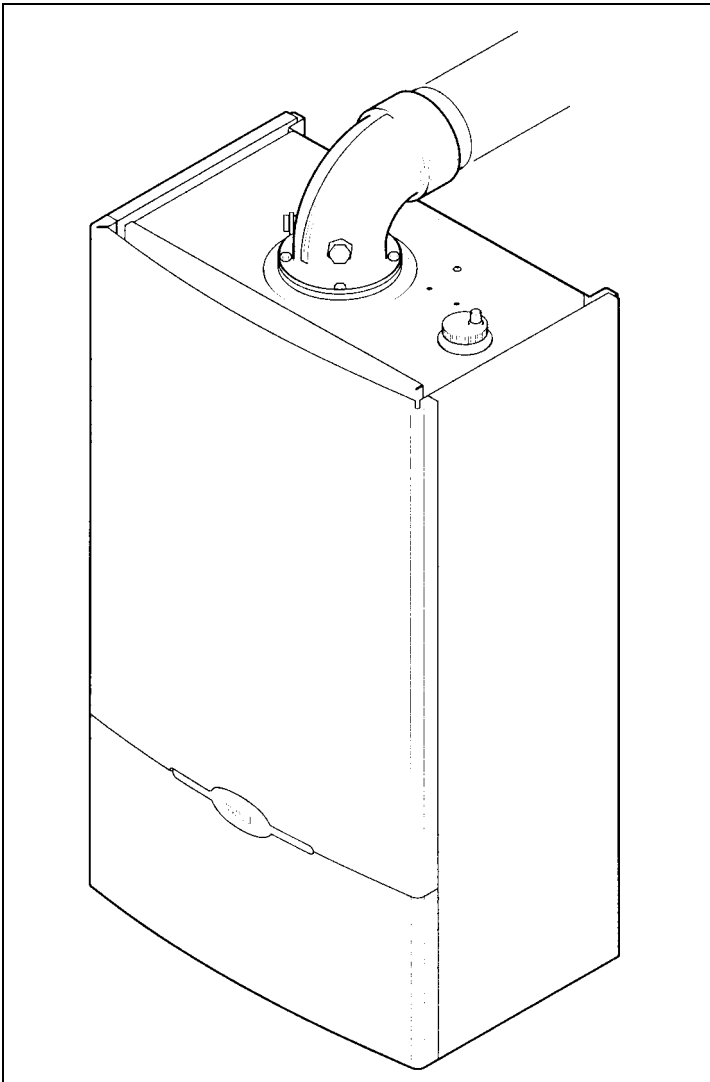


# Baxi Bahama 100

Gas Fired Wall Mounted Combination Boiler

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## Installation and Servicing Instructions



**BAXI**

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## Natural Gas

### Baxi Bahama 100

G.C.N° 47 075 02

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:-

Type test for purpose of Regulation 5 certified by:  
Notified Body 0086.

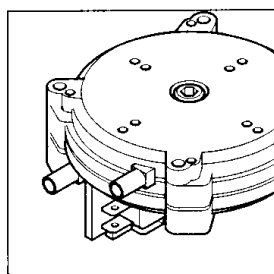
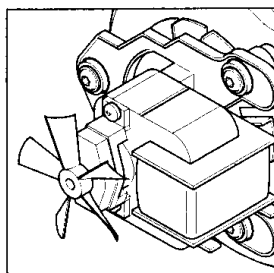
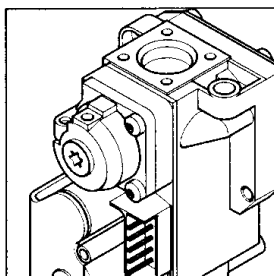
Product/Production certified by:  
Notified Body 0086.

For GB/IE only.



Baxi is a BS-EN ISO 9001  
Accredited Company

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Fig. 1

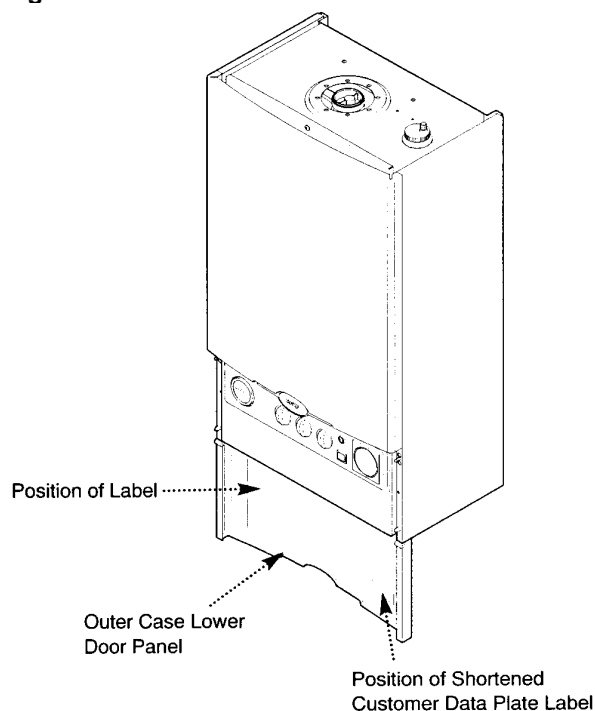
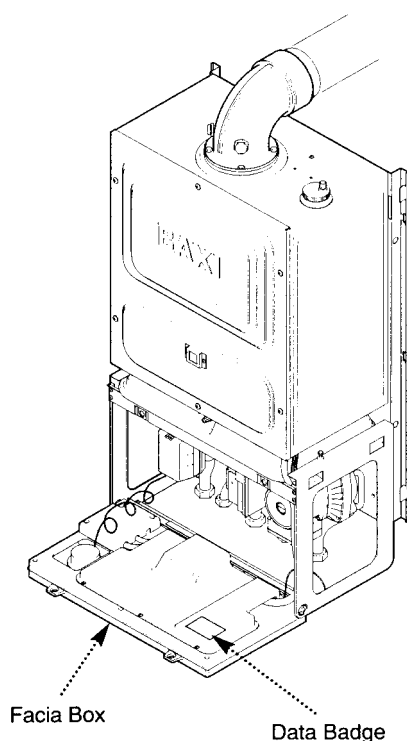


Fig. 2



## “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.

**NOTE:** 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.

## 1.1 Description

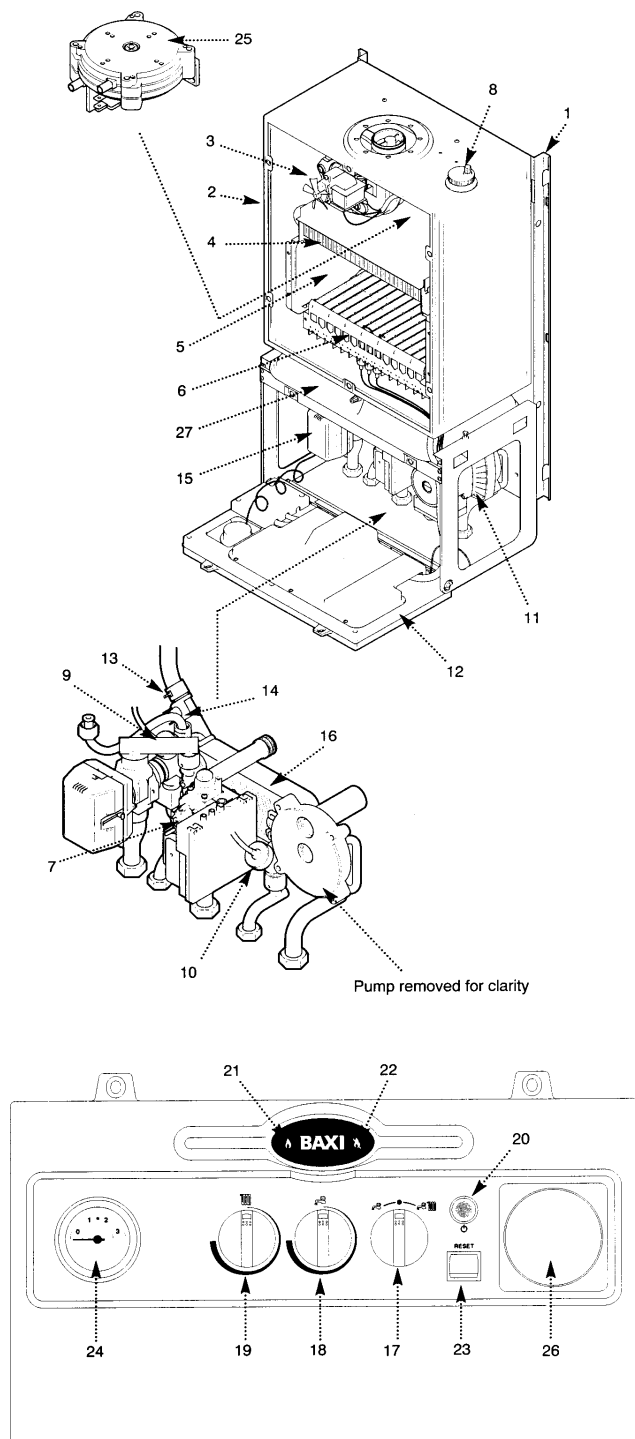
1. The Baxi Bahama 100 is a fully automatic gas fired wall mounted combination boiler. It is room sealed and fan assisted, and will serve central heating and mains fed domestic hot water.
2. The boiler is preset to give a maximum output of 29.3 kW (100,000 Btu/h) for hot water. The central heating is factory set to 80,000 Btu/h, but can be rated as required from 50,000 to 100,000 Btu/h.
3. It is designed for use on Natural Gas (G20) and can be converted to use Propane.
4. The boiler is suitable for use only on fully pumped sealed heating systems. Priority is given to domestic hot water.
5. A label giving details of the model, serial number and Gas Council number is situated on the rear of the outer case lower door panel (Fig. 1).
6. The boiler data badge is positioned on the back face of the facia box (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° 241028.
9. **All systems must be thoroughly flushed and treated with inhibitor (see section 6.2).**

## 1.2 Installation

1. The appliance is suitable for installation only in G.B. and I.E. and should be installed in accordance with the rules in force. For Ireland install in accordance with I.S.813 “**INSTALLATION OF GAS APPLIANCES**”. The installation must be carried out by a CORGI Registered Installer or other competent person and be in accordance with the relevant requirements of **GAS SAFETY** (Installation and Use) **REGULATIONS**, the **BUILDING REGULATIONS** (Scotland) (Consolidation), the **LOCAL BUILDING REGULATIONS**, the **CURRENT I.E.E. WIRING REGULATIONS** and the bye laws of the Local Water Undertaking. Where no specific instructions are given, reference should be made to the relevant **BRITISH STANDARD CODES OF PRACTICE**.

## 1.3 Optional Extras

KIT	PART N°
<b>HORIZONTAL FLUE KITS</b>	
Flue Extension 0.25M	241102
Flue Extension 0.5M	241101
Flue Extension 1M (Use two kits for 2M etc.)	241100
Flue Bend – 45° (Reduce overall length of flue by 0.5m when fitting this bend)	241104
Flue Bend – 90° (Reduce overall length of flue by 1m when fitting this bend)	241103
Wall Liner/Internal Fixing	236441
<b>VERTICAL FLUE KITS</b>	
Flue - 125/80mm Dia Concentric	241107
Twin Flue - 80mm Dia	241123
<b>CONTROL ACCESSORIES</b>	
Programmable Room Thermostat (24 hour)	236254
Programmable Room Thermostat (7 day)	238326
Integral Electronic Timer Kit (7 day)	241550
Integral Electro-Mechanical Timer Kit (12 hour am/pm)	241087
<b>FUEL KIT</b>	
I PG Conversion - Propane	245620



### 2.1 Layout

1. Backplate
2. Airbox
3. Fan Assembly
4. Primary Heat Exchanger
5. Combustion Chamber
6. Burner Assembly & Electrodes
7. Gas Valve Assembly
8. Automatic Air Vent
9. Flow Switch Heating Circuit
10. Flow Switch DHW Circuit
11. Circulation Pump
12. Facia Box
13. Safety Thermostat
14. CH Thermostat Sensor
15. Three Way Valve
16. DHW Plate Heat Exchanger
17. ON-Off Selector Switch
18. DHW Temperature Adjustment
19. Heating Temperature Adjustment
20. Green Light - Power On
21. Orange Light - Burner On
22. Red Light - Flame Failure
23. Flame Failure Reset Switch
24. Water Pressure Gauge
25. Air Pressure Switch
26. Optional Integral Timers
27. Expansion Vessel

### 2.2 Nomenclature used in these instructions

DHW	-	Domestic Hot Water
CH	-	Central Heating
CVI Board	-	Ignition Board
ECS Board	-	Control Board

**NOTE:** All delay timers mentioned in 3.1 and 3.2 are overridden by domestic hot water demand.

### 3.1 Central Heating Mode

1. With a demand for heating, the pump circulates water through the primary circuit. At a flow rate of approximately 125 l/hr the central heating flow switch operates, initiating the ignition sequence.
2. The main burner ignites at low rate, then the gas valve controls the gas rate to maintain the heating temperature measured by the thermostat sensor.
3. When the flow temperature exceeds the setting temperature, a 3 minute delay occurs before the burner relights automatically (anti-cycling). The pump continues to run during this period.
4. When the demand is satisfied the burner is extinguished and the pump continues to run for a period of 30 seconds (Pump Overrun).

### 3.2 Domestic Hot Water Mode

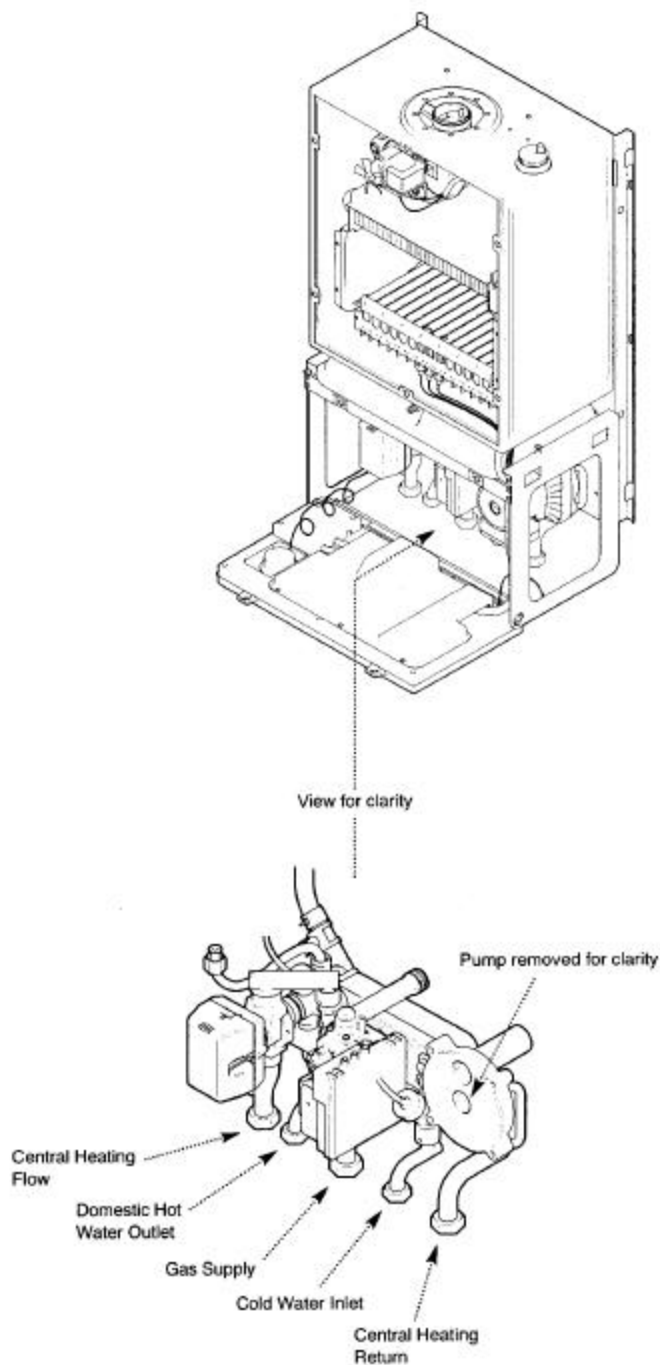
1. Priority is given to the domestic hot water supply. A demand at a tap or shower will override any central heating requirement.
2. The flow of water will operate the DHW flow switch which requests the 3 way valve to change position. This will allow the pump to circulate the primary water through the DHW plate heat exchanger.
3. The burner will light automatically and the temperature of the domestic hot water is controlled by the thermostat sensor.
4. When the domestic hot water demand ceases the burner will extinguish and the diverter valve will remain in the domestic hot water mode, unless there is a demand for central heating.

### 3.3 Frost Protection Mode

1. The frost protection mode is integral to the appliance when left in the domestic hot water and central heating position. If the system temperature falls below 5° C then the boiler will fire on its minimum setting until a flow temperature of 30° C is reached. Further protection can be incorporated by using a system frost thermostat.

### 3.4 Pump Protection

1. The control system continually monitors the time since the pump last operates. This will result in the pump being run for 10 seconds every so often to prevent seizure.



Appliance Type	C <sub>12</sub>	C <sub>32</sub>
Appliance Category	CAT II 2H 3P	
Heat Input C/H & DHW	Max	
	kW	35.73
	Btu/h	121,900
Heat Output	Max	
	kW	29.30
	Btu/h	100,000
Max Gas Rate	(Natural Gas) (After 10 Mins)	
	m³/h	3.4
	ft³/h	120
Burner Pressure	(Natural Gas)	
	Max Rate	Min Rate
mbar	13.6 ± 0.5	2.3 ± 0.2
in wg	5.44 ± 0.2	0.9 ± 0.2
Inlet Pressure	(Natural Gas)	
mbar	20	
in wg	8	
Burner Injector	(Natural Gas) 15 x 1.25mm Diameter	
Electrical Supply	230V~ 50Hz (Appliance must be connected to an earthed supply)	
Power Consumption	200W	
External Fuse Rating	3A	
Internal Fuse Rating	Fuse 1.5 A to BS 4265	

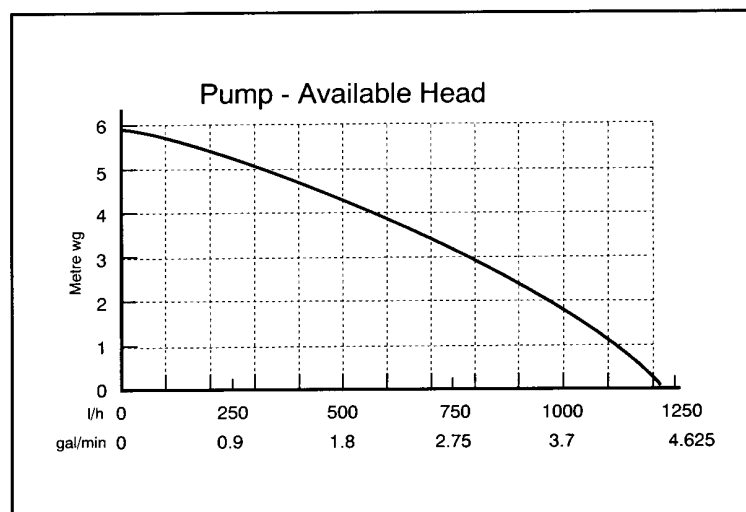
<b>Nox Class</b>	2	
<b>Flue Terminal Dimensions</b>	Diameter	100mm
	Projection	70mm
<b>Connections</b>	copper tails	
Gas Supply	-	22mm
Central Heating Flow	-	22mm
Central Heating Return	-	22mm
Cold Water Mains Inlet	-	15mm
DHW Flow	-	15mm
Pressure Relief Discharge	-	15mm
<b>Outercase Dimensions</b>		
Casing Height	-	850mm
Overall Height Inc Flue		
Elbow	-	1000mm
Casing Width	-	490mm
Casing Depth	-	320mm
<b>Clearances</b>		
Both Sides	5mm Min	
Above Casing	200mm Min	
Below Casing	200mm Min	
Front	500mm Min (For Servicing)	
Front	5mm Min (In Operation)	
<b>Weights</b>	kg	lb
Packaged Boiler Carton	46	101
Packaged Flue Kit	3.2	7.1
Weight Empty	44	97
Installation Lift Weight	33.5	73.9
<b>Central Heating Primary 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>Recommended System Temperature Drop</b>	11°C	20°F

<b>DHW Circuit Pressures</b>	bar	lb/in <sup>2</sup>
Max Operating	10	145
Min Operating	0.1	1.45
Min Operating Pressure at 12 l/min	1.6	23.2
<b>Flow Rates</b>	l/min	gal/min
DHW Flow Rate @ 30°C Rise	14	3.08
DHW Flow Rate @ 35°C Rise	12	2.64
Min Working DHW Flow Rate	2	0.44
<b>Built In Bypass</b>	l/h	gal/min
Min Circulation Rate (CH Primary Circuit) e.g. TRVs all closed	120	0.44
<b>Pump</b>	Available Head See graph below	
<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
Primary Water Content of Boiler (unpressurised)	1.5	0.33
<b>DHW Expansion Vessel</b>	See Section 6.8 for information	
<b>Temperatures</b>		
C.H. Flow Temp (adjustable)	40° C to 80° C max (± 5° C)	
D.H.W. Flow Temp (adjustable)	30° C to 80° C max (± 5° C) dependent upon flow rate	

#### SEDBUK Declaration For Bahama 100

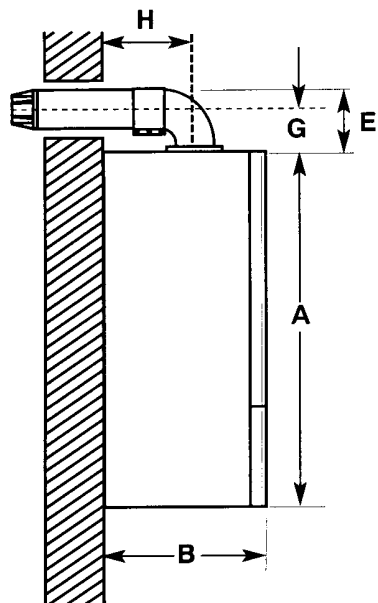
The seasonal efficiency (SEDBUK) is 79.5 %

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.

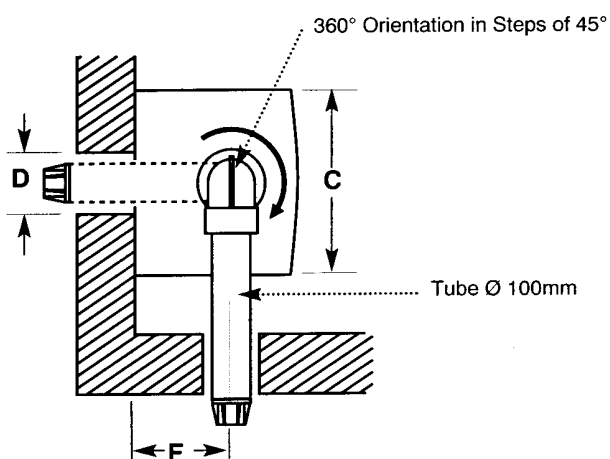


Where flow rates are required in excess of 1000 l/h please contact the Baxi Technical Department for advice (Telephone number on the back cover).

## 5.0 Dimensions and Fixings – page 8

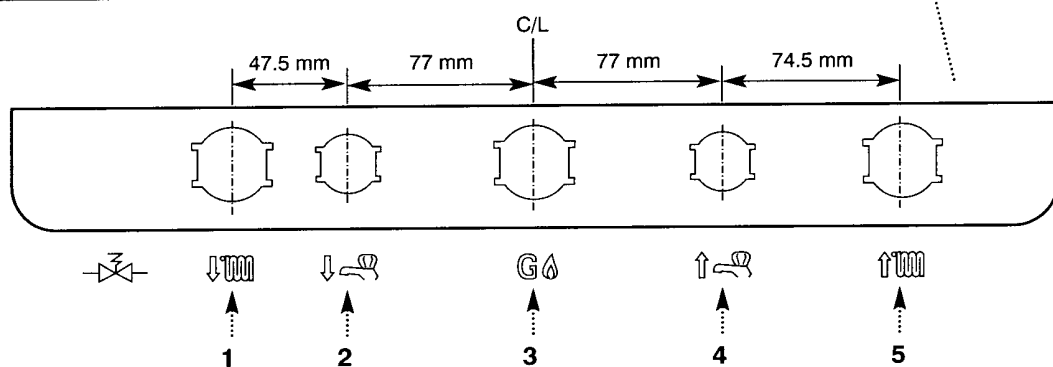
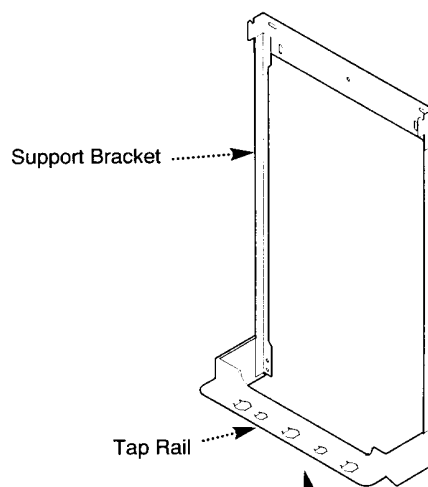


DIMENSIONS	
A	850mm
B	320mm
C	490mm
D	107mm Ø Min.
E	150mm
F	172mm
G	100mm
H	172mm



### Key To Support Bracket

- |                             |                          |
|-----------------------------|--------------------------|
| 1 Central Heating Flow      | 4 Cold Water Inlet       |
| 2 Domestic Hot Water Outlet | 5 Central Heating Return |
| 3 Gas Supply                |                          |



Top View of Tap Rail



## **6.0 System Details – page 9**

### **6.1 Information**

1. The Baxi Bahama 100 Combination Boiler is a 'Water Byelaws Scheme - Approved Product'. To comply with the Water Byelaws your attention is drawn to the following installation requirements and notes (IRN).
    - a) IRN 001 - See text of entry for installation requirements and notes.
    - b) IRN 116 - Byelaw 90 and 91.
    - c) IRN 302 - Byelaw 14.
  2. Reference to the WRC publications, 'Water fittings and materials directory' and 'Water supply byelaws guide' give full details of byelaws and the IRNs.
- 

### **6.2 Central Heating Circuit**

1. The appliance is suitable for fully pumped SEALED SYSTEMS ONLY.

#### **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.
- For optimum performance after installation this boiler and its associated central heating system must be flushed in accordance with the guidelines given in BS 7593:1992 "Treatment of water in domestic hot water central heating systems".
- This must involve the use of a proprietary cleanser, such as BetzDearborn Sentinel X300 or X400, or Fernox Superfloc. Full instructions are supplied with the products, but for immediate information please contact BetzDearborn (0151 420 9563) or Fernox (01799 550 811) directly.
- For long term protection against corrosion and scale, after flushing it is recommended that an inhibitor such as BetzDearborn Sentinel X100, or Fernox MB-1 or Copal is dosed in accordance with the guidelines given in BS 7593:1992.

<b>Failure to flush and add inhibitor to the system may invalidate the appliance warranty.</b>
--

- 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.
- 

### **6.3 Bypass**

1. The boiler has an integral pre-set bypass and in most cases this should suffice. However in certain circumstances, e.g. on systems where there is a high resistance and TRV's are fitted to all the radiators it may be necessary to fit an external by-pass. This should be of the automatic type and not a gate valve or ball type valve. The valve must be fitted between the heating flow and return to the boiler before any other part of the system, i.e. Radiators, Diverter valves etc. If there are any doubts, contact the technical help line. (see page 7 for flow rates).
- 

### **6.4 System Control**

1. The boiler is designed for use in a heating system that incorporates external controls, i.e. a minimum of a timer device.
  2. Suitable timer kits are available as optional extras.
  3. For optimum operating conditions and maximum economy the fitting of a programmable thermostat, such as one of the Baxi Bahama 100 Controllers, is recommended.
-

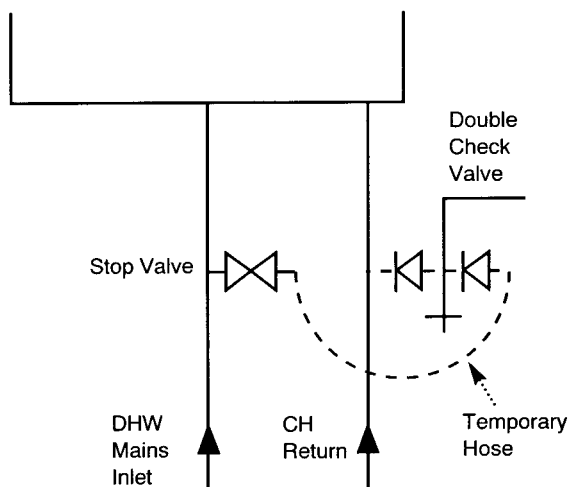
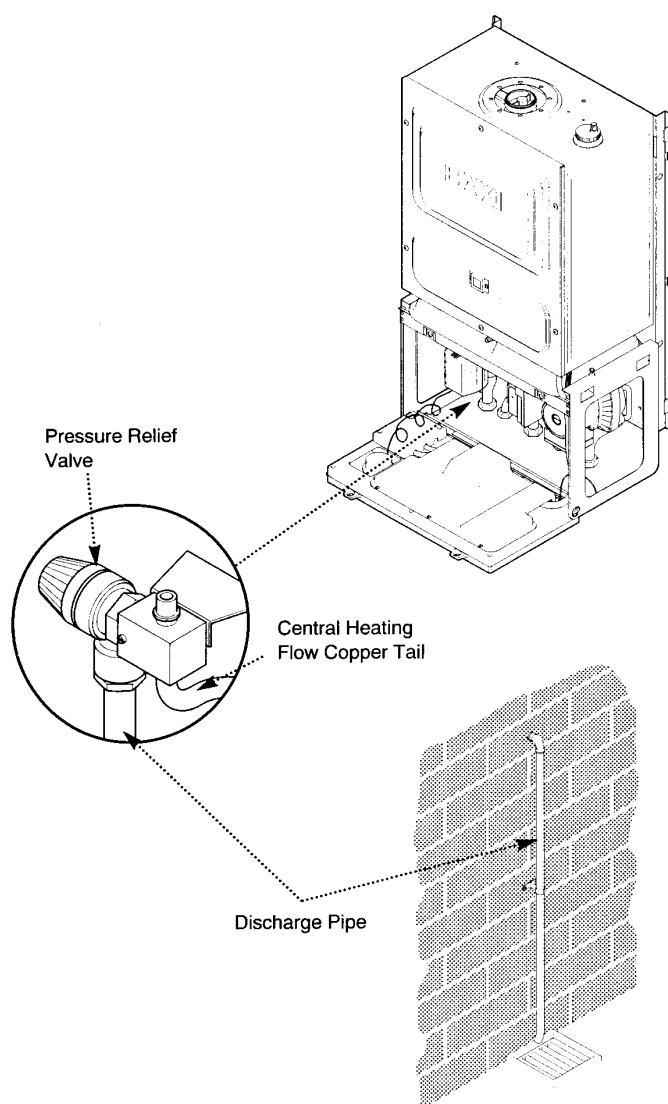


Fig. 4



## 6.5 System Filling and Pressurising

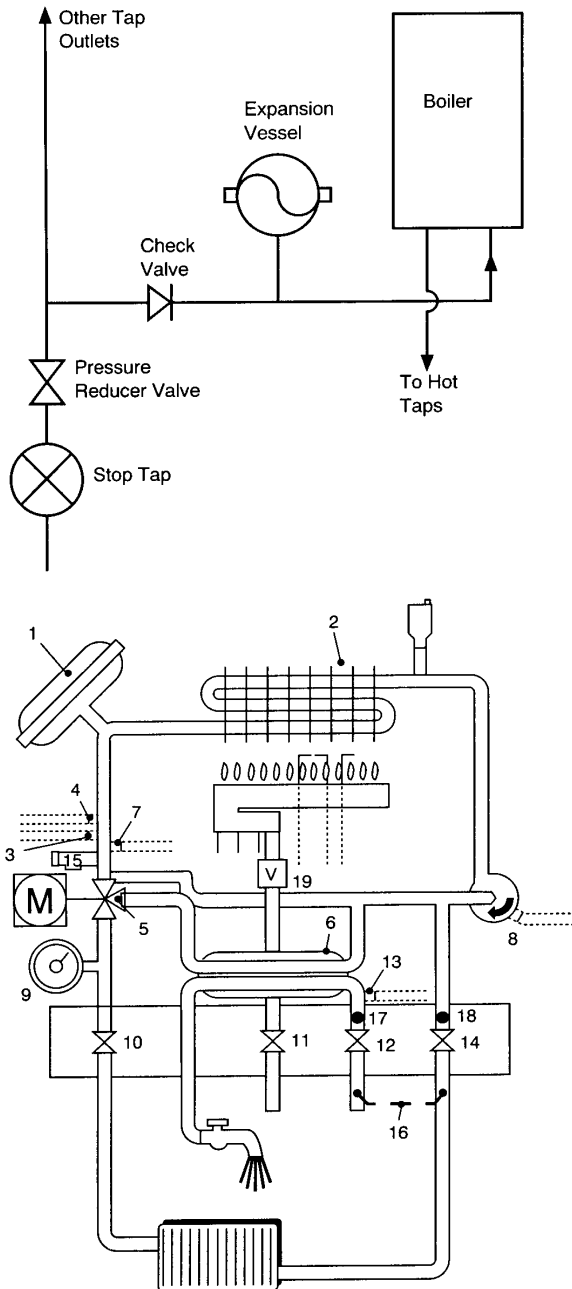
1. A filling point connection on the central heating return pipework must be provided to facilitate initial filling and pressurising and also any subsequent water loss replacement/refilling.
2. The filling method adopted must be in accordance with all relevant water supply bye-laws and use approved equipment.
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. 3).

## 6.6 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.

## 6.7 Pressure Relief Valve (Fig. 4)

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.



### Key

- 1 Expansion Vessel
- 2 Primary Heat Exchanger
- 3 Safety Thermostat
- 4 CH Thermostat Sensor
- 5 3 Way valve
- 6 DHW Plate Heat Exchanger
- 7 CH Flow Switch
- 8 Pump
- 9 Pressure Gauge
- 10 CH Flow Valve
- 11 Gas Inlet
- 12 DHW Mains Inlet
- 13 DHW Flow Switch
- 14 CH Return Valve
- 15 Pressure Relief Valve
- 16 Filling Loop
- 17 Flow Regulator
- 18 Filter
- 19 Gas Valve

## 6.8 Domestic Hot Water Circuit

1. All DHW circuits, connections, fittings, etc. should be fully in accordance with relevant standards and water supply bye-laws.
2. Your attention is drawn to:  
IRN 116 and Byelaw 90 and 91.  
Sealed primary circuits and/or secondary hot water systems shall incorporate a means for accommodating the thermal expansion of water to prevent any discharge from the circuit and/or system, except in an emergency situation.
3. When the system includes any device which prevents water expanding back towards the supply (check valve, loose jumpered stopcock, water meter, water treatment device), then an expansion vessel must be fitted (e.g. Zilmet 160ml, R $\frac{1}{2}$  15bar).  
To comply with Byelaw 91, a check valve must also be fitted on the supply as shown, to ensure efficient operation and also to prevent the reverse flow of hot water into the supply pipe.
4. If the hot water expansion is not provided for, then high pressures can develop which may result in damage to fittings and devices on the system.
5. The boiler's maximum working mains pressure is 10 bar (150 lb/in<sup>2</sup>), therefore all pipework, connections, fittings, etc. should be suitable for pressures in excess of 10 bar. A pressure reducing valve must be fitted for pressures in excess of 10 bar. The manufacturer of any outlet fittings, such as a shower valve, may require a lower maximum pressure. The pressure reduction must take account of all fittings connected to the DHW system.

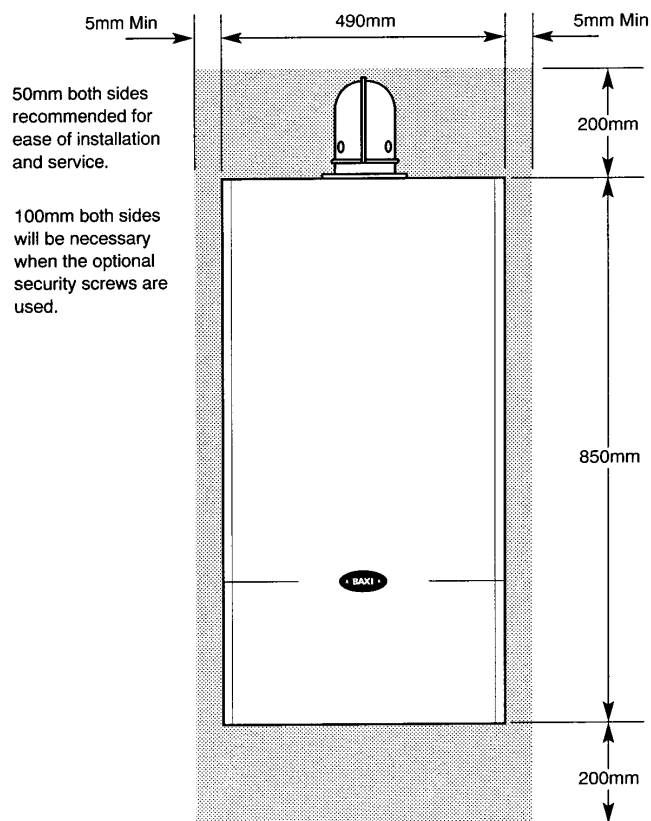
## 6.9 Showers

1. If a shower control is supplied from the appliance it should be of the thermostatic or pressure balanced type. Thermostatic type shower valves provide the best comfort and guard against water at too high a temperature. Existing controls may not be suitable - refer to the shower valve manufacturer.

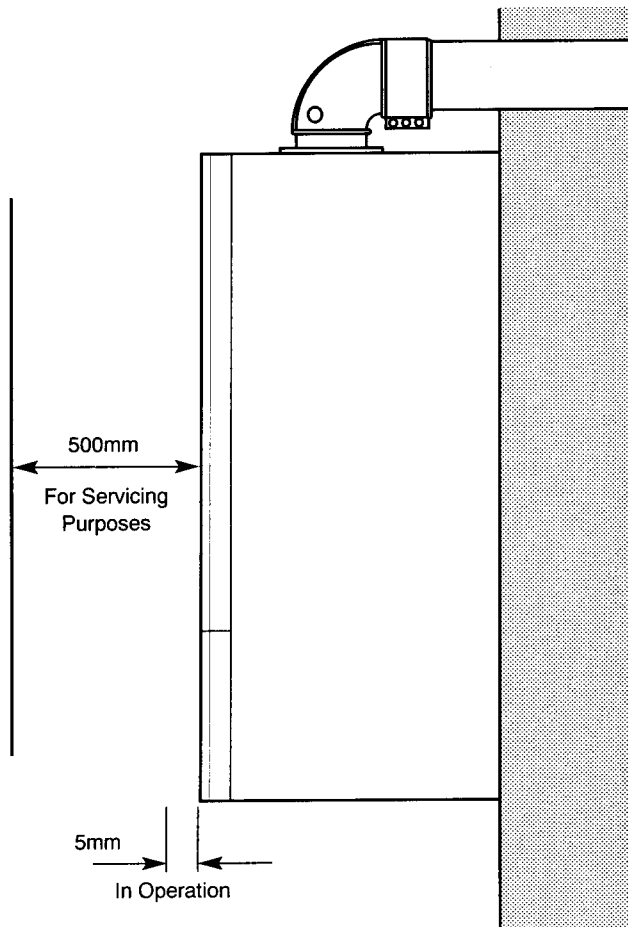
## 6.10 Hard Water Areas

1. If the area of the installation is recognised as a HARD WATER AREA then a suitable device should be fitted to treat the mains water supply to the boiler.

**Fig. 5**



**Fig. 6**



## 7.1 Information

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 **I.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".

## 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 (Fig. 5 & 6)

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 leave the ON/OFF Selector Switch in the domestic hot water and central heating position to give frost protection.
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 British Gas document DM2.

## 7.5 Ventilation of Compartments

1. Where the appliance is installed in a cupboard or compartment, no air vents are required.

**NOTE:** The ventilation label on the front of the outer case **MUST NOT BE REMOVED** when the appliance is installed in a compartment or cupboard.

2. BS 5440: Part 2 Clause 4.2 refers to room sealed appliances installed in compartments. The appliance will run sufficiently cool without ventilation.

## 7.6 Gas Supply

1. The gas installation should be in accordance with BS6891.
2. The connection to the appliance is a 22mm copper tail located at the rear of the gas service cock (Fig. 8).
3. Ensure that the pipework from the meter to the appliance is of adequate size. Do not use pipes of a smaller diameter than the boiler gas connection (22mm).

## 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.

Fig. 8

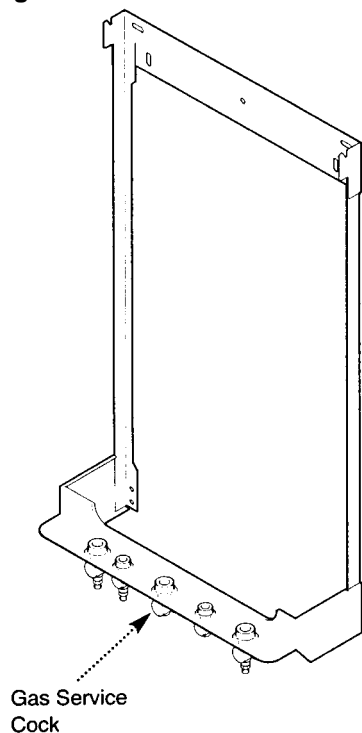


Fig. 9

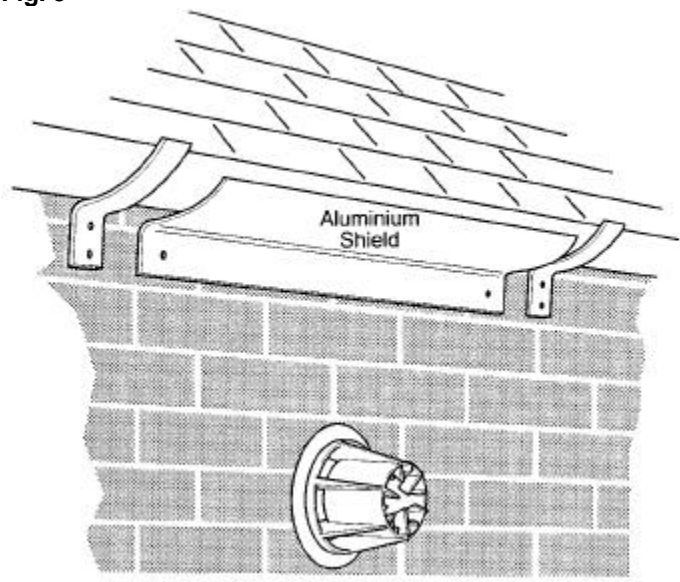
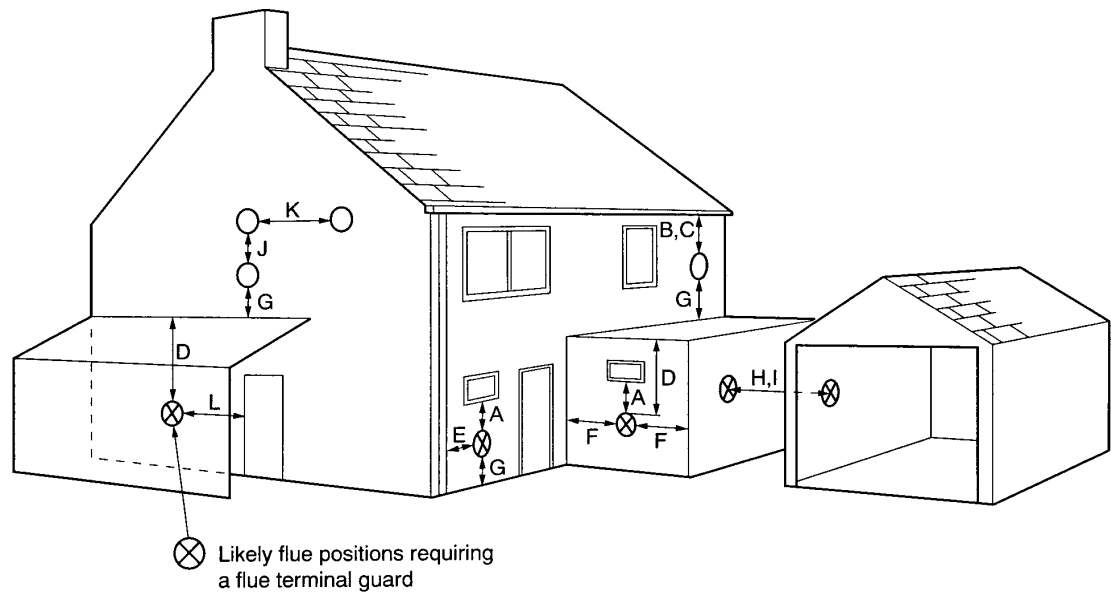


Fig. 10



7.8
Flue

1. An internal fitting kit is available for installations where the flue terminal is inaccessible from the outside. This is available direct from Baxi Heating. Quote Part N° 236441 when ordering.
2. The following guidelines indicate the general requirements for siting balanced flue terminals. Recommendations for flues are given in BS 5440 Pt.1.
3. If the terminal is fitted within 1 metre (39 in) of a plastic gutter, within 500mm (19½ in) 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. 9).
4. 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.
5. If a terminal is less than 2 metres (78¾ in) above a balcony, above ground or above a flat roof to which people have access, then a suitable terminal guard must be provided.

Terminal Position with Minimum Distance (Fig. 10)		(mm)
A	Directly below an openable window or other opening, e.g. an air brick.	300
B	Below gutters.	25
C	Below eaves, soil pipes or drain pipes.	75
D	Below balconies or car port roof.	200
E	From vertical drain pipes and soil pipes.	75
F	From internal or external corners.	25
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. 11

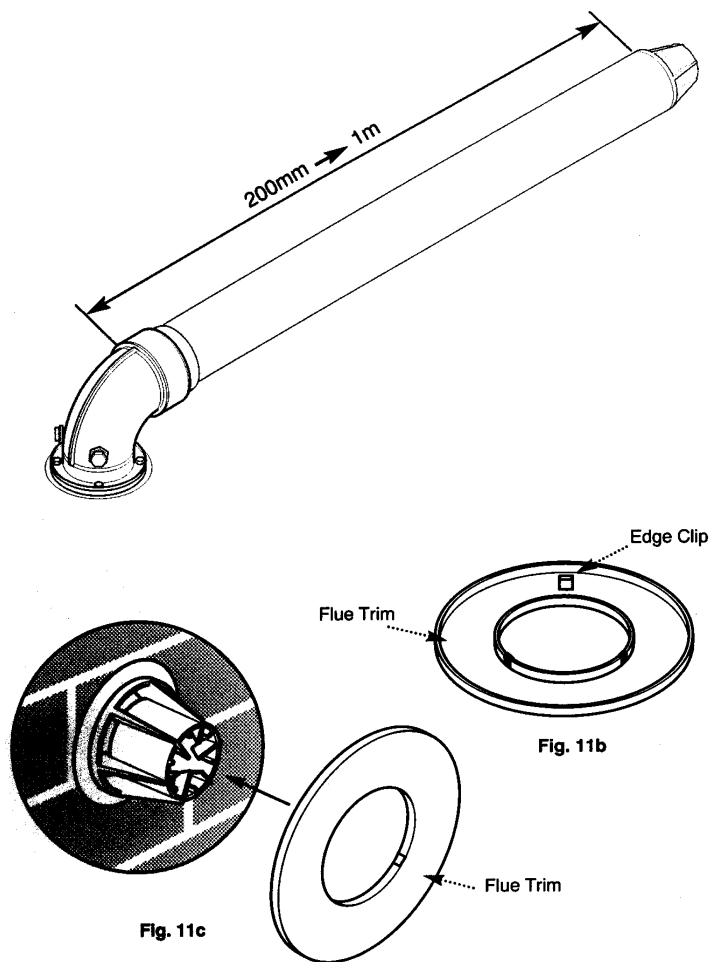
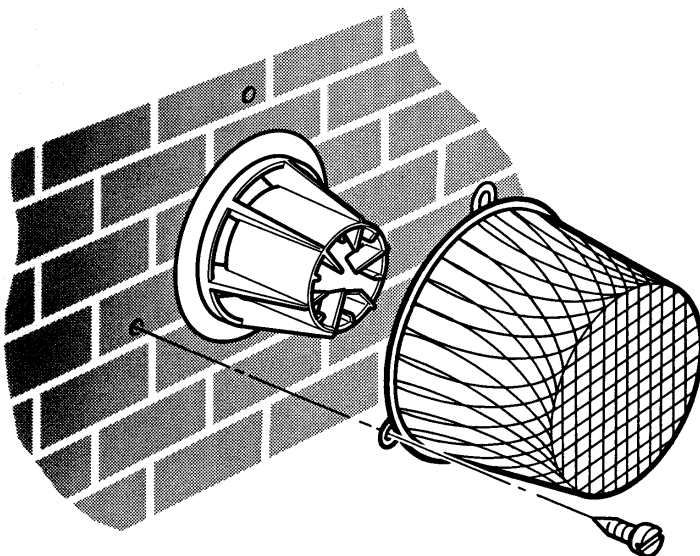


Fig. 12



## 7.9 Flue Dimensions

See Section 1.2. The standard horizontal flue kit allows for flue lengths between 200mm (7 7/8 in) and 1m (39 3/8 in) from elbow to terminal (Fig. 11).

**The maximum permissible equivalent flue length is: 4 metres.**

**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.

### 7.10 Flue Terminal Trim

1. The trim should be fitted once the flue is secure.
2. Take the three edge clips from the kit and fit equi-spaced onto the inner flange of the trim (Fig. 11b).
3. With the flanges towards the wall pass the trim over the terminal (Fig. 11c). If required a bead of sealant may be applied to the rear face of the trim.
4. Push firmly on the trim to ensure the edge clips engage on the flue.

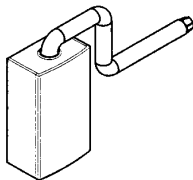
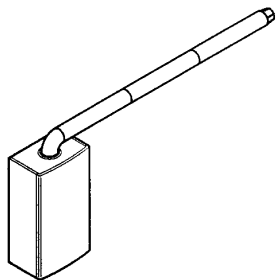
### 7.11 Terminal Guard (Fig. 12)

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.

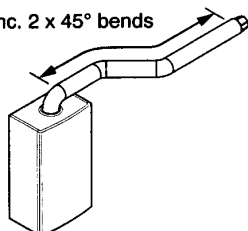
Tower Flue Components Ltd.,  
Tower House,  
Vale Rise,  
Tonbridge,  
Kent.  
Tel: 01732 351555.

Quinnell, Barrett & Quinnell,  
884 Old Kent Road,  
London,  
SE15 1NL.  
Tel: 0171 6391357.

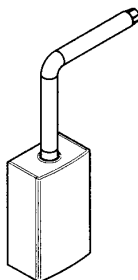
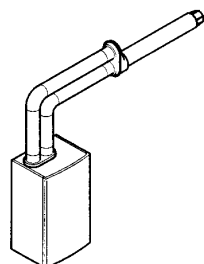
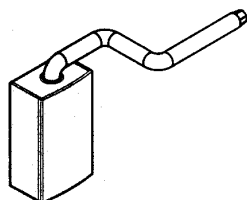
4. The flue terminal guard should be positioned centrally over the terminal and fixed as illustrated.



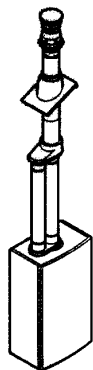
Maximum Length = 3m inc. 2 x 45° bends



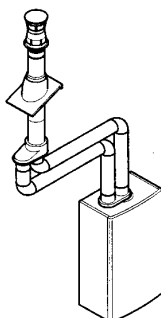
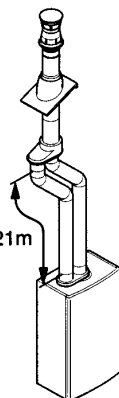
**Horizontal Flues**



**Vertical Flues (Twin Pipe)**

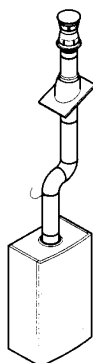
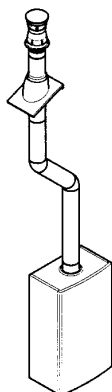
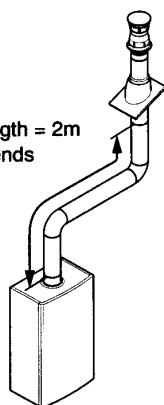
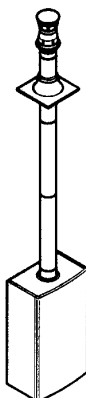


Maximum Length = 21m inc. 4 x 45° bends



**Vertical Flues**

Maximum Length = 2m inc. 2 x 90° bends



## 7.12 Flue Options

1. The Baxi Bahama 100 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)	22.0 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

45° bend	0.25 metres
90° bend	0.50 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. 13

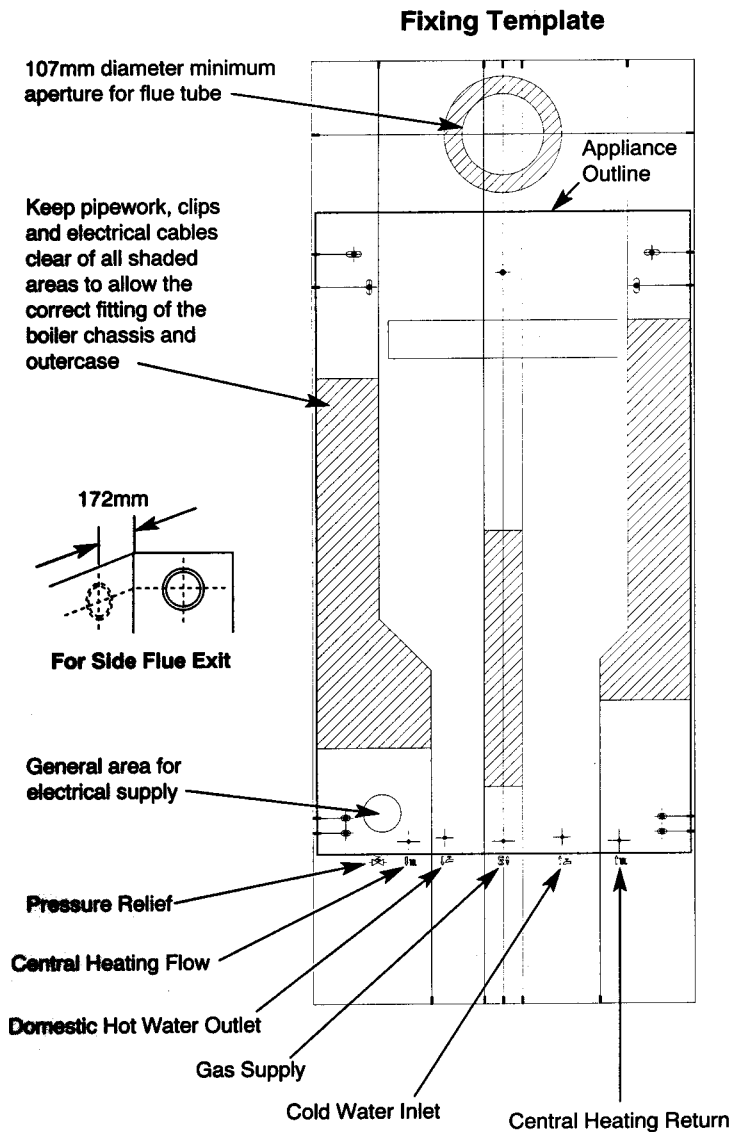
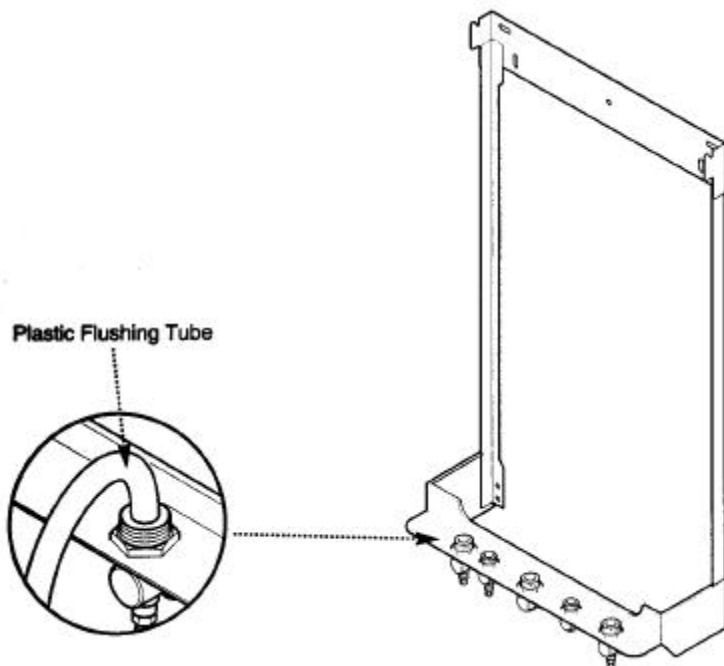


Fig. 14



## 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. 13) 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. Do not remove the tape covering the tap connections at this stage.
3. Mark the position of the top centre hole for the wallplate.
4. 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.
5. Cut the hole for the flue (minimum diameter 107mm).
6. Drill and plug the wall as previously marked. Secure the wallplate to the wall by the top centre hole.
7. 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.
8. Connect the gas and water pipes to the valves on the support bracket using the copper tails supplied. Ensure the sealing washers are fitted correctly to the water connections.
9. Remove the tap sealing tape. Loosely route a pressure relief discharge pipe to the symbol on the tap bracket in readiness for connection when the boiler is fitted.
10. The symbols for each connection are embossed on the support bracket.

## 8.2 Flushing

1. Insert a tube into the valve outlet furthest from the filling loop (Fig. 14).
2. Flush thoroughly (see System Details, Section 6.0).

Fig. 15

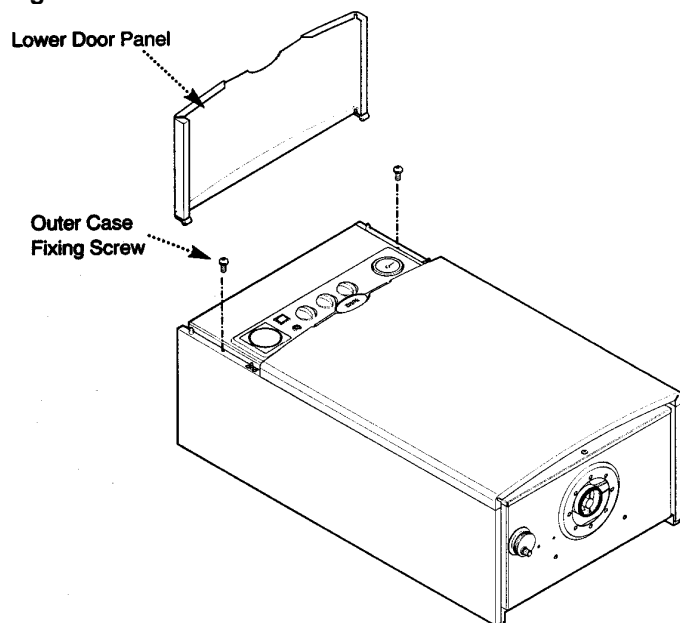
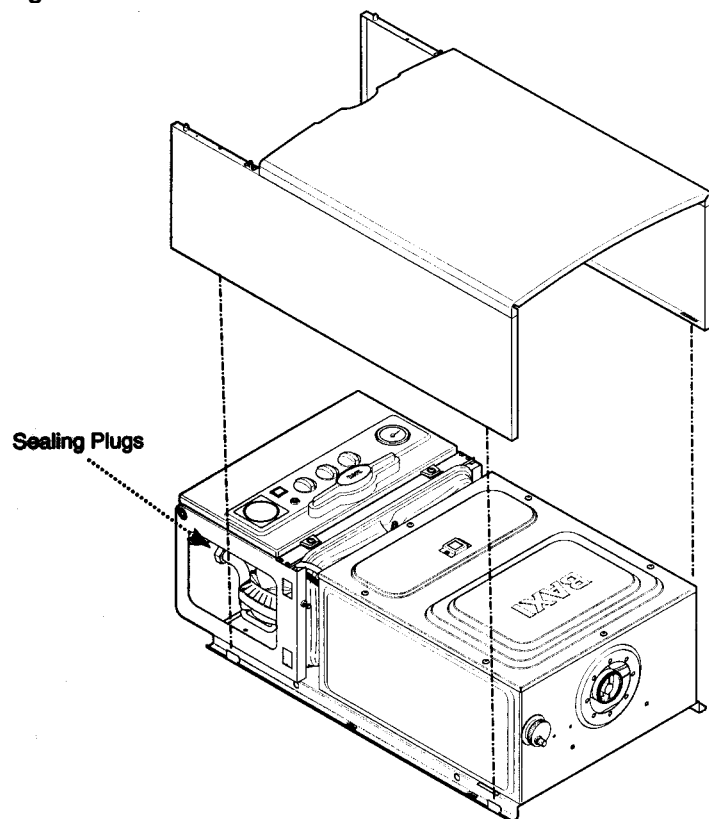


Fig. 16



### 8.3 Preparing The Boiler

1. Remove the outer carton.
2. Hinge down the lower door panel to the horizontal and gently pull forward to remove (Fig. 15).
3. Remove the outer case fixing screws (Fig. 15). Slide the outercase upwards to disengage the hooks on the backplate and remove (Fig. 16).
4. Remove the sealing plugs from the copper bends (Fig. 16).
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.**

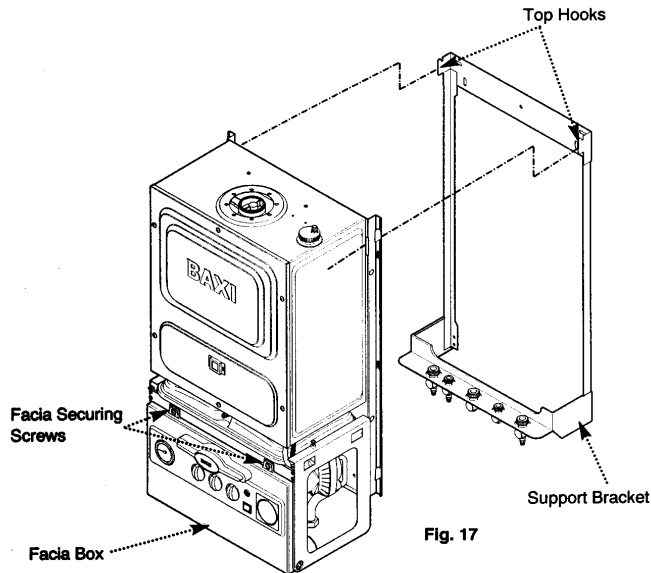


Fig. 17

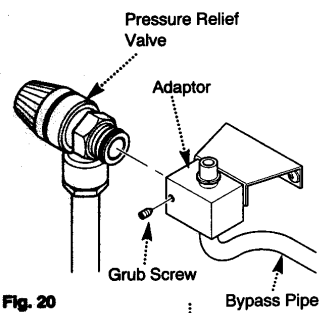


Fig. 20

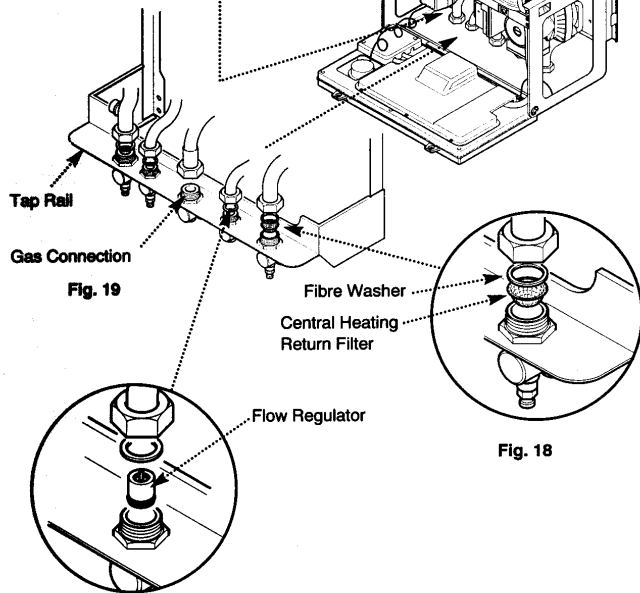


Fig. 19

Fig. 18

Fig. 18a

## 8.4 Fitting The Boiler

1. Fit the central heating return filter (Fig. 18) and flow regulator (Fig. 18a).
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 (Fig. 17).
4. To gain access to the connections between boiler and valves, release the facia securing screws ( $\frac{1}{4}$  turn) and hinge down the facia box.
5. Make the gas connection first (Fig. 19). 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 (Fig. 19).
8. Tighten the connections.

## 8.5 Fitting the Pressure Relief Valve and Discharge Pipe (Fig. 20)

1. Slacken the grub screw and remove the pressure relief valve from the adaptor.
2. Make up the full length of discharge pipe utilising the tail piece from the kit. The tail piece is to be connected to the pressure relief valve (See section 6.7).

**IMPORTANT:** Make all soldered joints before fitting the pressure relief valve.

3. Fit the nut and olive from the kit to the discharge pipe and loosely refit the pressure relief valve to the adaptor.
4. Tighten the nut and olive on the discharge pipe into the pressure relief valve. Secure the pressure relief valve by tightening the grub screw.

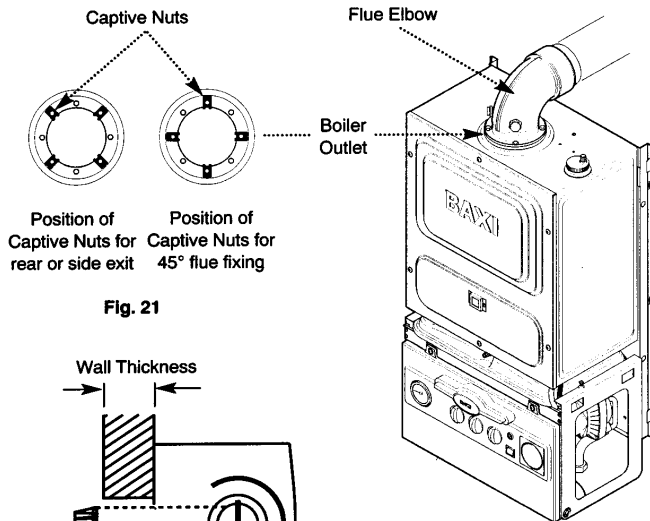


Fig. 21

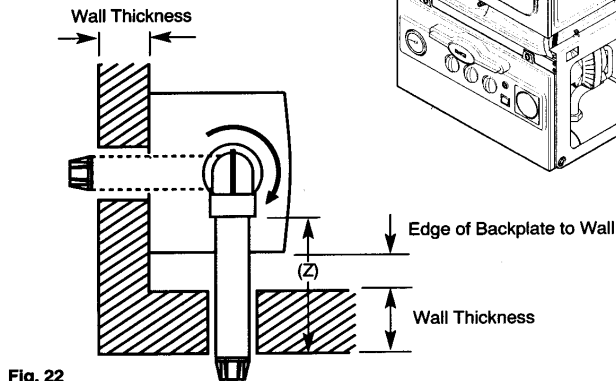


Fig. 22

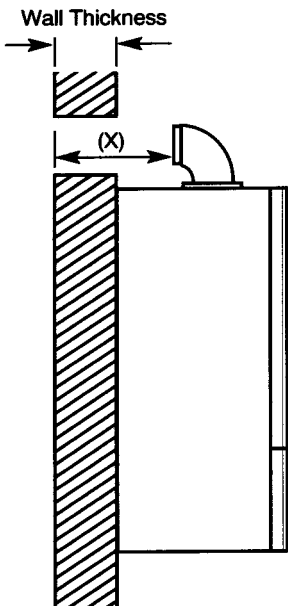


Fig. 23

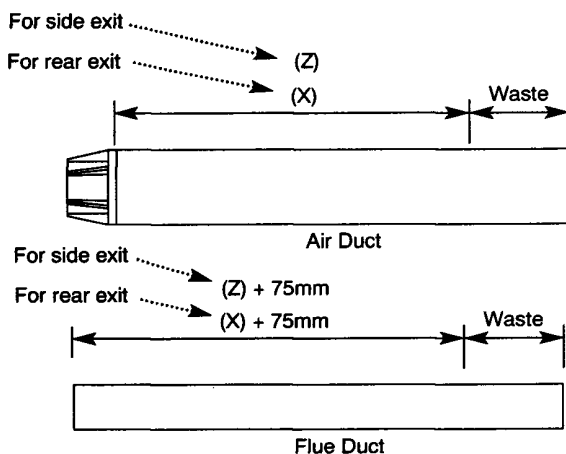


Fig. 24

## 8.6 Fitting The Flue

### HORIZONTAL FLUE

1. The standard flue is suitable for lengths 200mm minimum to 965mm maximum (measured from the edge of the flue elbow outlet).

**Rear Flue:** maximum wall thickness - 865mm  
**Side Flue:** maximum wall thickness - 805mm  
 (left or right)

2. If using the optional internal fitting kit, flue extension kit or elbows, refer to the instructions provided with the kits.
3. Fit the captive nuts supplied in the kit to the boiler outlet (Fig. 21) to match the slots on the flue elbow for rear, side and 45° flue exit.
4. **For rear exit** - measure the wall thickness (Fig. 22 & 23) and to this dimension add 100mm. This dimension to be known as (X).  
 i.e.  $(X) = \text{wall thickness} + 100$
5. Take the air duct and mark off (X) from the terminal end as indicated in the diagram (Fig. 24) and cut to size.
6. Take the flue duct and add 75mm to the dimension (X) (Fig. 24) and cut to size.
7. **For side exit** - measure the distance from the edge of the backplate to the inner face of the wall (Fig. 22) and to this dimension add the wall thickness + 150mm. This dimension to be known as (Z).  
 i.e.  $(Z) = \text{backplate to wall} + \text{wall thickness} + 150$
8. Take the air duct and mark off (Z) from the terminal end as indicated in the diagram (Fig. 24) and cut to size.
9. Take the flue duct and add 75mm to the dimension (Z) (Fig. 24) and cut to size.

**IMPORTANT:** Check all measurements before cutting.

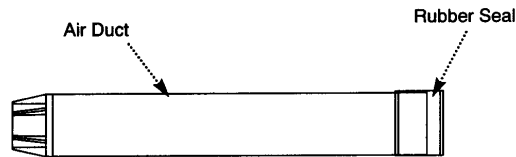


Fig. 25

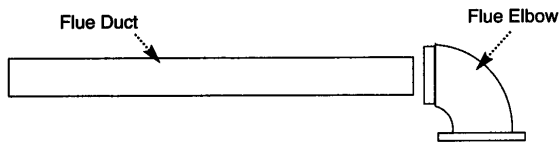


Fig. 26

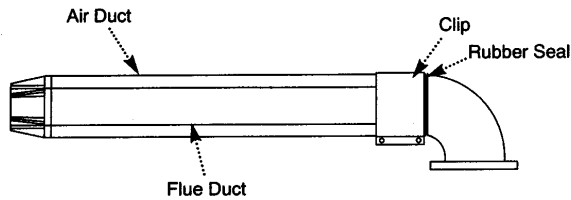


Fig. 27

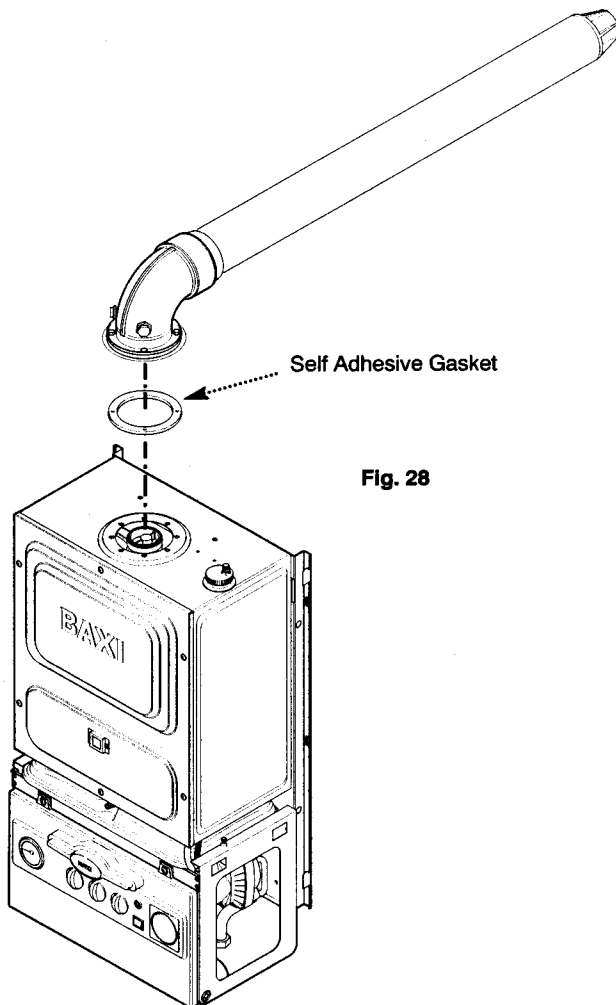


Fig. 28

## 8.6 Fitting the Flue (Cont)

10. Slide the rubber seal over the air duct with the thicker section outermost (Fig. 25). Align the seal with the end of the air duct.
11. Engage uncut end of the flue duct in the flue elbow using soap solution to ease the engagement (Fig. 26).
12. Insert the flue duct into the air duct and engage it in the terminal (Fig. 27).
13. Slide the rubber sleeve over the joint between the air duct and elbow.
14. Align the clip over the rubber seal. For neatness the screws on the clip flange should be below the air duct if possible, providing they remain accessible (Fig. 27). Secure the clip.
15. Peel the backing paper off the adhesive on the flue gasket. Fix the gasket to the flue elbow (Fig. 28).
16. Take the flue outlet restrictor, flue spigot and rubber sleeve from the kit.
17. Insert the outlet restrictor in the fan outlet. Partly fit the rubber sleeve over the flared end of the flue spigot. Roll the remainder of the sleeve back over itself.
18. Engage the flared end of the spigot over the fan outlet and roll the rubber sleeve down to cover the joint between the spigot and fan outlet.
19. Slide the flue assembly through the hole in the wall.
20. Engage the elbow on to the flue connection on top of the boiler. Secure with the four screws (Fig. 28).

**NOTE:** If the flue length is greater than 1 metre then follow the instructions in the extension kits for the removal of the flue restrictor.

21. Make good between the wall and air duct outside the building.
22. Fit the circular flue trim outside if required, and if necessary fit a terminal guard (see Section 7.10 & 7.11).

## VERTICAL FLUE

1. Only a flue approved with the Baxi Bahama 100 can be used.
2. For information on vertical flues consult the Baxi Bahama 100 Installer Guide or Notes for Guidance supplied with the vertical flue pack.

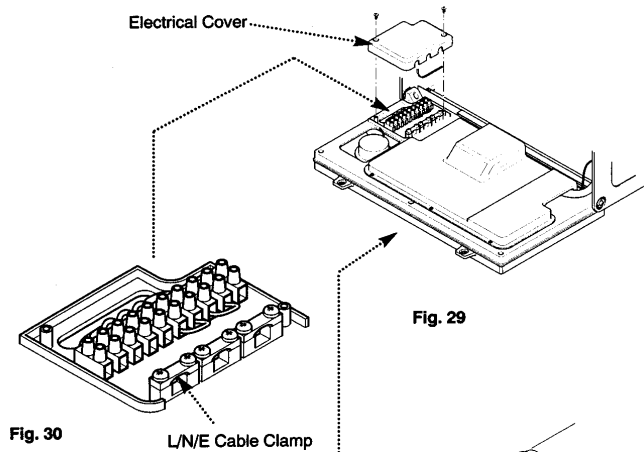


Fig. 30

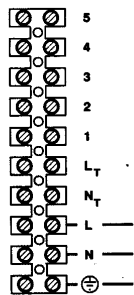


Fig. 31

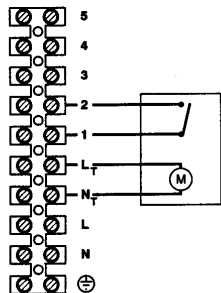


Fig. 32

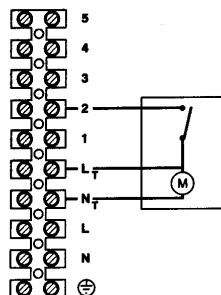


Fig. 33

## 8.7 Making The Electrical Connections

1. The electrical connections are on the left hand side of the unit.
2. Undo the two screws securing the small cover and remove the cover (Fig. 29).
3. Undo the two screws securing the L/N/E cable clamp and place to one side (Fig. 30).
4. If fitting an integral timer kit please refer to kit instructions at this stage.
5. Route the incoming electrical cable/s over the top edge of the support bracket. This will prevent damage to the cables.
6. Lay the cable/s through the cable clamp to gauge the length of cable required when the plug is connected.
7. Connect the (L), (N) and (E) wires to the 10-way terminal block (Fig. 31) and refit the cable clamp.
8. The incoming cable/s can be routed through the cable clip at the left hand side of the support bracket.
9. Check the electrical installation for; earth continuity, short circuits, resistance to earth, correct polarity and fuse failure.

## 8.8 Connecting an External Timer (Figs 32 & 33)

1. To connect the mains supply to a timer, connect the timer live and neutral into L<sub>T</sub> and N<sub>T</sub> indicated at the 10-way terminal block.
2. To connect an external timer voltage free switch circuit, remove the link wire between terminals 1 & 2 and connect the switch circuit.
3. Terminal 1 delivers a mains voltage signal to be switched by the external controls.
4. To connect a timer with a switch that is internally linked to live, remove the link wire between terminals 1 and 2 and connect the switch output back to terminal 2.
5. A cable clamp is provided for incoming cables.

Fig. 34

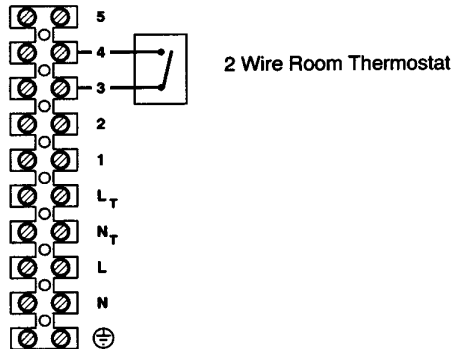
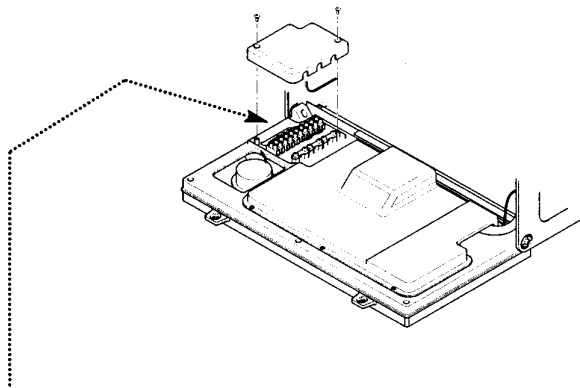


Fig. 35

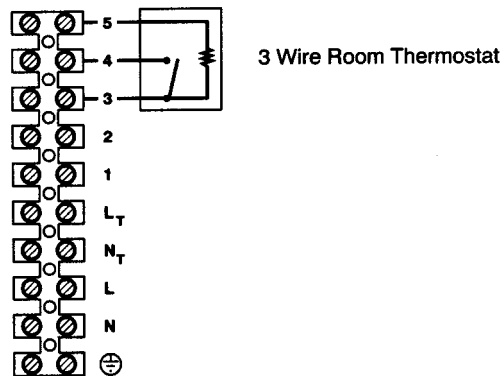
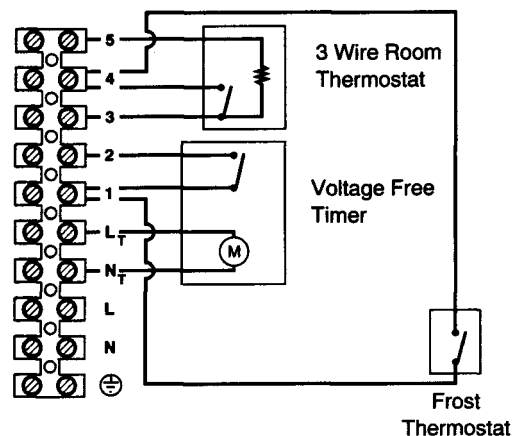


Fig. 36



## 8.9 Fitting a Room Thermostat

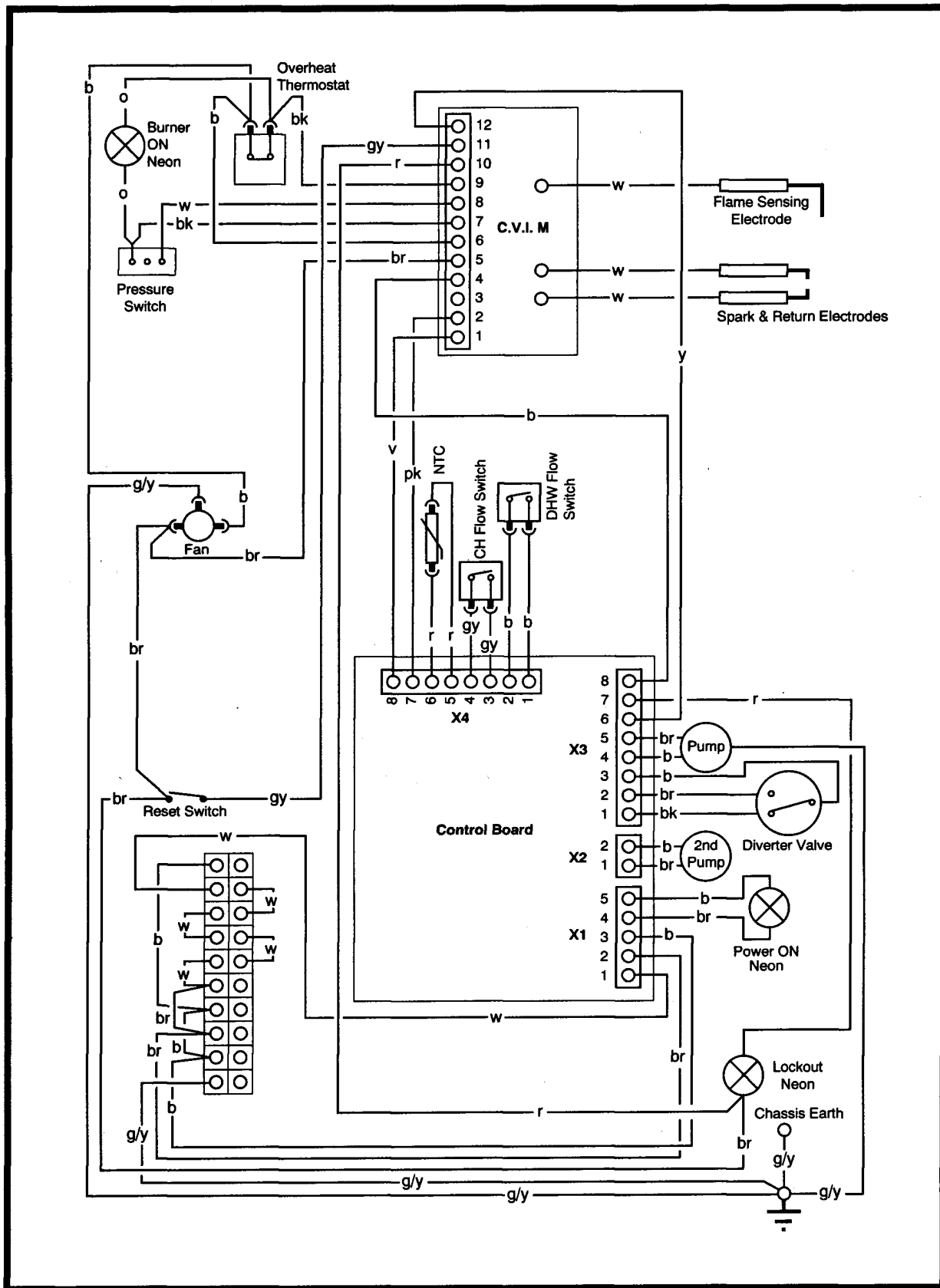
1. A 2-wire or 3-wire room thermostat can be fitted to the Baxi Bahama 100 terminal block.
2. To fit a 2-wire thermostat, remove link and wire the thermostat switch between positions 3 & 4 (Fig. 34).
3. To fit a 3-wire thermostat, remove link and wire the thermostat switch between positions 3 & 4. The anticipator should be wired to position 5, as this provides a continuous mains neutral (Fig. 35).
4. A cable clamp is provided for incoming cables.

## 8.10 Fitting a Programmable Room Thermostat

1. If a Baxi Combi Controller is fitted refer to the instructions supplied with it.

## 8.11 Fitting a Frost Thermostat (Fig. 36)

1. The frost thermostat is connected between positions 1 and 4.
2. If room and frost thermostats and a timer are to be incorporated in the control system they should be wired as shown (Fig. 36).
3. Secure the incoming cable/s with the cable clamp and replace the cover

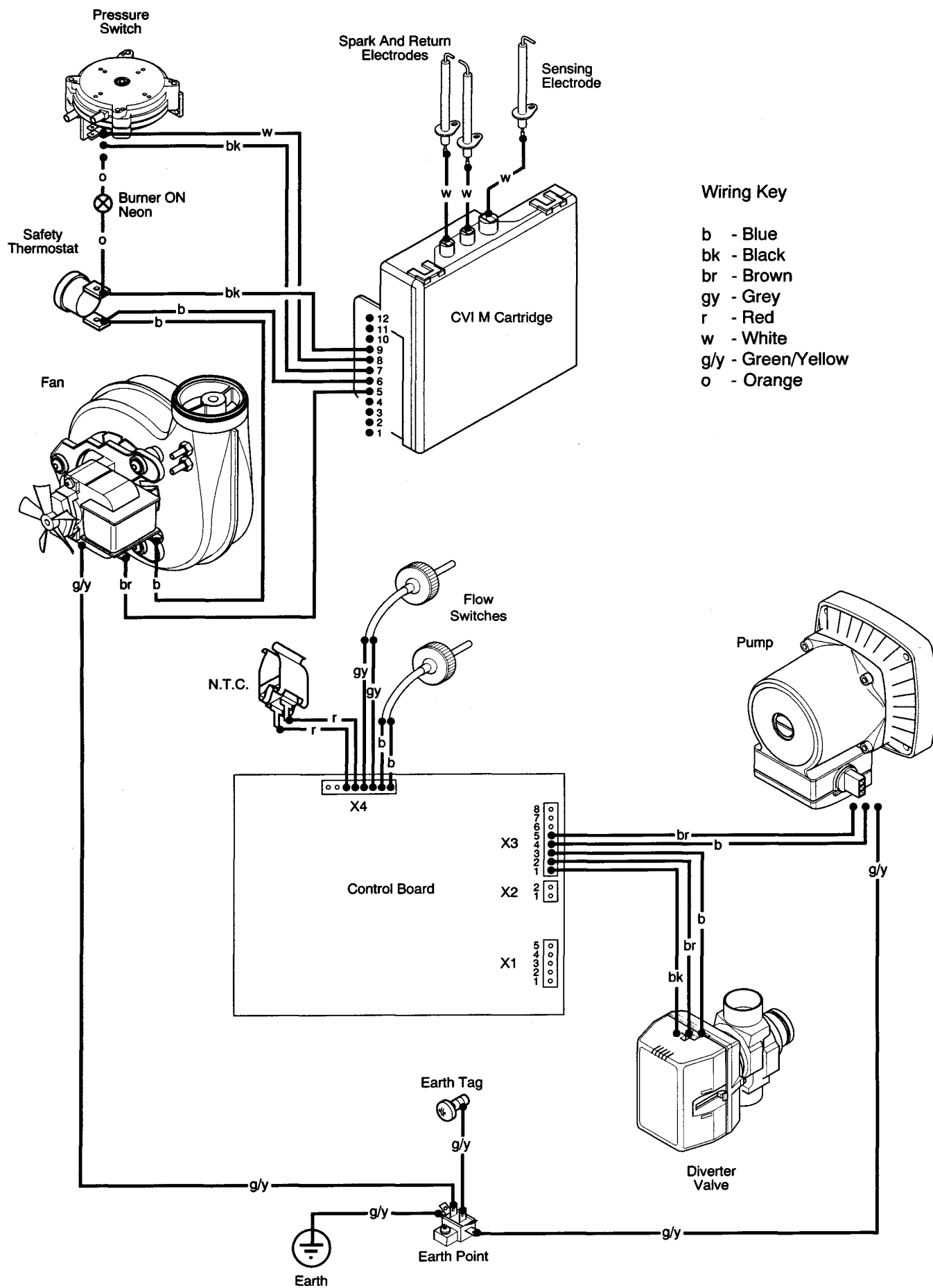


### Key To Wiring Colours

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



9.0 Electrical – page 25  
9.2 Illustrated Wiring Diagram



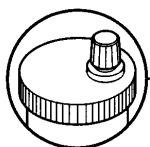


Fig. 37

Automatic Air Vent

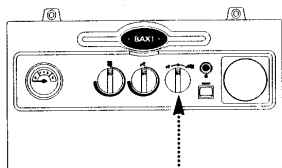


Fig. 39

Selector Switch

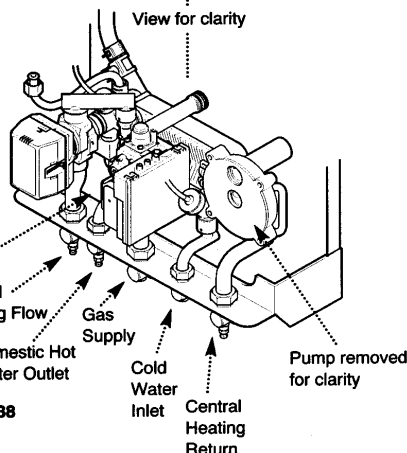
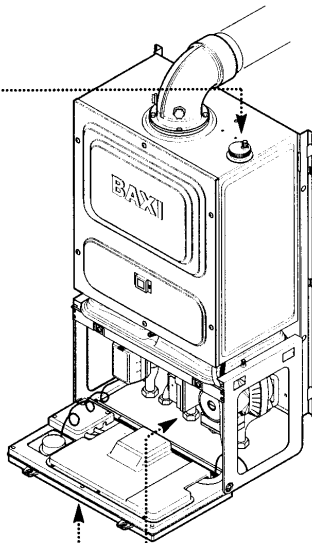


Fig. 38

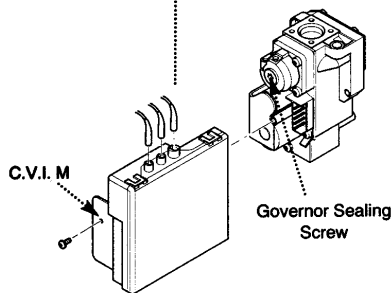


Fig. 38a

Natural Gas Only	
Inlet Pressure	Maximum Rate Pressure
20 mbar	13.6 mbar
8 in wg	5.44 in wg

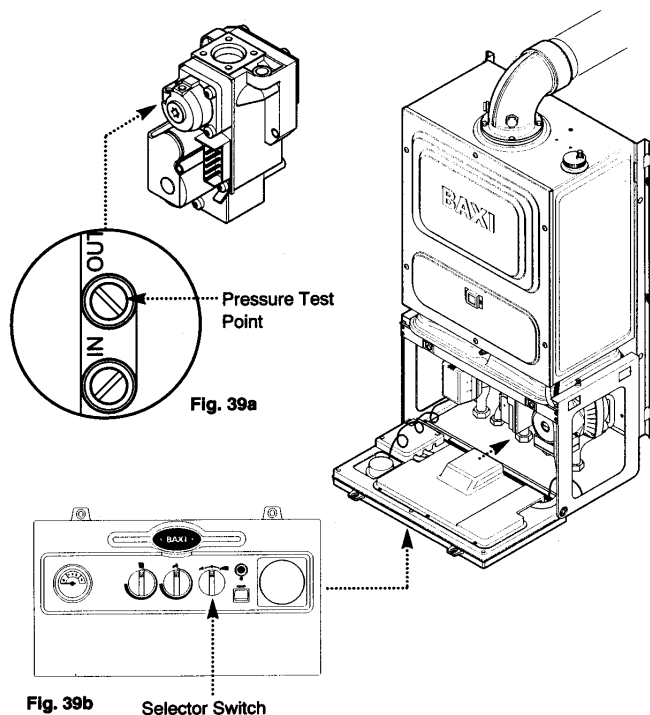
See Conversion Instructions for Propane

## 10.1 Commissioning the Boiler

1. Reference should be made to BS 5449 Section 5 when commissioning the boiler.
2. Open the cold feed to the boiler.
3. Open all hot water taps to purge the DHW system.
4. Ensure that the filling loop is connected and open, then open the heating flow and return valves on the boiler.
5. Open the automatic air vent (Fig. 37). To help purge the primary circuit turn the pump on & off several times by using the On-Off selector switch (Fig. 39).
6. The system must be flushed in accordance with BS 7593:1992 (see Section 6.2) and the flushing agent manufacturers instructions.
7. Pressurise the system to 1.0 bar then close and disconnect the filling loop.
8. Turn the gas supply on and purge the system according to BS 6891.
9. Test for gas soundness.
10. Run the system and check the boiler for correct operation. Check the gas pressure at both the inlet and the burner pressure tappings on the gas valve (see Technical Data - Section 4.0).
11. The system should then be flushed again and treated in accordance with BS 7593:1992 and the flushing agent/inhibitor manufactures instructions.

## 10.2 Adjusting D.H.W. Setting Pressure

1. Fit pressure test gauges to the inlet pressure test point and the burner pressure test point.
2. Set the selector switch to the hot water only position (Fig. 39) and turn any hot water tap fully on and leave on.
3. Remove the governor sealing screw (Fig. 38a).
4. Adjust the valve for maximum rate to the pressures shown in the table below by altering the governor screw (Clockwise for maximum rate increase).
5. Turn off the hot water tap. replace the governor sealing screw on the pressure adjuster and set the selector switch to the position required.



### 10.3 Adjusting C.H. Setting Pressure

The appliance is preset to supply an output of 80,000 Btu/h (23.45 kW) for central heating. If the system design requires an output other than this, proceed as described below.

1. Fit a pressure test gauge to the burner pressure test point (Fig. 39a).
2. Remove the rubber bung in the facia cover panel, and identify the central heating pressure control potentiometer (Fig. 39c & 39d).
3. Set the selector switch to the hot water and heating position (Fig. 39b) and ensure that all external controls are calling for heat. Set the heating temperature adjustment knob to maximum.
4. Using a suitable screwdriver adjust the potentiometer through the facia cover panel, to give the desired pressure (Fig. 39d). See table below

#### Heating

100,000	output	= 13.6mb
80,000	"	= 8.7mb - units pre-set at this
70,000	"	= 6.6mb
60,000	"	= 4.9mb
50,000	"	= 3.4mb

**CAUTION:** Care must be taken not to inadvertently touch any other components on the Control board.

5. Turn the appliance off, remove the pressure gauge and refit the facia cover panel.

**IMPORTANT:** If the central heating system requirement is 100,000 Btu/h (30kW) a second pump must be fitted on the system return. This second pump **MUST** be wired to the control board as shown in section 9.1

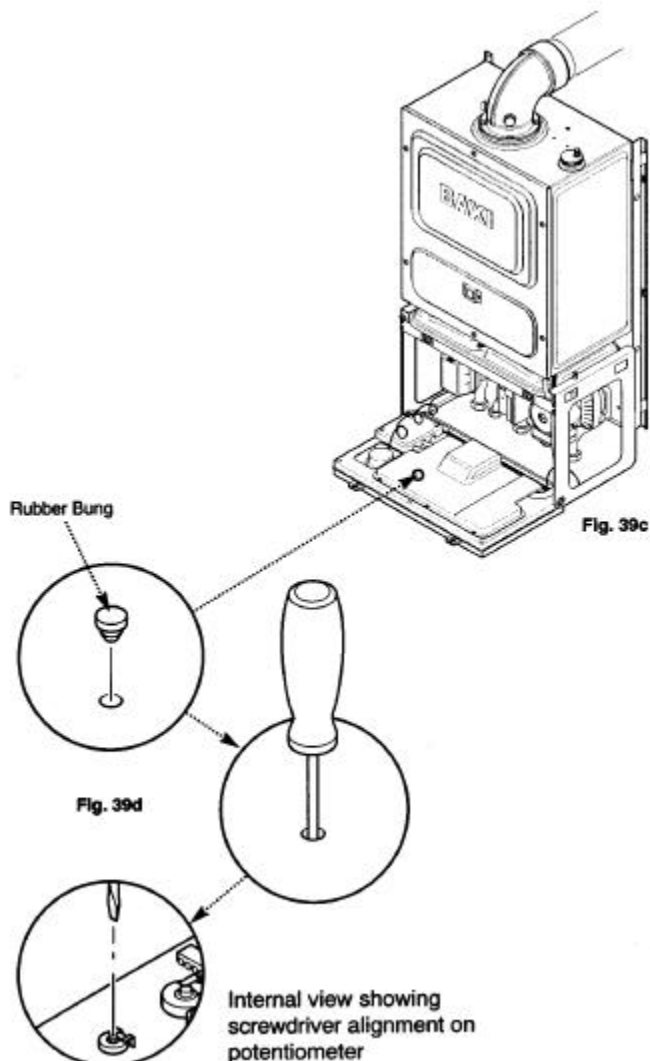


Fig. 40

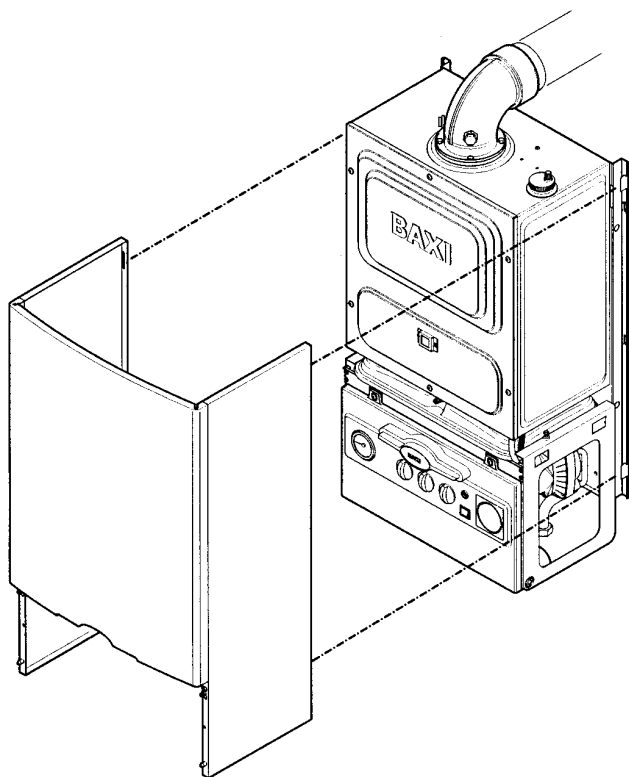
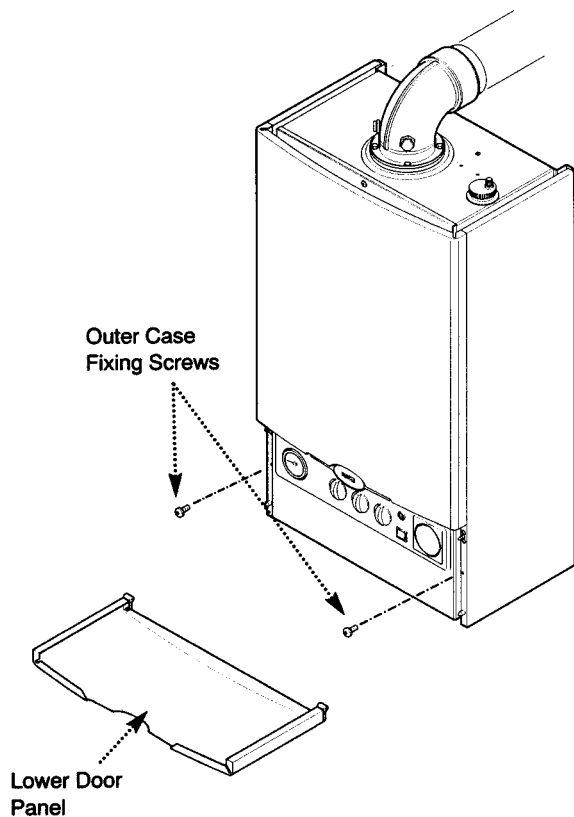


Fig. 41



## 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. 40).
2. Insert the two fixing screws into the sides of the chassis (Fig. 41).
3. Instruct the user in the operation of the boiler and system, explaining the operational sequence.
4. Locate the lower door panel on to its hinges and gently hinge up (Fig. 41).
5. 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.
6. 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.

## 12.1 Annual Servicing

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

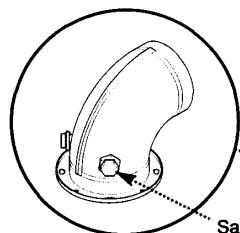


Fig. 42

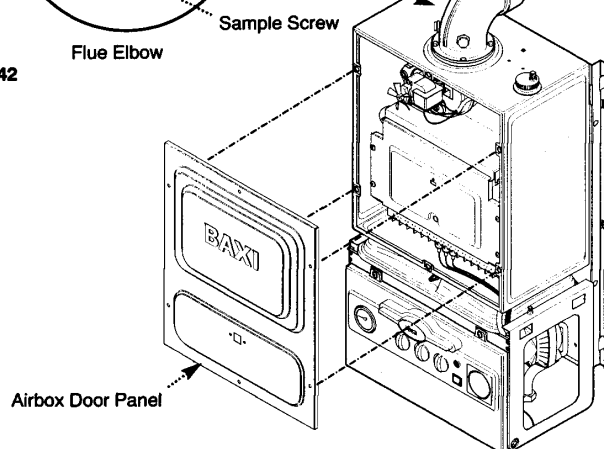


Fig. 43

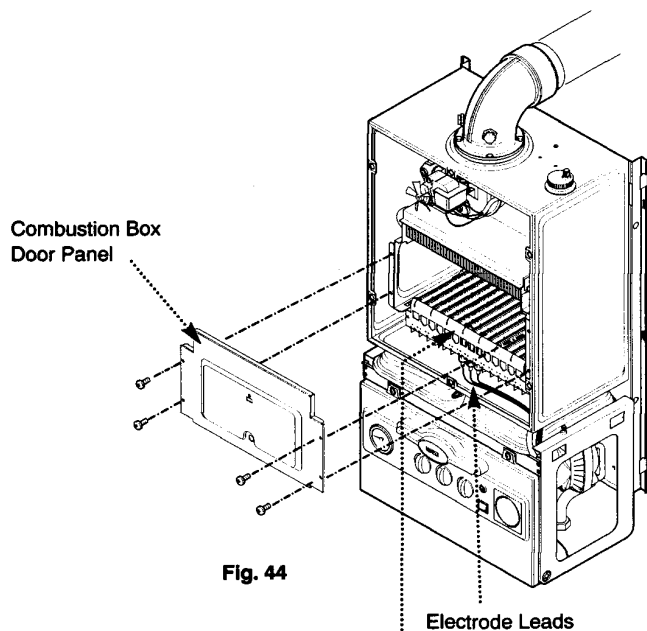


Fig. 44

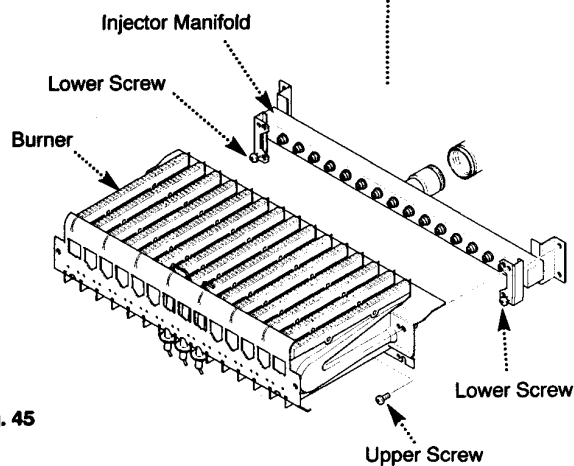
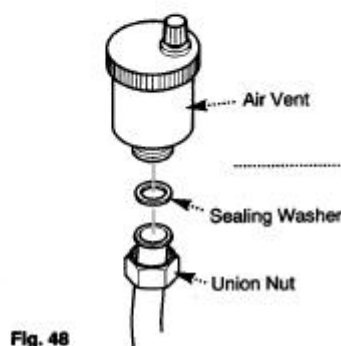
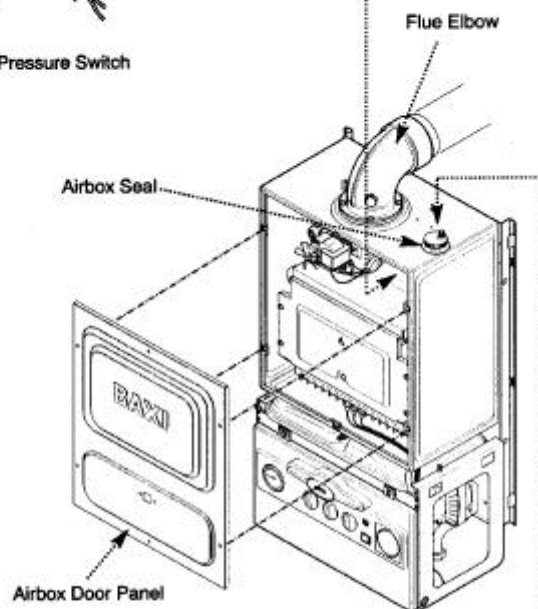
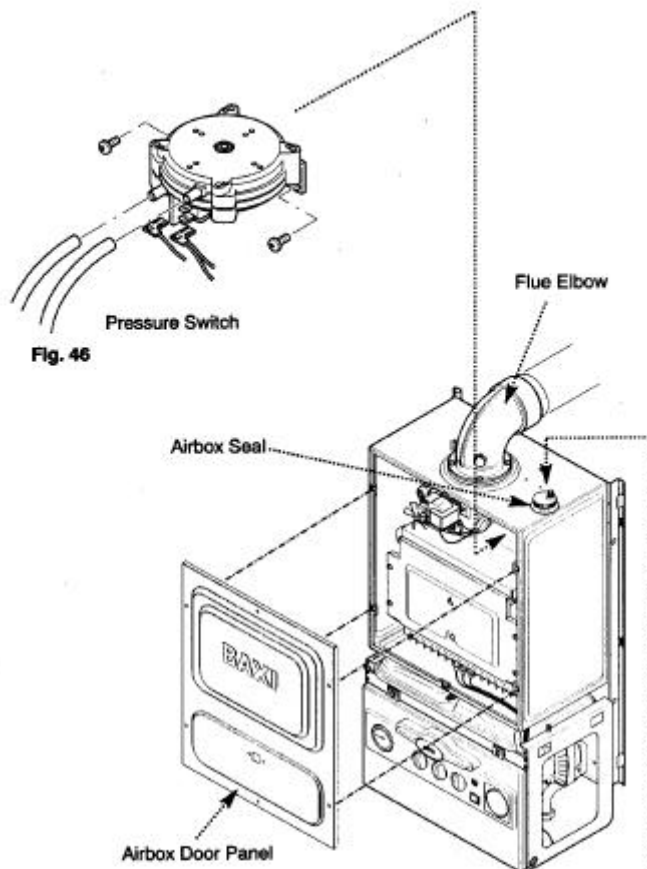


Fig. 45

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. Whilst the boiler is running measure the CO and CO<sub>2</sub> content of the flue products by removing the RH sample screw on the flue elbow and insert a suitable sampling probe (Fig. 42). If the CO/CO<sub>2</sub> ratio is greater than 0.035 then further servicing and investigation is required.
4. Ensure that the boiler is cool.
5. **Ensure that both the gas and electrical supplies to the boiler are isolated.**
6. Remove the outer case and lower door panel (see Installation, Section 8.3).
7. Release the six ¼ turn screws securing the airbox door panel and remove the door (Fig. 43).
8. Undo the four screws securing the combustion box door and remove the door (Fig. 44).
9. Loosen the two lower screws securing the burner to the injector manifold (Fig. 45).
10. Remove the remaining two upper screws securing the burner to the injector manifold (Fig. 45).
11. Remove the electrode leads from the electrodes (noting their positions) and withdraw the burner (Figs 44 & 45).
12. Brush any deposits from the injectors. Do not use a pin or wire to clean them.
13. Brush the burner blades and venturis and clean the combustion box.
14. Ensure that the heat exchanger fins are clear of any obstruction.
15. Reassemble in reverse order of dismantling and recommission.
16. Check the CO/CO<sub>2</sub> ratio is now less than 0.035.
17. Complete the relevant section of the "Benchmark" Installation, Commissioning and Service Record Log Book and hand it back to the user.



## 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.

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

1. Remove the outer case and lower door panel as described under "Installation" Section 8.3.
2. **Isolate the water circuits and drain as necessary. There are 3 drain points:**
  - a) Central heating flow valve.
  - b) Domestic hot water outlet elbow.
  - c) Central heating return valve.

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

3. Place a tube on drain point to drain water away from electrics. Turn anticlockwise to open.

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

4. After changing a component re-commission the boiler where appropriate.

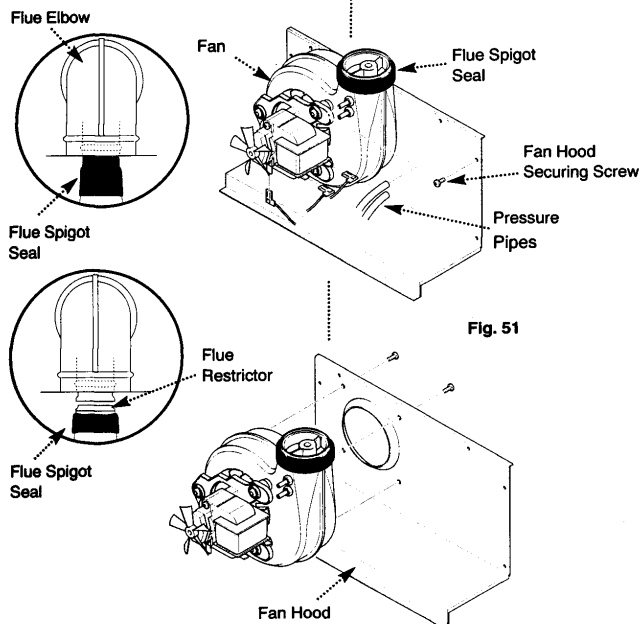
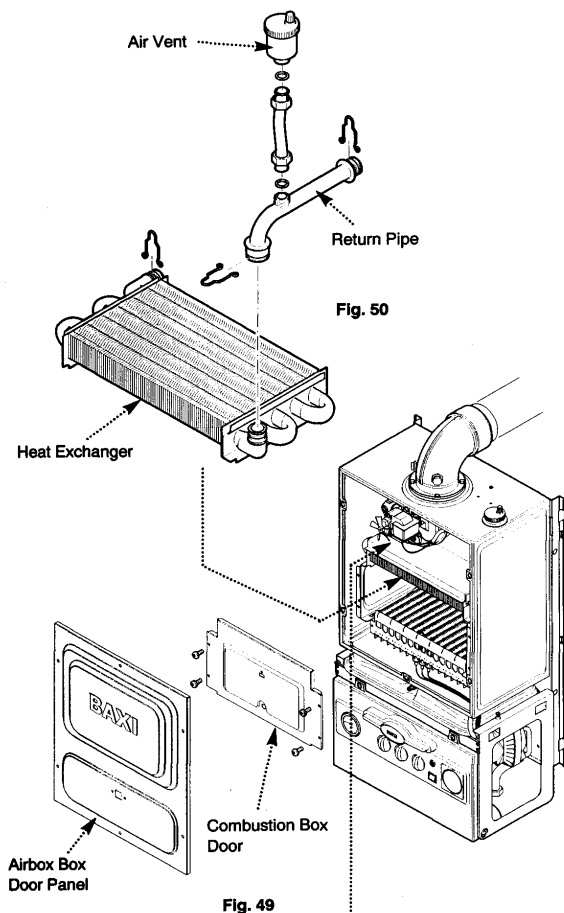
**To change the pressure switch - automatic air vent -** remove the airbox door panel by releasing the six ¼ turn screws (Fig. 47).

## 13.2 Pressure Switch (Fig. 46)

1. Noting the position of the electrical connections and pressure pipes, remove them.
2. Remove the two screws holding the pressure switch to the pressure switch mounting bracket.
3. Fit the new pressure switch and reassemble all components in reverse order of dismantling.

## 13.3 Automatic Air Vent (Fig. 48)

1. Undo the air vent union nut and retain the sealing washer.
2. Withdraw the air vent through the seal in the airbox.
3. Fit the new air vent and reassemble in reverse order.



**To change the heat exchanger - fan - burner and injector manifold - flame sensing probe - spark electrode and return electrode.**

1. Remove the airbox door panel by releasing the six  $\frac{1}{4}$  turn screws (Fig. 49).
2. Undo the four screws securing the combustion box door and remove the door (Fig. 49).

#### 13.4 Heat Exchanger (Fig. 50)

1. Remove the air vent connecting pipe by undoing the nuts at the air vent and the return pipe connection.
2. Remove the air vent through the seal in the airbox whilst retaining the sealing washer.
3. Remove the connecting pipe to gain access to the connection at the rear of the heat exchanger.
4. Unclip the connections at the rear of the heat exchanger.
5. Pull the heat exchanger forward to release the rear fittings.
6. Remove the heat exchanger by sliding forward.
7. Fit the new heat exchanger and reassemble in reverse order. Ensure that the new "O" rings are attached to spigots and the heat exchanger is located in the left and right guides on the fan hood and the combustion box sides.

#### 13.5 Fan (Fig. 51)

1. Noting the position of electrical connections and pressure pipes, remove them.
2. Roll down the flue spigot seal and slide the flue spigot into the flue elbow to expose the end of the fan outlet.
3. Remove the six fan hood securing screws.
4. Rotate the hood upward whilst drawing it forwards, taking care that the flue restrictor (if fitted) remains in the fan outlet.
5. Remove the four screws holding the fan to the hood and remove the fan.
6. Fit the hood to the new fan and reassemble in reverse order of dismantling. If a flue restrictor has been fitted, ensure it is replaced.

Fig. 52

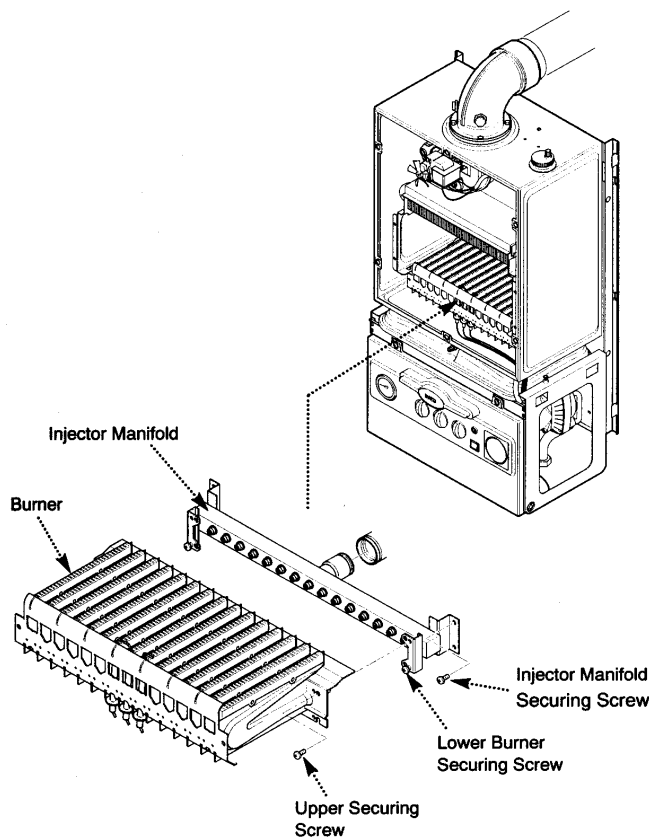
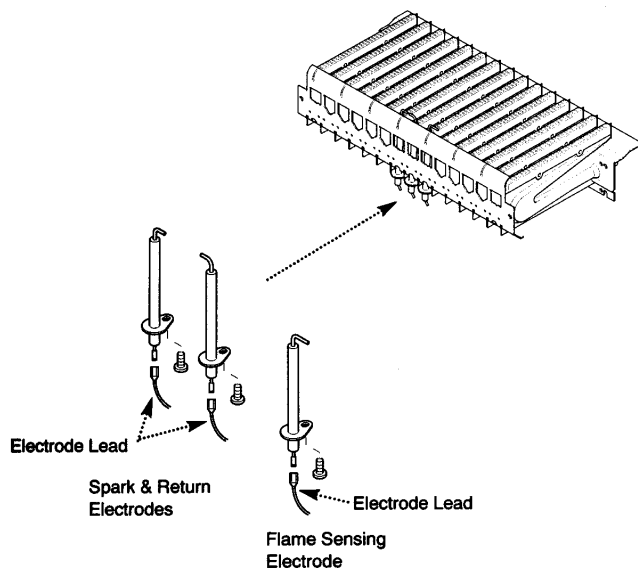


Fig. 53



### 13.6 Burner and Injector Manifold

1. Disconnect the spark, return and flame sensing electrode leads from the electrodes whilst noting their positions (Fig. 53).
2. Loosen the lower burner securing screws and remove the upper securing screws (Fig. 52).
3. Remove the burner (Fig. 52).
4. Remove the injector manifold securing screws and withdraw the manifold from the burner feed "O" ring joint (Fig. 52).
5. Fit the new injector manifold or burner and reassemble in reverse order.

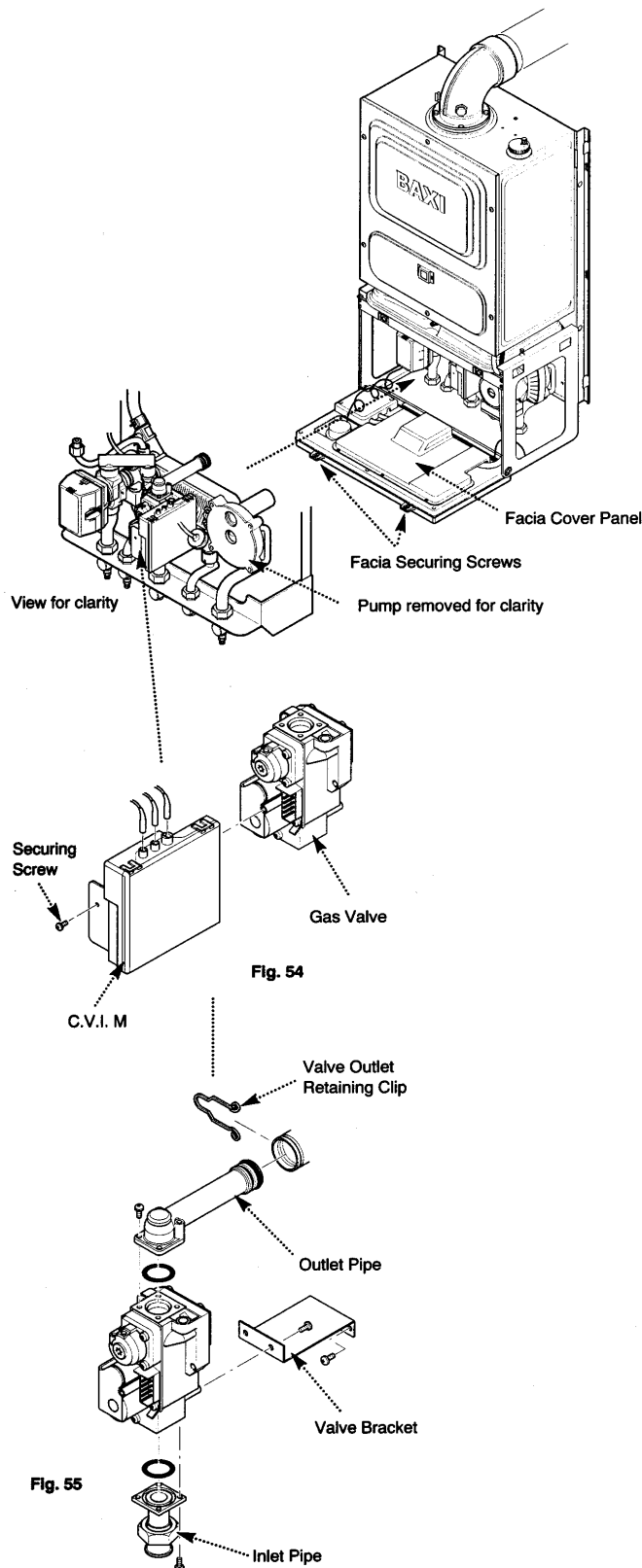
### 13.7 Flame Sensing Electrode

1. Disconnect the flame sensing electrode lead (black sheath) from the electrode (Fig. 53).
2. Loosen the lower burner securing screws and remove the upper securing screws (Fig. 52).
3. Remove the burner (Fig. 52).
4. Remove the screw securing the right hand electrode and withdraw it through the burner (Fig. 53).
5. Fit the new flame sensing electrode, ensuring correct location in the burner cutout and reassemble in reverse order.

### 13.8 Spark Electrode and Return Electrodes

1. Disconnect the spark and return electrode leads (white sheath) from the electrodes (Fig. 53).
2. Loosen the lower burner securing screws and remove the upper securing screws (Fig. 52).
3. Remove the burner (Fig. 52).
4. Remove the two screws securing the left and centre electrodes and withdraw them through the burner (Fig. 52).
5. Fit the new spark and return electrodes, ensuring correct location in the burner cutouts and reassemble in reverse order.





To change the gas valve - spark generator - pump (head only) - pump - thermistor & safety thermostat - expansion vessel - pressure relief valve - flow switches - pressure gauge - diverter valve - domestic hot water filter & flow regulator cartridge - central heating return filter - domestic hot water heat exchanger - CVI ignition cartridge - ECS hydraulic control board - Release the two facia securing screws ( $\frac{1}{4}$  turn) and hinge down the box.

### 13.9 Gas Valve (Figs. 54 & 55)

1. Isolate the gas and electrical supplies to the appliance.
2. Disconnect the 12 way electrical block to the CVI unit.
3. Undo the screw securing the CVI unit to the gas valve. Pull the unit off the valve.
4. Disconnect the ignition and sensing leads from the CVI unit and carefully put the unit to one side.
5. Undo the nut on the gas feed pipe at the tap rail. Remove the spring clip from the burner feed pipe and undo the screws securing the valve mounting bracket to the chassis.
6. Draw the valve forwards taking care not to lose the sealing washer and 'O' ring.
7. Remove the screws securing the gas feed pipe and burner feed pipe to the gas valve. Examine the 'O' rings - if they are damaged in any way they must be replaced.
8. Remove the mounting bracket and fit it to the new valve. Fit the gas feed pipe and burner feed pipe to the new valve, ensuring that the 'O' rings are in place.
9. Reassemble in reverse order, taking care when fitting the CVI unit. Recommission the appliance.

### 13.10 CVI Unit

1. Isolate the gas and electrical supplies to the appliance.
2. Disconnect the 12 way electrical block to the CVI unit.
3. Undo the screw securing the CVI unit to the gas valve. Pull the unit off the valve.
4. Disconnect the ignition and sensing leads from the CVI unit.
5. Reassemble in reverse order, taking care when fitting the CVI unit to the valve. Recommission the appliance.

### 13.11 Pump

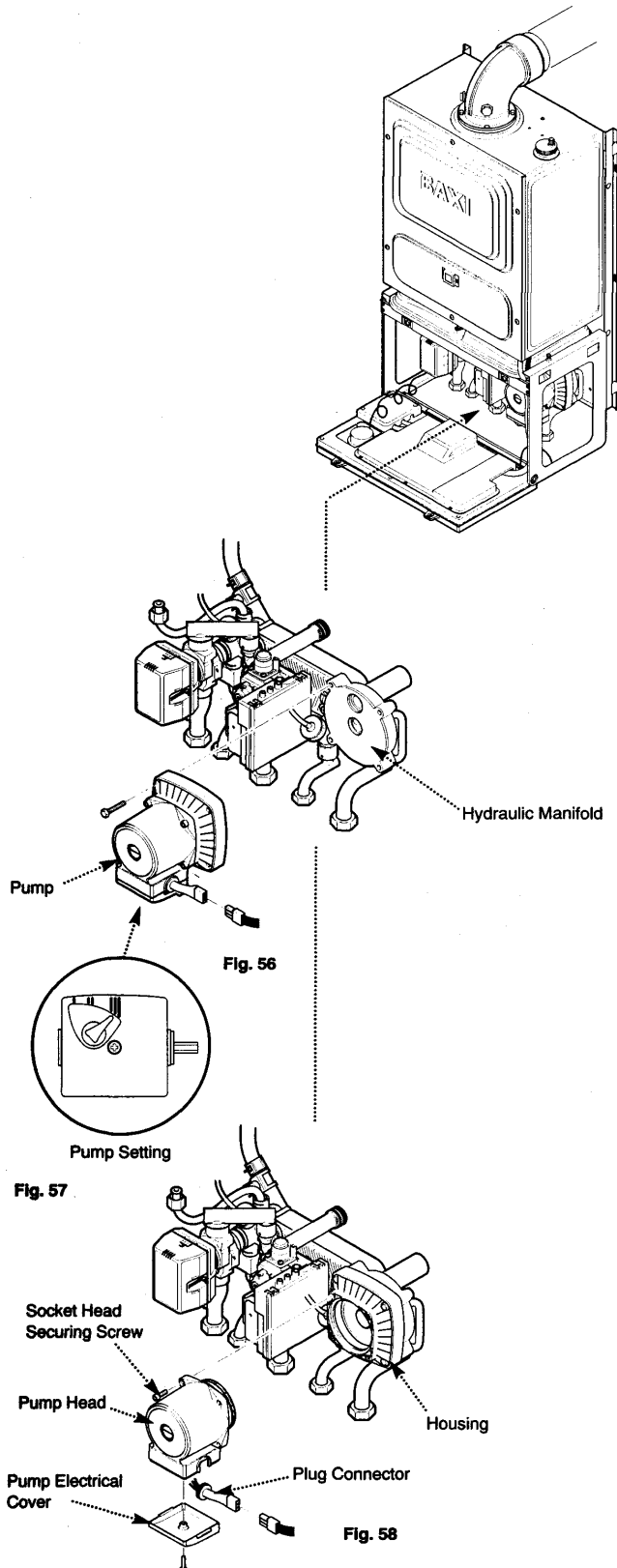
1. If only the head needs replacing. A standard Grundfos UPS 15-60 pump head is interchangeable (see section 13.13 for details).
2. This must be switched to setting N° 3 (Fig. 57).

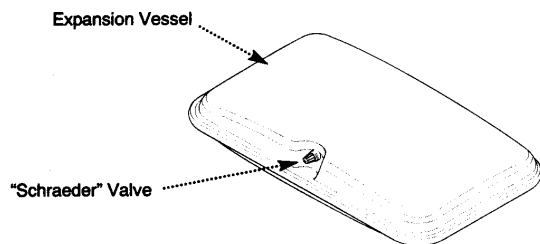
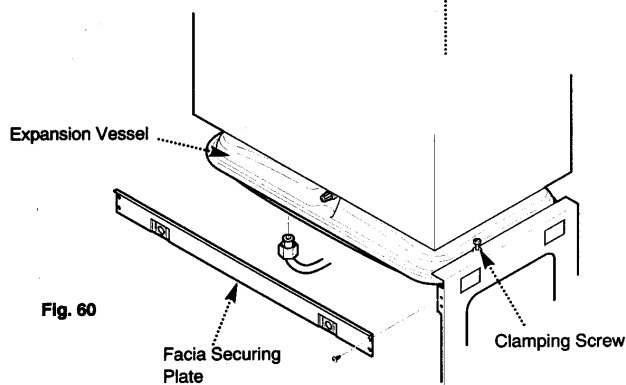
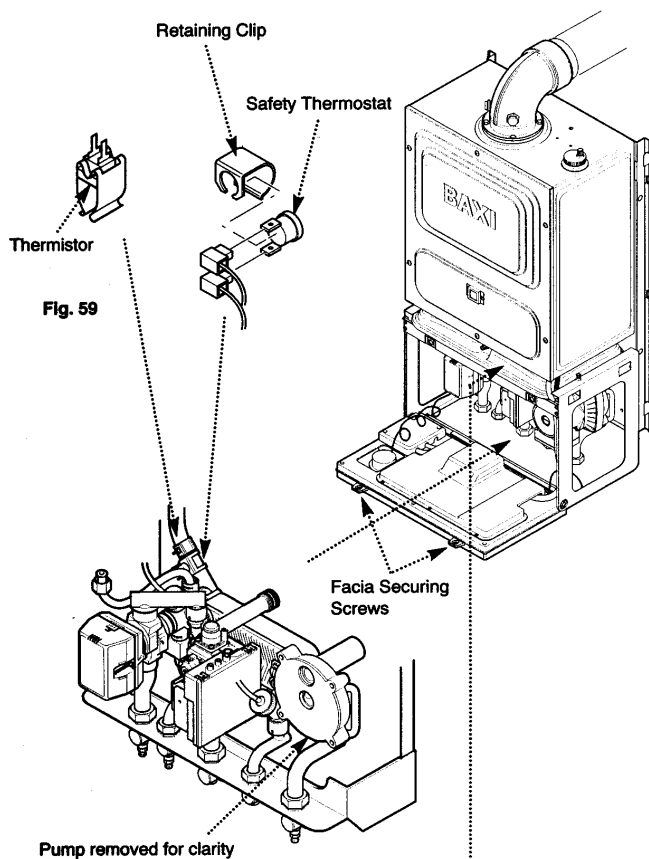
### 13.12 Pump (Complete) (Fig. 56)

1. Unplug the wiring harness from the pump.
2. Remove the four screws retaining the pump backplate to the hydraulic manifold.
3. Remove the pump.
4. Fit the new pump and reassemble in reverse order.

### 13.13 Pump (Head Only) (Fig. 58)

1. Unplug the wiring harness from the pump.
2. Remove the four socket head screws securing the pump head and separate it from the housing.
3. Remove the screws retaining the pump electrical covers on the original and replacement heads.
4. From the replacement UPS 15-60 pump head remove the strain relief cable gland and discard.
5. Remove the plug connector from the old pump head and wire it into the UPS 15-60 pump head.
6. Replace the electrical cover to the new pump head and assemble with the electrical box at 6 o'clock to the housing.
7. Check that the pump has been switched to setting N° 3 (Fig. 57) and reconnect the wiring harness plug.





### 13.14 Thermistor

1. Remove the thermistor from the flow pipe.
2. Remove the electrical connections from the sensor.
3. Fit the new thermistor and reassemble in reverse order.

### 13.15 Safety Thermostat

1. Remove the retaining clip from the flow pipe.
2. Remove the electrical connections from the thermostat.
3. Remove the thermostat from the clip.
4. Fit the new thermostat and reassemble in reverse order.

### 13.16 Expansion Vessel

1. Undo the expansion vessel connection and retain the sealing washer.
2. Undo the expansion vessel clamping screws at either side.
3. Remove the facia securing plate by removing the two screws at either side.
4. Disconnect the spark electrode leads from the gas valve plug and slide the expansion vessel forward, ensuring the electrode leads and the wiring harness do not foul on the expansion vessel.
5. Fit the new expansion vessel and reassemble in reverse order.

### 13.17 Re-pressuring Expansion vessel

1. The charge pressure is 1.0 bar.
2. Close the central heating flow and return isolating valves.
3. Drain down the boiler.
4. The "Schraeder" valve is positioned centrally at the front of the appliance, directly below the airbox.
5. Pressurise to 1.0 bar.
6. Open the isolating valves and recharge the system to 1.0 bar.
7. Vent the system as necessary.

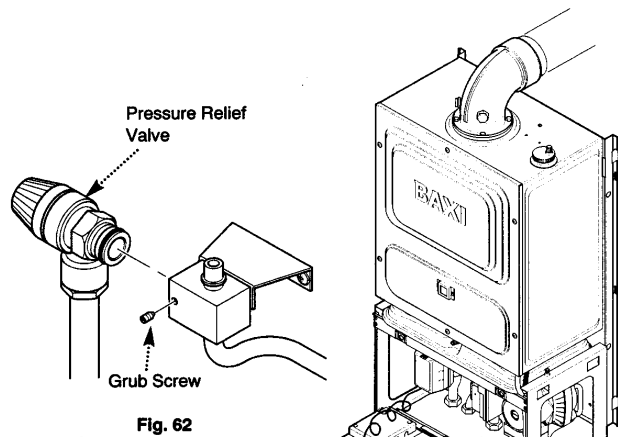


Fig. 62

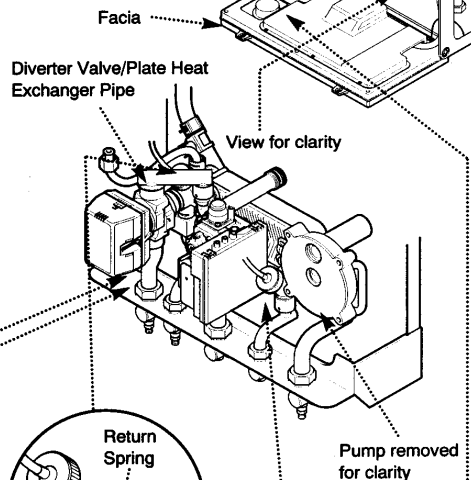


Fig. 63

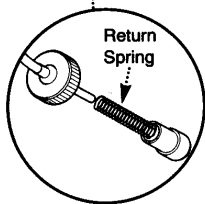


Fig. 63a

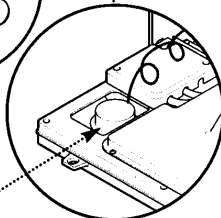
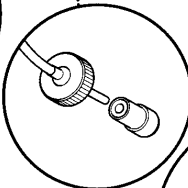


Fig. 65

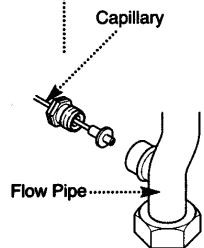


Fig. 64

### 13.18 Pressure Relief Valve (Fig. 62)

1. The pressure relief valve is positioned on the central heating bypass pipe at the diverter valve manifold.
2. Drain the system at an appropriate low point.
3. Disconnect the union between the valve and the discharge pipe.
4. Slacken the grub screw retaining the valve.
5. Pull the valve sideways to disengage it.
6. Fit the new pressure relief valve and reassemble in reverse order.

### 13.19 Flow Switches (Fig. 63)

1. The procedure for changing both flow switches is not the same. However they are interchangeable.
2. Remove the electrical connections.
3. To access the central heating flow switch (left hand) remove the diverter valve/plate heat exchanger pipe by loosening the screw at the plate heat exchanger housing and remove the retaining clip at the diverter valve, then lift away.
4. Unscrew the switch cap assemblies and remove. The caps are hand tight, so no tool is necessary. The central heating flow switch includes a return spring. This must be retained.
5. Remove the flow switch bobbin from the housing. The bobbin contains a magnet and can be removed by using a screwdriver to carefully lift it out.

**NOTE:** The flow switch components are matched sets and must not be interchanged separately.

6. Fit the new flow switches and reassemble in reverse order. The spring **must** always be refitted to the central heating flow switch (Fig. 63a).

### 13.20 Pressure Gauge

1. Undo the nut retaining the capillary in the connection at the flow pipe (Fig. 64).
2. Depress the two lugs on either side of the pressure gauge and feed through facia (Fig. 65).
3. Fit new pressure gauge and reassemble in reverse order.

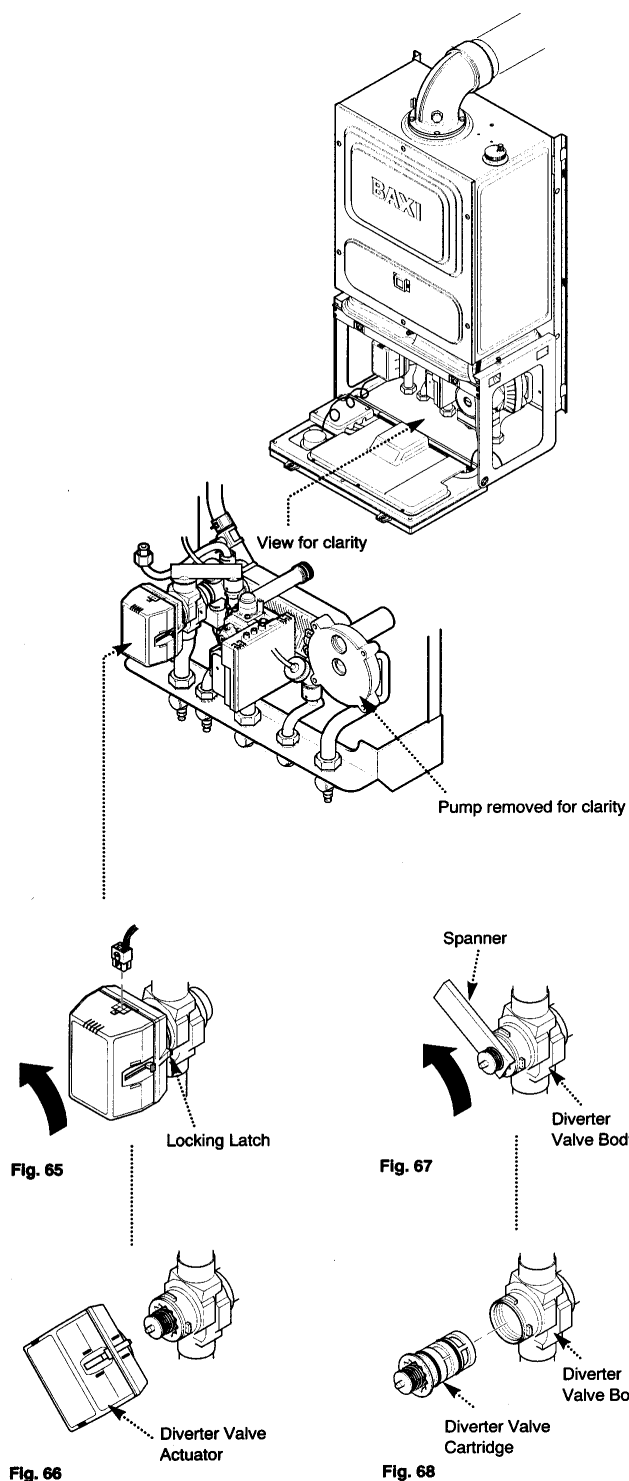
## 13.21 Diverter Valve

### To change the diverter valve actuator:

1. Remove electrical plug (Fig. 65).
2. Depress the locking latch whilst rotating the head anticlockwise through 45° (Fig. 65) and pull forward (Fig. 66).
3. Fit the new diverter valve actuator and reassemble in reverse order.

### To change the diverter valve cartridge:

1. Remove the diverter valve actuator (Figs 65 & 66).
2. Using the spanner in the spare cartridge kit, unscrew the cartridge anti-clockwise and remove it (Fig. 67 & 68) whilst holding the diverter valve body securely with a suitable tool.
3. Fit the new diverter valve cartridge and reassemble in reverse order.

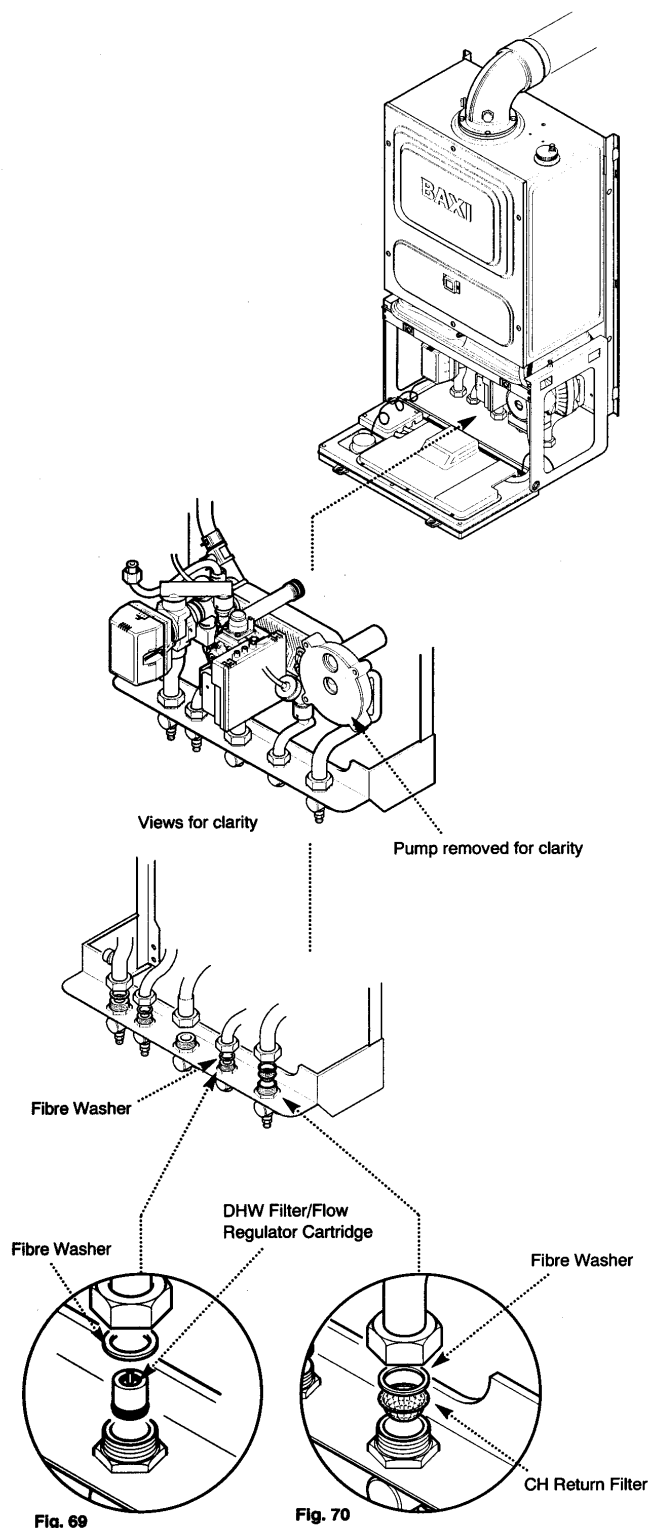


### 13.22 Domestic Hot Water Filter and Flow Regulator Cartridge (Fig. 69)

1. Isolate the cold water inlet tap.
2. Undo the cold water inlet pipe nut.
3. Swivel the bend to gain access to the filter and flow regulator cartridge.
4. Remove the fibre washer and remove the cartridge.
5. Fit the new filter and regulator cartridge and renew the fibre washer. Reassemble in reverse order.

### 13.23 Central Heating Return Filter (Fig. 70)

1. Undo the central heating return pipe nut.
2. Swivel the bend to gain access to the filter.
3. Remove the fibre washer and filter.
4. Fit the new filter and renew the fibre washer. Reassemble in reverse order.



### 13.24 Domestic Hot Water Heat Exchanger

1. Remove the gas valve (see 13.9 Gas Valve section 1-6 incl.).
2. Remove the cold inlet flow switch head (see Section 13.18 1-3 incl.).
3. Remove the two screws securing the plate heat exchanger to the manifolds (Fig. 71).
4. Remove the gas valve outlet retaining clip (see 13.9 Gas Valve section).
5. Push the plate heat exchanger backwards and tilt through 45° anti-clockwise.
6. Tilt the lower end forwards to clear the bypass pipe and lower the plate heat exchanger.
7. Twist through 45° and withdraw by pulling forwards.
8. Remove the 'O' rings from the manifolds and replace with new 'O' rings (Fig. 72).
9. Taking care not to displace the 'O' rings fit the new plate heat exchanger, ensuring the chevrons point towards the right. Reassemble in reverse order.

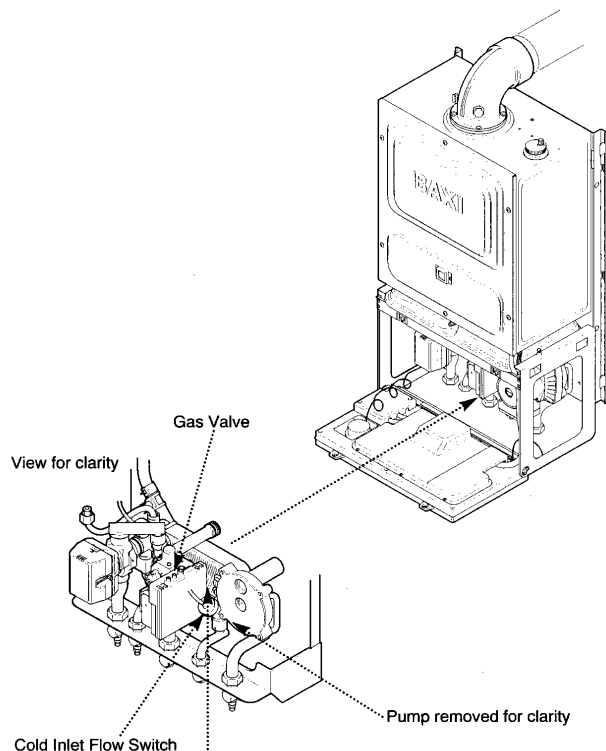


Fig. 71

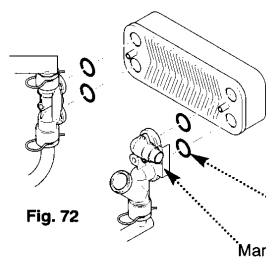
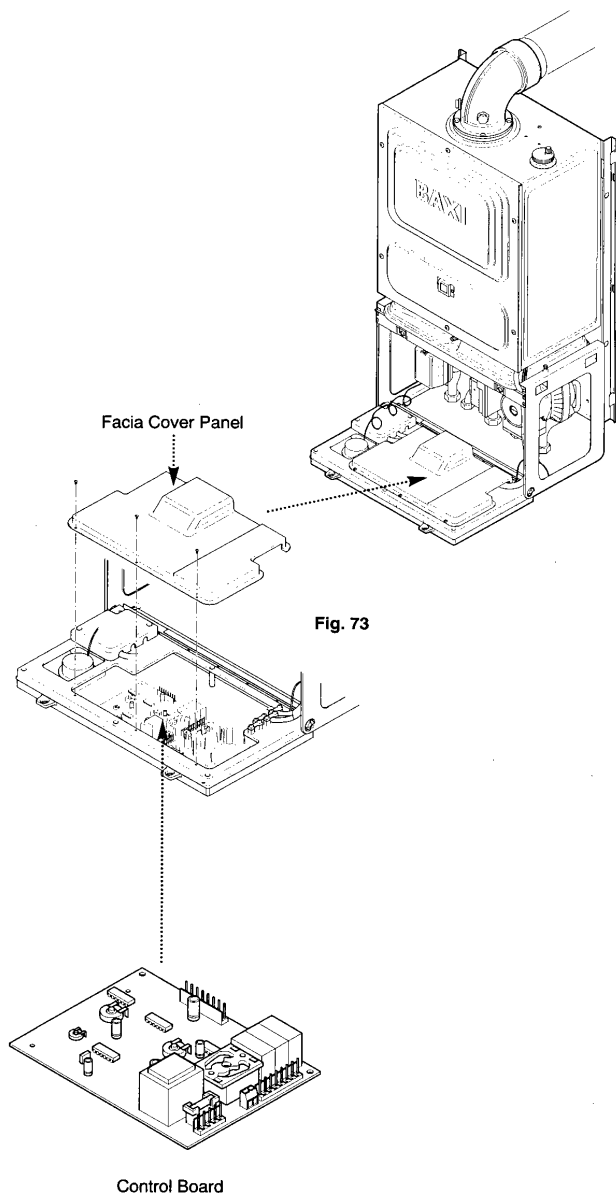


Fig. 72

**NOTE:** Ensure that the 'O' rings are correctly seated in the manifold prior to reassembly.

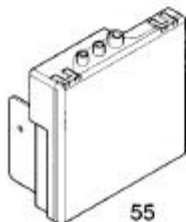
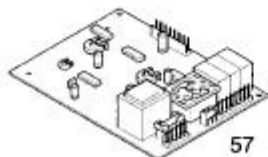
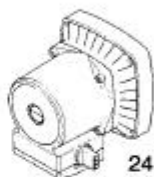
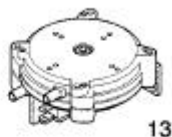
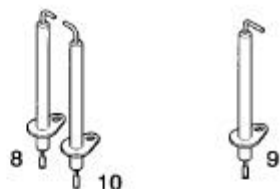
### 13.25 Hydraulic Control Board

1. Remove the facia cover by removing the securing screws and pulling it forwards whilst lifting (Fig. 73).
2. Remove all the connections from the control board (Plugs are removed by springing the retaining clip outwards and withdrawing them vertically).
3. Remove the screws fixing the control board to the facia panel and withdraw the board taking care to leave the temperature control spindles in place (Fig. 75).
4. Fit the new control board and reassemble in reverse order.



**Fig. 75**





### Short Parts List

Key No.	G.C. No.	Description	Manufacturers Part No.
7	E02 745	Burner	241140
8	E02 746	Electrode - Burner	241141
9	E02 747	Electrode - Sensing	241142
10	E02 748	Electrode - Earth	241143
11	E02 749	Burner Manifold	241144
13	E02 751	Pressure Switch	241146
16	E02 754	Fan	241149
17	E02 755	Flue spigot Fan	241150
24	E02 762	Pump	241157
26	E02 764	Flow Switch	241159
33	E02 771	Diverter Valve Head	241168
39	E25 125	Thermistor-Honeywell	245338
	E02 777	NTC Thermistor-SIT	241173
40	E02 797	O/H Thermostat	241174
41	E25 126	Gas Valve-Honeywell	245341
	E02 778	Gas Valve-SIT Sigma845	241175
57	E25 130	Control Board	245334
55	E25 131	CVI Unit-Honeywell	245340
	E02 793	EFD Board-SIT505EFD	241187

**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, turn all DHW taps off.
- There is an adequate gas supply pressure at the inlet, (preferred **minimum** pressure is natural gas 19.5 mbar & propane 36 mbar).
- All isolating valves are open and both the boiler and the system are vented.
- Check central heating system is correctly pressurised (minimum cold pressure 1 bar).
- Check installation is correct, including the flue system.

**NOTE:** During Fault Finding, where necessary, timing delays can be cancelled by pressing the reset switch.

Note for terminal descriptions use this chart in conjunction with wiring diagram (page 23).

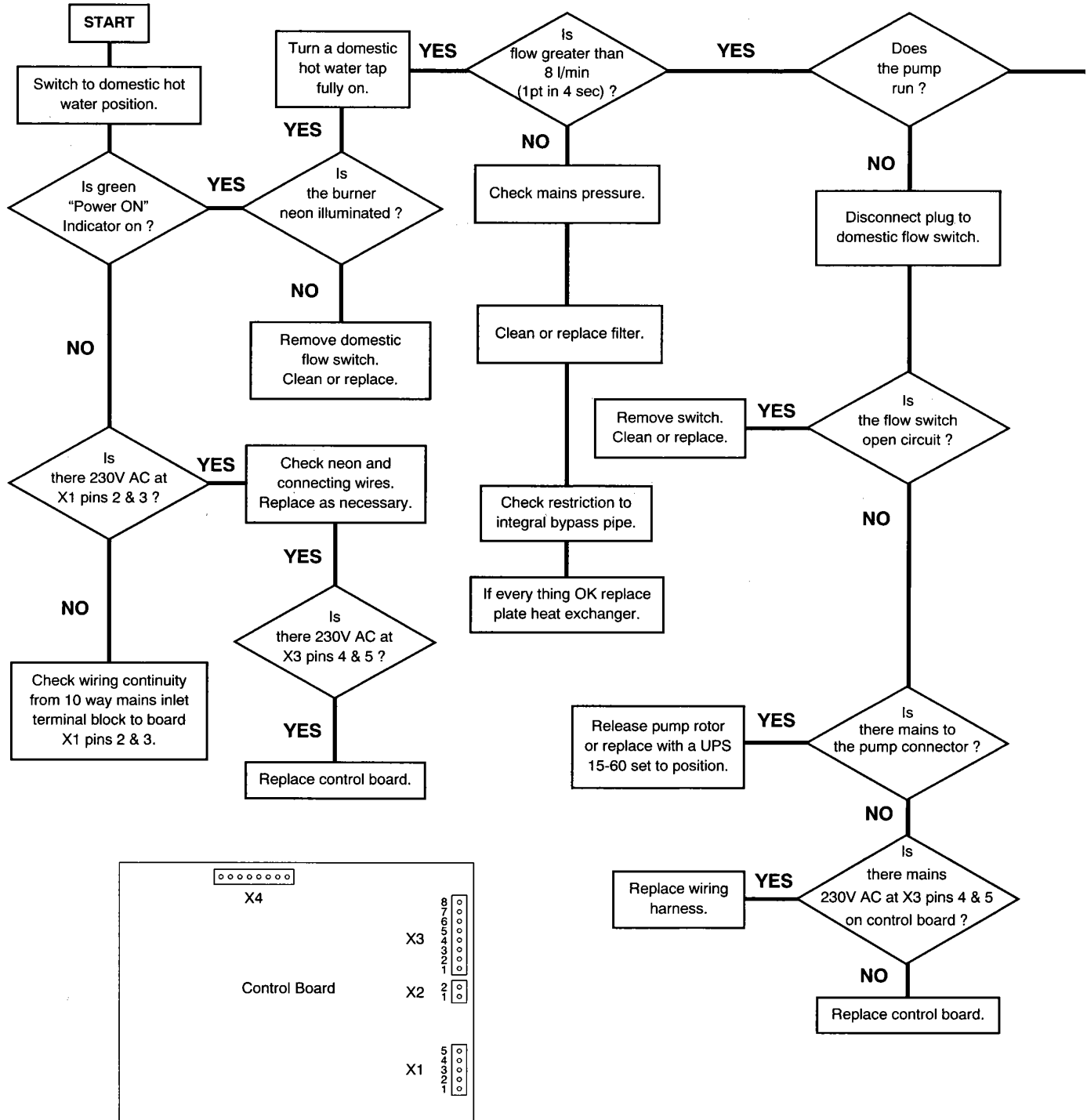
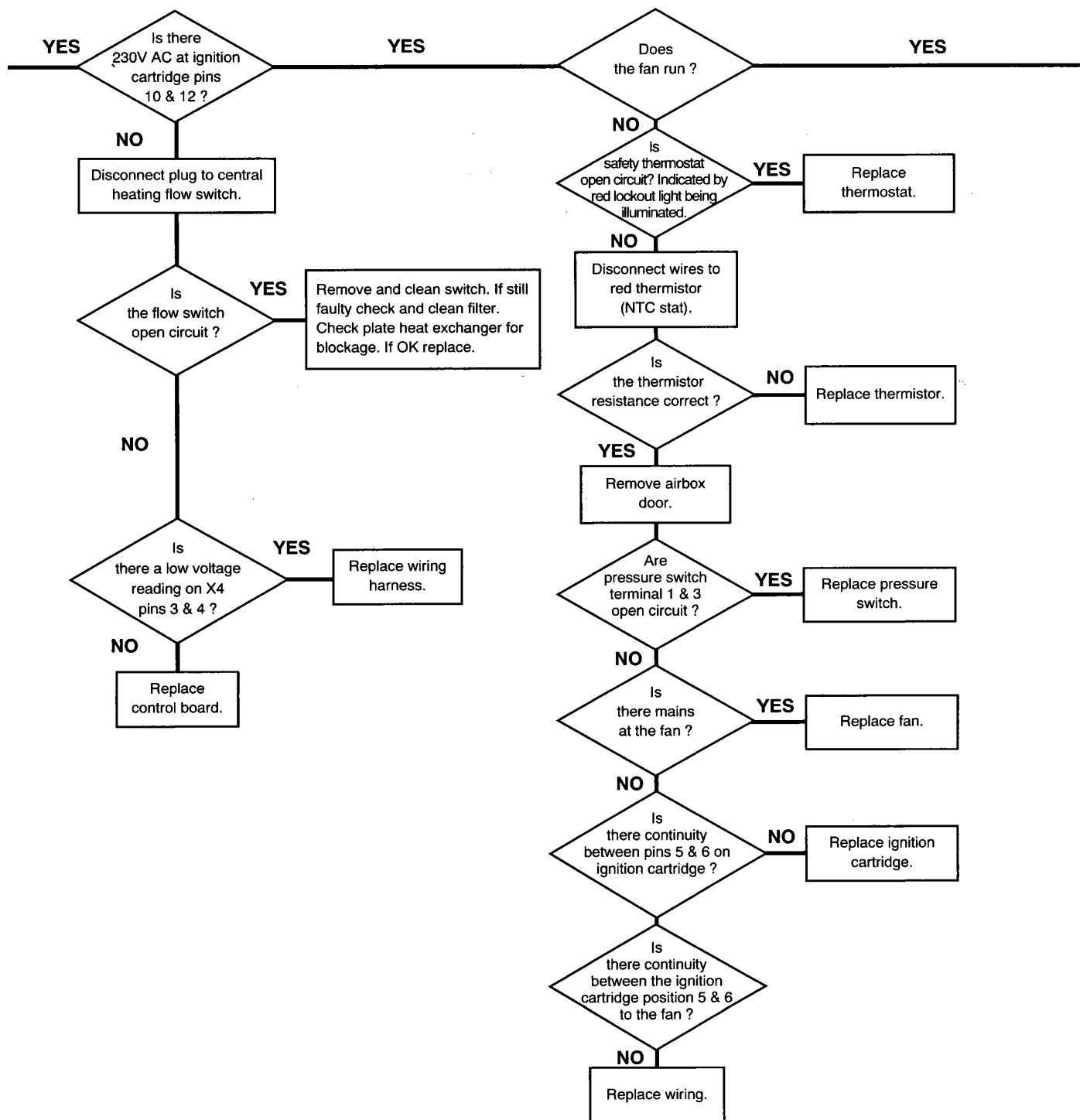
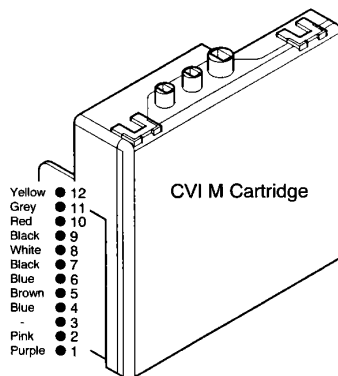


Table A

Thermistor Resistance	
Electrical Resistance Ohm	Water Temperature °C
19817	10
15561	15
12319	20
5214	40
2447	60
1251	80
793	95



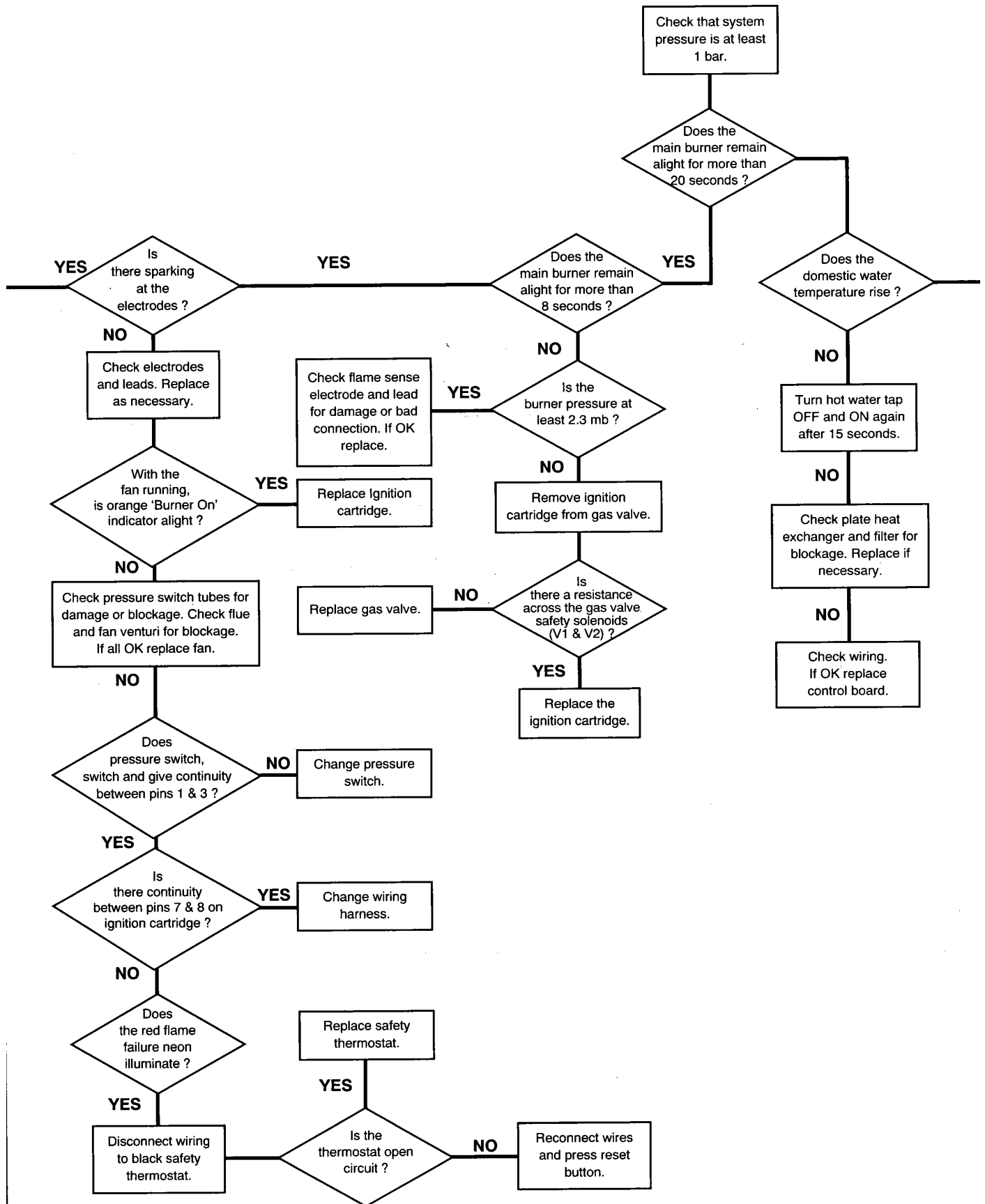
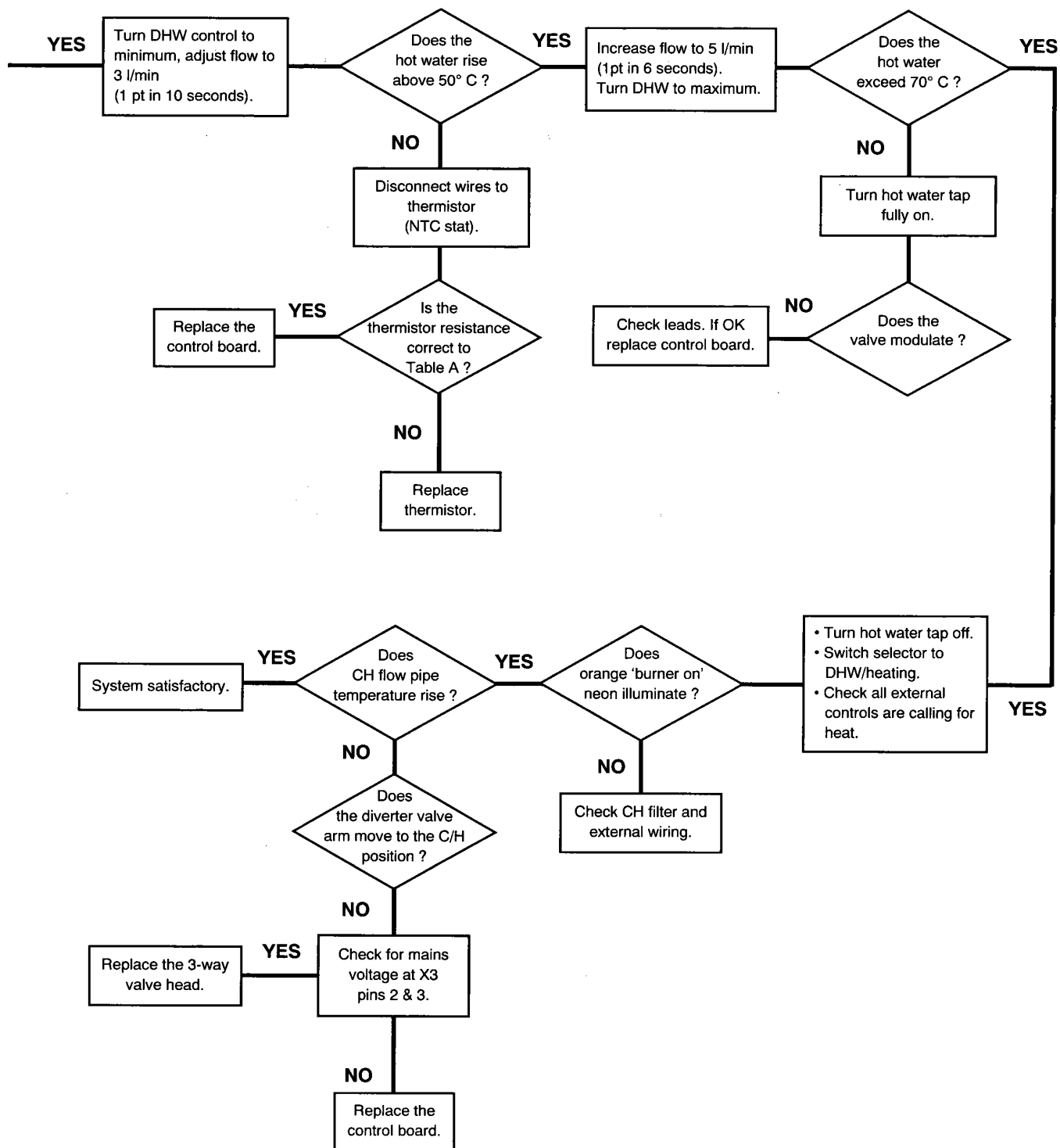


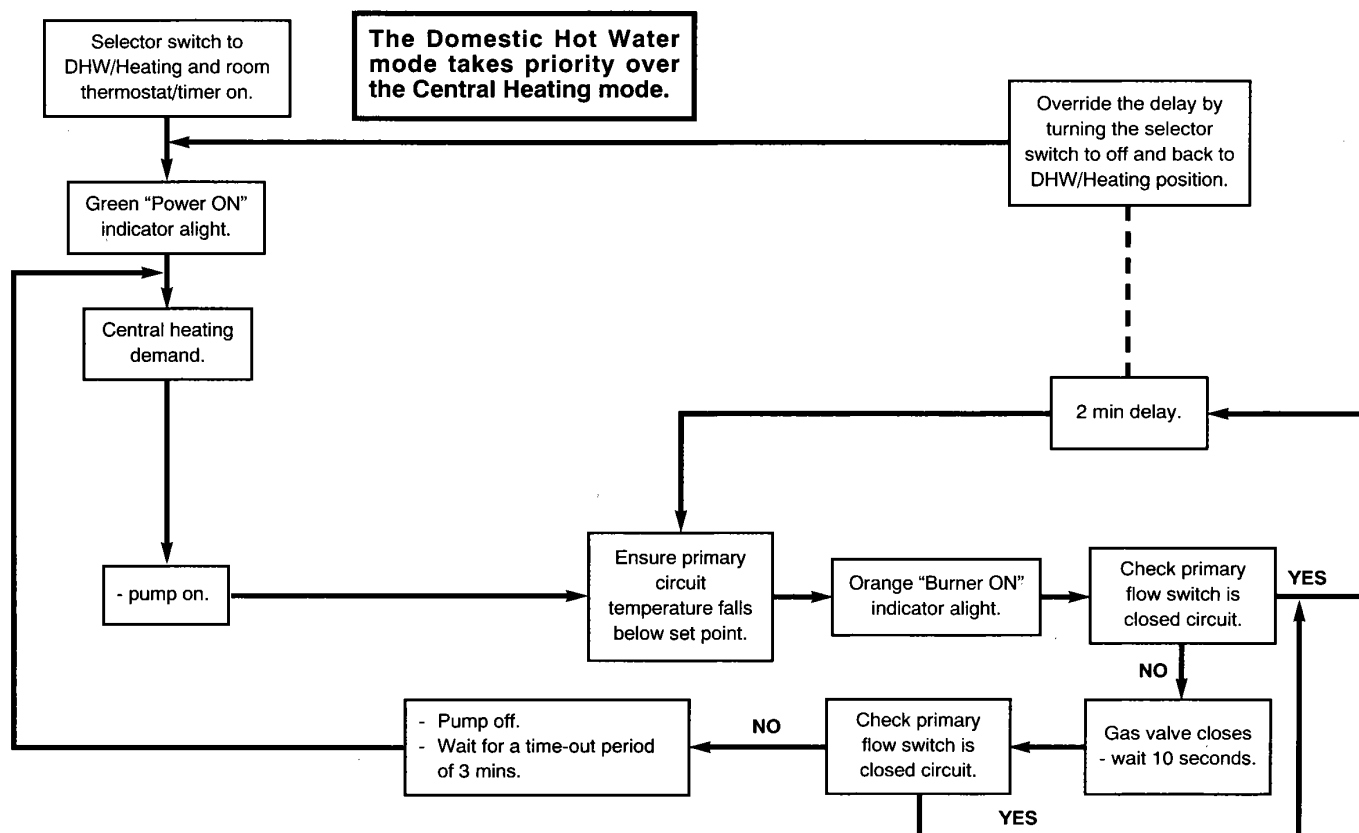
Table A

Thermistor Resistance	
Electrical Resistance Ohm	Water Temperature °C
19817	10
15561	15
12319	20
5214	40
2447	60
1251	80
793	95

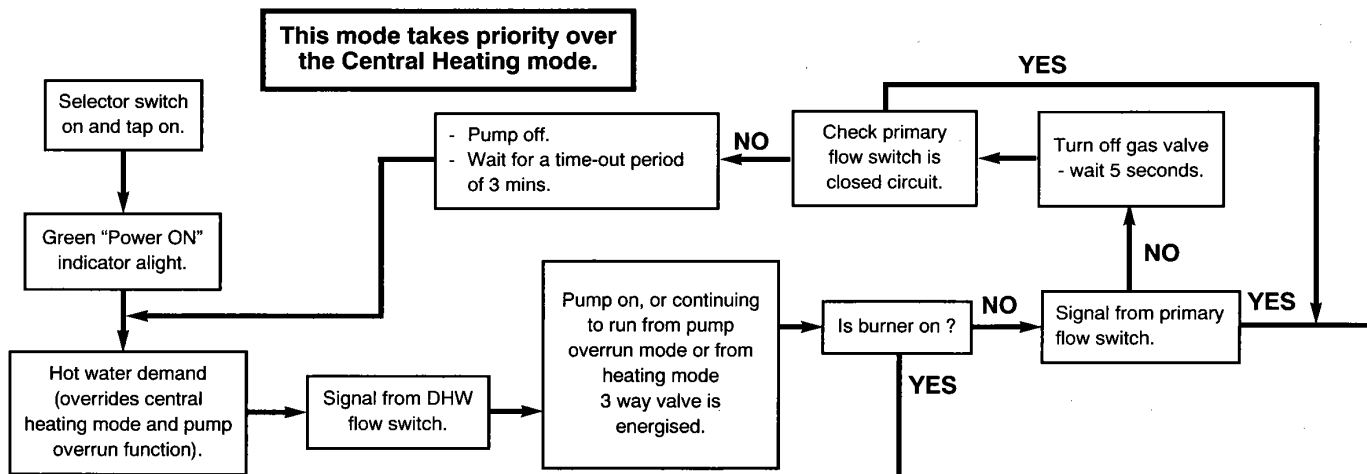


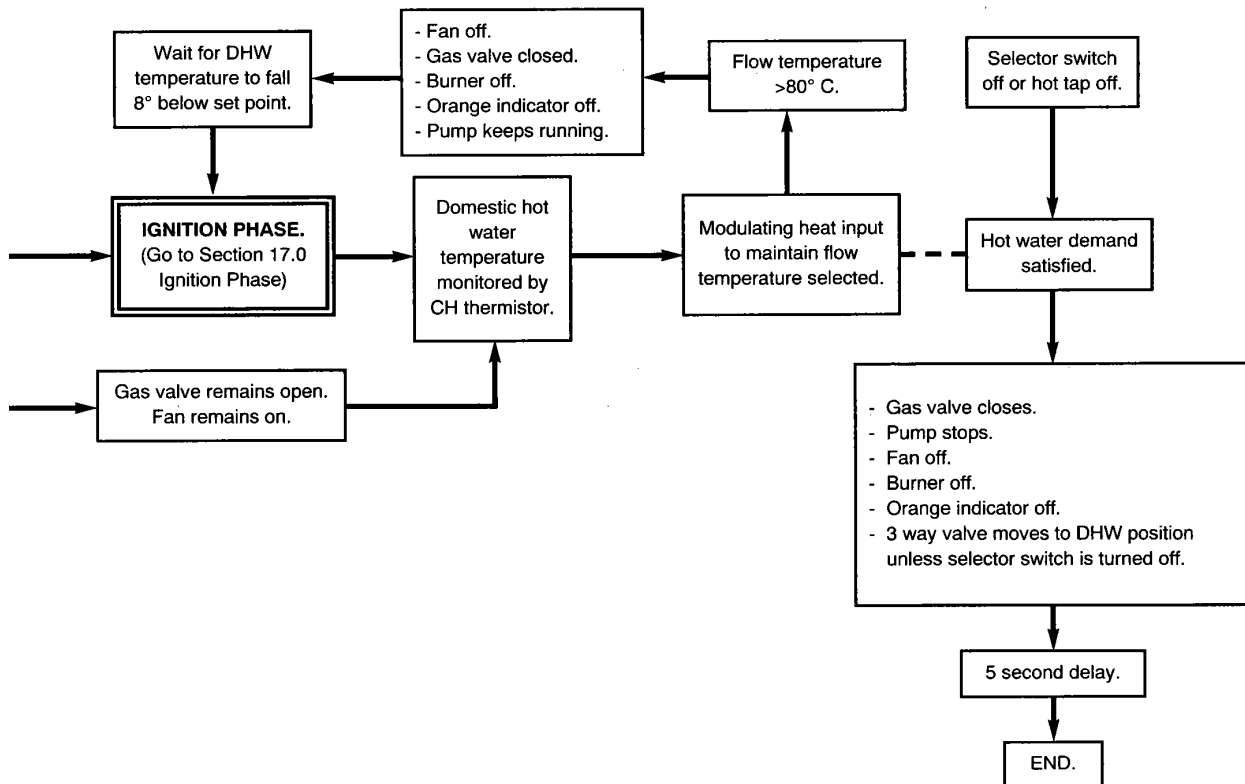
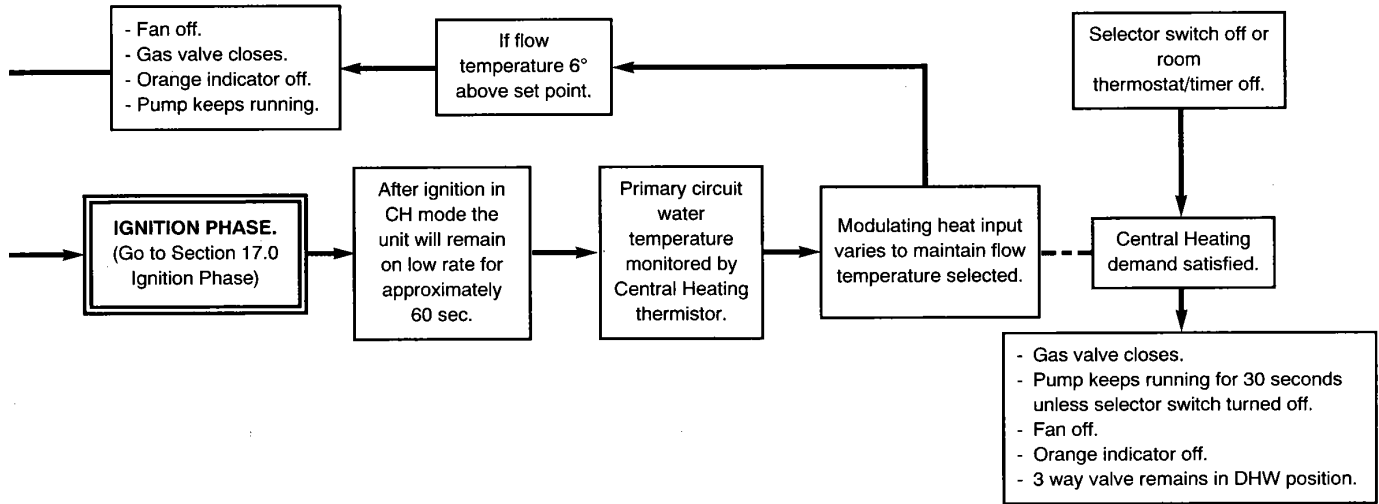
## 16.0 Operational Flow Chart – page 46

### 16.1 Central Heating Mode



### 16.2 Domestic Hot Water

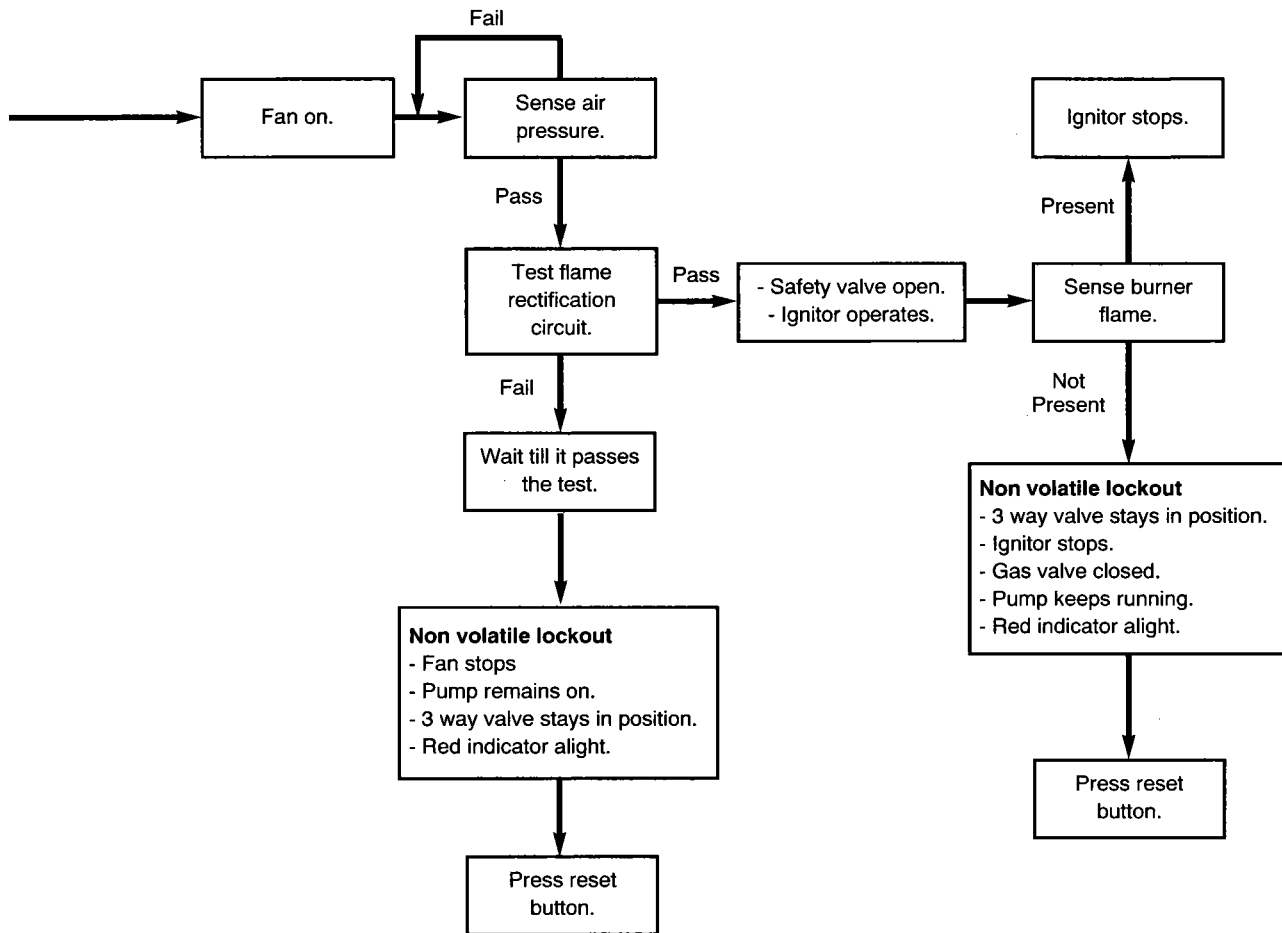




## 17.0 Ignition Flow Chart – page 48

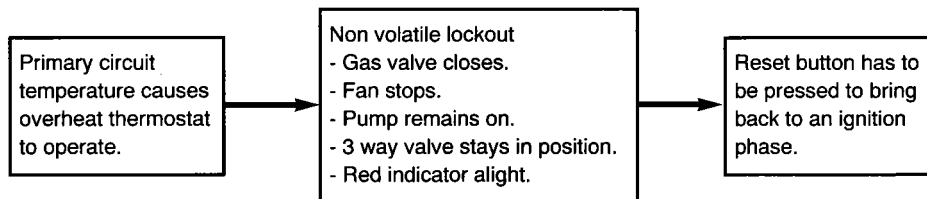
### 17.1 Ignition Phase

**IGNITION PHASE**  
(From Section 16.0  
Operation Flow Chart)



### 17.2 Overheat Lockout Procedure

**Non volatile lockout:** The boiler waits for a manual intervention









**Page 51**

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