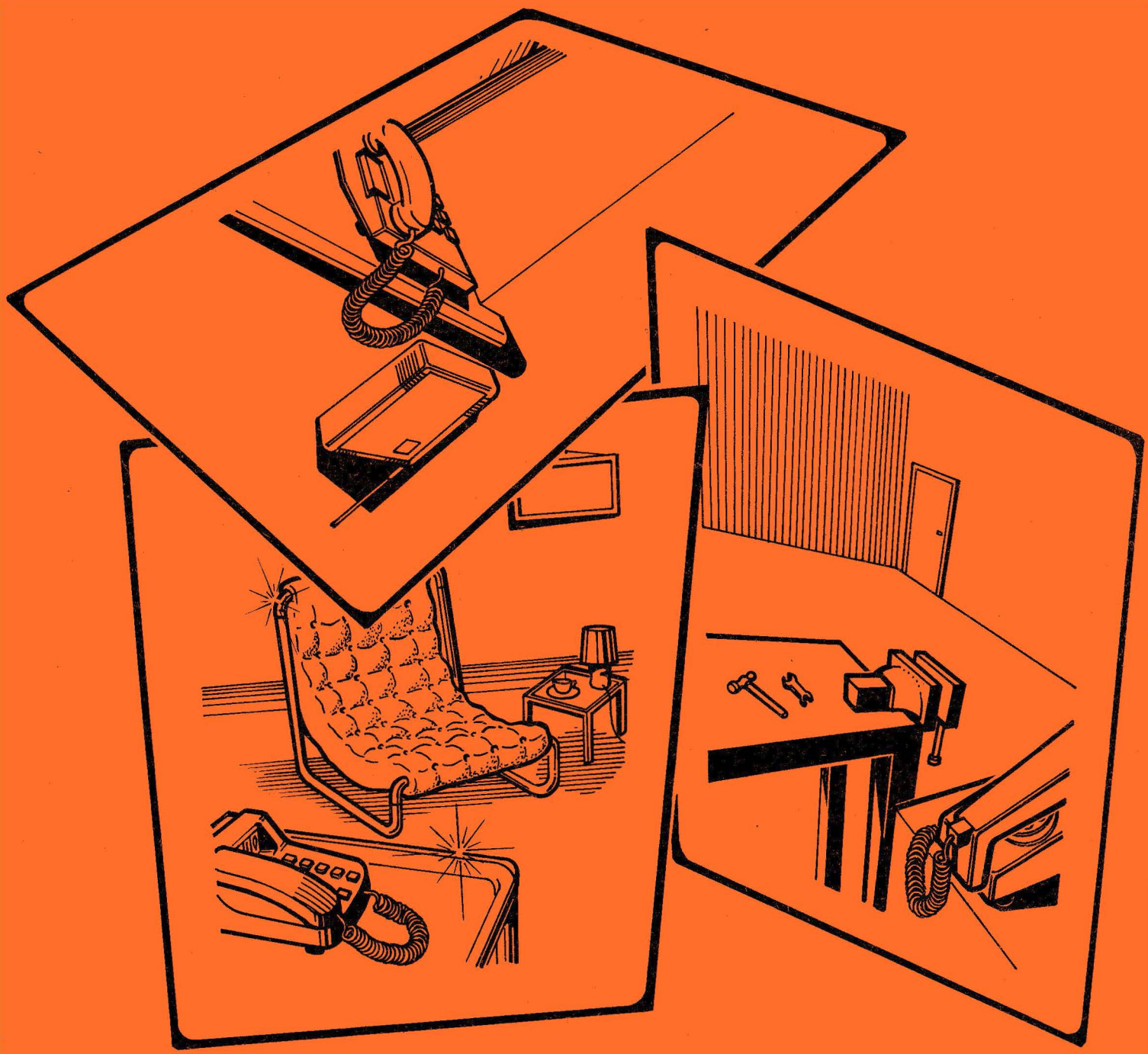
MINIMASTER 2



British TELECOM
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TRAINING & EDUCATION DIVISION

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MINIMASTER 2 (1 + 5)

These guide notes have been designed to assist Field Staff with the installation and maintenance of Minimaster 2. To gain maximum benefit from them they should be read completely, by both Installation and Maintenance staff.

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MINIMASTER 2

1. General

The "Minimaster 2" is a microprocessor controlled switching system with a capacity of 1 exchange line and up to five extensions. The extension instruments, which may be any standard telephone with loop disconnect signalling, (exceptions are currently Rhapsody and Statesman), are individually connected by two wire cables to the Central Control Unit (CCU) fig. 1. A separate extension bell may be connected at the CCU and positioned at a point where it is audible at all extensions.

The system is **not suitable** for use on PBXs where recall is required.

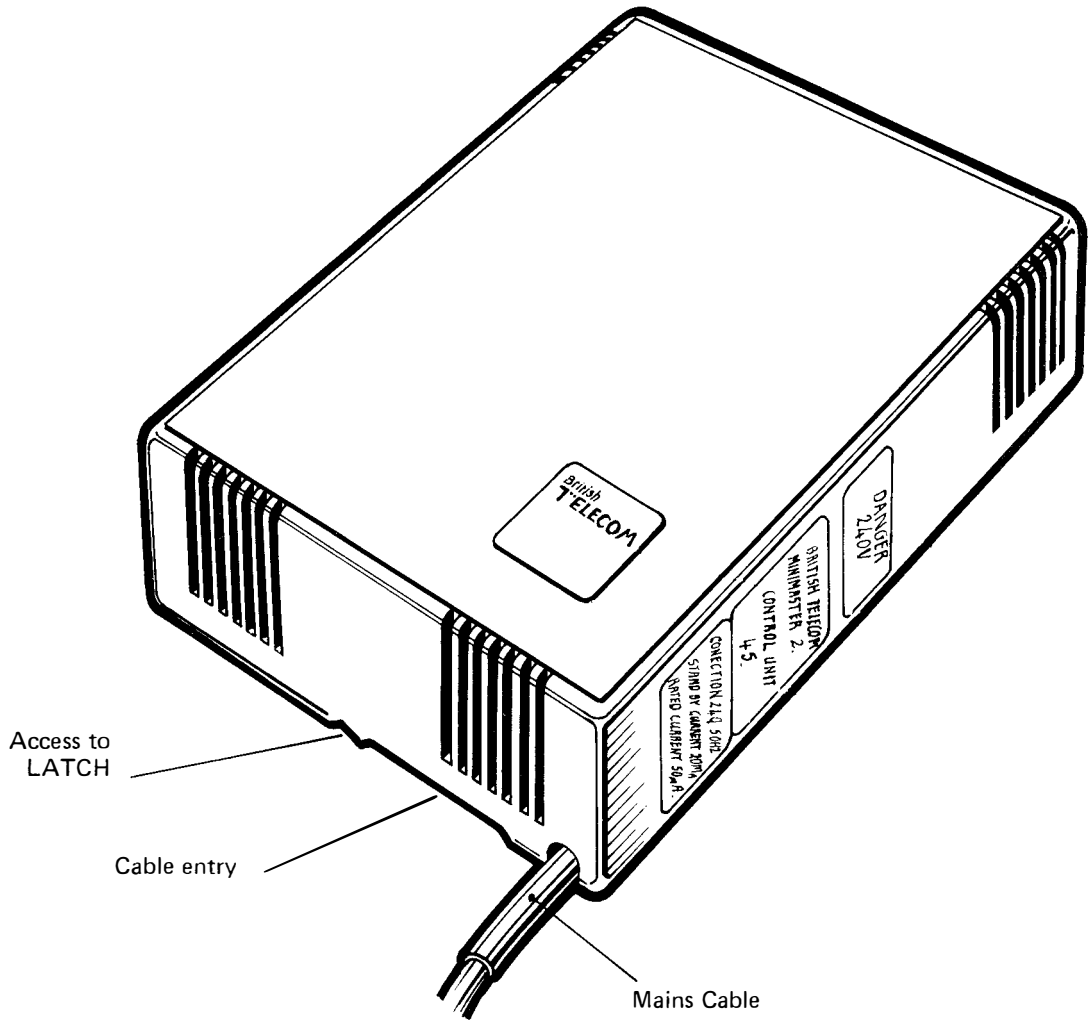

Fig. 1 **Central Control Unit**

2. Installation

The packaging for Minimaster 2 contains the following:-

i) The Central Control Unit which measures 226 mm by 164 mm by 81 mm deep.

ii) The Wall Mounting Plate and Cover. These are packed in a cardboard wrapper which should be opened carefully as it can be used as a template for fitting the wall mounting plate.

iii) A plastic envelope containing:-

a) three round-headed wood screws 4 mm x 30 mm (1'' No 8 Round Head)

b) three washers (for use with the wood screws)

c) three 6 mm plastic wall plugs

d) one spring clip

Fitting the Wall Mounting Plate

The wall mounting plate should be fixed to a suitable surface. It should be positioned to allow a clearance of at least 80 mm at each side, 100 mm above and 200 mm below the mounting plate from any obstruction. These clearances are necessary to ensure adequate ventilation of the CCU The mounting must also be within 3m of a 13 amp 3 pin power point.

Use the card wrapper for the wall mounting plate as a template to drill three 6 mm diameter holes, 30 mm deep in the positions indicated. Note there are two fixing holes at the top and one at the bottom of the mounting. If concealed cables are used the template should be positioned to allow the cables to enter the mounting plate through the apperture provided.

Remove the template and insert the plastic plugs into the fixing holes. Fit a washer to each of the wood screws and use these to fix the mounting plate to the wall.

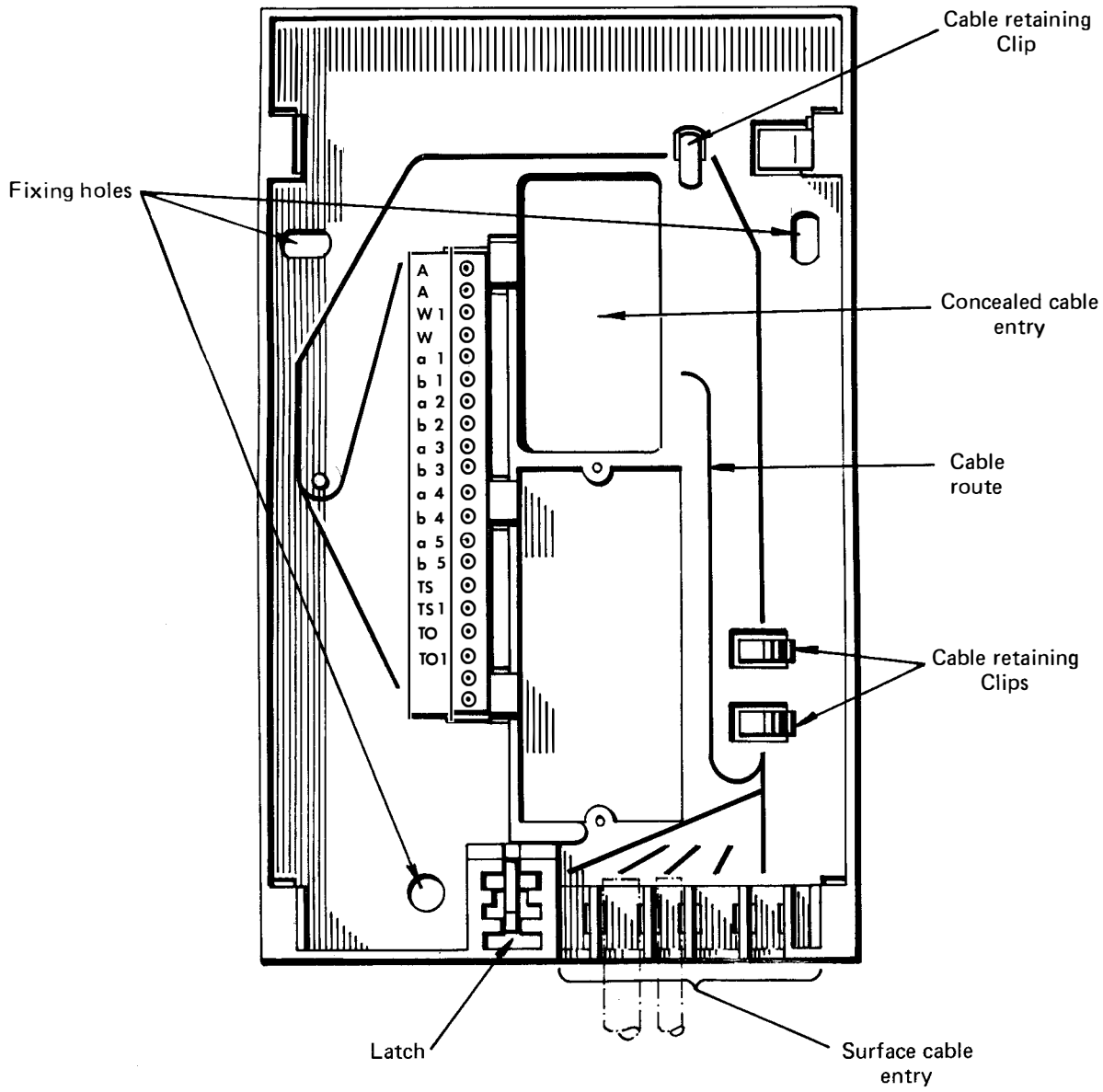

Fig. 2 **Wall Mounting Plate**

3. Cabling

The cables for the exchange line and extensions enter the mounting plate either through the slots along the lower edge, for surface cables or through the aperture in the centre of the mounting. The cables should follow the routes shown as moulded lines on the mounting plate and be held by the retaining hooks as shown in fig. 2.

The 20 point terminal block should be clipped to the wall mounting plate as shown in fig. 3 while the cables are terminated to the terminal block, as shown in fig. 4.

At the extension cables must be terminated on master Line Jack Units, e.g. LJU 2/1A.

The maximum loop resistance, extension to CCU is 60Ω, this corresponds to approximately 375 m of 0.5 mm diameter conductor cable.

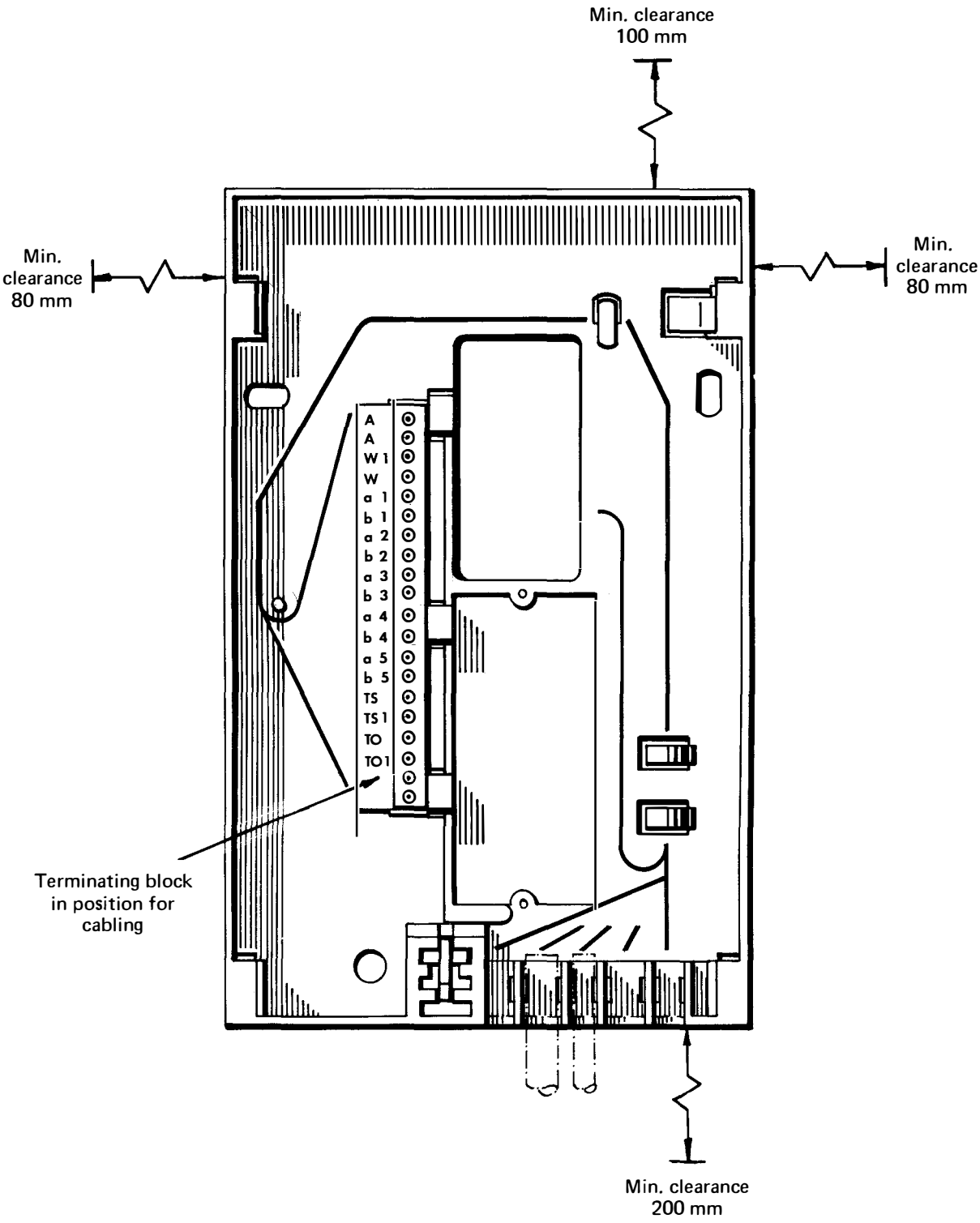

Fig. 3 **Rear Mounting Plate With Terminal Block in Position For Cabling**

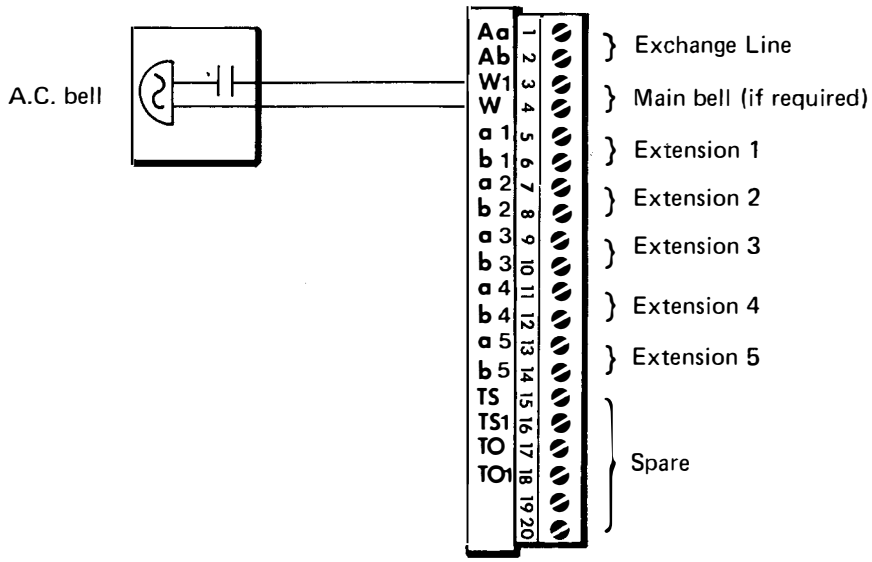

Fig. 4 **Terminal Block Connexions**

Connecting the CCU

Before connecting and mounting the CCU check that the three coding switches on the rear of the CCU are in positions shown if fig. 5 to ensure the correct operation of extension 5.

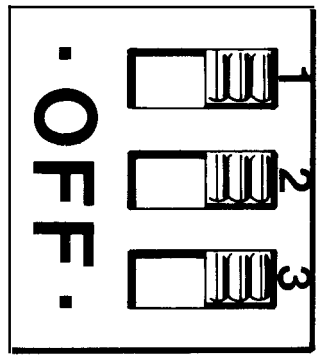

Fig. 5 **Coding Switch Positions**

When the wires have been terminated on the 20 point terminal block the block may be removed from its temporary position on the mounting plate and connected to the CCU. The CCU should be hung on the side lugs of the wall mounting plate as shown in fig. 6. The terminal block should be removed from its temporary position on the wall mounting plate and connected to the CCU, where it is pressed onto the contact pins on the rear of the CCU see fig. 6. The terminal block must now be secured in place using the U-shaped spring clip provided.

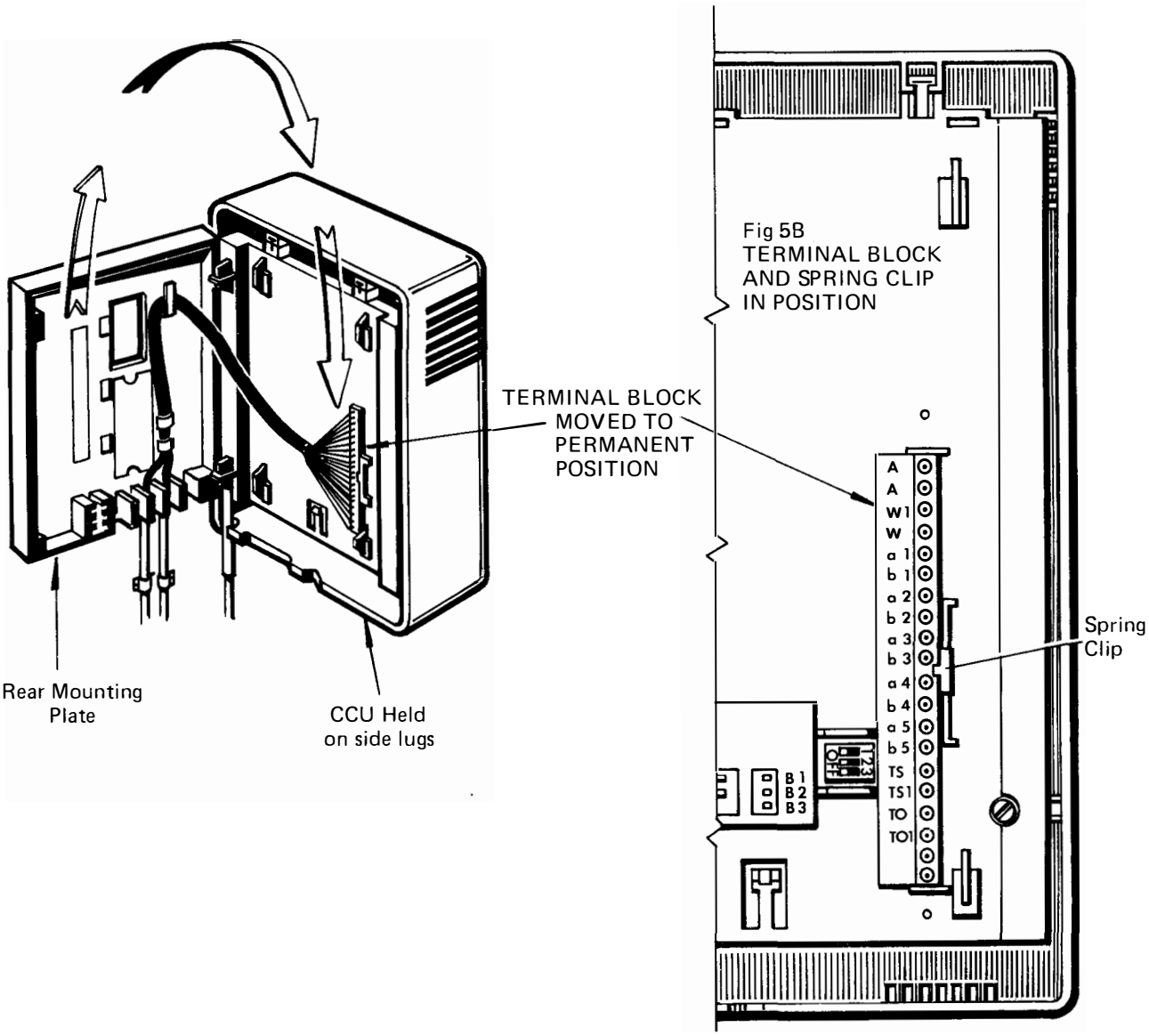

Fig. 6 **Connecting the Terminal Block**

The CCU may now be permanently secured to the wall mounting.

i) Lift the CCU off the side lugs of the wall mounting.

i) Offer the CCU to the wall mounting, making sure that the large lugs used with the side mounting are outisde the wall mounting plate.

iii) Lower the CCU on the wall mounting until it is locked in position.

See fig. 7.

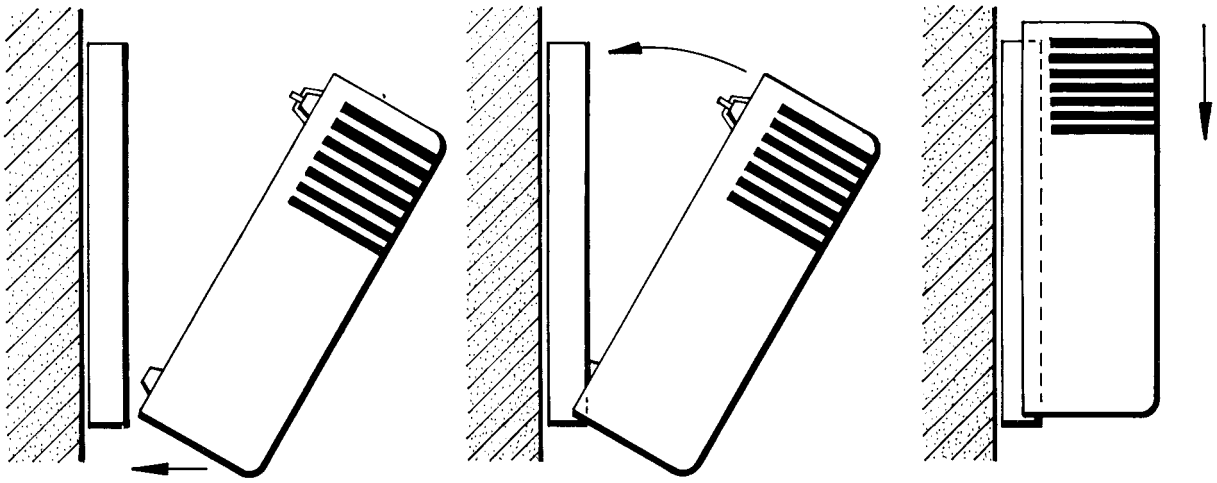

Fig. 7 **Securing the CCU to the Wall Mounting**

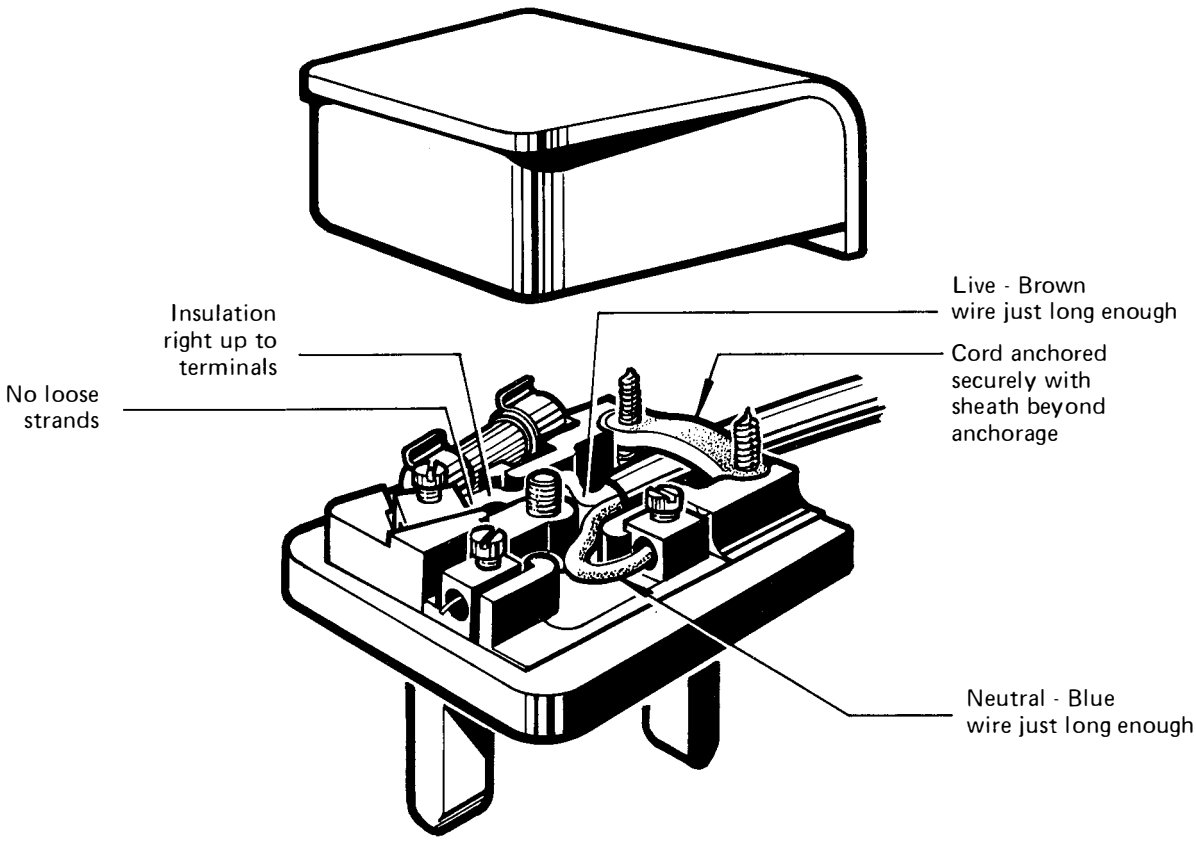

Fig. 8 **Fitting Mains Plug**

To remove the CCU from the wall mounting use a No. 2 screwdriver to press up the latch, accessed via the V notch in the lower edge of the CCU (beside the cable entry slot). This will allow the CCU to be lifted up and away from the wall mounting (see figs. 9 & 10 page 12).

With the CCU mounted in position a 3 pin mains plug can now be connected to the mains lead. Cut the conductors to the correct lengths and fit to the plug as in fig. 8. Check that the fuse fitted is a 3 amp fuse, change the fuse if necessary.

4. Facilities

Tones

The system generates a 425 Hz tone which is used as follows:-

i) Internal Ringing Tone (used on intercom calls) 300 msec ON 2.2 secs OFF.

ii) Collective Call Tone (used on coded ringing) 300 msec ON 300 msec OFF.

iii) Interrupt tone (on i/c calls) at exchange ring tone cadence.

The system also generates its own ringing supply which is applied for all internal calls. The supply is of 75 volts r.m.s. at 25 Hz, and is connected at the same cadences as system ringing or collective call tone.

Intercom Calls

Any extension may make or receive intercom calls.

To make an intercom call, lift the handset and dial the required extension number. If the called extension is free, system ringing tone will be heard and ringing current will be connected to the called extension at the same cadence.

If the called extension is engaged on an exchange line call, the caller will receive **no tone.** As there is only one intercom circuit, if any two extensions have an intercom call in progress any other extension lifting the handset and, either dialling an extension number or not dialling at all, will break into the existing intercom call.

Should the called extension be spare or not plugged in the caller will receive ringing tone although no bell will be rung.

Exchange Line Calls

Outgoing Calls — Any extension may make an outgoing exchange line call. To make an exchange line call lift the handset and dial digit '0'. If the exchange line is free it will be connected and the caller will receive exchange dial tone. If the exchange line is busy **no tone** will be heard after dialling '0'.

When exchange dial tone is received, the required number should be dialled without pausing; a pause or delay in dialling may result in the call inadvertently being transferred within the system.

Incoming Calls

Incoming calls are detected at the CCU and system ringing is applied to the main extension (extension 1). A separate main bell may be connected to the system and positioned at a point where it can be heard at all or most extensions. Any additional extension may be nominated to ring to incoming calls, this facility being known as ''selective ringing'' or ''night service''.

An incoming call can be answered at extension 1 and the additional nominated extension (if not engaged on an intercom call) by lifting the handset. Any other extension can answer the incoming call, if they are aware of it, although their bell is not ringing, by lifting the handset and dialling digit '0'.

Should extension 1 be engaged on an intercom call when an incoming exchange call arrives only the "MAIN" bell (if fitted) will ring, but "interrupt tone" is connected to the intercom speech circuit and heard by both extension users. Either extension may answer the call by dialling digit '0', the other extension will be left connected to the intercom circuit. It may be decided to end the intercom call, when extension 1 replaces the handset all bells will commence ringing, the call can then be answered as normal.

Nominated Extensions

Any extensions can be nominated to receive incoming exchange ringing in addition to extension 1. Each nominated extension lifts the handset and dials digit '8' then replaces the handset. Any incoming call will now ring the bell at both extension 1 and the nominated extension. Either of these extensions can answer the call by lifting the handset.

To cancel the nominated extension ringing, that extension lifts the handset and dials digit '9'. Extension 1 can cancel **all** other extension ringing by dialling digit '7'.

Hold and Transfer

An exchange line call, either incoming or outgoing, can be held by dialling another extension number. The exchange line is held and an enquiry call can be made to the other extension. The enquiry call is secret from the exchange line. If the called extension answers and agrees to accept the call the originating extension replaces the handset and the call is automatically transferred to the second extension. If the called extension does not answer or does not wish to accept the transferred call the originating extension can return to the exchange line by dialling '0'.

The originating extension may wish to transfer the call to an unmanned extension, intending to move to that telephone. In this case the originating extension replaces the handset after dialling the required extension number. The dialled extension will ring for 45 secs., during which time the call can be answered by lifting the handset at that extension. After 45 secs. ringing is disconnected but the call is still held and can be accessed at any extension by dialling digit '0'.

Conference

A conference call can be set up between extensions but cannot include the exchange line. To set up a conference call the originator dials each required extension in turn, replacing his handset briefly after each one has answered. All extensions are connected to the intercom circuit. Any extensions may leave the conference and make a secret exchange line call by dialling digit '0'.

Coded Ringing

Any extension may initiate "Coded Ringing" by lifting the handset and dialling '6' followed by the number of rings required. The second digit may be any number from 1 to 9. All extensions connected to the system will ring, e.g. if 64 is dialled, all extensions ring for 4 periods of ringing followed by a pause and 4 further periods of ringing, this continues until an extension answers by lifting the handset.

Mains Fail

Under mains fail condition extension 1 is connected to the exchange line and can make and receive exchange line calls. The "Main" bell (if fitted) will ring to incoming calls together with the bell at extension 1. Any exchange calls extension 1 is making at the time of mains failure or restoration will be unaffected. Intercom calls are not possible during mains fail periods. If an extension has been nominated to ring on incoming calls this facility will be cancelled by mains failure, the extension will need to reprogramme the facility when power is restored.

5. Maintenance

Minimaster 2 has been adapted to suit the needs of British Telecom. Maintenance is limited to functional testing, replacement of the power unit fuse or changeout of the CCU. Maintenance of the extension telephones is the same as for standard telephones.

Minimaster 2 may be affected by short-term power breaks or surges and must not share a mains socket with any appliance containing electric motors or other inductive loads, e.g. electric typewriters.

At the RSC when a Minimaster 2 is reported "out of order" the customer should be asked to switch the power off for approximately 10 seconds and to check the operation of the system when the supply is reconnected. Every attempt should be made to ensure that the customer is aware of the facilities of the system and that fault reports are not due to misoperation.

When tested by the RSC the line testsnormal line conditions but due to the presence of a "surge protector" the line will test "low loop" if a megger test is applied.

At the Customer

Maintenance of the extension telephones will be determined by the type of telephone installed.

Maintenance of the CCU is restricted to replacement of the power unit fuse or changeout of the CCU. **Before working on the CCU the mains power must be disconnected.**

To change the CCU or to gain entry to the power unit fuse the CCU must be removed from the wall mounting. Using a Screwdriver Inst. No. 2 release the latch which locks the CCU to the mounting plate. Lift the CCU and swing it away from the wall mounting, remember that the CCU is still connected to the cabling, fig. 9 shows the latch and fig. 10 the method of removing the CCU.

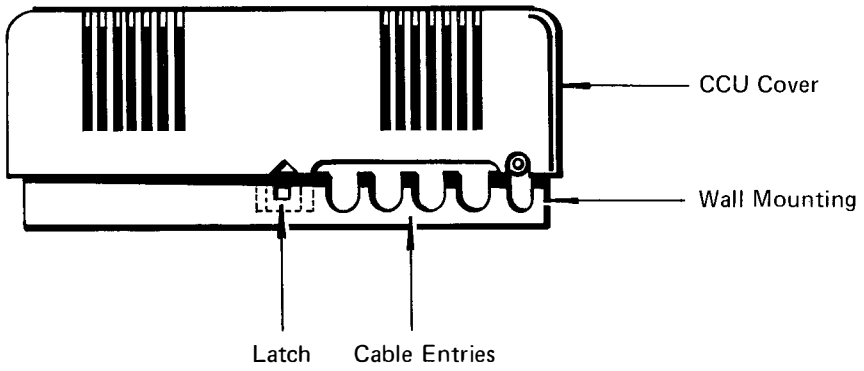

Fig. 9 **Underside View of CCU**

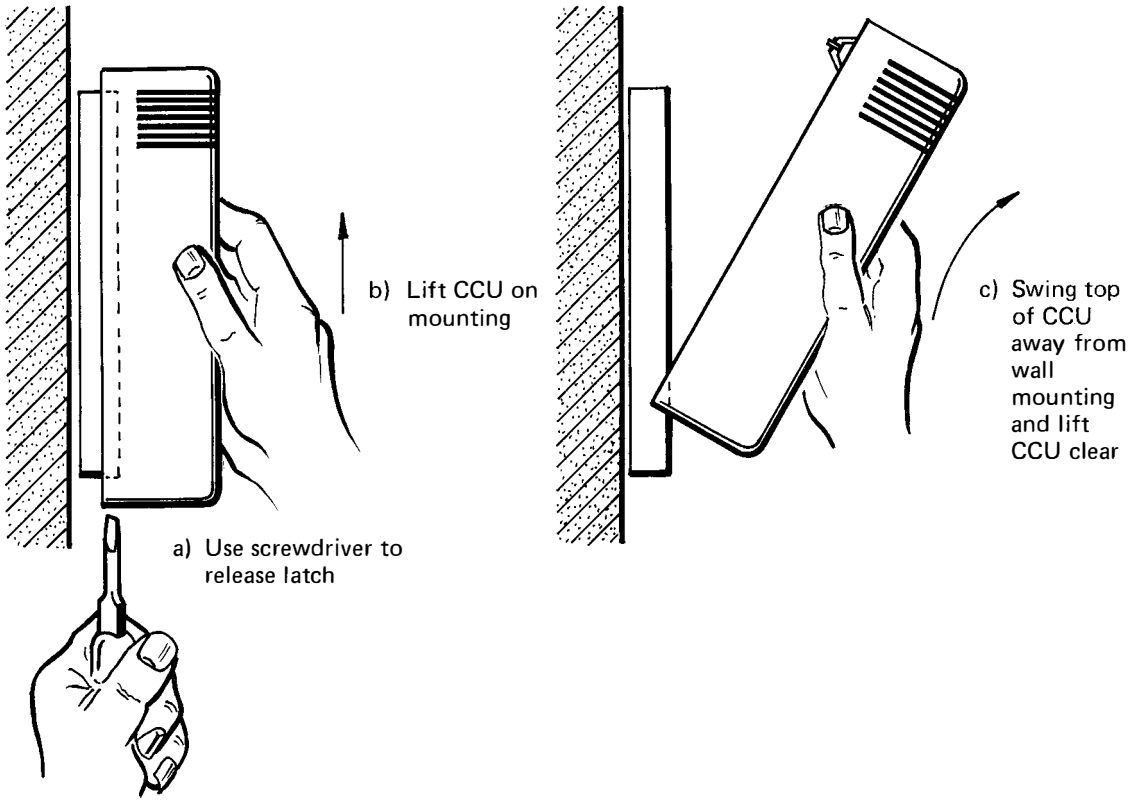

Fig. 10 **Removing CCU**

Support the CCU on the side brackets while removing the spring clip which retains the terminal block. Unplug the terminal block and place it in the temporary mounting (see page 4 of the installation section). Remove the CCU.

If the CCU is to be changed the new CCU should be connected and mounted reversing the procedure outlined above.

If the power unit fuse is to be checked or changed remove the two cover fixing screws (see fig. 11) and lift off the cover. The fuse holder, in the upper right corner of the CCU, as part of the mains cable terminal block cover, carries a fuse No. 72/92 (a 200 mA slow blow fuse).

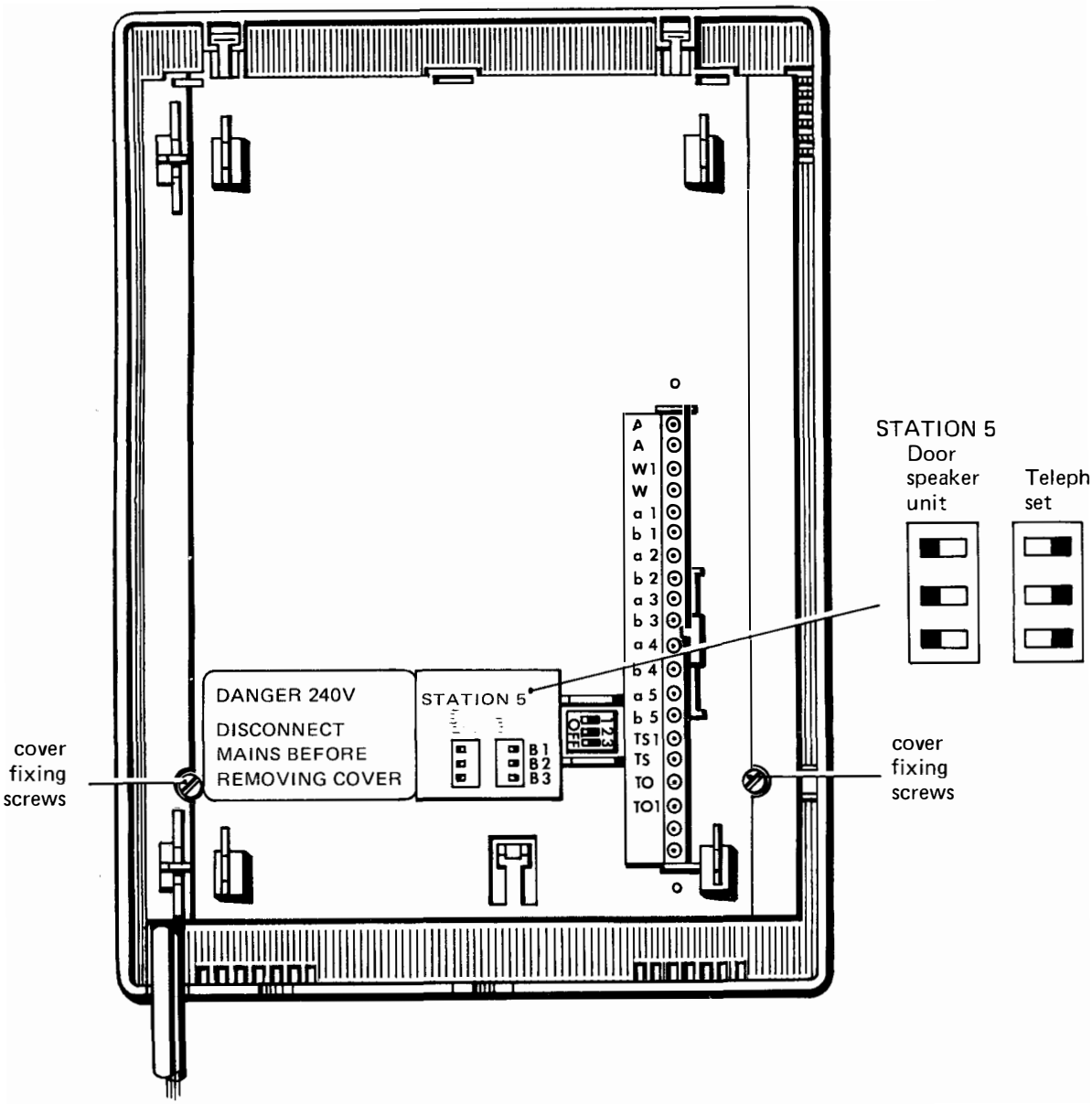

Fig. 11 **Rear of CCU**

PERSONAL NOTES