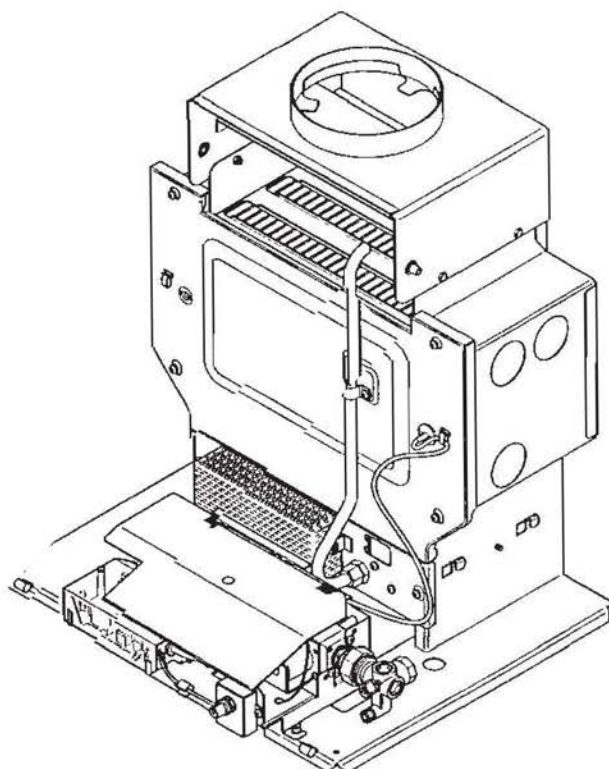


BAXI

Installation & Servicing Instructions



Baxi Bermuda Inset 3 Boiler 50/5

Fireside Gas Central Heating Unit

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

Natural Gas

Baxi Bermuda Inset 3 Boiler 50/5
G.C.No. 44 075 07

For use with the following firefronts:

Baxi Bermuda Inset 3 BS Super
G.C.No. 37 075 56
Baxi Bermuda Inset 3 TS Super
G.C.No. 37 075 57
Baxi Bermuda Inset 3 KS Super
G.C.No. 37 075 54
Baxi Bermuda Inset 3 FS Super
G.C.No. 37 075 55

Baxi Bermuda Inset 3 BS Super Renewal
G.C.No. 37 075 60
Baxi Bermuda Inset 3 TS Super Renewal
G.C.No. 37 075 61
Baxi Bermuda Inset 3 KS Super Renewal
G.C.No. 37 075 58
Baxi Bermuda Inset 3 FS Super Renewal
G.C.No. 37 075 59

Baxi Bermuda Inset 3 BB Super
G.C.No. 37 075 62
Baxi Bermuda Inset 3 CB Super
G.C.No. 37 075 63
Baxi Bermuda Inset 3 SC Super
G.C.No. 37 075 64
Baxi Bermuda Inset 3 BC Super
G.C.No. 37 075 65

Baxi Bermuda Inset 3 BB Super Renewal
G.C.No. 37 075 66
Baxi Bermuda Inset 3 CB Super Renewal
G.C.No. 37 075 67
Baxi Bermuda Inset 3 SC Super Renewal
G.C.No. 37 075 68
Baxi Bermuda Inset 3 ec·super Renewal
G.C.No. 37 075 69

Baxi is one of the leading manufacturers of domestic heating products in the UK.

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 customers, 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 of continuing to make the products that customers want to buy.

Everyone who works at Baxi has a commitment to quality because we know that satisfied customers mean continued success.

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



Baxi is a BS-EN ISO 9001
Accredited Company

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The boiler meets requirements of Statutory Instrument "The Boiler (Efficiency) Regulations 1993 N° 30 ♦" and is deemed to meet the requirements of Directive 92/42/EEC on the efficiency requirements for new hot water boilers fired with liquid or gaseous fuels:-

Type test for purpose of Regulation 5 certified by:
Notified Body

Product/Production certified by:
Notified Body 0086.

For GB/ IE only.

IMPORTANT - Installation, Commissioning, Service & Repair

This appliance must be installed in accordance with the manufacturer's instructions and the regulations in force. Read the instructions fully before installing or using the appliance.

In GB, this must be carried out by a competent person as stated in the Gas Safety (Installation & Use) Regulations.

Definition of competence: A person who works for a CORGI registered company and holding current certificates in the relevant ACS modules, or valid ACoP equivalents, is deemed competent.

In IE, this must be carried out by a competent person as stated in I.S. 813 "Domestic Gas Installations".

Lifting - This product should be lifted and handled by two people. Stooping should be avoided and protective equipment worn where necessary. Carrying & lifting equipment should be used as required, e.g. when installing on another floor.

The addition of anything that may interfere with the normal operation of the appliance without express written permission from the manufacturer or his agent could invalidate the appliance warranty. In GB this could also infringe the Gas Safety (Installation and Use) Regulations.

Warning - Check the information on the data plate is compatible with local supply conditions.

"Benchmark" Log Book

As part of the industry-wide "Benchmark" initiative all Baxi boilers now include an Installation, Commissioning and Service Record Log Book. Please read the Log Book carefully and complete all sections relevant to the appliance and installation. These include sections on the type of controls employed, flushing the system, burner operating pressure etc. The details of the Log Book will be required in the event of any warranty work. Also, there is a section to be completed at each subsequent regular service visit. The Log Book must be left with the user.

All CORGI registered installers carry a CORGI identification card and have a registration number. Both should be recorded in your boiler Log Book. You can check your installer is registered by telephoning +44 (0)1256 372300 or writing to:-

1 Elmwood,
Chineham Business Park,
Crockford Lane,
Basingstoke. RG24 8WG

Baxi declare that no substances harmful to health are contained in the appliance or used during appliance manufacture.

The appliance is suitable only for installation in GB and IE and should be installed in accordance with the rules in force.

In GB, the installation must be carried out by a CORGI Registered Installer. It must be carried out in accordance with the relevant requirements of the:

- Gas Safety (Installation & Use) Regulations.
- The appropriate Building Regulations either The Building Regulations, The Building Regulations (Scotland), Building Regulations (Northern Ireland).
- The Water Fittings Regulations or Water Byelaws in Scotland.
- The Current I.E.E. Wiring Regulations.

Where no specific instructions are given, reference should be made to the relevant British Standard Code of Practice.

In IE, the installation must be carried out by a competent Person and installed in accordance with the current edition of I.S. 813 'Domestic Gas Installations', the current Building Regulations and reference should be made to the current ETCI rules for electrical installation.

All systems must be thoroughly flushed and treated with inhibitor (see section 3.2).

Codes of Practice, most recent version should be used

In GB the following Codes of Practice apply:

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 Part 1	Fires.
BS 5440 Part 2	Ventilation.
BS 5871 Part 1	Installation of fire/back boilers, gas appliances.
BS 6500	Cables

In IE the following Codes of Practice apply:

Standard	Scope
I.S. 813	Domestic Gas Installations.
The following BS standards give valuable additional information;	
BS 5546	Installation of hot water supplies for domestic purposes.
BS 5449	Forced circulation hot water systems.

1.0 Introduction

1.1 Description

1. The Baxi Bermuda Inset 3 is a combined central heating boiler and gas fire designed for installation within a builders opening in the living space of a dwelling.

2. The firefront is intended for hearth mounting.

3. These instructions relate to the central heating boiler section of the appliance (Fig. 1).

4. The boiler output will automatically modulate between:

Max	Min
14.65kW	7.32kW
50,000 Btu/h	25,000 Btu/h

5. The appliance is designed for use on NATURAL GAS only. The boiler is suitable for fully pumped and pumped central heating with gravity hot water systems.

6. It can be used on sealed or open vented systems.

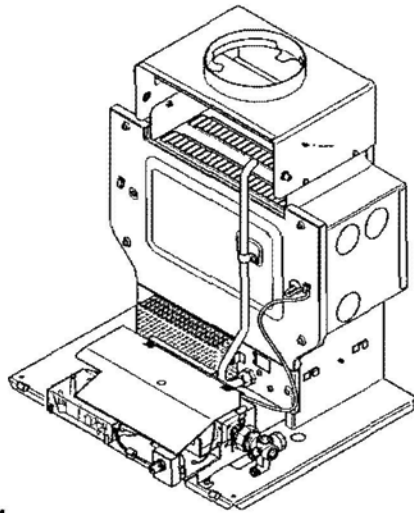
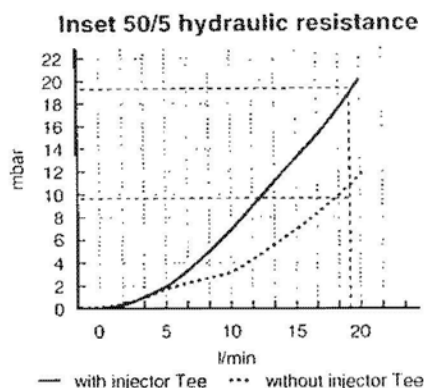


Fig. 1

2.0 Technical Data



Sedbuk Declaration For Bermuda Inset 3 Boiler 50/5

The seasonal efficiency (SEDBUK) is 77%

This value is used in the UK Government's Standard Assessment Procedure (SAP) for energy rating of dwellings. The test data from which it has been calculated has been certified by 0087.

Appliance Type	B _{11AS}	
Appliance Category	Cat I _{2H}	
Heat Input (Gross)	Max	Min
kW	18.79	9.4
Btu/h	64,100	32,050
Heat Output	Max	Min
kW	14.65	7.32
Btu/h	50,000	25,000
Pilot Burner	9416	
Heat Input (Gross)	210W (715 Btu/h)	
Burner Pressure	Max	Min
mbar (± 1)	17	(Factory Set).
in wg (± 0.4)	6.8	
Injector	B19	
Water Content	Max	
litres	1.6	
Gas Connection	R _C 1/2 (1/2 in BSPT)	
Water Connections	3 x 1 in BSP	
Electricity Supply	230V ~ 50Hz External fuse - 5 Amp Appliance Rating - 17 watt	
Controls	Electronic thermostat intermittent pilot & timed electronic flame sensing with atmospheric sensing device.	
Gas Rate (after 10 mins)	1.8m ³ /h (63.57ft ³ /h)	
Lifting Weight	33.2 kg	
Packed Weight	40.8 kg	
Dimensions	Height	516mm
	Width	440mm
	Depth	368mm
Flue Diameter	125mm	
Heat Exchanger	Cast Iron	
Low Head mm	(Min)	1000
Water Systems	Fully pumped or pumped heating with gravity hot water. Sealed or open vented systems.	

3.0 System Details

3.1 Water Circulating Systems

1. The appliance is suitable for use on open vented gravity domestic hot water/pumped central heating systems or fully pumped systems which may be sealed or open vented.

2. 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 they do not restrict the servicing of the boiler.
- Position isolating valves as close as possible to the circulating pump.

3.2 Treatment of Water Circulating Systems

All recirculatory water systems will be subject to corrosion unless they are flushed and an appropriate water treatment is applied. To prevent this, follow the guidelines given in BS 7593 "Treatment of Water in Domestic Hot Water Central Heating Systems" and the treatment manufacturers instructions.

Treatment must involve the use of a proprietary cleanser, such as BetzDearborn Sentinel X300 or X400, or Fernox Superfloc and an inhibitor such as BetzDearborn Sentinel X100 or Fernox MB-1 or Copat.

Full instructions are supplied with the products, for further information contact BetzDearborn (+44 (0)151 420 9563) or Fernox (+44 (0)1799 550811).

Failure to flush and add inhibitor to the system may invalidate the appliance warranty.

It is important to check the inhibitor concentration after installation, system modification and at every service in accordance with the inhibitor manufacturer's instructions. (Test kits are available from inhibitor stockists.)

For information or advice regarding any of the above contact the Technical Enquiries.

3.0 System Details

3.3 Pipework

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

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

3. In systems using non-metallic pipework it is necessary to use copper pipe for the boiler Flow and Return. The copper must extend at least 1 metre from the boiler and include any branches. The copper pipe must not be insulated (Fig. 2).

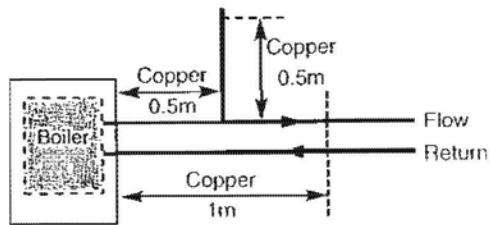


Fig. 2

3.4 System Controls

1. The system in which the appliance is installed should include a control system.

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

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

3.5 Fully Pumped Open Vent System (Fig. 3)

1. The sizes of the system pipes should be determined by normal methods.

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

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

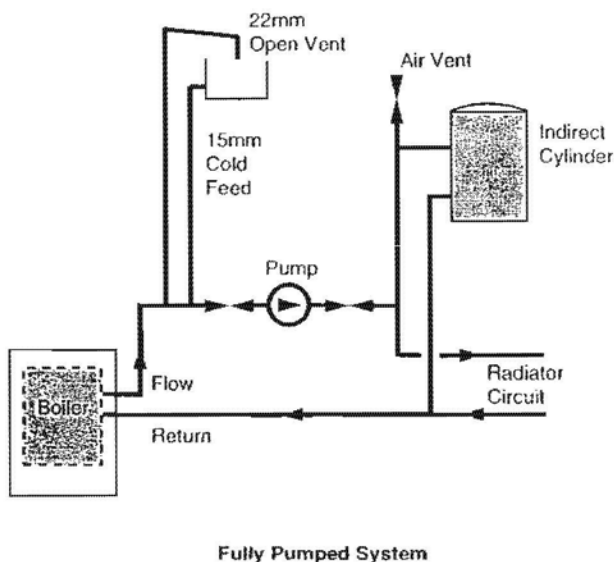


Fig. 3

3.6 Storage Systems

1. For information regarding the use of a Bermuda Inset 3 boiler with a storage system, contact the appropriate storage system manufacturer.

3.0 System Details

3.7 Pumped Heating & Gravity Hot Water (Fig. 4)

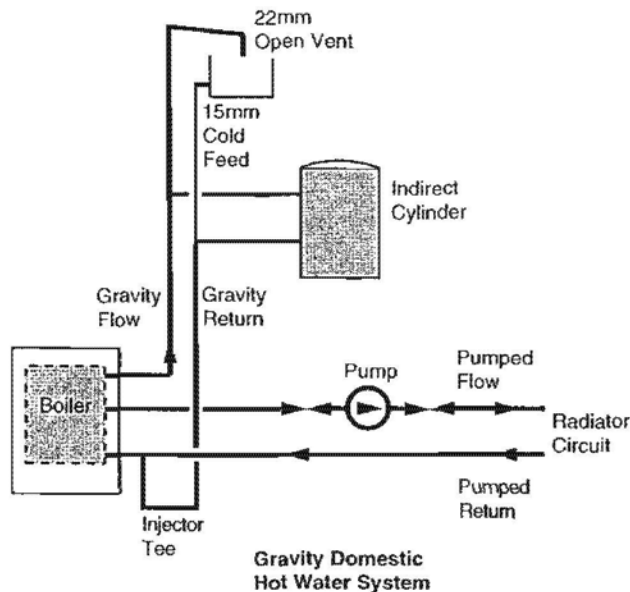


Fig. 4

1. The sizes of system pipes should be determined by normal methods.
2. The gravity flow pipe should rise vertically as close as possible to the boiler, avoiding sharp bends and tight elbows.
3. The open vent pipe should be a minimum of 22mm and must rise continuously to a point above the feed and expansion tank.
4. The flow pipe from the boiler may form part of the vent pipe.
5. No part of the open vent should contain a valve.
6. The brass injector tee must be fitted to the boiler return on all systems incorporating a gravity circuit.
7. The circulating head should not be less than 1m (3ft) with a maximum horizontal run of 3m (10ft) when using 28mm pipes. Smaller pipe sizes and longer horizontal runs are acceptable with suitably increased circulating heads.
8. The gravity circuit should be designed with a minimum of restriction, avoiding possible air traps and long horizontal runs.
9. The system should be designed to prevent gravity circulation in the heating system when the pump is not running.

3.8 Sealed Systems

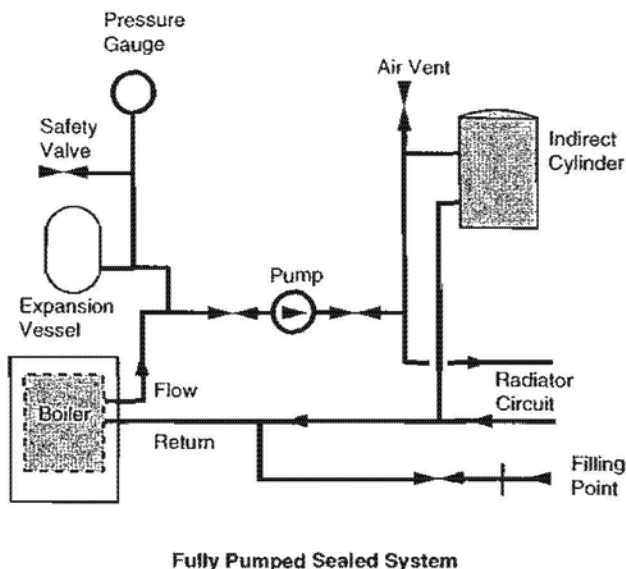


Fig. 4a

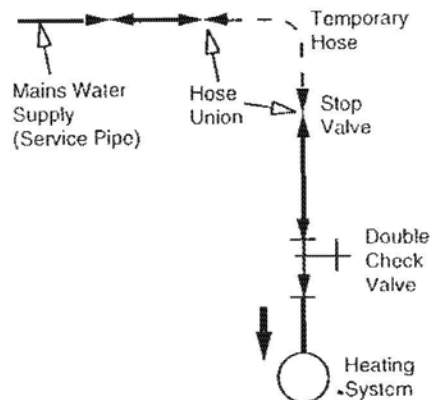
1. Installation. The installation must comply with the requirements of BS 6798:1987 and BS 5449:1. The British Gas publication "British Gas Specification for Domestic Wet Central Heating Systems" should also be consulted.

2. Pressure Relief Valve. A non-adjustable spring loaded pressure relief valve, preset to operate at 3 bar (45 lbf/in²) shall be used. It must comply with BS 6759:1 and include a manual testing device. It shall be positioned in the flow pipe either horizontally or vertically upwards and close to the boiler. No shut off valves are to be placed between the boiler and the safety valve. The valve should be installed with a discharge pipe which permits the safe discharge of steam and hot water such that no hazard to persons or damage to electrical components is caused.

3. Pressure Gauge. A pressure gauge incorporating a fill pressure indicator, covering the range 0-4 bar (60 lbf/in²) shall be fitted to the system. It should be connected to the system, preferably at the same point as the expansion vessel. Its location should be visible from the filling point.

3.0 System Details

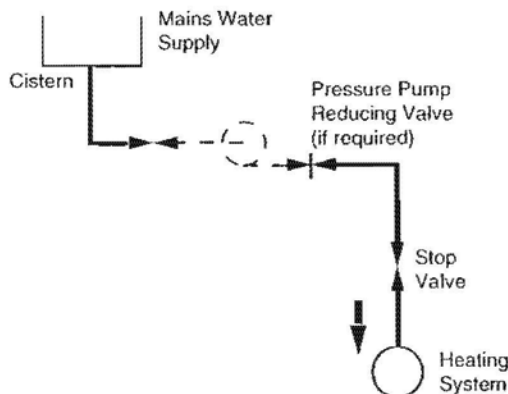
3.8 Sealed Systems (cont)



Filling a Sealed Water System (Method 1)

Mains Topping Up Method

NOTE: This method of filling a sealed system may only be used if acceptable to Local Water Undertaking



Filling a Sealed Water System (Method 2)

Cistern Filling Method

NOTE: Cistern to be supplied through a temporary connection from a service pipe or cold water distributing pipe

Vessel Charge Pressure (bar)	0.5	1.5
Initial System Pressure (bar)	1.0	1.0
Expansion Vessel Volume (litres)	$V \times 0.11$	$V \times 0.087$

Table 1

4. Expansion Vessel. A diaphragm type expansion vessel to BS 4814:1 shall be fitted close to the inlet side of the pump. The connecting pipework should not be less than 15mm. Pipework connecting the expansion vessel should not incorporate valves of any sort.

Methods of supporting the vessel are supplied by the vessel manufacturer.

The nitrogen or air charge pressure of the expansion vessel shall not be less than the hydrostatic head, (height of the top point of the system above the expansion vessel). To size the expansion vessel it is first necessary to calculate the volume of water in the system in litres. The following volumes may be used as a conservative guide to calculating the system volume.

Boiler Heat Exchanger:	1.6 litres
Small Bore Pipework:	1 litre per kW of system output
Micro Bore Pipework:	7 litre
Steel Panel Radiators:	8 litre per kW of system output
Low Water Capacity Radiators:	1 litre per kW of system output
Hot Water Cylinder:	1 litre per kW of system output

If the system is extended, the expansion vessel volume may have to be increased unless provision has been made for extension. Where a vessel of the calculated size is not available, the next available larger size should be used.

The boiler flow temperature is controlled at approx 82°C.

The vessel size can now be determined from the information in table 1 where V = System volume in litres.

5. Cylinder. The hot water cylinder must be an indirect coiler type.

6. Method of Make Up. Provision shall be made for replacing water loss from the system either:-

- From a make up vessel or tank mounted in a position higher than the top point of the system and connected through a non-return valve to the system on the return side of the hot water cylinder or the return side of all heat emitters.
- Where access to a make up vessel would be difficult by using the mains top up method or a remote automatic pressurisation and make up unit.

7. Mains Connection. There shall be no connection to the mains water supply or to the water storage tank which supplies domestic hot water even though a non-return valve, without the approval of the Local Water Authority.

8. Filling Point. A filling point connection on the central heating return pipework must be provided to facilitate initial filling and pressurising and also any subsequent water loss replacement/refilling.

The sealed primary circuits may be filled or replenished by means of a temporary connection between the circuit and a supply pipe, provided a 'Listed' double check valve or some other no less effective backflow prevention device is permanently connected at the inlet to the circuit and the temporary connection is removed after use.

The filling method adopted must be in accordance with all relevant water supply regulations and use approved equipment.

Your attention is drawn to: for GB: Guidance G24.2 and recommendation R24.2 of the Water Regulations Guide. for IE: the current edition of IS 813 "Domestic Gas Installations".

4.0 Site Requirements

4.1 Builders Opening (Fig. 5)

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

Height	584mm (23in)
Width	584mm (23in)
Depth	375mm (14 ³ / ₄ in)

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

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

4. The base of the builders opening should be at the same height as the finished level of the hearth.

IMPORTANT: If a false chimney breast is intended to house the boiler, a simulated builders opening, within the breast, must be provided.

5. The builders opening must not communicate with voids, pipe ducts or spaces other than the room in which the appliance is situated.

4.2 Location

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

2. 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.

4.3 Fireplace Opening & Surround

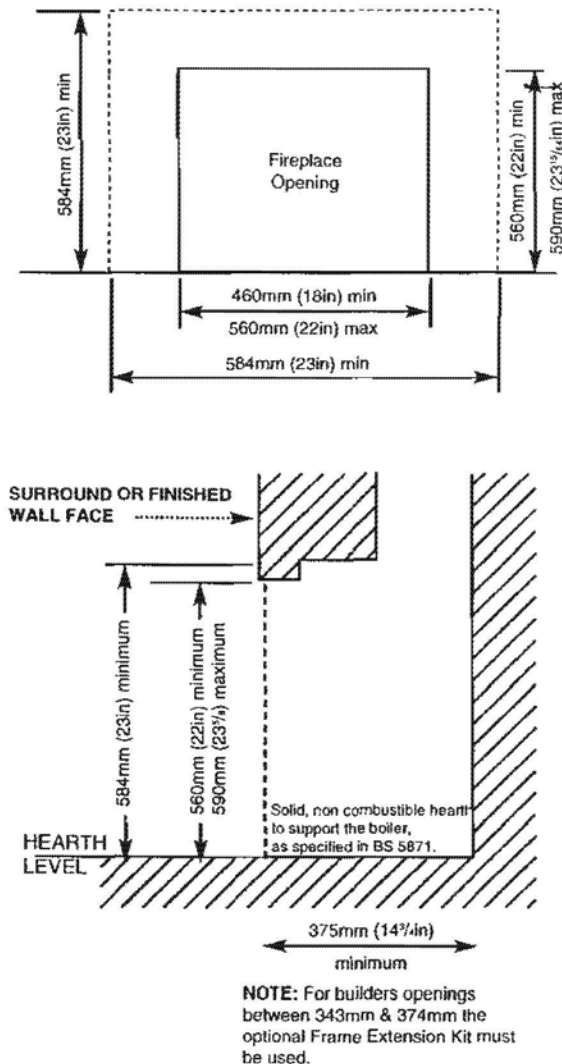
1. If a fireplace surround is to be used, it must be centrally placed and have opening sizes and a vertical flat area as detailed in the Installation and Servicing Instructions for the fire.

4.4 Frame Extension Kit

1. If the depth of the builders opening is less than the 375mm minimum specified, it can be increased by the use of the Frame Extension Kit.

2. Kit N° 247883 is suitable for use with Inset 3 BB, TS, BS and FS models. Use kit N° 247884 for Inset 3 KS, CB, BC and SC.

3. Full installation details are included in the kit.



When correctly installed the centre line of the boiler flue socket will be 260mm from the surround or finished wall face.

Fig. 5

4.0 Site Requirements

4.5 Flue

1. The following guidelines indicate the general requirements for installation of flues.
For GB recommendations are given in BS 5440 Part 1.
For IE recommendations are given in the current edition of I.S. 813 "Domestic Gas Installations".

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

A suitable terminal is required for all installations.

2. 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.

3. Acid Resistant Liner

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.

4. Precast Flues

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

5. 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.

4.0 Site Requirements

4.6 Ventilation

1. Ventilation air supply should be in accordance with the relevant standards. In GB this is BS 5440 Pt. 2. In IE this is I.S. 813 "Domestic Gas Installations". The permanent ventilation area size requirements are as shown:

80.1cm² (12.42in²)

2. The permanent vent may be directly into the room containing the appliance. The vent may also be sited in another (not a bedroom, toilet, bathroom or kitchen) room provided an interconnecting vent is used.

3. The vent must not be installed inside the builders opening. The vent should be sited following good practice for a habitable room. We recommend the use of the Stadium BM720 "Black Hole" ventilator which is available from your local merchant.

4.7 Gas Supply (Fig. 6)

1. The gas installation should be in accordance with relevant standards. In GB this is BS 6891. In IE this is I.S. 813 "Domestic Gas Installations". The connection at the appliance is Rc 1/2 (1/2in BSPT internal) located at the rear of the gas tap.

2. Ensure the pipework from the meter to the appliance is of adequate size. It is necessary 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.

4.8 Electrical Supply

1. External wiring must be correctly earthed, polarised and in accordance with relevant regulations/rules. In GB this is the current I.E.E. Wiring Regulations. In IE reference should be made to the current edition of the ETCI rules. The mains supply is 230V ~ 50Hz fused at 5A. **A permanent live supply is required for all Super Model Firefronts.**

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.

2. The cable within the builders opening should be 0.75mm² to IEC 53 code 227 (heat resistant).

3. It is preferable to route the electrical supply cable to the left hand side of the builders opening. If however it must come from the right hand side it must be routed via the clips provided and not restrict the servicing of the appliance (Fig. 6).

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

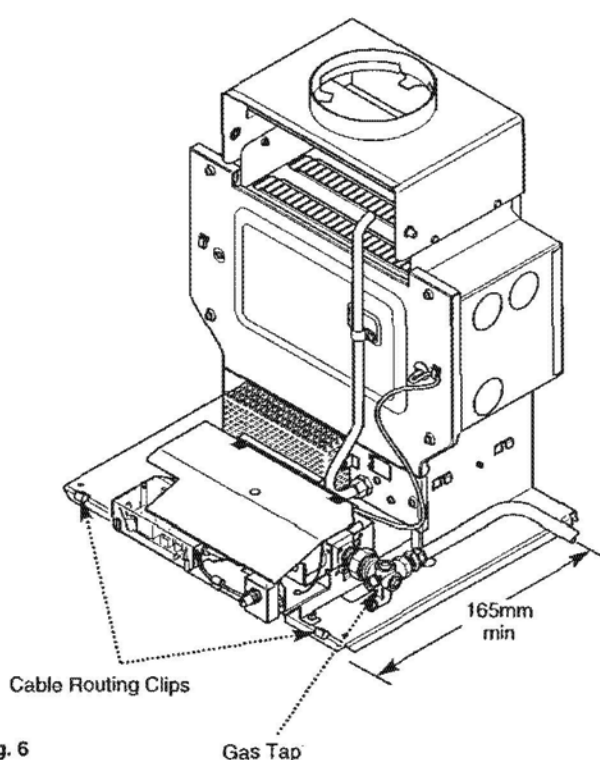
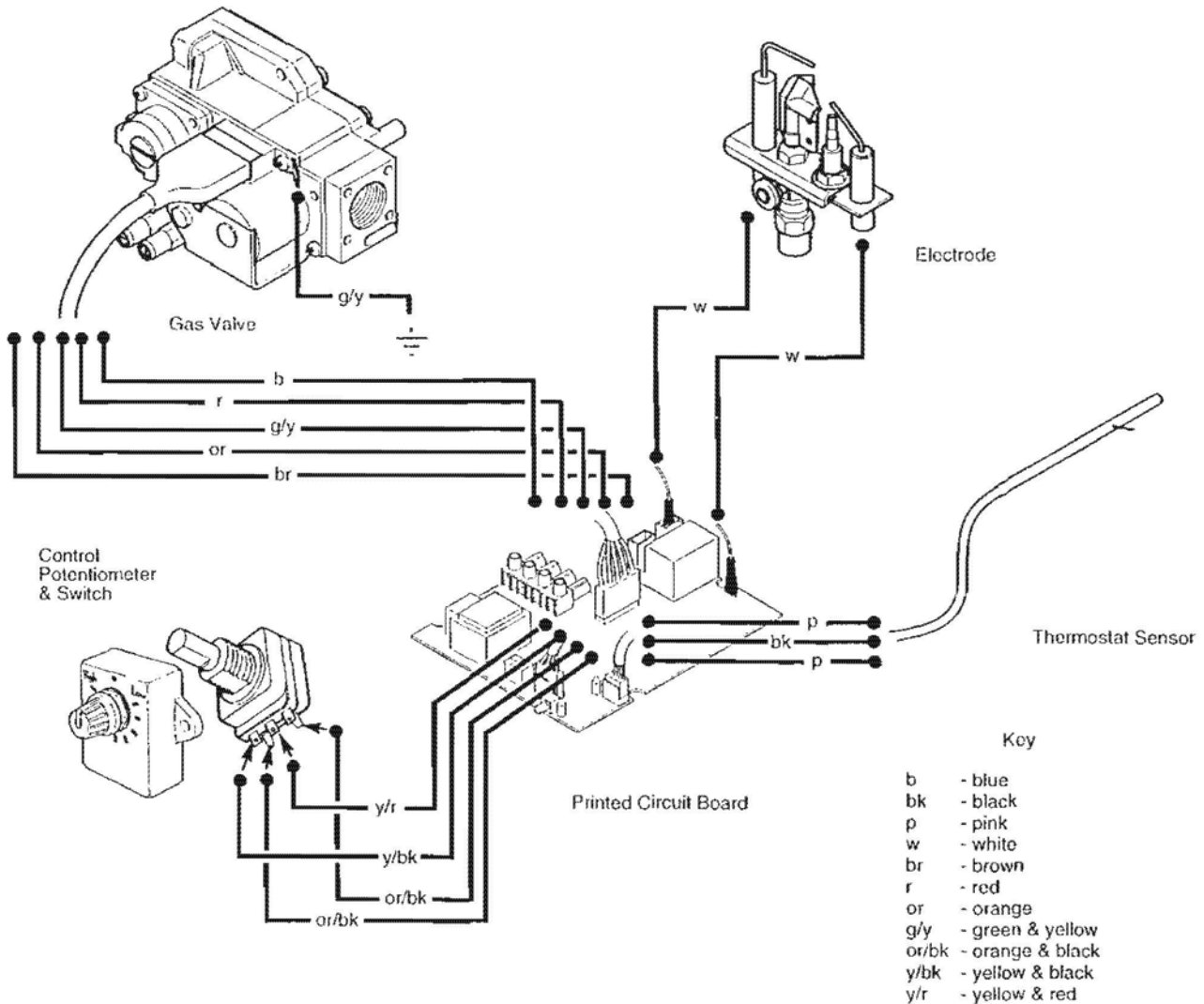


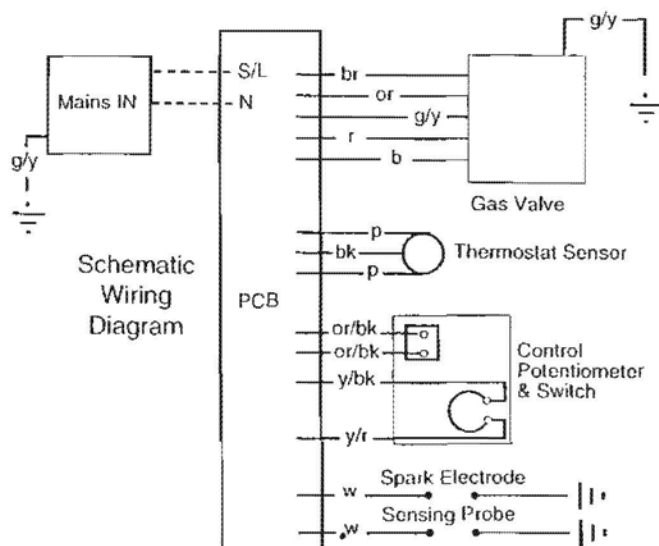
Fig. 6

5.0 Electrical

5.1 Illustrated Wiring Diagram



5.2 Functional Flow Diagram



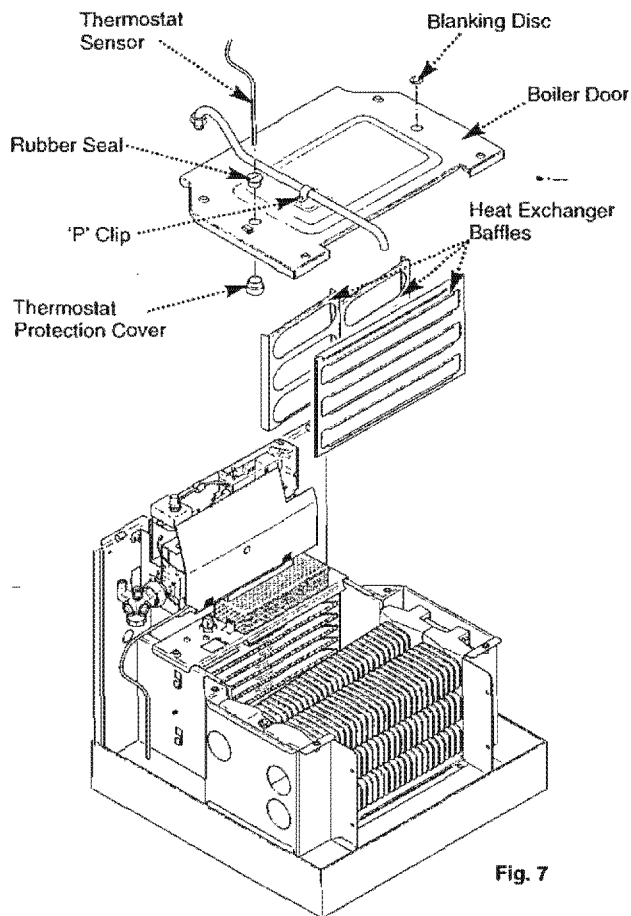


Fig. 7

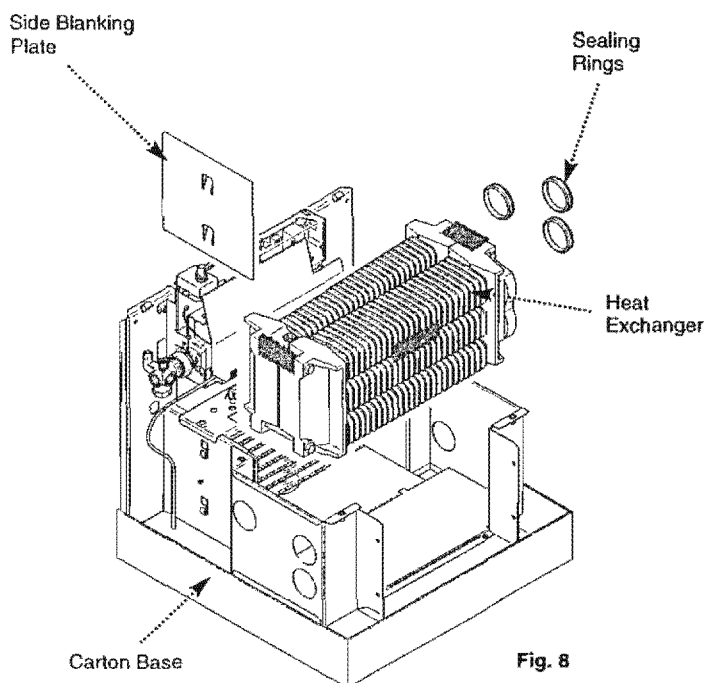


Fig. 8

 Suggested Lifting Points shown as shaded area

6.0 Installation

6.1 Initial Preparation

1. Remove the outer carton from the boiler pack. Discard the packing pieces. Remove the boiler hood and fitting kit from its packing on top of the boiler.

2. The boiler as supplied has the flow and return water connections at the left hand side of the appliance. If this is the required orientation, go to section 6.3.

6.2 For installations requiring the water connections at the right hand side proceed as follows (Fig. 7 & 8):

1. Leave the boiler on its back on the carton base.
2. Remove the thermostat lead from its clip. Withdraw the thermostat sensor from the pocket.
3. Unfasten the four screws retaining the boiler door and remove. Remove the rubber seal and thermostat protection cover.
4. Lift out the 3 heat exchanger baffles, noting their orientation (they are marked 'TOP' and 'FRONT').
5. Lift the heat exchanger from the appliance using the lifting points indicated on Fig. 8 and remove the side blanking plate.

IMPORTANT - Care must be exercised when lifting and handling this product. Seek assistance where appropriate and avoid stooping. Protective equipment (e.g. gloves) should be worn as necessary.

6. Transfer the 3 sealing rings from the holes in the left hand side of the boiler to those on the right.
7. 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.

8. Remove the blanking disc from the left hand hole in the boiler door and replace with the rubber seal and thermostat protection cover. Fit the blanking disc into the right hand hole.
9. Replace the heat exchanger baffles and blanking plate. Refit boiler door. Refit the thermostat sensor into the pocket. Route the thermostat lead into the clip.

6.0 Installation

6.3 Connecting the Sensing Pipe

1. Remove the protection cap from the sensing pipe adaptor on the burner mounting plate. Slacken the screw retaining the sensing pipe 'P' clip (Fig. 9, 10 & 11).

2. Manoeuvre the pipe so that the flared end aligns with the adaptor. Engage the nut on the adaptor and tighten finger tight. Tighten the 'P' clip retaining screw and tighten the nut onto the adaptor using a suitable spanner (Fig. 10 & 11).

IMPORTANT: The sensing pipe must be connected to enable the appliance to function safely and correctly.

6.4 Fitting the Boiler Hood

1. Stand the boiler upright on the carton base.

2. The hood may be fitted now or when the boiler is in situ. Secure using the four nuts and set screws provided (Fig. 12).

6.5 Siting the Boiler

1. The fireplace and builders opening should be as described under '4.0 Site Requirements' and be clean, sound and level.

2. The flue should be installed as described under '4.0 Site Requirements'.

3. It may be desirable to insert the required fittings into the heat exchanger at this point, depending on the size of the fireplace opening and whether or not the gravity injector tee is to be used.

4. Locate and mark the centre line of the finished opening and hearth (Fig. 15).

5. Hold the boiler by its combustion box at either side of the heat exchanger, lift from the packing base and place into the opening, using the lifting points indicated on Fig. 13.

IMPORTANT - This product should be lifted and handled by two people. Stooping should be avoided and protective equipment worn where necessary. Carrying & lifting equipment should be used as required, e.g. when installing on another floor.

6. Align the boiler centrally using the 'V' mark on the front centre of the appliance base. Check the distance between each side of the base and opening. They should be equal (Fig. 15).

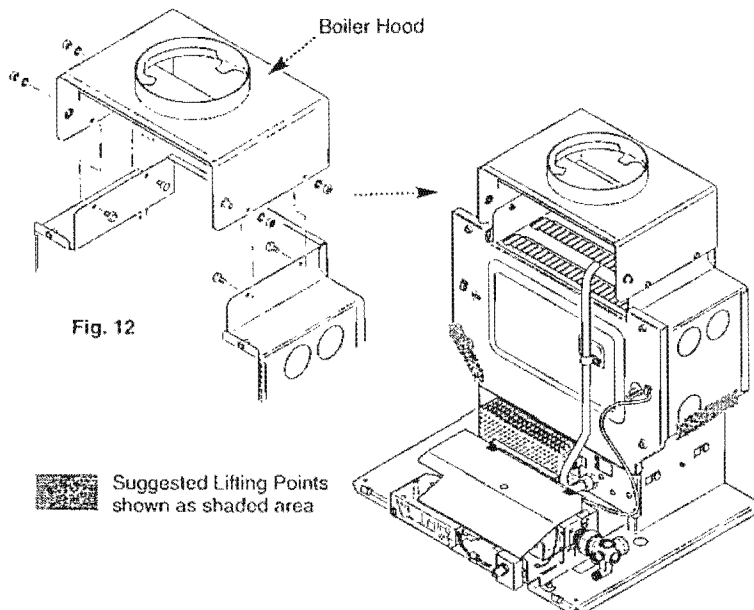
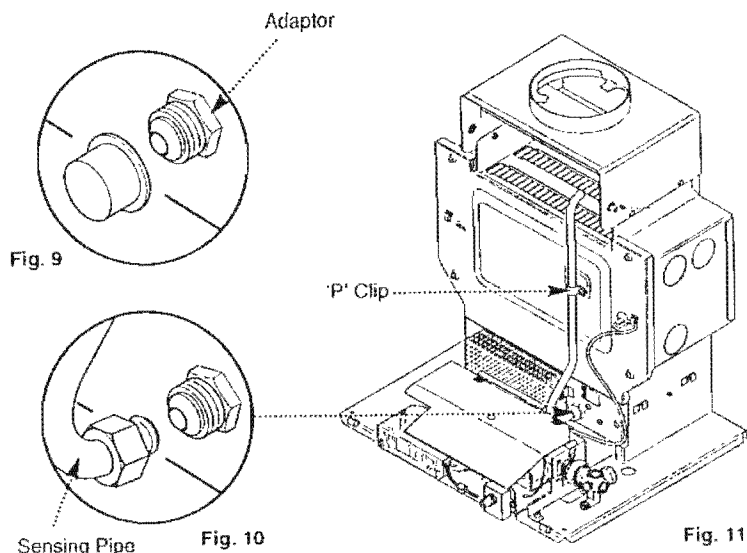
7. The front edge of the base tray must align with the finished front face of the wall or surround. **This is important for correct installation of the firefront.**

8. Mark the hearth through the two slots in the base (Fig. 14).

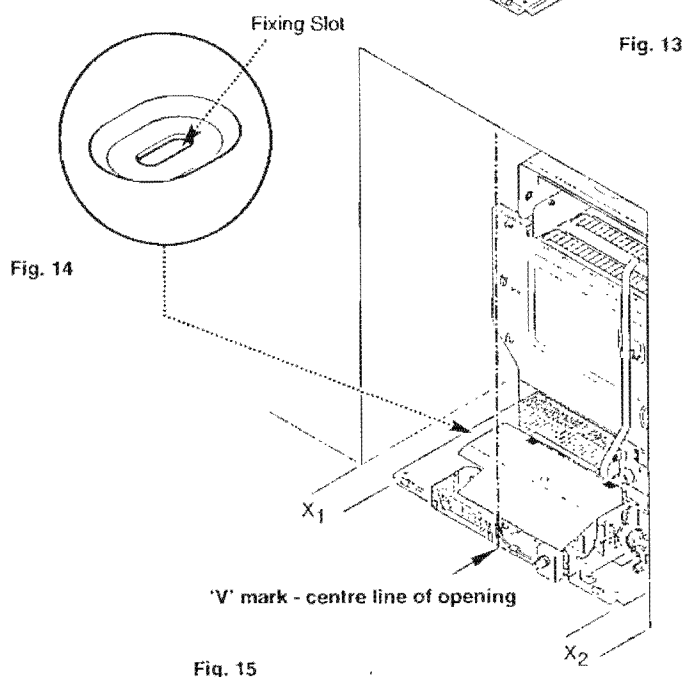
6.6 Securing the Boiler

1. It is important that the boiler is secured to the base of the builders opening.

2. The hearth should be drilled as follows: Remove the boiler and drill the hearth. Insert suitable plugs. Replace the boiler & check the alignment within the opening is correct. Secure the boiler with two screws.



Suggested Lifting Points shown as shaded area



'V' mark - centre line of opening

Fig. 15

NOTE: X_1 and X_2 must be equal

6.0 Installation

6.7 Water Connections

1. The boiler has one return and two flow tappings, Rc1 (1in BSP). 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.

6.8 Fully Pumped Systems (Fig. 16)

1. A 1in x 22mm threaded adaptor, compression nut and olive are provided in the kit for the return connection.
2. The 1in x 22mm threaded adaptor provided must be fitted to the lower tapping marked RETURN. Connect the pumped return into the adaptor using the nut and olive.
3. Fit a 1in x 22mm threaded adaptor into one of the higher tapping positions marked FLOW and connect the pumped flow into the adaptor.
4. Fit a 1in plug to the remaining connection.
5. Follow the instructions under 'System Details'.

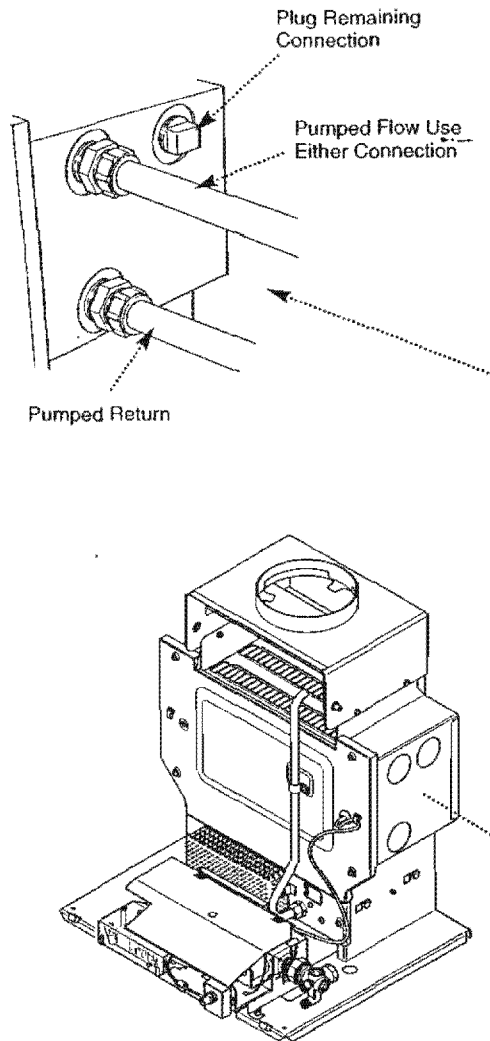


Fig. 16

6.0 Installation

6.9 Pumped Heating & Gravity Hot Water (Fig. 17)

1. 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.

2. The 1in x 22mm threaded adaptor must be fitted to the lower tapping marked RETURN.

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

NOTE: When connections are on the left, ensure that the injector tee does not encroach on the shaded area (Fig. 18). This area is required for the firefront transformer assembly.

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

5. 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.

6. Connect the pumped flow to one of the connections marked FLOW. Connect the gravity flow to the remaining connection.

7. 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.

8. Follow the instructions under system details as regards the vent pipe and cold feed.

6.10 Gas Connection (Fig. 19)

1. Connection to the gas supply is Rc 1/2 (1/2in BSPT) internal located at the rear of the gas tap. The gas supply pipe must be routed from the right hand side.

2. The positioning of the gas supply pipe must not restrict the servicing of the appliance or installation of the fire.

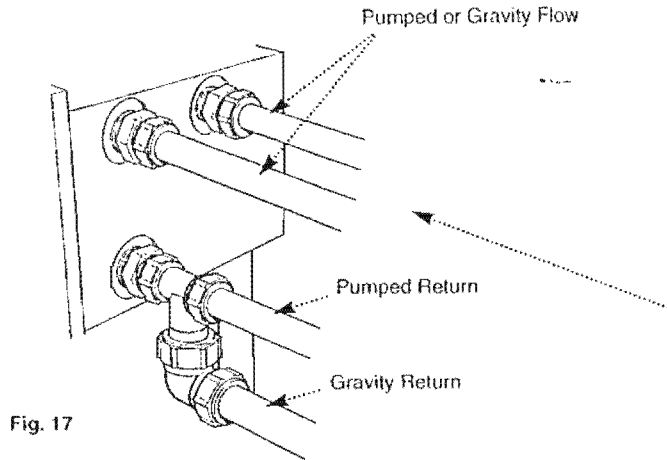


Fig. 17

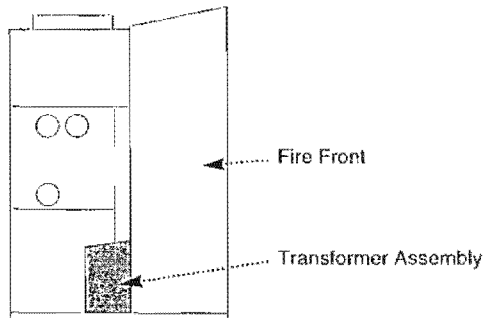


Fig. 18

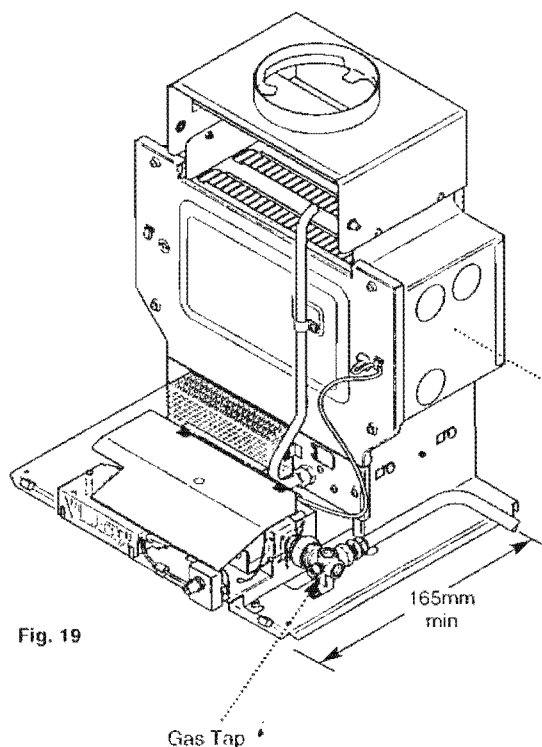


Fig. 19

6.0 Installation

6.11 Electrical Connection

1. The appliance requires an electrical supply from the heating controls system. **A permanent live supply is required.**

WARNING: The appliance must be earthed. The input cable for the appliance should be 0.75mm² to IEC Code 227 (heat resistant). The system external controls and the appliance must be supplied by the same isolator.

6.12 Making the Electrical Connection

1. Take the 3 pin plug and lead assembly from the gas fire contents kit and remove the 4 pin electrical plug from the control PCB. Remove the cover from the 4 pin plug and undo the cable clamps (Fig. 22).

2. Route the mains inlet cable under the boiler base through the cutouts (Fig. 23).

IMPORTANT: The mains inlet cable **MUST** be routed under the boiler base to ensure that it cannot interfere with the transformer box on the fire front.

3. The boiler plug is supplied as shown; An earth lead connects to the boiler chassis (Fig. 24).

4. Wire the plug as Fig. 25.

Connect the control switched live to SL.

Connect neutral to N and earth to .

Connect the permanent live to L.

The fire earth must connect to the chassis.

Neutral and live of the fire supply cable can then be connected to N and L respectively.

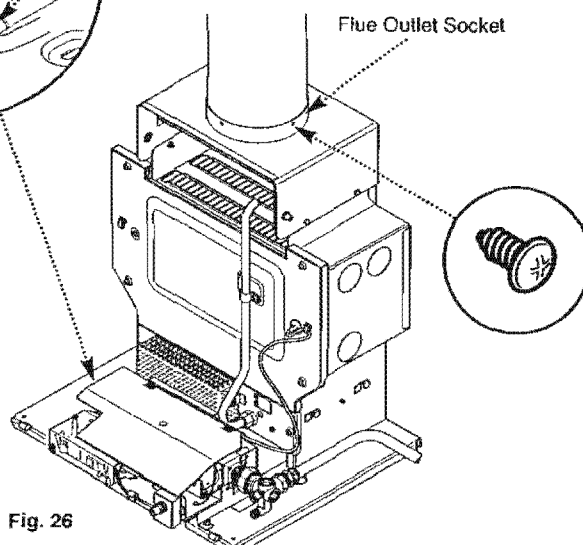
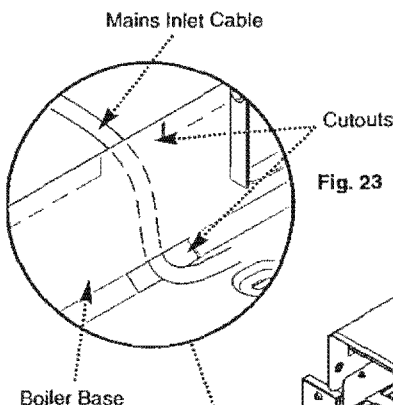
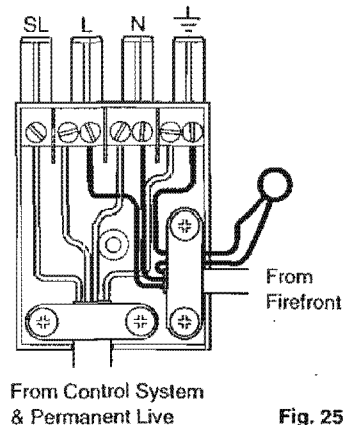
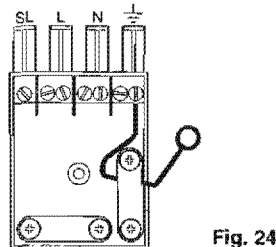
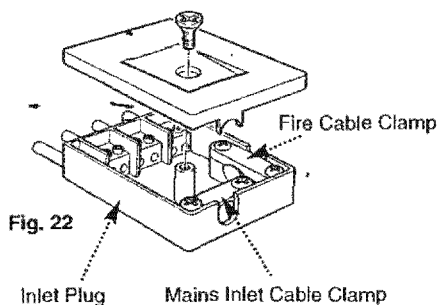
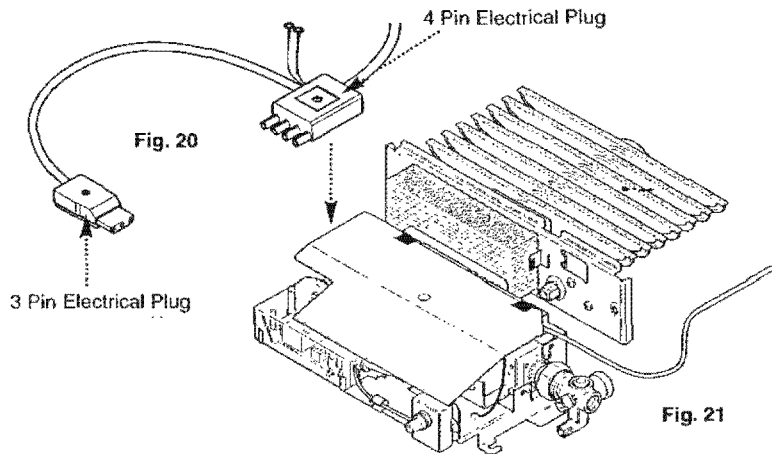
5. Re-fit the cable clamps ensuring that the outer insulation is securely held and re-fit the plug cover. **Ensure that all cables are routed away from the boiler casing and hood.**

6.13 Flue Connection (Fig. 26)

1. If not already done so, fit the boiler hood now. 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.

6.14 Completion

1. 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).



7.0 Commissioning the Appliance

7.1 Commissioning the Appliance

1. The system must be flushed in accordance with BS 7593 (See Treatment of Water Circulating Systems section 3.2) and the flushing agent manufacturers instructions, further guidance can be obtained from BS 5449 Section 5.

2. Turn the gas service tap $\frac{1}{4}$ turn from the OFF position (Fig. 28). This will supply gas to the boiler only. Purge according to in GB BS 6891 and in IE the current edition of I.S. 813 "Domestic Gas Installations".

3. Turn the boiler thermostat to the OFF position (Fig. 27).

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

5. Slacken the pressure test point sealing screw and connect a pressure gauge (Fig. 27).

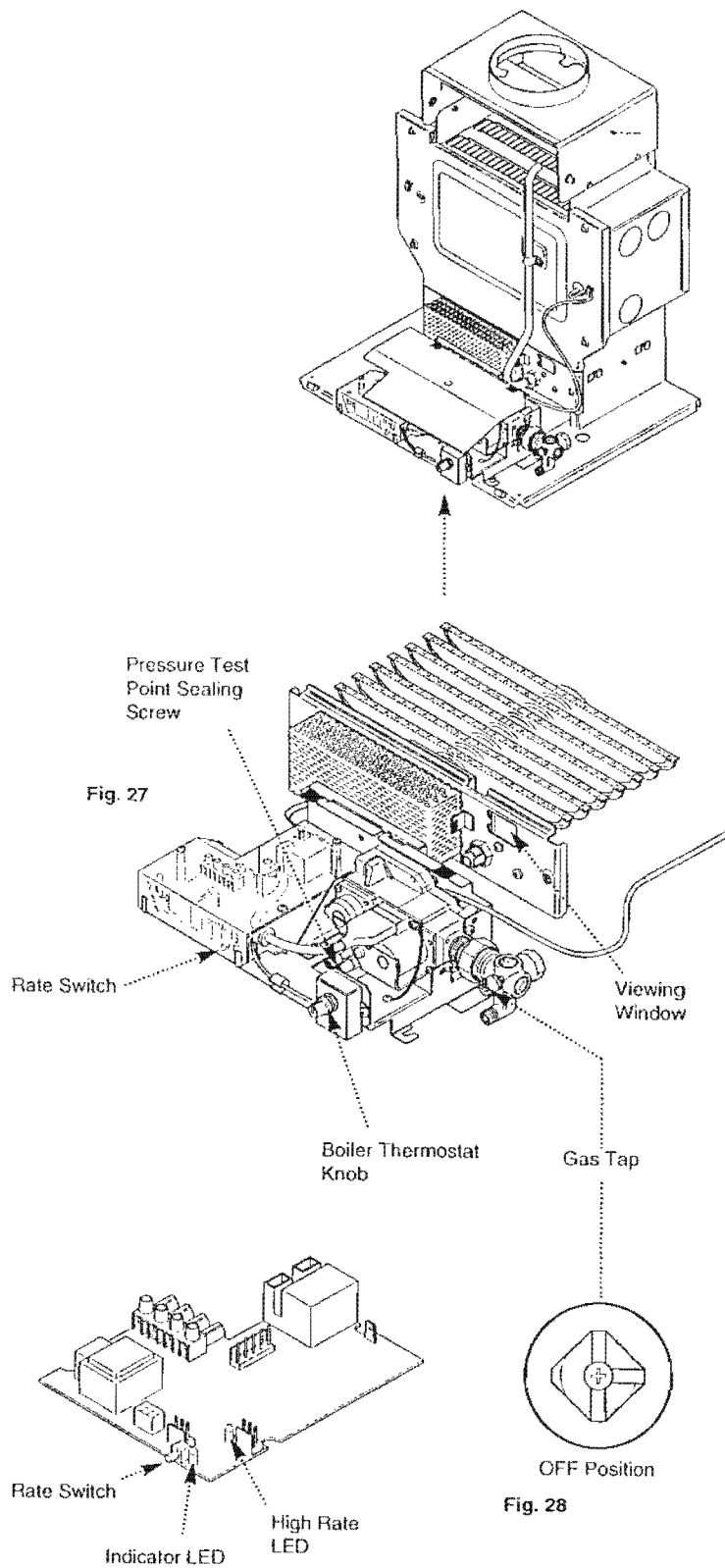
The pilot is intermittent and lights when the boiler thermostat is calling for heat.

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

The boiler is fitted with two diagnostic indicator lights that indicate the status of the boiler (Fig. 29). The high rate LED (yellow) can be seen through the top of the control box. The indicator LED can be seen through the front. Their sequence of operation is as follows:-

- a) No power-no lights.
- b) Switched live supplied indicator LED - orange.
- c) Pilot established indicator LED - green.
- d) Boiler fault - indicator LED red or flashing red.
- e) Boiler firing at maximum rate - high rate LED - yellow.
- f) Diagnostic indicator - high rate LED flashing yellow.

The pilot flame should be without a yellow tip and be approximately 20mm long. No adjustment is possible.



7.0 Commissioning the Appliance

7.1 Commissioning the Appliance (Cont)

Operate the burner, this will run at low rate (This is factory set and no adjustment is necessary). Make further checks for leaks. Press and release the rate switch on the front of the control box. The high rate LED should illuminate yellow and the boiler fire at high rate (Fig. 31). **NOTE:** The boiler will only run at high rate if the boiler temperature is less than 70°C.

Check the burner setting pressure, adjusting if necessary, this has to be done while the LED is illuminated. This is done by removing the governor cover screw (Fig. 32) and adjusting the governor in either direction as required:- clockwise to increase, anticlockwise to decrease (Fig. 32).

Remove the pressure gauge and tighten the pressure test point sealing screw (Fig. 30).

The system must be flushed in accordance with BS 7593 (See Treatment of Water Circulating Systems section 3.2) and the flushing agent manufacturers instructions, further guidance can be obtained from BS 5449 Section 5. When all the air has been removed from the water circuit, the pump and radiators should be balanced to achieve the design temperature drop across the system.

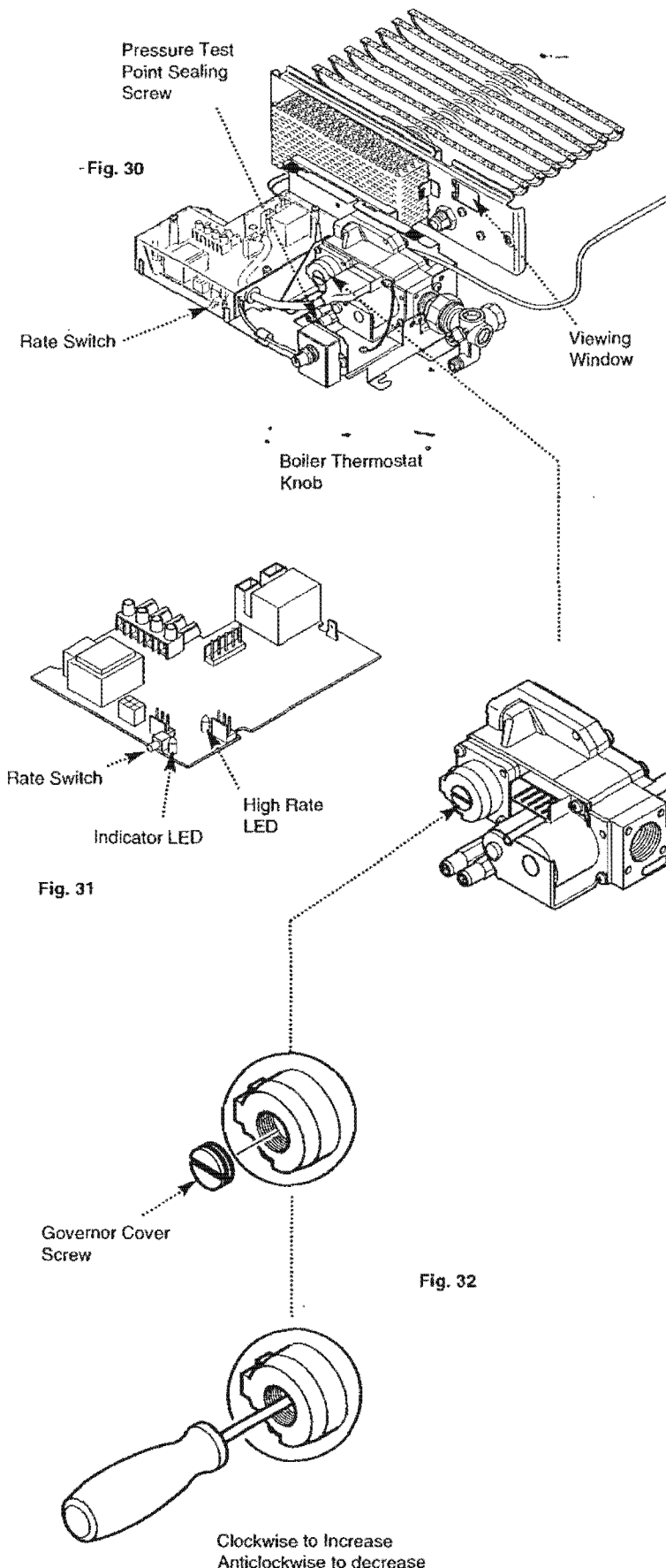
Carefully read and complete all sections of the "Benchmark" Installation, Commissioning and Service Record Log Book that are relevant to the appliance and installation. The details of the Log Book will be required in the event of any warranty work. The Log Book must be handed to the user for safe keeping and each subsequent regular service visit recorded.

For IE, it is necessary to complete a "Declaration of Conformity" to indicate compliance with I.S. 813. An example of this is given in I.S. 813 "Domestic Gas Installations". In addition it is necessary to complete the "Benchmark" Log Book.

7.2 Resetting the Boiler (Figs. 30 & 31)

1. If the indicator LED light is illuminated red/or flashing red, it is necessary to reset the appliance. To do this turn the boiler thermostat control knob fully anti-clockwise to the OFF position and wait until the light shows orange.

2. Turn the control knob clockwise to the required setting. The boiler will commence the ignition sequence.



8.0 Annual Servicing

8.1 Annual Servicing

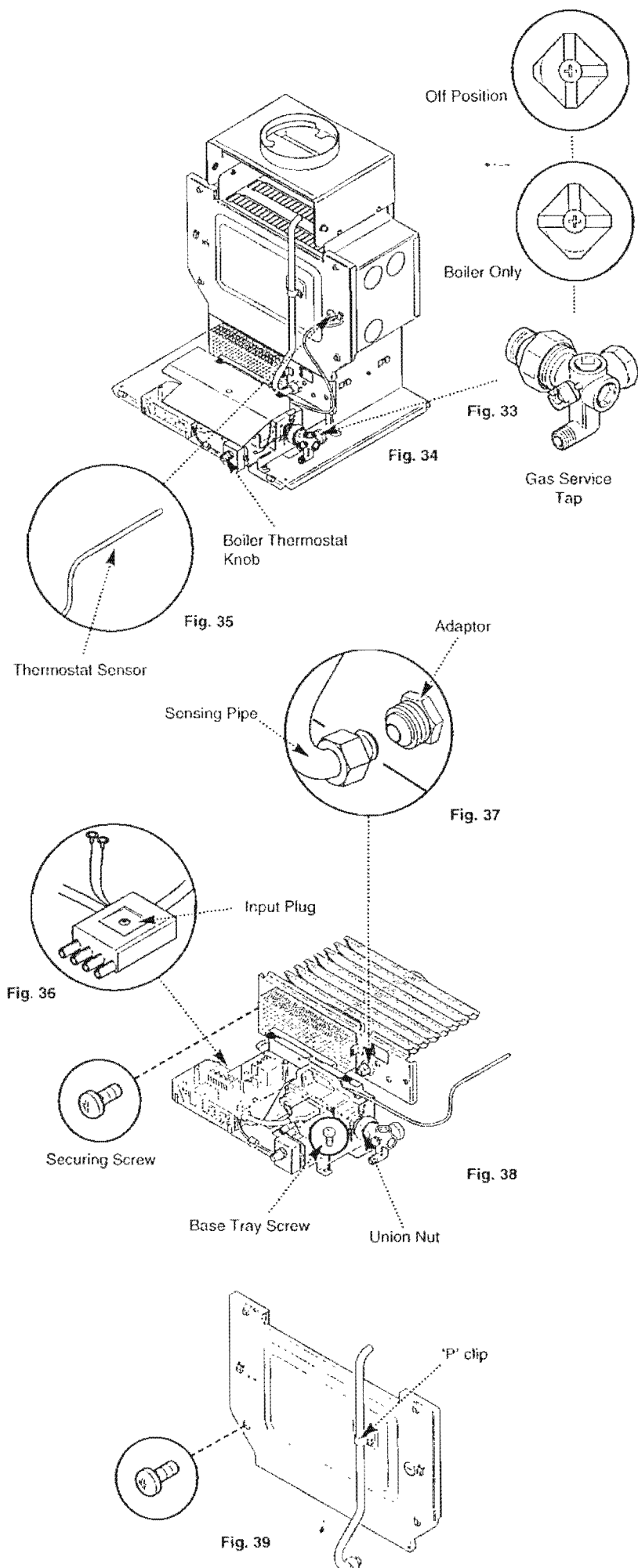
1. To perform annual servicing of the back boiler it is necessary to remove the firefront.
2. After servicing, complete the relevant section of the "Benchmark" Installation, Commissioning and Service Record Log Book. This should be in the possession of the user.

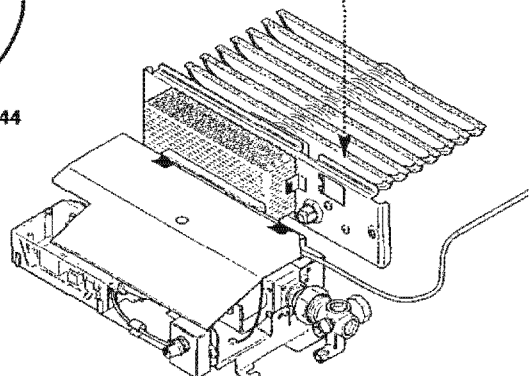
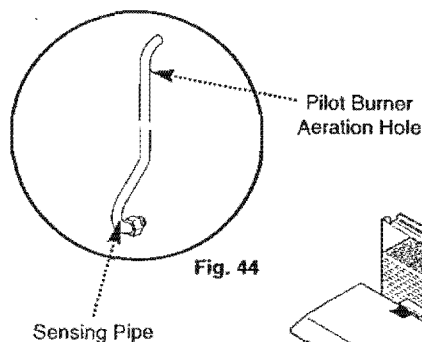
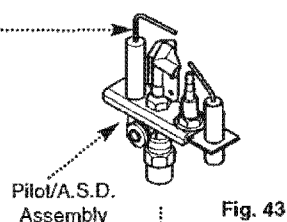
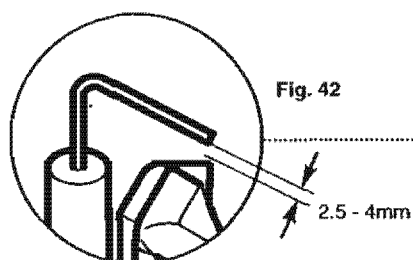
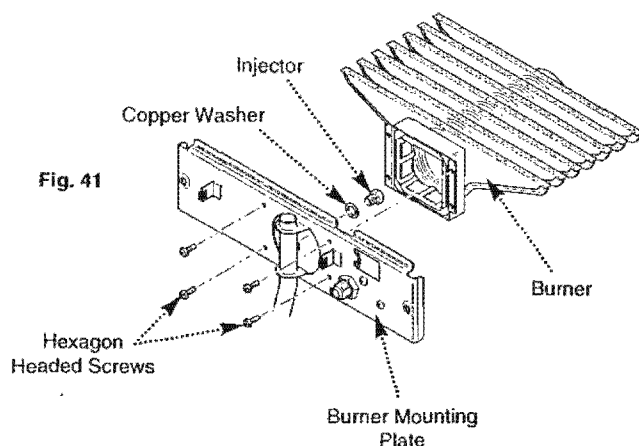
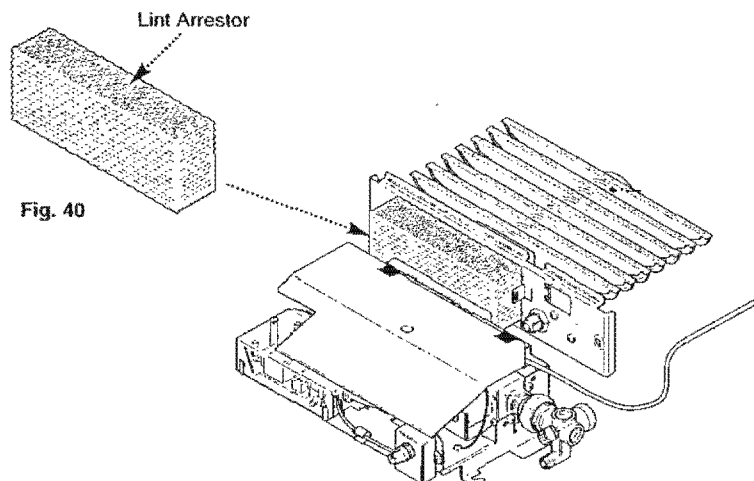
8.2 Removal of Firefront

1. Isolate the electrical supply to the appliance.
2. Turn the boiler thermostat knob to the off position (Fig. 34).
3. Turn the gas service tap to the off position (Fig. 33).
4. Refer to the separate firefront instructions for the removal of the firefront.

8.3 Removal of Controls

1. Turn the boiler thermostat to "O" position (Fig. 34).
2. Pull the electrical input plug from the socket on the P.C.B. (Fig. 36).
3. Disconnect the union at the gas service tap and remove the fire feed pipe (Fig. 38).
4. Unclip the lead and remove the thermostat sensor from the boiler (Fig. 35).
5. Undo the nut on the sensing pipe at the adaptor (Fig. 37).
6. Loosen the 'P' clip and slide the sensing pipe up to clear the burner plate (Fig. 39).
7. Undo the four screws retaining the door and remove the door (Fig. 39).
8. Undo the two screws retaining the controls to the combustion box sides (Fig. 38).
9. Undo the screw holding the controls to the combustion box base tray (Fig. 38).
10. Withdraw the controls from the boiler.





8.0 Annual Servicing

8.4 Cleaning the Lint Arrestor

1. Remove the lint arrestor from its retaining clips on the burner mounting plate and clean away any deposits (Fig. 40).

8.5 Cleaning the Burner & Main Injector

1. Remove the four hexagon headed screws holding the burner to the burner mounting plate (Fig. 41).
2. Carefully clean any deposits from the burner blades and venturi inlet (Fig. 41).
3. Remove the injector and copper sealing washer from the feed pipe. Clean the injector and reassemble in reverse order (Fig. 41).
4. Reassemble the burner in reverse order and refit the lint arrestor.

8.6 Cleaning the Pilot/A.S.D. Assembly

NOTE: No attempt should be made to clean the device using any hard tools, including pins or wire.

WARNING: The pilot/A.S.D. assembly must not be adjusted in any way.

1. The A.S.D. must not be altered so that it will not operate or be bypassed in any way.
2. Ensure that the pilot burner aeration hole is free from lint, debris etc (Fig. 44).
3. If necessary clean the electrode and target, and check that the spark gap is 2.5 - 4.0mm (Fig. 42).
4. The complete assembly must be replaced in the event of one or other component failure(s).
5. Only use a Genuine Baxi Spare Part.

8.0 Annual Servicing

8.7 Cleaning the Heat Exchanger

1. Remove the top and the centre baffles from the heat exchanger, noting their orientation (Fig. 45).
2. 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 (Fig. 46, 47, 48 & 49).
3. Each bracket may then be removed along with the insulation.
4. Clean between the heat exchanger fins and flueways with suitable brushes and remove any deposits from the combustion box base tray.
5. Clean away any lint or other deposits from the boiler hood and builders opening.
6. Reassemble the insulation in reverse order and refit the baffles.
7. Reassemble the appliance in reverse order, re-greasing the thermostat phial if required.
8. Re-commission the appliance and check for gas soundness.
9. Complete the relevant section of the "Benchmark" Installation, Commissioning and Service Record Log Book and hand it back to the user.

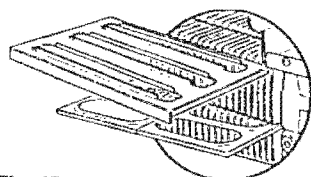


Fig. 45

Heat Exchanger
Baffles

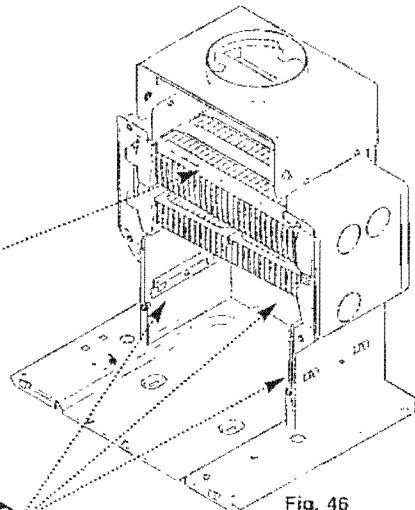


Fig. 46

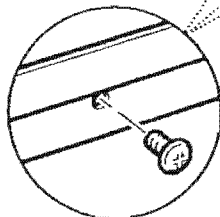


Fig. 47

Undo the Retaining
Screws on the Support
Brackets

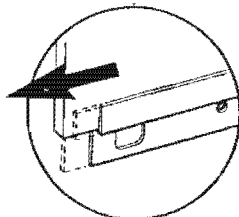


Fig. 48

Slide Rear Insulation
Bracket Left Before
Pulling Forward

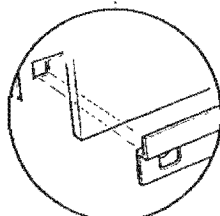


Fig. 49

Remove each Bracket
and Insulation

9.0 Changing Components

9.1 Changing Components

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

2. After changing any components carry out gas soundness checks.

9.2 Removal of Firefront

1. Isolate the electrical supply to the appliance.

2. Turn the boiler thermostat knob to the off position (Fig. 51).

3. Turn the gas service tap to the off position (Fig. 50).

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

The following components can be changed with the controls in situ :- Lint Arrestor, Thermostat Sensor, Thermostat Potentiometer and P.C.B.

9.3 Lint Arrestor

1. Remove the lint arrestor by pulling forward away from its retaining clips (Fig. 51).

2. Reassemble in reverse order.

9.4 Thermostat Sensor (Fig. 51 & 52).

1. Remove the controls heat shield from its retaining clips.

2. Isolate the electrical supply to the appliance.

3. Unclip the lead and remove the thermostat sensor from the boiler.

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

4. Disconnect the thermostat sensor plug from the PCB.

5. Reassemble in reverse order.

9.5 Thermostat Potentiometer (Fig. 53).

1. Remove the controls heat shield from its retaining clips.

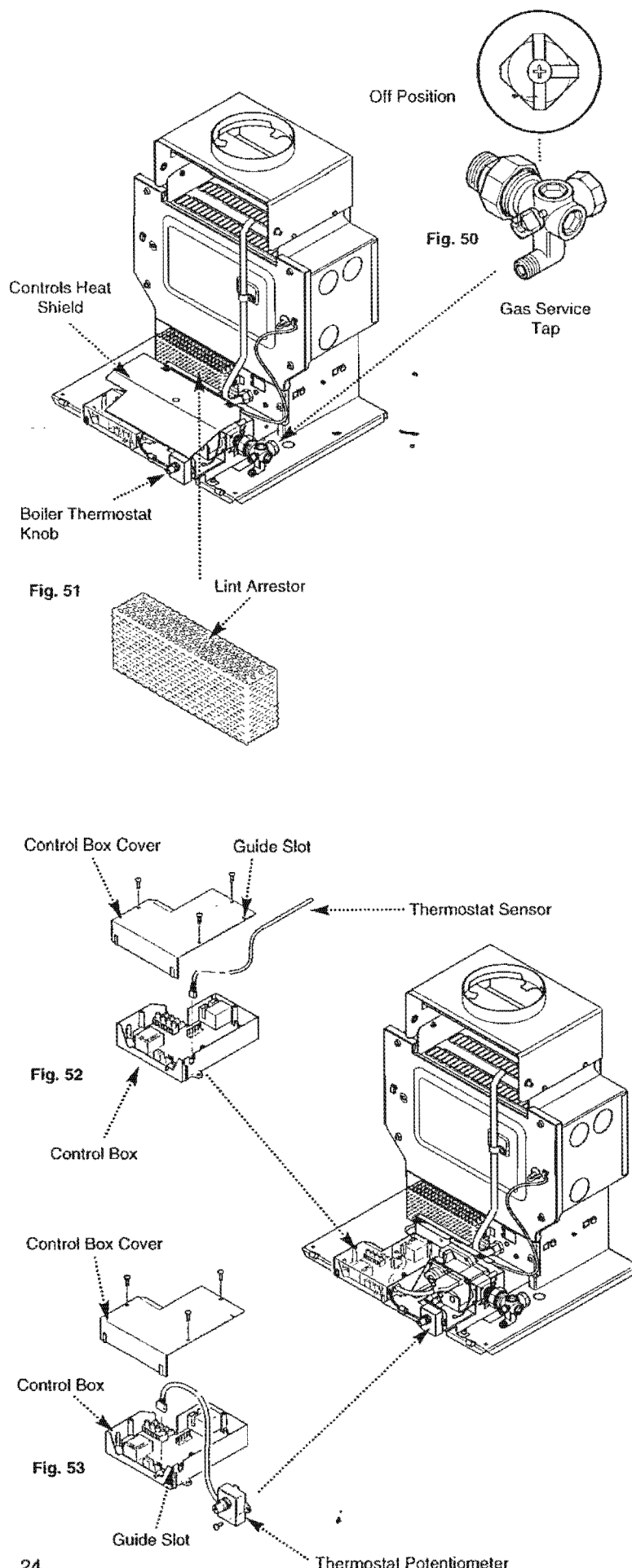
2. Isolate the electrical supply to the appliance.

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

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

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

6. Reassemble in reverse order.



9.0 Changing Components

9.6 Printed Circuit Board (Fig. 54)

1. Remove the controls heat shield from its retaining clips.
2. Isolate the electrical supply to the appliance.
3. Undo the three screws retaining the control box cover and remove the cover.
4. Disconnect the three multi-pin plugs, flame sensing lead and ignition lead from the PCB, noting their positions.
5. Pull the valve wiring grommet out of the slot in the control box.
6. Remove the PCB.
7. Fit the new PCB.

NOTE: A problem with the gas valve may cause the PCB to fail. Check the gas valve for continuity and short circuit.

8. Reassemble in reverse order.

To change the Gas Valve, Burner and Main Injector, Electrode/Leads, and Pilot/A.S.D. Assembly proceed as follows:-

9.7 Removal of Controls

1. Turn the boiler thermostat to "O".
2. Pull the input plug from the socket on the P.C.B. (Fig. 56).
3. Disconnect the union at the gas service tap and remove the fire feed pipe (Fig. 57).
4. Unclip the lead and remove the thermostat sensor from the boiler.
5. Undo the nut on the sensing pipe at the adaptor (Fig. 55).
6. Loosen the 'P' clip and slide the sensing pipe up to clear the burner plate (Fig. 58).
7. Undo the four screws retaining the door and remove the door (Fig. 58).
8. Undo the two screws retaining the controls to the combustion box (Fig. 57).
9. Undo the screw holding the controls to the combustion box base tray (Fig. 57).
10. Withdraw the controls from the boiler.

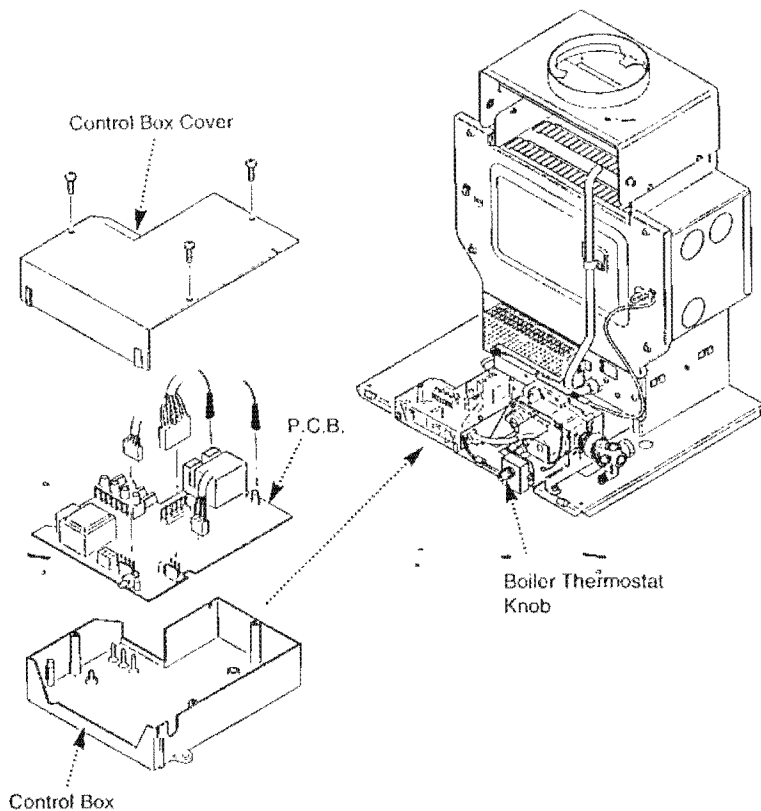


Fig. 54

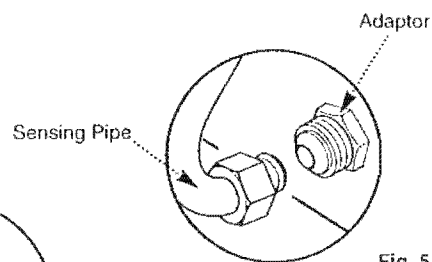


Fig. 55

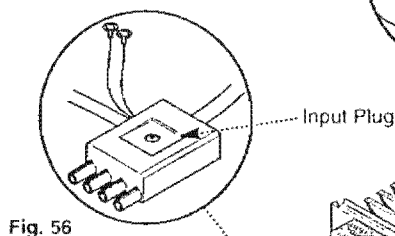


Fig. 56

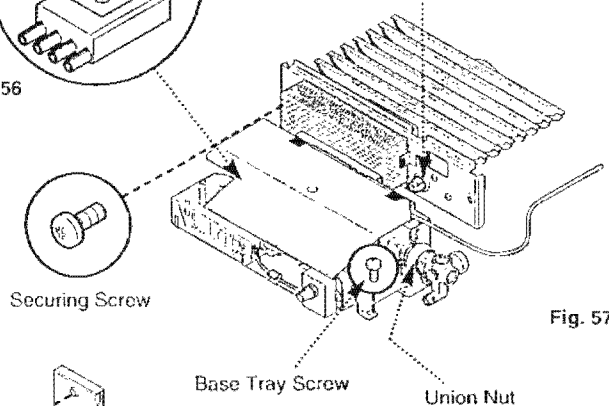


Fig. 57

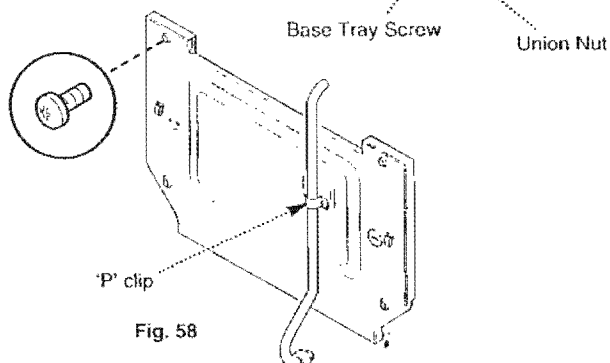


Fig. 58

9.0 Changing Components

9.8 Gas Valve

1. Remove controls heat shield from its retaining clips (Fig. 59).
2. Remove the screw on the gas valve lead and remove lead (Fig. 60).
3. Remove the three screws holding the burner feed pipe to the valve, being careful not to lose or damage the "O" ring seal (Fig. 60).
4. Undo the pilot feed pipe nut from the valve (Fig. 60).
5. Remove the two screws holding the valve to the controls mounting bracket adjacent to the union nut and tailpiece (Fig. 60).
6. Remove the support bracket screw.
7. Remove the valve from the controls mounting bracket (Fig. 60).
8. Remove the tailpiece and union nut from the original valve and fit to the new one (Fig. 60).
9. Remove the support bracket.
10. Reassemble in reverse order.

9.9 Burner & Main Injector

1. Remove the lint arrestor by pulling forward (Fig. 61).
2. Remove the four hexagon headed screws holding the burner to the mounting plate (Fig. 62).
3. If required the main injector can be unscrewed from the feed pipe and replaced. The copper sealing washer must be retained for re-use or replace if damaged (Fig. 62).
4. Reassemble in reverse order.

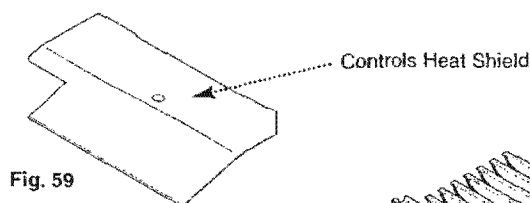


Fig. 59

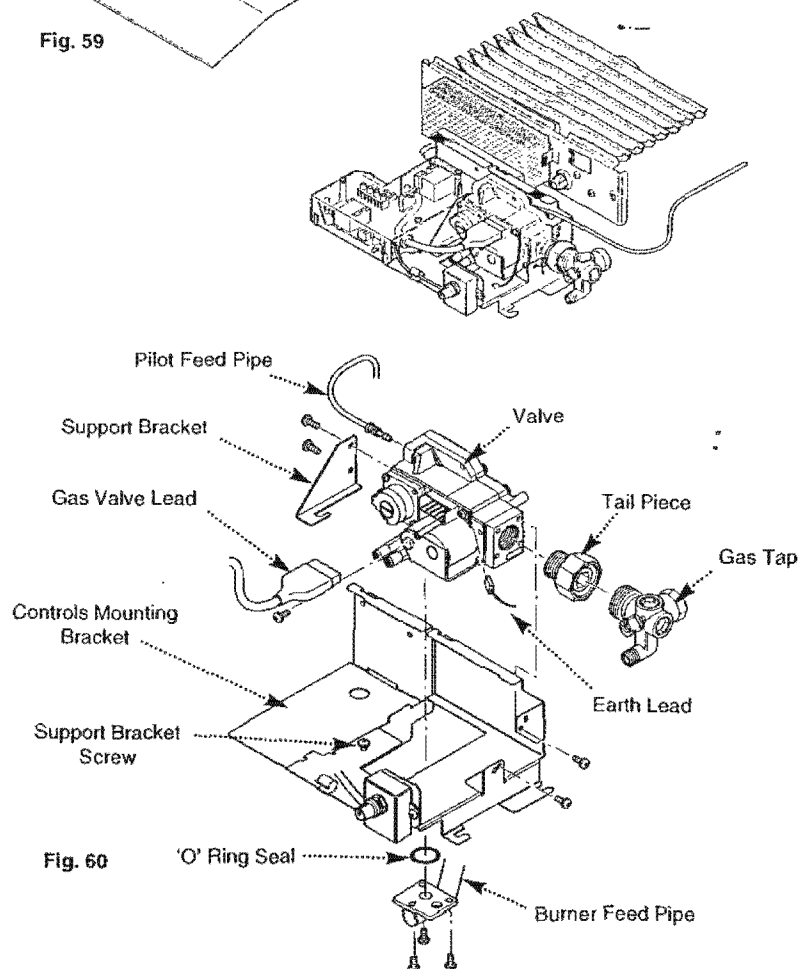


Fig. 60

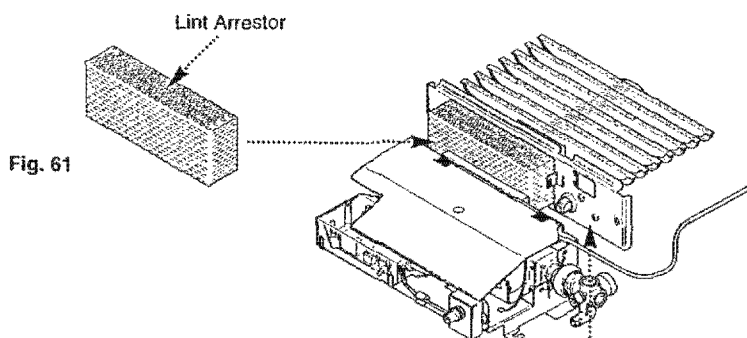


Fig. 61

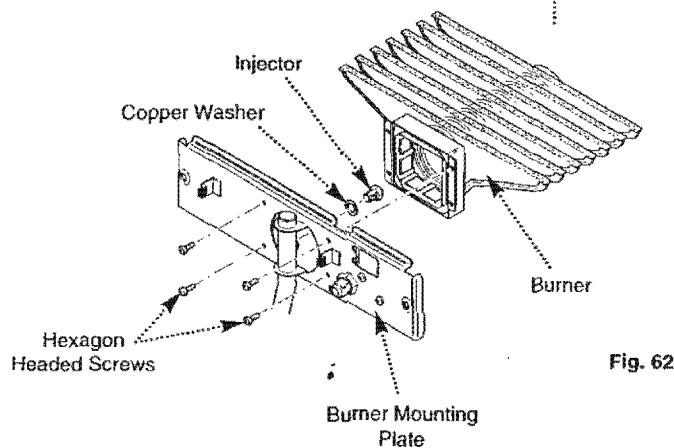


Fig. 62

9.0 Changing Components

9.10 Pilot/A.S.D. Assembly

WARNING: The Pilot/A.S.D. Assembly should not be adjusted in anyway. The A.S.D. must not be altered so that it will not operate or be bypassed in anyway. The complete assembly must be replaced in the event of one or other component failure(s). Only use a Genuine Baxi Spare Part.

Fig. 63

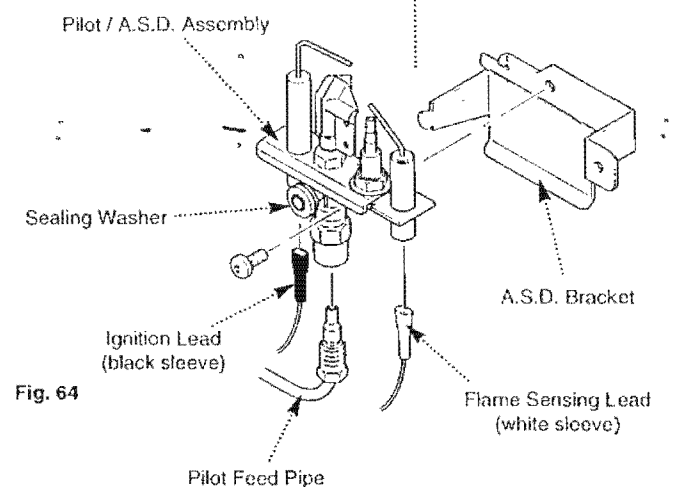


Fig. 64

1. Remove the ignition and sensing leads from the A.S.D. electrodes (Fig. 64). Undo the pilot feed pipe at the A.S.D. (Fig. 64).

2. Undo the screw holding the A.S.D. bracket to the burner mounting plate and disengage the tab on the bracket from the plate. Undo the screw holding the A.S.D. to its bracket (Fig. 63 & 64).

3. Fit the new A.S.D. onto the bracket (Fig. 64) and connect the ignition and sensing leads to their electrodes.

4. Engage the tab on the A.S.D. bracket in the hole in the burner mounting plate. Ensure that the pilot aeration tube seal sits in the recess in the sensing pipe adaptor. Refit the retaining screw.

5. Reassemble in reverse order.

9.11 Ignition Lead

1. Remove controls heat shield from its retaining clips.

2. Remove the three screws securing the controls box cover and remove the electrode lead from its terminal on the PCB and the electrode. The lead has a black sleeve at the electrode end (Fig. 64 & 65).

3. Reassemble in reverse order.

9.12 Flame Sensing Lead

1. Remove controls heat shield from its retaining clips.

2. Remove the three screws securing the controls box cover and remove the electrode lead from its terminal on the PCB and at the sensing probe end. The lead has a white sleeve (Fig. 64 & 65).

3. Reassemble in reverse order.

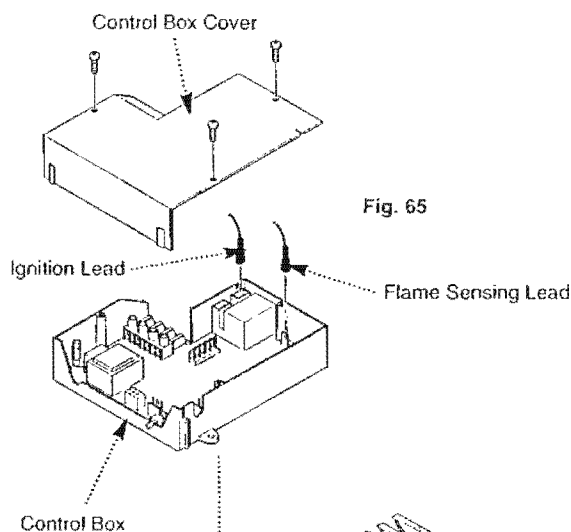


Fig. 65

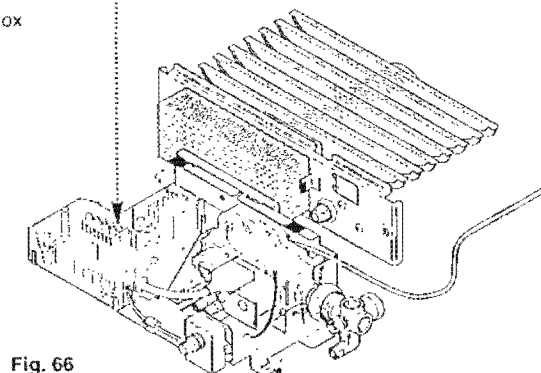
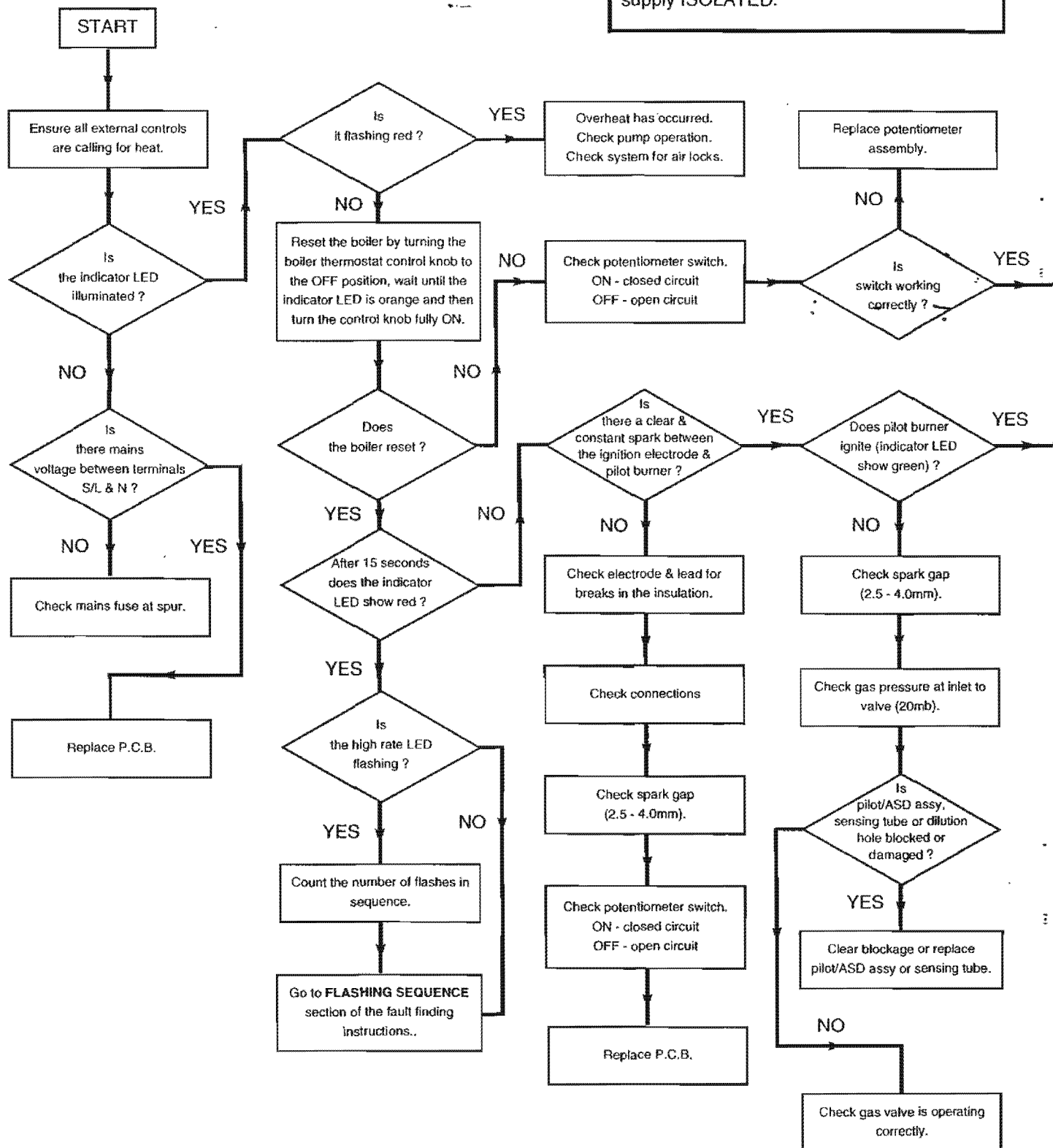


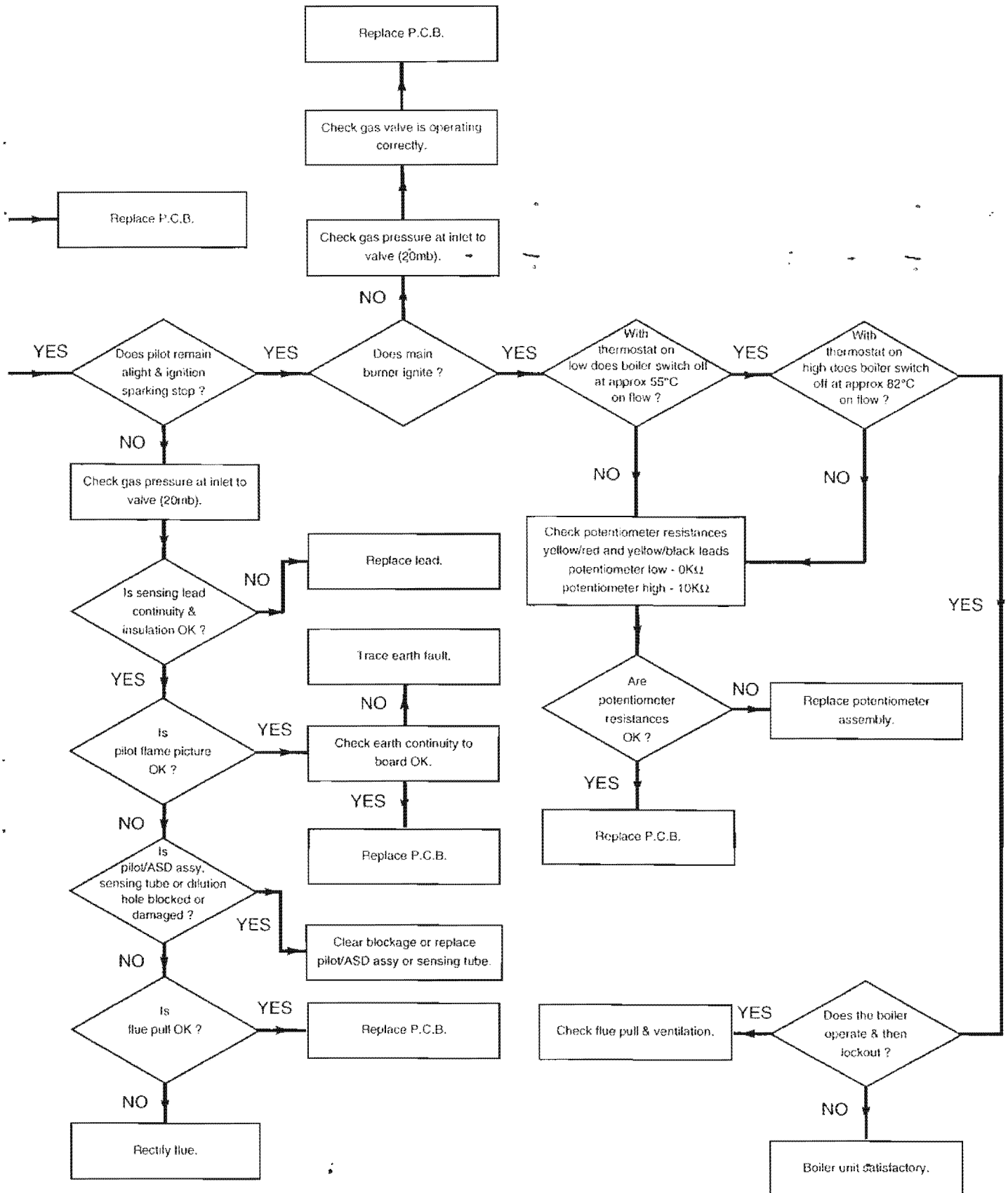
Fig. 66

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

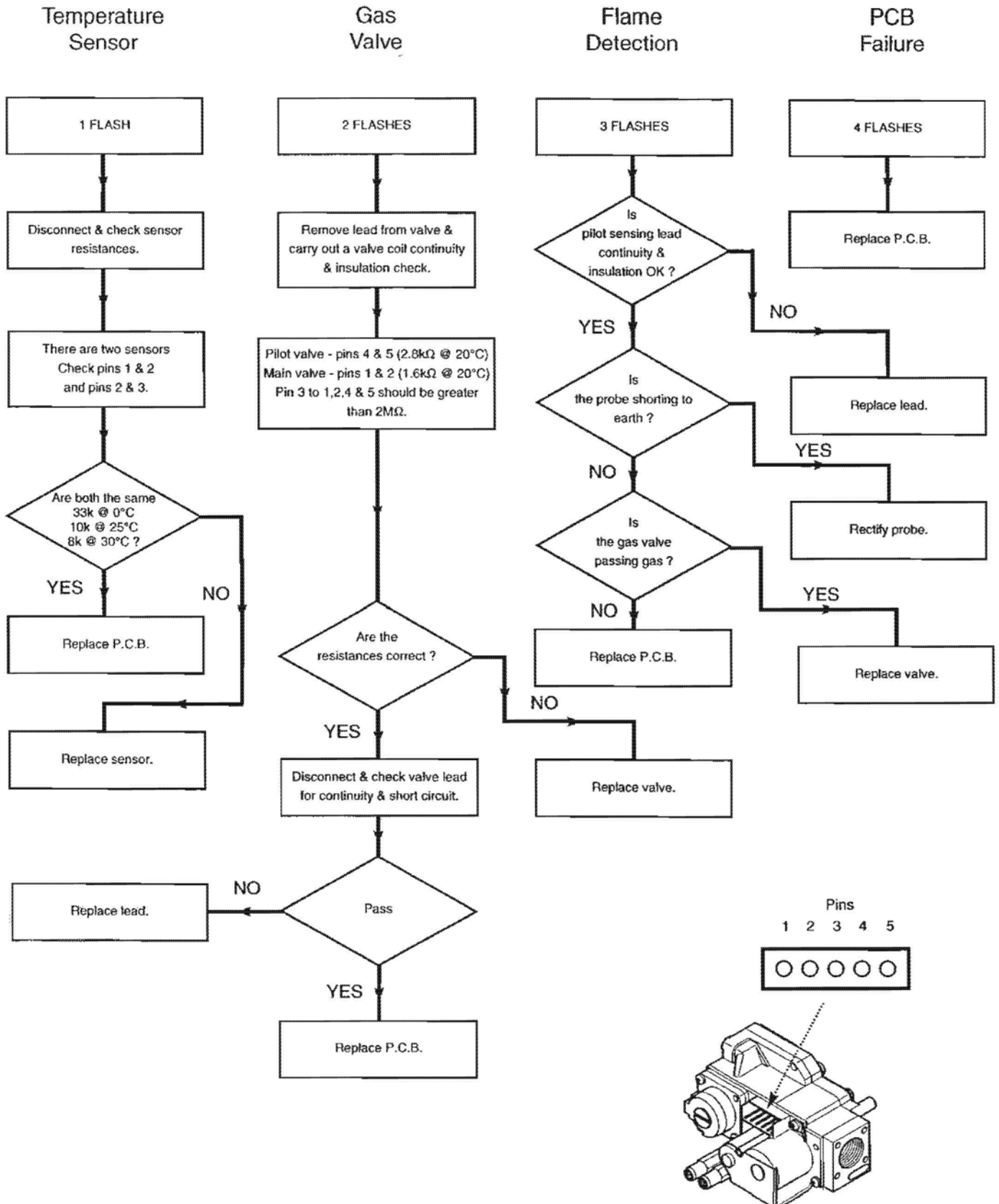
10.0 Fault Finding

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





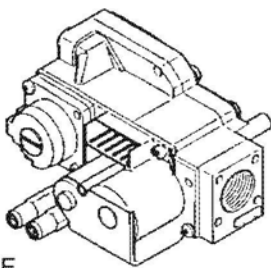
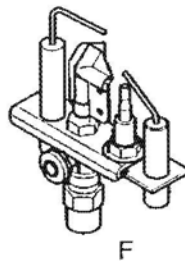
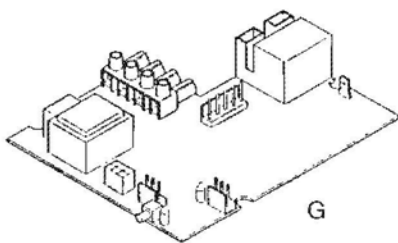
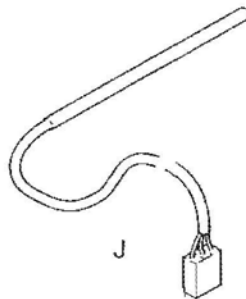
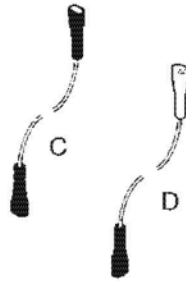
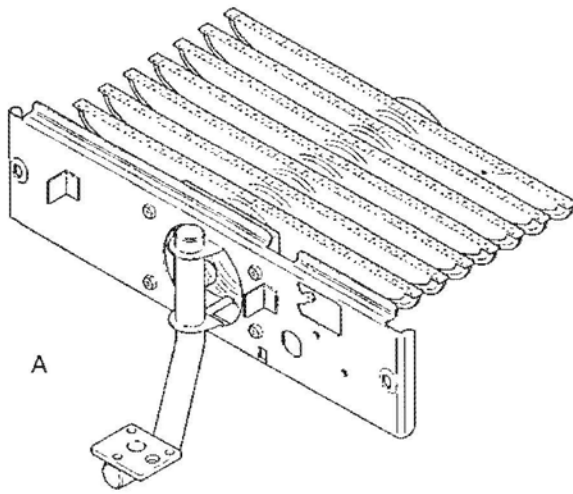
Flashing Sequence



11.0 Short parts list

Short Parts List

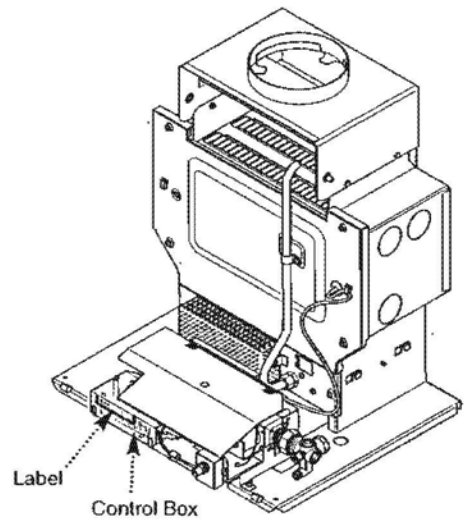
Key No.	G.C. No.	Description	Manufacturers Part No.
A	E94 891	Burner Assy	249710
B	378 882	Injector B19	234014
C	E00-121	Ignition Lead	237811
D	E00-122	Sensing Lead	237812
E	E94 892	Gas Valve	5107802
F	E37 405	Pilot/A.S.D. Assembly	246386
G	E94 893	P.C.B	5106472
H	E94 894	Potentiometer & Leads	5107803
J	E94 895	Thermostat Sensor	5106471



When contacting Baxi Potterton please have the following information to hand:

Appliance Name
Model Number
Serial Number

A label giving these details is situated on the Control Box.



BAXI POTTERTON

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Comp N° 5107138 - Iss 1- 8/04