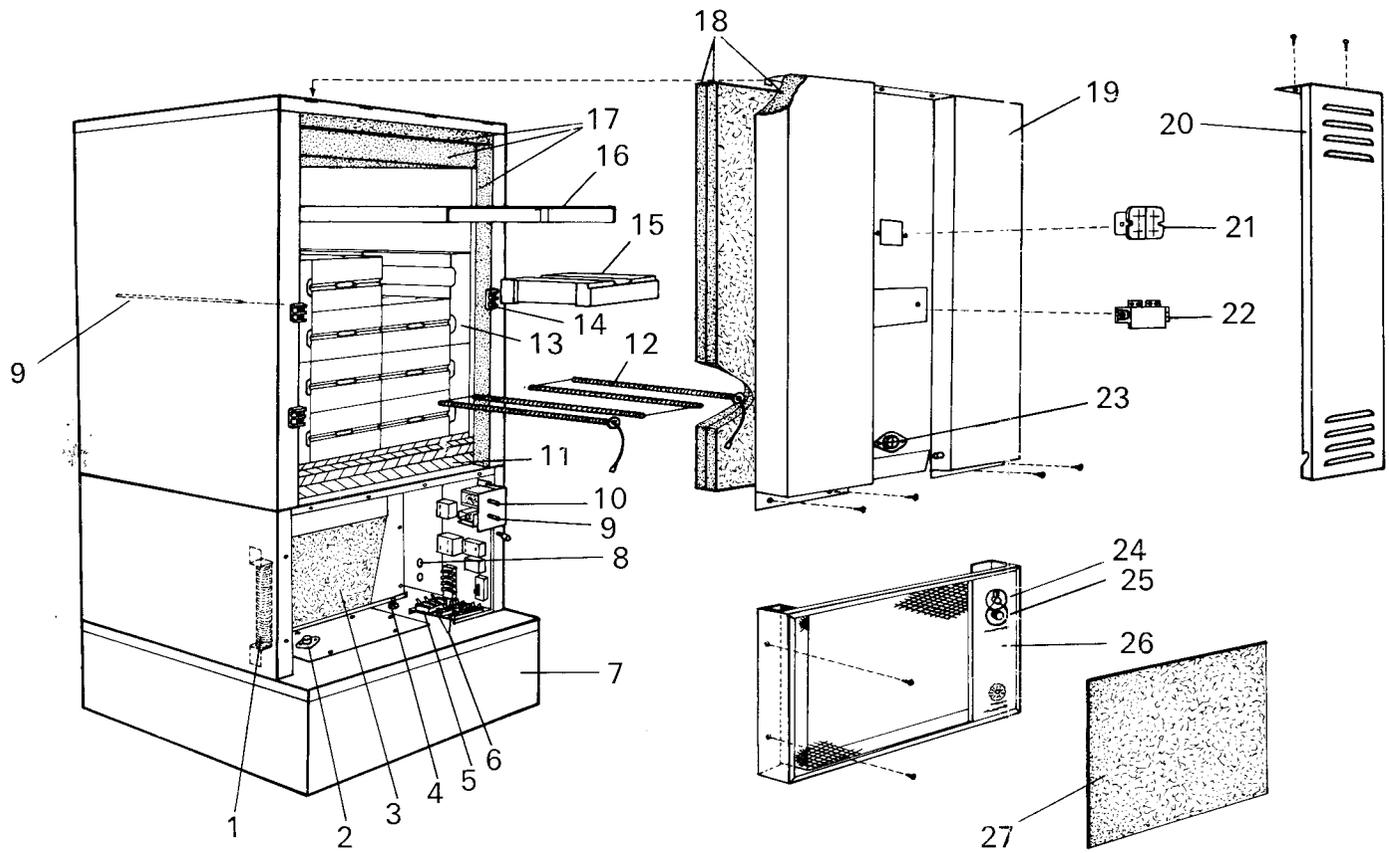


## IMPORTANT

Make sure that the Heater is of the correct voltage and Kw rating and catalogue no. and that all its component parts, (Fig. 1 over page) are available. These instructions tell you how to assemble the heater and how to make adjustments to the air flow volume and temperature. They do not cover the Design and Commissioning of a Heating Installation which should be carried out by an experienced Heating Engineer. Follow the numbered diagrams. Retain these instructions for future reference.

**WARNING: This appliance must be earthed**



| No. | Component                           |
|-----|-------------------------------------|
| 1   | Resistor – Fan Speed Control        |
| 2   | Fan Safety Cut-out                  |
| 3   | Anti-Blow Back Flap                 |
| 4   | Earthing Terminal                   |
| 5   | Restricted-Hour Supply<br>Terminals |
| 6   | Unrestricted Supply<br>Terminals    |
| 7   | Plenum                              |
| 8   | Knock-out Plugs for Cable<br>Entry  |
| 9   | Charge Control Thermostat           |
| 10  | Fan Control Switch                  |
| 11  | Base Insulation                     |
| 12  | Element                             |
| 13  | Core Block (Side Brick)             |
| 14  | Element Connectors                  |
| 15  | Core Block (Centre Brick)           |
| 16  | Steel Top Plate                     |
| 17  | Thermal Insulation                  |
| 18  | Thermal Insulation                  |
| 19  | Front Panel                         |
| 20  | Centre Front Panel                  |
| 21  | Fusible Link—Double Unit            |
| 22  | Fusible Link Connector<br>Block     |
| 23  | Safety Thermostat                   |
| 24  | Fan Control Knob                    |
| 25  | Charge Control Knob                 |
| 26  | Grille Assembly                     |
| 27  | Filter                              |

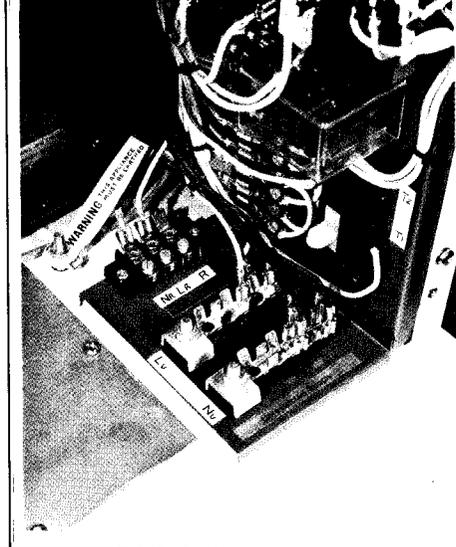
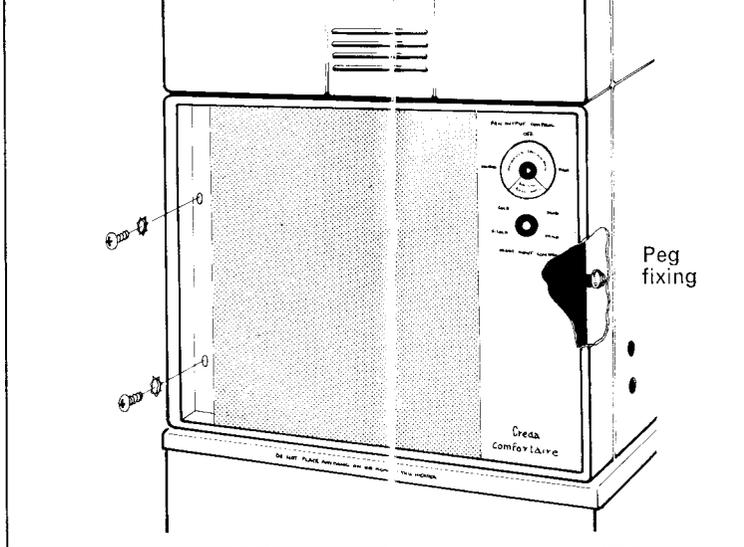
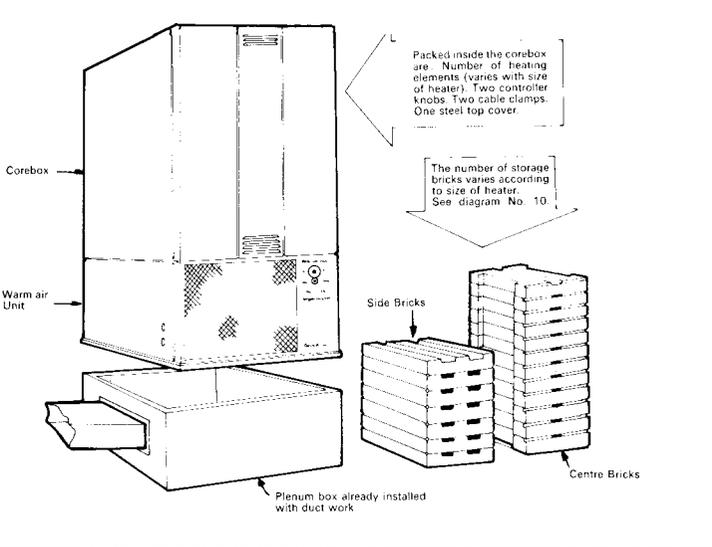
## ASSEMBLY INSTRUCTIONS

Part No. 7520-00053 Q



CREDA ELECTRIC LTD. - PO BOX 5  
 BLYTHE BRIDGE  
 STOKE-ON-TRENT ST11 9LJ  
 TELEPHONE BLYTHE BRIDGE (0781-8) 2281

Tube Investments Ltd an advanced engineering group

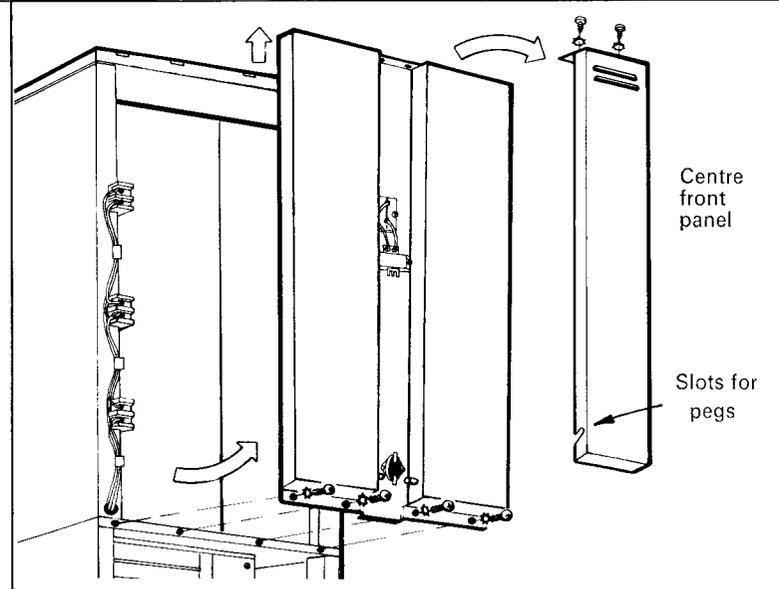
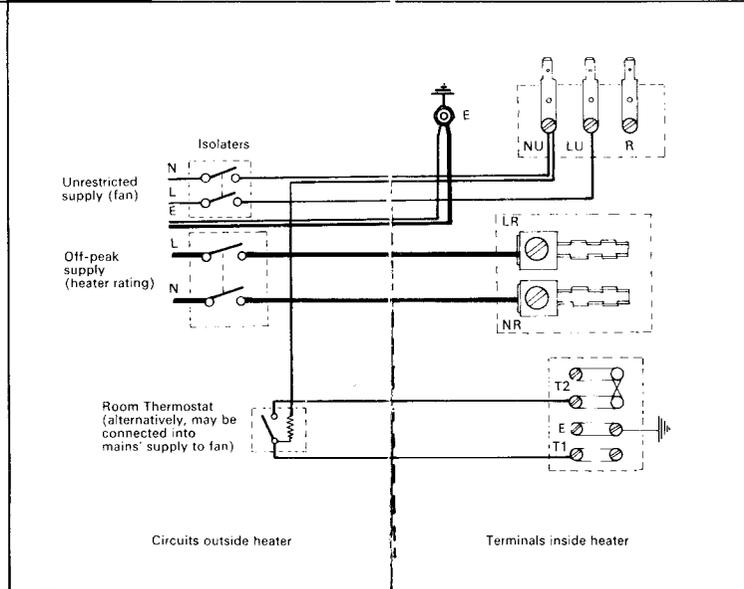
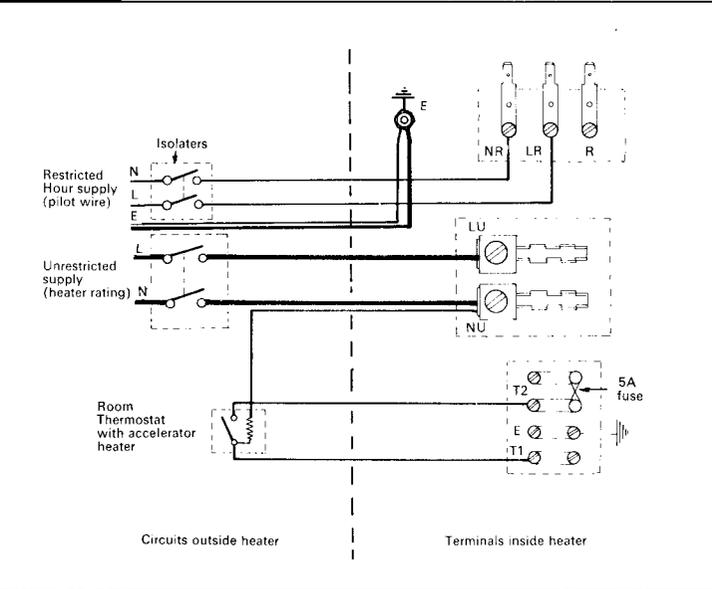


- Notes:
- (1) Terminal R on the LR, NR block is used only for remote control circuits — see later diagrams.
  - (2) For the purpose of connecting the accelerator heater on a room thermostat, note that terminal T2 is the live one of the pair.
  - (3) On later heaters the terminal block Lu, Nu, is made of ceramic instead of plastic.

**1** This diagram shows the different parts which are necessary to complete the assembly of the Electricaire heater. In particular, check via diagram 10 of these instructions that you have the necessary number and type of storage bricks.

**2** Remove the inlet grille assembly. With the heater mounted on its plenum box, remove the filter pad from the grille. Remove the grille itself by withdrawing the two screws on the lefthand end, then moving the assembly sideways to the right to free it from the hidden peg fixing at the righthand end.

**3** **Connecting Mains' Supplies (White Meter)**  
The connection of the mains' supplies can be made now (or later if required). There are three sets of terminals: LR, NR—restricted hour supply (pilot wire). LU, NU—unrestricted supply (full heater rating). T1, T2—for looping in a room thermostat to control the operation of the fan. See next diagram for external circuits (W.M. and off-peak).



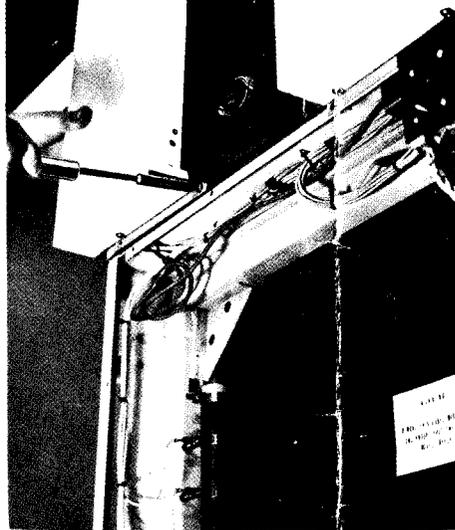
**4A** **White Meter tariffs.** Mains' supply connections. See diagram 4B for non-white meter tariffs (off-peak). Note: White Meter heaters must be ordered as such. Conversion on site from off-peak heater is possible but ask for special leaflet on this.

**4B** **Non-White Meter tariffs—off-peak tariffs.** Mains' supply connections. See diagram 4A for White Meter tariffs. Note: Heaters for off-peak tariffs should be ordered as such but it is also possible to convert White Meter heaters to off-peak operation on site if necessary. Ask for special leaflet on this.

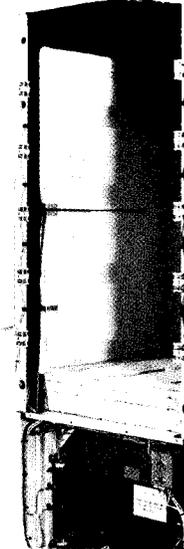
**5** Remove the centre front panel. This has two screws in its top flange (on top face of heater) and is hooked on to pegs at its lower end. Remove the screws and swing the panel out from the top, then lift it from the pegs. The diagram also shows the main front panel's removal—see diagrams 6 and 7 first.

Fusible link connectors

Thermostat connectors



Note: The core thermostat phial is now fitted on the right-hand side of the core box.



6

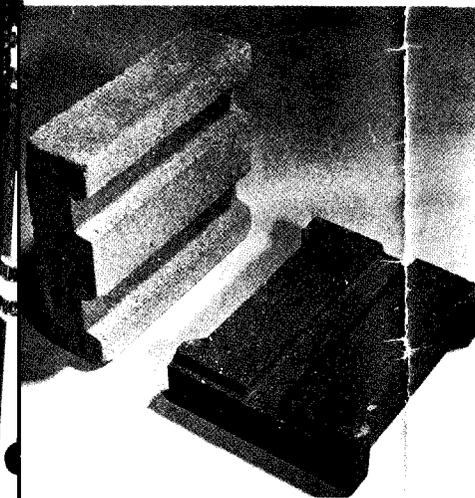
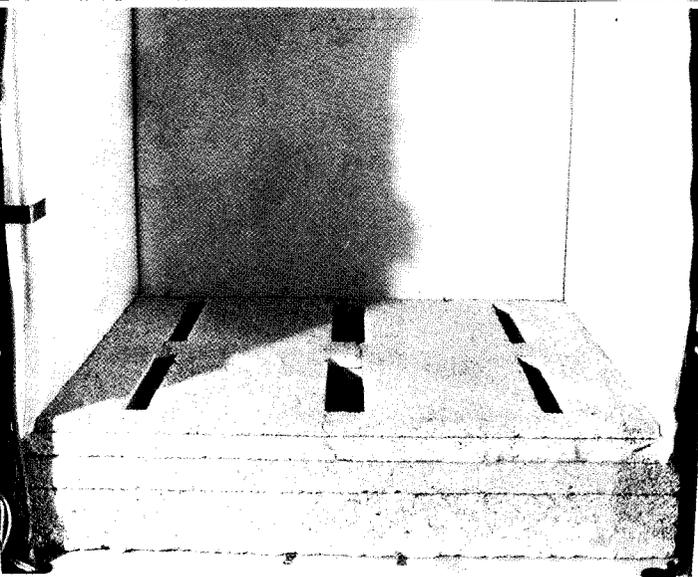
Pull off the connectors on the lower side of the fusible link terminal block; the number of connectors and fusible links vary on different sizes of heater. Pull off the two connectors on the thermostat head at the bottom of the channel. Stow the loom of wires temporarily in the warm air unit below.

7

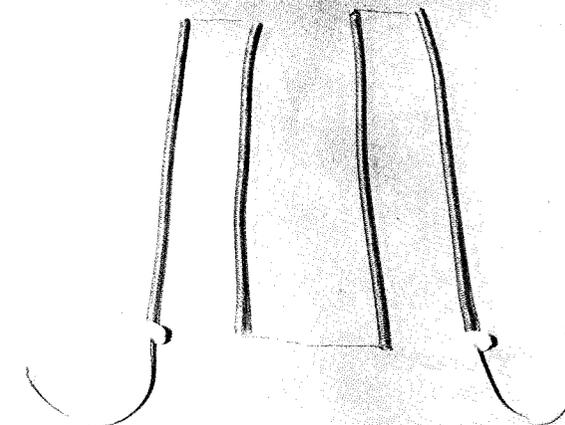
**Remove the front panel.** It is attached by four self-tapping screws in the flanges at its bottom edge and by four tags which locate in slots at its top edge. With the screws removed, it can be lifted off, upwards. It will contain two layers of fibre lagging—do not disturb these. See also diagram 5.

8

Remove inner front insulation. This is partially cut through down the centre to enable it to hinge outwards from the middle. Ease it forward by inserting a screwdriver or similar blade at the middle of the top edge. Put it in a safe place. Remove the items packed inside the core box.



**Core bricks.** There are basically two sorts of bricks from which the storage core is built, centre bricks and side bricks. Additionally, on some heater sizes there are needed some 1/2-size bricks. The table below gives the numbers of bricks per heater.



**Heating elements.** The elements consist of open spirals arranged in a four-limb grid shape. Ceramic discs and fish-spine beads insulate the endleads which are fitted with push-on connectors. See note overleaf on sheathed elements

9

**Clear core cavity and airways.** See that the vermiculite base insulation block is pushed well back and that there are no gaps between the various slabs of insulation.

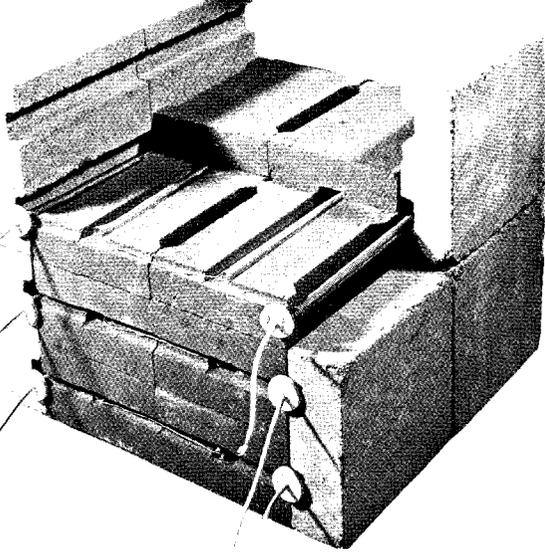
10

| Heater Model No.     | AB 5/37 | AB 6/44 | AB 8/53 | AB 9/60 | AB 10/67 |
|----------------------|---------|---------|---------|---------|----------|
| Centre Bricks        | 32      | 40      | 48      | 56      | 64       |
| Side Bricks          | 8       | 8       | 12      | 12      | 16       |
| 1/2-size side bricks | None    | 4       | None    | 4       | None     |

11

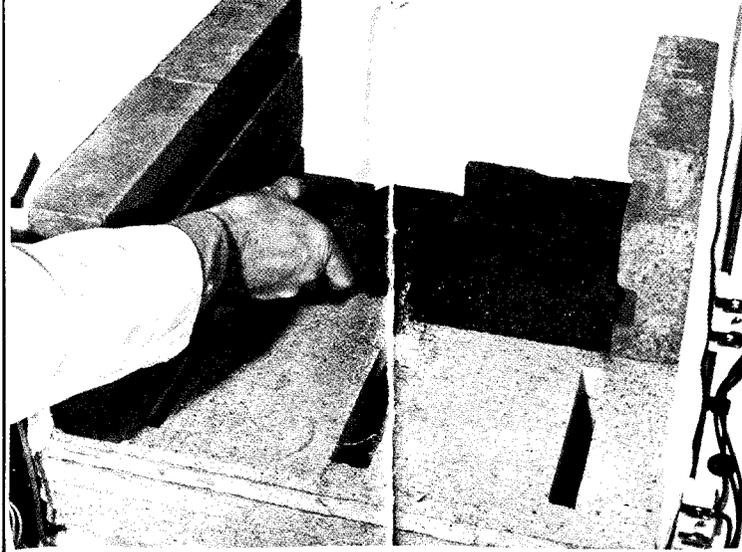
Do not use elements with broken or loose insulating beads.

| Heater Model No. | AB 5/37 | AB 6/44 | AB 8/53 | AB 9/60 | AB 10/67 |
|------------------|---------|---------|---------|---------|----------|
| No. of elements  | 4       | 5       | 6       | 7       | 8        |
| Total loading kW | 5       | 6.25    | 7.5     | 8.75    | 10       |



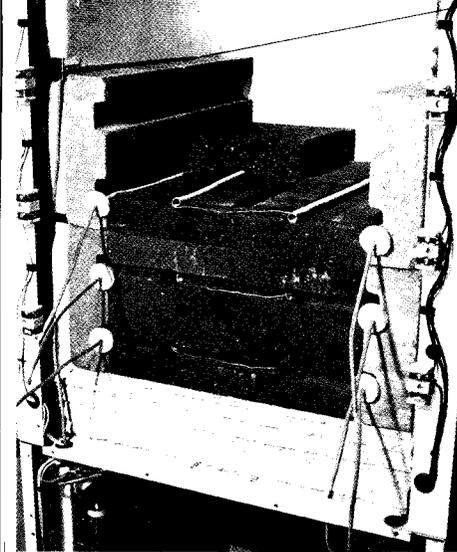
# 12

**The storage core.** The picture above shows an assembly of core bricks and heating elements outside of a heater so that the way that the parts fit together can more clearly be seen. Note the straight sections of the element wire, running in the recesses formed at the outer ends of the centre bricks.



# 13

**Assembling the core.** First, place the bottom course of **Side** bricks against the side insulation slabs. Then lay the four **Centre** bricks in with their element grooves uppermost. Lay in the first element coil (see next diagram).



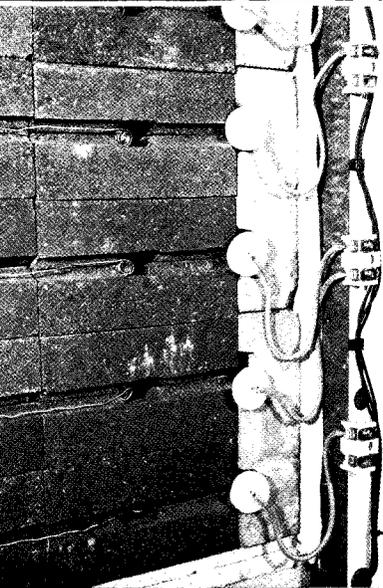
The core thermostat phial is now fitted on the right-hand side of the core.

Note the straight wires between coils lying neatly within the end recesses on the bricks.

See note on the back page on these instructions re. large heaters.

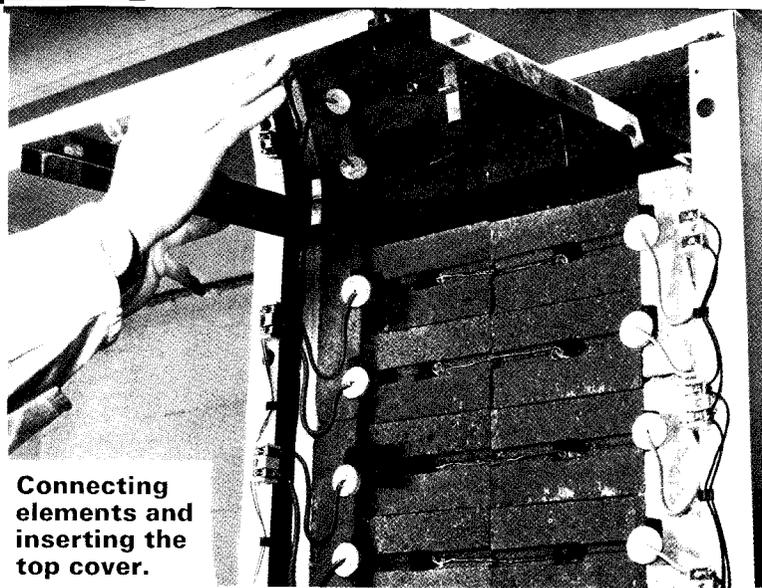
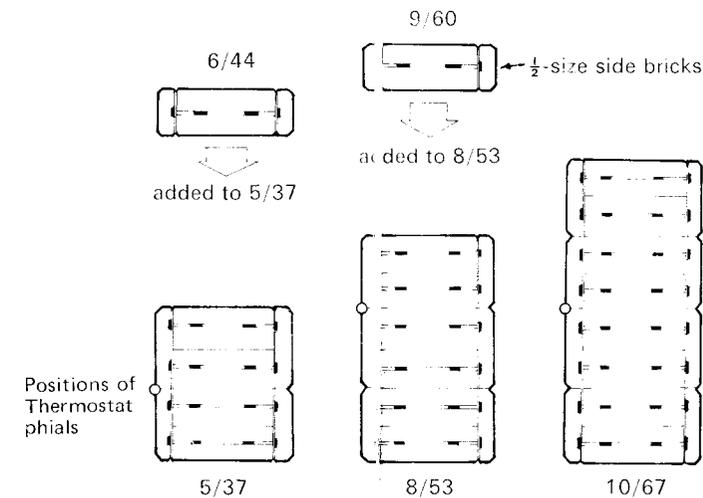
# 14

**Assembling the core—continued.** Remove the packing from an element and lay the element in a grid formation in the grooves as above. The interconnecting cross wires between the coil limbs lie in the end recesses on the bricks. Lay the next course of centre bricks with the element grooves, this time facing downwards to locate over the element limbs. Make sure the coils stay in position while you are doing this.



### Assembling the core (continued)

With the bottom element coil complete in its brick sandwich, repeat the process for the second element coil, i.e., the first layer of bricks with groove uppermost, place element coil and cover with more bricks with grooves now facing downwards. After the second sandwich, a new course of **Side** bricks must be laid. If necessary adjust the vertical position of the thermostat phial to coincide with the joint between two side bricks—see next diagram. Continue until all elements are fitted.



**Connecting elements and inserting the top cover.**

# 15

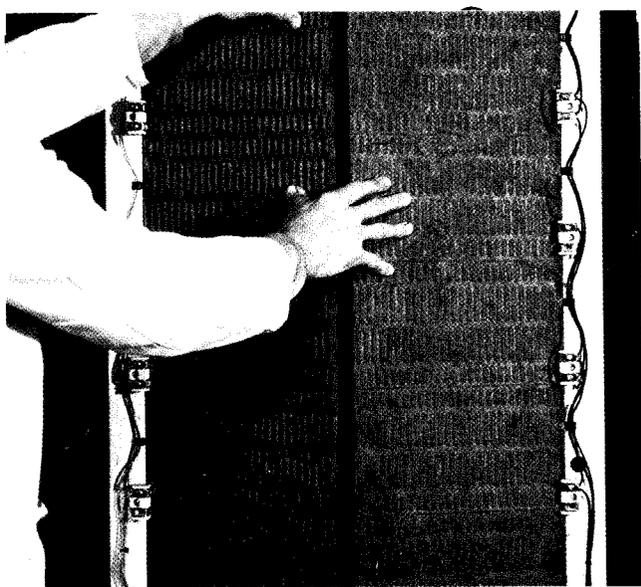
Note: On the 6/44 and 9/60 sizes of heater the last course of side bricks will be ½-size bricks with one groove only.

# 16

The diagrams above show how the 5 sizes of heater are built from the storage core bricks and the positions of the thermostat phial with respect to the side bricks. The phial is positioned in its clips at the factory but may need a small adjustment to allow for variations in brick size (tolerance). Note that the 6/44 and 9/60 cores are made by adding a ½-side brick module.

# 17

The element endleads can now be connected to the side terminal blocks. Start at the bottom and proceed upwards. Although two-way terminal blocks are used as standard all their ways may not be used, in which case the connector tab is not fitted to the unused way. Arrange the endleads neatly as shown above and press the loops well back against the side insulation. Insert the steel top cover as shown.



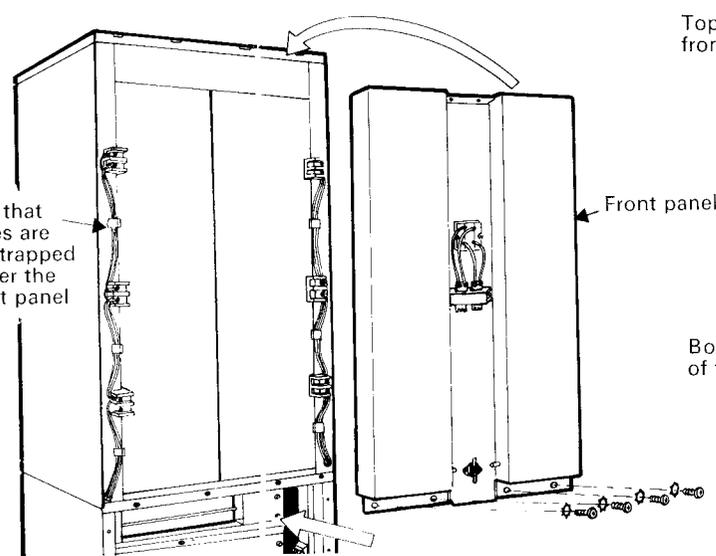
18

**Replacing the front insulation.** Holding the inner slab by its long sides, squeeze it so that the hinge, formed by the cut down its middle, bulges outwards (cut must be on outer face). The vee-shaped slab can then be placed in position with its front face level with the edges of the corebox flanges and, by pressure with the flat of the hand over the centre area, can be made flat to fit the aperture tightly.

19

**Replacing the front panel.** The front panel contains two layers of fibre insulation, one layer in two pieces within the box sections of the panel and the second inner layer covering the entire area. See that these are symmetrically placed with respect to the panel and that the aperture in the inner layer coincides with the fusible link ceramic holder and is not enlarged. See that all four fixing tags are engaged in the slots at the top of the heater casing. Four large self-tapping screws fix the bottom flanges. Referring back to earlier diagrams 6 and 7, reconnect fusible link wires to terminal block and reconnect the lower thermostat. Refit centre front panel.

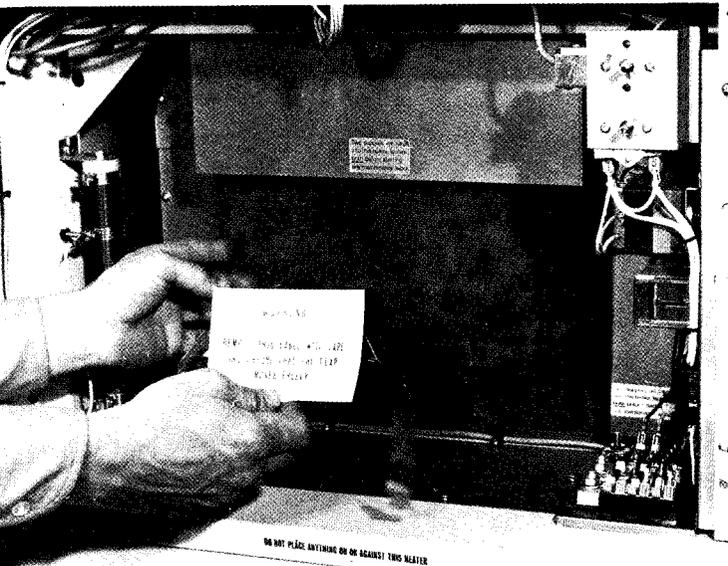
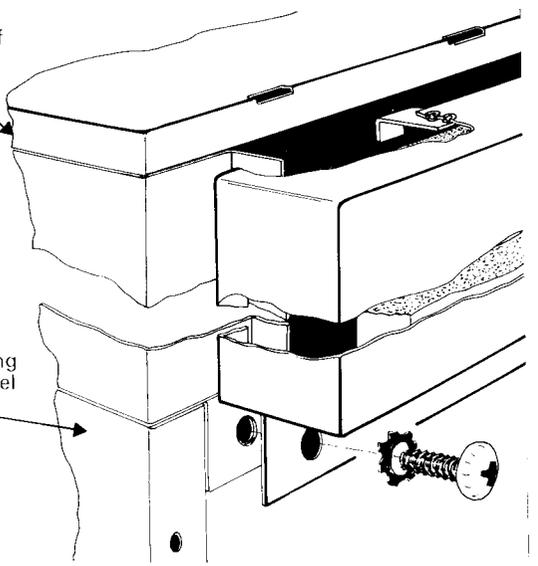
! See that wires are not trapped under the front panel



Top fixing of front panel

Front panel

Bottom fixing of front panel



20

**Adjusting the Reverse-Air Flap.** The flap is made of fibre slab with its inner (hidden) face covered with aluminium foil. It is designed to open about its bottom hinge, if air is blown backwards through the heater when the fan is off. For transit, it is held closed by sellotape. Remove the tape and warning notice and see that the flap is positioned with its lower edge in the channel section. Check that it can move freely and is in good condition.

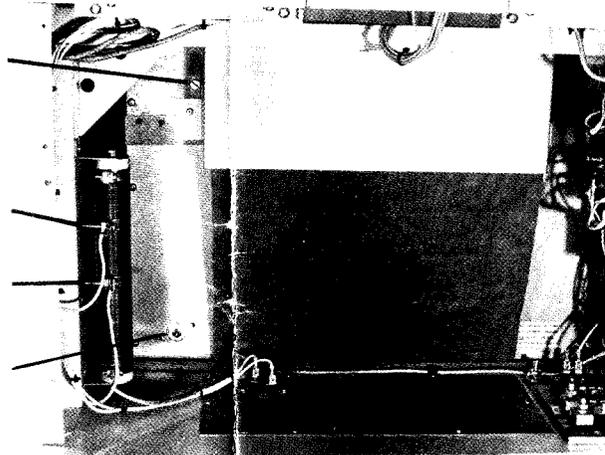
21

By-pass trimming screw

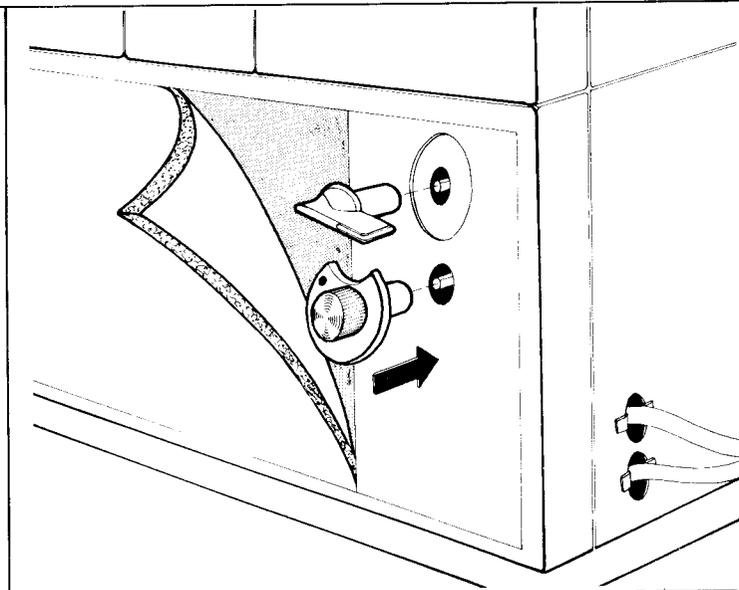
Normal speed band

High speed band

Thermostat controlling day energy on W.M. heaters.



**Adjusting the fan speed and setting the outlet air temperature.**



22

**Refitting grille, knobs and filter.** Refit the grille assembly by engaging the hidden peg fixing at the right hand end and securing the left hand end with the two machine threaded screws—see also diagram 2. Push the control knobs on to their spindles and check that the interlock between the knobs is effective, i.e. the Night input knob must be at maximum before the Fan output knob can be set to Day boost.

The fan speed is adjusted by moving the positions of the two tapping bands on the voltage dropper resistance—the upper band for normal speed, the lower band for high (maximum) speed. Do not attempt to move any of the other bands. The outlet air temperature is adjusted by turning the by-pass trimming screw. Clockwise rotation lowers the temperature, anti-clockwise rotation raises the temperature.

## COMMISSIONING AND FUNCTIONAL CHECKS ON A NEW INSTALLATION

**Fan Output.** Reference to the installation design data and heater fan performance curves will indicate the correct motor voltages to produce NORMAL and HIGH air output for the particular installation. The method of adjusting the air flow is shown earlier in these assembly instructions (diagram 21). Motor voltage may be checked between the lower connector on the resistor and the Neutral on the 'Unrestricted' mains' supply terminal block.

**Outlet Air Temperature.** When adjusting outlet air temperatures, the fan must run for a period sufficient to establish a reasonable approximation of the normal building temperature. The temperature of inlet air to the unit should be checked to ensure that it is not appreciably below 65°F. If, however, there is a substantial difference, the adjustment to outlet air should be on the basis of an 80°F temperature difference between inlet and outlet air.

**White Meter Day Rate Controls.** These controls may be checked in part with the core cold and the checks completed when the core has received some charge. With the core cold, and only the 'Unrestricted' mains' supply on (Restricted-hour supply off), set the 'Night Input' control to maximum and the 'Fan output' control to 'Day Boost', and check with a clip-on ammeter that the Outlet Air Sensor, Thermal Relays and Element Banks are functioning correctly. Turning the Fan Switch back to NORMAL setting should interrupt the sensor circuit causing the thermal relay to open after a short interval, interrupting the supply to the core elements.

After the core has received a partial charge, the sensor will adopt an open circuit condition prohibiting the Day Time energy consumption when the controls are set to the 'Day Boost' position.

A special key is available to allow adjustment of the sensor thermostat on site.

## CONVERSION OF CREDA ELECTRICAIRES TO SUIT DIFFERENT ELECTRICITY TARIFFS

Two versions of each size of AB Electricaire are available ex-works viz., White Meter heaters and Off-Peak (non-White Meter) heaters.

The main difference between the two versions is that the White Meter heaters have an additional, magnetic, relay for pilot wire control and a thermostat to detect when the storage core has been exhausted of heat.

**Conversion (on-site) of White Meter heaters to Off-Peak operation.** This is a simple operation involving the disconnection of the pilot wire relay and outlet-air thermostat and the removal of a few wires. The marking labels on the mains' supply terminals need changing to avoid confusion in subsequent servicing. A separate leaflet explains this.

**Conversion (on-site) of Off-Peak heaters to White Meter operation.** There is rather more work in this conversion because the additional components (magnetic relay and thermostat) have to be fitted and new wires added.

The mountings are provided and the extra wires and components contained in a kit, together with instructions.

## REMOTE CONTROL OF CREDA ELECTRICAIRES

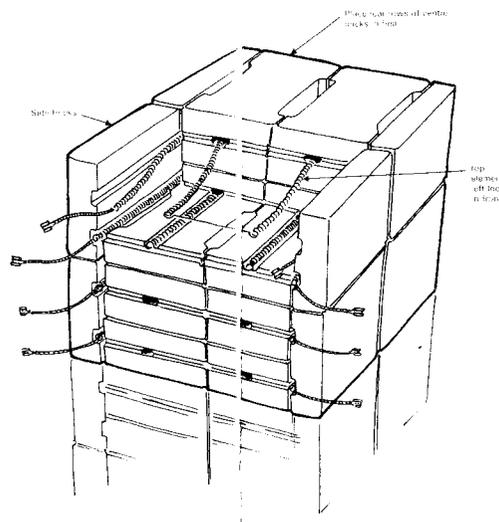
The AB type Electricaire has been designed so that remote control of both the fan operation and the storage core can be installed by means of external circuits of light-duty wiring. Terminal blocks for the connection of the external circuits are provided on the heater.

**Remote Fan Switch:** The switch fitted to the heater is simply removed and its connection on the heater terminal block extended to the remote position.

**Remote Control of storage core:** As the charge control is a variable thermostat with a phial fitted in the storage core itself, it is not possible to fit the actual instrument in a remote position. Instead, the charge thermostat is turned to its maximum setting and remote control achieved by switching the core elements in groups, i.e., control of charging rate. The three element groups required for this are already arranged via the thermal relays and their connections, like the fan switch, are brought to the heater terminal blocks for easy external connection.

**Note:** On some of the small heaters only two thermal relays are fitted as standard, and for remote control of these the third relay must be added. The mountings for this are provided. Normally, the fitting of remote control will be effected by means of a conversion kit, with which there will be a separate instruction leaflet.

## NOTE ON ASSEMBLY OF THE LARGER SIZES OF HEATER



The best way of putting the top element and its associated bricks in place is illustrated above. For the last two layers of bricks and the top element, complete the rear rows first, leaving the element coils loose in the front section.

With the element thus anchored in the rear bricks, it is then an easy matter to insert the front rows of bricks around it.

## NOTE ON HEATING ELEMENTS

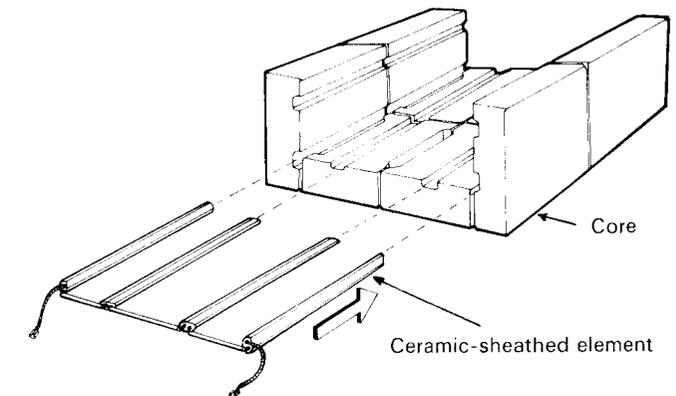
For the purposes of replacing heating elements in the core during service, without dismantling the core itself, a ceramic-sheathed element is available—see diagram below.

This will normally be used as a service replacement but it may be that, against a special order, the heater has been supplied with a ceramic-sheathed element.

In this event, proceed with the assembly as in diagrams 12, 13, 14 and 15.

EITHER insert the elements as you build up the core (as with the open spiral elements),

OR, if you wish, later, after the complete core has been assembled. The elements will then slide in from the front.



## ELECTRICAIRES IN CUPBOARDS

In a cupboard which houses an Electricaire heater, you may consider it necessary to guard against the risk of things being pushed down the air gaps surrounding the heater.

In this case, the most suitable form of guard is a mesh screen covering the upper part of the cupboard door opening, leaving free access to the heater filter and control knobs.

The mesh screen must be removable for servicing purposes.

## WARNING

The thermal insulation which is used in Heat Storage appliances such as ELECTRICAIRES, STORAGE FAN HEATERS and STORAGE RADIATORS, produces a smell when the appliances are first run up to temperature. It is advisable to ventilate the room during the first charge period and this charge should be done at the maximum control setting.

The smell is harmless and will soon disappear but it can cause discomfort, particularly to persons suffering with chest ailments. Pets, particularly caged birds which are very sensitive to fumes in the air, should be removed from the room in which the heater stands.