



Iona Boilers
Lodge Way House
Lodge Way
Harlestone Road
Northampton
NN5 7UG



iona

**50/90 & 100/125 OIL FIRED CENTRAL HEATING BOILERS
FOR BALANCED OR CONVENTIONAL FLUE**

**USER, INSTALLATION
COMMISSIONING & SERVICING
INSTRUCTIONS**

CE BED 92/42 EEC
EMC 89/336 EEC

TO BE RETAINED BY HOUSEHOLDER

HEALTH AND SAFETY

INFORMATION FOR THE INSTALLER AND SERVICE ENGINEERS

Under the Consumer Protection Act 1987 and the Health and Safety at Work Act 1974, it is a requirement to provide information on substances hazardous to health (COSHH Regulations 1988).

The Company takes every reasonable care to ensure that these products are designed and constructed to meet these general safety requirements, when properly used and installed.

To fulfil this requirement products are comprehensively tested and examined before despatch.

This appliance may contain some of the items below.

When working on the appliance it is the Users/Engineers responsibility to ensure that any necessary personal protective clothing or equipment is worn appropriate to parts that could be considered as being hazardous to health and safety.

INSULATION AND SEALS

Glass Rope, Mineral Wool, Insulation Pads, Ceramic Fibre, Glass Insulation.

May be harmful if inhaled. May be irritating to the skin, eyes, nose or throat. When handling avoid inhalation and contact with eyes. Use (disposable) gloves, face masks and eye protection.

After handling wash hands and other exposed parts. When disposing, reduce dust with water spray, ensure parts are securely wrapped.

GLUES, SEALANTS & PAINT

Glues, Sealants and Paints are used in the product and present no known hazards when used in the manner for which they are intended.

KEROSENE & GAS OIL FUELS (MINERAL OILS)

1. The effect of mineral oils on the skin vary according to the duration of exposure.
2. The lighter fractions also remove the protective grease normally present on the surface of the skin rendering the skin dry, liable to crack and more prone to damage caused by cuts and abrasions.
3. Skin rashes (oil acne). Seek immediate medical attention for any rash, wart or sore developing on any part of the body, particularly the scrotum.
4. Avoid as far as possible any skin contact with mineral oil or with clothing contaminated with mineral oil.
5. Never breathe any mineral oil vapours. Do not fire the Burner in the open i.e. out of the Boiler as a misfire will cause unburnt oil vapours.
6. Barrier cream containing lanolin such as Rosalex Antisol, is highly recommended together with a strict routine of personal cleaning.
7. Under no circumstances should mineral oils be taken internally.

6 FLUE SYSTEMS

To evacuate the products of combustion safely and thoroughly, the boiler must have an efficient flue system. The design and construction of the Balanced Flue Low Level Discharger Kits already takes these factors into account so the following guidance notes are for conventional chimneys. Reference should also be made to BS 5410 Part 1 if further information is required on conventional chimneys.

Conventional chimney (Fig. 9)

- (a) The chimney should rise as vertically as possible and terminate at a point not subject to down draughts or wind eddies.
- (b) Brick and masonry chimneys must be lined with a moisture and acid resistant liner of the same diameter as boiler flue outlet.

The use of a flexible stainless steel liner is a convenient method of lining an existing chimney and this should be back filled with 'Vermiculite' or similar insulating material to retain heat.

A flexible liner should also be used in chimneys fitted with large diameter clay liners to reduce the flue bore and improve the thermal insulation.

Notes:

- (1) In view of the boiler's high thermal efficiency, it is important that a liner is fitted, otherwise condensation problems could result.
- (2) Before fitting a liner, the chimney must be thoroughly cleaned free from all traces of soot and scale.

(c) A factory made insulated chimney complying with BS 4543 Part 3 may be considered as an alternative to a structural chimney both for new and existing buildings.

(d) The in-built flue gas resistance of the boiler is such that it allows the boiler to operate reliably over the wide range of chimney draughts encountered from typical domestic chimneys.

The use of a draught-stabiliser should not be necessary nor is it desirable since it allows flue noise to be emitted into the room. It could also cool the chimney giving rise to condensing conditions within the flue system.

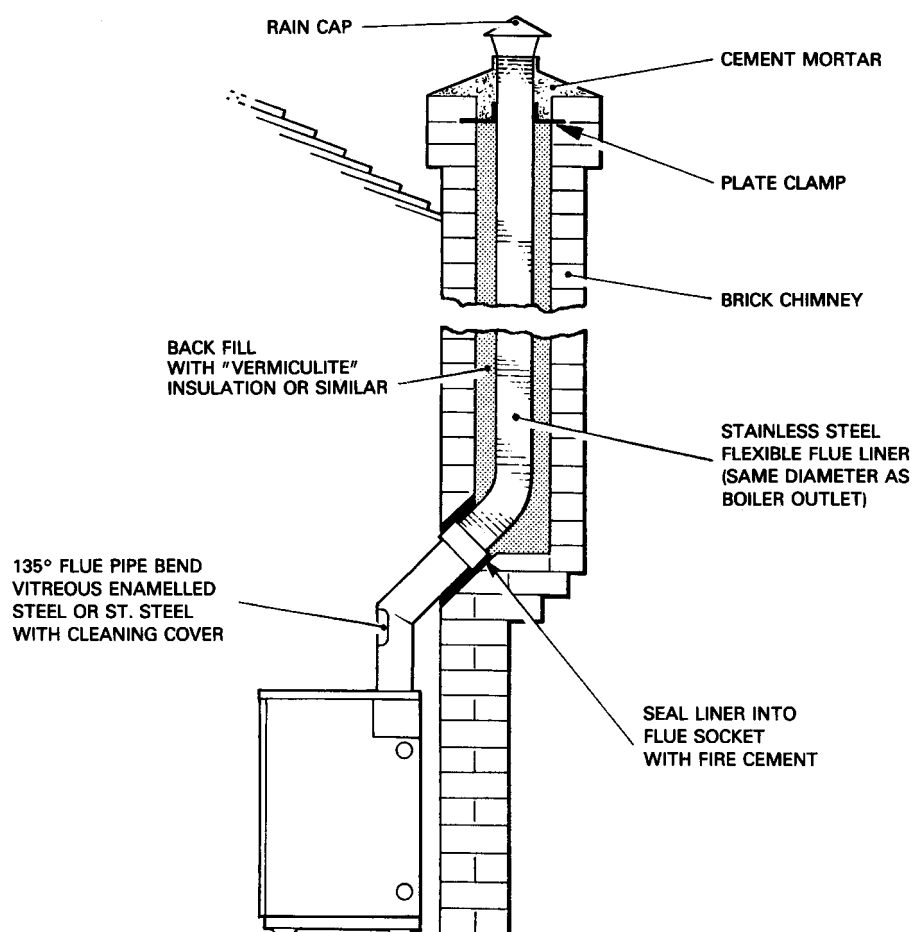


FIG.9 CONVENTIONAL BRICK CHIMNEY WITH LINER

Balanced Flue Systems (optional extra)

The IONA balanced flue system offers much greater flexibility for siting the boiler compared with a conventional chimney. The only requirement is for a suitable outside wall to fit the horizontal discharge terminal.

In addition to the siting benefit, the performance of balanced flue boilers is virtually unaffected by high wind conditions since the wind pressures are applied equally to both air intake and flue gas discharge, thus creating a balanced condition.

Whereas some balanced flue boilers rely on case sealing to achieve a room seal, IONA boilers have a sealed air duct system which maintains the room sealed performance even when the casing door is removed for burner commissioning or adjustments.

The use of the balanced flue principle also enhances the overall thermal efficiency of the boiler since the incoming air extracts waste heat from the flue and returns it as pre-heated air to the burner where it aids combustion.

INSTALLATION NOTES

- (a) Location (Fig. 10)
Modern balanced flue boilers are designed to operate at low noise levels. However, when positioning your boiler, it is not recommended to have the terminal facing a neighbour's property or patio etc. It should also be positioned to avoid products of combustion entering the building. A distance of at least 600mm must be allowed between the terminal and any window, door or other opening into the building. (see diagram for recommended terminal positions).

- (b) Flue Sealing
As the flue system operates under positive pressure, it is essential to seal all flue joints. Apply a thin bead of silicone sealant (supplied) around flue pipe spigot before inserting into socket.
- (c) Fuel
Only Kerosene 28 sec. Class C2 is permitted for boilers using low level flue discharge.
- (d) Important
These boilers must be used in conjunction with the manufacturer's flue kits only. Any other make of balanced flue used on this appliance cannot be guaranteed.

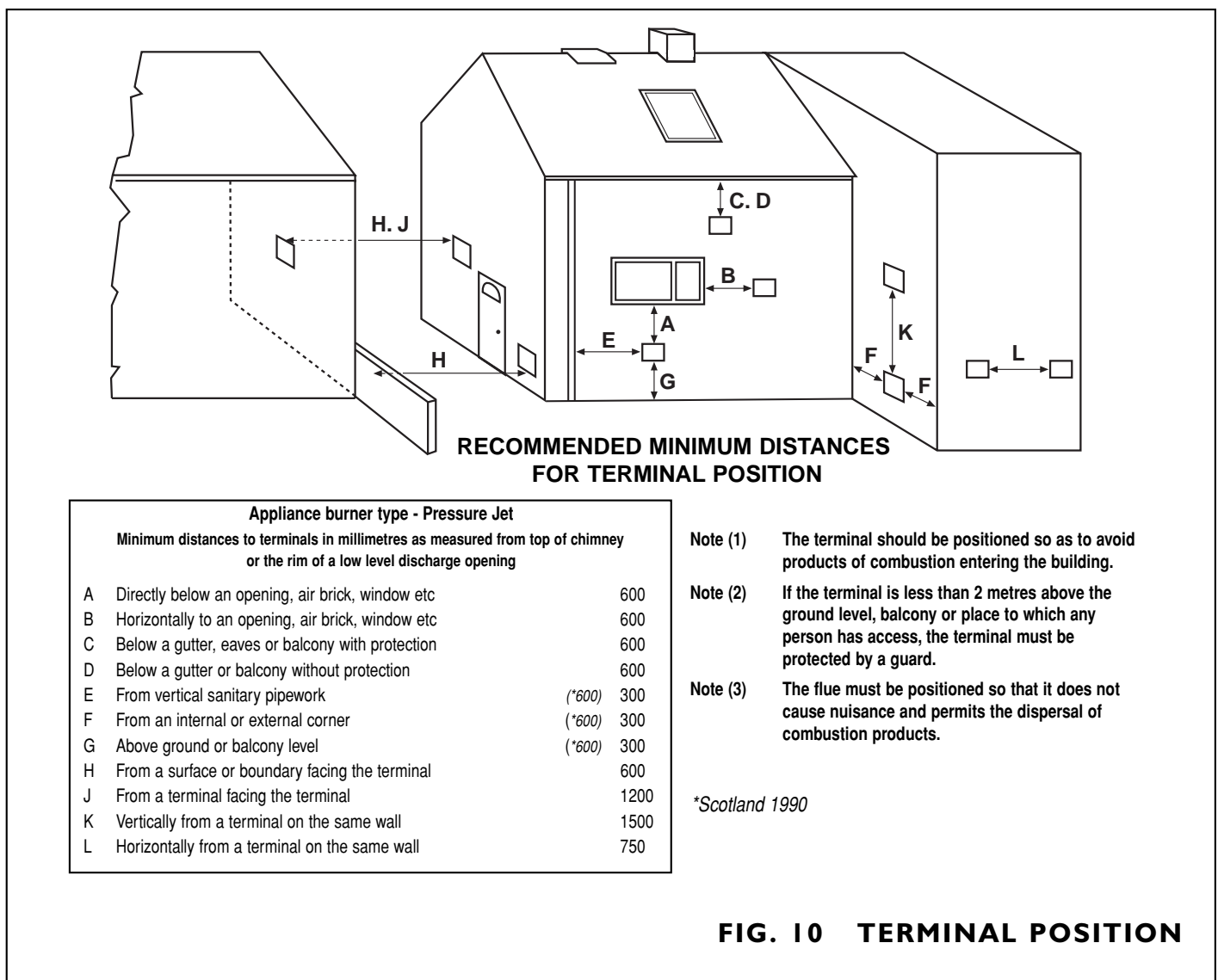


FIG. 10 TERMINAL POSITION

No. DESCRIPTION	50/90 Max 4	100/125 Max 4
1 - OIL PUMP DANFOSS BFP11 R3	221329	221329
2 - COIL	203082	203082
3 - OIL VALVE	221303	221303
4 - COUPLING	221304	221304
5 - NIPPLE	221305	221305
6 - FLEXIBLE OIL LINE	207019	207019
8 - COVER	223443	223443
9 - MOTOR	221340	221340
10 - CAPACITOR	223122	223122
11 - IGNITION TRANSFORMER DANFOSS	203053	203053
12 - CONTROL BOX BASE	207628	207628
13 - CONTROL BOX SATRONIC TF 830.3	29064	29064
14 - PHOTORESISTOR SATRONIC	223168	223168
15 - WIRING TERMINAL BOX	223154	223154
16 - PROTECTION BOX	223155	223155
17 - FAN Ø 120 X 50MM	223156	223156
18 - FAN SCOOP	-	223157
20 - AIR INLET MANIFOLD	223159	223159
21 - IGNITION CABLES	221319	221319
22 - ELECTRODES	221322	221322
23 - BLAST TUBE	221352	221352
24 - FIRING HEAD	223124	223124
25 - NOZZLE SUPPORT HOLDER	223125	223125
26 - NOZZLE HOLDER	223126	223126
28 - ROD	223127	223127
29 - 'O' RING SEAL	223128	223128
30 - FLANGE	223151	223151
31 - GASKET	223152	223152
- NOZZLE	221356	221356

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HOW TO USE YOUR IONA BOILER

The **IONA** boilers have been designed and constructed to give years of trouble free service and these instructions are provided to assist you in obtaining the best performance with the least trouble and cost.

The boiler is fully automatic in operation and requires little attention other than the setting of the thermostat and any system controls such as a room thermostat and time-switch.

TO FIRE THE BOILER

Before firing the boiler, ensure the system is full of water, there is sufficient oil in the storage tank and all valves are open.

1
Check that the Timeswitch / Programmer (if fitted) is **ON** and the room thermostat is calling for heat.

2
Set the boiler thermostat to the desired temperature.

3
Switch on the electrical supply to the boiler and the burner should fire after a few seconds of fan pre-purge.

4
Set the Time-switch/Programmer (if fitted) to the times and programme required.

5
The boiler will now operate automatically, cutting in and out according to the heat demand.

TO STOP THE BURNER

The burner may be stopped by turning the Boiler Control Thermostat fully anti-clockwise to the OFF position 'O'

If the boiler is to be off for a long time, it is recommended that the mains supply to the boiler is switched off or the Time-switch/Programmer (if fitted) is switched to the OFF position.

BOILER CONTROL THERMOSTAT

The boiler control thermostat enables you to select the temperature of the water leaving the boiler. It is calibrated between High and Low in five intermediate settings, corresponding to a temperature range of 82°C (high) to 55°C (low).

Set the temperature by turning the knob to the required temperature. However, the installer should take into consideration that the return water temperature **must not** drop below 56.2°C when the appliance is up to full operating temperature.

The thermostat is switched off when the knob is turned fully anti-clockwise with pointer opposite 'O'

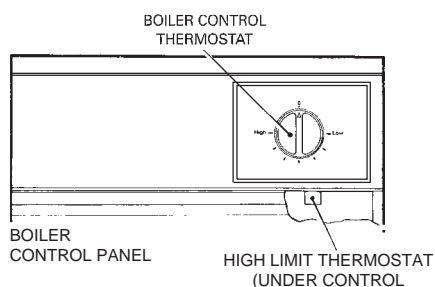
HIGH LIMIT THERMOSTAT (Hand Reset)

The high limit thermostat is factory set and requires no adjustment. Should the boiler thermostat malfunction, the limit thermostat will take over and shut down the boiler.

If the limit thermostat operates frequently, consult your Service Engineer as there may be a fault in the system.

To reset the limit thermostat, remove the front panel and push in button.

Note: The limit thermostat can only be reset when the water temperature has dropped at least 20°C.



BURNER LOCK-OUT

If the burner fails to light, it will go to lock-out. If this occurs, wait about one minute then remove the front panel and press illuminated reset button to start burner.

In the event of the burner not firing wait a further minute and then press the reset button again. If the burner still fails to start, switch off the electrical supply to the boiler.

WARNING - DO NOT ATTEMPT TO START BURNER MORE THAN TWICE

(See Simple Fault Finding before contacting your Service Engineer).

SYSTEMS CONTROLS

ROOM THERMOSTAT

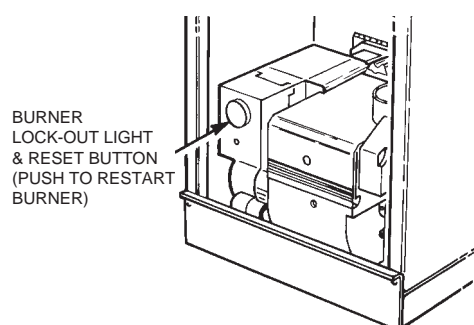
The room thermostat should not be positioned near a source of heat such as a radiator or exposed to the sun as this will cause the central heating to switch off before the room is up to temperature. Follow the manufacturer's instructions for best siting position for the thermostat.

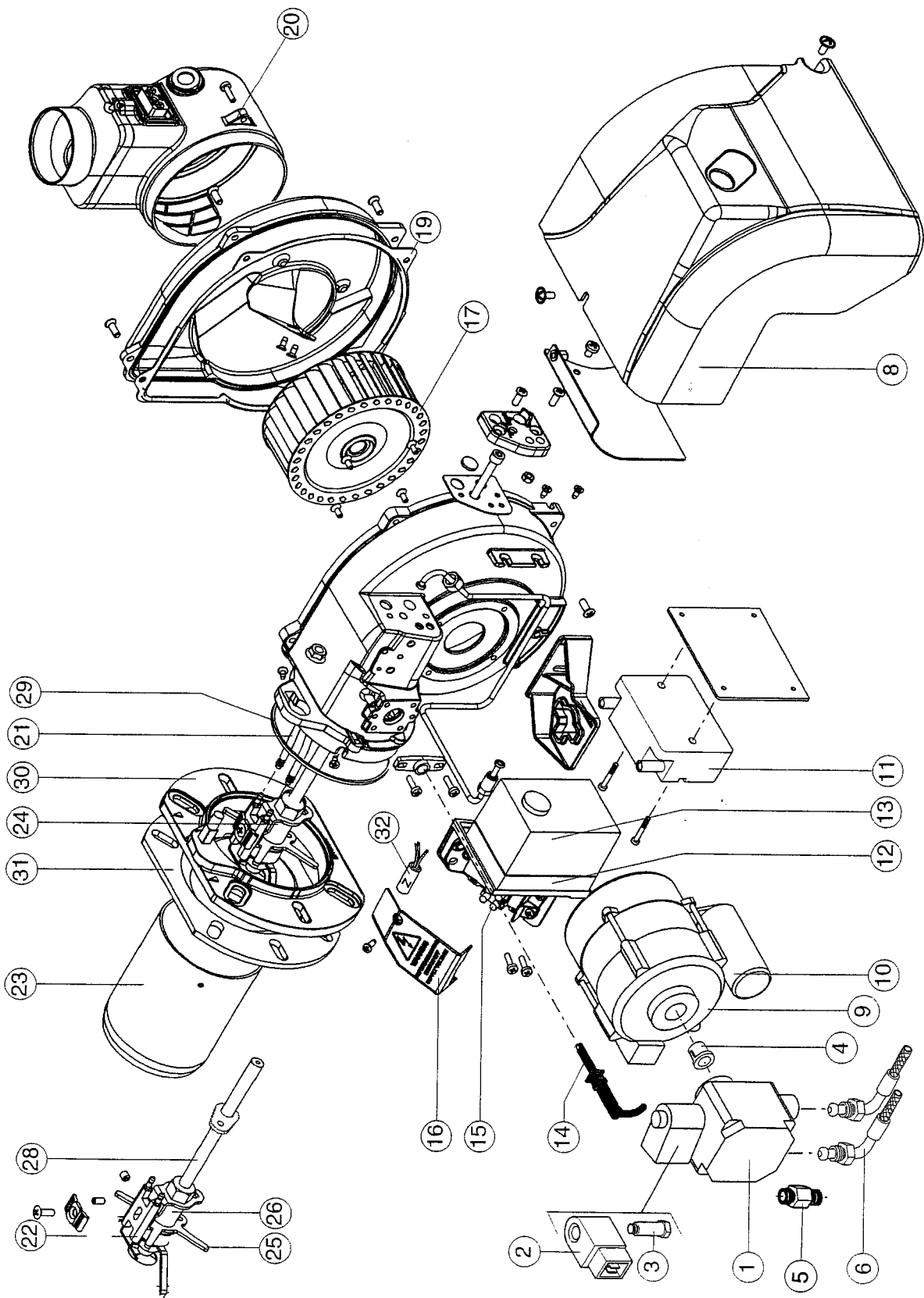
TIME-SWITCH/PROGRAMMER

When choosing the operating times for your boiler, it is useful to remember that central heating usually takes between half an hour to an hour before it becomes effective.

It is suggested that the Time Switch/Programmer is set to bring on the heating about an hour before heating is required.

It is also worth noting that the heating system will usually remain effective for up to half an hour after boiler shutdown. The timer can therefore be switched off earlier as an economy measure.

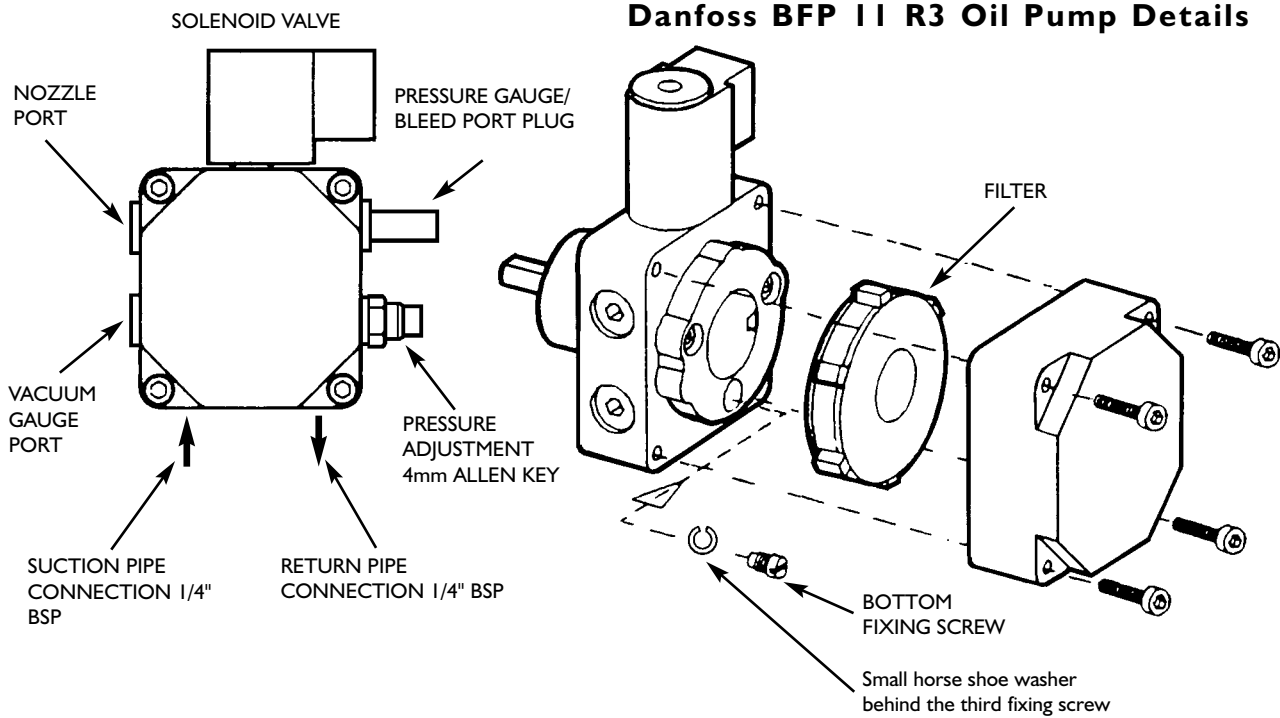




MAX 4 BURNER

PRIMING AND ADJUSTING THE PUMP

Danfoss BFP 11 R3 Oil Pump Details



NOTE

To prime the pump first of all remove the pressure gauge bleed port plug until oil is seen to be present. Replace the pressure gauge/bleed port plug. If the burner goes to lock out after the prepurging time due to lack of pressure in the oil pump restart the burner

ONE PIPE SYSTEMS

BFP 11 3 Pumps are fitted with a small 'horse shoe' washer behind the third fixing screw. This allows oil to circulate around the pump on one pipe installations.

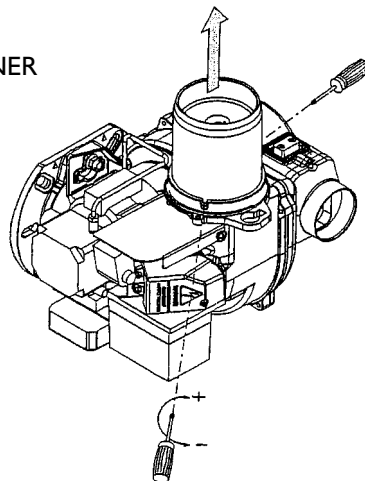
TWO PIPE SYSTEMS

When fitting a two pipe system, the small horse shoe washer must be removed.

- 1 REMOVE THIRD FIXING SCREW
- 2 REMOVE SMALL HORSE SHOE WASHER
- 3 REPLACE THIRD FIXING SCREW AND TIGHTEN DOWN.

Blast Tube Removal

- 1 REMOVE 2 FIXING SCREWS
- 2 LIFT BLAST TUBE FROM BURNER



FROST PROTECTION

If the boiler and central heating is shut down for many hours during very cold weather, the water may be in danger of freezing and, as such, it is advisable to protect the installation with a frost thermostat.

Where the system is not protected, the boiler should be left switched on and the room thermostat set to a low setting e.g. 7°C (45°F) to prevent the building temperature falling too low.

If the system is shut down for a long period during very cold weather, it is advisable to completely drain the system. However, frequent draining should be avoided, especially in hard water areas, as this could lead to scaling of the boiler waterways.

SHUTTING DOWN FOR THE SUMMER

If the boiler is shut down for the summer months, it is advisable to have it serviced and thoroughly cleaned as soon as possible to minimise corrosion of the heating surfaces.

OIL

The recommended oil for your boiler is 28 sec.Kerosene (BS 2869:1983 Class C2).

OIL TANK

Always ensure the tank is topped up at regular intervals, do not wait until the tank is nearly empty before refilling, otherwise sludge and water could be sucked into the oil pipe to affect the burner's operation and reduce pump life. After a delivery of oil, it is recommended

that the oil is allowed to settle in the tank for about half an hour before restarting the burner.

Sludge and water caused by condensation should be drawn off at the tank drain-cock annually.

SIMPLE FAULT FINDING

If the burner fails to start for no apparent reason, make the following checks before calling your Service Engineer.

1

Check for failure in the electrical supply e.g. a power cut

2

Check for a blown fuse. If the fuse has blown and on replacement blows again, switch off the mains electrical supply to the boiler and call your Service Engineer.

3

Check that there is adequate oil in the tank and the shut-off valves are open.

4

Check for burner lock-out. Press the reset button and burner should fire. DO NOT PRESS MORE THAN TWICE. Refer to 'Burner lock-out' for further advice.

5

Check for excess water temperature (Refer to 'High Limit Thermostat' for advice).

Note:

If the boiler has been off as a result of a power failure, it will be necessary to reset the Time Switch/Programmer to the correct time unless it has a built-in power reserve.

SERVICING

To ensure efficient and reliable operation of the boiler, it is essential that the oil burner is initially commissioned by a qualified engineer and an annual service is given thereafter, by an OFTEC trained and registered engineer.

Notes:

ELECTRICAL SAFETY CHECKS SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICAL ENGINEER

- (a) It is the responsibility of the installer to ensure proper commissioning is carried out.
- (b) It is a requirement of the boiler's guarantee and any extended warranty that an annual service is carried out by a qualified engineer.

Notes:

ELECTRICAL SAFETY CHECKS SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICAL ENGINEER

- (a) It is the responsibility of the Installer to ensure proper commissioning is carried out.
- (b) It is a requirement of the boiler's guarantee and any extended warranty that an annual service is carried out by a qualified engineer.

Commissioning Engineer's Signature

Company Name

Address

.....

Tel. No:

CUSTOMER AFTER SALES SERVICE INFORMATION

A step by step guide to reporting a fault with your appliance

A qualified field SERVICE ENGINEER is available to attend a breakdown or manufacturing fault occurring whilst the appliance is under guarantee.

A charge will be made where:

- Our Field Service Engineer finds no fault with the appliance
or
- The cause of a breakdown is due to other parts of the plumbing/heating system (including oil line/lack of oil), or with equipment not supplied with the boiler.
or
- Where the appliance falls outside the guarantee period (see terms and conditions enclosed).
or
- The appliance has not been correctly installed, commissioned or serviced as recommended (see commissioning, installation and servicing instructions)
or
- The breakdown occurs immediately following an annual service visit. In this instance your appointed Service Agent must check all his work PRIOR to requesting a call-out.

NOTE: Burner nozzle is guaranteed up to the first 12 months service.

Over 50% of all service calls made are found to have no appliance fault.

What to do in the event of an appliance fault or breakdown:

Step 1 Always contact your installer or commissioning engineer in the first instance, who must thoroughly check all his work PRIOR to requesting a service visit.

Step 2 If your appliance has developed an in-guarantee fault your installer should contact the Service Centre for assistance.

What happens if my installer/engineer is unavailable?

Step 3 Contact the Service Centre. We will provide you with the name and telephone number of our Service Agent. However, a charge may apply if the fault is not covered by the appliance guarantee (payment will be requested on site by the independent Service Agent).

PLEASE NOTE:

Unauthorised invoices for attendance and repair work carried out on this appliance by any third party will not be accepted.

SERVICE CENTRE AND TECHNICAL SUPPORT

Tel: 0114 257 2300

Fax: 0114 257 2338

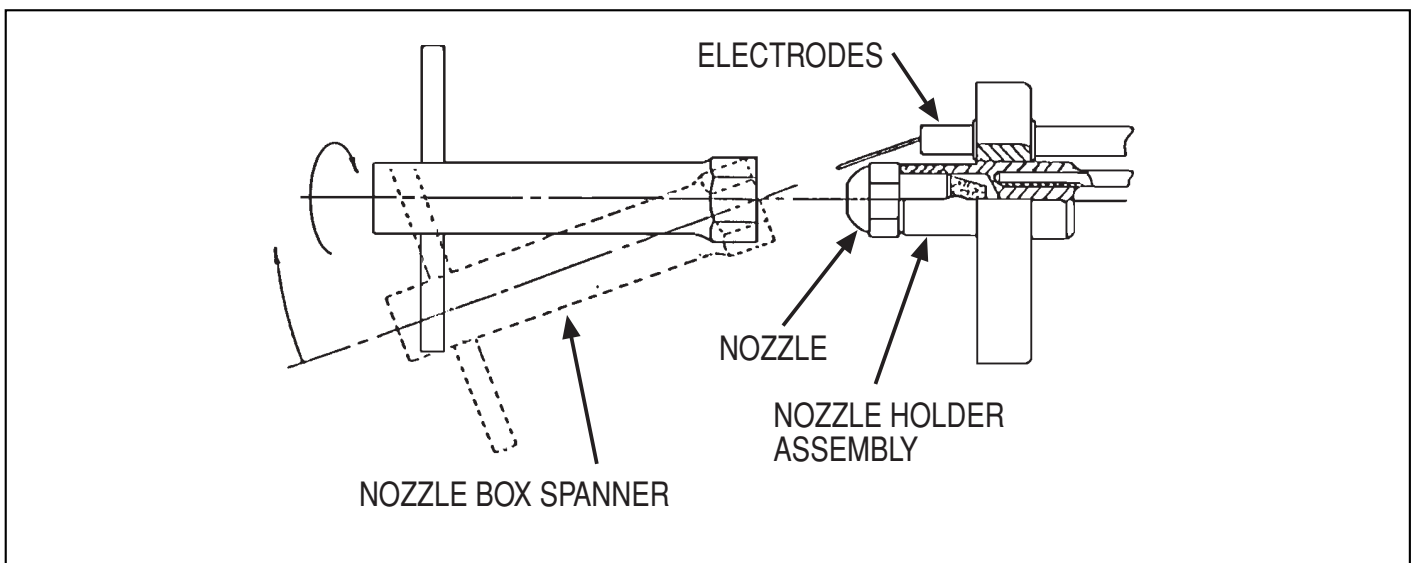
Hours of business Monday to Thursday 8.30am - 4.45pm

Friday 8.30am - 2.30pm

NOZZLE REPLACEMENT

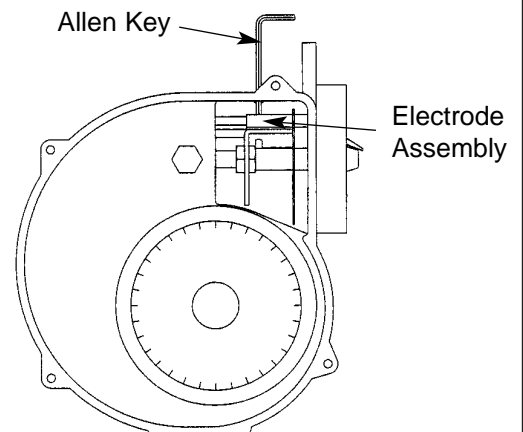
- | | |
|---|---|
| <p>1 Switch off electrical supply to boiler and turn off oil</p> <p>3 Remove burner plug from control box.</p> <p>3 Burner can now be removed from boiler</p> <p>4 Remove blast tube from burner exposing nozzle holder assembly.</p> | <p>5 The nozzle can now be carefully removed taking great care not to damage the electrodes.</p> <p>6 Fit a new nozzle of the same specification taking the same care.</p> <p>7 Check the position of the electrodes after replacing the nozzle to ensure they have not moved.</p> <p>8 Refit the blast tube to the burner.</p> |
|---|---|

IMPORTANT - BURNER NOZZLES ARE GUARANTEED UP TO THE FIRST SERVICE ONLY



ELECTRODE REMOVAL

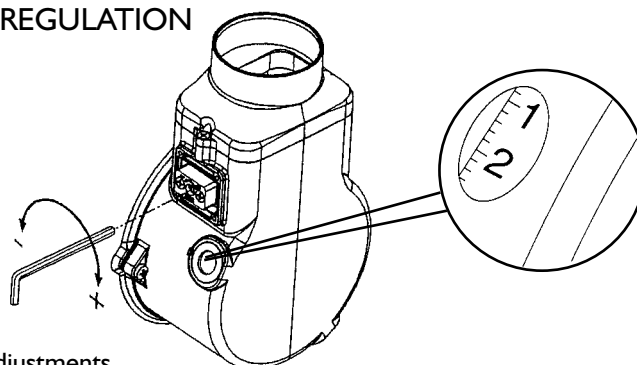
Isolate the mains power supply to the boiler. Turn off the oil supply and remove the burner cover. Remove the four fixing screws that hold the fan housing cover plate in position, this will allow the cover plate and air intake assembly to be removed. Loosen the 2 screws securing the blast tube in position and remove the blast tube. On the top of the burner to the left hand side near the burner fixing point is a pozi drive screw. By removing this screw it will allow a 3 mm allen key to pass through the hole and loosen the electrode fixing screw. Once this is done the electrodes can be removed or adjusted from the front of the burner. Before re-assembly set the electrode position, refer to Combustion Head Settings. Reassemble in reverse order, recheck electrode position before fixing the burner back into the boiler.



II BURNER TECHNICAL DETAILS

MODELS		MAX 4
Voltage single phase 50Hz	V	240
Motor	W	90
Rpm	No	2800
Capacitor	uF	3
Ignition transformer	kV/mA	8/20
Control box	SATRONIC	TF 830.3
Fuel: Kerosene	Mj/kg	43.3

AIR REGULATION



Air Adjustments

To adjust the air, use the allen key provided. Turn the air adjustment screw to + or - setting, the number will be indicated in the display window.

Output in BTU's	Nozzle	Pressure	CO2 (%)
50,000	0.5 x 80° EH	100PSI	11.5
60,000	0.6 x 80° EH	110 PSI	11.0
70,000	0.65 x 80° EH	120 PSI	11.0
80,000	0.75 x 80° EH	110 PSI	11.0
90,000	0.85 x 80° EH	110 PSI	11.5
100,000	1.0 x 80° EH	110 PSI	11.0
115,000	1.1 x 80° EH	100 PSI	11.5
125,000	1.1 x 80° EH	115 PSI	11.5

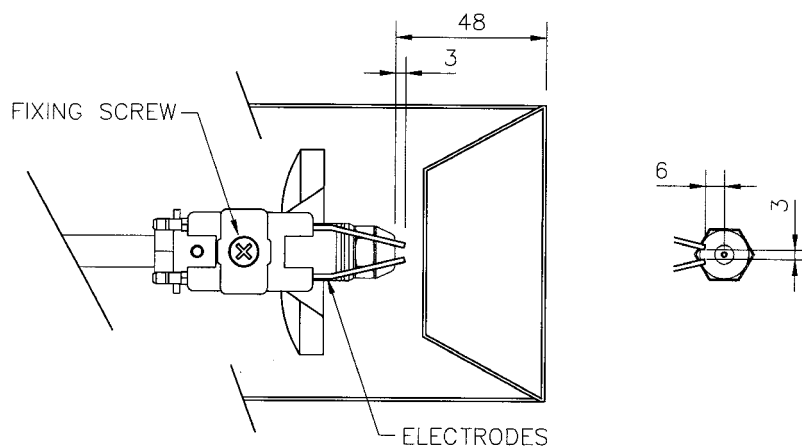
All 50/90 Models are factory set at 90,000 BTu's.

*Instructions for converting burners to lower outputs

To convert burners to lower outputs the nozzle and pump pressure must be changed. In addition the top baffle **must** be removed.

COMBUSTION HEAD SETTINGS

IONA 50/90 and 100/125



2 INTRODUCTION

The IONA Boiler has been designed to conform to European Directive/Standards BED 92/42 EEC LVD EN 60335-1 EMC 89/336/EEC.

The boilers are supplied suitably equipped for connection to a conventional chimney but they can readily be converted into a room sealed balanced flue appliance by using the Balanced Flue Kit. (See Section 6)

The matched pressure jet burner which is exceptionally quiet in operation, ensures clean and efficient combustion with low NOx emissions. As the IONA balanced flue boiler is a truly room sealed appliance, it is also eminently suitable for installation in a garage.

The IONA boilers are suitable for all normal open vented central heating and

indirect hot water systems and can also be used with sealed systems up to a working pressure of 3 bar with the appropriate sealed system safety equipment. Two flow and return sockets are provided to facilitate connection to the heating and hot water systems.

Due to high efficiency of this range of boilers; it is recommended that they are filled on fully pumped system using diagonally opposite connections of the heat exchanger.

The 50/90 model allows all servicing to be carried out from the front of the boiler, thus allowing the boiler to be fitted under a kitchen work top if required. The front mounted flue-cover permits easy access for the removal of the flue-baffles and cleaning of heating surfaces.

The 100/125 model requires top access to the flue cover for routine servicing.

The boiler is fully automatic in operation and incorporate all necessary safety controls to ensure safe and reliable operation.

IONA boilers are supplied with the burner set for Kerosene 28 sec. Class C fuel to meet the Building Regulation requirements for low level flue discharge. It is recommended this fuel is also used when the boiler is connected to a conventional chimney because of the clean burning characteristics of Kerosene.

Important Notice:

To comply with regulations in force, your new boiler must be installed and commissioned by an OFTEC-registered engineer. The installation must also comply with current *Building Regulations, Part L*.

Failure to meet the terms of these requirements may invalidate your guarantee.

THE PERSON(S) WHO INSTALLS THIS APPLIANCE, COMMISSIONS, SERVICES OR CARRIES OUT ANY REMEDIAL WORK, IE ELECTRICAL FAULT FINDING, MUST HAVE SUITABLE ENGINEERING QUALIFICATIONS

3 TECHNICAL INFORMATION

ALL DIMENSIONS IN MILLIMETRES

MODEL	A	B
50/90	460	855
100/125	460	900

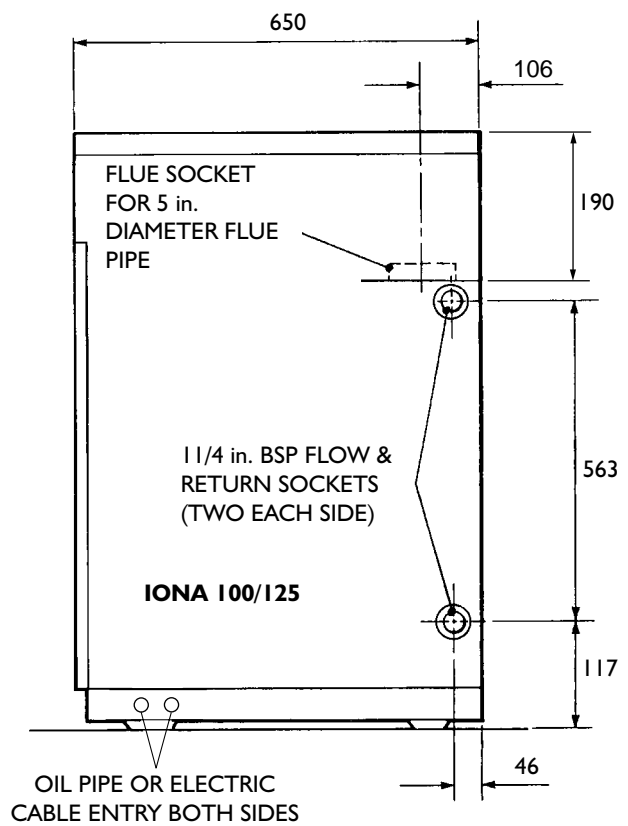
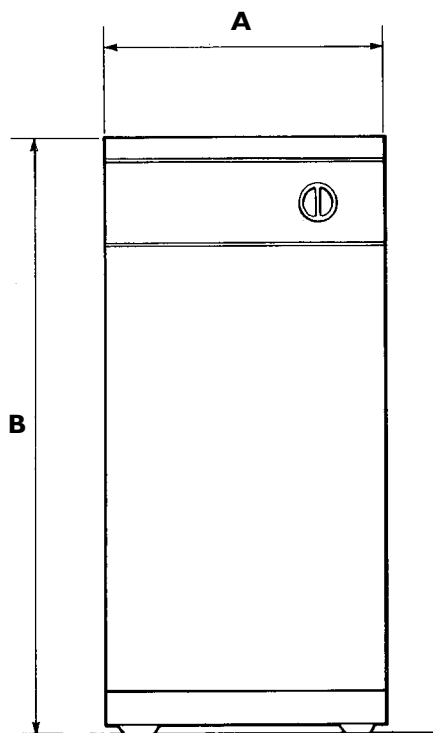
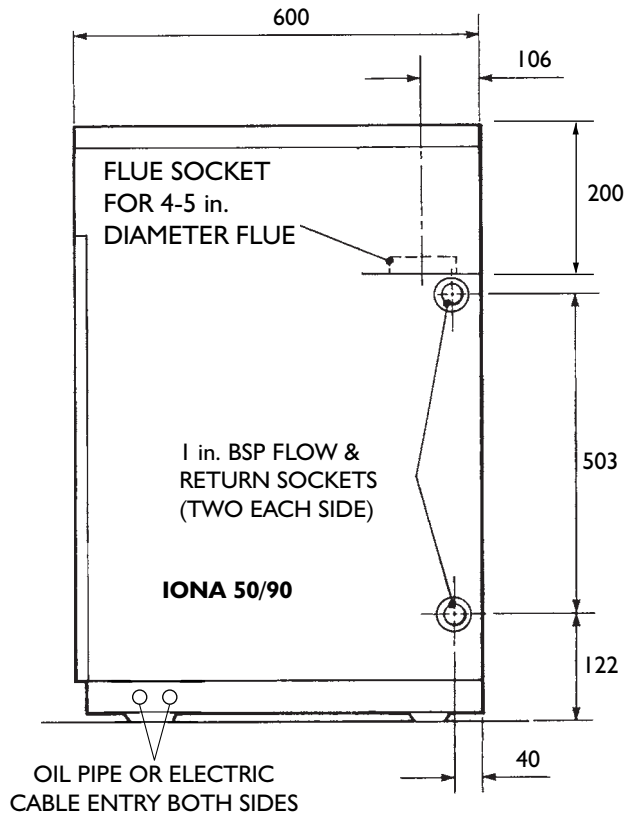


Fig. 1 OUTLINE DIMENSIONS

FAULT FINDING (continued)

FAULT	POSSIBLE CAUSE	ACTION
MORNING START LOCK-OUT	Faulty non-return valve or air leak in two pipe system	Replace non-return valve and cure leak.
	Low voltage	Check with local Electricity Board.
	Combustion readings incorrect	Check combustion under normal running conditions and compare readings with those given under 'Burner Settings'.
	Oil level in tank falling below burner	Raise tank or fit a 2-pipe system.
DELAYED IGNITION - BURNER PULSATES ON START UP	Nozzle partially blocked	Replace nozzle
	Oil pressure too low	Check and recommission
	Flue blocked or damaged	Check and rectify
	Pump coupling loose or worn	Check and replace
BURNER STARTS VIOLENTLY	Delayed ignition	Check electrode setting and adjust to correct gap Check electrodes for damage Check H.T. leads for damage and positive connection Check pump pressure
IGNITION CYCLES ON AND OFF WHILST MOTOR RUNS	Seals on balanced flue kit not sealing	Check flue system seals - replace if necessary

IO FAULT FINDING

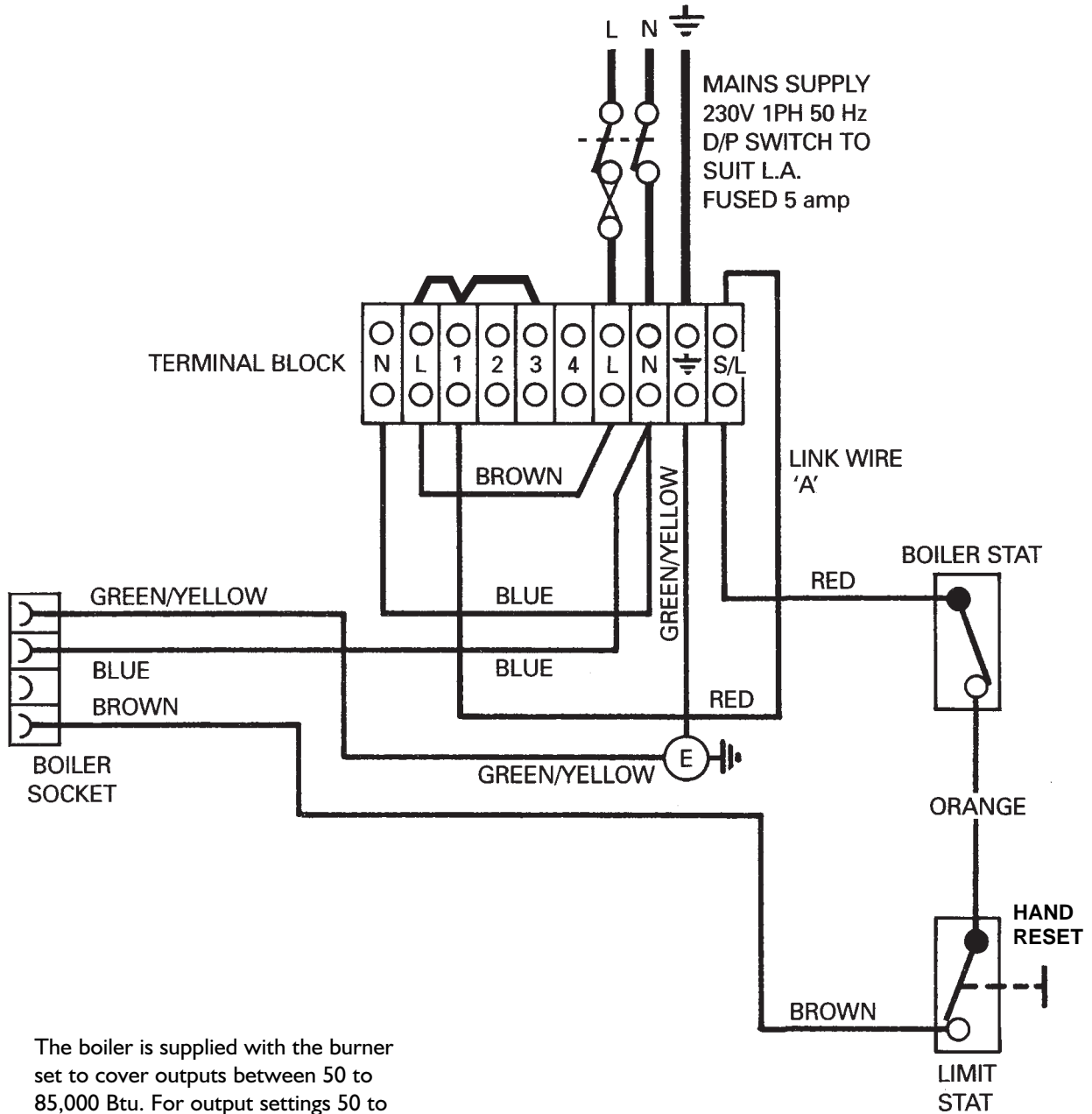
ELECTRICITY SAFETY - Before making any electrical checks, switch off mains supply to boiler.

FAULT	POSSIBLE CAUSE	ACTION
BURNER WILL NOT START	Control box locked out - Light on	Press reset button on front of burner. N.B. ONLY TRY TWICE
	Boiler thermostat or other system controls satisfied	Ensure all controls are calling for heat.
	Fuse blown	Fit new 5 amp fuse, if it blows again, check for short circuit in wiring.
	Check for live supply continuity up to burner	If live supply confirmed, change control box
	Motor or pump seized	Check for rotation and replace as necessary.
BURNER STARTS BUT FLAME NOT ESTABLISHED	No oil supply	Check oil level in tank and feed to burner.
	Photo-cell not seeing flame	Clean photo-cell and ensure it is fully plugged in.
	Air trapped in pump	Bleed off air through pressure gauge tapping.
	Solenoid valve faulty	Check coil for continuity and replace if faulty.
	Nozzle blocked	Replace nozzle with one of same specification.
	Electrodes incorrectly set	Reset gap and position electrodes as shown in Burner diagram.
	Electrode insulator cracked	Check and replace if insulator cracked or crazed.
	Ignition transformer and H.T. contacts	Check for spark and condition of H.T.contacts. Replace as necessary.
Low oil pressure	Check pump pressure and adjust to correct setting.	
FLAME ESTABLISHED BUT BURNER LOCKS OUT AFTER FEW SECONDS	Oil contaminated with water	Run off oil at burner until free of water and drain condensation from tank
	Oil filter partially blocked	Wash filter clean with kerosene.
	Photo-cell fault	Clean photo-cell and ensure it is fully plugged in. Replace if faulty.
	Oil pressure low	Check pump pressure and adjust to correct setting.

TECHNICAL SPECIFICATION

IONA Boiler Models		50/90	100/125
Rated Input	(Btu/h) (kW)	98,000 28.6	136,000 40.0
Rated Output	(Btu/h) (kW)	90,000 26.4	120,000 36.6
Burner		See Burner Details	See Burner Details
Weight (empty)	(kg)	100	130
Water content	(litre)	22	30
Flow & return sockets	(in.)	4 x 1 BSP	4 x 1 1/4 BSP
Flue Socket Dia. (C.F)	(in.)	4 or 5	5
Max. operating pressure	(bar) (psi)	3 43.5	3 43.5
Test Pressure	(bar) (psi)	4.5 5.3	4.5 65.3
Water side resistance			
10 diff	(mbar)	25.0	25.4
20 diff	(mbar)	8.3	8.2
Starting Current	(amp)	3.5	3.5
Running Current	(amp)	.77	0.77
Control Thermostat	- Adjustable up to 82° C		
Limit Thermostat	- Factory set at 110° C (hand reset)		
Casing Finish	- Stove enamelled white		
Thermal Insulation	- Boiler shell insulated with fibre glass		
Optional Extra	- Balanced Flue Kit		

CONTROL BOX WIRING



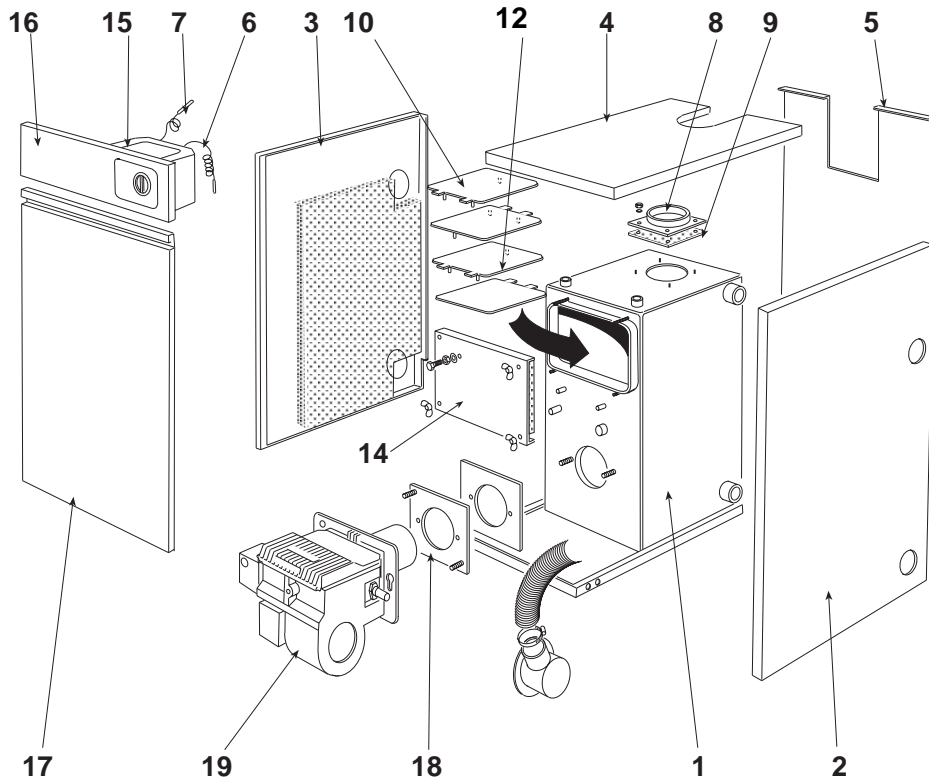
The boiler is supplied with the burner set to cover outputs between 50 to 85,000 Btu. For output settings 50 to 60,000 Btu, the blast tube must be exchanged for conversion kit SP 221457 and an appropriate nozzle fitted.

FIG. 2 WIRING DIAGRAM MODEL

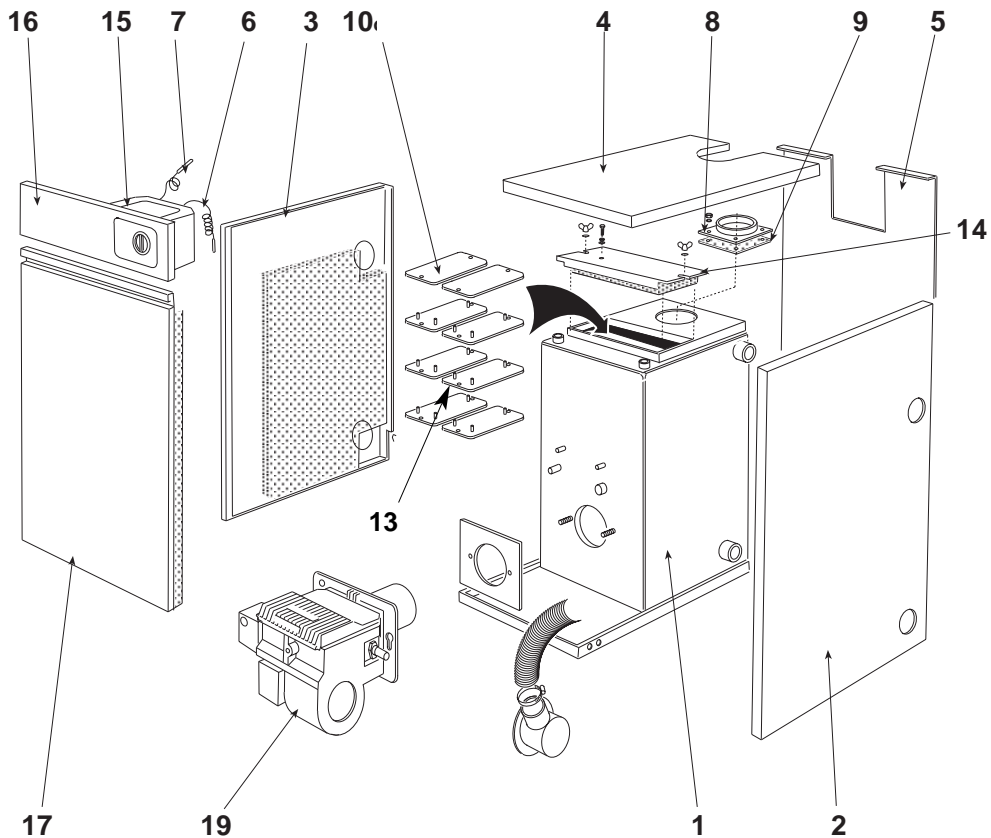
BOILER PARTS

Item	Description	No. Off	50/90	100/125
1	Boiler Body	1	222220	222240
2	R/H Side Panel Assembly	1	221445	221485
3	L/H Side Panel Assembly	1	221425	221465
4	Top Panel Assembly	1	209106	209100
5	Back Panel	1	207819	207819
6	Boiler Control Thermostat	1	206896	206896
7	Limit Thermostat	1	206892	206892
8	Flue Socket Plate	1	207772	207772
9	Gasket	1	204072	204072
10	Baffle W.U Top	3	208838	-
10	Baffle Plate	2	-	208866
12	Baffle Bottom	1	208834	-
13	Baffle W.U	6	-	208871
14	Flue Cover Assembly	1	208803	208876
15	Control Box Assembly	1	209980	209980
16	Facia Panel	1	221430	221430
17	Front Door Assembly	1	221450	221490
19	Burner Assembly	1	223445	223446

9 SPARES



50/90 BOILER EXPLODED VIEW



100/125 BOILER EXPLODED VIEW

4 INSTALLATION

Regulations

Installation of the boiler must comply with the following British Standards and Regulations:

BS 5410: Part 1 - Code of Practice for Oil Firing.

BS 5449 - Forced Circulation Hot Water Central Heating Systems.

The Building Regulations -
Part 'J' (England and Wales)
Part 'F' Section 111 (Scotland)
Part 'L'

The Control of Pollution (Oil) Regulations
Current I.E.E. Regulations
Local Water Undertakings By-laws
OFTEC Installation Requirements for Oil Fired Boilers and Oil Storage Tanks.

Health and Safety at Work Act

The installer should be aware of his responsibilities under the Act and provide, where necessary, appropriate protection for persons carrying out the installation.

In the interest of safety, the boiler should be commissioned by an OFTEC trained and registered engineer.

A useful guide to 'Safe Working Practices for Oil Firing Technicians' is published by OFTEC.

ELECTRICAL WORK SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICAL ENGINEER

Siting the Boiler

Sound Levels

Whilst the low sound level of the IONA boiler makes it eminently suitable for kitchen and utility room installation, the following aspects should be considered before installation:

- Some people are particularly sensitive to even low noise levels so this aspect should be discussed with the householder.
- Small rooms tend to amplify noise, particularly if the wall construction is hollow or the surface tiled.
- A chimney passing through a bedroom can some times transmit noise.
- Low level flue terminals produce some exhaust noise, so care should be taken when siting adjacent to neighbouring property.

Clearance and Service Access

When siting the boiler, ensure adequate clearance is allowed for making water and flue connections. The IONA 50/90 can be fully serviced from the front; there is no need for a headroom allowance nor provision for removal of the kitchen work top but a clearance of at least 750mm is required at the front of the boiler.

The IONA 100/125 requires a top access for flue cleaning and as such a headroom of 450mm (18") should be provided, and at least 750mm at the front of the boiler.

Hearth

The boiler must be fitted on a non-combustible base. The floor must also be level and capable of supporting the installed weight of the boiler, including its water content.

Combustion Air

(Conventional flue boilers)

The provision of an adequate supply of combustion air is essential for the efficient and safe operation of the boiler. The air opening should be positioned so as to cause the least possible draught to the occupants and located so it is not liable to be accidentally blocked.

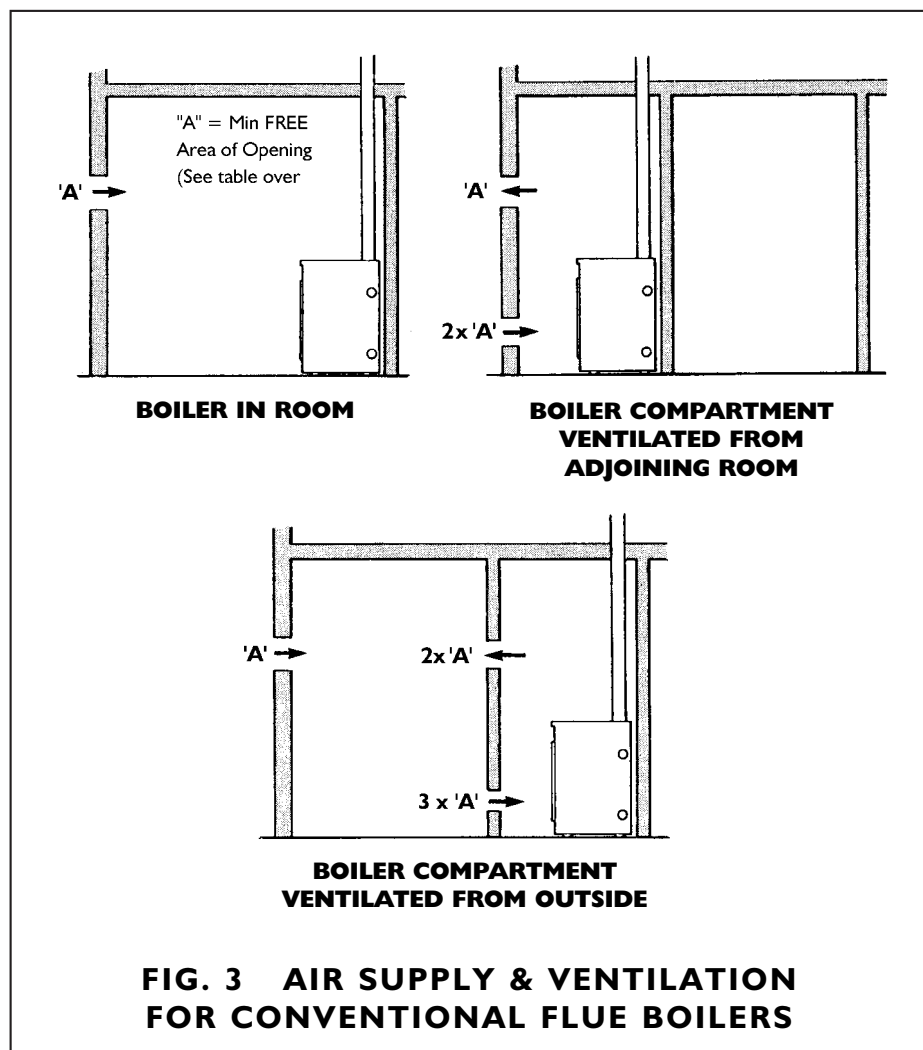
British Standard Code of Practice for Oil Firing BS 5410: Part 1 requires a permanent air inlet opening of 550mm² per kW of boiler rated output over 5kW.

See Fig. 3 & 4 for air openings required for IONA boilers:

Ventilation

(Conventional flue boilers)

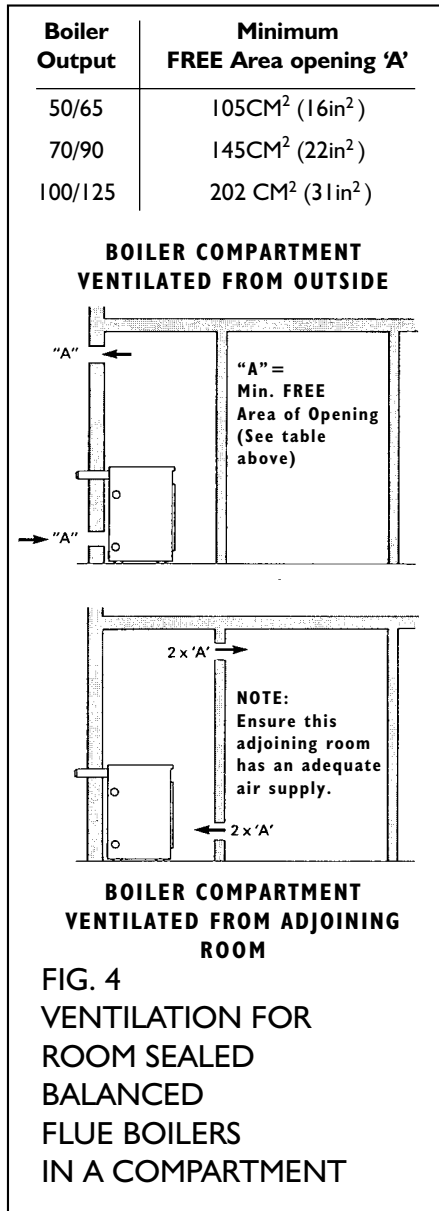
Where the boiler is installed in a compartment or a confined space, ventilation openings are also required to prevent overheating of the appliance controls (the ventilation areas are shown in Fig 3).



Ventilation

(Room sealed balanced flue boilers)

Although no openings are required for the supply of combustion air (this comes from outside through the air duct system direct to the burner), ventilation is necessary if the boiler is installed in a compartment or a confined space in order to prevent overheating of the boiler controls (See Fig. 4 for ventilation openings).



Extractor Fan

(conventional flue only)

If the boiler room has an extractor fan, the combustion performance of the appliance must not be affected when the fan is running and all doors and windows are closed. A flue gas check on the CO₂% and smoke number should be carried out to prove that combustion is satisfactory.

Heating and Domestic Hot Water Systems

The heating system should be installed in accordance with current HVCA Codes of Practice and BS 5449 Part I 'Forced Circulation Hot Water Systems'.

Water connections can be made to the boiler using both pairs of flow and return tappings or, alternatively, single diagonally opposite tappings can be used.

Fit drain-off cock in the lowest part of the system.

Where a boiler is also used for providing domestic hot water, a double feed indirect cylinder to BS 1566 Part I must be used.

MAKE SURE ALL UNUSED BOILER TAPPINGS ARE PLUGGED BEFORE FILLING THE SYSTEM.

Flush out the system to remove any swarf or residues before fitting circulating pump.

Failure to comply with these recommendations may result in there being a temperature build-up within the boiler/system, causing noisy operation.

Electrical Supply
230V 1 Phase 50Hz (Fused 5 Amp)

Note: THIS APPLIANCE MUST BE EARTHED

All electrical wiring must be carried out by a qualified electrician in accordance with current I.E.E. Regulations and any Local Regulations that may apply.

The 230v - 50Hz electrical supply must be fused by a double pole switch with a contact separation of at least 3mm in both poles, and shuttered socket (both complying with the requirements of BS 1363) adjacent to the boiler. Fuse supply at 5A. The minimum requirement for the power supply cable should be a PVC sheathed flexible cord, at least 0.75mm² (24x0,2mm) (code designation H05 VV-F or H05 VVH2-F) as specified in table 16 of BS 6500.

This appliance **MUST** be earthed and the electrical supply earth cable must be of a greater length than the current-carrying conductor cables (ie live and neutral supply cables).

All external cables entering the control box must be secured in position by strain relief bushes supplied (see Fig. 5 on how to secure cable).

Terminal connections are also provided in the control panel for ancillary controls.

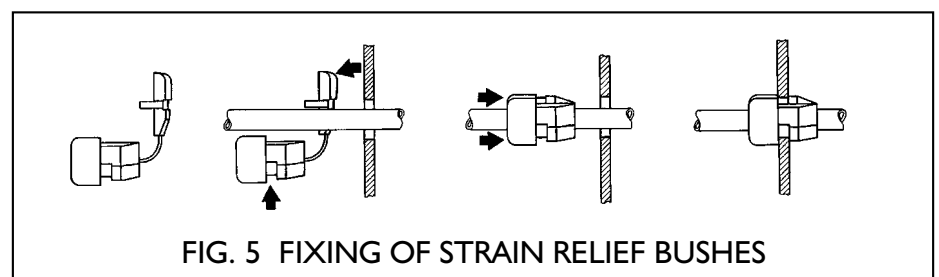
See wiring diagram Fig. 2.

Warning - High and Low Voltage

In certain parts of the country, where there is a known risk of high or low voltage fluctuations, the oil burner shall be prevented from starting by the use of a voltage sensitive device if the voltage drops or increases sufficiently to endanger the installation.

Thermostats

The boiler is fitted with a variable setting control thermostat and a pre-set limit thermostat. Should the boiler thermostat malfunction, the limit thermostat will take over control and shut down the boiler.



Servicing the Boiler (Burner removed)

1. Remove flue-cover and lift out flue-baffles (See Fig. 13).
2. Brush all deposits from flue-baffles and internal surfaces of the boiler.
3. Remove flue deposits from the combustion chamber floor using a vacuum cleaner.
4. Replace flue-baffles in the correct arrangement (See Fig. 13 for order of assembly). Refit the flue-cover and fully tighten wing-nuts to make a gas tight seal.
5. Refit burner to boiler, connect flexible air hose (balanced flue boilers only) and plug-in burner lead.
6. Turn on oil supply, switch on electricity and burner should fire.
7. Finally check the combustion readings with those given under 'Burner Settings' and make any air or oil pressure adjustments necessary.

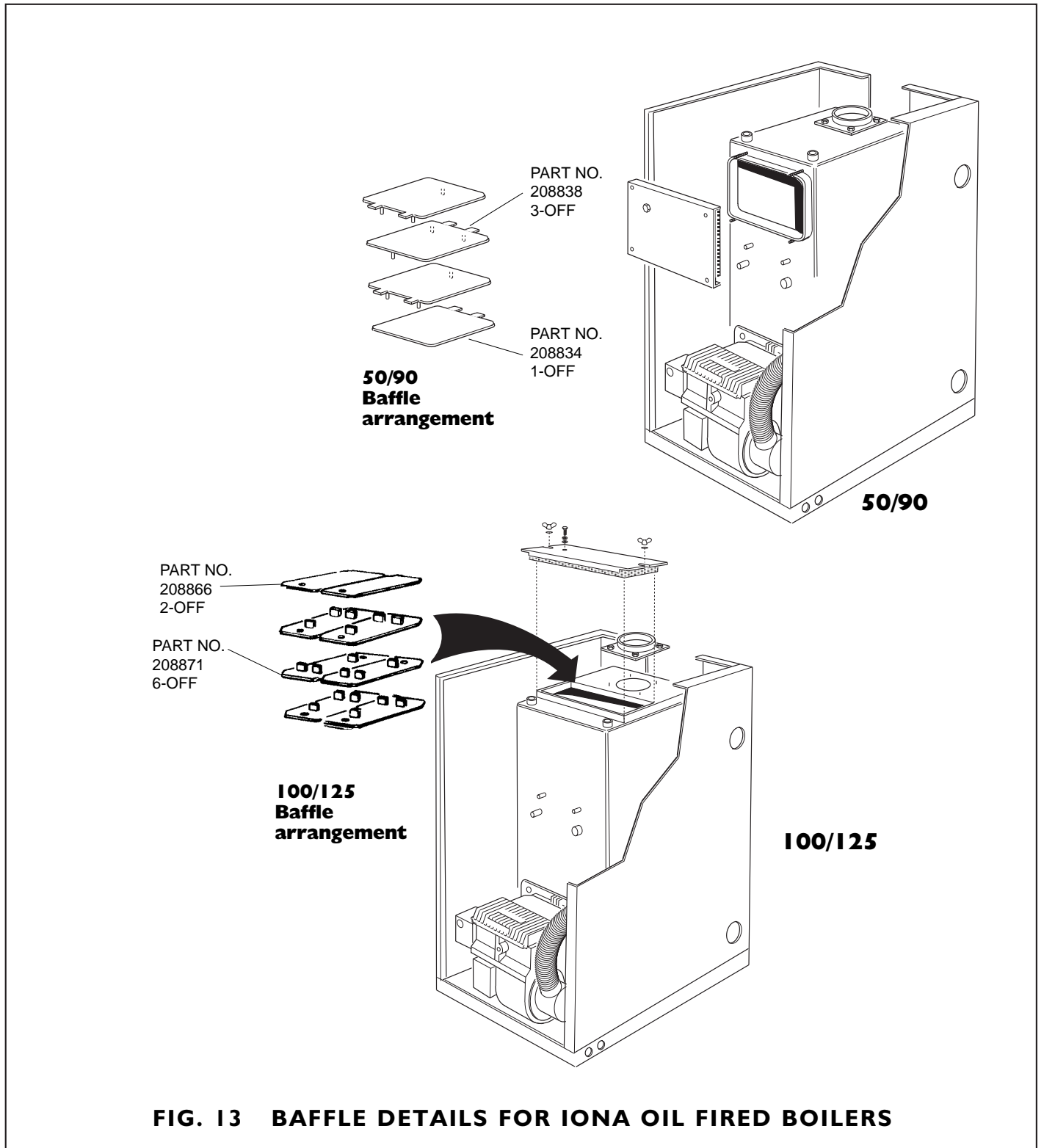


FIG. 13 BAFFLE DETAILS FOR IONA OIL FIRED BOILERS

7 COMMISSIONING

The burner unit must be commissioned by an OFTEC trained and registered engineer.

It is the responsibility of the installer to ensure the boiler is properly commissioned. Failure to do so will make the guarantee and any extended warranty null and void.

Although all burners are factory tested before despatch, they will usually need further air adjustment to achieve the readings indicated in 'Burner Details' because of site variations in flue draught and back pressure.

Procedure

1. Switch off electrical supply to the boiler.
2. Ensure boiler is full of water and all valves are open.
3. Remove flue-cover and check that flue-baffles are correctly positioned (See Fig 15 for baffle arrangement).
4. Disconnect oil hose from burner, open shut-off valve and run off a quantity of oil into a container to check for a clean air free supply then reconnect hose. (This applies to single pipe gravity system only).
5. Check that the time-switch (if fitted) is in the ON position and room and boiler thermostats are calling for heat.
6. Switch on electrical supply and the burner should start.
Note: The burner may lock-out on first firing due to air in the pump, if this happens, wait about a minute before pressing reset button to restart burner. If a further lock-out occurs, the air should be bled from the pump pressure gauge connection.
7. Start and stop the burner two or three times until the flame cuts off sharply - this indicates any remaining air has been dispersed.
8. Allow the burner to run for about 15 minutes, then take a CO₂ reading through the sampling hole in flue-cover. Compare the reading with that given under 'Burner Settings' and adjust the air setting if necessary to achieve the required CO₂%. Also, check the smoke and flue gas temperature.

Handing Over

After completing the boiler installation, the installer should make a thorough check of the system to ensure it is completely satisfactory and demonstrate to the user the operation of the boiler and any system controls.

All instructions should be handed to the user for retention and advice regarding the need for annual servicing.

8 SERVICING

IMPORTANT: ISOLATE ELECTRICAL SUPPLY TO THE BOILER BEFORE SERVICING

To maintain the boiler's high thermal efficiency and reliable operation, it should be serviced annually by an OFTEC trained and registered engineer. Electrical work should be carried out by a qualified engineer.

If the boiler is used to provide central heating and hot water all year round, the best time for its annual service is just before the start of the heating season.

Where the boiler is shut down for the summer months, the service should be carried out as soon as possible after the end of the heating season.

Oil tank

Open tank drain-cock to draw off any accumulated water and sludge.

Line filters

Turn off oil supply and remove filter bowl. Wash filter element clean with kerosene.

5 OIL SUPPLY

Oil

The oil burner is factory set to burn 28 sec. Kerosene.

Note:

Only Kerosene is permitted for low level flue discharge.

Oil Storage Tanks

Size and Location of Tank

The tank should be large enough to allow for economic deliveries and be located in the most unobtrusive position, having regard to the need for safety, filling, maintenance (if steel tank) and the head of oil required.

Whilst it is highly unlikely that a fire could start from a domestic oil tank, it does however need to be protected from a fire that may originate in a nearby building. Therefore the tank should not be located nearer than 1.8 metres from a building, nor closer than 760mm from a site boundary. Where a tank has to be less than 1.8 metres, the building wall must not have any openings other than small ventilation openings. The wall shall have a half hour resistance to an internal fire and extend 1.8 metres from any part of the tank.

Alternatively, a non-combustible radiation barrier must be provided which meets the requirements of BS 5410 Part 1: This standard applies to tanks up to a capacity of 3,400 litres which is deemed the maximum size for a single family dwelling.

Steel Tanks

Steel tanks should comply with the requirements BS 799, Pt. 5: 1987 and mounted on brick or block piers with a waterproof membrane between the piers and tank. (See Figs. 6 & 7).

The tank should be fitted with fill and vent connections (weather protected), a drain-off cock, shut-off valve and an oil level indicator.

Plastic Tanks

Polyethylene tanks are now widely used because of their advantages over traditional steel tanks:

- (a) They do not need pier supports and can be mounted directly on any flat surface giving uniform support for the tank base.
- (b) They do not corrode and therefore never need painting.
- (c) They are easier to handle because of their lower weight.

Plastic tanks should be fitted with similar components to those used with steel tanks.

Oil supply line

A long life flexible oil hose is supplied with the boiler, a filter and shut-off valve are required. These should be fitted as shown in Figs. 6 and 7.

The oil shut-off valve should be fitted as close to the burner as practicable to enable the burner to be disconnected without undue loss of oil. The filter must be connected in the oil supply pipe and positioned either inside or outside the building.

Fire Valve

A fire-valve must be fitted in the oil line outside the building with its sensing phial positioned within the boiler casing below the control panel. A clip is provided for retaining the phial.

All oil line joints must be completely sealed and the total pipe run thoroughly flushed out before connecting to the burner. No soldered joints are permitted in the oil line.

The oil line can be fed into the back of the boiler base tray or through the holes at the side.

Single pipe oil supply (Fig. 6)

Where, the bottom of the oil supply tank is above the burner, a single pipe gravity system can be used. The oil supply pipe must be connected to the suction port on the burner pump via the flexible hose.

Two pipe oil supply (Fig. 7)

Where the bottom of the oil storage tank is below the burner, a two pipe suction lift system is necessary.

When using a two pipe system with the BFP II pump, remove the end cover and filter, then remove the 'U' washer by unscrewing the bottom screw, then replace the screw ensuring it is fully inserted. An additional flexible hose is also required. Refer to burner technical details.

A spring loaded non-return valve must be fitted in the suction line to stop the oil running back to the tank.

A filter, shut-off valve and fire valve must also be fitted in the line.

No valves are permitted in the return line which must remain unobstructed at all times.

Notes:

- (1) The pump suction should not exceed 0.4 bar, otherwise dissolved gas will be released from the oil to affect combustion.
- (2) The return pipe must end at the same level as the suction outlet to prevent loss of prime.
- (3) The outlet from the tank should be approximately 75mm (3 in) above the bottom to prevent sediment and water being drawn into the supply pipe.

Oil De-aerator -

Single pipe oil supply (Fig. 8)

Where a two pipe suction lift system is required, but the return pipe is too long, or impractical to run, an Oil De-aerator can be used. The burner is piped as for a two pipe system up to the Oil De-aerator but only a single pipe is required to be run back to the oil storage tank. A non-return valve is not required with this system. The pump must be set up as for a two pipe system.

The Oil De-aerator should be fitted close to the boiler and outside the dwelling. It is available from most Builders Merchants and some Oil Tank manufacturers. See Fig. 8.

MAXIMUM OIL SUPPLY LINE LENGTH 'L'

HEAD 'H' METRES.		.05	1.0	1.5	2.0	2.5	3.0	3.5	4.0
PIPE 6mm ID	MAXIMUM LENGTH (METRES)	10	21	31	41	52	62	73	83
PIPE 8mm ID		33	66	98	100	100	100	100	100

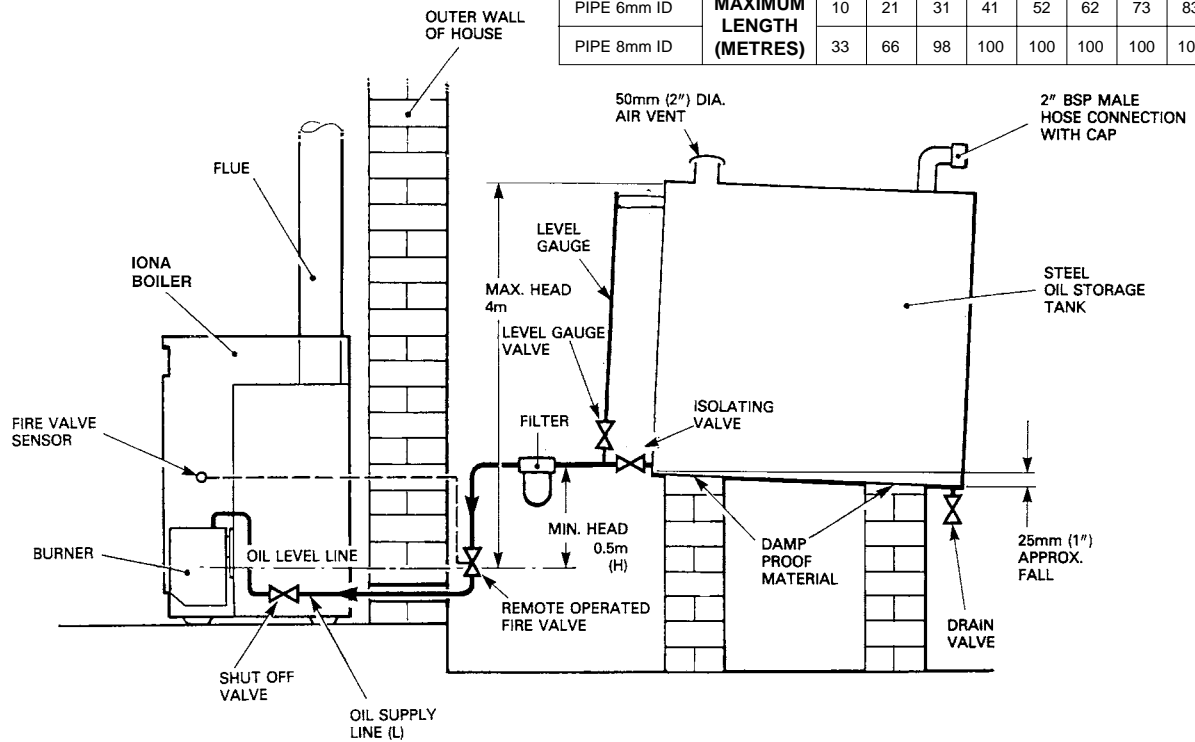


FIG. 6 SINGLE PIPE OIL SUPPLY INSTALLATION

MAXIMUM OIL SUPPLY LINE LENGTH 'L'

LIFT 'L' METRES.		.05	1.0	1.5	2.0	2.5	3.0	3.5	4.0
PIPE 6mm ID	MAXIMUM LENGTH (METRES)	48	42	36	30	24	18	11	5
PIPE 8mm ID		100	100	100	94	75	55	36	16
PIPE 10mm ID		100	100	100	100	100	100	88	40

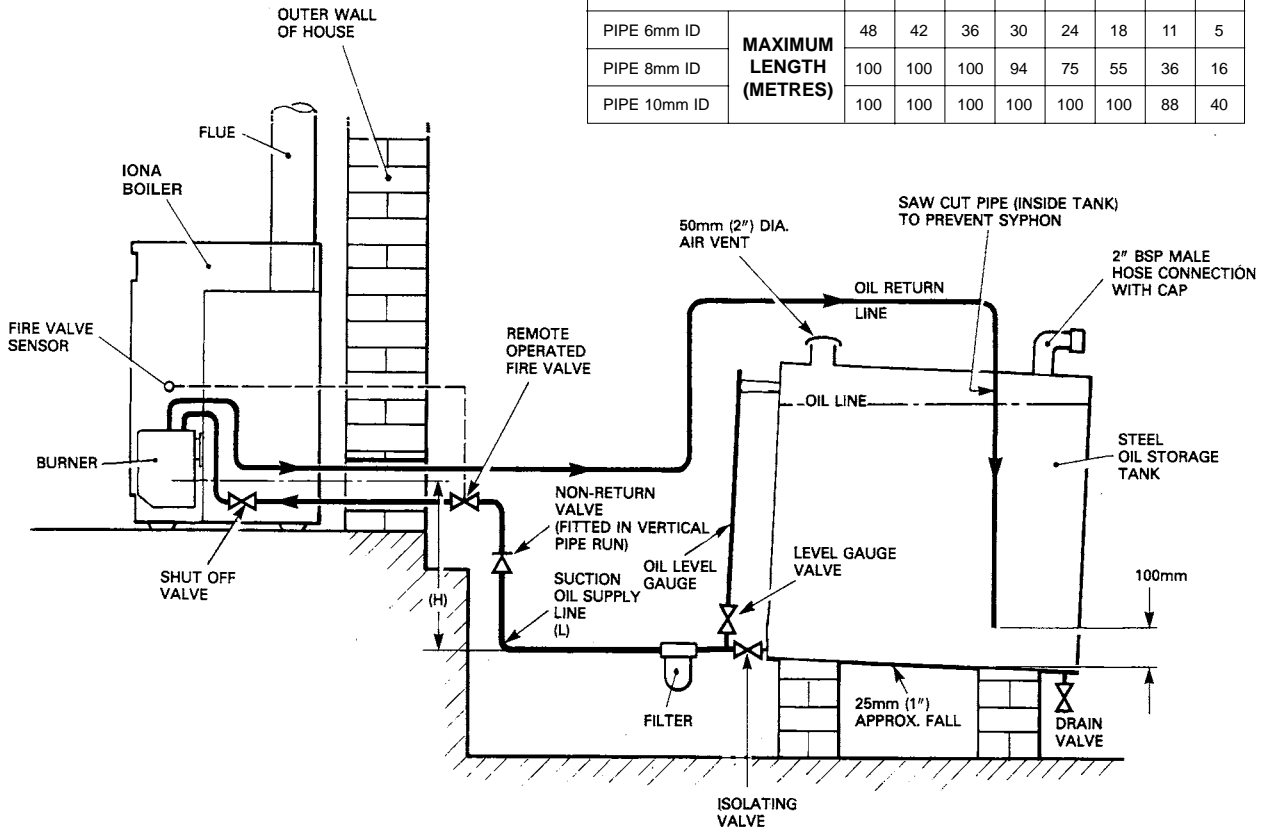
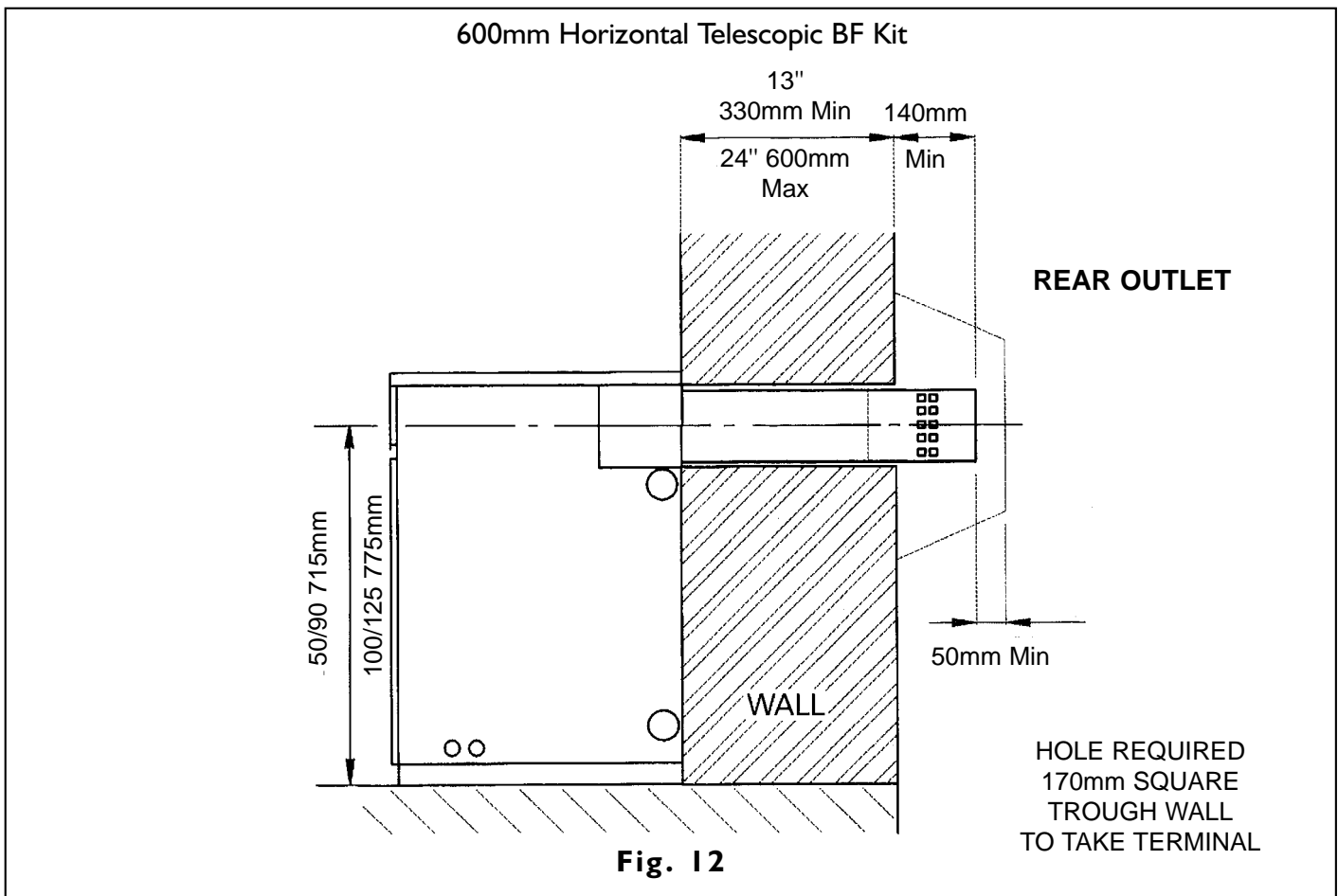


FIG. 7 TWO PIPE OIL SUPPLY INSTALLATION



600mm HORIZONTAL TELESCOPIC BF KIT

ASSEMBLY METHOD

1. Having decided the position of the boiler, cut a hole in the wall to take the balanced flue kit (refer to diagram for dimensional details Fig. 12).
2. Remove top casing, remove flue socket off top of boiler. Place gasket on top of the boiler and flue box on top of gasket, fit stainless steel inner flue pipe spigot plate into flue box and using this as a clamping plate screw down to boiler top plate trapping flue box and gasket in position.
3. Fix flue elbow on to flue terminal inner pipe, slide terminal into flue box from outside locating elbow over spigot plate.
4. Measure from the face of the outside wall, to the end of the terminal subtract 140mm min this will give the length of pipe to be cut off the flue terminal inner pipe.
5. Remove flue terminal from flue box, remove elbow, cut flue terminal inner pipe to required length, reassemble elbow onto inner flue pipe and slide back into flue box.
6. Secure elbow onto spigot. **IMPORTANT** all flue joints must be sealed with silicon sealant.
7. Fit air hose spigot over hole in blanking plate and secure using M4 wing nuts for rear outlet (side outlet fit round sealing plate).
8. Fit round sealing plates in position on flue box using silicone sealant and M4 wing nuts (position of sealing plates and air hose spigot will depend upon whether terminal is installed to rear or side outlet).
9. Fit air hose supplied on burner to spigot on flue box. Use clip supplied to secure air hose in position.
10. Make good around terminal on both sides of wall.
11. Replace to casing, fit flue blanking plate over cutout using 2 edge clips supplied to hold it in position.
12. Terminal guard required if terminal is less than 2 metres from ground level.

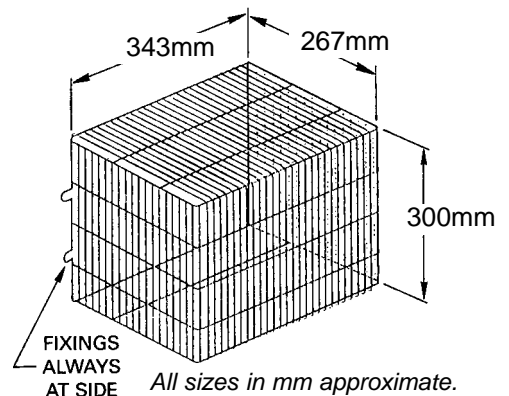
Important: Flue Sealing

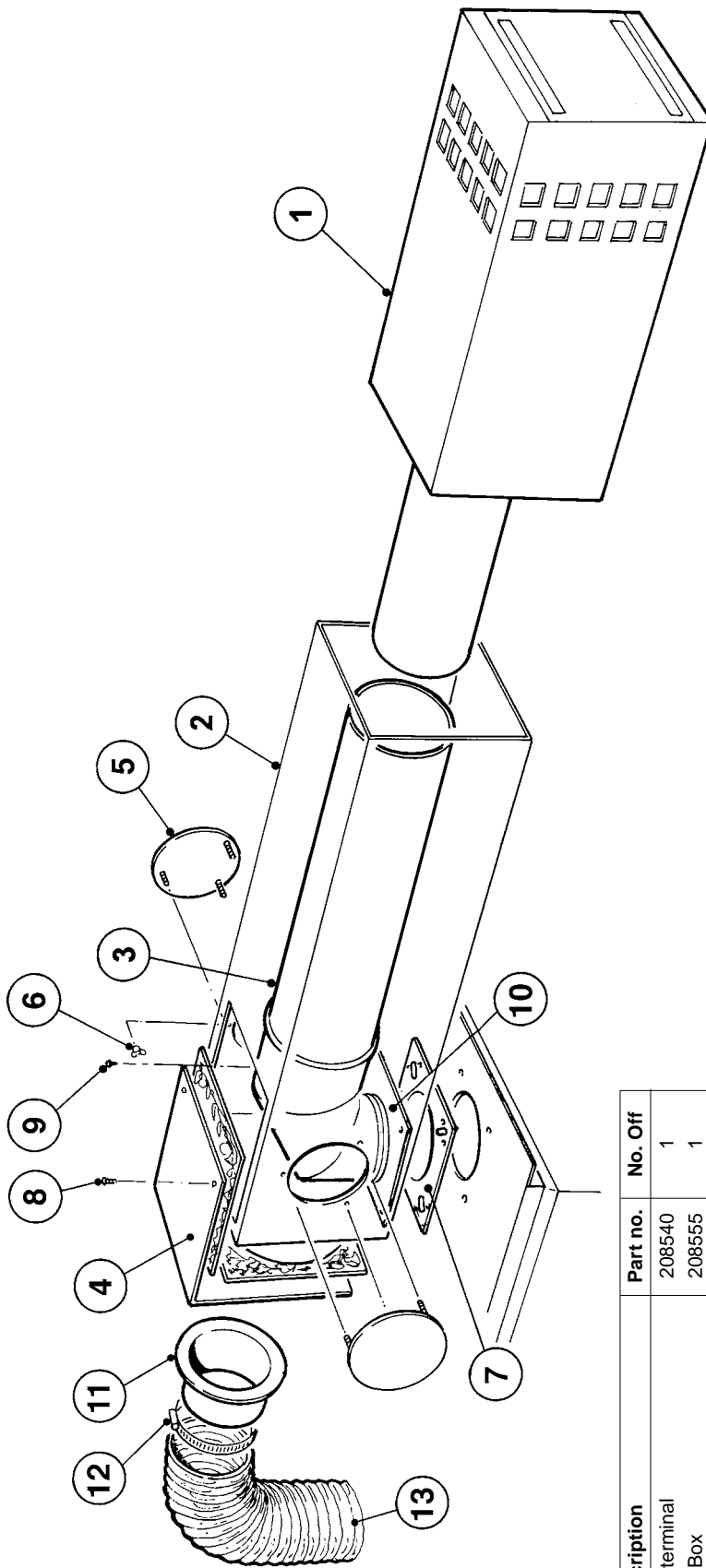
As the flue system operates under positive pressure, it is essential to seal all flue joints. Apply a thin bead of silicone sealant (supplied) around flue pipe spigot before inserting into socket.

TERMINAL GUARDS

When the terminal is positioned where there is the possibility of accidental contact by persons, or of damage to the terminal, an approved guard is necessary.

Generally, exhaust 2 metres above ground level alleviates the necessity for a guard.





Item	Description	Part no.	No. Off
1	Flue terminal	208540	1
2	Flue Box	208555	1
3	Flue elbow	208547	1
4	Blanking plate	208554	1
5	Round sealing plates	208551	3
6	M4 wing nut	94380	9
7	Blanking plate gasket	208559	3
8	No. 6 x 12mm STS Hex. HD	91601	2
9	No. 6 x 12mm STS Pozi. HD	91523	6
10	Inner flue pipe spigot plate	208566	1
11	Air hose spigot	206933	1
12	Clip	95256	2
13	Hose	20693	1

Fig. 11

REFER TO MANUFACTURERS
INSTRUCTIONS FOR 'OIL DE-AERATOR'
INSTALLATION DETAILS

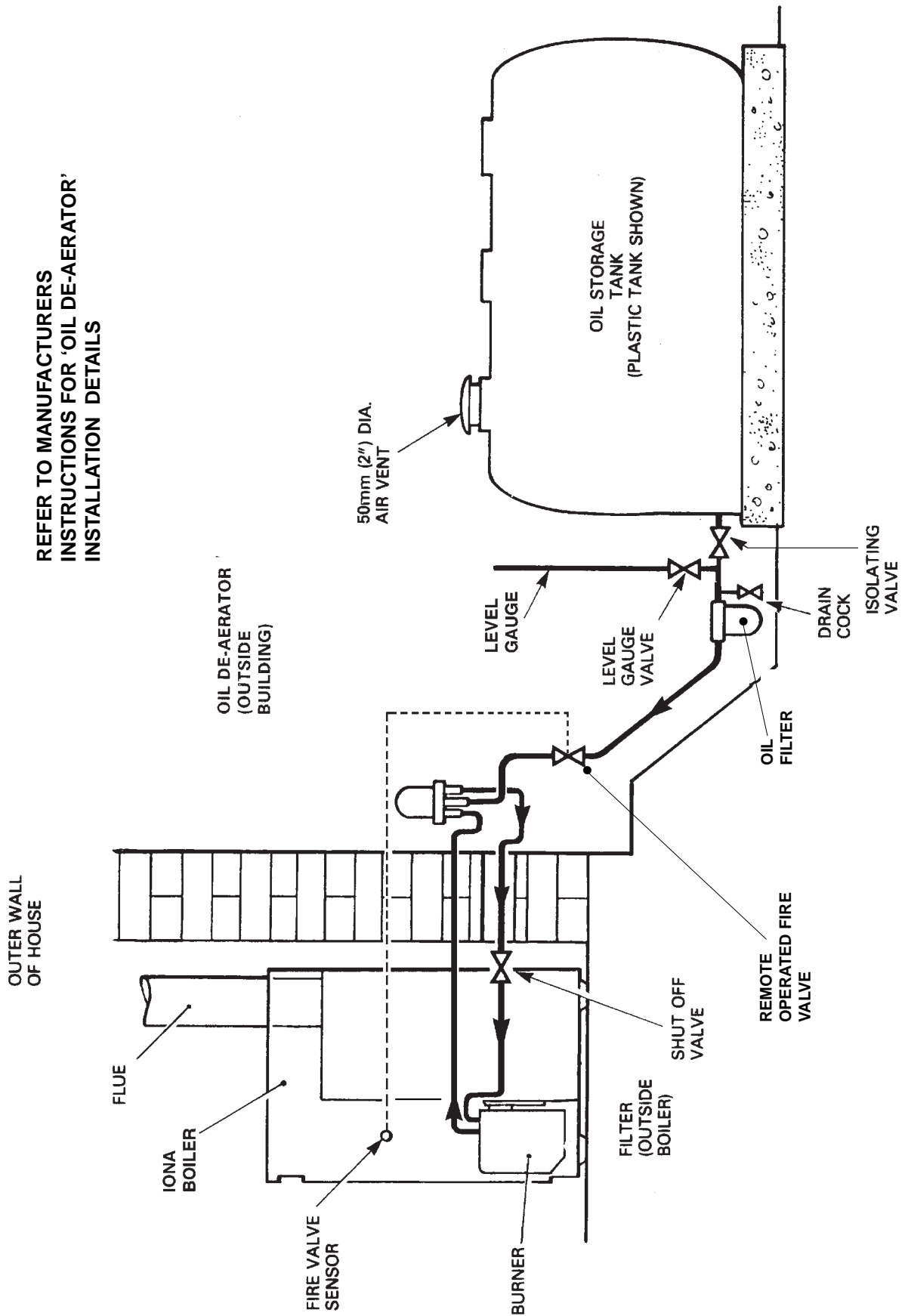


FIG. 8 DE-AERATED OIL SUPPLY INSTALLATION