SIGNALLING SYSTEM WB 600 AND WB 601

Siren Point Installation

1 GENERAL This Instruction describes the items required and the work involved in the installation of a Receiver, Carrier WB No. 600A and a Receiver, Carrier WB No. 601A at the siren point and the associated work to be done at the exchange.

Authority for the work to be done will be given by the GM (Sales Division) by the issue of an Advice Note. The procedure is given in C4 C4001.

2 If the receiver is to be installed in premises occupied by a Carrier System WB 400 subscriber, the carrier frequency feed from the exchange to the Receiver, Carrier WB No. 400A will be used to feed the siren point receiver as shown on Dgm WBW 28514. If, however, there is no carrier frequency feed to the premises and a telephone line is available to the premises, the carrier frequency is fed over this line to a filter-unit inserted in the line and connected to the receiver as shown on Dgm WBW 28514.

The receiver may have to be fitted in a building or in a street siren pillar which has no telephone line. To supply a carrier frequency feed in this case a private wire must be provided from the receiver to an interception point which may be at a nearby cabinet, pillar, DP, or intermediate pole. At the interception point a filter-unit is inserted in a pair connecting a telephone subscriber to the exchange and the private wire is connected to the line side (towards the exchange) of the filter-unit as shown on Dgm WBW 28514. The telephone subscriber must not be informed that his line is used and the line should be chosen with permanency in mind. Only in rare cases and then only where official lines are used should a filter-unit be fitted in a telephone subscriber's premises.

DESCRIPTION OF ITEMS

3 RECEIVER, CARRIER WB NO. 600A (DGM WB 28502) The receiver, used on the Signalling System WB 600, is contained in a moulded plastic cover which is secured to a metal chassis by four screws. The plastic cover is sealed to the chassis by a neoprene gasket. Inside, there are thermostatically controlled heater elements and a desiccator. The chassis is hinged to a metal base which has three fixing holes to facilitate mounting to a back plate or board. Two cable entry holes and two connexion strips are provided in the base for a.c. mains and transmission feed connexions.

The receiver is secured, in the closed position, to the base by eight trapped screws. All tests are made with the receiver hinged in the open position and it will not be necessary to remove the plastic cover from the chassis during installation. If maintenance work necessitates the removal of the plastic cover this must be done in a dry place. To remove the receiver from the siren point for this purpose disconnect the a.c. mains supply by removing the appropriate fuses and unscrew the eight screws securing the receiver chassis to the base plate. The receiver may then be swung open and the internal wiring to the connexion strips SCA and SCB disconnected (Dgm WB 28502). The receiver may then be lifted off its hinges.

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The receiver operates from a 200-250V a.c. mains supply without the need to alter voltage tappings on the mains transformer.

4 RECEIVER, CARRIER WB NO. 601A (DGM WB 28502) The receiver, used on the Signalling System WB 601 for flood warning purposes, is a Receiver, Carrier WB No. 600A modified to Works Specification WB 681. Briefly, the modifications are as follows:-

(a) the galvanometer relay (for the G signal) is changed from one having a period time of 0.80 seconds to one having a period time of 0.23 seconds.

(b) the release times of the B and H relays are increased.

(c) the SCB connexion strip is replaced by a larger item to accommodate more wires per terminal.

(d) the method of fixing the perspex window covering the test lamp has been modified to allow access to the lamp without removing the receiver's plastic cover. The annular plate carrying the perspex window may be detached from the plastic cover by removing its three fixing screws.

A label "FLOOD WARNING" is attached to the outside of the front cover of the Receiver, Carrier WB No. 601A.

5 FILTER-UNITS Several types of filter-unit were introduced specifically for the Carrier System WB 400. With the introduction of other local line carrier systems the later versions of these filter-units were given different titles without any physical modification. These titles are shown in parenthesis in the following sub-paragraphs, the two items being completely interchangeable.

* 5.1 Filter-Unit WB No. 600A The purpose of this filter-unit is to separate audio and carrier frequencies. The filter-unit is encapsulated in epoxy resin and is designed to be used in a cabinet or pillar (see E9 E2080).

5.2 Filter-Unit WB No. 400B (Filter-Unit WB No. 3A) This filter-unit consists of a Filter-unit WB No. 600A mounted in a plastic case and is suitable for use in a subscriber's premises.

* 5.3 Filter-Unit WB No. 401B (Filter-Unit WB No. 4A) This filter-unit is required in addition to two Filter-units WB No. 400b (Filter-units WB No. 3A) at a PBX where the siren receiver is fed over an exchange line and an extension. Its function is to allow the carrier frequency to by-pass the PBX without causing crosstalk between the exchange line and the extension. This arrangement of filter-units, shown schematically in E9 E2080 para 6, may be used to by-pass a line-connector.

5.4 Filter-Unit WB No. 601A This filter-unit, superseded by a Filter-unit WB No. 601B, is designed to be pole-mounted where interception on an overhead route is necessary. The filter-unit and its mounting is described in E9 E2080.

5.5 Filter-Unit WB No. 601B This filter-unit is designed for pole or wall mounting where interception on an overhead or external above ground wiring is necessary. The filter-unit components are enclosed in a Block Terminal No. 13 and the connexions are clearly labelled.

INSTALLATION

*6 **STORES REQUIRED** The stores which may be required for an installation are given in Table 1.

TABLE 1

Item	Code No.	Stores Control	Relevant Paragraphs
Receive, Carrier WB No. 600A	400097	E	3
Receive, Carrier WB No. 601A		E	4
Filter-unit WB No. 400B	383304	E	5.2
Filter-unit WB No. 600A	383305	E	5.1
Filter-unit WB No. 401B	372454	E	5.3
Filter-unit WB No. 601B		E	5.5
Block Terminal No. 20/2	430250	-	-

(see also E9 E2080) E control - THQ/SvD/Sv5.2.1

7 **EXCHANGE JUMPERING AND STRAPPING** This information is contained in E9 E2080 under the headings of MDF connexions for double-path and single path exchanges. Where the receiver is to be installed in premises occupied by a Carrier System WB 400 subscriber no jumpering will be needed at the exchange but if the Distribution-unit WB No. 400A outlet is strapped for a low-level feed it may have to be made a high-level feed. This will be necessary only if there is difficulty in adjusting the SET CARRIER potentiometer on the siren receiver to get -46 dB (see par 9).

Where no carrier frequency feed exists it will be necessary to provide jumpering as shown on Dgm 28150 and to provide either a low-level or a high-level feed by strapping on a Distribution-unit WB No. 400A. This strapping is fully described in E9 E2080 and shown on Dgm WB 28153. The choice of low-level or high-level depends on the attenuation of the carrier frequency between the exchange and the siren point. If this distance exceeds about a mile, a high-level feed will be required.

8 **SIREN POINT** Before commencing any installation work remove the siren motor fuses to prevent accidental operation of the siren. Where the siren is used for fire call-out purposes the local police and the fire stations should be informed and arrangements made for an emergency operation of the siren at the request of the fire authority.

8.1 Position of Receiver, Carrier WB No. 600A The receiver should be mounted close to the existing control equipment at the siren point. In all cases it must be mounted with its back plate in the vertical plane with the hinge on the left hand side and the test lamp facing forwards.

8.2 Position of Receiver, Carrier WB No. 601A The receiver should be mounted close to the existing Receiver, Carrier WB No. 600A, preferably above or below it. If mounted alongside sufficient space should be left between the receivers to allow the one on the right to be opened.

8.3 Wiring The provision of the transmission wiring to receivers is the responsibility of the PO. The provision of mains wiring to receivers is the responsibility of the Commissioner for Police, Chief Constable or their contractors. The connexions for a Receiver, Carrier WB No. 600A are shown on Dgm WBW 28514 and where a Receiver, Carrier WB No. 601A is fitted, on Dgm WBW 28748 which should be read in conjunction with Dgm WBW 28514. As the receivers are connected in parellel it may be more convenient to make the initial mains connections to the Receiver, Carrier WB No. 601A as it has a larger connexion strip SCB.

Where mains wiring is in conduit the conduit must not come into contact with the receiver chassis which is earthed separately via the transmission earth on connexion strip SCA.

After external wiring connexions have been made, the cable entry holes should be sealed with Mixture No. 2.

9 SETTING-UP Ensure that all mains fuses have been inserted except the siren motor fuses and switch the receiver on. The mains pilot lamp should light and a Meter Multirange No. 3 or similar instrument should measure 24V ± 0.5V when connected across the 24V sockets on the rear of the receiver.

Connect a Tester WB No. 400A switched to the 140-OHM THRO position across the TMS sockets on the rear of the receiver and adjust the SET CARRIER potentiometer to give a reading of -46 dB on the tester.

Where this setting-up procedure is being applied to a Receiver, Carrier WB No. 601A the carrier frequency power level at the TMS sockets of the companion Receiver, Carrier WB No. 600A should be checked and its SET CARRIER potentiometer adjusted if necessary to give a reading of -46 dB on the Tester WB No. 400A. The carrier frequency power level at the TMS sockets of the Receiver, Carrier WB No. 601A should then be checked and readjusted if necessary.

10 TESTING

10.1 Receiver Carrier WB No. 600A Frequent test signals may be transmitted from the CCP by plugging a Tester WB No. 601A into the siren control-unit on the Operating-unit WB No. 401A. This will cause a test signal to be sent automatically every three minutes (see E9 E2093). Each test signal consists of 12 pulses of 1500 Hz (0.4 seconds on, 0.4 seconds off) followed 28 seconds later by four periods of 2160 Hz tone (4 seconds on, 4 seconds off), the whole signal lasting 66 seconds.

The 1500 Hz tone is known as the "G signal" and the 2160 Hz tone as the "S signal". During the transmission of a test signal, which can be heard on a Receiver, Watch No. 8T plugged into the MON TELE jack the following tests should be made:-

(a) just prior to the G signal pulses, operate and release the test key KT on the receiver chassis to the TEST G position to cause the test lamp to light. Approximately 6 seconds after the start of the G tones, the test lamp should darken.

(b) coincident with the start of the first period of the S tone the test lamp should light. Operate the test key KT to the TEST s position during the following silent period of 4 seconds and note that at the start of the second period of the S tone, the test lamp darkens and relay SA in the receiver operates to close the siren contactor. During this second period of the S tone, release the test key and note that the siren contactor operates to the remaining two periods of the S tone.

If the siren contactor is remote from the receiver a suitable voltmeter set to measure 250V a.c. and connected across SCB 2 and SCB 4 may be used to indicate the operation of relay SA. The small voltage measured across SCB 2 and SCB 4 is due to a spark quench circuit and should be ignored.

(c) secure the receiver in the closed position with the eight trapped screws and observe that a further test signal causes the test lamp to light. At the end of the test signal press the plastic window covering the lamp to extinguish it.

10.2 **Receiver, Carrier WB No. 601A** Test signals may be transmitted from the Flood Warning Control Point (FWCP) on request. Each test signal consists of approximately 60 pulses of 1500 Hz tone (0.115 seconds on, 0.115 seconds off) lasting 15 seconds, a silent period of 65 seconds, followed by 2160 Hz tone for about 1 second, a silent period of 15 seconds and finally about 4 seconds of 2160 Hz tone. The 1500 Hz tone is known as the "G signal" and the 2160 Hz tone as the "S signal". During the transmission of a test signal, which can be heard on a Receiver, Watch No. 8T plugged into the MON TELE jack, the following tests should be made:-

(a) just prior to the G signal pulses, operate and release the test key KT on the receiver chassis to the TEST G position to cause the test lamp to light. Approximately 5 seconds after the start of the G tones, the test lamp should darken.

(b) coincident with the start of the first period of the S tone the test lamp should light. Operate the test key KT to the TEST S position during the following silent period. Note that at the start of the last period of the S tone, the test lamp darkens and relay SA in the receiver operates to close the siren contactor. Immediately release the test key and the siren contactor should remain operated until the end of the period of S tone.

If the siren contactor is remote from the receiver a suitable voltmeter set to measure 250V a.c. and connected across the SCB 2 and SCB 4 may be used to indicate the operation of relay SA. The small voltage measured across SCB 2 and SCB 4 is due to a spark quench circuit and should be ignored.

(c) secure the receiver in the closed position with the eight trapped screws and observe that a further test signal causes the lamp to light. At the end of the test signal press the plastic window covering the test lamp to extinguish it.

10.3 The transmission of test signals from a FWCP or a CCP will cause the test lamps of all working receivers on each system to light. It is essential that when a test has been completed or at the end of a working day a G signal is sent from the FWCP or CCP to extinguish all test lamps. The procedure is as follows:-

(a) Signalling System WB 600 Remove the Tester WB No. 601A from the Operating-unit WB No. 401A. Operate first the STOP button and then the TEST button on the siren control unit. At the end of the transmission of the G tones operate the STOP button.

(b) Signalling System WB No. 601 Press the START button and at the end of the transmission of G tones, press the STOP button.

*11 **FAULTY ITEMS** Faulty filter-units should be scrapped locally and replaced. Faulty Receivers Carrier WB No. 600A should be returned to THQ/P&S4.3 Birmingham. Faulty Receivers Carrier WB No. 601A should be returned to THQ/TD6.5.1 Alperton. When replacing a faulty receiver remove the mains fuses, disconnect the internal wiring from the SCA and SCB connexion strip and lift the receiver from its hinges. The replacement receiver may then be put on the hinges and connected to the SCA and SCB connexion strips. The faulty receiver should be returned to the repair centre, attached to the base received on the replacement receiver, and packed in the Special Pack No. 1086, supplies by the repair centre.

12 **COMPLETION** On completion of the installation the mains power supply must be left connected to the receiver and if the siren fuses have been removed from the installation they must be replaced. The Commissioner for Police or Chief Constable for the carrier control area *must* be informed as soon as possible that installation has been completed and tested to PO satisfaction.

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