TEMCANA EPF 19C Balanced Flue Convector Heater (G.C. No. 35 935 41)

Installation and Servicing Instructions

PLEASE LEAVE THESE INSTRUCTIONS ADJACENT TO THE GAS METER OR WITH THE SITE ENGINEER

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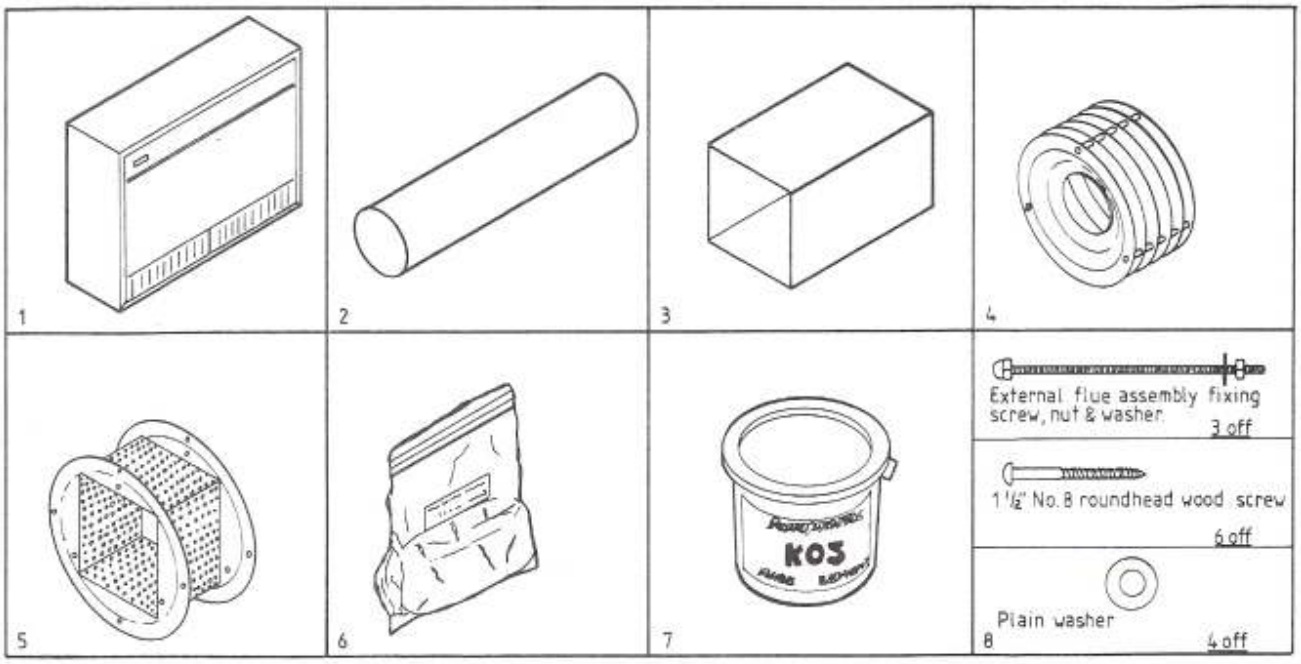

Fig. 1

This heater is approved by British Gas for use with Natural Gas only.

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1.0 REFERENCE DOCUMENTS

This appliance must be installed by a competent person and in accordance with:—

Gas Safety Regulations: 1972
B.S. Code of Practice CP 331: Part 3: 1974
B.S. 5871: 1980
Local Building Regulations
I.E.E. Wiring Regulations

Any Local Gas Region or Local Authority requirements must also be taken into account.

2.0 WARRANTY

Warranty will be invalidated if:—

(a) The internal wiring is modified in any way.

(b) The appliance is not installed and adjusted according to the foregoing requirements and the following instructions.

3.0 CONTENTS LIST

The appliance is despatched as an assembled heater unit, with the flue and fixing components separately boxed.

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

1. Heater Unit
2. * Flue Tube } Wall thickness up to
3. * Air Duct } 380mm (15in)
4. External Flue Assembly } Flue Terminal
5. External Air Inlet Assembly } Flue Terminal
6. Putty
7. Fireclay Cement
8. Accessories Pack

* Long flue sets are available from the manufacturer at extra cost for wall thicknesses up to 635mm (25in).

4.0 TECHNICAL DATA

	Natural Gas	Propane
Main burner injectors marked	26 (2.6mm)	17 (1.7mm)
Pilot burner injector marked	A26	K14
Burner pressure	10.7mbar (4.3in.wg)	27.4mbar (11in.wg)
Heat input	19.1kW (65,000Btu/h)	19.1kW (65,000Btu/h)
Heat output	14.7kW (50,000Btu/h)	14.7kW (50,000Btu/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 Terminal Position).

(b) Generally, the best position for the heater is mid-way along the 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 be at least 50mm (2in) 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 (4in).
Right hand side: 600mm (24in).
Top: No clearance is required for service purposes, but if a shelf is to be fitted above the heater, a minimum clearance of 200mm (8in) is required between the top of the heater cabinet and the underside of the shelf.

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 (12in) 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 (12in) measured vertically, to the bottom of that opening.

(d) If a terminal is fitted within 850mm (34in) of a plastic gutter, an aluminium shield 1.5m (5ft) long should be fitted to the underside of the gutter, immediately above the terminal position.

(e) Where the terminal outlet of the appliance is less than 2m (6ft) 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 from the manufacturer at extra cost.)

6.2 Balanced Flue Terminal Position Guide

	Terminal Position	Recommended Minimum Clearance
(i)	Directly below an openable window or other opening, e.g. air brick	300mm (12in)
(ii)	Below guttering (see also note 6.1d above) horizontal soil pipes or drain pipes	300mm (12in)
(iii)	Below eaves	300mm (12in)
(iv)	Below balconies	600mm (24in)
(v)	From vertical drain pipes or soil pipes	75mm (3in)
(vi)	From internal or external corners	600mm (24in)
(vii)	Above ground or balcony level	300mm (12in)
(viii)	From a surface facing the terminal	600mm (24in)
(ix)	From a terminal facing the terminal	600mm (24in)

7.0 INSTALLATION

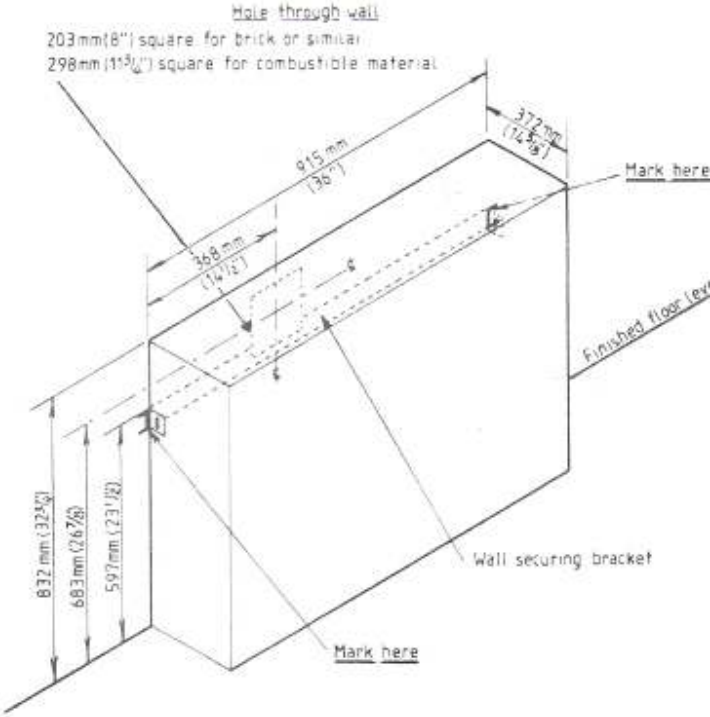


Fig. 2

(a) Where the heat resistance of the floor covering is in doubt, fit a piece of heat resisting material or bright aluminium sheet on the floor, directly under the heater.

(b) For installation through combustible walls, the provisions of B.S. 5440 Part 1 clause 21 must be followed. (An 11¾in square wall liner and wall plate for this purpose are available from the manufacturer at extra cost.)

7.1 Using the dimensions given in Fig. 2, mark the position for the 'hole through the wall'.

7.2 Cut a hole as neatly as possible 203mm (8in) square, right through the wall. If the heater is to be fitted onto a combustible wall, this hole must be increased to 298mm (11¾in) square.

7.3 Place the heater against the wall in the correct position relative to the 'hole through the wall'. If there is a skirting board behind the heater position, mark it at each side of the heater. Make sure that the heater is level, if necessary, add packing under the feet. Mark onto the wall around the ends of the wall securing bracket (see Fig. 2).

7.4 Remove the heater from its position and remove the wall securing bracket from the heater. Retain the two screws for use later.

7.5 Place the wall securing bracket against the marks on the wall and mark the positions for the two fixing screws.

7.6 Drill and plug the wall to take two 1½in x No. 8 woodscrews. Cut away the skirting board where marked (if fitted).

7.7 Fix the wall securing bracket to the wall using the two 1½in x No. 8 woodscrews provided. Ensure that the cut out is uppermost.

7.8 Refix the heater to the wall securing bracket, ensuring that the heater is level and that any packing is correctly fitted.

7.9 From outside the building, insert the air duct (Fig. 1, item 3) through the hole and locate it on to the square spigot on the back of the heater. Push the air duct fully onto the spigot and make sure that it is held square and level.

7.10 Mark the air duct for the correct length, i.e. to finish flush with the outside wall surface. See Fig. 3. Remove the air duct after marking.

7.11 Cut the air duct to correct length. Make sure that the end is cut square and remove any rough edges.

7.12 From outside the building, insert the flue tube (Fig. 1, item 2) through the hole and push it firmly onto the round flue spigot on the back of the heater.

7.13 Mark the position of the outside wall surface onto the flue tube (see Fig. 3).

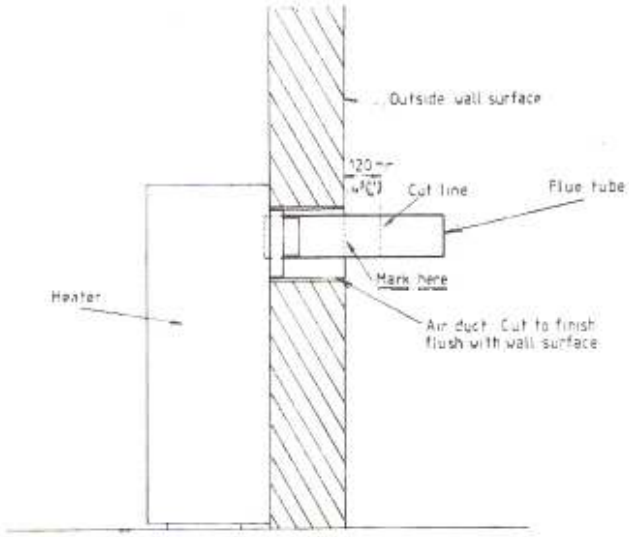


Fig. 3

7.14 Remove the flue tube and add 120mm (4¾in) to the point where it was marked, i.e. so that the flue tube will protrude 120mm (4¾in) outside the building when cut.

7.15 Cut the flue tube to the correct length. Make sure that the end is cut square and remove any rough edges.

7.16 Spread fireclay cement (Fig. 1, item 7) approximately 3mm (⅛in) thick by 13mm (½in) wide, to the inside surface of one end of the air duct.

7.17 Insert the air duct through the hole and locate the end with the fireclay cement onto the square spigot on the back of the heater. Push the air duct fully onto the spigot and ensure that it is horizontal and square to the heater. Wedge the air duct into position, e.g. with brick or tile chips.

7.18 For brick or similar walls, a sand and cement mixture should now be used to make good between the air duct and the outside wall.

N.B. If the hole has been cut reasonably accurately and is no greater than 216mm (8½in), making good may not be necessary, since the terminal fixing plate will cover the opening.

For combustible wall insert a 298mm (11¾in) square wall liner through the hole in the wall, its length equal to the total wall thickness.

7.19 Place the external air inlet assembly (Fig. 1, item 5) into position, ensuring that the spigot of the assembly enters the air duct and that the word 'UP' is uppermost. Mark the position on the wall for the four fixing screws and remove the assembly.

7.20 For brick or similar walls, drill and plug the wall in the marked positions to take the four 1½in x No. 8 woodscrews provided.

7.21 Generously fill with putty the groove in the wall fixing plate of the air inlet assembly.

For combustible wall also apply putty to the wall side of the additional wall plate between the fixing holes and the outside edge.

7.22 Place the external air inlet assembly into position, ensuring that the spigot enters the air duct and that the word 'UP' is uppermost.

7.23 Fix the assembly into position using the four 1½in x No. 8 woodscrews and washers provided.

For combustible wall the additional wall plate must be positioned between the outside wall surface and the external air inlet assembly. The fixing holes in the wall plate must line up with the holes in the external air inlet assembly.

7.24 Ensure that the internal joint between the air duct and the square spigot on the back of the heater is completely sealed. If necessary, force additional fireclay cement into any unfilled space and finally smooth off.

7.25 Force fireclay cement into the internal joint between the spigot of the air inlet assembly and the air duct to make a complete seal and finally smooth off.

7.26 If necessary, apply additional putty to any unfilled space between the wall and the wall fixing plate of the external air inlet assembly (also between the wall and the additional wall plate if a combustible wall) to ensure a weatherproof seal.

7.27 Apply fireclay cement approximately 3mm (⅛in) thick by 13mm (½in) wide to the inside surface at both ends of the flue tube.

7.28 Insert the flue tube through the external air inlet assembly/air duct and push it firmly onto the round flue spigot on the back of the heater. Smooth out excess fireclay cement and ensure that the joint is completely sealed.

7.29 Fit the external flue assembly (Fig. 1, item 4) to the external air inlet assembly with the three nuts, screws and washers provided. Ensure that the spigot on the external flue assembly is uppermost and fully enters the flue tube.

8.0 GAS CONNECTION

(a) The gas connection is Rp½ (½in B.S.P. internal thread).

(b) It is situated at the lower right hand side of the heater.

(c) When connecting the gas supply to the heater, it is essential that a union service tap is incorporated in the supply in an accessible position adjacent to the heater.

(d) The installation serving the heater should be in accordance with CP 331: Part 3.

(e) Ensure that the gas supply does not interfere with the access door.

(f) Upon completion, pressure test the gas installation for soundness.

9.0 ELECTRICAL

Important – This appliance must be earthed.

(a) All external wiring to the appliance must be in accordance with I.E.E. wiring regulations and any local regulations which apply. The electrical supply required is 240V A.C. 50Hz. The supply should be fused at 3A.

The coding of the input mains supply is:–

EARTH – GREEN & YELLOW
LIVE – BROWN
NEUTRAL – BLUE

(b) Remove the internal wire guard (3 nuts and washers) and retain for later use.

(c) Connect the electrical supply using 24 / 0.2mm cable to B.S. 6500, to the terminal block marked LN and ⏚ (see Fig. 4). Ensure that this cable is anchored by the

inlet cable gland provided (above access door) and connected to the designated terminals:–

⏚ – EARTH
L – LIVE
N – NEUTRAL

(d) Important – There must be no surplus cable between the terminal block and the inlet cable gland.

(e) UNDER NO CIRCUMSTANCES MUST A CLOCK (or other control device) BE WIRED TO SWITCH THE ELECTRICAL SUPPLY TO THE HEATER.

(f) The electrical supply to the heater must not be switched off except for emergency or during servicing.

(g) Ensure that the electrical supply does not interfere with the access door.

9.1 Clock/Thermostat Control

(a) A terminal block is provided with two terminals marked 'CLOCK' for clock/thermostat connection (see Fig. 4).

(b) The 'CLOCK' terminals are linked to facilitate operation without a clock for test purposes. This link must be removed when a clock/thermostat is incorporated.

(c) When operating more than one heater from one clock, a contactor must be incorporated to avoid interconnection between the heaters.

(d) Never connect more than one heater to one thermostat, i.e. each heater must have its own thermostat.

(e) Ensure that the cable from the clock is anchored by the cable gland provided (above access door) and that it does not interfere with the access door.

(f) Important – There must be no surplus cable between the terminal block and the cable gland.

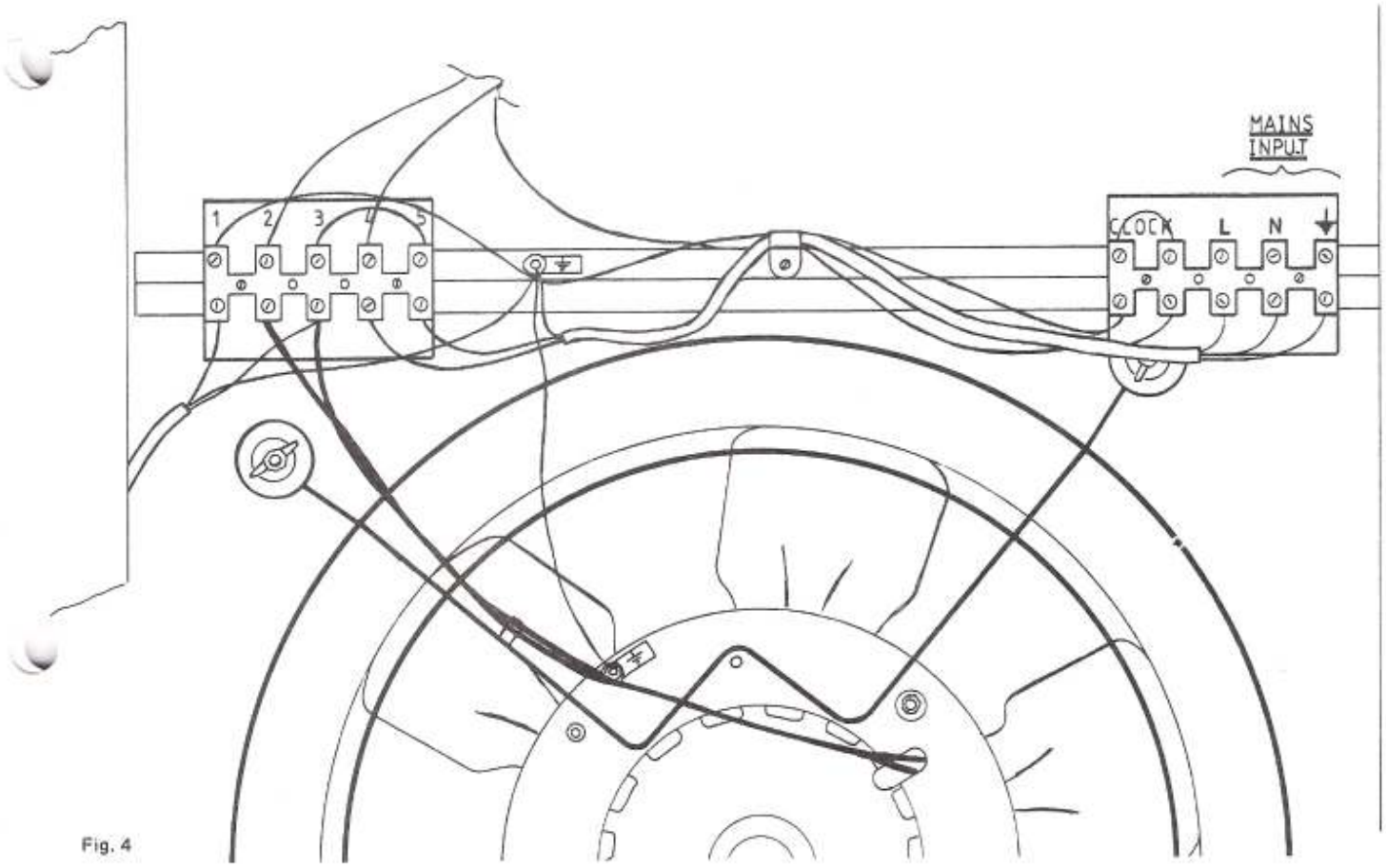


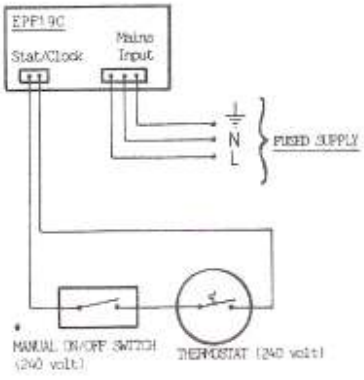
Fig. 4

SEE THE FOLLOWING WIRING DIAGRAMS

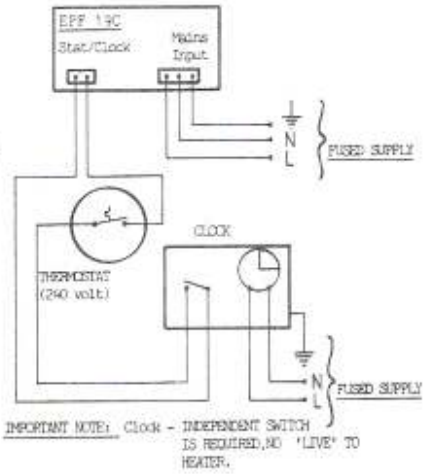
ELECTRICAL CONNECTIONS FOR EPF 19C HEATERS

Under no circumstances must the thermostat/clock be wired to switch the electrical supply to the heater. The electrical supply should not be switched off except to isolate the heater for service or in an emergency. The appliance must be earthed. 240V A.C. 50Hz supply fused 5A or 3A if via a 3-pin plug.

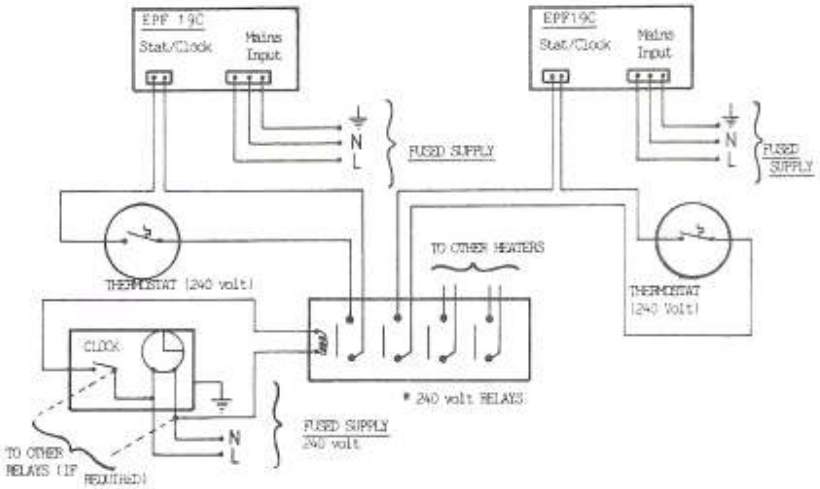
THERMOSTAT ONLY CIRCUIT, i.e. NO CLOCK. Thermostat & Single pole switch per heater. (DO NOT INTERCONNECT OTHER HEATERS to these controls.)



OPERATION OF ONE HEATER FROM ONE CLOCK.

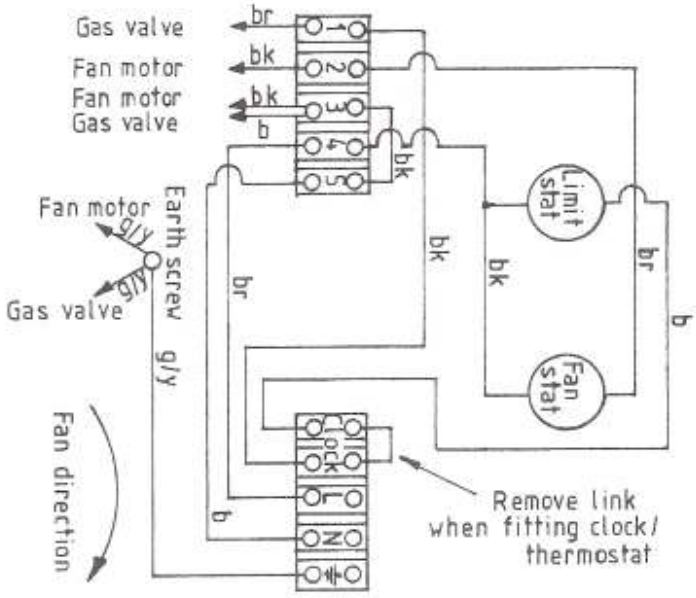


OPERATION OF MORE THAN ONE HEATER FROM ONE CLOCK
On no account must the wiring from the 'Stat/Clock' connection on one unit be connected to that of another unit, except via a relay having separate switch contacts.



Items * are not supplied by Vulcana Gas Appliances Ltd. Clock and thermostats are available as optional extras. All wiring must be in accordance with I.E.E. Regulations and any local codes of practice that may apply.

INTERNAL WIRING DIAGRAM



9.2 Clock Not Fitted

(a) If a clock is not being fitted, then a single pole switch (or other manual/automatic switching device) per heater **must** be incorporated in place of a clock. This switch must be connected to the two terminals marked 'CLOCK' after removing the link and in series with the thermostat. The CLOCK/THERMOSTAT circuits of different heaters must NEVER be interconnected.

(b) Ensure that the cable from the switching device is anchored by the cable gland provided (above access door) and that it does not interfere with the access door.

(c) **Important** – There must be no surplus cable between the terminal block and the cable gland.

9.3 Electrical Completion

Replace the internal wire guard and secure with the three nuts and washers previously removed.

10.0 COMMISSIONING AND TESTING

10.1 Initial Lighting (see Fig. 5)

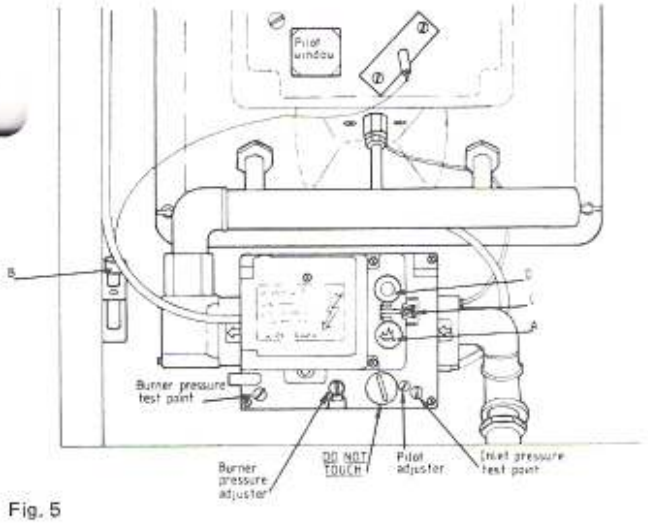


Fig. 5

(a) Ensure that the electrical supply to the heater is switched OFF.

(b) Ensure that the clock (if fitted) is set to an ON period or that the alternative switching device is switched on.

Turn the remote room thermostat to its highest setting.

(d) Turn on the gas supply at the union service tap in the supply and purge any air from the line.

(e) Remove the burner pressure test point sealing screw and attach a suitable pressure gauge.

(f) Push in button 'A' as far as it will go.

(g) Continue pushing button 'A' and at the same time, push down igniter knob 'B' and release; a click will be heard.

(h) Whilst continuing to hold in button 'A', check that the pilot is alight by looking through the pilot window. If the pilot is not alight, repeat (g) until it does light, remembering to keep button 'A' pushed firmly in.

(i) Once the pilot is alight, hold in button 'A' for a further 15–20 seconds.

(j) Release button 'A' and the pilot should remain alight. If it does not, repeat (f), (g), (h) and (i), but this time keep button 'A' pushed in a little longer.

(k) Switch ON the electrical supply to the heater.

(l) Slide knob 'C' to the left as far as it will go and ensure that the main burners ignite smoothly from the pilot. The convection fan will not operate until the heat exchanger has warmed sufficiently.

(m) Set the remote room thermostat to the desired setting.

10.2 Testing and Adjusting

(a) With the heater operating, test for gas soundness around all pipework including that from the gas control valve to the burners. Use a suitable soap solution or leak detection fluid.

(b) Check that the burner pressure is correctly set (see Technical Data). (Wait at least 30 seconds after the main burners have ignited before reading the burner pressure). If adjustment is necessary, remove the small grey plastic cap (see Fig. 5) to expose the pressure adjuster and turn the pressure adjuster (clockwise to increase) DO NOT touch the larger round grey plastic cap adjacent to the pressure adjuster cap as this is factory set and must not be interfered with. Replace the small grey plastic cap after adjustment.

(c) Push down button 'A' (see Fig. 5) and release to extinguish the main burners.

(d) Remove the pressure gauge and replace the pressure test point sealing screw, ensuring that it is gas tight.

10.3 Propane Heaters

Warning – The Propane gas supply to the heater must be externally regulated to give an **inlet** pressure to the gas control valve of 35mbar (14in.wg). Failure to regulate the Propane gas supply will result in severe damage to the gas control valve (see Fig. 5).

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 continued efficient and safe operation of the heater, it is important that adequate servicing is carried out at intervals recommended by the local Gas Region.

12.0 SERVICING INSTRUCTIONS

IMPORTANT – ALWAYS ISOLATE THE GAS AND ELECTRICAL SUPPLIES TO THE HEATER 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).

(c) The balanced flue is clear, unobstructed and is clearing the flue products effectively.

NOTE: Unless otherwise stated, always reassemble in reverse order.

12.1 General Access for Servicing

All 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 (coin slotted screw).

12.2 To Remove the Burner Flange/Control Assembly

(a) Gain general access as in 12.1 above.

(b) Disconnect the gas supply by undoing the union at ıe the inlet to the heater.

(c) Remove the grey plastic eiectrical cover from the top of the gas control valve (1 screw).

(d) Disconnect the earth wire from the earth terminal, the brown wire from number 1 terminal and the blue wire from number 2 terminal.

(e) Slacken the screw securing the cable clamp and remove the cable.

(f) Pull off the H.T. spark lead from the spark electrode.

(g) Remove the four wing nuts securing the burner flange to the heat exchanger.

(h) Carefully withdraw the complete burner flange/gas control valve assembly taking care not to damage the burner flange gasket.

(i) The gas control valve may now be removed from the assembly as follows:–

(i) Disconnect and remove the pilot supply tube.
(ii) Unscrew the thermocouple connection at the gas control valve.
(iii) Remove the four screws securing the valve to its service connection at the outlet and remove the valve, taking care not to lose the 'O' ring.

Reassembling Note

When replacing the gas control valve, the gas inlet assembly must be transferred from the old valve, taking care to correctly position the assembly into the valve, i.e. so that the copper inlet connection is parallel to the injector tubes.

12.3 To Remove the Pilot Injector

(a) Remove the burner flange/control assembly as in 12.2 above.
(b) Disconnect and remove the pilot supply tube.
(c) Unscrew and remove the pilot injector.

12.4 To Gain Access to the Main Burner Injectors

(a) Remove the burner flange/control assembly as in 12.2 above.
(b) The main burner injectors are located at the end of the injector supply tubes and can be unscrewed to remove.

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.

12.5 To Remove the Main Burners

(a) Remove the burner flange/control assembly as in 12.2 above.
(b) Remove the two screws securing each burner to the heat exchanger.
(c) Carefully withdraw each burner, taking care to support it as it emerges.
(d) The burners may be cleaned with a wire brush. Shake the dirt from the burners after cleaning.

Reassembling Notes

(i) The burner incorporating the cross lighting tube must be fitted into the rear heat exchanger.
(ii) When replacing the burners, ensure that they are pushed fully in to locate onto their fixings at the left hand end of the heat exchanger and that the front of the burner aeration chamber is correctly positioned onto its fixing at the right hand end before securing with the screws previously removed.
(iii) Before replacing the burner flange/control assembly, check that the burner flange gasket is intact and properly seated.

12.6 To Remove the Thermocouple

(a) Remove the burner flange/control assembly as in 12.2 above.
(b) Remove the pilot supply tube and injector.
(c) Disconnect and remove the thermocouple.

Reassembling Note

When reassembling, avoid excessive tightening of the connection at the gas control. The correct tightness is finger tight + ¼ turn.

12.7 To Remove the Pilot Assembly

(a) Remove the burner flange/control assembly as in 12.2 above.
(b) Remove the pilot supply tube and injector.
(c) Disconnect and remove the thermocouple.
(d) Remove the two screws securing the pilot assembly to the burner and remove the pilot assembly, taking care not to damage the spark electrode or pilot gasket.

12.8 To Remove the Spark Electrode

(a) Remove the burner flange/control assembly as in 12.2 above.
(b) Carefully note the position of the electrode relative to the pilot.
(c) Remove the two nuts, screws and spring washers securing the electrode to the burner flange and carefully withdraw the electrode.

Reassembling Note

When reassembling, position the electrode as noted in (b) above, i.e. with the tip of the electrode pointing upward and a gap of approximately 4mm ($^5/_{32}$in) between the tip of the electrode and the centre top of the pilot burner thermocouple flame port.

12.9 To Remove the Piezo Unit

(a) Gain general access as in 12.1 above.
(b) Pull off the H.T. spark lead from the Piezo unit.
(c) Remove the two nuts securing the Piezo unit to the heater cabinet and withdraw the unit.

12.10 To Remove the Fan and Motor Assembly

(a) Gain general access as in 12.1 above.
(b) Remove the internal wire guard (3 nuts and washers).
(c) Disconnect the electrical wires from the fan motor at terminals 2 and 3 on the left hand terminal block and remove the motor earth connection from the earth bond screw.
(d) Remove the four wing nuts, washers and rubber washers securing the fan and motor assembly to the fan partition.
(e) Carefully withdraw the complete assembly, taking care not to damage the fan blades.
(f) The fan blade assembly may be removed from the motor shaft after slackening the socket headed grub screw. Note the relative position of the fan blade assembly on the shaft before removal.
(g) The fan motor may be removed from the wire cage by removing the four securing nuts and washers.

Reassembling Notes

(i) When replacing the fan blade assembly onto the motor shaft, ensure that the boss is facing away from the motor and that the assembly is positioned on the shaft as noted in (f) above.
(ii) When reassembling the motor into the cage, ensure that the motor is correctly positioned, i.e. that the elongated hole in the back plate of the motor (wire entry) is in line with the cut out in the circular mounting plate of the cage.
(iii) Before replacing the complete assembly into the heater, ensure that all the rubber washers are correctly replaced and that the earth bond screw is positioned at the top left hand side.
(iv) When the complete assembly has been replaced in the heater, check that the fan blades are clear of obstruction before operating the heater.

12.11 To Remove the Fan and/or Limit Stat

(a) Gain general access as in 12.1 above.
(b) Remove the internal wire guard (3 nuts and washers).
(c) Disconnect the following wires (refer to internal wiring diagram).

Black from the top of terminal 4.
Brown from the top of terminal 2.
Blue from the bottom of the 'CLOCK' terminal.

It will also be necessary to slacken the cable clip and pull the blue wire through.

(d) Remove the two nuts securing the heat switch bracket to the inner right hand panel.
(e) Carefully withdraw the heat switch bracket.
(f) The limit stat is mounted at the end opposite to the bracket mounting plate and the fan stat nearest to the mounting plate. Both stats are secured with two screws.