

IDEAL W 2000

February, 1990

30 NF, 40 NF, 50 NF & 60 NF

**Wall Mounted, Fanned, Balanced
Flue Gas Boilers.** *PHOTOCOPY ONLY*

Installation and Servicing.

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

Note. The appliances covered by this book are fitted with S.I.T. gas control valves

Ideal W 2000

30 NF

40 NF

50 NF

60 NF

G. C Appliance No.

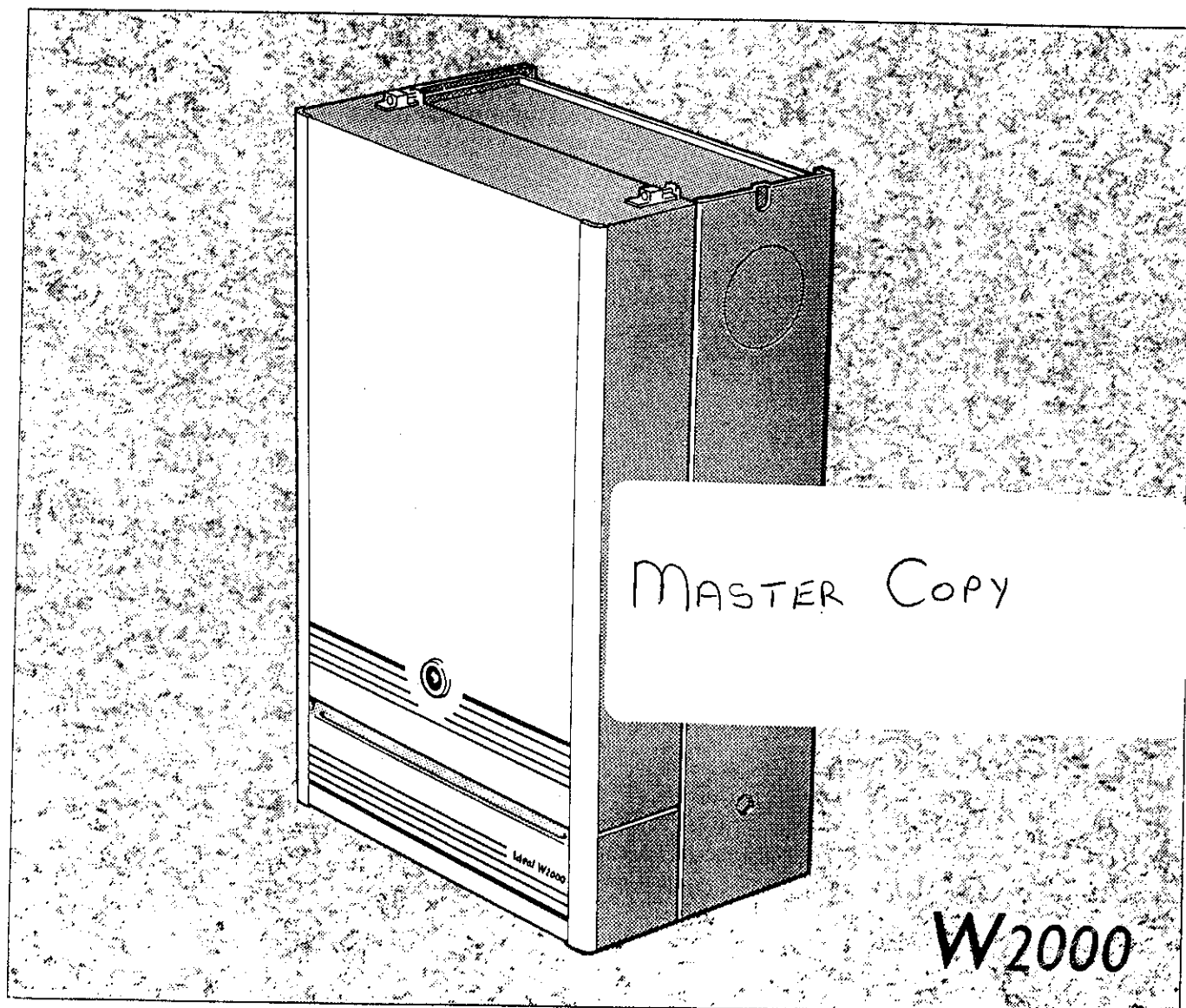
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IMPORTANT: The appliances are for use with **NATURAL GAS ONLY.**



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

Stelrad Ideal

INTRODUCTION

The Ideal W2000 30NF, 40NF, 50NF, and 60NF, are fully automatically controlled, wall mounted balanced flue, fanned gas boilers. They are ranged rated to provide central heating outputs of 5.9 kW (20 000 Btu/h) to 8.8 kW (30 000 Btu/h), 8.8 kW (30 000 Btu/h) to 11.7 kW (40 000 Btu/h), 11.7 kW (40 000 Btu/h) to 14.6 kW (50 000 Btu/h) and 14.6 kW (50 000) to 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 30NF, 40NF & 50NF boilers 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 Authority.

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

BS.6891	Low pressure installation pipes
BS.6798	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: These appliances are certified by the British Standards Institution for safety and performance. It is, therefore, important that no external control devices - e.g. flue dampers, economisers etc - are directly connected to these appliances - unless covered by these 'Installation 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 B.S.I. Certification, and 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 Local Gas Region of British Gas.

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 Gas Region should be consulted, at the planning stage, in order to establish the availability of an adequate supply of gas. An existing service pipe must not be used without prior consultation with the Local Gas Region.

A gas meter can only be connected by the Local Gas Region, or by a Local Region Contractor.

An existing meter should be checked, preferably by the Gas Region to ensure the meter is adequate to deal with the rate of gas supply required.

Installation pipes MUST be fitted in accordance with BS.6891. Pipework from the meter to the boiler MUST be of an adequate size. Do NOT use pipes of a smaller size than the boiler inlet gas connection.

The complete installation MUST be tested for gas soundness and purged as described in the above Code.

GENERAL GUIDANCE

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 on 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 1/2in BSP nominal size and be in accordance with BS.2879.

WATER CIRCULATION - ELECTRICAL SUPPLY

The hydraulic resistances of the boilers, at MAXIMUM OUTPUT, with an 11°C (20°F) temperature differential, are shown in Table 8.

Table 8 - WATER FLOW RATE AND PRESSURE LOSS

Boiler Size	30NF	40NF	50NF	60NF
Boiler Output kW	8.8	11.7	14.6	17.6
Btu/h	30 000	40 000	50 000	60 000
Water Flow Rate l/min	11.4	15.2	19.0	22.8
gal/h	150	200	250	300
Pressure Loss mbar	15.0	27	39	51
in.wg	6.0	10.8	15.6	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

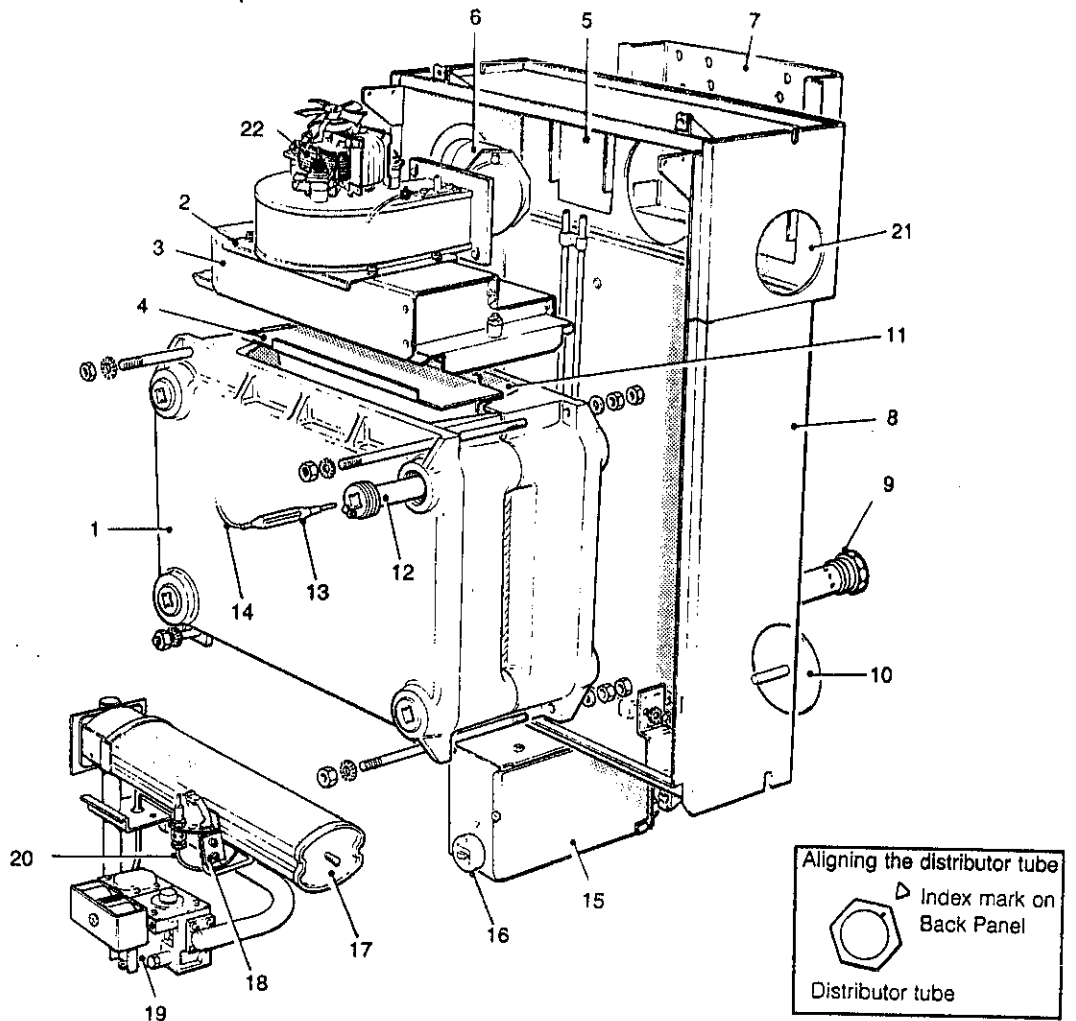
The method of connection to the mains electricity supply MUST facilitate complete electrical isolation of the boiler, preferably by the use of a fused, unswitched three pin plug and a shuttered socket-outlet, both complying with the requirements of BS.1363.

Alternatively, a fused double-pole switch, having at least a 3mm (1/8in) 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.

3 BOILER ASSEMBLY - Exploded view



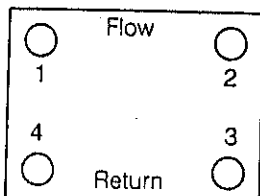
LEGEND

- | | |
|--|---|
| <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 be used on a sealed (30NF, 40NF & 50NF only) an optional extra kit is available and must be installed in accordance with the instructions supplied with the kit.

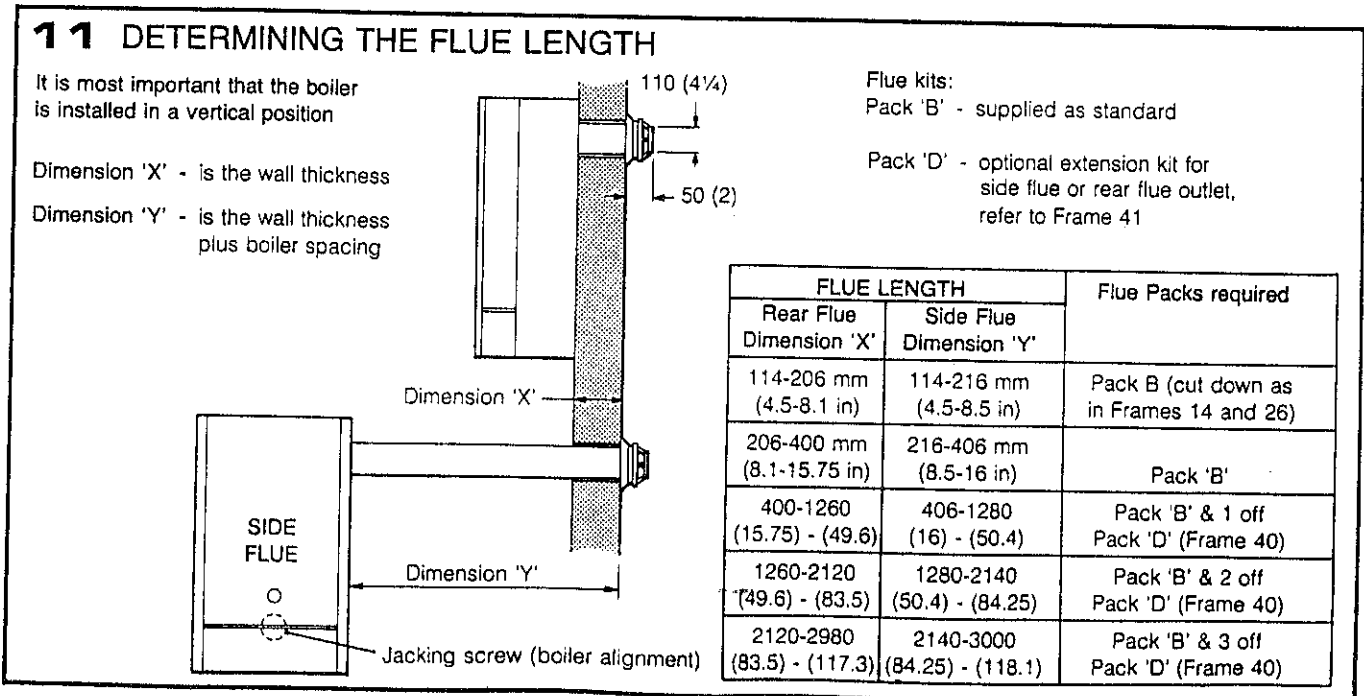
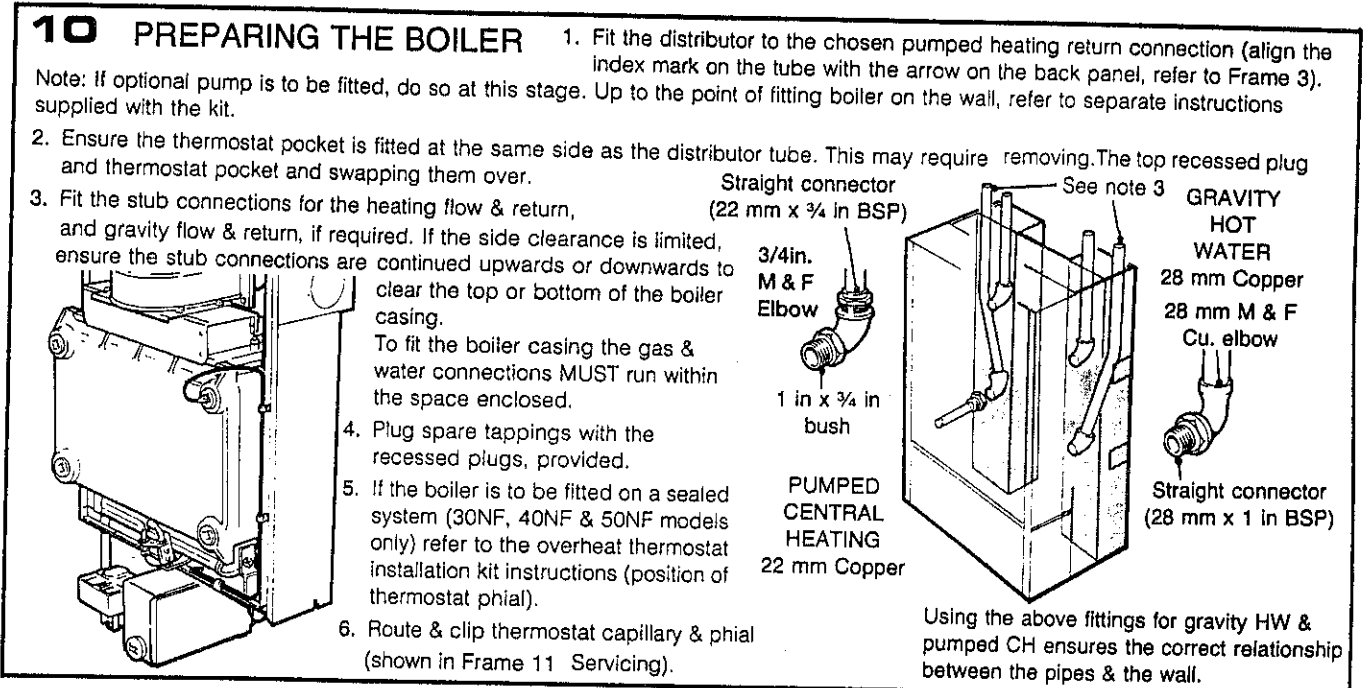
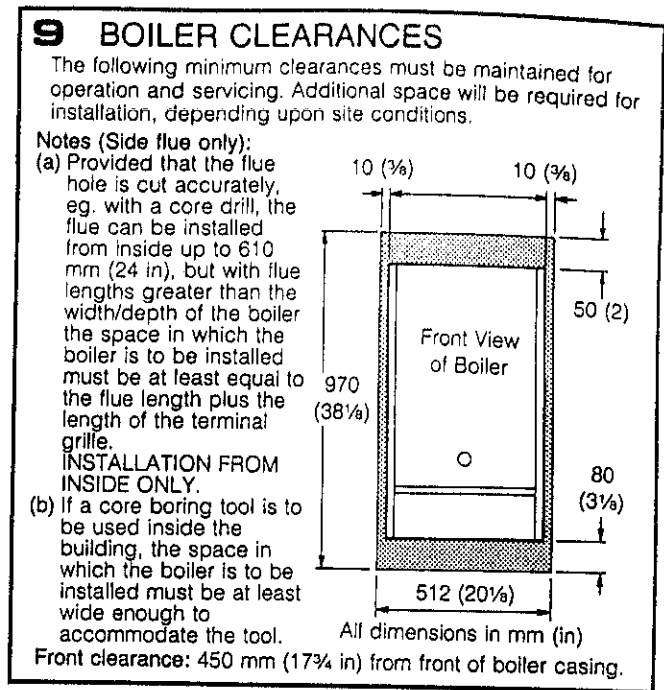
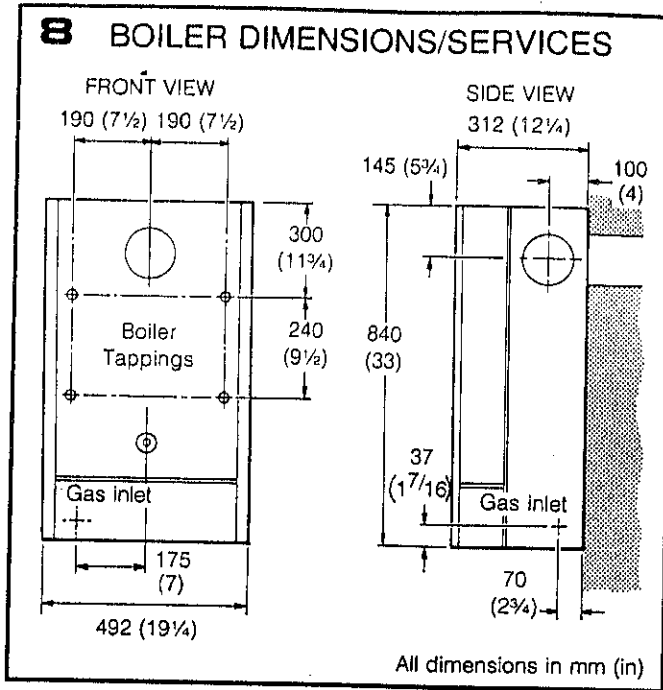
All water connections must be made to the REAR tappings. The distributor tube MUST be fitted to the HEATING return. Ensure that the index mark on the tube is aligned with the arrow on the boiler back panel, refer to Frame 3. The thermostat pocket MUST be fitted to the FRONT top tapping at the SAME SIDE 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 boiler flow & return tappings.

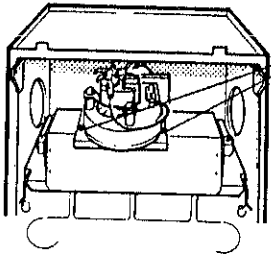
SYSTEM REQUIRED	TAPPINGS TO BE USED
Fully Pumped (Pump kit fitted)	Flow 1 Return 3 or 4
Fully Pumped (External Pump)	Flow 1 or 2 Return 3 or 4
Pumped CH (Pump Kit Fitted) & Gravity HW	Flow 1 Return 4 Flow 2: Return 3
Pumped CH (External Pump) & Gravity HW	Flow 1 or 2 Return 4 or 3 Flow 1: Return 4 Flow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

For Sealed System applications (fully pumped) - refer to the 'Sealed System Kit Instructions'



INSTALLATION: REAR FLUE BOILER MOUNTING - SEALING THE FLUE

22 MOUNTING THE BOILER

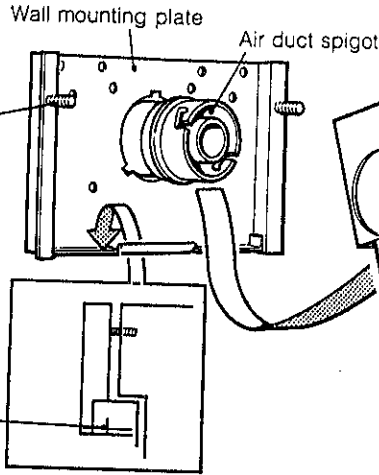


1. Remove the 4 screws retaining the fan assembly. Disconnect the three fan electrical connections and unclip from fan plate. Pull off the silicon rubber pipe connection on the top of the fan and remove fan.

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

VIEW INSIDE BOILER AIR BOX

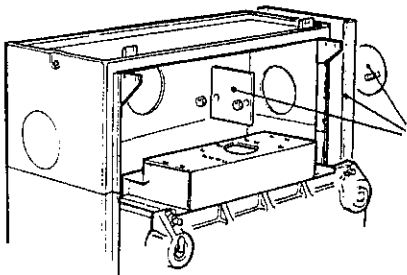
The boiler mounting studs fit into slots in the back panel & the air duct spigot enters the flue outlet hole in the back panel.



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.



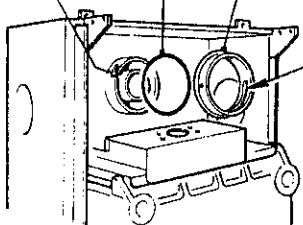
6. Make all water connections and check for water soundness. If a Pump Kit is fitted then refer to the instructions supplied.

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

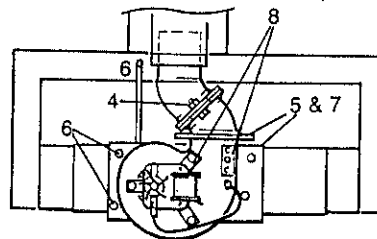
Locking slots



Locking handle

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.



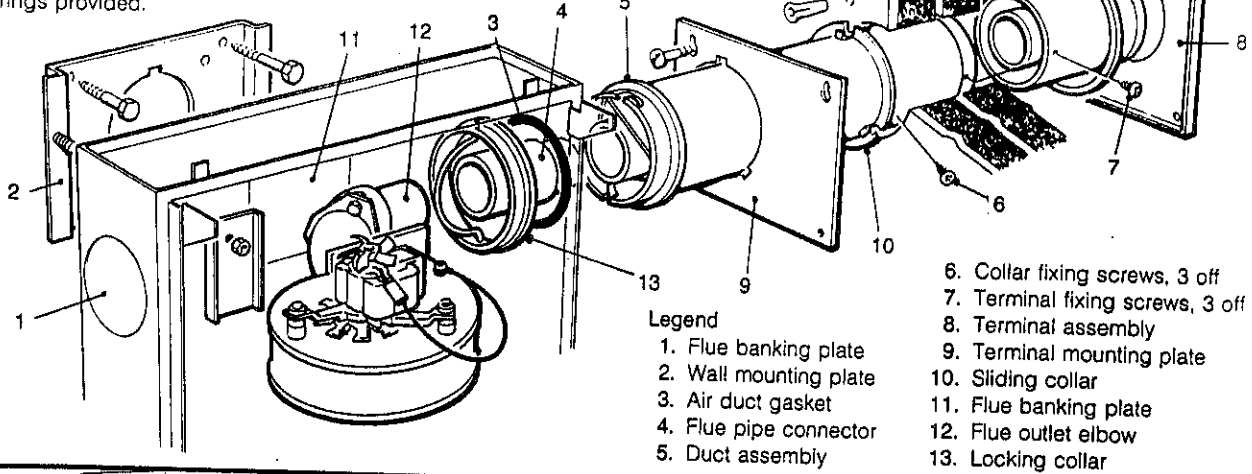
PROCEED TO FRAME 42

INSTALLATION: SIDE FLUE WALL PREPARATION - DUCT CUTTING

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.

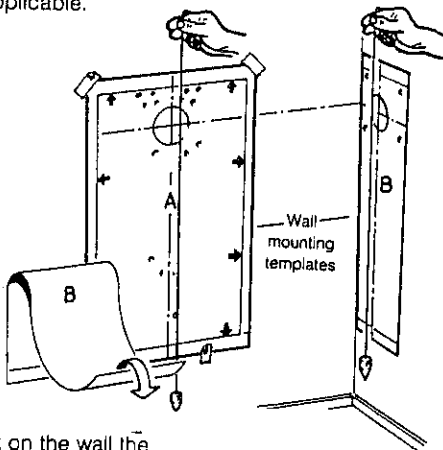


Legend

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

25 WALL MOUNTING TEMPLATE

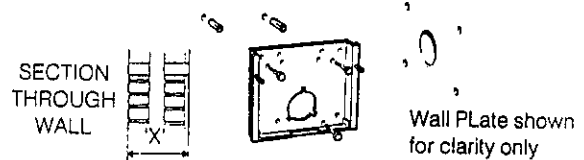
1. Separate the templates.
2. Tape both templates into the selected position, locating template 'B' via an extended centre line as shown.
3. Ensure squareness by hanging a plumbline as illustrated.
4. Mark onto the wall the 3 mounting plate screw positions (choose 1 from each group) & the lower fixing 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 hole 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 (3/8 in) bit. Drill the remaining 5 holes with an 8 mm (5/16 in) 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 (1/4 in) of wall surface.

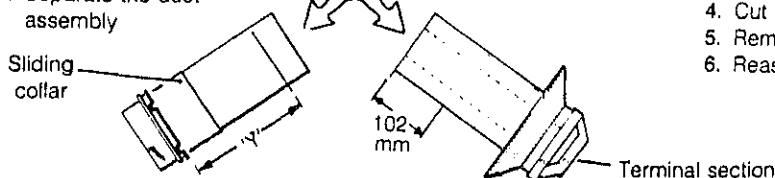
NOTE:

If the terminal is to be sited 25 - 40 mm from a corner or vertical pipe (Ref Table 3) The hole **MUST** be accurately cut and the rubber weather seal trimmed around the groove provided. The terminal wall plate need not be fitted.

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 (1/4 in) 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.

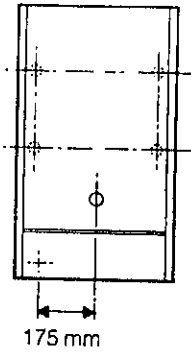
SIDE FLUE

42 . GAS CONNECTION

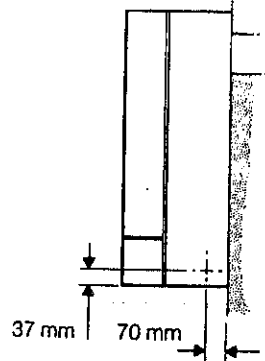
A MINIMUM gas pressure of 20 mbar (8 in w.g.) MUST be available at the boiler inlet.

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.

FRONT VIEW



SIDE VIEW



Also refer to the section headed Gas Supply on page 3

43 ELECTRICAL CONNECTIONS

WARNING: The appliance MUST be efficiently earthed.

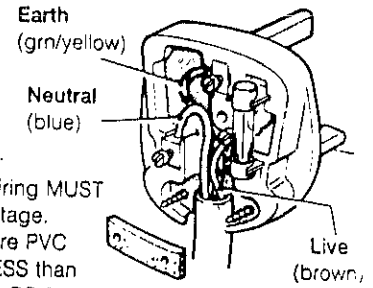
A mains supply of 240 V — 50 Hz Single Phase is required.

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.

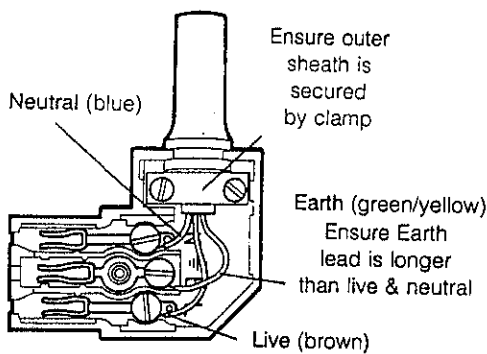
Alternatively a fused, double pole switch, having at least a 3 mm (1/8 in) contact separation in both poles and serving only the boiler may be used.



44 ELECTRICAL CONNECTIONS & FUNCTIONAL FLOW WIRING DIAGRAM

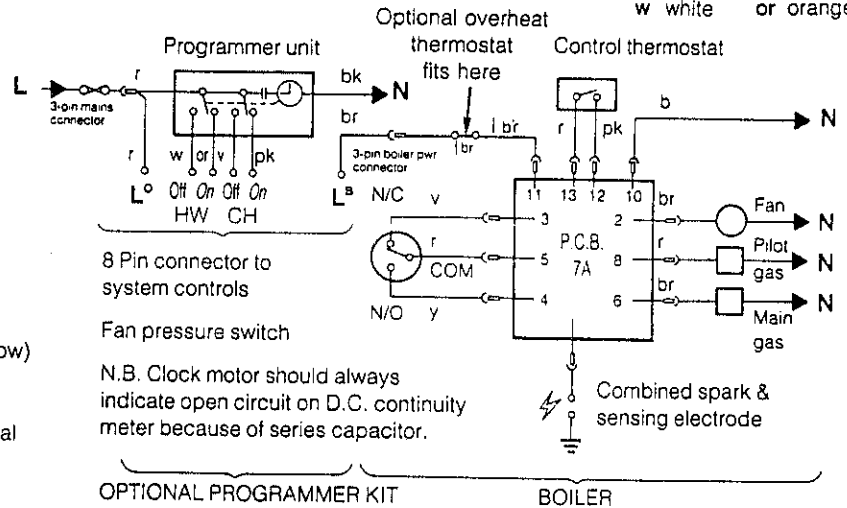
Note: If the optional programmer kit is to be fitted, refer to the instructions provided with the kit, ignore this section and go to frame 45. The internal wiring of the control box is shown opposite and also in frame 46.

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-riden - 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. If a proprietary system is used, follow the instructions supplied by the Manufacturers.

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 ⚡

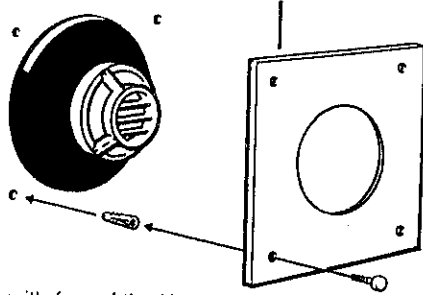
The connector may now be plugged into the control box.

Note: When the optional programmer kit is fitted, the incoming mains lead should be connected to the programmer mains plug. The boiler control box three-pin plug should be wired in accordance with the system diagrams shown in frames 46 - 50 and programmer installation instructions.

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 (5/8 in.) masonry drill.

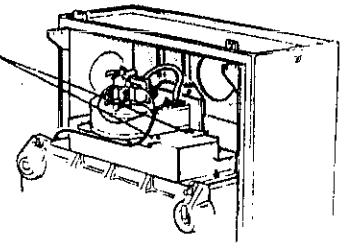


3. Insert the four plastic plugs provided.
4. Secure the plate with four of the No. 10 x 2 screws provided.

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.

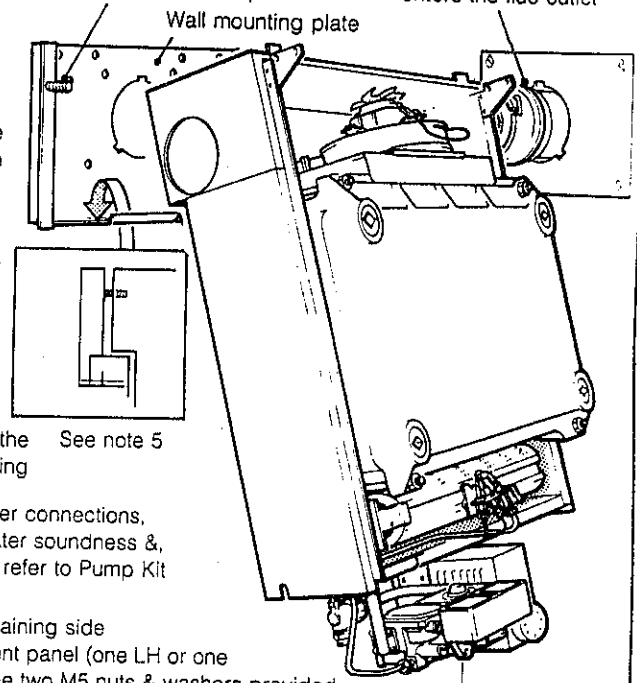


VIEW INSIDE BOILER AIR BOX

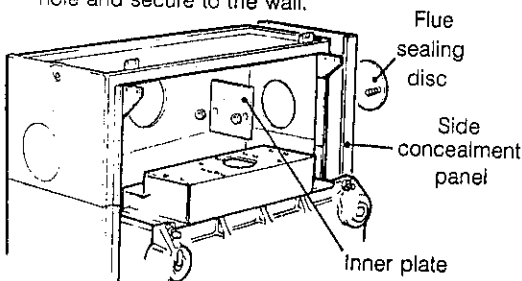
2. Remove the sealing disc & plate from each side panel.
3. Fit a pair of blanking plates & discs to the rear flue outlet hole.
4. Fit the side concealment panel to the flue side only and secure with two M5 nuts and washers. **Note:** Have ready, to hand, the sealing plates (previously removed) and wing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

The boiler mounting studs fit into slots in the back panel.

The air duct spigot enters the flue outlet



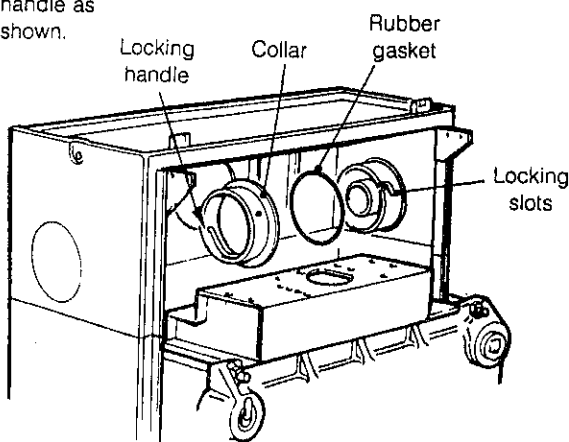
5. Lift the boiler onto the wall mounting plate as shown. Ensure that the support bracket on the back of the boiler rests on the bottom return of the wall bracket. **Note:** The return on the bottom of the wall mounting plate must engage in the slot in the underside of the support bracket. Slide the boiler side-ways into its 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 nut 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.

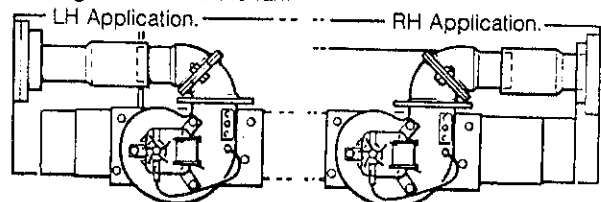
36 SEALING THE BOILER & FLUE

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 retighten 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 fitted. Refit positive pressure silicon rubber pipe to connection on top of fan

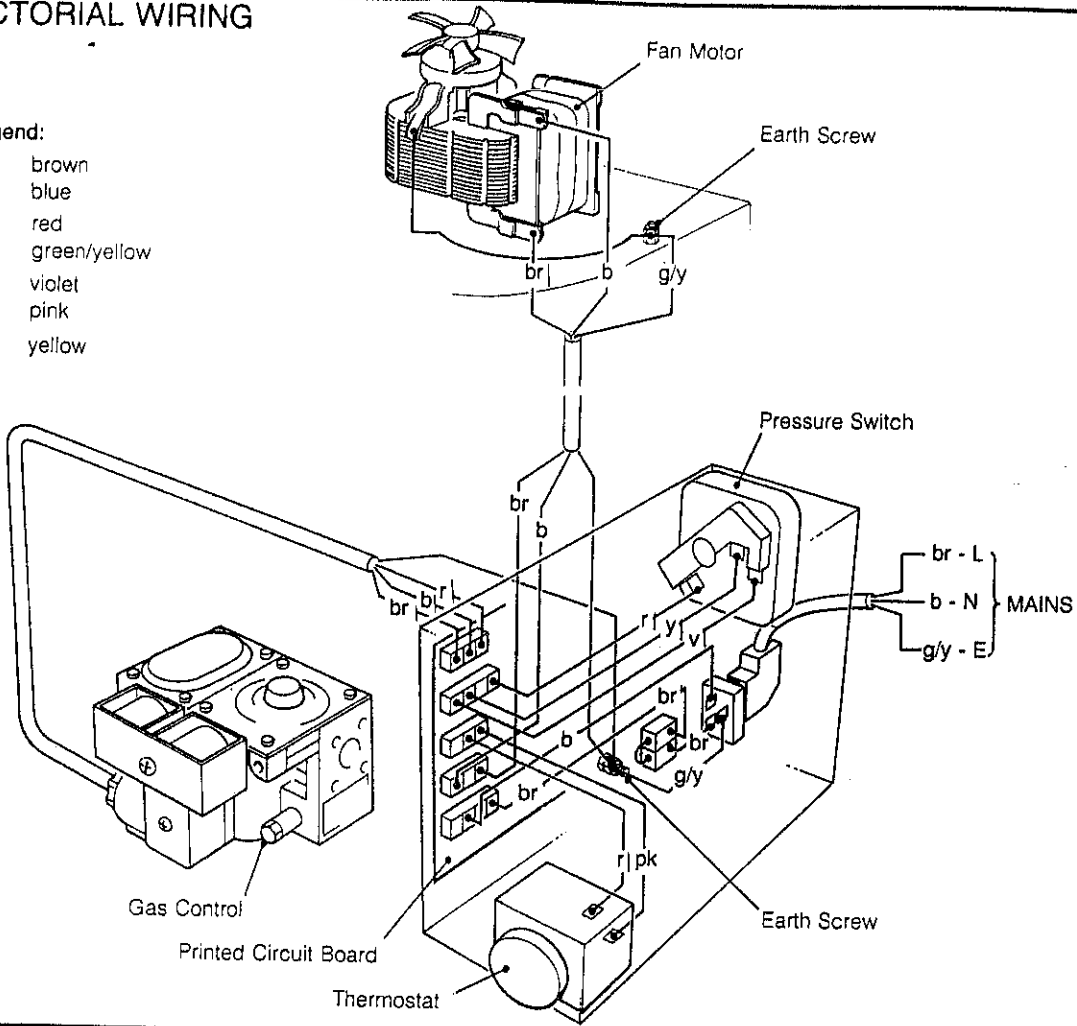
PROCEED TO FRAME 42

SIDE FLUE

46 PICTORIAL WIRING

Legend:

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



47 MID POSITION VALVE

('Y' Plan)

Pumped Only

TLX 2259
or 2284

RTE
RTM/RTC

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	-

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.308	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

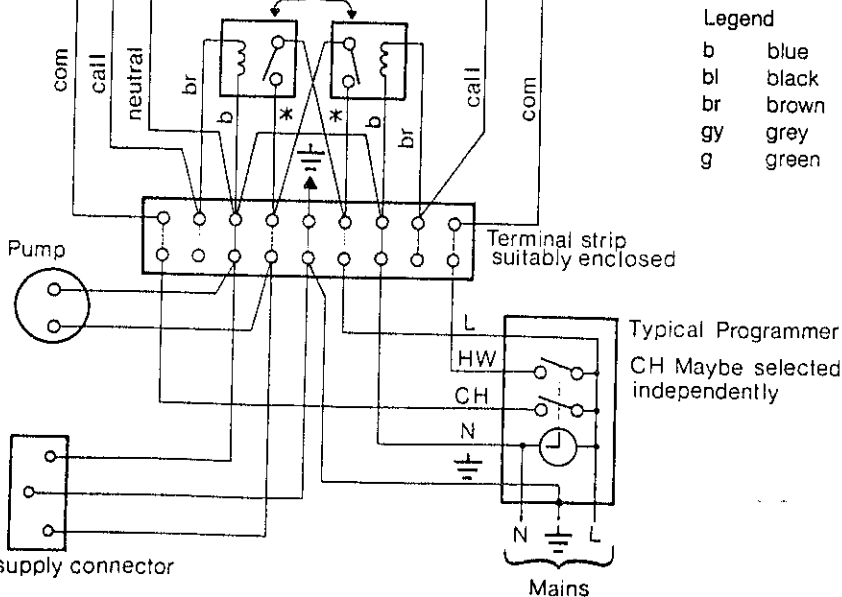
CYLINDER THERMOSTAT TERMINALS	
1	C
1	3
2	1
1	3
bk	r
2	1
1	C
n.c.	com.
2	1

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

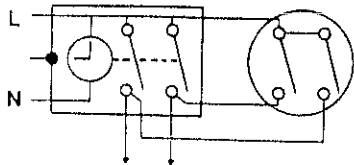


Boiler supply connector

Mains

50 FROST PROTECTION

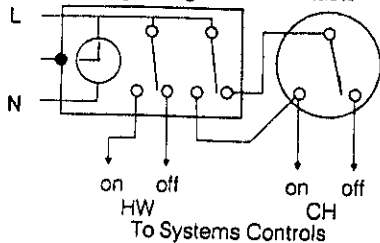
TYPICAL PROGRAMMER



To system controls

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

TYPICAL PROGRAMMER
using change - over contacts



To Systems Controls

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 neutral.
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.
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

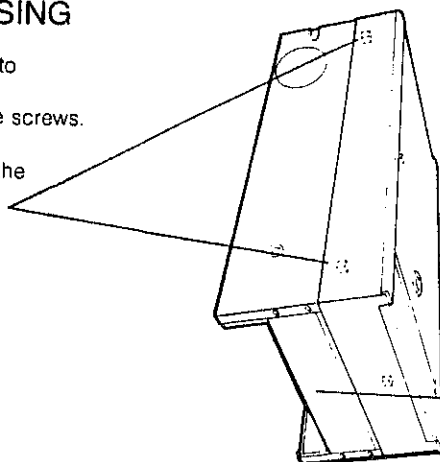
Continued in Frame 54

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 and bottom edges of the casing are correctly located.



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

1 SCHEDULE

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

- Light boiler & carry out pre-service check, noting any operational faults.
- Clean the main burner.
- Clean the heat exchanger.
- Clean the main and pilot injectors.
- Check that the flue terminal is unobstructed and that the flue system, including the inner cover, is sealed correctly.
- 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.

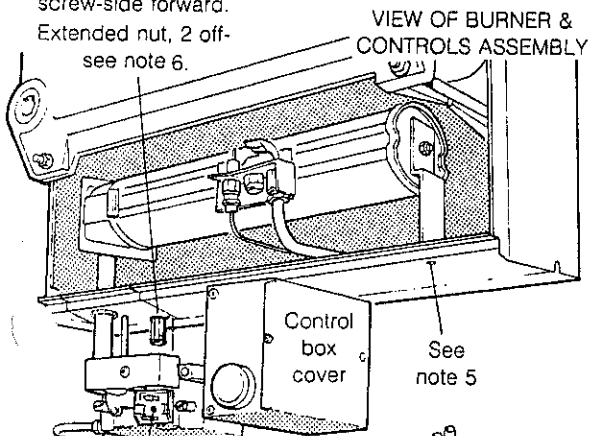
IMPORTANT: After completing and servicing or exchange of components always test for gas soundness and carry out functional checks as appropriate.

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

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

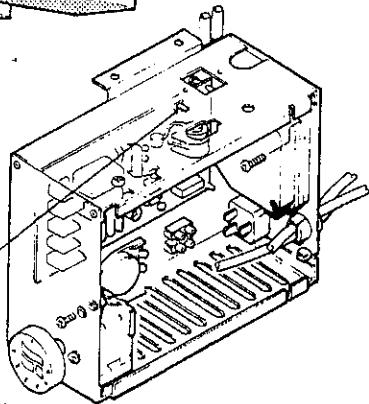
3 BURNER & CONTROLS ASSEMBLY REMOVAL

- Undo the union on the gas service cock.
- Remove the control box cover by undoing the retaining screw-side forward.
Extended nut, 2 off- see note 6.



Electrical plug - see note 4

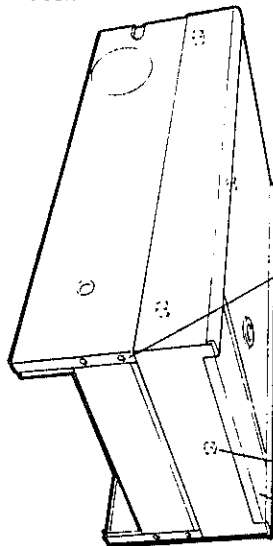
VIEW OF CONTROL BOX WITH COVER REMOVED



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

2 BOILER CASING REMOVAL

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



- Disconnect the connector plug located at the rear of the control box.

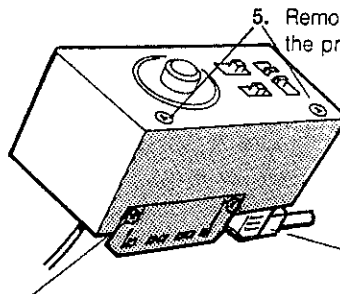
- Remove the 4 screws retaining the control bottom panel and remove the panel. (If a Programmer Kit is fitted then follow steps 4 to 7, otherwise proceed to 8.

See note 8

Controls pod door

PROGRAMMER MODELS ONLY

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



- Remove the 2 screws retaining the programmer to the boiler casing.

Mains connector plug

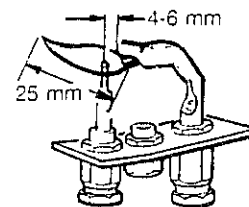
- Pull the programmer back to expose the two screws securing the external controls pump plug connector. Remove the screws and pull out the connector.
- Remove the programmer by tilting forward and withdrawing through the front of the control casing.

STANDARD & PROGRAMMER MODELS

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

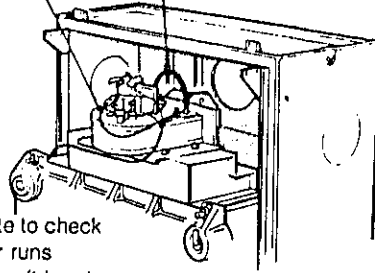
4 CLEANING BURNER ASSEMBLY

- 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.
- Remove the main burner, refer to Frame 15.
- Remove the main burner injector, ensuring there is no blockage or damage. Clean or renew as necessary.
- Refit the injector. Use, sparingly, an approved jointing cpd.
- Inspect the pilot burner & ignition/detection electrode. Ensure they are clean & in good condition; in particular check that:
 - The pilot injector is not blocked or damaged, refer to Frame 13 (No. 1 & 2) for removal.
 - The pilot burner is clear and unobstructed.
 - The ignition/detection electrode is clean & undamaged.
 - The ignition/detection leads are in good condition.
 - The spark is correct, clean or renew as necessary.
- Re-assemble the burner/controls assembly in reverse order. **Note:** Inspect & if necessary replace the case/manifold sealing gasket. **DO NOT REFIT BURNER ASSEMBLY.**



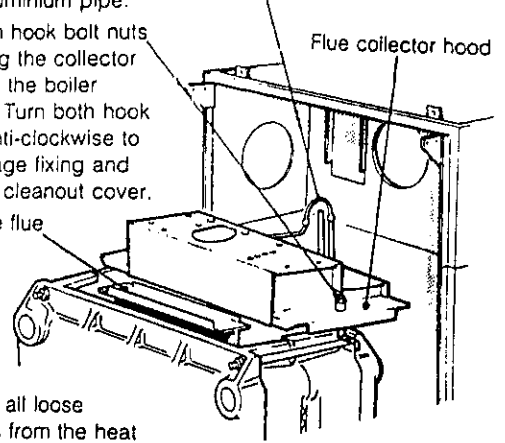
5 CLEANING THE FAN ASSEMBLY

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 its 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:

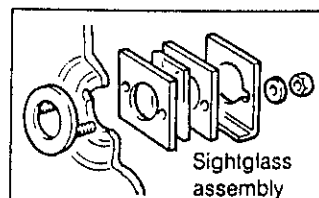
1. Isolate the electricity supply.
2. Turn OFF the gas supply.
3. Remove the boiler casing, refer to Frame 2.

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, except for gas soundness tests.*

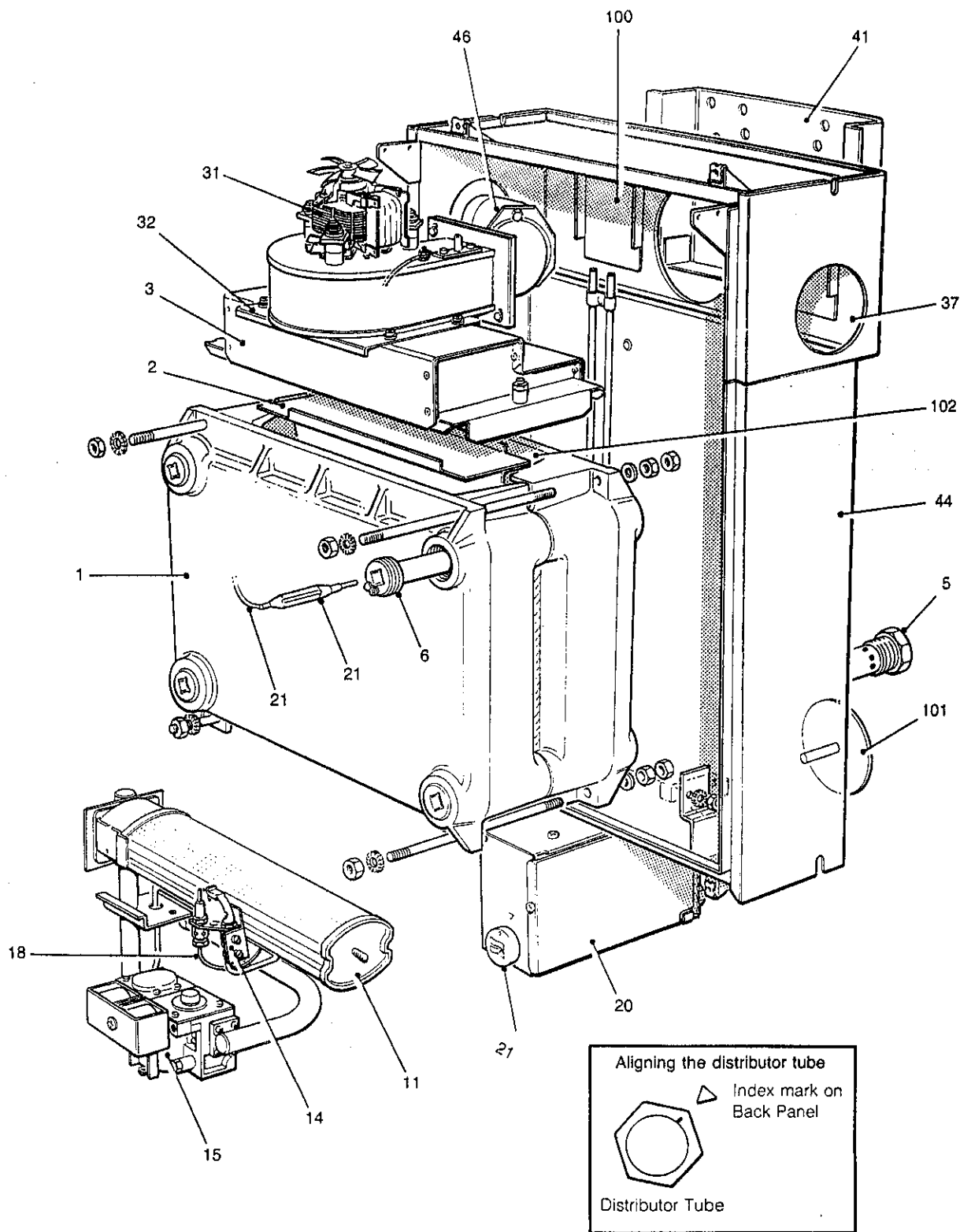
10 SIGHTGLASS REPLACEMENT

1. Refer to Frame 9.



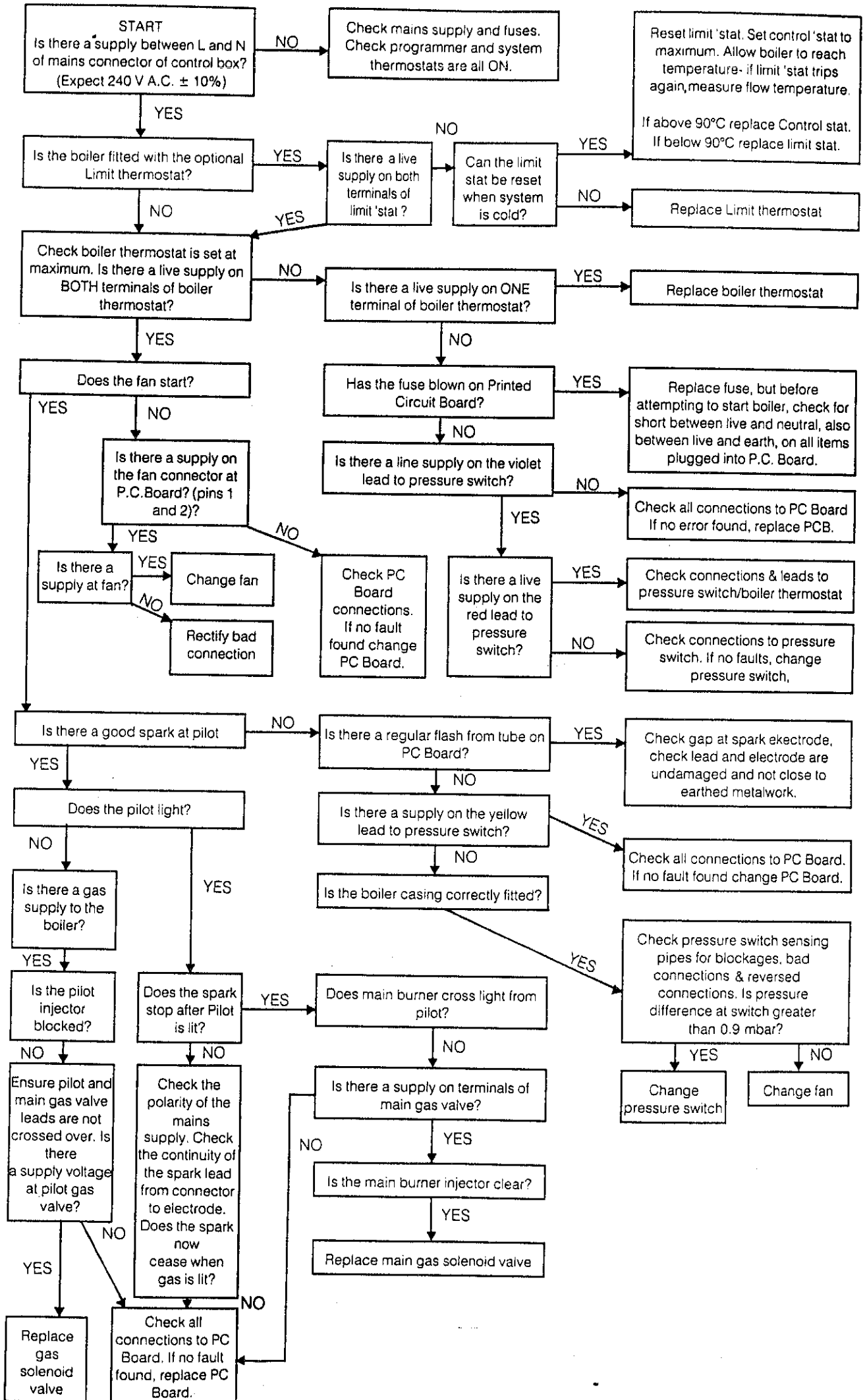
2. Unfasten the two nuts and washers holding the sightglass assembly.
3. When fixing the new assembly ensure that the parts are in the correct order. Frame must have return edge at bottom.
4. To fit: Push frame studs through holes in front of casing, lay casing on its face and refit sightglass assembly.
5. Replace boiler casing (Frame 7).

22 BOILER ASSEMBLY - Exploded view

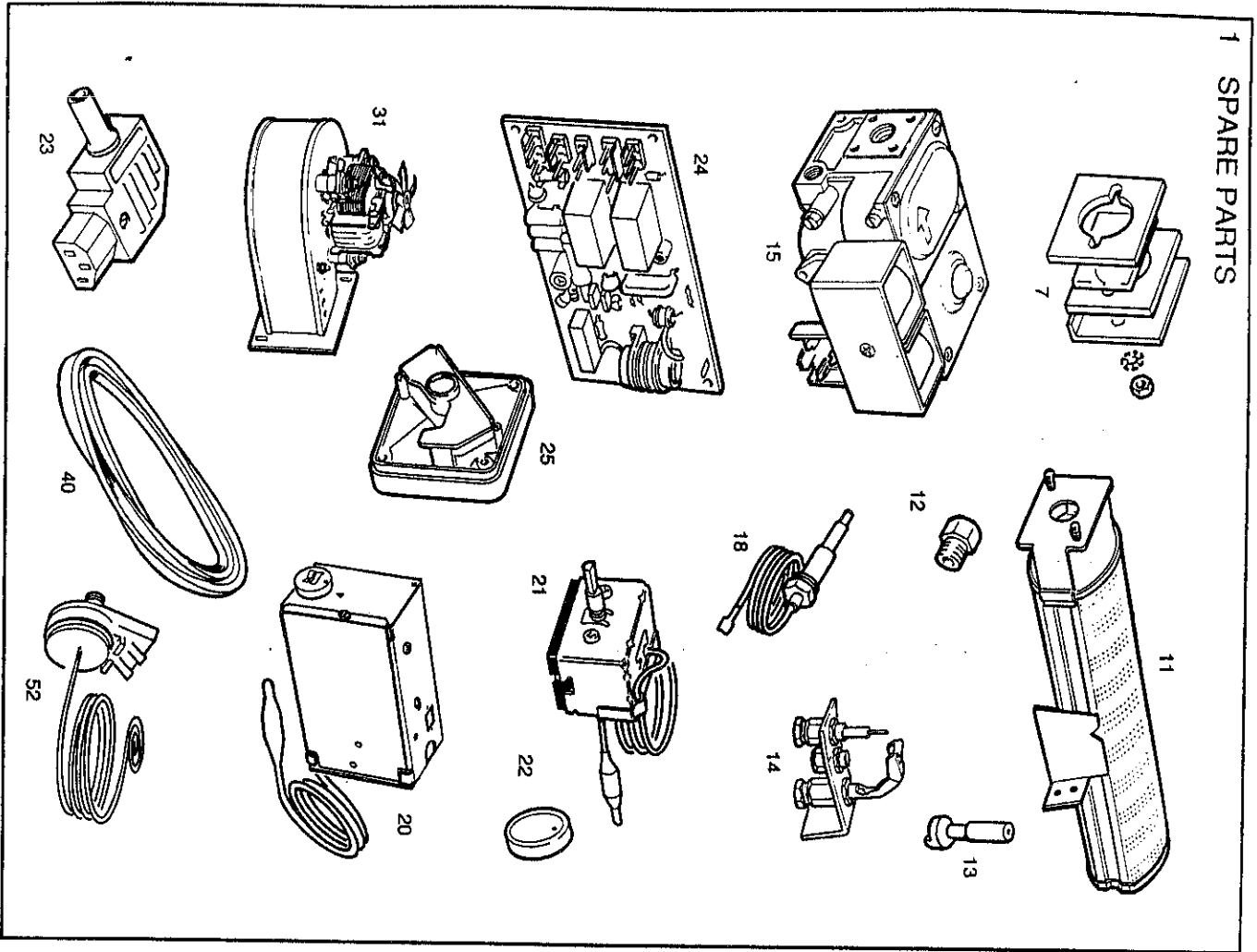


LEGEND (Numbers up to 53 relate to the B.G.C. Spares List)

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



1 SPARE PARTS



2 CASING ASSEMBLY

