Introduction

**WARNING**
ELECTRICITY IS EXTREMELY DANGEROUS.
TAKE EXTRA PRECAUTIONS AND ENSURE ALL
CIRCUIT BREAKERS ARE OFF BEFORE
PERFORMING ANY WORK ON THE HEATER

**WARNING**
THE FOLLOWING PROCEDURE MUST BE
PERFORMED BY A LICENSED ELECTRICIAN

Tools Required

- Electrical meter
- Phillips head screwdriver
- Small flat head screwdriver
- Heat sink paste

Replacement of the triac printed circuit board will be easier if you can work slightly above the unit.

Preparation

1. Remove the four cover screws and retain, lift off the cover and store safely.
2. Using an electrical meter, confirm power is off the heater.

Removing the triac wiring

1. Remove the thin white signal wires from the printed circuit boards by gently bending the locking tab on the connector with a small flat head screwdriver so that the plug can be removed (Fig. 1). These cables can be moved out of the working area.

2. Using the small flat head screwdriver pull the ¼” push on connectors off the triac printed circuit boards (Fig. 2). The recommended method is to use a small flat head screwdriver in the rectangular hole and then push the screwdriver blade so that the connector pulls off straight.
3. The wiring back to the main terminal block and element can be placed out of the working area.

On the 36kW the triac printed circuit board on the right hand assembly uses ring terminals retained by large screws. These can be removed with a Phillips head screwdriver, retain the screws and washers for reassembly.

Removing the printed circuit boards

1. Using a Phillips head screwdriver undo the one or two triac clamping screws (Fig. 3 & 4). Using a magnetic bit will make this easier as the screws and washers will lift out easily (Fig. 5). Retain these screws and washers for refitting.

The white paste on these parts is normal and is used to transfer heat from the triac to the brass head. Avoid getting it onto clothing and wipe / wash from hands before eating or drinking.

2. Using the small flat head screwdriver, gently open the latch on the moulding holding the printed circuit board in place (Fig. 6).

3. Rotate the printed circuit board slightly to clear the latch and remove from the slot at the other end (Fig. 7). Discard the printed circuit board in accordance with the local environmental laws.
Refitting the circuit boards

1. Lay the new printed circuit board on a work surface. Using the syringe or small packet supplied squeeze a small amount of white heat transfer paste onto the metal underside of each of the triac switches (Fig. 8). This should be approximately the size of the head of the triac fitting screw (¼" diameter).

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<th>Fig. 8</th>
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**WARNING**
AN INADEQUATE AMOUNT OF HEAT SINK PASTE CAN LEAD TO TRIAC FAILURE AND OVERHEATING, CAUSING THE THERMAL CUT-OUT TO TRIP.

2. Reassemble the printed circuit boards to the moulding by slotting in one end and then rotating clockwise to click into the latch on the moulding (Fig. 9 & 10).

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<thead>
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<th>Fig. 9</th>
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3. Using the Phillips head screwdriver (ideally with a magnetic bit) insert the screw with lock washer through each of the triac switches and lightly engage the thread (Fig. 3 & 4). Insert all screws (1 or 2) before tightening hand tight without damaging the screw head.

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<th>Fig. 10</th>
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**WARNING**
INADEQUATE CONTACT BETWEEN THE TRIAC BASE AND THE BRASS HEATING ELEMENT ASSEMBLY CAN LEAD TO TRIAC FAILURE. ENSURE ALL SCREWS ARE TIGHT AND CONTACT IS SUFFICIENT (SEE FIG. 11).

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Reconnecting the wiring

1. Refer to the wiring diagram for each model. Refitting of the ¼" connectors (Fig. 2) should be done by pushing them straight onto the tabs on the printed circuit board. Use a flat blade screwdriver to push the connectors on if required after aligning for straight engagement.

2. Assemble the wiring to the printed circuit board nearest the metalwork first for ease of access (Fig. 12 - 16).
3. Reconnect the thin white signal wires; the three wire connector goes to the printed circuit board mounted nearest the back. The two wire cable goes to the printed circuit board on the left hand side of the head on the 27kW & 36kW units.

**Ensure the connector is aligned with all of the pins and not offset or the heater will not work properly.**

**Refitting the cover**

1. Before refitting the cover perform a once over check:
   - Are all connections made correct to the wiring diagram for this model?
   - Are all connections tight?
   - Is there evidence of the heat transfer paste being squeezed out from under each of the triac switches where they have been clamped?

2. Refit the cover using the 4 screws ensuring that no wires are trapped and that the red clip in lens is not knocked out.

3. Fill the unit with water and follow the commissioning routine in the user handbook. Ensure you have a continuous flow of water from all the hot water faucets before resetting the breakers.

**WARNING**

**DO NOT TURN ON THE ELECTRICITY UNTIL THE UNIT IS FULL OF WATER AS THIS WILL DAMAGE THE UNIT.**