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DATEL 600 SERVICE

Modem 20: Installation and Testing

1 **GENERAL** This instruction details the installation and testing procedure for the Modem 20. Modem 20 is the operational name for one type of modem used for the Datel 600 Service. It is an alternative item to the Datel Modem No. 1 (see I1631, 1632, 1633).

2 **DESCRIPTION OF MODEM** The modem unit is available in three models:-

TABLE 1

	1/TG 2391 (Model 3)	1/TG 2392 (Model 4)	1 or 2/TG 2393 (Model 5)
Send	1200/600 bit/s	75 bit/s	1200/600 bit/s
Receive	75 bit/s	1200/600 bit/s	1200/600 bit/s

The modem unit is accommodated in either a Case 1/TG 2398 for free standing applications, or a Shelf 1 or 2/TG 2458, housing two units, for rack-mounted situations. The dimensions of the case are:- 250 mm wide, 150 mm high, and 410 mm deep. For further information on rack-mounting, see I8423, I8424.

3 **AUTHORITY** Given by an Advice Note, quoting the Datel Service Code.

4 **DATEL SERVICE CODES** See I1620.

5 **EQUIPMENT REQUIRED** For the equipment required for each Service Code, see I1625 except where control installations are involved. For control installations, see I8401 initially.

6 **INITIAL SETTING UP** Preliminary setting up and testing of the modem should normally be carried out on Post Office premises unless it is judged that the installation is large enough to warrant these tests being carried out on the customer's premises.

When testing the modem unit, it should preferably be set up with its own Case 1/TG 2398, or Shelf 1 or 2/TG 2458.

*7 **MODEM INTERNAL CONNECTIONS** Check that the straps in Table 2 necessary to bring all Modems 20 into service, are fitted by the manufacturer.

TABLE 2

75 Bit/s Transmitter	75 Bit/s Receiver	600/1200 Bit/s Receiver	600/1200 Bit/s Transmitter
Board 11426	Board 11432	Board 11429	Board 11423
39-40 41-42	12-13 14-15	6-7 10-11 14-15 8-9 12-13 18-19	43-44 52-53 57-58 50-51 55-56

Provide additional straps, depending on the particular Datel Service Code, as indicated in Table 3. Before strapping remove the retaining bar.

TABLE 3
MODEM STRAPPING

STRAP LOCATION (BOARD NUMBER)	DATTEL SERVICE CODE	STRAP	FACILITY	REMARKS
11438 (Control Circuit Board 1)	6../R/...	16-17	Connect Data Set to Line.	Controlled by DTE
	6../S/...	17-18	Connect Data Set to Line.	Controlled from Telephone.
	6../T/...	1-2	Data Terminal Ready	When the modem is used with a DCE 1 or 2, strap as for 6../R/..., not 6../T/....
	6../U/...	16-17	Connect Data Set to Line.	Controlled by DTE with automatic answer controlled from telephone.
	6.1/./... 6.2/./... 6.3/./... 6.5/./...	14-15 20-21	Request to Send	Controlled from Data Set Ready. When the modem is used with a DCE 1, strap 19-20 and not 14-15, 20-21.
	6.4/./... 6.6/./...	19-20	Request to Send	Controlled by DTE
	6.4/./..1 6.6/./..1	No Strap	Demodulator inhibit in	Main and standby
	6.4/./..2 6.6/./..2	3-4	Demodulator inhibit out	Permanently pro- vided on 1/TG 2391 and 1/TG 2392
	6.4/./..3 6.6/./..3	4-5	Demodulator inhibit in	Standby only
	6.1/./... 6.2/./... 6.3/./... 6.5/./...	No Strap	Remote Test Inverter out	

TABLE 3 (CONTD)

STRAP LOCATION (BOARD NUMBER)	DATEL SERVICE CODE	STRAP	FACILITY	REMARKS
11438 (Control Circuit Board 1)	6.4/./...	23-24	Remote Test Inverter in	Exchange lines and 2-wire private circuits.
	6.6/./... (NOTE 1)	No Strap	Remote Test Inverter out	4-wire private circuits without 2-wire access.
		22-23	Remote Test Inverter in. Standby only	4-wire private circuits with exchange line access.
	6.././...	No Strap	Carrier fail level -48 dBm	2-wire private circuits and exchange lines.
		8-9	Carrier fail level -48 dBm on standby, -38 dBm on 4-wire private circuits.	All 4-wire pre- sented private circuits. (NOTE 2).
	6.././...	6-7	4-wire relay logic.	All 4-wire pre- sented private circuits with or without exchange line access.
	6.4/./... 6.6/./... (NOTE 5)	10-11	Echo Clamp Delay 22 ms	2-wire private circuits and exchange lines only.
		No Strap	No Echo Clamp Delay	All 4-wire private circuits with or without exchange line access.
11435 (Control Circuit Board 2)	6.4/./... 6.6/./... (NOTE 6)	90-91	Echo Clamp Delay 22 ms.	As above for Echo Clamp Delay. Strap 90-91 not provided on 1/TG 2393.
		No Strap	No Echo Clamp Delay.	
	6.././1..	3-4	Clamp to BIN 1	Clamping of Received Data by OFF condition on Data Channel Received Line Signal Detector.
	6.././3..	No Strap	NO CLAMP	

TABLE 3 (CONTD)

STRAP LOCATION (BOARD NUMBER)	DATTEL SERVICE CODE	STRAP	FACILITY	REMARKS
11423 (600/1200 Bit/s) TRANSMITTER)	6.1/./1. 6.3/./1. 6.4/./1. 6.5/./1. 6.6/./1.	33-34	22-38 ms	Ready for sending delay (NOTE 3)
	6.1/./2. 6.3/./2. 6.4/./2. 6.5/./2. 6.6/./2.	32-33	206-269 ms	
11429 (600/1200 Bit/s RECEIVER)	6.2/./... 6.3/./... 6.4/./... 6.5/./... 6.6/./...	16-17	Equaliser out	NB: Equaliser is not usually fitted.

NOTE 1 When a modem on a 4-wire presented private circuit has PSTN access via an external 4-wire/2-wire hybrid transformer, eg Access Panel DT33, insert strap 23-24 and not 22-23.

NOTE 2 When Modems 20 are used in conjunction with Modems 1 in a mixed installation with patching facilities, set the carrier fail level at -48 dBm, ie, No Strap, and insert a 10 dB attenuator on the line side of the patching point.

NOTE 3 The second digit of the Terminal Configuration Code is either 1 or 2, not 3 or 4 as printed on the strapping chart on the Modem Unit 1/TG 2393.

NOTE 4 Replace the retaining bar after strapping.

NOTE 5 Modem Units 1/TG 2393 should be strapped for no echo clamp delay, ie No Strap, as for a 4-wire private circuit.

NOTE 6 The strapping chart on the Modem Unit 2/TG 2393 should state that straps 89-90, 90-91 for echo clamp delay are on board 11435, not 11438 as stated on serial Nos. 0001 to 1600. Also, serial Nos. 0001 to 2200 should be modified in accordance with Works Specification TG 23039.

8 HANDLING Datel Service modems should be handled carefully at all times. Cartons from new units should be preserved for re-use if the units are to be transported again. When units are being transported, they should have suitable packing protection.

When Modems 20 are unpacked, the protective film should be removed from the front of the Case 1/TG 2398. Remove the two nuts retaining the Post Office label on the lid, and remove the label. Peel off the protective film and replace the label and retaining nuts.

9 PRELIMINARY MODEM TESTING The following test equipment will be required:-

Attenuator No. 70A

Datel Tester No. 1

Tester, Line-Earth-Loop-Impedance, see A2 E1006 (only required if preliminary test programme below is carried out at the customer's premises).

Measuring Set No. 44C

Meter, Multirange, No. 12A.