

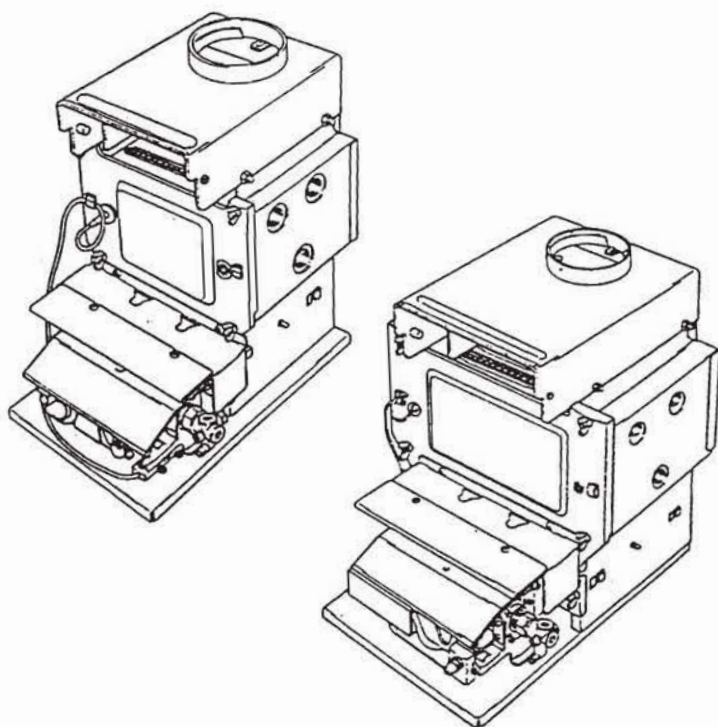
Baxi Bermuda 45/3 & 57/3 Boilers

Gas Fired Central Heating Unit

Gas Type G20 (Natural Gas)

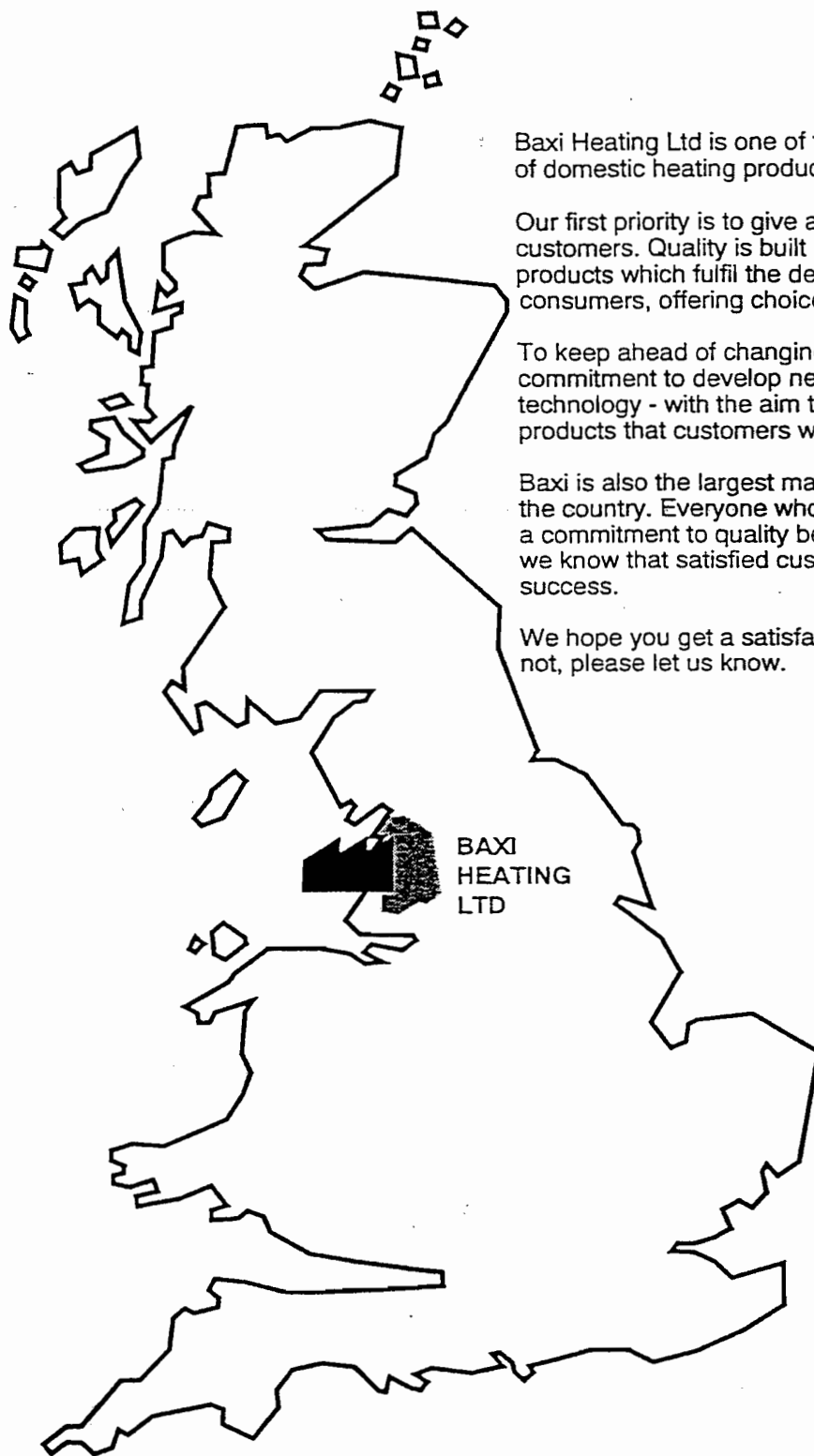
Baxi Bermuda 45/3 E	-	G.C.N° 44 077 60
Baxi Bermuda 57/3 E	-	G.C.N° 44 077 62
Baxi Bermuda 45/3 M	-	G.C.N° 44 077 61
Baxi Bermuda 57/3 M	-	G.C.N° 44 077 63

These Instructions must be read in conjunction with those for the separate Firefront.



Installation And Servicing Instructions





Baxi Heating Ltd is one of the leading manufacturers of domestic heating products in the U.K.

Our first priority is to give a high quality service to our customers. Quality is built into every Baxi product - products which fulfil the demands and needs of consumers, offering choice, efficiency and reliability.

To keep ahead of changing trends, we have made a commitment to develop new ideas using the latest technology - with the aim to continue making the products that customers want to buy.

Baxi is also the largest manufacturing partnership in the country. Everyone who works at the company has a commitment to quality because, as shareholders, we know that satisfied customers mean continued success.

We hope you get a satisfactory service from Baxi. If not, please let us know.

BS 5750 Company



BS 5258 BS 6332

Safety & Performance



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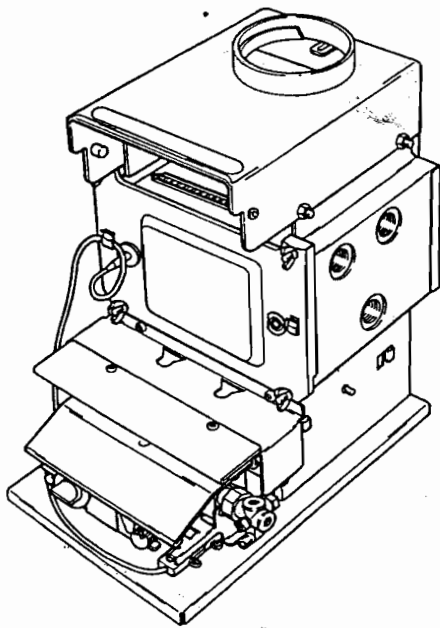
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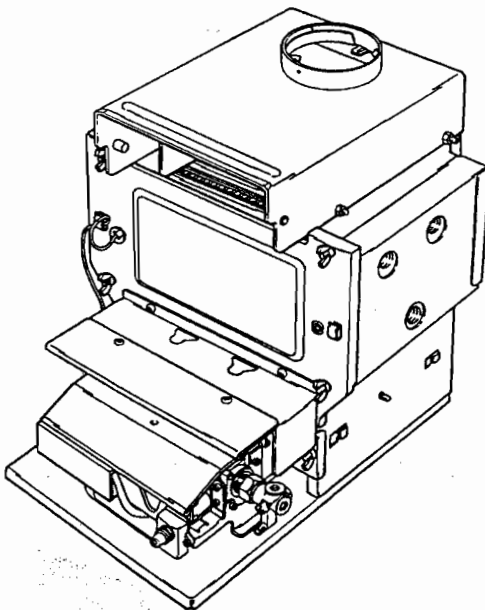
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Manual Boiler



Electronic Boiler

Description

The Baxi Bermuda is a combined central heating boiler and gas fire designed for installation within a builders opening in the living space of a dwelling.

These installation and servicing instructions cover all models. There are two physical sizes of boiler, the Bermuda 45 being the smaller. Both Bermuda 45 and 57 are available with either electronic or manual controls. All installation and servicing procedures are the same for each size of boiler. Any differences in procedure between electronic and manual control versions are covered in this booklet.

These instructions relate to the central heating boiler section of the appliance.

The two models of the boiler have range rated outputs as shown

Model	HEAT OUTPUT		
	Max	Mid	Min
45	13.19kW (45,000 Btu/h)	11.72kW (39,989 Btu/h)	10.26kW (35,000 Btu/h)
57	16.85kW (57,500 Btu/h)	14.65kW (49,986 Btu/h)	13.19kW (45,000 Btu/h)

Each appliance is preset at its MIDRANGE heat input rate and is designed for use on NATURAL GAS only. The Boilers are suitable for fully pumped and pumped central heating with gravity hot water systems.

Sealed System applications require an overheat thermostat modification kit.

Baxi Part N° 235565 for 45/3E & 57/3E

Baxi Part N° 234885 for 45/3M & 57/3M

Installation

The installation must be carried out by a CORGI Registered Installer or other Competent Person and be in accordance with the relevant requirements of GAS SAFETY (Installation and Use) REGULATIONS, the BUILDING REGULATIONS (Scotland) (Consolidation), the LOCAL BUILDING REGULATIONS, the current I.E.E. WIRING REGULATIONS and the bye laws of the LOCAL WATER UNDERTAKING. Where no specific instructions are given, reference should be made to the relevant B.S. CODES OF PRACTICE.

B.S. Codes of Practice

STANDARD	SCOPE
BS 6891	Gas Installation.
BS 5546	Installation of hot water supplies for domestic purposes.
BS 5449	Forced circulation hot water systems.
BS 6798	Installation of gas fired hot water boilers.
BS 5440 Pt 1	Flues.
BS 5440 Pt 2	Air Supply.
BS 5871 Pt 1	Installation of fire/back boilers, gas appliances.
BS 6500	Cables

TECHNICAL DATA

Bermuda Boiler 57/3

Heat Input	Max	Mid	Min
kW	21.07	18.55	16.69
Btu/h	71,890	63,293	56,962
Heat Output	Max	Mid	Min
kW	16.85	14.65	13.19
Btu/h	57,500	49,986	45,000
Burner Pressure	Max	Mid	Min
mbar	17	13	10.5
in wg	6.8	5.2	4.2
Water Content			Water Temp
litres	2.25		Max
gallons	0.495		82°C
Thermocouple Output	9.4 - 13mv (Manual)		

Gas Connection	R _C 1/2 (1/2 in BSPT)		
Water Connections	R _C 1 (1 in BSPT)		
Electricity Supply	230V-50Hz		
	External fuse - 3Amp		
Appliance Rating:	36.5 watts (E) 4.8 watts (M)		
Controls	57/3 E - Electronic thermostat intermittent pilot & electronic flame sensing. 57/3 M - Mechanical thermostat, thermocouple with permanent pilot.		
Gas Rate (after 10 mins)	1.97 m³/h (69.57 ft³/h)		
Lifting Weight	41.75 kg (92.04 lbs)		
Dimensions	Height	530mm (21 in)	
	Depth	483mm (19 in)	
	Width	402mm (15.8 in)	

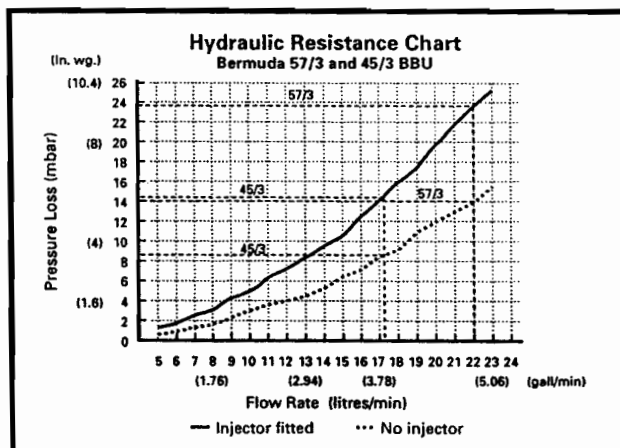
Flue Diameter	
mm	125
in	5
Heat Exchanger	Cast Iron
Low Head	(Min)
mm	1000
in	39 3/8
System Design	Fully pumped or pumped heating with gravity hot water. Sealed system with overheat thermostat modification.
Static Head	(Max)
m	30
ft	100

Bermuda Boiler 45/3

Heat Input	Max	Mid	Min
kW	16.49	14.84	12.98
Btu/h	56,250	50,498	44,287
Heat Output	Max	Mid	Min
kW	13.19	11.72	10.26
Btu/h	45,000	39,989	35,000
Burner Pressure	Max	Mid	Min
mbar	17	13.5	10.5
in wg	6.8	5.4	4.2
Water Content			Water Temp
litres	2		Max
gallons	0.44		82°C
Thermocouple Output	9.4 - 13mv (Manual)		

Gas Connection	R _C 1/2 (1/2 in BSPT)		
Water Connections	R _C 1 (1 in BSPT)		
Electricity Supply	230V-50Hz		
	External fuse - 3Amp		
Appliance Rating:	36.5 watts (E) 4.8 watts (M)		
Controls	45/3 E - Electronic thermostat intermittent pilot & electronic flame sensing. 45/3 M - Mechanical thermostat, thermocouple with permanent pilot.		
Gas Rate (after 10 mins)	1.57 m³/h (55.44 ft³/h)		
Lifting Weight	36.6 kg (80.7 lbs)		
Dimensions	Height	530mm (21 in)	
	Depth	483mm (19 in)	
	Width	338mm (13.3 in)	

Flue Diameter	
mm	125
in	5
Heat Exchanger	Cast Iron
Low Head	(Min)
mm	1000
in	39 3/8
System Design	Fully pumped or pumped heating with gravity hot water. Sealed system with overheat thermostat modification.
Static Head	(Max)
m	30
ft	100



Water Circulating Systems

The appliance is suitable for open vented systems which are either fully pumped or pumped central heating with gravity domestic hot water.

An overheat thermostat modification kit is available where additional control protection is required and for sealed system applications. This must not be used on gravity systems.

The following conditions should be observed at all times:

The static head must not exceed 30m (100ft) of water.

The boiler must not be used with a direct cylinder.

Drain cocks should be fitted to all system low points.

All gas and water pipes and electrical wiring must be installed in such a way that it does not restrict the servicing of the boiler.

Position isolating valves as close as possible to the circulating pump.

System additives where used, corrosion inhibitors, flushing agents and de-scalers should be suitable for all system materials. They should be acceptable to major users, ie. British Gas and Water Council approved.

Non-acidity or alkalinity is desirable.

Pipework

The sizes of the flow and return pipes from the boiler should be determined by normal methods according to the requirements of the system (BS 5449).

It is recommended that the system is designed for an 11°C (20°F) drop in temperature across the system.

System Controls

For optimum operating conditions, the heating system into which the appliance is installed should include a control system.

Such a system would comprise a timer control and a separate room and/or cylinder thermostat as appropriate.

The boiler should be controlled so that it operates on demand only.

It is not economical to rely on the boiler thermostat to control operation of the system.

Fully Pumped System

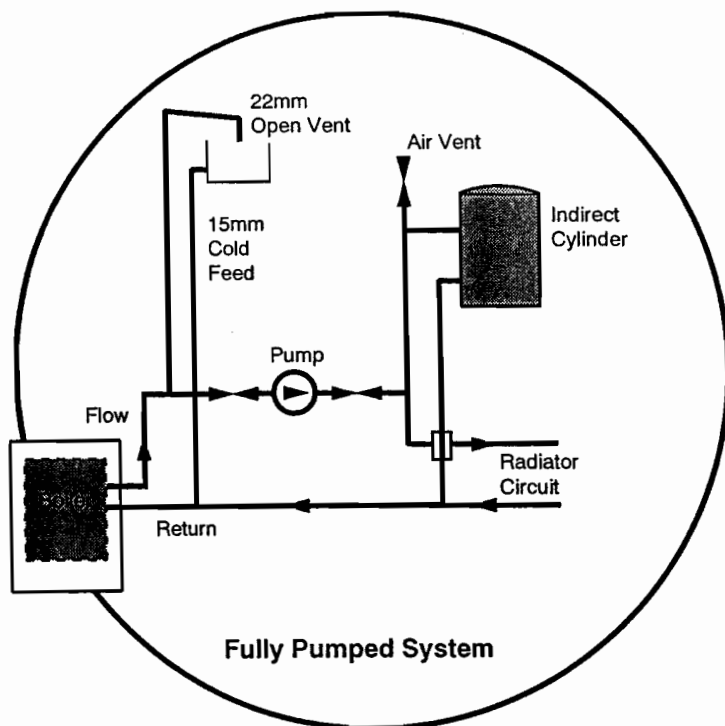
The sizes of the system pipes should be determined by normal methods (BS 5449).

The open vent pipe should be a minimum of 22mm and must rise continuously to a point above the feed and expansion tank.

The flow pipe from the boiler may form part of the vent pipe. No part of the open vent should contain a valve.

The cold feed pipe (15mm min) should preferably be connected to the boiler return.

Close coupling of the cold feed pipe to the flow pipe at a maximum of 150mm (6 in) from the vent pipe is possible but there must always be an open cold water path to the boiler return connection.



Overheat Kit And Sealed Systems

An overheat thermostat modification kit is available to facilitate the installation of a Bermuda boiler to systems incorporating a combined feed and vent and to flats and dwellings where the building design prevents the boiler vent pipe rising continuously to the feed and expansion tank. (This must not be used on gravity systems.)

Baxi Part N° 235565 for Electronic Controls

Baxi Part N° 234885 for Manual Controls

The boiler can be applied to a sealed system with the use of the overheat kit.

Information regarding the application of the overheat thermostat is included with the kit.

Storage Systems

For information regarding the use of a Bermuda boiler with a storage system, contact the appropriate storage system manufacturer.

Pumped Heating & Gravity Hot Water

The sizes of system pipes should be determined by normal methods (BS 5449).

The gravity flow pipe should rise vertically as close as possible to the boiler, avoiding sharp bends and tight elbows.

The open vent pipe should be a minimum of 22mm and must rise continuously to a point above the feed and expansion tank.

The flow pipe from the boiler may form part of the vent pipe.

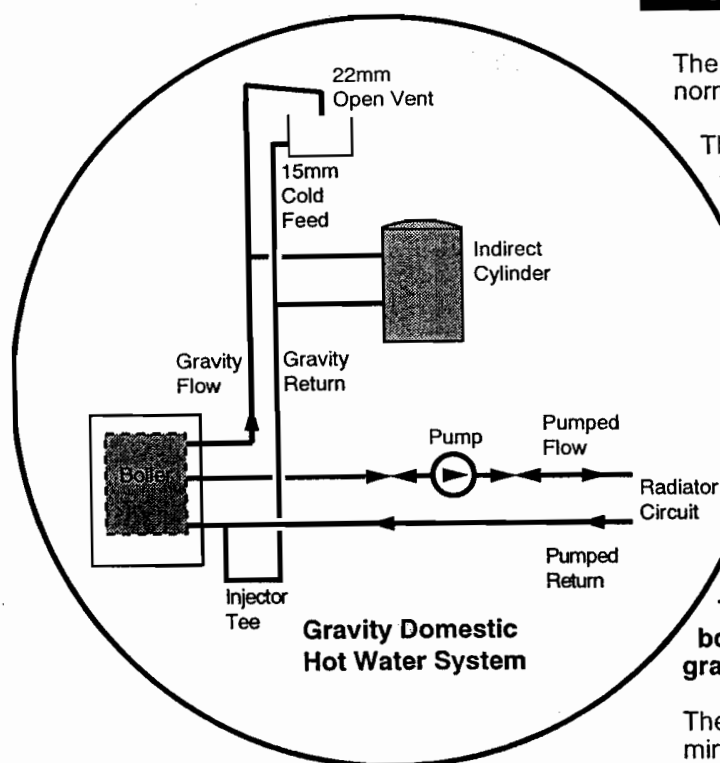
No part of the open vent should contain a valve.

The cold feed pipe (15mm min) should be connected to the boiler return pipework.

The brass injector tee must be fitted to the boiler return on all systems incorporating a gravity circuit.

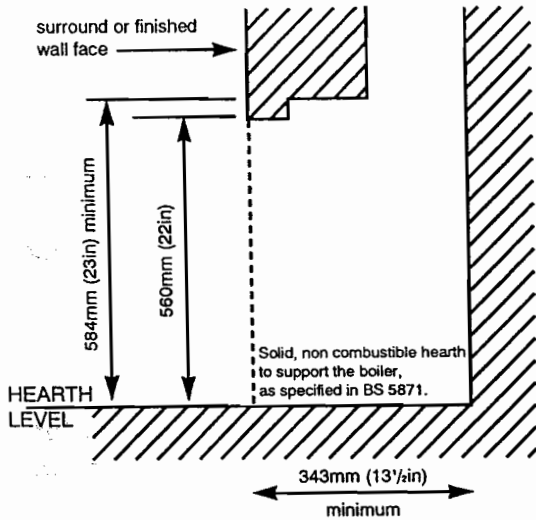
The gravity circuit should be designed with a minimum of restriction, avoiding possible air traps and long horizontal runs.

The system should be designed to prevent gravity circulation in the heating system when the pump is not running.



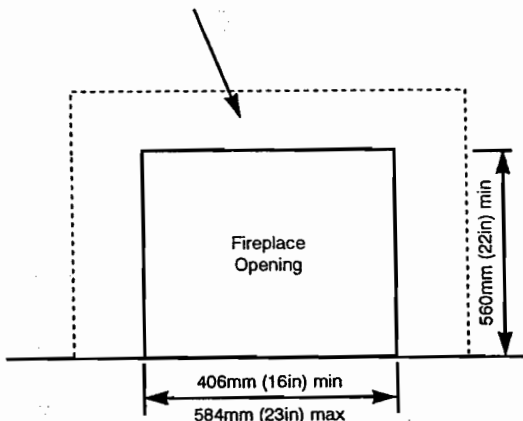
SITE REQUIREMENTS

Builders Opening



When correctly installed the centre line of the boiler flue socket will be 258mm-305mm (10 1/2 in-12 in) from the surround on finished wall face.

Flat vertical area - see firefront instructions for dimensions



NOTE: For VP2 & SP2 maximum fireplace opening is 508mm (20 in)

The boiler unit is designed to fit within a standard builders opening, the minimum dimensions of which are as shown.

The opening should be soundly constructed of brick, pre-cast concrete or be a proprietary builders opening.

The base of the opening should be sound and non-combustible and must be flat and level.

The base of the builders opening should be at the same height as the finished level of the hearth or be the required height of 100-125mm (4-5 in) above floor level for a wall mounted firefront installation.

Location

The appliance must be installed in the living space of a dwelling.

Restrictions to the siting of the appliance are covered by BS 5546. The appliance may not be installed in bathrooms, shower rooms, bedrooms or bed sitting rooms.

Fireplace Opening and Surround

If a fireplace surround is to be used, it must be centrally placed and have opening sizes and a vertical flat area as shown in the firefront Installation and Servicing Instructions.

Maximum fireplace opening sizes are preferable for ease of installation and service.

NO SURROUND

The appliance can be fitted without a surround.

The fireplace opening and vertical flat areas as per above still apply.

Maximum fireplace opening sizes are preferable for ease of installation and service.

HEARTH MOUNTING

All Bermuda Firefronts are suitable for hearth mounting. The hearth must be on the same level as the builders opening. The hearth must be non-combustible and comply with BS 5871: Pt 1.

WALL MOUNTING

A number of Bermuda Firefronts are aesthetically suitable for wall mounting above the level of the room floor in instances where there is no hearth.

The base of the builders opening on which the boiler rests should be 100-125mm (4-5 in) above floor level.

The following firefronts are suitable for wall mounting:

Bermuda SP2	Bermuda PW4 Deluxe
Bermuda SL2	Bermuda C4W
Bermuda RG2	Bermuda C4
	Bermuda LFE4 Super

FLUE

The flue installation must conform to BS 5440 Pt 1. The flue must have a minimum vertical height of 3m (10ft) and have an internal cross section area of 12,700 mm² (20in²), this is satisfied by a flue of 125mm (5in) internal diameter.

An approved terminal is required for all installations.

9in X 9in BRICK

Flues previously used for other fuels must be thoroughly swept. The flue must be lined with a 125mm (5in) flexible liner. The bottom of the liner should terminate 500mm (20in) above the base of the builders opening. The flue must be sealed between the liner and the brickwork at both the top and bottom.

An approved terminal must be installed.

ACID RESISTANT LINERS

A flue constructed of acid resistant liners is satisfactory provided the size requirements are met.

The boiler flue outlet can be connected to the flue by means of a short length of 125mm (5in) of flue pipe.

A seal must be made in the annular space between the outer face of this flue pipe and the acid resistant liner.

An approved terminal must be installed.

PRECAST FLUES

These must conform to BS 5440 Pt 1 and be correctly installed without intrusion of cement into the flue passage.

An approved terminal must be installed.

PROPRIETARY FLUES

A flue of this type must meet the size requirements specified and be installed in accordance with the flue manufacturers recommendation and relevant codes of practice.

An approved terminal must be installed.

Ventilation

Ventilation air supply to BS 5440 Pt 2 is required. The permanent ventilation area size requirements are given in the firefront Installation and Servicing Instructions.

The permanent vent may be directly into the room containing the appliance. The vent may also be sited in another room provided an interconnecting vent is used.

The vent must not be installed inside the builders opening. The vent should be sited following good practise for a habitable room.

Gas Supply

The gas installation should be in accordance with BS 6891. The connection at the appliance is Rc $\frac{1}{2}$ ($\frac{1}{2}$ in BSPT internal) located at the rear of the gas cock.

Ensure the pipework from the meter to the appliance is of adequate size. It is preferable to route the gas supply pipe to the right hand side of the builders opening. It must be routed so as not to restrict the installation and servicing of the appliance.

Electrical Supply

External wiring must be correctly earthed, polarised and in accordance with current IEE wiring regulations. The mains supply is 230V ~ 50Hz fused at 3 A.

NOTE: The method of connection to the electrical supply must facilitate complete electrical isolation of the appliance.

Connection may be made via a fused double pole isolator with a contact separation of at least 3mm on all poles and serve the appliance and system controls only.

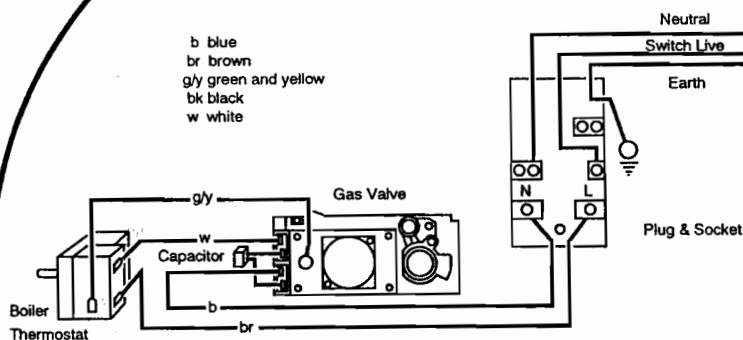
The cable within the builders opening should be to BS 6500 Table 16, 0.75mm² heat resisting.

The cable must be routed to avoid contact with the metal combustion box and hood.

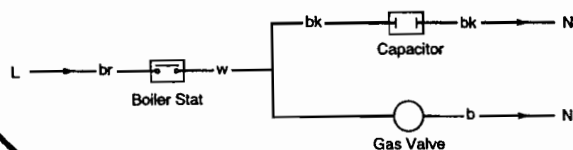
PERMANENT LIVE

A permanent live electrical supply is required for all firefronts with lighting effects and those with both electronic ignition and lighting effect. i.e. VP2, SP2, RG2, SL2, LFE4 Super and GF2 Super.

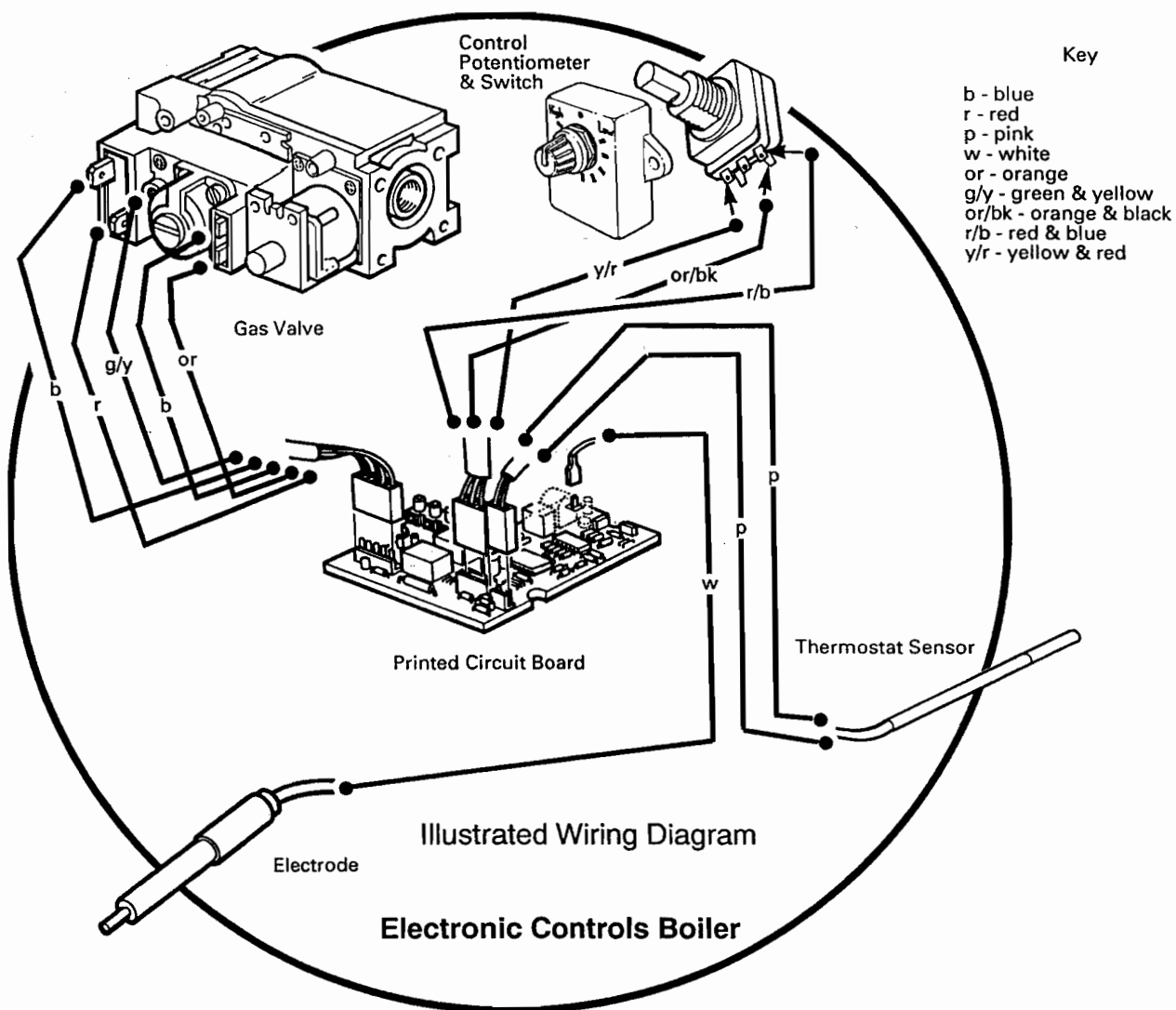
Manual Controls Boiler



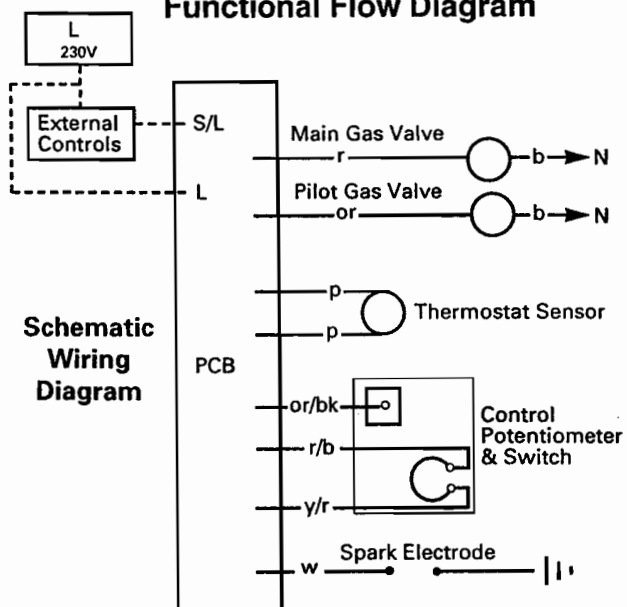
Illustrated Wiring Diagram



Functional Flow Diagram



Functional Flow Diagram



Manual Control :- The input cable is better routed at the right hand side of the opening.

Electronic Control :- The input cable is better routed at the left hand side of the opening.

If the above are not possible, the cable can be routed via the clip provided.

NOTE: Polarity of the appliance **MUST** be correct otherwise the appliance will not operate correctly.

INSTALLATION

Initial Preparation

Remove the outer carton from the boiler pack and locate the fitting kit. Remove and discard the packing pieces and unpack the boiler hood.

The hood may be fitted now or when the boiler is in situ. Use the four nuts and set screws provided.

Unfasten the four wing nuts retaining the boiler door and remove.

The boiler as supplied has the flow and return water connections at the left hand side of the appliance.

For installations requiring the water connections at the right hand side proceed as follows:

Lift out the 3 heat exchanger baffles, noting their orientation.

Lift the heat exchanger from the appliance and remove the side blanking plate.

Transfer the 3 sealing rings from the holes in the left hand side of the boiler to those in the right.

Rotate the heat exchanger to place the water connections at the right hand side, return the heat exchanger to the combustion box.

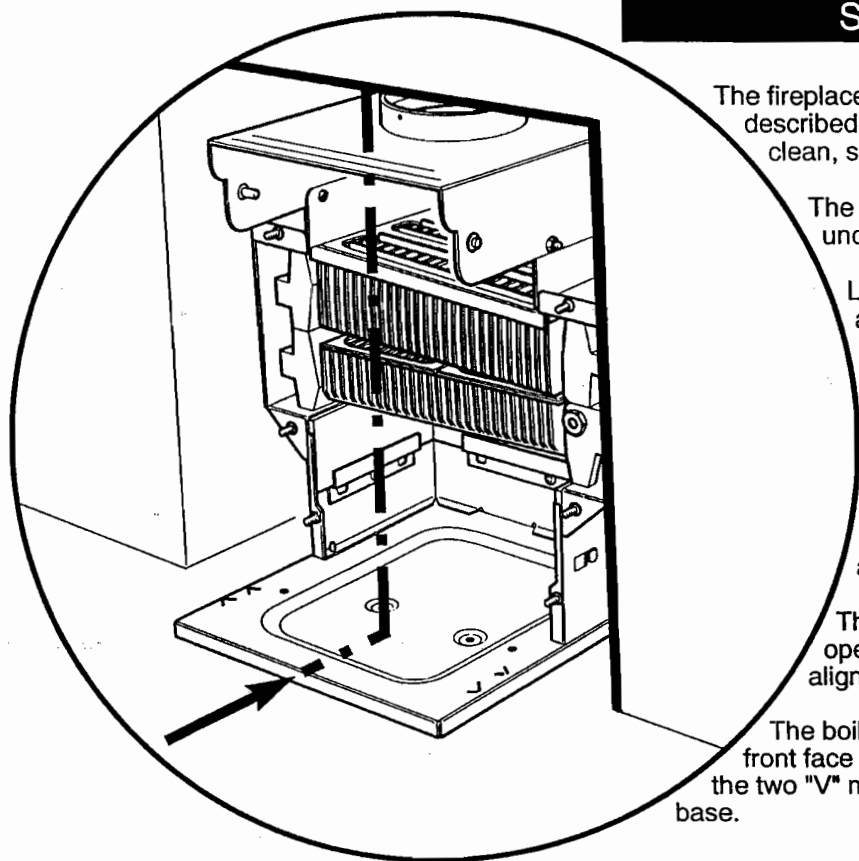
DO NOT TURN THE HEAT EXCHANGER UPSIDE DOWN

NOTE: The heat exchanger is correctly oriented when the three water connections line up with the holes in the right hand side of the combustion box and the thermostat pocket aligns with the corresponding hole in the door. The unfinned heat exchanger water tubes face the burner.

Remove the blanking disc from the left hand hole in the boiler door and the rubber seal from the right hand hole and swap them over.

Replace the heat exchanger baffles and blanking plate.

Siting the Boiler



The fireplace and builders opening should be as described under 'site requirements' and be clean, sound and level.

The flue should be installed as described under 'site requirements'.

Locate the centre line of the opening and hearth.

Hold the boiler by its combustion box at either side of the heat exchanger, lift from the packing base and place into the opening.

Align the boiler centrally using the "V" mark on the front centre of the appliance base.

The appliance positioning into the opening is variable to cater for pipe/flue alignment.

The boiler may be positioned by locating the front face of the fireplace anywhere between the two "V" marks on either side of the appliance base.

Securing The Boiler

Check the alignment within the opening is correct.

The hearth should be drilled as follows:

Mark the hearth through the two holes in the base. Remove the boiler and drill the hearth. Insert the plugs supplied in the kit. Replace the boiler.

or

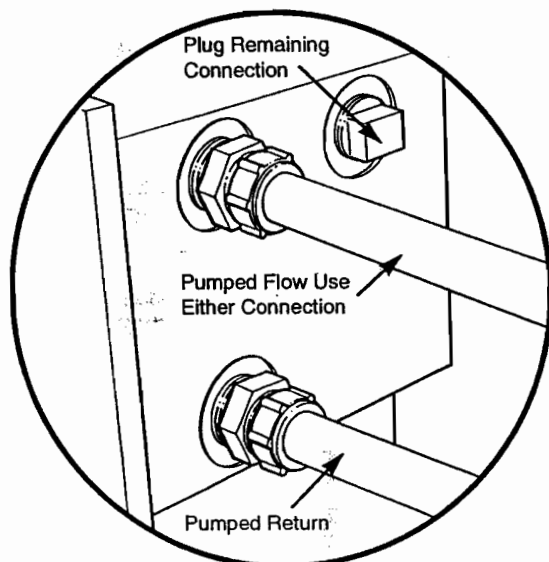
Drill directly through the two fixing holes and insert the plugs.

Secure the boiler with the two screws.

Water Connections

The boiler has one return and two flow tappings, Rc1 (1in BSPT). The flows are the two upper tappings. The return is the lower position tapping and is marked RETURN. It is essential the flow and return pipes are connected to the correct tappings.

Fully Pumped Systems



Fully Pumped System

A 1in x 22mm threaded adaptor, compression nut and olive are provided in the kit for the return connection.

Fit the 1in x 22mm threaded adaptor into the lower tapping marked RETURN, connect the pumped return into the adaptor using the nut and olive.

Fit a 1in x 22mm threaded adaptor into the higher tapping position marked FLOW, connect the pumped flow into the adaptor.

Fit a 1in plug to the remaining connection.

Follow the instructions under 'System Details' regarding the vent pipe and cold feed.

Overheat Thermostat

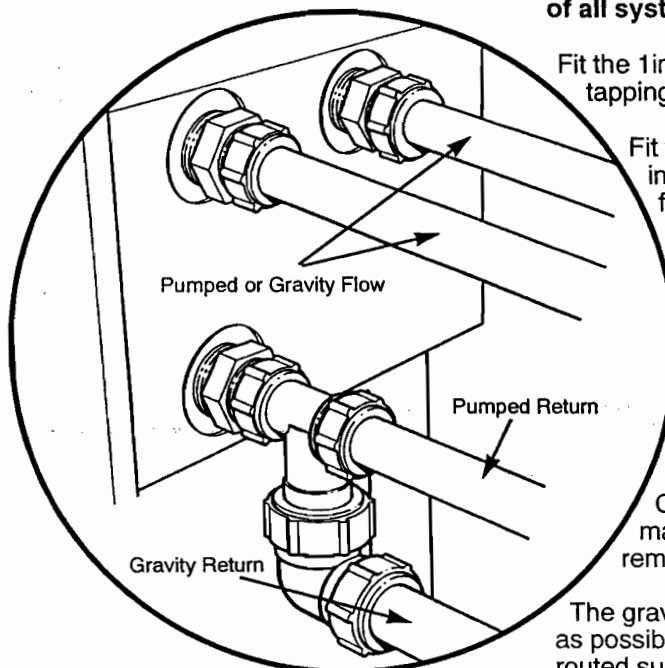
For systems requiring an overheat thermostat, a modification kit is available. The flow pipe arrangement for this type of installation is covered in the instructions supplied with that kit.

This kit is not suitable for systems where a gravity domestic hot water circuit is used.

Pumped Heating & Gravity Hot Water

A 1in x 22mm threaded adaptor, two compression nuts and olives and a brass injector tee piece are provided in the kit for the return connection.

NOTE: The injector tee must be fitted to the return of all systems with gravity domestic hot water.



Pumped Heating
Gravity D.H.W.

Fit the 1in x 22mm threaded adaptor into the lower tapping marked RETURN.

Fit the injector tee into the adaptor. The injector tee may be oriented as shown to facilitate connection to the gravity return pipework.

Connect the pumped return to the 22mm compression fitting of the injector tee.

Take the gravity hot water return pipe to a level beneath that of the injector tee and connect upwards to the 28mm branch of the injector tee, oriented as shown.

Connect the pumped flow to the connection marked FLOW. Connect the gravity flow to the remaining connection.

The gravity flow pipes must rise vertically as close as possible to the appliance. Ensure the pipework is routed such that it does not introduce an airlock in the boiler.

Follow the instructions under 'System Details' regarding the vent pipe and cold feed.

Gas Connection

Connection to the gas supply is Rc $\frac{1}{2}$ ($\frac{1}{2}$ in BSPT) internal located at the rear of the gas cock.

Electrical Connection

The appliance requires an electrical supply from the heating controls system. A permanent live is required for firefronts which have electronic ignition and/or light effects.

WARNING

The appliance must be earthed. The input cable for the appliance must be not less than 0.75mm² (24 x 0.2mm) to BS 6500 Table 16. The system external controls and the appliance must be supplied by the same isolator. **NOTE: The polarity of the electrical supply must be correct otherwise the appliance will not operate.**

Overheat Thermostat

Where an overheat thermostat modification kit is required, the wiring instructions supplied in the kit should be followed.

Making the Electrical Connection

Unpack the controls assembly from its carton. On installations where the firefront requires a permanent live locate the kit in the firefront carton and extract the electrical lead and plug assembly.

ELECTRONIC CONTROLS MODELS

1

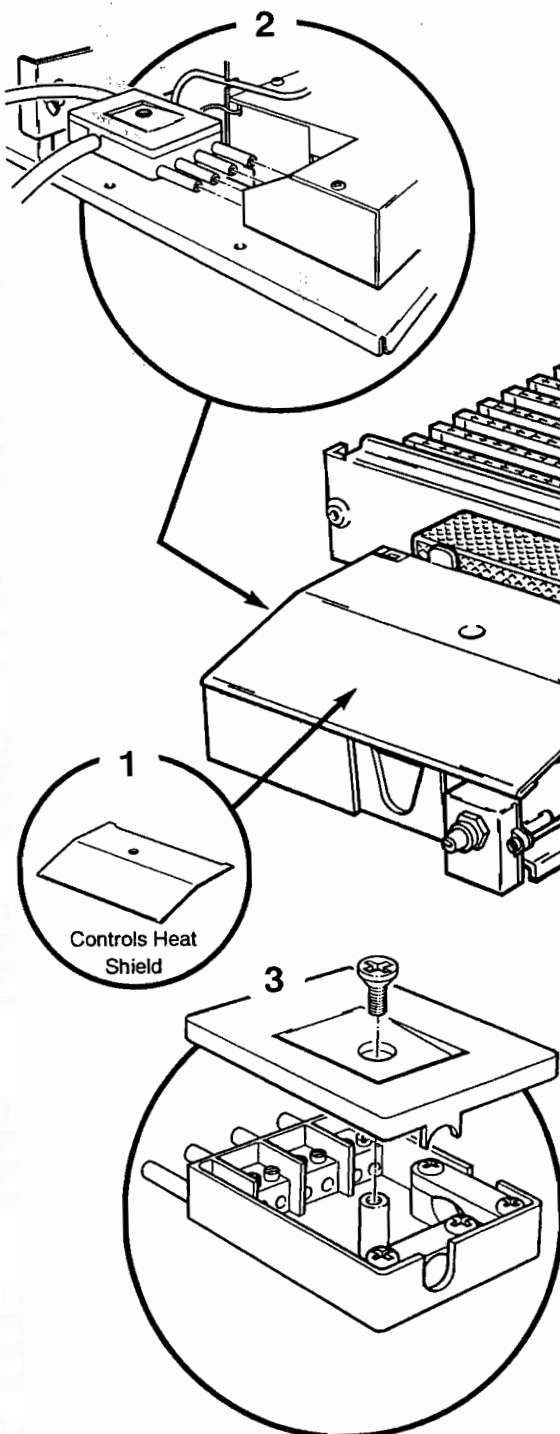
Remove the controls heat shield from its retaining clips.

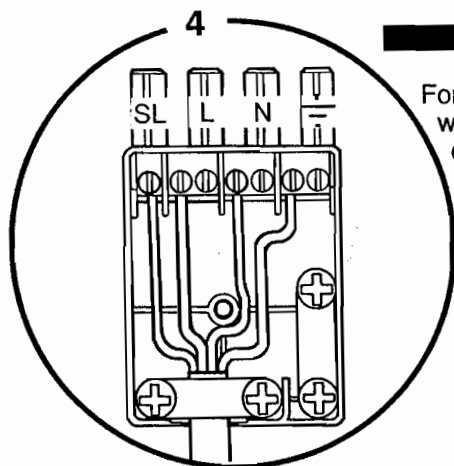
2

Remove the electrical inlet socket from the PCB at the rear left hand side of the control box.

3

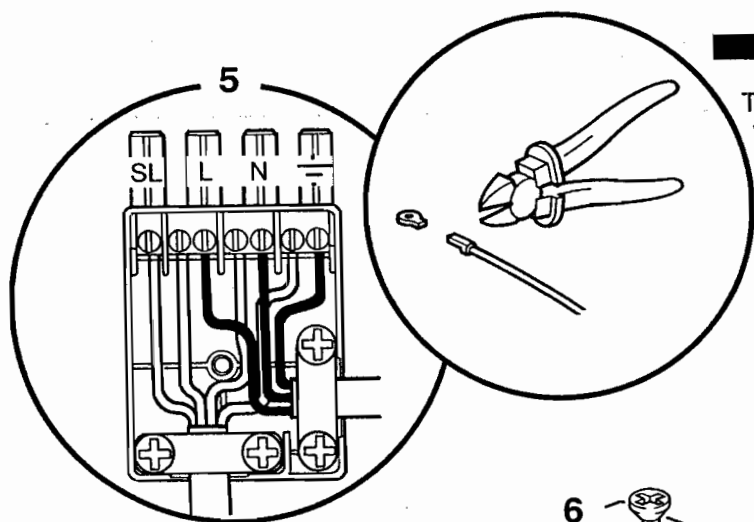
Remove the socket cover and inlet cable clamp.





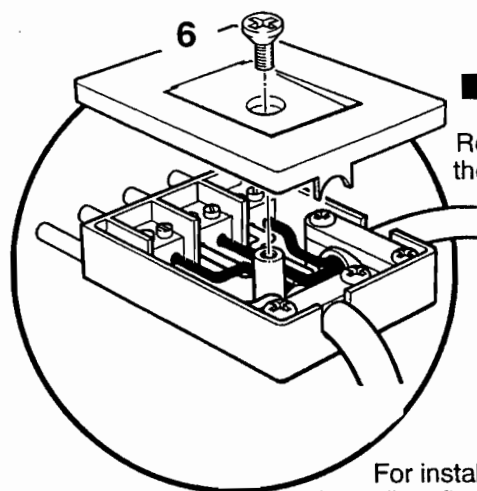
For installations requiring a permanent live ie:- where the firefront is equipped with either lighting effects or lighting effects and electronic ignition proceed as follows:-

Connect the inlet supply cable(s) as indicated:-
Permanent live to L
Controls system switched live to SL
Control system neutral to N
Earth to $\perp$



The circular part of the ring terminal on the earth wire must be detached.

Remove the side cable clamp and connect the wire from the fire front kit as indicated:-
Brown (live) to L
Blue (neutral) to N
Green and yellow (earth) to $\perp$



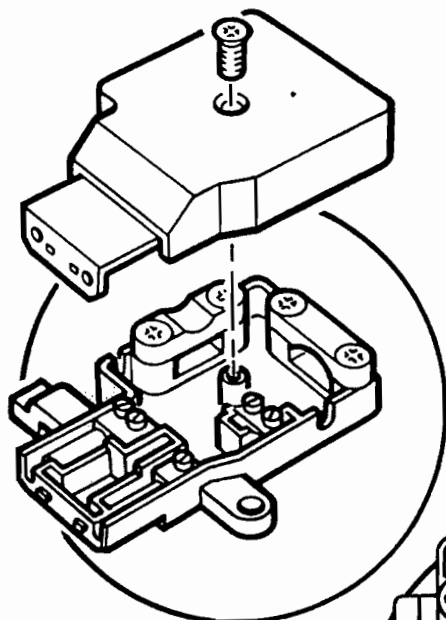
Re-fit both cable clamps ensuring that the outer insulation is securely held and re-fit the socket cover.

For installations not requiring a permanent live ie: radiant fire fronts proceed as follows:-

Connect the inlet supply cable as indicated:-
Control system switched live to SL
Control system neutral to N
Earth to $\perp$

Using the wire provided in the kit, link SL to L.

Re-fit the cable clamp ensuring that the outer insulation is securely held and re-fit the socket cover.
Ensure that all cables are routed away from the boiler casing and hood.



MANUAL CONTROL MODELS

Pull off the electrical inlet socket from the plug and lead on the controls assembly.

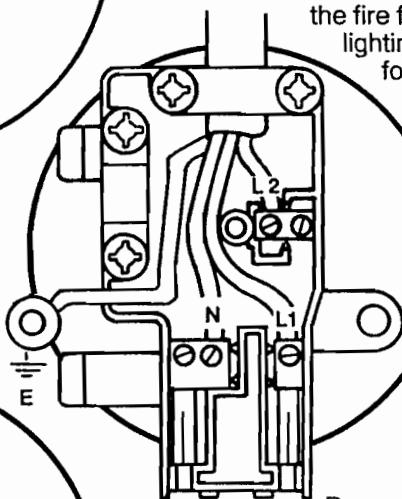
Remove the socket cover and inlet cable clamp.

For installations requiring a permanent live ie:- where the fire front is equipped with either lighting effects or lighting effects and electronic ignition, proceed as follows:-

Connect the inlet supply cable(s) as indicated:-

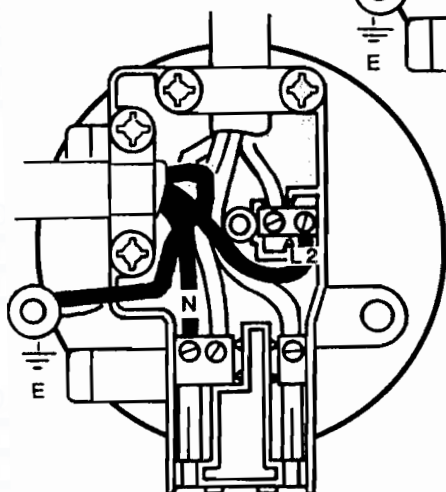
- Permanent live to L2
- Control system switched live to L1
- Control system neutral to N

Route the earth through the cut out in the side of the socket housing leaving sufficient length to connect the wire to the earth terminal on the base tray.



Remove the side cable clamp and connect the wire from the firefront kit as indicated:

- Brown (live) to L2
- Blue (neutral) to N
- Green & Yellow (earth) in a similar manner to the mains earth wire.

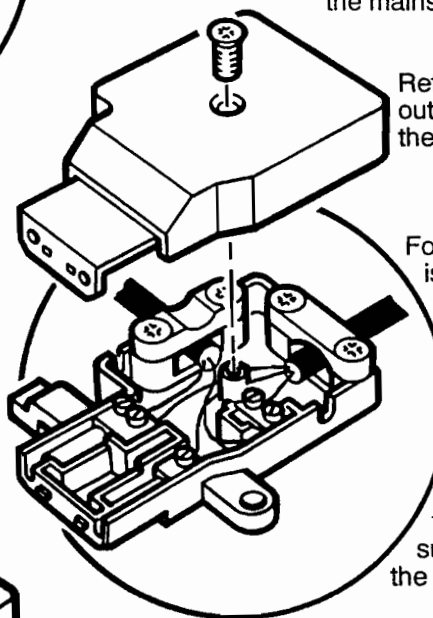


Refit both cable clamps ensuring that the outer insulation is securely held and refit the socket cover.

For installations where no permanent live is required ie: radiant firefronts, proceed as follows:

- Connect the inlet supply cable as indicated:
- Controls system switched live to L1
 - Control system neutral to N

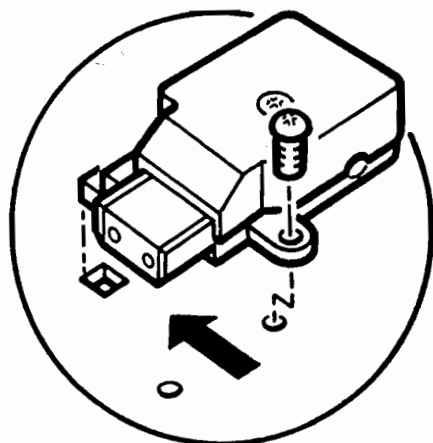
Route the earth through the cut out in the side of the socket housing leaving sufficient length to connect the wire to the earth terminal on the base tray.



Refit the cable clamp ensuring that the outer insulation is securely held and refit the socket cover.

Ensure that all cables are routed away from the boiler casing and hood.

Engage the forward tab on the socket in the locating slot on the boiler base tray, and insert one of the thread forming screws from the kit into the retaining lug. Fasten the socket to the base tray.



Fitting the Controls

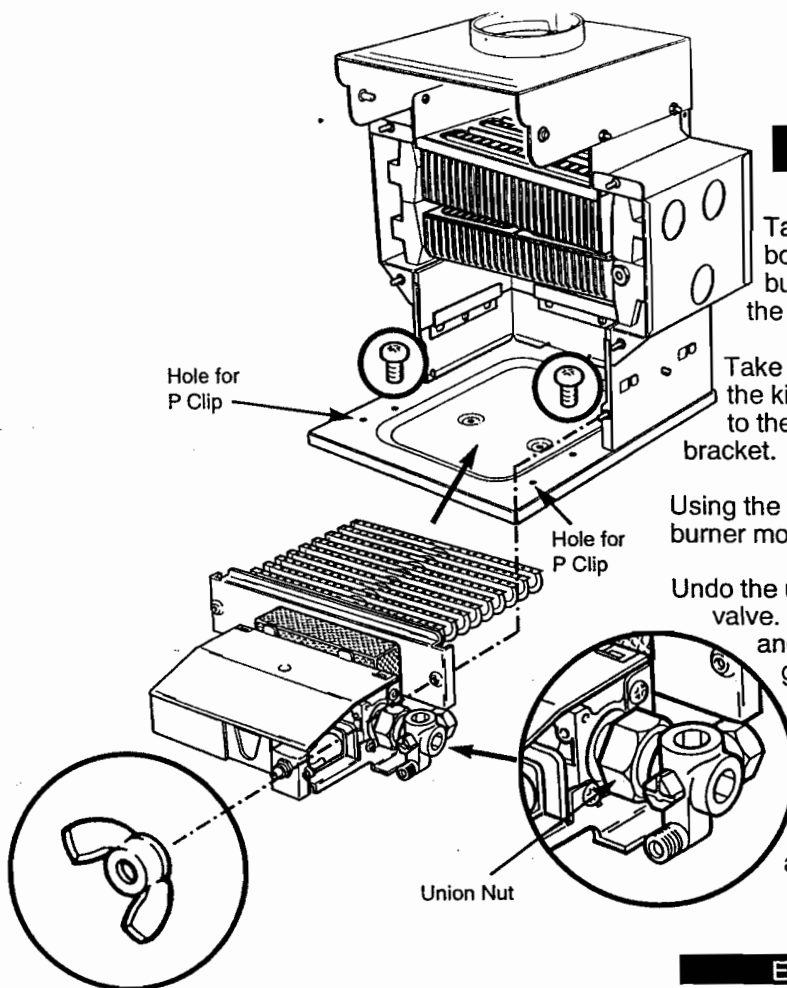
Take the controls assembly and locate on the boiler base tray by engaging the holes in the burner mounting plate over the two studs on the combustion box sides.

Take the two large thread forming screws from the kit and fasten the controls mounting bracket to the base tray using the "U" shaped slots in the bracket.

Using the two wing nuts from the kit, secure the burner mounting plate to the combustion box studs.

Undo the union nut between the gas service tap and valve. Connect the gas supply to the service tap and reconnect the service tap to the valve. The gas supply pipe should be routed from the right hand side. If this is not possible, it may be routed from the left hand side, passing behind the boiler.

The positioning of the gas supply pipe must not restrict the servicing of the appliance.



ELECTRONIC CONTROLS MODELS

Replace the combustion box door and secure with the wing nuts.

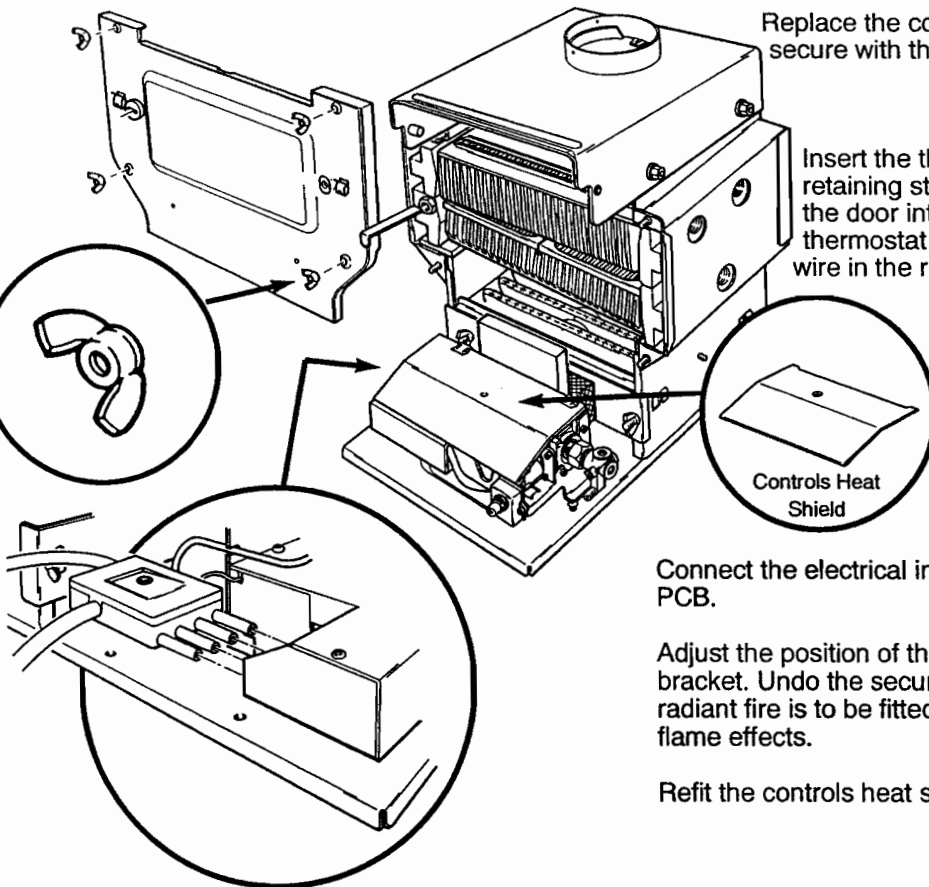
Insert the thermostat sensor and retaining strip through the rubber seal in the door into the heat exchanger thermostat pocket. Engage the sensor wire in the routing clips.

Controls Heat Shield

Connect the electrical input socket to the plug on the PCB.

Adjust the position of the thermostat potentiometer bracket. Undo the securing screw and push fully in if a radiant fire is to be fitted or pull out to mark "A" for flame effects.

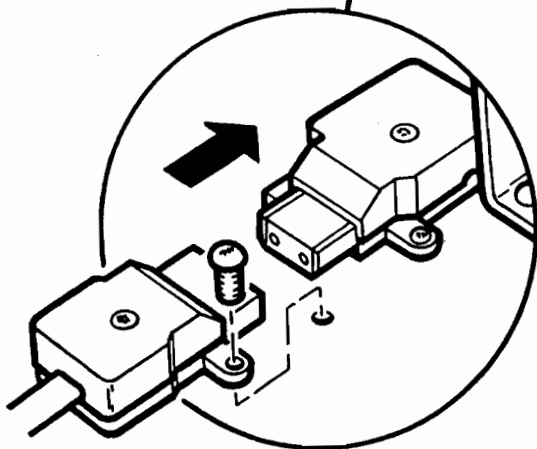
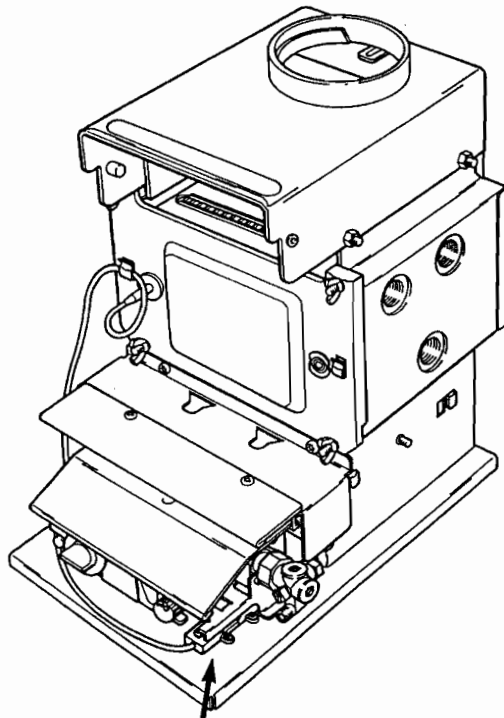
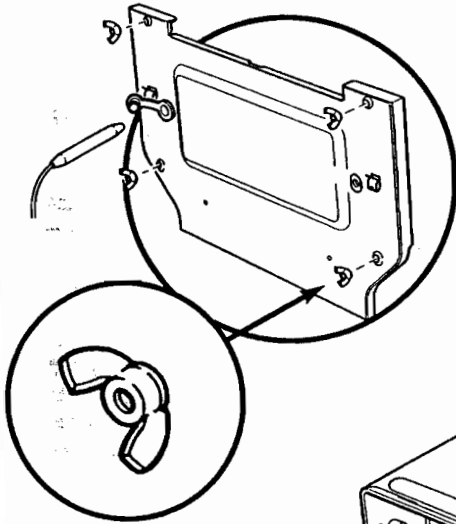
Refit the controls heat shield to its retaining clips.



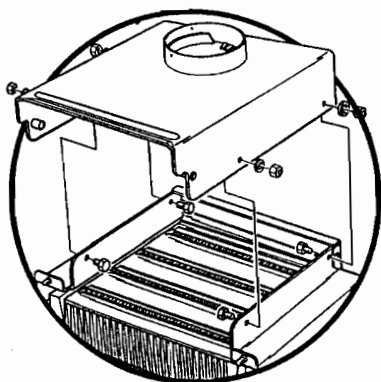
MANUAL CONTROL MODELS

Replace the combustion box door and secure with the wing nuts.

Insert the thermostat phial through the rubber seal in the door into the heat exchanger thermostat pocket. Engage the capillary in the routing clips.



Connect the controls input plug to the mains input socket on the base tray and insert the second small thread former from the kit into the retaining lug. Fasten the plug to the base tray.



Flue Connection

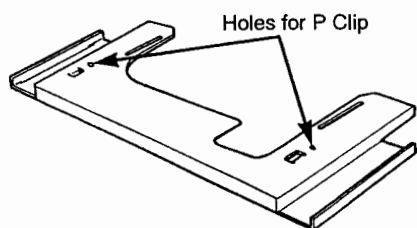
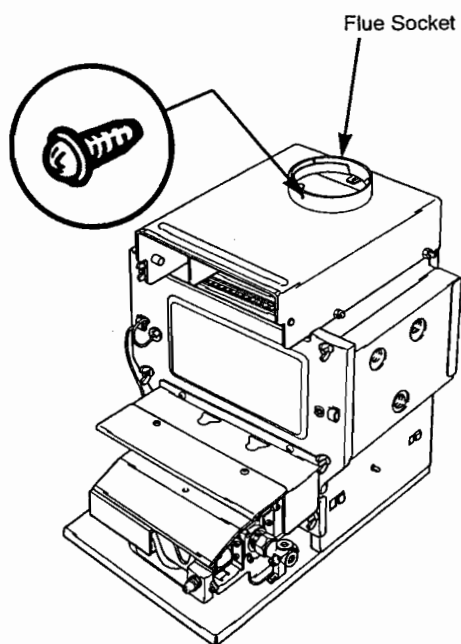
If not already fitted, secure the boiler hood to the combustion box using the 4 hexagon set screws and nuts from the kit.

Locate the flue within the flue socket and secure with the three self tapping screws provided in the kit.

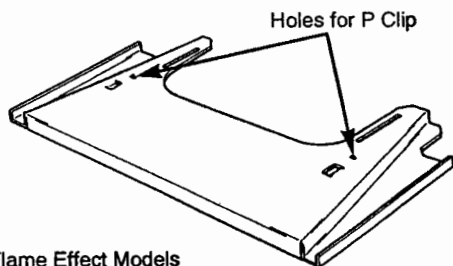
Seal the flue against the flue outlet socket.

Completion

Seal off any secondary openings within the builders opening after wrapping the gas and water pipes through the brickwork and within the opening itself. (B.S. 5871 Part 1).



Radiant Models
Fire Support Plate

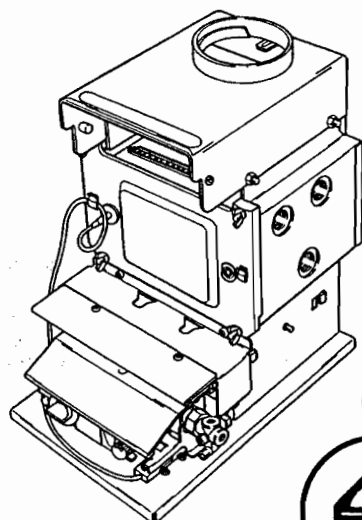


Flame Effect Models
Fire Support Plate

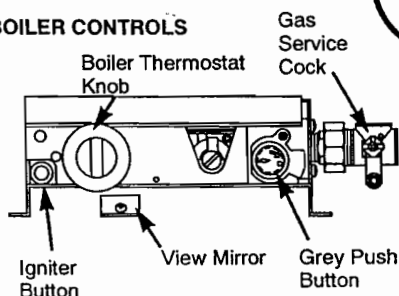
If required (see page 12) secure the cable to the boiler using the 'P' clip and screw to either boiler base (see page 20) or fire support plate.

The fire support plate is supplied in the fire front carton.

COMMISSIONING THE APPLIANCE



BOILER CONTROLS



Reference should be made to BS 5449 section 5 when commissioning the boiler and system.

Fill the system and vent at all high points, radiators and pump(s).

Check the system for leaks.

Turn the gas service cock $\frac{1}{4}$ turn from the OFF position. This will supply gas to the boiler only.

Purge the air from the gas service pipe in accordance with BS 6891 and test for gas soundness.

Turn the boiler thermostat to the OFF position.

Ensure that all external controls e.g. room stat, timer etc are calling for heat and turn on the mains electrical supply.

Slacken the test point sealing screw and connect a pressure gauge.

MANUAL CONTROL MODELS

Hold in the grey button on the gas control valve.

Press the piezo igniter button and release (The pilot can be seen in the viewing mirror). Repeat until the pilot lights. Hold in the grey button for a further 15 seconds.

The pilot should remain alight. If not, turn the grey button clockwise and wait 3 minutes before repeating the sequence.

The pilot flame should be without a yellow tip and be approximately 25mm (1in) long. No adjustment is possible.

Operate the burner by turning the boiler thermostat knob to the HIGH setting and check the operation of the flame failure device by turning the grey button clockwise. The burner and pilot should extinguish.

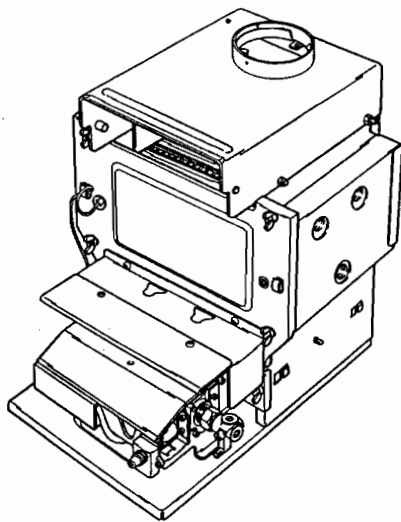
Turn the boiler thermostat to the "O" position, wait 3 minutes and relight the pilot as previously described.

Turn the boiler thermostat to High and check the burner setting pressure, adjusting if necessary.

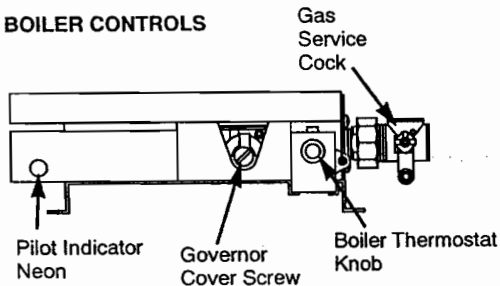
This is done by removing the governor cover screw and adjusting the governor in either direction as required.

Turn the boiler and pump(s) off and drain the system while hot. Remove the pressure gauge and tighten the pressure test point sealing screw.

Refill and vent the system again, adding a suitable inhibitor if required. Recheck the system for leaks.



BOILER CONTROLS



ELECTRONIC CONTROLS MODELS

On Electronic Controls models the pilot is intermittent and lights when the boiler thermostat is calling for heat.

To operate the pilot turn the thermostat to HIGH. The burner will also light shortly after the pilot has been established.

Electronic Control Models are fitted with a series of neon lights that indicate the status of the boiler. Three of these are visible through the control box cover and one through the front of the control box. Their sequence of operation is as follows:-

- a) No power-no lights.
- b) Permanent live supplied-orange neon illuminates.
- c) Permanent live & switched live supplied-orange neon illuminates.
- d) Boiler thermostat turned on-orange neon illuminates and spark generator operates.
- e) Pilot established-green neon illuminates and power supplied to main burner solenoid.

The pilot flame should be without a yellow tip and be approximately 25mm (1 in) long. No adjustment is possible.

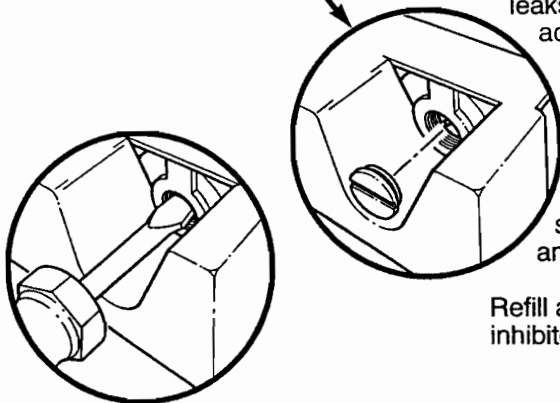
On appliances without permanent live (i.e.: radiant firefront installations) where terminals L and SL have been connected using the link wire, the first two orange neons will illuminate simultaneously when the switched live is supplied.

Operate the burner and allow the system to reach normal operating temperature. Make further checks for leaks and check the burner setting pressure, adjusting if necessary.

This is done by removing the governor cover screw and adjusting the governor in either direction as required.

Turn the boiler and pump(s) off and drain the system while hot. Remove the pressure gauge and tighten the pressure test point sealing screw.

Refill and vent the system again, adding a suitable inhibitor if required. Recheck the system for leaks.



ANNUAL SERVICING

To perform annual servicing of the back boiler it is necessary to remove the firefront.

Removal of Firefront

Isolate the electrical supply to the appliance and ensure the permanent live (when fitted) has also been isolated.

Turn the gas service tap to the OFF position.

Refer to the separate firefront instructions for the removal of the firefront.

Removal of Controls

ELECTRONIC CONTROLS MODELS

Remove the thermostat sensor and retaining strip from the heat exchanger and carefully remove the sensor wire from its routing clips.

Remove the four wing nuts retaining the combustion box door and remove the door.

Remove the controls heat shield from its retaining clips.

Lift and remove the injector insulation pad.

Pull the input socket from the plug on the PCB.

Disconnect the union nut from the gas service tap.

Slacken the two screws securing the controls to the base tray and remove the wing nuts securing the controls to the combustion box.

Withdraw the controls assembly from the boiler.

OFF Position

Injector Insulation Pad

Controls Heat Shield

Union Nut

Manual Controls Models

Remove the thermostat phial from the heat exchanger and carefully remove the capillary from its routing clips.

Remove the four wing nuts retaining the combustion box door and remove the door.

Remove the controls heat shield from its retaining clips.

Lift and remove the injector insulation pad.

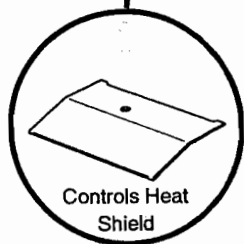
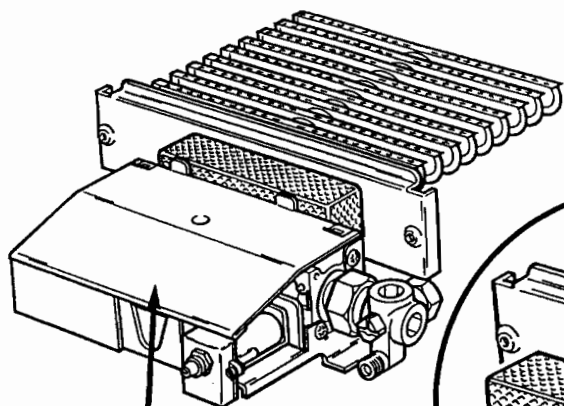
Remove the screw retaining the controls input plug to the base tray and disconnect the plug from the socket.

Disconnect the union nut from the gas service tap.

Slacken the two screws securing the controls to the base tray and remove the wing nuts securing the controls to the combustion box.

Withdraw the controls assembly from the combustion box.

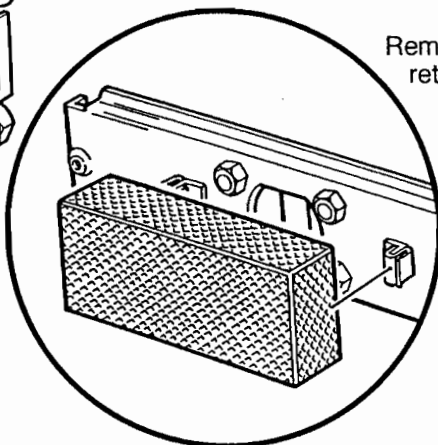
Union Nut



Cleaning the Lint Arrestor

Remove the controls heat shield from its retaining clips if not already done so.

Remove the lint arrestor from the controls and clean away any deposits.



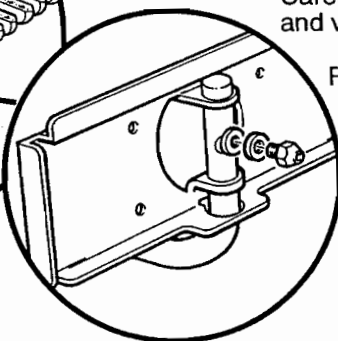
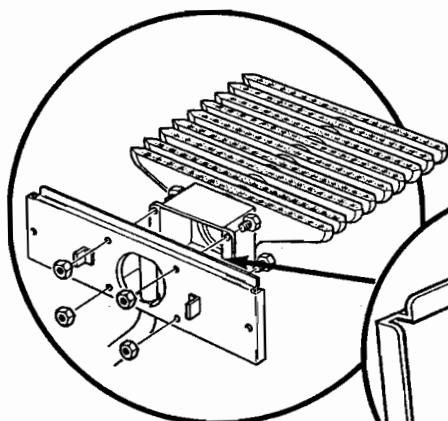
Cleaning the Burner and Main Injector

Remove the four hexagon headed screws holding the burner to the burner mounting plate.

Carefully clean any deposits from the burner blades and venturi inlet.

Remove the injector from the feed pipe, retaining the copper sealing washer. Clean the injector and reassemble in reverse order.

Reassemble the burner and pilot in reverse order and refit the lint arrestor and injector insulation pad.

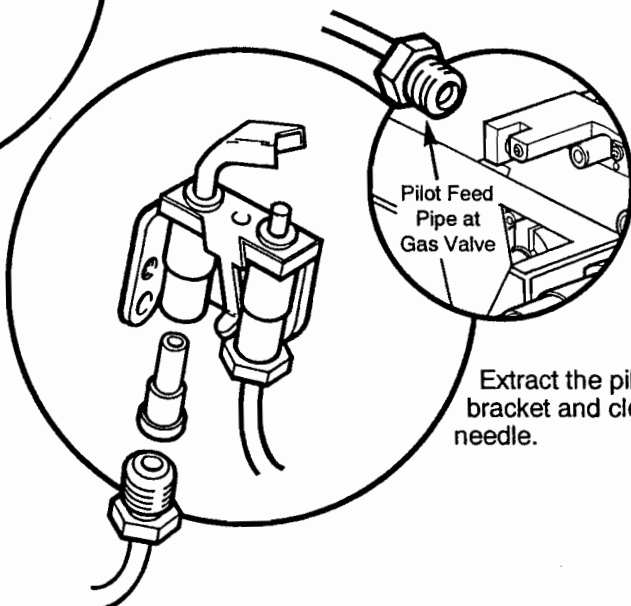
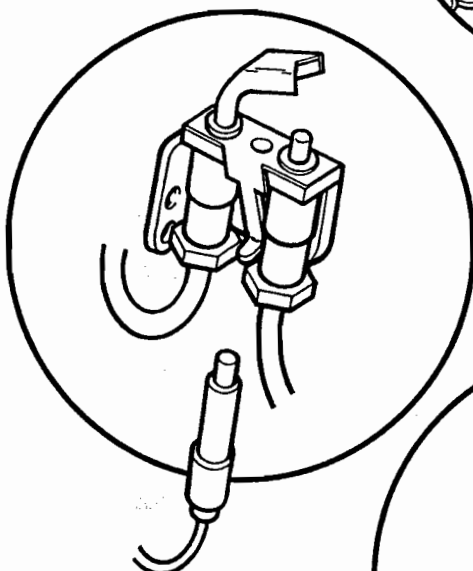


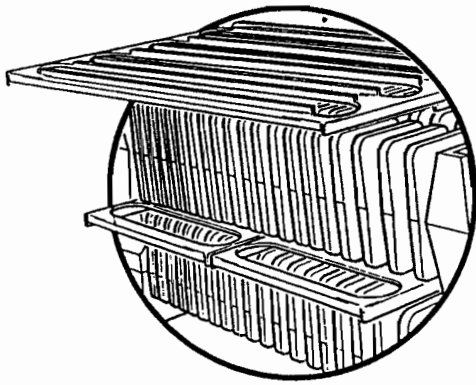
Cleaning the Pilot

Ease the spring clip on the pilot bracket away from the ceramic body of the electrode and withdraw the electrode.

Undo the nuts at both valve and bracket ends of the pilot feed pipe and remove the pipe.

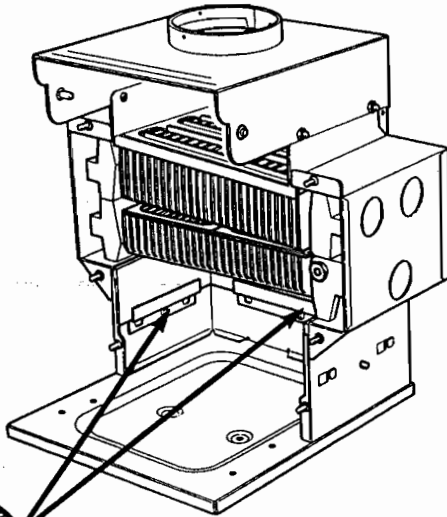
Extract the pilot injector from the pilot bracket and clean. Do not use a wire or needle.



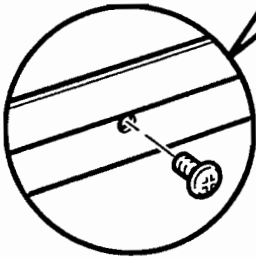


Cleaning the Heat Exchanger

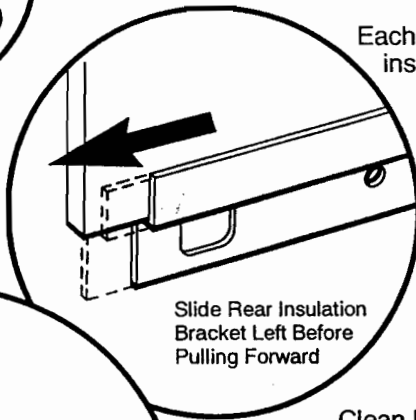
Remove the top baffle and the central baffles from the heat exchanger.



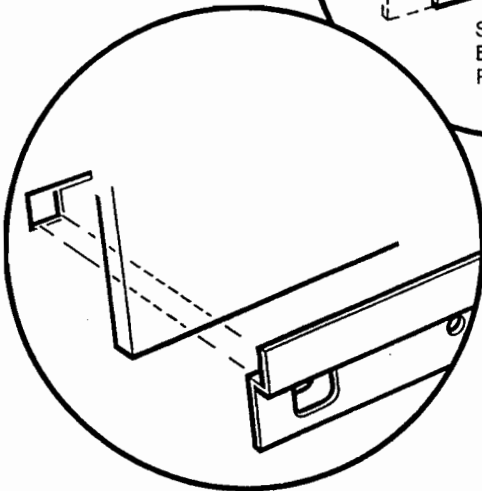
Remove the side and rear insulation pieces by undoing the screws retaining the support brackets and sliding the rear bracket to the left and both side brackets forward.



Each bracket may then be removed along with the insulation.



Slide Rear Insulation
Bracket Left Before
Pulling Forward



Clean between the heat exchanger fins and flueways with suitable brushes and remove any deposits from the combustion box base tray.

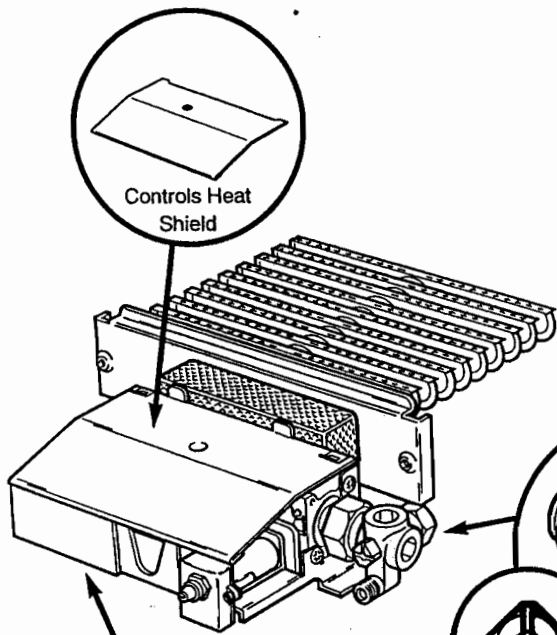
Clean away any lint or other deposits from the boiler hood and builders opening.

Reassemble the insulation in reverse order and refit the baffles.

Reassemble the appliance in reverse order, re-greasing the thermostat sensor or phial if required.

Re-commission the appliance and check for gas soundness.

CHANGING COMPONENTS



To change any components on the back boiler it is necessary to remove the fire front.

After changing any components carry out gas soundness checks.

Removal of Firefront

Isolate the electrical supply to the appliance and ensure the permanent live (when fitted) has also been isolated.

Turn the gas service tap to the OFF position.

Refer to the separate firefront instructions for the removal of the firefront.

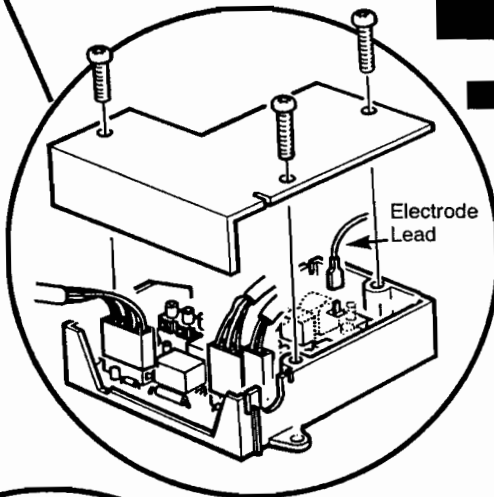
Remove the controls assembly from the boiler as described under "Annual Servicing".

OFF Position

Ignition Lead and Electrode

ELECTRONIC CONTROL MODELS

Remove the three screws holding the controls box cover on and remove the electrode lead from its terminal on the PCB.



Electrode Lead

Ease the spring clip on the pilot bracket away from the ceramic body of the electrode and withdraw the electrode.

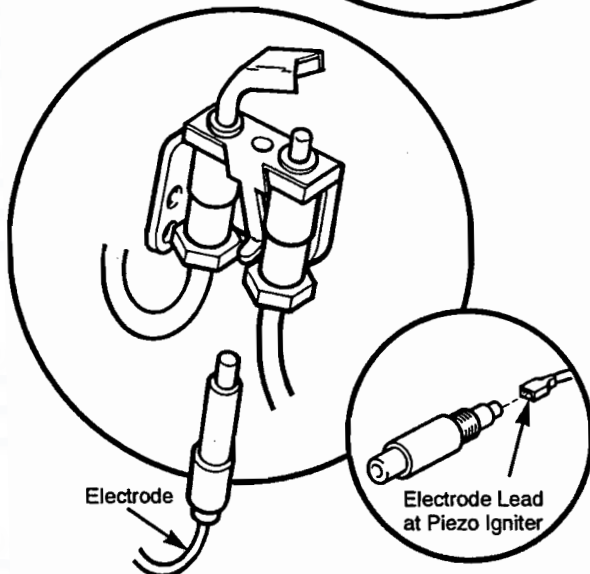
Reassemble in reverse order.

MANUAL CONTROL MODELS

Remove the electrode lead from the piezo igniter unit.

Ease the spring clip on the pilot bracket away from the ceramic body of the electrode, and withdraw the electrode.

Reassemble in reverse order.



Electrode

Electrode Lead at Piezo Igniter

Gas Valve

ELECTRONIC CONTROL MODELS

Remove the controls heat shield from its retaining clips if not already done so.

Controls Heat Shield

Remove the screw holding the valve cover to the controls mounting bracket and remove the cover.

Disconnect the electrical connections from the valve, noting the position of each wire.

Remove the two screws holding the valve to the controls mounting bracket adjacent to the union nut and tailpiece.

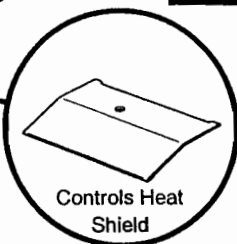
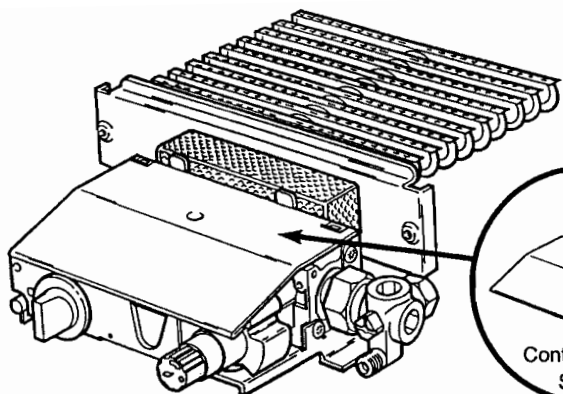
Undo the pilot feed pipe nut from the valve.

Remove the three screws holding the burner feed pipe to the valve, being careful not to lose the "O" ring seal.

Remove the valve from the controls mounting bracket.

Remove the tailpiece and union nut from the original valve and fit to the new one.

Reassemble in reverse order.



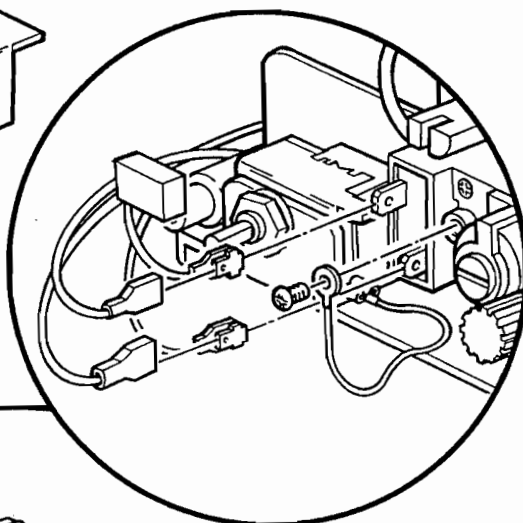
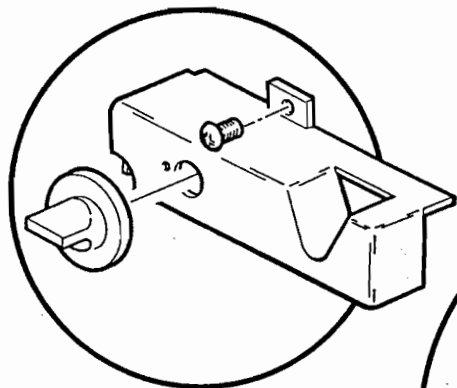
Controls Heat
Shield

MANUAL CONTROL MODELS

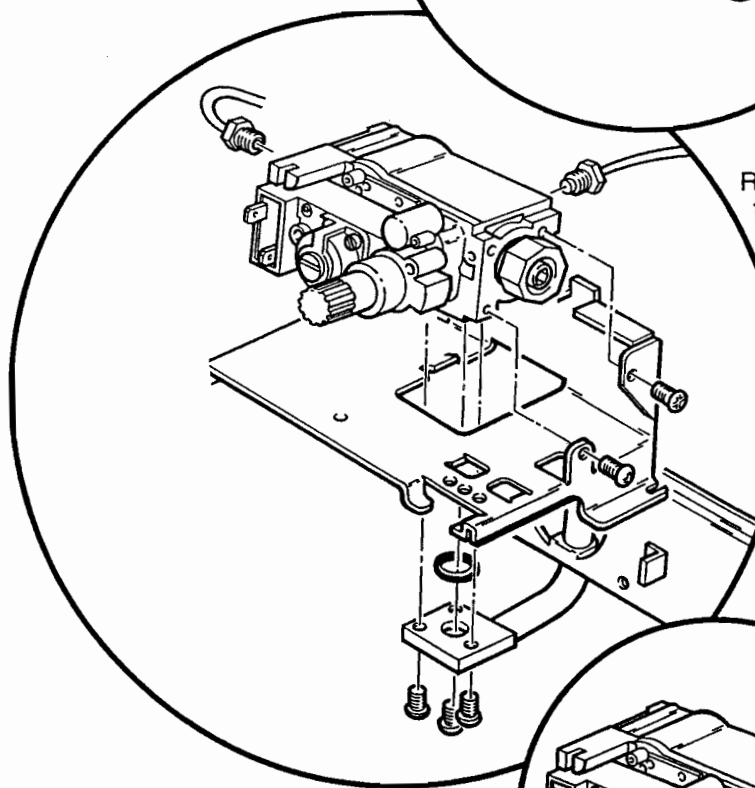
Remove the controls heat shield from its retaining clips if not already done so.

Remove the control knob.

Remove the screw holding the valve cover to the controls mounting bracket and remove the cover.



Disconnect the electrical connections from the valve.

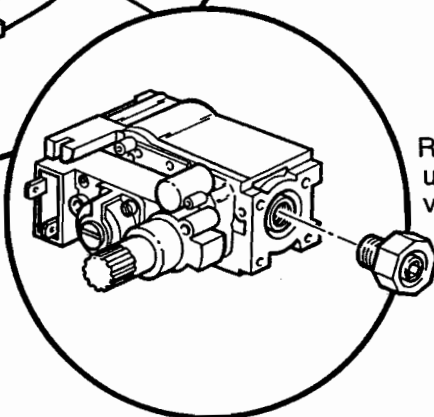


Remove the two screws holding the valve to the controls mounting bracket adjacent to the union nut and tailpiece.

Undo the pilot feed pipe nut and thermocouple from the valve.

Remove the three screws holding the burner feed pipe to the gas valve, being careful not to lose the "O" ring seal.

Remove the valve from the controls mounting bracket.



Remove the tailpiece and union nut from the original valve and fit to the new one.

Reassemble in reverse order.

Burner and Main Injector

Remove the controls heat shield from its retaining clips if not already done so.

Remove the lint arrestor.

Controls Heat Shield

Remove the four hexagon headed screws holding the burner to the mounting plate.

If required the main injector can be unscrewed from the feed pipe and replaced. The copper sealing washer must be retained for re-use.

Reassemble in reverse order.

Copper Sealing Washer

Pilot Injector

Ease the spring clip on the pilot bracket away from the ceramic body of the electrode. Withdraw the electrode.

Undo the pilot feed pipe nuts at both valve and pilot bracket and remove the pipe. Extract the pilot injector from the pilot bracket.

Reassemble in reverse order.

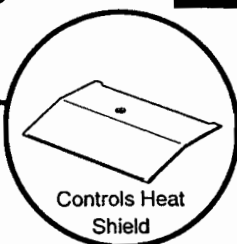
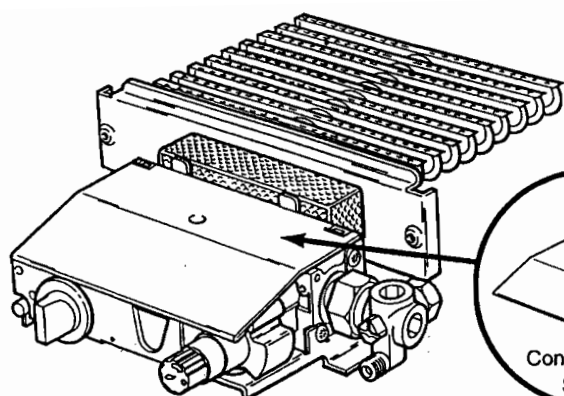
Thermocouple

MANUAL CONTROLS ONLY

Remove the lint arrestor.

Undo the thermocouple nuts from both valve and pilot bracket and remove. Carefully shape the new thermocouple in a similar manner to the original, avoiding sharp bends.

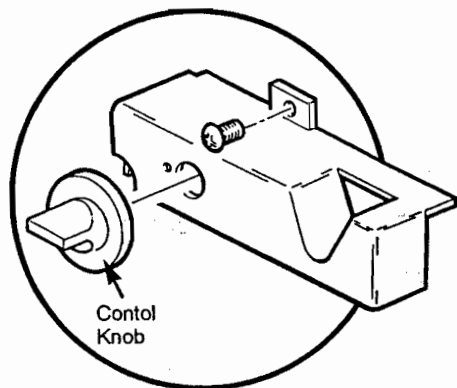
Reassemble in reverse order.



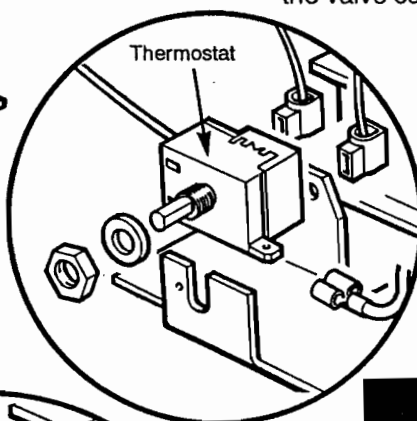
Thermostat

MANUAL CONTROLS ONLY

Remove the controls heat shield from its retaining clips if not already done so.



Remove the control knob. Undo the screw retaining the valve cover and remove the cover.



Undo the locknut retaining the thermostat to the controls mounting bracket. Ease the thermostat away from the bracket and disconnect the electrical connections noting their positions.

Reassemble in reverse order.

Piezo Igniter Unit

MANUAL CONTROLS ONLY

Remove the controls heat shield from its retaining clips if not already done so.

Remove the control knob. Undo the screw retaining the valve cover and remove the cover.

Pull the igniter lead off the piezo and undo the plastic locknut. Remove the piezo igniter unit.

Reassemble in reverse order.

Suppression Capacitor

MANUAL CONTROLS ONLY

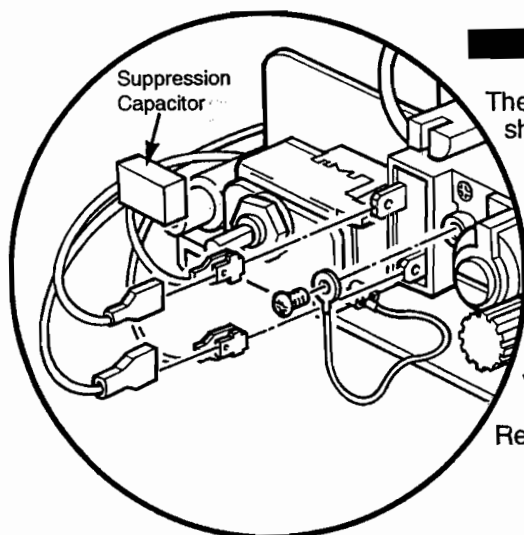
The controls may remain in situ but the controls heat shield must be removed from its retaining clips.

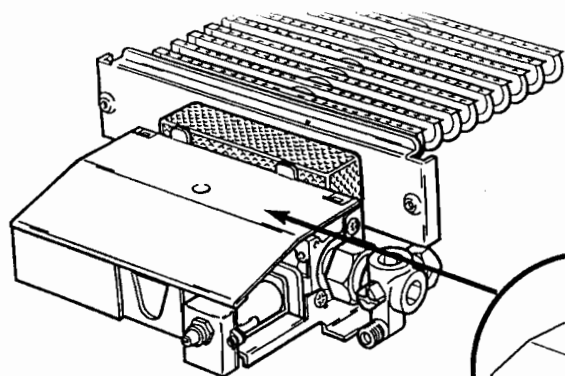
Remove the control knob. Undo the screw retaining the valve cover and remove the cover.

Note the positions of the electrical connections on the valve and remove them.

Remove the capacitor connections from the valve

Reassemble in reverse order.





Thermostat Sensor

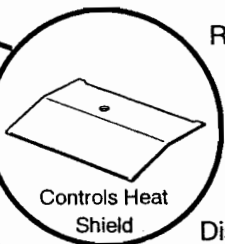
ELECTRONIC CONTROLS ONLY

Remove the controls heat shield from its retaining clips if not already done so.

Undo the three screws retaining the control box cover and remove the cover.

Disconnect the thermostat sensor plug from the PCB.

Reassemble in reverse order.



Controls Heat Shield

Thermostat Potentiometer

ELECTRONIC CONTROLS ONLY

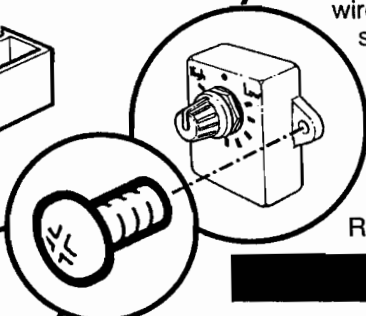
Remove the controls heat shield from its retaining clips if not already done so.

Undo the three screws retaining the control box cover and remove the cover.

Disconnect the thermostat potentiometer plug from the PCB and remove the potentiometer wires from their guide slot in the control box side.

Undo the screw holding the thermostat potentiometer to the controls mounting bracket and remove the potentiometer by disengaging its locating tab.

Reassemble in reverse order.



Printed Circuit Board

ELECTRONIC CONTROLS ONLY

Remove the controls heat shield from its retaining clips if not already done so.

Undo the three screws retaining the control box cover and remove the cover.

Disconnect the three multi-pin plugs and electrode lead from the PCB, noting their positions.

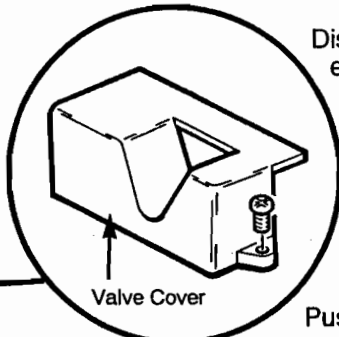
Undo the screw retaining the valve cover and remove the cover.

Undo the screw retaining the control box and remove the box.

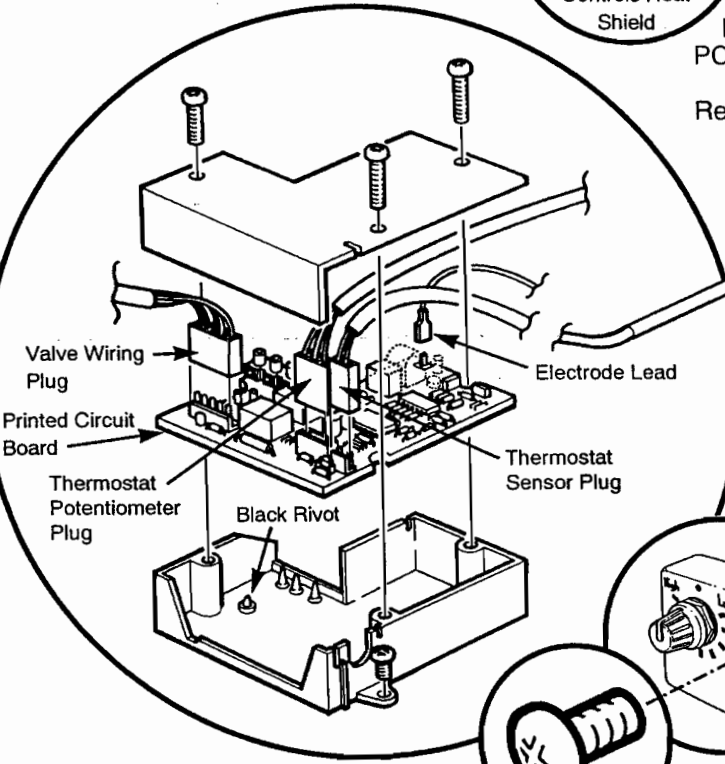
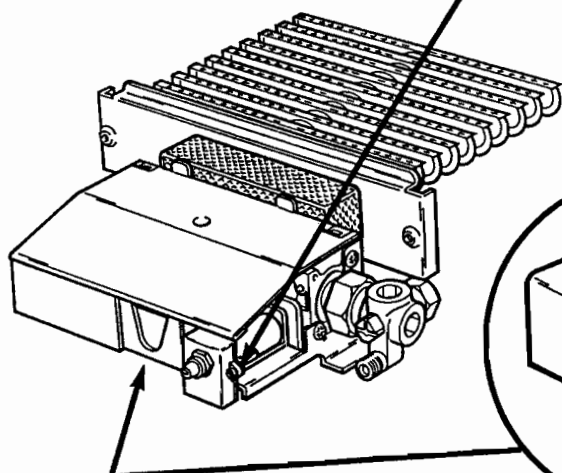
Push the black rivet retaining the PCB upwards from underneath the box.

Fit the new PCB using the rivet.

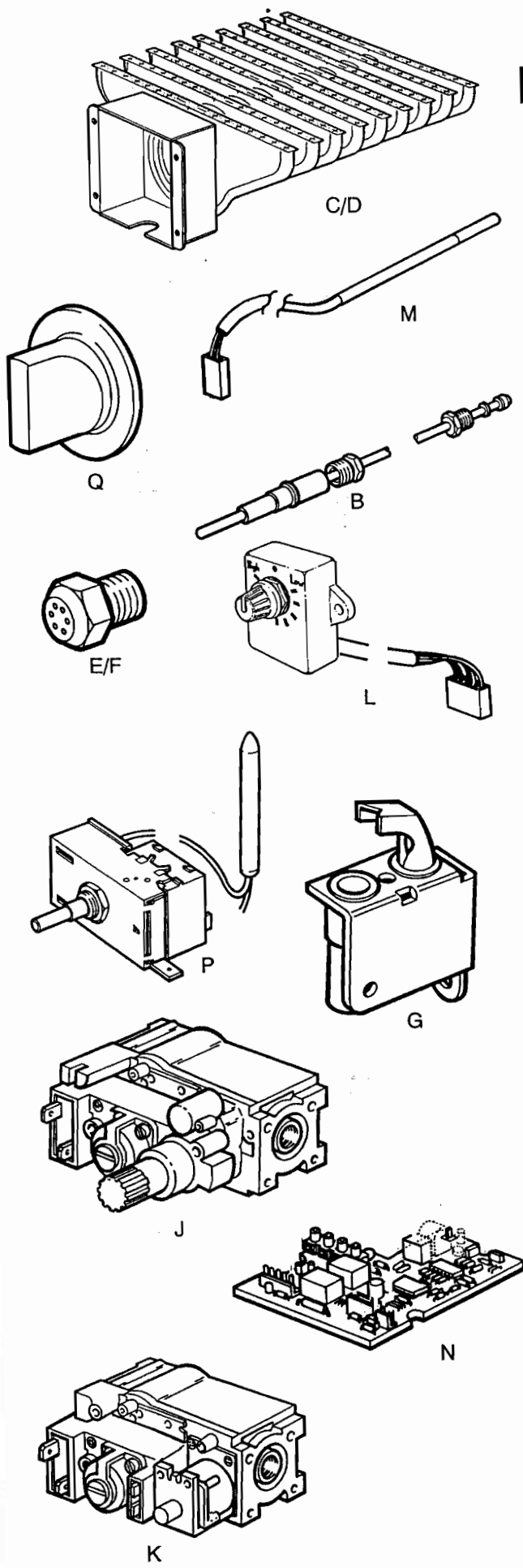
Reassemble in reverse order.



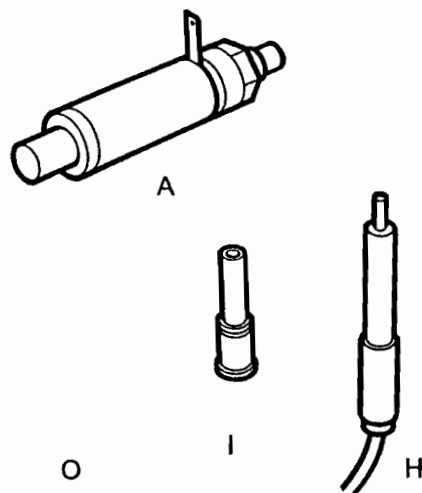
Valve Cover



SHORT PARTS LIST

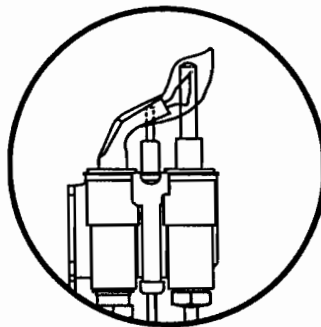
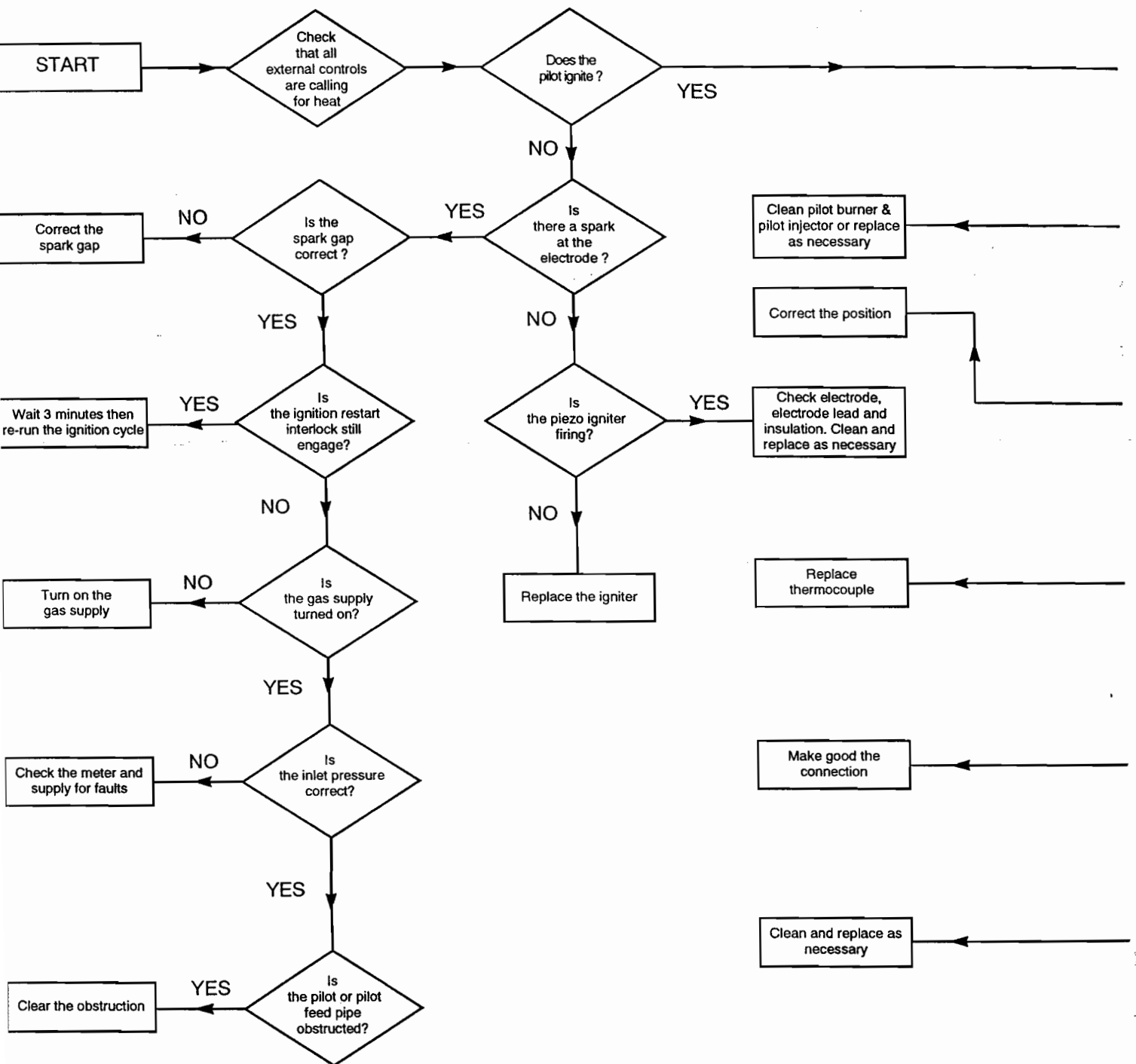


Key No.	G.C. No.	Description	Manufacturers Part No.
A	183 936	Igniter Piezo	040456
B	390 131	Thermocouple	102005
C	378 840	Burner - Large	230850
D	378 841	Burner Small Aeromatic	231151
E	378 845	Injector Burner 45/3	234511
F	378 846	Injector Burner 57/3	234512
G	379 996	Pilot Burner	231878
H	379 991	Electrode Pilot	234160
I	364 282	Pilot Injector	112011
J	193 128	Gas Valve - Manual	236129
K	193 182	Gas Valve - Electronic	236579
L	378 847	Potentiometer & Leads	232219
M	378 844	Sensor Thermostat	232215
N	378 843	Printed Circuit Board	236843
O	183 928	Electrode Lead	102143
P	378 862	Thermostat -Boiler	234497
Q	364 685	Knob - Thermostat Boiler	226821

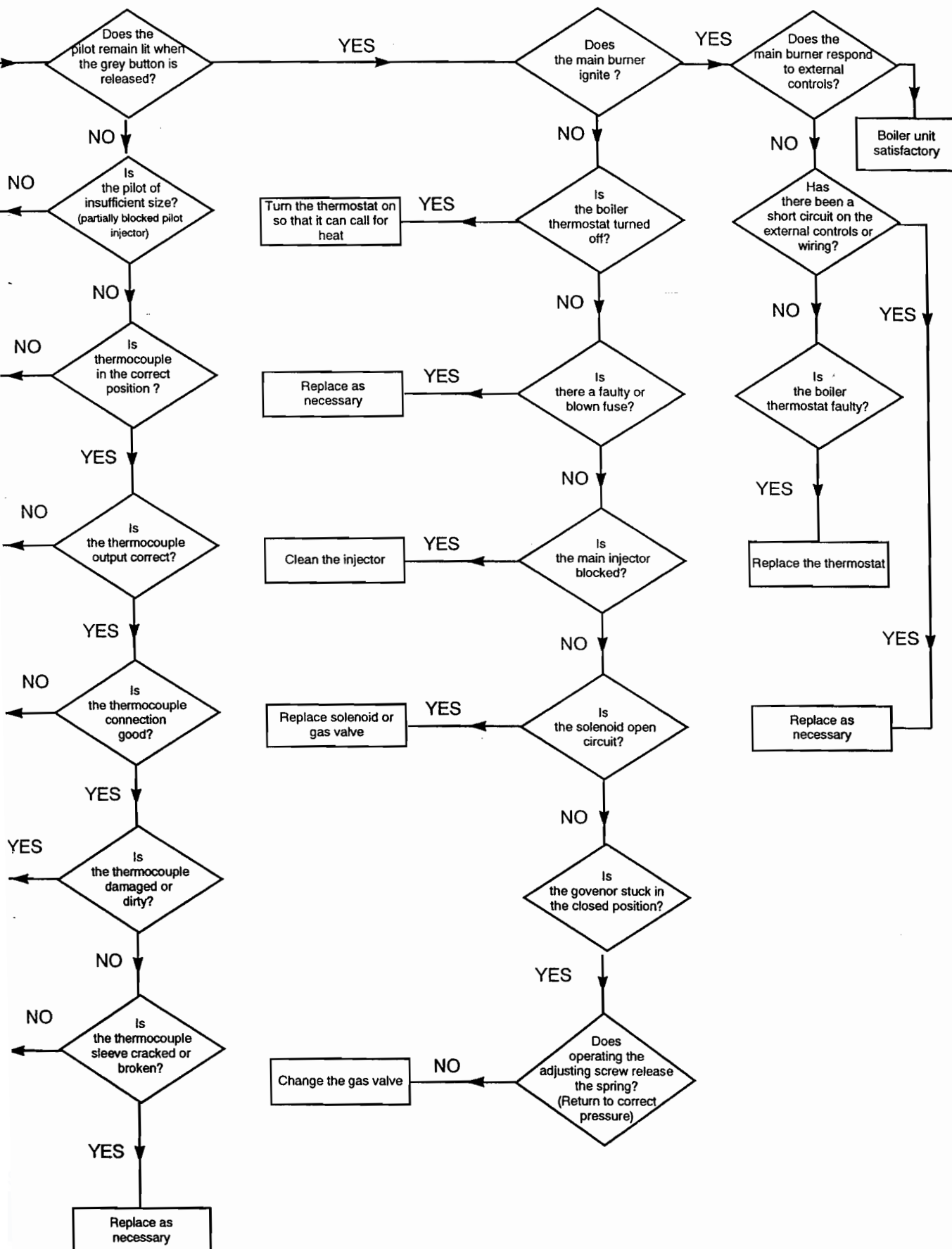


Before starting TROUBLE FINDING carry out preliminary electrical system checks i.e. Earth Continuity, Polarity, Short Circuit and Resistance to Earth.

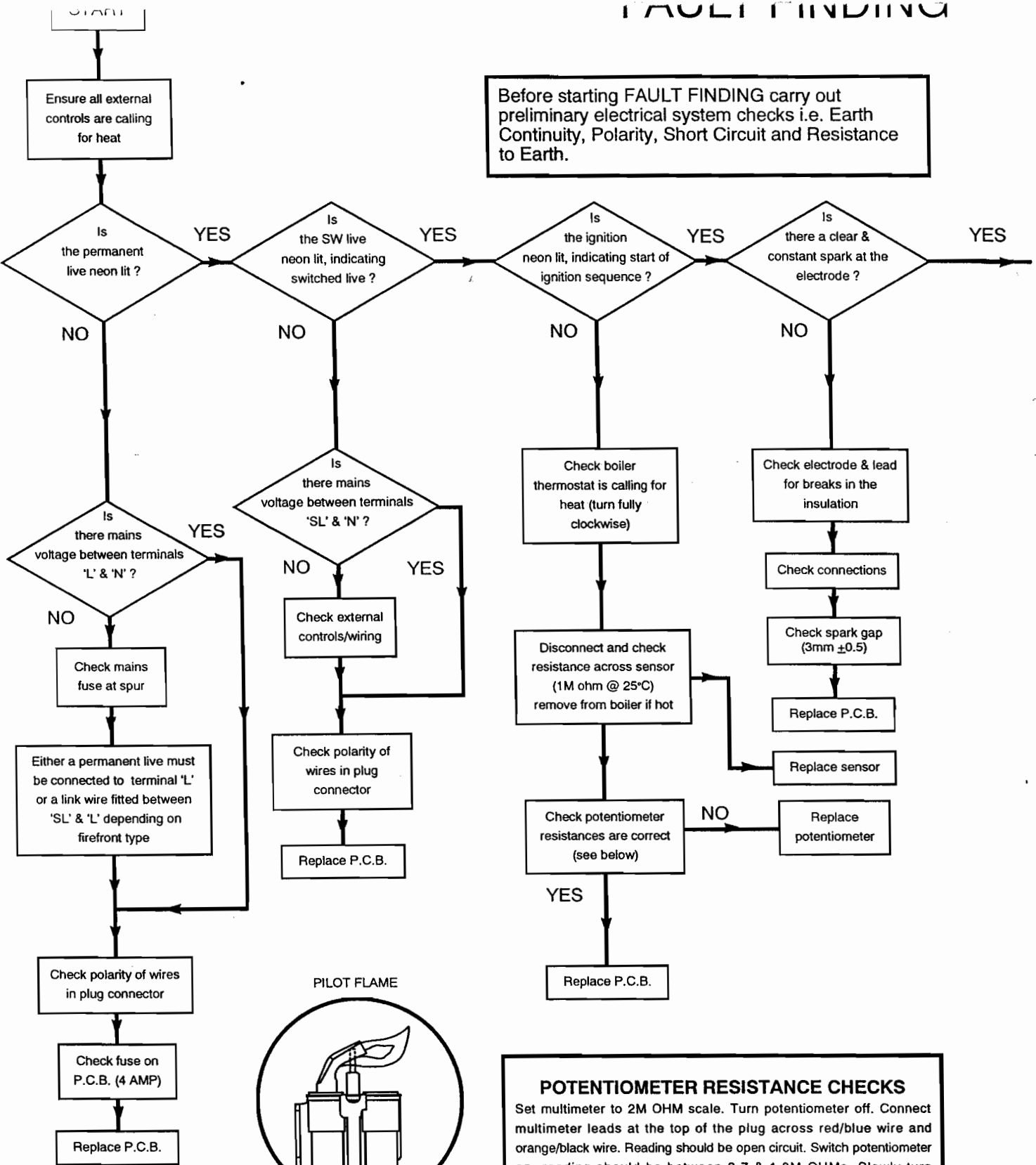
FAULT FINDING



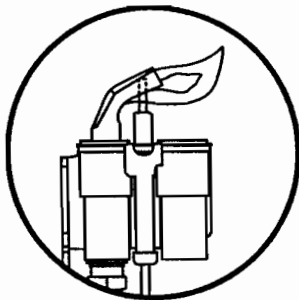
PILOT FLAME



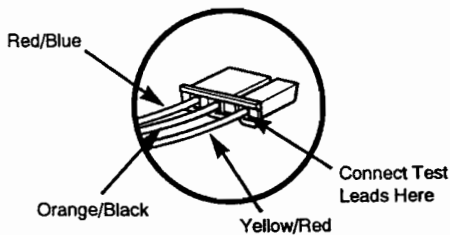
Before starting FAULT FINDING carry out preliminary electrical system checks i.e. Earth Continuity, Polarity, Short Circuit and Resistance to Earth.



PILOT FLAME



POTENTIOMETER PLUG



POTENTIOMETER RESISTANCE CHECKS

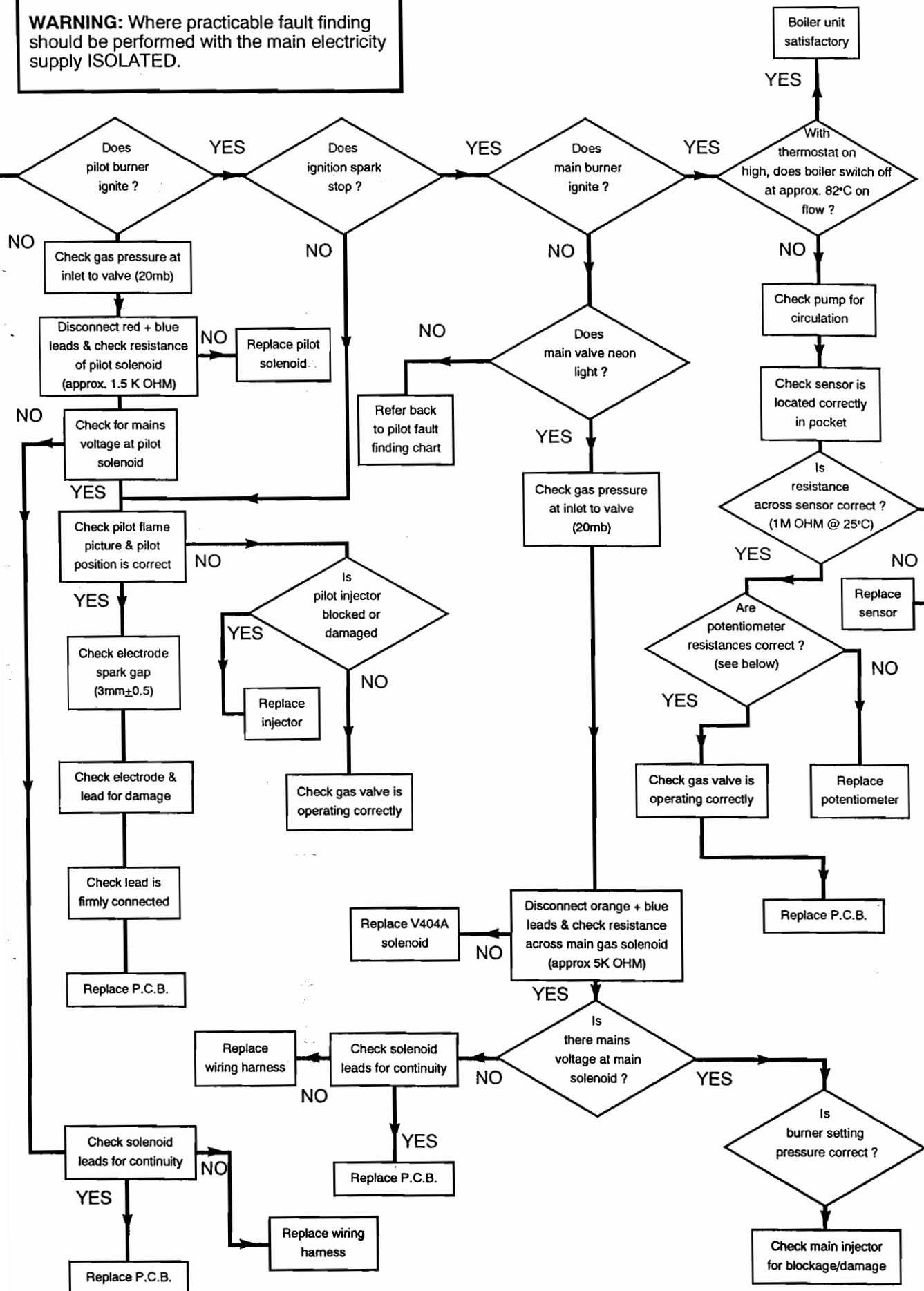
Set multimeter to 2M OHM scale. Turn potentiometer off. Connect multimeter leads at the top of the plug across red/blue wire and orange/black wire. Reading should be open circuit. Switch potentiometer on, reading should be between 0.7 & 1.3M OHMs. Slowly turn potentiometer to full on; reading should decrease, proportionate to knob position, down to between 0.24 & 0M OHMs.

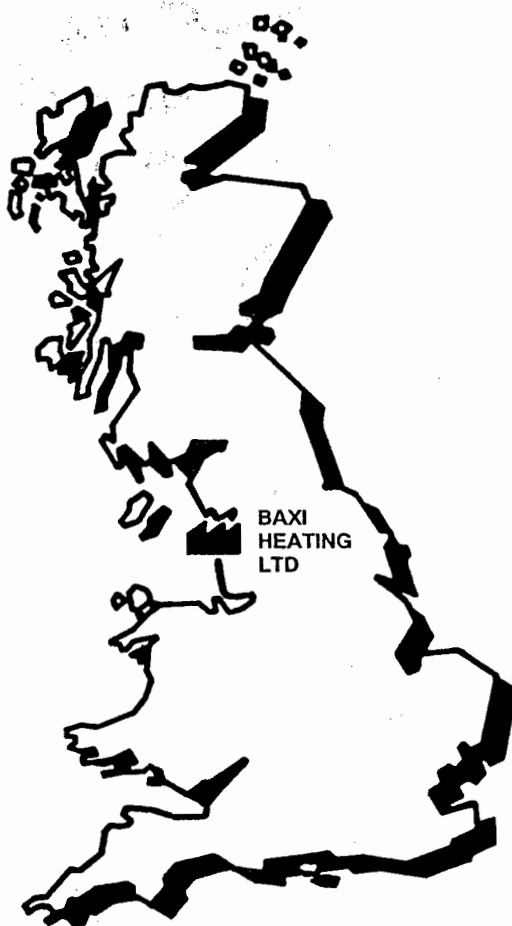
Connect multimeter leads to orange/black and yellow/red wires. Reading should be between 0.7 & 1.3M OHMs. Slowly turn potentiometer down, reading should decrease, proportionate to knob position, down between 0.2 & 0M OHMs.

Turn potentiometer completely off, reading should be open circuit.

57/3 E & 45/3 E

WARNING: Where practicable fault finding should be performed with the main electricity supply ISOLATED.





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