

## Fitting C1300 & C1900 Module Board Upgrade Kits

### 1 Introduction

This publication details the fitting of upgrade kits to the C1900 and C1300 Circular Chart Recorders. The procedure must be carried out by a trained technician.

### 2 Upgrade Kit Contents – Tables 2.1 to 2.7

Description	Part Number	Qty
Compact Flash Module	C1900/0435	1
Locating Clip	C1900/1102	1
EPROM	C1300/2001	1
Chip Extractor	B11802	1
Information Sheet – Fitting C1300 & C1900 Module Board Upgrade Kits	INF05/87	1

Table 2.1 Compact Flash Upgrade Kit C1900/1706 (C1300 Only)

Description	Part Number	Qty
Analog I/O Module	C1900/0405	1
Terminal Board	C1900/0305	1
EPROM	C1900/2101	1
Chip Extractor	B11802	1
Information Sheet – Fitting C1300 & C1900 Module Board Upgrade Kits	INF05/87	1

Table 2.2 Analog I/O Module Upgrade Kit C1900/1705

Description	Part Number	Qty
Analog Input + Relay Module	C1900/0406	1
Terminal Board	C1900/0305	1
EPROM	C1900/2101	1
Chip Extractor	B11802	1
Information Sheet – Fitting C1300 & C1900 Module Board Upgrade Kits	INF05/87	1

Table 2.3 Analog Input + Relay Upgrade Kit C1900/1709 (C1900 Only)

Description	Part Number	Qty
Digital Input Module	C1900/0325	1
Terminal Board	C1900/0305	1
Information Sheet – Fitting C1300 & C1900 Module Board Upgrade Kits	INF05/87	1

Table 2.4 Digital Input Module Upgrade Kit C1900/1710

Description	Part Number	Qty
Digital Output Module	C1900/0326	1
Terminal Board	C1900/0305	1
Information Sheet – Fitting C1300 & C1900 Module Board Upgrade Kits	INF05/87	1

Table 2.5 Digital Output Module Upgrade Kit C1900/1711

Description	Part Number	Qty
MODBUS Module	C1900/0295	1
Terminal Board	C1900/0305	1
Information Sheet – Fitting C1300 & C1900 Module Board Upgrade Kits	INF05/87	1

Table 2.6 MODBUS Module Upgrade Kit C1900/1707

Description	Part Number	Qty
Relay Module	C1900/0285	1
Terminal Board	C1900/0305	1
Information Sheet – Fitting C1300 & C1900 Module Board Upgrade Kits	INF05/87	1

Table 2.7 Relay Module Upgrade Kit C1900/1708

## 3 Fitting Upgrade Kits

### 3.1 Identifying Module Positions

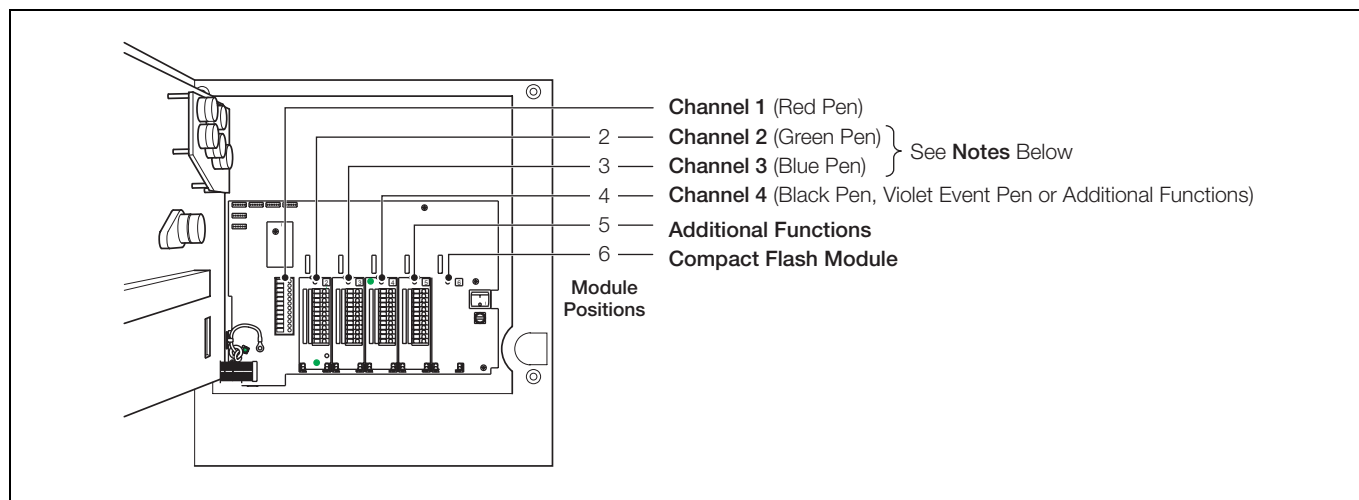


Fig. 3.1 Module Positions and Functions

#### Note.

- Module positions 2 and 3 can also be used for additional I/O modules (Module Type 1) for use with math functions.
- The module type is marked on the component side of the PCB.

11. Restore the power supply to the recorder.
12. Refer to Section 2.3.11 (Operation) and Section 3.12 (Configuration) of the User Guide (part no. IM/C1300) for full operating and configuration information following the Compact Flash upgrade.

### 3.2 Fitting Compact Flash Module (C1300 Only) – Figs. 3.1 to Fig. 3.3

**Warning.** Before making any connections, ensure that the power supply, any high voltage-operated control circuits and high common mode voltages are switched off.

1. Isolate the recorder from the power supply.
2. Open the door.
3. Remove the tamper-evident seal (if fitted).

**Caution.** The recorder is vulnerable to electrostatic damage – take appropriate anti-static precautions.

4. Open the chart plate.
5. Identify the Compact Flash module position (position 6) – see Fig. 3.1, above.
6. Fit the Compact Flash module as detailed in Fig. 3.2 on page 3.
7. Replace the EPROM as detailed in Fig. 3.3 on page 3.
8. Close the chart plate.
9. Refit the tamper-evident seal (if required).
10. Close the door.

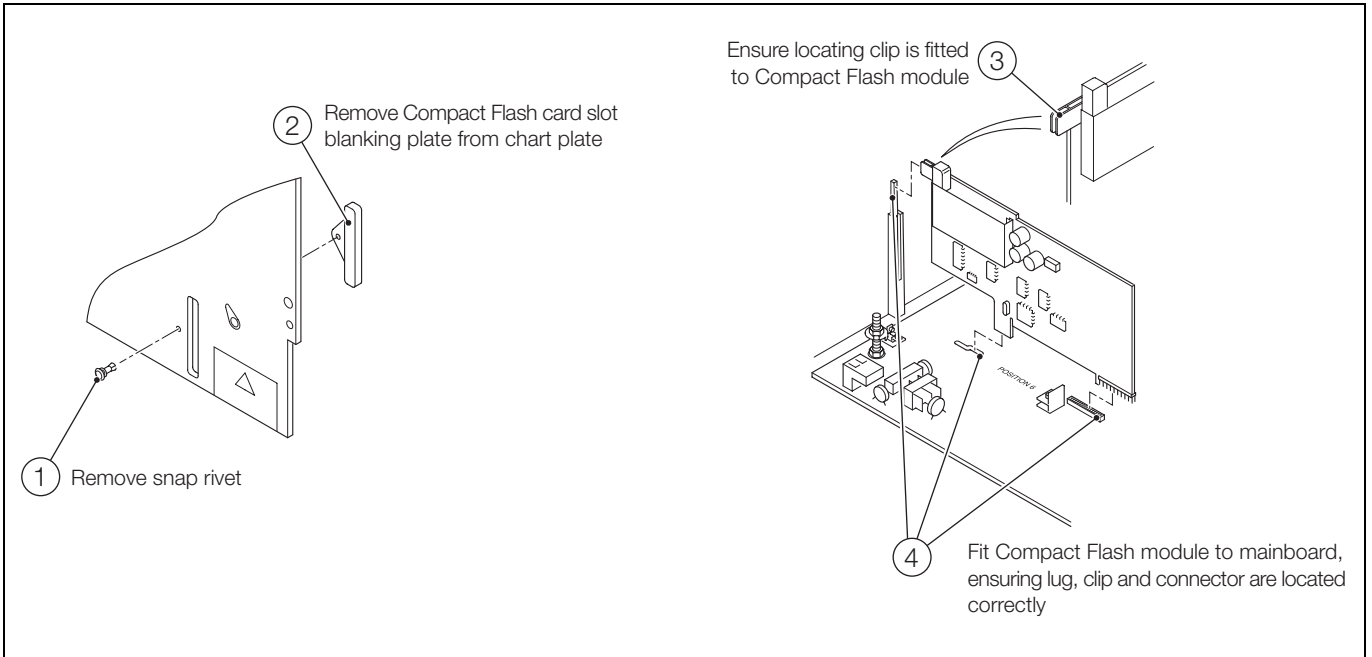


Fig. 3.2 Fitting the Compact Flash Module

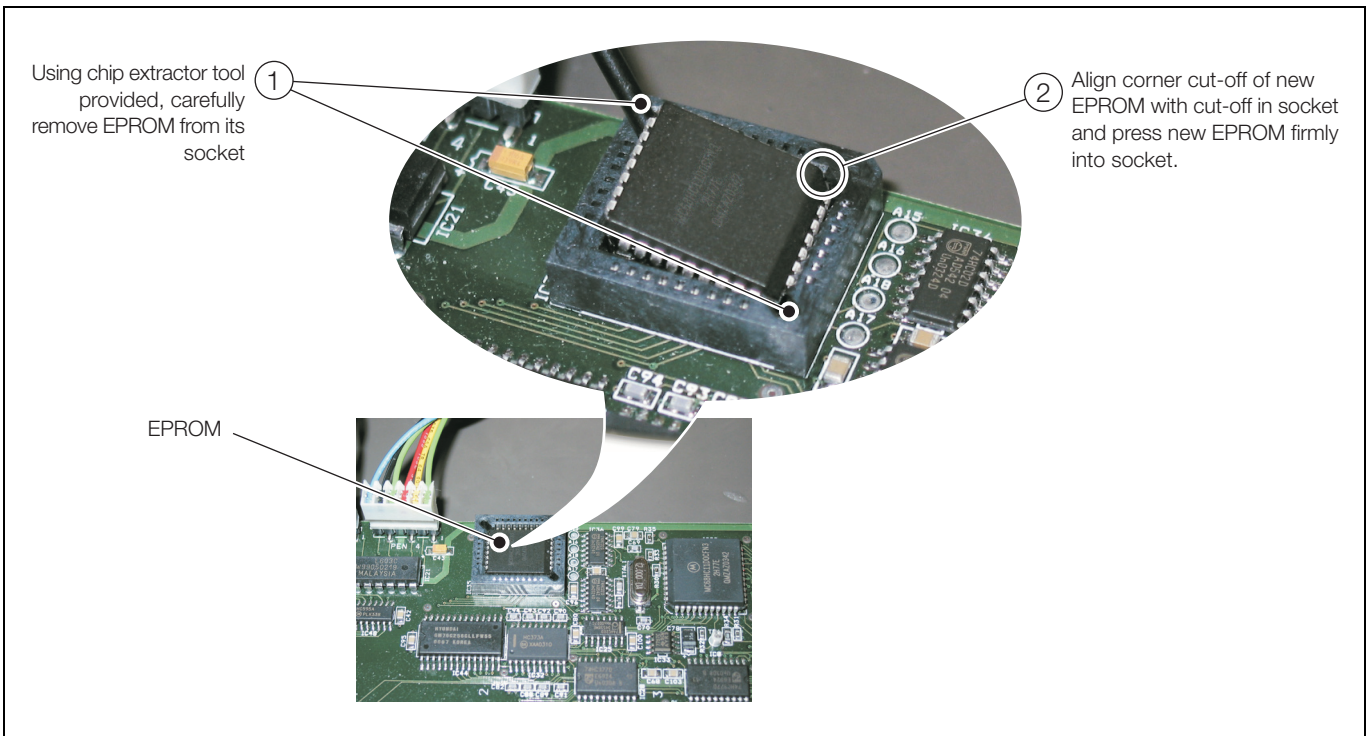


Fig. 3.3 Replacing the EPROM

### 3.3 Fitting Analog I/O and Analog Input + Relay Modules (C1900 Only) – Figs. 3.4 to 3.6

#### Note.

- This section describes the procedure for fitting Mk.2 Analog I/O module boards (C1900/0405) and Mk.2 Analog Input and Relay module boards (C1900/0406) to a C1900 fitted with either a Mk.1 main board (C1900/0365) or a Mk.2 main board (C1900/0425). In order to use a Mk.2 module board with a Mk.1 main board, it may be necessary to replace the EPROM fitted to the main board – see Fig. 3.4 on page 5 to identify valid main board, module board and EPROM combinations.
- The EPROM supplied with the Mk.2 module board is not required if the module board is to be installed in a Mk.2 main board.
- Mk.1 and Mk.2 module boards are identified by their different profiles – see Fig. 3.4 on page 5.

**Warning.** Before making any connections, ensure that the power supply, any high voltage-operated control circuits and high common mode voltages are switched off.

1. Isolate the recorder from the power supply.
2. Open the door.
3. Remove the tamper-evident seal (if fitted).

**Caution.** The recorder is vulnerable to electrostatic damage – take appropriate anti-static precautions.

4. Open the chart plate.
5. Identify the main board fitted to the recorder – see Fig. 3.4 on page 5.
6. If a Mk.1 main board is fitted, refer to Fig. 3.5 on page 6 to identify the EPROM IC23.
7. If the label on the EPROM identifies it as C1900/2101 Issue 7 (or later), the EPROM supplied with the Mk.2 module board is not required.
8. If the label on the EPROM identifies it as C1900/2101 Issue 6 (or earlier) or C1900/2001 (any issue), carefully remove the EPROM.
9. Fit the EPROM supplied with the Mk.2 module board, ensuring that Pin 1 and the indent on the edge of the EPROM are oriented as shown in Fig. 3.5 on page 6.
10. Identify the module position – see Fig. 3.1 on page 2.

11. If necessary, remove and discard appropriate knockout from the recorder's case.

**Note.** Remove knockouts by striking from the inside of the case, taking great care not to damage any internal components. Alternatively, drill out to 0.875 in. (22mm) using a suitable drill bit.

12. Carefully clean out the hole and ensure all debris is removed from inside the recorder.
13. Route the leads and cables into the case.

**Note.** If NEMA 4X hosedown standard is to be maintained, suitable cable glands must be used to prevent water ingress.

14. Fit the Analog I/O or Analog Input + Relay module as shown in Fig. 3.6 on page 6.

**Note.** Connections to the terminal block can be made before or after it is fitted to the main board.

15. Close the chart plate.
16. Refit the tamper-evident seal (if required).
17. Close the door.
18. Restore the power supply to the recorder.

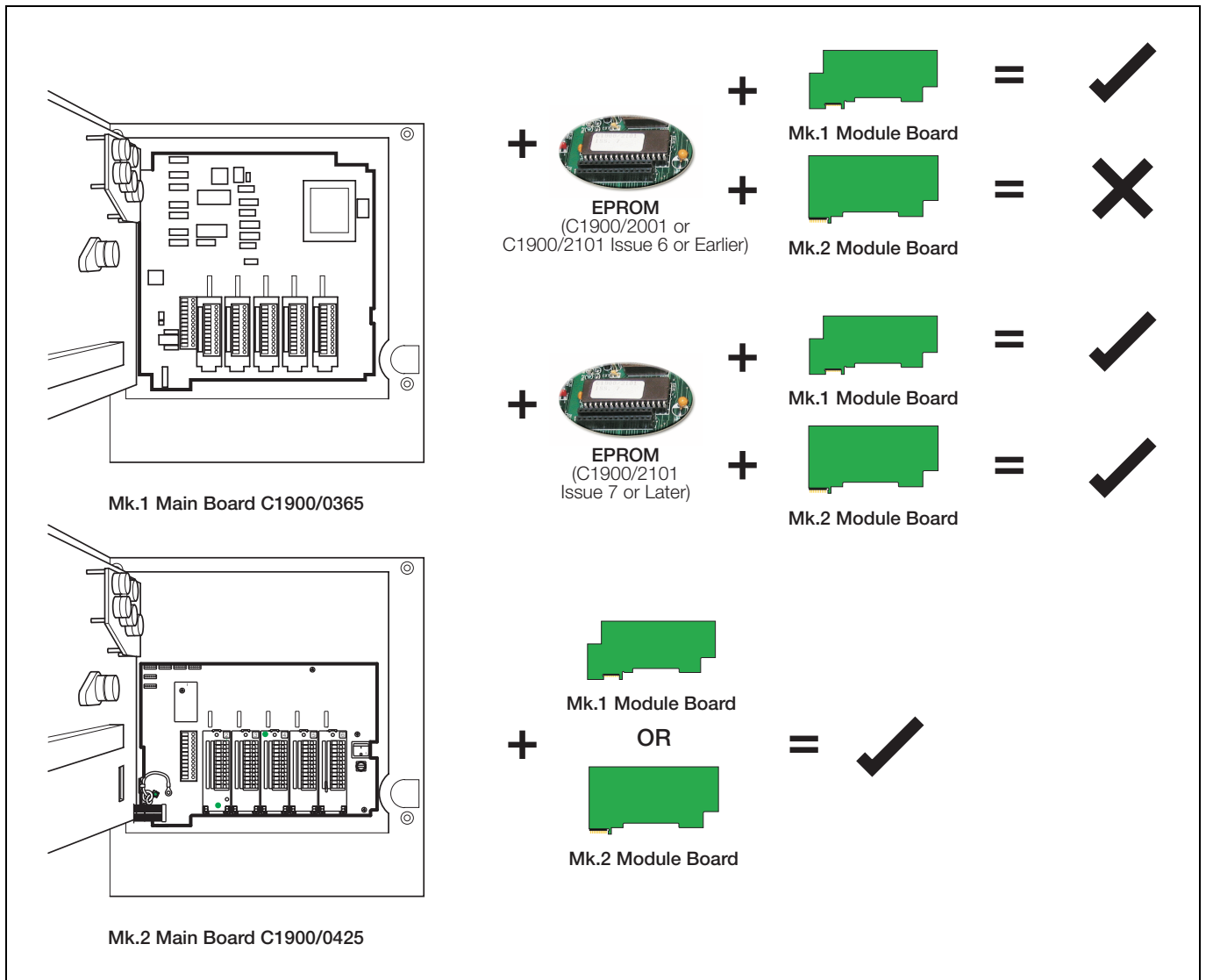


Fig. 3.4 Main and Module Board Identification and Combinations

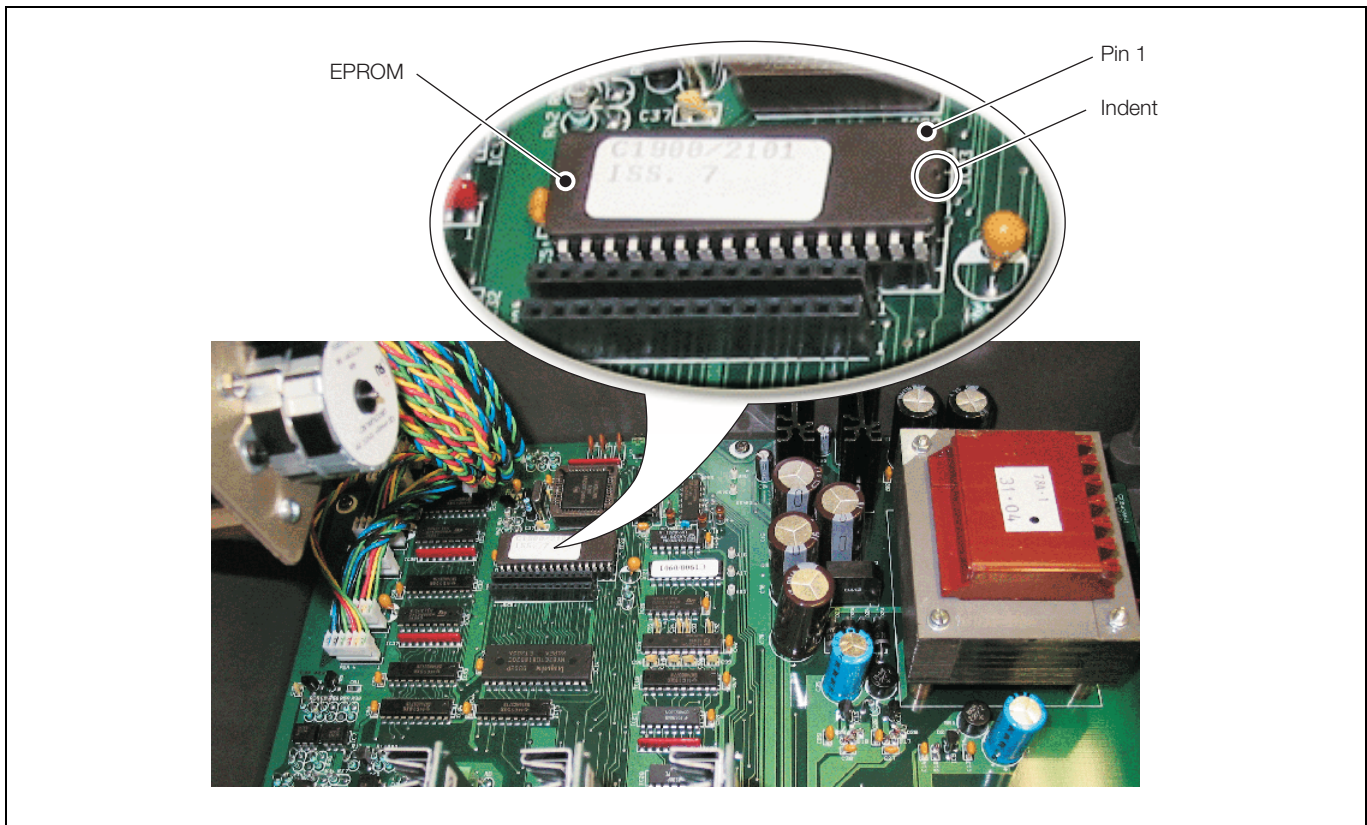


Fig. 3.5 EPROM Identification

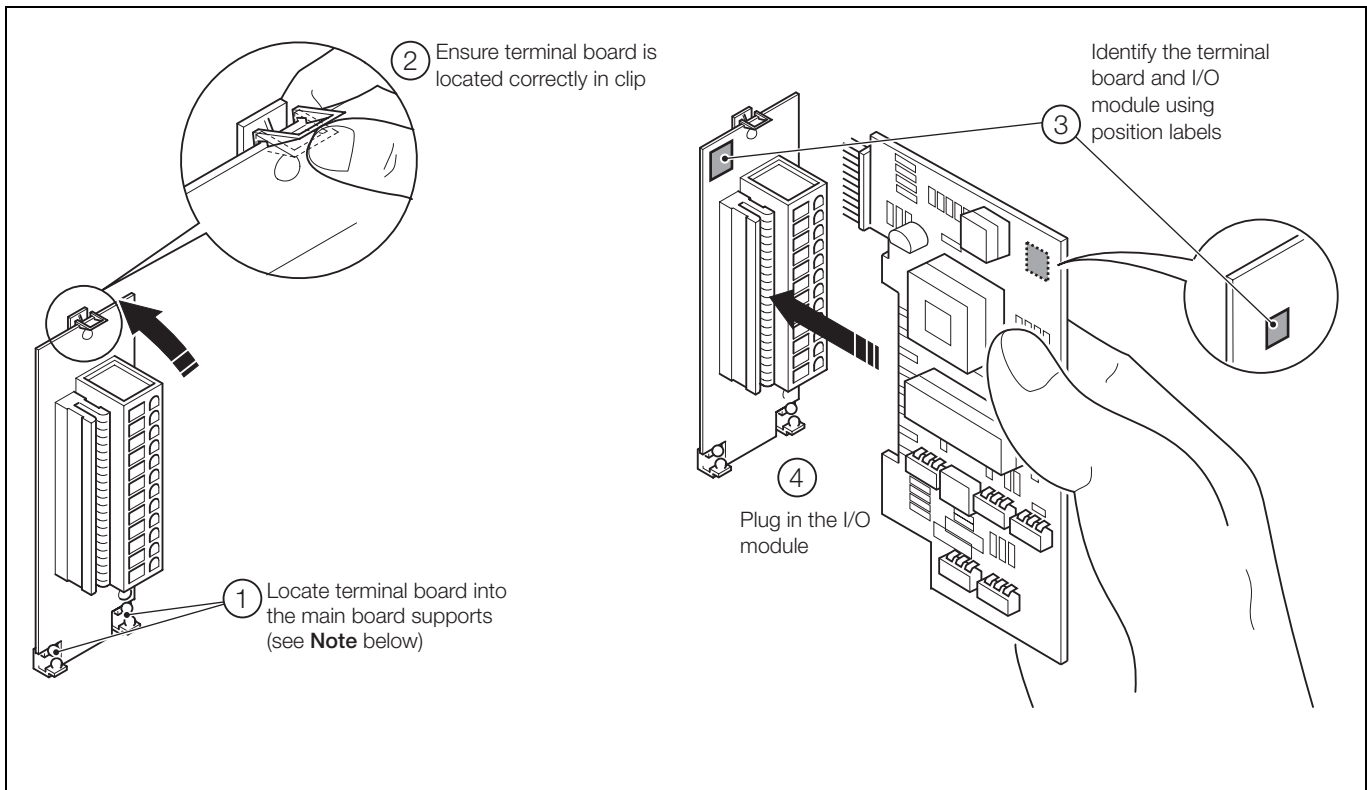


Fig. 3.6 Fitting a Module Board

### 3.4 Fitting Analog I/O Modules (C1300 only), Digital I/O, MODBUS and Relay Modules (C1900 and C1300) – Figs. 3.1 and 3.6

**Warning.** Before making any connections, ensure that the power supply, any high voltage-operated control circuits and high common mode voltages are switched off.

1. Isolate the recorder from the power supply.
2. Open the door.
3. Remove the tamper-evident seal (if fitted).

**Caution.** The recorder is vulnerable to electrostatic damage – take appropriate anti-static precautions.

4. Open the chart plate.
5. Identify the module position – see Fig. 3.1 on page 2.
6. If necessary, remove and discard appropriate knockout from the recorder's case.

**Note.** Remove knockouts by striking from the inside of the case, taking great care not to damage any internal components. Alternatively, drill out to 0.875 in. (22mm) using a suitable drill bit.

7. Carefully clean out the hole and ensure all debris is removed from inside the recorder.
8. Route the leads and cables into the case.

**Note.** If NEMA 4X hosedown standard is to be maintained, suitable cable glands must be used to prevent water ingress.

9. Fit the Analog I/O module (C1300 only), Digital I/O, MODBUS or Relay module as shown in Fig. 3.6 on page 6.
10. Close the chart plate.
11. Refit the tamper-evident seal (if required).
12. Close the door.
13. Restore the power supply to the recorder.

**C1300 and C1900 Circular Chart Recorders**  
Fitting C1300 & C1900 Module Board Upgrade Kits

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