), their station numbers are derived from the MSN programmed in the terminal regardless of the configuration.
- If no MSN is programmed in a terminal or if no MSN can be programmed, the system uses a default MSN. You can change the default MSNs using Hicom Assistant E Office.
- (Not for U.S.) The MSN is first assigned by the system when the  $S_0$  port is configured on the "Euro-bus" and can be read out by system administration (Hicom Assistant T: Code 20 4 3 >  $S_0$  bus MSN).

## **5.2.10 Connecting ISDN (S<sub>0</sub>) interfaces (Not for U.S.)**

You can use the RJ11 jacks on the STLS boards to connect from one to four ISDN S<sub>0</sub> busses. The interfaces on the STLS boards are freely configurable. The following configurations are supported:

- DSS1 trunk point-to-point
- DSS1 trunk point-to-multipoint
- EURO-bus
- CorNet-N secondary (only OfficeCom + OfficePoint C/OfficePoint, Rel. 2.2 or later)
- Using Hicom Assistant T, you can also set up configurations for networking and dedicated lines

Use the S<sub>0</sub> interface S<sub>0</sub>1 for connection to the public telecommunications network (ISDN trunk).

You can also connect S<sub>0</sub> interfaces S<sub>0</sub>2 to S<sub>0</sub>4 to the ISDN trunk or to ISDN terminals (ISDN telephone, Fax Group 4, PC, dialing aid) via an S<sub>0</sub> bus.

The connection (networking) to Hicom 150 E Office and Hicom 300 (CorNet-N) can also be set up via S<sub>0</sub> interfaces S<sub>0</sub>1 to S<sub>0</sub>4.

S<sub>0</sub> connection options for Hicom 150 E OfficePro/OfficeCom/OfficePoint:

- Point-to-point (PP) (default)
- Point-to-multipoint (PMP)

### **5.2.10.1 Connecting an ISDN Trunk (Not for U.S.)**

Plug one end of the connecting cord provided into jacks S<sub>0</sub>1 to S<sub>0</sub>4 and the other end into the NT (network termination).

### **5.2.10.2 Networking connection (Hicom 300 CorNet-N) (Not for U.S.)**

Plug one end of the connecting cord provided into jacks S<sub>0</sub>1 to S<sub>0</sub>4 and connect the other end to the Hicom 300 port.

### **5.2.10.3 Connecting ISDN Terminals (Not for U.S.)**

Depending on the system, you can set up a maximum of four internal S<sub>0</sub> busses (S<sub>0</sub>1 to S<sub>0</sub>4). A maximum of eight ISDN terminals can be addressed on each S<sub>0</sub> bus.

(Not for U.S.) The MSN is first assigned by the system when the  $S_0$  port is configured on the Euro-bus and can be read out by system administration (Hicom Assistant T: Code 20 4 3 >  $S_0$  bus MSN).

When you set up an  $S_0$  bus, it is assigned an MSN. This MSN is the first free station number in the system. The  $S_0$  station is immediately available under this MSN, without an outgoing seizure.

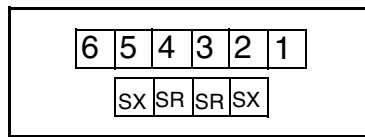
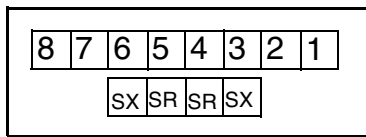


Not for U.S.: If no MSN is entered in the terminal, a default MSN is automatically assigned after you change the  $S_0$  port to Euro-bus in system administration.

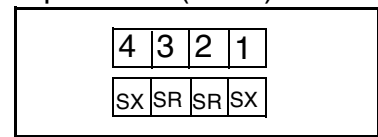
### Setting Up an $S_0$ bus With A MW6 (RJ11) Jack (Not for U.S.)

ISDN terminals cannot be connected directly to the MW6 (RJ11) jack on the STLS using the cables supplied. You must first install a jack with cross-connected cables (see [Figure 5-2 on page 5-22](#)).

Pin assignment of jacks:



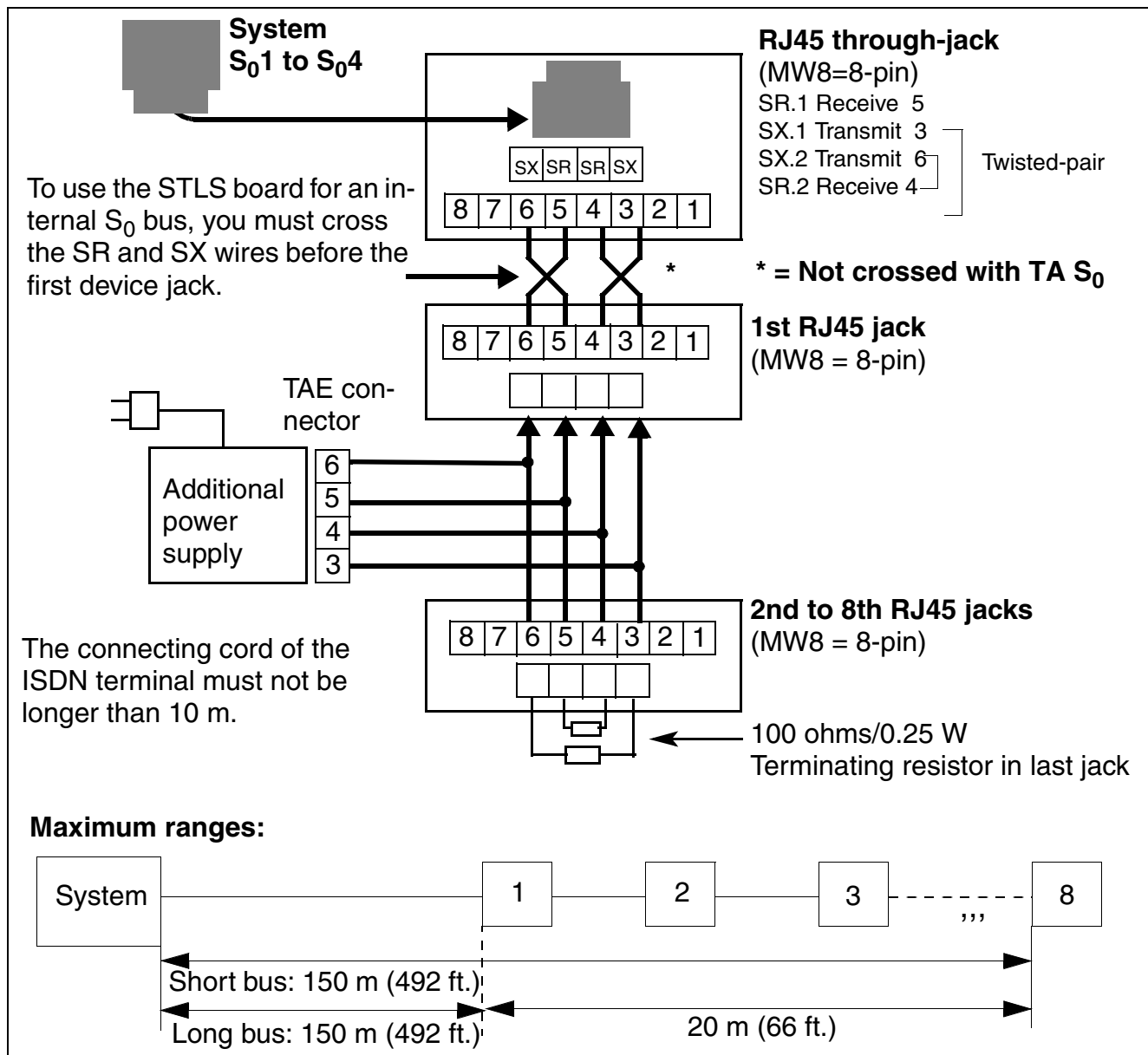
4-pin RJ11 (MW4)



Always establish contact on the center four pins.

Figure 5-1 Pin Assignment of Jacks

## Hicom 150 E OfficeCom, Point, One, and Start Startup

Figure 5-2 Wiring and Ranges for  $S_0$  Bus Jacks (Not for U.S.)

#### 5.2.10.4 Station Numbers for Internal S<sub>0</sub> Stations

- You must enter the station number in the codes for internal stations.
- The station number for the internal S<sub>0</sub> station must not be assigned to the station number of a subscriber board in the standard numbering plan.

#### Example

- Hicom 150 E OfficeCom CBPC (station numbers 100-111 or 500-507); refer to Table 3-6 on page 3-22
- Peripheral board 3 = SLU8 (station numbers 27-42)
- Peripheral board 4 = 8SLA (station numbers 43-50)

Possible station numbers for internal S<sub>0</sub> station: 51 to 74

#### 5.2.10.5 Multi-Device Connection (for Germany Only)

In Germany, consider the following when implementing the multi-device connection feature (S<sub>0</sub> bus from Telekom):

- Telekom assigns an MSN (multiple subscriber number) for connectable terminals on the S<sub>0</sub> bus (normally at least three MSNs per basic access).
- Under port configuration (code 20 4 1) for the port used, set DSS1 trunk PMP in the ISDN parameters of the system settings.
- Enter the MSNs in the table for direct inward dialing (DID) numbers. In Hicom 150 E OfficeCom, Point, One, and Start, one station, one group or one hunt group can be reached via direct inward dialing for each MSN assigned.
- You cannot make any entries under *System stn. number*.
- Hicom 150 E Office is always the last station to be looped in on the S<sub>0</sub> bus because the terminating resistors (2 x 100 ohms) are permanently installed in this system's trunk circuit. For this reason, remove any existing terminating resistors from the last socket.

#### External Call Forwarding With PMP

Station 100 (OfficeCom) or station 11 (OfficePoint, OfficeOne or OfficeStart) (port 01) can activate external call forwarding (service \* 64) for an MSN assigned to it. This type of call forwarding applies only to these stations and not to the entire multi-device connection. All other stations with an MSN can still be reached by means of direct inward dialing.

In a mixed configuration, be careful to distinguish between the two directions.

*Hicom 150 E OfficeCom, Point, One, and Start Startup*



## 6 Expanding and Upgrading the System

### Section Contents

This section describes the following topics.

| Topic                                                                                  |           |
|----------------------------------------------------------------------------------------|-----------|
| <b><u>Expanding Hicom 150 E OfficePro</u></b>                                          | page 6-2  |
| • <u>Using an Uninterruptable Power Supply (Not for U.S.)</u>                          | page 6-2  |
| • <u>Replacing Peripheral Boards</u>                                                   | page 6-11 |
| • <u>Connecting a P 500 printer (Not for U.S.)</u>                                     | page 6-13 |
| • <u>Connecting Hicom GCM (Not for U.S.)</u>                                           | page 6-17 |
| <b><u>Expanding Hicom 150 E OfficeCom, OfficePoint, OfficeOne, and OfficeStart</u></b> | page 6-19 |
| • <u>Connecting a Printer, Modem (Not for U.S.), or PC</u>                             | page 6-20 |
| <b><u>Upgrading the System</u></b>                                                     | page 6-21 |
| • <u>Upgrading From Hicom 150 E Modular to Hicom 150 E OfficePro (Not for U.S.)</u>    | page 6-21 |
| • <u>Upgrading Hicom 150 E Office</u>                                                  | page 6-23 |

## 6.1 Expanding Hicom 150 E OfficePro

This section provides information on supplementary equipment and expansions that are not described in [Section 4.1, \*Hicom 150 E OfficePro Installation, on page 4-1\*](#).

### 6.1.1 Using an Uninterruptable Power Supply (Not for U.S.)

#### 6.1.1.1 Overview

##### Introduction

Outside the U.S., you can use an optional uninterruptable power supply (UPS) in addition to the PSUI, to permit temporary, emergency battery operation in the event of a power failure.

##### Alternatives

The following UPS alternatives are available:

- USVI (uninterruptable power supply for the OfficePro)
- USVI in conjunction with a 48 Vdc network system (refer to [page 6-8](#))
- Customer-supplied uninterruptable power supply



Refer to [Section 3.2.20 on page 3-57](#) for basic information on USVI applications (such as technical specifications and calculation of the bridging time).

##### USVI Components

A USVI unit consists of the following components:

- ELS2-ACW ac power circuit interrupter (disconnects ac power from PSUI)
- USVI cabinet (space for two battery managers and two battery sets)
- Battery manager board (charging and control electronics)
- Battery set board (four maintenance-free, 12 V, lead storage batteries).

Two fully compatible battery managers from two different manufacturers are used. Both types can be used simultaneously in a single USVI cabinet.

Connect the battery manager to the PSUI via a connecting cable. Each PSUI requires a separate battery manager with a battery set (battery board) and ac power circuit interrupter. A port for connecting an external charging rectifier or 48 Vdc network system is located on the back of the battery manager.

### 6.1.1.2 Installing USVI Cabinets (Not for U.S.)

#### Mechanical Specifications

The design and dimensions of the USVI cabinet match those of the system cabinets (BC, EC1, EC2). One ac power circuit interrupter, one battery manager and one battery board are used for each PSUI (in place of the battery board, an external battery can also be used—refer to [page 6-8](#)).

#### Installing USVI Cabinets


**Caution**

The USVI cabinet must not be placed on top of a system cabinet (BC, EC1, EC2). Always mount the stacked system cabinets on stabilizer feet to ensure the necessary stability.

| Step | Action                                                                                                                                                                                                                                                               |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Remove the front and back <u>cover</u> from the <u>USVI cabinets and system cabinets</u> .                                                                                                                                                                           |
| 2.   | Mount stacked system cabinets on the <u>stabilizer feet</u> .<br>The locations of the stabilizer feet for the various system configurations are indicated by arrows in <a href="#">Figure 6-1 on page 6-5</a> .                                                      |
| 3.   | Position the cabinets at the installation site so that they are stable and level. Correct any differences in height.<br>If two cabinets are stacked, make sure that the feet of the upper cabinet fit into the corresponding depressions in the lower cabinet.       |
| 4.   | Fasten the cabinets together using four connecting plates and screws plus washers per connection ( <a href="#">Figure 6-1 on page 6-5</a> ).<br>Make sure that the connecting plates are mounted in the correct direction (inside the cabinets and pointing inward). |

## **Using a USVI in a Three-Cabinet System (Not for U.S.)**

USVI1 (see Figure 6-7 on page 6-17) contains the battery managers and battery boards for the PSUs in the BC and EC1.

To allow proper heat dissipation, install no more than one battery manager and one battery board in USVI2 (which supports the PSUI in EC2).

## **Installing the Connecting Cable**

- For cabinets installed side by side:  
Remove the lower grills from the two rear cabinet covers.
- For stacked cabinets:  
Punch out the recesses in the bottom of the top cabinet and the top of the bottom cabinet using diagonal cutting pliers, and then break them out using flat-nosed pliers.



### **WARNING**

Use caution when breaking out the recesses. Be sure to remove any sharp edges or corners.

**Options for Assembling USVI Cabinets and System Cabinets (Not for U.S.)**

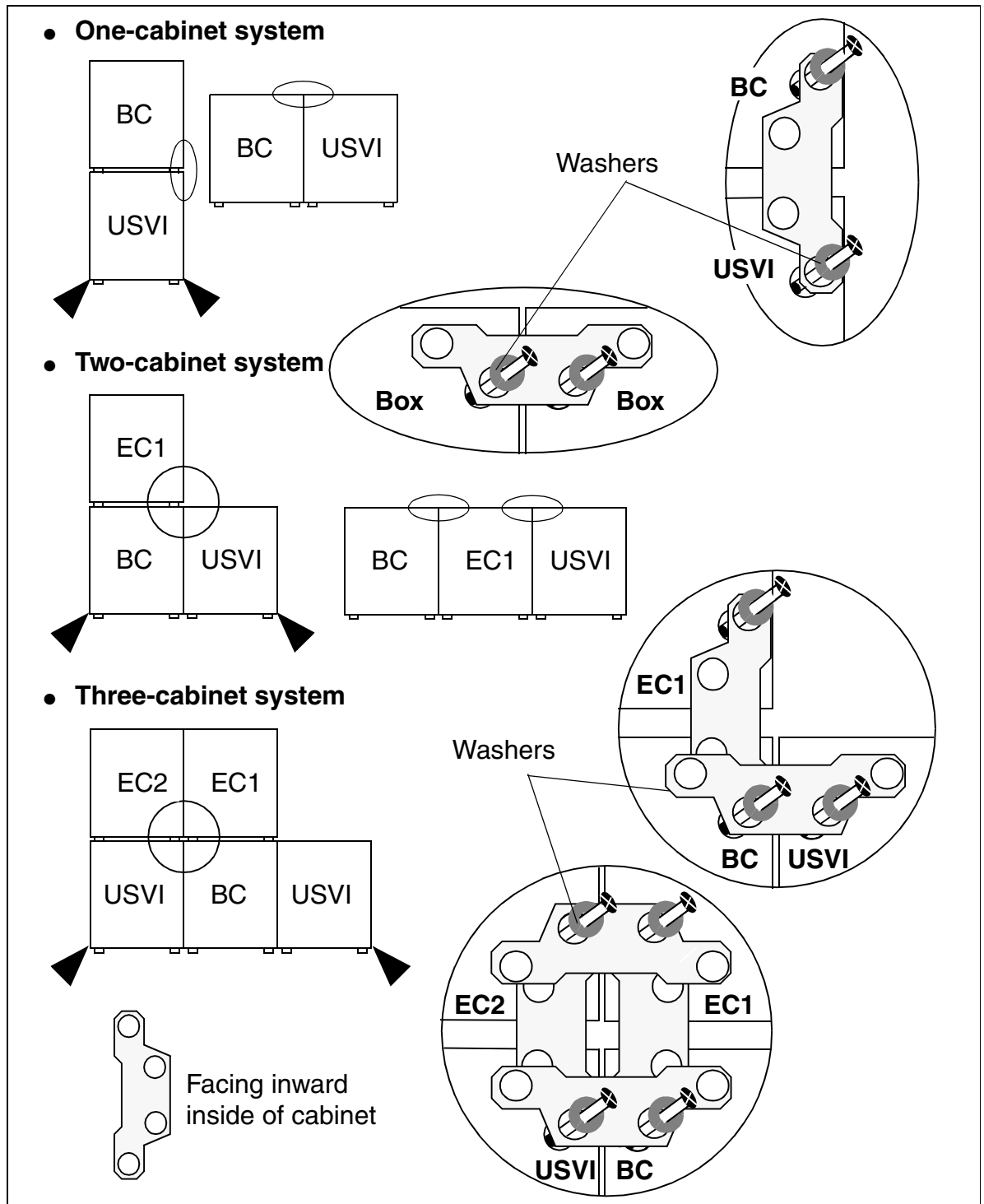


**Figure 6-1** Hicom 150 E OfficePro—Installation Options for USVI Cabinets (Not for U.S.)

### 6.1.1.3 Grounding USVI Cabinets (Not for U.S.)

USVI cabinets are usually mounted directly onto system cabinets. This mechanical connection (via the metal connecting plates and screws) establishes the ground connection via the basic cabinet protective earth ground (see [Figure 4-12 on page 4-28](#)).



If a mechanical connection between the USVI cabinet and the system cabinet is not possible or not desired, the USVI can also be set up separately. In this case, you can establish the ground connection to the BC using the grounding screw (see [Figure 4-12 on page 4-28](#)) and the supplied cable (C39195-Z7001-C50, 1.5 m, green with yellow stripe).

### 6.1.1.4 Connecting a USVI (Not for U.S.)

#### ELS2-ACW AC Power Circuit Interrupter



#### **Warning**

Always use the ELS2-ACW ac power circuit interrupter to disconnect the ac power from the PSUI.

This device can be used in alternating voltage networks with between 90 and 253 Vac at up to 720 W. The USVI does not have a separate power switch; remove the power plug to switch it off.

Attach the ac power circuit interrupter to the ventilation grill on the metal back panel of each system cabinet using brackets.

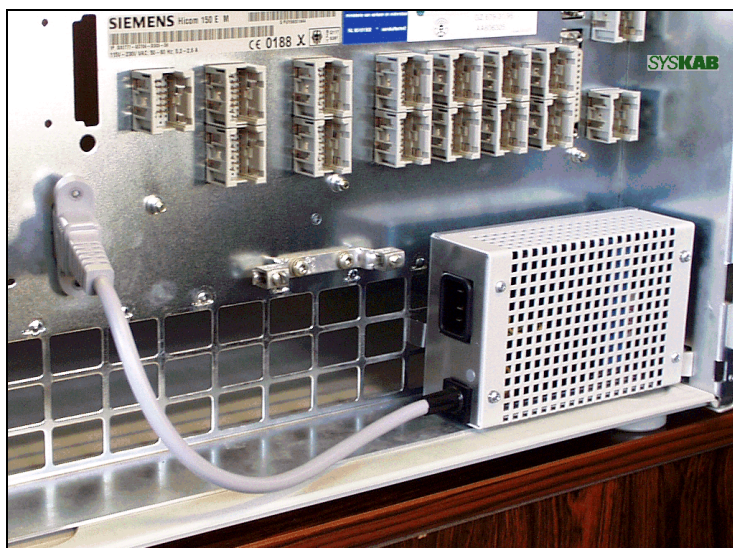


Figure 6-2 ELS2-ACW Power Circuit Interruptor

**Connecting USVI and ELS2-ACW (Not for U.S.)**


You must fasten all cables that exit the cabinet to the ventilation grill on the metal back panel by means of a cable strap.

| If                                      | Then |                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         | Step | Action                                                                                                                                                                                                                                                                                                 |
| <b>Internal battery boards</b> are used | 1.   | If necessary, remove the power cable from each PSUI.                                                                                                                                                                                                                                                   |
|                                         | 2.   | Install an ELS2-ACW ac power circuit interrupter on each system cabinet (metal back panel, lower right corner); position the ELS2-ACW (note right/left) with the brackets in the middle lower row of square holes and lightly press the sides until it engages in the ridges (Figure 6-2 on page 6-6). |
|                                         | 3.   | Connect the output socket of the ac power circuit interrupter to the PSUI using the cable supplied (Figure 6-3 on page 6-9, [A]). Secure the PSUI interface with two screws.                                                                                                                           |
|                                         | 4.   | Connect the PSUI and battery manager using the cable supplied (Figure 6-3 on page 6-9, [B]). Route the cable to the cabinet from the rear and attach it to the metal back panel.                                                                                                                       |
|                                         | 5.   | Insert the power cable (Figure 6-3 on page 6-9, [C]) into the upper input socket of the ac power circuit interrupter.                                                                                                                                                                                  |

| If                                                                                          | Then |                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                             | Step | Action                                                                                                                                                                                                                                                                                                                    |
| <b>External 48 Vdc network system</b><br>is used<br><br>(instead of internal battery board) | 1.   | Bolt the distribution frame (C39165-A7200-B10) ( <a href="#">Figure 6-4 on page 6-10</a> ) to the backplane mount on the rear panel using two threaded bushes. Plug the two four-pin connectors directly into the connectors on the battery managers.                                                                     |
|                                                                                             | 2.   | If necessary, remove the power cable from each PSUI.                                                                                                                                                                                                                                                                      |
|                                                                                             | 3.   | Install the ELS2-ACW ac power circuit interrupter on each system cabinet (metal back panel, lower right corner); position the ELS2-ACW (note right/left) with the brackets in the middle lower row of square holes and lightly press the sides until it engages in the ridges ( <a href="#">Figure 6-1 on page 6-5</a> ). |
|                                                                                             | 4.   | Connect the output socket of the ac power circuit interrupter and PSUI using the cable supplied ( <a href="#">Figure 6-3 on page 6-9</a> , [A]). Secure the PSUI interface with two screws.                                                                                                                               |
|                                                                                             | 5.   | Connect the cable between the external battery or charging rectifier and the distribution frame.<br><b>DANGER:</b> The connecting lines must be protected (maximum 25 A).                                                                                                                                                 |
|                                                                                             | 6.   | Insert the power cable ( <a href="#">Figure 6-3 on page 6-9</a> , [C]) into the upper input socket of the ac power circuit interrupter.                                                                                                                                                                                   |



**Example—Connecting PSUIs to USVIs (Not for U.S.)**

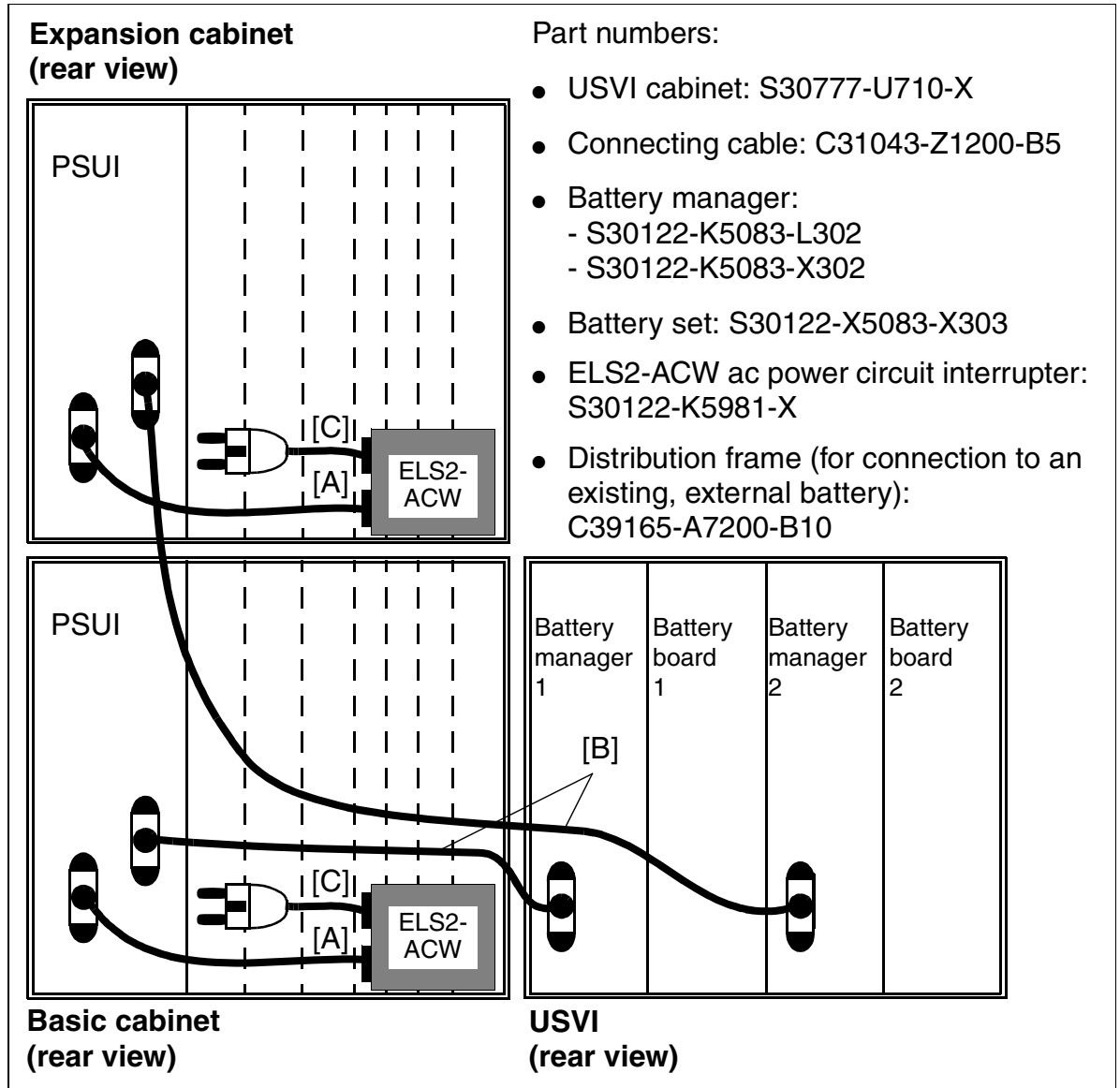


Figure 6-3 Hicom 150 E OfficePro—Connection Example for PSUIs and USVIs (Not for U.S.)

## Operating the USVI in Association with an External 48 Vdc Network System (Instead of Battery Boards) (Not for U.S.)

The requisite distribution frame C39165-A7200-B10 is illustrated in [Figure 6-4 on page 6-10](#).



### **DANGER**

The connecting lines between the external battery and distribution frame must be protected (maximum 25 A).

## 48 V Distribution Frame for Existing External Battery

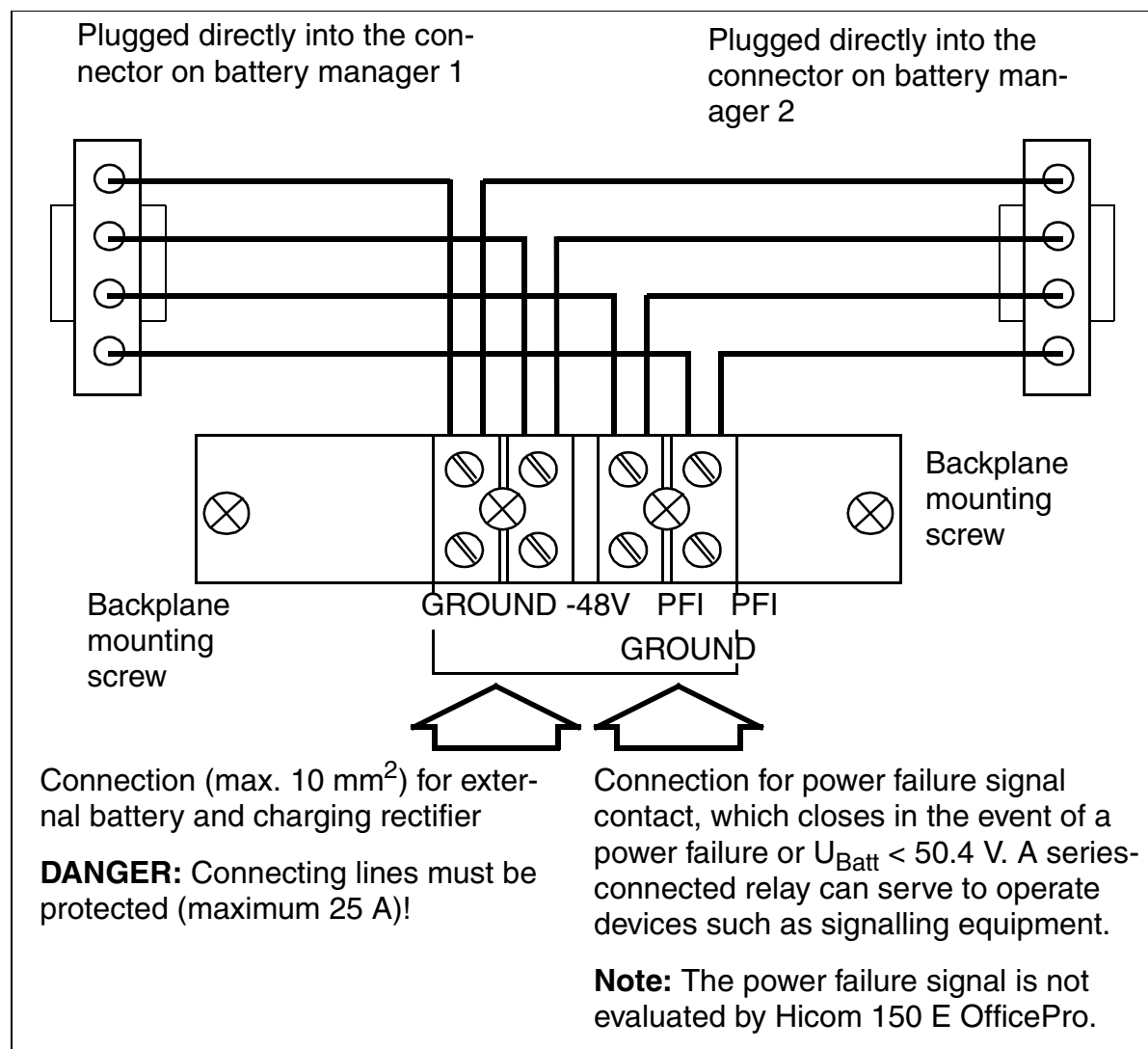


Figure 6-4 USVI—48 V Distribution Frame for an Existing External Battery (Not for U.S.)

## 6.1.2 Replacing Peripheral Boards


**Caution**

Always wear an antistatic wristband when working on the system (especially when handling boards).

In the Hicom 150 E OfficePro only, you can remove and insert peripheral boards during operation (hot plugging). The following startup rules apply.

### Rules for Removing and Inserting Boards

Table 6-1 Startup Rules for Removing and Inserting Boards

| If                                                    | Then                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inserting new board in free slot                      | <p>Board is integrated in the system per the rules for initial installation (refer to <i>Initializing the Boards on page 4-59</i>).</p> <ul style="list-style-type: none"> <li>System with default numbering plan<br/>The station numbers on the new board are appended consecutively in ascending order to the numbers already assigned.</li> <li>System with modified numbering plan<br/>The station numbers on the new board can be in any order.</li> </ul> <p>Using Hicom Assistant E Office Office or Hicom Assistant T, you can assign a specific station number to a port. If the number is already assigned to another object, you can exchange the two station numbers.</p> |
| Replacing with under-equipped board of same type      | The system activates the board and retains the surplus ports in the database.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Replacing board with over-equipped board of same type | <p>The system activates the board with the same number of ports as on the old board.</p> <p>After the old board is removed, you can reinitialize the slot using Hicom Assistant E Office Office or Hicom Assistant T.</p> <p>When the new board is inserted, the system activates it as if it had been inserted in a free slot. However, the CDB (customer database) area used by the old board is left as a gap.</p> <p>In the case of subscriber line modules, you can use Hicom Assistant E Office Office to retain the old station data by copying it to the new board, or you can delete it (reset to the default state). Copying is not possible for trunk boards.</p>          |

Table 6-1      Startup Rules for Removing and Inserting Boards

| If                                    | Then                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Replacing with a different board type | <p>The system does not automatically activate the board. After removing the old board, you can initialize the slot using Hicom Assistant E Office or Hicom Assistant T. After you have inserted the new board, the system activates it as if it had been inserted in a free slot. However, the CDB area used by the old board is left as a gap.</p> <p>In the case of subscriber line modules, you can use Hicom Assistant E Office to retain the old station data by copying it to the new board, or you can delete it (reset to the default state). Copying is not possible for trunk boards.</p> |



**Caution**

To ensure smooth system operation, observe the following rules for inserting boards:

- Do not install more than one SLMO24 per PCM segment
- Do not install an SLC16 or TS2 together with an SLMO24 on the same PCM segment
- Do not install an SLC16 and TS2 on the same PCM segment

**Suggested Configuration (for U.S. Only)**

To prevent B-channel blocking, install the TMST1 Module only in the BC or in the first two slots of the ECs. Hicom Assistant E Office observes this rule when performing off-line configuration.

### 6.1.3 Connecting a P 500 printer (Not for U.S.)


**WARNING**

Follow the safety and operating instructions provided by the printer manufacturer.

#### Introduction

The P 500 dot-matrix printer can be used as a CDR printer (serial data transmission) or as the output device of the call charge computer/manager (Hicom GCM) (parallel data transmission).

#### CDR Printer

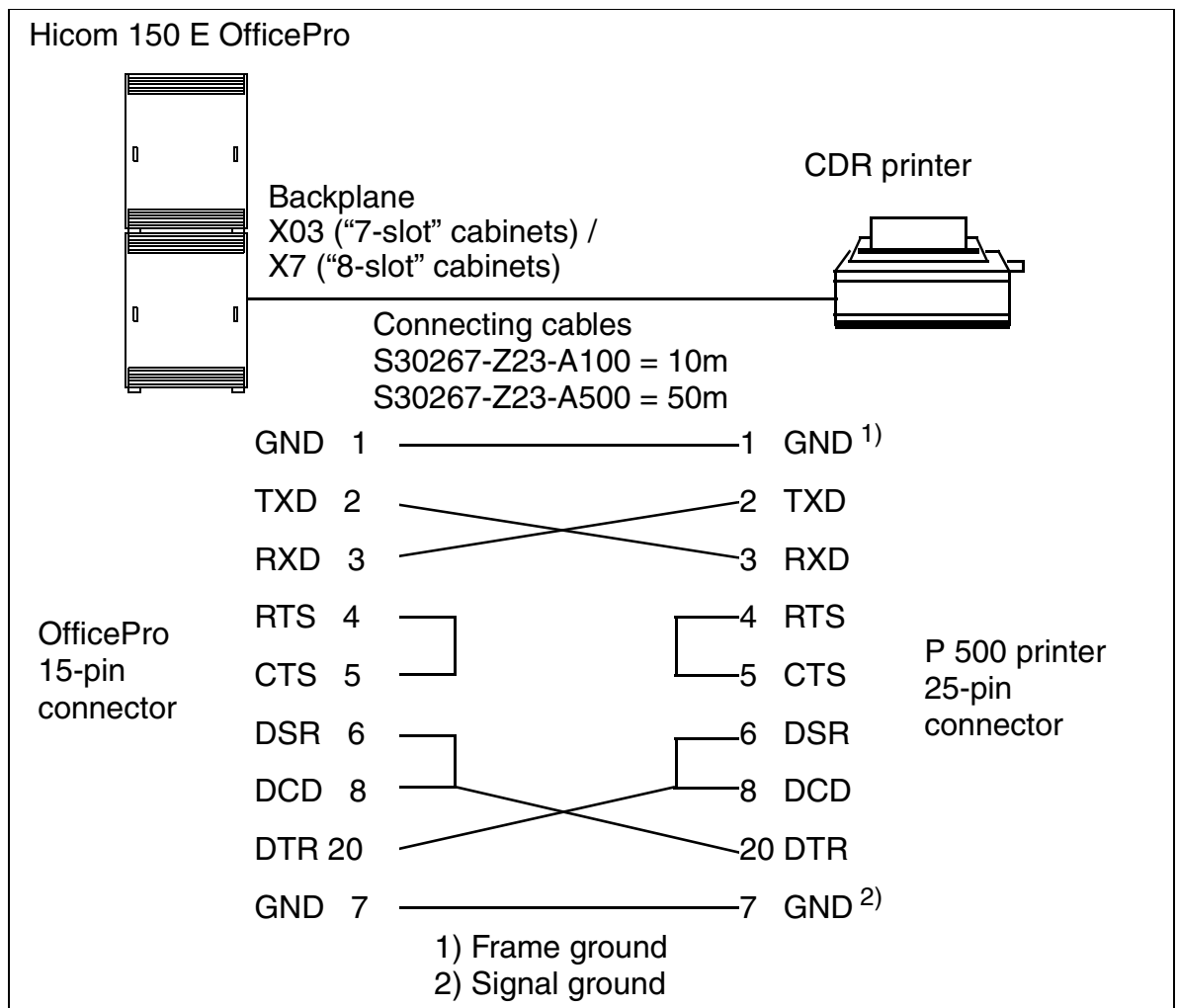


Figure 6-5 P 500 Printer as CDR Printer—Connection and Pin Assignments

## Procedure: Setting Switches on Printer

| Step | Action                                                                                                               |
|------|----------------------------------------------------------------------------------------------------------------------|
| 1.   | Remove printer cover                                                                                                 |
| 2.   | Remove ribbon cartridge                                                                                              |
| 3.   | Remove cover (see <a href="#">Figure 6-6 on page 6-14</a> )                                                          |
| 4.   | Select settings in accordance with <a href="#">Table 6-2 on page 6-15</a> and <a href="#">Table 6-4 on page 6-16</a> |



The printer must be turned off and on again for any changes to the settings made to become effective.

Observe the settings listed in the following table if using a different printer. Refer to the operating instructions provided with the printer for more details.

## Position of DIP Switch Series 1 and 2

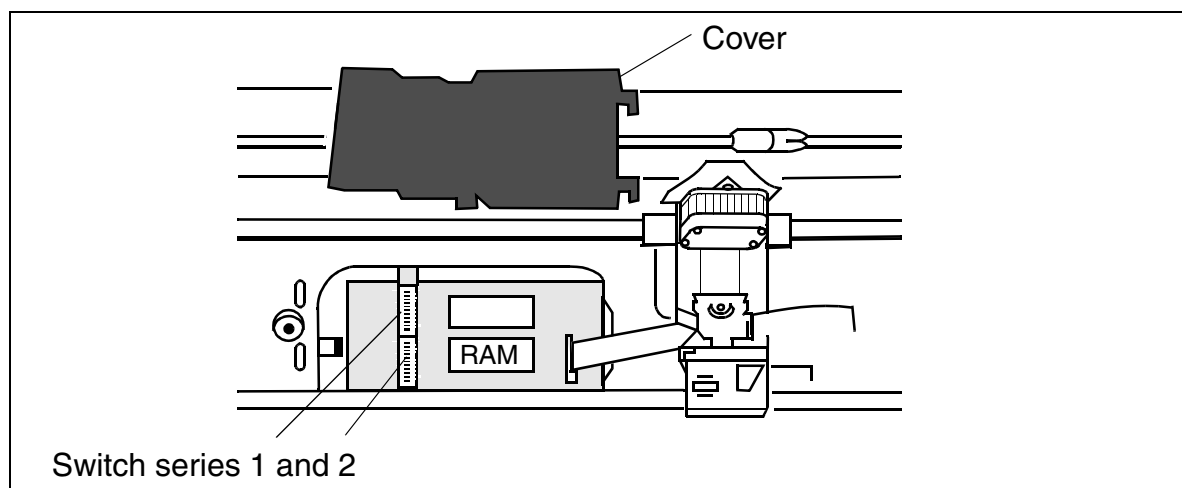


Figure 6-6 P 500 printer—Position of DIP Switch Series 1 and 2

**DIP Switch Series 1**

Table 6-2 P 500 Printer—DIP Switch Series 1

| Switch no.                                      | Function                             | Switch setting                            |                  |
|-------------------------------------------------|--------------------------------------|-------------------------------------------|------------------|
|                                                 |                                      | On                                        | Off              |
| 1-1<br>1-2<br>1-3                               | International characters             | refer to<br><u>Table 6-3 on page 6-15</u> |                  |
| 1-4 <sup>*</sup>                                | EPSON or IBM mode                    | IBM                                       | <b>EPSON</b>     |
| 1-5                                             | Character set selection in IBM mode  | Char. set 2                               | Char. set 1      |
|                                                 | 1-inch hole in EPSON mode            | Yes                                       | <b>No</b>        |
| 1-6                                             | Page length                          | 12 inches                                 | <b>11 inches</b> |
| 1-7 <sup>**</sup>                               | LF code selection in IBM mode        | LF+CR                                     | LF only          |
|                                                 | DC1/DC3 code selection in EPSON mode | No                                        | <b>Yes</b>       |
| 1-8 <sup>***</sup>                              | CR code selection in IBM mode        | CR+LF                                     | CR only          |
|                                                 | CR code selection EPSON mode         | CR+LF                                     | <b>AUTOFEED</b>  |
| The default settings are shown in <b>bold</b> . |                                      |                                           |                  |

\* The mode (EPSON or IBM) is determined solely on the basis of DIP switches 1-4. There is no control code to select the mode.

\*\* DC1 code = printer selection via software, DC3 code = printer deselection via software.

\*\*\*CR and LF are activated if AUTOFEED = low ; CR only if AUTOFEED = high .

**DIP Switch Series 1, Switches 1-1 to 1-3**

Table 6-3 P 500 Printer—DIP Switch Series 1, Switches 1-1 to 1-3

| Country | Switch no. |     |     |
|---------|------------|-----|-----|
|         | 1-1        | 1-2 | 1-3 |
| USA     | Off        | Off | Off |
| France  | Off        | Off | On  |
| Germany | Off        | On  | Off |
| England | Off        | On  | On  |
| Denmark | On         | Off | Off |
| Sweden  | On         | Off | On  |
| Italy   | On         | On  | Off |
| Spain   | On         | On  | On  |

## DIP Switch Series 1

Table 6-4 P 500 printer - DIP switch series 2

| Function                                     | Switch no. | 1200 bps         |     | 2400 bps      | 4800 bps           | 9600 bps    |
|----------------------------------------------|------------|------------------|-----|---------------|--------------------|-------------|
| Serial trans-<br>mission<br>speed            | 2-1        | Off              |     | On            | Off                | On          |
|                                              | 2-2        | Off              |     | Off           | On                 | On          |
| Function                                     | Switch no. | XON/XOFF         |     |               | Ready/In use       |             |
| Serial printer<br>selection                  | 2-3        | On               |     |               | Off                |             |
| Function                                     | Switch no. | No parity        |     | Odd<br>parity |                    | Even parity |
| Parity                                       | 2-4        | Off              | Off | On            |                    | On          |
|                                              | 2-5        | Off              | On  | Off           |                    | On          |
| Function                                     | Switch no. | 7 bits           |     |               | 8 bits             |             |
| Serial data<br>length                        | 2-6        | On               |     |               | Off                |             |
| Function                                     | Switch no. | Serial interface |     |               | Parallel interface |             |
| Interface<br>selection                       | 2-7        | On               |     |               | Off                |             |
| Function                                     | Switch no. | Selected         |     |               | Non selected       |             |
| CSF mode<br>(single sheet<br>feed)           | 2-8        | On               |     |               | Off                |             |
| The default settings appear in <b>bold</b> . |            |                  |     |               |                    |             |

## Administration

Section 8.2 on page 8-6 describes how to administer the P 500 dot-matrix printer.

## Output Formats

For information about the output formats (compressed or uncompressed) for call detail recording central, see Section 7.14.8 on page 7-436.



## 6.1.4 Connecting Hicom GCM (Not for U.S.)

### Introduction

Hicom GCM supports call detail recording and evaluation (code book included) for up to 150 stations and 15,000 call detail records.

Refer to the Hicom GCM Service Manual (A31004-S4500-X100-\*-92) for information on how to configure and start up call charge computer/manager.

### Administration

Section 8.3 on page 8-7 describes how to administer Hicom GCM.

### Connection

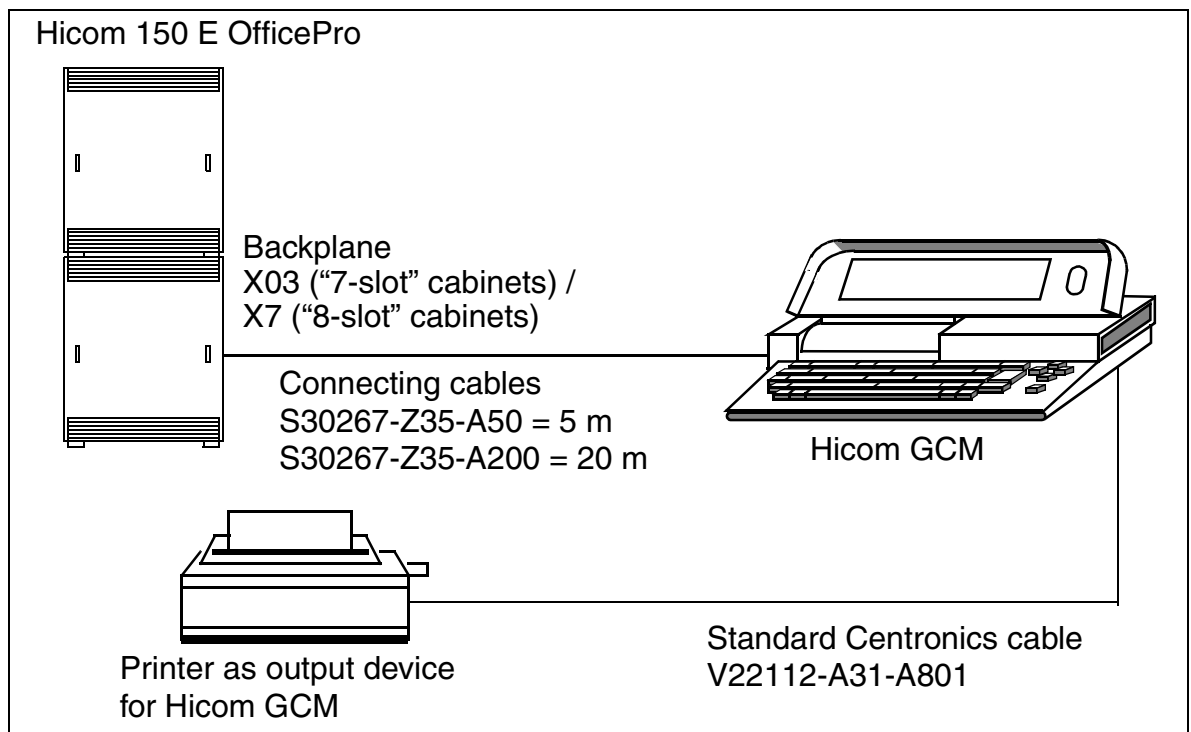


Figure 6-7 Connecting the Call Charge Computer/Managers (Hicom GCM)



Do not connect the cable between Hicom 150 E OfficePro and Hicom GCM until you have configured the call charge computer/manager.

## Assignment of Connecting Cable S30267-Z35-A50/20

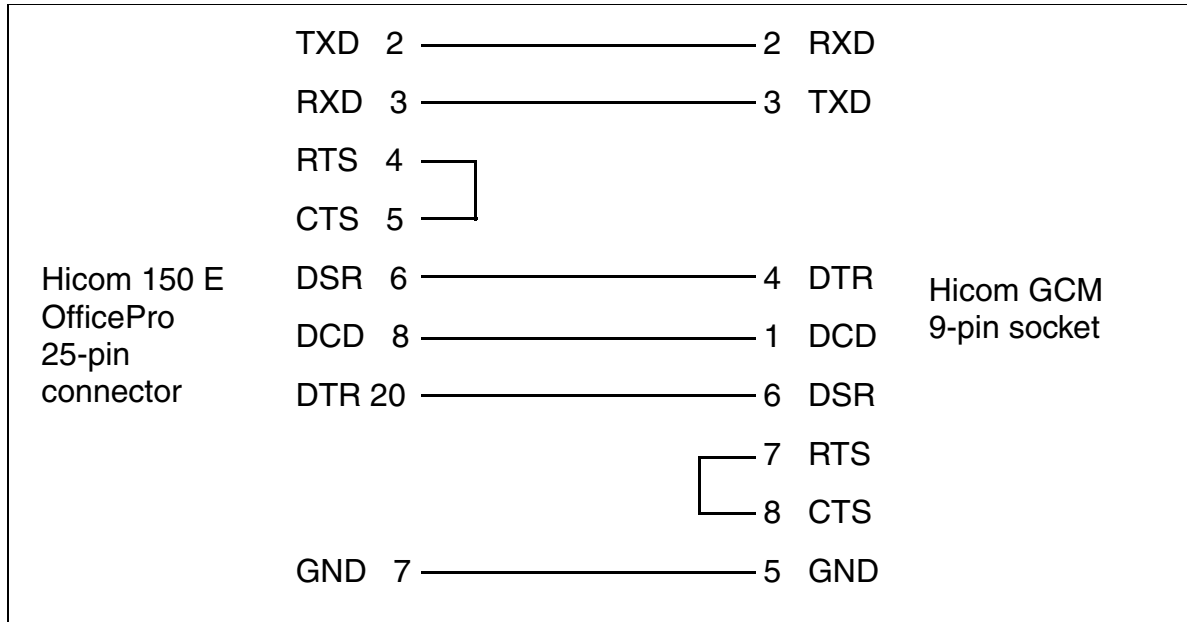


Figure 6-8 Assignment of Connecting Cable S30267-Z35-A50/20

## Output Formats

For information about the output formats (compressed or uncompressed) for call detail recording central, refer to [Section 7.14.8 on page 7-436](#).

## 6.2 Expanding Hicom 150 E OfficeCom, OfficePoint, OfficeOne, and OfficeStart

This section provides information on supplementary equipment and expansions that are not described in [Section 4.2](#), Hicom 150 E OfficeCom, OfficePoint, OfficeOne, OfficeStart Installation.



Information on upgrading the Hicom 150 E OfficeCom, OfficePoint, OfficeOne, and OfficeStart hardware and software can be found in [Section 6.3.2](#).

### Procedure

Follow the procedure below when expanding an existing system.

Table 6-5 Hicom 150 E OfficeCom or OfficePoint Hardware Upgrade

| Step | Action                                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------|
| 1.   | Disconnect the system power cord. Use lockout/tagout (LOTO) procedures.                                          |
| 2.   | Insert the new boards in unoccupied slots.                                                                       |
| 3.   | Verify the voltage and plug in the power cable.                                                                  |
| 4.   | Load the customer data from the system; set up the new boards (for example, you may need to configure stations). |

## 6.2.1 Connecting a Printer, Modem (Not for U.S.), or PC

The V.24 (RS-232) interfaces in OfficeCom and OfficePoint and the V.24 interface on the SBS in OfficeOne and OfficeStart can be used to connect:

- A printer for printing the call charge or customer data
- A PC for processing the call charge data (call charge data management) or
- A PC for system administration

The printer or PC being connected must have the same parameters as the V.24 (RS-232) interface on the CBPC/SBS: 2400 or 9600 baud (selectable), no parity, 1 stop bit, 8 data bits.

### Connection to the System

**OfficeCom or OfficePoint V.24 module:** Connect a 25-pin plug to one of the V24 (RS-232) sockets on the system and feed it out of the system via the strain relief. You can connect to a printer using a standard serial cable with a 25-pin plug, or to a PC using a null modem cable with a 25-pin plug.

**OfficeOne or OfficeStart V.24 (RS-232) port:** Connect a V.24 (RS-232) adapter cable to the V.24 (RS-232) port in the system and feed it out of the system via the strain relief.

At printer, modem or PC: Connect a 9-pin sub-D socket to the printer, modem or PC.

To install and configure the printer, modem or PC, follow the manufacturer's instructions.



For information on the output formats (compressed or long) for call detail recording central, refer to Section 7.14.8 on page 7-436.

## 6.3 Upgrading the System

### 6.3.1 Upgrading From Hicom 150 E Modular to Hicom 150 E OfficePro (Not for U.S.)



The information below applies to authorized upgrades only.

#### Introduction

Observe the following when upgrading from Hicom 150 E Modular Rel. 1.0/2.0/2.1 to Hicom 150 E OfficePro Rel. 1.0/2.0/2.2/3.0 .

| If                                          | Note                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Upgrading to OfficePro single cabinet       | <ul style="list-style-type: none"> <li>PCM segments as shown in <a href="#">Figure 4-36 on page 4-61</a>.</li> </ul>                                                                                                                                                                                                                                                                                                               |
| Upgrading to OfficePro two-cabinet system   | <ul style="list-style-type: none"> <li>Position of the connecting cable between the cabinets (<a href="#">Figure 4-19 on page 4-39</a>)</li> <li>PCM segments as shown in <a href="#">Figure 4-37 on page 4-62</a>.</li> </ul>                                                                                                                                                                                                     |
| Upgrading to OfficePro three-cabinet system | <p>Note the following:</p> <ul style="list-style-type: none"> <li>Position of the connecting cable between the cabinets (<a href="#">Figure 4-20 on page 4-40</a>)</li> <li>CONBO board slot = slot 17 in EC2</li> <li>Remove the four terminating resistors (board side, between slots 19 and 20 and 23 and PSUI) on the backplane of EC2.</li> <li>PCM segments as shown in <a href="#">Figure 4-38 on page 4-63</a>.</li> </ul> |

#### CBMOD Issues

| If                                      | Then                                                                                                                                                                      |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CBMOD = S30810-Q2960-X100,<br>< issue 3 | In ISDN systems, the integrated analog modem (IMOD) must not be installed. Otherwise, remote service is not possible via the integrated digital modem (B channel access). |
| CBMOD = S30810-Q2960-X100,<br>≥ issue 3 | Remote service is possible via both the integrated analog modem (IMOD) and the integrated digital modem (even when IMOD is installed).                                    |

## **Using Flash Memory Cards**

Use only the proprietary FMC specially formatted for Hicom 150 E systems. Flash memory cards from other manufacturers may not function properly.

## **Using Peripheral Boards**



Table 3-89 shows which boards from Hicom 150 E Modular Releases 1.0, 2.0, 2.1 can be used in Hicom 150 E Office Release 2.0/2.2/3.0.

## 6.3.2 Upgrading Hicom 150 E Office

### 6.3.2.1 Hardware Upgrade with Same Software Version

The following upgrades require a complete system replacement:

- Hicom 150 E OfficePoint           to       Hicom 150 E OfficeCom
- Hicom 150 E OfficeCom           to       Hicom 150 E OfficePro

#### Procedure

Convert the backup copy of an OfficePoint or OfficeCom customer database (CDB) to an OfficeCom or OfficePro CDB created offline. This transfers only the following bulk data:

- Station:
  - DID number
  - Internal station number
  - Name
  - Station flags
- Trunks
  - Code
  - Name
  - Trunk group
  - Trunk flags
- Trunk groups
  - Codes
  - Assigned trunks
  - Trunk group parameters
- LCR
  - Codes & flags
  - Classes of service
  - Dial plan
  - Path table
  - Schedule
  - Outdial rule table
- Classes of service
  - Station data
  - Class of service, day and night
  - Allowed and denied numbers
  - ITR matrix
  - ITR assignment
- System parameters       All
- Call charges:
  - Output
  - Factors
  - Project codes

All data not converted is set to the current system default. The system transfers the numbering plan 1:1. There are no default station numbers.

### 6.3.2.2 Software Upgrades

Usually, no data is lost with this type of upgrade. The only exceptions are:

- the tones and rings system parameters
- the time parameters
- executive/secretary data (from Release 1.0/2.0/2.2 to 3.0)
- Group call or hunt group (from Release 1.0/2.0/2.2 to 3.0)  
 In most cases, the audible ring signal for each group call or hunt group member is active after an upgrade (default setting). After the converted CDB file has been loaded, all group members must therefore check whether they need to leave one or more group calls or hunt groups.

The default settings of the new software version (which may differ from the defaults in the old version) are used for this data. Any settings that apply only to the new software versions are preinitialized.

#### SW Upgrades With or Without a Hardware Upgrade

- **Hicom 150 E OfficeStart**

|                                       |   |                    |
|---------------------------------------|---|--------------------|
| SW Release 1.0/2.x<br>(2.x = 2.0/2.2) | → | SW Release 2.x/3.0 |
|---------------------------------------|---|--------------------|

- **Hicom 150 E OfficeOne**

|                    |   |                    |
|--------------------|---|--------------------|
| SW Release 1.0/2.x | → | SW Release 2.x/3.0 |
|--------------------|---|--------------------|

- **Hicom 150 E OfficePoint, HW-Release 1.0 (CBFC)**

|                    |                            |                                                                         |
|--------------------|----------------------------|-------------------------------------------------------------------------|
| SW Release 1.0     | →<br>Without HW<br>upgrade | SW Release 2.x                                                          |
| SW Release 1.0/2.x | →<br>with HW<br>upgrade    | HW Release 2.0, SW Release 3.0<br><b>Note:</b><br><u>CBPC</u> required. |

- **Hicom 150 E OfficePoint, HW Release 2.0 (CBPC)**

|                |   |                |
|----------------|---|----------------|
| SW Release 2.x | → | SW Release 3.0 |
|----------------|---|----------------|



- **Hicom 150 E OfficeCom, HW Release 1.0 (CBFC)**

|                    |                                                                                                         |                                                                                                                                                                                                                                                                                                                                                            |
|--------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SW Release 1.0     | <br>without HW upgrade | SW Release 2.x                                                                                                                                                                                                                                                                                                                                             |
| SW Release 1.0/2.x | <br>with HW upgrade    | HW Release 2.0, SW Release 3.0<br><b>Notes:</b> <ul style="list-style-type: none"> <li>● <u>CBPC</u> required.</li> <li>● Check <u>TS2</u> and TST1 (U.S. only) : Move board from slot 6 (HW Release 1.0) to slot 7 or 9 (HW Release 2.0).</li> <li>● Different Release 2.x software exists for HW Release 1.0 and HW Release 2.0 in OfficeCom.</li> </ul> |

- **Hicom 150 E OfficeCom, HW Release 2.0 (CBPC)**

|                |                                                                                   |                |
|----------------|-----------------------------------------------------------------------------------|----------------|
| SW Release 2.x |  | SW Release 3.0 |
|----------------|-----------------------------------------------------------------------------------|----------------|

- **Hicom 150 E OfficePro**

|                    |                                                                                     |                                                                                                              |
|--------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| SW Release 1.0/2.x |  | SW Release 2.x/3.0<br><b>Note:</b><br><u>CBMOD</u> (S30810-Q2960-X200) required in SW Release 3.0 and later. |
|--------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|

**Procedure: Converting the Customer Database**

| Step                                                                                                                                                                  | Action                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                                                                                                                                                                    | Start Hicom Assistant E Office.                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2.                                                                                                                                                                    | Copy the current system CDB from the CS to the PC.                                                                                                                                                                                                                                                                                                                                                                                     |
| 3.                                                                                                                                                                    | Save the CDB under a new name.                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4.                                                                                                                                                                    | Convert the CDB: <ul style="list-style-type: none"><li>• Open the CDB saved in step 3.</li><li>• Enter customer data:<ul style="list-style-type: none"><li>– Name</li><li>– Contract number</li></ul></li><li>• Enter system-wide data:<ul style="list-style-type: none"><li>– Target version: such as Release 3.0</li><li>– Configuration: such as one-cabinet OfficePro</li><li>– Country settings: Such as U.S.</li></ul></li></ul> |
| 5.                                                                                                                                                                    | Save the converted CDB under a new name, such as offline_30.kds.                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Note:</b><br>In Hicom Assistant E Office version P30300-P1571-A1-xx and later, you can convert the CDB in a single step (such as from Release 1.0 to Release 3.0). |                                                                                                                                                                                                                                                                                                                                                                                                                                        |

**6.3.2.3 Upgrade Procedure for Hicom 150E Office Com Release 1 to Release 2.2  
Hardware and Software (For U.S. only)**

Analog Trunk circuits should never be connected to the TMGL card when the TMGL is not plugged into the system

Hardware Conversion procedure from Office Point to Office Com or Office Com to Office Pro is not supported at this time

APS Transfer is not possible from Release 1 to Release 2.2

It is strongly advised that any new Release 2.2 hardware or software features be added after the complete upgrade procedure have been completed.

**Before beginning the upgrade process ensure the following has been done to the service PC:**

- During the installation of Release 2 Assistant E the OVERWRITE INI file prompt was answered with a YES.
- If upgrading an Office Com system ensure the replacement flashcard has the appropriate software for the installed of system hardware. The B01 file Release 1 hardware has the file name CW\_xxxx.B01 The file name for Release 2 hardware is CW2xxx.B01
- If at any point in the procedure a message "Wrong Pin Code" appears, select the key icon and enter the password 31994 in the password box.

| Step | Action                                                                                                                                                                                                                             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Log on to system with Release 2 Assistant E tool and download a current KDS                                                                                                                                                        |
| 2.   | Select File then " <b>Save as</b> " to assign a specific name to the KDS (i.e. Rls1xxxx.kds x = first 4 letters of customer's name). This is necessary to have a reference on how the system was configured as a release 1 system. |

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.   | <p>If the system being upgraded is an Office Com Rls 1 hardware with a TST1 in slot 6 these additional upgrade steps must be done:</p> <ol style="list-style-type: none"> <li>Power down the system</li> <li>Remove the TST1 card from Slot 6</li> <li>Power up the system</li> <li>Log on the system administrator phone (ext. 100) via Assistant T programming commands. (*9531994)</li> <li>Enter menu 29 (system details),</li> <li>Enter 4 (card type)</li> <li>Use the check key to scroll to slot 6 TST1</li> <li>Use the *(asterisk key) to initiate a change</li> <li>Select F3 the clear option to remove the card from the system</li> <li>Select the check key to confirm your edits</li> <li>Log off the assistant T</li> <li>Log on with Hicom Assistant E Office and download a new copy of the Rls 1 database without a T1. Save this file. (i.e. name it Rls1noT1.kds)</li> <li>Use this download to convert the customer database to Release 2.0 then Release 2.2 with the following steps.</li> </ol> |
| 4.   | <p>Open the new Release 2 Assistant E tool</p> <ul style="list-style-type: none"> <li>Select "<b>Convert Customer database</b>"</li> <li>Locate the file name of the Release 1 database saved in the step #1</li> <li>Then select <b>OK</b></li> </ul> <p><b>CUSTOMER DATA SCREEN</b></p> <ul style="list-style-type: none"> <li>NAME: (LEAVE BLANK or ENTER CUSTOMER'S NAME)</li> <li>CONTRACT NUMBER: (LEAVE BLANK or ENTER CUSTOMER NUMBER)</li> <li>Then select <b>NEXT</b></li> </ul> <p><b>SYSTEM - WIDE SCREEN</b></p> <ul style="list-style-type: none"> <li>VERSION: RELEASE 2.0</li> <li>EXPANSION: COM CBPC /VS1600 (RLS 2.2 Hardware)USA</li> <li>Country Version: USA (if applicable to your location)</li> <li>Then select <b>NEXT</b></li> </ul> <p><b>NOTE:</b> You will get a message saying "Offline Generated database! No user rights checked".</p> <ul style="list-style-type: none"> <li>Then select <b>OK</b></li> </ul>                                                                          |
| 5.   | <p>Select "<b>Save Customer database as...</b>"</p> <ul style="list-style-type: none"> <li>Change the database name from "<b>Offline.kds</b>" to a name noting the 2.0 conversion</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.   | Select " <b>Convert Customer database</b> " <ul style="list-style-type: none"> <li>• Locate the file name of the 2.0 CONVERTED database</li> <li>• Then select <b>OK</b></li> </ul> <b>CUSTOMER DATA SCREEN</b> <ul style="list-style-type: none"> <li>• NAME: (LEAVE BLANK or ENTER CUSTOMER'S NAME)</li> <li>• CONTRACT NUMBER: (LEAVE BLANK or ENTER CUSTOMER NUMBER)</li> <li>• Then select <b>NEXT</b></li> </ul> <b>SYSTEM - WIDE SCREEN</b> <ul style="list-style-type: none"> <li>• VERSION: RELEASE 2.2</li> <li>• EXPANSION: COM CBPC /VS1600 (RLS 2.2 Hardware)USA</li> <li>• COUNTRY: USA (if applicable to your location)</li> <li>• Then select <b>OK</b></li> </ul> <b>NOTE:</b> You will get a message saying "Offline Generated database! No user rights checked" |
| 7.   | Select " <b>Save Customer database as....</b> " <ul style="list-style-type: none"> <li>• Change the database name from "<b>Offline.kds</b>" to a name noting the 2.2 conversion</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 8.   | Power the system down, replace the Release 1 hardware with the Release 2.2 hardware and reconnect all the appropriate connections except the T1 and Analog trunk connectors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 9.   | Power the system up, then default the system via the Blue switch on the Processor<br><b>CAUTION:</b> When toggling the Blue switch on the processor card, it is very important that the switch be carefully pressed down then released to the up position by holding on to the blue switch. DO NOT LET IT RETURN TO THE UP POSTION BY ITSELF; THIS CAN CAUSE UNSTABLE SYSTEM CONDITIONS.                                                                                                                                                                                                                                                                                                                                                                                           |
| 10.  | When the system comes up on the Release 2.2 German software, go to station 100 and enter the following commands: <ul style="list-style-type: none"> <li>• <b>*95</b>, then at "Benutzer" = <b>31994</b>, then check at "Kennwort" = <b>31994</b>, then check at "neues" = <b>31994</b>, then check at "wiederholen" = <b>31994</b>, then check</li> <li>• Then select Option = <b>29</b> (System-Kenndaten)<br/>             Select = <b>5</b> (Länder init)<br/>             Select = <b>*</b> (Ändern)<br/>             Select = <b>52</b> (USA)</li> <li>• Then select (<b>Bestätigen</b>), and check</li> </ul>                                                                                                                                                                |

| <b>Step</b> | <b>Action</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11.         | <p>Go into Assistant T from station 100 and change the baud rate (If desired), and set the Time &amp; Date.</p> <ul style="list-style-type: none"><li>• Enter <b>*95</b></li><li>• USER = <b>31994</b>, then check</li><li>• IDENTIFICATION = <b>31994</b>, then check</li></ul> <p>Then follow the same procedures noted in Release 1 to set the <b>BAUD RATE</b>, and <b>TIME &amp; DATE</b></p>                                                                                                                                                                 |
| 12.         | <p>Select the Transfer Icon, and select the following options</p> <ul style="list-style-type: none"><li>• Access = <b>DIRECT</b></li><li>• Select <b>READ/WRITE DATABASE</b></li><li>• Select <b>CHARGES</b></li><li>• Select <b>HARDWARE</b></li></ul> <p>(Warning: system resets after data transfer, hit OK)</p> <ul style="list-style-type: none"><li>• Select <b>PC &gt; Hicom</b> (to upload the Converted 2.2 database into the system)</li></ul> <p>You will get a pop up window letting you know the Assistant Tool is communicating with the system.</p> |
| 13.         | <p>Once the system is up and running on the Release 2.2 hardware with the customer database loaded, it is now necessary to reinstall the TST1 card.</p>                                                                                                                                                                                                                                                                                                                                                                                                            |

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14.  | <p>To install the TST1 card select the System Status button:</p> <ol style="list-style-type: none"> <li>Click the SW expansion button on the right side of the screen</li> <li>Highlight the available slot 7 or 9</li> <li>Select the TST1 card from the Card selection list TST1 Digital or TST1 Analog</li> <li>Select the greater than arrow ( &gt; ) to install the TST1 card into that slot 7 or 9</li> <li>Select the Apply button to save your changes</li> <li>Select the Card Config button.</li> <li>Depending on whether your T1 was digital or analog, if the T1 was an analog then select the T1 Configuration menu and flag all 24 ports as trunks.</li> <li>If the T1 was digital ISDN then the T1 configuration tab is not used.</li> <li>Click on the Card data tab next and setup the appropriate transmission protocols for your span. (I.e. ESF&amp;B8ZS / SF&amp;AMI). Digital T1 spans can use the default Digital template.</li> <li>Apply the changes to the template if applicable</li> <li>Click on the OK button to get back to the Cards tab</li> <li>Highlight the card slot with the T1 card installed (7 or 9) then use the arrow in the Template box to pull down the appropriate template. Select the correct template.</li> <li>Apply this change then click OK</li> <li>Upload this information to the 150E then get a new download to finish the configuration of the T1 trunks.</li> <li>Refer to the original customer database for the following information and program it accordingly.</li> </ol> |

| Step                     | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Continuation<br>step 14. | <p>CHECK THE FOLLOWING MENUS FOR T1 CONFIGURATION OPTIONS. If at any time configuration from the original KDS is needed, you can open a new Assistant E session and review the Release 1 backup made in step 1:</p> <ul style="list-style-type: none"> <li>• Lines/Networking &gt; Trunks &gt; Route name</li> <li>• Lines /Networking &gt;Parameter Field (double click) &gt; MSI Flags. Set main type and trunk flags for analog T1 trunks. Do this for all 24 trunks. Apply the change</li> <li>• Lines/Networking &gt; Routes</li> <li>• Lines/Networking &gt; Routes Parameters</li> <li>• Lines/Networking &gt; Clock Parameters</li> <li>• Lines/Networking &gt; PRI</li> <li>• Setup Station &gt; Key Programming for trunk appearances (all stations)</li> <li>• LCR &gt; Route Table &gt; Routes</li> <li>• LCR &gt; Dialing rules table</li> <li>• Incoming Calls &gt; Ringing Assignment per line</li> <li>• Classes of Service &gt; COS: Day</li> <li>• Classes of Service &gt; COS: Night</li> <li>• Classes of Service &gt; CON Matrix</li> <li>• Classes of Service &gt; Group Assignment</li> <li>• System Parameters &gt; Flags/CMI</li> <li>• System Parameters &gt; System Settings</li> <li>• System Parameters &gt; Time Parameters (CE and Development level)</li> <li>• Trunk Modules &gt; Announcement</li> <li>• Call Charges &gt; Output Format</li> <li>• Call Charges &gt; Account Codes</li> </ul> |
| 15.                      | Reconnect the T1 and any other trunk connections that were removed earlier.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 16.                      | Test the T1 operation incoming and outgoing to ensure the system works as expected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 17.                      | Download a new copy of the configuration and save it to disk. This will serve as the final Release 2.2 backup for this installation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 18.                      | Place a copy of the Release 2.2 database on floppy leave it at the customer's site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



# 7 Implementing Features

## Chapter Contents

This chapter discusses the following topics:  
(The information on the Hicom 150 E OfficeOne/OfficeStart does not apply to the U.S.)

| Topic                                                       |            |
|-------------------------------------------------------------|------------|
| <u>Section 7.1, Starting System Administration</u>          | page 7-2   |
| <u>Section 7.2, Features for All Traffic Types</u>          | page 7-3   |
| <u>Section 7.3, Features for General Incoming Traffic</u>   | page 7-42  |
| <u>Section 7.4, Features for General Outgoing Traffic</u>   | page 7-131 |
| <u>Section 7.5, Features for General External Traffic</u>   | page 7-145 |
| <u>Section 7.6, Features for Incoming External Traffic</u>  | page 7-145 |
| <u>Section 7.7, Features for Outgoing External Traffic</u>  | page 7-202 |
| <u>Section 7.8, Least Cost Routing (LCR) (Not for U.S.)</u> | page 7-244 |
| <u>Section 7.9, Least Cost Routing (for U.S. Only)</u>      | page 7-257 |
| <u>Section 7.10, Features for Internal Traffic</u>          | page 7-272 |
| <u>Section 7.11, Tenant Service</u>                         | page 7-308 |
| <u>Section 7.12, Other Features</u>                         | page 7-314 |
| <u>Section 7.13, Networking</u>                             | page 7-379 |
| <u>Section 7.14, Features for Call Detail Recording</u>     | page 7-414 |
| <u>Section 7.15, Euro-ISDN Features (Not for U.S.)</u>      | page 7-458 |
| <u>Section 7.16, U.S. ISDN (for U.S. Only)</u>              | page 7-488 |
| <u>Section 7.17, U.S. ISDN Features (for U.S. Only)</u>     | page 7-497 |
| <u>Section 7.18, Host Link Interface (CSTA)</u>             | page 7-529 |

## 7.1 Starting System Administration

Users can access system administration by entering a user name (ID) and password (authentication). Depending on the active password concept (refer to [Section 12.7.1](#) for more details), the procedure is as follows.

### 7.1.1 Accessing Hicom Assistant T

| Step | Input | Explanation                                                                                                                                                                                              |
|------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | *95   | Start system administration                                                                                                                                                                              |
| 2.   | XXXXX | Enter user name: <ul style="list-style-type: none"> <li>Fixed password concept (possible as of Release 3.0 SMR-C): User name = 31994</li> <li>Variable password concept: Individual user name</li> </ul> |
| 3.   | XXXXX | Enter password: <ul style="list-style-type: none"> <li>Fixed password concept (possible as of Release 3.0 SMR-C): Password = 31994</li> <li>Variable password concept: Individual password</li> </ul>    |



Only an optiset E memory telephone can accept input in the form of alphanumeric characters. Do not change a user name or a password to a name that includes alphanumeric characters unless Hicom Assistant T or Hicom Assistant TC will always use an optiset E memory telephone.

For an example of the first time system administration is called via Hicom Assistant T after the system is booted, refer to [page 12-38](#).

### 7.1.2 Accessing Hicom Assistant E Office

| Step | Input | Explanation                                                                                                                                                                                              |
|------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | XXXXX | Enter user name: <ul style="list-style-type: none"> <li>Fixed password concept (possible as of Release 3.0 SMR-C): User name = 31994</li> <li>Variable password concept: Individual user name</li> </ul> |
| 2.   | XXXXX | Enter password: <ul style="list-style-type: none"> <li>Fixed password concept (possible as of Release 3.0 SMR-C): Password = 31994</li> <li>Variable password concept: Individual password</li> </ul>    |

## 7.2 Features for All Traffic Types

### 7.2.1 Call Hold

#### Definition

Users can place an active call on hold. Placing a call on hold means that the call stays connected, but in a waiting state, until the user retrieves it. After placing a call on hold, the user can either retrieve the held call or place another call on the same line.

A distinction is made between common hold and exclusive hold.

With common hold, any party can retrieve the held call; with exclusive hold, only the party who placed the call on hold can retrieve it.

The following describes other situations involving Hold states:

- **Call Waiting** (refer to [Section 7.3.3](#) for more details)

When a station is involved in a call and a second call is waiting to be answered, you can scroll to and select the prompt *Call Waiting*. This places the first caller on exclusive hold at your telephone and answers the incoming call. This is also known as the feature Answer Hold. You can process the second call (transfer, park) or “Quit and Return” to the held party and the incoming call is dropped.

- **Toggle and Automatic Hold** (refer to [Section 7.2.3](#) for more details)

When a station, using a trunk key or call key, is engaged in one conversation and another call is incoming on another key, you can automatically place the current call on exclusive hold and answer the incoming call by pressing the flashing key. You can then toggle between the 2 calls at will. The lines are alternately on Consultation Hold and the last call handled will recall if you go on-hook.

Alternatively, you can place your original caller on Common Hold, by first pressing the HOLD key before answering the incoming call. Anyone with an appearance of the Trunk key or Call key can take the call by pressing the slowly flashing key.

- **Consultation Hold and transfer** (refer to [Section 7.2.4](#) and [Section 7.2.5](#) for more details)

When a station is engaged in a conversation, whether or not the call is on an outside line button or not, you can place the current conversation on Consultation Hold to consult with another internal or external party. The held party is on exclusive hold on your telephone.

- **Hold and retrieve trunk** (refer to [Section 7.5.4](#) for more details)

This allows the display user to place an outside trunk call on hold whether there is an appearance of the trunk or not on the telephone. Pressing the Hold/transfer key, the trunk is placed on exclusive hold and the display provides the information

on the held trunk, which reads *Line held on xxx*, where *xxx* is the trunk number. You can go on-hook. To retrieve the held line, press the *Retrieve* line button or dial the access code followed by the trunk number.

## Operating the Feature

Refer to *Call Hold* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*

## Related Topics

- Section 7.2.2, *Call Park*, on page 7-6
- Section 7.2.3, *Toggle*, on page 7-9
- Section 7.2.6, *Conference*, on page 7-16

## Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

## Requirements and Conditions

| Subject                           | Requirement or Condition                                                                                                                                                                                                                                                                 |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trunk key, Retrieve key           | You can retrieve a call that was placed on hold by pressing either a trunk key (when the LED is flashing slowly), by pressing the Retrieve key, or by entering a code from the Program/Service menu. The trunk to be seized must be suffix-dialed (with the exception of the trunk key). |
| Internal calls<br>(for U.S. Only) | To place an internal call on hold, users must either park the call or use an internal consult key.                                                                                                                                                                                       |

## Configuration Options

This feature does not have to be explicitly configured.

## Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>               |
|-------------|-----------------------------|
| 1.          | Set up a call.              |
| 2.          | Place the call on hold.     |
| 3.          | Carry out another function. |
| 4.          | Resume the call.            |

## 7.2.2 Call Park

### Definition

With call park, users can place both internal and external calls on hold. Parked calls can be answered from any telephone in the system.

Users can activate the call park feature only when they are on another call. Users must assign a virtual number (park slot 0 through 9) to the call that they want parked. They must then enter the slot number to receive the call.

A parked call that is not retrieved within a given time (default is 160 seconds) recalls the originator and follows the recall rules.

### Operating the Feature

Refer to *Call Park* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*

### Related Topics

- Section 7.2.1, *Call Hold, on page 7-3*
- Section 7.2.3, *Toggle, on page 7-9*
- Section 7.2.6, *Conference, on page 7-16*

### Model-Specific Data

| Subject                                  | Pro               | Com     | Point   | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|------------------------------------------|-------------------|---------|---------|--------------------------|----------------------------|
| Feature available in                     | x                 | x       | x       | x                        | x                          |
| HW requirements                          | —                 | —       | —       | —                        | —                          |
| SW requirements                          | Rel. 1.0 or later |         |         |                          |                            |
| Number of calls<br>parked simultaneously | Max. 10           | Max. 10 | Max. 10 | Max. 10                  | Max. 10                    |

### Requirements and Conditions

| Subject | Requirement or Condition                       |
|---------|------------------------------------------------|
| Park    | You cannot park an undialed trunk.             |
| Park    | You must answer a call before you can park it. |

| <b>Subject</b>                                   | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conference                                       | You cannot park a conference call.                                                                                                                                                                                                                                                                                                                                                     |
| Call forwarding                                  | In the case of a recall, a parked call does not follow call forwarding.                                                                                                                                                                                                                                                                                                                |
| DTMF                                             | If a station has activated DTMF transmission, DTMF mode will be deactivated automatically when you activate the call park feature. This applies both to the station that parked the call and to the parked station.<br>As of Release 2.2 SMR-H (for World excluding U.S.) and Release 2.2 SMR-J (for U.S. only), DTMF mode will not be deactivated when you activate the park feature. |
| Occupied park slots                              | If the park slot selected for parking a call is already occupied, a tone sounds, and the number does not appear on the screen. Select another park slot.                                                                                                                                                                                                                               |
| Parking with optiset E entry and optiset E basic | The optiset E entry and optiset E basic telephones do not have a programmable Park key. Users must enter a code to activate the feature.<br>As of Release 2.2 SMR-H (for World excluding U.S.) and Release 1.0 SMR-R (for U.S. only), you can program a Park key.                                                                                                                      |
| DND                                              | A station in DND can place a call in a park location; however, if the parked call recalls and no other destination has been identified in call management, the call automatically is disconnected after the recall timer expires.                                                                                                                                                      |
| MOH                                              | Parked callers hear Music on Hold (MOH).                                                                                                                                                                                                                                                                                                                                               |
| CorNet-N                                         | An incoming call over a CorNet-N link can only be placed in a Park location at the destination node. A call parked in one node cannot be retrieved from another node over the CorNet-N link.                                                                                                                                                                                           |
| DISA                                             | The call park feature cannot be activated from a DISA connection.                                                                                                                                                                                                                                                                                                                      |

## Configuration Options

This feature does not have to be explicitly configured.

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                                                                                                          |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Set up a call.                                                                                                                                                                                                  |
| 2.   | Park the call. Enter service code *56 or press the feature key (with optiset E entry and optiset E basic, possible as of Release 2.2 SMR-H [for World excluding U.S.] and Release 1.0 SMR-R [for U.S. only]).   |
| 3.   | Suffix-dial a park slot.                                                                                                                                                                                        |
| 4.   | Resume the call. Enter service code *56 or press the feature key (with optiset E entry and optiset E basic, possible as of Release 2.2 SMR-H [for World excluding U.S.] and Release 1.0 SMR-R [for U.S. only]). |
| 5.   | Suffix-dial a park slot.                                                                                                                                                                                        |



## 7.2.3 Toggle

### Definition

Toggle enables a user to toggle between two parties, placing one of the parties on hold. The toggle feature can be used for internal and external calls.

The rules for consultation hold also apply to the active call. Users cannot toggle between conference calls.

### Operating the Feature

Refer to *Toggling* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000)

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject            | Requirement or Condition                                                                                                                                                                                                           |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hold               | If you are on hold, you cannot use the toggle feature.                                                                                                                                                                             |
| DTMF               | Activating the toggle feature deactivates DTMF mode. As of Release 2.2 SMR-H (for World excluding U.S.) and Release 2.2 SMR-J (for U.S. only), DTMF mode will not be deactivated when you activate the toggle feature.             |
| Two incoming calls | If the second party is also an incoming call, the user can answer the incoming call by using the feature <i>Call Waiting</i> (default access code is *55) then <i>Toggle</i> between the first and second call as explained above. |

| Subject       | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Line keys     | Users with line keys (Call keys, Trunk keys) can toggle between one call and another by pressing the flashing line key for the other incoming call, and <i>Toggle</i> between both by pressing one line key then the next. The lines are in exclusive hold.<br><b>Exception:</b> In the case of the <i>General Call</i> key appearances, users should always press the <i>Hold</i> button, followed by the <i>Release</i> button, before pressing another <i>General Call</i> key appearance. This places the first call on Common Call. Otherwise the call remains on Consultation Hold. |
| Music on Hold | MOH is always connected to the held party.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                             |
|------|------------------------------------------------------------------------------------|
| 1.   | Use the consultation hold feature to set up a second call from a call in progress. |
| 2.   | You can then toggle between the two parties using *2.                              |

## 7.2.4 Unscreened Transfer

### Definition

Users can transfer an internal or external call to another internal station before the called party answers. The other station can be in the same system or it can be in a networked system (CorNet-N or QSIG [not for U.S.]).

If the requested station is unavailable, the call will remain in a wait state until the line is free (camp on). Only two calls can be transferred to a busy station simultaneously.

A telephone with display at the transfer destination can display the number of either the station initially called or the calling party.

Calls transferred to a station which is call forwarded follow the forwarding mode set at the internal destination.

A call transferred to an external destination over an analog loop start trunk does not recall because the Hicom 150 E does not know the state of the final destination. In this case, a pseudo answer is provided.

### Operating the Feature

Refer to *Transfer* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000)

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject                       | Requirement or Condition                                                                              |
|-------------------------------|-------------------------------------------------------------------------------------------------------|
| External transfer destination | You cannot place an unscreened transfer to an external destination.                                   |
| Recall                        | If a transferred call is not answered within a certain period of time, the system initiates a recall. |

| Subject               | Requirement or Condition                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recall timer          | A transferred call that is not answered recalls to the transferring station. The recall timer, <i>Callback timeout for transfer before answering</i> (default is 45 seconds), is started when the transferring station releases the call from the station. This timer also controls the length of time that a caller is camped on the destination station. |
| Call charges          | Toll charges are assigned to the switching station until the call is picked up or released. After the destination station answers, the charges are assigned to it.                                                                                                                                                                                         |
| Call charges          | If the destination is an external destination, the call charges are assigned to the transferring station as long as the destination answers the call.                                                                                                                                                                                                      |
| DSS                   | Pressing a <i>DSS</i> key from a talking state, results in an immediate Consultation call with the party designated by the <i>DSS</i> key. In effect, it replaces the procedure: <i>Consult + destination</i> .                                                                                                                                            |
| Do Not Disturb        | Transferring a call to a station in Do not Disturb results in an immediate recall to the transferring station. If the transferring station is itself in a Do Not Disturb state, a <i>Recalling transferred call</i> overrides the DND function and rings the telephone.                                                                                    |
| Music on Hold         | The called party hears MOH, if provided.                                                                                                                                                                                                                                                                                                                   |
| External destinations | An external call can only be transferred to another external destination (in the same system or in another node via CorNet-N) if one of the trunks can provide release supervision (ground start, PRI, BRI, DID, T1).                                                                                                                                      |
| Busy stations         | Only two calls can be transferred to a busy station simultaneously. On a display telephone, the state of the called party (if internal) is displayed— <i>Busy</i> or <i>Do Not Disturb</i> .                                                                                                                                                               |

## Configuration Options

- This feature does not have to be explicitly configured.
- A system-wide flag must be set in Hicom Assistant E Office to allow or disallow (default) trunk-to-trunk transfer.

## Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                              |
|-------------|--------------------------------------------------------------------------------------------|
| 1.          | Set up a call.                                                                             |
| 2.          | Activate consultation hold and call another internal station.                              |
| 3.          | Hang up the phone to transfer the call to the internal station before the station answers. |

## 7.2.5 Screened Transfer

### Definition

Users can use screened transfer by initiating a consultation call to an internal user (a third party) after answering a call. After the third party answers, the user can hang up the phone, transferring the call received.

Users can also transfer an internal call to an external destination. The receiving station can be in the same system as the called party, or it can be in a different networked system (CorNet-N). If the requested station is busy and the call is nevertheless transferred, the call camps on until the line is free.

### Operating the Feature

Refer to *Transfer* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject              | Requirement or Condition                                                                                                                                                                         |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call charges         | Toll charges are assigned to the switching station until the call is transferred. After the destination station answers, the charges are assigned to it.                                         |
| External destination | In the case of an external destination, the transfer must be initiated.                                                                                                                          |
| DSS                  | Pressing a DSS key from a talking state, results in an immediate Consultation call with the party designated by the DSS key. In effect, it replaces the procedure <i>Consult + destination</i> . |
| Music on Hold        | The called party hears MOH, if provided.                                                                                                                                                         |

| <b>Subject</b>         | <b>Requirement or Condition</b>                                                                                                                                                                                       |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| External destinations  | An external call can only be transferred to another external destination (in the same system or in another node via CorNet-N) if one of the trunks can provide release supervision (ground start, PRI, BRI, DID, T1). |
| Busy stations          | Only two calls can be transferred to a busy station simultaneously. On a display telephone, the state of the called party (if internal) is displayed— <i>Busy</i> or <i>Do Not Disturb</i> .                          |
| Transfer to CF station | Calls transferred to a station that is call forwarded follow the forwarding mode set at the internal destination. The display on a display telephone indicates the final destination.                                 |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Set up a call.                                                                                                                        |
| 2.          | Activate consultation hold and call another internal station.                                                                         |
| 3.          | When the called station answers, transfer the call and hang up. In the case of external destinations, the transfer must be initiated. |

## 7.2.6 Conference

### Definition

A user can combine up to five stations into a conference call.

The user setting up the conference can individually disconnect stations from the conference or release the conference entirely. In addition, the user can also exit the conference without terminating it, even if the conference includes external stations (trunk-to-trunk conference).

If internal stations still remain in the conference, the new conference leader is the user who has been in the conference the longest. If only external stations remain in the conference and no backward release criterion is present (on loop-start trunks), a timer, *Time until warning tone, in main station interface transit con*, is started; the default time is: 5 minutes. When this timer expires, the remaining stations receive a warning tone and the conference is disconnected after default 10 seconds. This timer, *Time from warning tone until release*, is variable from 0 to 42 min.

The initiator of the conference is designated as the Conference Master. If the conference master leaves the conference, control of the conference is passed on to the first internal member which was part of the conference.

Members of the conference call can leave the conference by going on-hook or by answering a call waiting. However, they must call the conference master to be added on to the conference once again.

### Operating the Feature

Refer to *Conference* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000)

### Model-Specific Data

| Subject                | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|------------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in   | x                 | x   | x     | x                        | x                          |
| HW requirements        | —                 | —   | —     | —                        | —                          |
| SW requirements        | Rel. 1.0 or later |     |       |                          |                            |
| Conferences per system | 6                 | 3   | 3     | 3                        | 3                          |



| <b>Subject</b>                   | <b>Pro</b> | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------------------|------------|------------|--------------|-----------------------------------|-------------------------------------|
| Stations per conference          | 5          | 5          | 5            | 5                                 | 5                                   |
| External stations per conference | 4          | 4          | 4            | 4                                 | 4                                   |

### Requirements and Conditions

| <b>Subject</b>                                                            | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conference                                                                | Internal users cannot participate in more than one conference in the system (except with CorNet-N).                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Analog stations                                                           | The following restrictions apply to OfficePoint:<br>Analog stations can set up no more than a three-party conference. Up to four analog telephones can be passive participants in a conference.                                                                                                                                                                                                                                                                                                                         |
| Analog stations                                                           | Analog stations are not checked to see if they are voice devices.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Voice, data transmission                                                  | You can set up a conference between voice stations only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Call charges                                                              | Toll charges are assigned to the party who set up the toll call. When a call is transferred or released, the toll charges are assigned to the remaining internal station from the moment the call is released.                                                                                                                                                                                                                                                                                                          |
| Conference participants when external applications are connected via CSTA | CSTA Phase II places a limit on the length of CSTA messages. Conferences with more than three participants exceed this limit and can cause the connected applications to malfunction when at least one station is monitored by CSTA.<br>As of Release 2.2 SMR-G (for World excluding U.S.) and Release 2.2 SMR-J (for U.S. only), conferences can no longer be expanded to include more than three participants. This option is no longer offered in the menu and will be rejected if you try to invoke it with a code. |
| DISA                                                                      | The conference feature cannot be invoked from an external DISA station.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Park                                                                      | Conference calls cannot be parked.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### Configuration Options

This feature does not have to be explicitly configured.

## Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                                |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Using the consultation procedure, place an existing call on hold and set up a second call.                                                   |
| 2.          | Set up the conference using *3.                                                                                                              |
| 3.          | If you want to include additional stations in the conference, place the conference on hold, set up another call and activate the conference. |

## 7.2.7 Music on Hold (Internal or External Source)

### Definition

An integrated music source (hardware module) makes it possible to play music for waiting parties during switching operations.

As an alternative, you can use the following optional modules with OfficePoint and OfficeCom (in the U.S., the EXMNA board is included with every Hicom 150 E Office system):

- EXMNA (connection option for an external music source) (for U.S. only)
- EXM (connection option for an external music source) (not for U.S)
- MPPI (with music component) (not for U.S)

All Hicom 150 E Office models allow you to connect an additional MOH device to analog interfaces. Devices other than Genius or Mozart must be connected to a 600-ohm transformer.

As of Release 2.2 SMR-J, six MOH devices can be defined for six possible ITR groups. This means that the analog interfaces used for connection are part of the ITR groups ([Section 7.11.1 on Page 7-309](#)).

The EXMNA card limits the level at which MOH can be heard over outside lines and is therefore FCC compliant without external limiters.

Callers hear MOH if in Consultation Hold state, Park state, and in a transfer state if configured. Also, queued callers in an UCD environment can hear MOH if so configured.

MOH can be configured in one of three ways:

1. No Music on Hold: The held party will only hear silence.
2. MOH with ring tone: The held party will first hear MOH during the Consultation process. When a call is transferred to the destination, the MOH is replaced by ringback tone.
3. MOH without Ring Tone: The held party will hear MOH until the called party answers the call.

## Model-Specific Data

| Subject              | Pro                                | Com                    | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------------------------|------------------------|-------|--------------------------|----------------------------|
| Feature available in | x                                  | x                      | x     | —                        | —                          |
| HW requirements      | Free analog subscriber ports       |                        |       |                          |                            |
| HW options           | SLA16,<br>SLA8/16/<br>24N,<br>TIEL | EXM,<br>EXMNA,<br>MPPI |       | —                        | —                          |
| SW requirements      | Rel. 1.0 or later                  |                        |       |                          |                            |

## Requirements and Conditions

| Subject                    | Requirement or Condition                                                                                                                             |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXMNA                      | EXMNA is used only in the U.S.                                                                                                                       |
| EXM, EXMNA, MPPI           | Connecting the EXM, EXMNA, or MPPI board automatically switches the system over to the external music source.                                        |
| MOH                        | You must unplug the external music source, EXM module, or EXMNA module to activate internal music on hold.                                           |
| MOH (not for U.S.)         | OfficeOne provides limited internal MOH.                                                                                                             |
| MOH source                 | You cannot use the logical port “0” as an MOH source.                                                                                                |
| MOH source at analog ports | If the MOH source is turned on (loop active) you need to disconnect and then reconnect it (interrupting the loop) after configuring the analog port. |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                                                                                                                                                                                                                                                     |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Configure MOH:</b><br>22-11 => System settings - Music on hold - State (0...2)<br>Status options: 0 = off, 1 = on, without ring tone, 2 = on, with ring tone                                                                                                                                            |
| 2.   | <b>MOH via the analog interface:</b><br>25-4 => Annoucement/music - ext. music - Select group (1...6)<br>These groups correspond to the six ITR groups (Release 2.2 SMR-J and later).<br>Note: If you have programmed more than one MOH, you need to assign the stations to these MOHs via the ITR groups. |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                                                                     |
|------|----------------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Internal MOH:</b><br>Options                                                                                            |
| 2.   | System parameters                                                                                                          |
| 3.   | System settings                                                                                                            |
| 4.   | Music on hold                                                                                                              |
| 5.   | <b>MOH via analog port:</b><br>Options                                                                                     |
| 6.   | Connections                                                                                                                |
| 7.   | Ext. connection                                                                                                            |
| 8.   | External MOH<br>Release 2.2 SMR-J and later:<br>External MOH: Assign the MOH to internal traffic restriction (ITR) groups. |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                    |
|------|-----------------------------------------------------------|
| 1.   | Set up a call.                                            |
| 2.   | Activate consultation hold.                               |
| 3.   | The party on hold receives music from the correct source. |

## 7.2.8 Announcements

### Definition

For uniform call distribution (UCD), announcement before answering, and DTMF direct inward dialing (DID), users can connect announcement equipment. This announcement replaces music on hold (MOH) in certain situations (such as during hold or while a station is busy or being transferred).

Announcement devices can be connected to analog interfaces, or can be connected using E&M in the OfficePro system. Start/stop control can be implemented using relays and sensors or E&M. Up to 32 stations can be connected to an announcement device.

Both interfaces provide sequenced messages (as opposed to barge-in); however, the E&M interface can advise the announcement device to return to start when the queue is empty. With the SLA interface method, the announcement device must reach the end of its message before returning to start. This can be critical if the message is lengthy.

The following types of announcement are available:

- *Recorded Announcement/Music on Hold (MOH) with UCD on page 7-92*
- *Announcement Before Answering on page 7-193*
- *Dual-Tone Multifrequency Direct Inward Dialing on page 7-190*
- *Message Texts/Mailboxes/Message Waiting on page 7-295*

### Model-Specific Data

| Subject              | Pro                                                                     | Com                          | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------------------------------------------------------------|------------------------------|-------|--------------------------|----------------------------|
| Feature available in | x                                                                       | x                            | x     | x                        | x                          |
| HW requirements      | Free ana-<br>log sub-<br>scriber<br>ports, ana-<br>log tie traf-<br>fic | Free analog subscriber ports |       |                          |                            |
| SW requirements      | Rel. 1.0 or later                                                       |                              |       |                          |                            |
| Announcement devices | 16                                                                      | 4                            | 1     | 1                        | 1                          |

| <b>Subject</b>             | <b>Pro</b> | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------------|------------|------------|--------------|-----------------------------------|-------------------------------------|
| Simultaneous announcements | 30         | 30         | 30           | 30                                | 30                                  |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                   |
|-------------|-----------------------------------------------------------------|
| 1.          | <b>Configure announcement device</b>                            |
| 2.          | 25-1 => Announcement device - Announcement device               |
| 3.          | <b>Announcement device via sensors</b> (OfficeCom, OfficePoint) |
| 4.          | 27-1 to 9 => Parameters for setting the sensors                 |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                            |
|-------------|------------------------------------------|
| 1.          | Configure announcement device<br>Options |
| 2.          | Connections                              |
| 3.          | Announcement device                      |
| 4.          | Configure sensors<br>Options             |
| 5.          | Connections                              |
| 6.          | Sensors                                  |

## Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                         |
|-------------|---------------------------------------|
| 1.          | Configure announcement device.        |
| 2.          | Assign station and port.              |
| 3.          | Call the configured station.          |
| 4.          | The installed announcement activates. |



## 7.2.9 Consultation Hold

### Definition

This feature allows users to place a new internal or external call on hold and consult with an existing caller on the same line by placing the existing caller on hold. The consultation call ends when the user retrieves the held call. If the user hangs up instead of retrieving the held call, the held call is transferred or recalled.

If users place an external call on hold and place another external consultation call, they must use the optiset E transfer feature to connect the two calls.

Analog telephones can connect external calls to external stations using the conference feature.

### Operating Feature Using Display Telephones

To consult with an internal or external party, the user selects the *Consult?* prompt and dials the desired destination. If the called party answers, the following choices are available to the consulting party:

- Quit and return
- Toggle/Connect
- Conference
- Transfer
- Consult
- Save Number
- Start Conference
- Start Transfer
- Mute On

The user can further consult with other parties, placing the second on Consultation Hold simultaneously in order to contact a third party. The user can conference the second and third party, exit the conference and return to the first caller.

If the telephone has *DSS* keys (*Repdial* keys with internal station numbers assigned to the key), pressing a *DSS* key while connected to another party will automatically place that call on Consultation Hold and ring the DSS destination. The Prime Line feature must not be configured in the system.

## Operating Feature Using Non-Display and Analog Telephones

Non-display telephone users can also have several calls on Consultation Hold, but must use the *Consultation* key (or the hookswitch flash in the case of analog telephones) to invoke the feature. Features available to the consulting telephone:

- Conference (\*3)
- Transfer (on hook or Release key)
- Toggle (\*2)

## Related Topics

- [Section 7.2.4, Unscreened Transfer, on page 7-11](#)
- [Section 7.2.5, Screened Transfer, on page 7-14](#)
- [Section 7.2.6, Conference, on page 7-16](#)

## Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

## Requirements and Conditions

| Subject        | Requirement or Condition                                                                                                                                                                                                                       |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Redial         | You can use the redial feature when you are in a consultation call.                                                                                                                                                                            |
| Do not disturb | It is not possible to set up a consultation call to a busy subscriber who has activated <i>do not disturb</i> .                                                                                                                                |
| DTMF mode      | Initiating a consultation call will deactivate DTMF mode, if it is active.<br>As of Release 2.2 SMR-H (for World excluding U.S.) and Release 2.2 SMR-J (for U.S. only), DTMF mode will be re-activated when a consultation call is terminated. |

## Configuration Options

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                             |
|-------------|-----------------------------------------------------------|
| 1.          | Set up a call.                                            |
| 2.          | Activate consultation hold.                               |
| 3.          | Set up another call.                                      |
| 4.          | Terminate the second call.                                |
| 5.          | Terminate consultation hold by retrieving the first call. |

## 7.2.10 Recall

### Definition

A held call that is not answered or a call that was not switched successfully is signaled at the initiating station as a recall. A display telephone at the initial caller's location can display the number of either the switched internal or external station or the number of the destination.

An automatic recall is always carried out if:

1. A call was parked for a certain period or was placed on common hold and was not answered. The recall occurs when the hold/park timer expires (recall a parked connection).
2. An unscreened transfer was placed to a party who did not answer the call within a certain period (recall a transferred/switched trunk).
3. An unscreened transfer was placed to a station and the destination did not exist, was busy with a second call, the telephone was defective (in the case of digital telephones) or the transfer type was not allowed (transfer external call to external destination). An immediate recall is carried out in these cases.

### Timer Relationship

- Call Park Recall and Call Transfer Recall have separate timers.
- The *Park timeout and cancellation of hold* timer is started when a call is parked in a park location. When the time expires, the call recalls the originator. Default time is 180 seconds. If the originator is busy or in the Program/Service mode, when the timer expires, the recalling party is camped on to the originator, until the current conversation is terminated. Upon going on-hook, the recalling party immediately rings the originator. If the recalling party is an internal station, and has a DSS appearance on the originator's telephone, it will start flashing when the timer expired.
- If the originator is DND when the time expires, the recall overrides DND and the telephone rings.
- The *Callback timeout for transfer before answering* timer is started when a caller is transferred to another destination by an internal user. When the time expires, the call recalls the originator. Default time is 45 seconds. If the originator is busy or in the Program/Service mode when the timer expires, the recalling party is camped-on to the originator, until the current conversation is terminated. Upon going on-hook, the recalling party immediately rings the originator. If the recalling party is an internal station, and has a DSS appearance on the originator's telephone, it will start flashing when the timer expired.
- If the originator is DND when the time expires, the recall overrides DND and the telephone rings.

- When a call recalls the originator, the *Intercept timeout for recall* timer is started. The call will ring at the originator for the length of this timer. When the time expires the call is routed to the configured intercept position. Default is 30 seconds.
- When an unanswered call is routed to the intercept position, a final timer, *Timeout before recall to ATT is activated*, is started. The call will ring at the intercept position for the length of this timer. When the time expires, the call is released from the system. Default time is 60 seconds.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Configuration Options

This feature does not have to be explicitly configured.

### Configuring the Feature Using Hicom Assistant E Office

Although this feature does not have to be explicitly configured, Hicom Assistant E Office permits the recall time to be configured as follows:

| Step | Action                                  |
|------|-----------------------------------------|
| 1.   | System parameters                       |
| 2.   | Time parameters                         |
| 3.   | Dial time during transfer before answer |
| 4.   | Change in recall time                   |

## Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                    |
|-------------|------------------------------------------------------------------------------------------------------------------|
| 1.          | Set up a call.                                                                                                   |
| 2.          | Initiate consultation hold.                                                                                      |
| 3.          | Call another station.                                                                                            |
| 4.          | Perform an unscreened transfer.                                                                                  |
| 5.          | Do not answer the call at the destination.<br>After the timer expires, the call returns in the form of a recall. |

## 7.2.11 Setting the Signaling Method for Analog Stations

### Definition

After the system boots, all analog station ports are set to DTMF dialing. If users need to change an analog station port to dial pulsing, they can use Hicom Assistant T or Hicom Assistant E Office. Users do not need to reset the system after changing the signaling method. The new signaling method is functional immediately.

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

### Requirements and Conditions

| Subject          | Requirement or Condition                                                                                          |
|------------------|-------------------------------------------------------------------------------------------------------------------|
| Signaling method | If a dial pulsing signal is detected, the code receiver remains active so toll restrictions are not circumvented. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                               |
|------|------------------------------------------------------|
| 1.   | Select signaling method                              |
| 2.   | 14-29 => Select the signaling method for the station |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                      |
|-------------|------------------------------------|
| 1.          | Select signaling method<br>Options |
| 2.          | Set up station                     |
| 3.          | Parameter                          |
| 4.          | Flags                              |



## 7.2.12 Hicom Attendant C

### Definition

Users can configure up to six telephones in the Hicom 150 E Office system to carry out switching services. The Hicom Attendant C telephone simultaneously serves as an intercept position and an attendant console (AC). All calls are routed to the AC if direct inward dialing is not available or if no station can be reached via the call allocation algorithms in call management (intercept). The operator then redirects incoming calls to the stations selected. For additional information, see also [Chapter 9, Desktop Equipment, \*Hicom Attendant C\*](#).

Users can also configure a PC as the attendant console (PC AC). This specially configured PC is known as Hicom Attendant P and is described in detail in [Chapter 9, Desktop Equipment, \*Hicom Attendant P\*](#).

For the layout or assignment of function keys on the optiset E advance plus/comfort, advance conference/conference, and memory telephones, refer to the Hicom Attendant C User Manual for Hicom 150 E Office, optiset E advance plus/comfort, advance conference/conference, optiset E memory (refer to [documentation list](#)).

Individual Intercept positions can be configured for day operation and another for night operation. Up to 4 optiset E Key Modules can be connected to the Attendant C telephone.

In general, external calls are directed to Call keys whereas internal calls appear on *DSS/Repdial* keys on the Key Modules.

Intercept and attendant positions can form Hunt Groups. A hunt group where all members are busy, is not intercepted to the intercept position. The waiting calls remain in the queue.

Calls can be configured system-wide to be intercepted in the following conditions:

- Ring No answer, Busy, Invalid number dialed, Incomplete number, on an unanswered recalls and when an attempt is made to dial from specific stations which have activated CodeLock.
- In the case of Ring No Answer, the system first checks the Call Management tables for further configured destinations. If there are no none, the call is then diverted to the intercept position.

### CorNet-N

CorNet-N calls can be internal or external depending on their source. If the calling party is an internal station in a remote node, the call is flagged as internal. If the call is from a trunk in the remote node, the call is flagged as external.

## Model-Specific Data

| Subject              | Pro                                                                                                   | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------------------------------------------------------------------------------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>                                                                                              | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | Digital subscriber line module                                                                        |          |          | —                        | —                          |
| General requirements | optiset E advance plus/comfort, advance conference/conference, or memory telephone (system telephone) |          |          |                          |                            |
| SW requirements      | Rel. 1.0 or later                                                                                     |          |          |                          |                            |

## Requirements and Conditions

| Subject            | Requirement or Condition                                                             |
|--------------------|--------------------------------------------------------------------------------------|
| Overflow           | You can configure numeric and time overflow to a program-mable overflow destination. |
| Undialed trunk     | You can switch an undialed trunk.                                                    |
| Busy external line | You can selectively release busy external lines.                                     |
| Second number      | You can also reach the AC under a second station number (default 9, USA/GBR 0).      |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                     |
|------|--------------------------------------------|
| 1.   | Configure intercept position               |
| 2.   | 16-12 => Incoming calls - Intercept, day   |
| 3.   | 16-13 => Incoming calls - Intercept, night |
| 4.   | 16-14 => Incoming calls - Intercept mode   |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                           |
|-------------|-----------------------------------------|
| 1.          | Configure intercept position<br>Options |
| 2.          | System parameters                       |
| 3.          | Intercept / Attendant                   |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                          |
|-------------|--------------------------------------------------------|
| 1.          | Configure the AC.                                      |
| 2.          | Call a telephone that is off-hook.                     |
| 3.          | The call is signaled through to the intercept station. |

## 7.2.13 Busy Override

### Definition

Authorized users and the current intercept position (day or night) can use a code or key to override a call in progress at an internal station. The participating stations are notified of the busy override by an alerting tone and a screen display.

The feature can be invoked during the busy signal or during the camp on state.

During an override condition,

- if the called party goes on-hook, all parties are released.
- if the party which was connected to the called party goes on-hook, the overridden and overriding parties remain connected.
- if the overriding party goes on-hook first, the original conversation can continue and the conference bridge is removed.
- If the called party had activated DND, the conversation will nevertheless be overridden. However, a station authorized to use the Busy Override feature, cannot override a station with DND active and in an idle state.

Any Voice terminal in the system can be configured for this capability.

A station with *Data security* (Hicom Assistant T) or *Call Waiting rejection* (Hicom Assistant E Office) active, cannot be overridden.

### CorNet-N

Override cannot be invoked over a CorNet-N link.

### Operating the Feature

Refer to *Override* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000)

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

## Requirements and Conditions

| Subject                          | Requirement or Condition                                                                                                                                                                               |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voice channel signaling security | You cannot override a call if the called station or the internal party it is connected to is entered as a data station (voice channel signaling security), or if the called party is dialing a number. |
| Hunt group                       | Busy override is not possible if all stations are busy when a group or hunt group is called.                                                                                                           |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                                                                                                                      |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Configure busy override:</b>                                                                                                                                             |
| 2.   | 14-13 => Configure station - Override<br>Any individual station can be configured, or, all stations can be configured simultaneously using the <i>All stations</i> command. |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                     |
|------|--------------------------------------------|
| 1.   | <b>Configure busy override:</b><br>Options |
| 2.   | Set up station.                            |
| 3.   | Set parameters on desired extension.       |
| 4.   | Flags                                      |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                               |
|------|------------------------------------------------------------------------------------------------------|
| 1.   | Place a call to an internal station that is engaged in an internal or external call.                 |
| 2.   | Dial the override code (*62).                                                                        |
| 3.   | The station is notified of a busy override by an alerting tone when the override is first initiated. |

## 7.2.14 Overload Indication

### Definition

Users can activate an overload indicator (attendant console) for a fixed station (first station port in the system). When the user presses the key, the waiting calls are displayed (key LED). The following signaling types are possible:

- Flashing: Waiting call and busy AC.
- Flickering: Waiting call was not answered within 30 seconds; there are more calls than can be processed by the attendant consoles.
- Off: The AC is not overloaded.

### Model-Specific Data

| Subject              | Pro                            | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|--------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                              | x   | x     | x                        | x                          |
| HW requirements      | Digital subscriber line module |     |       | —                        | —                          |
| SW requirements      | Rel. 1.0 or later              |     |       |                          |                            |

### Requirements and Conditions

| Subject             | Requirement or Condition                                    |
|---------------------|-------------------------------------------------------------|
| Overload indication | An LED that is already flickering is not reset to flashing. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                          |
|------|-----------------------------------------------------------------|
| 1.   | Program key for overload:<br>*91 => Enter key programming mode. |
| 2.   | Press the desired key.                                          |
| 3.   | Assign the number of calls to the selected key.                 |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                        |
|-------------|--------------------------------------|
| 1.          | Program key for overload:<br>Options |
| 2.          | Set up station                       |
| 3.          | Key programming                      |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                              |
|-------------|------------------------------------------------------------|
| 1.          | Configure an overload LED on the AC (or night station).    |
| 2.          | Set up a call from the AC.                                 |
| 3.          | An external call reaches the AC. The overload LED flashes. |
| 4.          | Another call reaches the AC. The overload LED flickers.    |



## 7.2.15 Shared Transfer Switch (Not for U.S.)

### Definition

A shared transfer switch allows an analog trunk connection to be used for two stations. The switch divides the signal into positive and negative half-waves and assigns each to a station. The network provider (such as Telecom in Germany) installs the shared transfer switch.

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

### Requirements and Conditions

| Subject                | Requirement or Condition          |
|------------------------|-----------------------------------|
| Shared transfer switch | This feature is for Germany only. |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                  |
|------|-----------------------------------------|
| 1.   | Set up an outgoing external connection. |
| 2.   | Set up an incoming external connection. |

## 7.3 Features for General Incoming Traffic

### 7.3.1 ANI (for U.S. only)

#### Definition

The ANI feature (automatic number identification) displays the calling party's station number, which is transmitted over analog trunks.

While the phone is ringing, the station number is transmitted by BFSK (binary frequency shift keying) during the first ringing phase. Hicom 150 E Office supports the feature only until the called party lifts the handset. Internally, the system handles ANI data just like an ISDN number.

To run the ANI feature, you must have the ANI4 options board, which is used in conjunction with the TMGL4 trunk board.

#### Model-Specific Data

| Subject              | Pro | Com               | Point       | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-----|-------------------|-------------|--------------------------|----------------------------|
| Feature available in | —   | <b>x</b>          | <b>x</b>    | —                        | —                          |
| HW requirements      | —   | <u>ANI4</u>       | <u>ANI4</u> | —                        | —                          |
| SW requirements      | —   | Rel. 2.0 or later |             | —                        | —                          |

#### Requirements and Conditions

| Subject           | Requirement or Condition                                                               |
|-------------------|----------------------------------------------------------------------------------------|
| Country specifics | Requires country-specific boards or firmware versions.                                 |
| Trunk boards      | The trunk boards used must support call charging module assignment GMZ (not for U.S.). |

#### Configuration Options

This feature does not have to be explicitly configured.

## 7.3.2 Distinctive Ringing

### Definition

Distinctive tones indicate different call types. This enables the user to distinguish between incoming internal and incoming external calls. In ISDN systems, acoustic information is secondary to displays on the screen because different features can have the same ring signaling.

optiset E telephones can individually be configured for 1 of 3 distinctive external call ring cadence.

- **Internal ring:** The internal ring cadence is a repeated signal: 1 second ON, 3 seconds OFF.
- **External ring:** Three distinct cadences are pre-configured to distinguish the type of external call:

| Assistant T | Assistant E           | External call ring cadence                                       |
|-------------|-----------------------|------------------------------------------------------------------|
| Type 1      | External Call         | 125ms ON/250ms OFF,<br>125 ms ON/1500 OFF                        |
| Type 2      | External Call<br>CO 2 | 200ms ON/ 100ms OFF<br>200ms ON/100ms OFF<br>200ms ON/1700ms OFF |
| Type 3      | External Call<br>CO 3 | 100ms ON/100ms OFF<br>200ms ON/100ms OFF<br>100ms ON/1900ms OFF  |



The above external cadences only apply to the optiset E telephones. Analog telephone ring cadences are fixed to the internal ring and to Type 1/External Call ring cadence.

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

**Requirements and Conditions**

| <b>Subject</b>    | <b>Requirement or Condition</b>                                               |
|-------------------|-------------------------------------------------------------------------------|
| Country specifics | Ring signals are country-specific and determined by the approval authorities. |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                       |
|-------------|-----------------------------------------------------|
| 1.          | <b>Set call signaling (for stations and groups)</b> |
| 2.          | 16-19 => Incoming calls - Ring cadence              |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                           |
|-------------|---------------------------------------------------------|
| 1.          | Set call signaling (for stations and groups)<br>Options |
| 2.          | Set up station.                                         |
| 3.          | Set parameters on desired extension.                    |
| 4.          | Flags                                                   |
| 5.          | Change call signaling<br>Options                        |
| 6.          | System parameters                                       |
| 7.          | Tones/ring types                                        |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                               |
|-------------|---------------------------------------------------------------------------------------------|
| 1.          | Set call signaling for an internal call.                                                    |
| 2.          | Set call signaling for an external call.                                                    |
| 3.          | Call the station from an internal station.                                                  |
| 4.          | Call the station from an external station.<br>You should be able to hear distinctive rings. |

### 7.3.3 Call Waiting Tone/Call Waiting

#### Definition

If a caller reaches a busy extension, a call waiting tone sounds to let the called party know that a call is waiting (camped-on). The called party then has the option of answering the call without ending the call in progress.

If the called party has a display telephone, the display also indicates that the camped-on call is waiting.

Ring injection refers to a tone when the call is from an external source.

Call Waiting Tone is used when a call is from an internal telephone. This includes a call from an internal station located in another node, connected via CorNet-N.

If a caller reaches a busy station, busy tone is heard for 5 seconds, and if call waiting is permitted, the busy tone is replaced by ringback tone; at this time, a call waiting tone sounds to let the called party know that a call is waiting.

The called party then has the option of answering the call. If the called party has a display telephone, the display indicates that the camped-on call is waiting. The Call Waiting tone from an incoming internal or external call can be disabled manually by dialing the default access code \*87, and re-enabling the tone by dialing #87. Alternatively, display telephones users can press the *Program/Service* key and scrolling to *More Features* and selecting *Call Waiting tone Off?* or *Call Waiting tone on?*.

The feature can be invoked during a conversation.

Non-display and analog telephones cannot invoke this feature.

#### Model-Specific Data

| Subject                                | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                   | x                 | x   | x     | x                        | x                          |
| HW requirements                        | —                 | —   | —     | —                        | —                          |
| SW requirements                        | Rel. 1.0 or later |     |       |                          |                            |
| Number of waiting<br>calls per station | 16                | 16  | 16    | 16                       | 16                         |

## Requirements and Conditions

| Subject                   | Requirement or Condition                                                                                                                                                                                                                                                                    |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call waiting rejection    | If a station has activated call waiting rejection (signaling security), a call cannot camp on.                                                                                                                                                                                              |
| CorNet-N                  | CorNet-N calls are treated like internal calls.                                                                                                                                                                                                                                             |
| Group call                | If one or more stations in a group call are free, the call will be offered to them. The other group members are not signaled. If all stations are busy, all of them receive a call waiting signal.                                                                                          |
| Speaker call              | Speaker calls to busy stations are not possible.                                                                                                                                                                                                                                            |
| Recall                    | Recalls of low-priority external calls that cannot be signaled are intercepted. Displaced internal calls are released.                                                                                                                                                                      |
| Silent call waiting       | Users can deactivate the call waiting tone for external calls using a procedure or Hicom Assistant E Office. This setting does not affect signaling on the display.                                                                                                                         |
| Call waiting Tone On/Off  | Individual stations can enable/disable the tone at their station. Default is: Tone On.                                                                                                                                                                                                      |
| Call Waiting Rejection on | This station flag prevents any type of call waiting tone to be injected in the conversation. This flag is also called <i>Data Line Security</i> in the Assistant T. When set, this flag will also prevent this station from being overridden. The calling station will only hear busy tone. |

## Configuration Options

This feature can be configured using Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action               |
|------|----------------------|
| 1.   | Options              |
| 2.   | System parameters    |
| 3.   | Tones and ring types |

**Testing the Feature**

Check the feature for error-free functioning:

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Call waiting</b> for internal calls:<br>If an internal station is busy, the calling party receives a busy signal. Five seconds later, the busy party receives a display message indicating that a call is waiting, and the call waiting tone is activated. For the calling party, the busy signal changes to a ring tone. The busy party can answer the call with the “answer call waiting” feature.<br><b>Call waiting</b> for CorNet-N:<br>Call waiting is activated immediately. |
| 2.   | <b>Ring injection:</b> (external calls)<br>If a busy internal station receives a call from the public network, the busy station immediately receives a message indicating that a call is waiting. Any ISDN information (CLIP) is displayed on the screen if the calling party has enabled this feature.                                                                                                                                                                                |



### 7.3.4 Call Management (CM)

#### Definition

Call management (CM) determines how incoming calls are to be handled depending on the trunk type and the day and night services. Call management consists of four blocks:

**Block 1:** Two call allocation tables exist for calls on analog or digital (ISDN) trunks without a direct inward dialing (DID) option (see [Figure 7-1](#)). One call allocation table is evaluated during day service, and the other table during night service. For each trunk, these tables contain a reference to further day and night lists. Call management goes directly to these lists when a direct inward dialing (DID) call arrives. In the default setting, DID calls on all trunks that lead to an intercept are signaled at the day or night intercept position. Intercept criteria can also be entered in these tables.

**Block 2:** A total of three lists exist for day service, internal calls, and night answer (see [Figure 7-1](#)). These lists contain references to one of the 70 possible call destination lists.

**Block 3:** The call destination lists are seven-column table (see [Figure 7-2](#)). A row of this table is also referred to as a CM element. The first four columns contain procedures. The stations and groups entered in these columns are called consecutively depending on the call forwarding—no answer (CFNA) time.

The fifth column contains an entry that determines the time until CFNA occurs.

The sixth column contains an entry indicating the night bell type and the telephone that should also be called.

The seventh column defines when the night bell entered in column six should be called (either immediately or after the first CFNA time entered in column five).

**Block 4:** If group numbers have been entered in the call destination lists, the last call management table handles any additional allocation. This table is provided for hunt groups (linear and circular) and group calls (see [Figure 7-2](#)).

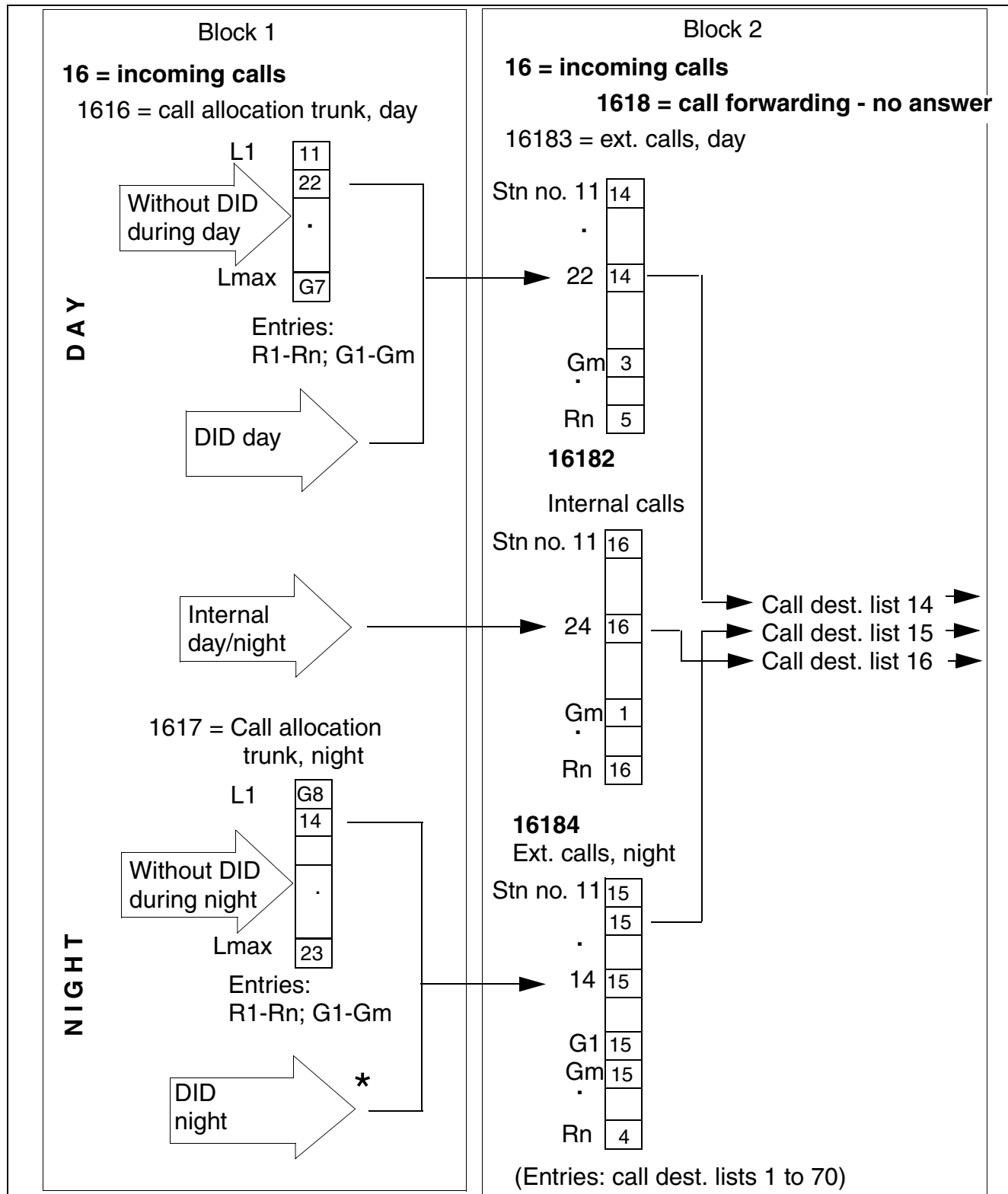


Figure 7-1 Call Management Relationships (Blocks 1 and 2)

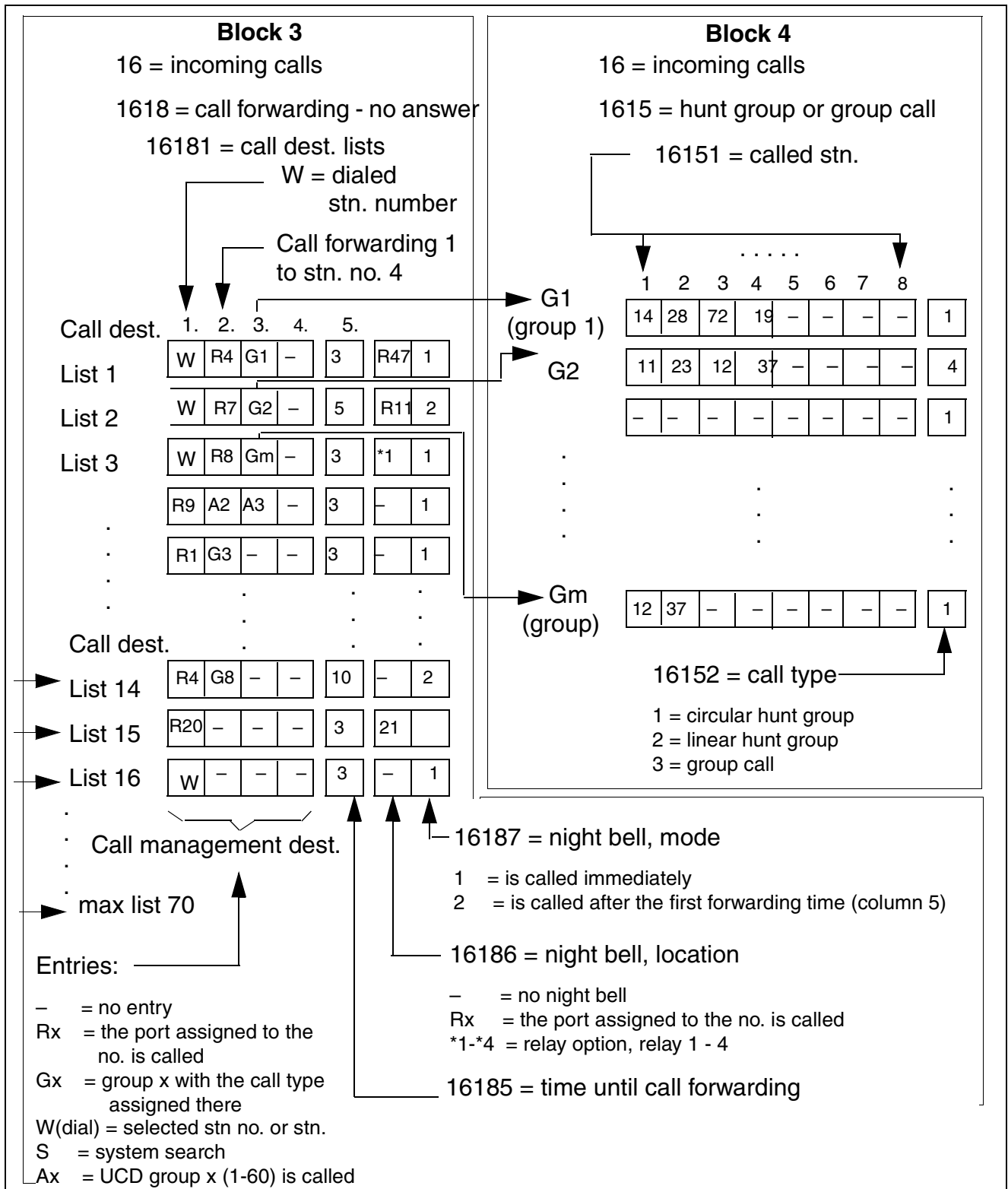


Figure 7-2 Call Management Relationships (Blocks 3 and 4)

**Model-Specific Data**

| <b>Subject</b>                   | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------------------|-------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in             | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>                          | <b>x</b>                            |
| SW requirements                  | Rel. 1.0 or later |            |              |                                   |                                     |
| Number of call destination lists | 70                | 70         | 70           | 70                                | 70                                  |
| Number of UCD groups             | 60                | 60         | —            | —                                 | —                                   |

**Requirements and Conditions**

| <b>Subject</b>     | <b>Requirement or Condition</b>                                                                                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call management    | CM does not treat a station as a call forwarding—no answer destination if its telephone has failed, if the user has activated do not disturb or has activated data protection and is busy, or if the user does not have trunk access (for external calls). |
| Call management    | If CM cannot find a station to which it can switch the call, it follows the intercept criteria.                                                                                                                                                            |
| Group/hunt group   | If no stations in a group or hunt group are available, the call camps on at all telephones in the group.                                                                                                                                                   |
| Entrance telephone | Stations that cannot be reached via direct inward dialing (such as entrance telephones) should not be entered as stations to which calls are allocated; otherwise, an intercept will occur.                                                                |
| DTMF DID           | With DTMF DID/DISA, an analog call can be released before the call forwarding—no answer process has concluded because the system uses fixed timers to prevent the trunks from freezing up.                                                                 |
| Night bell         | If a CM element does not have any entries in the first four columns, the system immediately calls the night bell regardless of the entry in the seventh column.                                                                                            |
| Call management    | If a system search is the item in a CM element, the system ignores subsequent entries in this CM element.                                                                                                                                                  |

| Subject         | Requirement or Condition                                                                                                                                                                                                                                        |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call management | <p>If a call can no longer be signaled in the system (due to an AC failure, for example), the system sends a busy signal or releases the call.</p> <p><i>Solution:</i><br/>           Make an entry in the second column of the AC's call destination list.</p> |
| System search   | <p>The system searches all stations and:</p> <ul style="list-style-type: none"> <li>• Does not follow call forwarding</li> <li>• Skips executive stations</li> <li>• Routes only one call to each station</li> <li>• Ignores call ringing groups</li> </ul>     |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                    |
|------|-----------------------------------------------------------|
| 1.   | <b>Call Management - Options</b>                          |
| 2.   | 16-11 Incoming calls - DID numbers                        |
| 3.   | 16-12 Incoming calls - Intercept, day                     |
| 4.   | 16-13 Incoming calls - Intercept, night                   |
| 5.   | 16-14 Incoming calls - Intercept mode                     |
| 6.   | 16-14-1 Incoming calls - Intercept mode - On no answer    |
| 7.   | 16-14-2 Incoming calls - Intercept mode - On busy         |
| 8.   | 16-14-2-1 Incoming calls - Intercept mode - Intercept     |
| 9.   | 16-14-2-2 Incoming calls - Intercept mode - Camp on to    |
| 10.  | 16-14-3 Incoming calls - Intercept mode - On wrong number |
| 11.  | 16-14-4 Incoming calls - Intercept mode - On incomplete   |
| 12.  | 16-14-5 Incoming calls - Intercept mode - On recall       |
| 13.  | 16-15 Incoming calls - Hunt/group call                    |
| 14.  | 16-15-1 Incoming calls - Hunt/group call - Group members  |
| 15.  | 16-15-2 Incoming calls - Hunt/group call - Group type     |
| 16.  | 16-15-3 Incoming calls - Hunt/group call - Group name     |

| <b>Step</b> | <b>Action</b> |                                                        |
|-------------|---------------|--------------------------------------------------------|
| 17.         | 16-16         | Incoming calls - Call alloc. day                       |
| 18.         | 16-17         | Incoming calls - Call alloc. night                     |
| 19.         | 16-18         | Incoming calls - Call FWD - no ans                     |
| 20.         | 16-18-1       | Incoming calls - Call FWD - no ans - Destination list  |
| 21.         | 16-18-2       | Incoming calls - Call FWD - no ans - Internal calls    |
| 22.         | 16-18-3       | Incoming calls - Call FWD - no ans - Ext. calls, day   |
| 23.         | 16-18-4       | Incoming calls - Call FWD - no ans - Ext. calls, night |
| 24.         | 16-18-5       | Incoming calls - Call FWD - no ans - Number of rings   |
| 25.         | 16-18-6       | Incoming calls - Call FWD - no ans - Night bell, loc.  |
| 26.         | 16-18-7       | Incoming calls - Call FWD - no ans - Night bell, mode  |
| 27.         | 16-19         | Incoming calls - Ring cadence                          |
| 28.         | 16-20         | Incoming calls - DID DTMF                              |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                        |
|-------------|--------------------------------------|
| 1.          | Call management - Options<br>Options |
| 2.          | Incoming calls                       |

**Testing the Feature**

Check the feature for error-free functioning as follows

| <b>Step</b> | <b>Action</b>                  |
|-------------|--------------------------------|
| 1.          | Specify a DID number using CM. |
| 2.          | Call the number.               |
| 3.          | The desired station rings.     |

### 7.3.5 Call Forwarding—No Answer (CFNA) With a Timeout (Rel. 1.0 or later)

#### Definition

With this feature, calls arriving at a specific destination are forwarded if they are not answered within a specified period.

Call forwarding—no answer in conjunction with direct inward dialing, call allocation, and internal calls is carried out according to station numbers in call management.

Each call signaled at a station is also signaled at stations in the call ringing group; in other words, the call is forwarded to these stations as well.

This type of forwarding is also referred as *Fixed call forwarding—no answer*, in that, once the destination has been set in the database, it cannot be activated/deactivated or changed by the end user. The destination can only be changed by maintenance personnel via Hicom Assistant T or Hicom Assistant E Office. Call Forwarding—no answer in conjunction with Direct inward dialing, Call allocation, and Internal calls is carried out according to station numbers in Call Management. Up to three Call forwarding-no answer destinations can be configured in the Call Management tables for the stations. That is, if the initial station has assigned a *ring no answer* destination, the incoming call forwards to that assigned destination. If in turn this second destination does not answer, Call Management searches for a further destination to route the call.

Call forwarding—no answer chaining is only possible between destinations in the CM tables. That is, if a destination has Call Forwarding (CF) configured on the telephone, the incoming call forwards to this destination, but will NOT forward to a further destination even if that destination is itself forwarded.

A call forward destination can be a voice mail hunt group.

If the last destination in CM is busy, the incoming call does not progress beyond the ringing telephone until the busy telephone becomes idle. At which time, the call is forwarded to the now idle telephone.

The external and internal call ring cadences are carried over from one destination to the other.

Incoming Caller ID (PRI and BRI) is also carried over from one destination to the next. Except if CF external: then Caller ID is not presented, just the original CF number called.

Each call signaled at a station is also signaled at stations in the call ringing group. That is, the calls are forwarded to these stations as well.

#### CorNet-N

Calls can be forwarded over a CorNet-N link.

**Related Topic**

Section 7.3.4, *Call Management (CM)*, on page 7-49

**Model-Specific Data**

| Subject                                       | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-----------------------------------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in                          | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements                               | —                 | —        | —        | —                        | —                          |
| SW requirements                               | Rel. 1.0 or later |          |          |                          |                            |
| Max. no. of CFNA destinations per station no. | 3                 | 3        | 3        | 3                        | 3                          |

**Requirements and Conditions**

| Subject                     | Requirement or Condition                                                                                                                                                                                                            |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call forwarding - no answer | If the CFNA destination is unavailable and no other call forwarding operation is configured for the trunk, call forwarding—no answer is not carried out.                                                                            |
| External call forwarding    | You can specify whether the system follows an external call forwarding procedure that a station has programmed in the CFNA table.                                                                                                   |
| External call forwarding    | If you activate external call forwarding—no answer for the entire trunk, the system circumvents internal call management (for more information, refer to the ISDN features CFB and CFNR).                                           |
| DISA                        | This feature cannot be activated/deactivated or changed by other than the Hicom Assistant T or Hicom Assistant E Office.                                                                                                            |
| DND                         | A secondary destination which has activated DND, will be skipped.                                                                                                                                                                   |
| Analog telephones           | There is no indication at these telephones that the call being presented is a forwarded call.                                                                                                                                       |
| Display telephones          | An incoming call to a forwarded telephone displays the prompt: <i>Call from:xxx</i> . Secondary forwarding destinations will display the prompt: <i>Call from:xxx</i> , where xxx is the original destination dialed by the caller. |



**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                               |
|-------------|---------------------------------------------|
| 1.          | Program call forwarding - no answer         |
| 2.          | 16-18 => Incoming calls - Call FWD - no ans |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                      |
|-------------|----------------------------------------------------|
| 1.          | Options                                            |
| 2.          | Incoming calls                                     |
| 3.          | Call destination list + Assignment int./ext. calls |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                            |
|-------------|--------------------------------------------------------------------------|
| 1.          | Program call forwarding—no answer for a station.                         |
| 2.          | Call the station.                                                        |
| 3.          | The call transfers to the programmed destination at the programmed time. |

### 7.3.6 Call Forwarding (CF)—Busy and No Answer (Rel. 2.2 or later)

The following call forwarding types are available:

- **Call forwarding—no answer**  
If an extension does not answer, the system forwards the call to an answering machine or voice mail system after a programmable period of time.
- **Call forwarding—busy**  
Callers who call a busy extension receive a busy signal. The call destination list determines whether the system carries out call forwarding—busy.

The following are special situations:

- **Group call**  
A group is always busy if all members of the group are busy.
- **Hunt group**  
A hunt group is always busy if all hunt group members are busy.
- **Free group**  
A free group is busy if at least one group member is busy and the caller reached the group by dialing the group number.
- **UCD groups**  
The system does not check this parameter for UCD groups.
- **Announcements**  
This parameter has no effect on announcements.

if a station signals a call and the call forwarding destination is busy, the call remains at the station. The system checks the call forwarding destination repeatedly until the destination is free.

Incoming calls on trunks that do not support busy signaling are forwarded or intercepted.

#### Model-Specific Data

| <b>Subject</b>                              | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|---------------------------------------------|-------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in                        | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>                          | <b>x</b>                            |
| HW requirements                             | —                 | —          | —            | —                                 | —                                   |
| SW requirements                             | Rel. 2.2 or later |            |              |                                   |                                     |
| Max. no. of CF destinations per station no. | 3                 | 3          | 3            | 3                                 | 3                                   |

## Requirements and Conditions

| Subject                     | Requirement or Conditions                                                                                                                                                                                                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call forwarding - no answer | If the call forwarding destination is unavailable and no other call forwarding operation is configured for the trunk, call forwarding—no answer is not carried out.                                                                                                                             |
| External call forwarding    | You can specify whether the system follows an external call forwarding procedure that a station has programmed in the call forwarding table.                                                                                                                                                    |
| External call forwarding    | If you activate external call forwarding—no answer for the entire trunk, the system circumvents internal call management (for more information, refer to the ISDN features CFB and CFNR).                                                                                                       |
| Call waiting                | If a user has activated call waiting, the caller camps on even if the user did not configure busy call forwarding in the local call management table.<br>If call waiting is not possible for this user and the user has not configured busy call forwarding, the caller receives a busy signal. |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

This feature can be configured using Hicom Assistant T as follows:

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Program call forwarding—no answer            |
| 2.   | 16-18 => Incoming calls - Call FWD—no ans    |
| 3.   | 16-18-8 => Incoming calls - Call FWD on busy |

### Configuring the Feature Using Hicom Assistant E Office

This feature can be configured using Hicom Assistant E Office as follows:

| Step | Action                                             |
|------|----------------------------------------------------|
| 1.   | Options                                            |
| 2.   | Incoming calls                                     |
| 3.   | Call destination list + Assignment int./ext. calls |

## Implementing Features

### *Features for General Incoming Traffic*

For internal distribution only

## Testing the Feature

| Step | Action                                                                                          |
|------|-------------------------------------------------------------------------------------------------|
| 1.   | Program call forwarding—no answer for a station.                                                |
| 2.   | Call the station.                                                                               |
| 3.   | The system forwards the call to the programmed destination after the programmed period of time. |

### 7.3.7 Call Forwarding (CF)

#### Definition

Call forwarding (CF) enables users to forward all incoming calls (including speaker calls) to another destination. Call forwarding is based on the station number, regardless of how the call reached the activating telephone. If trunk keys have been configured, users can also activate CF individually for a specific trunk key. The following destinations are possible:

- Another subscriber station
- The attendant console
- An external destination
- A voice messaging system
- A hunt group
- As of Release 2.2 SMR-H (for World excluding U.S.) and Release 1.0 SMR-R (for U.S. only): ACD groups (such as Hicom Agentline Office)/UCD groups

The user is notified when call forwarding is activated. Notification can be in the form of a special dial tone, an indication on the display, or an LED signal.

Outgoing calls can still be made when call forwarding is activated.

End users can choose to forward only external calls or only internal calls. One single access code is used to deactivate any of these choices.

The following are the default feature access codes:

- Call forward both internal and external calls: \*11
- Call forward external calls only: \*12
- Call forward internal calls only: \*13
- Call forwarding off: #1

Call forwarding is implemented on a station number basis, regardless of how the call reached the activating telephone. If trunk keys have been configured, CF can also be activated individually for a specific trunk key.

#### External Destination

The call forward destination can be an external party. Instead of entering an internal station number, enter the trunk access code, followed by the external number. Since it is possible that an incoming external call could be forwarded to an external destination, the system will check whether the combination of trunks can guarantee release supervision. (See table below) If not, a timer is started *Time up to warning*

*tone for MSI - transit* and default is 300 seconds. When the timer expires, a warning tone is heard by both parties and another timer is started *Time between warning tone and release*, default of 10secs, after which time the trunks are released.

### CorNet-N

Calls can be forwarded over a CorNet-N link.

If a call is forwarded to another node, and it in turn is forwarded back to the originating node, the CorNet-N links will be released, if the function *Rerouting* is activated.

Incoming Caller ID (PRI, BRI) is passed from one destination to another within the same system. It is not transferred over CorNet-N to a remote node. If a voice mail system is located in a remote mode, and the call is forwarded, the voice mail system will receive the station number of the original called party.

### Operating the Feature

Refer to *Call Forwarding* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000)

### Model-Specific Data

| Subject                                 | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-----------------------------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                    | x                 | x   | x     | x                        | x                          |
| HW requirements                         | —                 | —   | —     | —                        | —                          |
| SW requirements                         | Rel. 1.0 or later |     |       |                          |                            |
| Max. no. of simultaneous CFW operations | 150               | 50  | 20    | 20                       | 20                         |

### Requirements and Conditions

| Subject              | Requirement or Condition                                                       |
|----------------------|--------------------------------------------------------------------------------|
| Do not disturb (DND) | You cannot program CF on a telephone where DND is active.                      |
| Chaining             | Up to five call forwarding procedures can be chained in Release 2.0 and later. |

| <b>Subject</b>                        | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MSN trunk forwarding                  | In Rel. 2.2 and later, any user who has an assigned MSN for direct inward dialing can forward this number to the trunk (the feature must be requested from the carrier).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Ext. call forwarding                  | You can program only one external CF destination key on each telephone.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Ext. call forwarding                  | When dialing external destinations, users must prefix the destination number with the CO trunk group code.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Prime Line                            | If Prime Line (automatic trunk seizure) is active, you must press the extension key before dialing an internal station number. In this case, you need not enter the trunk group code for external destinations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Analog telephones                     | When using analog telephones, S <sub>0</sub> telephones (not for U.S.), and CMI telephones (not for U.S.) telephones, you must wait for a confirmation tone after entering external destinations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Appointment, automatic wake-up system | When an appointment comes due, the reminder does not follow call forwarding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| CF destination is an ACD/UCD group    | <p>A call is not forwarded to an ACD/UCD group in the following cases:</p> <ul style="list-style-type: none"> <li>• A station is a member of a hunt group. If the hunt group is called and a station with CF to an ACD/UCD group is next in line, the call is not forwarded; instead, the next station in the hunt group is called directly.</li> <li>• A station is a member of a group call. If the group is called, the call is not forwarded to the ACD/UCD group.</li> <li>• A station is a member of a group call no answer. If the group is called, the call is not forwarded to the ACD/UCD group. Exception: The first station entered has activated CF to the ACD/UCD group. In this case, the call is forwarded.</li> </ul> |

### Configuration Options

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                               |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Activate call forwarding (*1).                                                                                                              |
| 2.          | Select the type (1 = all calls, 2 = external calls only, 3 = internal calls only).                                                          |
| 3.          | Call the station.                                                                                                                           |
| 4.          | The call arrives at the destination station according to the call forwarding type (all calls, external calls only, or internal calls only). |



## 7.3.8 Subscriber Groups

### Definition

Subscriber groups are preconfigured in the Hicom 150 E Office system. They are provided as a common pool for the following features:

- Group call (with or without busy signaling)
- Hunt group (linear or circular)
- Paging

The type of group determines how the system handles each group. This means that each group can be either a group call or a hunt group. Names can be assigned to the individual groups from the system administration.

Default numbers are provided in the Assistant T and E but can be changed:

- General Hunt Group Call default call numbers are 350 to 499.
- UCD group default call number are from 440 to 499 (within in the General Hunt Group).

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |
| Groups/stations      | 150/20            | 150/20   | 20/8     | 20/8                     | 20/8                       |

### Requirements and Conditions

| Subject         | Requirement or Condition                                                                                        |
|-----------------|-----------------------------------------------------------------------------------------------------------------|
| Call forwarding | When a call is forwarded to a group, the system ignores call forwarding set by individual members of the group. |
| Call groups     | Stations can belong to more than one group.                                                                     |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                |
|-------------|--------------------------------------------------------------|
| 1.          | Configure groups                                             |
| 2.          | 16-15-1 => Incoming calls - Hunt/group call - Called stn no. |
| 3.          | 16-15-2 => Incoming calls - Hunt/group call - Group type     |
| 4.          | 16-15-3 => Incoming calls - Hunt/group call - Group name     |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>               |
|-------------|-----------------------------|
| 1.          | Configure groups<br>Options |
| 2.          | Incoming calls              |
| 3.          | Hunt group                  |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                  |
|-------------|------------------------------------------------|
| 1.          | Call the group.                                |
| 2.          | Check whether the subscriber group is ringing. |

## 7.3.9 Group Call

### Definition

Incoming internal and external calls are signaled simultaneously to all the stations in a group. The first station to answer the call is connected to the calling party.

You can implement group call in call management.

Any type of telephone can be used in a Group Call group. The telephones must be located in the same node.

Each Call Group can be assigned a name in database: 16 characters maximum.

The first station to answer the call is connected to the calling party. Subsequent calls are signalled at the remaining idle extensions. When all members are busy, they are signalled with Call Waiting tone. The first member to go on-hook will receive the waiting call.

### Operating the Feature

Refer to *Answer Group* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*

### Feature Interaction

A member of a group can activate DND. This means that the telephone will no longer ring when called through the Hunt Group number or when called directly.

Only display telephones can deactivate/activate Call Waiting Tone (#87/\*87). They will not be signalled of a call waiting, but will receive a waiting call when they go on-hook.

Data Line security in Hicom Assistant T (Call Waiting rejection in Hicom Assistant E Office) can be configured for a member telephone. An idle telephone rings when a call enters the group; however, a telephone is not advised of a call waiting, and if it goes on hook and calls are waiting, the telephone does not ring until a “new” call enters the queue.

Individual members of a group can Call forward-all calls on their telephones. With this feature active, the destination telephone becomes part of the group. However, if the first member of the group Call forwards - no answer to an internal destination, all calls to the pilot number of the group are immediately forwarded to that destination. Individual members can be reached by their station numbers, except for the first member. Only the forward destination can reach the first member through its station number.

### Displays

- **Internal calls:** At the calling party, the display shows the name of the group assigned via Hicom Assistant T (16-15-3) or Hicom Assistant E Office (Incoming Call -> Hunt Group -> Name). The group members with a display telephone see the station number placing the call *Call from: xxx*.
- **External calls:** The group members' display will show the calling party number. (same as call to a single station).

### Model-Specific Data

| Subject              | Pro               | Com    | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|--------|-------|--------------------------|----------------------------|
| Feature available in | x                 | x      | x     | x                        | x                          |
| HW requirements      | —                 | —      | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |        |       |                          |                            |
| Groups/stations      | 150/20            | 150/20 | 20/8  | 20/8                     | 20/8                       |

### Requirements and Conditions

| Subject              | Requirement or Condition                                                                                                                              |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ext. call forwarding | If at least one subscriber in a group has activated external call forwarding, you cannot make an unscreened transfer within the group.                |
| Analog telephones    | The system does not check whether analog telephones are present. As a result, you must log the telephone onto the system by lifting the handset once. |
| Intercept            | If the call cannot be signaled at any station, it is intercepted.                                                                                     |
| Call waiting         | Busy stations receive call waiting or ring injection if no other stations are available.                                                              |
| Group call on/off    | Each member of a group call can dial #85 to leave group call and *81 to reenter group call.                                                           |
| Hunt group           | If a station is active in group call and a hunt group, any changes (such as dialing *81 or #81) apply to both features.                               |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                |
|-------------|--------------------------------------------------------------|
| 1.          | Configure group call                                         |
| 2.          | 16-15-1 => Incoming calls - Hunt/group call - Called stn no. |
| 3.          | 16-15-2 => Incoming calls - Hunt/group call - Group type     |
| 4.          | 16-15-3 => Incoming calls - Hunt/group call - Group name     |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                   |
|-------------|---------------------------------|
| 1.          | Configure group call<br>Options |
| 2.          | Incoming calls                  |
| 3.          | Hunt group                      |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                          |
|-------------|----------------------------------------|
| 1.          | Set up a group.                        |
| 2.          | Call the group's station number.       |
| 3.          | The stations in the group should ring. |

## 7.3.10 Group Call with Busy Signaling

### Definition

If a group member is busy, incoming calls to the group receive a busy signal. The call also camps on at the busy station.

This type of group (defined in Hicom Assistant T as *Grp call, No answer* and in Hicom Assistant E Office as *RNA* under *Type*) functions in the similar manner as a *Group Call* arrangement; that is, when a new call enters an idle group, all member telephones ring. The first member to go off hook, is connected to the calling party.

However, if there are any subsequent calls to the pilot number while one member is busy, the calls camp on to the busy extension. No other telephone in the group is signalled. The other members are nevertheless allowed to place outside calls and to receive calls if their individual station number is dialed.

This type of arrangement is useful where an optiset E is associated with a wireless telephone.

Any type of telephone can be used in a Call Group.

Each Call Group can be assigned a name in database with 16 characters maximum.

### Model-Specific Data

| Subject              | Pro               | Com    | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|--------|-------|--------------------------|----------------------------|
| Feature available in | x                 | x      | x     | x                        | x                          |
| HW requirements      | —                 | —      | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |        |       |                          |                            |
| Groups/stations      | 150/20            | 150/20 | 20/8  | 20/8                     | 20/8                       |

### Requirements and Conditions

| Subject                | Requirement or Condition                                                                          |
|------------------------|---------------------------------------------------------------------------------------------------|
| Call waiting rejection | The call does not camp on if the busy station has activated call waiting rejection.               |
| Direct inward dialing  | If a station in the group is called directly, the call is signaled at the dialed extension.       |
| Group                  | If an optiset E telephone in the group is defective, the group is treated as though it were busy. |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                       |
|------|--------------------------------------------------------------|
| 1.   | Configure group call                                         |
| 2.   | 16-15-1 => Incoming calls - Hunt/group call - Called stn no. |
| 3.   | 16-15-2 => Incoming calls - Hunt/group call - Group type     |
| 4.   | 16-15-3 => Incoming calls - Hunt/group call - Group name     |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                       |
|------|------------------------------|
| 1.   | Configure group call Options |
| 2.   | Incoming calls               |
| 3.   | Hunt group                   |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                 |
|------|----------------------------------------|
| 1.   | Set up a group.                        |
| 2.   | Call the group's station number.       |
| 3.   | The stations in the group should ring. |

### 7.3.11 Hunt Group

#### Definition

A hunt group implements a call distribution cycle within a subscriber group. The stations in the hunt group are linked so that a call to the group that reaches a busy member or is not answered is forwarded to the next available station within the group.

The following hunt group options are available:

- **Circular selection:** The search begins with the station after the last station selected. If the call is not answered, it is forwarded to the next station after a timeout (CFNA in call management).
- **Linear selection:** When a call arrives, the search always begins with the first station in the group.

The stations can be reached either by a hunt group number or by the user's station number, depending on the hunt group type.

You can set up hunt groups in call management.

Each Hunt Group can be assigned a name in database with 16 characters maximum.

The stations can be reached either by a hunt group pilot number or by the user's station number, depending on the hunt group.

In the case of a Linear Hunt group, the last member of the hunt can be a pseudo number leading to a voice mail system. The pseudo number is the call number which will be transmitted to the voice mail system. It is also possible to have a call forwarding within the destination list.

One station can simultaneously be a member of two groups. Calls from either group are presented to the agent in the normal manner. If the user has a display telephone, he or she can identify the source of the call by the name assigned to the trunk/trunk group.

#### Operating the Feature

Refer to *Hunt Group* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.



**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|-------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>                          | <b>x</b>                            |
| HW requirements      | —                 | —          | —            | —                                 | —                                   |
| SW requirements      | Rel. 1.0 or later |            |              |                                   |                                     |
| Groups/stations      | 150/20            | 150/20     | 20/8         | 20/8                              | 20/8                                |

**Requirements and Conditions**

| <b>Subject</b>                      | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call waiting                        | If all stations in a hunt group are busy, the call camps on at all stations.                                                                                                                                                                                                          |
| Call signaling                      | If all hunt group stations hang up simultaneously, call signaling begins at all stations that previously had waiting calls.                                                                                                                                                           |
| Do not disturb (DND)                | If all stations in the hunt group activate DND, a call management procedure handles the call.                                                                                                                                                                                         |
| Hunt group                          | Stations can belong to more than one group.                                                                                                                                                                                                                                           |
| Queue                               | If the number of calls directed to the hunt group exceeds the number that can currently be processed, the excess calls are placed in a queue. You can configure an announcement or music to be played for calls placed in the queue (entry in call management before the hunt group). |
| Overflow, call forwarding—no answer | You can use call management to set up an overflow station as a CFNA destination for hunt groups.                                                                                                                                                                                      |
| Hunt group on/off                   | Each member of a hunt group can dial #85 to leave the hunt group and *85 to reenter the hunt group.                                                                                                                                                                                   |
| Group call                          | If a station is active in group call and a hunt group, any changes (such as dialing *85/#85) apply to both features.                                                                                                                                                                  |
| Telephone type                      | Any type of telephone can be used in a Hunt Group.                                                                                                                                                                                                                                    |
| Group call on/off                   | Each member of a group call can dial *85 to leave the group call and #85 to join it again.                                                                                                                                                                                            |
| CDRC                                | Same rules apply as in a normal conversation. Elapsed time of call is assigned to last station which handled the call.                                                                                                                                                                |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                       |
|------|--------------------------------------------------------------|
| 1.   | Configure hunt group                                         |
| 2.   | 16-15-1 => Incoming calls - Hunt/group call - Called stn no. |
| 3.   | 16-15-2 => Incoming calls - Hunt/group call - Group type     |
| 4.   | 16-15-3 => Incoming calls - Hunt/group call - Group name     |
| 1.   | Set CNFA time<br>*9531994                                    |
| 2.   | 16-18-5 => Incoming calls - CFNA - Number of rings           |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                          |
|------|---------------------------------|
| 1.   | Configure hunt group<br>Options |
| 2.   | Incoming calls                  |
| 3.   | Hunt group                      |
| 1.   | Set CFNA time<br>Options        |
| 2.   | Incoming calls                  |
| 3.   | Call destination list           |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                       |
|------|--------------------------------------------------------------------------------------------------------------|
| 1.   | Configure a hunt group.                                                                                      |
| 2.   | Call the hunt group number.                                                                                  |
| 3.   | The first station rings.<br>If the call is not answered or if the station is busy, the second station rings. |

### 7.3.12 Leave Group Call/Hunt Group (Stop Hunt)

#### Definition

**Up to and including Release 2.2:** An internal extension which is entered in call management as a member of one or more groups can both leave and rejoin all groups by means of a procedure.

**As of Release 3.0,** members can leave selected groups. If an internal station is a member of more than one group (including MULAP groups), it can leave individual, selected groups or leave all groups, or it can rejoin selected groups or all groups by entering a code, using the service menu or pressing a key.

#### Operating the Feature

Refer to *Hunt Group* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

#### Model-Specific Data

| Subject                                  | Pro               | Com    | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|------------------------------------------|-------------------|--------|-------|--------------------------|----------------------------|
| Feature available in                     | x                 | x      | x     | x                        | x                          |
| HW requirements                          | —                 | —      | —     | —                        | —                          |
| SW requirements<br>Leave all groups      | Rel. 1.0 or later |        |       |                          |                            |
| SW requirements<br>Leave selected groups | Rel. 3.0 or later |        |       |                          |                            |
| Groups/stations                          | 150/20            | 150/20 | 20/8  | 20/8                     | 20/8                       |

#### Requirements and Conditions

| Subject              | Requirement or Condition                                                                                               |
|----------------------|------------------------------------------------------------------------------------------------------------------------|
| User access          | The user must be part of a subscriber group to have access to this feature.                                            |
| Default access codes | The default access codes are #85 to leave the Hunt Group and *85 to rejoin the group.                                  |
| DISA                 | Users can activate this function from a DISA connection for their station or for other stations (Associated Services). |

## Implementing Features

For internal distribution only

### *Features for General Incoming Traffic*

| Subject               | Requirement or Condition                                                                                                                                                                       |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call Management       | If all members of a group invoke the <i>Leave Hunt Group</i> feature, internal callers are diverted to the next Call Management destination, or if not defined, the call receives a busy tone. |
| Leave selected groups | Executive members cannot leave executive MULAP groups.                                                                                                                                         |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                     |
|------|----------------------------------------------------------------------------|
| 1.   | Dial #85 to leave the group.                                               |
| 2.   | When the group is called, the telephone that left the group does not ring. |

### 7.3.13 Uniform Call Distribution (UCD)

#### Definition

With uniform call distribution (UCD), incoming internal or external calls are automatically assigned to the station (agent) idle longest in a UCD group.

If all stations in a UCD group are busy, any additional incoming calls are placed in the queue and then distributed to the group members according to the priority of the call and the length of time it has been waiting. Announcements or music can be played for the waiting callers.

Users (agents) can log on from any telephone by entering an ID. After logging on, the agent is available and is permanently assigned to that telephone until logged off. The assignment is retained even after a system reset.

The UCD group can be forwarded (night answer for UCD).



UCD groups are handled differently from the Call/Hunt Groups in the system call processing.

There are 150 Subscriber groups in the system. Of which, 60 can be UCD groups. The default access pilot numbers are 440 to 499.

The Pilot number can be changed but it must be a unique number, up to 6 digits in length. A name can be given to each group, with up to 16 characters each.

The agents states are maintained in the event of a power failure.

#### Agents

Any type of telephone can be part of a UCD group. Analog connections can also be used for remote agents (teleagents).

A UCD group contains agents that belong to a work group. Agent indexes are associated with each of the UCD groups. Each index contains up to 32 agent IDs. A maximum of 150 agents can be active simultaneously in the system. Accordingly, 150 fixed agent IDs can be assigned to one of up to 60 UCD groups. An ID can only be assigned to one group. Several IDs can be assigned to one agent, permitting the agent to work in more than one UCD group; however, the agent can only be active in one group at a time.

Certain system features are only available to UCD members.

An agent can logon/logoff from any optiset E or analog telephone connection in the system using an ID. The agent is available after logon, and is permanently assigned to this device until logoff. An agent can only be logged on from one device at a time and only one agent can be logged on per device. Each agent is assigned to one work group only. After logging off, the agent is no longer available for UCD calls.

At logon, this assignment to the UCD groups is checked. The port to which an agent logs on is stored in the non-volatile memory in order to retain the assignments should the system be reset.

Agent Indexes are defined in the following manner:

- Hicom Assistant E Office: Options ->Incoming Calls ->UCD groups ->members.
- Hicom Assistant T: 31-1.

### **Operation**

With uniform call distribution (UCD), an incoming internal or external call is assigned to the station idle longest in a UCD group.

Incoming calls are routed to the UCD group using one the following:

- Ring Announcement table
- DID
- Call Management table
- auto-attendant application
- station transfer

*Prim. Ring cycles* is the time the system places an unanswered call in an unavailable state before the next available agent is offered the call.

If the overflow queue timer expires before an agent is available, the call can be directed to another UCD group, a station, voice mail, or an external destination. If the overflow target is another UCD group, the caller remains in queue in the original group and is also be placed in queue in the overflow queue. Overflow targets are configured using the *Call destination* table.

A numeric threshold value can be assigned to each group. If the number of calls in queue equals the threshold value, the call overflows.

The UCD group can be forwarded (night answer for UCD).

### **Additional Parameters per Group**

If all agents in a group are busy, each group can independently determine the length of time a caller will remain queued to one group. At the end of which, if no agent has answered the call in the first group, the call simultaneously is presented to the secondary group (if configured) for another predetermined time. The time is set by the number of ring cycles. The number of ring cycles can be set from 1-120, in both groups.

Each group can independently set the maximum number of queued calls; in the first group the maximum is 30, whereas, in the last group, the maximum is 72. These totals include internal and external calls. If more calls attempt to call the UCD groups, they are presented with busy tone, or diverted to voice mail, depending on the call management destination list.

Each group can be configured for calls to be automatically answered by agents: Automatic Incoming UCD Call Connection (AICC).

Each group can specify if the announcements change once or if they are cyclical. If the selection is *Once*, the announcements are presented to the callers once, as they are configured. If the selection is *Cyclic*, the last announcement and the second to last announcement in the configuration are repeated cyclically.



Each group can specify an overflow time. This time is only used to monitor a forwarded call to a remote UCD application.

Each group can specify the delay time before a queued call is switched to the recorded announcement device. The value for this timer is 0-600 seconds. Every call to an UCD Group gets an announcement. If no announcement device is configured, the internal MOH is sent to the calling party. To suppress the announcement, the delay should be configured to the maximum value, assuming that the call will be answered within this time.

## Feature Keys/Codes

Agents using display telephones can program vacant keys with the following UCD functions:

Table 7-1 UCD Feature Key Options

|                         | Default access codes | LED state when feature is ON |
|-------------------------|----------------------|------------------------------|
| Log on/off              | *401/#401            | Lit                          |
| Available/Not available | *402/#402            | Lit                          |
| Work on/off             | *403/#403            | Lit                          |
| UCD Night On/off        | *404/#404            | Lit                          |
| Calls in Queue          | *405                 | N/A                          |

Otherwise, agents can dial the access code from an idle state or press the *Program/Service* key during a conversation and scroll to and select *UCD* and scroll to the UCD feature to activate/deactivate.

Non-display and analog telephones must dial the access codes from an idle state or during a conversation after putting the caller temporarily on Consultation Hold and dialing the access code. To return to the call, the agent must press the *Consultation* key once again, or do a hookswitch flash in the case of an analog telephone.

## Model-Specific Data

| Subject              | Pro               | Com      | Point                   | One (not for U.S.) | Start (not for U.S.) |
|----------------------|-------------------|----------|-------------------------|--------------------|----------------------|
| Feature available in | x                 | x        | —                       | —                  | —                    |
| HW requirements      | —                 | —        | —                       | —                  | —                    |
| SW requirements      | Rel. 1.0 or later |          | Rel. 2.2 SMR-J or later | —                  | —                    |
| UCD groups           | 60                | 60       | 10                      | —                  | —                    |
| UCD agents           | Max. 150          | Max. 150 | Max. 150                | —                  | —                    |
| ID numbers           | 150               | 150      | 150                     | —                  | —                    |
| Agents per station   | 1                 | 1        | 1                       | —                  | —                    |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.



**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                         |
|------|--------------------------------|
| 1.   | Configure call distribution    |
| 2.   | 31-1 => UCD - Group assignment |
| 3.   | 31-2 => UCD - Group parameters |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                      |
|------|-----------------------------|
| 1.   | Configure call distribution |
| 2.   | Incoming calls              |
| 3.   | UCD groups                  |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                        |
|------|-------------------------------------------------------------------------------|
| 1.   | Call the UCD group.                                                           |
| 2.   | The logged-on agent who was idle the longest receives the call.               |
| 3.   | If all agents are busy or unavailable, the call is placed in a defined queue. |

**Note**

Refer to [Section 8.44](#) "Call Distribution in Hicom 150 E Office With Hicom Agentline Office".

### 7.3.13.1 UCD Queues

#### Definition

If all stations (agents) in a UCD group are busy, incoming calls are placed on hold and entered in a queue.

Agents of a UCD group can display the number of calls in the queue for their UCD group. Waiting parties in the queue can receive an announcement or music on hold.

To display the number of UCD calls in queue, users with display telephones can program a feature key or during a call, press *Program/Service*, scroll to and select *UCD?*, and scroll to and select the wanted feature. Alternatively, during a conversation, users can press the *Program/Service* key and dial the access code.

Non-display and analog telephone users must dial the access codes from an idle state or, if during a conversation, they must temporarily put the calling party on Consultation Hold by pressing the *Consultation* key followed by the access code. Or, in the case of an analog telephone, a hookswitch flash must be performed.

Non-display telephones (optiset E) can have buttons on the telephones programmed for specific features; however, this can only be done via Assistant E.

#### Model-Specific Data

| Subject                                        | Pro                                                     | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|------------------------------------------------|---------------------------------------------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in                           | x                                                       | x   | —                             | —                        | —                          |
| HW requirements                                | —                                                       | —   | —                             | —                        | —                          |
| SW requirements                                | Rel. 1.0 or later                                       |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |
| Queues per UCD<br>group                        | 1                                                       | 1   | 1                             | —                        | —                          |
| Number of calls in<br>queue (per UCD<br>group) | 30<br>for UCD groups 1 to 59,<br>72<br>for UCD group 60 |     |                               | —                        | —                          |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                     |
|-------------|-------------------------------------------------------------------|
| 1.          | Configure UCD queue                                               |
| 2.          | 31-2-1 => UCD - Group parameters - Announcem. device              |
| 3.          | 31-2-2 => UCD - Group parameters - Wait times                     |
| 4.          | 31-2-3 => UCD - Group parameters - Call cycles                    |
| 5.          | 31-2-4 => UCD - Group parameters - Auto. incoming call connection |
| 6.          | 31-2-5 => UCD - Group parameters - Waiting calls                  |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>       |
|-------------|---------------------|
| 1.          | Configure UCD queue |
| 2.          | Incoming calls      |
| 3.          | UCD groups          |

**Testing the Feature**

Check the feature for proper functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------|
| 1.          | Call the UCD group when all stations are busy. The system plays an announcement or music on hold. |

### 7.3.13.2 UCD Call Prioritization

#### Definition

Within the queue, incoming internal and external calls for the UCD group are prioritized according to call type.

The system distributes waiting calls to the UCD group according to priority and then the length of time they have been waiting. In other words, a high-priority waiting call is answered before a low-priority call that has been waiting longer.

In the case of trunk circuits, the priorities are assigned according to trunk (per B channel).

A priority of 1 to 10 is allocated for the classification of internal calls. The system then distributes the queued calls to the UCD group according to the priority and queue time; that is, a queuing call with a high priority can be answered sooner than a call queuing for a longer time but with a lower priority. With trunk circuits, the system assigns priorities on a per trunk basis (per B channel). The system evaluates incoming calls for a UCD group by the priority established.

Priority levels are set in Hicom Assistant E Office. The Internal call priority is also established on the Hicom Assistant E Office *Priority* screen, under *Priorities for internal calls* (refer to [Configuring the Feature Using Hicom Assistant E Office](#)).

#### Model-Specific Data

| Subject              | Pro               | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in | x                 | x   | —                             | —                        | —                          |
| HW requirements      | —                 | —   | —                             | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |
| Priority levels      | 10                | 10  | 10                            | —                        | —                          |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

#### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                        |
|-------------|--------------------------------------|
| 1.          | Set call priority                    |
| 2.          | 31-4 => UCD - External call priority |
| 3.          | 31-5 => UCD - Internal call priority |

### **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>     |
|-------------|-------------------|
| 1.          | Set call priority |
| 2.          | Incoming calls    |
| 3.          | UCD parameters    |

### 7.3.13.3 UCD Subscriber States

#### Definition

After a user (agent) logs onto the system, the current status of the UCD station where the agent logged on appears on the display. The following states are possible:

- **Available:** UCD calls are signaled to the UCD group member (agent).
- **Unavailable:** The UCD member (agent) has logged off from the workstation (to take a break or leave the group).
- **Work time:** The user (agent) needs time to process a UCD call.
- **Autowork time:** The member (agent) is automatically removed from the UCD group for a certain period after processing a call.
- **UCD incoming call:** The member (agent) is processing a UCD call (even after transfer).
- **Non-UCD internal call:** An internal non-UCD call is in progress.
- **Non-UCD external incoming call:** An external non-UCD call is in progress.
- **Non-UCD external outgoing call:** The member (agent) is engaged in an outgoing external non-UCD call.
- **Removed:** The telephone has physically failed.

Members (agents) can log off when they have completed their work and are no longer available. They can still be reached directly via their direct inward dialing (DID) number.



The above list of UCD subscriber states do not represent the actual display prompts on the telephone.

After a user logs onto the system, the status of the UCD station is automatically set to *Available*. The display prompt confirms this status. Whenever the agent changes states, the change is displayed; however, the highest priority display (Available/not available) appears and remains on the display.

**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b>                  | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|-------------------|------------|-------------------------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>          | <b>x</b>   | —                             | —                                 | —                                   |
| HW requirements      | —                 | —          | —                             | —                                 | —                                   |
| SW requirements      | Rel. 1.0 or later |            | Rel. 2.2<br>SMR-J or<br>later | —                                 | —                                   |

**Requirements and Conditions**

| <b>Subject</b>                                | <b>Requirement or Condition</b>                                                                                                          |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Do not disturb (DND),<br>call forwarding (CF) | Members (agents) who activate DND or CF are logged off.                                                                                  |
| Call forwarding—no<br>answer (CFNA)           | If a member (agent) does not accept a call, the system automatically treats the member like an unavailable agent when CFNA is activated. |

**Configuration Options**

This feature does not have to be explicitly configured.

### 7.3.13.4 Leave UCD Group

#### Definition

Members (agents) can temporarily leave a UCD group (for breaks, and so on) but still remain logged on to the UCD group. The system continues to signal direct calls to this agent. If necessary, the agent can send a message to any station, for instance to ask for help.

When an agent logs on to the group, the agent is immediately and automatically placed in the “available” state and can start processing calls.

The default access codes for this feature are:

- **Not available:** #402
- **Available:** \*402

Display telephones can program Feature keys **Available/Not available** on the optiset E. Non-display telephones can have a key programmed using Hicom Assistant E Office.

#### Operating the Feature

Refer to *Call Distribution* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

#### Model-Specific Data

| Subject              | Pro               | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in | x                 | x   | —                             | —                        | —                          |
| HW requirements      | —                 | —   | —                             | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |

#### Requirements and Conditions

| Subject                          | Requirement or Condition                                             |
|----------------------------------|----------------------------------------------------------------------|
| Call forwarding—no answer (CFNA) | CFNA is activated when all members (agents) have left the UCD group. |



## **Configuration Options**

This feature does not have to be explicitly configured.

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                       |
|-------------|---------------------------------------------------------------------|
| 1.          | Enter the code for leaving the UCD group at a station in the group. |
| 2.          | Calls for the UCD group are no longer signaled at that station.     |

### 7.3.13.5 Work Time

#### Definition

With this feature, UCD members (agents) can temporarily prevent calls from being assigned to their workstations. This allows them to leave the UCD group for short periods to complete paperwork following a call. The agent is still logged on to the UCD group. Calls to the UCD group bypass any workstation that has this feature activated.

In addition, members (agents) can activate autowork time. In this case, the agent is automatically removed from the UCD group for a certain period after processing a call.

The Autowork flag is system-wide flag. It is configured in Assistant E: Options ->Incoming Calls ->UCD parameters ->Automatic wrap up time.

The automatic wrap up time is variable up to 100 seconds, in steps of 5 seconds (ring cycle). At the end of the automatic wrap up time, the agent is placed back in the group.

An agent in the *Work* state can still be called by dialing the station number.

#### Operating the Feature

Refer to *Call Distribution* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

#### Model-Specific Data

| Subject              | Pro               | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in | x                 | x   | —                             | —                        | —                          |
| HW requirements      | —                 | —   | —                             | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>           |
|-------------|-------------------------|
| 1.          | Configure work          |
| 2.          | 31-3 => UCD - Work time |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>  |
|-------------|----------------|
| 1.          | Configure work |
| 2.          | Incoming calls |
| 3.          | UCD parameters |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------|
| 1.          | Configure the work time.                                                                            |
| 2.          | Set up a call.                                                                                      |
| 3.          | Terminate the call.                                                                                 |
| 4.          | Call the UCD group again.<br>No calls are signaled to the UCD station for the configured work time. |

### **7.3.13.6 Recorded Announcement/Music on Hold (MOH) with UCD**

#### **Definition**

This feature allows customers to play a greeting message (announcement before answering) to internal callers (as of Release 2.2 SMR-H [for World excluding U.S.] and Release 1.0 SMR-R [for U.S. only]) or external callers while they are being switched. Trunk-by-trunk assignment of announcement devices is possible.

With UCD, music and/or further announcements can be played to callers if they cannot be switched immediately. These announcements (or music) can be played in any order (up to seven) until a group member (agent) becomes available.

It is possible to play music on hold or announcements from a connected external announcement device using the following types of devices:

- Devices that always start at the beginning of the message when activated (such as greeting messages).
- Continuous playback devices (for announcements and music on hold).

The announcements can be assigned to each UCD group individually.

The OfficePro supports access for 16 unique announcements and one MOH source. The OfficeCom supports 4 announcements and one MOH source. Each UCD group can be configured with up to 7 announcement steps. A unique announcement and the duration of the announcement can be defined for each step. The time is defined as ring cycles, that is in increments of 5 seconds. The announcement script can be configured to play a single time or continue to cycle until the call is answered; this is configured in the UCD group parameter *Announcement change*.

Analog ports can be configured as a digital announcer interface. E&M Tie line ports can also be used in the OfficePro as the interface to the digital announcer.

The STRB option board can be used in the OfficeCom to control the start of the external announcement device in lieu of the contacts on the TIEL circuit card in the OfficePro.

Announcement devices are configured with a start time and a listen duration time. Music on Hold devices are endless loop type recordings with continuous play attributes. Up to 32 parties held in queue can hear an announcement.

The *Announcement Delay Time* parameter is used to configure the delay before a queued call is switched to the recorded announcement device (allowed value 0-600 seconds). Each call to an UCD Group gets an announcement. If no announcement device is configured, the internal MOH is sent to the calling party. To suppress the announcement, the delay should be configured to the maximum value, assuming that the call will be answered within this time.

For more information, refer to *Music on Hold (Internal or External Source) on page 7-19.*

### Model-Specific Data

| Subject                             | Pro                                    | Com                                               | Point                   | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-------------------------------------|----------------------------------------|---------------------------------------------------|-------------------------|--------------------------|----------------------------|
| Feature available in                | x                                      | x                                                 | –                       | –                        | –                          |
| HW requirements                     | Free analog subs. ports<br><u>TIEL</u> | EXM, MPPI (not for U.S.), free analog subs. ports |                         | –                        | –                          |
| SW requirements                     | Rel. 1.0 or later                      | Rel. 1.0 or later                                 | Rel. 2.2 SMR-J or later | –                        | –                          |
| Ann. devices                        | 16                                     | 4                                                 | 1                       | –                        | –                          |
| Max. no. of announcements per group | 7                                      | 7                                                 | 7                       | –                        | –                          |

### Requirements and Conditions

| Subject                                    | Requirement or Condition                                                                                                                                                                        |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Seven announcements per group in OfficeCom | Although only four announcement devices can be connected to OfficeCom, seven announcements can be used per group by connecting an individual announcement device or combining the four devices. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                      |
|------|-------------------------------------------------------------|
| 1.   | <b>Configure announcement</b>                               |
| 2.   | 25-1 => Announcement device - Announcement device           |
| 3.   | 25-2 => Announcement device - Announcement type             |
| 4.   | 25-3 => Announcement device - Announcement before answering |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | <b>Configure announcement</b><br>Connections |
| 2.   | Announcement                                 |
| 3.   | Announcement device                          |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                                                                                                                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Announcement devices connected to SLA boards are called directly (announcement and music on hold only).<br>Announcements via TIEL connections can be tested only if they have been registered as a wait queue for UCD or as an announcement for announcement before answering. |
| 2.   | If announcement devices are connected to SLA boards, the corresponding announcement or music on hold must be played.<br>If they are connected to a TIEL board, the announcement must be played when an ACD/UCD group is called.                                                |

### 7.3.13.7 Overflow With UCD

#### Definition

If a call in the queue is not answered within a specific period, the agent is switched to unavailable mode and the call is transferred to the next available UCD member (agent). The call is forwarded to an overflow destination (CFNA destination) only if all UCD agents are unavailable. Users can specify the destination and time in call management.

Users can also define a maximum number of waiting calls. If this maximum limit is exceeded, any new calls are forwarded to the overflow destination.

The overflow destination can also activate external call forwarding.

The overflow destination can be a voice mail system. The number forwarded to the voice mail system is the original called party's number.

#### Model-Specific Data

| Subject              | Pro               | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in | x                 | x   | —                             | —                        | —                          |
| HW requirements      | —                 | —   | —                             | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |
| Overflow per group   | 3                 | 3   | 3                             | —                        | —                          |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

#### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                 |
|------|--------------------------------------------------------|
| 1.   | Configure overflow with UCD                            |
| 2.   | 16-18-1 to 16-18-7 => Incoming calls - Call FWD-no ans |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>               |
|-------------|-----------------------------|
| 1.          | Configure overflow with UCD |
| 2.          | Incoming calls              |
| 3.          | Call destination lists      |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Do not answer a call to the UCD group.<br>After the call forwarding—no answer time has expired, the call is signaled at the overflow destination. |



### 7.3.13.8 Automatic Incoming Call Connection (AICC) With UCD

#### Definition

This feature allows members (agents) to answer incoming calls without performing any operator actions. To do this, the member must have a headset and an enable key on the telephone. A tone in the headset lets the UCD member know that a call has arrived, and the call is then automatically switched through.

Automatic incoming call connection (AICC) can be configured separately for each UCD group. This feature activates automatically if a headset is detected or configured at a station.

Automatic incoming call connection (AICC) can be configured separately for each UCD group and applies to the whole group. Using Hicom Assistant T or Hicom Assistant E Office, stations must be individually configured for headset operation; however, if the Hicom 150 E system detects a headset adapter, the system automatically sets the headset flag in the database. AICC activates automatically if a headset is detected or configured for a telephone. The headset flag is set in the *Set up Station* tab in the Assistant E.



The system routes calls to agents configured for AICC whether there is a headset physically connected or not.

#### Model-Specific Data

| Subject              | Pro                             | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|---------------------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in | x                               | x   | —                             | —                        | —                          |
| HW requirements      | —                               | —   | —                             | —                        | —                          |
| SW requirements      | Rel. 1.0 or later               |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |
| General requirements | optiset E, headset, release key |     |                               | —                        | —                          |

#### Requirements and Conditions

| Subject           | Requirement or Condition                                                                                                          |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Analog telephones | Analog stations cannot use this feature because the system cannot guarantee that a telephone is physically connected to the port. |

| <b>Subject</b>     | <b>Requirement or Condition</b>                                                                                                |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Display telephones | A brief tone is heard in the headset, signalling to the agent that a call has arrived, and the call is answered automatically. |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                     |
|-------------|-------------------------------------------------------------------|
| 1.          | Configure automatic incoming call connection                      |
| 2.          | 31-2-4 => UCD - Group parameters - Auto. incoming call connection |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                          |
|-------------|--------------------------------------------------------|
| 1.          | Configure automatic incoming call connection<br>Option |
| 2.          | Incoming calls                                         |
| 3.          | UCD groups                                             |

### 7.3.13.9 UCD Night Answer

#### Definition

UCD groups can activate a group-specific night answer independent of system night answer. If agents have activated the night answer feature for their own UCD group, all calls for this group are routed to the appropriate UCD night station.

Each user can activate or deactivate group-specific night answer. All users remain logged on after night answer has been activated. If system night answer is active simultaneously, it has priority, and call management follows it.

#### Operating the Feature

Refer to *Call Distribution* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.

#### Model-Specific Data

| Subject              | Pro               | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in | x                 | x   | —                             | —                        | —                          |
| HW requirements      | —                 | —   | —                             | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |

#### Requirements and Conditions

| Subject                                 | Requirement or Condition                                                                                                                                                                                                 |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent status                            | If you activate the night answer feature, your current status does not change.                                                                                                                                           |
| System night answer                     | UCD night answer can be activated independently of system night answer and vice versa. If a call reaches a UCD group by way of system night answer, the call remains in the UCD group independently of UCD night answer. |
| Group-specific night answer destination | The group-specific night answer destination can be an internal, external, or any other UCD group.                                                                                                                        |
| Calls currently being processed         | Calls that are being processed during activation of UCD night answer are not affected.                                                                                                                                   |

## Implementing Features

### *Features for General Incoming Traffic*

For internal distribution only

## Configuration Options

This feature does not have to be explicitly configured.

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                     |
|------|--------------------------------------------|
| 1.   | Activate UCD night answer.                 |
| 2.   | Call the UCD group.                        |
| 3.   | The call arrives at the UCD night station. |

### 7.3.13.10 UCD Group Status Display (Calls in Queue)

#### Definition

Users can use a procedure or code to display the number of calls waiting in the queue.

Users can program a feature button on the optiset E for this feature.

#### Operating the Feature

Refer to *Call Distribution* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

#### Model-Specific Data

| Subject              | Pro                            | Com | Point                         | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|--------------------------------|-----|-------------------------------|--------------------------|----------------------------|
| Feature available in | x                              | x   | —                             | —                        | —                          |
| HW requirements      | Digital subscriber line module |     |                               | —                        | —                          |
| SW requirements      | Rel. 1.0 or later              |     | Rel. 2.2<br>SMR-J or<br>later | —                        | —                          |
| General requirements | optiset E with display         |     |                               | —                        | —                          |

#### Configuration Options

This feature does not have to be explicitly configured.

#### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                     |
|------|------------------------------------------------------------------------------------------------------------|
| 1.   | With a UCD station logged on, use a code or procedure to display the number of calls waiting in the queue. |
| 2.   | The number of calls in the queue is displayed.                                                             |

**7.3.13.11 UCD Home Agent****Definition**

Users can integrate an off-premises extension (analog telephone) into the UCD group as a home agent.

The off-premise station (OPS) telephone is configured in Call Management.

**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b>                  | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|-------------------|------------|-------------------------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>          | <b>x</b>   | –                             | –                                 | –                                   |
| HW requirements      | –                 | –          | –                             | –                                 | –                                   |
| SW requirements      | Rel. 1.0 or later |            | Rel. 2.2<br>SMR-J or<br>later | –                                 | –                                   |

**Requirements and Conditions**

| <b>Subject</b> | <b>Requirement or Condition</b>                                                        |
|----------------|----------------------------------------------------------------------------------------|
| UCD            | Only the most important functions are accessible via codes (logon, work, unavailable). |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                  |
|-------------|--------------------------------|
| 1.          | Configure call distribution    |
| 2.          | 31-1 => UCD - Group assignment |
| 3.          | 31-2 => UCD - Group parameters |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>               |
|-------------|-----------------------------|
| 1.          | Configure call distribution |
| 2.          | Incoming calls              |
| 3.          | UCD groups                  |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                 |
|-------------|---------------------------------------------------------------|
| 1.          | Configure an UCD home agent.                                  |
| 2.          | Call the UCD group. The call is signaled at the home station. |

**7.3.13.12 Transfer to UCD Groups****Definition**

Internal and external calls can be transferred to a UCD group. If the call is not answered within a certain period, a recall is carried out. This time is fixed and cannot be changed.

Announcements can be played for the external transferred calls.

Internal calls transferred to a UCD group also hear the announcements as of system release N-Bind.

**Model-Specific Data**

| <b>Subject</b>               | <b>Pro</b>        | <b>Com</b> | <b>Point</b>                  | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|------------------------------|-------------------|------------|-------------------------------|-----------------------------------|-------------------------------------|
| Feature available in         | <b>x</b>          | <b>x</b>   | —                             | —                                 | —                                   |
| HW requirements              | —                 | —          | —                             | —                                 | —                                   |
| SW requirements              | Rel. 1.0 or later |            | Rel. 2.2<br>SMR-J or<br>later | —                                 | —                                   |
| Max. number of UCD<br>groups | 60                | 60         | 10                            | —                                 | —                                   |

**Requirements and Conditions**

| <b>Subject</b> | <b>Requirement or Condition</b>                                                         |
|----------------|-----------------------------------------------------------------------------------------|
| Announcements  | Internal transferred calls do not receive announcements.                                |
| Recall         | The recall time for transferring calls to UCD groups is longer than for other stations. |

**Configuration Options**

This feature does not have to be explicitly configured.



### 7.3.14 Silent Monitoring (for U.S. Only)

#### Definition

An authorized user can monitor a call in progress at any internal station without the other party's knowledge.

One user in the system can be authorized to use this feature. This feature allows the authorized station to barge into a conversation between two internal parties or between an internal party with an external party and monitor the conversation without the called parties' knowledge. This feature is typically used by an UCD/ACD supervisor to monitor the level of quality of an UCD/ACD agent during a training period.



Some states require that the outside caller be advised that the call may be monitored.

The monitoring station can only be an optiset E telephone; monitored telephones can be of any type.

#### Operating the Feature

Refer to *Override* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

#### Model-Specific Data

| Subject              | Pro               | Com      | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|-------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | —     | —                        | —                          |
| HW requirements      | —                 | —        | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          | —     | —                        | —                          |

#### Requirements and Conditions

| Subject           | Requirement or Condition                                                            |
|-------------------|-------------------------------------------------------------------------------------|
| Silent monitoring | For U.S. only.                                                                      |
| Silent monitoring | The call can be overridden only using code *944 + station number (not from a menu). |

| <b>Subject</b> | <b>Requirement or Condition</b>                                                              |
|----------------|----------------------------------------------------------------------------------------------|
| Signaling      | The call is not signaled at the overridden station (no display, no alerting tone, no sound). |

**Configuration Options**

This feature can be configured using Hicom Assistant T.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                           |
|-------------|-----------------------------------------|
| 1.          | <b>Configure silent monitoring</b>      |
| 2.          | 22-19-3 => System settings - Monitoring |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                  |
|-------------|------------------------------------------------|
| 1.          | Set up a call.                                 |
| 2.          | An internal station overrides another station. |

### 7.3.15 Do Not Disturb (DND)

#### Definition

Users can activate do not disturb (DND) on their stations so that no incoming calls are put through.

A user who has activated DND hears a special dial tone after lifting the handset. When the feature is active, the message *Do not disturb* is also displayed on optiset E telephones with display. On all other optiset E telephones, the station LED indicates a busy state.

The attendant console, night station, or any authorized station can override DND. In this case, the caller first hears a busy signal after dialing the number. The call is then signaled to the station that has activated DND. If the station has activated the ringer cutoff feature, the call is signaled visually only. If the station with do not disturb activated is engaged in a call, the incoming call is signaled as call waiting.

A caller who dials a telephone with DND activated receives a busy signal and is not allowed to camp on.

The *Flags* screen is one of three screens in the *System Status* pathway of the Hicom Assistant E Office that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated DND or not.

#### Operating the Feature

Refer to *Do Not Disturb* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.

- Display Telephones

From an idle state, the user dials the default access code \*97; the display confirms the action with the prompt *Do Not Disturb on*. The prompt remains on the display as a reminder to the user. Furthermore, when the user goes off hook, he or she hears a broken dial tone as a further reminder. To cancel DND, the user dials the default access code #97; the action is confirmed by the display prompt *Do not disturb off*.

The user can also program a button on the telephone to activate/de-activate the feature. The LED remains on as long as Do not disturb is active on that telephone.

The user can also activate/deactivate the feature while engaged in a conversation by pressing the *Program/Service* key followed by the access code. This will have no effect on the current call, nor will it have any effect on any call camped-

on prior to the activation of DND. Those camped on calls will be presented to the user. However, any call which attempts to camp on after DND is activated, is denied.

- Non-Display and Analog Telephones

From an idle state, the user dials the default access code \*97; the action is confirmed by an acknowledgment tone. When the user goes off hook, he or she hears a broken dial tone as a further reminder. To cancel DND, the user dials the default access code #97; the action is confirmed.

As with display telephones, the user can activate/deactivate the feature while engaged in a conversation by pressing the *Consultation* key (or a hook switch flash in the case of an analog telephone), followed by the access code. To return to the call, the user presses the *Consultation* key once again.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject                                | Requirement or Condition                                                                                                                                                                                           |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC, night station                      | The AC and night station cannot activate DND.                                                                                                                                                                      |
| Call forwarding                        | You cannot specify DND if call forwarding is active on the same telephone.                                                                                                                                         |
| Call forwarding                        | You cannot activate call forwarding to a telephone with DND.                                                                                                                                                       |
| Callback                               | If a callback is initiated to a station with DND activated, the callback is not executed until DND is deactivated. If the subscriber with DND activated initiates a callback, this will override the DND function. |
| Appointment, auto-matic wake-up system | If a station has set an appointment and activated DND, an audible signal is sent to the telephone when the appointment comes due.                                                                                  |
| DISA                                   | The feature can be activated by users for their own stations, or can be activated by one user for another (Associated Services).                                                                                   |

**Configuration Options**

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                   |
|-------------|---------------------------------------------------------------------------------|
| 1.          | Activate do not disturb (*97).<br><i>Do not disturb</i> appears in the display. |
| 2.          | Call the station with DND activated. You should hear a busy signal.             |

## 7.3.16 Ringer Cutoff

### Definition

If this feature is activated by an optiset E station with display, incoming calls are signaled with a brief alerting tone and then shown in the display only.

The *Flags* screen is one of three screens in the *System Status* pathway of the Hicom Assistant E Office that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated Ringer Cutoff or not.

### Operating the Feature

Refer to *Do Not Disturb* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

### Model-Specific Data

| Subject              | Pro                    | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                      | x   | x     | x                        | x                          |
| HW requirements      | —                      | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later      |     |       |                          |                            |
| General requirements | optiset E with display |     |       |                          |                            |

### Requirements and Conditions

| Subject                               | Requirement or Condition                                                                       |
|---------------------------------------|------------------------------------------------------------------------------------------------|
| Ringer cutoff                         | You can only activate this feature for optiset E telephones with display.                      |
| Appointment, automatic wake-up system | If a station has activated ringer cutoff and an appointment comes due, it is signaled audibly. |

### Configuration Options

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                               |
|-------------|---------------------------------------------------------------------------------------------|
| 1.          | Activate the feature (*98).<br><i>Ringer cutoff</i> appears in the display.                 |
| 2.          | An incoming call is audibly signaled <u>once</u> ; then it is displayed on the screen only. |

## 7.3.17 Caller List/Station Number Storage

### Definition

Unanswered calls to an optiset E telephone can be automatically stored in a chronological caller list. The time of each call is specified, and the user can dial the entered callers directly.

Users can also manually store incoming and outgoing calls in the caller list.

You can program a system parameter so that the telephone also automatically stores external calls that were answered. Because the parameter is system-wide, this setting applies to all caller lists in the system.

Each new entry can be automatically indicated by an LED. In addition, unanswered entries can be displayed on the screen by pressing a preprogrammed key. The LED is deactivated as soon as the user retrieves the list.

On telephones with a 2-line display, the oldest entry is displayed first.

This feature is valid only for display telephones.

By default, the feature is active for all telephones and stores all incoming internal and incoming external ISDN calls (which have caller ID information from the CO). Any station can be prohibited from using the feature by changing the station default. Also, a system-wide flag can change the Caller List mode to store only external call information instead of internal and external.

The Caller List operates in a first-in-first-out (FIFO) manner. If the List is full, and another call rings in, the oldest call in the list is deleted, and so on.

### Operating the Feature

Refer to *Caller List* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.

- Using 2-line display telephone

The time stamp of a call can be viewed by selecting the prompt *Time/Date sent?*. A name is provided, if available, by selecting the *Name?* prompt.

If a party has called several times, the number of calls from that party will be displayed. Once the party has been dialed, the call proceeds as a normal call.

The user can also delete any entry by selecting the *Delete* prompt. When there are no more entries, the display confirm by *List is empty*.



One entry, or all calls from one party, can be removed manually (Delete), or the entry is automatically removed when the called party answers.

The user can also manually save a dialed destination number: during the call, the user scrolls to *Save Number* or presses the *Program/Service* key and scrolls to *Save Number*. If the user programmed a button for this function, the LED lights.

The LED of the feature button is extinguished whenever the user accesses the Caller List, whether there are still calls in the list or not.



An outgoing number saved by the user, cannot be automatically deleted; the user must manually do so. These outgoing numbers are identifiable by the digit zero in the field for the number of calls; the digit is set to zero.

If the user is part of a Hunt Group or Call Group, the user can view unanswered calls to his or her number and to the Group number, whether the telephone rang or not. To view these calls, the user presses the *Next* prompt on the telephone: the display shows calls to his or her personal number and if any, calls to the group name. Further selecting *Next*, scrolls through the Group's unanswered numbers.

- optiset E memory telephone

The procedure is the same for a memory telephone, except that the displays provides a view of the first five calls received or sent before scrolling is necessary.

In lieu of using the dialog keys, the memory telephone user can use the buttons located on the keyboard for *Dial*, *Card*, *Del.* and *End*.

If the user is part of a Hunt Group or Call Group, the user can view unanswered calls to his or her own number and to the Group number, whether the telephone rang or not. The + symbol in the display prompt in the Caller List (for example, ....for xxx +) indicates that there are more calls than shown in the display. To view these calls, the user presses the *Down arrow* on the keyboard: the display shows the additional calls to the personal number or calls to the name of the group, if any. Continuing to push the *Down arrow*, returns the caller to the personal Caller List.

**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>                       | <b>Com</b>             | <b>Point</b>           | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|----------------------------------|------------------------|------------------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>                         | <b>x</b>               | <b>x</b>               | <b>x</b>                          | <b>x</b>                            |
| HW requirements      | U <sub>P0/E</sub> stn.           | U <sub>P0/E</sub> stn. | U <sub>P0/E</sub> stn. | U <sub>P0/E</sub> stn.            | U <sub>P0/E</sub> stn.              |
| SW requirements      | Rel. 1.0 or later                |                        |                        |                                   |                                     |
| General requirements | optiset E telephone with display |                        |                        |                                   |                                     |
| Subscriber group     | Maximum of 10 entries            |                        |                        |                                   |                                     |
| Lists/entries        | 650/10                           | 650/10                 | 100/10                 | 100/10                            | 100/10                              |

**Requirements and Conditions**

| <b>Subject</b>                    | <b>Requirement or Condition</b>                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------|
| Analog trunk                      | Only calls with a station number or a name are recorded (calls on analog trunks are not recorded).    |
| Power failure                     | The entries are deleted in the case of a power failure or a system reset.                             |
| Internal/external calls           | You can store either external calls only or both internal and external calls.                         |
| Repeated calls                    | If a subscriber calls repeatedly, only the time of the entry is updated.                              |
| Group                             | If you belong to a group, you can access the group's caller list in addition to your own caller list. |
| Storing an external answered call | You can access the "store station number" function manually from the service menu.                    |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                              |
|------|---------------------------------------------------------------------|
| 1.   | <b>Query caller list:</b><br>via Program/Service menu or code (#82) |
| 2.   | Use the dialog keys to store the station numbers                    |
| 3.   | <b>Class of service:</b>                                            |
| 4.   | 14-21=> Configure station - Caller list                             |
| 5.   | <b>Caller list mode:</b>                                            |
| 6.   | 22-15=> System settings - Caller list mode                          |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                              |
|------|-------------------------------------|
| 1.   | <b>Class of service:</b><br>Options |
| 2.   | Set up station                      |
| 3.   | Stations                            |
| 4.   | Parameters => Flags                 |
| 5.   | <b>Caller list mode:</b><br>Options |
| 6.   | System parameters                   |
| 7.   | System flags                        |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                                                       |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Call a station and hang up the phone.                                                                                                                        |
| 2.   | If a <i>Caller list</i> key is programmed, the LED lights up. Otherwise, retrieve the entries from the caller list via the menu or by entering a code (*82). |

## 7.3.18 Call Pickup Within Call Pickup Groups

### Definition

Calls that are signalled acoustically at a station in a call pickup group are simultaneously indicated by an LED (next to the programmed key) and signaled on the displays of the other group members. The call can be picked up by pressing the programmed key or dialing a code. Acoustic pickup signaling (after 3 rings) can also be configured system-wide.

The time from start of ring to acoustic notification of all group members, is not variable. If there are several calls ringing the group, they are picked up in order of arrival.

Calls destined for Call Keys, Trunk Keys or General Call Keys, can be picked up by another user. The LED on these keys will indicate busy after the pick up. Calls directed to MUSAP keys can be picked up, but after pick up, they will show the key as idle.

### Operating the Feature

Refer to *Call Pickup (Group)* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.

- Display telephones

An incoming call to one member of a Call Pick up group is displayed at all other stations: *Call for xxx*, where *xxx* is the station being called. Selecting the command *Pick up - group?* connects the user to the calling party.

If the called party does not answer the call within three rings, the other members of the group can be alerted of the incoming call by a brief ring burst to attract their attention to the display.

Alternatively, a feature button can be programmed on the telephones to facilitate call pick up. Users can program the key on their telephones, or the key can be programmed via Hicom Assistant E Office. When a call enters the Pick up group, the LED flashes. To pick up the call, the user presses the key.

- Non-Display and Analog Telephones

From an idle state, the user dials the default access code \*57. The user is immediately connected to the incoming call.

Call Pick up-Group can be invoked from a Consultation state; that is, upon hearing a telephone ring, the user presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone), putting the current conversation on Consultation Hold. The user then dials the access code. He or she can then dispose of this second call in a normal manner before returning to the held party.

**The following versions of call pickup are also available:**

- *Targeted Call Pickup Outside of a Pickup Group on page 7-119*

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |
| Groups/stations      | 32/32             | 32/32    | 8/8      | 8/8                      | 8/8                        |

### Requirements and Conditions

| Subject              | Requirement or Condition                                                                                   |
|----------------------|------------------------------------------------------------------------------------------------------------|
| Call pickup          | Only voice devices can be selected. A station can belong to only one group.                                |
| Recall<br>Callback   | Recall and callback calls are not signaled to the other group members.                                     |
| Do not disturb (DND) | Stations that have activated DND do not receive call pickup signaling.                                     |
| Transfer             | Unscreened transfer calls cannot be picked up within the group.                                            |
| Groups               | All group members are authorized to pick up calls.                                                         |
| Call waiting         | A camped-on call can be picked up. If more than one call is waiting, the first caller is always picked up. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                    |
|------|-----------------------------------------------------------|
| 1.   | Program call pickup key<br>*91 => Access key programming. |
| 2.   | Press the key to be assigned.                             |
| 3.   | Assign <i>Pickup - group</i> to the key selected.         |
| 4.   | Exit key programming.                                     |
| 5.   | Configure call pickup group                               |
| 6.   | 14-18 => Configure station - Call pickup groups           |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                             |
|------|------------------------------------|
| 1.   | Configure pickup groups<br>Options |
| 2.   | Incoming calls                     |
| 3.   | Call pickup                        |
| 4.   | Program pickup key<br>Options      |
| 5.   | Set up station                     |
| 6.   | Key programming                    |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                                         |
|------|------------------------------------------------------------------------------------------------|
| 1.   | Call a station in a pickup group.                                                              |
| 2.   | Use the pickup key or enter *57 to pick up the call from another station in this pickup group. |

### 7.3.19 Targeted Call Pickup Outside of a Pickup Group

#### Definition

Users can also pick up calls for other internal parties who do not belong to the same call pickup group and therefore do not appear on the screen. This increases the likelihood that incoming calls are always answered. To pick up the call, the user must press a programmed call pickup key or enter a code and then dial the selected party's station number.

Display telephone users can program a feature key on their telephone for this feature or as with non-display telephones, request that this feature key be installed via Hicom Assistant E Office.

Calls destined for Call Keys, Trunk Keys or General Call Keys can be picked up by another user. The LED on these keys will indicate busy after the pick up. Calls directed to MUSAP keys can be picked up, but after pick up, the key indicates it is idle.

#### Operating the Feature

Refer to *Picking Up A Specific Call* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

- Display Telephones

Directed Call Pickup can be invoked from a Consultation state; that is, upon hearing a telephone ring, the user presses the *Consultation* prompt, putting the current conversation on Consultation Hold. The user then dials the access code and the destination number or accepts the call shown on the display. The user can then dispose of the call in a normal manner before returning to the held party.

The same procedure applies to the optiset E memory telephone, except that more than one ringing call can be seen simultaneously on the screen, which allows the user an easier interface as to which call to answer.

- Non-Display and Analog Telephones

From an idle state, the user dials the default access code \*59 followed by the number of the station which is ringing. The user is immediately connected to the incoming call.

Directed Call Pickup can be invoked from a Consultation state; that is, upon hearing a telephone ring, the user presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone), putting the current conversation on Consultation Hold. The user then dials the access code and the ringing station's number. He or she can then dispose of this second call in a normal manner before returning to the held party.

The following versions of call pickup are also available:

- *Call Pickup Within Call Pickup Groups on page 7-116*

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject      | Requirement or Condition                                                                                                    |
|--------------|-----------------------------------------------------------------------------------------------------------------------------|
| Call waiting | A camped-on call can be picked up. If more than one call is waiting, the first caller is always picked up.                  |
| CDRC         | Charges and/or elapsed time incurred as a result of a Picked up call, are assigned to the station which picked up the call. |

### Configuration Options

This feature does not have to be explicitly configured.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                      |
|------|-------------------------------------------------------------|
| 1.   | Program a call pickup key<br>*91 => Access key programming. |
| 2.   | Press the key to be assigned.                               |
| 3.   | Assign <i>Pickup - directed</i> to the key selected.        |
| 4.   | Exit key programming.                                       |



**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                 |
|-------------|-------------------------------|
| 1.          | Program pickup key<br>Options |
| 2.          | Set up station                |
| 3.          | Key programming               |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                |
|-------------|----------------------------------------------|
| 1.          | Call a station.                              |
| 2.          | Pick up the call using a key or code *59 ... |

## 7.3.20 Call Pickup from an Answering Machine

### Definition

optiset E users have the option of picking up a call that has already been answered by an answering machine by pressing the appropriate *DSS* key. This releases the connection to the answering machine.

Several optiset E telephones can have the appearance of the *Answering machine DSS* key, affording each the opportunity to pick up the call.

The purpose of this feature is to allow the answering device to act as a filter for incoming calls. The called party can decide to accept the call or let the device record the caller's message.

optiset E telephone users have the option of picking up a call that was already answered by an answering machine by pressing the appropriate DSS key. This releases the connection to the answering machine. Several optiset E telephones can have the appearance of this DSS key, affording each the opportunity to pick up the call

An incoming call is received at the answering machine. The LED for the DSS key corresponding to the answering machine is lit at the user's telephone. If users want to talk to calling parties directly, they press the DSS key. This connects them to the calling party and disconnects the answering machine.

### Model-Specific Data

| Subject              | Pro                       | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|---------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                         | x   | x     | x                        | x                          |
| HW requirements      | U <sub>P0/E</sub> station |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later         |     |       |                          |                            |
| General requirements | optiset E telephone       |     |       |                          |                            |

## Requirements and Conditions

| Subject           | Requirement or Condition                                                                                              |
|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| Answering machine | The answering machine port must be configured as an answering machine in system administration.                       |
| Answering machine | You must program an <i>Answering machine call pickup</i> DSS key on the optiset E telephone for this feature to work. |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                             |
|------|--------------------------------------------------------------------|
| 1.   | Configure port                                                     |
| 2.   | 14-11 => Configure station - Station type <i>Answering machine</i> |
| 3.   | Assign <i>Pickup - directed</i> to the key selected.               |
| 4.   | Exit key programming.                                              |
| 5.   | <b>Program DSS key</b><br>*91 => Access key programming.           |
| 6.   | Press the key to be assigned.                                      |
| 7.   | Assign <i>DSS key</i> to key selected.                             |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                              |
|------|-------------------------------------|
| 1.   | Configure port<br>Options           |
| 2.   | Set up station                      |
| 3.   | Stations                            |
| 4.   | Parameters                          |
| 5.   | Type                                |
| 6.   | <b>Configure DSS key</b><br>Options |
| 7.   | Set up station                      |

## Implementing Features

For internal distribution only

### *Features for General Incoming Traffic*

| Step | Action       |
|------|--------------|
| 8.   | Program keys |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                          |
|------|---------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Call the answering machine.                                                                                                     |
| 2.   | After the answering machine has answered the call, press the programmed DSS key to pick up the call from the answering machine. |

### 7.3.21 Fax Waiting Message/Answering Machine

#### Definition

A *Fax/Answering Machine* key has an LED to let the user know that a fax waiting message or a call for the answering machine has arrived.

A call directed to an analog port configured as a FAX machine or as an Answering Machine lights an LED at a station to advise the user that the FAX or the Answering Machine has answered an incoming call. The LED is lit steadily.

The user can turn off the LED by pressing the key.

The Hicom Assistant E Office can program a key on the optiset E. The button name in the Key Programming tab is *Message for FAX/answ.*

#### Model-Specific Data

| Subject              | Pro                                                                                            | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------------------------------------------------------------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                                                                              | x   | x     | x                        | x                          |
| HW requirements      | U <sub>P0</sub> /E station                                                                     |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later                                                                              |     |       |                          |                            |
| General requirements | optiset E telephone (standard, advance plus/comfort, advance conference/conference, or memory) |     |       |                          |                            |

#### Requirements and Conditions

| Subject     | Requirement or Condition                                                  |
|-------------|---------------------------------------------------------------------------|
| Program key | You must also enter the station number when programming the key.          |
| Analog port | The analog port must be configured as a fax machine or answering machine. |
| Info key    | The LED goes out when you press the key.                                  |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Configure key<br>*91 => Access key programming.          |
| 2.          | Press the key to be assigned.                            |
| 3.          | Assign <i>Fax/Answering Machine</i> to the key selected. |
| 4.          | Enter the station number of the fax/answering machine.   |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>            |
|-------------|--------------------------|
| 1.          | Configure key<br>Options |
| 2.          | Set up station           |
| 3.          | Program keys             |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                               |
|-------------|-------------------------------------------------------------|
| 1.          | Program the key.                                            |
| 2.          | Place a call to the appropriate extension.                  |
| 3.          | The programmed key will light up when the call is answered. |

## 7.3.22 Deferring a Call

### Definition

While an incoming call is being signaled at a station, the called party can set up an outgoing connection without answering the incoming call.

The waiting call is then signaled as a camped-on call.

### Operation

As an incoming call is presented, the user presses a *Call* key or *Trunk access* key and places an external call. The feature can be used on a Basic telephone, if you change the default keys.

The calling party does not notice a change in signalling if Call Waiting is set for ringing on Call Waiting.

### Model-Specific Data

| Subject              | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                | x   | x     | x                        | x                          |
| HW requirements      | U <sub>P0/E</sub> station        |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later                |     |       |                          |                            |
| General requirements | optiset E telephone with display |     |       |                          |                            |

### Requirements and Conditions

| Subject            | Requirement or Condition                                                        |
|--------------------|---------------------------------------------------------------------------------|
| Deferring the call | You must have trunk keys or at least two call keys programmed on the telephone. |
| Deferring the call | An key for the feature must be available.                                       |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                               |
|-------------|-----------------------------------------------------------------------------|
| 1.          | Configure key<br>*91 => Access key programming.                             |
| 2.          | Press the key to be assigned.                                               |
| 3.          | Assign the <i>Call key</i> or <i>Trunk key</i> service to the key selected. |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                     |
|-------------|-----------------------------------|
| 1.          | Configure key<br>Options          |
| 2.          | Set up station => Key programming |
| 3.          | Program keys                      |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                            |
|-------------|------------------------------------------------------------------------------------------|
| 1.          | Call an internal station that has the keys programmed.                                   |
| 2.          | Press an available trunk or call key on this telephone to set up an outgoing connection. |



### 7.3.23 Station Number Configuration Using Hicom Assistant T

#### Definition

Hicom 150 E Office automatically assigns the following:

- Internal station numbers (depending on the configuration)
- Internal group numbers (depending on the model)

Station number assignment does not need to be explicitly configured. This feature allows users to modify the preset internal station numbers using Hicom Assistant T.

You can use the menu option Search for number to locate individual station numbers. After you enter an internal station number, its logical port is displayed in the format SSPP (SS = slot, PP = port).

#### Model-Specific Data

| Subject                                 | Pro                                     | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-----------------------------------------|-----------------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                    | x                                       | x   | x     | x                        | x                          |
| SW requirements                         | Rel. 1.0 or later                       |     |       |                          |                            |
| Max. number of internal station numbers | In accordance with the HW configuration |     |       |                          |                            |
| Max. number of internal group numbers   | 150                                     | 150 | 150   | 20                       | 20                         |

#### Requirements and Conditions

| Subject                      | Requirement or Condition                                                                                                                        |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Station number configuration | An internal station or group number must always be unique in the system and must not conflict with other station numbers in the numbering plan. |

#### Configuration Options

This feature can be configured using Hicom Assistant T.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                                |
|-------------|------------------------------------------------------------------------------|
| 1.          | <b>Change internal station number</b>                                        |
| 2.          | 16-10-1-1 => Incoming calls - Internal numbers - Station - Change number     |
| 3.          | 16-10-1-2 => Incoming calls - Internal numbers - Station - Search for number |
| 4.          | 16-10-2 => Incoming calls - Internal numbers - Change group number           |

## 7.4 Features for General Outgoing Traffic

### 7.4.1 Dual-Tone Multifrequency Transmission (DTMF)/Temporary Signaling Method Changeover

#### Definition

When this feature is activated, all keystrokes that the user enters on the dialing keypad while engaged in an internal or external call are transmitted as DTMF digits.

Users can activate this feature:

- System-wide (automatic DTMF).  
Users are automatically switched over to DTMF mode after each successful connection (even with CMI [not for U.S.]).
- Individually while engaged in an internal or external call by pressing a key or entering a code.  
Afterwards, all keystrokes from the dialing keypad are transmitted as DTMF digits. The feature is activated temporarily and is deactivated when the handset is replaced.

As of Release 2.2 SMR-H (for World excluding U.S.) and Release 2.2 SMR-J (for U.S. only), DTMF mode remains activated even when the following features are activated:

- Transfer
- Consultation hold
- Toggle
- Call pickup
- Accepting a camped-on call

Users can configure the pulse/pause in the system. However, configuring the pulse/pause is not recommended. Contact your second-level service organization if required.

#### Operating the Feature

Refer to *DTMF Signaling* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

### Requirements and Conditions

| Subject                         | Requirement or Condition                                                                                                                                                                                                                                           |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dial pulsing (DP) station       | DP stations cannot use this feature.                                                                                                                                                                                                                               |
| Station on hold                 | A station on hold cannot transmit any DTMF signals.                                                                                                                                                                                                                |
| Conference, call park, recall   | You cannot activate DTMF transmission during a conference, during a recall, or in call park mode.<br>As of Release 2.2 SMR-H (for World excluding U.S.) and Release 2.2 SMR-J (for U.S. only), DTMF mode remains activated even when these features are activated. |
| Other features during DTMF mode | When DTMF mode is active, you must always use the Program/Service key to activate features during a call.                                                                                                                                                          |
| Voice mail                      | DTMF mode is automatically activated when a station configured as voice mail is selected.                                                                                                                                                                          |
| US DTMF Default                 | In the US, this default value for this feature is <i>On</i> .                                                                                                                                                                                                      |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                    |
|------|-------------------------------------------|
| 1.   | <b>Configure DTMF mode system-wide</b>    |
| 2.   | 22-20 => System settings - DTMF automatic |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                     |
|-------------|---------------------------------------------------|
| 1.          | <b>Configure DTMF mode system-wide</b><br>Options |
| 2.          | System parameters                                 |
| 3.          | System flags                                      |
| 4.          | DTMF automatic                                    |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                            |
|-------------|------------------------------------------------------------------------------------------|
| 1.          | <b>Check system-wide DTMF mode</b><br>Set up a call.                                     |
| 2.          | The connection automatically switches over to DTMF mode after it is successfully set up. |
| 3.          | Each keystroke on the dialing keypad transmits a DTMF signal.                            |
| 1.          | <b>Check temporary DTMF mode</b><br>Set up a call.                                       |
| 2.          | Enter code *53 after the connection is successfully set up.                              |
| 3.          | Each keystroke on the dialing keypad transmits a DTMF signal.                            |

## 7.4.2 Individual Telephone Lock (Changeover)

### Definition

Users can activate a telephone lock that restricts outgoing external calls (COS 1), although they can continue to place internal calls and forward incoming calls to internal stations. Users activate the telephone lock by pressing a key or dialing a code and entering their 5-digit personal identification number (PIN).

System speed dialing remains active while the telephone lock is on.

The PIN must be configured first; only digits 0-9 are allowed. The default PIN is set at 00000 for all telephones. If the user has forgotten the PIN, the PIN can be reset to the default value 00000 by the Hicom Assistant E Office or by the Attendant position (station 10/100).

While the Telephone Lock feature is activated, the user can only use the following features:

- System speed-dialing
- Room Monitor
- Speaker Call
- internal calls
- conferences with internal stations

The function *#0=Reset all services* does not deactivate this feature. It is not possible to change the PIN from a locked telephone. This PIN is the same PIN that a user must enter when entering the system via Direct Inward System Access (DISA). The external user can activate/deactivate Individual Telephone Lock from a DISA connection, but the user cannot change the PIN from a DISA connection.

### Operating the Feature

Refer to *Locking Telephone* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

### Requirements and Conditions

| Subject                             | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extension trunk access              | After telephone lock is activated, the extension trunk access is set to a system-wide class of service (default = 1).                                                                                                                                                                                                                                                              |
| Extension trunk access              | After telephone lock is activated, you can reduce the class of service but not select a higher class of service.                                                                                                                                                                                                                                                                   |
| Telephone lock                      | While telephone lock is active, you cannot activate any features that could result in charges being assigned to this station. Exception: system speed dialing.                                                                                                                                                                                                                     |
| Telephone type                      | This feature works with any type of telephone in the system.                                                                                                                                                                                                                                                                                                                       |
| Non-display/analog feature reminder | Upon going off-hook, broken dial tone is presented to the user as a reminder that a feature is active on the telephone.                                                                                                                                                                                                                                                            |
| Invoke from a talk state            | During a conversation, the user presses the <i>Consultation</i> key (or performs a switch hook flash in the case of an analog telephone), putting the current conversation on Consultation Hold. The user then dials the access code and the PIN and confirmation tone is returned. The user can then return to the held party by pressing the <i>Consultation</i> key once again. |

### Configuration Options

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                   |
|-------------|-----------------------------------------------------------------|
| 1.          | Lock the telephone (code + PIN).<br>*66 + PIN (default = 00000) |
| 2.          | Change the PIN.<br>*93 + old PIN + new PIN + new PIN.           |
| 3.          | Outgoing calls are not possible.                                |



### 7.4.3 System Telephone Lock (Changeover)

#### Definition

An authorized user can lock a telephone for an internal station. This feature has the same function as the individual telephone lock. The telephone lock can be deactivated from the attendant console or the station.

System speed dialing remains active while the telephone lock is on.

The default authorized user is station 10/100. The authority can be transferred by the default station to another station using the expert mode of Hicom Assistant T or via Hicom Assistant E Office. The default access code is \*943. The authorized station can be any type of telephone, although a display telephone is recommended.

Activating the telephone lock feature changes the station's class of service (COS) to 1: *Outward-restricted trunk access* (incoming calls only), (refer to [Section 7.7.10, Configurable Toll Restriction](#)), which prevents all outgoing external calls, although they can continue to place and forward internal calls.

While the Telephone Lock feature is activated, the user can only use the following features:

- System speed-dialing
- Room Monitor
- Speaker Call
- internal calls
- conferences with internal stations

The function #0 = Reset all services does not deactivate this feature. It is not possible to change the PIN from a locked telephone.

If the authorized station has activated a Telephone Lock, the authorized user must first deactivate the Telephone Lock feature before attempting to activate/deactivate another station's Telephone Lock.

To activate/deactivate another station's telephone lock, the authorized station does not need to know or use the individual's PIN. No PIN is required to activate/deactivate the other stations' Telephone Lock.

#### Related Topics

- [Section 7.4.2, Individual Telephone Lock \(Changeover\)](#)
- [Section 8.7, Configuring Toll Restriction per Station](#)

**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|-------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>                          | <b>x</b>                            |
| HW requirements      | —                 | —          | —            | —                                 | —                                   |
| SW requirements      | Rel. 1.0 or later |            |              |                                   |                                     |

**Requirements and Conditions**

| <b>Subject</b>         | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extension trunk access | After telephone lock is activated, the extension trunk access is set to a system-wide COS (default = 1).                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Extension trunk access | After telephone lock is activated, you can reduce the class of service but not select a higher class of service.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Telephone lock         | While telephone lock is active, you cannot activate any features except for system speed dialing, room monitor, speaker call, and conferences with internal stations.                                                                                                                                                                                                                                                                                                                                                            |
| Feature Active Notice  | At the destination telephone, the user is advised of a feature activation by hearing broken dial tone when going off hook, or if the user has a button for this feature, the LED will be lit. If the telephone is unlocked, the broken dial tone is removed and/or the LED is extinguished.                                                                                                                                                                                                                                      |
| Non-display/analog     | If the authorized station is a non-display or analog telephone, the user, from an idle state, can access the feature by dialing *943, followed by the destination station for which Telephone Lock is to be activated/deactivated, followed by * to activate or # to deactivate. Confirmation tone is returned only after all digits have been dialed. Error tone will not be returned if the authorized station inadvertently attempts to lock an already locked telephone, or attempts to unlock an already unlocked telephone |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                                             |
|-------------|-------------------------------------------------------------------------------------------|
| 1.          | Configure subscriber class of service                                                     |
| 2.          | 22-19-2 => System settings - System PIN                                                   |
| 3.          | Define a station number for the station authorized to activate the system telephone lock. |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                |
|-------------|----------------------------------------------|
| 1.          | Enter subscriber class of service<br>Options |
| 2.          | System parameters                            |
| 3.          | System settings                              |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                        |
|-------------|----------------------------------------------------------------------------------------------------------------------|
| 1.          | Use the input procedure to lock the telephone.                                                                       |
| 2.          | After the system has been programmed, you can no longer place the external calls prohibited by the class of service. |

## 7.4.4 Hotline

### Definition

With the hotline feature, the telephone automatically connects to a predefined internal or external destination after the user lifts the handset. Users can also configure the feature so that the two locations connect only after a defined period (hotline after timeout). This delay is configured centrally and can be activated and deactivated on each station.

Call forwarding and call forwarding—no answer are evaluated at the destination.

If the Hotline Delayed station (originator) dials a digit before the timeout limit, the timer is cancelled and the station is not forwarded to the Hotline destination whether another digit is dialed or not.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |
| Hotline destinations | 6                 | 6   | 1     | 1                        | 1                          |

### Requirements/Conditions

| Subject     | Requirement/Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DND         | If the destination station is in <i>Do not disturb</i> (DND), the caller hears busy tone.                                                                                                                                                                                                                                                                                                                                                                                             |
| Destination | <ul style="list-style-type: none"> <li>• If the internal destination is busy, the caller camps on.</li> <li>• If the internal destination is a display telephone, the destination's display shows <i>Call from: xxx</i>, where xxx is the Hotline originator's station number.</li> <li>• The destination can be an internal station, an external destination (up to 32 digits can be programmed in Hi-com Assistant E Office or Hicom Assistant T) or a Subscriber group.</li> </ul> |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                      |
|------|-------------------------------------------------------------|
| 1.   | Configure hotline                                           |
| 2.   | 18-2-1 => Traffic restriction - Hotline - Hotline dest.     |
| 3.   | 18-2-2-2 => Traffic restriction - Hotline - Hotline stn no. |
| 4.   | 18-2-3 => Traffic restriction - Hotline - Hotline timeout   |
| 5.   | 18-2-2-1 => Traffic restriction - Hotline - Hotline mode    |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                      |
|------|-----------------------------|
| 1.   | Configure hotline Options   |
| 2.   | Set up station              |
| 3.   | Parameters                  |
| 4.   | Flags                       |
| 5.   | Hotline destination Options |
| 6.   | System parameters           |
| 7.   | System settings             |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                            |
|------|---------------------------------------------------------------------------------------------------|
| 1.   | Configure a hotline.                                                                              |
| 2.   | Lift the handset at the station.                                                                  |
| 3.   | The telephone connects to the hotline destination as configured (immediately or after a timeout). |

## 7.4.5 Mobile PIN

### Definition

This feature allows a user (active station) to conduct internal or trunk calls (flex calls) from a remote telephone (passive station) using his or her own user profile (station number, name, toll restriction, call detail recording). The call detail data (CDRC/CDRS) is assigned to the active station.

To activate this feature, perform one of the following steps on the remote terminal:

- Enter “Mobile PIN” code + local station number + PIN
- Call service menu + enter local station number + enter PIN
- Press the programmed key + enter PIN

The feature remains activated until the active station terminates the call.

As long as this feature is activated, the current telephone (passive station) cannot be reached under its actual station number. Do not disturb is activated.

An active station can be a:

- Station
- MULAP (in this case, the PIN of the primary station in the MULAP group is requested)

An active station **cannot** be a:

- Hunt group
- ACD group

### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | x   | x     | x   | x     |
| HW requirements      | —                 | —   | —     | —   | —     |
| SW requirements      | Rel. 3.0 or later |     |       |     |       |

## Requirements and Conditions

| Subject                                                | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Services                                               | This feature supports only the voice service.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Call detail data                                       | Call detail data (CDRC/CDRS) is assigned to the station number of the active station. The passive station number is supplied as additional information.<br>If the active station is the primary station in a MULAP group, call charges are recorded just as though the MULAP primary station had placed the call.                                                                                                                                                                                                                                                 |
| Recall                                                 | A recall is signaled on the passive station telephone but is no longer part of the flex call. For this reason, it is conducted using the profile of the passive station (number, name and classes of service).                                                                                                                                                                                                                                                                                                                                                    |
| Busy indication                                        | Busy indication applies to the passive station telephone. Only the trunk of the active station is signaled as busy.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Features that can be used after flex call is activated | <ul style="list-style-type: none"> <li>• Speaker call (paging)</li> <li>• Conference</li> <li>• Busy override (busy override class of service taken from active station)</li> <li>• Toggle</li> <li>• Park</li> <li>• Consultation hold</li> <li>• Transfer</li> <li>• Call pickup (during a flex call, calls are picked up using the profile of the active station)</li> <li>• Do not disturb</li> <li>• Call forwarding</li> <li>• Send message (message waiting)</li> <li>• Callback</li> <li>• Station number suppression</li> <li>• Group ringing</li> </ul> |

## Configuration Options

This feature can be configured using Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>   |
|-------------|-----------------|
| 1.          | Options         |
| 2.          | Set up station  |
| 3.          | Key programming |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                           |
|-------------|-------------------------------------------------------------------------|
| 1.          | Press Mobile PIN key.                                                   |
| 2.          | Enter PIN.                                                              |
| 3.          | When the LED on the Mobile PIN key lights up, the feature is activated. |
| 4.          | The LED goes out when you terminate the call.                           |



## 7.5 Features for General External Traffic

### 7.5.1 Multi-Device Connection (Not for U.S.)

#### Definition

Hicom 150 E Office can be operated on an ISDN multi-device connection ( $S_0$  bus). This allows parallel operation with other ISDN devices located on the same connection. You can program a DID number up to 11 digits long (multiple subscriber number [MSN] of the multi-device connection).

#### Model-Specific Data

| Subject              | Pro                  | Com               | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------|-------------------|-------|--------------------------|----------------------------|
| Feature available in | x                    | x                 | x     | x                        | x                          |
| HW requirements      | <u>STMD8</u>         | $S_0$ trunks      |       |                          |                            |
| SW requirements      | Rel. 2.2<br>or later | Rel. 1.0 or later |       |                          |                            |

#### Requirements and Conditions

| Subject                      | Requirement or Condition                                                                                                                                                                                                                                                                                                        |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISDN terminals               | Any parallel-connected ISDN terminals must be given an MSN to ensure unique call assignments.                                                                                                                                                                                                                                   |
| Trunk groups with PP and PMP | If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups, and Prime Line must be deactivated. As of Release 2.2 SMR-H (for World excluding U.S.) and Release 1.0 SMR-R (for U.S. only), you no longer need to deactivate Prime Line. |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                            |
|-------------|--------------------------------------------------------------------------|
| 1.          | Configure S <sub>0</sub> port                                            |
| 2.          | 20-4-1 => ISDN parameters - EU parameters - S <sub>0</sub> -port config. |
| 1.          | Configure station number                                                 |
| 2.          | 16-11 => Incoming calls - DID numbers                                    |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                  |
|-------------|------------------------------------------------|
| 1.          | <b>Configure S<sub>0</sub> port</b><br>Options |
| 2.          | Trunk/networking                               |
| 3.          | Trunks                                         |
| 4.          | Flags                                          |
| 5.          | ISDN flags                                     |
| 1.          | Configure station number<br>Options            |
| 2.          | Set up station                                 |
| 3.          | Station                                        |

## 7.5.2 Multi-Device Connection (for U.S. Only)

### Definition

The Hicom 150 E Office systems support ISDN data and video devices using an Industry standard ST interface. The ISDN terminal devices are connected to the system using the optiset E ISDN adapter or a port on an S<sub>0</sub> interface card:

- STLS4 for the OfficePoint and OfficeCom
- STMD8 on the OfficePro

The ISDN devices are assigned a call number for internal dialing and an 11-digit Multiple Subscriber Number (MSN) for incoming DID applications.

Each ST port consists of two 64 Kbps channels. Two devices can be connected to the ISDN S<sub>0</sub> optiset E ISDN adapter. Eight devices can be connected to an S<sub>0</sub> port on an interface card. The devices connected on an S<sub>0</sub> port share the 128 Kbps bandwidth for video and data calls.

### Basic Rate Interface (BRI) Operation

In a BRI environment, each CO B channel is assigned a Special Profile Identifier (SPID) number and a Terminal Identifier (TID) for identification purposes from the Public Network. The SPID and TID received from the network provider must be associated with the call number assigned to the data or video equipment connected to the ST interface. If a system is equipped with three BRI trunks, the maximum number of ISDN data sessions is either three 128 Kbps sessions or six 64 Kbps sessions. Typically CACH (Call Appearance Call Handling) values or Phantom Directory numbers are required for Voice terminals only. In some COs, CACH values or Phantom Directory numbers can be required for the ST data devices as well.

Due to the complexity of BRI configuration, it is recommended that ST applications be limited to 128 Kbps. The call number for each ST port must be associated with a Public Network SPID. This means that the number of 64-Kbps channels that can be called up is limited to the number of Public Network SPIDs.

Refer to the Configuration Note for *S<sub>0</sub> Device Installation*.



The STLS4 module is used also as a trunk interface in Europe. For subscriber applications, the receive and transmit leads must be reversed before connecting to the first device on the bus. This crossover is already performed in the optiset E ISDN adapter.

Usually the ST device is connected to an ISDN NT-1 adapter and the SPID-TID numbers assigned by the CO are programmed in the device. However, since the ST device is located behind the switch on an ST bus, the Hicom 150 E Office provides

SPID-TID identification control. Each ST channel used by the ST device requires a Call Number for internal dialing. An MSN number also is required to enable the ST device to communicate with the Hicom 150 E system.

The protocol should always be set to ATT NI-1 in the ST device. The Hicom 150 E Office performs all protocol conversions.

### **Primary Rate Interface (PRI) Operation**

In a PRI or CorNet-N environment, SPIDs, TIDs and CACH values are not required. Internal SPID/TID entries called Multiple Subscribers Numbers (MSN) are used by the ST devices for call setup. DID numbers must be assigned to each channel that connects to an ST device.

The DID numbers can be assigned from the numbers received from the CO. The DID number can be from 1 to 11 digits. The DID numbers are required to set up incoming calls to the device.

Assign a call number to each *No-Port* station port used for the ST device. The call number can be from 1 to 6 digits. The call number does not need match the DID number.

An MSN number must be assigned to the ST device for each B-Channel required for the application. The MSN numbers act as SPIDs for the ST device. The MSN number can be from 7 to 14 digits. If the entry is 9 to 14 digits, the last 2 digits are used as the TID number. The last 2 digits should be 00 for B channel 1, and they should be 01 for B channel 2 on each ST interface used.

It is suggested that the MSN number consists of the DID number, followed by 5 zeros, followed by a 2-digit TID number.

### **Related Topic**

Section 7.17.10, *Multiple Subscriber Number*, on page 7-507

### **Model-Specific Data**

| <b>Subject</b>       | <b>OfficePro</b>     | <b>Office-Com</b> | <b>Office-Point</b> |
|----------------------|----------------------|-------------------|---------------------|
| Feature available in | <b>x</b>             | <b>x</b>          | <b>x</b>            |
| HW requirements      | S <sub>0</sub> board |                   |                     |
| SW requirements      | Release 1.0 or later |                   |                     |

**Requirements/Conditions**

| <b>Subject</b>               | <b>Requirement/Condition</b>                                                                                                                                                                                                                                                                        |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISDN terminals               | Any parallel-connected ISDN terminals must be given an MSN to ensure call assignments.                                                                                                                                                                                                              |
| Trunk groups with PP and PMR | If you connect different basic access points (PP and PMR) to the system, they must be entered in different trunk groups, and Prime Line must be deactivated. As of Release 2.2 SMR-H (for World excluding U.S.) and Release 1.0 SMR-R (for U.S. only), you no longer need to deactivate Prime Line. |

**Configuration Options**

This feature can be configured using Hicom Assistant T and Hicom Assistant E Office.

**Programming Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                           |
|-------------|-------------------------------------------------------------------------|
| 1.          | Configure S <sub>0</sub> port<br>*9531994                               |
| 2.          | 20-4-1 => ISDN parameters - EU parameters - S <sub>0</sub> port config. |
| 1.          | Configure station number<br>*9531994                                    |
| 2.          | 16-11 => Incoming calls - DID numbers                                   |

**Programming Feature Using Hicom Assistant E**

Refer to the Configuration Note *S<sub>0</sub> Device Installation*.

## 7.5.3 Trunk Groups

### Definition

The external trunks in the system can be combined into trunk groups by B channels. The order in which the trunk groups are seized can be linear (always the first free trunk) or circular (after the last trunk seized in the outgoing direction). An overflow trunk group can be configured for each of the trunk groups. If all the trunks in a trunk group are busy during a seizure attempt, the search for trunks continues in the overflow trunk group. The search is performed in the specified overflow trunk group only. If all the trunks are busy in this trunk group as well, no additional overflow attempts are made.

It is common practice to seize outgoing trunks starting with the highest numbered trunk, whereas incoming trunks will seize the lowest numbered trunks first. In the case of Key Systems, this reduces the risk of glare, or collision on loop start trunks.

A trunk group key can be assigned for these trunk groups. The key is for outgoing calls only. A maximum of 10 *Trunk group* keys can be configured on one station. *Trunk group* keys can appear on more than one optiset E telephone. These keys can only be installed on display telephones.

Calls placed on *Trunk group* Keys are subject to COS toll restriction levels and rules.

The system can monitor the line for the presence of dial tone. If not present, the system releases the trunk, and an error message is generated and recorded. The display user is presented with the text *Not possible* and reselect the *Trunk group* key to seize another trunk.

It is possible to turn off the detection and set fixed delay; contact your second-level Service group if this is recommended.

### Operating the Feature

The user presses the trunk group key and receives a dial tone. The trunk number is displayed. If all trunks in the trunk group are busy, the corresponding LED will be lit. The LED also lights even if the trunk group has overflowed to another trunk group.

The user can put the call on Consultation Hold, transfer the call, place it in a Park location, or put it on station hold.

The trunk can be placed on hold. However, the user must use the *Retrieve Line* feature. When the user presses the *Hold* key, the display shows which line is being held; for example, *Held on line: xyz*. To retrieve the held call, the user must be in an idle state. The user presses the *Program/Service* key, scrolls to and selects *Retrieve Line* followed by the line number *xyz*.

Alternatively, the user can dial the default access code \*63 followed by the held line number; the user is reconnected to the held party. A Feature key can also be programmed on a user's telephone to retrieve a held line.

The recall timer used is *Time for parking and change to hold*. The default value is 180 seconds.

### Model-Specific Data

| Subject                              | Pro                                                      | Com                            | Point                                                   | One<br>(not for<br>U.S.)                                | Start<br>(not for<br>U.S.) |
|--------------------------------------|----------------------------------------------------------|--------------------------------|---------------------------------------------------------|---------------------------------------------------------|----------------------------|
| Feature available in                 | x                                                        | x                              | x                                                       | x                                                       | x                          |
| HW requirements                      | —                                                        | —                              | —                                                       | —                                                       | —                          |
| SW requirements                      | Rel. 1.0 or later                                        |                                |                                                         |                                                         |                            |
| Trunk groups                         | 16 trunk groups with up to 72 B channels per trunk group | 16 trunk groups, 64 B channels | 8 trunk groups with max. all B channels per trunk group | 4 trunk groups with max. all B channels per trunk group |                            |
| No. of trunk group keys on optiset E | 6                                                        | 6                              | 6                                                       | 4                                                       | 4                          |

### Requirements and Conditions

| Subject                    | Requirement or Condition                                                                                                                                                                                                                     |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog trunks              | You must physically disconnect analog trunks from the trunk group.                                                                                                                                                                           |
| optiset E, trunk group key | You can program up to 6 or 4 trunk group keys on an optiset E telephone. If all trunks in a trunk group are busy, its trunk group key lights up.                                                                                             |
| Overflow                   | If a trunk group is busy and overflow for this trunk group is entered in the system, the system continues searching in the overflow trunk group. If all trunks in this trunk group are also busy, no second overflow operation is performed. |

| <b>Subject</b>                          | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prime Line on (auto-matic line seizure) | Up to and including Release 2.2 (for World excluding U.S.) and Release 1.0 (for U.S. only), the following applies: With Prime Line, all trunks must be programmed in trunk group 1. You must deactivate Prime Line before entering another trunk group.<br>As of Release 2.2 SMR-H (for World excluding U.S.) and Release 1.0 SMR-R (for U.S. only) the following applies: With Prime Line, trunks can also be programmed in other trunk groups. You cannot define an overflow from trunk group 1 to another trunk group. |

## **Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                          |
|-------------|----------------------------------------|
| 1.          | Assign trunk groups                    |
| 2.          | 17-11 => Networking - Prime Line       |
| 3.          | 17-12 => Networking - Assign trk group |
| 4.          | 17-13 => Networking - Overflow trk grp |

### **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                       |
|-------------|-------------------------------------|
| 1.          | Assign trunk groups<br>Options      |
| 2.          | Lines/networking                    |
| 3.          | Lines + Routes + Routing parameters |



## 7.5.4 Trunk Keys

### Definition

On optiset E telephones, users can program trunk keys by B channel. This enables them to answer a call or seize a trunk by pressing the trunk key. The LED signals the trunk status.

| LED              | Meaning                                   |
|------------------|-------------------------------------------|
| Off              | Trunk is free                             |
| Continuously lit | Trunk is busy                             |
| Flickering       | Incoming call or recall                   |
| Flashing slowly  | Trunk is on hold                          |
| Flashing rapidly | Call waiting mode; call is at own station |

Users can use the trunk keys for the following features:

- Call pickup
- Retrieve trunk on exclusive hold
- Retrieve trunk on common hold
- Answer calls
- Toggle between several different trunks

A *Trunk* key is used for receiving incoming trunk calls and placing outgoing calls on the selected trunks. A *Trunk* key represents an analog CO trunk appearance, a BRI link appearance, a T1 DS0 channel, or an analog E&M Tie line channel.



A Trunk key can not be programmed on the same station that is using Call Keys to manage the trunk group associated with the trunk appearance.

A *Trunk* key can appear on more than one station. All stations with the appearance of the *Trunk* key can also ring on an incoming call, if they are programmed in a Call Group, otherwise they only have LED signalization.

A user can place a trunk appearance on Common Hold by pressing the *Hold* key and going on-hook. The trunk appearance will flash slowly at all other appearances of the *Trunk* key.

Calls placed on *Trunk* keys are subject to COS toll restriction levels and rules.

*Trunk* keys can be used in a Centrex environment. The system can cut through immediately to the Centrex CO to allow the user to hear if special tones, indicating Message Waiting. In this case, Dial Tone Detection must be turned off because the special CO tones are not recognized by the Hicom 150 E as dial tone.

**Feature Interaction:**

- **Call pickup:** An incoming call ringing on a *Trunk* key can be picked from another station via the feature Call Pickup - Group or via Call Pickup - Directed.
- **Retrieve trunk on exclusive hold:** A *Trunk* key is placed on exclusive hold at the station which put it on Hold by pressing another flashing *Trunk* key which results in a Toggle operation. To retrieve the held trunk, the user needs only to press the flashing key.
- **Retrieve trunk on common hold:** Another user with the appearance of the same *Trunk* key, can retrieve a trunk call on Common Hold (Appearance flashing slowly) by pressing the flashing key.
- **Answer calls:** Any user with the appearance of the trunk can answer an incoming call on the *Trunk* key by pressing the flickering *Trunk* key.
- **Toggle between several different trunks:** If a user has an appearance of several *Trunk* keys on his or her telephone, the user can toggle between any of the trunks by pressing the desired *Trunk* key. The first trunk is placed on Consultation Hold at the station. Any subsequent depression of another Trunk key places the last call on Consultation Hold at that telephone. If the user goes on-hook at any point, the last held party is immediately recalled per the Consultation Hold procedure.
- **Call Forwarding:** An incoming call appearing on a *Trunk* key can be forwarded by the station to another destination. If the forward destination does not have an appearance of the trunk, the user can handle the call via the dialog keys as a normal incoming call. If the forward station answers the call, the LED on all appearances of the *Trunk* key will be steadily lit.

If the station has forwarded the external calls to a voice mail system, the original destination's station number is forwarded to the voice mail system.

**Operating the Feature**

If the default station templates are in effect, this feature can only be used on display telephones.

- **Placing a call:** The user presses an idle *Trunk* key. Simulated dial tone can be presented to the user until the trunk cuts through (See Routing Parameters -> Analog Trunk Seizure delay).

- **Receiving a call:** An incoming call is signalled audibly and visually at the station. The display shows the trunk group name. If Caller ID is available, the user display indicates the calling party's Caller ID number. Calling party name is not available. The user presses the flickering key to answer the call.

### Model-Specific Data

| Subject              | Pro                         | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-----------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                           | x   | x     | x                        | x                          |
| HW requirements      | U <sub>P0/E</sub> telephone |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later           |     |       |                          |                            |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                |
|------|-------------------------------------------------------|
| 1.   | Configure trunk key<br>*91 => Access key programming. |
| 2.   | Press the key to be assigned.                         |
| 3.   | Assign <i>Trunk key</i> to the key selected.          |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                         |
|------|--------------------------------|
| 1.   | Configure trunk key<br>Options |
| 2.   | Set up station                 |
| 3.   | Key programming                |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                  |
|------|---------------------------------------------------------|
| 1.   | Program the trunk key.                                  |
| 2.   | Press the trunk key.                                    |
| 3.   | You can place an outgoing call if a trunk is available. |

## 7.5.5 Call Keys

### Definition

Users can program up to 10 call keys (together with multiple subscriber numbers outside of the U.S. and MUSAP keys in the U.S.) on an optiset E telephone. These keys are used for incoming and outgoing calls. The call keys are assigned to trunks virtually; that is, the trunks are not permanently assigned to a specific key (like trunk group keys). When performing an outgoing external seizure, users press a call key to seize a trunk group. When users connect without a call key, an available call key is automatically seized, depending on the trunk group. With incoming calls, an available call key corresponding to the trunk group is also assigned.

The call keys should be viewed as temporary trunk keys that allow quick access to the following features:

- Answering and signaling calls and recalls
- Toggle
- Cancel consultation hold
- Pickup

### Operating the Feature

If the default station templates are in effect, this feature can only be used on display telephones.

- **Answering and signaling initial calls and recalls:** The *Call* key can also operate as a *Loop* key. That is, a user can have two or more *Call* keys on his or her telephone representing the same trunks. The first incoming call will be presented to the first idle *Call* key; the second call to the next idle *Call* key, and so on. The call can be transferred using the Consultation Hold function using a feature button or with the dialog keys. Unanswered calls or unretrieved parked calls recall the station on the *Call* key and can be answered again on the *Call* key (Common hold: still assigned to that *Call* key).
- **Toggle:** If a user has an appearance of several *Trunk* keys on his or her telephone, the user can toggle between any of the *Call* keys by pressing the desired *Call* key. The first trunk is placed on Consultation Hold at the station. Any subsequent depression of another *Call* key places the last call on Consultation Hold at that telephone. If the user goes on-hook at any point, the last held party immediately recalls per the Consultation Hold procedure.
- **Pickup:** An incoming call ringing on a *Call* key can be picked up from another station via the feature Call Pickup - Group or via Call Pickup - Directed.

Conversely, if a user with a *Call* key on the telephone, picks a trunk call from another station, the trunk appears on the *Call* key.

- **Placing a call:** The user presses a *Call* key. The user is presented with simulated dial tone if LCR is in effect or, if not, CO dial tone.
- **Receiving a call:** An incoming call is signalled audibly and visually at the station. The display will show the Trunk group name. If Caller ID is available, the user display will indicate the calling party's Caller ID number. Calling party name is not available. The user presses the flickering key to answer the call. The LED of the *Call* key remains lit.

### Model-Specific Data

| Subject                                               | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-------------------------------------------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                                  | x                 | x   | x     | x                        | x                          |
| HW requirements                                       | Digital telephone |     |       |                          |                            |
| SW requirements                                       | Rel. 1.0 or later |     |       |                          |                            |
| Max. no. of call keys<br>per optiset E tele-<br>phone | 10                | 10  | 10    | 10                       | 10                         |

### Requirements and Conditions

| Subject                        | Requirement or Condition                                                                                                 |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Trunk groups,<br>busy state    | The busy state is not displayed for the entire trunk group.                                                              |
| Unscreened transfer,<br>recall | The call key is reassigned if the internal destination is not reached following unscreened transfer and a recall occurs. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                        |
|-------------|------------------------------------------------------|
| 1.          | Configure call key<br>*91 => Access key programming. |
| 2.          | Press the key to be assigned.                        |
| 3.          | Assign <i>Call key</i> to the key selected.          |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                 |
|-------------|-------------------------------|
| 1.          | Configure call key<br>Options |
| 2.          | Set up station                |
| 3.          | Key programming               |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                               |
|-------------|-------------------------------------------------------------|
| 1.          | Program a call key.                                         |
| 2.          | The call key starts flashing when an incoming call arrives. |

## 7.5.6 Transit Traffic

### Definition

Transit traffic refers to external voice calls that are handled by the telephone system in the incoming and outgoing directions. External connections can be set up to either the central office or to a networked system.

It is possible to handle transit traffic both manually and automatically over digital trunks and analog lines with a backward release criterion. Transit traffic can also be processed on analog trunks without a backward release criterion (loop start) by using timeout control followed by automatic release (maximum time is 42 minutes). Transit traffic is needed in the following situations:

- Networked systems
- Trunk-to-trunk connections (including DISA)
- Transition from a private network to the public network and vice versa

Transit traffic is used in conjunction with the following features:

- Call forwarding
- Transfer
- Callback (CorNet-N and QSig networks (Rel 2.0 or later); if supported on the trunk side, transit traffic can be used externally as well)
- Message waiting for central voice mail servers in CorNet-N and QSig (not for U.S.) networks (Rel. 2.0 or later).



External access from a remote node is not possible over Hicom 150 E OfficeCom BRI trunks. Such calls are intercepted to the OfficeCom intercept position.

### Definition of Features Associated with Transit Traffic

- **Call forwarding:** A trunk-to-trunk connection is possible using Call Forwarding - No Answer (only with a pseudo port) or Call Forwarding (CF) to an external destination. Care should be taken concerning the release capability of the trunks. Using LCR, an incoming call can also be forwarded (CF or CNA) to a CorNet-N link to a station in the remote node, to the Attendant in the remote node, to a voice mail system in the remote node, or rerouted to an external destination by the remote node. When calls from a Hicom 150 E are routed through a CorNet-N link to internal and external destinations, the CorNet-N channels must be split be-



tween these functions. In the case of a transfer to a remote voice mail system, the Hicom 150 E Office sends the originally called destination's station number to the voice mail to activate the proper answer message.



Always refer to the latest CorNet-N Configuration Note or the CorNet-N Sales Positioning Guide for the latest information.

- **Transfer:** It is possible for the user to transfer calls (screened and un-screened) to an external destination or to a remote node, via a CorNet-N link.  
 As of Release 1.0, version xxx, it is no longer necessary to perform a 2-step transfer procedure in the case of an unscreened transfer.  
 The transfer can also be initiated by a voice mail call processing feature or by an IVR which automatically transfers, unscreened, a call to an external or CorNet-N destination.
- **Callback:** If Callback was activated by the user to a CorNet-N user in a remote node (a closed numbering scheme is required to activate this feature), the Callback will be activated the same as an internal Callback activation. (This feature is not available with connections to a ROLM 9005.)
- **Message waiting for central voice mail servers in CorNet-N networks:** Message Waiting notification is possible from a remote voice mail system connected via CorNet-N links. In the case of PhoneMail, the SW version must be 6.3 or higher.

### Model-Specific Data

| Subject              | Pro                                   | Com | Point     | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|---------------------------------------|-----|-----------|--------------------------|----------------------------|
| Feature available in | x                                     | x   | x         | x                        | x                          |
| HW requirements      | S <sub>0</sub> /S <sub>2M</sub> board |     | TLA board | —                        | —                          |
| SW requirements      | Rel. 1.0 or later                     |     |           | —                        | —                          |

### Requirements and Conditions

| Subject                                               | Requirement or Condition                                                                                                                                                                                             |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loop-start trunks<br>(loop-start/ground-start in U.S) | Loop-start trunks are automatically released after a programmable period (default: 310 seconds. A tone sounds 10 seconds before release). The time parameters only can be changed by using Hicom Assistant E Office. |

### Configuration Options

This feature can be configured using Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                     |
|-------------|-----------------------------------|
| 1.          | Configure transit traffic Options |
| 2.          | System parameters                 |
| 3.          | System flags                      |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                 |
|-------------|---------------------------------------------------------------|
| 1.          | Activate external call forwarding on an authorized telephone. |
| 2.          | Call the station using the CO station number.                 |
| 3.          | The call arrives at the external destination number.          |

## 7.5.7 Translate Station Numbers to Names for System Speed Dialing

### Definition

With system speed-dialing calls, the name of the destination programmed in the system speed-dialing facility is displayed after outgoing dialing instead of the speed-dialing number. If the station number of an incoming call corresponds to a station number in system speed dialing, the name of the caller appears on the display.

This feature only applies to systems with ISDN trunk connections or with Analog Caller ID on the OfficePoint and OfficeCom with Release 2.2.

The Hicom 150 E filters out the access code in the System Speed Dial table; however, the rest of the number must be an exact match to the incoming number for this feature to function.

### Programming Hints

1. If using Hicom Assistant T, always enter the speed-dial number first, then enter the corresponding name. Hicom Assistant T does not allow a name to be entered for a specific index unless a number has been previously entered. Names can only be entered using the memory telephone or Hicom Assistant E Office.
2. Hicom Assistant T and Hicom Assistant E Office both check the first digit(s) of the speed-dial number you are programming against the default or current digits used in your database for external access codes. For example: entering the speed-dial number 71 510 555 1212, may be disallowed if the numbers 7 or 71 or 715 are not CO access codes.

### Model-Specific Data

| Subject                              | Pro               | Com  | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|--------------------------------------|-------------------|------|-------|--------------------------|----------------------------|
| Feature available in                 | x                 | x    | x     | x                        | x                          |
| HW requirements                      | —                 | —    | —     | —                        | —                          |
| SW requirements                      | Rel. 1.0 or later |      |       |                          |                            |
| Number of speed-dial-<br>ing numbers | 1000              | 1000 | 300   | 300                      | 300                        |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                 |
|-------------|-----------------------------------------------|
| 1.          | Speed-dialing destinations                    |
| 2.          | 12-1 => System speed dial - Speed dial number |
| 3.          | Speed-dialing names                           |
| 4.          | 12-2 => System speed dial - Speed dial name   |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                      |
|-------------|------------------------------------|
| 1.          | Configure speed dialing<br>Options |
| 2.          | System parameters                  |
| 3.          | System speed dialing               |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                       |
|-------------|-----------------------------------------------------|
| 1.          | Set up a call using system speed dialing.           |
| 2.          | The name of the destination appears on the display. |

## 7.6 Features for Incoming External Traffic

### 7.6.1 Call Allocation

#### Definition

Within call management, two call allocation tables are provided for incoming calls on analog or digital trunks. One of these tables is evaluated for day service and the other for night service. These tables define the station to which a call should be forwarded. This feature can also be used to assign a trunk to a specific station.

The Ringing Assignments screen in Hicom Assistant E Office is used to determine which stations (or groups) are assigned to each of the system trunks. Each port is assigned a call number in the Stations/Groups: Line Assignments table. This call number can be the internal call number of an active or an inactive station or group. Different call numbers can be assigned for day and for night. The call number in this table tells the system that when a call comes in through that port, it should be signaled, not at this station, but according to the Call Destination List for this station.

Refer to Section 7.3.4, *Call Management (CM)* for details.

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

#### Requirements and Conditions

| Subject               | Requirement or Condition                                                                                                                                    |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DTMF DID              | An analog call may be released before call forwarding—no answer is completed. This is due to the permanent timers that prevent trunks from becoming frozen. |
| Call allocation table | A number of calls can be waiting simultaneously at the stations entered in the call allocation tables.                                                      |
| Intercept             | Calls are intercepted if they cannot be switched because there are no available stations.                                                                   |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                               |
|-------------|---------------------------------------------|
| 1.          | Configure call allocation                   |
| 2.          | 16-16 => Incoming calls - Call alloc. day   |
| 3.          | 16-17 => Incoming calls - Call alloc. night |
| 4.          | 16-18 => Incoming calls - Call FWD - no ans |

**Configuring the Feature Using Hicom Assistant E**

Configure the feature using Hicom Assistant E as follows:

| <b>Step</b> | <b>Action</b>                        |
|-------------|--------------------------------------|
| 1.          | Configure call allocation<br>Options |
| 2.          | Incoming calls                       |
| 3.          | Ringling assignment per line         |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                               |
|-------------|---------------------------------------------------------------------------------------------|
| 1.          | In the case of analog trunks, assign the trunk to one station in call management.           |
| 2.          | Call the analog trunk via the central office. The station entered in call management rings. |

## 7.6.2 Group Ringing

### Definition

Users can administer a personal list of internal station numbers that are also called when their stations are signaled.

In this list, users can also enter their own station numbers. They might do this, for example, if a station number is permanently routed to another station (executive/secretary).

This feature is available to all types of telephones.

A feature button can be programmed on the optiset E telephones to activate/deactivate the feature. More than one *Group Ringing* button can be programmed on one telephone to allow for different variations. More than one button can be activated at one time, however, the maximum number telephones to ring cannot exceed five.

The *Forwarding* screen is one of three screens in the *System Status* pathway in Hicom Assistant E Office that provides station-specific (rather than system-specific) status information. You can use the Call Forwarding screen to see if a station has a Ring Group activated or if it is part of a Ring Group.

This feature can be activated/deactivated via a DISA connection by its own station user or for another user with the aid of the feature Associated Services.

Group Ringing can be invoked during a conversation by following the above procedure using the *Program/Service* key.

If the feature is used frequently, the user can place the feature on a vacant button on the telephone. The feature button name is *Ringing Group On* in the button menu. When the feature is active, the LED is lit.

In Release 2.2 and later, there is a new station flag (no group ringing on busy), which is set for a station with group ringing programmed. It determines which stations in a call ringing groups receive a call when the primary telephone (the one activating the feature) is busy, and which ones do not.

If the same station or smartset is in the call ringing group of more than one master telephone, the flag applies to all calls signaled at this station or smartset.

If the flag is not set, group ringing always takes place, provided that the station in the call ringing group is available (default).

- If the primary telephone is available, group ringing takes place immediately
- If the primary telephone has activated call waiting, group ringing takes place after a 5-second delay.

- If the primary telephone cannot receive a call, or if call waiting is inactive, call ringing does not take place.

**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|-------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>                          | <b>x</b>                            |
| HW requirements      | —                 | —          | —            | —                                 | —                                   |
| SW requirements      | Rel. 1.0 or later |            |              |                                   |                                     |

**Requirements and Conditions**

| <b>Subject</b>                      | <b>Requirement or Condition</b>                                                                                   |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Recall<br>System search<br>Callback | Group ringing is not carried out with an immediate recall (operator error), system search, or callback.           |
| Call forwarding (CF)                | If the station that activated group ringing has also activated call forwarding, group ringing is not carried out. |
| Do not disturb (DND)                | If the station in the call ringing group has activated DND, group ringing is not carried out at that station.     |
| Appointment                         | An active timed reminder does not follow group ringing.                                                           |

**Configuration Options**

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                         |
|-------------|-----------------------------------------------------------------------|
| 1.          | Activate group ringing on an internal station (*81 + station number). |
| 2.          | Place a call to this station.                                         |
| 3.          | The station in the call ringing group also rings.                     |



### 7.6.3 Night Answer

#### Definition

Night answer forwards all calls that reach the attendant console to a predefined destination. Users can define either an individual station or a group as a destination. Users can also use a central bell in conjunction with night answer to alert any personnel (night shift) to night calls.

Hicom 150 E Office distinguishes between day service, fixed night answer, and variable night answer.

In the case of day service and fixed night answer, incoming external calls follow the tables and call destination lists entered in CM for day service and night answer, regardless of the station type.

With variable night answer to a voice station, calls follow the call destination lists for fixed night answer and are then intercepted by the variable night station. All other call destinations for fixed night answer are considered to be invalid and are replaced by the variable night station. As a result, the system behaves in every respect in the same way as it would for call forwarding to a night destination.

A list for night answer controls external DID calls. This method is also known as assigned night answer because it enables users to assign different night destinations to individual lines.

#### Night Service

The Night Service function defines how calls are handled when the system is placed in night service mode.

The maximum number of stations that can be authorized to place the system into night service is five. The list can be changed via Hicom Assistant E Office (*Authorized Station for Night Service* list).

An Intercept station can also be defined for Night Service. This station does not need to be the same station called during Night Service. This intercept position can be an individual station or a group. Separate intercept positions can be entered for day calls and for night calls. The Night Intercept position will intercept the same type of calls as the Day Intercept position. The Day Intercept position can be programmed to intercept any or all of the following types of calls:

- no answer
- busy
- wrong number
- incomplete
- recall

System Administration assigns which trunks ring into which station (See Call Management) in Day mode and in Night mode. When the system is switched to night service, the system checks against the *Call Allocation - Night* list in Hicom Assistant T (*Ring Line Assignments* list in Hicom Assistant E Office) to see where to send the incoming call. The destinations can be either an individual station or a group.

Users can also use a central bell in conjunction with Night answer to alert any personnel (night shift) to night calls. In Call Management, an additional station can be called by means of the *Additional call number* entry shown as *Second Target* in *Call Destination Lists* in Hicom Assistant E Office. This entry supports the *common ringer* function. An actuator (relay) or an additional extension at which a call is also to be signaled is entered here. The last field *Type* defines when ringing assignment takes place (immediate or after CF timeout).

The night bell (instead of a telephone) may be physically connected to the station interface, in which case, the night bell can be answered by dialing the station number or by call Pick up, if so configured.



An external night bell adapter may be required to prevent excessive current from damaging the station interface.

A Night answer station can be any type of telephone, providing their COS allows, at minimum, for incoming calls.

When in Night mode, all stations use the Night COS table. The table, similar to the Day COS table, also has 15 classes to choose from. (Refer to [Section 7.7.10, Configurable Toll Restriction](#) for details).

A variable night station (universal night answer position) can be specified. The variable night station can be configured by any of the stations authorized to place the system in Night Service mode.

This feature can be activated/deactivated via a DISA connection by the station user.

If the feature is used frequently, the user can place the feature on a vacant button on the telephone. The feature button name is *Night answer on* in the button menu. During programming of the button, it can be configured to activate the default destination(s) or a variable destination. The variable destination can still be overwritten by the access code. In either case, the LED on the key remains lit.

### Night Service Security

To prevent unauthorized deactivation of Night Service (returning the system to its normal day COS toll Restriction scheme), the authorized user can activate Individual Telephone Lock at the telephone (\*66+PIN).



If there are several authorized stations, they must all activate Telephone Lock to ensure security.

### Operating the Feature

Refer to *Night Service* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject                                        | Requirement or Condition                                                                                                                                                                                                                           |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call forwarding                                | Calls follow call forwarding if activated on the night station.                                                                                                                                                                                    |
| Night station                                  | An intercom only phone cannot be entered as a night station.                                                                                                                                                                                       |
| Lines                                          | Variable night answer makes no distinction between the individual trunks; that is, calls on all trunks reach the night station.                                                                                                                    |
| Fax machine (not applicable as of Release 2.2) | When variable night answer is activated, it is overridden for incoming external calls that reach a station with fax for the type. Instead, these calls follow the call destinations entered in call management for External call at night (fixed). |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                     |
|-------------|---------------------------------------------------|
| 1.          | Configure night answer/call allocation            |
| 2.          | 16-17 => Incoming calls - Call alloc. night       |
| 3.          | Configure authorized station                      |
| 4.          | 22-19-1=> System settings - Access - Night answer |
| 5.          | Configure intercept position, night               |
| 6.          | 16-13 => Incoming calls - Intercept, night        |

**Configuring the Feature Using Hicom Hicom Assistant E Office**

Configure the feature using Hicom Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                     |
|-------------|---------------------------------------------------|
| 1.          | Configure night answer/call allocation<br>Options |
| 2.          | Incoming calls                                    |
| 3.          | Ring assignment per line                          |
| 4.          | Configure authorized station<br>Options           |
| 5.          | Classes of service                                |
| 6.          | Stations                                          |
| 7.          | Authorized station for night service              |
| 8.          | Configure intercept position, night<br>Options    |
| 9.          | System parameters                                 |
| 10.         | Diversion criteria                                |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                  |
|-------------|------------------------------------------------|
| 1.          | Activate night answer.                         |
| 2.          | Dial the system number via the central office. |
| 3.          | The call arrives at the night station.         |

## 7.6.4 Direct Inward Dialing

### Definition

With direct inward dialing (DID), an incoming call can reach a station without intervention by the attendant console.

This feature is handled in call management. The internal and external numbering systems are defined in the numbering plan.

Public Networks require that DID calls to a station that is out of service, or is otherwise unreachable (for example, do not disturb) must be intercepted to a station, an answering position, or to an announcement device. It is therefore necessary to program intercept destinations for DID stations.

In Hicom Assistant E Office and Hicom Assistant T, the DID number corresponding to an internal call number can up to 11 digits in length.

For an incoming call on an ISDN PRI line, the PBX number is blanked out to the left of the incoming call number. The remaining portion of the call number is interpreted by the system as a DID number.

DID calls can appear on *MUSAP* keys. Refer to Section 7.6.5, *Selective Seizure of a DID Number Using a MUSAP Key*.

### Model-Specific Data

| Subject              | Pro                                         | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|---------------------------------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>                                    | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | Outside of U.S.: S <sub>0</sub> trunk board |          |          |                          |                            |
| SW requirements      | Rel. 1.0 or later                           |          |          |                          |                            |

### Requirements and Conditions

| Subject                                                       | Requirement or Condition                                                    |
|---------------------------------------------------------------|-----------------------------------------------------------------------------|
| Entrance telephone, MOH, room monitor, speaker telephone type | These stations cannot be reached from the outside by direct inward dialing. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                               |
|-------------|---------------------------------------------|
| 1.          | Enter DID numbers                           |
| 2.          | 16-11 => Incoming calls - DID numbers       |
| 3.          | Enter intercept criteria                    |
| 4.          | 16-12 => Incoming calls - Intercept, day    |
| 5.          | 16-13 => Incoming calls - Intercept, night  |
| 6.          | 16-14 => Incoming calls - Intercept mode    |
| 7.          | Enter system number                         |
| 8.          | 20-2 => ISDN parameters - System stn number |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                       |
|-------------|-------------------------------------|
| 1.          | Enter DID numbers<br>Options        |
| 2.          | Set up station                      |
| 3.          | Stations                            |
| 4.          | Enter system number<br>Options      |
| 5.          | Lines/networking                    |
| 6.          | Routes                              |
| 7.          | Enter intercept criteria<br>Options |
| 8.          | System parameters                   |
| 9.          | Diversion criteria                  |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                      |
|-------------|----------------------------------------------------|
| 1.          | Place a DID call to a user via the central office. |
| 2.          | The dialed user answers the call (talk state).     |
| 3.          | Terminate the call.                                |

## **7.6.5 Selective Seizure of a DID Number Using a MUSAP Key**

### **Definition**

For users to seize one of the system DID numbers for outgoing calls, they must either use a procedure or configure a multiple station appearance (MUSAP) key. This key is assigned a DID number in the system. However, pressing this key is not sufficient for seizure. The trunk group, trunk, or Prime Line must be suffix-dialed for seizure to occur.

For incoming calls, the MUSAP key functions as a call key. The LED is activated in the same way as for trunk keys, call keys, or DSS keys, depending on the status of the trunk key to which it is connected. Features such as toggle and consultation hold are possible.

For outgoing calls, the MUSAP key functions as a call key after the external seizure is completed.

A MUSAP key is used as a target location for incoming DID calls from the public network. The key can also be used as a target for incoming calls from a CorNet-N location. If the station is assigned a MUSAP key, the DID number associated with the key is sent to the ISDN Public Network on BRI and PRI outgoing calls.

Up to 10 MUSAP keys can be programmed on the same station to support rollover buttons for additional calls to the same DID number. A maximum of 10 MUSAP and/or Call Keys can be programmed on an optiset E.

The MUSAP key can be installed by the user on the telephone through the following procedure:

- \*91 to program key
- select the key which will be the MUSAP key
- scroll to the button called *Assign stn. no*
- Enter the 3-digit call number corresponding to the DID number



### Model-Specific Data

| Subject                                 | Pro                 | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-----------------------------------------|---------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                    | x                   | x   | x     | x                        | x                          |
| HW requirements                         | Digital trunk board |     |       | —                        | —                          |
| SW requirements                         | Rel. 1.0 or later   |     |       |                          |                            |
| Max. no. of MUSAP<br>keys per telephone | 10                  | 10  | 10    | 10                       | 10                         |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                          |
|---------|-------------------------------------------------------------------------------------------------------------------|
| MUSAP   | MUSAP keys do not seize trunk groups directly. After you press the key, you must dial the trunk group separately. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

#### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                |
|------|-------------------------------------------------------|
| 1.   | Configure MUSAP key<br>*91 => Access key programming. |
| 2.   | Press the key to be assigned.                         |
| 3.   | Assign <i>Assign str. no.</i> to the key selected.    |

#### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                |
|------|---------------------------------------|
| 1.   | <b>Configure MUSAP key</b><br>Options |
| 2.   | Set up station                        |
| 3.   | Key programming                       |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                 |
|-------------|-------------------------------------------------------------------------------|
| 1.          | Use a procedure to assign a station number.                                   |
| 2.          | Place an outgoing call. This number is transmitted in the outgoing direction. |

## 7.6.6 Signaling of Direct Inward Dialing Numbers for Incoming Calls

### Definition

When an internal station receives an external call, the direct inward dialing (DID) number that the caller originally dialed is displayed. A variety of acoustic signaling methods are also available to signal the call. The LED assigned to the appropriate MUSAP key also signals the call.

Three different types of acoustic signaling are possible depending on the telephone:

- For optiset E telephones:
  - Ring type 1 (double ring) = External trunk call
  - Ring type 2 = (triple ring) = External trunk call 2
  - Ring type 3 (short/long/short) = External trunk call 3
- For analog telephones (Release 2.2 and later):
  - Ring type 1 (double ring) = External trunk call (same as optiset E)
  - Ring type 2 = Recall
  - Ring type 3 = Doorbell ring

Ring cadence settings are country-specific.

### For U.S. Only: External cadences for optiset E telephones

| Assistant T | Assistant E           | External call ring cadence                                             |
|-------------|-----------------------|------------------------------------------------------------------------|
| Type 1      | External Call         | 125 ms ON/250 ms OFF,<br>125 ms ON/1500 ms OFF                         |
| Type 2      | External Call<br>CO 2 | 200 ms ON/ 100 ms OFF<br>200 ms ON/100 ms OFF<br>200 ms ON/1700 ms OFF |
| Type 3      | External Call<br>CO 3 | 100 ms ON/100 ms OFF<br>200 ms ON/100 ms OFF<br>100 ms ON/1900 ms OFF  |

### Model-Specific Data

| Subject              | Pro                                         | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|---------------------------------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>                                    | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | U <sub>P0/E</sub> station or analog station |          |          |                          |                            |
| SW requirements      | Rel. 1.0 or later                           |          |          |                          |                            |

### Requirements and Conditions

| Subject   | Requirement or Condition                        |
|-----------|-------------------------------------------------|
| Signaling | Not for S <sub>0</sub> stations (not for U.S.). |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                |
|------|-------------------------------------------------------|
| 1.   | Configure MUSAP key<br>*91 => Access key programming. |
| 2.   | Press the key to be assigned.                         |
| 3.   | Assign <i>Assign stn. no.</i> to the key selected.    |
| 4.   | Configure signaling type.                             |
| 5.   | 16-19 => Incoming calls - Ring cadence                |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                    |
|-------------|----------------------------------|
| 1.          | Configure MUSAP key Options      |
| 2.          | Set up station                   |
| 3.          | Key programming                  |
| 4.          | Configure signaling type Options |
| 5.          | Set up station                   |
| 6.          | Station                          |
| 7.          | Parameter                        |
| 8.          | Flags                            |

## 7.6.7 Direct Inward System Access (DISA)

### Definition

Direct inward system access (DISA) enables users to use features in the Hicom 150 E Office system via an external connection. External callers must enter a password to gain access to the system. They can then use certain system features just like an internal user. They can also set up an outgoing external seizure via the incoming external connection.

Users can use the following features via DISA:

- Direct services for internal stations:  
Send message texts, relay on/off, night answer on/off, advisory message on/off, group ringing on/off, telephone lock on/off, do not disturb on/off, call forwarding on/off, leave/join hunt group, reset services.
- Associated services:  
Advisory message on/off, group ringing on/off, telephone lock on/off, do not disturb on/off, call forwarding on/off, leave/join hunt group, reset services.

As of Release 2.2 (SMR-J), an internal station can also be reached via DISA. In the case of a fixed numbering plan (such as in France), virtual networking is also possible.

The DISA access line can be configured as dedicated, or it can be accessed during day or night operation; these parameters are set in the General Flags of *Lines/Networking/Parameters* tabs in Hicom Assistant E Office; in the *DISA day/night* field, code receiver (CR) parameters can be configured for each line.

One of the following options may be selected:

- Line always has CR connected
- Line has CR connected during day only
- Line has CR connected during night only
- Line has no CR connection

The DISA trunk is released at the completion of each function/feature. The user must reenter the system if another function needs to be accomplished.

The stations authorized to access the system via DISA must first be configured in System Administration. Refer to *Configuring the Feature Using Hicom Assistant T on page 7-184* or *Configuring the Feature Using Hicom Assistant E Office on page 7-184*.

A DISA trunk can be a DID number or a LS/GS trunk. If the DISA trunk is a DID number, this number is programmed in *System parameters*. The field allows up to 12 digits. If the trunk is LS/GS, the trunk is programmed in the Ringing Assignments.

A password is required to log onto the system. This password consists of the internal station call number and the Telephone Code lock PIN. Entry of the password is only acknowledged after a timeout or entry of the end symbol #. This selection is system-wide and is done in the System Parameters.

## Operating the Feature

Refer to *DISA (Direct Inward Station Access)* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

The calling station must be a DTMF device.

The external station dials the trunk directory number or DID number. The system automatically answers and returns a continuous tone. The external caller dials his or her internal station number followed by the Telephone Lock PIN number. Depending on the system parameter programmed in the system, the user dials the pound symbol (#) or waits to be automatically connected. The user dials the access codes for the function he or she wants to perform, or dials the external CO access code to seize an outgoing trunk.

If the PIN number is incorrect, the trunk is released.

## Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

## Requirements and Conditions

| Subject                      | Requirement or Condition                                                                                                                                                                  |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog trunk<br>Night answer | Analog trunks can be programmed for DISA access. They can be used as normal analog trunks during the day and then switched over to DISA mode when the night answer function is activated. |
| Call data output             | DISA calls are specially marked in call data output.                                                                                                                                      |
| System speed dialing         | The system speed-dialing memory can be used via DISA.                                                                                                                                     |
| Trunk                        | The trunk is released each time you activate the service.                                                                                                                                 |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                            |
|-------------|------------------------------------------|
| 1.          | Enter DISA authorization                 |
| 2.          | 14-15 => Configure station - DISA        |
| 3.          | <b>Configure DISA</b>                    |
| 4.          | 34 -1 => DISA - Day, night               |
| 5.          | 34 -2 => DISA - DID number               |
| 6.          | 34 -3 => DISA - End-of-dialing criterion |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                       |
|-------------|-------------------------------------|
| 1.          | Enter DISA authorization<br>Options |
| 2.          | Set up station                      |
| 3.          | Station                             |
| 4.          | Parameter                           |
| 5.          | Flags                               |
| 6.          | <b>Configure DISA</b><br>Options    |
| 7.          | System parameters                   |
| 8.          | System settings                     |



**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                        |
|-------------|----------------------------------------------------------------------|
| 1.          | Configure DISA.                                                      |
| 2.          | Call DISA number by DID.                                             |
| 3.          | Activate call forwarding for a station by means of a DISA procedure. |
| 4.          | Call forwarding is activated for this station.                       |

## 7.6.8 Intercept Conditions

### Definition

Intercept forwards incoming calls to another destination. A call is intercepted if the original destination is invalid or if limitations exist.

Users can specify the following as intercept destinations:

- PC AC
- Station
- Hunt group
- Announcement (external announcement device)

If an intercept position or AC is configured in the system, calls are routed to this intercept position during an intercept. If an intercept position has not been configured, intercepted calls are signaled at the station that has a call assignment for the intercepted trunk.

During intercepts, call management is entered using the intercept station as the basis. If the intercept position cannot be reached, the call is signaled at a night bell, if entered, or the call waits in a queue at the intercept position.

Users can activate the intercept feature under the following conditions:

- **Intercept no answer**

If there is no answer, the call follows the entries in call management. If the end of the CM elements is reached, the system determines whether or not an intercept after timeout should occur. If the system cannot find a station to which it can route the call, the call is intercepted.

- **Intercept busy, if no additional forwarding is possible.**

If a station is busy, the system determines whether or not call waiting is possible.

If call waiting is not possible (signaling security or intercept criterion), the call follows the entries in call management. If the call cannot be signaled at any station, the system determines whether the call should be intercepted or released.

In general, intercept busy only applies to the first call, not to switched or outgoing connections. A recall of an external station is not immediately intercepted when the destination station is busy; instead, call waiting is activated.

- **Intercept if incomplete or invalid number dialed**

When an incorrect station number was dialed, the system determines whether the call should be intercepted or released. Calls are always intercepted with pseudo-DID.

- **Intercept if no number dialed**

If no station number is dialed within a timeout, the system determines whether the call should be intercepted or released. If an intercept position has not been configured, the interception follows the call assignment per trunk.

- **Intercept with Serial FWD**

It is not possible to chain calls for forwarding; an attempt to initiate this procedure is rejected on activation. For example, if a station has activated external call forwarding and the call destination has also forwarded its calls, you have a chained calls situation. This is not allowed by the system. If this flag is turned on, these calls are intercepted.

- **Codelock Diversion**

If the telephone lock for a station is active, and a trunk group code is dialed from that station, the call is immediately forwarded to the intercept destination. The Codelock Diversion function is set individually for each station through the *Flags* screen in the *Set up Station Parameters*.

One intercept position can be configured for Day operation. During Night Service, the same destination or a different destination can be configured as the intercept position.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject    | Requirement or Condition                                                                                                                  |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Hunt group | Intercepts cannot extend beyond a hunt group; the call is forwarded to the first hunt group station and always remains in the hunt group. |

| Subject            | Requirement or Condition                                                                                                                                                                                                                                                                                          |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Release            | Calls with the service ID <i>data service</i> (ISDN message) are released, not intercepted.                                                                                                                                                                                                                       |
| Incomplete dialing | Not evaluated in the case of a central intercept position.                                                                                                                                                                                                                                                        |
| Tenant service     | When a tenant service is configured (see <u>Section 8.50, <i>Tenant Services (Not for U.S.)</i></u> or <u>Section 8.51, <i>Tenant Services (for U.S. Only)</i></u> ), users can only configure intercepts on a cross-system basis. This means that intercept no answer (for example) applies to all system users. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                     |
|------|--------------------------------------------|
| 1.   | Configure intercept                        |
| 2.   | 16-12 => Incoming calls - Intercept, day   |
| 3.   | 16-13 => Incoming calls - Intercept, night |
| 4.   | 16-14 => Incoming calls - Intercept mode   |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                         |
|------|--------------------------------|
| 1.   | Configure intercept<br>Options |
| 2.   | System parameters              |
| 3.   | Diversion criteria             |

## Testing the Feature

Check the feature for error-free functioning as follows:

- **Intercept no answer**

| Step | Action                                                                                                                     |
|------|----------------------------------------------------------------------------------------------------------------------------|
| 1.   | Seize the trunk and call any station in the system using DID.                                                              |
| 2.   | The called station is switched to the intercept position or the call forwarding station in accordance with the ring cycle. |

- **Intercept busy**

| Step | Action                                                                               |
|------|--------------------------------------------------------------------------------------|
| 1.   | Set up an external or internal call from a station.                                  |
| 2.   | Use DID to attempt to reach this station via the trunk.                              |
| 3.   | The call is either signaled at the intercept position or forwarded as entered in CM. |

- **Intercept if incomplete or invalid number dialed**

| Step | Action                                                                                                                                                  |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Seize the trunk and use DID to dial any station in the system with an incomplete station number (for instance, omit the third digit in the DID number). |
| 2.   | The call is routed to the intercept position.                                                                                                           |
| 3.   | Seize the trunk and dial a DID number that does not exist in the system.                                                                                |
| 4.   | The call is routed to the intercept position.                                                                                                           |

- **Intercept if no number dialed**

| Step | Action                                                                   |
|------|--------------------------------------------------------------------------|
| 1.   | Seize the trunk and dial the system station number without a DID number. |
| 2.   | After a timeout, the call is intercepted or released.                    |

## **7.6.9 Dual-Tone Multifrequency Direct Inward Dialing**

### **Definition**

This feature enables users to use direct inward dialing (DID) on non-DID trunks such as analog trunks. This type of pseudo-DID is achieved by suffix-dialing dual-tone multifrequency (DTMF) digits.

External calls that reach the system via this feature are released after a timeout if they are not answered. This prevents analog trunks from freezing up. The timer *Release if no dialing* is activated when the trunk answers. Default time is 10 seconds.

An announcement lets callers know that they can use DID. A customized announcement is available in the system. This feature requires an external announcement device.

The LS/GS trunk must be flagged as *DTMF DID* for proper operation. Refer to *Configuring the Feature Using Hicom Assistant T* on page 7-191 or *Configuring the Feature Using Hicom Assistant E Office* on page 7-191.

### **Operating the Feature**

The user calls the trunk number flagged as *DTMF DID*. The system answers. No tone is presented to the user. The user dials the station number and is connected. If the call is not answered within 60 seconds (not variable) the trunk is automatically released.

If a recorded announcement has been configured for callers, the caller can be presented with an audio message and can start dialing. During the announcement a Code Receiver is on line to detect dialing.

The announcement device is connected to an analog port and must be able to present an open loop to the system at the end of the message.

Refer also to Section 7.6.10, *Announcement Before Answering*.

### Model-Specific Data

| Subject              | Pro                | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|--------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>           | <b>x</b> | <b>x</b> | –                        | –                          |
| HW requirements      | Analog trunk board |          |          | –                        | –                          |
| SW requirements      | Rel. 1.0 or later  |          |          | –                        | –                          |

### Requirements and Conditions

| Subject   | Requirement or Condition                                                       |
|-----------|--------------------------------------------------------------------------------|
| DTMF DID  | If the incoming call is not answered within 60 seconds, the trunk is released. |
| Intercept | The trunk is released 30 seconds after the call is intercepted.                |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

#### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                               |
|------|--------------------------------------|
| 1.   | Configure DTMF DID                   |
| 2.   | 16-20 => Incoming calls - Analog DID |

#### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                           |
|------|----------------------------------|
| 1.   | Configure DTMF DID Options       |
| 2.   | Trunks/networking                |
| 3.   | Double-click on trunk parameters |
| 4.   | Analog trunk flags               |
| 5.   | Click on DTMF DID                |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                              |
|-------------|--------------------------------------------|
| 1.          | Seize the trunk and dial the analog trunk. |
| 2.          | Suffix-dial the DID number.                |
| 3.          | The DID station rings.                     |



## 7.6.10 Announcement Before Answering

### Definition

This feature plays an announcement for external callers from an optional external announcement device. This applies to both analog and digital trunks.

The announcement can be played either parallel to ringing or only if the call is placed in the announcement device queue. The announcement begins after a programmable period and can be heard by several callers simultaneously.

Users can configure an announcement before answering to relieve an intercept station. For this purpose, users connect an announcement device, which is capable of answering an incoming call and forwarding it to a specific station. This feature is configured with call management.

Users must configure the subscriber ports that connect to announcement devices as answering machines. If the announcement device is connected to an analog port and it must be able to present an open loop to the system at the end of the message.

The UCD feature can also be used to start the announcement only after a programmable period. The announcement can be heard by several callers simultaneously.

The feature can be used to present callers with a company message before being answered, for example, by the Attendant or by a group.

### Model-Specific Data

| Subject                                                            | Pro                       | Com         | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|--------------------------------------------------------------------|---------------------------|-------------|-------|--------------------------|----------------------------|
| Feature available in                                               | x                         | x           | x     | x                        | x                          |
| HW requirements                                                    | TIEL or<br>anlaog<br>port | Analog port |       |                          |                            |
| SW requirements                                                    | Rel. 1.0 or later         |             |       |                          |                            |
| No. of callers who can<br>hear an announce-<br>ment simultaneously | 30                        | 30          | 30    | 30                       | 30                         |

**Requirements and Conditions**

| <b>Subject</b> | <b>Requirement or Condition</b>                                                                                                                                                                                                                    |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Group/station  | If the announcement port is entered as a call forwarding—no answer destination, the appropriate announcement is played if the group or station is busy. The call is then forwarded to the next station or the programmed intercept criteria apply. |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                     |
|-------------|---------------------------------------------------|
| 1.          | Configure announcement before answering           |
| 2.          | 25-1 => Announcement device - Announcement device |
| 3.          | 25-2 => Announcement device - Announcement type   |
| 4.          | 25-3 => Announcement device - Ann. before answer  |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                             |
|-------------|-----------------------------------------------------------|
| 1.          | <b>Configure announcement before answering</b><br>Options |
| 2.          | Connections                                               |
| 3.          | Announcement equipment                                    |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                               |
|-------------|---------------------------------------------|
| 1.          | Configure announcement before answering.    |
| 2.          | Dial the system from an external telephone. |
| 3.          | The announcement plays.                     |

## 7.6.11 Collect Call Barring per Trunk (for Brazil Only)

### Definition

This feature provides for automatic release of incoming collect calls; users can configure it individually for each analog trunk (loop start). If this feature is enabled for a trunk, the system opens the loop for 2 s (default value) one second (default value) after an incoming call is accepted. This ensures that collect calls are released in the network, while other calls continue unaffected.

### Model-Specific Data

| Subject              | Pro                       | Com | Point | One | Start |
|----------------------|---------------------------|-----|-------|-----|-------|
| Feature available in | x                         | –   | –     | –   | –     |
| HW requirements      | Analog trunk (loop start) | –   | –     | –   | –     |
| SW requirements      | Rel. 1.0 or later         | –   | –     | –   | –     |

### Requirements and Conditions

| Subject                        | Requirement or Condition                                                  |
|--------------------------------|---------------------------------------------------------------------------|
| Collect call barring per trunk | Only available in Brazil. This setting is ignored in all other countries. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                   |
|------|----------------------------------------------------------|
| 1.   | <b>Configure collect call barring per trunk</b>          |
| 2.   | 16-21 => Incoming calls - Collect protection per CO line |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                              |
|-------------|------------------------------------------------------------|
| 1.          | <b>Configure collect call barring per trunk</b><br>Options |
| 2.          | Lines/networking                                           |
| 3.          | Parameters                                                 |
| 4.          | Loop start flags                                           |

## 7.6.12 Collect Call Barring per Station

### Definition

This feature allows automatic release of incoming collect calls. Users can configure it separately for each station, even in combination with functions such as call forwarding, call pickup, or intercept.

Users can also program collect call barring system-wide. This applies if a caller dials a hunt group instead of an individual station or misdials a number.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | —   | —     | —   | —     |
| HW requirements      | —                 | —   | —     | —   | —     |
| SW requirements      | Rel. 1.0 or later | —   | —     | —   | —     |

### Requirements and Conditions

| Subject                        | Requirement or Condition                                                                                                              |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Collect call barring per trunk | Neither the system-wide parameters for collect call barring nor the setting made for the stations affect trunk calls (analog trunks). |
| Collect call barring per trunk | Only for <u>MFC R2 countries</u> that offer this feature.                                                                             |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                      |
|-------------|--------------------------------------------------------------------|
| 1.          | <b>Configure collect call barring per station</b>                  |
| 2.          | 14-31 => Configure station - Collect protection per station        |
| 3.          | <b>Configure collect call barring system-wide</b>                  |
| 4.          | 22-34-1 => System settings - MFC-R2 parameter - Collect protection |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                                          |
|-------------|------------------------------------------------------------------------|
| 1.          | <b>Configure collect call barring per station</b><br>Options           |
| 2.          | Set up station                                                         |
| 3.          | Set collect call barring per station                                   |
| 4.          | <b>Configure collect call barring system-wide</b><br>System parameters |
| 5.          | Set collect call barring                                               |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                             |
|-------------|-----------------------------------------------------------|
| 1.          | Place a collect call to a station in the system.          |
| 2.          | Check whether the system releases the call automatically. |

### 7.6.13 Analog Direct Inward Dialing via MFC-R2

#### Definition

An MFC-R2 trunk is an analog trunk interface for direct inward dialing that allows external callers to reach extensions directly without the assistance of an attendant.

The system supports MFC-R2 (SMFC) as the default setting, MFC-R2 with caller ID, tone dialing, and dial pulsing. It is not possible to use tone dialing and MFC-R2 (with or without caller ID) simultaneously.

To implement the CLIP feature (see [Section 7.15.6](#)) for incoming calls, you can enter the calling party number when MFC-R2 (SMFC) is active. When receiving calls for which the trunk supplies this information, the calling party's number appears on the screen of the called party's telephone.

This feature must be configured for each trunk (signaling method parameter set to MFC-R2 with caller ID).

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | <b>x</b>          | —   | —     | —   | —     |
| HW requirements      | <u>TMAME</u>      | —   | —     | —   | —     |
| SW requirements      | Rel. 1.0 or later | —   | —     | —   | —     |

#### Requirements and Conditions

| Subject                                  | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog direct inward dialing with MFC-R2 | <p>Available in Brazil, India, Malaysia, Singapore and ATEA countries only. The setting is ignored in all other countries. The ATEA countries listed below require country initialization with the international country code = 21. In addition, parameter PAR_05 (System status - System-wide - Boards: MFC/R2 table) must be set in Hicom Assistant E Office expert mode.</p> <ul style="list-style-type: none"> <li>● Egypt = 05h (default)</li> <li>● Nigeria = 06h</li> <li>● Oman = 07h</li> <li>● Saudi Arabia = 08h</li> <li>● Syria = 09h</li> <li>● Tunisia = 0Ah</li> <li>● United Arab Emirates = 0Bh</li> </ul> |

| Subject   | Requirement or Condition                                                                                                                                                                                                                                                                                                             |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Caller ID | Displayed exactly as received from the trunk. The system does not add any digits (such as trunk access codes or discriminating digits) or remove any digits (such as the local area code supplied by the central office). Likewise, the displayed station number cannot be redialed directly and does not appear in the caller list. |
| Caller ID | Not available in Singapore.                                                                                                                                                                                                                                                                                                          |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                     |
|------|------------------------------------------------------------|
| 1.   | <b>Configure analog direct inward dialing with MFC-R2</b>  |
| 2.   | 21-1 => Analog CO interface - Signaling method             |
| 3.   | 21-4 => Analog CO interface - Distance from CO             |
| 4.   | 22-34-2 => System settings - MFC-R2 parameter - DID number |



If caller ID is active, remove the trunk group code so that it will not appear on the screen.

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                            |
|------|-------------------------------------------------------------------|
| 1.   | <b>Configure analog direct inward dialing with MFC-R2 Options</b> |
| 2.   | Lines/networking                                                  |
| 3.   | Double-click the trunk parameter                                  |
| 4.   | Loop start flags                                                  |
| 5.   | Highlight the signaling method                                    |
| 6.   | Highlight the distance from CO                                    |



| <b>Step</b> | <b>Action</b>                                                                  |
|-------------|--------------------------------------------------------------------------------|
| 7.          | <b>Configure analog direct inward dialing with MFC-R2</b><br>System parameters |
| 8.          | Set the number of DID digits                                                   |

**Testing the Feature**

Check the feature for proper functioning as follows:

| <b>Step</b> | <b>Action</b>                                                |
|-------------|--------------------------------------------------------------|
| 1.          | Receive an incoming call on the MFC-R2 trunk.                |
| 2.          | Check whether direct inward dialing is functioning properly. |

## **7.7 Features for Outgoing External Traffic**

### **7.7.1 Last Number Redial (LNR)**

#### **Definition**

Each time users place an outgoing call, the dialed number is stored. On optiset E telephones with displays, the system stores the last three numbers dialed.

To retrieve a specific number and use it to set up another call, press the Redial key.

- Press the key once to dial the last number dialed.
- Press the key twice to dial the next-to-the-last number dialed.
- Press the key three times to dial the number that was stored the longest.

On optiset E telephones without displays, the system stores only the last number dialed.

#### **Last Number Redial**

This feature applies only to non-display optiset E models, Entry and Basic; however, it uses the same feature key (Redial) as the *Expanded Redial* feature for display telephones.

Only external calls are saved. Every new outgoing call overwrites the previous number stored. This is also true if System or Station speed dial is used. When using LCR access, only the number dialed by the station is stored in the LNR memory.

A call to a user in a networked system over a CorNet-N link is stored in LNR memory; likewise, an external call routed via CorNet-N to a trunk in another node, is also stored.

This feature cannot be invoked if Telephone Lock has been activated.

Each time users place and dial an external destination, the number is stored. If the destination was busy or not reachable, users can press the redial key to redial the same number.

This feature can only be invoked from the *Redial* key. No feature access code is possible.

#### **Expanded Redial**

This feature applies only to display optiset E; however, it uses the same feature key (Redial) as the *Last Number Redial* feature for non-display telephones.

The system stores the last three external calls dialed by a display telephone. The expanded redial memory operates in a first-in-first-out (FIFO) manner; that is, the fourth external call number placed from that telephone is placed at the top of the redial table, and the oldest call is removed from memory, and so on.

Only external calls are saved. This is also true if System or Station speed dial is used.

A call to a user in a networked system over a CorNet-N link is stored; likewise, an external call routed via CorNet-N to a trunk in another node is also stored.

This feature cannot be invoked if Telephone Lock has been activated.

Any post-dialed digits beyond the initial destination, (for example, digits sent to a connected voice mail system) are not stored in expanded redial memory. In the case of a call routed through LCR, only the number dialed by the station is stored.

This feature can only be invoked from the *Redial* key. No feature access code is possible.

To reach the last number dialed, the user presses the *Redial* key once, and after a brief delay the number is dialed. Alternatively, the user can view the last three entries by pressing the *Redial* key successively and selecting the number to be redialed.

### Model-Specific Data

| Subject                     | Pro                                      | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-----------------------------|------------------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in        | x                                        | x   | x     | x                        | x                          |
| HW requirements             | U <sub>P0/E</sub> telephone with display |     |       |                          |                            |
| SW requirements             | Rel. 1.0 or later                        |     |       |                          |                            |
| Max length of stored number | 25 digits+code                           |     |       |                          |                            |
| Maximum number of entries   | 3                                        | 3   | 3     | 3                        | 3                          |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                                                                  |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LNR     | DTMF signals are not considered dialing information and are not stored. This does not apply to mobile telephones, which store DTMF signals in the internal redial memory. |
| LNR     | After CO through-connect to the initial destination, further post-dialed digits are not stored.                                                                           |

| <b>Subject</b>              | <b>Requirement or Condition</b>                        |
|-----------------------------|--------------------------------------------------------|
| System speed dialing        | Speed-dialing numbers overwrite redial memory.         |
| Telephone lock              | You cannot use redial if the telephone lock is active. |
| Internal calls              | Internal calls have no effect on the redial memory.    |
| Telephones without displays | Only the last number dialed can be stored.             |

**Configuration Options**

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Set up an external connection.                           |
| 2.          | Release the external connection.                         |
| 3.          | The dialed number is in the redial memory.               |
| 4.          | Set up and release an internal connection.               |
| 5.          | The dialed external number remains in the redial memory. |

## 7.7.2 System Speed Dialing

### Definition

Users can store frequently dialed station numbers in system memory. For convenience, the system uses a short code to represent each station number so that the user does not need to dial the complete number.

Speed-dialing numbers are predefined in the system. Users can dial the codes from any subscriber station that is assigned to a speed-dialing group.

Use the redial key or the pound (#) key to program a dial pause and DTMF changeover.

- Only external calls can be stored.
- A name can be associated with each destination.
- This feature cannot be invoked if Telephone Lock has been activated.
- System Speed Dial overrides the COS Toll Restriction rules.
- System Speed Dial feature is system-wide and cannot be split, for example in the case of Tenant Service.
- The default access code is \*7 followed by the index number. The abbreviated speed dial numbers are therefore:

| System model | Abbreviated number |
|--------------|--------------------|
| OfficePoint  | *7 000 to *7 299   |
| OfficeCom    | *7 000 to *7 999   |
| OfficePoint  | *7 000 to *7 999   |

- A feature button can be programmed on an optiset E. The button simulates the dialing of the access code (\*7). The user is then prompted (display) to enter the index number.

### Model-Specific Data

| Subject                                | Pro               | Com  | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------------------------|-------------------|------|-------|--------------------------|----------------------------|
| Feature available in                   | x                 | x    | x     | x                        | x                          |
| HW requirements                        | —                 | —    | —     | —                        | —                          |
| SW requirements                        | Rel. 1.0 or later |      |       |                          |                            |
| Speed-dialing entries<br>in the system | 1000              | 1000 | 300   | 300                      | 300                        |

| <b>Subject</b>                       | <b>Pro</b>                                     | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|--------------------------------------|------------------------------------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Max. length of speed-dialing entries | 25 digits<br>+<br>6 digit<br>trunk access code | 25 digits  | 25 digits    | 25 digits                         | 25 digits                           |
| Max. no. of characters per name      | 16                                             | 16         | 16           | 16                                | 16                                  |

**Requirements and Conditions**

| <b>Subject</b>                          | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| External station numbers                | Speed-dialing destinations can contain external station numbers only.                                                                                                                                                                                                                                                                                                                                                                       |
| External station numbers                | The external station number must include the trunk group or seizure code.                                                                                                                                                                                                                                                                                                                                                                   |
| Translation of station numbers to names | You can assign a name to each speed-dialing destination.                                                                                                                                                                                                                                                                                                                                                                                    |
| Tenant service                          | If a tenant service is implemented via toll restrictions, the system does not check whether trunk seizures are authorized. If speed dialing is used, the system automatically seizes the next free trunk, regardless of whether or not the user is authorized to seize this trunk. As a result, an incorrect system number may be displayed at the destination. For this reason, users should only implement tenant service via ITR groups. |
| Entrance telephone                      | The entrance telephone cannot access speed-dialing numbers.                                                                                                                                                                                                                                                                                                                                                                                 |
| Hicom Assistant T                       | If using Hicom Assistant T, enter the speed dial number first, then enter the corresponding name. Hicom Assistant T will not allow a name to be entered for a specific index unless a number has been previously entered. Names can only be entered using the memory telephone or the Hicom Assistant E Office.                                                                                                                             |
| Disallowed digits                       | Hicom Assistant T and Hicom Assistant E Office both check the first digit(s) of the speed-dial number you are programming against the default or current digits used in your database for external access codes. For example: entering the speed dial number 71 510 555 1212, may be disallowed if the digits 7 or 71 or 715 are not CO access codes.                                                                                       |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                 |
|------|--------------------------------------------------------|
| 1.   | Configure system speed dialing                         |
| 2.   | 12-1 => System speed dial - Speed dial number          |
| 3.   | Enter speed-dialing destination.                       |
| 4.   | Enter destination station number and trunk group code. |
| 5.   | Configure name for speed-dialing destination           |
| 6.   | 12-2 => System speed dial - Speed dial name            |
| 7.   | Enter speed-dialing destination.                       |
| 8.   | Enter name from the optiset E memory keypad.           |

### Configuring the Feature Using Hicom Assistant E

Configure the feature using Hicom Assistant E as follows:

| Step | Action                                                                                          |
|------|-------------------------------------------------------------------------------------------------|
| 1.   | Configure system speed dialing Options                                                          |
| 2.   | System parameters                                                                               |
| 3.   | System speed dialing                                                                            |
| 4.   | Enter the trunk group code, station number, and name for the desired speed-dialing destination. |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                                 |
|------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Program the speed-dialing destination.                                                                                                 |
| 2.   | Access the speed-dialing destination by entering *7 + the destination number or by pressing a key and entering the destination number. |
| 3.   | The external connection is set up.                                                                                                     |

## 7.7.3 System Speed Dialing in Tenant Systems

### Definition

This feature lets you select specific speed-dialing destinations, depending on the internal traffic restriction (ITR) groups. To do this, you can assign a range of speed-dialing numbers to internal traffic restriction groups using Hicom Assistant E Office or system administration.

When a user dials a speed-dialing number, the system identifies the ITR group for the number, which determines whether the user is authorized to dial this number. If not, an error message appears and the dialing attempt is rejected.

The speed-dialing number ranges can overlap in the ITR groups.

### Model-Specific Data

| Subject                                | Pro                                                 | Com       | Point     | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------------------------|-----------------------------------------------------|-----------|-----------|--------------------------|----------------------------|
| Feature available in                   | x                                                   | x         | x         | x                        | x                          |
| HW requirements                        | —                                                   | —         | —         | —                        | —                          |
| SW requirements                        | Rel. 2.2 or later                                   |           |           |                          |                            |
| Speed-dialing entries<br>in system     | 1000                                                | 1000      | 300       | 300                      | 300                        |
| Max. length of speed-<br>dialing entry | 25 digits<br>+<br>6-digit<br>trunk ac-<br>cess code | 25 digits | 25 digits | 25 digits                | 25 digits                  |

### Requirements and Conditions

| Subject                                    | Requirement or Condition                                                  |
|--------------------------------------------|---------------------------------------------------------------------------|
| External station num-<br>bers              | Speed-dialing destinations can contain external station numbers only.     |
| External station num-<br>bers              | The external station number must include the trunk group or seizure code. |
| Translation of station<br>numbers to names | You can assign a name to each speed-dialing destination.                  |



| <b>Subject</b>     | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tenant system      | If a tenant service is implemented using toll restrictions, the system does not check whether trunk seizures are authorized. If speed-dialing is used, the system automatically seizes the next free trunk, regardless of whether or not the user is authorized to seize this trunk. As a result, an incorrect system number may be displayed at the destination. For this reason, users should implement tenant service only via ITR groups. |
| Entrance telephone | The entrance telephone cannot access speed-dialing numbers.                                                                                                                                                                                                                                                                                                                                                                                   |
| ITR groups         | You cannot enter more than one speed-dialing number range for the same ITR group.                                                                                                                                                                                                                                                                                                                                                             |
| ITR groups         | By default, all speed-dialing numbers are assigned to ITR group 1.                                                                                                                                                                                                                                                                                                                                                                            |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                |
|-------------|--------------------------------------------------------------|
| 1.          | Configure system speed dialing                               |
| 2.          | 18-3 TRG groups                                              |
| 3.          | 18-3-1Traffic restriction - TRG groups - Group assignment.   |
| 4.          | 18-3-1-3 Traffic restriction - TRG groups - Group assignment |
| 5.          | 12-1 => System speed dial - Speed dial number                |
| 6.          | Enter speed-dialing destination.                             |
| 7.          | Enter destination number and trunk group code.               |
| 8.          | Configure name for speed-dialing destination                 |
| 9.          | 12-2 => System speed dial - Speed dial name                  |
| 10.         | Enter speed-dialing destination                              |
| 11.         | Enter name from the optiset E memory keypad                  |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------|
| 1.          | Configure system speed dialing Options                                                          |
| 2.          | System parameters                                                                               |
| 3.          | System speed-dialing                                                                            |
| 4.          | Enter the trunk group code, station number, and name for the desired speed-dialing destination. |
| 5.          | Administer the speed-dialing number range under "Classes of service/ ITR group assignment".     |

**Testing the feature**

Check the feature for proper functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                          |
|-------------|------------------------------------------------------------------------------------------------------------------------|
| 1.          | Configure the speed dialing destination.                                                                               |
| 2.          | Access the speed-dialing destination by entering a code (*7 + destination number) or using a key + destination number. |
| 3.          | The system sets up an external connection.                                                                             |

## 7.7.4 Station Speed Dialing in System

### Definition

The user can create a separate speed-dialing list for frequently dialed numbers.

Users can enter external numbers in the system database. Access depends on the station's dial-up access rights. Users must enter the trunk group code before the station number.

There is only one list of maximum 10 numbers per telephone. The Hicom 150 E Office systems have a pool of dial entries which is shared with the feature *Redial*. (Office Point = 300 entries, OfficeCom and Pro = 2000 entries). The system does NOT dedicate 10 Station speed dial entries per telephone. Any unused entries remain in the entry pool and can be used by other stations. It is therefore possible that a station user may not be able to program an entry on the telephone even though not all entries in the list have been used. This could indicate that the system pool of entries has been fully used up.

All types of telephones have access to this feature.

Station speed-dial numbers are stored in the system but must be entered by the individual user from the telephone. System Administration cannot enter these numbers for a user. Only external calls can be stored. A name can be associated with each destination.

This feature cannot be invoked if Telephone Lock has been activated.

Use the *Redial* key or the *pound* (#) key to program a dial pause and a DTMF changeover function.

Station speed dial is constrained by the COS toll restriction rules.

The default access code is \*7 followed by the index number. The abbreviated station speed-dial numbers are therefore: \*7\*0 through \*7\*9.

A feature button can be programmed on an optiset E. The button simulates the dialing of the access code (\*7). The user is then prompted (display telephone) to enter the index number. This is the same button used to dial the access code for System speed dial.

The trunk group code must be entered before the station number. Names cannot be assigned to Station speed dial numbers.

**Model-Specific Data**

| <b>Subject</b>                                              | <b>Pro</b>        | <b>Com</b>       | <b>Point</b>     | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|-------------------------------------------------------------|-------------------|------------------|------------------|-----------------------------------|-------------------------------------|
| Feature available in                                        | <b>x</b>          | <b>x</b>         | <b>x</b>         | <b>x</b>                          | <b>x</b>                            |
| HW requirements                                             | —                 | —                | —                | —                                 | —                                   |
| SW requirements                                             | Rel. 1.0 or later |                  |                  |                                   |                                     |
| Maximum number of station speed-dialing entries per station | 10                | 10               | 10               | 10                                | 10                                  |
| Maximum length of station speed-dialing entry               | 25 digits + code  | 25 digits + code | 25 digits + code | 25 digits + code                  | 25 digits + code                    |
| Maximum number of speed-dialing entries in the system       | 2000              | 2000             | 300              | 300                               | 300                                 |

**Requirements and Conditions**

| <b>Subject</b>                                       | <b>Requirement or Condition</b>                                                                                                                                                                              |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Telephones without display                           | Following station number entry, telephones without a display must wait for the confirmation tone.                                                                                                            |
| Analog telephones (with DP), S <sub>0</sub> stations | Station speed dialing is not possible.                                                                                                                                                                       |
| Internal station numbers, features                   | You cannot store internal station numbers and features in the station speed-dialing list.                                                                                                                    |
| optiset E telephones                                 | In the case of optiset E telephones, users can store station speed dialing using codes or the telephone's programmable keys.                                                                                 |
| Repdial keys, station speed-dialing memory           | Station speed-dialing destinations can be assigned until station speed-dialing memory in the system is exhausted. Speed-dialing memory is used for both repdial keys and station speed-dialing destinations. |
| Rotary dial analog telephones                        | Station speed-dialing is not possible.                                                                                                                                                                       |

**Configuration Options**

This feature does not have to be explicitly configured.

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                              |
|-------------|----------------------------------------------------------------------------|
| 1.          | Configure a repdial key.                                                   |
| 2.          | Configure a station speed-dialing destination.                             |
| 3.          | Dial the station speed-dialing destination (press programmed repdial key). |

## 7.7.5 Trunk Seizure Type and Prime Line On (Automatic Line Seizure)

### Definition

The Hicom 150 E system permits trunk seizure via the trunk keys or call keys on an optiset E telephone.

Trunk seizure is also possible from any telephone using the trunk or trunk group codes. To seize the second trunk using a trunk or call key, Prime Line must be active and a second trunk group assigned.

Trunk seizure via trunk group code is not possible by entering the trunk group code and pressing the trunk group key.

When the system receives a seizure request, it searches for an available trunk in the trunk group. If a trunk is available, it is seized.

### Prime Line

The *Prime Line* feature is a system-wide feature that allows users to dial directly to external destinations without the use of *Trunk* or *Trunk Group* keys. The external access code is automatically dialed by the system. Only one outgoing Trunk Group is possible with this arrangement. To dial internal stations, the user must first press the *Internal* key and dial the station number.

When this feature is NOT active in the system, the reverse operation is true; that is, internal stations can be dialed directly, while outside connections require a *Trunk*, *Trunk Group* key or an access code.

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | Trunk board       |          |          | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

### Requirements and Conditions

| Subject            | Requirement or Condition                                                                    |
|--------------------|---------------------------------------------------------------------------------------------|
| Trunks             | You must use system administration to cancel nonexistent or physically disconnected trunks. |
| COS changeover     | If you activate a telephone lock, you cannot seize a trunk.                                 |
| Entrance telephone | You cannot seize a trunk from an entrance telephone.                                        |

| <b>Subject</b>                          | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hold/park                               | An undialed or partially dialed trunk cannot be parked or placed on hold.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Automatic line seizure (Prime Line on)  | optiset E entry and optiset E basic telephones cannot use this feature.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Prime Line on (auto-matic line seizure) | Up to and including Release 2.2 (for World excluding U.S.) and Release 1.0 (for U.S. only), the following applies: With Prime Line, all trunks must be programmed in trunk group 1. You must deactivate Prime Line before entering another trunk group.<br>As of Release 2.2 SMR-H (for World excluding U.S.) and Release 1.0 SMR-R (for U.S. only) the following applies: With Prime Line, trunks can also be programmed in other trunk groups. You cannot define an overflow from trunk group 1 to another trunk group. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                    |
|-------------|------------------------------------------------------------------|
| 1.          | Configure Prime Line on                                          |
| 2.          | 17-11 => Networking - Prime Line                                 |
| 3.          | Configure trunk keys/call keys<br>*91 => Access key programming. |
| 4.          | Program the relevant key.                                        |
| 5.          | Assign the key selected as a trunk key/call key.                 |
| 6.          | Assign trunk group                                               |
| 7.          | 17-12 => Networking - Assign trk group                           |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                          |
|-------------|----------------------------------------|
| 1.          | Configure Prime Line on Options        |
| 2.          | Lines/networking                       |
| 3.          | Routing parameters                     |
| 4.          | Assign trunk group Options             |
| 5.          | Lines/networking                       |
| 6.          | Trunks                                 |
| 7.          | Configure trunk keys/call keys Options |
| 8.          | Set up station                         |
| 9.          | Key programming                        |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                      |
|-------------|------------------------------------|
| 1.          | Configure Prime Line on.           |
| 2.          | Dial a number.                     |
| 3.          | The trunk is automatically seized. |



## 7.7.6 En-Bloc Dialing

### Definition

With en-bloc dialing, the digits dialed are combined to form a block, stored in the system, and forwarded when they are recognized as complete.

If no additional digits are entered within a certain period (timer: *End of Dial on Incomplete dialing*; the default time is 15 seconds), the system interprets the last number entered as the last digit in the block.

When the timer expires (when the last dialed digit is recognized), dialing automatically begins. Dialing can also be started manually by entering the end-of-dialing code (#).

In the case of PRI, en-bloc dialing to the central office is mandatory. Block dialing is also used in CorNet-N networks.

Timing parameters are only accessible via the Expert Level in Hicom Assistant E Office. Contact your second-level service group if a change is required.

### Related Topics

- Section 7.8, *Least Cost Routing (LCR) (Not for U.S.)*, on page 7-244
- Section 7.9, *Least Cost Routing (for U.S. Only)*, on page 7-257

### Model-Specific Data

| Subject              | Pro                 | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|---------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                   | x   | x     | x                        | x                          |
| HW requirements      | Digital trunk board |     |       | —                        | —                          |
| SW requirements      | Rel. 1.0 or later   |     |       |                          |                            |

### Requirements and Conditions

| Subject  | Requirement or Condition                         |
|----------|--------------------------------------------------|
| CorNet-N | En-bloc dialing is used in CorNet-N networks.    |
| USA, PRI | En-bloc dialing is required with PRI in the USA. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                             |
|-------------|-------------------------------------------|
| 1.          | Configure en-bloc dialing                 |
| 2.          | 35-1 => Least cost routing - LCR on/off   |
| 3.          | 35-2 => Least cost routing - Dialing mode |
| 4.          | 35-3 => Least cost routing - Outdial rule |
| 5.          | 35-4 => Least cost routing - PIN          |
| 6.          | 35-5 => Least cost routing - Schedule     |
| 7.          | 35-6 => Least cost routing - Access       |
| 8.          | 35-7 => Least cost routing - Path tables  |
| 9.          | 35-8 => Least cost routing - Dial plan    |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                        |
|-------------|--------------------------------------|
| 1.          | Configure en-bloc dialing<br>Options |
| 2.          | Automatic LCR                        |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                               |
|-------------|-----------------------------------------------------------------------------|
| 1.          | Configure automatic least cost routing with en-bloc dialing.                |
| 2.          | Dial an external station number.                                            |
| 3.          | The trunk is seized when the timer has expired and outdialing is completed. |

### 7.7.7 Dial Tone Detection

#### Definition

The system always links analog trunk connections to the *Dial Tone Detection* routine. The system checks the trunk to determine whether the audible tone is present. The dialing information is not transmitted to the trunk until this check has been performed.

The reason for this is that the time until the CO dial tone is received can differ depending on the network operator and network status.

Dial Tone Detection is performed:

- After trunk seizure
- After dialing of administrable digits (for example, discriminating digit in the main communications server, LCR)
- When a second dial tone is monitored

Dial Tone Detection may not be appropriate, for example, in a Centrex environment, where different tones (to indicate CO Call Forwarding activation, etc.) need to be heard by the user. In such cases, the *Trunk Supervision* flag (*Dial Tone Detection*) must be turned off. Then a trunk seizure delay can be programmed before dialing can begin. If trunk supervision is activated, the system waits until a dial tone is detected, even if *No pause* is selected in this field.

The Trunk Seizure delay choices are *No Pause*, 1, 3, 6 or 9 seconds.

If *Trunk Supervision* is activated, and dial tone is not detected (timer: *Dial Tone Monitoring time*, default 10 seconds), this line is taken out of operation if there is no dial tone after seizure. Thereafter, the system checks at cyclical intervals whether a dial tone is once again present. When it is, the line in question is put back into operation. Dial tone monitoring time.

The *Dial Tone Monitoring* timer is only accessible via the Expert Level in Hicom Assistant E Office. Contact your second-level service group if a change is required.

#### Model-Specific Data

| Subject              | Pro                | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|--------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                  | x   | x     | —                        | —                          |
| HW requirements      | Analog trunk board |     |       | —                        | —                          |
| SW requirements      | Rel. 1.0 or later  |     |       | —                        | —                          |

**Requirements and Conditions**

| <b>Subject</b> | <b>Requirement or Condition</b>                                                                                                  |
|----------------|----------------------------------------------------------------------------------------------------------------------------------|
| Audible tone   | If audible tone monitoring is not possible or not desired, you can configure a <i>pause before dial</i> .                        |
| Audible tone   | You can modify the monitoring of a second audible tone and the audible tone monitoring time only using Hicom Assistant E Office. |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                 |
|-------------|-----------------------------------------------|
| 1.          | Configure audible tone monitoring             |
| 2.          | 21-2 => Analog CO interface - Delayed dialing |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                                                                  |
|-------------|------------------------------------------------------------------------------------------------|
| 1.          | Configure audible tone monitoring Options                                                      |
| 2.          | Lines/network                                                                                  |
| 3.          | Routing parameters ( <i>Digit request with LS/GS and Analysis of second dial tone</i> )        |
| 4.          | Configure times Options                                                                        |
| 5.          | System parameters                                                                              |
| 6.          | Time parameters ( <i>Dial tone monitoring time and Time between HT analysis and dialing</i> ). |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Configure pause before dialing.                          |
| 2.          | The digits are transmitted after the pause time expires. |

## 7.7.8 End-of-Dialing Recognition

### Definition

As in the case of en-bloc dialing, the end of dialing is signaled either automatically after the timer expires or manually when the user enters the end-of-dialing code (#).

The timer invoked in this case is *End-of-dial on incomplete dialing*. If dialing is not continued within the specified timeout, an end-of-dial is generated automatically. The default is 15 seconds.

Timing parameters are only accessible via the Expert Level in Hicom Assistant E Office. Contact your second-level service group if a change is required.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | Trunk connection  |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject             | Requirement or Condition                                                                                              |
|---------------------|-----------------------------------------------------------------------------------------------------------------------|
| End-of-dialing time | The longer the time for end of dialing, the longer it takes for the final digit to be transmitted on an analog trunk. |

### Configuration Options

This feature can be configured using Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | <b>Change end-of-dialing time</b><br>Options |
| 2.   | System parameters                            |
| 3.   | Time parameters                              |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                          |
|-------------|--------------------------------------------------------|
| 1.          | Dial an external number.                               |
| 2.          | The last digit is transmitted after the timer expires. |

## 7.7.9 Trunk Signaling Method

### Definition

The signaling methods currently in use are:

- Dial pulsing (DP)
- Dual-tone multifrequency (DTMF)

Pulses are analyzed in the case of DP, while tones are analyzed in the case of DTMF.

When the system uses analog trunk boards, the signaling method is automatically detected as long as the user has not configured a signaling method or *pause before dial*. Otherwise, the signalling method can be set on a per trunk basis.

### Model-Specific Data

| Subject              | Pro                | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|--------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                  | x   | x     | —                        | —                          |
| HW requirements      | Analog trunk board |     |       | —                        | —                          |
| SW requirements      | Rel. 1.0 or later  |     |       | —                        | —                          |

### Requirements and Conditions

| Subject                     | Requirement or Condition                                                                    |
|-----------------------------|---------------------------------------------------------------------------------------------|
| Signaling method            | If you set the trunk to PABX (communications server), the DTMF method is activated.         |
| Pause before dial           | If you configure <i>pause before dial</i> , the DP signaling method is activated.           |
| Power reset (power failure) | The signaling method that is detected is stored until the next power reset (power failure). |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.



**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                  |
|-------------|------------------------------------------------|
| 1.          | Configure signaling method                     |
| 2.          | 21-1 => Analog CO interface - Signaling method |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                         |
|-------------|---------------------------------------|
| 1.          | Configure signaling method<br>Options |
| 2.          | Lines/networking                      |
| 3.          | Trunks                                |
| 4.          | Flags                                 |
| 5.          | LS/GS flags                           |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                           |
|-------------|---------------------------------------------------------|
| 1.          | Seize an analog trunk.                                  |
| 2.          | The correct signaling method is detected automatically. |

## 7.7.10 Configurable Toll Restriction

### Definition

Each user in a communications server can be assigned different toll restrictions. Each time a station attempts to seize a trunk, that station's class of service (COS) is checked (toll restriction). The system distinguishes between 15 different classes of service:

- 0 = no trunk access
- 1 = outward-restricted trunk access
- 2 to 7 = allowed lists
- 8 to 13 = denied lists
- 14 = unrestricted trunk access



System configurations with CorNet-N and/or a fax server use class of service 7 for these trunks and devices. In this case, you should not assign class of service 7 to a subscriber with restricted access. Instead, use classes of service 0 to 6 and 8 to 14 for these subscribers.

The following list describes the classes of service in greater detail.

- **No trunk access**  
Users can make internal calls only. Users can use speed-dialing destinations. Cannot make calls via CorNet-N link.
- **Outward-restricted trunk access (incoming authorized)**  
Users can only answer external calls. Users can use speed-dialing destinations.
- **Allowed lists**  
Allowed lists define the station numbers that the user is allowed to dial. If no numbers are entered in an allowed list, the station functions like a telephone with outward-restricted trunk access.
- **Denied lists**  
Denied lists define the station numbers that the user is not allowed to dial. If no numbers are entered in a denied list, the station functions like a telephone with unrestricted trunk access.
- **Unrestricted trunk access**  
Users can answer and set up incoming and outgoing calls without restriction.

The Allowed numbers lists contain the digit sequences which may appear at the start of a call number. The maximum length of the digit sequence is seven digits (0..9, \*,#). A maximum of 100 entries can be made in the allowed numbers list no. 1 and the lists numbered 2-6 each contain a maximum of 50 entries.

The Barred numbers lists contain the digit sequences which cause a call number to be rejected. The maximum length of the digit sequence is seven digits (0..9,\*,#). A maximum of 50 entries can be made in the barred numbers list no. 1 and the lists numbered 2-6 each contain a maximum of 50 entries.

### Model-Specific Data

| Subject                              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|--------------------------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                 | x                 | x   | x     | x                        | x                          |
| HW requirements                      | Trunk connection  |     |       | —                        | —                          |
| SW requirements                      | Rel. 1.0 or later |     |       |                          |                            |
| Number of classes of service         | 15                | 15  | 15    | 15                       | 15                         |
| Number of characters in list entries | 25                | 25  | 25    | 25                       | 25                         |
| Total number of allowed lists        | 6                 | 6   | 6     | 6                        | 6                          |
| Allowed lists, long 100 entries      | 1                 | 1   | 1     | 1                        | 1                          |
| Allowed lists, short 10 entries      | 5                 | 5   | 5     | 5                        | 5                          |
| Total no. of denied lists            | 6                 | 6   | 6     | 6                        | 6                          |
| Denied lists, long 50 entries        | 1                 | 1   | 1     | 1                        | 1                          |
| Denied lists, short 10 entries       | 5                 | 5   | 5     | 5                        | 5                          |

### Requirements and Conditions

| Subject              | Requirement or Condition                                                                                                                                                                |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System speed dialing | You can use system speed-dialing destinations regardless of the COS.                                                                                                                    |
| Toll restriction     | The toll restriction classes of service regulate which denied or allowed lists are used for the stations for each trunk group. The classes of service apply to data and voice stations. |
| CS/CorNet-N/QSig     | If the trunk group for networking is set to communications server (CS), the toll restriction check is not performed.                                                                    |

| <b>Subject</b>           | <b>Requirement or Condition</b>                                                                                                                                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CorNet-N/QSig            | With networking, you should enter the trunk access code of the main communications server as a second trunk access code so that the toll restriction will be checked when a trunk in the main communications server is seized. |
| Least cost routing (LCR) | A distinction is made between classes of service and the LCR class of service; if both are configured, both apply..                                                                                                            |
| Telephone lock           | After telephone lock is activated, you can reduce the class of service but not select a higher class of service.                                                                                                               |

## **Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                 |
|-------------|---------------------------------------------------------------|
| 1.          | Configure allowed lists                                       |
| 2.          | 15-3-1 => Toll restriction - Allowed lists - Allowed 1, long  |
| 3.          | 15-3-2 => Toll restriction - Allowed lists - Allowed 2, short |
| 4.          | Configure denied lists                                        |
| 5.          | 15-4-1 => Toll restriction - Denied lists - Denied 1, long    |
| 6.          | 15-4-2 => Toll restriction - Denied lists - Denied 2, short   |
| 7.          | Configure toll restriction for stations                       |
| 8.          | 15-1 => Toll restriction - Restriction, day                   |
| 9.          | 15-2 => Toll restriction - Restriction, night                 |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                 |
|-------------|-----------------------------------------------|
| 1.          | Configure allowed/denied lists<br>Options     |
| 2.          | Classes of service                            |
| 3.          | Permitted/prohibited numbers                  |
| 4.          | Configure station class of service<br>Options |
| 5.          | Classes of service                            |
| 6.          | Stations                                      |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                |
|-------------|----------------------------------------------------------------------------------------------|
| 1.          | Authorize a station for outward-restricted trunk access.                                     |
| 2.          | The station cannot set up an outgoing external connection (exception: system speed dialing). |

## 7.7.11 Traffic Restriction Groups

### Definition

Multiple traffic restriction groups (ITRs), also known as Connection Groups (CON), are provided in the system for all stations. These groups define information on toll restriction and trunk group reference (incoming or outgoing) for stations and trunks.

An ITR matrix defines whether a station

- Is authorized to seize a trunk
- Can seize a trunk only in the incoming or only in the outgoing direction
- Can seize a trunk in the incoming and outgoing directions
- Is authorized to seize certain speed-dialing destinations (Release 2.2 or later)
- Can access another station internally

The CON matrix permits or suppresses traffic between stations/lines within a subsystem and between subsystems. The CON matrix is configured system-wide.

The system default setting assigns all stations and trunks to ITR group 1. That is, all stations are allowed to seize all trunks in the system. Which of the six groups can connect to which other groups is entered in the matrix.

Tenant Service call restrictions would be defined with the ITR (CON).

### Related Topic

Section 7.7.10, Configurable Toll Restriction, on page 7-226

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |
| No. of ITR groups    | 6                 | 6   | 6     | 6                        | 6                          |

## Requirements and Conditions

| Subject     | Requirement or Condition                                                                                                                                                                                                                                                        |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ITR group   | All stations and trunks are assigned to ITR group 1 by default.                                                                                                                                                                                                                 |
| MOH devices | As of Release 2.2 SMR-J, six MOH devices can be defined for six possible ITR groups. This means that the analog interfaces used for connection are part of the ITR groups. The particular MOH device used depends on the ITR group of the station that places the call on hold. |
| MOH source  | You cannot use the logical port "0" as an MOH source.                                                                                                                                                                                                                           |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                     |
|------|----------------------------------------------------------------------------|
| 1.   | Configure ITR station                                                      |
| 2.   | 18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations |
| 3.   | Configure ITR trunks                                                       |
| 4.   | 18-3-1-2 => Traffic restriction - ITR groups - Group assignment - Trunks   |
| 5.   | Configure ITR matrix                                                       |
| 6.   | 18-3-2-1 => Traffic restriction - ITR groups - Connection matrix - Matrix  |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                 |
|------|----------------------------------------|
| 1.   | <b>Configure ITR matrix</b><br>Options |
| 2.   | Class of service                       |
| 3.   | ITR matrix                             |
| 4.   | Configure ITR groups<br>Options        |
| 5.   | Class of service                       |

| <b>Step</b> | <b>Action</b>        |
|-------------|----------------------|
| 6.          | ITR group assignment |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------|
| 1.          | Configure several ITR groups.                                                                       |
| 2.          | From one station, attempt to call another station in a different ITR group.                         |
| 3.          | Stations with different ITR classes of service cannot make calls to each other.                     |
| 4.          | Whether stations can make calls to one another depends on their class of service in the ITR matrix. |



## 7.7.12 Private Trunk

### Definition

The private trunk feature provides a station with immediate access to a trunk via a programmable feature key.

Users can program toll restrictions for private trunks by using the traffic restriction group (ITR) feature or by configuring a separate trunk group.

Care should be exercised when configuring a Private Trunk. By definition, a Private Trunk implies that it will only terminate at one station. However, because features are implemented on a device-basis, activation of some features could impact the operation of the Private Trunk, for example, DND, Call forward, intercept.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                     |
|------|----------------------------------------------------------------------------|
| 1.   | Configure ITR station                                                      |
| 2.   | 18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations |
| 3.   | Configure ITR trunks                                                       |
| 4.   | 18-3-1-2 => Traffic restriction - ITR groups - Group assignment - Trunks   |
| 5.   | <b>Configure ITR matrix</b>                                                |
| 6.   | 18-3-2-1 => Traffic restriction - ITR groups - Connection matrix - Matrix  |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                          |
|-------------|----------------------------------------|
| 1.          | <b>Configure ITR matrix</b><br>Options |
| 2.          | Class of service                       |
| 3.          | ITR matrix                             |
| 4.          | Configure ITR groups<br>Options        |
| 5.          | Class of service                       |
| 6.          | ITR group assignment                   |

**Testing the Feature**

Check the feature for error-free functioning as follows

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Only the station configured can seize the private trunk. |

## 7.7.13 Trunk Queuing

### Definition

If users receive a busy signal following a trunk seizure request (because no free trunk is available), they can use a procedure to queue on a seized trunk (book a line). As soon as the trunk becomes available, the system recalls the first user in the queue. The user hears the CO dial tone and can set up the external connection.

It is not possible to invoke Trunk Queueing if the attempted call was placed through LCR.

Trunk Queueing can be invoked when all trunks on a *Trunk group* key show busy.

If the user is busy at the time of the recall, the trunk will camp on to the busy station and if the *camp-on to* is not answered within the default 20 seconds, the reservation is cancelled and the trunk is offered to the next station in the queue list.

If the user activated DND prior to receiving a recall from a queued trunk, the trunk reservation is cancelled and the trunk is offered to the next station in the queue list.

If the user had invoked Call forward (CFNA or CF), the recalling trunk will ignore the call forward and continue to ring at the requesting station. If not answered within default 20 seconds, the trunk reservation is cancelled.

A recalling trunk cannot be picked up by either Call Pick up - group or Call pick up - Directed.

If a reservation is placed against a trunk which has an appearance at one or more stations, the *Trunk* key's LED flashes at the recall rate at the station that invoked the queue request. The LED will be lit steadily at all other appearances.

Only one queue/reservation request is possible per telephone. If a second reservation is attempted, it overwrites the first.

A system-wide flag, *Trunk reservation*, enables/disables this feature

This feature can be invoked in one of the following two ways:

- Manual reservation (for display telephones)
- Automatic reservation (for all other types of telephones)

### Trunk Reservation—Automatic

When this flag is activated and if a station is not assigned a free trunk after the usual trunk seizure procedures (random or specific), Busy tone is signaled at the station. After a fixed period (5 seconds), a positive acknowledgment tone is applied and the trunk is reserved, provided that the station has the appropriate CO call privilege.

### Trunk Reservation—Manual

- This feature is available only to display telephones.
- This feature does not need to be configured in the database.



Trunk reservation is not possible in hands-free mode. In this case, the system interrupts call setup when it recognizes that the line is seized.

## Operating the Feature

Refer to *Booking A Line* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

- Display Telephones

Having dialed a trunk group access code, or a trunk access code, or after pressing a busy trunk or *Trunk group* key, the user is presented with the display message *Currently busy*, and the display prompts the user with *Reserve trunk?*. If the user selects this prompt, the system returns an acknowledgment *Trunk reserved*.

When a trunk becomes free, it recalls the first station queued for this trunk. A recall ring is heard and the display indicates *Trunk is free*. Going off-hook, the user is presented with dial tone and can proceed to dial the wanted destination.

## Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | —                        | —                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       | —                        | —                          |

## Requirements and Conditions

| Subject           | Requirement or Condition                                                                                   |
|-------------------|------------------------------------------------------------------------------------------------------------|
| Queue trunk       | A station can queue only one trunk.                                                                        |
| Queue trunk       | Trunk queuing does not apply to S <sub>0</sub> (not for U.S.).                                             |
| Recall            | A recall does not follow call management.                                                                  |
| Speakerphone mode | Users can also use trunk queuing in speakerphone mode                                                      |
| Trunk             | If a number of stations queue a trunk, the trunk is assigned in the order that the requests were received. |

| Subject | Requirement or Condition                    |
|---------|---------------------------------------------|
| LCR     | If LCR is active, trunks can not be queued. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Configure trunk queuing                      |
| 2.   | 22-25 => System settings - Trunk reservation |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                             |
|------|------------------------------------|
| 1.   | Configure trunk queuing<br>Options |
| 2.   | System parameters                  |
| 3.   | Flag/CMI                           |

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                            |
|------|-------------------------------------------------------------------|
| 1.   | Station A seizes a trunk.                                         |
| 2.   | Station B presses the trunk key or dials a discriminating digit.  |
| 3.   | Confirm that <i>trunk queuing</i> should be performed.            |
| 4.   | Station A hangs up.                                               |
| 5.   | Station B rings; user picks up the handset and hears a dial tone. |

## 7.7.14 Temporary Station Number Display Suppression

### Definition

This feature prevents a calling or called party from receiving a station number display. The feature is designed as a changeover function; the changeover applies until it is deliberately canceled (changeover repeated).

This feature applies only to incoming from or outgoing calls to an ISDN public network connection. The system-wide flag, *Call Number suppression on*, can be set to suppress the system Caller ID display. The default setting is *off*, that is, the number is not suppressed.

The feature is designed as a changeover function; that is, the changeover applies until it is deliberately canceled (changeover repeated).



The system-wide flag Call Number Suppression Override does not apply in the US.

All types of telephones can invoke this feature.

The *Flags* screen is one of three screens in the *System Status* pathway of Hicom Assistant E Office that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated Number Suppression or not.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject                                        | Requirement or Condition                                                                                  |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Station number transmission                    | Temporary station number suppression must be supported by the trunk.                                      |
| System-wide station number display suppression | If station-wide station number display suppression is activated (CLIR and COLR), it cannot be overridden. |

| Subject              | Requirement or Condition                                                                                                                                                           |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLIR                 | It is possible to ignore an activated CLIR setting and display the station number of the calling station. This feature is helpful in various situations, as in of emergency calls. |
| Default access codes | *86 to suppress, #86 to display the number                                                                                                                                         |

### Configuration Options

The feature *Temporary station number display suppression* does not need to be explicitly configured; however, system-wide flags need to be set.

### Programming Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                    |
|------|-----------------------------------------------------------|
| 1.   | Set system-wide flag to suppress Caller ID:<br>*9531994   |
| 2.   | 20 - 1: ISDN parameters -> Suppress Caller ID, On or Off. |

### Programming Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                   |
|------|--------------------------------------------------------------------------|
| 1.   | Set system-wide flags to suppress Caller Id and for override:<br>Options |
| 2.   | System parameters                                                        |
| 3.   | Display -> Call Number Suppression.                                      |

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                    |
|------|-------------------------------------------------------------------------------------------|
| 1.   | Enter *86 to activate station number suppression.                                         |
| 2.   | Set up an outgoing connection. The station number is not displayed on the remote station. |
| 3.   | Enter the code #86 to deactivate station number suppression.                              |
| 4.   | Set up an outgoing connection. The station number is displayed on the remote station.     |

## 7.7.15 Denied List for Undialed Trunks

### Definition

This feature restricts the dial-up access rights for a trunk selected by the attendant console. An attendant console may seize an outside line and transfer it to an internal station. This feature restricts the dial-up access rights for a trunk selected by the attendant console; the user receiving the transferred trunk will not be able to reach the destinations denied by the class of service (COS) level.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| SW requirements      | Rel. 2.2 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject          | Requirement or Condition                                        |
|------------------|-----------------------------------------------------------------|
| Class of service | The class of service of the selected reference station applies. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                                                                                   |
|------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | 33-4-1 => Attendant console - Xfer undialed trunk                                                                                        |
| 2.   | 15-4 => Denied list or 15-3 Allowed list                                                                                                 |
| 3.   | 15-8 => Configure reference station                                                                                                      |
| 4.   | 15-1 => Toll restriction - Restriction, day for reference station<br>15-2 => Toll restriction - Restriction, night for reference station |



**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                              |
|-------------|------------------------------------------------------------|
| 1.          | Activate feature for attendant console                     |
| 2.          | Permitted/prohibited numbers                               |
| 3.          | Assign reference station under “Class of service/Stations” |
| 4.          | Assign COS group for reference station                     |

**Testing the Feature**

Check the feature for proper functioning as follows:

| <b>Step</b> | <b>Action</b>                                                              |
|-------------|----------------------------------------------------------------------------|
| 1.          | A user calls the attendant console (AC).                                   |
| 2.          | The AC sends dial tone to the user via the “Transfer trunk” menu option.   |
| 3.          | The user can set up a call within the allowed area by seizing a trunk (0). |

## 7.7.16 Assigning Speed-Dialing Numbers to ITR Groups

### Definition

You can assign a specific speed-dialing number to a specific user or a specific trunk.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| SW requirements      | Rel. 2.2 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject                        | Requirement or Condition                                                                          |
|--------------------------------|---------------------------------------------------------------------------------------------------|
| Number of speed-dialing groups | You can configure up to six speed-dialing groups (from KWZx to KWZy), including overlapping ones. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                            |
|------|---------------------------------------------------|
| 1.   | 18-3-1 => Speed-dialing group assignment          |
| 2.   | 3-1 => Speed dialing, minimum                     |
| 3.   | F2 => Go to Speed dialing, maximum                |
| 4.   | 18-3-1-1 => Assign station to speed-dialing group |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                                                     |
|-------------|-----------------------------------------------------------------------------------|
| 1.          | Classes of service/ITR group assignment/<br>Assign station to speed-dialing group |

**Testing the feature**

Check the feature for proper functioning as follows:

| <b>Step</b> | <b>Action</b>                                                 |
|-------------|---------------------------------------------------------------|
| 1.          | A user dials an allowed speed-dialing number: OK.             |
| 2.          | A user dials a denied speed-dialing number: no authorization. |

## 7.8 Least Cost Routing (LCR) (Not for U.S.)

### Definition

Least cost routing provides Hicom 150 E Office with automatic control over the path of an outgoing call. This path can be one of various public-network carriers or a private network. Based on routing tables, the system seeks the least expensive connection path for the outgoing call.

The system seizes a trunk only after it has scanned the routing tables. The system sends dial tone as a function of the dial plan so that the station is informed of the ready-to-dial condition. The signals dialed are buffered until the routing tables have been scanned. Only then does the system make the connection.

### Model-Specific Data

| Subject                          | Pro               | Com | Point | One | Start |
|----------------------------------|-------------------|-----|-------|-----|-------|
| Feature available in             | x                 | x   | x     | x   | x     |
| HW requirements                  | —                 | —   | —     | —   | —     |
| SW requirements                  | Rel. 1.0 or later |     |       |     |       |
| Number of LCR classes of service | 15                | 15  | 15    | 15  | 15    |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                                                                                          |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LCR     | If all the least expensive connection paths have been seized, LCR automatically switches to defined more expensive paths. The system can signal user of this fact both visually and acoustically. |
| LCR     | The dialed station number is displayed until the station number information on the other party is received.                                                                                       |
| LCR     | If LCR is activated, the system checks for the least costly route for every trunk seizure (except when a trunk code is dialed).                                                                   |
| LCR     | Digits can be transmitted either singly or en-bloc, depending on the access method and the dial plan.                                                                                             |
| LCR     | After an account code is entered, it applies to the entire connection setup.                                                                                                                      |
| LCR     | The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed at the station without considering the trunk group code.                          |

| <b>Subject</b>                          | <b>Requirement or Condition</b>                                                                        |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------|
| LCR class of service                    | The LCR class of service determines whether a station can use the route recommended in the path table. |
| Prime Line on (auto-matic line seizure) | LCR is not possible when Prime Line is active.                                                         |

### 7.8.1 Carrier Types

Since in many cases individual carriers provide specific connections and conditions at different tariffs (sometimes with different signaling methods), least cost routing can be used to automatically select the most economical connection or most economical carrier for each outgoing phone call.

The following carrier types and networks are available for implementing least cost routing (LCR).

#### 7.8.1.1 Mercury Communications Limited Single Stage

##### Definition

With this type of LCR, a prefix is used to dial the desired network carrier and the station number is subsequently dialed.

##### Model-Specific Data

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One</b> | <b>Start</b> |
|----------------------|-------------------|------------|--------------|------------|--------------|
| Feature available in | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>   | <b>x</b>     |
| HW requirements      | —                 | —          | —            | —          | —            |
| SW requirements      | Rel. 1.0 or later |            |              |            |              |

##### Requirements and Conditions

| <b>Subject</b>   | <b>Requirement or Condition</b>                                                              |
|------------------|----------------------------------------------------------------------------------------------|
| MCL Single Stage | Dialing is carried out in the D channel (with ISDN) or as normal dialing (on analog trunks). |

**7.8.1.2 Mercury Communications Limited Two Stage****Definition**

With this type of least cost routing, the system initially selects the carrier using a configurable access code (as with single stage). Afterwards, the system also waits for a connect (synchronization during timeout).

After the connect, the system transmits an authorization code and the destination station number as DTMF signals in the B channel.

**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One</b> | <b>Start</b> |
|----------------------|-------------------|------------|--------------|------------|--------------|
| Feature available in | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>   | <b>x</b>     |
| HW requirements      | —                 | —          | —            | —          | —            |
| SW requirements      | Rel. 1.0 or later |            |              |            |              |

**Requirements and Conditions**

| <b>Subject</b> | <b>Requirement or Condition</b>                                                   |
|----------------|-----------------------------------------------------------------------------------|
| MCL            | With synchronization during timeout, you must program a pause of 2 to 12 seconds. |

### 7.8.1.3 Dial-In Control Server (DICS)

#### Definition

With this type of least cost routing, the system uses the routing table to determine whether the call should be made via the DICS or the public network. If the DICS is used, the system dials the DICS using a configurable access code and an authorization code and transmits the station number dialed by the station in the SUB address (on the D channel). The DICS checks the authorization based on the CLIP information and the transmitted authorization code.

If the DICS is not present during the first connection setup, the system reroutes the connection to the public network. This alternative access must be configured.

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | x   | x     | x   | x     |
| HW requirements      | —                 | —   | —     | —   | —     |
| SW requirements      | Rel. 1.0 or later |     |       |     |       |

#### Requirements and Conditions

| Subject                    | Requirement or Condition                                                    |
|----------------------------|-----------------------------------------------------------------------------|
| Station number suppression | Temporary or permanent station number suppression cannot be activated.      |
| ISDN/SUB addressing        | The ISDN feature SUB must be applied for or released in the public network. |
| Analog trunk               | DICS can only be used with ISDN.                                            |

### 7.8.1.4 Corporate Network (CN)

#### Definition

A corporate network is an alternative network, such as a company-owned network, that is connected directly to the Hicom 150 E.

The LCR function determines the corresponding trunk group based on the station number dialed and then routes the call either via the trunk group in the public exchange or via the trunk group in the corporate network.

If necessary, the system translates the station number.

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | x   | x     | x   | x     |
| HW requirements      | —                 | —   | —     | —   | —     |
| SW requirements      | Rel. 1.0 or later |     |       |     |       |

### 7.8.1.5 Primary Carrier

#### Definition

When a trunk is seized by the primary carrier, simplified dialing is performed by en-bloc dialing or by dialing individual digits into the public network.

If primary carrier was the method selected in the outdial rule table, forwarding in the trunk group table is not performed for entries after the route configured as a primary carrier.

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | x   | x     | x   | x     |
| HW requirements      | —                 | —   | —     | —   | —     |
| SW requirements      | Rel. 1.0 or later |     |       |     |       |



## 7.8.2 Routing Tables

### Definition

The routing tables evaluate the digits dialed by the user and determine the station number that the system should dial. In the process, the digits are modified as necessary. This modification can mean that digits are repeated, suppressed, added, or reordered. It is also possible to add a dial pause and change the signaling method. A distinction is made between the following types of routing tables:

- **Outdial rule table:** This table determines how the digits dialed by the user will be converted and dialed by the system. The following special characters can be defined:
  - A:** Repeat remaining fields (transmit). This letter causes all subsequent digit fields to be transmitted. The point of reference is the last field pointer before A. The combination E1A is permitted only at the beginning of a string.
  - D (n):** Dial digit sequence (1 to 25 digits). This letter can be inserted multiple times and at any position in the string.
  - E (n):** Repeat field from dial plan (from 1 to 10 times). This letter can be inserted multiple times and at any position in the string. *E* can also appear in any order with relation to (n). A specific field can be addressed multiple times, including in sequence. With the exception of *E1*, this letter can be surrounded by any parameter.
  - P (n):** Pause (1 to 60 times the system-wide pause unit). This letter can be inserted multiple times and at any position in the string.
  - M (n):** Authorization code (1 to 16). This letter must not be in the final position.
  - S:** Switch, changes signaling methods from DP to DTMF (with CONNECT, PROGRESS or CALL PROC with PI). This letter can be inserted in the string only once and may not be in the final position. The *C* parameter cannot be used after *S*.
  - U:** Use subaddress signaling method. This letter can be inserted in the string only once and may not be in the final position. Subsequent characters are again dialed in *INFO*. The *S*, *P*, and *C* parameters cannot be used after *U*.
  - C:** Access code. This letter can be inserted in the string only once. The subsequent characters are transmitted without a dial pause and are used for single stage, two-stage, DICS (not for U.S.), BRI, and PRI carrier access.
- **Authorization code:** The authorization code is divided into the carrier ID and customer ID. The carrier ID is entered as one entry in the authorization code table and the customer ID is entered as another entry in the authorization code table.

### *Least Cost Routing (LCR) (Not for U.S.)*

The authorization code entry in the outdial rule then consists of the two authorization codes. Only a protected authorization code is supported (represented by \*\*\*\*\*).

- **Class of service:** Each station is assigned a class of service (COS). A station can then seize a path only if its COS is greater than or equal to the COS in the path table; for example, a station with a COS 7 cannot seize a path with COS 8.
- **Schedule:** Up to eight time zones per day can be configured for each day of the week to control LCR. A search is performed based on the schedule ID entered in the path table to determine whether the current time matches the value entered in the schedule. If it does and if the correct class of service is present, dialing is performed as per the outdial rule entered in the path table.

- **Path table:** Up to 254 path tables (Rel. 2.0 or later) with 16 paths each can be created. Each path in a path table is described by a combination of the trunk group, outdial rule, toll restriction, schedule, and an option for warning against a more expensive route.  
The table is scanned from top to bottom. The system checks to determine whether the trunk group is free and the station has the requisite class of service. If so, the system dials per the outdial rule and schedule entered in the path table.

Depending on the entry in the path table, a warning can be issued to the station informing the user that the call is being routed. This warning can be signaled by a warning tone and a display message. The display shows the outdial rule name.

- **Dial plan:** Each station number dialed for external traffic is checked against the dial plan for up to 30 positions (including field separator and trunk group code). If the number dialed matches an entry in the dial plan, LCR is handled in accordance with the path table in the dial plan.

To use all available features (such as callback) in conjunction with LCR, the trunk group code must be separated from the dialed station number by a dash (–) in the dial plan (sample dial plan entry: 0–CZ).



The first entry in a dial plan does not have to be a trunk group code; it can also be a station number in a networked system.

The following station number entries are valid:

0...9: Permissible digits

–: Field separator

X: Any digit from 0 to 9

N: Any digit from 2 to 9

Z: One or more digits to follow up to the end of dialing

C: Simulated dial tone (can be entered up to three times)

If *Prime Line on* (automatic line seizure) is active, trunk group 1 should be the default setting (in Release 2.2 [for world, excluding U.S.], Release 2.0 [for U.S. only], and earlier versions).

To **block incoming external calls**, enter a dash (–) in the **Routing table** field of the dial plan.

Example:

| Dialed Digits<br>(Code + Station Number) | Path Table | Explanation                                       |
|------------------------------------------|------------|---------------------------------------------------|
| 9C1-900-XXX-XXX                          | –          | The dash (–) blocks all 900 numbers.              |
| 9C1-976-123-3456                         | –          | The dash (–) blocks only the number 976-123-3456. |

Do not confuse the hyphen (–) in the **Dialed digits** field, which separates the digit blocks in the number, with the dash in the **Path table** field, which blocks the numbers.

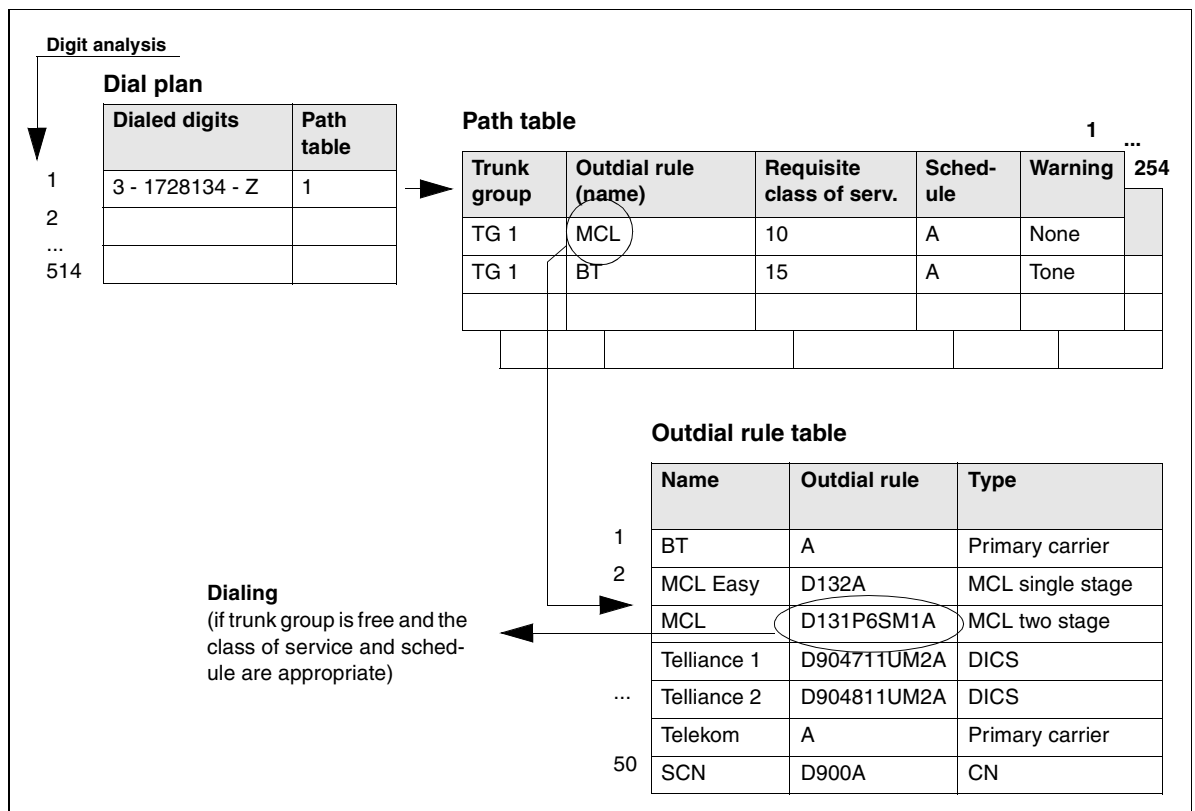


Figure 7-3 Sample LCR Flow Diagram (Not for U.S.)

The dialed call number is used as the criterion for the connection path to be used. The system can evaluate up to 24 digits of the digit sequence plus up to 9 field separators. The digit sequence that can be dialed can consist of up to 32 digits. The evaluation can be carried out both *destination dependently* and *time dependently* and in dependence on the station's LCR class of service (COS).

The system contains 254 route tables with 16 routes each. The LCR class-of-service is evaluated hierarchically for LCR.

The outdial rule is described in the Assistant by its name, which consists of not more than 16 characters, and in the System Administration by its index.

The station can cancel automatic selection by seizing a line directly (Carrier Select Override - CSO). The LCR class-of-service cannot be transferred between CorNet-N networked systems.

### **General Operating Principle**

The system analyzes the number dialed to determine if the digits input are valid. If the digits are recognized, a reference route table is scanned for Route group choices. Once the Route group is selected, the availability of the route is checked against the time schedule. If the Route group is available, the LCR COS requirement assigned to the route group is compared to the LCR COS associated with the dialing device. If the LCR COS associated with the dialing station is equal to or greater than the route

group COS, the Toll Restriction tables are checked for additional screening information. This process is repeated for every call using the system LCR application.

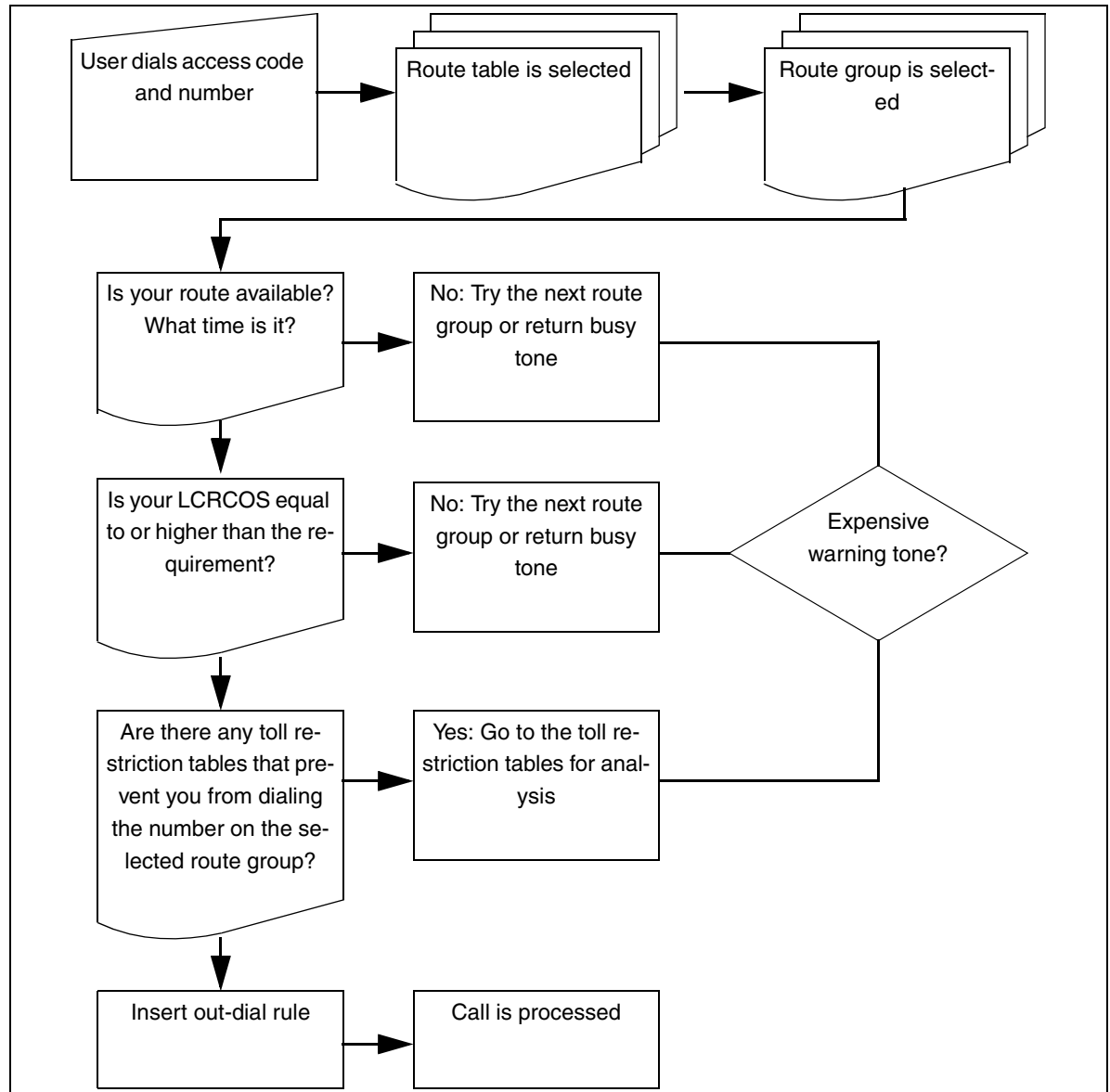


Figure 7-4 General LCR Flow

- A system-wide flag activates LCR via Hicom Assistant T or Hicom Assistant E.
- When LCR is activated, the check is performed for every trunk seizure (except when dialing a trunk code).
- If all the least expensive connection paths have been seized, LCR automatically switches to defined *more expensive* paths. The user can be signaled of this fact both visually and acoustically.

## Implementing Features

For internal distribution only

### *Least Cost Routing (LCR) (Not for U.S.)*

- In the case of outgoing calls on the ISDN network, the dialed number continues to be displayed until the destination number information on the other party is received.
- Digits can be transmitted either per digit or en-bloc, depending on the access method and the dial plan.
- Once an account code is entered, it applies to the entire connection setup.
- The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed on the station without the trunk group code.

### Model-Specific Data

| Subject                                                      | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|--------------------------------------------------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in                                         | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements                                              | —                 | —        | —        | —                        | —                          |
| SW requirements                                              | Rel. 2.0 or later |          |          |                          |                            |
| No. of path tables                                           | 254               | 254      | 254      | 254                      | 254                        |
| Number of paths per<br>path table                            | 16                | 16       | 16       | 16                       | 16                         |
| No. of time zones                                            | 8                 | 8        | 8        | 8                        | 8                          |
| No. of outdial rules                                         | 254               | 254      | 254      | 254                      | 254                        |
| Number of characters<br>per outdial rule                     | 40                | 40       | 40       | 40                       | 40                         |
| No. of dial plans                                            | 514               | 514      | 514      | 514                      | 514                        |
| Number of digits di-<br>aled (including trunk<br>group code) | 32                | 32       | 32       | 32                       | 32                         |
| No. of digits evaluated                                      | 25                | 25       | 25       | 25                       | 25                         |

## Requirements and Conditions

| Subject                  | Requirement or Condition                                                                                                                                                                                                                                              |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LCR                      | With per-digit dialing, the last element in the outdial rule cannot be E(n); it may be E(n)A.                                                                                                                                                                         |
| Networking               | In networking with open numbering, route optimization cannot be activated.                                                                                                                                                                                            |
| Least cost routing (LCR) | If <i>primary carrier</i> is entered as a type in the outdial rule, re-routing is not done in the path tables.<br>If routing should be carried out when the trunk is busy or when S <sub>0</sub> lines are disrupted, the type should be set to <i>Single Stage</i> . |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                    |
|------|-------------------------------------------|
| 1.   | Configure LCR                             |
| 2.   | 35-1 => Least cost routing - LCR on/off   |
| 3.   | 35-2 => Least cost routing - Dialing mode |
| 4.   | 35-3 => Least cost routing - Outdial rule |
| 5.   | 35-4 => Least cost routing - PIN          |
| 6.   | 35-5 => Least cost routing - Schedule     |
| 7.   | 35-6 => Least cost routing - Access       |
| 8.   | 35-7 => Least cost routing - Path tables  |
| 9.   | 35-8 => Least cost routing - Dial plan    |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>         |
|-------------|-----------------------|
| 1.          | Configure LCR Options |
| 2.          | Least Cost Routing    |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                |
|-------------|----------------------------------------------|
| 1.          | Configure LCR.                               |
| 2.          | Place an outgoing call.                      |
| 3.          | The call is routed according to the setting. |



## 7.9 Least Cost Routing (for U.S. Only)

### 7.9.1 Introduction

This section explains the definitions and procedures used by the Hicom 150 E least cost routing (LCR) feature to control the path over which outgoing calls are routed to the public network.

The system analyzes each trunk call placed using least cost routing. If the digits are recognized, a reference route table is scanned for route-group choices. After the route group is selected, the availability of the route is checked against the time schedule. If the route group is available, the LCR class-of-service requirement assigned to the route group is compared to the LCR class of service associated with the dialing device. If the LCR class of service associated with the dialing device is equal to or greater than the route-group class of service, the toll-restriction tables are then checked for additional screening information.

The dialed call number is used as the criterion for the connection path to be used. The system can evaluate up to 24 digits of the digit sequence plus up to 9 field separators. The digit sequence that can be dialed can consist of up to 32 digits. The evaluation can be carried out both *destination dependently* and *time dependently* and in dependence on the station's LCR class of service (COS).

#### **General Operating Principle**

The system analyzes the number dialed to determine if the digits input are valid. If the digits are recognized, a reference route table is scanned for Route group choices. Once the Route group is selected, the availability of the route is checked against the time schedule. If the Route group is available, the LCR COS requirement assigned to the route group is compared to the LCR COS associated with the dialing device. If the LCR COS associated with the dialing station is equal to or greater than the route group COS, the Toll Restriction tables are checked for additional screening information. This process is repeated for every call using the system LCR application.

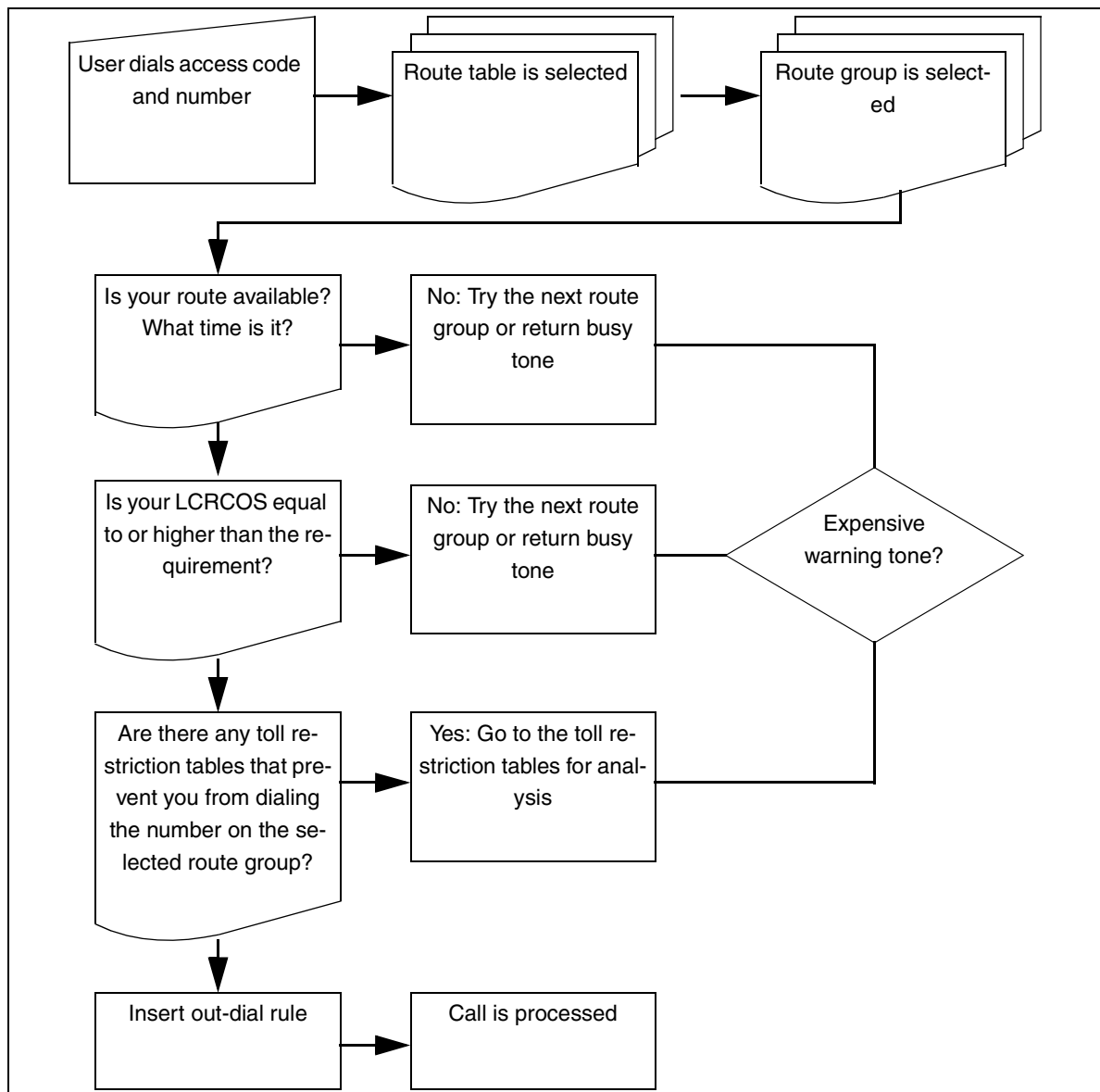


Figure 7-5 General LCR Flow (for U.S. Only)

- A system-wide flag activates LCR via Hicom Assistant T or Hicom Assistant E Office.
- When LCR is activated, the check is performed for every trunk seizure (except when dialing a trunk code).
- If all the least expensive connection paths have been seized, LCR automatically switches to defined *more expensive* paths. The user can be signaled of this fact both visually and acoustically.

- In the case of outgoing calls on the ISDN network, the dialed number continues to be displayed until the destination number information on the other party is received.
- Digits can be transmitted either per digit or en-bloc, depending on the access method and the dial plan.
- Once an account code is entered, it applies to the entire connection setup.
- The allowed and denied lists are also used for LCR. The toll restriction check then refers to the digits dialed on the station without the trunk group code.

## Configuration

- For instructions on configuring least cost routing using Hicom Assistant E Office, refer to Section 8.34.1.
- For instructions on configuring least cost routing using Hicom Assistant T, refer to Section 8.34.2.

## 7.9.2 Carrier Types

Since in many cases the individual carriers provide specific connections and conditions at different tariffs (with different signaling methods, when applicable), the least cost routing feature can be used for automatically selecting the most economical connection or most economical carrier for each outgoing telephone call.

The following carrier types and networks are available for implementing least cost routing (LCR):

- AT&T
- MCI
- Sprint
- Westinghouse
- U.S. Government Federal Telephone System FTS-2000

Connections to the local exchange carrier (LEC) are toll-free. Connections to the inter-exchange carrier (IEC) are handled by the carriers listed above. The LEC has a default IEC that it uses for long distance calls unless the user selects another carrier. To select another carrier, the user must first dial the IECs Carrier Access Code (CAC) and Carrier Identification Code (CIC).

There are two different types of CIC numbering schemes: one for a 3-digit CIC and another for a 4-digit CIC. The four-digit code consists of the three-digit code preceded by the number 0. For example, the CIC for MCI is 222 or 0222.

The CAC for a three-digit CIC is 10, and the CAC for a four-digit CIC is 101.

## **7.9.3 Using Alternate Carriers**

Alternate carriers may be connected to each trunk route group. The selection of the carrier is defined in the least cost routing outdial-rule section.

### **7.9.3.1 Carrier Access Methods Supported**

#### **Main Carrier**

When seizing a trunk using the main carrier, the system can use en-bloc dialing or send single digits to the public network to set up the outgoing call. Note that this access method is used when routing calls over the public switching network.

#### **MCL Single Stage**

The system calls the selected carrier using a prefix and then dials the destination number. Digits are sent in the D channel when using ISDN service or as normal dialing when using analog service. This selection may be used in CorNet applications for advancing to public network facilities for overflow applications.

#### **MCL Two Stage**

The system calls the selected carrier using a prefix in this method as well. After a short synchronization phase, it sends a programmable authorization code and then the destination number using DTMF digits.

#### **Corporate Network (CorNet)**

When a corporate network (CN) method is used, the alternate network is connected directly to the Hicom 150 E. This can be seen as a company network. LCR determines the trunk group by analyzing the number the user has dialed and routes the call either over the CO trunk group or over the corporate network. This method allows both an open and closed numbering plan to be implemented by manipulation of digits.

### **Dial-In Control Server**

The system calls the selected carrier using a prefix and calls a dial-in control server (DICS). The authorization code and the destination number are transmitted within the SUB address. Dialing information is sent in the D channel.

### **Primary Rate Interface**

The choice of a carrier or of a calling service is encoded in the following information elements:

- Network specific facility
- Operator system access
- Transit network selection

### **LCR Dial Plan**

The dialed destination number serves as a criterion for the route group to be used. The system can evaluate up to 24 digits in the dialed sequence plus the routing code. The system evaluates and routes the call based on a time of day schedule and the station's least cost routing class of service.

### **Destination-Dependent Evaluation**

The dialed digit sequence may be converted to a new digit sequence after evaluation, or it may be preceded by additional digits such as the carrier information of the destination.

## **7.9.4 LCR Time of Day Evaluation**

The time table allows the system to evaluate the availability of a selected route according to a maximum of eight time zones. For each weekday, the number can be evaluated in hour:minute intervals throughout the day.

## **7.9.5 LCR Outdial Rules**

The dialed number can be converted to any new digit sequence (up to 40 digits). The system can evaluate up to 514 digit sequences dialed from the station. Wildcards may be used in the LCR dial-plan table. The system supports 254 outdial rules for digit translation requirements as well.

## **7.9.6 Expensive Route Identification**

If the first route selection in the route table is busy, the LCR function can advance to the next expensive path configured in the route group table. The system can notify the user of this with an audible signal, an optical signal, or both. Users can then decide whether they would like to use the assigned path or hang up.

## **7.9.7 Overflow Options**

When the LCR function determines that the preferred trunk or tie-trunk group cannot be used, it can select an alternate trunk group within the selected route-group table.

## **7.9.8 LCR Class of Service**

Up to 15 station-specific trunk classes of service are possible. The class of service setting controls access to the configured route groups in the LCR route-group table.

## **7.9.9 Carrier-Select Override**

Carrier-select override (CSO) can be implemented using selective line seizure. In this case a connection can only be set up via the main carrier.

## **7.9.10 Handling of Numbers and Destinations and Trunk Group Access Codes**

All numbers except internal station numbers are stored as an LCR digit string. All numbers dialed by a user are displayed without routing information. The dialed numbers remain displayed until answer supervision is received from the central office. If more than one trunk group access code is programmed for a trunk group, the first access code is the default.

If the number of the called party during an outgoing connection is also stored in the optiset caller list or if a callback is activated, the number dialed by the user is stored instead of the destination number sent by the system. In this case, the trunk group access code is also stored so that the system can recall the party from the caller list using the correct access code.

## **7.9.11 Correlation With Other Features**

This section describes how the least cost routing application interacts with other system features

### **7.9.11.1 Station-Related Features**

- System speed-dialing call numbers must be prefixed with the LCR access codes for proper operation.
- Station redial will insert the access code used for the original call.
- Repertory dial keys to external destinations must have the LCR access code for proper operation.
- Electronic notebook entries on optiset E memory telephones must include an LCR access code.
- General call keys will be activated when the route is selected by the system.
- Call keys will be activated when the route is selected by the system.
- MUSAP keys may be used for external calling using the LCR access code.
- DTMF tones may be input manually when answer supervision is received.
- Toll restriction class of service is checked as part of the LCR analysis.

### **7.9.11.2 Trunk-Related Features**

- Basic rate ISDN trunks may be accessed by stations assigned CACH values or PDID values.
- Verified forced account codes may be requested before a selected route group is accessed.
- DTMF or rotary pulse dialing may be selected based on the outdial rule

### **Additional Information Concerning the Setup of Public Network Trunks**

- The class of service configured is valid on a locked terminal (code lock).
- It is possible to send speed-dialing numbers after selecting the network.
- If speed-dialing numbers are used without first selecting the network, the default network is used (carrier-select override).
- When LCR is activated, no trunk group overflow is performed. An alternative route can be determined using the path table.
- When LCR is activated, no digit repetition is performed; the routing tables are followed instead.
- Message waiting and automatic callback follow the rules for LCR.
- An account code entered by the user is valid for the whole connection, even if more than one route over different trunk groups was tried during connection set-up.

- In the case of connections via other network providers or carriers, the provider or carrier may not transmit the actual connection costs, i.e., it may send the Hicom 150 E only the charges to the dial-in node (such as a dial-in control server [Europe only]).

## 7.9.12 Routing Tables

The routing tables evaluate the digits that the user has dialed and determine the destination number to be dialed from the system. The digits may be changed (manipulated) during this process. Digit translation makes it possible to repeat, suppress, and add digits or convert digit sequences. It is also possible to insert an inter-digit pause and change the signaling method. A distinction is made between the routing tables discussed in the following sections.

## 7.9.13 LCR Dial Plan

In the case of external calls, the system checks each number dialed up to a total of 25 digits, including field separators and trunk-group access codes. The dial-plan entry is associated with a route group for the destination number and the system assigns this path to the station for setting up the connection.

The dial plan may be separated into unique fields for identification and configuration purposes using the outdial rules. [Table 7-2](#) shows the numbers 4922000 and 14084922000 entered in the dial-plan table.

Table 7-2 Sample Entries in a Dial-Plan Table

| Field 1      |                                                         | Field 2 |   | Field 3 |   | Field 4 |   | Field 5 |
|--------------|---------------------------------------------------------|---------|---|---------|---|---------|---|---------|
| 9            | C                                                       | 492     | – | 2000    |   |         |   |         |
| 9            | C                                                       | 1       | – | 408     | – | 492     | – | 2000    |
| 6265932<br>1 | Reset boards and port assignments stored in the system. |         |   |         |   |         |   |         |

The following entries are valid for the destination:

- 0 . . . 9 Allowed digits
- – Field separator (maximum of 10 fields per dial-plan entry)
- C Simulated dial tone (can be entered up to three times). This entry is also interpreted as a field separator.
- X Any digit between 0 and 9



- N Any digit between 2 and 9
- Z One or more digits follow before end of dialing
- C Simulated dial tone (can be entered up to three times)



**Notes:** The character # within a dial string means end of dialing or signaling method changeover. For this reason, \* and # are not valid entries. Outdial rules may be used to insert the \* and # in the dial string to the public network.

Do not confuse the dash (-) symbol in the destination field, which functions as a field separator, with the dash in the Route Table field, which functions as a call blocker (refer to [Table 7-3](#)).

If Prime Line is used, no LCR is possible.

For the LCR dial plan to accurately select the route group, the dial-plan entries must be entered as follows.

Entries should be placed in ascending numeric order from 0 to 9. Specific dialed numbers must precede wildcard entries to prevent conflicts in matches with wildcard entries. [Table 7-3](#) is an example of the suggested entry order.

Table 7-3 Sample Entries in a Dial-Plan Table

| Entry No. | Dialed Digits<br>(code + station no.) | Route Table |
|-----------|---------------------------------------|-------------|
| 1         | 9C0Z                                  | 1           |
| 2         | 9C011Z                                |             |
| 3         | 9C492-5001                            | 1           |
| 4         | 9CNXX-XXXX                            | 1           |
| 5         | 9C1-NXX-XXX-XXXX                      | 1           |
| 6         | 9C1-900-XXX-XXX                       | - *         |
| 7         | 9C1-976-123-3456                      | - **        |
| ...       |                                       |             |
| 254       |                                       |             |

\* In this example, the dash (-) blocks all 900 numbers from being dialed.

\*\* In this example, the dash (-) blocks only the specific number (976-123-3456) from being dialed.

The fields formed by the field separators “-” and “C” in the dial plan can be addressed selectively to repeat, suppress, exchange, or insert digits.

**7.9.13.1 Rules for Creating LCR Dial Plan Entries**

- The first field should contain only a programmed trunk group access code. It must not contain any wildcards.
- The wildcards N and X can occur more than once in any field except the first field.
- The wildcard Z can occur only in the last field. It represents an undetermined number of suffix digits.
- A digit sequence can be divided into a maximum of 10 fields.

**7.9.14 Route Table**

A route table contains up to 16 paths. Each path is described by a combination of the following:

- Route group
- Outdial rule
- Trunk access
- Time schedule plan
- Code for an expensive path

**Paths**

The system contains 254 path tables, each with 16 paths. LCR evaluates the trunk access in hierarchical order.

**Search Order**

The system searches the path table from top to bottom. If the located path is busy, or if the station does not have the proper class of service, the system continues to the next path.

**Outdial Rule**

The outdial rule is described in Hicom Assistant E Office by its name, which can be up to 16 characters long, and by its index in system administration.

## Carrier-Select Override

Users can deactivate automatic selection within the path by selecting a specific carrier (carrier-select override, CSO). For CSO to work, the requested carrier must be located in the dial plan and the path table assigned by the dial plan, and the user must have the required trunk access.

### 7.9.15 Time Table

To control LCR it may be necessary to configure up to eight time zones per day. These time zones are programmable for every day of the week. Each day begins at 12:00 a.m. Entering the end time in each of the columns delineates the time zones.

### 7.9.16 Outdial Rule Table

Table 7-4 is a sample outdial rule table. The outdial rule table determines the following:

- The way the digits entered by the user are converted and dialed by the system
- The route on which dialing will take place
- The maximum amount of time the LCR function has to control dialing
- Up to 254 outdial rules, each up to 40 characters long, can be defined.

Outdial rules are defined by the following parameters:

**A:** Repeat all remaining fields (transmit).

**D (n):** Dial a digit sequence (1 to 24 digits).

**E (n):** Repeat field (1 to 10) from dial plan.

**M (n):** Authorization code (1 to 16). This letter must not be in the final position.

**P (n):** Pause (1 to 60 times the system-wide pause unit)

**S:** Switch, changes signaling methods from DP to DTMF (with CONNECT, PROGRESS or CALL PROC with PI).

**C:** Access code

**U:** Use subaddress signaling method.

**N (n):** Network SFG (1 to 5) or Band Number (1)

Table 7-4 Sample Outdial Rule Table

| Number | Name              | Outdial Rule | Type                  |
|--------|-------------------|--------------|-----------------------|
| 1      | Dial All          | A            | Main network provider |
| 2      | Dial Fld 2 Then 3 | E2E3         | Main network provider |
| 3      | Dial All _P_ D444 | AP1D444      | Main network provider |
| 4      | Dial 4 Dial All   | D4DA         | Corporate network     |
| ...    |                   |              |                       |
| 254    |                   |              |                       |

The outdial rules provide access to different carriers via digit translation. The outdial rules address the dial plan fields selectively for the following operations:

- Repeating digits
- Suppressing digits
- Exchanging digits
- Inserting digits
- Inserting pauses
- Switching the signaling method
- Detecting a dial tone.

### Using the **A** Parameter

The parameter *A* ensures that all subsequent digit fields are transmitted. The reference point is the last field indicator preceding *A*. The parameter *A* can occur more than once in the string and can be placed in any position. The *AA* combination has the same effect as *A*. The *E1A* combination is permitted only at the beginning of a string.

### Using the **D** Parameter

The parameter *D* (*n*) can occur more than once in the string and can be placed in any position. The parameter *D* (*n*) can be surrounded by any other parameters. It should be no more than 25 characters long.

**Using the *E* Parameter**

The parameter *E* (*n*) can occur more than once in the string and can be placed in any position. The parameter *E* (*n*) can be arranged in any order, depending on *n*. A determining field can be addressed more than once, even consecutively. With the exception of the *E1A* combination, *E* (*n*) can be surrounded by any other parameters. The *n* can be any number between one and 10.

**Using the *M* Parameter**

The parameter *M* (*n*) can occur only once in the string. The parameter *M* (*n*) should not be placed in the final position in the string. The *n* can be any number between one and 16.

**Using the *P* Parameter**

The parameter *P* (*n*) can occur more than once in the string and can be placed in any position. The parameter *P* (*n*) can be surrounded by any other parameters. The pause length is *n* times the length of the system pause. The *n* can be any number between one and 60.

**Using the *S* Parameter**

The parameter *S* can occur only once in the string and should not be placed in the final position in the string. It cannot precede the *C* parameter.

**Using the *C* Parameter**

The parameter *C* can occur only once in the string. The digits following *C* are sent without dial pause. The parameter *C* is used for carrier access with single stage, two stage, DICS and PRI. It cannot be used after *S*.

**Using the *U* Parameter**

The parameter *U* can occur only once in the string. It should not be placed in the final position in the string. The subsequent characters are re-selected in INFO. The following parameters may not be used after *U*:

- S
- P
- C
- M

## **Using the *N* Parameter**

The parameter *N* can occur only once in the string and should not be placed in the first position. The subsequent digits are the SFG or the band number, depending on the calling service.

## **Authorization Code**

Up to 16 authorization codes with a maximum of 16 digits can be entered for accessing services from different carriers. The codes may be used for accessing special common carriers or adding additional digits to a dial string as part of the outdial rule.

### **Example: 53276543**

One secure authorization code is provided (displayed as \*\*\*\*\*).

## **7.9.17 Operation**

The system does not seize a trunk until it has completed the routing tables. To inform the user that the telephone is ready for dialing, you can insert a dial tone into the LCR dial plan using the letter *C*. The dialed digits are buffered until the system completes the routing tables. Only then is a connection set up.

The route table (1 to 254) is first determined via the dial plan on the basis of the dialed destination number. If the destination number is not found in the dial plan, the user receives a busy signal.

The route table for each route element describes the following:

- The trunk group assigned to the path
- The outdial rule
- The trunk access needed for seizure
- The required time plan
- The code of an expensive path (warning tone)

The out-dial rule determines the outgoing dialing procedure for the selected trunk group. Selection may be unsuccessful for one of the following reasons:

- Busy route group
- Time-of-day restriction
- LCR class-of-service restriction

In this case, another carrier can be selected via the alternative paths. You can configure an expensive-path warning tone to sound when an expensive carrier is selected.

The destination number that the user dialed is generally displayed until the requested party answers (ALERT or CONNECT). Then the destination number reached is displayed if available. The dialed destination number is stored in the station's redial memory.

Figure 7-6 shows a sample LCR flow diagram.

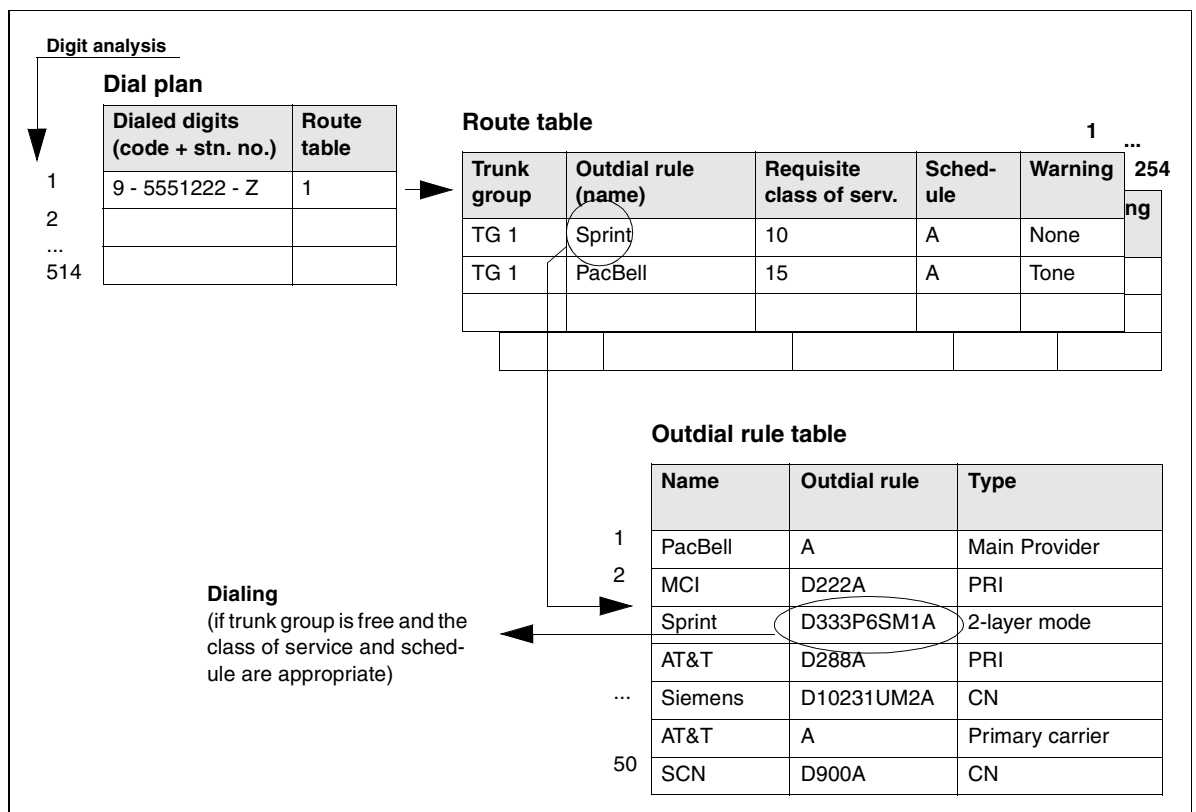


Figure 7-6 Sample LCR Flow Diagram (for U.S. Only)

## 7.10 Features for Internal Traffic

### 7.10.1 Internal Traffic

#### Definition

Internal traffic refers to connections between two internal stations. If the system is equipped with Prime Line on, users can set up an internal call on optiset E telephones by using the extension key.

If Prime Line on is not configured, users can set up an internal call by dialing the internal station number.

The Prime Line feature is a system-wide feature that allows users to dial directly to external destinations without the use of *Trunk* or *Trunk group* keys. The external access code is automatically dialed by the system. Only one outgoing Trunk group is possible with this arrangement. To dial internal stations, the user must first press the *Internal* key and dial the station number.



Without Prime Line, outside connections require a Trunk, Trunk group key, or an access code.

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |



## Requirements and Conditions

| Subject                                | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extension key                          | LED signaling is not assigned to the extension key.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Prime Line on (automatic line seizure) | <p>Prime Line is a system-wide feature that allows users to dial directly to external destinations without the use of call or trunk keys. The requisite trunk or trunk group code is automatically dialed by the system. However, only one trunk group is possible with this arrangement.</p> <p>As of Release 2.2 SMR-H (for World excluding U.S.) and Release 1.0 SMR-R (for U.S. only), you can also set up several trunk groups when Prime Line is active.</p> <p>If Prime Line is deactivated, you must press a trunk or call key or dial a trunk or trunk group code to set up an external connection.</p> |

## Configuration Options

This feature does not need to be explicitly configured; however, Prime Line can be configured using Hicom Assistant T and Hicom Assistant E Office.

## Programming Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                    |
|------|-------------------------------------------|
| 1.   | Configure Prime Line on *9531994          |
| 2.   | 17-11 => Networking - Prime Line, On, off |

## Programming Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                          |
|------|---------------------------------|
| 1.   | Configure Prime Line on Options |
| 2.   | System Parameters               |
| 3.   | Flags/CMI -> Simplified Dialing |

## 7.10.2 Direct Station Selection (DSS)/Repertory Dial Key

### Definition

The programmable function keys on optiset E telephones (or key modules) can be configured as direct station select (DSS) keys. In this case, users program the keys with the number of an internal station or station group. Pressing the *DSS* key calls the destination station (direct station selection). The associated LED indicates the call status of the station (ringing, busy, free).

The DSS key is also used as a means to quickly transfer an incoming call to another station. The user, during a conversation with an external party, can press a *DSS* key; this places the current call on Consultation Hold. The user can then transfer the call screened or unscreened to the DSS destination. If the destination does not answer, a recall is effected and the user can retrieve the call by pressing the *DSS* key once again.

A DSS appearance can appear on multiple stations. A station cannot have a *DSS* key with its station on the telephone.

The Hicom 150 E Office has programmable *Repertory Dial* (Repdial) keys. *Repdial* keys store destination numbers. Feature access codes cannot be stored under a *Repdial* key. External destinations up to 25 digits, including the trunk, trunk group, and LCR access code, can be stored under a *Repdial* key as well as internal Call Group numbers. When operating the repdial key, the LED is not functional.

Programming of RepDial destinations and *DSS* keys must be done via Hicom Assistant E Office in the case of non-display telephones. *DSS* keys can also be programmed by the user on a display telephone.

### Model-Specific Data for Optiset E Key Module

| Subject                                  | Pro                                                                   | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|------------------------------------------|-----------------------------------------------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                     | x                                                                     | x   | x     | x                        | x                          |
| HW requirements                          | optiset E advance plus/comfort, advance conference/conference, memory |     |       |                          |                            |
| SW requirements                          | Rel. 1.0 or later                                                     |     |       |                          |                            |
| Max. number of key modules per telephone | 4                                                                     | 4   | 4     | 4                        | 4                          |
| Max. number of key modules per system    | 100                                                                   | 100 | 30    | 30                       | 30                         |

| <b>Subject</b>                                  | <b>Pro</b> | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|-------------------------------------------------|------------|------------|--------------|-----------------------------------|-------------------------------------|
| Max. number of programmable keys per key module | 16         | 16         | 16           | 16                                | 16                                  |
| Number of key modules per cabinet               | 50         | —          | —            | —                                 | —                                   |

**Model-Specific Data for optiset E Busy Lamp Field (BLF)**

| <b>Subject</b>                                           | <b>Pro</b>                                                            | <b>Com</b> | <b>Point</b> | <b>One</b> | <b>Start</b> |
|----------------------------------------------------------|-----------------------------------------------------------------------|------------|--------------|------------|--------------|
| Feature available in                                     | <b>x</b>                                                              | <b>x</b>   | —            | —          | —            |
| HW requirements                                          | optiset E advance plus/comfort, advance conference/conference, memory |            | —            | —          | —            |
| SW requirements                                          | Rel. 2.0 or later                                                     |            | —            | —          | —            |
| Max. number of Hicom Attendant BLFs per telephone        | 2                                                                     | 1          | —            | —          | —            |
| Max. number of Hicom Attendant BLFs per system           | 12                                                                    | 6          | —            | —          | —            |
| Max. number of programmable keys per Hicom Attendant BLF | 90                                                                    | 90         | —            | —          | —            |
| Number of optiset E telephones with Hicom Attendant BLFs | 6                                                                     | 6          | —            | —          | —            |

**Requirements and Conditions**

| <b>Subject</b> | <b>Requirement or Condition</b>                                   |
|----------------|-------------------------------------------------------------------|
| DSS            | This feature functions on optiset E telephones only.              |
| Pick up        | A call can be picked up by pressing the DSS key for that station. |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                      |
|------|-------------------------------------------------------------|
| 1.   | <b>Configure DSS key</b><br>*91 Access key programming      |
| 2.   | Press the key to be assigned.                               |
| 3.   | Assign <i>Station number</i> to the key selected.           |
| 4.   | Press the extension key (if simplified dialing is enabled). |
| 5.   | Enter station number.                                       |
| 6.   | Confirm entry.                                              |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                       |
|------|------------------------------|
| 1.   | Configure DSS key<br>Options |
| 2.   | Set up station               |
| 3.   | Key programming              |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                             |
|------|----------------------------------------------------|
| 1.   | Press the DSS key. The programmed extension rings. |

## 7.10.3 Names

### Definition

Users can assign names to each station, to each station group, and to each trunk group. These names are displayed for internal calls (including calls via CorNet-N). If an incoming call does not contain station number information (analog trunk), the trunk group name is displayed. If the incoming call contains station number information (ISDN), this information is displayed. Refer to Section 7.5.7, *Translate Station Numbers to Names for System Speed Dialing*, on page 7-163 for more information.

A memory telephone is required as Hicom Assistant T to enter characters of the alphabet. Characters which can be used: all letters found on the memory telephone keyboard, digits 0-9, \*, #.

If no name has been assigned to an internal station, the number is displayed instead.

### Model-Specific Data

| Subject                                              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|------------------------------------------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                                 | x                 | x   | x     | x                        | x                          |
| HW requirements                                      | —                 | —   | —     | —                        | —                          |
| SW requirements                                      | Rel. 1.0 or later |     |       |                          |                            |
| Maximum number of letters in station and group names | 16                | 16  | 16    | 16                       | 16                         |
| Maximum number of letters in trunk group names       | 10                | 10  | 10    | 10                       | 10                         |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                    |
|------|-------------------------------------------|
| 1.   | Configure station names                   |
| 2.   | 14-12 => Configure station - Station name |

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 3.          | Select the relevant station.                             |
| 4.          | Enter name.                                              |
| 5.          | Configure group names                                    |
| 6.          | 16-15-3 => Incoming calls - Hunt/group call - Group name |
| 7.          | Select the relevant group.                               |
| 8.          | Enter name.                                              |
| 9.          | Configure trunk groups                                   |
| 10.         | 17-15 => Networking - Trunk group names                  |
| 11.         | Select the relevant trunk group.                         |
| 12.         | Enter name.                                              |

### **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                             |
|-------------|-------------------------------------------|
| 1.          | <b>Configure station names</b><br>Options |
| 2.          | Set up station                            |
| 3.          | Station                                   |
| 4.          | Change name for relevant station.         |
| 5.          | Configure group names<br>Options          |
| 6.          | Incoming calls                            |
| 7.          | Hunt group                                |
| 8.          | Enter name for the relevant group.        |
| 9.          | Configure trunk groups<br>Options         |
| 10.         | Lines/networking                          |
| 11.         | Trunk groups                              |
| 12.         | Enter name for the relevant trunk group.  |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                  |
|-------------|----------------------------------------------------------------|
| 1.          | Configure a station name.                                      |
| 2.          | Call the station from another internal telephone with display. |
| 3.          | The calling party name appears on the display.                 |

## **7.10.4 Automatic Callback When Free or Busy**

### **Definition**

Users can activate an automatic callback to a free or busy internal station. When the callback destination finishes its call (when busy) or initiates an outgoing call, the system calls back. First, the system calls the user who initiated the call. After that user answers, the system calls back the station the initiating user wishes to speak with. For more information on external callbacks, refer to Section 7.13.11 on page 7-397.

A telephone can initiate up to two Callback requests and be the destination for up to two requests. Further requests beyond these limits are rejected.

Callback requests are deleted when:

- the call is completed
- the initiator cancels the request
- the system deletes daily at 11:57 p.m. all callbacks that were initiated towards other CorNet-N nodes

Callback requests can be set on internal stations and groups, but not to groups located in other CorNet-N nodes.

### **Callback Requests Set on a Group**

- A request set on a hunt group is set on the first member of the group.
- A request set on a Group Call is set on the first member of the group.

### **Operating the Feature**

Refer to *Callback (automatic)* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.

- Display Telephones

The called station does not answer or is busy. The user selects the prompt *Call-back?*. The called station stops ringing, and the display confirms the request with *Will call back*.

The next time the called party uses the telephone, the system calls the initiator back with a special three-ring call. The display informs the initiator *Callback: name of party*. The initiator then goes off hook, and the called party rings again.

If the called party answers, the Callback request is deleted. If not, the Callback request remains active and a Callback is initiated the next time the called party uses the telephone.



**Deleting Callback requests:** From an idle state, the initiator dials the default access code #58, or presses *Program/Service*, scrolls to *More Features* and scrolls to and selects *#58=View callbacks?*. The initiator can then select either of the two messages *Sent* and *Delete*.

- **Non-Display Telephone**

The called station does not answer or is busy. The initiator presses the *Consultation* key (or performs a switch hook flash in the case of an analog telephone) and dials the default access code \*58. Confirmation tone (three short bursts of tone) is heard.

The next time the called party uses the telephone, the system calls the initiator back with a special three-ring call. The initiator then goes off hook, and the called party rings.

If the called party answers, the Callback request is deleted. If not, the Callback request remains active and a Callback is initiated the next time the called party uses the telephone.

**Deleting Callback requests:** From an idle state, the initiator dials the default access code #58. Because requests may be active for many hours and there is no way to display to the user to whom the requests were made, the system deletes all callbacks invoked from the station.

### Model-Specific Data

| Subject                                       | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|-----------------------------------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                          | x                 | x   | x     | x                        | x                          |
| HW requirements                               | —                 | —   | —     | —                        | —                          |
| SW requirements                               | Rel. 2.2 or later |     |       |                          |                            |
| Callbacks per station                         | 3                 | 3   | 3     | 3                        | 3                          |
| Callbacks per station<br>Release 2.2 or later | 65                | 65  | 65    | 65                       | 65                         |

## Requirements and Conditions

| Subject  | Requirement or Condition                                                                                                                             |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Callback | The callback is not deleted until the call is completed or the initiating station deletes the callback.                                              |
| Callback | Every night at 11:57 p.m., all callbacks that are not within the system (CorNet) are deleted.                                                        |
| Callback | A callback can be set to an internal group (not DSS1, CorNet-N, or QSIG [not for U.S.]). The callback is stored with the first station in the group. |

## Configuration Options

This feature does not have to be explicitly configured.

## 7.10.5 Entrance Telephone/Door Opener

### Definition

With this feature, the system signals a defined user (entrance telephone ring destination) when the doorbell function activates. Lifting the handset connects the user at the entrance telephone with the user at the ring destination. The ring destination user can then activate the door opener from the ring destination if desired.

In addition, users can activate the door opener from the entrance telephone by entering a 5-digit PIN using a hand-held DTMF transmitter. Users can also set up a voice connection to the entrance telephone.

The following settings can be implemented:

- **Opener:** In this configuration, the door opener is set up via an analog interface; the entrance telephone must be connected via an adapter.
- **DTMF:** This setting specifies whether the door opener is activated by a DTMF transmitter.
- **Call forwarding:** This specifies determines whether the call from the entrance telephone is forwarded to an external call forwarding destination.

### Operating the Feature

Refer to *Door Opener* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

Going off hook at the door telephone sets up a call to the reception station. The reception telephone rings with repeated three short ring bursts and the display shows the name programmed for the door. If there is no answer, the Call Management rules are followed.

To answer, the reception goes off hook and is connected to the door telephone. To release the door latch, the reception selects the prompt *Open Door?*. The door latch is activated for the time determined in the database (default is 255 x 100ms or 2.55 seconds) and the call is dropped.

Alternatively, to release the door latch without a call from the entrance telephone: the reception dials the default access code *\*61* or presses the *Program/Service* key and scrolls to and selects the prompt *\*61=Open Door?*, then dials the station number assigned to the entrance telephone. One burst of ring is sent to the entrance telephone and the latch is released. Any telephone is allowed to release the door latch.

## Allowing an Outside User to Open the Door

Only authorized telephones can enable this function by dialing the default access code \*89 or pressing the *Program/Service* key and scrolling to and selecting the prompt \*89=*Door Opener on?*, followed by the entrance telephone's station number and the authorization PIN (Default is 00000). The user must then choose one of two modes of operation: enable without ring or enable with ring. That is, if the external user uses the door opener feature, the reception telephone will either be advised or not by a ring. The reception can further change the default password 00000. Authorization is determined in the database and provided to any telephone. A non-display telephone must follow the sequence exactly; confirmation tone is heard at each step.

To disable the external access capability, the authorized telephone dials the default access code #89.

With this feature enabled, the outside user can open the door without assistance from an internal station. Going off-hook will alert the reception telephone with repeated three ring bursts (if programmed as *With ring*). The outside user dials the PIN number. The door latch is released and the reception telephone stops ringing.

## Model-Specific Data

| Subject                            | Pro                                          | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|------------------------------------|----------------------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in               | x                                            | x   | x     | x                        | x                          |
| HW requirements                    | Entrance telephone or ET/A or ET w/amplifier |     |       |                          |                            |
| SW requirements                    | Rel. 1.0 or later                            |     |       |                          |                            |
| Max. no. of entrance<br>telephones | 4                                            | 4   | 4     | 1                        | 1                          |

## Requirements and Conditions

| Subject                             | Requirement or Condition                                                                                                                                                                            |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Entrance telephone ring destination | If a call is already indicating camp-on at the entrance telephone ring destination, an intercept is performed. If the intercept station is also busy, the system searches all optiset E telephones. |
| Night answer                        | Night answer is not taken into account in the signaling.                                                                                                                                            |
| OfficeOne<br>(not for U.S.)         | Door busy and messenger call are possible using the optiset E control adapter.                                                                                                                      |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                                          |
|------|-------------------------------------------------------------------------------------------------|
| 1.   | Before setting up an entrance telephone, you should first delete all features for this station. |
| 2.   | 24-1 => Entrance phone - Entrance phone                                                         |
| 3.   | 24-2 => Entrance phone - Destination                                                            |
| 4.   | 24-3 => Entrance phone - Door opener                                                            |
| 5.   | 24-4 => Entrance phone - Call FWD, external                                                     |
| 6.   | 24-6 => Entrance phone - Door opener, DTMF                                                      |
| 7.   | Select station to be allowed to open the door.                                                  |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                                           |
|------|--------------------------------------------------------------------------------------------------|
| 1.   | Before configuring an entrance telephone, you should first delete all features for this station. |
| 2.   | Configure entrance telephone/door opener Options                                                 |
| 3.   | Set up station                                                                                   |
| 4.   | Ext. connection                                                                                  |
| 5.   | Door relay                                                                                       |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                        |
|------|-----------------------------------------------------------------------------------------------|
| 1.   | Press the doorbell.                                                                           |
| 2.   | The entrance telephone ring destination sets up a voice connection to the entrance telephone. |
| 3.   | You can activate the door opener from the ring destination if configured.                     |

## **7.10.6 Speaker Call/Handsfree Answerback/Internal Paging (OptiPage)**

### **Definition**

A speaker call allows an internal connection to be set up without the called user lifting the handset; the speaker on the called user's telephone is activated. Handsfree answerback is performed by lifting the handset or activating the microphone (on speakerphones). The call then becomes a normal two-party call.

Speaker calls permit announcements to groups (paging zones) of up to 20 stations. This feature is also called internal paging. In this case, group members have no handsfree answerback option. These group members can include optiset E telephones or speakers connected to analog subscriber line circuits.

Speaker calls and internal paging are possible with internal optiset E telephones with speakers. They are activated by means of a key or a code. For each extension, it is possible to configure whether the user can receive a speaker call.

A member of a paging group can place a call during a page by going off hook: the page announcement is disconnected from the station.

### **Speaker Call**

To place a Speaker Call to a station, the user dials the default access code *\*80* or can press the *Program/Service* key, scroll to and select the prompt *\*80=Speaker Call?*, then enter the destination number, hears confirmation tone and announces the call. Non-display and analog telephones use the access code followed by the station number.

At the receiving end, the user hears a short burst of ring, followed by the introduction from the calling party. The *Mic. Mute* key LED is lit to advise the called party that the caller cannot hear. The called party can go off-hook to answer the call or, if the telephone has a microphone, press the *Mute* button to reactivate the microphone.

The caller can invoke this feature by using a key programmed on the telephone. The LED is lit for the duration of the Speaker call.

### **Handsfree Answerback**

The operation is similar to the above, except that the called party can allow Speaker calls to be immediately connected without having to enable the microphone.

To enable the Handsfree Answerback function, the user dials the default access code *\*96* or presses the *Program/Service* key and scrolls to and selects the prompt *\*96=HF answerback On?*.

To disable the feature (the feature Speaker Call remains active), the user dials the default access code *#96*.

### Internal Paging

The operation is similar to the feature Speaker Call except that the caller dials \*80 followed by a Call Group number. After the hearing the tone, the user can make an announcement.

Stations in a group which are busy or in DND, do not receive the internal paging. Calls placed to a group while an internal page is in progress, hear only busy, and only camp on to after the paging has been terminated. Calls placed to a telephone which has been called via Speaker Call, only hear busy and are not allowed to camp on to until the *Mic. Mute* function has been disabled.

Internal Paging and Speaker calls are forwarded if the destination or member of the paging group is forwarded.

### Model-Specific Data

| Subject              | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                | x   | x     | x                        | x                          |
| HW requirements      | optiset E telephone with speaker |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later                |     |       |                          |                            |

### Requirements and Conditions

| Subject                             | Requirement or Condition                                                                                                             |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Handsfree answer-back               | When you dial *96, the microphone is automatically activated for each speaker call. You can deactivate this function by dialing #96. |
| Do not disturb (DND)                | You cannot use this feature with stations that have activated DND.                                                                   |
| Toggle, consultation hold, transfer | You cannot use toggle, consultation hold, or transfer with this feature.                                                             |

### Configuration Options

This feature does not have to be explicitly configured.

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                            |
|------|-----------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Dial an optiset E telephone with a speaker or a speaker group (*80 or a speaker phone key + internal destination station number). |
| 2.   | The destination station receives an alerting tone and the speaker is activated.                                                   |



## 7.10.7 Transfer from Announcement

This feature lets you make announcements to groups (paging zones). It is also known as internal paging. Members of the group can answer the call handsfree.

The procedure is as follows:

- A user answers an external call.
- The user places a consultation call and begins the group announcement.
- The system sets up a two-party call when another party lifts the handset or turns on the speaker, and the party who answered the call hangs up. The remaining group members are removed from the call.

Speaker calls and internal paging are available on internal optiset E telephones with speakers. You can use a key or code to activate the feature, and you can program the speaker call capability separately for each extension.

### Model-Specific Data

| Subject              | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                | x   | x     | x                        | x                          |
| HW requirements      | optiset E telephone with speaker |     |       |                          |                            |
| SW requirements      | Rel. 2.2 or later                |     |       |                          |                            |

### Requirements and Conditions

| Subject                             | Requirement or Condition                                                                                                                                                                                                               |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handsfree answer-back               | When you dial *96, the microphone is automatically activated for each speaker call. You can deactivate this function by dialing #96.                                                                                                   |
| Do not disturb                      | You cannot use this feature with stations that have activated DND. However, an authorized caller can override do not disturb, in which case a busy signal sounds for five seconds. The user then receives a call (not a speaker call). |
| Toggle, consultation hold, transfer | The toggle, consultation hold, and transfer features are not available.                                                                                                                                                                |

## **Configuration Options**

This feature does not have to be explicitly configured.

## **Testing the Feature**

Check the feature for proper functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Dial a station by entering code *80 or pressing a speaker phone key and entering the internal destination number (the destination must be an op-tiset E telephone with speaker or a speaker group). |
| 2.          | The destination user hears an alerting tone and the speaker is activated.                                                                                                                           |

## 7.10.8 Radio Paging Equipment (PSE) (Not for U.S.)

### Definition

Radio paging equipment can be used to transmit type-dependent voice announcements or alphanumeric data (test messages) to users with portable radio receivers. Users being sought can use a procedure to answer this call from any telephone.

Radio paging equipment (PSE) can be connected via analog interfaces, analog trunk circuits, or a special module (TMOM for enhanced radio paging equipment in OfficePro only). There are two types of PSE:

- Simple radio paging equipment
- Enhanced radio paging equipment (OfficePro only with TMOM)

### 7.10.8.1 Simple Radio Paging Equipment/Simple PSE (Not for U.S.)

### Definition

Simple PSE allows users to transmit voice announcements and numeric data to the PSE user. One of the two types of message informs PSE stations of waiting calls. Users being sought can use a procedure to answer the call from any telephone.

Radio paging equipment can be the destination for call forwarding or group ringing; it can also be a member of a group.

### Model-Specific Data

| Subject              | Pro               | Com          | Point        | One          | Start        |
|----------------------|-------------------|--------------|--------------|--------------|--------------|
| Feature available in | <b>x</b>          | <b>x</b>     | <b>x</b>     | <b>x</b>     | <b>x</b>     |
| HW requirements      | Analog ports      | Analog ports | Analog ports | Analog ports | Analog ports |
| SW requirements      | Rel. 1.0 or later |              |              |              |              |

### Requirements and Conditions

| Subject                       | Requirement or Condition                                                                                                |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Simple radio paging equipment | Does not support expanded call processing characteristics such as those available with enhanced radio paging equipment. |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                         |
|------|------------------------------------------------|
| 1.   | Configure radio paging equipment               |
| 2.   | 32-1 => Radio paging equip - Radio paging port |
| 3.   | 32-2 => Radio paging equip - Radio paging type |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                      |
|------|---------------------------------------------|
| 1.   | Configure radio paging equipment<br>Options |
| 2.   | Connections                                 |
| 3.   | External connections                        |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                 |
|------|----------------------------------------|
| 1.   | Configure radio paging equipment.      |
| 2.   | Select the procedure for a PSE search. |
| 3.   | The sought user is paged.              |

**7.10.8.2 Radio Paging Equipment via ESPA/Enhanced Radio Paging Equipment (Not for U.S.)****Definition**

Enhanced radio paging equipment also includes certain communications server functions. It offers the following options:

- Transmission of alphanumeric data
- Automatic connection setup to the paging subscriber after answering
- Automatic transmission of paging subscriber's number
- Storage of up to 15 paging and answer requests
- Radio paging for internal and external calls
- Waiting for callback answer with handset on or off hook
- Selectable displays and ring and paging procedures (selected when entering the paging request)

**Model-Specific Data**

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | <b>x</b>          | —   | —     | —   | —     |
| HW requirements      | <u>TMOM</u>       | —   | —     | —   | —     |
| SW requirements      | Rel. 1.0 or later | —   | —     | —   | —     |

**Dependencies/Limitations**

| Subject    | Dependency/Limitation         |
|------------|-------------------------------|
| Voice call | Voice calls are not possible. |

**Configuration options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                    |
|-------------|----------------------------------|
| 1.          | Configure radio paging equipment |
| 2.          | 32-1 => Page - Radio paging port |
| 3.          | 32-2 => Page - Radio paging type |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>         |
|-------------|-----------------------|
| 1.          | Configure PSE Options |
| 2.          | Trunk modules         |
| 3.          | Ext. connection       |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                       |
|-------------|-----------------------------------------------------|
| 1.          | Configure radio paging equipment                    |
| 2.          | Select procedure for paging radio paging equipment. |
| 3.          | The sought user is paged.                           |

## 7.10.9 Message Texts/Mailboxes/Message Waiting

### Definition

- Sending a message

Internal extensions can select a text message from an internal system message list and send the message to any internal optiset E station with display. Users can transmit these messages in the idle, ringing, or busy state, or during a call. (During a call, the station number information is omitted.) A station that can be reached via a CorNet-N tie trunk is also considered to be an internal station. The initiating party can also be an analog voice mail system or central voice mail server in the CorNet-N network. A separate, fixed text is available for messages from these devices.

- Receiving a message

The system indicates the presence of a message depending on the type of telephone:

- On optiset E telephones with display, a waiting message is signaled via the display and a *Mailbox* key, if programmed. An audible signal also sounds, like on analog telephones.
- On optiset E telephones without display, a message is signaled by the *Mailbox* key. An audible signal also sounds, like on analog telephones.
- (Not for U.S.) On special analog telephones with a mailbox LED (special board), a waiting message is signaled via the LED (not a key). These extensions must be configured accordingly. An audible signal also sounds, like on analog telephones. To signal messages with the mailbox LED, set the PSUI ring voltage (OfficePro) to 75 V.
- On analog telephones, a waiting message is signaled by a special dial tone (OfficeCom, OfficePoint, and OfficeOne [not for U.S.]) or by the announcement "Message waiting" (OfficePro).
- On mobile telephones, a waiting message is signaled by an advisory ring and the mailbox symbol appearing on the screen.

- Callback

On telephones with display, a caller can retrieve information such as the sender's name and number, text message, date, and time using a dialog menu. The user can then call back the sender of the message without entering a station number. To activate callback on analog telephones, users must use a procedure code; on optiset E telephones without a display, users can press a *Mailbox* key.

- Deleting a message

The sender and receiver can use a dialog menu or a procedure code to delete the message. Otherwise, the message is deleted only if it results in a call to the station.

- Central voice mail server

A station in a satellite communications server can program use call forwarding or call forwarding—no answer to send its calls to the central voice mail server. Calls received are then indicated at the station via message waiting. External station numbers cannot be programmed in the call management lists. For this reason, a pseudo port should be configured as a PhoneMail<sup>®</sup> port for call forwarding to the external voice mail server.

The default text messages are:

- 0 = Please callback
- 1 = Someone is waiting
- 2 = Appointment
- 3 = Urgent call
- 4 = Do not Disturb
- 5 = Fax waiting
- 6 = Dictation please
- 7 = Please come see me
- 8 = Please make copies
- 9 = Ready to depart

This feature can be activated/deactivated via a DISA connection, by its own station user.

## **Operating the Feature**

Refer to *Sending Information Text* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

- Display telephones

A memory telephone can compose a personal message with a maximum number of 24 characters. The message is not stored for future use.

The user can also send a text message while calling an internal station by following the above *Program/Service* procedure.

A voice messaging system can also leave a message at a station. If the user has programmed a button, the LED will be lit (optiset E telephones only).



**Model-Specific Data**

| <b>Subject</b>                                                                   | <b>Pro</b>                        | <b>Com</b>                        | <b>Point</b>                      | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| Feature available in                                                             | <b>x</b>                          | <b>x</b>                          | <b>x</b>                          | <b>x</b>                          | <b>x</b>                            |
| HW requirements                                                                  | —                                 | —                                 | —                                 | —                                 | —                                   |
| SW requirements                                                                  | Rel. 1.0 or later                 |                                   |                                   |                                   |                                     |
| Maximum number of simultaneous texts                                             | 100                               | 100                               | 30                                | 30                                | 30                                  |
| Maximum number of characters in text                                             | 24                                | 24                                | 24                                | 24                                | 24                                  |
| No. of message texts                                                             | 10                                | 10                                | 10                                | 10                                | 10                                  |
| Max. no. of messages on optiset E telephone with display                         | 5                                 | 5                                 | 5                                 | 5                                 | 5                                   |
| Max. no. of messages on mobile telephones                                        | 5                                 | 5                                 | 5                                 | —                                 | —                                   |
| Max. no. of messages on optiset E telephone without display or analog telephone. | 1<br>+ voice<br>mail mes-<br>sage | 1<br>+ voice<br>mail mes-<br>sage | 1<br>+ voice<br>mail mes-<br>sage | 1<br>+ voice<br>mail mes-<br>sage | 1<br>+ voice<br>mail mes-<br>sage   |

**Requirements and Conditions**

| <b>Subject</b>                     | <b>Requirement or Condition</b>                                                                            |
|------------------------------------|------------------------------------------------------------------------------------------------------------|
| Message texts                      | The texts are automatically deleted when a call is set up between the two stations.                        |
| Message texts                      | Telephones with alphanumeric keyboards can also be used to enter individualized texts that are not stored. |
| Voice mail                         | A separate text is available for voice mail. The maximum number of texts is not affected by the system.    |
| Special dial tone/<br>announcement | With OfficePro, an announcement is issued instead of a special dial tone.                                  |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                            |
|------|-----------------------------------|
| 1.   | Change message texts              |
| 2.   | 19-11 => Displays - Text messages |
| 3.   | Select desired text.              |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                 |
|------|----------------------------------------|
| 1.   | <b>Change message texts</b><br>Options |
| 2.   | System parameters                      |
| 3.   | Texts                                  |
| 4.   | Info texts                             |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                       |
|------|----------------------------------------------------------------------------------------------|
| 1.   | Enter *68 or press the <i>Send Message</i> key.                                              |
| 2.   | Enter the internal station number of the destination.                                        |
| 3.   | Select the desired text (0-9), or enter a text with if using an optiset E memory telephone). |
| 4.   | The transmitted text appears on the display of the destination station.                      |
| 5.   | Enter the code (#68-0) or press the key to delete the message.                               |

## 7.10.10 Advisory Messages

### Definition

optiset E telephones with display can activate an advisory message that has been configured in the system. When a user calls a station that has activated this type of message, the advisory message appears on the caller's display.

Messages can contain variable parameters. The user enters the parameters (such as the time) when activating the feature. Users can use the numeric keypad on the telephone to enter additional characters.

With an optiset E memory telephone, users can enter and send, but not store, an additional, individualized message.

The message is also displayed at the initiator's telephone so that co-workers are also advised. 10 default system-wide advisory messages are provided. These can be changed via administration, using Hicom Assistant T, Hicom Assistant C, and Hicom Assistant E Office.

This feature can be activated/deactivated via a DISA connection, by its own station user or for another user with the aid of the feature Associated Services.

The *Flags* screen is one of three screens in the *System Status* pathway of Hicom Assistant E Office that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated an Advisory Message or not.

### Operating the Feature

From an idle state, the user dials the default access code \*69 or presses the *Program/Service* key, scrolls and selects the prompt \*69=Advisory msg on?. The user then scrolls to and selects the appropriate message.

A memory telephone can compose a personal message with a maximum number of 24 characters. The message is not stored for future use.

The user can delete the advisory message by dialing the default access code #69 or via the *Program/Service* procedure.

A key can be programmed if the feature is to be used frequently.

The default advisory messages are:

- 0 = Will return at:
- 1 = On vacation until:
- 2 = I am out until:
- 3 = Put all day
- 4 = Out to lunch

5 = Not available  
6 = Home phone:  
7 = Contact:  
8 = Avail at:  
9 = Am in room:

Digits can be added to all messages ending with a colon.

The user can prevent someone from changing the message by locking the telephone. Refer to Section 7.4.2, Individual Telephone Lock (Changeover).

Refer to *Reply Text* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

### Model-Specific Data

| Subject                                      | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------------------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                         | x                                | x   | x     | x                        | x                          |
| HW requirements                              | optiset E telephone with display |     |       |                          |                            |
| SW requirements                              | Rel. 1.0 or later                |     |       |                          |                            |
| Number of advisory<br>messages in system     | 10                               | 10  | 10    | 10                       | 10                         |
| Max. no of characters<br>in advisory message | 24                               | 24  | 24    | 24                       | 24                         |

### Requirements and Conditions

| Subject         | Requirement or Condition                                                                 |
|-----------------|------------------------------------------------------------------------------------------|
| Call forwarding | With call forwarding, the telephone displays the advisory message of the called station. |

### Configuration Options

This feature does not have to be explicitly configured.

**Configuring the Feature Using Hicom Assistant T**

Users can change the advisory messages using Hicom Assistant T and an optiset E memory telephone):

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Change advisory messages              |
| 2.   | 19-12 => Displays - Advisory messages |
| 3.   | Select the desired text.              |

**Configuring the Feature Using Hicom Assistant E Office**

Users can change the advisory messages using Hicom Assistant E Office:

| Step | Action                              |
|------|-------------------------------------|
| 1.   | Change advisory messages<br>Options |
| 2.   | System parameters                   |
| 3.   | Texts                               |
| 4.   | Advisory message                    |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                            |
|------|-------------------------------------------------------------------------------------------------------------------|
| 1.   | Use code *69 or a configured function key on an optiset E telephone with display to activate an advisory message. |
| 2.   | Call the station from another optiset E telephone with display.                                                   |
| 3.   | The activated message appears in the display.                                                                     |

## 7.10.11 Internal Directory

### Definition

On all optiset E telephones with display, users can view a directory of all internal stations with their names and numbers. In addition, users can view entries from the system speed-dialing facility (name, destination station number), to search for and call the desired station. The name of the desired station is entered directly using the GSM procedure.

After selecting the **Directory** option from the menu, you can enter the name of the party you want to reach directly with the GSM procedure. To do this, press the key containing the letter you wish to access. Press the key once to access the first letter, twice to access the second letter, and three times to access the third letter (the one farthest to the right).

You can also program a key to provide access to the feature, or you can select either *Internal stations?* or *System speed dial*. Then you scroll through each name by selecting *Next?* or scroll to and select the first letter of the wanted name. Selecting a name automatically dials the destination.

Users of memory telephones use the keys on the keyboard:

- **Dial and Enter (Return) key:** dials the number beside the cursor.
- **Card key:** Retrieves entries from the highlighted name.
- **End key:** Closes the telephone directory.
- **Up and Down keys:** moves the cursor up or down.

As of Release 3.0, Hicom Assistant E Office allows you to define whether a station number will appear in the directory for each station individually.

### Model-Specific Data

| Subject              | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                | x   | x     | x                        | x                          |
| HW requirements      | optiset E telephone with display |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later                |     |       |                          |                            |

## Requirements and Conditions

| Subject                   | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electronic directory      | <p>After selecting the <i>Directory</i> menu command, users can enter the name of the desired station directly using the GSM procedure.</p> <p>To do this, press the key displaying the required letter. If the letter is in the first position, press the key once. If it is in the second position, press the key twice. If the letter is in the third position (that is, the farthest to the right), press the key three times.</p> <p>All the letters in the name can be entered consecutively, using this procedure. Of course, scrolling through the dialog keys is also possible.</p> |
| Electronic notebook (ENB) | If you activate the telephone's local ENB, you cannot use the internal directory feature.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| System speed dialing      | If system speed dialing is selected, names are displayed only if the telephone directory is activated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Directory                 | On telephones with a two-line display, groups are formed for the search. In the case of optiset E telephones with ENB, the keyboard can be used for a search.                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                               |
|------|--------------------------------------|
| 1.   | Configure directory                  |
| 2.   | 22-12 => System settings - Directory |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                         |
|------|--------------------------------|
| 1.   | Configure directory<br>Options |
| 2.   | System parameters              |
| 3.   | System flags                   |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                              |
|------|-----------------------------------------------------------------------------------------------------|
| 1.   | On an optiset E telephone with display, lift the handset. <i>Directory?</i> appears on the display. |
| 2.   | Confirm your selection.                                                                             |



## 7.10.12 Room Monitor

### Definition

The room monitor feature can be used to monitor a room. All telephone types can be used for this purpose. Only internal stations can use room monitoring.

When a user monitors a room, the room monitor telephone receives no call signaling, and the call is immediately through-connected.

A system-wide flag must be set via Hicom Assistant E Office only.

To monitor a room, monitored telephones without a microphone must have the handset off-hook.

If an optiset E telephone calls a station activated as a room monitor, in the standard configuration the microphone on the calling optiset E telephone is deactivated.

If a call is received by a monitoring station, camp on tone is heard at the monitoring station, but not at the monitored station. The user must disconnect from the monitored station call connection to answer the incoming call. The user can once again call the monitored station at a later time. The feature is still active at the monitored station until it goes on-hook.

The *Flags* screen is one of three screens in the *System Status* pathway of Hicom Assistant E Office that provides station-specific (rather than system-specific) status information. You can use the *Flags* screen to see if a station has activated Room Monitor or not.

### Operating the Feature

Refer to *Babyphone* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

- Monitored system

Going off-hook, dial the default access code \*88 or press the *Program/Service* key and scroll to and select the prompt \*88=Room monitor?. Leave the telephone off-hook or in speakerphone mode. The Speaker key remains lit but the speaker is deactivated. Normal incoming calls do not ring the telephone.

A feature can be programmed on the monitored station if this feature is to be used frequently.

- Monitoring Station

Dial the monitored station's number; connection is established without ring or tone.

The call is dropped when the monitoring station goes on hook, but the monitored station can be called from another telephone. The monitoring station can receive and process calls in the normal manner providing a separate trunk key is used for external calls. Call waiting tone is applied, but not signaled on the monitored station.

The feature is deactivated when the monitoring station goes on hook.

### Model-Specific Data

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |          |          |                          |                            |

### Requirements and Conditions

| Subject       | Requirement or Condition                                                                                                                                                |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Room monitor  | To monitor a room, telephones without a microphone must have the handset off-hook (exception: optiset E telephones with speakerphone function).                         |
| Hunt group    | If the room monitor station is in a hunt group, the station is not taken into account for incoming calls to the hunt group.                                             |
| Analog trunks | If you connect an external station by consultation hold to a station that has activated room monitoring, the external trunk must have a backward release criterion.     |
| Room monitor  | If an optiset E telephone calls a station activated as a room monitor, the speakerphone function on the calling telephone is deactivated in the standard configuration. |

### Configuration Options

This feature can be configured using Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                            |
|-------------|------------------------------------------|
| 1.          | <b>Configure room monitor</b><br>Options |
| 2.          | System parameters                        |
| 3.          | Flag/CMI                                 |
| 4.          | Activate room monitor                    |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Lift the handset (on telephones without a microphone).                                                                                |
| 2.          | Activate the room monitor feature by dialing *88 or pressing the <i>Room Monitor</i> key.                                             |
| 3.          | Call this extension from another internal station. The call is immediately through-connected. All sounds in the room are transmitted. |

## **7.11 Tenant Service**

The tenant service feature is implemented using existing features. This means that it is not necessary for users to explicitly configure subsystems.

Users can control permitted and barred connections between individual stations and trunks via traffic restriction groups.

The functionality of all features remains unchanged.

Features in tenant service include:

- Intercept
- System number
- Caller list
- Busy override
- DISA
- Speaker call
- Call detail recording
- Hotline destinations
- Text messages, advisory messages
- Internal calls
- Internal directory
- CDB printout
- Night answer
- Hicom Assistant P Office
- Park slot
- Prime Line
- Traffic restriction groups
- Voice mail
- Toll restriction

## 7.11.1 Tenant Service Configuration

### Definition

The Hicom 150 E Office system can be used as a tenant service, which allows it to be used simultaneously by more than one customer. All features have the same functionality for all customers.

However, certain resources must be divided among the tenants (customers). They can be assigned to one, several, or all tenants. The resources to be divided are:

- Stations
- Trunk groups
- PC-AC (Hicom Attendant P)
- Intercept position
- Announcement devices, voice mail
- Traffic restriction matrix (ITR matrix)
- Door opener
- Hotline
- DISA trunks
- Traffic restriction groups determine the ability of tenants to access each other.
- Hotline destinations can be configured for each system.
- A PC-AC can be assigned to each tenant.
- As of Release 2.2 SMR-J, six MOH devices can be defined for six possible ITR groups. This means that the analog interfaces used for connection are part of the ITR groups. Which MOH device is used depends on the ITR group of the station that places the call on hold.  
You cannot use the logical port "0" as an MOH source.

## Model-Specific Data

| Subject                                            | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------------------------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in                               | <b>x</b>          | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements                                    | —                 | —        | —        | —                        | —                          |
| SW requirements                                    | Rel. 1.0 or later |          |          | —                        | —                          |
| Number of tenant service systems                   | 3                 | 3        | 3        | —                        | —                          |
| Hotline destinations                               | 6                 | 6        | 1        | —                        | —                          |
| Announcement devices                               | 16                | 4        | 1        | —                        | —                          |
| MOH-devices                                        | 6                 | 6        | 6        | —                        | —                          |
| Trunk groups                                       | 16                | 16       | 8        | —                        | —                          |
| Number of trunk group keys per optiset E telephone | 6                 | 6        | 6        | —                        | —                          |
| Max. number of entrance telephones                 | 4                 | 4        | 4        | —                        | —                          |

## Requirements and Conditions

| Subject                              | Requirement or Condition                                                                                        |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Call detail recording central (CDRC) | Only one CDRC exists for all tenants.                                                                           |
| Internal calls                       | Internal calls are possible between stations in different systems if allowed by the traffic restriction groups. |
| Prime Line                           | Prime Line can be configured only for the entire system.                                                        |
| CDB printout                         | The database can only be printed for the entire system.                                                         |
| Internal directory                   | The internal directory displays the names of all stations and speed-dialing numbers in the system.              |
| Switch                               | It is not possible to transfer undialed trunks.                                                                 |
| Simplified dialing                   | Simplified dialing is not possible.                                                                             |
| Speed transfer                       | Speed transfer is not possible.                                                                                 |
| Intercept                            | Intercept can be configured only for the entire system.                                                         |
| Tenant                               | Users can configure a maximum of three different tenants.                                                       |

| Subject              | Requirement or Condition                                                                 |
|----------------------|------------------------------------------------------------------------------------------|
| System configuration | The system configuration can be changed from only one telephone (programming telephone). |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                                                                          |
|------|---------------------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Assign trunks to stations via an ITR group</b><br>18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations |
| 2.   | 18-3-1-1 => Traffic restriction - ITR groups - Group assignment - Stations                                                      |
| 3.   | 18-3-1-2 => Traffic restriction - ITR groups - Group assignment - Trunks                                                        |
| 4.   | 18-3-2-1 => Traffic restriction - ITR groups - Connection matrix - Matrix                                                       |
| 5.   | <b>Configure toll restrictions per tenant</b><br>15-1 => Toll restriction - Restriction, day                                    |
| 6.   | 15-2 => Toll restriction - Restriction, night                                                                                   |
| 7.   | Delete intercept position<br>16-12 => Incoming calls - Intercept, day                                                           |
| 8.   | 16-13 => Incoming calls - Intercept, night                                                                                      |
| 9.   | Enter call allocations<br>16-16 => Incoming calls - Call alloc. day                                                             |
| 10.  | 16-17 => Incoming calls - Call alloc. night                                                                                     |
| 11.  | <b>Enter trunk groups</b><br>17-12 => Networking - Assign trk group                                                             |
| 12.  | 17-13 => Networking - Overflow trk grp                                                                                          |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                               |
|------|--------------------------------------|
| 1.   | Options                              |
| 2.   | Classes of service, CON matrix       |
| 3.   | Classes of service, Group assignment |

| Step | Action                                      |
|------|---------------------------------------------|
| 4.   | Classes of service, Station                 |
| 5.   | Classes of service, Day                     |
| 6.   | Classes of service, Night                   |
| 7.   | System parameters, Diversion/Attendant      |
| 8.   | Incoming calls, Ringing assignment per line |
| 9.   | Lines/networking, Trunks                    |
| 10.  | Lines/networking, Routes                    |



For a detailed description of how to configure two tenants, refer to Section 8.50, *Tenant Services (Not for U.S.)*, on page 8-179 or Section 8.51, *Tenant Services (for U.S. Only)*, on page 8-185.

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                 |
|------|----------------------------------------------------------------------------------------|
| 1.   | Customer A has trunks 1 and 2.                                                         |
| 2.   | Customer B has trunks 3 and 4.                                                         |
| 3.   | Both customers should be able to seize the trunk using "0." (9 in U.K. and U.S.)       |
| 4.   | The trunks are assigned to stations via an ITR group.                                  |
| 5.   | Customer A's stations are entered in ITR1 and customer A's trunks are entered in ITR2. |
| 6.   | Customer B's stations are entered in ITR3 and customer B's trunks are entered in ITR4. |
| 7.   | The ITR groups for customer A's stations and trunks receive mutual ITR.                |
| 8.   | For its own stations, customer A receives mutual ITR for customer B's stations.        |
| 9.   | For its own stations, customer A receives incoming ITR for customer B's trunks.        |
| 10.  | The ITR groups for customer B's stations and trunks receive mutual ITR.                |
| 11.  | For its own stations, customer B receives incoming ITR for customer A's trunks.        |
| 12.  | Customer A's trunks must receive mutual ITR.                                           |



| <b>Step</b> | <b>Action</b>                                                                                                                                                     |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13.         | Customer B's trunks must receive mutual ITR.                                                                                                                      |
| 14.         | Trunk 1 and trunk 2 are placed in trunk group 1.                                                                                                                  |
| 15.         | Trunk 3 and trunk 4 are placed in trunk group 2.                                                                                                                  |
| 16.         | Overflow from trunk group 1 to trunk group 2.                                                                                                                     |
| 17.         | Customer A receives incoming and outgoing class of service for trunk group 1 and incoming class of service for trunk group 2.                                     |
| 18.         | Customer B receives incoming and outgoing class of service for trunk group 2 and incoming class of service for trunk group 1.                                     |
| 19.         | The intercept is removed in system settings, and for each trunk the intercept position for "0" (9 in U.K. and U.S.) is entered in the call allocation for trunks. |

## 7.12 Other Features

### 7.12.1 Voice Channel Signaling Security

#### Definition

This feature prevents tones from being injected in the voice channel, so that data on the voice channel are not corrupted. With this feature, no tones can be injected in the voice channel, and the connection cannot be overridden. A station configured as a fax machine automatically receives signaling security.

optiset E telephones can also be protected by programming the feature Call Waiting Rejection in the database.

Callers will not be able to camp on and will continue to receive busy tone.

This feature can only be set via database. For optiset E display telephones, refer to the Requirements/Conditions table below for an alternative.

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

#### Requirements and Conditions

| Subject        | Requirement or Condition                                                                                                                                                                           |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S <sub>0</sub> | This feature does not function with ISDN terminals.                                                                                                                                                |
| Recalls        | Recalls are postponed until the stations are free.                                                                                                                                                 |
| Call waiting   | Call waiting tone can also be suppressed from optiset E telephones with display, using a procedure (*87=Call waiting tone off; #87=Call waiting tone on). This has no effect on display signaling. |
| Call hold      | A station on hold always has signaling security.                                                                                                                                                   |
| Conference     | If a station in a conference has activated <i>call waiting rejection</i> , an unprotected station can still be camped-on.                                                                          |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                  |
|------|---------------------------------------------------------|
| 1.   | <b>Configure station as a fax machine (analog only)</b> |
| 2.   | 14-11 => Configure station - Station type               |
| 3.   | <b>Configure call waiting rejection</b>                 |
| 4.   | 14-16 => Configure station - Call waiting rejection     |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action         |
|------|----------------|
| 1.   | Options        |
| 2.   | Set up station |
| 3.   | Stations       |
| 4.   | Param          |
| 5.   | Flags          |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                  |
|------|-----------------------------------------------------------------------------------------|
| 1.   | Place a call from a telephone with call waiting rejection.                              |
| 2.   | Call the station.                                                                       |
| 3.   | The call waiting tone does not sound. You receive a busy signal on the calling station. |

## 7.12.2 Date and Time Display

### Definition

The system contains a real-time clock and a calendar. Each optiset E telephone with display indicates the time and date information based on this clock. In the case of digital trunks (not for U.S.), the date and time are set automatically, provided that the information is transmitted from the central office (during the first outgoing call).

The system changes automatically from standard time to daylight savings time (and vice versa).

If there is no synchronization option on the ISDN trunk as in the U.S., the system uses time-change data from a table in the system. You can update this table using Hicom Assistant E.

The day and month when daylight savings time should begin or end is specified for each year. The system switches over, as appropriate, at 2 or 3 a.m.

The date can be displayed in the following formats:

- Europe: 20.JUN 95
- USA: JUN 20.95
- International: 20 JUN 95
- International 2: 20.06.95

### Model-Specific Data

| Subject              | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                | x   | x     | x                        | x                          |
| HW requirements      | optiset E telephone with display |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later                |     |       |                          |                            |

### Requirements and Conditions

| Subject   | Requirement or Condition                                 |
|-----------|----------------------------------------------------------|
| Date/time | Changes can be made from the configuration station only. |

**Configuration Options**

This feature does not have to be explicitly configured for operation on digital trunks that automatically set the time (not for U.S.). Otherwise, it can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                  |
|------|-------------------------------------------------------------------------|
| 1.   | In systems without digital trunks and in the U.S.<br>Set the time: * 95 |
| 2.   | User: *95 ✓ (default)<br>Password: ✓ (default)                          |
| 3.   | 12                                                                      |
| 4.   | Set the date: * 95                                                      |
| 5.   | User: *95 ✓ (default)<br>Password: ✓ (default)                          |
| 6.   | 13                                                                      |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                                        |
|------|-----------------------------------------------------------------------------------------------|
| 1.   | In systems without digital trunks and in the U.S.<br>Set daylight savings time table: Options |
| 2.   | System parameters                                                                             |
| 3.   | Daylight saving time                                                                          |
| 4.   | Set the date format: Options                                                                  |
| 5.   | System parameters                                                                             |
| 6.   | Display                                                                                       |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                                                                     |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | For digital trunks, set up an external call. The date and time are set automatically if the central office generates a message containing this information (not for U.S.). |
| 2.   | In systems without digital trunks and for digital trunks in the U.S., set the date and time using the procedure described above.                                           |

## 7.12.3 Relays

### Definition

Hicom 150 E Office provides control outputs (relays) on an optional control relay module. This enables you to perform the following functions from any connected telephone by entering codes:

- Manual switch on and off
- Timer-controlled switch
- Door opener control
- Connection-controlled entrance telephone amplifier
- Door busy display
- Night bell
- Announcement device start and stop control
- External music on hold (MOH) control
- second ringer simulation
- simulation of call charge pulses
- station active

With Hicom 150 E OfficePoint and OfficeCom, the optional control relay module STRB, can be implemented with four control inputs and four outputs each for functions such as monitoring, alarm, control and adjustment. This can be used in security systems or Property Management Systems (PMS). A control relay module can be connected for each system (OfficePoint/OfficeCom). The relay card REAL which provides four control outputs is available for Hicom 150 E OfficePro.

The signal input function (control input) is triggered by closing any of the external floating contacts. The external electric circuit is supplied by the control relay module and electrically isolated from the system controller by means of an optocoupler.

The relays can be controlled via codes from every connected telephone and remotely via the trunk line (DISA) by the station user associated with the relay function or for with the aid of the feature Associated Services.

### Assigning Functions to the Actuators (Relays)

- **No function type**

The relevant actuator is either not operating or is entered as a common ringer under *Call management, Call destination lists*.

- **Manually on and off type**

The relay can be activated or deactivated for switching purposes by means of the codes *Activate or deactivate selected switch*. In the case of key terminals this function can also be programmed on one key. A specific station, a group or all stations can be allocated to this relay type by selecting *NONE*. For this relay type, shutdown can be delayed if a value greater than 0 is entered in the *Switching time* field. The switching time is a multiple of 100ms.

- **Automatic off after timeout type**

The relay can be activated or deactivated as a time switch by means of the code *Activate selected switch* (see above). For key terminals this function can also be programmed on a key. A specific station, a group or all stations can be allocated to this relay type by selecting *NONE*. The switching time is a multiple of 100ms.

- **Door busy indicator type**

The relay is activated if the allocated station ceases to be in the idle condition. This means that the handset has been picked up, the loudspeaker is activated or the extension is being called. The relay is deactivated when the allocated station returns to the idle condition. This means that the handset has been replaced, the loudspeaker has been deactivated and the extension is not being called. The relay can also be activated directly by means of the code *Activate/deactivate selected switch*. For system telephones, this function can also be programmed on a key. If the relay was activated by means of a code or a key, the status of the allocated station is ignored and the relay can only be deactivated again by means of a code or a key.

**Practical uses:** Door busy indicator Do not disturb, Meeting, Conference, PC connection for data transmission (power management). A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the switching time field. The switching time is a multiple of 100ms.

- **Second ringer simulation type**

The relay is activated for the allocated station if it is being called. This relay is deactivated when the called party answers or the call is terminated. This relay is not clocked. A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the 'switching time' field. The switching time is a multiple of 3 seconds.

- **Door opening system type**

See Automatic after timeout type. The text *Door opening system* is displayed for the allocated terminals.



- **Doorphone amplifier type**

The relay is activated when connected to the doorphone. The relay is deactivated when disconnected from the doorphone or entrance telephone/loudspeaker. This makes it possible to control a doorphone amplifier so that it is only activated when required. A doorphone or the loudspeaker port must be allocated to this relay type.

- **Music-on-hold type**

The relay is activated if at least one station or a line in the system is not in the idle condition. The relay is deactivated if all stations and lines in the system are in the idle condition.

**Practical application:** Activation of a tape device, CD player, PC connection power management etc. *NONE* must be entered as allocated station for this relay type, and it must only occur once in the system. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered for the *Switching time* field. The switching time is a multiple of 100ms.

- **Station active type**

The relay is activated if the allocated station is active. This means that the handset has been picked up or the loudspeaker has been activated. The relay is deactivated if the allocated station resumes the idle condition. This means that the handset has been replaced or the loudspeaker has been deactivated. The relay can also be activated directly by means of the code *Activate/deactivate selected switch*. For system telephones, this function can also be programmed on a key. If the relay was activated by means of a code or a key, the status of the allocated station is ignored and the relay can only be deactivated again by means of a code or a key. A specific station must be allocated to this relay type. In the case of this relay type, shutdown can be delayed if a value greater than 0 has been entered in the *Switching time* field. The switching time is a multiple of 100ms.

### **Assigning Actuator Names**

Any names (up to 16 characters) can be assigned to the actuators to be administered.

### **Operating the Feature**

Refer to *Switch* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

- **Display telephones**

All station types can activate/deactivate the relays.

From an idle state, the user dials the default access code *\*90* or presses the *Program/Service* key, scrolls to and selects the prompt *\*90=Control relay on?*, then enters the relay number.

A feature button can be programmed on an optiset E if the feature is to be used frequently.

The user can deactivate the relay dialing the default access code *#68* or via the *Program/Service* procedure.

- Non-display and analog telephones

From an idle state, the user dials *\*90*, followed by the relay number, or *#90* and the relay number, to deactivate the relay.

### Model-Specific Data

| Subject              | Pro              | Com         | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-------------|-------|--------------------------|----------------------------|
| Feature available in | x                | x           | x     | —                        | —                          |
| HW requirements      | <u>REAL</u>      | <u>STRB</u> |       | —                        | —                          |
| SW requirements      | Rel 1.0 or later |             |       | —                        | —                          |

### Requirements and Conditions

| Subject | Requirement or Condition                                    |
|---------|-------------------------------------------------------------|
| DISA    | Relays can be controlled from the outside via trunk access. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                           |
|------|--------------------------------------------------|
| 1.   | <b>Configure relays</b><br>26-1 => Relays - Type |
| 2.   | 26-2 => Relays - Switching time                  |
| 3.   | 26-3 => Relays - Assigned station                |
| 4.   | 26-4 => Relays - Relay name                      |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                      |
|-------------|------------------------------------|
| 1.          | <b>Configure relays</b><br>Options |
| 2.          | Connections                        |
| 3.          | Actuators                          |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                      |
|-------------|------------------------------------|
| 1.          | Program a relay                    |
| 2.          | Dial the code for the relay        |
| 3.          | The relay activates as configured. |

## 7.12.4 Sensors

### Definition

Hicom 150 E Office supports control inputs (sensors) via an optional control relay module. When a sensor is activated, the assigned station is called automatically. After the station answers the call, a message can be played from an announcement device. The signal input function activates when an external floating contact closes. Optocouplers provide electrical isolation between the external circuit and the system controller.

The sensors can initiate the following functions:

- Distinctive ringing on telephones
- Message display on optiset E telephones with display
- Analysis of announcement device start and stop signals
- Answering machine control
- Automatic dialing with a predefined telephone number (internal number, group ringing or external destination call number)
- Activation of the following services for a STN (with *code* + *STN*):
  - Actuator on/off
  - Do-not-disturb feature on/off
  - Call forwarding on/off
  - Codelock on/off
  - Send message texts
  - Withdraw message texts
  - Night service on/off
  - Ring transfer on/off
- Direct activation of the following services (without *code*+*STN*):
  - Actuator on/off
  - Use speed dialing system
- Error signaling; the following types are possible:
  - Display of programmable error message (sensor name, max. 10 characters: for example, Temp-Alarm) on a specific optiset E telephone (no acoustic signaling)

- Display of calls on a specific optiset E telephone with error message during call (destination station number)
- Error entry in error history (entry in error memory = activated)

### Destination Call Number

An associated analog port is programmable for the sensors. This port is called by the system once a setup signal has been received. The calling party then overrides this connection. A recorded announcement can be activated via an answering machine connected to this port, which informs the dialed station of the response of the sensor. An analog port programmed in this way cannot be contacted from the outside.

If an external call number has been programmed for a sensor, but an analog port has not, the external connection will be established but an audible signal in relation to the response of the sensor is not transmitted. However, if necessary, the called STN can identify the origin of the call on the basis of the call number (CLIP).

### Message Texts Box Control Data

Input of the control string with a maximum of 24 characters for the Phonemail system (mailbox call number). If the connection has been established, the control string is transmitted to the recorded announcement port. If a recorded announcement port is not available, the control string is transmitted to the destination.

### Model-Specific Data

| Subject              | Pro | Com              | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-----|------------------|-------|--------------------------|----------------------------|
| Feature available in | –   | x                | x     | –                        | –                          |
| HW requirements      | –   | <u>STRB</u>      |       | –                        | –                          |
| SW requirements      | –   | Rel 1.0 or later |       | –                        | –                          |

### Requirements and Conditions

| Subject      | Requirement or Condition                                               |
|--------------|------------------------------------------------------------------------|
| Special ring | If the notified station is an internal station, a special ring sounds. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                |
|------|---------------------------------------|
| 1.   | <b>Configure sensors</b>              |
| 2.   | 27-1 => Sensors - Type                |
| 3.   | 27-2 => Sensors - Dest. station no.   |
| 4.   | 27-3 => Sensors - Stn. no. for announ |
| 5.   | 27-4 => Sensors - Announcem. control  |
| 6.   | 27-5 => Sensors - Ring duration       |
| 7.   | 27-6 => Sensors - Ring interval       |
| 8.   | 27-7 => Sensors - Number of rings     |
| 9.   | 27-8 => Sensors - Blocking time       |
| 10.  | 27-9 => Sensors - Sensor name         |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                              |
|------|-------------------------------------|
| 1.   | <b>Configure sensors</b><br>Options |
| 2.   | Connections                         |
| 3.   | System flags                        |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                        |
|------|-------------------------------|
| 1.   | Program a sensor.             |
| 2.   | Dial the code for the sensor. |
| 3.   | The sensor activates.         |

## 7.12.5 Executive/Secretary Functions

### Definition



The executive/secretary functions described here can be used only with Release 2.2 or earlier. As of Release 3.0, executive/secretary functions are set up by means of Top configurations (refer to [Section 7.12.15](#)).

The Hicom 150 E Office system provides the following optional executive/secretary configurations:

- One executive, one secretary
- One executive, two secretaries
- Two executives, one secretary
- Two executives, two secretaries
- You can configure a total of two conference corner phones (CCP) in each executive/secretary group (Rel. 2.2 or later).

The following activities are possible between executive and secretary telephones:

- **Direct station select (DSS) keys for executive/secretary:** Members of an executive/secretary group can use the direct station selection feature to reach a dialed station directly, circumventing call management. Direct station selection is possible only by using a programmed DSS key. You can place an internal call by pressing the DSS key or dialing the telephone number. A special ring sounds when calls are placed from the executive telephone to the secretary telephone. Two executive/secretary rings are configured in the system, making it possible to distinguish between calls from two different executives.
- **Secretarial function transfer:** Call forwarding can be used to configure a secretarial function transfer. In this case, all calls arriving for the executive are signaled at the secretary's telephone (deputy).
- **Call transfer to the secretary telephone:** The executive and secretary can transfer a call to each other from the speaker call/handsfree answerback function (only if the call was previously active and is now on hold).
- **Call forwarding to the secretary telephone:** An executive/secretary function can be configured so that all calls are directed to the secretary telephone. In this case, you can have the calls signaled at both telephones using *group ringing*.
- **Messenger call:** Users can place a messenger call (activation of an external display device) by activating or deactivating a relay.

- **Second telephone:** You can implement a second telephone in call management. Enter the type of night bell or the additional telephone to be called (second telephone) in the call destination lists.

The following default rings are available:

- Exec/Sec 1 call: 2 seconds on, 2 seconds off.
- Exec/Sec 2 call: 3 seconds on, 2 seconds off.

## Operating the Feature

- **Call transfer to the secretary:** the secretary receiving the call sees in the display that the call is originally for the executive. The secretary can transfer the call by pressing the Program/Service key followed by the Default access code \*80 for speaker Call and pressing the DSS key for the executive. The secretary can voice announce the call and by going on-hook, transfer the call.
- **Call forwarding to the secretary telephone:** The call forwarding feature can be used to configure a secretarial function transfer. An executive/secretary function can be configured so that all calls are directed to the secretary telephone. The executive can program a key or dials the default access code \*11 followed by the secretary's number. All calls will be forwarded.
- **External call keys:** External calls can be configured to appear on Call Keys or on General Call Keys.

Refer to *Direct Station Selection/Trunk Key for Executive Line* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

## Model-Specific Data

| Subject                                                      | Pro                            | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|--------------------------------------------------------------|--------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in                                         | x                              | x   | x     | x                        | x                          |
| HW requirements                                              | Digital telephone with display |     |       |                          |                            |
| SW requirements                                              | Rel. 2.0 to Rel. 2.2           |     |       |                          |                            |
| No. of executive/sec-<br>retary groups                       | 16                             | 10  | 4     | 4                        | 4                          |
| Conference corner<br>phones per group<br>(Rel. 2.2 or later) | 2                              | 2   | 2     | 2                        | 2                          |



**Requirements and Conditions**

| <b>Subject</b>           | <b>Requirement or Condition</b>                                                                                                                                                                                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call waiting             | Only the secretary telephone can camp-on an executive telephone. Call waiting is performed immediately with a special tone.                                                                                                                                                           |
| Direct station selection | A <i>DSS</i> key is available only with the executive/secretary feature.                                                                                                                                                                                                              |
| Call waiting rejection   | If an executive is entered without a secretary, call waiting rejection is active on the executive station.                                                                                                                                                                            |
| Do not disturb           | If do not disturb is active, the LED on the DSS key lights up continuously. Calls are automatically signaled on the partner's telephone. If the executive telephone is authorized to override do not disturb, calls from the executive to secretary are switched through immediately. |
| Executive/secretary      | If a secretary telephone is assigned to two executives, the executive telephones and the secretary telephone must be entered in the <b>same</b> executive/secretary system. Otherwise, only transfer after a speaker call will function.                                              |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                                                              |
|-------------|------------------------------------------------------------------------------------------------------------|
| 1.          | <b>Configure executive/secretary function</b><br>18-1 => Traffic restriction - Configure exec./sec. groups |
| 2.          | <b>Configure DSS key</b><br>*91 => Access key programming.                                                 |
| 3.          | Press the key to be assigned.                                                                              |
| 4.          | Configure the selected key as a DSS key.                                                                   |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                 |
|-------------|-----------------------------------------------|
| 1.          | <b>Configure executive/secretary function</b> |
| 1.          | Options                                       |
| 2.          | Incoming calls                                |
| 3.          | Internal traffic                              |
| 4.          | <b>Configure DSS key</b><br>Options           |
| 5.          | Set up station                                |
| 6.          | Key programming                               |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                            |
|-------------|--------------------------------------------------------------------------------------------------------------------------|
| 1.          | Configure the executive/secretary function.                                                                              |
| 2.          | Call the executive telephone. The call is signaled on the secretary telephone.                                           |
| 3.          | Answer the call on the secretary telephone and forward it to the executive telephone by pressing the programmed DSS key. |

## 7.12.6 Multilingual Text Output

### Definition

The language for display messages can be selected system-wide or for a specific station only. The following languages are available:

- Release 2.0 and earlier:  
Catalan (Release 2.2 SMR-J and later), Chinese, Czech, Danish, Dutch, English (UK), English (US), Estonian, Finnish, French, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Russian, Serbo-Croatian, Slovak (Release 2.2 SMR-J and later), Slovenian, Spanish, Swedish, Telekom (Germany), Turkish
- Release 2.2 and later (the number of languages in the APS was reduced to make room for new features):
  - OfficePro, Com, Point (four fixed and four variable languages):  
Dutch\*, English (UK), English (US), French, German, Italian\*, Portuguese\*, Spanish\*
  - OfficeOne (one fixed and two or three (Release 2.2 SMR-J and later) variable languages):  
German, English\*, French\*, Italian (Release 2.2 SMR-J and later),
  - OfficeStart (one fixed and two variable languages):  
German, English\*, French\*

The languages marked "\*" can be replaced with one of the languages available in Release 2.0 or earlier. You must run Hicom Assistant E Office to load the new language.

Note the following with regard to system-wide and station-specific language settings:

- **Default language setting**  
You set the language when you enter the country initialization code during system booting (refer to Section 5.1.5 for Hicom 150 E OfficePro and Section 5.2.5 for Hicom 150 E OfficeCom, OfficePoint, OfficeOne and OfficeStart). The parameters for Germany are the defaults.  
If the APS does not contain the local language set during country initialization, it uses German as the default language until you replace one of the variable languages in the APS with the local language.
- **Changing the language setting system-wide:** You can access system administration by entering a code or using the service menu on the first two telephones with display in the system. Select the desired language from the service menu to switch all stations to the new language.

- **Changing the language setting for an individual station:** You can change language of individual stations only from the first two stations with display in the system. To change the language of a station, specify the station in the service menu and the language to be used.

### Model-Specific Data

| Subject              | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                | x   | x     | x                        | x                          |
| HW requirements      | optiset E telephone with display |     |       |                          |                            |
| SW requirements      | Rel. 1.0 or later                |     |       |                          |                            |

### Requirements and Conditions

| Subject               | Requirement or Condition                                                                                            |
|-----------------------|---------------------------------------------------------------------------------------------------------------------|
| System administration | The following languages are not available for system administration: Czech, Serbo-Croatian, Slovenian, and Turkish. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                                                                                             |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Select a language for each station</b><br>14-26 => Configure station - Select language                                                          |
| 2.   | Define the station                                                                                                                                 |
| 3.   | Selection options:<br>a) Change only the defined station with confirmation.<br>b) Change all stations of the same type.<br>c) Change all stations. |
| 4.   | Confirm the language selected                                                                                                                      |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                                |
|-------------|--------------------------------------------------------------|
| 1.          | <b>Replace existing system language</b><br>Load new language |
| 2.          | Text: Select the text to be loaded or deleted                |
| 3.          | Communication: Start loading the text                        |
| 1.          | <b>Select a language for each station</b><br>Options         |
| 2.          | Set up station                                               |
| 3.          | Stations                                                     |
| 4.          | Flags                                                        |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                  |
|-------------|----------------------------------------------------------------|
| 1.          | Change the language setting for an optiset E telephone.        |
| 2.          | The display on the telephone appears in the language selected. |

## 7.12.7 Associated Dialing

### Definition

With a PC, users can have the system set up a voice connection from one station (typically their own, but not necessarily so) to another station within the system. With analog telephones, the PC uses a dialing aid interface (Teleint in Germany). Another option is to connect a PC to an ISDN S<sub>0</sub> application bus.

Any authorized station in the system can execute associated dialing for another station. The user defines the station number of the destination station in the PC address book and activates dialing. The PC seizes the ISDN S<sub>0</sub> application bus and transmits the station number to the system using an ISDN message.

The user accesses the function by dialing a code and specifying the station for which a number should be dialed. The system then interprets this information as though the specified station were dialing.

### Operating the Feature

Refer to *Associated Dialing* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

An analog telephone must be off hook to activate this feature.

The authorized user, from an idle state, dials the default access code \*67 followed by the extension number or whom the call will be placed, and then the actual destination. The call is set up; the initiator can hang up and the call will proceed.

A CDRC record is created for the party **placing** the call, not the initiator of the associated dialing feature.

With an external call, the station for whom the call is placed must have the appropriate COS toll restriction level to complete the call; otherwise, the call is denied.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

**Requirements and Conditions**

| Subject         | Requirement or Condition                                                                                   |
|-----------------|------------------------------------------------------------------------------------------------------------|
| Trunk group     | Depending on the system configuration, you may have to dial a trunk group code in order to seize a trunk.  |
| Call forwarding | A call waiting operation activated on the station for which the number is to be dialed is not carried out. |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Configure station                            |
| 2.   | 14-14 => Configure station - Associated dial |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                              |
|------|-------------------------------------|
| 1.   | <b>Configure station</b><br>Options |
| 2.   | Set up station                      |
| 3.   | Param                               |
| 4.   | Flags                               |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | From an authorized station, dial a station number for another station. (For example, an authorized station dials a number to the central office for station 12). |
| 2.   | The authorized station dials * 67 12 0 (or 9) [number].                                                                                                          |
| 3.   | The call goes through as if station 12 had dialed.                                                                                                               |

## **7.12.8 Associated Services**

### **Definition**

An authorized user can activate or deactivate services for any other station in the system using a procedure. Authorized users initiate access by entering a code and the station number that they want to activate or deactivate. The system behaves the same as if the initiating station were activating the feature for itself.

With this feature, users can control the following:

- Do not disturb
- Call forwarding
- Telephone lock
- Group ringing
- Advisory message
- Hunt group
- Reset services
- Actuators
- Night answer
- Timed reminder

All features set by another station can be deactivated from the station on which the feature was set. If the destination station has the feature Telephone lock active, services cannot be activated at that telephone. Likewise, a feature which was activated at a telephone before the telephone was locked and is still active, cannot be deactivated with the Associated Services feature.

The destination station must first be authorized in database (where this applies), in order to use the feature/function.

### **Operating the Feature**

The authorized user, from an idle state, dials the default access code \*83 followed by the extension number for whom the service is to be activated or deactivated and then the service access code. (Special considerations are noted on some of the following features).

The following list includes the access codes and some special considerations that users can control with this feature:

- **Do not disturb on/off (\*97/#97)**



- **Call forwarding on/off** (\*11, \*12, \*13/#1): Activating a Call Forwarding to an external destination for another station is possible; however, the station involved must have the proper COS toll restriction level.
- **Telephone lock on/off** (\*66/#66): The correct sequence must be followed: \*83 + stn no. + \*66/#66 + PIN.
- **Group ringing on/off** (\*81/#81): The correct sequence must be followed: \*83 + stn no. + \*81/#81+ stn no. which will also ring.
- **Advisory message on/off** (\*69/#69): It is only possible to enter additional information into the variable sections of the advisory message from a display telephone.
- **Hunt group on/off** (\*85/#85)
- **Reset services** (#0)
- **Actuators on/off** (\*90/#90)
- **Night answer on/off** (\*44/#44)

Refer to *Associated Services* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject       | Requirement or Condition                                                   |
|---------------|----------------------------------------------------------------------------|
| ISDN terminal | From an ISDN terminal, dial the substitute code (75) for the asterisk (*). |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                |
|-------------|----------------------------------------------|
| 1.          | <b>Configure station</b>                     |
| 2.          | 14-14 => Configure station - Associated dial |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                       |
|-------------|-------------------------------------|
| 1.          | <b>Configure station</b><br>Options |
| 2.          | Set up station                      |
| 3.          | Parameter                           |
| 4.          | Flags                               |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                                                                      |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | From an authorized station, activate a feature for another station using the procedure. (For example, station 11 activates call forwarding to internal station 13 for station 16.) |
| 2.          | Station 11 dials * 83 16 *11 13.                                                                                                                                                   |
| 3.          | The feature is activated on the other station.                                                                                                                                     |

## 7.12.9 Display Number of Stations with Direct Trunk Access (for Austria Only)

### Definition

You can use system administration to display the number of stations with direct trunk access available in the system. This includes all stations currently in operation which have at least outward restricted trunk access.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject | Requirement or Condition  |
|---------|---------------------------|
| Display | Available in Austria only |

### Configuration Options

This feature does not have to be configured explicitly.

### Displaying the Feature with Hicom Assistant T

Display the feature using Hicom Assistant T as follows:

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Display stations                             |
| 2.   | 15-5 => Authorized stns - Number of stations |

## Displaying the feature with Hicom Assistant E Office

Display the feature using Hicom Assistant E Office as follows:

| Step | Action                            |
|------|-----------------------------------|
| 1.   | Display stations<br>System status |
| 2.   | System-wide                       |
| 3.   | Telephone                         |
| 4.   | CO call privileges: Number of...  |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                       |
|------|------------------------------------------------------------------------------|
| 1.   | Display the number of stations with direct trunk access using the procedure. |

## 7.12.10 Services in the Talk State

### Definition

During a call, a station can activate services or perform administrative tasks in the system via system administration.

Users activate this feature by pressing the *Program/Service* key or, with a non-display or an analog telephone, by pressing the *Consultation* key or hook switch flash.

The features that can be activated during a call are identified in each of the descriptions.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject         | Requirement or Condition                        |
|-----------------|-------------------------------------------------|
| Call forwarding | Call forwarding can be activated during a call. |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                       |
|------|--------------------------------------------------------------|
| 1.   | Using the procedure, initiate call forwarding during a call. |
| 2.   | Call forwarding is active.                                   |

## 7.12.11 Reset Activated Features

### Definition

Users can reset all of the features currently set on the telephones by entering a code.

The following features can be reset:

- Call forwarding
- Send/cancel messages
- Advisory message
- Group ringing
- Hunt group
- Station number suppression
- Silent camp-on
- Do not disturb
- Ringer cutoff
- Timed reminder
- Cancel all callbacks (Release 2.0 or later)

The system can also reset the above features per telephone from a local or remote location using the Hicom Assistant E Office administration tool. (Refer to *Executing feature using Hicom Assistant E Office on page 7-344*). The administrator first downloads the information to Hicom Assistant E Office and working off-line can selectively view the state of each of the features activated on each telephone. In Hicom Assistant E Office, the administrator can reset all these features on any telephone and upload the file to the Hicom 150 E Office system.

The following table illustrates the features that can be reset from the station by dialing the access code #0, individually.

| Station               | Assistant E         |
|-----------------------|---------------------|
| Call Forward          | Call Forward on     |
| Received messages     |                     |
| Advisory message      | Answer text         |
| Group Ringing         |                     |
| Leave Hunt Group      | Hunt Group          |
| Caller ID suppression | Suppress Calling ID |
| Call Waiting Tone     | Call Waiting Tone   |

|                |                       |
|----------------|-----------------------|
| Do Not Disturb | Do Not Disturb        |
| Ringer cutoff  | Disable incoming ring |

The additional features in the Hicom Assistant E Office *System Status - Flags* screen: Room Monitor, Lock Code, Call Connection and Direct answering will not be deactivated.

## Operating the Feature

All types of telephones can use this feature.

To reset the above features, from an idle state, the user can dial the default access code *#0*; alternatively, with a display telephone, users can press the *Program/Service* key, scroll to and select the prompt *#0=Reset services?*.

Confirmation tone is returned to non-display or analog telephones, while a text message is given for display telephones: *Services off*.

The feature can be accessed via DISA for a caller's own telephone or for another station's telephone via Associated Services.

Refer to *Resetting Services* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, List of Available Documentation for Hicom 150 E Office (status May 30, 2000).

## Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

## Requirements and Conditions

| Subject               | Requirement or Condition                                                                                                                 |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Send messages         | You can also use <i>Reset all services</i> to delete received messages.                                                                  |
| Sensors/send messages | A warning can be sent via a sensor to a station in the form of a text message (send message) and then reset by a <b>different</b> relay. |
| Cancel all callbacks  | Access the procedure from <i>Reset all services</i> .                                                                                    |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Executing feature using Hicom Assistant E Office

Execute the feature using Hicom Assistant E Office as follows:

| Step | Action                                                          |
|------|-----------------------------------------------------------------|
| 1.   | <b>Execute <i>reset activated features</i></b><br>System status |
| 2.   | System-wide                                                     |
| 3.   | Flags                                                           |
| 4.   | Select the station whose features you want to delete.           |

### Testing the feature using Hicom Assistant T

Check the feature for error-free functioning as follows:

| Step | Action                                                   |
|------|----------------------------------------------------------|
| 1.   | Activate call forwarding on a telephone.                 |
| 2.   | Dial the code for <i>reset activated features</i> (#0) . |
| 3.   | Call forwarding has been reset.                          |



## 7.12.12 Relocation Function

### Definition

This feature allows users to plug in telephones at different locations without changing the system configuration. When users move their telephones to new locations, the extension numbers and station features (like call forwarding, key assignments, and other station-specific features) remain the same.

This feature ensures that users who move to another location within the system are available as soon as possible.

A system-wide flag must be set in the database to allow stations to access this feature. The default value is *Denied*.

Only one Station Relocate action can be taken at one time in the system.

Key modules will be relocated and retain all button assignments.

Relocation can only be performed to a vacant, active jack. That is, the jack is connected to an idle U<sub>PO/E</sub>, primary, (optiset E) port and no optiset E is connected to it. If the relocation involves a move to a location where an optiset E is already located (station B), the telephone located at the destination (station B) must first be moved to a vacant, active jack using the Station relocate procedure. The moving station (station A) can now be relocated to the vacated jack. Station B can now relocate to station A's original location.

If no vacant active jack is available, the Station relocate function should not be used: the stations are reassigned to the system default templates.

While in a relocating state and unplugged, the telephone is considered *Out of Service*; incoming calls follow general call handling rules and/or intercept to the intercept position. If the relocate function is activated, but the telephone is not unplugged, the telephone is seen as *present* but in the *Program/Service* mode; incoming calls follow the Call Management rules or intercept if no further Call Management rules apply.

### Operating the Feature

To use the Relocate feature, the user of a relocating optiset E, from an idle state, dials the access code *\*9419*. Confirmation tone is heard on non-display telephones or the display prompt *Relocate* is presented on a display telephone. The user then can unplug the telephone and physically move it to the vacant jack and plug it back in. To complete the transfer of station information from one port to another, the user dials *#9419*. The station and all associated database information has been moved and the telephone is active.

Refer to *Terminal Replacement* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to Table 1-1, *List of Available Documentation for Hicom 150 E Office (status May 30, 2000)*.

### Hardware Limitation

**Hardware configuration:** Primary optiset E connected to a secondary optiset E via the Telephone Adapter or a secondary analog device connected via the Analog Adapter.

The relocation function can only be performed from the primary optiset E telephone. The primary station and the associated secondary station receive a new station number. The stations keep all the activated features and COS.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| HW requirements      | —                 | —   | —     | —                        | —                          |
| SW requirements      | Rel. 1.0 or later |     |       |                          |                            |

### Requirements and Conditions

| Subject  | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relocate | <p>Relocate is for optiset E telephones only.</p> <p><b>Note:</b><br/>The relocation function can be executed from a primary optiset E telephone only.<br/>The primary station and the associated secondary station (including analog secondary stations) receive a new (relocated) station number.<br/>The stations keep all activated features and classes of service.<br/>Ports 1 and 2 (administration ports) cannot perform a relocation function.<br/>When running Hicom Assistant E Office, note that the physical ports (known as <i>access</i> in Assistant) change following a relocation function. This is important for main distribution frame plans.<br/>Relocate can be activated between Station A and Station B for 15 minutes.<br/>Relocate cannot be activated multiple times.</p> |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                              |
|------|-------------------------------------|
| 1.   | <b>Configure relocate</b>           |
| 2.   | 22-24 => System settings - Relocate |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                               |
|------|--------------------------------------|
| 1.   | <b>Configure relocate</b><br>Options |
| 2.   | System parameters                    |
| 3.   | System flags                         |

## Testing the Feature

Check the feature for error-free functioning as follows (example uses Hicom 150 E OfficePro):

| Step | Action                                                                                                                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Initial location:<br>Primary stn. 103 has secondary stn. with no. 503 (slot 2/port 4)<br>Primary stn. 104 has secondary stn. with no. 504 (slot 2/port 5)                      |
| 2.   | From stn. 103, activate relocate by dialing *9419. The service LED lights up. The message Relocate is displayed on telephones with display.                                    |
| 3.   | From stn. 104, dial *9419 to end the relocation function. The ports are now physically exchanged.                                                                              |
| 4.   | Location after relocate:<br>Primary stn. 103 and secondary stn. 503 are now assigned slot 2/port 5.<br>Primary stn. 104 and secondary stn. 504 are now assigned slot 2/port 4. |

## 7.12.13 Automatic Wake-up System/Timed Reminders

### Definition

Each user can program an appointment. When activated, a timed reminder is issued at the scheduled time. The appointment can be programmed for a single reminder (once within a 24-hour period) or for regularly scheduled daily reminders.

The time format is four-digits. The first two digits are the hour, and the second two digits are the minutes. A 12-hour clock mode is supported for the U.S.: users enter the four digits and then select *am* (key 2) or *pm* (key 7). The default is *am*. The mode for all other countries is the 24-hour clock system.

The default timed reminder sounds for 20 seconds and will repeat a maximum of five repeats at 1-minute intervals. The timed reminder is cleared automatically as soon as the user lifts the handset or presses the speaker button, or after the fifth repeat (number of repeats is configurable). Alternatively, a programmed timed reminder can be canceled using a procedure. Display telephones also support queries.

The duration of signaling, the time between signals, and the number of repeats are configurable.

### Model-Specific Data

| Subject                                      | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------------------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in                         | <b>x</b>          | <b>x</b> | <b>x</b> | <b>x</b>                 | <b>x</b>                   |
| HW requirements                              | —                 | —        | —        | —                        | —                          |
| SW requirements                              | Rel. 1.0 or later |          |          |                          |                            |
| Maximum no. of timed reminders (system-wide) | 50                | 50       | 50       | 50                       | 50                         |

### Requirements and Conditions

| Subject         | Requirement or Condition                                                                                                             |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Appointments    | Standard analog telephones, entry, basic, and cordless telephones support only programming of non-repeating (once only) appointments |
| Timed reminders | A timed reminder which is due but cannot be signaled (user busy, for example), is postponed until the next cycle.                    |

| Subject                            | Requirement or Condition                                                                                                                                                                                                           |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Influence of other active features | Activation of other features such as call forwarding, do not disturb, group ringing, ringer cutoff has no effect on timed reminder, in other words the timed reminder is always issued at the telephone at which it was activated. |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Activity                                                                        |
|------|---------------------------------------------------------------------------------|
| 1.   | <b>Configure automatic wake-up/timed reminders</b><br>Press the Program/Service |
| 2.   | * 46                                                                            |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Activity                                                        |
|------|-----------------------------------------------------------------|
| 1.   | <b>Configure automatic wake-up / timed reminders</b><br>Options |
| 2.   | System parameters                                               |
| 3.   | System flags                                                    |

## Testing the Feature

Check the feature for error-free functioning as follows (example for Hicom 150 E OfficePro):

| Step | Activity                                        |
|------|-------------------------------------------------|
| 1.   | Press the Program/Service key                   |
| 2.   | Enter * 46                                      |
| 3.   | Program the appointment                         |
| 4.   | Timed reminder is signaled at the correct time. |

## 7.12.14 Delete All Station Numbers

### Definition

This feature allows you to delete all station numbers quickly and easily (refer to [Table 7-5](#)).

Using this feature, it is much easier to customize the default numbering plan when installing a new system or retain an existing numbering plan when replacing a non-Siemens system.

Table 7-5 Hicom 150 E Office—Deleting Station Numbers

| Type of Number                                  | Default Station Numbers |                       |                       | Delete    |
|-------------------------------------------------|-------------------------|-----------------------|-----------------------|-----------|
|                                                 | Pro                     | Com                   | Point/One/Start       |           |
| Station numbers                                 | 100-349<br>500-749      | 100-278<br>500-687    | 11-30<br>51-70        | Yes       |
| Station DID numbers                             | 100-349<br>500-749      | 100-287<br>500-687    | 11-30<br>51-70        | Yes       |
| Trunk numbers                                   | 7801-7920               | 7801-7860             | 801-816               | Yes       |
| Trunk group codes<br>(external codes)           | 0 = World<br>9 = U.S.   | 0 = World<br>9 = U.S. | 0 = World<br>9 = U.S. | <b>No</b> |
|                                                 | 80-84                   | 80-84                 | 82-88                 | Yes       |
|                                                 | 850-859                 | 850-859               | ---                   | Yes       |
| USBS station number<br>Internal & DID           | 891                     | 891                   | 891                   | Yes       |
| IMOD station number<br>Internal & DID           | 890                     | 890                   | 890                   | Yes       |
| Digital modem<br>Internal & DID                 | 879                     | 879                   | 77 & 879              | Yes       |
| Group numbers<br>Internal & DID                 | 350-499                 | 350-499               | 31-50                 | Yes       |
| Internal attendant code<br>(intercept position) | 9 = World<br>0 = U.S.   | 9 = World<br>0 = U.S. | 9 = World<br>0 = U.S. | Yes       |
| DID attendant code<br>(intercept station)       | 0 = World<br>9 = U.S.   | 0 = World<br>9 = U.S. | 0 = World<br>9 = U.S. | <b>No</b> |
| Substitution for "*"                            | 75                      | 75                    | 75                    | Yes       |
| Substitution for "#"                            | 76                      | 76                    | 76                    | Yes       |
| Service codes                                   | *xxx<br>#xxx            | *xxx<br>#xxx          | *xxx<br>#xxx          | <b>No</b> |

**Model-Specific Data**

| <b>Subject</b>       | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One</b> | <b>Start</b> |
|----------------------|-------------------|------------|--------------|------------|--------------|
| Feature available in | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>   | <b>x</b>     |
| HW requirements      | —                 | —          | —            | —          | —            |
| SW requirements      | Rel. 1.0 or later |            |              |            |              |

**Configuration Options**

This feature can be configured using Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                            |
|-------------|------------------------------------------|
| 1.          | <b>Delete station numbers</b><br>Options |
| 2.          | Delete station numbers                   |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                       |
|-------------|-------------------------------------------------------------------------------------|
| 1.          | Using Hicom Assistant E Office, check whether all the station numbers were deleted. |

## 7.12.15 Team/Top

### Definition

As of Release 3.0, the executive/secretary functions used in Releases 2.0 to 2.2 (refer to [Section 7.12.5](#)) are replaced by a new Team/Top functionality.

Team/Top is based on MULAP lines, which are generally “looped” via several telephones. These telephones are combined in a MULAP group that has only one station number in the system (for more information, refer to [Section 7.12.15.3](#)).

### 7.12.15.1 Team Configuration

#### Example of a Team with Two Members

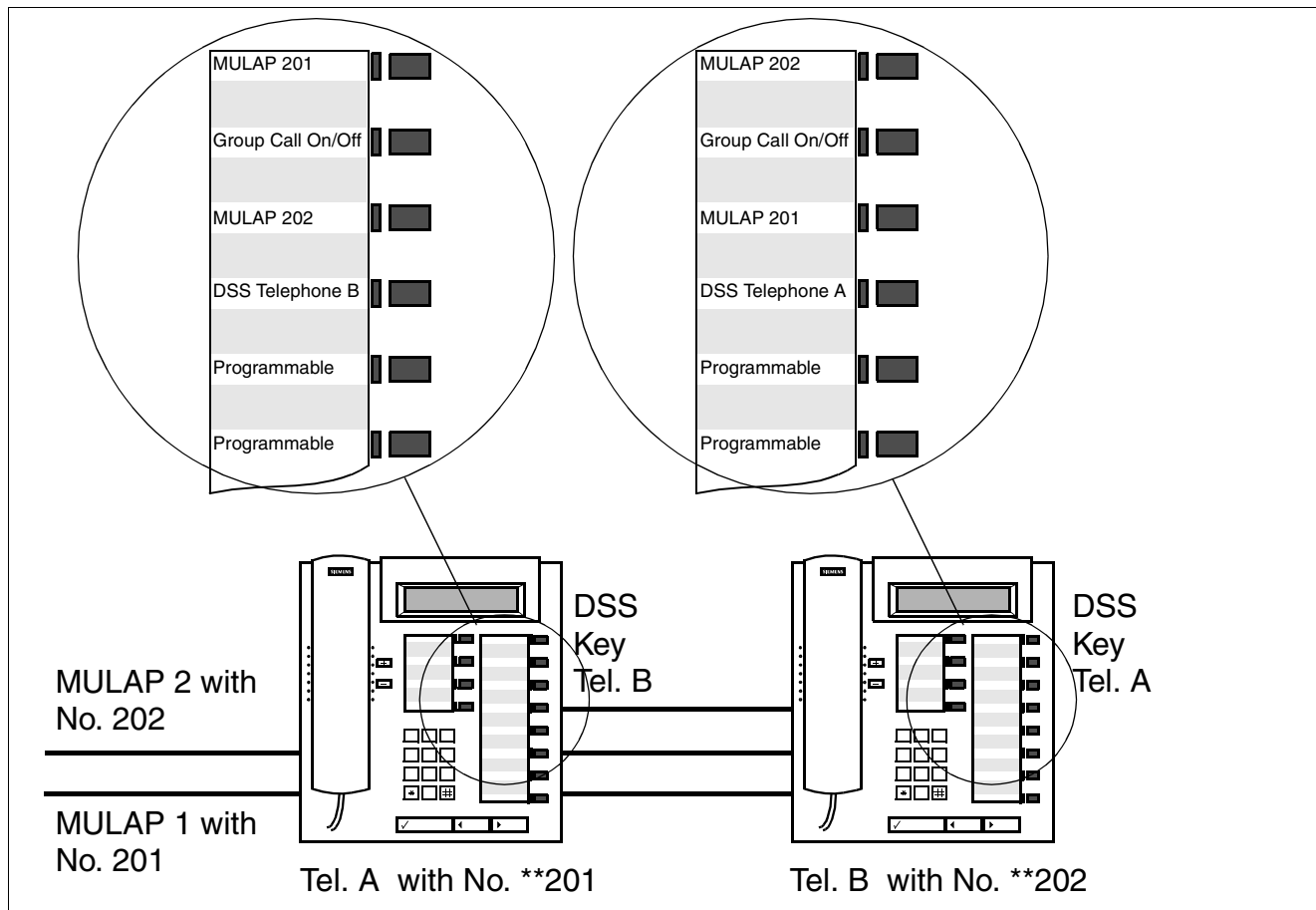


Figure 7-7 Example of a Team with Two Members



The Team configuration in Figure 7-7 includes the following components:

- MULAP 1 and MULAP 2: MULAPs (basic MULAP groups) that appear on both Telephone A and Telephone B.
- DSS keys: Telephone A to Telephone B and Telephone B to Telephone A.

A group call key allows you to activate or deactivate incoming MULAP call signaling.

Table 7-6      Transfer in Team (“Switch Lines for DSS” System Option Not Set)  
(Not for U.S.)

| Operation                                                                                                                                                                                                                                                | Tel. A<br>M1 | Tel. A<br>DSS Key B | Tel. B<br>M1 | Tel. B<br>DSS Key A |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------|--------------|---------------------|
| X = busy; XX = hold (consultation, exclusive, common);<br>XXX = being called; XXXX = ringing                                                                                                                                                             |              |                     |              |                     |
| Tel. B is talking on M1                                                                                                                                                                                                                                  | X            | X                   | X            | —                   |
| Tel. B presses DSS Tel. A key                                                                                                                                                                                                                            | X            | XXXX                | XX           | X                   |
| Tel. B performs unscreened transfer to Tel. A (1)                                                                                                                                                                                                        | XXXX         | —                   | XXX          | XXX                 |
| or                                                                                                                                                                                                                                                       |              |                     |              |                     |
| Tel. A answers (2)                                                                                                                                                                                                                                       | X            | X                   | XX           | X                   |
| Tel. B performs screened transfer to Tel. A (3)                                                                                                                                                                                                          | X            | —                   | X            | X                   |
| 1) Tel. B performs unscreened transfer; call is transferred to M1.<br>2) Tel. A answers and could answer the call on hold on M1 by call pickup (menu).<br>3) Tel. B performs screened transfer to Tel. A and Tel. A continues to conduct the call on M1. |              |                     |              |                     |

**Table 7-7** Transfer in Team (“Switch Lines for DSS” System Option Set) (for U.S. Only)

| Operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Tel. A<br>M1                                                                                 | Tel. A<br>DSS Key B | Tel. B<br>M1 | Tel. B<br>DSS Key A |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------|--------------|---------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | X = busy; XX = hold (consultation, exclusive, common);<br>XXX = being called; XXXX = ringing |                     |              |                     |
| Tel. B is talking on M1                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | X                                                                                            | X                   | X            | –                   |
| Tel. B presses DSS Tel. A key (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                        | X                                                                                            | XXXX                | XX           | X                   |
| Tel. A answers (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | X                                                                                            | X                   | XX           | X                   |
| Tel. B goes on-hook (3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | XX                                                                                           | –                   | XX           | –                   |
| Tel. A retrieves M1 (4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | X                                                                                            | –                   | X            | X                   |
| 1) Tel. B switches lines (exclusive hold), switches to the local station number and calls Tel. A under the local station number. M1 continues to be signaled as busy on Tel. A.<br>2) Tel. A can answer only by going off-hook or pressing the Tel. B DSS key. Tel. A then conducts the call under the local station number.<br>3) If Tel. B goes on-hook, the connection to Tel. A is released and M1 is placed on common hold.<br>4) Tel. A can retrieve the held call by pressing M1. |                                                                                              |                     |              |                     |

**Table 7-8** Team—Sequence of Operations for Consultation Hold on Second Line

| Tel. A            | M1                                                                                           | M2   | Explanation                                                                                |
|-------------------|----------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------|
|                   | X = busy; XX = hold (consultation, exclusive, common);<br>XXX = being called; XXXX = ringing |      |                                                                                            |
| Call on M1        | X                                                                                            | -    |                                                                                            |
| Consultation hold | XX                                                                                           | -    | Dial tone                                                                                  |
| Presses M2        | -                                                                                            | XX   | M1 is released, M2 is placed on consultation hold, dial tone remains.                      |
|                   |                                                                                              |      |                                                                                            |
| Call on M1        | X                                                                                            | -    |                                                                                            |
| Ringing on M2     | X                                                                                            | XXXX | If ringing for MULAP 2 is activated on Tel. A, Tel. A hears an advisory ring.              |
| Consultation hold | XX                                                                                           | XXXX | Dial tone<br>If ringing for MULAP 2 is activated on Tel. A, Tel. A hears an advisory ring. |
| Presses M2        | -                                                                                            | XX   | M1 is released, consultation call on M2.                                                   |
|                   |                                                                                              |      |                                                                                            |
| Call on M1        | X                                                                                            | -    |                                                                                            |
| Switches to M2    | XX                                                                                           | X    | Dial tone                                                                                  |

Table 7-8 Team—Sequence of Operations for Consultation Hold on Second Line

| Tel. A            | M1                                                                                           | M2 | Explanation                              |
|-------------------|----------------------------------------------------------------------------------------------|----|------------------------------------------|
|                   | X = busy; XX = hold (consultation, exclusive, common);<br>XXX = being called; XXXX = ringing |    |                                          |
| Call on M2        | XX                                                                                           | X  |                                          |
| Consultation hold | XX                                                                                           | XX | Dial tone                                |
| Presses M1        | XX                                                                                           | -  | M2 is released, consultation call on M1. |

| Tel. B                    | DSS Key A | M2 | Explanation                                  |
|---------------------------|-----------|----|----------------------------------------------|
| Conducts call with Tel. A | X         | -  | Tel. A was called by means of DSS key A.     |
| Consultation hold         | XX        | -  | Dial tone                                    |
| Presses M2                | XX        | XX | Consultation call on M2*, dial tone remains. |

\* Because of dual signaling, DSS key A continues to indicate call on hold (state of local station number is always signaled as well).

### Example of a Team with Eight Members

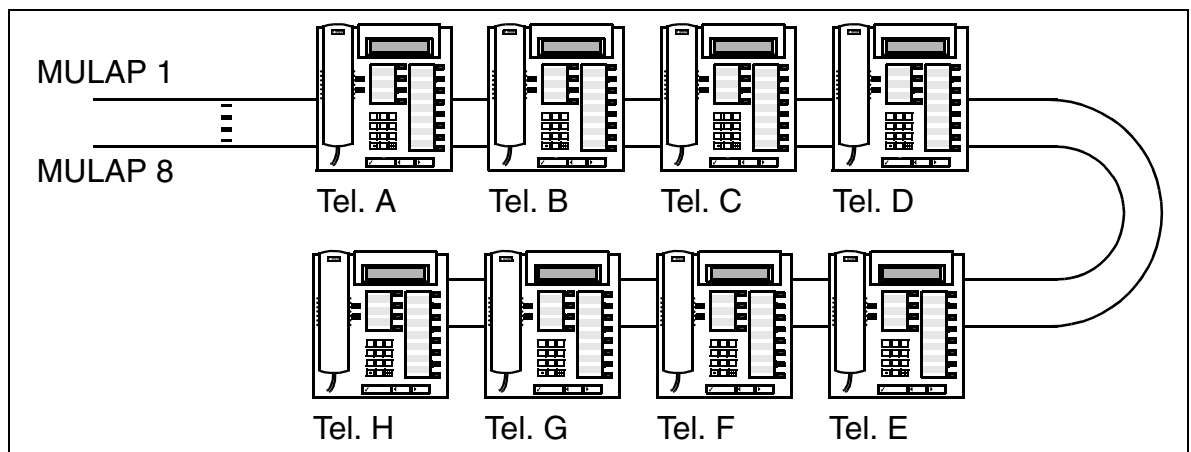


Figure 7-8 Example of a Team with Eight Members

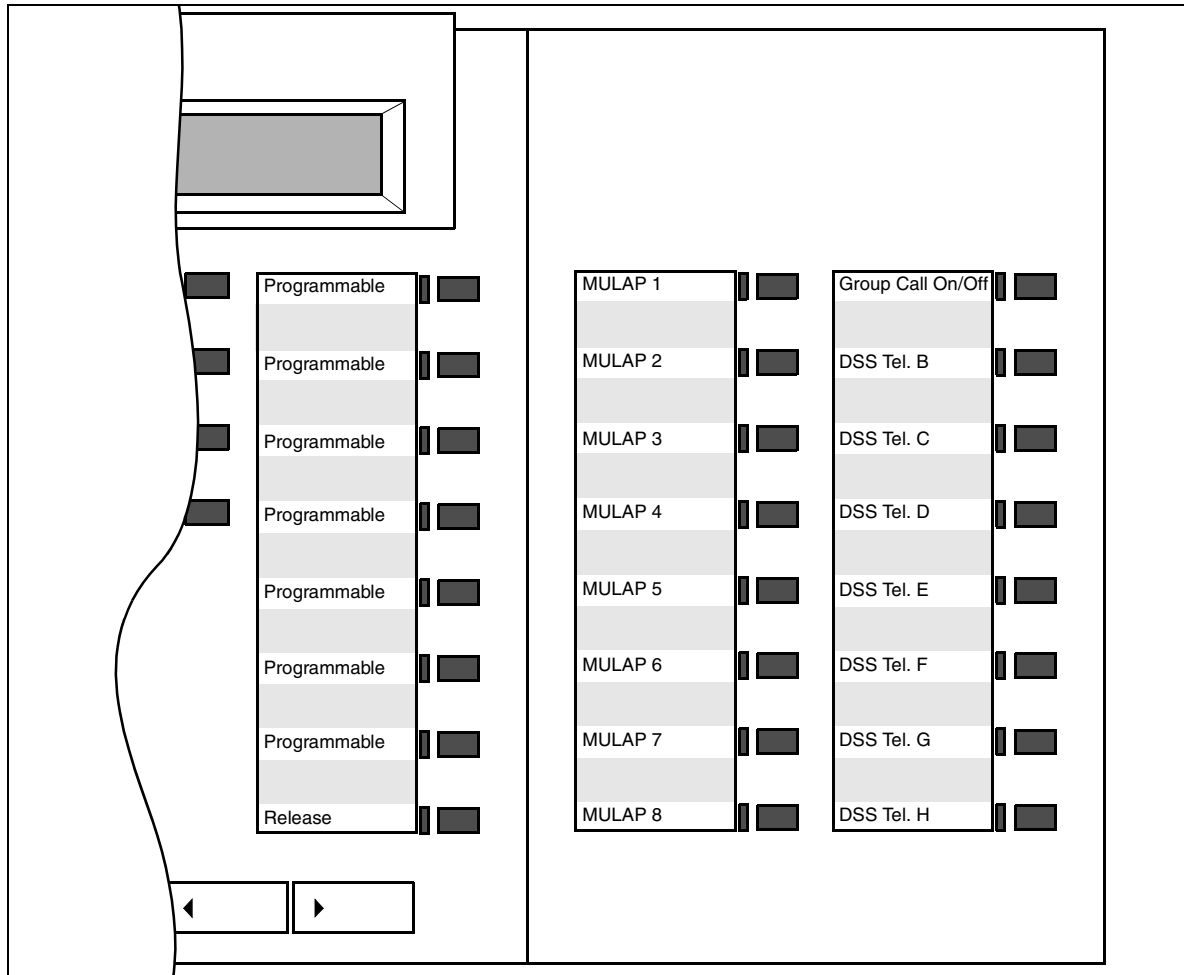


Figure 7-9 Team with Eight Members: Default Key Assignments for Tel. A on optiset E Key Module



The following options are available for assigning Team keys using Hicom Assistant E Office:

- No key assignment
- Assignment to first or second key module  
An optiset E key module is automatically added (refer to example in [Figure 7-9](#)). If applicable, existing keys are overwritten.
- Assignment to first free keys  
Free keys on the telephone and any existing optiset E key modules are used. If no keys are available, optiset E key modules are added. Key assignment sequence for Team: Local MULAP, Group Call key, other MULAPs, DSS keys.

**Model-Specific Data**

| <b>Subject</b>                                                   | <b>Pro</b>        | <b>Com</b> | <b>Point</b> | <b>One</b> | <b>Start</b> |
|------------------------------------------------------------------|-------------------|------------|--------------|------------|--------------|
| Feature available in                                             | <b>x</b>          | <b>x</b>   | <b>x</b>     | <b>x</b>   | <b>x</b>     |
| HW requirements                                                  | –                 | –          | –            | –          | –            |
| SW requirements                                                  | Rel. 3.0 or later |            |              |            |              |
| Maximum number of Team/Top configurations                        | 150               | 50         | 10           | 10         | 10           |
| Maximum number of stations (members) in a Team/Top configuration | 10                | 10         | 8            | 8          | 8            |
| Maximum number of telephones in a Team/Top configuration         | 10                | 10         | 8            | 8          | 8            |
| Maximum number of MULAPs per telephone                           | 32                | 32         | 10           | 10         | 10           |

**Requirements and Conditions**

| <b>Subject</b>                        | <b>Requirement or Condition</b>                                                                                                                                                                                                                       |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manually configured basic MULAP group | Members of a basic MULAP group can use key programming to <ul style="list-style-type: none"> <li>• Configure a MULAP key for the basic MULAP group.</li> <li>• Configure DSS keys to other members.</li> <li>• Program a “Group Call” key.</li> </ul> |
| Universal Call Distribution (UCD)     | You cannot use MULAPs in the universal call distribution system.                                                                                                                                                                                      |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Teams should normally be configured using Hicom Assistant E Office. Configuration using Hicom Assistant T is possible only to a limited extent.

## **Configuring the Feature Using Hicom Assistant E Office**

Hicom Assistant E Office can be used to configure a default Team (Team/Top mask). Members can be added to the team by drag and drop. The basic MULAP group(s) and DSS keys are configured automatically. The basic MULAP groups are assigned the station numbers of the primary station and the primary station is assigned a pseudo station number (examples: 4711 becomes \*\*4711, 12345 becomes \*\*2345, 654321 becomes \*\*4321).

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                              |
|-------------|--------------------------------------------|
| 1.          | <b>Configure team (default)</b><br>Options |
| 2.          | Incoming calls                             |
| 3.          | Team/Top                                   |

### 7.12.15.2 Top Configuration

#### Example of a Top Configuration with One Executive and One Secretary

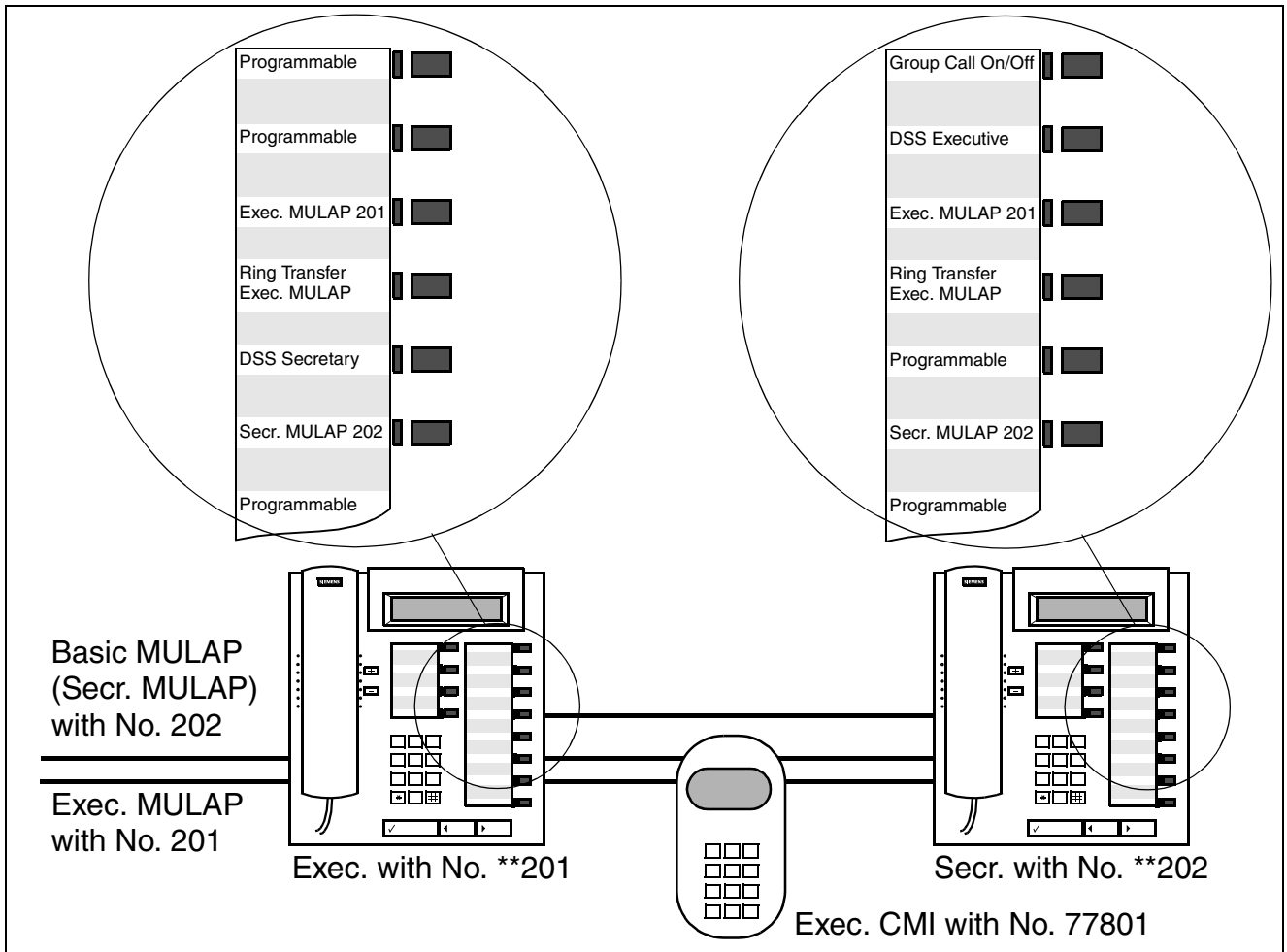


Figure 7-10 Example of Top with One Executive and One Secretary

This Top configuration includes the following components:

- Executive MULAP 201 with an executive and executive CMI as executives and with a secretary as member.
- Basic MULAP 202 with a secretary as primary station and an executive and executive CMI as members.
- DSS keys: Secretary to executive (executive CMI) and executive to secretary.
- Ring transfer keys: For controlling incoming MULAP call signaling. The default setting for the ring transfer key is “deactivated” (LED off). Calls are signaled on the secretary.

In addition, incoming MULAP call signaling can be activated or deactivated by means of a group call key (on non-executive telephones only). Ring transfer has priority, meaning that the group call key is activated only when ring transfer is deactivated.

Table 7-9 Transfer in Top ("Switch Lines for DSS" System Option Not Set) (Not for U.S.)

| Operation                                                                                                                                                                                                                                                                                                                                                             | Executive Telephone                                                                       |                |                      | Exec.<br>CMI<br>Mobile<br>Tel. | Secretary Telephone |                |                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------|----------------------|--------------------------------|---------------------|----------------|----------------------|
|                                                                                                                                                                                                                                                                                                                                                                       | Exec.<br>MULAP                                                                            | Secr.<br>MULAP | DSS Key<br>Secretary |                                | Secr.<br>MULAP      | Exec.<br>MULAP | DSS Key<br>Executive |
|                                                                                                                                                                                                                                                                                                                                                                       | X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing |                |                      |                                |                     |                |                      |
| Secr. is talking on exec. MULAP                                                                                                                                                                                                                                                                                                                                       | X                                                                                         |                | X                    |                                |                     | X              |                      |
| Secretary presses DSS Execu-<br>tive key (1)                                                                                                                                                                                                                                                                                                                          | X                                                                                         |                | XXXX                 | XXXX                           |                     | XX             | X                    |
| Secretary performs unscreened<br>transfer to exec. or exec. CMI (2)                                                                                                                                                                                                                                                                                                   | XXXX                                                                                      |                |                      | XXXX                           |                     | XXX            | XXX                  |
| or                                                                                                                                                                                                                                                                                                                                                                    |                                                                                           |                |                      |                                |                     |                |                      |
| Executive answers (3)                                                                                                                                                                                                                                                                                                                                                 | X                                                                                         |                | X                    |                                |                     | XX             | X                    |
| Secretary performs screened<br>transfer to executive (4)                                                                                                                                                                                                                                                                                                              | X                                                                                         |                |                      |                                |                     | X              | X                    |
| 1) Call signaled on executive MULAP and executive CMI.<br>2) Secretary performs unscreened transfer; call is transferred to executive MULAP.<br>3) Executive answers. Executive could also answer the held call on executive MULAP by call pickup (menu).<br>4) Secretary performs screened transfer to exec. and exec. continues to conduct the call on exec. MULAP. |                                                                                           |                |                      |                                |                     |                |                      |

Table 7-10 Transfer in Top ("Switch Lines for DSS" System Option Set) (for U.S. Only)

| Operation                                                                                                                                                                                                                                                                             | Executive Telephone                                                                       |                |                  | Exec.<br>CMI<br>Mobile<br>Tel. | Secretary Telephone |                |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------|------------------|--------------------------------|---------------------|----------------|----------------------|
|                                                                                                                                                                                                                                                                                       | Exec.<br>MULAP                                                                            | Secr.<br>MULAP | DSS Key<br>Secr. |                                | Secr.<br>MULAP      | Exec.<br>MULAP | DSS Key<br>Executive |
|                                                                                                                                                                                                                                                                                       | X = busy; XX = hold (consultation, exclusive, common); XXX = being called; XXXX = ringing |                |                  |                                |                     |                |                      |
| Secr. is talking on exec. MULAP                                                                                                                                                                                                                                                       | X                                                                                         |                | X                |                                |                     | X              |                      |
| Secretary presses DSS Execu-<br>tive key (1)                                                                                                                                                                                                                                          | X                                                                                         |                | XXXX             | XXXX                           |                     | XX             | X                    |
| Executive answers                                                                                                                                                                                                                                                                     | X                                                                                         |                | X                |                                |                     | XX             | X                    |
| Secretary hangs up after execu-<br>tive answers (2)                                                                                                                                                                                                                                   | XX                                                                                        |                |                  |                                |                     | XX             | X                    |
| Executive retrieves executive (3)                                                                                                                                                                                                                                                     | X                                                                                         |                |                  |                                |                     | X              | X                    |
| 1) Secretary switches lines; executive is placed on exclusive hold; call signaled on exec. MULAP and exec. CMI.<br>2) Secretary goes on-hook; connection between exec. and secr. is released. Executive is placed on hold.<br>3) Executive can retrieve held call on executive MULAP. |                                                                                           |                |                  |                                |                     |                |                      |



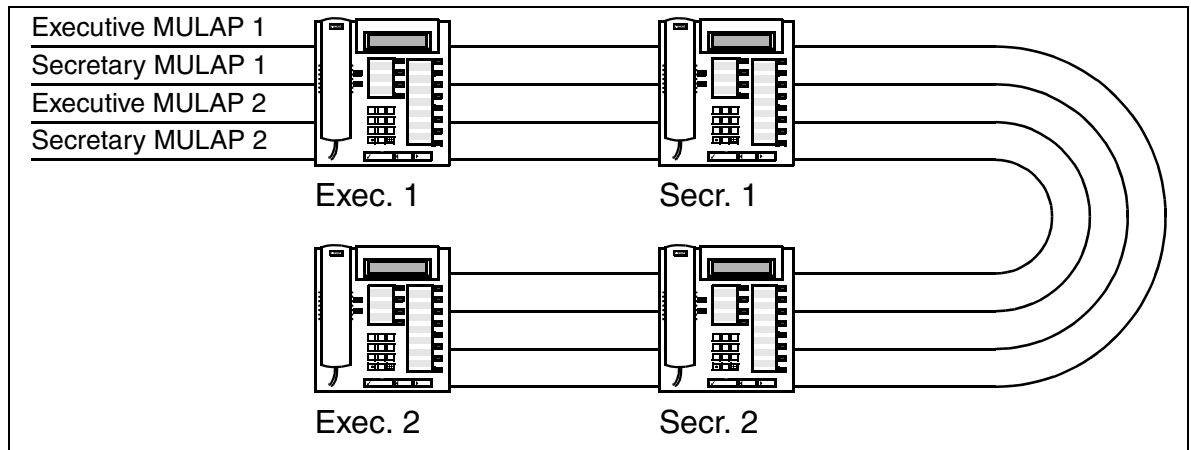
**Example of Top with Two Executives and Two Secretaries**

Figure 7-11      Example of Top with Two Executives and Two Secretaries



The following options are available for assigning Top keys using Hicom Assistant E Office:

- No key assignment
- Assignment to first or second key module  
An optiset E key module is automatically added (refer to examples in [Figure 7-12](#) and [Figure 7-13](#)). If applicable, existing keys are overwritten.
- Assignment to first free keys  
Free keys on the telephone and any existing optiset E key modules are used. If no keys are available, optiset E key modules are added. Key assignment sequence for Top: DSS Executive 1, Exec. MULAP 1, Ring Transfer Exec. MULAP 1, DSS Secretary 1 (on executive telephone) or Group Call (on secretary telephone), DSS Executive 2, Exec. MULAP 2, etc.

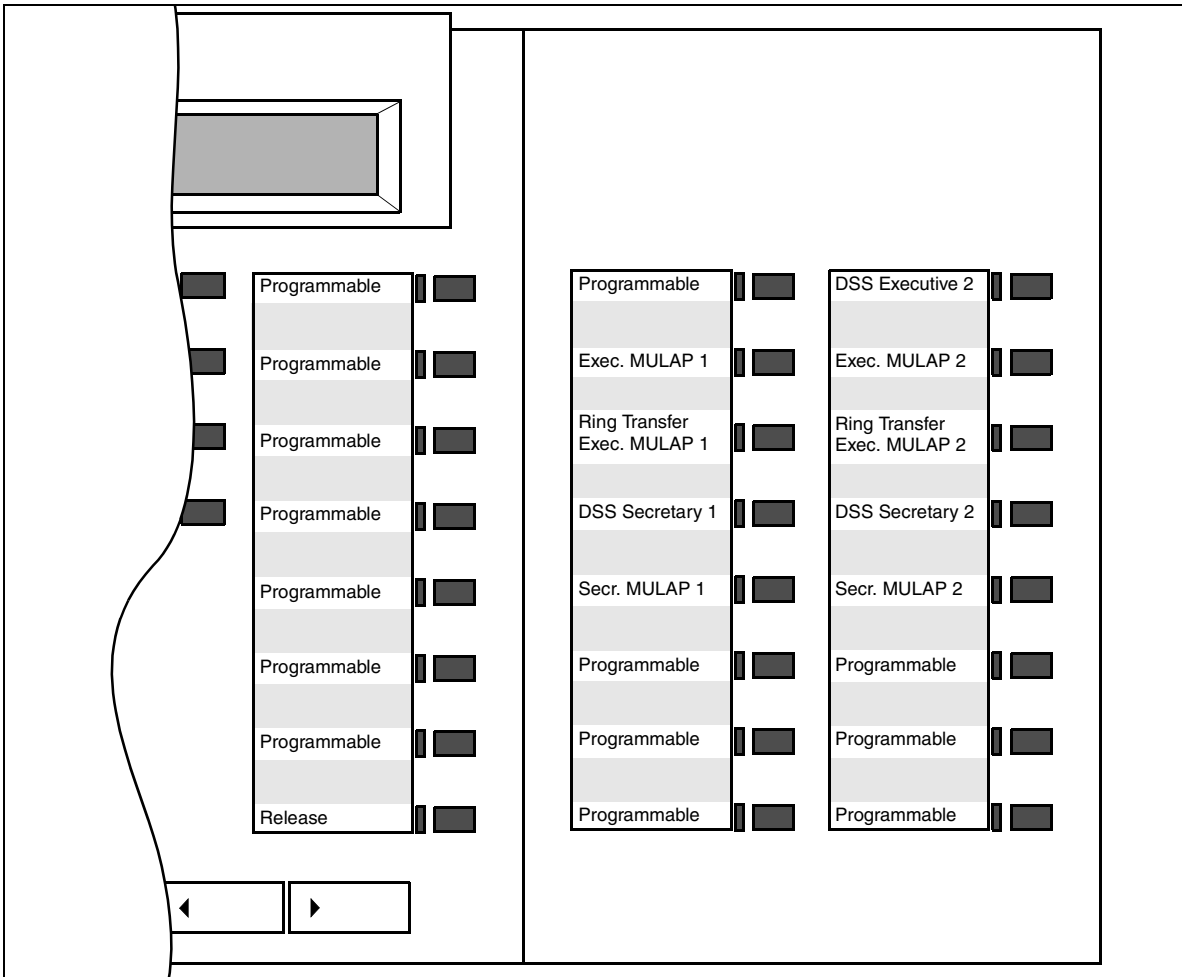


Bild 7-12      Top with Two Executives and Two Secretaries: Default Key Assignments for Executive 1 on optiset E Key Module

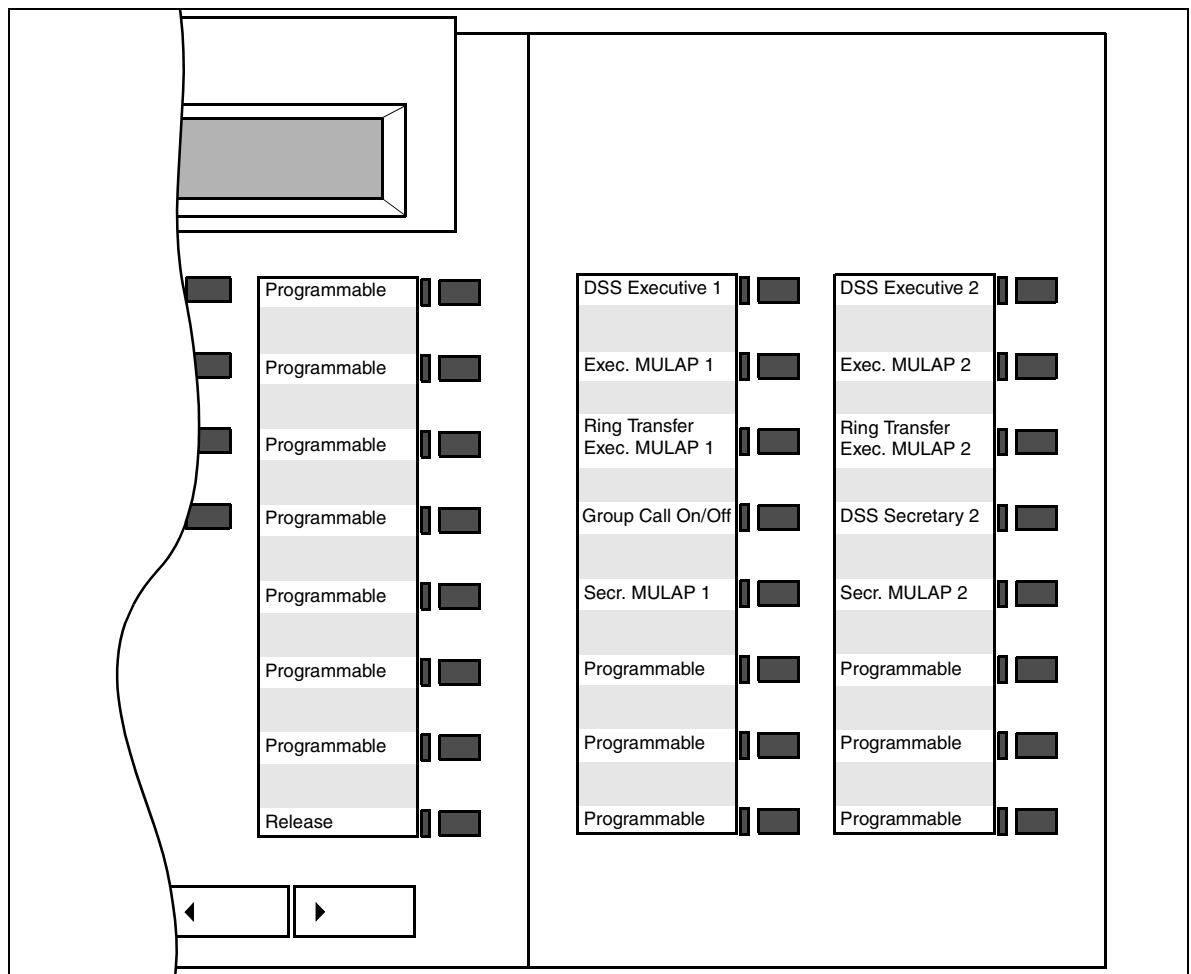


**Figure 7-13** Top with Two Executives and Two Secretaries: Default Key Assignments for Secretary 1 on optiset E Key Module

## Model-Specific Data

| Subject                                                          | Pro               | Com | Point | One | Start |
|------------------------------------------------------------------|-------------------|-----|-------|-----|-------|
| Feature available in                                             | x                 | x   | x     | x   | x     |
| HW requirements                                                  | —                 | —   | —     | —   | —     |
| SW requirements                                                  | Rel. 3.0 or later |     |       |     |       |
| Maximum number of Team/Top configurations                        | 150               | 50  | 10    | 10  | 10    |
| Maximum number of stations (members) in a Team/Top configuration | 10                | 10  | 8     | 8   | 8     |
| Maximum number of telephones in a Team/Top configuration         | 10                | 10  | 8     | 8   | 8     |
| Maximum number of MULAPs per telephone                           | 32                | 32  | 10    | 10  | 10    |

## Requirements and Conditions

| Subject                                   | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manually configured executive MULAP group | <p>Members of an executive MULAP group can use key programming to</p> <ul style="list-style-type: none"> <li>• Configure a MULAP key for the executive MULAP group.</li> <li>• Configure DSS keys to other members.</li> <li>• Program a “Group Call” key.</li> <li>• Program a ring transfer key for each executive MULAP group.</li> </ul> <p><b>Note:</b><br/>In an executive MULAP group, the executive should program a DSS key to the secretary (station number) and the secretary should program a DSS key to the executive (station number).</p> |
| Executive as primary station              | An executive can also be a primary station in a basic MULAP group but can be defined as an executive only in an executive MULAP group.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Executive ring                            | If an executive in the executive MULAP group calls a non-executive in the local executive MULAP group, the call is signaled by a special, acoustic executive ring.                                                                                                                                                                                                                                                                                                                                                                                       |

| Subject                                          | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Group call key, incoming MULAP call signaling    | <ul style="list-style-type: none"> <li>• In the executive MULAP group, incoming MULAP call signaling can be administered only for non-executives.</li> <li>• Executives cannot configure a group call key (for activating and deactivating MULAP call signaling) for the executive MULAP group.<br/>If necessary, the ringer cutoff function can be used to deactivate the acoustic ring on an executive telephone. An advisory ring is issued.</li> <li>• Non-executives (secretaries) can configure a group call key for activating and deactivating MULAP call signaling. Ring transfer has priority, meaning that the group call key is activated only when ring transfer is deactivated. Signaling on the two keys is separate.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Call transfer key, incoming MULAP call signaling | <ul style="list-style-type: none"> <li>• All members of an executive MULAP group can program a local ring transfer key for each executive MULAP. A secretary with multiple executives has multiple executive MULAPs and, therefore, multiple ring transfer keys.<br/>The default setting for the ring transfer key is “deactivated” (LED off). Calls are signaled on the secretary. When the ring transfer key is pressed (LED on), MULAP call signaling is transferred within the executive MULAP group. Executives are signaled with MULAP call signaling and non-executives are signaled visually.</li> <li>• Calls between members of the executive MULAP group or within a Top are not affected by ring transfer: Executives in the executive MULAP group always ring. Calls to another executive MULAP group always take ring transfer into account. Exceptions: Calls set up by means of a DSS key.</li> <li>• Ring transfer can be activated or deactivated using a <ul style="list-style-type: none"> <li>– Code: Analog telephones, CMI telephones, optiset E telephones.<br/>Afterwards, the MULAP number must be suffix-dialed.</li> <li>– Menu (after dialing the ring transfer code): CMI telephones, optiset E telephones with display.</li> </ul> </li> <li>• The ring transfer state is not indicated by a special dial tone.</li> <li>• Ring transfer has priority, meaning that the group call key is activated only when ring transfer is deactivated. Signaling on the two keys is separate.</li> </ul> |
| Conversion to Release 3.0                        | Top functions from earlier releases (such as Rel. 2.2) cannot be converted to Release 3.0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| <b>Subject</b>                    | <b>Requirement or Condition</b>                                                                                  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
| Top configuration                 | If the Top configuration has more than one executive and one secretary, you need to use an optiset E key module. |
| Universal Call Distribution (UCD) | You cannot use MULAPs in the universal call distribution system.                                                 |

## **Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### **Configuring the Feature Using Hicom Assistant T**

Tops should normally be configured using Hicom Assistant E Office. Configuration using Hicom Assistant T is possible only to a limited extent.

### **Configuring the Feature Using Hicom Assistant E Office**

Hicom Assistant E Office can be used to configure a default Top (Team/Top mask). Members can be added to the team by drag and drop. The executive MULAP group, basic MULAP group and its MULAP key, and the ring transfer and DSS keys are configured automatically. The basic and executive MULAP groups are assigned the original station numbers of the primary station/executive and the primary station/executive is assigned a pseudo station number (examples: 4711 becomes \*\*4711, 12345 becomes \*\*2345, 654321 becomes \*\*4321).

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                             |
|-------------|-------------------------------------------|
| 1.          | <b>Configure Top (default)</b><br>Options |
| 2.          | Incoming calls                            |
| 3.          | Team/Top                                  |

### 7.12.15.3 MULAP Groups

There are two types of MULAP group:

- **Basic MULAP groups**

These groups form the basis for Team configurations. In addition, secretary MULAPs are configured by means of basic MULAP groups.

Members can be primary stations, primary station CMIs and non-primary stations.

Primary stations and primary station CMIs are automatically assigned the “outgoing preference” and incoming MULAP call signaling (tone, LED and display).

The following can be administered:

- “Outgoing preference” (automatic outgoing seizure) for all primary stations and primary station CMIs.
- “Incoming preference” (automatic incoming seizure) for all members.
- Incoming MULAP call signaling for all members.
- DSS keys for all members.

All members can activate and deactivate MULAP call signaling for each MULAP using a key (Group Call).

- **Executive MULAP groups**

These groups form the basis for executive/secretary configurations (Top). All members of the Top (CHESE) become members of the executive MULAP; the executive(s) function as primary stations.

The following members are possible: Executive 1, 2 ..., CMI executive 1, 2 ..., conference corner tel. executive 1, 2 ..., secretary 1, 2 ..., CMI secretary 1, 2 ... An executive MULAP group defines which members will be executives (= primary stations). These members are automatically assigned the “outgoing preference” without incoming MULAP call signaling (tone and display).

All non-executives (= non-primary stations) are automatically assigned incoming MULAP call signaling (tone, LED and display).

The following can be administered:

- “Outgoing preference” for all executives, CMI executives and conference corner telephone executives.
- “Incoming preference” for all members.
- Incoming MULAP call signaling for all non-executives.
- DSS keys for all members.
- Ring transfer key.

Non-executives can activate and deactivate MULAP call signaling using a key (Group Call).

Secretary MULAPs are configured by means of basic MULAP groups.

## **Telephone Types**

The following types of telephone can be defined as both primary stations and non-primary stations in a basic or executive MULAP group:

- Analog telephones
- Cordless telephones (CMI)
- All optiset E telephones described in Chapter 9

## **LED Statuses of a MULAP Key**

The LED for the MULAP key indicates the status of the MULAP group and can assume the following signaling statuses:

- LED off = MULAP free (seizure possible).
- LED on = MULAP busy (seizure not possible).
- LED flickering = MULAP being called (call can be answered).
- LED flashing slowly = MULAP on hold (call can be retrieved or picked up).

A key can be configured for a MULAP group number on each station (including on a busy lamp field and Hicom Attendant P Office).

## **LED Statuses of a DSS key**

The LED for the DSS key indicates the status of the DSS destination as follows:

- LED off = DSS destination is free.
- LED on = DSS destination is busy (off-hook, in talk state, etc.) or the telephone on which the DSS key was configured is calling the destination.
- LED flashing rapidly = The telephone (DSS destination) is not being called by a DSS key.  
Example: Telephone A has a DSS key to telephone B. Telephone C calls telephone B. The DSS key LED on telephone A flashes rapidly.
- LED flickering = The telephone (DSS destination) is calling the telephone on which the DSS key was configured.
- LED flashing slowly = The telephone on which the DSS key was configured has placed a destination on hold.



**General MULAP Functionality**

| <b>Incoming Calls to a Free MULAP</b>                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| All the members of the MULAP group have deactivated the MULAP ring (group call off) and/or have activated do not disturb. | The MULAP is busy and the caller receives a busy signal. There is no call signaling on the MULAP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| At least one member of the MULAP group has activated the MULAP ring (group call on) and deactivated do not disturb.       | <p>The call is signaled on all members of the MULAP group (LED).</p> <ul style="list-style-type: none"> <li>Members of the MULAP group who are currently free, have activated the MULAP ring, and have not activated do not disturb are also signaled by an acoustic ring and display.</li> <li>Members of the MULAP group who are free and have activated the ringer cutoff feature are also signaled by an advisory ring.</li> <li>Busy stations in the MULAP group (busy on another line) that have activated the MULAP ring and have not activated do not disturb are signaled by             <ul style="list-style-type: none"> <li>– An acoustic advisory ring (single ring) and, after scrolling, an “Accept waiting call” message on optiset E telephones.</li> <li>– An advisory tone (single short tone) on analog, CMI and optiset E telephones without display.</li> </ul>             The latter is not affected by do not disturb.           </li> </ul> <p><b>Note:</b><br/>The advisory ring is also issued for calls to the local station number (for example, call to DSS key or call to general call key).</p> |

| <b>Incoming Calls to a Busy MULAP</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| All the members of the MULAP group are busy.     | <ul style="list-style-type: none"> <li>• An internal caller receives a busy signal and camps on after a timeout. An external caller camps on immediately.</li> <li>• The busy members of the MULAP group are signaled by: <ul style="list-style-type: none"> <li>– A call waiting tone and, after scrolling, an “Accept waiting call” message on optiset E telephones.</li> <li>– A call waiting tone on analog, CMI and optiset E telephones without display.</li> </ul> </li> <li>• In the case of busy MULAP group members who have activated do not disturb, the caller receives a busy signal regardless of whether the station has activated or deactivated the MULAP ring. There is no change in signaling for any “other” members of the MULAP group.</li> </ul>                   |
| <b>Answering of Incoming Calls</b>               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Signaled MULAP key (LED with call signaling)     | <p>Calls can be answered by going off-hook, pressing the speaker key or pressing the MULAP key.</p> <p>If the user goes off-hook or presses the speaker key, the incoming preference applies (automatic incoming seizure).</p> <p>An incoming call (LED with or without call signaling) can always be answered using the MULAP key, regardless of the incoming preference.</p>                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Incoming Preference</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Incoming preference (automatic incoming seizure) | <ul style="list-style-type: none"> <li>• Although the MULAP settings determine the incoming preference, this setting applies to a particular telephone. If more than one MULAP is connected to a telephone, an incoming preference can be set for each MULAP. Only the last setting entered for the incoming preference applies to the telephone.</li> <li>• If incoming preference is deactivated, a call cannot be answered by going off-hook or pressing the speaker key; the system attempts to execute an outgoing seizure.</li> <li>• If “No incoming preference” is selected for a telephone, the setting applies to all incoming calls to this telephone. Calls to the local station number can be answered only by pressing a station number, DSS or general call key.</li> </ul> |

| <b>Outgoing Calls</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Initiating an outgoing call                      | <p>An outgoing call can be initiated by going off-hook, pressing the speaker key, or pressing a call, digit, MULAP, station number or DSS key.</p> <p>When an outgoing call is initiated, a station number is assigned and the called party is displayed. In the default configuration (device without MULAP), the local station number is assigned when the line is seized. If seizure is via a MULAP, the MULAP group number is assigned.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Outgoing Preference</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Outgoing preference (automatic outgoing seizure) | <ul style="list-style-type: none"> <li>Each station is assigned an outgoing preference.</li> <li>The primary stations in the MULAP groups and the executives in the executive MULAP groups are assigned the MULAP group number as a preference. Primary stations and executives always have the same preferences.</li> <li>If the outgoing preference for a primary station or executive changes, it is also changed for the other primary stations and executives in this MULAP group.</li> <li>When the user goes off-hook, presses the speaker, station number, MUSAP or general call key, or dials while on-hook, the preference is assigned as a station number for the outgoing seizure.<br/>If the MULAP preference is busy when the user goes off-hook or presses one of the above-mentioned keys, an overflow to the local station number is possible only on analog, CMI and optiset E entry telephones. Other optiset E telephones must select a free trunk.<br/>Application: An executive CMI goes off-hook. The executive MULAP (its outgoing preference) is still seized by the secretary. The executive CMI receives a dial tone (overflow) for the local station number. At the end of dialing, the station number of the executive MULAP appears in the display of the called party.</li> <li>If the user presses a MULAP key, the outgoing preference is not used. Instead, the group number of the MULAP key is used.</li> </ul> |

| <b>Busy Signaling</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | If one MULAP group member presses the MULAP key or seizes the MULAP by preference (goes off-hook, presses the speaker key or dials while on-hook), MULAP keys indicate the busy state on all the stations in the MULAP group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Station Number Key, DSS Key</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                    | <ul style="list-style-type: none"><li>• The destination of a station number key can be a station number or a group number.<br/>An outgoing seizure using a station number key is output to the outgoing preference. If the outgoing preference is a MULAP, the MULAP is also seized. If a station number key is activated during a call on a MULAP, the call is placed on consultation hold.</li><li>• The station number is always entered as the destination of a DSS key. It is also possible to configure destinations that do not belong to a basic or executive MULAP group.</li><li>• Differences:<ul style="list-style-type: none"><li>– A DSS key bypasses the outgoing preference and the local station number is always output (a MULAP is not seized).</li><li>– A DSS key switches lines (for U.S. only) or initiates consultation hold (not for U.S.) if the active call is being conducted on a MULAP.</li><li>– At the destination, a DSS key bypasses call management and ring transfer but follows call forwarding.</li></ul></li><li>• DSS on executive or primary station:<br/>The executives in the executive MULAP group or the primary stations in the basic MULAP group have the “free” status as a group; in other words, as soon as one is busy, the DSS and station number keys indicate busy.</li></ul> |

|                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Line Switchover</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                   | <ul style="list-style-type: none"> <li>Line switchover is possible only from the call state. Otherwise, the line is released.<br/>A line switchover is always executed between two MULAP keys.<br/>Between a MULAP and a DSS key, <ul style="list-style-type: none"> <li>A line switchover is executed = for U.S. only</li> <li>Consultation hold is activated = not for U.S.</li> </ul> The setting is selected by means of the “switch lines for DSS” option, which is part of the country default settings.</li> <li>After pressing the hold key, the party initiating hold receives a dial tone (on the outgoing preference) and can set up an outgoing call or answer an incoming call on another line key.</li> <li>If a user presses another free, calling or held MULAP key (line switchover) during a call (outgoing or incoming) on a MULAP key (call state), the first MULAP is also placed on exclusive hold.</li> <li>The party who initiated hold can retrieve a MULAP on exclusive hold at any time by pressing the MULAP key. The active call is then placed on exclusive hold.</li> <li>Both external and internal calls can be placed on hold. All the members of the MULAP can retrieve a MULAP on common hold at any time.</li> </ul> |
| <b>Call Pickup</b>                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                   | Calls to MULAP groups are not signaled in any call pickup group and cannot be picked up.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Night, Intercept and Overflow Destinations</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                   | MULAP groups can be used as night, intercept and overflow destinations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Telephone Directory</b>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                   | Administration (Hicom Assistant T/Hicom Assistant E Office) indicates which station number or name will appear when the directory is displayed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Call Forwarding</b>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| CF destination                                    | A MULAP group can also be a call forwarding destination.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call forwarding per MULAP group         | <ul style="list-style-type: none"> <li>• After dialing the CF-per-MULAP code, the user must enter the MULAP number. optiset E telephones with a display and CMI telephones use the same menu system as a CF device.</li> <li>• The user must also enter the MULAP number when programming a CF-per-MULAP key. The menu system is the same as for a CF key.</li> <li>• Instead of entering the MULAP number, the user can press the MULAP key.</li> <li>• A partially programmed (with MULAP number, without CF destination) or fully programmed (with MULAP number and CF destination) CF-per-MULAP key can also be programmed.</li> <li>• For each MULAP, a CF-per-MULAP key with an internal or external destination can be configured for each telephone.</li> </ul> |
| Call forwarding via associated services | In this case, the MULAP number must be entered twice, once to indicate the source and once to indicate the trunk.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Execution of call forwarding            | <ul style="list-style-type: none"> <li>• When a forwarded MULAP is seized, a special dial tone is activated.</li> <li>• When a call is forwarded, a CF device has priority. A call is forwarded to the station CF destination. If CF per MULAP is activated, the call is forwarded to the MULAP CF destination.</li> <li>• There is no parallel signaling on the MULAP and CF destination. Only the call forwarding destination is called.</li> </ul>                                                                                                                                                                                                                                                                                                                   |
| Secretarial function transfer           | Using the ring transfer function, the secretary can switch calls to the executive and initiate a secretarial function transfer by means of CF per MULAP. The deputy can override call forwarding (caller is a CF destination), in which case the executive is called directly on the MULAP. The executive can receive calls directly by deactivating CF per MULAP.                                                                                                                                                                                                                                                                                                                                                                                                      |

|                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Results and signaling of a CF device and CF per MULAP</p> | <ul style="list-style-type: none"><li>● If a CF device is activated for a primary station or executive, this state is indicated by a special dial tone on all the primary station or executive telephones within the same MULAP. The CF device can be deactivated from any primary station or executive telephone.<br/>The CF destination is stored in the telephone that initiated call forwarding. CF is signaled (LED, display and special dial tone) on all primary stations or executives.</li><li>● If CF per MULAP is activated, this state is indicated by the LED for the CF-per-MULAP key (fully and partially programmed) of all the members of the MULAP group (no continuous display). Any member of the MULAP group can deactivate CF per MULAP.</li><li>● If a MULAP is entered as a CF destination, this state is indicated by the CF device LED (slowly flashing) of the primary stations in the MULAP group and by the CF-per-MULAP LED of all the members.</li><li>● If a member attempts to activate CF per MULAP and a primary station has already activated a CF device, a warning is issued. The action is not executed until the primary station deactivates the CF device.</li></ul> |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| <b>Number/Name Display</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              | <ul style="list-style-type: none"> <li>• When an outgoing call is set up, a station number is assigned (local station number or MULAP group number).</li> <li>• When an incoming MULAP call is answered, the MULAP group number is assigned.</li> <li>• In the case of calls to a MULAP: <ul style="list-style-type: none"> <li>– Before the call is answered, the display of the calling party shows the MULAP name and/or MULAP number being called.</li> <li>– After the call is answered, the display of the calling party shows the station name and/or MULAP number of the answering party.</li> </ul> </li> <li>• In the case of calls from a MULAP station (MULAP key or preference), the display of the called and answering parties always shows the station name and/or MULAP number.</li> <li>• The following generally applies to outgoing seizures: If a station conducts a call using the local station number and the outgoing preference differs from the local station number, the display of the called party always shows the station number of the outgoing preference.</li> </ul> |
| <b>Consultation Hold, Recall, Conference</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Consultation hold state                      | <p>The following activities are among the options available in the menu in the consultation hold state:</p> <ul style="list-style-type: none"> <li>– Return to held call</li> <li>– Toggle</li> <li>– Transfer</li> <li>– Conference</li> </ul> <p>When the user goes on-hook, the call is transferred or an immediate recall is performed.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Consultation hold on local MULAP             | <p>If a MULAP group member is a primary station, it can reach the other members of the same MULAP by activating consultation hold and then dialing the local MULAP number. This is useful if no station number key or DSS key is configured or if the station number of the member is unknown.</p> <p>Example of an application: An executive wishes to transfer the call to his or her CMI or conference corner telephone. The executive activates consultation hold on the local executive MULAP. Only the executive stations ring because ring transfer within the executive MULAP is ignored. The executive can pickup the call on his or her CMI or conference corner telephone.</p>                                                                                                                                                                                                                                                                                                                                                                                                               |



|                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unscreened and screened transfer (important Top feature)                                | If a member of the local MULAP is called while on consultation hold (by dialing the local station number, pressing the station number key or pressing the DSS key (not for U.S.)), the ring/call continues to be signaled/conducted on the MULAP after the transfer. Before the transfer, "common hold" is signaled on both MULAP members and the held call can be picked up.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Recall after transfer, hold or immediately after going on-hook during consultation hold | This function is signaled only on the MULAP station initiating consultation hold or hold. The MULAP LED indicates a call (busy indication on all other MULAP stations). The call is always signaled by an acoustic ring and display (MULAP ring and group call are ignored).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Consultation hold on second line                                                        | <p>"Consultation hold on a second line" occurs when a second MULAP line is activated after consultation hold is initiated from a MULAP line.</p> <p>This function is useful when activating features that can only be activated from consultation hold (such as transfer and conference).</p> <p>Once a second line has been placed on consultation hold, the first line is released.</p> <p>Example of an application: A call is being conducted on MULAP M1. By pressing a trunk key, the user switches the line to MULAP M2, thus placing M1 on exclusive hold. A new connection is set up on M2. In order to add the party on M1 to a conference, the user must press consultation hold, M1 (M2 is released) and conference. The conference continues on M1.</p> <p>Instead of being added to a conference, the call can be transferred. In this case, the two parties are interconnected and M1 is released.</p> |
| Conference                                                                              | A conference can always be initiated or expanded (to maximum five participants).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Callback, Message Waiting, Caller List |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | <ul style="list-style-type: none"><li>• Callback and Message Waiting are station-related features. If a member of a MULAP initiates a callback or sends a text message, the sender (i.e. only the initiating station in the MULAP) is called back.</li><li>• When the callback is initiated on a busy MULAP, it is executed as soon as the MULAP is released.</li><li>• When the callback is initiated on a free MULAP, the primary stations of the basic MULAP or the executives of the executive MULAP are monitored. The callback is not executed until a primary station or executive has been activated.</li><li>• The MULAP is always called when the callback is executed. This means that a callback initiated on a free executive MULAP will also call the executive MULAP when it is executed.</li><li>• When a user sends a text message to a MULAP, the message is delivered to all the primary stations in the basic MULAP or all the executives in the executive MULAP.</li><li>• The message waiting LED for the mailbox is also activated on all the primary stations in the basic MULAP or executives in the executive MULAP.</li><li>• MULAP calls are indicated only in the caller list of the primary stations and executives.</li></ul> |

## 7.13 Networking

In private and public networks, switching operations are performed by trunk interfaces, numbering plans, least cost routing functions, and station number translations.

Hicom 150 E Office provides networking on digital trunks using the CorNet-N (from [Section 7.13.4](#)) or QSig ([Section 7.13.19](#)) networking protocol.

CorNet-N is a data protocol from Siemens AG for digital communication between Hicom 150 E Office, Hicom 300 E and other private communications servers from Siemens AG.

QSig is a data protocol for digital communication between Hicom 150 E Office, Hicom 300 E and the communications servers of other manufacturers.

The Hicom 150 E Office system (OfficeCom and OfficePro) can be connected to other Communications Servers to form private networks. The system can use analog tie lines (TIEL board in OfficePro) or digital T1 services (TST1 in OfficeCom, TMST1 in OfficePro) to support network call traffic. Varying degrees of network functionality, from basic call routing to transparent user features, can be achieved, depending on the signaling format. Software features for basic connectivity through advanced CorNet-N ISDN networking come standard in the basic Hicom 150 E Office system.



For examples of maximum possible distances from the CO for CorNet-N direct networking, refer to [Table 2-7 on page 2-18](#).

### Satellite Tie Line

The Hicom 150 E Office can be configured for basic call handling between other communications systems supporting common E&M signalling protocol. The Hicom 150 E LCR features can be implemented to support a coordinated dialing plan in simple network designs. The Hicom 150 E supports off-premise call forwarding over these types of tie-trunk circuits and can be used to route inbound call traffic to remote answering destinations.

While this simple network design does not afford feature transparency, economical call routes using analog E&M tie lines or standard T1/D4 tie lines can be used. The OfficeCom does not support an analog tie-line interface card.

### CorNet-N Network

The following sections only refer to the OfficeCom and OfficePro models. The OfficePoint system does not support private networking.

- **CorNet-N call traffic and signalling (for U.S. Only)**

CorNet-N is a point-to-point (peer-to-peer) protocol and requires an ISDN link for signalling and call traffic between connected systems. A standard clear channel T1 facility is required between systems to support the CorNet-N application. No ISDN signalling or ISDN feature of the public-switched telephone network (PSTN) is used in a CorNet-N network.

CorNet-N call information (digitized voice or data) is handled over 64-Kbps B channels. The call setup and call intelligence are communicated between systems over an associated D channel. This technique is called Message-Oriented Signaling/Common Channel Signaling (CCS/MOS). A T1/DS0 facility used for CorNet-N ISDN calls has a capacity of 23 B channels + 1 D channel. Multiple T1 links can be configured in a logical call route using the system's LCR feature.

- **CorNet-N and international links**

The Hicom 150 E can be configured at installation to be used in either US mu-law or international a-law digital PCM formats. Digital T1 interface cards cannot be used in a system defined for a-law use and E1 cards cannot be used in a mu-law system. External transmission equipment capable of handling both a-law and mu-law formats is required to support matching the two international PCM formats. Exchange carriers handling international traffic can often supply this service.

Whereas T1 interfaces offer 24 channels (23+1) at a total bandwidth of 1.544 Mhz, an E1 interface (also known internationally as an S2 interface) provides 32 channels (31+1) with a total bandwidth of 2.048 Mhz.

In an international network between a T1 equipped system and an E1 equipped system, only 23 B channels can be used. The remaining 9 channels of the E1 interface are not used.

- **CorNet-N on fractional T1**

The Hicom 150 E supports fractional T1 service, which can be used in a CorNet-N, PRI or analog T1 (non-ISDN) environment. Any of the B channels that have been disabled in the Hicom 150 E configuration can be used for other T1 applications. External multiplexing equipment is required to provide mapping of the alternate application's T1 channels into the unused B channels of the CorNet-N link. (Refer to CorNet-N Configuration and Sales Positioning guides).

- **CorNet-N and data applications**

ISDN data applications are supported over CorNet-N links using the STLS4, STMD8, ILAN card and S<sub>0</sub> optiset E adapter.

- **CorNet-N network topologies**

The Hicom 150 E can be configured in point-to-point, star, or mesh network configurations, with other Hicom 150 E systems (OfficeCom and OfficePro only) and/or with other Siemens ICN systems. (Refer to CorNet-N Configuration and Sales Positioning guides for details).

- **CorNet-N network and Hicom 150 E system feature compatibility**

All the following CorNet-N features are supported between 150 E systems. Refer to the CorNet-N Configuration and Sales Positioning guides for complete feature compatibility between the 150 E Office and other Siemens Communications Systems.

### 7.13.1 Satellite CS Capability

#### Definition

Users can connect the Hicom 150 E Office system to an existing communications server (CS) as a satellite CS and use the functions of the second CS.

Tie trunk traffic can be processed via direct connections between the CSs as well as via public trunks and dedicated lines. In addition, with Hicom 150 E OfficePro, users can process tie trunk traffic via E&M trunks.

Basic interconnection of two communication systems can be formed by connecting analog station interfaces from one system to loop start analog trunks of the other system. This type of connection provides only basic connectivity between systems. To support such connectivity, the Hicom 150 E provides a configurable trunk flash which changes the flash from a ground signal to an open loop to signal the other system.

The Hicom Assistant T parameter *CO* or *PBX* or the Hicom Assistant E Office *Trunk Type* parameter changes the flash from long to short.

#### Model-Specific Data

| Subject              | Pro                                           | Com                 | Point               | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-----------------------------------------------|---------------------|---------------------|--------------------------|----------------------------|
| Feature available in | x                                             | x                   | —                   | —                        | —                          |
| HW requirements      | Digital trunk board or analog tie trunk board | Digital trunk board | Digital trunk board | —                        | —                          |
| SW requirements      | Rel 1.0 or later                              |                     |                     | —                        | —                          |

## Requirements and Conditions

| Subject                  | Requirement or Condition                                                                                                                                 |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Closed numbering         | With closed numbering, trunk group codes must be deleted for CorNet trunk groups, although trunk access codes remain.                                    |
| Least cost routing (LCR) | In a CS with CO access, LCR must be active to handle transit calls.                                                                                      |
| CorNet-N trunk groups    | On CorNet-N trunk groups that can seize a trunk in the remote CS, the second discriminating digit in the trunk group must be entered from the remote CS. |
| Analog trunks            | On analog external trunks, a flash (not ground) signals the main CS.                                                                                     |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                 |
|------|--------------------------------------------------------|
| 1.   | <b>Set trunk type</b>                                  |
| 2.   | 17-14 => Networking - Trunk type CO/CS                 |
| 3.   | <b>Set ISDN parameters</b>                             |
| 4.   | 20-4 => ISDN parameters - EU parameters (not for U.S.) |
| 5.   | <b>Set trunk group codes</b>                           |
| 6.   | 23-4 => Codes - Trunk group code                       |
| 7.   | 23-6 => Codes - Second CO ID                           |
| 8.   | 35-1 => Least cost routing - LCR on/off                |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                           |
|------|----------------------------------|
| 1.   | <b>Set trunk type</b><br>Options |
| 2.   | Lines/networking                 |

| <b>Step</b> | <b>Action</b>                         |
|-------------|---------------------------------------|
| 3.          | Routing parameters                    |
| 4.          | <b>Set ISDN parameters</b><br>Options |
| 5.          | Lines/networking                      |
| 6.          | Trunks                                |
| 7.          | Parameters, Flags                     |
| 8.          | Routes                                |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                               |
|-------------|---------------------------------------------|
| 1.          | Call a station in another networked system. |

## 7.13.2 Tie Trunk Via TIEL

### Definition

The TIEL (Tie Line Ear & Mouth) board supports tie traffic with other private communication systems and contains four two-way analog tie trunks with E&M signaling for Hicom 150 E OfficePro. Each tie trunk has eight connections: two incoming speech paths, two outgoing speech paths, two incoming signaling paths, and two outgoing signaling paths.

The speech paths can switch between four-wire and two-wire modes. To ensure high-quality transmission, a four-wire connection should be used for analog networks. The advantage of providing separate speech paths for incoming and outgoing calls is that it helps maintain call stability (echo). Repeaters in the transmission equipment can also compensate for attenuation losses.

The E&M signaling paths exchange signals that control connection setup and cleardown. Depending on the requirements of the remote system or the transmission equipment, you can use different types of interfaces that have a different number of wires or different potentials.

Before placing a tie trunk in service, you must determine which interface type the two participating systems should share. Details can be found in [Section 3.3.11](#).

### Model-Specific Data

| Subject              | Pro                 | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|---------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | <b>x</b>            | —   | —     | —                        | —                          |
| HW requirements      | TIEL<br>board       | —   | —     | —                        | —                          |
| SW requirements      | Rel.1.0 or<br>later | —   | —     | —                        | —                          |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.



### 7.13.3 Closed Numbering

#### Definition

In private networks, users can assign station numbers, trunk access codes, and feature codes according to a customer-defined numbering plan.

Hicom 150 E Office supports both closed and open numbering. If unique extension numbers are used within the network, any user in the network can call another extension by dialing its extension number. This is a closed numbering plan.

CorNet-N dial plans support extension numbering. In the CorNet-N network, users assign unique private extension numbers of up to six digits. This type of numbering is also called closed numbering.

An open numbering plan is also supported for networks that use a leading digit and a common system dial plan for each location.

#### Model-Specific Data

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | —                        | —                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       | —                        | —                          |

#### Requirements and Conditions

| Subject   | Requirement or Condition                                          |
|-----------|-------------------------------------------------------------------|
| Numbering | Users can change internal numbering only using Hicom Assistant E. |

#### Configuration Options

This feature can be configured using Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>  |
|-------------|----------------|
| 1.          | Options        |
| 2.          | Set up station |
| 3.          | Station        |
| 4.          | Automatic LCR  |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                          |
|-------------|--------------------------------------------------------|
| 1.          | Call the internal number of another networked station. |

## 7.13.4 Toll Restriction with CorNet-N

### Definition

Hicom 150 E Office supports satellite CS traffic via CorNet-N. The system can be operated as a node (CS without CO access, CorNet-N trunk group only), transit node (CS with at least two CorNet-N trunk groups, no central office), and gateway (CS with CO and CorNet-N trunk groups).

In addition to the basic call functions (outgoing and incoming calls), the CorNet-N system supports the toll restriction feature.

If users operate the Hicom 150 E Office in networked environments, the user's toll restriction is checked, transmitted, or received in the incoming direction (class-of-service transfer) when a CorNet-N trunk is seized. To a gateway system, the system performs standard class-of-service toll restrictions for outgoing calls and when an extension answers.

A station's toll restriction class of service (COS) is passed from communication server to communication server within a CorNet-N network. When a call originating in a remote system is destined for an external trunk route, the Hicom 150 E performs COS checking of the calling party before allowing the call to proceed.

### Model-Specific Data

| Subject              | Pro                   | Com                   | Point          | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-----------------------|-----------------------|----------------|--------------------------|----------------------------|
| Feature available in | x                     | x                     | x              | —                        | —                          |
| HW requirements      | —                     | —                     | —              | —                        | —                          |
| SW requirements      | Rel 1.0 or later      |                       |                | —                        | —                          |
| Restrictions         | Primary/<br>secondary | Primary/<br>secondary | Second-<br>ary | —                        | —                          |

### Requirements and Conditions

| Subject            | Requirement or Condition                                                                                                                                                                                                                                                                                                        |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Classes of service | <p>The following 15 classes of service exist for class-of-service transfer:</p> <ul style="list-style-type: none"> <li>• Internal access only (0)</li> <li>• Outward restricted trunk access (1)</li> <li>• Local public network (2-13, including 11 allowed/denied lists)</li> <li>• Unrestricted trunk access (14)</li> </ul> |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                        |
|------|-----------------------------------------------|
| 1.   | Configure toll restriction                    |
| 2.   | 15-1 => Toll restriction - Restriction, day   |
| 3.   | 15-2 => Toll restriction - Restriction, night |
| 4.   | 15-3 => Toll restriction - Allowed lists      |
| 5.   | 15-4 => Toll restriction - Denied lists       |
| 6.   | 17-14 => Networking - Trunk type CO/CS        |
| 7.   | 23-6 => Codes - Second trunk access code      |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Configure toll restriction<br>Options        |
| 2.   | Classes of service                           |
| 3.   | Station                                      |
| 4.   | Allowed/denied numbers                       |
| 5.   | Lines/networking, Routing parameters, Routes |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                             |
|------|------------------------------------------------------------------------------------|
| 1.   | Dial an external, outgoing connection from the satellite CS via the main CS.       |
| 2.   | Outgoing connections are possible if permitted by the subscriber class of service. |

## 7.13.5 Call Detail Recording With Networking

### Definition

In a networked environment, each system records call details locally. Networking does not affect call detail recording in Hicom 150 E Office. Call details continue to be recorded for outgoing calls provided they are transmitted by the main CS. In environments with satellite CSs without a separate central office, the main CS centrally records call details that originate within the main CS (call detail recording central [CDRC]).

In addition, CDRC logs call detail information received for incoming calls (for example, transfer of a toll call from a networked system).

In networked environments, a centralized call accounting device can be used to record all calls originated or in transit through the hub system.

Each system can only record calls that are routed through its own trunks or transit calls. A centralized CDR device can be used to collect CDR data from each individual systems' RS-232 interface.

CDR data that originates in one node is not transmitted to another network node. The secondary CDR collecting devices located at each node are typically polled by a main CDR device located at the main node to collect the stored data. Siemens' responsibility is limited to the data provided out of the RS-232 port. Integration of external devices must be confirmed with Siemens ICN prior to installation.

### Model-Specific Data

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | —                        | —                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       | —                        | —                          |

### Requirements and Conditions

| Subject    | Requirement or Condition                                                                                |
|------------|---------------------------------------------------------------------------------------------------------|
| Buffer box | If a system in a network has local trunk accesses, a local buffer box can be used for the call charges. |

| Subject                                     | Requirement or Condition                                                                                                                                                                                  |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call via the trunk gateway of the remote CS | If a station in a CS conducts an outgoing call via the CO access of the remote CS, the call details that apply to the CS in which the trunk is seized are output as call type 6 (direct outward dialing). |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Configure call charge factor          |
| 2.   | 11-4 => CDR - Call charge factor      |
| 3.   | Configure ISDN call detail recording  |
| 4.   | 11-5 => CDR - Call charge factor ISDN |
| 5.   | Configure currency designation        |
| 6.   | 11-6 => CDR - Currency                |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                         |
|------|------------------------------------------------|
| 1.   | <b>Configure call charges</b><br>System status |
| 2.   | Call charges                                   |
| 3.   | Output format                                  |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                   |
|------|--------------------------------------------------------------------------|
| 1.   | Conduct a chargeable call. The call charges are displayed as configured. |

## 7.13.6 Incoming Call

### Definition

CorNet-N handles incoming calls the same way as any other internal calls. Users can configure digit analysis in the networked system so that they can reach all Hicom 150 E Office extensions by dialing the prefix.

The extension number corresponds to the external numbering plan and is analyzed accordingly. When the connection is made, the following information is passed to the remote CS placing the call:

- Toll restriction
- Extension number
- Station name

### Model-Specific Data

| <b>Subject</b>       | <b>Pro</b>       | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>         | <b>x</b>   | <b>x</b>     | —                                 | —                                   |
| HW requirements      | —                | —          | —            | —                                 | —                                   |
| SW requirements      | Rel 1.0 or later |            |              | —                                 | —                                   |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------|
| 1.          | Call a networked station via CorNet-N.                                                           |
| 2.          | If the name of the station dialed is entered in the networked system, it appears on the display. |

## 7.13.7 Consultation Hold/Transfer/Pickup

### Definition

When users activate **consultation hold** between a Hicom 150 E Office station and a station in a networked system, the consultation hold is initially set up via a second B channel. Whenever possible, the connection is set up by path replacement (path replacement activates after connection). If path replacement is not possible, the connection remains on the second B channel.

When an external call is **transferred** to a station connected via CorNet-N, the station number, name, and class of service for the A and C stations are transmitted.

Users can **pick up** from the networked system if the call is identified as a consultation call. If the consulted party picks up the call, the request from the main CS causes the call to be switched in transit, and the system disconnects the consulting party. If the consulted party disconnects the consultation call, the consultation is automatically reconnected to the last call on hold.

Unscreened transfer is possible to a busy or idle station in a remote node.

### Model-Specific Data

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | —                        | —                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       | —                        | —                          |

### Requirements and Conditions

| Subject                                | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unscreened transfer                    | Unscreened transfer is possible on a free or busy station in a networked system.                                                                                                                                                                                                                                                                                                                      |
| Call pickup groups with fractional T1s | If you are using a portion of B channels on a T1 for data applications (for example, with a data server), you must bar the data B channels from being used for call pickup groups. Do this by deselecting the B channel modes <i>in-coming</i> and <i>outgoing</i> in Assistant E. (Refer to the table on page 7-393 for information on how to configure this feature with Hicom Assistant E Office). |



**Configuration Options**

This feature does not have to be explicitly configured.

**Configure the feature using Hicom Assistant E Office as follows:**

| <b>Step</b> | <b>Action</b>                                           |
|-------------|---------------------------------------------------------|
| 1.          | Configure Fractional T1 with call pickup groups Options |
| 2.          | Lines/networking                                        |
| 3.          | Parameters                                              |
| 4.          | B channel mode                                          |
| 5.          | Incoming/outgoing (deselect B channels used for data)   |

## 7.13.8 Recall

### Definition

The system initiates a recall if the network cannot perform an unscreened transfer. The recall applies locally and not network-wide.

In homogeneous Hicom 150 E networks, an unanswered call from one node to another recalls the initiating station in the originating node.

In non-homogeneous networks, an unanswered call to a non-Hicom 150 E system recalls at the transferring system's intercept position or originator, depending on the system configuration.

### Model-Specific Data

| Subject              | Pro              | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>         | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                | —        | —        | —                        | —                          |
| SW requirements      | Rel 1.0 or later |          |          | —                        | —                          |

### Configuration Options

This feature does not have to be explicitly configured.

## 7.13.9 Call Waiting

### Definition

Networked systems handle call waiting the same way as internal call waiting.

Corresponding D channel messages are generated for waiting calls.

### Model-Specific Data

| <b>Subject</b>       | <b>Pro</b>       | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>         | <b>x</b>   | <b>x</b>     | —                                 | —                                   |
| HW requirements      | —                | —          | —            | —                                 | —                                   |
| SW requirements      | Rel 1.0 or later |            |              | —                                 | —                                   |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                   |
|-------------|---------------------------------------------------------------------------------|
| 1.          | Call a networked station that is busy.                                          |
| 2.          | If internal call waiting is enabled for this station, the station is camped-on. |

## 7.13.10 Distinctive Ringing in the Network

### Definition

The calls are evaluated in the network and signaled accordingly.

CorNet-N calls are handled and signaled the same as internal calls.

Distinctive internal and external ring types are provided over CorNet-N.

Network station-to-station calls provide internal ringing patterns, whereas external trunk calls routed over CorNet-N provide external ringing patterns.

### Model-Specific Data

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | —                        | —                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       | —                        | —                          |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                          |
|------|---------------------------------------------------------------------------------|
| 1.   | Call a networked station.                                                       |
| 2.   | This station receives the same call signaling as it would for an internal call. |

### 7.13.11 Callback on Free/Busy

#### Definition

Users can activate the Hicom 150 E Office callback feature across systems. The user interface is the same as for internal callback. Instead of the internal extension number, the number of the networked station is stored and displayed.

If an open-numbering scheme is used, this feature only operates in a CorNet-N network of two Hicom 150 E systems, where at least one system is an OfficePro.

#### Model-Specific Data

| Subject              | Pro              | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>         | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                | —        | —        | —                        | —                          |
| SW requirements      | Rel 1.0 or later |          |          | —                        | —                          |

#### Configuration Options

This feature does not have to be explicitly configured

#### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                 |
|------|------------------------------------------------------------------------|
| 1.   | Call a busy or free user in the networked system.                      |
| 2.   | Initiate callback and hang up.                                         |
| 3.   | When the user is free or lifts the handset, the system calls you back. |

## 7.13.12 Station Number/Name Display

### Definition

In addition to the calling station's number, Hicom 150 E Office transmits the calling station's name via CorNet-N. When a name is available for incoming calls, the station displays the name instead of the station number.

This feature supports both uppercase and lowercase letters. In addition, users can configure whether the telephone display shows the caller's name or station number.

The Hicom 150 E sends both the calling station number and calling station name (if applicable) via the ISDN D channel.

If external and internal calls are routed via CorNet-N to another node, it is necessary to split the B channels of a T1 span for internal and external traffic. This can lead to the situation that for certain calls not all 23 B channels are available.

In an incoming call from another node's ISDN trunk, the calling party's Caller ID is received on the Hicom 150 E optiset E.

An ISDN trunk call transferred or redirected from the Hicom 150 E (either by a station or by a voice processing device) passes the calling party's Caller ID to the next node.

### Model-Specific Data

| <b>Subject</b>       | <b>Pro</b>       | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|----------------------|------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in | <b>x</b>         | <b>x</b>   | <b>x</b>     | —                                 | —                                   |
| HW requirements      | —                | —          | —            | —                                 | —                                   |
| SW requirements      | Rel 1.0 or later |            |              | —                                 | —                                   |

### Requirements and Conditions

| <b>Subject</b>             | <b>Requirement or Condition</b>                                                                                      |
|----------------------------|----------------------------------------------------------------------------------------------------------------------|
| Station number suppression | Each user can use the station number suppression function to activate or deactivate station number and name display. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                          |
|-------------|----------------------------------------|
| 1.          | Configure name/station number          |
| 2.          | 19-16 => Displays - Names/stn. numbers |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                            |
|-------------|------------------------------------------|
| 1.          | Configure name/station number<br>Options |
| 2.          | System parameters                        |
| 3.          | Display                                  |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                          |
|-------------|--------------------------------------------------------|
| 1.          | Call a networked station.                              |
| 2.          | You see either the station name or the station number. |

### 7.13.13 Call Forwarding With Rerouting

#### Definition

Calls can be rerouted for call forwarding via CorNet-N to optimize B channel utilization.

For example, station A in CS 1 calls station B in CS 2. Station B then forwards the call to station C in CS 1. The two B channels between CSs 1 and 2 are released. This means that the connection is set up directly within CS 1. For this to be possible, both CSs must activate rerouting.

Hicom 150 E users can forward their incoming internal and/or external calls to users within their own system, to a node within the private network, or off-site (if the feature is allowed in the system administration). Call forwarding-no answer is possible using Call Management pseudo ports in the Hicom 150 E system.

Pseudo numbers are used for identification and steering purposes. A pseudo number is a call number/DID number assigned to a port not associated to a physical device. The pseudo numbers are assigned in the *Set up station* screen (Hicom Assistant E Office) and can be configured with a name and Call Management steering information. Pseudo numbers cannot be programmed as Repertory Dial (Repdial) keys on the optiset E telephones. Pseudo numbers can be forwarded using the Associated Services feature code (\*83) from a station with the Associated Services authorization flag activated.

Route optimization can be defined in the database as follows:

- Rerouting is deactivated
- Reroute only if the route is known
- Rerouting is always activated



This option is only available for CorNet-N networking, and must be activated in the same way in both networked systems.

Refer to the CorNet-N Configuration Notes for the proper setting.



**Model-Specific Data**

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | —                        | —                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       | —                        | —                          |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                               |
|------|------------------------------------------------------|
| 1.   | Configure CF with rerouting                          |
| 2.   | 17-17-1 => Networking - Rerouting - Rerouting active |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                 |
|------|----------------------------------------|
| 1.   | Configure CF with rerouting<br>Options |
| 2.   | Lines/networking                       |
| 3.   | Routing parameters                     |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                         |
|------|--------------------------------------------------------------------------------|
| 1.   | Forward a call to station C in the main CS from station B in the satellite CS. |
| 2.   | Call station B in the satellite CS from station A in the main CS.              |
| 3.   | If possible, the trunks to the satellite CS are released.                      |

## 7.13.14 Toggle

### Definition

The conditions described under [Section 7.2.3, \*Toggle\*](#) also apply to networked systems. That is, station users can use the Toggle feature to toggle between callers, including those originated or received on CorNet-N call routes.

### Model-Specific Data

| Subject              | Pro              | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>         | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                | —        | —        | —                        | —                          |
| SW requirements      | Rel 1.0 or later |          |          | —                        | —                          |

### Requirements and Conditions

| Subject   | Requirement or Condition                       |
|-----------|------------------------------------------------|
| Call hold | A station on hold cannot toggle between calls. |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                              |
|------|-----------------------------------------------------|
| 1.   | Set up a call.                                      |
| 2.   | Activate consultation hold.                         |
| 3.   | Set up a second call via CorNet-N.                  |
| 4.   | Switch between the two parties called using toggle. |

## 7.13.15 Conference

### Definition

The conditions described in Section 7.2.6, *Conference* also apply to networked systems.

Voice station users on the Hicom 150 E can establish internal and external conference calls using local and CorNet-N call routes as needed. The system limits the number of conferees in a conference to five. A party in another node connected to the conference via CorNet-N is allowed to add additional parties within its own node using its own conference circuit. Members of a conference within another node will not be updated with the conference display information (number of conferees in the conference) of the Hicom 150 E system.

### Model-Specific Data

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | —                        | —                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       | —                        | —                          |

### Requirements and Conditions

| Subject    | Requirement or Condition                                |
|------------|---------------------------------------------------------|
| Conference | A conference can be set up between voice stations only. |

### Configuration Options

This feature does not have to be explicitly configured.

## Testing the Feature

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Set up a call.                                                                                                                                |
| 2.          | Activate consultation hold.                                                                                                                   |
| 3.          | Set up a second call via CorNet-N.                                                                                                            |
| 4.          | Set up a conference using the input procedure.                                                                                                |
| 5.          | If you want to include additional stations in the conference, place the conference on hold, set up another call, and activate the conference. |

## 7.13.16 Central Attendant Console

### Definition

A central attendant console supports the switch and recall functions in the network. A local intercept position can redirect intercepted calls via a networked station (with call forwarding).

Pseudo numbers can also be entered that are forwarded to a remote system for centralized answering applications. The Associated Service feature must be used to call forward the pseudo number to the target location.

The console display shows the calling party number if available. There is no indication specific display for intercept—same display as for incoming external calls.

### Model-Specific Data

| Subject              | Pro              | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>         | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                | —        | —        | —                        | —                          |
| SW requirements      | Rel 1.0 or later |          |          | —                        | —                          |

### Configuration Options

This feature does not have to be explicitly configured.

## 7.13.17 Sharing System Speed Dialing in a Gateway System

### Definition

Satellite CSs can share the system speed-dialing destinations in a gateway system. However, the local telephone directory cannot display the system speed-dialing numbers of the gateway system.

There are some restrictions, depending on the type of system in the network. Refer to the Configuration Notes prior to installation.

The satellite station user must dial the gateway system's speed-dialing number. Service code conflicts must not exist between the nodes. The service code is analyzed via LCR and sent to the destination node

### Model-Specific Data

| Subject              | Pro              | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>         | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                | —        | —        | —                        | —                          |
| SW requirements      | Rel 1.0 or later |          |          | —                        | —                          |

### Configuration Options

This feature does not have to be explicitly configured.

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                     |
|------|----------------------------------------------------------------------------|
| 1.   | From the satellite CS, dial the system speed-dialing code for the main CS. |

## 7.13.18 Sharing a Central Voice Mail Server

### Definition

Users in a networked system can program call forwarding to a central voice mail server. Hicom 150 E Office stations are informed of calls received by means of the message waiting indication (either the optiset E LED, the optiset E display, or the OfficePro analog telephone's broken dial tone or message).

The central voice mail server can be queried in DTMF mode.

In a homogeneous Hicom 150 E network, the centralized voice mail system must be located at the OfficePro system. Special attention should be taken during the presales investigation concerning the amount of traffic from all nodes to the voice mail server. The Hicom 150 E supports a maximum of 8 VMle analog ports connected from the voice mail server to the OfficePro.

With the Siemens PhoneMail system, users can assign one mailbox to up to six independent telephones so that the Message Waiting indication is turned on at all telephones assigned to this mailbox. These telephones can be part of different systems that are served by the same PhoneMail system. The *Plus Feature* package is required for this function. The PhoneMail SW level must be 6.3 or above.

If external and internal calls are routed via CorNet-N, it is necessary to split the CorNet-N link B channels for internal and external traffic. This can lead to a situation where, for certain calls, not all B channels are available.

### Model-Specific Data

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | —                        | —                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       | —                        | —                          |

### Requirements and Conditions

| Subject | Requirement or Condition             |
|---------|--------------------------------------|
|         | Follow the configuration guidelines. |

### Configuration Options

This feature does not have to be explicitly configured.

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                              |
|------|-------------------------------------------------------------------------------------|
| 1.   | Activate call forwarding from a networked station to the central voice mail server. |
| 2.   | Call the forwarded station. The call is forwarded to voice mail.                    |



### **7.13.19 QSig (Release 2.0 or Later) (Not for U.S.)**

#### **Definition**

CorNet-N is usually the protocol used for networking Hicom CS' with each other. QSIG, the cross-vendor signaling protocol available throughout Europe, is used for networking Hicom and non-Hicom CS'. In homogeneous networks, Hicom 150 E Office supports the following basic features.

In QSIG environments, you can operate Hicom 150 E Office as an end node, transit node, or gateway.

The QSIG protocol used is based on the following specifications:

- ECMA V1.0: Release 2.2 and earlier
- ECMA V1.0 and ECMA V2.0 (for the MWI feature only): Release 3.0 or later.
- Partial specifications
  - ETS 300172: Basic Call/ECMA 143
  - ETS 300239: Generic Functions/ECMA 165

These networked systems collectively act like a single system, transmitting the following over the S<sub>0</sub> trunk:

- Callback option
- Station number
- Name
- Party category
- Transit counter

Called parties with toll restriction 0 (no direct trunk access) for a QSIG trunk, cannot answer an incoming QSIG call for another station (call pickup, trunk key). However, direct calls and forwarded calls to the B party are possible.

#### **Interworking With Other Protocols**

- CorNet-N

All existing features implemented for both CorNet-N and QSIG support interworking in the QSIG direction and vice-versa. The only exception is the callback feature (CCBS/CCNR) because the message flows between the two protocols and the ones between two nodes are too different.
- ETSI

The requirements for interworking between CorNet-N and ETSI apply here as well.

### **7.13.19.1 Basic Features**

#### **Numbering plan**

- ISDN numbering plan
- The system does not support a private numbering plan.

#### **Call detail recording**

#### **Direct inward dialing (external)**

- In the local system: Same as before.
- There is no transfer of call charges in transit traffic.

#### **Consultation hold**

- In the local system: Same as before.
- To remote system:  
Consultation calls over a second trunk are possible, that is the calls are switched from the local system over two B channels, and they can be transferred. When a user releases the call, the call last placed on hold becomes active.

#### **Callback**

- Users can activate completion of calls - no reply (CCNR) or completion of calls to busy subscribers (CCBS) to the remote system. They can activate CCNR if the other party does not answer or if a call is waiting. They can activate CCBS in the following situations: The other party is busy with one or multiple calls, engaged in a consultation call or a conference, or has activated do not disturb.
- Users cannot set a callback to a call forwarding destination, a member of a group call or hunt group, a room monitor, or an entrance telephone.
- Callback calls are deleted manually, when the CS is reset, a trunk fails, a port is reprogrammed. The same applies to calls from A to B and from B to A.

#### **Call forwarding**

- The system supports only the CFU (call forwarding unconditional) QSIG version.
- To optimize B channel usage a forwarded call to a telephone of the main PBX is handled in accordance with the specifications for *Call Forwarding/Partial Rerouting*. If *partial rerouting* is rejected, *forward switching* is used.
- If Hicom 150 E Office is a gateway, *forward switching* is implemented.

#### **Name display**

- Only UPPERCASE letters are transferred. Users can specify whether a transferred name or the caller's station number is displayed.

### 7.13.19.2 Central Attendant Position/Attendant Console

This function is available in transit only.

### 7.13.19.3 Intercept

For operation in networked environments, users can configure an external station number as the attendant console or intercept position in Hicom 150 E Office. If an intercept occurs in a CS, based on the locally valid intercept criteria, the call is forwarded to the external station number programmed in the CS or discarded.

The central attendant console intercepts calls according to the CINT (call interception) QSIG specification. The cause of the intercept, which is transferred in encoded format, is an important item of data.

The attendant always intercepts calls via a second B channel, because problems could otherwise occur in a network with different CSs.

### 7.13.19.4 Originator of the Intercept

The dialed digits or the station number of the party originating the intercept can be sent to the intercept destination as the originator of the intercept.

In the Hicom 150 E Office system, users specify only the number of the station where the intercept originated. In the case of call forwarding and hunt groups, this is the original station dialed. No information is transferred if the caller dials an incorrect or incomplete number.

### 7.13.19.5 Busy Override

An authorized network station (such as the central attendant position or a *Hicom 150 E Office Rel.2.0* station with override authorization) can override a call being conducted at a busy station in the network. Users cannot override conference calls in *Hicom 150 E Office Rel.2.0*. The feature is implemented according to QSIG specification CI (call intrusion).

The *Hicom 150 E Office Rel.2.0* system handles a busy override according to QSIG in a network just like an internal busy override. This means that every user who is authorized to override busy calls is authorized to do so throughout the network. The override operation transforms a two-party call into a three-party call.

### 7.13.19.6 Recall

This feature activates a recall to the originating station in the network, for example if a transfer was unsuccessful. The feature is implemented according to QSIG specification RE (recall).

### **7.13.19.7 Message Waiting Indication (MWI) (Release 3.0 or Later)**

This feature allows you to activate and delete the *Mailbox* key (callback signaling). It supports the sending of messages (using the service menu or a code) from the idle, ringing, busy and talk states, and message reception. You cannot select text messages. Because the protocol does not support the transmission of text information, the receiving end always receives and displays the “Please call back” message.

A central voice mail server in the QSig network can also initiate a message. In this case, the name administered for this voice mail server for callback access is displayed. It is not possible to send a message to voice mail.

In the case of Octopus E 300/800, message waiting indication is supported either for voice mail or for other stations. If the feature is activated for voice mail, it must be deactivated for other stations.

### **7.13.19.8 Central Cross-System Busy Signaling (Release 3.0 or Later)**

This feature is supported only in the direction of an Octopus E 300/800 system (A6, Release 6.3 or later) from Deutsche Telekom AG. The destination of cross-system busy signaling can only be the central Octopus E 300/800 attendant console (AC). Systems in the QSig network can report the operating states of selected stations to the central attendant console of a CS (can be main CS or satellite CS). The following operating states can be signaled for the telephones:

- Free
- Busy internally
- Busy externally
- Defective

The numbering plan in this network must be closed and it must be possible to access the CS via the first administered QSig port on the remote system.

Operating states cannot be transmitted via CSs functioning as gateway or transit nodes.

**Model-Specific Data**

| Subject              | Pro               | Com      | Point    | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|----------|----------|--------------------------|----------------------------|
| Feature available in | <b>x</b>          | <b>x</b> | <b>x</b> | —                        | —                          |
| HW requirements      | —                 | —        | —        | —                        | —                          |
| SW requirements      | Rel. 2.0 or later |          |          | —                        | —                          |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Activity                                                                                                            |
|------|---------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Configure QSIG</b>                                                                                               |
| 2.   | 20-4-1 => S <sub>0</sub> port configuration (QSIG=7)<br>or<br>20-4-2 => S <sub>2m</sub> port configuration (QSIG=4) |
| 3.   | 20-5-2-11 => protocol type (QSIG=22)                                                                                |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Activity                      |
|------|-------------------------------|
| 1.   | <b>Configure QSIG</b>         |
| 2.   | Lines/Networking              |
| 3.   | Double-click trunk parameters |
| 4.   | ISDN-flags => Protocol        |

## 7.14 Features for Call Detail Recording

### 7.14.1 Silent Reversal at Start and End of Call (Not for Germany or U.S.)

#### Definition

Many countries use silent reversal to mark the beginning and end of outgoing calls on loop start trunks. These criteria are used for time recording within central call detail recording. This is particularly important when exact tracking of call charges is required (as in a hotel).

The feature can be configured per circuit.

#### Model-Specific Data

| Subject              | Pro              | Com                            | Point | One | Start |
|----------------------|------------------|--------------------------------|-------|-----|-------|
| Feature available in | x                | x                              | x     | —   | —     |
| HW requirements      | <u>TML8W</u>     | <u>TLA2/4/8</u> + <u>GEE12</u> |       | —   | —     |
| SW requirements      | Rel 1.0 or later | Rel. 2.0 or later              |       | —   | —     |
| General requirements | Loop start trunk |                                |       | —   | —     |

#### Requirements and Conditions

| Subject         | Requirement or Condition                                                                                                                            |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Silent Reversal | In countries where silent reversal is not signaled at the end of a call, the call duration is determined by the calling party hanging up the phone. |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                 |
|-------------|-----------------------------------------------|
| 1.          | <b>Configure silent reversal per trunk</b>    |
| 2.          | 21-6 => Analog CO interface - Silent-Reversal |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                         |
|-------------|-------------------------------------------------------|
| 1.          | <b>Configure silent reversal per trunk</b><br>Options |
| 2.          | Lines/networking                                      |
| 3.          | Parameter                                             |
| 4.          | MSI flags                                             |
| 5.          | Activate silent reversal                              |

## 7.14.2 Advice of Charges at Station During Call (AOC-D) (Not for U.S.)

### Definition

Call charge information can be recorded on both analog and digital trunks.

Call charge evaluation for connections on loop start trunks is performed using the call charge pulses transmitted from the trunk in countries where call charge pulses are used.

In the case of digital trunks, the display on the user's telephone shows the call detail information received during an external call with the "AOC" (advice of charges) feature, assuming that the carrier provides this information.

The following types of AOC are supported in the public network:

- AOC-S - Advice of charges at call setup
  - Call charge display on the telephone is the same as for AOC-D.
  - The charges are not displayed if the call was not fully set up or if Hicom 150 E Office is unable to evaluate the call detail information of a service provider.
- AOC-D = Advice of charges during call
- AOC-E = Advice of charges at end of call

As long as the user has not initiated another action, the final call charges for a call are displayed for a specific period of time at the end of a call and then added up in call charge memory.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, *Call-Charge Display With Currency (Not for U.S.)*).

### Model-Specific Data

| Subject              | Pro                                                                    | Com                                                                        | Point | One                                 | Start |
|----------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------|-------|-------------------------------------|-------|
| Feature available in | x                                                                      | x                                                                          | x     | x                                   | x     |
| HW requirements      | Loop start:<br><u>GEE8</u> ;<br>optiset E<br>telephone<br>with display | Loop start:<br><u>GEE12/16/50</u> ;<br>optiset E telephone<br>with display |       | optiset E telephone<br>with display |       |
| SW requirements      | Rel 1.0 or later                                                       |                                                                            |       |                                     |       |
| General requirements | Call charge information from public network                            |                                                                            |       |                                     |       |



## Requirements and Conditions

| Subject          | Requirement or Condition                                                                                                                |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Analog telephone | On analog telephones, call charge pulses can be updated using a relay and a call charge counter.                                        |
| Loop start       | Loop start trunks require a separate call metering receiving equipment board.                                                           |
| Transfer         | In the case of AOC-D, the station to which a call is transferred receives only those call charges that have accrued since the transfer. |
| Recall           | If a call is returned as a recall for unscreened transfer, the overall amount is displayed and calculated.                              |
| Toggle           | Call charges for the current call are always displayed.                                                                                 |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Configure call charge factor          |
| 2.   | 11-4 => CDR - Call charge factor      |
| 3.   | Configure ISDN call charge factor     |
| 4.   | 11-5 => CDR - Call charge factor ISDN |
| 5.   | Configure currency designation        |
| 6.   | 11-6 => CDR - Currency                |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                               |
|------|------------------------------------------------------|
| 1.   | <b>Configure call charge factor</b><br>System status |
| 2.   | Call charges                                         |
| 3.   | Output format                                        |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                            |
|------|-----------------------------------------------------------------------------------|
| 1.   | Conduct a chargeable call. The charges for this call are displayed as configured. |

### 7.14.3 Call Duration Display on Telephone

#### Definition

A call duration display is provided for external calls (outgoing or incoming) when no call charge information is available.

The starting point for call detail recording is set for analog trunks by means of a timer (5 seconds after end of dialing). The timer used is *Artificial end-of-selection*.

In the case of digital trunks, recording is started when the call is received (at *connect*).

The Call Duration is displayed on the display line above the feature prompts. The format is *HH:MM:SS*.

The dialed number is displayed until the Connect message is received (ISDN trunks) or until the end of the pseudo-answer timer. Post-dialed digits are displayed for approximately 5 seconds, then the Call Duration display is returned to the display. When the user goes on-hook, the idle state display is presented: *Current time and date*.

#### Model-Specific Data

| Subject              | Pro                              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|----------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                                | x   | x     | x                        | x                          |
| HW requirements      | optiset E telephone with display |     |       |                          |                            |
| SW requirements      | Rel 1.0 or later                 |     |       |                          |                            |

#### Requirements and Conditions

| Subject                             | Requirement or Condition                                                                                                |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| S <sub>0</sub> / cordless telephone | The system does not support the call duration display feature on S <sub>0</sub> and cordless telephones (not for U.S.). |

#### Configuration Options

This feature can be configured using Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant E Office**

By default, the feature is active, but can be deactivated as follows using Hicom Assistant E Office:

| <b>Step</b> | <b>Action</b>                            |
|-------------|------------------------------------------|
| 1.          | System parameters                        |
| 2.          | Display                                  |
| 3.          | Call duration: Deactivate timer display. |

## 7.14.4 Call Detail Recording at Station (CDRS) (Not for U.S.)

### Definition

- Every optiset E, analog telephone, S<sub>0</sub> (or MSN), and cordless telephone in the system has two storage devices:
  - A call charge summation memory (call detail memory)  
At the end of an external call, the system adds the final charges to the charges already stored in the call detail memory on the station. optiset E users with a display can display their current charges by entering a code.
  - An individual call memory  
The system adds up the charges incurred during a call in this memory, even if the call consists of individual call segments, as in the case of the toggle feature. At the beginning of a new call, the individual call memory is reset to 0.

The contents of the individual call memory appear first. A short time later, the contents of the cumulative call charge memory are displayed.

- You can use the system telephone (phone with programming authorization) as a charge display station. The user of this station can use the system administration to:
  - Display the cumulative call charge memory for one station.
  - Display the cumulative call charge memory for all stations (organized by station numbers).
  - Reset the cumulative call charge memory for a specific station.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, *Call-Charge Display With Currency (Not for U.S.)*).

From the system telephone, you can print the latest CDRS data on a printer connected to the V.24 interface, thereby printing the cumulative call charges for all stations connected to the system.

In Release 2.2 and later, you can also output the CDRS data to a U<sub>P0/E</sub> port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to **adapter**.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode (Rel. 2.2 or later) for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

In Release 3.0 and later, you can transfer CDRS data to external applications via the LAN interface (Ethernet) (for more information, refer to Chapter 13).

### Model-Specific Data

| Subject              | Pro                                                                    | Com                                                                      | Point | One                                 | Start |
|----------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|-------|-------------------------------------|-------|
| Feature available in | x                                                                      | x                                                                        | x     | x                                   | x     |
| HW requirements      | Loop start:<br><u>GEE8</u> ;<br>optiset E<br>telephone<br>with display | Loop start:<br><u>GEE12/16/50</u><br>optiset E telephone<br>with display |       | optiset E telephone<br>with display |       |
| SW requirements      | Rel. 1.0 or later                                                      |                                                                          |       |                                     |       |
| General requirements | Call detail information from the public network                        |                                                                          |       |                                     |       |

### Requirements and Conditions

| Subject              | Requirement or Condition                                                                    |
|----------------------|---------------------------------------------------------------------------------------------|
| Adapter in API2 mode | If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode. |

## **Configuration Options**

This feature does not have to be explicitly configured.

Use Hicom Assistant T or Hicom Assistant E Office to configure output to the U<sub>P0/E</sub> port.

## **Testing the feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                                                        |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Conduct a chargeable call.                                                                                                                           |
| 2.          | At the end of the call, enter *65 on your own telephone to display the charges, or display the charges for the station on the programming telephone. |

## **7.14.5 Call Detail Recording, Attendant (CDRA) (Not for U.S.)**

### **Definition**

The CDRA feature enables you to selectively record the call details for incoming and outgoing voice calls for which at least one call charge pulse has accumulated.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, *Call-Charge Display With Currency (Not for U.S.)*).

If a V.24 (RS-232) port was programmed for CDRA in the customer database, the call details are output to the printer. If the telephone is an optiset E telephone with display that has a programmed CDRA display key, the charges are also signaled on the station.

In Release 2.2 and later, you can also output the CDRA data to a U<sub>P0/E</sub> port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to **adapter**.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode (Rel. 2.2 or later) for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

CDRA provides the following data at the end of each call segment:

- Internal station number or name of the station.
- The external station number dialed (for outgoing calls) or the station number of the calling party (for incoming calls).
- Time (beginning of call) in hours, minutes, and seconds.
- Call duration in hours, minutes, and seconds.
- Amount due in local currency.



The data is entered at the beginning of each call segment and at the end of the call. Up to 20 call segments can be logged simultaneously. This data is stored in the system until it is output to the printer and deleted from the attendant console using a procedure. If an overflow occurs, the oldest entry is overwritten first. The stored data is lost if there is a power failure.

**Signals on the CDRA display key:**

- LED lights up continuously:  
New CDRA call details that have not yet been displayed are waiting.
- LED off:  
Either CDRA call details that have been displayed at least once are waiting, or no entry was made.

**Configuring a station as a pay phone (automatic CDRA):**

If an internal station is configured as a pay phone, all chargeable calls are automatically identified as CDRA calls. A call that is transferred to another station from the pay phone is logged as a CDRC or CDRA call, depending on how the pay phone is configured.

**Model-Specific Data**

| Subject                                    | Pro                                  | Com                                | Point | One | Start |
|--------------------------------------------|--------------------------------------|------------------------------------|-------|-----|-------|
| Feature available in                       | x                                    | x                                  | x     | x   | x     |
| HW requirements<br>(call detail recording) | Loop start:<br><u>GEE8</u>           | Loops start:<br><u>GEE12/16/50</u> |       | —   | —     |
| HW requirements<br>(telephone)             | optiset E telephone with display     |                                    |       |     |       |
| SW requirements                            | Rel 1.0 or later                     |                                    |       |     |       |
| General requirements                       | Call details from the public network |                                    |       |     |       |

**Requirements and Conditions**

| Subject      | Requirement or Condition                                                                                                          |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Call charges | Each call segment is assigned to the user who picked up the segment.                                                              |
| Conference   | In a conference, each external connection is recorded separately as a single segment.                                             |
| Pay phone    | A user can always display the call charges of only those call segments which were conducted from the assigned <i>pay phones</i> . |

| Subject              | Requirement or Condition                                                                    |
|----------------------|---------------------------------------------------------------------------------------------|
| Adapter in API2 mode | If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode. |

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Configure call charge factor          |
| 2.   | 11-4 => CDR - Call charge factor      |
| 3.   | Configure ISDN call charge factor     |
| 4.   | 11-5 => CDR - Call charge factor ISDN |
| 5.   | Configure currency designation        |
| 6.   | 11-6 => CDR - Currency                |
| 7.   | 11-8 => CDR - Pay phone               |

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                 |
|------|----------------------------------------|
| 1.   | <b>Configure CDRA</b><br>System status |
| 2.   | Call charges                           |
| 3.   | Output format                          |
| 4.   | Pay phone (if required)                |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                       |
|------|------------------------------------------------------------------------------|
| 1.   | Conduct a call from the <i>pay phone</i> .                                   |
| 2.   | At the end of the call, the LED on the <i>Display charges</i> key lights up. |

## 7.14.6 Call Detail Recording Per Trunk (CDRT) (Not for U.S.)

### Definition

The system has a cumulative memory function for call charge amounts accrued per trunk. One memory area is permanently assigned to each trunk.

A system telephone can display and delete the cumulative memory via the system administration. Call charge deletion requires confirmation. The current CDRT data can be printed out via system administration. The printout contains a list of CDRT data for all trunks connected to the system. The current CDRT data can be printed out on a printer connected to one of the V.24 (RS-232) interfaces on the system.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, *Call-Charge Display With Currency (Not for U.S.)*).

In Release 2.2 and later, you can also output the CDRT data to a U<sub>P0/E</sub> port. To do this, an optiset E control adapter, to which you can attach a printer or terminal, must be connected to this port. The system supports only one adapter per call data output. You can configure the output as follows:

- On the communications server, set call data output to **adapter**.
- Enter the telephone number.
- If only one optiset E control adapter is connected, you can choose any slot in the telephone.
- If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode (Rel. 2.2 or later) for call data output. The other adapter is used in API1 or API2 mode.
- The transmission rate is permanently set to 9600 baud.

In Release 3.0 and later, you can transfer CDRT data to external applications via the LAN interface (Ethernet) (for more information, refer to Chapter 13).

## Model-Specific Data

| Subject              | Pro                                                                  | Com                                                                      | Point    | One                                 | Start    |
|----------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------|----------|-------------------------------------|----------|
| Feature available in | <b>x</b>                                                             | <b>x</b>                                                                 | <b>x</b> | <b>x</b>                            | <b>x</b> |
| HW requirements      | Loop start:<br><u>GEE8</u><br>optiset E<br>telephone<br>with display | Loop start:<br><u>GEE12/16/50</u><br>optiset E telephone<br>with display |          | optiset E telephone<br>with display |          |
| SW requirements      | Rel 1.0 or later                                                     |                                                                          |          |                                     |          |
| General requirements | Call details from the public network                                 |                                                                          |          |                                     |          |

## Requirements and Conditions

| Subject              | Requirement or Condition                                                                    |
|----------------------|---------------------------------------------------------------------------------------------|
| Adapter in API2 mode | If an optiset E control adapter is in API2 mode, you cannot switch it to Printer Pipe mode. |

## Configuration Options

This feature does not have to be explicitly configured.

Use Hicom Assistant T or Hicom Assistant E Office to configure output to the U<sub>P0/E</sub> port.

## Configuring the Feature Using Hicom Assistant T

Configure output to the U<sub>P0/E</sub> port using Hicom Assistant T as follows:

| Step | Action                                                                     |
|------|----------------------------------------------------------------------------|
| 1.   | <b>Configure CDRT output to U<sub>P0/E</sub> port</b>                      |
| 2.   | 22-13-2-3 => System settings - V.24 configuration - Port assignment - CDRT |

**Configuring the Feature Using Hicom Assistant E Office**

Configure output to the U<sub>P0/E</sub> port using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                                          |
|-------------|------------------------------------------------------------------------|
| 1.          | <b>Configure CDRT output to U<sub>P0/E</sub> port</b><br>System status |
| 2.          | Call charges                                                           |
| 3.          | Output format                                                          |
| 4.          | CDRT (select U <sub>P0/E</sub> port)                                   |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                     |
|-------------|-------------------------------------------------------------------|
| 1.          | Conduct a chargeable call.                                        |
| 2.          | Display the call charges for the trunk from the system telephone. |

## 7.14.7 Account Code (ACCT)

### Definition



The account code feature is used together with central call detail recording (CDRC).

This feature enables you to assign call charges for a specific project to an account code so that call charges for specific projects can be printed out.

Users can enter an ACCT from any station.

ACCT offers two procedures and three options:

#### Procedures:

- Mandatory ACCT:**  
 Users must enter an ACCT before the start of a call (after a trunk group is seized). For incoming calls, the ACCT entry is optional. The system applies the ACCT according to the option selected. If least cost routing is active, a flag in the dial plan signals that you need to enter an ACCT after the access code. The system treats this input as a “mandatory ACCT”.

**Up to and including Release 2.0, the following applies:**

|                    | LCR Active                                                     |                                                               | LCR Inactive             |
|--------------------|----------------------------------------------------------------|---------------------------------------------------------------|--------------------------|
|                    | Mandatory Dial Plan<br>(35-8-3)<br>Mandatory ACCT<br>TG (13-3) | Mandatory Dial Plan<br>(35-8-3)<br>Optional ACCT TG<br>(13-3) | Mandatory ACCT<br>TG Set |
| <b>ENB</b>         | ACCT requested                                                 | ACCT not requested                                            | ACCT requested.          |
| <b>SSD</b>         |                                                                |                                                               |                          |
| <b>ISD</b>         |                                                                |                                                               |                          |
| <b>Redial</b>      |                                                                |                                                               |                          |
| <b>Caller list</b> |                                                                |                                                               |                          |
| <b>DSS key</b>     |                                                                |                                                               |                          |

If you configure two trunk group codes (business and personal) for LCR and want the ACCT to be requested for both trunk groups (see table above), you must set up a separate path table containing a second trunk group for the second trunk group code. Program an overflow to trunk group 1 for this trunk group.

Set the ACCT option for trunk group 2 to “mandatory”. Otherwise, the system will not request the ACCT (for example, when using number redial) before the call, no matter whether you are placing a business or personal call.

**As of Release 2.2, the following applies:**

|                    | <b>LCR Active</b>                       | <b>LCR Inactive</b>          |
|--------------------|-----------------------------------------|------------------------------|
|                    | <b>Mandatory Dial Plan<br/>(35-8-3)</b> | <b>Mandatory ACCT TG Set</b> |
| <b>ENB</b>         | ACCT requested                          | ACCT requested               |
| <b>SSD</b>         |                                         |                              |
| <b>ISD</b>         |                                         |                              |
| <b>Redial</b>      |                                         |                              |
| <b>Caller list</b> |                                         |                              |
| <b>DSS key</b>     |                                         |                              |

As of Release 2.2, a mandatory ACCT can be defined in the dial plan (LCR).l

- **Optional ACCT:**  
Users can enter an optional ACCT from any telephone before the start of a call. During an incoming or outgoing call, users can enter the ACCT from Upn telephones only. You can enter an ACCT during a call from optiset E entry and optiset E basic telephones only if the ACCT feature was programmed on a key or if automatic DSS system-wide has been turned off.

### **Options:**

- **ACCT not checked:**  
The system does not check for an ACCT, which means you can enter an 11-digit ACCT. If the ACCT is less than 11 digits long, press # to mark the end of the procedure. If the ACCT is 11 digits long, you can dial another number immediately afterward (depending on the option, you need to enter the trunk group code or the station number).

On analog (DP) and ISDN telephones, the “not checked” option can be used only if the ACCT is 11 digits long. Otherwise, the system will not complete dialing. You cannot use the # key or the substitution code to mark the end of input on these telephones.

- **ACCT list checked:**  
The system checks the ACCT against a list of verifiable ACCTs and accepts only valid entries. You can enter 11-digit ACCTs in the list. After entering a valid ACCT, you can dial another number immediately (depending on the option, you need to enter the trunk group code or the station number). Do not press # to mark the end of the input. The system rejects invalid ACCTs by outputting a negative confirmation tone.

- **Number of ACCT digits checked:**  
The system checks an ACCT entry only to determine the number of digits. The number of digits (11 max.) to be checked is set in the system. After the system checks the number of ACCT digits, you can dial another number immediately (depending on the option, you need to enter the trunk group code or the station number).

Account codes are not printed out of call detail recording (CDRC) if the RS-232 output is connected directly to a printer because the printer format does not have a sufficient number of columns. However, if a call-accounting device is used, the compressed format of CDRC will include the account code information.

The ACCT is assigned to all subsequent parts (even if transferred or forwarded to another station) of the current call for CDRC.

There are 1000 possible account code entries; only digits 0-9 are allowed in an account code number.

If an optiset E user finds that during a call the current account code applied to a call is incorrect or that a different account code is needed, the user can enter a different code number. The system will overwrite the currently flagged account code. CDRC sends a call record after each segment; therefore, previously completed call segments will be identified with the old account code number.

The *non-verified* and *forced* parameters determine, per trunk group, whether an account code is optional (non verified) or mandatory (forced). There are 16 possible trunk groups for the OfficeCom and OfficePro systems, and eight for the OfficePoint system. The default setting is *non-verified* (optional).



If you select forced for a trunk group, all stations using that trunk group are required to use account codes to dial out. If you want some users to use account codes and other users not to use account codes, you need to program different trunk groups.

With the *Check number of characters* option, the contents of the account code number are not checked. You determine how many digits are permitted by using the drop-down list box *Characters to be checked* in Hicom Assistant E Office, or *Code Length* in Hicom Assistant T. The number of digits checked can be from one to eleven digits.



**Model-Specific Data**

| <b>Subject</b>                | <b>Pro</b>       | <b>Com</b> | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b> | <b>Start<br/>(not for<br/>U.S.)</b> |
|-------------------------------|------------------|------------|--------------|-----------------------------------|-------------------------------------|
| Feature available in          | <b>x</b>         | <b>x</b>   | <b>x</b>     | <b>x</b>                          | <b>x</b>                            |
| HW requirements               | —                | —          | —            | —                                 | —                                   |
| SW requirements               | Rel 1.0 or later |            |              |                                   |                                     |
| Number of ACCTs in the system | 1000             | 1000       | 1000         | 1000                              | 1000                                |
| Max. length of ACCT           | 11               | 11         | 11           | 11                                | 11                                  |

**Requirements and Conditions**

| <b>Subject</b>                       | <b>Requirement or Condition</b>                                                                                                                                                                                                                            |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DISA, external CF, callback, transit | The system does not query the mandatory ACCT.                                                                                                                                                                                                              |
| Electronic notebook (ENB)            | You can program ACCT code + ACCT + station number in the ENB.                                                                                                                                                                                              |
| Conference                           | An ACCT entered during a conference with external station is assigned to all participating calls and trunks.                                                                                                                                               |
| Least cost routing (LCR)             | Mandatory ACCT is possible with or without LCR.                                                                                                                                                                                                            |
| Telephones                           | Users of telephones without displays must dial the seizure code after the ACCT.<br>On system telephones with displays, a prompt to enter the ACCT appears on the screen.                                                                                   |
| S <sub>0</sub> telephones            | If the unchecked ACCT option is selected on S <sub>0</sub> telephones, you must always enter the full number of digits (you cannot press #).<br>If the ACCT is checked, or a fixed number of digits is entered, the system detects the end of the ACCT.    |
| ACCT while on a call                 | Only optiset E users can enter an account code while engaged in a call.                                                                                                                                                                                    |
| When to enter ACCT                   | You can enter an account code from any type of terminal (optiset E, analog) before the call begins (before line seizure). Only an optiset E telephone (includes Hicom Attendant P) can enter an account code during an incoming or outgoing external call. |

| Subject                | Requirement or Condition                                                                                                                                                                                                                                                                                                                                                         |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>No check</i> option | This option is not possible if there are trunk groups flagged with the <i>forced</i> (mandatory) entry procedure. That is, the parameter <i>forced</i> and the option <i>No check</i> are mutually exclusive.                                                                                                                                                                    |
| Invalid entry          | If the ACCT entry is incorrect, the user sees the display <i>Invalid entry</i> and the call is dropped.                                                                                                                                                                                                                                                                          |
| Non-display telephones | If an account code is required, the user hears silence after dialing the trunk group access code. If the user does not dial an account code within 30 seconds (this timer is not variable), the user receives a busy tone, and the call is dropped. If the correct entry is made, confirmation tone (three short bursts of tone) is heard and the user can proceed with dialing. |

## Operating the Feature

Refer to *Project Calls* operating instructions for information on operating this feature (available as electronic documentation for optiset E telephones). For a list of additional Hicom 150 E Office documentation, refer to [Table 1-1, List of Available Documentation for Hicom 150 E Office \(status May 30, 2000\)](#).

## Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                                        |
|------|-----------------------------------------------------------------------------------------------|
| 1.   | Configure ACCT                                                                                |
| 2.   | 13-1 => Account code - Code entries                                                           |
| 3.   | 13-2 => Account code - Verification mode                                                      |
| 4.   | 13-3 => Account code - Trunk group mode                                                       |
| 5.   | 13-4 => Account code - Code length                                                            |
| 6.   | Additional step if LCR is active and mandatory ACCT is used:<br>35-8-3 => Account code - Line |

## Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                                        |
|------|-----------------------------------------------------------------------------------------------|
| 1.   | Configure ACCT<br>System status                                                               |
| 2.   | Call charges                                                                                  |
| 3.   | Project codes                                                                                 |
| 4.   | Additional step if LCR is active and mandatory ACCT is used:<br>35-8-3 => Account code - Line |

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                             |
|------|----------------------------------------------------|
| 1.   | Configure <i>mandatory ACCT</i> .                  |
| 2.   | You cannot seize a trunk until you enter the ACCT. |

## 7.14.8 Call Detail Recording Central (CDRC)

### Definition

The Hicom 150 E Office can transmit consecutive call detail recording central (CDRC) information for each call segment completed or for each incoming call to a connected device. The device is normally a PC for analyzing the received data or a printer.

Call charge pulses are converted to monetary amounts on the basis of the call charge factor defined as a currency amount (including any extra charges that may apply) per call charge unit or pulse (refer to Section 7.14.11, *Call-Charge Display With Currency (Not for U.S.)*).

The following options are available for exporting the data to an external output device:

- Application programming interface (V.24) (RS-232)  
CDRC data is exported to call detail recording applications such as Teledata.
- PC attendant console port  
Users can also forward the CDRC data to a Hicom Attendant P Office (PC attendant console port). This transfers the call data to the Charge.dat file, which is created or updated whenever a new record is entered. You can use software to evaluate this data. The PC attendant console supports the optiset E control adapter, optiset E data adapter, and U<sub>P0/E</sub> card.
- U<sub>P0/E</sub> port (Release 2.2 or later)  
An optiset E control adapter, to which you can attach a printer or PC, must be connected to the U<sub>P0/E</sub> port. The system supports only one adapter per call data output. You can configure the output as follows:
  - On the communications server, set call data output to **adapter**.
  - Enter the telephone number.
  - If only one optiset E control adapter is connected, you can choose any slot in the telephone.
  - If two optiset E control adapters are connected, set the right adapter to Printer Pipe Mode (Rel. 2.2 or later) for call data output. The other adapter is used in API1 or API2 mode.
  - The transmission rate is permanently set to 9600 baud.
- LAN interface (Ethernet)  
As of Release 3.0, CDRC data can be exported to external applications via the LAN interface (Ethernet) (for more information, refer to Chapter 13).

The CDRC output can be in two different formats:

- Compressed format (via V.24 / via LAN) for PC or call charge computer  
The system outputs all data (including ACCT) without separating spaces, without headers, and without form feed. Call charge pulses, call charge amounts or arithmetic units are output.
- Long format for printer  
The system outputs all data (except ACCT) separated by spaces, with header (in the language selected for the system) and form feed. The call charge amount is output.

The following rules apply to the line format:

- The carriage return (CR) and line feed (LF) control characters are transmitted at the end of each record.
- Data not supplied and unused fields are filled with spaces.
- In compressed format, the data output is consecutive. No form feed (FF) is transmitted.
- In long format, each page contains a one-line header followed by a blank line. After 62 characters are printed, a form feed automatically executes.

The output contains the following information:

- Date (at end of call), 8 characters
- Time (at end of call), 8 characters
- Number of seized trunk, 3 characters
- Internal station number (max. 6 digits)
- Incoming ring duration
- Call duration, 5 characters
- External station number (up to 25 digits if available)
- Call charge pulse/amount, 11 characters (blank in U.S.)
- Additional information (such as incoming call, outgoing call, transferred call, conference, DISA, call setup charges), 2 characters

The following data is always compressed prior to output:

- ACCT (up to 11 digits)
- MSN used (up to 11 digits for multi-device connections)
- LCR access code (trunk access code, 6 digits)
- LCR route used (path table, 2 digits)

- Additional data in U.S.:
  - PRI Nodal Service
  - PRI WATS band
  - PRI Carrier Identification Code

Information element—contains the following call information:

- Incoming connection, voice/3.1kHz audio
- Outgoing connection, voice/3.1kHz audio.
- Incoming connection, other services
- Outgoing connection, other services
- Incoming connecting forwarded
- Outgoing connection forwarded
- Int/ext/ext conference with incoming connection/transit through external transfer
- Conference with outgoing connection/transit through external transfer
- Outgoing connection via call forwarding to external destination

Call information is output immediately when an incoming call is received—only used in external applications.

The above information elements have a special designation if DISA was involved in the call.

### **Options**



All fields are predefined and cannot be changed except for the options mentioned in this section.

- The last four digits of the destination number can be suppressed in the call record. If selected, the last four spaces are filled with the symbol ?.
- The Call Duration field can be suppressed from the record. If selected, this field is blank.
- Incoming calls can be recorded. The default value is *No* (only outgoing calls are recorded).
- A call record is started as soon as an incoming call starts ringing into the system.
- Other configurable parameters: which RS-232 port is to be used for the CDRC output and the baud rate (2400, 9600, or 19200).

**Model-Specific Data**

| Subject                  | Pro                           | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|--------------------------|-------------------------------|-----|-------|--------------------------|----------------------------|
| Feature available in     | x                             | x   | x     | x                        | x                          |
| SW requirements          | Rel 1.0 or later              |     |       |                          |                            |
| General requirements     | Printer, call charge computer |     |       |                          |                            |
| Number of calls buffered | 300                           | 150 | 50    | 50                       | 50                         |

**Requirements and Conditions**

| Subject                         | Requirement or Condition                                                                                                                                                                   |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PC/printer failure, buffer full | If the connected device fails, some records are buffered in the system and transmitted when the device is reactivated. If the buffer is full, all additional data records are lost.        |
| Timer for analog trunks         | A system pseudo-answer timer ( <i>Artificial End-of-Dial</i> ) is used when the call is placed over analog trunks without answer supervision to determine the beginning of the call record |

**Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                        |
|------|-------------------------------------------------------------------------------|
| 1.   | Configure CDRC                                                                |
| 2.   | 11-3-1 => CDR - CDR, central - Print format                                   |
| 3.   | 11-3-2 => CDR - CDR, central - Stn. number format                             |
| 4.   | 11-3-3 => CDR - CDR, central - Incoming call                                  |
| 5.   | 11-3-4 => CDR - CDR, central - Call duration                                  |
| 6.   | 11-3-5 => CDR - CDR, central - Print MSN                                      |
| 7.   | Configure port for CDRC<br>22-13- 2-1 => 1 to 3 System settings - CDR central |

| Step | Action                                                  |
|------|---------------------------------------------------------|
| 8.   | Set baud rate<br>22-13-1 => System settings - Baud rate |

### **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                          |
|------|---------------------------------|
| 1.   | Configure CDRC<br>System status |
| 2.   | Call charges                    |
| 3.   | Output format                   |

### **Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                                  |
|------|-------------------------------------------------------------------------|
| 1.   | Conduct a chargeable call                                               |
| 2.   | The call charge details are transferred to the V.24 (RS-232) interface. |



### Output formats

- Compressed Output Format for Call Details – Output via Application Programming Interface (V.24) (RS-232)

```

-----
0          1          2          3          4          5          6          7          8          9          0          1
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
-----
1 Date (8 characters)
|
| 2 Time (8)
|   |
|   | 3 Trunk (3)
|   |   |
|   |   | 4 Internal station number (6)
|   |   |   |
|   |   |   | 5 Ring duration (5)
|   |   |   |   |
|   |   |   |   | 6 Call duration (8)
|   |   |   |   |   |
|   |   |   |   |   | 7 Station number (25)
|   |   |   |   |   |   |
|   |   |   |   |   |   | 8 Call charge pulses (11) (blank in U.S.)
|   |   |   |   |   |   |   |
|   |   |   |   |   |   |   | 9 Information element (2)
|   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   | 10 ACCT (11)
|   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   | 11 MSN (11)
|   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   | 12 Seizure code (5)
|   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   | 13 LCR route (2)
|   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   | ...
|   |   |   |   |   |   |   |   |   |   |   |   | ...
V       V       V V       V       V       V       V       V       V       V       V       V       V       V
11.12.9308:23:23 4    16    00:05:2302317324856    12 2    902725 841    (1)
11.12.9309:12:45 3    18    00:01:23834756    34 212345678901    2    (2)
11.12.9309:25:34 2    1100:34    1    (3)
11.12.9310:01:46 1    12    00:12:5383726639046287127384    5 2
11.12.9310:03:42 2    14    05:42:4338449434444495598376    245 2
11.12.9310:23:24 2    15    00:02:221234567890123412????    83 2    (4)
11.12.9311:12:45 3    18    00:01:23834756    34 2
12.12.9312:23:34 3    1200:1500:03:12    1    (5)
12.12.9312:23:50 4    11    00:03:583844733399    7 2
12.12.9313:23:54 3    17    00:02:233844733399    8 5    (6)
12.12.9314:05:24 3    18    00:01:23834756    31 2
12.12.9314:38:43 2    12    00:03:242374844    63 2    (7a)
12.12.9314:43:33 3    12    00:00:255345545556    5 2    (7b)
12.12.9314:44:12 2    12    00:12:122374844    12 8    (7c)
12.12.9314:44:12 3    12    00:12:125345545556    10 8    (7d)
12.12.9314:56:24 2    12    00:23:462374844    84 2    (7e)
13.12.9309:43:52 1    5    00:01:0539398989983    76 4    (8)
14.12.9312:23:34 1    600:1400:02:3427348596872347569036    3    (9)
** 100 calls lost **    (10)
15.12.9309:44:34 4    15    00:02:12189????    23 2
15.12.9309:56:33 3    14    00:05:451283394495    28 2
15.12.9312:20:26 1    12    0230298007766    0    (11a)
15.12.9312:23:34 1    1200:3400:02:340230298007766    1    (11b)
15.12.9313:43:25 3    15    00:05:2408972212345    1    (12a)
15.12.9313:43:25 4    15    00:05:240231471154321    74 9    (12b)
15.12.9313:45:28 4    18    0230298007252    0    (13a)
15.12.9313:45:28 4    32    0230298007252    0    (13a)
15.12.9313:45:28 4    16    0230298007252    0    (13a)
15.12.9313:46:18 4    1600:50    0230298007252    1    (13b)
01.01.9500:00:00 8    23 2    (14)

```

Explanation of the sample entries shown on page 7-441:

- (1) Outgoing connection from stn 16 on trunk 4 using the MSN "902725". End of call at 8:23:23 on 12/11/93. Duration of the call: 5 minutes, 23 seconds. Called number: 02317324856. Accrued call charge pulses (blank in U.S.): 12. The seizure code "841" was used for call setup.
- (2) Outgoing connection with 11-digit account code (ACCT) "12345678901". Route "2" was used for LCR.
- (3) Unanswered incoming call without station number (missing origin address, active station number suppression CLIR at calling station).
- (4) Outgoing connection with suppression of the last 4 digits.
- (5) Incoming connection with ringing and call duration.
- (6) Forwarded call.
- (7) Int/ext/ext conference:
  - (7a) Stn 12 sets up a first external call on trunk 2 ("2374844"),
  - (7b) Stn 12 sets up a second external call on trunk 3 ("5345545556"),
  - (7c) Stn 12 is involved in a conference with trunk 2 and
  - (7d) with trunk 3.
  - (7e) Trunk 3 drops out of the conference. The call on trunk 2 is treated like a normal outgoing call.
- (8) Outgoing connection (other services).
- (9) Incoming connection (other services).
- (10) Loss message: 100 records were lost.  
Due to a problem such as the following:
  - Connected device is turned off or suffers a power failure
  - Printer is out of paper
  - Printer is offline
  - Printer has a paper jam
  - CDRC output is interrupted by CDB output
  - Interface cable is defective or incorrectIn these or similar cases, the call records accumulated during this time are buffered in the system. The first 300 (OfficePro), 150 (OfficeCom) or 50 (OfficePoint and OfficeOne [not for U.S.]) records can be buffered. Additional records are only counted by the system and then discarded. If the connection can be restored to the connected device, a loss message indicating the number of lost records (that is, 100 calls lost) is issued after the buffered records are output.

- (11) Incoming call with transmitted caller station number:
  - (11a) Caller list: When the call arrives, an information line is immediately output indicating the date, time, trunk, station number, incoming external station number (if available), and information element "0" (used, for example, with a PC: start database search -> message appears on station's monitor).
  - (11b) Station 12 accepted the call after a ringing duration of 34 seconds. This line is output at the end of the call.
- (12) Call forwarding with an external destination:
  - (12a) Incoming call for station 15 on trunk 3 with transmitted station number, no ringing duration due to call forwarding (see 12b),
  - (12b) Call forwarded (12a) to trunk 4 for station number 0231471154321, 74 call charge pulses (not for U.S.) have accrued for the forwarded call.
- (13) Incoming call to subscriber group (stations 18, 32, and 16):
  - (13a) The three entered stations are called simultaneously; they are listed in the order in which they were entered in the group (the second station is listed first).
  - (13b) The call was not accepted by any group member. After the call has ended, a line is output indicating the ringing duration for the last called or entered station.
- (14) Output after a power failure or reset: 23 call detail units on trunk 8 were present before the power failure.

When a power failure or reset occurs, the call charges accrued for each trunk are stored in nonvolatile system memory (CDRT). The system checks for consistency between the output and internally stored data following a power failure or system restart. The system also checks to determine whether call charges are still stored that have not yet been output via the V.24 (RS-232) interface. If this is the case, the system outputs a data line using the format illustrated in the example (14) for each affected trunk: (output does not include station number).

● Compressed Output Format for Call Details – Output via LAN Interface

```
-----
0          1          2          3          4          5          6          7          8          9          1          1
123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
-----
1 Date (8 characters)
|
| 2 Time (8)
|
| 3 Trunk (3)
| 4 Internal station number (6)
| 5 Ring duration (5)
| 6 Call duration (8)
| 7 Station number (25)
| 8 Call charge pulses (11) (blank in U.S.)
| 9 Information element (2)
| 10 ACCT (11)
| 11 MSN (11)
| 12 Seizure code (5)
| 13 LCR route (2)
| ...
| ...
V          V          V V V V          V          V V V          V          V V
13.12.99;08:23:23;4;16;;00:05:23;02317324856;12;2;12345678901;902725;841;;
-----
```



Call detail records can be output via a LAN interface using two different settings:

- DOS mode (carriage return (CR), line feed (LF)) = default or UNIX mode (line feed (LF)) at the end of a call data record.
- Separators (“;” = default or “|”) between the logical elements of a call data record; the record is no longer position-oriented.

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 1 of 6)

| Field position | Fields (V.24 output only) | Definition                                                                                                                                                                      | Number of characters | Orientation |
|----------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| 1              | 1 to 8                    | Date at end of call: DD.MM.YY<br>(DD = day, MM = month, YY = year)                                                                                                              | 8                    | Left        |
| 2              | 9 to 16                   | Time at end of call segment or an unanswered incoming call: hh:mm:ss<br>(hh = hours: value range 00 - 23, mm = minutes: value range 00 - 59, ss = seconds: value range 00 - 59) | 8                    | Left        |
| 3              | 17 to 19                  | Trunk: Trunk number<br>Value range 1 - 120                                                                                                                                      | 3                    | Right       |

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 2 of 6)

| <b>Field position</b> | <b>Fields (V.24 output only)</b> | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Number of characters</b> | <b>Orientation</b> |
|-----------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------|
| 4                     | 20 to 25                         | <p>Station: Internal station number<br/> Value range: 000000 - 999999 (missing digits are replaced by spaces.)<br/> In the case of unanswered calls, this is the last station called (as in a hunt group, call forwarding, call forwarding—no answer).<br/> With group call, this is the last station entered. In the case of answered calls, it is the station that accepted the call. A programmed SNO prefix (with networking only) is not output.<br/> If the internal numbering was converted to a maximum 6-digit numbering plan, the converted station number is output.</p> | 6                           | Right              |
| 5                     | 26 to 30                         | <p>Ringing duration of an incoming external call: mm:ss<br/> (mm = minutes: value range 00 - 59, ss = seconds: value range 00 - 59)<br/> The system displays all incoming calls as long as the output of ringing duration has been configured in the system. If a counter overflow occurs (duration &gt; 59:59), "59:59" is output. A change in date or time during system operation can result in this situation.</p>                                                                                                                                                              | 5                           | Left               |
| 6                     | 31 to 38                         | <p>Duration of the call or call segment: hh:mm:ss<br/> (hh = hours: value range 00 to 23, mm = minutes: value range 00 to 59, ss = seconds: value range 00 to 59)<br/> If a connection has not been established for an incoming call, 8 spaces are output here.<br/> If a counter overflow occurs (duration &gt; 23:59:59), "23:59:59" is output.</p>                                                                                                                                                                                                                               | 8                           | Left               |

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 3 of 6)

| Field position | Fields (V.24 output only) | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Number of characters | Orientation |
|----------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| 7              | 39 to 63                  | <p>Dialed or received external station number (if available):<br/>                     nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn<br/>                     (n = dialed or received characters: value range: 0 - 9, *, #, ?)<br/>                     Output occurs for incoming and outgoing calls (if available). With outgoing calls, the dialed station number or, if available, the station number transmitted via COLP is displayed. In the case of an active data protection function, the last four digits dialed are replaced by the symbols ?????. If no station number information is available, 25 spaces are output.</p> | 25                   | Left        |

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 4 of 6)

| Field position      | Fields (V.24 output only)                       | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Number of characters | Orientation        |  |      |         |        |                                                 |                                             |         |                                              |                                        |    |       |
|---------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------|--|------|---------|--------|-------------------------------------------------|---------------------------------------------|---------|----------------------------------------------|----------------------------------------|----|-------|
| 8                   | 64 to 74                                        | <p>Call charge pulses for a call segment: zzzzzzzzzz (blanks in U.S.)<br/>(z = digit: value range 0 - 9)<br/>Up to and including Release 2.0: Generally, call charge amounts are output in Austria.<br/>As of Release 2.2, you can select either call charge pulses or call charge amounts.</p> <p>Use the call charge factor, which is defined as a currency amount (including a mandatory surcharge) for each call charge unit or pulse, to convert call charge pulses to monetary amounts (see <u>Section 7.14.11, Call-Charge Display With Currency (Not for U.S.)</u>).<br/>Setting the call charge factor:</p> <ul style="list-style-type: none"><li>● With calculation detail: call charge factor = 100% + mandatory surcharge</li><li>● Without calculation detail: call charge factor = amount/unit + mandatory surcharge</li></ul> <p>Hicom records the call charges with or without a surcharge depending on the calculation detail (<u>Section 7.14.11</u>):</p> <table><tr><th rowspan="2">Call Charge Display</th><th colspan="2">Calculation Detail</th></tr><tr><th>With</th><th>Without</th></tr><tr><td>Pulses</td><td>Hicom arithmetic units output without surcharge</td><td>Call charge pulses output without surcharge</td></tr><tr><td>Amounts</td><td>Hicom arithmetic units output with surcharge</td><td>Monetary amounts output with surcharge</td></tr></table> <p>The system outputs the data whenever charges accrue for the call segment (even when calls are transferred). If no call charge information is available, these 11 positions remain blank.</p> | Call Charge Display  | Calculation Detail |  | With | Without | Pulses | Hicom arithmetic units output without surcharge | Call charge pulses output without surcharge | Amounts | Hicom arithmetic units output with surcharge | Monetary amounts output with surcharge | 11 | Right |
| Call Charge Display | Calculation Detail                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                    |  |      |         |        |                                                 |                                             |         |                                              |                                        |    |       |
|                     | With                                            | Without                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                      |                    |  |      |         |        |                                                 |                                             |         |                                              |                                        |    |       |
| Pulses              | Hicom arithmetic units output without surcharge | Call charge pulses output without surcharge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                      |                    |  |      |         |        |                                                 |                                             |         |                                              |                                        |    |       |
| Amounts             | Hicom arithmetic units output with surcharge    | Monetary amounts output with surcharge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                      |                    |  |      |         |        |                                                 |                                             |         |                                              |                                        |    |       |

Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 5 of 6)

| Field position | Fields (V.24 output only) | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Number of characters | Orientation |
|----------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| 9              | 75 to 76                  | <p>Information element: additional information<br/>Value range: 0 - 9<br/>Meaning:</p> <ul style="list-style-type: none"> <li>1 = Incoming connection (voice/ 3.1 kHz audio call)</li> <li>2 = Outgoing connection (voice/ 3.1 kHz audio call)</li> <li>3 = Incoming connection (other services)</li> <li>4 = Outgoing connection (other services)</li> <li>5 = Incoming connection forwarded</li> <li>6 = Outgoing connection forwarded</li> <li>7 = Int/ext/ext conference with incoming connection/transit through external transfer</li> <li>8 = Conference with outgoing connection/transit through external transfer</li> <li>9 = Outgoing connection via call forwarding to an external destination</li> <li>0 = Call information (caller list) is output immediately when an incoming call is received (output can be suppressed). This can be used, for instance, for a database search by a PC. When multiple stations are called, a line is output for each individual station (without ring duration, call duration, call detail information).</li> <li>+50 = In each case, the offset as a code for DISA calls</li> <li>+20 = In each case, the offset as a code for call setup charges</li> </ul> | 2                    | Right       |
| 10             | 77 to 87                  | <p>Account code (ACCT) entered by the user for this call: pppppppppppp<br/>(p = ACCT digit: value range 0 - 9)<br/>If an ACCT has not been entered, 11 spaces are output. If the ACCT is shorter than 11 digits, the remaining characters are filled with spaces.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 11                   | Left        |



Table 7-11 Compressed Output Format—Explanation of Output Fields (Sheet 6 of 6)

| Field position | Fields (V.24 output only) | Definition                                                                                                                                                                                                                                                                                                | Number of characters | Orientation |
|----------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| 11             | 88 to 98                  | MSN used: mmmmmmmmmmm<br>(m = MSN digit: value range 0 - 9)<br>Information is displayed if the user has programmed an MSN key. Non-existent characters are replaced by spaces. If MSN information is not available (as in a point-to-point connection), 11 spaces are output instead of these characters. | 11                   | Right       |
| 12             | 99 to 103                 | Seizure code used, access code: bbbbb<br>(b = digit of the seizure code: value range 0 - 9)<br>Non-existent characters are replaced by spaces.                                                                                                                                                            | 5                    | Right       |
| 13             | 104 to 105                | LCR route used: rr<br>(r = digit of the dialed route: value range 0 - 9)<br>Non-existent characters are replaced by spaces.                                                                                                                                                                               | 2                    | Right       |
| 14             | 106 to 107                | PRI nodal service: nn<br>(n = digit: value range 0 - 9)<br>Non-existent characters are replaced by spaces.                                                                                                                                                                                                | 2                    | Right       |
| 15             | 108                       | PRI WATS band: w<br>(w = digit: value range 0 - 9)<br>If no information is available, a space is output.                                                                                                                                                                                                  | 1                    | —           |
| 16             | 109 to 112                | PRI Carrier Identification Code (CIC): cccc<br>(c = CIC digit: value range 0 - 9)<br>Non-existent characters are replaced by spaces.                                                                                                                                                                      | 4                    | Right       |
| 14             | 106 to 107                | U.S.-specific fields are filled with blanks in other countries.                                                                                                                                                                                                                                           | 2                    | Right       |
| 15             | 108                       |                                                                                                                                                                                                                                                                                                           | 1                    | —           |
| 16             | 109 to 112                |                                                                                                                                                                                                                                                                                                           | 4                    | Right       |
| 17             | 113 to 114                | End of line control character<br>(carriage return [CR], line feed [LF])                                                                                                                                                                                                                                   | 2                    | —           |

- Long Output Format for Call Data



The header in the long output format ([Figure 7-13](#)) is output in the language used across the system.  
 After 62 lines have printed (including header), a form feed (FF) is carried out and the next page begins with a header.

---

| Date     | Time     | Trk | Stn | Call  | Duration | Station number       | Amount | I |
|----------|----------|-----|-----|-------|----------|----------------------|--------|---|
| 11.12.93 | 08:23:23 | 4   | 16  |       | 00:05:23 | 02317324856          | 20,23  | 2 |
| 11.12.93 | 09:12:45 | 3   | 18  |       | 00:01:23 | 834756               | 0,69   | 2 |
| 11.12.93 | 09:25:34 | 2   | 11  | 00:34 |          |                      |        | 1 |
| 11.12.93 | 10:01:46 | 1   | 12  |       | 00:12:53 | 83726639046287127384 | 413,69 | 2 |

---

Table 7-12 Long output format - explanation of output fields

| Field          | Fields   | Definition                                                                                                                                                                                                                                                                                                                                                             | Number of characters | Orientation |
|----------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| Date           | 1 to 8   | See <a href="#">Table 7-11</a> , <a href="#">Field position 1</a>                                                                                                                                                                                                                                                                                                      | 8                    | Left        |
| Time           | 10 to 17 | See <a href="#">Table 7-11</a> , <a href="#">Field position 2</a>                                                                                                                                                                                                                                                                                                      | 8                    | Left        |
| Trk            | 19 to 21 | See <a href="#">Table 7-11</a> , <a href="#">Field position 3</a>                                                                                                                                                                                                                                                                                                      | 3                    | Right       |
| Stn            | 23 to 28 | See <a href="#">Table 7-11</a> , <a href="#">Field position 4</a>                                                                                                                                                                                                                                                                                                      | 6                    | Right       |
| Call           | 30 to 34 | See <a href="#">Table 7-11</a> , <a href="#">Field position 5</a>                                                                                                                                                                                                                                                                                                      | 6                    | Left        |
| Duration       | 36 to 43 | See <a href="#">Table 7-11</a> , <a href="#">Field position 6</a>                                                                                                                                                                                                                                                                                                      | 8                    | Left        |
| Station number | 45 to 64 | Dialed or, if available, the received external station number:nnnnnnnnnnnnnnnnnnnnnn<br>(n = dialed or received character: value range 0 - 9, *, #, ?)<br>See also <a href="#">Table 7-11</a> , <a href="#">field position 7</a>                                                                                                                                       | 20                   | Left        |
| Amount         | 66 to 76 | Call charge amount for a call segment:<br>zzzzzzzzzzzz (blank spaces in U.S.)<br>(z = digit: value range 0 - 9)<br>Output always occurs when call charges accrue for the call segment (even with transferred calls). If no call detail information is available, these 11 characters are filled with spaces. A comma (,) separates the amount from the decimal places. | 11                   | Right       |
| I              | 78 to 79 | See <a href="#">Table 7-11</a> , <a href="#">field position 9</a>                                                                                                                                                                                                                                                                                                      | 2                    | Right       |
| —              | 80 to 81 | End of line control character<br>(carriage return [CR], line feed [LF])                                                                                                                                                                                                                                                                                                | 2                    | —           |

## 7.14.9 Toll Fraud Monitoring

### Definition

This feature can provide the customer with protection against toll fraud.

In the case of trunk-to-trunk connections, the customer can detect a possible fraudulent use by monitoring outgoing trunk calls.

When connection times exceed a defined duration, an indication is displayed on the attendant console (AC). If necessary, the connection can be released by means of a procedure.

No default time (*Toll Fraud monitoring* timer) is specified for this feature; that is, the attendant console will not be alerted unless the timer is set to a specific value.

### Operation

If a trunk-to-trunk connection (for example a connection set up via DISA) exceeds the system timer defined by *Toll Fraud monitoring* timer, a display message is sent to the Attendant position.

The attendant is presented with the following display: *Time exceeded Clear Error Message?*. The attendant first scrolls to find the number of the trunks involved in the call and can release the trunks. On the Memory telephone, there is a cursor to select the individual line. Or, after taking note of the numbers, the attendant clears the error message and can invoke the Release Trunk feature to clear the connection at a later time, if appropriate.

The attendant invokes the Release Trunk feature from an idle state by dialing the default access code \*43 or by pressing the *Program/Service* key and scrolling to and selecting the prompt \*43=*Release trunk?*. The attendant is then prompted to enter a trunk number. After entering the trunk number from above, the connection is released.

### Model-Specific Data

| Subject              | Pro              | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                | x   | x     | x                        | x                          |
| HW requirements      | —                | —   | —     | —                        | —                          |
| SW requirements      | Rel 1.0 or later |     |       |                          |                            |

## Configuration Options

This feature can be configured using Hicom Assistant E and a special password.

### Configuring the Feature Using Hicom Assistant E Office

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action            |
|------|-------------------|
| 1.   | Options           |
| 2.   | System parameters |
| 3.   | Time parameters   |

### Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                                                                                                                  |
|------|-------------------------------------------------------------------------------------------------------------------------|
| 1.   | Set up an outgoing connection (station has external call forwarding) using direct inward dialing and the DISA function. |
| 2.   | When the timer expires, the message <i>Time exceeded</i> appears on the AC display                                      |

### 7.14.10 Printer Pipe Mode (V.24 [RS-232] Range Extension for Call Data)

#### Definition

This feature outputs call charges to the optiset E control adapter. Only *one* printer pipe mode can be active in a system, and only *one* call detail recording (CDR) output can be supported in a system (via RS-232 or the optiset E control adapter).

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One<br>(not for<br>U.S.) | Start<br>(not for<br>U.S.) |
|----------------------|-------------------|-----|-------|--------------------------|----------------------------|
| Feature available in | x                 | x   | x     | x                        | x                          |
| SW requirements      | Rel. 2.2 or later |     |       |                          |                            |

#### Requirements and Conditions

| Subject  | Requirement or Condition                                                                                  |
|----------|-----------------------------------------------------------------------------------------------------------|
| Settings | The parameters for call data output to the optiset E control adapter are permanently set to 9600,N, 8, 1. |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

#### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                 |
|------|--------------------------------------------------------|
| 1.   | 22-13 => V24 configuration                             |
| 2.   | 2 => Select CDRC, CDRS, CDRT, or CDRA                  |
| 3.   | 1 => Select U <sub>P0/E</sub> port for control adapter |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                              |
|-------------|------------------------------------------------------------|
| 1.          | Call charges                                               |
| 2.          | Output format                                              |
| 3.          | Port assignment                                            |
| 4.          | U <sub>P0/E</sub> port=station number with control adapter |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------|
| 1.          | Conduct a chargeable call.                                                                                    |
| 2.          | If CDRC is set, a call data record appears on the output device (such as the printer) at the end of the call. |

### 7.14.11 Call-Charge Display With Currency (Not for U.S.)

#### Definition

Call charge information received with the AOC (advice of charges) feature during external calls on digital trunks appears on the telephone display, provided that the carrier makes this information available.

The public network supports the following AOC types:

- AOC-D = Charging information during the call
- AOC-E = Charging information at the end of a call
- AOC-S = Charging information at call setup

With AOC-D and AOC-S, digital exchanges can also transmit currency amounts that are then added to the call data evaluated in the system. These amounts are not multiples of the call charge pulses or call detail units; they are actual currency amounts.

The new *calculation accuracy* parameter helps avoid inaccuracies from arising when recording the call data. It determines

- The number of decimal points the system uses for evaluating the call data = minimum currency amount.
- The maximum number of currency amounts added up in memory = maximum total currency amount.

Set the *Calculation accuracy* parameter so that the system accuracy is equal to the accuracy of the currency amounts transmitted by the ISDN exchange. If the maximum of three decimal places is insufficient, the system automatically rounds up the number to the next unit. The following values are possible:

| Calculation Accuracy   | Minimum Currency Amount    | Maximum Currency Amount                                        |
|------------------------|----------------------------|----------------------------------------------------------------|
| 3<br>(Pounds Sterling) | $1 \times 10^{-3} = 0.001$ | $1 \times 10^{-3} \times (2^{32} - 1) =$<br>around 4.3 million |
| 2                      | $1 \times 10^{-2} = 0.01$  | $1 \times 10^{-2} \times (2^{32} - 1) =$<br>around 43 million  |
| 1                      | $1 \times 10^{-1} = 0.1$   | $1 \times 10^{-1} \times (2^{32} - 1) =$<br>around 430 million |
| 0<br>(Italian Lira)    | $1 \times 10^0 = 1$        | $1 \times 10^0 \times (2^{32} - 1) =$<br>around. 4.3 billion   |

If you set *Calculation accuracy* = *delete*, the system switches back to evaluating call data in the form of call-charge pulses.

You cannot use Hicom arithmetic units if the digital exchange supplies call charge pulses.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | x   | x     | x   | x     |
| SW requirements      | Rel. 2.2 or later |     |       |     |       |

### Requirements and Conditions

| Subject       | Requirement or Condition                                                                                                                                                             |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plus Products | Select the factor for converting call detail units to currency amounts as follows:<br>Conversion factor =<br>(call charge factor in %) / (100 x 10 <sup>calculation accuracy</sup> ) |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

### Configuring the Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                 |
|------|--------------------------------------------------------|
| 1.   | Configure the calculation accuracy, call charge factor |
| 2.   | 11-9 => Precise currency                               |
| 3.   | 11-4 => Call charge factor                             |
| 4.   | <b>Delete call charge data</b>                         |
| 5.   | 11-1-1 => View CDR/station (delete)                    |
| 6.   | 11-2-1 => View CRD/station (delete)                    |



**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                                                            |
|-------------|--------------------------------------------------------------------------|
| 1.          | Configure the calculation precision, call charge factor<br>System status |
| 2.          | Call charges                                                             |
| 3.          | Factors                                                                  |
| 4.          | <b>Delete the call data</b><br>System status                             |
| 5.          | Call charges                                                             |
| 6.          | Delete call charges at station                                           |
| 7.          | Delete call charges per trunk                                            |
| 8.          | <b>Transfer call charge data (PC → Hicom)</b><br>Transfer                |
| 9.          | Communication                                                            |
| 10.         | Read/write CDB - Mark call charges                                       |

## 7.15 Euro-ISDN Features (Not for U.S.)

### Definition

The Hicom 150 E Office system complies with the DSS1 standard, which specifies the requirements for the uniform communication structure standardized by ETSI throughout Europe.

Euro-ISDN provides users with various features that can be activated either permanently in the trunk or by means of a procedure. It is not necessary to configure the feature specifically.

The features available with Euro-ISDN and Hicom 150 E Office are listed below.

### Model-Specific Data

| Subject              | Pro                      | Com | Point | One | Start |
|----------------------|--------------------------|-----|-------|-----|-------|
| Feature available in | x                        | x   | x     | x   | x     |
| HW requirements      | Digital trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later         |     |       |     |       |

### Requirements and Conditions

| Subject                        | Requirement or Condition                                                                                                |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Long S <sub>0</sub> bus        | Not available with TA-S <sub>0</sub> and STMD8 (OfficePro).                                                             |
| Features                       | Operation for features is the same as for analog stations. Control is by means of information elements in the protocol. |
| PC connected to S <sub>0</sub> | A PC can be connected to the internal S <sub>0</sub> applications bus using an ISDN S <sub>0</sub> card.                |

## 7.15.1 Direct Inward Dialing (DID)

### Definition

This feature allows a direct connection via the public network to an extension in a communications server using the ISDN numbering plan.

### Model-Specific Data

| Subject              | Pro                      | Com | Point | One | Start |
|----------------------|--------------------------|-----|-------|-----|-------|
| Feature available in | x                        | x   | x     | x   | x     |
| HW requirements      | Digital trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later         |     |       |     |       |
| CO feature           | x                        | x   | x     | x   | x     |
| Station feature      | —                        | —   | —     | —   | —     |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                                         |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| DID     | The extensions in the communications server must have at least outward restricted class of service, and direct inward dialing must be permitted. |

## 7.15.2 Multiple Subscriber Number (MSN)

### Definition

Multiple subscriber numbers enable you to assign several different station numbers on the same  $S_0$  basic access (bus or multi-device connection). You can assign each terminal an MSN up to 11 digits long so that it can be called selectively.

### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | x   | x     | x   | x     |
| HW requirements      | $S_0$ trunk board |     |       |     |       |
| SW requirements      | Rel. 1.0 or later |     |       |     |       |
| CO feature           | x                 | x   | x     | x   | x     |
| Station feature      | x                 | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                                                                                          |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MSN     | MSNs can be up to 11 digits long.<br>If an MSN is too long, the system evaluates the first 11 digits, beginning at the right.                                                                     |
| MSN     | The system activates features based on MSNs.                                                                                                                                                      |
| CDRC    | Call detail recording central is possible.                                                                                                                                                        |
| MSN     | If the MSN for a <i>Setup</i> is missing or invalid, a default MSN appropriate to the situation is used. When a station number is specified that is already in use, the <i>Setup</i> is rejected. |

### 7.15.3 Default Station Number Instead of Multiple Subscriber Number (MSN)

#### Definition

This feature was created to increase security and to settle call charges (in a hotel environment, for example). Previously, the system was able to automatically configure each valid MSN. This meant that the settlement of call charges and call detail recording took place under a number which the CS operator did not necessarily enter.

In addition to dialing an MSN, users now have the option of dialing the internal default station number instead.

Below is a brief explanation:

The system assigns a sequential default number to each port, and therefore each telephone, in ascending order (starting with 101 in the OfficePro system). This means that each ISDN  $S_0$  bus is assigned a default number. For an  $S_0$  port terminal adapter, the default number is identical to the number of the logical port in the secondary optiset E telephone. The system assigns valid station numbers by default, although they can be changed with Hicom Assistant E. Every station number is always assigned to one logical port number.

The default numbers can be used as follows:

- **Outgoing call setup:**  
The system sets up the call using the default number, regardless of the MSN sent by a telephone or application. Customers are billed on the basis of the default number (in a hotel environment, this can be the room number), combined with a fixed number combination.
- **Incoming call setup:**  
When a customer equates the MSN of an application (which may be installed on a notebook computer and connected to the hotel telephone network via an  $S_0$  terminal adapter) with the default number of a hotel room (combined with a fixed number combination), callers can reach the PC directly from the outside by direct inward dialing.

#### Model-Specific Data

| Subject              | Pro                    | Com | Point | One | Start |
|----------------------|------------------------|-----|-------|-----|-------|
| Feature available in | x                      | x   | x     | x   | x     |
| HW requirements      | $S_0$ trunk connection |     |       |     |       |
| SW requirements      | Rel. 2.0 or later      |     |       |     |       |
| CO feature           | x                      | x   | x     | x   | x     |
| Station feature      | x                      | x   | x     | x   | x     |

## **Implementing Features**

*Euro-ISDN Features (Not for U.S.)*

For internal distribution only

### **Configuration Options**

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## 7.15.4 Calling Line Identification Presentation (CLIP)

### Definition

This feature transmits the caller's own station number to the called party, where it can be displayed if proper equipment is available. The public network must support station number transmission.

### Model-Specific Data

| Subject              | Pro                              | Com | Point | One | Start |
|----------------------|----------------------------------|-----|-------|-----|-------|
| Feature available in | x                                | x   | x     | x   | x     |
| HW requirements      | optiset E telephone with display |     |       |     |       |
| HW requirements      | Digital trunk connection         |     |       |     |       |
| SW requirements      | Rel 1.0 or later                 |     |       |     |       |
| CO feature           | x                                | x   | x     | x   | x     |
| Station feature      | x                                | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition         |
|---------|----------------------------------|
| CLIP    | Must be released by the carrier. |

## 7.15.5 Calling Line Identification Restriction (CLIR)

### Definition

This feature suppresses the transmission of the calling party's station number. The public network must support suppression (temporary or permanent).

### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| Co feature           | x                               | x   | x     | x   | x     |
| Station feature      | x                               | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                                                                                                                                                   |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLIR    | Calling line identification restriction can be defined across the system.                                                                                                                                                                                  |
| CLIR    | Hicom Assistant E Office can be used to ignore an activated CLIR setting across the system, allowing the calling party's station number to be displayed (on the development level only). This can be useful for emergency calls and in similar situations. |
| CLIR    | Calling line presentation restriction per station: <ul style="list-style-type: none"><li>• *86 = activate</li><li>• #86 = deactivate</li></ul> It is not possible to ignore an activated CLIR setting per station.                                         |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.



**Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | <b>Activate CLIR across the system</b>          |
| 2.   | 20-1 => ISDN parameters - Caller ID suppression |

**Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                       |
|------|------------------------------------------------------------------------------|
| 1.   | <b>Activate CLIR across the system</b><br>Options                            |
| 2.   | System parameters                                                            |
| 3.   | Display                                                                      |
| 4.   | Activate Call number suppression on                                          |
| 1.   | <b>Activate ignore CLIR across the system (password required)</b><br>Options |
| 2.   | System parameters                                                            |
| 3.   | Display                                                                      |
| 4.   | Deactivate Call number suppression on                                        |

**Testing the Feature**

Check the feature for error-free functioning as follows:

| Step | Action                                                          |
|------|-----------------------------------------------------------------|
| 1.   | Configure CLIR.                                                 |
| 2.   | Call an internal station.                                       |
| 3.   | The station number of the calling party is no longer displayed. |

## 7.15.6 Connected Line Identification Presentation (COLP)

### Definition

This feature allows the calling party to determine whether the connection has actually been connected to the station called or whether it was picked up by a different station.

### Model-Specific Data

| Subject              | Pro                      | Com | Point | One | Start |
|----------------------|--------------------------|-----|-------|-----|-------|
| Feature available in | x                        | x   | x     | x   | x     |
| HW requirements      | optiset E with display   |     |       |     |       |
| HW requirements      | Digital trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later         |     |       |     |       |
| CO feature           | x                        | x   | x     | x   | x     |
| Station feature      | x                        | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition         |
|---------|----------------------------------|
| COLP    | Must be released by the carrier. |

## 7.15.7 Connected Line Identification Restriction (COLR)

### Definition

This feature suppresses transmission of the called party's station number to the calling station. Called parties can use COLR to prevent their numbers from being displayed on a calling station.

### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| CO feature           | x                               | x   | x     | x   | x     |
| Station feature      | x                               | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition |
|---------|--------------------------|
| COLR    | Same CDB entry as CLIR.  |

## 7.15.8 Advice of Charge (AOC)

### Definition

This feature offers the user call detail information and must be provided by the public network. The information is transmitted in three ways:

- AOC-S - Advice of charges at call setup
  - Call charge display on the telephone is the same as for AOC-D.
  - The charges are not displayed if the call was not fully set up or if Hicom 150 E Office is unable to evaluate the call detail information of a service provider.
- AOC-D - Advice of charges during the call.
- AOC-E - Advice of charges at the end of the call.

### Model-Specific Data

| Subject                          | Pro                      | Com | Point | One | Start |
|----------------------------------|--------------------------|-----|-------|-----|-------|
| Feature available in             | x                        | x   | x     | x   | x     |
| HW requirements                  | Digital trunk connection |     |       |     |       |
| SW requirements for AOC-D, AOC-E | Rel 1.0 or later         |     |       |     |       |
| SW requirements for AOC-S        | Rel 3.0 or later         |     |       |     |       |
| CO feature                       | x                        | x   | x     | x   | x     |
| Station feature                  | x                        | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                                                                                |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AOC     | Some countries transmit call charge pulses instead of the amount. In this case, the received pulses are converted to currency amounts using a call charge factor (as on analog trunks). |

## 7.15.9 Call Forwarding (CF)

### Definition

There are three different call forwarding types:

- **Chaining call forwarding unconditional**  
Users can activate variable call forwarding or call forwarding preset by key programming (unconditional, immediate) for the following call types:
  - Incoming internal calls only
  - Incoming external calls only
  - All calls

This is possible even if the same station is already set as a forwarding destination or if the forwarding destination has already activated call forwarding.

The message “Chaining invalid” no longer appears when you enter a second call forwarding destination during programming.

When a user forwards a dialed party to a station which already activated unconditional, immediate call forwarding to another station, the system monitors the number of call forwarding operations allowed. A preprogrammed counter limits the number of call forwarding operations to a total of 5.

The following example clarifies this procedure:

- Stn A activated call forwarding to stn B: 1. CFU
- Stn B activated call forwarding to stn C: 2. CFU
- Stn C activated call forwarding to stn D: 3. CFU
- Stn D activated call forwarding to stn E: 4. CFU
- Stn E activated call forwarding to stn F: 5. CFU
- Stn F activated call forwarding to stn G: 6. CFU (not possible)

If stn X calls stn **A**, the call reaches stn **F**, **not stn G**.

The system forwards the counters with CFU, but not with CFB or CFNR.

- **Call forwarding busy (CFB))**  
Same as CFU but only if the line is busy.
- **Call forwarding no reply (CFNR))**  
Same as CFU, but only if the call is not answered within 15 seconds (time is configurable).

Use call management to define the lines for *busy* and *no reply*.

## Model-Specific Data

| Subject              | Pro                      | Com      | Point    | One      | Start    |
|----------------------|--------------------------|----------|----------|----------|----------|
| Feature available in | <b>x</b>                 | <b>x</b> | <b>x</b> | <b>x</b> | <b>x</b> |
| HW requirements      | Digital trunk connection |          |          |          |          |
| SW requirements      | Rel 2.0 or later         |          |          |          |          |
| CO feature           | x                        | x        | x        | x        | x        |
| Station feature      | x                        | x        | x        | x        | x        |

## Requirements and Conditions

| Subject                    | Requirement or Condition                                                                                                                                                                                                                                                                   |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CF                         | Not possible with an S <sub>2M</sub> line.                                                                                                                                                                                                                                                 |
| CF                         | In the case of a point-to-point connection, the entire line is forwarded. In the case of a point-to-multipoint connection, only the MSN assigned to the extension with programming authorization is forwarded. If no MSN is assigned to this station, call forwarding cannot be activated. |
| CF                         | Call forwarding is always executed for the first basic access, that is the first S <sub>0</sub> port must also be available in the system.                                                                                                                                                 |
| Internal to S <sub>0</sub> | Internal stations support CFU only (to prevent conflicts with call management).                                                                                                                                                                                                            |

## 7.15.10 External Call Forwarding

### Definition

Any user who has an MSN as a DID number can activate and deactivate external call forwarding for this MSN, provided that the user is authorized to use external call forwarding. A total of 10 multiple subscriber numbers can be forwarded.

If you have assigned an MSN to a subscriber group, any member of the group can activate and deactivate external call forwarding for this MSN.

Users can enter only one forwarding destination per MSN.

There are three different versions of the feature:

- **Call forwarding unconditional (CFU)**  
The carrier forwards all calls to this MSN directly, regardless of the MSN status.
- **Call forwarding busy (CFB)**  
Calls are forwarded only if the MSN dialed is busy.
- **Call forwarding no reply (CFNR)**  
Calls are forwarded only if the destination does not answer the incoming call within a preset period of time, such as 15 seconds (time is configurable).

### Model-Specific Data

| Subject              | Pro                      | Com | Point | One | Start |
|----------------------|--------------------------|-----|-------|-----|-------|
| Feature available in | x                        | x   | x     | x   | x     |
| HW requirements      | Digital trunk connection |     |       |     |       |
| SW requirements      | Rel. 2.2 or later        |     |       |     |       |
| CO feature           | x                        | x   | x     | x   | x     |
| Station feature      | x                        | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                                          |
|---------|-------------------------------------------------------------------|
| CFU     | External call forwarding has a higher priority than night answer. |
| CFU     | The number of MSNs for external call forwarding cannot exceed 10. |

### Configuration Options

This feature does not have to be explicitly configured.



In the case of Hicom 150 E OfficeOne/Start, the S<sub>0</sub> port must be set to point-to-multipoint in order for you to use this feature.



## 7.15.11 Call Deflection (CD)

### Definition

If a station has activated external call forwarding, Hicom 150 E Office attempts to forward calls to the trunk using this feature. In this case, the new call destination and the station number of the forwarding station are provided to the trunk in the call deflection activation message when the call arrives. If external call forwarding by call deflection is not possible, the system handles call forwarding.

### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| CO feature           | x                               | x   | x     | x   | x     |
| Station feature      | —                               | —   | —     | —   | —     |

### Requirements and Conditions

| Subject                 | Requirement or Condition                                                                                                                                  |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call detail information | When call deflection is used, Hicom 150 E Office receives no call detail information for the forwarded call. Customers are billed by their local Telecom. |

## 7.15.12 Subaddressing (SUB)

### Definition

Subaddressing allows the addressing capacity to be expanded regardless of the ISDN station number or additional information to be transmitted to the station dialed. This makes it possible to initiate certain procedures.

### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| CO feature           | x                               | x   | x     | x   | x     |
| Station feature      | x                               | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                          |
|---------|---------------------------------------------------|
| SUB     | The flow of information is in one direction only. |

### 7.15.13 Malicious Call Identification (MCID)

#### Definition

This feature makes it possible to identify unwanted callers. The feature is activated in the public network, and the caller's station number and name are also stored in the public network. With each incoming call, the release of the connection to the called station is delayed for a specific period of time after the caller hangs up, enabling the called station to activate this feature. Release is delayed only if the feature has been requested from the carrier or facility provider.

#### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| CO feature           | x                               | x   | x     | x   | x     |
| Station feature      | x                               | x   | x     | x   | x     |

#### Requirements and Conditions

| Subject                         | Requirement or Condition                                                                 |
|---------------------------------|------------------------------------------------------------------------------------------|
| MCID                            | Malicious call ID works with external calls and QSIG trunks only (not with CorNet-N).    |
| MCID                            | Trunk release is delayed.                                                                |
| QSIG                            | With QSIG, MCID is activated only in active mode.                                        |
| MCID                            | The <i>malicious call ID</i> class of service can be programmed for individual stations. |
| MCID internal to S <sub>0</sub> | Activation is forwarded to the trunk.                                                    |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                           |
|-------------|-----------------------------------------|
| 1.          | <b>Configure malicious call ID</b>      |
| 2.          | 14-22 => Configure station - Trace call |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                          |
|-------------|----------------------------------------|
| 1.          | Configure malicious call ID<br>Options |
| 2.          | Set up station                         |
| 3.          | Station                                |
| 4.          | Param                                  |
| 5.          | Flags                                  |

### 7.15.14 Competition of Calls to Busy Subscribers (CCBS)

#### Definition

This feature sets automatic callback from an external station that is busy. When the station becomes free, the trunk attempts to set up a connection between the two stations.

#### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| CO feature           | x                               | x   | x     | x   | x     |
| Station feature      | x                               | x   | x     | x   | x     |

#### Requirements and Conditions

| Subject | Requirement or Condition                                                                        |
|---------|-------------------------------------------------------------------------------------------------|
| CCBS    | The feature must be supported by the trunk and the remote station.                              |
| CCBS    | Does not function with 1TR6.                                                                    |
| CCBS    | A callback option to the networked system is generated within networked communications servers. |

## 7.15.15 Call Hold (CH)

### Definition

Users can interrupt a call in progress without releasing it. Doing so places the call on hold. Call hold (CH) is important in conjunction with other features such as call waiting, consultation hold, toggle, and three-party conference. The ISDN port on hold receives an indication of the hold state and retrieval of the call.

### Model-Specific Data

| Subject              | Pro                      | Com | Point | One | Start |
|----------------------|--------------------------|-----|-------|-----|-------|
| Feature available in | x                        | x   | x     | x   | x     |
| HW requirements      | Digital trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later         |     |       |     |       |
| CO feature           | x                        | x   | x     | x   | x     |
| Station feature      | x                        | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                                                            |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CH      | The feature is available only on multi-device connections. In communications servers, the call is held in the server. The information element is sent to the trunk. |
| CH      | Non-ISDN stations do not receive an advisory announcement (except that the station is placed on hold in the CS).                                                    |
| CH      | A call can be placed on hold only in the active phase or during connection setup.                                                                                   |

## 7.15.16 Three Party Service (3PTY)

### Definition

A three-party (3PTY) conference is possible with a multi-device connection. The conference status is indicated at the ISDN port.

On the user side, note that the other conference participants join the conference in the system, that is, only one B channel is needed for the  $S_0$  applications bus.

### Model-Specific Data

| Subject              | Pro                      | Com | Point | One | Start |
|----------------------|--------------------------|-----|-------|-----|-------|
| Feature available in | x                        | x   | x     | x   | x     |
| HW requirements      | Digital trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later         |     |       |     |       |
| CO feature           | x                        | x   | x     | x   | x     |
| Station feature      | x                        | x   | x     | x   | x     |

### Requirements and Conditions

| Subject    | Requirement or Condition                                                                                                                          |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Conference | For multi-device connections only. In the case of CSs, the conference is executed in the CS. The information element is transmitted to the trunk. |

## 7.15.17 Call Waiting (CW)

### Definition

When a busy party receives a call, a call waiting tone indicates that another call has arrived and may be answered. The call waiting status is transmitted to the trunk.

### Model-Specific Data

| Subject              | Pro                      | Com | Point | One | Start |
|----------------------|--------------------------|-----|-------|-----|-------|
| Feature available in | x                        | x   | x     | x   | x     |
| HW requirements      | Digital trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later         |     |       |     |       |
| CO feature           | x                        | x   | x     | x   | x     |
| Station feature      | x                        | x   | x     | x   | x     |

### Requirements and Conditions

| Subject           | Requirement or Condition                                                                                                                        |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| CW (call waiting) | For multi-device connections only. In the case of CSs, call waiting is executed in the CS. The information element is transmitted to the trunk. |



## 7.15.18 Telephone Portability (TP)

### Definition

This feature allows a user to park a call on the bus, unplug the telephone, plug it in again at another location on the bus, and resume the parked call. The parked station receives a message indicating that the user is porting. The user has three minutes to move the telephone.

### Model-Specific Data

| Subject              | Pro                        | Com | Point | One | Start |
|----------------------|----------------------------|-----|-------|-----|-------|
| Feature available in | x                          | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk board |     |       |     |       |
| SW requirements      | Rel 1.0 or later           |     |       |     |       |
| CO feature           | x                          | x   | x     | x   | x     |
| Station feature      | x                          | x   | x     | x   | x     |

### Requirements and Conditions

| Subject                       | Requirement or Condition                                                                                                                                                |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TP                            | At multi-device connections only. In the case of CSs, the external station is parked in the CS. The information element is transmitted to the trunk.                    |
| TP                            | The call must be resumed within 3 minutes.                                                                                                                              |
| TP                            | This feature cannot be used with services such as fax, teletex and data transmission.                                                                                   |
| TP internal to S <sub>0</sub> | In the case of a Gigaset ISDN, this feature is used for a handover between two radio cells and for implementing the call park feature. Implementation is by the system. |

## 7.15.19 User to User Signaling (UUS1)

### Definition

This feature allows users to exchange messages during connection setup. The network transmits the messages transparently; checking only the length. Three UUS services are available:

- **UUS1:** Information is exchanged in control messages for connection setup and during connection release.
- **USS2:** Information is exchanged during the ringing phase. The number of messages is limited to two per trunk group. USS2 is available for telecommunications ports only.
- **USS3:** Information is exchanged during the active state of a connection.

Hicom 150 E Office currently supports only UUS1.

### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| CO feature           | x                               | x   | x     | x   | x     |
| Station feature      | x                               | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                                                                                                     |
|---------|------------------------------------------------------------------------------------------------------------------------------|
| USS1    | In the case of a multi-device connection, the user must ensure that only one device transmits a message to an incoming call. |
| USS1    | Hicom 150 E Office currently supports only UUS1                                                                              |

## 7.15.20 Explicit Call Transfer (ECT)

### Definition

A station with two calls can connect the other two call parties to one another. One of the calls must have already been set up. Transfer before and after answering is possible.

### Model-Specific Data

| Subject              | Pro                             | Com | Point | One | Start |
|----------------------|---------------------------------|-----|-------|-----|-------|
| Feature available in | x                               | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> trunk connection |     |       |     |       |
| SW requirements      | Rel 1.0 or later                |     |       |     |       |
| CO feature           | —                               | —   | —     | —   | —     |
| Station feature      | x                               | x   | x     | x   | x     |

## 7.15.21 Point-to-Point Connection on the User Side

### Definition

It is possible to configure an  $S_0$  port on the user side as a point-to-point connection, for example to use a connected fax server. The port is assigned a station number that supports direct inward dialing. Call forwarding can also be programmed at this port.

### Model-Specific Data

| Subject              | Pro                   | Com | Point | One | Start |
|----------------------|-----------------------|-----|-------|-----|-------|
| Feature available in | x                     | x   | x     | x   | x     |
| HW requirements      | $S_0$ subscriber line |     |       |     |       |
| SW requirements      | Rel 1.0 or later      |     |       |     |       |
| CO feature           | —                     | —   | —     | —   | —     |
| Station feature      | x                     | x   | x     | x   | x     |

### Requirements and Conditions

| Subject | Requirement or Condition                                  |
|---------|-----------------------------------------------------------|
| PtP     | Only the DID, CLIP, CLIR, and AOC features are supported. |

## 7.15.22 Programming National and International Codes for Outgoing Calls

### Definition

The caller's station number, including the trunk access code (0, for example), the national prefix (0, for example) or the international prefix (00, for example), appears in the optiset E telephone display, the caller list, and dialing aids (such as Smartset).

Carriers are reached by dialing a separate national prefix (1 digit) or international prefix (2 digits). If a Hicom 150 E Office system provides access to more than one carrier (separate port or shared port), it is not possible to determine the carrier from which incoming calls arrive.

To represent a prefix, this feature enables you to configure the national and international access codes (national and international prefixes). A number between 0 and 9 can be used as the values for the programmable digits.

This allows calls to be answered with the help of caller lists and Smartset even when carriers are used. The existing prefixes are also used for the carriers.

### Model-Specific Data

| Subject              | Pro                  | Com | Point | One | Start |
|----------------------|----------------------|-----|-------|-----|-------|
| Feature available in | x                    | x   | x     | x   | x     |
| HW requirements      | S <sub>0</sub> board |     |       | —   | —     |
| SW requirements      | Rel 1.0 or later     |     |       |     |       |
| CO feature           | —                    | —   | —     | —   | —     |
| Station feature      | x                    | x   | x     | x   | x     |

### Requirements and Conditions

| Subject                          | Requirement or Condition                                                                                                                          |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| National or international prefix | Only one national or international prefix exists for the entire system. The programmed prefix (and the carrier codes) can be up to 2 digits long. |

### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

## **Configuring the Feature Using Hicom Assistant T**

Configure the feature using Hicom Assistant T as follows:

| <b>Step</b> | <b>Action</b>                                                         |
|-------------|-----------------------------------------------------------------------|
| 1.          | <b>Configure codes</b>                                                |
| 2.          | 20-2-5 => ISDN parameters - System stn. number - National prefix      |
| 3.          | 20-2-6 => ISDN parameters - System stn. number - International prefix |

## **Configuring the Feature Using Hicom Assistant E Office**

Configure the feature using Hicom Assistant E Office as follows:

| <b>Step</b> | <b>Action</b>                       |
|-------------|-------------------------------------|
| 1.          | <b>Configure codes</b><br>Options   |
| 2.          | Lines/networking                    |
| 3.          | ISDN parameter                      |
| 4.          | Enter national/international prefix |

## **Testing the Feature**

Check the feature for error-free functioning as follows:

| <b>Step</b> | <b>Action</b>                      |
|-------------|------------------------------------|
| 1.          | Place a call via ISDN.             |
| 2.          | Enter number in the caller list.   |
| 3.          | Set callback from the number list. |

### 7.15.23 Caller ID After Release (Police)

#### Definition

This feature places the calling party's number in caller list 0 after the call is released.

#### Model-Specific Data

| Subject              | Pro               | Com | Point | One | Start |
|----------------------|-------------------|-----|-------|-----|-------|
| Feature available in | x                 | x   | x     | x   | x     |
| HW requirements      | —                 | —   | —     | —   | —     |
| SW requirements      | Rel. 2.2 or later |     |       |     |       |

#### Configuration Options

This feature can be configured using Hicom Assistant T or Hicom Assistant E Office.

#### Configuring the Feature Using Hicom Assistant T

Configure the Feature Using Hicom Assistant T as follows:

| Step | Action                 |
|------|------------------------|
| 1.   | 20 => System settings  |
| 2.   | 15 => Caller list mode |
| 3.   | * Change               |
| 4.   | 3 ext. rings/call      |

## 7.16 U.S. ISDN (for U.S. Only)

### Definition

In the United States, ISDN is offered by most local telephone companies. ISDN is an all-digital voice and data transmission technology. In contrast to analog transmissions, ISDN uses B (bearer) channels to carry voice and data traffic and a D (data) channel to carry customer call data and control signals. There are two basic types of ISDN interfaces. These interfaces are the primary rate interface (PRI) and the basic rate interface (BRI).

A PRI is for large commercial telephony operations and consists of 23 B channels and 1 D channel. A BRI is for smaller or residential-type telephony needs and consists of 2 B channels and 1 D channel. To configure these ISDN interfaces, users must know the type of Hicom 150 E Office system that they are configuring. The following are the ISDN interfaces that were designed to work with the Hicom 150 E Office system:

- BRI with the OfficePoint
- Both PRI and BRI with the OfficeCom
- PRI with the OfficePro



The ISDN features are activated at the central office (CO).



## 7.16.1 PRI

### Introduction

The OfficeCom and OfficePro systems can be configured to support Primary Rate services from the public network. A primary rate interface (PRI) consists of 23 bearer (B) channels and 1 data (D) channel. Each channel supports 64 Kbps of bandwidth.

The OfficePro supports a maximum of five T1 interfaces (TMST1) that can be configured as primary rate interfaces. A Channel Service Unit (CSU) is required for each interface connected to the public network. (Siemens ICN supports certain models of CSU that have been tested with the Hicom 150 E. Contact your Siemens ICN representative for the model numbers). The OfficePro supports a maximum of four Call by Call (CBC) groups. Each group can be configured with a maximum of eight CBC trunk groups.

The OfficeCom supports one T1 interface (TST1 module) that can be configured as a primary rate interface. A CSU is required for each interface connected to the public network. The OfficeCom supports a maximum of one CBC group. The group can also be configured with a maximum of eight CBC trunk groups. Typically, the entire T1 span is placed in a single trunk group, but depending on the application, the primary rate channels can be separated into discrete route groups. This may be required for applications where a portion of the channels can be separated out for non-system data applications.

A span or spans must be selected as the reference interface for the Central Office. A hierarchical table is provided for assigning four reference-clock points. If the primary clock source fails, the next clock source specified is used as the reference. When the primary clock source returns, the system automatically resynchronizes to this clock. A maximum of four reference clocks can be defined per system.

### Model-Specific Data

| Subject                              | OfficePro            | OfficeCom | OfficePoint |
|--------------------------------------|----------------------|-----------|-------------|
| Feature available in                 | <b>x</b>             | <b>x</b>  | —           |
| HW requirements                      | TMST1                | TST1      | —           |
| Number of T1 modules per system      | 5                    | 1         | —           |
| Number of CBC groups per system      | 4                    | 1         | —           |
| Number of trunk groups per CBC group | 8                    | 8         | —           |
| SW requirements                      | Release 1.0 or later |           |             |

Depending on the PRI provider's requirements, users need to configure some or all of the following for PRI setup:

- Signal, protocol, and emulation type
- Frame/line/encoding
- B channel allocation mode and identifier
- Number of B channels
- Trunk group calling service

For networking with PRI, customers can use either tie trunks or the public-switched telephone network.

**Protocol type** allows customers to select the interface between the OfficeCom or OfficePro and the PRI provider. Protocols are different for local exchange carriers (LECs) and for inter-exchange carriers (IECs). Customers might prefer an IEC, for example, if they want to place calls on a tie trunk using station numbers without going through the local exchange.

Customers can choose a different carrier and protocol for each PRI span. The Hicom 150 E Office system supports seven commonly used LEC protocols and seven commonly used IEC protocols. [Table 7-13](#) and [Table 7-14](#) on page 7-491 show the protocols available for each slot.

## LEC Protocols

Table 7-13 Supported LEC Protocols

| LEC Carrier | Switch | Protocol |
|-------------|--------|----------|
| AT&T        | 5ESS   | Custom   |
| AT&T        | 5ESS   | NI-2     |
| Bell Canada | DMS100 | Custom   |
| GTE         | GTT5   | NI-2     |
| Nortel      | DMS100 | Custom   |
| Siemens     | EWSD   | Custom   |
| Siemens     | EWSD   | NI-2     |

**IEC Protocols**

Table 7-14 Supported IEC Protocols

| IEC Carrier  | Switch | Protocol            |
|--------------|--------|---------------------|
| AT&T         | 4ESS   | Custom              |
| MCI          | DMS250 | AT&T 4ESS emulation |
| MCI          | DEX600 | AT&T 4ESS emulation |
| Sprint       | DMS250 | AT&T 4ESS emulation |
| Westinghouse | DMS250 | AT&T 4ESS emulation |
| GSA          | DMS250 | DMS250              |
| GSA FTS 2000 | 5ESS   | 5ESS                |

**Emulation type** is determined by the protocol. Users need to select the emulation type that matches the ISDN service they have ordered: Super Frame (SF) or Extended Super Frame (ESF).

The data format for SF emulation is inverted high-level data link control (HDLC); The data format for ESF is normal HDLC.

**Frame/line/encoding** allows customers to select the type of encoding used on the D channel. The choices are normal or inverted. Normal is the default. The type of frame and line encoding depends on the protocol. OfficeCom automatically sets the correct type of frame and line encoding according to the protocol.

**B channel allocation mode and identifier** allows customers to select the system method of finding an available B channel when needed. The choices are high and low. High begins searching at the highest-numbered B channel of the highest-numbered T1 span in the PRI trunk group and continues in descending order. Low begins searching at the lowest-numbered B channel of the lowest-numbered T1 span in the PRI trunk group and continues in ascending order.

Select the opposite mode from that used by the CO; this will avoid collisions when both the CO and the Hicom 150 E Office are trying to seize a channel.

**Number of B channels** allows users to enter the number of B channels for the system, so that the system knows where to begin searching for channels to allocate. The number entered here depends on the number of B channels that the customer has ordered.

**Trunk group calling service** allows users to select the type of service for each trunk group. The OfficeCom and OfficePoint support 36 types of trunk group service. Customers select the type of service according to the service ordered from the ISDN provider.



If you are unsure the trunk group calling service, consult the ISDN provider for more information.

The following tables outline the voice and data services available through the public network providers in the North American market.

Table 7-15 Inter-Exchange (IEC) Protocol Calling Services

|                      | <b>ATT 4ESS</b> | <b>MCI<br/>DMS250/<br/>MCI<br/>DEX600</b> | <b>SPRINT<br/>DMS250</b> | <b>Westing.<br/>DMS250</b> | <b>FTS2000<br/>DMS/5ESS</b> |
|----------------------|-----------------|-------------------------------------------|--------------------------|----------------------------|-----------------------------|
| <b>In-WATS (800)</b> | Megacom 800-TFM | MCI 800                                   | ULTRA 800                | WICN-In-WATS               | N/A                         |
| <b>Out-WATS</b>      | Megacom         | MCI Prism-WATS                            | SPR Ultra WATS           | WICN-Out-WATS              | N/A                         |
| <b>In-WATS (900)</b> | Multiquest      | MCI/900                                   | N/A                      | N/A                        | N/A                         |
| <b>Intl IN-WATS</b>  | Inter-800       | MCI 800                                   | N/A                      | N/A                        | N/A                         |
| <b>PVN</b>           | AT&T SDDN       | MCI VN-VS                                 | SPRINT-VPN               | N/A                        | N/A                         |
| <b>Intl VPN</b>      | AT&T SDN-GSDN   | N/A                                       | SPRINT-VPN               | N/A                        | N/A                         |
| <b>SDS 56</b>        | Accu-SDS        | NONE                                      | Accu-SDS                 | Accu-SDS                   | N/A                         |
| <b>SDS 94-c/r</b>    | Accu-SDS        | NONE                                      | Accu-SDS                 | Accu-SDS                   | N/A                         |

Table 7-16 Local Exchange (LEC) Protocol Calling Services

|                      | <b>AT&amp;T<br/>5ESS/<br/>Siemens<br/>EWSD</b> | <b>Nortel<br/>DMS100<br/>Bell Cnd<br/>DMS100</b> | <b>Generic NI2<br/>Siemens NI2<br/>AT&amp;T 5ESS NI2</b> |
|----------------------|------------------------------------------------|--------------------------------------------------|----------------------------------------------------------|
| <b>In-WATS (800)</b> | Megacom                                        | DMS100 In-WATS                                   | NI2 InWATS                                               |
| <b>Out-WATS</b>      | Megacom                                        | DMS100 Out-WATS                                  | NI2 OutWATS                                              |

Table 7-16 Local Exchange (LEC) Protocol Calling Services

|                                                       | <b>AT&amp;T<br/>5ESS/<br/>Siemens<br/>EWSD</b> | <b>Nortel<br/>DMS100<br/>Bell Cnd<br/>DMS100</b> | <b>Generic NI2<br/>Siemens NI2<br/>AT&amp;T 5ESS NI2</b> |
|-------------------------------------------------------|------------------------------------------------|--------------------------------------------------|----------------------------------------------------------|
| <b>In WATS (900)</b>                                  | N/A                                            | N/A                                              | N/A                                                      |
| <b>Intl InWATS (800)</b>                              | N/A                                            | N/A                                              | N/A                                                      |
| <b>PVN</b>                                            | N/A                                            | DMS100 PV                                        | N/A                                                      |
| <b>Multiband OutWATS</b>                              | Megacom                                        | DMS100 Out-<br>WATS                              | NI2 OutWATS                                              |
| <b>Access to LEC operator</b>                         | None                                           | None                                             | None                                                     |
| <b>Access to default IEC op-<br/>erator</b>           | None                                           | None                                             | None                                                     |
| <b>Equal access to IEC Long<br/>Distance services</b> | Megacom                                        | DMS100 Out-<br>WATS                              | NI2 OutWATS                                              |
| <b>Basic CO access</b>                                | None                                           | None                                             | None                                                     |
| <b>Access to IEC operator</b>                         | None                                           | None                                             | None                                                     |
| <b>SDS-56</b>                                         | None                                           | None                                             | None                                                     |
| <b>SDS-64 c/r</b>                                     | None                                           | None                                             | None                                                     |

## **7.16.2 BRI**

### **Introduction**

To set up the Hicom 150 E Office for BRI ISDN, users must receive service profile identifier designator (SPID) numbers from the telephone company (telco). SPID numbers identify the type of ISDN service and the variety of features that customers receive. In addition, to allow direct access to specific devices, some BRI interfaces can be set up with CACH EKTS. Depending on the central office (CO) switch type, users have to configure either call appearance identification (CAID) values (also known as CACH values) or phantom direct inward dialing (PDID) numbers for all devices that make external calls. For more information on how to configure CAID numbers, PDID numbers, and SPID numbers refer to Section 8.11, *Configuring BRI Trunks (OfficePoint and OfficeCom) (for U.S. Only)*, on page 8-22.

Depending on the central office (CO) protocol selected, users need to configure some or all of the following parameters for BRI setup:

- CO protocol
- SPID administration
- CAID administration (AT&T or EWSD)
- PDID administration (DMS100)
- Feature identification number (FIN) for message waiting
- CO Features (Transfer/Conference/Drop)
- Feature identification number (FIN) for Transfer, Conference and Drop
- CACH EKTS flag (AT&T or EWSD)

**CO protocol** is the interface between the OfficeCom or OfficePoint and the CO of the BRI provider. Select the protocol that the BRI provider uses. OfficeCom and OfficePoint support the following CO protocols:

- AT&T NI1
- AT&T Custom
- Siemens NI1
- Nortel NI1

Nortel NI1 requires PDID values instead of CAID values; for more information refer to PDID administration on [page 7-496](#).



If you are unsure of the CO protocol, consult the ISDN provider.

**SPID administration** allows customers to set service profile identification designator values. Each BRI line is assigned two SPID values. The Hicom 150 E Office system supports a maximum of eight SPID values. The SPID values can be assigned to any combination of digital stations or digital data terminals and could be required for some data terminals. SPID numbers are used by the CO to identify each terminal for features such as message waiting, call transfer, and conference. Customers must configure the numbers in sequence according to the order of the stations in the system. A primary directory number is assigned to each SPID address number.

Consult the BRI provider for specific SPID number information.

**CAID administration** allows customers to set call appearance identification values when the CO switch type is AT&T or EWSD. CAID values are one or two digits that are assigned by the central office to the primary and secondary system numbers. A CAID value represents a talk path from a voice station or a data terminal to a BRI channel. A station must have at least one associated CAID value programmed to place or receive an external call directly without attendant intervention. Each device in the system can have up to four CAID values.

Multiple CAID values must be assigned to a station to allow for external telephone functions, such as to answer camp-on calls and conference calls. CAID values are used to simulate multiple call handling at a single desktop station. That is, each CAID number simulates an additional extension (a call appearance), but the additional extension numbers do not actually represent outside trunk lines.



Some COs do not assign CAID values to ISDN data terminals. If you do not know the CAID numbers assigned to the system, consult the BRI provider.

**PDID administration** allows customers to set phantom direct inward dialing identification numbers (PDIDs). PDID numbers take the place of CAID values in the Nortel DMS100 NI1 CO only. Customers can assign PDID numbers to all voice and data terminals in the system. This allows incoming calls to be routed to the specified station or ISDN terminal without attendant intervention.

The PDID number can be from 1 to 7 digits in length, corresponding to a traditional seven-digit phone number.

PDIDs or directory numbers (DNs) are assigned by the ISDN provider.

**FIN for message waiting** allows users to set the feature identification number (FIN) for the BRI message waiting feature provided by the LEC. The LEC assigns FIN values to associate the feature with specific OfficeCom or OfficePoint stations; contact the LEC to obtain the FIN values for the stations.

The message waiting FIN value can only be assigned to stations with primary directory numbers.

With FIN for message waiting, customers must enter a FIN value for each station. Every station must have a FIN value assigned; however, each station can have the same number.

**CO features (Transfer/Conference/Drop)** allows the customer to enable the CO features Transfer, Conference, and Drop.

**FIN for Transfer, Conference and Drop** allows customers to set the feature identification numbers (FIN) for the BRI Transfer, Conference, and Drop features provided by the LEC in the case of NI1 (AT&T NI1, Siemens NI1, or Nortel NI1). The FIN must be the same for all the BRI interfaces; contact the LEC to obtain the FIN values for these features.

**CACH EKTS flag** allows customers to indicate which of the BRI interfaces are configured within the LEC as CACH EKTS.

CACH is one of the methods used to have BRI emulate an analog hunt. Although there is a CACH setting in the NT DMS, it does not react in the same manner; the CACH setting in the DMS does not allow the sharing of DNs. Administration of CACH values in the Hicom 150 E is referred to as CAID (Call Appearance IDentification) administration.



## 7.17 U.S. ISDN Features (for U.S. Only)

### 7.17.1 Multi-Device Connection

#### Definition

An ISDN multi-device connection enables users to connect multiple ISDN terminals (such as Internet and ISDN video devices) on an ISDN S<sub>0</sub> applications bus. You can use the direct inward dialing (DID) number field to assign multiple subscriber numbers (MSNs) that will uniquely identify the devices.

#### Related Topics

- Section 7.17.10, *Multiple Subscriber Number*, on page 7-507
- Section 8.13, *Configuring an ISDN Multi-Device Connection With Multiple Subscriber Numbers (for U.S. Only)*, on page 8-35

#### Model-Specific Data

| Subject              | OfficePro                             | OfficeCom                             | OfficePoint                           |
|----------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Feature available in | <b>x</b>                              | <b>x</b>                              | <b>x</b>                              |
| HW requirements      | STMD8<br>or Optiset E<br>ISDN adapter | STLS4<br>or Optiset E<br>ISDN adapter | STLS4<br>or Optiset E<br>ISDN adapter |
| SW requirements      | Release 1.0 or later                  |                                       |                                       |

#### Requirements and Conditions

| Subject                      | Requirement or Condition                                                                                                                                                                 |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISDN terminals               | Any parallel-connected ISDN terminals must be given an MSN to ensure call assignments.                                                                                                   |
| Trunk groups with PP and PMR | If you connect different basic access points (point-to-point and point-to-multipoint) to the system, they must be entered in different trunk groups, and Prime Line must be deactivated. |

## Configuration Options

This feature can be configured using Hicom Assistant E Office.

## Programming Feature Using Hicom Assistant T

Configure the feature using Hicom Assistant T as follows:

| Step | Action                                                                  |
|------|-------------------------------------------------------------------------|
| 1.   | Configure S <sub>0</sub> port<br>*9531994                               |
| 2.   | 20-4-1 => ISDN parameters - EU parameters - S <sub>0</sub> port config. |
| 1.   | Configure station number<br>*9531994                                    |
| 2.   | 16-11 => Incoming calls - DID numbers                                   |

## Programming Feature Using Hicom Assistant E

Configure the feature using Hicom Assistant E as follows:

| Step | Action                                   |
|------|------------------------------------------|
| 1.   | Configure S <sub>0</sub> port<br>Options |
| 2.   | Lines/networking                         |
| 3.   | Trunks                                   |
| 4.   | Flags                                    |
| 5.   | ISDN flags                               |
| 1.   | Configure station number<br>Options      |
| 2.   | Set up station                           |
| 3.   | Station                                  |

## Testing the Feature

Check the feature for error-free functioning as follows:

| Step | Action                           |
|------|----------------------------------|
| 1.   | Connect multiple ISDN terminals. |
| 2.   | The devices perform properly.    |

## 7.17.2 Call-By-Call Service Selection

### Definition

Call-by-Call service selection (CBC) lets the user select a different type of service for each channel, such as INWATS channels and some OUTWATS channels within the same trunk group.

The following are the four main features provided through call-by-call (CBC):

- **Foreign Exchange Non-ISDN Facility**  
This trunk type enables users to originate or terminate calls as if there was a local CS in the foreign (remote) central exchange office. Access to the foreign exchange (FX) is possible via LCR or trunk group access codes.
- **Tie Trunk Non-ISDN Facility**  
This trunk type enables users to connect to a privately leased analog Tie Trunk network. Access for originating calls is possible through LCR. Terminating Tie Trunk calls are routed according to the called party number (CdPn).
- **OUTWATS Facility**  
This feature allows customers to place calls to certain areas at special lower rates.
- **INWATS Facility**  
This feature supports the 800 area code that provides callers toll-free access to the terminating party. This is a terminating only service.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

### Requirements/Conditions

| Subject                         | Requirement/Condition                                                                                                                            |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Simulated Facility Groups (SFG) | FX and Tie Trunk incoming and outgoing calls require an SFG access code, which is assigned by the telephone company at the time of subscription. |

### 7.17.3 Dedicated (Pre-Provisioned) Service Selection

This feature simplifies the service ordering process by supplying ordering codes that tell the central office how to configure the Hicom 150 E Office.

#### Model-Specific Data

| <b>Subject</b>       | <b>OfficePro</b>     | <b>OfficeCom</b> | <b>OfficePoint</b> |
|----------------------|----------------------|------------------|--------------------|
| Feature available in | <b>x</b>             | <b>x</b>         | <b>x</b>           |
| HW requirements      | —                    | —                | —                  |
| SW requirements      | Release 1.0 or later |                  |                    |

## 7.17.4 Transfer

### Definition

This feature allows calls to be transferred the same as non-ISDN calls.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

## 7.17.5 Camp-On

### Definition

This feature allows calls to be camped-on until the busy line is free. Once the line is free, the user call is signaled through.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

## 7.17.6 Conference Call

### Definition

This feature allows multiple callers to communicate simultaneously.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

## 7.17.7 Equal Access

### Definition

This feature complies with the FCC requirement to provide equal access to alternate carriers.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |



## 7.17.8 Special Access Selection

### Definition

With this feature users can select specific access codes. Hicom 150 E Office supports the following four options:

- Local Exchange Carrier (LEC) Operator Access

The system routes calls through the PRI to the network after the user dials 0 to connect to the LEC operator.

- Inter-exchange Carrier (IEC) Operator Access

After the user dials an operator access code, a carrier identification code (CIC), and a 0, the system routes the call through the PRI and to the network, connecting the call to the IEC operator.

- Operator Assisted Credit Card Call Access

This feature routes PRI calls to the network using an operator access code, a 0 or 01, and a called party number (CdPn), allowing operator assisted calls with a calling card.

- N11 Access

Most commonly used for 911 access, this feature routes PRI calls to the network via an operator access code and N11, where N is any digit from 1 to 9.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

## 7.17.9 Direct Inward Dialing

### Definition

The basic electronic key telephone system (EKTS) supports the sharing of directory numbers over several ISDN lines, allowing for direct inward dialing (DID).

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | STMD8                | STLS 4    | STLS 4      |
| SW requirements      | Release 1.0 or later |           |             |

### Dependencies/Limitations

| Subject | Dependency/Limitation                                                                                              |
|---------|--------------------------------------------------------------------------------------------------------------------|
| DID     | The extensions in the CS must at the very least be outward restricted and direct inward dialing must be permitted. |

## 7.17.10 Multiple Subscriber Number

### Definition

Multiple subscriber numbers (MSNs) are used to identify ISDN terminals connected to an  $S_0$  bus in the Hicom 150 E systems. MSNs are 11 digits in length. They are entered in the DID number field in system administration.

You can assign each ISDN terminal one or two MSNs, depending on the application. A device requiring 64 Kbps of bandwidth must be assigned one MSN; a device requiring 128 Kbps of bandwidth must be assigned two MSNs. The call number associated with the MSN is dialed to reach the device during an internal data or voice transaction.

### Model-Specific Data

| Subject              | OfficePro                             | OfficeCom                             | OfficePoint                           |
|----------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Feature available in | <b>x</b>                              | <b>x</b>                              | <b>x</b>                              |
| HW requirements      | STMD8 or<br>optiset E<br>ISDN adapter | STLS4<br>or optiset E<br>ISDN adapter | STLS4<br>or optiset E<br>ISDN adapter |
| SW requirements      | Release 1.0 or later                  |                                       |                                       |

### Dependencies/Limitations

| Subject                        | Dependency/Limitation                                                                                                                                           |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MSN                            | MSNs are assigned in the DID number field for each ISDN terminal. This number is used as the internal SPID for the device.                                      |
| Primary Directory Number (PDN) | The PDN associated with public network BRI link must be entered in the DID field for the ISDN terminal to initiate calls to the external network.               |
| MSN for internal use only      | Enter a seven-digit number not associated with the PDN in the DID field.                                                                                        |
| External SPIDs                 | The public network SPIDs for the ISDN links can be assigned to any station in the system.                                                                       |
| B channels                     | The number of external data calls is limited to the number of B channels installed in the system.                                                               |
| Access                         | B channels are dedicated to the specific ISDN terminal and should be placed in a separate trunk group to ensure access if more than one BRI trunk is installed. |

## Implementing Features

### *U.S. ISDN Features (for U.S. Only)*

For internal distribution only

| Subject | Dependency/Limitation                                                                                                                                                                                                                                                           |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MSN     | If the MSN for a Setup is missing or invalid, a default MSN appropriate to the situation is used. When a station number is specified that is already in use (optiset E), the Setup is rejected. If an MSN is too long, a right-justified evaluation of the digits is performed. |

## 7.17.11 Calling Line Identification Presentation

### Definition

The calling line identification presentation (CLIP) feature transmits the caller's own station number to the interface called. The station number can be displayed on suitable telephones. Station number transmission must be supported in the public network.

### Model-Specific Data

| Subject              | OfficePro                        | OfficeCom | OfficePoint |
|----------------------|----------------------------------|-----------|-------------|
| Feature available in | <b>x</b>                         | <b>x</b>  | <b>x</b>    |
| HW requirements      | optiset E telephone with display |           |             |
| SW requirements      | Release 1.0 or later             |           |             |

## 7.17.12 Call Forwarding

### Definition

All calls for the ISDN port can be forwarded. Three different types of call forwarding (CF) are available:

- Call forwarding unconditional (CFU)  
All calls for the ISDN port are immediately forwarded to any port.
- Call forwarding busy (CFB)  
Same as CFU but only for busy trunk.
- Call forwarding no reply (CFNR)  
Same as CFU but only if the call is not answered within a specified period (15 s).

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

### Dependencies/Limitations

| Subject                    | Dependency/Limitation                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| CF                         | Forwarding is always performed for the first basic access, necessitating that the first S <sub>0</sub> port is present in the system. |
| CF                         | This service is activated telephony, speech, and 3.1 kHz audio only.                                                                  |
| Internal to S <sub>0</sub> | Only CFU is supported for internal station, otherwise, conflicts with call management would occur.                                    |

### 7.17.13 Call Hold

#### Definition

Call hold (CH) is important in conjunction with other features such as call waiting, consultation hold, toggle, and three-party conference. The ISDN port on hold receives an indication of the hold state and retrieval of the call.

#### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

#### Dependencies/Limitations

| Subject | Dependency/Limitation                                                                                                                                             |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CH      | Possible at multi-device connections only. In the case of PABXs, the connection is placed on hold in the CS. The information element is transmitted to the trunk. |
| CH      | Non-ISDN stations do not receive an advisory announcement (except that the station is placed on hold in the CS).                                                  |
| CH      | A call can be placed on hold only in the active phase or during connection setup.                                                                                 |

## 7.17.14 Three-Party Service

### Definition

A three-party (3PTY) conference is possible with a multi-device connection. The conference status is indicated at the relevant ISDN port.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

### Dependencies/Limitations

| Subject                         | Dependency/Limitation                                                                                                                            |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 3PTY                            | At multi-device connections only. In the case of CSs, the conference is executed in the CS. The information element is transmitted to the trunk. |
| 3PTY internal to S <sub>0</sub> | The other conference participants are connected in the system; therefore, only one channel is required to the S <sub>0</sub> bus.                |



## 7.17.15 Call Waiting

### Definition

If a station is busy and a second call is pending, the busy station receives call waiting. The call waiting (CW) status is transmitted to the trunk. The busy station has the option of answering the waiting call.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

### Dependencies/Limitations

| Subject | Dependency/Limitation                                                                                                                          |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------|
| CW      | At multi-device connections only. In the case of CSs, call waiting is executed in the CS. The information element is transmitted to the trunk. |

## **7.17.16 Connected Line Identification Presentation and Restriction**

### **Definition**

The Connected Line Identification (COLI) Presentation and Restriction feature provides the user with a display of the number called, or it restricts the user's network-provided number from being displayed to the calling party.

### **Model-Specific Data**

| <b>Subject</b>       | <b>OfficePro</b>     | <b>OfficeCom</b> | <b>OfficePoint</b> |
|----------------------|----------------------|------------------|--------------------|
| Feature available in | <b>x</b>             | <b>x</b>         | —                  |
| HW requirements      | —                    | —                | —                  |
| SW requirements      | Release 1.0 or later |                  | —                  |

## 7.17.17 Dialed Number Identification Service

### Definition

The Dialed Number Identification Service (DNIS) feature translates an external user's CO LEC/IEC number to a customer-defined DNIS number.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

## 7.17.18 B Channel Selection

### Definition

This feature searches the low-low B channel selection algorithm for an available B channel, starting each new search at the lowest numbered B channel of the lowest numbered DS1 facility in the PRI trunk group, and it continues in ascending order. In addition, this feature searches the high-high B channel selection algorithm for an available B channel, starting each new search at the highest numbered B channel of the highest numbered DS1 facility in the PRI trunk group, and it continues in descending order.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

## 7.17.19 Originating B Channel Selection Implementation

### Definition

For originating calls, this feature specifies a preferred B channel to the CO. If the preferred B channel is not available, the CO responds with an alternate B channel.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

## 7.17.20 Terminating B Channel Selection

### Definition

For terminating calls, the CO specifies the B channel it has selected. If the Hicom 150 E Office determines that the requested B channel is not available and that it is not exclusive, the Hicom 150 E Office responds with an alternate B channel.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

### Requirements/Conditions

| Subject                  | Requirement/Condition                                                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No appropriate B-channel | If the Hicom 150 E Office cannot accept the call on an appropriate B channel, it rejects the call with cause value #34, <i>channel congestion</i> , or cause value #44, <i>requested channel not available</i> . |

## 7.17.21 B Channel Cut-Through Operation Mode

### Definition

North American ISDN PRI most often requires that the B channel voice path cut-through to the network before connecting. This cut-through operation is different than most other parts of the world. For this reason, the ISDN service providers often provide in-band tones or announcements that require a cut-through of the voice path.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

## 7.17.22 Digital Keypad to DTMF Conversion on PRI

### Definition

This feature converts digital keypad information to dual-tone multifrequency (DTMF) signals and sends the signals in-band over the PRI B channel.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |



## 7.17.23 En-Bloc Sending

### Definition

With this feature, the Hicom 150 E Office sends and receives blocks of data (complete telephone numbers) to and from the public network. The numbers are stored in the system and not forwarded to the network until the user finishes dialing.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

## 7.17.24 Data Calls

### Definition

This feature transfers data over the PRI. Facility type and LEC/IEC calling service influence this service. Refer to the specific vendor for specific requirements for PRI data transmission.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | x                    | x         | —           |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           | —           |

## 7.17.25 Basic Electronic Key Telephone System

### Definition

Electronic Key Telephone System (EKTS) is a National ISDN-1 standard that supports call appearances according to the directory number. This group-sharing capability associates a telephone on any interface with a particular directory number. EKTS enables sharing of telephone features like call management, caller ID, conference calling, and call forwarding.

### Model-Specific Data

| Subject              | OfficePro | OfficeCom            | OfficePoint |
|----------------------|-----------|----------------------|-------------|
| Feature available in | —         | <b>x</b>             | <b>x</b>    |
| HW requirements      | —         | —                    | —           |
| SW requirements      | —         | Release 1.0 or later |             |

## 7.17.26 Call Appearance Call Handling Electronic Key Telephone System

### Definition

Call Appearance Call Handling Electronic Key Telephone System (CACH EKTS) simulates multiple call handling at a single desktop station. Users can receive multiple calls for the same directory on several ISDN lines using one of the call appearance IDs that is assigned to the directory number. With this feature, the CO can offer a call on multiple interfaces because the directory number call appearances are shared. This allows the Hicom 150 E Office to respond to the call with an idle interface. CACH is called call appearance identification (CAID) in the Hicom 150 E Office.

### Related Topic

Section 8.11, *Configuring BRI Trunks (OfficePoint and OfficeCom) (for U.S. Only)*

### Model-Specific Data

| Subject              | OfficePro | OfficeCom            | OfficePoint |
|----------------------|-----------|----------------------|-------------|
| Feature available in | —         | x                    | x           |
| HW requirements      | —         | —                    | —           |
| SW requirements      | —         | Release 1.0 or later |             |

### Requirements/Conditions

| Subject                                      | Requirement/Condition                                                                                                                                                                                            |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call appearance identification (CAID) values | In a basic EKTS system CAID values are not supported. The AT&T 5E and Siemens EWSD central offices support the CAID format. The Northern Telecom central offices use phantom DID numbers instead of CAID values. |

## 7.17.27 Called and Calling Party Display

### Definition

With called and calling party number display services like dialed number identification service (DNIS) and automatic number identification (ANI) are provided by the network. DNIS is for T1 digital trunks and ANI is for PRI trunks. The calling party number (CPN) is displayed on a suitable display telephone.

With this feature, the system performs the following functions:

1. Checks the calling number against any ANI or DNIS table entries
2. Translates the digits into an account number, customer name, or company name
3. Routes the call
4. Displays the information on the telephone display

Users can override this feature system wide.

### Model-Specific Data

| Subject              | OfficePro            | OfficeCom | OfficePoint |
|----------------------|----------------------|-----------|-------------|
| Feature available in | <b>x</b>             | <b>x</b>  | <b>x</b>    |
| HW requirements      | —                    | —         | —           |
| SW requirements      | Release 1.0 or later |           |             |

### Requirements/Conditions

| Subject   | Requirement/Condition                                                                    |
|-----------|------------------------------------------------------------------------------------------|
| T1 Trunks | T1 trunks support DTMF signaling only.                                                   |
| Protocols | The protocols for processing ANI and DNIS digits depends on the service and the carrier. |

## 7.17.28 Connected Party Display

### Definition

For users calling from a Hicom 150 E Office telephone, this feature displays the connecting party number through the BRI if the public network provides it. If the connected party number information is *restricted*, the Hicom 150 E Office does not forward or use the connected party number for any purpose.

Users can override this feature system wide.

### Model-Specific Data

| Subject              | OfficePro | OfficeCom            | OfficePoint |
|----------------------|-----------|----------------------|-------------|
| Feature available in | —         | x                    | x           |
| HW requirements      | —         | —                    | —           |
| SW requirements      | —         | Release 1.0 or later |             |

## 7.17.29 Message Waiting

### Definition

This feature indicates that there is a message waiting through one of the following indicators:

- Displaying a message on optiset E telephones with display
- Signaling with a flashing LED
- After lifting the handset for analog telephones

### Model-Specific Data

| Subject              | OfficePro | OfficeCom            | OfficePoint |
|----------------------|-----------|----------------------|-------------|
| Feature available in | —         | x                    | x           |
| HW requirements      | —         | —                    | —           |
| SW requirements      | —         | Release 1.0 or later |             |

## 7.17.30 Internal Voice Mail

### Definition

When the Hicom 150 E Office system forwards a call arriving over the ISDN/Central Office interface to the local voice mail system, the control information specifies where the forwarded call originated. The system alerts users that they have a message waiting through the following methods:

- Displaying a message on optiset E telephones with display
- Signaling with a flashing LED
- Picking up the handset

### Model-Specific Data

| Subject              | OfficePro | OfficeCom            | OfficePoint |
|----------------------|-----------|----------------------|-------------|
| Feature available in | —         | <b>x</b>             | <b>x</b>    |
| HW requirements      | —         | —                    | —           |
| SW requirements      | —         | Release 1.0 or later |             |



## 7.18 Host Link Interface (CSTA)

### Definition

Communication between Hicom 150 E Office and the applications running on host computers (Plus Products) is facilitated by:

- the V.24 (RS-232) application programming interface (CSTA protocol, 19200 baud)
  - Customers must use a converter to support Plus Products that use ACL-H2. The converter converts all messages and message procedures based on the ACL-H2 protocol to the CSTA protocol and vice versa. The converter has been implemented as a driver that runs under Microsoft Windows 95/98.
  - Plus Products that support the CSTA protocol standardized by ECMA can be connected directly (for example, Hicom Agentline Office V1.1 CSTA).
- An S<sub>0</sub> interface configured as a station (ISDN/USBS)
- An optiset E ISDN adapter (TA S<sub>0</sub>) (ISDN/USBS)
- the LAN interface (Ethernet), Release 3.0 or later  
For more information on this subject, refer to [Chapter 13](#).

Releases 1.0 to 2.2 of Hicom 150 E Office support CSTA Phase II. As of Release 3.0, CSTA Phase III is also supported.

The connected application determines whether CSTA Phase II or Phase III will be used for connection setup.



Contact your local service center for up-to-date information about the applications supported in the different countries.

## OfficePro, OfficeCom, OfficePoint Interfaces for Applications

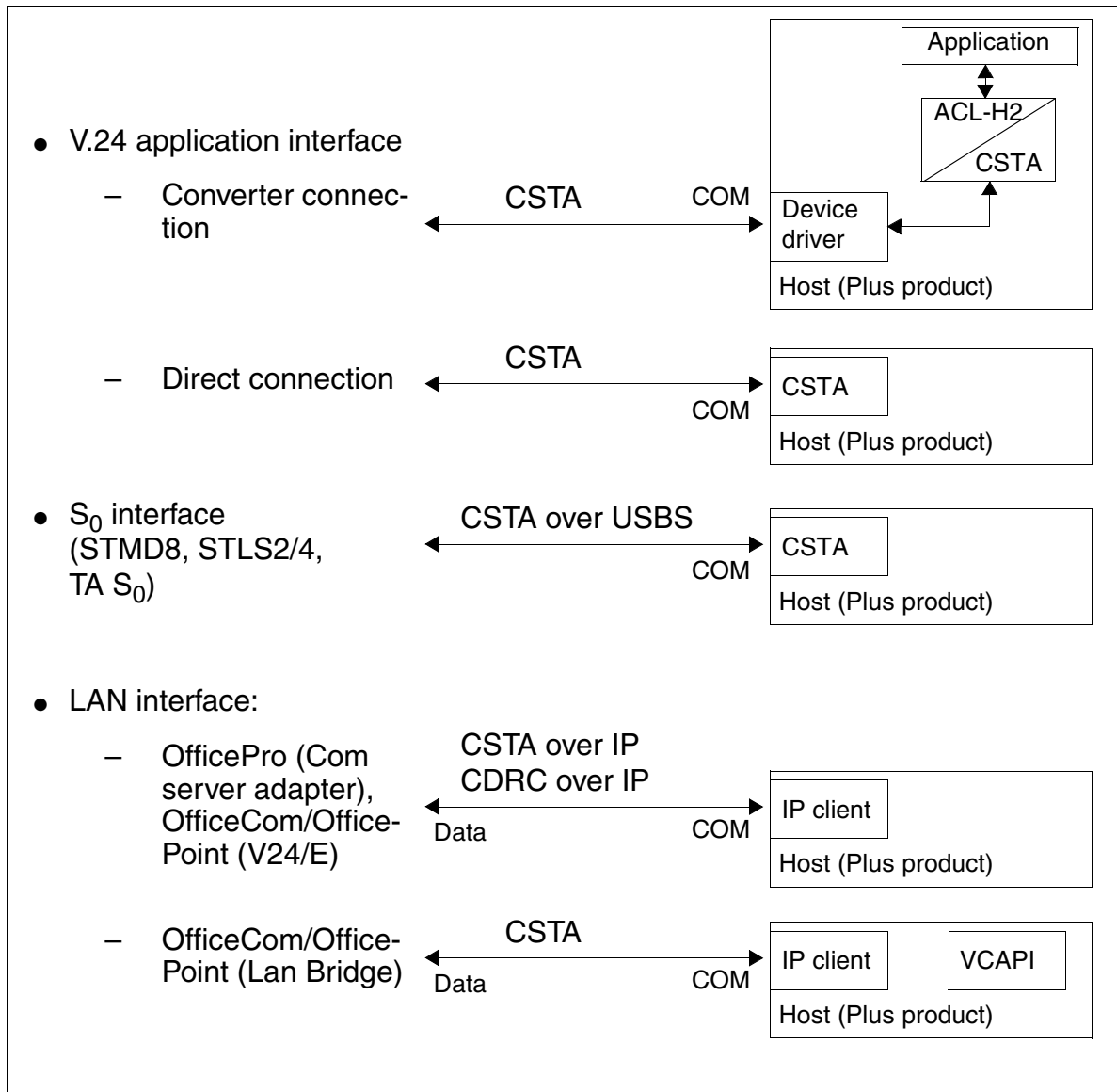


Figure 7-14 OfficePro, Com, Point - Interfaces for Applications

## 8 Configuration Guidelines

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## 8.1 Call Detail Recording Using a Serial Printer

### Introduction

The Hicom 150 E Office can use a dot-matrix printer as a call charge printer (serial data transmission) or as an output device for a call charge computer or manager (parallel data transmission).



Refer to the documentation that came with the printer for information on installing the printer.


**Caution**

Be sure to read the safety precautions and handling instructions from the printer manufacturer.

### System Settings

Using Hicom Assistant T, this example demonstrates the process for configuring a serial printer.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry            | Action                         | Display               |
|------|------------------|--------------------------------|-----------------------|
| 1.   | <b>*95</b>       | Start system administration.   | System administration |
| 2.   | <b>22-13-1 ✓</b> | Set baud rate.                 | V.24 port 1: 9600     |
| 3.   | <b>F7</b>        | Return to: V.24 configuration. | V.24 configuration    |
| 4.   | <b>2</b>         | V.24 port allocation           | Port allocation       |
| 5.   | <b>1 2</b>       | Port for CDR central           | V.24 port: -          |
| 6.   | <b>*1 ✓</b>      | Select port for CDR central.   | V.24 port: 1          |
| 7.   | <b>F8</b>        | Return to main menu.           | System administration |
| 8.   | <b>11-3-1 ✓</b>  | Determine print format.        | Output: Compressed    |
| 9.   | <b>F2 ✓</b>      | Go to: Stn number format       | Digit suppression: No |
| 10.  | <b>F2 ✓</b>      | Go to: Incoming call           | Output: No            |
| 11.  | <b>F2 ✓</b>      | Go to: Call duration           | Output: Yes           |
| 12.  | <b>F2 ✓</b>      | Go to: Print MSN               | Output: No            |
| 13.  | <b>F2 ✓</b>      | Go to: ISDN unit               | Trk grp 1: 12         |
| 14.  | <b>F2 ✓</b>      | Go to: Call log                | Output: No            |

| <b>Step</b> | <b>Entry</b> | <b>Action</b>               | <b>Display</b> |
|-------------|--------------|-----------------------------|----------------|
| 15.         | F8 F7        | Exit system administration. | Time, Date     |

**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b>                                                    | <b>Action</b>                                     |
|----------------------------------------------------------------|---------------------------------------------------|
| 1.                                                             | System status -> Call charges -> Output -> Format |
| 2.                                                             | System status -> Call charges -> Factors          |
| Note: Only Hicom Assistant T can be used to set the baud rate. |                                                   |

## 8.2 Call Detail Recording Using a P 500 Printer (Not for U.S.)

### Settings in the System

#### Configuring the Feature Using Hicom Assistant T

| Step | Entry            | Action                        | Display               |
|------|------------------|-------------------------------|-----------------------|
| 1.   | <b>*95</b>       | Start system administration   | System administration |
| 2.   | <b>22-13-1 ✓</b> | Set baud rate                 | 2400 or 9600 bd       |
| 3.   | <b>F7</b>        | Return to: <i>V.24 config</i> | V.24 config.          |
| 4.   | <b>2</b>         | V.24 (RS-232) port allocation | Port alloc.           |
| 5.   | <b>1</b>         | Port for CDR central          | V.24 port: -          |
| 6.   | <b>*1 ✓</b>      | Select port for CDR central   | V.24 port: 1          |
| 7.   | <b>F8</b>        | Return to main menu           | System administration |
| 8.   | <b>11-3-1 ✓</b>  | Define print format           | Output: Compressed    |
| 9.   | <b>F2 ✓</b>      | Go to: Stn. number format     | Suppress digits: No   |
| 10.  | <b>F2 ✓</b>      | Go to: Incoming call          | Output: No            |
| 11.  | <b>F2 ✓</b>      | Go to: Call duration          | Output: Yes           |
| 12.  | <b>F2 ✓</b>      | Go to: Call charge factor     | Factor: 12            |
| 13.  | <b>F2 ✓</b>      | Go to: Currency               | Currency: DM          |
| 14.  | <b>F2 ✓</b>      | Go to: ISDN unit              | Factor: 12            |
| 15.  | <b>F2 ✓</b>      | Go to: Call log               | Output: No            |
| 16.  | <b>F2 ✓</b>      | Go to: Print MSN              | Output: No            |
| 17.  | <b>F8 F7</b>     | Exit system administration    | Time, Date            |

#### Configuring the Feature Using Hicom Assistant E

| Step                                                     | Action                                                                   |
|----------------------------------------------------------|--------------------------------------------------------------------------|
| 1.                                                       | Port settings for CDRC<br>System status -> Call charges -> Output format |
| 2.                                                       | Factors and currency<br>System status -> Call charges -> Factors         |
| Only Hicom Assistant T can be used to set the baud rate. |                                                                          |



### 8.3 Call Detail Recording Using a Call Charge Computer (GCM, Teledata) (Not for U.S.)

#### Settings in the System

#### Configuring the Feature Using Hicom Assistant T

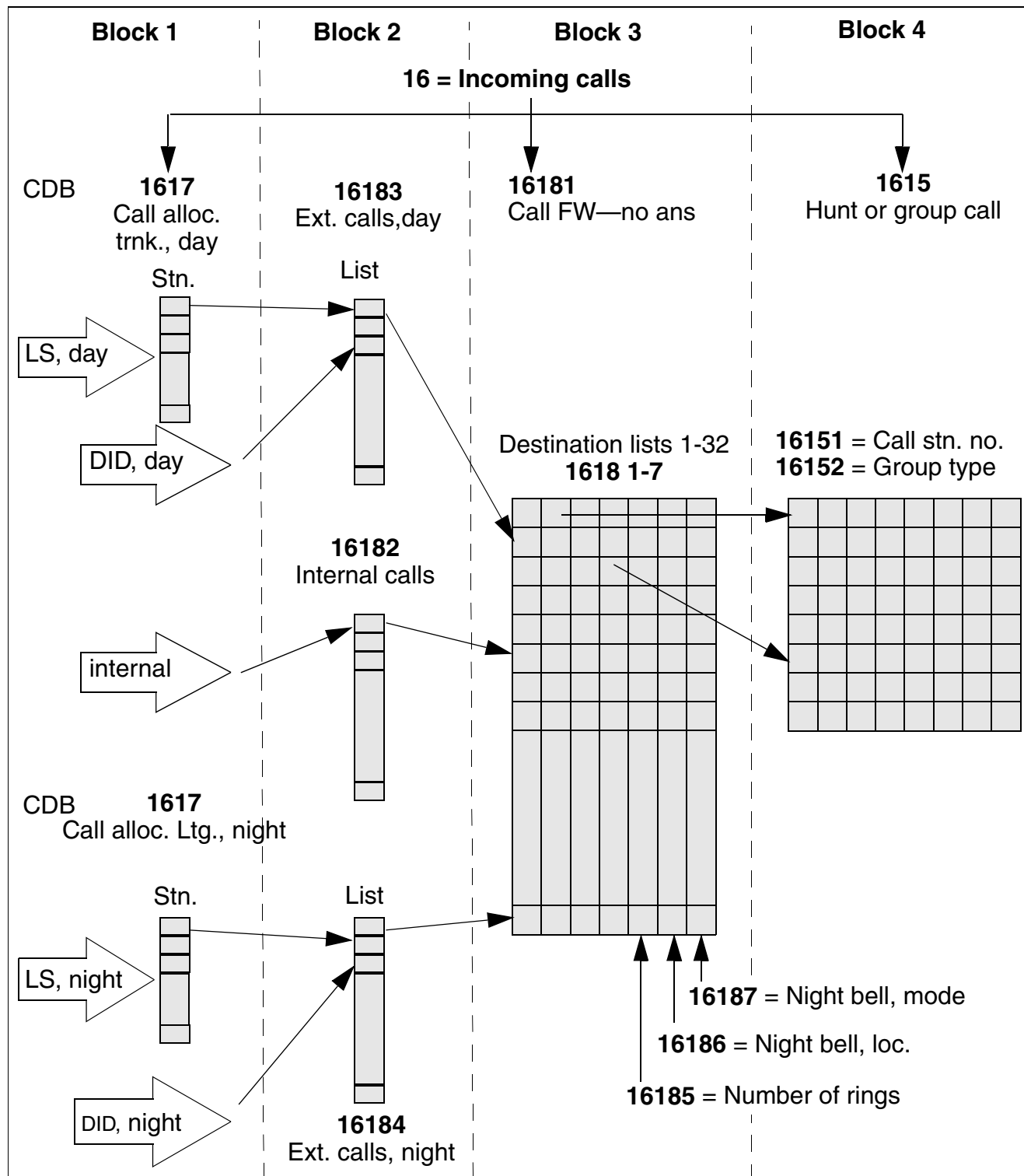
| Step | Code       | Action                                                                        | Display                                                          |
|------|------------|-------------------------------------------------------------------------------|------------------------------------------------------------------|
| 1.   | <b>*95</b> | Start system administration                                                   | System administration                                            |
| 2.   | 22-13-1    | Set baud rate<br>(2400 or 9600 baud)                                          | 2400 or 9600 bd                                                  |
| 3.   | 22-13-2-11 | Select output port:<br>U <sub>P0/E</sub> or V.24 (RS-232)                     | Port:<br>0 = None<br>1 = V.24 port<br>2 = U <sub>P0/E</sub> port |
| 4.   | 22-13-2-12 | Select interface:<br>1 or 2 for OfficePro<br>1 to 5 for OfficePoint/OfficeCom | V.24 port                                                        |
| 5.   | 11-3-1     | Set call data record output to <i>Compressed</i>                              | Output: Compressed                                               |
| 6.   | 11-3-3     | Set incoming calls to <i>No</i>                                               | Output: No                                                       |
| 7.   | 11-7       | Set call log to <i>No</i>                                                     | Output: No                                                       |

#### Configuring the Feature Using Hicom Assistant E

| Step                                                         | Action                                                                   |
|--------------------------------------------------------------|--------------------------------------------------------------------------|
| 1.                                                           | Port settings for CDRC<br>System status -> Call charges -> Output format |
| Only the Hicom Assistant T can be used to set the baud rate. |                                                                          |

## 8.4 Displaying an Incoming Call as a Company Name

### Overview of Call Management



### Parameters for the Example

- A station must be available for a station name to be assigned (if possible, a station should be selected that does not exist at the hardware level).
- This station must be configured with *Answer machine* as its device type.
- Assign the station to an index in call management with an initial entry of an asterisk (\*) so the station name can be forwarded. In the second entry, enter the number of the station to be called with the station name (this entry can also be a group).

### Example

- DID number 250 is assigned to ABC Company.
- Station 200 is the number called, using both visual and auditory signals.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                               | Display                 |
|------|------------|--------------------------------------|-------------------------|
| 1.   | <b>*95</b> | Start system administration          | System administration   |
| 2.   | 14-11      | Display <i>Station type</i> menu     | Stn 200: Standard       |
| 3.   | #          | Initiate station selection           | Stn:                    |
| 4.   | 250        | Select station 250                   | Stn: 250                |
| 5.   | ✓          | Confirm selection of station 250     | Stn 250: Standard       |
| 6.   | *          | Change station type                  | Stn 250:                |
| 7.   | 4          | <i>Answer machine</i> station type   | Stn 250: Answer machine |
| 8.   | ✓          | Confirm entry                        | Stn 250: Answer machine |
| 9.   | F7         | Return to: Configure station         | Configure station       |
| 10.  | 12         | Station names                        | Stn 200: -              |
| 11.  | #          | Initiate station selection           | Stn:                    |
| 12.  | 250        | Select station 250                   | Stn: 250                |
| 13.  | ✓          | Confirm selection of station 250     | Stn 250: -              |
| 14.  | *          | Change station name                  | Stn 250:                |
| 15.  | ABC Co.    | Enter <i>ABC Co.</i> as station name | Stn 250: ABC Co.        |

*Displaying an Incoming Call as a Company Name*

| Step | Entry | Action                                          | Display                 |
|------|-------|-------------------------------------------------|-------------------------|
| 16.  | ✓     | Confirm station name                            | Stn 250: ABC Co.        |
| 17.  | F8    | Return to main menu                             | System administration   |
| 18.  | 16    | Initiate selection of <i>Incoming calls</i>     | Incoming calls          |
| 19.  | 18    | Initiate selection of <i>Call FWD - no ans</i>  | Call FWD - no ans       |
| 20.  | 1     | Initiate selection of <i>Destination list 1</i> | List 1, Dest. 1: called |
| 21.  | +     | Select <i>Next</i>                              | List 1, Dest. 2: -      |
| 22.  | *     | Select <i>Change</i>                            | List 1, Dest. 2:        |
| 23.  | 200   | Select station 200                              | List 1, Dest. 2: 200    |
| 24.  | ✓     | Confirm station 200                             | List 1, Dest. 2: 200    |
| 25.  | F7    | Return to: Call FWD - no ans                    | Call FWD - no ans       |
| 26.  | 3     | Initiate selection of <i>Ext call, day</i>      | List for stn 200: 30    |
| 27.  | #     | Initiate <i>Select station no.</i>              | List for stn            |
| 28.  | 250   | Select station 250                              | List for stn 250        |
| 29.  | ✓     | Confirm station 250                             | List for stn 250: 30    |
| 30.  | *     | Select <i>Change</i>                            | List for stn 250:       |
| 31.  | 1     | Select destination list 1                       | List for stn 250: 1     |
| 32.  | ✓     | Confirm destination list 1                      | List for stn 250: 1     |
| 33.  | F8 F7 | Exit system administration                      | Time and date           |

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                                                                                               |
|------|--------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Configure station type:<br>Options -> Set up station-> Param -> Type                                                                 |
| 2.   | Enter name:<br>Options -> Set up station -> Station                                                                                  |
| 3.   | Enter destination:<br>Options -> Incoming calls -> Call destination lists<br>Options -> Incoming calls -> Assignment int./ext. calls |

## **8.5 Busy Signal for Call Waiting Parties on the AC When B Channels Are Still Available (Call Waiting Rejection)**

### **Introduction**

You can configure the attendant console (AC) so that a waiting call receives a busy signal even if a B channel is available.

### **Example**

Extension 100 is the attendant console.

### **Configuring the Feature Using Hicom Assistant T**

| <b>Step</b> | <b>Entry</b> | <b>Action</b>                   | <b>Display</b>        |
|-------------|--------------|---------------------------------|-----------------------|
| 1.          | <b>*95</b>   | Start system administration     | System administration |
| 2.          | 14-16        | Activate call waiting rejection | Stn 100: Off          |
| 3.          | * 1 ✓        | Activate call waiting rejection | Stn 100: On           |
| 4.          | F8 F7        | Exit system administration      | Time, date            |

### **Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                 |
|-------------|-----------------------------------------------|
| 1.          | Options -> Set up station -> Station -> Param |

## 8.6 Configuring Voice Mail

### Introduction

You can configure analog stations as voice mail connections (Memo for Hicom is available for this purpose outside the U.S.). Stations with a mailbox can forward their calls to voice mail.

For U.S. only: For information on configuring the Hicom 150 E for Octel and INTUITY systems, refer to [Section C.3](#).

### Example

- Configure analog stations 19 and 20 as voice mail stations
- Make group 31 a linear hunt group
- Assign stations 19 and 20 to this group
- Enter the name *Mail* for group 31

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                                                                                    | Display                  |
|------|------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1.   | <b>*95</b> | Start system administration                                                                                               | System administration    |
| 2.   | 14-11      | Select <i>Configure station, station type</i>                                                                             | Stn 11:Standard          |
| 3.   | # 19 ✓     | Select <i>Analog station</i> and confirm                                                                                  | Stn 19:Standard          |
| 4.   | * 2 ✓      | Change the parameter to voice mail and confirm                                                                            | Stn 19:Voice mail        |
| 5.   | # 20 ✓     | Select second analog station (20) and confirm                                                                             | Stn 20:Standard          |
| 6.   | * 2 ✓      | Change the parameter and confirm                                                                                          | Stn 20: Voice mail       |
| 7.   | F8 16-15-2 | Go to <i>Incoming calls, Hunt/group call</i> . Select <i>Group type</i> menu option<br>If applicable, select group (# xx) | Grp 31: Group call       |
| 8.   | * 1 ✓      | Change group type and confirm                                                                                             | Grp 31:Linear hunt group |
| 9.   | F7 1       | Return to <i>Hunt/group call</i> .<br>Select <i>Group</i> menu<br>If applicable, select group (# xx)                      | Grp 31 Dest. 1:-         |
| 10.  | * 19 ✓     | Enter destination 1 and confirm                                                                                           | Grp 31 Dest. 1:19        |
| 11.  | + ✓        | Go to destination 2 and confirm                                                                                           | Grp 31 Dest. 2:-         |
| 12.  | * 20 ✓     | Enter destination 2 and confirm                                                                                           | Grp 31 Dest. 2:20        |

| Step | Entry    | Action                                                                                                | Display     |
|------|----------|-------------------------------------------------------------------------------------------------------|-------------|
| 13.  | F7 3     | Return to <i>Hunt/group call</i> menu.<br>Select <i>Group name</i> menu option,<br>select group(# xx) | Grp 31:-    |
| 14.  | * Mail ✓ | Enter name of group and confirm                                                                       | Grp 31:Mail |
| 15.  | F8 F7    | Exit system administration                                                                            | Time, date  |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                |
|------|-------------------------------------------------------|
| 1.   | Options -> Set up station -> Station -> Param -> Type |
| 2.   | Options -> Incoming calls -> Hunt group               |

## 8.7 Configuring Toll Restriction per Station

### Introduction

For each station, 15 classes of service (toll restriction) are available. The classes of service assign the stations to allowed lists or denied lists.

- 0 = No toll restriction
- 1 = Only incoming calls are permitted
- 2-7 = Only the numbers in allowed lists 1 to 6 can be dialed
- 8-13 = Numbers in denied lists 1 to 6 cannot be dialed
- 14 = Full access, no restrictions



System speed-dialing destinations can be dialed from every COS.

### Allowed Number List

- One allowed list (Allowed 1) with 100 entries
- 5 additional allowed lists (Allowed 2 to 6), each with 10 entries 25 digits long

Class of service 2 assigns Allowed list 1, class of service 3 assigns Allowed list 2. This pattern repeats itself up to COS 7 and Allowed list 6.

### Denied Number List:

- One long denied list (Denied 1) with 50 entries 25 digits long
- Five additional denied lists (Denied 2 to 6), each with 10 entries 25 digits long

If users select COS 8, the system assigns Denied list 1. If users select COS 9, the system assigns Denied list 2. This pattern repeats itself up to COS 13 and Denied list 6.

### Example

Assign station 250 class of service 2. During the day, this station can access only the emergency numbers (110 and 112) on trunks 1 and 2.



### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                              | Display               |
|------|------------|-----------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                         | System administration |
| 2.   | 15-1       | Restriction, day                                    | Stn 200, Trk 1: Full  |
| 3.   | # 250 ✓    | Select station 250 and confirm                      | Stn 250: like stn 200 |
| 4.   | * 2 ✓      | Select <i>Enter new data</i> and confirm            | Stn 250, Trk 1:       |
| 5.   | 2 ✓        | Select allowed list 1 for trunk group 1 and confirm | Stn 250, Trk 1: A-L 1 |
| 6.   | + * 2 ✓    | Select allowed list 1 for trunk group 2 and confirm | Stn 250, Trk 1: A-L 1 |
| 7.   | F7         | Return to <i>Toll restriction</i>                   | Toll restriction      |
| 8.   | 3-1        | Select allowed list 1                               | Pos 1: -              |
| 9.   | * 110 ✓    | Enter station number 110 and confirm                | Pos 1: 110            |
| 10.  | + * 112 ✓  | Enter station number 112 and confirm                | Pos 2: 112            |
| 11.  | F8 F7      | Exit system administration                          | Time, date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                  |
|------|---------------------------------------------------------|
| 1.   | Options -> Classes of service -> Station                |
| 2.   | Options -> Classes of service -> Allowed/Denied numbers |

## 8.8 Configuring a Fax Machine

### Introduction

To attach a fax machine and program an incoming fax message, you must first configure a station type as *fax*.

### Example

- Analog fax machine with station number 124
- Display fax messages on station 102 (optiset E standard) by pressing a key

### Configuring the Feature Using Hicom Assistant T

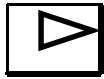
| Step | Entry      | Action                                | Display               |
|------|------------|---------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration           | System administration |
| 2.   | 14-11      | Configure station type                | Stn 100: Standard     |
| 3.   | # 124 ✓    | Select station number 124             | Stn 124: Standard     |
| 4.   | * 1 ✓      | Select <i>Fax</i> as the station type | Stn 124: Fax          |
| 5.   | F8 F7      | Exit system administration            | Time, date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                |
|------|-------------------------------------------------------|
| 1.   | Options -> Set up station -> Station -> Param -> Type |

### Example

Configure the info key on station 102

| Step | Entry                                                                               | Action                                                                                 | Display                                        |
|------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------|
| 1.   | <b>*91</b>                                                                          | Program the key                                                                        | Please select key                              |
| 2.   |  | Select the key you wish to program                                                     | Nothing saved<br>Change key?                   |
| 3.   | ✓                                                                                   | Confirm the key change                                                                 | Select feature:<br>Station No.:                |
| 4.   |  | Press the <i>Scroll</i> key until <i>Message for fax.answ.?</i> appears on the display | Select feature:<br>Message for fax/an-<br>sw.? |
| 5.   | ✓                                                                                   | Confirm your selection                                                                 | Message from:                                  |

| <b>Step</b> | <b>Entry</b> | <b>Action</b>        | <b>Display</b> |
|-------------|--------------|----------------------|----------------|
| 6.          | 124 ✓        | Enter the fax number | Saved<br>End?  |
| 7.          | ✓            | Exit key programming | Date, time     |

## 8.9 Configuring an ISDN System Interface (Not for U.S.)

### Introduction

The system number must be entered **without prefix** and **without attendant code**. DID is not possible without a system station number. The system station number must be entered for each trunk group.

### Example

- Country: 49
- Prefix: 02302
- System station number: 4711-0

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                         | Display               |
|------|------------|--------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration    | System administration |
| 2.   | 20-2       | Select the system number       | System stn number     |
| 3.   | 1          | Select the port number         | TG 1: -               |
| 4.   | * 4711 ✓   | Enter the port number          | TG 1: 4711            |
| 5.   | F2         | Go to: National number         | TG 1: -               |
| 6.   | * 2302 ✓   | Enter the national number      | TG 1: 2302            |
| 7.   | F2         | Go to: International number    | TG 1:                 |
| 8.   | * 49 ✓     | Enter the international number | TG 1: 49              |
| 9.   | F8 F7      | Exit system administration     | Time, date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Options -> Lines/networking -> Routes |

## 8.10 Configuring PRI Trunks (OfficePro and OfficeCom) (for U.S. Only)

### Introduction

Configuring an ISDN PRI trunk requires that customers specify the protocol type and the type of trunk group calling service supported by the ISDN provider. The Hicom 150 E also supports call-by-call service selection as the trunk group calling service (refer to [Section 7.17.2](#)).

For a complete description on configuring PRI, refer to [Section C.1, \*Configuring a Primary Rate Interface \(PRI\) ISDN\*](#)

### 8.10.1 Ordering PRI

You should be prepared to tell the PRI provider what the customer has ordered for the following parameters:

- Type of span: superframe (SF) or extended superframe (ESF)
- Zero code suppression (ZCS). The two methods are alternate mark inversion (AMI, which is simply referred to as ZCS in the Hicom 150 E) and binary eight zero substitution (B8ZS).
- Facility-associated signaling (FAS). (The Hicom 150 E does not support non-facility-associated signaling or NFAS).
- No D-channel backup (not supported by the Hicom 150 E)
- Clear 64 kbps channels or restricted (56 kbps)
- Echo canceling or suppression

**Data support:** Customers who want PRI ISDN for voice and data should order:

- ESF
- B8ZS
- No echo canceling

**Voice support:** Customers who want PRI ISDN for voice only should order:

- SF
- AMI (ZCS)
- Echo canceling

Refer to [Section C.1, \*Configuring a Primary Rate Interface \(PRI\) ISDN\*](#) for examples of configuring a primary rate interface and refer to [Section 7.16.1](#) for an overview of PRI parameters.



For specific ISDN parameters, you may need to contact the PRI ISDN provider.

**Related Topics:**

- [Section 7.16, \*U.S. ISDN \(for U.S. Only\)\*, on page 7-488](#)
- [Section C.1, \*Configuring a Primary Rate Interface \(PRI\) ISDN\*](#)

## 8.10.2 Terms for Ordering and Provisioning PRI (for U.S. Only)

The following terms are used by customer premise equipment (CPE) vendors and exchange carriers for the ordering and provisioning of ISDN primary rate interface.

**B-Channel Allocation Mode:** The method the system uses to find an available B channel when needed (high-high or low-low). High-high mode begins searching at the highest-numbered B channel of the highest-numbered T1 span in the PRI trunk group and continues in descending order. Low-low begins searching at the lowest-numbered B channel of the lowest-numbered T1 span in the PRI trunk group and continues in ascending order. The mode in the system must be the opposite of that used by the CO to avoid collisions when both the CO and the Hicom 150 E Office are trying to seize a B channel.

**Bit Error Rate Test (BERT):** This is a test performed by a technician using an ISDN test set to determine line quality. The test process creates a loop to send and receive blocks of data and calculate discrepancies. With this test, the technician can isolate static and dropped calls caused by bad central office equipment and faulty outside plant cables.

**Bonding:** This is the process of combining B-channel bandwidths to increase data transfer capabilities; for example, bonding B1 (64kbps) with B2 (64kbps) would equal 128kbps.

**Call-by-call service selection (CBC):** Configuration parameter that allows the customer to assign different services to different channels within a trunk group (refer to [Section 7.17.2](#)).

**CBC-pool:** A group of facility provider offerings (such as INWATS or OUTWATS) that can be assigned to channels in a trunk group.

**CBC-position:** A channel that has access to a CBC-pool.

**Data Format:** Data can be transmitted using normal high-level data link control (HDLC) or inverted HDLC. The data format is determined by the emulation type.

**Emulation Type:** The frame protocol used between the system and the ISDN facility provider: Super Frame (SF) or Extended Super Frame (ESF). The data format for SF emulation is inverted high-level data link control (HDLC); the data format for ESF is normal HDLC.

**Frame/Line/Encoding:** Parameter used to select the emulation type, zero-code suppression, and data format in the Hicom 150 E. Normal encoding is associated with ESF emulation and B8ZS zero code suppression; inverted encoding is associated with SF emulation and AMI (ZCS) zero code suppression.

**Integrated Services Digital Network (ISDN):** This is the digital replacement for analog, plain old telephone service (POTS). Integrated services means that all communication types (voice, data, and video) use the same type of subscriber line. ISDN is the key ingredient in the Hicom 150 E Office architecture. ISDN is popular because of its data capabilities but is also rich with telephony features never before available on analog subscriber lines. The direct inward dialing (DID) capability is a popular Hicom 150 E Office ISDN feature.

**Inter-Exchange Carrier (IEC):** Provider of communications channels between local facility providers. Long-distance companies are an example.

**Local Exchange Carrier (LEC):** Provider of communications channels between local destinations or between local destinations and inter-exchange carriers. Local telephone companies are an example.

**National ISDN-2 (NI-2):** This is an expanded U.S. ISDN standard that offers additional features over NI-1 (defined on page 8-25). The Hicom 150 E supports NI-2 on PRI trunks.

**Protocol Type:** The interface between the Hicom 150 E and the PRI provider. Protocols are different for local exchange carriers (LECs) and for inter-exchange carriers (IECs). Customers can choose a different carrier and protocol for each PRI span. The Hicom 150 E Office system supports seven commonly used LEC protocols and seven commonly used IEC protocols. [Table 7-13](#) and [Table 7-14](#) list the protocols available for each slot.

**Trunk Group Calling Service:** Type of service that the customer orders for each trunk group, such as INWATS, OUTWATS, or 800 service. The Hicom 150 E supports 36 types of trunk group service, including call-by-call selection.

## **8.11 Configuring BRI Trunks (OfficePoint and OfficeCom) (for U.S. Only)**

### **Introduction**

Depending on the central office (CO) protocol selected, you will need to enter some or all the following information for BRI setup:

- CO protocol
- Service profile identifier (SPID) administration
- Call appearance identification (CAID) administration (also known as CACH)
- Phantom direct inward dialing identification (PDID) administration
- Feature identification number (FIN) for message waiting

### **Ordering BRI**

The local exchange carrier groups involved with the provisioning of ISDN BRI are sometimes referred to under the following categories:

- Marketing—takes the request orders (first point of contact)
- Service Orders—creates the ISDN order
- NAC (Network Administration Center) or Line Assignment—assigns the directory numbers
- RCMAC (Recent Change Memory Administration Center)—inputs orders into the central office switch
- Tester—provides testing and trouble shooting of BRI subscriber lines

### **Related Topic:**

- Section 7.16, *U.S. ISDN (for U.S. Only)*, on page 7-488



### 8.11.1 Terms for Ordering and Provisioning BRI (for U.S. Only)

The following terms are used by customer premise equipment (CPE) vendors and exchange carriers for the ordering and provisioning of ISDN basic rate interface.

**Alternate Circuit-Switched Voice/Circuit-Switched Data (CSV/CSD):** This is a basic BRI feature that determines if a B channel supports voice, data, or voice and data. Most Hicom 150 E Office installations will be provisioned to support both voice and data.

**Electronic Key Telephone System (EKTS):** A central office (CO) setting that allows ISDN device to use traditional telephony features such as multiple calls to a device, transfer, conference, call hold, and extra directory numbers (DNs).

**Basic Rate Interface (BRI):** An ISDN subscriber line that supports three simultaneous channels (voice/data paths). The two, 64 kbps *bearer* or *B* channels are managed by an in-band signaling path (D channel). The D channel provides communications between the central office equipment and the Hicom 150 E Office for setting up, routing, and tearing down each call. A BRI is also commonly referred to as 2B+D or 2B+1Q.

**Bit Error Rate Test (BERT):** This is a test performed by a technician using an ISDN test set to determine line quality. The test process creates a loop to send and receive blocks of data and calculate discrepancies. With this test, the technician can isolate static and dropped calls caused by bad central office equipment and faulty outside plant cables.

**Bonding:** This is the process of combining B-channel bandwidths to increase data transfer capabilities; for example, bonding B1(64kbps) with B2(64kbps) would equal 128kbps.

**Call Appearance Call Handling (CACH) EKTS:** This term is specific to Lucent 5ESS and Siemens EWSD central office switches. The CACH setting allows the sharing of DNs across multiple channels and circuits. The number of shared call appearances determines how many concurrent calls to a specific directory number can be handled. For example, if a directory number has three call appearances, shared across three channels, then that number can be called three times before getting a busy signal. Refer to [Table 8-1](#) for an illustration of how CACH is used across each B channel in a system. CACH is one of the methods used to have BRI emulate an analog hunt. Although there is a CACH setting in the NT DMS, it does not react the same; the CACH setting in the DMS does not allow the sharing of DNs.

**Capability Package or Ordering Code:** This BRI feature package simplifies the ordering process and is designed to meet the requirements of CPE vendor's products. The traditional method for establishing capability packages has been established by Bellcore, but today many exchange carriers are creating their own. Three capability

packages created for the OfficePoint 9116 were H3, H4, and H5, but these packages were not widely understood by the exchange carriers and, in most cases, did not suit customer requirements.

**Cause Codes:** This refers to decimal and hex values that show cause and explanation for an action on an ISDN D channel. Refer to the BRI troubleshooting guide for a complete listing of these codes and definitions. Example: Cause Code 16 = Normal call clearing.

**Directory Number (DN):** The main difference between the DN on BRI and the DN on analog is that the DN on BRI can appear on multiple B channels unlike the DN on analog, which can only be assigned exclusively to a single subscriber line.

**Integrated Services Digital Network (ISDN):** This is the digital replacement for analog, plain old telephone service (POTS). Integrated services means that all communication types (voice, data, and video) use the same type of subscriber line. ISDN is the key ingredient in the Hicom 150 E Office architecture. ISDN is popular because of its data capabilities but is also rich with telephony features never before available on analog subscriber lines. The direct inward dialing (DID) capability is a popular Hicom 150 E Office ISDN feature.

**ISDN Multiline Hunt Group (MLHG-I):** Different DNs can be placed in a hunt group to provide management of incoming traffic.

**Key Map or Key Sheet:** The key map is a table of key definitions for BRI lines connected to the Hicom 150 E Office. BRI electronic key service allows users to define up to 64 keys (buttons) on each B channel. These keys can be defined as directory numbers, call appearances, or features. The use of keys was developed to use with individual ISDN voice terminals such as the Siemens NI-1200. For an example of an AT&T 5ESS and EWSD key map refer to [Table 8-1](#). For an example of a DMS 100 key map refer to [Table 8-2](#).

**Key Short Hunt (KSH) (DMS 100 Switch Feature):** This term is specific to Nortel DMS central office switches. Extra DNs can be assigned to keys on a B channel and associated with a PDN. The PDN, which is always on key 1 in the DMS, can then hunt to the extra DNs on the other keys, creating a hunt group. Once all the DNs are shared across multiple channels, the PDN can accept multiple calls. The number of PDNs, combined with the number of channels they are shared across, determines how many concurrent calls a PDN can handle. The key short hunt is the equivalent of CACH on the 5ESS. A key short hunt can only be assigned to a PDN.

**KSH Example:** If a PDN has two extra DNs in the KSH group and all three numbers are shared across three B channels, users can then dial the PDN three times before getting a busy signal. That is, PDN + extra DN#1 + extra DN#2 = 3 concurrent call maximum. For more information refer to [Table 8-2](#).

**Local Loop:** This refers to the physical, single-copper pair connection between the local exchange carrier and the customer's premises. BRI subscriber lines cannot exceed 18,000 feet without the use of repeaters. Depending on the exchange carrier, this limit could impact the decision to order BRI. Some exchange carriers charge fees up to \$1,500 per BRI for the repeater, while other exchange carriers include it, if necessary, at no additional cost.

**Loop Qualification:** This is the process of determining if the local exchange carrier has the proper facilities to deliver BRI. A proper BRI facility must include an 18,000-foot cable, a digital CO switch, and a test of the integrity of the copper pair.

**Multiple Appearances Directory Number (MADN) (DMS 100 Switch Feature):** This feature allows a directory number to appear on more than one B channel (terminal). The combination of KSH and MADN creates the functional equivalent of 5ESS CACH. The combination of KSH and MADN is a method used to have BRI emulate an analog hunt in a DMS. The Hicom 150 E Office requires that all DNs (primary and secondary) be shared across all B channels. Therefore, all DNs are MADN numbers, and all B channels are included in the MADN group.

**National ISDN-1 (NI-1):** This is the standard specification for an ISDN telephone. This specification is based on technical references specified by Bellcore that began the national ISDN infrastructure. Other National ISDN standards, NI-2 and NI-3, will simplify and expand the ISDN feature set.

**Network Termination 1 (NT-1):** The physical interface located at the customer's premises, which connects CPE to the ISDN subscriber line. The Hicom 150 E Office has an NT-1 built into every BRI trunk port.

**Primary Inter-Exchange Carrier (PIC):** This refers to the long-distance carrier responsible for routing any call to a directory number that is preceded by a one.

**PIC Code:** All inter-exchange carriers (long distance) have an associated PIC code that is assigned to a directory number, which provides long-distance service exclusively for that directory number or call appearance. Every DN and its associated call appearances needs to be assigned a PIC code on every channel.

**PIC Code Example:** A directory number like 516-555-1212 is assigned by the CO a PIC code of 288 (AT&T).

**Primary Directory Number (PDN):** This is the 10-digit telephone number within the SPID that is physically assigned to each B channel of an ISDN circuit. The PDN must be assigned to devices using central office features such as voice mail message waiting indicators, CO-based telephony features, and ISDN terminals that are connected to the Hicom 150 E Office S<sub>0</sub>-bus.

**Recent Change Memory Administration Center (RCMAC):** The RCMAC acronym is used by some local exchange carriers to describe the group that implements ISDN orders.

**Repeater:** A device connected to the outside plant cable span to provide ISDN service to customers beyond the 18,000 foot central office distance limit. This device cleans and regenerates the digital signal, and it ensures a signal loss of less than 42dB.

**Secondary Directory Number (SDN):** These numbers are additional directory numbers (DNs) ordered for an ISDN circuit. An SDN is a software only number, which is located in association to a PDN in the CO. SDN is used when assigning DID to an optiset E telephone or other analog device. Hicom 150 E Office ISDN terminals and CO message waiting indicators are not supported over an SDN.

**Service Profile Identifier (SPID):** An 8- to 12-digit number that uniquely identifies a B channel. Each BRI is assigned two SPIDS. For example, B1: 84780634710101 and B2: 84700633790101. SPID formats vary, depending on the local exchange carrier. Users should check with the local exchange carrier for the SPID format that the telephone service provider uses.

**Sharing:** This general term refers to a DN that appears across multiple channels. This is accomplished by CACH on 5ESS and by MADN on DMS. All PDNs and SDNs must be shared across all B channels when provisioning ISDN circuits for the Hicom 150 E Office.

**S/T Interface:** Two pair interface located on the CPE side of the NT-1. It is used to connect multiple devices to a single ISDN BRI subscriber line. Terminating resistors might be required for certain installations.

**SYNC:** This term is used to describe when a communication link over the D channel between the CO and the NT-1 is active. In addition, it also describes a communication link between the NT-1 and the terminal equipment.

**SYNC Example:** NT-1 has a U SYNC with the serving CO, and an S/T device has an S SYNC with the NT-1 that is providing the S/T interface.

**Terminal Equipment Type 1 (TE1):** This equipment type refers to any device that is ISDN ready (U interface).

**Terminal Equipment Type 2 (TE2):** This equipment type refers to non-ISDN ready devices that require terminal adaptors (terminal equipment type 1) to operate with ISDN (S/T devices, analog telephones, or serial ports on personal computers).

**Terminal Adaptor (TA):** This adaptor type connects non-ISDN ready devices to a digital network (ISDN). An NT-1 can be referred to as a TA.

**Terminal Endpoint Identifier (TEI):** Since up to eight devices can be connected to a single ISDN BRI subscriber line, the TEI is needed to identify in the D-channel signaling which of the eight devices is connected to the CO.

**Terminal Identifier (TID):** The TID is used for all National-1 ISDN services, and it is the last two digits (ranging from 00–62) following the SPID. The Hicom 150 E Office uses a universal TID, so the CO switch accepts any user-defined TID. Because each B channel needs a unique TID, the numbers in the Hicom 150 E Office are varied.

**TID Example (the TID is the last two digits):**

- 847734197001-00
- 847734197001-01

**Terminal Type C (5ESS Switch Feature):** This is the requested terminal type for voice capability features for the Hicom 150 E Office. There are five terminal types.

A—is used for stand-alone ISDN voice and data terminals connected directly to a BRI line, such as the Siemens NI-1200 or a PC card.

C—is used for all Hicom 150 E Office installations and includes voice features such as CACH.

**U Interface:** This refers to the one pair distributed by the CO and is the interface between the CO and the CPE (NT-1).

## 8.11.2 Examples for Configuring BRI Trunks (for U.S. Only)

### Sample 5ESS & EWSD Key Sheet

A sample key sheet is provided to assist users in configuring their BRI parameters. The actual values must be obtained from the BRI ISDN provider. This table represents a virtual button map in the CO.

Table 8-1 Sample 5ESS & EWSD Key Sheet (for U.S. Only)

| BRI 1 |            |          | BRI 2                 |          | BRI 3                  |          |
|-------|------------|----------|-----------------------|----------|------------------------|----------|
| Key   | B1         | B2       | B1                    | B2       | B1                     | B2       |
| 1     | 734-1970*  | 734-1970 | 734-1970              | 734-1970 | 734-1970               | 734-1970 |
| 2     | 734-1970   | 734-1970 | 734-1970              | 734-1970 | 734-1970               | 734-1970 |
| 3     | 734-1970   | 734-1970 | 734-1970              | 734-1970 | 734-1970               | 734-1970 |
| 4     | 734-1970   | 734-1970 | 734-1970              | 734-1970 | 734-1970               | 734-1970 |
|       |            |          |                       |          |                        |          |
| 6     | 734-1971** | 734-1971 | 734-1971              | 734-1971 | 734-1971               | 734-1971 |
| 7     | 734-1971   | 734-1971 | 734-1971              | 734-1971 | 734-1971               | 734-1971 |
|       |            |          |                       |          |                        |          |
| 11    | 734-1972   | 734-1972 | 734-1972 <sup>†</sup> | 734-1972 | 734-1972               | 734-1972 |
| 12    | 734-1972   | 734-1972 | 734-1972              | 734-1972 | 734-1972               | 734-1972 |
|       |            |          |                       |          |                        |          |
| 16    | 734-1973   | 734-1973 | 734-1973 <sup>†</sup> | 734-1973 | 734-1973               | 734-1973 |
| 17    | 734-1973   | 734-1973 | 734-1973              | 734-1973 | 734-1973               | 734-1973 |
|       |            |          |                       |          |                        |          |
| 21    | 734-1974   | 734-1974 | 734-1974              | 734-1974 | 734-1974 <sup>††</sup> | 734-1974 |
|       |            |          |                       |          |                        |          |
| 23    | 734-1975   | 734-1975 | 734-1975              | 734-1975 | 734-1975 <sup>††</sup> | 734-1975 |

#### Table Key:

\* The CAID or CACH value corresponds to the key; for example, keys 1–4 have CAID or CACH values associated with the number 734-1970. The amount of CAID or CACH values per number equals the amount of calls a number can make or receive.

\*\* In this example, PDN 1 BRI 1 is associated with the primary directory number (PDN) 734-1970 with a corresponding SPID number of 84773419700100. PDN 2 BRI 1 corresponds to the PDN 734-1971 with a corresponding SPID number of 84773419710101.

†† In this example, PDN 1 BRI 2 is associated with the PDN 734-1973 with a corresponding SPID number of 84773419720100. PDN 2 BRI 2 corresponds to the PDN 734-1973 with a corresponding SPID number of 84773419730101.

†† In this example, PDN 1 BRI 3 is associated with the PDN 734-1974 with a corresponding SPID number of 84773419740100. PDN 2 BRI 3 corresponds with the PDN 734-1975 with a corresponding SPID number of 84773419750101.

### Example: AT&T 5ESS CO protocol

Using Hicom Assistant T and referring to [Table 8-1](#), this example illustrates how to select the CO protocol.

| Step | Entry      | Action                                                            | Display               |
|------|------------|-------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration.                                      | System administration |
| 2.   | 20 5 1     | Select <i>ISDN parameters, US parameters, and BRI parameters.</i> | BRI parameters        |
| 3.   | 11         | Select <i>CO/protocol.</i>                                        | Protocol: -           |
| 4.   | * 1 ✓      | Enter (change) CO protocol AT&T 5ESS and confirm.                 | Slot 2: AT&T 5ESS     |
| 5.   | F8 F7      | Exit system administration.                                       | Time, Date            |

### Example: SPID Administration

Using Hicom Assistant T and referring to [Table 8-1](#), this example illustrates how to enter SPID numbers for stations 11–14.

| Step | Entry      | Action                                                            | Display                               |
|------|------------|-------------------------------------------------------------------|---------------------------------------|
| 1.   | <b>*95</b> | Start system administration.                                      | System administration                 |
| 2.   | 20 5 1     | Select <i>ISDN parameters, US parameters, and BRI parameters.</i> | BRI parameters                        |
| 3.   | 2          | Select SPID Administration.                                       | SPID Administration                   |
| 4.   | * ✓        | Change SPID to 84773419700100 for station 11 and confirm.         | Stn 11, SI/Po 0401:<br>84773419700100 |
| 5.   | # ✓        | Select station 12 and confirm.                                    | Stn 12, SI/Po 0401:                   |
| 6.   | * ✓        | Change SPID to 84773419710101 for station 12 and confirm.         | Stn 12, SI/Po 0401:<br>84773419710101 |

|     |       |                                                           |                                       |
|-----|-------|-----------------------------------------------------------|---------------------------------------|
| 7.  | # ✓   | Select station 13 and confirm.                            | Stn 13, SI/Po 0401:                   |
| 8.  | F1    | Enter slot and port 0402 for station 13.                  | Stn 13, SI/Po 0402:                   |
| 9.  | * ✓   | Change SPID to 84773419720100 for station 13 and confirm. | Stn 13, SI/Po 0402:<br>84773419720100 |
| 10. | # ✓   | Select station 14 and confirm.                            | Stn 14, SI/Po 0402:                   |
| 11. | * ✓   | Change SPID to 84773419730101 for station 14 and confirm. | Stn 14, SI/Po 0402:<br>84773419730101 |
| 12. | # ✓   | Select station 15 and confirm.                            | Stn 15, SI/Po 0402:                   |
| 13. | F1    | Enter slot and port; for example, 0403 for station 15.    | Stn 15, SI/Po 0403:                   |
| 14. | * ✓   | Change SPID to 84773419740100 for station 15 and confirm. | Stn 14, SI/Po 0403:<br>84773419740100 |
| 15. | # ✓   | Select station 16 and confirm.                            | Stn 16, SI/Po 0401:                   |
| 16. | F1    | Enter slot and port; for example, 0403 for station 16.    | Stn 16, SI/Po 0403:                   |
| 17. | * ✓   | Change SPID to 84773419750101 for station 15 and confirm. | Stn 16, SI/Po 0403:<br>84773419750101 |
| 18. | F8 F7 | Exit system administration.                               | Time, Date                            |

**Example: CAID or CACH Administration**

Using Hicom Assistant T and referring to [Table 8-1](#), this example illustrates how to enter the CAID values for stations 11 and 12.

| Step | Entry  | Action                                                                                               | Display               |
|------|--------|------------------------------------------------------------------------------------------------------|-----------------------|
| 1.   | *95    | Start system administration.                                                                         | System administration |
| 2.   | 20 5 1 | Select <i>ISDN parameters, US parameters, and BRI parameters.</i>                                    | BRI parameters        |
| 3.   | 3      | Select CAID parameters                                                                               | CAID parameters       |
| 4.   | * 1 ✓  | Change CAID number for station 11 and save. (Enter any other CAID values associated with station 11) | Stn 11, CAID 1: 1     |
| 5.   | * 2 ✓  | Change CAID number for station 12 and save. (Enter any other CAID values associated with station 12) | Stn 11, CAID 2: 2     |
| 6.   | F8 F7  | Exit system administration.                                                                          | Time, Date            |



**Sample DMSS 100 Key Sheet**

Table 8-2 Sample DMSS 100 Key Sheet (for U.S. Only)

| <b>BRI 1</b>                                           |                       |                         | <b>BRI 2</b>                                           |                       | <b>BRI 3</b>                                           |            |
|--------------------------------------------------------|-----------------------|-------------------------|--------------------------------------------------------|-----------------------|--------------------------------------------------------|------------|
| <b>Key</b>                                             | <b>B1</b>             | <b>B2</b>               | <b>B1</b>                                              | <b>B2</b>             | <b>B1</b>                                              | <b>B2</b>  |
| 1                                                      | 956-0051*             | 956-0214 <sup>††</sup>  | 956-0450*                                              | 956-0453***           | 956-0563*                                              | 956-0590** |
| 2                                                      | 956-9740**            | 956-9792 <sup>†††</sup> | 956-9513**                                             | 956-1867 <sup>†</sup> |                                                        |            |
| 3                                                      | 956-9790***           |                         |                                                        |                       |                                                        |            |
| 4                                                      | 956-9859 <sup>†</sup> |                         |                                                        |                       |                                                        |            |
|                                                        |                       |                         |                                                        |                       |                                                        |            |
| 6                                                      | 956-0214              | 956-0051                | 956-0453                                               | 956-0450              | 956-0590                                               | 956-0563   |
| 7                                                      | 956-9792              | 956-9740                | 956-1867                                               | 956-9513              |                                                        |            |
| 8                                                      |                       | 956-9790                |                                                        |                       |                                                        |            |
| 9                                                      |                       | 956-9859                |                                                        |                       |                                                        |            |
|                                                        |                       |                         |                                                        |                       |                                                        |            |
| 11                                                     | 956-0450              | 956-0450                | 956-0051                                               | 956-0051              | 956-0051                                               | 956-0051   |
| 12                                                     | 956-9513              | 956-9513                | 956-9740                                               | 956-9740              | 956-9740                                               | 956-9740   |
| 13                                                     |                       |                         | 956-9790                                               | 956-9790              | 956-9790                                               | 956-9790   |
| 14                                                     |                       |                         | 956-9859                                               | 956-9859              | 956-9859                                               | 956-9859   |
|                                                        |                       |                         |                                                        |                       |                                                        |            |
| 16                                                     | 956-0453              | 956-0453                | 956-0214                                               | 956-0214              | 956-0214                                               | 956-0214   |
| 17                                                     | 956-1867              | 956-1867                | 956-9792                                               | 956-9792              | 956-9792                                               | 956-9792   |
|                                                        |                       |                         |                                                        |                       |                                                        |            |
| 21                                                     |                       |                         |                                                        |                       | 956-0450                                               | 956-0450   |
| 22                                                     |                       |                         |                                                        |                       | 956-9513                                               | 956-9513   |
| <b>BRI 1 SPIDS</b><br>84795600510100<br>84795602140101 |                       |                         | <b>BRI 2 SPIDS</b><br>84795604500100<br>84795604530101 |                       | <b>BRI 3 SPIDS</b><br>84795605630100<br>84795605900101 |            |

\* PDN on BRI 1 B1; key 1, 2, 3, 4 = KSH

\*\* PDID1 or DN 1 BRI 1

\*\*\* PDID 2 or DN 2 BRI 1

† PDID 3 or DN 3 BRI 1

†† PDN on BRI 2 B2; key 1, 2 = KSH

††† PDID 1 or DN 1 on BRI 1

\* PDN on BRI 2 B1; key 1, 2 = KSH

\*\* PDID 1 or DN 1 on BRI 2 B2; key 1, 2 = KSH

\*\*\* PDN on BRI 2 B2

† PDID 1 on BRI 2

\* PDN on BRI 3 B1

\*\* PDN 1 on BRI 3 B2

**Example: DMSS 100 Protocol**

Using Hicom Assistant T and referring to the [Table 8-2](#), this example illustrates how to select the CO protocol.

| Step | Entry      | Action                                                            | Display               |
|------|------------|-------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration.                                      | System administration |
| 2.   | 20 5 1     | Select <i>ISDN parameters, US parameters, and BRI parameters.</i> | BRI parameters        |
| 3.   | 11         | Select CO/ <i>protocol.</i>                                       | Protocol: -           |
| 4.   | * 1 ✓      | Enter (change) CO protocol NT/N1-1 and confirm.                   | Slot 2: AT&T 5ESS     |
| 5.   | F8 F7      | Exit system administration.                                       | Time, Date            |

**Example: SPID Administration**

Using Hicom Assistant T and referring to [Table 8-2](#), this example illustrates how to enter SPID numbers for stations 11–14.

| Step | Entry      | Action                                                            | Display                               |
|------|------------|-------------------------------------------------------------------|---------------------------------------|
| 1.   | <b>*95</b> | Start system administration.                                      | System administration                 |
| 2.   | 20 5 1     | Select <i>ISDN parameters, US parameters, and BRI parameters.</i> | BRI parameters                        |
| 3.   | 2          | Select SPID Administration.                                       | SPID Administration                   |
| 4.   | * ✓        | Change SPID to 84795600510100 for station 11 and confirm.         | Stn 11, SI/Po 0401:<br>84795600510100 |
| 5.   | # ✓        | Select station 12 and confirm.                                    | Stn 12, SI/Po 0401:                   |
| 6.   | * ✓        | Change SPID to 84795602140101 for station 12 and confirm.         | Stn 12, SI/Po 0401:<br>84795602140101 |
| 7.   | # ✓        | Select station 13 and confirm.                                    | Stn 13, SI/Po 0401:                   |
| 8.   | F1         | Enter slot and port 0402 for station 13.                          | Stn 13, SI/Po 0402:                   |
| 9.   | * ✓        | Change SPID to 84795604500100 for station 13 and confirm.         | Stn 13, SI/Po 0402:<br>84795604500100 |
| 10.  | # ✓        | Select station 14 and confirm.                                    | Stn 14, SI/Po 0402:                   |
| 11.  | * ✓        | Change SPID to 84795604530101 for station 14 and confirm.         | Stn 14, SI/Po 0402:<br>84795604530101 |
| 12.  | # ✓        | Select station 15 and confirm.                                    | Stn 15, SI/Po 0402:                   |

|     |       |                                                           |                                    |
|-----|-------|-----------------------------------------------------------|------------------------------------|
| 13. | F1    | Enter slot and port; for example, 0403 for station 15.    | Stn 15, SI/Po 0403:                |
| 14. | * ✓   | Change SPID to 84795605630100 for station 15 and confirm. | Stn 14, SI/Po 0403: 84795605630100 |
| 15. | # ✓   | Select station 16 and confirm.                            | Stn 16, SI/Po 0401:                |
| 16. | F1    | Enter slot and port; for example, 0403 for station 16.    | Stn 16, SI/Po 0403:                |
| 17. | * ✓   | Change SPID to 84795605900101 for station 15 and confirm. | Stn 16, SI/Po 0403: 84795605900101 |
| 18. | F8 F7 | Exit system administration.                               | Time, Date                         |

### Example: PDID Administration

Using Hicom Assistant T and referring to [Table 8-2](#), this example illustrates how to enter PDID parameters for station 11.

| Step | Entry  | Action                                                                                                                                         | Display                  |
|------|--------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1.   | *95    | Start system administration.                                                                                                                   | System administration    |
| 2.   | 20 5 1 | Select <i>ISDN parameters, US parameters, and BRI parameters</i> .                                                                             | BRI parameters           |
| 3.   | 4      | Select PDID Administration.                                                                                                                    | PDID Administration      |
| 4.   | * ✓    | Change PDID 1 to 956-0051 for station 11 and confirm.                                                                                          | Stn 11, PDID 1: 734-1970 |
| 5.   | # ✓    | Select next PDID for station 11.                                                                                                               | Stn 11, PDID 2:          |
| 6.   | * ✓    | Change PDID to 956-9740 and save. (Enter any other PDID values associated with station 11 by selecting the next PDID and entering the number). | Stn 11, PDID 2: 734-1991 |
| 7.   | F8 F7  | Exit system administration.                                                                                                                    | Time, Date               |

## 8.12 Configuring an ISDN Multi-Device Connection with MSN Assignment (Not for U.S.)

### Introduction

For multi-device connections, **do not** enter a **system number**.

You must enter a **station number or MSN (without prefix)** as a **DID number** for the station.



The default numbering plan in the system is from station 100 to 749. If one of the multiple subscriber numbers (MSNs) assigned to the customer by the telecommunications carrier begins with 100-749, there will be a conflict with 1611 *DID numbers* when you enter the MSN in the *DID numbers* table.

### Example

- Station number 316475 = DID no. 316475 for stn. 200 (telephone)
- Station number 316474 = DID no. 316476 for stn. 300 (fax)
- Station number 316477 = DID no. 316477 for stn. 749 (ISDN card)

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                      | Display               |
|------|------------|-----------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration | System administration |
| 2.   | 16-11      | Select DID numbers          | Dest. 200: 200        |
| 3.   | # 316 ✓    | Select station number 316   | Dest. 316: 316        |
| 4.   | * ✓        | Delete DID number 316       | Dest. 316: -          |
| 5.   | # 200 ✓    | Select DID number 200       | Dest. 200: 200        |
| 6.   | * 316475 ✓ | Enter DID number 316475     | Dest. 200: 316475     |
| 7.   | # 300 ✓    | Select DID number 300       | Dest. 300: 300        |
| 8.   | * 316476 ✓ | Enter DID number 316476     | Dest. 300: 316476     |
| 9.   | # 749 ✓    | Select DID number 749       | Dest. 749: 749        |
| 10.  | * 316477 ✓ | Enter DID number 316477     | Dest. 749: 316477     |
| 11.  | F8 F7      | Exit system administration  | Time, date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                     |
|------|--------------------------------------------|
| 1.   | Options -> Set up station -> Station (DID) |

## 8.13 Configuring an ISDN Multi-Device Connection With Multiple Subscriber Numbers (for U.S. Only)

### Introduction

An ISDN multi-device connection enables users to connect multiple ISDN terminals (such as Internet or ISDN video products) on a single ISDN  $S_0$  bus.

An  $S_0$  bus from an STLS4 or STMD8 port on the system supports a maximum of eight ISDN terminals; an  $S_0$  bus from an optiset E ISDN adapter supports a maximum of two ISDN terminals. The devices share the two 64-Kbps B channels. You must assign each ISDN terminal a multiple subscriber number (MSN) to identify it to the system. ISDN terminals that use 128 Kbps of bandwidth must be assigned two MSNs.

The MSN must be seven digits long. You enter it in the direct inward dialing (DID) field. The ISDN terminal uses the MSN in the DID field as a service profile identifier (SPID) for setting up the communications protocol. You can assign an MSN to any port not associated with a physical station port (Type = No Port), or to the  $S_0$  adapter port assigned by the system.

SPIDs associated with the basic rate links can be assigned to any active station device.

For calls to the public network using basic rate trunks, the primary directory number (PDN) for the associated link must be entered in the DID field as the MSN.

During call setup, the ISDN terminal sends the SPIDs to the Hicom 150 E system. The system checks the SPIDs against the MSNs in the DID field, beginning with the rightmost digit.

Call numbers must also be assigned to the ISDN terminals for internal applications. The call numbers must include the rightmost digits of the MSN. For example, if the MSN is 6531600, the internal call number can be 531600, 31600, 1600, or 600. The station numbering scheme in the OfficeCom and the OfficePro systems is from 100 to 749; the station numbering scheme in the OfficePoint system is from 11 to 69.



The station numbering scheme in the OfficeCom and the OfficePro systems is from 100 to 749. If one of the MSNs assigned to the customer by the local telephone carrier begins with 100 to 749, a collision with 1611 DID numbers results when the MSN is entered in the *DID numbers* table. Refer to [Section 7.15.2, Multiple Subscriber Number \(MSN\)](#), on page 7-460 for other dependencies and limitations.

**Example**

Using Hicom Assistant E, this example assumes the following conditions:

- The customer would like to connect a video conference unit requiring 128 Kbps of bandwidth to an optiset E ISDN adapter.
- The system has working BRI links for voice and data calls (CSV and CSD: circuit-switched voice and circuit-switched data).
- The SPIDs for the ISDN links are 016531600000 and 016531762001. They have already been entered in the system (refer to [Section 8.11](#)).
- The primary directory numbers (PDNs) for the links are 6531600 and 6531762.
- PDN 6531600 has call appearance ID (CAID) values 1 and 2.
- PDN 6531762 has CAID values 3 and 4.
- The MSN for PDN 6531600 is 6531600; the call number is 531600.
- The MSN for PDN 6531762 is 6531762; the call number is 531762.

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                                                                                      |
|------|-----------------------------------------------------------------------------------------------------------------------------|
| 1.   | Options -> Set up station -> Station -> Assign MSN 6531600 to S <sub>0</sub> adapter port.                                  |
| 2.   | Options -> Set up station -> Station -> Assign MSN 6531762 to an unassigned port (Type = No Port).                          |
| 3.   | Options -> Set up station -> Station -> Assign call number 531600 to the S <sub>0</sub> adapter port used for the MSN.      |
| 4.   | Options -> Set up station -> Station -> Assign call number 531762 to the unassigned port used for the MSN.                  |
| 5.   | Options -> Set up station -> Station -> Assign station name to the S <sub>0</sub> adapter port, such as "Video Stn 531600." |
| 6.   | Options -> Set up station -> Station -> Double-click on Parameters field -> BRI -> Assign CAID value 1 to station 531600    |
| 7.   | Options -> Set up station -> Station -> Double-click on Parameters field -> BRI -> Assign CAID value 3 to station 531762    |
| 8.   | Download the changes to the Hicom 150 E system.                                                                             |
| 9.   | Reset the Hicom 150 E system.                                                                                               |
| 10.  | Program the protocol type and SPIDs (MSNs) into the video conference unit.                                                  |

*Configuring an ISDN Multi-Device Connection With Multiple Subscriber Numbers (for U.S.*

| <b>Step</b> | <b>Action</b>                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------|
| 11.         | Switch the video conference unit off then on to begin synchronization with the Hicom 150 E system. |
| 12.         | Place an audio call from the video conference unit to an internal station.                         |
| 13.         | Place an audio call from an internal station to the video conference unit by dialing 531600.       |
| 14.         | Place a video call to an external location to test the connection.                                 |

**Related Topics**

- Section 3.3.9, *Connecting ISDN Terminals to OfficeCom and OfficePoint*, on page 3-111
- Section 3.3.9, *Connecting ISDN Terminals to OfficeCom and OfficePoint*, on page 3-111
- Section 7.17.10, *Multiple Subscriber Number*, on page 7-507

## 8.14 Configuring Call Management With Group Call and Call Forwarding—No Answer

### Introduction

Call management allows you to configure group calls with call forwarding—no answer. For this to be possible, you must assign stations to the appropriate group. Assign this group one entry for referring to a specific index in the call forwarding—no answer table for day service, one for night answer, and one for internal traffic. You can also define the sequence for call forwarding—no answer in this table.

### Example

During the day service, external calls for station number 450 are first signaled at all stations in group 350 (stations 250, 251, 252); after 4 rings, they are forwarded to station 300.

### Configuring the Feature Using Hicom Assistant T

| Step             | Entry      | Action                                                            | Display                  |
|------------------|------------|-------------------------------------------------------------------|--------------------------|
| 1.               | <b>*95</b> | Start system administration                                       | System administration    |
| 2.               | 16-15-1    | Select group                                                      | Grp 350, Dest. 1: -      |
| 3.               | *250 ✓     | Enter station 250 and confirm                                     | Grp 350, Dest. 1: 250    |
| 4.               | + *251 ✓   | Enter station 251 and confirm                                     | Grp 350, Dest. 2: 251    |
| 5.               | + *252 ✓   | Enter station 252 and confirm                                     | Grp 350, Dest. 3: 252    |
| 6.               | F7 F7 18   | Return to <i>Incoming calls</i> . Select <i>Call FWD - no ans</i> | Call FWD - no ans        |
| 7.               | 1          | Select call <i>destination list</i>                               | List 1, Dest. 1: called  |
| 8.               | #29 ✓      | Select call destination list 29* and confirm                      | List 29, Dest. 1: called |
| 9.               | + *300 ✓   | Enter station 300 as second destination and confirm               | List 29, Dest. 2: 300    |
| 10.              | F7 18-3    | Select <i>Ext. calls, day</i>                                     | List for stn 200: 30     |
| 11.              | #450 ✓     | Select station number 450 and confirm                             | List for stn 450: 30     |
| 12.              | *29 ✓      | Enter list 29 for station no 450 and confirm                      | List for stn 450: 29     |
| 13.              | F7-5       | Select number of rings                                            | for list 1: 3            |
| * = Example only |            |                                                                   |                          |



*Configuring Call Management With Group Call and Call Forwarding—No Answer*

| <b>Step</b>      | <b>Entry</b> | <b>Action</b>              | <b>Display</b> |
|------------------|--------------|----------------------------|----------------|
| 14.              | #29 ✓        | Select list 29 and confirm | for list 29: 3 |
| 15.              | *4 ✓         | Enter 4 rings and confirm  | for list 29: 4 |
| 16.              | F8-F7        | Exit system administration | Time, date     |
| * = Example only |              |                            |                |

**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                           |
|-------------|---------------------------------------------------------|
| 1.          | Options -> Incoming calls -> Hunt group                 |
| 2.          | Options -> Incoming calls -> Assignment int./ext. calls |

## 8.15 Announcement Before Answering (at an Analog Port)

### Introduction

Many customers configure an announcement before answering to reduce call traffic at the intercept station. To do so, the customer connects an announcement device that will answer an incoming call and forward it to a specific station.

You can configure this feature in call management.



The subscriber ports to which an announcement device is connected must be configured as answering machines.

### Example

- An announcement device is connected to the hunt group with station number 450 (stations 224 and 225).
- Have all external incoming calls first answered by the announcement device.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry                  | Action                                                  | Display                     |
|------|------------------------|---------------------------------------------------------|-----------------------------|
| 1.   | <b>*95</b>             | Start system administration                             | System administration       |
| 2.   | 16-15-1                | Select <i>Group</i>                                     | Grp 450, Dest. 1:-          |
| 3.   | * 224 ✓                | Enter station 224 and confirm                           | Grp 450, Dest. 1: 224       |
| 4.   | + * 225 ✓              | Enter station 225 and confirm                           | Grp 450, Dest. 2: 225       |
| 5.   | F7 2                   | Select <i>Group type</i>                                | Group 450: Group call       |
| 6.   | * 2 ✓                  | Select <i>Linear hunt group</i> and confirm             | Group 450: lin. hunt        |
| 7.   | F7 F7 3                | Select <i>Group name</i>                                | Grp 450: -                  |
| 8.   | * Group announcement ✓ | Enter the group name and confirm                        | Grp 450: Group announcement |
| 9.   | F7 F7 12               | Select <i>Intercept, day</i>                            | Dest.: 200                  |
| 10.  | * 450 ✓                | Enter station number 450 and confirm                    | Dest.: 450                  |
| 11.  | F2 * 450 ✓             | Enter station number 450 (Intercept, night) and confirm | Dest.: 450                  |
| 12.  | F8 14-11               | Select <i>Station type</i>                              | Stn 200: Standard           |
| 13.  | # 224 ✓                | Select station 224                                      | Stn 224: Standard           |

| Step | Entry              | Action                                        | Display                     |
|------|--------------------|-----------------------------------------------|-----------------------------|
| 14.  | * 4 ✓              | Enter <i>Answer machine</i> as telephone type | Stn 224: Answer machine.    |
| 15.  | + * 4 ✓            | Enter <i>Answer machine</i> as telephone type | Stn 225: Answer machine.    |
| 16.  | F7 12              | Select <i>Station name</i>                    | Stn 200: -                  |
| 17.  | # 224 ✓            | Select station 224 and confirm                | Stn 224: -                  |
| 18.  | * Announcement ✓   | Enter station name and confirm                | Stn 224: Announcement/music |
| 19.  | + * Announcement ✓ | Enter station name and confirm                | Stn 225: Announcement/music |
| 20.  | F8-F7              | Exit system administration                    | Time, date                  |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                |
|------|-------------------------------------------------------|
| 1.   | Options -> Incoming calls -> Hunt group               |
| 2.   | Options -> System parameters -> Diversion/attendant   |
| 3.   | Options -> Set up station -> Station -> Param -> Type |

## 8.16 Assigning Incoming Analog Calls

### Introduction

You can assign any destination station to an analog trunk for incoming analog calls during the day or night.

### Example

- Assign station 205 as the analog destination station for trunk 17 during the day
- Assign group 450 as the analog destination station during the night

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                   | Display               |
|------|------------|------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration              | System administration |
| 2.   | 16 16      | Select <i>Call alloc. day</i>            | Trk1: 200             |
| 3.   | #17 ✓      | Select trunk and confirm                 | Trk17: 200            |
| 4.   | *xxx ✓     | Enter station or group number            | Trk17: 205            |
| 5.   | 16-17      | <i>Incoming calls, Call alloc. night</i> | Trk17: 200            |
| 6.   | *450 ✓     | Change to <i>Group call</i> and confirm  | Trk17: 450            |
| 7.   | F8-F7      | Exit system administration               | Time, Date            |

You can define how incoming calls are handled in call management. For more information, refer to [Section 8.14, \*Configuring Call Management With Group Call and Call Forwarding—No Answer\*](#).

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                   |
|------|----------------------------------------------------------|
| 1.   | Options -> Incoming calls -> Ringing assignment per line |

## 8.17 Configuring Fixed Night Answer (Not for U.S.)

### Introduction

“Fixed night answer” can be activated using a procedure from the attendant console or from authorized stations. Only calls for the intercept station are routed to a night destination.

### Example

- Make station 250 the destination for fixed night answer.
- Give stations 200 and 201 night answer authorization (in the example, 1 x  $S_0$  and 1 x analog).



When night answer is activated, calls via  $S_0$  are routed directly to the night destination; calls via analog trunks are first signaled at the station to which calls are allocated for the day service. Calls for standard DID stations are routed to the night destination after the number of rings in the corresponding index for night answer.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                            | Display               |
|------|------------|-----------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration       | System administration |
| 2.   | 16-13      | Select <i>Intercept, night</i>    | Dest.: 200            |
| 3.   | * 300 ✓    | Enter station 300                 | Dest.: 300            |
| 4.   | F7 17      | Select <i>Call alloc. night</i>   | Trk 1: 200            |
| 5.   | # 817 ✓    | Select trunk 817                  | Trk 17: 200           |
| 6.   | * 300 ✓    | Enter station 300                 | Trk 17: 300           |
| 7.   | + * 300 ✓  | Enter station 300                 | Trk 18: 300           |
| 8.   | F8-22-19-1 | Select night answer authorization | Pos 1: -              |
| 9.   | *200 ✓     | Enter station 200                 | Pos 1: 200            |
| 10.  | + *200 ✓   | Enter station 201                 | Pos 1: 201            |
| 11.  | F8-F7      | Exit system administration        | Time, Date            |

**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Options -> System parameters -> Diversion/attendant      |
| 2.          | Options -> Incoming calls -> Ringing assignment per line |
| 3.          | Options -> Classes of service -> station                 |

## 8.18 Configuring Fixed Night Answer via Intercept (for U.S. Only)

### Introduction

This feature assigns a default destination for all calls that are not answered or forwarded. Users can activate *Fixed night answer* from the attendant console or from authorized stations.



Calls for DID stations are first routed to the station. If they are not answered or forwarded, they are routed to the intercept position if they meet an intercept criterion such as:

- Busy
- Invalid dialing
- Incomplete dialing
- Recall no answer

### Example

Using Hicom Assistant T, this example

- Assigns station 250 for fixed night answer
- Allows you to assign a night key on stations 200 and 201

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                                                  | Display               |
|------|------------|-----------------------------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration.                                                            | System administration |
| 2.   | 16 13      | Select <i>Incoming calls, Intercept, night.</i>                                         | Dest.:                |
| 3.   | * 300 ✓    | Enter station 300 and confirm.                                                          | Dest.: 300            |
| 4.   | F7 17      | Return to Incoming calls menu. Select <i>Call alloc. night.</i>                         | SI/Tr 0401: 200       |
| 5.   | # 0402 ✓   | Select slot/trunk 0402 and confirm.                                                     | SI/Tr 0402: 200       |
| 6.   | * 300 ✓    | Enter station 300 and confirm.                                                          | SI/Tr 0402: 300       |
| 7.   | + * 300 ✓  | Change to the next trunk, enter station 300, and confirm.                               | SI/Tr 0403: 300       |
| 8.   | F8 22 19 1 | Return to Main menu. Choose <i>System settings. Select Authorization, night answer.</i> | Pos 1: -              |
| 9.   | *200 ✓     | Enter station 200 and confirm.                                                          | Pos 1: 200            |
| 10.  | + *200 ✓   | Enter station 201 and confirm.                                                          | Pos 1: 201            |
| 11.  | F8 F7      | Exit system administration.                                                             | Time, Date            |

**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Options -> System parameters -> Diversion /attendant     |
| 2.          | Options -> Incoming calls -> Ringing assignment per line |
| 3.          | Options -> Classes of service -> Station                 |



## 8.19 Configuring an Intercept Station per Trunk

### Introduction

**Not for U.S.:** In the case of systems with different basic accesses, it may be necessary to configure a separate intercept station for each basic access. This is performed by means of call allocation per trunk.

**For U.S. only:** This feature programs answering locations for incoming calls on analog trunks.



To configure more than one intercept station, you must cancel the current intercept stations (day and night). Not for U.S.: An undialed trunk cannot be switched.

### Example

- Assign trunks 1 and 2 (first  $S_0$  basic access outside of U.S.; analog in U.S.) to station 200
- Assign trunks 3 and 4 (first  $S_0$  basic access outside of U.S.; analog in U.S.) to station 300

### Configuring the Feature Using Hicom Assistant T (for All Countries)

| Step | Entry      | Action                                                              | Display               |
|------|------------|---------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration.                                        | System administration |
| 2.   | 16 12      | Select <i>Incoming calls, Intercept, day</i> .                      | Dest.: 200            |
| 3.   | * ✓✓       | Delete <i>Intercept, day</i> and confirm.                           | Dest.: -              |
| 4.   | F2         | Select <i>Intercept, night</i> and confirm.                         | Dest.: 200            |
| 5.   | * ✓✓       | Delete <i>Intercept, night</i> and confirm.                         | Dest.: -              |
| 6.   | F7 16      | Return to <i>Incoming calls</i> . Select <i>Call alloc. day</i> .   | SI/Tr 0401: 200       |
| 7.   | + +        | Use <i>Next</i> to select slot/trunk 0403.                          | SI/Tr 0403: 200       |
| 8.   | * 300 ✓    | Enter station 300 and confirm.                                      | SI/Tr 0403: 300       |
| 9.   | + * 300 ✓  | Go to the next trunk, enter station 300, and confirm.               | SI/Tr 0404: 300       |
| 10.  | F7 17      | Return to <i>Incoming calls</i> . Select <i>Call alloc. night</i> . | SI/Tr 0401: 200       |
| 11.  | + +        | Use <i>Next</i> to select slot/trunk 0403.                          | SI/Tr 0403: 200       |
| 12.  | * 300 ✓    | Enter station 300 and confirm.                                      | SI/Tr 0403: 300       |

*Configuring an Intercept Station per Trunk*

| <b>Step</b> | <b>Entry</b> | <b>Action</b>                                         | <b>Display</b>  |
|-------------|--------------|-------------------------------------------------------|-----------------|
| 13.         | + * 300 ✓    | Go to the next trunk, enter station 300, and confirm. | SI/Tr 0404: 300 |
| 14.         | F8 F7        | Exit system administration.                           | Time, Date      |

**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Options -> System parameters -> Diversion/Attendant      |
| 2.          | Options -> Incoming calls -> Ringing assignment per line |

## 8.20 CorNet-N Networking (Not for U.S.)



For a list of maximum cable lengths for CorNet-N direct networking, refer to [Table 2-8 on page 2-18](#).

### Introduction

Users can network the Hicom 150 E OfficePro or OfficeCom via CorNet-N. You must use Hicom Assistant E to completely configure CorNet-N networking; Hicom Assistant T can program some aspects. This section discusses only programming using Hicom Assistant E.

This section describes the following networking setups:

- Hicom 150 E Office to Hicom 150 E Office, [Section 8.20.1](#)
  - [Networking two systems with one CO access each](#)
  - [Open numbering with break-out in the remote system](#)
  - [Closed numbering with break-out in the main system via LCR](#)
  - [Closed numbering without LCR and without break-out](#)
  - [Closed numbering without LCR in the satellite system with break-out](#)
- Hicom 300 to Hicom 150 E Office, [Section 8.20.2](#)
  - [Networking with closed numbering without LCR](#)
  - [Networking with closed numbering with LCR](#)
  - [Networking with closed, unsorted numbering with LCR but without trunk group code.](#)
- Programming for all networking types, [Section 8.20.3](#)
  - [Network-wide toll restriction with allowed and denied lists](#)
  - [Network-wide toll restriction implemented via LCR authorization](#)
  - [Automatic carrier selection \(call-by-call\)](#)
  - [Sharing system speed dialing in the main system from the satellite system](#)

### Note

If two or more OfficePro systems are networked, the CGM module upgrade must be installed on the CBMODs of all OfficePro systems in the network.

## **8.20.1 Networking Hicom 150 E Office to Hicom 150 E Office (Not for U.S.)**

Networking Two Systems With One CO Access Each.

### **8.20.1.1 Open Numbering With Break-Out in the Remote System**

Break-out refers to an external outgoing call placed using the CO access of the remote system.

#### **Parameters for the example**

Both systems have a numbering plan with station numbers 100 to 749.

Both systems have an ISDN trunk connection with attendant code 0 (trunk group 1 with trunk group code 0).

Both systems have a CorNet-N link to the remote system (trunk group 2 with trunk group code 80).

#### **Programming the Main System Using Hicom Assistant E**

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name and set the second trunk code to 0 (0 is the first trunk group code of route 1 in the satellite system).

The trunk group code must be assigned (default 80)

Go to **Route 1** and enter a second trunk group code, such as 77 (77 must be a number that is still available in the system numbering plan. This is necessary for break-out in the satellite system).

Also enter the PABX number of the ISDN trunk.

In the **Routing parameters** window, set the route type to **PABX** for the second trunk group. Also set **Number and type, outgoing** to **PABX number** for trunk groups 1 and 2.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-click the elipsis (...) for the trunk in the **Param** column to set the protocol to  $S_0$  : CorNet-N main direct (H150-H118). In the **System parameters, Diversion/Attendant** window, note that the station number of the external attendant code is set to 0. Deactivate **Automatic line seizure** under **Flags/CMI**

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 80-Z refers to route table 2 (plan for CorNet-N call)

Line 3: Dialed digit 80-0CZ refers to route table 3 (plan for break-out in satellite system)

Line 4: Dialed digit 77CZ refers to route table 1 (plan for second trunk code, required for break-out from satellite system)

Make the following entries in route table 1 of the **Route table** window:  
(table for trunk calls)

Line 1: Route 1, Dial rule 1, No warning

Line 2: Route 2, Dial rule 4, Warning: display and tone (if Euro-ISDN<sup>1</sup> fails or is busy, an external seizure takes place in the satellite system)

Make the following entries in route table 2 of the **Route table** window:  
(table for CorNet-N calls)

Line 1: Route 2, Dial rule 2, No warning

Line 2: Route 1, Dial rule 5, Warning: display and tone (if CorNet-N fails or is busy, dial satellite system via the central office)

Make the following entries in route table 3 of the **Route table** window:  
(table for break-out)

Line 1: Route 2, Dial rule 3, No warning

Make the following entries in the **Dial rules table** window:

Line 1: Rule name CO, Rule format A, Procedure MCL Single Stage (if primary carrier is entered here instead of MCL Single Stage, you will not be able to go to the following lines in the rule tables)

Line 2: Rule name CorNet-N, Rule format A, Procedure Corporate Network

Line 3: Rule name Break-Out, Rule format D77E3A, Procedure Corporate Network

Line 4: Rule name CO via CorNet-N, Rule format D77E2A, Procedure Corporate Network

Line 5: Rule name To satellite via trunk, Rule format D02111234E2A, Procedure primary carrier

(D02111234 is the Euro-ISDN PABX number of the satellite system)

---

1. Euro-ISDN is not available in the U.S.

## **Programming the Satellite System Using Hicom Assistant E**

In the **Lines/Networking** window, assign the protocol S<sub>0</sub>: CorNet-N variant 2 satellite (direct) (not for U.S.).

Program all other settings as you did for the main system.

### **8.20.1.2 Closed Numbering with Break-Out in the Main System via LCR**

#### **Parameters for the Example**

The main system has station numbers 100 to 499, while the satellite system has station numbers 500 to 699.

Only the main system has ISDN trunk access with attendant code 0 (for example, route 1 with code 0. In addition, you must specify a second trunk group code so that the satellite system can seize a trunk in the main system using trunk group code 0. If you do not do so, dialing 0 from the satellite system will place a call to the attendant in the main system).

Both systems have a CorNet-N link to the remote system (route 2 in the main system, route 1 in the satellite system).

#### **Programming the Main System Using Hicom Assistant E**

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name and delete the trunk group code for route 2.

In the **Routing parameters** window, set the route type to **PABX**. Set **Number and type, outgoing** to **PABX number**. Enter a second trunk group code (77) for route 1 in addition to 0.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S<sub>0</sub>: CorNet-N Variant 2 main direct.

In the **System parameters, Diversion/Attendant** window, ensure that the station number of the external attendant code is set to 0. Also deactivate **Automatic line seizure** under **Flags/CMI**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 5-XX refers to route table 2 (plan for CorNet-N stations 500 to 599)

Line 3: Dialed digit 6-XX refers to route table 2 (plan for CorNet-N stations 600 to 699)

Line 4: Dialed digit 77CZ refers to route table 1 (plan for trunk calls from primary system)

Make the following entries in route table 1 of the **Route table** window:  
(table for trunk calls)

Line 1: Route 1, Dial rule 1, No warning

Make the following entries in route table 2 of the **Route table** window:  
(table for CorNet-N calls)

Line 1: Route 2, Dial rule 2, No warning

Make the following entries in the **Dialing rules table** window:

Line 1: Rule name CO, Rule format A, Procedure Primary carrier (rule for trunk calls)

Line 2: Rule name CorNet-N, Rule format E1A, Procedure Corporate Network (rule for CorNet-N calls)

## **Programming the Satellite System Using Hicom Assistant E**

From the **Lines/networking** menu, go to the **Routes** window and select route 1.  
Make the following settings:

Enter the route name and set the second trunk code digit to 0 (0 is the first trunk group code of route 1 in the satellite system).

Delete the trunk group code for route 1.

In the **Routing parameters** window, set the route type to **PABX**. Set **Number and type, outgoing** to **PABX number**.

In the **Trunks** window, double-click the ellipsis (...) for the trunk in the **Param** column to set the protocol to S<sub>0</sub>: CorNet-N variant 2 satellite (direct).

In the **System parameters, Diversion/Attendant** window, note that the station number of the external attendant code should be deleted. Also deactivate **Automatic line seizure** under **Flags/CMI**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 1-XX refers to route table 2 (plan for CorNet-N stations 100 to 199)

Line 3: Dialed digit 2-XX refers to route table 2 (plan for CorNet-N stations 200 to 299)

Line 4: Dialed digit 3-XX refers to route table 2 (Plan for CorNet-N stations 300 to 399)

Line 5: Dialed digit 4-XX refers to route table 2 (plan for CorNet-N stations 400 to 499)

Make the following entries in the route table columns of the **Route table** window:

Table 1, Line 1: Route 1, Dial rule 1, No warning (table for trunk calls)

Table 2, Line 1: Route 1, Dial rule 2, No warning (table for CorNet-N calls)

Make the following entries in the **Dial rules table** window:

Line 1: Rule name CO, Rule format D77A, Procedure Corporate :Network

Line 1: Rule name main PABX, Rule format E1A, Procedure Corporate: Network

### 8.20.1.3 Closed Numbering Without LCR and Without Break-Out

#### Parameters for the Example

The main system has station numbers 100 to 499, while the satellite system has station numbers 500 to 699.

Both systems have an ISDN trunk connection with attendant code 0 (for example, route 1 with code 0).

Both systems have a CorNet-N link to the remote system (route 2 in the main system, route 1 in the satellite system).

Break-out cannot take place in the remote system.

#### Programming the Main System Using Hicom Assistant E

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name; set the trunk group codes for route 2 to 5 and 6.

In the **Routing parameters** window, set the route type to **PABX**. Activate digit repetition and set **Number and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S<sub>0</sub>: CorNet-N variant 2 main (direct).

In the **System parameters, Diversion/Attendant** window, ensure that the station number of the external attendant code is set to 0. Deactivate **Automatic line seizure** under **Flags/CMI**.



## **Programming the Satellite System Using Hicom Assistant E**

From the **Lines/networking** menu, go to the **Routes** window and select route 2. Make the following settings:

Enter the route name; set the trunk group codes for route 2 to 1, 2, 3, and 4.

In the **Routing parameters** window, set the route type to **PABX**. Activate digit repetition and set **Number and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S<sub>0</sub>: CorNet-N variant 2 satellite (direct).

In the **System parameters, Diversion/Attendant** window, ensure that the station number of the external attendant code is set to 0. Deactivate **Automatic line seizure** under **Flags/CMI**.

### **8.20.1.4 Closed Numbering Without LCR in the Satellite System and with Break-Out**

The programming steps are described in Section 8.20.1.2, *Closed Numbering with Break-Out in the Main System via LCR, on page 8-52* and Section 8.20.1.3, *Closed Numbering Without LCR and Without Break-Out, on page 8-54*, with the following changes:

Break-out is allowed in the main system. Trunks in the main system cannot be seized from the satellite system by dialing 0 because 0 is entered in both systems as the first trunk group code and dual assignments are not possible. In addition, the external attendant code is set to 0 in each system.

## **Programming the Main System**

Refer to programming in Section 8.20.1.2, *Closed Numbering with Break-Out in the Main System via LCR, on page 8-52*.

CLR must be active in the main system; otherwise transit is not possible (break-out in the main system).

## **Additional Programming of the Satellite System**

Refer to programming in Section 8.20.1.3, *Closed Numbering Without LCR and Without Break-Out, on page 8-54*.

From the **Lines/networking** menu, go to the **Routes** window and make the following settings:

Enter another trunk group code for the CorNet-N trunk group, such as 77.

## **8.20.2 Networking Hicom 300 to Hicom 150 E Office (Not for U.S.)**

### **8.20.2.1 Networking With Closed Numbering Without LCR**

#### **Parameters for the Example**

Hicom 300 is the main system with CO access; Hicom 150 E Office is the satellite system without CO access.

The station numbers in Hicom 300 are 1000 to 3000, and those in Hicom 150 E Office are 4000 to 5000.

Trunks in the Hicom 300 system are seized using trunk group code 0.

#### **Programming the Satellite System Using Hicom Assistant E**

From the **Lines/Networking** menu, go to the **Routes** window and select Route 1. Then make the following settings:

Enter the route name and set the second trunk code to 0. Set the trunk group codes for Route 1 to 0, 1, 2, and 3.

In the **Routing parameters** window, set the route type to PABX and activate digit repetition for Route 1. Also set **No. and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S<sub>0</sub>: CorNet-N variant 2 satellite (direct).

In the **System parameters** window, deactivate automatic line seizure under **Flags/CMI**.

### **8.20.2.2 Networking With Closed Numbering With LCR**

#### **Parameters for the Example**

Hicom 300 is the main system; Hicom 150 E Office is the satellite system.

The station numbers in Hicom 300 are 1000 to 3000, and those in Hicom 150 E Office are 4000 to 5000.

Trunks in the Hicom 300 system are seized using trunk group code 0.

#### **Programming the Satellite System Using Hicom Assistant E**

From the **Lines/Networking** menu, go to the **Routes** window and select Route 1. Then make the following settings:

Enter the route name and set the second trunk code to 0. Delete the trunk group codes for Route 1.

In the **Routing parameters** window, set the route type to PABX and set **No. and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S<sub>0</sub>: CorNet-N variant 2 satellite (direct).

In the **System parameters** window, deactivate automatic line seizure under **Flags/CMI**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 1-XXX refers to route table 1 (plan for CorNet-N stations 1000 to 1999)

Line 3: Dialed digit 2-XXX refers to route table 1 (plan for CorNet-N stations 2000 to 2999)

Line 4: Dialed digit 3-XXX refers to route table 1 (plan for CorNet-N stations 3000 to 3999)

Make the following entries in Route table 1 of the **Route table** window:

Line 1: Route 1, Dial rule1, No warning

Make the following entries in the **Dialing rules table** window:

Line 1: Rule name, main, Rule format E1A, Procedure Corporate: Network

### 8.20.2.3 Networking With Closed, Unsorted Numbering With LCR Without Trunk Group Code

#### Parameters for the Example

Hicom 300 is the main system; Hicom 150 E Office is the satellite system.

The station numbers range from 1000 to 5000 and are randomly distributed between the main and satellite systems. The programming steps below describe the configuration for station numbers 2191 to 2195, where

- Station numbers 2191, 2193, and 2194 are connected to Hicom 300.
- Station numbers 2192 and 2195 are connected to Hicom 150 E Office.

The trunk is seized in Hicom 300 by dialing trunk group code 0.

## **Programming the Satellite System Using Hicom Assistant E**

From the **Lines/Networking** menu, go to the **Routes** window and select Route 1. Then make the following settings:

Enter the route name and set the second trunk code to 0. Keep the trunk group code set to 0.

In the **Routing parameters** window, set the route type to PABX and set **No. and type, outgoing** to **PABX number**.

Assign the CorNet-N trunks of trunk group 2 in the **Trunks** window. Double-clicking the ellipsis (...) for the trunk in the **Param** column sets the protocol to S<sub>0</sub>: CorNet-N variant 2 satellite (direct).

In the **System parameters** window, deactivate automatic line seizure under **Flags/CMI**.

Go to the **Least cost routing** window and release LCR.

Make the following entries in the **Dial plan** window:

Line 1: Dialed digit 0CZ refers to route table 1 (plan for trunk calls)

Line 2: Dialed digit 2191 refers to route table 1 (plan for CorNet-N station 2191)

Line 3: Dialed digit 2193 refers to route table 1 (plan for CorNet-N station 2193)

Line 4: Dialed digit 2194 refers to route table 1 (plan for CorNet-N station 2194)

Make the following entries in Route table 1 of the **Route table** window:

Line 1: Route 1, Dial rule1, No warning

Make the following entries in the **Dialing rules table** window:

Line 1: Rule name, Rule format E1A, Procedure Corporate :Network

## **8.20.3 Programming Steps for All Networking Types (Not for U.S.)**

### **8.20.3.1 Network-Wide Toll Restriction with Allowed and Denied Lists**

Release programming of the LCR parameter. The route type and second trunk code affect toll restriction.

Scenario 1: LCR deactivated, no second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 2: LCR deactivated, no second trunk code, route type PABX: There is no toll restriction in the local system, but rather in the remote system

Scenario 3: LCR deactivated, second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 4: LCR deactivated, second trunk code, route type PABX: All digits following the second trunk code are subjected to toll restriction in the local system

Scenario 5: LCR activated, no second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 6: LCR activated, no second trunk code, route type PABX: There is no toll restriction in the local system but rather in the remote system

Scenario 7: LCR activated, second trunk code, route type CO: All digits are subjected to toll restriction in the local system

Scenario 8: LCR activated, second trunk code, route type PABX: All digits are subjected to toll restriction in the local system

The following classes of service are always transferred to the remote system via CorNet:

Toll restriction 0 (internal access): no access

Toll restriction 1 (outward-restricted): access only via attendant (incoming calls only)

Toll restriction 2-13 (allowed/denied lists): local public network (evaluated in the first denied list in Hicom 150 E Office)

Toll restriction 14 (unrestricted): long distance public network (unrestricted trunk access)

## **Parameters for the Example**

Internal access is toll restriction 0 (permanently defined) and is defined in access group 1 in Hicom Assistant E.

Outward restricted trunk access is toll restriction 1 (permanently defined) and is defined in access group 2 in Hicom Assistant E.

Restricted local access is toll restriction 9 (denied list 2) and is defined in access group 3 in Hicom Assistant E.

Unrestricted local area access is toll restriction 2 (allowed list 1) and is defined in access group 4 in Hicom Assistant E.

National trunk access is toll restriction 10 (denied list 3) and is defined in access group 5 in Hicom Assistant E.

European trunk access is toll restriction 11 (denied list 4) and is defined in access group 6 in Hicom Assistant E.

Unrestricted trunk access is toll restriction 14 (permanently defined) and is defined in access group 7 in Hicom Assistant E.

## **Programming the Main System Using Hicom Assistant E**

It is very important to keep denied list 1 empty. This is necessary because the toll restrictions in the allowed and denied lists of the satellite system are passed on to the main system with the *local public network* class of service. *Local public network* always refers to denied list 1. However, if this denied list is empty, the toll restriction is evaluated just as it is in the satellite system.

Program the toll restrictions for the current location according to the classes listed above and assign them to the stations.

## **Programming the Satellite System Using Hicom Assistant E**

Denied list 1 can also be used in the satellite system without restriction. However, to provide uniform toll restriction on all telephone systems throughout Germany, this should be implemented only in exceptional cases.

The second trunk code and the PABX route type must be entered in the satellite system for the CorNet trunk-N group to the main system. (This is necessary because it is the only way to provide toll restriction in the satellite system using the trunk access code of the main system.)

### **8.20.3.2 Implementing Network-Wide Toll Restriction via LCR Class of Service (Not for U.S)**

#### **Note**

If toll restriction is implemented based on the LCR class of service, the system speed-dialing numbers are also subject to these classes of service. In other words, users with outward restricted trunk access cannot dial a system speed-dialing number.

#### **Parameters for the Example**

Internal access: Intercom only access can be implemented via ITR groups (not described here).

Outward restricted trunk access is LCR class of service 2; station 150 is assigned this class of service.

Restricted local access is LCR class of service 3; station 140 is assigned this class of service (prefix 023Z can be dialed).

Unrestricted local area access is LCR class of service 4; station 130 is assigned this class of service (prefixes 02Z and 03Z can be dialed).

National trunk access is LCR class of service 5; station 120 is assigned this class of service.

European trunk access is LCR class of service 6; station 110 is assigned this class of service (prefix 004Z can be dialed).

Unrestricted trunk access is LCR class of service 15; station 100 is assigned this class of service.

#### **Programming steps**

Go to the **Least cost routing/Codes and Flags** window and release LCR.

Go to the **Least cost routing/Classes of service** window and assign the correct classes of service to stations 100 to 160.

Go to the **Least cost routing/Dial plan** window and make the following entries:

Line 1: Dialed digit: 0CZ, Route table: 1 (unrestricted trunk access)

Line 2: Dialed digit: 0C004Z, Route table: 2 (European trunk access)

Line 3: Dialed digit: 0C0Z, Route table: 3 (national trunk access)

Line 4: Dialed digit: 0C02Z, Route table: 4 (unrestricted local area access)

Line 5: Dialed digit: 0C03Z, Route table: 4 (unrestricted local area access)

Line 6: Dialed digit: 0CNZ, Route table: 5 (restricted local access)

Line 7: Dialed digit: 0C1Z, Route table: 5 (restricted local access)

Line 8: Dialed digit: NZ, Route table: 6 (outward restricted trunk access)

Line 9: Dialed digit: 1Z, Route table: 6 (outward restricted trunk access)

Go to the **Least cost routing/Route table** window and make the following entries:

Table 1, Line 1: Route: 1, Dial rule: 1, min. COS: 15

Table 2, Line 1: Route: 1, Dial rule: 1, min. COS: 6

Table 3, Line 1: Route: 1, Dial rule: 1, min. COS: 5

Table 4, Line 1: Route: 1, Dial rule: 1, min. COS: 4

Table 5, Line 1: Route: 1, Dial rule: 1, min. COS: 3

Table 6, Line 1: Route: 1, Dial rule: 1, min. COS: 2

Go to the **Least cost routing/Dialing rules table** window and make the following entries:

Line 1: rule name: XY, format: A, procedure: primary carrier

### 8.20.3.3 Automatic Carrier Selection (Call by Call)

#### Parameters for the Example:

The least expensive carrier must always be selected first, depending on the station number and time. The following carriers are available:

**Telekom:** Primary carrier, without network code, all local calls all day and all calls in the period from 2:00 a.m. to 4:59 a.m., as well as D1 and D2-calls from 6:00 p.m. to 8:59 a.m.

**Mobilcom:** Network code 01019, all calls in the period from 5:00 a.m. to 1:59 a.m., except for local calls.

**TelePassport:** Network code 01024, D1 and D2 calls from 9:00 a.m. to 5:59 p.m.

If the call does not reach its destination via Mobilcom or Telepassport, the system should automatically try to reach the destination via Telekom.



Actual carriers might be different, depending on the country where the system is installed.



**Programming Steps:**

Go to the **Least cost routing/Codes and Flags** window and release LCR.

Go to the **Least cost routing/Dial plan** window and make the following entries:

Line 1: dialed digit: 0C0171Z, route table: 1(D1 calls)

Line 2: Dialed digit: 0C0172Z, Route table: 1 (D2 calls)

Line 3: Dialed digit: 0CNZ, Route table: 2 (local calls)

Line 4: Dialed digit: 0C1Z, Route table: 2 (local calls)

Line 5: Dialed digit: 0CZ, Route table: 3 (all other calls)

Go to the **Least cost routing/Route table** window and make the following entries:

Table 1, Line 1: Route: 1, Dial rule: 1, Schedule: C, (D1/D2 calls from 9:00 a.m. to 5:59 p.m. via Telepassport)

Table 1, Line 2: Route: 1, Dial rule: 2, Schedule: C, (D1/D2 calls from 9:00 a.m. to 5:59 p.m. via Telekom if Telepassport is busy)

Table 1, Line 3: Route: 1, Dial rule: 2, Schedule: A, (D1/D2 calls via Telekom)

Table 1, Line 4: Route: 1, Dial rule: 2, Schedule: B, (D1/D2 calls via Telekom)

Table 2, Line 1: Route: 1, Dial rule: 2, (local calls via Telek., 24 hours a day, since no schedule is entered)

Table 3, Line 1: Route: 1, Dial rule: 3, Schedule: A, (all other calls via Mobilcom)

Table 3, Line 2: Route: 1, Dial rule: 2, Schedule: A, (all other calls via Telekom)

Table 3, Line 3: Route: 1, Dial rule: 2, Schedule: B, (all other calls via Telekom)

Table 3, Line 4: Route: 1, Dial rule: 3, Schedule: C, (all other calls via Mobilcom)

Table 3, Line 5: Route: 1, Dial rule: 2, Schedule: C, (all other calls via Telekom)

Go to the **Least cost routing/LCR schedule** window and make the following entries:

Day: Monday: Time limit 1: 01:59, Zone 1: A, (time from midnight to 01:59 a.m., Telekom/Mobilcom)

Day: Monday: Time limit 2: 04:59, Zone 2: B, (time from 02:00 a.m. to 04:59 a.m., Telekom)

Day: Monday: Time limit 3: 08:59, Zone 3: A, (time from 05:00 a.m. to 08:59 a.m., Telekom/Mobilcom)

Day: Monday: Time limit 4: 17:59, Zone 4: C, (time from 09:00 a.m. to 5:59 p.m., Telekom/Mobilcom/Telepassport)

Day: Monday: Time limit 5: 23:59, Zone 5: A, (time from 18:00 a.m. to 11:59 p.m., Telekom/Mobilcom)

This combination of carriers and times makes it possible to combine time limits 1, 3, and 5 into time zone A. This is possible because Telekom and Mobilcom are used in all three time limits.

The time limits and zones must be copied to the days Tuesday through Sunday.

Go to the **Least cost routing/Dialing rules table** window and make the following entries:

Line 1: Rule name: Telepassport, Format: D01024A, Procedure: Single Stage

Line 2: Rule name: Telekom, Format: A, Procedure: Primary carrier

Line 3: Rule name: Mobilcom, Format: D01019A, Procedure: Single Stage

#### **8.20.3.4 Using the System Speed-Dialing Numbers of the Main System From the Satellite System**

##### **Parameters for the Example:**

Only the main system has trunk access.

System speed-dialing numbers can be shared with both open and closed numbering.

Users in the satellite system dial 77 and the 3-digit system speed-dialing number; users in the main system dial \*7 and the 3-digit system speed-dialing number.

##### **Programming the Main System:**

The main system is programmed as described in Section 8.20.1.2, *Closed Numbering with Break-Out in the Main System via LCR, on page 8-52*.

##### **Programming the Satellite System:**

The satellite system is programmed as described in Section 8.20.1.2, *Closed Numbering with Break-Out in the Main System via LCR, on page 8-52*, and the following additional settings must be made.

Dial plan 77-XXX must be created with a reference to a new route table. (77=free station number in the system, XXX=3-digit speed-dialing number)

Route 1 is entered in the route table with a reference to a new dial rule.

D757E2A is entered as the format in the dial rule (D=dial, 757=substitute code for \*7, E2A= XXX repeated from the dial plan)

## 8.21 CorNet-N Networking (for U.S. Only)

### Introduction

You can connect the Hicom 150 E Office Communications Server to other Siemens Hicom systems using T1 services. The system supports a six-digit, closed-numbering plan for unique dialing schemes between systems. An open-numbering plan is also supported for networks that use a leading digit and a common system dial plan for each location.

### 8.21.1 Network Topographies Supported by the Hicom 150 E Office System

The table below lists the supported network options for the Hicom 150E systems.

Table 8-3 Supported Network Options for the Hicom 150 E Office Systems

| System                                                                                                                                                                                                                                                                                                                                                        |    | System      |    | System      |    | System      |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|----|-------------|----|-------------|--------------------|
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | Hicom 150 E |    |             |    |             | Point to Point     |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | Hicom 150 E | To | Hicom 150 E |    |             | Star configuration |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | Hicom 150 E | To | Hicom 150 E | To | Hicom 150 E | Mesh configuration |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | Hicom 300   |    |             |    |             | Point to Point     |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | Hicom 300   | To | Hicom 150 E |    |             | Star configuration |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | Hicom 300   | To | Hicom 300   |    |             | Star configuration |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | 9006M       | To | Hicom 150 E |    |             | Star configuration |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | 9006M       | To | 9006M       |    |             | Star configuration |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | 9006M       | To | Hicom 300   |    |             | Mesh               |
| Hicom 150 E                                                                                                                                                                                                                                                                                                                                                   | To | Hicom 150 E | To | Hicom 300   |    |             | Mesh               |
| <b>Table notes:</b> <ul style="list-style-type: none"> <li>• The Hicom 300 CS must be level 6.4 or 6.5.</li> <li>• The 9006M system must be level 9005.6.84</li> <li>• The Hicom 150 E Office CS should be level 727.005 or greater</li> <li>• Patch information is located in <a href="#">Section 8.21.20</a> and <a href="#">Section 8.21.21</a></li> </ul> |    |             |    |             |    |             |                    |

## 8.21.2 Hardware Requirements

The following is a list of equipment required for connecting a CorNet-N link to a Hicom 150 E system.

| System           | System Hardware | Maximum supported | External Equipment                       |
|------------------|-----------------|-------------------|------------------------------------------|
| OfficePro system | TMST-1 board    | 5                 | 1 Channel Service Unit per CorNet-N link |
| OfficeCom system | TST-1 board     | 1                 | 1 Channel Service Unit per CorNet-N link |

The OfficePro system supports a maximum of five T1 interfaces and may be used as a gateway, a tandem, or an end node. It is suggested that in a mixed installation of Hicom 300 systems and Hicom 150 systems, the Hicom 150 systems should be positioned as end node systems only.

The OfficeCom system supports one T1 interface and may be used as an end-node system only.

## 8.21.3 Planning Considerations

The following items should be considered when designing a CorNet-N network.

- Homogenous Hicom 150 E Office network or mixed system network
- Network internal dialing plan  
The Hicom 150 E Office system uses a closed-numbering plan with a dial number from one to six digits in length.
- Network direct inward dial plan  
When setting up the DID number plan, you should match the internal dialing plan as much as possible. DID numbers can be transmitted over the CorNet-N links or via a direct public network connection.
- Answering positions locations
  - Central answer position
    - Call Center groups  
Calling Party information and DNIS information may have to be sent to the centralized group for CTI applications.
  - Auto-attendant  
The connection to the AAX is analog ports. The ports may have to be configured as Phonemail ports to activate the in-band integration transmission.

- Central voice mail system  
The connection to the voice mail is analog ports. The ports may have to be configured as Phonemail ports to activate the in-band integration transmission.
- Interactive voice response (IVR)  
The connection to the IVR is analog ports. The ports may have to be configured as Phonemail ports to activate the in-band integration transmission.
- Distributed answer position
  - Answer position at each location
  - Distributed phonemail network
- Night answer positions
- Data applications
  - ISDN networking over CorNet-N links  
ISDN Data applications are supported over CorNet-N links using the STLS4, STMD8, ILAN board. and S<sub>0</sub> optiset adapter.
  - Fractional T1 for external applications

## 8.21.4 Configuration Example

A Phonemail system will be shared by all sites and will be installed on the OfficePro system.

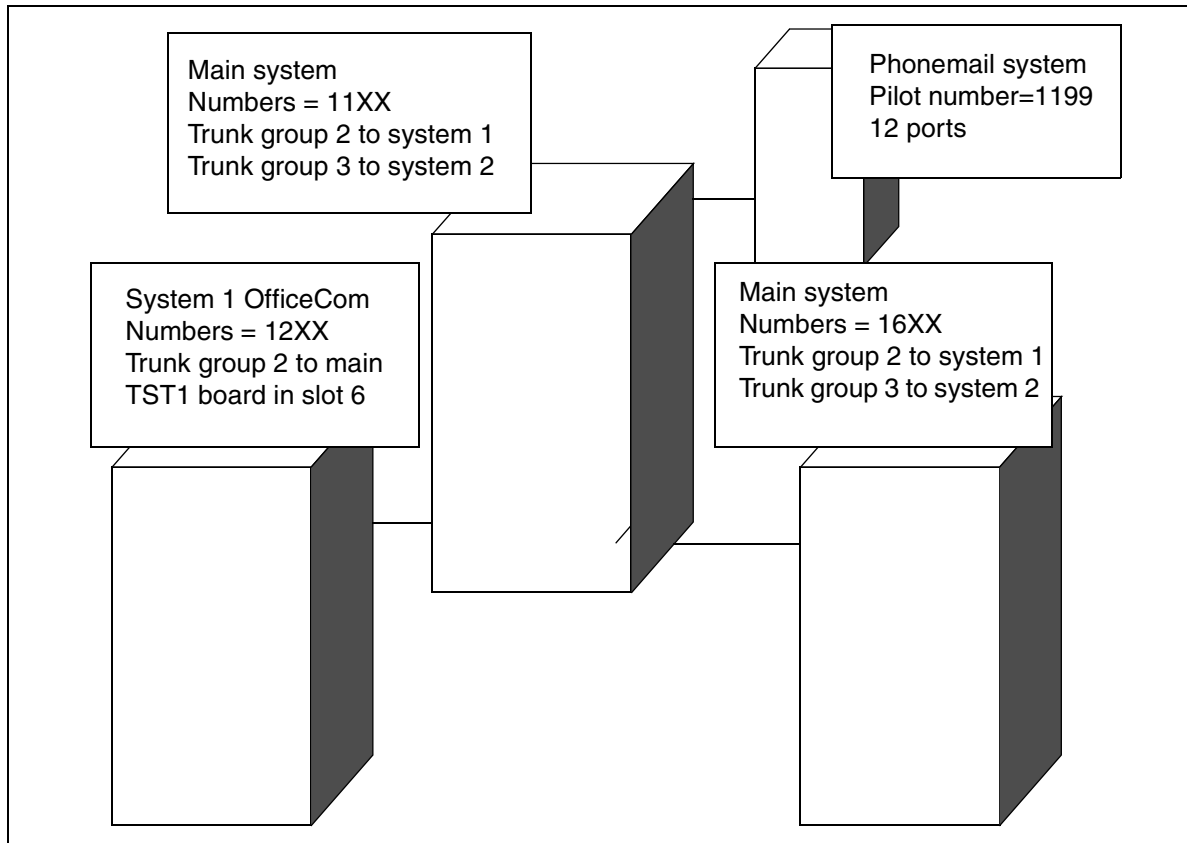


Figure 8-1 Example of a CorNet-N Configuration

### CorNet-N Example Configuration Data

- Customer has three locations in the network
- Central location is a Hicom 150E OfficePro system
- Two satellite systems are Hicom 150 E OfficeCom systems
- One Digital T1 interface is connected from each of the OfficeCom systems to the central OfficePro system.
- Pilot Number for the main system is 1-408-492-1000, which is a DID number
- Extension numbers on the OfficePro system are in the 11XX series.
- DID numbers for the OfficePro system are 408 492-11XX

- Extension numbers at the OfficeCom system 1 are in the 12XX series
- DID numbers for the OfficePro system are 408 492-12XX
- Extension numbers at the OfficeCom system 2 are in the 16XX series
- DID numbers for the OfficePro system are 408 492-16XX
- Block of DID terminating in the Main system provide service for all locations

## Procedure Overview

The following sections describe the CorNet-N configuration sequence in detail.

| <b>Configuring CorNet-N</b> |                                                                    |
|-----------------------------|--------------------------------------------------------------------|
| <b>Step</b>                 | <b>Task</b>                                                        |
| 1.                          | <i><u>Configuring the T1 boards in the Database</u></i>            |
| 2.                          | <i><u>Defining Route Group for the CorNet-N T1 Spans</u></i>       |
| 3.                          | <i><u>Defining Available B-Channels for the CorNet-N Spans</u></i> |
| 4.                          | <i><u>Assigning Route Characteristics</u></i>                      |
| 5.                          | <i><u>Assigning Route Parameters</u></i>                           |
| 6.                          | <i><u>Setting Clock Parameters</u></i>                             |
| 7.                          | <i><u>Specifying LCOS Settings</u></i>                             |
| 8.                          | <i><u>Defining Least Cost Routing</u></i>                          |
| 9.                          | <i><u>Configuring System Parameter Flags</u></i>                   |
| 10.                         | <i><u>Assigning MUSAP or General Call Keys</u></i>                 |
| 11.                         | <i><u>Configuring Pseudo Numbers for Centralized Phonemail</u></i> |
| 12.                         | <i><u>Defining Intercept Information</u></i>                       |

### 8.21.5 Configuring the T1 boards in the Database

Use Hicom Assistant E to select and place the T1 boards in the desired card slot(s). For CorNet-N applications, you must select the TST1 Digital or TMST1 Digital card type.

The T1 board configuration should be set for TMST1 Digital

|                       |      |
|-----------------------|------|
| <b>Operation Mode</b> | ESF  |
|                       | B8ZS |

Assigning T1 interfaces in the OfficeCom system, follows the same procedure.

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                                            |
|------|-------------------------------------------------------------------|
| 1.   | System Status ->System Wide ->Switchover to ->Hardware expansion. |

### 8.21.6 Defining Route Group for the CorNet-N T1 Spans

To define the Route Group for the CorNet-N T1 spans you must do the following:

- Specify unique route groups for each T1 CorNet-N link
- Set CorNet-N protocol type for T1 spans originating at the OfficePro system
- Set CorNet-N protocol type for T1 spans originating in the OfficeCom systems to slaves



The seizure codes for each of the CorNet-N routes are not required but can be useful for diagnostic testing. You should remove the seizure codes for the CorNet-N routes for the Call Back feature to operate properly.

Table 8-4 Route Groups for CorNet-N T1 Spans

| System                                  | Route Assignment | Seizure Code | Route Name | Parameters > ISDN Flags                              |
|-----------------------------------------|------------------|--------------|------------|------------------------------------------------------|
| OfficePro<br>TMST1<br>Board 1<br>1...23 | Route 2          |              | System 1   | S2M Cor-<br>Net-N Vari-<br>ant Master<br>(H150.H118) |
| OfficePro<br>TMST1<br>Board 2<br>1...23 | Route 3          |              | System 2   | S2M Cor-<br>Net-N Vari-<br>ant Master<br>(H150.H118) |
| OfficeCom<br>TMST1<br>Board 1<br>1...23 | Route 2          |              | CorNet     | S2M Cor-<br>Net-N Vari-<br>ant Slave<br>(H150.H118)  |
| OfficeCom<br>TMST1<br>Board 1<br>1...23 | Route 2          |              | CorNet     | S2M Cor-<br>Net-N Vari-<br>ant Slave<br>(H150.H118)  |



**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                        |
|------|---------------------------------------------------------------|
| 1.   | Options ->Lines/networking ->Trunks                           |
| 2.   | Options ->Lines/networking ->Trunks ->Parameters ->ISDN Flags |

**8.21.7 Defining Available B-Channels for the CorNet-N Spans**

This option defines the number of B-channels that are used for the CorNet-N link. If you assign channels for external data applications then you should disable the incoming and external flags for the required channels.

Table 8-5 B-Channel Assignments for CorNet-N

| System                             | Channels | Incoming     | Outgoing     |
|------------------------------------|----------|--------------|--------------|
| OfficePro<br>TMST1 Board 1         | 1...23   | All channels | All channels |
| OfficePro<br>TMST1 Board 2         | 1...23   | All channels | All channels |
| OfficeCom System 1<br>TST1 Board 1 | 1...23   | All channels | All channels |
| OfficeCom System 2<br>TST1 Board 1 | 1...23   | All channels | All channels |

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                                          |
|------|---------------------------------------------------------------------------------|
| 1.   | Options ->Lines/networking ->Trunks ->Parameters ->ISDN flags -> B-channel mode |

**8.21.8 Assigning Route Characteristics**

This procedure assigns the following route characteristics:

- Display name to the CorNet-N route
- Optional ISDN primary rate interface (PRI) number
- Optional second CO access code

## Display Name

| OfficePro |               | OfficeCom 1 |            | OfficeCom 2 |            |
|-----------|---------------|-------------|------------|-------------|------------|
| Route     | Route Name    | Route       | Route Name | Route       | Route Name |
| 2         | Cor-Net-N One | 2           | Main       | 2           | Main       |
| 3         | Cor-Net-N Two |             |            |             |            |

## Optional PRI Number

If the system is configured with a primary rate interface, the primary call number for each of the sites should be entered. This field identifies and filters specific digit patterns for DID and display purposes.

In the example below, the primary number for the main location is 1-408-492-1000. The DID numbers are based on the last four digits sent from the telephone company, (1XXX).

|                                   |     |
|-----------------------------------|-----|
| <b>PABX Number Main Site</b>      |     |
| <b>Country Code</b>               | 1   |
| <b>Local Area Code</b>            | 408 |
| <b>PABX Local Number (Prefix)</b> | 492 |

This should be repeated at each of the satellite locations if a different number must be sent to the public network over ISDN services.

## Optional Second CO Code

You should configure a second trunk access code if the trunk access code in the main switch is used. Each route can be assigned a second trunk access code to ensure the proper display and callback information is sent back to the main system.

|                                                                                                    |                                                                           |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| If no second code is enter and RTE type is CO                                                      | All digits dialed are subject to toll restriction                         |
| If no second code is enter and RTE type is PBX                                                     | No toll restriction is applied by originating PBX                         |
| If no second code is enter and RTE type is CO                                                      | All digits dialed are subject to toll restriction                         |
| If no second code is enter and RTE type is PBX                                                     | All digits dialed are subject to toll restriction after second trunk code |
| <b>Note:</b> The above information is for reference only and is only for analog trunk environments |                                                                           |

|                       |
|-----------------------|
| <b>Second CO Code</b> |
| 9                     |

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                 |
|------|------------------------------------------------------------------------|
| 1.   | Options ->Lines/networking ->Routes ->Route name                       |
| 2.   | Options ->Lines/networking ->Routes ->PABX number (PRI interface only) |
| 3.   | Options ->Lines/networking ->Routes ->CO code                          |

## 8.21.9 Assigning Route Parameters

Path replacement for transferred calls is only supported between Hicom 150 E Office systems. Path replacement for incoming calls that are forwarded from a satellite Hicom 150 E Office system to a Hicom 150 E, Hicom 300, or Siemens 9006M system is also supported.

The following table explains some of the options available through the Hicom Assistant E *Routing Parameters* dialog box.

Choose the options that apply.

Table 8-6 Description of Hicom Assistant E Route Parameters Options

| Option                              | Action                                                            | Result                                                                                                                                                                                                                |
|-------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rerouting</b><br>Change Route    | If yes                                                            | Use of Alternate D channel for call setup to final destination is possible                                                                                                                                            |
| <b>Route optimize active</b><br>No  | Only one can be selected<br>If yes                                | On call forward from satellite to main two links are used                                                                                                                                                             |
| If route is known                   | If yes                                                            | On Call forward from satellite to main, if handshake procedure is successful and route is known in receiving system no B-channel is seized.                                                                           |
| Always                              | If yes                                                            | On Call forward from satellite to main, if handshake procedure is successful and route is known in receiving system no B channel is seized. If no route is known the call is intercepted or the call is disconnected. |
| <b>No and type outgoing</b><br>PABX | Select this choice and enter access code in second trunk code box | Used to determine the route access code for callback and informs the system to send the extension number back to the callback location.                                                                               |
| <b>Route type</b><br>CO<br>PABX     | Select PABX in CorNet-N environment                               |                                                                                                                                                                                                                       |

Determine the portion of the number that should be sent to the public network. For CorNet-N applications PABX number should be set for the CorNet-N trunk group(s)

|  | <b>No. And Type Outgoing</b> |
|--|------------------------------|
|  | Country Code                 |
|  | Local Area Code              |
|  | PABX number                  |
|  | Unknown                      |

Example: The extension originating the external call is 1520.

|                                      |                     |
|--------------------------------------|---------------------|
| If Country Code is selected, then    | 14084921520 is sent |
| If Local Area Code is selected, then | 4084921520 is sent  |
| If PABX number is selected, then     | 4921520 is sent     |
| If Unknown is selected, then         | 1520 is sent        |

## Routing Flags

Define the routing flags required for the CorNet-N network installation

- Digit repeat on

If an outgoing route is seized and digit repeat has been activated, the routing code is automatically included as the initial portion of the call number. This feature is used in networked systems with a closed-numbering system to reach a station always using the same call number. The system used to set up the call is irrelevant.

To use digit repeat for closed numbering, the call number plans of the other networked systems must be coordinated so that their call numbers begin with codes that are stored in the Routing codes field for the corresponding route in the initial system (refer to Section 8.21.8, *Assigning Route Characteristics*). Up to 10 routing codes can be defined for each route to achieve a higher level of flexibility.

**Note:** This flag is typically set for networks of analog tie EM tie lines. In a CorNet-N environment, least cost routing out-dial rules are used for insertion of steering digit information.

- Evaluation of 2nd audible signal

This evaluation is country-dependent; for example, in Belgium after 00 and in France after 16 or 19. This does not apply in the North American Market and Germany.

- Intercept per route  
 You can define an intercept position for each route. If intercept is activated for a route, all calls in this route are intercepted at this intercept position if an alternate route selection is not available.
- Over. service 3.1 khz. audio  
 This is an ISDN test tone.
- Add direction prefix  
 This flag controls whether the seizure code is displayed during a trunk connection. For CorNet-N applications, the flag should be deactivated.

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                           |
|------|----------------------------------------------------------------------------------|
| 1.   | Options ->Lines/networking ->Routing parameters                                  |
| 2.   | Options ->Lines/networking ->Routes ->Routing parameters ->No. and type outgoing |
| 3.   | Options ->Lines/networking ->Routes ->Routing parameters ->Routing flags         |

### 8.21.10 Setting Clock Parameters

You must set the Master Clock reference for each of the satellite systems.

The table is divided into an allowed numbers list and a denied numbers list. The allowed numbers list defines the clock-sources sequence as referenced by the slave systems. You can define four clock sources.

The Denied Numbers list defines the spans that should not be used as reference sources. If a primary (position 1) clock source fails, the system will immediately switch to the next highest clock source.

#### OfficePro System

| Position | Allowed Numbers List |
|----------|----------------------|
| 1        |                      |
| 2        |                      |

| Position | Denied Numbers List |
|----------|---------------------|
| 1        | TMST1 6 (T1 to Com) |
| 2        | TMST1 7 (T1 to Com) |

**OfficeCom System**

| <b>OfficeCom 1</b> |                             |
|--------------------|-----------------------------|
| <b>Position</b>    | <b>Allowed Numbers List</b> |
| 1                  | TST1 6                      |
| 2                  |                             |

| <b>OfficeCom 2</b> |                             |
|--------------------|-----------------------------|
| <b>Position</b>    | <b>Allowed Numbers List</b> |
| 1                  | TST1 6                      |
| 2                  |                             |

**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                                        |
|-------------|----------------------------------------------------------------------|
| 1.          | Options ->Lines/networking ->Clock parameters ->Clock ->Allowed list |

**8.21.11 Specifying LCOS Settings**

This section is required to map a class of service flag associated with a specific call type in the Hicom 150 E system to a Hicom 300 or Siemens 9005 system. Refer to the Hicom 300 or 9006M configuration information for additional details. In a connection with another Hicom 150 E system, the dialed digits of the local public network access are evaluated in the denial list 1 of the target system. For connection to a Hicom 300, access is controlled via mapped network access lists.

| <b>Hicom 150 E Privileges</b> | <b>Hicom 300 LCOS Indexes</b> |
|-------------------------------|-------------------------------|
| Internal                      | 1 to 64                       |
| External Incoming             | 1 to 64                       |
| Allowed/Forbidden Lists       | 1 to 64                       |
| Unrestricted Trunk            | 1 to 64                       |

**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                      |
|-------------|------------------------------------|
| 1.          | Options ->Lines/networking ->LCOSS |

**8.21.12 Defining Least Cost Routing**

This section defines the call routing procedure for setting up the CorNet-N dialing plan.



CorNet-N uses the DID column in each system for digit translation. The Call number column is used for Intercom calling in the local switch only.

## CorNet-N Least Cost routing Example Configuration Data

- Customer has three locations in their network
- Central location is a Hicom 150 E OfficePro system
- Two satellite systems are Hicom 150 E OfficeCom systems
- One Digital T1 interface is connected from each of the OfficeCom systems to the central OfficePro system
- Pilot Number for the main system is 1-408-492-1100, which is a DID number.
- Extension numbers on the OfficePro system are in the 11XX series.
- DID numbers for the OfficePro system are 408 492-11XX
- Extension numbers at the OfficeCom system 1 are in the 12XX series
- DID numbers for the OfficePro system are 408 492-12XX
- Extension numbers at the OfficeCom system 2 will be in the 16XX series
- DID numbers for the OfficePro system will be 408 492-16XX
- Block of DID terminating in the Main system provides service for all locations
- Phonemail system is shared by all sites and is installed on the OfficePro system.

## Set the Station Dial Plan for Each System

| Main     |       |
|----------|-------|
| Call No. | DID   |
| 1100     | 1100  |
| 1101     | 1101  |
| 1102     | 1102  |
| 1103     | 1103  |
| 1104     | 1104  |
| .....    | ..... |
| 1150     | 1150  |

| System 1 |       |
|----------|-------|
| Call No. | DID   |
| 1200     | 1200  |
| 1201     | 1201  |
| 1202     | 1202  |
| 1203     | 1203  |
| 1204     | 1204  |
| .....    | ..... |
| 1250     | 1250  |

| System 2 |       |
|----------|-------|
| Call No. | DID   |
| 1600     | 1600  |
| 1601     | 1601  |
| 1602     | 1602  |
| 1603     | 1603  |
| 1604     | 1604  |
| .....    | ..... |
| 1650     | 1650  |

## Enable Least Cost Routing

This procedure activates Least Cost Routing in the systems.

**Release LCR**

**Digit Transmission**



|              |
|--------------|
| Step by Step |
| En-Bloc      |

### Define the LCR Dial Plan for Each Location

This procedure configures the basic dialing patterns supported for CorNet-N closed dialing plan. A closed dial plan means that each station in the network is configured with a unique call number. An open dial plan can also be setup using a unique leading digit plus a common station number plan for each location. For example location one could be 1200, location two could be 2200 and location three could be 3200.

| Main                      |                |
|---------------------------|----------------|
| Dialed Digits<br>LCR Dlpn | Route<br>Table |
| 12XX                      | 1              |
| 16XX                      | 2              |
|                           |                |

| System 1                  |                |
|---------------------------|----------------|
| Dialed Digits<br>LCR Dlpn | Route<br>Table |
| 11XX                      | 1              |
| 16XX                      | 2              |
| 0Z                        | 3              |

| System 2                  |                |
|---------------------------|----------------|
| Dialed Digits<br>LCR Dlpn | Route<br>Table |
| 11XX                      | 1              |
| 12XX                      | 2              |
| 0Z                        | 3              |

## Define the Out-Dialing Rules for Each Location

This procedure instructs the system to prefix, suffix, or dial a set of dialing sequences.

- D informs the system to dial a set of digits
- A informs the system to dial all remaining digits after the LCR access code.

Refer to Chapter 7, *Least Cost Routing (for U.S. Only)*, for additional out dial commands.

| Main Location     |                       |                                 |
|-------------------|-----------------------|---------------------------------|
| Rule Name         | Outdial Rule          | Procedure                       |
| Dial All CorNet-N | E1A or A <sup>*</sup> | Corporate Network <sup>**</sup> |

| System 1 Location       |              |                   |
|-------------------------|--------------|-------------------|
| Rule Name               | Outdial Rule | Procedure         |
| Dial All CorNet-N       | E1A or A     | Corporate Network |
| Dial ATC <sup>***</sup> | D1100        | Corporate Network |

| System 1 Location        |              |                   |
|--------------------------|--------------|-------------------|
| Rule Name                | Outdial Rule | Procedure         |
| Dial All CorNet-N        | E1A or A     | Corporate Network |
| Dial ATC <sup>****</sup> | D1100        | Corporate Network |

\* The Out-dial rule "E1A" will echo the first field (12XX and or 16XX) followed by additional digits. The Out-dial rule "A" will echo all digits entered after a timeout. Both entries are acceptable. In a network scenario where the satellite systems share public network facilities, the Out-dial rule "E1A" can be used for routing external call information as well.

\*\* For applications requiring CorNet-N calls to be overflowed to a Public Network trunk, the Outdial procedure should be MCL single stage. This allows the CorNet-N call to progress to the next route step in the Route Table.

\*\*\* The final Out-dial rule is an option for setting up dial 0 access to the attendant at the main system. The Attendant Code 0 must be deleted or changed from the System Parameters > Intercept / Attendant screen

\*\*\*\* Refer to previous footnote.

### Define the LCR Class of Service for Each Station in the Network

This table defines the authorization level required to access each route group element.

The default LCR COS of 15 is assigned to all stations in this example.

| Main Call Number | System 1 Call Number | System 2 Call Number | Class Of Service |
|------------------|----------------------|----------------------|------------------|
| 1100             | 1200                 | 1600                 | 15               |
| 1101             | 1201                 | 1601                 | 15               |
| 1102             | 1202                 | 1602                 | 15               |
| ....             | ....                 | ....                 | 15               |

### Define a Time of Day Schedule for the CorNet-N Route Availability

A time of day schedule must be defined for the CorNet-N routes.

This example uses time schedule A, which is configured to allow access to the CorNet-N links from 12:00 am to 23.59 pm, Monday through Friday.

| Day       | End time | Schedule* |
|-----------|----------|-----------|
| Monday    | 23:59    | A         |
| Tuesday   | 23:59    | A         |
| Wednesday | 23:59    | A         |
| Thursday  | 23:59    | A         |
| Friday    | 23:59    | A         |
| Saturday  | 23:59    | A         |
| Sunday    | 23:59    | A         |

\* The default entry for the LCR schedule tables is A. If there are no time of day routing requirements, the step is optional

## Define Route Group Table Parameters

This table consolidates the LCR parameters into an association table for each route selected.

| System   | Route Table | Route    | Out Dial Rule     | Min COS | Schedule | Warning  |
|----------|-------------|----------|-------------------|---------|----------|----------|
| Main     | 1           | System 1 | Dial All CorNet-N | 15      | A        | None     |
| Main     | 2           | System 2 | Dial All CorNet-N | 15      | A        | None     |
| System 1 | 1           | CorNet-N | Dial All CorNet-N | 15      | A        | None     |
| System 1 | 2           | CorNet-N | Dial All CorNet-N | 15      | A        |          |
| System 1 | 3           | Dial ATC | 15                | A       | None     | Dial ATC |
| System 2 | 1           | CorNet-N | Dial All CorNet-N | 15      | A        | None     |
| System 2 | 2           | CorNet-N | Dial All CorNet-N | 15      | A        | None     |
| System 2 | 3           | CorNet-N | Dial ATC          | 15      | A        | None     |

An additional route consisting of local CO service can be configured as a secondary selection if the CorNet-N channels are busy.

In some cases, the customer may request that calls between locations use the Public Network facilities to route calls when the CorNet-N links are busy. In this case, the out-dial rule procedure for the rule associated with the CorNet-N dial plan should be MCL Single Stage. An additional route element can then be added to the route group table for selecting an alternate path to the destination.

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                             |
|------|----------------------------------------------------|
| 1.   | Options > Set up station > Station                 |
| 2.   | Options > Least Cost Routing > Codes and flags     |
| 3.   | Options > Least Cost Routing > Dial Plan           |
| 4.   | Options > Least Cost Routing > Dialing Rules Table |
| 5.   | Options > Least Cost Routing > Classes of Service  |
| 6.   | Options > Least Cost Routing > LCR-schedule        |
| 7.   | Options > Least Cost Routing > Route Table         |

### 8.21.13 Configuring System Parameter Flags

For path replacement CorNet-N supports the following:

- Path replacement for calls forwarded from a satellite Hicom 150 E system to a Phonemail system connected to a main Hicom 300 or 9006M system
- Path replacement for calls transferred from a satellite Hicom 150 E system back to a station on another Hicom 150 E system.

The display option allows the trunk information to be displayed at the receiving telephone on a transferred call.

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                       |
|------|--------------------------------------------------------------|
| 1.   | Options ->System parameters ->Flags CMI ->Other switches     |
| 2.   | Options ->System parameters ->Flags CMI ->Transit permission |
| 3.   | Options ->System parameters ->Flags CMI ->Display            |

### 8.21.14 Assigning MUSAP or General Call Keys

Assigning multiple-station appearance (MUSAP) keys and general Call keys is optional; however, following this procedure provides a visual line appearance for calls received over the CorNet-N link from stations in satellite offices as well as DID calls. A second key is suggested for Rollover purposes.

General Call keys can be used for local intercom calls, CorNet-N calls, and DID calls and can be assigned to all stations. The General Call key for a specific station can not be assigned to multiple stations.

The MUSAP key can be used for DID calls and CorNet-N calls and can be assigned to all stations for this function. The MUSAP key for a station can be assigned to other stations for coverage applications. The coverage station must be programmed into the covered stations ring group for proper operation.

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                                     |
|------|--------------------------------------------------------------------------------------------|
| 1.   | Options ->Set up station ->Key programming ->Key programming ->Key Code ->General Call Key |
| 2.   | Options ->Set up station ->Key programming ->Key programming ->Key code ->Assign stn. no   |

## 8.21.15 Configuring Pseudo Numbers for Centralized Phonemail

Pseudo numbers are used for identification and steering purposes. A pseudo number is a call number/ DID number that is assigned to a port not associated with a physical device.

- Pseudo numbers are assigned in the station setup screen and can be configured with a name and call management steering information.
- Pseudo numbers may not be programmed as repertory keys on the optiset stations.
- Pseudo numbers may be forwarded using the Associated Services feature code (\*83) from a station with the Associated Services feature bit activated.

Define pseudo numbers for the Phonemail pilot, Forward to pilot, Direct Access, Call back and Guest access for the satellite system.

- The "Forward to" pseudo number must be forwarded to the direct access number for Phonemail at the main location
- The Phonemail, Direct, Callback and Guest access pseudo numbers must be forwarded to the respective target call numbers at the main location using the associate feature code: \*83 + pseudo number + \*11 + destination.

| System 1 |      |                                   |          |           |         |               |
|----------|------|-----------------------------------|----------|-----------|---------|---------------|
| Call No  | DID  | Name                              | Inactive | Parameter | Type    | Ext. Type     |
| 1250     | 1250 | Phonemail                         |          |           | No Port | Phonemail 5 D |
| 1251     | 1251 | Forward to                        |          |           | No Port | Ans. Machine  |
| 1252     | 1252 | Direct                            |          |           | No Port | Ans. Machine  |
| 1253     | 1253 | Callback<br>(Optional<br>Rep key) |          |           | No Port | Ans. Machine  |
| 1254     | 1254 | Guest                             |          |           | No Port | Ans. Machine  |

| <b>System 2</b> |            |                           |                 |                  |             |                  |
|-----------------|------------|---------------------------|-----------------|------------------|-------------|------------------|
| <b>Call No</b>  | <b>DID</b> | <b>Name</b>               | <b>Inactive</b> | <b>Parameter</b> | <b>Type</b> | <b>Ext. Type</b> |
| 1650            | 1650       | Phonemail MW              |                 |                  | No Port     | Phonemail 5 D    |
| 1651            | 1651       | Forward to                |                 |                  | No Port     | Ans. Machine     |
| 1652            | 1652       | Direct Access             |                 |                  | No Port     | Ans. Machine     |
| 1653            | 1653       | Callback Optional Rep Key |                 |                  | No Port     | Ans. Machine     |
| 1654            | 1654       | Guest Access              |                 |                  | No Port     | Ans. Machine     |

A station at the satellite system can use the Call Forward access code \*1 to forward their calls immediately to the Phonemail system.

For applications requiring the call to ring at the target station for a predetermined ring cycle, the call destination list table can be used. Target 1 would be "\*" representing the originally dialed number. Target 2 would be the pseudo number representing the Forward to destination, 1251 or 1651. Associated services must be used to forward the configured pseudo ports to their respective pilot numbers in the main system.

Least Cost Routing may be used to route calls back to the main system pseudo numbers instead of assigning pseudo ports at the satellite location. A pseudo port for the PhoneMail IBMN port is still required at each of the satellite locations.

- The Phonemail entry in each of the remote systems is used as the pseudo port for lighting the Mailbox LED on the stations and as the call back target for message retrieval. The Phonemail pseudo port should be forwarded to the Call back pseudo port on the main system.
- The Forward To entry should be forwarded to the Phonemail Hunt group pilot number on the main system.
- The Direct Access entry should be forwarded to the Direct access pseudo number on the main system.
- The Guest Access entry should be forwarded to the Guest access pseudo number on the main system. Typically a DID number would be assigned for Guest access at the main system and this entry would not be required.
- The Callback function is an optional repertory key used to retrieve messages. The Call back Repertory key should be programmed to dial the Callback pseudo number on the main system.

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                  |
|------|-------------------------------------------------------------------------|
| 1.   | Options ->Set up station ->station                                      |
| 2.   | Options ->Set up station ->station ->Parameters ->Type ->Extension type |

### 8.21.16 Defining Intercept Information

This step is required to define an intercept network position for calls that are not answered by a station destination.

In the Intercept position boxes, the default is station 100 for day and night applications. The entry needs to be updated based on the closed-number plan selected for each system. Pseudo numbers can also be entered that are forwarded to a remote system for centralized answering applications. The Associated service feature must be used to call forward the pseudo number to the target location.

The Attendant Number Call Number External field entry, default = 9 in the USA, should be deleted to eliminate conflicts with LCR dialing patterns for external and CorNet-N calls.

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                            |
|------|---------------------------------------------------|
| 1.   | Options ->System parameters ->Intercept/attendant |

### 8.21.17 Hardware Information

Listed below are the pinouts for the T1 interface boards for the Hicom 150E systems

| Hicom 150E OfficeCom System<br>TST1 Board | Pins | Hicom 150E OfficePro System<br>TMST1 Board | Pins |
|-------------------------------------------|------|--------------------------------------------|------|
| Transmit                                  | 1    | Transmit                                   | 18   |
| Transmit                                  | 2    | Transmit                                   | 43   |
| Receive                                   | 4    | Receive                                    | 22   |
| Receive                                   | 5    | Receive                                    | 47   |



## 8.21.18 Feature Comparisons

Listed below are the primary features supported between Siemens Hicom systems  
The listed information is subject to change.

| <b>Feature</b>                                           | <b>Hicom 150 E<br/>to<br/>Hicom 150 E</b> | <b>Hicom 150 E<br/>to<br/>Hicom 300</b> | <b>Hicom 150 E<br/>to<br/>9751</b> |
|----------------------------------------------------------|-------------------------------------------|-----------------------------------------|------------------------------------|
| Access to central PSTN trunks                            | Yes                                       | Yes                                     | Yes                                |
| Call Back Set on Busy                                    | Yes                                       | Yes                                     | No                                 |
| Call back Set on No Answer                               | Yes                                       | Yes                                     | No                                 |
| Call Back to sender                                      | Yes                                       | Yes                                     | No                                 |
| Call Forward                                             | Yes                                       | Yes                                     | Yes                                |
| Call Hold                                                | Yes                                       | Yes                                     | Yes                                |
| Call Recall on transfer                                  | Yes                                       | Yes                                     | Yes                                |
| Call Transfer Unscreened                                 | Yes                                       | Yes                                     | Yes                                |
| Call Transfer Supervised                                 | Yes                                       | Yes                                     | Yes                                |
| Calling Name and Number                                  | Yes                                       | Yes                                     | Yes                                |
| Camp On                                                  | Yes                                       | Yes                                     | TBD                                |
| Centralized DID services                                 | Yes                                       | Yes                                     | Yes                                |
| Conference Call                                          | Yes                                       | Yes                                     | Yes                                |
| Conservation of B channels on<br>Call forward to hub PBX | Yes                                       | Yes                                     | Yes                                |
| Conservation of B channels on<br>call transfer           | Yes                                       | No                                      | No                                 |
| ISDN Data at 128Kbps                                     | Yes                                       | Yes                                     | No                                 |
| ISDN Data at 64Kbps                                      | Yes                                       | Yes                                     | No                                 |
| Message Waiting notification                             | Yes                                       | Yes                                     | Yes                                |
| Send Text Message                                        | Yes                                       | NA                                      | NA                                 |
| Uniform Dialing 2 to 6 digits                            | Yes                                       | Yes                                     | Yes                                |
| Send ANI on incoming call                                | Yes                                       | Yes                                     | Yes                                |
| Send DNIS on incoming call                               | Yes                                       | Yes                                     | Yes                                |



For Hicom 150 E to Hicom 300 or 9006M the Protocol to select is  
S2M: CorNet-N variant slave (H300).

## 8.21.19 CorNet-N Service Issues

1. In a network environment, a connection from a H300 to H150 to H300 fails to send DTMF tones from the optiset phone on the H300 through the H150 back to the H300 to Phonemail. A call from the H150 to the Phonemail system on the H300 works correctly. Analog stations in all scenarios work correctly.
2. The CorNet-N application has been tested with the Hicom 300 6.4, 6.5 only. Issues concerning Phonemail integration and display information will be apparent on the Hicom 300 6.1 and 6.2 versions. All 9006 system with revisions lower than 6.4 must be upgraded to most current version of the 9006 system software levels.
3. With systems configured with analog trunks, calls transferred to Phonemail via a DID, Attendant assist or DNIS cannot be transferred across the CorNet-N link from Phonemail using a blind transfer. The Call will ring back to the Phonemail system. The same thing will happen with blind transfers from a station. An explicit transfer must be set up using the transfer function from the Optiguide keys.
4. In a CorNet-N or networked environment, where Hicom 150 E OfficeCom systems are positioned as end nodes, if the OfficeCom systems are installed with basic rate trunks using CACH EKTS or DMS100 Key Short Hunting, networked systems will not have access to the BRI services for outbound calls. This is due to the fact that no CACH or PDID values are reserved for the CorNet-N call. The tandem call will be intercepted to the OfficeCom
5. The OfficeCom system must always be used as an end-node. Connecting an OfficeCom directly to another OfficeCom via a T1 link is not supported at this time.
6. Transit timer problem: (**CorNet-N involved at this site**) On T1, even with both parameters for the warning tone and release set out to max values (85 total minutes) and despite fact that T1 is a digital circuit, long distance calls over T1 are disconnected in 22 minutes. 22 minutes is maximum talk time duration on the T span. Additionally, the warning tone is not handled correctly (that is, the H150 users hears silence [absence of battery] and the external party you are speaking with receives the warning tone).
7. Hicom 150 E site is **CorNet'ed** to a 9006 with centralized Phonemail. Hicom 150 E site has operator-answered groundstart trunks. If a call on these trunks is extended to a Hicom 150 E user at this site, the call will not forward up the CorNet-N to the user's Phonemail box.
8. **CorNet-N Issue:** 9006 user station forwards a call to a Hicom 150 E extension at the Hicom 150 E remote satellite site over CorNet-N. Internal calls follow forwarding and return to Phonemail if the Hicom 150 E extension rings no answer. External caller just rings to answer and will not return to Phonemail. External call through 9006 to Hicom 150 E will stop at Hicom 150 E, and RNA will not be sent back up the CorNet-N to centralized Phonemail.
9. **CorNet-N Issue:** Digital optiset extension: A 9006 H300 calls extension B in Hicom 150 E which is Call Forwarded to C (Phonemail) at the 9006 H300. Extension A dials extension B; C (Phonemail) answers as expected. However, when

extension A presses any digits, C (Phonemail) does not hear / acknowledge the DTMF tones. If the station A is analog, everything works fine and DTMF tones are recognized.

### **8.21.20 Patch Information for Hicom 300 systems as of February 1, 1999**

Note that the following 9006 stand-alone patches should be installed in the 9006 system. Contact 9006 TAC for access to these patches. Only 9006 versions 6.4 and 6.5 are supported

1. The patch versions shown below ensure that the display is correct on Hicom 150 E to Hicom 150 E tandem calls through a 9006 hub.
  - PS10G09 for 9006.4
  - PS10G26 for 9006.4
  - PS10J22 for 9006.4
  - PS10808 for 9006.5
2. The patch shown below is only available currently on the 9006.4 release. This patch corrects a problem that only occurs in the 9006 in a centralized PhoneMail application with the Hicom 150 E. It solves an intermittent problem where when you transferred out of PhoneMail to a Hicom 150 E user, occasionally you would experience dead air.
  - PS10J22 for 9006.4 only
3. Unresolved CorNet-N Issue.

A new problem with 9006 and centralized PhoneMail with Hicom 150 E remote systems attached via CorNet-N is under investigation. Callers that transfer out of Phonemail call processing to an extension in a Hicom 150 E. The Hicom 150 E phone RNA forwards back to PhoneMail and goes to Guest Access rather than Forward Access and the user's personal greeting.

- Hicom 150 E site is connected to a 9006 with centralized Phonemail. Hicom 150 E site has operator-answered ground-start trunks. If a call on these trunks is extended to a 150 user at this site, the call will not forward up the CorNet-N to the user's Phonemail box.
- **CorNet-N Issue:** 9006 user station forwards a call to a Hicom 150 E extension at the Hicom 150 E remote satellite site over CorNet-N. Internal calls follow forwarding and return to Phonemail if the Hicom 150 E extension rings no answer. External caller just rings to answer and will not return to PhoneMail. External call through 9006 to Hicom 150 E will stop at Hicom 150 E, and RNA will not be sent back up the CorNet-N to centralized Phonemail.

- **CorNet-N Issue:** Digital optiset extension A in a 9006 Hicom300 calls extension B in Hicom150 which is Call Forwarded to C (Phonemail) at the 9006 Hicom300. extension A dials extension B; C (Phonemail) answers as expected. However, when extension A presses any digits, C (Phonemail) does not hear / acknowledge the DTMF tones. If the station A is analog, everything works fine and DTMF tones are recognized.
- **CorNet-N Issue:** Two OfficeComs connected via CorNet-N. OfficeCom 1 has BRI lines in its network. If the BRI line gets removed and OfficeCom 1 is shut down, OfficeCom 1 will not work.

### **8.21.21 Patch Information for the 9005 systems.**

The 9005 – 9751 systems must be equipped load 9005.6.84 for proper operation. Please consult the TAC support page for information concerning upgrades to existing systems at <http://tac.fld.rolm.com/9751/index.html>.

### **8.21.22 Peripheral Equipment Installation**

#### **External Page Equipment**

In cases where the customer requires access to external page systems located at remote Hicom 150 E sites the following Valcom equipment is required:

- V2001,V2003 or V2006 zone adapter.
- V9970 Centrex page adapter
- VPB-412A power supply

## **8.22 CorNet-N—Configuring Satellite Communications Server Operation (for U.S. Only)**

### **Introduction**

Users can configure the Hicom 150 E Office OfficePro or OfficeCom to operate as a satellite communications server (CS) via CorNet-N. As a satellite CS, the Hicom 150 E Office can be operated both in mixed mode (ISDN trunk and CorNet-N networking) and in standard mode with a shared or separate station number block.

### **8.22.1 Satellite CS Without Mixed Mode**

CorNet-N can be configured only using Hicom Assistant E.

#### **Sample Configuration 1**

- Configure trunk group 1 as a CS (PBX) in the system.
- Assign station number 33 to the CorNet-N trunk group in the main CS.
- Operate the satellite CS with a separate station number block.
- Enter 33 as a local telephone number for trunk group 1.
- Use trunk ports 1 and 2 for satellite CS (PBX) operation.

#### **Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                   |
|-------------|-------------------------------------------------|
| 1.          | Options ->Lines/networking ->Routing parameters |
| 2.          | Options -> Lines/networking ->Routes            |
| 3.          | Options ->Lines/networking ->Trunks ->Flags     |

#### **Sample Configuration 2**

- Configure trunk group 1 as a CS (PBX) in the system
- Assign station number 33 to the CorNet-N trunk group in the main CS
- Operate the two systems with a shared station number block
- Change the DID number for station 11 to 3311 (the DID numbers in the satellite CS must be changed.)

**Using Hicom Assistant E for Programming**

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | Options ->Lines/networking ->Routing parameters |
| 2.   | Options ->Lines/networking ->Routes             |
| 3.   | Options ->Lines/networking ->Trunks ->Flags     |
| 4.   | Options ->Set up station ->Station (DID)        |

**8.22.2 Satellite CS in Mixed Mode**

CorNet-N can be configured only using Hicom Assistant E.

**Sample Configuration**

- Configure trunk group 1 as a CO and trunk group 2 as a CS (PBX).
- Assign station number 33 to the CorNet-N trunk group in the main CS.
- Operate the satellite CS with a separate station number block.
- Enter 33 as a local telephone number (must be entered for trunk group 2).
- Use trunk ports 3 and 4 for satellite CS (PBX) operation.
- Use trunk in slot 4.

**Using Hicom Assistant E for Programming**

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Options ->Lines/networking ->Routes          |
| 2.   | Options -> Lines/networking ->Trunks ->Flags |

## **8.23 CorNet-N—Networking With Closed Numbering Plan and Digit Repetition (for U.S. Only)**

### **Introduction**

A Hicom 150 E Office OfficePro or OfficeCom can be networked with another communications server (CS) via CorNet-N. A station number block can be commonly used in both systems (closed numbering plan). Configuring digit repetition on tie trunks is the simplest option.

### **Example**

- Two Hicom 150 E Office systems are networked via a direct T1 connection. System 1 (primary) has a station number block for 210 through 249 and system 2 (secondary) has a station number block for 250 through 299.
- In both systems, trunk group 2 is configured for networking, and trunk port 3 is used.

CorNet-N can be configured only using Hicom Assistant E.

### **Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                            |
|-------------|----------------------------------------------------------|
| 1.          | Options ->Lines/networking ->Routing parameters          |
| 2.          | Options ->Lines/networking ->Trunks ->Flags ->ISDN-Flags |
| 3.          | Options ->Lines/networking ->Routes                      |

### **Note**

If the station numbers of stations in the other system are entered as full trunk group codes (such as 210 instead of 21), the stations cannot access services such as call forwarding over the tie trunk.

## 8.24 Configuring the Hicom 150 E Office with the 9006m (for U.S. Only)

### 8.24.1 T1/Cornet-N

#### Configuring the Feature Using Hicom Assistant E

Configure the feature using Hicom Assistant E as follows

| Step | Activity                                                                                                                                                     | Action                                                                                          |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1.   | Configure the T1 for Cornet-N                                                                                                                                | Options -> Lines/Networking -> Trunks -> Param -> Protocol > S2M: CorNet-N variant slave (H300) |
| 2.   | Assign a trunk (without PABX no.) to the B channels                                                                                                          | Options -> Lines/Networking -> Routes                                                           |
| 3.   | For routing parameters, deselect <i>Add direction prefix</i> , set <i>No. and type</i> , <i>outgoing to PABX number</i> and <i>Route Type</i> to <i>PABX</i> | Options -> Lines/Networking -> Routing Parameters<br>See figure <a href="#">Figure 8-2</a> .    |
| 4.   | For System Parameters, select <i>External transit traffic</i>                                                                                                | Options -> System Parameters -> Flags / CMI                                                     |



| Trunks                                                                                                                                                                                          | Routes | Routing parameters                                                                                                                                                                                                                                                                                    | Clock parameters                                                                                                                                                                                                   | LCOSS | PRI |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|
| <b>Routes</b><br>rte. 1<br>rte. 2<br>COR MOD<br>COR COM<br><b>COR 9005</b><br>rte. 6<br>rte. 7<br>rte. 8<br>rte. 9<br>rte. 10<br>rte. 11<br>rte. 12<br>rte. 13<br>rte. 14<br>rte. 15<br>rte. 16 |        | <b>Rerouting</b><br><input type="checkbox"/> Change route<br>Route optimize active<br><input checked="" type="radio"/> No<br><input type="radio"/> If route is known<br><input type="radio"/> Always                                                                                                  | <b>Digit request with MSI</b><br><input checked="" type="radio"/> no pause<br><input type="radio"/> Pause 1s<br><input type="radio"/> Pause 3s<br><input type="radio"/> Pause 6s<br><input type="radio"/> Pause 9s |       |     |
|                                                                                                                                                                                                 |        | <b>Routing flags</b><br><input type="checkbox"/> Digit repetition on<br><input type="checkbox"/> Analysis of second dial tone<br><input type="checkbox"/> Intercept per direction<br><input checked="" type="checkbox"/> Over. service 3.1 kHz audio<br><input type="checkbox"/> Add direction prefix | <b>No. and type, outgoing</b><br><input type="radio"/> Country code<br><input type="radio"/> Local area code<br><input checked="" type="radio"/> PABX number<br><input type="radio"/> Unknown                      |       |     |
|                                                                                                                                                                                                 |        | <b>Route type</b><br><input type="radio"/> CO <input checked="" type="radio"/> PABX                                                                                                                                                                                                                   | <b>Trunk call pause</b><br><input checked="" type="radio"/> Pause 6s <input type="radio"/> 13s                                                                                                                     |       |     |
|                                                                                                                                                                                                 |        |                                                                                                                                                                                                                                                                                                       | <b>Type of seizure</b><br><input type="radio"/> cyclic <input checked="" type="radio"/> linear                                                                                                                     |       |     |

Figure 8-2 CorNet-N Routing Parameters—Hicom 150 E/9006m (for U.S. Only)

### 8.24.2 Central Operator

You can configure a central operator with the Hicom 150 E Office. In least cost routing (LCR), the *0* is evaluated in the dial plan and the destination is entered in the dialing rule, for example, *D65300*.

**Note:** First clear the *0* for System Parameters Attendant Code.

### 8.24.3 Central PhoneMail

For central PhoneMail in the 9006m, you must configure phantom subscribers as *Type = Answering machine* in the Hicom 150 E Office. These are forwarded to the phonemail (PM) Access (Forward/Direct/Callback/Guest) via associated dialing. A phantom subscriber must be configured as *Type = PhoneMail*, and it must be forwarded to the Direct Access of PM for the Message Waiting LED (IBMN).

**Configuring the Feature Using Hicom Assistant E**

| Step | Activity                                                                 | Action                                                                              |
|------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1.   | Configure phantom subscribers as Type <i>Answering machine</i>           | Options -> Set up station -> Param -> Type -> Answering machine                     |
| 2.   | Configure phantom subscriber as Type <i>PhoneMail</i>                    | Options -> Set up station -> Param -> Type -> PhoneMail                             |
| 3.   | Configure phantom subscribers for PhoneMail                              | Options -> Set up station -> See <a href="#">Figure 8-3</a>                         |
| 4.   | For Routing parameters, set <i>No. and type, outgoing to PABX number</i> | Options -> Lines/networking -> Routing parameters (See <a href="#">Figure 8-4</a> ) |

| Set up station |          |                 |          |       |
|----------------|----------|-----------------|----------|-------|
| Station        |          | Key programming |          |       |
|                | Call no. | DID             | Name     | nacti |
| 488            | 740      | 740             | PM       | *     |
| 489            | 744      | 744             | FORWARD  | *     |
| 490            | 745      | 745             | DIRECT   | *     |
| 491            | 746      | 746             | CALLBACK | *     |
| 492            | 747      | 747             | GUEST    | *     |
| 493            |          |                 |          | *     |
| 494            |          |                 |          | *     |

Figure 8-3 Phantom Subscribers—Hicom 150 E/9006m (for U.S. Only)

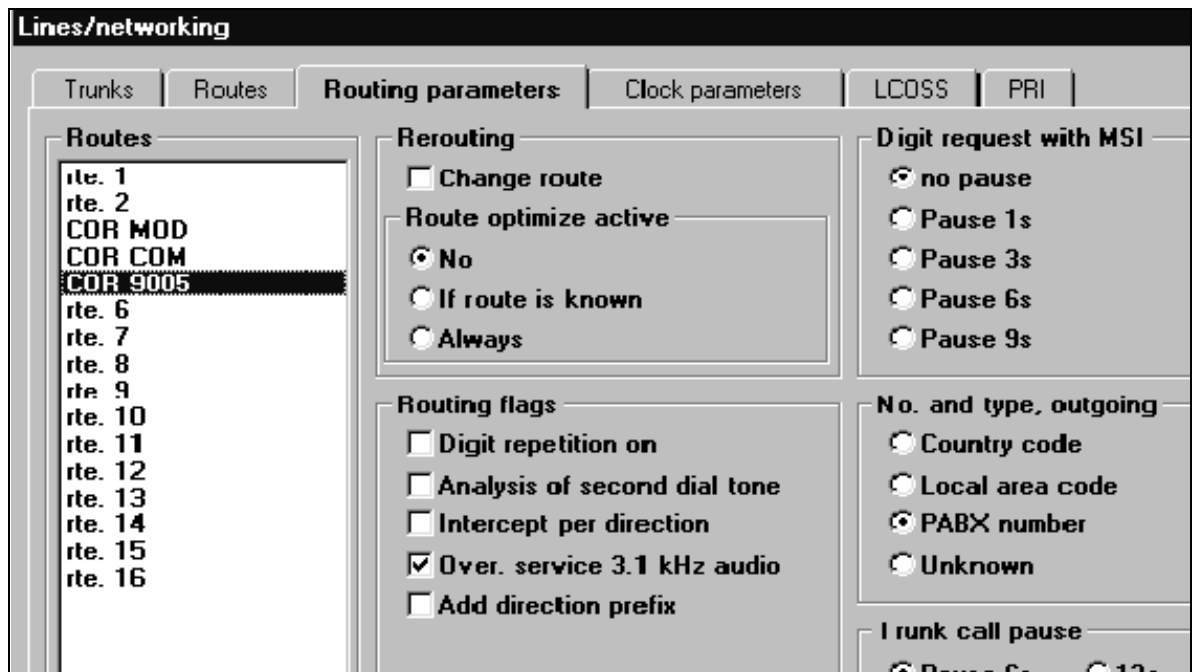


Figure 8-4 Routing Parameters—Hicom 150 E/9006m (for U.S. Only)

## 8.24.4 Intercept Criteria

If the central intercept position is in the 9006m, the intercept follows the selected criteria if you enter a phantom subscriber for the intercept position (see [Figure 8-5](#)).

**System Parameters**

Service codes | Texts | Time parameters | Tones and ring type

Flags / CMI | System settings | **Intercept / Attendant** | Display

**Intercept position**

Day Station number: 730

Night Station number: 730

**Intercept to intercept position**

- ☒ on RNA
- ☒ on Busy
- ☒ on Invalid
- ☒ on Incomplete
- ☐ on unanswered recall
- ☐ on more than two calls to P.O.T. (FKR only)

**Attendant code**

Call number Intercept

Call number Extension

**Other criteria**

- ☐ Intercept with
- ☒ Call waiting on

OK Cancel

Phantom subscriber number

Intercept Criteria

Figure 8-5 CorNet-N Intercept Position—Hicom 150 E/9006m (for U.S. Only)

### 8.24.5 System Speed-Dialing No.

The Hicom 150 E can use the system speed-dialing numbers of the 9006m. For this purpose, the code for speed-dialing in the 9006m must be changed from #6 to a station number (12 in Figure 8-6). That is, \* or # cannot be used because these codes cannot be dialed via CorNet-N.

#### Configuring the Feature Using Hicom Assistant E

| Step | Activity                                                       | Action                                                                                   |
|------|----------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1.   | Configure Dial plan                                            | Options -> Least cost routing -> Dial plan<br>(See Figure 8-6)                           |
| 2.   | Configure Route table by assigning the Speed-dial dialing rule | Options -> Least cost routing -> Route table -> CorNet-N trunk group<br>(See Figure 8-7) |
| 3.   | Configure the Dialing rules table                              | Options -> Least cost routing -> Dialing rules table<br>(See Figure 8-8)                 |

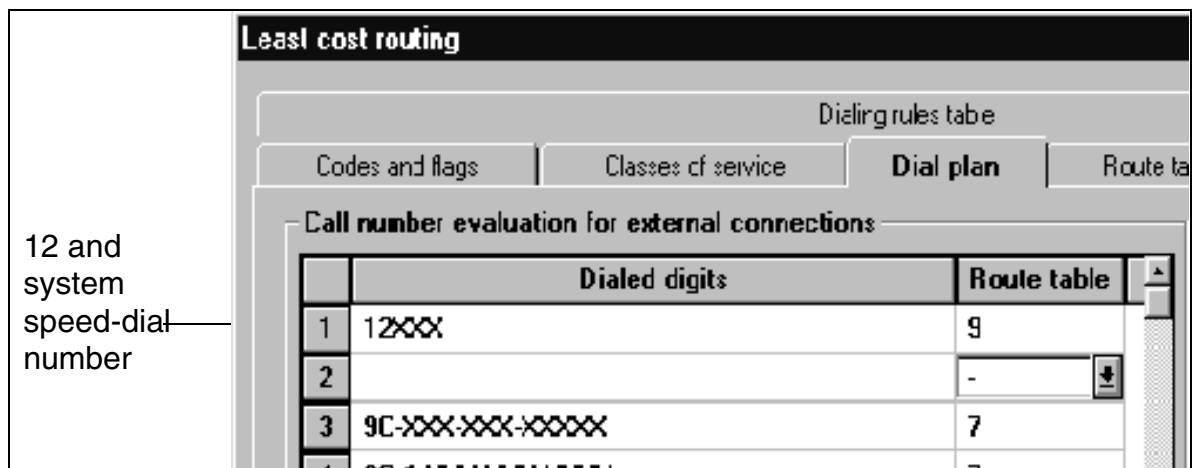


Figure 8-6 System Speed-Dialing Dial Plan—Hicom 150 E/9006m (for U.S. Only)

| Least cost routing  |               |                    |           |             |
|---------------------|---------------|--------------------|-----------|-------------|
| Dialing rules table |               |                    |           |             |
| Codes and flags     |               | Classes of service | Dial plan | Route table |
| Selection           | Route table 9 |                    |           |             |
|                     | Route         | Dial rule          | min. COS  | Schedule    |
| 1                   | COR 9005      | Speed-Dial         | 15        | -           |
| 2                   | -             | -                  | 15        | -           |
| 3                   | -             | -                  | 15        | -           |
| 4                   | -             | -                  | 15        | -           |
| 5                   | -             | -                  | 15        | -           |
| 6                   | -             | -                  | 15        | -           |
| 7                   | -             | -                  | 15        | -           |
| 8                   | -             | -                  | 15        | -           |
| 9                   | -             | -                  | 15        | -           |
| 10                  | -             | -                  | 15        | -           |

Dialing rule

Figure 8-7 System Speed-Dialing Route Table—Hicom 150 E/9006m (for U.S. Only)

| Least cost routing  |                 |             |                   |
|---------------------|-----------------|-------------|-------------------|
| Dialing rules table |                 |             |                   |
| Dialing rules table |                 |             |                   |
|                     | Rule name       | Rule format | Procedure         |
| 1                   | Extensions 9005 | A           | Corporate network |
| 2                   | CO 9005         | D9E2A       | Corporate network |
| 3                   |                 |             | Unknown           |
| 4                   | Speed-Dial      | A           | Corporate network |
| 5                   |                 |             | Unknown           |

Dialing rule

Figure 8-8 System Speed-Dialing Dialing Rules Table—Hicom 150 E/9006m (for U.S. Only)

**Related Topics:**

- Section 7.8, *Least Cost Routing (LCR) (Not for U.S.)*, on page 7-244
- Section 8.34, *Configuring Least Cost Routing (for U.S. Only)*, on page 8-120
- Section 7.8.1, *Carrier Types*, on page 7-245
- Section 7.8.2, *Routing Tables*, on page 7-249
- Section 7.7.6, *En-Bloc Dialing*, on page 7-217

## 8.25 Configuring the Executive/Secretary Function

### Introduction

In an executive/secretary group, up to 6 stations can be joined in an executive/secretary relationship. No more than 2 stations can be executives, no more than 2 can be secretaries, and no more than 2 can be conference corner telephones. Group positions 1 and 2 can be assigned the executive function and positions 3 and 4 can be assigned the secretary function.

### Example

Configure a 1:1 executive/secretary relationship as group 2 with station number 200 for the executive and station number 201 for the secretary.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                  | Display               |
|------|------------|---------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                             | System administration |
| 2.   | 18 1       | Select <i>Traffic restriction, Exec./sec. groups.</i>   | Grp 1, Pos 1:-        |
| 3.   | #2 ✓       | Select executive/secretary group and confirm (see note) | Grp 2, Pos 1:-        |
| 4.   | *200 ✓     | Enter station number for executive 1 and confirm        | Grp 2, Pos 1: 200     |
| 5.   | F1 3       | Select position 3 for the secretary                     | Grp 2, Pos 3:-        |
| 6.   | *201 ✓     | Enter station number for secretary 1 and confirm        | Grp 2, Pos 3: 201     |
| 7.   |            | Select conference corner telephone                      |                       |
| 8.   | F8 F7      | Exit system administration                              | Time, Date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Options -> Incoming calls -> Exec/sec. group |



**Number of Executive/Secretary Groups**

Table 8-7      Number of Executive/Secretary Groups

| <b>Model</b>            | <b>Number of<br/>Executive/Secretary<br/>Groups</b> | <b>Group</b> |
|-------------------------|-----------------------------------------------------|--------------|
| Hicom 150 E OfficePro   | 16                                                  | 1 to 16      |
| Hicom 150 E OfficeCom   | 10                                                  | 1 to 10      |
| Hicom 150 E OfficePoint | 4                                                   | 1 to 4       |

## 8.26 Executive/Secretary Systems (TOP) (Not for U.S.)



Release 2.2 and earlier support the use of the executive/secretary functions described below. In Release 3.0 and later, these functions are available through top configurations (see [Section 7.12.15](#)).

### Introduction

In a TOP system, calls for the executive are usually signaled on the secretary telephone first. The secretary has a direct line to the executive and vice-versa. Executive calls can be signaled directly on the executive telephone at specific times.

The executive can also have a conference corner telephone and a private trunk. A TOP system can also be equipped with additional features such as *silent call waiting*, *ringer cutoff on/off*, and *speaker call*.

*Enhanced TOP* and *simple TOP* configuration examples are described below.

### Enhanced TOP

Each TOP member requires one analog port. This port is not physically connected on the main distribution frame and should be labeled accordingly. This analog port signals calls from a TOP member via DSS keys.

Overview of functions:

- TOP calls are always signaled on the DSS keys of all TOP members (analog ports).
- If calls for the executive and calls for the secretary are waiting at the secretary telephone, the secretary can answer the executive calls as priority by pressing the DSS keys.
- Executives can use the *Hunt group ON/OFF* function to have their calls signaled on their own telephones simultaneously.
- If there is a conference corner, the secretary calls only the main executive telephone by pressing the *Executive* DSS key. Pressing the *Executive conference corner* key calls the conference corner and the main executive telephone.

**Simple TOP**

This feature does not require any additional hardware. Call assignments are configured solely via call management.

Overview of functions:

- The calling party's station number is displayed on the secretary's telephone, so it is not possible to determine whether the call is for the secretary or the executive.
- Audible signaling for executive calls can be switched to the executive telephone from the secretary telephone at any time.

**Functions for Both Examples**

- The calling party's station number or name is displayed.
- Incoming calls for the executive are stored only in the caller list of the executive telephone, and the secretary cannot access the caller list of this telephone.
- The states (ringing, busy, free) of the other members are displayed by keys on the telephones of all TOP members.
- Distinctive ringing is configured for executive calls (see *Tones and ring types* under the system parameters).
- Only the secretary can camp-on at the executive telephone.
- The executive telephone is not called during system searches.

**Sample Configuration of a TOP System 1/1 With Private Trunk and Conference Corner**

| Station No. | DID | Name                    | Telephone Type                                |
|-------------|-----|-------------------------|-----------------------------------------------|
| 101         | 101 | Executive               | optiset E memory                              |
| 102         | 102 | Secretary               | optiset E advance plus/comfort and key module |
| 103         | 103 | Exec. conference corner | Analog                                        |

Assign station number 666 to the private trunk.

**Configuring for *Enhanced TOP*:**

1. Configure the additional analog ports needed for call signaling:

| Station no.                         | DID | Name      | Telephone Type |
|-------------------------------------|-----|-----------|----------------|
| 108                                 | –   | Executive | Analog         |
| 109                                 | –   | Secretary | Analog         |
| The analog ports must be activated. |     |           |                |

2. Configure executive/secretary group 1 (refer to [Section 8.25](#)):

- Using *Incoming calls/Exec/sec. group* in Hicom Assistant E
- Using *Traffic restriction - Configure Exec./sec. groups* (18-1) in Hicom Assistant T:

101 (Executive 1)

103 (Executive 2)

102 (Secretary 1)

3. Configure group calls:

| Station No. | DID | Name          | Type | Members  |
|-------------|-----|---------------|------|----------|
| 351         | –   | Executive     | Free | 102, 101 |
| 666         | 666 | Private trunk | Free | NONE     |

4. Configure the call destination lists:

| List | Dest 1 | Dest 2 | Dest 3 | Dest 4 | Cycles | Second ring-<br>er, dest. | Second ringer,<br>type |
|------|--------|--------|--------|--------|--------|---------------------------|------------------------|
| 17   | 351    | –      | –      | –      | 15     | 108                       | Immediate              |
| 18   | 102    | –      | –      | –      | 15     | 109                       | Immediate              |
| 19   | 101    | –      | –      | –      | 15     | 103                       | Immediate              |

5. Configure the assignment of internal and external calls:

| Station No. | Name                        | Day | Night | Internal |
|-------------|-----------------------------|-----|-------|----------|
| 101         | Executive                   | 17  | 17    | 17       |
| 102         | Secretary                   | 18  | 18    | 18       |
| 103         | Executive conference corner | 17  | 17    | 19       |
| 108         | Executive                   | 19  | 19    | 19       |
| 109         | Secretary                   | 18  | 18    | 18       |
| 666         | Private trunk               | 19  | 19    | 19       |

**Key Assignments for the Enhanced TOP Example:**

Executive telephone:

| <b>Key</b> | <b>Label</b>      | <b>Function</b>            |
|------------|-------------------|----------------------------|
| 1          | Private trunk     | Assign station number: 666 |
| 2          | –                 | –                          |
| 3          | Conference corner | DSS 103                    |
| 4          | Add-on ringing    | Hunt group on/off          |
| 5          | Secretary         | DSS 102                    |
| 6          | Executive call    | Station number 108         |
| 7          | Caller list       | Caller list                |
| 8          | Disconnect        | Disconnect                 |

Secretary telephone:

| <b>Key</b> | <b>Label</b>                | <b>Function</b>    |
|------------|-----------------------------|--------------------|
| 1          | –                           | –                  |
| 2          | –                           | –                  |
| 3          | Executive conference corner | Station number 103 |
| 4          | Executive                   | DSS 101            |
| 5          | Secretary call              | Station number 109 |
| 6          | Executive call              | Station number 108 |
| 7          | Caller list                 | Caller list        |
| 8          | Disconnect                  | Disconnect         |

**Configuring the *Simple TOP* Example:**

1. Configure the executive/secretary group 1 (refer to [Section 8.25](#)):
  - Using *Incoming calls/Exec/sec. group* in Hicom Assistant E
  - Using *Traffic restriction - Configure exec./sec. groups* (18-1) in Hicom Assistant T:

101 (Executive 1)

103 (Executive 2)

102 (Secretary 1)

2. Configure group calls:

| Station No. | DID | Name          | Type | Members  |
|-------------|-----|---------------|------|----------|
| 351         | —   | Secretary     | Free | 102      |
| 352         | —   | Executive     | Free | 101, 103 |
| 666         | 666 | Private trunk | Free | NONE     |

3. Configure the call designating lists:

| List | Dest 1 | Dest 2 | Dest 3 | Dest 4 | Cycles | Second ring-<br>er, dest. | Second ringer,<br>type |
|------|--------|--------|--------|--------|--------|---------------------------|------------------------|
| 17   | 351    | 352    |        |        | 15     |                           | Immediate              |
| 18   | *      |        |        |        | 15     |                           | Immediate              |
| 19   | 352    |        |        |        | 15     |                           | Immediate              |

4. Configure the assignment of internal and external calls:

| Station No. | Name                        | Day | Night | Internal |
|-------------|-----------------------------|-----|-------|----------|
| 101         | Executive                   | 17  | 17    | 17       |
| 102         | Secretary                   | 18  | 18    | 18       |
| 103         | Executive conference corner | 17  | 17    | 19       |
| 666         | Private trunk               | 19  | 19    | 19       |

**Key Assignments for the *Simple TOP* Example:**

Executive telephone:

| Key | Label             | Function                   |
|-----|-------------------|----------------------------|
| 1   | Private trunk     | Assign station number: 666 |
| 2   |                   |                            |
| 3   |                   |                            |
| 4   |                   |                            |
| 5   | Conference corner | DSS 103                    |
| 6   | Secretary         | DSS 102                    |
| 7   | Caller list       | Caller list                |
| 8   | Disconnect        | Disconnect                 |

Secretary telephone:

| Key | Label                       | Function           |
|-----|-----------------------------|--------------------|
| 1   | –                           | –                  |
| 2   | –                           | –                  |
| 3   | –                           | –                  |
| 4   | Add-on ringing              | Hunt group ON/OFF  |
| 5   | Executive conference corner | Station number 103 |
| 6   | Executive                   | DSS 101            |
| 7   | Caller list                 | Caller list        |
| 8   | Disconnect                  | Disconnect         |

## 8.27 Configuring an Internal S<sub>0</sub> Bus with Multiple Stations (Not for U.S.)

### Introduction

Each S<sub>0</sub> bus can support up to eight terminals or telephones. For this purpose, one or more system ports must be configured as a Euro-bus.

In the U.S., S<sub>0</sub> busses are internal only. Refer to Section 8.13, *Configuring an ISDN Multi-Device Connection With Multiple Subscriber Numbers (for U.S. Only)*, on page 8-35 for configuration information.

### Example

Configure port 4 as a Euro-bus.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                     | Display               |
|------|------------|------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                                | System administration |
| 2.   | 20 - 4 - 1 | ISDN parameters, EU parameter, S <sub>0</sub> -port config | Port 1: DSS1 trunk PP |
| 3.   | # 4 ✓      | Select port 4.                                             | Port 4: DSS1 trunk PP |
| 4.   | * 4 ✓      | Configure as Euro-bus                                      | Port 4: Euro-bus      |
| 5.   | F8-F7      | Exit system administration                                 | Time, Date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                         |
|------|------------------------------------------------|
| 1.   | Options -> Lines/networking -> Trunks -> Flags |

### Note

Note the following when starting up an internal S<sub>0</sub> bus:

- A total of 64 MSNs can log onto each bus. They must be entered in the internal CDB numbering plan and should not be in used by another other telephones (such as optiset E). Sixty-three MSNs can occupy any position in the KDB. If you are starting up 64 MSNs, one must be the default MSN for this S<sub>0</sub> port.

| S <sub>0</sub> Port | Default MSN                                                       |
|---------------------|-------------------------------------------------------------------|
| 1                   | Internal station number of the last station position              |
| 2                   | Internal station number of the next-to-the-last station position. |
| ...                 | ...                                                               |



*Configuring an Internal S0 Bus with Multiple Stations (Not for U.S.)*

- If you need more than 64 MSNs, add another S<sub>0</sub> bus. Then proceed just as you would for configuring the first S<sub>0</sub> bus.
- You must assign MSN numbers to each terminal or telephone on the Euro-bus.
- If you do not assign an MSN to the telephones, the default for this port will be used as the MSN for all telephones. In other words, a call placed to this default MSN will also be placed to all telephones connected to the bus.
- The MSN setting on the telephone depends on the telephone.

## 8.28 Configuring Call Pickup Groups

### Introduction

You can configure call pickup groups. This feature allows users to answer a call from another station in the same call pickup group.



Each station can be entered in only **one** call pickup group.

### Example

Enter stations 200, 202, 203, and 204 in call pickup group 1.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                 | Display               |
|------|------------|--------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                            | System administration |
| 2.   | 14-18      | Select <i>Configure station, Call pickup group</i> .   | Stn 200: -            |
| 3.   | *1 ✓       | Enter station 200 in pickup group 1 and confirm        | Stn 200: 1            |
| 4.   | + *1 ✓     | Enter next station (201) in pickup group 1 and confirm | Stn 201: 1            |
| 5.   | + *1 ✓     | Enter next station (202) in pickup group 1 and confirm | Stn 202: 1            |
| 6.   | + *1 ✓     | Enter next station (203) in pickup group 1 and confirm | Stn 203: 1            |
| 7.   | + *1 ✓     | Enter next station (204) in pickup group 1 and confirm | Stn 204: 1            |
| 8.   | F8 F7      | Exit system administration                             | Time, Date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                   |
|------|------------------------------------------|
| 1.   | Options -> Incoming calls -> Call pickup |

## 8.29 Configuring a Second V.24 (RS-232) Interface

### Introduction

You can configure the second V.24 (RS-232) interface for connecting Plus Products.

### Example

Configure the second V.24 (RS-232) interface for call detail recording central (CDRC) at a baud rate of 2400.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                                             | Display               |
|------|------------|------------------------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                                                        | System administration |
| 2.   | 22-13-1    | Select <i>System settings, V.24 Configurations, Baud rate.</i>                     | V.24 port 1: 9600 bd  |
| 3.   | + ✓        | Go to V.24 (RS-232) port 2                                                         | V.24 port 2: 9600 bd  |
| 4.   | * 2400 ✓   | Change the baud rate from 9600 to 2400 baud                                        | V.24 port 2: 2400 bd  |
| 5.   | F7 2 1     | Return to <i>V.24 configurations. Select Port allocation, Detail rec. central.</i> | V.24 port: -          |
| 6.   | * 2 ✓      | Enter port 2 and confirm.                                                          | V.24 port: 2          |
| 7.   | F8-F7      | Exit system administration                                                         | Time, Date            |

### Configuring the Feature Using Hicom Assistant E

| Step                                                                          | Action                                   |
|-------------------------------------------------------------------------------|------------------------------------------|
| 1.                                                                            | Options -> Call charges -> Output format |
| You cannot use Hicom Assistant E to set the baud rate; use Hicom Assistant T. |                                          |

## 8.30 Configuring an Entrance Telephone and Entrance Telephone Ring Destination

### Introduction

You can connect up to four entrance telephones to the system. The telephones are usually connected to a free analog subscriber port.

You can configure one entrance telephone ring destination for each entrance telephone connected (the entrance telephone ring destination configured can also be a group).

### Example

- Configure station 250 as entrance telephone 1.
- Assign station 210 as the ring destination for entrance telephone 1.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                                                | Display               |
|------|------------|---------------------------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                                                           | System administration |
| 2.   | 24-1       | Select <i>Entrance telephone</i> , entrance telephone 1                               | Door 1: -             |
| 3.   | * 250 ✓    | Enter station 250 and confirm                                                         | Door 1: 250           |
| 4.   | F7 2       | Return to <i>Entrance telephone</i> .<br>Select entrance telephone ring destination 1 | Door 1: -             |
| 5.   | * 210 ✓    | Enter station 210 and confirm                                                         | Door 1: 210           |
| 6.   | F8 F7      | Exit system administration                                                            | Time, Date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                      |
|------|---------------------------------------------|
| 1.   | Options -> Trunk modules -> Ext. connection |

## 8.31 Configuring a Door Busy Relay

### Introduction

You can control an external door busy display by means of a relay.

### Example

- Configure relay 1 as a busy display for the entrance telephone.
- Station 19 was already configured as an entrance telephone.
- Assign the name “Door busy” to relay 1.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry            | Action                                                                                  | Display               |
|------|------------------|-----------------------------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b>       | Start system administration                                                             | System administration |
| 2.   | 26-1             | From the <i>Relays</i> menu, select the <i>Type</i> submenu                             | Relay no. 1:-         |
| 3.   | * 5 ✓            | Change the parameter to <i>Busy display</i> and confirm                                 | Relay 1: Busy display |
| 4.   | F2 * 1 ✓         | Enter the relay switching time in the <i>Switching time</i> submenu and confirm         | Relay 1: 1            |
| 5.   | F2 * 19 ✓        | Enter the entrance telephone station in the <i>Assigned station</i> submenu and confirm | Relay 1: 19           |
| 6.   | F2 * Door busy ✓ | Assign the relay name in the <i>Relay name</i> submenu and confirm                      | Relay 1: Door busy    |
| 7.   | F8 F7            | Exit system administration                                                              | Time, Date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Options -> Trunk modules -> Actuators |

### Note

Connect an external busy indicator to the NO contact of the relay. Refer to [page 3-211](#) for the contact current carrying capacity for the OfficePoint and OfficeCom; refer to [Relay Specifications on page 3-205](#) for the contact current carrying capacity for the OfficePro.

Switching time = value entered x 100 ms

## 8.32 Programming a Sensor as an Alarm Dialing Device

### Introduction

You can define a destination to be signaled when an external contact (sensor) closes. This destination can be an internal station, an internal group, or an external station.

### Example

Specify station 12 as the destination for the signal from sensor 1.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                                                                  | Display               |
|------|------------|---------------------------------------------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                                                                             | System administration |
| 2.   | 27-1       | Select the <i>Relays, Dest. station no.</i> menu for sensors (you can select a sensor directly using #) | Sensor no. 1:-        |
| 3.   | * 12 ✓     | Define destination station number for sensor and confirm                                                | Sensor no. 1: 12      |
| 4.   | F8-F7      | Exit system administration                                                                              | Time, date            |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                              |
|------|-------------------------------------|
| 1.   | Options -> Trunk modules -> Sensors |

## 8.33 Configuring Least Cost Routing (DICS) (Not for U.S.)

### Introduction

You need an optiset E memory telephone to program LCR using Hicom Assistant T.

### Example

- A DICS server is used.
- Place the trunks in trunk group 1.
- Route all numbers with a prefix through DICS as station numbers; route local calls through the primary carrier.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                    | Display               |
|------|------------|-----------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                               | System administration |
| 2.   | 35-8-1     | Enter dialed digits                                       | Line 1: -             |
| 3.   | * 0-0Z ✓   | Enter station numbers to be routed via DICS and confirm   | Line 1: 0-0Z          |
| 4.   | ✓          | Confirm scrolling                                         | Line 2: -             |
| 5.   | * 0-Z ✓    | Do not route remaining numbers                            | Line 2: 0-Z           |
| 6.   | F7         | Return to <i>Dialing plan</i>                             |                       |
| 7.   | 2          | Assign path table                                         | Line 1: 0             |
| 8.   | * 1 ✓      | Configure path table for the routed number and confirm    | Line 1: 1             |
| 9.   | ✓          | Confirm scrolling                                         | Line 2: -             |
| 10.  | * 2 ✓      | Configure path table for the remaining digits and confirm | Line 2: 2             |
| 11.  | F7         | Return to <i>Dialing plan</i>                             | Dialing plan          |
| 12.  | F7         | Return to <i>LCR</i>                                      | LCR                   |
| 13.  | 7          | Configure path tables                                     | Routing tables        |
| 14.  | 1          | Configure trunk group for routed station numbers          | Table 1, Line 1: 0    |
| 15.  | * 1 ✓      | Enter trunk group and confirm                             | Table 1, Line 1: 1    |
| 16.  | ✓          | Confirm scrolling                                         | Table 1, Line 2: 0    |
| 17.  | * 1 ✓      | Enter trunk group for rerouting and confirm               | Table 1, Line 2: 1    |

**Configuring Least Cost Routing (DICS) (Not for U.S.)**

| Step | Entry       | Action                                                                   | Display                |
|------|-------------|--------------------------------------------------------------------------|------------------------|
| 18.  | # 2 ✓       | Select trunk group for digits that will not be routed and confirm        | Table 2, Line 1: 0     |
| 19.  | * 1 ✓       | Enter trunk group and confirm                                            | Table 2, Line 1: 1     |
| 20.  | F7          | Return to <i>Routing tables</i>                                          | Routing tables         |
| 21.  | 2           | Assign the table to an outdial rule                                      | Table 1, Line 1: 0     |
| 22.  | * 1 ✓       | Assign to outdial rule 1 and confirm                                     | Table 1, Line 1: 1     |
| 23.  | ✓           | Confirm scrolling                                                        | Table 1, Line 2: 0     |
| 24.  | * 2 ✓       | Assign to outdial rule 2 and confirm                                     | Table 1, Line 2: 2     |
| 25.  | # 2 ✓       | Assign table 2 to an outdial rule and confirm                            | Table 2, Line 1: 0     |
| 26.  | * 2 ✓       | Assign to outdial rule 2 and confirm                                     | Table 2, Line 1: 2     |
| 27.  | F7          | Return to <i>Routing tables</i>                                          | Routing tables         |
| 28.  | 5           | Configure alarm for rerouting                                            | Table 1, Line 1: none  |
| 29.  | ✓           | Confirm scrolling                                                        | Table 1, Line 2: none  |
| 30.  | * 4 ✓       | Alarm: Display and tone                                                  | Table 1, Line 1: Di/To |
| 31.  | F7          | Return to <i>Routing tables</i>                                          | Routing tables         |
| 32.  | F7          | Return to <i>LCR</i>                                                     | LCR                    |
| 33.  | 4           | Enter authorization code for DICS                                        | Index 1: -             |
| 34.  | * 003 ✓     | Enter carrier ID (specified by carrier: 003, for example) and confirm    | Index 1: 003           |
| 35.  | ✓           | Confirm scrolling                                                        | Index 2: -             |
| 36.  | * 12345 ✓   | Enter customer ID (specified by carrier: 12345, for example) and confirm | Index 2: 12345         |
| 37.  | F7          | Return to <i>LCR</i>                                                     | LCR                    |
| 38.  | 3           | Enter outdial rule                                                       | Outdial rule           |
| 39.  | 1           | Enter name                                                               | Line 1: -              |
| 40.  | * DICS ✓    | Enter name and confirm                                                   | Line 1: DICS           |
| 41.  | ✓           | Confirm scrolling                                                        | Line 2: -              |
| 42.  | * Telecom ✓ | Enter name                                                               | Line 2: Telekom        |
| 43.  | F7          | Return to <i>Outdial rule</i>                                            | Outdial rule           |



| Step | Entry                    | Action                                                                                      | Display                  |
|------|--------------------------|---------------------------------------------------------------------------------------------|--------------------------|
| 44.  | 2                        | Enter dialed digits and authorization number                                                | Line 1: -                |
| 45.  | *<br>C089722U<br>M1M2A ✓ | Enter number for the DICS server without trunk group code: 089722, for example, and confirm | Line 1:<br>C089722UM1M2A |
| 46.  | ✓                        | Confirm scrolling                                                                           | Line 2: -                |
| 47.  | * A ✓                    | Enter outdial rule for unrouted digits                                                      | Line 2: A                |
| 48.  | F7                       | Return to <i>Outdial rule</i>                                                               | Outdial rule             |
| 49.  | 3                        | Enter the carrier type                                                                      | Line 1: Unknown          |
| 50.  | * 5 ✓                    | Select <i>DICS</i> carrier and confirm                                                      | Line 1: DICS             |
| 51.  | ✓                        | Confirm scrolling                                                                           | Line 2: Unknown          |
| 52.  | * 1 ✓                    | Select <i>Main carrier</i> and confirm                                                      | Line 2: Main carrier     |
| 53.  | F7                       | Return to <i>Outdial rule</i>                                                               | Outdial rule             |
| 54.  | F7                       | Return to <i>LCR</i>                                                                        | LCR                      |
| 55.  | 1                        | Activate least cost routing                                                                 | State: off               |
| 56.  | * 1 ✓                    | Activate least cost routing and confirm                                                     | State: on                |
| 57.  | F8-F7                    | Exit system administration                                                                  | Time, date               |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                               |
|------|------------------------------------------------------|
| 1.   | Options -> Least cost routing -> Codes and flags     |
| 2.   | Options -> Least cost routing -> Classes of service  |
| 3.   | Options -> Least cost routing -> Dial plan           |
| 4.   | Options -> Least cost routing -> Route table         |
| 5.   | Options -> Least cost routing -> LCR schedule        |
| 6.   | Options -> Least cost routing -> Dialing rules table |

## 8.34 Configuring Least Cost Routing (for U.S. Only)

This section describes the procedures for configuring least cost routing in the U.S.

### 8.34.1 Configuring Least Cost Routing Using Hicom Assistant E

This section describes the procedure for programming least cost routing using Hicom Assistant E. Refer to [Section 8.34.2](#) for information on configuring the feature using Hicom Assistant T.

#### Procedure Overview

The following sections describe this sequence in detail.

| Part 1: Enabling LCR |                                            |
|----------------------|--------------------------------------------|
| Step                 | Task                                       |
| 1.                   | Create route groups.                       |
| 2.                   | Set parameters for each route-group type.  |
| 3.                   | Create a name for each route group.        |
| 4.                   | Delete seizure codes for each route group. |
| 5.                   | Set characteristics for each route group.  |
| 6.                   | Enable least cost routing.                 |

| Part 2: Codes and Tables |                                                                  |
|--------------------------|------------------------------------------------------------------|
| Step                     | Task                                                             |
| 1.                       | Set the type of dialing function.                                |
| 2.                       | Enter LCR authorization codes.                                   |
| 3.                       | Enter the LCR dial plan.                                         |
| 4.                       | Create the route table.                                          |
| 5.                       | Define the least cost routing class of service for each station. |
| 6.                       | Define the LCR route group schedule.                             |
| 7.                       | Define the dialing rules table.                                  |

### 8.34.1.1 Creating Route Groups

Place each trunk into a specific route group based on function and interface type.  
 Place all unused trunks into a separate trunk group.

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | Options -> Lines-networking -> Trunks -> Routes |

### 8.34.1.2 Setting Parameters for Each Route-Group Type

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                              |
|------|-----------------------------------------------------|
| 1.   | Options -> Lines-networking -> Trunks -> Parameters |

### 8.34.1.3 Creating a Name for Each Route Group

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | Options -> Lines-networking -> Trunks -> Routes |

### 8.34.1.4 Deleting Seizure Codes for Each Route Group

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | Options -> Lines-networking -> Trunks -> Routes |

### 8.34.1.5 Setting Characteristics for Each Route Group

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                      |
|------|-------------------------------------------------------------|
| 1.   | Options -> Lines-networking -> Trunks -> Routing parameters |
| 2.   | Route type: PBX                                             |
| 3.   | Type of seizure: Cyclic                                     |

**8.34.1.6 Enabling Least Cost Routing****Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                                         |
|------|--------------------------------------------------------------------------------|
| 1.   | Options -> Least cost routing -> Codes and flags -> LCR - flags -> Release LCR |

**8.34.1.7 Setting the Type of Dialing Function**

Use this procedure to select step-by-step or en-bloc dialing. The default is en-bloc. This means that all of the digits are stored, then processed as a complete number at end of dialing.

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                                                         |
|------|------------------------------------------------------------------------------------------------|
| 1.   | Options -> Least cost routing -> Codes and flags -> LCR - Digit transmission -> Digit by digit |

**8.34.1.8 Entering LCR Authorization Codes**

Sixteen codes can be entered for post-digit dialing applications. Enter the codes in the out-dial rule using the letter *M* followed by the index number.

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                                        |
|------|-------------------------------------------------------------------------------|
| 1.   | Options -> Least cost routing -> Codes and flags -> LCR - Authorization codes |

**8.34.1.9 Entering the LCR Dial Plan**

The current table supports 514 entries. Enter all of the possible dialing combinations that will be used by the customer. Wildcards such as *N*, *A*, and *X* are supported. Each dial plan entry should have a route-table reference number.

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                     |
|------|--------------------------------------------|
| 1.   | Options -> Least cost routing -> Dial plan |

#### 8.34.1.10 Creating the Route Table

This step defines the route steps for each route table. Each route table supports 16 entries. Each route group entered requires the following:

- A dial rule
- A minimum class of service entry
- A schedule reference letter

An optional warning indicator can be assigned for overflow notification.

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Options -> Least cost routing -> Route table |

#### 8.34.1.11 Defining the Least Cost Routing Class of Service for Each Station

This step assigns a Class of service level (from 1 to 15) to each station. The assigned level number must be equal to or greater than the level associated with the route group selected to allow access to the service.

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                              |
|------|-----------------------------------------------------|
| 1.   | Options -> Least cost routing -> Classes of service |

#### 8.34.1.12 Defining the LCR Route Group Schedule

This step defines the time ranges that a particular route group is available. The clock for each day begins at 12:00 a.m. Enter the end time for each zone in the time-limit column. The default is 23.59 in the time-limit 1 column for all days. This means that the route groups are available from 12:00 a.m. to 11:59 p.m. Each day is separated into 8 time zones. Enter the end time as required. Time bands are differentiated using the letters *A* through *H*.

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | Options -> Least cost routing -> LCR - schedule |

### 8.34.1.13 Defining the Dialing Rules Table

In this step, you define the actual output to the public network. The rules are used to append or suffix digits to the input received from the dialing station. The system supports 254 outdial rules.

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                               |
|------|------------------------------------------------------|
| 1.   | Options -> Least cost routing -> Dialing rules table |

### 8.34.2 Configuring Least Cost Routing Using Hicom Assistant T

Using Hicom Assistant T, this example illustrates how to configure LCR.



Press Shift (⇧) and the appropriate letter to input letters on the optiset E memory telephone during LCR programming (for example, ⇧+C to input a C).

#### Using Hicom Assistant T for Programming

| Step | Entry        | Action                                                                                                                                                      | Display                |
|------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 1.   | *95          | Start system administration.                                                                                                                                | System administration  |
| 2.   | 35 1 * 1 ✓   | Go to least cost routing (LCR). Activate least cost routing.                                                                                                | Status: On             |
| 3.   | F7 2 * 1 ✓   | Go to previous menu. Select <i>dialing mode</i> and <i>en-bloc sending</i> and confirm.                                                                     | State: En-bloc sending |
| 4.   | 35 8 1       | Select <i>LCR, Dialing Plan, Dialed digits</i> . Enter station numbers                                                                                      | Line 1: -              |
| 5.   | F7 2 1 * 1 ✓ | Go to previous menu and select <i>Assign routing tab</i> . Assign routing table 1 for the routed number and save.                                           | Line 1: 1              |
| 6.   | 35 7 1 * 1 ✓ | Return to least cost routing (LCR). Configure routing tables. Configure trunk group for routed digits. Enter trunk group 1 and save. Continue as necessary. | Table 1, Line 1: 1     |
| 7.   | 35 2 * 1 ✓   | Return to routing tables and assign outdial rule. Change outdial rule and save.                                                                             | Table 1, Line 1: 1     |

| Step | Entry                | Action                                                                                                                                        | Display               |
|------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 8.   | 35 5                 | Return to <i>Routing tables</i> and select <i>Warning messages</i> . Change to desired warning message.                                       | Table 1, Line 1: None |
| 9.   | 35 4 * *** ✓         | Return to least cost routing (LCR). Select Authorization code. Enter carrier ID and save.                                                     | Index 1: ***          |
| 10.  | ✓ * ***** ✓          | Go to index 2 and enter customer ID.                                                                                                          | Index 2: *****        |
| 11.  | 35 3 1 *<br>Sprint ✓ | Return to least cost routing (LCR) and select <i>Outdial rule</i> . Enter the name of the carrier for line 1 and save. Continue as necessary. | Line 1: Sprint        |
| 12.  | 35 3 2               | Return to <i>Outdial rule</i> and select <i>Format</i> .                                                                                      | Line 1: -             |
| 13.  | * *****<br>1A ✓      | Enter number for the carrier of line 1 in the outdial rule table (without the trunk group code) and save. Continue as necessary.              | Line 1: *****         |
| 14.  | 35 3 3               | Return to outdial rule. Enter carrier type.                                                                                                   | Line 1: Unknown       |
| 15.  | F8 F7                | Terminate system administration.                                                                                                              | Time, Date            |

## 8.35 Remote Administration via ISDN

### Introduction

Remote administration via ISDN allows you to read out the customer database (CDB), modify it if necessary, and transfer it back to the system.

Three types of remote administration via ISDN are available:

1. Enable procedure (default)
2. Logon without PIN
3. Logon with PIN

### Example

**Enable procedure (default):** Remote administration using the enable procedure is the default. Customers simply change the PIN to enable (default = 000 000).

| Step | Entry                          | Action                                                                       | Display           |
|------|--------------------------------|------------------------------------------------------------------------------|-------------------|
| 1.   | *95 ✓                          | Start system administration:<br>User: *95 (default)<br>Password: ✓ (default) | User:<br>Password |
| 2.   | 22                             | Select <i>Remote admin password</i>                                          | Old PIN:          |
| 3.   | *****<br>(old PIN,<br>000 000) | Enter old PIN (default = 000 000)                                            | New PIN:          |
| 4.   | *** **<br>(new PIN)            | Enter new PIN                                                                | Repeat:           |
| 5.   | *** **<br>(reenter<br>new PIN) | Confirm new PIN                                                              | New PIN saved     |
| 6.   | F8 F7                          | Exit menu.                                                                   |                   |



### Example

**Logon without PIN:** Data can be loaded to and from the system at any time without a PIN.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                           | Display                |
|------|------------|--------------------------------------------------|------------------------|
| 1.   | <b>*95</b> | Start system administration                      | System administration  |
| 2.   | 30-2       | Select <i>Remote admin menu, ISDN access, CO</i> | Access: Enable proc.   |
| 3.   | * 1 ✓      | Enter <i>Logon without code</i> and confirm      | Access: Logon w/o code |
| 4.   | F8 F7      | Exit system administration                       | Time, Date             |

### Configuring the Feature Using Hicom Assistant E

| Step                                                                     | Action                                  |
|--------------------------------------------------------------------------|-----------------------------------------|
| 1.                                                                       | File -> Transfer -> Callback connection |
| Remote administration PINs cannot be configured using Hicom Assistant E. |                                         |

### Example

**Logon with PIN:** Data can be loaded from the system at any time by entering a 6-digit PIN (modifiable by customer) in Hicom Assistant E.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                           | Display               |
|------|------------|--------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                      | System administration |
| 2.   | 30-2       | Select <i>Remote admin menu, ISDN access, CO</i> | Access: Enable proc.  |
| 3.   | * 2 ✓      | Enter <i>Logon with code</i> and confirm         | Access: Logon w/code  |
| 4.   | F8 F7      | Exit system administration                       | Time, Date            |

## Configuring the Feature Using Hicom Assistant E

| Step                                                                     | Action                                  |
|--------------------------------------------------------------------------|-----------------------------------------|
| 1.                                                                       | File -> Transfer -> Callback connection |
| Remote administration PINs cannot be configured using Hicom Assistant E. |                                         |

### Example

Changing the PIN

| Step | Entry                           | Action                                                                      | Display           |
|------|---------------------------------|-----------------------------------------------------------------------------|-------------------|
| 1.   | <b>*95</b>                      | Start system administration:<br>User: *95 (default)<br>Password: ✓(default) | User:<br>Password |
| 2.   | 22                              | Select <i>Remote admin password</i>                                         | Old PIN:          |
| 3.   | *****<br>(old PIN,<br>000 000)  | Enter old PIN (default = 000 000)                                           | New PIN:          |
| 4.   | *** ***<br>(new PIN)            | Enter new PIN                                                               | Repeat:           |
| 5.   | *** ***<br>(reenter<br>new PIN) | Confirm new PIN                                                             | New PIN saved     |
| 6.   | F8 F7                           | Exit menu                                                                   |                   |

### Example

- Changes the DID number for remote administration.
- Configures the **external** direct inward dialing (DID) number

| Step | Entry        | Action                                                                      | Display             |
|------|--------------|-----------------------------------------------------------------------------|---------------------|
| 1.   | <b>*95</b> ✓ | Start system administration:<br>User: *95 (default)<br>Password: ✓(default) | User:<br>Password   |
| 2.   | 30-6         | Select <i>Remote admin</i> menu, <i>DID number</i> .                        | Station number: 879 |
| 3.   | * ... ✓      | Enter DID number desired for external remote administration and confirm     | Station number: ... |

| Step | Entry | Action     | Display |
|------|-------|------------|---------|
| 4.   | F8 F7 | Exit menu. |         |

### Example

- Changes the DID number for remote administration.
- Configures the **internal** direct inward dialing (DID) number.

| Step | Entry   | Action                                                                       | Display             |
|------|---------|------------------------------------------------------------------------------|---------------------|
| 1.   | *95 ✓   | Start system administration:<br>User: *95 (default)<br>Password: ✓ (default) | User:<br>Password   |
| 2.   | 30-5    | Select <i>Remote admin</i> menu, <i>DID number</i>                           | Station number: 879 |
| 3.   | * ... ✓ | Enter DID number desired for external remote administration and confirm      | Station number: ... |
| 4.   | F8- F7  | Exit menu                                                                    |                     |

## 8.36 Remote Administration via DTMF

### Introduction

Remote dual-tone multifrequency (DTMF) administration permits simple remote administration. You make entries the same way as in system administration directly on the customer system.

You can activate remote DTMF administration from any station in the source system using a code procedure. (Remote DTMF administration mode must be enabled.)

Passive remote DTMF administration mode must be enabled in the destination system. The called party can then activate remote administration for the current call by using a procedure and entering a password (6 characters, default = 000 000).

### Example

Activate remote DTMF administration mode in the destination system.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                | Display               |
|------|------------|---------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration           | System administration |
| 2.   | 30-1       | <i>Call Remote admin, DTMF access</i> | Access: None          |
| 3.   | * 2 ✓      | Configure system as satellite system  | Access: Slave         |
| 4.   | F8-F7      | Exit system administration            | Time, Date            |

### Example

Activate remote DTMF administration mode in the source system.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                | Display               |
|------|------------|---------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration           | System administration |
| 2.   | 30-1       | <i>Call Remote admin, DTMF access</i> | Access: None          |
| 3.   | * 1 ✓      | Configure system as main system       | Access: Master        |
| 4.   | F8-F7      | Exit system administration            | Time, Date            |

## Configuring the Feature Using Hicom Assistant E

| Step                                          | Action |
|-----------------------------------------------|--------|
| Cannot be configured using Hicom Assistant E. |        |

### Example

Change the password for remote DTMF administration.

| Step | Entry                          | Action                                                                       | Display            |
|------|--------------------------------|------------------------------------------------------------------------------|--------------------|
| 1.   | <b>*95</b>                     | Start system administration:<br>User: *95 (default)<br>Password: ✓ (default) | User:<br>Password: |
| 2.   | 22                             | Select <i>Remote admin password</i>                                          | Old PIN:           |
| 3.   | *****<br>(old PIN,<br>000 000) | Enter old PIN (default = 000 000)                                            | New PIN:           |
| 4.   | *** **<br>(new PIN)            | Enter new PIN                                                                | Repeat:            |
| 5.   | *** **<br>(reenter<br>new PIN) | Confirm new PIN                                                              | New PIN saved      |
| 6.   | F8-F7                          | Exit menu                                                                    |                    |



Remote DTMF administration can be used on analog or digital trunks. It can be started only from the first or second port of the destination system (satellite system).

## 8.37 Configuring Hicom cordless EM (Not for U.S.)

### Introduction

Sixteen mobile telephones are released for use by entering the Hicom cordless system number (DECT identification, 8 hexadecimal places) and inserting the **SLC16** board into OfficePro or OfficeCom, after which they can be logged on (mobile telephone codes, or PINs, are assigned). Other mobile telephones must be released before they can be used.



The SLC16 board comes with the Hicom cordless system number for installing Hicom cordless EM for the first time. Later shipments of replacement boards do not come with Hicom cordless system numbers.

### Login Procedure

Before logging on a mobile phone, you must open the login window from a system telephone by entering the code and password. A maximum of 10 login windows can be open at a time. Then type the station numbers of the mobile telephones you want to log on.

### Configuring the Feature Using Hicom Assistant T

| Step                                 | Entry      | Action                                                                | Display                      |
|--------------------------------------|------------|-----------------------------------------------------------------------|------------------------------|
| 1.                                   | <b>*95</b> | Start system administration                                           | System Administration        |
| 2.                                   | 36         | Set the Hicom cordless EM parameters                                  | Cordless                     |
| 3.                                   | 5          | Enter the Hicom cordless system number supplied (DECT identification) | DECT Identification:         |
| Wait for the SLC16 board to start up |            |                                                                       |                              |
| 4.                                   | F7         | Return to Hicom cordless EM parameters                                | Cordless                     |
| 5.                                   | 2          | Display the PIN for the first mobile telephone                        | Device 1: 11115678 (example) |
| 6.                                   | F2         | Display the station number for the first mobile telephone             | Device 1: 124 (example)      |
| 7.                                   | F8-F7      | Exit system administration                                            | Set time, Set date           |

### Open the Login Window in Hicom 150 E OfficePro

| Entry          | Action                                                                         | Display      |
|----------------|--------------------------------------------------------------------------------|--------------|
| *94 2 19970707 | Open the login window                                                          | Station no.: |
| 124            | Type the station number of the handset you want to log on (such as 124)        | Station no:  |
| 125            | Type the station number of the second handset you want to log on (such as 125) | Station no:  |
| :              | :                                                                              | :            |
| :              | :                                                                              | :            |

The login window remains open for ten minutes per station. The handset must log on during this period (refer to *Log On the Mobile Telephone (for Gigaset 3000C) on page 8-134*).

### Log On the Mobile Telephone (for Gigaset 2000C, 2000C pocket, active)

Example: Log mobile telephone (station number 124) with mobile station code (PIN) 11115678 on to DECT telephone system 1.

| Step | Entry or Key                                                                                                                                             | Handset Display                                                                                                                                       |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Turn on the mobile telephone by pressing the On/Off key.                                                                                                 | The first time you log on, the message <i>Register?</i> appears on the handset screen. The second time you log on, the message <i>Base 1</i> appears. |
| 2.   | Press the Menu key to display the main menu.<br>Press the left display key until <i>Reset</i> is highlighted and press the right display key to confirm. |                                                                  |
| 3.   | Press the left display key until <i>Register</i> is highlighted and press the right display key to confirm.                                              |                                                                  |

| Step | Entry or Key                                                                                                                                                                                          | Handset Display                                 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 4.   | Confirm the display or press the display keys to select a different station*.                                                                                                                         | <div>Station 1</div> <div>▼</div> <div>OK</div> |
| 5.   | Enter the 8-digit PIN (mobile telephone code) 11115678 and confirm the number.                                                                                                                        | Enter Base Code:                                |
| 6.   | The display of the logged on handset (such as <i>Base 1</i> ) is replaced by a rapidly flashing bell symbol (which can last up to 20 seconds). This confirms that the handset has logged on properly. | "Station 1"<br>"⌂"                              |

\* Station = DECT telephone system

After logging on and releasing a handset, always turn on the out-of-range warning signal. For more information, refer to the operating instructions (see Related [Documentation](#)).

## Log On the Mobile Telephone (for Gigaset 3000C)

Example: Log the mobile telephone (station number 125) onto the DECT telephone system, using mobile telephone PIN 11112345.

| Step | Entry or Key                                                                                                        | Handset Display                                                                                                                                                      |
|------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Switch on the mobile telephone by holding down the hook key for at least 1 second.<br>You hear a confirmation tone. | The first time you log on, the message <i>Register?</i> appears on the handset display. The second time you log on, <b>Base 1</b> or a similar message is displayed. |
| 2.   | Make the following entries within one minute.<br>Press the menu key.                                                | Z [                                                                                                                                                                  |
| 3.   | Select a station* (such as <i>Base 2</i> ) and confirm.                                                             | Z <div>Base 2</div>                                                                                                                                                  |
| 4.   | Open the add-on menu.                                                                                               | m                                                                                                                                                                    |
| 5.   | Select <i>Register</i> and confirm your choice.                                                                     | Z [<br>The following prompt appears:<br>"Please enter system PIN:"                                                                                                   |



| Step | Entry or Key                                                                                                                                                                                | Handset Display |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 6.   | Enter the eight-digit system PIN (mobile telephone code) <i>11112345</i> and confirm.                                                                                                       | 11112345        |
| 7.   | Once you have logged on properly, <i>Base 2</i> or a similar message appears and the bell symbol  flashes. | <b>Base 2</b>   |

\* Base = DECT telephone system

After logging on and releasing a handset, always turn on the out-of-range warning signal. For more information, refer to the operating instructions (see Related [Documentation](#)).

### Check the Login Status of the Mobile Telephones

You can use the **Stations** object in Hicom Assistant E to check the current login status of the mobile telephones. Double-click the **Param** field with the left mouse button to open the **Station Parameters** window. Select the **Type** tab to display the station data. The **CMI** field shows the login status of the individual mobile telephones.

### Replace, Lock, and Log Off a Mobile Telephone

If you need to replace a handset for servicing, you must change the mobile telephone code (PIN) of the old handset before logging on the replacement telephone.



When you replace a mobile telephone, the station must be assigned a new mobile telephone code (PIN) in the Hicom 150 E Office system. This automatically logs off the mobile telephone. This also prevents a person who knows the old PIN to log on an invalid mobile telephone.

**Assign a New Pin Using Hicom Assistant T**

Example: Log off a mobile telephone (station number 124) with mobile telephone code (PIN) 11115678.

| Step | Entry                                                                           | Action                                                            | Display               |
|------|---------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------|
| 1.   | *95                                                                             | Start system administration                                       | System Administration |
| 2.   | 36                                                                              | Set Hicom cordless EM parameters                                  | Cordless              |
| 3.   | 2<br>✓                                                                          | Change the PIN for first handset, logging off the current handset | Device 1: 11115678    |
| 4.   | * 11112345<br>✓                                                                 | Enter the new PIN, logging off the old handset                    | Device 1: 11112345    |
| 5.   | F8-F7                                                                           | Exit system administration                                        | Set time, Set date    |
| 6.   | Open the login window and start the handset login procedure as described above. |                                                                   |                       |

**Assign a New PIN Using Hicom Assistant E**

| Step | Action                                                                                                                |
|------|-----------------------------------------------------------------------------------------------------------------------|
| 1.   | Options -> Set up station -> Station -> Param -> Type                                                                 |
| 2.   | Open the login window and start the handset login procedure as described above (not possible from Hicom Assistant E). |



Always use either Hicom Assistant E or Hicom Assistant T to log off a mobile telephone. You cannot fully log off the mobile telephone using the mobile telephone menu.

## 8.38 Configuring Internal Traffic Restriction Groups

### Introduction

Internal traffic restriction groups (ITR groups) regulate the connections allowed between stations and trunks. In the default configuration, all stations and trunks are in ITR group 1. Six ITR groups are available in the system.

### Example

- Assign station 11 to ITR group 1 and station 12 to ITR group 2.
- Assign trunk 1 to ITR group 3.
- Allow connections from ITR group 1 to groups 1, 2, and 3.
- Allow connections from ITR group 2 to groups 1, and 2.
- Allow connections from ITR group 3 to groups 1, 2, and 3.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                                                                                         | Display                                   |
|------|------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1.   | <b>*95</b> | Start system administration                                                                                                    | System administration                     |
| 2.   | 18-3       | Select <i>Traffic restriction, ITR groups</i>                                                                                  | 1 Group assignment<br>2 Connection groups |
| 3.   | 1          | Select station and trunk in <i>Group assignment</i>                                                                            | 1 Station<br>2 Trunk                      |
| 4.   | 1          | Assign ITR group for station                                                                                                   | Stn 11: 1                                 |
| 5.   | * 1 ✓      | Assign station 11 to ITR group 1 and confirm                                                                                   | Stn 11: 1                                 |
| 6.   | + ✓        | Scroll to station 12 and confirm                                                                                               | Stn 12: 1                                 |
| 7.   | *2 ✓       | Assign station 12 to ITR group 2 and confirm                                                                                   | Stn.12: 2                                 |
| 8.   | F2 *3 ✓    | Continue to <i>Group assignment</i> , Trunk; assign trunk 1 to ITR group 3 and confirm                                         | Trunk.1: 3                                |
| 9.   | F7 F7 2-1  | Return to the <i>ITR group</i> menu.<br>- Select connection matrix<br>- In allowed connection, keep ITR group 1 to ITR group 1 | Grp 1, to grp 1: yes                      |
| 10.  | + ✓* 1 ✓   | Scroll to <i>Connect ITR group 1 to ITR group 2 allowed</i>                                                                    | Grp 1, to grp 2: no                       |

**Configuring Internal Traffic Restriction Groups**

| Step | Entry       | Action                                                                                                         | Display              |
|------|-------------|----------------------------------------------------------------------------------------------------------------|----------------------|
| 11.  | * 1 ✓       | Change parameter to <i>yes</i> and confirm                                                                     | Grp 1, to grp 2: yes |
| 12.  | + ✓* 1 ✓    | Scroll to <i>Connect ITR group 1 to ITR group 3 allowed</i> and confirm                                        | Grp 1, to grp 3: no  |
| 13.  | * 1 ✓       | Change parameter to <i>yes</i> and confirm                                                                     | Grp 1, to grp 3: yes |
| 14.  | F1 2 ✓      | Select ITR group 2<br>- Define <i>Connect ITR group 2 to ITR group 1 allowed</i> and confirm                   | Grp 2, to grp 1: no  |
| 15.  | * 1 ✓       | Change parameter to <i>yes</i> and confirm                                                                     | Grp 2, to grp 1: yes |
| 16.  | + ✓         | Scroll to <i>Connect ITR group 2 to ITR group 2 allowed</i> and confirm                                        | Grp 2, to grp 2: no  |
| 17.  | * 1 ✓       | Change parameter to <i>yes</i> and confirm                                                                     | Grp 2, to grp 2: yes |
| 18.  | + ✓         | Scroll to <i>Connect ITR group 1 to ITR group 3 allowed</i> and confirm                                        | Grp 2, to grp 3: no  |
| 19.  | F1 3 ✓* 1 ✓ | Select ITR group 3<br>Define <i>Connect ITR group 3 to ITR group 1 allowed</i><br>Accept the default parameter | Grp 3, to grp 1: no  |
| 20.  | * 1 ✓       | Change the parameter to <i>yes</i> and confirm                                                                 | Grp 3, to grp 1: yes |
| 21.  | + ✓         | Scroll to <i>Connect ITR group 3 to ITR group 2 allowed</i> and confirm                                        | Grp 3, to grp 2: no  |
| 22.  | * 1 ✓       | Change the parameter to <i>yes</i> and confirm                                                                 | Grp 3, to grp 2: yes |
| 23.  | + ✓         | Scroll to <i>Connect ITR group 3 to ITR group 3 allowed</i> and confirm                                        | Grp 3, to grp 3: no  |
| 24.  | * 1 ✓       | Change the parameter to <i>yes</i> and confirm                                                                 | Grp 3, to grp 3: yes |
| 25.  | F8-F7       | Exit system administration                                                                                     | Time, date           |

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                            |
|------|---------------------------------------------------|
| 1.   | Options -> Classes of service -> Group assignment |
| 2.   | Options -> Classes of service ->CON matrix        |

## 8.39 Configuring Hotline Stations

### Introduction

You can configure an extension so that when the user lifts the handset, the station automatically connects to a predefined internal or external destination either immediately or after a delay.

An external communications server is needed for an external hotline destination.

### Example

Configure station 120 to automatically ring station 110 if the handset of station 120 is lifted for 15 seconds without dialing.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry           | Action                                                                                                                                         | Display                               |
|------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 1.   | <b>*95</b>      | Start system administration                                                                                                                    | System administration                 |
| 2.   | <b>18-2</b>     | Traffic restriction, Hotline                                                                                                                   | 182 Hotline                           |
| 3.   | <b>1</b>        | Hotline destination                                                                                                                            | 1821 Hotline dest.                    |
| 4.   | <b>*110 ✓</b>   | Specify hotline destination and confirm<br>OfficePoint = 1 hotline destination<br>OfficeCom and OfficePro = 6 hotline destinations             | 1821 Hotline dest.<br>Hotline 1: 110  |
| 5.   | <b>F7</b>       | Return to <i>Hotline</i>                                                                                                                       | 182 Hotline                           |
| 6.   | <b>2</b>        | Select <i>Hotline stn no</i>                                                                                                                   | 1822 Hotline stn no.                  |
| 7.   | <b>#120*1 ✓</b> | Assign station 120 to hotline destination 1 and confirm.<br>(OfficePoint = 1 hotline station;<br>OfficeCom and OfficePro = 6 hotline stations) | 1822 Hotline stn no.<br>Stn 120: 1    |
| 8.   | <b>F7</b>       | Return to <i>Hotline</i>                                                                                                                       | 182 Hotline                           |
| 9.   | <b>3</b>        | Select <i>Hotline timeout</i>                                                                                                                  | 1823 Hotline timeout                  |
| 10.  | <b>*15 ✓</b>    | Set timeout for executing hotline (0-99 seconds) and confirm                                                                                   | 1823 Hotline timeout<br>Hotline 1: 15 |
| 11.  | <b>F8-F7</b>    | Exit system administration                                                                                                                     | Time, Date                            |

## **Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                          |
|-------------|--------------------------------------------------------|
| 1.          | Options -> Set up station -> Station -> Param -> Flags |
| 2.          | Options -> System parameters -> System settings        |

## 8.40 Configuring Relocate

### Introduction

In the system settings, you can enable *Relocate* for the entire system. With this feature, users can connect to telephones at different locations without changing the logical configuration for each station. After activating *Relocate*, users can log on at the new location.

### Example

#### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                         | Display               |
|------|------------|------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration.                   | System administration |
| 2.   | 22-24      | Call up <i>Relocate</i> .                      | Mode: -               |
| 3.   | * 1 ✓      | Change parameter to <i>Allowed</i> and confirm | Mode: Allowed         |
| 4.   | F8-F7      | Exit system administration.                    | Time, Date            |

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                    |
|------|-------------------------------------------|
| 1.   | Options -> System parameters -> Flags/CMI |

## 8.41 Uniform Call Distribution (UCD) (Not for U.S.)

### Introduction

You can activate uniform call distribution (UCD) across the system using Hicom Assistant T or Hicom Assistant E.

### Note

We recommend not activating UCD until all other parameters relating to UCD have been configured.

### Activating UCD After Entering All Data

| Step | Entry       | Action                      | Display               |
|------|-------------|-----------------------------|-----------------------|
| 1.   | <b>*95</b>  | Start system administration | System administration |
| 2.   | 22-16       | UCD                         | Mode: no              |
| 3.   | <b>*1 ✓</b> | UCD                         | Mode: yes             |
| 4.   | F8-F7       | Exit system administration  | Time, date            |

### UCD Overview

| Menu     | Meaning                                                                                        |
|----------|------------------------------------------------------------------------------------------------|
| 31       | UCD                                                                                            |
| 31-1     | Group assignment                                                                               |
| 31-2     | Group parameters                                                                               |
| 31-2-1   | Wait queues (here you can specify wait queues which must be defined separately under code 25.) |
| 31-2-2   | Wait times                                                                                     |
| 31-2-3   | Call cycles                                                                                    |
| 31-2-3-1 | Primary cycles                                                                                 |
| 31-2-3-2 | Secondary cycles                                                                               |
| 31-2-4   | Automatic call acceptance                                                                      |
| 31-2-5   | Waiting calls                                                                                  |
| 31-3     | Work time                                                                                      |
| 31-4     | Call priority, external                                                                        |
| 31-5     | Call priority, internal                                                                        |



## Examples of Uniform Call Distribution

### Group Assignment (31 1)

- Configure UCD groups
- Assign UCD group 1 to the purchasing department with group IDs 100 and 101.
- Assign UCD group 2 to the sales department with group IDs 110 and 111.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                         | Display               |
|------|------------|--------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration    | System administration |
| 2.   | 31-1       | Select <i>Group assignment</i> | Group ID 100: -       |
| 3.   | *          | Change group assignment        | Group ID 100: -       |
| 4.   | 1 ✓        | Assign UCD group 1 and confirm | Group ID 100: 1       |
| 5.   | *          | Change group assignment        | Group ID 101: -       |
| 6.   | 1 ✓        | Assign UCD group 1 and confirm | Group ID 101: 1       |
| 7.   | #          | Select another group ID        | Group ID:             |
| 8.   | 110 ✓      | Enter group ID 110 and confirm | Group ID: 110         |
| 9.   | *          | Change group assignment        | Group ID 110: -       |
| 10.  | 2          | Assign UCD group 2             | Group ID 100: 2       |
| 11.  | *          | Change group assignment        | Group ID 111: -       |
| 12.  | 2 ✓        | Assign UCD group 2 and confirm | Group ID 111: 2       |
| 13.  | F7         | Return to main menu            | 31 UCD                |

### Announcement Device (25)

- If the customer requires announcement devices for the UCD groups, define the announcement devices and announcement types here.
- To configure a greeting message, use the *announcement before answering* feature. (This is not a common practice for UCD.)

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry   | Action                                                                        | Display                                                                               |
|------|---------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1.   | 25      | Select <i>Announcement device</i>                                             | 1 = Announcement device<br>2 = Announcement type<br>3 = Announcement before answering |
| 2.   | 1       | Enter no. of announcement devices<br>OfficePoint=1, OfficeCom=4, OfficePro=16 | Announcement device 1: -                                                              |
| 3.   | *0301 ✓ | Assign slot3/port 1 and confirm                                               | Announcement device 1: 0301                                                           |
| 4.   | ✓       | Go to next announcement device                                                | Announcement device 2: -                                                              |
| 5.   | *0302   | Assign slot 3/port 2                                                          | Announcement device 2: 0302                                                           |
| 6.   | ✓       | Go to next announcement device                                                | Announcement device 3: -                                                              |
| 7.   | *0304 ✓ | Assign slot 3/port 4 and confirm                                              | Announcement device 3: 0304                                                           |
| 8.   | F7      | Return to Announcement device                                                 | Announcement device                                                                   |
| 9.   | 2       | Assign an announcement type to the announcement devices                       | Announcement type 1: Announcement*<br>*= Default (cannot be changed)                  |
| 10.  | ✓       | Go to next announcement device                                                | Announcement device 2: Announcement                                                   |
| 11.  | *2 ✓    | Change to internal music and confirm                                          | Announcement device 2: Internal music                                                 |
| 12.  | ✓       | Go to announcement device 3                                                   | Announcement device 3: Announcement                                                   |
| 13.  | ✓*2 ✓   | Go to announcement device 4                                                   | Announcement device 4: Internal music                                                 |
| 14.  | F7 F7   | Return to UCD                                                                 | 31 UCD                                                                                |

### Group Parameters—Announcement Device (31 2 1)

This example assigns wait queues to the announcement devices configured previously.

#### Configuring the Feature Using Hicom Assistant T

| Step | Entry | Action                                                                      | Display                                        |
|------|-------|-----------------------------------------------------------------------------|------------------------------------------------|
| 1.   | 31-2  | Select <i>Group parameters</i>                                              | 1 Wait queues<br>2 Wait times<br>3 Call cycles |
| 2.   | 1     | Select <i>Wait queues</i>                                                   | Grp 1, Dest. 1: Device 1                       |
| 3.   | *     | Assign announcement device                                                  | Grp 1, Dest. 1:                                |
| 4.   | 1     | Assign announcement device 1 (first UCD group)                              | Grp 1, Dest. 1: Device 1                       |
| 5.   | ✓✓    | Confirm and go to second destination in first UCD group                     | Grp 1, Dest. 2:                                |
| 6.   | *     | Assign announcement device                                                  | Grp 1, Dest. 2:                                |
| 7.   | 2 ✓   | Assign announcement device 2 (first UCD group) and confirm                  | Grp 1, Dest. 2: Device 2                       |
| 8.   | # 2 ✓ | Select second UCD group and confirm                                         | Grp 2, Dest. 1: -                              |
| 9.   | * 2 ✓ | Assign announcement device 2 and confirm                                    | Grp 2, Dest. 2: Device 1                       |
| 10.  | ✓*2 ✓ | Go to second destination (first UCD group) and assign announcement device 2 | Grp 2, Dest. 2: Device 1                       |
| 11.  | # 2 ✓ | Select second UCD group and confirm                                         | Grp 2, Dest. 1: Device 1                       |
| 12.  | *3    | Assign announcement device 3                                                | Grp 2, Dest. 1: Device 3                       |
| 13.  | ✓*4 ✓ | Assign announcement device 4 and confirm                                    | Grp 2, Dest. 2: Device 4                       |
| 14.  | F7    | Return to Group parameters sub-menu                                         | 313 Group parameters                           |

**Group Parameters—Wait Times (31 2 2)**

- Each queue (total of 7 per UCD group) has its own wait times (1-20).
- Default wait time entry: 1 = 30s, maximum entry 20 = 6 minutes.

**Note:** Do not program times for announcements.

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry  | Action                                                             | Display              |
|------|--------|--------------------------------------------------------------------|----------------------|
| 1.   | 31-2-2 | Change wait times (first UCD group)                                | Grp 1, Dest. 1: 1    |
| 2.   | ✓      | Go to second destination (first UCD group)                         | Grp 1, Dest. 2: 1    |
| 3.   | *2 ✓   | Select 2 (60s) and confirm                                         | Grp 1, Dest. 2: 2    |
| 4.   | #2 ✓   | Change wait times (second UCD group)                               | Grp 2, Dest. 1: 1    |
| 5.   | ✓ *3 ✓ | Go to second dest. (second UCD group); select 3 (90 s) and confirm | Grp 1, Dest. 2: 3    |
| 6.   | F7     | Return to <i>Group parameters</i> sub-menu                         | 313 Group parameters |

**Group Parameters—Call Cycles (31 2 3)**

- Set the call cycles in the group parameters.
- A distinction is made between primary and secondary call cycles and the call cycle in call management.
- Change the call cycles in call management accordingly.

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry  | Action                                              | Display     |
|------|--------|-----------------------------------------------------|-------------|
| 1.   | 31-2-3 | Select UCD group and change call cycles             | Call cycles |
| 2.   | 1      | Change to <i>Primary cycles</i>                     | Grp 1: 3    |
| 3.   | *4 ✓   | Change the primary call cycles and confirm          | Grp 1: 4    |
| 4.   | ✓ *5 ✓ | Go to second UCD group and change the default value | Grp 2: 5    |
| 5.   | F2     | Change the secondary call cycles                    | Grp 2: 3    |
| 6.   | #1 ✓   | Select first UCD group                              | Grp 1: 3    |

| Step | Entry | Action                                                       | Display              |
|------|-------|--------------------------------------------------------------|----------------------|
| 7.   | *5 ✓  | Change the default value and confirm                         | Grp 1: 5             |
| 8.   | *6 ✓  | Change the default value of the second UCD group and confirm | Grp 2: 6             |
| 9.   | F7    | Return to the <i>Group parameters</i> submenu                | 313 Group parameters |

### Group Parameters—Automatic Call Acceptance (31 2 4)

- This option determines whether or not automatic call acceptance is permitted for a UCD group.
- If *automatic call acceptance* is configured, the system automatically detects whether a headset is connected to the optiset E telephone and uses it.



If a headset is connected to the optiset E telephone, the *disconnect* function should be programmed on a key.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry  | Action                                                                             | Display              |
|------|--------|------------------------------------------------------------------------------------|----------------------|
| 1.   | 31-2-4 | Automatic call acceptance                                                          | Grp 1: 0             |
| 2.   | *1 ✓   | Change automatic call acceptance to <i>yes</i> for the first UCD group and confirm | Grp 1: 1             |
| 3.   | F7     | Return to the <i>Group parameters</i> submenu                                      | 313 Group parameters |

**Group Parameters—Waiting Calls (31 2 5)**

- This option allows you to determine the number of incoming calls that can be kept waiting if a UCD group is busy.
- After the maximum number is reached, call management handles the overflow.

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry  | Action                                                                 | Display   |
|------|--------|------------------------------------------------------------------------|-----------|
| 1.   | 31-2-5 | Waiting calls                                                          | Grp 1: 30 |
| 2.   | *2 ✓   | Reduce the number of waiting calls to 2 (first UCD group) and confirm  | Grp 1: 2  |
| 3.   | *3 ✓   | Reduce the number of waiting calls to 3 (second UCD group) and confirm | Grp 2: 3  |
| 4.   | F7 F7  | Return to UCD                                                          | UCD       |

**Work Time (31 3)**

- You can set a work time for the entire system. This indicates that an agent needs more time to process the last call.
- There is no work time for the system in the default configuration.
- The value can be changed from 0 = no work time, 1 = 5s to 45 = 45 seconds.

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry | Action              | Display     |
|------|-------|---------------------|-------------|
| 1.   | 31-3  | Work time           | Autowork: 0 |
| 2.   | *1 ✓  | enter 1 = 5 seconds | Autowork: 1 |
| 3.   | F7    | Return to UCD       | UCD         |

### Call Priority, External (31 4)

- You can assign an answering priority for each trunk.
- The highest priority is 1 and the lowest priority is 10.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry         | Action                                       | Display        |
|------|---------------|----------------------------------------------|----------------|
| 1.   | 31-4          | Call priority, external                      | S1/Tr: 0601: 1 |
| 2.   | #0603✓<br>*3✓ | Select trunk 3, change priority, and confirm | S1/Tr: 0603: 3 |
| 3.   | #0605✓<br>*3✓ | Select trunk 5, change priority, and confirm | S1/Tr: 0605: 3 |
| 4.   | F7            | Return to UCD                                | UCD            |

### Call Priority, Internal (31 5)

You can assign a system-wide priority level to internal calls. If the priority level is greater than the external call priority, internal calls have priority over external calls.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry | Action                                    | Display      |
|------|-------|-------------------------------------------|--------------|
| 1.   | 31-5  | Call priority, internal                   | Internal: 10 |
| 2.   | *2 ✓  | Change internal priority to 2 and confirm | Internal: 2  |
| 3.   | F7    | Return to UCD                             | UCD          |

This concludes the configuration of uniform call distribution. For this feature to operate correctly, trunk assignment and call allocation must be configured in call management.

## 8.42 Uniform Call Distribution (UCD) (for U.S. Only)

You can configure the Hicom 150 E OfficeCom and OfficePro systems for uniform call distribution groups.

The following table shows the maximum limits for Uniform Call Distribution (UCD).

| Description                                                                                                     | Limit   |
|-----------------------------------------------------------------------------------------------------------------|---------|
| Number of UCD groups per system                                                                                 | 60      |
| Number of Agent IDs per system                                                                                  | 150     |
| Number of recorded announcements <ul style="list-style-type: none"> <li>OfficePro</li> <li>OfficeCom</li> </ul> | 16<br>4 |
| Number of announcement steps per group                                                                          | 7       |

### 8.42.1 Call Flow

UCD can direct incoming trunk calls into the group using any of the following:

- The ring assignment table
- The direct inward dialing feature
- The call-management table
- An auto-attendant application
- A station transfer

UCD routes calls to the active agent position that has been idle for the longest period. If the call is not answered, that station is placed in an unavailable state and the next available station in the group is offered the call.

When all of the agents are busy, the system places UCD calls in queue for a predetermined amount of time. If the overflow queue timer expires before an agent becomes available, the call can be directed to one of the following:

- Another UCD group
- A station position
- PhoneMail
- An external destination

If the overflow target is another UCD group, the caller remains in queue in the original group while being placed in queue in the secondary group concurrently. You can configure overflow patterns using the call destination table.



You can also assign a numeric threshold value to each group. If the number of calls in queue equals the numeric threshold value, the next call follows the overflow pattern identified in the call destination table.

### **8.42.2 Recorded Announcements**

The OfficePro Communications Server supports access for 16 unique announcements and one music on hold source. The OfficeCom Communications Server supports access to four unique announcements and one music on hold source.

Each UCD group can be configured with seven announcement steps. You can define a unique announcement and the duration of the announcement for each step. The announcement script can be configured to play a single time or continue to cycle until the call is answered.

### **8.42.3 Agent Positions**

Agent indexes are associated with each of the UCD groups programmed in the system. The user logs on to the desired UCD group by entering the logon access code and an agent ID number. The agent ID identifies the station as a member of the UCD group. The agent ID can be associated with one station at a time. Stations can only be active in a single group at a time but may log on to different groups using agent ID numbers assigned to the UCD groups. You can configure a maximum of 32 unique Agent IDs per group.

The agent position can be an optiset E telephone or an analog telephone. Users can access features using access codes or feature keys on an optiset E telephone.

## 8.43 Configuring UCD (for U.S. Only)

This section outlines the procedure for setting up a basic UCD group for the Hicom 150 E Office Communications Server.

### Procedure Overview

The following sections describe the UCD configuration sequence in detail.

| Configuring UCD |                                                                   |
|-----------------|-------------------------------------------------------------------|
| Step            | Task                                                              |
| 1.              | <u><i>Configuring the Digital Announcers</i></u>                  |
| 2.              | <u><i>Enabling UCD Flags</i></u>                                  |
| 3.              | <u><i>Defining Automatic Wrap-Up Time</i></u>                     |
| 4.              | <u><i>Configuring Call Priorities</i></u>                         |
| 5.              | <u><i>Configuring Pilot Number and UCD Group Name</i></u>         |
| 6.              | <u><i>Configuring the UCD Group Parameters</i></u>                |
| 7.              | <u><i>Adding Agent IDs to a UCD Group</i></u>                     |
| 8.              | <u><i>Configuring the Announcement Steps</i></u>                  |
| 9.              | <u><i>Configuring the Call Destination Tables</i></u>             |
| 10.             | <u><i>Assigning Pseudo Numbers for DNIS applications</i></u>      |
| 11.             | <u><i>Key Assignments for optiset E Telephones</i></u>            |
| 12.             | <u><i>Configuring a Silent Monitoring Supervisor Position</i></u> |
| 13.             | <u><i>Configuring the UCD Night Answer Destination</i></u>        |

### 8.43.1 Configuring the Digital Announcers

This section describes the UCD group configuration procedures for the digital announcers. Analog ports can be configured as digital announcer interfaces for the OfficeCom and the OfficePro. Tie-Line E&M ports can be configured as digital announcer interfaces for the OfficePro. Announcement devices are configured with a start time and listen duration time. Music on hold devices are loop-type recordings with continuous play attributes. Up to 32 parties held in queue can hear each announcement.

### 8.43.1.1 Analog Port Interfaces

To configure the digital announcers, you assign names to identify the analog ports, and you configure the analog ports to be used as announcement interfaces as answer machine type.

Table 8-8 Example of UCD Station Name Assignments

| Call No | DID | Name   | Inactive | Parms. | Type | Access    |
|---------|-----|--------|----------|--------|------|-----------|
| 124     | 124 | Ann. 1 |          |        | POT  | SLA16 3-1 |
| 125     | 125 | Ann. 2 |          |        | POT  | SLA16 3-2 |
| 126     | 126 | Ann. 3 |          |        | POT  | SLA16 3-3 |

### 8.43.1.2 Tie Line E&M Port Interfaces

This example shows how to assign tie-line E&M ports to unique route groups and how to assign names to the tie-line route groups.

### 8.43.1.3 Device Numbers for Each of the Configured Announcement Interfaces

This example shows how to assign device numbers to each of the configured announcement interfaces.

The OfficePro system can be configured with 16 device announcement channels, and the OfficeCom system can be configured with 4 device announcement channels.

The following procedure (refer to [Table 8-9](#)) assigns an access port and a supported announcement. The Access column defines the physical port connected to the device. The Type of Announcement column defines the characteristic of the announcement. The device address numbers are used in the call destination table for configuring announcements prior to entering a distribution group queue. For example to play an announcement prior to entering the UCD queue an announcement address (#301 to #316) can be entered in a Target cell prior to the UCD group designation.

Table 8-9 Assigning Addresses, Accesses, and Announcement Types

| Announce-ment Device | Device Ad-dress | Access                                          | Type of Announcement                                             |
|----------------------|-----------------|-------------------------------------------------|------------------------------------------------------------------|
| 1                    | #301            | SLA16 slot or port or<br>TMTEAUMUC slot or port | None or<br>announcement or<br>music on hold or<br>internal music |
| 2                    | #302            |                                                 |                                                                  |
| 3                    | #303            |                                                 |                                                                  |

Table 8-9 Assigning Addresses, Accesses, and Announcement Types

|      |      |  |  |
|------|------|--|--|
| 4    | #304 |  |  |
| .... | .... |  |  |
| 16   | #316 |  |  |

#### 8.43.1.4 Announcement Assignment to a Specific Trunk

This section explains the procedure for assigning a digital announcer defined in the announcement equipment table to a specific analog trunk in the system. The announcement will be heard during the incoming ring cycle before the call enters the UCD queue.

|      | Slot/Line | Ann. Device           |
|------|-----------|-----------------------|
| 1    | TMGL8 4-1 | None or Device 1 ~ 16 |
| 2    | TMGL8 4-2 | None or Device 1 ~ 16 |
| 3    | TMGL8 4-3 | None or Device 1 ~ 16 |
| .... | TMGL8 4-4 | None or Device 1 ~ 16 |
|      | ....      | None or Device 1 ~ 16 |

#### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                |
|------|-----------------------------------------------------------------------|
| 1.   | Options ->Setup Stations ->Station                                    |
| 2.   | Options ->Setup stations ->Station ->Parms ->Type ->Extension type    |
| 3.   | Options ->Lines and networking ->Trunks ->Route                       |
| 4.   | Options ->Lines and networking ->Routes ->Route Name                  |
| 5.   | Options ->Trunk modules ->Announcement ->Announcement equipment       |
| 6.   | Options ->Trunk modules ->Announcement ->Announcement prior to answer |

#### 8.43.2 Enabling UCD Flags

This section outlines the flags that enable UCD hunting and enhance the call detail reporting capabilities of the system.

**UCD Flags**

| UCD Flag               | Function                                                                                                              |
|------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Print UCD data         | Include ring duration, call abandon, and call answer on SMDR printout record. External printer or buffer is required. |
| Allow UCD applications | Enable call routing and queuing for UCD operation                                                                     |

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                   |
|------|----------------------------------------------------------|
| 1.   | Options -> Incoming calls -> UCD parameters -> UCD flags |

**8.43.3 Defining Automatic Wrap-Up Time**

This flag defines the duration of the automatic work time after the completion of each call. Each cycle is equal to five seconds.

|                       |                         |
|-----------------------|-------------------------|
| Wrap-up Time (cycles) | Input unit from 1 to 20 |
|-----------------------|-------------------------|

**Configuring the Feature Using Hicom Assistant E**

| Step | Action                                                                |
|------|-----------------------------------------------------------------------|
| 1.   | Options -> Incoming calls -> UCD parameters -> Automatic wrap-up time |

**8.43.4 Configuring Call Priorities**

This section describes the procedure for configuring call priorities for incoming calls to the UCD group.

A priority between 1 and 10 is allocated for classifying internal calls. The system then distributes the queued calls to the UCD group depending on the priority and queue time, that is, a call with a high priority can be answered sooner than a call in the queue longer that has a lower priority.

The system divides up incoming calls in the queue for the UCD group according to the type of call, resulting in type-of-call groups. There are 10 priority levels, i.e., priorities between one and 10 can be allocated to the trunk circuits in relation to the trunk (trunk-related or by B channel).

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                       |
|------|------------------------------------------------------------------------------|
| 1.   | Options -> Incoming calls -> UCD parameters -> Priorities for internal calls |
| 2.   | Options > Incoming calls -> UCD parameters -> Priorities for external calls  |

### 8.43.5 Configuring Pilot Number and UCD Group Name

System hunt groups 91 through 150 are used by the UCD system to define a pilot call number, a DID number, and a group name to each of the configured UCD groups. Each UCD group is assigned a virtual address number from #201 through #260. This means that UCD group one (#201) can be called by dialing the default call number for Hunt group 91, which is 440.

Table 8-10 Defining a Pilot Call Number, a Did Number, and a Group Name

|      | Virtual Number | Call Number | DID Number | Name | Ring Type |
|------|----------------|-------------|------------|------|-----------|
| 91   | #201           | 440         | 440        |      | 1,2,or 3  |
| 92   | #202           | 441         | 441        |      |           |
| 93   | #203           | 442         | 442        |      |           |
| .... | .....          |             |            |      |           |
| 150  | #260           | 499         | 499        |      |           |

- The virtual call number for each group is preset and cannot be changed.
- The call number is a unique number from 1 to 6 digits long.
- The DID number is a unique number from 1 to 11 digits long.
- The UCD group name can be from 1 to 16 characters long.
- Any of three distinctive ring types can be selected for identifying incoming external calls to the group.

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                        |
|------|-----------------------------------------------|
| 1.   | Options > Incoming calls > Hunt group > Group |

### 8.43.6 Configuring the UCD Group Parameters

This section defines the characteristics for each of the UCD groups configured in the system. Input will vary on each application.

Table 8-11 UCD Group Parameters

| UCD Group | Primary Ring Cycles | Sec. Ring Cycles | Queued Calls | AICC | Ann. Change | Over-flow Time | Ann. Delay Time |
|-----------|---------------------|------------------|--------------|------|-------------|----------------|-----------------|
| Group 1   | 3                   | 6                | 10           | Y    | cyclic      | NA             | 6               |
| Group 2   |                     |                  |              |      |             |                |                 |
| Group ... |                     |                  |              |      |             |                |                 |
| Group 60  |                     |                  |              |      |             |                |                 |

#### Table Descriptions:

- **UCD Group**

The UCD Group column lists the available groups.

- **Primary Ring Cycle**

The primary-ring-cycles parameter controls the following time characteristics:

- The number of ring cycles offered to the first agent for an incoming call.  
Each ring cycle is equal to 5 seconds. If the agent does not answer the call, the agent position is placed in an unavailable status and the call is offered to the next available agent.
- The time a call remains in the UCD queue if agents are busy or unavailable before routing the call to an overflow target.  
If an agent becomes available before the primary-ring-cycle timer expires, the call is offered to the agent position.

- **Secondary Ring Cycle**

The secondary-ring-cycles parameter controls the following time characteristics.

- How long the incoming call rings at each available agent position after it has been offered to the first agent position.  
If the call is not answered by the second agent position, the position is placed in an unavailable status and the next position in the group presented with the call. This process continues until all of the available agents have been of-

ferred the call. If no member of the UCD group answers the call, the call is routed to the target overflow destination. The Call Destination list defines the overflow route steps.

- How long the incoming call is offered to each agent in the overflow group.

If an agent in the first group becomes available, the call is presented to that position after all of the available agents in the second group have been tried.



**Timers:**

If a single agent position is available in all of the UCD groups configured in the call destination table, the call will continue to ring at the agent position until it is answered or another station becomes available.

If all of the agents are busy or unavailable in the UCD groups configured in the call destination table, the call is placed in queue for the first-available agent position in the first group. If an agent in the overflow group becomes available, the call is offered to the position after the Primary Ring Cycle setting for the first group expires.

- **Queued Calls**

You can set the maximum number of queued calls (up to 30) in the Queued-Calls column. For the last group, the maximum number is 72.

- **AICC**

You can use the automatic incoming UCD call connection (AICC) column to activate the incoming zip tone and the answering of an incoming call. This is typically used with a headset application.

- **Change Announcement**

You can use this column to specify how the recorded announcements are changed. Changes can be made once or cyclically.

- **Overflow Time**

This timer is not used in the U.S. and Canada.

- **Announcement Delay**

This time-out parameter configures the delay (zero to 600 seconds) before a queued call is switched to the recorded announcement device.

## **Configuring the Feature Using Hicom Assistant E**

| Step | Action                                             |
|------|----------------------------------------------------|
| 1.   | Options ->Incoming calls ->UCD groups ->UCD groups |

### **8.43.7 Adding Agent IDs to a UCD Group**

This section covers the configuration of the agent IDs in a system group.



A UCD group contains agents that belong to a working group. A maximum of 150 UCD agents can be simultaneously active in the system. Accordingly, 150 fixed agent IDs are provided that can be allocated to any of the maximum of 60 UCD groups. There is no limit to the number of agents per group. Only valid agent IDs can be entered, and each ID can only be allocated to one group.

To assign agent IDs to groups, set up a list containing the agent ID and the allocated UCD group. A UCD agent has access to particular features in the system. The agent can log on from any U<sub>P0/E</sub> (digital) terminal or from an analog telephone (teleagent, that is, an agent at a remote location) using an ID. The agent is available after logon and is permanently assigned to the logging device until logoff. It is not possible to log on to another terminal at the same time. A maximum of one agent can be logged on per device. Each agent is assigned to one working group only. After logoff, the agent is no longer available for UCD.

The system checks assignment to UCD groups at logon. The port to which an agent logs on is stored in nonvolatile memory so that the assignment is retained even after the system has been reset. All optiset E telephones (with or without display) can function as UCD answering telephones, and analog telephones can support teleagents. Codes are available for telephones without display for the following UCD main functions:

- Logon
- Wrap-up
- Log off

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | Options ->Incoming calls ->UCD groups ->Members |

### 8.43.8 Configuring the Announcement Steps

You can configure an announcement pattern for each UCD group. Each announcement pattern can have a maximum of seven steps. Each announcement step represents the broadcast of a specific UCD announcement or music on hold (MOH) channel.

A play duration time, in cycles, is set for each announcement device. This represents the time the announcement will be played. Each cycle is equal to 5 seconds. The *Change Announcement* flag in the Hunt Group configuration determines if the announcement pattern will play one time or continue to cycle until the call is answered.

The announcement devices and MOH sources were configured in Section 8.43.1. The announcements are heard concurrently while the call is offered to an available agent.

If a call overflows to another UCD group, the caller continues to hear the announcement pattern defined in the original group. When designing the announcement patterns, you should consider the length of the messages and the estimated amount of time callers will remain in queue.

## Group Parameters

Table 8-12 UCD Group Parameters for Announcement Patterns

| Destination Index | Wait Destination    | Wait Time          |
|-------------------|---------------------|--------------------|
| Index 1           | Device 2            | Cycles =3          |
| Index 2           | Device 3            | Cycles =6          |
| Index 3           | Device 1 through 16 | Cycles from 1 to 9 |
| Index 4           | Device 1 through 16 | Cycles from 1 to 9 |
| Index 5           | Device 1 through 16 | Cycles from 1 to 9 |
| Index 6           | Device 1 through 16 | Cycles from 1 to 9 |
| Index 7           | Device 1 through 16 | Cycles from 1 to 9 |

## Configuring the Feature Using Hicom Assistant E

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Options ->Incoming Calls ->UCD groups |

## 8.43.9 Configuring the Call Destination Tables

You can use the call destination tables to configure the overflow patterns for each of the UCD groups. Three tables can be assigned to the hunt group pilot number associated with the UCD groups. The tables represent incoming call routing during day operation, night operation, and for internal calls.

### Example: Call Destination Table

In the following example, all call types are directed to destination list 20.

When a call is placed to call number 440 (the default call number for hunt group 91) the call is routed to group 20. The first target in group 20 is UCD group 1. The virtual call number for the first group is 201. If an agent is available, the call will begin ringing at the position. If the call is not answered by an agent in the first group, the call will

overflow to the second UCD group (202) after the secondary ring cycle timer expires. If the call is not answered by an agent position, the PhoneMail hunt group or alternate destination is called.

| Call Number | Name        | Day | Night | Internal |
|-------------|-------------|-----|-------|----------|
| 440         | UCD Group 1 | 20  | 20    | 20       |

|    | Target 1 | Target 2 | Target 3 | Target 4 | Cycles | Target | Type      |
|----|----------|----------|----------|----------|--------|--------|-----------|
| 20 | #201     | #202     | 350      |          |        |        | immediate |
| 21 |          |          |          |          |        |        |           |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                                                |
|------|-------------------------------------------------------------------------------------------------------|
| 1.   | Options ->Incoming Calls ->Assignment of Int./ext. calls ->Allocation of call reference to hunt lists |
| 2.   | Options ->Incoming Calls ->Call destination lists                                                     |

### 8.43.10 Assigning Pseudo Numbers for DNIS applications

You can assign pseudo numbers for display and routing purposes, and you can assign each pseudo number the following:

- A call number
- A DID number
- A display name

### Pseudo Ports

Except for the last station port in the system, which is used for Hicom Assistant E, all station ports not assigned to an interface card can be used as pseudo ports. All pseudo ports must be set up as answer machine ports in the station type screen to ensure proper operation. You can use associated services or call-destination tables to forward the pseudo port to the UCD group.

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                          |
|------|-----------------------------------------------------------------|
| 1.   | Options > Setup Station > Station screen                        |
| 2.   | Options -> Setup stations -> Parameters > Type > Extension type |

## 8.43.11 Key Assignments for optiset E Telephones

Below are the suggested key map layouts for an agent position using an optiset E telephone with display.

Table 8-13 Suggested Key Map Layouts for an Agent Position Using an optiset E Telephone with Display

| <b>4 Default Keys</b> | <b>8 Flexible Keys</b> | <b>Optional Agent Keys</b> |
|-----------------------|------------------------|----------------------------|
| Program               | Log On                 | Account Code               |
| Mailbox               | Available              | Conference                 |
| Mute                  | Work On Off            | Call Park                  |
| Loudspeaker           | Calls in Queue         | Fax-Ans. Machine           |
|                       | General Call Key       | Call Forward               |
|                       | Call Supervisor        |                            |
|                       | Call Hold              |                            |
|                       | Release                |                            |

Below are the suggested key map layouts for a supervisor position using an optiset E telephone with display.

Table 8-14 Suggested Key Map Layouts for a Supervisor Position Using an optiset E Telephone with Display

| <b>4 Default Keys</b> | <b>8 Flexible keys</b> | <b>Optional Supervisor Keys</b> |
|-----------------------|------------------------|---------------------------------|
| Program               | Log On                 | Rep Dial Agent                  |
| Mailbox               | Available              | Override                        |
| Mute                  | Work On Off            | Conference                      |
| Loudspeaker           | Calls in Queue         | Night On-Off                    |
|                       | General Call Key       | Page to group                   |
|                       | Pickup Group           | Call Park                       |
|                       | Call Hold              | Fax-Ans. Machine                |
|                       | Release                |                                 |

### 8.43.12 Configuring a Silent Monitoring Supervisor Position

The silent monitoring feature allows a station to monitor the conversation of an agent and the party to whom the agent is speaking. Only one silent monitor session is supported in a system at a time. You can assign silent monitoring to a supervisor station using Hicom Assistant T only. To monitor a station, the supervisor dials the silent monitoring code (\*944) followed by the agent's intercom number.

#### Configuring the Feature Using Hicom Assistant

| Step | Action                                  |
|------|-----------------------------------------|
| 1.   | <b>Configure silent monitoring</b>      |
| 2.   | 22-19-3 => System settings - Monitoring |

### 8.43.13 Configuring the UCD Night Answer Destination

Each UCD group can be configured with a night answer destination. You can program an access code or feature key to toggle the activation. Night answer targets can be any of the following destinations:

- Internal stations
- Hunt groups
- External destinations

## 8.44 Call distribution in Hicom 150 E Office With Hicom Agentline Office (Not for U.S.)

### Introduction

This section describes how to configure Hicom 150 E Office to combine call distribution with Hicom Agentline Office. For details, refer to the service documentation for Hicom Agentline Office V1.1 CSTA.

Hicom Agentline Office can use station numbers and their assigned names for UCD groups. The maximum number is 60 system-wide. The last 60 station numbers in the group must be used for this purpose (for example the default station numbers 440 to 499 in OfficePro).

For the priority codes, you can use any valid station number in the system which has not been assigned to a station. The station number for the priority codes must refer to the same call destination list along with the corresponding UCD group number. In this call destination list, the first call destination is the UCD group.

A call destination list containing UCD group 60 as the first call destination is defined for periods of high load. This group is used for the central queue and is also entered as the overflow destination for all other UCD groups.

This means:

- The first call destination is the UCD group.
- The second call destination is the UCD group for the central queue.

### Example

A configuration that contains the two UCD groups and 3 additional priority codes is described below. Two agents work in each group.

### Assign agent IDs to groups

- Assigns UCD group 1 (purchasing department) group IDs 100 and 101.
- Assigns UCD group 1 (sales department) group IDs 110 and 111.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                         | Display               |
|------|------------|--------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration    | System administration |
| 2.   | 31-1       | Select <i>Group assignment</i> | Group ID 100: -       |
| 3.   | *1 ✓       | Assign UCD group 1 and confirm | Group ID 100: 1       |

| Step | Entry  | Action                          | Display               |
|------|--------|---------------------------------|-----------------------|
| 4.   | ✓      | Select next ID                  | Group ID 101: -       |
| 5.   | *1 ✓   | Assign UCD group 1 and confirm  | Group ID 101: 1       |
| 6.   | #110 ✓ | Select group ID 110 and confirm | Group ID 110: -       |
| 7.   | *2 ✓   | Assign UCD group 2 and confirm  | Group ID 110: 2       |
| 8.   | ✓      | Select next ID                  | Group ID 111: -       |
| 9.   | *2 ✓   | Assign UCD group 2 and confirm  | Group ID 111: 2       |
| 10.  | F8     | Return to main menu             | System administration |

**Assign Group Names**

- UCD group 1: Purchasing
- UCD group 2: Sales

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry          | Action                                  | Display               |
|------|----------------|-----------------------------------------|-----------------------|
| 1.   | <b>16-15-3</b> | Configure group names                   | Grp 350: -            |
| 2.   | #440 ✓         | Select the first UCD group and confirm  | Grp 440: -            |
| 3.   | *Purchasing ✓  | Enter a name for the group and confirm  | Grp 440: Purchasing   |
| 4.   | ✓              | Select the next group                   | Grp 441: -            |
| 5.   | *Sales ✓       | Define a name for the group and confirm | Grp 441: Sales        |
| 6.   | F8             | Return to main menu                     | System administration |

**Configure Call Management**

Defines UCD group 1, UCD group 2, and the central queue (UCD group 60) and assigns them each a call destination list.

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry          | Action                         | Display              |
|------|----------------|--------------------------------|----------------------|
| 1.   | <b>16-18-1</b> | Define call destination list   | List1, Dest1: called |
| 2.   | *              | Change call destination list 1 | List1, Dest1:        |
| 3.   | #201 ✓         | Define UCD group 1 and confirm | List1, Dest1: UCD 01 |

| Step | Entry  | Action                                     | Display              |
|------|--------|--------------------------------------------|----------------------|
| 4.   | #2 ✓   | Select call destination list 2 and confirm | List2, Dest1: called |
| 5.   | *      | Change call destination list 2             | List2, Dest1:        |
| 6.   | #202 ✓ | Define UCD group 2 and confirm             | List2, Dest1: UCD 02 |
| 7.   | #3 ✓   | Select call destination list 2 and confirm | List3, Dest1: called |
| 8.   | *      | Change call destination list 3             | List3, Dest1:        |
| 9.   | #260 ✓ | Define UCD group 60 and confirm            | List3, Dest1: UCD 60 |
| 10.  | F7     | Return to main menu                        | Call FWD - no ans    |

**Assign Internal and External Calls**

- Assigns UCD group 1 station number 440 and station numbers 110 to 112 as priority codes.
- Assigns UCD group 2 station number 441 and station numbers 113 to 115 as priority codes.

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry   | Action                                           | Display              |
|------|---------|--------------------------------------------------|----------------------|
| 1.   | 2       | Select internal call assignment                  | List for stn 100: 16 |
| 2.   | # 110 ✓ | Select first priority code for UCD group 1       | List for stn 110: 16 |
| 3.   | * 1 ✓   | Assign station number to call destination list 1 | List for stn 110: 1  |
| 4.   | # 440 ✓ | Select station number for UCD group 1            | List for stn 440: 16 |
| 5.   | * 1 ✓   | Assign station number to call destination list 1 | List for stn 440: 1  |
| 6.   | # 113 ✓ | Select first priority code for UCD group 2       | List for stn 113: 16 |
| 7.   | * 2 ✓   | Assign station number to call destination list 2 | List for stn 113: 1  |
| 8.   | # 441 ✓ | Select station number for UCD group 2            | List for stn 441: 16 |
| 9.   | * 2 ✓   | Assign station number to call destination list 2 | List for stn 441: 1  |



| <b>Step</b> | <b>Entry</b> | <b>Action</b>                                                      | <b>Display</b>        |
|-------------|--------------|--------------------------------------------------------------------|-----------------------|
| 10.         | F7 ✓         | Return to submenu                                                  | Call FWD - no ans     |
| 11.         | 3            | Select <i>External call alloc, Day</i>                             | List for stn 100: 14  |
| 12.         |              | Repeat steps 2 through 9<br>(this sets all external calls for UCD) |                       |
| 13.         | F8           | Return to main menu                                                | System administration |

**Logging on Agents**

- The agents must now log onto the telephones.

| <b>Step</b> | <b>Entry</b> | <b>Action</b>                                           | <b>Display</b> |
|-------------|--------------|---------------------------------------------------------|----------------|
| 1.          | <b>*401</b>  | Enter the code on the telephone with station number 101 | Agent:         |
| 2.          | 100          | Log on by entering ID 100 in ACD group 1                | Available      |
| 3.          | <b>*401</b>  | Enter the code on the telephone with station number 102 | Agent:         |
| 4.          | 101          | Log on by entering ID 101 in ACD group 1                | Available      |
| 5.          | <b>*401</b>  | Enter the code on the telephone with station number 103 | Agent:         |
| 6.          | 110          | Log on by entering ID 110 in ACD group 2                | Available      |
| 7.          | <b>*401</b>  | Enter the code on the telephone with station number 104 | Agent:         |
| 8.          | 111          | Log on by entering ID 111 in ACD group 2                | Available      |

## 8.45 Configuring DISA

### Introduction

Direct Inward System Access (DISA) allows an outside caller to access the system and its outbound trunks by dialing a special number and entering a password.

### Example 1

Configure DISA for station 11 via a digital trunk.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                   | Display               |
|------|------------|----------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                              | System administration |
| 2.   | 14-15      | Select <i>Configure station, enable DISA</i> for station | Stn 11: Denied        |
| 3.   | * 1 ✓      | Enable DISA for station 11 and confirm                   | Stn 11: Allowed       |
| 4.   | F8         | Return to main menu                                      | System administration |
| 5.   | 34-2       | Select <i>DID number for DISA</i>                        | Dest.: -              |
| 6.   | * 79 ✓     | Enter DID no. for DISA, (such as 79)                     | Dest.: 79             |
| 7.   | F7         | Return to <i>DISA</i>                                    | Line 1: 0             |
| 8.   | 3          | Select <i>security mode</i>                              | Mode: after timeout   |
| 9.   | * 1 ✓      | Change security mode to # and confirm                    | Mode: after #         |
| 10.  | F8-F7      | Exit system administration                               | Time, date            |

### Example 2

Configure DISA for station 11 via analog trunk.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                   | Display               |
|------|------------|----------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                              | System administration |
| 2.   | 14-15      | Select <i>Configure station, enable DISA</i> for station | Stn 11: Denied        |
| 3.   | * 1 ✓      | Enable DISA for station 11 and confirm                   | Stn 11: Allowed       |

| Step | Entry   | Action                                          | Display                |
|------|---------|-------------------------------------------------|------------------------|
| 4.   | F8      | Return to main menu                             | System administration  |
| 5.   | 34-2    | Select <i>DID no. for DISA</i>                  | Dest: -                |
| 6.   | * 79 ✓  | Enter DID no. for DISA (such as 79) and confirm | Dest: 79               |
| 7.   | F7      | Return to <i>DISA</i>                           | Line 1: 0              |
| 8.   | 3       | Select <i>Security mode</i>                     | Mode: after timeout    |
| 9.   | * 1 ✓   | Change security mode to #                       | Mode: after #          |
| 10.  | 34-1    | Select <i>DISA for analog</i>                   | SI/Tr 0401: none       |
| 11.  | # 501 ✓ | Select analog trunk and confirm                 | SI/Tr 0501: none       |
| 12.  | * 1 ✓   | Set DIS during night service only and confirm   | SI/Tr 0501: night only |
| 13.  | F8-F7   | Exit system administration                      | Time, date             |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                          |
|------|-------------------------------------------------|
| 1.   | Options -> Set up station -> Station -> Param   |
| 2.   | Options -> System parameters -> System settings |
| 3.   | Options -> Lines/networking -> Trunks -> Flags  |

## 8.46 Configuring the Attendant Console (Not for U.S.)

### Introduction

You must configure one station or group in the system as an attendant console (intercept position).

### Example

- Station 12 will be the attendant console. If fixed night answer is used, station 13 is the attendant console.
- Intercept on direct inward dialing should occur when the station does not answer, is busy or if an incorrect or incomplete number is dialed.
- It must be possible to reach the intercept position from the outside by dialing 0 (default) and internally by dialing 91.
- If more than 2 calls are waiting at the attendant console, they should be forwarded to station 13.
- *Speed transfer* and *transfer undialed trunks* will be activated for the attendant console.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                 | Display               |
|------|------------|----------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration            | System administration |
| 2.   | 16-12      | Display Intercept, day                 | Dest.: 11             |
| 3.   | * 12 ✓     | Display Intercept, day                 | Dest.: 12             |
| 4.   | F2         | Go to Intercept night display          | Dest.: 11             |
| 5.   | * 13 ✓     | Change Intercept, night                | Dest.: 13             |
| 6.   | F2         | Display Intercept on free              | Intercept: yes        |
| 7.   | F2-1       | Display Intercept on busy              | Mode: yes             |
| 8.   | * 1 ✓      | Change Intercept on busy               | Mode: yes             |
| 9.   | F2         | Display Camp on at                     | On busy: Allowed      |
| 10.  | * 0 ✓      | Change Camp on at                      | On busy: Denied       |
| 11.  | F2         | Display Intercept on wrong number      | Intercept: yes        |
| 12.  | F2         | Display Intercept on incomplete number | Intercept: yes        |
| 13.  | F8 23-5-2  | Display internal attendant code        | Dest.: 9              |
| 14.  | * 91 ✓     | Change internal attendant code         | Dest.: 91             |

| Step | Entry      | Action                                                             | Display                 |
|------|------------|--------------------------------------------------------------------|-------------------------|
| 15.  | F8 33-1    | Display number of waiting calls                                    | Length: 15              |
| 16.  | * 2 ✓      | Change number of waiting calls to 2                                | Length: 2               |
| 17.  | F2         | Display Speed transfer mode                                        | Mode: Denied            |
| 18.  | * 1 ✓      | Enable Speed transfer mode                                         | Mode: Allowed           |
| 19.  | F2         | Display transfer undialed trunk                                    | Mode: Denied            |
| 20.  | * 1 ✓      | Enable transfer undialed trunk                                     | Mode: Allowed           |
| 21.  | F8 16-18-1 | Display call destination lists                                     | List 1 , Dest 1: called |
| 22.  | # 13 ✓+    | Select call destination list 12, destination 2                     | List 13, Dest 2: -      |
| 23.  | * 13 ✓     | Change destination 2 to 13                                         | List 13, Dest 2: 13     |
| 24.  | F2 #12 ✓   | Display assignment of internal call to call destination list       | List for stn 12: 16     |
| 25.  | * 13 ✓     | Change to call destination list 13                                 | List for stn 12: 13     |
| 26.  | F2         | Display assignment of external call (day) to call destination list | List for stn 12: 14     |
| 27.  | * 13 ✓     | Change to call destination list 13                                 | List for stn 12: 13     |
| 28.  | F8-F7      | Exit system administration                                         | Time, date              |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                    |
|------|-----------------------------------------------------------|
| 1.   | Options -> System parameters -> Diversion/Attendant       |
| 2.   | Options -> Incoming calls -> Call destination lists       |
| 3.   | Options -> Incoming calls -> Assignment int. / ext. calls |

### Note

Also configure the Disconnect, Call, and Trunk group keys on the attendant console.

## 8.47 Configuring an Attendant Console (for U.S. Only)

### Introduction

Users can configure an internal extension as the attendant console (AC) or intercept position. This attendant position is known as Hicom Attendant C. If direct inward dialing (DID) is not possible or if the user did not configure DID, the system directs all calls to the attendant position.

Users can set up any telephone as the attendant position. However, using an optiset E telephone with display is preferred because of its increased capabilities. Users can also set up a personal computer as the AC (Hicom Attendant P). The computer AC can implement all of the Hicom Attendant C features and more. With Hicom Attendant P, the PC monitor simulates all of the functions of an AC.

### Example

This example

- Configures station 12 as the AC during the day and station 13 as the AC for fixed night answer
- Allows Intercepts for direct inward dialing when free and busy and with incorrect and incomplete dialing
- Enables the intercept position to be available from external sources via 0 (default) and internally via 91
- Changes the maximum number of waiting calls for the AC to two and forwards any additional calls to station 13
- Activates speed transfer and transfer for undialed trunks for the AC

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                               | Display               |
|------|------------|------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration.                         | System administration |
| 2.   | 16 12      | Select <i>Incoming calls, Intercept day.</i>         | Dest.: 11             |
| 3.   | * 12 ✓     | Change the intercept station to 12 and save.         | Dest.: 12             |
| 4.   | F2         | Continue to <i>Incoming calls, Intercept, night.</i> | Dest.: 11             |
| 5.   | * 13 ✓     | Change the intercept station to 13 and save.         | Dest.: 13             |
| 6.   | F2         | Continue to <i>Intercept mode, On no answer.</i>     | Intercept: Yes        |

| Step | Entry      | Action                                                                                              | Display                 |
|------|------------|-----------------------------------------------------------------------------------------------------|-------------------------|
| 7.   | F2 * 1 ✓   | Continue to <i>Intercept mode, On busy, Intercept</i> . Change mode to yes and save.                | Mode: Yes               |
| 8.   | F2 * 0 ✓   | Continue to <i>Intercept mode, On busy, Camp on to</i> . Change to denied and save.                 | On busy: Denied         |
| 9.   | F2         | Continue to <i>Intercept mode, On wrong number</i> . Retain default setting.                        | Intercept: Yes          |
| 10.  | F2         | Continue to <i>Intercept mode, On incomplete</i> . Retain default setting.                          | Intercept: Yes          |
| 11.  | F8 23 5 2  | Return to <i>Main menu</i> . Select <i>Codes, Attendant code, and Attendant code int.</i>           | Dest.: 0                |
| 12.  | * 91 ✓     | Change the internal attendant code and save.                                                        | Dest.: 91               |
| 13.  | F8 33 1    | Return to <i>Main menu</i> . Select <i>Attendant console, Max waiting calls</i> .                   | Length: 15              |
| 14.  | * 2 ✓      | Change the maximum number of waiting calls to two and save.                                         | Length: 2               |
| 15.  | F2 * 1 ✓   | Continue to <i>Attendant console, Speed transfer</i> . Enable speed transfer mode and save.         | Mode: Allowed           |
| 16.  | F2 * 1 ✓   | Continue to <i>Attendant console, Xfer undialed trk</i> . Enable undialed trunk transfer, and save. | Mode: Allowed           |
| 17.  | F8 16 18 1 | Return to <i>Main menu</i> . Select <i>Incoming calls, Call FWD - No ans, Destination list</i> .    | List 1, Dest. 1: called |
| 18.  | # 13 ✓+    | Select call destination list 13, confirm, and select the next destination (2).                      | List 13, Dest. 2: -     |
| 19.  | * 13 ✓     | Change destination for 2 to 13.                                                                     | List 13, Dest. 2: 13    |
| 20.  | F2 #12 ✓   | Continue to <i>Call FWD - No ans, Internal calls</i> , select station no. 12, and save.             | List for stn 12: 16     |
| 21.  | * 13 ✓     | Change to call destination list 13 and save.                                                        | List for stn 12: 13     |

| Step | Entry     | Action                                                                                               | Display             |
|------|-----------|------------------------------------------------------------------------------------------------------|---------------------|
| 22.  | F2 * 13 ✓ | Continue to <i>Call FWD - No ans</i> , Ext. calls, day, change to call destination list 13 and save. | List for stn 12: 13 |
| 23.  | F8 F7     | Exit system administration.                                                                          | Time, Date          |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                   |
|------|----------------------------------------------------------|
| 1.   | Options -> System parameters -> Diversion/VPL            |
| 2.   | Options -> Incoming calls -> Call destination lists      |
| 3.   | Options -> Incoming calls -> Assignment int. /ext. calls |

You must also set the night position (refer to Section 8.18, *Configuring Fixed Night Answer via Intercept (for U.S. Only), on page 8-45*) and program the keys for the major functions on the AC or station. We suggest programming keys for:

- Direct trunk appearance
- Call
- Trunk group
- Night
- Override
- Call Park
- Release

Refer to the Hicom 150 E Office optiset E Attendant C User Manual Release 2.0, G281-0585-00 for information on programming the keys on an optiset E telephone used as an attendant position.



## 8.48 Trunk Groups (Not for U.S.)

### Introduction

You can combine the external trunks into trunk groups by B channels.

### Example

- S<sub>0</sub> port for trunk group 1 (S1/Tr 401), analog for trunk group 2 (S1/Tr 0501) for connecting a D-cabinet.
- Code 0 is used for trunk group 1 and code 78 for trunk group 2.



The following example applies to Release 2.2 and later (for world, excluding U.S.). In Service Maintenance Release H 2.2 and later (for world, excluding U.S.), you can define more than one trunk group if automatic line seizure is active. In this case, Step 3 can be omitted (deactivating automatic line seizure).

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                          | Display               |
|------|------------|-----------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                                     | System administration |
| 2.   | 17-11      | Automatic line seizure                                          | State: on             |
| 3.   | * 0 ✓      | Deactivate automatic line seizure                               | State: off            |
| 4.   | F7         | Return to Automatic line seizure                                | Networking            |
| 5.   | 12         | Assign trunk group                                              | S1/Tr 0401: 1         |
| 6.   | # 501      | Change trunk group assignment for analog trunk                  | S1/Tr 0501: 1         |
| 7.   | * 2 ✓      | Change trunk group assignment for analog trunk to trunk group 2 | S1/Tr 0501: 2         |
| 8.   | F7         | Return to Automatic line seizure                                | networking            |
| 9.   | 14         | CO/PBX trunk type                                               | Trk 1: CO             |
| 10.  | # 2 ✓      | Select trunk group 2                                            | Trk 2: CO             |
| 11.  | * 2-1 ✓    | Set trunk type to PBX                                           | Trk 2: PBX            |
| 12.  | F7         | Return to Automatic line seizure                                | Networking            |
| 13.  | 15         | Enter trunk group name                                          | Trk 1: -              |
| 14.  | * CO ✓     | Enter trunk group name                                          | Trk 1: CO             |
| 15.  | ✓          | Confirm scrolling action                                        | Trk 2: -              |
| 16.  | * D-BOX ✓  | Enter trunk group name                                          | Trk 2: D-BOX          |

| Step | Entry  | Action                          | Display                  |
|------|--------|---------------------------------|--------------------------|
| 17.  | F8     | Return to system administration | System administration    |
| 18.  | 23-4   | Enter trunk group code          | Trunk group 1, Pos 1: 0  |
| 19.  | # 2 ✓  | Select trunk group              | Trunk group 2, Pos 1: 82 |
| 20.  | * 78 ✓ | Enter trunk group code          | Trunk group 2, Pos 1: 78 |
| 21.  | F8-F7  | Exit system administration      | Time, date               |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                            |
|------|---------------------------------------------------|
| 1.   | Options -> System parameters -> Flags/CMI         |
| 2.   | Options -> Lines/networking -> Trunks             |
| 3.   | Options -> Lines/networking -> Routes             |
| 4.   | Options -> Lines/networking -> Routing parameters |

## 8.49 Trunk Groups (for U.S. Only)

### Introduction

You can combine trunks into trunk groups by B channels.

### Example:

Using Hicom Assistant T, this example configures

- Analog for trunk group 2 (SI/Tr 0501)
- The code 9 for trunk group 1
- The code 78 for trunk group 2



The example below applies to Rel. 2.2 and earlier (ROW excluding the U.S.) and Release 1.0 (U.S. only).  
In Rel. 2.2 SMR-H and later (ROW excluding the U.S.) and Rel. 1.0 SMR-R and later (U.S. only), you can define more than one trunk group if automatic line seizure is active. If so, you do not have to deactivate automatic line seizure (Step 3).

### Using Hicom Assistant T for Programming

| Step | Entry      | Action                                                    | Display               |
|------|------------|-----------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration.                              | System administration |
| 2.   | 17 11      | Select <i>Networking, Prime Line on.</i>                  | Status: On            |
| 3.   | * 0 ✓      | Deactivate Prime Line and confirm.                        | Status: Off           |
| 4.   | F7         | Return to <i>Networking.</i>                              | Networking            |
| 5.   | 12         | Select <i>trunk group assignment.</i>                     | SI/Tr 0401: 1         |
| 6.   | # 501      | Select LS/GS trunk 501.                                   | SI/Tr 0501: 1         |
| 7.   | * 2 ✓      | Change the trunk group assignment to group 2 and confirm. | SI/Tr 0501: 2         |
| 8.   | F7 11      | Return to <i>Networking</i>                               | Networking            |
| 9.   | 14         | Select <i>Trunk type CO/PBX.</i>                          | TG 1: CO              |
| 10.  | # 2 ✓      | Select group 2 and confirm.                               | TG 2: CO              |
| 11.  | * 2 1 ✓    | Set trunk type to PBX and confirm.                        | TG 2: PBX             |
| 12.  | F7 11      | Return to <i>Networking.</i>                              | Networking            |
| 13.  | 15         | Select <i>Trunk group name.</i>                           | TG 1: -               |
| 14.  | * TRUNK ✓  | Enter trunk group name (example: TRUNK) and confirm.      | TG 1: TRUNK           |

| Step | Entry              | Action                                                   | Display                  |
|------|--------------------|----------------------------------------------------------|--------------------------|
| 15.  | ✓                  | Scroll to the next trunk.                                | TG 2: -                  |
| 16.  | * D-CABI-<br>NET ✓ | Enter trunk group name (example: D-CABINET) and confirm. | TG 2: D-CABINET          |
| 17.  | F8                 | Return to system administration.                         | System administration    |
| 18.  | 23 4               | Enter trunk group code.                                  | Trunk group 1, Pos 1: 0  |
| 19.  | # 2 ✓              | Dial trunk group and confirm.                            | Trunk group 2, Pos 1: 82 |
| 20.  | * 78 ✓             | Enter trunk group code.                                  | Trunk group 2, Pos 1: 78 |
| 21.  | F8 F7              | Exit system administration.                              | Time, Date               |

### Using Hicom Assistant E for Programming

| Step | Action                                              |
|------|-----------------------------------------------------|
| 1.   | Options ->System parameters -> Flags / CMI          |
| 2.   | Options -> Lines / networking -> Trunks             |
| 3.   | Options -> Lines / networking -> Routes             |
| 4.   | Options -> Lines / networking -> Routing parameters |

## 8.50 Tenant Services (Not for U.S.)

### Parameters for the Example

Two customers (customer A and customer B) seize the trunk by dialing 0.

- Both customers (A and B) telephone each other without having to dial a number via the trunk.
- Customer A seizes the trunk of customer B (including system speed dialing and allowed/denied lists).
- Customer B cannot seize the trunk of customer A (including system speed dialing and allowed/denied lists).
- The trunk of customer A can be transferred to customer B.
- The trunk of customer B can be transferred to customer A.

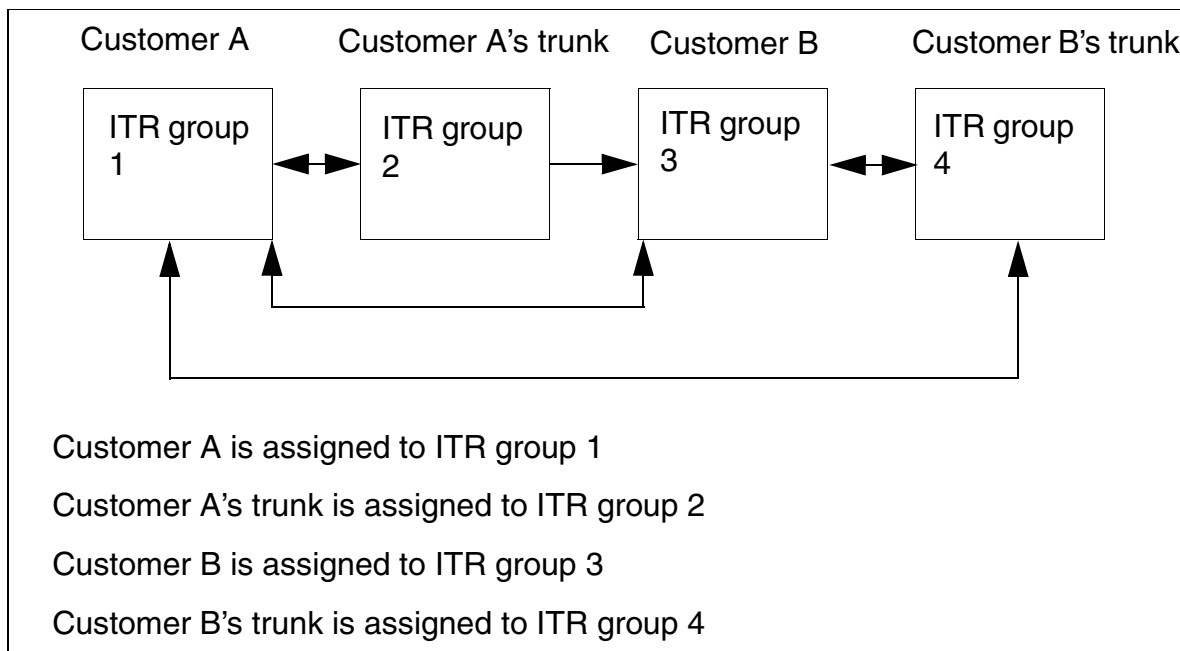
### Restrictions

- Transfer of undialed trunks is not possible.
- Simplified dialing is not possible.
- Speed transfer is not possible.
- Intercept can be programmed only system-wide. If an intercept criterion is set, for example *intercept on no answer*, this feature is set for both customers.
- Up to three customers can use a system.
- Customer A and customer B cannot have the same station numbers.
- Customer A can place outgoing calls on its own trunk. Transferring an outgoing call to customer B is possible only from a conference. However, an incoming call can be transferred directly.

### Example

- Customer A has telephone number 02302 12345-0, STMD port 1.
- Customer B has telephone number 02302 67890-0, STMD port 2.
- Customer A has station numbers 100-109.
- Customer A has station numbers 110-119.
- Customer A is assigned the intercept position with station number 100.
- Customer A is assigned the intercept position with station number 110.

For the purpose of clarity, it is helpful to draw a diagram of the customer's situation like the sketch shown below:



### Configuring the Feature Using Hicom Assistant T

| Step | Entry              | Action                                                        | Display               |
|------|--------------------|---------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b>         | Start system administration                                   | System administration |
| 2.   | 20-2-1*<br>12345 ✓ | Enter port number of customer A                               | TG 1: 12345           |
| 3.   | + * 67890<br>✓     | Enter port number of customer B                               | TG 2: 67890           |
| 4.   | F2- *2302<br>✓     | National number of customer A                                 | TG 1: 2302            |
| 5.   | + *2302 ✓          | National number of customer B                                 | TG 2: 2302            |
| 6.   | F2- *49 ✓          | International number of customer A                            | TG 1: 49              |
| 7.   | + *49 ✓            | International number of customer B                            | TG 2: 49              |
| 8.   | F2- *1 ✓           | Set outgoing station number type to <i>Customer A</i> station | TG 1: Station         |
| 9.   | + *1 ✓             | Set outgoing station number type to Customer B station        | TG 2: Station         |
| 10.  | F8                 | Return to main menu                                           | System administration |

| Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Entry            | Action                                                                                                     | Display              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------|----------------------|
| 11.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 18-3-1-1         | Change assignment of station to ITR groups                                                                 | Stn 100: 1           |
| 12.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | #109 ✓<br>*3 ✓   | Select stn. 109 and assign to ITR group 3                                                                  | Stn 109: 3           |
| 13.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓ *3 ✓           | Go to stn. 110 and assign to ITR group 3                                                                   | Stn 110: 3           |
| 14.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | :                | Stations 111 to 118                                                                                        | :                    |
| 15.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓ *3 ✓           | Go to stn. 119 and assign to ITR group 3                                                                   | Stn 119: 3           |
| 16.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | F7 2 * 2 ✓       | Assign customer A's trunks to ITR group 2<br>(slot 6/port 1)                                               | Sl/Tr 0601: 2        |
| 17.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓ *2 ✓           | Assign customer A's trunks to ITR group 2<br>(slot 6/port 2)                                               | Sl/Tr 0602: 2        |
| 18.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓ *4 ✓           | Assign trunks of customer B to ITR group 4<br>(slot 6/port 3)                                              | Sl/Tr 0603: 4        |
| 19.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓ *4 ✓           | Assign customer B's trunks to ITR group 4<br>(slot 6/port 4)                                               | Sl/Tr 0604: 4        |
| <p>Configured thus far:</p> <ul style="list-style-type: none"> <li>- In the default configuration, customer numbers of</li> <li>- Stations 100 to 109 (customer A) have been assigned to ITR group 1</li> <li>- Stations 110 to 119 (customer B) assigned to ITR group 3</li> <li>- Trunks (customer A) assigned to ITR group 2</li> <li>- Trunks (customer B) assigned to ITR group 4</li> </ul> <p>In The ITR matrix, define the relationships between the individual ITR groups:</p> |                  |                                                                                                            |                      |
| 20.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | F8<br>18-3-2-1 ✓ | Keep the <i>yes</i> setting so that the stations in ITR group 1 can continue to telephone each other.      | Grp 1, to grp 1: yes |
| 21.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓ *1 ✓           | Set ITR group 1 to ITR group 2 to <i>yes</i><br>(customer A can now place outgoing calls on its own trunk) | Grp 1, to grp 2: yes |
| 22.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓ *1 ✓           | Set ITR group 1 to ITR group 3 to <i>yes</i><br>(customer A can now place internal calls to customer B)    | Grp 1, to grp 3: yes |

| Step | Entry         | Action                                                                                                                                          | Display               |
|------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 23.  | ✓             | Do not change to yes, since this would enable customer A to place outgoing calls on customer B's trunks                                         | Grp 1, to grp 4: yes  |
| 24.  | ✓ ✓ ✓ *1<br>✓ | Set ITR group 2 to ITR group 1 to yes<br>(incoming calls on customer A's trunks are now also assigned to customer A)                            | Grp 2, to grp 1: yes  |
| 25.  | ✓ *1 ✓        | Set ITR group 2 to ITR group 2 to yes<br>(otherwise you will not be able to connect to an external station, for example in a consultation call) | Grp 2, to grp 2: yes  |
| 26.  | ✓ *1 ✓        | Set ITR group 2 to ITR group 3 to yes<br>(external calls can be transferred from customer A to customer B)                                      | Grp 2, to grp 3: yes  |
| 27.  | ✓ *1 ✓        | Set ITR group 2 to ITR group 4 to yes<br>(for example, you can conduct a conference between external stations of customer A and customer B)     | Grp 2, to grp 4: yes  |
| 28.  | ✓ ✓ ✓ *1<br>✓ | Set ITR group 3 to ITR group 1 to yes<br>(customer B can now place internal calls to customer A)                                                | Grp 3, to grp 1: yes  |
| 29.  | ✓             | Do not change to yes, since this would enable customer B to place outgoing calls on the customer A's trunks                                     | Grp 3 , to grp 2: yes |
| 30.  | ✓ *1 ✓        | Entry must be set to yes so that customer B's stations can continue to telephone each other.                                                    | Grp 3, to grp 3: yes  |
| 31.  | ✓ *1 ✓        | Set ITR group 3 to ITR group 4 to yes<br>(customer B can now place outgoing calls on its own trunks)                                            | Grp 3 , to grp 4: yes |



| Step | Entry              | Action                                                                                                                                                           | Display              |
|------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 32.  | ✓ ✓ ✓ *1<br>✓      | Set ITR group 4 to ITR group 1 to<br><i>yes</i><br>(incoming calls can be transferred<br>from customer B to customer A)                                          | Grp 4, to grp 1: yes |
| 33.  | ✓ *1 ✓             | Set ITR group 4 to ITR group 2 to<br><i>yes</i><br>(for example, you can conduct a<br>conference between external sta-<br>tions of customer A and customer<br>B) | Grp 4, to grp 2: yes |
| 34.  | ✓ *1 ✓             | Set ITR group 4 to ITR group 2 to<br><i>yes</i><br>(customer B can now place outgo-<br>ing calls on its own trunks)                                              | Grp 4, to grp 3: yes |
| 35.  | ✓ *1 ✓             | Set ITR group 4 to ITR group 4 to<br><i>yes</i><br>(otherwise you would not be able<br>to connect to an external station,<br>for example in a consultation call) | Grp 4, to grp 4: yes |
| 36.  | F8 17-12           | Change to <i>Trunk group assign-<br/>ment</i>                                                                                                                    | SI/Tr 0601: 1        |
| 37.  | *1 ✓               | Assign trunk 1 of customer A to<br>trunk group 1 (default)                                                                                                       | SI/Tr 0601: 1        |
| 38.  | ✓ *1 ✓             | Assign trunk 2 of customer A to<br>trunk group 1 (default)                                                                                                       | SI/Tr 0602: 1        |
| 39.  | ✓ *2 ✓             | Assign trunk 1 of customer B to<br>trunk group 2                                                                                                                 | SI/Tr 0603: 2        |
| 40.  | ✓ *2 ✓             | Assign trunk 2 of customer B to<br>trunk group 2                                                                                                                 | SI/Tr 0604: 2        |
| 41.  | F7 13 *2 ✓         | Overflow from trunk group 1 to<br>trunk group 2                                                                                                                  | Trunk grp 1: 2       |
| 42.  | F8 16-12 *<br>F3 ✓ | Delete <i>Intercept, day</i>                                                                                                                                     | Dest.: -             |
| 43.  | F2 * F3 ✓          | Delete <i>Intercept, night</i>                                                                                                                                   | Dest: -              |
| 44.  | F7 16 *100<br>✓    | Enter stn 100 as intercept position<br>(trunk 1, customer A)                                                                                                     | SI/Tr 0601: 100      |
| 45.  | ✓ *100 ✓           | Enter stn 100 as intercept position<br>(trunk 2, customer A)                                                                                                     | SI/Tr 0602: 100      |

| <b>Step</b> | <b>Entry</b> | <b>Action</b>                                                | <b>Display</b>  |
|-------------|--------------|--------------------------------------------------------------|-----------------|
| 46.         | ✓ *110 ✓     | Enter stn 110 as intercept position<br>(trunk 1, customer B) | Sl/Tr 0603: 110 |
| 47.         | ✓ *110 ✓     | Enter stn 110 as intercept position<br>(trunk 2, customer B) | Sl/Tr 0604: 110 |
| 48.         | F8 F7        | Exit system administration                                   | Time, date      |

## **8.51 Tenant Services (for U.S. Only)**

### **Requirement**

Two customers (customer A and customer B) seizes the trunk using 9.

- Both customers (customer A and customer B) can telephone internally with each other without having to dial via the trunk.
- It is not possible for customer A to seize customer B's trunk (even if provided access through allowed/denied lists).
- It is not possible for customer B to seize customer A's trunk (even if provided access through allowed/denied lists).
- Incoming calls on customer A's trunk can be transferred to customer B.
- Incoming calls on customer B's trunk can be transferred to customer A.

### **Restrictions**

- Undialed trunks cannot be transferred.
- Prime Line is not possible.
- Speed transfer is not possible.
- Intercept can only be programmed on a system-wide basis. If an intercept criterion (such as intercept no answer) is set, this feature is set for both customers.
- Three customers at the most can use a system.
- Customer A and customer B cannot have the same station numbers.

### **Example**

- Customer A has directory number 555-1234.
- Customer B has directory number 555-2569.
- Customer A has station numbers 100 to 109.
- Customer B has station numbers 110 to 119.
- Customer A assigns the intercept position to station number 100.
- Customer B assigns the intercept position to station number 110.

Figure 8-9 provides an overview of the customer scenario.

## Customer Scenario

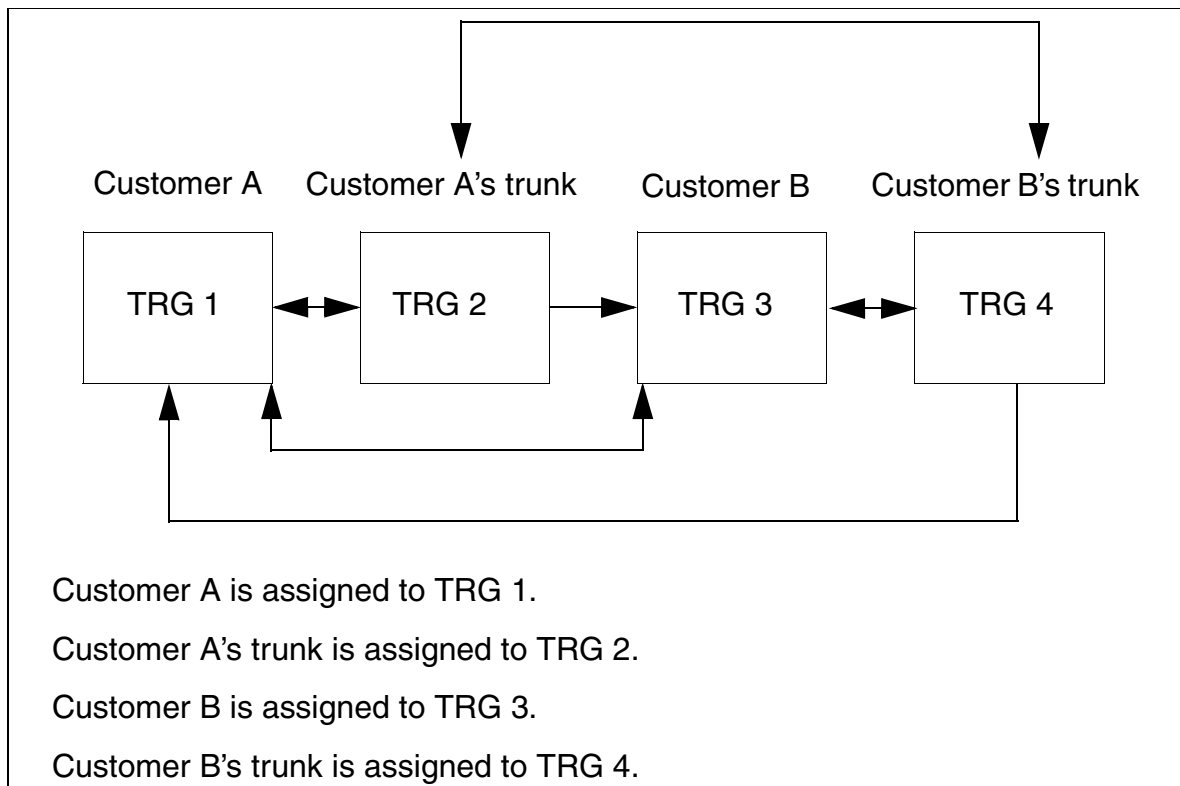


Figure 8-9 Customer Scenario for Tenant Services (for U.S. Only)

## Using Hicom Assistant T for Programming

| Step | Entry              | Action                                     | Display               |
|------|--------------------|--------------------------------------------|-----------------------|
| 1.   | <b>*95</b>         | Start system administration.               | System administration |
| 2.   | 20-2-1*<br>12345 ✓ | Enter port number for customer A.          | TG 1: 12345           |
| 3.   | + * 67890<br>✓     | Enter port number for customer B.          | TG 2: 67890           |
| 4.   | F2- *408 ✓         | Enter national number for customer A.      | TG 1: 408             |
| 5.   | + *408 ✓           | Enter national number for customer B.      | TG 2: 408             |
| 6.   | F2- * 1 ✓          | Enter international number for customer A. | TG 1: 1               |

| Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Entry            | Action                                                                   | Display                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------|------------------------|
| 7.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | + *1 ✓           | Enter international number for customer B.                               | TG 2: 1                |
| 8.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | F2- *1 ✓         | Set outgoing station number type for customer A.                         | TG 1: Station          |
| 9.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | + *1 ✓           | Set outgoing station number type for customer B.                         | TG 2: Station          |
| 10.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | F8               | Return to main menu.                                                     | System administration  |
| 11.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 18-3-1-1         | Change the assignment of the station to the traffic restriction groups.  | Stn 100: 1             |
| 12.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | #109 ✓<br>*3 ✓   | Select station 109 and assign it to traffic restriction group (TRG) 1.   | Stn 109: 1             |
| 13.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓ *3 ✓           | Go to stn. 110 and assign it to TRG 3.                                   | Stn 110: 3             |
| 14.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | :                | Stations 111 to 118                                                      | :                      |
| 15.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓ *3 ✓           | Go to station 119 and assign it to TRG 3.                                | Stn 119: 3             |
| 16.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | F7 2 * 2 ✓       | Assign customer A's trunks to TRG 2 (slot 6/port 1).                     | Sl/Tr 0601: 2          |
| 17.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓ *2 ✓           | Assign customer A's trunks to TRG 2 (slot 6/port 2).                     | Sl/Tr 0602: 2          |
| 18.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓ *4 ✓           | Assign customer B's trunks to TRG 4 (Slot 6/Port 3).                     | Sl/Tr 0603: 4          |
| 19.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ✓ *4 ✓           | Assign customer B's trunks to TRG 4 (slot 6/port 4).                     | Sl/Tr 0604: 4          |
| <b>Configured so far:</b> <ul style="list-style-type: none"> <li>• Customer station numbers</li> <li>• Stations 100 to 109 (customer A) have been assigned in the TRG 1 default settings.</li> <li>• Stations 110 to 119 (customer B) have been assigned to TRG 3.</li> <li>• Customer A's trunks have been assigned to TRG 2.</li> <li>• Customer B's trunks have been assigned to TRG 4.</li> </ul> <b>Next step:</b> <ul style="list-style-type: none"> <li>• Establish the relationship of traffic restriction groups to each other in the TRG matrix:</li> </ul> |                  |                                                                          |                        |
| 20.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | F8<br>18-3-2-1 ✓ | Keep the "Yes" entry so the stations in TRG 1 can still call each other. | Grp 1, to group 1: Yes |

| Step | Entry         | Action                                                                                                                                | Display                |
|------|---------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 21.  | ✓ *1 ✓        | Set TRG 1 to TRG 2 to “Yes.”<br>(Customer A can now make out-going calls on its own trunks)                                           | Grp 1, to group 2: Yes |
| 22.  | ✓ *1 ✓        | Set TRG 1 to TRG 3 to “Yes.”<br>(Customer A can now make inter-nal telephone calls to customer B.)                                    | Grp 1, to group 3: Yes |
| 23.  | ✓             | Do not change to “Yes” (to prevent customer A from making outgoing calls on customer B’s trunks).                                     | Grp 1, to group 4: No  |
| 24.  | ✓ ✓ ✓ *1<br>✓ | Set TRG 2 to TRG 1 to “Yes.”<br>(Incoming calls on customer A’s trunks are now assigned to cus-tomer A.)                              | Grp 2, to group 1: Yes |
| 25.  | ✓ *1 ✓        | Set TRG 2 to TRG 2 to “Yes.”<br>(If this setting is not made, it is not possible to call an external station on a consultation hold.) | Grp 2, to group 2: Yes |
| 26.  | ✓ *1 ✓        | Set TRG 2 to TRG 3 to “Yes.”<br>(External calls can be transferred from customer A to customer B.)                                    | Grp 2, to group 3: Yes |
| 27.  | ✓ *1 ✓        | Set TRG 2 to TRG 4 to “Yes.”<br>(This setting allows conferences between external stations of cus-tomer A and customer B.)            | Grp 2, to group 4: Yes |
| 28.  | ✓ ✓ ✓ *1<br>✓ | Set TRG 3 to TRG 1 to “Yes.”<br>(Customer B can now make inter-nal telephone calls to customer A.)                                    | Grp 3, to group 1: Yes |
| 29.  | ✓             | Do not change to “Yes” (to prevent customer B from making outgoing calls on customer A’s trunks).                                     | Grp 3, to group 2: No  |
| 30.  | ✓ *1 ✓        | Enter “Yes” so that customer B’s stations can still call each other.                                                                  | Grp 3, to group 3: Yes |
| 31.  | ✓ *1 ✓        | Set TRG 3 to TRG 4 to “Yes.”<br>(Customer B can now make out-going telephone calls on propri-etary trunks.)                           | Grp 3, to group 4: Yes |
| 32.  | ✓ ✓ ✓ *1<br>✓ | Set TRG 4 to TRG 1 to “Yes.”<br>(Incoming calls can be switched from customer B to customer A.)                                       | Grp 4, to group 1: Yes |

| <b>Step</b> | <b>Entry</b>       | <b>Action</b>                                                                                                                         | <b>Display</b>         |
|-------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 33.         | ✓ *1 ✓             | Set TRG 4 to TRG 2 to “Yes.”<br>(This setting allows conferences between external stations of customer B and customer A.)             | Grp 4, to group 2: Yes |
| 34.         | ✓ *1 ✓             | Set TRG 4 to TRG 2 to “Yes.”<br>(Customer B can now make outgoing telephone calls on proprietary trunks.)                             | Grp 4, to group 3: Yes |
| 35.         | ✓ *1 ✓             | Set TRG 4 to TRG 4 to “Yes.”<br>(If this setting is not made, it is not possible to call an external station on a consultation hold.) | Grp 4, to group 4: Yes |
| 36.         | F8 17-12           | Switch to trunk group assignment.                                                                                                     | Sl/Tr 0601: 1          |
| 37.         | *1 ✓               | Assign customer A’s trunk 1 to trunk group 1 (default).                                                                               | Sl/Tr 0601: 1          |
| 38.         | ✓ *1 ✓             | Assign customer A’s trunk 2 to trunk group 1 (default).                                                                               | Sl/Tr 0602: 1          |
| 39.         | ✓ *2 ✓             | Assign customer B’s trunk 1 to trunk group 2.                                                                                         | Sl/Tr 0603: 2          |
| 40.         | ✓ *2 ✓             | Assign customer B’s trunk 2 to trunk group 2.                                                                                         | Sl/Tr 0604: 2          |
| 41.         | F7 13 *2 ✓         | Set overflow routing from trunk group 1 to trunk group 2.                                                                             | from trk grp 1: 2      |
| 42.         | F8 16-12 *<br>F3 ✓ | Delete “day” intercept position.                                                                                                      | Dest.: -               |
| 43.         | F2 * F3 ✓          | Delete “night” intercept position.                                                                                                    | Dest.: -               |
| 44.         | F7 16 *100<br>✓    | Enter station 100 as intercept position (trunk 1, customer A).                                                                        | Sl/Tr 0601: 100        |
| 45.         | ✓ *100 ✓           | Enter station 100 as intercept position (trunk 2, customer A).                                                                        | Sl/Tr 0602: 100        |
| 46.         | ✓ *110 ✓           | Enter station 110 as intercept position (trunk 1, customer B).                                                                        | Sl/Tr 0603: 110        |
| 47.         | ✓ *110 ✓           | Enter station 110 as intercept position (trunk 2, customer B).                                                                        | Sl/Tr 0604: 110        |
| 48.         | F8 F7              | Exit system administration.                                                                                                           | Time, Date             |

## 8.52 Class-of-Service Changeover After Timeout

### Introduction

You can use least cost routing (LCR) to change the toll restriction for each station after a timeout.

### Example

- Set unrestricted trunk access on trunk group 1 for all stations on Monday from midnight to 4:00 p.m.
- From 4:00 p.m. onward, only station 100 should have unrestricted trunk access on trunk group 1; all other stations should have outward restricted trunk access.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry                     | Action                                                                                               | Display                  |
|------|---------------------------|------------------------------------------------------------------------------------------------------|--------------------------|
| 1.   | <b>*95</b>                | Start system administration                                                                          | System administration    |
| 2.   | 35-1                      | Select <i>LCR</i>                                                                                    | LCR on/off               |
| 3.   | <b>*1 ✓</b>               | Activate LCR and confirm                                                                             | State: on                |
| 4.   | F7 3-1                    | Assign name for outdial rule                                                                         | Name - Line 1:           |
| 5.   | <b>*BUM ✓</b>             | Enter name and confirm                                                                               | Line 1: BUM              |
| 6.   | <b>F2 * A ✓</b>           | Enter format for outdial rule and confirm                                                            | Line 1: A                |
| 7.   | <b>F2 * 2 ✓</b>           | Set outdial rule type to <i>1layer mode</i> and confirm                                              | Line 1: 1layer mode      |
| 8.   | <b>F7 F7 5-1 * 1600 ✓</b> | Set time limit1 for <i>Day index 1</i> (Monday) to 16:00 (4:00 p.m.) and confirm                     | Day index 1, Pos 1: 1600 |
| 9.   | <b>F2 *1 ✓</b>            | Assign time zone 1 (Zone A in Hicom Assistant E) to time limit 1. and confirm                        | Day index 1 Pos 1: 1     |
| 10.  | <b>ok * 2 ✓</b>           | Assign time zone 2 (Zone B in Hicom Assistant E) to time limit 2. and confirm                        | Day index 1 Pos 2: 2     |
| 11.  | <b>F7 F7 6 + *14 ✓</b>    | Assign class of service 14 to station 101 and class of service 15 to all other stations, and confirm | Stn 101: 14              |
| 12.  | <b>F7 7-1 *1 ✓</b>        | Assign trunk group 1 to path table 1 and confirm                                                     | Table 1, Line 1: 1       |



| Step | Entry             | Action                                                                                                                              | Display                        |
|------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 13.  | F2 * 1 ✓          | Assign outdial rule 1 to path table 1 and confirm                                                                                   | Table 1, Line 1: 1             |
| 14.  | F2 * 14 ✓         | Assign class of service 14 to path table 1 and confirm                                                                              | Table 1, Line 1: 14            |
| 15.  | F2 * 1 ✓          | Assign time zone 1 to path table 1 and confirm                                                                                      | Table 1, Line 1: 1             |
| 16.  | F7 1 + * 1 ✓      | Assign trunk group 1 to path table 1 and confirm                                                                                    | and confirm Table 1, Line 2: 1 |
| 17.  | F2 * 1 ✓          | Assign outdial rule 1 to path table 1 and confirm                                                                                   | Table 1, Line 2: 1             |
| 18.  | F2 F2 * 2 ✓       | Assign time zone 2 to path table 1 and confirm                                                                                      | Table 1, Line 2: 1             |
| 19.  | F7 F7 8-1 * 0CZ ✓ | Set dial plan 1 to 0CZ and confirm<br>0=trunk group code for trunk grp 1,<br>C=activates a dial tone,<br>Z=all digits can be dialed | Line 1: 0CZ                    |
| 20.  | F2 * 1 ✓          | Assign path table 1 to dial plan 1 and confirm                                                                                      | Line 1: 1                      |
| 21.  | F8-F7             | Exit system administration                                                                                                          | Time, date                     |

## 8.53 Analog Tie Traffic via TIEL Board

### Introduction

You can use the TIEL board to support analog tie traffic.

### Example

Two Hicom 150 E OfficePro systems are networked via the TIEL board.

- The board configuration of both systems is as follows:  
Slot 2 = SLMO 24  
Slot 3 = SLMO 24  
Slot 4 = SLA16  
Slot 5 = Free  
Slot 6 = STMD8  
Slot 7 = TIEL
- Both systems have a system port.
- STMD port 1 is assigned to trunk group 1.
- TIEL port 1 is assigned to trunk group 2.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry                         | Action                                                            | Display               |
|------|-------------------------------|-------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b>                    | Start system administration                                       | System administration |
| 2.   | 16-20 * 1 ✓                   | Enable DTMF DID for TIEL port 1 and confirm                       | SI/Tr 0701: Allowed   |
| 3.   | F8 17-12 #<br>0701 ✓<br>* 2 ✓ | Assign TIEL port 1 to trunk group 2 and confirm                   | SI/Tr 0701: 2         |
| 4.   | F8 20-2-1 *<br>98462 ✓        | Assign a port number to STMD port 1 and confirm                   | Trk 1: 98462          |
| 5.   | F2 * 2302 ✓                   | Assign a national station number to STMD port 1 and confirm       | Trk 1: 2302           |
| 6.   | F2 * 49 ✓                     | Assign an international station number to STMD port 1 and confirm | Trk 1: 49             |
| 7.   | F2 * 1 ✓                      | Assign an outgoing station number to STMD port 1 and confirm      | Trk 1: Station        |

| Step                                                                    | Entry                | Action                                                             | Display     |
|-------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------|-------------|
| Assign trunk group names if necessary:                                  |                      |                                                                    |             |
| 8.                                                                      | F8 17-15 *<br>ISDN ✓ | Trunk group STMD port 1, trunk group 1<br>Name -> ISDN and confirm | Trk 1: ISDN |
| 9.                                                                      | ✓ * Tie ✓            | Trunk group TIEL port 1, trunk group 2, Name -> Tie and confirm    | Trk 2: Tie  |
| Assign the line type PBX to TIEL port 1 if necessary:                   |                      |                                                                    |             |
| 10.                                                                     | F7 14 ✓ * 1<br>✓     | Set TIEL port 1 to PBX and confirm                                 | Trk 2: PBX  |
| 11.                                                                     | F8-F7                | Exit system administration                                         | Time, date  |
| If you need to customize the signaling protocol, use Hicom Assistant E. |                      |                                                                    |             |

### Configuring the Feature Using Hicom Assistant E

| Step                              | Action                                                                          |
|-----------------------------------|---------------------------------------------------------------------------------|
| 1.                                | Options -> Lines/networking                                                     |
| Customize the signaling protocol: |                                                                                 |
| 2.                                | Options -> Lines/network -> for TIEL port 1, double-click -> MSI Flags/Maintype |

### Note

Diagrams for connecting the TIEL board via a 2-wire or 4-wire connection are provided in Section 3.3.11 (not for U.S.).

## 8.54 Mozart CD Announcement Device With Start and Stop Contact on TIEL Board (Not for U.S.)

### Example

Connect Mozart CD (approval number A107674D) as an announcement device with a start and stop contact on the TIEL board.

- Configuration example with a single-cabinet system:  
Slot 2 = SLMO24  
Slot 3 = SLA 16  
Slot 4 = TML8W  
Slot 5 = TIEL  
Slot 6 = STMD8
- The customer has two PP trunk connections with different station numbers:  
PP connection 1 has station number 12345 on STMD8 port 1  
PP connection 2 has station number 67890 on STMD8 port 2.
- Station number 12345 is a hotline number. Each time a number is dialed, the announcement device must send an announcement to the calling station.
- Requirement: System status after a reload. The system station numbers are entered in *ISDN parameters*.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry            | Action                                            | Display                      |
|------|------------------|---------------------------------------------------|------------------------------|
| 1.   | *95              | Start system administration                       | System administration        |
| 2.   | 25-1 * 0501<br>✓ | Assign announcement device:<br>Slot 5/port 1 TIEL | Announcement dev. 1:<br>0501 |
| 3.   | F7 3 * 1 ✓       | STMD port 1:<br>Assign trunk 1 to announcement    | SI/Tr 0601: 1                |
| 4.   | ✓ *1 ✓           | STMD port 1:<br>Assign trunk 2 to announcement    | SI/Tr 0602: 2                |
| 5.   | F8-F7            | Exit system administration                        | Time, date                   |

### Note

The positions of the DIP FIX switches on the TIEL board are described in Section 3.3.11.

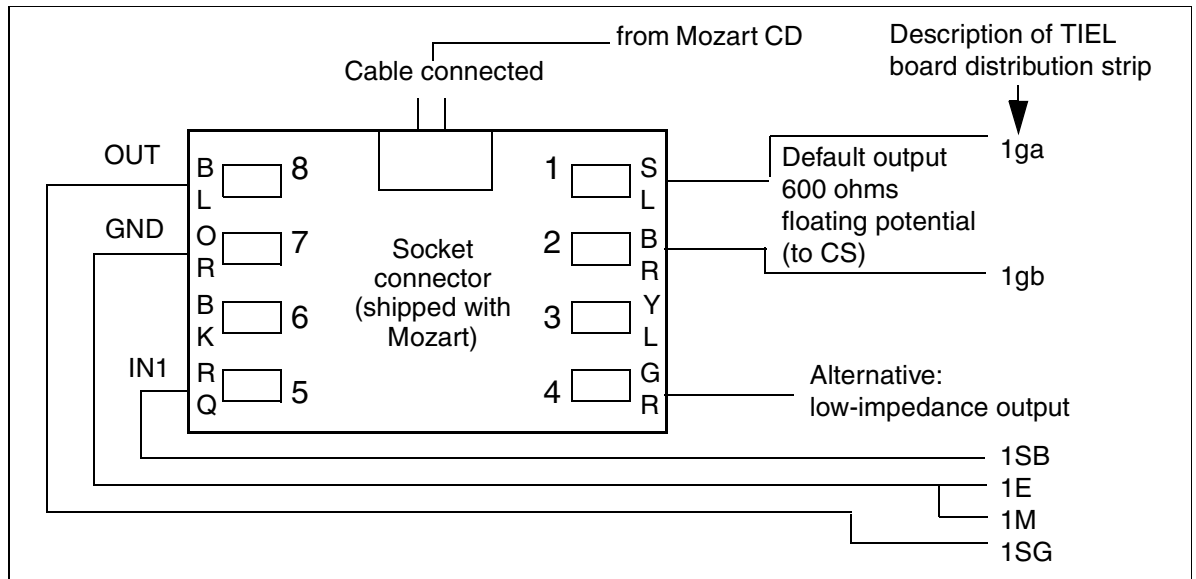
*Mozart CD Announcement Device With Start and Stop Contact on TIEL Board (Not for U.S.)***Mozart CD connection**

Figure 8-10 Mozart CD Connection to TIEL (Not for U.S.)

## 8.55 Mozart CD/Genius Announcement Device on SLA Board (Not for U.S.)

### Introduction

When connecting the Mozart CD/Genius announcement device, you must also integrate two relays.

Relay 1 operates the announcement device control input.

Relay 2 switches the 600-ohm loop permanently connected to the device.

### Mozart CD Connection

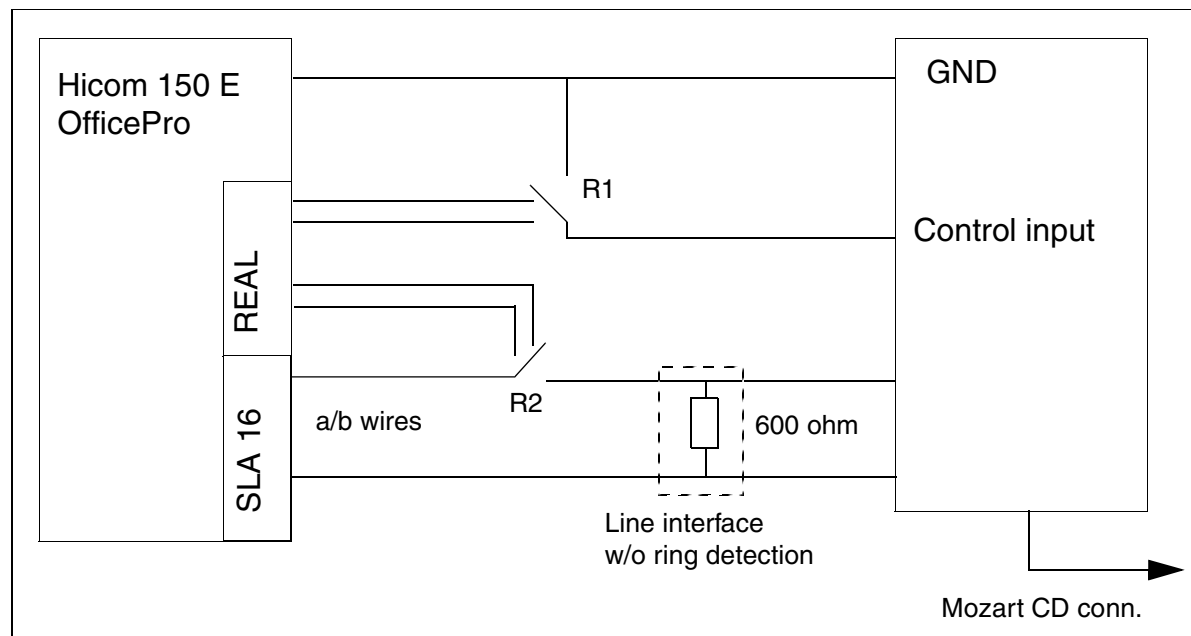


Figure 8-11 Mozart CD Connection—SLA16 (Not for U.S.)

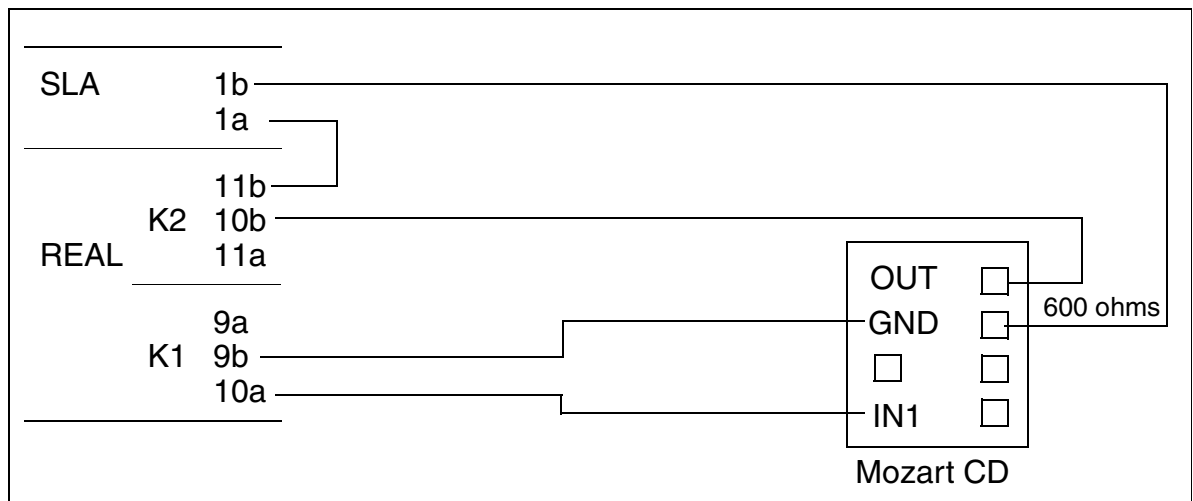


Figure 8-12 Mozart CD Connection—REAL (Not for U.S.)

- **MOH mode**  
Announcement type: Music on hold  
Relay 1: Type: announcement - time: 0 x 100 ms - station: analog station no.  
Relay 2: Type: after timeout - time: 0 x 100 ms - station: analog station no.
- **Announcement mode**  
Announcement type: Announcement  
Relay 1: Type: announcement - time: 5 x 100ms - station: analog station no.  
Relay 2: Type: after timeout - time: n x 100ms - station: analog station no.  
(n x 100 ms = length of announcement)

**Configuring the Feature Using Hicom Assistant T**

| Step | Entry         | Action                           | Display                              |
|------|---------------|----------------------------------|--------------------------------------|
| 1.   | <b>*95</b>    | Start system administration      | System administration                |
| 2.   | 26-1          | Select type                      | Relay no. 1: -                       |
| 3.   | <b>* 20 ✓</b> | Type: Announcement/music         | Relay no. 1: An-<br>nouncement/music |
| 4.   | +             | Next relay                       | Relay no. 2: -                       |
| 5.   | <b>* 12 ✓</b> | Type: Timeout                    | Relay no. 2: Timeout                 |
| 6.   | F7            | Return to Relays                 |                                      |
| 7.   | 2             | Select switching time            | Relay no. 1: 255                     |
| 8.   | <b>* 5 ✓</b>  | Relay 1 switching time (5 = 5ms) | Relay no. 1: 5                       |
| 9.   | +             | Next relay                       | Relay no. 2: 255                     |

## Configuration Guidelines

For internal distribution only

*Mozart CD/Genius Announcement Device on SLA Board (Not for U.S.)*

| Step | Entry   | Action                                                                   | Display           |
|------|---------|--------------------------------------------------------------------------|-------------------|
| 10.  | * 200 ✓ | Relay 2 switching time (200 = 20s)                                       | Relay no. 2: 200  |
| 11.  | F7      | Return to Relays                                                         |                   |
| 12.  | 3       | Enter the station number of the announcement port under Assigned station | Relay no. 1: -    |
| 13.  | * 124 ✓ | Station no. of announcement port for relay 1                             | Relay no. 1: 124  |
| 14.  | +       | Next relay                                                               | Relay no. 2: -    |
| 15.  | * 124 ✓ | Station no. of announcement port for relay 2                             | Relay no. 2: 124  |
| 16.  | F7 / F8 |                                                                          |                   |
| 17.  | 14-11   | Enter Standard as the station type                                       | Stn 11: Standard  |
| 18.  | # 124 ✓ | Enter station                                                            | Stn 124: Standard |
| 19.  | F8-F7   | Exit system administration                                               | Time, date        |



## 8.56 Connecting MUSIPHONE multimax S to TIEL Board (Not for U.S.)

### Applications

- Announcements for each channel connected to the TIEL board
- Music/message in the queue
- Answering machine function after business hours (announcement only after the night function has been activated)
- Hotline mode
- Overflow announcements

### Description

To implemented via the announcement before answering feature, the **MUSIPHONE multimax S** must be equipped with one or more external start inputs.

- Start and stop mode via TIEL board
- External MOH via MOH/VA interface
- Plug-in cards make it easy to quickly exchange studio-ready music on hold prompts
- Professionally recorded announcements from the **MUSIPHONE Sound Studio** or recorded by the user
- The system has no parts subject to wear, which completely eliminates the need for maintenance
- A 64 Kbps transfer rate and a special digitalization method guarantee high-quality and uniformly clear playback of music, voice, or both

## Connecting Cord

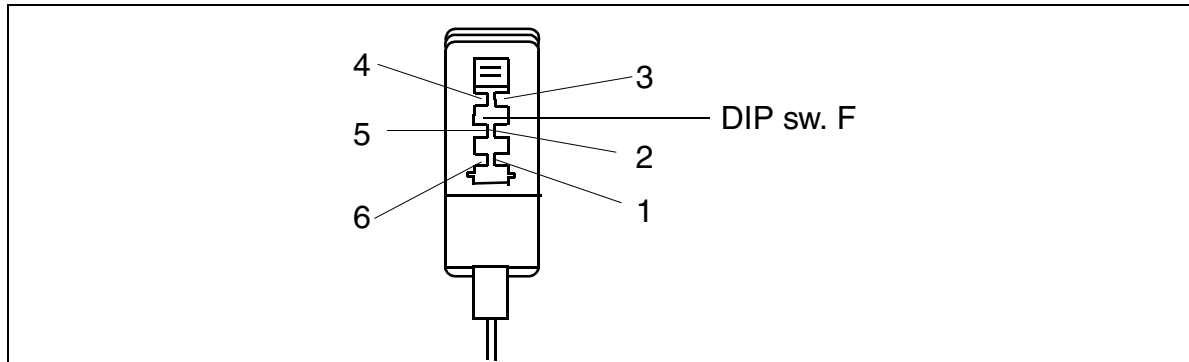


Figure 8-13 Six-Pin TAE-F Connector for 6-Wire Connecting Cord (Not for U.S.)

| Wire Assignment | PIN | Designation              |
|-----------------|-----|--------------------------|
|                 | 1   | a-wire                   |
|                 | 2   | b-wire                   |
| For TIEL only   | 3   | Control input (negative) |
| For TIEL only   | 4   | Control output           |
| For TIEL only   | 5   | Control output           |
| For TIEL only   | 6   | Control input (positive) |

## Control Input

The beginning of the announcement is activated by a floating contact (pins 4 and 5). When the control input closes, the control output is closed for approximately 250 ms, and the message is output approximately 750 ms later.

Six-pin right-angle TAE connector, R1 type, according to DIN 4175, Part 3 (connecting function → automatic locking, target function → automatic release).

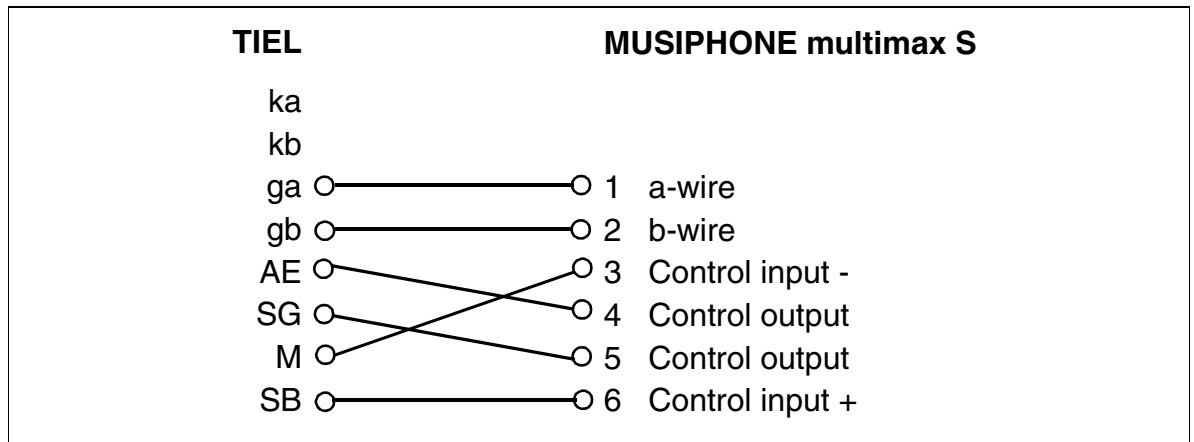
*Connecting MUSIPHONE multimax S to TIEL Board (Not for U.S.)*

Figure 8-14 MUSIPHONE multimax S Pins (Not for U.S.)

## 8.57 Connecting Enhanced Radio Paging Equipment (Multitone) to the TMOM Board (Not for U.S.)

### Introduction

The Multitone Access 3000 radio paging device with the ESPA 4.4.3 protocol and a pocket receiver with a 5-digit display can be used.

### Example

- Assign the pocket receiver to station 100.
- Assign pager number 000 to the pocket receiver.
- The TMOM is installed in slot 06.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                                                          | Display               |
|------|------------|---------------------------------------------------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration                                                     | System administration |
| 2.   | 32-1       | Select radio paging equipment port                                              | SI/Tr: -              |
| 3.   | * 0601 ✓   | Enter port                                                                      | SI/Tr: 0601           |
| 4.   | F2         | Enter radio paging equipment type                                               | Type: -               |
| 5.   | * 2 ✓      | Change radio paging equipment type to <i>Enhanced</i>                           | Type: Enhanced        |
| 6.   | F2         | Enter protocol                                                                  | Type: ESPA 4.4.5      |
| 7.   | * 2 ✓      | Enter protocol ESPA 4.4.3                                                       | Type: ESPA 4.4.3      |
| 8.   | F2         | Set mode                                                                        | Code: -               |
| 9.   | * 6 ✓      | Ring type for urgent calls (depending on radio paging equipment)                | Code: 6               |
| 10.  | F2 * 6 ✓   | Ring type for normal calls (depending on radio paging equipment)                | Code: 6               |
| 11.  | F2 * 1 ✓   | Ring type for data calls (depending on radio paging equipment)                  | Code: 1               |
| 12.  | F2 * 5 ✓   | Enter number of digits for station number (depending on radio paging equipment) | Length: 5             |
| 13.  | F2 * 2 ✓   | Enter fill characters for station number (depending on radio paging equipment)  | Filler: Right         |

**Connecting Enhanced Radio Paging Equipment (Multitone) to the TMOM Board (Not for U.S.)**

| <b>Step</b> | <b>Entry</b> | <b>Action</b>                                                                               | <b>Display</b>           |
|-------------|--------------|---------------------------------------------------------------------------------------------|--------------------------|
| 14.         | F2 * # ✓     | Enter fill characters for station number (depending on radio paging equipment)              | Filler: #                |
| 15.         | F2 * 7 ✓     | Enter number of characters for message (depending on radio paging equipment)                | Length: 7                |
| 16.         | F2 * 2 ✓     | Enter fill characters for message (depending on radio paging equipment)                     | Filler: Right            |
| 17.         | F2 * # ✓     | Enter fill characters for message (depending on radio paging equipment)                     | Filler: #                |
| 18.         | F2 * 1 ✓     | Enter radio paging equipment data (transfer sequence) (depending on radio paging equipment) | Sequence 1: Betr.Art     |
| 19.         | + * 2 ✓      | Enter radio paging equipment data (transfer sequence) (depending on radio paging equipment) | Sequence 2: Repdial key  |
| 20.         | + * 3 ✓      | Enter radio paging equipment data (transfer sequence) (depending on radio paging equipment) | Sequence 2: Message sent |
| 21.         | F2 * 1 ✓     | Enter radio paging equipment number assignment (index)                                      | Stn 100: 1               |
| 22.         | F2 * 000 ✓   | Enter number of the pocket receiver                                                         | Index 1: 000             |
| 23.         | F8-F7        | Exit system administration                                                                  | Time, date               |

## 8.58 Assigning Speed-Dialing Numbers to ITR Groups

### Introduction

This feature assigns individual speed-dialing numbers to specific stations and trunks.

### Example

- Station 100 should be able to dial speed-dialing numbers 000 to 499 only.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                | Display               |
|------|------------|---------------------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration           | System administration |
| 2.   | 18-3-1     | Assign speed-dialing groups           | Group assignment      |
| 3.   | 3-1        | Set minimum speed-dialing group       | Speed-dial., minimum  |
| 4.   | *0 ✓       | Enter minimum group                   | Grp1:000              |
| 5.   | F2         | Return to group assignment            | Group assignment      |
| 6.   | 2          | Set maximum speed-dialing group       | Speed-dial., maximum  |
| 7.   | *499       | Enter maximum group                   | Grp1:499              |
| 8.   | F2F2       | Return to group assignment            | Group assignment      |
| 9.   | 1          | Assign station to group               | Station               |
| 10.  | *1         | Enter speed-dialing group for station | Stn100:1              |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                                                      |
|------|-------------------------------------------------------------------------------------------------------------|
| 1.   | Classes of service -> ITR group assignment -> Speed-dial groups = Group 1 from 0 to 499/Station 100=Group 1 |

## 8.59 V.24 (RS-232) Range Extension for Call Data

### Introduction

This feature lets users output call charge data using an optiset E control adapter.

### Example

- Call data is output to the printer using the optiset E control adapter connected to extension 135.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                                | Display                                |
|------|------------|---------------------------------------|----------------------------------------|
| 1.   | <b>*95</b> | Start system administration           | System administration                  |
| 2.   | 22-13      | Configure the V.24 (RS-232) interface | V.24 configuration                     |
| 3.   | 2-1        | CDRC function                         | Port alloc.                            |
| 4.   | 1-*-2      | Assign U <sub>P0/E</sub> port         | Output port:<br>U <sub>P0/E</sub> port |
| 5.   | F7         | Return to CDRC                        | CDRC                                   |
| 6.   | 3-*- (135) | Assign station number                 | U <sub>P0/E</sub> port, stn:135        |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                                                                                                  |
|------|-------------------------------------------------------------------------------------------------------------------------|
| 1.   | Call charges -> Output format -> Port assignment -> Output format = U <sub>P0/E</sub> port U <sub>P0/E</sub> port = 135 |

## 8.60 Configuring a Denied List for Undialed Trunks

### Introduction

This feature sets up toll restriction for a trunk assigned by the attendant console.

### Example

- Users should not be able to dial station number 0190 on trunks assigned by the attendant console.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry        | Action                                                   | Display                                |
|------|--------------|----------------------------------------------------------|----------------------------------------|
| 1.   | <b>*95</b>   | Start system administration                              | System administration                  |
| 2.   | 33-4         | Enable feature for AC                                    | Xfer undialed trk                      |
| 3.   | <b>*1</b>    | Set trunk feature to <i>allowed</i>                      | Mode: Allowed                          |
| 4.   | F8           | Return to main menu                                      | System administration                  |
| 5.   | 15-4         | Select denied list 1                                     | Denied 1, long                         |
| 6.   | <b>*0190</b> | Enter 0190                                               | Pos1: 0190                             |
| 7.   | F8           | Return to main menu                                      | System administration                  |
| 8.   | 15-8         | Enter reference station                                  | Trunk COS same as stn:                 |
| 9.   | <b>*100</b>  | Enter station 100                                        | Trunk COS same as stn.: 100            |
| 10.  | F8           | Return to main menu                                      | System administration                  |
| 11.  | 15-1         | Select toll restriction, day for reference station 100   | Restriction, day                       |
| 12.  | <b>*2-8</b>  | Assign denied list 1                                     | Restriction, day<br>Stn100, TG1:D-L1   |
| 13.  | F7           | Return to toll restriction                               | Toll restriction                       |
| 14.  | 2            | Select toll restriction, night for reference station 100 | Restriction, night                     |
| 15.  | <b>*2-8</b>  | Assign denied list 1                                     | Restriction, night<br>Stn100, TG1:D-L1 |



**Configuring the Feature Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                                                                   |
|-------------|-------------------------------------------------------------------------------------------------|
| 1.          | System parameters -> Intercept/AC -> Transfer undialed trunk, AC                                |
| 2.          | Classes of service -> Station -> Undialed trunk COS (100)                                       |
| 3.          | Classes of service -> Station -> Assign station to COS groups -> Stn. number 100, day & night 8 |
| 4.          | Classes of service -> Day -> COS groups (8)                                                     |
| 5.          | Classes of service -> Night -> COS groups (8)                                                   |
| 6.          | Classes of service -> Permitted/prohibited numbers -> Denied list 1 -> Enter 0190               |

## 8.61 Displaying Caller ID After Release (Police) (Not for U.S.)

### Introduction

This feature places the calling party's number in caller list 0 after the call is released.

### Configuring the Feature Using Hicom Assistant T

| Step | Entry      | Action                      | Display               |
|------|------------|-----------------------------|-----------------------|
| 1.   | <b>*95</b> | Start system administration | System administration |
| 2.   | 22         | Go to ->                    | System settings       |
| 3.   | 15         | Go to ->                    | Caller list, mode     |
| 4.   | 3          | Select ->                   | Ext. ring/call        |

### Configuring the Feature Using Hicom Assistant E

| Step | Action                                         |
|------|------------------------------------------------|
| 1.   | System parameters -> Display                   |
| 2.   | Caller list-> Mode -> External rings and calls |

## 9 Desktop Equipment

### 9.1 Overview

#### Chapter Contents

This chapter discusses the following topics:

| Topic                                                    |                                                     |           |
|----------------------------------------------------------|-----------------------------------------------------|-----------|
| <b>optiset E telephones:</b>                             |                                                     |           |
| • <u>optiset E entry</u>                                 | S30817-S7001-A101 / -A108<br>(dark gray/black)      | page 9-4  |
| • <u>optiset E basic</u>                                 | S30817-S7003-A101 / -A108<br>(dark gray/black)      | page 9-5  |
| • <u>optiset E standard</u>                              | S30817-S7004-A101 / -A108<br>(dark gray/black)      | page 9-6  |
| • <u>optiset E advance plus/comfort</u> *                | S30817-S7006-A101 / -A108<br>(dark gray/black)      | page 9-8  |
| • <u>optiset E advance conference/<br/>conference</u> ** | S30817-S7012-A101 / -A108<br>(dark gray/black)      | page 9-8  |
| • <u>optiset E memory</u>                                | S30817-S7008-A101 / -A108<br>(dark gray/black)      | page 9-10 |
| <u>Connection Requirements</u>                           |                                                     | page 9-13 |
| <u>Connecting the Equipment</u>                          |                                                     | page 9-14 |
| <b>optiset E adapters and optiset E key modules:</b>     |                                                     |           |
| • <u>optiset E key module</u>                            | S30817-S7009-B101 / -B108<br>(dark gray/black)      | page 9-17 |
| • <u>Hicom Attendant BLF</u>                             | J31032-K1013-H10 / -K1016-<br>H10 (dark gray/black) | page 9-17 |
| • <u>optiset E privacy module</u>                        | Europe:<br>QIC:A1Z10212158, S5G870                  | page 9-20 |
| • <u>optiset E acoustic adapter</u>                      | S30817-K7011-B204                                   | page 9-20 |
| • <u>optiset E analog adapter</u>                        | S30817-K7011-B904                                   | page 9-20 |
| • <u>optiset E contact adapter</u>                       | S30817-K7011-B954                                   | page 9-20 |
| • <u>optiset E control adapter</u>                       | S30817-K7011-B504                                   | page 9-21 |
| • <u>optiset E data adapter</u>                          | S30817-K7011-B614                                   | page 9-22 |
| • <u>optiset E headset adapter</u>                       | S30817-K7011-B804                                   | page 9-23 |

| Topic                                   |                     |           |
|-----------------------------------------|---------------------|-----------|
| • <u>optiset E headset plus adapter</u> | S30817-K7011-B704   | page 9-23 |
| • <u>optiset E ISDN adapter</u>         | S30817-K7011-B304   | page 9-23 |
| • <u>optiset E phone adapter</u>        | S30817-K7011-B104   | page 9-23 |
| • <u>optiset E speech adapter</u>       | (not yet available) | page 9-23 |
| <u>Local power supplies</u>             | AUL:06D1284 (230 V) | page 9-24 |
| <u>Headsets</u>                         | (see text)          | page 9-25 |
| <u>Configuration restrictions</u>       |                     | page 9-27 |
| <u>Cordless telephones</u>              |                     | page 9-29 |
| <u>Analog telephones</u>                |                     | page 9-34 |
| <u>ISDN telephones</u>                  |                     | page 9-35 |
| <u>Hicom Attendant C</u>                |                     | page 9-40 |
| <u>Hicom Attendant P</u>                |                     | page 9-41 |

\* comfort = Hicom 150 E Office name of telephone optiset E advance plus

\*\* conference = Hicom 150 E Office name of telephone optiset E advance conference

## 9.2 optiset E Telephones

### Introduction

The optiset E family of telephones supports digital voice and data communication (voice only in the case of optiset E entry and standard). optiset E telephones with display also offer ease of use through the interactive user interface.

Add-on devices can add either 16 or 90 additional keys to an optiset E advance plus/comfort, optiset E advance conference/conference, or optiset E memory telephone.



#### **Dual key assignments in Release 3.0 and later:**

You can assign dual functions to the programmable function keys on the optiset E telephones and the optiset E key modules. To do this, you first have to define one key as the Shift key. The second key level that this provides can contain **only external numbers** for outgoing dialing.

The LED applies only to the first key level.

Activating the Shift function causes the LED on the Shift key to light up. In this state, you can access the station numbers on the second key level. Press a station number key, press the Shift key again or wait five seconds to deactivate the shift function. You cannot assign two functions to the Hicom Attendant busy lamp fields (BLFs).

optiset E adapters connect additional equipment such as PCs, analog telephones, ISDN terminals, headsets, speakers, or recorders to optiset E telephones. optiset E adapters are plug-and-play ready. This means that the system detects and activates them automatically.

## 9.2.1 optiset E Telephones

### 9.2.1.1 optiset E entry

#### Main Features

The optiset E entry telephone for digital voice communication has the following main features:

- 3 function keys (programmable using Hicom Assistant E) with LEDs
- No option bays for adapters, no display

#### Default Key Assignments for optiset E entry

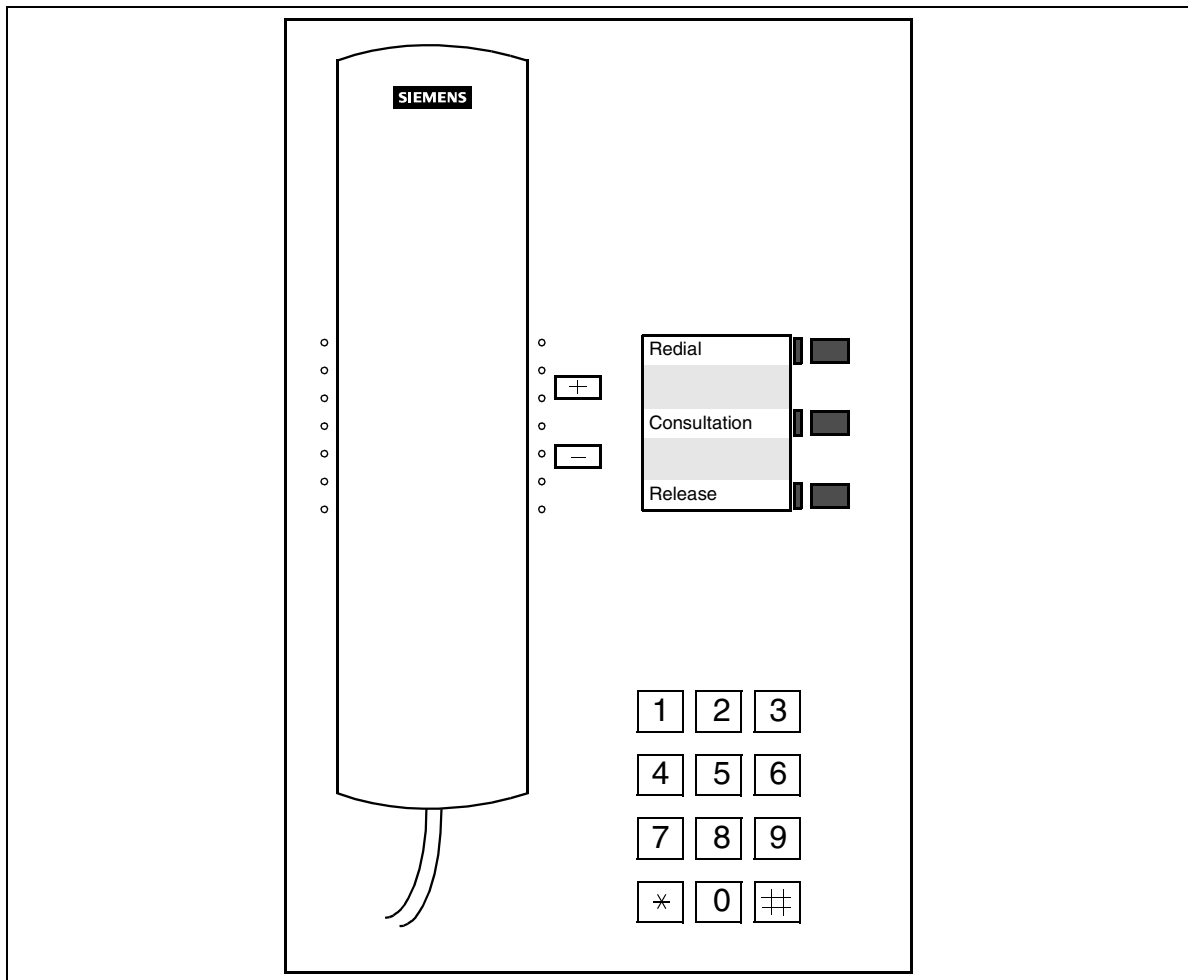


Figure 9-1 optiset E entry—Default Key Assignments

Refer to [Section 9.2.1.8](#) for connection requirements.

### 9.2.1.2 optiset E basic

#### Main features

The optiset E basic telephone for digital voice and data communication has the following main features:

- 8 function keys (programmable using Hicom Assistant E) with LEDs
- One-way speaker for open listening
- 1 option bay for adapters
- No display

#### Default Key Assignments for optiset E basic

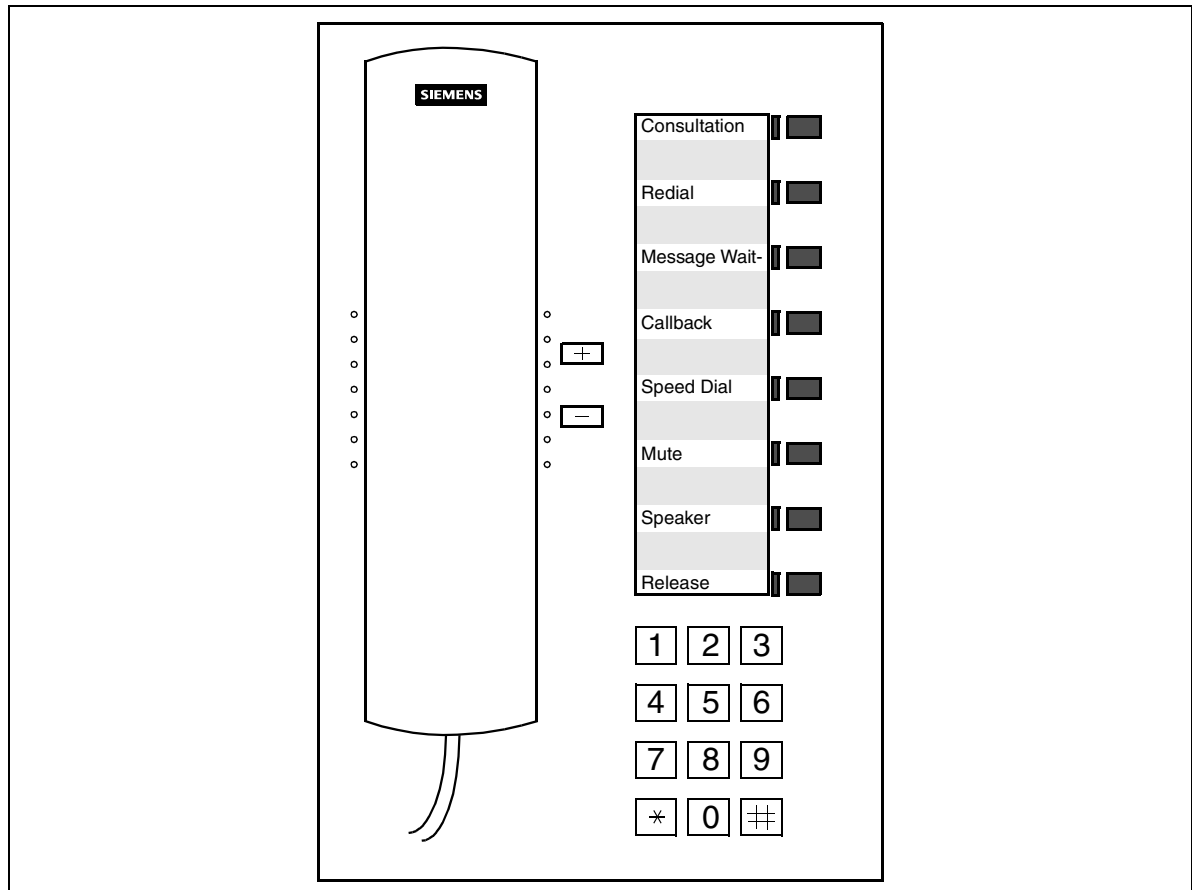


Figure 9-2      optiset E basic—Default Key Assignments

Refer to [Section 9.2.1.8](#) for connection requirements.

### **9.2.1.3 optiset E standard**

#### **Main Features**

The optiset E standard telephone for digital voice communication has the following main features:

- 12 function keys (4 programmable using Hicom Assistant E Office/8 freely programmable) with LEDs
- 3 guidance keys (for scrolling through function menus and confirming functions)
- Open listening
- Speakerphone
- LCD swivel display (2 lines with 24 characters per line)
- No option bays for adapters



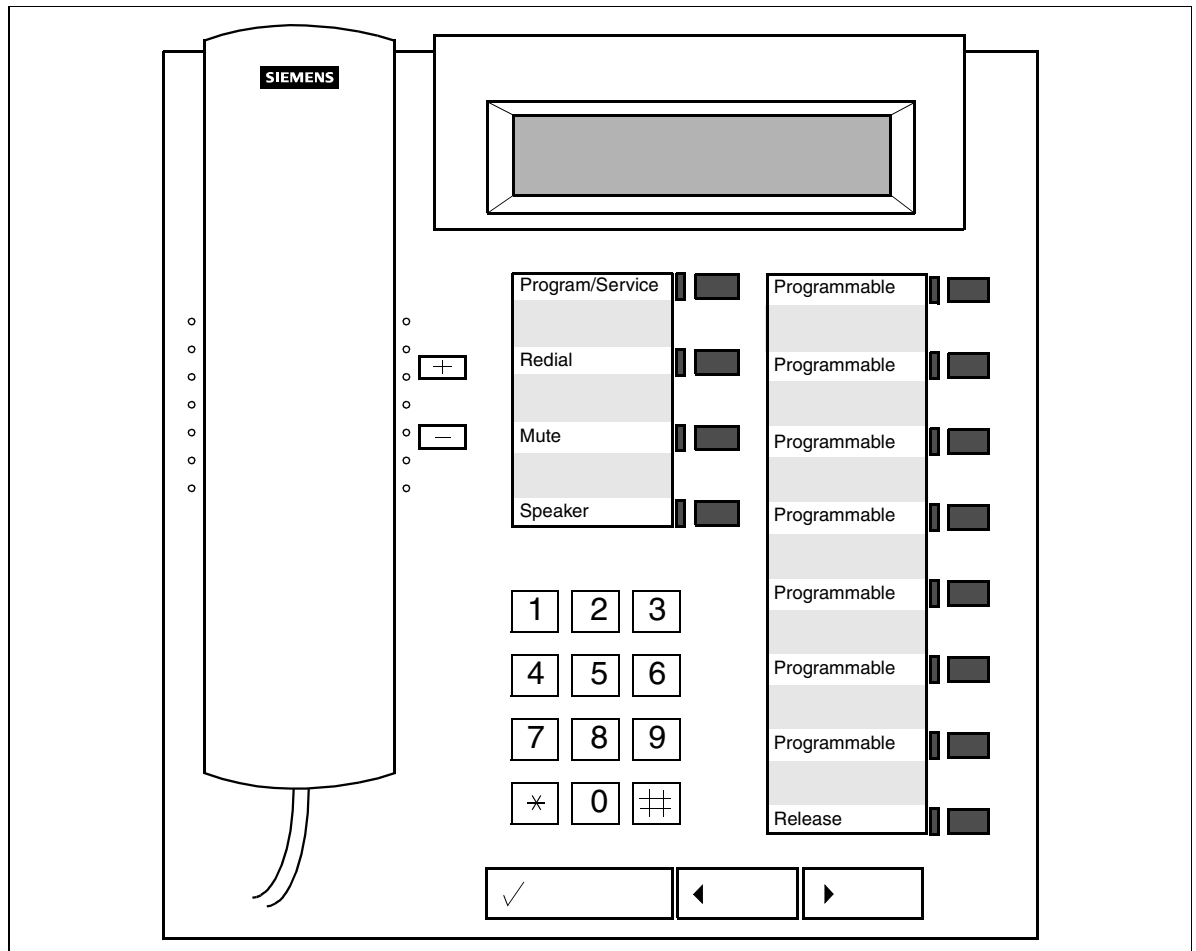
**Default Key Assignments for optiset E standard**

Figure 9-3      optiset E standard—Default Key Assignments

Refer to [Section 9.2.1.8](#) for connection requirements.

#### 9.2.1.4 optiset E advance plus/comfort

##### Main Features

The optiset E advance plus/comfort telephone (see [Figure 9-4](#)) for digital voice and data communication has the following main features:

- 12 function keys (4 programmable using Hicom Assistant E Office/8 freely programmable) with LEDs
- 3 guidance keys (for scrolling through function menus and confirming functions)
- Open listening
- Speakerphone
- LCD swivel display (2 lines with 24 characters per line)
- 2 option bays for adapters
- Support for up to 4 optiset E key modules and Hicom Attendant BLF



Hicom Attendant P Office: the professional PC attendant console can be connected using an optiset E advance plus/comfort and an optiset E data adapter or optiset E control adapter.

#### 9.2.1.5 optiset E advance conference/conference

##### Main Features

The optiset E advance conference/conference telephone (see [Figure 9-4](#)) for digital voice and data communication has the following main features:

- 12 function keys (4 programmable using Hicom Assistant E Office/8 freely programmable) with LED
- 3 guidance keys (for scrolling through function menus and confirming functions)
- Full-duplex handsfree and open listening
- LCD swivel display (8 lines with 24 characters per line)
- 2 option bays for adapters
- Support for optiset E key modules and Hicom Attendant BLF



This telephone is an optiset E advance plus/comfort with a full-duplex speakerphone.

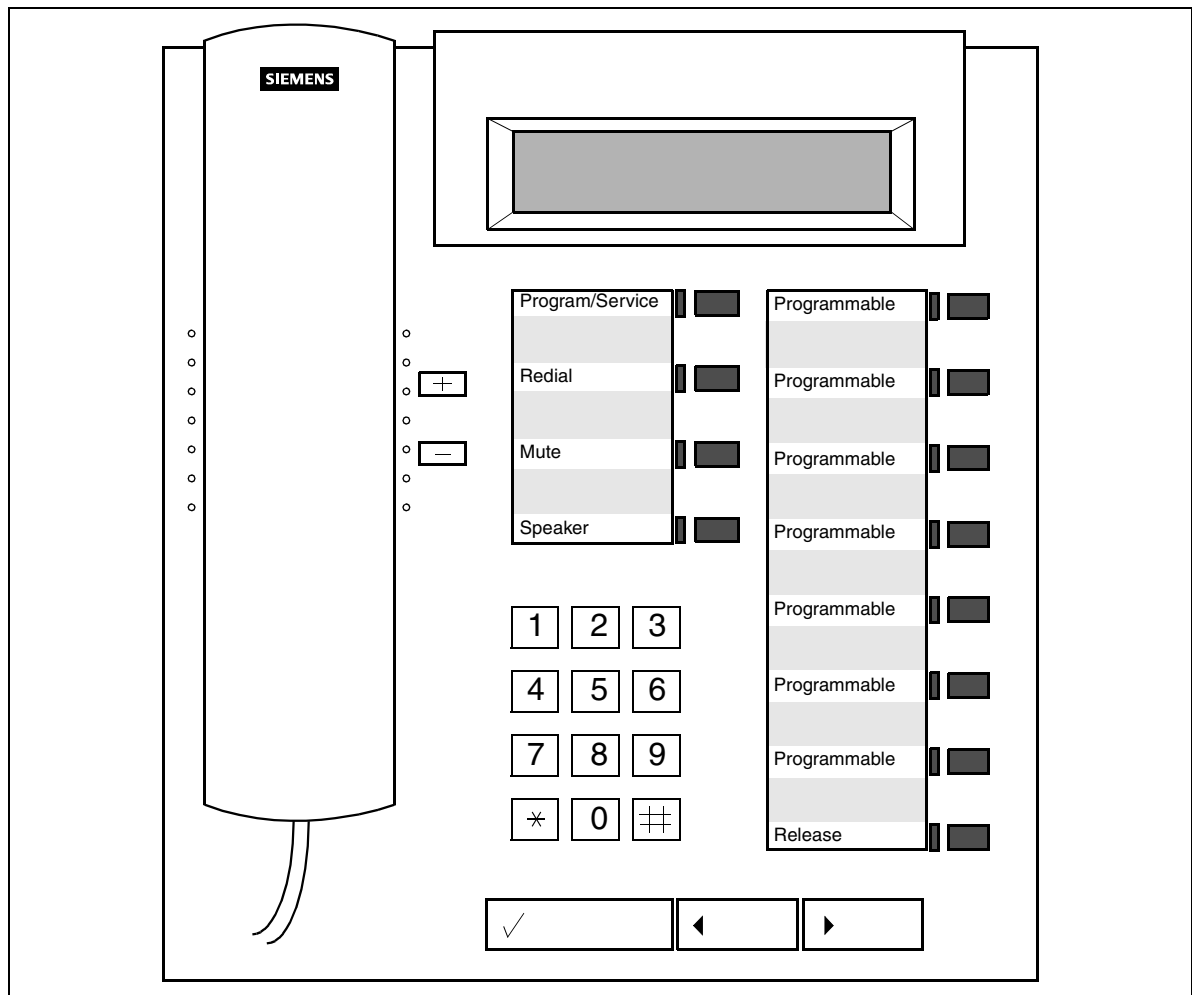
**Default Key Assignments for optiset E advance plus/comfort and optiset E advance conference/conference**


Figure 9-4      optiset E advance plus/comfort and optiset E advance conference/conference—Default Key Assignments

Refer to [Section 9.2.1.8](#) for connection requirements.

### **9.2.1.6 optiset E memory**

#### **Main features**

The optiset E memory telephone digital voice and data communication has the following main features:

- 12 function keys (4 programmable using Hicom Assistant E Office/8 freely programmable) with LED
- 3 guidance keys (for scrolling through function menus and confirming functions)
- Country-specific alphanumeric keypad: QWERTZ (shown in [Figure 9-5](#)) or QWERTY
- Integrated electronic notebook (ENB) function
- Open listening
- Speakerphone
- LCD swivel display (8 lines with 24 characters per line)
- 2 option bays for adapters
- Support for up to 4 optiset E key modules and Hicom Attendant BLF  
This connection is also used for loading ENB records to and from the PC (side loading using PCopti E).

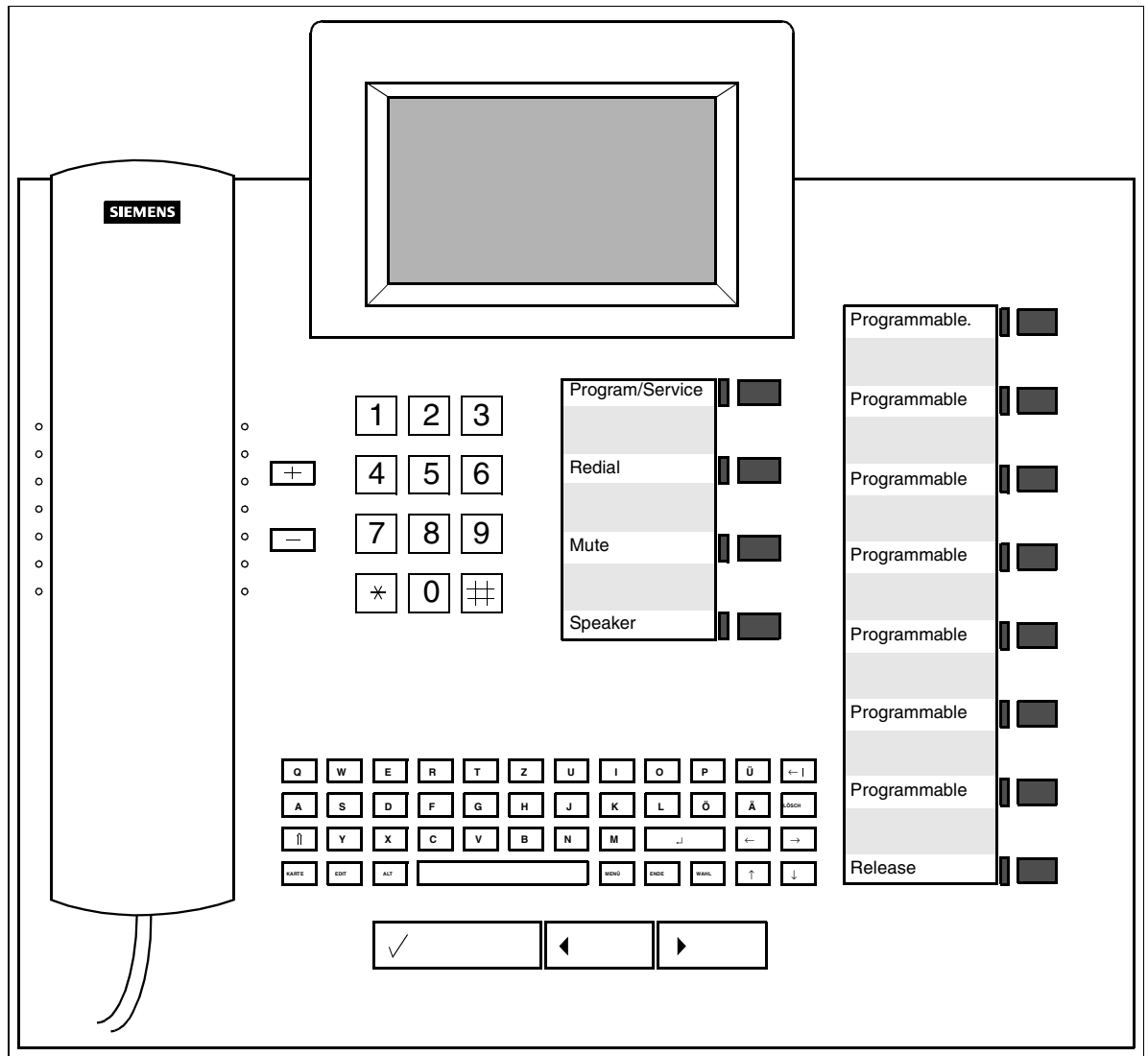
**Default Key Assignments for optiset E memory**

Figure 9-5 optiset E memory—Default Key Assignments (U.S. Keyboard is Slightly Different)

Refer to Section 9.2.1.8 for connection requirements.

### 9.2.1.7 optiset E Liberator (for U.S. Only)

The optiset E Liberator 900MHz, cordless business telephone has the following main features:

- 4 function keys
- 3 guidance keys (for scrolling through function menus and confirming functions)
- 2-line display
- Audible handset locator
- Security and lock-mode selection (65,000 codes programmed into the handset and the base for increased security)
- Base station and charging stand

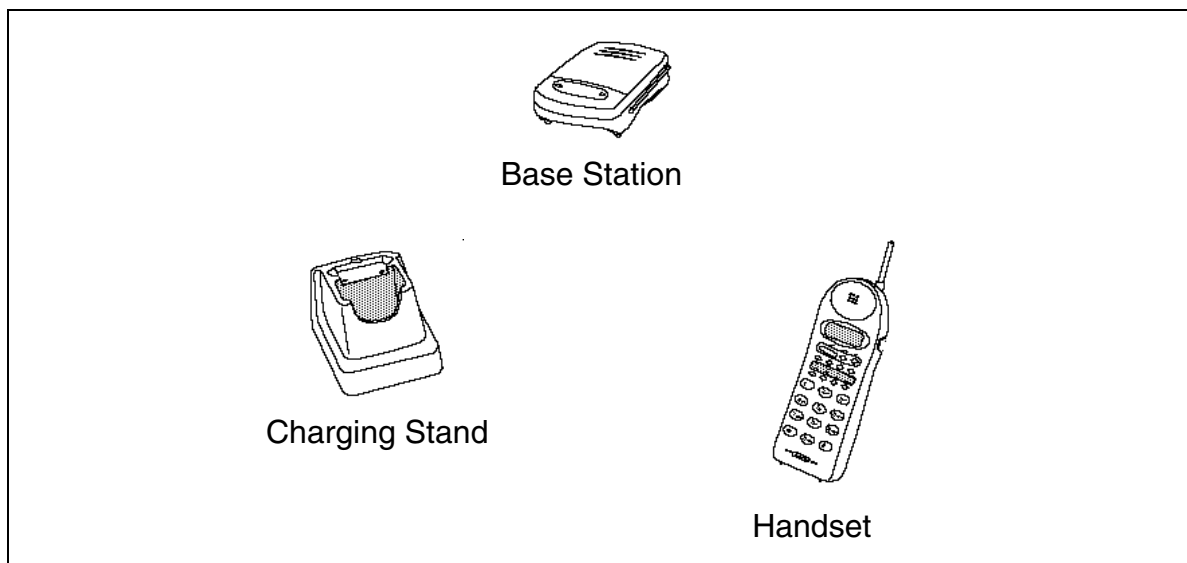


Figure 9-6      optiset E Liberator and Components

**9.2.1.8 Connection Requirements****Hardware Requirements**

|                       | <b>Pro</b>                                                                                    | <b>Com</b>                                                   | <b>Point</b> | <b>One<br/>(not for<br/>U.S.)</b>                  | <b>Start<br/>(not for<br/>U.S.)</b>                |
|-----------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------|----------------------------------------------------|----------------------------------------------------|
| Hardware requirements | Free<br>U <sub>P0/E</sub> port<br>on<br><u>SLMO8</u><br>(not for<br>U.S.) or<br><u>SLMO24</u> | Free U <sub>P0/E</sub> port on<br><u>CBPC</u><br><u>SLU8</u> |              | Free<br>U <sub>P0/E</sub> port<br>on<br><u>SBS</u> | Free<br>U <sub>P0/E</sub> port<br>on<br><u>SBS</u> |

Refer to Section 6.1.2 for information on upgrading peripheral boards for Hicom 150 E OfficePro.

Refer to Section 6.2 for information on upgrading peripheral boards for the OfficePoint and the OfficeCom.

**Connecting as a Secondary Telephone**

It is also possible to connect the telephone as a secondary telephone (using an optiset E phone adapter) to an existing optiset E telephone (except optiset E entry and standard). Supported configurations are shown in Table 9-6.

### 9.2.1.9 Connecting the Equipment

#### Procedure: Connecting an optiset E Telephone

| Step | Activity                                                                                                                                                        |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Locate a free interface on the main distribution frame.<br>(Not for U.S.: Hicom 150 E OfficePro, OfficeCom: <u>Assignments of the splitting/jumper strips</u> ) |
| 2.   | Connect the cable from the main distribution frame to the wall outlet.                                                                                          |



The maximum range for a primary telephone without an additional optiset E local power supply is 500 m (1640 ft.) (using wire with a diameter of 0.4 mm or 26 AWG). You can attain a range of up to 1000 m (3280 ft.) by using an optiset E local power supply.

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. | Key labeling: Cut out the label sheets provided with the telephone (in the accessory pack) or the labels generated using Hicom Assistant E Office, and insert them underneath the plastic key covers.                                                                                                                                                                                                                                           |
| 4. | Prepare the telephone for connection: <ul style="list-style-type: none"> <li>• Connect the handset cord to the handset and the bottom of the telephone. Use the jack labeled .</li> <li>• Install any <u>add-on device</u>.</li> <li>• Install any <u>optiset E adapters</u>.<br/>(Refer to <u>Section 9.3.2.15</u> for supported configurations.)</li> </ul> |
| 5. | Connect the line cord to the jack marked by a symbol on the bottom of the telephone. optiset E telephones are shipped with a 6 m (20 ft.) line cord and an MW6 (RJ11) plug for connection to a modular telephone jack.                                                                                                                                                                                                                          |

The first time the telephone is switched on,

- All LEDs illuminate briefly
- All LEDs on the add-on devices (AODs), if connected, light up briefly (AOD LEDs do not necessarily flash at the same time as the LEDs on the telephone.)
- All pixels on the display activate briefly

These indications show that the telephone is starting up and performing a self-test. Downloading has finished and the telephone is ready for operation when you see the date and time on the display.



The technician is not responsible for any customized key programming. Because the telephone is easy to use, customers can program their own keys.



## 9.3 optiset E Adapters and Add-On Devices

### 9.3.1 Overview

The optiset E basic, optiset E advance plus/comfort, and optiset E memory telephones support optiset E adapters that can be installed in the option bays underneath the phone. The adapters simply snap into place.

The side-mounted optiset E key module adds 16 keys for features. Up to four optiset E key modules can be linked together on one telephone, for a total of 64 additional feature keys and up to 29 line appearances. Only the optiset E advance plus/comfort and memory telephones support this option. Wall mount kits do not support telephones with an optiset E key module attached.

Hicom Attendant BLF is an add-on device which provides 90 additional general-purpose keys, LEDs, and labeling areas.

### 9.3.2 Introduction

The following equipment can be used with optiset E telephones:

- Add-on device (AOD): optiset E key module (sidecar)
- optiset E adapters (mounted on the bottom of the telephone, see [Figure 9-7](#)).

**Caution**

Always disconnect the telephone line cord before connecting adapters or add-on devices.

## Installing optiset E Adapters

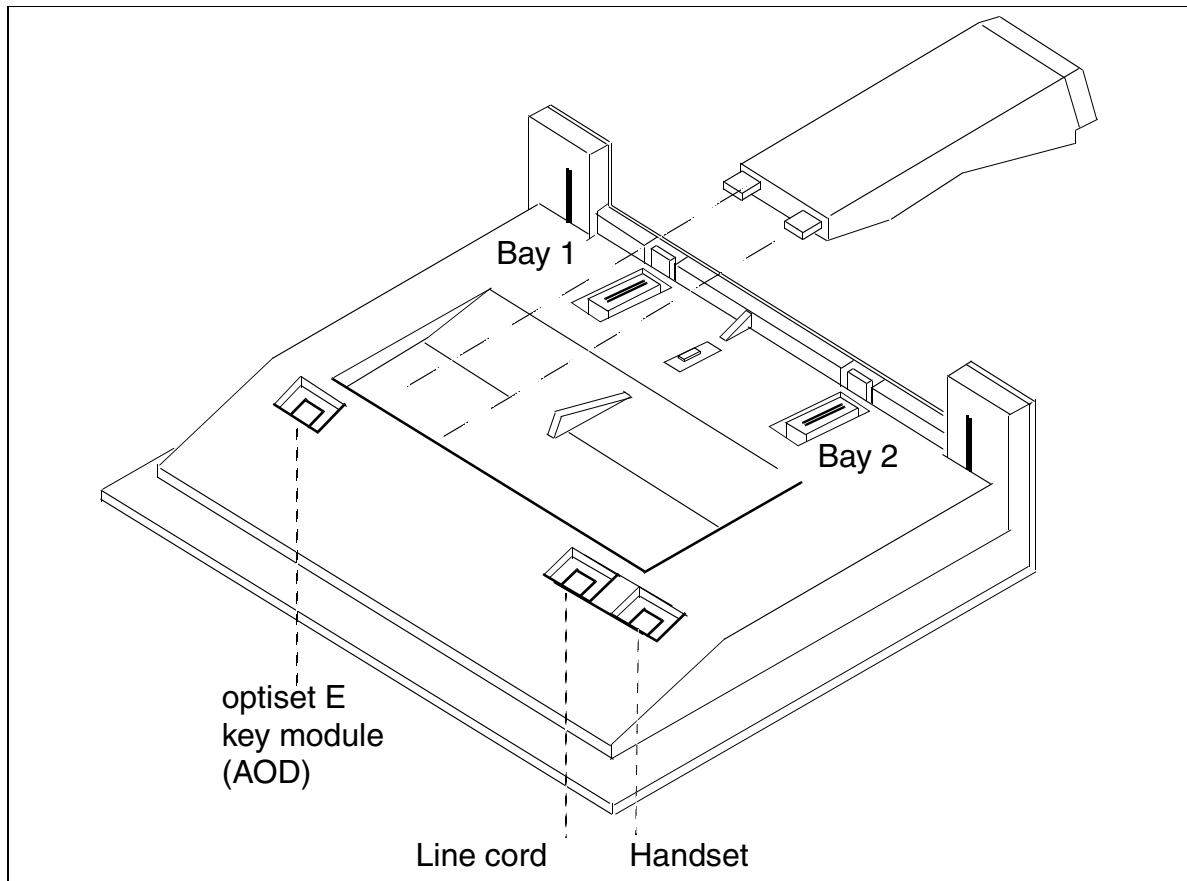


Figure 9-7 Installing Adapters in the Option Bays on the Bottom of the Phone

### Documentation

Usually, users set up the optiset E telephones and install any adapters. If necessary, refer to the following publications:

- Service instructions for optiset E telephones.
- Installation instructions for optiset E adapters and key modules (included with each unit).

## Add-on devices

The following add-on devices are available for the optiset E advance plus/comfort, optiset E advance conference/conference, and optiset E memory telephones.

### optiset E key module

The optiset E key module is an add-on device mounted on the side of the telephone. It provides 16 additional general-purpose keys, LEDs, and labeling areas. [Figure 9-8](#) shows several possible configurations.

In Release 3.0 and later, you can assign dual functions to the keys. The second key level that this provides can contain **only external numbers** for outgoing dialing. (see [page 9-3](#)).

### Hicom Attendant BLF

This is an add-on device which provides 90 additional general-purpose keys, LEDs, and labeling areas.

You can connect the Hicom Attendant BLF to the telephone or to an optiset E key module using an interface cable with the following connectors: input MW6 (RJ11), output MW8 (RJ45). [Figure 9-8](#) shows several possible configurations.

An optiset E local power supply (C39280-Z4-C58, C39280-Z4-C70 = USA, C39280-Z4-C66 = UK), which can supply power to a total of two Hicom Attendant BLFs, is used.

## Programming Add-On Devices

Once it is connected, an add-on device automatically logs onto the system and is then operational. You can program keys using either Hicom Assistant E Office or Hicom Assistant T. The information that you programmed on the keys remains when you replace add-on devices (it is stored in the customer database).

After changing one of the configurations shown in [Figure 9-8](#) with another, the LEDs and keys may no longer work properly. You must therefore update the database using Hicom Assistant E Office.

Example: You replaced configuration E with configuration C. To make sure that the LEDs and keys function properly, you must remove optiset E key module 2 from the database using Hicom Assistant E Office.

You can use Hicom Assistant T to clear Hicom Attendant BLFs and optiset E key modules.

The first Hicom Attendant BLF, which is connected to OfficePro and OfficeCom for the first time, has default key assignments for the first 90 system ports. It does not have these default assignments if the Attendant BLF was preconfigured using Hicom Assistant E Office or if you connect additional Attendant BLFs.

## **Replacing an optiset E Key Module With Hicom Attendant BLF**

### **Procedure:**

| <b>Step</b> | <b>Action</b>                                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.          | Unplug the connecting cable between the optiset E key module and the telephone (or another optiset E key module). Detach the optiset E key module. |
| 2.          | Remove the optiset E key module from the database, using Hicom Assistant E Office.                                                                 |
| 3.          | Plug in the Hicom Attendant BLF. Hicom Assistant E Office now detects the BLF and enters in it the database.                                       |

**Note:** You cannot connect a Hicom Attendant BLF to the reception telephone of the Caracas Desk system.

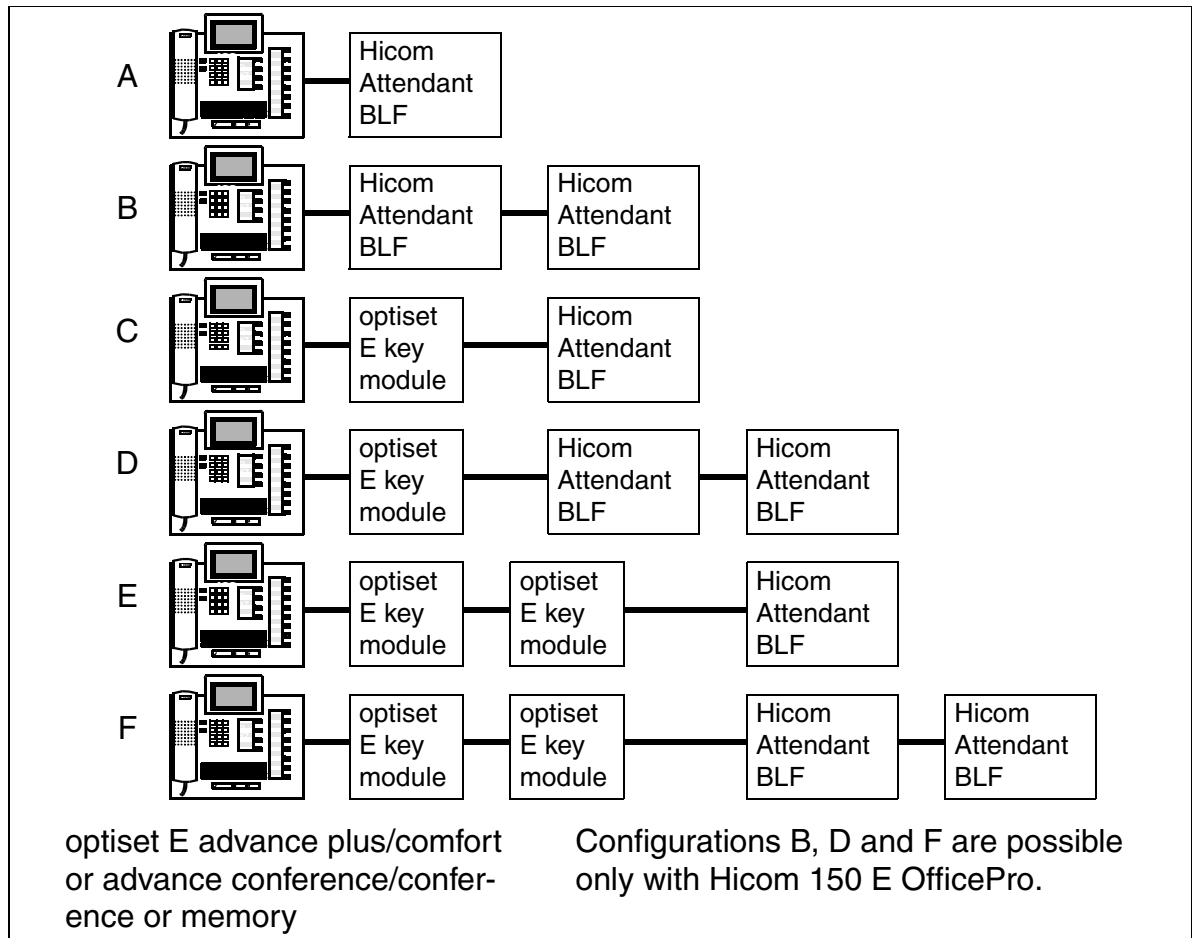
**Add-On Devices: Possible Configurations (Not for U.S.)**


Figure 9-8 optiset E—Add-On Devices: Possible Configurations (Not for U.S.)



Refer to [Section 7.10.2](#) for model-specific data relating to the optiset E key module and Hicom Attendant BLF.

### 9.3.2.1 optiset E privacy module

The optiset E privacy module prevents unauthorized interception of calls in which each party has a privacy module. The privacy module connects between telephone and handset; connection is a simple matter of plugging in the handset cord. The privacy module is supplied complete with a local power supply.



The optiset E privacy module may be subject to import and export regulations.

### 9.3.2.2 optiset E acoustic adapter (Not for U.S.)

The optiset E acoustic adapter (TA AO) has three modular ports for connecting external speakers with amplifiers (separate power supply/external Elektret microphone/second headset port). This adapter is not designed for connection to an optiset E basic telephone.

### 9.3.2.3 optiset E analog adapter

The optiset E analog adapter (TA analog) connects an analog DTMF telephone, group 3 fax machine, modem, or answering machine with an analog interface. The adapter always needs a local power supply to function.

### 9.3.2.4 optiset E contact adapter (Not for U.S.)

The optiset E contact adapter (TA BLCO) provides two floating connections (each is an MW4 (RJ8) connector with maximum connection values of 24 V AC, 60 V DC, 5 W):

- The first connection signals the following telephone states, which can be indicated by an external LED (busy lamp):
  - Handset off-hook or trunk key activated
  - Speaker on or headset active
- The second connection signals an incoming call and can be used for controlling a second bell.

### 9.3.2.5 optiset E control adapter

The optiset E control adapter (TA API) connects an optiset E telephone with a PC and has a headset jack. The control adapter cannot be used on optiset E entry or basic.

The optiset E control adapter can operate in two different modes:

- **API1 mode** supports simple functions for dialing outgoing numbers (as a replacement for the dialing aid interface (DAI), which is no longer available).

Table 9-1 AT Command Sets for the optiset E control adapter in API1 Mode

| Voice Connection (Dialing Aid) | Command                                       | Remarks |
|--------------------------------|-----------------------------------------------|---------|
| Connection setup               | ATD<br>or<br>ATDP<br>or<br>ATDT<br>or<br>AT*D |         |
| Connection cleardown           | AT*H<br>or<br>AT%H                            |         |
| Call acceptance                | AT*A                                          |         |

- A special AT command can be used to activate **API2 mode** from the PC. In API2 mode, the control adapter transports transparent D channel messages in both directions (PC <--> Hicom 150 E Office).

Release 3.0 and later also support the connection of TAPI applications using an external TAPI 3.0 driver.

### 9.3.2.6 optiset E data adapter

The optiset E data adapter (TA 232D) provides data communication with a PC without having to equip the PC with an S<sub>0</sub> card. The data adapter supports telephone dialing according to Hayes (AT command sets, default settings) or V.25bis (the AT%V command changes the Hayes AT default setting to V.25bis).

Table 9-2 AT Commands for the optiset E data adapter

| Data Connection      | Command | Remarks                                                                                                           |
|----------------------|---------|-------------------------------------------------------------------------------------------------------------------|
| Connection setup     | ATDT    | ATD is also possible. Either a data connection or a voice connection is set up, depending on the connection type. |
| Connection cleardown | ATH     |                                                                                                                   |
| Call acceptance      | ATA     |                                                                                                                   |

| Voice Connection<br>(Dialing Aid) | Command            | Remarks                                                                                                            |
|-----------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------|
| Connection setup                  | ATDP               | AT*D is also possible. Either a data connection or a voice connection is set up, depending on the connection type. |
| Connection cleardown              | AT*H<br>or<br>AT%H |                                                                                                                    |
| Call acceptance                   | AT*A               |                                                                                                                    |

Table 9-3 V.25bis Commands for the optiset E data adapter

| Data connection      | Command | Remarks                                                  |
|----------------------|---------|----------------------------------------------------------|
| Connection setup     | CRN     |                                                          |
| Connection cleardown |         | Carried out by deactivating the data terminal equipment. |
| Call acceptance      | CIC     |                                                          |

Release 3.0 and later also support the connection of TAPI applications using an external TAPI 3.0 driver.



**9.3.2.7 optiset E headset adapter**

The optiset E headset adapter (TA HIO) is used to connect a headset. It cannot be used on the optiset E basic telephone.

**9.3.2.8 optiset E headset plus adapter**

The optiset E headset plus adapter (TA HRO) connects a headset (not on the optiset E basic telephone) and a tape recorder.

**9.3.2.9 optiset E ISDN adapter**

The optiset E ISDN adapter (TA S<sub>0</sub>) provides ISDN basic access for ISDN terminals (up to 2), such as group 4 fax machines, ISDN data terminals, or video conferencing equipment. The ISDN terminals require a separate power supply.

You cannot use an additional optiset E phone adapter or optiset E analog adapter while the ISDN adapter is connected.

**9.3.2.10 optiset E phone adapter**

The optiset E phone adapter (PA) connects a second optiset E telephone (secondary telephone), which the system treats like an independent telephone with its own station number and a separate B channel, via an MW6 (RJ11) connection.

**9.3.2.11 optiset E speech adapter (for advance conference/conference only), (not for U.S.)**

The optiset E speech adapter allows users to retrieve speed-dialing destinations through voice input. It is currently approved for connection to optiset E advance conference/conference telephones with preparations underway to support other optiset E telephone types. Voice commands can be entered from the handset, speaker-phone, and a headset connected to the speech adapter. Up to 100 station numbers and names can be stored in and retrieved from the integrated speech adapter memory.

The speech adapter supports the following languages:

- Danish
- Dutch
- English
- Finnish
- French
- German
- Italian
- Portuguese
- Spanish
- Swedish

### 9.3.2.12 optiset E local power supply

A local power supply may be necessary when using large configurations or to extend telephone range.

You can connect the local power supply to the line cords of a primary or secondary telephone using two MW6 (RJ11) jacks and the connecting cable supplied (see [Figure 9-9](#)).



You can perform the telephone test on an optiset E telephone to check whether a local power supply is needed. Enter \*940 on the telephone. If all the LEDs are not activated, you may require an optiset E local power supply.

Data for optiset E local power supply AUL:06D1284:

- Line voltage: 220 (230) Vac (U.S.: 120 Vac)
- AC line frequency: 47 to 53 Hz
- Output voltage: Max. 50 V, min. 30 V
- Output current: Max. 250 mA

Table 9-4 Pin Assignments of the Local Power Supply

| Pin | Assignment | Pin | Assignment | Pin | Assignment |
|-----|------------|-----|------------|-----|------------|
| 1   | Not used   | 3   | a-wire     | 5   | + pole     |
| 2   | – pole     | 4   | b-wire     | 6   | Not used   |

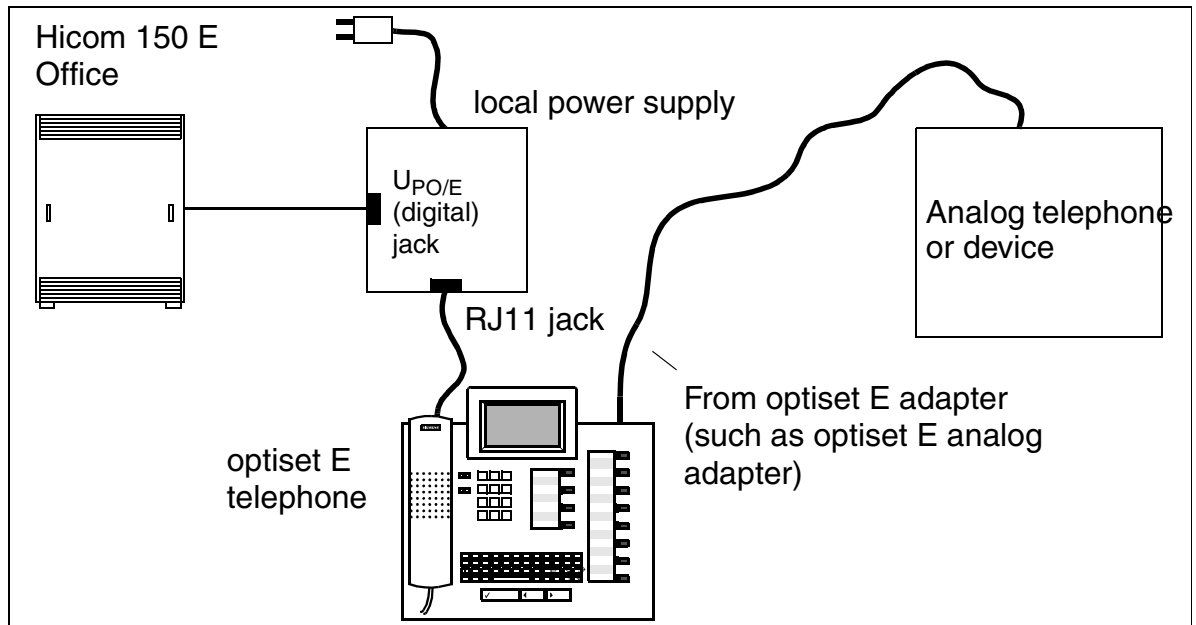
**Connection Example for the optiset E local power supply**


Figure 9-9 Connection Example for the optiset E local power supply

**9.3.2.13 Headsets (Not for U.S.)**

The headsets listed in the table below can be connected to the optiset E control adapter, headset adapter and headset plus adapter.

Table 9-5 Headsets for the optiset E Adapters (Not for U.S.)

| Headset          | Order No.       |
|------------------|-----------------|
| Encore           | L30460-X1282-X1 |
| Encore binaural  | L30460-X1282-X2 |
| Tristar          | L30460-X1282-X3 |
| Supra            | L30460-X1282-X4 |
| Profile          | L30460-X1283-X1 |
| Profile binaural | L30460-X1283-X2 |

#### **9.3.2.14 U.S. Headsets**

The following headsets can be connected to the optiset E control adapter, the optiset E headset adapter and headset plus adapter in the U.S.:

- Encore Monaural
- Encore Binaural
- Tristar
- Supra Monaural
- Supra Binaural
- Starset Eartip
- Mirage Swivel

### 9.3.2.15 Possible Adapter Configurations

#### Adapter Categories

Each  $U_{P0/E}$  (digital) port in the system provides two B-channels. Consequently, you can connect two devices to a  $U_{P0/E}$  port and assign a station number to each device.

##### Category 1 optiset E Adapters

Each of the adapters listed below needs both B-channels. Consequently, you can connect only one adapter of this category to a primary telephone.

- optiset E analog adapter
- optiset E control adapter
- optiset E data adapter
- optiset E ISDN adapter
- optiset E phone adapter

If you use one of the above adapters in an optiset E advance plus/comfort, optiset E advance conference/conference, or optiset E memory telephone, only one category 2 adapter can be installed in the second slot.

##### Category 2 optiset E Adapters

You can use these adapters in primary or secondary telephones. A telephone with a category 2 optiset E adapter can also have a category 1 adapter.

- optiset E acoustic adapter (not for U.S.)
- optiset E contact adapter (not for U.S.)
- optiset E headset adapter
- optiset E headset plus adapter
- optiset E speech adapter (not for U.S.)

#### Configuration Restrictions

Refer to Table 9-6 for the adapter configurations supported by the Hicom 150 E Office.



You can run the supply voltage test to check whether you need an optiset E local power supply for your configuration. If in doubt, always run the test when installing a large configuration.

- Only the optiset E advance plus/comfort, optiset E advance conference/conference, and optiset E memory telephones support the optiset E acoustic adapter (TA AO).

- You cannot connect a headset to the optiset E control adapter (TA API) when it is attached to an optiset E basic telephone.
- The optiset E headset adapter and optiset E headset plus adapter are not supported by the optiset E basic telephone.

Table 9-6 optiset E for Hicom 150 E Office—Possible Configurations

| <b>optiset E</b>                          | <b>As primary telephone</b> |            | <b>As secondary telephone</b> |        |
|-------------------------------------------|-----------------------------|------------|-------------------------------|--------|
| basic                                     | Category 1                  |            | —                             |        |
| advance plus/comfort                      | Slot 1                      | Slot 2     | Slot 1                        | Slot 2 |
| advance conference/<br>conference, memory | Category 1                  | Category 2 | Category 2                    | —      |

### Maximum Numbers of Adapters and Key Modules

The following model-specific maximums apply to the optiset E adapters:

Table 9-7 optiset E for Hicom 150 E Office - Maximum Numbers of optiset E Adapters and Key Modules

| <b>optiset E</b>                                    | <b>Hicom 150 E Office</b> |                  |                    |                  |                    |
|-----------------------------------------------------|---------------------------|------------------|--------------------|------------------|--------------------|
|                                                     | <b>OfficePro</b>          | <b>OfficeCom</b> | <b>OfficePoint</b> | <b>OfficeOne</b> | <b>OfficeStart</b> |
| Key modules                                         | 100                       | 100              | 30                 | 16               | 8                  |
| Hicom Attendant BLF                                 | 12 <sup>*</sup>           | 6                | —                  | —                |                    |
| analog adapter +<br>phone adapter                   | 125                       | 48               | 16                 | 4                | —                  |
| data adapter +<br>ISDN adapter                      | 50                        | 50               | 8                  | 4                | —                  |
| control adapter<br>speech adapter<br>privacy module | Number not restricted     |                  |                    |                  |                    |

\* Connecting to max. 6 optiset E telephones

Refer to [Table 2-4](#) for the maximum number of telephones that can be connected to Hicom 150 E Office. These limits also include the secondary telephones that can be connected using optiset E phone adapters (PA) and the analog telephones that can be connected using optiset E analog adapters (TA analog).

## **9.4 Cordless Telephones (Not for U.S.)**

Hicom cordless EM supports the mobile telephones described below. For more information, refer to the operating instructions for the specific telephones (see [Reference Documents](#)) or the service manual for Hicom cordless EM.

### **9.4.1 Gigaset 2000C Feature Handset**

#### **Main Features**

- 12-button alphanumeric keypad (0-9, \*, #)
- 3 function keys:
  - 1 menu key for menu selection
  - 2 dual-mode keys for up to four soft key functions
- Seizure key (on-hook)
- Release key (off-hook)
- Hookswitch (register recall)
- On/Off/Protect key
- Illuminated graphical display (up to 4 lines and 16 columns)
- Enhanced user prompting with on-screen messages (multilingual)
- Handset phone book for around 100 entries. Redial of the last five numbers.
- Connection for a headset (Gigaset 2000H)
- Weight, including battery: around 165 g
- Dimensions: 160 x 55 x 25 mm (L x W x D)

A Tango version of the Gigaset 2000C feature handset is also available.



Figure 9-10 Gigaset 2000C Feature Handset

## 9.4.2 Gigaset 2000C pocket Feature Handset

### Main Features

- 12-button alphanumeric keypad (0-9, \*, #)
- 3 function keys:
  - 1 menu key for menu selection
  - 2 dual-mode keys for up to four soft key functions
- Seizure key (on-hook)
- Release key (off-hook)
- Hookswitch (register recall)
- On/Off/Protect key
- Illuminated graphical display (up to 4 lines and 16 columns)

Differences over the Gigaset 2000C feature handset:

- External antenna
- S 10-like illuminated keypad
- No headset interface



- Weight including battery: around 125 g
- Dimensions: 137 x 43 x 20 mm (L x W x D)

A Tango version of the Gigaset 2000C pocket feature handset is not available.



Figure 9-11 Gigaset 2000C pocket Feature Handset

### 9.4.3 Gigaset active Handset

#### Main Features

The Gigaset active industrial handset was specially designed to withstand the rigors of an industrial environment. A special EX-protected version is available for areas subject to explosion. A Tango version is not available.

The Gigaset active has the same controls, indicators, and features as the Gigaset 2000C.

- Vibration- and crack-resistant, dustproof housing
- Spray-resistant according to EN 60529 Cl .IP 64
- Higher interference resistance according to EN 50082-2 (industrial standard)
- Connection for a headset (Gigaset 2000H)
- Call acoustics adapted to industrial environment (including increased volume)
- EX version meets explosion protection standards according to EN 50014/ 50020 with classification (EEx ib IICT4)

- Weight including battery: around 160 g
- Dimensions: 160 x 55 x 25 mm (L x W x D)



Figure 9-12 Gigaset active Handset

#### **9.4.4 Gigaset 3000C Feature Handset**

##### **Main Features**

- 12-button alphanumeric keypad (0-9, \*, #)
- 3 function keys:
  - 1 menu key for menu selection
  - 2 dual-mode keys for up to four soft key functions
- Seizure key (on-hook)
- Release key (off-hook)
- Hookswitch (register recall)
- Speakerphone
- Illuminated graphical display (up to 4 lines and 16 columns)
- Enhanced user prompting with on-screen messages (multilingual)
- Handset phone book for around 100 entries. Redial of the last five numbers.

- Weight, including battery: around 165 g
- Dimensions: 60 x 50 x 28 mm (L x W x D)



Figure 9-13      Gigaset 3000C Feature Handset

## 9.5 Analog Telephones

You can connect dial pulsing (DP) and DTMF telephones (such as Group 3 fax machines and modems, answering machines, or entrance telephones) to the analog ports in the Hicom 150 E Office.

Optiset E entry and optiset E basic telephones are treated like analog telephones (except for the mailbox key).

Mobile telephones (Hicom cordless EM) are treated much like analog telephones. In Release 3.0 and later, mobile phones have the same user interfaces as optiset E telephones.

### Boards for Connecting Analog Telephones (Not for U.S.)

|                       | <b>Pro</b>                                                         | <b>Com</b>                                                                                                                | <b>Point</b>                                                       | <b>One</b>                        | <b>Start</b>                      |
|-----------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------|-----------------------------------|
| Hardware requirements | Free port on<br><u>SLA8N/</u><br><u>16N/24N</u><br><u>SLMO8/24</u> | Free analog port on<br><u>CBPC</u><br><u>4/8/16SLA</u><br><u>SLA8N/</u><br><u>16N/24N</u><br><u>SLU8</u><br><u>SLMO24</u> | Free analog port on<br><u>CBPC</u><br><u>4/8SLA</u><br><u>SLU8</u> | Free analog port on<br><u>SBS</u> | Free analog port on<br><u>SBS</u> |

### Boards for Connecting Analog Telephones (for U.S. Only)

|                       | <b>OfficePro</b>                                   | <b>OfficeCom</b>                                                                                       | <b>OfficePoint</b>                                               |
|-----------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Hardware requirements | Free port on<br><u>SLA16N/24N</u><br><u>SLMO24</u> | Free analog port on<br><u>CBPC</u><br><u>8SLA</u><br><u>SLA16N/24N</u><br><u>SLU8</u><br><u>SLMO24</u> | Free analog port on<br><u>CBPC</u><br><u>8SLA</u><br><u>SLU8</u> |

Refer to [Section 6.1.2](#) for information on upgrading peripheral boards in Hicom 150 E OfficePro.

Refer to [Section 6.2](#) for information on upgrading peripheral boards for the OfficePoint and the OfficeCom.

### Connecting Equipment using an optiset E analog adapter



It is also possible to connect an analog telephone to an existing optiset E telephone (except for optiset E entry and optiset E standard) with the optiset E analog adapter (configurations are listed in [Section 9.3.2.15](#), "Possible Adapter Configurations").

## 9.6 ISDN Terminals

An  $S_0$  bus in the Hicom 150 E Office system family can support up to eight ISDN terminals. Each terminal can be dialed selectively under its multiple subscriber number or station number.

The features that can be activated depend on the type of terminal used. In Germany, analog station users can activate system features by means of code procedures. The telephones support only those system features which can be activated in the idle state.

### Boards for Connecting ISDN Terminals

|                 | <b>Pro</b>                      | <b>Com</b>                        | <b>Point</b> | <b>One</b>                    | <b>Start</b>                  |
|-----------------|---------------------------------|-----------------------------------|--------------|-------------------------------|-------------------------------|
| HW requirements | Free $S_0$ port on <u>STMD8</u> | Free $S_0$ port on <u>STLS2/4</u> |              | Free $S_0$ port on <u>SBS</u> | Free $S_0$ port on <u>SBS</u> |

Refer to [Section 6.1.2](#) for information on upgrading peripheral boards in Hicom 150 E OfficePro.

Refer to [Section 6.2](#) for information on upgrading peripheral boards for the OfficePoint and the OfficeCom.

### Connecting ISDN Terminals as Secondary Telephones



It is also possible to connect an ISDN terminal to an existing optiset E telephone (except for optiset E entry and optiset E standard) using an optiset E ISDN adapter (configurations are listed in [Section 9.3.2.15](#), "Possible Adapter Configurations").

### 9.6.1 General S<sub>0</sub> Wiring (for U.S. Only)

S<sub>0</sub> wiring in the user premises is considered to be one continuous cable run with jacks for the terminating equipment (ISDN terminals) attached directly to the cable or using stubs less than 3 feet (0.91 m) in length. The jacks are located at point I interfaces in Figure 9-14. One point I interface is adjacent to each terminal. The wiring between each jack and its ISDN terminal can not exceed 30 feet (9.14 m).

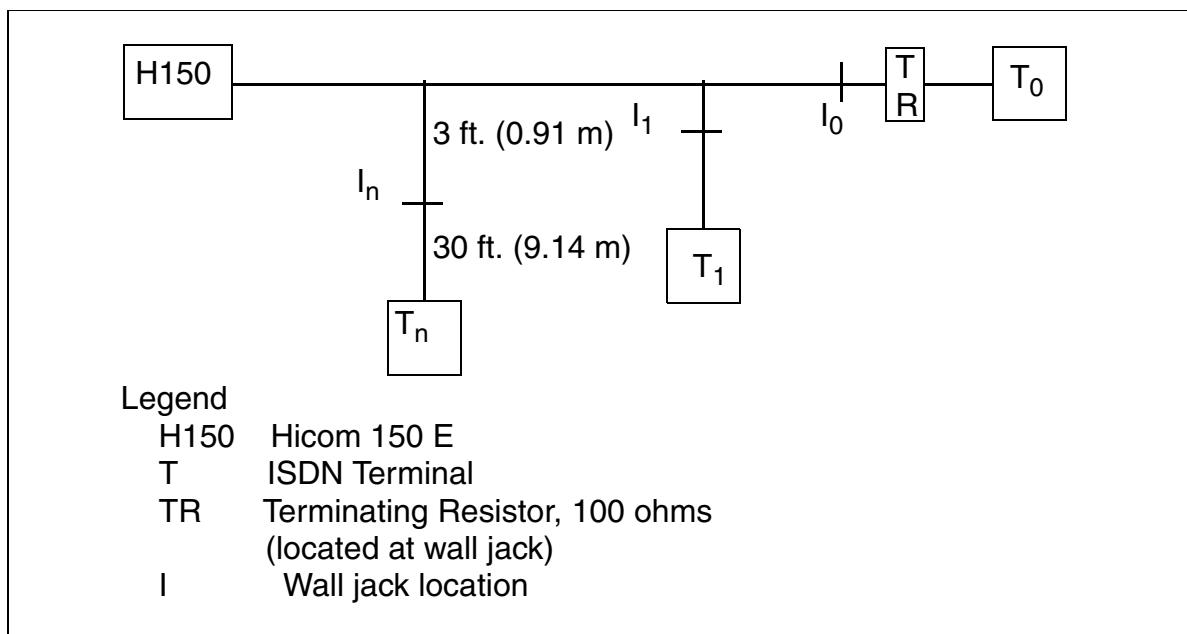


Figure 9-14 Reference Wiring Configuration in the User Premises Location

### 9.6.1.1 Specific $S_0$ Wiring Configurations

This section describes wiring arrangements for three major  $S_0$  configurations:

- Point-to-point
- Point-to-multipoint—short passive bus
- Point-to-multipoint—extended passive bus

Several other wiring configurations are possible; however, the wiring is guaranteed to work only if the configuration meets the electrical specifications described in ANSI T1.605-1991.

#### Point-to-Point

In a point-to-point configuration, only one terminal device is connected to each  $S_0$  port on the system; therefore, the connection is a direct connection.

#### Configuration Restrictions

The following maximums apply to point-to-point  $S_0$  wiring:

- Maximum distance between the system and the device is 3000 feet (914.40 m), as shown in [Figure 9-15](#)
- Maximum line-to-jack distance is 3 feet (0.91 m)
- Maximum jack-to-device distance is 30 feet (9.14 m)

A 100-ohm termination is required at the ISDN terminal. If the terminal does not have a built-in termination, you must install a separate 100-ohm ISDN terminating resistor module (Model Number 256503) anywhere between the terminal and its wall jack.

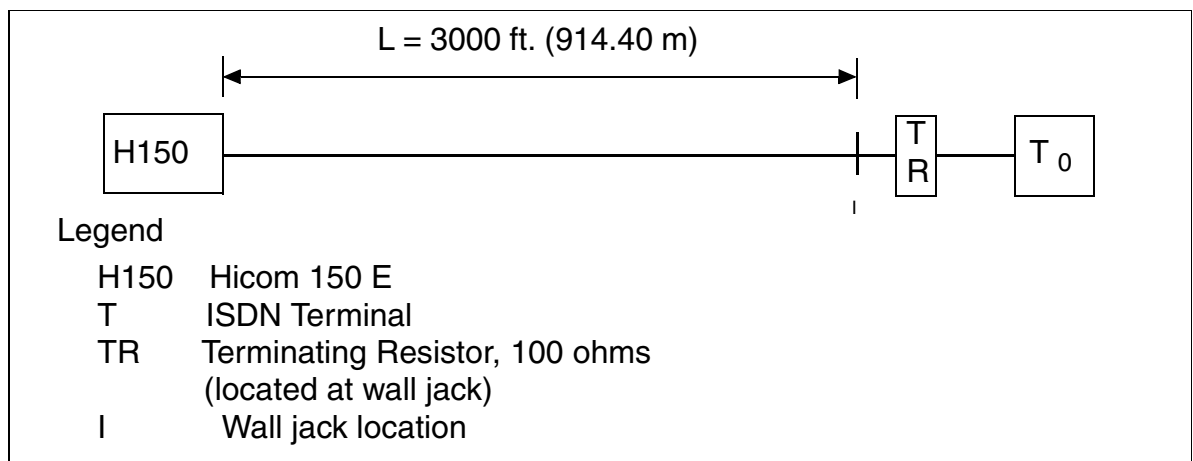


Figure 9-15  $S_0$  Point-to-Point Wiring

## Point-to-Multipoint—Short Passive Bus

A short passive bus configuration is one in which the ISDN terminals are connected at random points along the full length of the cable.

### Configuration Restrictions

The following maximums apply to point-to-multipoint—short passive bus configurations:

- Maximum cable distance between the system and the last terminal on the line is 405 feet (123.44 m), as shown in [Figure 9-16](#)
- Supports maximum of four terminals
- Maximum cable length is 30 feet (9.14 m) between each terminal and the wall jack
- Maximum line-to-jack distance is 3 feet (0.91 m)

The terminating resistor (Model Number 256503) must be located anywhere between the last terminal and its wall jack.

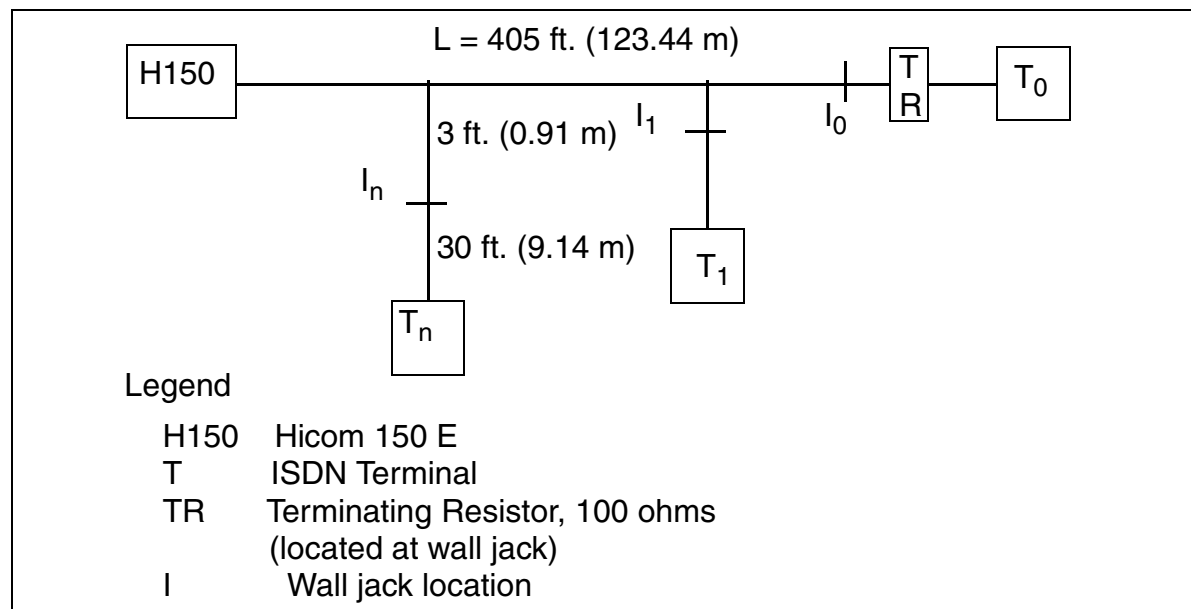


Figure 9-16 Short Passive Bus Configuration



**Point-to-Multipoint—Extended Passive Bus**

An extended passive bus configuration is one in which the ISDN terminals are grouped at the far end of the line.

**Configuration Restrictions**

The following maximums apply to point-to-multipoint—short passive bus configurations:

- Maximum cable distance between the system and the last device in the group is 1500 feet (457.20 m)
- Maximum distance between the first ISDN terminal and the last ISDN terminal is 75 feet (22.86 m), as shown in [Figure 9-17](#)
- Maximum line-to-jack distance is 3 feet (0.91 m)
- Maximum jack-to-device distance is 30 feet (9.14 m)
- Supports maximum of four ISDN terminals

The terminating resistor (Model Number 256503) must be located anywhere between the last terminal and its wall jack.

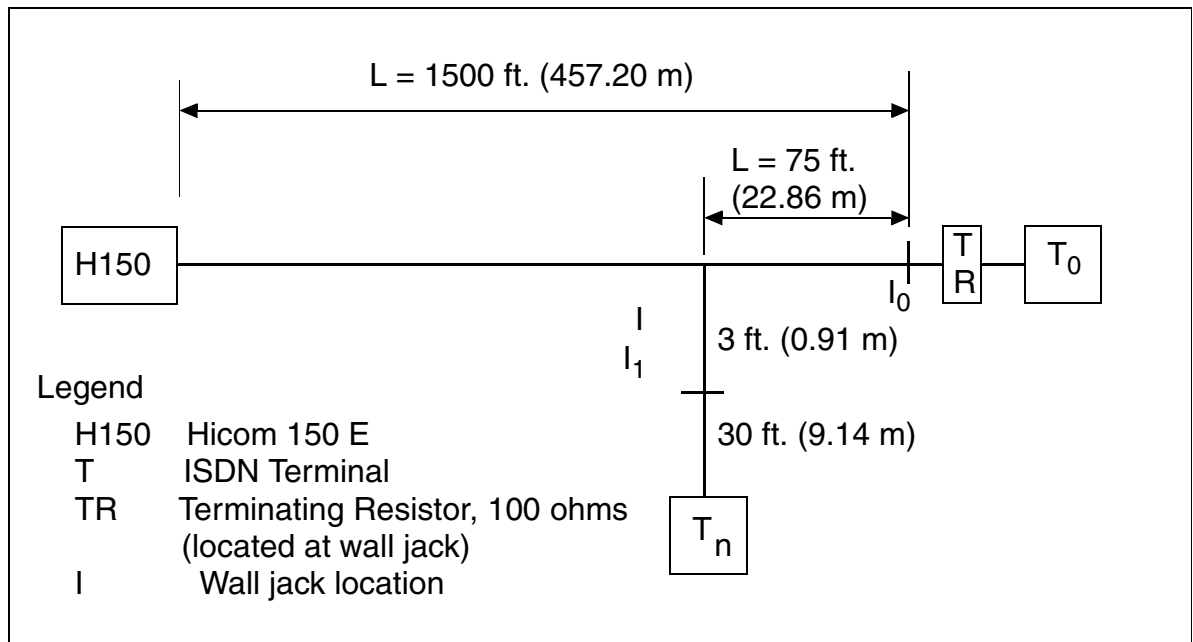


Figure 9-17 Extended Passive Bus Configuration

## 9.7 Hicom Attendant C

Special optiset E advance plus/comfort, optiset E advance conference/conference, and optiset E memory can perform switching services in Hicom 150 E Office. This Hicom Attendant C is also the intercept position. It is the destination for all incoming non-DID calls and calls which the call-allocation algorithms are unable to route to users (intercept calls). The attendant routes these calls to the correct destination.

### Default Key Assignments for Hicom Attendant C

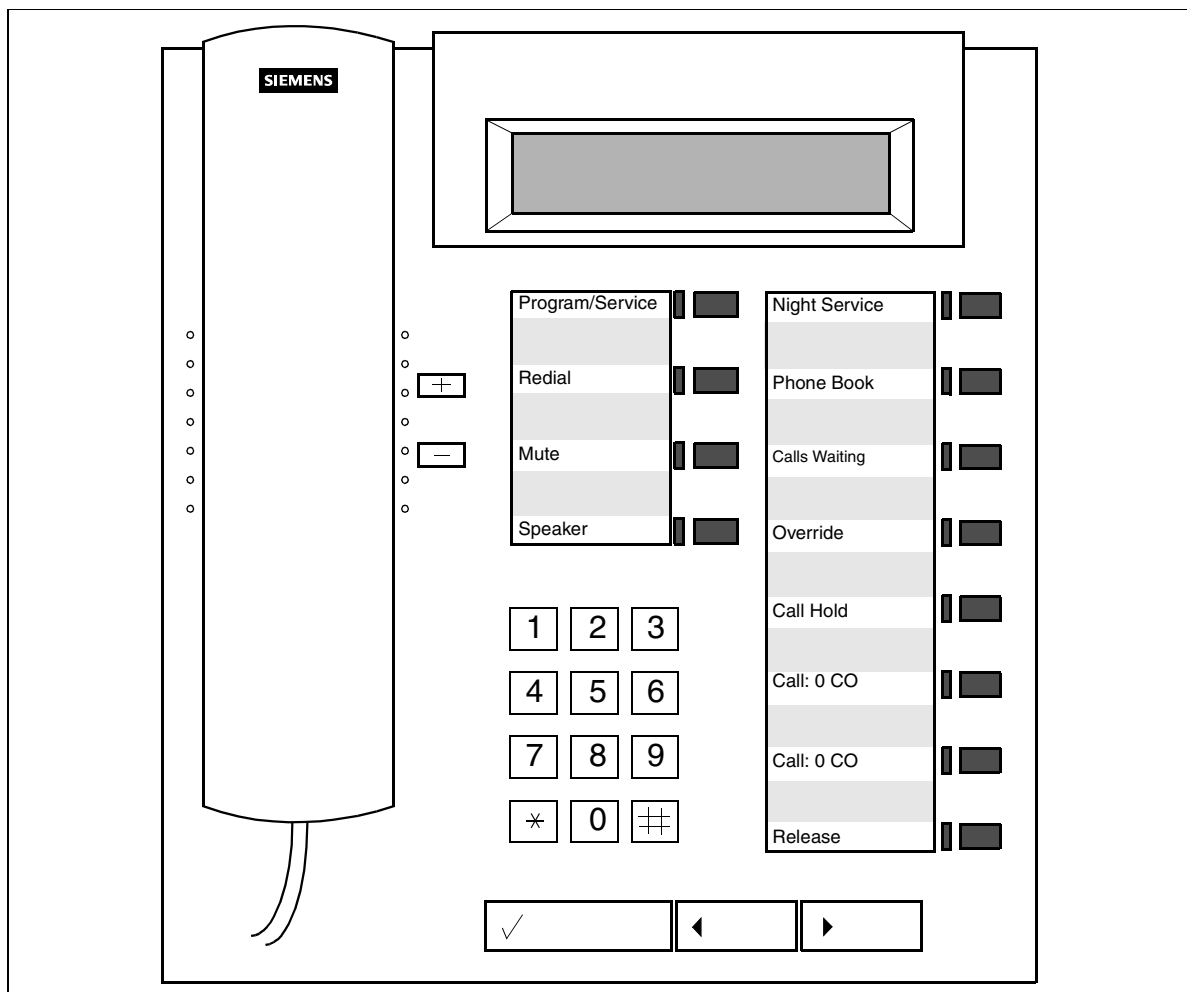


Figure 9-18 optiset E advance plus/comfort and optiset E advance conference/conference—Default Key Assignments for Hicom Attendant C

Further details can be found in the Hicom Attendant C for Hicom 150 E Office User Manual (refer to [List of related documents](#)).

## 9.8 Hicom Attendant P

### Introduction

Hicom Attendant P Office is a PC attendant console (PC AC) for the Hicom 150 E Office communications server. All the functions of an attendant console are simulated on the PC monitor. The most important functions include::

- Visual display of the AC operator's tasks
- Multitasking with other Windows applications
- Electronic directory

#### Added Features in Release 3.0

- Ability to display station names or numbers on the busy lamp field
- Busy indication for ISDN stations on the S<sub>0</sub> bus
- Busy indication for internal and external calls
- MULAP feature (possible with Hicom Attendant P Office Version 3.26 and later)

For U.S. only: Hicom Attendant P consists of three parts:

- U<sub>P0/E</sub> PC card (Siemens Part Number S30807-Q5474-X100)
- Handset (Siemens Part Number C39363-A7007-B10-3-ZSYS)
- Handset cradle (Siemens Part Number C39363-A7007-A4)



#### **WARNING (for U.S. Only)**

Hicom Attendant P is a UL Listed I.T.E. Accessory (2Z02) for use only in UL Listed computers.

### Requirements

- Pentium PC mit 586 CPU und 90 MHz (for U.S. only: UL Listed)
- At least 64 MB of RAM
- Super VGA 800 x 600 monitor
- Sound card with speakers
- Free V.24 (RS-232) interface  
COM1 or COM2 if installing optiset E control adapter or data adapter  
COM3 or COM4 (virtual PC AC port emulation) if installing U<sub>P0/E</sub> PC card (default = COM3)
- Windows 95/98
- Type size: Small fonts

- Hicom 150 E Office system (Release 1.0 or later)
- Connection via
  - U<sub>P0/E</sub> PC card and handset with cradle
  - optiset E memory with optiset E control adapter or optiset E data adapter
  - optiset E advance plus/comfort with optiset E control adapter or optiset E data adapter
- Headset (optional)

### Connecting Hicom Attendant P to the System

| If                                                                                                     | Then                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connecting via U <sub>P0/E</sub> PC card                                                               | <p>The U<sub>P0/E</sub> PC card connects the PC (with Hicom Attendant P Office) to a Hicom 150 E Office system just like a system telephone.</p> <p>For installation, the card needs a virtual COM port, which is installed in addition to the existing COM ports, using the software supplied. This COM port does not have an external connection.</p> <p>By default, the SW set up virtual COM port 3, since most PCs are equipped with two COM ports. If COM3 is already in use, you can change it to COM4 at any time.</p> |
| Connecting via optiset E memory or optiset E advance plus/comfort with control adapter or data adapter | <p>Connect the PC (with Hicom Attendant P Office) with the V.24 (RS232) interface (COM1 or COM2) to the optiset E telephone with optiset E adapter. The telephone remains fully functional.</p> <p>When the PC AC is logged onto the system, you can disable the ring indication on the telephone using ringer cutoff (Settings). The same applies for silent call waiting. You must configure the telephone as an attendant console.</p>                                                                                      |

For a detailed description of how to configure Hicom Attendant P Office using an optiset E telephone or a U<sub>P0/E</sub> PC card, refer to the Hicom Attendant P Office administrator manual for Hicom 150 E Office.

In addition to this administrator manual, the Hicom Attendant P Office for Hicom 150 E Office accessory pack included with Hicom Attendant P Office also contains a user manual that provides detailed information on how to operate Hicom Attendant P Office (refer to the [list of related documents](#)).

## **Software Installation**

Install the PC AC (attendant console) software on a Pentium PC with Windows 95/98. Run the setup program and follow the prompts. The setup program installs the PC AC with the default configuration. In some cases, you may then need to customize the PC AC to meet the customer's requirements using the Settings dialog box.

Following software installation, the PC AC automatically logs onto the system.

## **Configuration Options**

You can configure a static busy indication for up to 240 (2 x 120) internal stations. This display is presented in a separate window. You can also use the busy lamp field keys as destination keys (programmable on the PC AC). When transferring, press the *Connect* key to disconnect the PC AC and through-connect the call. Pressing the release key terminates the current call.

You cannot activate or deactivate acoustic signaling of calls on the optiset E telephone.

The PC AC permits the automatic recording and storage of call detail data. The data stored can then be processed by a "Teledata Pro A" call detail application installed on the same PC. The system can assign central call detail recording to only one destination, such as a PC AC or a separate call charge computer or printer.

When you exit the application on the PC AC, emergency operation activates, meaning that any necessary applications must be executed directly on the optiset E telephone.

## **Configuration Notes (for U<sub>P0/E</sub> PC card only)**

When you exit the application, the system interprets this as though the telephone had been disconnected. For such situations, you must configure a call forwarding (CF) destination that can be reached after a maximum of 15 rings (approximately 75 s). When you exit the application, the CF destination is immediately called.



# 10 Special Equipment

## Chapter Contents

This chapter discusses the following topics:

| Topic                                     | Page  |
|-------------------------------------------|-------|
| <u>Answering Machines</u>                 | 10-2  |
| <u>Recorded Announcements</u>             | 10-4  |
| <u>Voice Mail</u>                         | 10-5  |
| <u>Entrance Telephones (Not for U.S.)</u> | 10-10 |
| <u>Speakers (Not for U.S.)</u>            | 10-22 |
| <u>Data Equipment (Not for U.S.)</u>      | 10-24 |

## 10.1 Answering Machines

### Introduction

You can connect answering machines to the system via an analog port. In addition, you can configure a message waiting key (info key) to inform them that they have a message. This feature illuminates an LED if the answering machine has answered a call and the message has not been retrieved.

For more information on installing answering machines, refer to the manufacturer's instructions. Figure 10-1 on page 10-3 shows the wiring for an answering machine.

### Requirements

To install an external answering machine users must

- Follow all installation procedures supplied by the manufacturer
- Configure the station group as *answer machine*

### Example

Using Hicom Assistant T, this example configures station 19 to *Answer machine*.

| Step | Entry      | Action                                                    | Display                |
|------|------------|-----------------------------------------------------------|------------------------|
| 1.   | <b>*95</b> | Start system administration.                              | System administration  |
| 2.   | 14 11      | Select <i>Configure station, station type</i> .           | Stn 11: Standard       |
| 3.   | # 19 ✓     | Select station 19 and confirm.                            | Stn 19: Standard       |
| 4.   | * 4 ✓      | Change station type to <i>answer machine</i> and confirm. | Stn 19: Answer machine |
| 5.   | F8 F7      | Exit system administration.                               | Time, Date             |



**Example**

Using Hicom Assistant T, this example configures a programmable key for *Message waiting*.

| Step | Entry   | Action                            | Display               |
|------|---------|-----------------------------------|-----------------------|
| 1.   | * 91    | Start Program feature key.        | Please select key     |
| 2.   | Any key | Press key to be programmed.       | 11 [name] Change key? |
| 3.   | ✓ ... ✓ | Scroll to <i>Select feature</i> . | Select feature        |
| 4.   | ✓ ... ✓ | Scroll to Call waiting.           | Call waiting          |
| 5.   | ✓✓      | Save and exit.                    | Time, Date            |

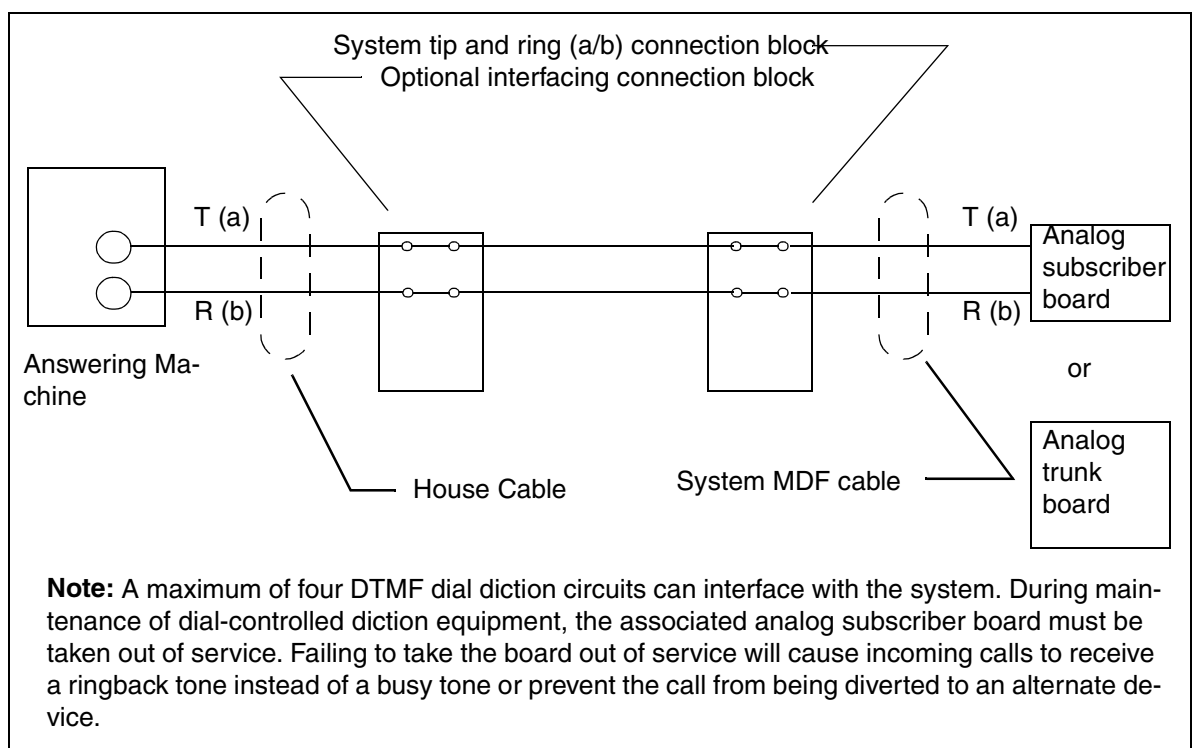
**10.1.1 Wiring for an Answering Machine**

Figure 10-1 Attaching an Answering Machine

## 10.2 Recorded Announcements

The Hicom 150 E OfficeCom and OfficePro have 64 recorded announcements available for customer-provided announcement devices. Recorded announcements comprise these categories:

- Intercept announcements inform incoming trunk callers that the number dialed is invalid.
- Hold announcements inform callers that they are on hold.
- Music after first announcement plays music for callers on hold.

The recorded announcement operation modes are:

- Barge-in mode immediately connects callers to a continuously playing announcement.
- Sequential mode connects callers simultaneously to a continuously playing announcement when a start signal is detected.
- Sequential on-demand mode connects callers at the start of an announcement, and it simultaneously connects callers in queue for the start of the next announcement.
- Start on-ring mode connects a caller to an announcement when the announcement device detects rings.

### Hardware Requirements

|                        | <b>Barge-in<br/>Mode</b>             | <b>Sequential<br/>mode</b> | <b>Sequential<br/>on-demand<br/>mode</b> | <b>Start on-ring<br/>mode</b>        |
|------------------------|--------------------------------------|----------------------------|------------------------------------------|--------------------------------------|
| <b>HW requirements</b> | Free port on analog subscriber board | Free Port on TIEL          | Free Port on TIEL                        | Free port on analog subscriber board |

## 10.3 Voice Mail



You can connect only one voice mail system to Hicom 150 E Office.

### VMIE (Voice Mail Interface Enhanced) Protocol

Analog voice mail connections require the VMIE protocol. Messages to the voice mail system take the form of DTMF signals and include the following four elements:

- **Type of call (TOC)**  
Mandatory element  
Fixed length = 4 characters.  
Format = “\*\*\*n” (n = code from the following table).

| Code | Type of Call                      | Code | Type of Call                                |
|------|-----------------------------------|------|---------------------------------------------|
| 1    | Internal call to voice mail       | 2    | External call to voice mail                 |
| 3    | All calls forwarded to voice mail | 4    | Call forwarding - no answer                 |
| 5    | Express mailbox                   | 6    | Group mailbox                               |
| 7    | Call forwarding busy              | 8    | Recall - no answer                          |
| 9    | Recall when busy                  | 0    | Forward call if called party is unavailable |

- **Calling party**  
Mandatory element  
Maximum length depends on the type of station dialed: “voice mail with 5-digit station no.” or “voice mail with 6-digit station no.”.  
Station number value range = 0-9.  
The system has a record of the internal station numbers of internal calling parties. It encodes the numbers of external calling parties, using a fixed string (02) followed by additional 2's up to the maximum length.
- **Called party**  
Mandatory element for call types 3, 4, 7, 8, and 9. The element remains blank for all other types of calls.  
Variable length.

- Additional information about the calling party)  
Optional element  
Fixed length = 2 DTMF signals  
Format = “\*i” (i = code from the following table).

| Code | Information                                           |
|------|-------------------------------------------------------|
| 1    | Calling party is a “normal” internal party.           |
| 2    | Calling party is an attendant console (AC).           |
| 3    | Calling party is an external user on an analog trunk. |
| 4    | Calling party is an external user on an ISDN trunk.   |

### Examples of Digit Strings

| Type of Call                                                                                                    | Calling Party | Called Party | Information |
|-----------------------------------------------------------------------------------------------------------------|---------------|--------------|-------------|
| Internal call to voice mail: Station 74 calls voice mail system.                                                |               |              |             |
| ***1                                                                                                            | ***74         | blank        | *1          |
| External call to voice mail: Party on an analog trunk calls voice mail system.                                  |               |              |             |
| ***2                                                                                                            | 02222         | blank        | *3          |
| Internal CF - no answer to voice mail: Station 74 calls station 13, which has set CF - no answer to voice mail. |               |              |             |
| ***4                                                                                                            | ***74         | 13           | *1          |
| CF to voice mail: External party on an ISDN trunk calls station 13, which has set CF to voice mail.             |               |              |             |
| ***3                                                                                                            | 02222         | 13           | *4          |

### **10.3.1 Memo for Hicom (Not for U.S.)**

#### **Requirements**

Two analog ports must be available.

#### **General Description**

Connect Memo for Hicom to Hicom 150 E Office via two analog subscriber ports. Entering the *Voice mail* station type adapts the behavior of the analog port to Memo.

After Memo answers a call, Hicom 150 E Office then transmits a DTMF sequence containing the extension from which the call was made and whether the call has been redirected or forwarded. Memo then informs the stations that a message has been received by transmitting the DTMF signal \*68 <extension number>. When you enter the password “# 5 9 5” (wrench or spanner icon) in the technician menu for Memo, the DTMF signals are also logged in the upper left-hand corner..

#### **Configuring Memo for Hicom**

1. Under “Station type” (14 11), enter the ports as *Voice mail* (2).
2. Set up a linear hunt group for the two ports (16 15 1/2).
3. Assign a name to the hunt group (16 15 3).
4. Assign a name to each subscriber port (14 12).
5. Enter the hunt group as destination 1 in a free call destination list (16 18 1).
6. In each call forwarding—no answer list (internal/day/night), change the reference for the two voice mail ports to this new call destination list (16 18 2 to 4).

## Sample Configurations

**Example 1:** Voice mail will be connected to analog ports 25 and 26.

| Step | Input   | Action                                                                       | Display                                               |
|------|---------|------------------------------------------------------------------------------|-------------------------------------------------------|
| 1.   | *95     | Start system administration.                                                 | System administration                                 |
| 2.   | 14 11   | Station type                                                                 | Stn 25: 2<br>Stn 26: 2                                |
| 3.   | 16 15 1 | Hunt group, group 1                                                          | Dest. 1: 25<br>Dest. 2: 26                            |
| 4.   | 16 15 2 | Call type (linear hunt group)                                                | Grp 1: 2                                              |
| 5.   | 16 15 3 | Group names                                                                  | Grp 1: Memo for Hi-com                                |
| 6.   | 14 12   | Station names                                                                | Stn 25: Memo for Hi-com 1<br>Stn 26: Memo for Hicom 2 |
| 7.   | 16 18 1 | Call destination lists (List 13)                                             | Dest. 1: Grp 1                                        |
| 8.   | 16 18 2 | Internal calls (List for station 25)<br>Internal calls (List for station 26) | 13<br>13                                              |
| 9.   | F8 F7   | Exit system administration.                                                  | Time, Date                                            |

The result of this programming is that call forwarding—no answer is performed even when the voice mail port is dialed directly. A callback is always executed via the initiator's port after a display message is received (a voice mail port, not the group. Memo for Hicom can only be configured by the stations (call internal group 1 and follow the voice prompting).

After receiving a display message, a callback is always placed to the first voice mail port.

In the case of call forwarding to internal group 1, the box is activated when the user leaves the workstation. Call forwarding when busy or free can be configured for individual stations or all stations in call management.

**Example 2:** During day service, the exchange and extensions 13 and 14 are to be forwarded to Memo after 4 rings; during night service, call forwarding—no answer is to be performed immediately.

| Step | Input      | Action                                                                                                            | Display                                      |
|------|------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| 1.   | <b>*95</b> | Start system administration.                                                                                      | System administration                        |
| 2.   | 16 18 1    | Call destination lists (List 12)                                                                                  | Dest. 1: Called<br>Dest. 2: Grp 1            |
| 3.   | 16 18 5    | Number of rings (List 12)                                                                                         | Call cycles: 4                               |
| 4.   | 16 18 3    | Ext. calls, day (List for stn 11)<br>Ext. calls, day (List for stn 13)<br>Ext. calls, day (List for stn 14)       | Dest. 11: 12<br>Dest. 13: 12<br>Dest. 14: 12 |
| 5.   | 16 18 1    | Call destination lists (List 11)                                                                                  | Dest. 1: Called<br>Dest. 2: Grp 1            |
| 6.   | 16 18 5    | Number of rings (List 11)                                                                                         | Call cycles: 1                               |
| 7.   | 16 18 4    | Ext. calls, night (List for stn 11)<br>Ext. calls, night (List for stn 13)<br>Ext. calls, night (List for stn 14) | Dest. 11: 11<br>Dest. 13: 11<br>Dest. 14: 11 |
| 8.   | F8 F7      | Exit system administration.                                                                                       | Time, Date                                   |

## Remarks

Call forwarding—no answer must always be directed to Memo. For example, if call destination list 11 (option 16) refers immediately to the voice mail group, the box answers as in the case of a direct station call (display box).

Memo programming is described in the manual provided with “Memo for Hicom”.

Password list for Memo for Hicom:

|                                             |                |
|---------------------------------------------|----------------|
| Customer password<br>(VOICEMAIL/EXCHANGE)   | <b>1 2 3 4</b> |
| Technician password (wrench icon)           | <b>5 9 9 1</b> |
| DTMF tracer (initiated via technician menu) | <b># 5 9 5</b> |



A recall to a voice mail port results in a call to the intercept position.

## 10.4 Entrance Telephones (Not for U.S.)

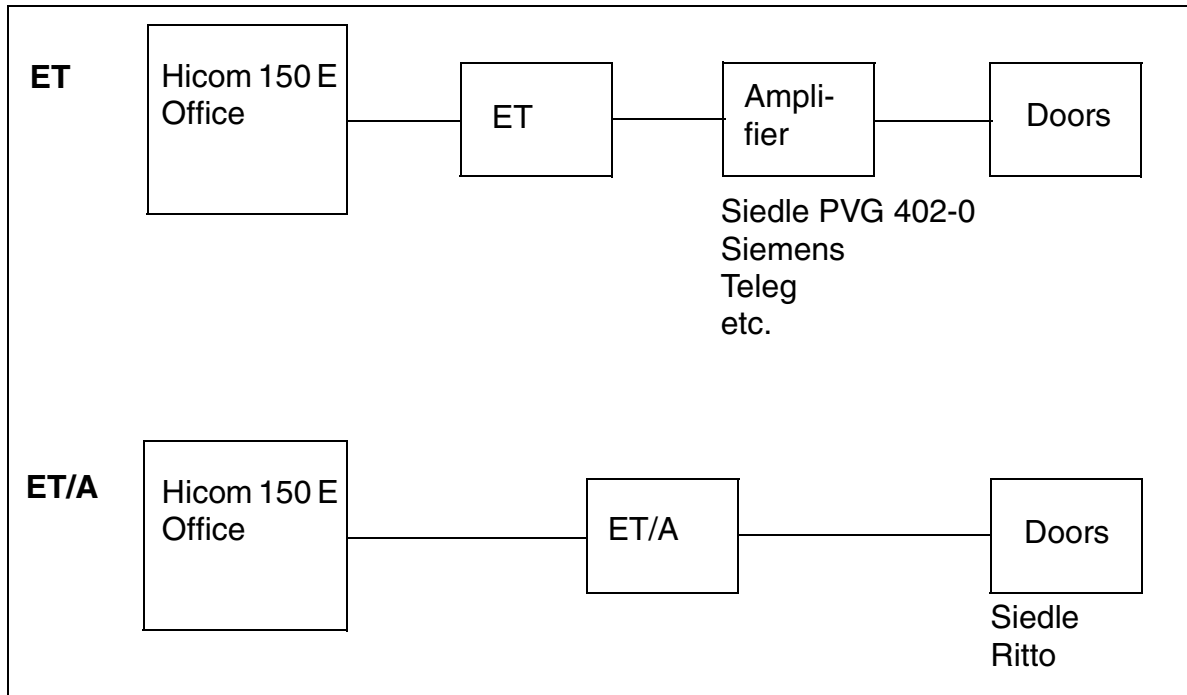


Figure 10-2 Connection Diagram of the ET and ET/A (Not for U.S.)



### 10.4.1 Direct Connection Without ET (Not for U.S.)

If desired, you can connect an entrance telephone directly.

- A voice connection to the entrance telephone is possible from any telephone (without opener and signaling functions).

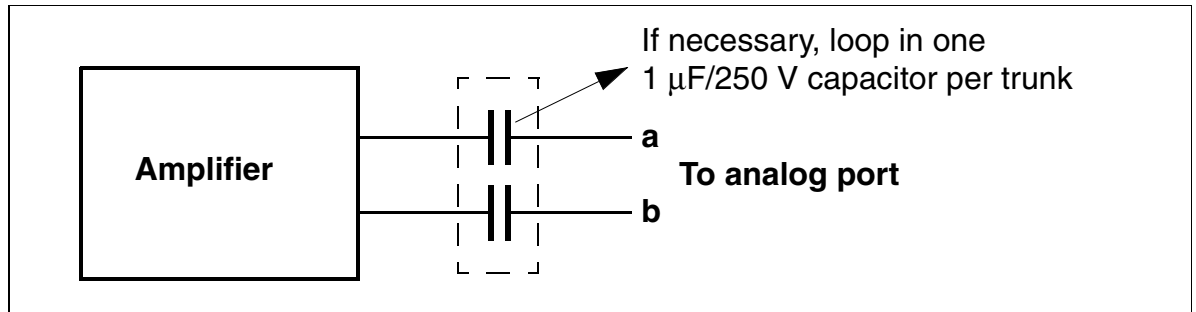


Figure 10-3 Entrance Telephone, direct ET Connection (Not for U.S.)

|                   |                  |
|-------------------|------------------|
| Amplifier         | S30356-U5216-X   |
| Door opener relay | V23040-A002-B201 |
| Capacitor         | B32231-A3105-K   |

### 10.4.2 Connection via ET Adapter Box (Not for U.S.)

Depending on the functions desired, an entrance telephone can be connected via an entrance telephone (ET) adapter box (S30817-Q930-A200/300, with starting contact).

A voice connection to the entrance telephone is possible from any telephone.

- Door opener function possible from any station.
- Doorbell signaling depends on call allocation.

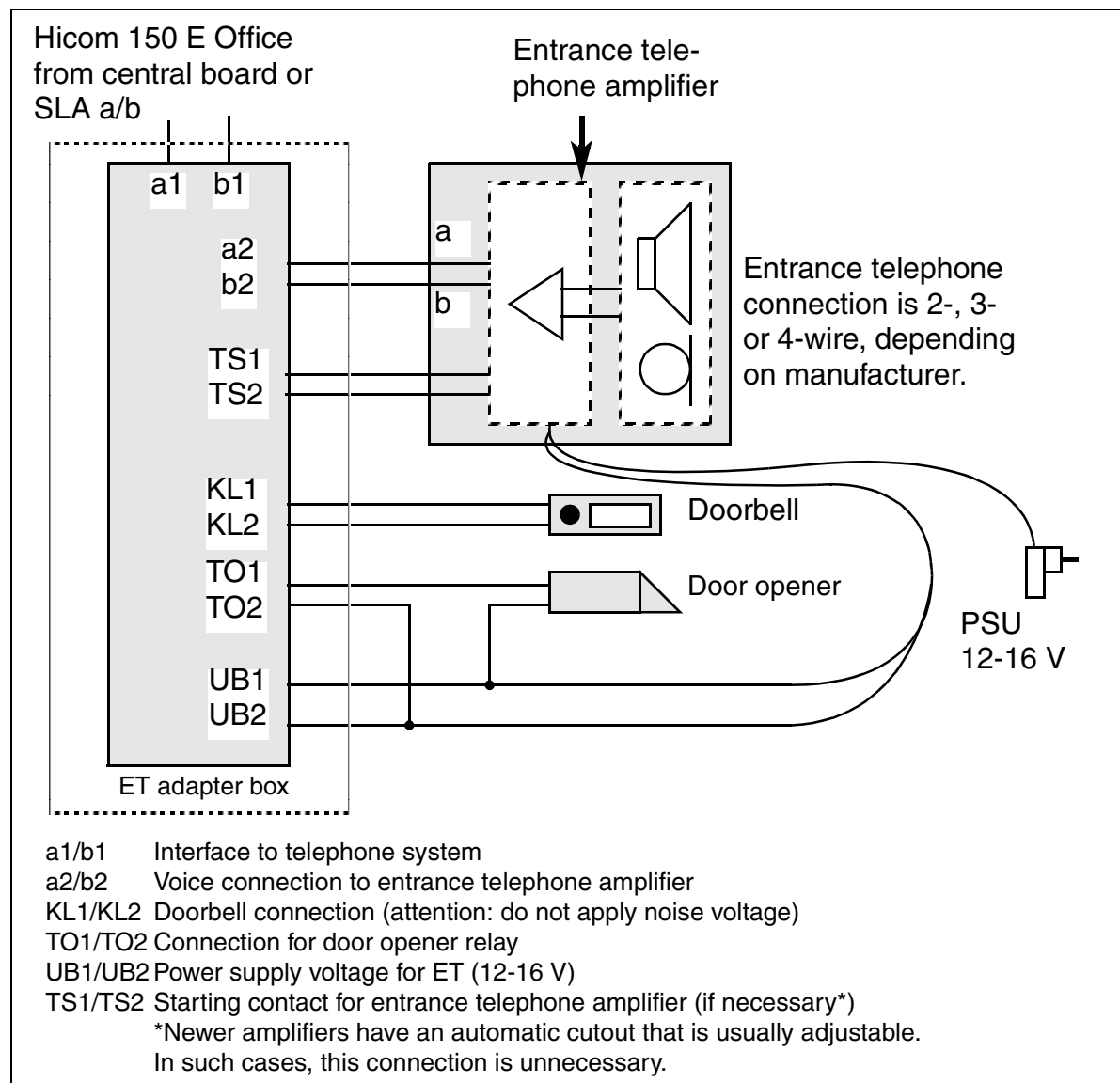


Figure 10-4 ET Adapter Connections (Not for U.S.)

### 10.4.2.1 Connection Examples (Not for U.S.)

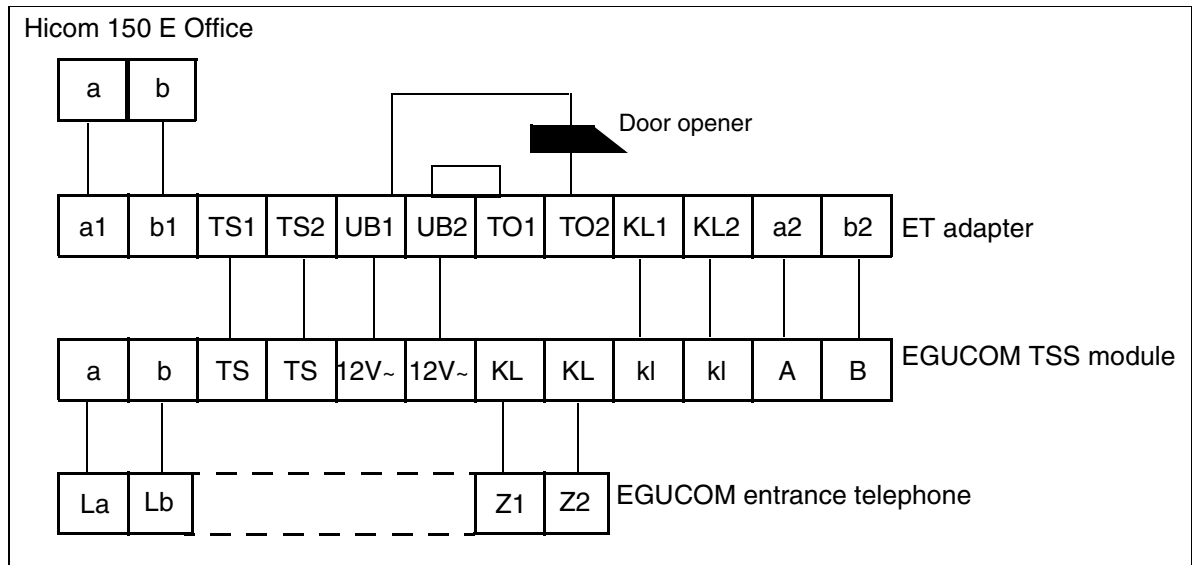


Figure 10-5 EGUCOM Entrance Telephone From Ackermann (Emmerich) (Not for U.S.)

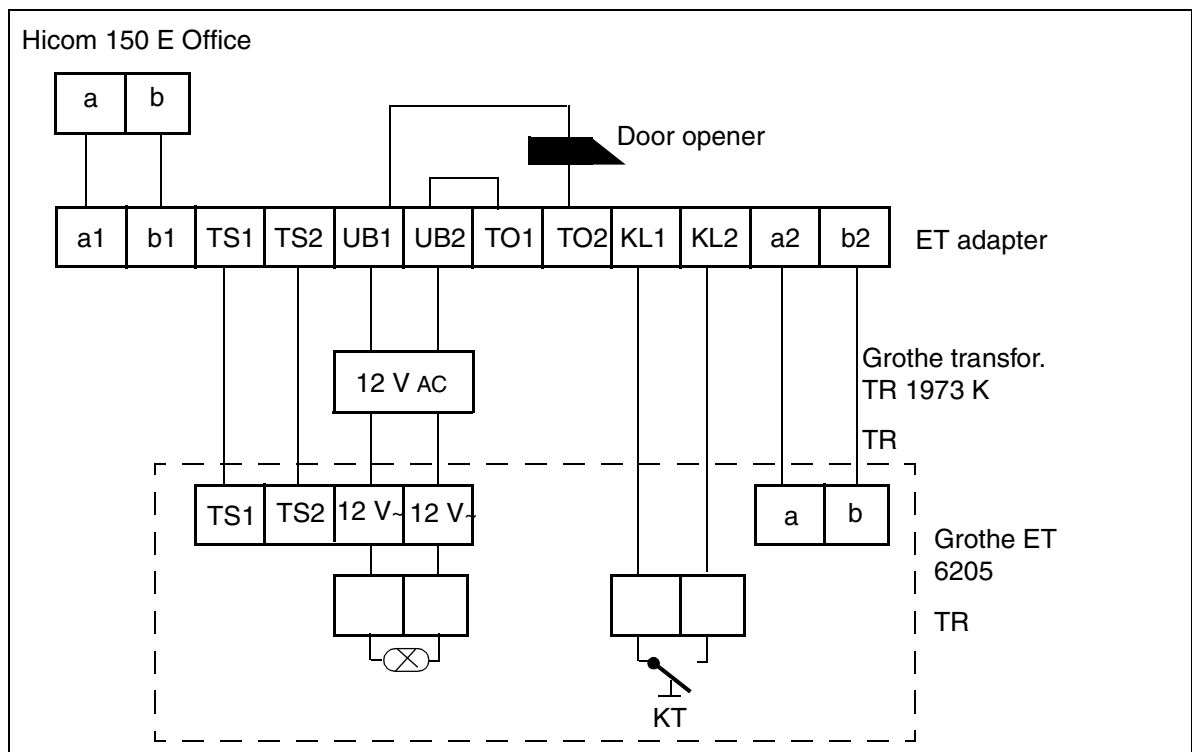


Figure 10-6 Grothe Entrance Telephone (Not for U.S.)

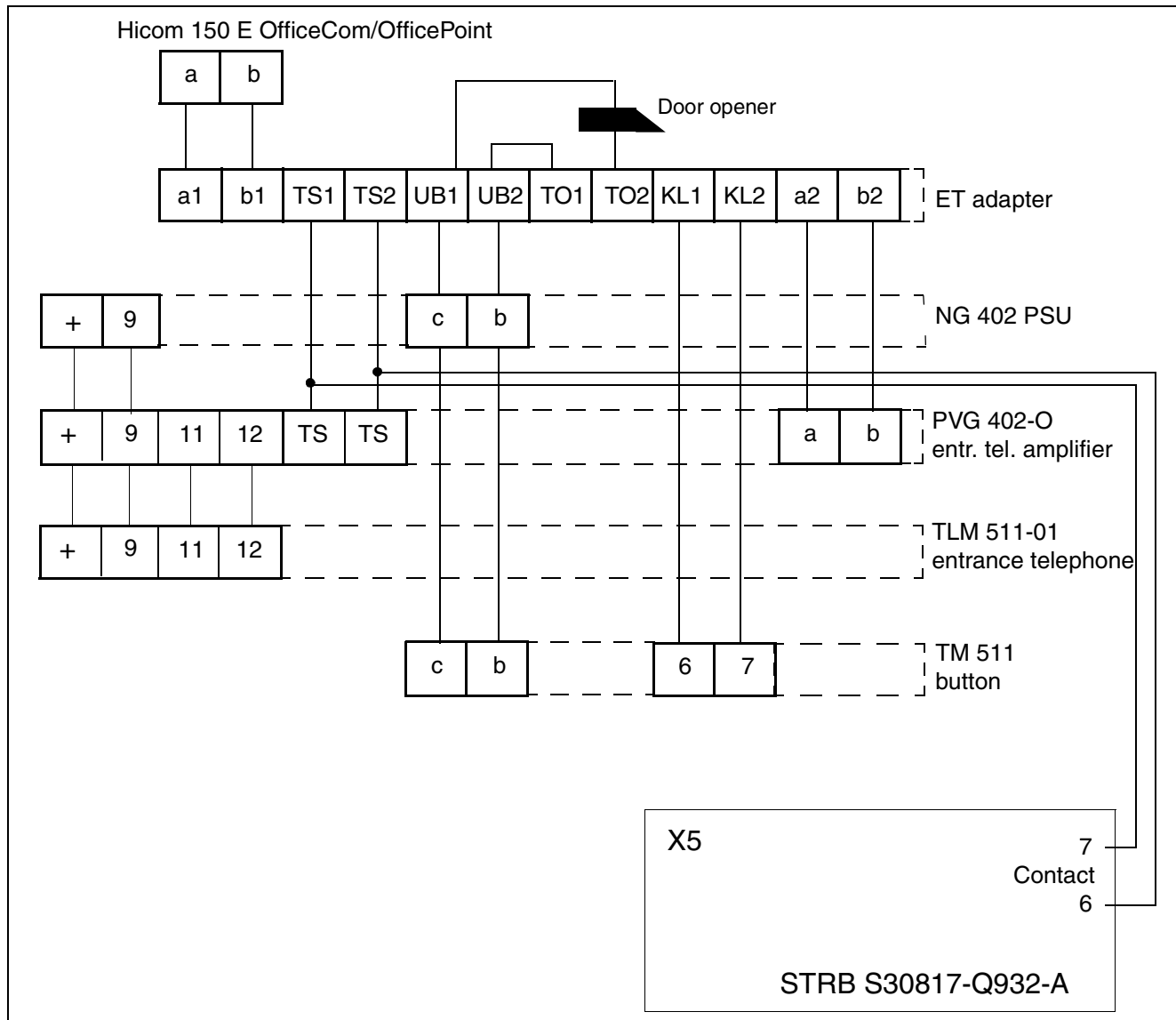


Figure 10-7 OfficeCom or OfficePoint with Siedle Entrance Telephone (Not for U.S.)

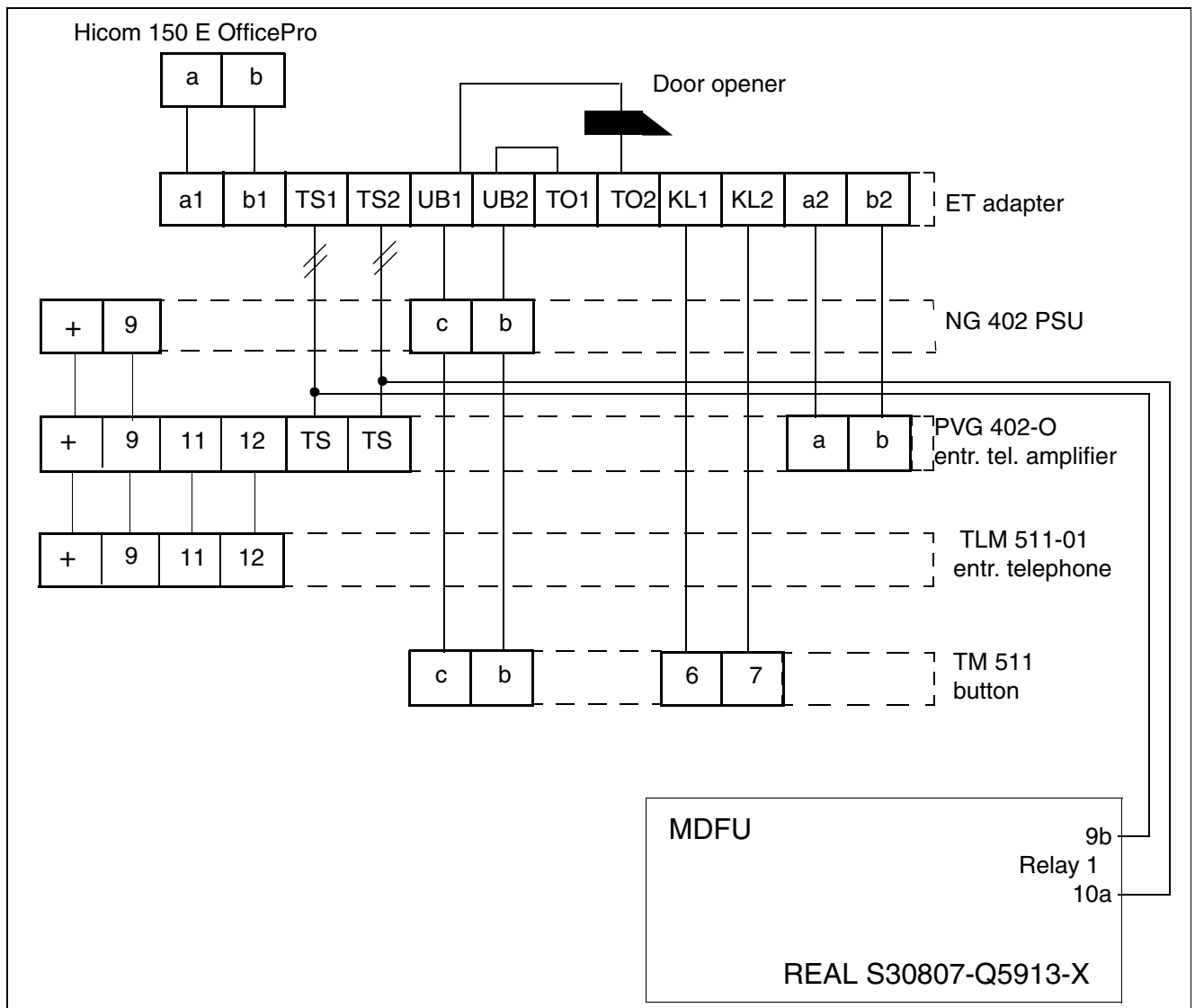


Figure 10-8 OfficePro with Siedle Entrance Telephone (Not for U.S.)

### Note

Use a REAL board for the amplifier switch-on contact if difficulties arise (such as poor audio quality at entrance telephone).

### Programming

Actuator: Loudspeaker amplifier

Switching time: --

Assigned user: Analog port of entrance telephone

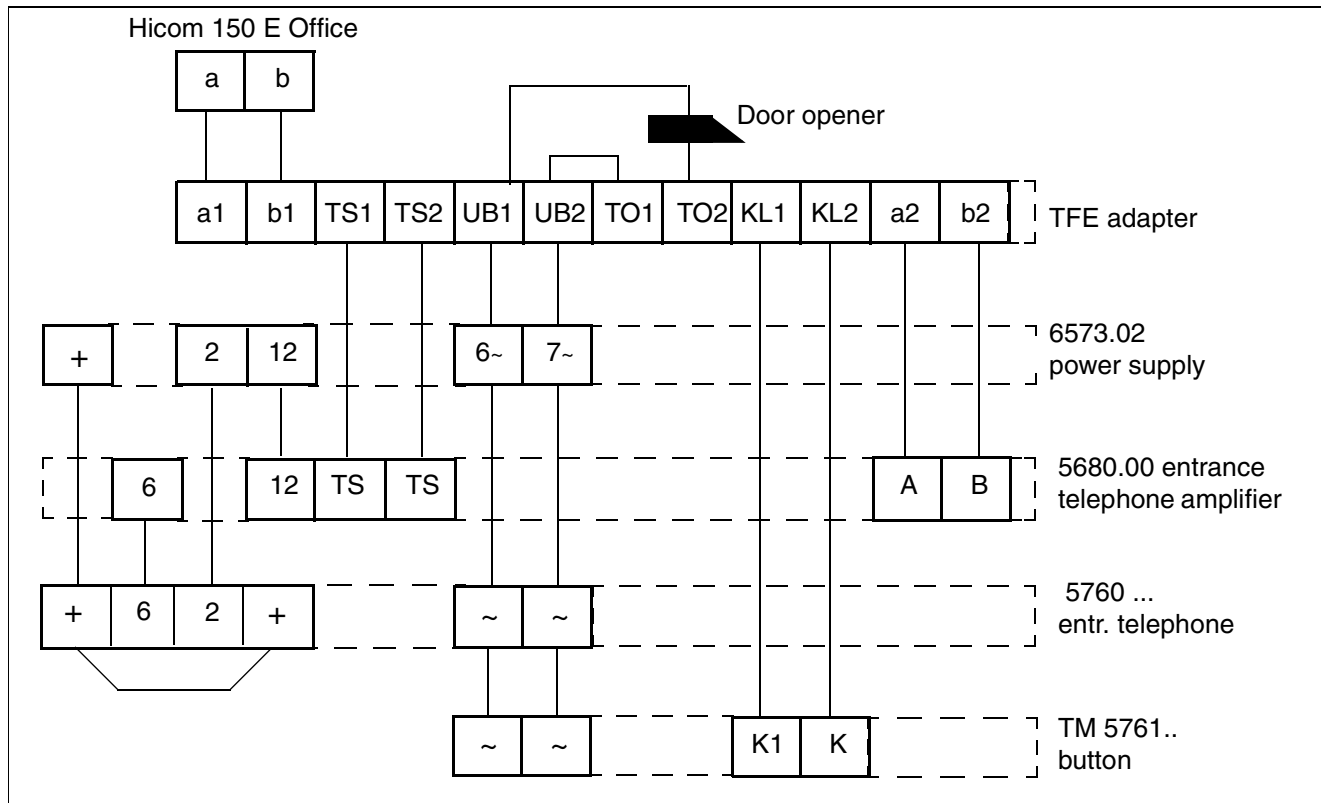


Figure 10-9 Entrance Telephone Ritto (Not for U.S.)

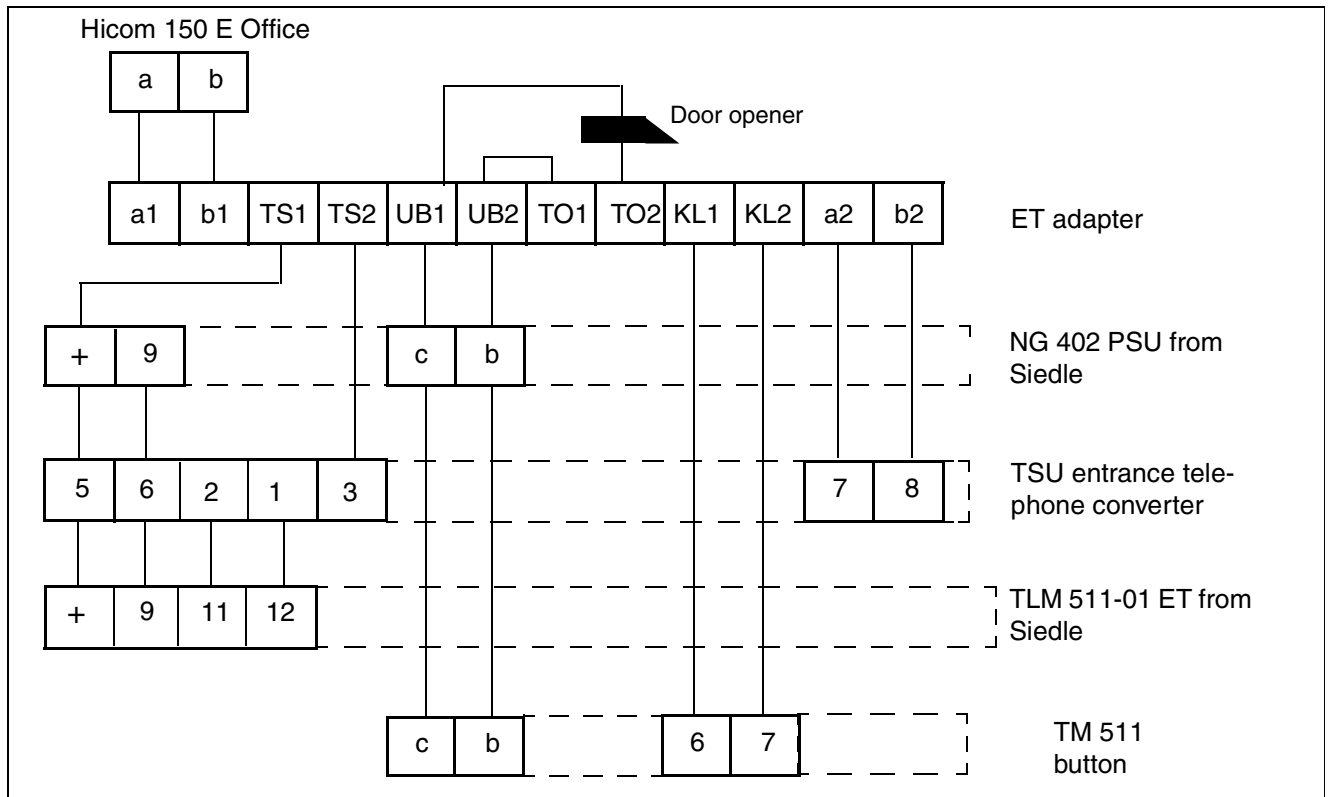


**Figure 10-10**      Entrance Telephone With Telegärtner Amplifier and Siedle Entrance Station (Not for U.S.)

### 10.4.3 ET/A Adapter (S30817-Q936-A313) (Not for U.S.)

This adapter connects an analog interface from the system to an entrance telephone and a door opener or bell function. Control is via the system. The adapter permits connection to commercially available passive entrance telephones. Each ET/A adapter requires a power supply unit.

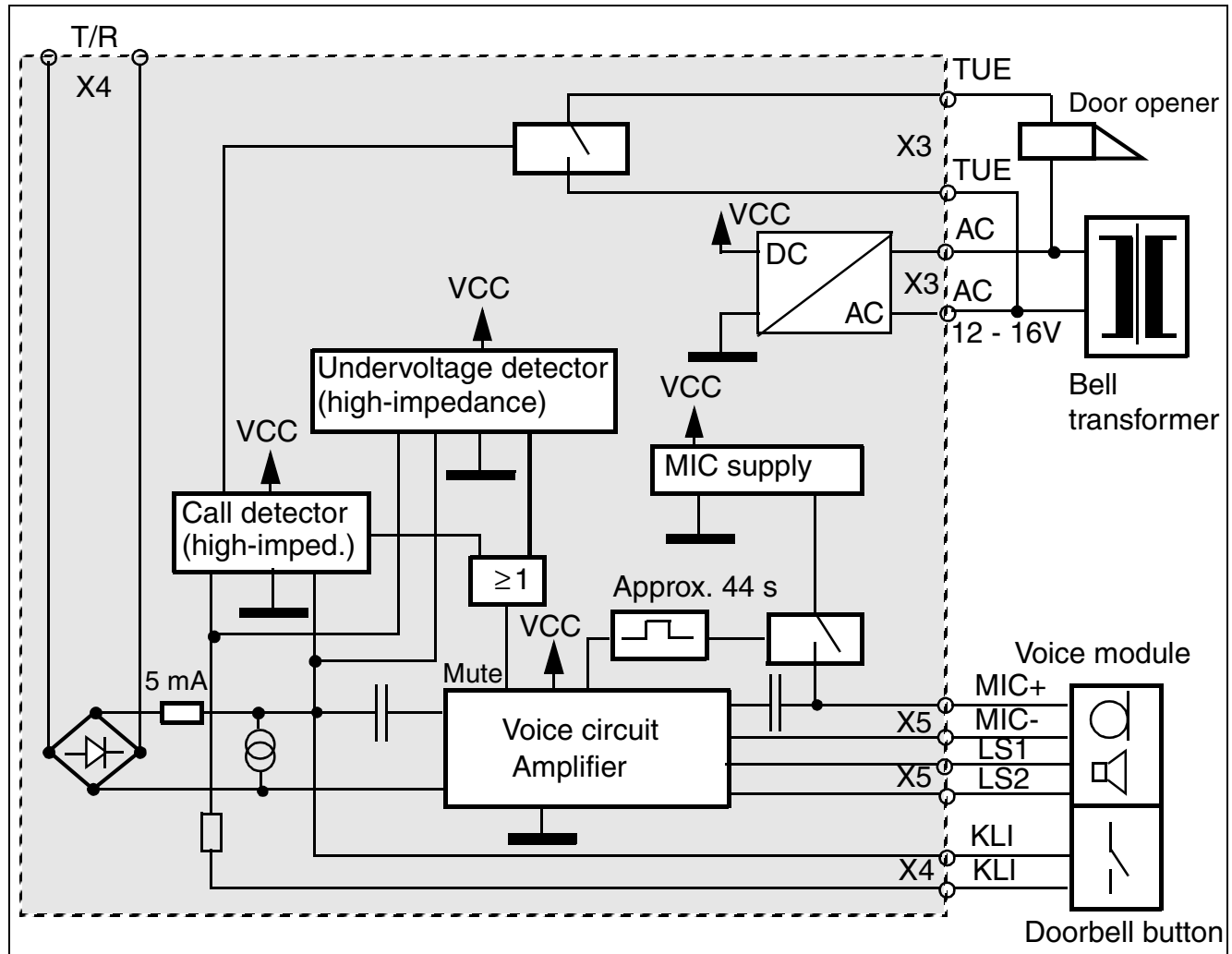


Figure 10-11 ET/A Adapter Interfaces (Not for U.S.)



**Caution**

On analog interfaces, the a-wire must always be negative and the b-wire must always be positive.



Table 10-1 ET/A Contact Assignments (Not for U.S.)

| Pin no. | Port X3                   | Port X4            | Port X5                |
|---------|---------------------------|--------------------|------------------------|
| 1       | AC                        | (a-wire) -         | Speaker (LS1)          |
| 2       | AC                        | (b-wire) +         | Speaker (LS2)          |
| 3       | Door opener contact (TUE) | Bell contact (KLI) | Microphone port (MIC+) |
| 4       | Door opener contact (TUE) | Bell contact (KLI) | Microphone port (MIC-) |

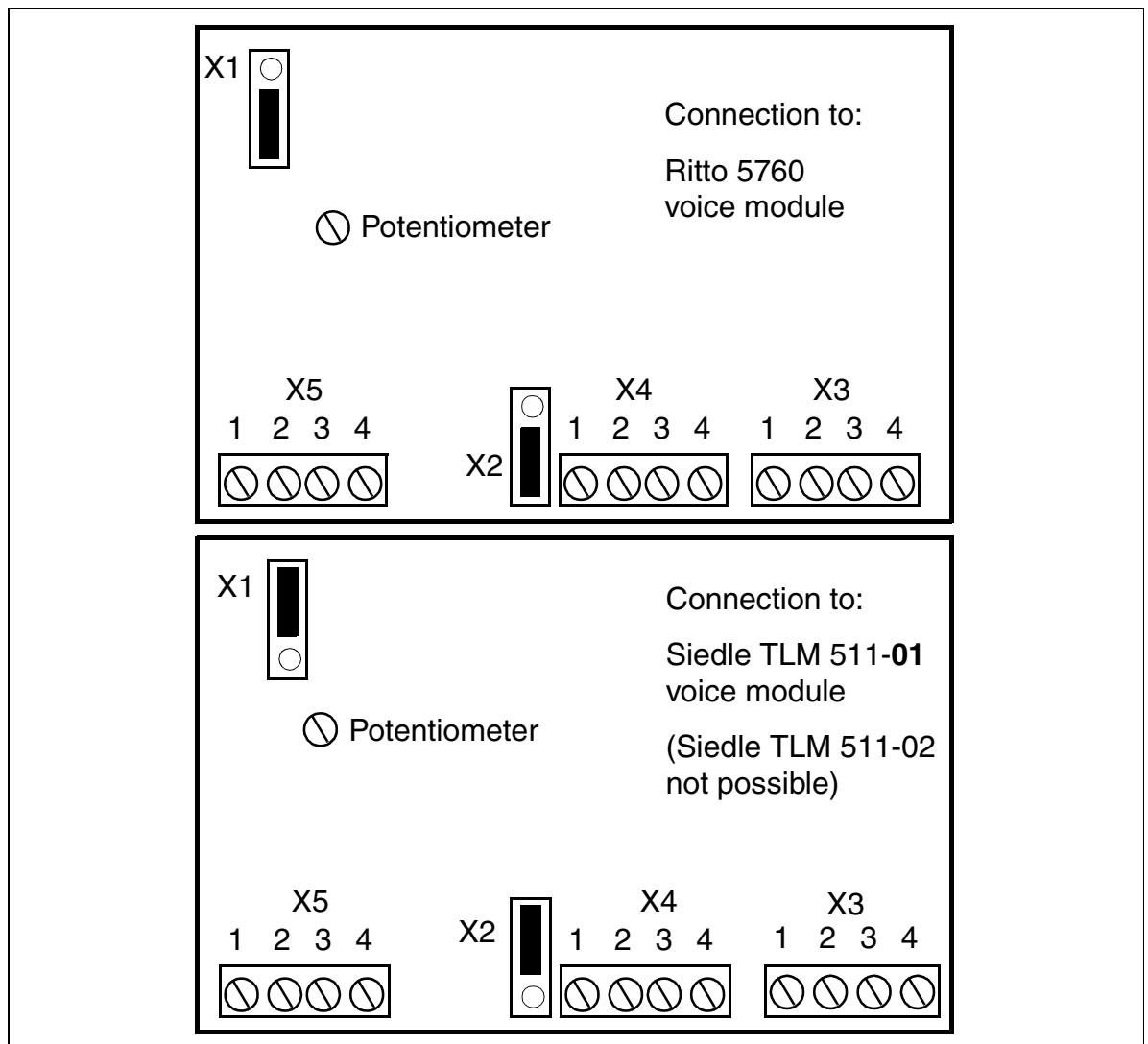


Figure 10-12 Contact Assignment for Available Voice Modules (Not for U.S.)

#### 10.4.4 Connection via ET/A Adapter Box (Not for U.S.)

Depending on the functions desired, the entrance telephone can be connected via an entrance telephone adapter box with amplifier (ET/A adapter box) (S30817-Q936-A313 with starting contact).

**Note:**

On analog interfaces, the a-wire must always be negative and the b-wire must always be positive.

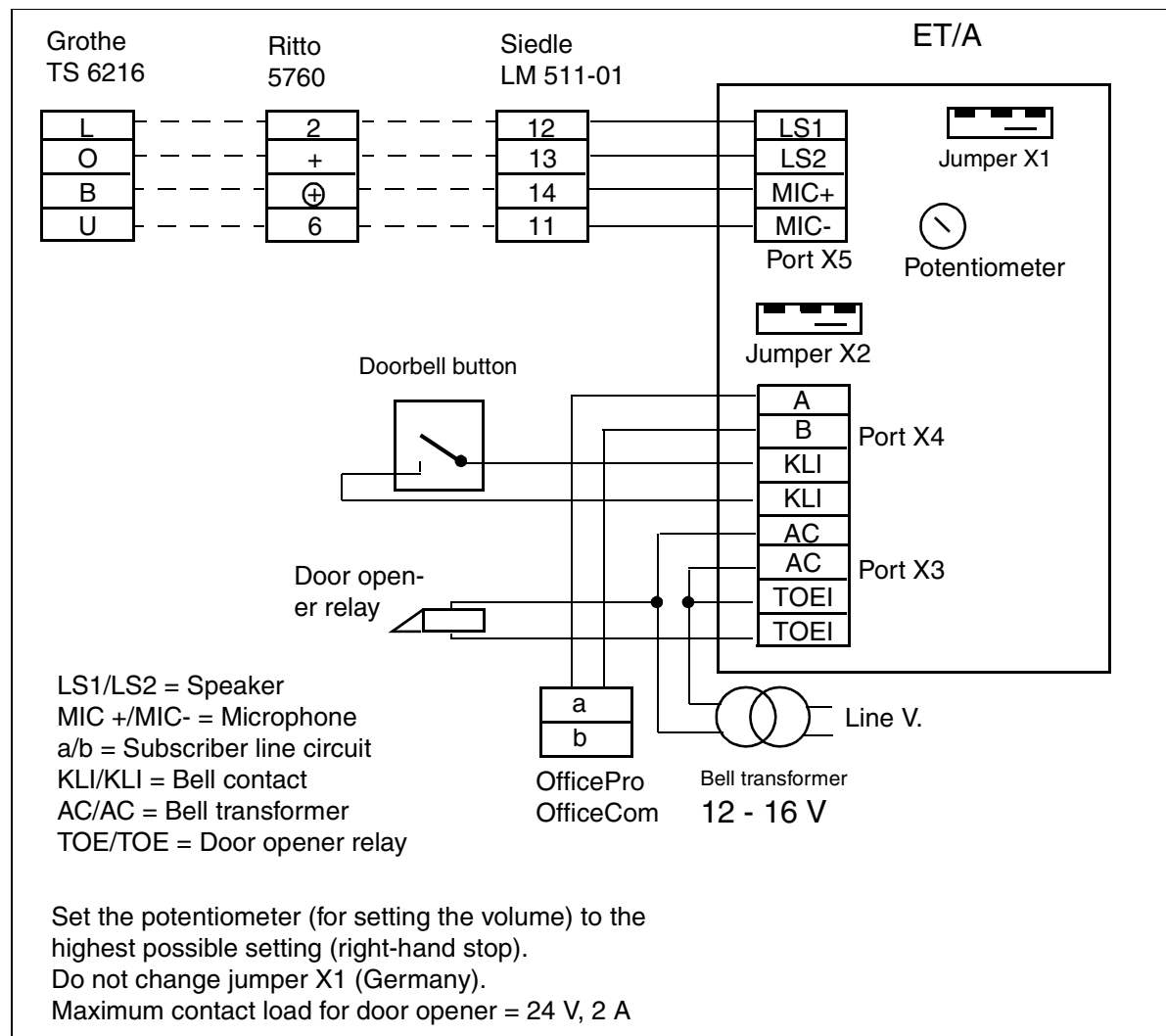


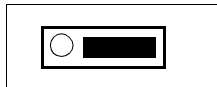
Figure 10-13 Connection to Siedle TLM 511-01, Ritto 5760 or Grothe TS 6216 Entrance Station (Not for U.S.)

## Special Features

**Siedle:** The following changes must be made to the Siedle TLM 511 entrance station:

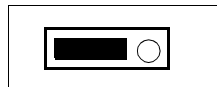
1. Open Siedle entrance station
2. Open jumpers 1, 3, and 4
3. Move speaker wire from pin *b1* to pin *12*
4. Close Siedle entrance station

Jumper X2



**Ritto:** In the Ritto 5760 entrance station, set the potentiometer to the maximum volume.

Jumper X2

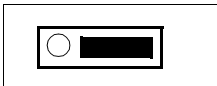


**Note:**

If a jumper is inserted between + and + (at the entrance station), it must be removed; otherwise the ET/A adapter will be severely damaged.

**Grothe:** In the Grothe TS 6216 entrance station, move the yellow jumper from *B* to *0*.

Jumper X2



Jumper X1 remains at the factory default

## 10.5 Speakers (Not for U.S.)

Two options are available for connecting speakers:

- Connection to an analog station port via an ET adapter;
- Connection to an analog trunk port.

### 10.5.1 Connecting Speakers to an Analog Station Port

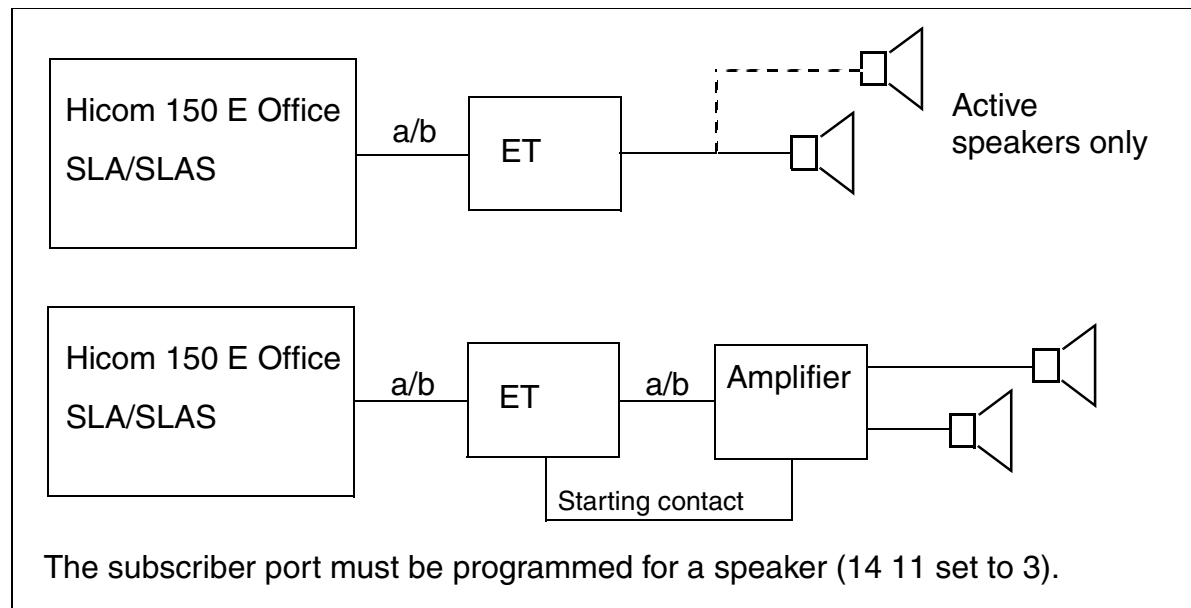


Figure 10-14 Connecting Speakers to an Analog Station Port (Not for U.S.)

### 10.5.2 Connecting Speakers to an Analog Trunk Port (Not for U.S.)

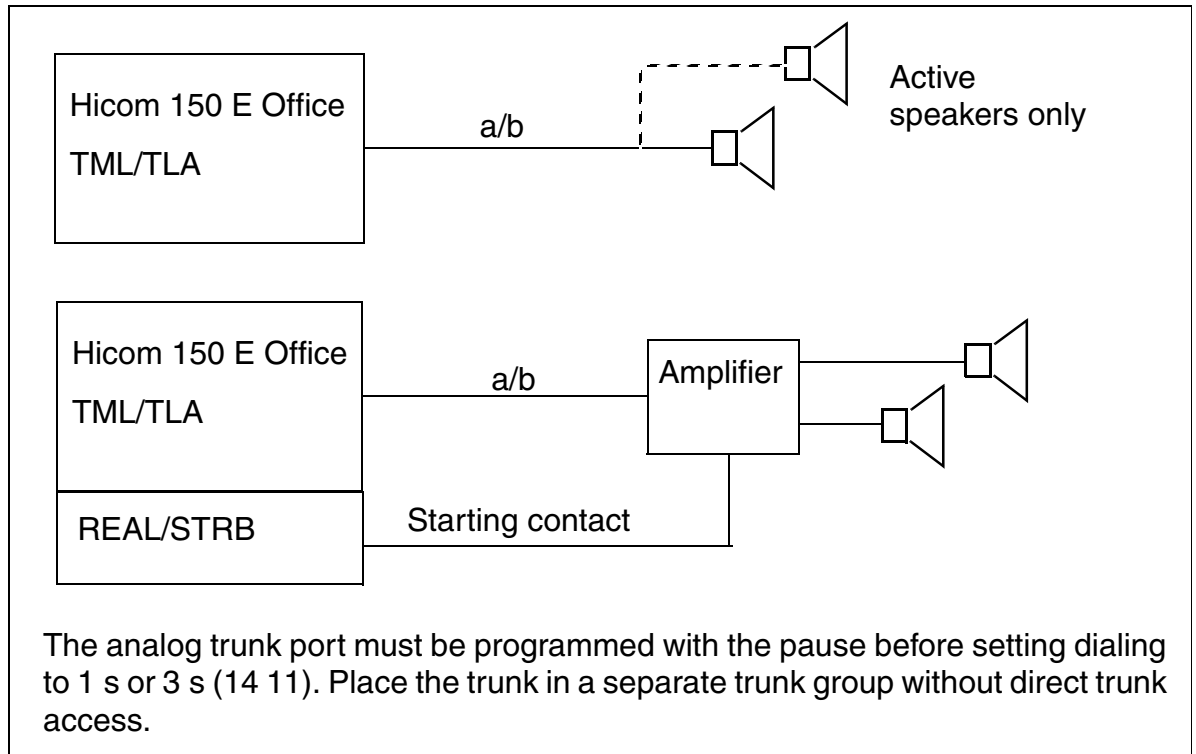


Figure 10-15 Connecting Speakers to an Analog Trunk Port (Not for U.S.)

## 10.6 Connecting Data Equipment (Not for U.S.)

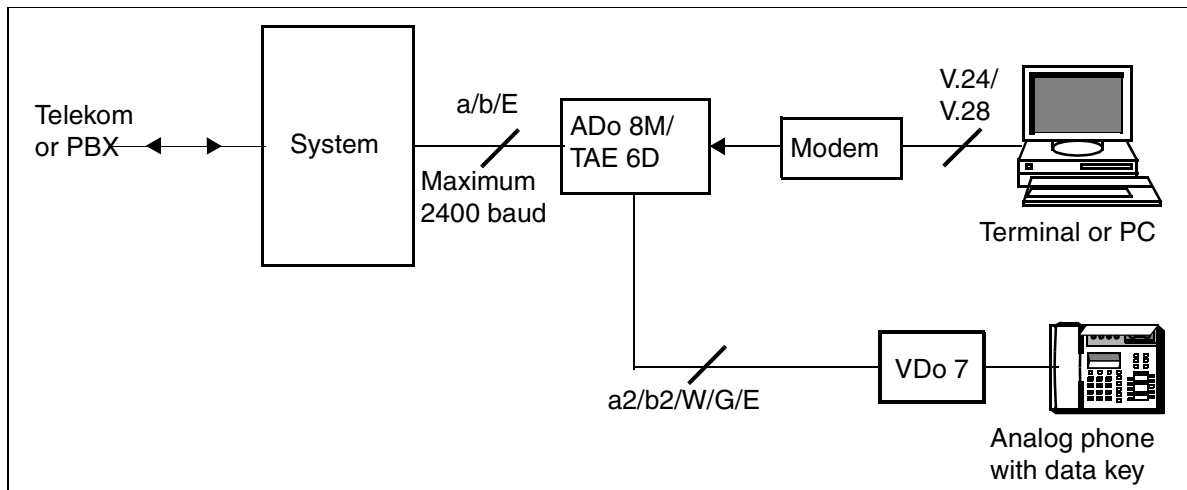


Figure 10-16 Overview of Modem Operation With an Analog Telephone (Not for U.S.)

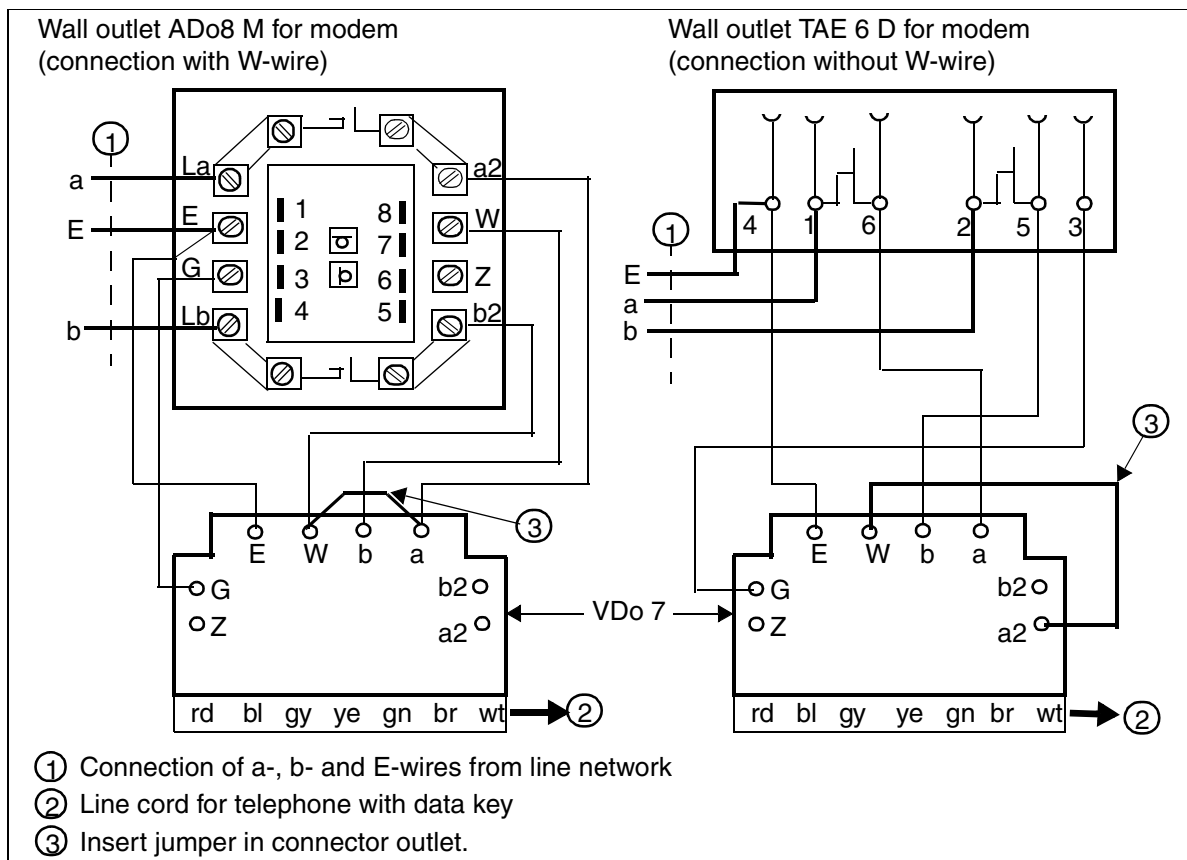


Figure 10-17 Connecting a Modem to an Analog Telephone (Not for U.S.)

## **11 Hicom cordless EM (Not for U.S.)**

Insert the Hicom cordless EM Service Manual here.

For details, refer to the Hicom cordless EM Service Manual.





## 12 Service

### 12.1 Overview

#### Introduction

This chapter describes the options available to service technicians and customers for handling faults. These options make it possible to:

- Troubleshoot and clear faults
- Perform service and maintenance

Technicians can perform troubleshooting and fault clearance both on-site and via remote service. You can use Hicom Assistant E Office to use the service features described in this chapter.

#### Chapter Contents

This chapter discusses the following topics:

| Topic                                                                  | Page  |
|------------------------------------------------------------------------|-------|
| <u>Section 12.2, <i>On-Site Service</i></u>                            | 12-2  |
| <u>Section 12.3, <i>Error Detection, Signaling, and Correction</i></u> | 12-18 |
| <u>Section 12.4, <i>Trunk Rolling (for U.S. Only)</i></u>              | 12-32 |
| <u>Section 12.5, <i>Automatic Error Signaling</i></u>                  | 12-32 |
| <u>Section 12.6, <i>Remote Service</i></u>                             | 12-33 |
| <u>Section 12.7, <i>Access Protection</i></u>                          | 12-38 |
| <u>Section 12.8, <i>Logging Administrative Procedures</i></u>          | 12-46 |

## 12.2 On-Site Service

### 12.2.1 Customer Database Backup (CDB Backup)

#### Definition

- CDB Backup backs up the customer database (CDB) to a storage medium automatically and in cycles. Hicom 150 E Office saves the CDB to a flash memory card (FMC) every day at midnight system time, thus creating a backup copy of the data. (Hicom 150 E OfficeOne and OfficeStart save the data to the EPROM.)
- If the control board (CBMOD or CBPC) fails, you can transfer the latest CDB to a new board. This requires that the FMC has sufficient memory for a CDB backup (at least 8 MB).
- In Rel. 2.0 and later, you can back up the CDB manually, using Hicom Assistant T or Hicom Assistant E Office (in online mode).
  - You cannot stop a manual backup that was started with Hicom Assistant T.
  - After Hicom Assistant T starts a CDB backup, you should end the procedure again. The backup continues to run in the background.

You can also use Hicom Assistant T to manually recover a CDB from the flash memory card FMC

- Reset the system to start recovering the CDB, which restarts the system (cold start).
- When you perform an APS transfer, the CDB backup on the FMC is overwritten and is available again only after a manual or automatic CDB backup.
- The system signals that a CDB backup is in progress by briefly extinguishing the run LED or the idle bar several times on the CBMOD / CBPC. The procedure takes approximately 30 seconds.
- The CDB, including call data, is saved for approximately 100 hours in the event of a power failure.
- If you are using an uninterruptible power supply (UPS), system operation is maintained for the period provided by the UPS in the event of a power failure.
- During nightly CDB backup, the system first copies the CDB to main memory. You cannot make any changes to the CDB during this period (CDB access is denied for local and remote administration and for Plus Products for approximately 30 ms).

The system then transfers the copied area to the FMC (this is time-intensive and may take more than 20 seconds, depending on system load). After the data has been written, the system generates a checksum of the CDB on the FMC and

compares it to the checksum in main memory. If the system finds an error, it repeats the backup procedure 3 times. If backup is unsuccessful, the system makes an entry in error memory.

### 12.2.1.1 Backing Up the CDB Manually on an FMC and Restoring It to the System Using Hicom Assistant T (not for Hicom 150 E OfficeOne/Start)

This section describes how to back up the customer database manually on a flash memory card and restore it to the system using Hicom Assistant T. This requires an 8 MB or larger FMC.



#### **Caution**

Always disconnect the system from the power source before inserting or removing the flash memory card.

#### **a) Backing Up the Customer Database Manually on an FMC:**

| Step | Action                                           |
|------|--------------------------------------------------|
| 1.   | Start Assistant T system administration          |
| 2.   | Menu 28 -> Edit CDB                              |
| 3.   | Menu 28 - 2 -> Save CDB                          |
| 4.   | Menu 28 - 2 - 1 -> Save CDB to flash memory card |

#### **b) Loading the Saved Customer Database from FMC to the System**

| Step | Action                                                                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Start Assistant T system administration                                                                                        |
| 2.   | Menu 28 -> Edit CDB                                                                                                            |
| 3.   | Menu 28 - 2 -> Save CDB                                                                                                        |
| 4.   | Menu 28 - 2 - 2 -> Load CDB from flash memory card<br><b>Attention:</b> When you do this, the system performs a hard re-start. |

#### **Reasons CDB Backup May Not Be Carried Out**

- Insufficient memory on the flash memory card.
- The time following a system reload is also 0:00.
- New APS in free area of flash memory card (memory full).

### 12.2.1.2 Replacing the Processor Board (CBMOD, CBPC)

If you need to replace the processor board because of a hardware fault, you have the following options for handling the CDB:

- **Loading the “new” CDB to the system after replacing the board**

Procedure: Use Hicom Assistant E Office to make a copy of the CDB on-site and save it on an FMC. Then disconnect the system from the power source and remove the FMC. Replace the processor board and re-insert the FMC. When you turn the system back on, it performs a reload. After loading the CDB you have just saved back to the system, the hardware and CDR switches are active, but delta mode is not set. The customer system is now configured.

- The CMI mobile phones are registered.
- The V.24 (RS-232) baud rate is set.
- The ACD login port is configured.
- All telephone settings, such as volume and display settings, are configured for each station.

- **Loading the “old” CDB to the system from a customer disk after replacing the board**

Procedure: Disconnect the system from the power supply and remove the FMC. Replace the processor board and re-insert the FMC. When you turn the system back on, it performs a reload. If you want to use an “old” CDB version in the system, you need to load it to the system without setting it to delta mode. The hardware and CDR switches are in active.

Then reset the system, after which the customer system is configured.

**Attention:**

- Re-register the CMI mobile phones.
- Reset the V.24 baud rate.
- Reconfigure the ACD login port.
- Reprogram all telephone settings, such as volume and display settings, for each station.

- **Loading the CDB to the system from the FMC after replacing the board**

If you cannot save the CDB because of a hardware fault, you can load the backup CDB from the previous day to a replacement processor board. (the system saves the current CDB on the FMC every day at midnight.)

**Procedure for Hicom 150 E OfficePro (Rel 1.0)**

1. Disconnect the system from the power source.
2. Remove the flash memory card from the defective CBMOD.
3. Replace the defective CBMOD with a new CBMOD.
4. Insert the flash card in the new CBMOD.
5. Reconnect the system to the power source.
6. Execute a reload (hold down reset switch for 3 s).
7. If an "F" appears on the seven-segment display, briefly press the reset switch (resets the system).
8. The system boots with the backed-up CDB.

**Procedure for Hicom 150 E OfficeCom and OfficePoint (Rel 1.0)**

1. Disconnect the system from the power source
2. Remove the flash memory card from the defective CBPC.
3. Replace the defective CBPC with a new CBPC.
4. Unplug battery connector (X11) next to the buffer battery on the CBPC for approximately 20 s.
5. Insert the flash card in the new CBPC.
6. Reconnect the system to the power source **without** performing a reload.
7. The system boots with the backed-up CDB.

Then reset the system.

After you load the CDB from the backup area, the CDB in the system is a maximum of one day old.

## 12.2.2 Replacing or Upgrading the System Software

### 12.2.2.1 Speed Upgrade

You can use a speed upgrade to upgrade the software within the same release.

Follow the steps below:

- Using Hicom Assistant E Office, make a copy of the current CDB on-site and save this CDB to a customer floppy disk (this provides additional security).
- To perform a speed upgrade by replacing the FMC, first disconnect the system from the power source.
- Remove the FMC containing the “old” APS.
- Insert the FMC containing the “new” APS.
- Turn the power back on; the system boots.

Because the CDB is backed by a battery in the processor board RAM, the CDB contents are not lost. The data in the customer system is the same as before the upgrade.

You can perform a remote APS transfer in the same way. This transfers the software over the phone line instead of replacing the card and stores it in an area on the FMC reserved for this purpose. After the data has been transferred, or after a timeout, the system switches over to the new software. The CDB remains the same.



You can perform a speed upgrade only within the same release, but not from Release 1.0 to Release 2.0.

### 12.2.2.2 Upgrading the System Software

Follow the steps below to upgrade the system software from Release 1.0 to Release 2.0:

- Read and save the old customer database using Hicom Assistant E Office.
- Install the new Hicom 150 E Office software (by replacing the FMC).
- Start up Hicom 150 E Office (with the default database).
- Select the *Convert customer database* menu to convert the database (you must enter the old CDB and the version of the new system software).
- Copy the converted CDB to the system.

**12.2.2.3 Upgrading the System Software in OfficeOne and OfficeStart (Release 2.2 and Earlier)**

In Release 3.0 and later, perform an APS transfer to upgrade the system software in OfficeOne and OfficeStart (see [Section 12.2.2.4](#)).

You can use the software loader (P30300-P1509-F1-1) to upgrade the software on-site. Set up the connection to OfficeOne or OfficeStart via the [V24 adapter](#) (ROW = S30122-X5468-**X3**, Australia = S30122-X5468-**X300**) to ensure a secure data exchange.



If you have a V.24 adapter of the type S30122-X5468-**X1** / -**X100**, the load operation may terminate incorrectly, causing problems. You need to customize this V.24 adapter to perform software upgrades without problems. Refer to TR No. WIT-99-00163 for details.

**Procedure**

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Copy the new system software to the <b>Loader</b> directory and start the loader.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2.   | Connect the PC to OfficeOne or OfficeStart via the <a href="#">V24 adapter</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3.   | Save the existing customer data (as <i>cust1.kds</i> , for example). You need to convert the data if you are upgrading between different releases (see <a href="#">page 6-26</a> ).                                                                                                                                                                                                                                                                                                                                                                                 |
| 4.   | Start the system administration from the system telephone.<br>*95 Access system administration<br>31994 Default user name (identification)<br>31994 Default password (authentication)<br>29-1-3 Enable the FMC for programming (clear the flash memory)<br>Immediately afterwards, perform a system reset (disconnect and the reconnect the power plug).<br><b>Note:</b><br>If you are upgrading from one release to another (such as from Release 1.0 to Release 2.x), use the password for the earlier release (Release 1.0) to access the system administration. |
| 5.   | Select the new system software and begin loading it. The system then calculates the checksum. Click OK to confirm.<br>Loading takes around 25 to 30 minutes. Do not allow a screen saver to activate until loading is completed.                                                                                                                                                                                                                                                                                                                                    |
| 6.   | The system starts automatically, after which you must load the customer data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



The system retains the customer data during upgrades within the same release. When upgrading between different releases, the country initialization procedure creates a default database. Afterwards, you must load the customer data.

#### 12.2.2.4 Upgrading the System Software in OfficeOne and OfficeStart (Release 3.0 and Later)

You must perform an APS transfer to upgrade the system software to Release 3.0 in OfficeOne and OfficeStart. Do not use the software loader for this upgrade.

You can do this in one of two ways:

- APS transfer via the V.24 interface  
Use the V24 adapter for this purpose (world = S30122-X5468-**X3**, Australia = S30122-X5468-**X300**).  
Set the baud rate in the communication server and Hicom Assistant E Office to 19200 baud for short transmission times (30 minutes).  
– OfficeOne/OfficeStart: Hicom Assistant T, menu option 22-13-1-3  
– Hicom Assistant E Office: use the menus to select the program settings. The *Communication* tab contains the baud rate settings.
- APS transfer via the optiset E ISDN adapter (not in OfficeStart) or the S<sub>0</sub> subscriber port  
Use this option for transmission times of 25 minutes.

#### Procedure

| Step | Action                                                                                                                                                                                                                                                                                                      |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Connect the service PC to OfficeOne or OfficeStart, using one of the options described.                                                                                                                                                                                                                     |
| 2.   | Save the existing customer database (as "kunde1.kds", for example). Convert the database file if you are upgrading to a new release (see <a href="#">page 6-26</a> ).                                                                                                                                       |
| 3.   | Select <i>Open CDB</i> from the <i>File</i> menu and select the <i>APS file (*.fst)</i> format. Open the fst file containing the new system software.<br><b>Note:</b> The fst file is reserved for in-factory programming and should not be transferred by the software loader.                             |
| 4.   | Double-click the <i>Transfer</i> icon:<br>Select the access type and enter your PIN.                                                                                                                                                                                                                        |
| 5.   | Select <i>APS Transfer</i> . A new window now appears at the top right edge of the window. Here you can specify whether you want to <ul style="list-style-type: none"> <li>● replace the APS immediately at the end of the transmission,</li> <li>● replace the APS at a specific point in time.</li> </ul> |
| 6.   | Start the APS transfer. This will take roughly 25 to 30 minutes.                                                                                                                                                                                                                                            |
| 7.   | At the end of the APS transfer, Hicom Assistant E Office reports "APS transfer completed successfully". This triggers a system reset, and the CS starts up with the Release 3.0 default settings either immediately or after the entered time.                                                              |



| Step | Action                                                                                                                                                                                 |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.   | You can use the <u>APS stamp</u> to verify whether the new APS was activated properly. Use either Hicom Assistant E Office or Hicom Assistant T (menu option 29-1-2) for this purpose. |
| 9.   | Program the system password from an authorized telephone.                                                                                                                              |
| 10.  | Now load the converted customer database and define the hardware configuration.                                                                                                        |



The system retains the customer data during upgrades within the same release. When upgrading between different releases, the country initialization procedure creates a default database. Afterwards, you must load the customer data.

#### **12.2.2.5 Downgrading to the “Old” Software**

In most cases, you can only upgrade the Hicom 150 E Office APS, that is, you replace the existing software (A) with a new software version (B).

However, if you need to downgrade the software, (from B to A), you must follow the steps below.

**Example:** APS version A is running on the customer system. It was upgraded to version B and needs to be downgraded again to version A.

To downgrade the software:

- Disconnect the system from the power source.
- Remove the FMC containing the current APS (B).
- Insert the FMC containing the old APS (A).
- Turn the power back on; the system boots.
- Using Hicom Assistant E, load the backed-up CDB for version A to the system.
- Reset the system.

### 12.2.2.6 Software Notes for Hardware Updates in a System

You should complete a planned hardware update before making a copy of a CDB with Hicom Assistant E Office. This procedure tells Hicom Assistant E which version of the hardware configuration is now installed (after an upgrade).

Do not perform any hardware updates between CDB read and write operations.

Hardware updates include:

- Removing existing boards and inserting new ones.
- Adding telephones and connecting new ones.
- Disconnecting and connecting optiset E key modules and options

If you plan to update the customer hardware at the same time you upgrade the software, a speed upgrade detects the new hardware and incorporates it into the system.

Perform the steps in the following order:

- Perform a speed upgrade.
- Update the hardware.
- Remove the CDB from the system and make any changes.
- Load the CDB to the system.

Note the following when you add additional boards to the customer system or remove existing ones:

- When adding boards, you can insert them into any free slot in a system, where they will go into operation automatically.
- You can also append the ports of the new boards to the end of the existing ports.
- If you place a new board in a free slot between existing boards in a system, the sequence of ports changes when the system boots following a reload.

**Note:** If an upgraded system triggers a reload, you must perform a reset in the system after loading the backed-up CDB (using Hicom Assistant E Office). The reset synchronizes the sequence of ports in the system.

After upgrading the software with a speed upgrade, the CDB in the system remains the same and no further action is needed.

### 12.2.2.7 APS Transfer (APSXF)

#### Function

The APS transfer replaces the application processor system (APS) in a Hicom 150 E system from a remote service center (remote service). The service center performs APS transfer via the integrated analog or digital modem using the Hicom Assistant E Office.

#### New feature in Release 3.0 and later

APS compression shortens transmission times by as much as 30 percent. CSTA over IP is available in Release 3.0 and later (see [Chapter 13](#)).

#### Requirements

You need two applications to carry out an API transfer: An application in the service center and an application on the customer system.

A flash memory card (FMC), or a soldered-in EPROM in OfficeOne and OfficeStart, with an adequate amount of storage capacity must be available on the customer system.

The write-protection switch on the flash memory card must be set to *write enable* (factory default).



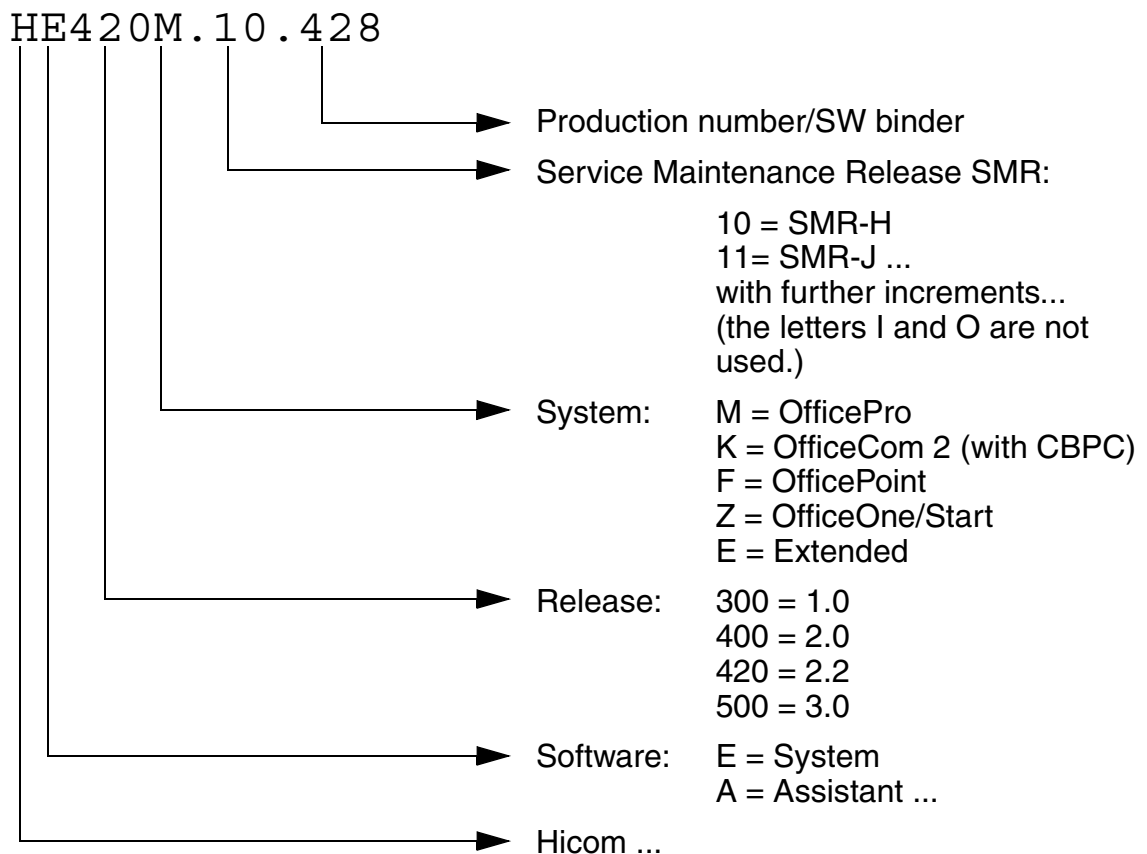
All Hicom 150 E Office systems currently have a sufficient storage capacity for APS transfer.

Refer to [Table 3-8 on page 3-31](#) for a list of flash memory card models and their applications.

#### APS Transfer Using Hicom Assistant E Office: Procedure

|    |                                                                                                                                                                                                                                                                                             |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | In Hicom Assistant E Office, click the Open customer database button.                                                                                                                                                                                                                       |
| 2. | Select the extension *.fst from the file type field.                                                                                                                                                                                                                                        |
| 3. | Select the folder that contains the .fst file and open the file.                                                                                                                                                                                                                            |
| 4. | In Hicom Assistant E Office, click the Transfer button.                                                                                                                                                                                                                                     |
| 5. | Enter the access number.                                                                                                                                                                                                                                                                    |
| 6. | Select APS Transfer.<br><b>Note:</b><br>If the APS_Transfer field has a gray background, the fst file was not opened correctly. When you click this button, another window appears in the upper right where you can define the time to activate the new APS.<br>APS transfer can now begin. |

|     |                                                                                                                                                                                                                                                   |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.  | The transfer time may vary depending on the system. Generally it takes from 20 to 30 minutes with a ISDN transmission. Transfers using an IMOD modem, on the other hand, will take longer, due to the slower transmission rates of these devices. |
| 8.  | Following APS transfer, Hicom Assistant E Office reports the following: <i>APS transfer successfully completed</i> . A system reset is performed at this time and the system boots with the new APS either immediately or after the time entered. |
| 9.  | After booting, the system deletes the old APS. The delete operation takes approximately 7 minutes.                                                                                                                                                |
| 10. | To check whether the new APS has been activated, use the <u>APS stamp</u> function in Hicom Assistant E Office or Hicom Assistant T (menu options 29-1-2).                                                                                        |

**APS Stamp: Explanation Based on an Example**

## Notes on Procedure “APS transfer”

At the beginning of the session, you must specify which APS you want to transfer and when.

The service center can cancel the session at any time.

If you select a complete APS transfer, the system application performs various tests. The following errors may occur:

| If (Error)                               | Then                                                                                                                                                                                                                                                                                                  |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The flash memory card is not big enough  | Hicom Assistant E Office error message: <i>Flash Card Too Small</i> . <ul style="list-style-type: none"><li>● Replace the flash memory card.</li></ul>                                                                                                                                                |
| The flash memory card is write-protected | Error message: <i>Flash card write-protected</i> . <ul style="list-style-type: none"><li>● Remove the write protection.</li></ul>                                                                                                                                                                     |
| The APS block is not a deleted one       | Error message: <i>APS block not deleted</i> .<br>The system application deletes the flash memory block needed for the new APS (shadow APS block). This may take over 20 minutes, depending on the system load. <ul style="list-style-type: none"><li>● End the session and try again later.</li></ul> |
| A write error occurs during programming  | Error message: <i>Write error during programming</i> . <ul style="list-style-type: none"><li>● The flash card is defective and must be replaced.</li></ul>                                                                                                                                            |

If none of these error occurs, you can start the APS transfer. Hicom Assistant E Office asks whether you want to make a copy of the customer data as an additional precaution.

The application then starts transferring the subsystems. This does not impair switching traffic. The flash memory card is programmed with the data received.

## Additional Notes

- If there is a disruption during transfer (such as a line failure), you must start the transfer again manually. The complete APS is retransmitted.  
You must wait ten minutes before another transfer can begin, since the incomplete APS must first be deleted from memory.
- After an APS transfer, the system verifies the checksum. If it is incorrect, the complete APS needs to be retransmitted.
- After a successfully APS transfer , the system displays the message *APS-Transfer successful*. You can now end the session.
- The system software changes over the APS by performing a special reset (no other resets result in changeover). The system converts the customer data as necessary. Stations on the system cannot be used during the reset and subsequent system boot.

- If the system cannot start the new APS, it switches back to the old APS with the original customer data and makes an entry in error memory. It is not possible to revert to the old APS in Release 3.0 and later.
- After successful changeover, the system makes an entry in error memory and deletes the old APS. It takes roughly ten minutes to delete the APS. This does not interfere with switching traffic. The deleted block is available for another APS transfer. The system sends the entry in error memory to the service center.
- Because the software is written to the FMC in compressed format during an APS transfer, you must decompress it again after the transfer.  
Note on Hicom 150 E OfficePro: Following a hard restart, the seven-segment display remains set to "F" for 5 minutes during startup to allow the system to decompress the software.

**Note to Teles Card Users (Not for U.S.)**

A successful APS transfer using a Teles card is possible only when using a new Capi. You can download the new Capi from the Teles support server. The Capi required is Capi 1.1/2.0 Release 3.26.

Download and installation procedure:

- Open the Teles support tool.
- Click the ISDN.S<sub>0</sub> button.
- In the left window, select the TELES.CAP column.
- In the right window, download the following files:
  - VxD-Capi 3.26 for Win3.1x and Win95 Install.hinweise (D,Info)
  - VxD-Capi 3.26 for Win3.1x and Win95 SW Part 1 (D,1.1MB, 2.5 min)
  - VxD-Capi 3.26 for Win3.1x and Win95 SW Part 2 (D, 2.8MB, 6.5 min)

**12.2.2.8 Replacing the Flash Memory Card (not for OfficeOne/OfficeStart)**

Insert the Flash Memory Card FMC into a PCMCIA slot in the central control board. You can remove the cards and replace them with another FMC after disconnecting the system from the power source.

Note the following: Always replace the FMC with another Siemens-approved flash memory card. Unapproved cards may have a different internal layout, which will influence access times and some features (such as CDB backup and APS transfer).

### 12.2.3 Board Replacement (Not Applicable to Hicom 150 E OfficeOne/Start)

In OfficePro only, you can remove and insert peripheral boards during operation. Missing or undetected boards do not change the database configuration.

In OfficeCom and OfficePoint, you need to disconnect the system from the power source before replacing boards.

#### Procedure

| Step | Action                                                                                 |
|------|----------------------------------------------------------------------------------------|
| 1.   | Disconnect the system power. Use lockout/tagout (LOTO) procedures.                     |
| 2.   | Remove one or more boards.                                                             |
| 3.   | Restart the system by reconnecting the power.                                          |
| 4.   | Delete the slot in the user interface (29-4) 1.                                        |
| 5.   | Disconnect the system power. Use lockout/tagout (LOTO) procedures.                     |
| 6.   | Insert the boards into free slots.                                                     |
| 7.   | Restart the system by reconnecting the power.                                          |
| 8.   | Load the customer data from the system and set up the new boards (configure stations). |
| 9.   | Enter the new customer data.                                                           |

Loading an old CDB onto a system with an updated hardware configuration

| Step | Action                                |
|------|---------------------------------------|
| 1.   | Load the old CDB.                     |
| 2.   | System status.                        |
| 3.   | Switch to software configuration.     |
| 4.   | Customize the boards to the hardware. |
| 5.   | Back up the current CDB.              |
| 6.   | Load the CDB to the CS.               |

- The system software adds new boards according to the startup rules. The associated ports receive the default station numbers. Use Hicom Assistant E Office to resolve any numbering conflicts that may occur. In systems with a default numbering plan, the station numbers for the new board begin after the last station number already assigned and continue in ascending order.



- If you replace a board with a board of the same type that has fewer ports, the system keeps the excess stations or trunks from the old board in the database when it activates the new board.
- If you replace a board with a board of the same type that has more ports, the system activates the new board with the same number of ports as the old board. You can configure the additional ports manually.
- If you replace a board with a board of a different type, the system does not activate the new board automatically. If you want to replace a board with a board of a different type or with a board of the same type that has more ports, you must delete the old board and correct its data in the CDB using Hicom Assistant E Office.

### 12.2.4 Replacing Telephones

- You can connect and disconnect telephones during operation. The system retains the data for the disconnected telephones.



If you jumper stations on the MDFU/MDFU-E (such as with an ICCS network) without first entering the relocate code, the stations affected will go into operation with their default values when you reconnect them (refer to [Section 7.12.12](#)).

- In the case of optiset E telephones of different types (different numbers of programmable keys) the system retains the key layout of the old telephone and the disconnected add-on devices. You can use Hicom Assistant E Office to delete disconnected add-on devices and remove any keys that are no longer available on the telephones.

## 12.3 Error Detection, Signaling, and Correction

### 12.3.1 LED Signaling for Central Boards

#### 12.3.1.1 Hicom 150 E OfficePro / OfficeCom / OfficePoint

The central board (**CBMOD** [OfficePro] / **CBPC** [OfficeCom and OfficePoint]) has a green LED that indicates the status of the central board and another that indicates the status of the integrated analog modem. The tables below show the functions of the LEDs.

Table 12-1      LED H1 (CBMOD) or H9 (CBPC)—Central Board Status Display

| Function                                                 | Green LED |
|----------------------------------------------------------|-----------|
| No power                                                 | Off       |
| Power on, reset switch pressed briefly                   | On        |
| Power on, reset switch held down for more than 5 seconds | Off       |
| System boot                                              | On        |
| Normal operating state                                   | Flashing  |

Table 12-2      LED H2 (CBMOD) or H10 (CBPC)—Status Display for the Integrated Analog Modem

| Function                             | Green LED |
|--------------------------------------|-----------|
| Integrated modem not installed       | Off       |
| Integrated modem ready for operation | On        |
| Data traffic via integrated modem    |           |

Modem access via B channel is also supported. The LED does not indicate the status of this modem.

#### 12.3.1.2 Hicom 150 E OfficeOne and OfficeStart

This system does not support LED display. Only the power supply unit has an on/off LED.

## 12.3.2 LED Signaling for Peripheral Boards

### 12.3.2.1 Hicom 150 E OfficePro

Table 12-3 lists the meanings of the possible LED status combinations for the peripheral boards.

Table 12-3 LED Status for OfficePro Peripheral Boards

| Meaning                                                 | Red LED | Green LED |
|---------------------------------------------------------|---------|-----------|
| Download completed successfully and all ports are idle. | Off     | On        |
| At least one port is active.                            | Off     | Flashing  |
| Board error or no ports are ready for operation.        | On      | Off       |
| At least one port is in a test cycle.                   | Off     | Flashing  |

### 12.3.2.2 Hicom 150 E OfficeCom and OfficePoint

#### LEDs on the CBPC

In addition to the LEDs that display the status of the processor and IMOD, the CBPC has 16 additional LEDs that indicate the status of peripheral boards and subscriber line interfaces. Table 12-4 shows the assignment of the LEDs to the boards (slots) and interfaces. Table 12-3 shows the functions of the LED combinations.

Table 12-4 LEDs on the CBPC

| LED (Green) | LED (Red) | Assignment (Slot)                |
|-------------|-----------|----------------------------------|
| H 18        |           | IMOD LED                         |
| H 17        |           | RUN LED                          |
| H 10        | H 9       | Board in slot 6 (OfficeCom only) |
| H 12        | H 11      | Board in slot 7 (OfficeCom only) |
| H 14        | H 13      | Board in slot 8 (OfficeCom only) |
| H 16        | H 15      | Board in slot 9 (OfficeCom only) |
| H 6         | H 5       | Board in slot 4                  |
| H 8         | H 7       | Board in slot 5                  |

### 12.3.2.3 Hicom 150 E OfficeOne and OfficeStart

This system does not support LED display. Only the power supply unit has an on/off LED.

### 12.3.3 Telephone Test

After the system has been started up and you have completed the country adaptation, you can perform a telephone test on each optiset E telephone by entering a code or selecting a service menu.

During the telephone test, the display, the LEDs, and the ringers on the telephone are activated. The telephone displays its station number, and the test ends automatically after a timeout.

#### Test Procedure on optiset E Telephones

Table 12-5 Telephone Test

| Step | Input | Description                                                                                                                         |
|------|-------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | *940  | Code for the telephone test                                                                                                         |
| 2.   | —     | All LEDs flash rapidly for approximately five seconds. All display characters are displayed on a dark background and a tone sounds. |



If the test does not produce the results described, the telephone may need an optiset E local power supply.

If the date and time are not displayed on the screen after startup, the telephone or the cable path may be defective. Replace the telephone or test the cable path.

## 12.3.4 Line and Telephone Diagnosis

### 12.3.4.1 Trunk Status

The system software logs the current status of each line and trunk in a table. When the status changes, the system enters the new status with a time stamp. The time stamp indicates the date and time in one-second increments.

The system records the following states:

- Idle
- Incoming or outgoing call
- Trunk-to-trunk connection (transit)
- Line disabled (lockout switch or lockout in CDB)
- Line or trunk failure

You can use Hicom Assistant E Office to display the table.

### 12.3.4.2 ISDN Trace

This feature enables you to monitor certain ISDN telephones or ISDN trunks in real time.

The system sends ISDN activities to Hicom Assistant E and places them in a trace file. Only the ISDN actions appear on the monitor, not the contents of the ISDN messages. At the end of the trace session, you can start the *ISDN Trace Decoder Tool* and convert the ISDN transmission to a readable format (English only).

### 12.3.4.3 Trace Enhancements in the System (Release 3.0 and later)

The trace enhancements include:

- More flexibility in configuring error numbers for traces (trace stop), enabling you to determine which error number caused the trace to stop. You can also activate a trace stop by remote access.
- If the customer detects an error (such as a double connection), you can stop a trace in progress manually from the telephone.
- You can read out the trace data by remote access.
- New ways to store extensive traces in the system. To do this, you must insert an SRAM card instead of the IMOD modem.

#### 12.3.4.4 Call Trace

You can trace the activities, triggered by a phone call, of all telephones, lines, and other devices.

The restriction to a total of two traced objects no longer exists. This enables you to trace specific consultation calls, conference calls, as well as hunt group and LAN Bridge activities (the S<sub>0</sub> interfaces are traced, not the LAN Bridge itself).

#### 12.3.5 Displaying the Station Status

You can output the following status information for each station in online mode, using Hicom Assistant E. To call up the information for the desired station, enter the station number.

Table 12-6 Hicom Assistant E Office Station Status Displays

| Data                                      | Content                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station name                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Slot and port                             | 7-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Connection status                         | <p>The following states may be displayed:</p> <ul style="list-style-type: none"> <li>• Telephone is free</li> <li>• Telephone has seized a line but not yet dialed a number</li> <li>• Call from telephone is in a queue</li> <li>• Telephone is connected to a second telephone, a trunk, or a member of a hunt group</li> <li>• Telephone is on hold</li> <li>• System cannot set up the call due to an error</li> <li>• Call placed to dialed telephone</li> </ul> |
| Connected to                              | Station or CO number                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Forwarding status                         | Off, all, external, or internal                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Forwarding destination                    | Station number                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Features activated                        | On/off                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| • Do not disturb                          | On/off                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| • Advisory message                        | On/off                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| • Room monitoring                         | On/off                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| • Telephone lock                          | On/off                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| • Calling line identification restriction | On/off                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

Table 12-6 Hicom Assistant E Office Station Status Displays

| <b>Data</b>              | <b>Content</b>                                 |
|--------------------------|------------------------------------------------|
| • Group ringing          | On/off                                         |
| • Ringer cutoff on/off   | On/off                                         |
| • Hunt group             | On/off                                         |
| • Call waiting tone      | On/off                                         |
| • Handsfree answerback   | On/off                                         |
| Station in ringing group | List with numbers of stations in ringing group |
| DID number               | 100                                            |
| Telephone type           | optiset E memory                               |
| Telephone status         | Active or inactive                             |
| Language                 | English                                        |

### 12.3.6 Displaying the Trunk Status

You can output the following status information for each trunk in online mode, using Hicom Assistant E

Table 12-7 Hicom Assistant E Office Trunk Status Display

| <b>Data</b>  | <b>Content</b>                                    |
|--------------|---------------------------------------------------|
| Date         | Date of event (as stored in system)               |
| Time         | Time of event (as stored in system)               |
| Trunk number | Phone number of trunk                             |
| Slot/port    | Slot and port number                              |
| Remarks      | Connection status and number of connected station |

### 12.3.7 V.24 (RS232) and CSTA Trace

This feature enables you to monitor the interface to Plus Products connected to the Hicom 150 E Office system. The feature runs under Hicom Assistant E in the maintenance object, making it possible to use normal connection methods (V.24 (RS232), integrated modem, and digital modem).

You can trace the following data:

- Status of the V.24 (RS232) lines (DTR, DSR, RTS, CTS) on the system board, enabling you to detect improperly connected and damaged cables. The Hicom Assistant E online help describes reference states of the interface lines for different products connected and, if applicable, the cables used.
- You can trace the data flow on the lines (V.24 [RS232] and terminal adapter) in both directions and save it on disk. You can also define the beginning and end of the trace or the data set stored. The number of bytes exchanged and the time completed are displayed during the trace.

At the end of the trace, you can use an editor to display and thus check the stored data. Using the editor, you can also save the data to the hard disk or print it using a printer.

The failure of V.24 interfaces generates an entry in the error history file and triggers a remote signal. In Release 2.3 and later, reactivation of the interface is also recorded in the error history file and triggers a remote signal. The *Check printer* message on the screen disappears and is replaced by the normal display.

Error signaling indicates a deactivated DTR line at the first or second V.24 interface on the V.24 board. The system does not support a control adapter (printer pipeline mode).

### 12.3.8 Error Memory

An error memory area with five entries is provided for each line or trunk. When an error occurs, the system makes an entry with a time stamp. The entry shows the following:

- No dial tone (analog boards)
- Layer 1, 2, or 3 error
- Board error

You can use Hicom Assistant E Office to convert error memory to a readable format for display.



### 12.3.9 Measuring the System-Wide Use of Features

Feature counters (such as caller list, call forwarding, or busy override) are incorporated into the system. You can use Hicom Assistant E Office to display the counts. Each time a feature is used, the system increments the counter for that feature.

### 12.3.10 Activated Features for Each Telephone

Certain activated features can be deactivated for individual telephones by entering a code (refer to [Section 7.12.11 on Page 7-342](#)). You can also use Hicom Assistant E Office to display, activate, and deactivate features.

### 12.3.11 Error Messages

#### 12.3.11.1 Error Classification

- **Class A:** Errors of interest to the customer. These errors can be corrected by the customer without support from the service department and are displayed at the intercept position. In the default configuration, class A errors are not displayed.
- **Class B:** Errors of interest to service. The service department can correct these errors by replacing hardware or working with the telecommunications carrier to reconfigure the CDB. Class B errors include failures of boards, ports on boards, or trunks. The errors can be signaled to a service center.
- **Class C:** Errors of interest to development. Specialists use these errors for diagnosis and problem analysis purposes. The errors are not signaled.

#### Class A Error Messages

PRINTER ALARM (such as printer out of paper) is currently the only Class A error message outside of the U.S.

For U.S. only: INVALID SPID (OfficeCom and OfficePoint) signals that the service profile identifier (SPID) for BRI ISDN is incorrect. Refer to [Section 8.11.2, \*Examples for Configuring BRI Trunks \(for U.S. Only\)\*, on page 8-28](#) for information on entering the SPID.

#### Class B Error Messages

The following tables describe appropriate actions in response to the error messages.

- **Recovery action** includes the automatic error correction actions triggered by the software (such as board reload).
- **Technician action** refers to the actions a technician must perform when the error message fails to disappear, possibly indicating a hardware fault.

**Error Class 09—Hardware Errors**

Table 12-8 Error Class 09—Hardware Errors

| <b>No.</b> | <b>Meaning</b>                                                          | <b>Recovery Action</b> | <b>Technician Action</b> |
|------------|-------------------------------------------------------------------------|------------------------|--------------------------|
| 0          | Microprocessor (error occurred)                                         | Reload board           | Replace board            |
| 1          | Microprocessor (no error)                                               | None                   | None                     |
| 2          | Loadware memory (error occurred)                                        | Reload board           | Replace board            |
| 3          | Loadware memory (no error)                                              | None                   | None                     |
| 12         | Signal failure (error occurred)                                         | None                   | Replace board            |
| 13         | Signal failure (no error)                                               | None                   | None                     |
| 22         | Clock reference (error occurred)                                        | None                   | Replace board            |
| 23         | Clock reference (no error)                                              | None                   | None                     |
| 29         | Line interruption (error occurred)                                      | Disable board          | Replace board            |
| 30         | Short circuit (error occurred)                                          | Disable board          | Replace board            |
| 31         | Low voltage (error occurred)                                            | Disable board          | Replace board            |
| 32         | Thermal overload (error occurred)                                       | Disable board          | Replace board            |
| 34         | Frame loss on STMD (error on)                                           | Disable board          | Replace board            |
| 35         | Frame loss on STMD (error off)                                          | None                   | None                     |
| 36         | Data slip on STMD (error on)                                            | Disable board          | Replace board            |
| 37         | Data slip on STMD (error off)                                           | None                   | None                     |
| 38         | Alarm display error TMS2M <sup>1</sup> or TMST1 <sup>2</sup> (error on) | Disable board          | Replace board            |
| 39         | Alarm display error TMS2M or TMST1 (error off)                          | None                   | None                     |
| 42         | No signal TMS2M (error on)                                              | Disable board          | Replace board            |
| 43         | No signal TMS2M (error off)                                             | None                   | None                     |
| 44         | Receive remote alarm TMS2M (error on)                                   | Disable board          | Replace board            |
| 45         | Receive remote alarm TMS2M (error off)                                  | None                   | None                     |
| 48         | Bit slip on TMS2M or TMST1 (error on)                                   | Disable board          | Replace board            |
| 49         | Bit slip on TMS2M or TMST1 (error off)                                  | None                   | None                     |
| 50         | Loss of synchr. on TMS2M (error on)                                     | Disable board          | Replace board            |
| 51         | Loss of synchr. on TMS2M (error off)                                    | None                   | None                     |

Table 12-8 Error Class 09—Hardware Errors

| No. | Meaning                    | Recovery Action | Technician Action |
|-----|----------------------------|-----------------|-------------------|
| 58  | Self-test SLMO (error on)  | Disable board   | Replace board     |
| 59  | Self-test SLMO (error off) | None            | None              |
| 61  | Overcurrent check SLMO on  | Disable board   | Replace board     |
| 62  | Overcurrent check SLMO off | None            | None              |

1 TMS2M: Not for U.S.

2 TMST1: For U.S. only

**Error Class 15—Application Processor System**

Table 12-9 Error Class 15—APS

| No. | Meaning                         | Recovery Action | Technician Action |
|-----|---------------------------------|-----------------|-------------------|
| 0   | APS changeover - Transfer       | None            | None              |
| 1   | APS changeover - CDB OK         | None            | None              |
| 2   | APS changeover - CDB is default | None            | None              |
| 3   | Reset APS - CDB reconstructed   | None            | None              |
| 4   | Reset APS - CDB is default      | None            | None              |
| 5   | Reset APS with old CDB          | None            | None              |

**Error Class 16—General Errors**

Table 12-10 Error Class 16—General Errors

| No. | Meaning                               | Recovery Action | Technician Action |
|-----|---------------------------------------|-----------------|-------------------|
| 8   | Error during real-time clock handling | None            | None              |
| 9   | Watchdog                              | None            | None              |

**Error Class 20—Call Processing**

Table 12-11 Error class 20—Call Processing

| No. | Meaning                            | Recovery Action | Technician Action |
|-----|------------------------------------|-----------------|-------------------|
| 1   | Limit of 250 station ports reached | None            | None              |
| 2   | RS 232 interface not available     | None            | None              |

Table 12-11 Error class 20—Call Processing

| No. | Meaning                          | Recovery Action | Technician Action |
|-----|----------------------------------|-----------------|-------------------|
| 11  | RS 232 interface back in service | None            | None              |

**Error Class 21—Device Handler**

Table 12-12 Error Class 21—Device Handler

| No. | Meaning                    | Recovery Action | Technician Action |
|-----|----------------------------|-----------------|-------------------|
| 0   | No dial tone received      | None            | None              |
| 1   | Dial tone received         | None            | None              |
| 2   | Voice mail error occurred  | None            | None              |
| 3   | Voice mail error corrected | None            | None              |

**Error Class 26—Presence**

Table 12-13 Error Class 26—Presence

| No. | Meaning                          | Recovery Action | Technician Action |
|-----|----------------------------------|-----------------|-------------------|
| 0   | Unknown board type               | None            | Replace board     |
| 1   | Board deactivated                | Reload board    | None              |
| 2   | Not for U.S.: More than one SLMC | None            | Only 1 SLMC       |
| 3   | Board type incompatible          | None            | Replace board     |

**Error Class 28—Recovery**

Table 12-14 Error Class 28—Recovery

| No. | Meaning           | Recovery Action | Technician Action |
|-----|-------------------|-----------------|-------------------|
| 4   | Remote test input | None            | None              |

**Error Class 29—IOP**

Table 12-15 Error Class 29—IOP

| No. | Meaning       | Recovery Action | Technician Action |
|-----|---------------|-----------------|-------------------|
| 24  | Board failure | Reload board    | Replace board     |

Table 12-15      Error Class 29—IOP

| <b>No.</b> | <b>Meaning</b>                               | <b>Recovery Action</b> | <b>Technician Action</b> |
|------------|----------------------------------------------|------------------------|--------------------------|
| 25         | Board is present.<br>Loadware was restarted. | Reload board           | Replace board            |

## 12.3.12 Error Correction Options

| Option                                                   | Page  |
|----------------------------------------------------------|-------|
| Automatic error correction                               | 12-30 |
| Manual error correction without Hicom Assistant E Office | 12-30 |
| Error correction using Hicom Assistant E Office          | 12-31 |

### 12.3.12.1 Automatic Error Correction

Each error in error memory is programmed to initiate a specific corrective measure. The following software actions may occur:

- Hard restart
- Board reload
- CDB backup reload
- Port disabling
- Power failure transfer (analog trunks)
- None

A watchdog interrupts continuous loops.

### 12.3.12.2 Manual Error Correction Without Hicom Assistant E Office

#### Manual Restart and Reload for Hicom 150 E OfficePro

You can initiate the following actions by holding down the reset key on the CBMOD board for different lengths of time.

- Press the reset key briefly to perform a hard system restart. The green LED (located just beneath the seven-segment display) lights up when you press the reset key.
- When you hold down the key for more than 5 seconds, the green LED goes out and a reload is triggered. This restores the entire CDB to its default contents. All country- and customer-specific settings are lost.

#### Manual Restart and Reload for Hicom 150 E OfficeCom and OfficePoint

You can initiate the following actions by holding down the reset key on the CBPC board for different lengths of time.

- Press the reset key briefly to perform a hard system reset. The green LED lights up when you press the reset key.

- When you hold down the key for more than 5 seconds, the green LED goes out and a reload is triggered. This restores the entire CDB to its default contents. All country- and customer-specific settings are lost.

### **Disabling and Enabling Ports**

You can disable ports on analog trunk boards in the outgoing direction and ports on digital trunk boards in both directions using a switch. In the case of subscriber line modules, you can disable only the entire board. Disabling a board prevents the trunk from being reseized after the current call has ended.

The *Release external trunks* feature enables you to interrupt an existing connection.

### **12.3.12.3 Error correction Using Hicom Assistant E Office**

#### **Restart**

When Hicom Assistant E Office initiates a restart, the system software generates a special error. The restart takes place immediately.

#### **Loading Boards**

Hicom Assistant E Office supports selective resetting of boards with peripheral software. After the peripheral software is loaded, the system automatically downloads the data for the board.

Hicom Assistant E Office supports the loading of data onto boards. When data belonging to the (port- or card-oriented) download record changes, a download is initiated to all assigned boards.

#### **Enabling and Disabling Ports**

You can use Hicom Assistant E Office to disable boards and ports. Disabling the boards or ports does not interrupt existing connections. However, the ports cannot be reseized.

Hicom Assistant E Office cannot enable ports that were disabled by means of a switch.

#### **Trunk Failure Transfer**

Hicom Assistant E Office cannot be used to perform a power failure transfer to analog telephones.

## **12.4 Trunk Rolling (for U.S. Only)**

Trunk rolling, also known as channel rolling, switches tip and ring on two adjacent central-office trunk lines in a Central Office Trunk Module (TMGL4 or TMGL8). It can be used to determine whether a problem originates in the trunk circuitry or in the central office (CO) equipment or wiring.

### **Procedure**

Using Hicom Assistant E Office, select the boards and ports that you wish to switch over. Rolling active channels is not recommended, as communication is disrupted. After you have switched the channels, new allocations can help you determine where the problem is located:

- If the problem stays on the same port after switchover, it is a problem within the trunk module.
- If the problem persists on the new port, it is a problem in the connection to the CO or within the CO itself.

## **12.5 Automatic Error Signaling**

### **12.5.1 Alarms on the System Telephone**

Class A errors are displayed at the intercept position or output to the connected printer.

### **Example**

PRINTER ALARM

The message can be cleared from the display using a procedure.



## 12.6 Remote Service

### Function

Communication between the service center and the Hicom 150 E Office communication system by means of the public telephone network for performing service is known as remote service. This service work includes:

- Remote administration, maintenance, and diagnostics
- Remote software correction
- Automatic trouble reporting

Remote service is normally provided by a service center. This makes it possible to administer and maintain several different communication systems using the integrated modem.

For purposes of security, the connection to the integrated modem in the customer system can be set up by means of a callback call. In order to do this, one or more passwords must be set up in the system, along with the corresponding callback numbers.

The remote administration and maintenance functions can only be called up as independent applications from Hicom Assistant E Office. Hicom Assistant E Office has the same range of features via remote service that is available with on-site access.

Figure 12-1 shows the basic layout of equipment for remote operation.

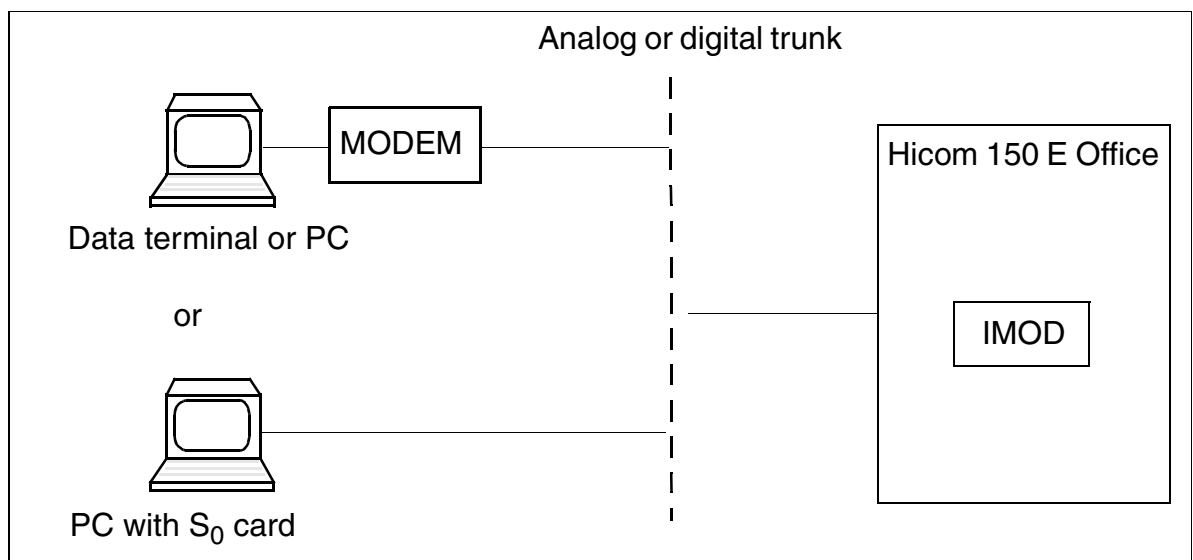


Figure 12-1 Equipment for Remote Service

## 12.6.1 Remote DTMF Administration

This feature facilitates programming the system remotely by transmitting DTMF signals. The user interface is the same as the user interface that appears when performing system administration on site (the menus are also the same). Passive remote DTMF administration mode must be enabled on the destination system.

In addition, the called party must activate remote administration for the current connection by invoking a procedure and entering a six-digit password.

Any user can activate active remote DTMF administration from any administration telephone in the source system using a code. For this to be possible, active remote DTMF administration mode must be enabled in the CDB.

Remote DTMF administration can be performed over analog or digital trunks. Remote DTMF administration can be executed on any Hicom 150 E system from any other Hicom 150 E system, as long as the system being administered is the same size as the administering system or smaller.

## 12.6.2 Remote Error Signaling

### 12.6.2.1 Definition

Service-related errors (class B errors) can be transmitted automatically to a service center via the integrated modem. Class A and C errors are not signaled; error memory can be displayed using Hicom Assistant E Office. Error signaling is set in 1-minute intervals from 1 minute minimum to 15 minutes maximum. If you set an interval that is too short or too long, the system reverts to the 15-minute default.

If the error history file shows a class B error after a timeout, the system sends a remote signal. To do this, the *error signaling* flag must be active and a callback number entered.

If a dialing attempt is unsuccessful (because the server was busy or unavailable), the system automatically redials the number at the end of the interval. Signaling is canceled after the fifth unsuccessful attempt and is not resumed until another entry is generated in the error history file, transmitting any new error that have not yet been sent.

The error report consists of a header and the error data, which is transmitted in binary form. The header contains a unique identifier for the customer's system.

The service center can monitor the functioning of automatic error signaling. For this purpose, the system software generates a pseudo-error at selectable intervals as a function test.

### 12.6.2.2 Outgoing: Callback and Error Signaling

#### Definition

The term *outgoing* refers to an automatic connection setup from the Hicom 150 E Office system to Hicom Assistant E Office. This connection can be set up either by Hicom Assistant E Office (callback) or, in the event of an error, by the system itself (error signaling). Outgoing can operate using either the integrated digital modem (B channel) or the integrated analog modem (IMOD).

The callback feature provides you with a further means of accessing the system (in addition to *login with/without code* and *enable procedure*.)

Using remote error signaling, the system automatically reports any class B errors that occur to a remote service center.

#### Settings for Callback in System Administration

To activate callback, enter the following settings in system administration for Hicom 150 E Office:

|                                 |    |                                         |                         |
|---------------------------------|----|-----------------------------------------|-------------------------|
| ISDN access, CO                 | -> | Callback (302)                          |                         |
| IMOD access                     | -> | Callback (303)                          |                         |
| System admin                    | -> | Remote admin                            | -> Callback connect. -> |
| Dest. (3071)<br>(for index 1–6) | -> | Password (3072)<br>X.75 protocol (3073) |                         |

Callback indexes 1 to 6 allow you to select six different callback numbers using the associated access codes (6 digits or less). The X.75 protocol can be selected for each position (yes or no). If you select *yes*, callback uses the digital modem (B channel); if you select *no*, callback uses the analog modem (IMOD).

#### Activating Callback Using Hicom Assistant E Office

- Click the activate callback button
- Assign a callback index (1 to 6)
- Enter a PIN for the callback index assigned

After you have made the settings, have Hicom Assistant E Office dial into the system. The system records the callback request, stores the callback index, and clears down the connection.

After 10 seconds, Hicom 150 E Office initiates the callback using the station number associated with the callback index. As soon as the connection is set up, Hicom Assistant E Office can administer the system.

If the callback number is busy or incorrect, Hicom 150 E Office makes a total of 20 attempts at 10-second intervals. After this, callback is terminated and must be restarted using Hicom Assistant E Office.

## **Error Signaling Procedure**

Error signaling is initiated when a class B error occurs in the Hicom 150 E Office system. No connection clear-down is carried out if you do not store a station number under callback index 1. If a station number is stored under callback index 1 (with the additional information described in *Settings for Callback in System Administration on page 12-35*), the system sets up a connection to a remote service center using this station number.

For the error message to be recorded, the Hicom Assistant E Office dialed in the remote service center must already have been switched to receive mode. If Hicom Assistant E Office receives an error signal in this mode, the error history is read out and then deleted, and the connection is cleared down.

If another error occurs, the same procedure is followed and the current error is entered in the same file on the Hicom Assistant E Office immediately after the previous entry.

### **12.6.2.3 Application Notes**

The following can be configured using Hicom Assistant E Office:

- Station number of the error report recipient
- Automatic function test (yes or no); time interval (1 to 7 days)

You can configure Hicom Assistant E Office to receive error reports. In this case, Hicom Assistant E Office is ready to receive after startup. It stores the error reports in a predefined file and uses the same modem as remote administration and maintenance. For this reason, you cannot start a session on a remote system while receiving is in progress. Hicom Assistant E Office converts the binary error file to readable format for evaluation.

### **12.6.3 Analog Modem IMOD (not for Hicom 150 E OfficeOne or OfficeStart)**

The integrated analog modem (IMOD) provides remote access to Hicom 150 E via any type of trunk, tie trunk, or subscriber line. The IMOD is a plug-in PCMCIA card you install on one of the following boards, depending on the system.

- CBMOD (Hicom 150 E OfficePro)
- CBPC (Hicom 150 E OfficeCom)
- CBPC (Hicom 150 E OfficePoint)

To install the IMOD, first disconnect the system from the power source (use lockout/tagout [LOTO] procedures). Open the system housing and simply slide the card into the holding mechanism.

The IMOD is treated like a pseudo-port and receives a station number within the system that can be reached internally and by direct inward dialing (DID). The DID number can be removed manually to prevent access from the outside. A password ensures access control and the use of a callback call or direct access.

The customer can program an individual 5-digit PIN in system administration. You must enter this PIN in Hicom Assistant E Office to establish communication with the modem.

The default PIN does not provide access to the modem. This means that the customer must enter a PIN to access the modem.

The following parameters apply to analog modem mode:

- Transmission to V.22bis (2400 bd), V.32 (9600 bd), V.32bis (14,400 bd)
- Error correction to V.42, MNP 2-4
- Data compression to V.42bis, MNP 5

#### **12.6.4 Integrated Digital Modem**

This modem provides remote access via digital trunks, digital tie trunks, or S<sub>0</sub> subscriber line circuits.

All systems in the Hicom 150 E Office product line have an integrated B channel modem for remote DTMF access. The system software supports X.75 data transmission using this modem.

The digital modem is treated like a pseudo-port and receives a station number within the system that can be reached internally and by direct inward dialing (DID). The DID number can be removed manually to prevent access from the outside.

The customer can program an individual 5-digit PIN in system administration. You must enter this PIN in Hicom Assistant E Office to establish communication with the modem.

The default PIN does not provide access to the digital modem. This means that the customer must enter a PIN to access the modem.

The PIN can be reset to the default using password-protected system administration (only using Assistant T).

## 12.7 Access Protection

### 12.7.1 Logging on with User Name and Password

#### Security Concept

In order to allow authorized users to access Hicom 150 E Office and prevent unauthorized accesses, users must be identified by means of a user name and authenticated by means of a password. This applies to all local and remote administration and maintenance procedures via Hicom Assistant E Office, Hicom Assistant T, Hicom Assistant C Office, Hicom Assistant TC Office and AMHOST.

As of Release 3.0 SMR-C, it is possible to choose from among the following security concepts when performing country initialization the first time the system is booted:

- Variable password concept (default)
- Fixed password concept

Example of initial logon via Hicom Assistant T

| Step | Input | Explanation                 |
|------|-------|-----------------------------|
| 1.   | *95   | Start system administration |
| 2.   | 31994 | Default user name           |
| 3.   | 31994 | Default password            |



Only an optiset E memory telephone can accept input in the form of alphanumeric characters. Do not change a user name or a password to a name that includes alphanumeric characters unless Hicom Assistant T or Hicom Assistant TC will always use an optiset E memory telephone.

| Step | Input | Explanation                                                                                                                |
|------|-------|----------------------------------------------------------------------------------------------------------------------------|
| 4.   | XXXXX | Enter new password (max. 15 characters)                                                                                    |
| 5.   | XXXXX | Confirm password entered under point 4                                                                                     |
| 6.   | 29-5  | Country initialization                                                                                                     |
| 7.   | X     | As of Release 3.0 SMR-C: Define password concept:<br>1 = Variable password concept<br>2 = Fixed password concept           |
| 8.   | XX    | Enter country code (refer to <a href="#">page A-29</a> ). The system is now booted with the country-specific default data. |

| Step                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Input | Explanation |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|
| Remarks: <ul style="list-style-type: none"> <li>• Re Step 4 and Step 5: After receiving a new password, you can skip these two points each subsequent time you access system administration.</li> <li>• Re Step 6: No country adaptation is required for Germany because the system boots with the BRD code.</li> <li>• Re Step 7: If you select the fixed password concept, a new password entered under point 4 is overwritten by the default password (31994).</li> </ul> |       |             |

### **Variable Password Concept**

Up to 16 users can be assigned their own user ID with an individual name, password and a user group from among six predefined user groups (in [Table 12-16](#)). These users can read and administer only the data released for their particular user group.

The first time a user logs on to the system, he or she must enter a user ID and define a new password (max. 15 characters from the optiset E character set), thus overwriting the default user name (31994) and default password (31994). This initial user is automatically assigned to the "System Maintenance" user group and is informed that no other users have yet been configured in the system and that he or she has been assigned "System Maintenance" rights. Additional users and their passwords can then be configured in user administration using Hicom Assistant E Office or Hicom Assistant T.

If a user forgets his or her password, the password must be deleted and reconfigured by another authorized user. If all authorized users forget their passwords, the only solution is to regenerate the system.

### **Fixed Password Concept**

This concept uses only fixed user groups with default user names and default passwords that cannot be changed (see [Table 12-17](#)). It is not possible to configure new users in user administration.

## **Changing the Password Concept**

The password concept can be changed from fixed to variable and vice versa only using Hicom Assistant T. Country initialization must be performed again, thus resetting the entire contents of the customer database (including user names and passwords) to the basic (default) state.

If a country initialization is performed on a system with the variable password concept, the previously defined user names and passwords are retained if the password concept is not subsequently changed.

If a CDB in which the default user names/passwords have been changed is read out of the system, this CDB cannot be loaded in a Hicom 150 E Office system that has been converted to the fixed password concept. Before this CDB can be read, a user (user name/password) must be configured in the system that corresponds to a user group in the fixed password concept. Once this user has been configured, the CDB can be read out of the Hicom 150 E Office system and then loaded in the system converted to the fixed password concept under this user and its password.



## 12.7.2 Predefined User Groups and Their Access Rights

### User Groups of the Variable Password Concept

The table below shows the six permanently predefined user groups and their associated rights.

Table 12-16 Variable Password Concept: Predefined User Groups and Their Access Rights

| No. | User Groups                                                                                                                                                                                                | User Admin. | Revision | System Maint.<br>(Service) | Customer Admin.<br>(Customer) | Accounting | Development |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|----------------------------|-------------------------------|------------|-------------|
|     | <b>User Rights</b>                                                                                                                                                                                         |             |          |                            |                               |            |             |
| 1.  | <ul style="list-style-type: none"> <li>Configure/delete users</li> <li>Assign users to user groups</li> </ul>                                                                                              | X           |          | X <sup>1</sup>             |                               |            |             |
| 2.  | <ul style="list-style-type: none"> <li>Evaluate and archive security-related log files</li> <li>Read access rights to system data (e.g. error memory), not including confidential customer data</li> </ul> |             | X        | X <sup>2</sup>             |                               |            |             |
| 3.  | <ul style="list-style-type: none"> <li>Access rights to all system data (not including Development access rights) provided that no users are assigned to other user groups</li> </ul>                      |             |          | X                          |                               |            |             |
| 4.  | <ul style="list-style-type: none"> <li>Access rights to confidential customer data</li> <li>Execute customer actions (e.g. print out specific lists)</li> </ul>                                            |             |          | X <sup>3</sup>             | X                             |            |             |
| 5.  | <ul style="list-style-type: none"> <li>Access rights to non-confidential customer data</li> </ul>                                                                                                          |             |          | X                          | X                             |            |             |
| 6.  | <ul style="list-style-type: none"> <li>Access rights to call detail recording parameters and actions (not including interface parameters for the output device)</li> </ul>                                 |             |          | X <sup>3, 4</sup>          | X <sup>4</sup>                | X          |             |
| 7.  | <ul style="list-style-type: none"> <li>Access rights of "System Maintenance" user group</li> <li>Set and read specific parameters to which no other users have access</li> </ul>                           |             |          |                            |                               |            | X           |

1 Provided that no users are assigned to the "User Administration" user group.

2 Provided that no users are assigned to the "Revision" user group.

3 Provided that no users are assigned to the "Customer Administration" user group.

4 Provided that no users are assigned to the "Accounting" user group.

## User Groups of the Fixed Password Concept

The table below shows the non-modifiable user groups and their associated rights.

Table 12-17 Fixed Password Concept: Fixed User Groups and Their Access Rights

| No. | User Groups                                                                                                                                                                                                | System Maint. (Service)<br>Name/Password=<br>31994/31994 | Customer Admin. (Customer)<br>Name/Password:<br>– Assistant TC=*95/<br>(Password Optional)<br>– Assistant C=office/office | Development |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------|
|     | User Rights                                                                                                                                                                                                |                                                          |                                                                                                                           |             |
| 1.  | <ul style="list-style-type: none"> <li>Evaluate and archive security-related log files</li> <li>Read access rights to system data (e.g. error memory), not including confidential customer data</li> </ul> | X                                                        |                                                                                                                           | X           |
| 2.  | <ul style="list-style-type: none"> <li>Access rights to all system data (not including Development access rights)</li> </ul>                                                                               | X                                                        |                                                                                                                           | X           |
| 3.  | <ul style="list-style-type: none"> <li>Access rights to confidential customer data</li> <li>Execute customer actions (e.g. print out specific lists)</li> </ul>                                            | X                                                        | X                                                                                                                         | X           |
| 4.  | <ul style="list-style-type: none"> <li>Access rights to non-confidential customer data</li> </ul>                                                                                                          | X                                                        | X                                                                                                                         | X           |
| 5.  | <ul style="list-style-type: none"> <li>Access rights to call detail recording parameters and actions (not including interface parameters for the output device)</li> </ul>                                 |                                                          | X                                                                                                                         |             |
| 6.  | <ul style="list-style-type: none"> <li>Set and read specific parameters to which no other users have access</li> </ul>                                                                                     |                                                          |                                                                                                                           | X           |

### 12.7.3 System Access Options

In all cases, a user's access rights (i.e. which data the user can read or administer) depends on the user group to which he or she is assigned.

#### Service Tools

- Hicom Assistant T and Hicom Assistant TC Office  
Logon by entering user name and password (independently of telephone lock)  
The system can be accessed only via the first two U<sub>P0/E</sub> ports on the first SLMO/SLU board.
- Hicom Assistant E Office and Hicom Assistant C Office (local)  
Logon by entering user name and password
- Hicom Assistant E Office (remote), direct connection  
Logon by entering user name and password  
Direct access is possible via the integrated digital modem (B channel) or the integrated analog modem. The customer must be enabled by defining a 5-digit access code.
- Hicom Assistant E Office (remote), callback connection  
Logon by entering user name and password  
Access is possible via the integrated digital modem (B channel) or the integrated analog modem. A callback index must be defined.

#### AMHOST

The AMHOST (Administration and Maintenance via HOST) feature allows Plus Products to read specific system data and to change it if necessary. In order to permit Plus Products to access the system, a user without a user group with the user name "AMHOST" and the default password "77777" is configured in the Hicom 150 E Office default user administration.

This password can be changed only under the variable password concept. In this case, the "AMHOST" user must be deleted and then configured with the same user name and a new password.

## Chip Card Reader (for Deutsche Telekom AG only)



Deutsche Telekom AG systems must not be switched to the fixed password concept.

This feature provides additional security through an identification and authentication procedure that ensures access to Deutsche Telekom AG's communication systems only for those with proper authorization, locking out unauthorized persons.

The practical application of this concept uses a chip card. Deutsche Telekom's service PCs are equipped with chip card readers that allow the PCs to start up only after identifying the technician's individual chip card ID and verifying that the entered password is correct.

The chip card contains an indication of whether the Octopus E system family has been accessed.

To provide access for user groups as well as individual technicians, users can specify at logon whether they want to register under the chip card's group ID or an individual one. In either case, the system enters the logon data into a log file so that the chip card user's actions can be clearly traced.

All Octopus systems come with default names and default passwords. At logon, if the system

- does not detect a chip card, the user must access the service PC under the default name and default password;
- does detect a chip card, the user management function starts up immediately.

In either case, the person logging on for the first time must be entered in the user management function:

- User name
- User group (user admin, revision, system maintenance, administration, billing, development)
- Password

This information overwrites the default name and default password.

You can then enter other chip card users into the user management function using a chip card or manually.

### 12.7.4 Protection of Customer Data

When a CDB is saved on the hard disk, the user table (part of user administration) with user names and the associated, encrypted passwords is also saved. This means that access rights are retained even when the offline CDB is subsequently opened.

In order to open the offline CDB, users must enter their user name and password. The entered data is compared with the user table and the access rights are determined by the user group found.

When an offline CDB is loaded in the Hicom 150 E Office system, the associated user table is not loaded in the system since this would corrupt the system-specific user administration.



When a default CDB is generated offline, a default user table is created. A CDB generated in this way can be loaded in a default system only.

## 12.8 Logging Administrative Procedures

### 12.8.1 Definition

In Hicom 150 E Office Rel. 2.0 and later, there is a new function in the data security concept for logging administrative procedures. This feature includes recording, evaluating, and archiving the activities.

The logging function records all changes to customer-related data and is based on *when, who, and what* criteria. This enables you to specify which users can manipulate which data at which time.

This information is stored in an area reserved for this purpose (LOG file) on the flash memory card. A revisor (user with revision authorization) can copy this data from the system to a PC and store it there, view it on the monitor, and print it as needed.

### 12.8.2 Data Collection

A log entry contains the following basic information:

- Date and time (when)
- User name and user group (who)
- Format identification (describes the type of activity performed) and command input (what)

#### 12.8.2.1 Format Identification Options

|    |                                              |
|----|----------------------------------------------|
| 1. | Hicom Assistant T format                     |
| 2. | Hicom Assistant TC format                    |
| 3. | Session information                          |
| 4. | Hicom Assistant E Office database            |
| 5. | Application program system                   |
| 6. | Hicom Assistant E Office maintenance         |
| 7. | Simulated or pseudo Hicom Assistant T format |
| 8. | Hicom Assistant E Office online              |

### 12.8.3 System Access

System access can be via Hicom Assistant (T or E) as well as by means of Plus Products, using AMHOST.

After establishing a connection to the system using Hicom Assistant, you can make configuration changes and perform administration tasks, which are also logged. Because the Hicom Assistant T and Hicom Assistant E Office tools have different characteristics, both logs are written separately.

The *what* information in the system log includes:

- Format identification: (3) Session information
- Command input:
  - A0-1: Login procedure
  - A0-2: Logout procedure
  - A0-3: Login attempt denied

Because this is a pseudo Assistant T command, the command input begins with a letter.

### 12.8.4 Logging External Access (Solutions and Applications)

Plus Products can perform only a limited number of changes via AMHOST. Because the changes are automatic, for example with check-in and check-out functions in hotel Plus Products, the system does not log these changes specifically. These types of Plus Products log only LOGIN and LOGOUT actions (the user name is *amhost*).

### 12.8.5 Logging Hicom Assistant T and TC

There are several different ways to set up a Hicom Assistant T session. You can set up a direct connection to the system, use remote administration (touch tone), or use Hicom Assistant T as a Hicom Assistant E online option.

The system logs all actions regardless of the access method.

The *what* portion of a log entry includes:

- Format identification:
  - (1) Hicom Assistant T format
  - (2) Hicom Assistant TC format
- Command input: Enter the Hicom Assistant T (TC) command.

The system logs the command set listed in the Hicom Assistant T (TC) menu tables, along with the most important parameters (such as the station number) needed for addressing.

All commands are logged in a one-to-one ratio. There are no collective commands (commands are not reduced for logging). Read access is not logged. A logged LOGON access defines the rights to read the individual data.

## **12.8.6 Logging Hicom Assistant E Office**

### **12.8.6.1 Reading and Writing the Database**

There are two kinds of log entries:

#### **General Hicom Assistant E Office Database Activities**

The *what* information in the system access log includes:

- Format identification: (4) Hicom Assistant E Office database
- Command input:
  - A1-1: Database read
  - A1-2: Regenerate CDB
  - A1-3: Write database

#### **Specific Hicom Assistant E Office Changes**

- The *what* information for specific Hicom Assistant E changes includes:
- Format identification:
  - (7) Simulated Hicom Assistant T format
  - (7) Pseudo-Hicom Assistant T format (refer to [Table 12-18](#))

If you generate a database offline, or load a database from a data medium and then copy it to the system (write CDB), the system generates only one log entry (Regenerate CDB), and there is no way to compare the database. If the database is first generated by the system (read CDB) and then reloaded to the system (write CDB) after incorporating a number of changes, Hicom Assistant E Office generates the changes in the form of simulated Hicom Assistant T commands and forwards them to the system as a log entry before writing the database. The system makes the *write* database log entry after writing the database.

The system generates pseudo Hicom Assistant T commands for data areas that only Hicom Assistant E Office can modify. Pseudo objects are assigned to these data areas.



**12.8.6.2 Overview of Objects**

C1-xx = System parameters  
 C2-xx = System timer  
 C3-xx = S<sub>0</sub> configuration  
 C4-xx = Trunks  
 C5-xx = Digit analysis  
 C6-xx = Daylight savings time  
 C7-xx = Routes  
 C8-xx = Entrance telephone  
 C9-xx = UCD flags  
 C10-xx = Delete system counters

**12.8.6.3 Overview of Pseudo and Simulated Hicom Assistant T Commands**

Table 12-18 Simulated Hicom Assistant T Commands

| <b>Assistant T</b> | <b>Variable</b> | <b>Function</b>            |
|--------------------|-----------------|----------------------------|
| C1-1               |                 | System Flags/CMI           |
| C1-2               |                 | System Diversion/attendant |
| C1-3               |                 | Tones and ring types       |
| C1-4               | Rte#            | Routing flags/Special      |
| C1-5               |                 | System settings            |
| C1-6               |                 | Host Link Interface        |
| C1-7               |                 | Relocate activation        |
| C2-1               |                 | System timer               |
| C3-1               |                 | Subscriber bus             |
| C3-2               |                 | Line monitoring            |
| C3-3               |                 | Mode                       |
| C4-1               | Slot/trk#       | MSI parameters             |
| C5-1               | Stn#   Grp#     | Internal station number    |
| C5-2               |                 | Service codes              |
| C6-1               |                 | Daylight saving time       |
| C7-1               | Rte#            | Routing flags              |
| C8-1               | Door#           | Entrance telephone         |
| C9-1               |                 | UCD flags                  |
| C10-1              |                 | Delete system counters     |

### **Using the LOG File (Requires a 10 MB Flash Memory Card)**

You can read the file from the *Transfer* menu in revision mode. Click the *Logging* button to store the log data in a preselected file named \*.arc. You can read this file with Notepad<sup>®</sup> or Wordpad<sup>®</sup>.

#### **12.8.6.4 Logging APS Transfer (APSXF)**

This activity loads new software to the system. The system logs the following information:

- Format identification: (5) Application program system
- Command input:
  - A2-1: APSXF started
  - A2-2: APSXF completed
  - A2-3: APS startup  
(for example, A2-3-HE300M.00.001.01)

Each time a communications server starts up (including the first time), the system generates a command entry (A2-3-..) to identify the APS currently being used by the communications server.

#### **12.8.6.5 Logging Maintenance Activities and Other Online Activities**

Hicom Assistant E Office generates the log entries and sends them to the system. A log entry contains the following:

- Format identification: (6) Hicom Assistant E Office maintenance
- Command input:
  - B1-1: Read error memory
  - B1-2: Delete error memory
  - B2-1: Out of service
  - B3-1: Read direct memory access
  - B3-2: Write direct memory access
  - B4-1: Delete base station status overload
  - B4-2: Delete base station status restart
  - B5-1: Digital loopback change
  - B6-1: Trunk rolling change
  - B7-1: Read trunk status

- B8-1: Delete trunk error counter
- Format identification: (8) Hicom Assistant E Office online
- Command input:
  - D1-1: Archive
  - D2-1: New user
  - D2-2: Delete user
  - D3-1: Change password

Hicom Assistant E Office performs the action only after logging is completed.

### 12.8.7 Data Storage

You cannot turn the logging function on and off. It is carried out when a 10 MB flash memory card is provided. The next-to-the-last MB on the flash memory card is reserved for logging.

Assuming an average log size of 64 bytes, the log can contain up to 16,000 entries. It is therefore unlikely that the log file will exceed this size the first time it is programmed with Hicom Assistant T.

When the log is around 80 percent full, this triggers a class A error. The system treats this error like all other class A errors and displays *revisor alarm* on the screen.

If you do not archive the log at this point and an overflow is pending, the system deletes the oldest block (by overwriting the oldest entries).

**Note the following when replacing the FMC card:**

- If the logging memory area is empty, logging starts from the beginning.
- If the logging memory area is not empty, the log entries are appended.

### 12.8.8 Data Output

Log entries are output using Hicom Assistant E Office. You can access the log entries from the system only after logging on as a user with revisor rights.

If you do not want to archive the log, you can retrieve, view, and print the log entries as the revisor. However, the log entries remain in the system.

If you do want to archive the log, the system first checks whether the archive file exists on the PC, whether the file matches the customer file, and whether the file is indeed a previous archive file. If the result is negative, the system asks you to perform certain actions or to cancel the archive operation.

If you want to archive the log entries, they are retrieved from the system, appended to the specified file, and deleted from the system. If any errors occur while doing this (such as line interruptions), the entire process ends and you must restart the archiving function.

You can use Hicom Assistant E Office to check the archive files on the PC monitor and print them if necessary, even without logging onto the system. The system will not prompt you for a password in this case.

### 12.8.8.1 Example of a Log Printout

#### Example Situation

- The system started up for the first time, was programmed with customer-specific data, and the revisor created the first archive.
- Service then output the system database, changed 20 station names, and copied them back to the system.
- The customer changed two more station names. The revisor then retrieved and printed the last few log entries.

The printout is as follows (excluding the header and footer)

Table 12-19 Example Log Printout

|      |                   |         |                |                  |
|------|-------------------|---------|----------------|------------------|
| 1050 | 97-11-25 15:57:10 | rev(R)  | (6)D1-1        | Archiving        |
| 1051 | 97-11-25 15:58:22 | rev(R)  | (3)A0-2        | Logout procedure |
| 1052 | 97-11-26 09:20:15 | serv(S) | (3)A0-1        | Login procedure  |
| 1053 | 97-11-26 09:21:35 | serv(S) | (4)A1-1        | Database read    |
| 1054 | 97-11-26 09:21:52 | serv(S) | (7)14-12-*(20) | Station names    |
| 1055 | 97-11-26 09:22:45 | serv(S) | (4)A1-3        | Write database   |
| 1056 | 97-11-26 09:23:25 | serv(S) | (3)A0-2        | Logout procedure |
| 1057 | 97-11-26 10:10:15 | pnkm(A) | (3)A0-1        | Login procedure  |
| 1058 | 97-11-26 10:11:15 | pnkm(A) | (2)14-12-30    | Station names    |
| 1059 | 97-11-26 10:11:35 | pnkm(A) | (2)14-12-31    | Station names    |
| 1060 | 97-11-26 10:12:15 | pnkm(A) | (3)A0-2        | Logout procedure |
| 1061 | 97-11-27 11:20:30 | rev(R)  | (3)A0-1        | Login procedure  |

The following users were created in the example above:

- Revisor: *rev* in revision user group (R)
- Customer: *pnkm* in administration user group (A)
- Service: *serv* in system maintenance user group (S)

## 13 Hicom 150 E Office on a LAN

### 13.1 Overview

#### Chapter Contents

This chapter discusses the topics listed in the table.

| Topic                                               |            |
|-----------------------------------------------------|------------|
| <u>Introduction</u>                                 | page 13-2  |
| <u>SNMP Functionality</u>                           | page 13-3  |
| <u>CSTA via IP</u>                                  | page 13-5  |
| <u>Call Detail Recording Central (CDRC) via IP</u>  | page 13-7  |
| <u>TFTP Read and Write Access</u>                   | page 13-10 |
| <u>Registering Hicom 150 E Office on the LAN</u>    | page 13-10 |
| <u>Testing the IP Address of Hicom 150 E Office</u> | page 13-14 |
| <u>Hicom 150 E Office Administration via Telnet</u> | page 13-15 |



If you need any information that goes beyond the contents of this chapter, please refer to the Endeavor Installation Guide which is available in pdf format.

## 13.2 Introduction

In Release 2.2 and earlier, Hicom 150 E Office provided access to data environments through the following interfaces:

- CSTA interface (V.24, USBS)
- Call charge interface (V.24) and optiset E data adapter (TA RS232) or optiset E control adapter (TA API) for Hicom Attendant P Office (PC-VPL)
- Hicom Assistant E Office (V.24, X.75, analog)

The following **new LAN functionalities** (TCP/IP protocol family) are available:

- Release 2.2 SMR-J and later:  
SNMP, Hicom Assistant E Office (TCP), CDRC (TFTP server mode).
- Release 3.0 and later:  
CSTA Phase II and Phase III (TCP), CDRC (TFTP client mode and TCP/IP client mode).

Monitoring and control of the LAN components are provided by the Simple Network Management Protocol (SNMP).

## **13.3 SNMP Functionality**

### **13.3.1 Introduction**

As part of the TCP/IP protocol family, the Simple Network Management Protocol (SNMP) is an easy-to-use platform for performing management tasks in the Hicom 150 E Office system software. SNMP is used as a kind of management agent in Hicom 150 E Office, making it possible to monitor and administer LAN components (including Hicom 150 E Office itself) from a central location. This involves

- addressing Hicom 150 E Office via TCP/IP
- allowing external management applications, such as HP Open View and IBM Tivoli, to access data in Hicom 150 E Office (using SNMP messages, such as GET, SET, TRAP)
- implementing remote maintenance tasks (online port status, enabling and disabling ports, determining free ports)
- transmitting service-related class B errors
- visualizing the operating status of a Hicom 150 E Office system

### **13.3.2 Overview of SNMP Functions**

#### **Management Information Bases (MIBs)**

MIBs define the volume of data that can be administered via SNMP. They are data models that describe the network elements to be administered in a very specific form.

Hicom 150 E Office supports

- standard MIB II (according to the RFC1213 Internet standard), which provides Internet and router functions;
- parts of the RMON 1/2 standard MIBs (RFC 1757, RFC 2021), which support
  - Error history
  - Trap configuration
  - TFTP configuration
  - General system information

- a user-specific MIB that processes Hicom-specific statistic data (feature counters) and internal error messages (error history), covering the following areas:
  - ControlGroup – status variables, general configuration, supplementary TFTP configuration data
  - SystemInfoGroup – system configuration and status
  - StatisticsGroup – statistic data on features
  - ErrorHistoryGroup – Error history in Hicom format  
Error messages are forwarded in the form of SNMP traps via the LAN to a specific external management application. The SNMP traps form the error history data structure (time stamp, error class, error description).

These components use the IP protocol according to OSI layer 3 and the UDP protocol according to layer 4. The SNMP protocol stack uses port numbers. The system supports the SNMP protocol version 1.0.

## **SNMP Messages**

The following commands control SNMP messages for communication between the SNMP management agent (Hicom 150 E Office) and external applications:

- GET – retrieve data from agent
- GET NEXT – read out data sequentially
- SET – write data
- TRAP – alarm messages issued by the SNMP agent

There is an integrated mechanism for generating SNMP traps in the event of class B errors. The SNMP management agent evaluates the error messages. In the case of defined errors, it generates specific traps and transmits them in the form of IP data records to a configurable IP address (a total of five SNMP V1.0-compatible applications are supported, including HP Open View Network Node Manager).



## 13.4 CSTA via IP

Hicom 150 E Office uses the Transmission Control Protocol (TCP) for CSTA via IP, detecting and automatically correcting lost data packets over a permanent connection.

A total of three CSTA clients or applications can connect to Hicom 150 E Office simultaneously over the LAN, and thus can use CSTA over IP simultaneously. Restrictions may apply to applications that use certain services. For example, only one application at a time can start the message registration function.

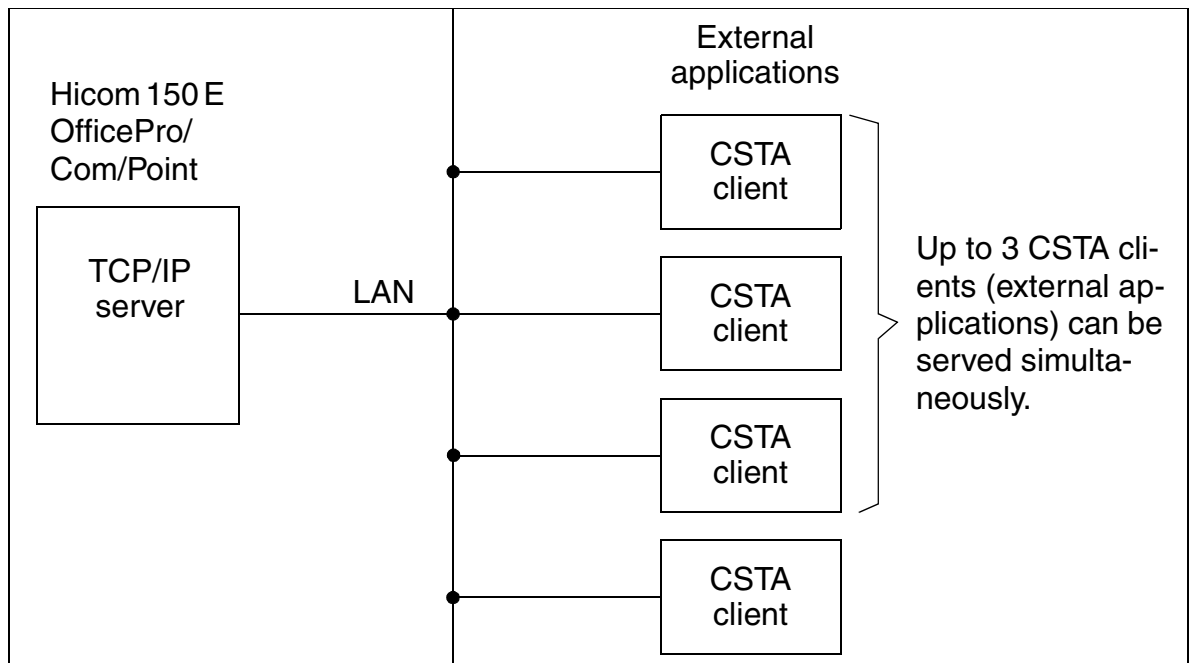


Figure 13-1 Hicom 150 E Office - CSTA via IP

For an external application to address Hicom 150 E Office, it must know the TCP port (7001) of the TCP/IP server implemented in Hicom 150 E Office as well as the IP address.

To set up calls, you need to administer the firewall in Hicom Assistant E Office (by entering the IP address of the CSTA client and enabling the CSTA application). By default, access is only via Hicom Assistant E Office (the first IP address in the firewall is 0.0.0.0). The system then requests the user name and password to authenticate the CSTA client. You can use Hicom Assistant E Office to draw up a list of five IP client addresses with access authorization.

Data packets sent from an application to Hicom 150 E Office -- that is, packets containing the Hicom IP address, TCP port 7001, and protocol type TCP -- are accepted for further processing.

### Model-Specific Data

| Subject              | Pro                                           | Com           | Point | One | Start |
|----------------------|-----------------------------------------------|---------------|-------|-----|-------|
| Feature available in | <b>x</b>                                      | <b>x</b>      | –     | –   | –     |
| HW requirements      | <u>Com</u><br><u>server</u><br><u>adapter</u> | <u>V.24/E</u> | –     | –   | –     |
| SW requirements      | Rel. 3.0 and later                            |               | –     | –   | –     |

### Configuring the Feature Using Hicom Assistant E Office

Prerequisite: Hicom 150 E Office must already be registered on the LAN (see [Section 13.6](#)).

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                              |
|------|-------------------------------------------------------------------------------------|
| 1.   | <b>Define IP addresses of the five clients with access authorization</b><br>Options |
| 2.   | Network                                                                             |
| 3.   | Communication Partner                                                               |
| 4.   | Table: Firewall                                                                     |
| 5.   | Line: Enter the IP address of the CSTA client and set the application flag (CSTA).  |

## 13.5 Call Detail Recording Central (CDRC) via IP

In Hicom 150 E Office, you can start up the central call data output function only once, which means that it is available to only one application at a time. Three different modes exist to support the various requirements of the different applications.

### Model-Specific Data

| Subject              | Pro                                           | Com           | Point         | One | Start |
|----------------------|-----------------------------------------------|---------------|---------------|-----|-------|
| Feature available in | x                                             | x             | x             | –   | –     |
| HW requirements      | <u>Com</u><br><u>server</u><br><u>adapter</u> | <u>V.24/E</u> | <u>V.24/E</u> | –   | –     |
| SW requirements      | Rel. 3.0 and later                            |               |               | –   | –     |

### 13.5.1 TFTP Client in Hicom 150 E Office

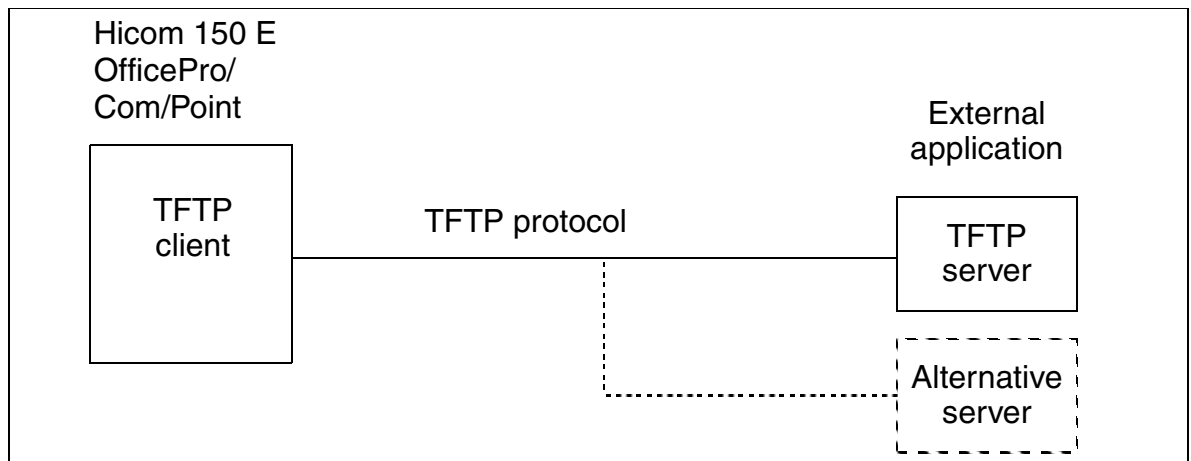


Figure 13-2 CDRC via IP - TFTP Client in Hicom 150 E Office

Controlled by a programmable timer and a fixed threshold value determining the call data buffer capacity (around 80 percent of the call data buffer full), the TFTP client (Hicom 150 E Office) sends call data to the TFTP server (external application). If Hicom cannot set up a connection to the TFTP server, it addresses an alternative server. If this server is also unavailable, it outputs an SNMP trap or error message (“Unable to output data”). The system tries to set up another connection every 60 seconds. A call data buffer overflow causes an error message to be entered in the error history file.

Use Hicom Assistant E Office to configure the server and timer IP addresses.

### 13.5.2 TCP Client in Hicom 150 E Office

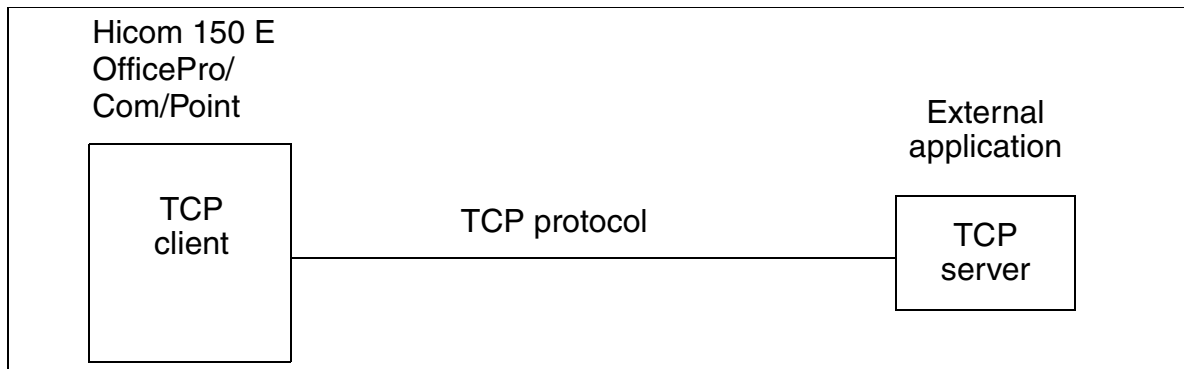


Figure 13-3 CDRC via IP - TCP Client in Hicom 150 E Office

When call data records accumulate, the TCP client (Hicom 150 E Office) sets up a TCP/IP connection to an external TCP server (external application) and transmits the data. The connection remains active continuously so that the system can send any further accumulated data, transmitting each data record separately.

Use Hicom Assistant E Office Office to configure the server's TCP/IP address (TCP port and IP address).

### 13.5.3 TFTP Server in Hicom 150 E Office

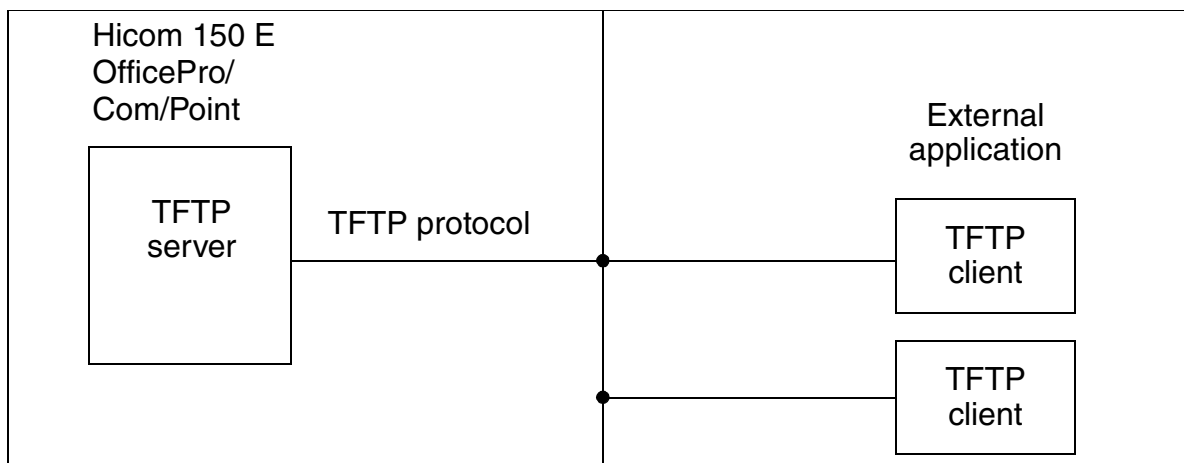


Figure 13-4 CDRC via IP - TFTP Client in Hicom 150 E Office

The external application (TFTP client) requests output of the call data records. To do this, the application must set up a connection and indicate the service (GET gez.txt), after which it receives all accumulated call data records. It releases the connection after the transfer.

Note: The IP address of the TFTP client must be entered in the firewall and the “call charges” application flag set.

The application’s request for call data can be controlled automatically or using an SNMP trap (see [Section 13.3](#)). Hicom 150 E Office sends the SNMP trap (“data available”) to the external application, generating the trap using a programmable threshold value determining the call data buffer capacity (0 to 80 percent of the call data buffer full). Use Hicom Assistant E Office to configure the threshold value.

### Configuring the Feature Using Hicom Assistant E Office

Prerequisite: Hicom 150 E Office must already be registered on the LAN (see [Section 13.7](#)).

Configure the feature using Hicom Assistant E Office as follows:

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | <b>Configure CDRC via the LAN</b><br>System status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2.   | Call charges                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3.   | Output format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4.   | Port assignment: CDR system, output → LAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5.   | LAN settings:<br>CDR system: <ul style="list-style-type: none"> <li>• TFTP client               <ul style="list-style-type: none"> <li>– IP address, server 1</li> <li>– IP address, server 2 (alternative server)</li> <li>– Output time</li> </ul> </li> <li>• TCP client               <ul style="list-style-type: none"> <li>– IP address and TCP port of external server</li> </ul> </li> <li>• TFTP server               <ul style="list-style-type: none"> <li>– Threshold in percent</li> </ul> </li> </ul> Output format: <ul style="list-style-type: none"> <li>• File format: UNIX (LF) or DOS (CR/LF)</li> <li>• Separator: “;” (semicolon), “ ” (pipe) or “ ” (space)</li> </ul> |



You cannot use Hicom Assistant T to configure this feature.  
 If *CDRC over IP (LAN)* is set, you can use Hicom Assistant T only to switch to V.24 port, U<sub>P0/E</sub> port, Hicom Attendant P Office (PC AC) or “no output”.

## 13.6 TFTP Read and Write Access

All data transmitted must be in binary format.

Table 13-1 TFTP Read and Write Access

| File      | TFTP-GET | TFTP-PUT | Explanation                          |
|-----------|----------|----------|--------------------------------------|
| hicom.kds | X        |          | CDB file                             |
| hicom.fli |          | X        | APS file                             |
| log.arc   | X        |          | LOG file for 10 MB flash memory card |
| get.txt   | X        |          | Call detail recording at station     |
| gel.txt   | X        |          | Call detail recording per trunk      |
| gez.txt   | X        |          | Call detail recording central        |
| ascii.txt | X        |          | Configuration in ASCII format        |

## 13.7 Registering Hicom 150 E Office on the LAN

If you are upgrading or installing a Hicom 150 E Office system with a com server for the first time--Com Server Adapter (OfficePro) or V.24/E board (OfficeCom, Office-Point)--you must communicate a number of settings to the LAN.

You need to add the LAN connection information to the customer database (CDB), if one already exists in the system.

### Procedure: Add Information for LAN Connection to Existing CDB

| Step | Action                                                                                   |
|------|------------------------------------------------------------------------------------------|
| 1.   | Download and back up an existing Hicom 150 E Office CDB, using Hicom Assistant E Office. |
| 2.   | If necessary, update the CDB to Release 3.0.                                             |
| 3.   | Open the <i>Network</i> dialog box from the <i>Settings</i> menu.                        |

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.   | <p>Activate the <b>IP Parameters</b> tab and make the following settings:</p> <ul style="list-style-type: none"> <li>● <b>IP interface</b> (Com Server Adapter or V.24/E board of Hicom 150 E Office) <ul style="list-style-type: none"> <li>– <b>IP Address:</b> IP address that the customer has assigned to Hicom 150 E Office.</li> <li>– <b>Subnet Mask:</b> enter the subnet mask.</li> <li>– <b>Gateway IP Address:</b> IP address of the closest gateway router (may not be necessary).</li> <li>– <b>MTU:</b> Maximum Ethernet frame length. Do not change the default value.</li> </ul> </li> <li>● <b>IP access</b> <ul style="list-style-type: none"> <li>– <b>Inactive:</b> LAN function deactivated.</li> <li>– <b>SLIP Forwarding:</b> The com server has the same address as Hicom 150 E Office and is running in transparent mode.</li> <li>– <b>SLIP Routing:</b> (in this case, you can administer the input fields under Hicom 150 E Office.) Hicom 150 E Office is assigned a different IP address than the com server (possibly even a separate subnet).</li> <li>– <b>HIP Forwarding:</b> Use the Hicom Xpress @LAN card instead of the Com server for LAN access. This card works in bridging mode, which means that the Hicom Xpress @LAN card and Hicom 150 E Office controller have separate IP addresses that share a physical LAN interface.</li> </ul> </li> <li>● <b>TFTP Server</b> (entries for APS transfer via the LAN) <ul style="list-style-type: none"> <li>– <b>IP Address:</b> This is the IP address of the TFTP server providing the APS for Hicom 150 E Office.</li> <li>– <b>Path:</b> Enter the path where the APS is located.</li> <li>– <b>Changeover Time:</b> Enter the date and time at which you want Hicom 150 E Office to change over to the transferred APS. An immediate or scheduled changeover after the TFTP transfer must be SNMP-initiated.</li> </ul> </li> <li>● <b>Hicom 150 E Office</b> <ul style="list-style-type: none"> <li>– <b>IP Address:</b> This box contains the IP address under which the com server addresses Hicom 150 E Office. Normally, you should select the default SLIP configuration (1.0.0.1) as the IP address.</li> <li>– <b>Subnet Mask:</b> Subnet mask at the interface between Hicom 150 E Office and the com server.</li> <li>– <b>MTU:</b> Maximum Ethernet frame length on the link between Hicom 150 E Office and the com server. Do not change the default value.</li> </ul> </li> <li>● <b>Routing Table:</b> Do not change any of the values entered here.</li> <li>● <b>Baud Rate:</b> 2400, 9600, or 19200 baud (19200 baud recommended), for the connection between Hicom 150 E Office and the Com Server Adapter or the V24/E board.</li> </ul> |

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.   | <p>Activate the <b>SNMP Data</b> tab and make the following settings:</p> <ul style="list-style-type: none"> <li>● <b>System Identification</b> (entries for the standard MIB <i>RFC 1213</i> (MIB-2)) <ul style="list-style-type: none"> <li>– <b>Contact Person</b>: Name of the technical support person responsible for Hicom 150 E Office.</li> <li>– <b>System Name</b>: Name of the Hicom 150 E Office system. The SNMP environment requires the domain name.</li> <li>– <b>Location</b>: Information about the Hicom 150 E Office location.</li> </ul> </li> <li>● <b>Activate SNMP</b>: This option activates the SNMP in the Hicom 150 E Office system.</li> <li>● <b>Multiple Traps</b>: Multiple trap repetitions.</li> <li>● <b>Trap Flags</b> <ul style="list-style-type: none"> <li>– <b>Class</b> column: For each error type that can be signaled by an SNMP error message (trap), you must specify whether you want the system to only create an entry to be made in the error history file or also initiate a trap.</li> <li>– <b>Error Number</b> column: Numbers of the class B errors.</li> <li>– <b>Meaning</b> column: Plain-text description of the error event.</li> <li>– <b>Value</b> column: log = enter in error history only; log + trap = enter in error history and also initiate a trap; log + multiple trap = enter in error history and also send a trap multiple times (SNMP error message).</li> </ul> </li> </ul> |



| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.   | <p>Activate the <b>Communication Partner</b> tab and make the following settings:</p> <ul style="list-style-type: none"> <li>• <b>SNMP Community</b> table (configure the communication partners, which are authorized to administer the Hicom 150 E Office system via SNMP.) <ul style="list-style-type: none"> <li>– <b>SNMP Transport Label</b> column: Enter a specific IP address or a wildcard (everybody, nobody).</li> <li>– <b>SNMP Community Name</b> column: serves the purpose of an access password in SNMP Version 1.0.</li> <li>– <b>SNMP Authorization</b> column: Possible settings are <i>read</i> (the IP address has read access only), <i>read/write</i> (the IP address has read and write access), and <i>none</i> (the IP address has no access authorization. This option enables you to temporarily deactivate entries without having the delete them).</li> </ul> </li> <li>• <b>SNMP Trap Community</b> table (configures the destinations for SNMP error messages/traps) <ul style="list-style-type: none"> <li>– <b>SNMP Community Name</b> column: Identifies the community to which the trap is assigned.</li> <li>– <b>SNMP Transport Label</b> column: IP address of the trap destination. You cannot enter wildcards for traps.</li> <li>– <b>Destination Owner</b> column: Plain-text description of the trap destination (optional).</li> <li>– <b>Destination Status</b>: This allows you to activate and deactivate configured trap destinations.</li> </ul> </li> <li>• <b>Firewall</b> table (Access authorizations for a total of five external applications by entering the IP addresses and setting the application flags.) <ul style="list-style-type: none"> <li>– <b>IP Addresses</b> column: IP address of an external application<br/>Note: If IP address 0.0.0.0 is entered, only Hicom Assistant E Office is authorized for access (default setting).</li> <li>– <b>Telnet</b> column: Telnet access is allowed.<br/>Note: Telnet emulates the Hicom Assistant T functions (see <a href="#">Section 13.9</a>).</li> <li>– <b>CSTA</b> column: CSTA via TCP/IP is allowed.</li> <li>– <b>APS</b> column: APS transfer via TFTP is allowed.</li> <li>– <b>CDB</b> column: Reading the customer database via TFTP is allowed.</li> <li>– <b>Assistant Office</b> column: Hicom Assistant E Office access via TCP/IP is allowed.</li> <li>– <b>LOG</b> column: Read log file via TFTP is allowed.</li> <li>– <b>CDR</b> column: Call charge output via TFTP is allowed.</li> <li>– <b>ASCII</b> column: Read basic system configuration via TFTP is allowed.</li> </ul> </li> </ul> |
| 7.   | Save the CDB and transfer it to Hicom 150 E Office.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## 13.8 Testing the IP Address of Hicom 150 E Office

After copying the updated CDB back to the system, you should run some tests to determine whether the connection data is correct. The Ping and Telnet programs, which come with the PC operating system, are available for these tests.

### Procedure: Test the IP Address

Prerequisite: You must be working at a PC on the LAN or have set up a local network between the service PC (Hicom Assistant E Office) and the IP port (com server) of the Hicom 150 E Office system using a crossover patch cable.

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                              |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Open an MS-DOS box.                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2.   | Enter the command <i>PING &lt;IP ADDRESS&gt;</i><br>(Example: C:\WINDOWS\PING 192.168.100.11).<br>You already defined the IP address of the Hicom 150 E Office system in <u>step 4 on page 13-11</u> .                                                                                                                                                                                                              |
| 3.   | The following should appear in response:<br>Pinging 192.168.100.11 with 32bytes of data:<br>Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251<br>Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251<br>Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251<br>Reply from 192.168.100.11: bytes = 32 time=80ms TTL=251                                                                                |
| 4.   | If you do not receive a reply to the command: <ul style="list-style-type: none"> <li>• The IP address of the Hicom 150 E Office system may be incorrect.</li> <li>• Hicom 150 E Office may not be ready.</li> <li>• If you issued the ping command from outside the gateway, the gateway IP address may be incorrect. Check the remote network segment to ensure that the gateway IP address is correct.</li> </ul> |

### Final Tests

Run the following additional tests:

- IP functions in Hicom Assistant E Office  
Hicom 150 E Office should now be able to perform all read and write operations via the LAN. Open the **Network** menu and go to the **Communication** tab (activate **IP**). Then enter an IP address or a host name.
- SNMP functions  
If configured correctly, reply packets, such as error classes and numbers, should be visible.

## 13.9 Hicom 150 E Office Administration via Telnet

You can use Telnet to administer the Hicom 150 E Office system via the IP port (com server).

### Procedure

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Start the Telnet program with the IP address of the Hicom 150 E Office system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2.   | A mask appears where you can maximize the Telnet window (size of a telephone display with 24 lines and 8 characters per line). Press any key.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3.   | After initialization is complete, a telephone user interface appears with an eight-line display.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 4.   | <p>Enter *95 to start the administration function just like you would under Hicom Assistant T .</p> <p>Notes: If your Tenet program does not support function keys, you can use the "!", "\$", "%" and "?" instead:</p> <ul style="list-style-type: none"> <li>• F2 -&gt; !</li> <li>• F7 -&gt; \$</li> <li>• F8 -&gt; %</li> <li>• Speaker -&gt; ?</li> </ul> <p>The font set in the Telnet program determines whether you can display German umlauts. Use a font that displays the characters you need.</p> <p>Configure Telnet as follows:</p> <ul style="list-style-type: none"> <li>• Character mode (if programmable)</li> <li>• VT100 arrows (under <b>Terminal, Settings</b> in MS Windows NT Telnet )</li> <li>• VT100/ANSI emulation</li> </ul> <p>The arrow keys on the keypad have the following functions:</p> <ul style="list-style-type: none"> <li>• <i>Next</i> -&gt; Arrow Up/Right (use "&gt;" key as an alternative)</li> <li>• <i>Back</i> -&gt; Arrow Down/Left (use "&lt;" key as an alternative)</li> </ul> <p>If your program does not support arrow keys, use the "&lt;" and "&gt;" keys to scroll up and down.</p> |



# A System Programming Codes

## A.1 Passwords

Authorized users can access Hicom 150 E Office system administration by means of user names and passwords, which also determine which data they are allowed to read and administer.

For information on the Hicom 150 E Office security concept (fixed or variable password concept) and on the associated options, refer to [Section 12.7.1](#).

For a description of how to start system administration via Hicom Assistant T, refer to [page 12-38](#).

## A.2 Feature Access Codes

[Table A-1](#) lists the features that can be activated (\*) and deactivated (#) by entering codes on the telephones.

Table A-1 Feature Access Codes

| Feature                                                                                                                                                                                          | Activate            | Deactivate | Telephones |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------|------------|
| Accept camp-on                                                                                                                                                                                   | * 55                |            | A          |
| Account code (max. 11 digits)                                                                                                                                                                    | *60+ACCT            |            | A          |
| Advisory message                                                                                                                                                                                 | * 69                | # 69       | D          |
| Appointment                                                                                                                                                                                      | * 46+Time+<br>Type  | # 46       | D, E, N, C |
| Associated dialing for U <sub>P0/E</sub> station                                                                                                                                                 | *67+Stn+Stn.<br>no. |            | A          |
| Associated services                                                                                                                                                                              | *83+Stn+<br>Service |            | A          |
| Busy override                                                                                                                                                                                    | * 62                |            | D, E, N, C |
| Call charge display for own station<br>GET (not for U.S.)                                                                                                                                        | * 65                |            | D          |
| A = All telephones<br>D = Display telephone<br>E = Entry, Basic<br>N = Analog tel., TA analog, TA RS232<br>S = ISDN (S <sub>0</sub> ) terminal, TA S <sub>0</sub><br>C = Cordless (not for U.S.) |                     |            |            |

Table A-1 Feature Access Codes

| Feature                                                                                                                                                                                          | Activate                                                                            | Deactivate         | Telephones |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|------------|
| Call forwarding for:<br><ul style="list-style-type: none"> <li>All calls (internal and external)</li> <li>External calls only</li> <li>Internal calls only</li> </ul>                            | *1+type+stn. no.<br>Types:<br>1=All calls<br>2=Ext. calls only<br>3=Int. calls only | # 1                | A          |
| Call forwarding, external (not for U.S.)                                                                                                                                                         | * 64+Stn. no.                                                                       | # 64               | A          |
| Call pickup, directed                                                                                                                                                                            | * 59+Stn. no.                                                                       |                    | A          |
| Call pickup in pickup group                                                                                                                                                                      | * 57                                                                                |                    | A          |
| Callback, initiate/view, cancel                                                                                                                                                                  | * 58                                                                                | # 58               | A          |
| Caller list, display/write to, save station number                                                                                                                                               | * 82                                                                                | # 82               | D          |
| Change telephone lock access code                                                                                                                                                                | * 93<br>+Old code<br>+New code<br>+New code                                         |                    | A          |
| Conference                                                                                                                                                                                       | * 3                                                                                 | # 3                | D, E, N, C |
| Consultation hold, exit (return to held call)                                                                                                                                                    | * 0                                                                                 |                    | A          |
| Do not disturb                                                                                                                                                                                   | * 97                                                                                | # 97               | A          |
| Door opener via adapter box                                                                                                                                                                      | * 61+Stn. no.                                                                       |                    | A          |
| Door opener, DTMF                                                                                                                                                                                | * 89+Stn. no.+Code                                                                  | # 89+Stn. no.+Code | A          |
| DTMF transmission                                                                                                                                                                                | * 53                                                                                |                    | D, E, N, C |
| Flex call (mobile PIN)                                                                                                                                                                           | * 508                                                                               |                    | A          |
| Forward calls on lines (MULAP)                                                                                                                                                                   | * 501                                                                               | # 501              | A          |
| Group ringing                                                                                                                                                                                    | * 81+Stn. no.                                                                       | # 81               | A          |
| Handsfree answerback                                                                                                                                                                             | * 96                                                                                | # 96               | D          |
| Hunt group on/off<br>Group call on/off                                                                                                                                                           | * 85+<br>grp. no.                                                                   | # 85+<br>grp. no.  | A          |
| A = All telephones<br>D = Display telephone<br>E = Entry, Basic<br>N = Analog tel., TA analog, TA RS232<br>S = ISDN (S <sub>0</sub> ) terminal, TA S <sub>0</sub><br>C = Cordless (not for U.S.) |                                                                                     |                    |            |

Table A-1 Feature Access Codes

| <b>Feature</b>                                                                                                                                                                                   | <b>Activate</b>                                                         | <b>Deactivate</b>       | <b>Telephones</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------|-------------------|
| Hunt group, all on/off<br>Group call, all on/off                                                                                                                                                 | * 85 *                                                                  | # 85 #                  | A                 |
| Internal DISA (can be activated only within a HiPath AllServe 150 V1.0 network)                                                                                                                  | * 47<br>+ DISA stn. no.<br>+ DISA stn.<br>+ Service<br>+ Suffix-dialing |                         | D, E, N           |
| Key programming                                                                                                                                                                                  | * 91                                                                    |                         | D                 |
| Logon mode (for mobile unit) (not for U.S.)                                                                                                                                                      | * 942+Code<br>+Stn. no.                                                 |                         | D                 |
| Malicious call ID (not for U.S.)                                                                                                                                                                 | * 84                                                                    |                         | A                 |
| Microphone                                                                                                                                                                                       | * 52                                                                    | # 52                    | D, E              |
| Night answer                                                                                                                                                                                     | *44+Stn. no.<br>or *44*                                                 | # 44                    | A                 |
| Park                                                                                                                                                                                             | * 56+Park slot<br>(0-9)                                                 | # 56+Park<br>slot (0-9) | A                 |
| Radio paging equipment (not for U.S.)                                                                                                                                                            | * 45+Stn. no.                                                           | # 45+Stn. no.           | A                 |
| Release trunks                                                                                                                                                                                   | * 43+Trunk                                                              |                         | A                 |
| Relocate                                                                                                                                                                                         | * 9419                                                                  | # 9419                  | D, E              |
| Reset all services                                                                                                                                                                               |                                                                         | # 0                     | A                 |
| Retrieve external call placed on hold by means of hold key                                                                                                                                       | * 63+Trunk                                                              |                         | A                 |
| Ringer cutoff                                                                                                                                                                                    | * 98                                                                    | # 98                    | D                 |
| Ring transfer executive/secretary                                                                                                                                                                | * 502                                                                   | # 502                   | A                 |
| Room monitor                                                                                                                                                                                     | * 88                                                                    |                         | D, E, N           |
| Send message/delete message (message waiting)                                                                                                                                                    |                                                                         | # 68                    | A                 |
| Send message/display message (message waiting)                                                                                                                                                   | * 68+stn. no.<br>+message no.                                           |                         | A                 |
| A = All telephones<br>D = Display telephone<br>E = Entry, Basic<br>N = Analog tel., TA analog, TA RS232<br>S = ISDN (S <sub>0</sub> ) terminal, TA S <sub>0</sub><br>C = Cordless (not for U.S.) |                                                                         |                         |                   |

Table A-1 Feature Access Codes

| Feature                                                                                                                                                                                          | Activate                                                  | Deactivate        | Telephones |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------|------------|
| Silent camp-on                                                                                                                                                                                   | * 87                                                      | # 87              | D          |
| Silent monitoring (for U.S. only)                                                                                                                                                                | *944+Stn. no.                                             |                   | D, E, N, C |
| Speaker call                                                                                                                                                                                     | * 80+Stn. no.                                             |                   | A          |
| Station number, assign for MUSAP                                                                                                                                                                 | * 41+DID no.                                              |                   | A          |
| Station number suppression                                                                                                                                                                       | * 86                                                      | # 86              | A          |
| Station speed-dialing number, save/change                                                                                                                                                        | * 92+ISD no.<br>(*0 - *9)                                 |                   | D, E, N, C |
| Switch selected relay                                                                                                                                                                            | * 90+Relay<br>no.                                         | # 90+Relay<br>no. | A          |
| System administration                                                                                                                                                                            | * 95                                                      |                   | D          |
| System administration<br>Remote DTMF administration and<br>maintenance, activate (service sys-<br>tem)                                                                                           | * 991                                                     |                   | D          |
| System administration<br>Remote DTMF administration and<br>maintenance, enable (customer sys-<br>tem)                                                                                            | * 992+Code                                                |                   | D          |
| System administration via HOST (re-<br>mote), enable                                                                                                                                             | * 993                                                     |                   | D          |
| System speed-dialing (SSD)/station<br>speed-dialing (ISD), dial                                                                                                                                  | * 7+ISD no.<br>(000-999)<br>(000-299 with<br>OfficePoint) |                   | A          |
| System telephone lock                                                                                                                                                                            | * 943+Stn+*                                               | # 943+Stn+#       | A          |
| Telephone data service TDS                                                                                                                                                                       | * 42<br>(0-9 or<br>#0-#9)                                 |                   | A          |
| Telephone lock, individual                                                                                                                                                                       | * 66+Code                                                 | # 66+Code         | A          |
| Telephone test                                                                                                                                                                                   | * 940                                                     |                   | D, E       |
| Toggle                                                                                                                                                                                           | * 2                                                       |                   | D, E, N, C |
| Trace stop                                                                                                                                                                                       | * 509                                                     |                   |            |
| A = All telephones<br>D = Display telephone<br>E = Entry, Basic<br>N = Analog tel., TA analog, TA RS232<br>S = ISDN (S <sub>0</sub> ) terminal, TA S <sub>0</sub><br>C = Cordless (not for U.S.) |                                                           |                   |            |



Table A-1 Feature Access Codes

| <b>Feature</b>                                                                                                                | <b>Activate</b>                         | <b>Deactivate</b> | <b>Telephones</b> |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------|-------------------|
| Trunk flash on analog trunk                                                                                                   | * 51                                    |                   | D, E, N, C        |
| UCD (uniform call distribution), available                                                                                    | * 402                                   | # 402             | D, E, N           |
| UCD, logon                                                                                                                    | * 401+ID                                | # 401             | D, E, N           |
| UCD, night destination                                                                                                        | * 404+Stn. no.                          | # 404             | D, E, N           |
| UCD, queue                                                                                                                    | * 405                                   |                   | D                 |
| UCD, work time                                                                                                                | * 403                                   | # 403             | D, E, N           |
|                                                                                                                               |                                         |                   |                   |
| Substitute code for #                                                                                                         | 76                                      |                   | A                 |
| Substitute code for *                                                                                                         | 75                                      |                   | A                 |
| Internal station number, primary:<br>a) OfficePoint<br>b) OfficePro/OfficeCom                                                 | a) 11-30<br>b) 100-349                  |                   | A                 |
| Internal station number, secondary:<br>a) OfficePoint<br>b) OfficePro/OfficeCom                                               | a) 51-70<br>b) 500-749                  |                   | A                 |
| Internal station number, group:<br>a) OfficePoint<br>b) OfficePro/OfficeCom                                                   | a) 31-50<br>b) 350-499                  |                   | A                 |
| Trunk codes:<br>a) OfficePoint<br>b) OfficePro/OfficeCom                                                                      | a) 801-816<br>b) 7801-7920              |                   | A                 |
| Trunk group codes:<br>a) OfficePoint<br>b) OfficePro/OfficeCom                                                                | a) 0 / 82-88<br>b) 0 / 80-84<br>850-859 |                   | A                 |
| A = All telephones<br>D = Display telephone<br>E = Entry, Basic                                                               |                                         |                   |                   |
| N = Analog tel., TA analog, TA RS232<br>S = ISDN (S <sub>0</sub> ) terminal, TA S <sub>0</sub><br>C = Cordless (not for U.S.) |                                         |                   |                   |

## A.3 Expert Mode Codes

### Introduction

You can administer Hicom 150 E Office systems from an optiset E memory telephone using expert mode (also known as Hicom Assistant T) at either of the first two stations (U<sub>PO/E</sub>). You can initiate expert mode by entering a sequence of consecutive digits that branch you to the desired option.

### Error Message Displays

You must acknowledge error messages. When the system reports an error as a result of entering a previously used code, the expert mode code appears at the beginning of the second line of the display. You can use the expert mode code to go directly to the desired menu segment.

### Menu Selection Using Codes

Depending on the menu you enter either single-digit or multi-digit codes. You can use \* on the numeric keypad to change the item and # to call the configuration option.

### Accessing System Administration

Users can access system administration by entering a user name (ID) and password (authentication). Depending on the active password concept (refer to [Section 12.7.1](#) for more details), the procedure is as follows:

Table A-2 Starting System Administration (Service)

| Step | Input | Explanation                                                                                                                                                                                               |
|------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | *95   | Start system administration                                                                                                                                                                               |
| 2.   | XXXXX | Enter user name: <ul style="list-style-type: none"><li>• Fixed password concept (possible as of Release 3.0 SMR-C): User name = 31994</li><li>• Variable password concept: Individual user name</li></ul> |
| 3.   | XXXXX | Enter password: <ul style="list-style-type: none"><li>• Fixed password concept (possible as of Release 3.0 SMR-C): Password = 31994</li><li>• Variable password concept: Individual password</li></ul>    |

For an example of the first time system administration is called via Hicom Assistant T after the system is booted, refer to [page 12-38](#).

Table A-3 Expert Mode Code Groups (First-Level Menus)

| <b>Code Group</b>                                              | <b>Function</b>                                                 |
|----------------------------------------------------------------|-----------------------------------------------------------------|
| <b>System maintenance expert mode (previously Assistant T)</b> |                                                                 |
| <u>11</u>                                                      | Call detail recording                                           |
| <u>12</u>                                                      | System speed dial                                               |
| <u>13</u>                                                      | Account Code                                                    |
| <u>14</u>                                                      | Configure station                                               |
| <u>15</u>                                                      | Toll restriction                                                |
| <u>16</u>                                                      | Incoming calls                                                  |
| <u>17</u>                                                      | Networking                                                      |
| <u>18</u>                                                      | Traffic restriction                                             |
| <u>19</u>                                                      | Displays                                                        |
| <u>20</u>                                                      | ISDN parameters                                                 |
| <u>21</u>                                                      | Analog CO interface                                             |
| <u>22</u>                                                      | System settings                                                 |
| <u>23</u>                                                      | Codes                                                           |
| <u>24</u>                                                      | Entrance phone                                                  |
| <u>25</u>                                                      | Announcement/Music                                              |
| <u>26</u>                                                      | Relays                                                          |
| <u>27</u>                                                      | Sensors (OfficeCom and OfficePoint only)                        |
| <u>28</u>                                                      | Edit CDB                                                        |
| <u>29</u>                                                      | System details                                                  |
| <u>30</u>                                                      | Remote administration                                           |
| <u>31</u>                                                      | UCD (OfficePro and OfficeCom only)                              |
| <u>32</u>                                                      | Radio paging equipment (not for U.S.)                           |
| <u>33</u>                                                      | Attendant console                                               |
| <u>34</u>                                                      | DISA                                                            |
| <u>35</u>                                                      | Least cost routing (LCR)                                        |
| <u>36</u>                                                      | Cordless (OfficePro/OfficeCom/OfficePoint C only; not for U.S.) |
| <u>37</u>                                                      | Security                                                        |
| <u>51-63</u>                                                   | Customer administration (previously Assistant TC)               |

Table A-4 Expert Mode Codes

| <b>Code</b> |   |   |  | <b>Function</b>                                                                                                                             |
|-------------|---|---|--|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>11</b>   |   |   |  | <b>Call detail recording</b>                                                                                                                |
| 11          | 1 |   |  | CDR/station (call detail recording at station)                                                                                              |
| 11          | 1 | 1 |  | View CDR/station; enter station number (11-74)                                                                                              |
| 11          | 1 | 2 |  | Print CDR/station                                                                                                                           |
| 11          | 2 |   |  | CDR per trunk (call detail recording per trunk)                                                                                             |
| 11          | 2 | 1 |  | View CDR per trunk; enter trunk number (1-32)                                                                                               |
| 11          | 2 | 2 |  | Print CDR per trunk                                                                                                                         |
| 11          | 3 |   |  | CDR central (call detail recording central)                                                                                                 |
| 11          | 3 | 1 |  | Print format: 0 = Compressed, 1 = Long                                                                                                      |
| 11          | 3 | 2 |  | Station number format, Suppress digits; 0 = No, 1 = Yes                                                                                     |
| 11          | 3 | 3 |  | Incoming calls: 0 = No, 1 = Yes                                                                                                             |
| 11          | 3 | 4 |  | Call duration: 0 = No, 1 = Yes                                                                                                              |
| 11          | 3 | 5 |  | Print MSN: 0 = No, 1 = Yes                                                                                                                  |
| 11          | 3 | 6 |  | Call charge display, 1 = Amount / 2 = Pulses                                                                                                |
| 11          | 4 |   |  | Call charge factor (not for U.S.):<br>Rel. 2.0 or earlier: enter 0 to 65535<br>Rel. 2.2 or later: enter 0 % to 10000 %                      |
| 11          | 5 |   |  | ISDN units: (not for U.S.)<br>Rel. 2.0 or earlier: enter 0 to 65535<br>Rel. 2.2 or later: enter 0 % to 10000 %                              |
| 11          | 6 |   |  | Currency, alphanumeric entry of max. 3 characters (not for U.S.)                                                                            |
| 11          | 7 |   |  | Call log: 0 = No, 1 = Yes                                                                                                                   |
| 11          | 8 |   |  | CDRA (call detail recording, attendant), pay phone, station.                                                                                |
| 11          | 9 |   |  | Calculation accuracy (0 to 3)                                                                                                               |
| <b>12</b>   |   |   |  | <b>System speed dial</b>                                                                                                                    |
| 12          | 1 |   |  | Speed dial numbers, external station numbers<br>000 to 999 (OfficePro and OfficeCom); 000 to 299 (OfficePoint)                              |
| 12          | 2 |   |  | Speed dial names, alphanumeric entries of up to 16 positions<br>(optiset E memory only), only if speed-dialing numbers have<br>been entered |

Table A-4 Expert Mode Codes

| <b>Code</b> |    |   |  | <b>Function</b>                                                                                                                                                 |
|-------------|----|---|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>13</b>   |    |   |  | <b>Account Code (ACCT)</b>                                                                                                                                      |
| 13          | 1  |   |  | Code entries, list 0 to 999                                                                                                                                     |
| 13          | 2  |   |  | Verification mode: 0 = Non-verified, 1 = Code entries, 2 = Code length                                                                                          |
| 13          | 3  |   |  | Trunk group mode: 0 = Non-verified, 1 = Forced                                                                                                                  |
| 13          | 4  |   |  | Code length (1 to 11)                                                                                                                                           |
| <b>14</b>   |    |   |  | <b>Configure station</b>                                                                                                                                        |
| 14          | 10 |   |  | Copy station data                                                                                                                                               |
| 14          | 11 |   |  | Station type                                                                                                                                                    |
| 14          | 11 | 0 |  | Default                                                                                                                                                         |
| 14          | 11 | 1 |  | Fax                                                                                                                                                             |
| 14          | 11 | 2 |  | Voice mail 5                                                                                                                                                    |
| 14          | 11 | 3 |  | Speaker                                                                                                                                                         |
| 14          | 11 | 4 |  | Answering machine                                                                                                                                               |
| 14          | 11 | 5 |  | External music on hold (MOH)                                                                                                                                    |
| 14          | 11 | 6 |  | Analog telephone MW                                                                                                                                             |
| 14          | 11 | 7 |  | Voice mail 6                                                                                                                                                    |
| 14          | 11 | 8 |  | Door, pulse                                                                                                                                                     |
| 14          | 11 | 9 |  | Memo                                                                                                                                                            |
| 14          | 12 |   |  | Station name, alphanumeric entry of up to 16 characters (op-<br>tiset E memory only)                                                                            |
| 14          | 13 |   |  | Busy override: 0 = Denied, 1 = Allowed                                                                                                                          |
| 14          | 14 |   |  | Associated dialing: 0 = Denied, 1 = Allowed                                                                                                                     |
| 14          | 15 |   |  | DISA: 0 = Denied, 1 = Allowed                                                                                                                                   |
| 14          | 16 |   |  | Call waiting rejection: 0 = Off, 1 = On                                                                                                                         |
| 14          | 17 |   |  | Headset: 0 = Off, 1 = On                                                                                                                                        |
| 14          | 18 |   |  | Call pickup group:<br>OfficePro: Groups 1 to 32, max. 32 stations<br>OfficeCom: Groups 1 to 16, max. 32 stations<br>OfficePoint: Groups 1 to 8, max. 8 stations |
| 14          | 19 |   |  | Reset station PIN: 0 = Reset to 00000                                                                                                                           |
| 14          | 20 |   |  | Override do not disturb: 0 = No, 1 = Yes                                                                                                                        |

Table A-4 Expert Mode Codes

| Code |    |  |  | Function                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------|----|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14   | 21 |  |  | Caller list: 0 = No, 1 = Yes                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 14   | 22 |  |  | Trace call: 0 = Denied, 1 = Allowed (not for U.S.)                                                                                                                                                                                                                                                                                                                                                                                                    |
| 14   | 23 |  |  | Call forwarding external: 0 = Denied, 1 = Allowed                                                                                                                                                                                                                                                                                                                                                                                                     |
| 14   | 24 |  |  | Reserved                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 14   | 25 |  |  | Data compression: 0 = No, 1 = Yes                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 14   | 26 |  |  | Select language:<br>11 = German<br>12 = US English<br>13 = French<br>14 = English<br>15 = Spanish<br>16 = Italian<br>17 = Dutch<br>18 = Portuguese<br>19 = Finnish<br>20 = Czech<br>21 = Danish<br>22 = Swedish<br>23 = Norwegian<br>24 = Turkish<br>25 = Telekom, German<br>26 = Polish<br>27 = Hungarian<br>28 = Russian<br>29 = Greek<br>30 = Slovenian<br>31 = Serbo-Croatian<br>32 = Estonian<br>33 = Latvian<br>34 = Lithuanian<br>35 = Chinese |
| 14   | 27 |  |  | Speaker call: 0 = Denied, 1 = Allowed                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 14   | 28 |  |  | Phone lock intercept: 0 = No, 1 = Yes                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 14   | 29 |  |  | Signaling method: 1 = DTMF, 2 = Dial pulses                                                                                                                                                                                                                                                                                                                                                                                                           |
| 14   | 30 |  |  | Busy lamp field (BLF; not for U.S): 0 = No BLF, 1 = One BLF, 2 = Two BLFs                                                                                                                                                                                                                                                                                                                                                                             |
| 14   | 31 |  |  | Collect call barring per station                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 14   | 32 |  |  | Set up station in telephone directory, 0 = no / 1 = yes                                                                                                                                                                                                                                                                                                                                                                                               |

Table A-4 Expert Mode Codes

| Code      |   |   |  | Function                                                                                                                                                                                                                                   |
|-----------|---|---|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>15</b> |   |   |  | <b>Toll restriction</b>                                                                                                                                                                                                                    |
| 15        | 1 |   |  | Restriction, day; specify reference station<br>Enter new data:<br>0 = No access except by system speed-dialing<br>1 = Incoming only<br>2-7 = Allowed list / Allowed lists 1-6<br>8-13 = Denied list / Denied lists 1-6<br>14 = Full access |
| 15        | 2 |   |  | Restriction, night; specify reference station<br>Enter new data:<br>0 = No access except by system speed-dialing<br>1 = Incoming only<br>2-7 = Allowed list / Allowed list 1-6<br>8-13 = Denied list / Denied list 1-6<br>14 = Full access |
| 15        | 3 |   |  | Allowed lists                                                                                                                                                                                                                              |
| 15        | 3 | 1 |  | Allowed list 1, 100 entries                                                                                                                                                                                                                |
| 15        | 3 | 2 |  | Allowed 2, 10 entries                                                                                                                                                                                                                      |
| 15        | 3 | 3 |  | Allowed 3, 10 entries                                                                                                                                                                                                                      |
| 15        | 3 | 4 |  | Allowed 4, 10 entries                                                                                                                                                                                                                      |
| 15        | 3 | 5 |  | Allowed 5, 10 entries                                                                                                                                                                                                                      |
| 15        | 3 | 6 |  | Allowed 6, 10 entries                                                                                                                                                                                                                      |
| 15        | 4 |   |  | Denied lists                                                                                                                                                                                                                               |
| 15        | 4 | 1 |  | Denied list 1, 50 entries                                                                                                                                                                                                                  |
| 15        | 4 | 2 |  | Denied 2, 10 entries                                                                                                                                                                                                                       |
| 15        | 4 | 3 |  | Denied 3, 10 entries                                                                                                                                                                                                                       |
| 15        | 4 | 4 |  | Denied 4, 10 entries                                                                                                                                                                                                                       |
| 15        | 4 | 5 |  | Denied 5, 10 entries                                                                                                                                                                                                                       |
| 15        | 4 | 6 |  | Denied 6, 10 entries                                                                                                                                                                                                                       |
| 15        | 5 |   |  | Number of authorized stations (for verification purposes only)                                                                                                                                                                             |
| 15        | 6 |   |  | Telephone lock<br>0 = No access except by system speed-dialing<br>1 = Incoming only<br>2 - 7 = Allowed lists 1-6<br>8- 13 = Denied lists 1-6<br>14 = Full access                                                                           |

Table A-4 Expert Mode Codes

| Code      |    |   |   | Function                                                                                                                                                                        |
|-----------|----|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15        | 7  |   |   | Toll restriction, 0 = Per digit, 1= En-bloc                                                                                                                                     |
| 15        | 8  |   |   | COS of transferred trunks                                                                                                                                                       |
| <b>16</b> |    |   |   | <b>Incoming calls</b>                                                                                                                                                           |
| 16        | 10 |   |   | Internal station numbers                                                                                                                                                        |
| 16        | 10 | 1 |   | Station                                                                                                                                                                         |
| 16        | 10 | 1 | 1 | Boards, position -> slot/port                                                                                                                                                   |
| 16        | 10 | 1 | 2 | Change station number, position -> station number                                                                                                                               |
| 16        | 10 | 1 | 2 | Find station number, position -> slot/port                                                                                                                                      |
| 16        | 10 | 2 |   | Groups                                                                                                                                                                          |
| 16        | 11 |   |   | DID numbers; (internal) station number is displayed; enter (new) station number                                                                                                 |
| 16        | 12 |   |   | Intercept, day; enter new destination, group or Stn. no., max. 6 digits                                                                                                         |
| 16        | 13 |   |   | Intercept, night; enter new destination, group or Stn. no., max. 6 digits                                                                                                       |
| 16        | 14 |   |   | Intercept mode                                                                                                                                                                  |
| 16        | 14 | 1 |   | On no answer: 0 = No, 1 = Yes                                                                                                                                                   |
| 16        | 14 | 2 |   | On busy                                                                                                                                                                         |
| 16        | 14 | 2 | 1 | Intercept: 0 = No, 1 = Yes                                                                                                                                                      |
| 16        | 14 | 2 | 2 | On busy: 0 = No, 1 = Yes                                                                                                                                                        |
| 16        | 14 | 3 |   | On misdialed number: 0 = No, 1 = Yes                                                                                                                                            |
| 16        | 14 | 4 |   | On incomplete number: 0 = No, 1 = Yes                                                                                                                                           |
| 16        | 14 | 5 |   | On recall: 0 = No, 1 = Yes                                                                                                                                                      |
| 16        | 15 |   |   | Hunt/group call                                                                                                                                                                 |
| 16        | 15 | 1 |   | Called station no.; select group and assign destination                                                                                                                         |
| 16        | 15 | 2 |   | Group type; select group and type:<br>1 = Circular hunt group<br>2 = Linear hunt group<br>3 = Group call<br>4 = Group call, no answer<br>5 = Basic MULAP<br>6 = Executive MULAP |



Table A-4 Expert Mode Codes

| <b>Code</b> |    |   |  | <b>Function</b>                                                                                                                                                                                                                                                                                                                       |
|-------------|----|---|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16          | 15 | 3 |  | Group name; select group and enter name (optiset E memory only)                                                                                                                                                                                                                                                                       |
| 16          | 15 | 4 |  | Select primary/executive, and station (only those stations that are not the primary telephone in a group)                                                                                                                                                                                                                             |
| 16          | 16 |   |  | Call allocation, day; select slot/trunk and assign station no.                                                                                                                                                                                                                                                                        |
| 16          | 17 |   |  | Call allocation, night; select slot/trunk and assign station no.                                                                                                                                                                                                                                                                      |
| 16          | 18 |   |  | Call forwarding—no answer                                                                                                                                                                                                                                                                                                             |
| 16          | 18 | 1 |  | Destination list; select list 1- 70 and destination index 1 - 4 and enter station no. or * for station dialed or # 9 for hunt all stations<br>For OfficePro and OfficeCom only:<br># 201 to # 260 UCD group 01 to 60<br># 301 to # 316 Announcement device 01 to 16 OfficePro<br># 301 to #304 Announcement device 01 to 04 OfficeCom |
| 16          | 18 | 2 |  | Internal calls; select station/group from 1 to 70                                                                                                                                                                                                                                                                                     |
| 16          | 18 | 3 |  | External calls, day; select station/group from 1 to 70                                                                                                                                                                                                                                                                                |
| 16          | 18 | 4 |  | External calls, night; select station/group from 1 to 70                                                                                                                                                                                                                                                                              |
| 16          | 18 | 5 |  | Number of rings; select list from 1 to 70 and define rings (1 to 15)                                                                                                                                                                                                                                                                  |
| 16          | 18 | 6 |  | Night bell, location; select list from 1 to 70 and define station or relay from 1 to 4 (*1 - *4)                                                                                                                                                                                                                                      |
| 16          | 18 | 7 |  | Night bell, mode; select list from 1 to 70:<br>1 = Immediate connect, 2 = After timeout                                                                                                                                                                                                                                               |
| 16          | 18 | 8 |  | Call forwarding (CF) on busy, 0 = Do not forward call, 1 = Forward call                                                                                                                                                                                                                                                               |
| 16          | 19 |   |  | Ring cadence, 0 = Type 1, 1 = Type 2, 2 = Type 3                                                                                                                                                                                                                                                                                      |
| 16          | 20 |   |  | DID DTMF, analog, 0 = Denied / 1 = Allowed                                                                                                                                                                                                                                                                                            |
| 16          | 21 |   |  | Collect call barring (Brazil)                                                                                                                                                                                                                                                                                                         |
| <b>17</b>   |    |   |  | <b>Networking</b>                                                                                                                                                                                                                                                                                                                     |
| 17          | 11 |   |  | Prime Line: 0 = Off, 1 = On                                                                                                                                                                                                                                                                                                           |
| 17          | 12 |   |  | Assign trunk group; select slot/trunk and assign trunk group<br>Trunk group 1-8 (OfficePoint)<br>Trunk group 1-16 (OfficeCom/OfficePro)                                                                                                                                                                                               |
| 17          | 13 |   |  | Overflow trunk group; select trunk group and assign overflow trunk group                                                                                                                                                                                                                                                              |

Table A-4 Expert Mode Codes

| Code      |    |   |  | Function                                                                                                                                                                             |
|-----------|----|---|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17        | 14 |   |  | Trunk type CO/CS; select trunk type:<br>0 = CO, 1 = CS                                                                                                                               |
| 17        | 15 |   |  | Trunk group name; select trunk group and enter name<br>(optiset E memory only)                                                                                                       |
| 17        | 16 |   |  | Trunk group hunt mode; select trunk group:<br>0 = Circular, 1= Linear                                                                                                                |
| 17        | 17 |   |  | Rerouting (optimized B channel utilization)                                                                                                                                          |
| 17        | 17 | 1 |  | Rerouting active: 0 = No, 1 = Only if known, 2 = Always                                                                                                                              |
| 17        | 17 | 2 |  | Change trunk groups: 0 = Denied, 1 = Allowed                                                                                                                                         |
| 17        | 18 |   |  | Central intercept                                                                                                                                                                    |
| 17        | 19 |   |  | Call data routing                                                                                                                                                                    |
| 17        | 19 | 1 |  | Destination system                                                                                                                                                                   |
| 17        | 19 | 2 |  | System number, 1-255                                                                                                                                                                 |
| 17        | 19 | 3 |  | Group number, 1-40                                                                                                                                                                   |
| 17        | 19 | 4 |  | Node number                                                                                                                                                                          |
| 17        | 20 |   |  | Digit repetition; select trunk group: 0 = Off, 1 = On                                                                                                                                |
| 17        | 21 |   |  | Path optimization: 0 = No, 1 = Yes                                                                                                                                                   |
| 17        | 22 |   |  | QSig: Voice mail                                                                                                                                                                     |
| 17        | 22 | 1 |  | Callback access number                                                                                                                                                               |
| 17        | 22 | 2 |  | Callback access name                                                                                                                                                                 |
| 17        | 23 |   |  | QSig: Busy signaling                                                                                                                                                                 |
| 17        | 23 | 1 |  | Station, 0 = no / 1 = yes                                                                                                                                                            |
| 17        | 23 | 2 |  | Station number, destination system                                                                                                                                                   |
| 17        | 23 | 3 |  | System number, destination system                                                                                                                                                    |
| <b>18</b> |    |   |  | <b>Traffic restriction</b>                                                                                                                                                           |
| 18        | 1  |   |  | Configure exec./sec. groups; select group, enter:<br>1 = Exec. 1 / 2 = Exec. 2 / 3 = Sec. 1 / 4 = Sec. 2<br>OfficePro: Group 1-16<br>OfficeCom: Group 1-10<br>OfficePoint: Group 1-4 |
| 18        | 2  |   |  | Hotline                                                                                                                                                                              |

Table A-4 Expert Mode Codes

| <b>Code</b> |    |   |     | <b>Function</b>                                                                                                        |
|-------------|----|---|-----|------------------------------------------------------------------------------------------------------------------------|
| 18          | 2  | 1 |     | Hotline destinations<br>OfficePro and OfficeCom destination 1-6<br>OfficePoint destination 1                           |
| 18          | 2  | 2 |     | Hotline station number                                                                                                 |
| 18          | 2  | 2 | 1   | Hotline mode: 0 = Off, 1 = Hotline, 2 = Hotline after timeout                                                          |
| 18          | 2  | 2 | 2   | Hotline assignment<br>OfficePro and OfficeCom 1-6<br>OfficePoint 1                                                     |
| 18          | 2  | 3 |     | Hotline timeout, 1-99 x s                                                                                              |
| 18          | 3  |   |     | ITR groups (internal traffic restriction groups)                                                                       |
| 18          | 3  | 1 |     | Group assignment                                                                                                       |
| 18          | 3  | 1 | 1   | Station (Group 1-6)                                                                                                    |
| 18          | 3  | 1 | 2   | Trunks; select slot and trunk (Group 1-6)                                                                              |
| 18          | 3  | 1 | 3   | Speed-dialing number assignment                                                                                        |
| 18          | 3  | 1 | 3-1 | Minimum speed-dialing group, Select group, 0 to 999                                                                    |
| 18          | 3  | 1 | 3-2 | Maximum speed-dialing group, Select group, 0 to 999                                                                    |
| 18          | 3  | 2 |     | Connection groups                                                                                                      |
| 18          | 3  | 2 | 1   | Connection group: select group, 0 = No, 1 = Yes                                                                        |
| <b>19</b>   |    |   |     | <b>Displays</b>                                                                                                        |
| 19          | 11 |   |     | Text messages: select message no. 0 to 9 and enter alphanumeric text (up to 24 characters) (optiset E memory only)     |
| 19          | 12 |   |     | Advisory messages: select message no. 0 to 9 and enter alphanumeric text (up to 24 characters) (optiset E memory only) |
| 19          | 13 |   |     | Enter 4-digit time in the format HHMM (hour minute)                                                                    |
| 19          | 14 |   |     | Enter 6-digit date in the format DDMMYY (day month year)                                                               |
| 19          | 15 |   |     | Call duration: 0 = Off, 1 = On                                                                                         |
| 19          | 16 |   |     | Names and station numbers:<br>0 = Station number, 1 = Name, 2 = Names and station numbers                              |
| 19          | 17 |   |     | Recall: 1 = Initial caller, 2 = Recalling station                                                                      |
| 19          | 18 |   |     | Unscreened transfer: 1 = Transfer from, 2 = Transferred party                                                          |
| <b>20</b>   |    |   |     | <b>ISDN parameters</b>                                                                                                 |
| 20          | 1  |   |     | Caller ID suppression: 0 = Off, 1 = On                                                                                 |

Table A-4 Expert Mode Codes

| Code |   |   |   | Function                                                                                                                                                                                                                  |
|------|---|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20   | 2 |   |   | System station number                                                                                                                                                                                                     |
| 20   | 2 | 1 |   | Station number; select trunk group                                                                                                                                                                                        |
| 20   | 2 | 2 |   | National number; select trunk group                                                                                                                                                                                       |
| 20   | 2 | 3 |   | International number; select trunk group                                                                                                                                                                                  |
| 20   | 2 | 4 |   | Type, outgoing; select trunk group:<br>0 = Unknown, 1 = Station, 2 = National, 3 = International                                                                                                                          |
| 20   | 2 | 5 |   | National prefix (U.S. = 1)                                                                                                                                                                                                |
| 20   | 2 | 6 |   | International prefix (U.S. = 011)                                                                                                                                                                                         |
| 20   | 3 |   |   | Reference clock                                                                                                                                                                                                           |
| 20   | 3 | 1 |   | Priority list; select position (slot and port)                                                                                                                                                                            |
| 20   | 3 | 2 |   | Denied list; select position (slot and port)                                                                                                                                                                              |
| 20   | 4 |   |   | EU parameters (not for U.S.)                                                                                                                                                                                              |
| 20   | 4 | 1 |   | S <sub>0</sub> port configuration; select slot/port and determine connection type (not for U.S.):<br>1 = Automatic<br>2 = DSS1 trunk PP<br>3 = DSS1 trunk PMP<br>4 = Euro-bus<br>5 = CorNet 1<br>6 = CorNet 2<br>7 = QSIG |
| 20   | 4 | 2 |   | S2M port configuration; select slot/port and determine connection type (not for U.S.):<br>1 = DSS1 trunk PP<br>2 = CorNet 1<br>3 = CorNet 2<br>4 = QSIG (not for U.S.)                                                    |
| 20   | 4 | 3 |   | S <sub>0</sub> bus MSN (for verification purposes only) (not for U.S.)                                                                                                                                                    |
| 20   | 4 | 4 |   | Call forwarding PMP (not for U.S.)                                                                                                                                                                                        |
| 20   | 4 | 4 | 1 | Multiple subscriber numbers, select index, 1 to 10 (not for U.S.)                                                                                                                                                         |
| 20   | 4 | 4 | 2 | MSN trunks, select index, 1 to 10 (not for U.S.)                                                                                                                                                                          |
| 20   | 5 |   |   | US parameters (for U.S. only)                                                                                                                                                                                             |
| 20   | 5 | 1 | x | CACH EKTS (U.S. only): 0=disabled, 1=enabled                                                                                                                                                                              |
| 20   | 5 | 1 |   | BRI parameter                                                                                                                                                                                                             |

Table A-4      Expert Mode Codes

| <b>Code</b> |   |   |    | <b>Function</b>                                                                     |
|-------------|---|---|----|-------------------------------------------------------------------------------------|
| 20          | 5 | 1 | 1  | CO/protocol:<br>1 = AT&T/NI 1<br>2 = AT&T/Custom<br>3 = Siemens/NI 1<br>4 = NT/NI 1 |
| 20          | 5 | 1 | 2  | SPID admin, select station, select slot/port                                        |
| 20          | 5 | 1 | 3  | CAID admin, stn., select CAID                                                       |
| 20          | 5 | 1 | 4  | PDID admin, stn., select PDID                                                       |
| 20          | 5 | 1 | 5  | FIN - for message waiting                                                           |
| 20          | 5 | 1 | 6  | CACH EKTS, select slot/port, 0 = Off / 1 = On                                       |
| 20          | 5 | 2 |    | PRI parameters                                                                      |
| 20          | 5 | 2 | 3  | Emulation type                                                                      |
| 20          | 5 | 2 | 4  | Frame/line/encod                                                                    |
| 20          | 5 | 2 | 5  | B-chn alloc. mode                                                                   |
| 20          | 5 | 2 | 6  | Remote payload                                                                      |
| 20          | 5 | 2 | 7  | No. of B-chn                                                                        |
| 20          | 5 | 2 | 8  | B-chn identifier                                                                    |
| 20          | 5 | 2 | 9  | Trk grp service                                                                     |
| 20          | 5 | 2 | 10 | Facility                                                                            |

Table A-4 Expert Mode Codes

| Code |   |   |      | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------|---|---|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20   | 5 | 2 | 11   | Protocol type:<br>11 = AT&T/Custom<br>12 = AT&T/NI2<br>13 = AT&T/NI2 OSA<br>14 = AT&T/4ESS<br>15 = Siemens/Custom<br>16 = Siemens/Custom OSA<br>17 = Siemens/NI2<br>18 = Siemens/NI2 OSA<br>19 = MCI/DEX600<br>20 = MCI/DMS250<br>21 = BELL/DMS100<br>22 = BELL DMS100 TNS<br>23 = Nortel/DMS100<br>24 = Nortel DMS100 TNS<br>25 = SPRINT/DMS250<br>26 = Westinghouse<br>27 = FTS/DMS100<br>28 = FTS/5ESS<br>29 = GENERIC/NI2<br>30 = GENERIC/NI2 OSA<br>31 = QSIG<br>32 = IDA-P |
| 20   | 5 | 2 | 12   | Frame/line/encod, select slot<br>0 = ESF/B8ZS/Normal<br>1 = SF/ZCS/Inverted                                                                                                                                                                                                                                                                                                                                                                                                      |
| 20   | 5 | 2 | 13   | Inwats parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 20   | 5 | 2 | 13-1 | Trunk group                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 20   | 5 | 2 | 13-2 | DNIS                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 20   | 5 | 2 | 13-3 | Entrance telephone ring destination                                                                                                                                                                                                                                                                                                                                                                                                                                              |

Table A-4 Expert Mode Codes

| Code |   |   |    | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|---|---|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20   | 5 | 2 | 14 | Calling service, select trunk group<br>11 = NONE<br>12 = AT&TSDN-GSDN<br>13 = AT&TSDDN<br>14 = MCI-VN-VS<br>15 = SPRINT-VPN<br>16 = WICN-PV<br>17 = MEG800-TFM<br>18 = MCI 800<br>19 = ULTRA-800<br>20 = WICN-INWATS<br>21 = MEG<br>22 = MCI-PRISIM-WATS<br>23 = SPR-ULTRA-WATS<br>24 = WICN-OUTWATS<br>25 = ACCU-SDS<br>26 = LDS-WC-TSAA<br>27 = INTER-800<br>28 = MULTIQUEST<br>29 = MCI-900<br>30 = SDS56<br>31 = SDS64C<br>32 = SDS64R<br>33 = DMS100-PV<br>34 = DMS100-INWATS<br>35 = DMS100-OUTWATS<br>36 = DMS100-FX<br>37 = 5ESS-INWATS<br>38 = WATS-MSB<br>39 = DMS100-TIE<br>40 = NI2-INWATS<br>41 = NI2-OUTWATS<br>42 = NI2-FX<br>43 = NI2-TIE<br>44 = NI2-HOTEL<br>45 = NI2-SCOCS<br>46 = CALL-BY-CALL 1<br>47 = CALL-BY-CALL 2<br>48 = CALL-BY-CALL 3<br>49 = CALL-BY-CALL 4<br>50 = WATS-BANDED |

Table A-4 Expert Mode Codes

| Code |   |   |    | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------|---|---|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20   | 5 | 2 | 15 | CBC pool:<br>11 = AT&TSDN-GSDN<br>12 = AT&TSDDN<br>13 = MCI-VN-VS<br>14 = SPRINT-VPN<br>15 = WICN-PV<br>16 = MEG800-TFM<br>17 = MCI 800<br>18 = ULTRA-800<br>19 = WICN-INWATS<br>20 = MEG<br>21 = MCI-PRISIM-WATS<br>22 = SPR-ULTRA-WATS<br>23 = WICN-OUTWATS<br>24 = ACCU-SDS<br>25 = LDS-WC-TSAA<br>26 = INTER-800<br>27 = MULTIQUEST<br>28 = MCI-900<br>29 = SDS56<br>30 = SDS64C<br>31 = SDS64R<br>32 = DMS100-PV<br>33 = DMS100-INWATS<br>34 = DMS100-OUTWATS<br>35 = DMS100-FX<br>36 = 5ESS-INWATS<br>37 = WATS-MSB<br>38 = DMS100-TIE<br>39 = NI2-INWATS<br>40 = NI2-OUTWATS<br>41 = NI2-FX<br>42 = NI2-TIE<br>43 = NI2-HOTEL<br>44 = NI2-SCOCS |
| 20   | 5 | 2 | 16 | CBC access code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 20   | 5 | 3 |    | S <sub>0</sub> bus MSN, select slot/port                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 20   | 5 | 4 |    | QSIG: S0 parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 20   | 6 |   |    | QSIG parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 20   | 6 | 1 |    | System number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 20   | 6 | 2 |    | Group number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



Table A-4 Expert Mode Codes

| <b>Code</b> |    |   |     | <b>Function</b>                                                                           |
|-------------|----|---|-----|-------------------------------------------------------------------------------------------|
| <b>21</b>   |    |   |     | <b>Analog CO interface</b>                                                                |
| 21          | 1  |   |     | Signaling method; select slot/trunk:<br>0 = Automatic, 1 = DTMF, 2 = Dial pulses          |
| 21          | 1  | 3 |     | MFC-R2                                                                                    |
| 21          | 1  | 4 |     | MFC-R2 with OAD                                                                           |
| 21          | 2  |   |     | Delayed dialing; select trunk group:<br>0 = No pause, 1 = 1 s, 2 = 3 s, 3 = 6 s, 4 = 9 s  |
| 21          | 3  |   |     | Incoming CO delay; select trunk group: 1 = 6 s, 2 = 13 s                                  |
| 21          | 4  |   |     | Distance from CO; select slot and trunk: 0 = Short 1 = Long                               |
| 21          | 5  |   |     | Call detail recording TML8W (OfficePro; not for U.S.):<br>0 = Without GEE8, 1 = With GEE8 |
| 21          | 6  |   |     | Silent reversal: 0 = No, 1 = Yes (not for U.S.)                                           |
| 21          | 7  |   |     | Port status: 0 = on, 1 = Off (SW), 2 = Off (HW), 3 = Off (HW, SW)                         |
| <b>22</b>   |    |   |     | <b>System settings</b>                                                                    |
| 22          | 11 |   |     | Music on hold (MOH): 0 = Off, 1 = No ring tone, 2 = Ring tone, 3 = Announcement device 1  |
| 22          | 12 |   |     | Directory: 0 = Off, 1 = On                                                                |
| 22          | 13 |   |     | V.24 (RS-232) configuration                                                               |
| 22          | 13 | 1 |     | CB baud rate, select V.24 port,<br>1 = 9600 baud<br>2 = 2400 baud<br>3 = 19200 baud       |
| 22          | 13 | 2 |     | Port assignment                                                                           |
| 22          | 13 | 2 | 1   | CSTA/CDRC (call detail recording central)                                                 |
| 22          | 13 | 2 | 1-1 | Output, 0 = None / 1 = V.24 port / 2 = U <sub>P0/E</sub> port / 3 = PC AC / 4 = LAN       |
| 22          | 13 | 2 | 2   | CDRS (call detail recording at station)                                                   |
| 22          | 13 | 2 | 2-1 | Output, 0 = None / 1 = V.24 port / 2 = U <sub>P0/E</sub> port                             |
| 22          | 13 | 2 | 3   | CDRT (call detail recording per trunk)                                                    |
| 22          | 13 | 2 | 3-1 | Output, 0 = None / 1 = V.24 port / 2 = U <sub>P0/E</sub> port                             |
| 22          | 13 | 2 | 4   | CDB printout                                                                              |
| 22          | 13 | 2 | 5   | CDR printout                                                                              |

Table A-4 Expert Mode Codes

| Code |    |   |     | Function                                                                                           |
|------|----|---|-----|----------------------------------------------------------------------------------------------------|
| 22   | 13 | 2 | 6   | Port for CDRA (call detail recording, attendant); if a pay phone is configured, also see code 11 8 |
| 22   | 13 | 2 | 6-1 | Output, 0 = None / 1 = V.24 port / 2 = U <sub>P0/E</sub> port                                      |
| 22   | 14 |   |     | Call FWD, external                                                                                 |
| 22   | 14 | 1 |     | Connect call: 0 = On answer, 1 = Immediately                                                       |
| 22   | 14 | 2 |     | Call FWD, no answer: 0 = Deactivate, 1 = Activate                                                  |
| 22   | 15 |   |     | Caller list mode,<br>1 = External only<br>2 = External and internal<br>3 = Ext. ring/call          |
| 22   | 16 |   |     | Applications                                                                                       |
| 22   | 16 | 1 |     | UCD: 0 = Denied, 1 = Allowed                                                                       |
| 22   | 17 |   |     | Tones                                                                                              |
| 22   | 17 | 1 |     | Conference, alert tone: 0 = Off, 1 = On                                                            |
| 22   | 17 | 2 |     | Call pickup, alert tone: 0 = Off, 1 = On                                                           |
| 22   | 18 |   |     | Transfer key (Retrieve), 1 = Press once, 2 = Press twice                                           |
| 22   | 19 |   |     | Class of service                                                                                   |
| 22   | 19 | 1 |     | Night answer, Pos. 1-5; enter station                                                              |
| 22   | 19 | 2 |     | Central telephone lock                                                                             |
| 22   | 19 | 3 |     | Silent monitor (for U.S. only)                                                                     |
| 22   | 20 |   |     | DTMF automatic: 0 = No, 1 = Yes                                                                    |
| 22   | 21 |   |     | Key click: 0 = Off, Volume level 1 to 4                                                            |
| 22   | 22 |   |     | DTMF mark to space ratio: 1 = 70/70 ms, 2 = 80/80 ms,<br>3 = 80/250 ms, 4 = 200/200 ms             |
| 22   | 23 |   |     | Phone lock destination                                                                             |
| 22   | 24 |   |     | Relocate: 0 = Denied, 1 = Allowed                                                                  |
| 22   | 25 |   |     | Trunk reservation: 0 = Off, 1 = On                                                                 |
| 22   | 26 |   |     | Speaking volume, 0 = Default / 1 = High                                                            |
| 22   | 27 |   |     | CO features (Transfer/Conference/Drop):<br>0 = disabled, 1 = enabled                               |
| 22   | 28 |   |     | Feature Identification Number (FIN) for Transfer (U.S. only)                                       |
| 22   | 29 |   |     | Feature Identification Number (FIN) for Conference (U.S. only)                                     |

Table A-4 Expert Mode Codes

| <b>Code</b> |    |   |    | <b>Function</b>                                                                    |
|-------------|----|---|----|------------------------------------------------------------------------------------|
| 22          | 30 |   |    | Feature Identification Number (FIN) for Drop (U.S. only)                           |
| 22          | 31 |   |    | Default MSN (for U.S. only)                                                        |
| 22          | 32 |   |    | DTMF hidden, 0 = Off/1 = On                                                        |
| 22          | 33 |   |    | Announcement with connection, 0 = Not allowed/1 = Allowed                          |
| 22          | 34 |   |    | MFC-R2 parameters                                                                  |
| 22          | 34 | 1 |    | Collect call barring                                                               |
| 22          | 34 | 2 |    | DID digits                                                                         |
| 22          | 35 |   |    | Common hold                                                                        |
| 22          | 35 | 1 |    | After hanging up                                                                   |
| 22          | 35 | 2 |    | Without hanging up                                                                 |
| 22          | 36 |   |    | Switch line, DSS; 0 = no / 1 = yes<br>(Status 1: USA; Status 0: ROW-rest of world) |
| 22          | 37 |   |    | Advisory call, 0 = off / 1 = on                                                    |
| 22          | 38 |   |    | Trace stop facility                                                                |
| 22          | 38 | 1 |    | Stop trace                                                                         |
| 22          | 38 | 1 | 01 | Assistant, 0 = inactive / 1 = active                                               |
| 22          | 38 | 1 | 09 | HW, 0 = inactive / 1 = active                                                      |
| 22          | 38 | 1 | 12 | Processor, 0 = inactive / 1 = active                                               |
| 22          | 38 | 1 | 15 | APSXF, 0 = inactive / 1 = active                                                   |
| 22          | 38 | 1 | 16 | General, 0 = inactive / 1 = active<br>(error 19 cannot be set to inactive)         |
| 22          | 38 | 1 | 20 | CP, 0 = inactive / 1 = active                                                      |
| 22          | 38 | 1 | 21 | DH, 0 = inactive / 1 = active                                                      |
| 22          | 38 | 1 | 23 | Network, 0 = inactive / 1 = active                                                 |
| 22          | 38 | 1 | 26 | Presence, 0 = inactive / 1 = active                                                |
| 22          | 38 | 1 | 28 | Recovery, 0 = inactive / 1 = active                                                |
| 22          | 38 | 1 | 29 | IO process, 0 = inactive / 1 = active                                              |
| 22          | 38 | 1 | 30 | LW, 0 = inactive / 1 = active (0 to n)                                             |
| 22          | 38 | 1 | 11 | LW date, 0 = inactive / 1 = active (41 to n)                                       |
| 22          | 38 | 2 |    | Reset, 1 = Delete all/ 2 = System default                                          |
| <b>23</b>   |    |   |    | <b>Codes</b>                                                                       |

Table A-4      Expert Mode Codes

| <b>Code</b> |   |   |  | <b>Function</b>                                                                                                                                                           |
|-------------|---|---|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23          | 1 |   |  | Substitute code *, code 75                                                                                                                                                |
| 23          | 2 |   |  | Substitute code #, code 76                                                                                                                                                |
| 23          | 3 |   |  | Trunk access code; select slot and trunk and enter new code                                                                                                               |
| 23          | 4 |   |  | Trunk group code; select trunk group followed by position 1-10 for code and enter new code<br>Trunk group 1-8 (OfficePoint)<br>Trunk group 1-16 (OfficeCom and OfficePro) |
| 23          | 5 |   |  | Attendant code                                                                                                                                                            |
| 23          | 5 | 1 |  | Attendant code DID                                                                                                                                                        |
| 23          | 5 | 2 |  | Attendant code internal                                                                                                                                                   |
| 23          | 6 |   |  | Second trunk access code                                                                                                                                                  |

Table A-4 Expert Mode Codes

| <b>Code</b> |   |  |  | <b>Function</b>                                                                                                                                                                                                                                                                                                                                |
|-------------|---|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>24</b>   |   |  |  | <b>Entrance phone</b>                                                                                                                                                                                                                                                                                                                          |
| 24          | 1 |  |  | Entrance phone; select door, max. 6 digits, door 1-4                                                                                                                                                                                                                                                                                           |
| 24          | 2 |  |  | Destination; select door, max. 6 digits, door 1-4                                                                                                                                                                                                                                                                                              |
| 24          | 3 |  |  | Door opener; select door: 0 = Not available, 1 = Available, 2 = Available with DTMF, door 1-4                                                                                                                                                                                                                                                  |
| 24          | 4 |  |  | Call forwarding, door, external; select door: 0 = Deactivate, 1 = Activate                                                                                                                                                                                                                                                                     |
| 24          | 5 |  |  | Door opener, DTMF; select station: 0 = Denied, 1 = Allowed                                                                                                                                                                                                                                                                                     |
| <b>25</b>   |   |  |  | <b>Announcement/Music</b>                                                                                                                                                                                                                                                                                                                      |
| 25          | 1 |  |  | Announcement devices; select announcement device:<br>1 for OfficePoint,<br>1 to 4 for OfficeCom,<br>1 to 16 for OfficePro                                                                                                                                                                                                                      |
| 25          | 2 |  |  | Announcement type; select announcement device: 1 = Announcement/music, 2 = Music on hold, 3 = Internal music                                                                                                                                                                                                                                   |
| 25          | 3 |  |  | Announcement before answer; select slot and trunk                                                                                                                                                                                                                                                                                              |
| 25          | 4 |  |  | External MOH                                                                                                                                                                                                                                                                                                                                   |
| <b>26</b>   |   |  |  | <b>Relays</b>                                                                                                                                                                                                                                                                                                                                  |
| 26          | 1 |  |  | Type; select relay 1 to 4 and assign function:<br>11 = Manual on and off<br>12 = Off after timeout<br>13 = Door opener<br>14 = Speaker amplifier (starting contact for amplifier)<br>15 = Busy display<br>16 = Music on hold<br>17 = Call charge pulse (not for U.S.)<br>18 = Second bell<br>19 = Station active<br>20 = Announcement or music |
| 26          | 2 |  |  | Switching time<br>Select relay 1 through 4 and enter up to 3 digits (0 to 255)                                                                                                                                                                                                                                                                 |
| 26          | 3 |  |  | Assigned station<br>Select relay 1 through 4 and enter stations or groups (up to 5 digits)                                                                                                                                                                                                                                                     |
| 26          | 4 |  |  | Relay name; select relay 1 through 4, enter alphanumeric name of max. 16 characters (optiset E memory only)                                                                                                                                                                                                                                    |

Table A-4 Expert Mode Codes

| <b>Code</b> |   |   |  | <b>Function</b>                                                                                                                 |
|-------------|---|---|--|---------------------------------------------------------------------------------------------------------------------------------|
| <b>27</b>   |   |   |  | <b>Sensors (OfficeCom and OfficePoint only)</b>                                                                                 |
| 27          | 1 |   |  | Type: 0 = Alarm, 1 = UCD call distribution                                                                                      |
| 27          | 2 |   |  | Destination station no.; select sensor 1 - 4 and enter station, group, or external number (with seizure code) of max. 31 digits |
| 27          | 3 |   |  | Station no. for announ.; select sensor 1 - 4 and enter station or group number (max. 6 digits)                                  |
| 27          | 4 |   |  | Announcement control; select sensor 1 - 4 and enter control characters 0 - 9, *, #, max. 24 digits                              |
| 27          | 5 |   |  | Ring duration; select sensor 1 through 4 and enter 1 to 255                                                                     |
| 27          | 6 |   |  | Ring interval; select sensor 1 through 4 and enter 0 to 255                                                                     |
| 27          | 7 |   |  | Number of rings; select sensor 1 through 4 and enter 1 to 255                                                                   |
| 27          | 8 |   |  | Blocking time; select sensor 1 through 4 and enter 0 to 255                                                                     |
| 27          | 9 |   |  | Sensor name; select sensor 1 to 4, enter alphanumeric name of up to 16 characters (optiset E memory only)                       |
| <b>28</b>   |   |   |  | <b>Edit CDB (OfficePro and OfficeCom only)</b>                                                                                  |
| 28          | 1 |   |  | Print CDB data                                                                                                                  |
| 28          | 2 |   |  | Save CDB data                                                                                                                   |
| 28          | 2 | 1 |  | CDB to flash memory card                                                                                                        |
| 28          | 2 | 2 |  | CDB from flash memory card                                                                                                      |

Table A-4 Expert Mode Codes

| <b>Code</b> |   |   |  | <b>Function</b>                                                                                                                    |
|-------------|---|---|--|------------------------------------------------------------------------------------------------------------------------------------|
| <b>29</b>   |   |   |  | <b>System details</b>                                                                                                              |
| 29          | 1 |   |  | System                                                                                                                             |
| 29          | 1 | 1 |  | System type (for verification purposes only)                                                                                       |
| 29          | 1 | 2 |  | Software version (for verification purposes only)                                                                                  |
| 29          | 1 | 3 |  | Load APS via V.24 (OfficeOne only)                                                                                                 |
| 29          | 2 |   |  | Status display                                                                                                                     |
| 29          | 2 | 1 |  | Call forwarding, external, Off/On (for verification purposes only)                                                                 |
| 29          | 2 | 2 |  | Night answer, Off/On (for verification purposes only)                                                                              |
| 29          | 2 | 3 |  | Trunk                                                                                                                              |
| 29          | 3 |   |  | Options (OfficeCom and OfficePoint only)                                                                                           |
| 29          | 3 | 1 |  | Type per option (for review only)<br>1 = Relays<br>2 = Call detail recording<br>3 = Fax/DID<br>4 = ANI<br>5 = Announcement (Beyer) |
| 29          | 3 | 2 |  | Software version for each option (1 to 16) (for verification purposes only)                                                        |
| 29          | 3 | 3 |  | Reset options                                                                                                                      |
| 29          | 4 |   |  | Boards                                                                                                                             |

Table A-4 Expert Mode Codes

| Code |   |   |  | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------|---|---|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 29   | 4 | 1 |  | Board type, select slot:<br>11 = TMS2<br>12 = TMST1 - digital<br>13 = TIEL<br>14 = TMDID<br>15 = TML8W<br>16 = TMOM<br>17 = TMGL8<br>18 = TLA2<br>19 = TLA4<br>20 = TLA8<br>21 = TMS2<br>22 = TMGL2<br>23 = TMGL4<br>24 = TMQ2<br>25 = TMQ4<br>26 = TST1 - digital<br>27 = STMD<br>28 = STLS2<br>29 = STLS4<br>30 = SLA16<br>31 = SLMO8<br>32 = SLMO24<br>33 = SLMC8 (CMI V1)<br>34 = 4SLA<br>35 = 8SLA<br>36 = 16SLA<br>37 = SLU8<br>38 = ILAN<br>39 = SLC16 (CMI V2.2M)<br>42 = SLMO8K<br>43 = SLMO24K<br>44 = SLA8N<br>45 = SLA16N<br>46 = SLA24N<br>47 = TMAMF<br>48 = CR8<br>49 = SLU4 (Octopus E 10)<br>50 = SLU2 (Octopus E 10)<br>51 = HXGM (OfficePro)<br>52 = HXGS (OfficeCom/OfficePoint) |
| 29   | 4 | 2 |  | Reset board                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |



Table A-4 Expert Mode Codes

| Code |   |  |  | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|---|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 29   | 5 |  |  | Initialize country: select country code (00 to 99)<br>11 = Germany<br>12 = Netherlands<br>13 = France<br>14 = Finland<br>15 = United Kingdom<br>16 = Italy<br>17 = Spain<br>18 = Portugal<br>19 = Switzerland<br>20 = Austria<br>21 = International<br>22 = Ireland<br>23 = Belgium<br>24 = Brazil<br>25 = South Africa<br>26 = China<br>28 = India<br>29 = Czech Republic<br>30 = Denmark<br>31 = Australia<br>32 = Argentina<br>33 = Philippines<br>36 = Singapore<br>37 = Hungary<br>38 = Malaysia<br>39 = Rumania<br>40 = Indonesia<br>41 = Russia<br>42 = Thailand<br>46 = Poland<br>47 = Greece<br>49 = Sweden<br>50 = Norway<br>51 = Turkey<br>52 = U.S.A. and Canada<br>53 = Pakistan<br>54 = Hong Kong |

Table A-4 Expert Mode Codes

| <b>Code</b> |   |   |  | <b>Function</b>                                                                                                |
|-------------|---|---|--|----------------------------------------------------------------------------------------------------------------|
| <b>30</b>   |   |   |  | <b>Remote administration</b>                                                                                   |
| 30          | 1 |   |  | DTMF access: 0 = No access, 1 = Access as primary, 2 = Access as secondary, 3 = Primary and secondary          |
| 30          | 2 |   |  | ISDN trunk access, 0 = Enable procedure/1 = Logon (DID) without PIN/ 2 = Logon (DID) with PIN / 3 = Callback   |
| 30          | 3 |   |  | IMOD access: 0 = Enable procedure, 1 = Logon without code, 2 = Logon (DID) with code                           |
| 30          | 4 |   |  | Reset password                                                                                                 |
| 30          | 5 |   |  | Integrated modem                                                                                               |
| 30          | 5 | 1 |  | Station number, up to 6 digits                                                                                 |
| 30          | 5 | 2 |  | DID number                                                                                                     |
| 30          | 5 | 3 |  | CAID admin (for U.S. only)                                                                                     |
| 30          | 6 |   |  | Digital modem                                                                                                  |
| 30          | 6 | 1 |  | Station number, max. 6 digits                                                                                  |
| 30          | 6 | 2 |  | DID number                                                                                                     |
| 30          | 6 | 3 |  | CAID admin                                                                                                     |
| 30          | 7 |   |  | Callback call                                                                                                  |
| 30          | 7 | 1 |  | Destination; select position (1-6)                                                                             |
| 30          | 7 | 2 |  | Password; select position (1-6)                                                                                |
| 30          | 7 | 3 |  | X.75 protocol: 0 = No, 1 = Yes                                                                                 |
| 30          | 8 |   |  | Auto CDB printout, state 0 = No / 1 = Yes                                                                      |
| 30          | 9 |   |  | USBS D-channel access (not for U.S.)                                                                           |
| 30          | 9 | 1 |  | Station number                                                                                                 |
| 30          | 9 | 2 |  | DID number                                                                                                     |
| <b>31</b>   |   |   |  | <b>UCD (OfficePro and OfficeCom only)</b>                                                                      |
| 31          | 1 |   |  | Group assignment; select group ID                                                                              |
| 31          | 2 |   |  | Group parameters                                                                                               |
| 31          | 2 | 1 |  | Announcement device; select group<br>OfficePro: Announcement device 1-16<br>OfficeCom: Announcement device 1-4 |
| 31          | 2 | 2 |  | Wait times; select group, time: 1-9 x 30 s                                                                     |
| 31          | 2 | 3 |  | Call cycles                                                                                                    |

Table A-4 Expert Mode Codes

| <b>Code</b> |   |   |   | <b>Function</b>                                                                                  |
|-------------|---|---|---|--------------------------------------------------------------------------------------------------|
| 31          | 2 | 3 | 1 | Primary cycles; select group                                                                     |
| 31          | 2 | 3 | 2 | Secondary cycles; select group                                                                   |
| 31          | 2 | 4 |   | AICC connection; select group, 0 = Off / 1 = On                                                  |
| 31          | 2 | 5 |   | Max. waiting calls; select group                                                                 |
| 31          | 3 |   |   | Work time, 0 = No autowork / 1-20 = Work time x 30 s                                             |
| 31          | 4 |   |   | Call priority external; select slot/trunk                                                        |
| 31          | 5 |   |   | Call priority internal                                                                           |
| <b>32</b>   |   |   |   | <b>Radio paging equipment (not for U.S.)</b>                                                     |
| 32          | 1 |   |   | Radio paging port (slot and trunk) (not for U.S.)                                                |
| 32          | 2 |   |   | Radio paging type (OfficePro only): 1 = Standard, 2 = Enhanced (not for U.S.)                    |
| 32          | 3 |   |   | Protocol, 1 = ESPA 4.4.5, 2 = ESPA 4.4.3 (not for U.S.)                                          |
| 32          | 4 |   |   | Operation mode (not for U.S.)                                                                    |
| 32          | 4 | 1 |   | Mode urgent (not for U.S.)                                                                       |
| 32          | 4 | 2 |   | Mode normal (not for U.S.)                                                                       |
| 32          | 4 | 3 |   | Mode text (not for U.S.)                                                                         |
| 32          | 5 |   |   | Display (not for U.S.)                                                                           |
| 32          | 5 | 1 |   | Dial number (not for U.S.)                                                                       |
| 32          | 5 | 1 | 1 | Code length (not for U.S.)                                                                       |
| 32          | 5 | 1 | 2 | Display, filler: 0 = None, 1 = Left, 2 = Right (not for U.S.)                                    |
| 32          | 5 | 1 | 3 | Filler (not for U.S.)                                                                            |
| 32          | 5 | 2 |   | Text (not for U.S.)                                                                              |
| 32          | 5 | 2 | 1 | Code length (not for U.S.)                                                                       |
| 32          | 5 | 2 | 2 | Display, filler: 0 = None, 1 = Left, 2 = Right (not for U.S.)                                    |
| 32          | 5 | 2 | 3 | Filler (not for U.S.)                                                                            |
| 32          | 6 |   |   | PSE data transfer; select sequence: 1 = Operation mode, 2 = Dial number, 3 = Text (not for U.S.) |
| 32          | 7 |   |   | PSE dial assignment; select station (not for U.S.)                                               |
| 32          | 8 |   |   | PSE dial numbers; select index (not for U.S.)                                                    |

Table A-4 Expert Mode Codes

| <b>Code</b> |   |   |  | <b>Function</b>                                                                                                               |
|-------------|---|---|--|-------------------------------------------------------------------------------------------------------------------------------|
| <b>33</b>   |   |   |  | <b>Attendant console</b>                                                                                                      |
| 33          | 1 |   |  | Maximum waiting calls                                                                                                         |
| 33          | 2 |   |  | Reserved                                                                                                                      |
| 33          | 3 |   |  | Speed transfer, 0 = Denied / 1 = Allowed                                                                                      |
| 33          | 4 |   |  | Transfer undialed trunk: 0 = Denied, 1 = Allowed                                                                              |
| <b>34</b>   |   |   |  | <b>DISA</b>                                                                                                                   |
| 34          | 1 |   |  | Day, night; select slot and trunk: 0 = None, 1 = Night only, 2 = Day only, 3 = Day and night                                  |
| 34          | 2 |   |  | DID number                                                                                                                    |
| 34          | 3 |   |  | Security mode: 0 = After timeout, 1 = After #                                                                                 |
| 34          | 4 |   |  | CAID admin (for U.S. only)                                                                                                    |
| <b>35</b>   |   |   |  | <b>Least cost routing (LCR) optiset E memory only</b>                                                                         |
| 35          | 1 |   |  | LCR on or off: 0 = Off, 1 = On                                                                                                |
| 35          | 2 |   |  | Dialing mode: 0 = Overlap sending, 1 = En-bloc sending                                                                        |
| 35          | 3 |   |  | Outdial rule                                                                                                                  |
| 35          | 3 | 1 |  | Name; select line                                                                                                             |
| 35          | 3 | 2 |  | Format; select line                                                                                                           |
| 35          | 3 | 3 |  | Type; select line<br>0 = Unknown<br>1 = Main carrier<br>2 = 1-layer mode<br>3 = 2-layer mode<br>4 = CN<br>5 = DICS<br>6 = PRI |
| 35          | 4 |   |  | Authorization code; select index (1-16)                                                                                       |
| 35          | 5 |   |  | LCR schedule                                                                                                                  |
| 35          | 5 | 1 |  | Length of time; select day index (1 = Monday to 7 = Sunday) and time format (hhmm)                                            |
| 35          | 5 | 2 |  | Time period; select day index (1 = Monday to 7 = Sunday) and time period 1-8                                                  |
| 35          | 6 |   |  | Access (1 to 15); select station                                                                                              |
| 35          | 7 |   |  | Routing tables                                                                                                                |

Table A-4 Expert Mode Codes

| <b>Code</b>                                              |   |   |  | <b>Function</b>                                                                      |
|----------------------------------------------------------|---|---|--|--------------------------------------------------------------------------------------|
| 35                                                       | 7 | 1 |  | Trunk group; select table/line                                                       |
| 35                                                       | 7 | 2 |  | Assign outdial rule; select table/line                                               |
| 35                                                       | 7 | 3 |  | Min. authorization; select table/line                                                |
| 35                                                       | 7 | 4 |  | Assign time period; select table/line                                                |
| 35                                                       | 7 | 5 |  | Warning, Select table/line, 1 = None / 2 = Display / 3 = Tone / 4 = Display and tone |
| 35                                                       | 8 |   |  | Dialing plan                                                                         |
| 35                                                       | 8 | 1 |  | Dialed digits; select line                                                           |
| 35                                                       | 8 | 2 |  | Assign routing table; select line                                                    |
| 35                                                       | 8 | 3 |  | LCR dial plan PIN, yes/no                                                            |
| 35                                                       | 8 | 4 |  | Toll restriction, personal calls: 0 = No / 1 = Yes                                   |
| <b>36</b>                                                |   |   |  | <b>Cordless (OfficePro/OfficeCom only; not for U.S.)</b>                             |
| 36                                                       | 1 |   |  | Log on CMI unit; select device, 1 = Inactive (not for U.S.)                          |
| 36                                                       | 2 |   |  | CMI code; select device (not for U.S.)                                               |
| 36                                                       | 3 |   |  | CMI number; select device (not for U.S.)                                             |
| 36                                                       | 4 |   |  | Reset cordless code (not for U.S.)                                                   |
| 36                                                       | 5 |   |  | DECT identification, data (not for U.S.):<br>1. E/ARC<br>2. EIC<br>3. FPN<br>4. FPS  |
| <b>37</b>                                                |   |   |  | <b>Security</b>                                                                      |
| 37                                                       | 1 |   |  | Change password                                                                      |
|                                                          |   |   |  |                                                                                      |
| <b>Customer administration (previously Assistant TC)</b> |   |   |  |                                                                                      |
| 51                                                       |   |   |  | System speed dialing                                                                 |
| 51                                                       | 1 |   |  | Speed-dialing numbers                                                                |
| 51                                                       | 2 |   |  | Speed-dialing names                                                                  |
| 52                                                       |   |   |  | Time                                                                                 |
| 53                                                       |   |   |  | Date                                                                                 |

Table A-4 Expert Mode Codes

| <b>Code</b> |          |   |  | <b>Function</b>                                                                                       |
|-------------|----------|---|--|-------------------------------------------------------------------------------------------------------|
| 54          |          |   |  | Call detail recording<br>(does not appear if another station has call detail recording authorization) |
| 54          | 1        |   |  | CDR at station                                                                                        |
| 54          | 1        | 1 |  | Edit CDRS                                                                                             |
| 54          | 1        | 2 |  | Print CDRS                                                                                            |
| 54          | 2        |   |  | CDR per trunk                                                                                         |
| 54          | 2        | 1 |  | Edit CDRT                                                                                             |
| 54          | 2        | 2 |  | Print CDRT                                                                                            |
| 54          | 4        |   |  | Call charge factor                                                                                    |
| 54          | 5        |   |  | ISDN factor                                                                                           |
| <b>54</b>   | <b>6</b> |   |  | <b>Currency designation</b>                                                                           |
| 54          | 7        |   |  | Call log                                                                                              |
| 54          | 8        |   |  | CDRA pay phone                                                                                        |
| <b>55</b>   |          |   |  | <b>Station names</b>                                                                                  |
| <b>56</b>   |          |   |  | <b>Text messages</b>                                                                                  |
| <b>57</b>   |          |   |  | <b>Advisory messages</b>                                                                              |
| 58          |          |   |  | Language selection                                                                                    |
| <b>59</b>   |          |   |  | <b>Group names</b>                                                                                    |
| 60          |          |   |  | Account codes                                                                                         |
| 60          | 1        |   |  | Account code list                                                                                     |
| 60          | 2        |   |  | Testing                                                                                               |
| 60          | 3        |   |  | Input operation                                                                                       |
| 60          | 4        |   |  | Number of digits                                                                                      |
| 61          |          |   |  | Hotline                                                                                               |
| 61          | 1        |   |  | Hotline destinations                                                                                  |
| 61          | 2        |   |  | Hotline station                                                                                       |
| 61          | 2        | 1 |  | Hotline mode                                                                                          |
| 61          | 2        | 2 |  | Hotline assignment                                                                                    |
| 61          | 3        |   |  | Hotline timeout                                                                                       |
| 62          |          |   |  | Codes, remote administration                                                                          |

Table A-4      Expert Mode Codes

| <b>Code</b>                                                     |  |  |  | <b>Function</b> |
|-----------------------------------------------------------------|--|--|--|-----------------|
| 63                                                              |  |  |  | Codes, Cordless |
| 99                                                              |  |  |  | Access          |
| The bolded messages appear in optiset E memory telephones only. |  |  |  |                 |





## **B Hicom 150 E OfficePoint C (not for U.S.)**

### **B.1 Appendix Contents**

With Hicom 150 E OfficePoint C, you have a powerful and easy-to-use cordless solution for the OfficePoint market segment (Release 2.2 and later). This appendix describes the special technical features of the Hicom 150 E OfficePoint C system for use with Hicom cordless EM. The main features are:

- A compact version of Hicom 150 E OfficeCom with only two slots for peripheral boards, plus one slot for an SLC16.
- Same configuration limits and range of features as Hicom 150 E OfficePoint, plus those of Hicom cordless EM.
- Use of an external main distribution frame, preferably the compact MDF (MDF-C), C39165-A7021-A10.

This appendix has the same section layout as the Hicom 150 E Office *service manual*. All information in the service manual also applies to Hicom 150 E OfficePoint C except where the special points mentioned in this appendix apply.

### **B.2 Important Information**

All information provided in Chapter 1, *Important information (Not for U.S.)*, of the *Electronic Service Manual*, such as safety information, general information, instructions on what to do in the event of accidents or emergencies, and privacy and data security, apply to Hicom 150 E OfficePoint C without limitation.

**Caution**

Always read the safety and other information in Chapter 1 of this *Electronic Service Manual* before performing any work on the system.

## **B.3 System Data**

### **B.3.1 Hicom 150 E OfficePoint C Design**

The OfficePoint C system has the same dimensions as Hicom 150 E OfficeCom (see [Figure 2-2](#)).

The housing contains a shelf with six slot levels, the following of which can be used:

- Slot levels 1 to 3: peripheral boards (two boards can be inserted per level)



To ensure that the OfficePoint C and OfficePoint systems have the same maximum configuration, OfficePoint C has only two connectors for peripheral boards. Only slot level 1 can contain two peripheral boards (see [Figure B-6](#)).

- Slot level 4 (= slot level 2 in OfficePoint C): can contain the [CBPC](#) control board only.
- Slot level 5 (= slot level 3 in OfficePoint C): SIPAC slot (for [SLC16](#), OfficePro board format)
- Slot level 6 (= slot level 4 in OfficePoint C): optional boards (up to 5)

Located on the back of the subrack is either the PSUC power supply unit or the USVC uninterruptible power supply.

The connecting cables for the peripherals (telephones, trunk circuits, and other devices) pass via an external main distribution frame (MDF-C).

### **B.3.2 System-Specific Capacity Limits**

[Table 2-4](#) lists the system-specific capacity limits for a fully equipped Hicom 150 E OfficePoint C system as well as reference values for the other system types.

## **B.4 Boards**

Table 3-2 provides a list of the peripheral boards that can be inserted into slots 4 and 5 in Hicom 150 E OfficePoint C.

In addition, you can install an SLC16 board (Hicom cordless EM) in slot 10.

Hicom 150 E OfficePoint C does not provide an EPSU. Because the system has a smaller number of base stations, compared to the full configuration in OfficeCom, power can be supplied via the PSUC or USVC.



### **Caution**

Due to the OfficePoint C system hardware, you can inserted only the SLC16 board in slot 10. The system will not run if you install a different board in this slot.

## B.5 Installation



**Danger**

The system may be installed by authorized service personnel only.

### B.5.1 Overview

The standard installation procedures described in the Hicom 150 E Office *service manual* apply here as well (see [Section 4.2](#)).

A special feature of OfficePoint C is that it generally uses an external main distribution frame (MDF-C).

### B.5.2 Mounting the External Main Distribution Frame (MDF-C)

#### Introduction

You should use an external main distribution frame (MDF-C), as shown in [Figure B-1](#).

#### Installation Notes

It is best to mount the MDF-C close to the communication system at eye level (use a connecting cable of the correct length). Follow the instructions that came with the unit to attach it to the wall. Two screws and two wall anchors are supplied for mounting on the wall.

Always ground the MDF-C. For notes on how to do this, see [Section B.5.3](#).

#### Procedure for Mounting on the Wall

| Step | Action                                                                               |
|------|--------------------------------------------------------------------------------------|
| 1.   | Mark positions for two holes and drill them into the wall.                           |
| 2.   | Set the wall anchors in place and insert screws to a distance of 5 mm from the well. |
| 3.   | Place the MDF-C in the brackets.                                                     |
| 4.   | Open the housing cover and turn the screws tightly into the holes.                   |

## MDF-C Layout and Dimensions

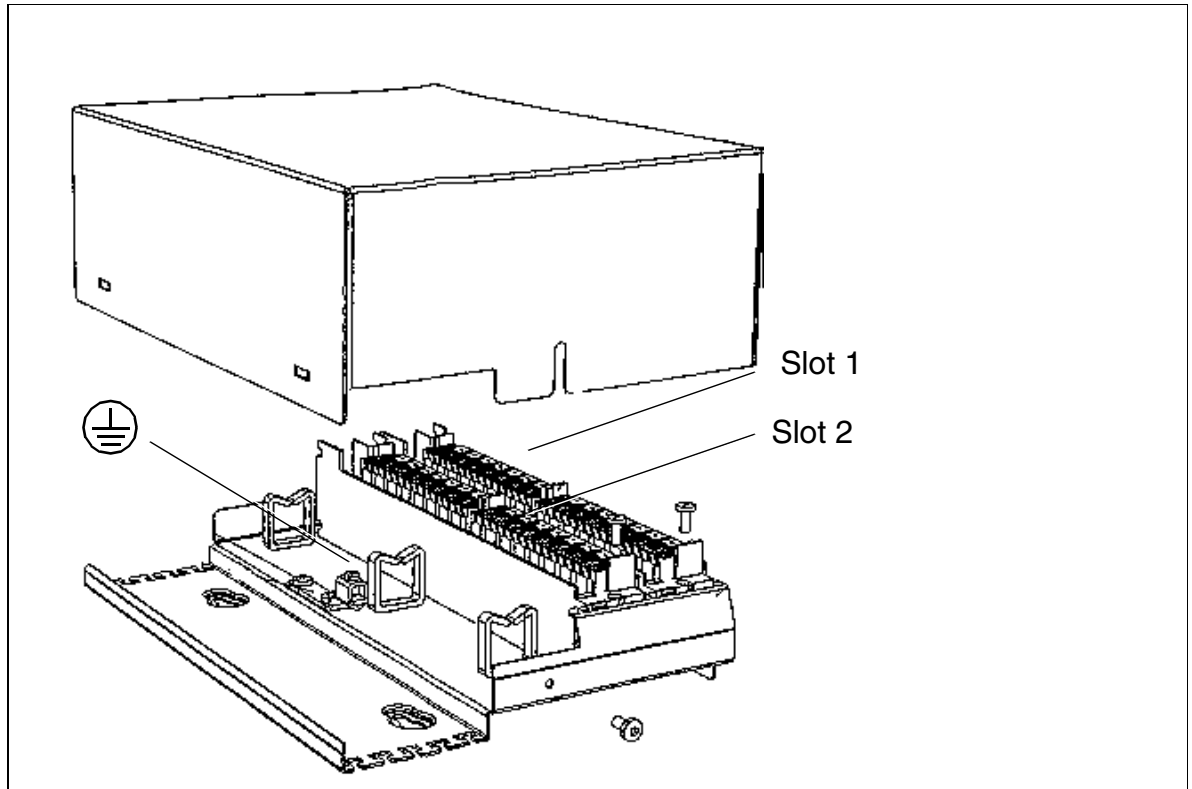


Figure B-1      MDF-C - Layout and Dimensions (244 x 180 x 85 mm)

### **B.5.3 Grounding the External Main Distribution Frame**



Due to its class of protection, OfficePoint C does not have to be grounded.

#### **External Main Distribution Frame**

You need to ground the MDF-C external main distribution frame. There is no need to provide a grounded connection between the main distribution frame and OfficePoint C (see [Figure B-2](#)).



#### **Danger**

If you are using an external main distribution frame that needs to be grounded (which you can tell by the “⏏” symbol printed on the grounding connection), you need to provide a separate ground wire (with a diameter of at least 2.5 mm<sup>2</sup>) for this purpose.

Failure to comply may result in irreparable damage to the system.

## Grounding an External Main Distribution Frame

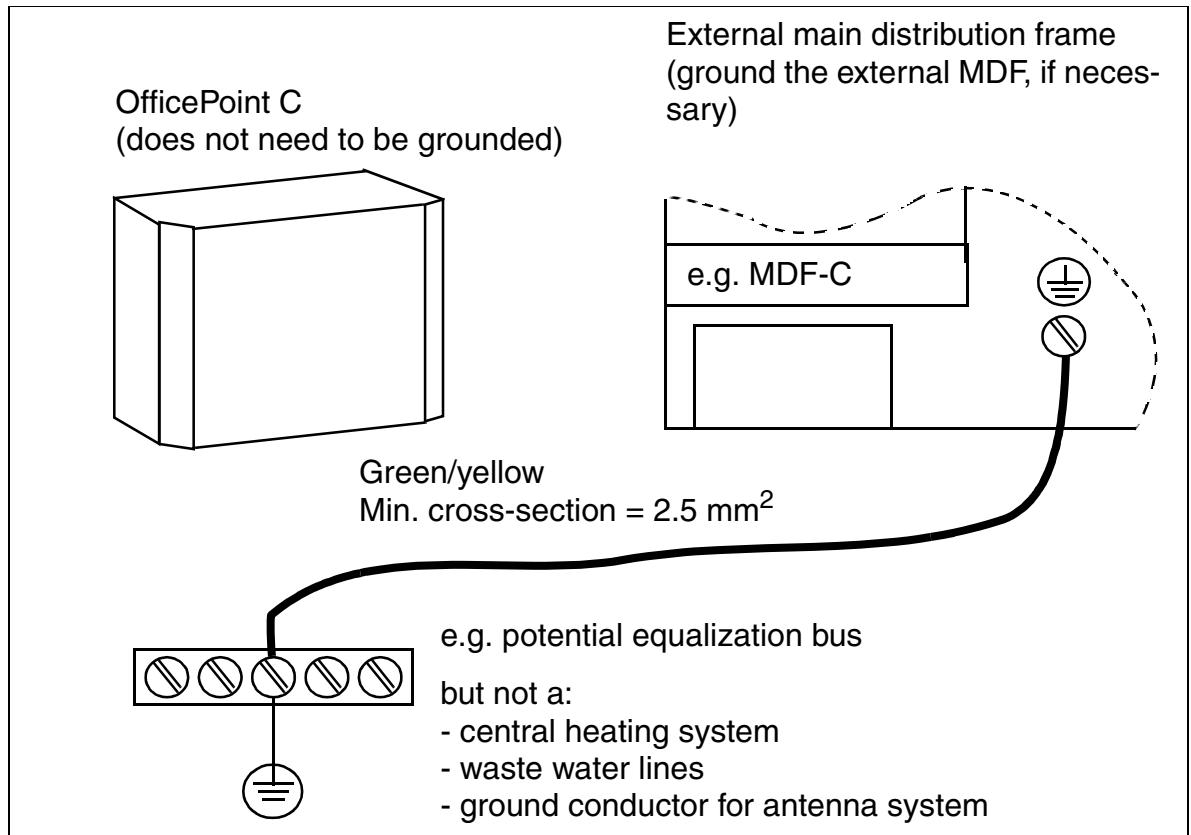


Figure B-2 Hicom 150 E OfficePoint C - Grounding an External Main Distribution Frame

## B.5.4 Laying the Line Network and Connecting the Cables

Use CABLU S30269-Z41-A30 (Figure B-4) to connect the peripheral boards to the customer's line network. As shown in Figure B-3, you can connect the eight-pin slip-on connectors to the boards directly. The line network connects to the jumper strip.

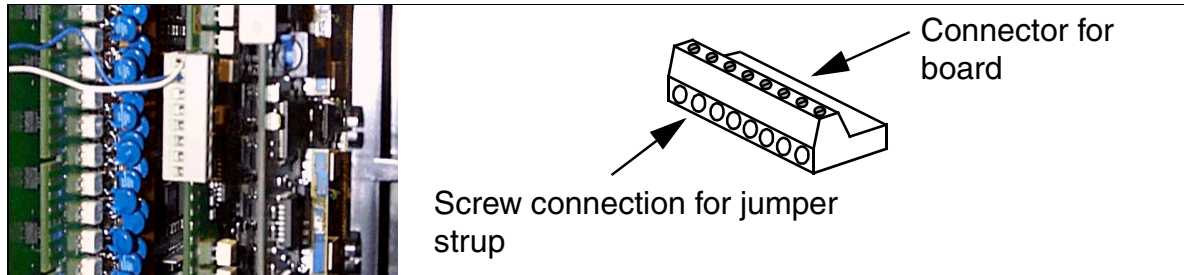


Figure B-3 Slip-On Connectors for Connection to the Boards

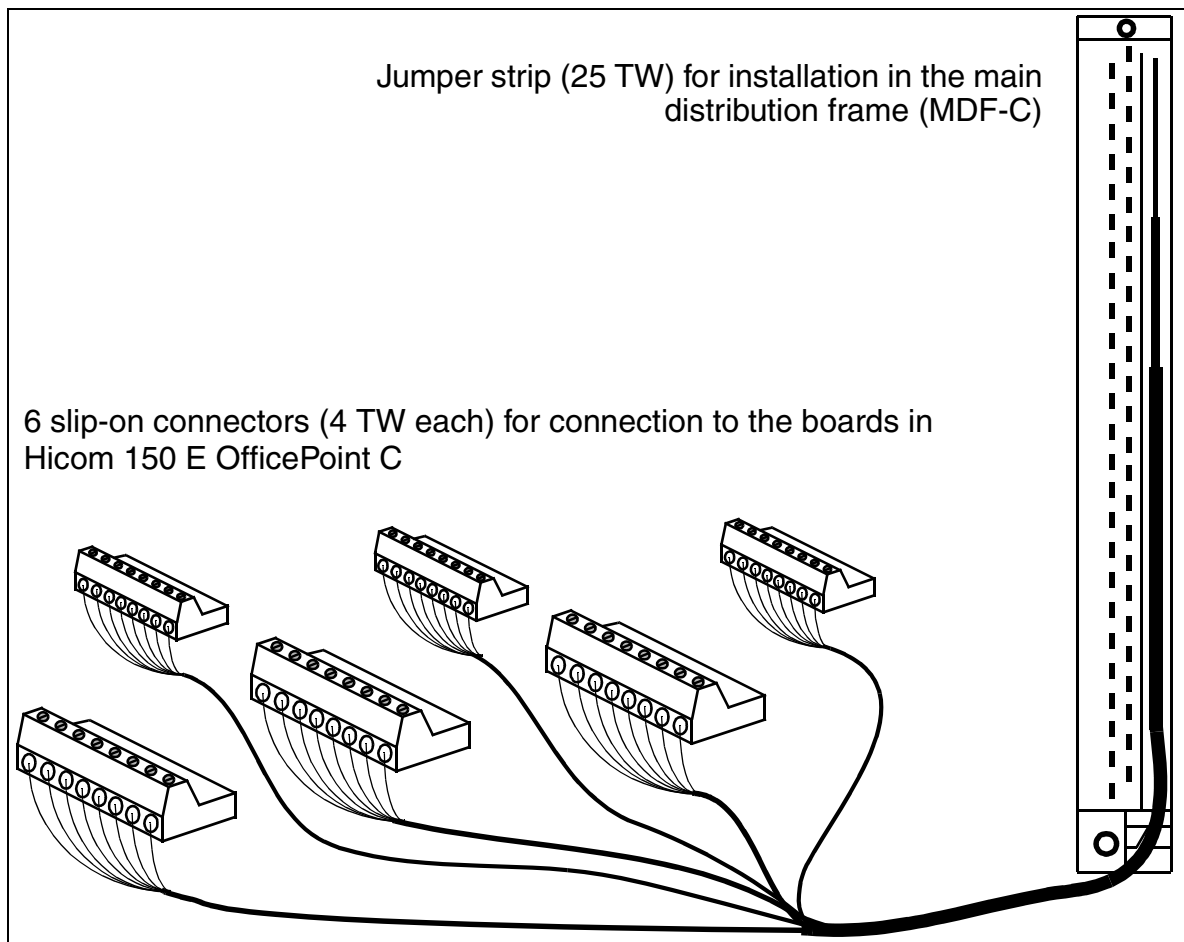


Figure B-4 Layout of CABLU S30269-Z41-A30 (3 m long)



## B.6 Startup

**Danger**

Only authorized service personnel should start up the system.

### B.6.1 Overview

The standard startup procedures described in this Hicom 150 E Office *service manual* apply here as well (see [Section 5.2](#)).

One special feature of OfficePoint C is that it provides only two slots for peripheral boards in addition to the slot for the SLC16 board.

### B.6.2 Configuration Notes

#### OfficePoint C System Overview and Slots

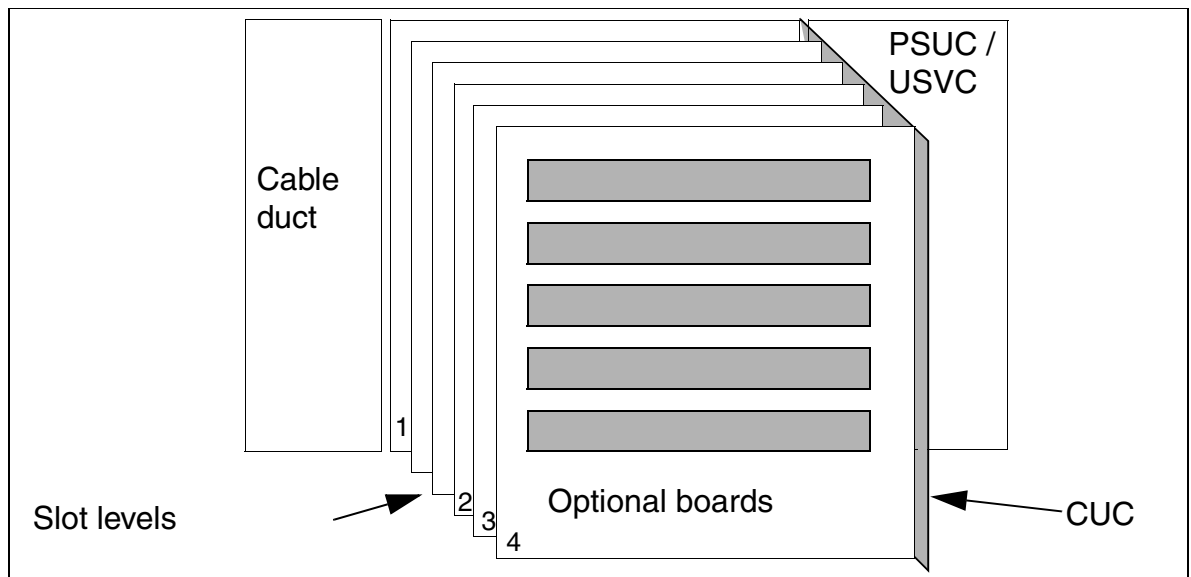


Figure B-5 Hicom 150 E OfficePoint C - System Overview

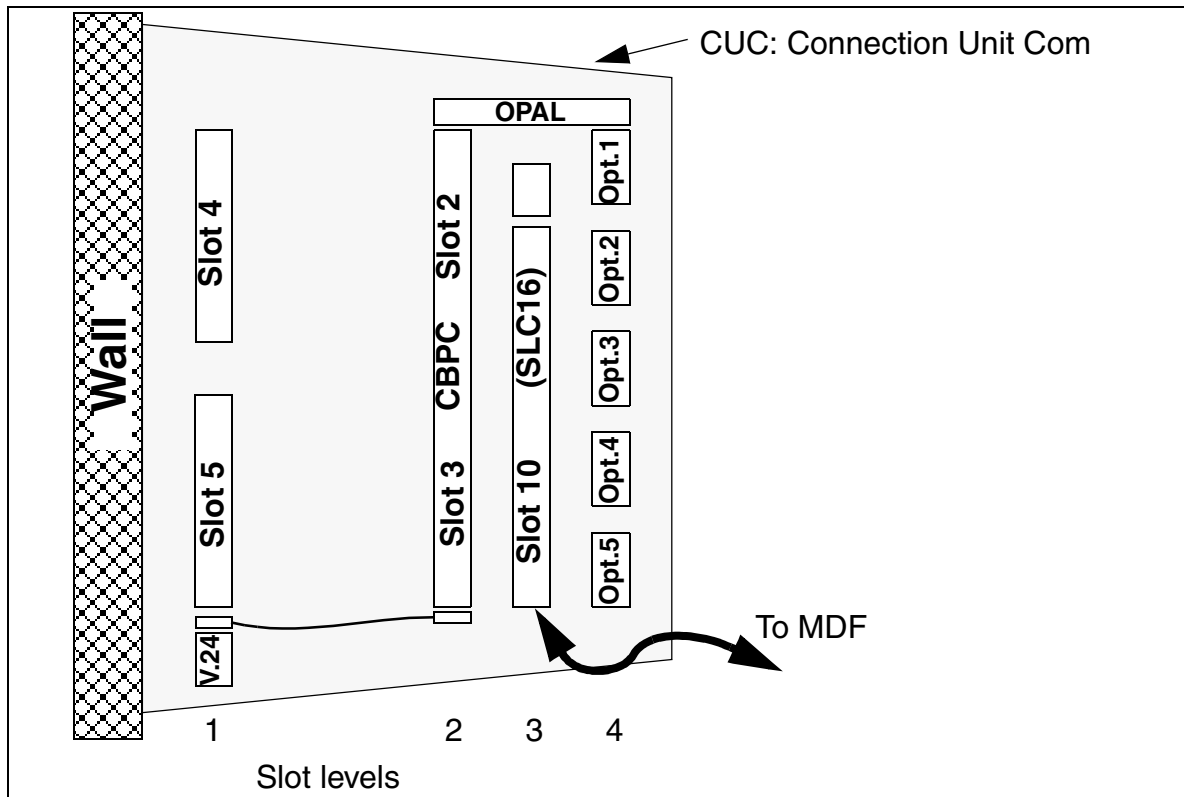


Figure B-6 Hicom 150 E OfficePoint C - Slots

### B.6.3 Conducting Customer-Specific Programming

When the remote service center accesses a system, it automatically determines what type of system it is within the Hicom 150 E Office family. This is not possible in the case of Hicom 150 E OfficePoint C. To allow the RSC to identify the OfficePoint C system, you need to make the following entry using Hicom Assistant E:

Select the *System settings* tab in the *System parameters* submenu of the *Options* menu and enter *CMI Marketing* in the *Customer name* field (up to 16 characters long).

## C U.S.-Specific Aspects

### Contents

This appendix discusses the following U.S.-specific topics:

| Subject                                                                                                                     | Page |
|-----------------------------------------------------------------------------------------------------------------------------|------|
| <i><u>Configuring a Primary Rate Interface (PRI) ISDN</u></i>                                                               | C-1  |
| <i><u>Inband Integration Specifications</u></i>                                                                             | C-17 |
| <i><u>Configuring the Hicom 150 E for the Octel Overture 250/350, Octel Overture 200/300, and Audix INTUITY Systems</u></i> | C-24 |
| <i><u>Installing and Configuring the TraqNet 2002 Product</u></i>                                                           | C-27 |

## C.1 Configuring a Primary Rate Interface (PRI) ISDN

### C.1.1 Introduction

This section discusses background information and planning issues for primary rate interface (PRI) ISDN.

### Supported Protocols

The primary rate interface must be configured to communicate with the protocol supported by the public network service provider. [Table C-1](#) lists the PRI protocols supported by the Hicom 150 E system.



Besides the US market the T1-PRI protocol is also used for the country HONGKONG. In Hongkong the PRI protocol has always to be set to "IDA-P" - HKTA-Protocol.

Table C-1 Supported Protocols

| Protocol                     |
|------------------------------|
| • ATT 4ESS CO                |
| • ATT FTS2000 5ESS           |
| • ATT FTS2000 DMS250 CO      |
| • ATT Bell Canada DMS100 CO  |
| • ATT Westinghouse DMS250 CO |
| • ATT 5ESS CO                |

**Configuring a Primary Rate Interface (PRI) ISDN**
**Table C-1 Supported Protocols**

|                              |
|------------------------------|
| • MCI DEX600 CO              |
| • Northern Telecom DMS100 CO |
| • Sprint DMS100 CO           |
| • Siemens EWSD CO            |
| • Generic NI-2 CO            |
| • Siemens NI-2 CO            |
| • ATT NI-2 5ESS CO           |
| • Siemens EWSD CO OSA        |
| • Generic NI-2 OSA           |
| • Siemens NI-2 OSA           |
| • ATT 5 ESS NI-2 CO OSA      |

**Planning Steps**

Consider the following items when designing a primary rate interface.

- Determine network provider and feature requirements
- Contact the local service provider to determine the central office type, the national ISDN standard used, and the voice and data services supported
- Define your customer's needs and the services they will require
- Work with the network provider and the customer to determine any optional requirements for incoming and outgoing voice and data services

Table C-2 outlines the voice and data services provided by inter-exchange carriers (IECs) in the North American market.

**Table C-2 Inter-Exchange Carrier (IEC) Protocol Calling Services**

| <b>IEC SERVICES</b> | <b>AT&amp;T 4ESS</b> | <b>MCI DMS-250/MCI DEX-600</b> | <b>SPRINT DMS250</b> | <b>WH DMS250</b> | <b>FTS 2000 DMS and FTS 2000 5ESS</b> |
|---------------------|----------------------|--------------------------------|----------------------|------------------|---------------------------------------|
| <b>INWATS (800)</b> | MEG800-TFM           | MCI 800                        | ULTRA-800            | WICN-IN-WATS     | N/A                                   |
| <b>OUTWATS</b>      | MEG                  | MCI-PRISM-WATS                 | SPR-ULTRA-WATS       | WICN-OUT-WATS    | N/A                                   |

Table C-2                      Inter-Exchange Carrier (IEC) Protocol Calling Services

| <b>IEC SERVICES</b>       | <b>AT&amp;T 4ESS</b> | <b>MCI DMS-250/MCI DEX-600</b> | <b>SPRINT DMS250</b> | <b>WH DMS250</b> | <b>FTS 2000 DMS and FTS 2000 5ESS</b> |
|---------------------------|----------------------|--------------------------------|----------------------|------------------|---------------------------------------|
| <b>INWATS (900)</b>       | MULTI-QUEST          | MCI/900                        | N/A                  | N/A              | N/A                                   |
| <b>Intl IN-WATS (800)</b> | INTER-800            | MCI 800                        | N/A                  | N/A              | N/A                                   |
| <b>PVN</b>                | AT&T SDDN            | MCI-VN-VS                      | SPRINT-VPN           | WICN-PV          | N/A                                   |
| <b>Intl VPN</b>           | AT&T SDN-GSDN        | N/A                            | SPRINT-VPN           | N/A              | N/A                                   |
| <b>SDS-56</b>             | ACCU-SDS             | None                           | ACCU-SDS             | ACCU-SDS         | N/A                                   |
| <b>SDS 64-c/r</b>         | ACCU-SDS             | None                           | ACCU-SDS             | ACCU-SDS         | N/A                                   |

Table C-3 outlines the voice and data services provided by local exchange carriers (LECs) in the North American market.

Table C-3 Local Exchange Carrier (LEC) Protocol Calling Services

| LEC SERVICES                               | AT&T 5ESS or SIEMENS EWSD | NT DMS-100 or BC DMS-100 | GENERIC NI2 or SIEMENS NI2 or AT&T 5ESS NI2 |
|--------------------------------------------|---------------------------|--------------------------|---------------------------------------------|
| INWATS (800)                               | MEG                       | DMS100 INWATS            | NI2-INWATS                                  |
| OUTWATS                                    | MEG                       | DMS100 OUTWATS           | NI2-OUTWATS                                 |
| INWATS (900)                               | N/A                       | N/A                      | N/A                                         |
| Intl INWATS (800)                          | N/A                       | N/A                      | N/A                                         |
| PVN                                        | N/A                       | DMS100-PV                | N/A                                         |
| Multiband OUTWATS                          | MEG                       | DMS100 OUTWATS           | NI2-OUTWATS                                 |
| Access to LEC Operator                     | None                      | None                     | None                                        |
| Access to Default IEC Operator             | None                      | None                     | None                                        |
| Equal Access to IEC Long Distance Services | MEG                       | DMS100 OUTWATS           | NI2-OUTWATS                                 |
| Basic CO Access                            | None                      | None                     | None                                        |
| Access to IEC Operator                     | None                      | None                     | None                                        |
| SDS-56                                     | None                      | None                     | None                                        |
| SDS 64-c/r                                 | None                      | None                     | None                                        |

## C.1.2 PRI Configuration Using Hicom Assistant E

The following sections describe the PRI configuration sequence in detail.

### Required Steps

| Step | Task                                              |
|------|---------------------------------------------------|
| 1.   | <u>Configuring the T1 Boards</u>                  |
| 2.   | <u>Configure the Board Data for the PRI Span</u>  |
| 3.   | <u>Configuring a Route Group for the PRI Span</u> |

| Step | Task                                                    |
|------|---------------------------------------------------------|
| 4.   | <u>Defining the Protocol for Each Primary Rate Span</u> |
| 5.   | <u>Defining the PRI Route Parameters</u>                |
| 6.   | <u>Setting Additional Route Parameters</u>              |
| 7.   | <u>Defining the Clock Reference for the PRI Span</u>    |

### Optional Steps

| Step | Task                                              |
|------|---------------------------------------------------|
| 1.   | <u>Configuring the INWATS Service (Optional)</u>  |
| 2.   | <u>Configuring Call By Call Groups (Optional)</u> |

#### C.1.2.1 Configuring the T1 Boards

The boards (cards) must be configured in the database before they are recognized by the systems.

Configure the boards and upload the information back into the Hicom 150 E communications server. Reset the system to initialize the boards.

#### Programming Using Hicom Assistant E

| Step | Action                                                           |
|------|------------------------------------------------------------------|
| 1.   | System status ->System wide ->Switchover to ->Hardware expansion |

Use the Hicom Assistant E dialog box to select and place the T1 cards in the desired card slots. For Primary Rate applications, you must select the TST1 Digital or TMST1 Digital card type. The card data should be set for TMST1 Digital, which is the default.

#### C.1.2.2 Configure the Board Data for the PRI Span

#### Programming Using Hicom Assistant E

| Step | Action                                                                                             |
|------|----------------------------------------------------------------------------------------------------|
| 1.   | System status ->System wide ->Switchover to -> Hardware expansion ->Card configuration ->Card data |

**Configuring a Primary Rate Interface (PRI) ISDN**

The T1 Module data is preset for a digital T1 interface and will operate in most situations. Card data information can be revised and saved as a template if required. [Table C-4](#) lists the default configuration for the T1 digital interface.

Table C-4 Hicom 150 E Default T1 Digital Interface Configuration

|   | Operation Mode Layer 1      |   | Operation Mode Layer 2 |
|---|-----------------------------|---|------------------------|
| X | SF/ESF                      |   | In/Out Priority        |
| X | AMI/B8ZS                    | X | Layer 2 active         |
| X | Bipolar Violation detection |   | Not supported          |
| X | Contact closure             |   | Optical fiber          |
|   | Yellow Alarm with FS bit =1 | X | CRC 6 - check          |
|   | ISDN with CAS Mode 2        |   | TEI verify             |
|   | CAS Mode 4/16               |   | EOC                    |

**C.1.2.3 Configuring a Route Group for the PRI Span**

You should place the T1 digital card in a unique route group for easy identification. Typically, the entire T1 span is placed in a single trunk group; however, depending on the application, the primary rate channels can be separated into discrete route groups. This may be required for applications where a portion of the channels can be separated out for non-system data applications.

**Programming Using Hicom Assistant E**

| Step | Action                                      |
|------|---------------------------------------------|
| 1.   | Options ->Lines/networking ->Trunks ->Route |

[Table C-5](#) shows a sample configuration.

Table C-5 Sample Route Group Configuration for a PRI Span

| Slot/Trunk  | Code | Route  | Route Name |
|-------------|------|--------|------------|
| TMST1 6-1-1 | 7801 | rte. 1 | PRI 4ESS   |
| TMST1 6-1-2 | 7802 | rte. 1 | PRI 4ESS   |
| TMST1 6-1-3 | 7803 | rte. 1 | PRI 4ESS   |
| TMST1 6-1-4 | 7804 | rte. 1 | PRI 4ESS   |
| .           | .    | .      | .          |
| .           | .    | .      | .          |
| .           | .    | .      | .          |



Table C-5 Sample Route Group Configuration for a PRI Span

| Slot/Trunk   | Code | Route  | Route Name |
|--------------|------|--------|------------|
| TMST1 6-1-23 | 7823 | rte. 2 | PRI 4ESS   |
| .            |      | .      | .          |
| TMST1 7-1-1  | 7824 | rte. 2 | PRI 5ESS   |
| TMST1 7-1-2  | 7825 | rte. 2 | PRI 5ESS   |
| TMST1 7-1-3  | 7826 | rte. 2 | PRI 5ESS   |
| .            |      |        | .          |
| TMST1 7-1-23 | 7846 | rte. 2 | PRI 5ESS   |

#### C.1.2.4 Defining the Protocol for Each Primary Rate Span

This step defines the protocols used for each of the Primary Rate circuits in the system. Select the required protocol for the PRI span(s) connected to the system.

#### Programming Using Hicom Assistant E

| Step | Action                                                                           |
|------|----------------------------------------------------------------------------------|
| 1.   | Options ->Lines/networking -> Trunks ->Parameters (double-click)<br>->ISDN flags |

#### C.1.2.5 Defining the PRI Route Parameters

Define the selected PRI route characteristics using the Routes screen. The Routes screen is used to assign a name, Listed directory number, optional Overflow route and Calling service for the PRI interface.

The PRI span can be partitioned into separate route groups, and calling services can be assigned to each defined group.

Call by Call services are optional and should be reviewed with the customer and the public network provider.

#### Programming Using Hicom Assistant E

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Options ->Lines/networking ->Trunks ->Routes |

**Name**

Enter a display name for the PRI interface. The entry can be up to 10 characters in length.

**PABX Number**

Typically the operating company assigns an 11-digit directory number to the PRI interface for incoming direct-inward-dialing and dialed-number Identification services. Depending on the length of the DID-DNIS number being sent from the central office, you should complete the following table entries.

For example, if the directory number received is 1-408-492-2000 and there are no DID-DNIS numbers required, the fields should be filled in as follows:

- Country Code: 1
- Local Area Number: 408
- PABX Number: 4922000

If the directory number received is 1-408-492-2000 and the direct-inward-dialing and dialed-number Identification services (DID-DNIS) numbers programmed are four digits, the fields should be filled in as follows. In this case, the table is used to strip the first nine digits from the incoming DID number. The entry will vary depending on the number of digits in the DID number (one to 11 digits).

- Country Code: 1
- Local Area Number: 408
- PABX Number: 492

**Overflow Route**

An optional route can be selected for handling outbound calls if the PRI interface channels are busy.

**Calling Service**

**None:** If None is selected, no optional voice or data services are required. The circuit will be used for basic voice applications.

**Call by Call Group:** One of four call-by-call groups can be selected in the OfficePro. One call-by-call group can be selected in the OfficeCom. A call-by-call group can be assigned to the entire PRI span or to a specific route group associated with group of channels within a PRI span. Access codes for the specific calling services are assigned on the PRI screen.

**Specific Calling Service for Route Group:** A specific calling service can be assigned to the entire PRI span or to specific channels in a configured route group. If a service is assigned to a group of channels on a span, the seizure code for the route group is used to access the outbound service.

#### C.1.2.6 Setting Additional Route Parameters

The Route type should be set to CO and the number and type outgoing should be set to Local area code,

#### Programming Using Hicom Assistant E

| Step | Action                                           |
|------|--------------------------------------------------|
| 1.   | Options ->Lines/networking -> Routing parameters |

##### Route Type:

- Route type: PABX

##### Number. and Type Outgoing:

- Country code: If selected, 14084922000 is sent to the network for our example.
- Local area code: If selected, 4084922000 is sent to the network for our example.
- PABX number: If selected, 4922000 is sent to the network for our example.
- Unknown: For future use

#### C.1.2.7 Defining the Clock Reference for the PRI Span

You must select a span or spans as the reference interface for the central office. A hierarchical table is provided for assigning four clock-reference points. If the primary clock source fails, the next clock source specified is used as the reference. When the primary clock source returns, the system automatically resynchronizes to it. In this example the TST1 span in slot 6 is used for referencing the clock from the Central Office. The TST1 in slot 7 is used as the secondary reference for backup support. A maximum of four reference clocks can be defined per system.

#### Programming Using Hicom Assistant E

| Step | Action                                                 |
|------|--------------------------------------------------------|
| 1.   | Options ->Lines/networking ->Trunks ->Clock parameters |

**Example:**

| Position | Allowed Numbers List |
|----------|----------------------|
| 1        | TMST1 6              |
| 2        | TMST1 7              |
| 3        | 4                    |

**C.1.2.8 Configuring the INWATS Service (Optional)**

Depending on the trunk group, an INWATS dialed number identification service (DNIS) port is assigned to a direct inward dialing (DID) port. This DID port should be configured as a pseudo-port, meaning that it is locked for basic DID. The entries in the call management tables are valid for the INWATS DNIS ports.

**Programming Using Hicom Assistant E**

| Step | Action                                    |
|------|-------------------------------------------|
| 1.   | Options ->Lines/networking ->Trunks ->PRI |

**Example: INWATS DNIS**

You can configure INWATS calling service for Trunk Group 2 and Trunk Group 3, depending on the carrier specification. The dialed number identification service (DNIS) 800-777-7222 on Trunk Group 2 leads to direct-inward-dialing (DID) Port 700 (dedicated service and CBC service). The empty DNIS field (response to no DNIS) on Trunk Group 3 leads to DID Port 701. This is for dedicated service only.

| Position 1-40 | Route 1-16 | DID 1 to 7 Digits | Call Number |
|---------------|------------|-------------------|-------------|
| 1             | 2          | 8007777222        | 700         |
| 2             | 3          | —                 | 701         |
| 3             |            |                   |             |
| 4             |            |                   |             |
| .             |            |                   |             |
| .             |            |                   |             |
| 40            |            |                   |             |

**C.1.2.9 Configuring Call By Call Groups (Optional)**

The Hicom 150 E OfficePro communications server supports 4 call by call groups. OfficeCom supports one call by call group. Each call by call group supports from one to eight call services, which are accessed using a configurable code. Based on the pa-

parameters selected on the Trunks and Routes screen, an entire PRI span can be associated with a CBC pool or selected channels can be configured for specific ISDN calling services.

Call by Call groups can be used to access public network services on specific PRI channels provided by the central office. CBC trunk group 1 represents the #4ESS span and CBC trunk group 2 represents the #5ESS span. The direct access codes are placed in this dialog form.

A CBC Pool has been configured with the AT&T Megacom offering and the ACCUNET Data offering. The CBC trunk group codes are used to access the services identified in the CBC pool for each of the Primary Interface spans configured in the system.

### Programming Using Hicom Assistant E

| Step | Action                                    |
|------|-------------------------------------------|
| 1.   | Options ->Lines/networking ->Trunks ->PRI |

### C.1.2.10 Configuring Least Cost Routing the Primary Rate Interface

#### Requirements

You must enable the release LCR flag for processing an outbound call over a primary rate interface.

En-bloc dialing should be configured so that the dialing information is sent completely with the SETUP. If you do not configure en-bloc dialing, the parameter Z cannot be used in the Dialing Plan.

The following parameters are optional. They are commonly used for time-dependent access to different carriers:

- Authorization code
- LCR schedule
- Extension access
- Warnings

To use calling services, you must configure several trunk groups. One trunk group can be used for a basic call, a dedicated service, or a CBC pool. Prime Line should always be off.

## **PABX Number**

### **Incoming Calls**

The system interprets the type of number for Incoming calls via the PABX number field on the Routes dialog table.

- DID number: 25162
- Station number: 49
- National number (area code): 408
- International number: 1
- Type of number: International

For incoming calls, the right destination (address) is examined based on the received type of number and the digit Information.

### **Outgoing Calls**

For outgoing calls the calling address is built from the DID plus the configured station number information.

The type of number of the called address depend on the protocol and the dialed number (refer to the different numbering plans of the carrier specifications). To override this behavior and send a leading 1 in front of a 10-digit code, for example, you must configure the dialing rule as follows:

- Before: A after: D1A(for national calls)
- Before: A after: D01A(for international calls)
- Before: A after: D011A (for international calls)

**Note:** In these cases, set the *Type of Number* to *Unknown* in the Hicom Assistant E routing parameters: *Options ->Lines/networking ->Routing parameters*.

### **LCR Access Code**

The first field of the dialing plan is also known as the LCR access code. After a reload of the system, the trunk group access codes (80, 81, 82, 84, 851, 852,) can be used for LCR access. Other LCR access codes can be configured using Hicom Assistant E.

## Basic Call

### Example: LCR Routing Tables Dialing Plan

After dialing LCR access code 80, the user first hears the simulation of the dial tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). The LCR digit interpretation finds that Line 1 of the dialing plan is valid and selects the assigned routing table (Routing Table 1).

**Routing Table:** The first entry of the Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time schedule and warnings are not configured.

1. Outdial Rule: All digits are echoed except the first field (LCR access code).

User dials      80 4234567

System dials: 4234567 on Trunk Group 1

2. Outdial Rule: D1A. Dial 1 in front of all echoed digits.

User dials      80 4234567

System dials: 1 4234567 on Trunk Group 1

All other types of basic calls (such as N11, LEC operator and IEC operator access) can be tested with this basic configuration. For all other configurations, the dialing plan is the central configuration table, which leads through the access code to the different routing tables.

## Dedicated Service

### Example: Dedicated Services

**Dialing Plan:** After dialing LCR access code 80, 81, or 82, the user first hears the simulation of the dialing tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). LCR digit interpretation determines whether the following digits match the entries in the dialing plan. If so, the dialing plan leads to one of the routing tables (1 to 3).

**Routing Table:** The first entry of Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time Schedule and Warnings are not configured. The first entry in Routing Table 2 leads to Trunk Group 2 using Outdial Rule 2 if the extension has the minimum authorization. Time schedule and warnings are not configured. The first entry in Routing Table 3 leads to Trunk Group 3 using Outdial Rule 3 if the extension has the minimum authorization. Time schedule and warnings are not configured.

**Outdial Rule:**

- Rule 1 After CIC 222 is used, all digits are echoed except the first field.
- Rule 2 means that after Band Number 1 is used for OUTWATS, all digits are echoed except the first field.
- Rule 3 means that after Band Number 2 is used for OUTWATS, all digits are echoed except the first field.

**Example: Using LCR Access Code 80**

|              |                                       |
|--------------|---------------------------------------|
| User dials   | 80-423-4567                           |
| System dials | 423-4567 for CIC 222 in Trunk Group 1 |

**Example: Using LCR Access Code 81**

|              |                                                  |
|--------------|--------------------------------------------------|
| User dials   | 81-1-415-423-4567                                |
| System dials | 415-423-4567 for OUTWATS Band 1 in Trunk Group 2 |

**Example: Using LCR Access Code 82**

|              |                                                  |
|--------------|--------------------------------------------------|
| User dials   | 82-1-707-423-4567                                |
| System dials | 707-423-4567 for OUTWATS Band 2 in Trunk Group 3 |

**CBC Pool****Example: Dedicated Services**

**Dialing Plan:** After dialing the LCR Access Code 80, 81, or 82, the user first hears the simulation of the dialing tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). LCR Digit Interpretation determines whether the subsequent digits match the entries in the Dialing Plan. If so, the Dialing Plan leads to one of the Routing Tables (1 to 3).

**Routing Table:** The first entry in Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time schedule and warnings are not configured. The first entry in Routing Table 2 leads to Trunk Group 2 using Outdial Rule 2 if the extension has the minimum authorization. Time schedule and warnings are not configured. The first entry in Routing Table 3 leads to Trunk Group 2 using Outdial Rule 3 if the extension has the minimum authorization. Time schedule and warnings are not configured.

**Outdial Rule:**

- Rule1 means that after CIC 222 is used, all digits are echoed except the first field.



- Rule 2 means that after SFG 404 is used for NI-2 OUTWATS, all digits are echoed except the first field.
- Rule 3 means that all digits are echoed except the first field.

**Example: Using LCR Access Code 80**

|              |                                       |
|--------------|---------------------------------------|
| User dials   | 80-423-4567                           |
| System dials | 423-4567 for CIC 222 on Trunk Group 1 |

**Example: Using LCR Access Code 80**

|              |                                           |
|--------------|-------------------------------------------|
| User dials   | 81-1-415-423-4567                         |
| System dials | 415-423-4567 for OUTWATS on Trunk Group 2 |

**Example: Using LCR Access Code 80**

|              |                                  |
|--------------|----------------------------------|
| User dials   | 82-423-4567                      |
| System dials | 423-4567 for FX on Trunk Group 2 |

**Cut Through Method****Example: Cut Trough Method**

In the case of the cut-through method, the switch may have to wait for a PROGRESS containing PI #1 or PI #8. After it receives the PROGRESS, the switch sends the dialing information as DTMF digits.

**Dialing Plan:** After dialing the LCR access code 80, the user first hears the simulation of the dial tone. The subsequent dialed digits are saved until the end of dialing (# or timeout). The subsequent digits lead to Routing Table 1.

**Routing Table:** The first entry in Routing Table 1 leads to Trunk Group 1 using Outdial Rule 1 if the extension has the minimum authorization. Time schedule and warnings are not configured.

**Outdial Rule:** Rule1 means that after the Cut Through Method is used for the installed calling service NI-2 TIE with the SFG 404, the remaining digits are sent as DTMF if PROGRESS with PI #1 or PI #8 is received.

**Example: Using LCR Access Code 80**

|              |                                                                                                                                         |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| User dials   | 80-1-415-423-4567                                                                                                                       |
| System dials | IE Trunk with SFG 404 in Trunk Group 1, waits for PROGRESS with PI #1 or PI #8, and sends the remaining digits as DTMF: 1-415-423-4567. |

**INWATS Service**

Depending on the trunk group, an INWATS dialed number identification service (DNIS) port is assigned to a DID port. This DID port should be configured as a pseudo-port, meaning that it is locked for basic DID. The entries in the call management destination tables are valid for the INWATS DNIS ports.

**Example: INWATS DNIS**

INWATS calling service can be configured for Trunk Group 2 and Trunk Group 3 (depending on the carrier specification). The DNIS 800-777-7222 on Trunk Group 2 leads to DID Port 700 (for dedicated service and CBC service). The empty DNIS (response for no DNIS) on Trunk Group 3 leads to DID Port 701. This is for dedicated service only.

**IE\_OSA Information Element**

Information element IE\_OSA is created if the protocol type of the PRI span supports IE\_OSA and the corresponding digits (such as 0 or 00) have to be dialed (only for LECs that support IE\_OSA).

**IE\_TNS Information Element**

Information element IE\_TNS is created if dialing rule parameter C is used and the protocol supports IE\_TNS (only for LEC).

**Note:** If the NI-2 LEC protocol does not support IE\_OSA, no IE\_TNS is created.

**IE\_NSF Information Element**

Information element IE\_NSF is created if there is a calling service configured for the trunk group. The dialing rule parameter N is used for the SFG or band number of the IE\_NSF. IE\_NSF also contains a CIC if dialing rule parameter C is used.

## **C.2 Inband Integration Specifications**

### **C.2.1 Introduction**

This document describes the voice-mail interface as it is implemented in Hicom 150 E Release 1.0 and later and discusses the enhanced voice-mail integration (VMIE) interface.

The integration interface to the voice mail or server equipment is an analog station port. You must configure the analog port as a PhoneMail-type port. This allows the analog port to generate a series of DTMF tones to identify the following:

- Calling station information
- Called station information
- Call forward status type
- Internal-external call-type information

The information is transmitted to the voice mail register when the call is answered by the voice mail system.

### **C.2.2 Function and Use**

The Inband information is required to allow station information to be passed to voice mail and call processing servers.

#### **C.2.2.1 Definitions**

- A message stored in the voice-mail system is called a voice message.
- Messages stored in the system (message waiting) are called messages.\*
- An analog port may be configured as a voice-mail port.
- Analog ports support the VMIE protocol.
- Several voice-mail ports can be grouped in a hunt group and can be accessed by dialing a hunt-group access code.
- For the message waiting callback feature to operate, the first PhoneMail Port (numeric logical port) must be routed to the PhoneMail hunt group using the Call Management. A separate Pseudo port may also be configured and called using a repertory-dialing key for callback purposes as well.
- Suffix dialing with DTMF tones from an analog DTMF phone during a connection to a voice mail port results in end to end signaling (DTMF tones generated by the DTMF code sender). Rotary dial telephones cannot send suffix-dialed digits.

- Digital phones use their own DTMF sender if applicable; otherwise the DTMF sender of the Hicom 150 E is used.
- Call forwarding, night services, or overflow to a PhoneMail port or a line hunt group containing PhoneMail ports are possible.

### **C.2.2.2 Information Sent to the Voice-Mail System**

The following type-of-call information is sent to the voice-mail system from the Hicom 150 E Communications Server

- DIRECT IN: Voice mail direct internal access
- DIRECT EX: Voice mail direct external access
- DEV ALL: Call diversion all calls.
- DEV NA: Call deviated no answer. Voice mail is accessed after the calling party has at least one ring-back situation.
- EXPRES: Express box (not for U.S.)
- COMMON: Common box (not for U.S.)
- DEV BY: All deviated busy
- RECALL NA: Voice mail is recalled because subscriber extended to does not answer.
- RECALL BY: Voice mail is recalled because subscriber extended to remains busy.
- DEV NR: deviated not reachable (intercept)
- Calling party
- Extension number of calling party
- Called party
- Extension number of party initially called
- Additional info of calling party
- Type of calling party

### **Example: General Flow for Storing and Reading a Voice Message**

Station B activates call forwarding to the voice-mail system.

A calls B and is forwarded to the voice-mail system. The following information is sent to the voice-mail system:

- Type of call: DEV ALL

- Calling party: extension number of A
- Called party: extension number of B
- Additional info: normal subscriber

At the end of the voice message received from the incoming caller, the system sends the message-waiting code to station B. When reading a message sent from a voice mail system (by display message on U<sub>P0/E</sub> phones or by tone by analog phones), the user can call the voice-mail system back.

The following information is sent for a direct call to the PhoneMail system

- Type of call: DIRECT INT
- Calling party: Extension of A party

#### **Additional Information: Normal Subscriber**

After the user reads a message, the system establishes a connection with the voice-mail system. The message-waiting element may not be cancelled. This is done by the voice-mail system.

### **C.2.3 Specifications and Standards (Enhanced Voice Mail Integration)**

#### **C.2.3.1 General**

The interface described is based on an analog subscriber-line interface.

#### **C.2.3.2 Outgoing Traffic**

- Ringing seizes the voice-mail system.
- The voice-mail system answers by closing the loop (OFF-HOOK emulation).
- Upon detection of answering, the Hicom 150 E sends a message to the voice-mail system. The message is transferred as DTMF codes. The message consists of four elements (described in Section C.2.3.3).
- After the message is sent, the speech path is through-connected.

Release by Hicom 150 E is transferred to the voice-mail system by the following:

- Opening the loop for nominally 1 second
- Connecting busy tone
- Disconnecting the speech path

The voice-mail system can release by opening the loop for nominally 1 second (in the U.S.) or 200 ms (in Germany).

### C.2.3.3 Message Elements Sent to the Voice-Mail System

This section describes the message elements that make up the DTMF inband packet of information:

- Type of Call (TOC)
- Calling party
- Called party
- Info

#### Type of Call

- Mandatory element
- Fixed length: 4 DTMF characters
- Format: n = Code C from Table C-7

Table C-6 shows the types of call defined in the protocol.

Table C-6      Types of Call in Enhanced Voice-Mail Integration (VMIE)

| <b>C</b> | <b>Abbreviation</b> | <b>Type of Call (TOC)</b>                                                                                                                                                 |
|----------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | DIRECT_INT          | Voice mail directly accessed from internal subscriber (directly, in consultation, or after call transfer).                                                                |
| 2        | DIRECT_EXT          | Voice mail directly accessed from external device (also used when the attendant receives an external call and transfers it to voice mail using the speed extend feature). |
| 3        | DEV_ALL             | Call diversion all calls. The calling party is always deviated to voice mail                                                                                              |
| 4        | DEV_NA              | Call diversion on no answer. Voice mail is accessed after the calling party has at least one ringback situation                                                           |
| 5        | EXPRESS             | Expressbox (not for U.S.)                                                                                                                                                 |
| 6        | COMMON              | Sammelbox (not for U.S.)                                                                                                                                                  |
| 7        | DEV_BY              | Call deviated busy. Voice mail is accessed after the calling party was deviated because of call forwarding busy                                                           |
| 8        | RECALL_NA           | Voice mail is recalled because subscriber extended to does not answer.                                                                                                    |
| 9        | RECALL_BY           | Voice mail is recalled because subscriber extended to remains busy.                                                                                                       |

Table C-6      Types of Call in Enhanced Voice-Mail Integration (VMIE)

| <b>C</b> | <b>Abbreviation</b> | <b>Type of Call (TOC)</b>                                                                           |
|----------|---------------------|-----------------------------------------------------------------------------------------------------|
| 0        | DEV_NR              | Diversion not obtainable (intercept). Voice mail is accessed after a non existing number was dialed |

## Calling Party

Contains the source of the call.

- Internal: Internal station number. The fill character is used if the number is shorter than the fixed length.
- External: Fixed String followed by a string of X's up to the fixed length. (VMX\_SOURCE\_SIZE).

## Mandatory Elements

- Maximum length: VMX\_SOURCE\_SIZE (sub.h).
- Phase 1 USA: Not configurable
- Phase 2 USA: You can use Hicom Assistant E to define an analog voice-mail port with one of the following extension types:
  - PhoneMail (5-digit call number)
  - PhoneMail (6-digit call number)

This option allows calling party information 6 digits long to be sent to the voice-mail port.

## Number of Digits Analyzed by the PhoneMail system

PhoneMail can analyze up to 18 digits.

In a network environment with an open numbering plan, the length of calling party may be greater than VMX\_SOURCE\_SIZE. In this case, the calls are marked as external calls.

## Called Party

The following types of calls are reported by the inband DTMF information:

- DEV\_ALL:**      Call is forwarded to PhoneMail due to a call forward all state.
- DEV\_NA:**        Call is forwarded to PhoneMail due to a call forward-no answer state.
- DEV\_BY:**        Call is forwarded to PhoneMail due to a call forward busy state.
- RECALL\_NA:**    Call is returned to PhoneMail due to a recall no answer state.

**RECALL\_BY:** Call is returned to PhoneMail due to a recall busy state.

The last two entries assume that PhoneMail is set up in a port-monitor format for supervision of the transferred calls. In most cases the PhoneMail system should be set up to perform a blind transfer without supervision of the transferred calls.

Length is variable length up to VMX\_DESTINATION\_SIZE (sub.h).

### Info: Additional Information Elements

The VMIE format supports an optional field for additional calling party information.

- Fixed length: 2 DTMF characters
- Format: = Code C from [Table C-7](#)

[Table C-7](#) explains the codes found in the Info field.

Table C-7 Info Field

| C | Meaning                                        |
|---|------------------------------------------------|
| 1 | Calling Party is a normal internal subscriber. |
| 2 | Calling Party is an attendant.                 |
| 3 | Calling Party is an analog trunk.              |
| 4 | Calling Party is an ISDN trunk.                |

### C.2.3.4 Examples of VMIE Information

[Table C-8](#) shows examples of enhanced voice-mail integration information for typical calls.

Table C-8 Examples of VMIE Information

| Type of Call (TOC)                                                                           | Calling Party | Called Party | Info |
|----------------------------------------------------------------------------------------------|---------------|--------------|------|
| <b>Internal Call to Voice Mail: Extension 74 Calls Voice Mail</b>                            |               |              |      |
| ***1                                                                                         | ***74         | Empty        | *1   |
| <b>External Call to Voice Mail: External Party Calls Over Analog Trunk.</b>                  |               |              |      |
| ***2                                                                                         | 02222         | Empty        | *3   |
| <b>Internal CF—No Answer to Voice Mail: Extension 74 Calls Extension 13 (13 CFWD to VM).</b> |               |              |      |
| ***4                                                                                         | ***74         | 13           | *1   |
| <b>CF Always to VM: External Party Calls Extension 13 Over ISDN (13 CFWD Always to VM).</b>  |               |              |      |
| ***3                                                                                         | 02222         | 13           | *4   |



### **C.2.3.5 Incoming Traffic**

Incoming traffic is used to set or clear a message-waiting indication.

The Hicom 150 E is seized after the voice-mail system closes the loop and returns dial tone if digit reception is possible.

DTMF codes can be sent to Hicom 150 E to set or clear the message-waiting indication. The Message activate and deactivate codes are customer-dependent. The default code to activate the Mailbox LED is \*63 followed by the station call number. The deactivate code is #63 followed by the extension number. The extension number is suffixed to the activation or deactivation code by the voice-mail processor.

The call can be released at any time by opening the loop for nominally 1 second.

### **C.2.3.6 Notes**

- Access codes and extension numbers can be customized to meet the customer's dial-plan requirements.
- The IBMN port must be an analog port with a member number less than the voice-mail ports in the hunt group for proper operation.
- The number originally dialed or received from a DID-type call is designated as called party regardless of the number of call-forwarding steps or call-management destinations.

## **C.3 Configuring the Hicom 150 E for the Octel Overture 250/350, Octel Overture 200/300, and Audix INTUITY Systems**

### **Introduction**

You can configure the Hicom 150 E Communications Server for connection to the Lucent Octel® and Audix® INTUITY™ systems.

### **Requirements**

Free analog port (SLA16, SLA16N, SLA24N, or 8SLA board)

### **Procedure Overview**

The following sections describe this sequence in detail.

| <b>Step</b> | <b>Task</b>                                                                 |
|-------------|-----------------------------------------------------------------------------|
| 1.          | Configure the IBMN message-waiting control port.                            |
| 2.          | Configure the analog ports for Inband notification.                         |
| 3.          | Create a voice mail hunt group and add the voice-mail ports.                |
| 4.          | Configure mailbox and callback keys on the stations.                        |
| 5.          | Configure the call forwarding—no answer parameters for the system stations. |
| 6.          | Assign pseudo-numbers as required.                                          |

### **C.3.1 Configuring the IBMN Message-Waiting Control Port**

This port will be used to activate and deactivate the mailbox key on the optiset E telephone. You may need to modify the call numbers based on the system-specific dial plan.

#### **Default Numbering Plans**

- OfficePoint: 11 to 70
- OfficeCom and OfficePro: 100 to 700

#### **Programming Using Hicom Assistant E**

| <b>Step</b> | <b>Action</b>                                                                                               |
|-------------|-------------------------------------------------------------------------------------------------------------|
| 1.          | Options -> Setup stations -> Stations -> Call number                                                        |
| 2.          | Options > Setup stations > Parameters -> Type -> Extension Type -> PhoneMail (use a five-digit call number) |

### C.3.2 Configuring the Analog Ports for Inband Notification

The ports will communicate with the Octel system for voice mail and ECP (enhanced call processing) applications. You may add a name to the voice-mail ports for identification.

#### Programming Using Hicom Assistant E

| Step | Action                                                                                                        |
|------|---------------------------------------------------------------------------------------------------------------|
| 1.   | Options -> Setup stations -> Name                                                                             |
| 2.   | Options -> Setup stations -> Parameters -> Type -> Extension type -> PhoneMail (use a five-digit call number) |

### C.3.3 Creating a Voice-Mail Hunt Group to Include the Voice-Mail Ports

#### Programming Using Hicom Assistant E

| Step | Action                                                                                                                                                                                                    |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Options -> Incoming calls -> Hunt group -> Group<br>a) Define a display name for the group.<br>b) Select linear or cyclic as the group type.<br>c) Add the voice-mail ports to the voice-mail hunt group. |

If desired, you can define a pilot number or DID pilot number for the group.

### C.3.4 Configuring Mailbox and Callback Keys on the Stations

Configure one key on the phone as a Mailbox key and configure one key as a redial key. The target for the redial key should be the pilot number for the voice mail hunt group.

#### Programming Using Hicom Assistant E

| Step | Action                                       |
|------|----------------------------------------------|
| 1.   | Options -> Setup stations -> Key programming |

### C.3.5 Configuring the Call Forwarding—No Answer Parameters for the System Stations

To define a routing pattern for external day calls, external night calls, and internal calls, assign call destination tables to stations for each type of call and assign call-routing targets for the destination tables selected.

**Programming Using Hicom Assistant E**

| Step | Action                                                            |
|------|-------------------------------------------------------------------|
| 1.   | Options -> Incoming calls -> Assignment internal – external calls |
| 2.   | Options -> Incoming calls -> Call destination lists               |

**C.3.6 Assigning Pseudo-Numbers**

Pseudo-numbers may be used for soft DID numbers, DNIS numbers, and primary-rate DID numbers.

**Programming Using Hicom Assistant E**

| Step | Action                                                                             |
|------|------------------------------------------------------------------------------------|
| 1.   | Options -> Setup stations -> Stations -> Call number                               |
| 2.   | Options -> Setup stations -> Stations -> DID                                       |
| 3.   | Options -> Setup stations -> Stations -> Name                                      |
| 4.   | Options -> Setup stations -> Parameters -> Type > Extension type -> Answer machine |

Assign call-destination tables to pseudo-stations for external day, external night, and internal calls.

**Programming Using Hicom Assistant E**

| Step | Action                                                            |
|------|-------------------------------------------------------------------|
| 1.   | Options -> Incoming calls -> Assignment internal – external calls |

Assign call-route targets for the destination tables selected.

**Programming Using Hicom Assistant E**

| Step | Action                                                                                                                                                                   |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Options -> Incoming calls -> Call destination lists<br>(For pseudo-station-ports, make target 1 blank and make target 2 the pilot number for the voice-mail hunt group.) |

## C.4 Installing and Configuring the TraqNet 2002 Product

### Introduction

This section outlines the configuration steps for setting up the Hicom 150 E system to operate with the TraqNet™ 2002 security product.

### Hardware Requirements

This section identifies the hardware tested by the development team in Santa Clara. We suggest that the configuration follow the requirements listed.

- Hicom 150 E OfficePoint, OfficeCom, or OfficePro with IMOD Modem and TMGL4 or TMGL8 Module for loop-start (LS) analog CO access
- LeeMah DataCom TraqNet (T2002) with InfoKey™
- PC (Windows 95) for WinTraq™ (for T2002 programming)
- PC (Windows 95) for Hicom Assistant E
- Modem for remote access from the administration PC
- Two-wire dedicated loop-start trunk from the central office

### Software Requirements

- Hicom 150 E Software Load 125.002 or later.
- Hicom Assistant E Load 23F or later.
- WinTraq 3.1. (Confirm the current load with the manufacturer.)

### Reference Documentation

- TraqNet Operating Manual
- WinTraq Operation Manual
- Quick Installation Pocket Guide for T2002-SR

### C.4.1 Hardware Installation

| Step | Action                                                                             |
|------|------------------------------------------------------------------------------------|
| 1.   | Connect a port on the TMGL4 or TMGL8 Module to the modem port on the TraqNet unit. |
| 2.   | Connect the CO loop-start trunk to the line port of the TraqNet unit.              |

Figure C-1 shows a completed TraqNet connection.

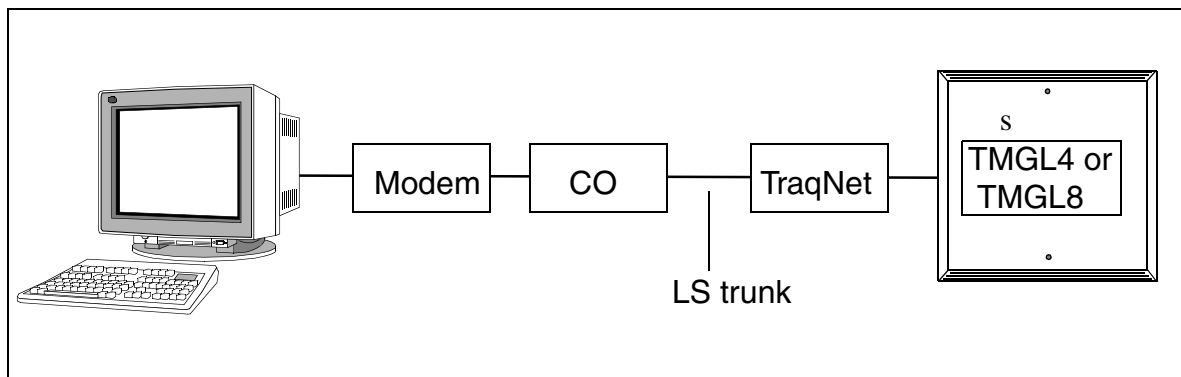


Figure C-1 Completed TraqNet Connection

## C.4.2 Configuration on the Hicom 150 E

### Procedure Overview

The following sections describe this sequence in detail using Hicom Assistant E. All parameters with the exception of selecting ground start or loop start can be done using Hicom Assistant T as well.

| Step | Task                                              |
|------|---------------------------------------------------|
| 1.   | Assign the central-office trunk to a trunk group. |
| 2.   | Assign parameters to the trunk.                   |

### Assigning the Central-Office Trunk to a Trunk Group

Place the trunk for TraqNet in a separate trunk group (from 1 to 16).

### Using Hicom Assistant E for Programming

| Step | Action                                             |
|------|----------------------------------------------------|
| 1.   | Options -> Lines and networking -> Trunks -> Route |

### Assigning Parameters to the Trunk

Assign a name (such as TraqNet) to the new route.

### Using Hicom Assistant E for Programming

| Step | Action                                                          |
|------|-----------------------------------------------------------------|
| 1.   | File -> Options -> Lines and networking -> Routes -> Route name |

Configure the trunk as a loop-start trunk and enable the DTMF DID flag. This will allow the trunk to answer the call and allocate a register to analyze the DTMF tones from TraqNet and the remote modem.

### Using Hicom Assistant E for Programming

| Step | Action                                                                       |
|------|------------------------------------------------------------------------------|
| 1.   | File -> Options -> Lines and networking -> Trunks -> Parameters -> MSI flags |

## C.4.3 Communication Setup Examples

This section describes the modes of operation that were tested with the TraqNet system and the Hicom 150 E Communications Server.

### Numbers Assigned

- Loop-start trunk telephone number: 771-0004
- TraqNet 2002 access code: 12345678
- Hicom 150 E IMOD modem number: 890

Commas in the dial string represent fixed timer pauses.

### Example: Embedded Access Code in Setup String

In this example the access code for the TraqNet is embedded in the dial string. The pauses may have to be adjusted depending on the answer time.

### Procedure

| Step | Action                                                                                                                                  |
|------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Assign pass-through access code in the WinTraq WIZARD directory (12345678).                                                             |
| 2.   | Enter the CO telephone number, the access code, and the Hicom 150 E modem number (7710004,,12345678,,890).                              |
| 3.   | Select the Read/Write KDS and the Hicom-->PC button and make sure that the modem call is in progress to read data from the Hicom 150 E. |

**Result**

The modem call is set up and the popup window for transferring data between the Hicom 150 E and the remote PC appears.

**Example: InfoKey Access**

This example uses an InfoKey access code.

**Procedure**

| Step | Action                                                                                                                                     |
|------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Assign an InfoKey access code in the WinTraq WIZARD directory.                                                                             |
| 2.   | Enter the CO telephone number and the modem number (such as 7710004,,,,,,,,,890) from the remote PC using Hicom Assistant E (at 771-0006). |
| 3.   | Select Read/Write KDS and the Hicom-->PC button and make sure that the modem call is in progress to read data from the Hicom 150 E.        |

**Result**

The modem call is set up and the popup window for transferring data between the Hicom 150 E and the remote PC appears.

**Example: Pass Through Access Code**

This example assigns a pass-through access code in the TraqNet system.

**Procedure**

| Step | Action                                                                                                                                                   |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Assign a pass-through access code in the WinTraq WIZARD directory.                                                                                       |
| 2.   | Enter the CO telephone number, access code, and modem number (such as 4960622,,,12345678,,890) from the remote PC using Hicom Assistant E (at 496-0649). |
| 3.   | Select Read/Write KDS and the Hicom-->PC button and make sure that the modem call is in progress to read data from the Hicom 150 E.                      |

**Result**

The modem call is set up and the popup window for transferring data between the Hicom 150 E and the remote PC appears.



#### **C.4.4 Disconnect or Power Off During Modem Call**

During a remote administration session, the TraqNet device resets and is available for a new call if the connection is lost due to any of the following:

- Timeout
- Public network disconnect
- Modem power off
- Completion of the session

#### **C.4.5 Using an External Telephone to Place the Call for the Modem**

You can connect a 2500-type analog telephone to an external modem to perform the dial-up setup from the PC with Hicom Assistant E to the Hicom 150 E.



## Abbreviations

|        |                                                    |
|--------|----------------------------------------------------|
| AC     | alternating current                                |
| ACL-H2 | application connectivity link, Hicom 200           |
| ALUM   | Power failure transfer                             |
| AMHOST | Administration and Maintenance via HOST            |
| ANI    | Automatic Number Identification                    |
| AO     | acoustic option                                    |
| AP     | Exposed                                            |
| APS    | Application processor software                     |
| ATEA   | Ateliers de Téléphone et Electricité, Anvers       |
| BC     | basic cabinet (Hicom 150 E-M)                      |
| BFSK   | Binary frequency shift keying                      |
| BSG    | Upright battery housing                            |
| CAS    | Channel-associated signaling                       |
| CBMOD  | Central Board Modular                              |
| CBPC   | Central Board Point/Com                            |
| CDB    | customer database                                  |
| CGM    | clock generator module                             |
| CGMC   | Clock generator module combined                    |
| CGUM   | Clock Generator Upside-Down Module                 |
| CONBO  | connection board                                   |
| CR     | Code receiver                                      |
| CSTA   | Computer-Supported Telecommunications Applications |
| CUC    | Connection Unit Com                                |
| CUP    | Connection Unit Point                              |
| DAI    | dailing aid interface                              |
| DC     | direct current                                     |
| DSP    | Digital signal processor                           |

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| EC         | expansion cabinet (Hicom 150 E-M)                                  |
| EC1        | First expansion cabinet in a three-cabinet system (Hicom 150 E-M)  |
| EC2        | Second expansion cabinet in a three-cabinet system (Hicom 150 E-M) |
| ECBPE      | External Power Supply Circuit Breaker Panel for cordless E         |
| ECG        | Euro-ISDN–CAS Gateway                                              |
| ECMA       | European Computer Manufacture Association                          |
| ENB        | electronic notebook                                                |
| EPSU       | External Power Supply Unit                                         |
| ESD        | Electrostatically Sensitive Devices                                |
| ESM        | Electronic Service Manual                                          |
| ETS        | European Telecommunication Standard                                |
| ETSI       | European Telecommunications Standards Institute                    |
| FMC        | Flash memory card                                                  |
| GCM        | Call Charge Computer/Manager (CCM)                                 |
| GDS        | call data record                                                   |
| GEE        | Call metering receiving equipment                                  |
| HS         | handset                                                            |
| IMOD       | integrated modem card                                              |
| ISDN       | Integrated Services Digital Network                                |
| LAN Bridge | Local Area Network connection                                      |
| LED        | light-emitting diode                                               |
| LM         | feature                                                            |
| MDF-C      | Main Distribution Frame Compact                                    |
| MFC-R2     | Multifrequency Code Signaling System R2                            |
| MIB        | Management Information Base                                        |
| MOH        | Music on Hold                                                      |
| MSN        | multiple subscriber number                                         |
| MULAP      | multiple line appearance                                           |
| NT         | Network Termination                                                |

|       |                                                       |
|-------|-------------------------------------------------------|
| OPAL  | options adapter long                                  |
| PA    | phone adapter                                         |
| PCM   | pulse code modulation                                 |
| PFI   | Power Failure Signal                                  |
| PFT   | power failure transfer                                |
| PMP   | Point-to-multipoint connection                        |
| PP    | Point-to-point connection                             |
| PSE   | Radio paging equipment                                |
| PSUC  | power supply unit OfficeCom                           |
| PSUF  | power supply unit OfficePoint                         |
| PSUI  | power supply unit individual                          |
| REAL  | relay failure transfer                                |
| SBS   | Single Board System                                   |
| SELV  | Safety Extra-Low Voltage circuit                      |
| SLA   | Subscriber Line Module Analog                         |
| SLAS  | Subscriber Line Module Analog Single Slic             |
| SLC   | Subscriber Line Module Cordless                       |
| SLMO  | subscriber line module cost optimized UP0/E           |
| SLU   | subscriber line UP0/E                                 |
| SMR   | Service Maintenance Release                           |
| SNMP  | Simple Network Management Protocol                    |
| SP    | surge protector                                       |
| STLS  | subscriber trunk line S0                              |
| STMD  | Subscriber and Trunk Module Digital S0                |
| TA    | terminal adapter                                      |
| TCP   | Transmission Control Protocol                         |
| TIEL  | tie line ear & mouth                                  |
| TLA   | Trunk Line Analog                                     |
| TMAMF | Trunk Module Analog for Multifrequency Code Signaling |

|       |                                                   |
|-------|---------------------------------------------------|
| TMGL4 | Central Office Trunk Module                       |
| TMGL8 | Trunk Module Ground Start/Loop Start              |
| TML8W | trunk module loop start world                     |
| TMOM  | Trunk Module Outgoing Multipurpose                |
| TMS2  | Trunk Module S2M                                  |
| TMST1 | Trunk Module S1/T1                                |
| TS2   | Trunk Module S2M                                  |
| TW    | twin-wire                                         |
| UAE   | Universal wall socket                             |
| UCD   | Uniform Call Distribution                         |
| UP    | Concealed                                         |
| UPSM  | Uninterruptible Power Supply Modular Reset-Signal |
| UPSM  | Uninterruptible power supply modular              |
| USBS  | User to User Signaling Bearer Service             |
| USVC  | uninterruptible power supply OfficeCom            |
| USVF  | uninterruptible power supply OfficePoint          |
| USVI  | Uninterrupted power supply individual             |
| VMIE  | Voice Mail Interface Enhanced protocol            |

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