

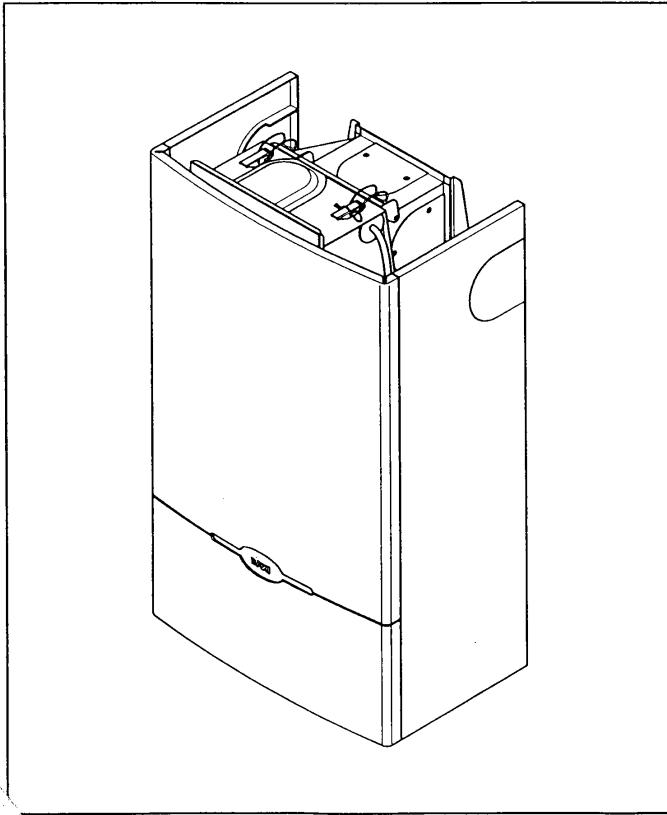
# Baxi Solo 3PF System

Wall Mounted Powered Flue System Boiler  
Gas Fired Central Heating Unit

Comp No 245443 - Issue 1 - 9/99

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## Installation and Servicing Instructions



**BAXI**

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**Natural Gas**

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**Baxi Solo 3 30 PF System**

G.C.No. 41 075 12

**Baxi Solo 3 40 PF System**

G.C.No. 41 075 13

**Baxi Solo 3 50 PF System**

G.C.No. 41 075 14

**Baxi Solo 3 60 PF System**

G.C.No. 41 075 15

**Baxi Solo 3 70 PF System**

G.C.No. 41 075 16

**Baxi Solo 3 80 PF System**

G.C.No. 41 075 17

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

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

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

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 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 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.

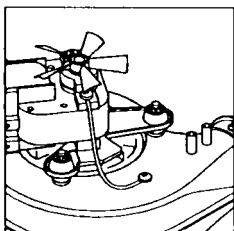
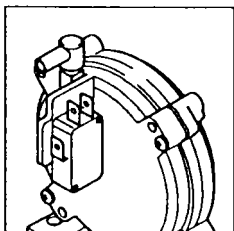
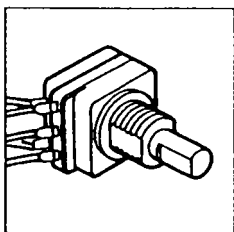
Product/Production certified by:  
Notified Body 0086.

For use in GB / IE only.



Baxi is a BS-EN ISO 9001  
Accredited Company

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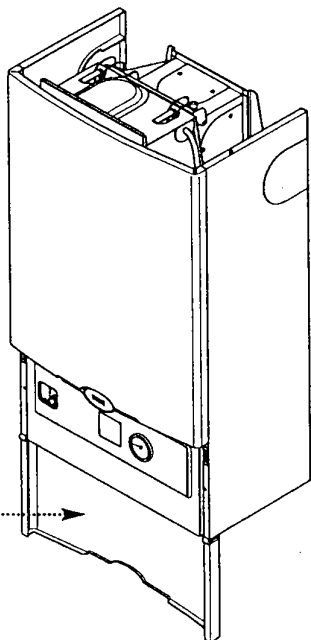


Fig. 1

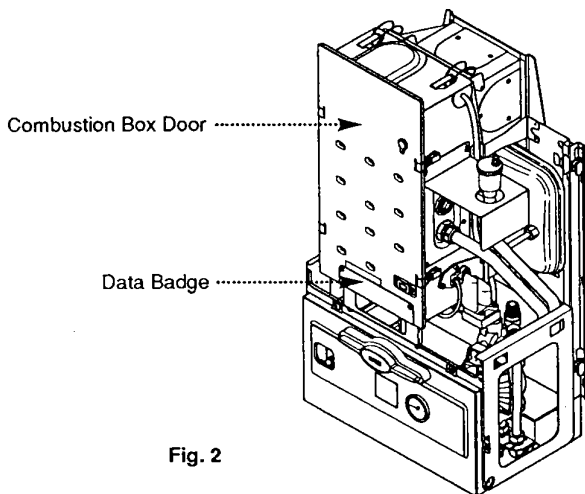


Fig. 2

**B.S. Codes of Practice**

STANDARD	SCOPE
B.S.8891	Gas Installation.
B.S.5546	Installation of hot water supplies for domestic purposes.
B.S.5449	Forced circulation hot water system.
B.S.6798	Installation of gas fired hot water boilers.
B.S.5440:Pt 1	Flues.
B.S.5440 Pt 2	Ventilation.
B.S.7074 Pt 1	Sealed systems

**1.1 Description**

1. The Baxi Solo 3 PF System is a gas fired room sealed fan assisted central heating system boiler with range rated outputs as shown in the table below.

Model	HEAT OUTPUT	
	Min	Max
30	5.86kW (20,000 Btu/h)	8.79kW (30,000 Btu/h)
40	9.09kW (31,000 Btu/h)	11.72kW (40,000 Btu/h)
50	12.02kW (41,000 Btu/h)	14.65kW (50,000 Btu/h)
60	14.95kW (51,000 Btu/h)	17.58kW (60,000 Btu/h)
70	17.88kW (61,000 Btu/h)	20.5kW (70,000 Btu/h)
80	20.8kW (71,000 Btu/h)	23.45kW (80,000 Btu/h)

2. Each appliance is preset at a MID RANGE heat input rating and is designed for use on **NATURAL GAS** only.
3. All boilers are suitable for sealed fully pumped systems only.
4. The appliance incorporates a circulating pump and expansion vessel.
5. The appliance data badge is fitted to the combustion box door, an abbreviated version is on the inside of the front panel.
6. All illustrations show the Solo 50 3 PF System boiler.

**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 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 instructions are given, reference should be made to the relevant **BRITISH STANDARD CODES OF PRACTICE**.

2. **All systems must be thoroughly flushed and treated with inhibitor (see Section 4.2).**

**1.3 Important Information**

**COSHH Regulations**

This product contains Refractory Ceramic Fibres (R.C.F.) which are man-made vitreous silicate fibres. Excessive exposure to these materials may cause temporary irritation to eyes, skin and respiratory tract. Care must be taken when handling these articles to ensure the release of dust or fibres is kept to a minimum.

To ensure that the release of fibres from these articles is kept to a minimum, during installation and servicing it is recommended that a H.E.P.A. filtered vacuum is used to remove any dust, soot or other debris accumulated in and around the appliance. This should be performed before and after working on the installation.

It is recommended that any replaced item(s) are not broken up but sealed within heavy duty polythene bags and clearly labelled “R.C.F. waste”. This is not classified as “hazardous waste” and may be disposed of at a tipping site licensed for the disposal of industrial waste. Protective clothing is not required when handling these articles but it is recommended that gloves are worn and the normal hygiene rules of not smoking, eating or drinking in the work area are followed and always wash hands before eating or drinking.

2.1 Layout (Figs. 3 & 4)

1. Wall Plate
2. Automatic Air Vent
3. Expansion Vessel
4. Pressure Relief Valve
5. Circulation Pump
6. Water Pressure Gauge
7. Position of Optional Timer
8. Gas Tap
9. Control Knob
10. Electronics Housing
11. Gas Valve
12. Burner
13. Heat Exchanger
14. Fan Assembly
15. Pressure Switch
16. Overheat Thermostat
17. Thermostat Sensor

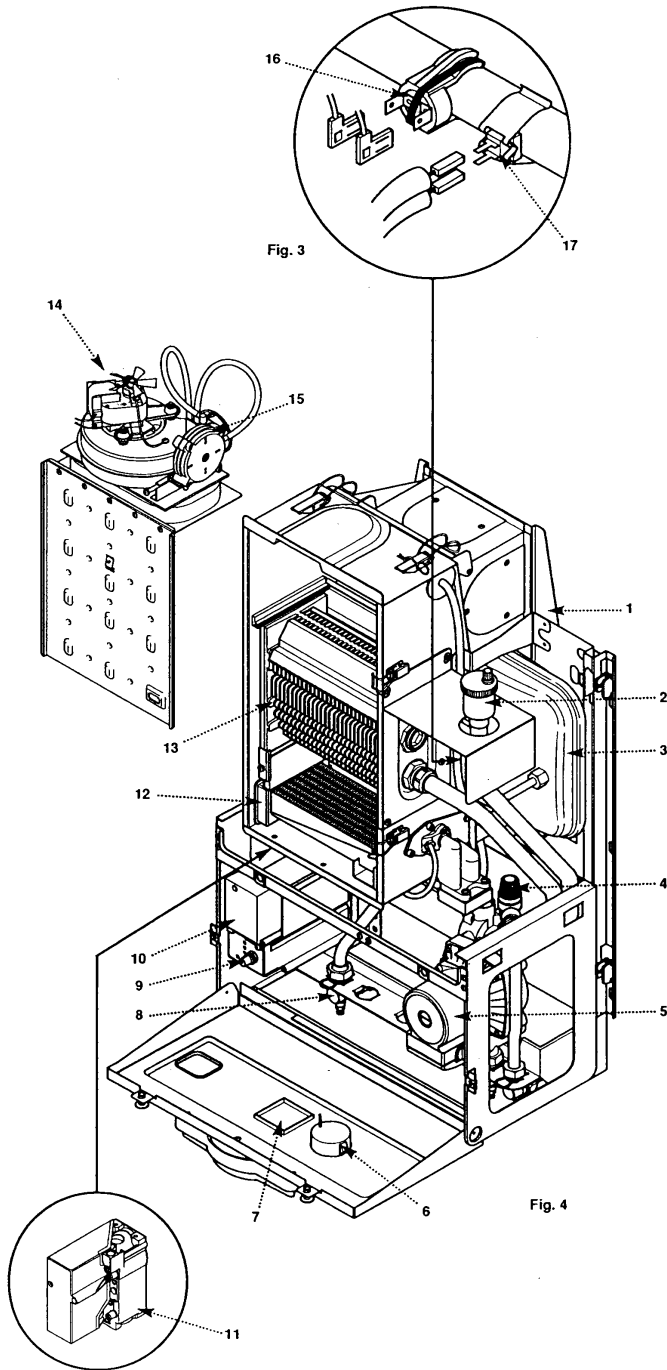
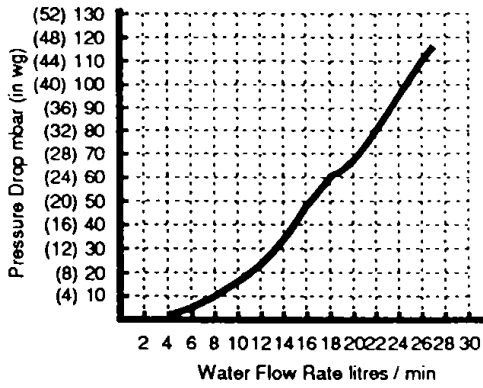


Fig. 4

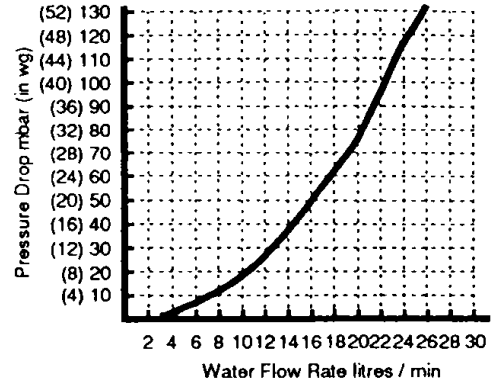
### 3.0 Technical Data - Page 6

Model		30	40	50	60	70	80
Heat Output (Max)	kW	8.9	11.72	14.65	17.58	20.5	23.45
	Btu/h	30,000	40,000	50,000	60,000	70,000	80,000
Heat Output (Min)	kW	5.86	9.09	12.02	14.95	17.88	20.8
	Btu/h	20,000	31,000	41,000	51,000	61,000	71,000
Heat Input (Max)	kW	10.99	14.65	18.32	21.98	25.64	29.31
	Btu/h	37,500	50,000	62,500	75,000	87,500	100,000
Heat Input (Min)	kW	7.33	11.36	15.02	18.68	22.35	26.01
	Btu/h	25,000	38,750	51,250	63,750	76,250	88,750
Burner Pressure (Max)	mbar	16.0 ± 0.5	16.0 ± 0.5	16.0 ± 0.5	16.0 ± 0.5	16.0 ± 0.5	16.0 ± 0.5
	in wg	6.4 ± 0.2	6.4 ± 0.2	6.4 ± 0.2	6.4 ± 0.2	6.4 ± 0.2	6.4 ± 0.2
Burner Pressure (Min)	mbar	8.0 ± 0.5	10.0 ± 0.5	11.5 ± 0.5	11.5 ± 0.5	12.1 ± 0.5	11.5 ± 0.5
	in wg	3.2 ± 0.2	4.0 ± 0.2	4.4 ± 0.2	4.4 ± 0.2	4.8 ± 0.2	4.4 ± 0.2
Gas Rate (after 10 mins)	CV38MJm <sup>3</sup>	1.04m <sup>3</sup> /h	1.39m <sup>3</sup> /h	1.74m <sup>3</sup> /h	2.08m <sup>3</sup> /h	2.43m <sup>3</sup> /h	2.78m <sup>3</sup> /h
		36.86ft <sup>3</sup> /h	49.0ft <sup>3</sup> /h	61.3ft <sup>3</sup> /h	73.5ft <sup>3</sup> /h	86.75ft <sup>3</sup> /h	98.1ft <sup>3</sup> /h
Lifting Weight	kg	40	40	40	49.1	49.1	49.1
	lbs	88	88	88	108	108	108
Water Content	litres	2.1	2.1	2.1	2.6	2.6	2.6
	pints	3.2	3.2	3.2	4.5	4.5	4.5
Outercase Dimensions	Height	850mm	850mm	850mm	850mm	850mm	850mm
	Width	490mm	490mm	490mm	490mm	490mm	490mm
	Depth	320mm	320mm	320mm	320mm	320mm	320mm
Flue Terminal Dimensions	Diameter	100mm					
	Depth	70mm					
Connections	Flow	22mm Cu tail					
	Return	22mm Cu tail					
Heat Exchanger		Cast iron monobloc					
System Design		fully pumped sealed systems only					
Gas Connection		22m Cu tail					
Electrical Supply		230V ~ 50 Hz fused 5A - 90W					
Controls		boiler thermostat, intermittent pilot & electronic flame sensing, timed pump over-run, frost protection thermostat					
Internal Fuse		4AF 250V to BS4256 situated on control board					

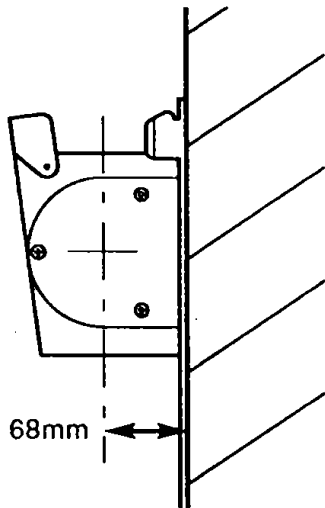
Hydraulic Resistance Charts



30, 40 and 50 PF models



60, 70 and 80 PF models



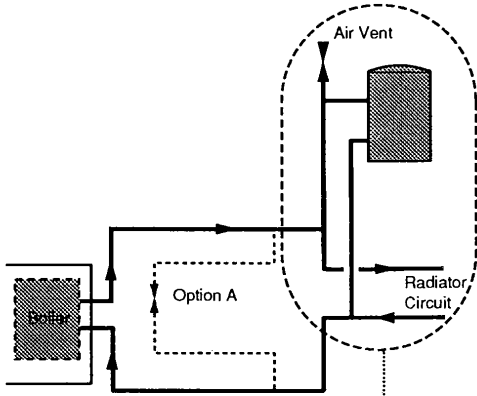
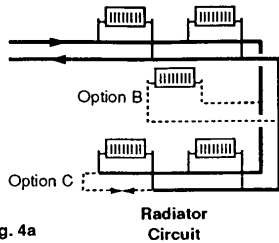
All Models

SEDBUK Declaration For Solo 3 PF

Model	Seasonal Efficiency (SEDBUK) (%)
30	78.8
40	77.8
50	76.7
60	77.8
70	77.7
80	77.8

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.

- This appliance is only intended for installation on a governed supply.
- PMS = 3 bar pressure class 2
- Max CH water pressure 3 bar
- Type C<sub>12</sub> C<sub>32</sub>
- Nox class 2
- Appliance category I<sub>2H</sub> 2H - G20 - 20mbar
- Ret: 86/AU/588
- Burner Injector Sizes: 30=B31 40=B32 50=B33 60=B34 70=B35 80=B36
- This boiler is designed to operate at a maximum water temperature of 85° C.



**Examples of systems which require a bypass are:-**

a) A system controlled by non-electrical valves e.g. mechanical thermostatic control valves both on the radiators and the hot water circuit.

b) A system using twin zone valves (e.g. Honeywell 'S' Plan) (Fig. 4c).

c) A system using a 3 port diverter valve (Fig. 4d) does not normally require a bypass therefore this system is recommended. The exception to this is where thermostatic radiator valves are used and then a bypass is required.

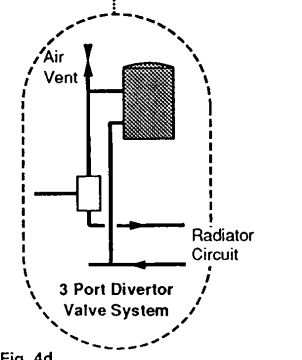
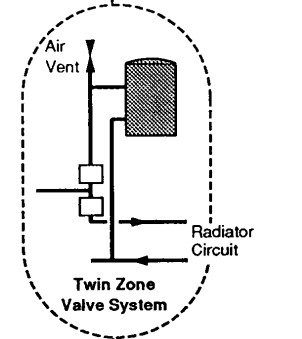
**NOTE:** For 'S' Plan systems the bypass flow circuit must be situated between pump and zone valves as option A shows (Fig. 4b).

**The bypass circuit can be:-**

a) For all boilers a minimum of 6 metres of 22mm copper pipe, (measured between the boiler flow and return connections). It should be fitted with a lock shield valve opened at least 1 full turn or a proprietary bypass valve set to give a minimum flow rate of 8 litres/min (1.8 gal/min) (Option C, Fig. 4a & Option A, Fig. 4b).

b) A radiator fitted with lock shield valves. The radiator output should be a minimum of 800 watts (2,700 Btu/h). Typically a convector type radiator with an area of 3750 cm<sup>2</sup> (4 sq ft) is adequate (Option B, Fig. 4a).

c) Any circuit that provides the same operating conditions as option A or option B (Figs. 4a & 4b).



4.1 Water Circulating Systems

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.
- All components used in the system must be suitable for operation at 110°C (230°F).

4.2 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.

• 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.

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

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

• For information or advice regarding any of the above contact the Baxi Helpline.

4.3 Bypass Requirements

1. The boiler is fitted with a pump overrun device which allows the removal of residual heat from the boiler.

**NOTE: The pump overrun will operate for approximately 8 minutes. The system design must therefore always provide an open circuit for water to circulate between the boiler flow and return.**



#### 4.4 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.
2. The connections to the boiler are 22mm copper tails.

#### 4.5 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

#### 4.6 Thermal Stores & Heat Stores

1. If a thermal store or heat store is being used, it should be one approved for use with the Baxi Solo 3 PF System Boiler.
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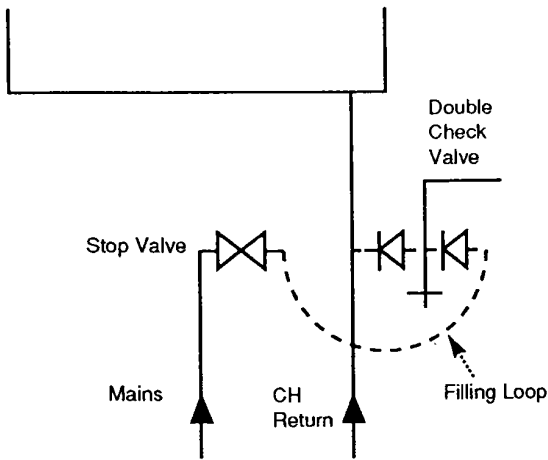


Fig. 5

#### 4.7 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: RN 302 and Byelaw 14.
4. The sealed primary circuits may be filled or replenished by means of a temporary connection (Filling Loop) between the circuit and a supply pipe, provided a WRC approved 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 (Filling Loop) is removed after use (Fig. 5).

#### 4.8 Expansion Vessel

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.

#### 4.9 Pressure Relief Valve (Figs. 6 & 7)

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 under fault conditions boiling water/steam could discharge from the pipe.
4. The pressure relief valve must not be used for draining the system/boiler.

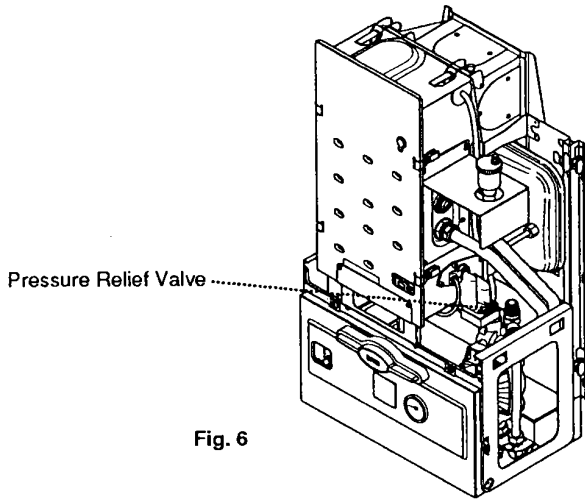


Fig. 6

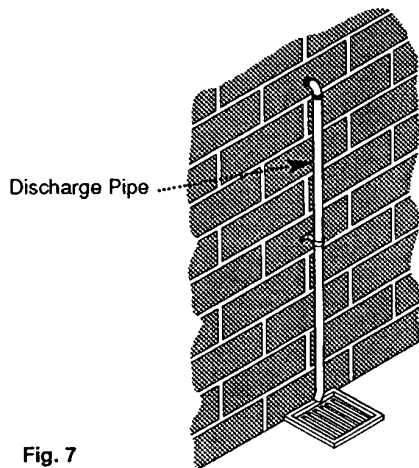
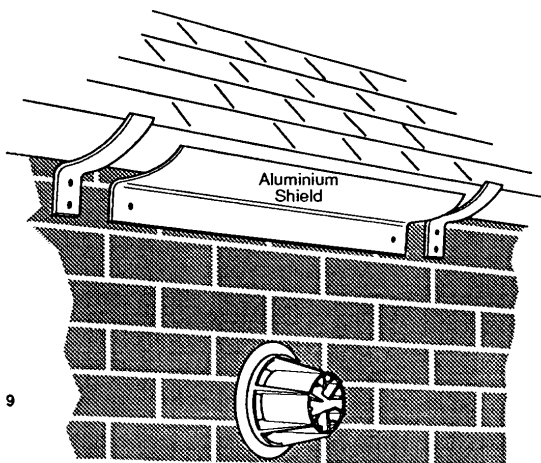
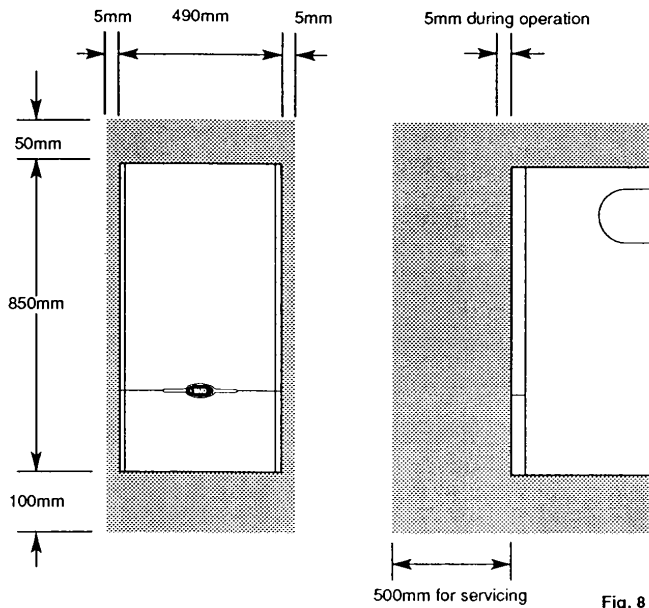


Fig. 7

## 5.0 Site Requirements - Page 11



### 5.1 Location

1. The appliance may be fitted to any suitable wall with the flue passing through an outside wall and discharging to atmosphere in a position permitting satisfactory removal of combustion products and providing an adequate air supply. The appliance should be fitted within the building unless otherwise protected by a suitable enclosure ie. garage or outhouse. (The appliance may be fitted inside a cupboard. Cooling ventilation and insulation of the cupboard are not required, see section 5.5.)

2. If the appliance 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 appliance is to be fitted into a building of timber frame construction then reference must be made to the Institute of Gas Engineers document UP7 ("Guide for Gas Installation in Timber Framed Dwellings").

3. Recommendations for flues are given in BS 5440 Part 1.

### 5.2 Minimum Clearances (Fig. 8)

1. A flat vertical area is required for the installation of the boiler.

2. These dimensions include the necessary clearances around the appliance 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 appliance.

3. If fitted inside a cupboard the clearance of 500mm shown is only necessary when the cupboard door is open. A clearance of 5mm ( $\frac{3}{16}$  in) is required when the door is closed.

### 5.3 Flue Position

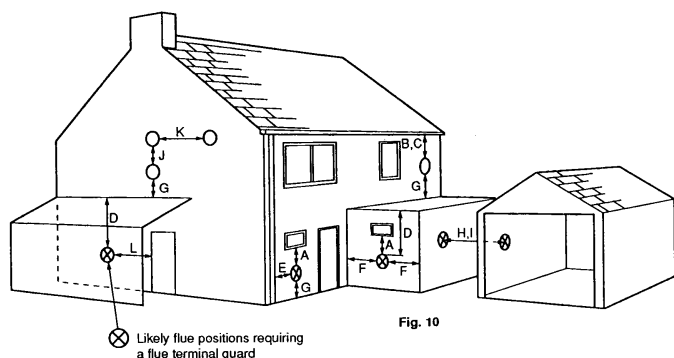
1. For installations where the flue terminal is inaccessible from the outside, an internal fitting kit is available. This can be obtained free of charge from your local merchant.

2. The following guide lines indicate the general requirements for siting balanced flue terminals.

3. If the terminal is fitted within 1 metre (39in) of a plastic gutter, within 500mm (19½ in) of a painted eave or a painted gutter, an aluminium shield of at least 1 metre (39in) long should be fitted to the underside of the gutter or painted surface. An air space of 5mm ( $\frac{3}{16}$  in) should be left between shield and gutter (Fig. 9).

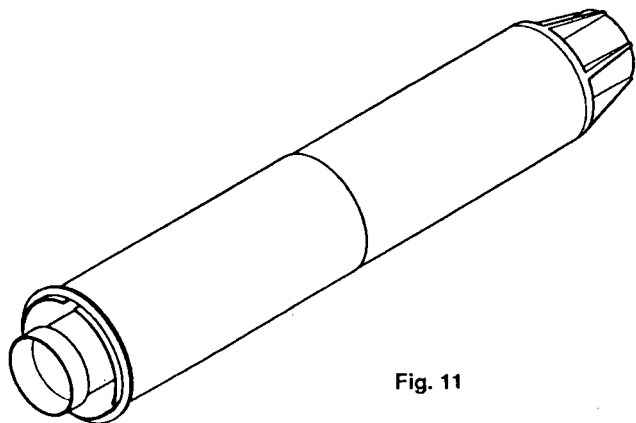
4. If the terminal discharges onto a pathway or passageway, check that combustion products will not cause a nuisance and that the terminal will not obstruct the passageway.

5. If the outer surface of an outside wall is of combustible material, it should be protected by fitting the flue film provided.



Terminal Position with Minimum Distance (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

Table. 2



### 5.3 Flue Position (Cont)

**WARNING** - The addition of anything that may interfere with the normal operation of the appliance (e.g. FLUE DAMPERS, ECONOMISERS, etc.) without the express written permission of Baxi Heating Ltd could invalidate the appliance warranty and infringe the GAS SAFETY (Installation and Use) REGULATIONS.

If a terminal is less than 2 metres (78 3/4 in) above a balcony, above ground or above a flat roof to which people have access then a suitable terminal guard must be provided.

6. Table 2 and Fig. 10 show the positioning of the flue terminal relative to buildings and other structures.

7. The dimensions of the flue terminal are shown on page 6.

### 5.4 Flue Dimensions

1. Flue extensions are available as optional extras for installations up to 3 metres (118 1/8 in) horizontal.

2. Vertical flue kits are available up to 4 metres in length. Vertical twin flue kits are available up to 15 metres in length.

3. The standard flue supplied with the appliance is suitable for use with flue lengths between 100mm (4in) and 500mm (19 5/8 in).

**NOTE:** Maximum flue length when flued to the left or right is

- 350mm - Left Hand Flue
- 330mm - Right Hand Flue

4. Where it is intended to pass the flue through a combustible wall or timber framed dwelling, reference should be made to the Institute of Gas Engineers document UP7 - Guide for Gas Installations in Timber Framed Dwellings.

5. If the flue is more than 1 metre (39 3/8 in) long, it is required that it is supported.

6. All above dimensions are taken from the respective faces of the outer case.

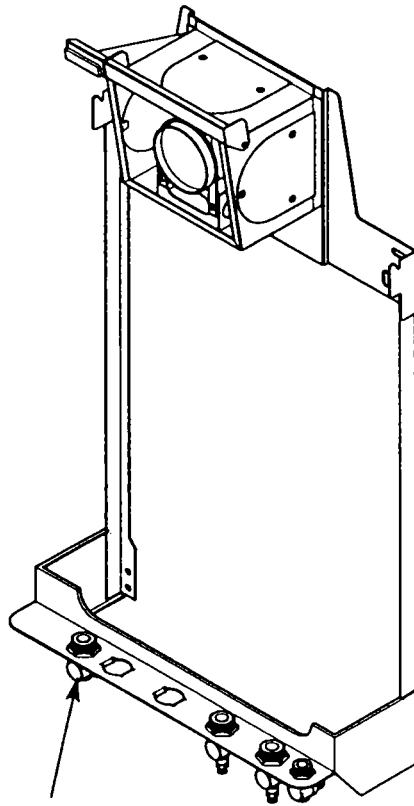


Fig. 12

Gas Connection

### 5.5 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. B.S. 5440 Part 2 Clause 4.2 refers to room sealed appliances installed in compartments. This appliance will run sufficiently cool without ventilation.

### 5.6 Gas Supply

1. The gas installation should be in accordance with BS 6891.
2. The connection of the appliance is a 22mm copper tail on the tap rail (Fig. 12).
3. The pipework should be sized to account for the distance of the appliance from the meter, the pipe routing and maximum input of the appliance.

### 5.7 Electrical Supply

External wiring must be correctly earthed, polarized and in accordance with CURRENT I.E.E. WIRING REGULATIONS.

The mains supply is 230V ~ 50Hz fused at 5A.

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

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

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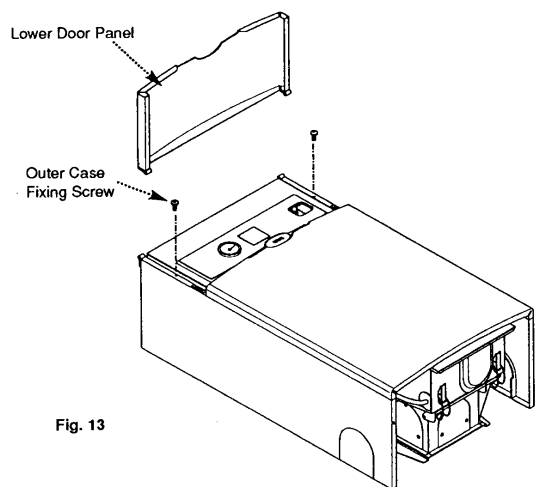


Fig. 13

### 6.1 Initial Preparation

1. Remove the hinged lower door panel from the outer case by opening it to 90° and pulling forwards (Fig. 13).
2. Remove the 2 screws holding the outer case to the combustion box (Fig. 13).
3. Place the outer case in a safe place until required.
4. Remove the R clip from the latch securing the combustion box to the back plate and release the latches (Fig. 14a & 14b).
5. Lift and remove the combustion box and backplate from the wall plate (Fig. 14). Place the combustion box and backplate on its back.

**IMPORTANT - When installing a Solo 3 System with a rear flue see section 6.2 Fan Outlet Restrictor before continuing the installation.**

6. Proceed to the relevant section for flueing the appliance either to the Rear, Left, Right or Vertically.

**NOTE: For Vertical flueing or flue lengths greater than standard, the relevant optional extra kits must be obtained and their instructions followed.**

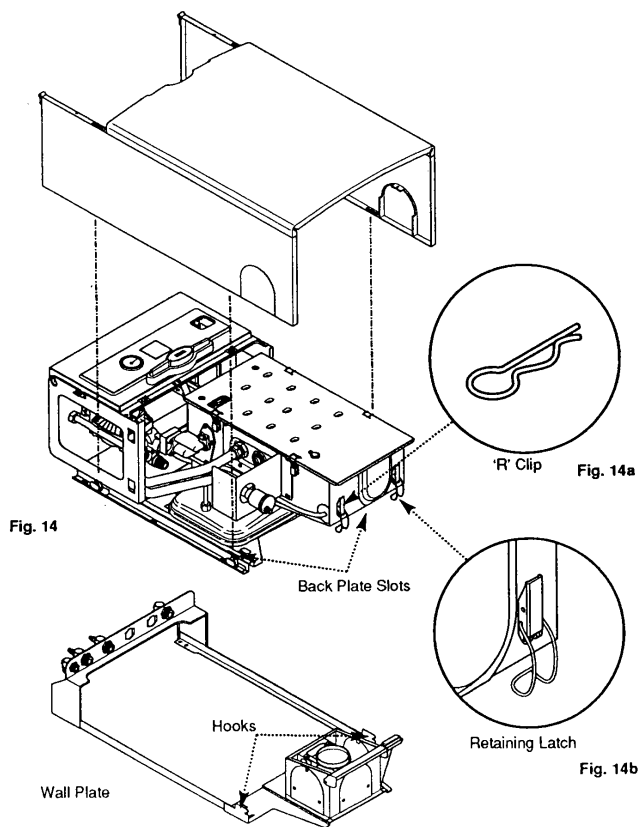


Fig. 14

'R' Clip Fig. 14a

Retaining Latch Fig. 14b

Fixing Template

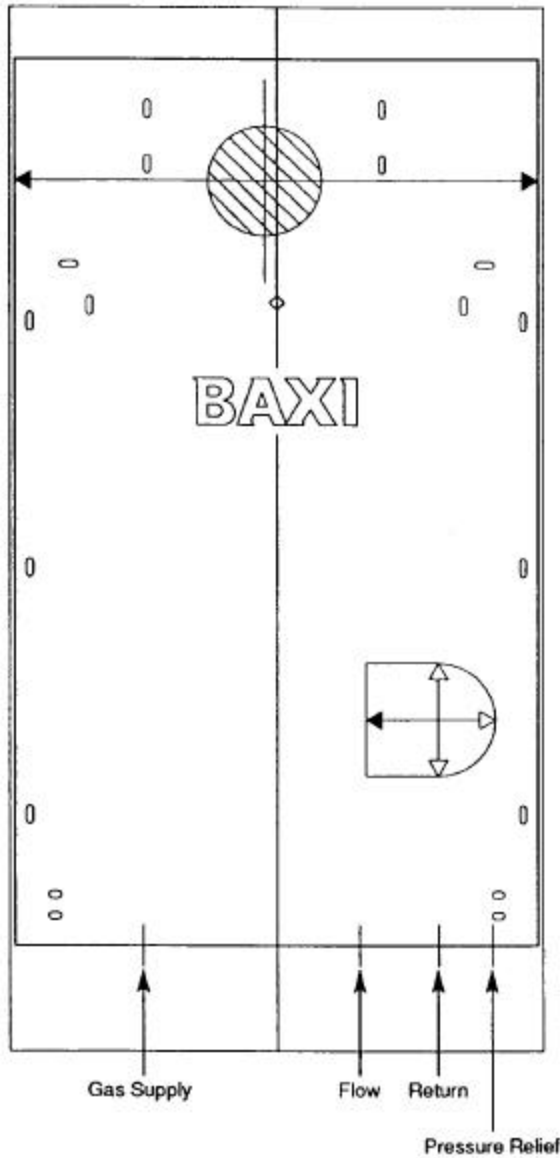


Fig. 14c

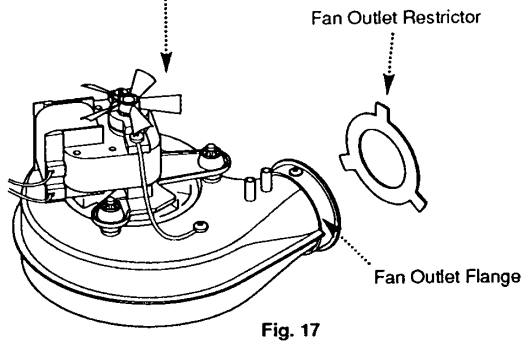
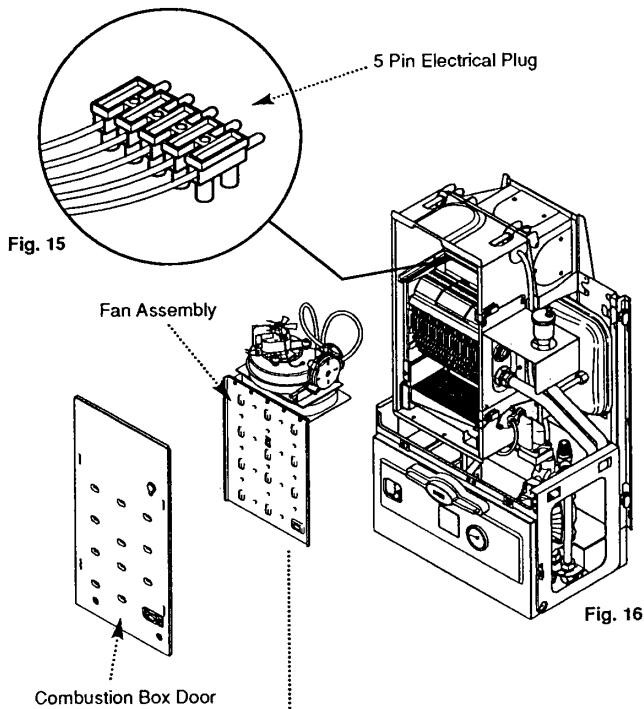
### 6.2 Initial Preparation (continued)

1. Remove the fixing template (Fig. 14c) from the carton.
2. After considering the site requirements (see Section 5.2) position the template on the wall ensuring it is level both horizontally and vertically. If it is desired that the appliance is positioned centrally between two points, mark the wall accordingly and align the template centreline with this mark.
3. Mark at least four suitable fixing holes for the wall plate. Preferably the two at either side of the flue airbox should be used. Drill the anchorage holes 63mm (2½in) deep to accept suitable wall plugs.
4. Mark the centre of the flue hole (rear exit). For side exit, mark as shown. If required, mark the position of the gas, water and pressure relief discharge pipes. Remove the template.
5. Cut the hole for the flue (minimum diameter 107mm).
6. For rear flue applications continue as described in Section 6.4. Side flue installations are covered in Section 6.7

### 6.3 Fan Outlet Restrictor

#### Rear Flue only up to 500mm (19<sup>5</sup>/<sub>8</sub> In)

1. Release the four latches holding the combustion box door (Fig 16). Remove the combustion box door by pulling forward (Fig. 16).
2. Release the 5-pin electrical plug connecting the pressure switch and fan (Fig. 15). Withdraw the fan assembly by pulling forwards from the top edge (Fig. 16).
3. Take the restrictor (supplied in the kit of pads), check that the number stamped on the restrictor matches the appliance (e.g. 50 stamped on the restrictor is for 50 PF appliance)
4. Fit the restrictor to the fan outlet flange, bending the 3 lugs equally over the flange to secure (Fig. 17).
5. Re-assemble the fan assembly and combustion box door.





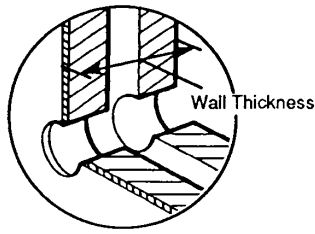


Fig. 19

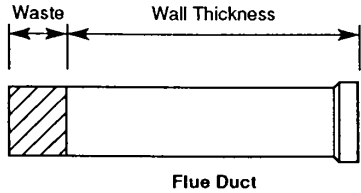


Fig. 20

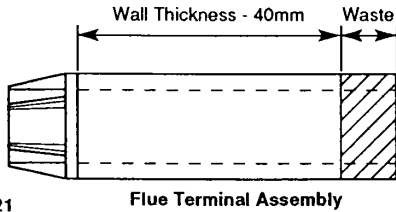


Fig. 21

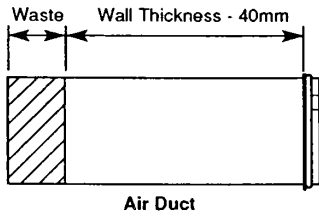


Fig. 22

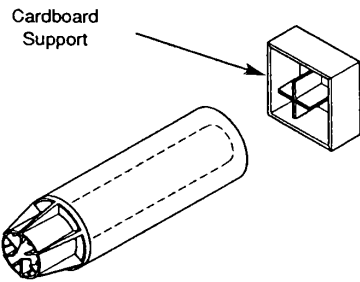


Fig. 23

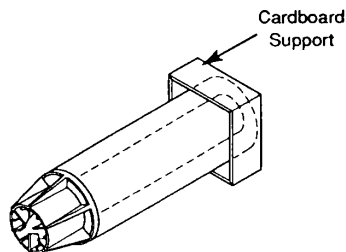


Fig. 24

### 6.4 Rear Flue Preparation

Wall thickness 285mm - 500mm ( $11\frac{5}{16}$  -  $19\frac{3}{8}$ ) go to section 5.6.

Wall thickness 100mm - 284mm (4 in -  $11\frac{3}{16}$  in).

If the wall thickness is less than 285mm ( $11\frac{3}{16}$  in), it will be necessary to cut the components of the flue to the appropriate size.

1. Measure the wall thickness (Fig. 19). Mark this dimension on the **Flue Duct** from the flared end and cut the waste off the plain end (Fig. 20).

2. Take the **Flue Terminal Assembly** and measure from the terminal end the wall thickness and subtract 40mm (Fig. 21). Cut the waste off the plain end.

#### Wall Thickness - 40mm (all boilers)

3. The cardboard support should be installed onto the flue tubes to ensure the assembly is supported during cutting (Fig. 23 & 24).

4. Measure the same amount from the flange end of the **Air Duct** and cut the waste off the plain end (Fig. 22).

#### Wall Thickness - 40mm (all boilers)

6. Go to section 6.5.

### 6.5 Assembly of Rear Flue

1. Remove the rear air box blanking plate from the wall plate by releasing the three screws (Fig. 25).

2. Remove the blanking cap at the rear of the turret, by pushing and turning anti-clockwise to release the bayonet fitting (Fig. 25).

3. Locate the swaged end of the flue duct over the bayonet fitting on the turret, taking care not to damage the 'O' ring. Lock the flue duct in place by pressing in and turning clockwise (Fig. 26).

4. Engage the bayonet slots of the air duct over the location lugs on the back plate opening and press and turn clockwise to secure the air duct to the back plate (Fig. 27).

5. In order to increase security of the flue, the bayonet tags may be deformed to secure the flue in position.

6. Take the flue terminal assembly and engage on the flue and air ducts. Slide the flues together to the desired wall thickness.

7. Tape the sections together with the tape provided ensuring a good seal is made (Fig. 27a).

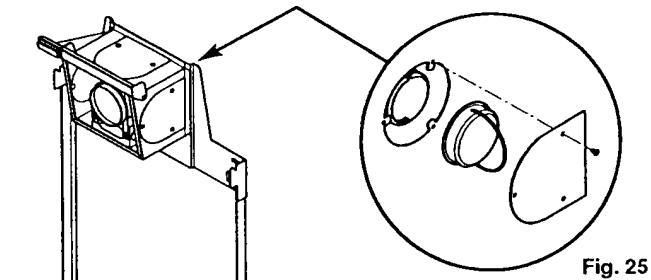


Fig. 25

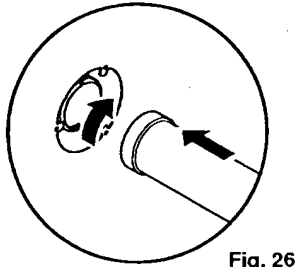


Fig. 26

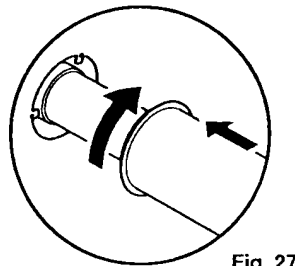


Fig. 27

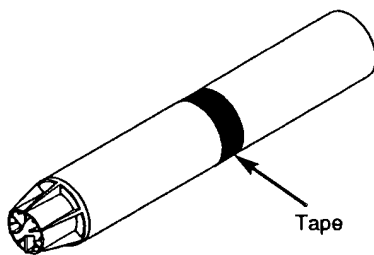


Fig. 27a

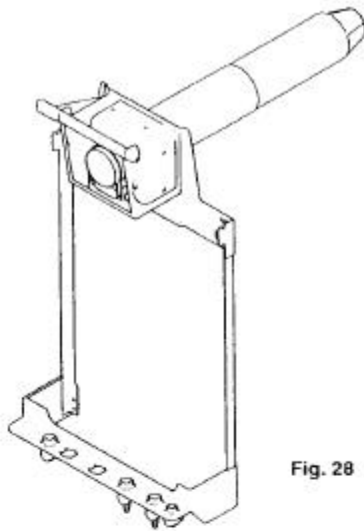


Fig. 28

### 6.6 Fitting the Wall Plate

1. Engage the assembly into the hole previously cut in the wall and slide in place (Fig. 28).
2. Secure the assembly to the wall at the previously drilled anchorage points with suitable screws. Before finally tightening the screws, check that the assembly is level.
3. Make good between the wall and the air duct outside the building if the internal fitting kit has not been used (Fig. 29).
4. The flue trim provided may be fitted if required, to neaten the wall around the terminal (Fig. 30).

#### 5. To fit the flue terminal trim:

- a) The trim should be fitted once the flue is secure.
- b) Take the three edge clips from the kit and fit to equi-spaced onto the inner flange of the trim (Fig. 29a).
- c) With the flanges towards the wall pass the trim over the terminal. If required a bead of sealant may be applied to the rear face of the trim.
- d) Push firmly on the trim to ensure the edge clips engage on the flue.

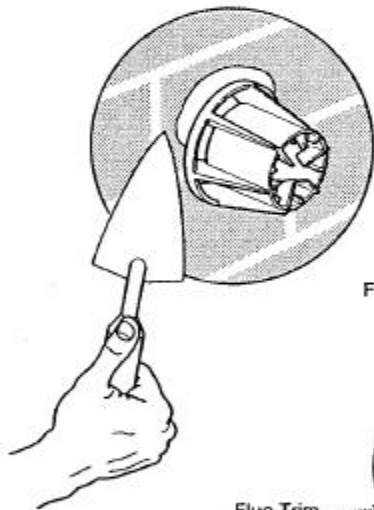


Fig. 29

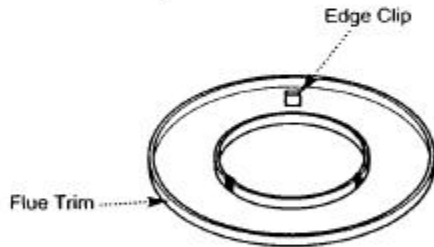


Fig. 29a

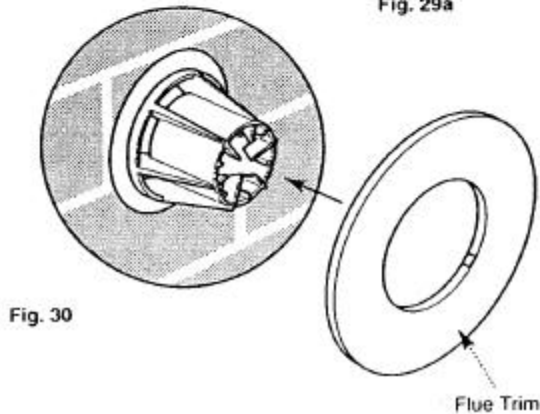
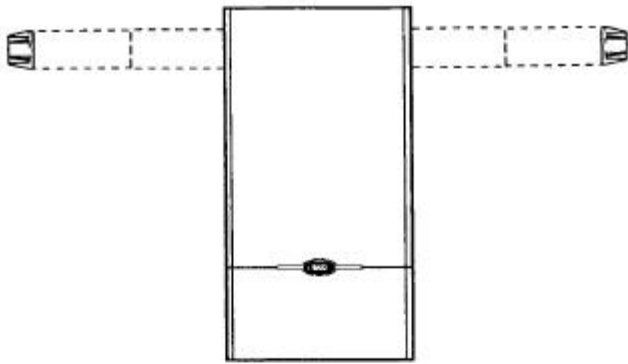


Fig. 30



### 6.7 Left or Right Flue

**NOTE:** If the flue terminal is inaccessible from outside the building, it is necessary to fix the internal fitting kit in position before continuing with the installation. (See section 5.15 Internal Fitting Kit of these instructions).

1. The procedure for fitting the appliance flued to the left or right hand side is the same.

2. **Left Hand Side** maximum flue 350mm.

3. **Right Hand Side** maximum flue 330mm.

4. **Optional flue extensions are available.**

5. Using the previously marked flue hole centre, mark the horizontal centre line for the flue assembly (Fig. 31).

6. Extend this line either left or right as required, to the corner of the room (Fig. 31).

7. Extend the horizontal centre line around the corner for approximately 300mm (12 in). Ensure that the line remains horizontal by checking with a spirit level (Fig. 32).

8. From the wall template cut out the 'D' shaped section. Line up the horizontal triangular cut outs with the extended 300mm (12 in) line and make sure that the flat of the template is butted up against the corner of the wall (Fig. 33).

9. If the appliance mounting wall is out of true, use string or a straight edge to determine the true corner position and mark a vertical line to accommodate the flat edge of the template.

10. Holding the template firmly, mark the vertical centre line for the flue assembly by marking the point at the outer corners of the upper and lower cut outs (Fig. 34).

11. Remove the template and draw a vertical line between the two marks. The intersection of the vertical and horizontal lines is the centre of the flue hole (Fig. 35).

12. For installations where the flue terminal is inaccessible from the outside, an internal fitting kit is available. This can be obtained free of charge from your local merchant.

13. If using the internal fitting kit a 117mm (4<sup>5</sup>/<sub>8</sub> in) diameter hole is required.

14. Cut a hole approximately 107mm (4¼ in) diameter in the masonry for the 100mm (4 in) diameter flue duct (Fig. 36). (Use of a core drill is recommended. When using a core drill, it is important to keep the drill level and square, particularly with the wall onto which the boiler is to be fitted).

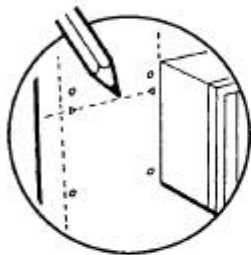


Fig. 31

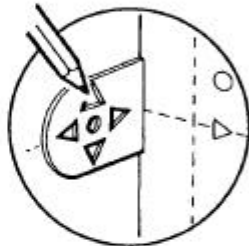


Fig. 34

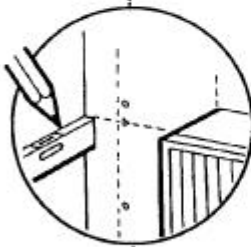


Fig. 32

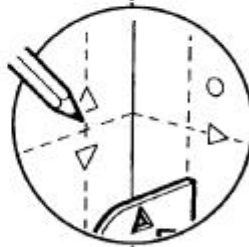


Fig. 35

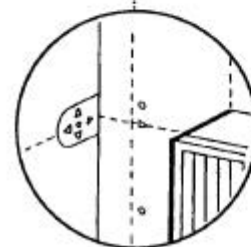


Fig. 33

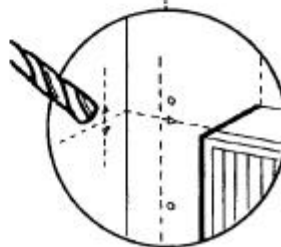


Fig. 36

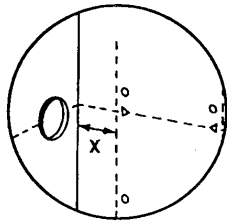


Fig. 37

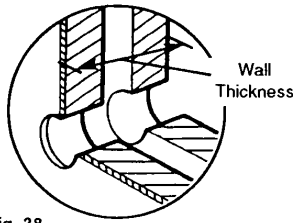


Fig. 38

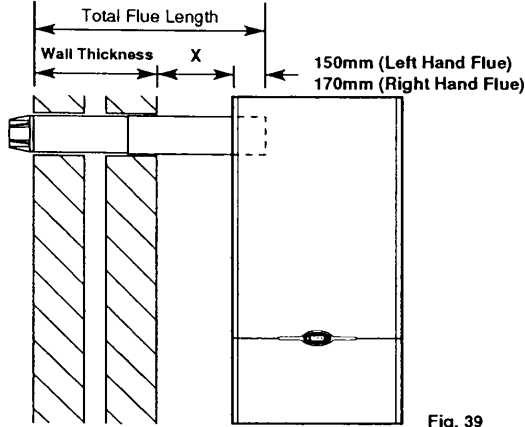


Fig. 39

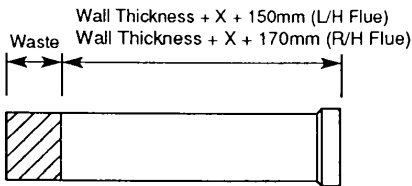


Fig. 40

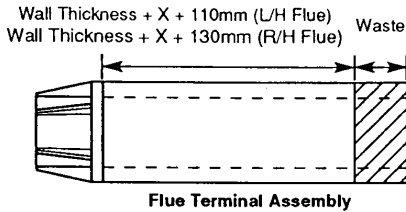


Fig. 41

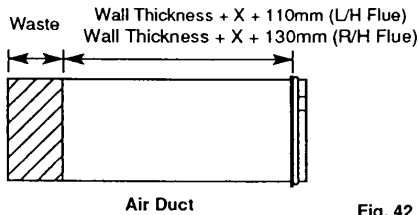


Fig. 42

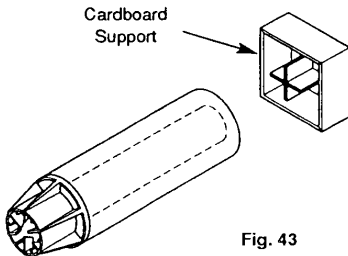


Fig. 43

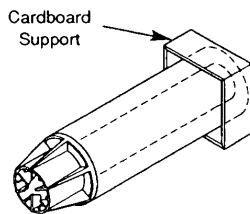


Fig. 44

### 6.8 Side Flue Preparation

1. For both Left and Right Hand Flue - Measure the distance from the wall to the nearest line marked from the template. This will be known as dimension X (Fig. 37).

2. Measure the thickness of the wall from the inside. This will be known as Wall Thickness (Fig 38).

3. To make up the total flue length, add 150mm (L/H Flue) or 170mm (R/H Flue) to the Wall Thickness + X dimension:  
 Total flue length =  
**Wall Thickness + X + 150mm (L/H Flue)**

**NOTE:** if total calculated flue length exceeds 500mm (19 1/8)

#### CUTTING THE FLUE

**NOTE:** If Wall Thickness + X is less than;

**115mm (R/H Flue),**  
**it will be necessary to cut the components of the flue to**

4. Take the **Flue Duct** from the flared end. Cut the waste off the plain end (Fig. 40).

**Wall Thickness + X + 150mm (L/H Flue)**

5. Take the **Flue Terminal Assembly** the terminal end the dimension below (Fig. 41). Cut the waste off the plain end.

**Wall Thickness + X + 130mm (R/H Flue)**

6. Measure the same amount from the flange end of the **Duct** and cut the waste off the plain end (Fig. 42).

**Wall Thickness + X + 130mm (R/H Flue)**

tubes of the flue terminal assembly to ensure the flue is supported during cutting (Fig. 43 & 44).

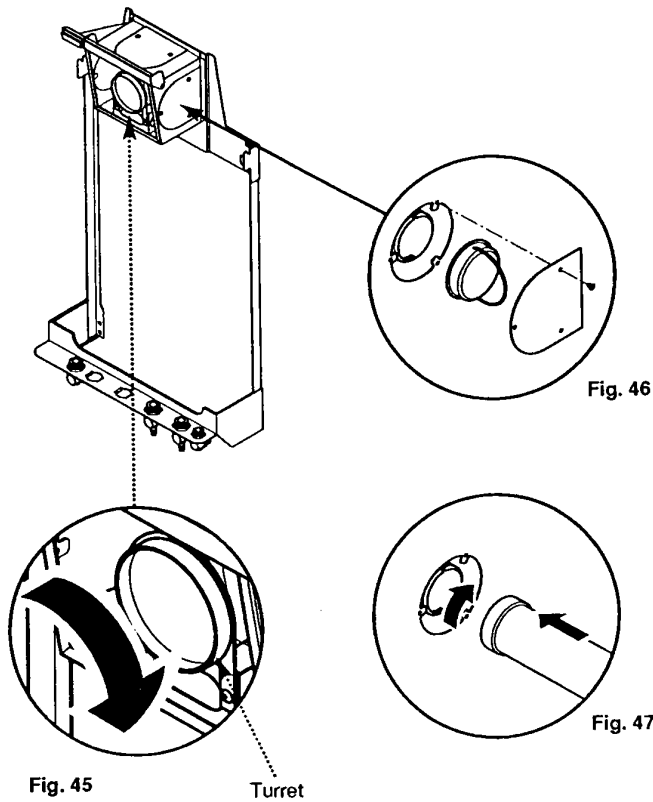


Fig. 45

Turret

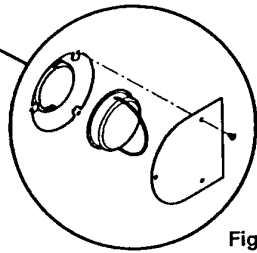


Fig. 46

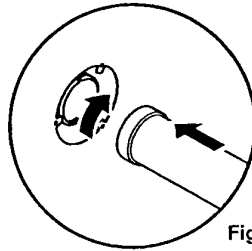


Fig. 47

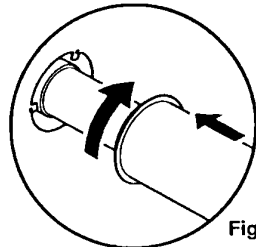
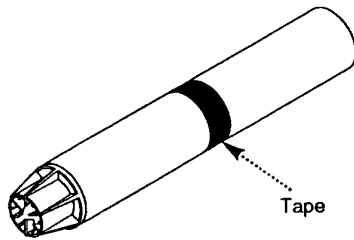


Fig. 48



Tape

Fig. 49

## 6.9 Fitting the Flue and Wall Plate

1. **NOTE:** There are two options for fitting the flue and wall plate they are:

**Method A** - Fitting the flue and wall plate as an assembly (usually used where there are no side clearance problems).

**Method B** - Pre-fitting the flue through the wall, fitting the wall plate to its position on the wall and then connecting the two together (usually used where side clearances are restrictive).

### 6.10 Method A

1. Remove the left or right hand air box blanking plate, as appropriate, from the back plate air box by releasing the three screws (Fig 46).
2. Rotate the turret to face the selected opening (Fig. 45) and remove the side blanking cap by pushing in and turning anti-clockwise to release the bayonet fitting (Fig. 46).
3. Locate the swaged end of the flue duct over the bayonet fitting on the turret, taking care not to damage the 'O' ring. Lock the flue in place by pressing in and turning clockwise (Fig. 47).
4. Ensure that the 'O' ring seal is in position against the sealing flange.
5. Fit the air duct over the flue duct and draw towards the air box on the back plate. Engage the bayonet slots of the air duct over the location lugs of the back plate opening and press and turn clockwise to secure the air duct to the air box (Fig. 48).
6. In order to increase security of the flue, the bayonet tags may be deformed to secure the flue in position.
7. Take the flue terminal assembly and engage on the flue and air ducts. Slide the flues together to the desired flue length. Tape the sections together with the tape provided ensuring a good seal is made (Fig. 49).

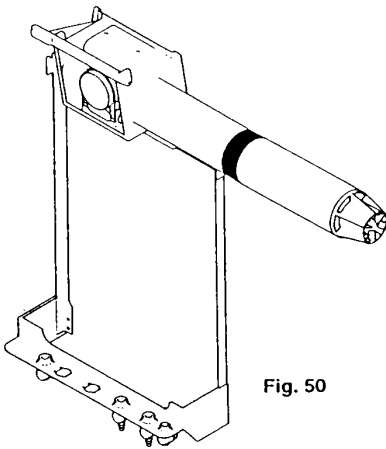


Fig. 50

**6.10 Method A (Cont)**

7. Engage the assembly into the hole previously cut in the wall and slide into place (Fig. 50).

8. Secure the assembly to the wall at the previously drilled anchorage points with suitable screws. Before finally tightening the screws, check that the assembly is level.

9. Make good between the wall and the air duct inside and outside the building if the internal fitting kit has not been used (Fig. 51).

10. The flue trim provided may be fitted if required, to neaten up the make-up around the terminal (Fig. 52).

**11. To fit the flue terminal trim:**

a) The trim should be fitted once the flue is secure.

b) Take the three edge clips from the kit and fit to equi-spaced onto the inner flange of the trim (Fig. 51a).

c) With the flanges towards the wall pass the trim over the terminal. If required a bead of sealant may be applied to the rear face of the trim.

d) Push firmly on the trim to ensure the edge clips engage on the flue.

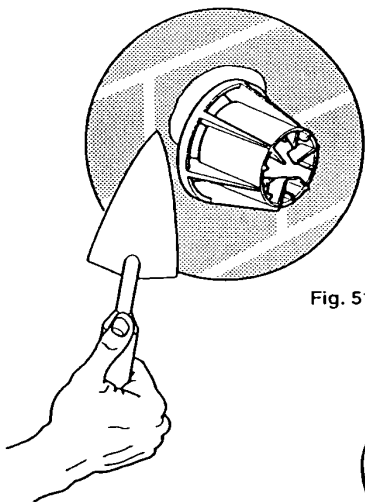


Fig. 51

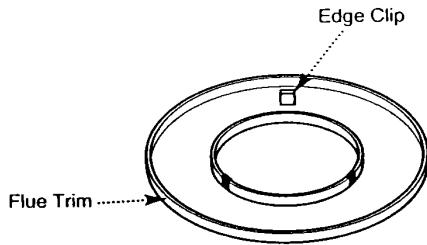


Fig. 51a

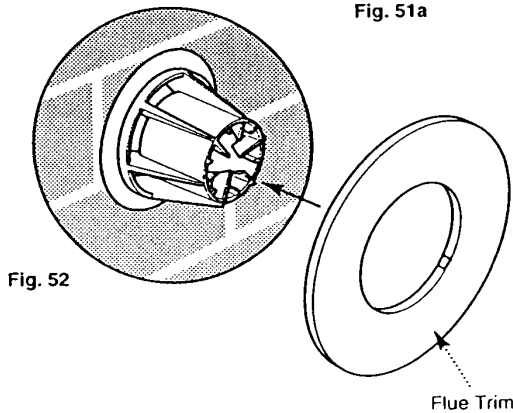


Fig. 52

**6.11 Method B**

1. Remove the left or right hand air box blanking plate, as appropriate, from the back plate air box by releasing the three screws (Fig. 54).
  2. Rotate the turret to face the selected opening (Fig. 53) and remove the side blanking cap by pushing in and turning anti-clockwise to release the bayonet fitting (Fig. 54).
  3. Locate the swaged end of the flue duct over the bayonet fitting on the turret, taking care not to damage the 'O' ring. Lock the flue duct in place by pressing in and turning clockwise (Fig. 55).
  4. Engage the bayonet slots of the air duct over the location lugs on the back plate opening and press and turn clockwise to secure the air duct to the back plate (Fig. 56).
  5. Engage the flue and air ducts into the hole previously cut in the wall and through holes in other partitions (cupboards, walls etc.).
  6. Secure the back plate to the wall at the previously drilled anchorage points with suitable screws. Before finally tightening the screws, check that the assembly is level.
  7. Take the flue terminal assembly and pass through the cut hole from outside. Engage on the flue and air ducts. Slide the flues together to the desired wall thickness. Tape the sections together with the tape provided ensuring a good seal is made (Fig. 57).
  8. In order to increase security of the flue, the bayonet tags may be deformed to secure the flue in position.
  9. Make good between the wall and the air duct inside and outside the building if the internal fitting kit has not been used (Fig. 58).
  10. The flue trim provided may be fitted if required, to neaten up the make-up around the terminal (Fig. 59).
- 11. To fit the flue terminal trim:**
- a) The trim should be fitted once the flue is secure.
  - b) Take the three edge clips from the kit and fit to equi-spaced onto the inner flange of the trim (Fig. 58a).
  - c) With the flanges towards the wall pass the trim over the terminal, If required a bead of sealant may be applied to the rear face of the trim.
  - d) Push firmly on the trim to ensure the edge clips engage on the flue.

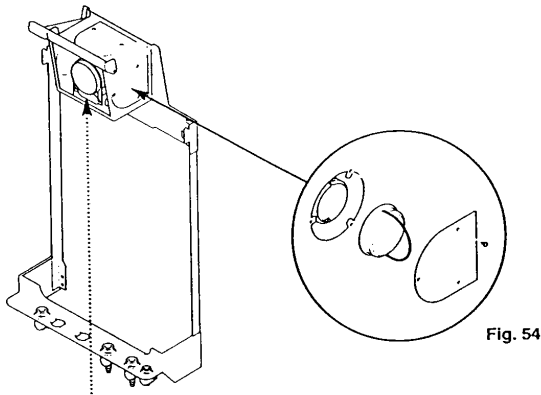


Fig. 54

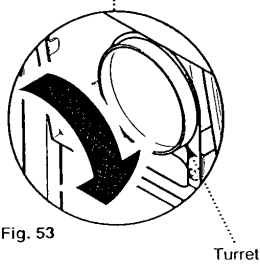


Fig. 53

Turret

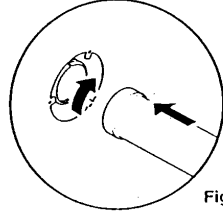


Fig. 55

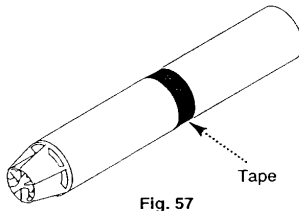


Fig. 57

Tape

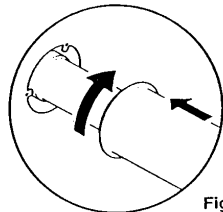


Fig. 56

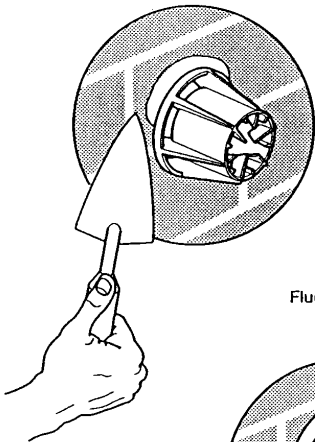


Fig. 58

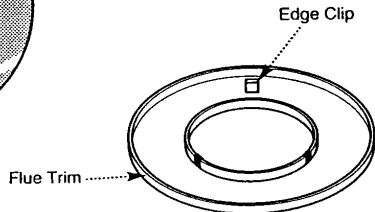


Fig. 51a

Flue Trim

Edge Clip

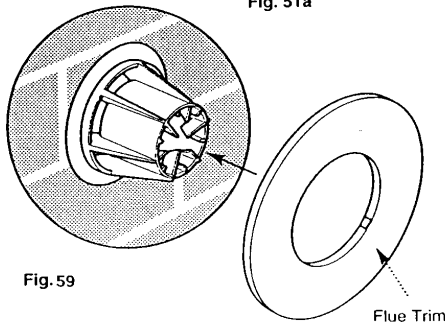


Fig. 59

Flue Trim



### 6.12 Terminal Guard

1. When codes of practice dictate the use of terminal guards, they can be obtained from most plumbers and builders merchants nationwide.
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.

### 6.13 Fitting a Terminal Guard (Fig. 60)

1. Position the guard over the terminal on the outside wall. Ensure the guard is equally spaced about the terminal. Mark the fixing positions.
2. Drill and plug fixing the positions then secure the guard to wall.

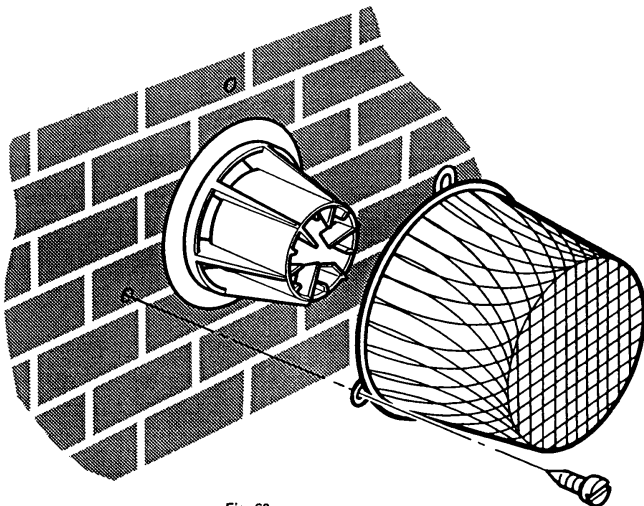


Fig. 60

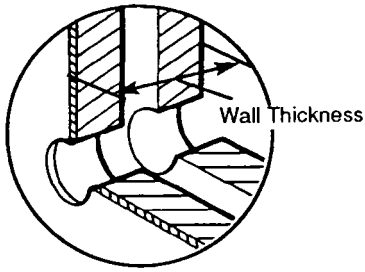


Fig. 61

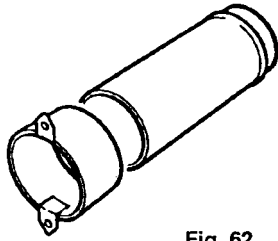


Fig. 62

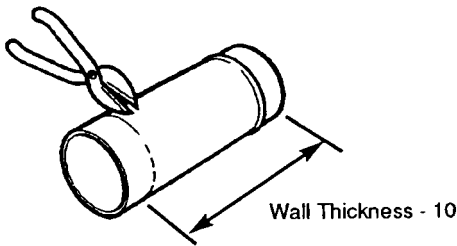


Fig. 63

### 6.14 Internal Fitting Kit

1. The internal fitting kit (available from merchants quoting Baxi Part N°. 236441) is suitable for walls between 100mm (4in) and 285mm ( $11\frac{3}{16}$ in) in thickness.
2. **TO INSTALL THE KIT** - Mark the flue hole centre as described in section 6.3 or 6.8. Cut a hole in the masonry approximately 117mm ( $4\frac{5}{8}$ in) diameter for the internal fitting kit. The use of a core drill is recommended. (When using a core drill, it is important to keep the drill level and square).
3. Measure the wall thickness and from this dimension subtract 10mm ( $\frac{3}{8}$  in) (Fig. 61).
4. Remove the wall liner from its packing and remove the end piece (Fig. 62).
5. Mark off the dimension, wall thickness - 10mm ( $\frac{3}{8}$  in), measuring from the beaded end of the duct and cut off the remaining length of the duct. Ensure that the cut is square and reasonably straight (Fig. 63).

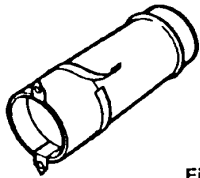


Fig. 64

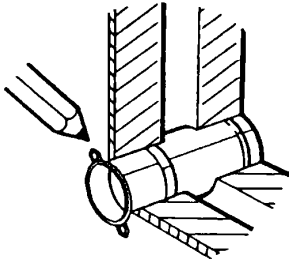


Fig. 65

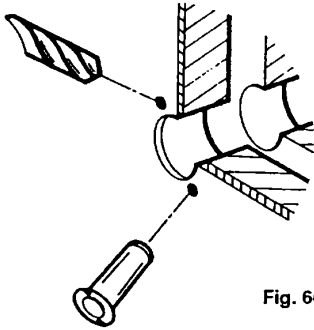


Fig. 66

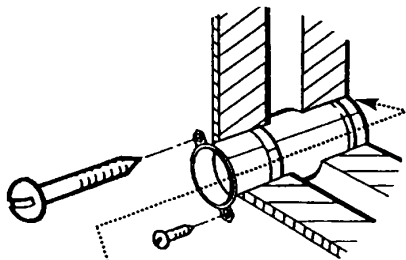


Fig. 67

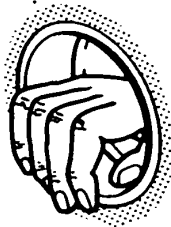


Fig. 68

### 6.14 Internal Fitting Kit (Cont)

6. Refit the end piece to the liner and open out to the thickness of the wall. Seal the two pieces together using the tape provided with the kit (Fig 64).

7. Slide the assembled wall liner into the hole in the wall until the tags stop against the inner wall with the seam of the liner uppermost. Mark the positions of the holes in the tags on the wall and then rotate liner so that tags reveal marks (Fig. 65).

8. Drill and plug the wall in these positions (Fig. 66).

9. Rotate liner back until the tags align with the holes drilled and secure it to the wall using suitable screws (Fig. 67).

10. Make good between the edge of the liner and the outside wall with cement mortar or a similar substance, by reaching through the liner and pressing the mortar between liner and the outside brick work (Fig. 68). Make good between the liner and the inside wall. Apply soap solution to the 'O' ring inside the liner.

11. The rest of the installation may now proceed as described.

### 6.15 Connection and Flushing

1. Connect the gas, water and pressure relief discharge pipes to the valves on the wall plate using the copper tails supplied. Ensure that the sealing washers are fitted correctly to the water connections.
  2. Connect the filling loop and fill and thoroughly flush the system (see system details, section 4.2 & 4.7).
-

### Fitting the Combustion Box Assembly

**CAUTION:** Care must be taken when lifting the boiler on backplate. Get assistance if required.

1. Remove the sealing tape from the taps.

and locate the slots on the back plate on to the hooks on the wall plate (Fig 70 & 71).

to damage the boiler pipework and fittings.

4. Engage the two retaining latches and secure the right

5. Take the three washers from the kit and insert them between the water flow and return pipes, pressure relief relief washer is the smaller of the three.

6. Tighten all the nuts to the taps.

7. Undo the four screws securing the transit bracket to the combustion box door and chassis. Remove the bracket and discard.

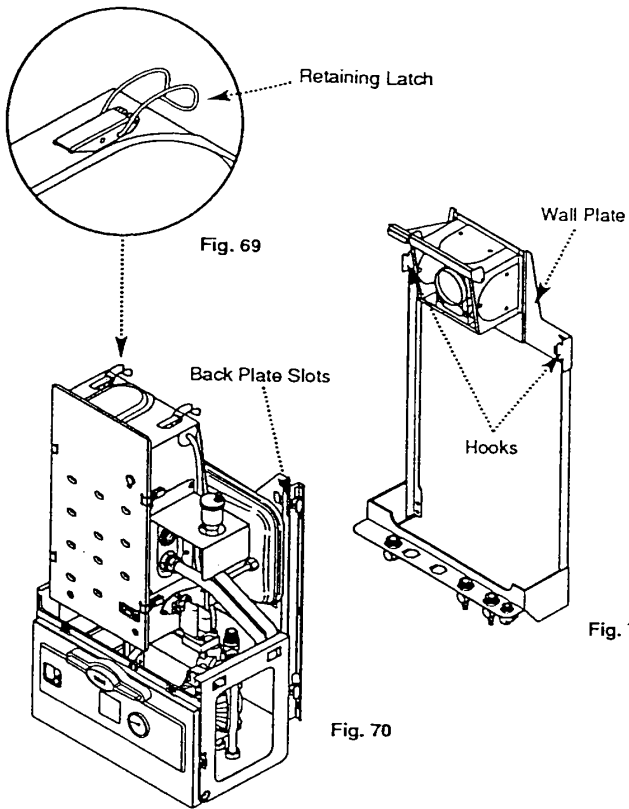


Fig. 69

Fig. 71

Fig. 70

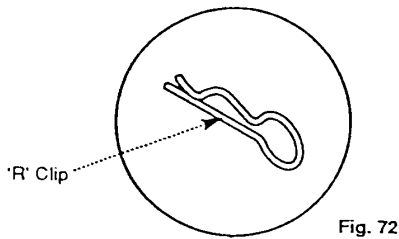


Fig. 72

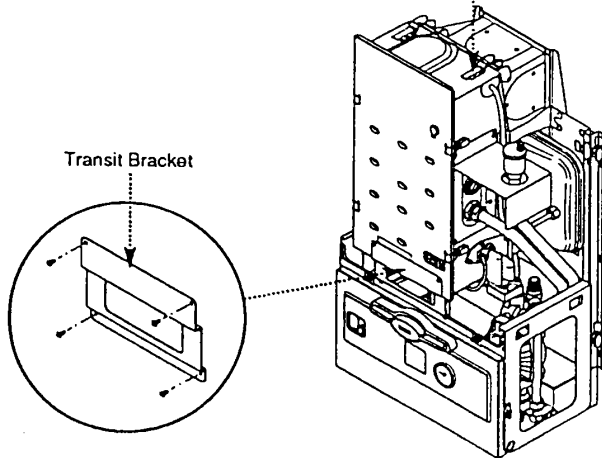
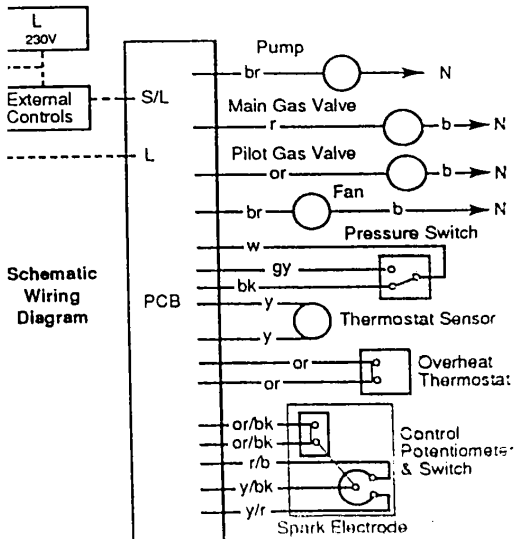
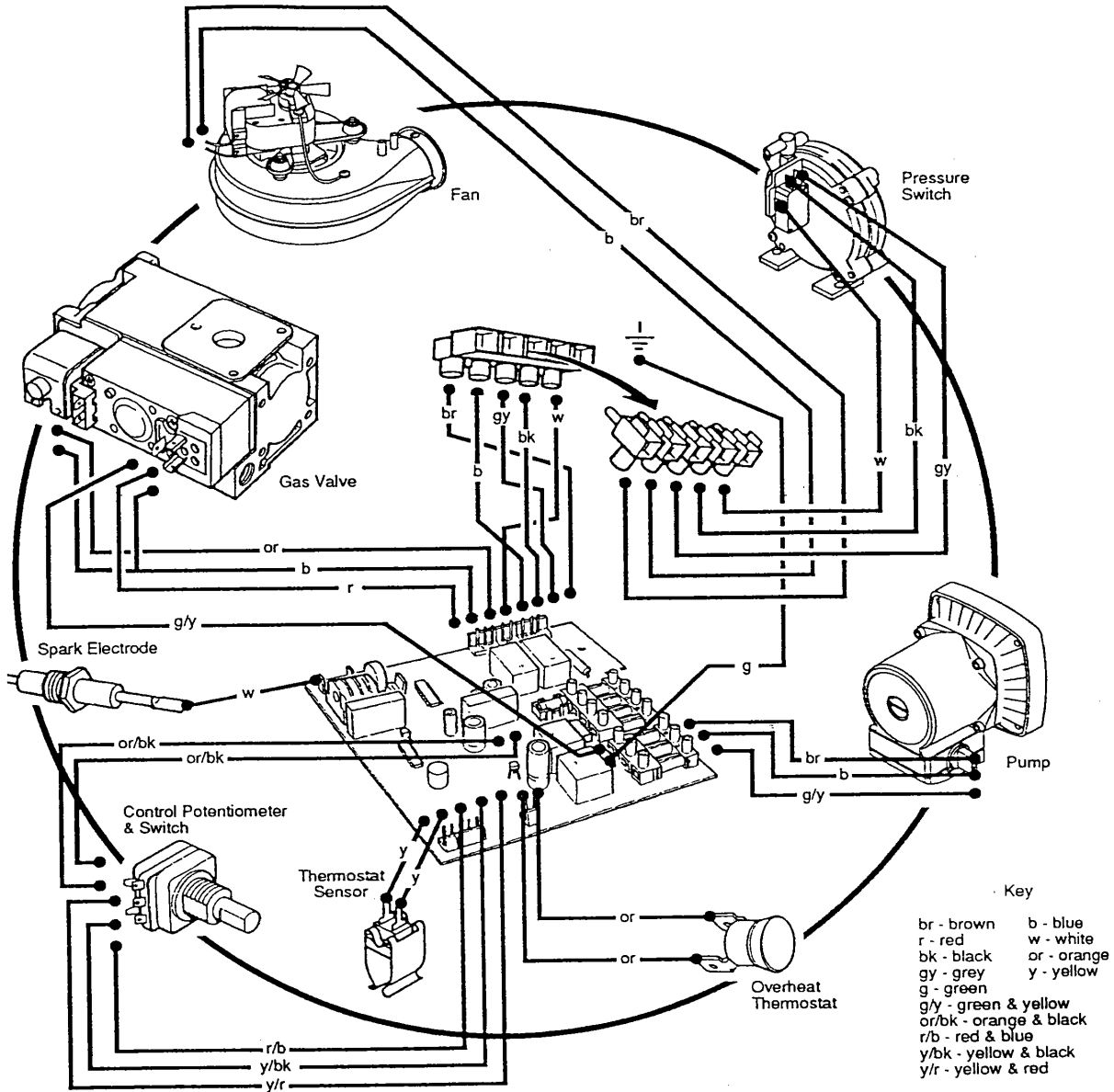


Fig. 73

6.17 Electrical Connections



**NOTE:** The method of connection to the electricity supply must facilitate complete electrical isolation of the appliance. Connection may be made via a fused double pole isolator with a contact separation of at least 3mm (1/8 in) in all poles and serving the appliance and system controls only. All cables should be routed to avoid hot surfaces.

**WARNING - THIS APPLIANCE MUST BE EARTHED.** 4 core input cable for connection to the appliance must be not less than 0.75mm<sup>2</sup> (24 x 0.2mm) PVC grade to IEC 227 code 53 (heat resisting). External controls and the appliance MUST be supplied via the same isolator.

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

### 6.18 Making the Electrical Connections

1. Remove the cover from the control box by removing the 2 screws (Fig. 74).
2. Slide the box forward for easier access.
3. Route the supply cable via the control box from the rear of the appliance.
4. The terminal strips may be removed by carefully pulling forward. Connect the supply cable to the terminal strip (Fig. 77).

**IMPORTANT - When installing in conjunction with a thermal store or heat store please refer to the store manufacturers installation instructions when wiring the boiler.**

5. The pump is connected to the boiler P.C.B. terminals.
6. A permanent live must be connected to the 'L' terminal.
7. The switched live must be connected to the 'S/L' terminal.
8. Clamp the cable in the grip provided. Ensure that the length of the supply cable is such that the current carrying wires become taut before the earth wires if the cable should pull out of the cable clamp (Fig. 76).
9. Tuck the cable along the side of the box and clip to the wall where necessary. Make sure sufficient slack is left to allow the box to slide forward for future access. A cable clip is fitted at the side of the box.
10. For optional integral clock kit follow instructions provided.

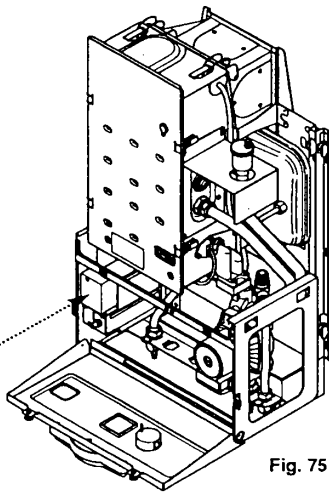
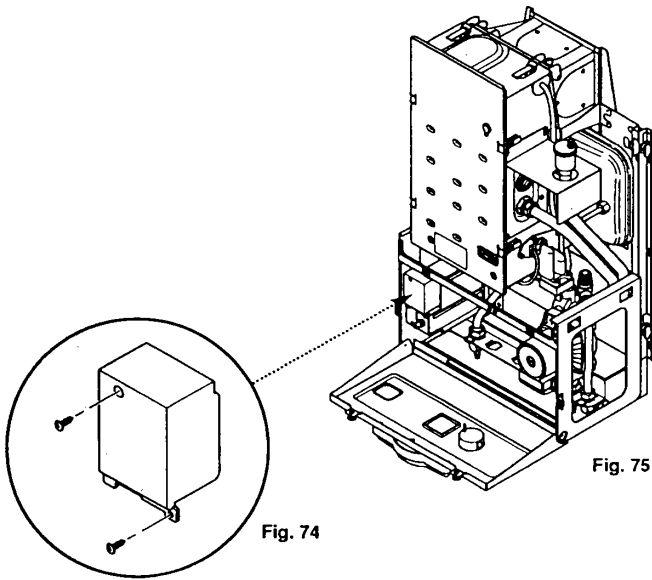


Fig. 75

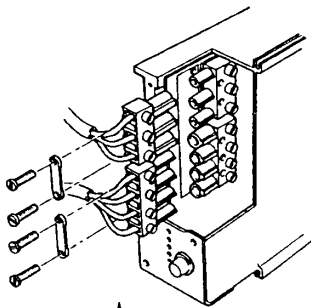


Fig. 76

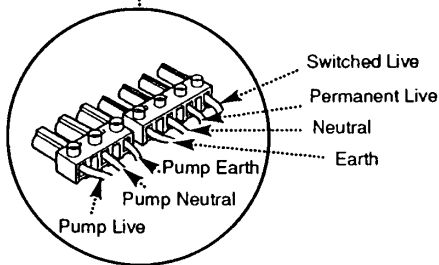


Fig. 77

7.1 Commissioning the Appliance

disconnect the filling loop. Check for water leaks.

2. Purge away air from the supply pipe at the gas service
3. Ensure that the electrical supply is isolated.
4. Check the electrical supply for earth continuity, polarity,
5. Turn the gas service cock to the ON position and check for gas soundness up to the gas valve.

valve (there is no need to completely remove this screw to obtain a pressure reading) and connect a pressure gauge

7. Turn the boiler thermostat control knob fully anti-clockwise to the OFF position marked 0 (Fig. 79).

any external controls to the ON position.

9. Turn the boiler thermostat knob fully clockwise.

seconds, the ignition spark will commence.

11. The sparking will continue until the pilot light is the pilot flame.

12. Check that both the main burner and the pilot are alight lights should also be illuminated.

13. Should this sequence not occur, then refer to the finding section of these instructions.

**NOTE: The sealed and therefore non-adjustable.**

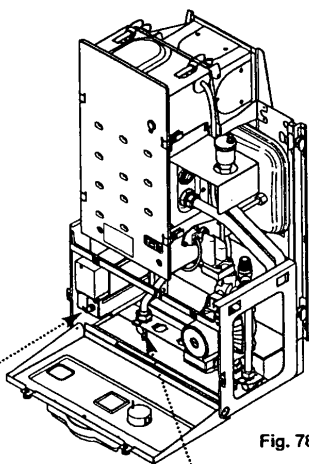


Fig. 78

Overheat Neon Warning

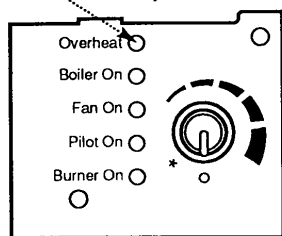


Fig. 79

Gas Cock

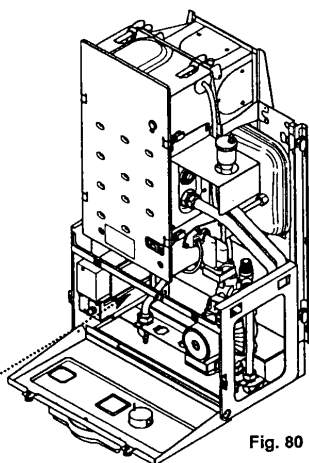


Fig. 80

Gas Valve

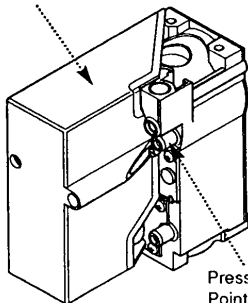


Fig. 81

Pressure Test Point

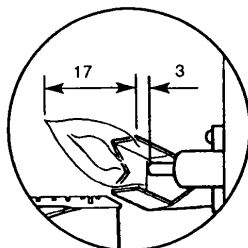


Fig. 82



7.1 Commissioning the Appliance (Cont)

Model		Input		Setting Pressure	
		kW	Btu h	mbar	in wg
30	Maximum	10.99	37,500	16.0 ± 0.5	6.4 ± 0.2
	Minimum	7.33	25,000	8.0 ± 0.5	3.2 ± 0.2
40	Maximum	14.65	50,000	16.0 ± 0.5	6.4 ± 0.2
	Minimum	11.36	38,750	10.0 ± 0.5	4.0 ± 0.2
50	Maximum	18.32	62,500	16.0 ± 0.5	6.4 ± 0.2
	Minimum	15.02	51,250	11.5 ± 0.5	4.4 ± 0.2
60	Maximum	21.98	75,000	16.0 ± 0.5	6.4 ± 0.2
	Minimum	18.68	63,750	11.5 ± 0.5	4.4 ± 0.2
70	Maximum	25.64	87,500	16.0 ± 0.5	6.4 ± 0.2
	Minimum	22.35	76,250	12.16 ± 0.5	4.8 ± 0.2
80	Maximum	29.31	100,000	16.0 ± 0.5	6.4 ± 0.2
	Minimum	22.35	76,250	9.5 ± 0.5	3.8 ± 0.2

1. From the table opposite check that the main burner pressure is correct after the appliance has been running for 10 minutes.

2. Check for gas soundness, with main burner alight, using leak detection fluid.

3. If necessary, adjustment to main burner pressure can be made by altering the regulator as shown (Fig. 84).

4. To alter the burner pressure, turn the adjustment screw in either direction until the required pressure is obtained (Fig. 84).

5. Turn the boiler thermostat to the OFF position marked 0. Remove the pressure gauge and screw home the pressure test point screw. Turn the boiler thermostat knob to the required setting (Fig. 84).

6. The boiler and system should be run and then flushed and treated in accordance with BS 7593:1992 and the flushing agent / inhibitor manufacturers instructions. Pressurise the system to 1.0 bar then close and disconnect the filling loop.

7. When all the air has been removed from the water circuit, the pump and radiators should be balanced to achieve the design temperature drop across the system.

8. Make a final check for gas soundness and set any timer control, room thermostats etc. to the customers specific requirements.

9. The boiler is protected by an integral frost-stat, but if the boiler is not to be used for a long period of time, the system should be drained.

**NOTE:** The frost thermostat operates even if the boiler thermostat is in the OFF position and it is necessary therefore, if the system is drained, for the external electrical and gas supplies to be isolated.

It is recommended that a label be affixed to the appliance to draw attention to the fact that the system has been drained.

**WARNING -** If the system is filled with very cold water and the boiler lit, the action of the frost protection thermostat will prevent the boiler from shutting down before the water temperature reaches 10°C.

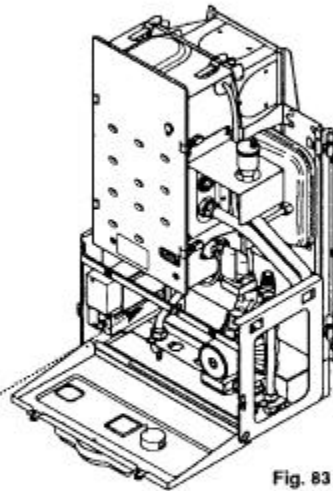


Fig. 83

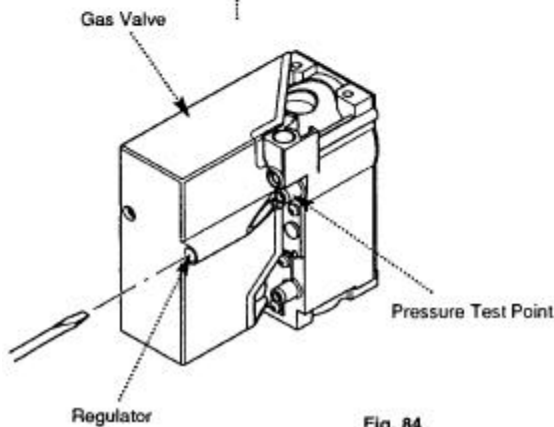


Fig. 84

8.1 Fitting the Outercase

1. The warning label may be removed unless the boiler is to be fitted within a cupboard or compartment.

2. If the appliance is flued to the left or to the right, remove the relevant infill panel from the case by removing the retaining clips and fixing screws (Fig. 87).

3. Offer the outer case up to the wall plate. Engage the slots in the case over the hooks on the back plate. Ensure that the case is positively located (Fig. 86).

4. Using the two screws previously removed, secure the outer case to the combustion box (Fig. 85).

5. Replace the lower front door panel and hinge upwards, ensuring it is secured by the two magnets (Fig. 87 & 88).

6. Instruct the user in the operation of the boiler controls. Hand over both the Users Operating and Installation Instructions giving advice on the necessity of regular servicing.

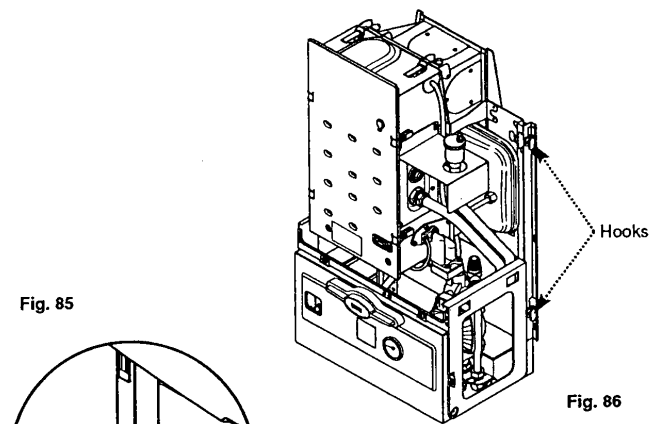


Fig. 85

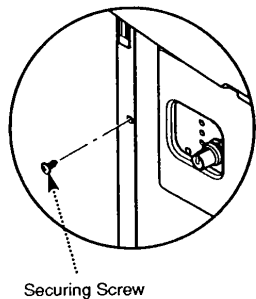


Fig. 86

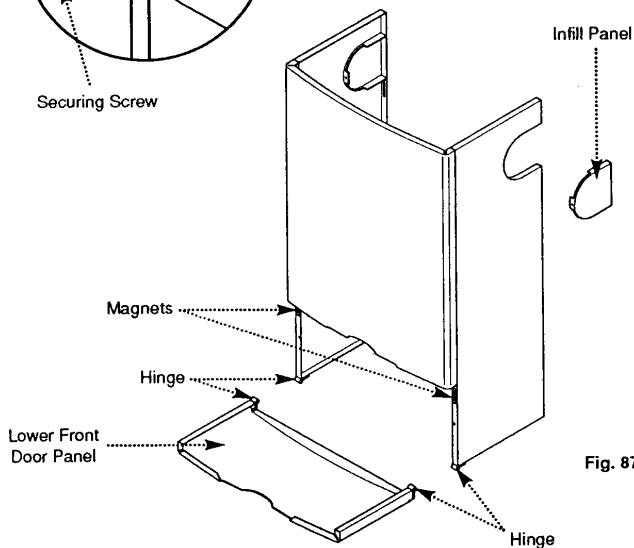


Fig. 87

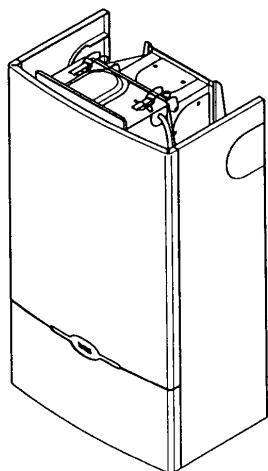


Fig. 88

**Operation**

1. The overheat cut-off device is of the manual reset type the control should it ever operate.

**NOTE: Cut-off is indicated by illumination of the**

2. Hinge the lower door panel down (Fig 89).

3. - Turn the boiler thermostat control knob fully anti-clockwise to the OFF position marked '0' (Fig. , then turn the control knob clockwise to the required thermostat setting. The red neon will go out

4. If the overheat cut-off operates repeatedly, refer to the fault finding chart at the rear of this booklet and investigate

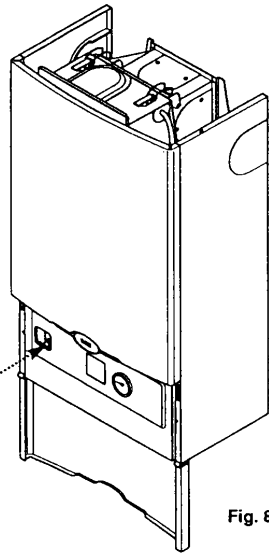


Fig. 89

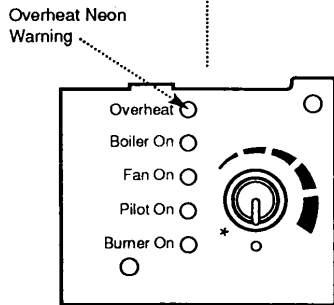


Fig. 90

10.1 Dismantling the Boiler

1. For reasons of safety and economy the boiler should be serviced annually. (For location of British Gas service test point see Changing Components section of these instructions).

2. Before servicing the boiler please read Section 1.3 Important Information.

3. Isolate the gas and electrical supplies to the boiler.

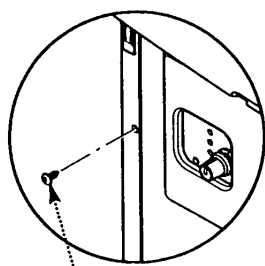
4. Hinge down the lower door panel to the horizontal and gently pull forward to remove (Fig. 93).

5. Remove the outer case from the boiler by unscrewing the two screws and lifting the case clear (Fig. 91).

6. Release the four latches retaining the combustion box door and remove the door (Fig. 95).

7. Release the 5-pin electrical plug connecting the pressure switch and fan (Fig. 94). Withdraw the fan assembly by pulling forwards from the top edge (Fig. 95).

Fig. 91



Securing Screw

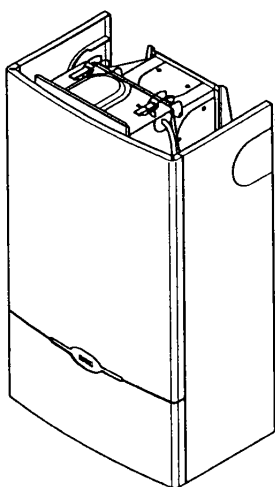


Fig. 92

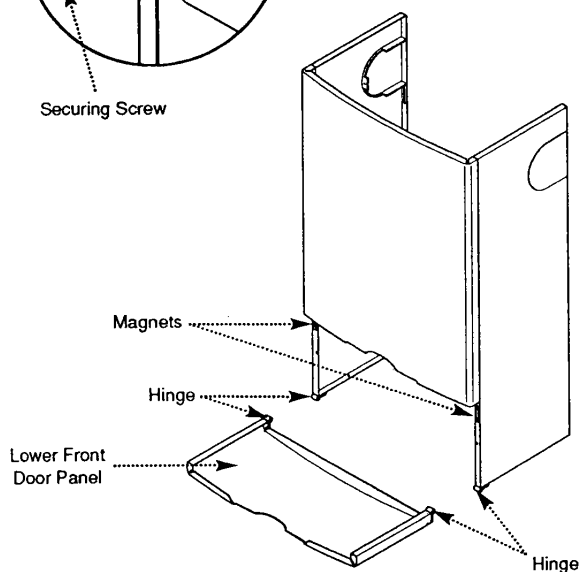


Fig. 93

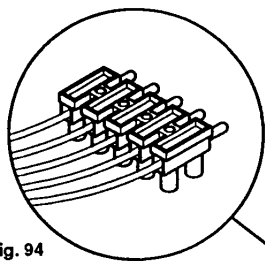
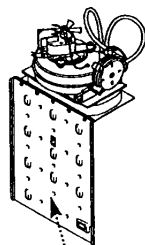
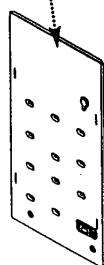


Fig. 94

Combustion Box Door



Fan Assembly

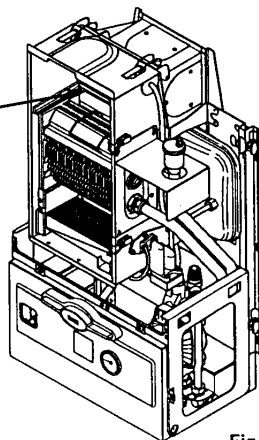
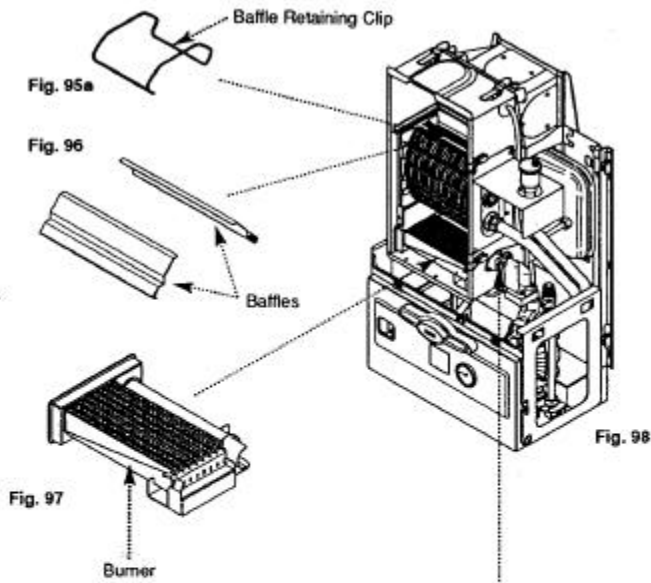


Fig. 95



### 10.2 Cleaning the Combustion Box

1. Remove the burner assembly by pulling it forward (Fig. 97).
2. Lightly brush any dirt from the top of the burner blades and ensure that the ports are free from obstruction.

baffle retaining clip and lift the baffles from the heat exchanger (Fig. 95a & 96).

### Cleaning the Heat Exchanger

1. The heat exchanger may be cleaned by insertion of a thin rod below, taking care not to damage any insulation.
2. Clean the front and rear fin sections and ensure that any

### 10.4 Cleaning the Burner Injector

the injector which is screwed into the burner feed manifold (Fig. 99).

the copper washer is in position. Tighten the injector fully.

### 10.5

1. Disconnect the spark electrode lead at the electrode (Fig. 100).

the electrode (Fig. 100).

3. Remove the right hand side insulation carrier bracket by

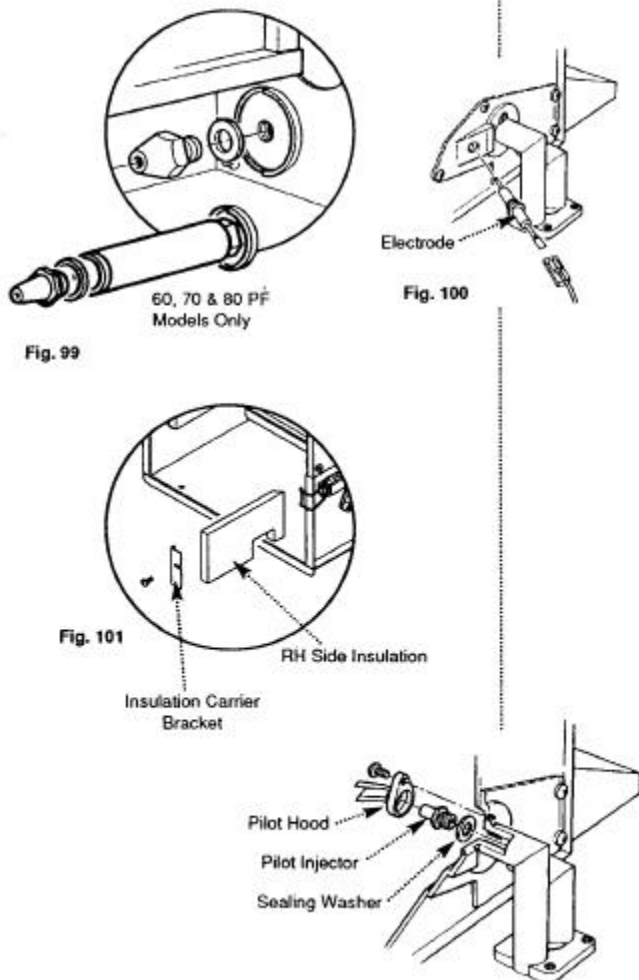
4. Release the screw securing the pilot hood and remove (Fig. 102).

and clean it as necessary. Do not use a wire or pin to clean the injector orifice.

damaged in any way. Reassemble in reverse order.

7. Replace all components in reverse order.

9. Re-commission the boiler before use, checking for gas soundness and ensuring all controls are working correctly.



**Changing Components**

1. Before changing any components ensure that the gas
2. Before changing any components please read Section 1.3 Important Information.

right to remove.

4. Remove the outer case from the boiler by unscrewing the

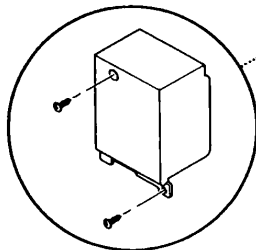


Fig. 103

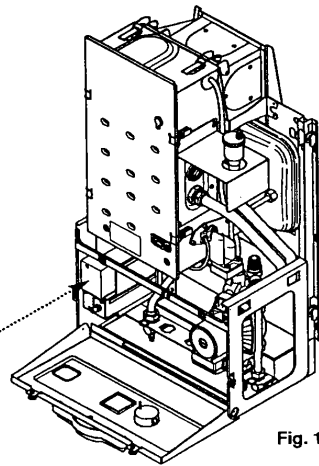


Fig. 104

**11.2 Replacing the Ci**

1. Ensure that the electrical supply is isolated.
2. Undo the ¼ turn screws and drop the facia panel down
3. Remove the cover from the front of the controls box (Fig.
4. Release the supply and pump feed cables from the cable board (Fig. 105).
5. Remove the screw retaining the thermostat control panel
6. Carefully withdraw the centre pin from the retaining rivet
- the thermostat control panel (Fig. 106 & 107). (On reassembling ensure the control panel is located over the
7. Disconnect the plugs from the sockets on the circuit board (Fig. 108).

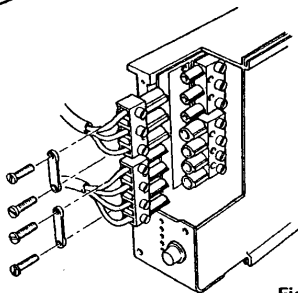


Fig. 105

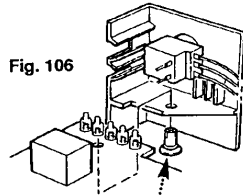


Fig. 106

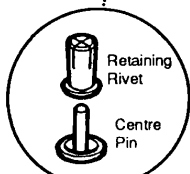


Fig. 107

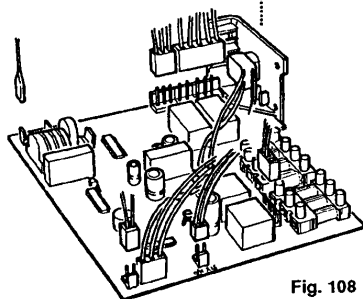


Fig. 108

the connections are correct as shown in the diagram (See Electrical Connections of these instructions) and that the harness is retained in the strain

**11.3 Ignition Electrode (Fig. 109)**

2. Unscrew the electrode from the manifold and withdraw the electrode.

the sleeving is pushed over the end of the electrode.

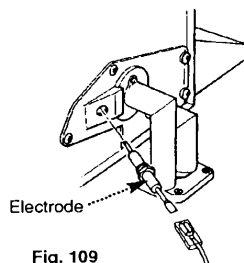
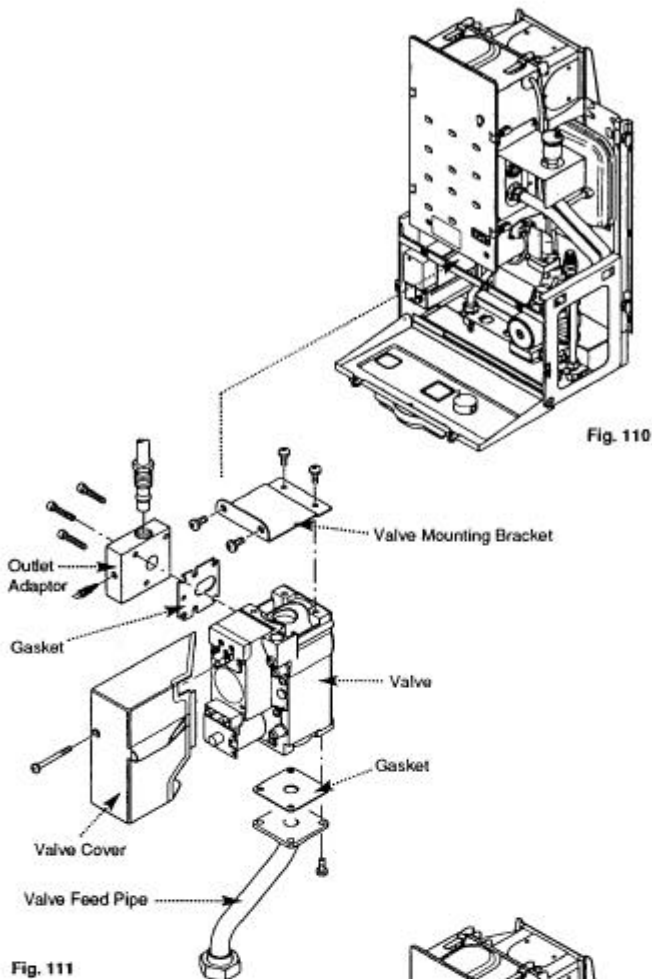


Fig. 109

### 11.4 Gas Valve (Fig.110& 111)

1. Undo the ¼ turn screws and drop the facia panel down.
  2. Disconnect the electrical connections from the valve, noting their positions.
- cover.
4. Undo the nut on the valve feed pipe at the tap rail.
  5. Remove the screws securing the outlet adaptor to the access.
  6. Undo the screws retaining the the combustion box.
  7. Manoeuvre the valve and feed pipe away from the
  8. Note the orientation of the feed pipe relative to the valve. Remove the screws holding the feed pipe flange to the
  9. Examine the gaskets and washers and replace them if they are damaged in any way.



11. Reassemble the new valve in reverse order of dismantling, ensuring that the gaskets and washer are

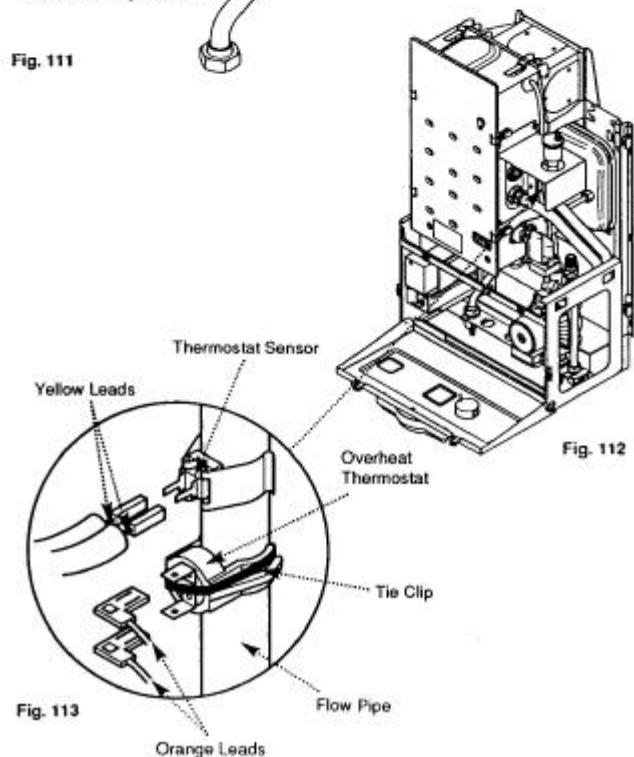
### 11.5 Thermostat Sensor

1. Disconnect the two electrical tags from the sensor.
2. Prise the clip and sensor off the flow manifold. Care must
3. Clip the new sensor to the manifold and reconnect the wires. Either wire can be connected to either spade terminal

### 11.6 Over-Heat Thermos (Fig.112 & 113)

1. Disconnect the two electrical tags from the overheat
2. Prise the clip and thermostat from the pipe, noting its position. Disengage the thermostat from the clip.

the flow pipe ensuring it is positioned as previously. Connect the two electrical tags to the terminals on the overheat terminal - there is no polarity.



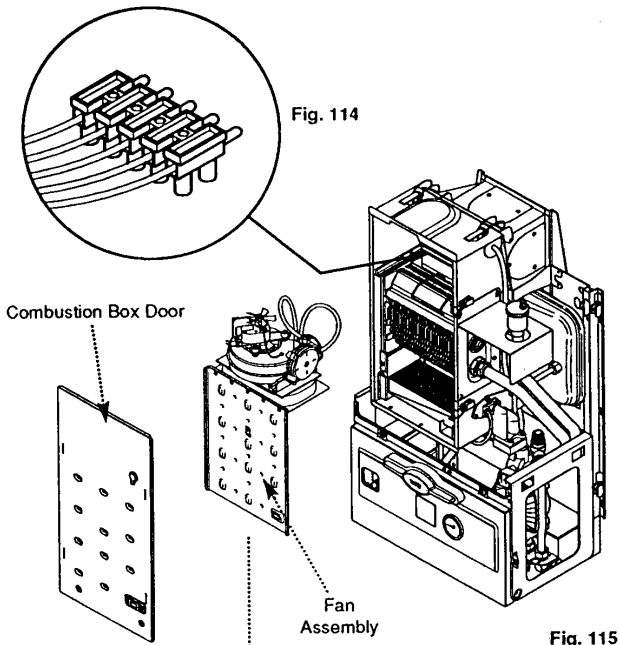


Fig. 114

Fig. 115

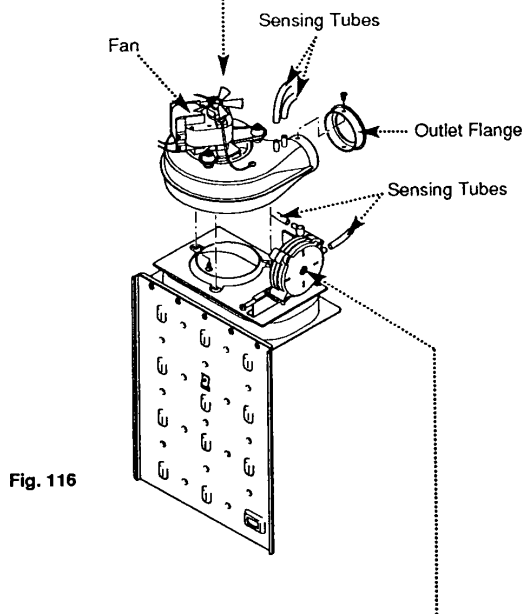


Fig. 116

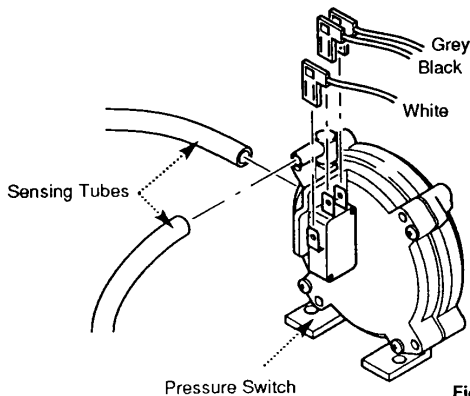


Fig. 117

### 11.7 Changing Components (Cont)

1. To change Fan - Pressure Switch - Burner - Burner Injector - Pilot Burner Injector - Gas Manifold, proceed as follows:-

2. Release the four latches holding the combustion box door. Remove the combustion box door by pulling forward from the bottom and unhooking its top edge (Fig. 115).

3. Disconnect the 5-pin pressure switch and fan plug (Fig. 114). Withdraw the fan assembly by pulling forwards from the top edge (Fig. 115).

### 11.8 Fan (Fig. 116)

1. Disconnect the two sensing tubes from the venturi situated on the fan.

2. Disconnect the 2 fan wires from the connection on the electrical plug. Remove the 3 screws securing the fan to the fan hood.

3. Remove the two screws securing the fan outlet flange to the fan and remove. Clean all sealing mastic from the outlet flange.

4. Fit the outlet flange onto the new fan, fix with the 2 screws and seal the outside gap between the fan body and the outlet fan with the mastic provided.

5. Fit the new fan and re-assemble all components in reverse order of dismantling, reconnect the new fan wires into the connections on the electrical plug - either wire can be connected into either connection.

### 11.9 Pressure Switch (Fig. 117)

1. Disconnect sensing tubes noting their positions.

2. Remove the screw securing the pressure switch to its bracket and unhook the pressure switch.

3. Disconnect the 3 electrical terminals from the pressure switch. Note the position of the tags before removal and reconnect in correct order.

4. Fit new pressure switch and re-assemble all components in reverse order of dismantling ensuring that the electrical terminals are connected to their correspondingly marked tags.



**11.10 Burner (Fig. 118)**

1. Remove the burner assembly by pulling it forward.
2. Fit new burner and re-assemble all components in reverse order of dismantling.

**11.11 Burner Injector (Fig. 120)**

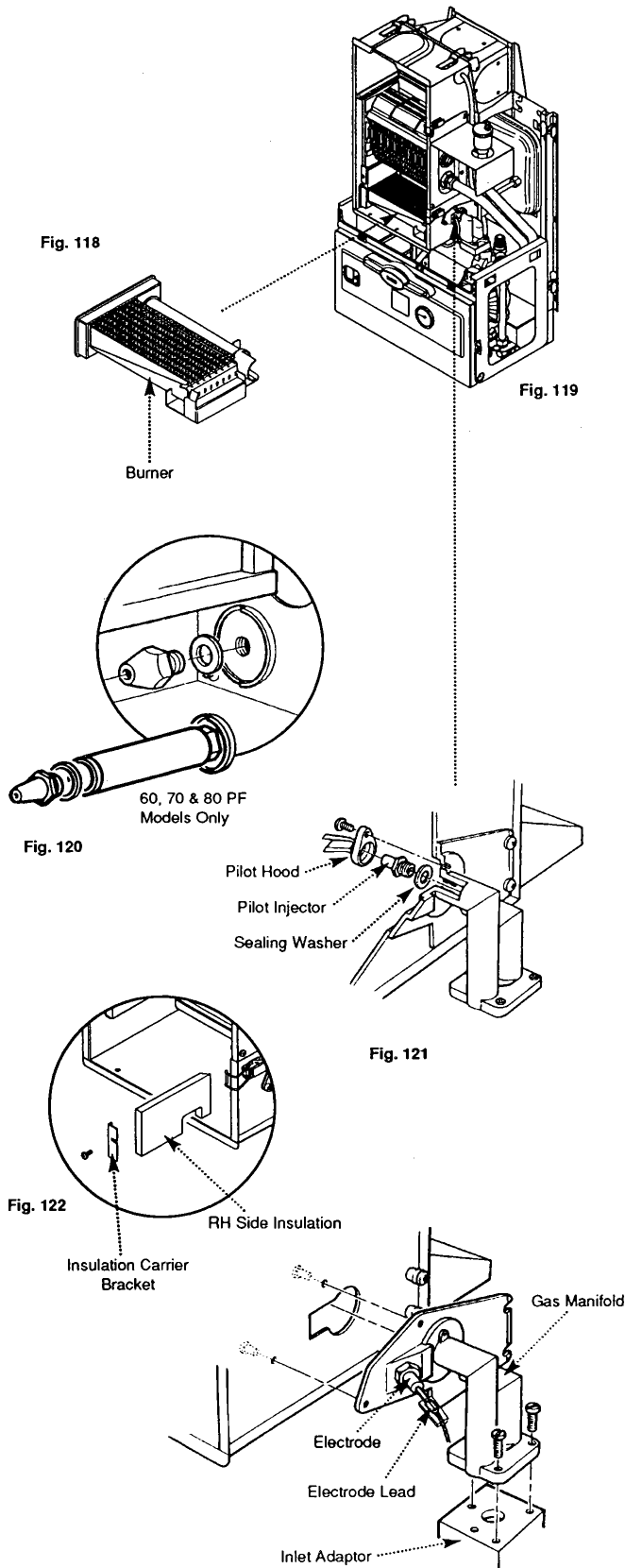
1. Release and remove the burner injector which is screwed into the burner feed manifold.
2. Fit the new burner injector ensuring that the copper washer is in position. Tighten the injector fully.
3. Re-assemble all components in reverse order.

**11.12 Pilot Burner Injector (Fig. 121)**

1. Remove the right hand side insulation carrier bracket by releasing the screw. Remove the side insulation panel (Fig. 122).
2. Release the screw securing the pilot hood and remove. Carefully remove the pilot injector. Fit the new pilot injector ensuring the new sealing washer is in position. Tighten the injector fully.
3. Re-assemble all components in reverse order.

**11.13 Gas Manifold (Fig. 123)**

1. Undo the ¼ turn screws and drop the facia panel down.
2. Pull the electrode lead off the electrode.
3. Remove the right hand side insulation carrier bracket by slackening the screw. Remove the burner. Remove the side insulation panel (Fig. 122).
4. Undo the three screws securing the brass inlet adaptor to the manifold.
5. Remove the two screws securing the manifold from the inside of the combustion box and slide the manifold forward from under the two rear locating studs, taking care not to lose the gasket.
6. Remove the electrode
7. Replace all ancillary components onto manifold and replace manifold by sliding rear edge backwards under the two rear locating studs and securing from inside the combustion box using the two screws previously removed. Ensure that the sealing gasket is properly positioned and undamaged.



**11.15 Pump (Head Only)** (Fig. 128)

1. If only the head needs replacing. A standard Grundfos UPS 15-60 pump head is interchangeable.
2. Isolate the appliance from the water system by closing the flow and return taps.
3. Drain the boiler of water.
4. Undo the ¼ turn screws and drop the facia panel down.
5. Unplug the wiring harness from the pump.
6. Remove the four socket head screws securing the pump head and separate it from the housing.
7. Check that the new pump has been switched to setting °3.

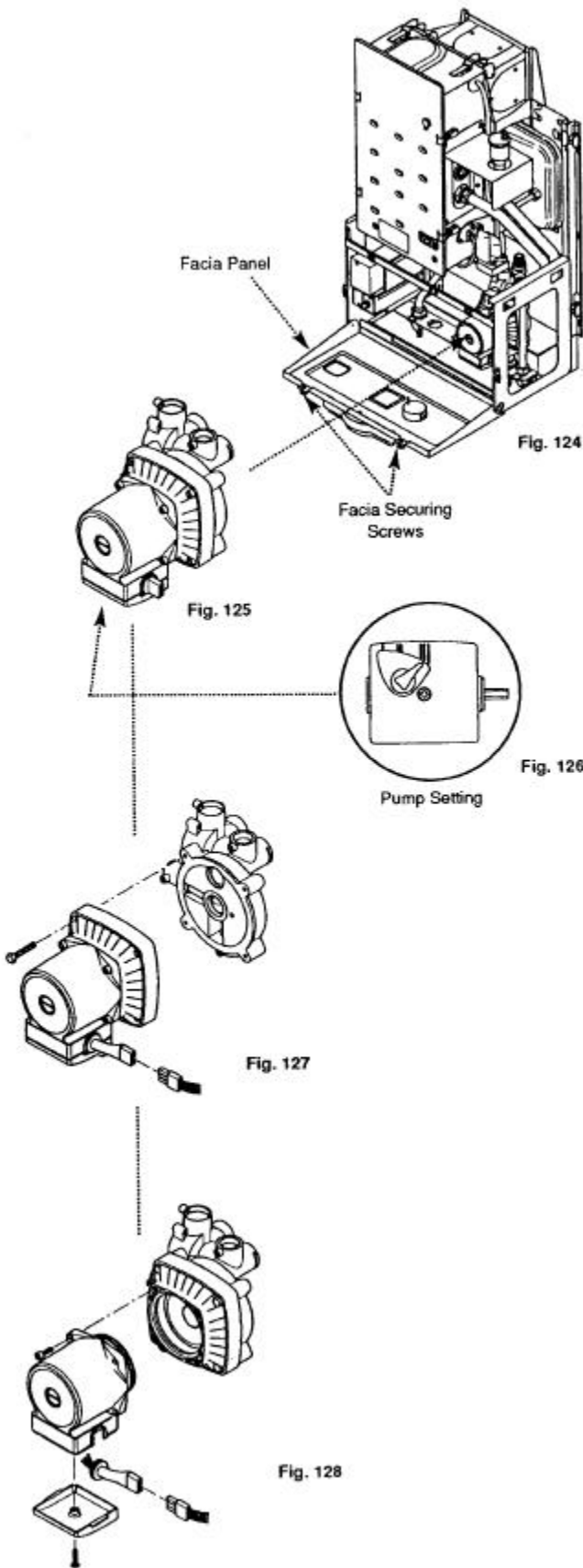
on the original and replacement heads.

9. From the replacement UPS strain relief cable gland and discard.
10. Remove the plug connector from the old pump head and 15-60 pump head.
11. Replace the electrical cover to the new pump head and
12. Reconnect the wiring harness plug.
13. recommission the system.

**11.16** (Fig. 125 & 127)

1. Isolate the appliance from the water system by closing
2. Drain the boiler of water.
3. Undo the ¼ turn screws and drop the facia panel down.
5. Remove the four screws retaining the pump backplate to
6. Remove the pump.
7. Fit the new pump and reassemble in reverse order.

Repressurise and recommission the system.



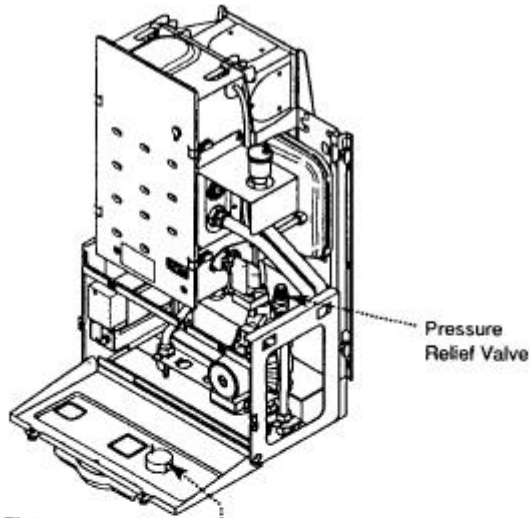


Fig. 129

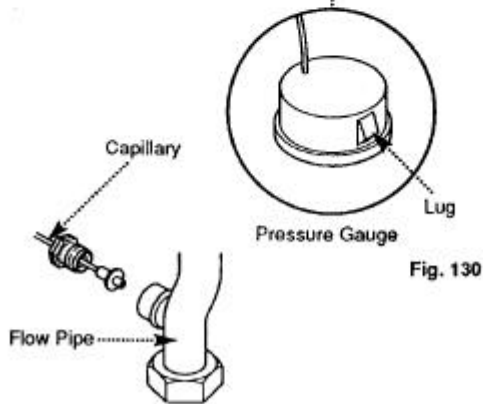


Fig. 130



Fig. 131

### 11.16 Pressure Gauge

1. Isolate the appliance from the water system by closing the flow and return taps.
2. Drain the boiler of water.
3. Undo the ¼ turn screws and drop the fascia panel down.
4. Undo the nut on the gauge capillary at the boiler flow connection (Fig. 131).
5. Press in the two lugs on the gauge body, and pass the gauge and capillary through the fascia (Fig. 130).
6. Fit the new gauge in reverse order and recommission the appliance.

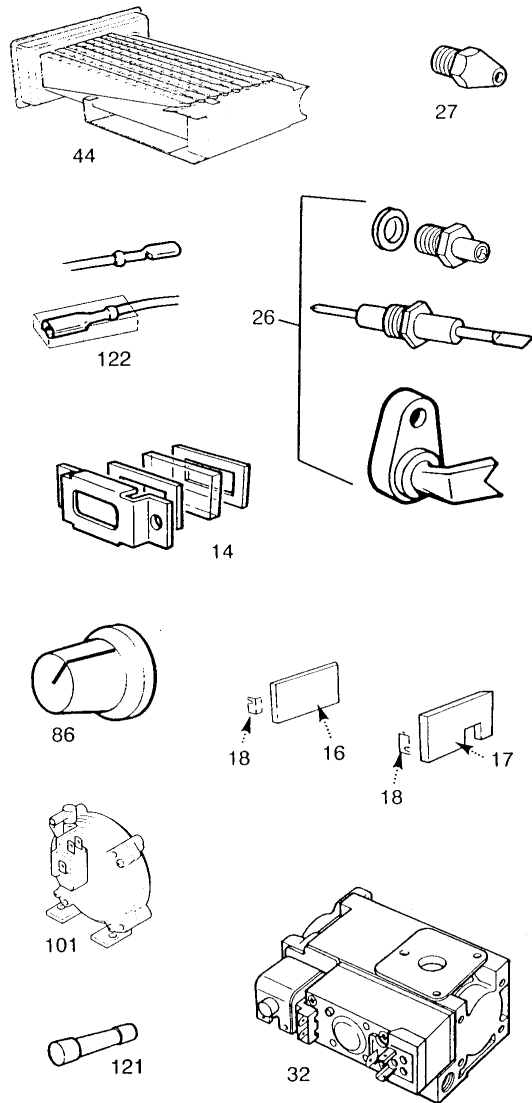
### 11.17 Pressure Relief Valve (Fig. 129)

1. Isolate the appliance from the water system by dosing the flow and return taps.
2. Drain the boiler of water.
3. Undo the ¼ turn screws and drop the fascia panel down.
4. Undo the nut on the pressure relief pipe and slacken the screw holding the valve to the manifold.
5. Fit the new valve in reverse order and recommission the appliance.

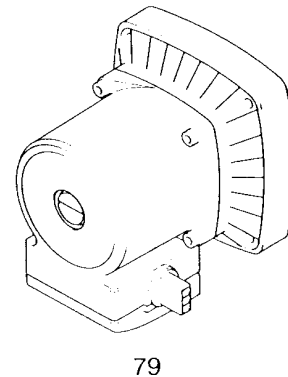
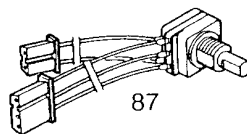
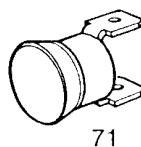
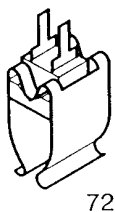
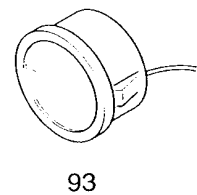
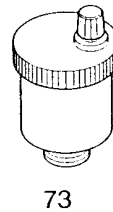
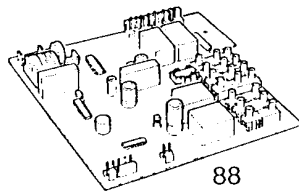
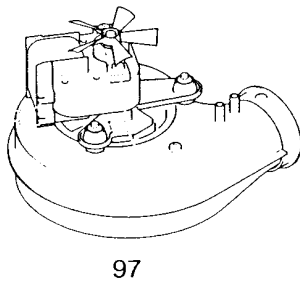
### 11.18 Re-pressurising Expansion Vessel

1. The charge pressure is 1.0 bar.
2. Close the central heating flow and return isolating valves.
3. Drain the boiler of water.
4. The expansion vessel valve is situated to the right of the combustion box, below the expansion vessel.
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.

12.1 Short Parts List



Key N°	Description	Model	G.C. N°	Manufrs Part N°
44	Burner	30-40-50 60-70-80	364 878	231708
27	Burner Injector	30 40 50 60 70 80		246176 246177 246178 246161 246162 246163
26	Pilot Kit	All models	170 558	236142
122	Electrode Lead	All models		246200
86	Control Knob	All models	364 886	230981
14	Viewing Window Kit	All models	364 588	224183
101	Pressure Switch	30, 40, 50 60, 70 80		246053 246054 246055
17	Insulation R.H.	All models	364 889	230653
16	Insulation L.H.	All models	364 980	230652
18	Retaining Clip	All models	364 891	230817
32	Gas Valve	All models	E24 690	245122
72	Overheat Thermostat	All models	E02 921	241792
121	Fuse	All models	364 892	231402
97	Fan	30, 40, 50 60, 70, 80		246051 246052
71	Thermostat	All models		246064
88	Control Board	All models	379 031	231711
87	Potentiometer	All models	379 960	231252
79	Pump	All models	E02 762	241157
93	Pressure Gauge	All models	E02 796	241190
73	Automatic Air Vent	All models	E02 759	241154



# 3.0 Fault Finding - Page 45 and Page 46

Before starting FAULT FINDING carry out preliminary electrical system checks i.e. Earth Continuity, Polarity, Short Circuit and Resistance to Earth. Ensure that the system is correctly pressurised.

