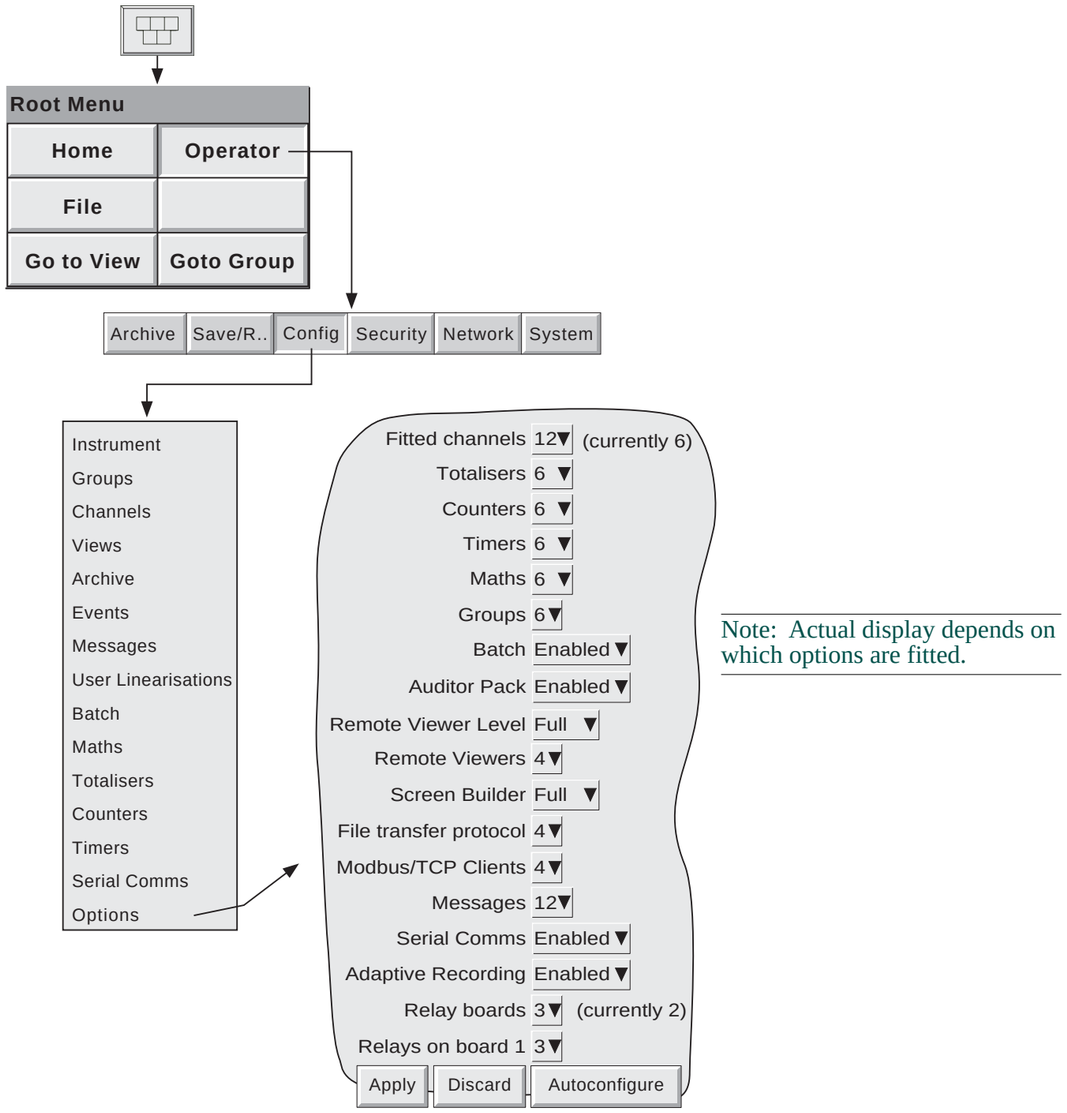
AUTOCONFIGURE ACCESS



Note: Actual display depends on which options are fitted.

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invensys
EUROTHERM

Circuit board retrofit instructions
100mm Video-graphics recorders

INTRODUCTION

These instructions are intended to help service engineers and others who are required to add or replace 100 mm recorder circuit boards. The instructions apply to the power supply unit, as well as to input boards and option boards.

WARNING!

Isolate the recorder from all hazardous voltage sources, both supply and signal. Allow the recorder to cool for at least 10 minutes after powering off .

CAUTION

These procedures involve the handling of components which are sensitive to static electrical discharge. All relevant personnel must be aware of static handling procedures.

OPTION BOARD LOCATION RULES

1 If Relay boards are fitted, they must be located the lowest numbered slots.
2 If Event Input boards are fitted, they must be fitted in the lowest numbered slots available after all relay boards have been fitted.
3 If a Serial Communications option board is fitted, this must be fitted in slot 2 or slot 4.
4 If three input boards are fitted (18-channels), then only one option board may be fitted, and it may be fitted only at option board slot 1. Serial communications is not supported if three input boards are fitted.

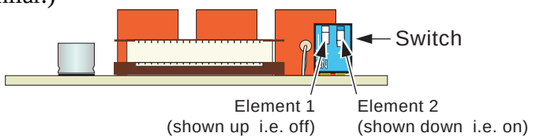
Example:
If a Relay board and an Event Input board and a Serial Communications board are fitted, the Relay board must be fitted in slot 1, the Event input board in slot 2, and the Serial communications board into slot 4, leaving slot 3 empty.

FLEXI CABLE LENGTHS

For boards in vertically adjacent slots, a 50 mm length is used.
For boards separated by a single empty slot, a 75 mm length is used.
For boards separated by two empty slots, a 125 mm length is used.
From input board 1 to the micro board a 180 mm length is used
From any option board directly to the micro board, a 180 mm length is used.
From input board three to the micro board, a 270mm length is used.

RELAY / EVENT INPUT BOARD SWITCH SETTINGS

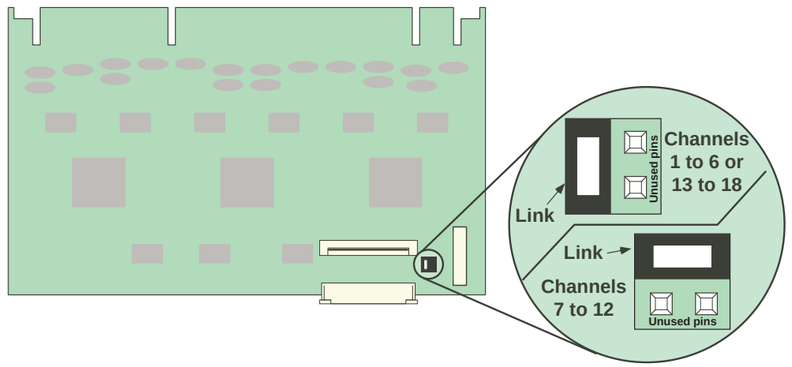
Before fitting relay or event input boards, the two elements of the switch located near the front edge of the board must be set to define board number. The figure below, and the accompanying tables give details. (The figure shows a relay board - the event input board is similar.)



Relay board No	Switch element	
	1	2
1	Up	Up
2	Up	Up
3	Down	Up
4	Down	Up

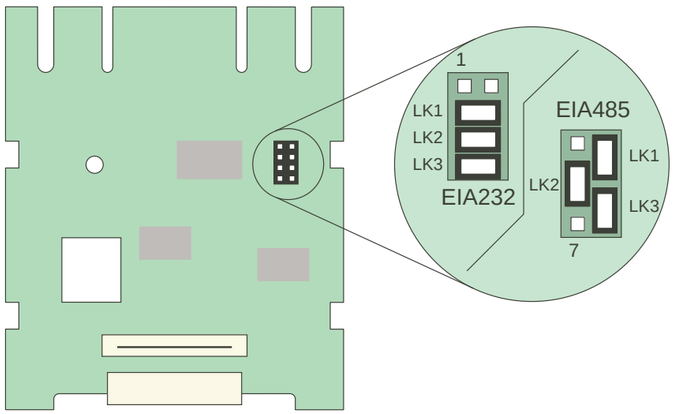
Event input board number	Switch element	
	1	2
1	Up	Up
2	Down	Up
	Other settings not recognised	

INPUT BOARD LINK SETTINGS

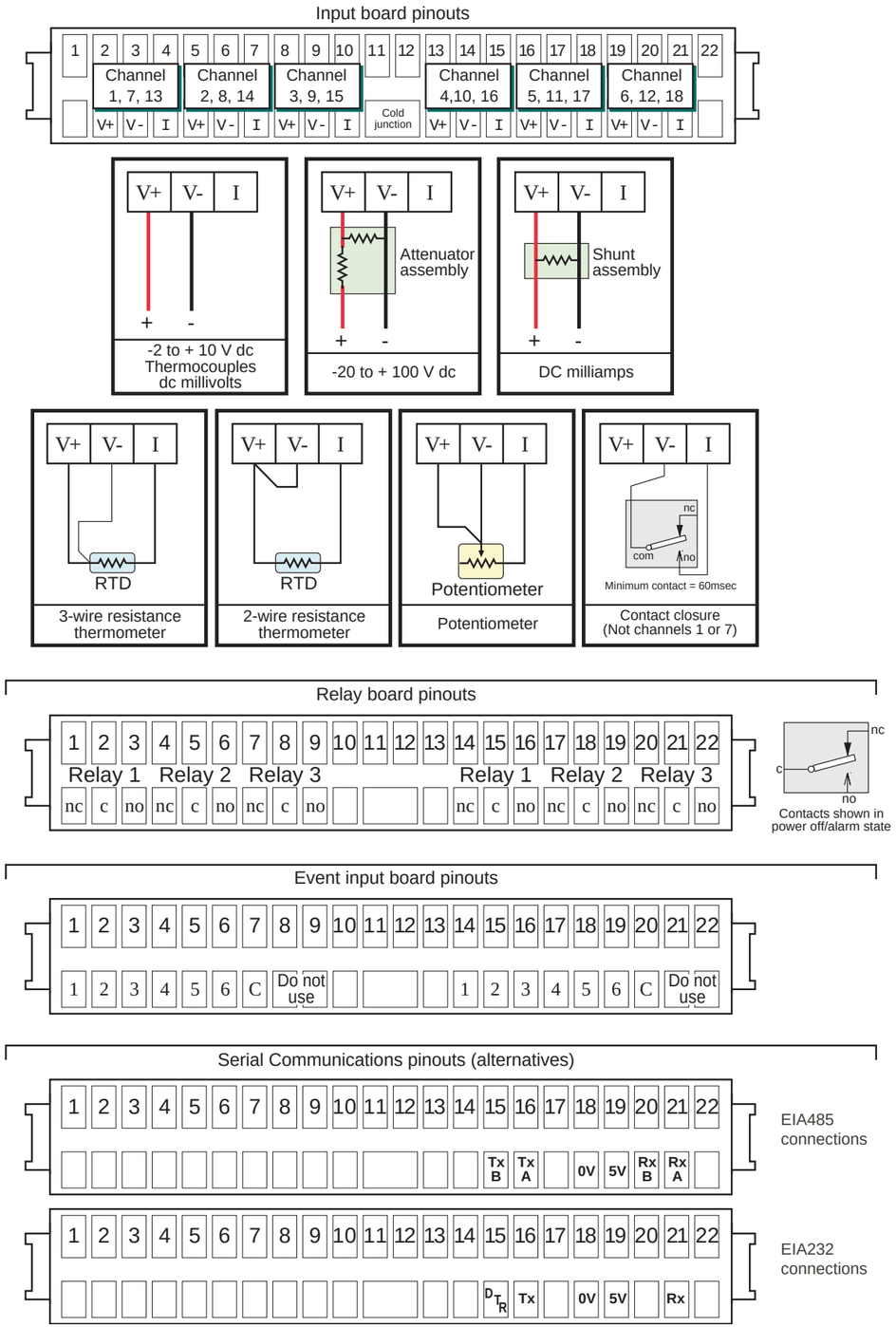


SERIAL COMMUNICATIONS BOARD SETTINGS

Before fitting a serial communications board, it is necessary to set it to the appropriate transmission standard - i.e. EIA232 or EIA485. This selection is made by positioning three links as shown below.



WIRING DETAILS (CONT.)



18

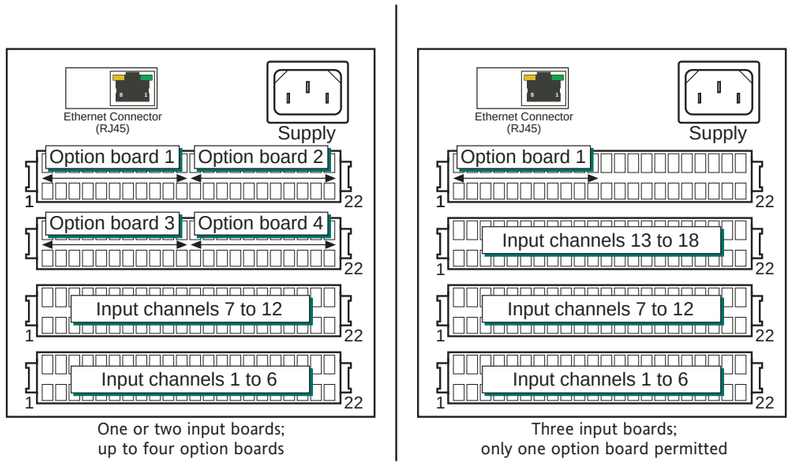
Apply power to the recorder. Once initialization is complete it is likely that a request to autoconfigure dialogue page will appear. This is only a reminder - pressing OK does not carry out the Autoconfigure.

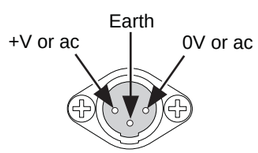
Log in.

If necessary (i.e. if a new Serial Communications or other software option has been fitted), enter the option key code as described under 'Option Enabling' in the reference section of the Installation and Operation Manual.

From the Root key menu select Operator, then 'Config', then 'Options'. Press the Autoconfigure key to complete installation (Back Page).

WIRING DETAILS





DC supply polarity for Low Voltage option

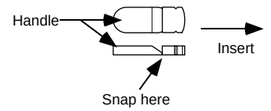
POLARISING PLUGS

In order to avoid accidental insertion of an incorrect board type, it is recommended that a polarising plug be inserted into the board side of the connector in the locations indicated in the table. Failure to do so may damage the recorder. As shown in the figure, the plug is inserted into the connector and the 'handle' is then snapped off.

Note: Input boards do not require polarising plugs.

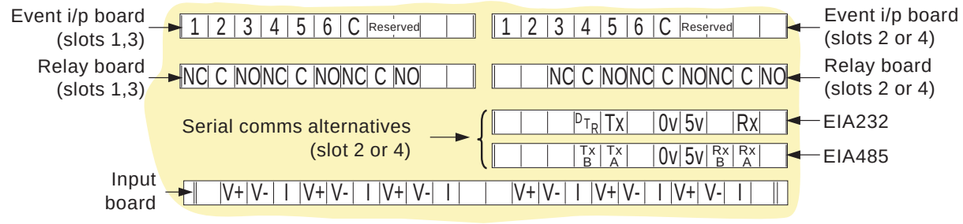
Option board type	Insert plug between contacts: Slots 1,3	Slots 2, 4
Event inputs	5 & 6	18 & 19
Relay	6 & 7	19 & 20
Serial comms	N/A	20 & 21
Contacts are counted from the left end of the connector, as viewed from the rear of the instrument.		

Insert polarising plug, then snap off 'handle'



CONNECTOR LABELS

A set of self-adhesive labels is supplied, for the user to apply to the connector. The various types are depicted below



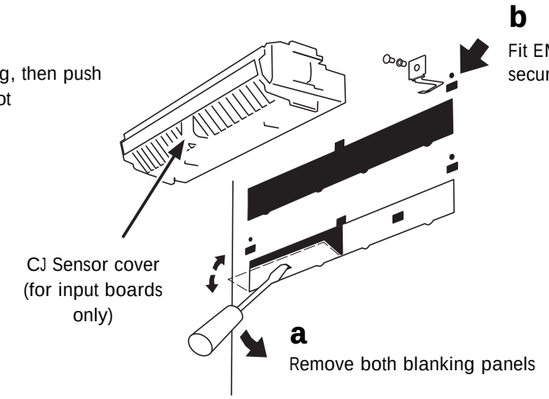
CONNECTOR FITTING

If required, EMC springs are fitted as shown.

Relay boards do not require EMC springs.
Other option boards require one EMC spring, fitted at the appropriate end of the connector slot.
Input boards require two EMC springs to be fitted, one at each end of the connector.

c
Fit polarising plug, then push connector into slot

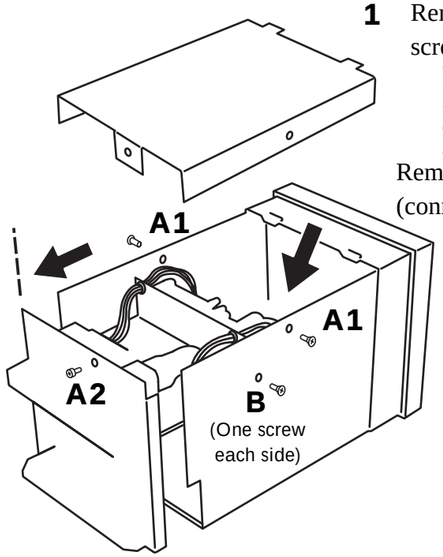
b
Fit EMC springs as required and secure with plastic rivets.



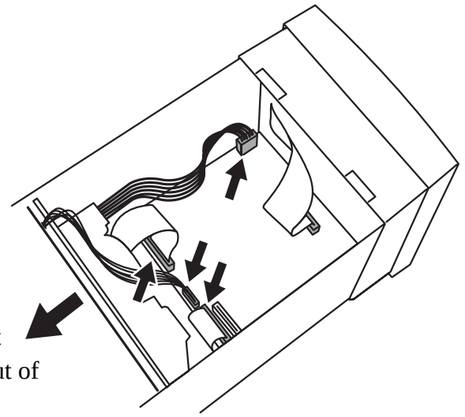
1 Remove the recorder top plate, by removing the two countersunk screws 'A1' and the pan-head pozidriv screw 'A2' at the rear.

Note: For current designs of recorder, the two screws securing the top plate to the side plates (A1) are T8 Torx headed screws. The original design used Pozidriv-headed screws.

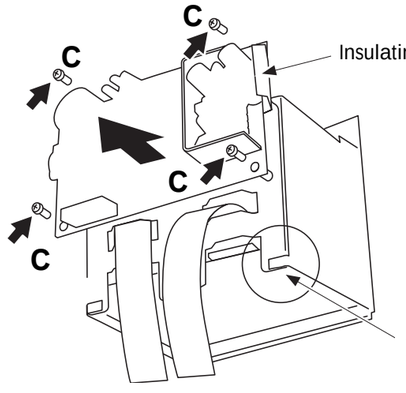
Remove the two securing screws ('B') and carefully pull the rear (connector) plate and associated card cage backwards slightly.



2



After disconnecting all relevant connectors, lift the card cage out of the chassis



3 Taking care to avoid any hot components, disconnect the Power Supply Unit. The power supply unit (PSU) is now removed from the card cage, by undoing the four screws 'C' and lifting the unit away from the chassis, retaining the insulating 'sheet' for use in re-assembly. If the PSU is to be replaced, continue at instruction 4. If not, continue at instruction 9

Note, for re-assembly purposes, that the board retainer locates within the card cage lugs

4

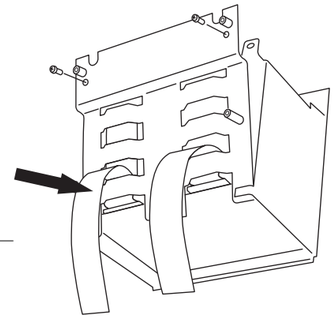
Warning

Ensure that the insulation sheet is not trapped between the Board and any of its standoff pillars.

If only the PSU is to be replaced, and if the replacement PSU is of the same type as the existing one (i.e. the supply voltage is not being changed), the new PSU board can now be fitted, and secured using screws C, previously removed. Reconnect all the connectors previously disconnected and re-assemble the recorder. If input or option boards are also being fitted, continue at instruction 9, and fit the new PSU later, when re-assembling the recorder.

If the replacement PSU is of a different type (e.g. low voltage instead of standard), continue at instruction 5.

16



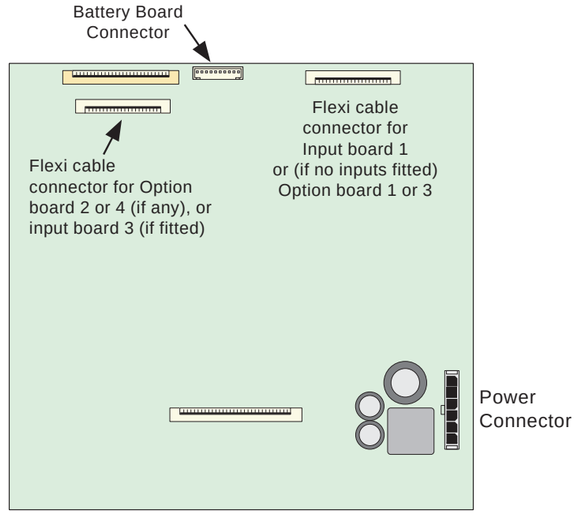
Carefully re-assemble the recorder, ensuring that both microboard flexi-cables emerge from the correct aperture in the board retainer, as shown opposite, and that the board retainer is correctly located before attempting to secure it.

Note: The flexi-cables must be routed as shown in the figure. Otherwise, it is likely that the unit will not be CE compliant when re-assembled.

CAUTION

Ensure that the insulation sheet between the Power Supply Unit and the side of the recorder is properly re-fitted. Failure to do so may, in some circumstances, result in the rupturing of the power supply fuse when power is re-applied, or during operation.

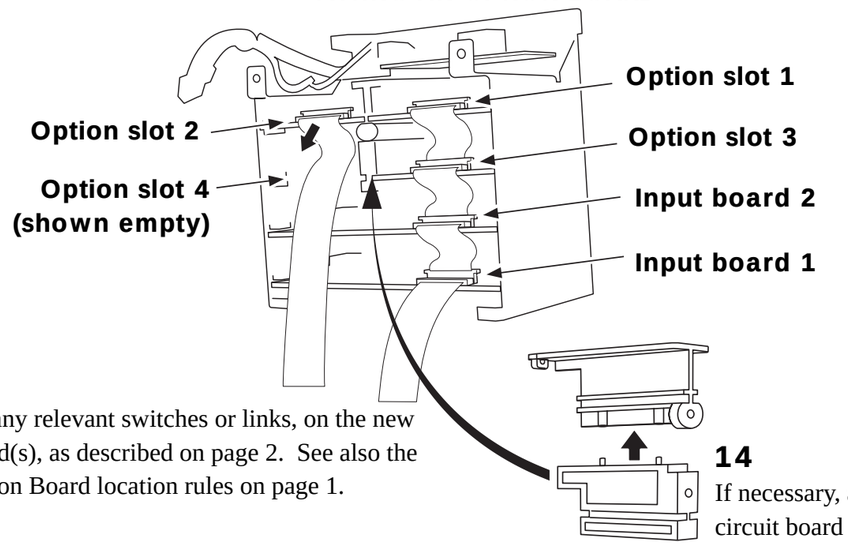
Ensure that all connections to the micro board are secure and that the flexi-cables are securely retained. The figure below shows the relevant connector locations on the micro board.



17

Wire the new connectors according to the information contained on the following pages.

FITTING AN OPTION BOARD



13

Set any relevant switches or links, on the new board(s), as described on page 2. See also the Option Board location rules on page 1.

14

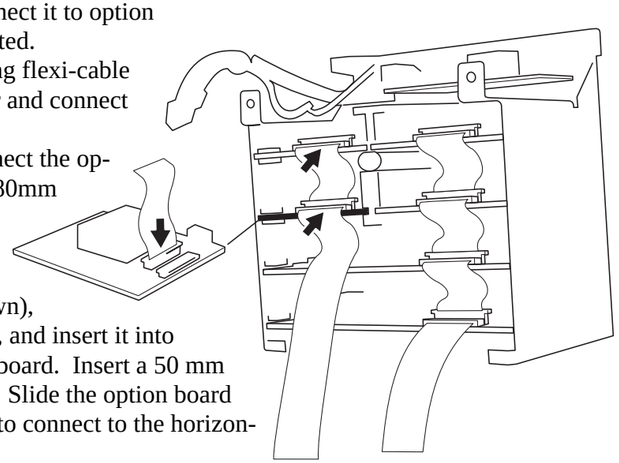
If necessary, add a circuit board guide extension.

15

If fitting a board into option slot 1, fit the board, and connect it to input (i/p) board 3 (if fitted) using a 50 mm long flexi cable. If i/p board 3 is not fitted, connect to i/p board 2 (if fitted), using a 75 mm long flexi-cable. If i/p board 2 is not fitted, connect to i/p board 1 (if fitted), using a 125 mm long flexi-cable. If no i/p boards are fitted, connect directly to the microboard using a 180mm flexi-cable.

If fitting a board to option slot 2, insert a 180 mm long flexi-cable into the horizontal connector and slide the board into its slot.

If fitting a board into option slot 3, remove the flexi-cable between option board 1 and input board 1 (or input board 2, if fitted). Insert a 50 mm long flexi-cable into the vertical connector of the new board. Slide the option board into its slot, and connect it to option board 1 using the 50 mm flexi-cable just fitted.
If input board 2 is fitted, insert a 50 mm long flexi-cable into the option board's horizontal connector and connect the other end to input board 2.
If not, use a 75 mm long flexi-cable to connect the option board to input board 1 (if fitted) or a 180mm long flexi-cable to connect it to the micro board.



If fitting a board into option slot 4, (as shown), remove the flexi-cable from option board 2, and insert it into the horizontal connector of the new option board. Insert a 50 mm long flexi-cable into the vertical connector. Slide the option board into its slot, and use the 50 mm flexi-cable to connect to the horizontal connector on option board 2.

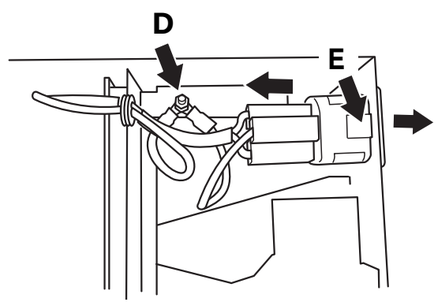
SUPPLY VOLTAGE CHANGE

Two versions of the power supply unit (PSU) are available, *viz*, Standard and Low Voltage. The standard unit accepts supplies of 85 to 265 Volts, 47 to 63 Hz ac, and 110 to 370Volts dc. The low voltage unit accepts ac supplies of 20 to 42Volts, 45 to 400 Hz, and dc supplies of 20 to 54 Volts.

When changing PSU versions, the existing supply voltage connector must be replaced with one suited to the supply voltage. This procedure is detailed below, for changing from the standard version to the low voltage version. The description should also be adequate for the situation where it is required, instead, to change from the low voltage version to the standard version.

5

Ensure that the recorder is isolated from supply power.
Remove the power cord connector from the rear panel connector.



6

Release the earth leads from the chassis, by undoing nut 'D', retaining the fixings for later use.

With the mains harness disconnected from the PSU, the IEC (mains) plug can now be removed from the rear panel, by pressing on the two 'clips' or latches, one on top ('E') and one on the underside of the connector.

The connector and its harness can now be withdrawn from the back panel.

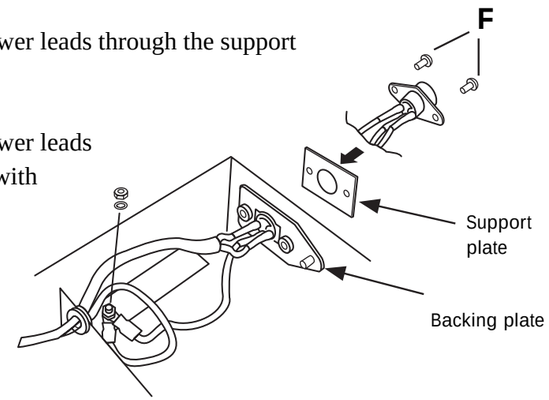
7

Pass the rectangular connector and associated power leads through the support plate, then through the aperture in the rear panel.

Pass the rectangular connector and associated power leads through the backing plate. Secure the assembly with screws F.

Remake the earth connection, ensuring the shakeproof washer is correctly fitted.

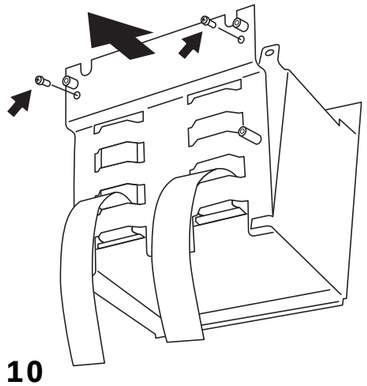
Fit new PSU label



See 'Wiring information' on page 10 for dc wiring details.

8

If input or option boards are to be replaced, or retro-fitted, please continue at instruction 9. If not, re-assemble the recorder now, ensuring that the insulating sheet is re-installed.



9

Remove the Board retainer, by undoing its two retaining screws, and carefully rotating and lifting it away from the chassis, ensuring that no damage is done to the flexi-cables whilst doing so.

10

If necessary, fit extra connectors* and associated EMC springs* at the rear of the recorder. Select a label appropriate to the type of new board being added, and apply it to the connector (see page 3).

Continue at instruction 11a, if a further input board is to be fitted, or at instruction 13, if only option boards are being fitted.

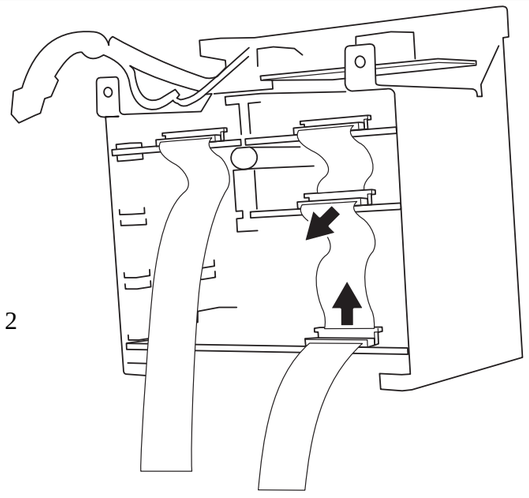
*Notes:
1. If required, insert polarising plugs in the appropriate place for the type of board being fitted (see the table on page 3).
2. Input boards require an EMC spring at both ends of the connector. Relay option boards do not require any EMC springs. Other option boards require one EMC spring each, fitted at the relevant end of the connector.

FITTING FURTHER INPUT BOARDS

Note: Flexi-cable is not 'double sided'. At the ends, one face is 'live'; the other is insulated. The insulated side of the flexi should always face the latching bar of the connector.

11a

To fit a second input board, disconnect the ribbon cable from the existing input board and the nearest option board (if any).

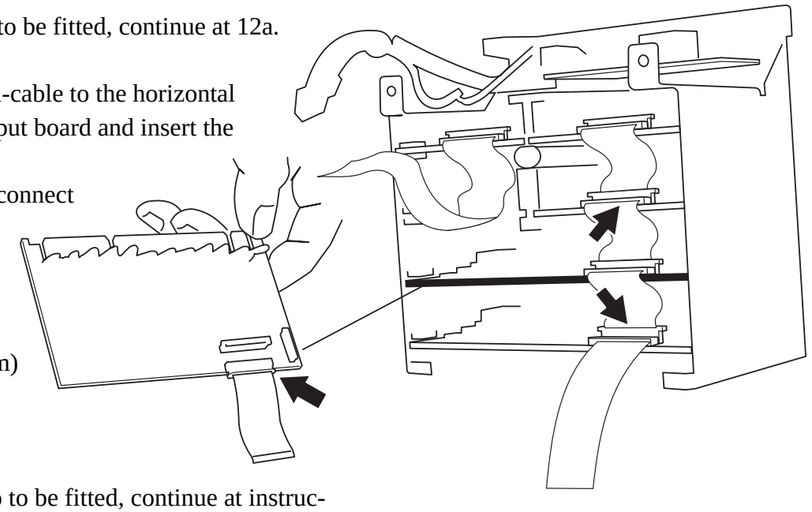


11b

Set the links for channels 7 to 12 as shown on page 2

11c

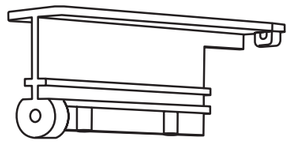
If a third input board is to be fitted, continue at 12a. Otherwise:
Fit a 50 mm length flexi-cable to the horizontal connector of the new input board and insert the board into its slot.
Use the 50 mm flexi to connect to input board 1.
If one or more option boards is fitted, use a flexi-cable of suitable length (50 mm or 75 mm) to connect to the option board above.



If option boards are also to be fitted, continue at instruction 13. If not, continue at instruction 16.

12a

If a third input board is to be fitted, remove all option boards and associated flexi-cables. If a circuit board guide with extension is fitted (as shown in instruction 14), remove the entire circuit board guide (two screws) and replace it with the circuit board guide included as a part of the kit.

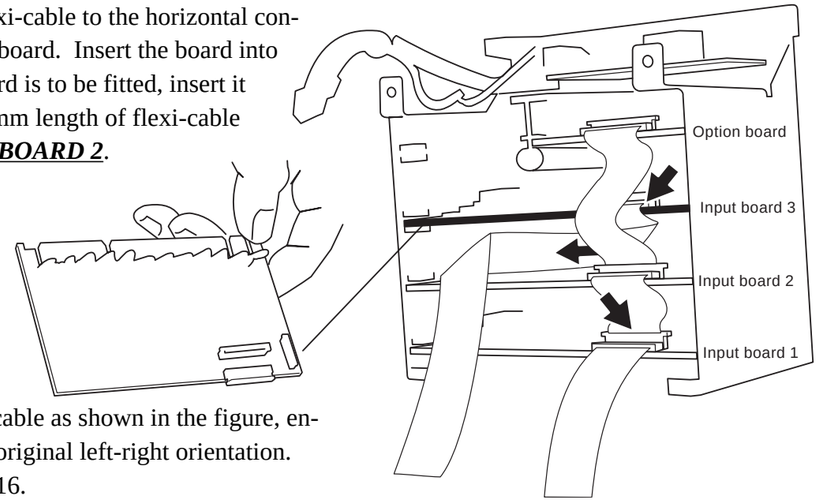


Circuit board guide without extension

Set the links for channels 13 to 18 as shown on page 2

12b

Fit a 270 mm length flexi-cable to the horizontal connector of the new input board. Insert the board into its slot. If an option board is to be fitted, insert it into slot 1 and use a 75mm length of flexi-cable to connect it to ***INPUT BOARD 2***.



Fold the 270mm flexi-cable as shown in the figure, ensuring that it retains its original left-right orientation.
Continue at instruction 16.