POTTERTON

Kingfisher 2

balanced flue gas fired boilers

KINGFISHER 2 RS 60

KINGFISHER 2 RS 80

KINGFISHER 2 RS 100

Kingfisher 2 RS 60
G.C. No. 41 607 19
G.C. No. 41 607 46 (Sealed System)

Kingfisher 2 RS 80
G.C. No. 41 607 20
G.C. No. 41 607 47 (Sealed System)

Kingfisher 2 RS 100
G.C. No. 41 607 21
G.C. No. 41 607 48 (Sealed System)

IMPORTANT

THIS APPLIANCE IS FOR USE WITH NATURAL GAS (020) ONLY. IT MUST BE INSTALLED AND SERVICED BY A COMPETENT PERSON AS STATED IN THE GAS SAFETY INSTALLATION AND USE REGULATIONS 1994.

Leave these instructions adjacent to the gas meter.

* Can be used beneath standard height working surfaces.
Not applicable to Kingfisher 2 RS100)* No by-pass pipework required in the system.

* A circulating pump can be mounted within the case (optional extra in kit farm).

* Compact in size; designed to building modular dimensions to blend unobtrusively with other kitchen furniture.

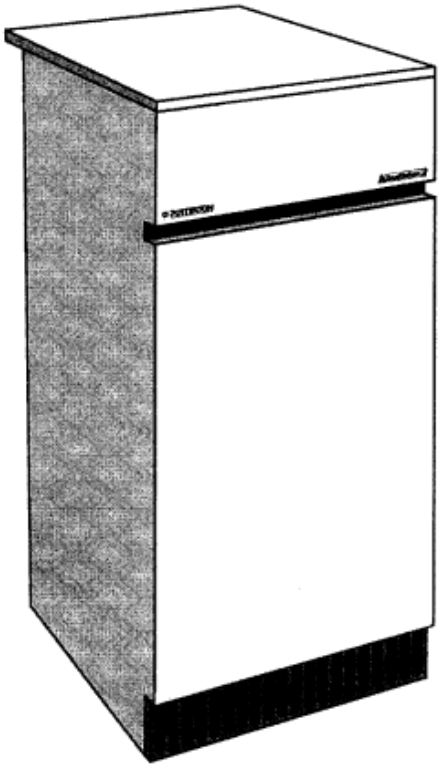
* Adjustable length, telescopic balanced flue terminal, to suit 9 in. to 15 in. thick walls. On the RS60 and RS80 models, a kit (optional extra) is available to increase this to 24 in.

* Piezo electric push button ignition for easy lighting

* Robust, trouble free design, giving easy installation and servicing.

* Highly efficient, designed especially for natural gas operation.

* Multifunctional gas control with single control button operation, incorporating a flame safety device.



INSTALLATION AND SERVICING INSTRUCTIONS

Page 1

Page 2

GAD (90/396/EEC)

GENERAL

These Potterton balanced flue appliances are automatically controlled and have been specially designed for combined systems. e.g. small bore or microbore central heating with an indirect domestic hot water supply which can either have pumped or gravity circulation. The boilers can also be used on a pumped central heating or domestic hot water only system.

DESCRIPTION—See Figure 1

The boiler is finished in a white stove enamelled, sheet steel casing, which conforms in height with other kitchen furniture. If the boiler height is required to fit flush with the top of 900 mm kitchen units, (RS60 & RS80 only) then an optional extra top panel is available. An internal fitting pump is also available as an optional extra.

THE SYSTEM

Diagrammatic layouts of a fully pumped system and a combined pumped central heating/gravity hot water system are shown in the system diagrams. Other system variations together with their wiring arrangements are shown in the system guide leaflet.

The recommendations of BS.6798 and BS.5449 Part 1 must be observed.

When used in conjunction with the Potterton Overheat Thermostat Kit, these boilers are suitable for use in sealed systems. Full details of both installation and system requirements are available with the Kit.

Under no circumstances should these boilers be connected to a sealed system, if the Overheat Thermastat Kit is not fitted to the appliance.

1. All systems should be designed so that the static head at the boiler is between a minimum of 0.09 bar (3 ft.wg.) and a maximum of 3 bar (100 ft.wg.).

2. If the head is at or near the 0.09 bar (3 ft.wg.) minimum, extra care should be taken when designing the system to ensure that pumping over or ingress of air down the open vent pipe cannot occur.

3. All gravity systems should have a minimum effective circulating head of 1.2 m (4ft.).

4 Most types of system controls, such as two-way valves, three-way valves, diverter valves, twin pumps, zone valves and room, cylinder and frost thermostats can be used in conjunction with these boilers.

5. The circulating pump should be selected from reference to Fig. 3, the resistance through the boiler heat exchange will not exceed 6.2mbar (2.5 in.wg.) at a flow rate of 5 gal/mm.

6. The resistance through any other type of system control such as three-way valves, should also be taken into account when selecting a pump; refer to their manufacturer's literature.

7. A drain cock(s) should be fitted at the lowest point(s) in the system, so that the whole system can be drained.

8. It is recommended that all pipework to the boiler should include union fittings at suitable points to facilitate connection of the gas and water supplies.

9. The boiler must be used on indirect hot water systems only. In a fully pumped system, the primary pipework should include a lock shield valve in the return from the cylinder

LOCATION

Potterton Kingfisher 2 boilers are slim, space saving appliances which must be installed against the inside face of an external wall.

Potterton Kingfisher 2 R.S. boilers may be installed in any room, although particular attention is drawn to the requirements of the current I.E.E. Wiring Regulations and, in Scotland, the electrical provisions of the Building Standards applicable in Scotland with respect to the installation of the boiler in a room containing a bath or shower.

BOILER BASE

A level floor, which conforms to the Local Authority and Building Regulations, should be provided. Normally insulation beneath the boiler is unnecessary as floor temperatures beneath the boiler confrom to the requirements of BS.5258. However, some

composition floors which tend to soften or deform at low temperatures, may need insulating, if in doubt contact Potterton Technical Helpline.

VENTILATION

If the boiler is to be installed in a confined space such as a compartment, the space will need ventilating. Openings should be provided at the top and bottom of the compartment, each having a free area of 210 sq.cm. (32 sq.in.) for the RS6O model or 284 sq.cm. (44 sq.in.) for the 9580 model or 342 sq.cm. (53 sq.in.) for the RS100. Where the openings draw air direct from outside the building, the free areas can be halved. Refer to British Standard Code of Practice, BS.5376 for further guidance. Purpose designed, permanent air vents are not required in the room where the boiler is installed.

The essential details for compartment installation are given in BS 5376:2

CLEARANCE AROUND THE BOILER

For ease of installation provide temporary access particularly to the water connections at the rear of the boiler. The appliance can then be "built in" to the minimum clearance dimensions on completion of the installation.

The position selected for the boiler must give the minimum clearances for operation and servicing:

Side clearance RS60; RS80; 12mm (½"), RS100 Nil

Front clearance: 610 mm (24")

Top clearance: 20 mm (¾") RS60 and RS80

The correct minimum clearance at the back of the boiler is automatically obtained once the boiler base tray is pushed up against the wall. Fig. 6 shows the boiler outline and the required clearances, together with the position for the hole to fit the flue. A clearance, necessary for the pipework, may be needed on one side, but if the pipework can be run at the back or inside of any adjacent kitchen furniture, this clearance will not be necessary.

BALANCED FLUE TERMINAL

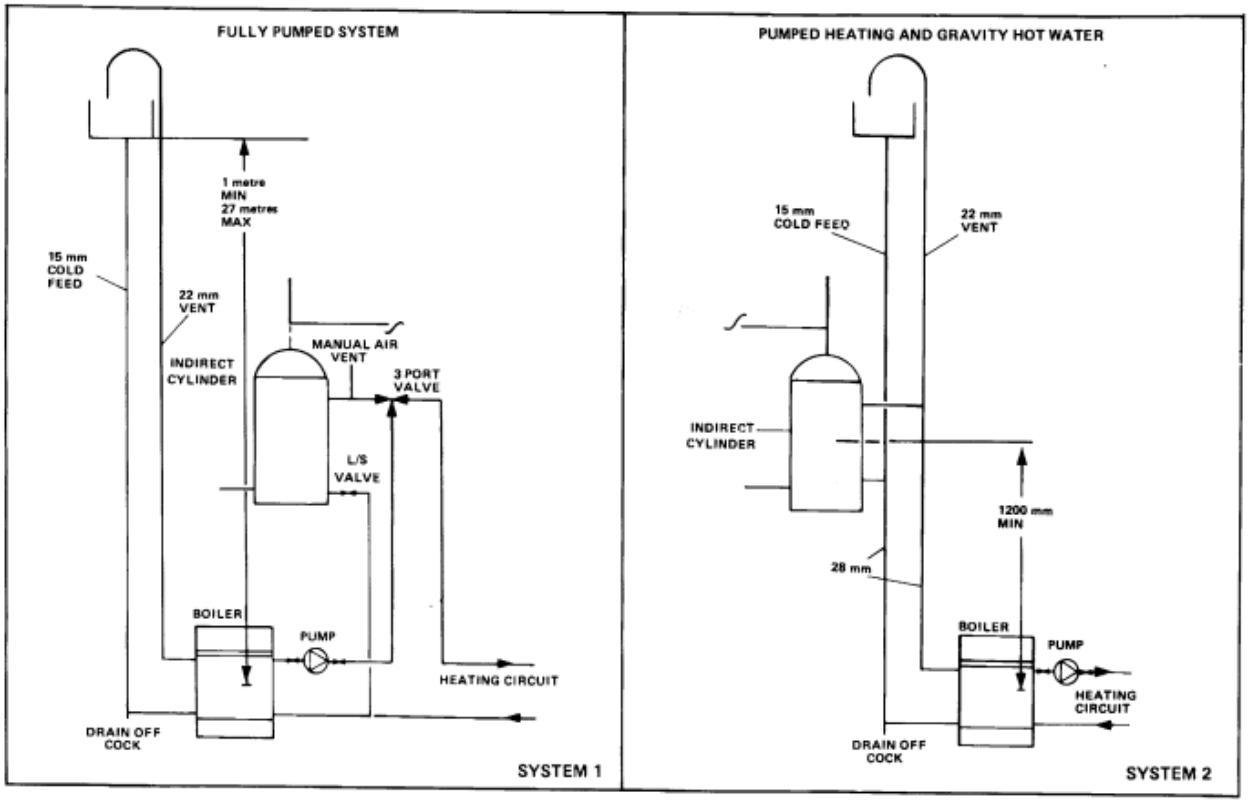
The correct position of the balanced flue terminal on the outside wall of the building is important. Ensure that the terminal position complies with the following data:

If the terminal discharges at a level less than 2 m (6 ft.) from the ground in an accessible position, a terminal guard, supplied as an optional extra, should be fitted.

All installations should conform with the Local Authority and Building Regulations and British Standard Code of Practice BS.5440 Part 1.

TERMINAL POSITION (See Fig. 2)	
a - Directly below an openable window or other opening, e.g. air brick	300 mm.
b - Below gutters, soil pipes or drain pipes	300 mm.
c - Below eaves	300 mm.
d - Below balconies or car port roof	600 mm.
e - From vertical drain pipes and soil pipes	75 mm.
f - From internal corners	600 mm.
From external corners	300 mm.
g - Above ground, roof or balcony level	300 mm.
h - From a service facing a terminal	600 mm.
i - From a terminal facing a terminal	600 mm.
j - From an opening in the car port (e.g. door, window) into a dwelling	1,200 mm.
k - Vertically from a terminal on the same wall	1,500 mm.
l - Horizontally from a terminal on the same wall	300 mm.

Page 3



SYSTEM DIAGRAMS (Diagrammatic only - Refer to page 8 for connections)

Page 3

Page 4

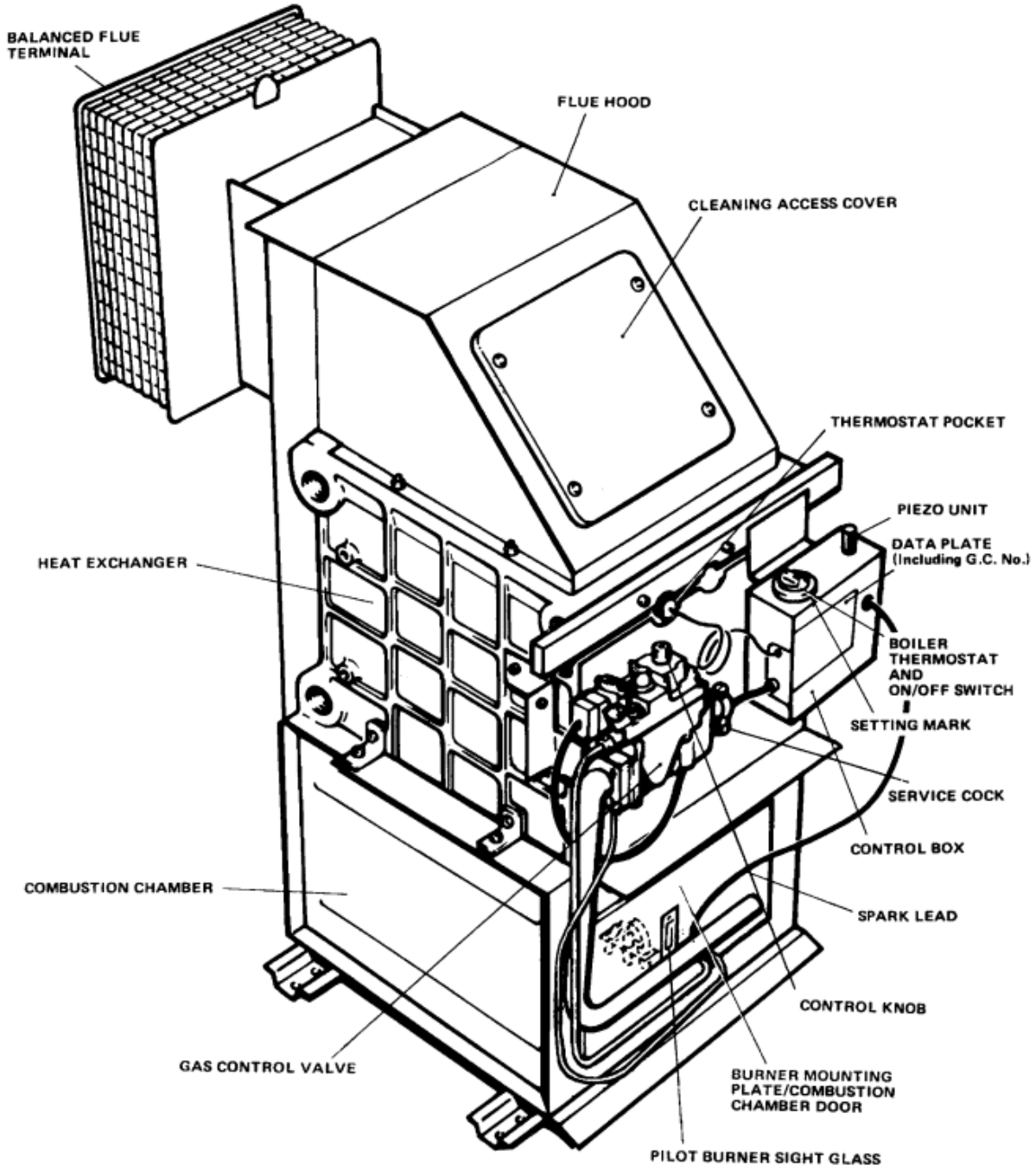


FIG. 1

GENERAL ARRANGEMENT

IMPORTANT

These appliances are certified for safety. It is therefore important that no external control device (e.g. flue dampers, economisers, etc.) be directly connected to the appliance unless covered by these installation instructions or otherwise recommended in writing.

Any direct connection of a control device not approved by Potterton could invalidate the certification and the normal appliance warranty.

Page 4

Page 5

FIG. 2

ELECTRICITY SUPPLY

A 240V ~ 50Hz, single phase electricity supply fused to 3A, must be provided in accordance with the latest edition of the IEE wiring regulations and any other local regulations that may apply. the current rating of the wiring to the boiler must be at least 3A in accordance with BS 6500 Table 16, and have a cross-sectional area of at least 0.75mm2 (24/0.20).

The method of connection to the mains electricity supply must facilitate complete isolation of the boiler together with any external controls fitted in the system, preferably by the use of a fused "three-pin" plug and shuttered socket outlet; both complying with the requirements of BS.1363.

Alternatively, a fixed double pole switch, having a 3 mm contact separation in both poles and serving only the boiler and external controls may be used.

The principle of wiring the boiler and external controls is shown in Fig. 8

GAS SUPPLY

The gas meter and installation pipe should be checked to ensure that they are large enough for the boiler and any other appliance already installed; the Local Gas Regional Office will assist in this matter The latest recommendations of CP331 Parts 2 and 3 must be observed.

SAFETY VALVE AND THERMOMETER

If the local authorities regulations stipulate that a safety valve should be fitted, this should be installed in the flow pipework as close to the boiler as possible.

If a thermometer is to be installed preferably of the immersion type, this should also be fitted in the flow pipework as close to the boiler as possible.

The requirements for a sealed system are specified in the Installation

Instructions supplied with the Overheat Thermostat Kit.

SERVICING

The efficient performance of this boiler is dependent upon regular servicing which should be carried out annually. Details of servicing arrangements offered by Potterton Myson can be found in the User’s Guide and the Warranty Envelope.

Servicing can be carried out once the casing front panels have been removed, all parts that are likely to require service are easily accessible.

COMMISSIONING

Each boiler has to be adjusted once it is installed and this is an operation which should only be undertaken by suitably qualified engineers.

Potterton Myson offer this service on a chargeable basis.

GENERAL DATA		3.0 bar (100 ft.wg.)

MAXIMUM WORKING HEAD	:	TO MAIN ½ in. BSP LOOSE KEY UNION COCK, Rc½
GAS CONNECTION	:	TO 3-WAY TERMINAL BLOCK IN CONTROL BOX
ELECTRICAL CONNECTION	:	SIT 0.820.010
COMBINATION GAS CONTROL	:	RANCO CL6 (Boiler flow
	:	temp. approx. 82ºC
THERMOSTAT	:	HONEYWELL Q359
PILOT BURNER		PERMANENT PILOT LIT BY
MAIN BURNER		VERNITRON PIEZO UNIT
		WITH BUCCLEUGH IGNITER
		RS 60 - BRAY MK.13 (1 off)
		RS 80 - FURIGAS (2 off)
		RS100 - FURIGAS (2 off)
		OR BRAY
CONNECTIONS	:	2 - 1 in. BSP RPI FLOW
ELECTRICITY SUPPLY	:	2 - 1 in. BSP RPI RETURN
POWER CONSUMPTION	:	240V ~50Hz
GAS SUPPLY PRESSURE	:	20W (excluding pump)
		20 mbar at appliance inlet.
		Performance data is based on
		G20 reference gas.

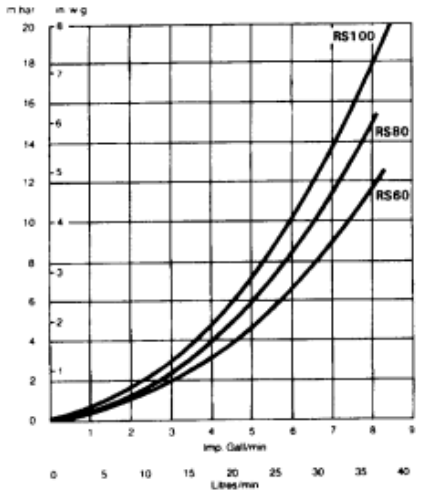


FIG. 3 PRESSURE LOSS ACROSS BOILER

ACCESSORIES

The following Potterton Myson controls are recommended for use with your boiler:

i) Electronic Programmer - EP2001, EP3001,or EP6000

ii) Cylinder Thermostat - PTT2 or PTT100

iii) Room Thermostat - PRT2 or PTT100

iv) Frost Thermostat PRT100 FR

v) Motorised Zone Valve MSV222 or MSV228

vi) Motorised Diverter Valve M5V322

vii) Thermostatic Radiator Valve

Data sheets describing these products are available on request.

Page 5

Page 6

GENERAL DATA		**RS.60**			**RS.80**			**RS.100**		
Heat Input	kW Btu/h	17.8 60,800	20.6 70,400	23.4 80,000	23.4 80,000	27.35 93,333	31.3 106,667	30.9 105,264	34.5 117,567	38.1 129,870
Heat Output into Water	kW Btu/h	13.2 45,000	15.4 52,500	17.6 60,000	17.6 60000	20.5 70,000	23.5 80,000	23,4 80,000	26.4 90,000	29.3 100,000
Heat Output into Air (approx)	kW Btu/h	0,7 2,310	0.8 2,730	0.9 3,040	1.0 3,410	1.15 3,920	1.3 4,480	1.1 3,800	1.25 4265	1.4 4,700
Weight Empty	kg lbs	92 202			111 245			134 295		
Water Content	litres pints	7.1 12.5			9.3 16.4			11.65 20.7		
Burner Pressure	mbar in.wg.	8.7 3.5	11.6 4.6	14.7 5.9	9.1 3.7	12.5 5.0	15.7 6.3	8.7 3.5	10.9 4.4	13,0 5.2
Injector Size/marking		3.8			3.1 (x2)			3.5 (x2)		
Gas Rate	cu.m/h cu.ft/h	1.66 58.7	1.92 68	2.18 77.3	2.18 77.3	2.55 90.2	2.92 103.0	2.89 101.7	3.22 113.6	3.55 125.5
G.C. No.		41 607 19			41 607 20			41 607 21		
Potterton code		HEN			HEO			HEP		

TABLE 1

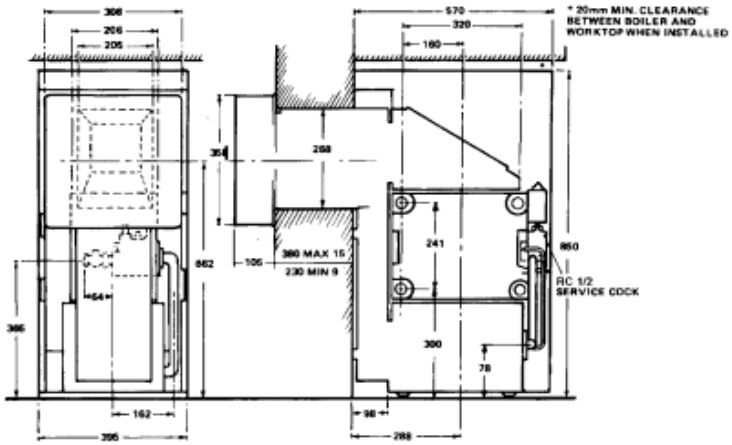


FIG. 4a RS.60 CONNECTIONS AND DIMENSIONS

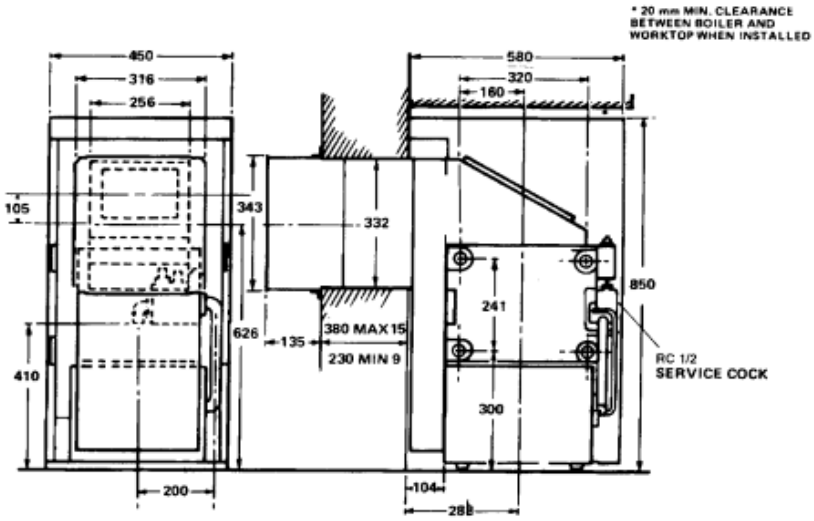


FIG. 4b RS.80 CONNECTIONS AND DIMENSIONS

Page 6

Page 7

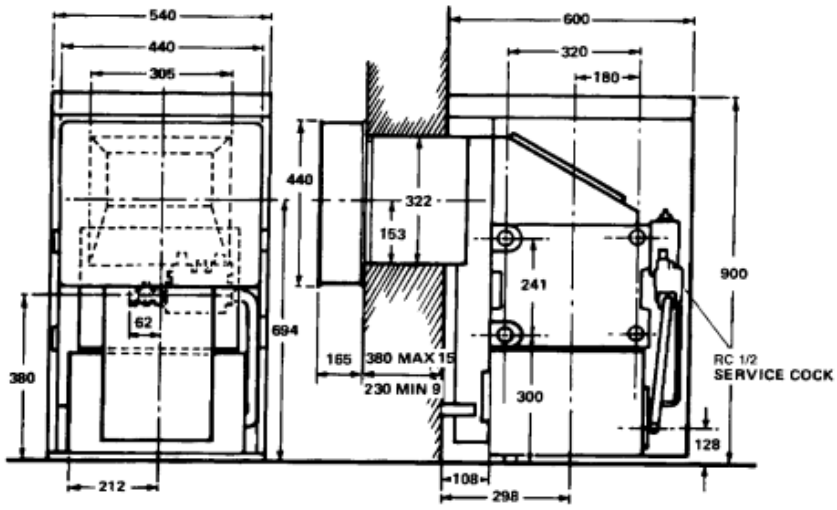


FIG. 4c RS.100 CONNECTIONS AND DIMENSIONS

INSTALLATION INSTRUCTIONS

It is the law that all gas appliances are installed and serviced competent persons as stated in Gas Safety (Installation and Use) Regulations 1994. For Health and Safety information see back page Electrical

installation and servicing should be carried out by a competent person in accordance with the IEE. Wiring Regulations. The installation should be in accordance with the relative British Standard codes of Practice. Reference should also be made to British Gas publication; "British Gas Specifications for Domestic Wet Central Heating Systems".

1. Unpacking the Boiler

A. The applicance will arrive on site in three cartons as follows:

Carton 1: Boiler Assy. and Installation Instructions.

Carton 2:
a) Case Top;
b) Side Panels (Left and right hand);
c) Case fronts (Upper and lower);
d) Plinth;
e) Fastener Pack;
f) Side infill;
g) Side Extension.

Carton 3: Terminal Assy.

B. To avoid damage, do not open the casing pack at this stage.

Note: If the Overheat Thermastat Kit is used, refer to the fitting instructions supplied with the kit.

2. Cutting the hole tar the Balanced Flue Ducting

A. Decide the most suitable position for the boiler taking into account the information given previously, and paying particular attention to the siting of the balance flue terminal on the outside of the building. See Fig. 6

B. Cut a clearance hole in the wall for the terminal ducting— minimum hole sizes should be:

RS.60—275 mm High x 210mm wide

RS.80—335 mm High x 260 mm wide

RS.100—325 mm High x 310mm wide.

3. (i) Filling the Flue Duct and Main Air Box (See Fig. 5a & 5b) RS.60 only

A. Locate the flue duct in the four edge clips attached to the stub duct on the air duct. Push firmly into the clips and use the roll of red/brown silicone tape in the terminal box to seal around the jointing line (Fig. 5a).

B Fit the main air box to the air duct using the six M6 screws from fastener pack F Note: The flanges on the main air box should be upward facing (Fig. 5a).

C. Measure the thickness of the wall, slide the telescopic air box into the main air box and adjust the length to the wall thickness PLUS 12mm (Dim'n 'X').

Dimension 'X' is taken from the rear edge of the telescopic air box (Part A), and the rear face of the air duct (Part B).

Seal the ducting joint with the black PVC adhesive tape, ensuring a good seal over the flanges at the top of the main air box. (see Figs. 5a and 5b).

(ii) RS.80 Only (See Fig.5b).

Fit the main air box to the air duct using the six M6 screws from fastener pack F

(iii) RS.100 Only

All ductwork for the RS.100 is factory fitted and no assembly is necessary.

4. POSITIONING THE BOILER

A. Before manoeuvring the boiler into position, fit:

(a) The circulating pump kit (if used) as described in the kit instructions.

(b) Any other fittings or pipework which may be affected by access due to site conditions.

B. Manoeuvre the boiler into position so that its terminal ducting enters the hole in the wall and the angle brackets on the air duct touch the wall. RS.60 ONLY: If the boiler is positioned against the back wall ensure that the rear piece of foilfaced insulation on top of the air duct is angled upwards to rest against the wail.

C. When the boiler has been finally positioned, check that it is level and its ducting is located squarely inside the wall.

D. Working from outside the building, make good the external wall surface using a suitable sealing material.

E. Fit the balanced flue terminal assembly, sliding its ducting inside that already positioned in the wall. It necessary, make good the outside surface of the wall before finally pushing the terminal up against the brickwork. Secure the terminal to the wall with two screws and Rawplugs (Fastener Pack A).

NB. RS.100 ONLY: Check that the terminal is in the correct position by ensuring that the protruding edge of the tapered flue outlet is uppermost. The top panel of the duct is marked to identify the correct position readily.

F When applicable mark, drill and secure the terminal guard (optional extra) to the wall.

CONNECTIONS — See Connection Guide A, B & C

A. 1. The thermostat pocket is positioned in the heat exchanger to provide satisfactory operation for the pipework options shown in Connection Guide A, B & C. No attempt should be made to alter the position of the thermostat pocket.

2. The heat exchanger represented in the Connection Guide is the RS.60 but the same principle of connection applies also to the RS.80 and RS.100.

B. Make the flow and return connections in accordance with normal practices.

INSTALLATION INSTRUCTIONS - Page 8

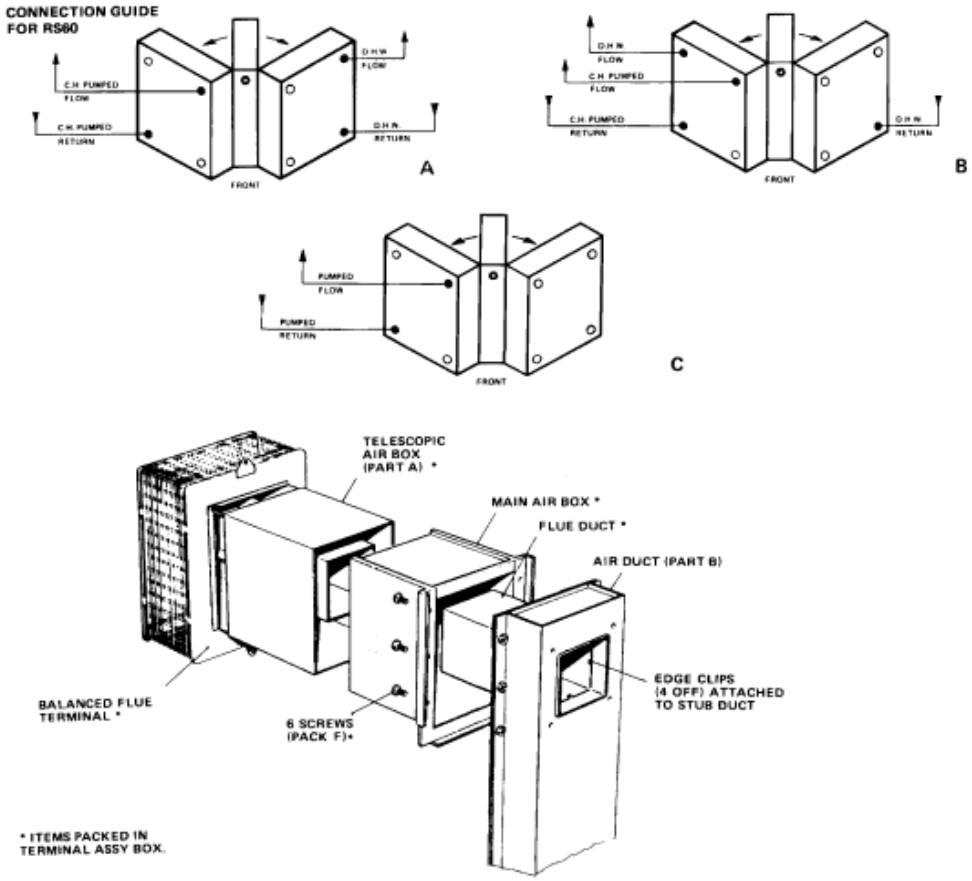


FIG. 5a RS.60 ONLY

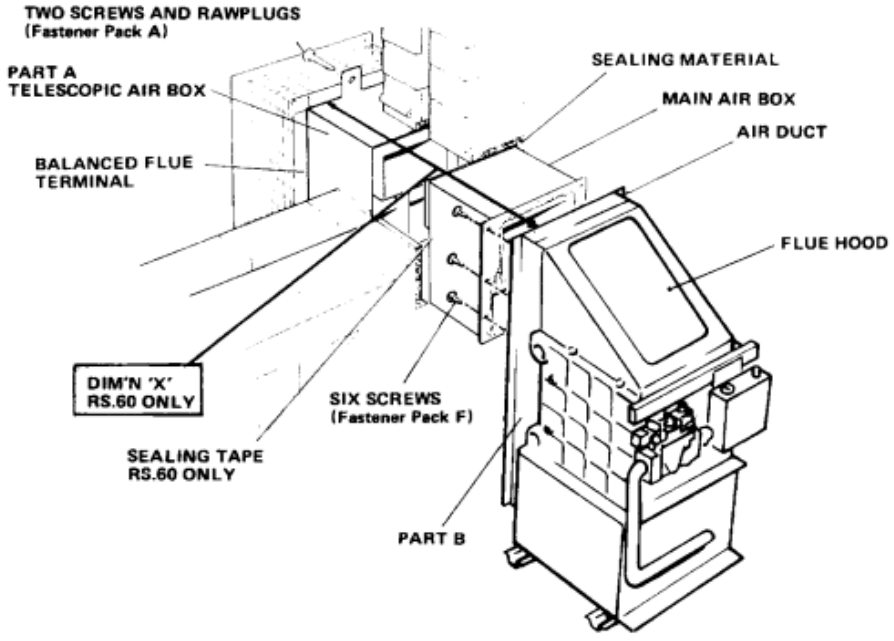


FIG. 5b ON-SITE ASSEMBLY RS.60 & RS.80

Page 8

INSTALLATION INSTRUCTIONS - Page 9

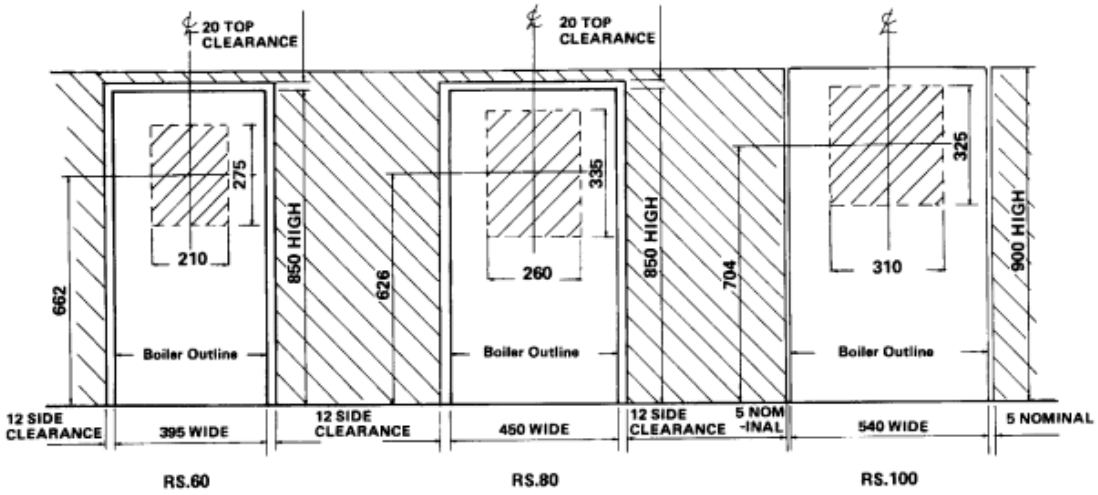


FIG. 6 FLUE HOLE POSITIONS AND BOILER CLEARANCES

C. On certain combined systems, i.e. pumped central heating and gravity hot water, it may be necessary to install a check valve to prevent gravity circulation in the heating circuit when the pump is not working. This valve must be installed with the arrow on it pointing vertically upwards and in the direction of the flow.

D. The circulating pump can be fitted in any position on either the flow or return to suit the particular installation. Refer to "The System" and the pump manufacturers instructions.

If internal pump fitment is required, it is recommended that the Potterton pump kit should be used.

E. Connect the gas supply pipe to the boiler service cock.

F. Fit a drain cock(s) to the lowest point(s) in the system.

G. Remove the circulating pump, open all water valves and thoroughly flush the system.

H. Refit the pump, fill and vent the water system and test for water soundness; rectify if necessary.

6. WIRING

If the Overheat Thermostat Kit is to be used, refer to Section 3 "Wiring" in the instructions supplied with the kit for connection details. When the kit is incorporated then 4 core cable must be fitted as shown in the wiring diagram.

Care must be taken to ensure that all wiring to the boiler is kept clear of sharp edges and hot surfaces. Cable clips are provided to secure the input cable to the boiler casing. Ensure that sufficient input cable is provided to allow routing along the top of the casing side panel, (see Section 10 "Casing").

Remove the side screw and hinge the control box from its housing to expose the terminal strip.

The boiler terminal strip is not designed to accept wiring from all the on-site system controls and therefore, the installer will usually need to incorporate a suitable junction box. The principle of wiring up the boiler and its controls is shown in Fig.8. However, the layout of a particular system will itself govern the most economical location for the junction box and its terminals.

NOTE: Ensure that the earth conductor is longer than the Land N from the point of anchorage, so that the current carrying conductors become taut before the earth conductor.

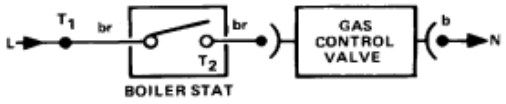
System wiring arrangements are shown in the system section of the Installation Instructions.

Remove the screw at the left—hand side of the control box and remove the control box from its transit position on the heat exchanger 7

Remove the front tie strap from its transit position on the heat exchanger Using the screw just removed and the screw which held the control box, fit the front tie strap to its correct position. The cut-out(s) in the tie strap should clear the thermostat pocket in the heat exchanger Do not fully tighten the screws at this stage.

Remove the two screws from the control box mounting bracket on the tie strap and use to fit the control box to its correct position.

When all wiring is complete hinge the control box into its housing and secure it with the side screw.



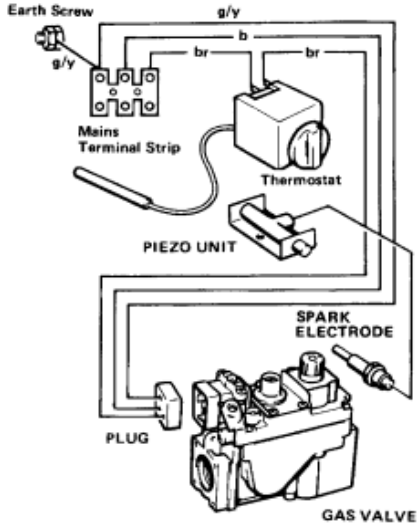


FIG. 7 WIRING DIAGRAM

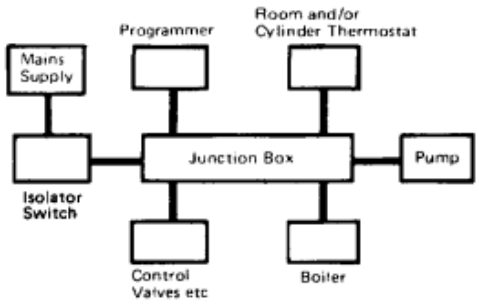


FIG. 8 PRINCIPAL OF WIRING

Page 9

INSTALLATION INSTRUCTIONS - Page 10

7. COMMISSIONING THE BOILER

Before lighting the boiler, the whole of the gas installation, including the meter, must be inspected and tested for soundness, and purged, in accordance with the recommendations of CR33 1: Part 3.

7.1. PRELIMINARY ELECTRICAL SYSTEM CHECKS

In the event of an electrical fault after installation of the appliance, preliminary electrical system checks, as described in the British Gas Multi-meter instruction book must be carried out. The checks to be carried out are:—

A. Earth Continuity Check

B. Short Circuit Check

C. Polarity Check

D.

Resistance to Earth
Check

(See Figures 7,9 and 17 if Overheat Thermostat Kit is fitted).

IMPORTANT

This series of checks are the first electrical checks to be carried out during a fault finding procedure. On completion of a service/ fault finding task which has required the breaking and re-making of electrical connections then the checks A. Earth Continuity; C. Polarity; and D. Resistance to Earth must be repeated.

8. LIGHTING

A. Check that the main electricity supply to the boiler is switched on and that the boiler thermostat is in the OFF position.

B. Turn on the gas supply.

WARNING: OPEN ALL WINDOWS AND EXTINGUISH ANY NAKED FLAMES IN THE ROOM AND PUT OUT PIPES AND CIGARETTES.

C. Break the union at the boiler gas service cock, then open the cock and purge any air from the supply pipe. See CP.331 Part 3.

0. Close the cock, re-make the union then re-open the cock and test for gas soundness using a soap solution.

WARNING: DO NOT USE A NAKED FLAME

E. Ensure that the system is full of water and that the pump and radiator isolating valves are open.

F. Ensure that the time control, if fitted, is in an ON condition, and that the room and/or cylinder thermostats, where fitted, are set to high temperatures.

G. Depress and turn the control knob on the gas control valve clockwise as far as possible and release it. This ensures the valve is in the OFF condition.

H. Depress and turn the control knob on the gas valve anti-clockwise so that the stylised ignition symbol lines up with the mark on the gas valve body, see knob details. Press and hold in the control knob and press the piezo unit until a click is heard. Release the

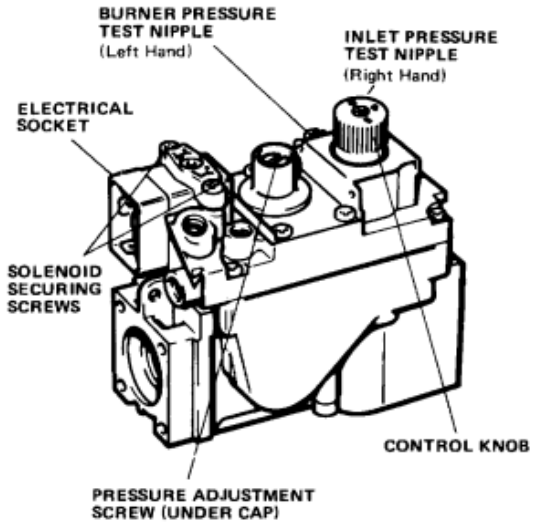


FIG.10

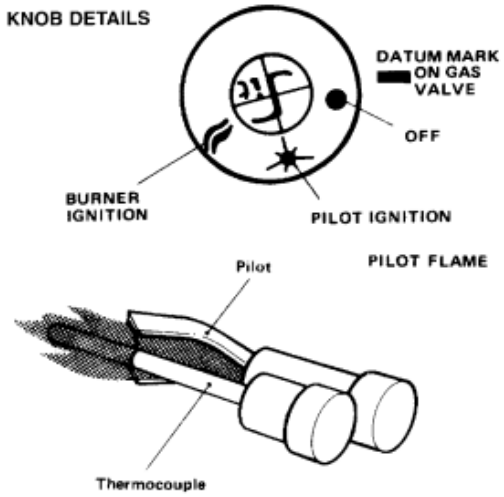


FIG.11

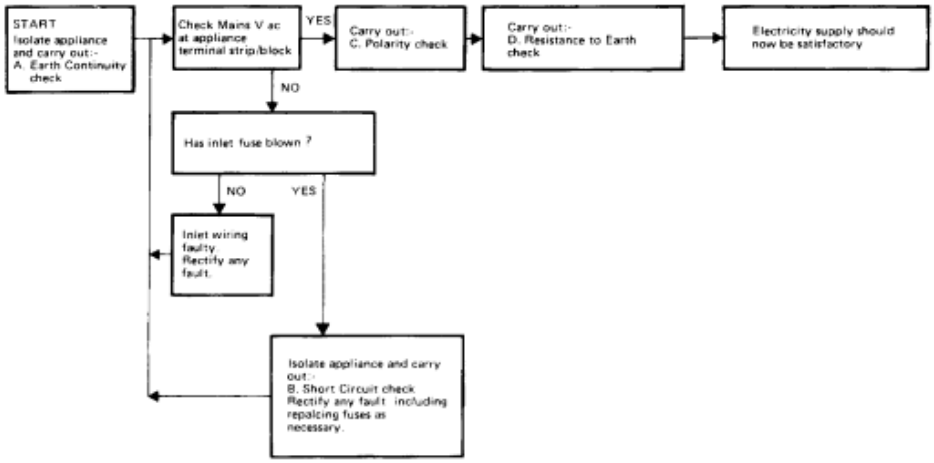


FIG. 9

Page 10

INSTALLATION INSTRUCTIONS - Page 11

piezo unit and repeat operation until the pilot ignites. Check through the sight glass that the pilot has ignited. Hold in the control knob for a further 15 seconds, on release the pilot should remain alight. Depress and turn the control knob anti-clockwise until the stylised flame symbol lines up with the mark on the valve body

NOTE: On first lighting, establishment of the pilot flame may be slightly delayed due to the presence of air in the pipework and several operations of the igniter button may be necessary.

If the pilot fails to light or goes out at any time, immediately depress and turn the control knob clockwise as far as possible then release it and wait three minutes before repeating the lighting procedure. The control knob should not be touched during this period.

J. Turn the boiler thermostat to a high setting and the main burner will light.

K. Set the boiler thermostat and the room and/or cylinder thermostat(s) and time control, where installed, to their required operating conditions. Allow the system to reach maximum working temperature and examine for leaks. Switch off the boiler using the thermostat knob. Drain the system whilst it is still hot, then refill and vent and make a final examination for leaks.

9. FINAL ADJUSTMENT

A. Gas rate and main burner pressure setting

1. Fit a pressure gauge to the pressure test nipple at the outlet side of the gas valve (see Fig.10).

2. Turn on the boiler thermostat, then check that the burner pressure is in accordance with Table 1.

3. If burner pressure adjustment is necessary, remove the screwed cap on top of the control valve and turn the screw beneath (clockwise to increase pressure). Refit the screwed cap when the pressure is correct. Shut down the boiler, remove the pressure gauge and refit the screw in the pressure test nipple, ensuring a gas-tight seal is made.

4. With the burner set to its correct pressure, the heat input given in Table 1 should also be obtained and this should be checked by meter reading over a period of at least 10 minutes once the boiler is hot.

5. When the desired heat input is achieved, remove the self-adhesive arrow from the inspection ticket and stick it to the Data Plate to indicate the burner setting pressure appropriate to the system design.

B. Pilot Burner

The pilot burner is factory-set for all boilers, and therefore no adjustment should be required.

The pilot flame should heat the thermocouple so that the pilot safety device is "held in" but must not cause the thermocouple to glow bright red. see Fig.10 shows the approximate pilot sizes for each appliance. The E,M.F. generated by the thermocouple should be of the order of 18 — 32 mV open circuit, 10 — 15 my closed circuit. Drop out should occur between 2 — 4 mV closed circuit.

C. Boiler Thermostat

I. At its minimum and maximum settings, the thermostat should control the water flow temperature at approximately 55ºC — 82ºC (I30ºF — 180ºF) respectively.

2. The thermostat has been calibrated by the makers and no attempt should be made to recalibrate it on site. Turn the thermostat to the OFF position and check that the main burner shuts down.

D. Gas Control Valve

i) Main Solenoid

Check the operation of the valve by turning oft the electricity supply, either by the isolating switch or the time control, v/here installed. The main burner must shut down immediately.

ii) Pilot Solenoid

Check the operation of the valve as follows with the boiler running normally: Turn the control knob on the gas control valve clockwise as far as possible and a distinct click should be heard within 60 seconds indicating that the valve has closed.

E. Remote Controls

Check that any other remote control connected in the system such as time clocks and thermostats. control the boiler as required.

10. CASING—See Fig.12

A. Remove the casing pack contents and check against parts list:

a) Case top panel

b) Side Panels (left and right hand)

c) Front Panels (Upper and Lower)

d) Plinth

e) Fastener Pack

f) Side Infill Panel

g) Side Extension Panel

B. Fit the captive nuts supplied in the fastener pack to the hole positions shown in Fig.12 (6 off, including 2 for the side infill panel). The four smaller captive nuts and screws contained in the additional polythene bag should be used for the plinth.

C. If required the side infill panel and the side extension panel may be fitted to the left or right hand side panel to improve the appearance of the boiler The side panels are handed by the location label fitted to the lower rear corner of the side panel.

D. Fit the case adjustment brackets to each end of the front tie strap as shown in Fig.12. Do not fully tighten the screws at this stage.

F. Using the locating labels to identify the correct panel, fit the correct holes in the side panels over the knibs on the rear of the boiler mounting channels.

F Screw through the side panels and into the front fixing of the adjustment brackets. lighten the top screws on the adjustment brackets.

C. Fit the cable retaining clips to the top flange of the appropriate side panel. Ensure that the mains input cable is routed away from hot surfaces and sharp edges.

H. Locate the plastic panel fasteners on the top panel into the larger diameter of the keyhole cut-outs in the top flange of the side panels. Slide the top panel towards the wall to secure in position, and screw through the side panel flange into the captive nut in the top panel.

J. Square up the casing assembly and fully tighten the M6 screws fixing the front tie strap to the heat exchanger

K. Fit the plinth to the 4 captive nuts at the base of the side panels using the screws and washers from the additional polythene bag. The two lugs on the plinth should be forward facing.

L. Fit the brass studs to the smaller hole of the bank of three holes in each side of the upper front panel using the Ms nuts and shakeproof washers. Push firmly home into the retainers in the side panels.

M. Fit the two universal case restraining brackets and their captive nuts to the holes beneath the bank of three holes in the flange of the lower front panel (see Fig.12).

Fit the brass studs to the smaller holes of the bank of three holes in each side of the lower front with the two Ms nuts and shakeproof washers.

N. Square up the casing assembly and fully tighten the screws left loose in operation D.

F Locate the two slots on the bottom flange of the lower front panel over the locating lugs on the plinth spring the panel restrainer inside the side panel flange and push firmly home into the retainers in the side panel

The case assembly is now complete. It is possible to adjust the boiler thermostat, or turn the boiler off without removing the lower front panel, simply pull the panel forward and allow the restrainer to rest against the side panel.

If a second side infill panel or side extension panel, (all boilers) or a casing top panel extension to allow flush fitting with 900 mm kitchen units (RS.60 and RS.8O only) are required, they may be obtained as optional extras.

NOTE: If the Overheat Thermostat Kit is used, stick the revised wiring diagram label over the wiring section of the information label fitted to the inside of the casing lower front panel.

Q. Remove the temporary label from the top of the casing, having checked compliance with the information it contains.

11. INSTRUCT THE USER

The installer should demonstrate the operation of the boiler to the householder, and ensure that all boiler literature is handed over to the user. The installer should advise the householder on the precautions necessary to avoid damage during frost conditions. The householder should be advised that, for continued efficient and safe operation, it is important that adequate and regular servicing is carried out on the boiler

INSTALLATION INSTRUCTIONS - Page 12

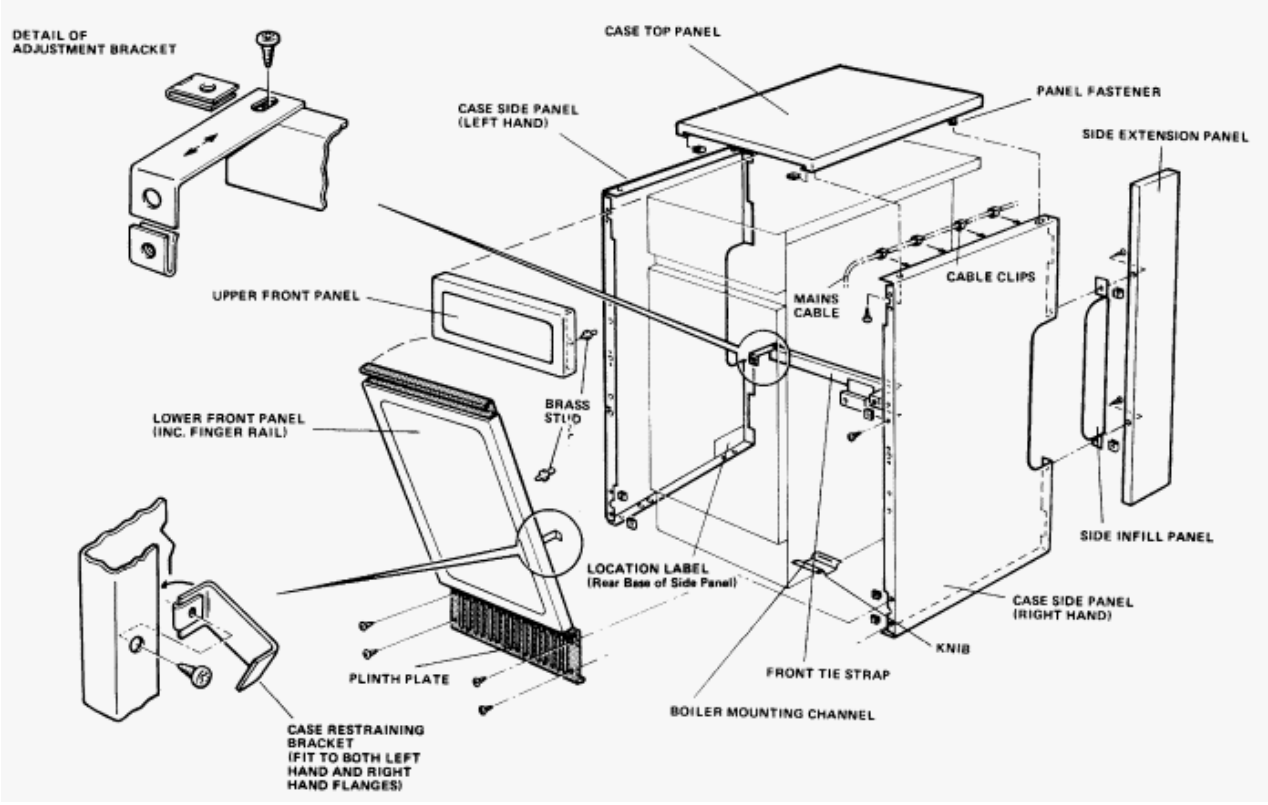


FIG. 12

Page 12

SERVICING SECTION - Page 13

Regular skilled servicing and cleaning of the appliance is essential to ensure continued safe and efficient operation. The frequency of cleaning will depend upon the particular installation conditions, and the use to which the appliance is put, but in general, once per year should be adequate. It is the law that all appliances are installed and serviced by competent persons as stated in Gas Safety (Installation and Use) Regulations 1994.

For Health and Safety information see back page.

Electrical installation and servicing should be carried out by a competent person in accordance with the I.E.E. Wiring Regulations.

The following notes apply to the boiler, and its controls, but, it should be remembered that attention must also be paid to the heating circuit itself including radiator valves, thermostats. the time control and the expansion and feed water system. In all cases prior to servicing light up the boiler and check that the pilot and main burners have a clean, even flame and that the gas rate and main burner pressure is correctly set.

BEFORE THE START OF ANY SERVICING WORK, SWITCH OFF THE MAIN ELECTRICITY SUPPLY AND DISCONNECT THE PLUG AT THE MAIN ISOLATING SWITCH AND SOCKET. TURN OFF THE BOILER GAS SERVICE COCK.

NOTE: Where it is required to break any seal during servicing, the seal should be examined carefully for damage and if necessary replaced. It is important to obtain the correct Potterton Myson approved part for the seal replacement which is available from Interpart spares stockists, or where difficulty in supply is experienced, directly from Potterton Myson.

After any servicing or component replacement always test the boiler for gas soundness and carry out functional checks of controls. (See Commissioning Section in the Installation Instructions).

1. PREPARING THE BOILER

A. Remove the casing upper and lower front panels by pulling forward.

B. Remove the plinth after removing the 4 self tapping screws and washers.

2. MAIN BURNER ASSEMBLY—Removal & Cleaning

NOTE: If an Overheat Thermostat is fitted, the leads must first be removed from the gas valve prior to burner removal.

Remove the insulating boot and disconnect the in-line connector Remove the thermocouple from the gas valve and slide the white insulator and connector from the slot at the underside of the gas valve.

A. Disconnect the union in the main gas supply pipe at the gas service cock.

B. Remove the single forward facing screw securing the bracket on the gas valve to the bracket on the side of the heat exchanger Two screws RS.100.

C. Unplug the lead to the gas valve from the control box and disconnect the spark lead from the piezo unit.

D. Remove the four screws securing the combustion chamber front cover and remove the cover complete with the burner and gas arrangement.

E. Remove all deposits from the main and pilot burners, the electrode and the thermocouple.

F Remove and inspect the pilot injector for deposits and clean if necessary. The pilot injector may be extracted using a blunt tool such as an Allen Key. Likewise, remove and inspect the main burner injector(s).

G. Do not attempt to refit the main burner assembly into the combustion chamber at this stage, as the flueways in the heat exchanger have first to be cleaned.

3. HEAT EXCHANGER

A. Unscrew the four nuts and washers securing the fluehood heat deflector plate and remove the plate. Unscrew the four nuts and remove the fluehood cover plate.

NOTE: The heat deflector plate is not fitted to the RS.100.

B. Working from above and below the heat exchanger use a suitable brush and remove all deposits from between the fins of the castings.

C. Refit the fluehood cover plate ensuring that a good seal is made and secure with the four nuts. Refit the fluehood heat deflector and secure with the other four nuts and washers.

D. Remove all deposits from inside the boiler combustion chamber

4. MAIN BURNER ASSEMBLY REPLACEMENT

Re-assembly of the main burner is by reverse order of the removal procedure.

5. OTHER BOILER COMPONENTS

No further servicing has to be carried out on any other unit. Repair is by replacement and instructions on this are given later

6. BOILER ADJUSTMENT

A. Fit a pressure gauge to the pressure test nipple at the outlet side of the gas valve (see Fig.10).

B. Switch on the main electricity supply to the boiler and check that the boiler thermostat is in the OFF position.

C. Turn on the main gas service cock.

D. Ensure that the system is full of water and that the pump and radiator isolating valves are open.

E. Ensure that the time control, if fitted, is in an ON condition, and that the room and/or cylinder thermostats, where fitted, are set to high temperatures.

F. Turn the control knob on the gas control valve clockwise as far as possible and release. This ensures the valve is in the OFF condition.

G. Depress and turn the control knob on the gas valve so that the stylised ignition symbol lines up with the mark on the gas valve body, see knob details. Press and hold in the control knob and press the piezo unit until a click is heard. Release the piezo unit and repeat operation until the pilot ignites. Check through the sight glass that the pilot has ignited. Hold in the control knob for a further IS seconds, on release the pilot should remain alight. Depress and turn the control knob anti-clockwise until the stylised flame symbol lines up with the mark on the valve body.

NOTE: On first lighting, establishment of the pilot flame may be slightly delayed due to the presence of air in the pipework. If the pilot fails to light or goes out at any time, immediately turn the control knob clockwise as far as possible, then release it and wait three minutes before repeating the lighting procedure. The control knob should not be touched during this period.

H. **Pilot Burner**

The pilot pressure is factory set and therefore should not require adjustment.

The pilot flame should heat the thermocouple so that the pilot safety device is "held in" but must not cause the thermocouple to glow bright red. Fig.11 shows the approximate sizes of the pilot flames. The E.M.F generated by the thermocouple should be of the order of 18 - 32 my open circuit. 10 - 15 mV closed circuit. Drop out should occur between 2 -4 mV closed circuit.

J. Turn on the boiler thermostat and the main burner will light. Check that the burner pressure is in accordance with the setting indicated by the arrow fitted on the data plate.

K. If burner pressure adjustment is necessary, remove the screwed cap on top of the gas control valve and turn the screw beneath clockwise to increase pressure or anti-clockwise to decrease. Refit the screwed cap when the pressure is correct. Shut down the boiler, remove the pressure gauge and refit the screw in the pressure test nipple. ensuring a gas tight seal is made. With the burner set to its correct pressure, the heat input should also be obtained and this should be checked by meter reading over a period of at least 10 minutes once the boiler is hot.

L. Refit the casing plinth.

M. Refit the casing upper and lower front panels by pushing firmly into the spring clips.

Page 13

SERVICING SECTION - Page 14

7. REMOVAL/REPLACEMENT OF BOILER COMPONENTS

A. Main Burner and Injector

(1) Isolate the main electricity supply to the boiler, and/or disconnect plug.

(2) Carry out the operations described under 1. "PREPARING THE BOILER".

(3) Turn off the boiler main gas service cock.

(4) Remove the main burner assembly as described under 2. 'MAIN BURNER ASSEMBLY — REMOVAL AND CLEANING."

(5) Remove the two screws, RS.60, or four screws, RS.8O & RS.100 securing the burner(s) to the combustion chamber front plate.

(6) Unscrew the main burner injector(s)from the main gas supply pipe.

(7) Replacement is the reverse of removal.

(8) Test the boiler as described in 6. "BOILER ADJUSTMENT".

B. Pilot Burner and Injector

(1) Isolate the main electricity supply to the boiler, and/or disconnect plug.

(2) Carry out the operations described under 1. "PREPARING THE BOILER".

(3) Turn off the boiler main gas service cock.

(4) Pull the tag on the end of the spark lead, off the spark electrode.

(5) Disconnect the pilot supply pipe at the pilot. The pilot injector may be extracted using a blunt tool such as an Allen Key.

(6) Disconnect the thermocouple lead from the pilot assembly, then withdraw the thermocouple from the combustion chamber Ensure that the thermocouple is clean and undamaged.

(7) Remove the screws securing the pilot assembly to the combustion chamber front plate, then withdraw the pilot from the combustion chamber

(B) Unscrew the back nut and remove the spark electrode from the old pilot assembly and fit it to the new one,

(9) Replacement is the reverse of removal.

(10) Test the boiler as described in 6. "BOILER ADJUSTMENT".

C. Spark Electrode

(I) Carry out operations (1) to (4) and (7) and (8) under B. "Pilot Burner and Injector", fitting the new electrode to the existing pilot burner assembly.

(2) Ensure that the new electrode is correctly fitted and not bent. The tag on the electrode must face vertically upwards. Check that the distance between the electrode and the hood of the pilot is between 2 and 4 mm.

(3) Replacement is the reverse of removal.

(4) Test the boiler as described in 6. "BOILER ADJUSTMENT".

D. Thermocouple

(1) Carry out operations (1) to (3) and (6) under B. "Pilot Burner and Injector".

(2) Disconnect the thermocouple lead from the gas control valve, noting the route the lead takes from the pilot assembly. The replacement lead must be routed in a similar manner, so that sharp bends in the lead are eliminated.

(3) Replacement is the reverse of removal.

(4) Test the boiler as described in 6. "BOILER ADJUSTMENT".

E. (i) Gas Control Valve (without Overheat Thermostat Kit)

(1) Isolate the main electricity supply to the boiler, and/or disconnect plug.

(2) Carry out the operations described under 1. "PREPARING THE BOILER".

(3) Turn off the boiler main gas service cock.

(4) Remove the main burner and gas valve assembly as described under 2. "MAIN BURNER ASSEMBLY—REMOVAL AND CLEANING".

(5) Disconnect the pilot supply tube and the thermocouple lead from the gas valve.

(6) Remove the gas cock union nut and sleeve from the inlet end of the valve and bracket from the outlet end and fit them to the new valve.

(7) Remove the old valve from the gas supply pipe. Retain gasket for use with new valve.

(8) Replacement is the reverse of removal.

(9) Test the boiler as described in 6. "BOILER ADJUSTMENT".

E. (ii) Gas Control Valve (with Overheat thermostat Kit)

(1) Isolate the main electricity supply to the boiler, and/or disconnect plug.

(2) Carry out the operations described under 1. "PREPARING THE BOILER".

(3) Turn off the boiler main gas service cock,

(4) Remove the main burner and gas valve assembly as described under 2. "MAIN BURNER ASSEMBLY — REMOVAL AND CLEANING".

(5) Disconnect the pilot supply tube and the thermocouple lead from the gas valve.

(6) Remove the insulating boot and disconnect the in-line connector, slide the white insulator and the connector from the slot at the underside of the gas valve.

(7) Remove the gas cock union nut and sleeve from the inlet end of the valve and bracket from the outlet end and fit them to the new valve.

(8) Remove the old valve from the gas supply pipe. Retain gasket for use with new valve.

(9) Replacement is the reverse of removal.

(10) Test the boiler as described in 6. "BOILER ADJUSTMENT".

F. (i) Boiler Thermostat (without Overheat Thermostat Kit)

(1) Remove the casing front panels by pulling forward.

(2) Turn off the boiler main gas service cock.

(3) Isolate the main electricity supply to the boiler, and/or disconnect plug.

(4) Remove the screw at the left hand side of the control box and hinge down to gain access.

(5) Remove the split pin then withdraw the thermostat phial from its pocket in the heat exchanger

(6) Disconnect the two wires from the thermostat.

(7) Pull off the thermostat knob, then remove the two screws and washers from around the spindle of the thermostat. Remove the thermostat complete with its capillary. (Pliers may be used to open the slot in the side of the boiler).

(8) Replacement is the reverse of removal. Ensure that the new thermostat phial is inserted in to the full depth of its pocket and resecure with split pin. Ensure the capillary is positioned away from the heat exchanger and correctly positioned in the slot at the side of the control box. (It may be necessary to use pliers to close the slot).

(9) Test the boiler as described in 6. "BOILER ADJUSTMENT".

F. (ii) Boiler Thermostat (with Overheat Thermostat Kit)

(1) Remove the casing front panels by pulling forward

(2) Turn off the boiler gas service cock.

(3) Isolate the main electricity supply to the boiler, and/or disconnect the plug.

(4) Remove the screw at the left hand side of the control box and hinge down to gain access.

(5) Remove the split pin from the thermostat pocket head and withdraw the boiler thermostat from the pocket.

(6) Use a pair of pliers to open the thermostat capillary slot on the side of the control box and remove the capillary from the slot.

(7) Remove the leads from the boiler thermostat, noting their positions.

(8) Pull off the thermostat knob, then remove the two screws and washers from around the spindle of the thermostat. Remove the thermostat complete with its capillary.

(9) Replacement is the reverse of removal. Ensure that the new phial is correctly coupled with the overheat thermostat phial and inserted to the full depth of the pocket.

The capillaries should be positioned away from the heat exchanger and sharp edges.

(10) Test the boiler as described in 6. "BOILER ADJUSTMENT".

G. Piezo Unit

(1) Remove the casing upper and lower front panels by pulling forward.

(2) Turn off the boiler main gas service cock.

(3) Isolate the main electricity supply to the boiler, and/or disconnect plug.

(4) Pull off the lead to the piezo unit.

SERVICING SECTION - Page 15

(5) Remove the side screw in the control box and hinge down from the housing

(6) Remove the two securing screws and withdraw the piezo unit.

(7) Replace is the reverse of removal.

(8) Test the boiler as described in 6. "BOILER ADJUSTMENT".

H. Spark Lead

(1) Remove the casing upper and lower front panels by pulling forward.

(2) Isolate the main electricity supply to the boiler, and/or disconnect plug.

(3) Turn off the main gas service cock.

(4) Pull off the lead from the piezo unit and the spark electrode.

(5) Replacement is the reverse of removal.

CAUTION: When fitting the replacement lead, ensure that the end with the clear insulation is connected to the electrode, and that the black insulation is connected to the piezo unit.

J. Overheat Thermostat (it fitted)

(1) Remove the casing front panels by pulling forward.

(2) Turn off the boiler gas service cock.

(3) Isolate the main electricity supply to the boiler, and/or disconnect the plug.

(4) Remove the screw at the left hand side of the control box and hinge down to gain access.

(5) Remove the split pin from the thermostat pocket head and withdraw the phial from the special elbow fitted to the left-hand side of the heat exhanger.

(6) Use a pair of pliers to open the thermostat capillary slot in the side of the control box and remove the capillary from the slot.

(7) Remove the two leads from the overheat thermostat.

(8) Remove the thermostat fixing nut and remove the thermostat complete with its capillary.

(9) Replacement is the reverse of removal. Smear the surface of the coiled end of the overheat thermostat with heat conductive paste, (Pt. No. 705066 available from Potterton Myson). Ensure that the thermostat phial is correctly fitted into the thermostat pocket and inserted to the full depth of the pocket, using the spacer

The capillaries should be positioned away from the heat exchanger and sharp edges.

Test the boiler as described in 6. "BOILER ADJUSTMENT".

FLAME SUPERVISION TESTING

With the boiler running, temporarily loosen the thermocouple connection at the gas valve. The main burner should shut off within approximately one second. Tighten the thermocouple connection and re-light the pilot.

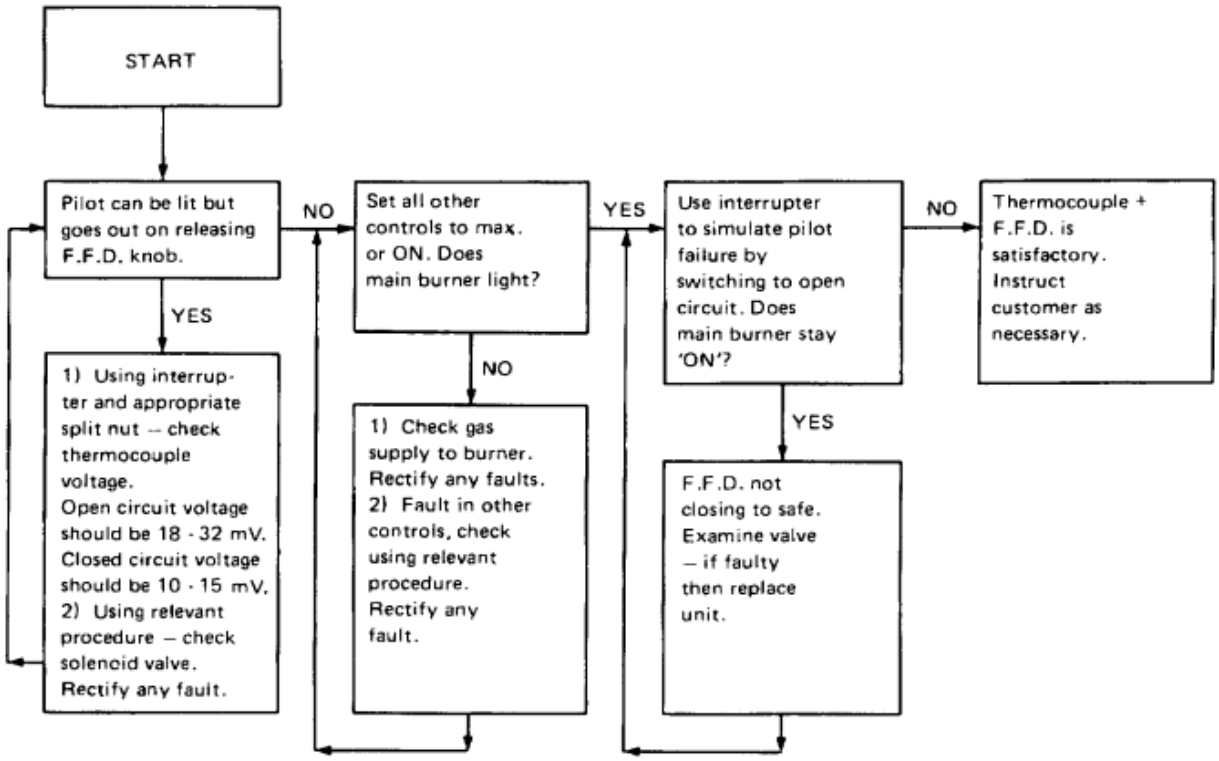


FIG. 13

F.F.D. AND THERMOCOUPLE

Page 15

FAULT FINDING - Page 16

As well as the fault finding chart given, reference should also be made to the wiring diagram Fig. 7.

Electrical procedures described are in accordance with the instructions for British Gas Multimeter booklet.

CONDITION	POSSIBLE CAUSE	REMEDY
A. Pilot fails to light.	(1) No gas supply.	Check all cocks are open in the supply to the boiler
	(2) Control knob not pressed fully down.	Control knob must be pressed fully down.
	(3) Blocked Pilot	Remove and change the injector as described in

	Injector	Servicing Instructions, Section 7.B.
	(4) Piezo unit not working.	Check that the striker and plunger mechanism are operating correctly. If the operating mechanism is correct, proceed as follows:- Disconnect the spark lead from the generator, then place the stripped end of a suitable piece of insulated wire in the piezo; hold the end of the wire close to the boiler waterway, then operate the piezo and check if a spark is made. It no spark appears, replace the piezo unit. If a spark is made but it does not spark at the electrode:
	(5) Electrode or lead damaged.	Replace electrode or lead as detailed in Servicing Instructions, Section 7.C or 7.H.
	(6) Overheat thermostat not operating.	(a) Check that reset button is pressed (b) Check overheat thermostat using procedure given in Fig. 16. Replace if necessary as detailed in 7J.
B. Main burner fails to light and pilot is extinguished when pressure on the control knob is released.	(1) Control knob not held down long enough.	Control knob must be pressed fully down for 20 seconds before main valve can be energised.
	(2) Loose thermocouple connection into control valve.	Tighten thermocouple union nut finger tight plus 1/turn only. Ensure connection is clean and dry. TOO MUCK PRESSURE MAY DAMAGE INSULATION AND CAUSE FAILURE.
	(3) Pilot rate too low.	Adjust the pilot flame, see Section 6.
	(4) Partially blocked pilot injector.	As item A.(3)
	(5) Failure of thermocouple, power unit or latching mechanism.	After pilot has been on for 20 seconds, release control knob. If pilot goes out: (a) Check FED, and thermocouple using procedure given in Fig. 13. (b) If thermocouple has failed, replace as described in Servicing Instructions, Section 7.D.Similarly, if control valve has failed, replace as described in Servicing Instructions, Section 7.E.
C. Main burner fails to light, pilot burning.	(1) Boiler thermostat set to ‘OFF’ or low setting.	Note setting of thermostat dial and check temperature of flow pipe.
	(2) Additional controls not calling for heat.	Check programmer or clock is ‘ON’ and that room thermostat or other distant control is not closed down. Carry out preliminary electrical system checks.
	(3) S.I.T. control solenoid valve failed.	Check solenoid using procedure given in Fig. 14. If solenoid valve has failed, remove coil

		securing screws (Fig. 10) and fit new coil.
	(4) Thermostat out of calibration or faulty.	Check thermostat using procedure given in Fig. 15. If faulty, replace thermostat as detailed in Servicing Instructions, Section 7.F
	(5) Blocked main burner injector	Clean or replace injector as detailed in Servicing Instructions, Section 7.A.
D. Main burner fails to shut down when water reaches pre-determined temperature.	(1) Thermostat out of calibration or faulty.	Remedy as in item C.(4).

Page 16

FAULT FINDING - Page 17

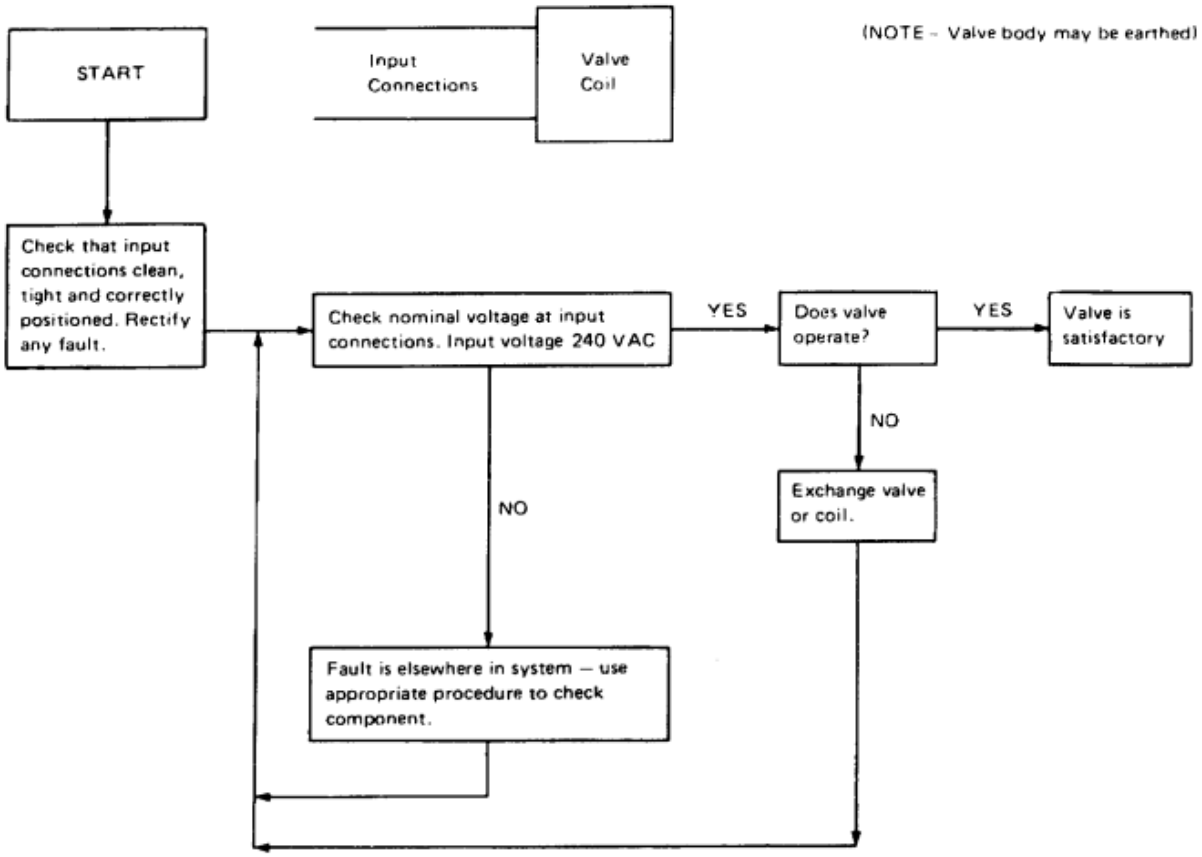


FIG. 14 SOLENOID VALVE

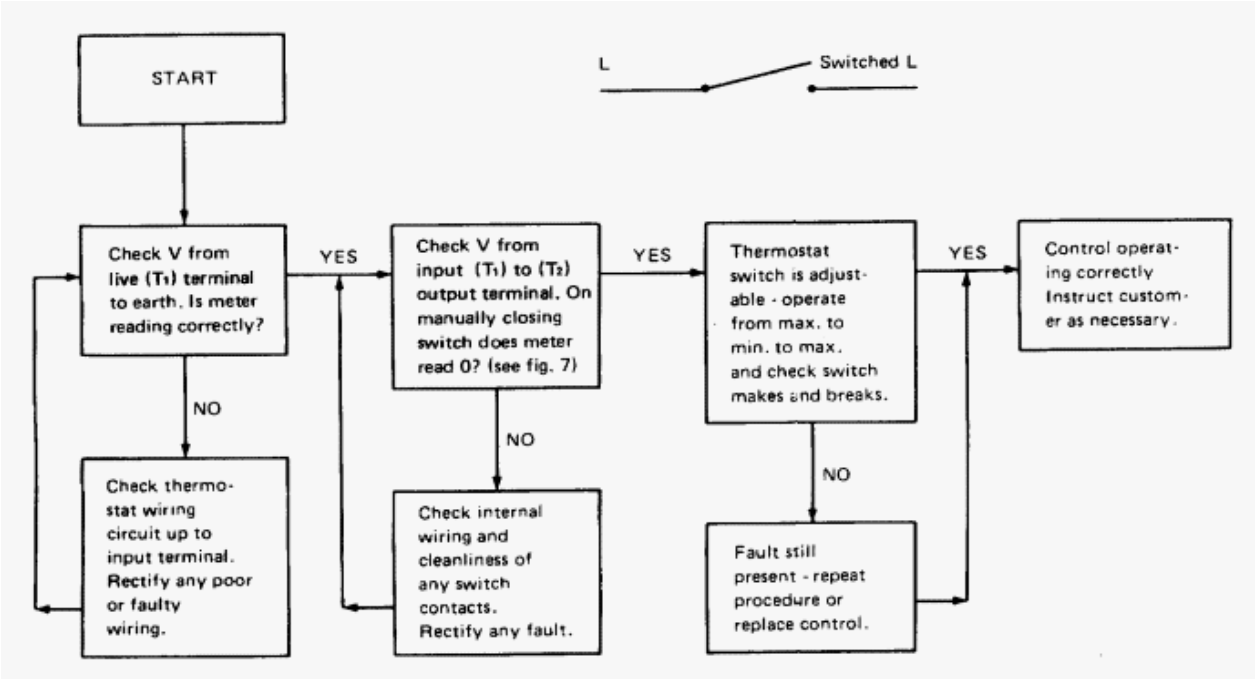


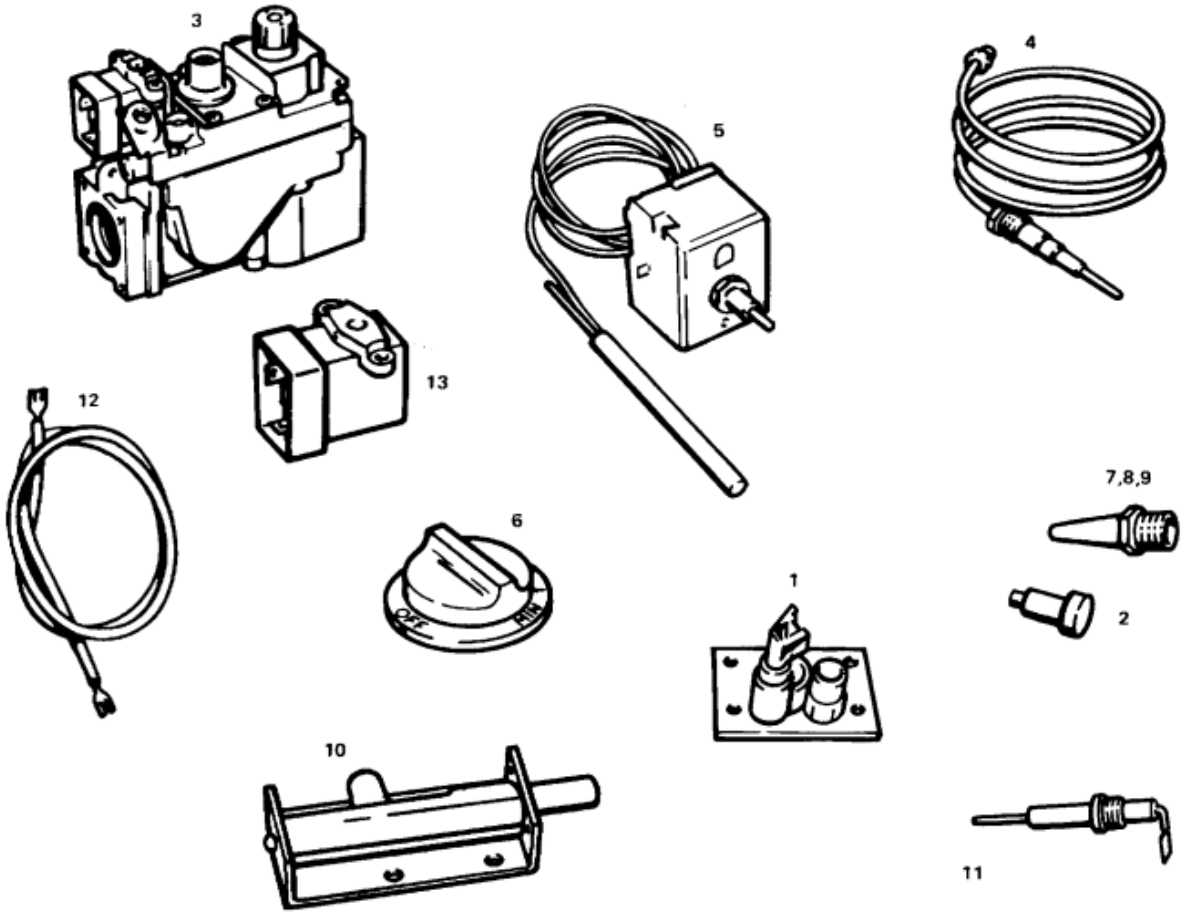
FIG. 15

THERMOSTAT

Page 17

SHORT PARTS LIST - Page 18

RS.60 ITEM No.	RS.80 ITEM No.	RS.100 ITEM No.	DESCRIPTION		POTTERTON PART No.	G.C.No.
1	1	1	Pilot Burner, Honeywell Q359A 1058		402841	391707
2	2	2	Pilot Burner Injector, Honeywell 45003-508-001		410917	384980
3	3	3	Gas Control Valve, S.I.T 0.820.010		402906	381627
4	4	4	Thermocouple		402174	390210
5	5	5	Thermostat, Ranco CL6		404486	381628
6	6	6	Thermostat Knob		206515	381629
7	—	—	Main Burner Injector,	3.8mm - RS.60	410904	384 062
—	8	—		3.1mm - RS.80	410908	358 425
—	—	9		3.5mm - RS.100	410902	384 512
10	10	10	Piezo Unit		407664	388032
11	11	11	Electrode, Buccleugh		407657	387 999
12	12	12	Electrode Lead		407665	336405
13	13	13	Solenoid Operator		907400	381638

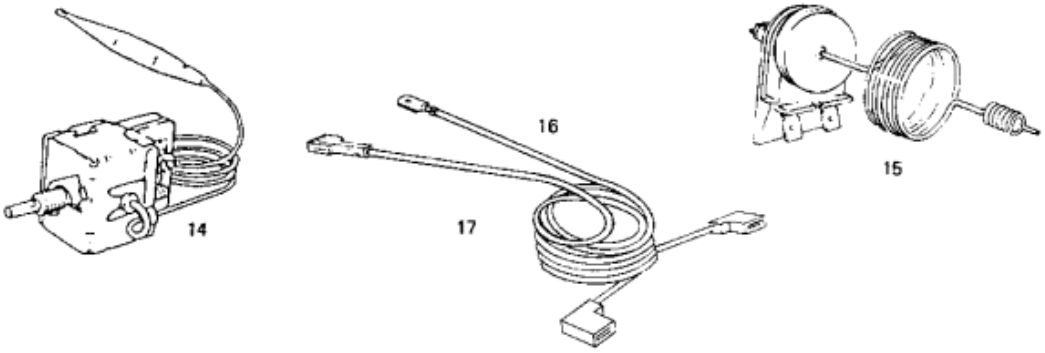


SUPPLEMENTARY INFORMATION FOR OVERHEAT THERMOSTAT KIT

RS 60	RS 80	RS 100	DESCRIPTION	POTTERTON No.	G.C. No.
14	14	14	Boiler Control Thermostat	404496	381839
15	15	IS	Overheat Thermostat	404492	381753
16	16	16	Thermocouple Interrupter Lead; Female/Male Connection	206787	337184
17	17	17	Thermocouple Interrupter Lead; Female/Female Connection	206786	337183

Page 18

SHORT PARTS LIST - Page 19



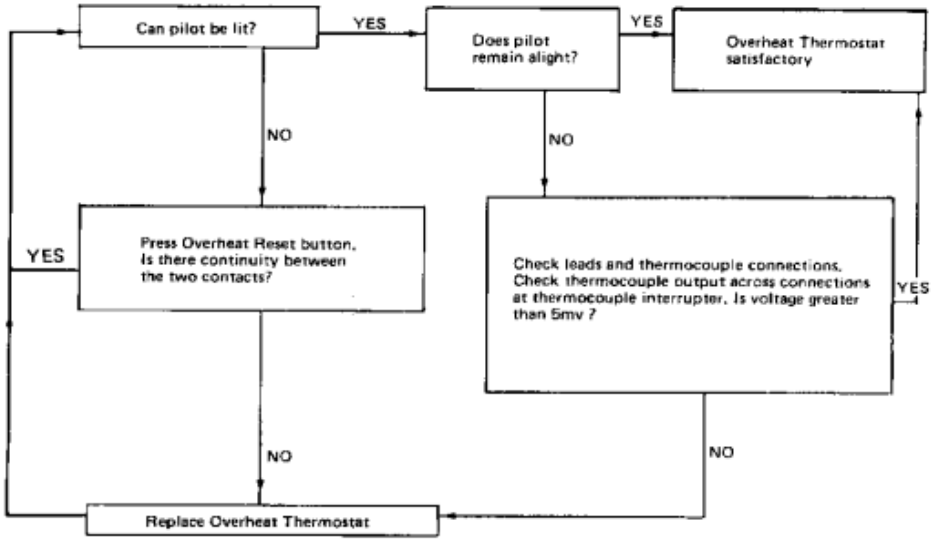


FIG. 16 FAULT FINDING — OVERHEAT THERMOSTAT

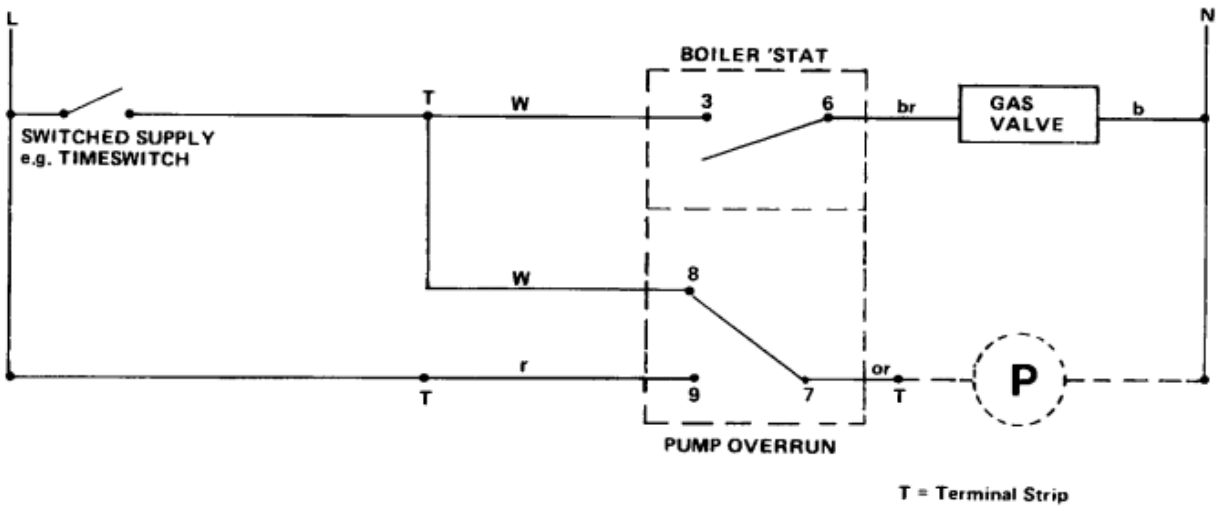


FIG. 17

FUNCTIONAL FLOW DIAGRAM (for Overheat Thermostat Kit

Page 19

HEALTH AND SAFETY INFORMATION FOR THE INSTALLER AND SERVICE ENGINEER

Under the Consumer Protection Act 1987 and section 6 of the Health and Safety at Work Act 1974, we are required to provide information on substances hazardous to health.

Small quantities of adhesives and sealants used in the product are cured and present no known hazards.

The following substances are also present.

Insulation & Seals

Material	-	Ceramic Fibre; Alumino—Silicone Fibre
Description	-	Boards, Ropes, Gaskets
Known Hazards	-	Some people can suffer reddening and itching of the skin. Fibre entry into the eye will cause foreign body irritation. Irritation to respiratory tract.
Precautions	-	People with a history of skin complaints may be particularly susceptible to irritation. High dust levels are only likely to arise following **harsh** abrasion. In general, normal handling and use will not present discomfort, follow good hygiene practices, wash hands before consuming food, drinking or using the toilet.
First Aid	-	Medical attention must be sought following eye contact or prolonged reddening of the skin.

Thermostat

Material	-	Contains very small quantity of xylene.
Description	-	Sealed phial and capillary containing liquid.
Known Hazards	-	Irritating to skin, eyes and throat. Vapour is harmful. Inflammable—do not extinguish with water.
Precautions	-	Do not incinerate. Avoid contact with broken/leaking phials. Do not purposely puncture.
First Aid	-	Eye/skin contact, wash with clean water, seek medical attention.