CARRIER SYSTEM (ABC ALARMS)-WB 1000-INSTALLATION

1 INDEX

2 GENERAL WB 1000 is a British Telecom provided carrier system for connecting customers premises to a central alarm system and is marketed as ABC Alarms.

This INSTRUCTION deals separately with

(a) the initial provision of the system (Paras 3-4)

(b) connexion of customers, either when the system is provided or when additional connexions are required to an existing system (Paras 5-7).

3 RESPONSIBILITIES

Fig 1 follows

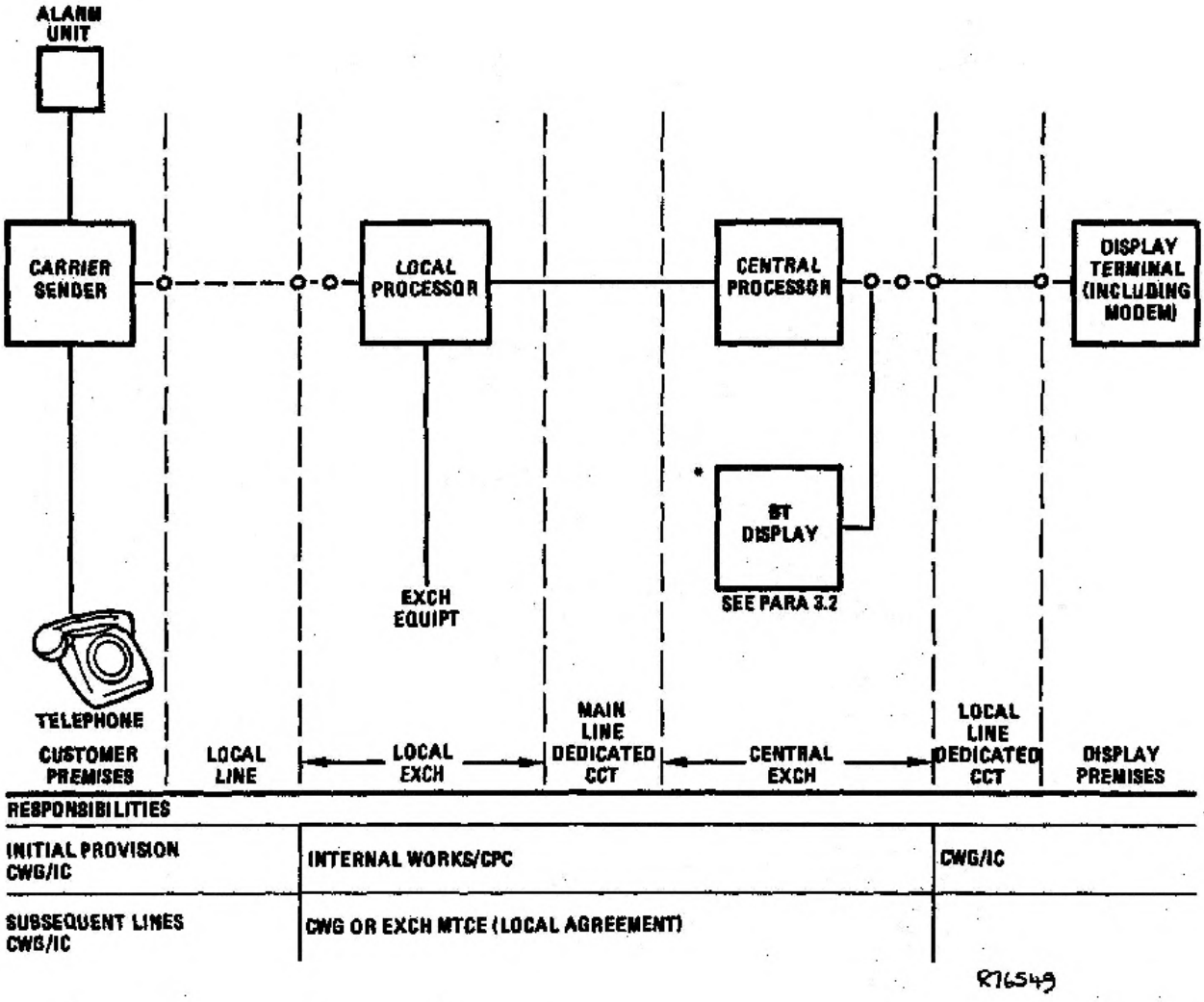


FIG 1

3.1 At the system provision stage, CWP and Internal Planning should jointly plan the system, and CWC/CWE and Internal Construction co-operate in the provision and testing of equipment to meet the agreed completion date.

3.2 The British Telecom (BT) display apparatus is located in the same exchange as the central processor, it will be planned and provided by Internal Works.

3.3 The line between the customer and the local exchange is provided with AN authority. Lines from the central exchange to the display points, and the lines to the BT display are public lines, and are provided on the authority of an A886.

4 PROVISION OF ALARM RECEIVE EQUIPMENT

4.1 The equipment in the display point premises should be planned and tested by CWG using Specification RC 7018.

5 CUSTOMER EQUIPMENT INSTALLATION AND TESTING

5.1 Customers Installation

5.1.1 Stores Required

TABLE 1

ITEMS	BASIC BT FIRE	BASIC BT POLICE	BASIC BT PRIVATE	BT MULT-ALARM
Unit WB 1000/53A	✓	✓	✓	-
Filter Unit 3B	✓	✓	✓	-
Battery Secondary No. 21	✓	✓	✓	✓
Case WB 1000	If required by fire regulations	-	✓	-
Unit WB 1000/37A	-	-	-	✓
Alarm Switch PC/P01	-	Number as required	-	-

5.1.2 **Specialist Tool Required** Alarm switch reset key for Unit 53A.

5.1.3 **Location of Carrier Units** These should not be fitted in very hot or damp situations. Carrier Unit 53A can be mounted either horizontally or vertically. To facilitate this the "Fire call point" can be turned through 90 degrees.

5.2 **Method of Fixing Unit 1000/53A** For this purpose three screw holes are provided in the back of the unit; access to these is gained by removing the four screws in the front panel. Care should be taken when removing this panel to avoid damaging the connexions to the alarm switch.

NOTE: Under no circumstances should the printed circuit board be removed from the case.

The battery may be put in the clip provided on the printed circuit board cover, but should NOT be connected until the installation is completed.

5.3 Cabling and Wiring (Unit 53A)

5.3.1 The Filter Unit 3B is mounted in a block terminal style case, connexions being made to it by means of screw terminals.

5.3.2 For wiring detail see Diagram Fig 2.1, 2.2 and 2.3.

NOTE: Check exchange line not in use before disconnecting line to insert filter unit. For self contained battery keyphone installation the battery charging circuit must be supplied from a Power Unit 53A. Where a Switch 2A is fitted for attachments, the carrier output must be connected to the exchange side.

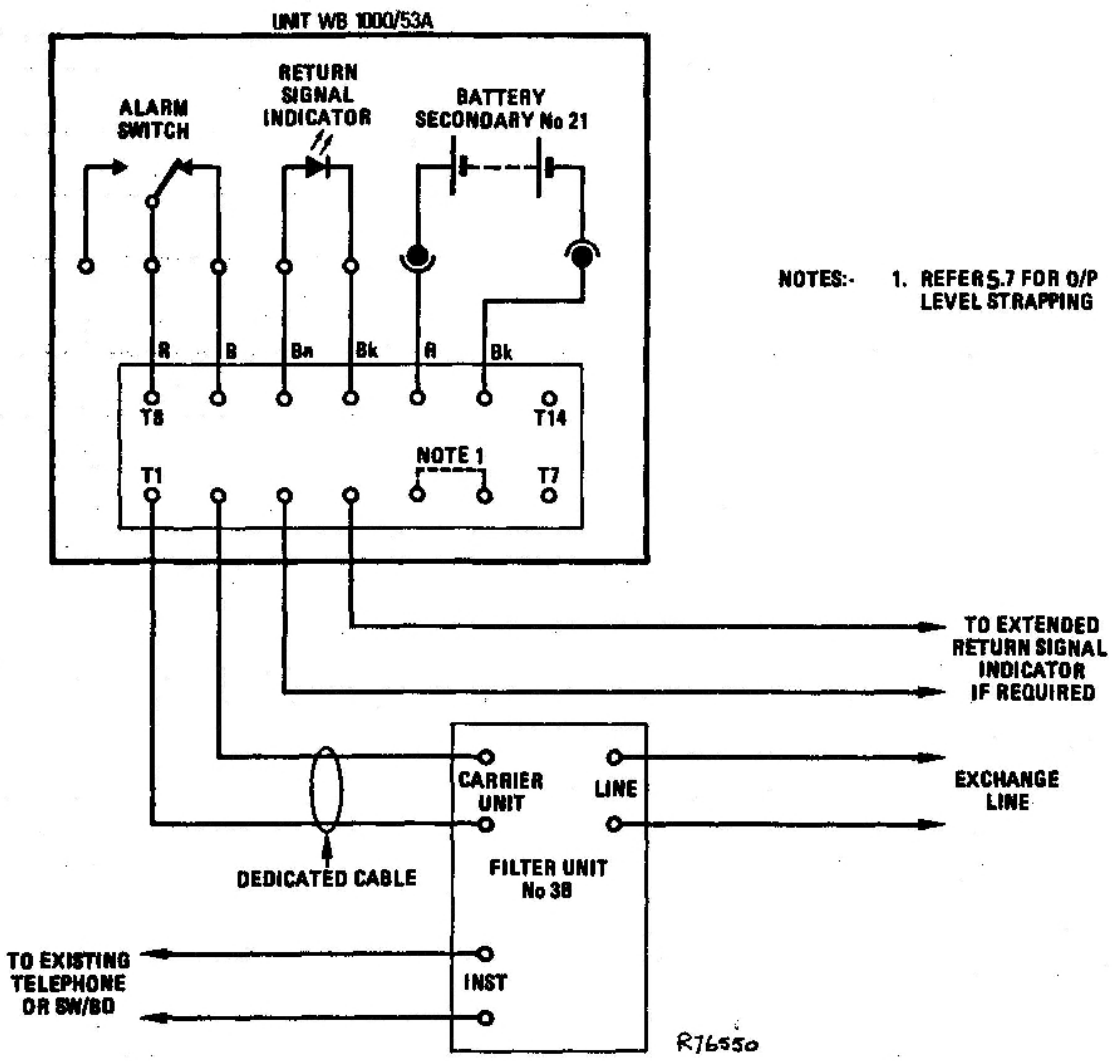


FIG 2.1 ABC FIRE SERVICE – BASIC BT ALARM

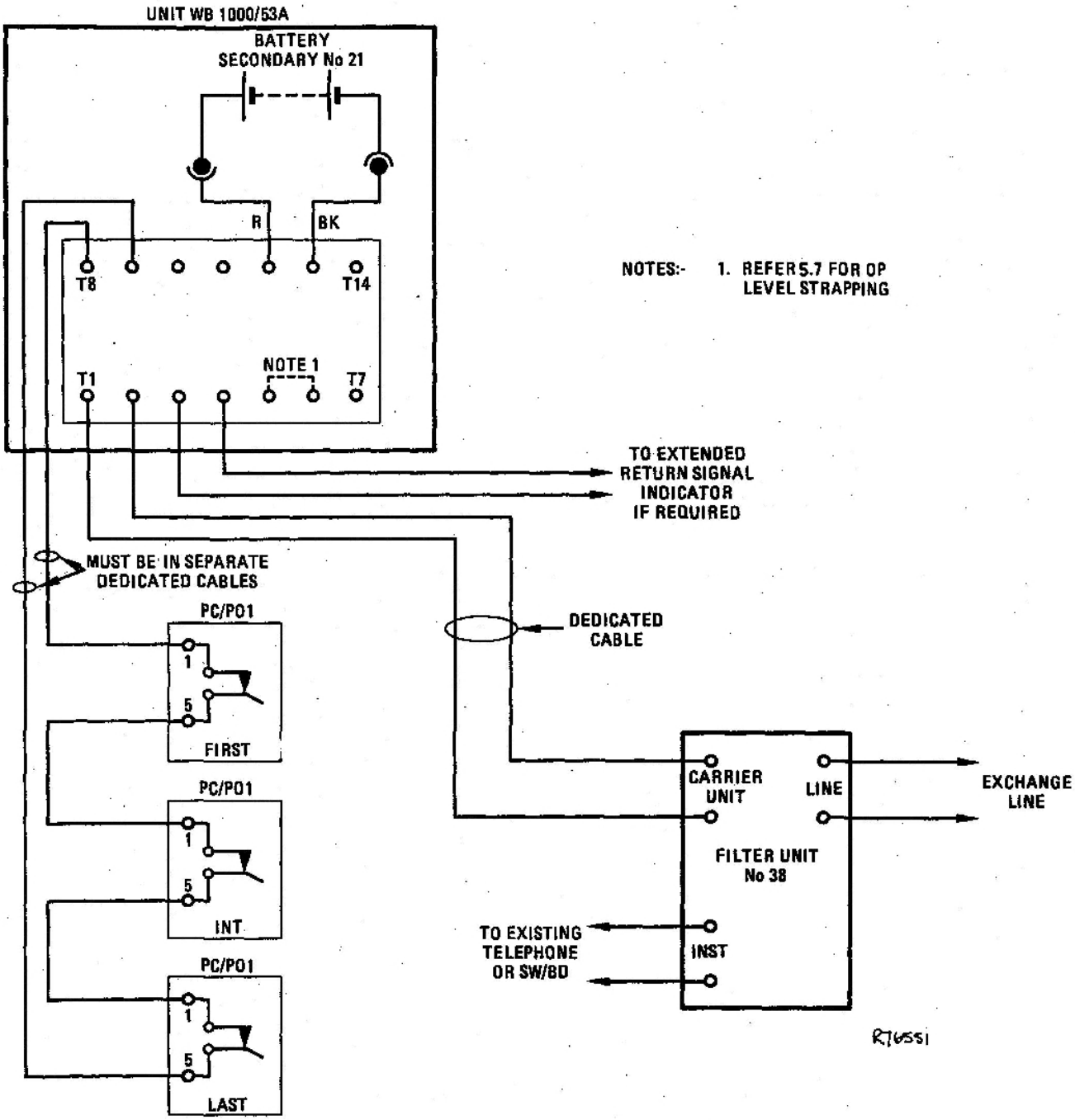


FIG 2.2 ABC POLICE SERVICE – BASIC BT ALARM

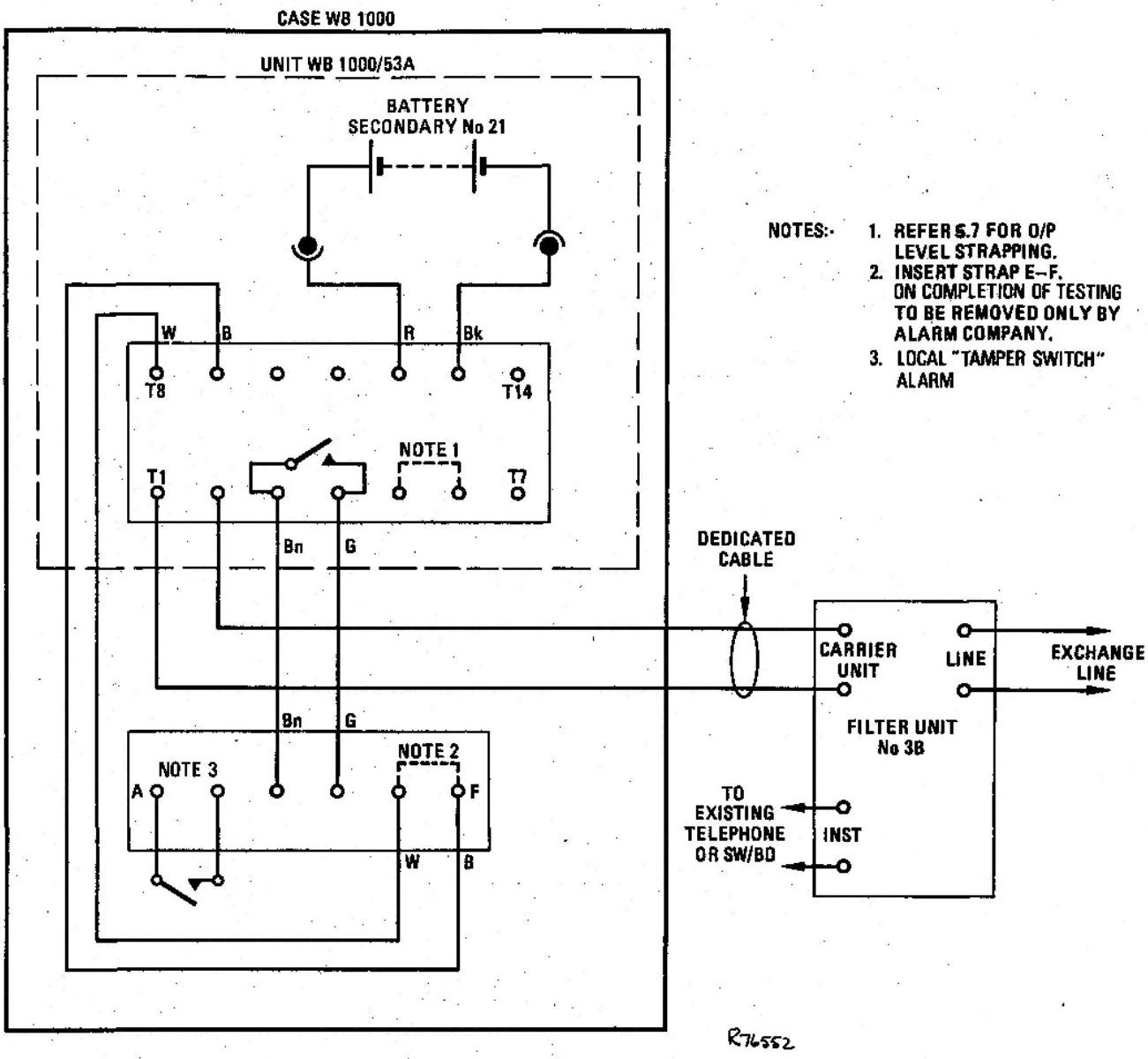


FIG 2.3 ABC POLICE SERVICE – BASIC PRIVATE ALARM

5.4 Testing Installations (Unit 53A) The following tests should be made to ensure correct functioning of the Carrier Unit.

5.5 Exchange Line Carry out a functional test of the exchange line from the telephone or PBX Switchboard. This proves connexion through filter unit.

5.6 Battery Charging Circuit In place of the battery connect a Meter Multi Range on the 25 volt d.c. range. A reading of approximately 11 volts should be obtained.

Lift and replace the telephone handset or momentarily short circuit the INST terminals on the filter unit. The reading on the meter should disappear and reappear between 1 min-5 mins later.

Reconnect the battery.

If any of the above tests fail the carrier unit should be changed.

NOTE: No attempt should be made to try and localise a fault on the Unit other than a visual check of the connections to the Unit terminals.

5.7 Setting Output Level of Carrier Unit 53A The object of this is to ensure the level of the signal received at the exchange is within the range of -25 to -45 dBs.

This is achieved by strapping arrangements between T5, T6 and T7 in the carrier unit.

The correct strapping is determined by measuring the signal level at the exchange with a LMS. For this measurement the line is assumed to have a characteristic impedance of 140 ohms.

Exchange staff co-operation is required for this setting up

5.8 Check Carrier Fail Disconnect battery on Carrier Unit, lift handset momentarily carrier fail should result at exchange.

5.9 Acknowledge Signal Operate the 'Alarm Call Point' to simulate an alarm condition and check that the green LED on the carrier unit flashes. The LED will continue to flash until the alarm is reset by inserting the reset key in the appropriate hole. This test can only be made on Fire Call Points. The others have no acknowledge LED fitted.

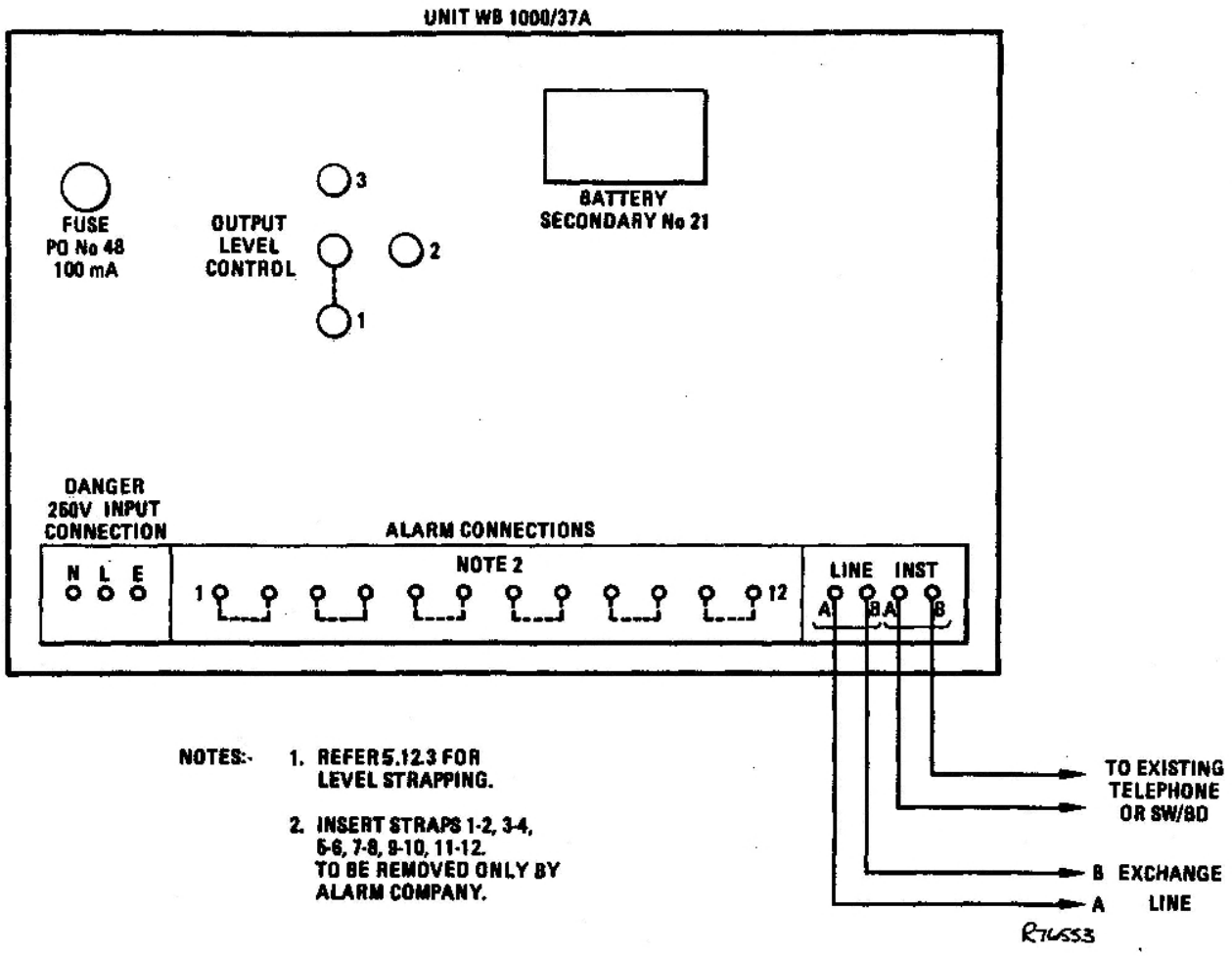
5.10 Method of Fixing Carrier Unit WB 1000/37A For this purpose three screw holes are provided in the base of the unit, access to these is gained by removing the four "Phillips" headed screws in the front cover.

5.11 Cabling and Wiring (Unit 37A) For wiring details see Fig 3.

5.12 Testing Installation (Unit 37A) The following test should be made to ensure correct functioning of the carrier unit.

5.12.1 Exchange line As paragraph 5.1.

Fig 3 follows



NOTES:-

1. REFER 5.12.3 FOR LEVEL STRAPPING.
2. INSERT STRAPS 1-2, 3-4, 5-6, 7-8, 9-10, 11-12. TO BE REMOVED ONLY BY ALARM COMPANY.

FIG 3 CARRIER UNIT FOR CUSTOMERS MULTI-ALARM SYSTEM

5.12.2 Battery Charging Circuit In place of the battery connect Meter Multi-Range on 25 V d.c. range. A reading of approximately 15 V should be obtained. The micro-switch in the top left-hand corner of the unit must be operated during this test by using the handle of a No. 1 screwdriver *NOT* a finger.

If a reading cannot be obtained change the unit.

5.12.3 Setting the Output Level of Carrier Unit 37A This is achieved by setting the level strap in the carrier unit.

6 DISPLAY TERMINAL INSTALLATION AND TESTING

6.1 Stores Required

Modem Case
Transmission equipment (plug-in units):-

Power Unit WB 1000/19A
FSK Receiver Unit WB 1000/15A
TDM Receiver Unit WB 1000/20A
FSK Transmitter Unit WB 1000/13A
TDM Transmitter Unit WB 1000/18A
Line Combiner Unit WB 1000/24A

Modem Printer Interface:-

Unit WB 1000/46A
Unit WB 1000/47A
Unit WB 1000/48A

Two Display Terminal Printers
Trolley for mounting terminal printers

6.2 Installation The modem is to be placed on the lowest shelf of the trolley and the printers on the other two shelves. The modem comes complete with cord for connexion to the dedicated line to the Central Processor via a block terminal.

The two printers are connected to the modem by means of a cord.

All equipment is mains powered and access is gained to a mains socket on each shelf of the trolley.

6.3 Modem Plug-in Units Insert plug-in units as shown:-

POWER UNIT	MODEM INTFCE	MODEM INTFCE	TDM RCVR	FSK RCVR	LINE COMB	FSK XMTR	TDM XMTR	MODEM INTFCE
19A	46A	47A	20A	15A	24A	13A	18A	48A

6.4 Testing Co-operation with the Central Processor is required for testing.

6.4.1 Modem Switch on mains power to the modem. The signal fail LEDs are extinguished on the FSK receivers (WB 1000/15A) at the CP and the modem.

6.4.2 Printer

(a) Switch on mains power to both printers confirm "Power On" lamps glow. Set both printers to "Manual Acknowledge".

(b) On each printer operate the "Display Test" button. All lamps on the Display terminal will glow while the visual display indicates each character in turn and the audible alarm sounds.

(c) When the Display terminal is operational, one printer works as the MAIN and the other as the STANDBY. To change a printer from MAIN to STANDBY mode, or vice versa, press "STANDBY" button on that printer. When the power is connected to the printers they may work (a) both in MAIN mode or (b) one in MAIN, one in STANDBY mode. They cannot both be in STANDBY mode.

(d) With both printers in the MAIN mode operate the "SYSTEM TEST" button. This generates an alarm in the LP contained within the CP. This alarm will be transmitted back to the display terminal. Do not acknowledge this message immediately. By waiting a few seconds we allow the system test clear signal to queue for display. This causes the "ALARM WAITING" lamp to glow and thus test this facility.

(e) The "ACKNOWLEDGE" button is pressed twice to print the alarm then the clear signals.

Check that the visual display and printout are correct at each stage.

Set the printers on "AUTOMATIC ACKNOWLEDGE" and repeat from (d). On existing systems the printers are left on "MANUAL ACKNOWLEDGE".

6.5 Transfer Each display terminal has the facility of transferring a message to any other display terminal on the same system.

This facility exists but is not used on existing systems but may be used eg by an Alarm Company who would filter genuine alarms from opening and closing alarms.

6.5.1 Transfer is effected by pressing one of the six transfer buttons on the front of the printer.

Each button is programmed to transfer a display to a particular display terminal. Programming is carried out inside each printer on a series of switch banks designated K1-K6 corresponding to transfer buttons 1-6. See Fig 4.

Each printer is given an identity code eg FB1, PF1 and this code is printed at the TRANSFERRING printer to show where the message has been sent. The three characters of the identity code are designated the X, Y and Z characters respectively.

By referring to Fig 4 and Table 2 we can see that the identity code on a particular transfer button is set up by the relevant twelve switches (X1-8, Y1-8 and Z1-8).

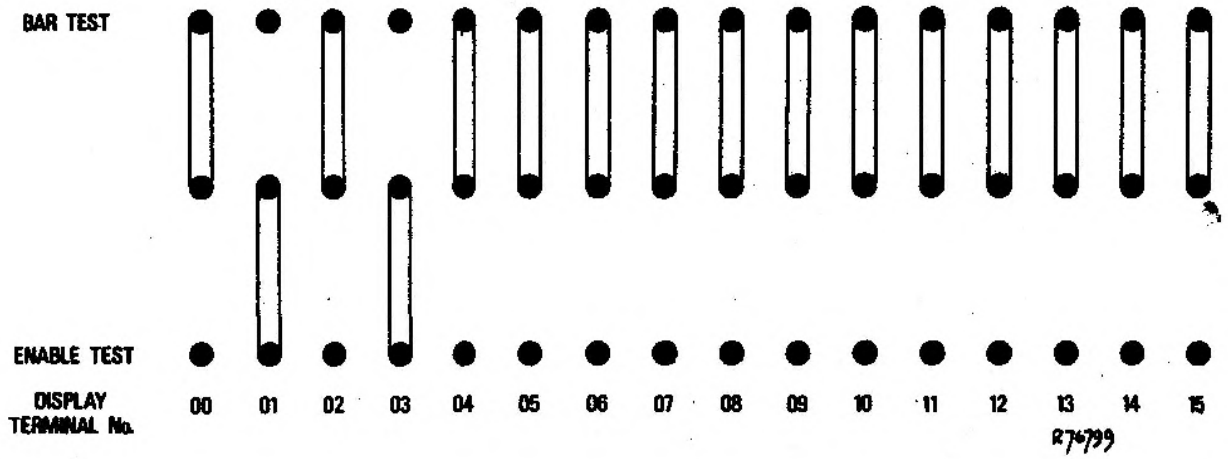
For example if transfer button 1 is to route to a printer with an identity code BA1, the four "X" switches are set to give 1100, the "Y" switches for 1000 and "Z" switches 1000.

6.5.2 The remaining five switches on each switch unit (T1, 2, 3, 4, 5) are set to give the binary address of the display terminal to which the message is transferred.

In this instance REVERSE BINARY is used, ie the order in which the binary digits are examined is with the least significant digit in the first position eg Decimal 5 is Binary 10100.

6.5.3 The last switch unit on the printed circuit board (K0) is used in the same way as previously mentioned to give the printer its own identity by setting the twelve X, Y and Z switches. The identity is printed on every message received from the CP.

6.5.4 Transfer Inhibiting Link The facility of transfer from an individual display terminal is normally inhibited by a handbag link on WB 1000/49A on Rack 3A of the CP. If transfer is to be provided from a display terminal the link is moved from the "BAR TEST" to the "ENABLE TEST" position. The links are related to the display terminals as shown below. Display terminals 1 and 3 have transfer facility.



6.5.5 To Test Transfer Facility:-

(i) At the CP move the inhibiting link for terminal under test into the "ENABLE" position.

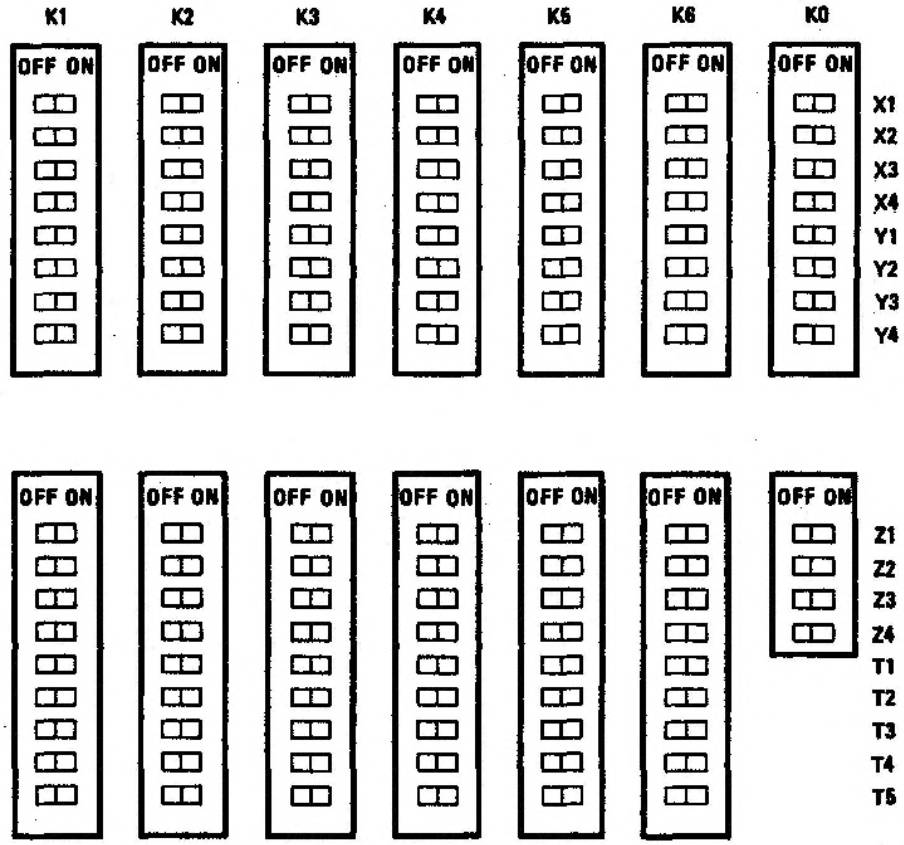


FIG. 4

SWITCH STATES				PRINT WHEEL CHARACTERS		
(*) 1	(*) 2	(*) 4	(*) 8	X–WHEEL	Y–WHEEL	Z–WHEEL
0	0	0	0	–	–	0
1	0	0	0	A	A	1
0	1	0	0	L	L	2
1	1	0	0	B	B	3
0	0	1	0	P	P	4
1	0	1	0	K	K	5
0	1	1	0	F	F	6
1	1	1	0	C	C	7
0	0	0	1	S	S	8
1	0	0	1	0	0	9

(*) SUBSTITUTE X, Y OR Z FOR CORRESPONDING PRINT WHEEL.
"0" REPRESENTS SWITCH DEPRESSED TO OFF.
"1" REPRESENTS SWITCH DEPRESSED TO ON.

R76782

TABLE 2

(ii) On both printers, at the display terminal, set up its own identity code (KO) and programme the transfer button 1 to the British Telecom Maintenance printer.

(iii) Set one printer in the standby mode and ensure the printer is set to manual acknowledge to prevent premature printout.

(iv) Simulate an alarm from the CP.

(v) When the alarm is displayed, transfer the message to the British Telecom terminal by pressing the transfer button 1.

(vi) Check at the printer under test, and the British Telecom (BT) terminal, that the correct printout is given. The printout at the BT terminal will show the identity of the printer which sent the message while the printer under test will show where the message has been sent.

(vii) Reverse the roles of the main and standby printers, and restore the alarm. When the clear signal is received transfer as above.

(viii) If the transfer facility is not required at the display terminal replace the handbag link in the "BAR TEST" position.

6.6 Internal Clock The clock contained in each printer is set by removing the front cover. On the right, at the front of the printer, there is a switch and a button. Momentarily operate the switch to "STEP" position, the button will now step the "minutes units" wheel. After second operation of the switch, the "minutes tens" wheel, third and fourth operations the "hours units" and "hours tens" respectively are stepped.

To start the clock the switch should be in the "RESET" position.

6.7 Running Log A running log which advances by one each time a line of information is printed. The numbers range is 00-99 and will reset at midnight to 00. On installation the running log can be set to whatever reading is required by operating the "RUNNING LOG ADVANCE" buttons, which are located beside those for advancing the clock.

6.8 Audible Alarm A variable potentiometer is provided on the switch panel to vary the level of the audible alarm.

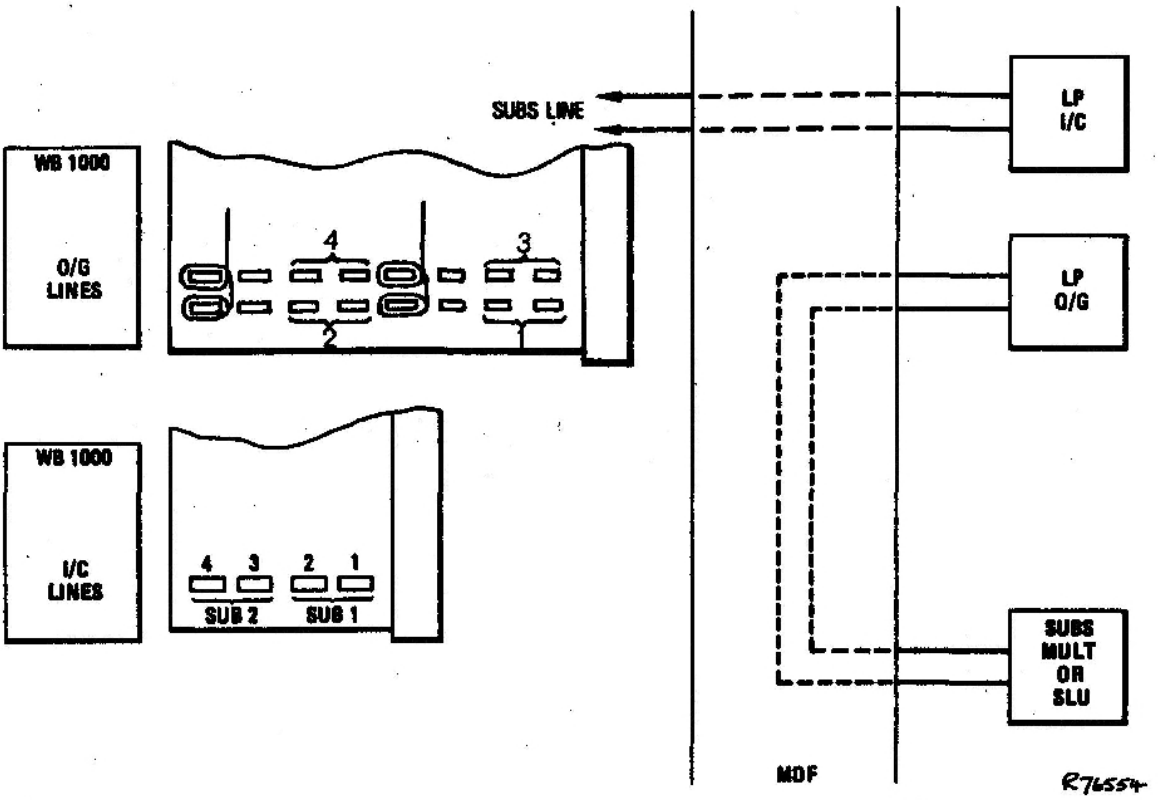
7 WORK IN LOCAL EXCHANGES

7.1 Jumpering in the exchange containing the local processor should be completed before work is started in the customer's premises. The exchange line will be jumpered through the local processor and out again to the calling equipment and therefore should be done as quickly as possible to minimise interruption to a customer's working line. See Fig 5.

7.2 High Grade Precautions must be observed. Reference TI C3 R2025. Fit dummy fuses No. 64 Red in Fuse mounting 8064.

Soldered wire connexions between 'LINE' and 'EXCHANGE' in red jumper wire for all other fuse mountings.

Special markings - "HGP ccts" marked Tape, Plastic Adhesive Red 6 mm as indicated in TI A6 D0811.



NOTES:-

1. RECOVER JUMPER BETWEEN CABLE PAIR AND SUBS MULTIPLE NUMBER OR SLU.
2. PROVIDE JUMPER BETWEEN CABLE PAIR AND ALLOCATED CIRCUIT ON "I/C LINES" STRIP CONNEXION.
3. PROVIDE JUMPER BETWEEN CORRESPONDING "O/G LINES" PAIR AND SUBS MULTIPLE NUMBER OR SLU.

FIG 5 JUMPERING ARRANGEMENT

7.3 In the public exchange the Technical Officer will need to extract a card (Unit WB 1000/1B) from the Local Processor and set up a series of seven switches, using the information on the AN (Red copy) and in Table 3, to give the correct calling condition and identification of the alarm from the subscriber through the appropriate authority.

IT IS ABSOLUTELY ESSENTIAL TO AVOID ALTERING ANY EXISTING CUSTOMER'S SWITCH POSITIONS OR INTERRUPTING ANY OF THEIR SERVICES. IT IS ALSO VITAL THAT AT THE END OF ANY WORK ON THE LOCAL PROCESSOR, THE SYSTEM IS CHECKED TO ENSURE THAT IT REMAINS SET UP AS IT WAS BEFORE WORK COMMENCED. NO CARD SHOULD BE REMOVED FOR LONGER THAN NECESSARY.

* Guidance will be available on site to show the actual condition previously set up on the various circuits, so that they may be re-checked before the equipment is finally closed. Fig 6 shows some examples of switch conditions as might be depicted on the card held on the Unit WB 1000/1B.

TABLE 3

SWITCH NO.	PURPOSE		POSITION
1	Basic or Multi-alarm		ON-Basic Alarm OFF-Multi-Alarm
2	Display terminal address	16	See local card for switch settings (Binary Form)
3		8	
4		4	
5		2	
6		1	
7	Fault indication		Normally ON

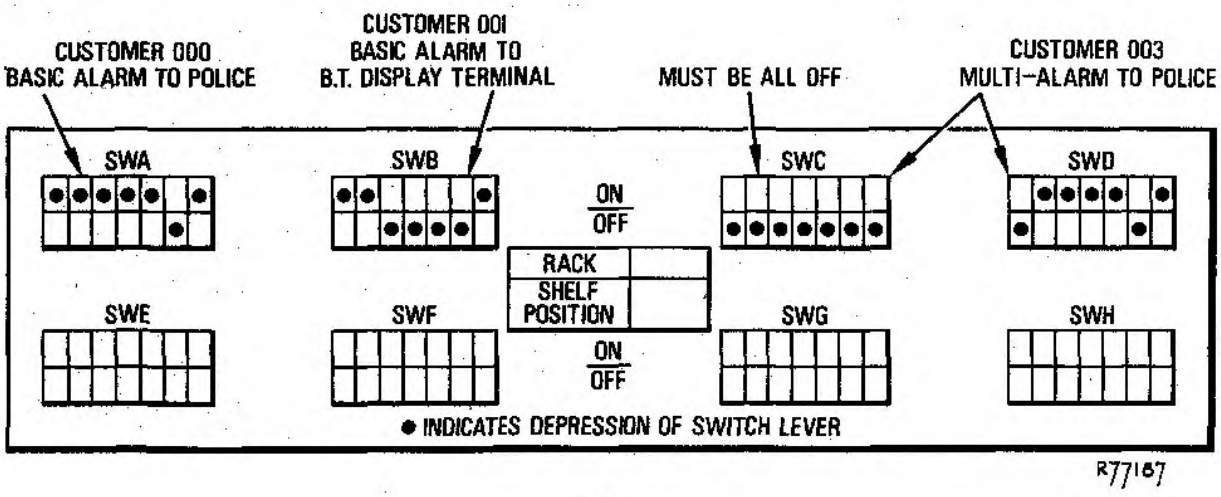


FIG.6

7.4 When the equipment has been fitted at the customer end and the power switched on a carrier frequency will be received at the local exchange. This can be intercepted at test links and measured either directly with a level measuring set, or patched to a special measuring meter within the Local Processor, so that the send level may be adjusted at the customer end by altering the strap in the unit. Paras 5.7 and 5.12.3 refer. The switches on the printed circuit board (WB 1000/1B) should first be set to allow calls to be extended to the British Telecom printer which normally report alarms, so that the correct operation of an

alarm may be checked. When this has been confirmed, the switches on the printed circuit board should be set to allow a call through from the customer's premises to the distant alarm authority. Before this test takes place the local authority should be consulted by telephone via central processor and advised that such a call will take place, and after it has done so they should be asked whether it appeared successful.

7.5 On completion of a successful alarm call the customer and the alarm receive authority should be advised that the circuit is now in working order, and in particular the customer must be clearly aware that it is now a working system.

8 **RECOVERIES** The WB 1000 jumper should be recovered, and the switch position on the Card reset to spare. Records should be amended. The customer equipment should not be recovered before the local processor card has been reset.

Appendix A follows

APPENDIX A

PROVISION OF ABC FOR THE ATTACHMENT OF A PROPRIETARY AUTOMATIC ALARM SYSTEM

1 GENERAL To give this service the normal ABC circuit is provided including the carrier sender as usual for the BT provided and maintained single circuits. In this case an additional metal box (Case WB 1000A) is provided to house the Carrier Sender (WB 1000/53A). The carrier sender is fitted into the case WB 1000A by 3 screws provided with the case. The case also contains a terminal strip to which is connected a "Tamper Alarm Switch" and 4 leads for connexion to the carrier sender. The alarm company will have access to the metal box and will connect their circuits to the terminal strip.

2 FITTING INSTRUCTIONS The metal case is fitted to the wall by 3 screws, the type and size depending on the type of wall to which it is to be fixed. A good sound fixing is essential as the Tamper Alarm is made to operate if the box is levered from the wall, a loose fitting could give a false alarm. The cable (4W) connecting the filter to the sender must be taken into the back of the box directly into the sender as normal, to terminals T1 and T2, and *not* through the gland at the bottom, this gland is for use only by the alarm company. The 2 leads from terminals "C" and "D" should be connected to the terminals 3 and 4 of the sender. The two leads from terminals "E" and "F" should be connected to terminals 8 and 9 of the sender. The terminals "A" and "B" are to be used by the alarm company if they want to bring the Tamper switch into their circuitry, in which case it will be a local alarm circuit not in the main alarm circuit. This enables the BT to access the case without setting off a main alarm, to the public authority. The BT should fit the circuit and fully test it before the alarm company attaches. With cct coded through to authority, a temporary strap between terminals "E" and "F" should be left in and will be removed by the alarm company when they connect. The AN can be closed at this stage.

Suppliers Information Note No. 21 gives the conditions of attachment.

PROVISION OF ABC SERVICE FOR A PROPRIETARY ALARM COMPANY NON AUTOMATIC service is similar to that described in paragraphs 1 and 2 except that the metal box (Case WB 1000A) is not fitted. The terminal strip inside the box is replaced by a BT Block Terminal No. 35A.

The connexions to the BT35A are as follows:-

Block Terminal 1 and 2	to the alarm company actuating alarm contacts.
Block Terminal 3 and 4	to the alarm company return signal indicator (if fitted).
Block Terminal 7 and 8	to be strapped to 1 and 2 and connected to terminals 8 and 9 in the sender unit.
Block Terminal 9 and 10	to be strapped to 3 and 4 and connected to terminals 3 and 4 in the sender unit.

The BT should be fitted, tested coded through to the authority concerned and connected to line before the alarm company attaches. A temporary strap should be provided between terminals 1 and 2 to avoid a permanent alarm condition. It will be removed by the alarm company when they connect their circuit. The AN should be closed.

* A "Code of Practice" document is being made available to Alarm Companies and BT staff (via supervising officers). This document should be used as an aid to ensure good working relationships between Alarm Company engineers and BT engineers.

THQ/ME/RCS2.6.1

E N D