

## **Temcana Kestrel 55**

# **Powered Flued Fanned Convactor Heater**

Installation and Servicing Instructions

Please leave these instructions adjacent to the gas meter or with the site engineer



### **Vulcana Gas**

30 Bridge Road, Haywards Heath, West Sussex, RH16 1TX

Tel: 01444 415871 • Fax: 01444 441433

Email: [sales@vulcanagas.co.uk](mailto:sales@vulcanagas.co.uk) • Website: [www.vulcanagas.co.uk](http://www.vulcanagas.co.uk)

This heater has been tested and certificated for use on natural gas (G20 at a supply pressure of 20mbar) and propane (G31 at a supply pressure of 37mbar) in GB and IE.

### INDEX OF CONTENTS

- 1.0 REFERENCE DOCUMENTS
- 2.0 WARRANTY NOTE
- 3.0 CONTENTS LIST
- 4.0 TECHNICAL DATA
- 5.0 SITING THE HEATER
- 6.0 TERMINAL POSITION
- 7.0 INSTALLATION
- 8.0 GAS CONNECTION
- 9.0 ELECTRICAL
- 10.0 COMMISSIONING AND TESTING
- 11.0 INSTRUCTIONS TO USER
- 12.0 SERVICING INSTRUCTIONS

### 1.0 REFERENCE DOCUMENTS

This appliance must be installed by a competent person, in accordance with:-  
Gas Safety (Installation and Use) Regulations: 1998 (as amended)  
B.S. 6891: 1988  
B.S. 5871: Part 1: 1991  
B.S. 5440: Part 1: 1990  
B.S. 5440: Part 2: 1989  
B.S. 5482: Parts 1 & 2 (Scotland) (Consolidated)  
Local Building Regulations  
Current I.E.E. Wiring Regulations  
Health and Safety Act at work etc. Act: 1984  
Any local Gas Region or Local Authority requirements must also be taken into account.

### 2.0 WARRANTY

Warranty will be invalidated if the appliance is not installed and adjusted according to the foregoing requirements and the following instructions.

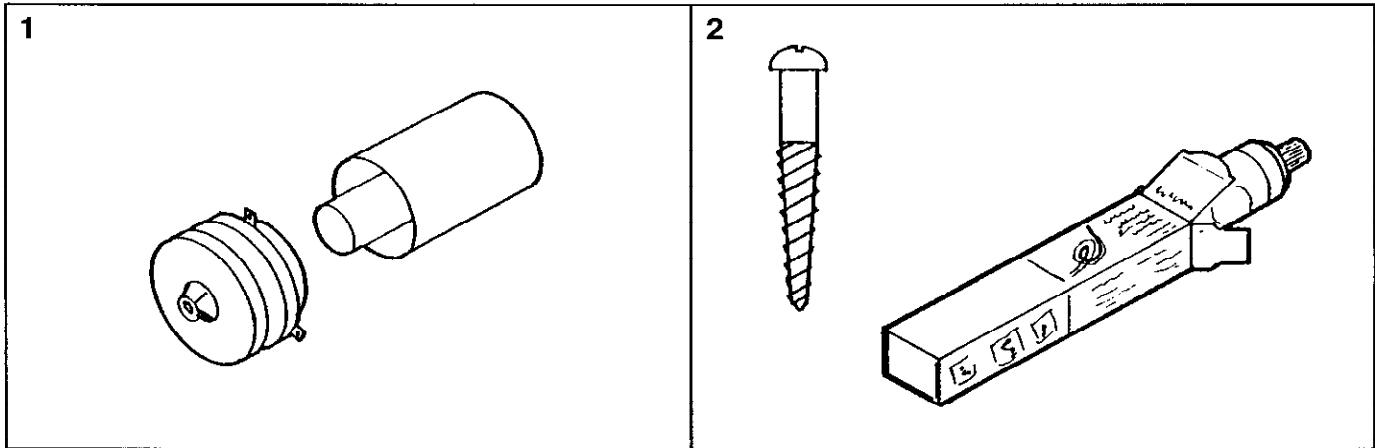


Figure 1

### 3.0 CONTENTS LIST

The appliance is despatched as an assembled heater unit, complete with accessories.

Identify the various components from Fig. 1 and check to ensure that they are complete and undamaged.

1. Flue Assembly (Wall thickness 50mm to 500mm)\*
2. Pack of screws/silicone sealant

\*A long flue assembly is available for wall thickness up to 1000mm.

### 4.0 TECHNICAL DATA

#### Natural Gas

Injector Diameter	3.3mm
Burner Pressure	15.0mbar (6.0in. wg)
Heat Input (Gross)	19.05kW (65 000 Btu/h)
Heat Output	16.12kW (55 000 Btu/h)

#### Propane

Injector Diameter	2.1mm
Burner Pressure	35mbar (14in. wg)
Heat Input (Gross)	17.7kW (60 400 Btu/h)
Heat Output	14.95kW (51 000 Btu/h)

### 5.0 SITING THE HEATER

- a) When selecting the site for the heater, it is essential to ensure that the flue terminal will also be sited correctly externally (see 6.0 Terminal Position).
- b) Generally, the best position for the heater is mid-way along a wall of the room that the heater is to serve: this gives the best circulation effect.
- c) Care must be taken to ensure that no door can be swung in front of the heater.
- d) The heater must not be fitted where long curtains can be closed over it. The hem of any curtain must finish at least 200mm above the top of the heater cabinet.

#### 5.1 Minimum Clearances

The following minimum clearances are required to gain access to the controls compartment and to allow the removal of components during servicing:-

Left Hand side:	100mm
Right Hand side:	600mm
Top:	No clearance is required for service purposes, but if a shelf is to be fitted above the heater, a minimum clearance of 200mm is required between the top of the heater cabinet and the underside of the shelf. The depth of any shelf fitted must not exceed 150mm.

### 6.0 TERMINAL POSITION

#### 6.1 Siting

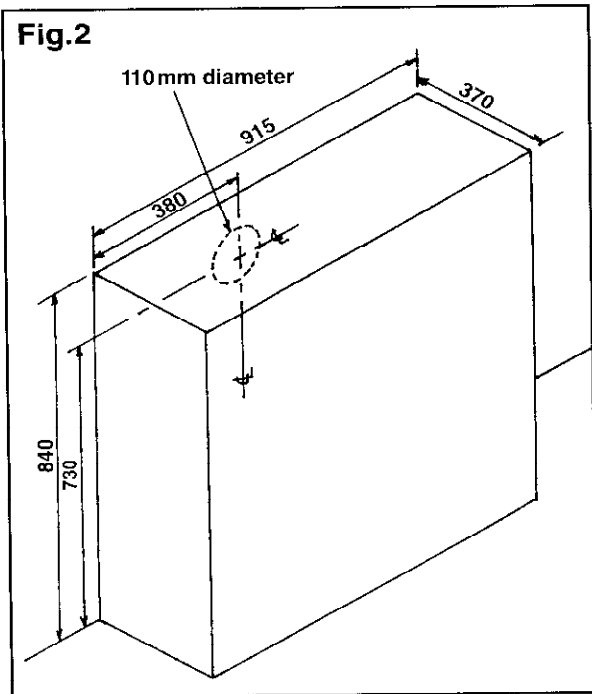
- a) The terminal must be positioned such that the products of combustion can disperse freely at all times.
- b) The base of the terminal must be a minimum of 300mm above the external ground level.
- c) The terminal should not be installed in a position that will allow the products of combustion to feed back into adjacent doors or windows. Where the terminal is wholly or partly beneath any opening (that is to say any part of a window capable of being opened, or any ventilator, inlet to a ventilation system or similar openings) ensure that no part of the terminal flue outlet is within 300mm, measured vertically, to the bottom of that opening.
- d) If a terminal is fitted within 1m below a plastic gutter, or 0.5m below a painted surface or eaves, an aluminium shield 1.5m long must be fitted to the underside of the gutter, painted surface or eaves, above the terminal position.
- e) Where the terminal outlet is less than 2m above the level of any ground, balcony, flat roof or space to which any person has access and which adjoins the wall to which the terminal is fitted, the terminal must be protected by a guard of durable material. (A wire guard for this purpose is available at extra cost).

#### 6.2 Balanced Flue Terminal Position Guide

Terminal Position	Recommended Min Clearance.
i) Directly below an openable window or other opening e.g. air brick	300mm
ii) Below guttering,(see also note 6.1d above) horizontal soil pipes or drain pipes	75mm
iii) Below eaves/soffit/roof edge	200mm
iv) Below balconies	200mm
v) From vertical drain pipes or soil pipes	75mm
vi) From internal or external corners	300mm
vii) Above ground or balcony level	300mm
viii) From a surface facing the terminal	600mm
ix) From a terminal facing the terminal	1200mm

## 7.0 INSTALLATION

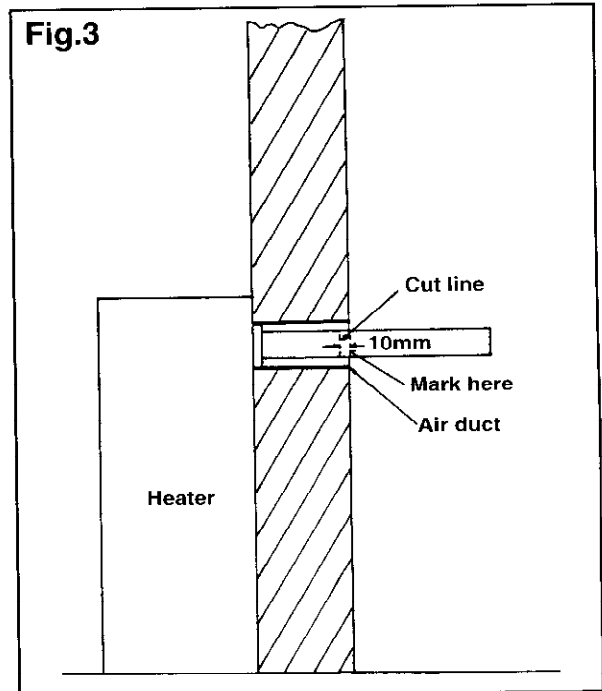
**Fig.2**



- 7.1 Having chosen the position for the flue assembly and the heater, mark the position for the flue hole (see Fig. 2) on the inner wall face.
- 7.2 Drill a hole 110mm diameter (from inside the building) horizontally right through the wall.  
If a core drill is not available, cut a hole as neatly as possible, right through the wall, and make good after fitting the flue assembly.
- 7.3 Place the heater against the wall in its correct position relative to the hole through the wall.
- 7.4 Mark onto the wall around the ends of the wall securing brackets.
- 7.5 Remove the heater from the wall and remove the wall securing brackets from the heater; retain the two screws for use later.
- 7.6 Place the wall securing brackets against the marks on the wall and mark the positions for the four fixing screws.
- 7.7 Drill and plug the wall to take four 1¼ in x No.8 woodscrews.
- 7.8 Fix the wall securing brackets using the four 1¼ in x No.8 woodscrews provided.
- 7.9 Re-fix the heater to the wall fixing brackets using the two screws previously removed.
- 7.10 From outside the building, insert the air duct through the hole and locate it into the manifold at the rear of the heater; push the air duct fully into the manifold.

- 7.11 Whilst holding the duct square and level, mark it for correct length, i.e. to finish flush with the outside wall surface (see Fig. 3).

**Fig.3**



- 7.12 Remove the air duct and cut it to the correct length. Make sure that it is cut square, and remove any rough edges.
- 7.13 Apply a bead of silicone sealant to the outside surface of one end of the air duct.
- 7.14 Re-insert the air duct and push the end with the sealant firmly into the manifold.
- 7.15 Insert the stainless steel flue tube through the air duct and push it firmly onto the flue spigot on the manifold.
- 7.16 Mark the position of the outside wall surface onto the tube (see Fig. 3).
- 7.17 Remove the flue tube and make a further mark 10mm from the previous mark i.e. so that the flue tube will be 10mm short of the outside wall surface when cut.
- 7.18 Cut the flue tube to the correct length. Make sure that it is cut square and remove any rough edges.
- 7.19 Apply a bead of silicone sealant to the outside surface of one end of the flue tube.
- 7.20 Re-insert the flue tube through the hole and push the end with the sealant firmly onto the flue spigot on the manifold at the rear of the heater.
- 7.21 Place the flue terminal into position, ensuring that the flue and air tubes enter their respective spigots: Mark the position for the three fixing holes and remove the terminal.
- 7.22 Drill and plug the wall in the marked positions to accept the three woodscrews provided.
- 7.23 Apply a bead of silicone sealant to the inside surface of the flue socket and the outside surface of the air spigot on the terminal.
- 7.24 Replace the terminal as in 7.21 above and secure it with the three woodscrews provided.
- 7.25 If a terminal guard is to be fitted (see 6.1e) it must be positioned centrally over the flue terminal.

## 8.0 GAS CONNECTION

- a) The gas connection is Rc½ (½in BSP internal).
- b) It is situated at the lower right hand rear of the heater.
- c) When connecting the gas supply to the heater, it is essential that a union service tap is incorporated in an accessible position adjacent to the heater.
- d) The installation serving the heater must be in accordance with BS6891: 1988
- e) On completion, pressure test and purge the gas installation in accordance with BS6891: 1988 (NG) or BS5484: Parts 1 & 2 (Propane).
- f) Only rigid pipe may be used. Rigid or semi rigid copper tube is acceptable.

## 9.0 ELECTRICAL

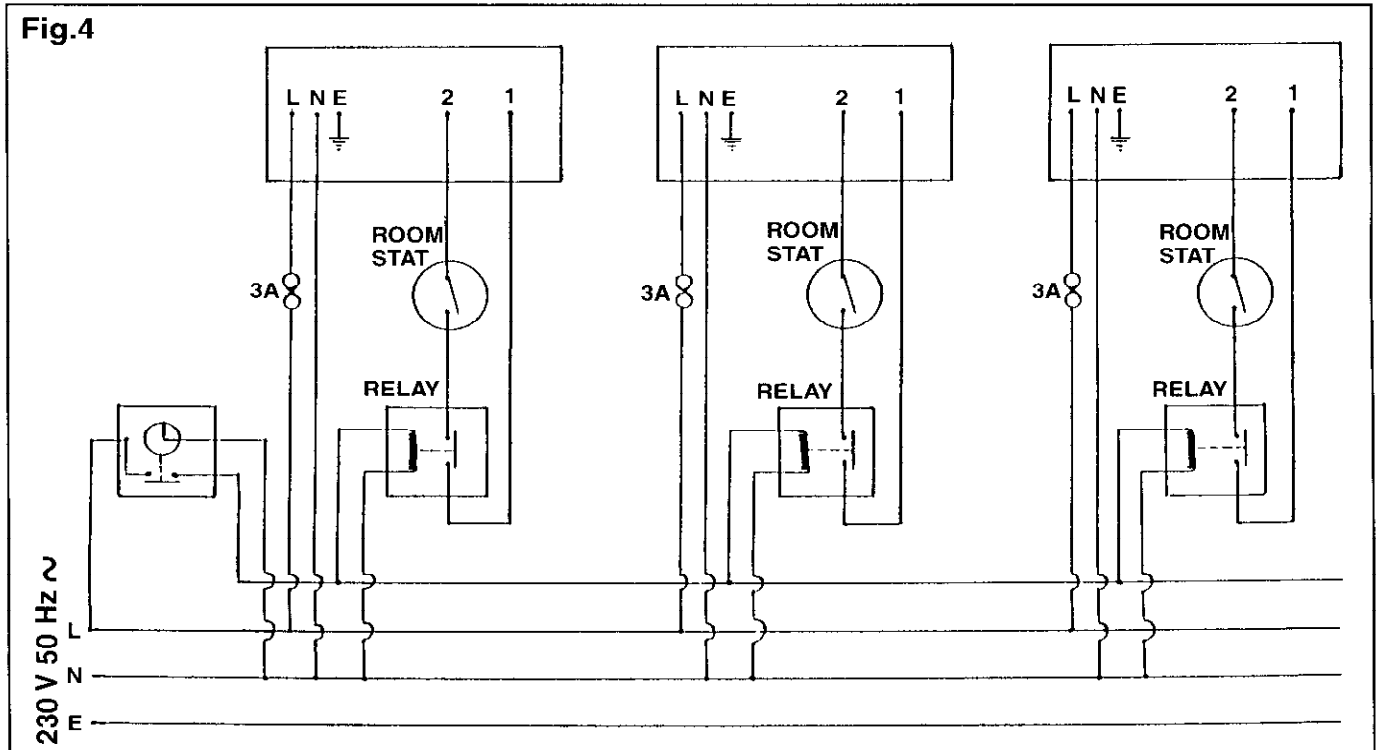
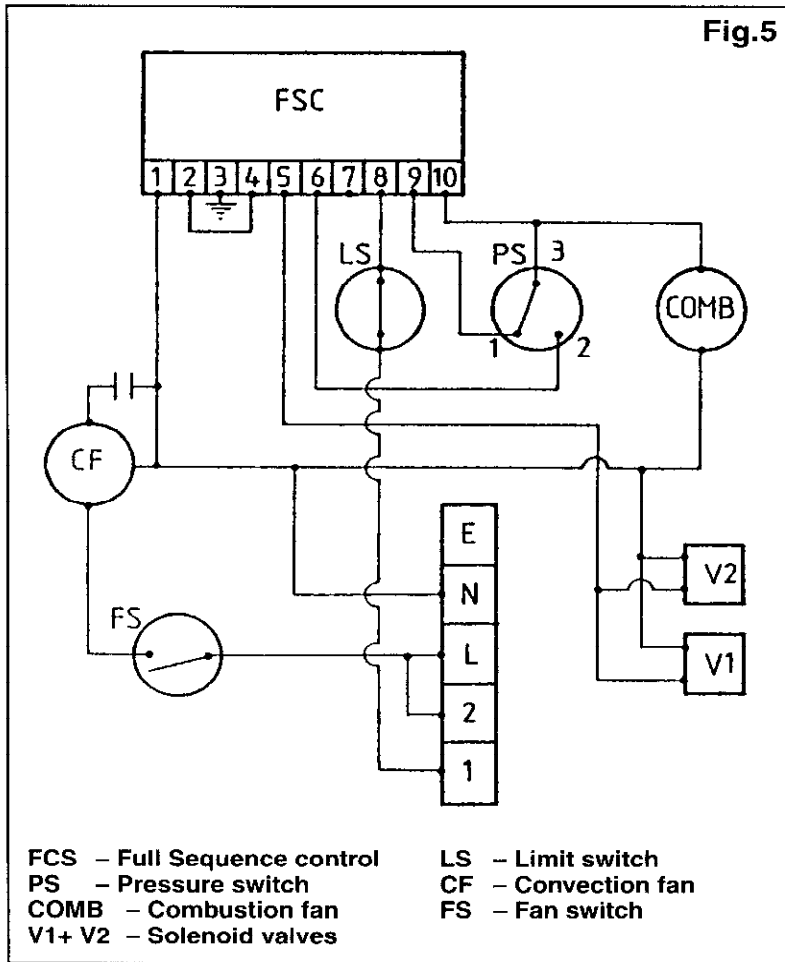
### **IMPORTANT – this appliance must be earthed.**

- a) All external wiring must be in accordance with I.E.E. wiring regulations and any local regulations which apply.  
The electrical supply required is 230V 50Hz ~  
The supply must be fused at 3A.  
The coding of the input mains supply is:-  
EARTH – GREEN & YELLOW  
LIVE – BROWN  
NEUTRAL – BLUE
- b) Open the controls access door after slackening the securing screw.
- c) Connect the electrical supply using 24/0.2mm cable to IEC227 code designation 53. Care must be taken to ensure that the cable exits via the opening adjacent to the gas inlet connection and is anchored using the cable gland provided.
- d) The method of connection to the electricity supply must facilitate complete isolation and should preferably be made via a fused double pole isolator having a contact separation of at least 3mm in all poles and supplying the appliance only.
- e) **Important** – There must be no surplus cable between the terminal block and the cable gland.
- f) **UNDER NO CIRCUMSTANCES MUST A CLOCK (or other control device) BE WIRED TO SWITCH THE ELECTRICAL INPUT SUPPLY TO THE HEATER.**
- g) The electrical input supply to the heater must not be switched off except for servicing or in an emergency.

## 9.1 Controlling the Heater

- a) A terminal block is provided with two terminals marked 1 and 2 for connection of an external mains switching device, e.g. time switch. This is called the control circuit.
- b) These terminals are linked to allow the heater to be commissioned and tested using a temporary lead. The link must be removed when an external switching device is incorporated.
- c) When operating more than one heater from a single clock, or other mains switching device, a multi outlet contactor or individual relays must be incorporated to avoid interconnection between the heaters (see external wiring diagram).
- d) Ensure that the cable exits via the opening below the control access door and is anchored using the cable gland provided.
- e) **Important** – There must be no surplus cable between the terminal block and the cable gland.
- f) The Temcana Kestrel 55 does not incorporate a room thermostat: if one is to be fitted, it must be wired into the control circuit.

# INTERNAL WIRING DIAGRAM



# EXTERNAL WIRING DIAGRAM

## 10.0 COMMISSIONING AND TESTING

### 10.1 INITIAL LIGHTING

- a) Ensure that the electrical supply to the heater is switched off.
- b) Ensure that the time switch (if fitted) is set to an ON period or that the alternative switching device is switched on and that the remote room thermostat (if fitted) is set to its highest setting.
- c) Turn on the gas supply at the union service tap in the supply and purge any air from the line.
- d) Remove the burner pressure test point sealing screw and attach a suitable pressure gauge.
- e) Switch on the electrical supply to the heater.
- f) The automatic ignition sequence will now commence and the burner should ignite within a few seconds; this can be verified by looking through viewing window, which is sited just below the fan.

N.B. If the burner does not ignite during the ignition period, the control unit will go to 'lock out' and must be reset by switching the electrical supply to the heater off and then on again.

### 10.2 Testing and Adjusting

- a) With the heater operating, test for gas soundness around all internal pipework and gas carrying components; use a suitable soap solution or leak detection fluid.
- b) Check that the burner pressure is correctly set (see 4.0 TECHNICAL DATA). Wait approximately 20 seconds after the burner has ignited before reading the burner pressure. If adjustment is required, remove the cap at the rear of the gas control valve to expose the pressure adjuster and turn the pressure adjuster (clockwise to decrease). Replace the cap after adjustment.

**CAUTION** – The convection fan is controlled via a heat sensitive switch and may operate at any time.

- c) Switch off the electrical supply to the heater.
- d) Remove the pressure gauge and replace the pressure test point sealing screw, ensuring that it is gas tight.

### 11.0 INSTRUCTIONS TO USER

Instruct the user in the operation of the heater and hand over the User Instructions.

Advise the user that, for the continued safe and efficient operation of the heater, it is important that regular annual servicing is carried out.

## 12.0 SERVICING INSTRUCTIONS

**IMPORTANT - ALWAYS ISOLATE THE GAS AND ELECTRICITY SUPPLIES TO THE HEATER AND ENSURE THAT THE HEATER IS COOL BEFORE CARRYING OUT ANY SERVICING.**

Upon completion of servicing, ensure that:-

- a) The heater is tested for gas soundness using a suitable soap solution or leak detection fluid.
- b) The burner pressure is correctly set (see 4.0 Technical data).

### 12.1 General Access for Servicing

Most servicing and exchange procedures may be carried out through the fan/controls compartment. Access to this compartment is gained by opening the louvred door at the right hand side of the heater.

### 12.2 To Remove the Gas Control Valve

- a) Gain general access as in 12.1 above.
- b) Turn off and disconnect the gas supply by undoing the union at the inlet to the heater and disconnecting the pipework to the gas control valve.
- c) Pull off the electrical plug from the gas control valve.
- d) Remove the four screws securing the burner access plates to the fan partition, and one of the screws securing the sight glass frame to the burner access plates.
- e) Unscrew the tubing nuts and remove the main burner supply tube.
- f) Remove the four screws securing the gas control valve brackets to the heater base and remove the valve complete.

### REASSEMBLING NOTES

- i) When replacing the gas control valve, the fittings at the inlet and outlet of the valve and the fixing brackets, must be transferred from the old valve.

### 12.3 To Gain Access to the Main Burner Injector

- a) Gain general access as in 12.1 above.
- b) Remove the four screws securing the burner access plates to the fan partition, and one of the screws securing the sight glass frame to the burner access plates.
- c) Unscrew the tubing nuts and remove the main burner supply tube.
- d) Unscrew and remove the injector carrier/injector from the burner.

#### **Important**

The orifice of a gas injector is machined to precision limits. Do not clean with a hard, sharp object that could damage or enlarge the orifice.

#### 12.4 To Remove the Burner

- a) Follow steps a), b) and c) in 12.3 above.
- b) Unscrew and remove the four burner securing screws.
- c) Carefully withdraw the burner, taking care not to damage the gasket or the spark electrode/flame probe.

**NB** If the burner gasket is found to be damaged, a new one must be fitted before re-fitting the burner.

#### 12.5 To Remove the Spark Electrode/Flame Probe

- a) Remove the burner as in 12.4 above.
- b) Remove the screw securing the spark electrode/flame probe to the burner flange and carefully remove the electrode/probe.
- c) After fitting, check that the gap between the tip of the electrode/probe and the burner is 6mm  $\pm$ 0.5mm.

#### 12.6 To Remove the Full Sequence Control Unit

- a) Gain general access as in 12.1 above.
- b) Pull off the terminal block from the front of the unit.
- c) Pull off the H.T. spark lead from the unit.
- d) Remove the two screws securing the unit to the heater base panel and remove the unit.

#### 12.7 To Remove the Convection Fan and Motor Assembly

- a) Gain general access as in 12.1 above.
- b) Note their relative positions, then remove the motor brown, blue and black wires from the upper terminal block and the green and yellow motor earth wire from the earth screw.
- c) Remove the nut and shakeproof washer securing the capacitor to the upper left hand arm of the motor support frame.
- d) Remove the four screws, washers, spacers and rubber washers securing the fan and motor assembly to the fan support panel.
- e) Carefully withdraw the complete assembly.

##### **Reassembling Note**

Check the fan blades are clear of obstruction before operating the heater.

#### 12.8 To Remove the Fan and/or Limit Switch

- a) Gain general access as in 12.1 above.
- b) The fan switch is mounted to the left of the limit switch.
- c) Pull off two electrical connectors from the switch to be removed.
- d) Remove the two screws securing the switch to be removed and remove the switch.

#### 12.9 To Remove the Combustion Fan

- a) Gain general access as in 12.1 above.
- b) Remove the two screws securing the front grille to the heater and remove the grille.
- c) Note their relative positions, then pull off the electrical wires from the combustion motor.
- d) Pull off the plastic tube from the combustion fan pressure tube.
- e) Slacken the hose clip securing the flexible aluminium hose to the combustion fan outlet and ease the hose off the combustion fan.
- f) Unscrew and remove the three screws securing the combustion fan to the heat exchanger and carefully remove the combustion fan, taking care not to damage the flexible hose or the gasket.