IDEAL W 2000

45NFP & 60NFP

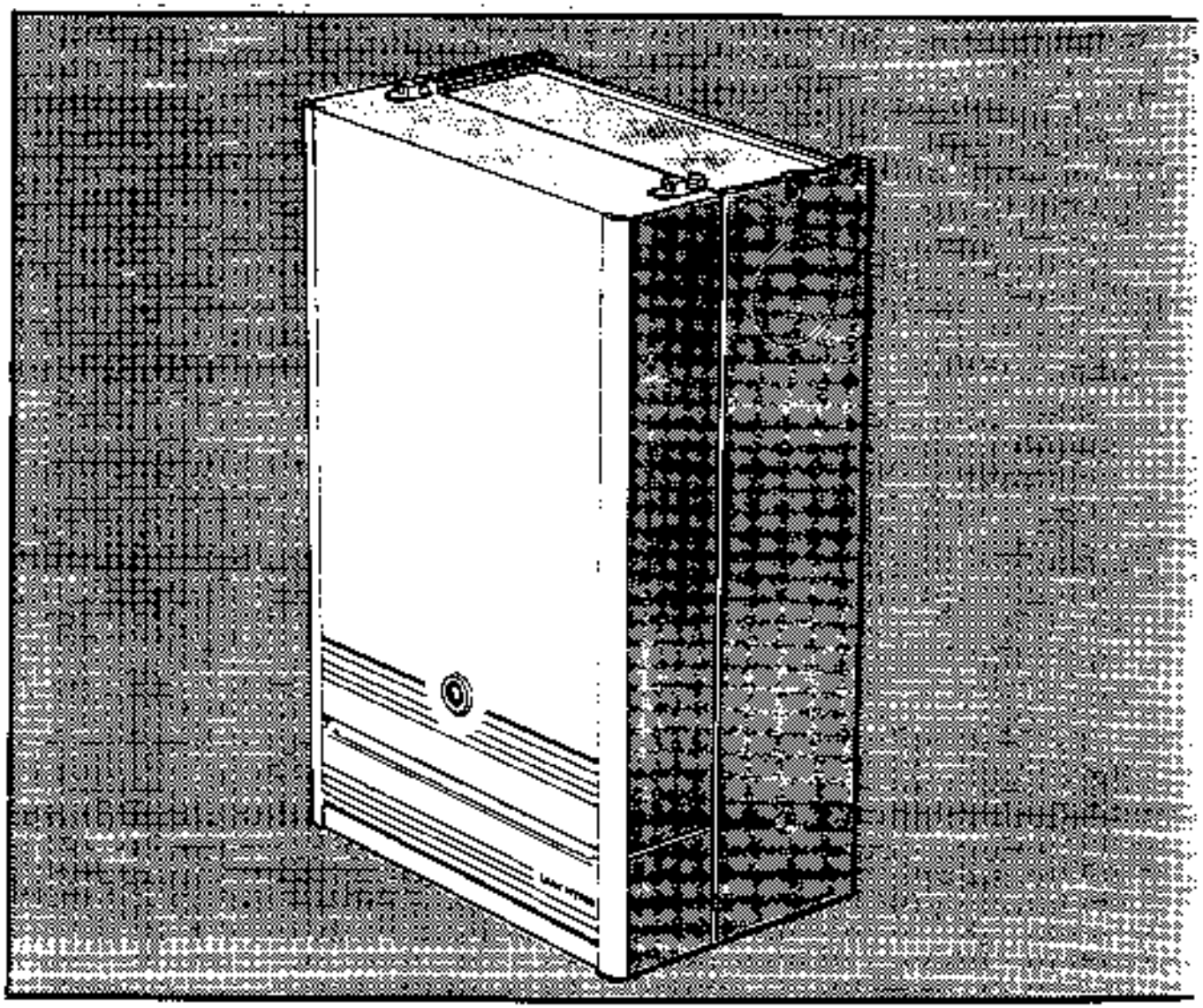
Wall Mounted, Balanced Flue, Fanned, Gas Boilers

Installation & Servicing

CAUTION

To avoid the possibility of injury during the installation, servicing or cleaning of this appliance, care should be taken when handling the edges of sheet steel components.

IMPORTANT: The appliances are for use with PROPANE ONLY.



NOTE TO THE INSTALLER: LEAVE THESE INSTRUCTIONS ADJACENT TO THE GAS METER

Stelrad Ideal

GENERAL

Table 1 - GENERAL DATA

Boiler Size			45NFP	60NFP
Main Burner Bar			AEROMATIC AC19/123257	
Gas Control			SIT 820 TANDEM 0.830.020 240V ~ 50 Hz (manipulator sealed)	
Burner Injector			BRAY CAT "0 520	BRAY CAT "0 700
Pilot Injector			SIT 0.977.092 - 19	
Gas Supply Connection		in. BSP	Rc ½ ½	
Flow Connections		in. BSP	Rc 1 1	
Return Connections		in. BSP	Rc 1 1	
		in. BSP	Rc ¾ ¾	
Maximum Static Water Head		m (ft)	30.5 (100)	
Minimum Static Water Head		m (ft)	0.45 (1.5)	
Electrical Supply			240 Vac 50 Hz (Boiler power consumption 50W)	
Fuse Rating		external internal	3 A 1 A to BS.4265	
Water Content		litre (gal)	10.9 (2.4)	
Dry Weight		kg (lb)	78 (172)	
Maximum Installation Weight		kg (lb)	68 (149)	
Boiler size	Height	mm (in)	840 (33)	
	Width	mm (in)	490 (19.3)	
	Depth	mm (in)	312 (12.3)	
Flue Duct Diameter		mm (in)	100 (4)	

Table 2 - PERFORMANCE DATA

Boiler Size				45NFP	60NFP
Boiler Input	NOMINAL		kW	17.6	24.1
a) Gas consumption is calculated using a calorific value of 95 MJ/m³ (2500 Btu/ft³)			Btu/h	60 000	82 200
b) The appliance is preset at the factory to give the nominal output at an inlet pressure of 37 mbar (14.8 in w.g.)		Gas Consumption	l/s (ft³/h)	0.185 (23.5)	0.253 (32.9)
Boiler Output	NOMINAL		kW	13.2	17.6
			Btu/h	45 000	60 000
Burner Setting Pressure (Hot)	NOMINAL		mbar	36.9	36.9
			in w.g.	14.8	14.8
Inlet Pressure	NOMINAL		mbar	37.0	37.0
			in w.g.	14.8	14.8

GENERAL GUIDANCE

INTRODUCTION

The Ideal W2000 45NFP & 60NFP are fully automatically controlled, wall mounted balanced flue, fanned gas boilers. They have outputs of 13.2 kW (45,000 Btu/h) and 17.6 kW (60,000 Btu/h).

The boiler casing is of white enamelled mild steel as is the controls pod which contains a drop down door & a removable base.

The boiler thermostat is located, behind the controls access door, in the box mounted adjacent to the gas valve. Programmer and pump kits, which fit neatly within the casing, are available as optional extras.

The pump kit is suitable for mounting on the right hand side flow tapping only. Separate fitting instructions are included with these kits.

The boilers are suitable as standard for connection to open vented systems ONLY. An optional extra kit is available to allow the 45 NFP boiler to be used on sealed water systems.

THE OPTIONAL PUMP KIT CANNOT BE USED IN CONJUNCTION WITH THE OVERHEAT THERMOSTAT INSTALLATION KIT. AN ALTERNATIVE PUMP ARRANGEMENT MUST BE INSTALLED.

The boiler is suitable for connection to pumped, open-vent central heating systems: pumped central heating combined with pumped, or gravity, indirect domestic hot water systems; gravity or pumped, indirect domestic hot water supply systems.

See Frame 4 for details of correct boiler tapping usage.

The boilers are supplied with a standard flue kit suitable for rear or side outlet applications from 114 mm (4½ in) to 406 mm (16 in).

Optional extra extension ducts up to 3 m (118 in) rear or side outlet, are available.

Gas Safety (Installation and Use) Regulations, 1984

It is the law that all gas appliances are installed by competent persons (e.g. CORGI, identified by ⓖ) in accordance with the above Regulations. Failure to install appliances correctly could lead to prosecution. It is in your own interest and that of safety, to ensure the law is complied with.

The installation of the boiler MUST also be in accordance with the latest I.E.E. Wiring Regulation, the Local Building Regulations, the by-laws of the Local Water Authority, the Building Regulations, the Building Standards (Scotland) and any relevant requirements of the Local Authority.

Detailed recommendations are contained in the following British Standard Codes of Practice.

BS 5482	Domestic Butane & Propane burning appliances
BS 5798	Installation of gas fired hot water boilers of rated input not exceeding 60 kW
BS.5449.1	Forced circulation hot water systems. (Smallbore and Microbore Domestic Central Heating Systems)
BS.5546	Installation of gas hot water supplies for domestic purposes (2nd Family Gases)
BS.5440:1	Flues (for gas appliances of rated input not exceeding 60 kW)
BS.5440:2	Air Supply (for gas appliances of rated input not exceeding 60 kW)

Manufacturer's notes must NOT be taken, in any way, as overriding statutory obligations.

IMPORTANT: It is important that no external control devices, e.g. flue dampers, economisers etc. - are directly connected to these appliances - unless covered by these 'Instaration and Servicing' instructions or otherwise recommended by Stelrad Group Ltd., in writing.

If in doubt please enquire.

Any direct connection of a control device not approved by Stelrad Group Ltd. could invalidate the normal appliance warranty. It could also infringe the Gas Safety Regulations and the above Regulations.

LOCATION OF BOILER

The boiler MUST be installed on a flat and vertical wall, capable of adequately supporting the weight of the boiler and any ancillary equipment.

The boiler may be fitted on a combustible wall and insulation between the wall and the boiler is not necessary unless required by the Local Authority

THE BOILER IS NOT SUITABLE FOR EXTERNAL INSTALLATION

IMPORTANT NOTICE: If the boiler is to be fitted in a timber framed building it should be fitted in accordance with the British Gas publication 'Guide for Gas Installations in Timber Frame Housing', Reference DM2. If in doubt advice must be sought from the Stelrad Group Ltd.

The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E. Wiring Regulations and, in Scotland, the electrical provisions of the Building Regulations applicable in Scotland, with respect to the installation of a boiler in a room or internal space containing a bath or shower.

Where a room-sealed appliance is installed in a room containing a bath or shower, then the appliance and any electrical switch or appliance control utilising mains electricity should be so situated that it cannot be touched by a person using the bath or shower.

Where installation will be in an unusual location, special procedures may be necessary and BS.6798 gives detailed guidance on this aspect.

A compartment used to enclose the boiler MUST be designed and constructed specially for this purpose. An existing cupboard, or compartment, may be used provided it is modified for the purpose. Details of essential features of cupboards/compartment design, including airing cupboard installation, are given in BS.6798

In siting the boiler, the following limitations MUST be observed.

1. The position selected for installation MUST allow adequate space for servicing in front of the boiler and for air circulation around the boiler. For minimum clearances required for safety and subsequent service see wall mounting template & Frame 8. In addition sufficient space may be required to allow lifting access onto the wall mounting plate.
2. This position MUST also permit the provision of a satisfactory balanced flue termination.

GAS SUPPLY

The Local Propane Gas Supplier should be consulted at the installation planning stage in order to establish the availability of an adequate supply of gas.

Installation pipes, cylinders and pressure regulators should be fitted in accordance with BS.5482:1.

Bulk tank installations must comply with the requirements of the Home Office code of practice on the storage of liquefied petroleum gas [illegible]

The complete installation must be tested for tightness as described [illegible]

FLUEING

Detailed recommendations for flueing are given in BS.5440:1

The following notes are intended for general guidance:

1. The boiler must be installed so that the terminal is exposed to the external air.
2. It is important that the position of the terminal allows free passage of air across it at all times.
3. The minimum acceptable spacings from the terminal to obstructions and ventilation openings are specified in Table 3.
4. Where the lowest part of the terminal is fitted less than 2m (6.6ft) above a balcony, above the ground, or above a flat roof, to which people have access then the terminal MUST be protected by a purpose designed guard. Terminal guards are available from:
   Quinnel, Barret & Quinnel Limited
   884 Old Kent Road, LONDON SE15; MODEL 304 or
   Tower Flue Components Ltd
   Vale Rise, Tonbridge, KENT TN9 1TB; MODEL K1
   Ensure that the guard is fitted centrally.

Table 3

Terminal Position	Minimum Spacing
1. Directly below an openable window, air vent, or any other ventilation opening.	300 mm (12 in)
2. Below guttering, drain pipes or soil pipes.	75 mm (3 in)
3. Below eaves.	200 mm (8 in)
5. From vertical drain pipes or soil pipes.	75 mm (3 in)
6. From internal or external corners.	300 mm (12 in)
7. Above adjacent ground, roof or balcony level.	300 mm (12 in)
8. From a surface facing the terminal	600 mm (24 in)
9. From a terminal facing a terminal.	1200 mm (48 in)
10. From an opening in a car port (eg. door or window) into dwelling.	1200 mm (48 in)
11. Vertically from a terminal on the same wall.	1500 mm (60 in)
12. Horizontally from a terminal on the wall.	300 mm (12 in)

5. Where the terminal is fitted within 850 mm (34 in) of a plastic or painted gutter, or 450 mm (18 in) of painted eaves, an aluminium shield at least 750 mm (30 in) long should be fitted to the underside of the gutter or painted surface.
6. The air inlet/products outlet duct and the terminal of the boiler MUST NOT be closer than 25 mm (1 in) to combustible material.
   Detailed recommendations on the protection of combustible materials are given in BS.5440:1 1978, sub-clause 2[illegible]
   IMPORTANT: It is absolutely ESSENTIAL to ensure, in practice, that products of combustion discharging from the terminal cannot [illegible]

ventilation/air conditioning.
If this should occur, the appliance MUST be turned OFF immediately and the Local Gas Region consulted.

TERMINAL

The terminal assembly of the fanned balanced flue can be adapted to accommodate various wall thicknesses - refer 'Packaging'.

AIR SUPPLY

Detailed recommendations for air supply are given in BS.5440:2. The following notes are intended for general guidance:

1. It is NOT necessary to have a purpose provided air vent in the room or internal space in which the boiler is installed.
2. If the boiler is to be installed in a cupboard or compartment, permanent air vents are required (for cooling purposes) in the cupboard/compartment, at both high and low levels.
   The air vents MUST either communicate with a room/internal space, or be direct to outside air.
   The minimum effective areas of the permanent air vents, required in the cupboard/compartment, are specified below and are related to the maximum rated heat input of the boiler.

Table 4 45 NF

Position of air vent		Air from room/ internal space	Air direct from outside
HIGH LEVEL	cm^2 (in^2)	150 (24)	75 (12)
LOW LEVEL	cm^2 (in^2)	150 (24)	75 (12)

Table 5 60 NF P

Position of air vent		Air from room/ internal space	Air direct from outside
HIGH LEVEL	cm^2 (in^2)	200 (30)	100 (16)
LOW LEVEL	cm^2 (in^2)	200 (30)	100 (16)

Note: Both air vents MUST communicate with the same room or internal space or must both be on the same wall to outside air.

WATER CIRCULATION SYSTEM

The boiler must NOT be used for direct hot water supply.
For the types of system and correct piping procedure - see introduction and frame 4.
Note: All water connections MUST be made to the boiler REAR tappings.
The central heating system should be in accordance with the relevant recommendations given in BS.6798 and, in addition, for Smallbore and Microbore systems - BS.5449:1.
The domestic hot water system, if applicable, should be in accordance with the relevant recommendations of BS.5546.
Copper Tubing, to BS.2871:1 is recommended for water carrying pipework.
The hot water storage cylinder MUST be of the indirect type and should, preferably, be manufactured of copper. Single-feed indirect cylinders are not recommended, and MUST NOT be used in sealed systems.

The appliances are NOT suitable for gravity central heating with, or without, additional gravity domestic hot water supply, nor are they suitable for the provision of gravity domestic hot water requirements above a 181.8 litre (40 gal.) tank capacity, depending on the model.

The hot water cylinder and ancillary pipework, not forming part of the useful heating surface, should be lagged to prevent heat loss and any possible freezing - particularly where pipes run through roof spaces and ventilated under floor spaces.

The boiler MUST be vented. If venting cannot be done via a flow connection, then a separate vent MUST be fitted by the Installer. This does NOT mean that more than one open air vent is required. Other parts of the system, which may become unavoidably air locked, can be automatically vented.

Draining taps MUST be located in accessible positions, which permit the draining of the whole system, including the boiler and hot water storage vessel. These taps should be, at least ½in BSP nominal size and be in accordance with BS.2879.

The hydraulic resistances of the boilers, at MAXIMUM OUTPUT, with an 11°C (20°F) temperature differential, are shown in Table 6.

Table 6 WATER FLOW RATE AND PRESSURE LOSS

Boiler Size		45NFP	60NFP
Boiler Output	kW Btu/H	13.2 45,000	17.6 60,000
Water Flow Rate	l/min gal/h	17.1 225	22.8 300
Pressure Loss	mbar in.wg	35.5 14.2	51 20.5

ELECTRICAL SUPPLY

Wiring external to the appliance MUST be in accordance with the current IEE Wiring Regulations and any Local Regulations which apply.

The boiler is supplied for 240 V ~ 50 Hz
Single Phase
Fuse Rating is 3A

The method of connection to the mains electricity supply MUST facilitate complete electrical isolation of the boiler, preferably by the use of a fused, unswitched three pin plug and a shuttered socket-outlet, both complying with the requirements of BS.1363.

Alternatively, a fused double-pole switch, having at least a 3mm (⅛in) contact separation in both poles and servicing only the boiler, may be used.

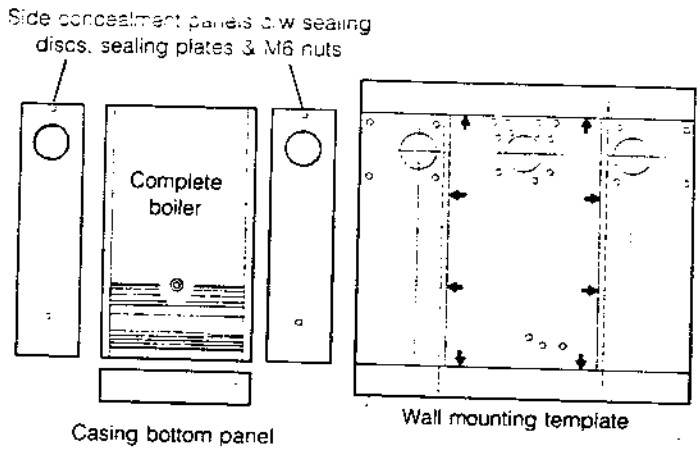
The point of connection to the mains should be readily accessible and adjacent to the boiler, except that, for bathroom installations, the point of connection to the mains MUST be situated outside the bathroom.

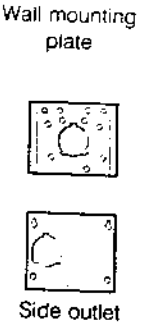
NOTE: Where a room sealed appliance is installed in a room containing a bath or shower, the appliance, any electrical switch or appliance control utilising mains electricity should be so situated that it cannot be touched by a person using the bath or shower.

1 UNPACKING

The boiler is supplied fully assembled in one pack ('A') together with a standard flue assembly for lengths up to 406mm (16 in), rear or side flue outlet, in pack 'B'. Optional extras, if ordered, (Pump Kit, Programmer Kit, Overheat Thermostat Kit.(45NF P only) & Extension Duct Kits ('D') are available in separate boxes.Unpack and check the contents).

PACK 'A' CONTENTS Also contained in Pack 'A': the Hardware Pack (listed opposite), these Installation & Servicing Instructions, the User's Instructions & an electrical mains plug.

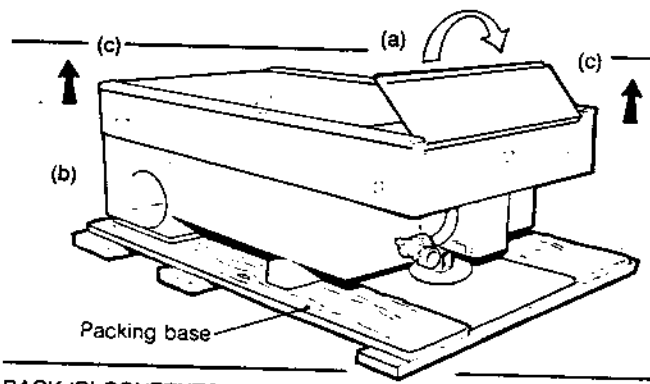




HARDWARE PACK

Sealing tape for side outlet plate
1 in BSP recessed plugs, 2 off.
8 mm x 50 mm coach screws, 3 off.
50 mm x No. 10 wood screw, 9 off.
Wall plug (TP3 blue), 3 off.
Wall plug (TP28 brown), 9 off.
Data plate indicator arrow, 1 off.
Square bar, 1 off.
M5 nuts, 4 off.
M5 washers, 4 off.
M4 x 10 lg screws, 4 off.
M6 wing nuts, 2 off.

Spacer sleeve for rear outlet only, 1 off.
Distributor tube, 1 off.

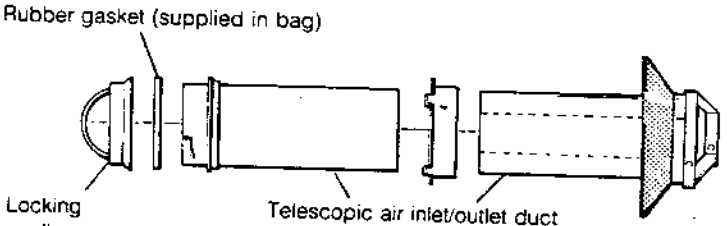


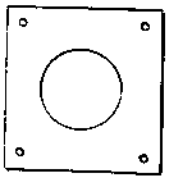
1. Unpack the boiler.
2. Remove the casing as follows and place to one side to avoid damage.

CASING REMOVAL SEQUENCE

(a) Open the controls pod door - unhinge & remove.
(b) Undo the 4 screws retaining the casing to the back panel.
(c) Remove the casing in the direction of the arrows.

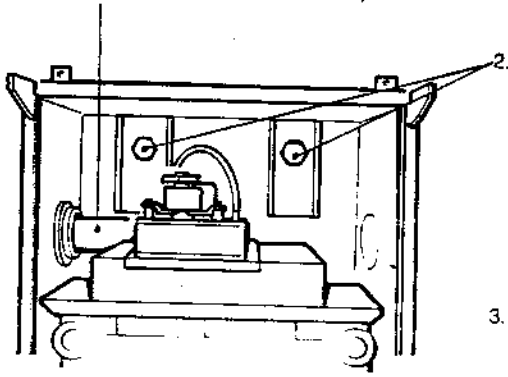
PACK 'B' CONTENTS Also contained in Pack 'B': 3.2 mm Dia. drill, 1 off; No. 8 x 6 mm self tappers, 9 off; length of adhesive tape. 1 off; duct cutting support rings, 2 off (cardboard - retain for later use). Rectangular washer, 3 off.



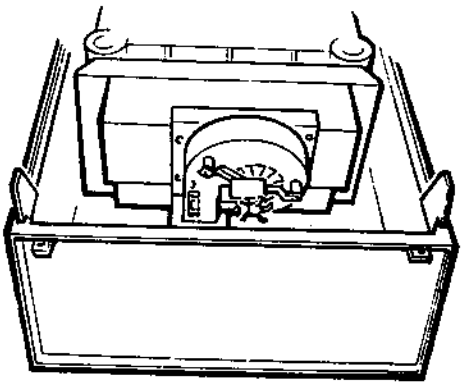


2 PACKAGING AND CASING REMOVAL

1. Remove the side flue extension tube (for use with side flue only) taped inside the fan chamber)

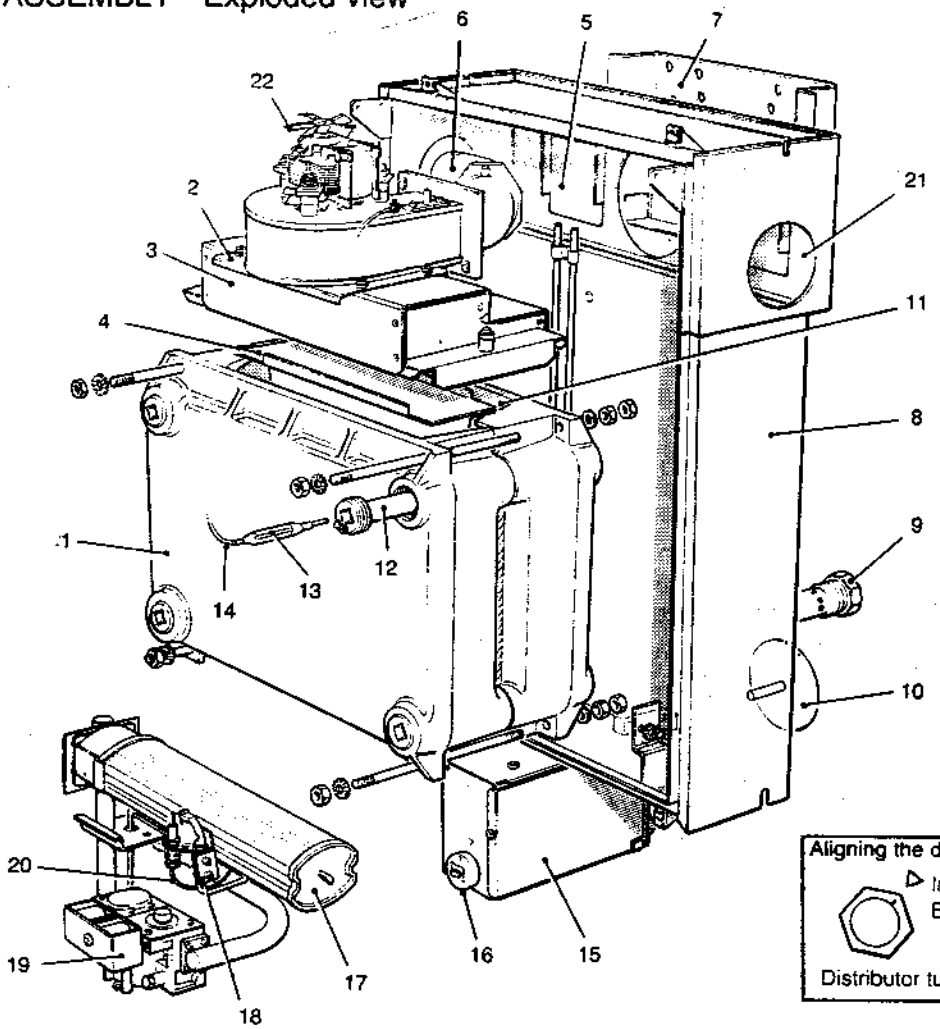


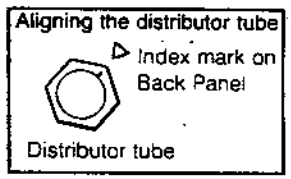
2. Remove the two bolts and large sealing plates securing the boiler to the packaging base. Note: Retain sealing plates for wall mounting purposes.



3. Remove the boiler from its packaging base (being careful not to damage the gas valve and control box)
4. Unpack the boiler terminal box and, if applicable, the extension flue box(es).

3 BOILER ASSEMBLY - Exploded view





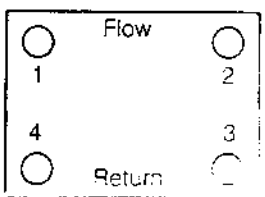
LEGEND

1. Heat exchanger assembly
2. Fan plate assembly
3. Collector hood assembly
4. Flueway baffle
5. Sealing plates (2 off)
6. Flue outlet elbow
7. Wall mounting plate
8. Back panel
9. Distributor tube (left or right, one side only)
10. Jacking plate
11. Heat exchanger flue
12. Boiler thermostat pocket (left or right)
13. Boiler thermostat phial
14. Thermostat capillary
15. Control box
16. Boiler thermostat
17. Main burner
18. Pilot burner assembly
19. Gas control valve
20. Ignition/Detection lead
21. Side flue aperture (option of rear, left or right hand flue outlet)
22. Fan

4 BOILER WATER CONNECTIONS (Open vented systems)

1. Use approved jointing compound for all water connections (including plastic recessed plugs, if provided).
2. This appliance is NOT suitable for use in a direct hot water system.
3. If the boiler is to used on a sealed system (45 NF P only) an optional extra kit is available and must be installed in accordance with the instructions supplied with the kit.

All water connections must be made to the REAR tappings. The distributor tube MUST be fitted to the HEATING return. Ensure that the index mark on the tube is aligned with the arrow on the boiler back panel, refer to Frame 3. The thermostat pocket MUST be fitted to the FRONT top tapping at the SAME SIDE of the boiler as the distributor tube. (This may require removal of the pre-fitted recessed plug).
Plug all tappings not used with recessed plugs provided.



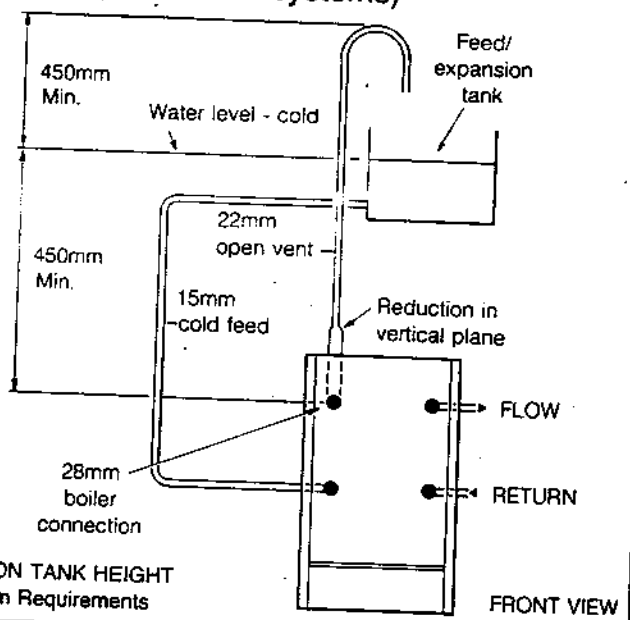
SCHEMATIC REAR VIEW OF BOILER Showing connections

SYSTEM REQUIRED	TAPPINGS TO BE USED
Fully Pumped (Pump kit fitted)	Flow 1 Return 3 or 4
Fully Pumped (External Pump)	Flow 1 or 2 Return 3 or 4
Pumped CH (Pump Kit Fitted) & Gravity HW	Flow 1 Return 4 Flow 2: Return 3
Pumped CH (External Pump) & Gravity HW	Flow 1 or 2 Return 4 or 3 Flow 1: Return 4 Flow 2: Return 3
Pumped CH Only (Pump Kit Fitted)	Flow 1 Return 3 or 4
Pumped CH Only (External Pump)	Flow 1 or 2 Return 3 or 4
[illegible]	Flow 1: Return 4 or Flow 2: Return 3

5 MINIMUM REQUIREMENTS - (Fully pumped, open vented systems)

1. Open vent & cold feed connections are made to the boiler flow/return tappings as shown.
2. The boiler is assumed to be the highest point of the circulating system.
3. The circulation pump is positioned on the FLOW. The vertical distance between the pump & the feed/expansion tank, complies with the Pump Manufacturer's minimum requirements - to avoid cavitation. Should these conditions not apply, either lower the pump position, or raise the feed/expansion tank above the minimum requirements of Stelrad Group Ltd.
4. The water velocity through the boiler flow/return pipes is assumed to be below 1 m/s (3 ft/s), whilst the pump flow rate is set to provide a temperature difference of 11°C (20°F) across the boiler flow/return, at design input.
5. This information is intended as a GUIDE ONLY and cannot take into account instantaneous changes in head caused by the operation of motorised valves, pump etc. Due allowance MUST be made if surging is liable to occur.

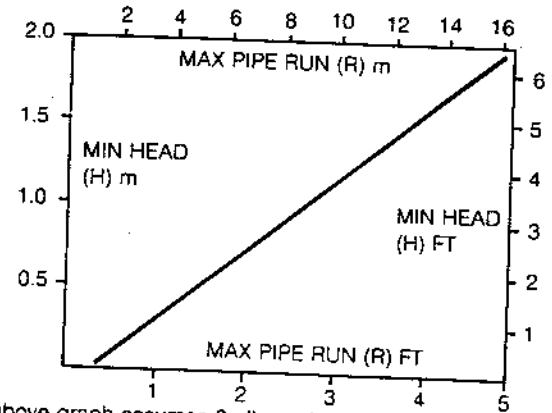
If in doubt contact Stelrad Group Ltd.



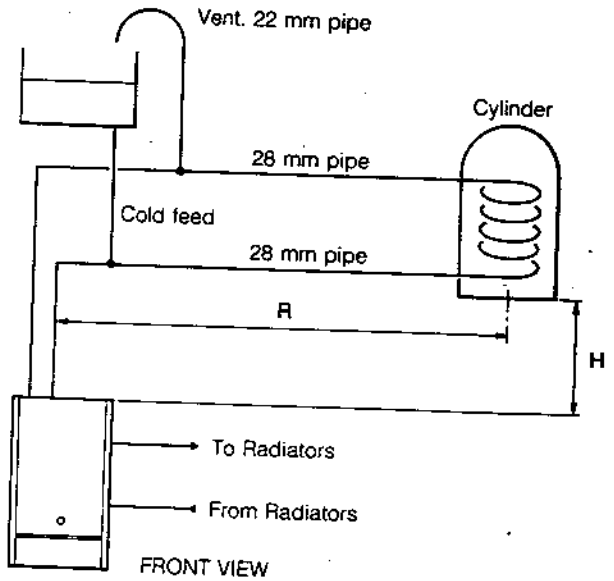
FEED/EXPANSION TANK HEIGHT
Guide to Minimum Requirements

6 REQUIREMENTS FOR CORRECT GRAVITY HOT WATER PERFORMANCE

NOTE: Gravity horizontal pipes should be ABOVE ceiling level and as SHORT as possible. A MINIMUM inclination of 25 mm per 3 m run (1 in per 10 ft) is required to avoid air locks. If these conditions cannot be met, pumped primaries MUST be used.



The above graph assumes 8 elbows in the gravity circuit. For each elbow in excess of 8 (R) must be reduced by 300 mm (12 in) or (H) increased by 100 mm (4 in).



7 LOW HEAD INSTALLATIONS

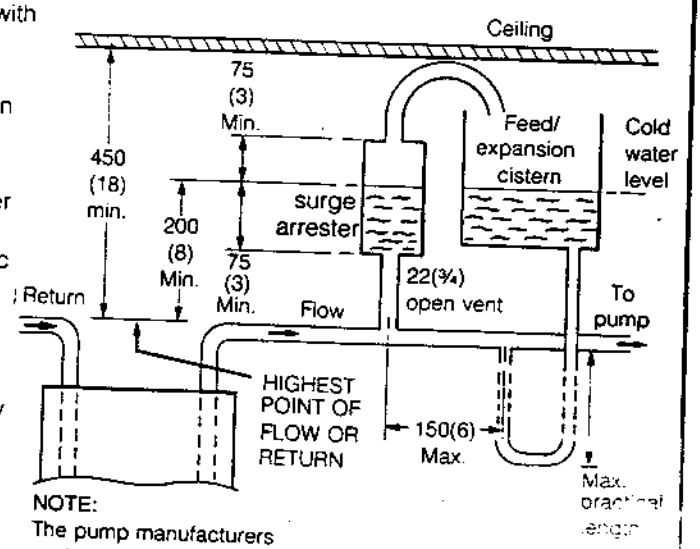
NOTE: These instructions should be read in conjunction with the boiler 'Installation & Servicing Instructions'

The Ideal W 2000 range of boilers can be installed in low head situations by fitting a 'surge arrester' in the expansion pipe - as shown.

The following conditions MUST be observed:

1. The surge arrester must be at least 42 mm in diameter x 150 mm long, thus ensuring a MINIMUM air gap above and a MINIMUM depth of water below the static water level (cold) of 75 mm.
2. The static water level (cold) must be at least 200 mm above the top of the horizontal flow pipe, fitted as shown.
   The vent connection MUST NOT be made immediately off the top of the boiler, as venting is made less efficient.
3. The maximum practical length of 15 mm cold feed pipe should be used to reduce the effective volume of system water expanding into the feed/expansion cistern to a minimum.

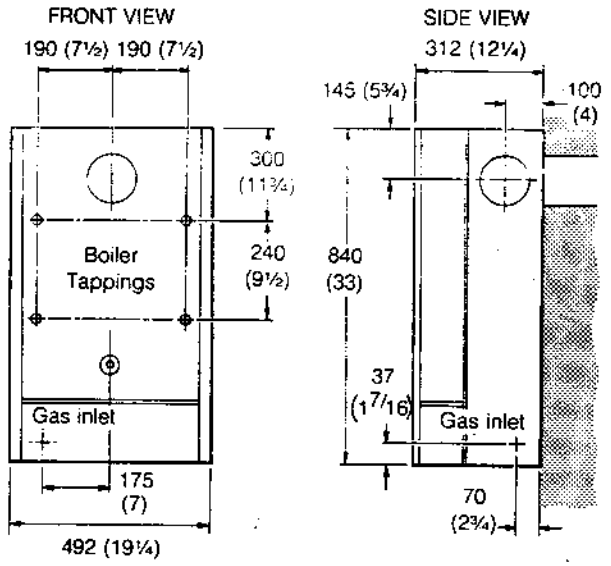
MINIMUM REQUIREMENTS



NOTE:
The pump manufacturers minimum requirements must be complied with.

All dimensions in mm (in)
N.B. Imperial

8 BOILER DIMENSIONS/SERVICES



All dimensions in mm (in)

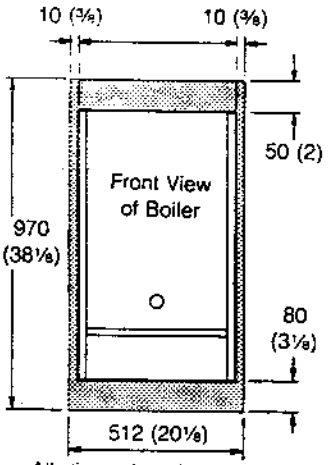
9 BOILER CLEARANCES

The following minimum clearances must be maintained for operation and servicing. Additional space will be required for installation, depending upon site conditions.

Notes (Side flue only):

(a) Provided that the flue hole is cut accurately, eg. with a core drill, the flue can be installed from inside up to 610 mm (24 in), but with flue lengths greater than the width/depth of the boiler the space in which the boiler is to be installed must be at least equal to the flue length plus the length of the terminal grille.
INSTALLATION FROM INSIDE ONLY.

(b) If a core boring tool is to be used inside the building, the space in which the boiler is to be installed must be at least wide enough to accommodate the tool.



All dimensions in mm (in)

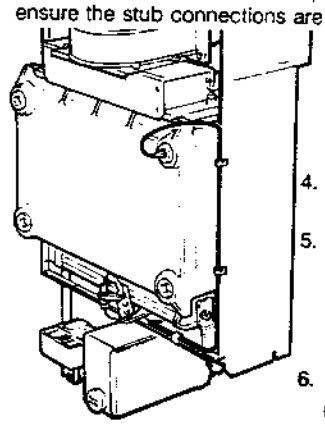
Front clearance: 450 mm (17¾ in) from front of boiler casing.

10 PREPARING THE BOILER

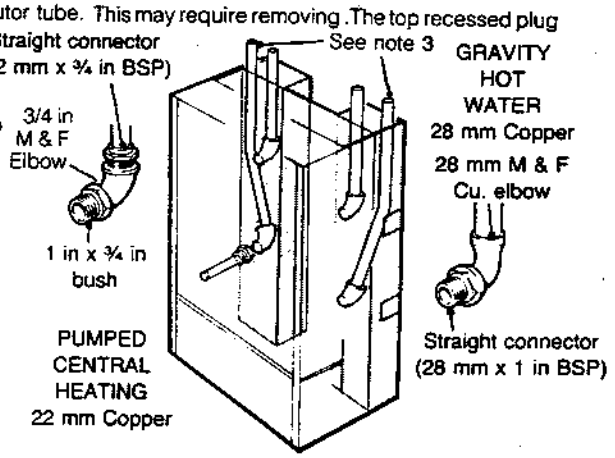
1. Fit the distributor to the chosen pumped heating return connection (align the index mark on the tube with the arrow on the back panel, refer to Frame 3).

Note: If optional pump is to be fitted, do so at this stage. Up to the point of fitting boiler on the wall, refer to separate instructions supplied with the kit.

2. Ensure the thermostat pocket is fitted at the same side as the distributor tube. This may require removing the top recessed plug and thermostat pocket and swapping them over.
3. Fit the stub connections for the heating flow & return, and gravity flow & return, if required. If the side clearance is limited, ensure the stub connections are continued upwards or downwards to clear the top or bottom of the boiler casing.
   To fit the boiler casing the gas & water connections MUST run within the space enclosed.



4. Plug spare tappings with the recessed plugs, provided.
5. If the boiler is to be fitted on a sealed system (45 NF P only) refer to the overheat thermostat installation kit instructions.
6. Route & clip thermostat capillary & phial (shown in Frame 11 Servicing).



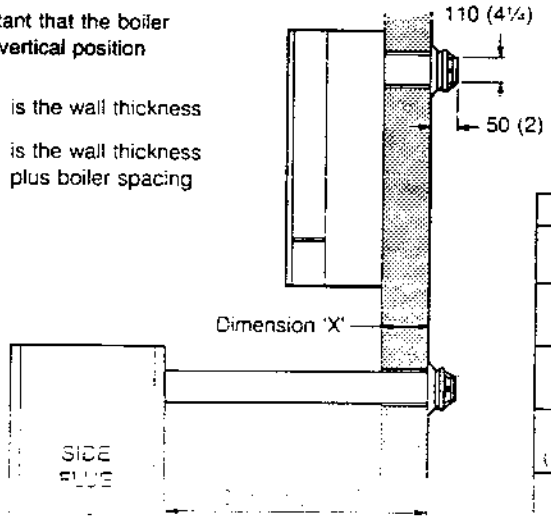
Using the above fittings for gravity HW & pumped CH ensures the correct relationship between the pipes & the wall.

11 DETERMINING THE FLUE LENGTH

It is most important that the boiler is installed in a vertical position

Dimension 'X' - is the wall thickness

Dimension 'Y' - is the wall thickness plus boiler spacing



Flue kits:
Pack 'B' - supplied as standard

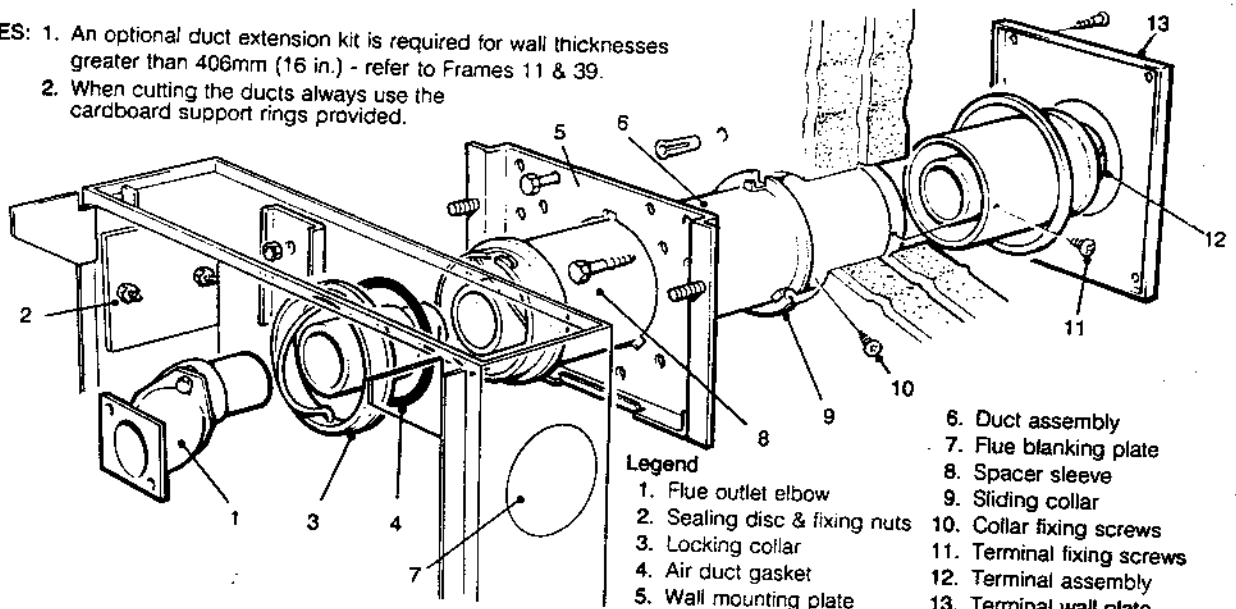
Pack 'D' - optional extension kit for side flue or rear flue outlet, refer to Frame 41

FLUE LENGTH		Flue Packs required
Rear Flue Dimension 'X'	Side Flue Dimension 'Y'	
114-206 mm (4.5-8.1 in)	114-216 mm (4.5-8.5 in)	Pack B (cut down as in Frames 15 and 27)
206-400 mm (8.1-15.75 in)	216-406 mm (8.5-16 in)	Pack 'B'
400-1260 (15.75) - (49.6)	406-1280 (16) - (50.4)	Pack 'B' & 1 off Pack 'D' (Frame 40)
1260-2120 (49.6) - (83.5)	1280-2140 (50.4) - (84.25)	Pack 'B' & 2 off Pack 'D' (Frame 40)
[illegible]	2140-3000	Pack 'B' & 3 off [illegible] 'D' (Frame 40)

REAR FLUE

12 FLUE ASSEMBLY - Exploded View

NOTES: 1. An optional duct extension kit is required for wall thicknesses greater than 406mm (16 in.) - refer to Frames 11 & 39.
2. When cutting the ducts always use the cardboard support rings provided.

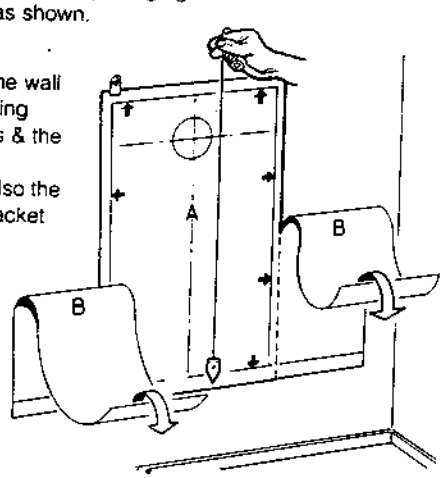


Legend

1. Flue outlet elbow
2. Sealing disc & fixing nuts
3. Locking collar
4. Air duct gasket
5. Wall mounting plate
6. Duct assembly
7. Flue blanking plate
8. Spacer sleeve
9. Sliding collar
10. Collar fixing screws
11. Terminal fixing screws
12. Terminal assembly
13. Terminal wall plate

13 WALL MOUNTING TEMPLATE

1. Discard both sections 'B' of template.
2. Tape the template into the selected position.
3. Ensure squareness by hanging a plumb line as shown.
4. Mark onto the wall the 3 mounting plate screws & the fixing screw positions, (also the pump kit bracket screws, if applicable).
5. Mark, onto the wall, the position of the flue duct.



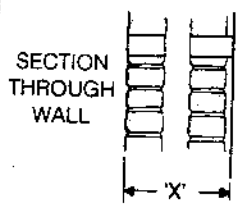
NOTE: Mark the centre of the hole as well as the circumference.

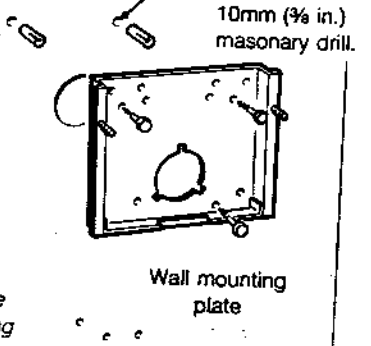
6. Remove the template from the wall.

14 PREPARING THE WALL

IMPORTANT: Ensure that, during the cutting operation, masonary falling outside of the building does not cause damage or injury.

1. Cut the flue hole, preferably with a 5 in. core boring tool, ensuring the hole is square to the wall. If the hole has been cut with a core drill & the surrounding area is flat, it is not essential to make good, only make good if necessary. For less accurate holes make good to approx. 12.5mm (5 in.) dia. at the two wall faces. For holes longer than 610mm (24 in.) this must be done from outside for the outer face.
2. Measure the wall thickness, 'X'.
3. Drill the 3 fixing holes with a 10mm (⅜ in.) masonary drill.





NOTE: Check all hole positions before drilling

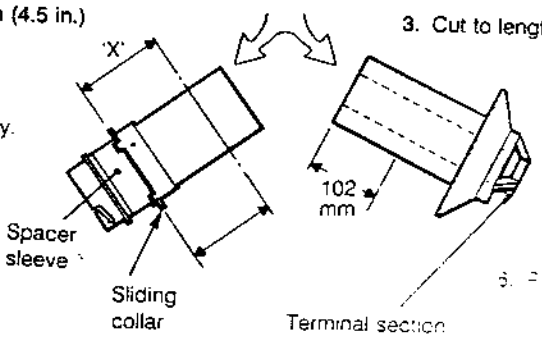
Wall mounting plate

4. Drill the jacking plate fixing screw hole with an 8mm (5/16 in.) masonary drill.
5. If applicable drill the pump bracket holes
6. Insert the plastic plugs provided.

15 CUTTING THE DUCT ASSEMBLY

For wall thicknesses of 114mm (4.5 in.) to 206mm (8.1 in.) ONLY, [Flue Pack 'B'].

1. Separate the duct assembly.
2. Fit the spacer sleeve (found in the boiler hardware pack) & move the sliding collar to the end of duct & measure off dimension 'X'.



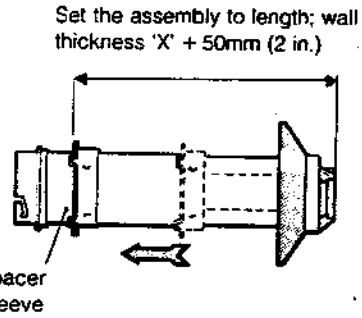
3. Cut to length 'X' using cardboard duct support rings.

NOTE: Cut inner flue tube 6mm (¼ in.) longer than air tube.

4. Cut 102mm (4 in.) off the terminal section.
5. Remove the cardboard support rings.
6. Reassemble the flue ducts, aligning the seam

16 JOINING THE DUCT ASSEMBLY

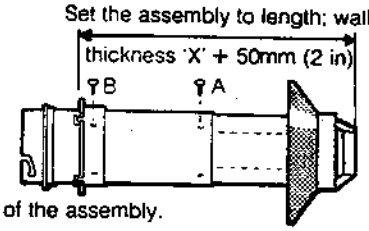
Wall thicknesses of 114mm (4.5 in.) to 206mm (8.1 in.)



1. Using the sliding collar as a template at the duct join mark the position of the 3 fixing screws.
   NOTE: If the duct joint is too close to the rubber weather seal to permit access for drilling, then mark the hole positions at the mid-point of the duct.
2. Slide the collar back to the boiler end of the duct and, again, mark the position of the 3 fixing screws.

17 SETTING THE DUCT ASSEMBLY

Wall thicknesses from 206mm (8.1 in.) to 400 (15.75 in.)

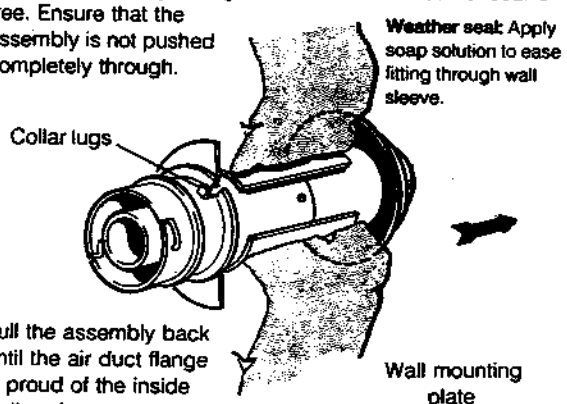


1. Separate the duct assembly.
2. Fit the spacer sleeve & push the sliding collar to the boiler end of the assembly.
3. Using the sliding collar as a template at the duct join mark the positions of the 3 air duct joining screws (A). Note: If the duct join is too close to the weather seal to permit access for drilling, mark the hole positions at the mid-point of the duct.
4. Slide the collar to boiler end of the duct (fully against spacer sleeve) & mark the positions of the 3 collar fixing screws, (B).
5. Drill the 6 fixing holes using the 3.2mm drill provided & insert the self tapping screws, fixing the collar in position & locking the duct assembly. Seal the air duct join with the adjesive tape provided. DO NOT DRILL THE INNER AIR DUCT.

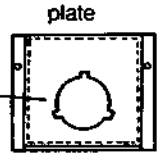
For wall thicknesses more than 400mm; refer to Frames 38 to 41.

18 FITTING THE FLUE ASSEMBLY - From INSIDE the building.

1. Push the assembly through the wall until the weather seal is free. Ensure that the assembly is not pushed completely through.



2. Pull the assembly back until the air duct flange is proud of the inside wall surface.

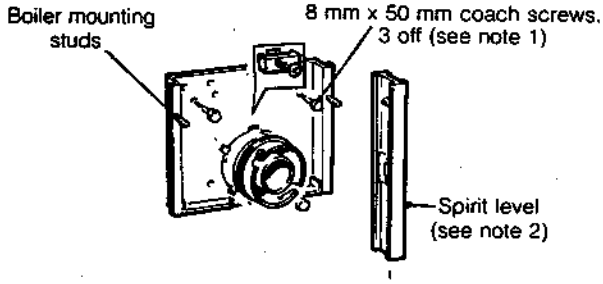


3. Engage the collar lugs with the wall mounting plate slots & rotate the flue assembly to retain.

19 WALL MOUNTING PLATE

Flue is shown locked in position

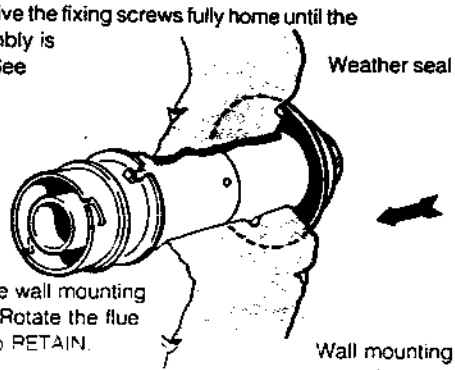
1. Fix the mounting plate to the wall with the 8mm x 50mm coach screws, (do not tighten if installing from outside).
2. Check with a spirit level that the plate is vertical.
3. Align the holes in the sliding collar flange with the 3 cut-outs in the wall plate. Insert 3 of the self tappers and rectangular washers to retain the assembly.



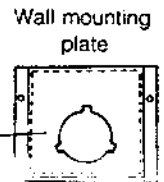
4. If applicable, fit the pump support bracket.

20 FITTING THE FLUE ASSEMBLY - From OUTSIDE the building

1. Fit the wall mounting plate (refer to Frame 19) but DO NOT drive the fixing screws fully home until the duct assembly is engages. See note 2.



2. Push the assembly through the wall. Engage the collar & lugs with the wall mounting plate slots. Rotate the flue assembly to RETAIN.

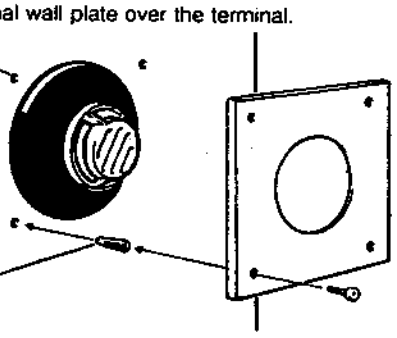


3. Fully tighten the wall mounting plate [illegible] plate slots.

21 TERMINAL WALL PLATE

This plate is provided to allow neat concealment & full compression of the rubber seal. If the flue hole & flue ducts have been accurately cut and the outside wall face is flat its use is not essential except this plate must be used on wall thicknesses over 610mm (24 in.)

1. Position the terminal wall plate over the terminal.
2. Drill the 4 holes with an 8mm (⅜ in.) masonary drill.

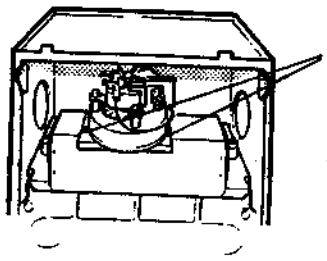


3. Insert the four plastic plugs provided.
4. Secure the plate with four of the No. 10 x 2 screws provided.

NOTE: If the terminal is less than 2m (6.6 ft.) above ground level [illegible] MUST be fitted - refer page 3.

REAR FLUE

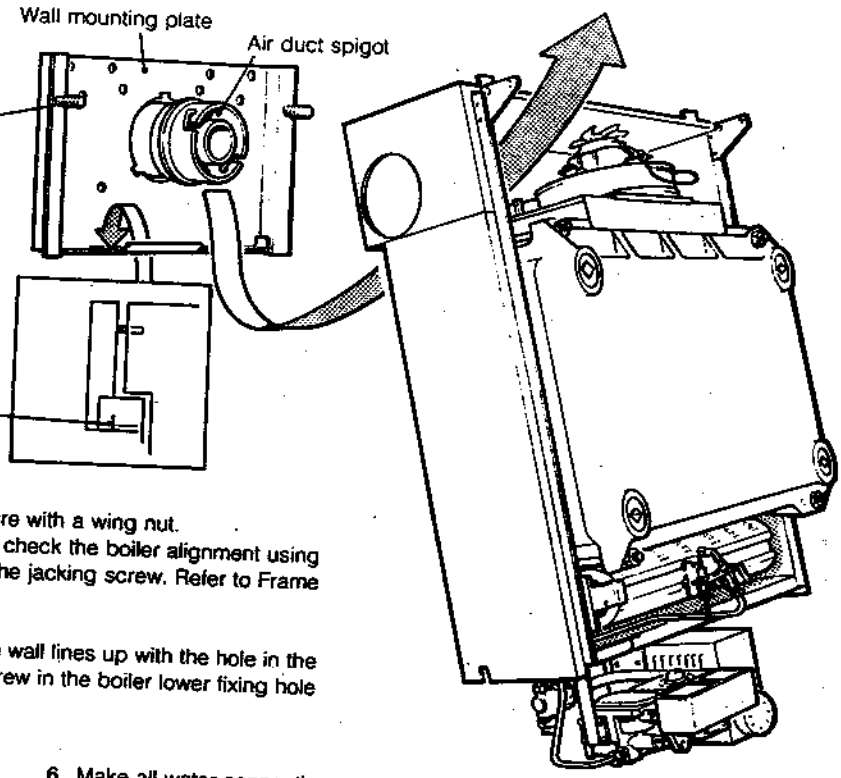
22 MOUNTING THE BOILER



VIEW INSIDE BOILER AIR BOX

1. Remove the 4 screws retaining the fan assembly. Disconnect the three fan electrical connections and unclip from fan plate. Pull off the silicon rubber pipe connection on the top of the fan and remove fan.

2. **NOTE:** Have ready to hand the sealing plates and wing nuts previously removed.

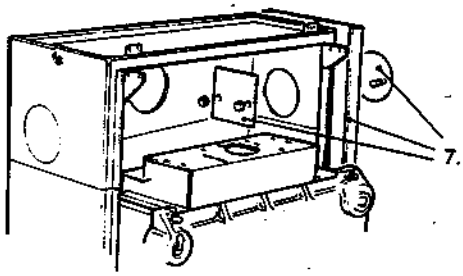


The boiler mounting studs fit into slots in the back panel & the air duct spigot enters the flue outlet hole in the back panel.

3. Lift the boiler onto the wall mounting plate - as shown. Ensure that the support bracket on the back of the boiler rests on the bottom return of the wall bracket.
   NOTE: The return on the bottom of the wall mounting plate must engage in the slot in the underside of the support bracket.

4. Fit a sealing plate over each stud and secure with a wing nut.
   NOTE: Before fully tightening the wing nuts check the boiler alignment using a spirit level and adjust as necessary with the jacking screw. Refer to Frame 3.

5. Adjust the jacking screw until the hole in the wall lines up with the hole in the jacking screw plate. Locate a No. 10 x 2 screw in the boiler lower fixing hole & secure to the wall.

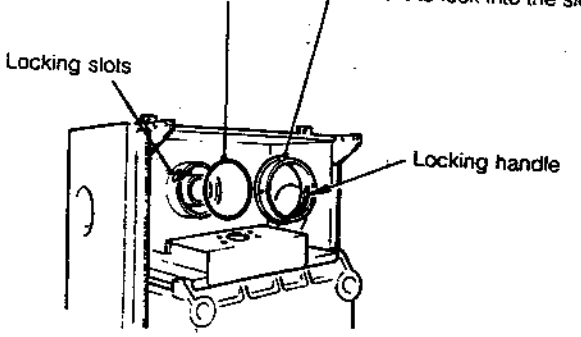


6. Make all water connections and check for water soundness. If a Pump Kit is fitted then refer to the instructions supplied.

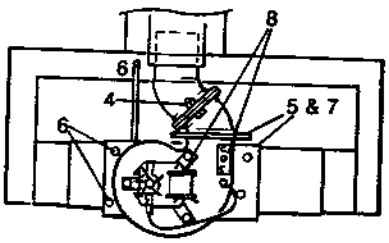
7. Remove the sealing disc & plate from each side panel. Fit the side concealment panels (both left hand & right hand) with the two M5 nuts & washers provided. Fit the circular flue sealing discs & inner plates, securing with the two M6 nuts provided.

23 SEALING THE BOILER & FLUE

1. Stretch the rubber gasket over the air duct spigot.
2. Fit the collar as shown and rotate it to lock into the slots



3. Fold the locking handle, as shown.
4. Remove the two nuts & shakeproof washers retaining the two halves of the aluminium elbow and reassemble with the loose elbow turned through 180°.
5. Slacken the two nuts retaining the elbow to the fan.
6. Refit the fan assembly, retaining with the four screws previously removed.
7. Retighten the two screws retaining the elbow to the fan.
8. Refit the three fan electrical connections ensuring the earth is correctly fitted. Refit positive pressure silicon rubber pipe to connection on top of the fan.

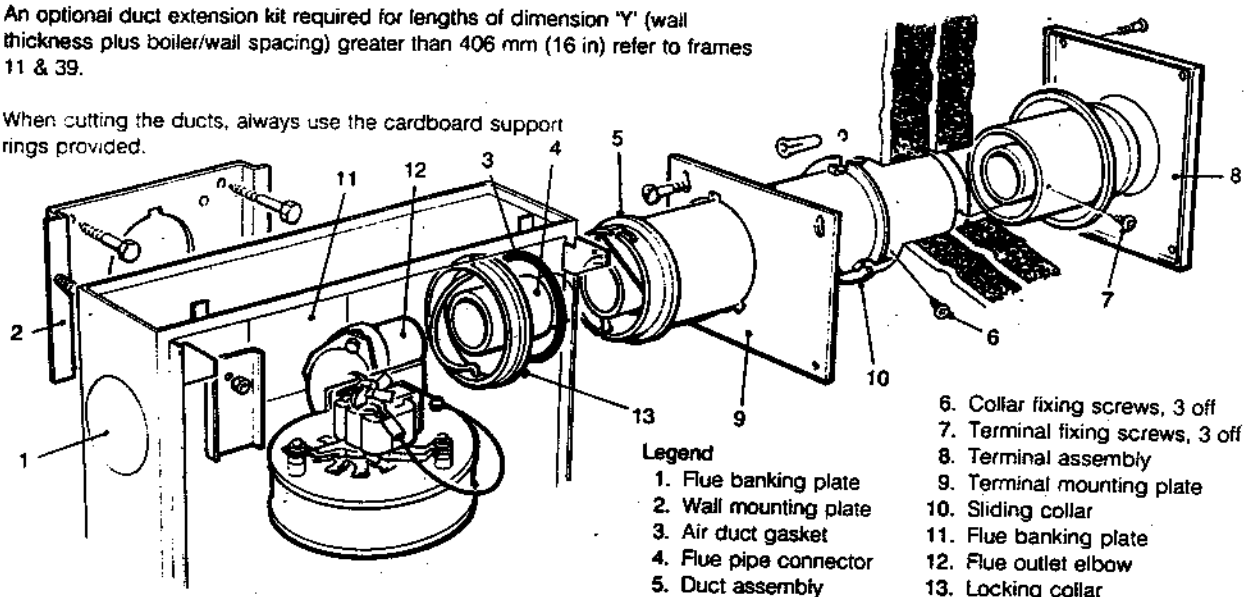


PROCEED TO FRAME 42

24 FLUE ASSEMBLY- Exploded view

Notes:

1. An optional duct extension kit required for lengths of dimension 'Y' (wall thickness plus boiler/wall spacing) greater than 406 mm (16 in) refer to frames 11 & 39.
2. When cutting the ducts, always use the cardboard support rings provided.

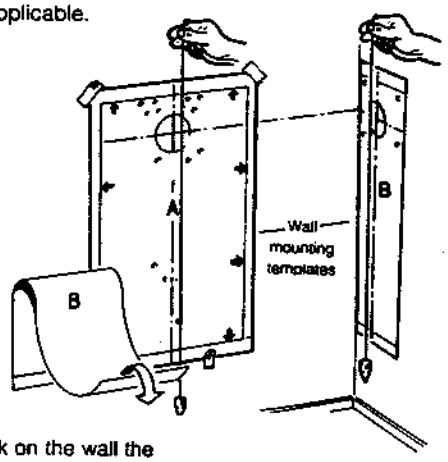


Legend

1. Flue banking plate
2. Wall mounting plate
3. Air duct gasket
4. Flue pipe connector
5. Duct assembly
6. Collar fixing screws, 3 off
7. Terminal fixing screws, 3 off
8. Terminal assembly
9. Terminal mounting plate
10. Sliding collar
11. Flue banking plate
12. Flue outlet elbow
13. Locking collar

25 WALL MOUNTING TEMPLATE

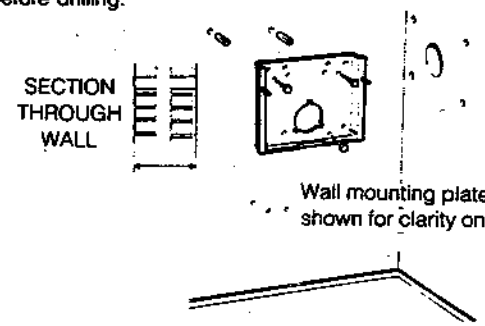
1. Separate the templates.
2. Tape both templates into the selected position, locating template 'B' via an extended centre line as shown.
3. Ensure squareness by hanging a plumbline as illustrated.
4. Mark onto the wall the 3 mounting plate screw positions (choose 1 from each group) & the lower fixing screw position also pump kit bracket screws - if applicable.



5. Mark on the wall the 4 terminal mounting plate screw positions.
6. Mark on the wall the position of the flue duct. NOTE: Mark the centre of the hote as well as the circumference.
7. Remove both templates from the wall.

26 PREPARING THE WALL

IMPORTANT: Ensure that, during the cutting operation, masonry falling outside of the building does not cause damage or personal injury. **Note:** Check all hole positions before drilling.

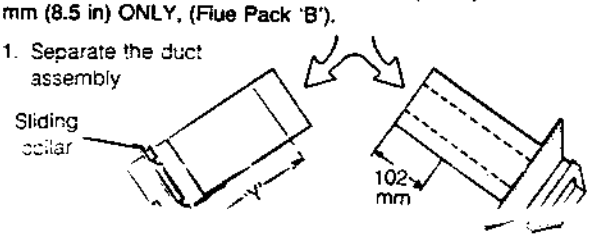


1. Cut the flue hole, preferably with a 5 in core boring tool. Ensure the hole is square to the wall. If the hole has been cut with a core drill & the surrounding area is flat, it is not essential to make good, only make good if necessary. For less accurate holes make good to approx 125 mm (5 in) diameter at the two wall faces. For holes longer than 610 mm (24 in) this must be done from outside for the outer face.
2. Measure wall thickness 'X' and calculate dimension 'Y', ie 'boiler spacing' plus 'X', refer to frame 11.
3. Drill the 3 wall plate holes with a 10 mm (⅜in) bit. Drill the remaining 5 holes with an 8 mm (5/16in) masonry bit, (if applicable drill the pump bracket holes).
4. insert, into the drilled holes, the 8 plastic plugs provided.
5. Locate 2 No. 10 x 2 screws in the terminal mounting plate top fixing holes & screw to within 6 mm (¼in) of wall surface.

27 CUTTING THE DUCT ASSEMBLY

For flue lengths, dimension 'Y', of 114 mm (4.5 in) to 216 mm (8.5 in) ONLY, (Flue Pack 'B').

1. Separate the duct assembly

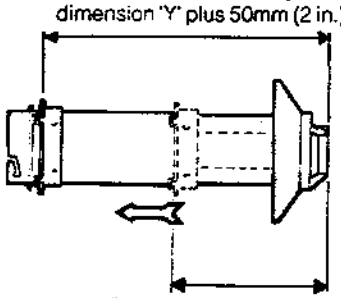


2. Push the sliding collar to the end of the duct & measure off dimension 'Y'.
3. Cut to length 'Y' using cardboard duct support rings. NOTE: Cut inner flue tube 6 mm (¼in) longer than air tube.
4. Cut 102 mm (4 in) off the terminal section.
5. Remove the cardboard support rings.
6. Reassemble the flue ducts, aligning the seams

28 JOINING THE DUCT ASSEMBLY

Wall thicknesses of 114mm (4.5 in.) to 216mm (8.5 in.)

1. Set the assembly to length; dimension 'Y' plus 50mm (2 in.)



Dimension 'X' plus 50mm (2 in.)

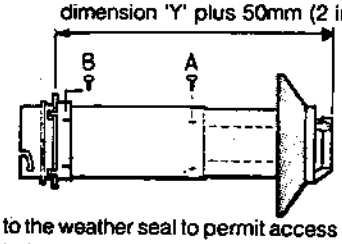
2. Using the sliding collar as a template at the duct join, mark the position of the 3 fixing screws. **Note:** If the duct join is too close to the rubber weather seal to permit access for drilling, then mark the hole position at the mid point of the duct.
3. Set the collar to the required position, ie. Dimension 'Y' plus 50mm (2 in.). Mark the positions of the 3 fixing screws.

Proceed now to step 5 of Frame 29.

29 SETTING THE DUCT ASSEMBLY

For flue lengths, dimension 'Y', of 216mm (8.5 in.) to 406mm (16 in.)

1. Separate the duct assembly.
2. Push the sliding collar to the end of the duct.
3. Set the assembly to length; dimension 'Y' plus 50mm (2 in.).



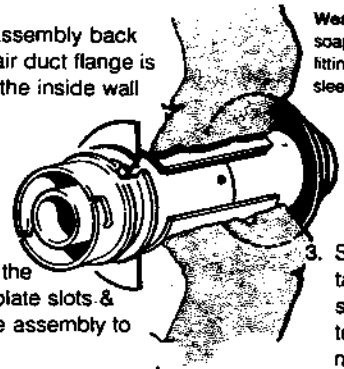
4. Using the sliding collar as a template at the join, mark the position of the 3 air duct joining screws (A). **Note:** If the duct join is too close to the weather seal to permit access for drilling then mark the hole positions at the mid point of the duct. Also if the air duct joining screws restrict the sliding collar then use the collar fixing screws (B) to secure the whole assembly.
5. Set the collar to required position, ie.Dim. 'Y' plus 50 mm (2in) & mark the positions of the 3 collar fixing screws (B). Drill the 6 fixing holes using the 3.2mm drill provided. Insert the self tapping screws to fix the collar in position and lock the duct assembly. DO NOT DRILL THE INNER FLUE DUCT.

For flue lengths more than 406mm; refer to Frames 11, 38 - 41.

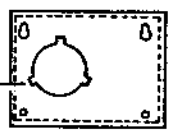
30 FITTING THE FLUE ASSEMBLY - from INSIDE the building

1. Push the assembly through the wall until the weather seal is free. Ensure that the assembly is not pushed completely through.
2. Pull the assembly back until the air duct flange is proud of the inside wall surface.

Weather seal: Apply soap solution to ease fitting through wall sleeve.



4. Engage the collar lugs with the terminal plate slots & rotate flue assembly to lock
5. Engage the plate on the two fixing screws.
3. Stick sealing tape to reverse side of the terminal mounting plate.

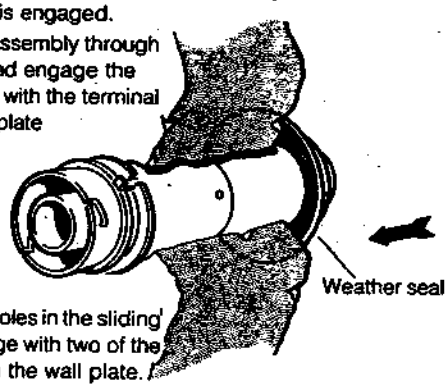


Terminal plate slots (see note 4)

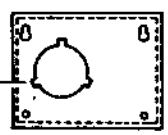
Proceed now to step 3 of Frame 32

31 FITTING THE FLUE ASSEMBLY - from OUTSIDE the building

1. Fit the terminal mounting plate - refer to steps 1-5 of Frame 29 - but DO NOT drive the fixing screws fully home until the duct assembly is engaged.
2. Push the assembly through the wall and engage the collar lugs with the terminal mounting plate slots. Rotate the flue assembly to lock.



3. Align the holes in the sliding collar flange with two of the cut-outs in the wall plate. Insert 2 of the self tapping screws provided to retain the flue assembly.

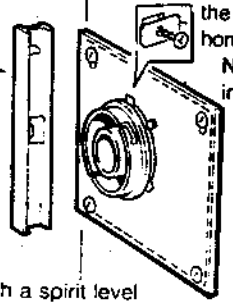


Terminal plate slots (see note 2)

Proceed now to step 6 Frame 32

32 TERMINAL MOUNTING PLATE

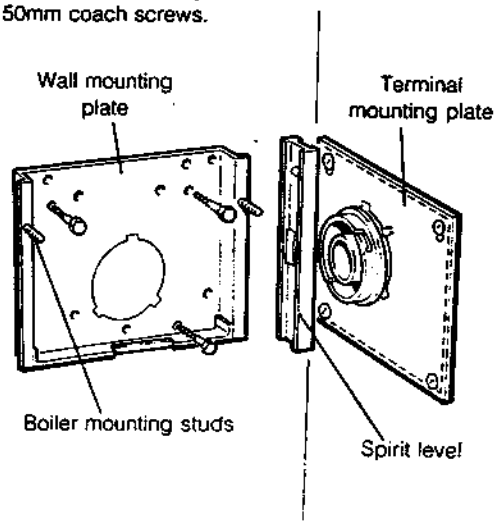
1. Stick the sealing tape provided to the reverse side of the plate.
2. Engage the plate on the top two fixing screws.
3. Locate two No. 10 x 2 screws in the bottom fixing holes & drive home all 4 screws. **Note:** flue is shown locked into position.



4. Check with a spirit level that the plate is vertical.
5. Make good between the plate & the corner of the wall.
6. Align the notes in the sliding collar flange with 3 of the cut-outs in the wall plate. Insert 3 of the self tapping screws and resin anchor washers to retain the assembly.

33 WALL MOUNTING PLATE

1. Fix the wall mounting plate to the wall with the three 8mm x 50mm coach screws.

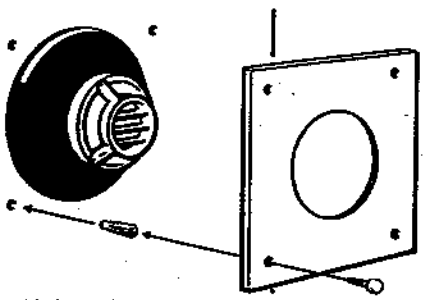


2. Check with a spirit level that the plate is vertical.

34 TERMINAL WALL PLATE

This plate is provided to allow neat concealment & full compression of the rubber seal. If the flue hole & flue ducts have been accurately cut and the outside wall face is flat, its use is not essential, except this plate must be used on wall thicknesses over 610mm (24 in.).

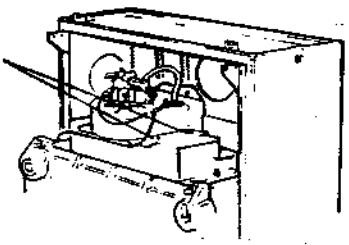
1. Position the terminal wall plate over the terminal.
2. Drill the 4 holes with an 8mm (⅜ in.) masonary drill.
3. Insert the four plastic plugs provided.
4. Secure the plate with four of the No. 10 x 2 screws provided.



NOTE: If the terminal is less than 2m (6.6 ft.) above ground level an approved terminal guard MUST be fitted - refer page 3.

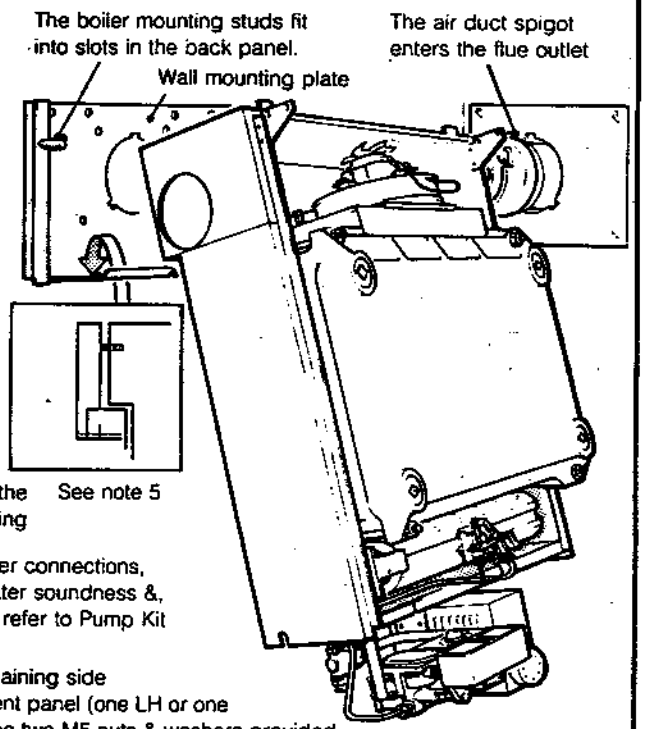
35 MOUNTING THE BOILER

1. Remove the four screws retaining the fan assembly. Disconnect the three fan electrical connections, and unclip from fan plate. Pull off the silicon rubber pipe connection on the top of the fan and remove fan.

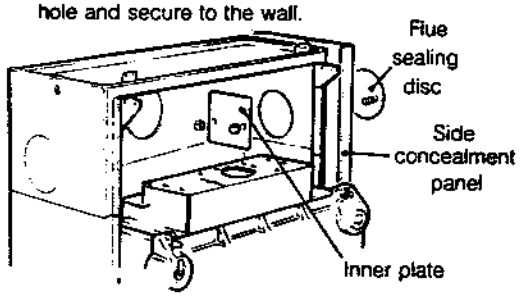


VIEW INSIDE BOILER AIR BOX

2. Remove the sealing disc & plate from each side panel.
3. Fit a pair of blanking plates & discs to the rear flue outlet hole.
4. Fit the side concealment panel to the flue side only and secure with two M5 nuts and washers. **Note:** Have ready, to hand, the sealing plates (previously removed) and wing nuts provided in the hardware pack.



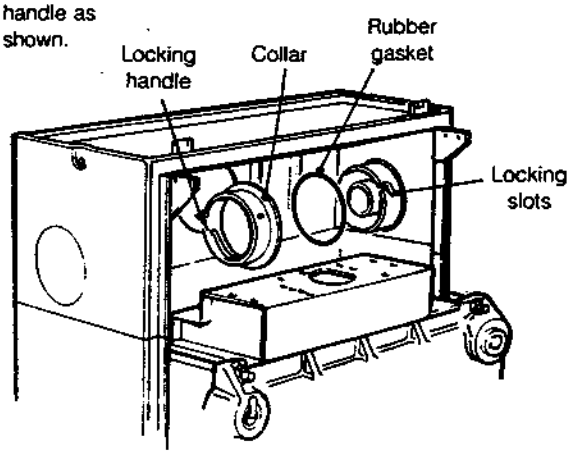
5. Lift the boiler onto the wall mounting plate as shown. Ensure that the support bracket on the back of the boiler rests on the bottom return of the wall bracket. **Note:** The return on the bottom of the wall mounting plate must engage in the slot in the underside of the support bracket. Slide the boiler side-ways into it's intended position. Centralize the studs in the slots & engage the end of the air duct in the hole in the side panel.
6. Fit sealing plates previously removed over each stud and secure with wing nuts. **Note:** Before fully tightening the wing nust check the boiler alignment using a spirit level and adjust as necessary with the jacking screw, refer to Frame 3.
7. Adjust jacking screw until the hole in the wall lines up with the hole in the jacking screw plate. Locate a No. 10 x 2 screw, in the boiler lower fixing hole and secure to the wall.



8. Make all water connections, check for water soundness &, where fitted, refer to Pump Kit Instructions.
9. Fit the remaining side concealment panel (one LH or one RH) with the two M5 nuts & washers provided. Also fit the circular flue sealing discs and inner plates, securing with the two M6 nuts provided.

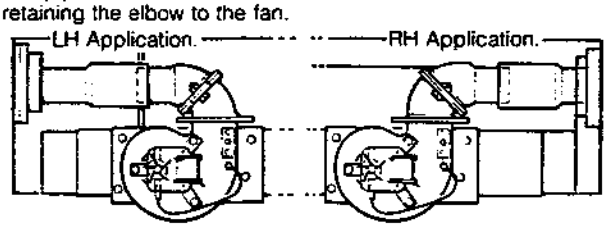
36 SEALING THE BOILER & FLUE

1. Stretch the rubber gasket over the duct spigot
2. Fit the collar as shown & rotate it to lock into the slots
3. Fold the locking handle as shown.



37 SETTING THE FLUE OUTLET ELBOW

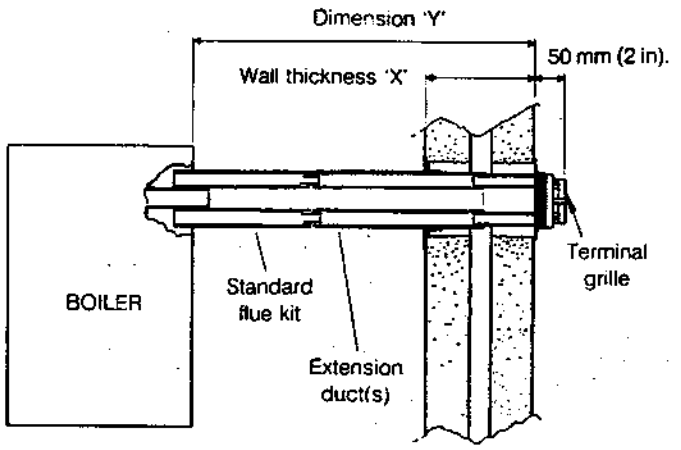
For LH side flue outlet, set aluminium elbow to point to left. For RH side flue outlet, set aluminium elbow to point to right. For LH side fit loose flue pipe connector over flue elbow. For RH side cut 50mm (2 in.) off the non-swaged end of the loose flue pipe connector & fit over flue elbow. Slacken the two nuts retaining the elbow to the fan.



Insert swaged end of flue pipe connector into the terminal flue pipe and refit the four fan plate retaining screws. Retighten the two screws retaining the elbow to the fan. Refit the three fan electrical connections ensuring the earth is correctly [illegible] positive press [illegible] rubber pipe to [illegible]

38 GENERAL ARRANGEMENT

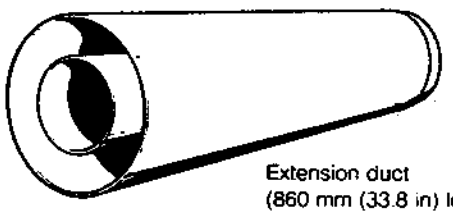
1. A MAXIMUM of 3 kits may be used together.
2. Cut extension ducts at the plain ends only.
3. Ensure that there is at least a 25 mm (1 in) overlap at each end of the joint.
4. For flue lengths of less than 457 mm (18 in) ensure that the sliding collar (frames 40 & 41) is positioned on an air duct.
5. Extensions of greater than 1 m (39 in) should be supported with the bracket.
6. Tape all air duct connections.
7. Always align the seams when re-assembling the ducts.



39 PACK 'D'

For flue lengths ('X' or 'Y') up to 3.0 m (118.1 in)

Use a maximum of 3 kits only - See frame 11
This kit is suitable for both rear & side outlet flue configurations
This kit contains the following:



Extension duct (860 mm (33.8 in) long, 1 off

Support bracket & spacer, 1 off

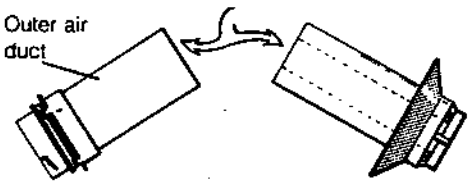
No. 8 x ¼ in. self tappers, 4 off
No. 10 x 3½ in. self tappers, 1 off
Wall plug, 1 off

Length of adhesive tape

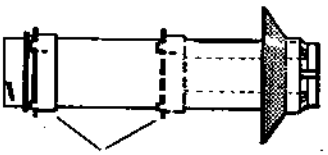
40 FITTING

IMPORTANT: Read in conjunction with frame 38

1. Separate the duct assembly



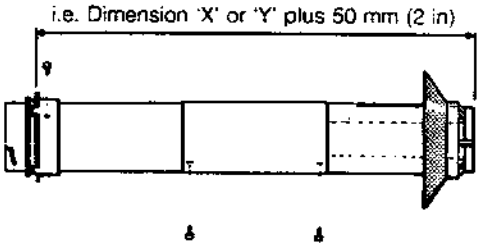
2. Insert the appropriate extension duct(s) with the plain end towards the terminal
3. Re-assemble the terminal and the duct assemblies
4. Set the assembly to length: refer to frame 41, steps 1 & 2



5. Using the sliding collar as a template at the joins of any ducts, mark the positions of the 3 fixing screws.

41 FITTING

1. Push the collar back to the boiler end of the duct, or to its intended position.
2. Set the assembly to length.
3. Drill at markings with the 3.2 mm drill provided.
4. Lock the assembly in position with the self tappers provided.



5. Drill through holes of collar into the air duct with the 3.2 mm drill and lock the sliding collar into position with 3 of the self tapping screws provided.

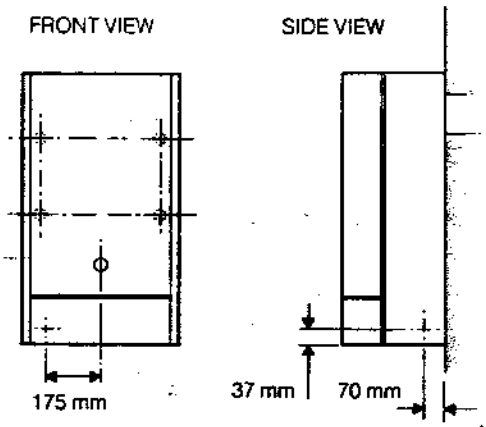
Note: If flue duct assembly locking screws restrict the sliding collar then use the collar locking screws to lock whole assembly.

REFER BACK TO FRAME 18, REAR FLUE
OR FRAME 20, SIDE FLUE

42 GAS CONNECTION

A MINIMUM gas pressure of 37 mbar (14.8 in w.g.) MUST be available at the boiler inlet.

The main gas cock is on the left hand side of the control valve & below the boiler. Connection to the gas supply MUST be from the REAR of the boiler and from below.



Also refer to the section headed Gas Supply on page 3

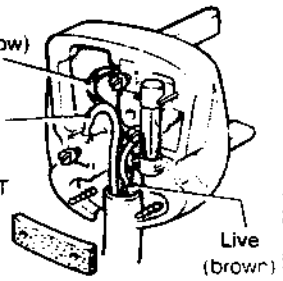
43 ELECTRICAL CONNECTIONS

WARNING: The appliance MUST be efficiently earthed.

A mains supply of 240 V — 50 Hz Single Phase is required.

All external controls & wiring MUST be suitable for mains voltage.

Wiring should be in 3-core PVC insulating cable. NOT LESS than 24/0.2 mm (0.75 mm²) to BS.6500 Table 16.



All wiring external to the boiler, including the room thermostat etc., MUST be in accordance with the latest I.E.E. Wiring Regulations and Local Regulations which apply.

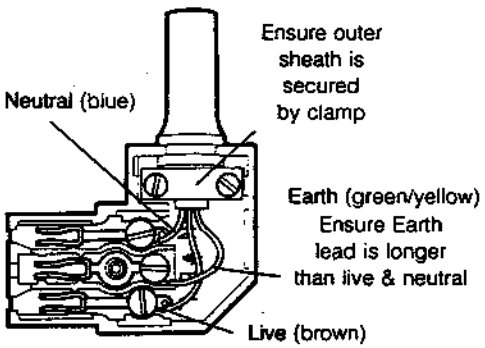
The supply connection may be made via a removable plug to an unswitched shuttered socket outlet and should such a plug be used for connection to the mains, it MUST be of a 3-pin type, wired as shown, fused at 3A and complying with the requirements of BS.1363.

Alternatively a fused, double pole switch, having at least a 3 mm (⅛ in) contact separation in both poles and serving only the boiler may be used.

44 ELECTRICAL CONNECTIONS & FUNCTIONAL FLOW WIRING DIAGRAM

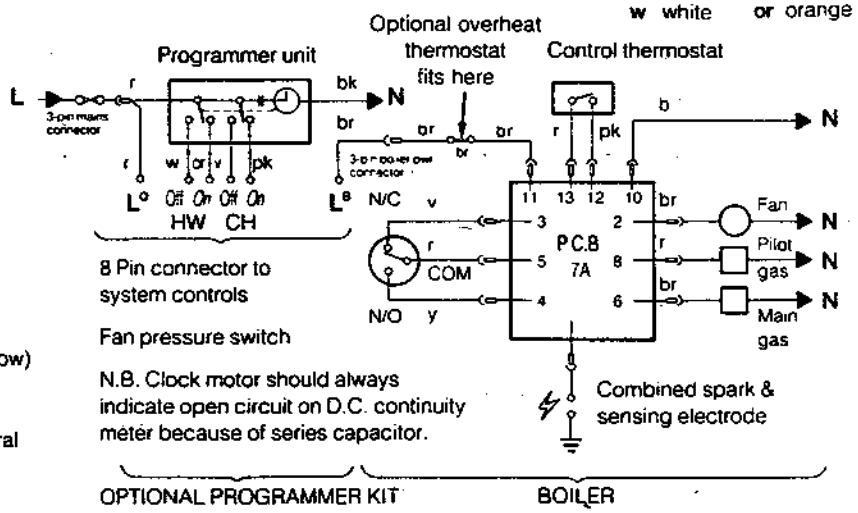
Note: If the optional programmer kit is to be fitted, refer to the instructions provided with the kit, ignore this section and go to frame 45. The internal wiring of the control box is shown opposite and also in frame 46.

A wiring diagram is also contained in the Lighting Instructions (inside the control pod door).



Legend

br	brown	r	red	y	yellow
b	blue	pk	pink	v	violet
		w	white	or	orange



45 EXTERNAL CONTROLS

The wiring diagrams illustrated in frames 47 to 50 cover the systems most likely to be fitted to this appliance.

For wiring external controls to the Ideal W2000NF boiler, reference should be made to the system wiring diagrams supplied by the relevant Manufacturer, in conjunction with the wiring diagrams shown in frames 44 and 46.

Difficulty in wiring should not arise, providing the following directions are observed.

1. Controls that switch the system ON and OFF e.g. a timer switch, MUST be wired in series, in the live mains lead to the boiler.
2. Controls that over-ride an ON/OFF control, e.g. a frost thermostat, MUST be wired into the mains lead, in parallel with the control(s) to be over-ridden - refer to frame 50.
3. Controls that switch the circulating pump only ON and OFF e.g. a room thermostat, MUST be wired in series, with the pump in the live pump lead.
4. [illegible] system is used, follow the instructions [illegible]
5. SYSTEM DESIGNS FEATURING CONTROLS OR WIRING ARRANGEMENTS, WHICH ALLOW THE BOILER TO FIRE WHEN THERE IS NO PUMPED OR GRAVITY CIRCULATION TAKING PLACE, SHOULD NOT BE FITTED.

Advice on required modifications to the wiring may be obtained from the component Manufacturers.

NOTES:

1. Connections between a frost thermostat and the time control should be made without disturbing other wiring.
2. A frost thermostat should be sited in a cool place in the house, but where it can sense heat from the system.

Wire the mains connector, supplied strapped to the control box, as follows:

Live	(brown)	to L
Neutral	(blue)	to N
Earth	(green/yellow)	to ⏚

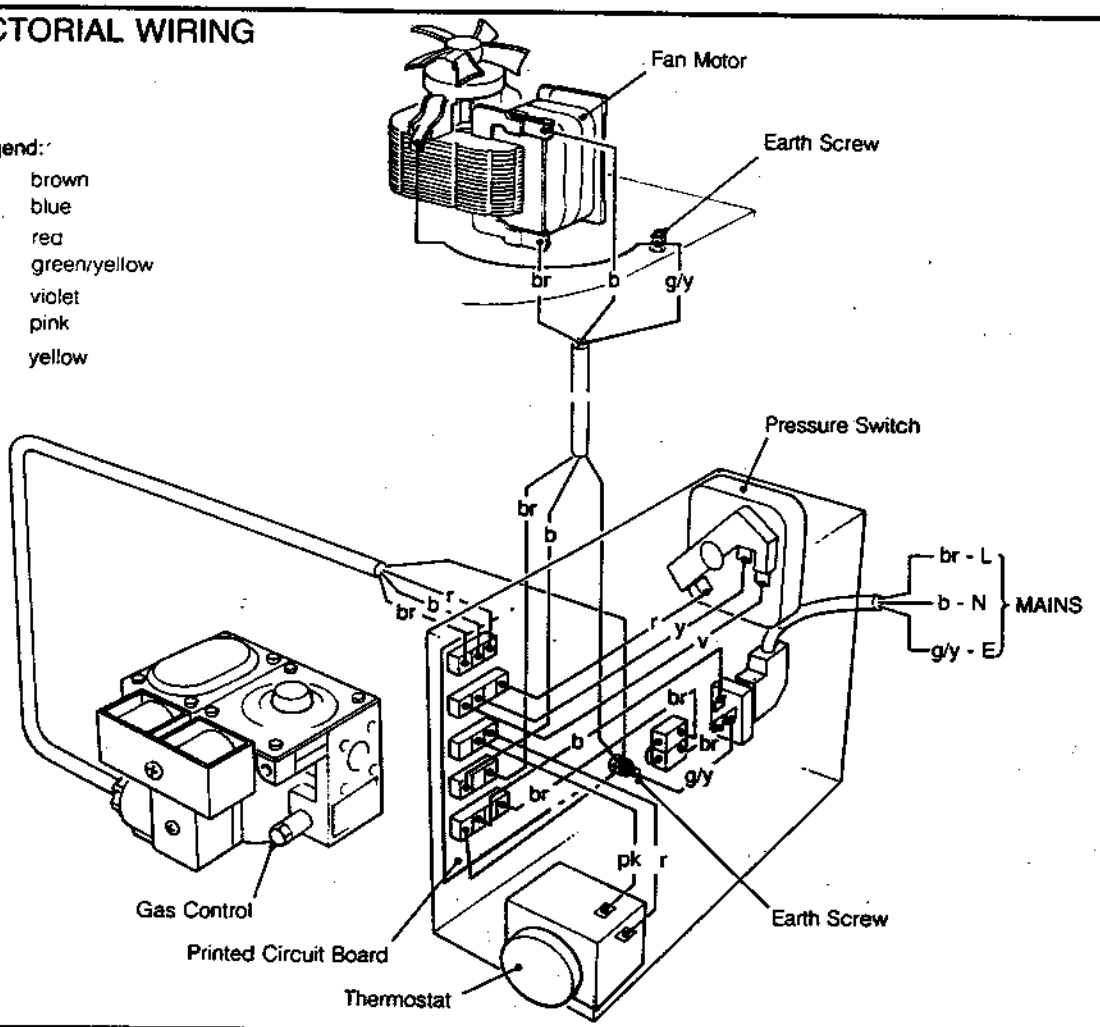
The connector may now be plugged into the control box.

Note: When the optional programmer kit is fitted, the incoming mains lead should be connected to the programmer mains plug. The boiler control box [illegible] should be wired in accordance with the [illegible] frames 16 & 52 and programmer kit.

46 PICTORIAL WIRING

Legend:

br	brown
b	blue
r	red
g/y	green/yellow
v	violet
pk	pink
y	yellow



47 MID POSITION VALVE

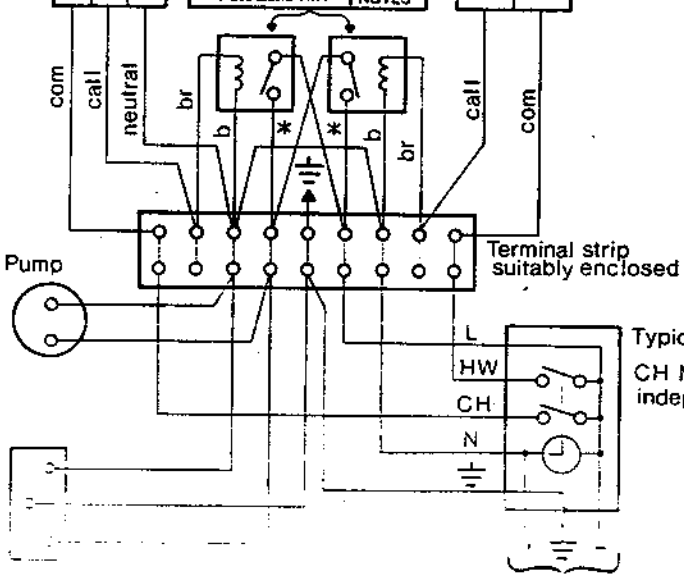
ROOM THERMOSTAT TERMINALS		
1	3	2
3	1	4
1	2	4
1	3	-
1	2	4
3	1	N
1	3	4
2	1	4
1	3	-

TLX 2259 or 2284

RTE RTM/RTC

SPRING - SHUT VALVE DETAILS	AUX SWITCH WIRES	
HONEYWELL S PLAN V4043H 1056	gy	or
PEGLER System 4 SZ 1301 or 1326	gy	or
LANDIS & GYR SK2 - LL4453 etc	gy	or
A.C.L 679.H.306	gy	or
DRAYTON ZV22 or ZV28	gy	or
SOPAC ZV20-2 EB etc	bk	bk
DANFOSS DMV - 2	gy	or
SWITCHMASTER Auto Zone VM4	SEE NOTES	

CYLINDER THERMOSTAT TERMINALS	
1	C
1	3
2	1
1 (bk)	3 (r)
2	1
1	C
n.c.	com.
2	1



('Y' Plan) Pumped Only

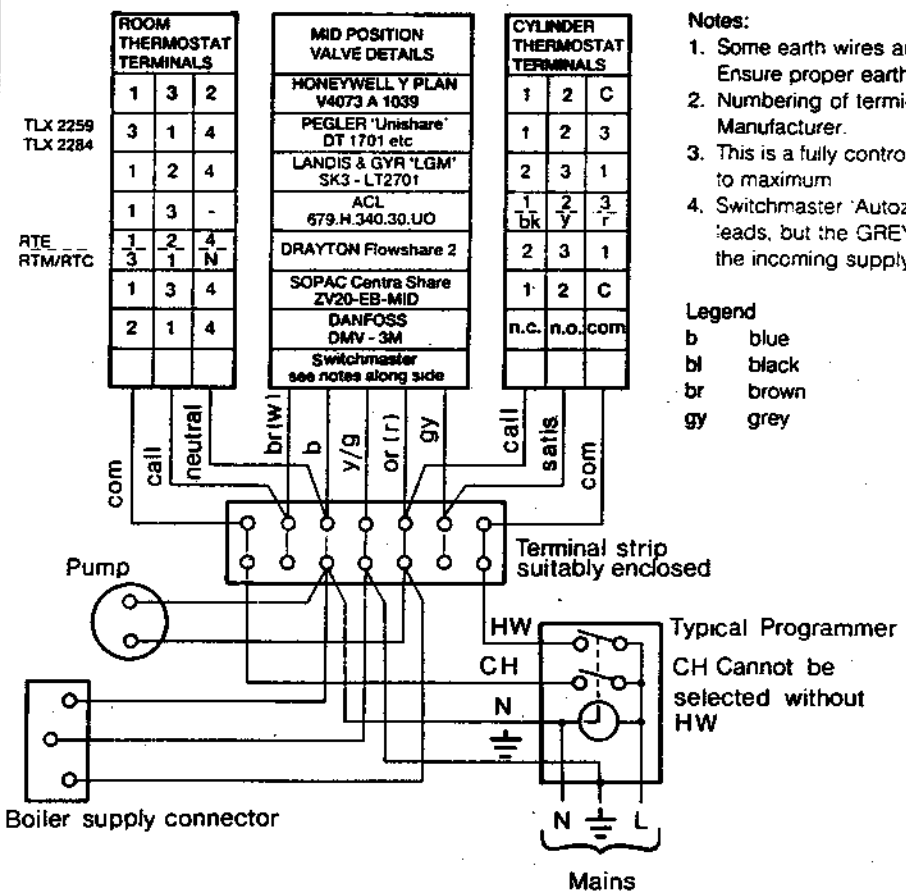
Notes:

1. Some earth wires are omitted for clarity. Ensure proper earth continuity when wiring.
2. Numbering of terminals on thermostats is specific to the Manufacturer.
3. This is a fully controlled system - set the boiler thermostat to maximum.
4. Switchmaster 'Midi' is similar in operation, but the wiring differs slightly; see Manufacturer's literature.

Legend

b	blue	or	orange
bl	black	r	red
br	brown	y	yellow
gy	grey	w	white
g	green		

48 TWO SPRING CLOSED VALVES 'S' PLAN — Pumped Only



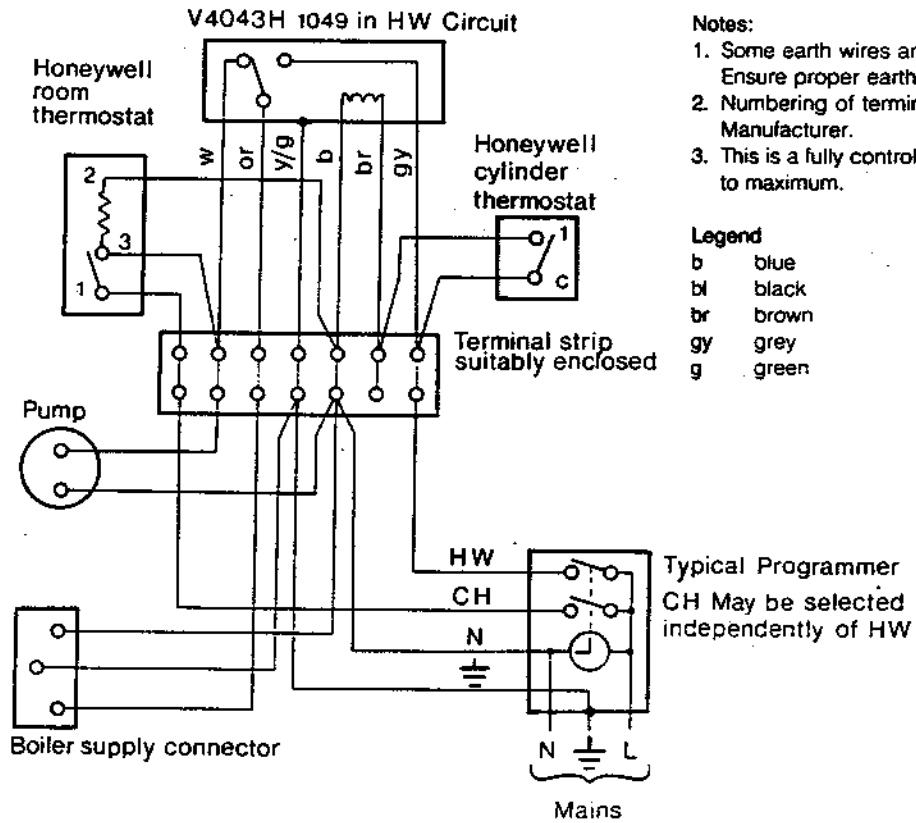
Notes:

1. Some earth wires are omitted for clarity. Ensure proper earth continuity when wiring.
2. Numbering of terminals on thermostats is specific to the Manufacturer.
3. This is a fully controlled system - set the boiler thermostat to maximum
4. Switchmaster 'Autozone' valve also has grey and orange leads, but the GREY wire must be the one connected to the incoming supply.

Legend

b	blue	or	orange
bl	black	r	red
br	brown	w	white
gy	grey		

49 HONEYWELL 'C' PLAN — Gravity HW, Pumped CH



Notes:

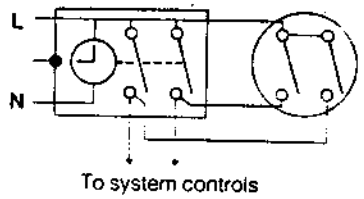
1. Some earth wires are omitted for clarity. Ensure proper earth continuity when wiring.
2. Numbering of terminals on thermostats is specific to the Manufacturer.
3. This is a fully controlled system - set the boiler thermostat to maximum.

Legend

b	blue	or	orange
bl	black	r	red
br	brown	y	yellow
gy	grey	w	white
g	green		

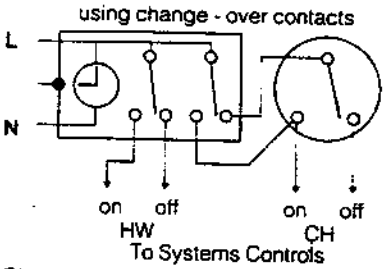
50 FROST PROTECTION

TYPICAL PROGRAMMER



A. Double pole frost stat (e.g.SOPAC TA347.04)

TYPICAL PROGRAMMER
using change - over contacts



B. Change - over frost stat (shown satisfied)

Central heating systems fitted wholly inside the house do not normally require frost protection, since the house acts as an overnight 'Storage Heater', and can generally be left at least 24 hours without fear of frost damage.

If, however, parts of the pipework run outside the house, or if it is desired to leave the boiler off for more than a day or so, then a frost-stat should be wired into the system. This is normally done at the programmer, in which case the programme SELECTOR switches are set to 'OFF' and all other controls MUST be left in the running position. The frost stat should be sited in a cold place, but where it can sense heat from the system. Wiring should be basically as shown, with minimal disturbance to other wiring to the programmer. Designation of the terminals will vary, but the programmer and thermostat manufacturer's leaflets will give full details.

Diagram A shows a 'Double Pole' frost stat, which will cover most systems which do not use the 'OFF' terminals of the programmer.

Diagram B shows a 'Change Over' frost stat, which will cover most systems which do use CH OFF. If however, on such a system, the HW pipework is in an isolated part of the house, a second frost stat may be used to protect it also. If in doubt, ask your installer for advice.

51 COMMISSIONING & TESTING

(a) Electrical Installation

Checks to ensure electrical safety should be carried out by a competent person, with the boiler DISCONNECTED from mains.

1. Using a suitable meter, check the continuity from the earth wire of the mains supply to both the body of the gas valve and the metalwork of the boiler control box.
2. Check that there is NO connection between earth and either live or netural.
3. Check that the polarity of supply is correct, i.e. that live and neutral are not crossed over.
4. The boiler may now be connected to the supply.

(b) Gas Installation

1. The whole of the gas installation, including the meter, must be inspected and tested for soundness, and purged in accordance with the recommendations of CP.6891.
2. The purging of air from the gas installation may be expedited by loosening the union on the gas service cock and purging until gas is smelled.
3. Retighten the union and check for gas soundness.

WARNING: Whilst effecting the required gas soundness test and purging air from the gas installation, open all windows and doors, extinguish naked lights. DO NOT SMOKE.

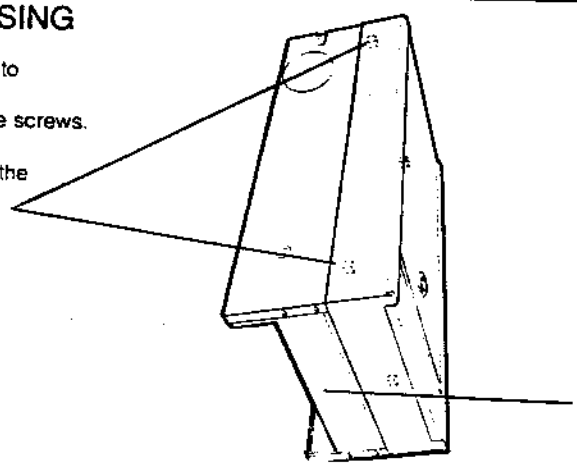
52 INITIAL LIGHTING
Continued in Frame 54

1. Check that all the drain cocks are closed, and any valves in the flow and return are open.
2. Check that the gas service cock (C) is ON and the boiler thermostat knob (G) is OFF. See frame 54 for details.
3. Remove the screw in the burner pressure test. Point (F) and connect a gas pressure gauge via a flexible tube.
4. Switch the electricity supply ON and check that all external controls are calling for heat.
5. Set the boiler thermostat knob to position 6. The pilot solenoid valve should open and the intermittent spark commence, continuing until the pilot is established. The main burner will then light. Check the pilot flame envelopes the ignition/detection electrode. If the pilot flame appears incorrect refer to frame 8 of Routine Servicing.
6. Test for gas soundness around ALL boiler gas components using leak detection fluid. Particularly check gas valve flanges and pilot connections.
7. Set the boiler thermostat knob to OFF and isolate the electricity supply.
8. If the boiler output is to be set to minimum or mid, affix the appropriate indicator label supplied in the hardware pack to the data plate, located on the lower R.H. side of the back panel.
9. Fit the boiler casing, refer to frame 53.

53 FITTING THE CASING

1. Lift the boiler casing up to the boiler assembly and secure with the 4 captive screws. The casing must seat correctly and compress the sealing strip to make an airtight joint.

   Visually check the side seals but if side clearances are limited then check that the top [illegible] edges of the casing are [illegible].



2. Fit controls pod bottom panel using the four M4 x 10 screws in the hardware pack

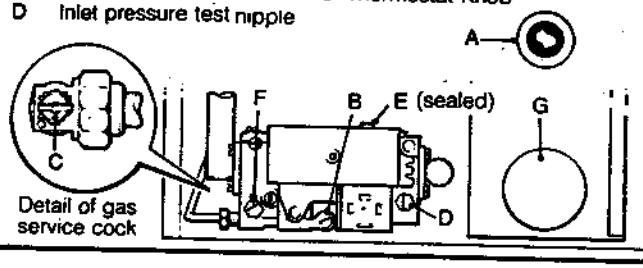
54 INITIAL LIGHTING - Continued

To Light the Boiler

1. Switch the electricity supply ON and check that all external controls are calling for heat.
2. Set boiler thermostat knob (G) to position 6 and the fan will start. After the fan has run for a few seconds the pilot solenoid will open and the intermittent spark commence, continuing until the pilot is established. Check the appearance of the pilot flame - refer to frame 8 of Routine Servicing. **Note:** The pilot flame is factory set and no adjustment should be necessary. However, if the pilot flame is incorrect refer to frame 8 of Routine Servicing.
3. Once the pilot is established the main gas will come on. Check that the main burner cross-lights smoothly. If this sequence does not occur then refer to the 'Fault Finding' section.
4. Operate boiler for 10 minutes to stabilise burner temperature.
5. The boiler is pre-set at the factory to its nominal rating. Check the burner pressure against the values quoted in Table 2.
6. Set the boiler thermostat knob to OFF
7. Remove the pressure gauge and tube. Replace the sealing screw in the pressure test nipple.
8. Turn ON and check gas soundness at the sealing of the screw.

Legend BOILER CONTROLS

A Sight Glass
B Pilot pressure adjuster
C Gas service cock
D Inlet pressure test nipple
E Main burner pressure adjuster
F Burner pressure test nipple
G Thermostat Knob



55 GENERAL CHECKS

Make the following checks for the correct operation

1. Turn the boiler thermostat knob from position '6' to OFF and to position '6' again. Check that the main burner lights and extinguishes in response.
2. Check the correct operation of the programmer, if fitted. All other system controls should also be proved. Operate each control separately and check that the main burner responds.
3. Check that the casing is sealed correctly and compressing the sealing strip all around the casing.
4. **Water Circulation System**
   (a) With the system HOT, examine all water connections for soundness.
   (b) With the system still hot, turn off the gas, water and electricity supplies to the boiler and drain down in order to complete the flushing process.
   (c) Re-fill and vent the system, clear all air locks and again check for water soundness.
   (d) Balance the system

   Finally, set the controls to the user's requirements.

Notes:

1. If an optional Programmer Kit is fitted then refer to both the Programmer Kit Installation Instructions and the Programmer User's Instructions.
2. The temperatures quoted below are approximate and vary between installations:

Knob setting	Flow Temperature °C	Flow Temperature °F
1	54	130
2	60	140
3	66	150
4	71	160
5	77	170
6	82	180

WARNING: The boiler MUST NOT be operated with the casing removed except by a competent engineer during commissioning.

56 HANDING OVER

After completing the installation and commissioning of the system, the installer should hand over to the householder by the following actions.

1. Hand the User's Instructions to the householder and explain his or her responsibilities under the Gas Safety (Installation and Use) Regulations 1984.
2. Draw attention to the Lighting Instruction Label affixed to the inside of the control casing door.
3. Explain and demonstrate the lighting and shutting down procedures.
4. The operation of the boiler and the use and adjustments of ALL system controls should be fully explained to the householder, to ensure the greatest possible fuel economy consistent with the household requirements of both heating and hot water consumption.

   Advise the User of the precautions necessary to prevent damage to the system [illegible] of the plant of the system remaining [illegible]
5. Explain the function and the use of the boiler thermostat and external controls.
6. Explain the function of the boiler over-heat thermostat (only fitted for sealed system use) and emphasise that if cut out persists, the boiler should be turned off and the local Heating Installer consulted.
7. Explain and demonstrate the function of time and temperature controls, radiator valves, etc. for the economic use of the system.
8. If an optional Programmer Kit is fitted, then draw attention to the Programmer Kit User's Instructions and hand them to the householder.
9. Explain and demonstrate the cylinder changing procedure - see User's Instructions.
10. Stress the importance of regular servicing by the Local Gas [illegible] Qualified Heating Engineer.
11. [illegible] User's Instructions Emergency Action

1 SCHEDULE

The following should be carried out at periods not exceeding one year.

(a) Light boiler & carry out pre-service check, noting any operational faults.

(b) Clean the main burner.

(c) Clean the heat exchanger.

(d) Clean the main and pilot injectors.

(e) Check that the flue terminal is unobstructed and that the flue system, including the inner cover, is sealed correctly.

(f) If the appliance is installed in a compartment, check that the ventilation areas are clear.

The routine servicing procedures are covered more fully in Frames 2 to 8 & must be carried out in sequence.

WARNING: Always turn OFF the gas supply at the gas service cock and switch OFF and DISCONNECT the electricity supply to the appliance BEFORE SERVICING.

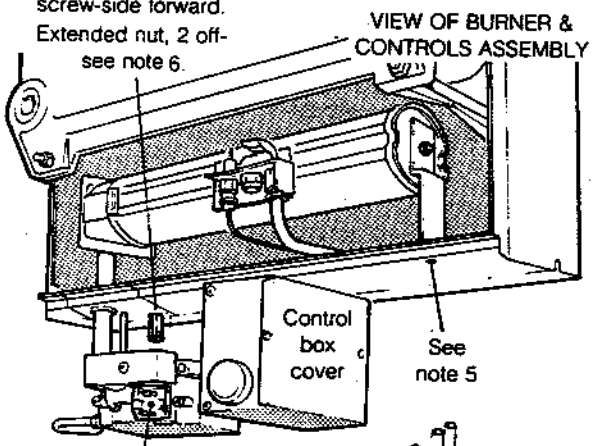
IMPORTANT: After completing and servicing or exchange of components always test for gas soundness and carry out functional checks as appropriate.

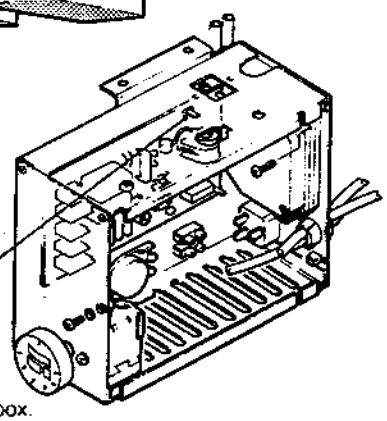
Note: In order to carry out either servicing or replacement of components then the boiler casing must be removed (Frame 2).

IMPORTANT: When work is complete the casing MUST be correctly re-fitted, ensuring that a good seal is made. The boiler should only be lit without the casing for gas soundness checks.

3 BURNER & CONTROLS ASSEMBLY REMOVAL

1. Undo the union on the gas service cock.
2. Remove the control box cover by undoing the retaining screw-side forward.

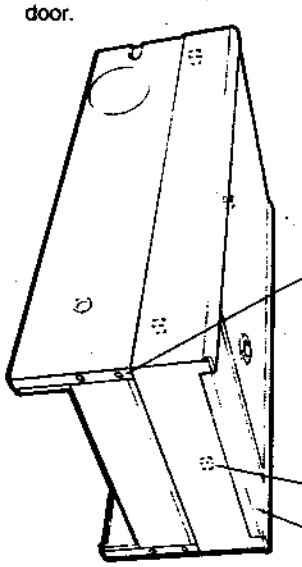




3. Disconnect the ignition/detection lead at the printed circuit board and withdraw it from the box.
4. Remove the gas valve electrical plug by releasing the securing screw.
5. Remove the screw retaining the burner support bracket to the base plate surround.
6. Remove the two extended nuts securing the burner manifold sealing the arrangement whilst supporting the burner assembly to prevent damage.
7. Remove the burner assembly and controls to a safe place

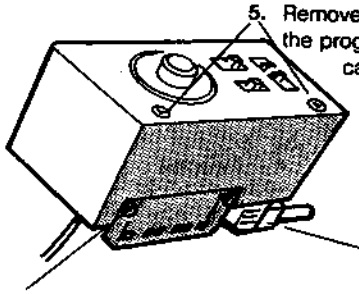
2 BOILER CASING REMOVAL

1. Open the controls pod door. Unhinge and remove the door.



PROGRAMMER MODELS ONLY

4. If a programmer kit is fitted, pull out the mains connector plug from the back of the programmer.



6. Pull the programmer back to expose the two screws securing the external controls pump plug connector. Remove the screws and pull out the connector.
7. Remove the programmer by tilting forward and withdrawing through the front of the control casing.

STANDARD & PROGRAMMER MODELS

8. Release the 4 captive screws at the top & bottom of the casing. Lift the casing off the boiler & retain in a safe place.
9. Isolate the gas supply at the gas service cock.

4 CLEANING BURNER ASSEMBLY

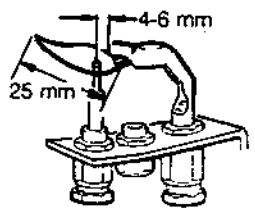
1. Brush off any deposits that may have fallen onto the burner head, ensuring the flame ports are unobstructed. Remove any debris that may have collected on any components. Note: Brushes with metallic bristles MUST NOT be used.
2. Remove the main burner, refer to Frame 15.
3. Remove the main burner injector, ensuring there is no blockage or damage. Clean or renew as necessary.
4. Refit the injector. Use ,sparingly, an approved jointing cpd.
5. Inspect the pilot burner & ignition/detector electrode. Ensure they are clean & in good condition; in particular check that,

(a) The pilot injector is not blocked or damaged, refer to Frame 13 (No. 1 & 2) for removal.

(b) The pilot burner is clear and unobstructed.

(c) The ignition/detection electrode is clean & undamaged.

(d) The ignition/detection lead is in good condition.

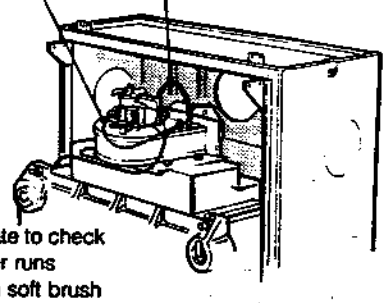


(e) The spark is correct, clean or renew as necessary.

6. Re-assemble the burner/controls assembly in reverse order. Note: Inspect & if necessary replace the case/manifold sealing gasket. [illegible] ASSEMBLY

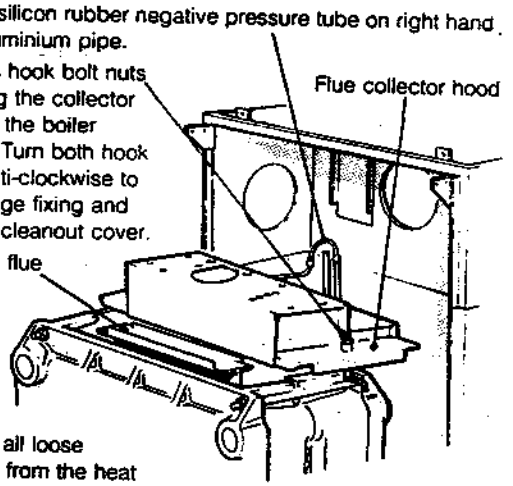
5 CLEANING THE FAN ASSEMBLY

1. Disconnect the fan leads and unclip from fan plate.
2. Pull off silicon rubber pressure tube on top of fan casing.
3. Remove the four screws retaining fan plate to collector hood.
4. Pull the fan assembly to disengage the flue and remove the fan assembly.
5. Remove the fan plate to check that the fan impeller runs freely. Clean with a soft brush or renew as necessary, refer to Frame 17.
   Note: Always take care when handling the fan, due to the balance of the impeller.
6. Check that the boiler air inlet duct and flue duct are unobstructed.



6 CLEANING THE FLUEWAYS

1. Pull off silicon rubber negative pressure tube on right hand side aluminium pipe.
2. Slacken hook bolt nuts retaining the collector hood to the boiler casing. Turn both hook bolts anti-clockwise to disengage fixing and remove cleanout cover.
3. Remove flue baffle.
4. Remove all loose deposits from the heat exchanger, particularly between the fins, using a suitable brush.



7 RE-ASSEMBLY

Re-assemble the boiler in the following order.

1. Refit the flue baffle.
2. Inspect the collector hood gasket and replace if necessary. Refit the collector hood. Turn the hook bolts clockwise until the slot in the top of the bolt is parallel with the side of the boiler. This will engage the hook bolt under it's fixing lug. Tighten both nuts and ensure that the sealing gasket is compressed. Refit the negative pressure pipe to the right hand side aluminium pipe.
3. Refit the fan mounting plate to the fan and refit fan assembly. Refit the positive pressure tube on the top of the fan housing. Reconnect electrical leads.
4. Refit the burner and controls assembly.
5. Re-connect the ignition/detection lead.
6. Refit the control box cover.
7. Re-connect the gas service cock and electrical wiring, refer to Frames 43-45 'Installation'. Turn off the gas supply.
8. Check the sightglass in the boiler casing. Clean or renew as necessary, refer to Frame 10.
9. Check the pilot connection for gas soundness, refer to Frame 52 - 'Installation', (also check gas cock and pressure test point).
10. Refit the boiler casing and tighten the four captive screws.
    IMPORTANT: When work is complete the casing MUST be correctly re-fitted. Ensure that a good seal is made (Frame 53 'Installation').
11. For programmer models only: Angle the programmer to fit it into the controls casing from the front-push back to enable the external controls/pump plug connector to be fitted and retain with the two fixing screws. Refit the mains supply plug to the programmer and the programmer plug to the control box socket. Retain the programmer to the boiler casing with the 2 screws previously removed.
12. For non programmer models: Connect the mains supply plug to the control box.
13. Refit the bottom panel to the casing surround (4 screws).
14. Refit the controls pod door.

8 GAS PRESSURE ADJUSTMENT

(a) Pilot Light the boiler and check that the pilot flame envelopes the ignition/detection electrode. The pilot adjuster screw is factory set to maximum and no further adjustment should be necessary. However, if the pilot flame length is incorrect then proceed as follows:

(a) Turn the thermostat knob to OFF.
(b) Remove the gas valve electrical plug by unscrewing central retaining screw.
(c) Turn the pilot pressure adjuster screw CLOCKWISE until fully CLOSED, refer to Frame 54
(d) Turn the pilot adjuster screw ANTI-CLOCKWISE four full turns to give maximum setting.
(e) Refit the gas valve electrical plug.
(f) Relight in accordance with 'Initial Lighting' refer to Frame 52 - 'Installation'.

(b) Main burner After any servicing, reference should be made to Table 2 which quotes details of the rated output with the related burner setting pressure and the heat input. Any required adjustments should be made by using the pressure adjustment screw. Refer to 'Initial Lighting', Frame 54 'Installation'.

REPLACEMENT OF PARTS

9 GENERAL

When replacing any component:

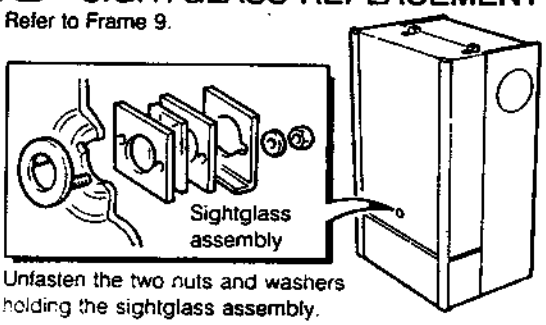
1. Isolate the electricity supply.
2. Turn OFF the gas supply.
3. Remove the boiler casing, refer to Frame 2.

IMPORTANT: When work is complete the casing MUST be correctly refitted, ensuring that a good seal is made.

The boiler MUST NOT be operated if the casing is not fitted correctly for gas soundness tests.

10 SIGHTGLASS REPLACEMENT

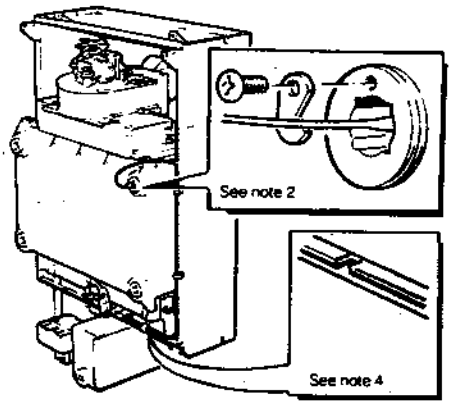
1. Refer to Frame 9.



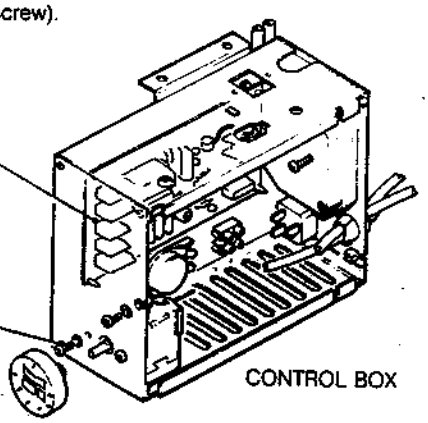
2. Unfasten the two nuts and washers holding the sightglass assembly.
3. When fixing the new assembly ensure that the parts are in the correct order. Frame must have return edge at bottom.
4. To fit: Push frame studs through
5. Replace
   boiler casing

11 CONTROL THERMOSTAT REPLACEMENT

1. Refer to Frame 9.
2. Remove the thermostat phial from pocket by slackening the screw holding the capillary retaining plate.
3. Unclip the capillary from the back panel.
4. Remove the spring clip retaining the capillary to the back panel.



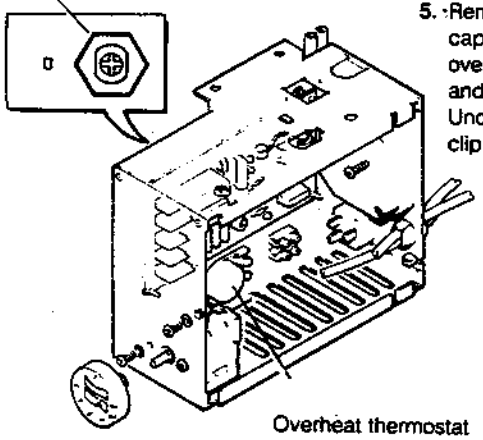
5. Remove the control box cover (1 screw).
6. Pull off the thermostat knob.
7. Pull off thermostat electrical connections at the plug marked '12' & '13' on the printed circuit board.
8. Remove the plastic clip retaining the thermostat capillary at the rear of the control box.
9. Remove the two screws retaining the thermostat to the control box and remove the thermostat and leads.


CONTROL BOX

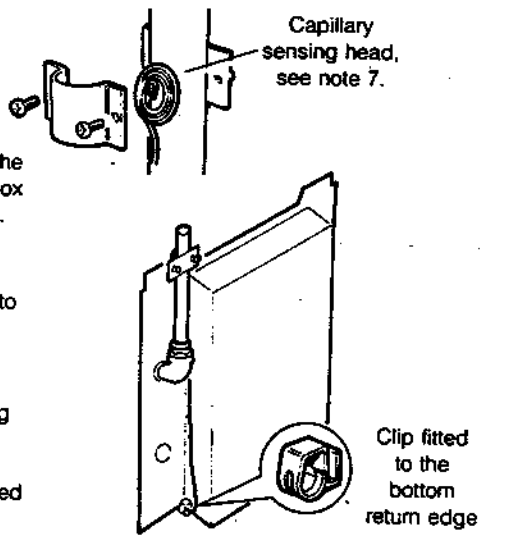
10. Transfer the electrical leads to the new thermostat. Fit new thermostat and re-assemble in reverse order, ensuring phial is correctly replaced in the pocket and capillary is routed as shown.
11. Replace the boiler casing, refer to Frame 7.
12. Check the operation of the new thermostat, refer to Frame 54

12 OVERHEAT THERMOSTAT REPLACEMENT (45 NF P ONLY)

1. Refer to Frame 9.
2. Remove the control box cover by undoing the single retaining screw.
3. Slacken the two screws retaining the capillary sensing head saddle bracket and pull the sensing head from the flow pipe.
4. Remove locknut retaining overheat thermostat to control box.


Overheat thermostat

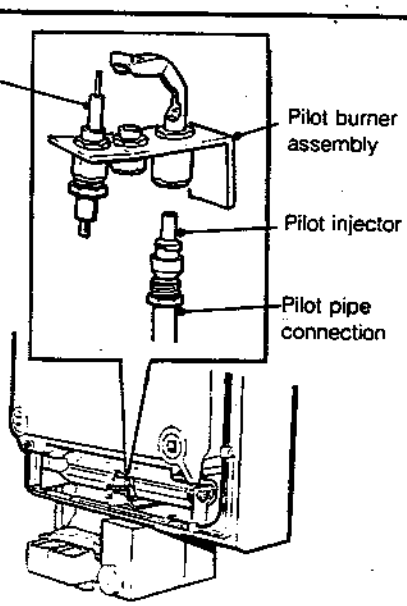
5. Remove the plastic clip retaining the capillary to the control box. Remove the overheat thermostat from the control box and pull off the electrical connections. Unclip the capillary from its retaining clip.
6. Fit both electrical connections to the new thermostat (polarity immaterial).
7. Re-assemble in reverse order ensuring the thermostat sensing head is correctly positioned under the saddle bracket. The capillary must be correctly routed and clipped. Re-tighten saddle bracket fixing screws.



OVERHEAT THERMOSTAT CAPILLARY ROUTE

13 PILOT BURNER REPLACEMENT

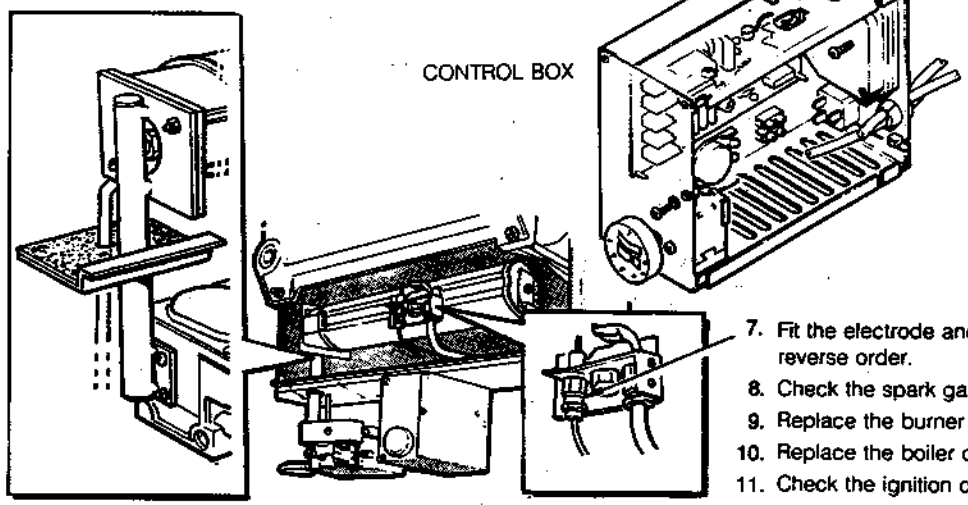
1. Refer to Frame 9.
2. Undo the pilot pipe connection and ease clear of the pilot burner.
   NOTE: Withdrawal of the pilot gas pipe from the pilot will automatically bring with it the pilot burner injector and care must be taken not to damage the injector in any way.
3. Undo the electrode locking nut, taking care not to damage the ceramic or twist the integral lead. Withdraw electrode.
4. Remove the two screws retaining the pilot burner to the main burner bracket.
5. Replace the pilot burner and re-assemble in reverse order. Ensuring the pilot burner injector is located on the specially shaped olive at the end of the pilot gas pipe (see illustration).
6. Check the pilot burner relationship and spark gap refer Frame 4.
7. Check for gas soundness of the pilot supply.
8. Check the pilot operation and the pilot flame envelopes the ignition detection electrode (refer Frame 4 - Servicing).
9. Replace the boiler casing - refer to Frame 7.



PILOT BURNER

14 SPARK ELECTRODE & LEAD ASSEMBLY REPLACEMENT

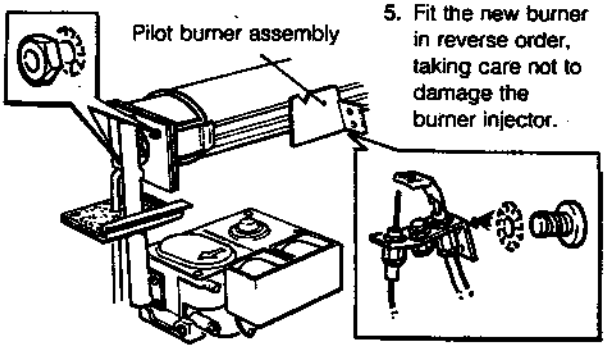
1. Refer to Frame 9.
2. Remove the control box cover (1 screw).
3. Remove the burner assembly, refer to Frame 3.



4. Pull the H.T. lead connection off the printed circuit board.
5. Feed the lead through the sealing plate gasket. Inspect gasket and replace if necessary.
6. Undo the electrode locking nut and withdraw the electrode complete with its integral lead.
7. Fit the electrode and lead and re-assemble in reverse order.
8. Check the spark gap is correct, refer to Frame 4.
9. Replace the burner assembly.
10. Replace the boiler casing, refer to Frame 7.
11. Check the ignition operation.

15 MAIN BURNER REPLACEMENT

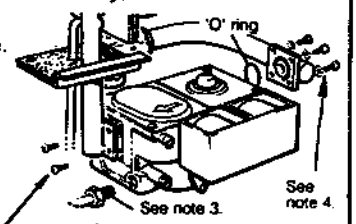
1. Refer to Frame 9.
2. Remove the burner assembly, refer to Frame 3.
3. Remove the two screws retaining pilot burner assembly.
4. Remove the two nuts and washers securing the burner to the gas manifold.



5. Fit the new burner in reverse order, taking care not to damage the burner injector.
6. Refit the pilot burner assembly.
7. Refit the burner assembly.
8. Refit the boiler casing.
9. Check the burner operation.

16 GAS VALVE REPLACEMENT

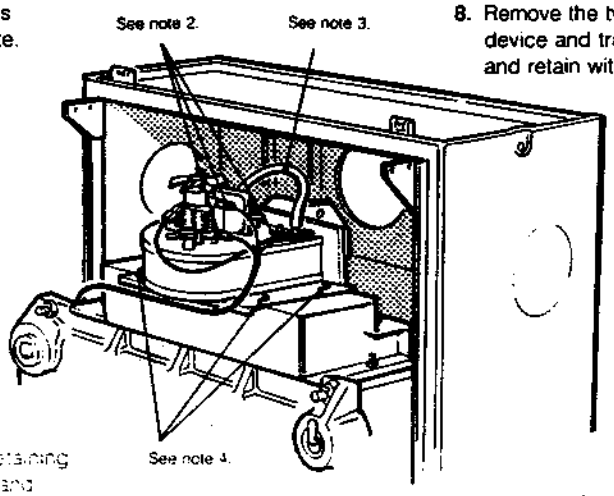
1. Refer to Frame 9.
2. Remove the burner & controls assembly, refer to Frame 3.
3. Undo pilot supply connection at gas valve.
4. Undo the four securing screws & washers. Transfer the inlet flange and gas service cock union to the new valve.



5. Undo the four securing screws and washers. Remove the burner manifold assembly and transfer to the new valve.
6. Fit the new gas valve, ensuring that the sealing 'O' rings, supplied are correctly fitted at the inlet and outlet flanges.
7. Re-assemble in reverse order.
8. Replace the burner/controls assembly.
9. Replace the boiler casing.
10. Check for gas soundness. Pay particular attention to flanges.
11. Check the gas valve operation and burner pressure (Refer to Frame 54 - Commissioning).

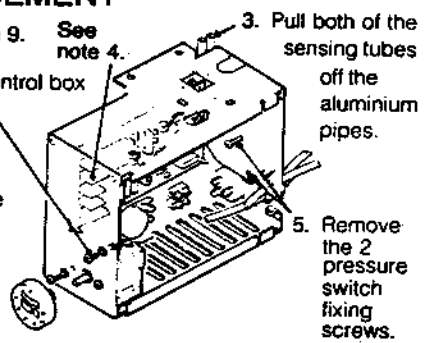
17 FAN UNIT REPLACEMENT

1. Refer to Frame 9.
2. Disconnect the fan leads and unclip from fan plate.
3. Pull off silicon rubber pressure tube on top of fan housing.
4. Remove the four screws retaining fan plate to collector hood.
5. Pull the fan assembly to disengage the flue and remove the fan assembly.
6. Remove the [illegible] retaining the fan plate to the fan and [illegible] to the new



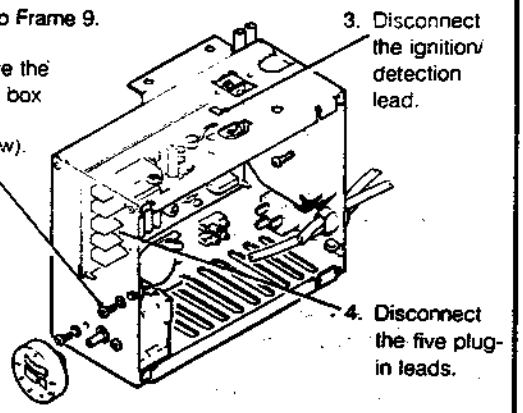
7. Remove the two screws and nuts retaining the aluminium elbow to the fan and transfer elbow to the new fan.
8. Remove the two screws retaining the pressure sensing device and transfer the sensing device to the new fan and retain with the 2 screws previously removed.
9. Refit the new fan unit and re-connect all electrical leads.
10. Refit the boiler casing.
11. Check the boiler operation.

18 PRESSURE SWITCH REPLACEMENT



6. Remove pressure switch and transfer both rubber pipes & electrical connections to the new pressure switch (refer to Frame 44 installation).
7. Refit new pressure switch & re-assemble in reverse order. Ensure the two rubber pipes are re-connected to the correct aluminium pipe (positive-positive, negative-negative).
8. Refit the boiler casing.
9. Check the boiler operation.

19 AUTOMATIC IGNITION PRINTED CIRCUIT BOARD REPLACEMENT



5. Disengage the PCB by compressing the 4 mounting pegs at the outside of the box with long nosed pliers.
6. Fit the new PCB and re-assemble in reverse order.
7. Refit the boiler casing.
8. Check the ignition operation.

20 HEAT EXCHANGER REPLACEMENT

Note: Refer to Frame 22 of 'Exploded Views', on the next page for the illustration of any parts itemised below.

1. Refer to Frame 9.
2. Remove the burner/controls assembly, refer to Frame 3.
3. Drain the system.
4. In order to remove the boiler from the wall it is necessary to disconnect all water connections at the rear of the heat exchanger. If this cannot be achieved because of limited side clearances, the pipes must be cut and then remade on re-assembly.

Note: If a sealed system kit is fitted then the flow pipe must be cut above overheat thermostat fixing bracket and a fill-in piece must be replaced upon re-assembly. The flow-pipe fitted with the overheat thermostat MUST NOT be discarded.

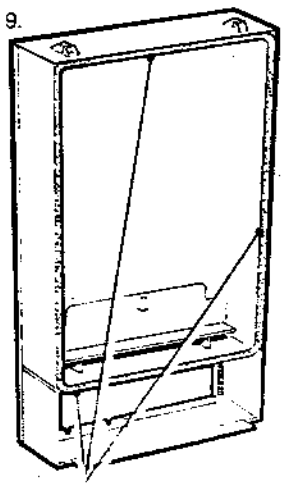
5. Remove the fan assembly (32) (refer to Frame 5).
6. Remove the collector hood assembly (3) (refer to Frame 6).
7. Release and remove the flue locking ring and rubber seal.
8. Remove the screw retaining the bottom jacking plate (item 101) to the wall.
9. Remove the two wing nuts and plates (item 100) retaining the boiler to the mounting plate (item 41).
10. Lift the boiler and pull forward to clear the wall mounting plate.

WARNING: The boiler is heavy.

11. Place the boiler on it's front and remove all water connections from the rear heat exchanger (item 1) tappings, including the distributor tube (item 5).
12. Remove the four M8 nuts retaining the heat exchanger to the back panel (item 44) and remove the panel.
13. Fit the back panel to the new heat exchanger.
14. Remove the thermostat pocket (item 6) from the old heat exchanger and fit it to the new heat exchanger. Plug any unwanted tappings with the recessed plugs provided. Use a suitable sealing compound for all connections.
15. Replace the distributor tube & all required water connections.
16. Replace the boiler on the wall and refit the flue baffle (item 2) correctly in the heat exchanger.
17. Refit the bottom jacking plate wall fixing screw.
18. Refit the collector hood assembly (replace gasket if necessary).
19. Remake the fan connection, ie aluminium elbow (item 46), extension tube (for boilers fitted with a side outlet flue only), rubber seal and the locking ring.
20. Refit the negative & positive pressure tubes.
21. Refit the burner assembly.
22. Refit the boiler casing, refer to Frame 7.
23. Remake all water connections. Refill the system and check for leaks.
24. Re-light the boiler and check the operating sequence.

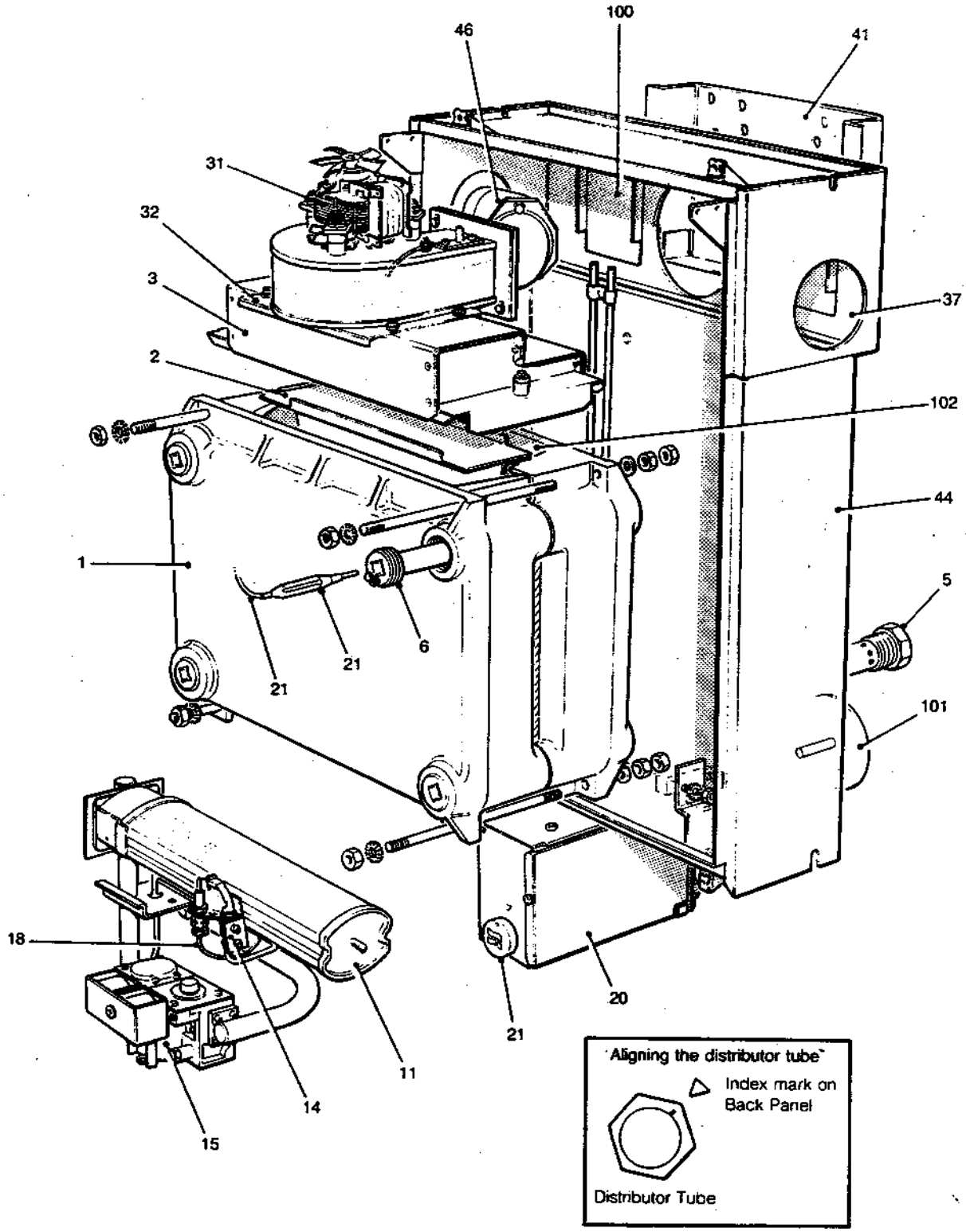
21 CASING SEAL REPLACEMENT

1. Refer to Frame 9.



2. Remove the old seal from the channel in the casing surround and replace with a new seal.

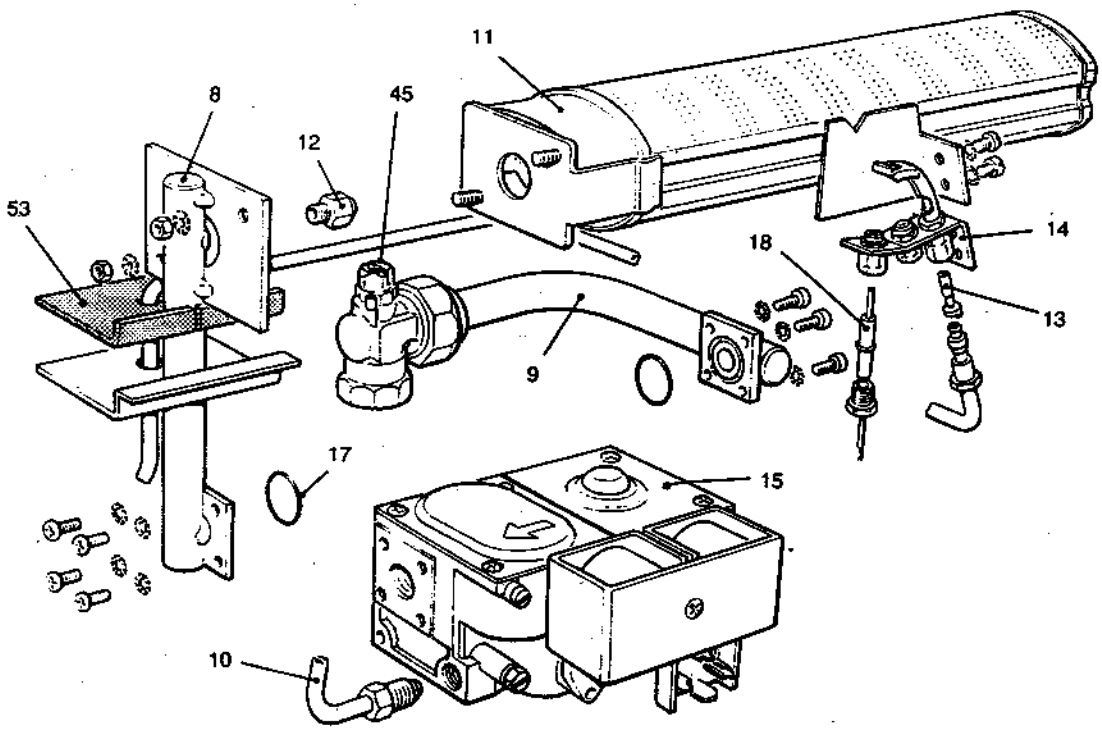
22 BOILER ASSEMBLY - Exploded view



LEGEND (Numbers up to 53 relate to the Spares List)

1. Heat exchanger assembly
2. Flueway baffle
3. Collector hood assembly
5. Distributor tube (left or right, one side only)
6. Boiler thermostat pocket (left or right)
11. Main burner
14. Pilot burner assembly
15. Gas control valve
18. Ignition/detection lead
20. Control box
21. Boiler thermostat phial
21. Thermostat capillary
21. Boiler thermostat
31. Fan
32. Fan plate
37. Side flue aperture (option of rear, left or right hand flue outlet
41. Wall mounting plate
44. Back panel
46. Flue outlet elbow
101. Jacking plate
102. Heat exchanger flue

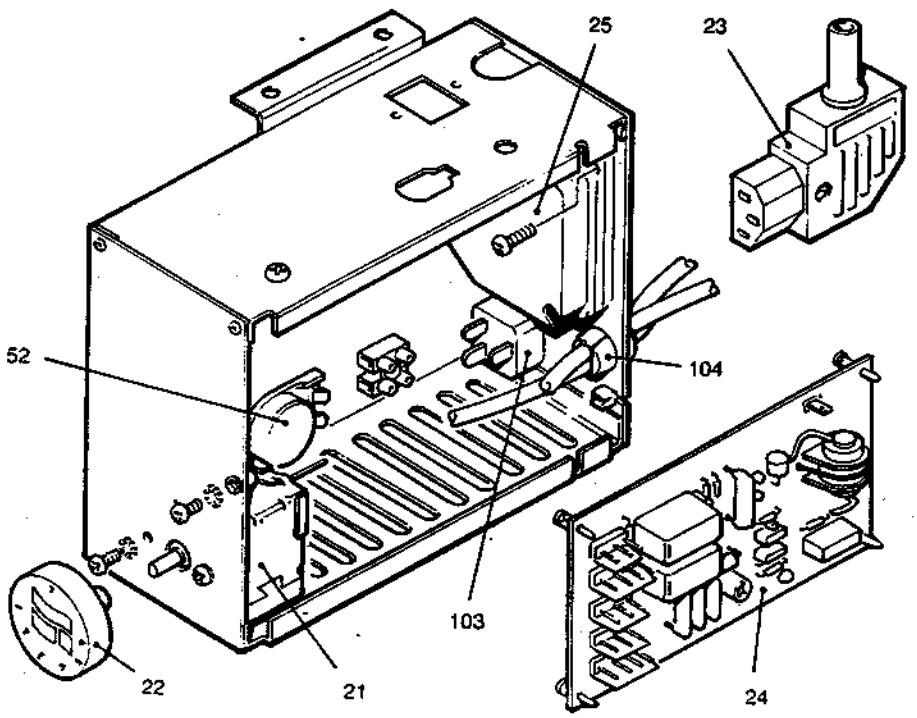
23 BURNER ASSEMBLY - Exploded view



LEGEND **(Numbers up to 53 relate to the Spares List)**

8. Burner manifold
9. Gas inlet manifold
10. Pilot supply
11. Main burner
12. Main burner injector
13. Pilot injector
14. Pilot burner
15. Gas control valve
17. 'O' ring seal, 2 off (supplied with gas control valve)
18. Ignition/detection electrode
45. Gas service cock
53. Manifold sealing gasket

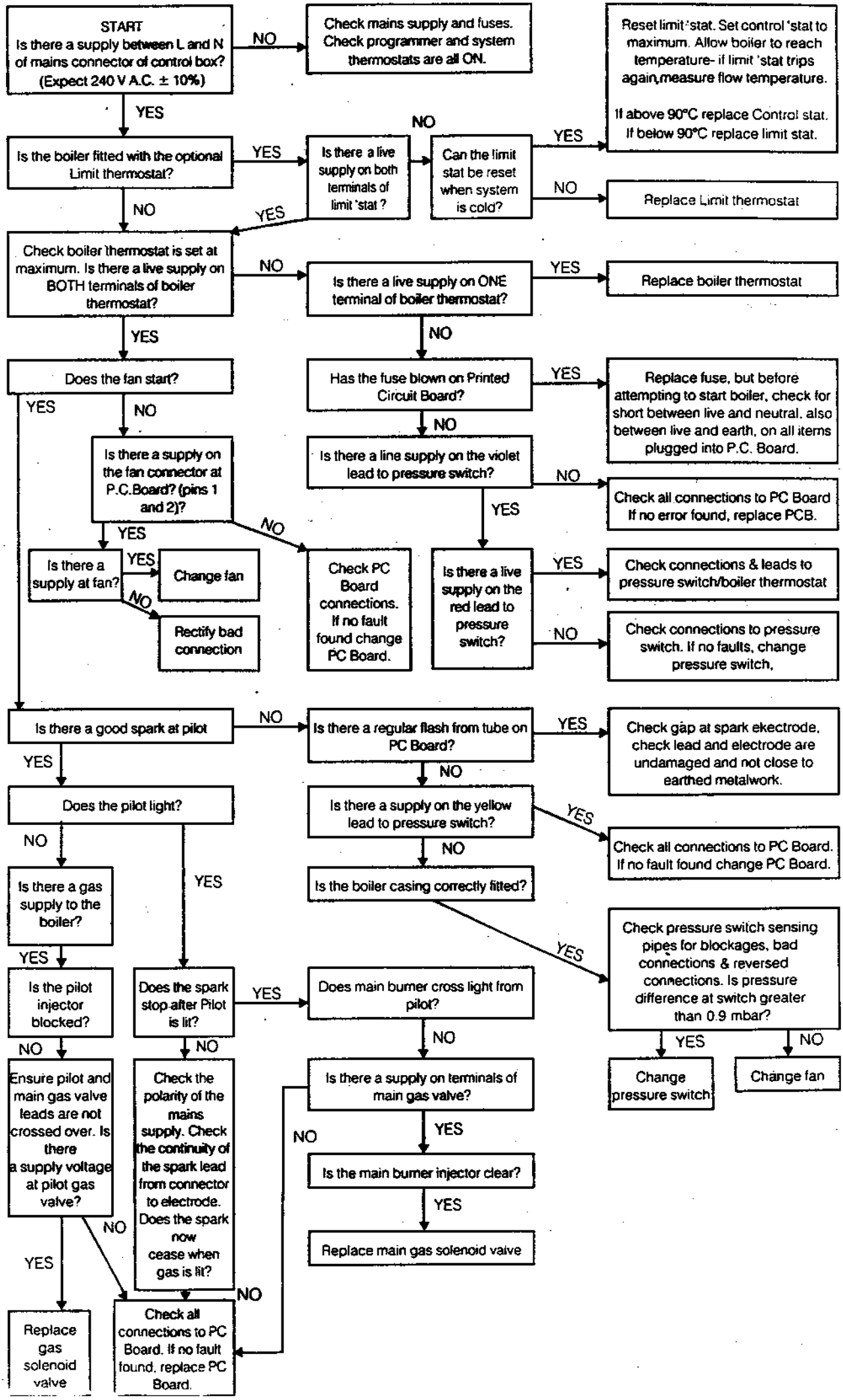
24 CONTROL BOX ASSEMBLY - Exploded view



LEGEND **(Numbers up to 53 relate to the Spares List)**

21. Boiler thermostat
22. Boiler thermostat knob
23. Mains input

Page 9


START
Is there a supply between L and N of mains connector of control box? (Expect 240 V A.C. ± 10%)
NO
Check mains supply and fuses. Check programmer and system thermostats are all ON.
YES
Is the boiler fitted with the optional Limit thermostat?
YES
Is there a live supply on both terminals of limit 'stat ?
NO
Can the limit stat be reset when system is cold?
YES
Reset limit 'stat. Set control 'stat to maximum. Allow boiler to reach temperature- if limit 'stat trips again,measure flow temperature.
If above 90°C replace Control stat.
If below 90°C replace limit stat.
NO
Replace Limit thermostat
NO
YES
Check boiler thermostat is set at maximum. Is there a live supply on BOTH terminals of boiler thermostat?
NO
Is there a live supply on ONE terminal of boiler thermostat?
YES
Replace boiler thermostat
YES
NO
Does the fan start?
YES
NO
Has the fuse blown on Printed Circuit Board?
YES
Replace fuse, but before attempting to start boiler, check for short between live and neutral, also between live and earth, on all items plugged into P.C. Board.
NO
Is there a supply on the fan connector at P.C.Board? (pins 1 and 2)?
NO
Is there a line supply on the violet lead to pressure switch?
NO
Check all connections to PC Board If no error found, replace PCB.
YES
YES
Is there a supply at fan?
YES
Change fan
NO
Rectify bad connection
NO
Check PC Board connections. If no fault found change PC Board.
YES
Is there a live supply on the red lead to pressure switch?
YES
Check connections & leads to pressure switch/boiler thermostat
NO
Check connections to pressure switch. If no faults, change pressure switch,
Is there a good spark at pilot
NO
Is there a regular flash from tube on PC Board?
YES
Check gap at spark ekectrode, check lead and electrode are undamaged and not close to earthed metalwork.
YES
NO
Does the pilot light?
Is there a supply on the yellow lead to pressure switch?
YES
Check all connections to PC Board. If no fault found change PC Board.
NO
NO
YES
Is there a gas supply to the boiler?
Is the boiler casing correctly fitted?
YES
Check pressure switch sensing pipes for blockages, bad connections & reversed connections. Is pressure difference at switch greater than 0.9 mbar?
YES
NO
Change pressure switch
Change fan
YES
Is the pilot injector blocked?
Does the spark stop after Pilot is lit?
YES
Does main burner cross light from pilot?
NO
NO
NO
Ensure pilot and main gas valve leads are not crossed over. Is there a supply voltage at pilot gas valve?
Check the polarity of the mains supply. Check the continuity of the spark lead from connector to electrode. Does the spark now cease when gas is lit?
Is there a supply on terminals of main gas valve?
NO
YES
Is the main burner injector clear?
YES
Replace main gas solenoid valve
NO
YES
NO
NO
Replace gas solenoid valve
Check all connections to PC Board. If no fault found, replace PC Board.

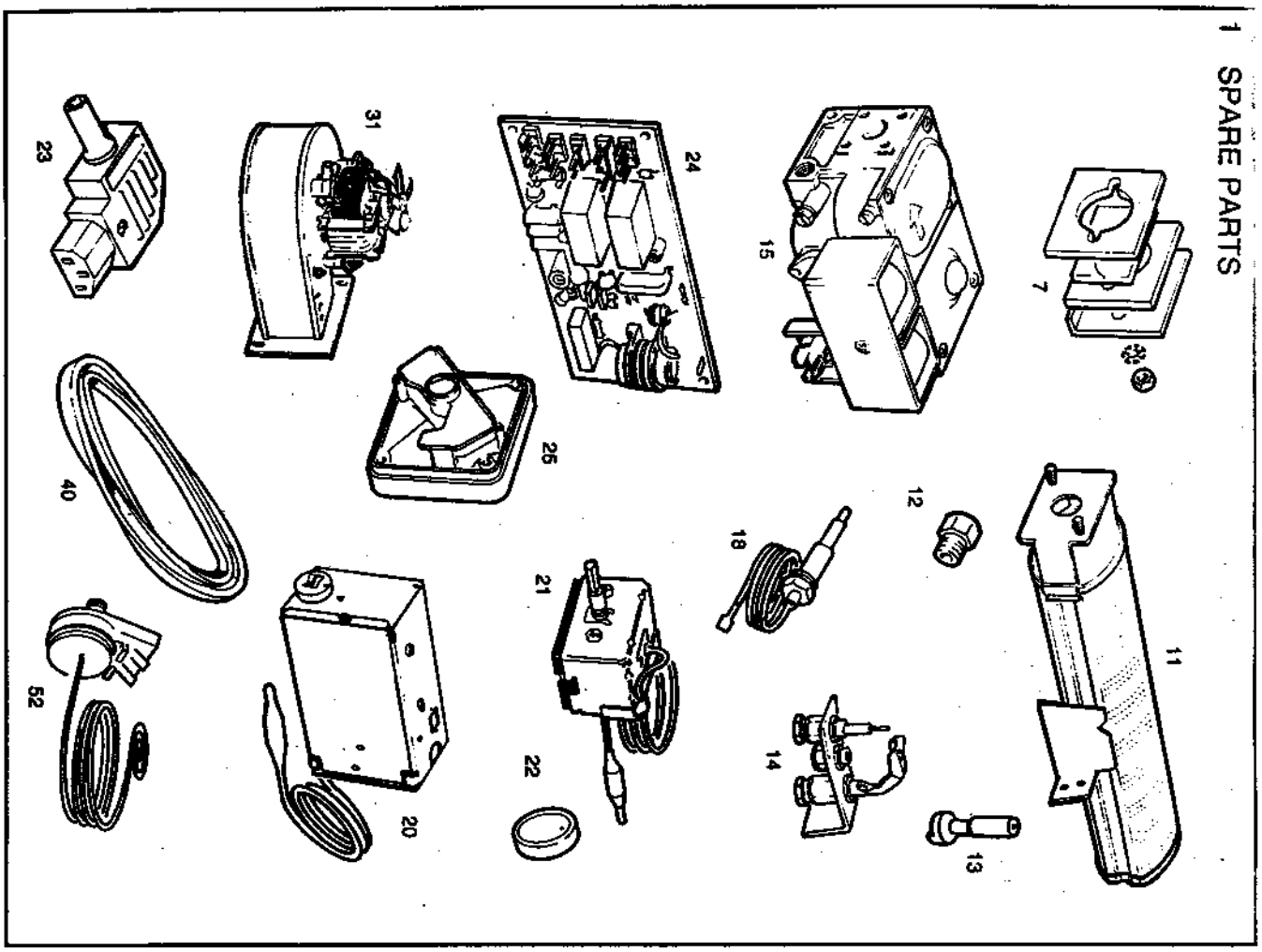
SHORT LIST OF PARTS
Ideal W2000 45NFP & 60NFP GAS BOILERS

When ordering spares, please quote:
1. Boiler Model
2. Description
3. Makers Part Number
4. Quantity

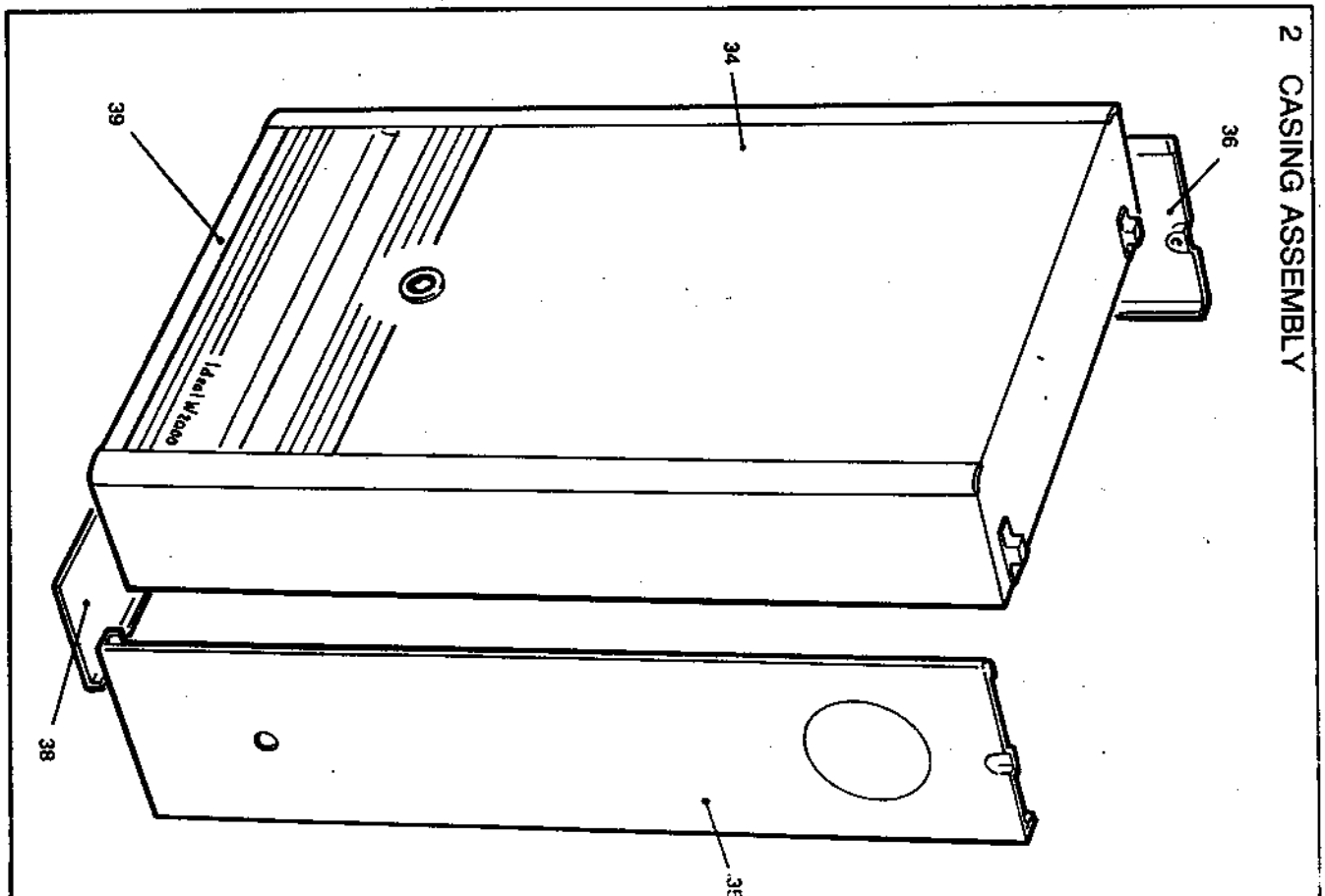
The following list comprises parts commonly required as replacement components due to damage, expendability, or such that their failure, or absence, is likely to affect the safety or performance.
The list is extract from the British Gas List of Parts, which contains all available spare parts.
Details of the British Gas Lists are held by Gas Regions, STELRAD Distributors and by Merchants.

KEY No	G.C. PART No	DESCRIPTION	No OFF	MAKERS PART No
7	319 493	Sightglass assembly comprising sight glass and frame, two gaskets, two M4 nuts and shakeproof washers.	1	160049333
11		Main burner - AEROMATIC AC19/123257 - 45NFP & 60NFP	1	199544084
12		Main burner injector BRAY Cat 10 Size 520-45NFP BRAY Cat 10 Size 700-60NFP	 1 1	
13	386 673	Pilot burner injector - S.I.T. NG 0977 092 (Stamped 19)	1	589930083
14	308 035	Pilot Burner - SIT HPB 0 140 020	1	589930084
15	386 674	½in B.S.P. SIT 830 Tandem Gas Control Valve 0830 020 240V WITH 2 'O' Rings	1	586931900
18		Spark electrode with integral HT Lead 800mm long 0007227	1	589510090
20	308 113	Control box assembly	1	199510067
21	383 694	Control thermostat, RANCO CL6 - PO 149	1	589410051
22	341 359	Control thermostat knob	1	586011517
23	308 133	Mains plug	1	589510015
24	319 035	Automatic ignition printed circuit board - PACTROL 7A	1	589250068
25	386 652	Pressure switch - DUNGS LGW 3A1 0.6mb on fall	1	589935011
31	 386 686	Fan assembly complete SIFAN No. FFB0224-004 or SEL RL108/0034 - 3030 L.H.	1	 589935012 589935011
34	319 191	Boiler casing	1	199514030
39	308 125	Casing removable door with lighting instructions label.	1	199510099
40	319 196	Casing sealing pack	1	199510095
52	308 139	Overheat thermostat (sealed system on 45NFP & 60NFP)	1	160004705

1 SPARE PARTS



2 CASING ASSEMBLY



STELRAD GROUP pursues a policy of continuing improvement in design and performance of its products. The right is therefore, reserved to vary specification without notice.

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A SUBSIDIARY OF METAL BOX p.l.c.

H.0699/89

Printed in England.

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