EUROTHERM CHESSELL

Service instructions
100 mm video-graphics recorders

These instructions are intended as an aid to service engineers and others who are required to work on 100mm graphics recorders. The instructions describe the following operations:

1. How to access the Single Board Computer (SBC), either to replace it, or to upgrade the software held on it.
2. How to access the battery board in order to replace it.
3. How to remove the door graphics controller board.
4. How to remove the graphics display unit for replacement.
5. How to replace the backlighting unit (not recommended by the manufacturer)
6. How to remove/replace the door

BACKLIGHT REPLACEMENT NOTES

Notes:

It is recommended that the display unit be returned for the manufacturer for service. Users should consider the following before attempting to follow the procedure below:

1. Users who replace the backlight do so at their own risk. The manufacturer will not assume any liability for modules, and will not warrant any modules which have been modified by the user, including the replacement of the backlight using the procedure below. If it becomes necessary to return the module to the manufacturer after an attempted repair, the cost of repairs will be charged to the user.
2. The work can cause a lowering of quality (performance). The manufacturers do not guarantee that full quality will be obtained even if the procedure herein is followed exactly.
3. Even the smallest particle of dust can cause shadowing, giving non-uniform brightness across the area of the display. It is recommended that a clean-room or clean bench (at class C level) be used.
4. To prevent damage caused by electrostatic discharge the use of an 'ion shower' ioniser is recommended.

WARNING!

Replacement of the backlight involves the handling of high voltage circuits. If replacement is not carried out correctly, the module can present a shock, fire or other hazard, both during and after replacement.

SAFETY PRECAUTIONS

Ensure that the recorder is isolated from line power for at least 10 minutes before starting work. This will allow the high voltages associated with the inverter to dissipate safely. Such a time period also allows the lighting unit and high voltage circuitry to cool down after use, although the user should be aware that areas of high temperature might still exist even after this period has expired.

In the case where the lighting unit is physically damaged, adequate care must be taken to avoid personal injury. It is also likely that pieces of broken glass will not be extricable, resulting in lighting evenness quality problems once the replacement unit is installed.

QUALITY CONSIDERATIONS

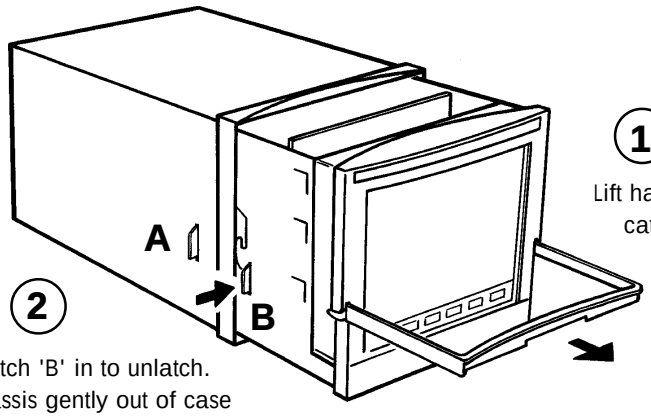
The display can be damaged by discharge of static electricity. Ensure that all suitable precautions are taken.

Finger contact with connectors may cause bad electrical contact to develop. It is recommended that finger cots or plastic or latex gloves are used when carrying out this procedure.

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.

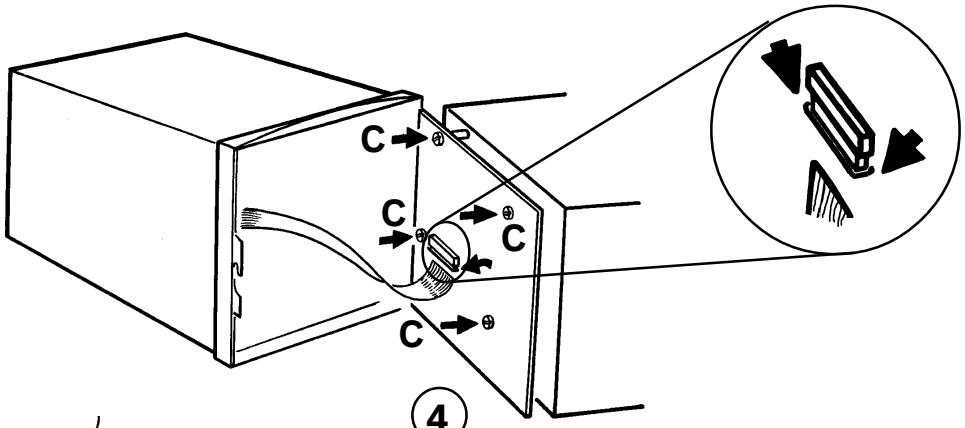
ACCESS TO THE DOOR



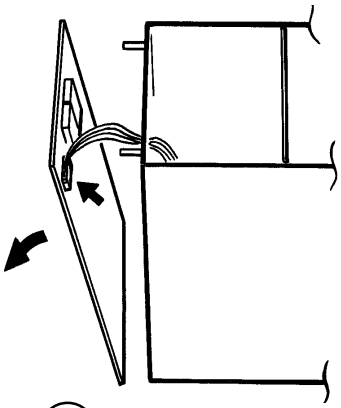
1 Lift handle and pull until catch 'A' engages

2 Push catch 'B' in to unlatch. Pull chassis gently out of case

3 Gently push connector 'ears' down to release flexi. Remove chassis from case.



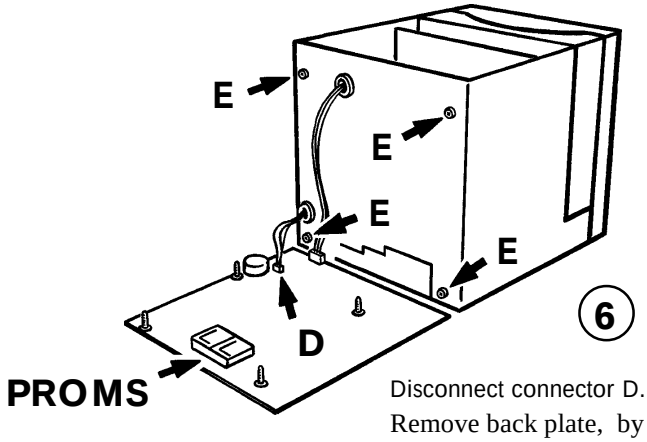
4 Release the SBC 'micro board 1' by undoing screws 'C'. Take care not to damage the 'option key' - a small circuit board perpendicular with the SBC.



5 Carefully disconnect the loom from the connector near the top of the board (2-part connector)

ACCESS TO THE DOOR (Cont.)

At this point, the software can be upgraded, by replacing the PROMs as shown. The recorder can then either be re-assembled, or further operations can be carried out from instruction 6.



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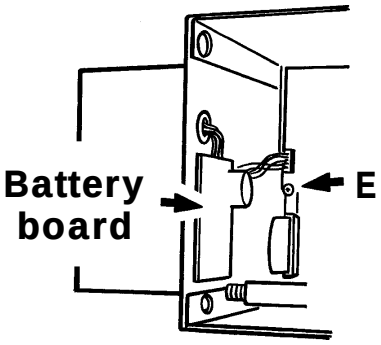
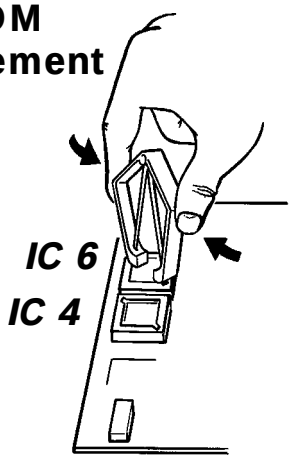
Disconnect connector D.
Remove back plate, by undoing screws 'E' (four at the rear of the recorder and one inside the recorder)



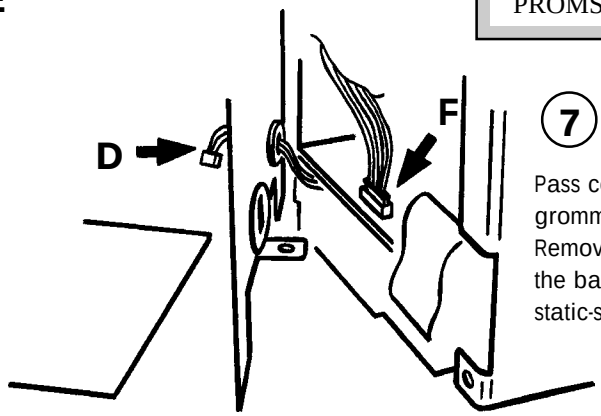
View on top of recorder

PROM replacement



The two PROMS are identified by part numbers on their labels. The one labelled IC4 should be fitted in IC4 location and the one labelled IC6 in IC6 location.

Note the orientation of the PROMS, before removing them using a PLCC extractor tool as shown. Fit the new PROMS ensuring correct orientation.



7

Pass connector D through the back plate grommet. Disconnect connector F. Remove the SBC (micro board 1) and the back plate, and place them in a static-safe area.

BATTERY REPLACEMENT

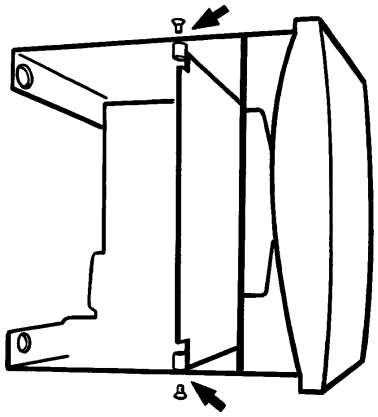
If required, the battery board can now be replaced as follows:

a. Disconnect its connector from the SBC and pass the connector back through the grommet in the back plate
b. Remove the board by undoing its two securing screws,
c. Pass the connector of the replacement battery board through the grommet, and, ensuring that the loom passes between the board and the back plate, secure the board using the two screws previously removed. Connect the connector to CON 21 on the SBC. (The connector is polarised, so reverse connection is not possible.)

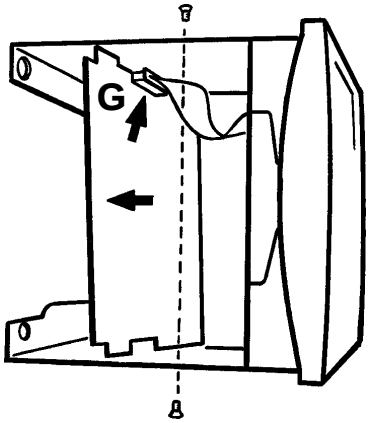
Notes:

1. The battery is a NiCad type and should be disposed of according to local regulatory requirements.
2. Do not allow either the old or new board to come into contact with the metal back plate, or other metal surface.
3. Configuration, trace history etc. are retained during this process. Time/date and accumulated values in totaliser, counter, timer and maths functions are not retained.

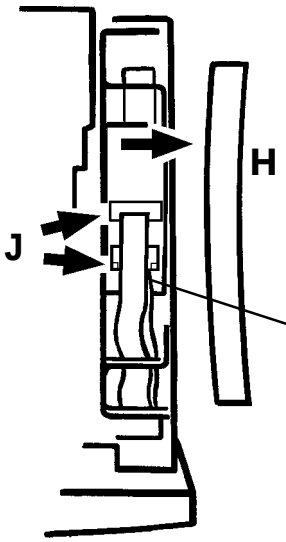
ACCESS TO THE DOOR (Cont.)



8 Remove the circuit board retainers associated with 'micro board 2'.



9 Lift 'micro board 2' out of its guides, and move it towards the rear of the recorder, until you can disconnect connector G. Remove 'micro board 2' and place in a static safe area.



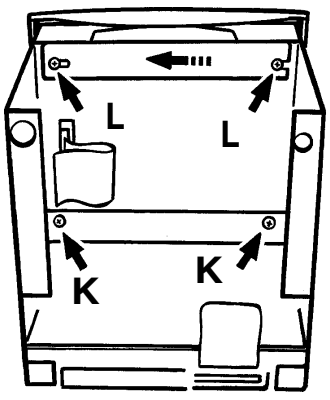
Front of inverted recorder

10

With the recorder chassis upside-down, locate the curved insulating strip ('H') and remove it.
Disconnect connectors J from the small circuit board (if fitted). For convenience, remove the circuit board and loom by disconnecting the loom from the underside of the main board, and place it in a static safe area. If the board is not fitted, release the flexi-cables from their connectors on the main board (not shown).

Note: This circuit board not fitted to all versions. Where it is not fitted, the door flexies plug straight into the control board, and the spare board supplied with the new door can be discarded.

Front of recorder

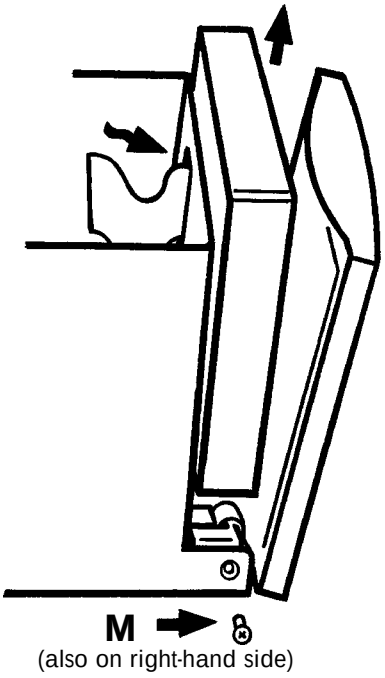


Rear of recorder

11 With the recorder chassis the right way up again, remove screws K, and release screws L. Slide the sliding catch to release the top of the door

DISPLAY UNIT REMOVAL

Hint: it is suggested that plastic or latex gloves be worn whilst handling the display and door, to avoid the display or the touch screen on the inside of the door being contaminated by finger marks which will not be removable after re-assembly.



(also on right-hand side)

12 Remove the two remaining door retaining screws (M - only one shown). Lift the display unit out of the recorder taking care not to damage the ribbon cable or its connector.

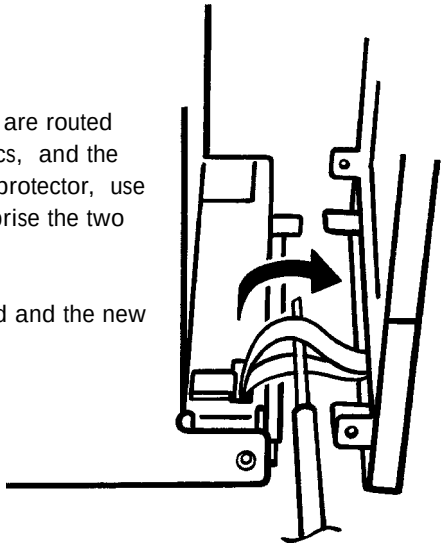
13 If you are replacing the display, but not the door, fit the new display unit and continue at step 18

If you are replacing the back lighting unit, continue at instruction 15. If you are replacing the door, continue at step 14.

DOOR REMOVAL

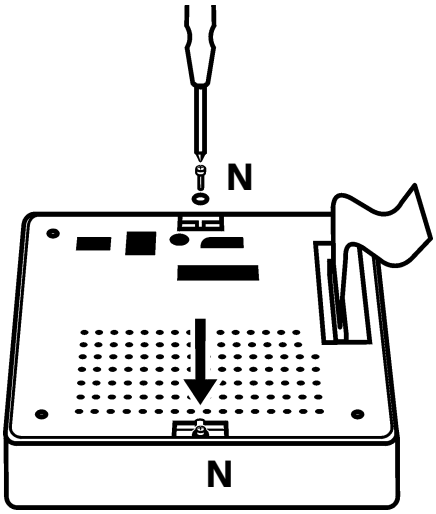
14 Taking note of how the flexies are routed through the recorder mechanics, and the position of the rubbery cable protector, use a small screwdriver blade to prise the two flexi 'tails' out of the recorder.

The door can now be removed and the new one fitted.



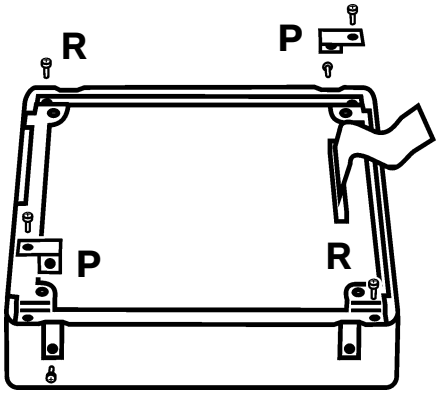
BACKLIGHT REPLACEMENT

Before attempting to carry out this procedure, read all the relevant notes on page one of this document, as it affects your warranty.



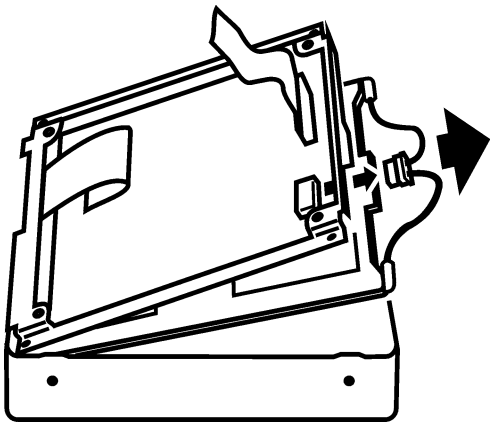
15

In a clean area (to class C), remove the rear cover by undoing the two screws N .



16

Remove the two securing brackets (P) and remaining securing screws (R).



17

Disconnect the backlight connector, and remove the backlight unit. DO NOT TOUCH THE REAR FACE OF THE LCD SCREEN. Carefully slide the replacement backlighting unit into place, and using a source of clean pressurised air, or similar, ensure that no dust particles are present anywhere between the backlight and the LCD screen. Re-connect the connector and re-assemble the display unit.

RE-ASSEMBLY

18 Re-assemble the recorder, using the opposite procedure to the disassembly procedure described above.

Hints:

1 When fitting the new door, route the shorter 'flat' flexi through the mechanics first, so that it can act as a guide for the longer, curled flexi.
2. When re-fitting the back plate, the securing lug at the bottom of the back plate goes under the main board.