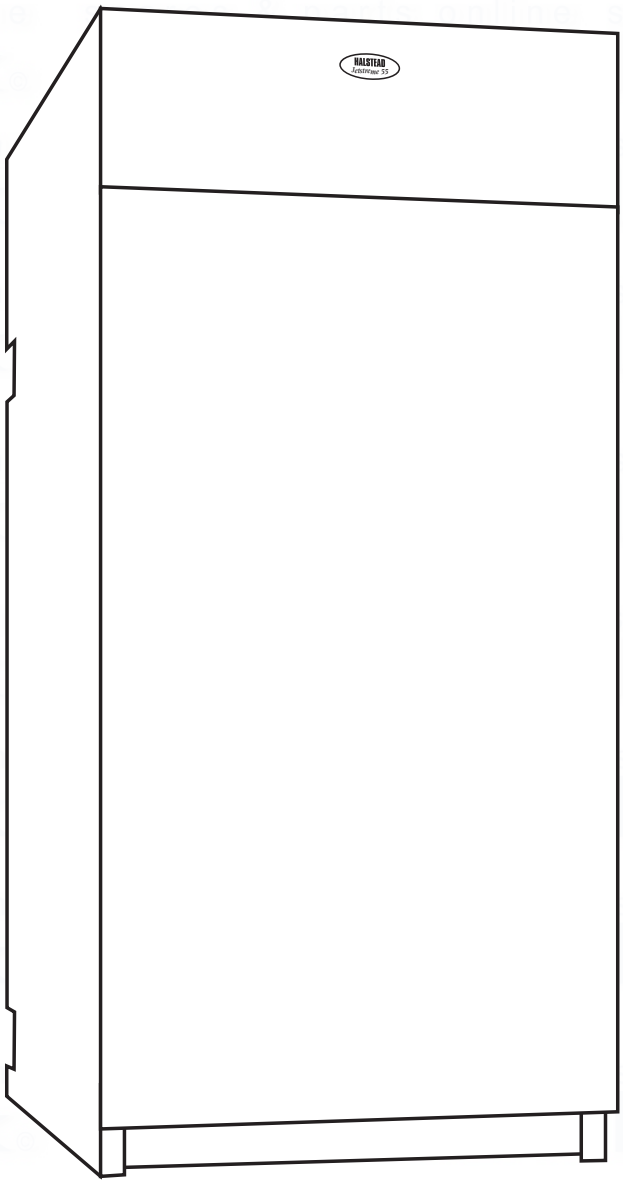
HALSTEAD

British Made Boilers

Jetstreme

Floor Standing Oil Boiler



• INSTALLATION AND COMMISSIONING INSTRUCTIONS

• SERVICE AND MAINTENANCE PROCEDURES

• USER MANUAL

This document is to be left with the user following installation

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1.1 INTRODUCTION

1.1.1
Halstead Boilers is continuously improving its products and may therefore change specifications without prior notice. The statutory rights of the consumer are not affected.

1.1.2
Whilst every reasonable care has been taken to ensure that the information provided with each appliance is true, accurate, and up to date, the manufacturer will not accept liability for any claims arising through inadvertent errors or omissions relating to the information detailed herewith.

1.2 COMPLIANCE NOTICES

1.2.1
The Jetstreme range of oil fired domestic boilers detailed herewith is manufactured by Halstead Boilers within a strictly controlled quality environment to ISO 9001.

1.2.2
The Jetstreme range has been subjected to rigorous independent testing, and has been found to meet The Essential Requirements of the following European Directives:-

Machinery Directive (89/392/EEC)

Low Voltage Directive (73/23/EEC & 93/68/EEC)

E.M.C. Directive (89/336/EEC & 91/31/EEC)

Boiler Efficiency Directive (SI 1993 / 3083)

1.2.3
In accordance with the terms of the Product Liability Directive (65/374/EEC) the manufacturer has taken reasonable and practical steps to ensure that the Jetstreme range of domestic boilers are safe and pose no risk when properly used. The appliances should therefore only be used in the manner and for the purpose for which they were intended, and, in accordance with the recommendations detailed herewith.

1.2.4
The range has been produced with safety and quality in mind. There are certain basic precautions which the installer, commissioning engineer, service engineer, and user should be aware of. They are strongly advised to read the relevant parts of this manual prior to undertaking installation, adjustment, or use.

1.2.5
Halstead Boilers supports all new products with a comprehensive information pack which defines mandatory instructions for the safe installation, maintenance, and use of their appliances. Where proprietary items are incorporated within Halstead Boilers' products, detailed information and instructions are also provided as part of the information pack.

1.2.6
It is the responsibility of the installer, commissioning engineer, service engineer, and the user, to ensure that they are familiar with, and understand, the relevant instructions and information contained within this manual.

1.3 SAFETY DEFINITIONS

1.3.1
Contained within the text of the manual, the words '**Caution**' and '**Warning**' are used to highlight certain points.

1.3.2
Caution is used when failure to follow or implement the instruction(s) can lead to premature failure or damage being sustained to the appliance or its component parts.

1.3.3
Warning is used when failure to heed or implement the instruction(s) can lead to component damage accompanied by a possible hazardous situation being created, where there is a risk of personal injury being sustained.

1.4 MATERIALS SELECTION

1.4.1
Neither asbestos nor soft soldered joints are used in the construction of the Jetstreme range of domestic boilers. The materials selected for use can withstand the mechanical, chemical, and thermal stresses which they will be subject to during foreseen normal use, and when installed and maintained in accordance with the manufacturers recommendations.

1.5 GENERAL PRODUCT INFORMATION

1.5.1
The Jetstreme range of oil fired boilers combine the benefits of advanced design with well proven construction techniques and modern manufacturing processes.

1.5.2
The range offers; a user and maintenance friendly design, reliability, efficient and clean combustion, and low operating noise levels.
The controls are enclosed behind a metal hinged panel on the front of the appliance thus reducing possible accidental damage to them.
The controls comprise of:-

(1) ON / OFF Switch.
(2) THERMOSTAT Control,
(3) OVERHEAT Thermostat manual reset which will automatically switch off the boiler if it exceeds a set temperature (103 deg)
(A DIGITAL PROGRAMMER is available as an optional extra)

1.5.3
Insulation is attached on the inside of the case.
The case is finished in white powder coat enamel and is styled to blend into any kitchen.

1.5.4
The Jetstreme range can be specified in either conventional or balanced flue configuration. Standard units are designed to fire using kerosene (28 second class C2) fuel oil.
A combustion test point is located in the top front of the boiler shell to enable the commissioning engineer to carry out his commissioning checks at a convenient point.
Commissioning should take place within seven days of installation.

1.5.5
All boilers will operate quite satisfactorily within a system featuring gravity fed hot water and pumped central heating. It is deemed preferable if both the hot water and central heating systems are pumped, given that the maximum pressure within such an installation does not exceed 3 bar (45 psi).

1.6 WARRANTY

1.6.1
Each boiler is supplied with a one year peace of mind guarantee against manufacturing or material defects. The warranty is conditional upon the appliance having been installed, commissioned and used in accordance with the manufacturers recommendations.

1.6.2
A Commissioning Report and Warranty Registration form is at the back of this manual. This form must be completed and returned to Halstead Boilers within **seven** days of commissioning having taken place. It should be noted that claims under warranty may not be processed unless the terms and conditions of the warranty are strictly adhered to.

1.7 WARRANTY TERMS AND CONDITIONS

1.7.1
Any part manufactured by Halstead Boilers which fails due to defective materials or poor workmanship within twelve months from the installation date of the boiler will be repaired or replaced free of charge inclusive of parts and labour.

1.7.2
Consumable items are specifically excluded from the terms of the warranty.

1.7.3
In order that the warranty can be established, the Commissioning Report and Warranty Registration Form (at the rear of this manual) must have been completed in full and returned to the service department at Halstead Boilers within **seven** days from commissioning having been undertaken. Any warranty claims made without this condition being fulfilled will not be processed.

1.7.4
The Jetstreme must be installed, commissioned, and used, in accordance with the guidelines contained within this manual. Failure to comply with this requirement will invalidate the warranty.

1.7.5
Commissioning must take place within **seven** days from the date of installation. Failure to comply with this requirement may invalidate the warranty.

1.7.6
The warranty does not cover claims arising from or associated with normal wear and tear, neglect, misuse, improper installation, ineffective commissioning, or poor maintenance.

1.7.7
The warranty applies to Halstead Boilers that remain to the manufacturer's specification. Unauthorized modification or deviations will invalidate the warranty.

1.7.8
The warranty terms and conditions do not affect the statutory rights of the customer.

1.8 WARRANTY CLAIMS

1.8.1
In the first instance any claim under warranty should be addressed to the service department at Halstead Boilers.

1.8.2
Subject to the details outlined previously in section 1.7 *'Warranty terms and conditions'*, if appropriate Halstead Boilers will bear the cost of necessary replacement parts and labour, provided that the faulty component is returned on a carriage paid basis to Halstead Boilers.

Prior to installation the site should be surveyed and checked to ensure that it is suitable for the appliance, and also to ensure that installation, commissioning, and maintenance can be carried out safely and effectively, and in accordance with the manufacturer's recommendations.

2.1 COMPLIANCE NOTICES

2.1.1
It is a requirement that only competent oil boiler installation engineers should commission Jetstreme boilers.

2.1.2
Under the terms of the current Health and Safety at Work legislation it is a requirement that the installer affords adequate protection to the person(s) carrying out the installation, and others within the location.

2.1.3
The installation must comply with any specific insurance criteria relevant to the site or installation.

2.1.4
Local, national, and European regulations must also be observed, and this must include compliance with building regulations and any appropriate bye laws, as well as compliance with IEE and European electrical standards and regulations.

2.1.5
The manufacturer encourages the installer to work within recognised standards. Details of certain of the applicable standards are available from Halstead Boilers.

2.2 PRE-INSTALLATION CHECKS

2.2.1
The installer should ensure that the model is to the specification agreed with the customer, and that all parts are present. Care should be exercised when moving the boiler so as not to damage either the unit or any of its ancillary parts. It is preferable to remove the packaging only when the boiler is ready to be installed, thereby reducing the risk of accidental damage occurring. When the packaging is removed the boiler and ancillary parts should be visually inspected to ensure that they have not been subject to transit damage.

2.3 DAMAGED OR MISSING PARTS

2.3.1
Any damaged parts or shortages must be noted and the details provided to the service department at Halstead Boilers immediately. This procedure is necessary in order to comply with the insurance criteria, and will ensure that the matter is allocated a priority status

2.4 LOCATING AND POSITIONING BOILER

2.4.1 THE HEATING INSTALLATION

- The installation should be installed in accordance with the requirements of BS 5449 and provisions recommended by the HVCA.
- Water circulation through the boiler may be totally or appreciably reduced by the application of some modern controls systems and still allow the boiler to fire. This may result in the boiler controls not being able to sense excessive or boiling temperatures, and switch the boiler off. Should this condition be possible, it is important to see that the controls are wired so that the power supply to the burner and circulating pump are simultaneously switched off.
- With an existing heating installation, if the boiler is a replacement, it is important to see that due consideration is given to replacing the chimney lining or factory made chimney, and the existing oil supply tank. As these may well not serve the new installation due to their condition and specification.

2.4.2 THE HEATING SYSTEM

- Prior to replacing an existing oil boiler, please ensure that the system is chemically cleaned of scale and debris. Refer to reputable manufacturer for advice.
- The system must be flushed clean prior to filling and must contain clean water, it should be inspected and seen to be free of leaks.
- Suitable chemical inhibitors to protect against lime scale and corrosion must be added to the system prior to the first firing of the boiler.
- Kettling and persistent system noises can generally be avoided by the application of suitable proprietary pre-treatments from the start.

2.4.3 GENERAL INSTALLATION DETAILS FOR BALANCED FLUES

- Flue kits for low level must only be used with Kerosene applications.
- A terminal guard must be fitted where the flue terminal can be touched under normal circumstances.
- Please remove any protective film on the stainless steel surfaces, before locating the flue terminal through the wall.

Models 55 and 80 can only use the high level balanced flue kit for **REAR OUTLET ONLY.**

2.4.4

All Jetstreme boilers should be installed on a level non-combustible surface which is capable of supporting the weight of the appliance and any ancillary parts. It is recommended that the installer ensures that there is adequate clearance to accommodate service requirements, this will also serve to provide useful access during installation. The recommended clearances are detailed below.

RECOMMENDED CLEARANCES

Above the boiler	600mm
Left hand side	25mm
Right hand side	25mm
In front	900mm

2.4.5

Provision must be made for the connection of the fuel supply, electrical supply, and for flueing arrangements.

2.4.6

If the unit is specified as a conventional flue model provision must be made for adequate ventilation to be introduced to the area so as to ensure safe and efficient combustion. If the model features a balanced flue then the proposed position should be checked so as to ensure that it complies with the manufacturers recommendations and with the appropriate building regulations.

2.4.7

Consideration must also be given to the position of ancillary pipe work for central heating and domestic hot water which will have to be connected to their respective points on the boiler.

2.5 FUEL

CAUTION

All Jetstreme boilers are manufactured to be used with 28 second fuel oil to class C2 (kerosene).

WARNING

Prolonged contact with fuel can result in the natural oils within the skin being removed. Always wear the appropriate personal protective equipment. Health and safety data sheets are available from the fuel supplier.

2.6 FUEL SUPPLY

2.6.1
The fuel supplier should be contacted prior to installation so that any concerns regarding delivery, transport, access, and storage can be addressed. The supplier will also be able to advise on price/quantity breaks which can have an influence upon the most appropriate size of storage tank.

2.6.2
The constraints of the site will to a large extent determine whether the oil feed to the boiler is either of the single pipe gravity feed type, or whether it is necessary to use a twin pipe system.

2.7 STORAGE TANK

2.7.1
The oil storage tank must conform to the appropriate standard; for an externally painted steel vessel this will be to BS 799 part 5 1987, and, in the case of the more modern low density polyethylene tank, this must be OFTEC certified to OFS T-100. The use of open lids as a means of filing is not approved. A 50mm diameter black iron pipe terminating with a 50mm BSP male thread hose coupling and a non-ferrous screw cap with chain is essential (See OFTEC Book 3)

2.7.2
Masonry piers should be used to support steel oil storage tanks with the interface between the pier and the tank isolated using a damp proof membrane.

2.7.3
The tank must be positioned so that it slopes away from the outlet by 20mm per 1m thereby ensuring that impurities do not contaminate the feed. These impurities must be removed during maintenance or servicing to prevent them from building up and entering the feed.

CAUTION

Steel tanks should be painted only on their outside surfaces, preferably using a proprietary grade of anti-corrosive paint. Galvanized or open topped tanks are not suitable and must not be used.

2.7.4
The oil storage tank should be fitted to include the following; fuel level gauge, a vent pipe (with a diameter greater than the diameter of the filler) and featuring a weather proof termination, a sludge valve, an outlet valve situated at the opposite end of the tank to the sludge valve, and, a filler connection placed at the opposite end to the outlet valve.

WARNING

The site chosen for the storage tank must comply with all the appropriate regulations, it is further suggested that BS 5410 parts 1 and 2 are consulted.

EXTERNAL OIL STORAGE TANK PROTECTION FOR SINGLE FAMILY DWELLINGS
BS 5410 PART 1: 1977. FOR TANKS NOT EXCEEDING 3400 LITRES

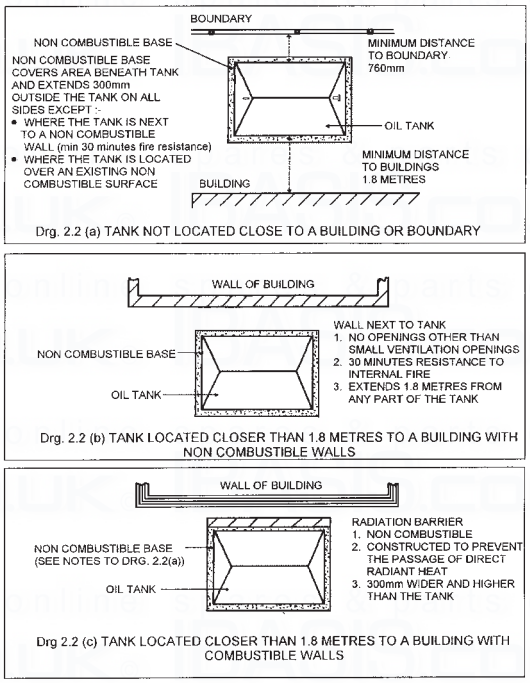


FIG 1

EXTERNAL OIL STORAGE TANK CLEARANCES FOR SINGLE FAMILY DWELLINGS
BS 5410 PART 1: 1977. FOR TANKS NOT EXCEEDING 3400 LITRES

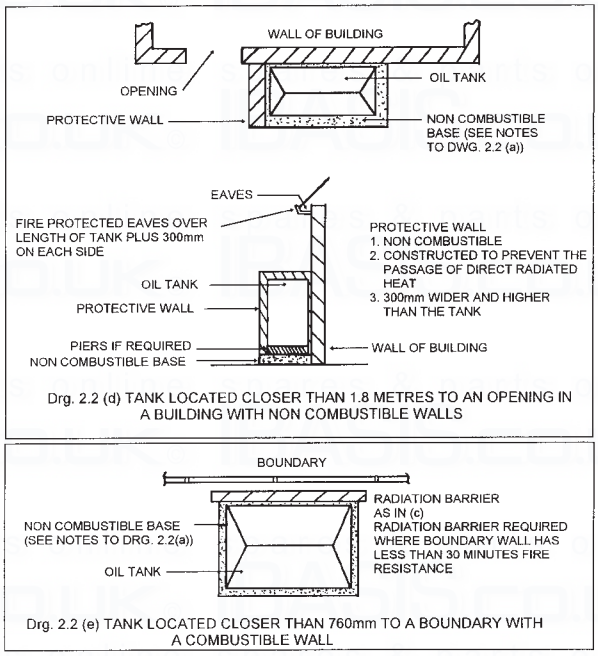


FIG 2

Illustrations taken from OFTEC Technical Information Book 3.

2.8 FUEL SUPPLY SINGLE PIPE SYSTEM

2.8.1

For installations where the oil storage tank is at least 300mm above the level of the fuel pump on the burner, the principle of gravity feed may be used. The bore and length of run for the fuel feed to the burner is detailed in Table 1. It should be noted that all Jetstreme boilers are pre-fired and set up to run using a single pipe gravity feed system as detailed below, in figure 3.

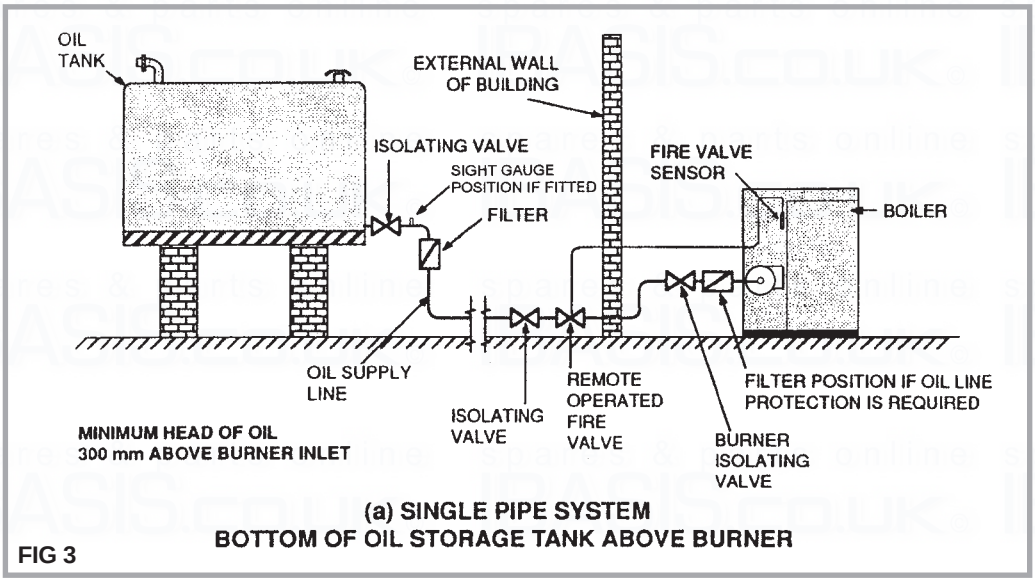


FIG 3

Illustration taken from OFTEC Technical Information Book 3

TABLE 1

DIAMETER X DISTANCE X HEIGHT TABLE

(A) SINGLE PIPE SYSTEM FUEL FEEDS

Pipe O/D	Height X length (m)			
12mm	0.5 x 20	1.0 x 40	1.5 x 80	2.0 x 100
10mm	0.5 x 10	1.0 x 20	1.5 x 40	2.0 x 60

TABLE 2

DIAMETER X DISTANCE X HEIGHT TABLE

(B) TWO PIPE SYSTEM FUEL FEEDS

Pipe O/D	Height X length (m)			
12mm	0.0 x 100	0.5 x 100	1.0 x 100	1.5 x 90
	2.0 x 70	3.0 x 30	3.5 x 20	
10mm	0.0 x 35	0.5 x 30	1.0 x 25	1.5 x 20
	2.0 x 15	3.0 x 8	3.5 x 6	

2.9 FUEL SUPPLY TWO PIPE SYSTEM

2.9.1

All Jetstreme boilers are fitted with pressure jet burners as standard, which means that the pump fitted within the packaged burner can be used to raise the fuel up to provide a suction feed to the burner if the tank is not above the level of the burner. This can be facilitated either via a two pipe system or by means of a single pipe system fitted with a de-aeration device. The bore and length of the run for the fuel feed to the burner is detailed in Table 2.

2.9.2

This system is used when the oil storage tank is at the same level or lower than the burner (see figure 4). Access for the fuel feed to the burner should be via a suitable tapping made in the top of the tank, through which the feed pipe must extend to not less than 100mm from the bottom of the tank. A non-return valve with a metal to metal seat should be fitted, especially if the return pipe is terminated above the draw off tube. The non-return valve must be removable for service and maintenance purposes, and the return pipe from the pump must therefore be extended into the tank to the same level as the suction pipe. The presence of a tamper proof isolating valve fitted within the line is only necessary if there is a risk that oil will siphon out of the tank if the return pipe is disconnected at the pump during maintenance or servicing, or if the non-return valve has been omitted.

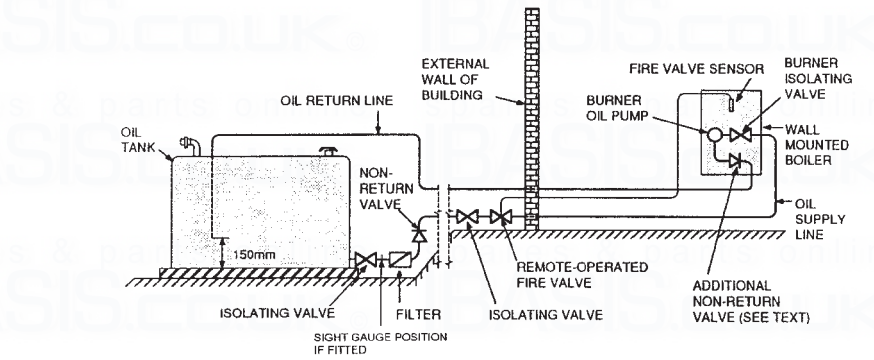


FIGURE 4 - (b) TWO PIPE SYSTEM
BOTTOM OF OIL STORAGE TANK BELOW OR LEVEL WITH BURNER

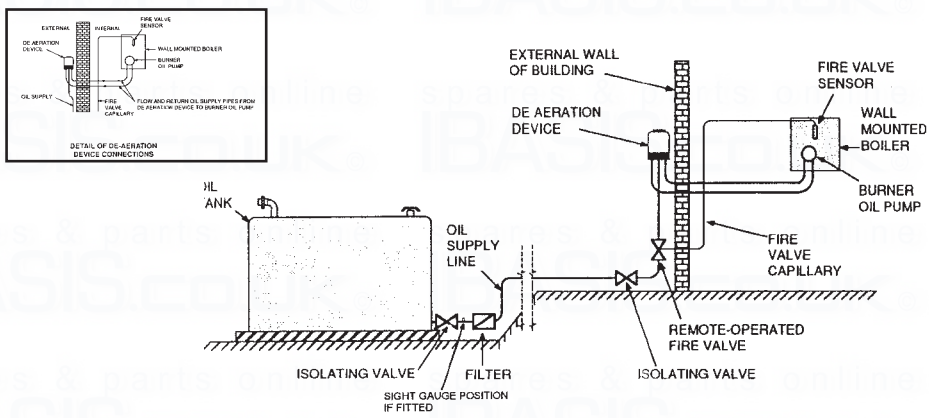


FIGURE 5 - (c) SINGLE PIPE SYSTEM WITH DE AERATION DEVICE
BOTTOM OF OIL STORAGE TANK BELOW OR LEVEL WITH BURNER

Illustrations taken from OFTEC Technical Information Book 3

2.10 SINGLE PIPE SYSTEM WITH DE-AERATION DEVICE

2.10.1

Alternatively, where the tank is at the same height or lower than the burner a single pipe feed to a de-aeration device with twin pipe to/from the burner may be used. See Figure 5.

CAUTION

Before installation the position of the oil pump by-pass plug and horse shoe shaped washer must be checked. If the plug and washer is fitted then the pump is set for a single pipe system. It should be noted that this is normally the case. If so, the plug and washer must be removed, and the plug replaced without the washer, rendering the unit acceptable for a two pipe system.

CAUTION

The pump vacuum must not exceed 0.4 bar otherwise nuisance burner lockouts may occur as a result of starvation attributed to gas formation within the oil.

2.10.2

These are sometimes referred to as ‘Tiger Loops’ and their installation must be in accordance with the manufacturer’s recommendations (Fig. 5).

2.11 PIPEWORK AND FITTINGS

CAUTION

Galvanized pipework and fittings must not be used. Any joints must be sealed properly using PTFE or other approved sealing media to prevent both fuel leakage and the ingress of air.

2.11.1

Normally oil supply pipework consists of annealed copper tube, which has the advantage of being easily manipulated to form bends, and enables the line to be run in continuous lengths without joints. This tube is available with a durable plastic sheath ready fitted for added protection.

2.11.2

Where pipes are buried it is important that they are offered adequate protection from accidental damage, and that high points (which could cause air locks) are avoided. All pipework must be adequately supported.

2.11.3

It is preferable that all pipework should be run with a slight but continuous rise towards the direction of flow, so that any air can be vented off.

WARNING

It is a requirement that a fire check valve is present within the system. This may be of either the weight operated type or the capillary operated type.

CAUTION

It is a requirement that an oil filter is fitted within the supply line. Its position should be such that it can be isolated for maintenance and servicing without having to drain down the system.

2.12 ELECTRICAL SUPPLY

WARNING

All Jetstreme boilers must be earthed. The electrical supply must be made via a 6A fused double pole isolation switch with a separation distance of at least 3mm between contacts. All conductors must have a cross sectional area of at least 0.75mm^2.

2.12.1

All wiring and electrical work must be carried out by a competent electrician and must be in compliance with current IEE regulations.

2.13 BALANCED FLUE POSITION

2.13.1 POSITIONS OF BALANCED FLUE TERMINALS SHOULD BE AS ILLUSTRATED IN FIG. 6

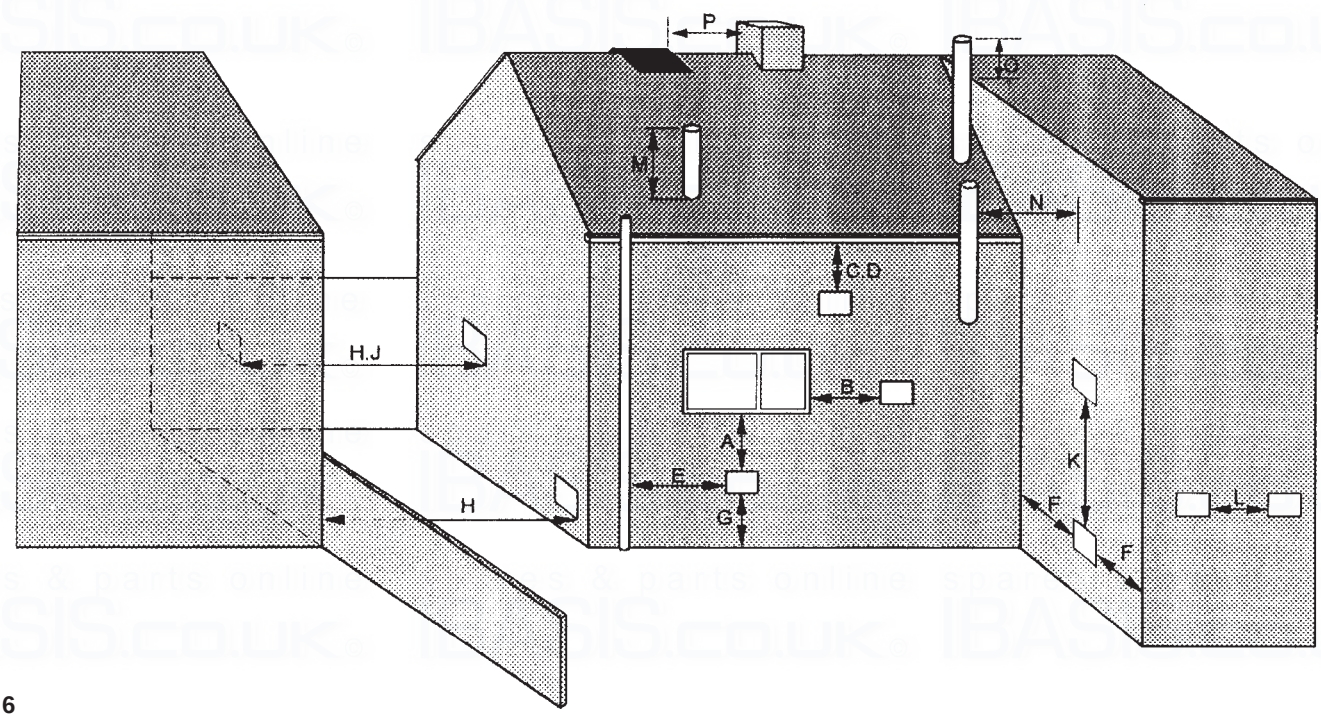


FIG 6

Illustration taken from OFTEC Technical Information Book 3

Appliance burner type		Pressure jet	Vaporising
		Minimum distances to terminals in millimetres as measured from top of the chimney or the rim of a low level discharge opening	
A	Directly below an opening, airbrick, window etc.	600	Not allowed
B	Horizontally to an opening, air brick, window etc.	600	Not allowed
C	Below a gutter, eaves or balcony with protection	75	Not allowed
D	Below a gutter, or a balcony without protection	600	Not allowed
E	From vertical sanitary pipework	300	Not allowed
F	From an internal or external corner	300	Not allowed
G	Above ground or balcony level	300	Not allowed
H	From a surface or a boundary facing the terminal	600	Not allowed
J	From a terminal facing the terminal	1200	Not allowed
K	Vertically from a terminal on the same wall	1500	Not allowed
L	Horizontally from a terminal on the same wall	750	Not allowed
M	Above the highest point of an intersection with the roof	600	1000
N	From a vertical structure on the side of the terminal	750	2300
O	Above a vertical structure less than 750mm from the side of the terminal	600	1000
P	From a ridge terminal to a vertical structure on the roof	1500	Not allowed

2.13.2
Prior to commencing installation work the proposed position for the balanced flue terminal must be checked to ensure that it complies with the relevant regulations.

2.13.3
It should also be noted that the terminal should be positioned so as not to cause a nuisance, and so as to allow unimpaired dispersal of combustion products. Where the terminal is within 1m of any plastic material the plastic must be protected from the effects of the flue gases.

2.14 CONVENTIONAL FLUE

2.14.1

The flue should rise as vertically as possible and terminate at a point where it will not be subject to down draughts or eddies as illustrated in Figure 7. If an existing traditional chimney is to be used then it must be lined with a moisture and acid resistant flue liner of the same diameter as the flue spigot on the boiler. The connecting lengths of flue from the boiler spigot to the flue liner should be of twin wall type. It is recommended that the existing chimney is back-filled around the flue liner with vermiculite so as to retain the heat, maintain boiler efficiency, and prolong the working life of both the boiler and the flue liner.

CAUTION

If an existing chimney is to be used it must be cleaned thoroughly, with all soot and scale removed prior to the liner being installed.

2.14.2

Where a traditional flue has been lined with a large section clay flue liner it will be necessary to fit a metal flue liner so as to reduce the bore and improve the thermal insulation. Again, once the flue liner is in position it should be back-filled with vermiculite.

WARNING

If an existing flue liner is already fitted its condition must be checked to ensure that it is satisfactory. Flexible flue liners usually have an effective working life greater than that of the boiler, but it is rare that this working life is equal to twice that of the boiler. It is therefore recommended that when a new boiler is installed a replacement flue liner is also fitted.

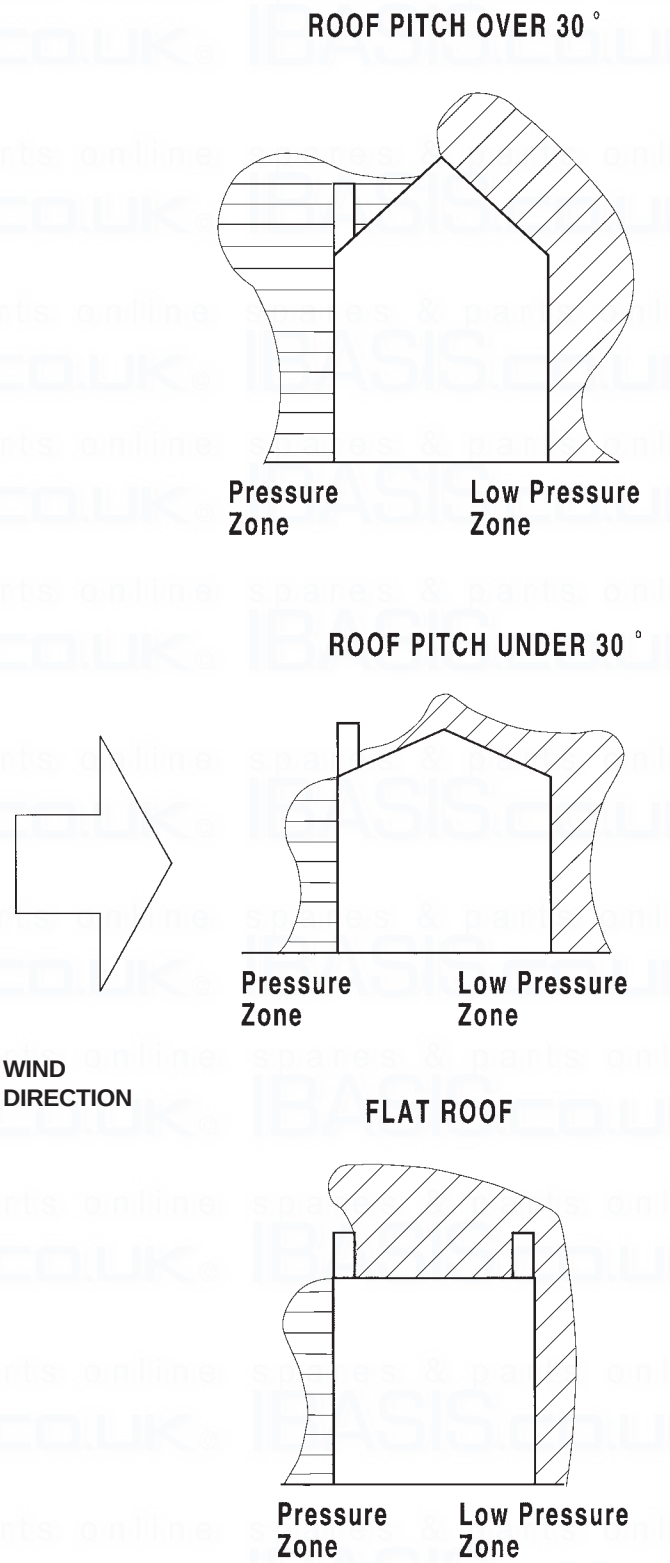
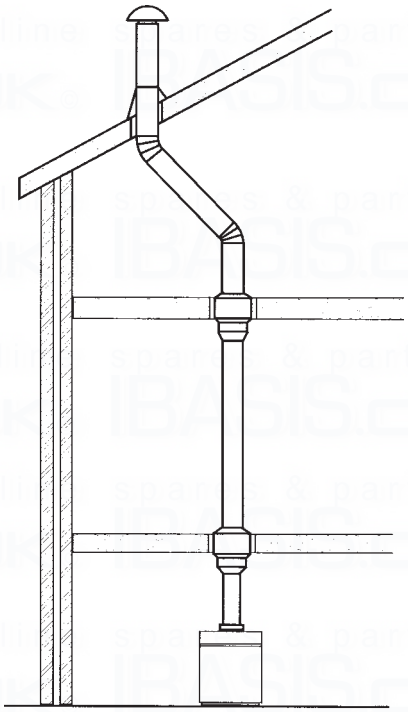


FIGURE 7 - TYPICAL PRESSURE ZONES EFFECTING CONVENTIONAL FLUES

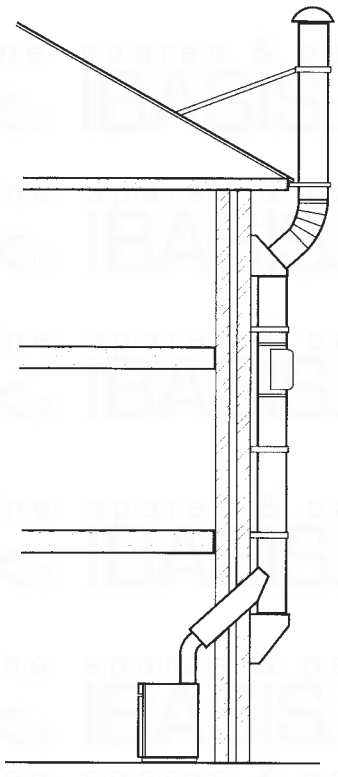
2.14.3
When it is not possible to utilise an existing chimney a twin wall stainless steel flue may be used instead. In this case the number of bends must be kept to an absolute minimum, and the flue must rise vertically. The internal diameter of the twin wall flue must be the same as that on the boiler flue spigot. It is suggested that the relevant sections of BS 5440 part 1, BS 5854 and BS 4543 part 3 are referred to (see figure 8-internal, figure 8A-external).

2.14.4
Where single skin flue is to be used consideration must be given to the possible problems associated with the formation and entrapment of condensates. It is therefore strongly recommended that the maximum length of single skin flue is not greater than 6m, and an adequate drain facility is included in the flue design.



INTERNAL FLUE PIPE
FLUE GAS TEMPERATURE
BELOW 260°C

FIG 8



EXTERNAL FLUE PIPE

FIG 8A

2.15 VENTILATION REQUIREMENTS

The current requirements detailed within Figures 9 and 10 are based upon BS 5410 part 1 for a free area of non closable ventilation and are based on 550mm² per kW output and multiples thereof depending upon the application.

2.15.1

The following information applies to Jetstreme boiler **conventional flue** models only.

TABLE 3 - VENTILATION REQUIREMENTS FOR CONVENTIONAL FLUE BOILERS (BS 5410 PART 1). SEE ILLUSTRATIONS IN FIGURE 9 OPPOSITE.

(A) BOILER IN A ROOM (EXTERNAL VENTILATION REQUIRED IN mm²)

OPEN AREA		55	80	125
mm²	in	8855	12870	20130
	out	0	0	0

(B) BOILER IN A COMPARTMENT (EXTERNAL VENTILATION REQUIRED IN mm²)

OPEN AREA		55	80	125
mm²	in	17710	25740	40260
	out	8855	12870	20130

(C) BOILER IN A COMPARTMENT WITHIN A ROOM (INTERNAL AND EXTERNAL VENTILATION REQUIRED IN mm²)

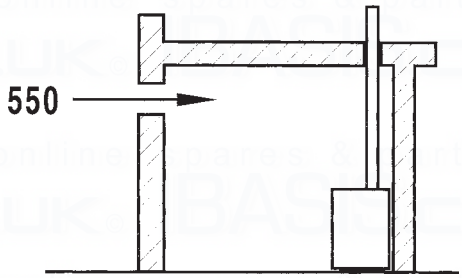
OPEN AREA		55	80	125
mm²	(e)in	8855	12870	20130
	(e)out	0	0	0
	(i) in	26565	38610	60390
	(i)out	17710	25740	40260

WARNING

The provision of adequate ventilation is necessary in order to facilitate safe and efficient operation of the boiler. If an extraction unit is fitted within the same area, the amount of ventilation required will have to take account of this if the extraction unit effects combustion.

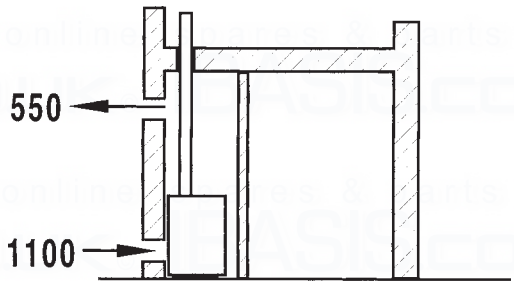
FIGURE 9 - VENTILATION REQUIREMENTS (INTERNAL AND EXTERNAL) CONVENTIONAL FLUE MODELS. FIGURES SHOWN ARE NON-CLOSABLE VENTILATION IN mm² PER KW OUTPUT OF BOILER.

(A) BOILER IN ROOM



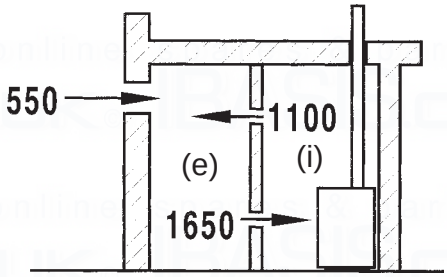
CONVENTIONAL FLUE

(B) BOILER IN COMPARTMENT



CONVENTIONAL FLUE

(C) BOILER IN COMPARTMENT WITHIN A ROOM



CONVENTIONAL FLUE

2.15.2

The following information applies to Jetstreme boiler **balanced flue** models only.

WARNING

Whilst it is correct to state that when Jetstreme balanced flue models are installed they do not require ventilation for combustion purposes, it must be noted that under certain conditions it will be necessary to provide adequate ventilation for balanced flue models. This applies particularly when the boiler is installed within a confined space or a compartment, and where the ventilation is provided to prevent the boiler from over heating.

TABLE 4 - VENTILATION REQUIREMENTS FOR JETSTREME BALANCED FLUE MODELS INSTALLED IN COMPARTMENTS. SEE ILLUSTRATIONS IN FIGURE 10 OPPOSITE.

(A) BOILER IN A COMPARTMENT (EXTERNAL VENTILATION REQUIRED IN mm^2)

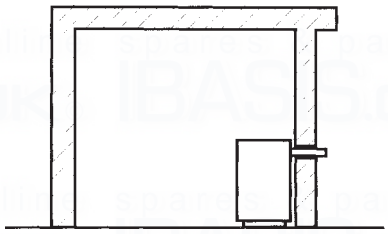
Open Area		55	80	125
mm^2	in	8855	12870	20130
	out	8855	12870	20130

(B) BOILER IN A COMPARTMENT WITHIN A ROOM (INTERNAL VENTILATION REQUIRED IN mm^2)

Open Area		55	80	125
mm^2	in	17710	25740	40260
	out	17710	25740	40260

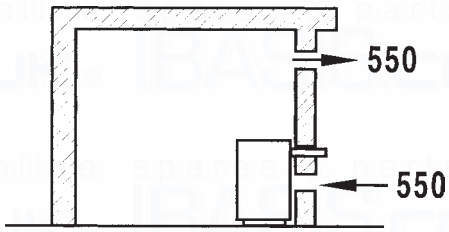
FIGURE 10 - VENTILATION REQUIREMENTS (INTERNAL AND EXTERNAL) BALANCED FLUE MODELS

BOILER IN ROOM



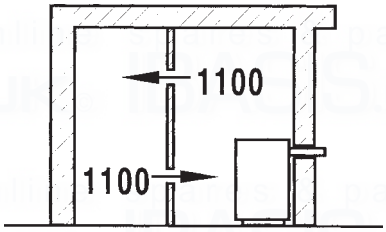
BALANCED FLUE
NO COMBUSTION AIR INLET REQUIRED TO ROOM

(A) BOILER IN COMPARTMENT (EXTERNAL VENTILATION)



BALANCED FLUE

(B) BOILER IN COMPARTMENT WITHIN A ROOM (INTERNAL VENTILATION)



BALANCED FLUE
COMPARTMENT VENTILATED FROM ROOM

3.1 BOILER INSTALLATION

3.1.1
The packaging should be carefully removed from around the boiler and the flow and return fittings secured in their appropriate positions.

3.1.2
If only one flow and return is to be fitted then it is preferable that these are positioned so that the flow is above and diametrically opposite the return.

3.1.3
The boiler should be placed in position and the top and front panels removed, by lifting upwards and outwards respectively.

3.2 BALANCED FLUE – 55 & 80 MODELS ONLY STANDARD FLUE INSTALLATION

CAUTION

Before commencing with the installation, the installer should be familiar with and ensure compliance with the electrical supply details contained within section 2.12

3.2.1
Ensure that all the component parts that make up the balanced flue kit are present, (See Figure 11). It is also recommended that the figures 11 through to 16 are studied in order that the installer might be familiar with the assembly and installation of the balanced flue and its options.

3.2.2
The position of the flue outlet should be marked on the wall, and the boiler moved and adequately protected, prior to cutting the hole in the wall for the flue outlet. On completion of cutting the hole, the flue outlet box should extend through the wall so as to allow the air intake slots to project by at least 25mm, (See Figure 12).

3.2.3
If the boiler is to be installed with either a left hand or right hand balanced flue exit then section 3.3 and figure 13 should be referred to. If the boiler is to be installed with a horizontal or vertical extension then sections 3.4 and figure 14 or 3.5 and figure 15 should be referred to respectively.

3.2.4
On models featuring a standard balanced flue arrangement, as in figure 11, the installation should continue as follows. Remove the access plate from the inside end of the flue outlet box, together with the four hexagonal nuts screwed onto the studs around the exhaust outlet on the boiler.

3.2.5
The two gaskets should be offered up so that the first is positioned between the boiler and the exterior of the exhaust box, and the second, between the male end of the flue spigot and the interior of the exhaust box.

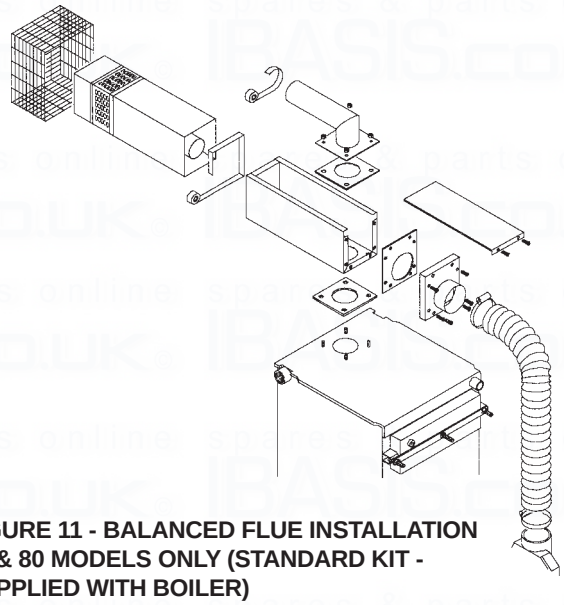


FIGURE 11 - BALANCED FLUE INSTALLATION 55 & 80 MODELS ONLY (STANDARD KIT - SUPPLIED WITH BOILER)

WARNING

Ensure that the flue spigot, the upper gasket, the balanced flue exhaust box, and the lower gasket are correctly positioned before tightening and securing the nuts.

3.2.6
The flue exhaust duct should then be pushed together and sealed securely at the correct length using the sealing tape provided.

3.2.7
The outer case can now be sealed with the tape provided.

3.2.8
The exhaust box access plate can then be refitted, and the flexible air inlet tube secured to both the exhaust box access plate and the burner, using the jubilee clips provided.

3.2.9
When the hole that was cut in the wall to accommodate the balanced flue has been made good, the protective basket should be fitted and screwed to the wall.

3.2.10
On satisfactory completion of the flue installation, the connection to other services can be undertaken as detailed in section 4.0

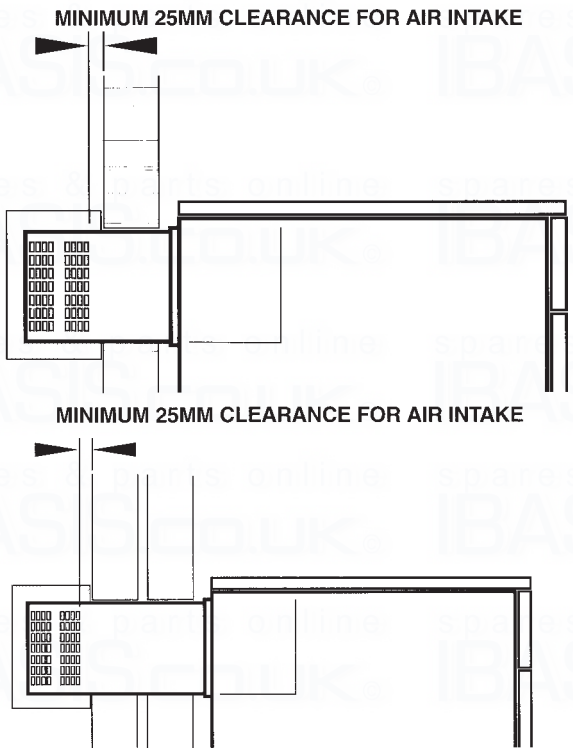


FIG 12

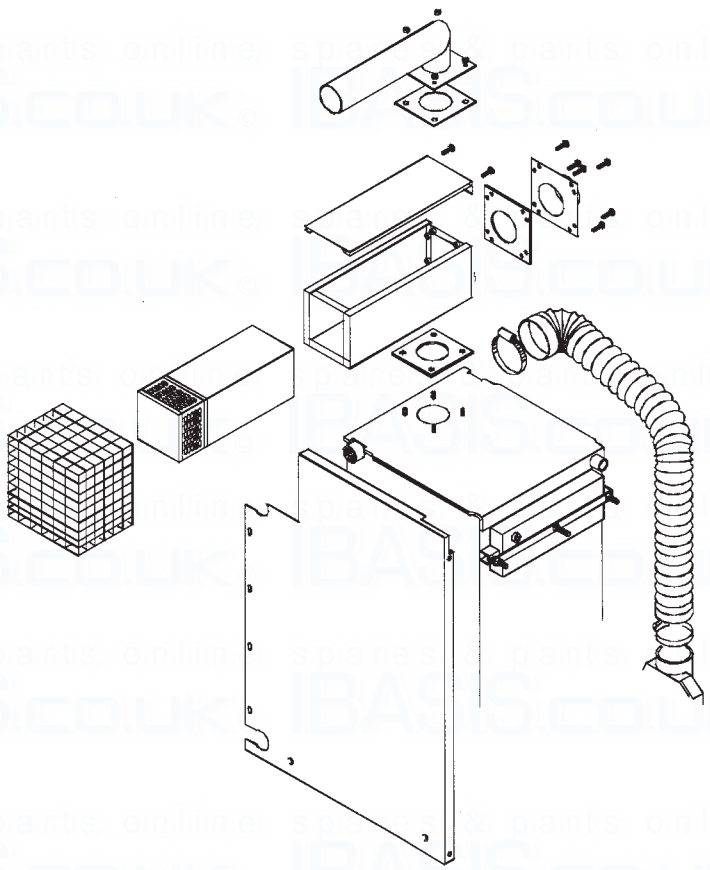


FIGURE 13 - BALANCED FLUE INSTALLATION LH AND RH ORIENTATION LEFT HAND SHOWN. (55 & 80 MODELS ONLY).

3.3 BALANCED FLUE – 55 & 80 MODELS ONLY LH AND RH FLUE IINSTALLATIONS

CAUTION

Before commencing with the installation the installer should refer to section 3.2

3.3.1

If the balanced flue is to be positioned at right angles to the boiler, then the blanking plate from the appropriate side panel of the boiler must be removed.

WARNING

The flue outlet assembly air inlet slots must have a minimum projection from the surface of the outside wall of 25 mm, (as Figure 12).

3.3.2

When the hole that was cut in the wall to accommodate the balanced flue has been made good, the protective basket should be fitted and screwed to the wall.

3.3.3

On satisfactory completion of the flue installation, the connection to other services can be undertaken as detailed in section 4.0.

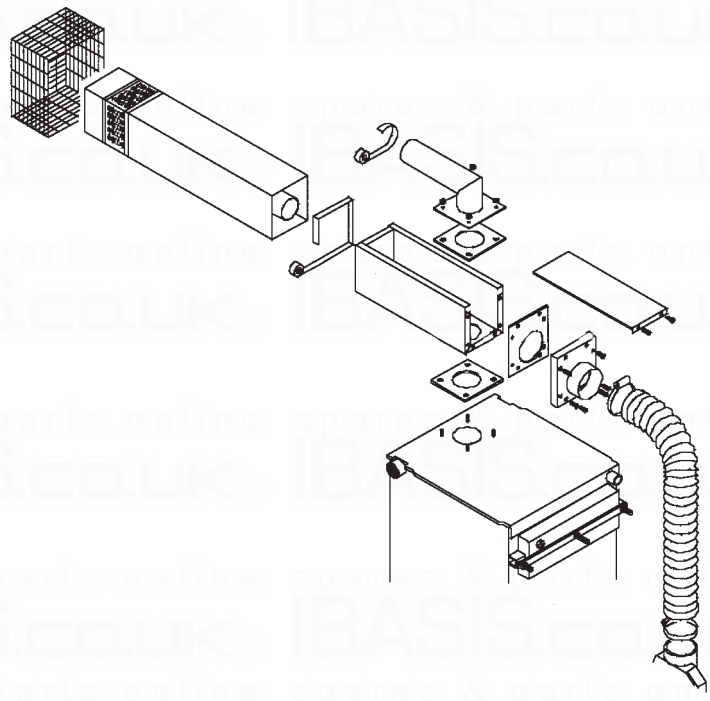


FIGURE 14 - BALANCED FLUE HORIZONTAL EXTENSION KIT (55 & 80 MODELS ONLY).

3.4 BALANCED FLUE – 55 & 80 MODELS - EXTENDED HORIZONTAL FLUE INSTALLATION

CAUTION

Before commencing with the installation the installer should refer to section 3.2 and Figure 14 covering standard flue installations.

3.4.1

The installation of the balanced flue extension kit should be treated as though it is an over sized standard flue outlet assembly. See section 3.2

WARNING

The extension cover slides over the terminal and is cemented into the wall, and as there is a larger than standard exhaust tube, this requires adjustment to length to provide an external projection of 200mm on 55 & 80 models.

3.5 BALANCED FLUE – 55 & 80 MODELS ONLY VERTICAL EXTENSION FLUE INSTALLATION

3.5.1

On 55 and 80 models only the Vertical extension flue kit may be used for rear outlet only. It may **not** be used for left hand or right hand outlets, (See Figure 15).

3.5.2

The front cover should be removed from the vertical extension kit, and the kit should then be located on the four studs and secured to the boiler, ensuring that the gaskets are in place between the exhaust box and the boiler, and between the spigot and the exhaust box. The assembly should then be fixed in position using the nuts and studs.

3.5.3

The flue exhaust tube should then be inserted into the flue spigot, and the joint sealed with fire cement and by tightening the clip at the top of the flue box. Now follow 3.2.4 as if fitting directly to the boiler as Figure 11, but as illustrated in figure 15.

3.6 BALANCED FLUE – 125 MODEL ONLY STANDARD FLUE INSTALLATION

3.6.1

Ensure that all the component parts that make up the flue kit are present. It is also recommended that figures 16 to 19 are studied in order that the installer may be familiarised with the assembly and installation of the balanced flue and its options.

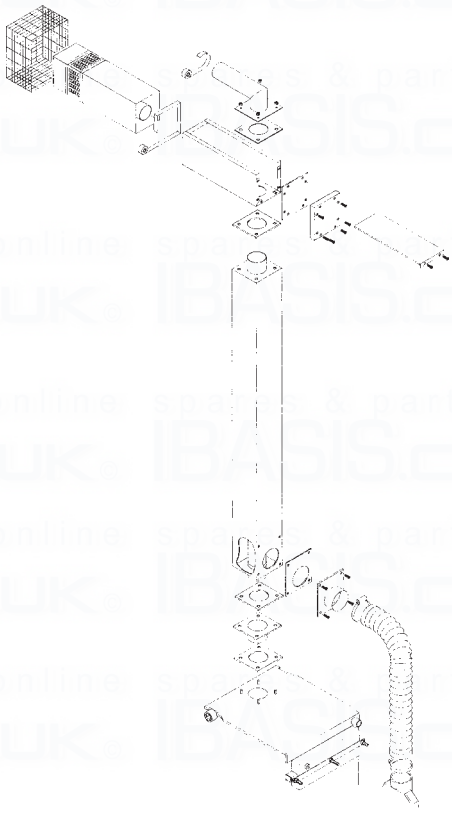


FIGURE 15 - BALANCED FLUE INSTALLATION VERTICAL EXTENSION. (55 & 80 MODELS ONLY).

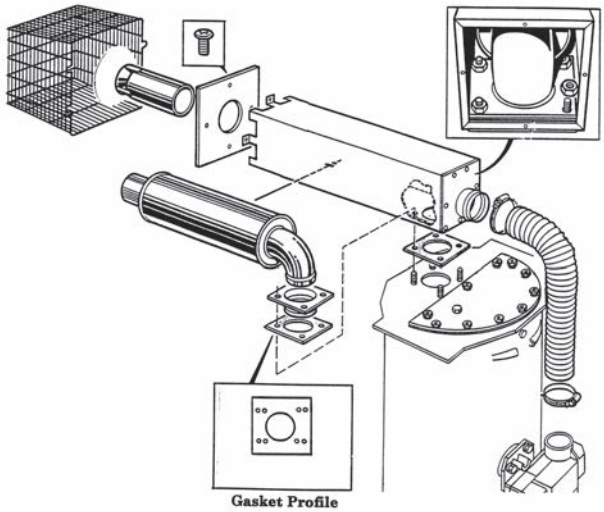


FIGURE 16 - BALANCED FLUE INSTALLATION. (125 MODEL ONLY) - STANDARD KIT SUPPLIED WITH BOILER.

3.6.2
The position of the flue outlet should be marked on the wall, and the boiler moved and adequately protected, prior to cutting the hole in the wall for the flue terminal. On completion of cutting the hole, the terminal body should pass through the wall and project at least 70mm. The exhaust tube must then project a further 125mm.

3.6.3
If the boiler is to be installed with either a left or right hand balanced flue exit, then section 3.7 and figure 17 should be referred to. If the boiler is to be installed with either a horizontal or vertical extension then section 3.8 with figure 18 or section 3.9 with figure 19 should be referred to respectively.

3.6.4
On models featuring a standard balanced flue arrangement, as in figure 12, the installation should continue as follows. Remove the access plate from the inside of the exhaust box, together with the four hexagonal nuts screwed onto the studs around the exhaust outlet on the boiler.

3.6.5
The two gaskets should be offered up, so that the first is positioned between the boiler and the exterior of the terminal body. The second, between the male end of the spigot adapter and the interior of the terminal body.

WARNING

Ensure that the spigot adapter, the upper gasket, the balanced flue terminal body, and the lower gasket are correctly positioned before securing and tightening nuts.

3.6.6
The flue exhaust duct should then be pushed together and sealed securely at its joint with the flue spigot, using high temperature silicone.

3.6.7
Attach the wind deflector plate to the outer end of the flue terminal body, using M5 screws.

3.6.8
The dished extension tube can then be inserted throught the opening, and pushed home so as to slip over flue exhaust duct. The joint should be sealed using high temperature silicone.

3.6.9
The terminal box access plate can then be refitted, and the flexible air inlet tube secured between this and the burner, using the jubilee clips provided.

3.6.10
Make good the wall opening about the flue terminal, and fit the terminal guard.

3.6.11
On satisfactory completion of the flue installation, the connection of the remaining services can be undertaken.

3.7 BALANCED FLUE – 125 MODEL ONLY RH & LH FLUE INSTALLATIONS

CAUTION

Before commencing with the installation the installer should refer to section 3.6.

3.7.1
See figure 17.

3.7.2
With the top panel removed, the four top panel locating studs should be removed from the side panels and replaced with M5 x10mm screws. The brass locating pins should also be removed from the side panels and the control panel. With the side panels and control panel in place the top panel can now be slid into position and held there using the remaining three M5 x 10mm screws.

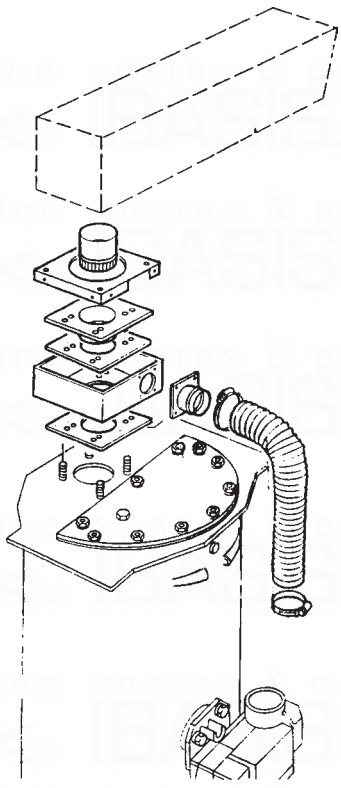


FIGURE 17 - BALANCED FLUE INSTALLATION LH & RH ORIENTATION (125 MODEL ONLY). RIGHT HAND SHOWN.

3.7.3
With the top panel removed the installation should continue as follows: Remove the access plate from the end of the exhaust box, together with the four hexagonal nuts screwed onto the studs around the exhaust outlet on the boiler

3.7.4
The first gasket should be offered up so that it is positioned between the boiler and the exterior of the lower part of the transition box. The second gasket should be placed within the lower part of the transition box, which should then be located upon the studs around the boiler exhaust outlet, ensuring that the air feed spigot is facing forward.

3.7.5
The flue spigot should be pushed home; through the top gasket, and through the lower part of the transition box and lower gasket, and into the exhaust outlet on the boiler. This assembly should then be clamped using the nuts and stud fixings from the boiler.

WARNING

Ensure that the lower transition box assembly and both gaskets are correctly located prior to clamping into position.

3.7.6
The exhaust extension should then be pushed into the flue spigot, and sealed in place using high temperature silicone. This should also be applied to the inner surface of the opposite end of the exhaust extension, in preparation for the joint with the exhaust pipe silencer.

3.7.7
The top plate from the transition box should then be fitted using the self tapping screws.

3.7.8
The exhaust extension and exhaust pipe silencer should be pushed together firmly, and the joints sealed using high temperature silicone.

3.7.9
The flue box, with the gasket in position, should be offered up to the transmission box, and using the four M6 screws the parts should be clamped. Care must be taken to ensure that the integrity of the gasket is maintained.

3.7.10
The flue exhaust duct should then be pushed into and sealed securely at its joint with the flue extension, using high temperature silicone.

3.7.11
Attach the wind deflector plate to the outer end of the flue terminal using the M5 screws.

3.7.12
The dished extension tube can then be inserted through the opening, and pushed home so as to slip over the flue exhaust duct. The joint should be sealed using high temperature silicone.

WARNING

The exhaust box assembly must have a minimum projection from the surface of the outside wall of 70mm. The exhaust tube must then project a further 125mm.

3.7.13
Make good the wall opening about the flue terminal, and fit the terminal guard.

3.7.14
On satisfactory completion of the flue installation, the connection to the remaining services can be undertaken.

3.8 BALANCED FLUE – 125 MODEL ONLY EXTENDED HORIZONTAL FLUE INSTALLATION

CAUTION

Before commencing with the installation the installer should refer to section 3.6, and Figure 16 covering Standard flue installation.

3.8.1
See figure 18.

3.8.2
The installation of the balanced flue extension kit should be treated as though it is an oversized standard flue outlet assembly. See section 3.6.

WARNING

The extension cover slides over the terminal and is cemented into the wall, and as there is a larger than standard exhaust tube, this requires cutting to a length to provide an external projection of 125mm for the 125 model.

3.9 BALANCED FLUE – 125 MODEL ONLY VERTICAL EXTENSION FLUE INSTALLATION

CAUTION

Before commencing with the installation the installer should refer to section 3.6.

3.9.1
See figure 19.

3.9.2
The front cover should be removed from the extension kit, and the kit should then be located on the four studs and secured to the boiler, ensuring

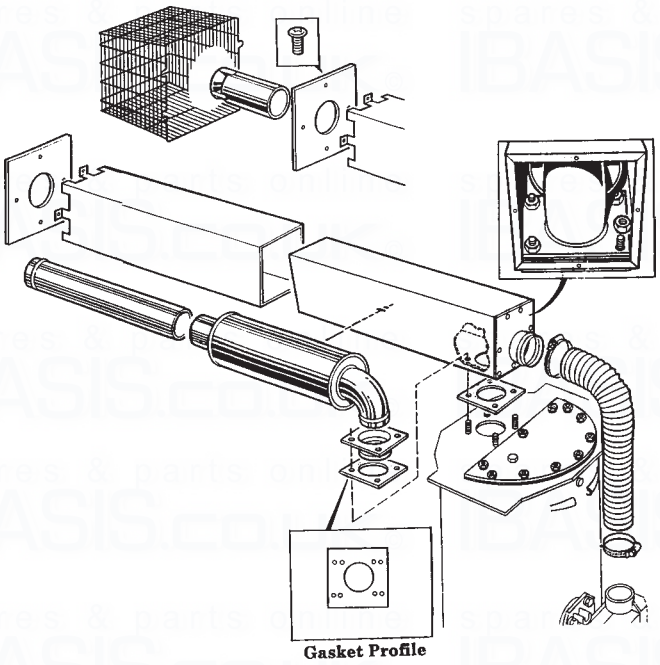


FIGURE 18 - BALANCED FLUE INSTALLATION HORIZONTAL EXTENSION. (125 MODEL).

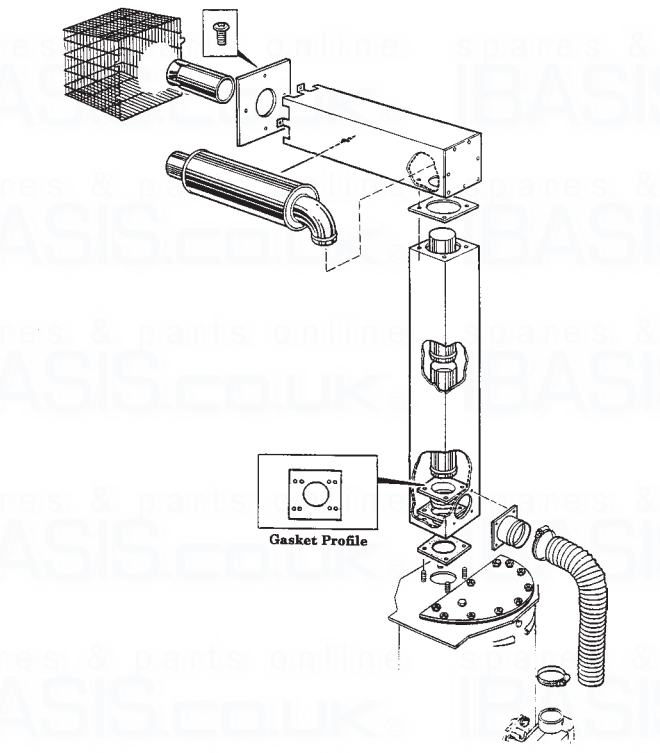


FIGURE 19 - BALANCED FLUE INSTALLATION VERTICAL EXTENSION. (125 MODEL).

that the gaskets are in place between the exhaust box and the boiler, and between the spigot and the exhaust box. The assembly should then be fixed i position using the nuts and studs.

3.9.3

The flue exhaust tube should then be inserted into the flue spigot, and the joint sealed with fire cement and by tightening the clip at the top of the flue box.

3.9.4

The horizontal section should then be passed through the hole in the wall and married up with the vertical extension piece, ensuring that the gasket between the two parts is in place and that the fastenings are securely clamped.

3.9.5

The exhaust silencer should be passed through the hole and positioned into the top of the vertical flue exhaust pipe. The two parts should be pushed together and the joint sealed using high temperature silicone.

3.9.6

The dished extension tube can then be inserted through the opening, and pushed home so as to slip over the flue exhaust duct. The joint should be sealed using high temperature silicone.

WARNING

The flue terminal assembly must have a minimum projection from the surface of the outside wall of 70mm. The exhaust tube must then project a further 125mm.

3.9.7

Make good the wall opening about the flue terminal, and fit the terminal guard.

3.9.8

Refit the front cover to the vertical flue section and discard the flue end cover with air pipe adapter, fitting the plain blanking cover supplied with the horizontal section of the flue.

3.9.9

The exhaust box access plate can then be re-fitted, and the flexible air inlet secured to both the exhaust box access plate and the burner, using the jubilee clips provided.

3.9.10

Make good the wall opening about the flue terminal, and fit the terminal guard.

3.9.11

On satisfactory completion of the flue installation, the connection to other services can be undertaken.

3.10 CONVENTIONAL FLUE – ALL MODELS

CAUTION

Before commencing the installation, the installer should be familiar with the details contained within section 2.14 and should check for compliance.

3.10.1

Ensure that the details outlined within section 3.1 are complied with prior to continuing with the installation.

3.10.2

The position of the flue should be marked on the ceiling or wall, and the boiler moved and adequately protected, prior to cutting the hole for the flue.

3.10.3

The first section of flue should be placed so as to be positively located within the flue spigot on the boiler, and the joint sealed using high temperature silicon sealant.

3.10.4

The flue should be supported through the use of brackets which should be installed as the flue is being constructed.

3.10.5

When the flue connects into an existing flue liner within a chimney the connecting lengths of flue from the boiler to the flue liner must be made using sections of twin wall flue.

3.10.6

The hole that was cut in the wall or ceiling to accommodate the flue must be sealed and made good.

3.11 CONNECTION OF SERVICES

3.11.1

The pipework for central heating and domestic hot water to and from the boiler should be completed.

3.11.2

The mains electrical input should be connected within the electrical control panel, ensuring that the wires are secured and clamped. The cover to the panel must be replaced and positively secured by its screw and serrated washer.

WARNING

Ensure that the mains supply is isolated before carrying out the electrical installation work. Such work should only be undertaken by a qualified and competent electrical engineer.

3.11.3

The fuel feed from the storage tank should have been brought to within 450mm of the oil pump on the burner, and the final connection should then be carried out using the flexible tube supplied with the boiler. If the installation features a two pipe system it will be necessary for the installer to supply an additional length of flexible tube to the same specification.

3.11.4

A suitable remote acting (OFTEC Approved) Fire valve must be installed so that the sensor is positioned above the burner.

3.11.5

The electrical connection between the burner and the control panel should be made by inserting the four pin plug, on the end of the fly lead from the burner, into the socket located on the underside of the control panel.

CAUTION

If zone controllers are to be installed, the installer must ensure that the information provided with the units is studied and that their installation is compatible with rest of the system.

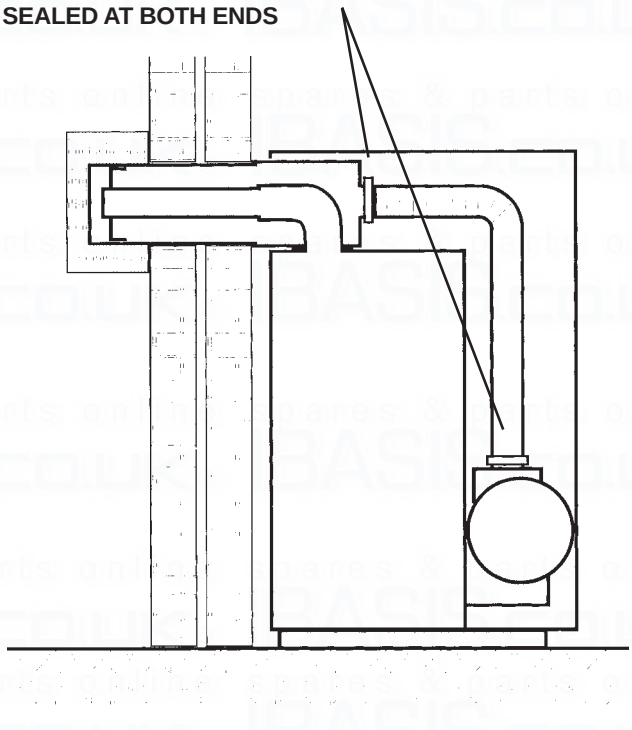
3.11.6

Ensure that there is an adequate air supply in accordance with the ventilation requirements detailed within section 2.15

CAUTION

On balanced flue models the flexible air pipe should be positively connected and secured in place at both the burner and the air inlet spigot on the balanced flue assembly (figure 20).

FIG 20
ENSURE THE FLEXIBLE AIR PIPE IS FIRMLY FIXED AND SEALED AT BOTH ENDS



CAUTION

It is recommended that an OFTEC approved engineer is used for commissioning thereby ensuring that the boiler is set and tested to provide optimum efficiency combined with clean combustion. Checks for electrical safety must be carried out by an approved electrical engineer working within IEE guidelines. Not withstanding the above, it should be noted that satisfactory commissioning is a requirement for registration and validation of the manufacturers' warranty.

When the commissioning of the Jetstreme boiler is completed, the commissioning report at the rear of this manual must be completed in full by the commissioning engineer and returned to Halstead Boilers Ltd.

4.1 PRE-COMMISSIONING INSPECTION OF THE INSTALLATION

CAUTION

Ensure that the electrical safety checks have been carried out, and that the boiler is turned off at the isolator.

4.1.1

Undertake a physical inspection of the appliance and the installation to ensure that it is satisfactory

4.1.2

Ensure that the flueing arrangements are satisfactory and in compliance with the appropriate regulations

4.1.3

Ensure the appropriate requirements for ventilation are observed

4.1.4

Check that the clearances required for servicing are correct

4.1.5

Ensure all gaskets, joints, and fastenings are present and effective

4.1.6

Check that the flow and return connections are correct and do not leak

4.1.7

Check that the oil installation has been completed satisfactorily and that the valves are all in the closed position

4.1.8

Check that the electrical connection is satisfactory

4.2 PRE-COMMISSIONING INSPECTION OF THE BOILER

CAUTION

Ensure that the heating and hot water system has been filled before proceeding with the commissioning

4.2.1

Remove the top panel and front panel from the boiler

4.2.2

Remove the front plate and check that the baffles are correctly seated, re-tighten fastenings after inspection

4.2.3

On CF models check that flue draught is as detailed within section 8 taking the reading through the sample point in the front of the boiler

4.2.4

Check that the burner is set to accept the grade of oil used

4.2.5

Connect the oil line to the burner ensuring that prior to connection the valves remain closed

4.2.6

On completion of the connection of the oil feed to the burner ensure that the connections are tested for leaks and that the valves are left open

4.2.7

Ensure that there are no impurities or air locks within the oil feed (gravity feed system only)

4.3 PRE-COMMISSIONING INSPECTION OF THE BURNER

4.3.1

Check that the separate information regarding the operation of the burner is present and within the rear cover of the manual

4.3.2

Check that the burner head is to specification and in line with the details contained within section 8

4.3.3

Check that the nozzle size is correct

4.3.4

Read the appropriate section within the separate burner manual

4.4 PRE-FIRING CHECKS

4.4.1
Connect the oil pressure gauge to the test point on the burner oil pump and ensure that the valves on the oil feed are all open

Caution
Running the oil pump with the valves closed will lead to oil pump failure

4.4.2
Turn on the electrical supply at the isolator

4.4.3
Ensure that the controls on the boiler are set to demand heat;
(a) Boiler thermostat to highest setting
(b) Time clock (if fitted) to an on position for hot water and central heating.

4.4.4
Ensure that the external controls are set to demand heat;
(a) Room thermostat to highest setting
(b) Cylinder thermostat to highest setting

4.4.5
Check that the boiler starts its ignition sequence as detailed in section 4.5.1.

4.5 FIRING THE BOILER

4.5.1
Ensure that the ignition sequence is as follows;

Firing sequence

Times of operation / action (seconds)

0	(a) Burner motor starts
0 - 20	(b) Ignition spark formed
12	(c) Solenoid valve opens
12	(d) Oil mist is formed
20	(e) Ignition occurs
20	(f) Flame sensed by photocell
20	(g) Spark ceases

Caution
The oil pressure should be adjusted so that it is in accordance with that specified within section 8

Note
(i) It is rare that the burner will ignite on the first attempt. Usually air will require bleeding from the fuel feed. If the flame has not been sensed within the safety time (a+10seconds), the burner will automatically go to lockout (red neon lit)
(ii) If flame detection is within the safety time, and then the flame subsequently drops out, the burner will re-attempt ignition. If this is unsuccessful the burner will then go to lockout (green neon is replaced by orange neon)

4.6 COMBUSTION CHECKS

CAUTION
It is imperative that combustion checks are undertaken using approved equipment that is regularly tested to ensure its continued accuracy, and that it remains within calibration.

4.6.1
With the boiler firing, and having reached thermal equilibrium, check that the oil pressure is as specified within section 8

4.6.2
Insert the sample tube from the smoke pump through the test point and take a smoke reading

4.6.3
Adjust the air setting on the burner and continue to take samples until the smoke reading is in line with that detailed within section 8

4.6.4
With the burner air and oil pressure correctly set undertake analysis of the flue gases

4.6.5
Insert the sample probe through the test point on the front of the boiler shell and measure CO / CO_2 and flue gas temperatures

4.6.6
Ensure that the readings are within a tolerance of +/- 10% of those stated within section 8 making adjustments to the burner as appropriate

4.6.7
Complete the remainder of the commissioning prior to re-checking all readings and entering the data on to the commissioning card

4.6.8
Ensure that the sample point is sealed after sampling has been completed

4.6.8
Ensure that there are no water leaks from the flow and return connections

4.6.9
Replace and secure the front and top panels

4.7 HAND OVER

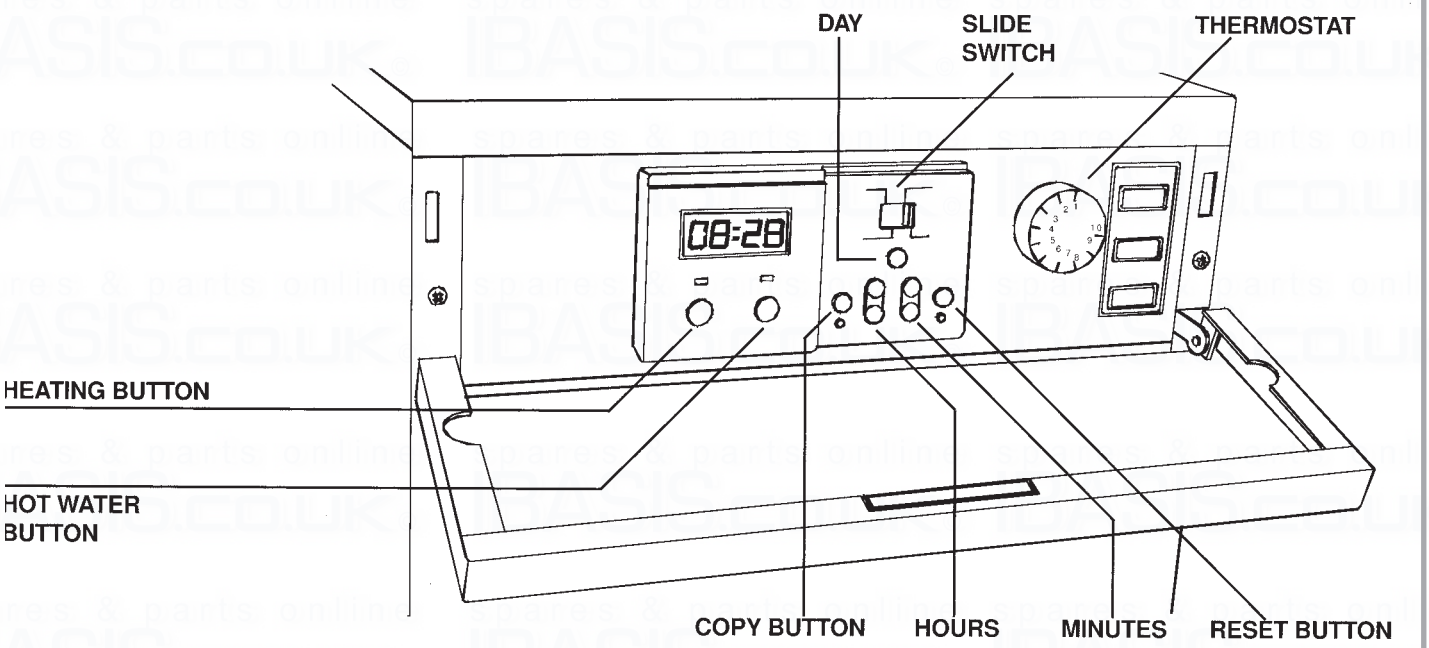
4.7.1
Using the information contained within section 10 of this manual set the programmer to the requirements of the customer.

4.7.2
Upon completion of satisfactory commissioning the engineer should provide the customer with sufficient information to allow the customer to operate the boiler safely and efficiently. The customer must be made aware of the appropriate sections within the manual, and be informed that the manufacturer recommends that the Jetstreme boiler is serviced by a competent engineer on a regular basis (at least once a year).

4.7.3
The commissioning card must be completed by the commissioning engineer and returned to the manufacturer within seven days to validate the warranty.

FIGURE 21 - ELECTRONIC PROGRAMMER (OPTIONAL).

CONTROL PANEL - ENSURE THE CUSTOMER CAN OPERATE THE BOILER SAFELY AND EFFICIENTLY AND IS FULLY CONVERSANT WITH THE CONTROLS



5.1 SERVICING - GENERAL REQUIREMENTS

5.1.1
The manufacturer recommends that the Jetstreme boiler is serviced on a regular basis, at least once a year, by a registered engineer.

CAUTION
Failure to ensure that adequate servicing is carried out can invalidate the manufacturers warranty and can reduce the efficiency of the boiler and compromise the safety and reliability of the appliance.

5.1.2
The manufacturer recommends that servicing should be undertaken just before the start of the heating season if the boiler is used to provide heating and hot water throughout the year.

5.1.3
If the boiler is shut down during the summer months it is recommended that servicing is carried out as soon as possible after the end of the heating season. This will help to reduce corrosion and in so doing extend the life of the boiler.

5.2 SERVICING - OIL INSTALLATION

WARNING
Ensure that the boiler is isolated from the mains electricity supply before commencing servicing work.

5.2.1
Check the oil tank for any signs of leakage and for severe corrosion, ensure that the various fittings are in good condition and operational.

5.2.2
Inspect the pipework where it is visible and accessible (above ground) to ensure that it remains in good condition and has not been damaged.

5.2.3
If the fuel level is sufficiently low, remove sludge, water and other contaminants from the oil by opening the sludge cock on the oil tank and draining off the contaminated fuel. When this operation is completed the drain cock must be securely closed.

ENVIRONMENTAL WARNING
The contaminated fuel must be collected in a sealable vessel and disposed of in accordance with the relevant local or national regulations.

5.2.4
The fuel filter should be removed and cleaned using clean kerosene, the residual contaminated kerosene must be put with the contaminants from the oil tank and disposed of correctly

ENVIRONMENTAL WARNING
Do not remove the filter until the fuel supply has been isolated at the tank.

5.3 SERVICING - BOILER

WARNING

Ensure that the boiler is isolated from the mains electricity supply before commencing servicing work. Also ensure that the oil supply has been shut off at the appropriate valve(s).

5.3.1

Remove the top and front panels from the boiler, and place them to one side so that they will not be prone to inadvertent damage. Disconnect the air tube from the burner (BF models only) and disconnect the lead from the burner to the control.

5.3.2

Carefully remove the burner complete with blast tube from its flange by removing the retaining screw.

5.3.3

Unfasten the nuts which clamp the inspection cover and gasket in position, and remove. The gasket should be inspected to ensure that it is not damaged.

5.3.4

Remove and inspect the baffles for any signs of distortion and serious damage from corrosion. The fixing points should be inspected to ensure that there is no apparent damage associated with fretting. If necessary replacements should be fitted.

5.3.5

With a torch inspect the inside of the boiler for any signs of distortion, signs of damage associated with flame impingement, and any trace of advanced stages of corrosion. The integrity of the baffle mountings should be carefully inspected to ensure that they have not been subject to fretting or distortion.

5.3.6

The baffles should be taken outside and cleaned to remove any scale, soot, ash, or other residue. The inside of the boiler should be brushed down and scraped to collect residue, and a vacuum cleaner used to effect its removal.

5.3.7

Visually inspect the flue to ensure that there is no build up of soot and other residue, and that corrosion has not impaired its operation.

5.3.8

Check the flow and return connections to ensure that they remain tight and leak proof.

5.3.9

Replace the inspection cover, ensure that the sample point remains free for access to allow flue gas sampling to occur.

5.4 SERVICING - BURNER

5.4.1
Having already removed the burner and draught tube (5.2.1) it is recommended that the major component parts of the burner are initially subject to a detailed visual inspection.

5.4.2
The nozzle should be cleaned thoroughly using a soft bristle brush and kerosene. The specification of the nozzle should be checked to ensure that the correct nozzle is fitted.

CAUTION

Never clean the nozzle with sharp instruments or abrasive materials as this may damage the orifice and impair the performance of the boiler. If the nozzle shows signs of wear it must be replaced with a new nozzle to the correct specification.

5.4.3
The electrodes should be cleaned using a soft bristle brush and kerosene. The gap should be checked to ensure that it is in accordance with the manufacturers recommendations. If the tip of the electrodes shows evidence of being pitted then the electrodes must be replaced. If the ceramic insulation shows signs of being cracked or crazed then the electrodes must be replaced.

5.4.4
The photocell must be removed and thoroughly cleaned to ensure that it continues to detect the presence of a flame.

CAUTION

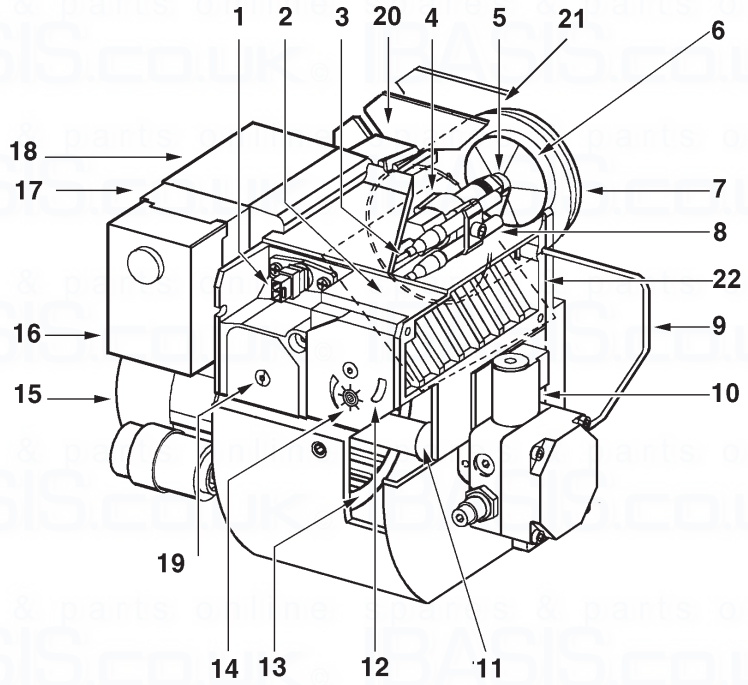
Never clean the photocell with sharp instruments or abrasive materials as these may cause damage and impair the performance of the component. If the photocell shows any signs of damage it must be replaced.

5.4.5
The blast (no.7) tube must be cleaned thoroughly using a soft bristle brush and kerosene. Ensure that there is no residual matter that could impair the performance of the burner. If there are any signs of damage to the blast tube then the component must be replaced with a new unit to the same specification.

5.4.6
Electrical connections and leads should all be checked to ensure that they are secure and in good condition.

5.4.7
The burner should be reassembled and refitted to the boiler and on completion of servicing checked from 4.4.0 through to 4.6.9 inclusive.

FIGURE 22



1	PHOTORESISTOR	12	INDICATION - AIR DAMPER
2	AIR DAMPER	13	FAN WHEEL
3	IGNITION CABLES	14	ADJUSTMENT - AIR DAMPER
4	NOZZLE ASSEMBLY	15	MOTOR
5	NOZZLE	16	CONTROL BOX
6	BRAKE PLATE	17	CONTROL BOX BASE
7	BLAST TUBE	18	IGNITION TRANSFORMER
8	IGNITION ELECTRODES	19	ADJUSTING SCREW
9	CONNECTING PIPE	20	FIXING FLANGE
10	FUEL PUMP	21	FLANGE GASKET
11	DRIVE COUPLING	22	FRONT GASKET

5.5 SERVICING - RE-COMMISSIONING

5.5.1
Prior to firing the boiler a flue draught reading should be taken from the sample point (see 4.2.3).

5.5.2
Carry out re-commissioning as detailed in sections 4.0 to 4.6.

6.1 BURNER FAILS TO START

SITUATION	POSSIBLE CAUSES	REMEDIAL ACTION
MOTOR RUNS PRE-PURGES OKAY FLAME PRESENT BURNER LOCKS OUT	FLAME UNSTABLE	CHECK NOZZLE BURNER HEAD SPECIFICATION ELECTRODE POSITION
	WRONG HEAD SETTING	
	LOW OIL PRESSURE	CHECK OIL PRESSURE
	EXCESS AIR	ADJUST AIR DAMPER
	PHOTO CELL PROBLEM	CLEAN PHOTO CELL REPLACE PHOTO CELL
	CONTROL FAULTY	CONFIRM WITH NEW CONTROL BOX

6.2 BURNER FAILS TO START

MOTOR RUNS PRE-PURGES OKAY NO FLAME BURNER LOCKS OUT	PHOTO CELL PROBLEM	CHECK FOR DETECTION OF AMBIENT LIGHT AT PHOTO CELL
	NO SPARK	CHECK FOR ELECTRODE ARC AT GAP/HT SHORT
	NO OIL	CHECK OIL FEED TO THE BURNER FOR AIRLOCKS / VALVES ARE ALL OPEN
		CHECK MAGNETIC VALVE OPERATES

6.3 BURNER FAILS TO START AFTER NORMAL OPERATION

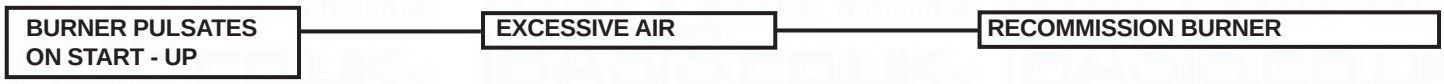
BURNER FAILS TO START LOCKOUT LAMP NOT ILLUMINATED	NO POWER	CHECK ISOLATOR / FUSE
	THERMOSTAT AT OPEN CIRCUIT	RESET THERMOSTAT
	OVERHEAT AT OPEN CIRCUIT	RESET OVERHEAT - FIND REASON FOR OVERHEAT
	CONTROL / PHOTO CELL FAULT	CHECK BY REPLACEMENT

6.4 BURNER FAILS TO START AFTER NORMAL OPERATION

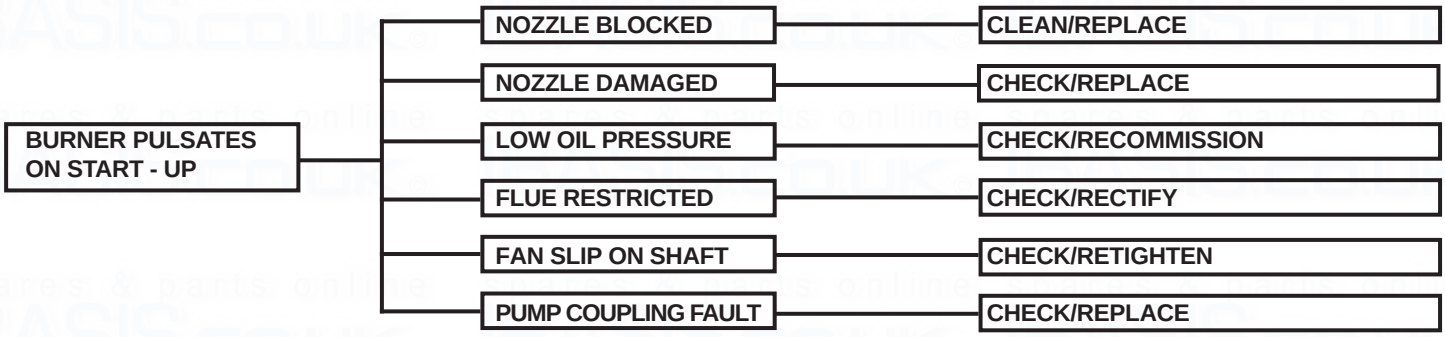
MOTOR RUNS BURNER RUNS TO LOCKOUT	OIL STARVATION	CHECK OIL LEVEL / OILFEED / VALVES PUMP / BURNER NOZZLE
		CHECK FOR FUEL CONTAMINATION / AIRLOCKS
	INTERMITTENT FLAME DETECTION	CHECK PHOTO CELL EXCESSIVE FLUE DRAW
	NO SPARK	CHECK TRANSFORMER / HT LEAD / ELECTRODE GAP

SITUATION	POSSIBLE CAUSES	REMEDIAL ACTION

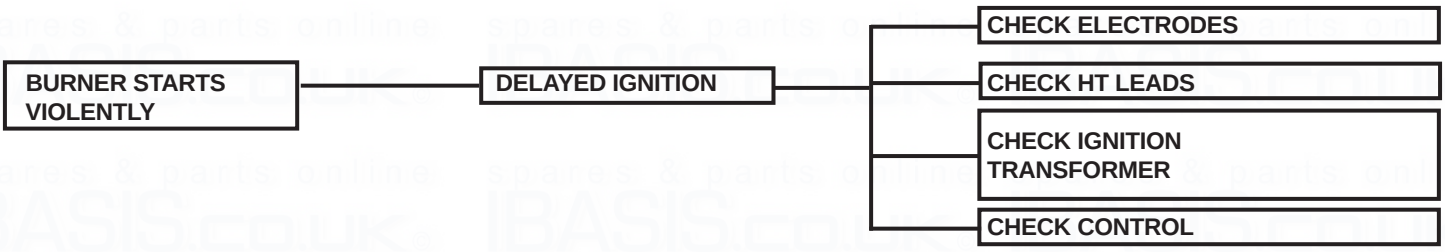
6.5 DELAYED IGNITION, BURNER STARTS VIOLENTLY IN WARM FLUE CONDITION;



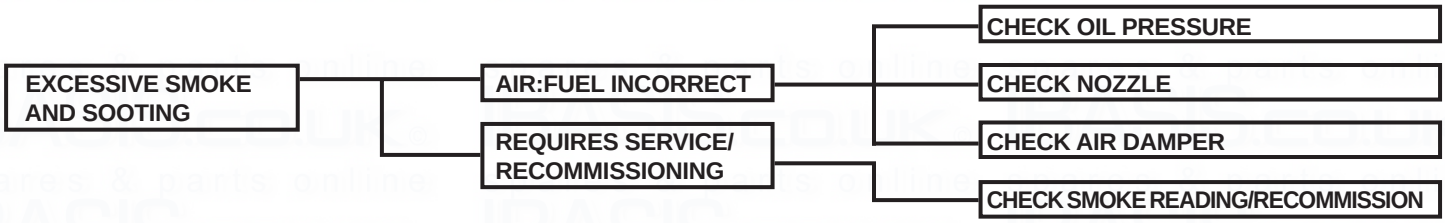
6.6 DELAYED IGNITION, BURNER STARTS VIOLENTLY IN COLD FLUE CONDITION



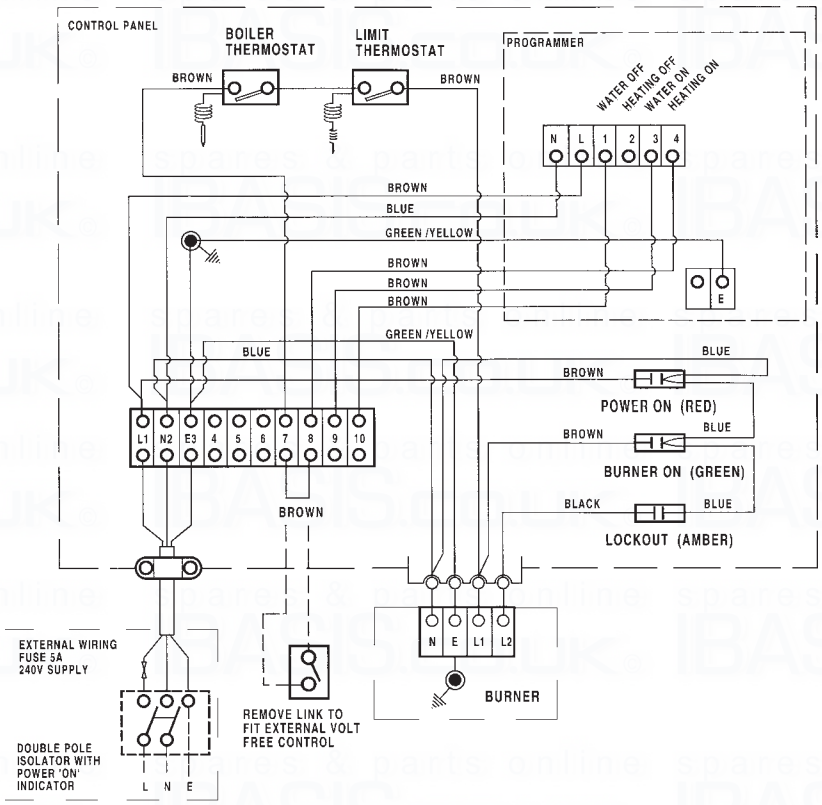
6.7 BURNER STARTS VIOLENTLY



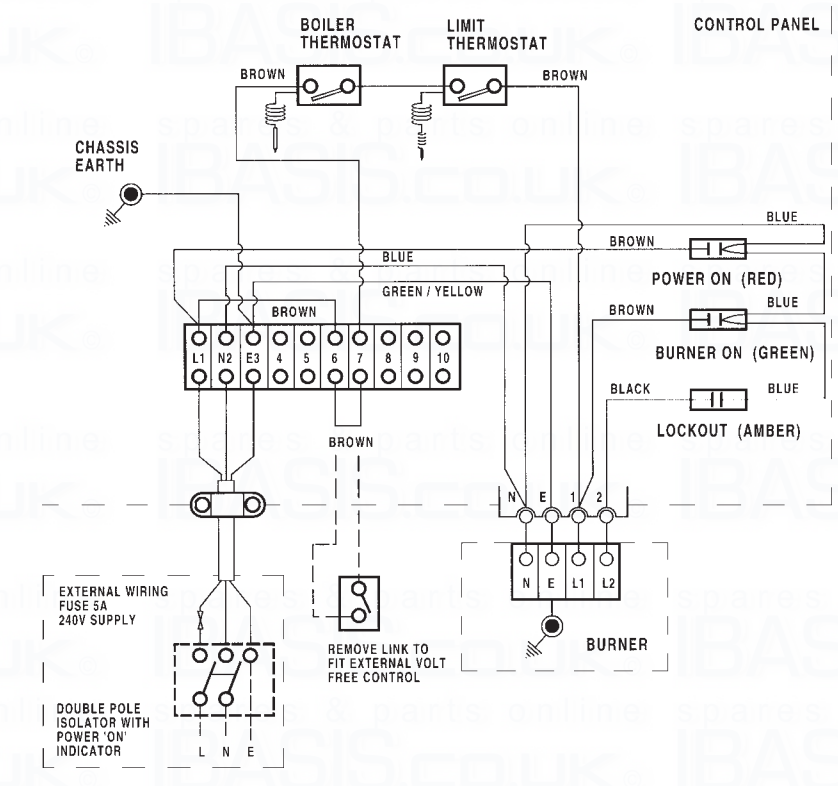
6.8 FLUE SHOWS SIGNS OF EXCESSIVE SMOKING/SOOTING



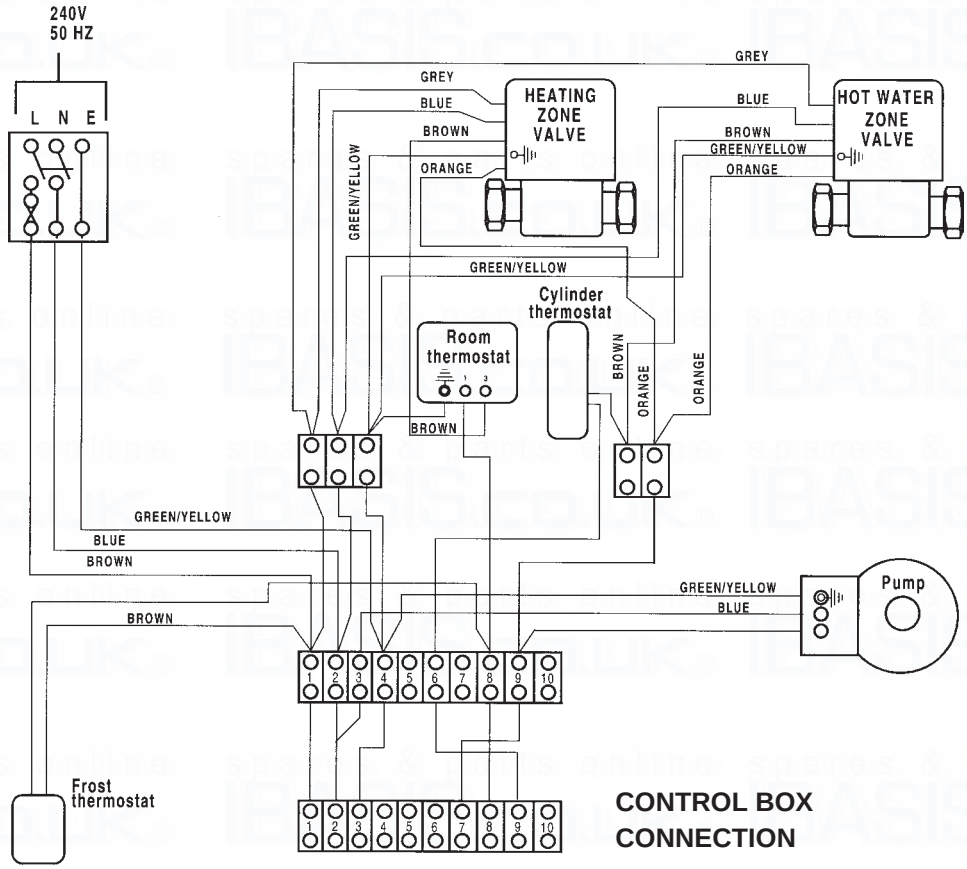
7.1 WITH OPTIONAL ELECTRONIC PROGRAMMER



7.2 NO INTEGRAL PROGRAMMER

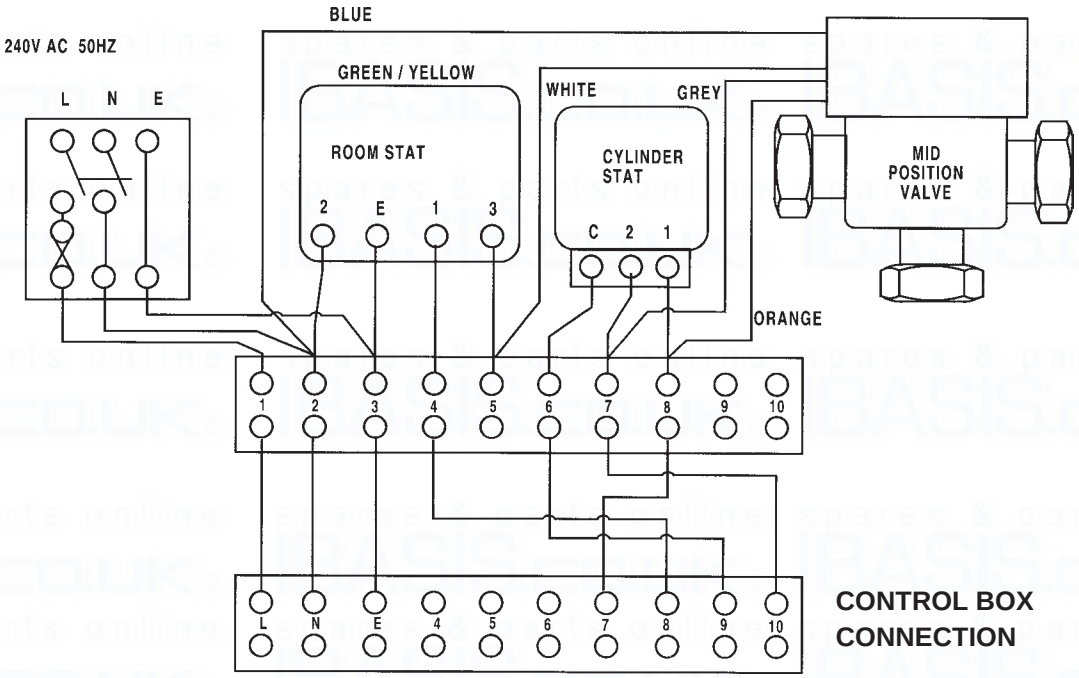


7.3 TYPICAL 'S' PLAN



CONTROL BOX CONNECTION

7.4 TYPICAL 'Y' PLAN



CONTROL BOX CONNECTION

JETSTREME MODEL	45/55	60/80	90/125
OUTPUT KW BTU / HR	16.1 55,000	23.4 80,000	36.6 125,000
BURNER	STERLING 40	STERLING 40	STERLING 50
HEAD SETTING	80mm	80mm	80mm
BLAST TUBE	6-7-21-5-10	6-7-21-5-10	10-8-10-6-19
NOZZLE DANFOSS	0.55 x 80EH	0.75 x 80EH	1.0 x 60ES
OIL PRESSURE PSI	115	120	135
AIR SETTING (APPROX)	8	11.5	22
SMOKE NUMBER	0	0	0
CO_2	11%-11.5%	11%-11.5%	11%-11.5%
O_2	5.8	5.8	5.8
FLOW/RETURN CONNECTIONS	1"	1"	1"
FUEL CONNECTIONS	3/8" BSP	3/8" BSP	3/8" BSP
MINIMUM FLUE DRAUGHT	8.7 N/M^3 0.035" WG.	8.7 N/M^3 0.035" WG.	8.7 N/M^3 0.035" WG.
MAXIMUM FLUE DRAUGHT	37.4 N/M^3 0.15" WG.	37.4 N/M^3 0.15" WG.	37.4 N/M^3 0.15" WG.
MAXIMUM WORKING PRESSURE	45 PSI 3 BAR	45 PSI 3 BAR	45 PSI 3 BAR
ELECTRICAL SUPPLY	230V/50HZ SINGLE PHASE	230V/50HZ SINGLE PHASE	230V/50HZ SINGLE PHASE

NOTE:

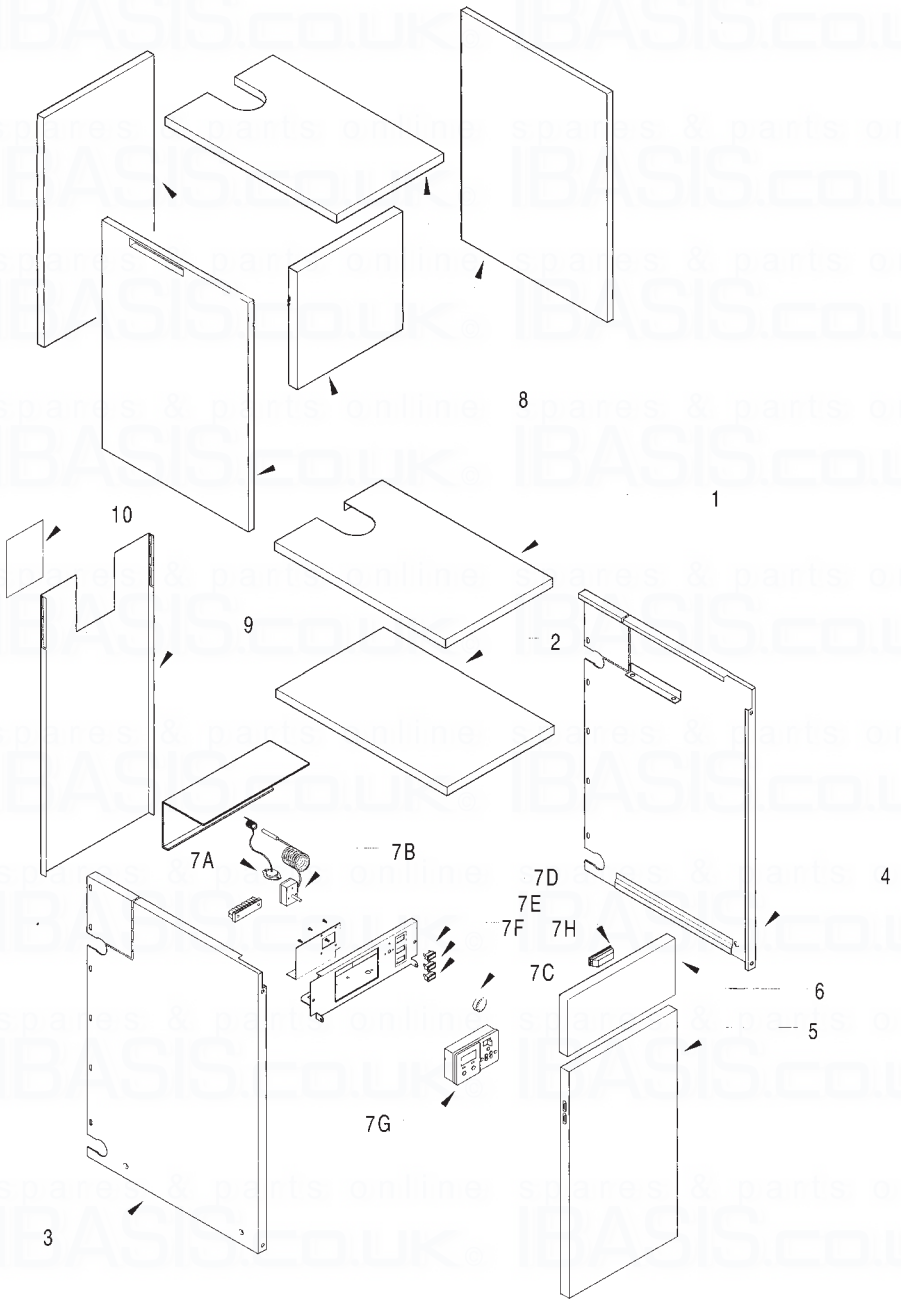
AIR SETTINGS. ALL FIGURES BASED ON ZERO FLUE RESISTANCE

*** BURNER PRE-SET TO ACCOMMODATE MAXIMUM OUTPUT SETTINGS.**

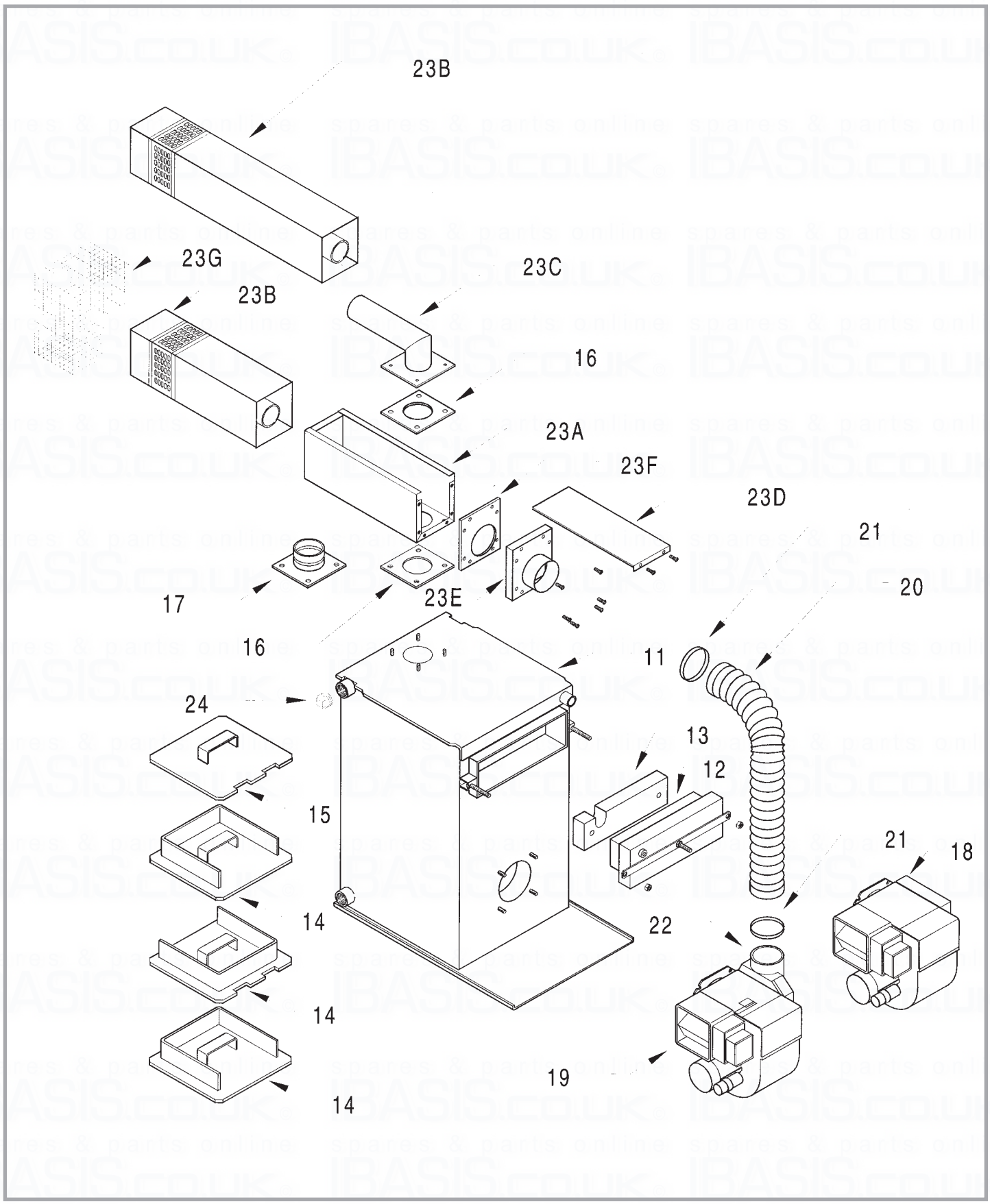
TO SET BURNER FOR OTHER OUTPUT SETTINGS PLEASE CONSULT TECHNICAL MANUAL SUPPLIED WITH BURNER.

9.1 PARTS IDENTIFICATION AND DIAGRAM – 55 & 80 MODELS

1 Top panel C/F
2 Top panel B/F
3 LH Side panel
4 RH Side panel
5 Burner access door
6 Control panel door
7 Electrical Assembly
7A Limit Thermostat
7B Boiler Thermostat
7C Knob
7D Red neon
7E Green neon
7F Orange neon
7G Programmer QE2
7H Magnetic fastener
8 Insulation Kit
9 Rear panel
10 Rear blanking panel
11 Boiler jacket weld assy.
12 Service door (boiler)
13 Insulation for service door
14 Lower baffle assy
15 Top baffle Plate
16 Flue gasket
17 Flue spigot
18 CF Air Silencer
19 Burner EOGB
20 BF Hose
21 BF Hose Clip x 2
22 BF Air Duct
23 BF terminal assy.
23A Inner cover assy
23B Outer cover assy
23C Elbow weld assy
23D Inner cover top
23E End plate
23F End plate gasket
23G External basket
24 Blanking plug (2)



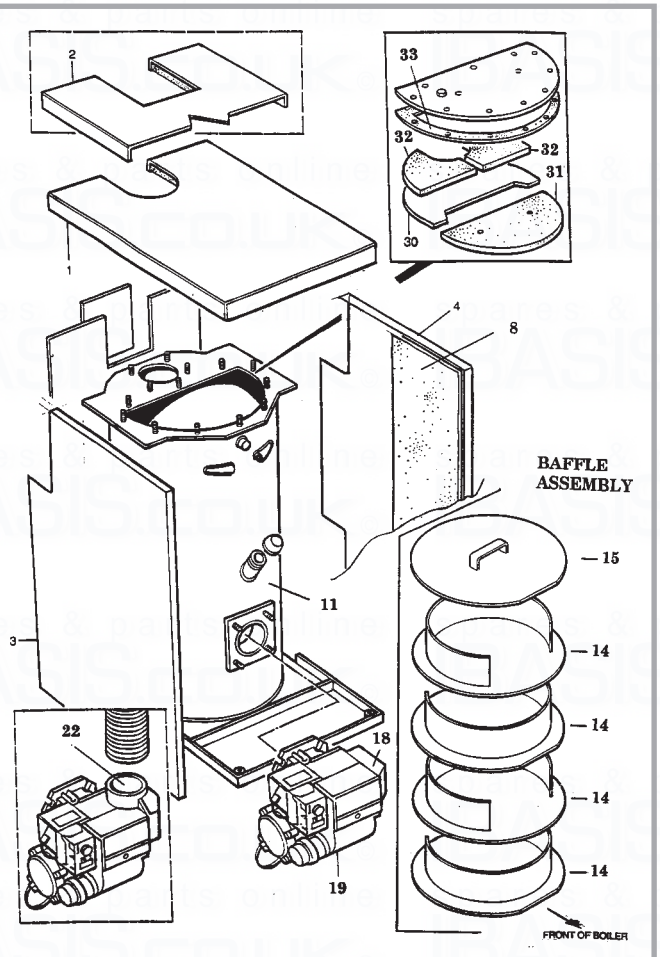
9.2 BOILER PARTS DIAGRAM – 55 & 80 MODELS



9.3 PARTS IDENTIFICATION – 125 MODEL

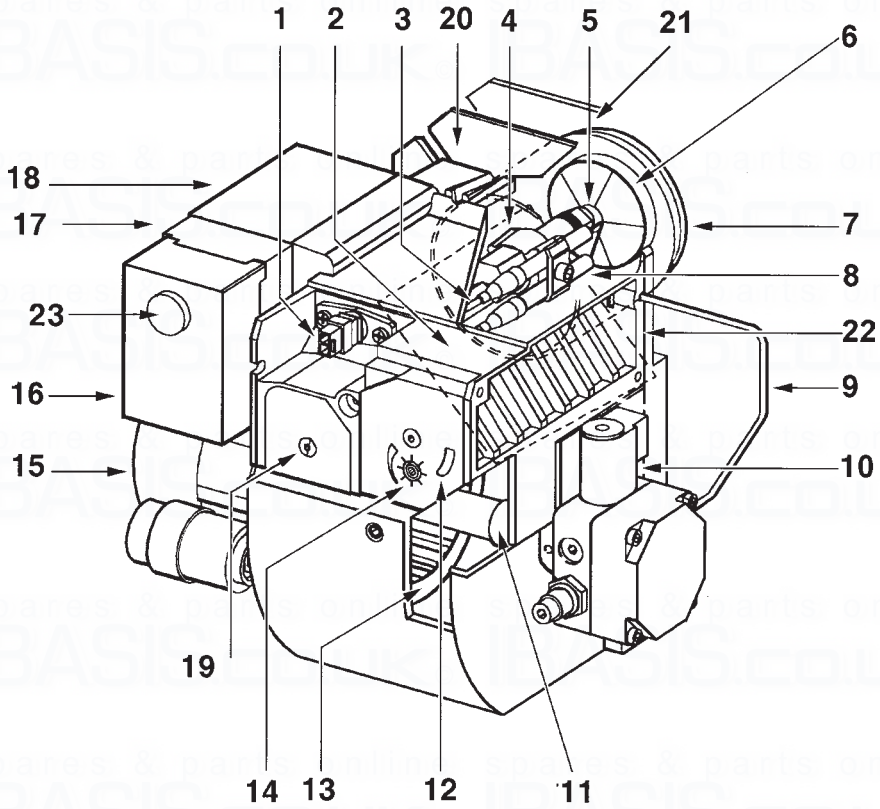
ITEM	DESCRIPTION
1	Top Panel Conventional Flue
2	Top Panel Balanced Flue
3	Left Hand Side Panel
4	Right Hand Side Panel
8	Insulation Kit
11	Boiler Jacket Weld Assembly
14	Lower Baffle Assembly (4)
15	Top Baffle Plate (1)
18	Conventional Flue Air Silencer
19	Oil Burner (EOGB)
22	Balanced Flue Air Duct
30	Shadow Plate
31	Insulation Top Front
32	Insulation Top Rear (2)
33	D-Gasket

9.4 PARTS DIAGRAM – 125 MODEL



9.5 PARTS IDENTIFICATION AND DIAGRAM – BURNER

ITEM	DESCRIPTION
1	Photoresister
2	Air Reg Plate
3	Electrode Lead
4	Nozzle assy
5	Nozzle kerosene
6	Brake plate
7	Blast Tube
8	Electrode
9	Oil Pipe
10	Pump Danfoss
11	Drive Coupling
12	Air regulation scale
13	Fan Wheel 120
14	Air adjusting screw
15	Motor 90W / I phase
16	Statronic TF830-2B
17	Relay base Statronic
18	Transformer
19	Adj Screw Electrode
20	Fixing Flange
21	Flange Gasket
22	Front Gasket
	Flexible Oil Pipe (Not shown)
23	Reset Button



10.1 INTRODUCTION

The Jetstreme boiler must have been installed and commissioned by a competent person (OFTEC approved) who is familiar with the appropriate rules and regulations concerning the siting and use of oil fired domestic appliances. Part of the commissioning procedure requires that the commissioning engineer instructs the user on the operation of the boiler. In addition to this it is recommended that the user reads the previous sections of this manual and becomes familiar with the general operation of the Jetstreme boiler.

WARNING

The user must not undertake servicing or make adjustments to the boiler that take it outside its designed operational scope, to do so can compromise the safe and efficient running of the boiler and will invalidate the warranty offered by the manufacturer.

10.2 PROGRAMMABLE TIMER

10.2.1 Programming (optional extra) guide.

SLIDE SWITCH POSITION BUTTON FUNCTIONS

set time

SET TIME AND DAY



(1) Move slide switch to "SET TIME AND DAY
(2) Press RESET button
(3) Press DAY. HOUR +/- MINUTE +/- to set correct time

RUN PRESET PROGRAMME



(4) Move slide to next position (RUN PRESET PROGRAMME)
(5) Clock runs (flashing colon)
(6) Preset programme in operation.
(7) Copy button displays ON/OFF times of preset programme

	ON	OFF	ON	OFF
Monday to Friday	6.30am	8.30am	4.30pm	10.30pm
Saturday to Sunday	8.00am	11.00am	4.00pm	11.00pm

YOUR QE2 WILL NOW RUN ON THE FACTORY PRESET PROGRAMME.

IF YOU WISH TO INSERT YOUR OWN PROGRAMME SEQUENCE, PLEASE FOLLOW INSTRUCTIONS BELOW.

10.2.2 PROGRAMMING

SET OWN PROGRAMME



Move slide switch to " SET OWN PROGRAMME"
First **ON** space is displayed programme as required or press HOT WATER button to display first hot water **ON** space.
(1) Day button selects day(s)
(2) HOUR +/- MINUTES +/- buttons select time
(3) HEATING button stores selection in memory as heating only programme
(4) HOT WATER button stores selection in memory as hot water only programme
(5) COPY button stores selection in memory as heating and hot water programme
(6) First OFF programme space is displayed. repeat steps 2 - 5 . repeat until all required settings are entered.

10.2.3

RUN OWN PROGRAMME



Move slide switch to next position (RUN OWN PROGRAMME)
Clock runs (Flashing colon) Your programme is in operation.

NB

THE SLIDE SWITCH MUST ALWAYS BE LEFT IN RUN PRESET PROGRAMME OR RUN OWN PROGRAMME POSITION OTHERWISE THE CLOCK WILL NOT RUN AND NO SWITCHING WILL OCCUR. WITH THE SLIDE SWITCH IN EITHER POSITION, THE HEATING OR HOT WATER BUTTON CAN BE USED MANUALLY TO OVERRIDE THE TIMED FUNCTION.

10.3 BOILER THERMOSTAT

10.3.1

This controls the temperature of the water leaving the boiler for circulation around the system. For the most efficient use of the system the thermostat should be set towards the upper end of its range to provide a flow to the radiators of around 80°C and a differential on the return to the boiler of approximately 11°C lower than the flow.

CAUTION

The boiler must not be run for prolonged periods with the boiler thermostat set at the lower end of the range as this will create condensation within the boiler which ultimately can reduce the life expectancy of the appliance.

10.4 LIMIT THERMOSTAT

10.4.1

This is a safety feature that is fitted to the boiler to prevent overheating in the event that the boiler thermostat should fail. The limit thermostat will shut down the boiler if the threshold limit temperature of 103°C is reached.

10.4.2

It must be noted that if the limit thermostat is triggered and the boiler is shut down it will be necessary to manually reset the limit thermostat prior to attempting to restart the burner. The reset button is situated behind the burner access door, and faces vertically downwards from the electrical assembly housing (right hand end).

WARNING

If the limit thermostat repeatedly goes to overheat and shuts down the boiler the cause of the problem must be found and remedied.

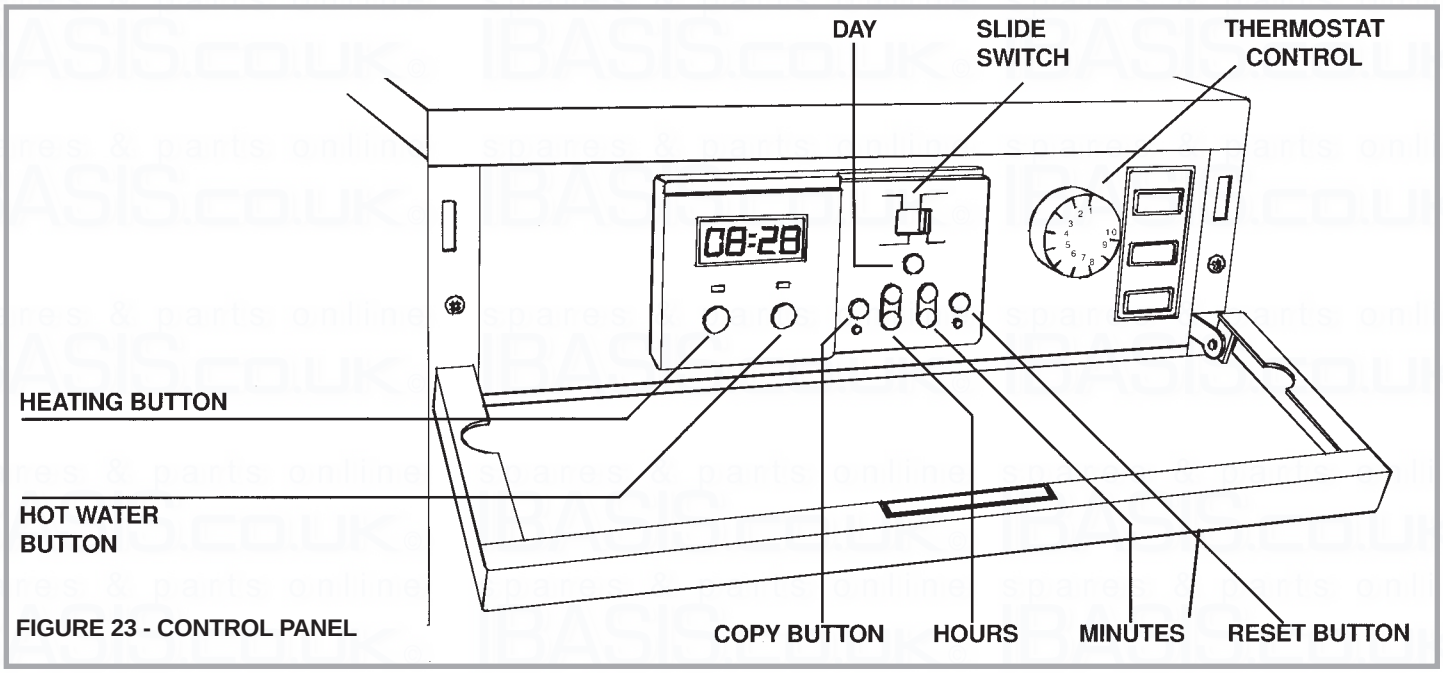


FIGURE 23 - CONTROL PANEL

10.5 NEON LAMPS AND BURNER 'LOCKOUTS'

10.5.1
Each control panel features three coloured neon lamps; the red neon indicates that there is a power supply to the boiler. The green neon indicates a burner is operating. The **orange** neon indicates '**lockout'** has occurred, and this warning neon will remain illuminated until the lockout has been cleared by following the lockout re-set procedure as detailed in 10.4.4.

10.5.2
The 'lockout' is an in-built safety feature which comes into operation when the burner controls register that a fault has developed which could damage the burner.

CAUTION

Repeated burner 'lockouts' must be investigated to ascertain the cause of the problem.

10.5.3
Some of the more common causes for 'lockouts' are detailed as follows;
(a) Fuel starvation - tank empty, filter blocked, valve(s) closed
(b) Fuel contamination - water or air, or wrong fuel grade
(c) Ignition failure - burner problem, or due to (a) or (b)
Further details are contained within section 6.0 fault diagnosis.

10.5.4
If a burner '**lockout**' is indicated by the orange neon, the following procedure must be used for cancelling the 'lockout' and for resetting the burner;
(a) Turn the boiler thermostat to its lowest setting
(b) Remove the lower front panel from the boiler
(c) Press and release the illuminated red 'lockout' button on the front of the burner
(d) Check that the lights on the reset button (red) and on the control panel (orange neon) go out
(e) Turn boiler thermostat back to desired setting
(f) Check that the burner fires
(g) Replace lower front panel

10.6 BURNER PROBLEMS

10.6.1
If the burner fails to operate the following checks should be undertaken;
(a) Check that the burner 'lockout' neon is not illuminated
(b) Ensure that limit thermostat has not gone to 'overheat' (situated behind the burner access door, and faces vertically downwards from the electrical assembly housing - right hand end).
(c) Check that the electrical supply to the boiler is turned on
(d) Check that the timer is set to an 'on' period
(e) Check that the boiler thermostat is correctly set
If the burner continues not to fire reset the boiler thermostat to its highest point. If the boiler fires, reduce the boiler thermostat setting to the desired level. If, however, the boiler does not fire advise should be sought from an OFTEC approved engineer.

10.7 SERVICING

10.7.1
It is important that your Jetstreme boiler is serviced regularly and in accordance with the manufacturers instructions. Only competent engineers (OFTEC approved), are allowed to undertake servicing work on the boiler. The maximum interval between servicing should not be greater than twelve months.

10.8 ROUTINE CLEANING AND MAINTENANCE

10.8.1
The outer panels on the Jetstreme boiler can be cleaned using a mild detergent and soft cloth or sponge. Do not use abrasive or scouring cleaners as these will damage the surface of the panels.

10.8.2
The oil storage tank, pipework, and valves must be inspected on a regular basis. Any signs of serious corrosion or oil leaks must be attended to immediately

SERVICE HELPLINE
Telephone 024 7635 1424

10.9 USEFUL INFORMATION

10.9.1
Please record details of your installer, commissioning engineer and service engineer for future reference.

Installation Engineer	Name: Address: Telephone:
Service Engineer	Name: Address: Telephone:
Commissioning Engineer	Name: Address: Telephone:

10.9.2
Appliance record; installation, commissioning and service dates

Installation Date:

Commissioning Date:

ALL SECTIONS TO BE COMPLETED:

Please refer to Jetstreme service manual for advice on installation.

Fuel type: 28 sec.

Nozzle size:

Pump pressure:

Flue temperature:

CO_2

Smoke number:

Efficiency:

Is this boiler installed in a fully pumped system?

When the boiler is at working temperature, the following should be noted:

Temperature of flow:

Temperature of return:

Boiler thermostat setting:

Engineer's comments:

Engineer's signature Date:

Print surname:

It is in your interest to ensure that this form is returned to:

HALSTEAD
British Made Boilers

The Service Department
Halstead Boilers Limited,
Freer Street, Attleborough Village,
Nuneaton, Warks CV11 4PR.
Telephone 024 7635 1424

Commissioning Report

Full Warranty Registration

Important:

Warranty claims will not be considered unless this commissioning form has been completed in full and returned to the service department of Halstead Boilers Ltd. within 7 days of commissioning.

Boiler model:

Serial number:

Conventional flue / Balanced flue (Delete)

Date of purchase:

Date of installation:

Name of installer:

Address of installer:

Telephone number:

Name of user:

Address of user:

Telephone number:

Name and address of commissioning company / engineer (If different from installer)

spares & parts online IBASIS.CO.UK®

HALSTEAD

British Made Boilers

Britain's Leading Independent Boiler Manufacturer

Halstead Boilers Limited, 20/22 First Avenue, Bluebridge Industrial Estate, Halstead, Essex CO9 2EX.
Tel: 01787 272800. Sales Direct Line: 01787 475557. Fax: 01787 474588. Service Helpline: 024 7635 1424.
e-mail: sales@halsteadboilers.co.uk or service@halsteadboilers.co.uk Website: www.halsteadboilers.co.uk