

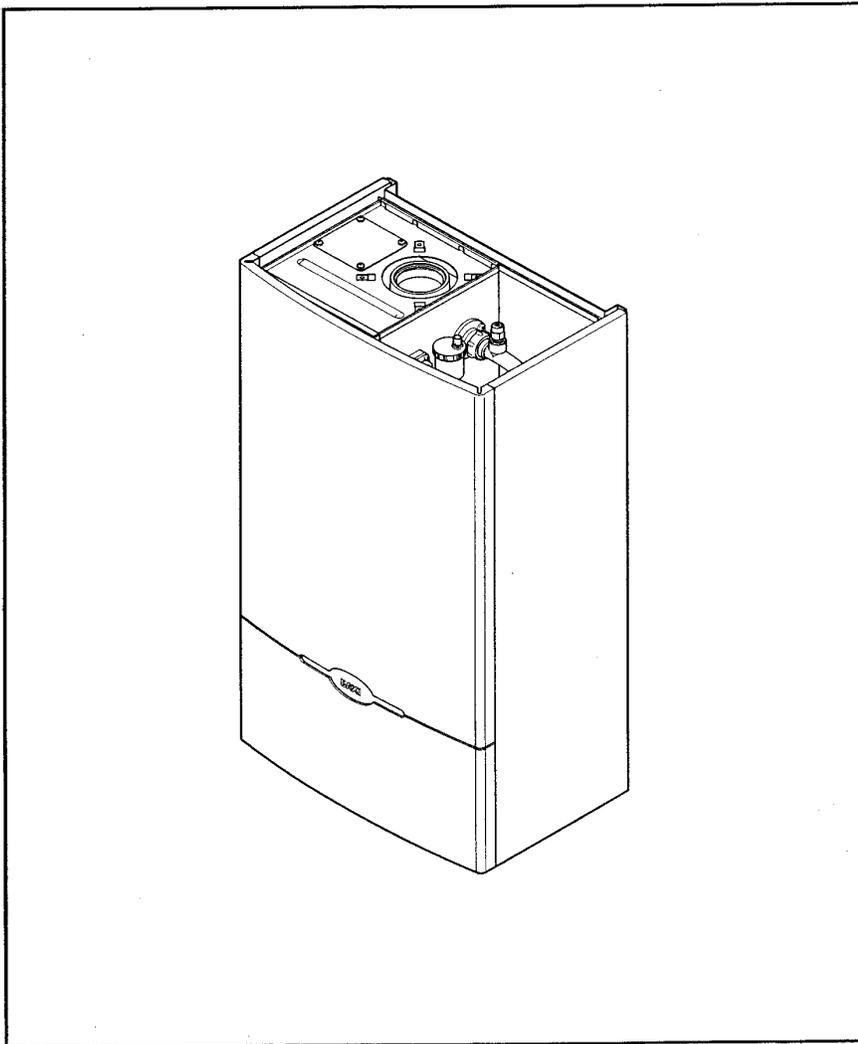
# Baxi Barcelona System

Wall Mounted Powered Flue Condensing Boiler  
Gas Fired Central Heating Unit

Comp N° 243612 - Iss 5 - 4/00

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## Installation and Servicing Instructions



**BAXI**

## Natural Gas

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### Baxi Barcelona System

G.C.N° 41 075 03

Baxi Limited 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 designed 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.

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.

The boiler meets the requirements of Statutory Instrument "The Boiler (Efficiency) Regulations 1993 N° 3083" and is deemed to meet the requirements of Directive 92/42/EEC on the energy efficiency requirements for new hot water boilers fired with liquid or gaseous fuels:-

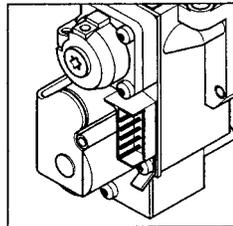
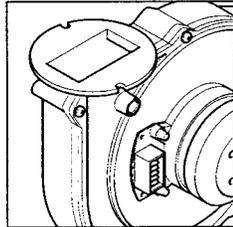
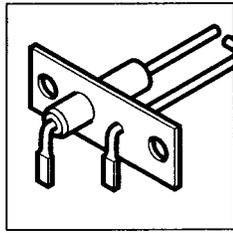
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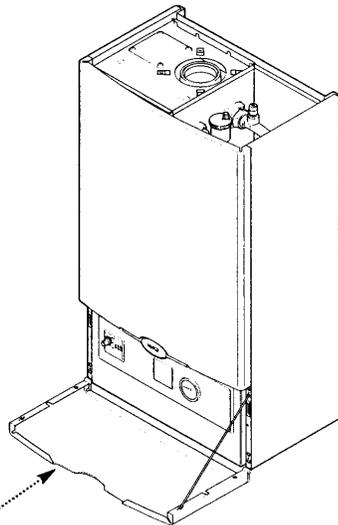


Fig. 1

Lower Door Panel

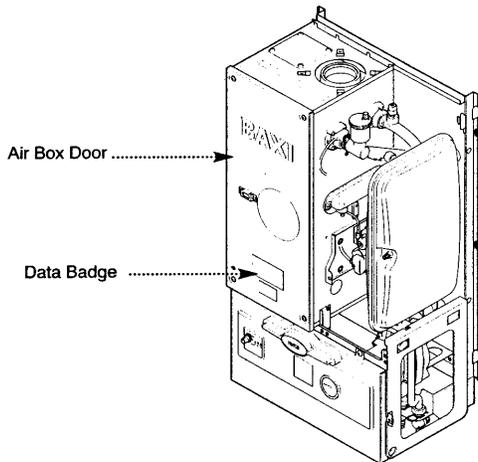


Fig. 2

Air Box Door

Data Badge

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

**NOTE: This appliance must be installed in accordance with the manufacturer's instructions and the regulations in force, and only used in a suitably ventilated location.**

**All systems must be thoroughly flushed and treated with inhibitor (see Section 6.2).**

**Read the instructions fully before installing or using the appliance.**

**1.1 Description**

1. The Baxi Barcelona System is a gas fired room sealed fan assisted condensing central heating system boiler.

2. The maximum output of the boiler is preset at 80,000 Btu/hr. The boiler will automatically adjust down to 30,000 Btu/hr according to the system load. If required, the output can be set to 100,000 Btu/hr. Please refer to section 8.7.

3. It is designed for use on Natural Gas (G20).

4. The boiler is suitable for sealed central heating and domestic hot water systems.

5. A label giving details of the model, serial number and Gas Council number is situated on the rear of the lower door panel (Fig. 1).

6. The boiler data badge is positioned on the air box door (Fig. 2).

7. The boiler is intended to be installed in residential / commercial / light industrial E.M.C. environments on a governed meter supply only.

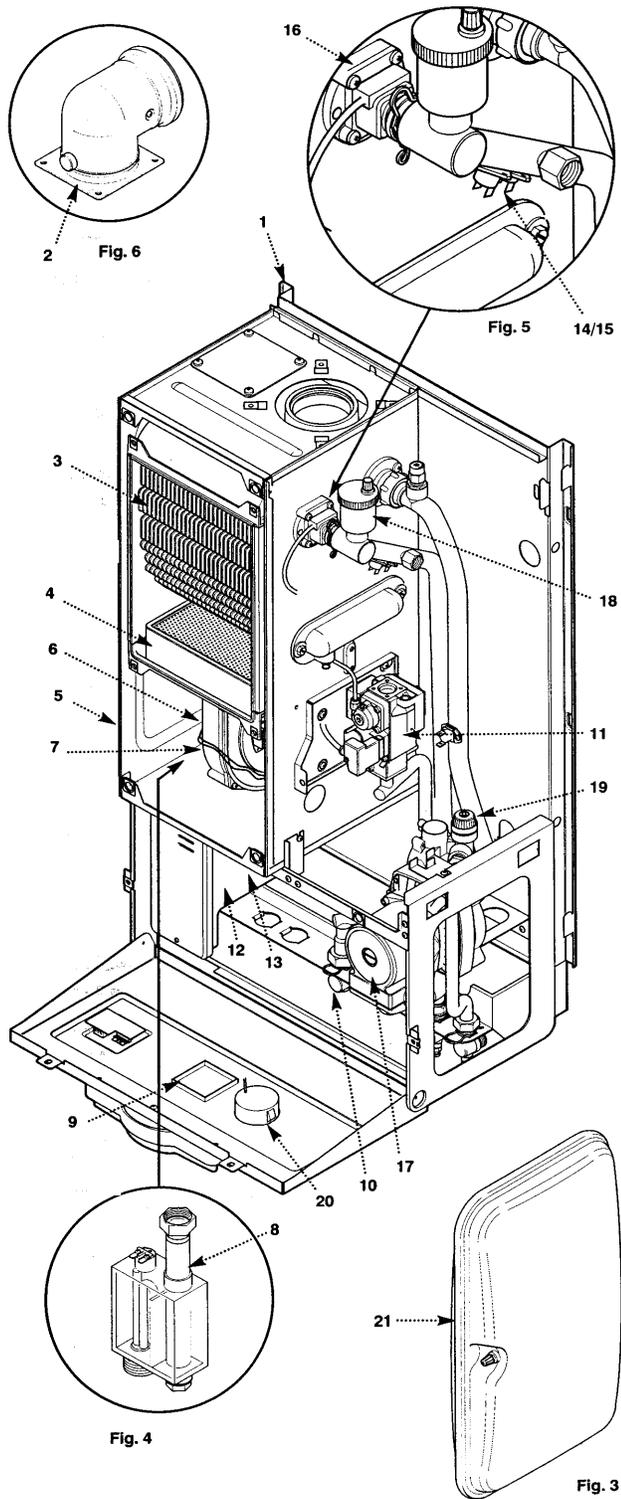
8. The boiler must be installed with one of the purpose designed flues such as the standard horizontal flue kit, part n° 236921.

**1.2 Optional Extras**

KIT	PART N°
FLUE EXTENSION KITS (110/70)	
Flue Extension 0.25M	241692
Flue Extension 0.5M	241694
Flue Extension 1 M (use two kits for 2M etc.)	241695
Flue Bend x 2 - 45° (Reduce all length of flue by 0.5m when fitting this bend)	241689
Flue Bend - 90° (Reduce overall length of flue by 1m when fitting each bend)	241687
VERTICAL FLUE (110/70)	
Vertical Flue Terminal	242802
Vertical Boiler Connection	242886
VERTICAL FLUE (80/80)	
Kit Boiler Connection Twin	242757
CONTROL ACCESSORIES	
Integral Electronic Twin Channel Timer Kit	242834

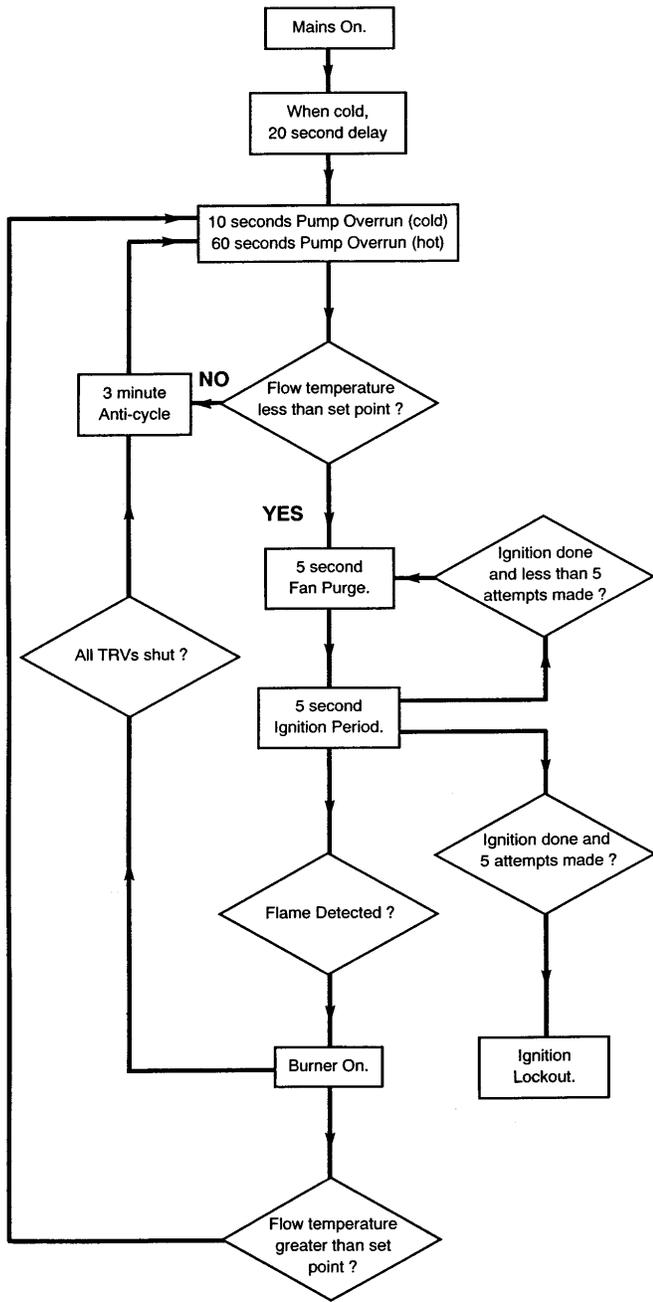
**"Benchmark" Log Book**

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.



2.1 Layout (Figs. 3,4 & 5)

1. Wall Plate
2. Flue Elbow
3. Heat Exchanger
4. Burner
5. Air Box
6. Fan Protection Thermostat
7. Fan Assembly
8. Condensate Trap
9. User Interface (optional timer available)
10. Gas Tap
11. Gas / Air Ratio Valve
12. Electronics Housing
13. Transformer
14. Flow Temperature Safety Thermostat - Black
15. Flow Temperature Thermistor - Red
16. Flow Switch (dry fire protection)
17. Circulation Pump
18. Automatic Air Vent
19. Pressure Relief Valve
20. Water Pressure Gauge
21. Expansion Vessel



3.1

1. **Pump Overrun:** When the switched live to the boiler switches on or the flow temperature is greater than the set point or anti-cycle finishes then Pump Overrun occurs for 10 seconds (cold) or 60 seconds (hot). The pump is on while the fan, spark generator and gas valve are off.
2. **Fan Purge:** When pump overrun has finished if the flow temperature is less than that set on the thermostat knob then Fan Purge occurs. The pump and fan are on while the spark generator and gas valve are off.
3. **Ignition:** When fan purge has finished Ignition occurs. The pump, fan, spark generator and gas valve are on. The burner ignites at mid rate.
4. **Burner On:** When a flame is detected during the ignition period then Burner On occurs. The pump, fan and gas valve are on while the spark generator is off. Flow temperature is controlled by varying the fan speed (and thereby the gas rate) to achieve optimum operation.
5. **Anti-cycle:** When all the TRVs shut down during Burner On or Pump Overrun finishes and flow temperature is greater than set point then Anti-cycle occurs. The pump, fan, spark generator and gas valve are switched off.
6. **Ignition Lockout:** When 5 ignition attempts have been made without a flame being detected then Ignition Lockout occurs. The pump, fan, spark generator and gas valve are switched off. The lockout light flashes once a second. The boiler can only be reset manually using the thermostat knob.
7. **No Water Flow:** When there is No Water Flow through the boiler (indicated by the flow switch) then a continuous cycle of Pump Overrun and Anti-cycle occurs.

<b>Appliance Type</b>	C <sub>13</sub>	C <sub>33</sub>
<b>Appliance Category</b>	CAT I 2H	
<b>Heat Input</b>	Max	Min
	kW	33.76 10.2
	Btu/h	115,200 34,840
<b>Heat Output</b> (Non Condensing 70° C Mean Water Temp)	Max	Min
	kW	29.30 8.79
	Btu/h	100,000 30,000
<b>Heat Output</b> (Condensing 40° C Mean Water Temp)	Max	Min
	kW	31.05 9.6
	Btu/h	105,980 32,880
<b>Max Gas Rate</b> (Natural Gas) (After 10 Mins)	Btu/hr	100,000 80,000
	m <sup>3</sup> /h	2.95 2.36
	ft <sup>3</sup> /h	104.2 83.3
<b>Inlet Pressure</b> (Natural Gas)	Min	18.1 mbar
	Max	22.5 mbar
	(see Section 10.1)	
<b>Injector</b> (Natural Gas)	6.3mm Diameter	
<b>Nox Class</b>	5	
<b>Horizontal</b>		
<b>Flue Terminal</b>	Diameter	110mm
<b>Dimensions</b>	Projection	150mm

<b>Connections</b>	copper tails	
Gas Supply	-	22mm
Central Heating Flow	-	22mm
Central Heating Return	-	22mm
Pressure Relief Discharge	-	15mm
Condensate Drain	-	1 in BSP
<b>Outercase Dimensions</b>		
Overall Height Inc Flue Elbow	-	1000mm
Casing Height	-	850mm
Casing Width	-	490mm
Casing Depth	-	320mm
<b>Clearances</b>		
Both Sides	5mm Min	
Above Casing	200mm Min	
Below Casing	200mm Min	
Front (For Servicing)	500mm Min	
Front (In Operation)	5mm Min	
<b>Weights</b>		
	kg	lb
Packaged Boiler Carton	54.7	120.6
Packaged Flue Kit	3.6	8.0
Weight Empty	49.4	108.9
Installation Lift Weight	41	90.4
<b>Recommended System</b>		
<b>Temperature Drop</b>		
Normal	11°C	20°F
Condensing	20°C	36°F
<b>Central Heating Primary</b>		
<b>Circuit Pressures</b>		
	bar	lb/in <sup>2</sup>
Safety Discharge	3	43.5
Max Operating	2.5	36.3
Min Operating	1	10.9
Recommend Operating	1-2	14.5-29

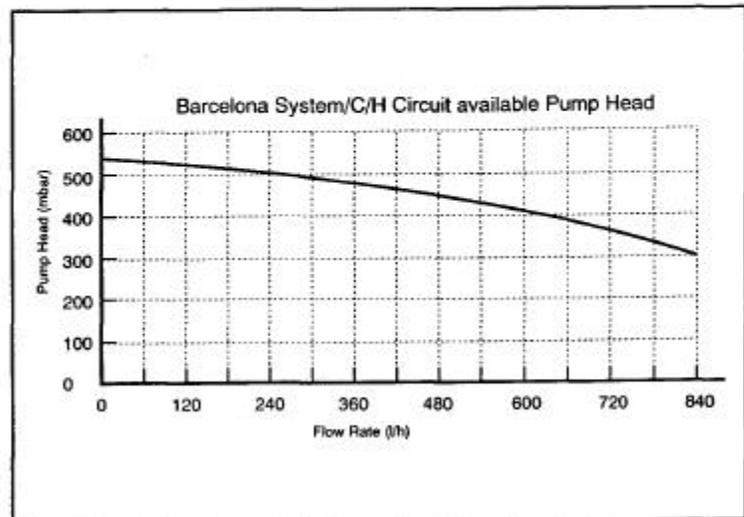
<b>Electrical Supply</b>	230V~ 50Hz (Appliance must be connected to an earthed supply)	
<b>Power Consumption</b>	200W	
<b>External Fuse Rating</b>	3A	
<b>Internal Fuse Rating (BS 4265)</b>		
Fuse (2)	4 AT (Control Board)	
Fuse (3)	2 AT (Ignition Board)	
<b>Water Content</b>		
litres	3.5	
pints	6.2	
<b>Expansion Vessel - (For Central Heating only. Integral with appliance)</b>		
	bar	lb/in <sup>2</sup>
Min Pre-charge Pressure	0.95	13.6
Nominal Pre-charge Pressure	1	14.5
	litre	gal
Max Capacity of CH System	125	27.5
<b>Controls</b>		
boiler thermostat, safety thermostat, flow switch, electronic flame sensing, temperature protection thermostat & condensate blockage sensor.		

**SEDBUK Declaration For Barcelona System**

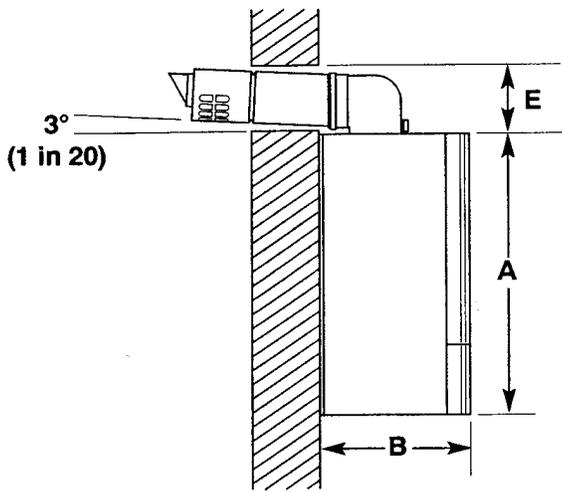
The seasonal efficiency (SEDBUK) is 90.7 %

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 have been certified by 0086.

**NOTE:** The maximum output of the boiler is factory set at 23.45kW (80,000 Btu/hr). This can be altered to 29.30kW (100,000 Btu/hr) - see section 8.7.



Where flow rates are required in excess of 840 l/h, please refer to page 21.



DIMENSIONS	
A	850mm
B	320mm
C	490mm
D	125mm Ø Min.
E	150mm
F	125mm

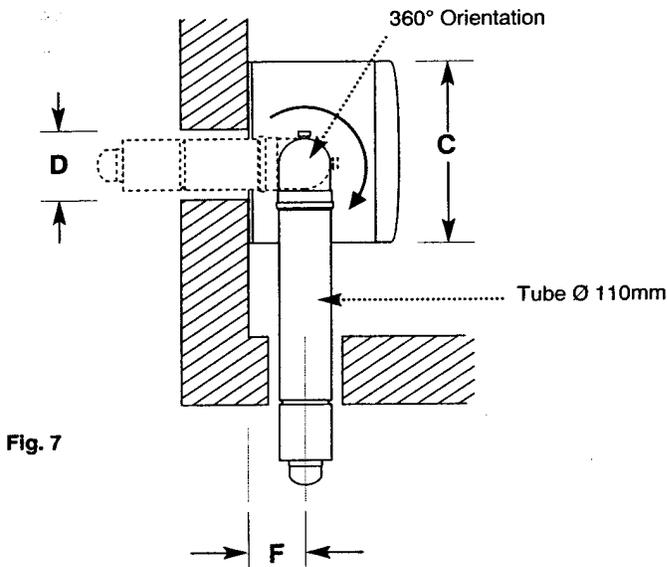


Fig. 7

The 3° (1 in 20) fall provided by the elbow is to allow condensate to run back to the boiler, for disposal through the condensate discharge pipe.

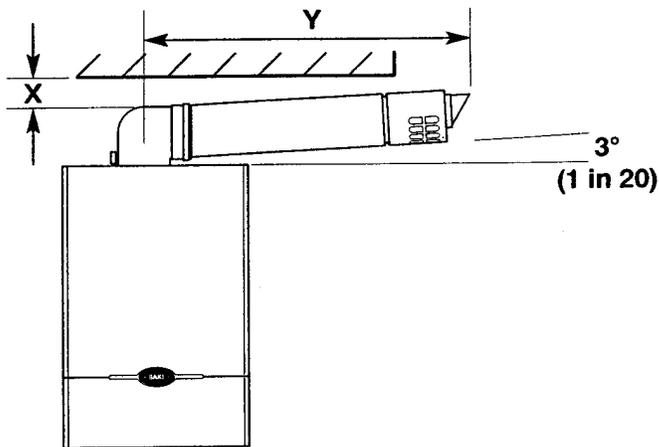


Fig. 8

SIDE FLUE (left and right)	
For every 1m of horizontal flue length, the clearance above the top of the flue elbow should be 55mm to incorporate the 3° (1 in 20) fall in the flue from the terminal to the elbow.	
Flue length (Y)	Clearance (X)
up to 1m	55mm
1m - 2m	110mm
2m - 3m	165mm

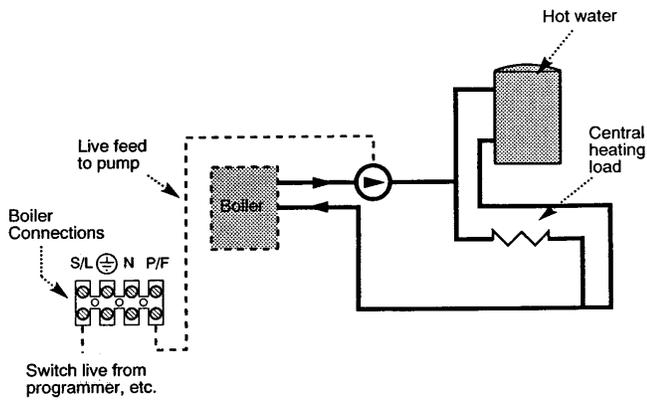


Fig. A Wiring an extra pump to the pump feed connection of boiler

### 6.1 Water Circulating Systems

1. The appliance is suitable for fully pumped sealed systems only.

**The following conditions should be observed on all systems:**

- 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 a way which would not restrict the servicing of the boiler.
- Air vents should be fitted to all system high points.
- An air rejection separator is recommended to ensure correct operation of all appliance components.

### 6.2 Treatment of Water Circulating Systems

- All recirculatory water systems will be subject to corrosion unless an appropriate water treatment is applied. This means that the efficiency of the system will deteriorate as corrosion sludge accumulates within the system, risking damage to pump and valves, boiler noise and circulation problems.
- When upgrading existing systems that exhibit evidence of sludging, it is advisable to clean the system prior to treatment in order to remove any sludge and reduce the likelihood of these deposits damaging new components.
- When fitting new systems flux will be evident within the system, which can lead to damage of system components.
- All systems must be thoroughly drained and flushed out. The recommended flushing and cleansing agents are Betz-Dearborn Sentinel X300 or X400 and Fernox Superfloc Universal Cleanser which should be used following the flushing agent manufacturer's instructions.
- System additives - corrosion inhibitors and flushing agents/descalers should be suitable for aluminium and comply to BS 7593 requirements. The only system additives recommended are Betz-Dearborn Sentinel X100 and Fernox-Copal which should be used following the inhibitor manufacturer's instructions.

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

- It is important to check the inhibitor concentration after installation, system modification and at every service in accordance with the manufacturer's instructions. (Test kits are available from inhibitor stockists.)
- For information or advice regarding any of the above contact the Baxi Helpline.

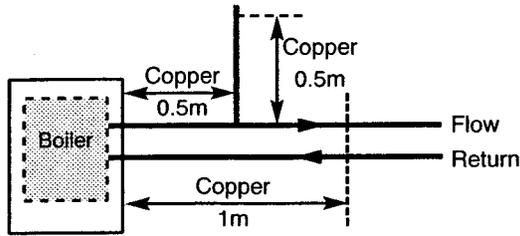


Fig. 8a

### 6.3 Pipework

1. The sizes of flow and return pipes from the boiler should be determined by normal methods, according to the requirements of the system. The connection to the boiler is 22mm (copper tail).

2. Due to space requirements at the rear of the tap bracket, pipework should comprise of solder fittings.

3. A 20°C (36°F) drop in temperature across the system is recommended for condensing boilers. Existing radiators may be oversized and so allow this, but where radiator sizing is marginal it may be advisable to retain a system temperature drop of 11°C (20°F).

4. 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 (Fig. 8a).

### 6.4 System Controls

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

2. Such a system will comprise of a timer control and separate room or cylinder thermostats as appropriate. (An integral twin channel programmer is available as an optional extra).

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

4. Operation of the system under control of the boiler thermostat & TRV's only does not produce the best results.

### 6.5 Thermal Stores

1. The Barcelona System Boiler must not be fitted to thermal stores which override the boiler control system.

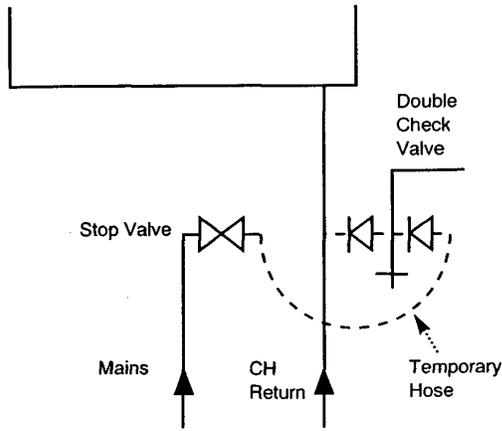


Fig. 9

**6.6 System Filling and Pressurising**

1. 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.
2. The filling method adopted must be in accordance with all relevant water supply bye-laws and use approved equipment.
3. Your attention is drawn to: IRN 302 and Byelaw 14.
4. 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 (Fig. 9).

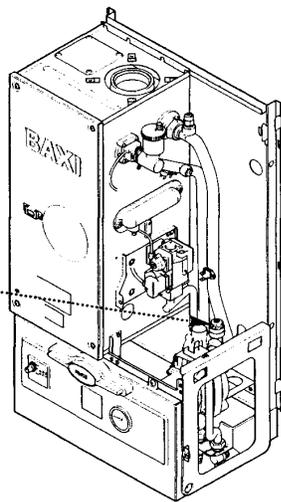


Fig. 10

Expansion Vessel removed for clarity

**6.7 Expansion Vessel**  
(Central Heating only)

1. The appliance expansion vessel is pre-charged to 1 bar (10 lb/in<sup>2</sup>). Therefore, the minimum cold fill pressure is 1 bar. The vessel is suitable for correct operation for system capacities up to 125 litres (27.5gal). For greater system capacities an additional expansion vessel must be fitted - refer to BS 7074 Pt 1.

**6.8 Pressure Relief Valve** (Figs. 10 & 11)

1. The pressure relief valve is set at 3 bar, therefore all pipework, fittings, etc. should be suitable for pressures in excess of 3 bar.
2. The pressure relief discharge pipe should be not less than 15mm dia, run continuously downward, and discharge outside the building, preferably over a drain. It should be routed in such a manner that no hazard occurs to occupants or causes damage to wiring or electrical components. The end of the pipe should terminate facing down and towards the wall.
3. The discharge must not be above a window, entrance or other public access. Consideration must be given to the possibility that boiling water/steam could discharge from the pipe.

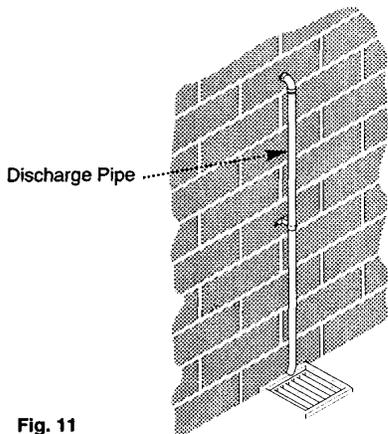


Fig. 11

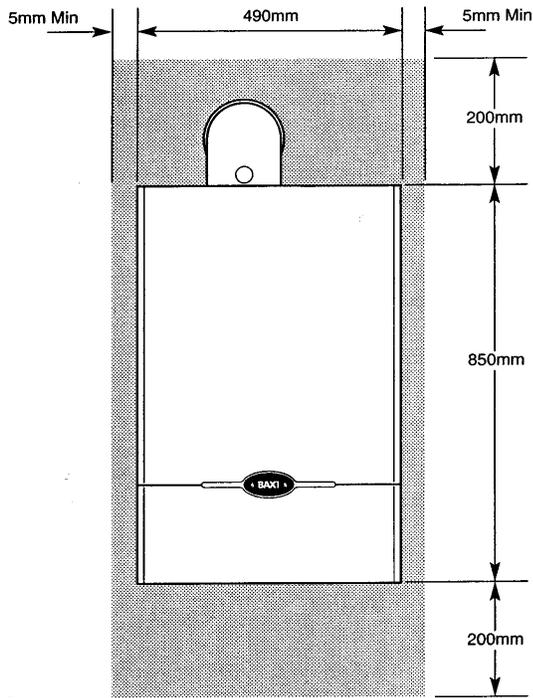


Fig. 12

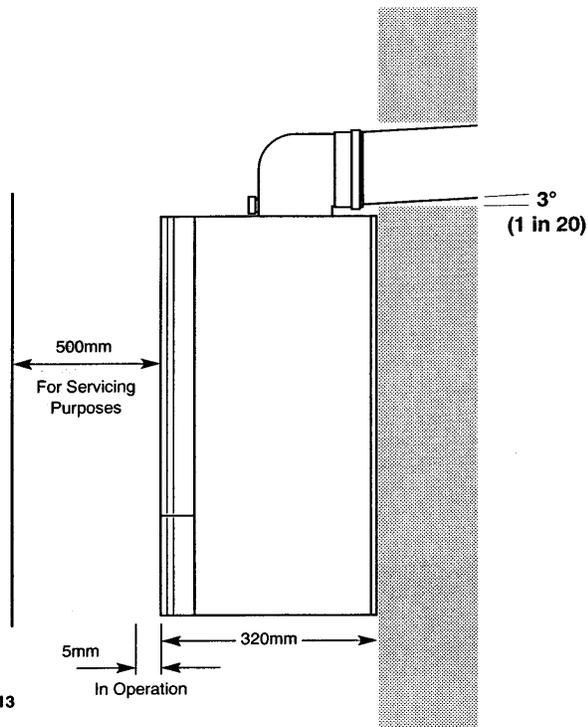


Fig. 13

7.1 Information

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

1. The installation must be carried out by a CORGI Registered Installer or other registered competent person and be in accordance with the relevant requirements of the current **GAS SAFETY (Installation and Use) REGULATIONS**, the **BUILDING REGULATIONS (Scotland)(Consolidation)**, the **LOCAL BUILDING REGULATIONS**, the current **L.E.E. WIRING REGULATIONS** and the bye laws of the **LOCAL WATER UNDERTAKING**. Where no specific instruction is given reference should be made to the relevant **BRITISH STANDARD CODES OF PRACTICE**. For Ireland install in accordance with IS 813 "INSTALLATION OF GAS APPLIANCES". Reference should also be made to **BRITISH GAS GUIDANCE NOTES FOR THE INSTALLATION OF DOMESTIC GAS CONDENSING BOILERS**.

7.2 B.S. Codes of Practice

Standard	Scope
BS 6891	Gas Installation.
BS 5546	Installation of hot water supplies for domestic purposes.
BS 5449 Part 1	Forced circulation hot water systems.
BS 6798	Installation of gas fired hot water boilers.
BS 5440 Part 1	Flues.
BS 5440 Part 2	Ventilation.
BS 7074	Expansion vessels and ancillary equipment for sealed water systems.
BS 7593	Treatment of water in domestic hot water central heating systems.

**WARNING - The addition of anything that may interfere with the normal operation of the appliance without the express written permission of Baxi Limited could invalidate the appliance warranty and infringe the GAS SAFETY (Installation and Use) REGULATIONS.**

7.3 Clearances (Figs. 12 &13)

1. A flat vertical area is required for the installation of the boiler.
2. These dimensions include the necessary clearances around the boiler for case removal, spanner access and air movement. Additional clearances may be required for the passage of pipes around local obstructions such as joists running parallel to the front face of the boiler.

7.4 Location

- 1 The boiler may be fitted to any suitable wall with the flue passing through an outside wall or roof and discharging to atmosphere in a position permitting satisfactory removal of combustion products and providing an adequate air supply. The boiler should be fitted within the building unless otherwise protected by a suitable enclosure i.e. garage or outhouse. (The boiler may be fitted inside a cupboard - see Section 7.5).
2. If the boiler is sited in an unheated enclosure then it is recommended to incorporate an appropriate device for frost protection in the system controls.
3. If the boiler is fitted in a room containing a bath or shower reference must be made to the current **I.E.E. WIRING REGULATIONS** and **BUILDING REGULATIONS**. If the boiler is to be fitted into a building of timber frame construction then reference must be made to the Institute of Gas Engineers document UP 7.

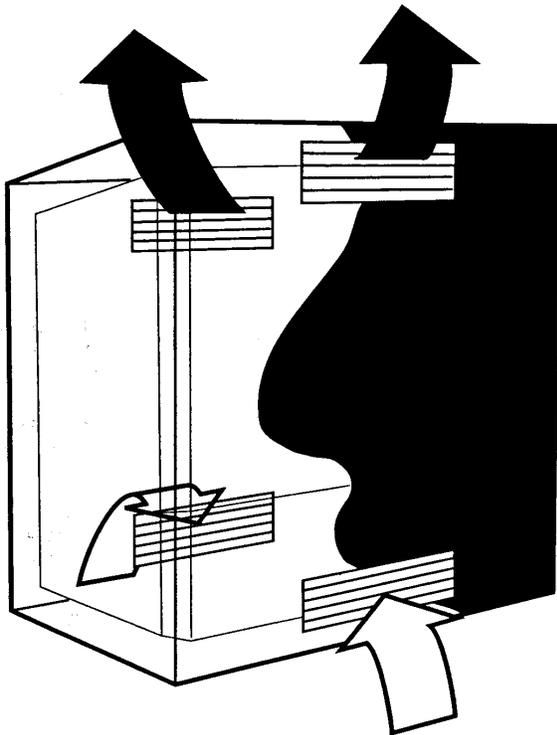


Fig. 14

Position of Air Vent	Air from Room	Air direct from Outside
High	306cm <sup>2</sup> (49 in <sup>2</sup> )	153cm <sup>2</sup> (24.5in <sup>2</sup> )
Low	306cm <sup>2</sup> (49 in <sup>2</sup> )	153cm <sup>2</sup> (24.5in <sup>2</sup> )

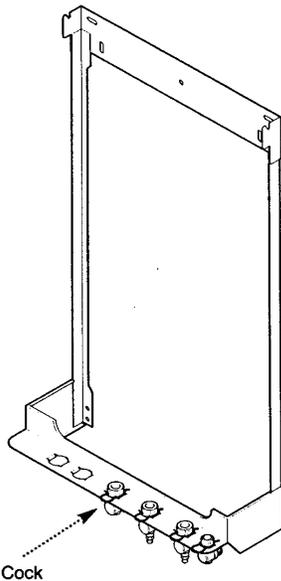


Fig. 15

### 7.5 Ventilation of Compartments (Fig. 14)

1. Where the boiler is installed in a cupboard or compartment, air vents are required (for cooling purposes) in the cupboard or compartment at high and low level which may communicate with a room or direct to outside air.

**NOTE: Both air vents must communicate with the same room or both be on the same wall to outside air.**

2. Detailed recommendations for air supply are given in BS 5440: Part 2.

3. An existing cupboard or compartment may be used, provided that it is modified for the purpose. Recommendations for air supplies and details of essential cupboard compartment design are given in BS 5440: Part 2.

### 7.6 Gas Supply

1. The gas installation should be in accordance with BS 6891.

2. The connection to the appliance is a 22mm copper tail located at the rear of the gas service cock (Fig. 15).

3. Ensure that the pipework from the meter to the appliance is of adequate size. (22mm recommended at the appliance). **Do not use pipes of a smaller diameter than the boiler gas connection.**

### 7.7 Electrical Supply

1. External wiring must be correctly earthed, polarised and in accordance with current **I.E.E. WIRING REGULATIONS**.

2. The mains supply is 230V ~ 50Hz fused at 3A.

**NOTE: The method of connection to the electricity supply must facilitate complete electrical isolation of the appliance. Connection may be via a fused double-pole isolator with a contact separation of at least 3mm in all poles and servicing the boiler and system controls only.**

### 7.8 Condensate Drain

**NOTE: Ensure the discharge of condensate complies with any national or local regulations in force.**

1. The condensate outlet terminates in a 1" BSP nut and seal for the connection of 21.5mm (¾ in) plastic overflow pipe which should generally discharge internally into the household drainage system. If this is not possible, discharge into an outside drain is acceptable.

2. The pipe should run internally as much as possible and with a 10° (1 in 6) fall to dispose of condensate quickly to avoid freezing.

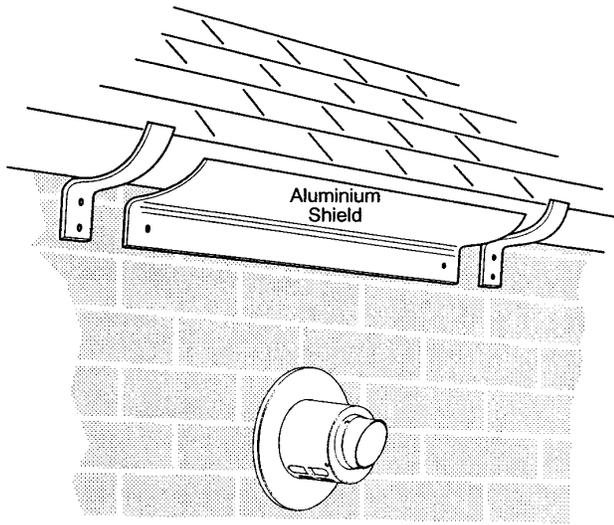


Fig. 16

### 7.9 Flue

**NOTE:** Due to the nature of the boiler a plume of water vapour will be discharged from the flue. This should be taken into account when siting the flue terminal.

1. The following guidelines indicate the general requirements for siting balanced flue terminals. Recommendations for flues are given in BS 5440 Pt.1.
2. If the terminal is fitted within 1 metre (39 in) of a plastic gutter, within 500mm (19½in) of a painted eave or a painted gutter, an aluminium shield of at least 1 metre (39 in) long should be fitted to the underside of the gutter or painted surface. An air space of 5mm (³/₁₆ in) should be left between shield and gutter (Fig. 16).
3. If the terminal discharges onto a pathway or passageway, check that combustion products will not cause a nuisance and that the terminal will not obstruct the passageway.
4. Take into consideration the effect the plume of vapour may have on neighbours when siting the flue.
5. If a terminal is less than 2 metres (78³/₄in) above a balcony, above ground or above a flat roof to which people have access, then a suitable terminal guard must be provided.

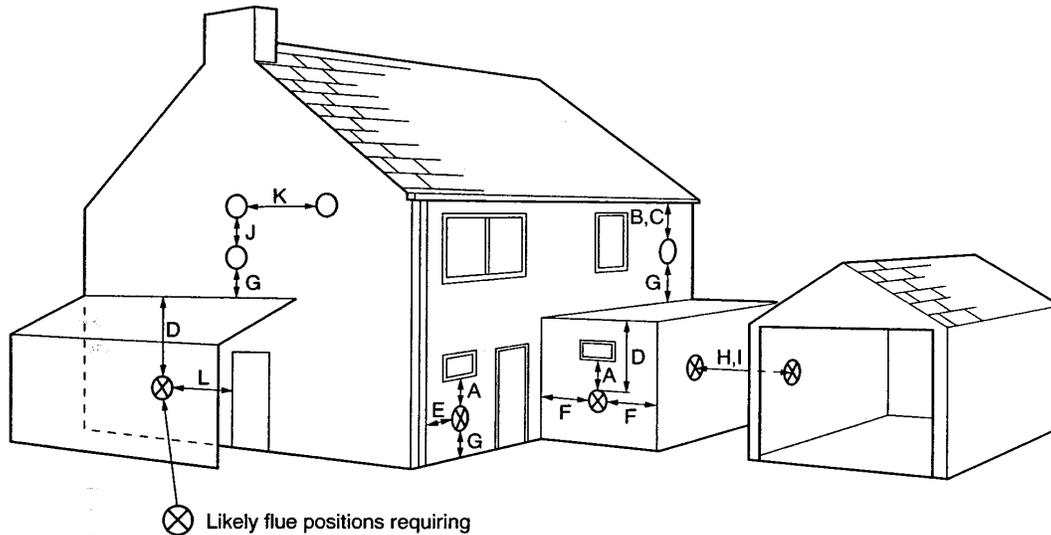


Fig. 17

**Terminal Position with Minimum Distance (Fig.17) (mm)**

A	Directly below an openable window or other opening, e.g. an air brick.	300
B	Below gutters, soil pipes or drain pipes.	75
C	Below eaves.	200
D	Below balconies or car port roof.	200
E	From vertical drain pipes and soil pipes.	75
F	From internal or external corners.	300
G	Above ground, roof or balcony level.	300
H	From a Surface facing a terminal.	600
I	From a terminal facing a terminal.	1200
J	Vertically from a terminal on the same wall.	1500
K	Horizontally from a terminal on the same wall.	300
L	For an opening in a car port (e.g. door, window) into a dwelling.	1200

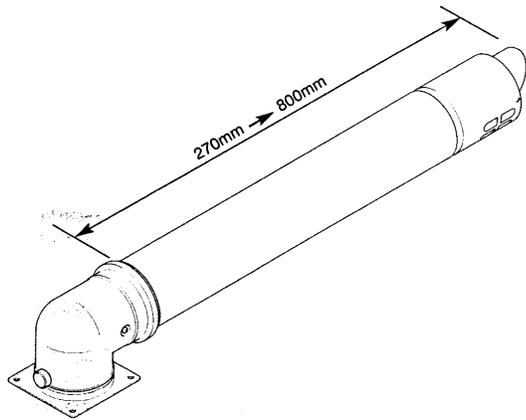


Fig. 18

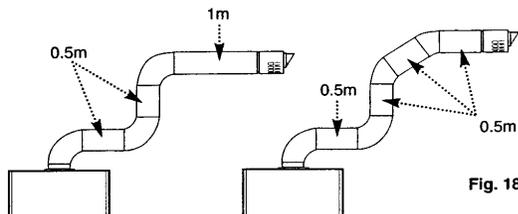


Fig. 18a

Pictorial examples of flue runs where EQUIVALENT flue length equals 4m

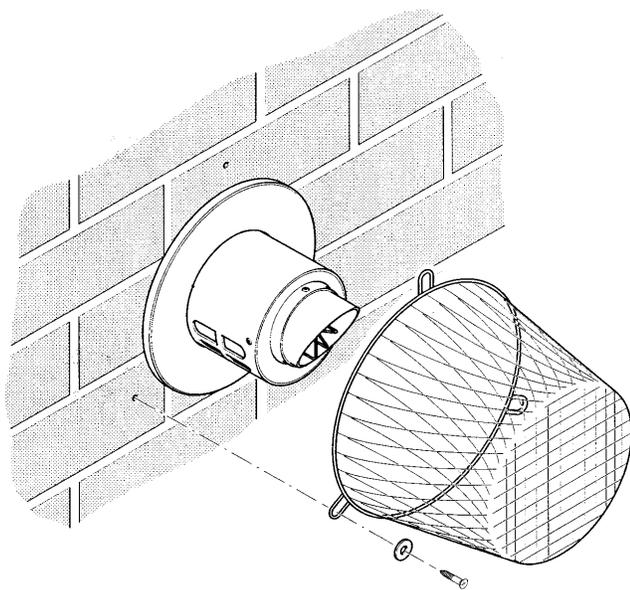


Fig. 19

### 7.10 Flue Dimensions

See Section 1.2. The standard horizontal flue kit allows for flue lengths between 270mm (10<sup>5</sup>/<sub>8</sub>" ) 800mm (32") from elbow to terminal (Fig. 18).

**The maximum permissible equivalent flue length is : 4metres (Fig. 18a).**

**NOTE: Each additional 45° of flue bend will account for an equivalent flue length of 0.5m.**  
 eg. 45° = 0.5m,            90° = 2 x 45° = 1m etc.

### 7.11 Terminal Guard (Fig. 19)

1. When codes of practice dictate the use of terminal guards, they can be obtained from most Plumbers' and Builders' Merchants.
2. When ordering a terminal guard, quote the appliance model number.
3. The guard manufacturers listed below can be contacted for terminal sizes and guard model numbers.

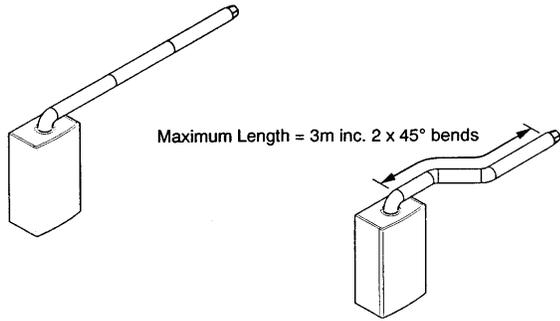
Tower Flue Components Ltd.,  
 Tower House,  
 Vale Rise,  
 Tonbridge,  
 Kent.  
 Tel: 01732 351555.

Quinnell, Barrett & Quinnell,  
 884 Old Kent Road,  
 London,  
 SE15 1NL.  
 Tel: 0171 639 1357.

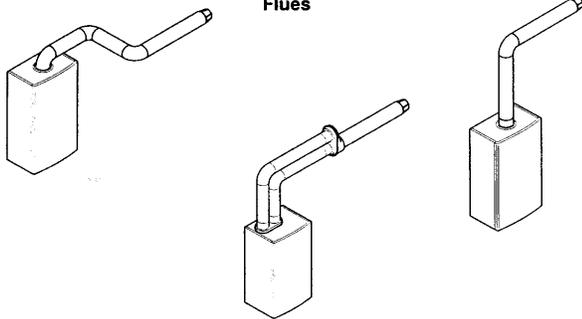
4. The flue terminal guard should be positioned centrally over the terminal and fixed as Illustrated.

### 7.12 Vertical Flue

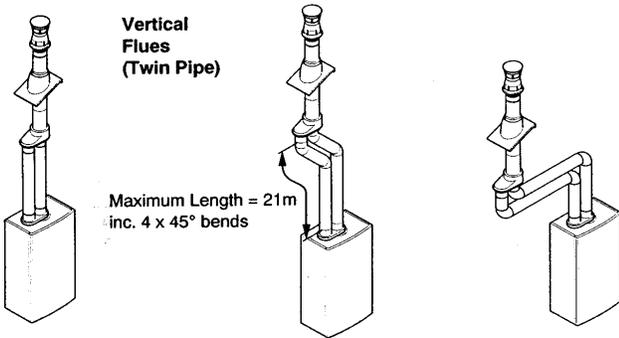
1. Only a flue approved with the Baxi Barcelona can be used.
2. For information on vertical flues consult the Baxi Barcelona Installer Guide or Notes for Guidance supplied with the vertical flue pack.



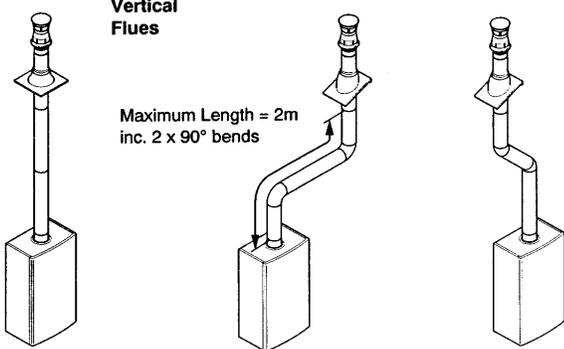
**Horizontal Flues**



**Vertical Flues (Twin Pipe)**



**Vertical Flues**



### 7.13 Flue Options

1. The Baxi Barcelona System can be fitted with flue systems as illustrated.

2. The standard flue is suitable only for horizontal applications.

3. Maximum permissible equivalent flue lengths are:-

Horizontal	4.0 metres
Vertical	4.0 metres
Vertical (Twin)	75.0 metres

4. Any additional 'in line' bends in the flue system must be taken into consideration. Their equivalent lengths are:-

Concentric Pipes:	
45° bend	0.5 metres
90° bend	1.0 metres

Twin Flue Pipes

	Air Duct	Flue Duct
45° bend	1 - 3 metres	2 - 6 metres
90° bend	4 - 8 metres	

**NOTE: The elbow supplied with the standard horizontal flue is not included in any equivalent length calculations.**

5. The illustrations opposite show examples of maximum equivalent lengths.

6. Full details of part numbers and descriptions of all optional flue components and kits can be found in Baxi Gas Central Heating Boilers Installers' Guide.

7. Instructions for guidance and fitting are included in each kit.



Fig. 20

Wall Thickness	Flue Hole $\phi$
up to 227mm	125mm core drill
up to 750mm	150mm core drill
up to 1200mm	175mm core drill

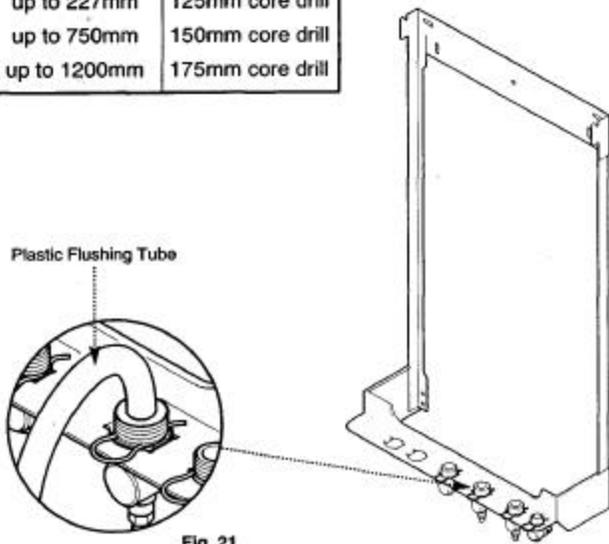


Fig. 21

Check Site Requirements (section 7.0) before commencing.

### 8.1 Initial Preparation

The gas supply, gas type and pressure must be checked for suitability before connection (see Section 7.6).

**NOTE:** If the boiler is to be pre-plumbed, follow both these instructions and those on the boiler pack.

1. Remove the fixing template (Fig. 20) from the fixing carton.
2. After considering the site requirements (see Section 7.0) position the template on the wall ensuring it is level both horizontally and vertically.
3. Mark the position of the top centre hole for the wallplate.
4. Mark the condensate discharge pipe area.
5. Mark the centre of the flue hole (rear exit). For side exit, mark as shown. If required, mark the position of the gas and water pipes. Remove the template.
6. Cut the hole for the flue (minimum diameter 125mm) (see table opposite for wall thickness flue diameter's).
7. Drill and plug the wall as previously marked. Secure the wallplate to the wall by the top centre hole.
8. Ensuring the wallplate is level both horizontally and vertically, drill and plug the remaining 4 securing positions at the top and bottom through the wallplate. Utilising the slots available ensure the wallplate is square and secure to the wall.
9. Connect the gas, water and the pressure relief discharge pipes to the valves on the support bracket using the copper tails supplied. Ensure the sealing washers are fitted correctly to the water connections.
10. Loosely route the condensate discharge pipe to the area previously marked.

### 8.2 Flushing

1. Insert a tube into the valve outlet furthest from the filling loop (Fig. 21).
2. Flush thoroughly (see System Details, Section 6.0).

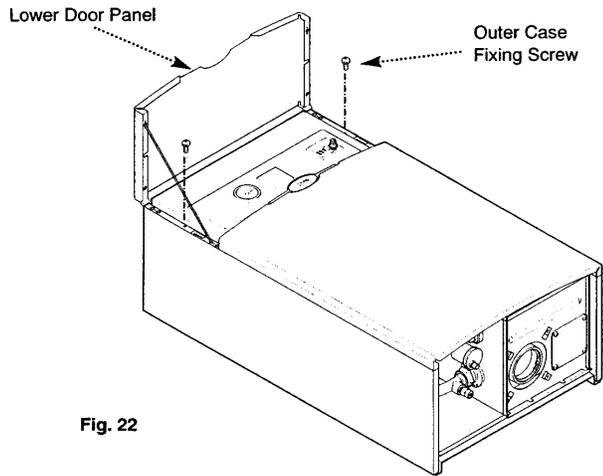


Fig. 22

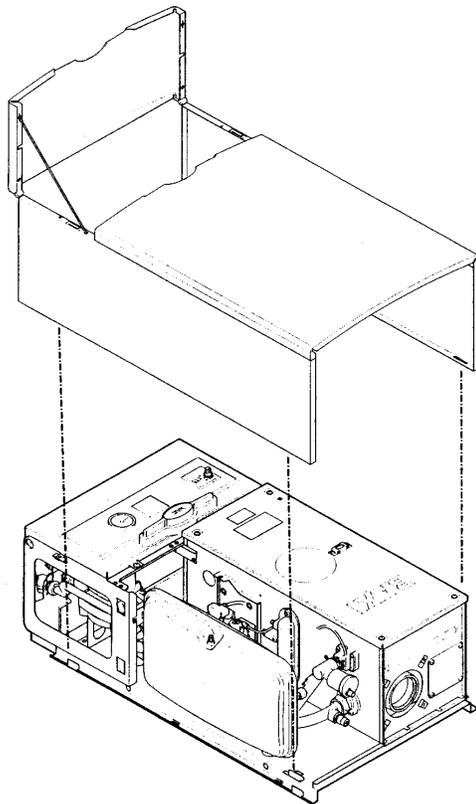


Fig. 23

### 8.3 Preparing The Boiler

1. Remove the outer carton.
2. Hinge the lower door panel open and remove the outer case fixing screws (Fig. 22). Close the door against its retaining magnets.
3. Slide the outercase upwards to disengage the hooks on the backplate and remove (Fig. 23).
4. Remove the sealing plugs from the copper bends.
5. Stand the boiler on its base by using the rear lower edge as a pivot.

**NOTE:** A small amount of water may drain from the boiler in the upright position.

**Baxi Limited declare that no substances harmful to health are contained in the appliance or used during construction of the appliance.**

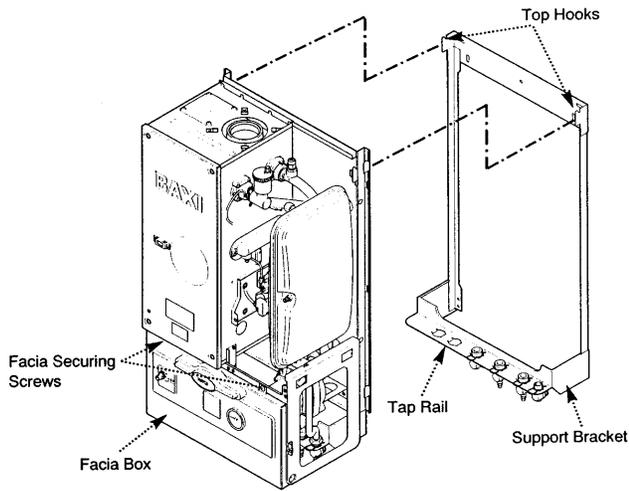


Fig. 24

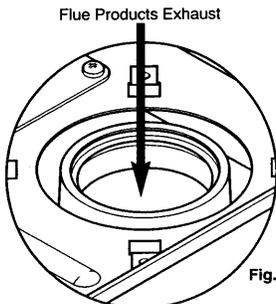


Fig. 25a

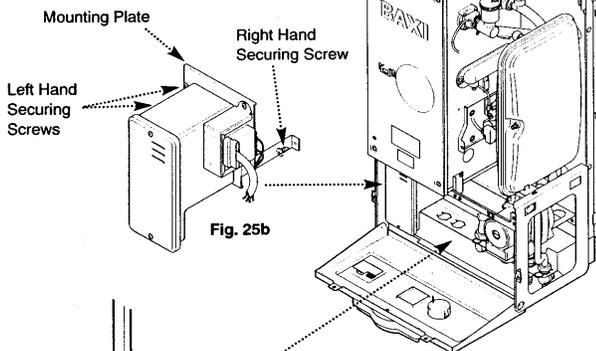


Fig. 25b

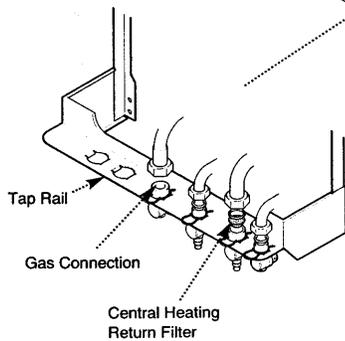


Fig. 25

### 8.4 Fitting The Boiler (Fig. 24)

1. Remove the tape from the tap rail on the support bracket and fit the central heating return filter (Fig. 25).
2. Lift the boiler using the lower edges of the combustion box.
3. Lift the boiler over the support bracket and engage onto the top hooks.
4. To gain access to the connections between boiler and valves, release the facia securing screws (¼ turn) and hinge down the facia box.
5. Make the gas connection first. This will centralise the boiler. The gas sealing washer is an integral part of the gas tap.

6. Insert the fibre sealing washers between the valve outlet face and the flange on the copper bends of the water circuit connections.

7. Tighten the connections.

### 8.5 Making the Condensate Drain Connection

1. Connect the condensate drain using the 1" BSP nut and seal supplied. (see section 7.8.)

2. For better access, loosen the left hand electrical box/transformer mounting plate securing screws and remove the right hand securing screw. Slide the electrical box to the right (Fig. 25b).

**NOTE: To ensure the correct operation and integrity of the condensate drainage system - Carefully pour approximately 1 litre of water into the flue products exhaust, at the top of the heat exchanger (Fig. 25a).**

**Check the condensate drain for leaks, blockage and fall.**

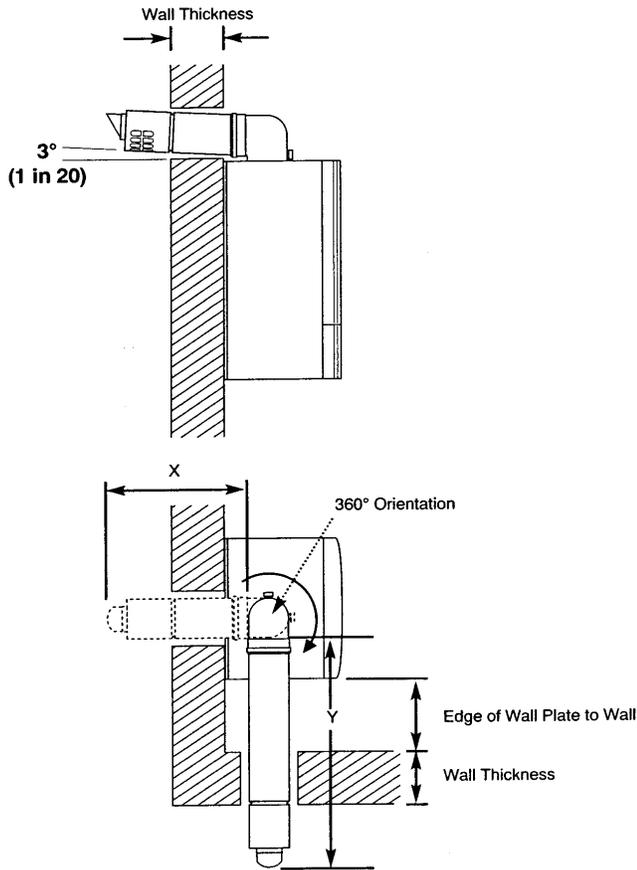


Fig. 26

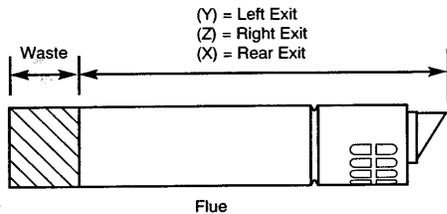


Fig. 27

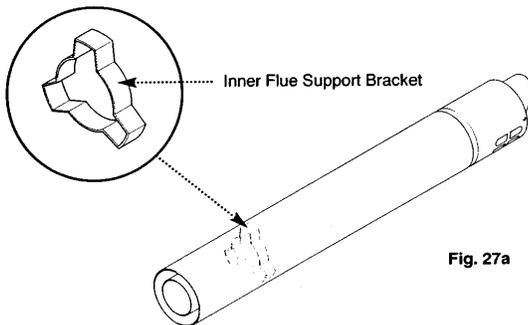


Fig. 27a

### 8.6 Fitting The Flue

Before fitting the flue, check the condensate drain integrity (see section 8.5).

**IMPORTANT:** The flue should always be installed with a 3° (1 in 20) fall from terminal to elbow, to allow condensate to run back to the boiler.

#### HORIZONTAL FLUE

1. The standard flue is suitable for lengths 270mm minimum to 800mm maximum (measured from the edge of the flue elbow outlet).

**Rear Flue:** maximum wall thickness - 630mm

**Side Flue:** maximum wall thickness - 565mm (left or right)

2. **For rear exit** - measure the wall thickness (Fig. 26) and to this dimension add 245mm. This dimension to be known as (X).

i.e.

$$(X) = \text{wall thickness} + 245\text{mm}$$

3. Take the flue and mark off (X) from the terminal end as indicated in the diagram (Fig. 27).

#### Check your dimensions.

The flue tubes are fixed together. Cut through both tubes whilst resting the flue on the semi-circular packing pieces. Deburr both tube ends.

4. **For left hand exit** - measure the distance from the edge of the wall plate to the inner face of the wall (Fig. 26) and to this dimension add the wall thickness + 275mm. This dimension to be known as (Y).

i.e.

$$(Y) = \text{wall plate to wall} + \text{wall thickness} + 275\text{mm}$$

5. Take the flue and mark off (Y) from the terminal end as indicated (Fig. 27).

6. **For right hand exit** - measure the distance from the edge of the wall plate to the inner face of the wall and to this dimension add the wall thickness + 350mm. This dimension to be known as (Z).

i.e.

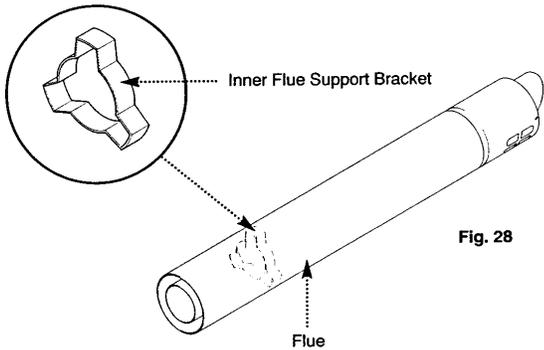
$$(Z) = \text{wall plate to wall} + \text{wall thickness} + 350\text{mm}$$

7. Take the flue and mark off (Z) from the terminal end as indicated (Fig. 27).

#### Check your dimensions.

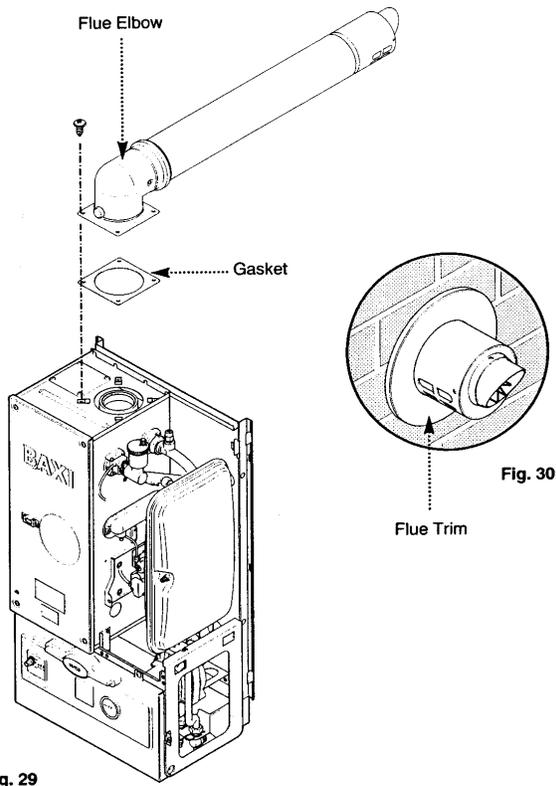
The flue tubes are fixed together. Cut through both tubes whilst resting the flue on the semi-circular packing pieces. Deburr both tube ends.

**IMPORTANT:** Check all measurements before cutting. When cutting ensure the cut does not interfere with the inner flue support bracket (Fig. 27a).



**8.6 Fitting the Flue (Cont)**

6. Ensure the inner flue support bracket is positioned in the flue (Fig. 28).
7. Engage the flue into the flue elbow using soap solution to ease the engagement ensuring the flue is assembled as shown (Fig. 29).
8. Place the gasket over the flue exit on the boiler.
9. Slide the flue assembly through the hole in the wall.
10. Engage the elbow on to the flue connection on top of the boiler. Secure with the four screws supplied in the kit.
11. Make good between the wall and air duct outside the building ensuring the 3° drop between the terminal and elbow.



12. The flue trim should be fitted once the installation is complete and the flue secure. Apply a suitable mastic to the inside of the trim and press against the wall finish, making sure the brickwork is dust free and dry (Fig. 30). If necessary fit a terminal guard (see section 7.11).

**VERTICAL FLUEING**

1. Only a flue approved with the Baxi Barcelona System Boiler can be used.
2. For information on vertical flues consult the Baxi Gas Central Heating Boilers Installer Guide or Notes for Guidance supplied with the vertical flue pack.

### 8.7 Making The Electrical Connections

**WARNING: This appliance must be earthed**

1. The electrical connections are on the left hand side of the unit behind the facia inside the electrical box.
2. Undo the two screws securing the electrical box cover and remove the cover (Fig. 31).
3. Undo the two screws securing the SL, ⊕, N, PF cable clamp and place to one side (Fig. 32).
4. If fitting an integral programmer kit please refer to kit instructions at this stage.
5. If necessary the output of the boiler can be increased to 100,000 Btu/h.

- a) Draw the control PCB forwards out of the electrical box (the control PCB is the right hand board).
- b) Pull off the two jumper connections at the top rear corner of the PCB (Fig. 32a).
- c) Replace the PCB and continue with the installation.

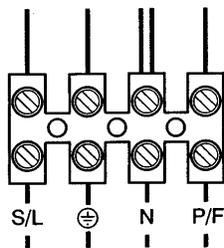
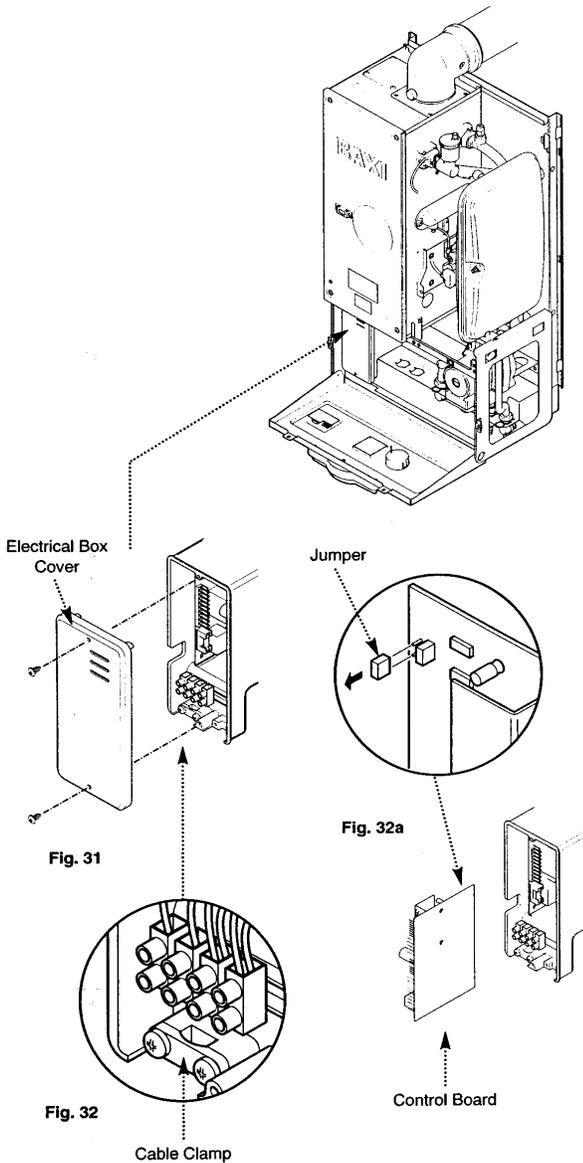
6. Lay the cable through the cable clamp to gauge the length of cable required when it is connected to the 4-way terminal block (Fig. 32).

7. Connect the (S/L), (N) and (⊕) wires to the 4-way terminal block and refit the cable clamp (Fig. 33).

8. The P/F connection should be used as a external pump live feed when fitting an extra pump to the system boiler. If the S/L connection is used, this will not protect the external pump if all TRV's shut down in a full TRV system.

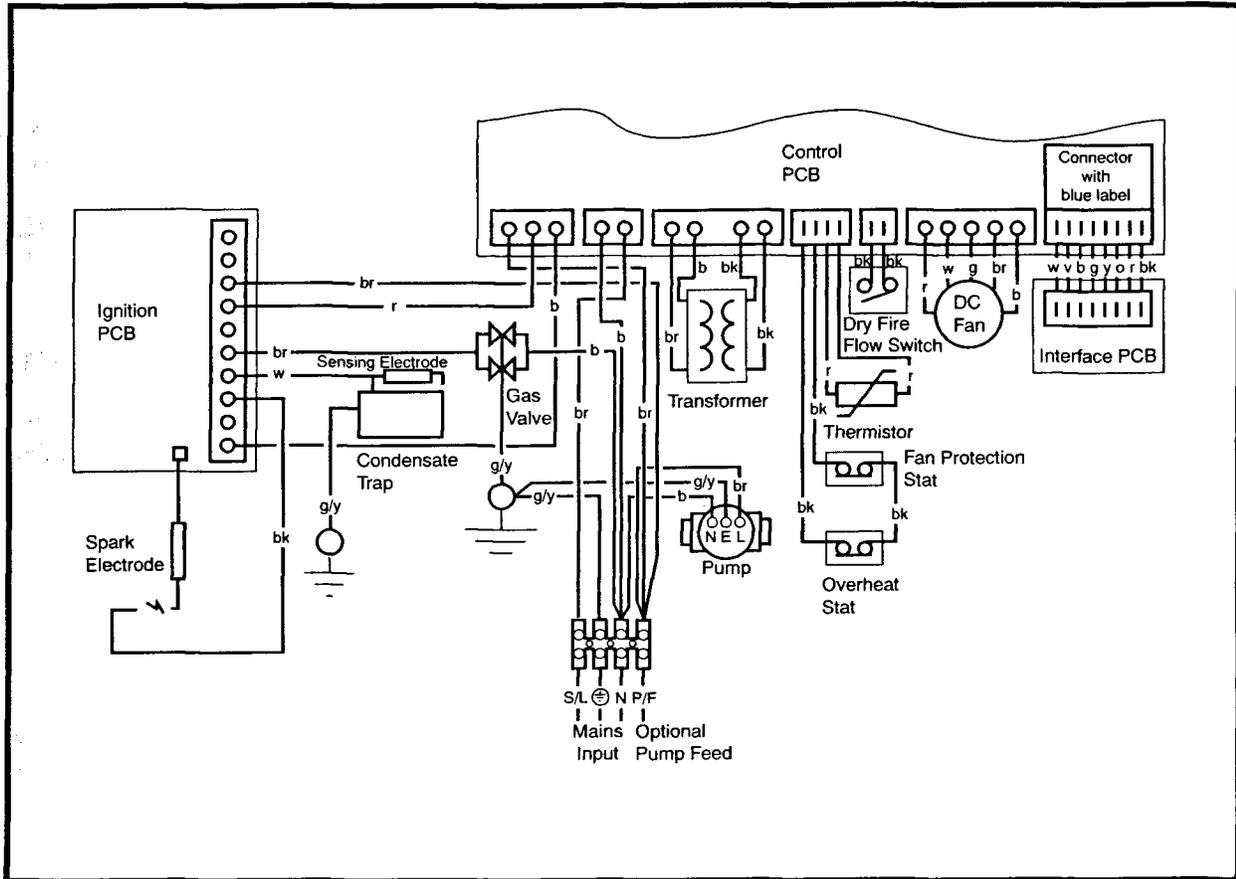
9. Check the electrical installation for; earth continuity, short circuits, resistance to earth, correct polarity and fuse failure.

10. Replace the electrical box cover and secure.



S/L = Switched live to the Boiler from the System Controls.  
 P/F = Optional Pump Feed, only need be used when fitting an additional external pump on a full TRV system.

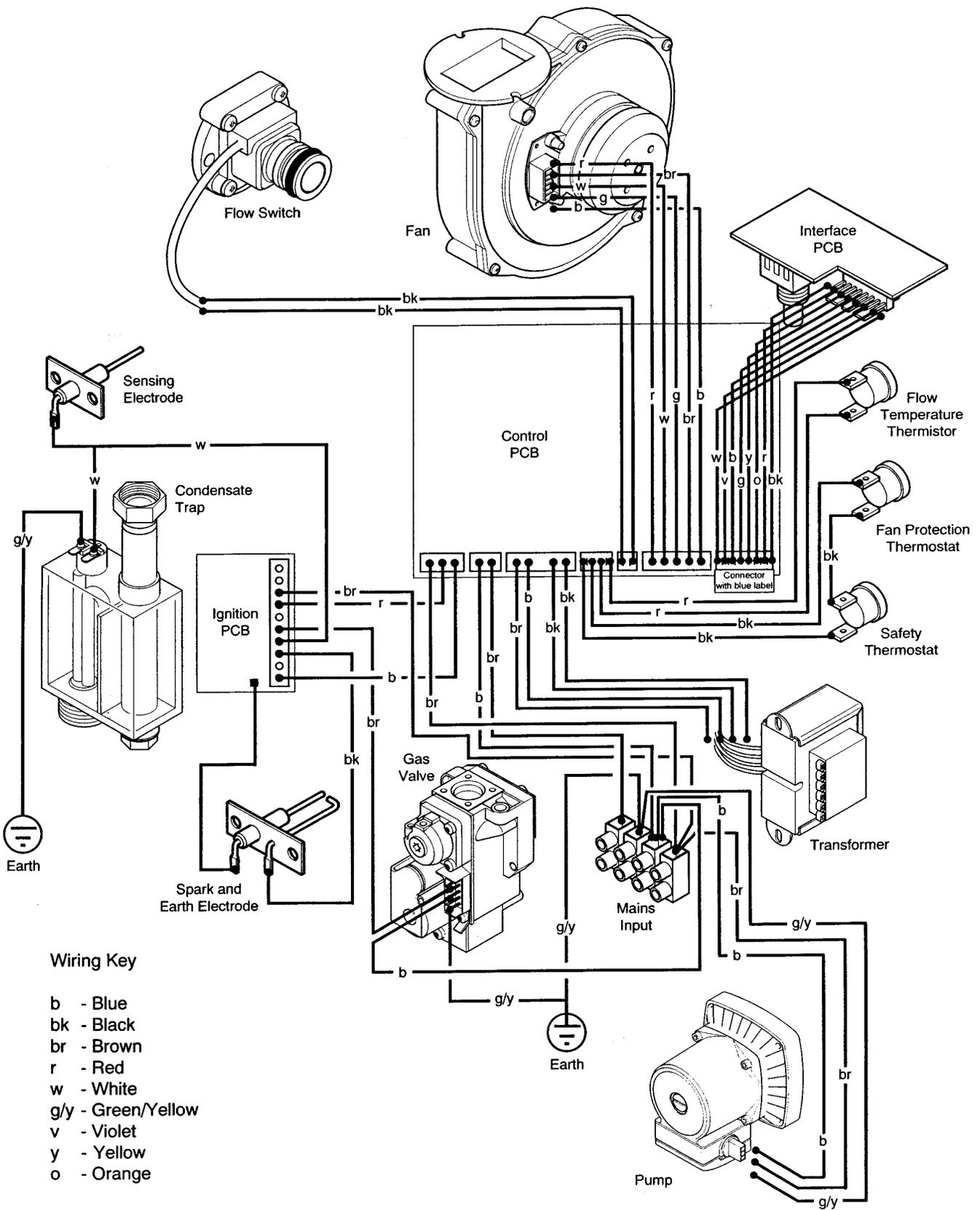
Fig. 33



Key To Wiring Colours

- |            |                    |
|------------|--------------------|
| b - Blue   | r - Red            |
| bk - Black | g - Green          |
| w - White  | g/y - Green/Yellow |
| br - Brown | y - Yellow         |
| v - Violet | o - Orange         |

9.2 Illustrated Wiring Diagram



10.1 Commissioning the Boiler

1. Reference should be made to BS 5449 Section 5 when commissioning the boiler.

2. Flush the whole system using a suitable flushing agent (see Section 6.2) and vent the radiators. Check for water leaks.

3. Refill the system with inhibitor following the inhibitor manufacturer's instructions and BS 7593 Code of Practice for Treatment of Water in Domestic Hot Water Central Heating Systems (see Section 6.2).

4. Turn the gas supply on and purge the system according to BS 6891.

5. Turn the gas service cock anticlockwise to the ON position and check for gas soundness up to the gas valve.

6. Turn the boiler control knob fully clockwise to 'HIGH' (Fig. 34) and run the system and check the boiler for correct operation.

**NOTE: The boiler is self-regulating and the gas rate will modulate between inputs of 33.76kW and 10.2kW dependent upon the system load. The input is factory set at 23.45kW and can be altered to 33.76kW - see section 8.7. No adjustment of the gas valve is permissible.**

7. With the system cold and all controls calling for heat check the gas pressure at the inlet tapping of the gas valve (Fig. 35). The pressure must be a minimum of 18.1 mbar.

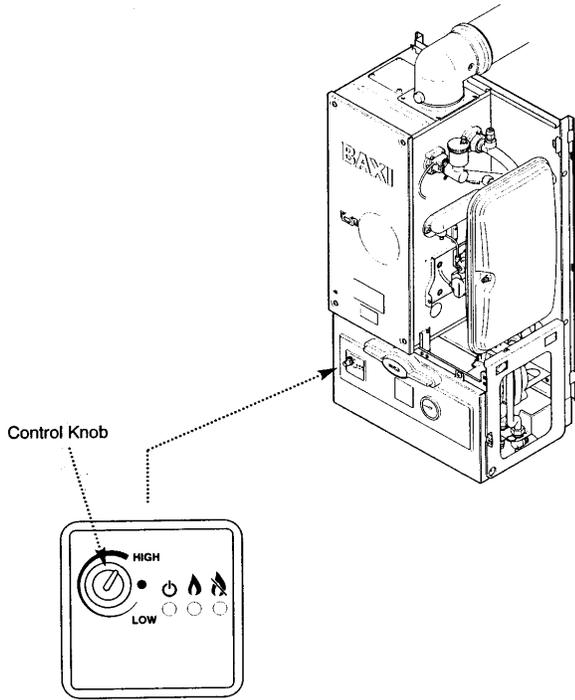


Fig. 34

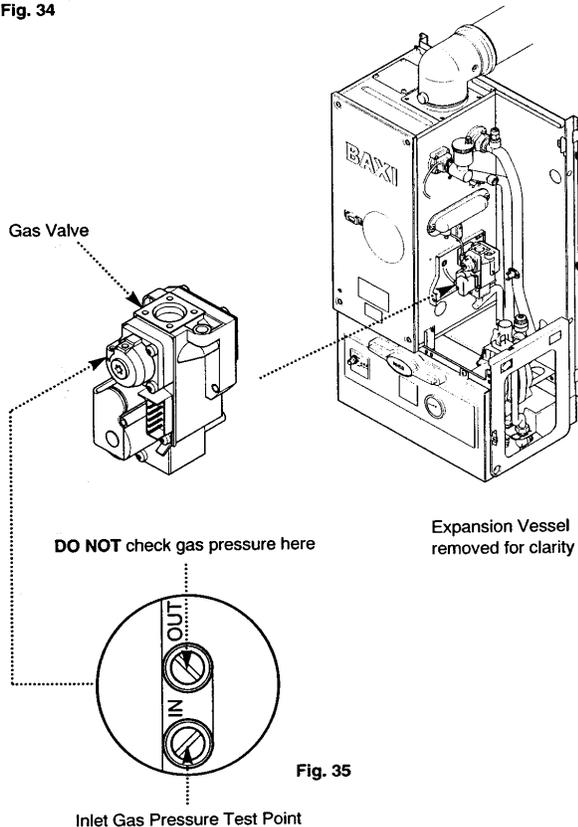


Fig. 35

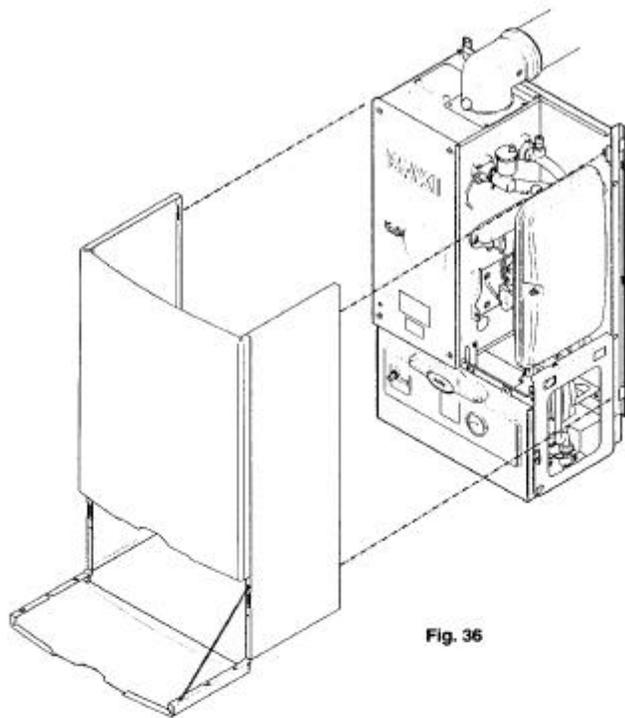


Fig. 36

### 11.1 Fitting The Outer Case

1. Position the outercase on the chassis, ensuring that the four slots in the side flanges align with the hooks on the chassis (Fig. 36).
2. Insert the two fixing screws into the sides of the chassis (Fig. 37).
3. Close the door against the retaining magnets (Fig. 37).
4. 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.
5. Instruct the user in the operation of the boiler controls. Hand over the Users Operating, Installation and Servicing Instructions and the Log Book, giving advice on the necessity of regular servicing.
5. Advise the user that a plume of vapour from the flue terminal is normal, and that there is no need for concern.

**IMPORTANT: This boiler is fitted with an aluminium alloy heat exchanger. It is important that the system is thoroughly flushed in accordance with BS 7593 and that one of the following inhibitors is used:**

**BETZ DEARBORN SENTINEL X100**

**FERNOX COPAL**

**Refer to inhibitor manufacturer's instructions for correct use. Failure to comply with this requirement will invalidate the appliance warranty. It is also important to check the inhibitor concentration after installation, system modification and at every service.**

**Date Boiler Installed** \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

**Inhibitor Used** \_\_\_\_\_

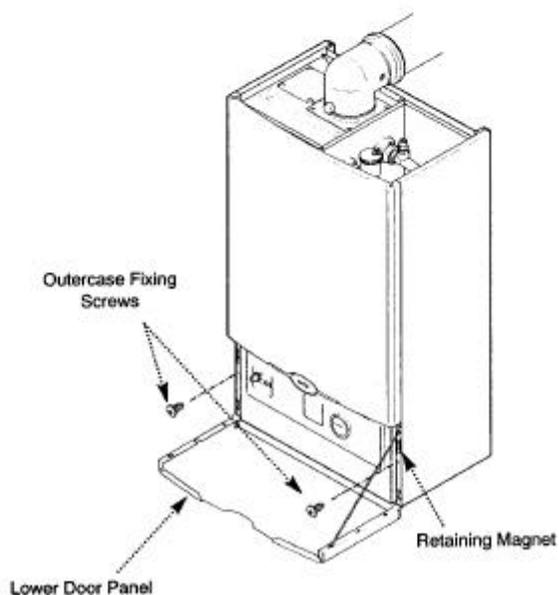
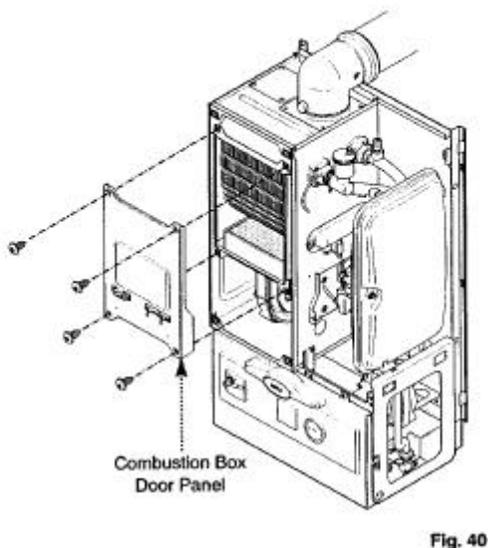
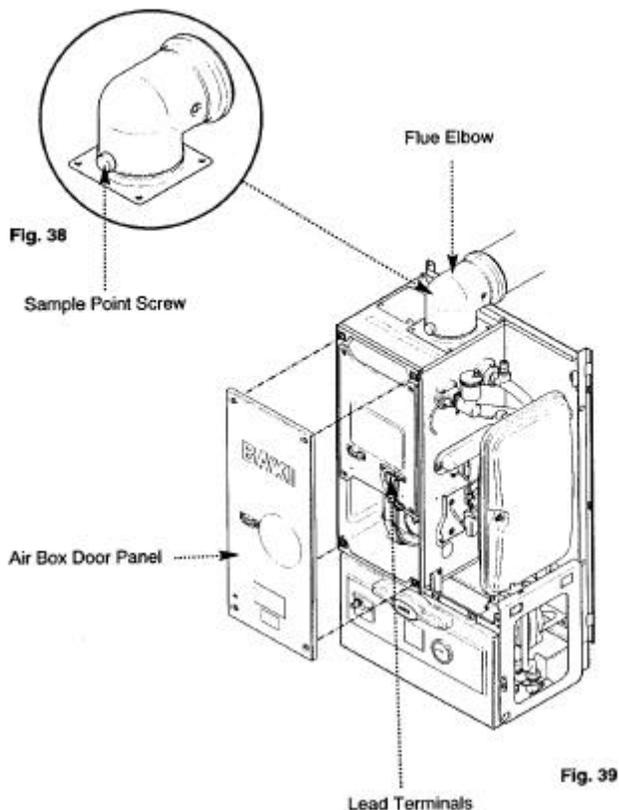


Fig. 37

6. This label is located on the electrical box front cover on the boiler. Detail of system treatment should be added for future reference.



## 12.1 Annual Servicing

**IMPORTANT:** When servicing ensure that both the gas and electrical supplies to the boiler are isolated before any work is started.

When the boiler control knob is switched off the control PCB remains live. Therefore it is important to isolate the electrical supply.

Hazardous materials are not used in the construction of Baxi products, however reasonable care during service is recommended.

When replacing the combustion box door after servicing it is essential that the retaining screws are tightened fully.

1. For reasons of safety and economy, it is recommended that the boiler is serviced annually.

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.

3. If it is intended to undertake a flue gas analysis as part of the service, then whilst the boiler is running measure the CO and CO<sub>2</sub> content of the flue products, by removing the sample point screw on the flue elbow (Fig. 38) and inserting a suitable sampling probe. If the CO/CO<sub>2</sub> ratio is greater than 0.02 then a more extensive service and investigation will be required. If the CO/CO<sub>2</sub> ratio is less than 0.02 proceed as follows:

4. Ensure that the boiler is cool.

5. **Ensure that both the gas and electrical supplies to the boiler are isolated.**

6. Remove the outcase and lower door panel (see Fitting the Outcase, Section 11.0).

7. Release the four ¼ turn screws securing the air box door panel and remove the door (Fig. 39).

8. Disconnect the three lead terminals from the combustion box door taking note of their positions (Fig. 39).

9. Undo the four screws securing the combustion box door and remove the door (Fig. 40).

10. Visually check for debris/damage and clean or replace if necessary the following:

- a) Burner (**Fragile - handle with care**).
- b) Heat exchanger fins.
- c) Fan compartment (check also for condensate leaks).
- d) Insulation.
- e) Door seals.
- f) Electrodes.
- g) Check condensate trap for debris. **NOTE:** If necessary remove the trap drain plug and place a vessel underneath to catch the condensate (care should be taken as this could be hot). Clean the trap and refit the drain plug.
- h) Top of heat exchanger.

**NOTE:** General cleaning can be undertaken using a vacuum. However debris should only be gently blown off the burner skin due to its fragile nature.

11. Check system pressure is between 1 and 2.5 bar.

12.1 Annual Servicing (Cont)

11. If CO/CO<sub>2</sub> ratio is greater than 0.02 then proceed as follows to allow removal and cleaning of inner and rear heat exchanger flueways:

- a) Disconnect the electrical leads to the fan component protection sensor (Fig. 41).
- b) Loosen the screw retaining the gas injector pipe at the venturi (Fig. 41).
- c) Undo the two wing nuts to disconnect the fan (Fig. 41).
- d) Remove the fan and disconnect the electrical supply to it (Fig. 41).
- e) Remove the gas injector pipe from the gas valve (push-fit) (Fig. 41).

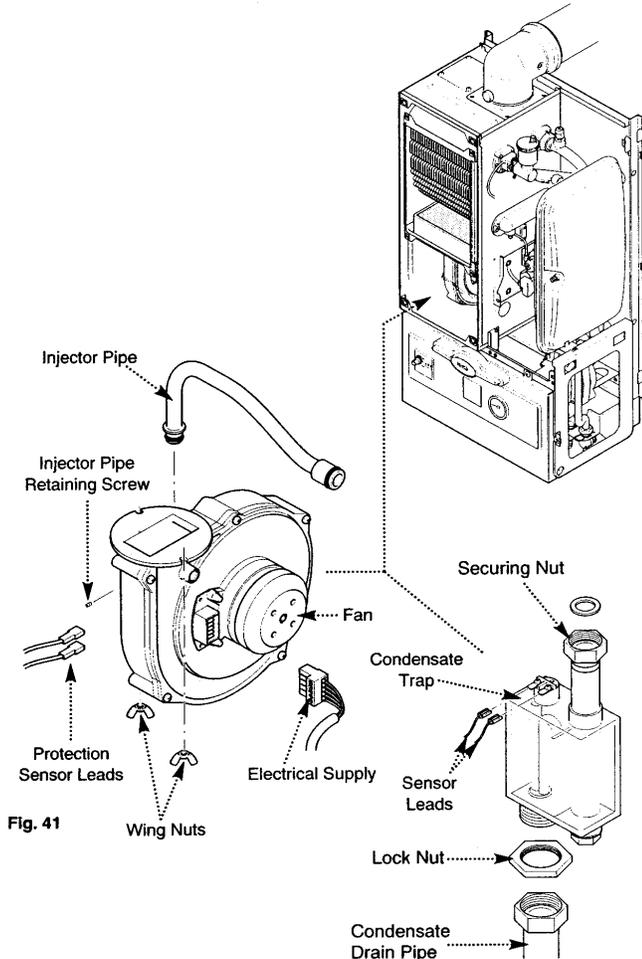


Fig. 42

- f) Undo the condensate trap securing nut, lock nut and the condensate drain pipe. Remove the condensate trap and disconnect the sensor leads (Fig. 42).
- g) Remove the two screws securing the burner and remove the burner. Visually inspect the internal burner baffle for obstruction.

**NOTE: The burner skin is fragile - handle with care. Clean and if necessary replace the burner (Fig. 43) (see note, page 26).**

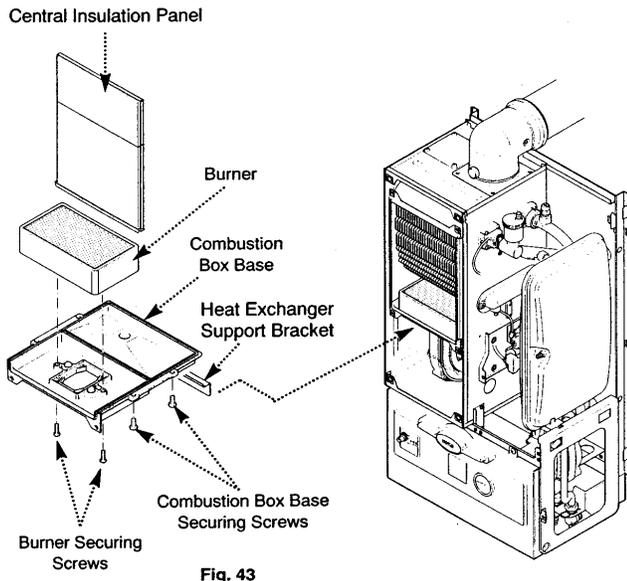


Fig. 43

- h) Loosen the two screws retaining the heat exchanger support bracket and slide to the left to remove (Fig. 43).
- i) Remove the four screws securing the heat exchanger/combustion box base and withdraw the base.
- j) Lower the central insulation panel and check condition (Fig. 43). Replace the lower insulation pad if necessary.
- k) Ensure the heat exchanger fins are clear of any obstruction.
- l) Check condition of all seals.
- m) Reassemble in reverse order.

12. Complete the relevant Section of the "Benchmark" Installation, Commissioning and Service Record Log Book and hand it back to the user.

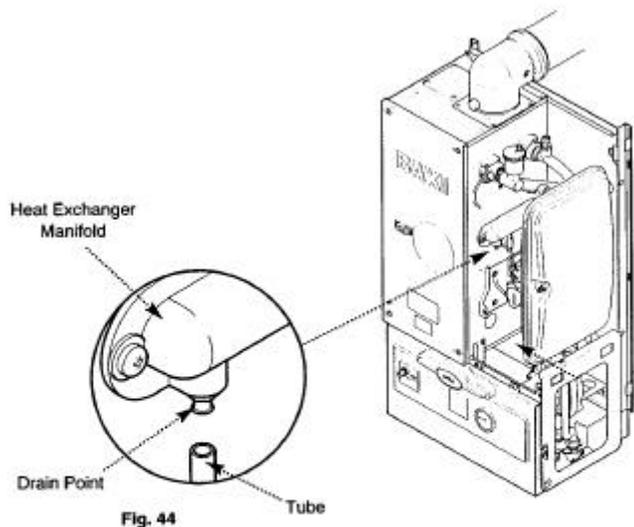


Fig. 44

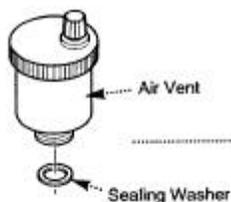
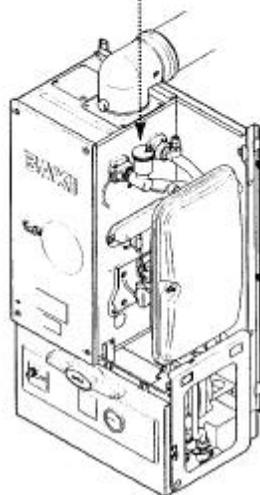


Fig. 45



### 13.1 Changing Components

**IMPORTANT:** When changing components ensure that both the gas and electrical supplies to the boiler are isolated before any work is started.

When the boiler control knob is switched off the control PCB remains live. Therefore it is important to isolate the electrical supply.

Hazardous materials are not used in the construction of Baxi products, however reasonable care during service is recommended.

When replacing the combustion box door after changing components it is essential that the retaining screws are tightened fully.

1. Remove the outer case and lower door panel (see "Fitting the Outercase" Section 11.0).

2. Isolate the water circuit and drain the system as necessary. There are 3 drain points:

- a) Flow Valve
- b) Heat Exchanger Manifold
- c) Return Valve

**NOTE:** Do not use the Pressure Relief Valve to drain the circuit.

**NOTE:** When reassembling always fit new 'O' rings, ensuring their correct location on the spigot. Green 'O' rings are used for gas joints and Black 'O' rings for water joints. Use Greasil 4000 (Approved Silicone Grease).

3. After changing a component re-commission the boiler where appropriate and check the inhibitor concentration (see Section 6.2 and 10.1).

The air vent, flowswitch, thermistor, safety thermostat and expansion vessel can be accessed after removal of the outer case.

### 13.2 Automatic Air Vent (Fig. 45)

1. Drain the boiler.
2. Undo the air vent from the return pipe and retain the sealing washer.
3. Remove the air vent.
4. Fit the new air vent and reassemble in reverse order.

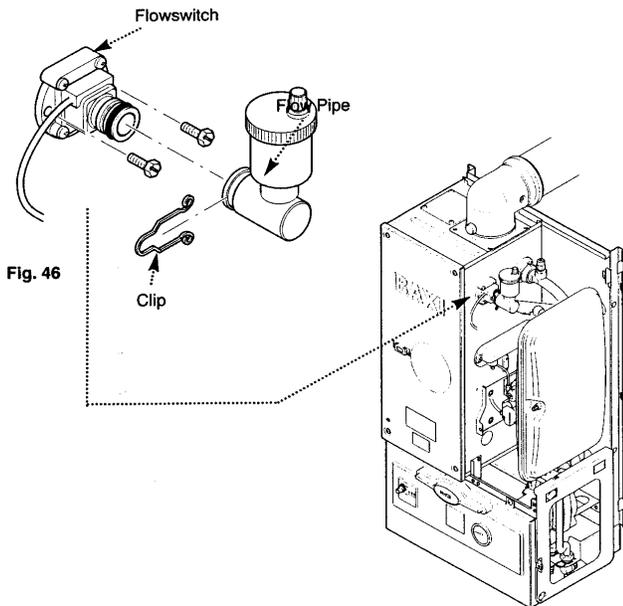


Fig. 46

### 13.3 Flowswitch (Fig. 46)

1. Drain the boiler (see Section 13.1 paragraph 2 & 3).
2. It may be necessary to remove the expansion vessel (see Section 13.5).
3. Remove the clip securing the flow pipe to the flowswitch.
4. Remove the two screws securing the flow switch to the boiler.
5. Disconnect the inline electrical connection.
6. Remove the flowswitch.
7. Fit the new flowswitch and reassemble in reverse order.
8. Recommission the boiler and check the inhibitor concentration (see Section 6.2 and 10.1).

### 13.4 Flow Temperature Thermistor and Safety Thermostat (Fig. 47)

1. The procedure is the same for both the thermistor and the safety thermostat.
2. Remove the electrical connections from the sensor.
3. Unscrew the sensor from the pipe.
4. Fit the new thermistor or safety thermostat and reassemble in reverse order.

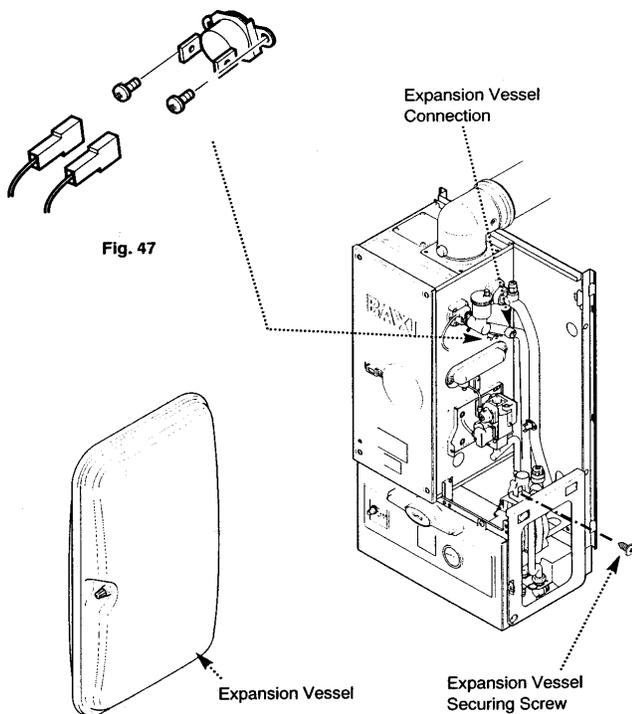


Fig. 47

### 13.5 Expansion Vessel (Fig. 48)

1. Drain the boiler (see Section 13.1 paragraph 2 & 3).
2. Loosen the securing screw at the base of the expansion vessel.
3. Whilst supporting the vessel under the expansion vessel connection and retain the sealing washer.
4. Remove the expansion vessel.
5. Fit the new expansion vessel and reassemble in reverse order.

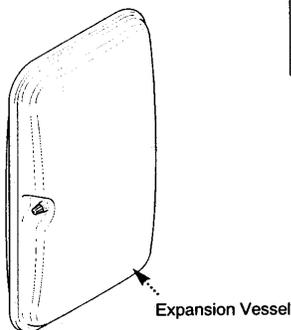


Fig. 48

### 13.6 Re-pressuring Expansion vessel

1. The charge pressure is 1.0 bar.
2. Close the central heating flow and return isolating valves.
3. Drain the boiler (see Section 13.1 paragraph 2 & 3).
4. The "Schraeder" valve is positioned centrally at the side of the appliance. Pressurise to 1.0 bar.
5. Open the isolating valves and recharge the system to between 1.0 bar and 2.5 bar. Vent the system as necessary.

The Pump, interface PCB, pressure gauge and pressure relief valve can be accessed after hinging down the facia box.

1. Release the facia securing screws (¼ turn) and hinge down the facia box.

**13.7 Pump (Fig. 49)**

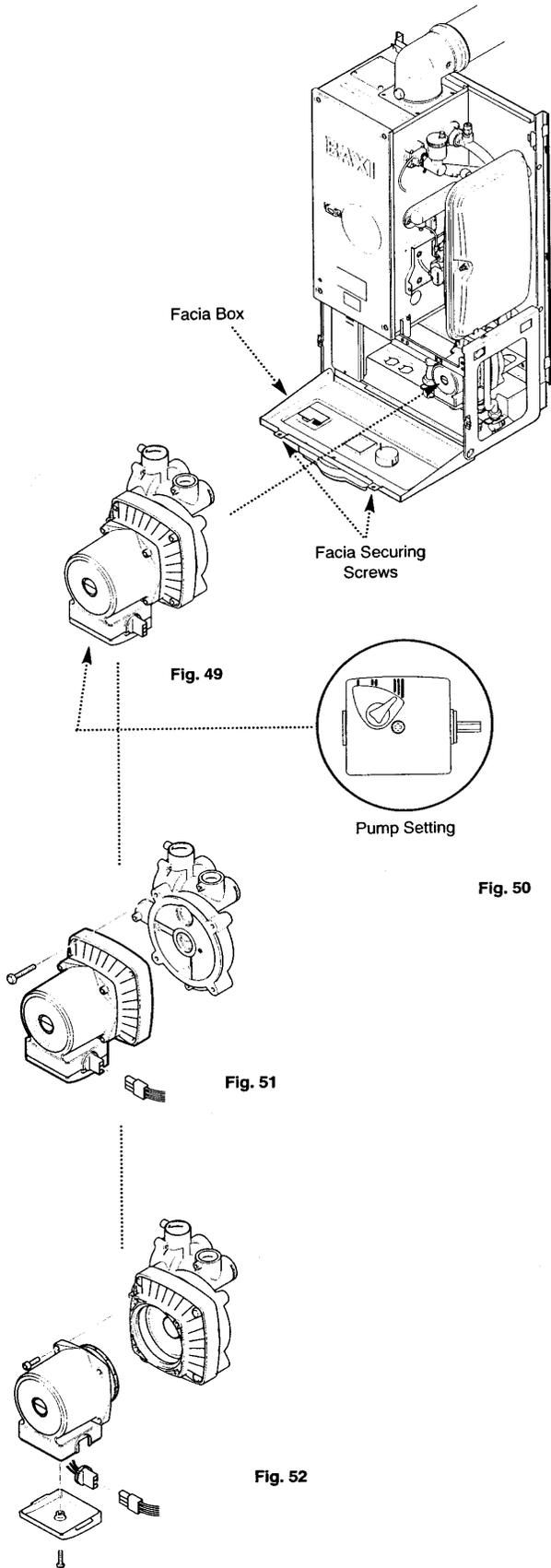
1. If only the head needs replacing. A standard Grundfos UPS 15-60 pump head is interchangeable (see section 13.13 for details).
2. This must be switched to setting N° 3 (Fig. 50).

**13.8 Pump (Complete) (Fig. 51)**

1. Drain the boiler (see Section 13.1 paragraph 2 & 3).
2. Unplug the wiring harness from the pump.
3. Remove the four screws retaining the pump backplate to the hydraulic manifold.
4. Remove the pump.
5. Fit the new pump and reassemble in reverse order.

**13.9 Pump (Head Only) (Fig. 52)**

1. Drain the boiler (see Section 13.1 paragraph 2 & 3).
2. Unplug the wiring harness from the pump.
3. Remove the four socket head screws securing the pump head and separate it from the housing.
4. Remove the screws retaining the pump electrical covers on the original and replacement heads.
5. From the replacement UPS 15-60 pump head remove the strain relief cable gland and discard.
6. Remove the plug connector from the old pump head and wire it into the UPS 15-60 pump head.
7. Replace the electrical cover to the new pump head and assemble with the electrical box at 6 o'clock to the housing.
8. Check that the pump has been switched to setting N°3 (Fig. 50) and reconnect the wiring harness plug.



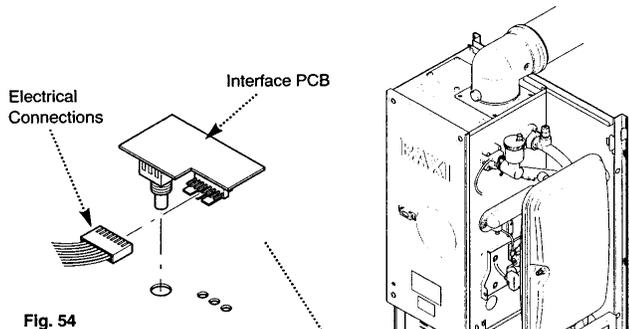


Fig. 54

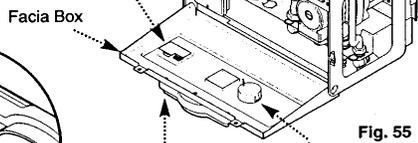


Fig. 53

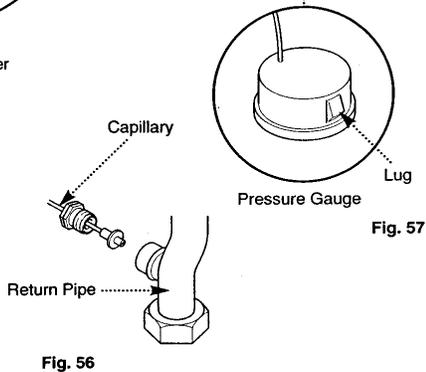


Fig. 56

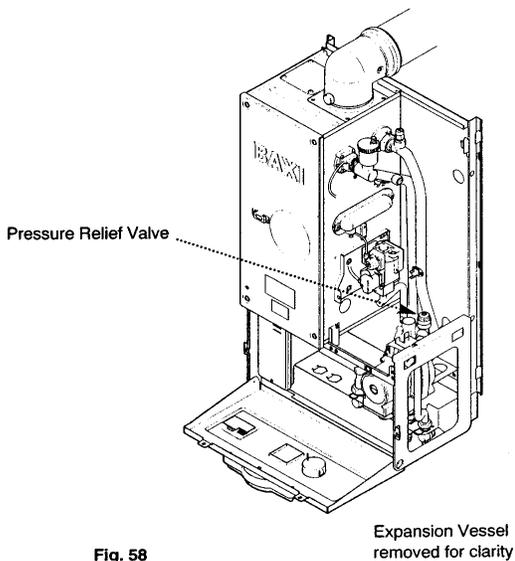


Fig. 58

**13.10 Interface PCB**

1. Pull the control knob off the spindle and remove the securing nut and washer (Fig. 53).
2. Lift the PCB from the facia box and remove the electrical connections (Fig. 54).
3. Fit the new PCB and reassemble in reverse order.

**13.11 Pressure Gauge**

1. Drain the boiler (see Section 13.1 paragraph 2 & 3).
2. Undo the nut retaining the capillary in the connection at the return pipe (Fig. 56).
3. Depress the two lugs on either side of the pressure gauge and feed through facia (Fig. 57).
4. Fit new pressure gauge and reassemble in reverse order.

**13.12 Pressure Relief Valve (Fig. 58)**

1. The pressure relief valve is positioned on the hydraulic manifold at the back of the pump.
2. Drain the boiler (see Section 13.1 paragraph 2 & 3).
3. Disconnect the union between the valve and the discharge pipe.
4. Slacken the screw retaining the valve.
5. Pull the valve upwards to disengage it.
6. Fit the new pressure relief valve and reassemble in reverse order.

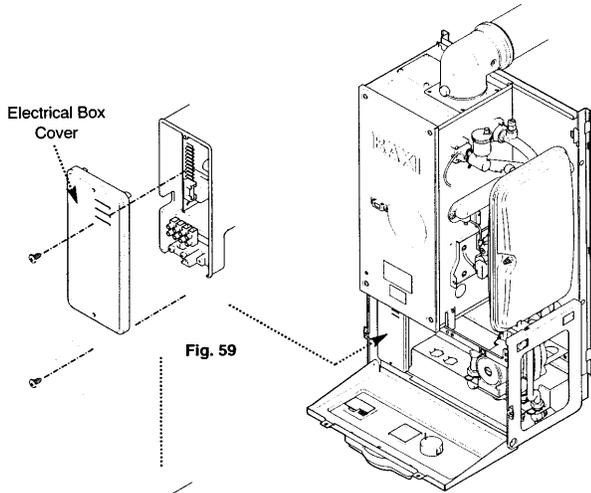


Fig. 59

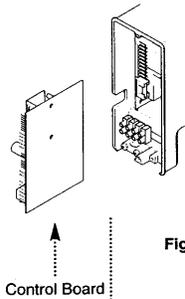


Fig. 60

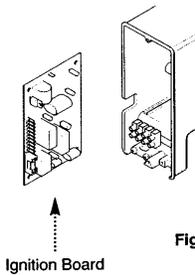


Fig. 61

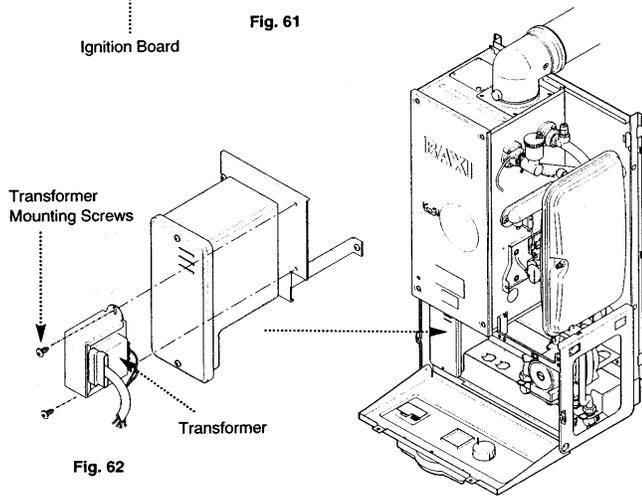


Fig. 62

The control and ignition boards can be accessed on the removal of the main electrical box cover.

1. Remove the two screws securing the main electrical box cover (Fig. 59).

### 13.13 Control Board (Fig. 60)

1. Slide out the control board (right hand side) and disconnect the electrical connections noting their positions.
2. Check if the two jumper connections have been removed from the board - see section 8.7. If so, remove the jumpers from the new control board.
3. Fit the new control board and reassemble in reverse order.

### 13.14 Ignition Board (Fig. 61)

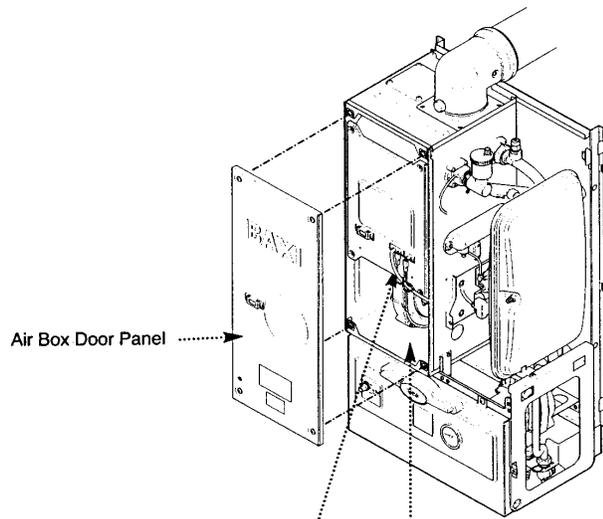
1. Remove the control board, (13.5) and slide out the ignition board (left hand side) and disconnect the electrical connections noting their positions.
2. Fit the new ignition board and reassemble in reverse order.

### 13.15 Transformer (Fig. 62)

1. Remove the transformer connection from the control board.
2. The transformer is mounted to the right of the electrical box.
3. Remove the two transformer mounting screws and remove the transformer.
4. Fit the new transformer and reassemble in reverse order.

The fan and venturi, gas valve, injector pipe, condensate trap, fan protection sensor, spark and sensing electrodes can be accessed and changed on the removal of the airbox door panel.

1. Remove the airbox door panel by loosening the four ¼ turn screws (Fig. 63).



### 13.16 Spark and Sensing Electrodes (Fig. 64)

1. Disconnect the supply to the electrodes noting their positions (left to right):

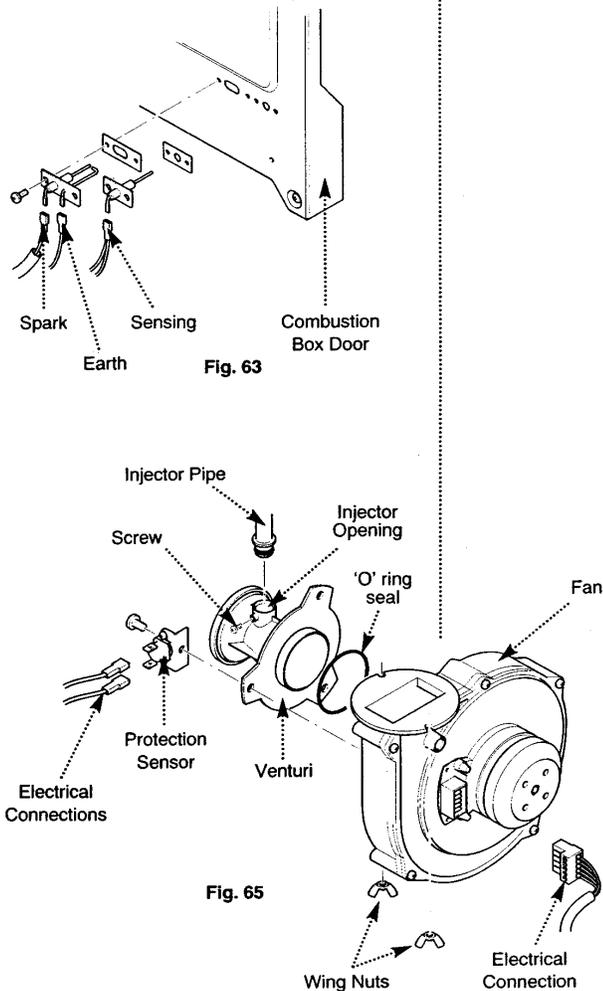
Spark	-	Opaque cable
Earth	-	Black cable
Sensing	-	White cable

2. Remove the two screws securing each of the electrodes to the combustion box door and remove the electrodes.

3. Fit the new electrodes and reassemble in reverse order.

### 13.17 Fan (Fig. 65)

1. Loosen the screw holding the injector pipe into the venturi.
2. Remove the electrical connections to the fan protection sensor on the fan.
3. Remove the wing nuts securing the fan to the base of the combustion box.
4. Lower the fan and remove.
5. Disconnect the electrical supply from the right hand rear of the fan.
6. If changing the fan remove the screws securing the venturi and fan protection sensor bracket, noting the positions of the injector opening and sensor bracket, fix them to the new fan.
7. Fit the new fan and reassemble in reverse order.



The injector pipe, condensate trap and gas valve can be changed after the removal of the fan.

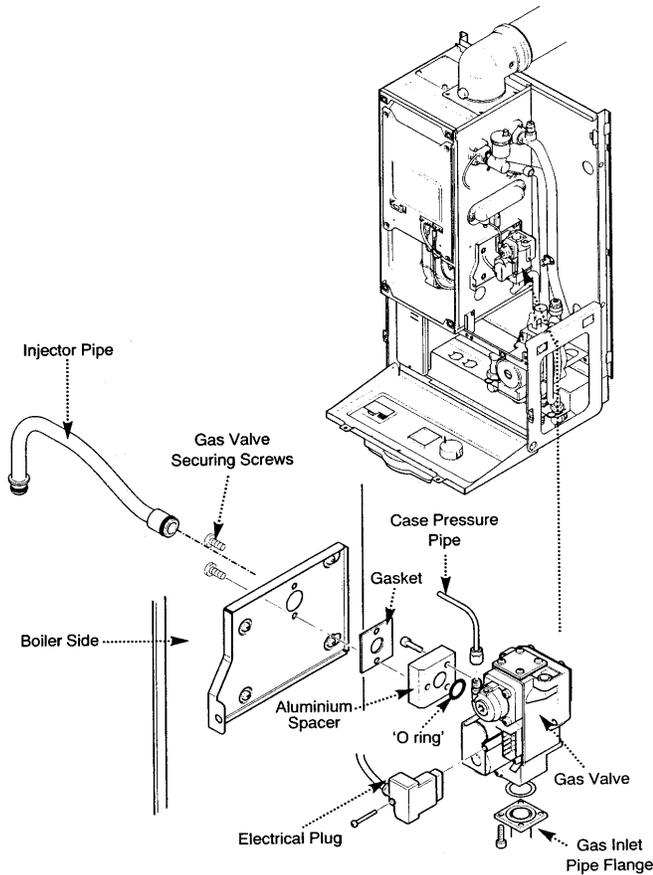


Fig. 66

The removal of the fan is necessary to enable the changing of the injector pipe, condensate trap and gas valve (see section 13.17).

**13.18 Injector Pipe (Fig. 66)**

1. Remove the injector pipe by pulling out from the 'O' ring joint in the gas valve.
2. Fit the new injector pipe and reassemble in reverse order.

**13.19 Gas Valve (Fig. 66)**

1. Release user interface and pivot downward for better access.
2. Remove the four screws securing the gas inlet pipe flange to the gas valve.
3. Undo the case pressure pipe from the gas valve.
4. Undo the screw and disconnect the electrical plug from the gas valve.
5. Remove the two gas valve securing screws from inside the air box holding the gas valve.
6. Remove the gas valve from the airbox side.
7. Remove the nut union, aluminium spacer and its gasket from the gas valve.
8. Fit the nut union, aluminium spacer and its gasket to the new valve.
9. Fit the new gas valve and reassemble in reverse order.

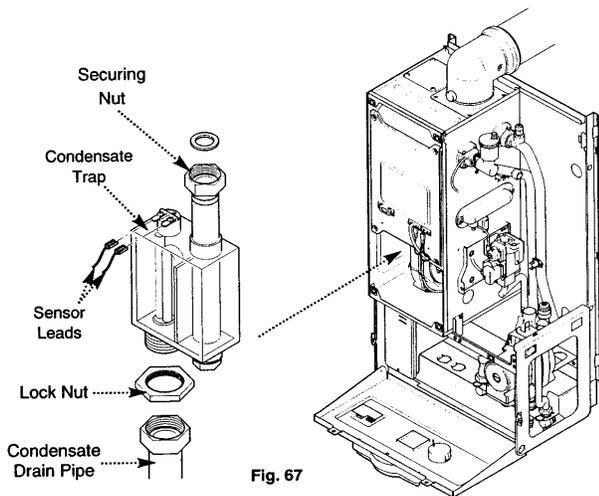


Fig. 67

**13.20 Condensate Trap (Fig. 67)**

1. Disconnect the condensate trap from the base of the heat exchanger.
2. Disconnect the condensate drain (outside the boiler) from the condensate trap.
3. Undo the condensate trap lock nut.
4. Remove the condensate trap from the boiler.
5. Disconnect the sensor leads.

Fit the new condensate trap and reassemble in reverse order.

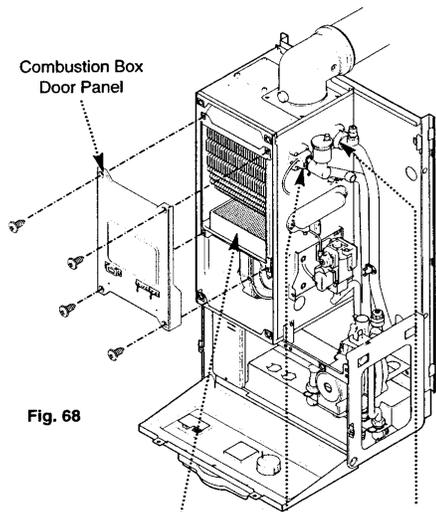


Fig. 68

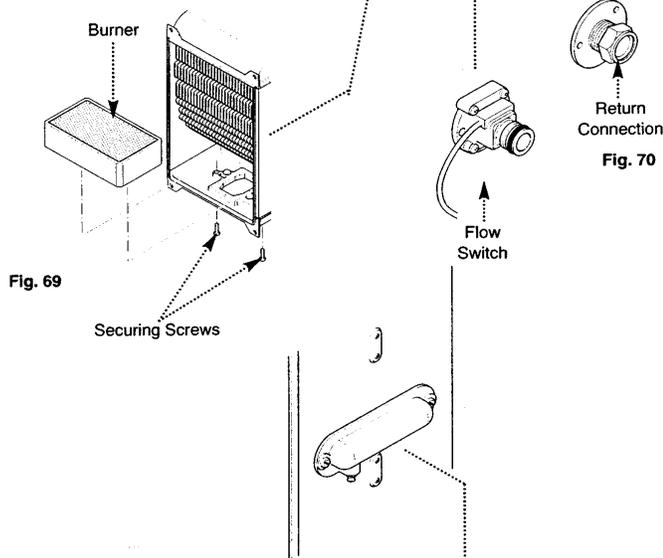


Fig. 69

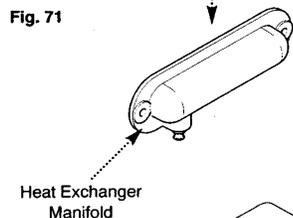


Fig. 71

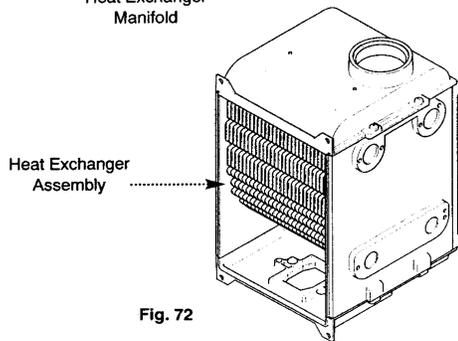


Fig. 72

The burner and heat exchanger can be changed after removal of the combustion box door. To change the heat exchanger, the fan and burner must be removed first (see section 13.17 & 13.21).

1. Remove the combustion box door by removing the four securing screws (Fig. 68).

### 13.21 Burner (Fig. 69)

**WARNING: The burner skin is fragile: Handle with care**

1. Remove the two screws securing the burner to the base of the combustion box.
2. Remove the burner carefully from the combustion box base.
3. Fit the new burner and reassemble in reverse order. Fig. 70

### 13.22 Heat Exchanger

1. Drain the boiler (see section 13.1 paragraph 2 & 3).
2. Remove all components in the base of the airbox.
3. Remove the screws securing the flow switch and return connections and remove the connections (Fig. 70).
4. Remove the electrical connections from the P.C.B.s.
5. Remove the screws securing the heat exchanger manifold and remove the manifold (Fig. 71).
6. Lift the heat exchanger assembly (Fig. 72) and rotate the bottom upwards whilst pulling it forwards out of the airbox.
7. Fit the new heat exchanger and reassemble in reverse order.
8. Recommission the boiler and check the inhibitor concentration (see Section 6.2 and 10.1).

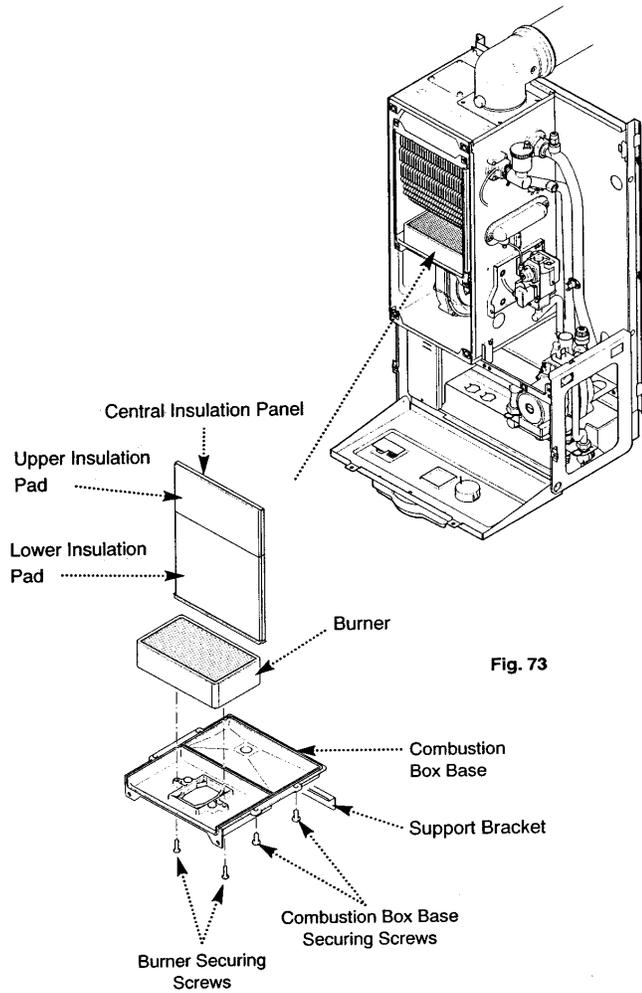


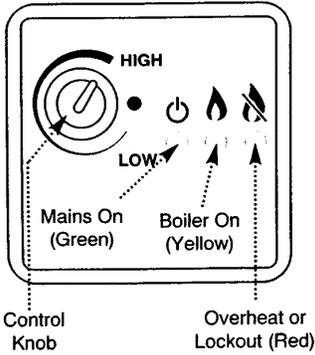
Fig. 73

### 13.23 Heat Exchanger Lower Insulation Pad (Fig. 73)

1. Remove all components in the base of the airbox.
2. Remove the burner (see section 13.21).
3. Remove the four bolts securing the combustion box base.
4. Remove the combustion box base.
5. Pull the central insulation panel down from the centre of the heat exchanger and remove the lower insulation pad.
6. Fit the new insulation pad and reassemble in reverse order.

### 13.24 Heat Exchanger Upper Insulation Pad (Fig. 73)

1. Remove all components in the base of the airbox.
2. Remove the burner (see section 13.21).
3. Remove the heat exchanger (see section 13.22).
4. Remove the four bolts securing the combustion box base.
5. Remove the combustion box base.
6. Pull the central insulation panel down from the centre of the heat exchanger.
7. Fit the new insulation pad and reassemble in reverse order.

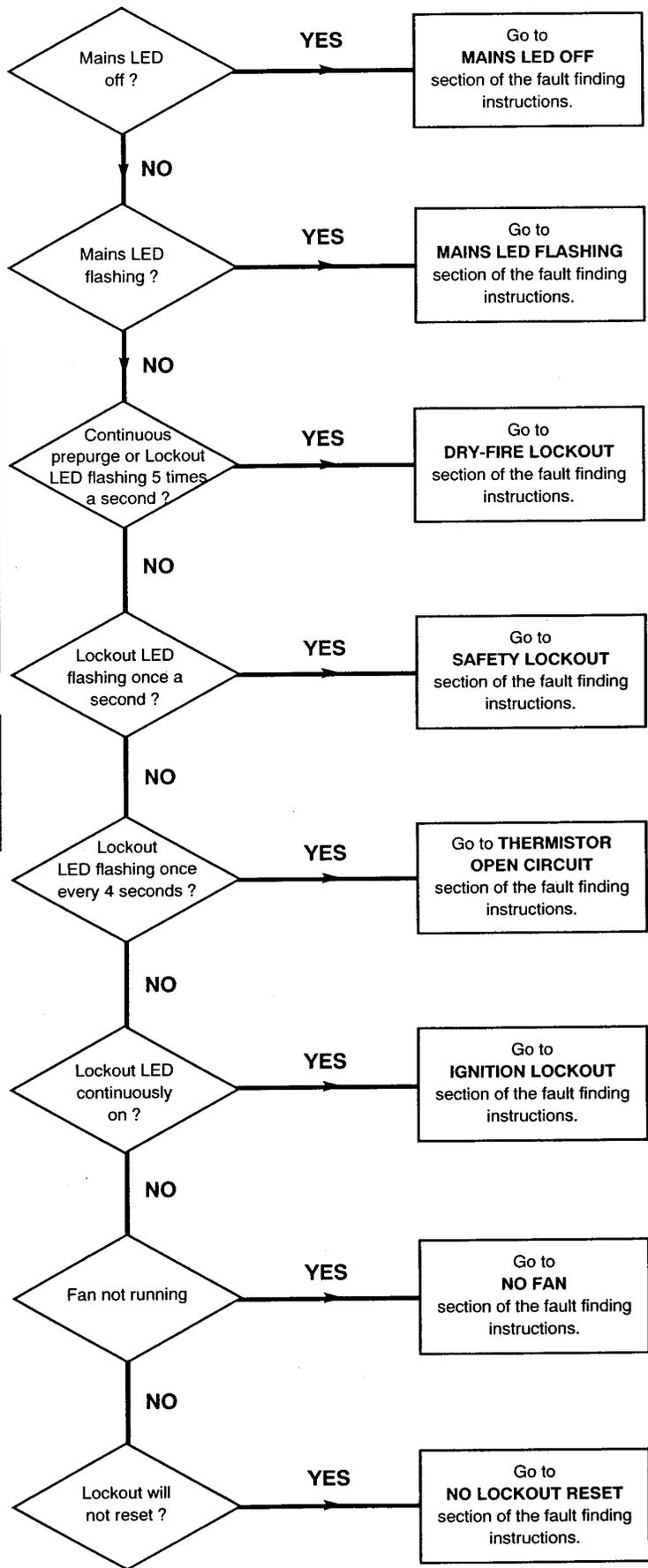


**Please Check Following Points Before Going Through The Fault Finding Chart.**

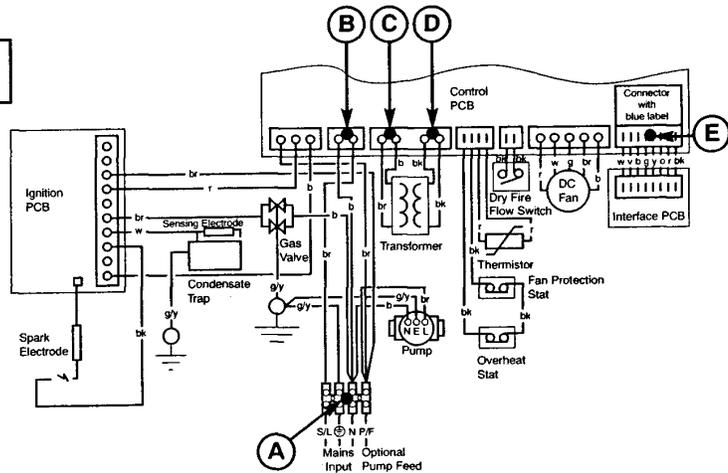
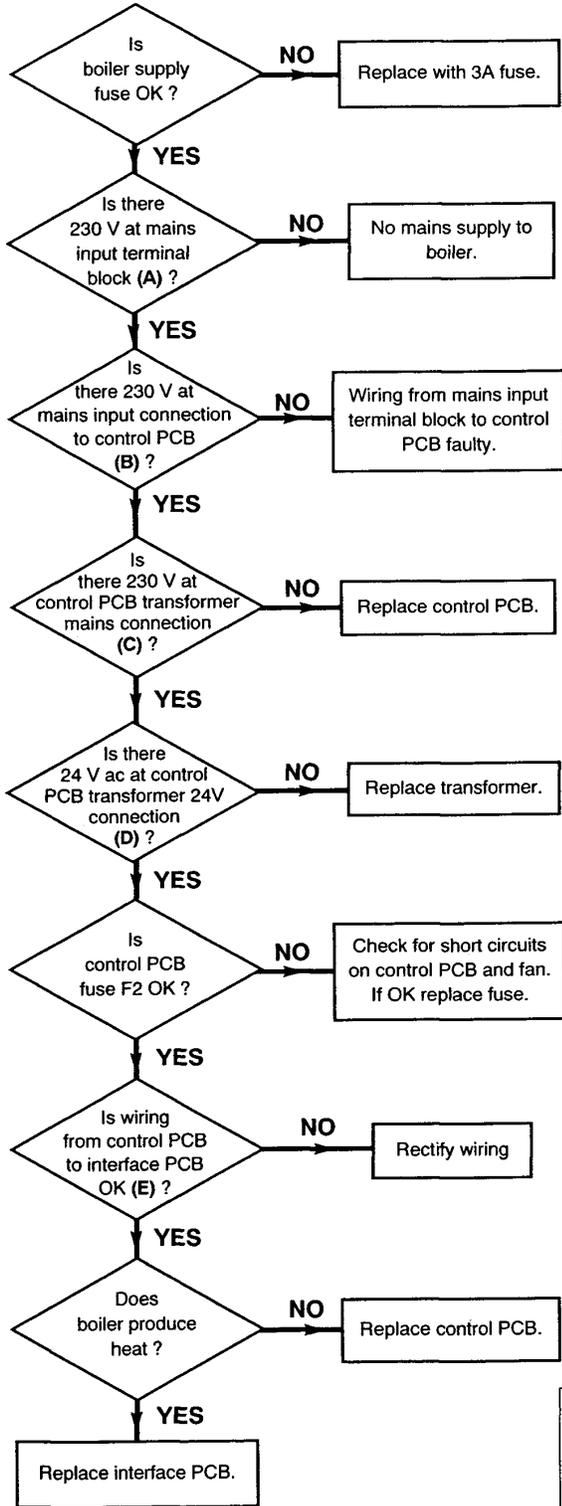
- Check electrical system earth continuity, short circuit, resistance to earth, fuse failure and a minimum voltage of 195 is present at input connections on boiler, check internal fuse is OK, unit is not in lockout.
- There is an adequate gas supply pressure at the inlet, (preferred minimum pressure is natural gas 19.5 mbar).
- All isolating valves are open and both the boiler and the system are vented.
- Check installation is correct, including the flue system.

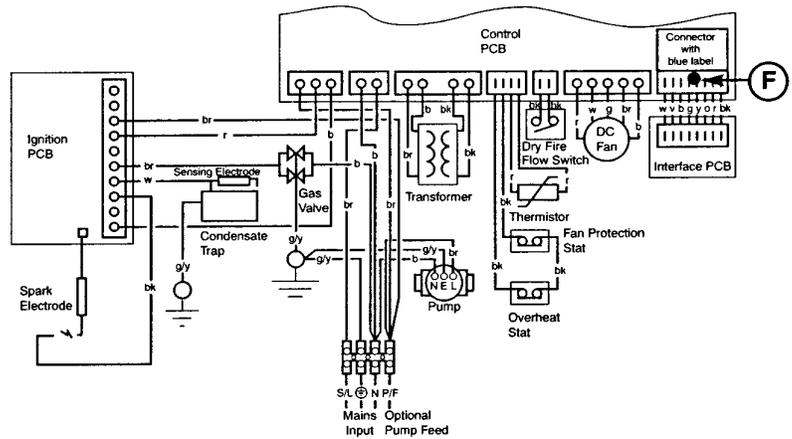
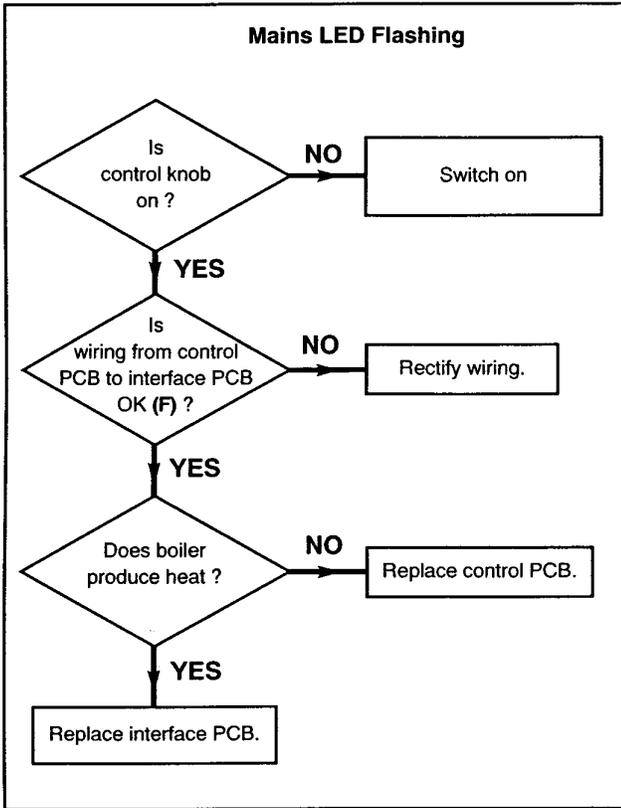
**IMPORTANT**

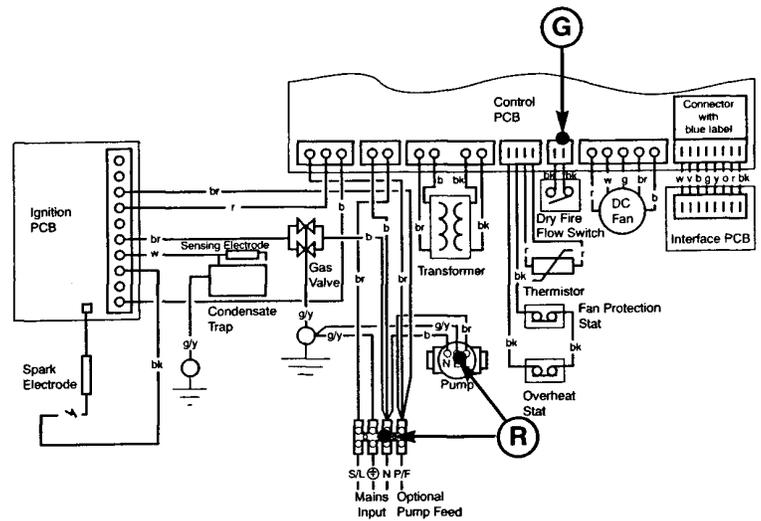
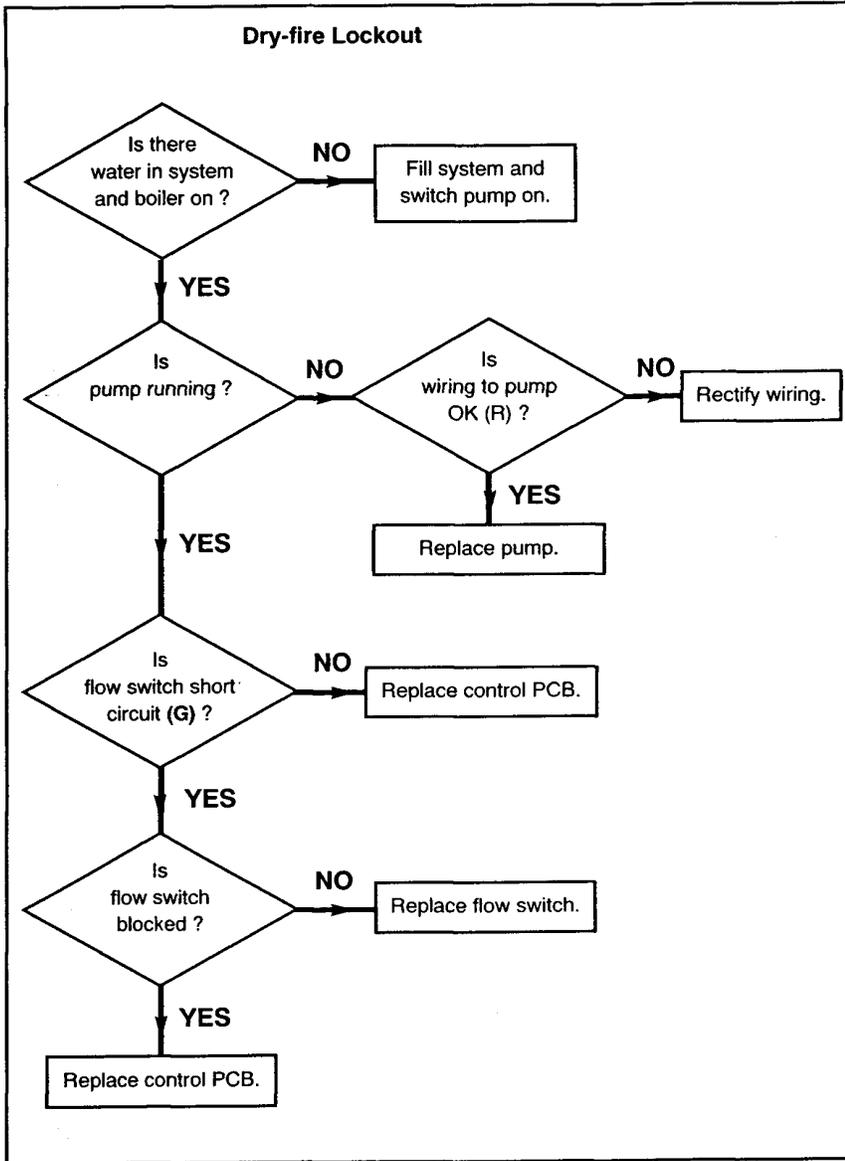
If the system requirements are greater than 23.45kW (80,000 Btu/hr) the appliance can be updated to 33.76kW (100,000 Btu/hr). See section 8.7

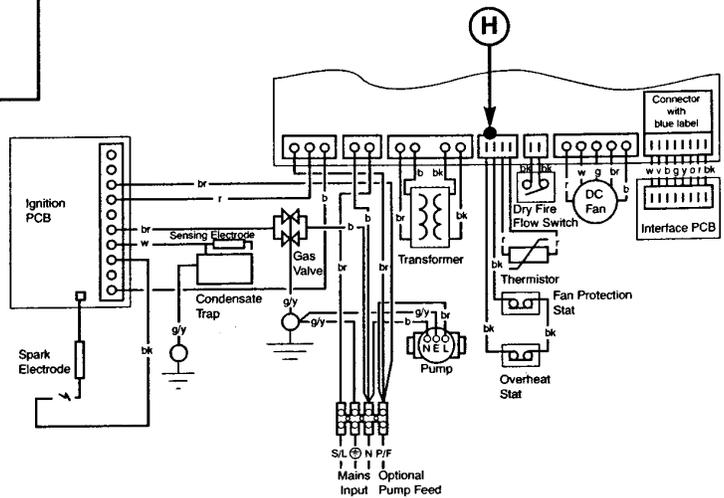
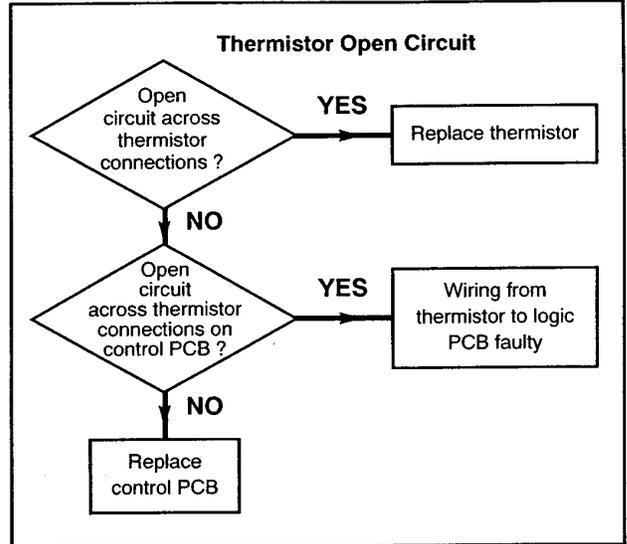
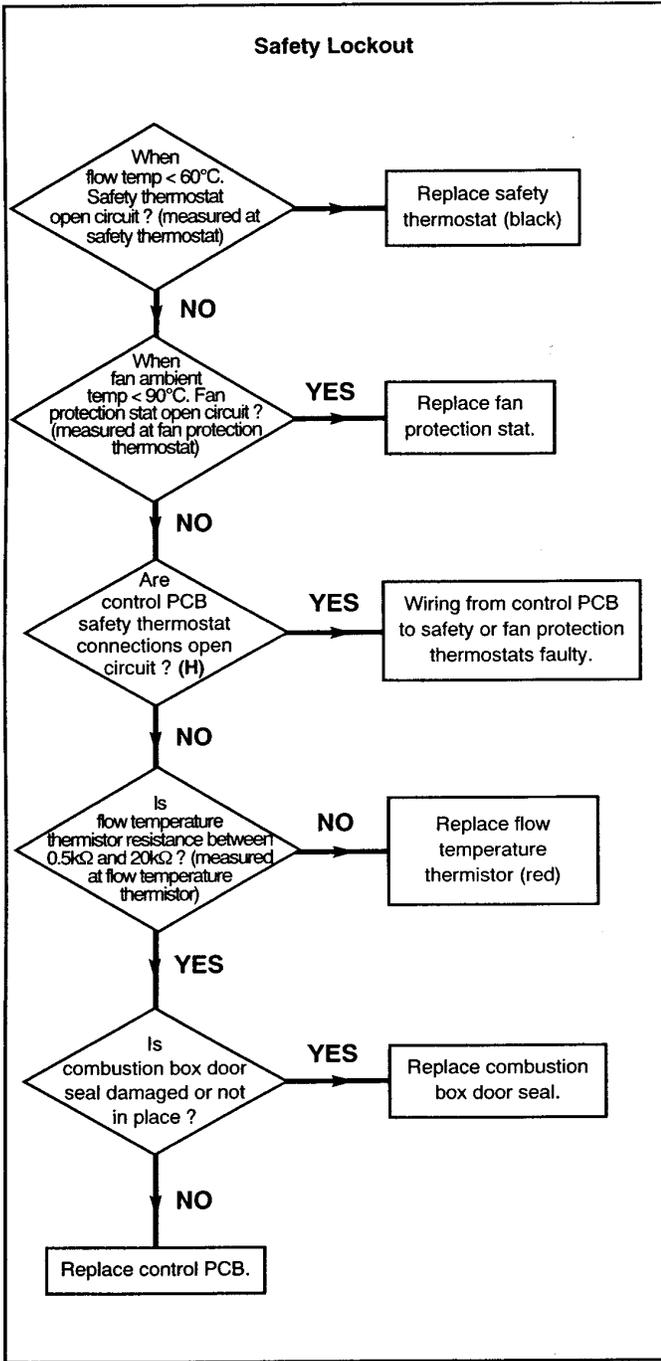


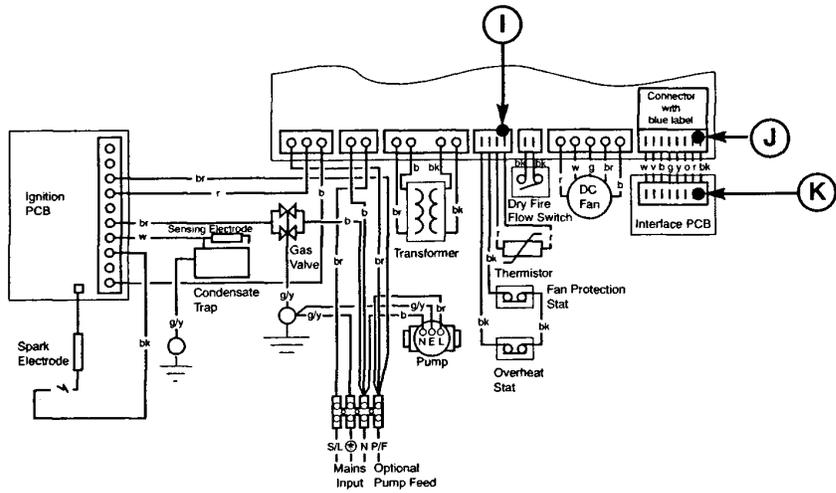
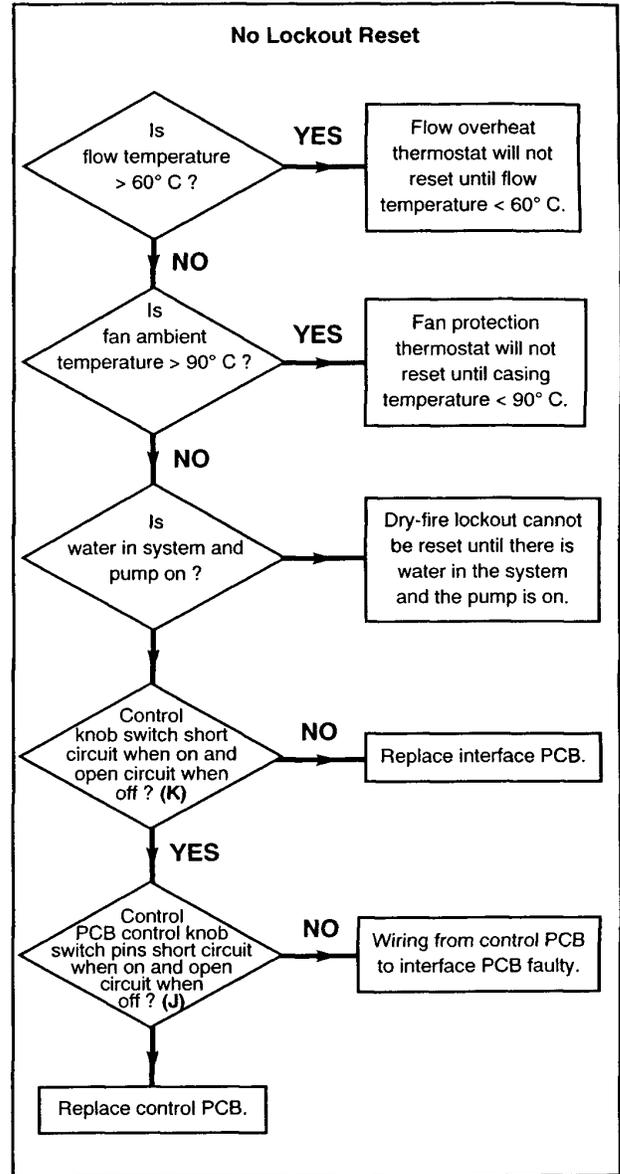
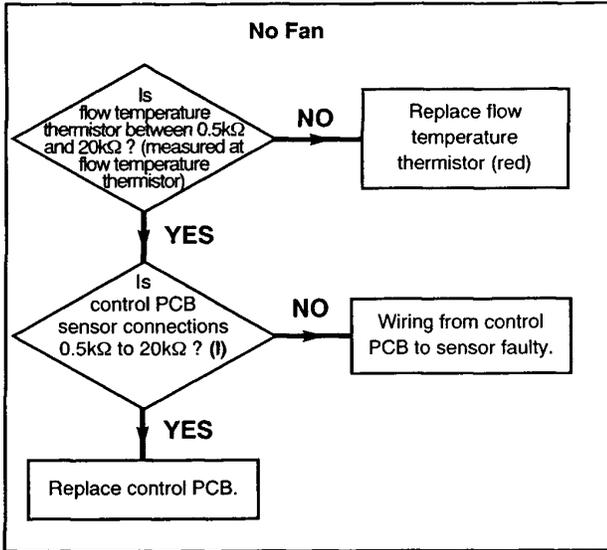
Mains LED Off



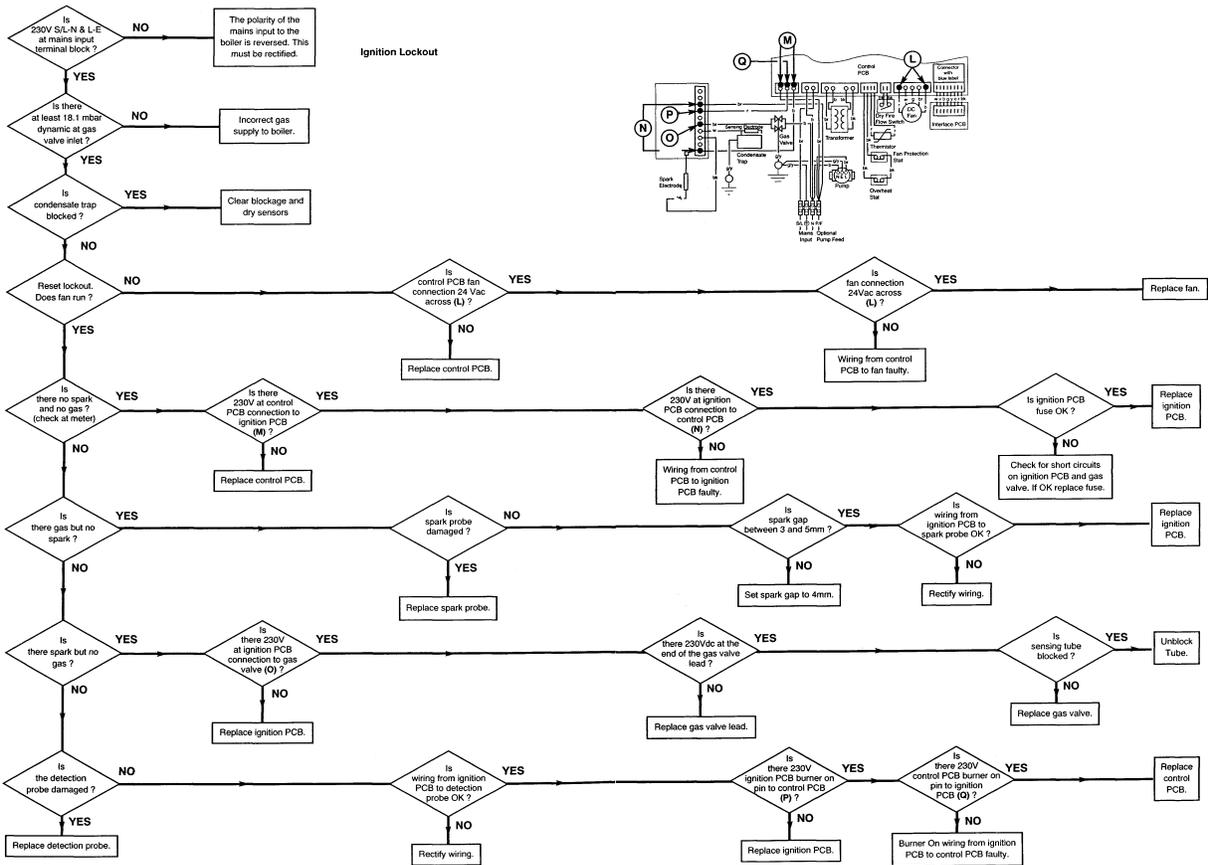






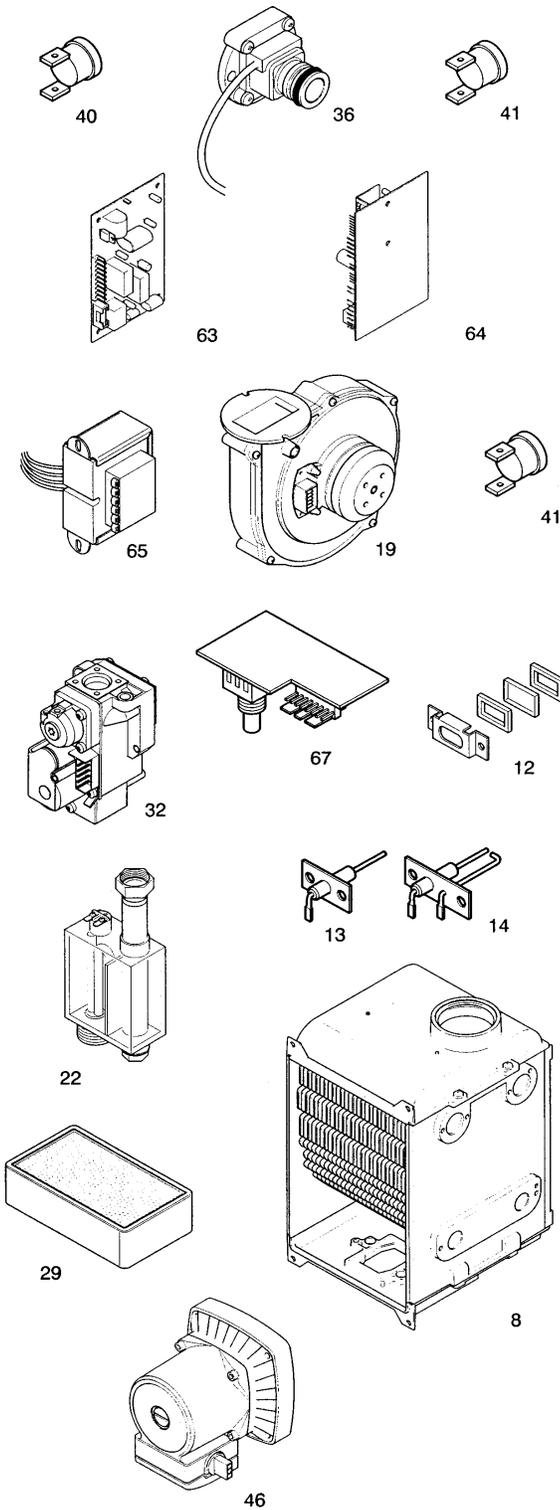


### 4.0 Fault Finding- Page 44 - 45





# 15.0 Short Parts List - Page 46



## Short Parts List

Key No.	G.C. No.	Description	Manufacturers Part No.
40	E06 058	Flow Temperature Thermistor (Red)	242458
36	E06 059	Flow Switch	242459
41	E06 060	Safety Thermostat (Black)	242460
64	E06 064	Control PCB	242463
63	E06 065	Ignition PCB	242464
65	E06 066	Transformer	242465
19	E06 074	Fan	242472
32	E06 075	Gas Valve	242473
67	E06 079	Interface PCB	242477
12	E06 085	Viewing Window	242484
22	E06 086	Condensate Trap	242485
13	E24 460	Electrode Burner	244736
14	E24 461	Sensing Electrode	244737
41	E06 060	Thermostat	242460
29	E06 093	Burner Assy	242492
8	E06 097	Heat Exchanger Assy	242497
46	E02 762	Pump	241157

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