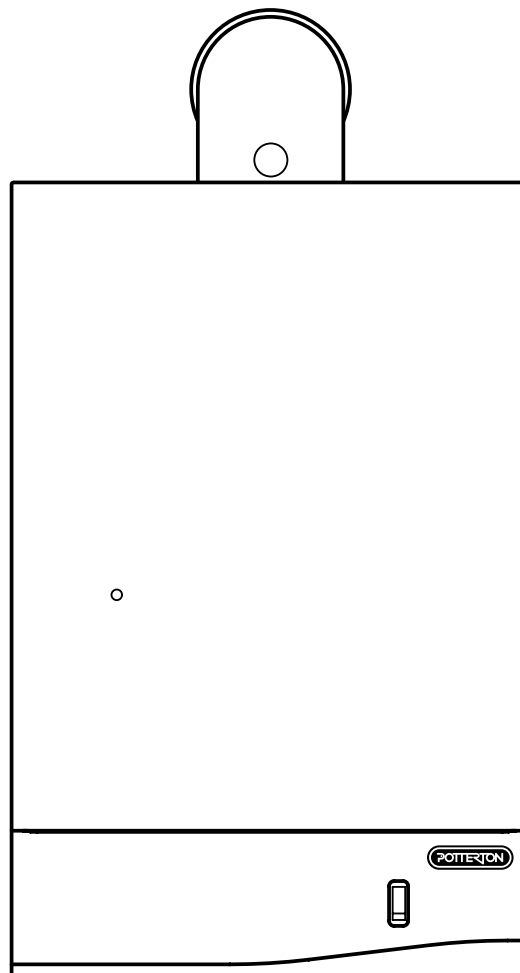




Installation & Service Instructions

Promax 15 HE & 24 HE



This is a Wall Mounted Powered Flue Condensing Boiler Gas Fired Central Heating Unit.

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 use with Natural Gas (G20) only at 20mbar and for use in GB/IE only.

Natural Gas

Potterton Promax 15 HE

G.C.N° 41 590 58

Potterton Promax 24 HE

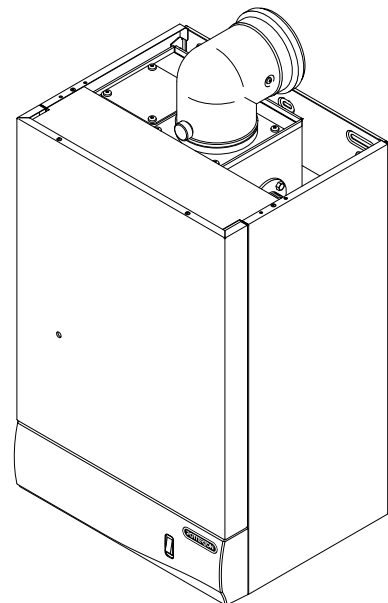
G.C.N° 41 590 62



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0.0 LEGISLATION

IMPORTANT - Installation, Commissioning, Service & Repair

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

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

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

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

Lifting - This product should be lifted and handled by two people. For recommended hand holds see section 8.3. Stooping should be avoided and protective equipment worn where necessary. Carrying & lifting equipment should be used as required, e.g. when installing in a loft space.

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

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

"Benchmark" Log Book

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

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

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

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

The appliance is suitable only for installation in GB and IE and should be installed in accordance with the rules in force, and only used in a suitably ventilated location.

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

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

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

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

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

Codes of Practice, most recent version should be used

In GB the following Codes of Practice apply:

Standard	Scope
BS 6891	Gas Installation.
BS 5546	Installation of hot water supplies for domestic purposes.
BS 5449	Forced circulation hot water systems.
BS 6798	Installation of gas fired hot water boilers.
BS 5440 Part 1	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.

In IE the following Codes of Practice apply:

Standard	Scope
I.S. 813	Domestic Gas Installations.
The following BS standards give valuable additional information;	
BS 5546	Installation of hot water supplies for domestic purposes.
BS 5449	Forced circulation hot water systems.
BS 7074	Expansion vessels and ancillary equipment for sealed water systems.
BS 7593	Treatment of water in domestic hot water central heating systems.

1.0 INTRODUCTION

1.1 Description

1. The Potterton Promax 15 HE and 24 HE are gas fired room sealed fan assisted condensing central heating boilers.
2. The maximum output of the Potterton Promax 15 HE is 52,000 Btu/hr. The maximum output of the Potterton Promax 24 HE is 75,000 Btu/hr. Both boilers automatically adjust their outputs down to 30,000 Btu/hr according to the system load.
3. It is designed for use on Natural Gas (G20).
4. The boiler is suitable for fully pumped open vented central heating and domestic hot water systems and sealed systems.
5. A label giving details of the model, serial number and Gas Council number is situated on the top of the outercase (Fig. 1).
6. The boiler data badge is positioned on the air box door (Fig. 2).
7. The boiler is intended to be installed in residential / commercial / light industrial E.M.C. environments on a governed meter supply only.
8. The boiler must be installed with one of the purpose designed flues such as the standard horizontal flue kit, part no 236921.

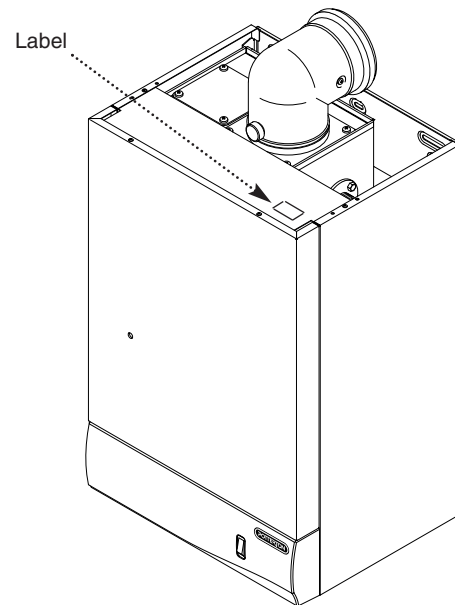


Fig. 1

1.2 Important Information

Man-made mineral fibre

- Some component parts of this appliance (insulation pads, gaskets and rope seals) are manufactured from man-made mineral fibre.
- Prolonged or excessive exposure to this material may result in some irritation to the eyes, skin or respiratory tract.
- It is advisable to wear gloves when handling these items.
- Irritant dust will only be released from the items if they are broken up or subjected to severe abrasion. In these instances a suitable dust mask and goggles should be worn.
- Always thoroughly wash hands after installation, servicing or changing components.
- When disposing of any items manufactured from man-made mineral fibre care must be exercised.
- If any irritation of the eyes or severe irritation of the skin is experienced seek medical attention.

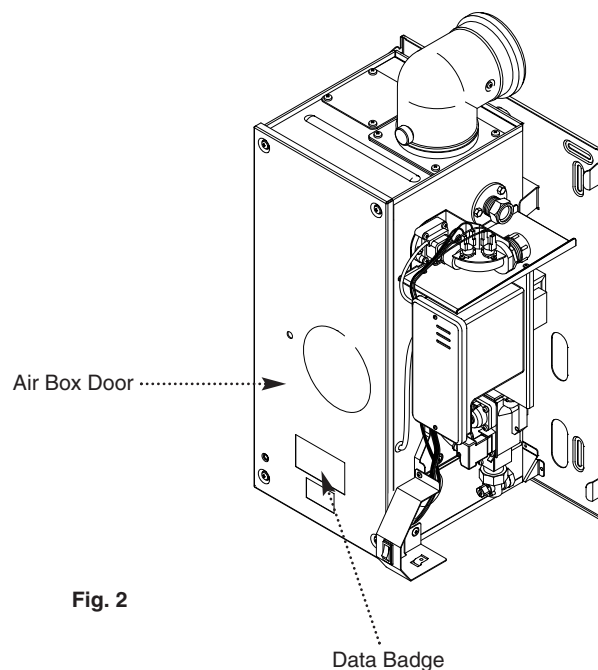


Fig. 2

2.0 GENERAL LAYOUT

2.1 Layout (Figs. 3,4 & 5)

1. Wall Plate
2. Flue Elbow
3. Heat Exchanger
4. Burner
5. Air Box
6. Fan Protection Thermostat
7. Fan Assembly
8. Condensate Trap
9. On/Off/Lockout Reset Switch
10. Gas Tap
11. Gas / Air Ratio Valve
12. Electronics Housing
13. Transformer
14. Flow Pipe Connection
15. Return Pipe Connection
16. Flow Temperature Safety Thermostat - Black
17. Flow Temperature Thermistor - Red
18. Flow Switch (dry fire protection)

2.2 Optional Extras

KIT	PART N°
FLUE EXTENSION KITS (110/70)	
Flue Extension 0.25M	241692
Flue Extension 0.5M	241694
Flue Extension 1M (Use two kits for 2M etc.)	241695
Flue Bend x 2 - 45° (Reduce overall length of flue by 0.5m when fitting this bend)	241689
Flue Bend - 90° (Reduce overall length of flue by 1m when fitting each bend)	241687
Horizontal Extended Flue (1.75M)	5111457
VERTICAL FLUE (110/70)	
Vertical Flue Terminal	242802
Vertical Flue Adaptor	5106888

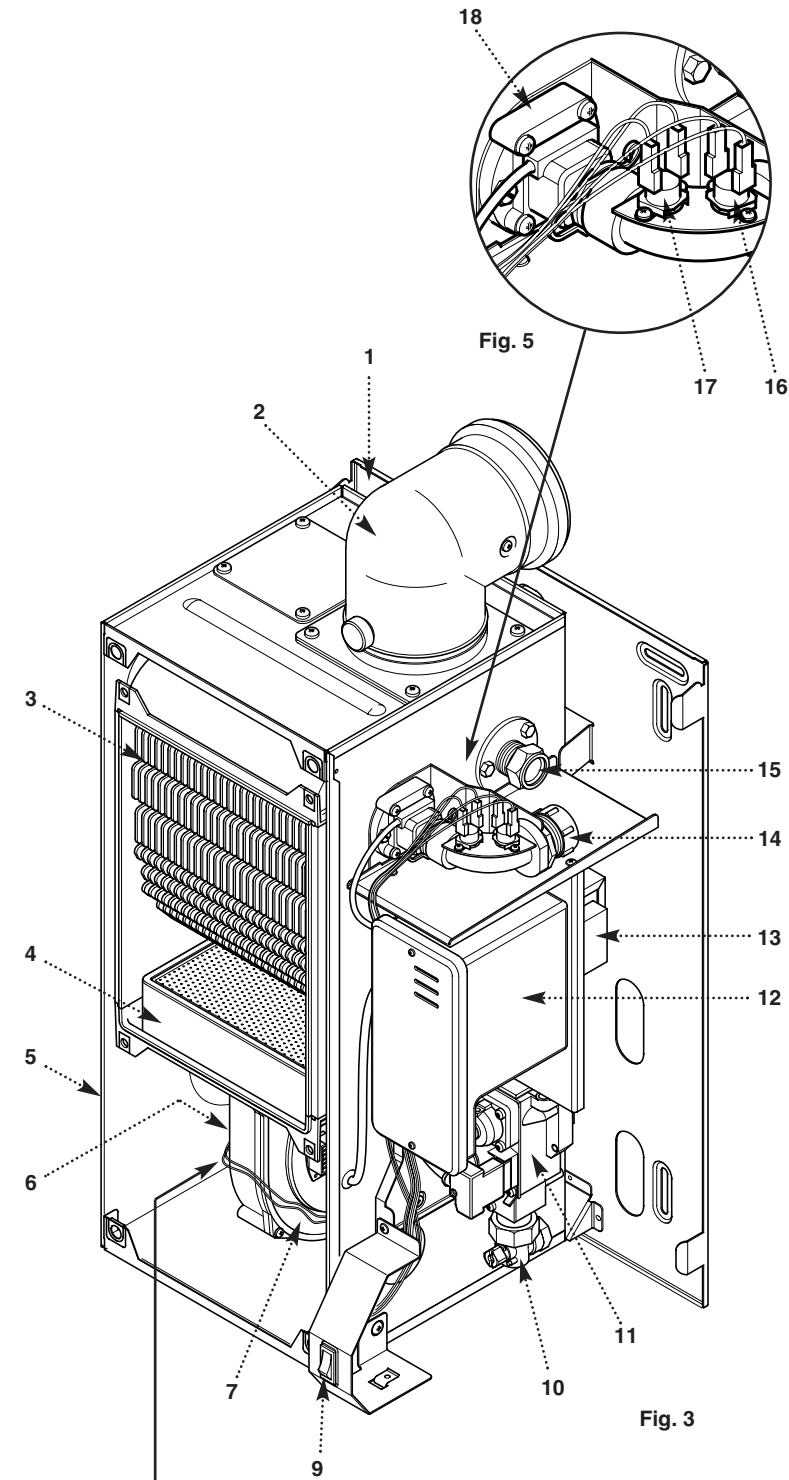


Fig. 3

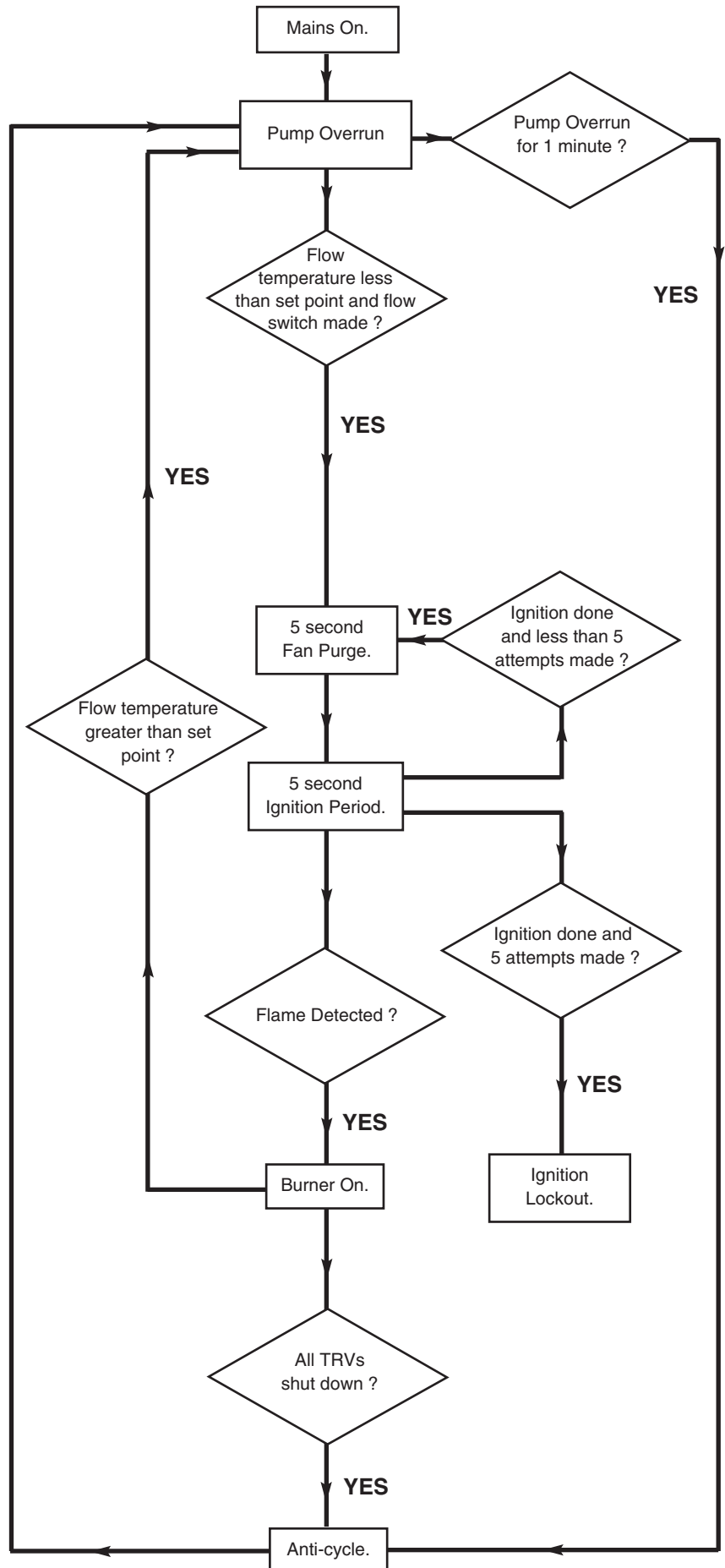
Fig. 4

3.0 APPLIANCE OPERATION



3.1

1. **Switched Live On:** When the switched live switches on pump overrun occurs.
2. **Pump Overrun:** The pump is on while the fan, spark generator and gas valve are off. If at any stage during pump overrun the flow temperature is less than the set point and the flow switch is made then fan purge occurs. After 1 minute of pump overrun anti-cycle occurs.
3. **Fan Purge:** The pump and fan are on while the spark generator and gas valve are off. After 5 seconds ignition occurs.
4. **Ignition:** The pump, fan, spark generator and gas valve are on. If a flame is detected then burner on occurs. If a flame is not detected within 5 seconds and less than 5 ignition attempts have been made then fan purge occurs. If a flame is not detected within 5 seconds and 5 ignition attempts have been made the ignition lockout occurs.
5. **Burner On:** The pump, fan and gas valve are on while the spark generator is off. Flow temperature is controlled by varying the fan speed (and thereby the gas rate) to achieve optimum operation. If the flow temperature is greater than the set point then pump overrun occurs. If the TRVs all shut down then anti-cycle occurs.
6. **Anti-cycle:** The pump, fan, spark generator and gas valve are switched off. After 3 minutes pump overrun occurs.
7. **Ignition Lockout:** The pump, fan, spark generator and gas valve are switched off. The boiler can only be reset by manually using the thermostat knob.



4.0 TECHNICAL DATA

Appliance Type	C ₁₃	C ₃₃
Appliance Category	CAT I _{2H}	
Heat Input (see note)	Max	Min
15 HE	kW 16.88	10.2
	Btu/hr 57,600	34,840
24 HE	kW 24.50	10.2
	Btu/hr 83,600	34,840
Heat Output (Non Condensing 70° C Mean Water Temp)	Max	Min
15 HE	kW 15.24	9.14
	Btu/h 52,000	31,180
24 HE	kW 22.0	9.14
	75,000	31,180
Heat Output (Condensing 40° C Mean Water Temp)	Max	Min
15 HE	kW 16.49	10.1
	Btu/h 56,260	34,520
24 HE	kW 23.8	10.1
	81,200	34,520
Max Gas Rate (Natural Gas) (After 10 Mins)		
Btu/hr	75,000	52,000
m ³ /h	2.31	1.64
ft ³ /h	83.3	52.1
Nox Class	5	

Inlet Pressure at Gas Valve (Natural Gas)	
Min	18.1 mbar
Max	22.5 mbar
(see Section 10.1)	

Horizontal Flue Terminal Dimensions		
Diameter	110mm	
Projection	150mm	

Connections	
Gas Supply	- 1/2 in BSPT
Central Heating Flow (HE15)	- 28mm
Central Heating Flow (HE24)	- 28mm
Central Heating Return (HE15)	- 28mm
Central Heating Return (HE24)	- 28mm
Condensate Drain	- 1 in BSP

Outercase Dimensions	
Overall Height Inc Flue Elbow	- 750mm
Casing Height	- 600mm
Casing Width	- 390mm
Casing Depth	- 320mm

Clearances	
Both Sides	5mm Min
Above Casing	200mm Min
Below Casing	130mm Min
Front (For Servicing)	500mm Min
Front (In Operation)	5mm Min

Weights	kg	lb
Packaged Boiler Carton	40.7	89.6
Packaged Flue Kit	3.6	8.0
Weight Empty	38.2	84.1
Installation Lift Weight	31.5	69.3

Recommended System Temperature Drop		
Normal	11°C	20°F
Condensing	20°C	36°F

Electrical Supply	230V~ 50Hz (Appliance must be connected to an earthed supply)
--------------------------	--

Power Consumption	80W
--------------------------	-----

External Fuse Rating	3A
-----------------------------	----

Internal Fuse Rating (BS 4265)	
Fuse (2)	4 AT (Control Board)
Fuse (3)	2 AT (Ignition Board)

Water Content	
litres	2.6
pints	4.6

Static Head	
max	30 metres (100 ft)
min	1 metre (3.25 ft)

Low Head	0.2m (8 in) min
-----------------	-----------------

System Detail
fully pumped open vented & sealed systems

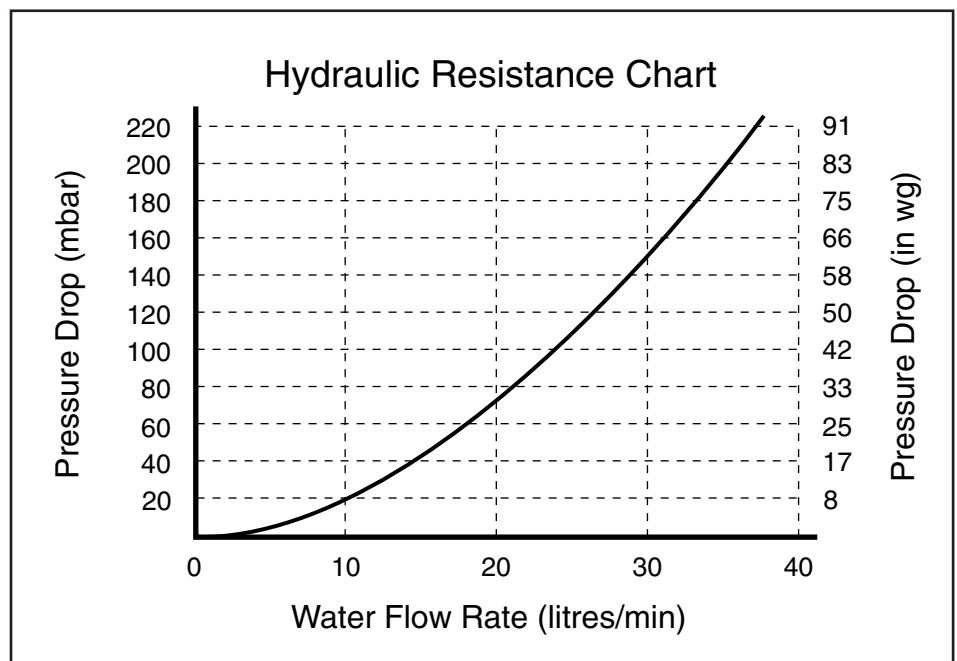
Gas Connection	RC 1/2 (1/2 in BSPT)
-----------------------	----------------------

Controls
installer preset boiler thermostat, safety thermostat, flow switch, electronic flame sensing, temperature protection thermostat & condensate blockage sensor

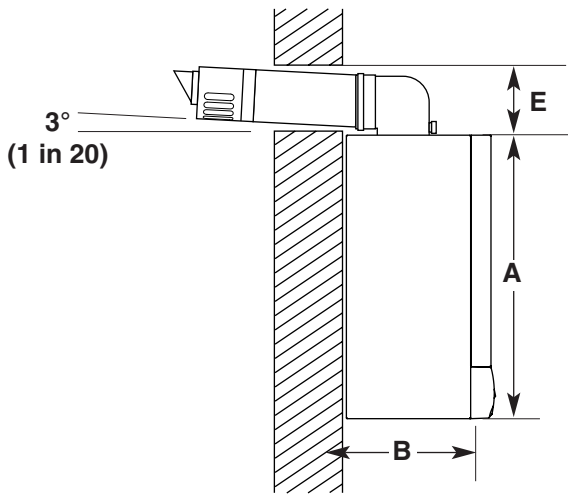
Injector (Natural Gas)	6.3mm Diameter
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**SEDBUK Declaration For
Potterton Promax 15 HE & 24 HE**
The efficiency is
Promax 15 HE - 91.3%
Promax 24 HE - 91.0%

This value is used in the UK Government's Standard Assessment Procedure (SAP) for energy rating of dwellings. The test data from which it has been calculated has been certified by 0086.



5.0 DIMENSIONS AND FIXINGS



DIMENSIONS	
A	600mm
B	320mm
C	390mm
D	125mm Ø Min.
E	150mm
F	125mm

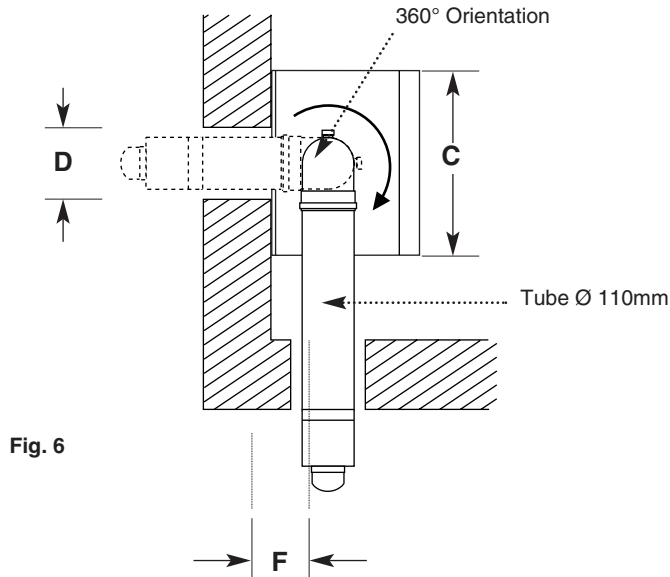


Fig. 6

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

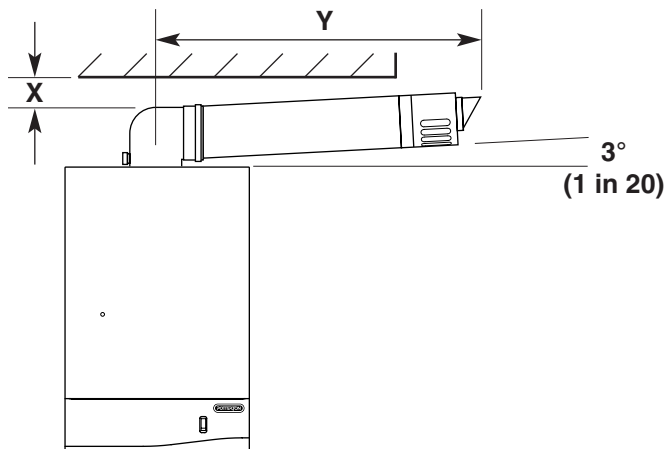


Fig. 7

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

6.0 SYSTEM DETAILS

NOTE: This boiler does not require a bypass.
This boiler does not require a permanent live.
These diagrams only refer to pump protection for fully TRV'd systems.

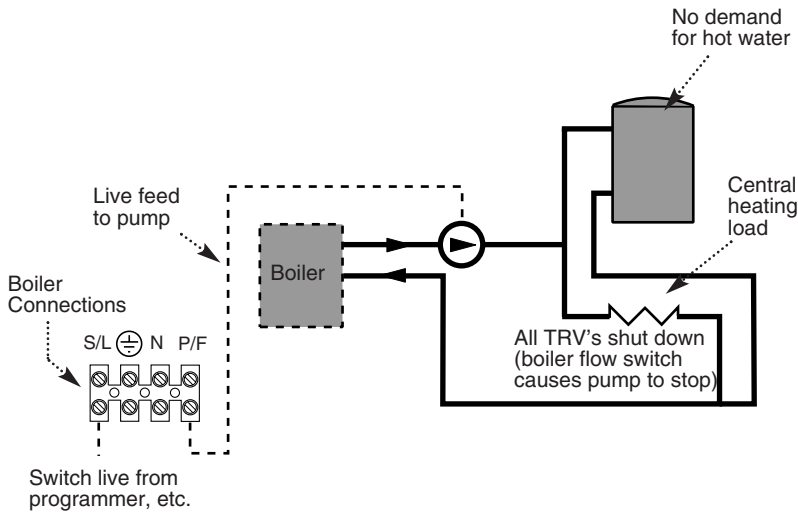


Fig. A Wiring to the pump feed connection of boiler

6.1 Water Circulating Systems

1. The appliance is suitable for use with open vent fully pumped systems and sealed systems .

The following conditions should be observed on all systems:

- The static head must not exceed 30m (100ft) of water.
- The boiler must not be used with a direct cylinder.
- Drain cocks should be fitted to all system low points.
- All gas and water pipes and electrical wiring must be installed in a way which would not restrict the servicing of the boiler.
- Position isolating valves as close to circulating pump as possible.
- It is recommended that the return pipe is fitted with an automatic air vent as close to the boiler as is practical.

NOTE: Full TRV Systems (refer to section 6.4) Where all the radiators are controlled by TRV's then pump protection will be required. This can be done by either of the options opposite (see Fig A & B). **The option shown in Fig. A should only be used on a full TRV system without a bypass. Fig. B shows a system with a bypass that must be capable of allowing a flow of at least 3 l/min.**

6.2 Treatment of Water Circulating Systems

• All recirculatory water systems will be subject to corrosion unless an appropriate water treatment is applied. This means that the efficiency of the system will deteriorate as corrosion sludge accumulates within the system, risking damage to pump and valves, boiler noise and circulation problems.

• When upgrading existing systems that exhibit evidence of sludging, it is advisable to clean the system prior to treatment in order to remove any sludge and reduce the likelihood of these deposits damaging new components.

• When fitting new systems flux will be evident within the system, which can lead to damage of system components.

• All systems must be thoroughly drained and flushed out. The recommended flushing and cleansing agents are Betz-Dearbon Sentinel X300 or X400 and Fernox Superfloc Universal Cleanser which should be used following the flushing agent manufacturer's instructions.

• System additives - corrosion inhibitors and flushing agents/descalers should be suitable for aluminium and comply to BS7593 requirements. The only system additives recommended are Betz-Dearbon Sentinel X100 and Fernox-Copal which should be used following the inhibitor manufacturer's instructions.

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

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

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

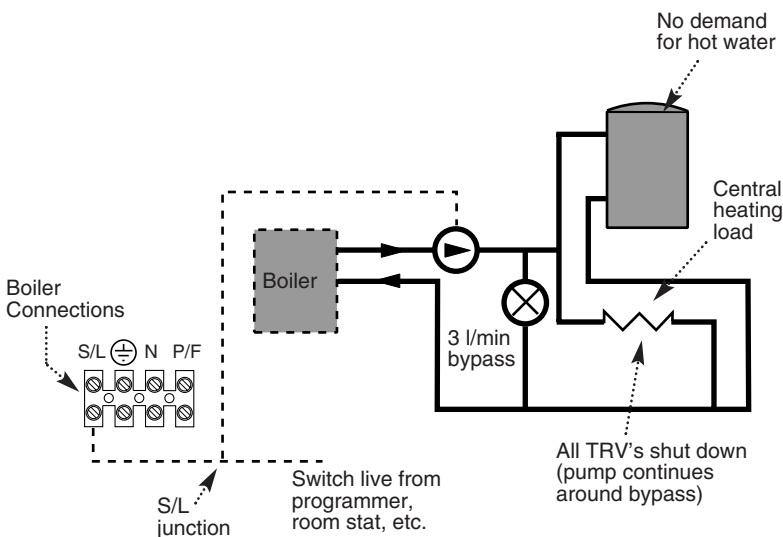


Fig. B Providing a 3 l/min bypass

6.0 SYSTEM DETAILS

6.3 Pipework

1. The sizes of flow and return pipes from the boiler should be determined by normal methods, according to the requirements of the system. The connection to the boiler is 28mm (compression).

2. Due to space requirements within the boiler outercase, pipework should comprise of solder fittings.

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

4. In systems using non-metallic pipework it is necessary to use copper pipe for the boiler Flow and Return. The copper must extend at least 1 metre from the boiler and include any branches (Fig. 7a).

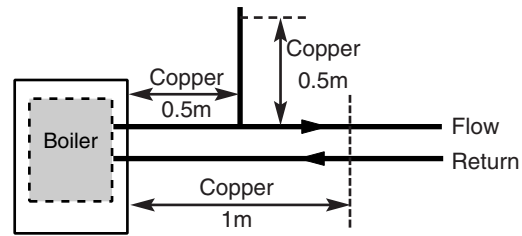


Fig. 7a

6.4 System Controls

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

2. Such a system will comprise of a timer control and separate room or cylinder thermostats as appropriate.

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

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

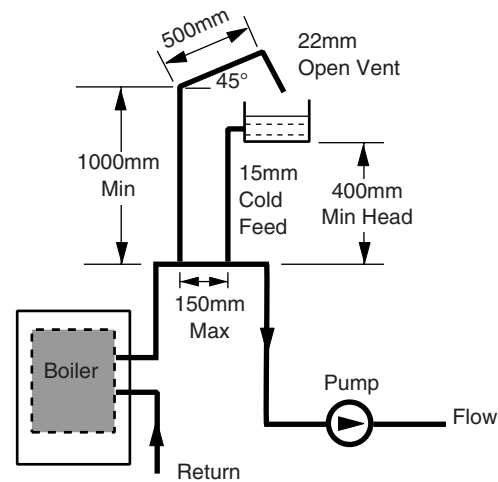


Fig. 8

Typical Low Head Installation

6.5 Low Head Installation

1. Using a close couple arrangement the minimum head is as shown in the diagrams (Figs. 8 & 9) subject to the following conditions:

- The pump being adjusted to give an 20°C drop across the boiler.
- The pump must be fitted on the flow.
- The pump must be fitted in accordance with the pump manufacturer's instructions.
- The open vent pipe must be taken up from a tee in a horizontal section of the flow pipe.

An alternative Low Head Installation (Fig. 10)

2. For heads below 400mm then a combined vent and feed pipe may be connected. This must be a minimum of 22mm diameter. It is recommended that an air separator is fitted when using a combined feed and vent pipe.

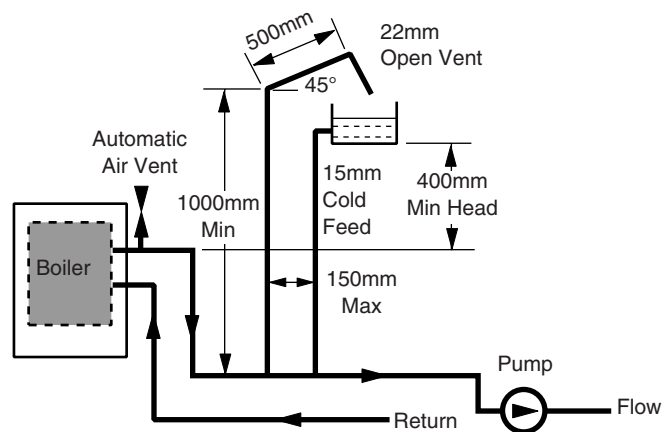


Fig. 9

If Conditions Require, This System Possible

6.6 Thermal Stores

1. The Promax 15 & 24 HE is suitable for fitting with a Thermal Store, for details please contact Technical Enquires (08706 049 049).

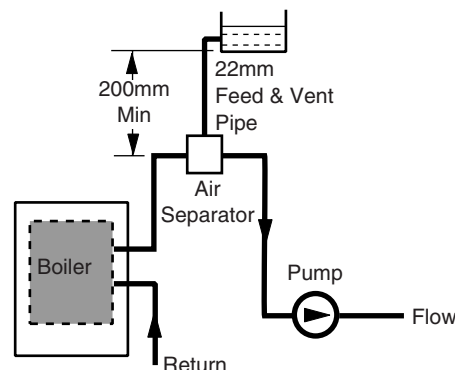


Fig. 10

Alternative Low Head Installation

6.0 SYSTEM DETAILS

6.7 Sealed Systems (Fig. 11)

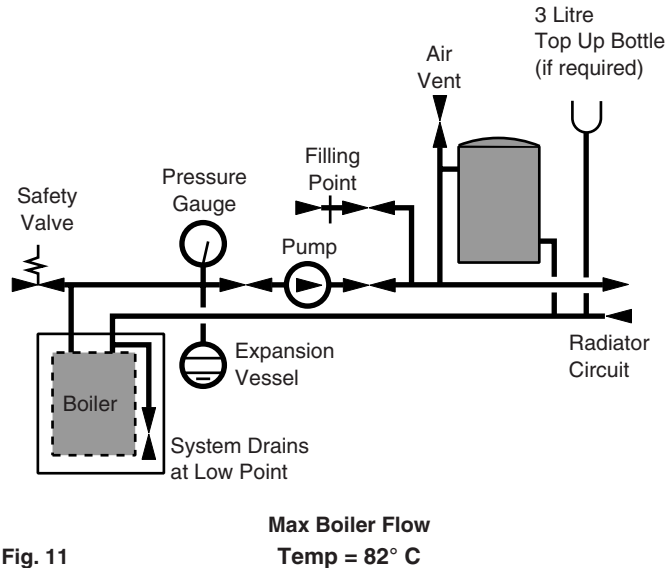


Fig. 11

Method of determining minimum value of expansion vessel volume for sealed systems using Baxi Boilers

Vessel Charge Pressure (Bar)	Initial System Pressure (Bar)	Multiply Total Water Content Of System By (Litres)
0.5	0.5	0.067
	1.0	0.112
	1.5	0.207
	2.0	0.441
1.0	1.0	0.087
	1.5	0.152
	2.0	0.330
1.5	1.5	0.125
	2.0	0.265

Example :- System Volume = 75 litres
 Vessel Charge Pressure = 1.0 bar
 Initial System Pressure = 1.5 bar
 Then :- $75 \times 0.152 = 11.4$ litres
 Expansion Vessel Volume

Table. 1

NOTE

Where a vessel of the calculated size is not obtainable then the next available larger size should be used.

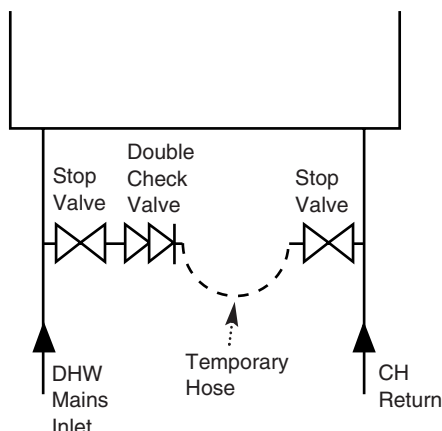


Fig. 11a

1. SAFETY VALVE - A safety valve complying with the requirements of BS 6750 Part 1 must be fitted close to the boiler on the flow pipe by means of a horizontal or vertically upward connection with no intervening valve or restrictions and should be positioned to facilitate testing. The valve should be pre-set and non-adjustable to operate at a pressure of 3 bar (45 lbf/in²). It must be arranged to discharge any water or steam through a pipe to a safe outlet position.

2. PRESSURE GAUGE - A pressure gauge of minimum range 0-4 bar (0-60 lbf/in²) with a fill pressure indicator must be fitted to the system, preferably at the same point as the expansion vessel in an easily visible position.

3. EXPANSION VESSEL - An expansion vessel complying with the requirements of BS 4814 must be fitted to the system by means of a connection close to the inlet side of the circulating pump in accordance with the manufacturers instructions, the connecting pipe being unrestricted and not less than 15mm (1/2 in) nominal size. The volume of the vessel should be suitable for the system water content and the nitrogen or air charge pressure should not be less than the system static head (See Table. 1).

Further details of sealed system design can be obtained from BS 5449 and the British Gas publication entitled 'Specifications for Domestic Wet Central Heating Systems'.

4. FILLING POINT - A filling point connection on the central heating return pipework must be provided to facilitate initial filling and pressurising and also any subsequent water loss replacement / refilling. The sealed primary circuits may be filled or replenished by means of a temporary connection between the primary circuit and a supply pipe provided a 'Listed' double check valve or some other no less effective backflow prevention device is permanently connected at the inlet to the circuit and the temporary connection is removed after use. The filling method adopted must be in accordance with all relevant water supply regulations and use approved equipment. Your attention is drawn to, for GB: Guidance G24.2 and recommendation R24.2 of the Water Regulations Guide. for IE: the current edition of I.S. 813 "Domestic Gas Installations".

5. MAKE UP SYSTEM - A method of replacing water lost from the system should be provided either by means of a make up vessel of not more than 3 litres (5 pints) capacity, mounted above the highest point of the system, or by re-pressurisation of the system.

6. VENTING - A method of venting the system during filling and commissioning must be provided by fitting automatic air vents or by venting manually.

7. HOT WATER STORAGE - The hot water storage vessel must be of the indirect coil type. All components used in the system must be suitable for operation at 110°C (230°F) and at the pressure allowed by the safety valve.

7.0 SITE REQUIREMENTS

7.1 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 7.2).

2. If the boiler is sited in an unheated enclosure then it is recommended to incorporate an appropriate device for frost protection in the system controls.

3. If the boiler is fitted in a room containing a bath or shower, it can only be fitted in zone 3, (Figs. A & B shows zone dimensions for a bathtub. For other examples refer to Section 601 of the Current I.E.E. Wiring Regulations) reference must be made to the relevant requirements.

In GB this is the current I.E.E. Wiring Regulations and Building Regulations.

In IE reference should be made to the current edition of I.S. 813 "Domestic Gas Installations" and the current ETCI rules.

4. If the boiler is to be fitted into a building of timber frame construction then reference must be made to the current edition of Institute of Gas Engineers Publication IGE/UP/7 (Gas Installations in Timber Framed Housing).

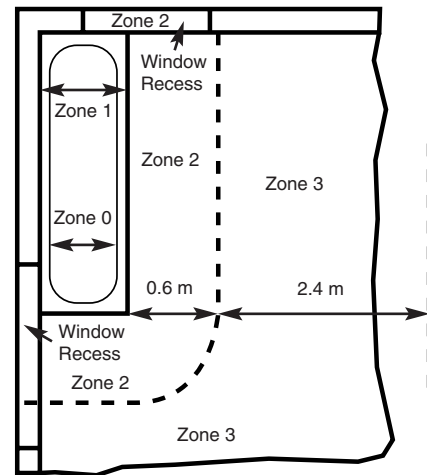


Fig. A In GB Only

7.2 Ventilation of Compartments

1. Where the boiler is installed in a cupboard or compartment, no air vents are required for cooling purposes providing that the minimum dimensions below are maintained.

Sides	15mm
Top	200mm
Bottom	130mm
Front	30mm

2. If the boiler is installed in a smaller cupboard or compartment it must be ventilated according to BS 5440 Part 2 and the minimum clearances given in section 4.0 "Technical Data" maintained.

3. Any compartment should be large enough to house the boiler only.

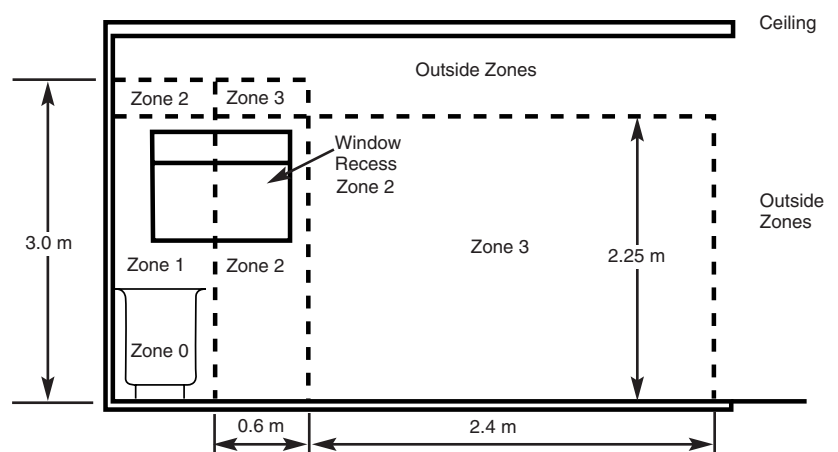


Fig. B In GB Only

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.

7.0 SITE REQUIREMENTS

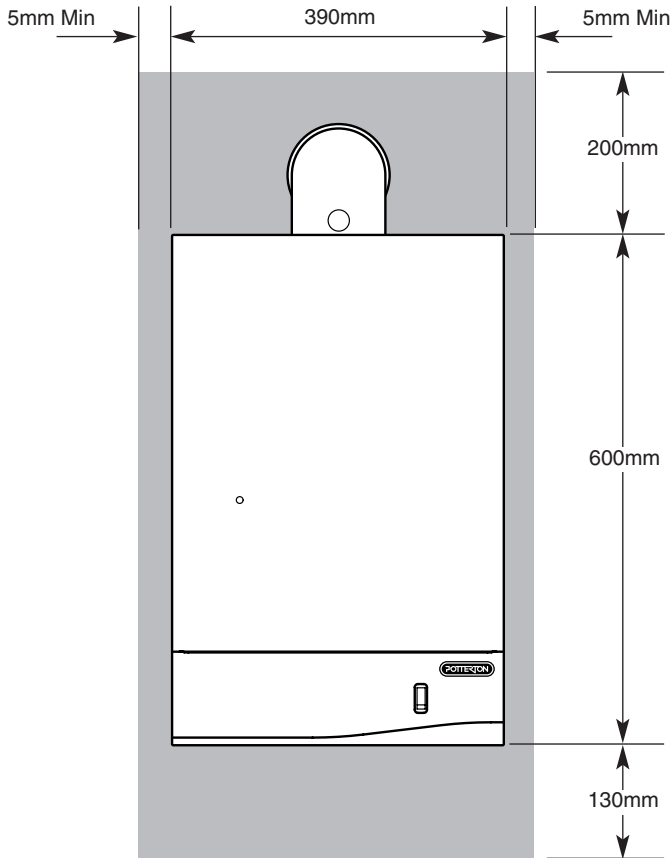


Fig. 12

7.3 Clearances (Figs. 12 & 13)

1. A flat vertical area is required for the installation of the boiler.
2. These dimensions include the necessary clearances around the boiler for case removal, spanner access and air movement. Additional clearances may be required for the passage of pipes around local obstructions such as joists running parallel to the front face of the boiler.
3. For unventilated compartments see Section 7.2.

7.4 Gas Supply

1. The gas installation should be in accordance with the relevant standards. In GB this is BS 6891. In IE this is the current edition of I.S. 813 "Domestic Gas Installations".
2. The connection to the appliance is a 1/2in BSPT internal threaded connection located at the rear of the gas service cock.
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.

7.5 Electrical Supply

1. External wiring must be correctly earthed, polarised and in accordance with relevant regulations/rules. In GB this is the current I.E.E. Wiring Regulations. In IE reference should be made to the current edition of ETCl rules.
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.

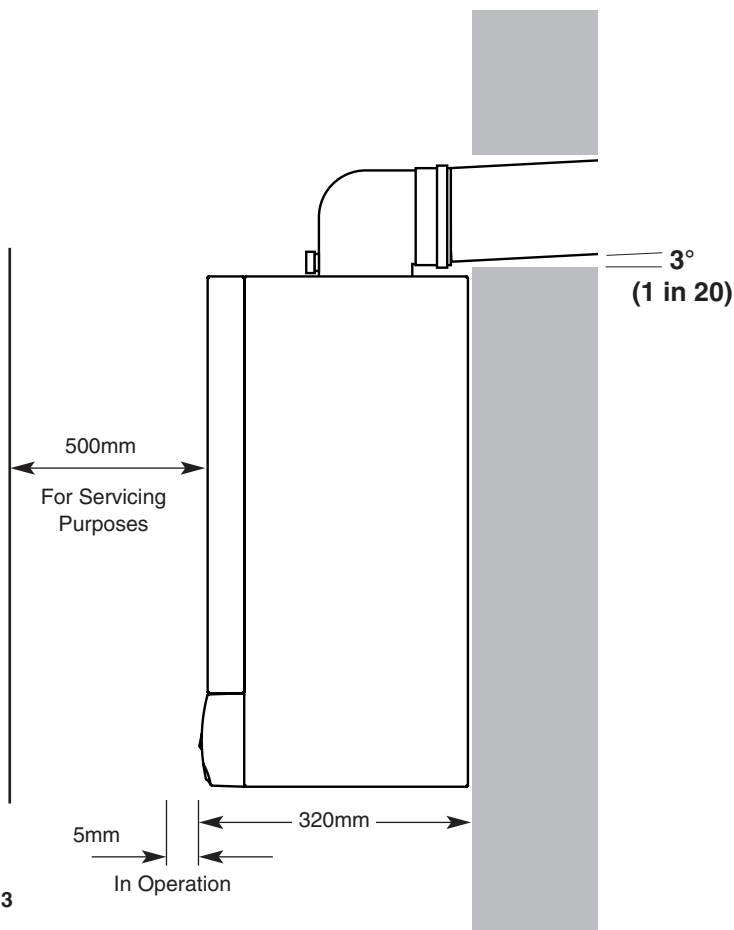


Fig. 13

7.0 SITE REQUIREMENTS

7.6 Condensate Drain

FAILURE TO INSTALL THE CONDENSATE DISCHARGE PIPEWORK CORRECTLY WILL AFFECT THE RELIABLE OPERATION OF THE BOILER

The condensate discharge pipe **MUST NOT RISE** at any point along its length. There **MUST** be a fall of **AT LEAST 2.5° (50mm per metre)** along the entire run.

NOTE: It is unnecessary to fit an air break in the discharge pipe.

1. The condensate outlet terminates in a 1" BSP nut and seal for the connection of 21.5mm (3/4in) plastic overflow pipe which should generally discharge internally into the household drainage system. If this is not possible, discharge into an outside drain is acceptable.

2. Ensure the discharge of condensate complies with any national or local regulations in force.

BS 6798:2000 & Part H1 of the Building Regulations give further guidance.

3. The discharge pipe should be run in a proprietary drain pipe material e.g. PVC, PVC-U, ABS, PVC-C or PP.

4. Metal pipework is **NOT** suitable for use in condensate discharge systems.

5. The pipe should be a minimum of 21.5mm diameter and must be supported using suitably spaced clips to prevent sagging.

6. Any pipe fitted externally must be kept as short as possible to minimise the potential of freezing.

7. Any condensate discharge pipework external to the building (or in an unheated part of it e.g. garage) must be insulated to protect against frost. It is also recommended that the pipe diameter is increased to 32mm.

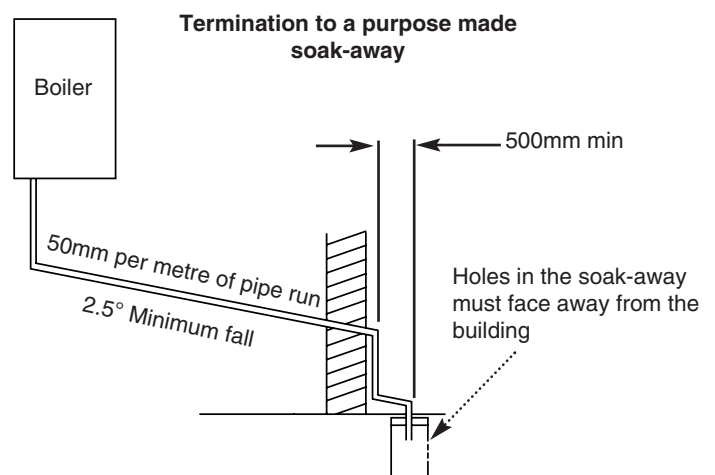
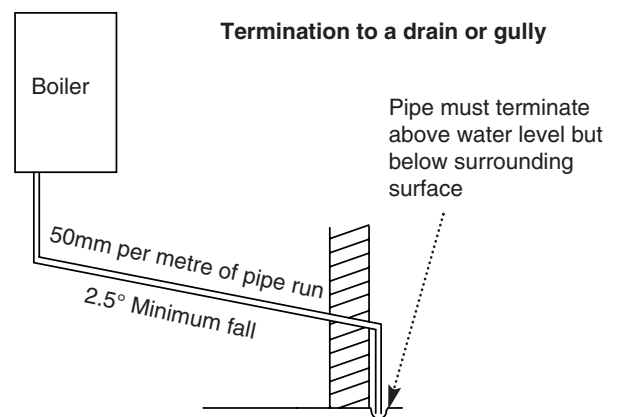
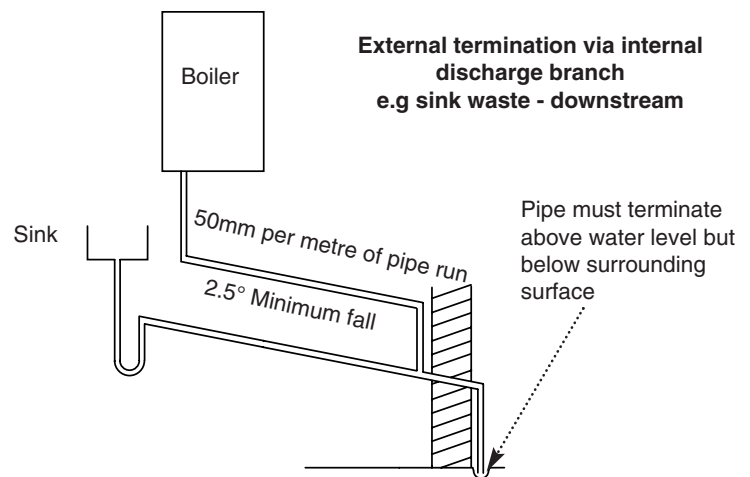
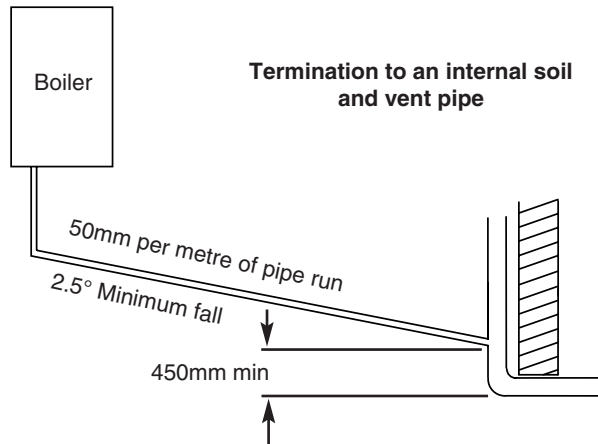
8. If the boiler is fitted in an unheated location the entire condensate discharge pipe should be treated as an external run.

9. In all cases discharge pipe must be installed to aid disposal of the condensate. To reduce the risk of condensate being trapped, as few bends and fittings as possible should be used.

10. When discharging condensate into a soil stack or waste pipe the effects of existing plumbing must be considered. If soil pipes or waste pipes are subjected to internal pressure fluctuations when WC's are flushed or sinks emptied then back-pressure may force water out of the boiler trap and cause appliance lockout.

Examples are shown of the following methods of termination:-

- i) to an internal soil & vent pipe
- ii) via an internal discharge branch (e.g. sink waste)
- iii) to a drain or gully
- iv) to a purpose made soakaway



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

A ^a	Directly below an opening, air brick, opening windows, etc.	300
B ^a	Above an opening, air brick, opening window etc.	300
C ^a	Horizontally to an opening, air brick, opening window etc.	300
D	Below gutters, soil pipes or drain pipes.	25
E	Below eaves.	25
F	Below balconies or car port roof.	25
G	From a vertical drain pipe or soil pipe.	25
H	From an internal (i) or external (ii) corner.	(i) 25 (ii) 115
I	Above ground, roof or balcony level.	300
J	From a surface or boundary line facing a terminal.	600
K	From a terminal facing a terminal (Horizontal flue).	1200
	From a terminal facing a terminal (Vertical flue).	600
L	From an opening in carport (e.g. door, window) into the dwelling.	1200
M	Vertically from a terminal on the same wall.	1500
N	Horizontally from a terminal on the same wall.	300
R	From adjacent wall to flue (vertical only).	300
S	From an adjacent opening window (vertical only).	1000

Table 2

- ^a In addition, the terminal should be no nearer than 150 mm to an opening in the building fabric formed for the purpose of accommodating a built-in element such as a window frame. See BS 5440 Pt. 1.

NOTE: The distance from a fanned draught appliance terminal installed parallel to a boundary may not be less than 300mm in accordance with the diagram below

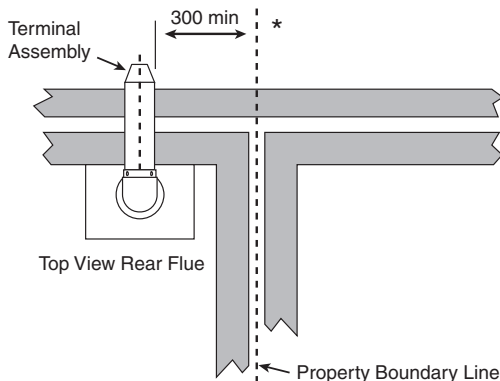


Fig. 16

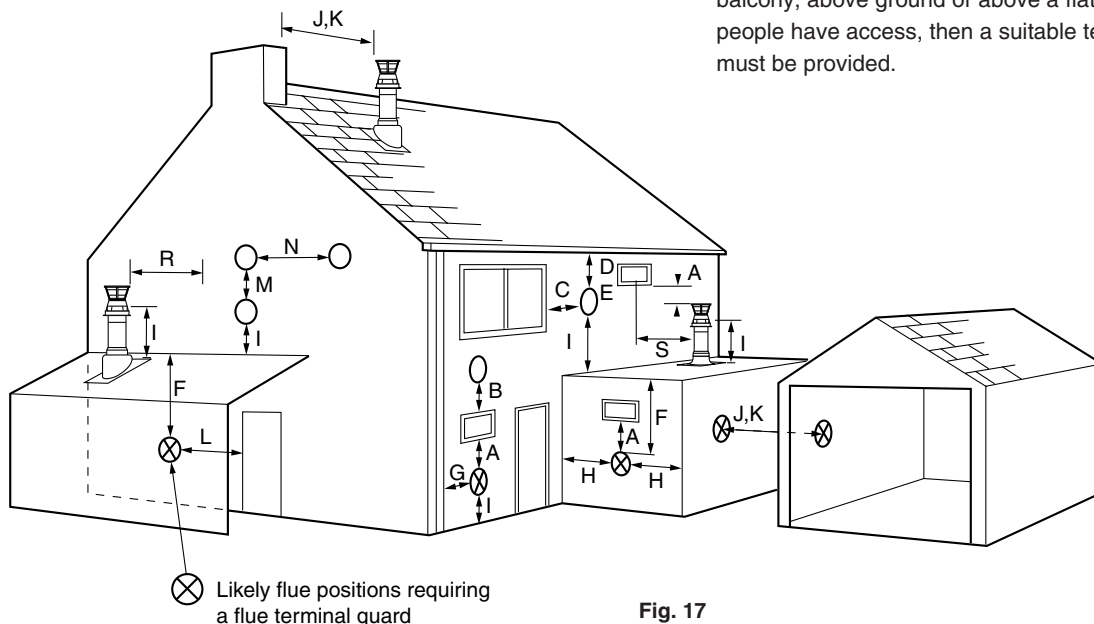


Fig. 17

7.0 SITE REQUIREMENTS

7.7 Flue

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

- The following guidelines indicate the general requirements for siting balanced flue terminals. For GB recommendations are given in BS 5440 Pt.1. For IE recommendations are given in the current edition of I.S. 813 "Domestic Gas Installations".
- 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.
- Take into consideration the effect the plume of vapour may have on neighbours when siting the flue.
- Adjacent surfaces close to the flue terminal may need protection from the effects of condensation. Alternatively a flue deflector kit (part no. 248167) is available.
- For installation of the flue into an internal corner at the 25mm dimension the flue deflector kit (part no. 248167) must be fitted.
- * Reduction to the boundary is possible down to 25mm but the flue deflector kit (part no. 248167) must be fitted.
- If required a suitable terminal guard is available from Potterton for use with the flue deflector.
- For fitting under low soffits and eaves it is acceptable for the flue to project up to 500mm from the face of the wall to the inside of the air intake. This can be painted if required using a suitable external paint.
- If a terminal is less than 2 metres (78³/₄ in) above a balcony, above ground or above a flat roof to which people have access, then a suitable terminal guard must be provided.

7.0 SITE REQUIREMENTS



7.8 Flue Dimensions

See Section 2.2. The standard horizontal flue kit allows for flue lengths between 270mm (10^{5/8}"") and 800mm (32"") from elbow to terminal (Fig. 18).

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

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

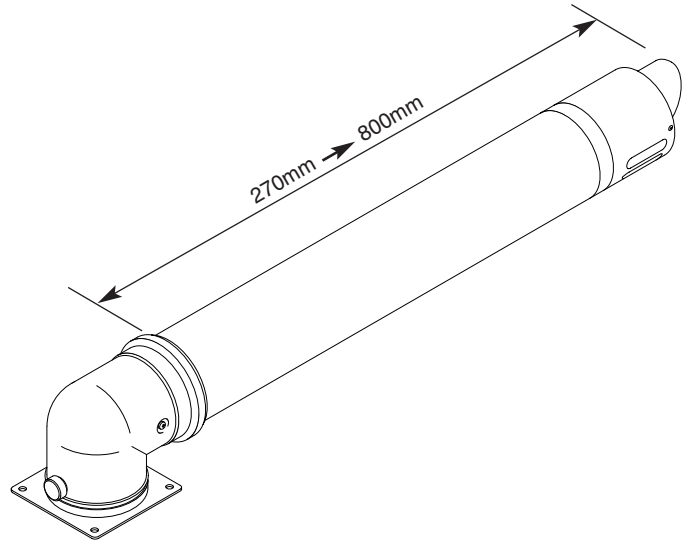


Fig. 18

7.9 Terminal Guard (Fig. 19)

1. When codes of practice dictate the use of terminal guards, they can be obtained from most Plumbers' and Builders' Merchants.

2. There must be a clearance of at least 50mm between any part of the terminal and the guard.

3. When ordering a terminal guard, quote the appliance name and model number.

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

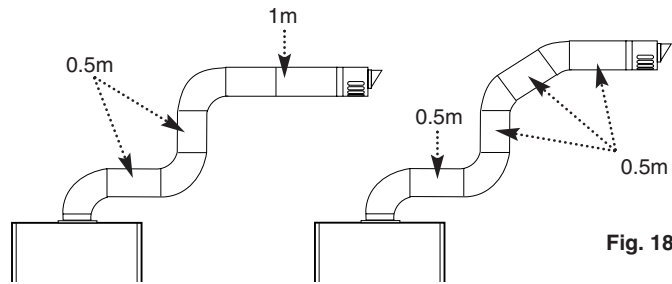


Fig. 18a

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

7.10 Vertical Flue

1. Only a flue approved with the Potterton Promax 15 HE & 24 HE can be used.

2. For information on vertical flues consult the Potterton Flue Guide Brochure or Guidance Notes supplied with the vertical flue pack.

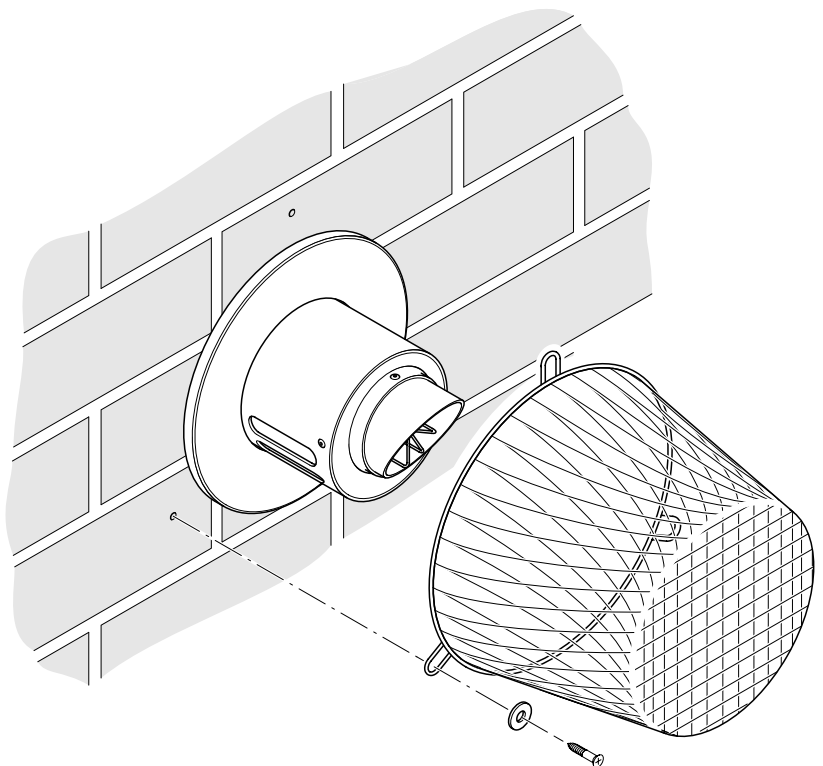


Fig. 19

7.0 SITE REQUIREMENTS

7.11 Flue options

Concentric

The maximum equivalent lengths are 4m (horizontal) or (vertical). These lengths exclude the standard elbow and flue/terminal assembly (horizontal) and terminal assembly (vertical).

Twin Flue

The total maximum equivalent flue length is 150m.

NOTE: Each 1m of flue duct should be calculated as 2m.

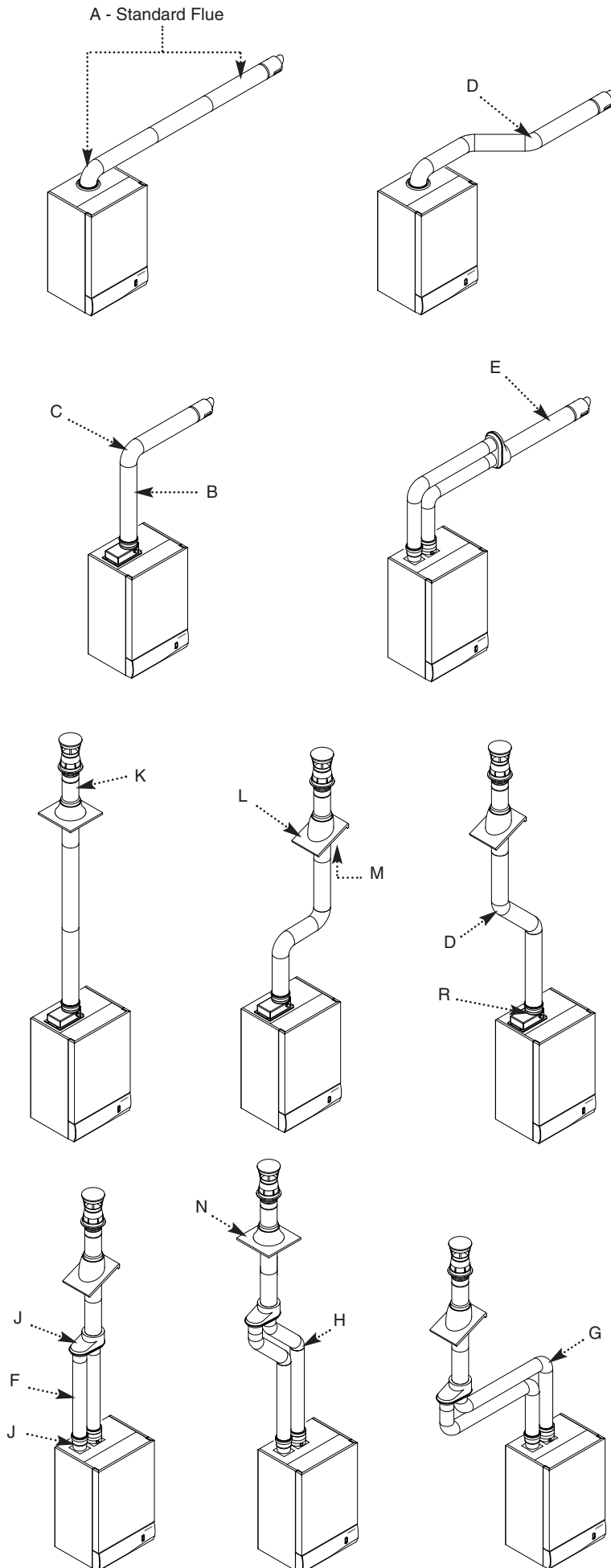
Any additional "in line" bends in the flue system must be taken into consideration. Their equivalent lengths are:

Concentric Pipes:	45° bend	0.5 m
	93° bend	1.0 m

Twin Flue Pipe:	45° bend (air duct)	1.3 m
	45° bend (flue duct)	2.6 m
	90° bend (air duct)	4.8 m
	90° bend (flue duct)	9.6 m

Detailed examples of equivalent flue length calculation are given in the Installation Guidance Notes for each flue system type.

(Documents 243501 and 243502 for concentric and twin pipe respectively).



Key	Accessory	Size	Baxi Code Number
Concentric Flue System 110mm diameter			
A	Horizontal flue kit	850mm	236921
B	Straight extension kit	1000mm	241695
		500mm	241694
		250mm	241692
C	Bend kit	93°	241687
D	Bend kit (pair)	45°	241689
E	Horizontal flue terminal		243013BAX
	Clamp	110mm	243014BAX
Twin Flue System 80mm diameter			
F	Straight extension kit	1000mm	238690
		500mm	238692
		250mm	238694
G	Bend kit	90°	246139
H	Bend kit (pair)	45°	246138
Universal Vertical Flue Kits			
J	Twin flue adaptor kit		242757
K	Vertical flue terminal		242802
L	Universal roof tile	25°/50°	243015
M	Roof cover plate kit		243131
N	Flat roof flashing		243016BAX
R	Boiler vertical flue adaptor		5106888
	Clamp	80mm	238684

8.0 INSTALLATION



Check Site Requirements (section 7.0) before commencing.

8.1 Initial Preparation

The gas supply, gas type and pressure must be checked for suitability before connection (see Section 7.4).

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

1. Remove the fixing template (Fig. 20) from the carton.
2. After considering the site requirements (see Section 7.0) position the template on the wall ensuring it is level both horizontally and vertically.
3. Mark the position of the centre hole for the wall plate (Fig. 20).

4. Mark the centre of the flue hole (rear exit).

For side exit: project the horizontal side flue center line into the corner of the room and along the wall to where the flue hole will be drilled (Fig. 20).

The diagram (Fig. 21) shows the dimensions required to ensure any horizontal flue is installed with the correct fall to the boiler. Mark the offset (V) dimension and if required, mark the position of the gas and water pipes. Remove the template.

5. Cut the hole for the flue (minimum diameter 125mm, see table for wall thicknesses and flue diameters).

6. Drill and plug the wall as previously marked. Secure the wall plate using the centre hole.

7. Ensuring the wall plate is level both horizontally and vertically, drill and plug at least 4 securing positions at the top and bottom through the wall plate. Utilising the slots available ensure the wall plate is square and secure to the wall (Fig. 22).

8. Loosely route the condensate discharge pipe to the lower left hand side of the wall plate.

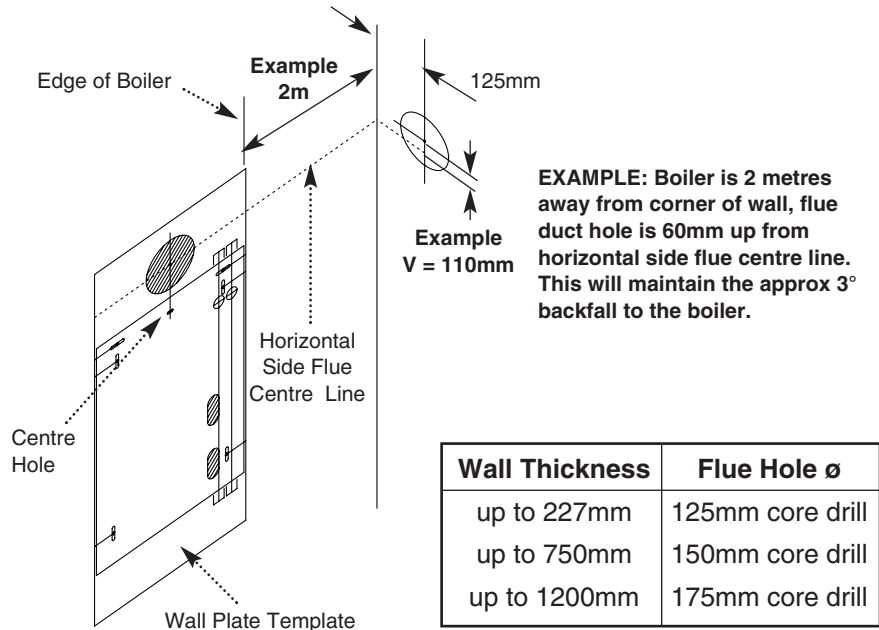
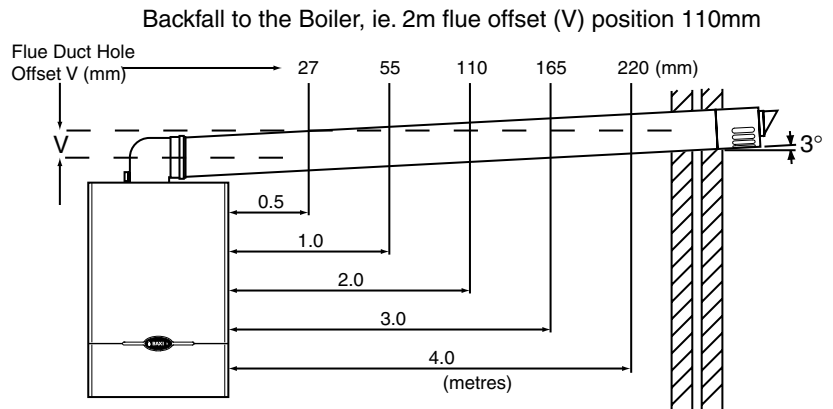


Fig. 20



Distance in metres from boiler to the wall.
For pipe lengths greater than 4m increase the off-set by 52mm for every additional metre to maintain approx 3° inclination.

Fig. 21

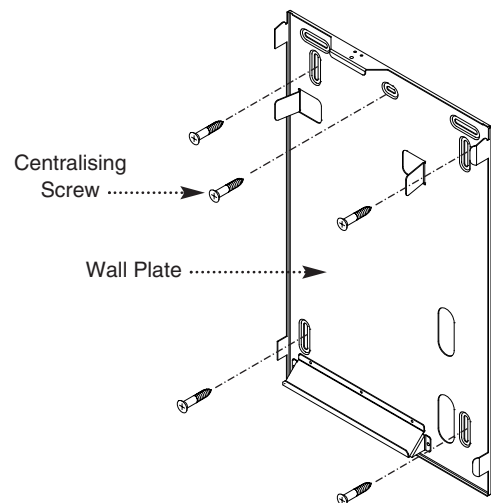


Fig. 22

8.0 INSTALLATION

8.2 Preparing The Boiler

1. Remove the outer carton.
2. Remove the internal packaging.
3. Lift the outercase upwards and remove (Fig. 23).

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

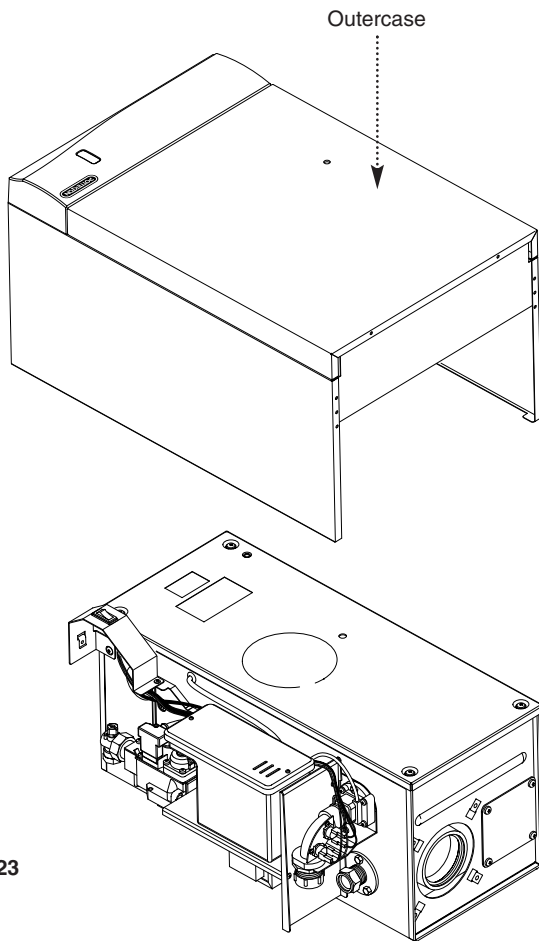


Fig. 23

8.0 INSTALLATION

POTTERTON

8.3 Fitting The Boiler (Fig. 24)

1. Remove the screw and retaining bracket from the wall plate spring clip.
2. Offer up the boiler to the wall plate using the lifting points shown in Fig. 24 and locate the rear bottom edge onto the self locating support at the base of the wall plate (See **Lifting** paragraph page 4).

NOTE: When installing in Loft/Small Compartment access for lifting the boiler from the front can be gained for two people using the lifting points (Fig. 24).

3. Rotate the boiler and engage into temporary spring retaining latch.

4. Ensure the boiler is secured with the retaining bracket and screw previously removed, immediately.

5. Remove thread protection caps from the FLOW and RETURN connections.

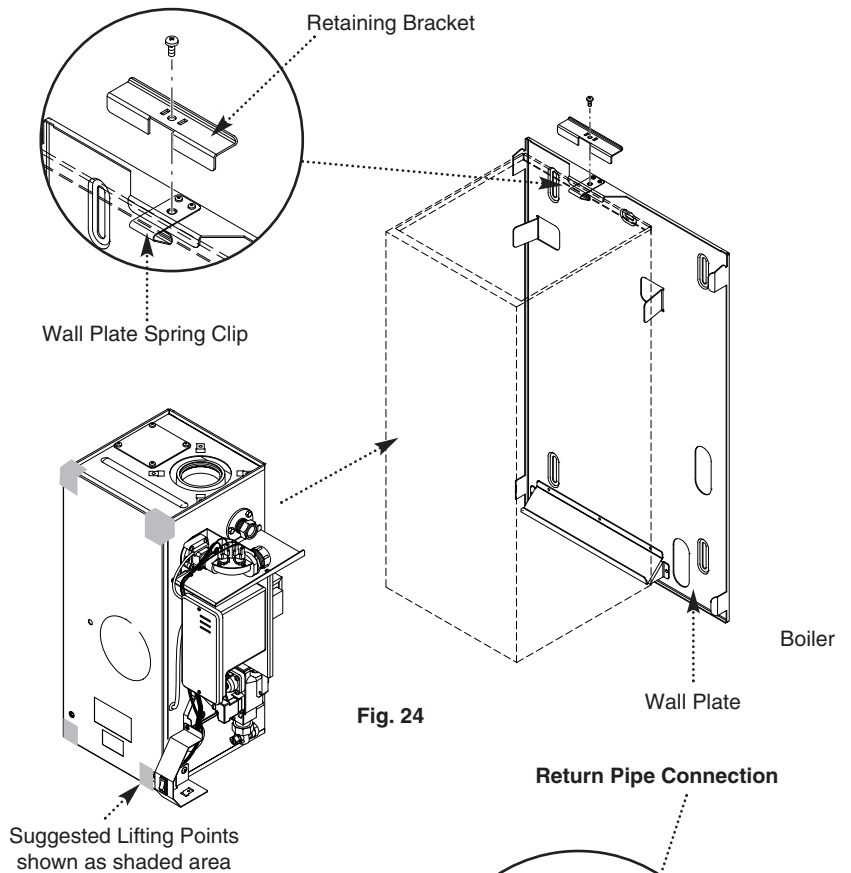


Fig. 24

8.4 Making the Water Connections (Fig. 25)

1. The boiler has two side water connections, the front connection being FLOW and the rear connection being RETURN.

2. It is essential that Flow and Return pipes are connected to the correct fittings. The flow connection incorporates the boiler thermostats and a flow switch. To avoid damage to the flow switch when tightening the flow connection the use of two spanners is recommended.

3. A copper elbow, compression nut and olive are provided in the kit for the return connection.

NOTE: Drain cocks should be fitted to all system's low points and vents to all high points.

4. Ensure that any pipework is routed so as to leave the boiler via the spaces at the rear of the outer case, either at the top or at the bottom. **Pipework within the confines of the outercase should consist of solder fittings.**

NOTE: It is important that the pipework does not interfere with the correct fitting of the outer case and a space of 14mm clearance must be left between any vertical pipes and the outer edge of the wall plate.

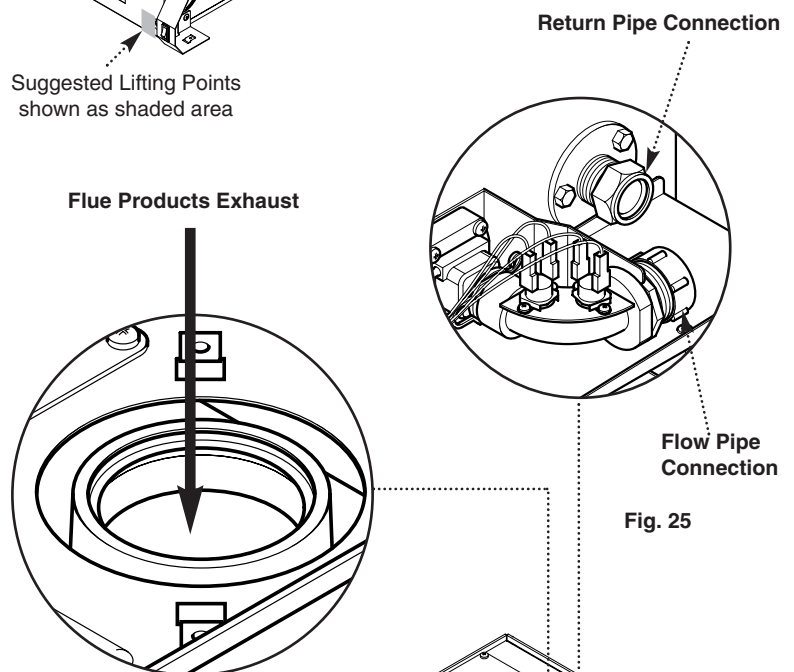
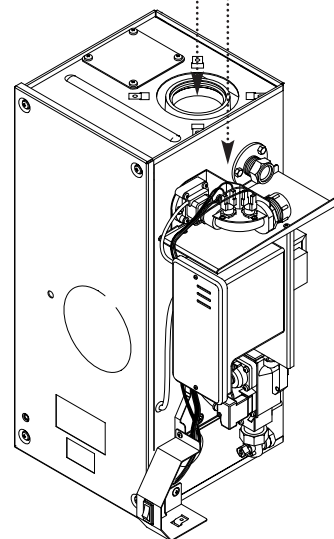


Fig. 25a

8.5 Making the Condensate Drain Connection

1. Connect the condensate drain using the 1" BSP nut and seal supplied. (see section 7.6).

NOTE: To ensure the correct operation and integrity of the condensate drainage system - Carefully pour approximately 1 cupful (250ml) of water into the flue products exhaust, at the top of the heat exchanger (Fig. 25a) to ensure a seal is made in the trap.



8.0 INSTALLATION

8.6 Making the Gas Connection

1. Connect the gas supply to the RC $\frac{1}{2}$ ($\frac{1}{2}$ in BSPT internal) gas tap located on the lower right side of the boiler.

8.7 Fitting The Flue

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

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

HORIZONTAL FLUE

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

Rear Flue: maximum wall thickness - 630mm
Side Flue: maximum wall thickness - 565mm (left or right)

2. **For rear exit** - measure the wall thickness (Fig. 26) and to this dimension add 210mm. This dimension to be known as (X).

i.e.

$$(X) = \text{wall thickness} + 210$$

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

Check your dimensions.

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

4. **For side exit** - measure the distance from the edge of the wall plate to the inner face of the wall (Fig. 26) and to this dimension add the wall thickness + 250mm. This dimension to be known as (Z).

i.e.

$$(Z) = \text{wall plate to wall} + \text{wall thickness} + 250$$

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

Check your dimensions.

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

IMPORTANT: Check all measurements before cutting.

NOTE: When cutting ensure the cut does not interfere with the inner flue support bracket (Fig. 27a).

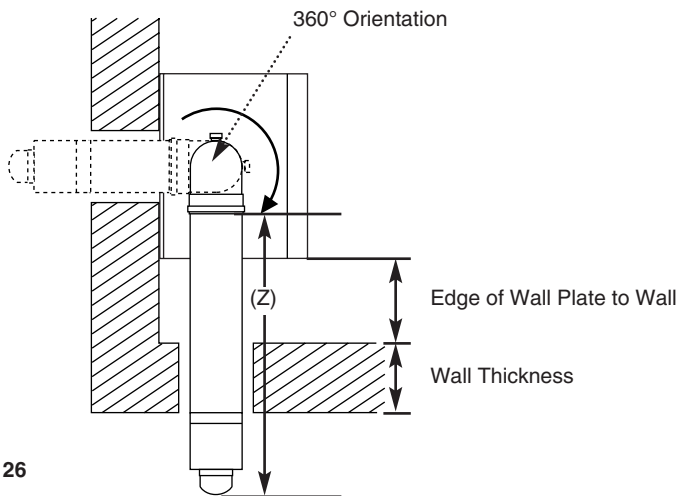
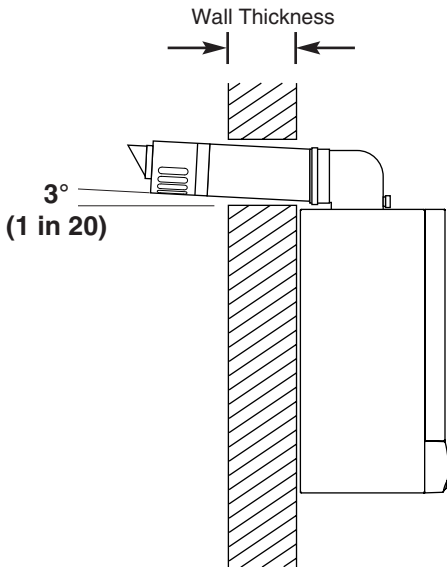


Fig. 26

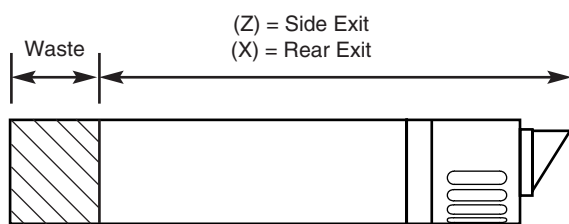


Fig. 27

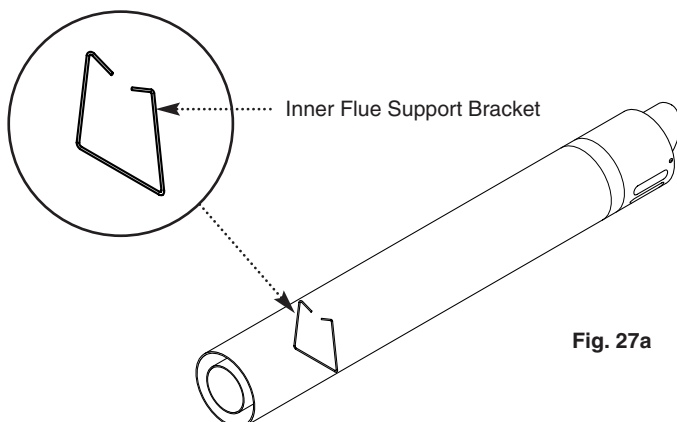


Fig. 27a

8.0 INSTALLATION

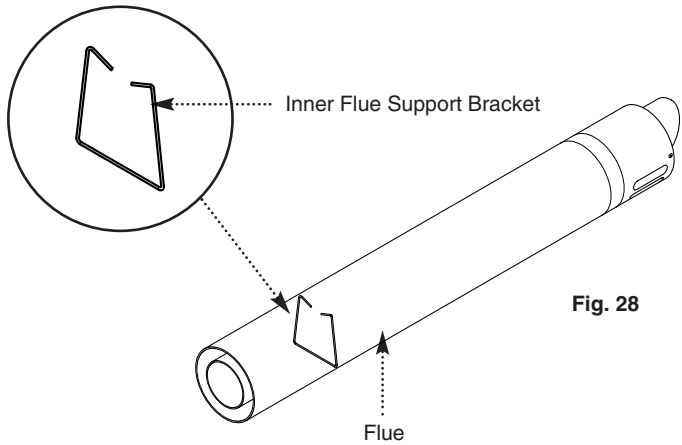


Fig. 28

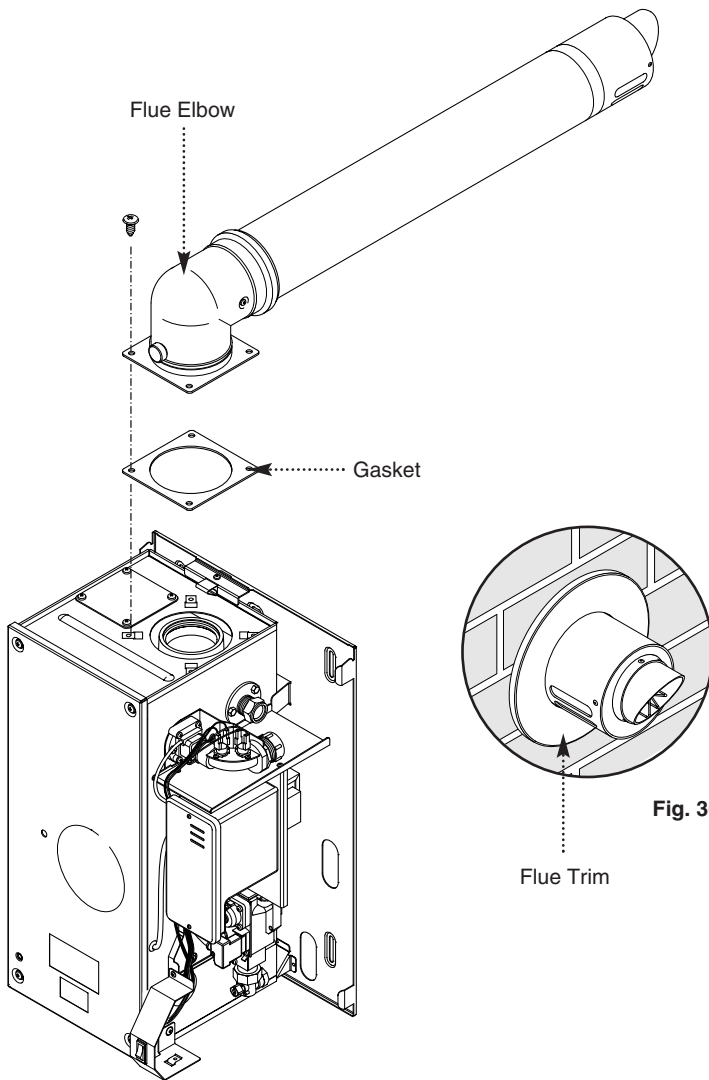


Fig. 29

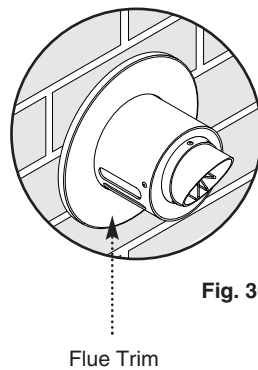


Fig. 30

8.7 Fitting the Flue (Cont)

6. Ensure the inner flue support bracket is positioned in the flue (Fig. 28).

7. Engage the flue into the flue elbow using soap solution to ease the engagement ensuring the flue is assembled as shown (Fig. 29).

8. Place the gasket over the flue exit on the boiler.

9. Slide the flue assembly through the hole in the wall.

10. Engage the elbow on to the flue connection on top of the boiler. Secure with the four screws supplied in the kit.

11. Make good between the wall and air duct outside the building ensuring the 3° drop between the terminal and elbow.

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

13. If necessary fit a terminal guard (see Section 7.9).

VERTICAL FLUEING

1. Only flues approved with the Potterton Promax 15 HE & 24 HE can be used.

8.0 INSTALLATION

8.8 Making The Electrical Connections

WARNING: This appliance must be earthed

1. The electrical connections are on the right hand side of the unit inside the electrical box.

2. Undo the two screws securing the electrical box cover and remove the cover (Fig. 31).

3. Undo the two screws securing the SL, \oplus , N, PF cable clamp and place to one side (Fig. 32).

4. The boiler is factory set to give a flow temperature set point of 82°C. The Control PCB jumper positions are as follows:

Promax 15 HE	J1 Out	J2 In	J3 In
Promax 24 HE	J1 In	J2 In	J3 In

This will ensure that the desired room temperature and domestic hot water temperature will be achieved but will not give the most energy efficient operation of the boiler. If the desired room temperature and domestic hot water temperature will still be achieved with a 63° C flow temperature, this will give the most energy efficient operation of the boiler and the boiler can be adjusted as follows:

- Draw the control PCB forwards out of the electrical box (the control PCB is the right hand board).
- Remove jumper n° 3.
- Replace the PCB and continue with the installation.

5. Route the incoming electrical cable/s through the grommet in the support bracket. This will prevent damage to the cable (Fig. 31a).

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

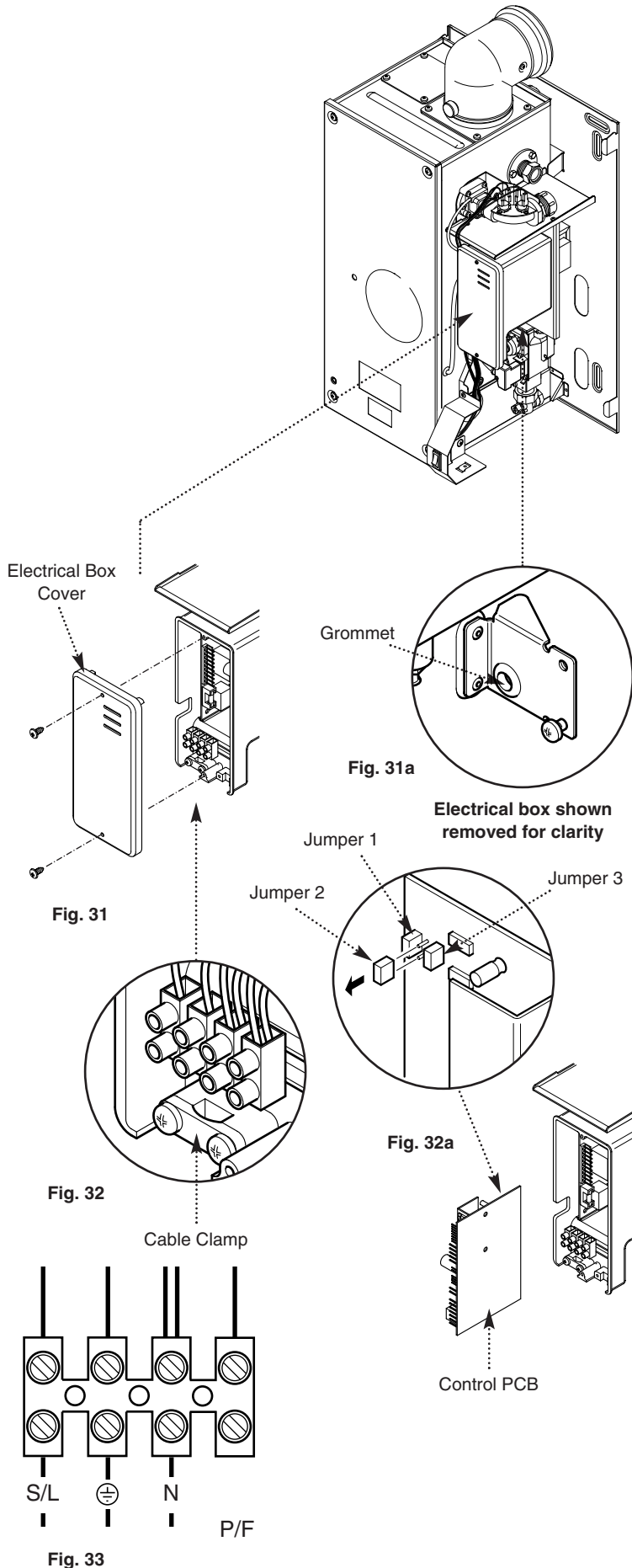
7. Connect the (S/L), (N) and (\oplus) wires to the 4-way terminal block and refit the cable clamp (Fig. 33).

8. The pump can be wired directly to the system controls or to the P/F connector on the boiler. For full TRV installation refer to section 6.1.

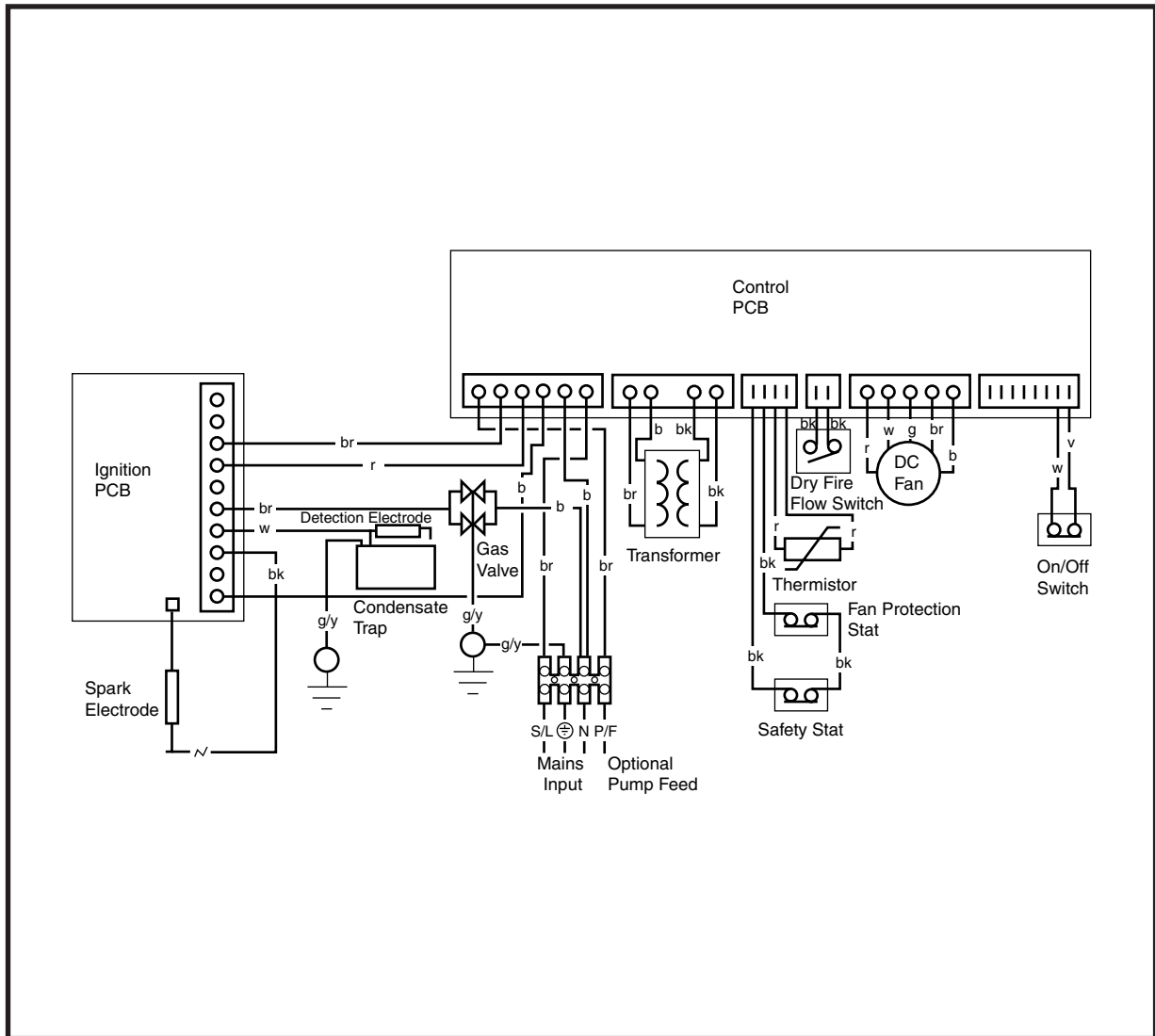
9. The P/F connection should only be used on a full TRV system without a bypass.

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

11. Replace the electrical box cover and secure.



9.1 Schematic Wiring Diagram

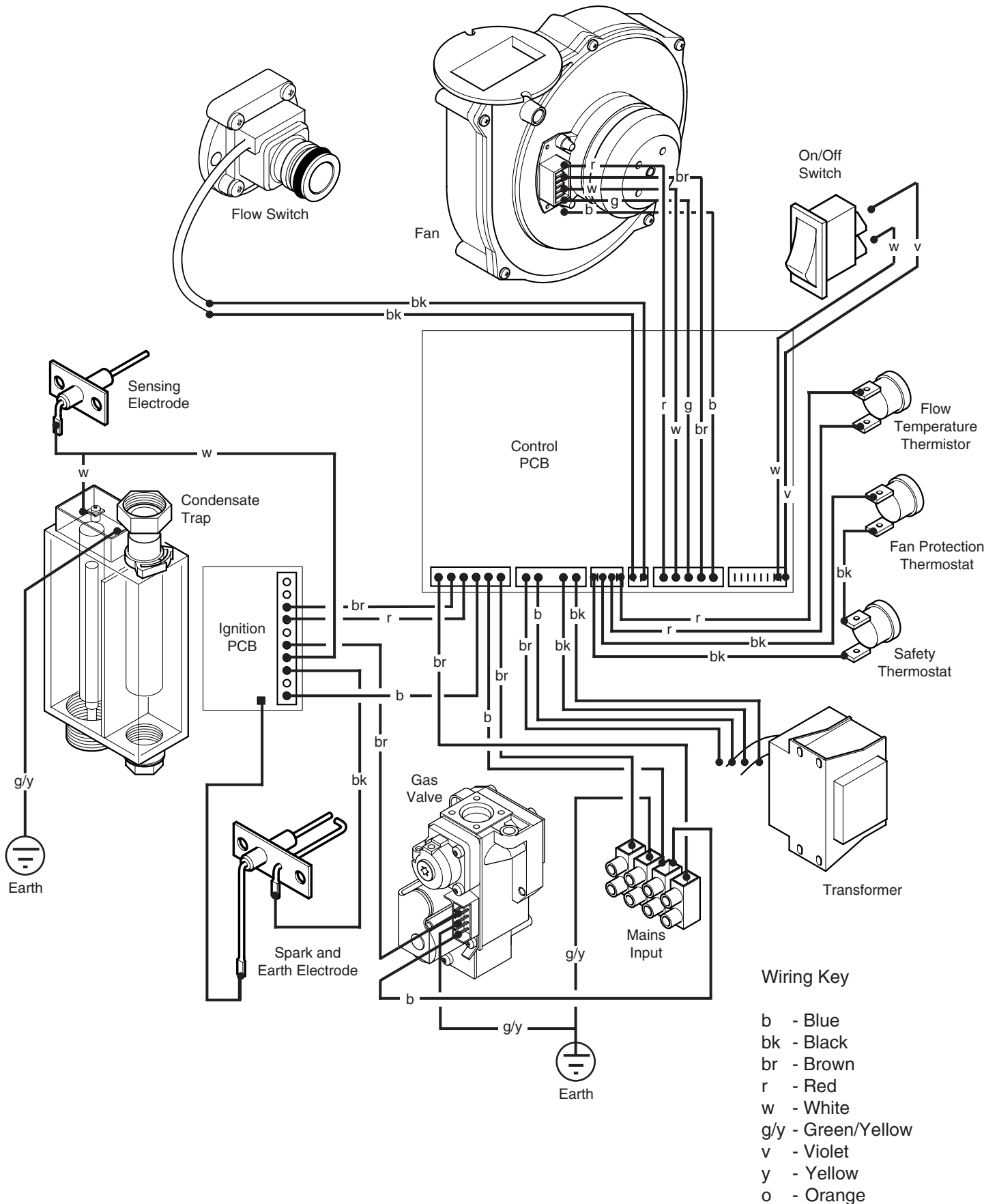


Key To Wiring Colours

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

9.0 ELECTRICAL

9.2 Illustrated Wiring Diagram



10.0 COMMISSIONING

10.1 Commissioning the Boiler

1. Reference should be made to BS 5449 Section 5 when commissioning the boiler.
2. Flush the whole system using a suitable flushing agent (see Section 6.2) and vent the radiators. Check for water leaks.
3. Refill the system with inhibitor following the inhibitor manufacturer's instructions and BS 7593 Code of Practice for Treatment of Water in Domestic Hot Water Central Heating Systems (see Section 6.2).
4. Turn the gas supply on and purge according to in GB BS 6891 and in IE I.S. 813 "Domestic Gas Installations".
5. Turn the gas service cock anticlockwise to the ON position and check for gas soundness up to the gas valve (Fig. 34).
6. Switch on the on/off switch (Fig. 35) and run the system and check the boiler for correct operation.

NOTE: The boiler is self-regulating dependent upon the system load. The 15 HE will modulate between inputs of 16.88kW and 10.2kW. The 24 HE will modulate between inputs of 24.5kW and 10.2kW. **No adjustment of the gas valve is permissible.**

7. With the system cold and all controls calling for heat check the gas pressure at the inlet tapping of the gas valve (Fig. 36). The pressure must be greater than 14 mbar.

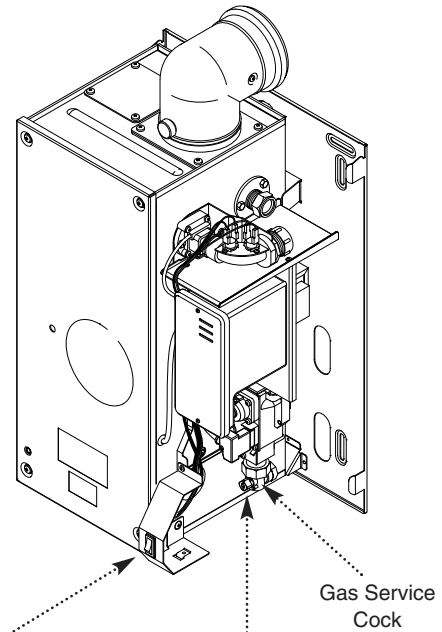


Fig. 34

On/Off Switch

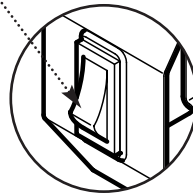
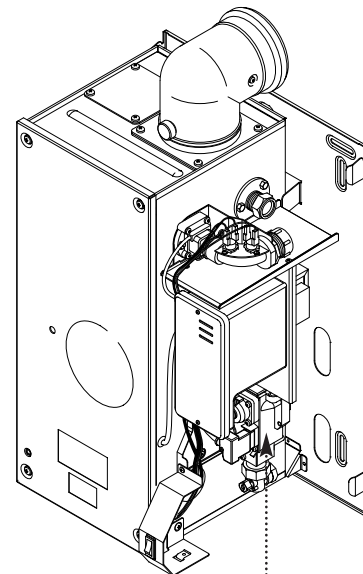


Fig. 35



DO NOT check gas pressure here

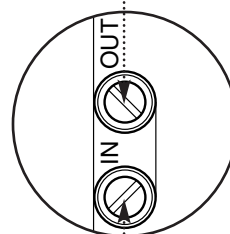


Fig. 36

Inlet Gas Pressure Test Point

11.0 OUTER CASE

11.1 Fitting The Outer Case

1. Position the outercase over the boiler engaging the lugs in the side flanges over the hooks on the wall plate (Fig. 37).

2. Carefully centralise the On/Off switch through the cut-out on the fascia. Using the screw supplied in the kit, secure the outercase from the bottom (Fig. 37).

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

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

4. Instruct the user in the operation of the boiler controls. Hand over the User’s Operating, Installation and Servicing Instructions and the Log Book, giving advice on the necessity of regular servicing.

5. Advise the user that a plume of vapour from the flue terminal is normal, and that there is no need for concern.

6. Complete the label supplied with the inhibitor and stick to the inside of the boiler case. Detail of system treatment must be recorded in the Benchmark Log Book.

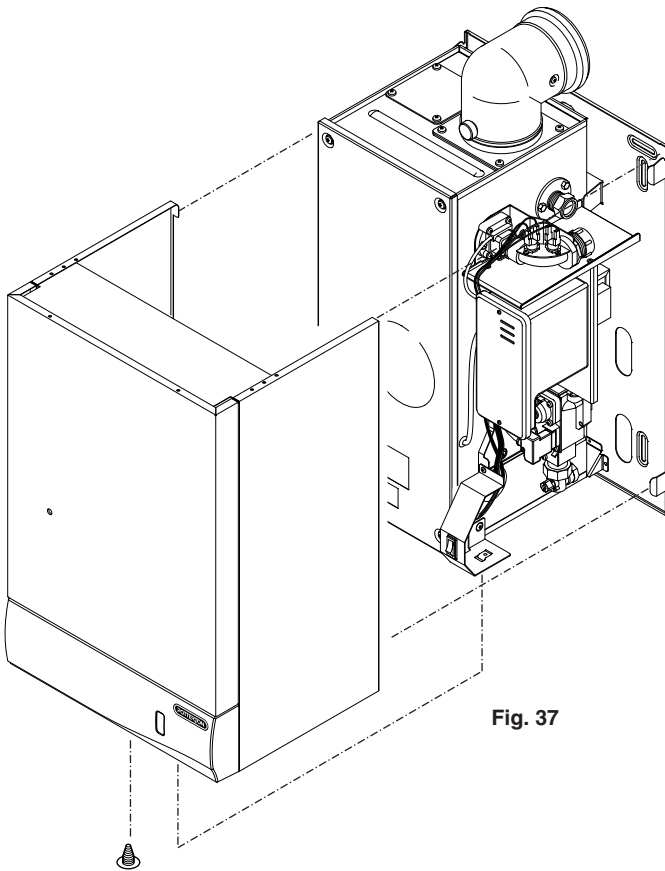


Fig. 37

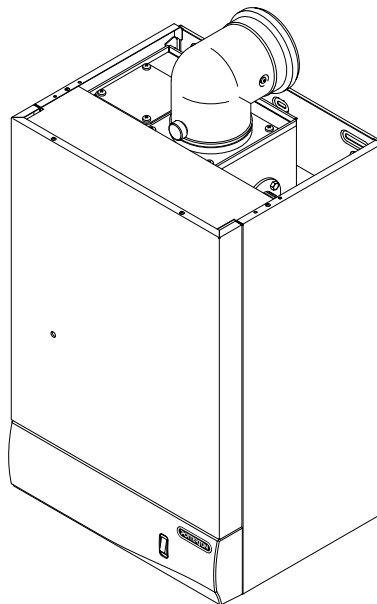


Fig. 38

12.0 SERVICING

12.1 Annual Servicing

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

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

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

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

1. For reasons of safety and economy, it is recommended that the boiler is serviced annually. Before servicing please read Section 1.2 Important Information.
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. Ensure that the boiler is cool.
4. **Ensure that both the gas and electrical supplies to the boiler are isolated.**
5. Remove the outercase (see Fitting the Outercase, Section 11.0).
6. Release the four 1/4 turn screws securing the air box door panel and remove the door (Fig. 40).
7. Disconnect the leads from the centre and right hand terminals (earth and flame sensing probe). The spark electrode lead is permanently fixed to the electrode. Undo the re-usable cable tie and pull down the sleeving to expose the joint in the electrode lead. Disconnect the lead (Fig. 41a).
8. Undo the four screws securing the combustion box door and remove the door (Fig. 41).
9. Visually check for debris/damage and clean or replace if necessary the following:
 - a) Burner (**Fragile - handle with care**).
 - b) Heat exchanger fins.
 - c) Fan compartment (Check also for condensate leaks).
 - d) Insulation.
 - e) Door seals-**Important:** Pay particular attention to the condition of the combustion box door seals.
 - f) Electrodes.
 - g) The condensate trap must be thoroughly cleaned at every service (see section 13.11 for removal).
NOTE: If necessary remove the trap drain plug and place a vessel underneath to catch the condensate (care should be taken as this could be hot). Clean the trap and refit the drain plug. Check for leaks.
 - h) Top of heat exchanger.

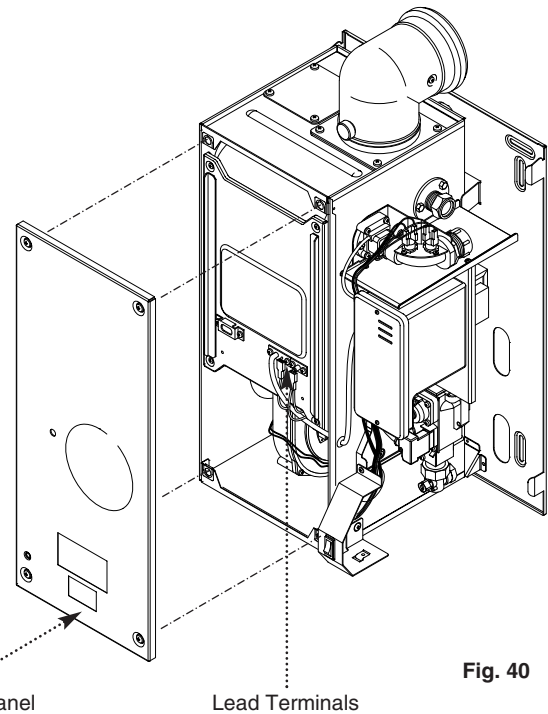


Fig. 40

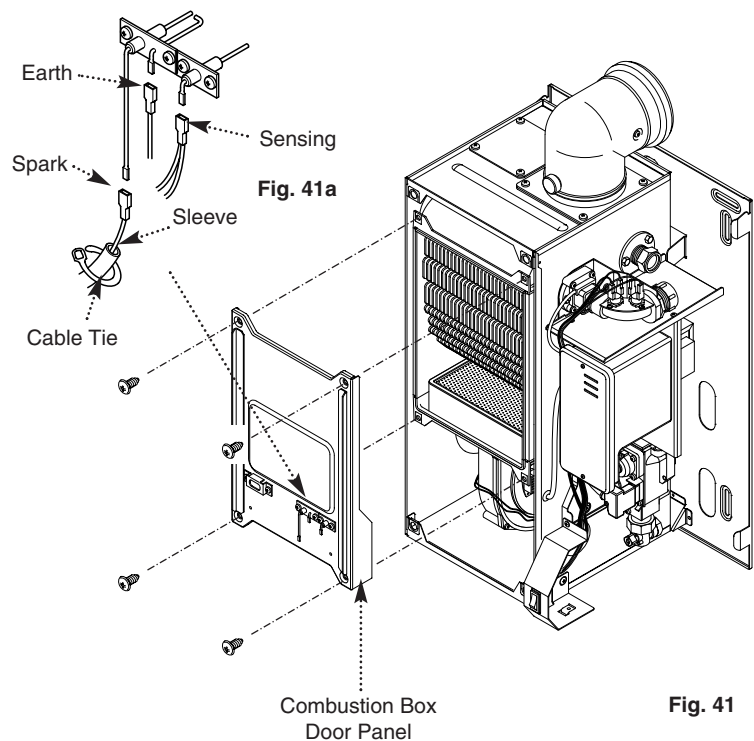


Fig. 41a

Fig. 41

12.0 SERVICING

12.1 Annual Servicing (Cont)

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

10. To clean the heat exchanger and burner proceed as follows:

- a) Disconnect the electrical leads to the fan component protection sensor (Fig. 42).
- b) Loosen the screw retaining the gas injector pipe at the venturi (Fig. 42).
- c) Undo the two wing nuts to disconnect the fan (Fig. 42).
- d) Remove the fan and disconnect the electrical supply to it (Fig. 42).
- e) Remove the gas injector pipe from the gas valve (push-fit) (Fig. 42).
- f) Undo the condensate trap securing nut, lock nut and the condensate drain pipe. Remove the condensate trap and disconnect the sensor leads (Fig. 43).
- g) Remove the two screws securing the burner and remove the burner. Visually inspect the internal burner baffle for obstruction.

NOTE: The burner skin is fragile - handle with care. Clean and if necessary replace the burner (Fig. 44) (see note above).

h) Loosen the two screws retaining the heat exchanger support bracket and slide to the left to remove (Fig. 44).

i) Remove the four screws securing the heat exchanger/combustion box base and withdraw the base.

j) Lower the central insulation panel and check condition (Fig. 44). Replace the lower insulation pad if necessary.

k) Ensure the heat exchanger fins are clear of any obstruction.

l) Check condition of all seals. **IMPORTANT:** Pay particular attention to the condition of the combustion box door seals.

m) Reassemble in reverse order.

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

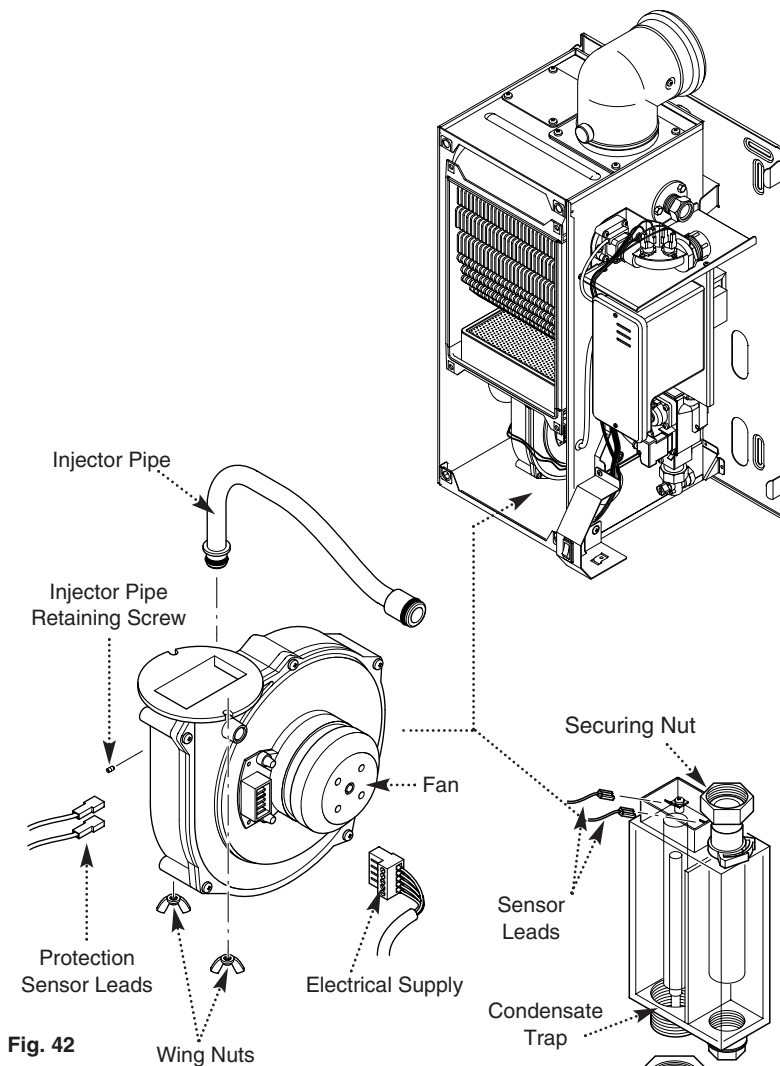


Fig. 42

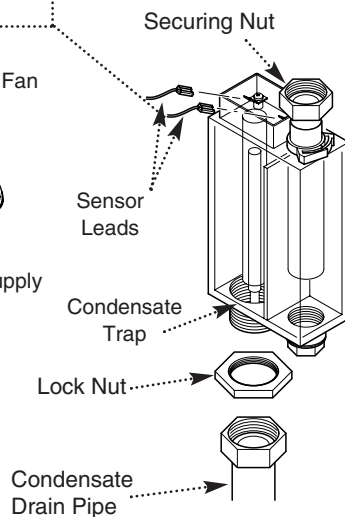


Fig. 43

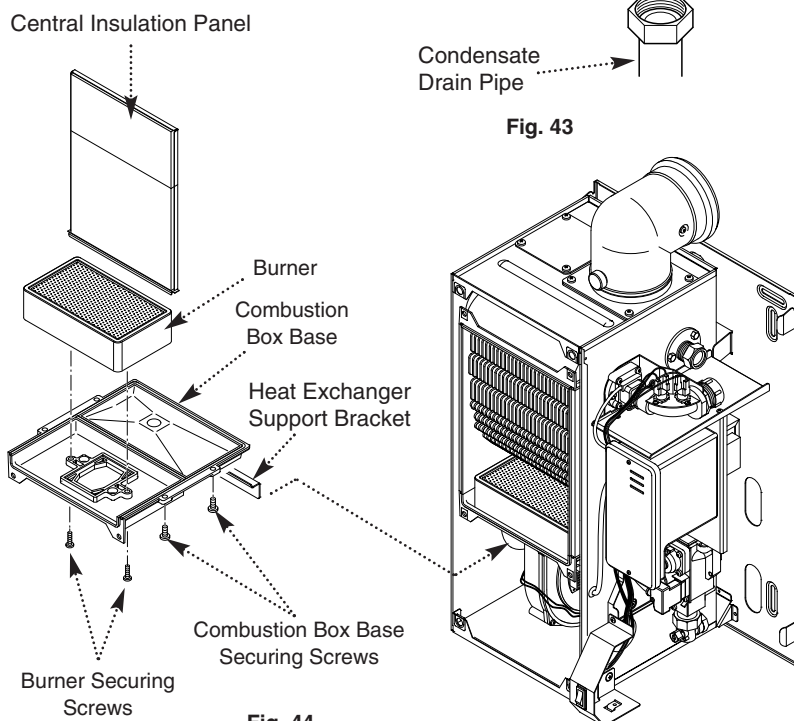


Fig. 44

13.0 CHANGING COMPONENTS

POTTERTON

13.1 Changing Components

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

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

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

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

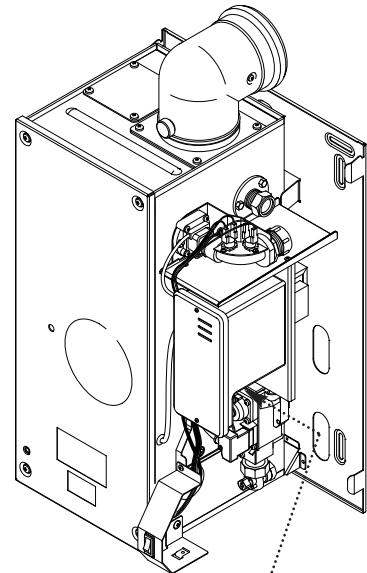


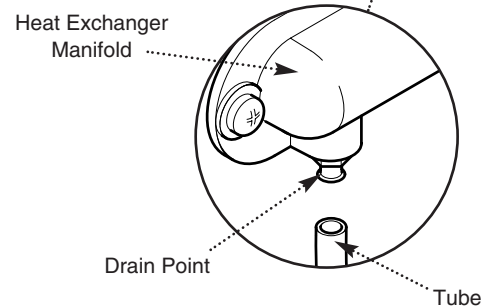
Fig. 45

1. Before changing any components please read Section 1.2 Important Information.

2. Remove the outer case (see "Fitting the Outer Case" Section 11.0).

3. Isolate the water circuit and drain the system as necessary. A drain point is located on the heat exchanger manifold at the right hand side of the boiler (Fig. 45) to enable the heat exchanger to be drained.

4. Place a tube on the drain point to drain water away from electrics. Turn anticlockwise to open (Fig. 45).



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

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

The thermistor, safety thermostat, On/Off switch and the flow switch can be accessed after removal of the outer case.

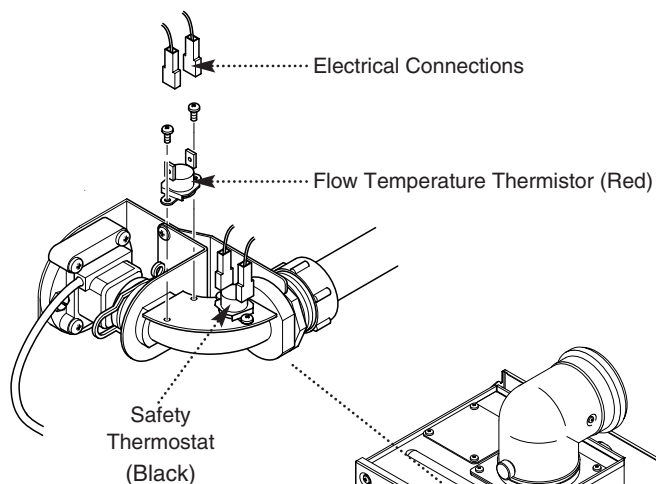


Fig. 46

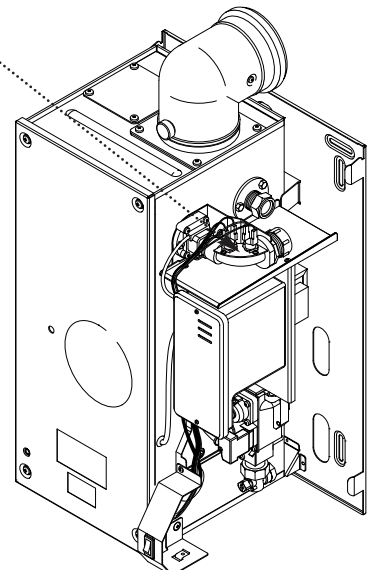
13.2 Flow Temperature Thermistor and Safety Thermostat (Fig. 46).

1. The procedure is the same for both the thermistor and the safety thermostat, although the components are not interchangeable.

2. Remove the electrical connections from the sensor.

3. Unscrew the sensor from the pipe.

4. Fit the new thermistor or safety thermostat and reassemble in reverse order.



13.0 CHANGING COMPONENTS

13.3 Flow Switch (Fig. 47)

1. Drain the boiler
(see Section 13.1 paragraph 2 & 3).
2. Disconnect pipework, loosen elbow locking nut and undo screws on support bracket.
3. Remove the clip securing the flow pipe to the flowswitch.
4. Remove the two screws securing the flow switch to the boiler.
5. Disconnect the inline electrical connection.
6. Remove the flow switch.
7. Fit the new flow switch and reassemble in reverse order.
8. Recommission the boiler and check the inhibitor concentration (see Section 6.2 and 10.1).

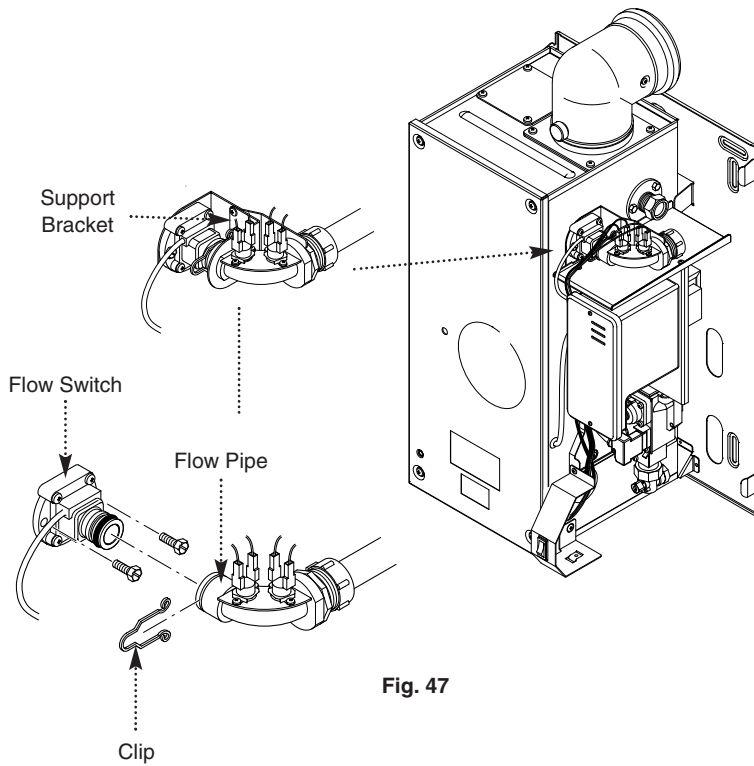


Fig. 47

13.0 CHANGING COMPONENTS

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

1. Remove the two screws securing the main electrical box cover (Fig. 48).

13.4 Control Board (Fig. 49)

1. Slide out the control board (right hand side) and disconnect the electrical connections noting their positions.

NOTE: Check the original board for the presence of input jumpers - see section 8.8. Set the new board as the original.

2. Fit the new control board and reassemble in reverse order.

13.5 Ignition Board (Fig. 50)

1. Remove the control board, (13.4) and slide out the ignition board (left hand side) and disconnect the electrical connections noting their positions.

2. Fit the new ignition board and reassemble in reverse order.

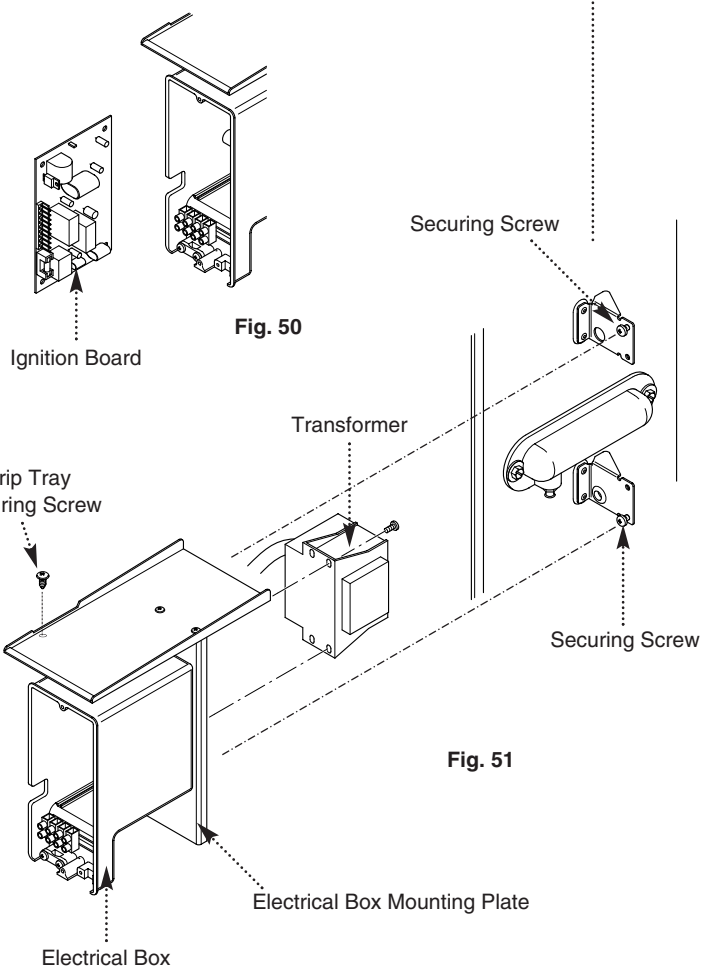
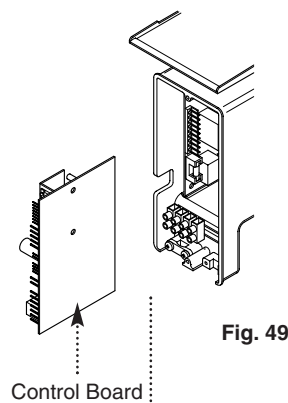
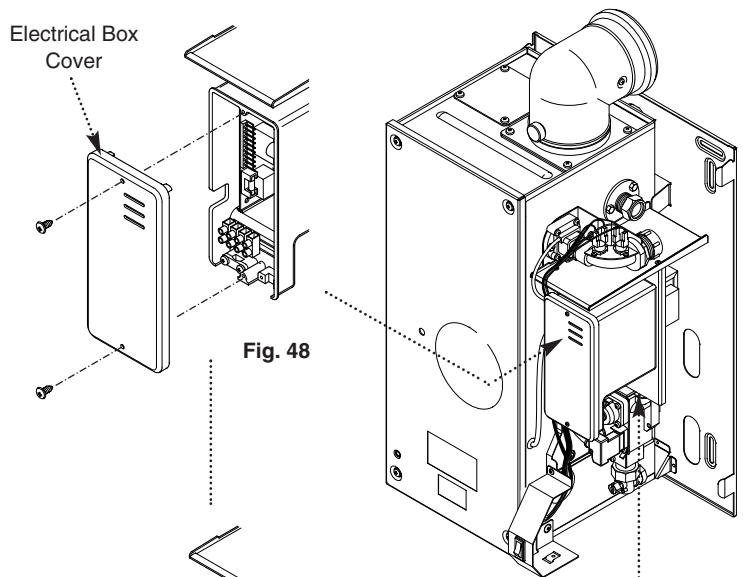
13.6 Transformer (Fig. 51)

1. After the removal of the control and ignition boards the transformer can be accessed. Loosen the two electrical box mounting plate securing screws, remove the front drip tray securing screw and lift the assembly to clear the keyhole slots.

2. The transformer is mounted on the rear of the electrical box mounting plate.

3. Remove the two transformer mounting screws and remove the transformer.

4. Fit the new transformer and reassemble in reverse order.



13.0 CHANGING COMPONENTS

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

1. Remove the airbox door panel by loosening the four 1/4 turn screws (Fig. 52).

13.7 Spark and Sensing Electrodes (Fig. 53)

1. Disconnect the leads from the centre and right hand terminals (earth and flame sensing probe). The spark electrode lead is permanently fixed to the electrode. Undo the re-usable cable tie and pull down the sleeving to expose the joint in the electrode lead. Disconnect the lead.

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

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

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

NOTE: The spark electrode sleeve should always cover the joint in the electrode lead to prevent tracking.

13.8 Fan (Fig. 54)

1. Loosen the screw holding the injector pipe into the venturi.

2. Remove the electrical connections to the fan protection thermostat on the fan.

3. Remove the wing nuts securing the fan to the base of the combustion box.

4. Lower the fan and remove.

5. Disconnect the electrical supply from the right hand rear of the fan.

6. If changing the fan remove the screws securing the venturi and fan protection sensor bracket, noting the positions of the injector opening and sensor bracket, fix them to the new fan.

7. Fit the new fan and reassemble in reverse order.

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

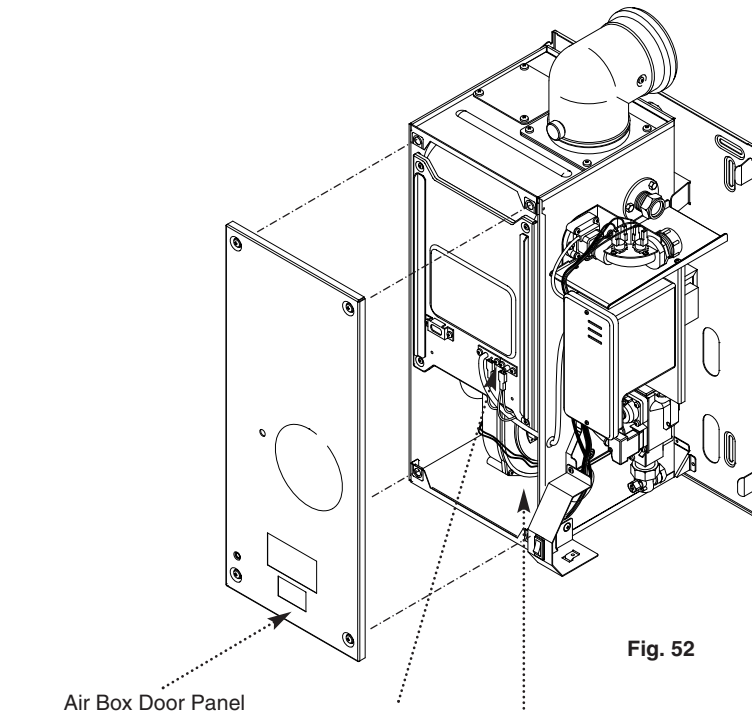


Fig. 52

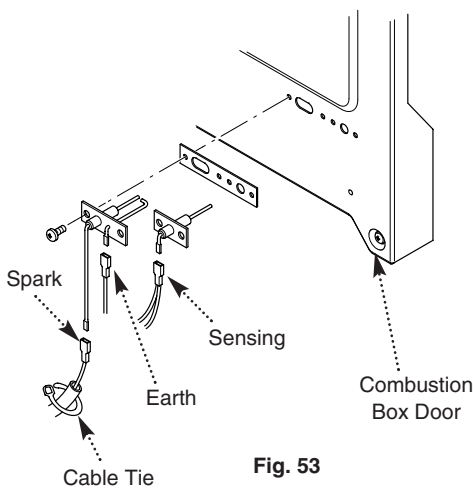


Fig. 53

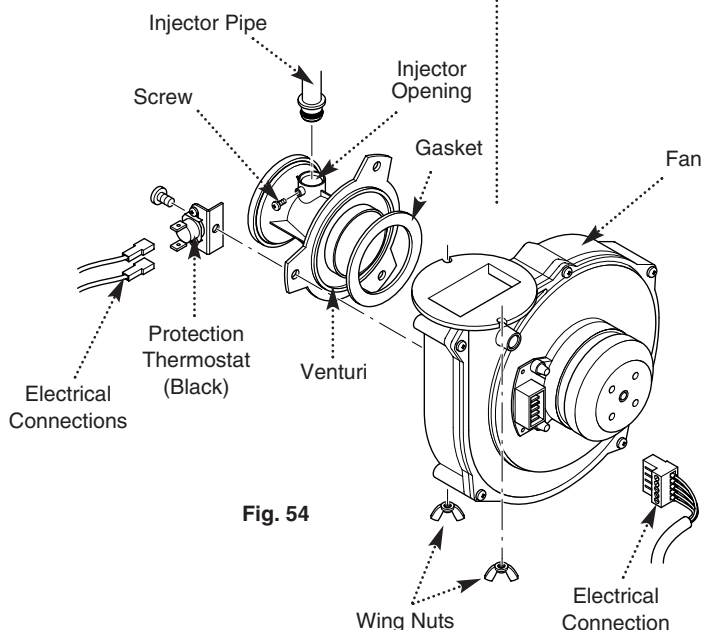


Fig. 54

13.0 CHANGING COMPONENTS



The removal of the fan is necessary to enable the changing of the injector pipe, condensate trap and gas valve (see section 13.8).

13.9 Injector Pipe (Fig. 55)

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

13.10 Gas Valve (Fig. 55)

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

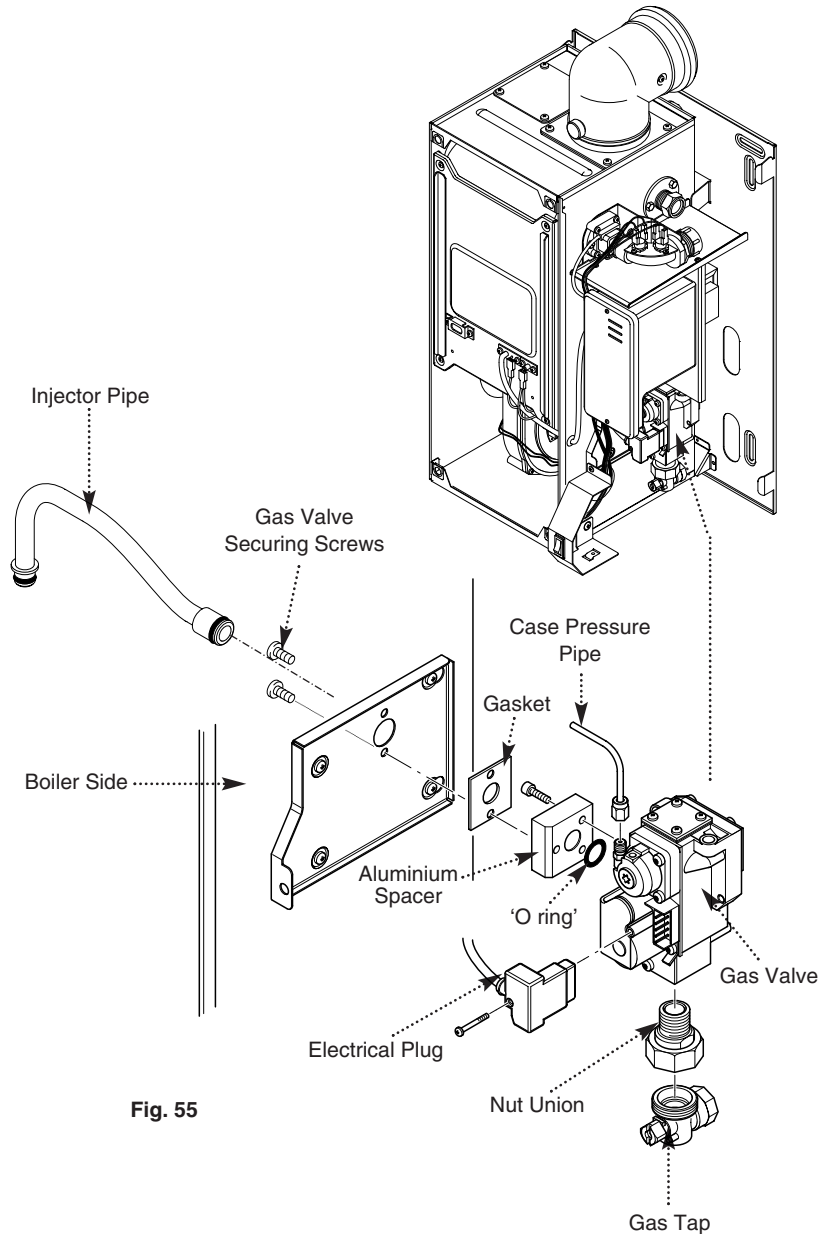


Fig. 55

13.11 Condensate Trap (Fig. 56)

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

Fit the new condensate trap and reassemble in reverse order.

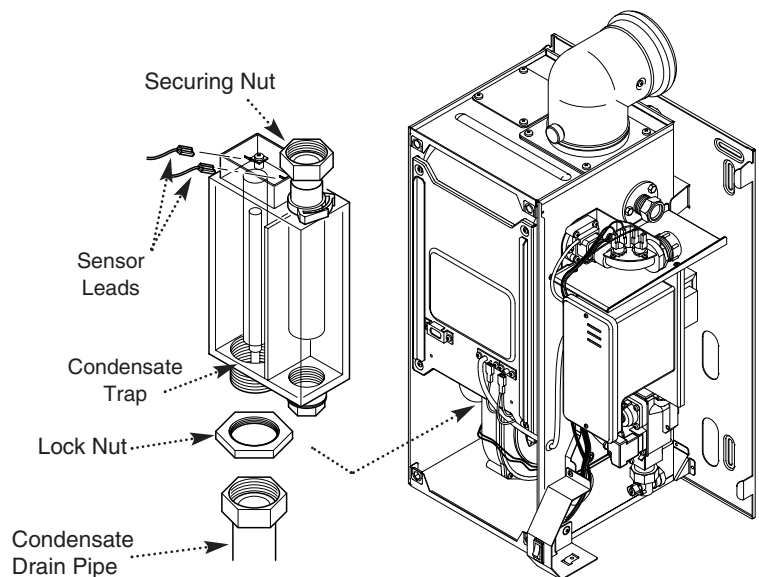


Fig. 56

13.0 CHANGING COMPONENTS

The burner and heat exchanger can be changed after removal of the combustion box door. To change the heat exchanger, the fan and burner must be removed first (see section 13.8).

1. Remove the combustion box door by removing the four securing screws (Fig. 57).

IMPORTANT: On refitting the combustion box door check the condition of the combustion box door seals.

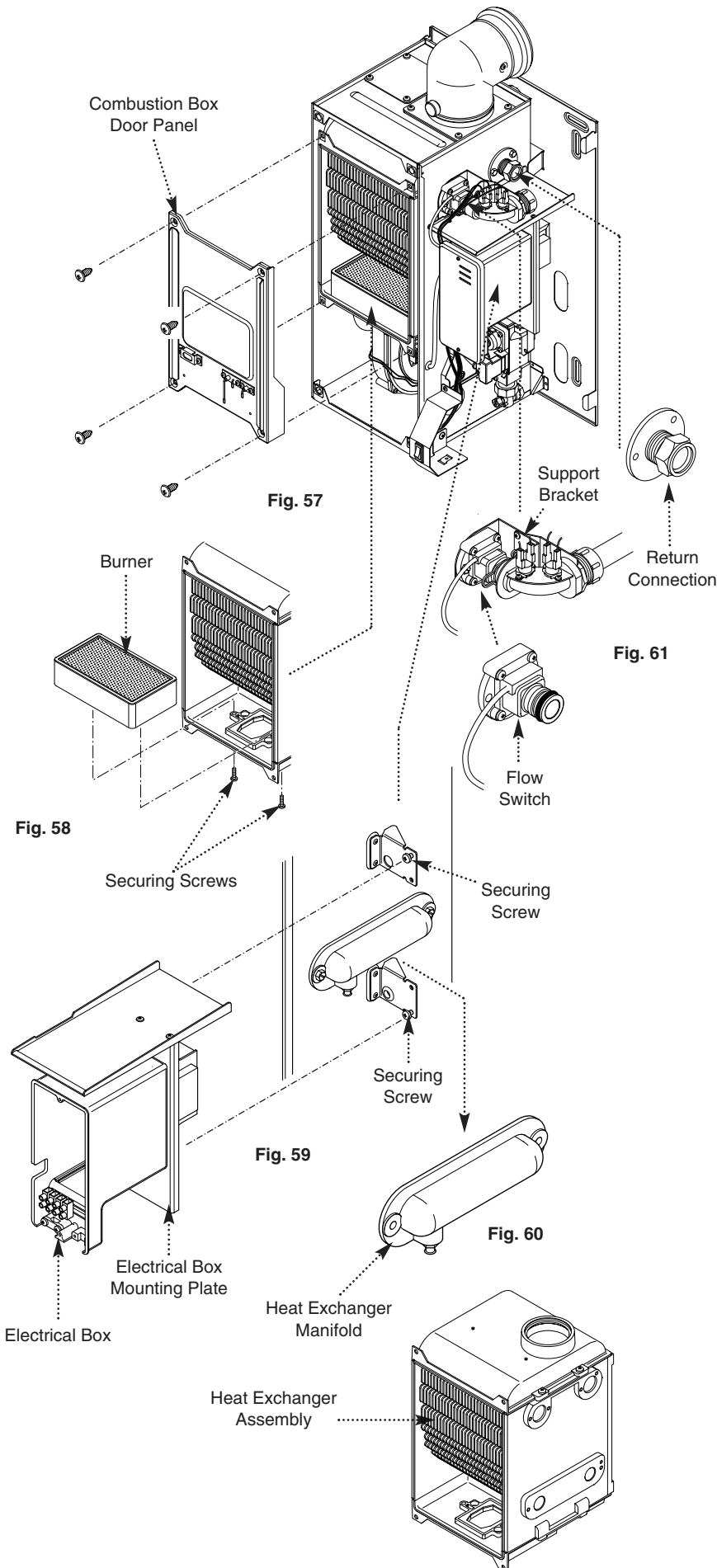
13.12 Burner (Fig. 58)

WARNING: The burner skin is fragile:
Handle with care

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

13.13 Heat Exchanger

1. Drain the boiler (see section 13.1 paragraph 2&3).
2. Remove all components in the base of the airbox.
3. Undo the screws on the support bracket. Remove the screws securing the flow switch and return connections and remove the connections (Fig. 61).
4. Remove the electrical connections from the P.C.B.s (see section 13.4 & 13.5).
5. Loosen the two screws securing the electrical box mounting plate and remove the assembly (Fig. 59).
6. Undo the M6 hex headed bolt on the left hand side of the combustion box.
7. Remove the screws securing the heat exchanger manifold and remove the manifold (Fig. 60).
8. Lift the heat exchanger assembly and rotate the bottom upwards whilst pulling it forwards out of the airbox.
9. Fit the new heat exchanger and reassemble in reverse order.
10. Recommission the boiler and check the inhibitor concentration (see Section 6.2 and 10.1).



13.0 CHANGING COMPONENTS

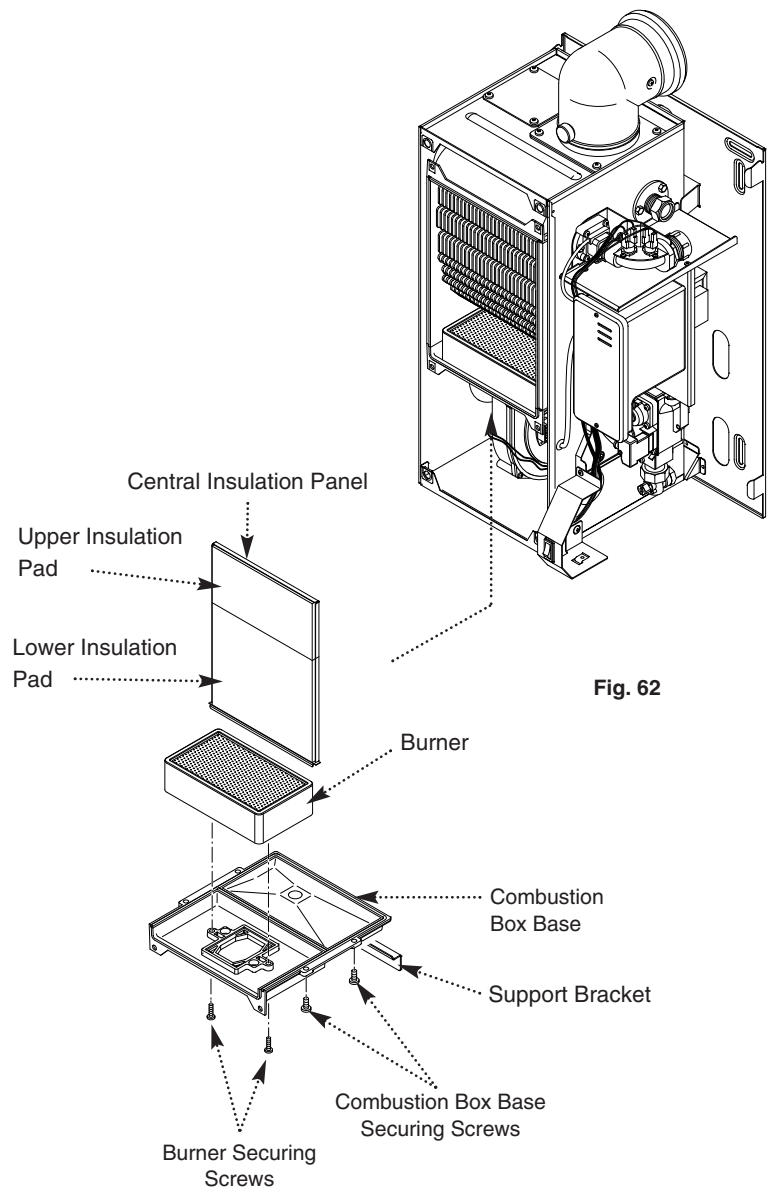


13.14 Heat Exchanger Lower Insulation Pad (Fig. 62)

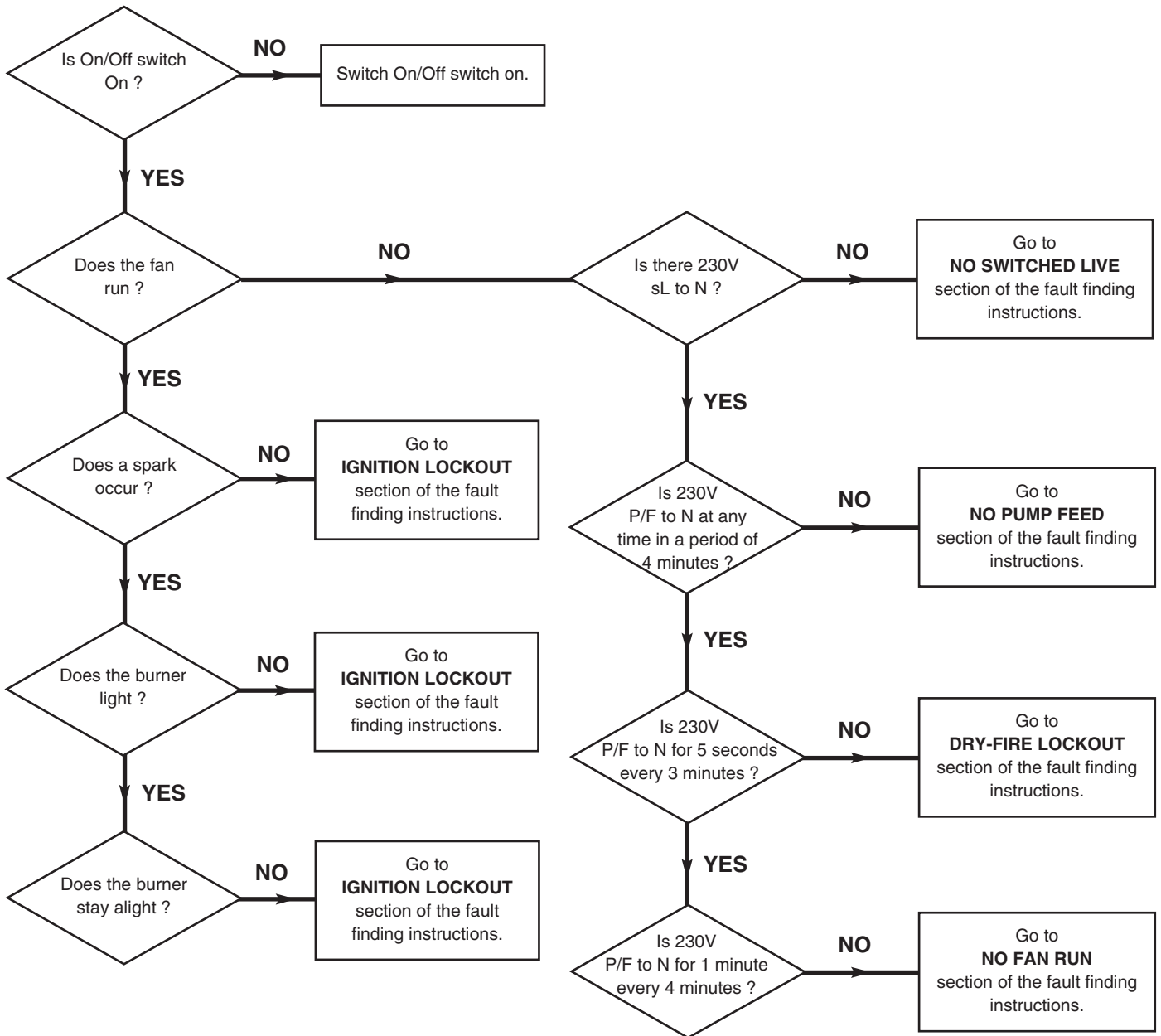
1. Remove all components in the base of the airbox.
2. Remove the burner (see section 13.12).
3. Remove the four bolts securing the combustion box base.
4. Remove the combustion box base.
5. Pull the central insulation panel down from the centre of the heat exchanger and remove the lower insulation pad.
6. Fit the new insulation pad and reassemble in reverse order.

13.15 Heat Exchanger Upper Insulation Pad (Fig. 62)

1. Remove all components in the base of the airbox.
2. Remove the burner (see section 13.12).
3. Remove the heat exchanger (see section 13.13).
4. Remove the four bolts securing the combustion box base.
5. Remove the combustion box base.
6. Pull the central insulation panel down from the centre of the heat exchanger.
7. Fit the new insulation pad and reassemble in reverse order.



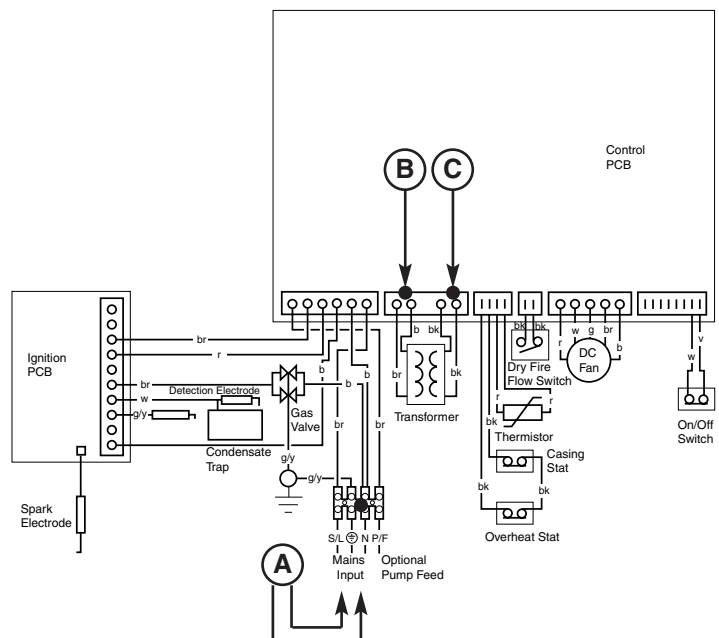
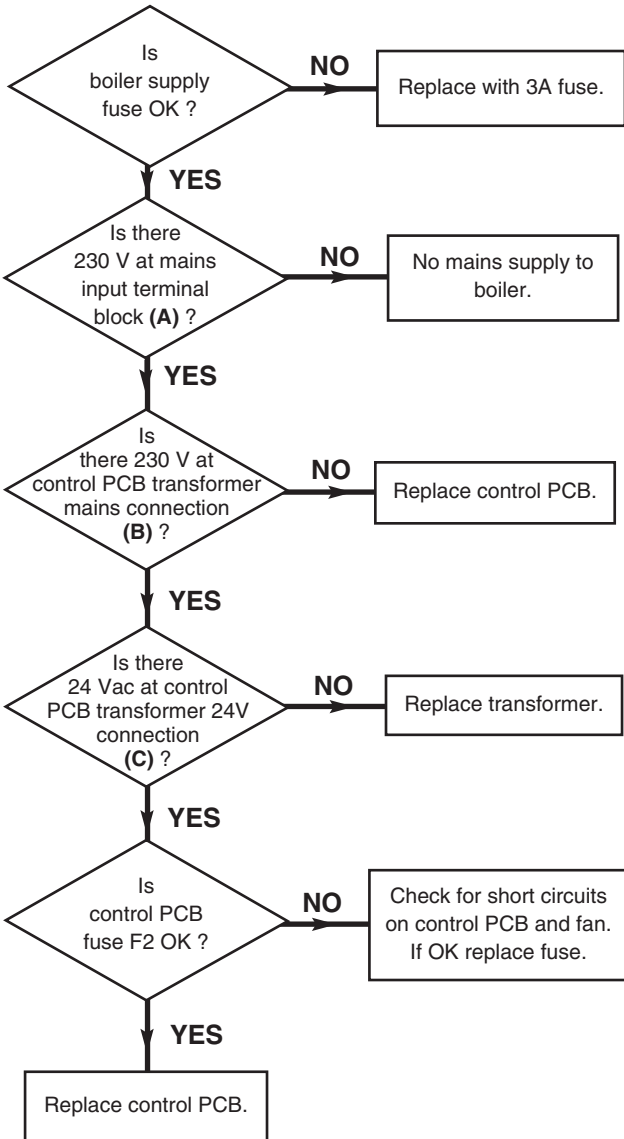
14.0 FAULT FINDING



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

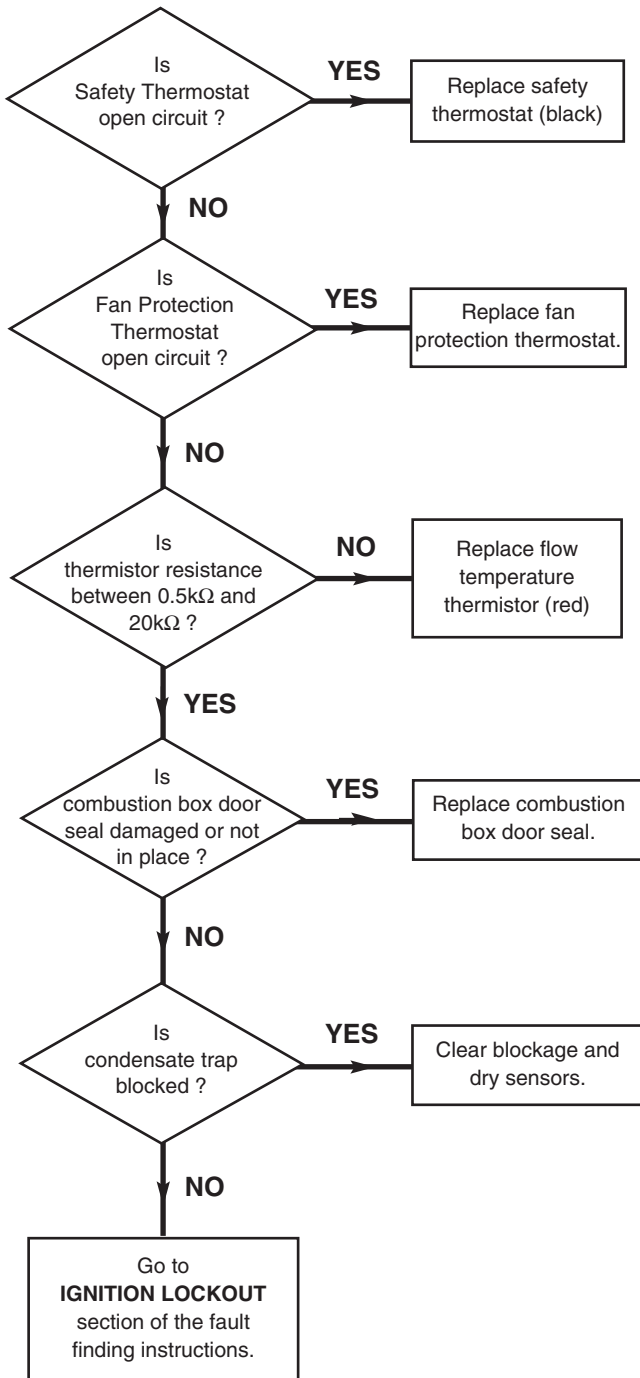
- Check electrical system earth continuity, short circuit, resistance to earth, fuse failure and a minimum voltage of 195 is present at input connections on boiler, check internal fuse is OK, unit is not in lockout.
- There is an adequate gas supply pressure at the inlet. A minimum pressure of 18.1 mb is required at the inlet.
- All isolating valves are open and both the boiler and the system are vented.
- Check installation is correct, including the flue system.

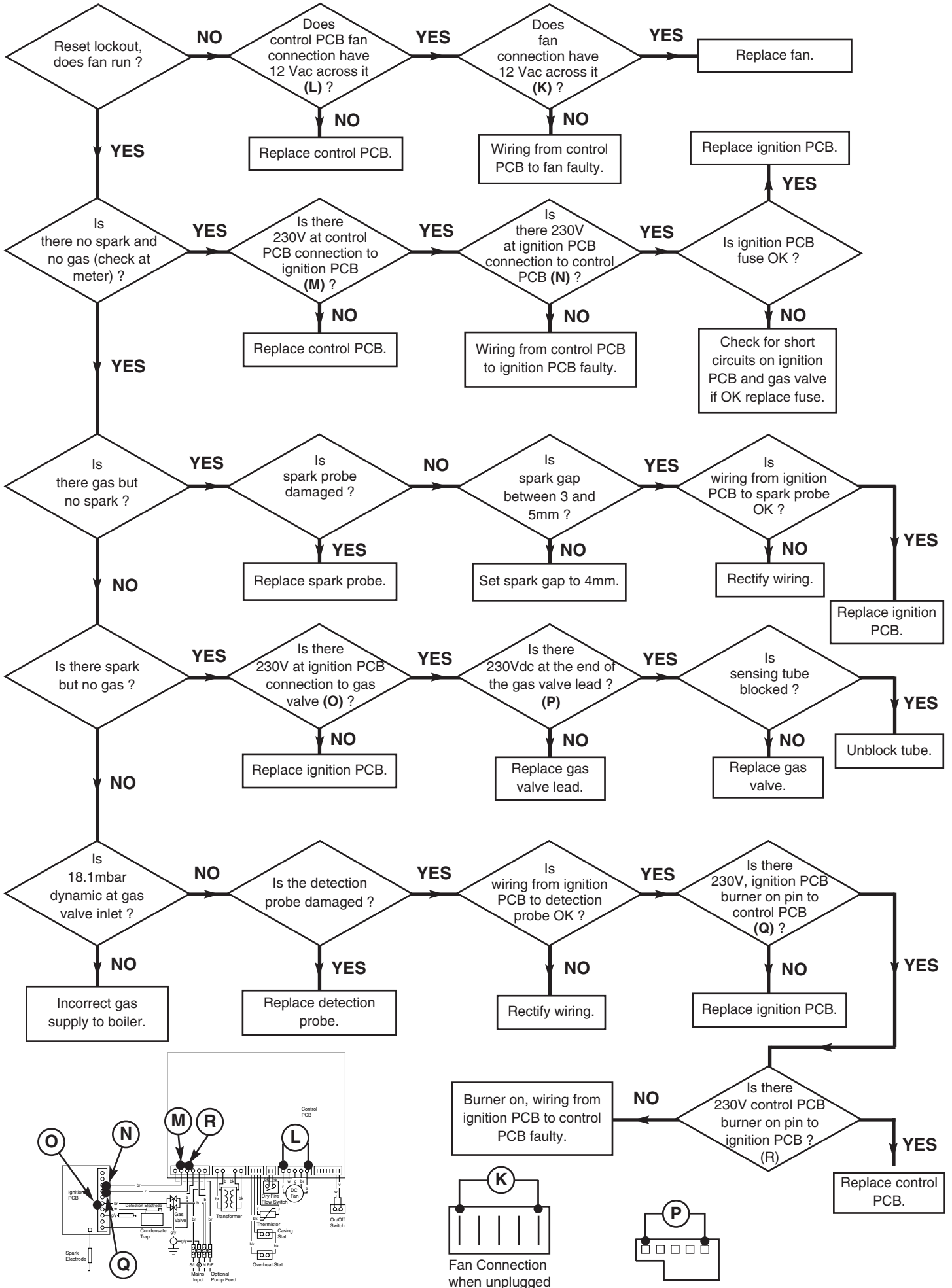
No Switched Live



14.0 FAULT FINDING

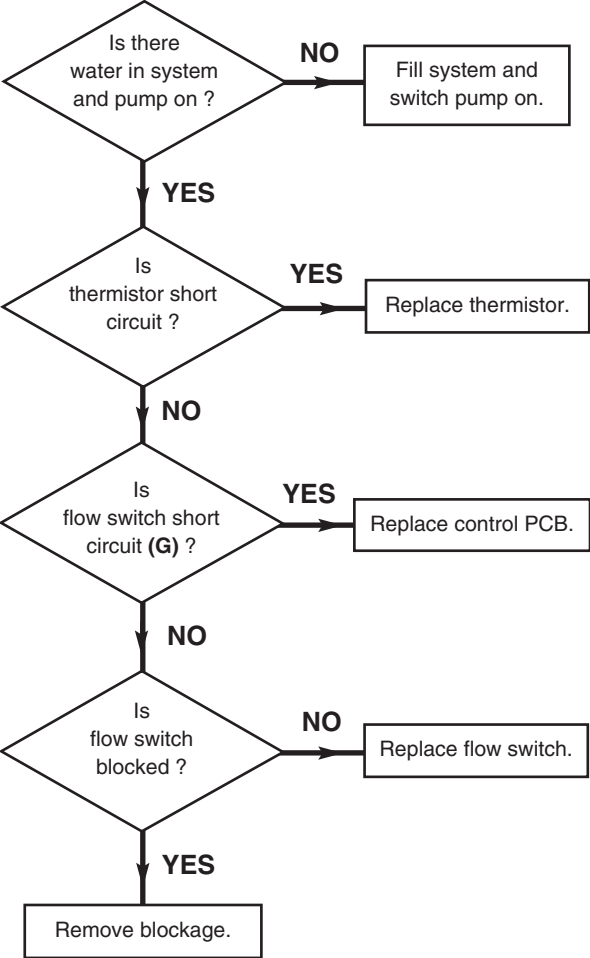
No Pump Feed



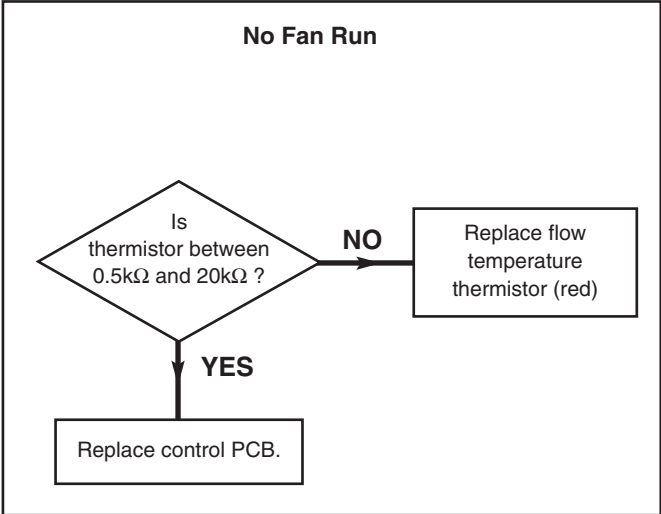


14.0 FAULT FINDING

Dry-fire Lockout



No Fan Run

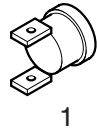


15.0 SHORT PARTS LIST

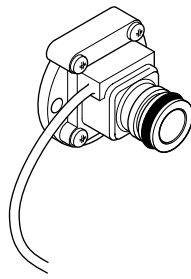


Short Parts List

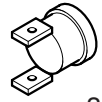
Key No.	G.C. No.	Description	Manufacturers Part No.
1	E06 058	Flow Temperature Thermistor (Red)	240670
2	E06 059	Flow Switch	242459
3	E06 060	Safety Thermostat (Black)	242235
8		Control PCB (24 HE)	5106588
		Control PCB (15 HE)	5106791
9	E06 065	Ignition PCB	241838
10	E06 066	Transformer	240236
21	E06 074	Fan	242472
23	E06 075	Gas Valve	242473
38	E06 085	Viewing Window	242484
39		Condensate Trap	5111714
44	E06 091	Electrodes Kit	242490
47	E06 093	Burner Assy	242492
52	E06 097	Heat Exchanger Assy	242497



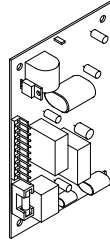
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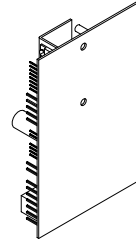
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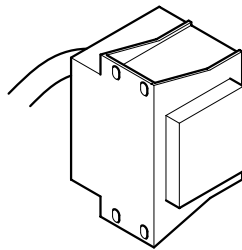
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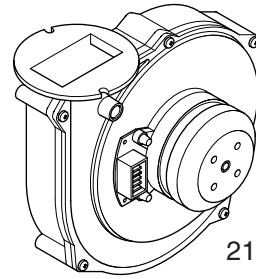
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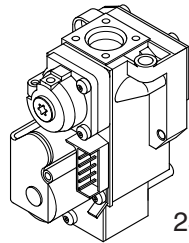
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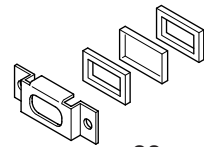
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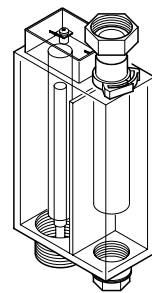
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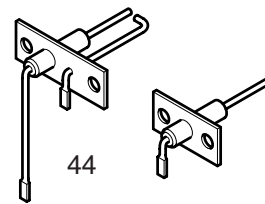
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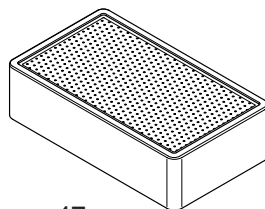
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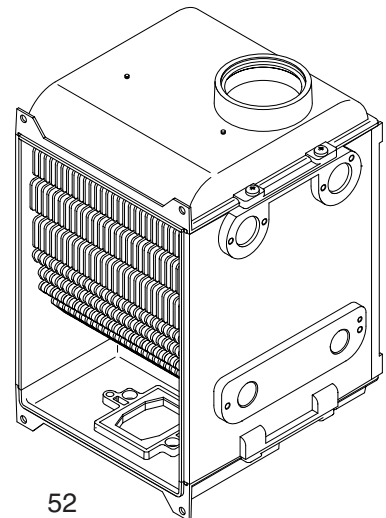
39



44



47



52

General Enquiries (GB)

Tel. **08706 060 780**

Technical (GB)

Tel. **08706 049 049**

Service (GB)

Tel. **08706 096 096**

Fax. **01926 410 006**

Literature Request (GB)

Tel. **08706 060 623**

Technical (IE)

Tel. **1850 560570**

All descriptions and illustrations provided in this leaflet have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet. All goods are sold subject to our standard Conditions of Sale which are available on request.

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