



Utility Boilerhouse & Outdoor Standard Boilers

Installation & Users Guide

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INTRODUCTION

Thank you for choosing the UTILITY/BOILERHOUSE or OUTDOOR standard oil boilers, please read the following carefully.

To the installer

This manual must be left with the householder by the installer who will instruct the user on the boiler operation.

To the user

Please read the user section of this manual to familiarize yourself with the boiler operation.

WARRANTY

WARRANTY FOR YOUR BOILER MUST MEET THE FOLLOWING CONDITIONS OR YOUR WARRANTY MAY BE INVALID

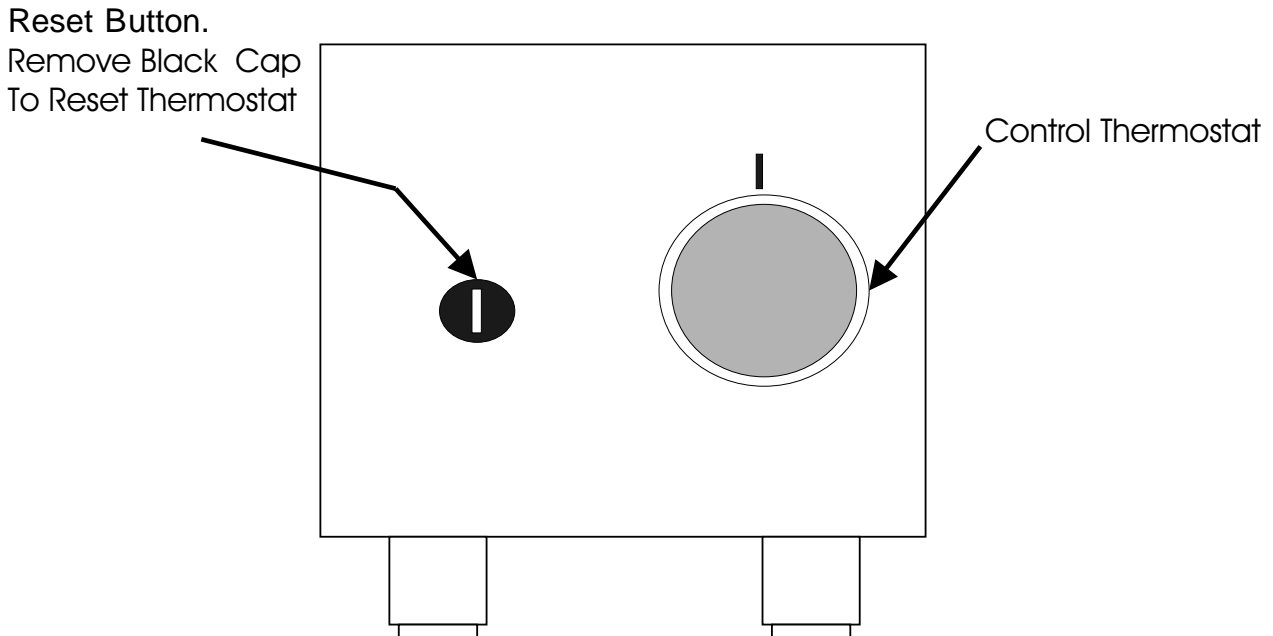
Warranty on the Heat Exchanger: 5 Years

Warranty on Burner and Controls: 2 years

CONDITIONS OF WARRANTY:

1. Boiler MUST BE **installed** by an OFTEC registered engineer ,if not permission will be required by building control.
2. Boiler MUST BE **commissioned** after installation by an OFTEC registered engineer.
3. Boiler MUST BE **serviced** every 12 months after installation by an OFTEC registered engineer.
4. Installer MUST COMPLETE an **Installation/Commissioning Form**, which will be found along with your manual and this must then be returned to the address on the warranty form. Failure to return this form, may invalidate your warranty.

USER INSTRUCTIONS



BOILER OPERATION

The Boiler Control Thermostat responds to the temperature of the water within the boiler and switches power to the burner when heat is required.

The burner has an independent control system which regulates the firing and (shut-off) of the burner.

Automatic firing of the burner will occur when the water temperature within the boiler falls below the control thermostat set point which will continue to run until the water temperature rises to the temperature (recommended) set on the boiler control thermostat.

SWITCHING THE BOILER ON

- Check there is water in the system.
- Check radiator valves are on.
- Turn on oil supply.
- Switch electrical supply to the boiler on (including time clock) and then set the boiler control thermostat to recommended setting.

BOILER CONTROLS

BOILER CONTROL THERMOSTAT

The temperature of the water within the boiler is controlled and maintained by the **Boiler Control Thermostat** located on the boiler control panel.

TEMPERATURE SETTINGS:

The Boiler Control Thermostat has a range of 50°C to 80°C. The recommended setting for the boiler control thermostat is:

WINTER

Heating and hot water supply 80°C

SUMMER

Domestic hot water supply 65°C

It is not recommended to operate the boiler with a thermostat setting of less than 60°C, as this will precipitate corrosion, thus reducing the life of the boiler.

HIGH LIMIT STAT INDICATOR:

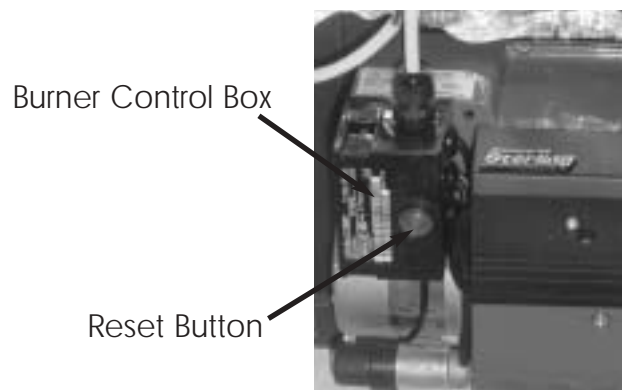
The high limit lockout will occur when the water within the boiler is or has overheated e.g. reached a temperature above that set on the high limit thermostat.

TO RESET THE BOILER

When the boiler has had time to cool, the manual reset button (coloured red) on the control panel will need to be pressed in to reset. If the high limit thermostat continues to trip, contact your installer as there may be a fault with the central heating system.

LOCKOUT INDICATOR: RED

The lock out indicator will illuminate when the burner has failed to fire, e.g. No fuel or an electrical fault.



SWITCHING THE BOILER OFF

The boiler can be switched off at anytime using one of the following;

- Turn the boiler control thermostat to the **OFF** position
- Switch the mains (electrical supply) to **OFF**.
- Set the control system to **OFF** (e.g. Time clock).

PLEASE NOTE: For longer periods of shutdown e.g. While away on holiday, switch **OFF** the mains (electrical supply) and turn **OFF** the OIL supply.

If shutdown occurs during cold weather ensure boiler is protected against frost damage.

BURNER LOCKOUT

The burner has an independent control system (Burner Control Box); this includes a flame detector (Photocell) which senses the presence of a flame. In the event of flame failure, the burner Control Box activates a second re-ignition sequence. Should the Photocell not detect a flame presence within 15 seconds the burner goes to LOCKOUT and shuts down.

Continued **LOCKOUTS** are a result of a fault in the operation of the boiler and can be attributed to following examples:

- An interruption of the fuel supply .
- Electrical Supply fault e.g. Extreme low voltage.
- Failure of a Burner component.
- A fault within the heating system .
- Burner combustion not being correct.

The Burner Reset button on the Control Box and the red Lockout Indicator on the boiler control panel illuminates to indicate that a lockout has occurred.

In the event of the Burner locking out, do not attempt to restart the Burner by pressing the Rest Button on the Burner Control Box for at least 2 minutes. A Bi-metallic timer within the Control Box has a minimum cooling time of 45 seconds thus the 2 minute interval will ensure that this Bi-metallic timer has cooled and is therefore in a position where it may be reset

RESTARTING AFTER LOCKOUT

When lockout has occurred, inspect for any obvious causes e.g. oil leaks.

Also check the fuel line from the tank to the boiler and that any oil shut off valve has not been inadvertently closed.

RESTART

- Check there is adequate oil in the storage tank.
- Check oil supply valves are open.
- Switch on heating system (e.g. Time clock).
- Depress the red Burner Reset Button on the burner Control Box, which will be illuminated. The Burner Reset Button (illuminated) on the Control Panel will go out and the burner will commence the ignition start sequence. After 15 seconds the Burner should fire normally.

PLEASE NOTE: Should the Burner not start, both lockout indicator, on the Control Box/Burner Reset Button will illuminate again.

- Wait at least 3 minutes and depress the Burner Rest Button again. Failure to start a second time indicates a fault requiring attention. In the event of a second failure to start:
 - Switch off electrical supply.
 - Call service engineer.

Burner Reset Button



REGULATIONS

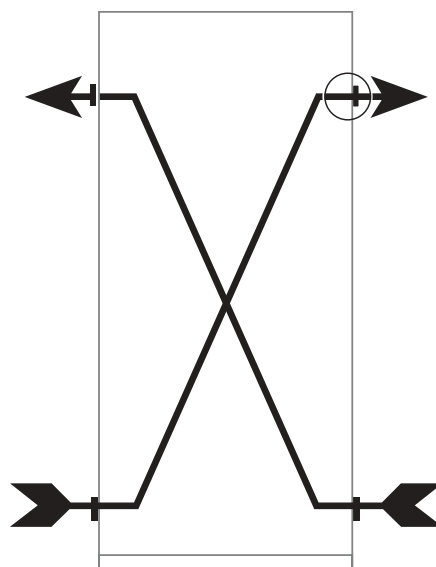
The installation of oil fired boilers should comply with the following standards and codes of practice.

- BS5449 Forced circulation hot water heating systems for domestic use
- BS5410-Part1 Oil installations up to 45kw.
- BS7593 Water treatment of hot water central heating systems.
- BS7671 Electrical Regulations.
- Building Regulations Part L1 and J 2002 England and Wales, Part F Scottish Regulations and Technical Booklet L Northern Ireland.
- OFTEC Codes of Practice Published or Recommended.

After installing, the system it needs to be flushed with a cleanser like Fernox Heavy Duty Restore, for fast-acting removal of lime scale, black sludge (magnetite) and other deposits from the boiler and the central heating system. Then add a Fernox protector to give long term protection of the central heating system against internal corrosion and lime scale formation.

WATER CONNECTIONS

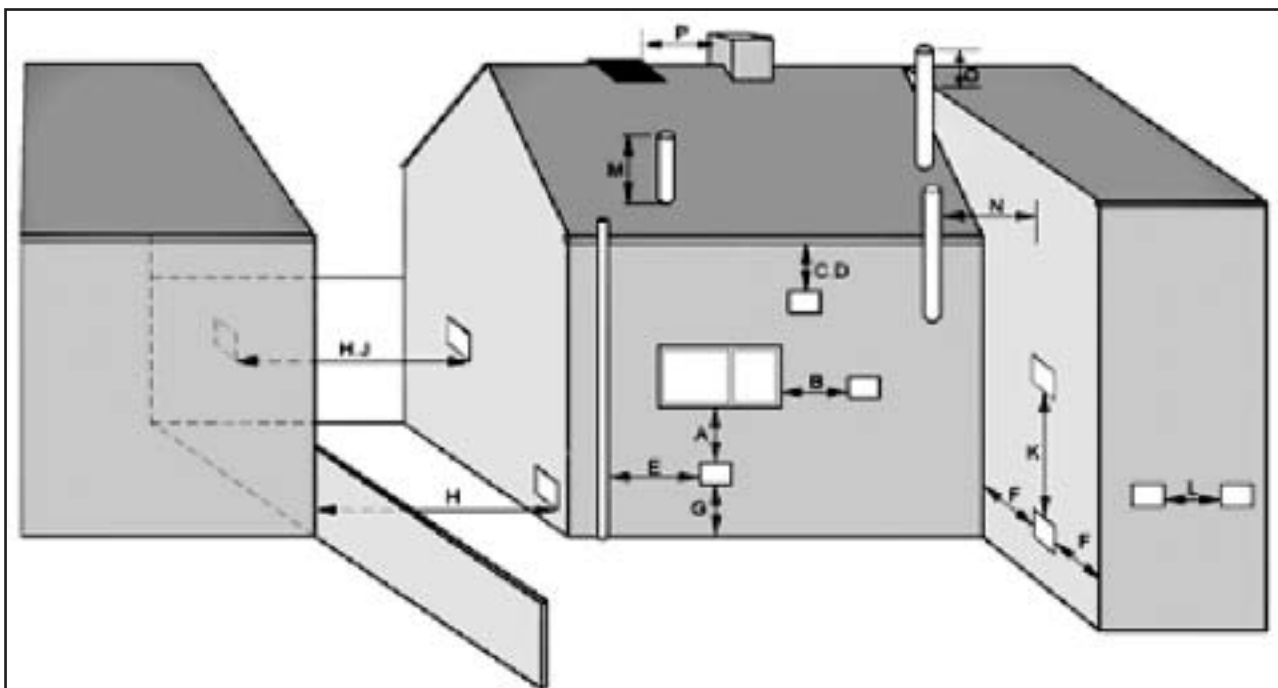
The boiler is supplied with two flow and two return connections. Connections maybe diagonal as shown on diagram below. This arrangement gives more efficient flow through the boiler, however this is not essential as parallel connection gives satisfactory operation.



BOILER LOCATION

Sound levels should be discussed with the householder, as some people may be sensitive to low noise levels in a small room, as it may appear more annoying than in larger rooms. Please Note installation should take into account of flue position (see diagram).

RECOMMENDED FLUE POSITION



Please Note where the terminal is within 1 metre of any plastic material, such material should be protected from the effects of the combustion products of the fuel.

IMPORTANT 35 SECOND CLASS D GAS OIL MUST NOT BE USED FOR BALANCED FLUES.

Ref	Min. Position	mm
A	Directly below an opening, air brick, opening window etc.	600
B	Horizontally to an opening , air brick, opening window etc.	600
C	Below a gutter, eaves or balcony with protection.	75
D	Below a gutter or a balcony without protection.	600
E	From vertical sanitary pipework.	600
F	From an internal or external corner.	600
G	Above ground or balcony level.	600
H	From a surface or a boundary facing the terminal.	600
J	From a terminal facing the terminal.	1200
K	Vertically from a terminal on the same wall.	1500
L	Horizontally from a terminal on the same wall.	750
M	Above the highest point of an intersection with the roof.	600
N	From a vertical structure on the side of the terminal.	750
O	Above a vertical structure less than 750mm.	600
P	From a ridge terminal to a vertical structure on the roof.	1500

CONVENTIONAL FLUE INSTALLATION

The boiler is supplied as standard for use with conventional flue.

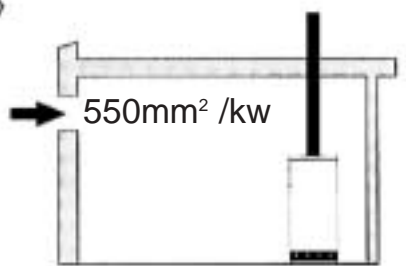
The chimney must comply with building regulations and BS 5410. Factory made insulated chimneys are covered by BS 4543 Parts 2 & 3.

Notes on Conventional Flue

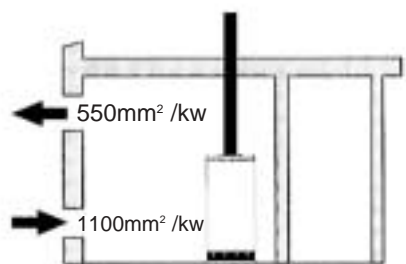
1. **Liner** A stainless steel flue liner of diameter to suit the boiler is recommended.
2. **Flue pipe** can be of vitreous enamel or stainless steel.
3. **Bends** Bends in the flue pipe should not be greater than 135 degrees.
4. **Insulation** Insulation between the flue pipe and brick chimney, is recommended to minimize the occurrence of condensation.
5. **Cowls** Cowls and pots that may restrict the flue should not be used.
6. **Draught Stabiliser** Chimneys over 6 metres high may produce excessive draught (over 4mm w.g.). Draught stabilizers may be required.
7. **Length** Before bends are applied, length of flue must be at least 600mm.

COMBUSTION AIR SUPPLY - CONVENTIONAL FLUE

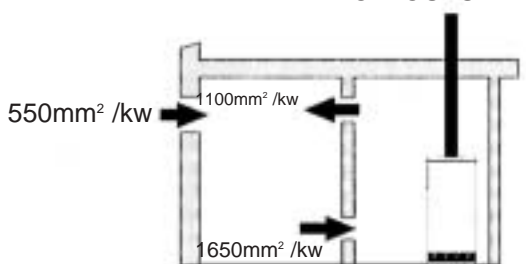
INFORMATION SUPPLIED BY OFTEC



OPEN FLUE BOILER IN ROOM

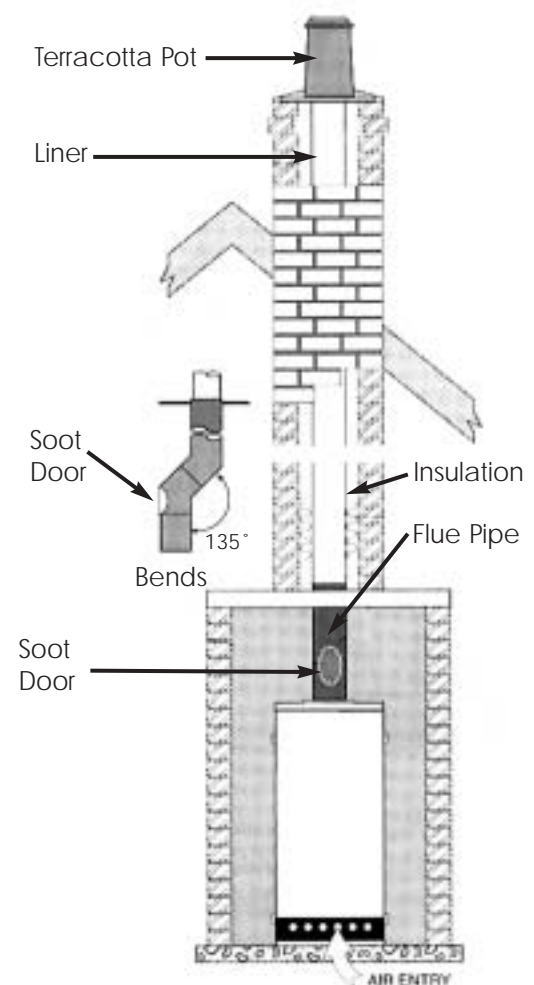


OPEN FLUE BOILER COMPARTMENT VENTILATED FROM OUTSIDE



OPEN FLUE BOILER COMPARTMENT VENTILATED FROM ROOM

Conventional Flue - Typical Arrangement

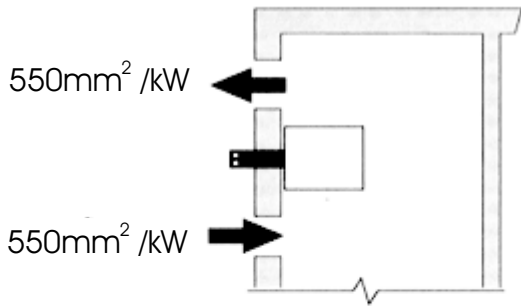


BALANCED FLUE INSTALLATION

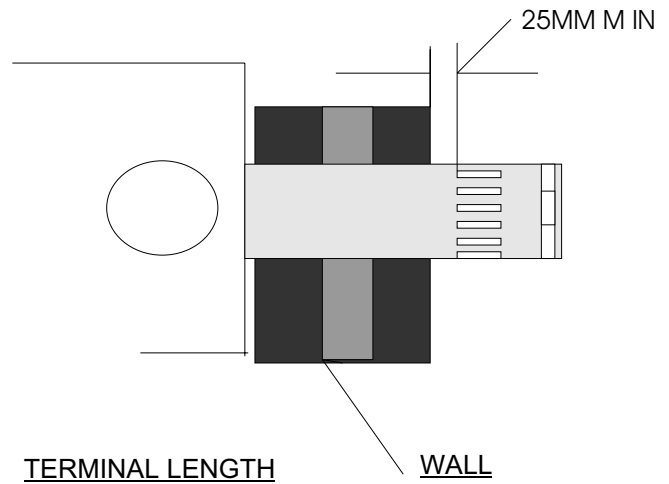
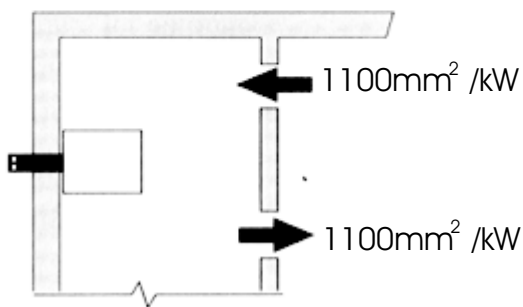
VENTILATION AIR SUPPLY

Air ventilation for balanced flue boilers is only required if the boiler is installed in a confined space e.g. a cupboard. This is to prevent over heating of components.

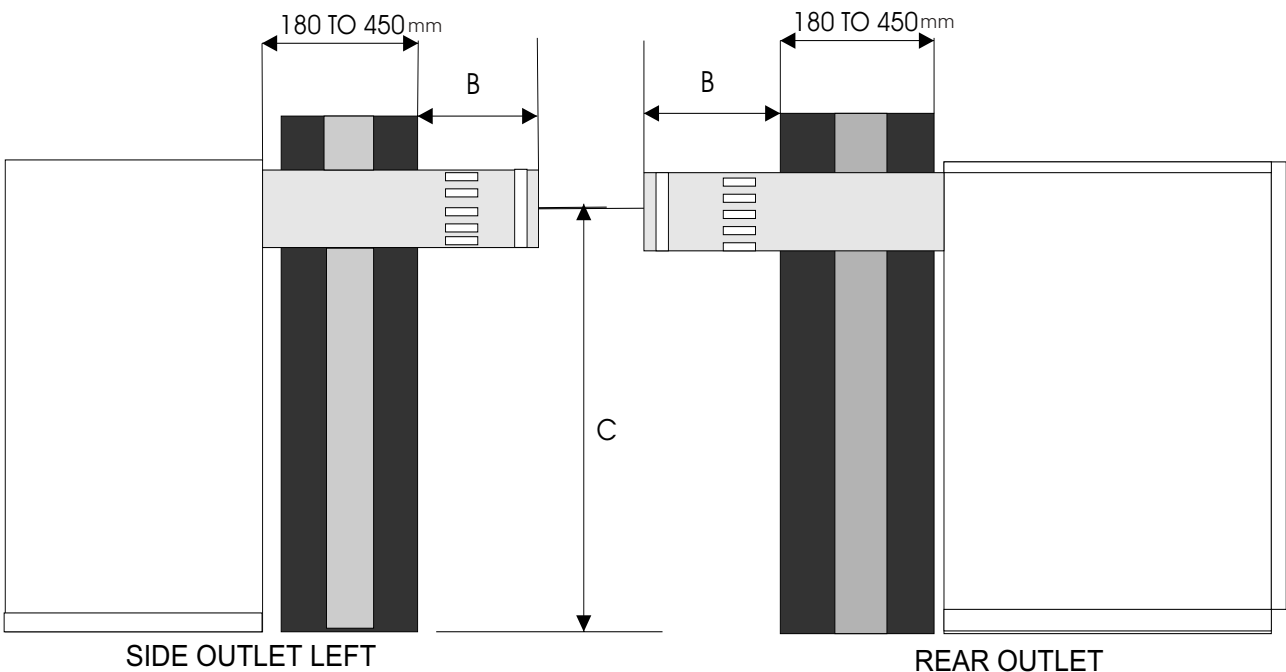
BALANCED FLUE BOILERS



BOILER IN COMPARTMENT
VENTED FROM OUTSIDE

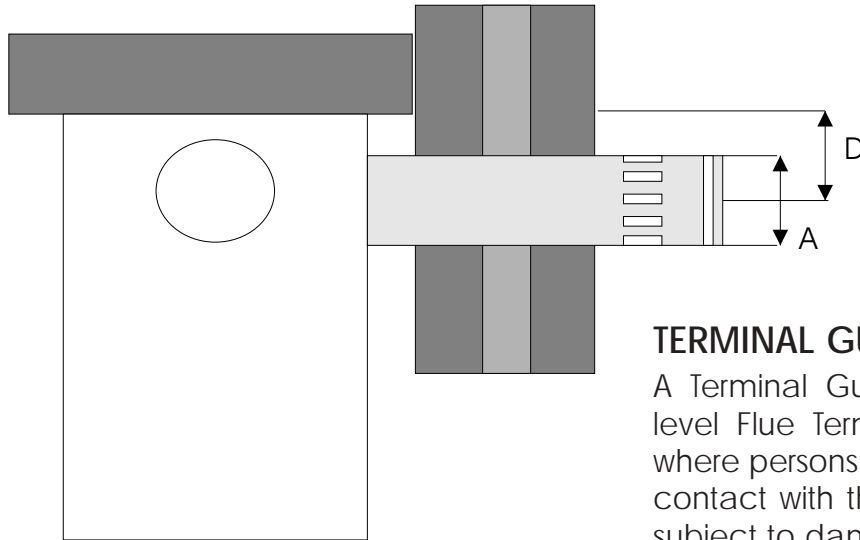


LOW LEVEL BALANCED FLUE



Top view on next page

LOW LEVEL BALANCED FLUE



TERMINAL GUARD

A Terminal Guard must be fitted to low level Flue Terminal below 2 metres and where persons or animals could come into contact with the terminal or if it could be subject to damage.

MODEL	Flue	A	B	C	D
50/70	3"	125	176	765	130
70/90	3"	125	176	765	130
90/115	3"	125	176	803	130
115/140	4"	150	185	917	138
140/170	4"	150	185	917	138

LOW LEVEL BALANCED FLUE SIDE AND REAR ASSEMBLY INSTALLATION

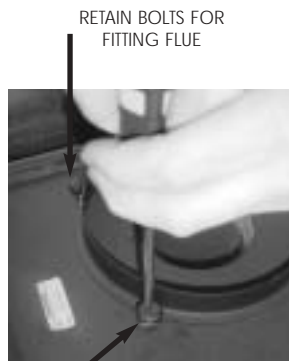


REMOVE CASING LID

1. Cut hole in wall. Remember measure, mark, CHECK then cut.
2. Remove Conventional Flue ring from top of boiler.
3. Fit Red inner seal and Black out Seal to flue connector and extension if required.
4. Apply lubricant included in kit. To the inner and outer seal taken care to only lubricant the lip of the seal.



REMOVE FOIL



REMOVE FLUE RING



FIT SEALS AND LUBRICATE



FIT SQUARE GASKET



FIT BOLTS



FIT SNORKEL TUBE

5. With boiler in position pass the flue assembly through the wall and bolt the bottom section of the flue to the boiler, insuring that square gasket is in between the boiler and the flue.
6. Attached the snorkel tube with clips to the flue.
7. Make sure that flue terminal protrudes through the wall a minimum of 176mm for 80mm flue and 185mm for 100mm

FLUE EXTENSION

The maximum horizontal flue level is 1450mm this can be achieved using the following extension kits:

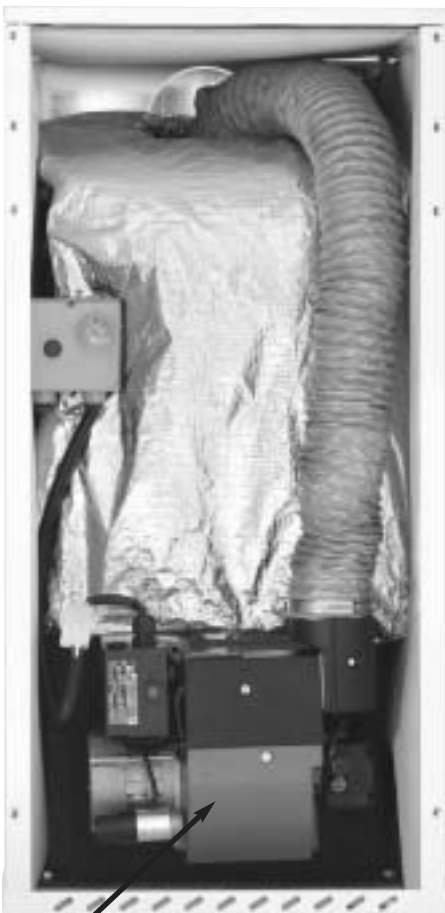
3 x kit 3 300mm extension

OR

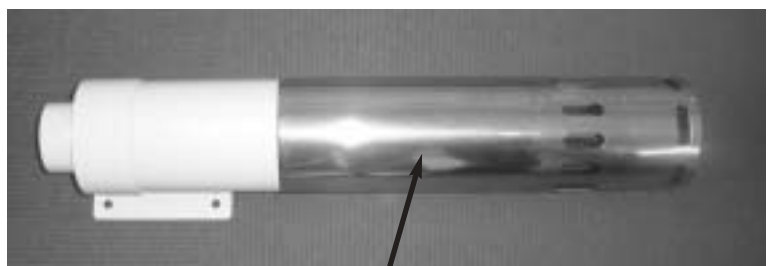
1 x kit 6 950mm extension

8. Remove CF adaptor from burner and discard.
9. Fit the gasket and B F adaptor and connect snorkel Tube.

N.B. Kit 8 45 degree bends must not be used on low level balanced flue kits.

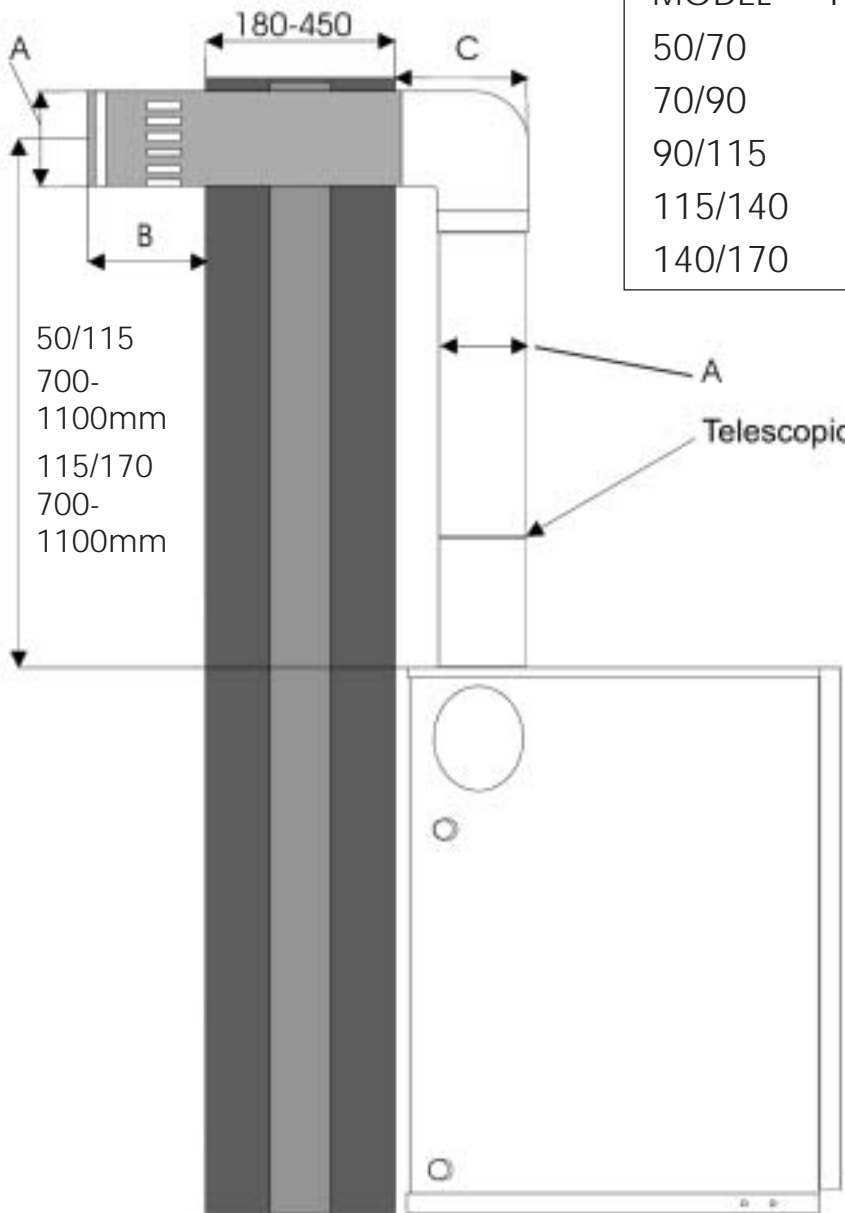


INTERNAL VIEW



HORIZONTAL FLUE

HIGH LEVEL BALANCED FLUE



HIGH LEVEL ROOM SEALED BALANCED FLUE DIMENSIONS



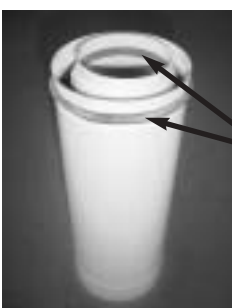
REMOVE CASING LID



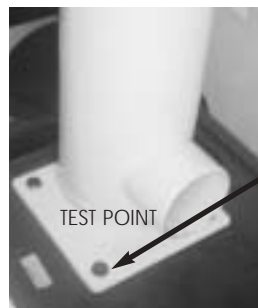
REMOVE FOIL



REMOVE FLUE RING



FIT SEALS AND LUBRICATE

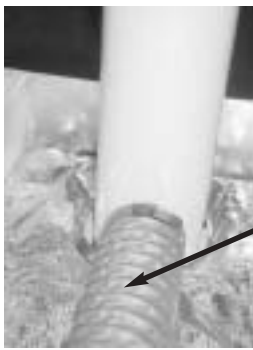


BOLT BOTTOM SECTION TO BOILER

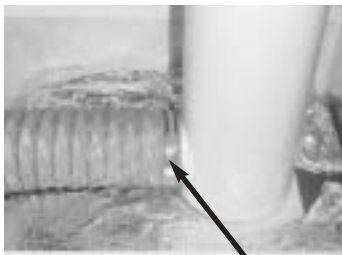
TEST POINT

INSTALLATION OF HIGH LEVEL BALANCED FLUE

1. Position boiler and Cut Hole in wall. Remember measure, mark, CHECK then cut.
2. Remove Conventional flue ring from top of boiler.



FIT SNORKEL TUBE



FIT CLIP



FIT LID

3. Fit Red inner seal and Black outer seal to flue connectors and extensions if required.
4. Apply lubricant to the inner and outer seals. Taken care to only lubricant the lip of the seals.
5. Bolt bottom section of the flue to the boiler insuring the square gasket is fitted in between the boiler and the flue.
6. Attached snorkel to the flue with the clip.
7. Refit boiler top panel insure the knock out in the panel has been removed.
8. Assemble second vertical flue section and any vertical extension.
9. Assemble horizontal section and pass through the wall. Making sure that the terminal protudes through the wall a minimum of 176mm for 80mm flue and 185mm for 100mm
10. Connect vertical and horizontal section together.
11. Secure vertical section with the screws provided.
12. Seal around the flue terminal in wall using mastic.
13. Remove CF adaptor from burner and discard.
14. Fit BF adaptor connect snorkeltube with clip.

NOTE: Expanding foam can be used to fill/insulate the gap between flue parts and wall.

FLUE EXTENSIONS

Please note a maximum of one kit 6 950mm or 3 x kit 3 300mm extension can be used on the high level.

Kit 8 45 degree bends must not be used on high level balanced flue kits.

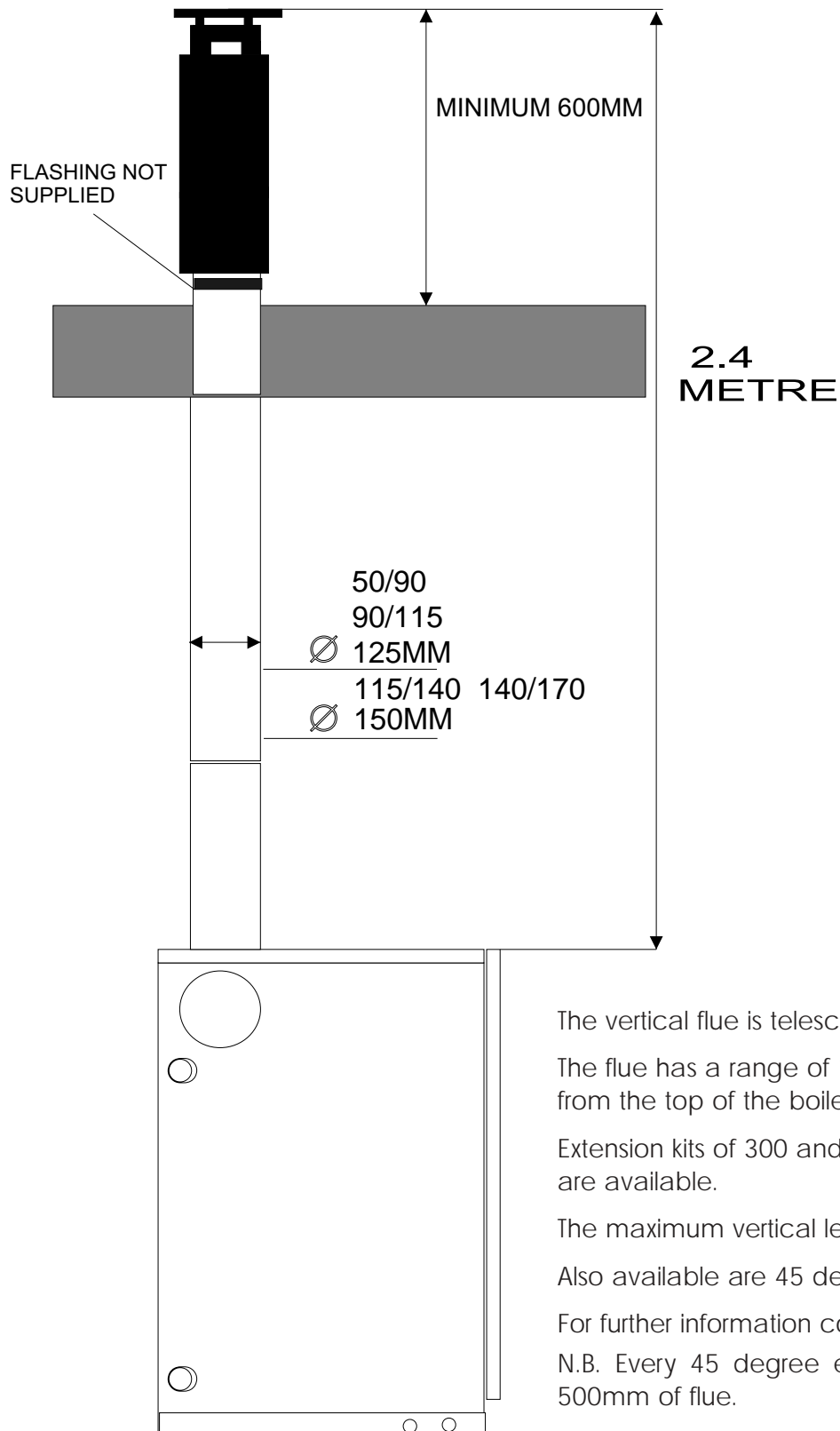


INTERNAL VIEW



FIT HORIZONTAL SECTION

VERTICAL BALANCED FLUE



The vertical flue is telescopic as supplied.

The flue has a range of 1020 - 2400mm from the top of the boiler to the flashing.

Extension kits of 300 and 950mm are available.

The maximum vertical length is 4800mm.

Also available are 45 degree bends.

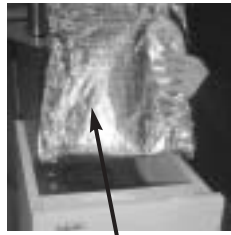
For further information contact our sales office.

N.B. Every 45 degree elbow is equivalent to 500mm of flue.

VERTICAL BALANCED FLUE DIMENSIONS



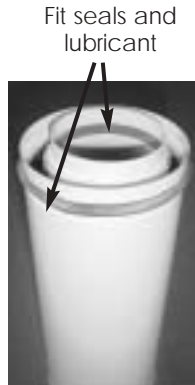
Remove lid



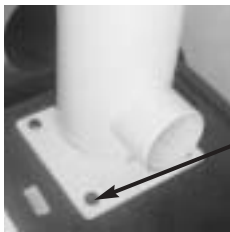
Remove lid



Remove flue ring



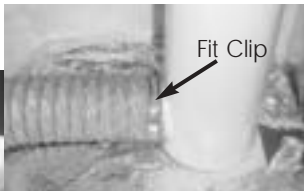
Fit seals and lubricant



Bolt bottom section



Fit Snorkel Tube



Fit Clip



Vertical Terminal



Internal View

INSTALLATION OF VERTICAL FLUE

1. Position boiler and cut hole/s in ceiling and roof. Remember measure mark ,CHECK then cut.
2. Remove conventional flue ring from top of boiler.
3. Fit Red inner seal and Black outer seal to flue connectors and extensions if required.
4. Apply lubricant to the inner and the outer seals. Taking care to only lubricant the lip of the seals.
5. Bolt bottom section of the flue to the boiler insuring the square gasket is fitted in between the boiler and the flue.
6. Attached snorkel to the flue with the clip.
7. Refit boiler top panel insure the knock out in the panel has been removed.
8. Assemble second vertical flue section and any vertical extension.
9. Fit the roof flashing and flue terminal.
10. Secure the terminal to a roof joist with clamps provided.
11. Fit flue elbows if required and secure vertical section with the screws provided
12. Seal around the flue terminal in wall using mastic
13. Remove CF adaptor from burner and discard
14. Fit BF adaptor connect snorkel tube with clip.

NOTE: Expanding foam can be used to fill/insulate the gap between flue parts and wall.

FITTING OF BF ADAPTOR



Disconnect Burner Plug



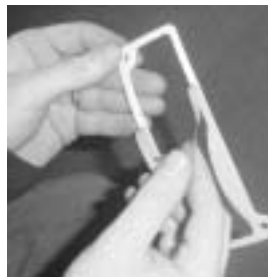
Loosen Bolt



Remove Burner



Remove C F Adaptor



Peel backing sticky from B F adaptor Gasket



Fit B F Adaptor Gasket



Fit B F Adaptor



Tighten bolt on burner



Fit snorkel tube



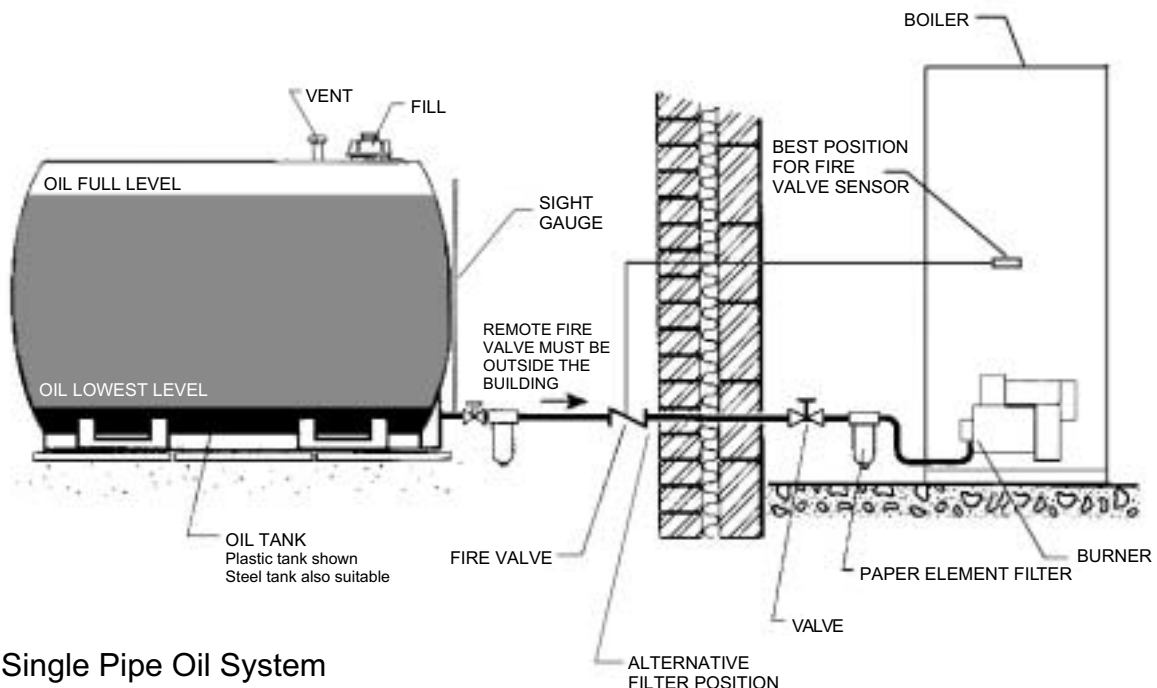
Internal view

FLUE KIT DESCRIPTION AND PART NUMBERS

DESCRIPTION	PART NUMBER	
	50-115,000BTU	115.000-170,000BTU
1. LOW LEVEL BALANCED FLUE STANDARD WALL THICKNESS FROM 150-450mm	KIT1-80mm	KIT2-100mm
2. LOW LEVEL BALANCED FLUE EXTENDED WALL THICKNESS FROM 260-600mm	KIT2-80mm	KIT2-100mm
3. 300mm FLUE EXTENSION	KIT3-80mm	KIT3-100mm
4. HIGH LEVEL HORIZONTAL FLUE	KIT4-80mm	KIT4-100mm
5. VERTICAL FLUE	KIT5-80mm	KIT5-100mm
6. 950 MM FLUE EXTENSION	KIT6-80mm	KIT6-100mm
7. 45 DEGREE BENDS	KIT8-80mm	KIT8-100mm

N.B. Kit 8 (45 degree bends) must only be used on kit 5 vertical flue.

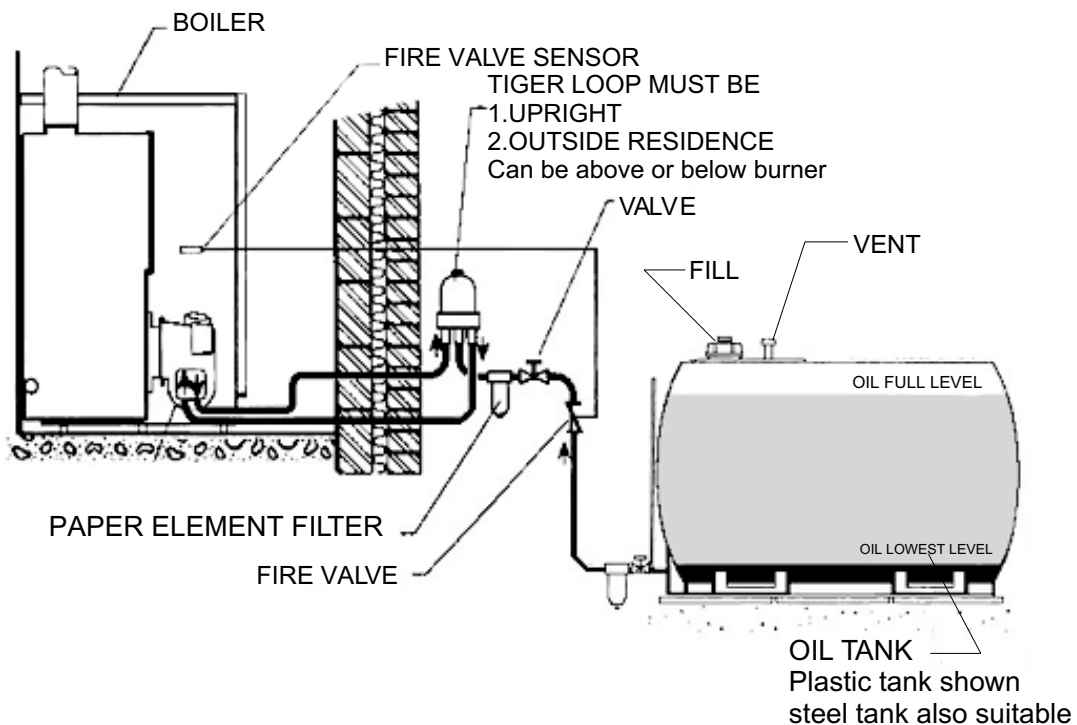
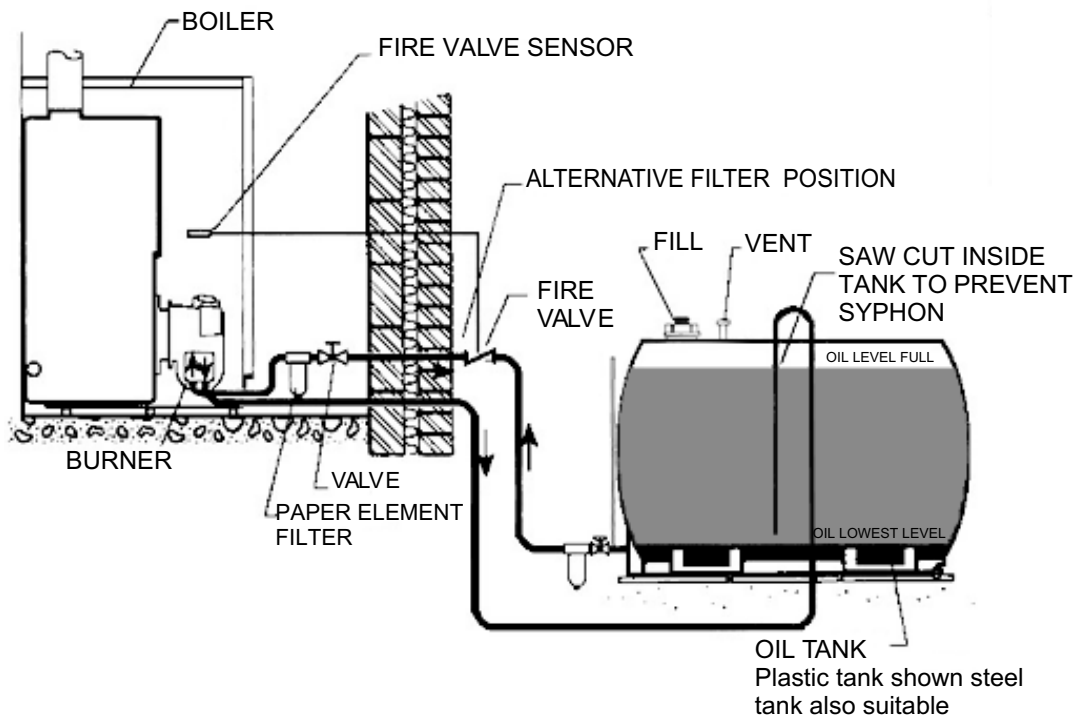
OIL SUPPLY



TYPICAL SYSTEM SHOWN

OIL SUPPLY

Diagrams of twin pipe oil supply systems



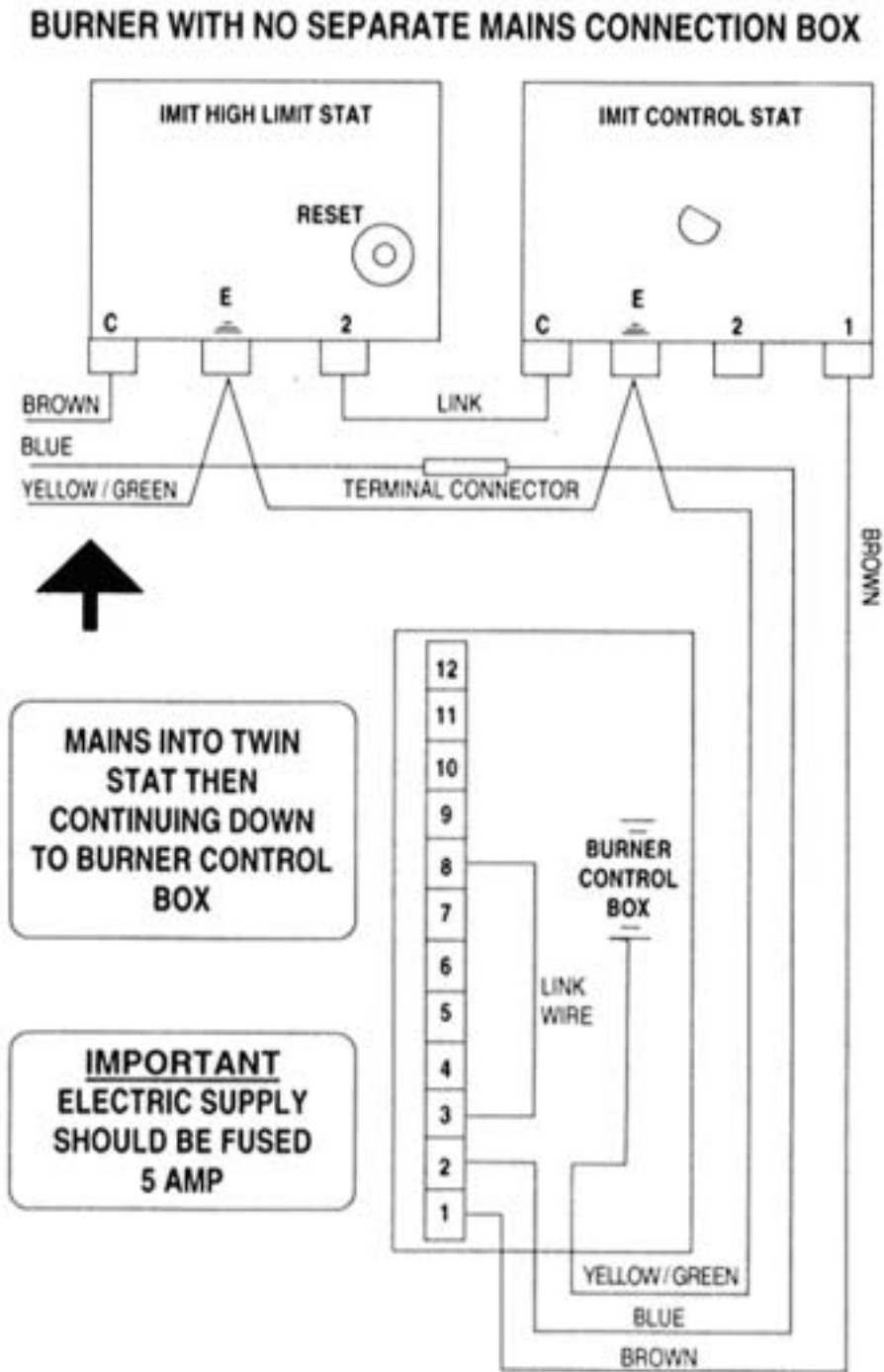
A flexible oil pipe is supplied to connect the burner to the incoming oil supply pipe.

IMPORTANT NOTES

- If siting oil tank above burner height, use single supply pipe only.
- If siting oil tank below burner height, use twin pipe supply or Tiger loop.
- Please refer to Burner Manual for conversion to oil pump for two pipe system.

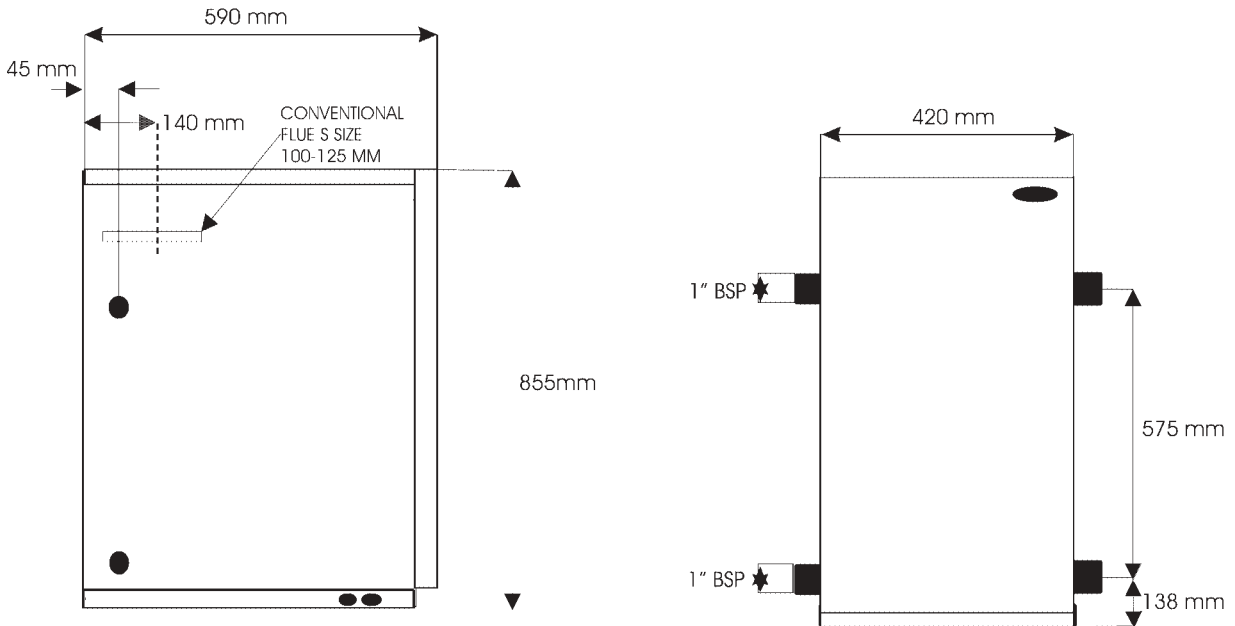
ELECTRICAL ENTRY

The electrical supply to the boiler must be wired using a double pole-isolating switch 230v/50hz, fused 5 amp. The mains supply must be connected with the boiler dual stat, the supply will then continue down to the burner control box. The burner is supplied with a three wire cable plug which allows disconnection for maintenance.

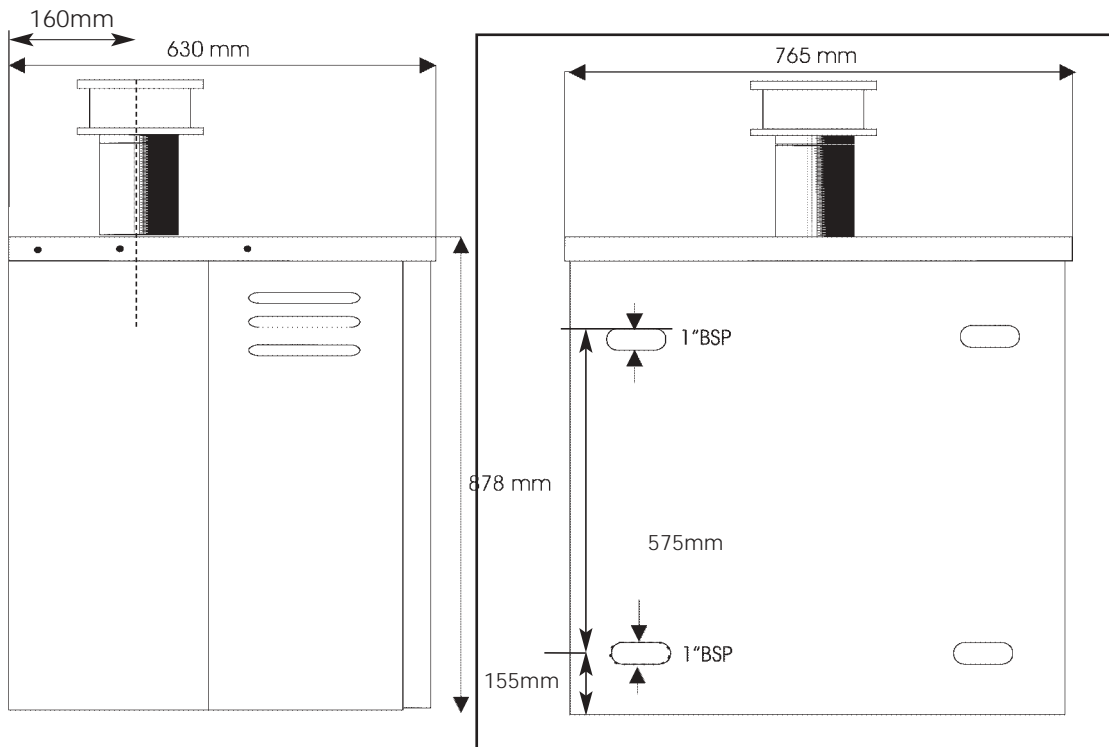


BOILER SPECIFICATIONS

Utility Boilers 50/70 & 70/90 Dimensions



Outdoor Boilers 50/70, 70/90 & 90/115 Dimensions



General Data

Electrical Supply: 240v ~50Hz

Fuel: 28 second or 35 Second

Maximum Control Thermostat Setting 85 °C

Maximum Operating Pressure:

Draught Limit:

Oil Supply Connection ¼" BSP

High Limit Stat: Manual Reset

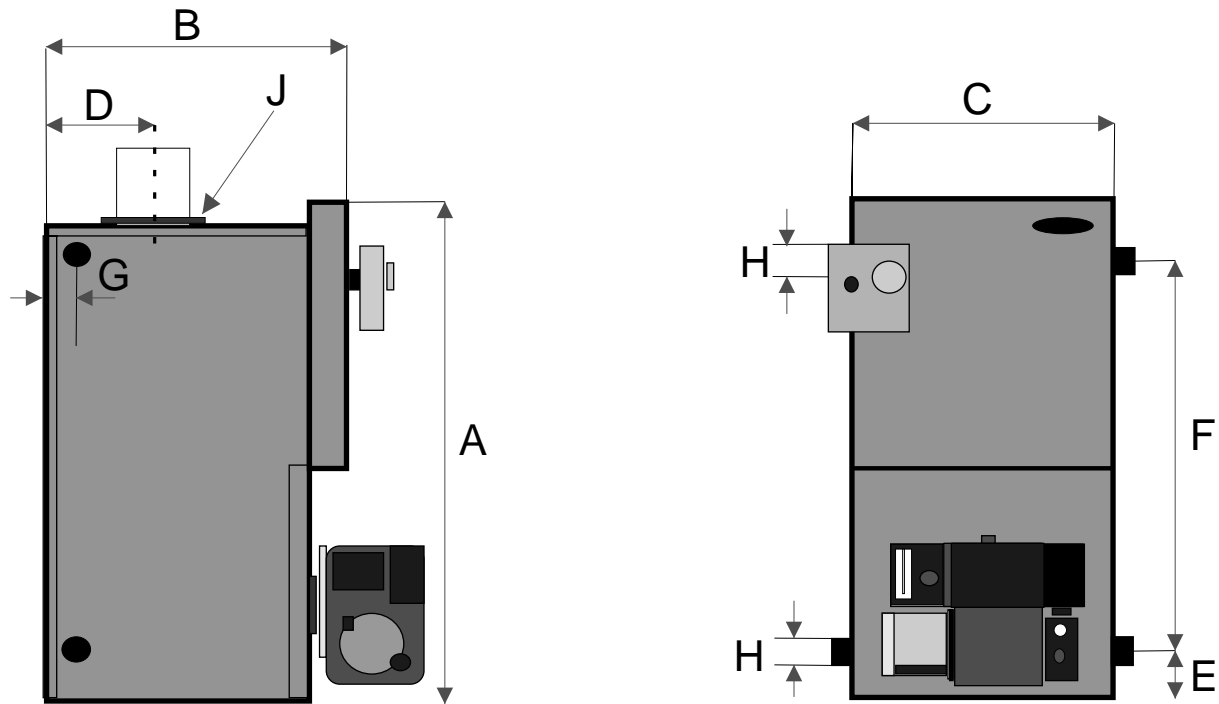
3 bar-45psi - 28m static head room 92ft

Min 12.5 Nm² - 0.05" WG

Max 33.0 Nm² - 0.12" WG

Note: 28 sec fuel must only be used on Outdoor boiler

BOILERHOUSE CLOSED CASED BOILER DIMENSIONS (mm)



Dimensions excluding burner

	50/70 Btu	70/90 Btu	90/115 Btu	115/140 Btu	140/170 Btu	170/220 Btu
A	717	717	760	860	860	910
B	384	384	424	466	466	512
C	367	367	423	460	460	511
D	140	140	140	140	140	140
E	93	93	93	93	93	93
F	575	575	615	715	715	760
G	45	45	45	45	45	45
H	1"bsp	1"bsp	1"bsp	1¼"bsp	1¼"bsp	1¼"bsp
J	100-125	100-125	100-125	125	152	152
Kgs	92	97	129	135	147	162
Water Content	20Ltr	21.5Ltr	30Ltr	31.5Ltr	31.5Ltr	42Ltr

General Data

Electrical Supply: 240v ~50Hz

Fuel: 28 second or 35 Second

Maximum Control Thermostat Setting 85 °C

Maximum Operating Pressure:

Draught Limit:

Oil Supply Connection ¼" BSP

High Limit Stat: Manual Reset

3 bar-45psi - 28m static head room 92ft

Min 12.5 Nm² - 0.05" WG

Max 33.0 Nm² - 0.12" WG

SERVICING INSTRUCTIONS

A competent service engineer OFTEC registered should be appointed on an annual basis.

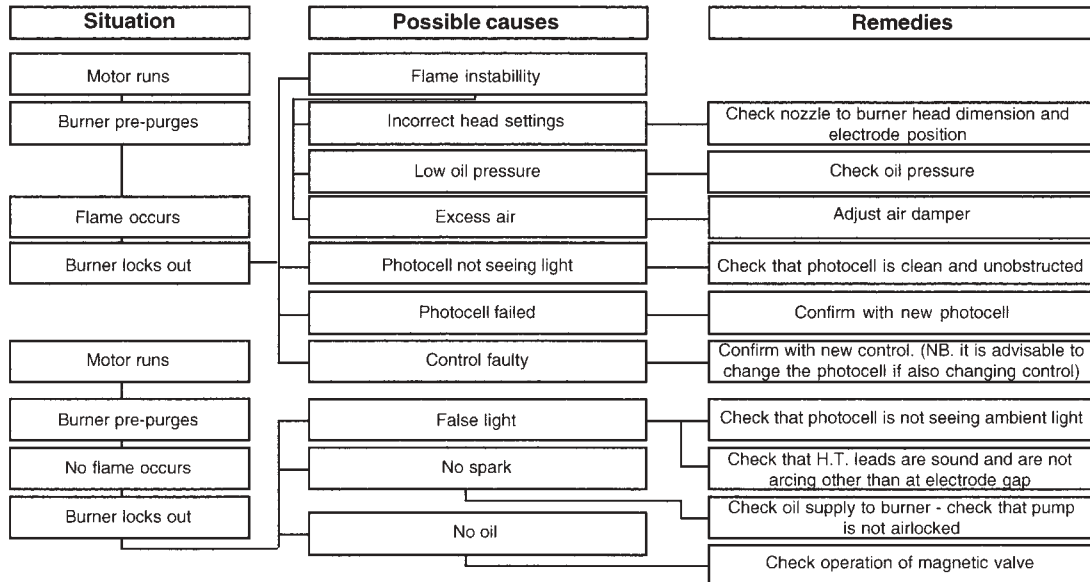
- Remove inspection door, burner and baffle assembly.
- Brush down the inside of the heat exchanger and vacuum out debris .
- Clean baffle assembly.
- Inspect and clean burner assembly, and replace with new nozzle (see burner manual)
- Renew any insulation e.g. inspection door or inside base of heat exchanger
- Reassemble baffles and replace inspection door.
- Replace paper oil filters
- Test oil pressure and test combustion.

BOILER WILL NOT START

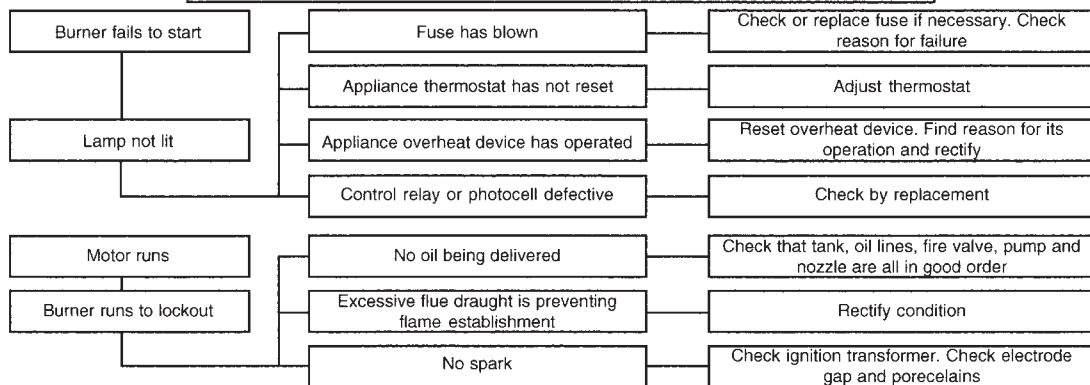
Check if mains electricity supply is reaching boiler control panel, making sure control thermostat is turned on and time clock is calling for heat.

FAULT LOCATION

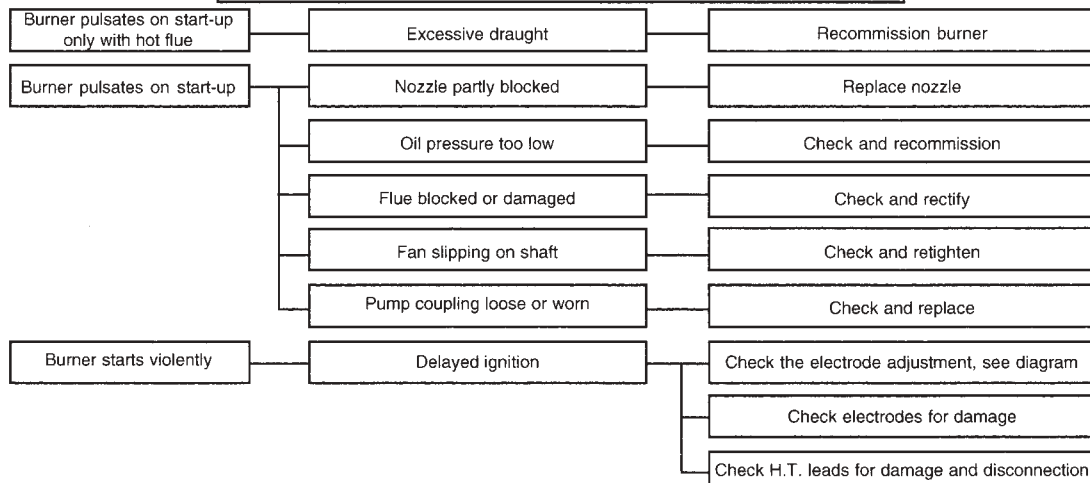
BURNER FAILS TO START



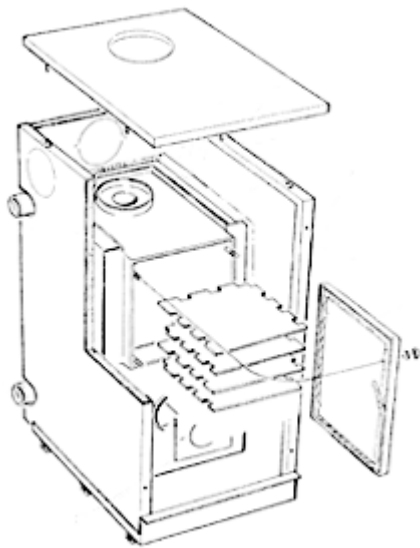
BURNER FAILS TO START AFTER NORMAL OPERATION



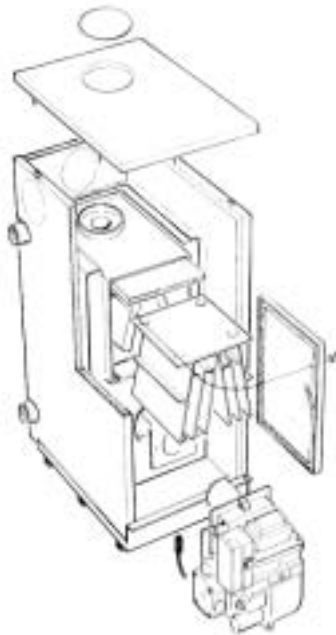
DELAYED IGNITION, BURNERS STARTS VIOLENTLY



PARTS LIST

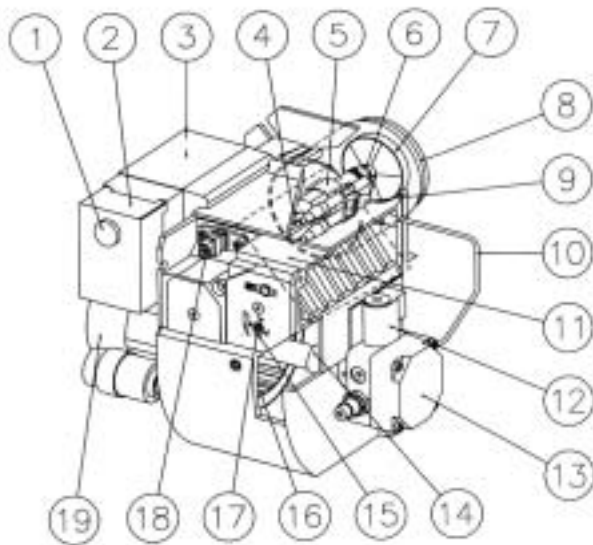


Utility Baffle Arrangement



Whitecased Boilerhouse Baffle Arrangement

ITEM	DESCRIPTION
1	Dual Stat
2	Door Insulation Kit Boilerhouse & Ourdoor 50/70 Baffle 70/90 Baffle 90/115 Baffle 115/140 Baffles 140/170 Baffles 170/220 Baffles Utility 50/70 Baffles 70/90 Baffles
3	Burners Sterling 40 Sterling 50 Ecoflam Minor 4 Ecoflam Minor 8 Ecoflam Minor 12



ITEM	DESCRIPTION
1	Reset Button
2	Control Box
3	Ignition Transformer
4	Ignition Cables
5	Nozzle Assembly
6	Nozzle
7	Brake Plate
8	Blast Tube Blast Tube
9	Ignition Electrodes
10	Connecting Pipe
11	Air Damper
12	Solenoid Valve
13	Pump
14	Drive Coupling
15	Indication Air Damper
16	Fan Wheel ST40 Fan Wheel ST50
17	Adjustment, Air Damper
18	Photo Resistor
19	Motor

BURNER SETTINGS

KEROSENE CLASS 'C' FUEL 28 SEC

BOILER MODEL	50/70				70/90				90/115				115/140				140/170				170/220						
	STERLING 40								STERLING 50								MINOR 4				MINOR 8				MINOR12		
BURNER																											
OUTPUT	Blu/h x 100	50	60	70	70	80	90	90	105	115	115	130	140	140	160	170	170	190	220								
OUTPUT	Kw	14.65	17.6	20.5	20.5	23.5	26.4	26.4	30.8	33.7	33.7	38.1	41.0	41.8	46.0	49.4	49.4	55.7	65.5								
NOZZLE SIZE & TYPE	US/GPH	0.50 80 S	0.55 80 S	0.55 80 S	0.60 80 S	0.65 80 S	0.65 80 S	0.85 80 S	0.85 80 S	0.85 80 S	1.1 80 H	1.1 80 H	1.1 80 H	1.25 80 H	1.35 80 H	1.35 80 H	1.35 80 H	1.50 80 H	1.75 80 H								
OIL PRESSURE	BAR	7.5	8.0	9.5	9.0	9.5	10	8.0	8.5	9.0	7.5	9.5	11.0	9.0	9.0	10.0	10.0	9.5	8.0								
FIRING RATE	Kg/hr	1.35	1.63	1.95	1.98	216	2.44	2.6	2.84	3.2	3.21	3.52	3.8	3.7	4.3	4.6	4.6	5.1	5.9								
AIR SETTING (approx)	SCALE No.	4.5	7.5	10.5	7.0	10.5	14	7.0	10.0	13	3	4	6.5	3	5	7	3	4	7								
SMOKE	Bacharach Scale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
CO ²	%	12	11	12.5	12	12	12.5	12	12	12.5	12	12.5	12.5	11.5	11.5	11.5	11.5	11.5	11.5								
FLUE GAS TEMP:	Minimum Temperature 160° C										Maximum Temperature 260° C																

These figures are a guide only. Site conditions determine oil pressure and air settings required for best combustion test results.

Please Note - More air may be required for balanced flue room sealed models.

NOTES

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