Installation & Servicing

Models covered by these instructions

NF 80	(47-415-07)	IDEAL CLASSIC COMBI NF 80

IDEAL

CLASSIC COMBI NF 80

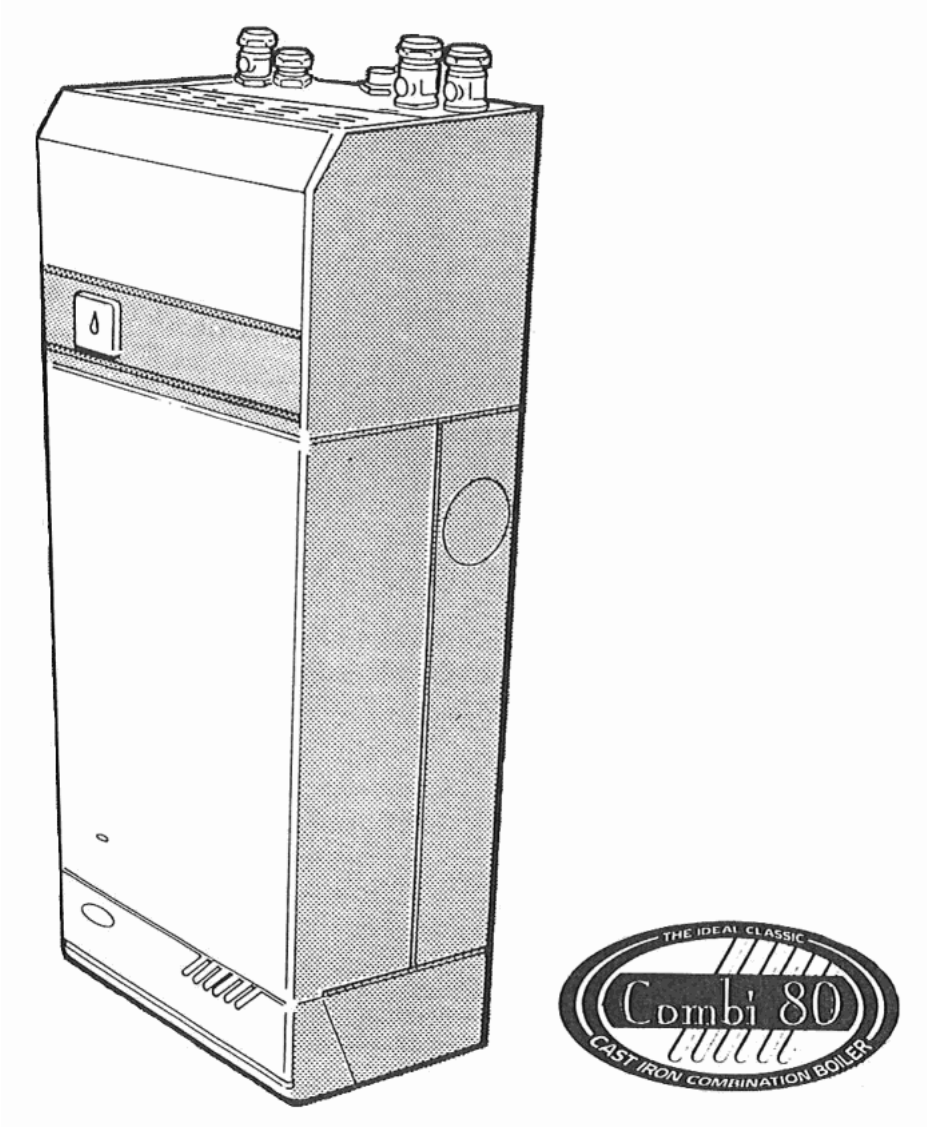
Wall Mounted, Fanned, Balanced Flue Gas Boilers.

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.

IMPORTANT:

This appliance is for use with NATURAL GAS ONLY.



NOTE:

TO THE INSTALLER. Leave these instructions adjacent to the gas meter or with the User.

Stelrad Ideal

GENERAL

PERFORMANCE DATA

Table 1- GENERAL DATA.

Boiler Size			NF 80
Main Burner			AEROMATIC AC 19/123 264
Gas Control Valves			HONEYWELL VR 4700 E 1042 - 240 V & TEKNIGAS series 25
Burner Injector			BRAY Cat. 10 - size 2400
Pilot Injector			HONEYWELL 45900421 - 002 (stamped 56/42 A)
Gas Supply Connection			Rc 1/2 (½ in. BSP/t)
Inlet Connection		Domestic hot water	15 mm compression union
Outlet Connection		Domestic hot water	15 mm compression union
Flow Connection		Central heating	22 mm compression union
Return Connection		Central heating	22 mm compression union
Safety Valve Drain Pipe Connection			15 mm copper (Female)
Flue Terminal Diameter		mm (in.)	100 (4)
MAXIMUM Working Pressure (sealed systems)		bar (psi)	2.5 (36.3)
MAXIMUM Static Water Head		m (ft)	25 (82)
MINIMUM Static Water Head (open water systems)		m (ft)	1.5 (5.0)
MAXIMUM Domestic Hot Water Inlet Pressure		bar (psi)	10.0 (145.0)
MINIMUM Domestic Hot Water Inlet Pressure		bar (psi)	0.9 (13.1)
Electrical Supply			240 V ~ 50 Hz
MAXIMUM power consumption			160 W
External Fuse Rating	(Internal Fuse Rating)		3 A (2 A (F))
Water Content	Central Heating	litre (gal)	4.65 (1.0)
	Domestic Hot Water	litre (gal)	0.55 (0.12)
Dry Weight (total)		kg (lb)	68.4 (150)
MAXIMUM Installation	Weight	kg (lb)	Combi module - 11.4 (25.1)
			Boiler module - 41.0 (90.0)
Boiler Casing Size	Height	mm (in.)	1045 (41 ¼)
	Width	mm (in.)	380 (15.0)
	Depth	mm (in.)	Top water connections - 300 (11 ¾)
			Bottom water connections - 345 (13 ½)

Table 2 - PERFORMANCE DATA Central Heating.

Central Heating		Maximum
Burner Setting Pressure (Hot)	mbar (in.w.g.)	14.1 (5.7)
Output	kW (Btu/h)	23.4 (80 000)
Input	kW (Btu/h)	29.3 (100 000)
Gas Consumption (Hot)	l/s (ft^3/h)	0.76 (96.3)

Table 3- PERFORMANCE DATA Domestic Hot Water.

Domestic Hot Water		Maximum
Burner Setting Pressure (Hot)	mbar (in.w.g.)	14.1 (5.7)
Domestic Hot Water Output	kW (Btu/h)	23.4 (80 000)
Domestic Hot Water Input	kW (Btu/h) l/m	29.3 (100 000)
Gas Consumption (Hot)	l/s (ft^3/h)	0.76 (96.3)
Domestic Hot Water Flow Rate at 35°C Temp. Rise	l/m (g.p.m.)	9.6 (2.1)

NOTE:

Gas consumption is calculated using a calorific value of 38.7 MJ/m^3 (1038 Btu/ft^3)

The **Ideal Classic Combi NF 80** is a cast-iron, fanned, balanced flue combination boiler.

Central heating (C.H.) output is spot rated at 23.4 kW (80 000 Btu/h) with ON/OFF thermostatic control & is suitable for use with heating loads down to 4.4 kW (15 000 Btu/h).

Maximum instantaneous domestic hot water (D.H.W.) output is also 23.4 kW (80 000 Btu/h).

The boiler is designed for use with fully pumped, sealed water systems but can also be connected to open water systems if required.

It is supplied, fully assembled, with a domestic hot water calorifier, diverter valve, circulating pump, pressure gauge, safety valve & C.H. expansion vessel - contained in a module on top of the boiler. Fixed temperature C.H. & D.H.W. controls are fitted & the boiler incorporates a D.H.W. 'pre-heat' facility. The module also includes a C.H. thermostatic valve & by-pass. *No external by-pass is required.*

The domestic hot water & central heating pipe connections may be made at the top or bottom of the boiler as required.

The boiler casing is of white enamelled mild steel with a removable controls pod. A drop-down door gives access to the control box, mounted on the gas valve.

The boiler is supplied with a standard flue kit suitable for rear or side outlet applications from 114 mm (4 ½ in.) to 406 mm (16 in.). Optional extra extension ducts up to 3 m (118 in.), rear or side outlet, are available.

NOTE:

This boiler can only be used on fully pumped systems. A Vertex Flue Kit with a side outlet may be used. See the Vertex Flue Kit installation instructions for details.

OPERATION

Domestic hot water (D.H.W.)

With no call for either D.H.W. or C.H., the boiler will periodically fire at low gas rate for a few seconds in order to maintain the D.H.W. calorifier in a pre-heated condition.

NOTE:

The D.H.W. 'pre-heat' operates 24 hours a day, unless an external programmer is fitted when it can be timed.

When there is demand for D.H.W., the boiler fires at full gas rate, the diverter valve remains de-energised and the full output from the boiler is directed to the D.H.W. calorifier - providing a maximum D.H.W. draw-off of 9.6 l/min. (2.1 g.p.m.) at 35° C temperature rise.

At D.H.W. draw-off rates below approximately 6 l/min (1.3 g.p.m.), the boiler reduces to low gas rate when the D.H.W. temperature reaches about 60° C and maintains the low draw-off temperature between 50° C and 75° C. When the demand for D.H.W. is satisfied then the 'pre-heat' cycle resumes - unless there is a C.H. demand which takes priority

Central Heating (C.H.)

When there is demand for C.H., the boiler fires at full output to supply the demand. The C.H. circuit within the module incorporates a thermostatic valve which operates to maintain a high boiler temperature during periods of cold C.H. start-up, necessary for the instantaneous delivery of D.H.W. if there is a demand at this time. Water is not relesed to the system until a temperature of 60° C is reached within the boiler. *Refer also to**nbsp;'Boiler Water Circuit Diagrams' *(page 4)*.

Gas Safety (Installaiton and Use) Regulations, 1990.

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 that the law is complied with.

INTRODUCTION - LOCATION OF BOILER

The installation of the boiler must also be in accordance with the current I.E.E. Wiring Regulations, the Building Regulations (1985), Building Standards (Scotland), the Bye-Laws of the Local Water Undertaking and any relevant requirements of the Local Authority. Detailed recommendations are contained in the following British Standard Codes of Practice.

BS. 6891: 1988	Low pressure installation pipes.
BS. 6798	Installation of gas fired hot water boilers of rated input not exceeding (60 kW).
BS. 5449	Forced circulation hot water systems (small bore 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	Ventilation (for gas appliances of rated input not exceeding 60 kw).

HEALTH & SAFETY DOCUMENT No. 635

The Electricity at Work Regulation, 1989.

IMPORTANT:

This appliance is tested and certificated by British Gas for safety and performance. It is therefore important no external control devices, e.g. flue damper, economisers etc., are directly connected to this appliance.

Any direct connection of a control device not recommended by Caradon Heating 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 or other statutory requirements.

Manufacturer's notes must NOT be taken in any way as over-riding statutory obligations.

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:

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.

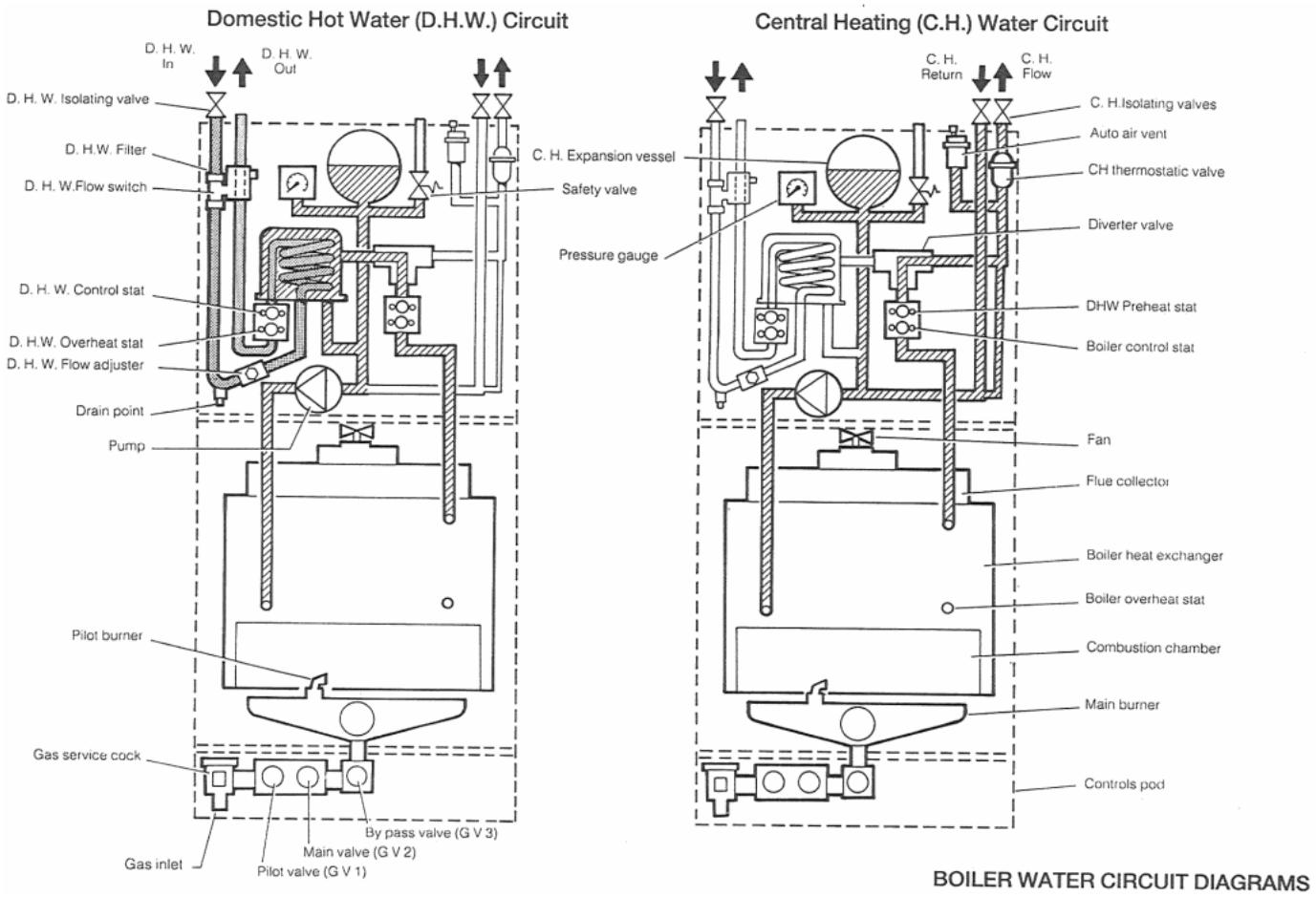
The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E.. Wiring Regulations and, in Scotland, the electrical provisions of the the building regulations applicable in Scotland with respect to the installation of the boiler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

BOILER WATER CIRCUIT DIAGRAMS



BOILER WATER CIRCUIT DIAGRAMS

Details of the 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 the minimum clearances required for safety and subsequent service, refer to the wall mounting template and Frames 1 and 4.
2. The position MUST also permit the provision of a satisfactory balanced flue termination.

GAS SUPPLY

The local gas region should be consulted at the installation 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 that 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 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.

FLUE INSTALLATION

The flue must be installed in accordance with the recommendations of BS. 5440:1.

The following notes are intended for general guidance.

1. The boiler MUST be installed so that the terminal is exposed to external air.

2. It is important that the position of the terminal allows the free passage of air across it at all times.

3. Minimum acceptable spacings from the terminal to obstructions and ventilation openings are specified in Table 4.

4. Where the lowest part of the terminal is fitted less than 2m (6.6 ft.) above a balcony, above 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 and Quinnel Ltd., 884 Old Kent Road,

London, SE 15 (Model 304)

Telephone No. 071 6391357

and from,

Tower Flue Components Ltd., Vale Rise, Tonbridge,

Kent, TN9 1TB (Model K1)

Telephone No. 0732 351555

Ensure that the guard is fitted centrally.

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 then 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 material are given in BS. 5440:1 1990.

7. If the terminal is fitted less than 2m (6ft. 6in.) above a balcony, above ground or above a flat roof then the minimum spacing in Table 4, No.s 2, 3, 5 and 6 would be 75 mm in order to allow a terminal guard to be fitted.

8. Where it is essential that the terminal wall plate is fitted, i.e., wall thicknesses over 610 mm (24 in.) or with an inaccurately cut hole, the minimum spacing in Table 4, Nos 2, 3, 5 and 6 would be 60 mm in order to allow the terminal wall plate to be fitted.

TERMINAL

The terminal assembly can be adapted to accommodate various wall thicknesses - refer to Frame 1 'Unpacking'.

Table 4 - BALANCED FLUE TERMINAL POSITION

Terminal Position		Minimum Spacing
1.	Directly below an openable window, air vent or other ventilation opening.	300 mm (12 in.)
2.	Below guttering, drain pipes or soil pipes.	25 mm (1 in.)
3.	Below eaves.	25 mm (1 in.)
4.	Below balconies or a car port roof.	25 mm (1 in.)
5.	From vertical drain pipes or soil pipes.	25 mm (1 in.)
6.	From internal or external corners.	25 mm (1 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.)

AIR SUPPLY

Detailed recommendations for air supply are given in BS 5440:2. The following notes are 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 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 in Table 5 and are related to maximum rated heat input.
3. Both air vents MUST communicate with the same room or internal space or MUST be on the same wall to outside air.
4. In siting the air vents care must be taken to avoid the freezing of pipework.

Refer to Table 5 for details of air vent position and sizing.

Table 5 - AIR SUPPLY

Position of air vent	Air from room/internal space	Air direct from outside
High level cm^2 (in^2)	264 (41)	132 (21)
Low level cm^2 (in^2)	264 (41)	132 (21)

WATER CIRCULATION SYSTEM

The boiler is designed for connection to sealed water central heating systems but connection may be made to open water systems if required. The domestic hot water (D.H.W.) calorifier is incorporated within the boiler casing and only requires connection to the mains water supply.

Water connections may be made at the top or to the bottom of the boiler.

IMPORTANT:

Ensure that the mains water supply pressure is adequate to provide the required D.H.W. flow rate. Refer to Tables 1 and 3 on page 2.

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.

The domestic hot water system should be in accordance with the relevant recommendations of BS. 5546.

Copper tubing to BS. 2871:1 is recommended for water carrying pipework and MUST be used for pipework carrying potable water.

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.

ELECTRICAL SUPPLY - UNPACKING

Draining taps should be at least 1/2 in. BSP nominal size and be in accordance with BS. 2879. Maximum recommended system hydraulic losses are given in Table 6, below.

Table 6 - WATER FLOW RATE & PRESSURE LOSS

System Load	kW	23.4	19.0	4.4
	(Btu/h)	(80 000)	(65 000)	(15 000)
Water Flow Rate	l/min.	22.5	24.8	5.7
	(gal./h)	(297)	(327)	(75)
Temperature	°C	15	11	11
Differential	(°F)	(27)	(20)	(20)
Pressure available for system	mbar	157	118	391
	(in.w.g.)	(63)	(47)	(157)

ELECTRICAL SUPPLY

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

The boiler is supplied for 240 V ~ 50 Hz Single Phase.

Fuse rating is 3 A.

The method of connection to the mains electricity supply MUST facilitate the complete electrical isolation of the boiler, preferably by the use of a fused 'three pin' plug and shuttered socket outlet; both complying with the requirements of BS. 1363. Alternatively, a fused double pole switch, having 3 mm (1/8a in.) contact separation in both poles and serving only the boiler, may be used. The point of connection to the mains should be readily accessible & adjacent to the boiler. except that for bathroom installations the point of connection to the mains MUST be situated outside of 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 such that it cannot be touched by a person using the bath or shower.

INSTALLATION

1 UNPACKING

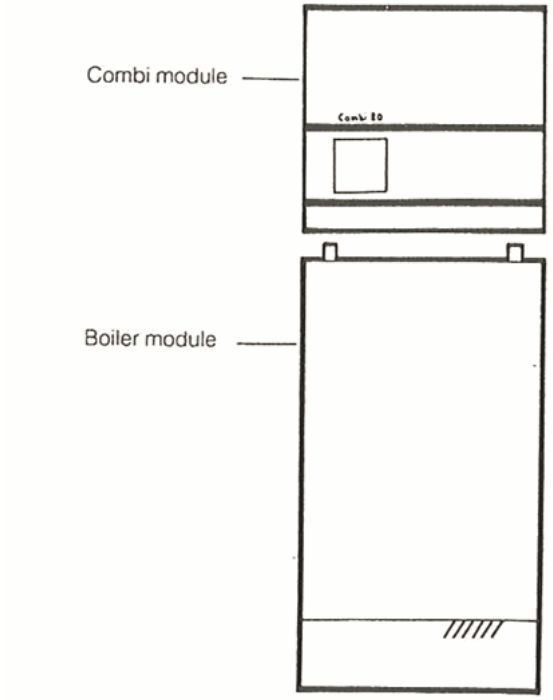
The appliance is supplied as two separate modules (i.e. boiler module and combi module) together with wall mounting plate (pack 'A1') in one pack 'A'.

Also supplied is a standard flue assembly for lengths up to 406 mm (16 in.), rear or side flue outlet, in pack 'B'.

Optional extras, if ordered, (Extension Duct Kit 'D' and 90° Flue Elbow Kit) are available in separate boxes.

Unpack and check the contents.

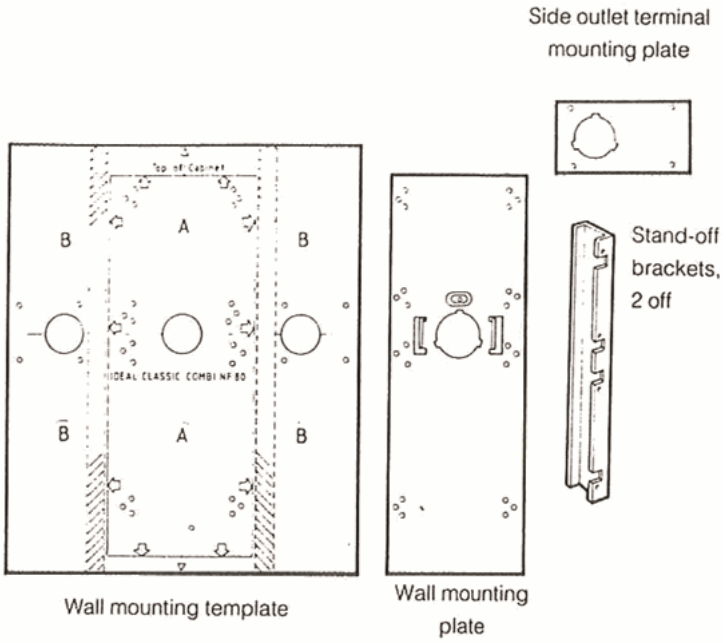
PACK 'A' CONTENTS



2 UNPACKING Continued from Frame 1.

PACK 'A1' CONTENTS (contained within pack 'A')

Also contained in pack 'A1'; the Hardware Pack (listed opposite) these Installation & Servicing Instructions and the User's Instructions.

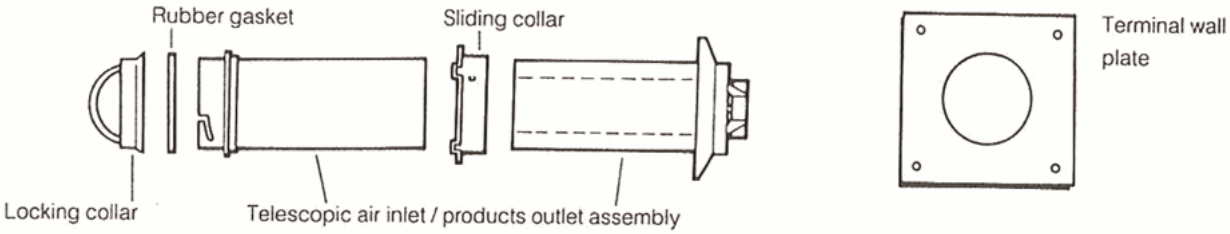


HARDWARE PACK

- Sealing tape for side outlet plate.
- Sealing tape for rear outlet plate.
- Aluminium foil for air duct seal.
- 50 mm × No. 14 wood screws. 8 off (for wall mounting plate).
- 50 mm × No. 10 wood screws, 8 off (for side outlet plate & terminal wall plate).
- Wall plugs, 16 off.
- ½ in. × No. 10 self tapping screw (bottom fixing screw).
- M6 nuts, 8 off (for stand-off brackets).
- M6 screws, 8 off (for stand-off brackets).
- M6 washers, 8 off (for stand-off brackets).
- Sealing plate (for boiler back panel).
- M8 × 12 mm screw (for sealing plate).
- M8 washer (sealing plate)
- 22 mm compression elbow (for boiler/combi RETURN).
- 22 mm plastic elbow (for boiler/combi FLOW).
- Plastic elbow extractor.
- 7/8 in. sealing washers,2 off (for C.H. FLOW & RETURN).
- ¾ in. sealing washers (for safety valve drain).
- ½ in. sealing washers, 3 off (for D.H.W. inlet & outlet & C.H. expansion vessel).
- 2 ½ in. pozi screw (for combi module cover).
- Rubber gasket & screw (by-pass solenoid plug).

PACK ‘B’ CONTENTS.

Also contained in Pack ‘B’; No.8 × 6 mm self tappers, 9 off; length of adhesive tape, 1 off; duct cutting support ve rings, 2 off (cardboard - retain for later use); rectangular washer, 3 off.



3 PACKAGING & CASING REMOVAL

1. Remove pack ‘A1’ from pack ‘A’.

2. Unpack the boiler terminal box and, if applicable, the extension flue box(es).

NOTE:

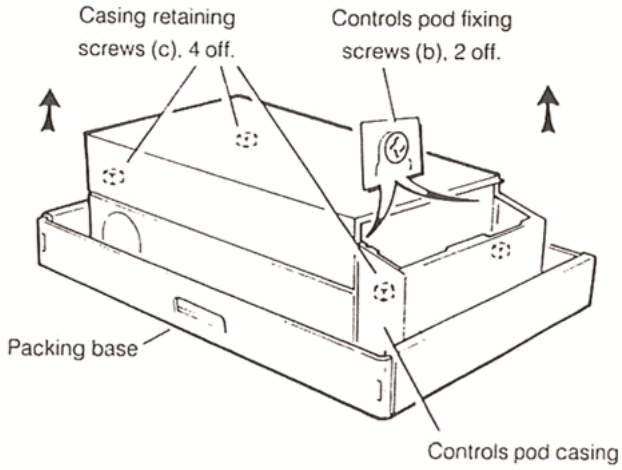
If it is intended to fit the appliance on the wall at a later date it may be left in the packaging until required, and proceed to Frame 4.

3. Remove the Combi module from the packaging base and place safely to one side.

4. Unpack the boiler module. But do not remove the cardboard controls protection box.

5. Remove the casing as follows and place to one side to avoid damage.

(a) Open the controls pod door.

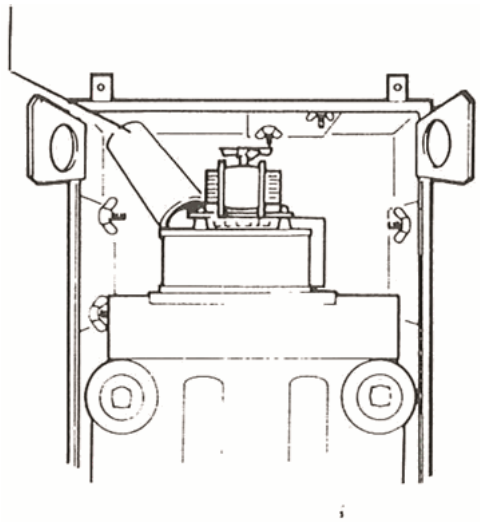


(b) Release the controls pod fixing screws (b) 3 full turns only. Remove the pod by pulling it forward to disengage from the keyhole slots.

(c) Undo the 4 screws (c) retaining the casing to the back panel.

(d) Remove the casing in the direction of the arrows.

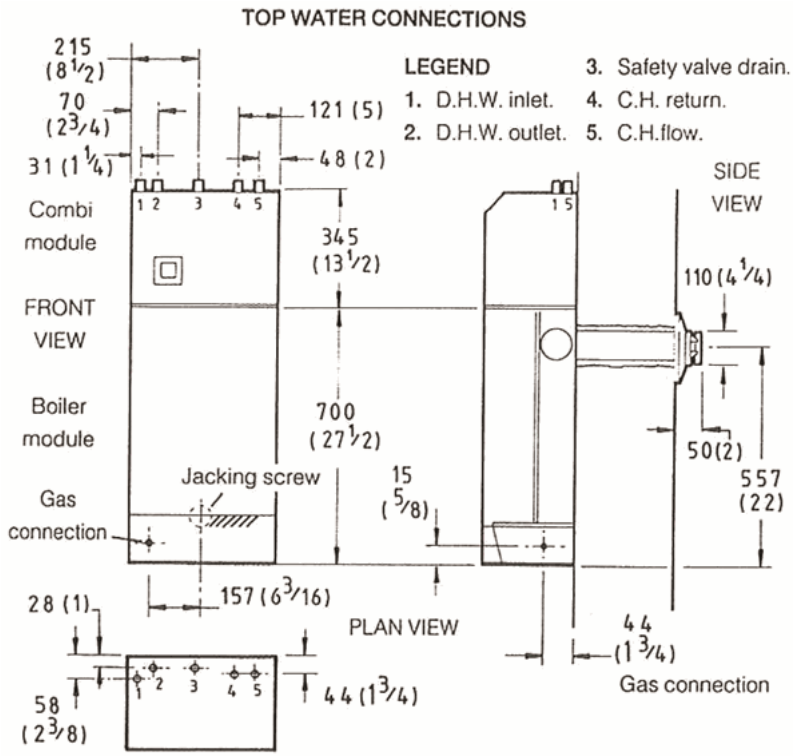
6. Remove the side flue extention tube (for use with side flue only) taped inside the fan chamber.



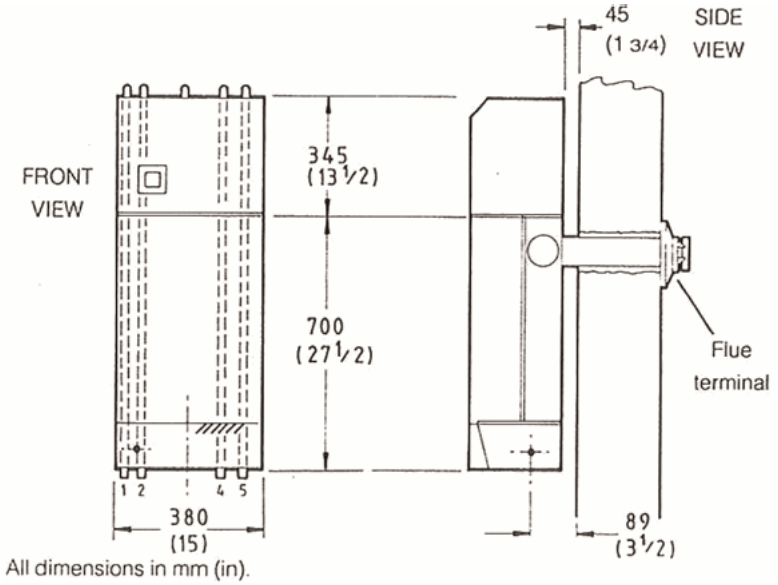
7. Remove the boiler from its packaging base (being careful not to damage the gas valve and control box).

Do not remove the cardboard controls protection box.

4 BOILER DIMENSIONS/SERVICES



BOTTOM WATER CONNECTIONS



All dimensions in mm (in).

BOILER CLEARANCES

The following minimum clearances must be maintained for operation & servicing, (see diagram).

Dimension	Side flue	Rear flue
'A'	425 mm	390 mm
'B'	25 mm flue side	25 mm both sides
	40 mm non flue side	

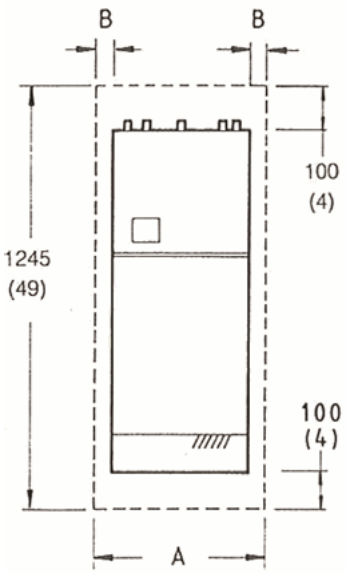
Additional space will be required for installation, depending upon site conditions. Refer to the table above.

Also refer to Frame 15 'Pre-piping'.

Side flue only

Provided that the flue hole is cut accurately, e.g., 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 of the boiler then 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



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

All installations

Once the boiler has been installed the side clearances may be reduced to 5 mm.

Front clearance:

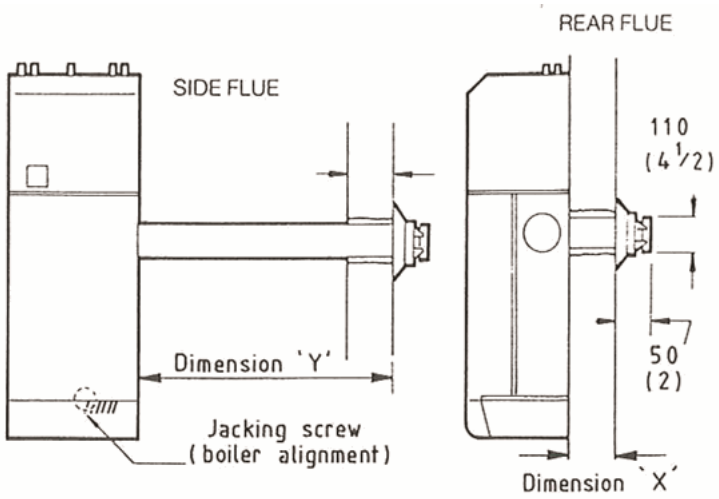
450 mm (17 ¾ in.) from the front of the boiler casing.

5 DETERMINING THE FLUE LENGTH

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

Dimension 'X': wall thickness (top water connections) or 'X' plus 45 mm (bottom water connections).

Dimension 'Y': wall thickness plus boiler spacing.



All dimensions in mm (in.).

IMPORTANT:

The direction of the water connections, i.e., to the top or bottom of the boiler, MUST be decided BEFORE determining the flue length and position.

FLUE KITS

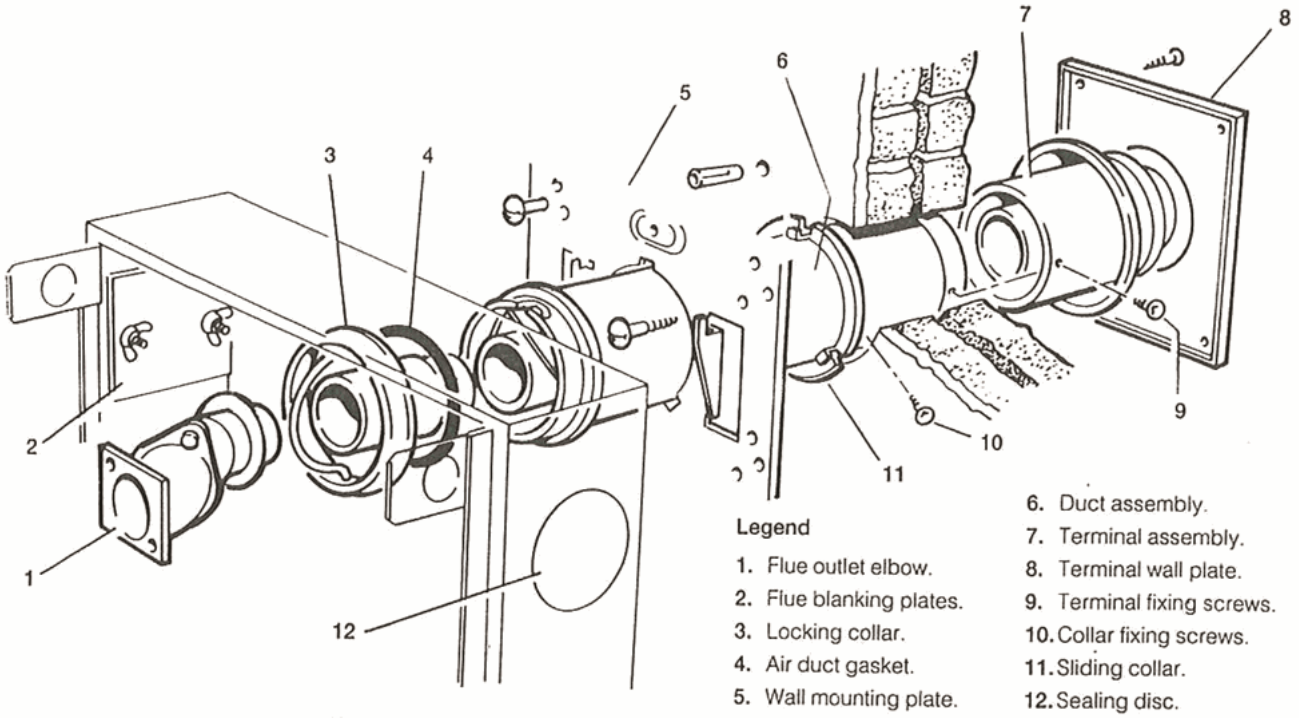
Pack 'B': supplied as standard.

Pack 'D': optional extension kit for side & rear flue outlet. Refer to 'Flue Extension Ducts'.

Flue length, Dimension 'X' or 'Y'	Flue packs required
114 to 216 mm [4 ½ to 8 ½ in.]	Pack B. (Cut down as in Frames 9 & 25)
216 to 406 mm [8 ½ to 16 in.]	Pack B
406 to 1280 mm [16 to 50 3/8 in.]	Pack B (1 off) & Pack D (1 off)
1280 to 2140 mm [50 3/8 to 84 1/4 in.]	Pack B (1 off) & Pack D (2 off)
2140 to 3000 mm [84 1/4 to 118 1/8 in.]	Pack B (1 off) & Pack D (3 off)

6 FLUE ASSEMBLY - Exploded View

1. An optional duct extension kit is required for wall thicknesses greater then 406 mm (16 in.). Refer to 'Extension Ducts'.
2. When cutting the ducts, always use the cardboard support rings provided.



7 WALL MOUNTING TEMPLATE

1. Discard both sections 'B' of the template. and tape the template into the selected position.

3. Ensure squareness by hanging a plumb line as shown.

4. Mark onto the wall the 8 mounting plate screw positions & the lower fixing screw positions. Also mark onto the wall the position of the flue duct.

NOTE:

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

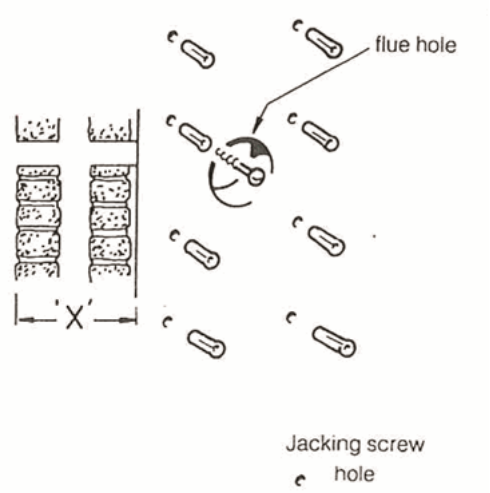
6. Remove the template from the wall. *Refer also to* Frame 23.

8 PREPARING THE WALL

IMPORTANT:

Ensure that, during the cutting operation, masonry falling outside of the building does not cause damage or personal injury.

1. Cut the flue hole (preferably with a 5 in. core boring tool) ensuring that the hole is square to the wall. If the hole has been quite accurately cut with a drill, then making good the wall faces is not essential - as seals are provided at both ends of the flue. However, both wall faces immediately around the cut hole should be flat; make good if necessary. For less accurate holes make good to approximatly 12.5 mm diameter at the two wall faces. If the flue hole is longer than 610 mm this must be done from the outside for the outer face, as access.to outside is needed to fit the terminal plate anyway.
2. Measure and note the wall thickness 'X'.
3. Drill the 9 fixing holes with an 8 mm (5/16 in.) masonry drill and insert the plastic plugs provided in the top 8 holes.
4. Locate 2 of the No. 14 × 2 in. screws, provided, in the wall mounting plate top fixing holes and screw home to within 6 mm (1/4 in.) of the wall surface.



NOTE:

If the terminal is to be sited within 25 -40 mm of a corner or vertical pipe (refer to Table 3.) then the hole MUST be accurately cut and the rubber weather seal trimmed around the groove provided.

The terminal wall plate need not be fitted.

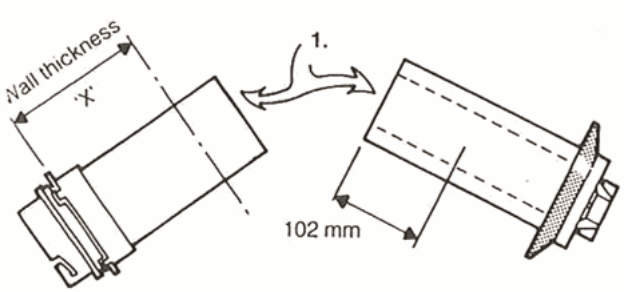
NOTE:

Check all of the hole positions BEFORE drilling.

9 CUTTING THE DUCT ASSEMBLY

WALL THICKNESSES OF 114 TO 216 mm ONLY.

Wall thickness 'X' (top water connections) or 'X' plus 45 mm (bottom water connections).



1. Separate the duct assembly.

2. Push the sliding collar to the end of the duct.

Measure off dimension 'X' (wall thickness) for installations with top water connections.

For installations with bottom water connections, measure of dimension 'X' plus 45 mm.

3. Cut to length 'X' *(or 'X' plus 45 mm),* using the cardboard duct rings for support.

NOTE:

Cut the inner flue tube 6mm (1/4 in.) longer than the outer air tubes.

4. Always cut 102 mm (4 in.) off the terminal section.

5. Remove the cardboard support rings.

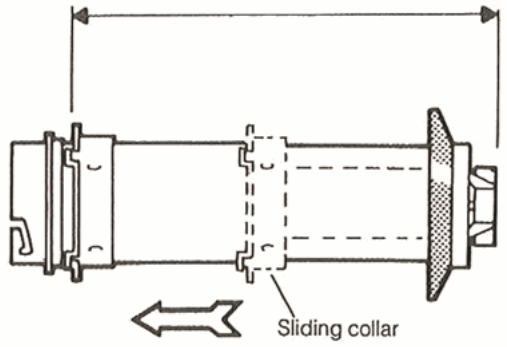
6. Re-assemble the terminal, aligning the seams.

10 JOINING THE DUCT ASSEMBLY

WALL THICKNESSES UP TO 406 mm ONL Y.

1. Push the sliding collar to the boiler end of the assembly.

2. Set the assembly to length, wall thickness 'X' (or 'X' plus 45 mm) plus 50 mm (2 in.).

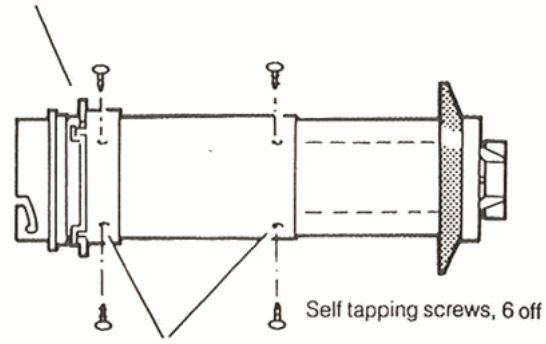


3. Using the sliding collar as a template at the duct join, mark the positions of the 3 fixing screws.

NOTE:

If the duct join is too close to the rubber weather seal to permit access for drilling, mark the hole positions at the mid-point of the duct.

4. Slide the collar back to the boiler end of the duct and mark the positions for a further 3 fixing screws.



5. Drill the 6 fixing holes using a 3.2 mm. drill. Insert the self tapping screws in order to fix the collar in position and lock the duct assembly. **DO NOT DRILL THE INNER FLUE DUCT.**

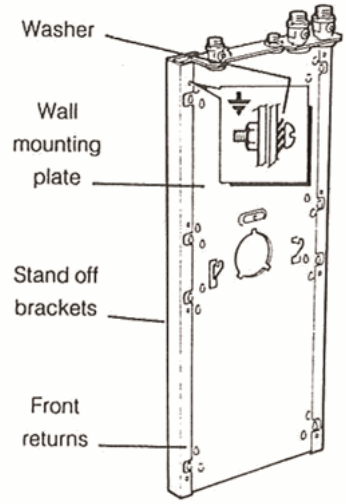
6. Seal the air duct joint with the aluminium tape provided in the Hardware Pack.

FOR WALL THICKNESSES ABOVE 406 MM, REFER TO 'FLUE EXTENSION DUCTS' (Frames 36 *&* 37).

11 FITTING THE STAND-OFF BRACKETS

INSTALLATIONS WITH BOTTOM WATER CONNECTIONS.

Secure the two stand-off brackets to the wall mounting plate, using the 8 M6 nuts, screws & shake-proof washers provided, such that the plate is located BEHIND the front returns of the brackets - as shown. Note. If the clearances above and below the boiler are less than the length of the pipes to be fitted behind the wall mounting plate then refer to Frame 15.



IMPORTANT:

To ensure earth continuity, securing screws MUST be fitted in the top holes (marked with the earth symbol), with the shake-proof washers positioned under the screw heads.

12 FITTING THE FLUE ASSEMBLY

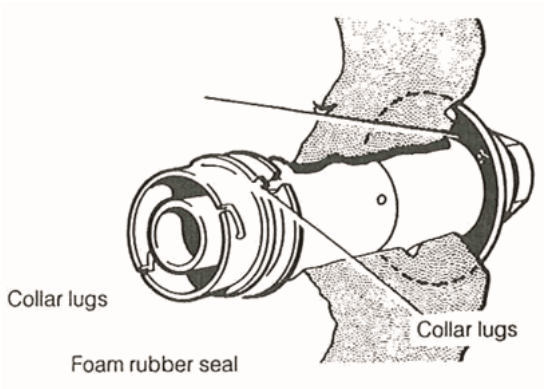
FROM EITHER THE INSIDE OR OUTSIDE OF THE BUILDING.

1. Push the assembly through the wall.

2. Seal the gap between the flue assembly and the wall with the foam rubber strip provided.

Weather seal.

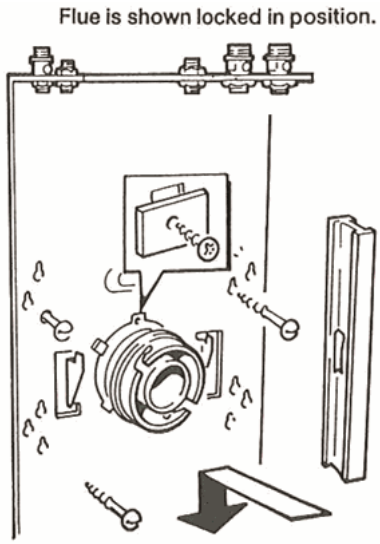
Apply soap solution to ease fitting through the wall sleeve.



3. Locate the wall mounting plate over the flue assembly. Engage the flue duct collar lugs with the wail mounting plate slots & rotate the flue assembly to lock. Proceed to Frame 13

13 WALL MOUNTING PLATE

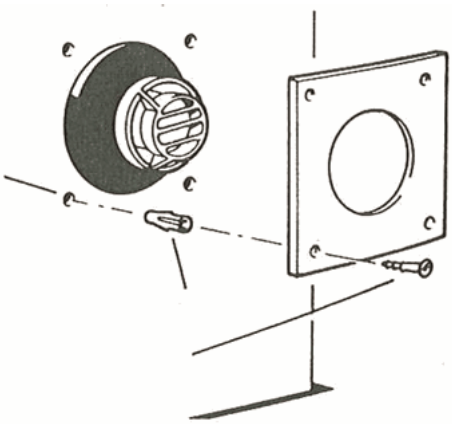
1. Engage the plate (or plate & stand-off brackets) on the top fixing screws.
2. Locate 6 No. 14 2 in. screws in the lower fixing holes & drive home all screws.
3. Check with a spirit level that the plate is vertical.
4. Align the holes in the sliding collar flange with the 3



14 TERMINAL WALL PLATE

This plate is provided to allow neat concealment and full compression of the rubber seal. If the flue hole and 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 610 mm (24 in.).*

1. Position the terminal wall plate over the terminal.
2. Drill 4 fixing holes with an 8 mm (5/16 in.) masonry drill.
3. Insert the four plastic plugs provided.
4. Secure the plate with four of the No. 10 × 2in. screws provided. cut-outs in the wall plate. Insert 3 of the self-tappers and rectangular washers to retain the assembly.



NOTE:

If the terminal is less than 2 m (6.6 ft.) above ground level, an approved terminal guard should be fitted. Refer to Page 5.

15 PRE-PIPING

IMPORTANT:

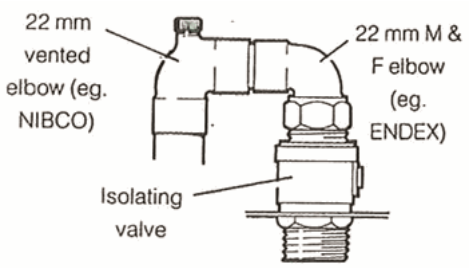
For installations with bottom water connections ONLY the following pipe runs MUST be made BEFORE the boiler is mounted on the wall.

1. Make the connections to the fittings on top of the wall mounting plate as shown.

NOTE:

For installations with a minimum top clearance of 100 mm (4 in.) then the following fittings should be used;

- 22 mm vented elbow (eg. NIBCO).
- 22 mm M & F elbow (eg. ENDEX).



DETAIL OF C.H. FLOW & RETURN ELBOW ARRANGEMENT

2. Extend the pipes down the wall, as shown, ensuring that:

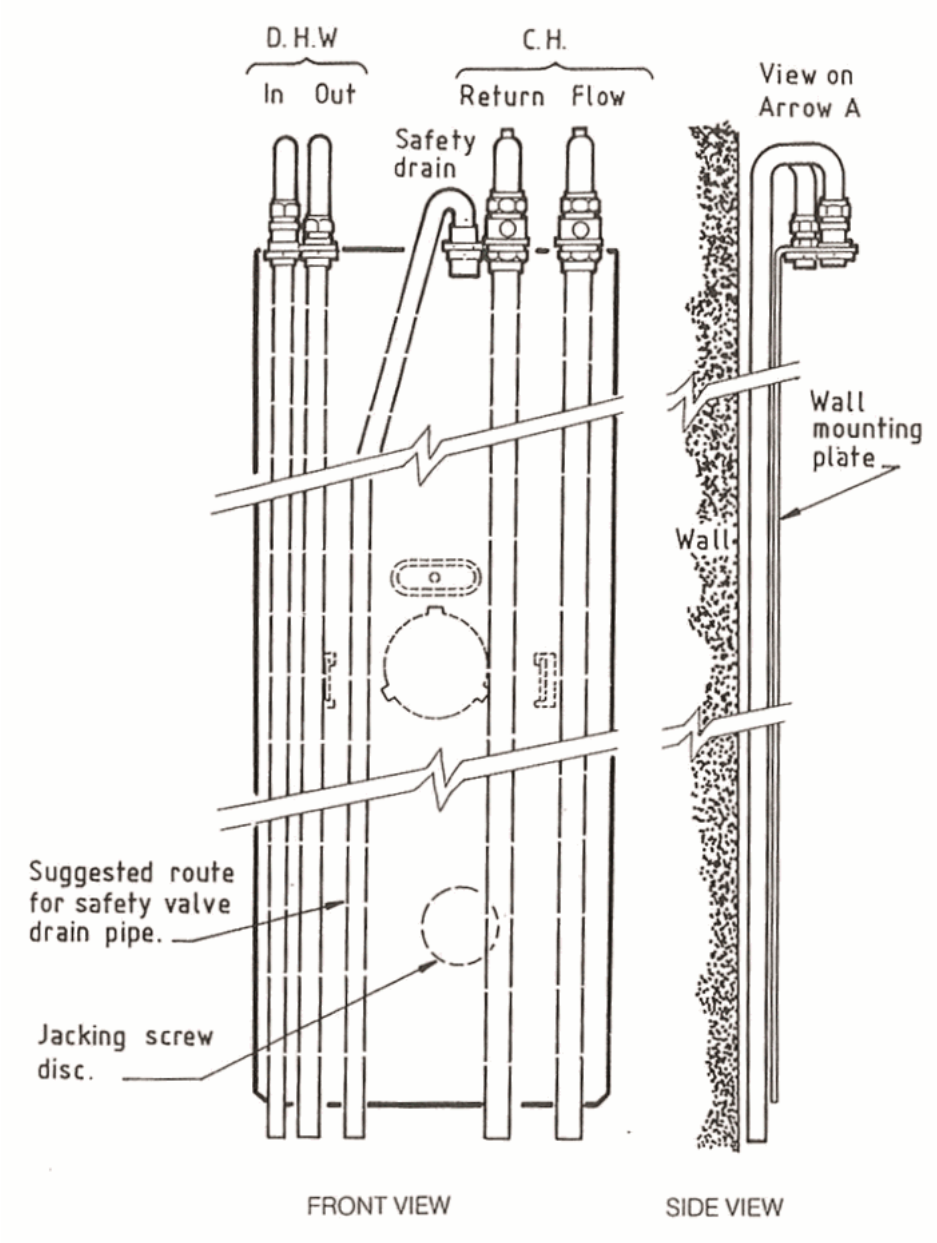
a. They terminate at least 50 mm (2 in.) below the bottom of the wall mounting plate.
b. The C.H. flow and return pipes are vented to aid filling.

NOTE:

If the clearances above and below the boiler are less than the length of the pipes, it will be necessary to position the pipe runs behind the wall mounting plate BEFORE the plate is screwed to the wall.

FOR BOTH TOP AND BOTTOM WATER CONNECTIONS

If required, connection to the system pipework nay now be made BEFORE the boiler is mounted on the wall. PROCEED TO FRAME 46.



16 PRE-WIRING

The mains supply and other external wiring may now be made, if required. BEFORE the boiler and Combi modules are mounted on the wall. Refer to Frames 17, 18 and 19.

NOTE:

It is possible to make the electrical connections after the boiler is mounted on the wall, if required, by removing the pressure switch bracket in order to gain access to the terminal box.

Refer to 'Pressure Switch Replacement' in the 'Servicing' section.

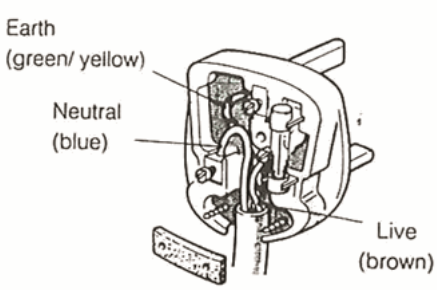
17 ELECTRICAL CONNECTIONS

WARNING:

This appliance MUST be efficiently earthed.

A mains supply of 240 V ~ 50 Hz is required. All external controls & wiring MUST be suitable for mains voltage. Wiring should be in 3-core PVC insulating cable, NOT LESS than 0.75 mm^2 (24 × 0.2mm), to BS. 6500 Table 16 and 70° C 'T' rating.

Wiring external to the boiler MUST be in accordance with the current I.E.E. Wiring Regulations and any Local Regulations. The supply connection may be made via a removable plug to a shuttered socket/outlet, preferably adjacent to the boiler, and should such a plug be used for connection to the mains, it MUST be of the 3-pin type - wired as shown, fused at 3 A and comply with the requirements of BS. 1363. Alternatively, a fused double-pole switch having a 3 mm contact separation in both poles, serving only the boiler & system controls may be used.



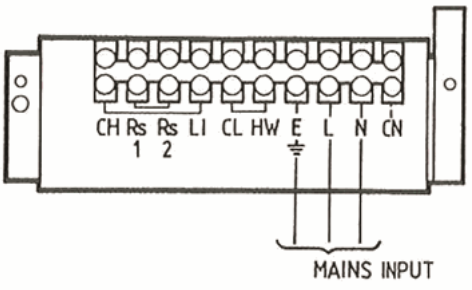
18 WIRING THE BOILER

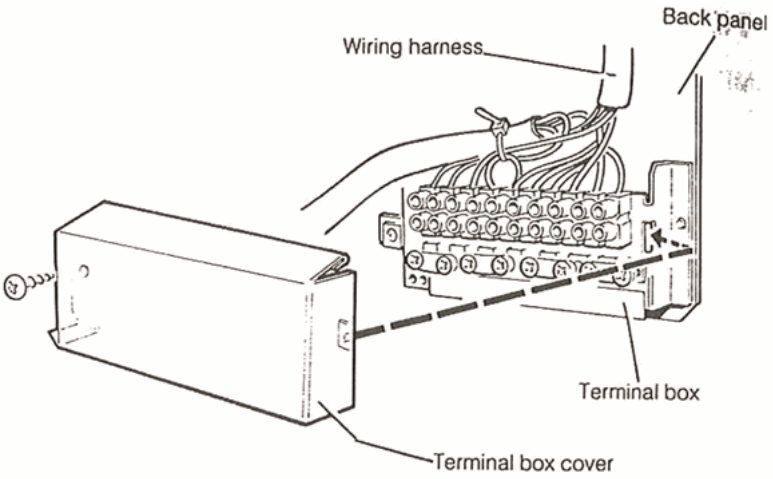
Flow, Pictorial and Schematic wiring diagrams are shown in frames 40, 41 and 42 of these instructions. A wiring diagram is also included in the Lighting Instruction label.

Connecting the mains supply.

1. Remove the securing screw and lift off the terminal box cover.
2. Route the mains lead as shown and wire into the supply terminals marked ‘L’. ‘N’ and ‘earth symbol’. Secure with the cable clamp.

DETAIL OF TERMINAL BOX





NOTE:

(a) The mains lead connection MUST be made in such a way that, should the lead slip from the anchorage, the current carrying conductors become taut before the earthing conductor.

(b) The ‘T’ rating of the mains lead should be 70° C.

(c) Ensure that no basic insulation is accessible outside of the terminal box & that the cable is secured into the clamp on its supplementary insulation.

19 WIRING THE BOILER. External Controls

External wiring MUST be in accordance with the current I.E.E. Wiring Regulations. Difficulty in wiring should not arise, providing the following directions are observed. Refer to the ‘Pictorial’ and ‘Schematic’ wiring diagrams (Frames 41 and 42).

a. **Room thermostat.** Remove the link between terminals ‘RS1’ and ‘RS2’.
b. Wire in the room thermostat. Reference should be made to the Manufacturer's instructions.
c. **Programmer.** Remove the link between terminals ‘CH’ and ‘L1’, and ‘CL’ and ‘HW’. Wire in the time switch according to diagrams A and B below. Note. Wire the programmer and the room thermostat neutrals into terminal ‘CN’.
d. Frost protection.

Central heating systems fitted wholly inside the house do not normally require frost protection, as the house acts as a ‘storage heater’ and can normally be left at least 24 hours without frost damage. However, if parts of the pipework run outside the house, or if the boiler will be left off for more than a day or so, then a frost thermostat should be wired into the system. This is usually done at the programmer, in which case the programmer selector switches are set to ‘OFF’ and all other controls MUST be left in the running position. The frost thermostat should be sited in a cold place, but where it can sense heat from the system. Wiring should be as shown, with minimal disturbance to other wiring of the programmer Designation of the terminals will vary, but the programmer and thermostat manufacturer's leaflets will give full details.

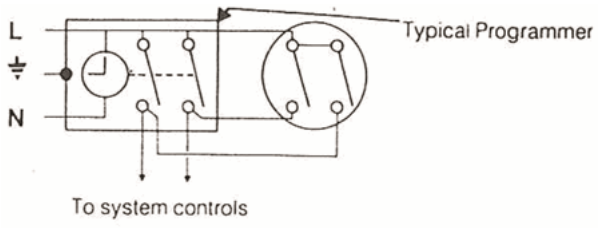
Diagram 1 shows a double pole frost ‘stat which should suffice for all systems which do not use the ‘off’ terminals of the programmer.

Diagram 2 shows a ‘changeover’ frost ‘stat which will cover most systems which do use ‘C.H. Off’

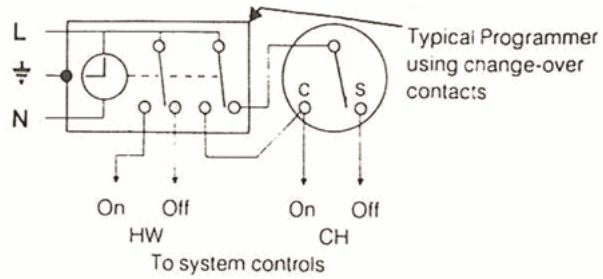
NOTE:

Secure any leads with the cable clamps provided. Refit the terminal box cover.

1. Double pole frost stat e.g. SOPAC TA342.04



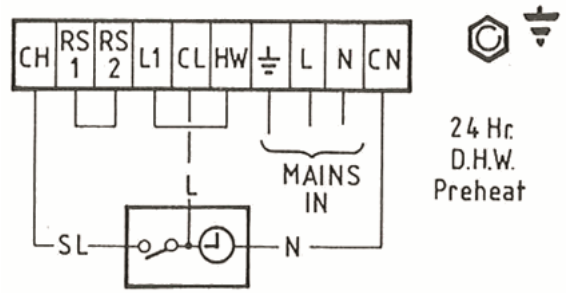
2. Change-over frost stat (shown satisfied)



A CLOCK CONTROL OF HEATING ONLY. 24 hr. D.H.W. ‘Pre-heat’.

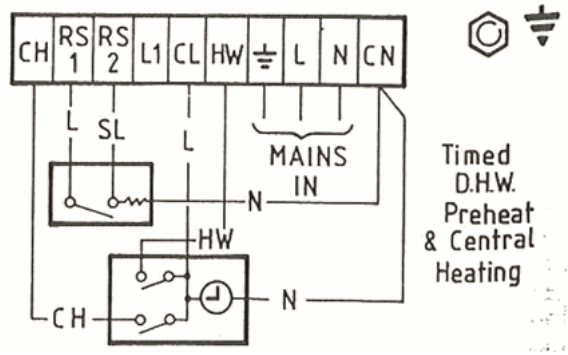
IMPORTANT:

Fit the link between terminals ‘L1’ and ‘HW’.



B FULL CONTROL WITH PROGRAMMER & ROOM THERMOSTAT.

Timed D.H.W. ‘Pre-heat’.



NOTE:

Connect any earths from external controls to the earthing post on the wall mounting plate.

20 MOUNTING THE BOILER

NOTE:

Remove the cardboard controls protection box.

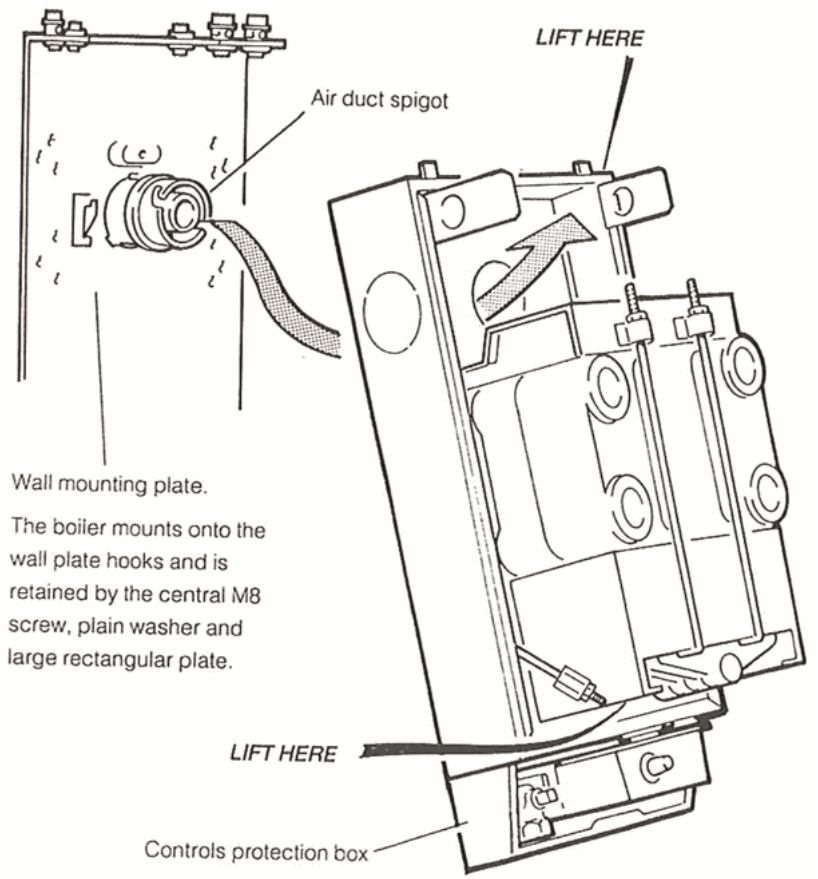
1. Disconnect the 2 fan electrical connections and the fan earth to back panel connection.

2. Remove the 4 screws, each with two washers, retaining the fan assembly.

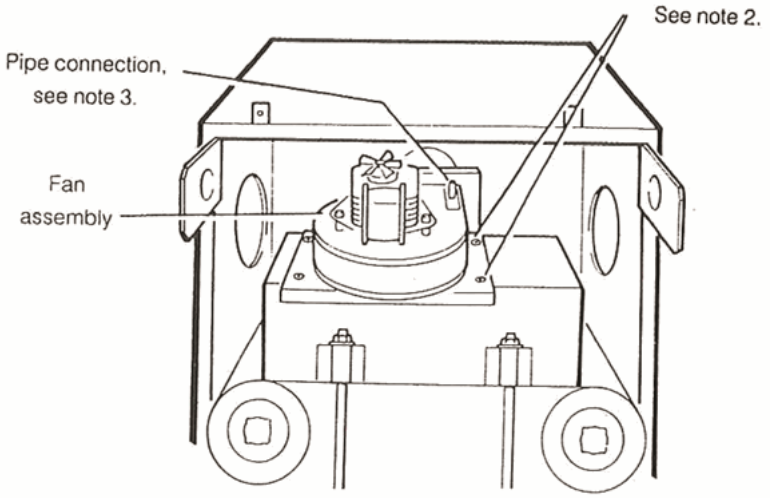
3. Pull off the silicon rubber pipe connection on top of the fan. Taking care not to damage the glass fibre gasket, remove the fan to a safe place.

NOTE:

Always take care when handling the fan. to preserve the balance of the impeller.



UPPER VIEW OF BOILER MODULE ASSEMBLY



Have ready to hand the M8 fixing screw, plain washer and large rectangular plate supplied in the Hardware Pack.

4. Lift the boiler onto the wall mounting plate as shown.

DO NOT USE THE BURNER/CONTROLS ASSEMBLY FOR LIFTING.

IMPORTANT:

The boiler module MUST be positioned CENTRALLY on the wall mounting plate. Refer to the index mark on the back panel.

5. Fit the M8 screw, plain washer and large rectangular plate to retain the boiler.

NOTE:

Before fully tightening the M8 screw, check the boiler alignment using a spirit level and adjust as necessary with the jacking screw. Refer to Frame 5.

6. Adjust the jacking screw until the hole in the wall mounting plate lines up with the hole in the jacking screw plate. Locate the 1/2 in. self tapping screw in the boiler lower fixing hole & secure to the wall mounting plate.

DO NOT USE THE BURNER/CONTROLS ASSEMBLY FOR LIFTING.

DO NOT REST THE BOILER ON THE ASSEMBLY - AS DAMAGE MAY RESULT.

21 SEALING THE BOILER AND FLUE

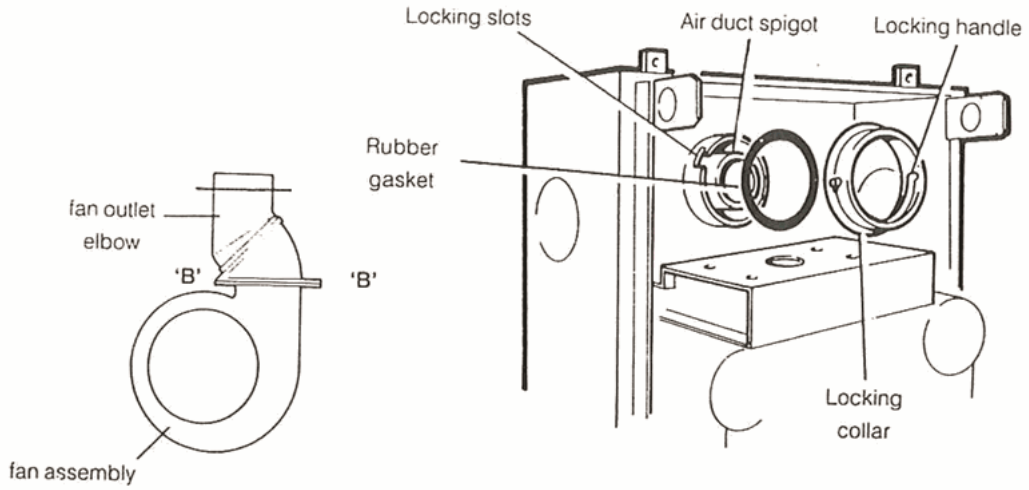
1. Stretch the rubber gasket over the air duct spigot.

2. Fit the locking collar as shown and rotate it to engage with the locking slots in the flue assembly.

3. Fold the locking handle as shown.

4. Slacken the two nuts at joint 'B - B' on the fan outlet elbow.

5. Check that the flue baffles are pushed fully down in the heat exchanger and refit the fan assembly, retaining with the four screws and washers previously removed.

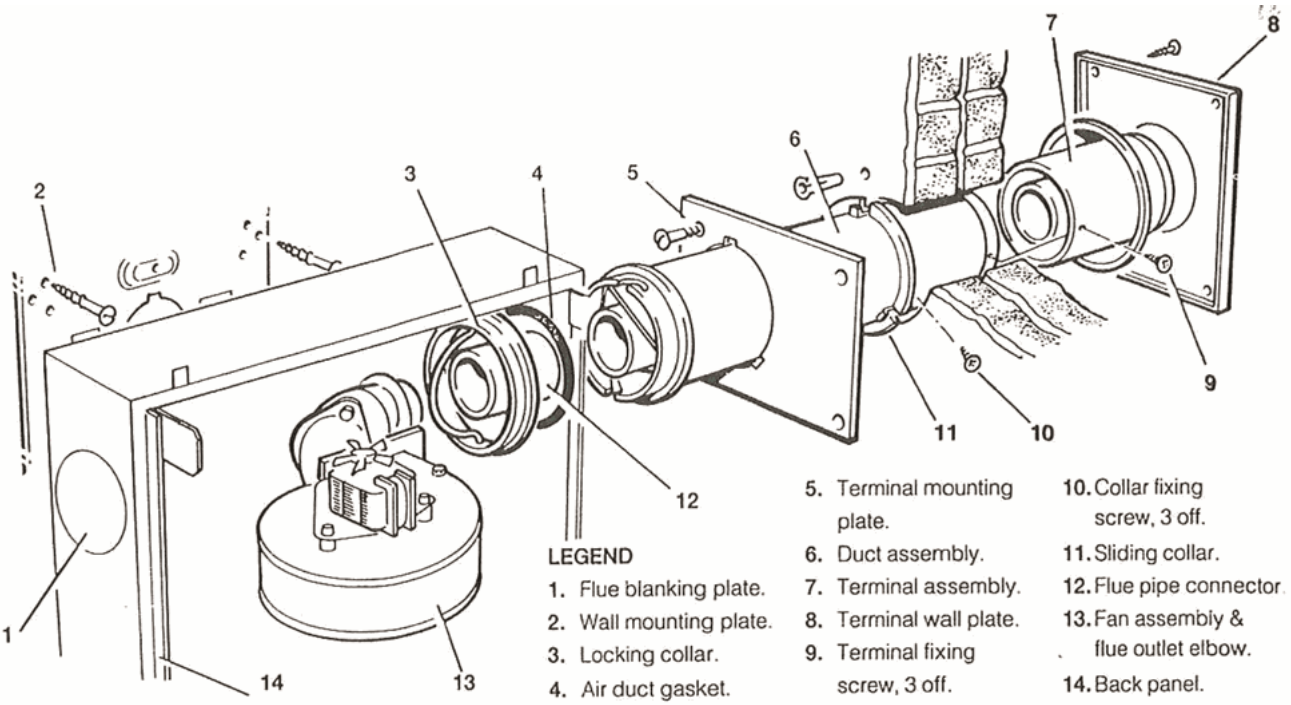


6. Retighten the two screws retaining the elbow to the fan.

7. Refit the three fan electrical connections, ensuring that the earth is correctly fitted. Refit the positive pressure silicon rubber pipe to the connection on top of the fan.

22 FLUE ASSEMBLY - Exploded View

1. An optional duct extension kit is required for lengths of dimension 'Y' (wall thickness plus boiler/wall spacing) greater than 406 mm (16 in.). Refer to Frame 5 and 'Flue Extension Ducts'.
2. When cutting the ducts, always use the cardboard support rings provided.



23 WALL MOUNTING TEMPLATE

1. Separate the templates.

2. Installations with top water connections ONLY. Tear off and discard the shaded portion of template 'B'. (Refer to Frame 2).

3. Tape both templates into the selected position locating template ‘B’ via an centre extended centre line as shown.

4. Ensure squareness by hanging a plumbline as shown.

5. Mark onto the wall the mounting plate screw positions (choose 1 from each group) and lower fixing screw position.

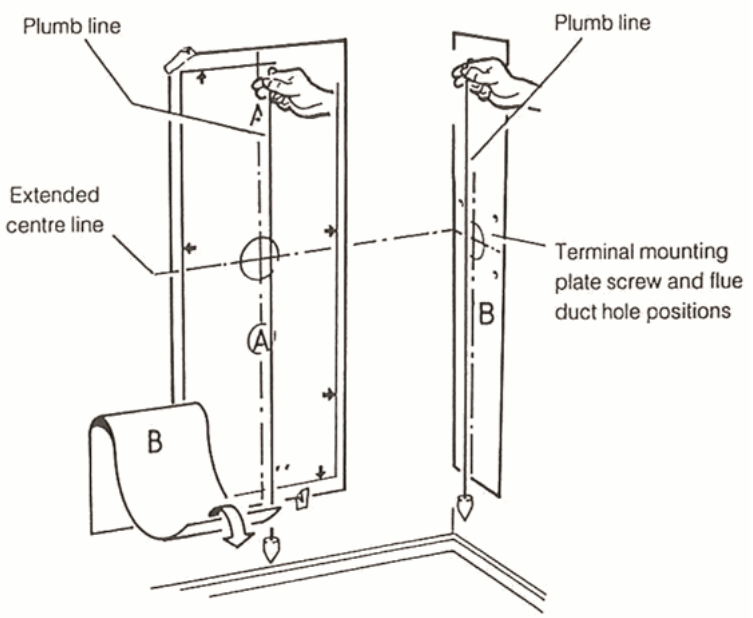
6. Mark onto the wall the 4 terminal mounting plate screw positions.

7. Mark onto the wall the position of the flue duct hole.

NOTE:

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

8. Remove both templates from the wall.



24 PREPARING THE WALL

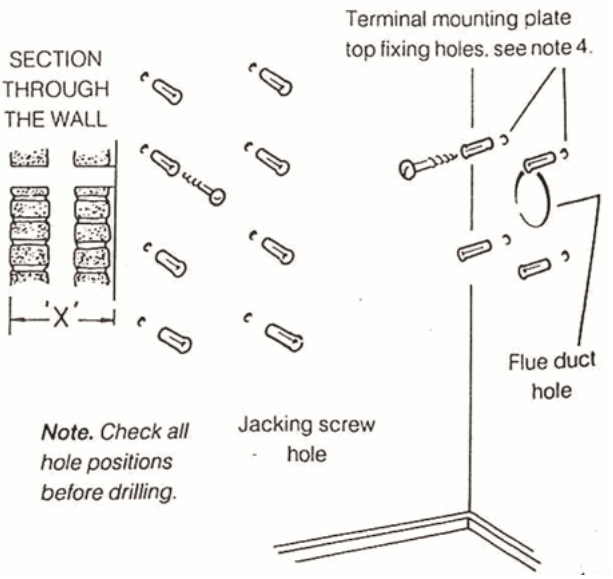
IMPORTANT:

Ensure that, during the cutting operation, masonry falling outside of the building does not cause damage or, personal injury

1. Cut the flue hole (preferably using a 5 in. core boring tool), ensuring that the hole is square to the wall. If the hole has been quite accurately cut with a drill then making good the wall faces is not essential - as seals are provided at both ends of the flue. However, both wall faces immediately around the cut hole should be flat; make good if necessary. For less accurate holes make good to approximately 125 mm diameter at the two wall faces. For holes longer than 610 mm this must be done from outside for the outer face - as access to the outside is needed to fit the terminal wall plate anyway.
2. Measure the wall thickness ‘X’ and calculate dimension ‘Y’ (i.e. Boiler spacing plus ‘X’). Refer to Frame 5.
3. Drill the 4 wall plate holes and the remaining 9 holes with an 8 mm (5/16 in.) masonry drill and insert, in all but the jacking screw hole, the plastic plugs provided.
4. Locate 2 No. 10× 2 in. screws in the terminal mounting plate top fixing holes and screw home to within 6 mm (1/4 in.) of the wall surface

NOTE:

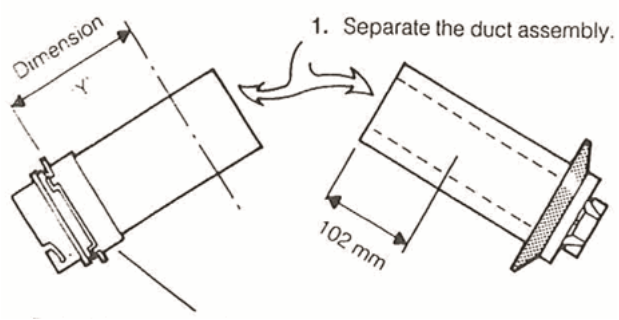
If the terminal is to be sited 25 to 40 mm from a corner or vertical pipe (refer to Table 4) the hole must be accurately cut and the rubber weather seal trimmed around the groove provided. The terminal wall plate need not be fitted.



25 CUTTING THE DUCT ASSEMBLY

FLUE LENGTHS OF 114 TO 216 mm ONLY.

1. Separate the duct assembly.



2. Push the sliding collar to the end of the duct and measure off dimension 'Y' (wall thickness plus boiler spacing).

3. Cut to length 'Y', using the cardboard duct rings for support.

NOTE:

Cut the inner flue tube 6 mm (1/4 in.) longer than the outer air tubes.

4. Always cut 102 mm (4 in.) off the terminal section.

5. Remove the cardboard support rings.

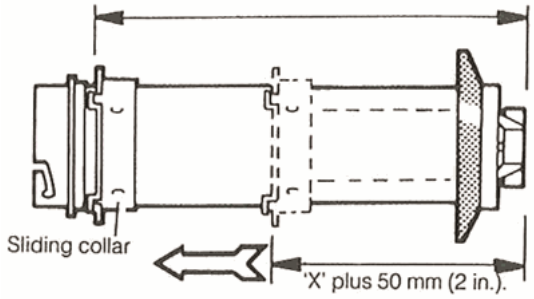
6. Re-assemble the terminal, aligning the seams.

26 JOINING THE DUCT ASSEMBLY

FLUE LENGTHS UP TO 406 mm ONL Y.

1. Push the sliding collar to the boiler end of the assembly.

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

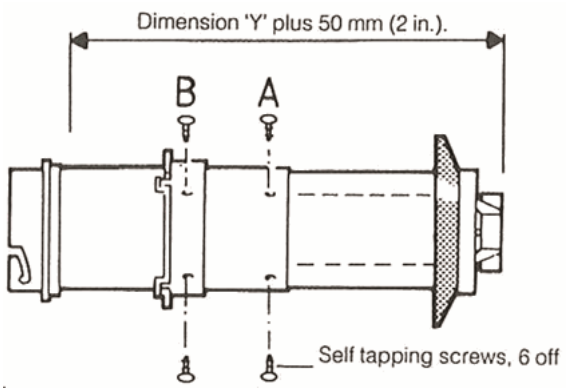


3. Using the sliding collar as a template at the duct join, mark the positions of the 3 fixing screws (A).

NOTE:

If the duct join is too close to the rubber weather seal to permit access for drilling, mark the hole positions at the mid-point of the duct.

4. Set the collar to the required position, ie. dimension 'X' (wall thickness) plus 50 mm (2 in.) and mark the positions for a further 3 fixing screws (B).



5. Drill the 6 fixing holes using a 3.2 mm. drill. Insert the self tapping screws in order to fix the collar in position and lock the duct assembly. **DO NOT DRILL THE INNER FLUE DUCT.**

NOTE:

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

6. Seal the air duct joint with the aluminium tape provided in the Hardware Pack.

FOR FLUE LENGTHS ABOVE 406 mm, REFER TO 'Flue Extension Ducts' (Frames 36 & 37).

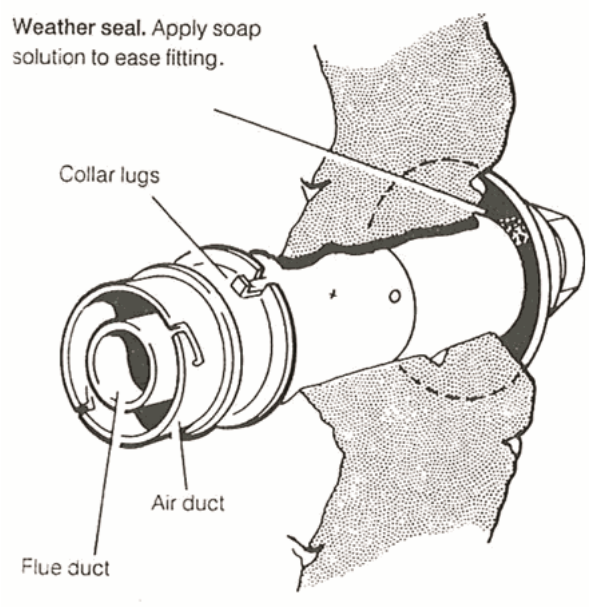
27 FITTING THE FLUE ASSEMBLY

FROM EITHER THE INSIDE OR OUTSIDE OF THE BUILDING.

1. Push the flue duct assembly through the wall.
2. Take the terminal mounting plate and stick the sealing tape provided to the reverse side of the plate.

Locate the plate over the projecting flue duct assembly and engage the flue duct collar lugs with the terminal mounting plate slots. Rotate the flue assembly to lock.

Continue the installation procedure from Note 2 of Frame 28.

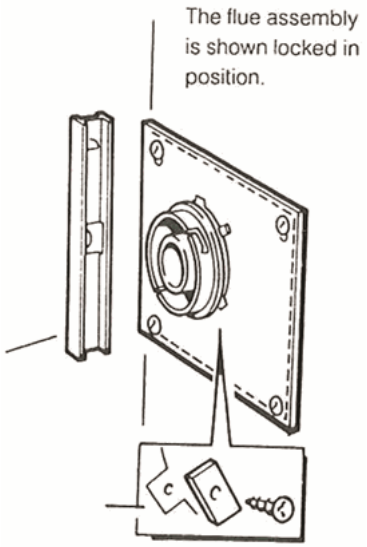


FROM OUTSIDE OF THE BUILDING ONLY.

1. Fit the terminal mounting plate as detailed in Notes 1 to 4 of Frame 26- *but do not drive the No. 10×2 in. fixing screws fully home until the flue duct assembly is engaged.*
2. From outside of the building, push the assembly through the wall. Engage the flue duct collar lugs with the terminal mounting plate slots and rotate the flue assembly to lock.
3. Drive home the No. 10 × 2 in. fixing screws.
4. Make good between the plate and the corner of the wall.
5. Align the holes in the sliding collar flange with the 3 slots in the terminal wall plate. Insert 3 of the self tapping screws and rectangular washers, provided, to retain the assembly. Refer to the detail in Frame 28.

28 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 × 2 in. screws in the bottom fixing holes and drive home all four screws.
4. Check with a spirit level that the plate is vertical.
5. Make good between the plate and the corner of the wall.
6. Align the holes in the sliding collar flange with the 3 cut outs in the wall plate. Insert 3 of the self tapping screws and rectangular washers, provided, to retain the flue assembly.



29 FITTING THE STAND-OFF BRACKETS

INSTALLATIONS WITH BOTTOM WATER CONNECTIONS ONLY

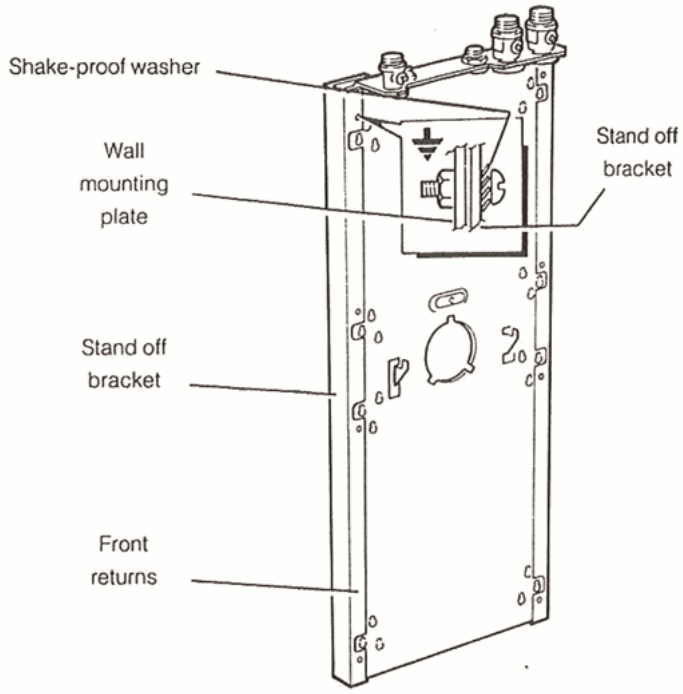
Secure the two stand-off brackets to the wall mounting plate, using the eight M 6 nuts, screws and shake proof washers provided, such that the plate is located BEHIND the front returns of the brackets - as shown.

NOTE:

If the clearances above and below the boiler are less than the length of the pipes to be fitted behind the wall mounting plate then refer to Frame 15.

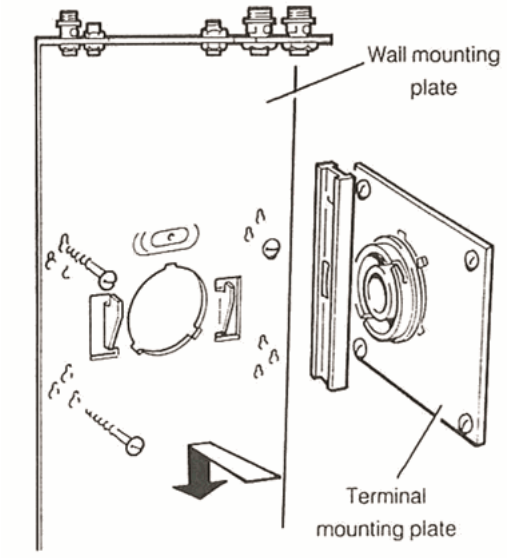
IMPORTANT:

To ensure earth continuity, securing screws must be fitted in the top holes (marked with the earth symbol), with the shake-proof washers positioned under the screw heads.



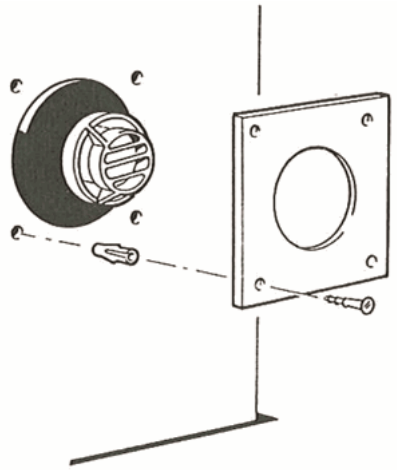
30 WALL MOUNTING PLATE

1. Locate two No. 14 × 2 in. screws in the wall mounting plate top fixing holes and screw home to within 6 mm (1/4 in.) of the wall surface.
2. Engage the plate (or plate and stand-off brackets) on the screws.
3. Locate 6 No. 14 × 2 in. screws in the lower fixing holes and drive home all 8 screws.
4. Check wih a spirit level that the plate is vertical.



31 TERMINAL WALL PLATE

This plate allows the neat concealment and full compression of the rubber seal. Its use is not essential if the flue hole and flue ducts have been accurately cut and the outside wall face is flat *except that this plate must be used on wall thickness over 610 mm (24 in.).*



1. Position the terminal wall plate over the terminal.
2. Drill 4 fixing holes with an 8 mm (5/16 in.) masonry drill.
3. Insert the four plastic plugs provided.
4. Secure the plate with four of the No. 10 × 2in. screws provided.

NOTE:

If the terminal is less than 2 m (6.6 ft.) above ground level, an approved terminal guard should be fitted. Refer to Page 5.

32 PRE-PIPING

REFER TO FRAME 15.

IMPORTANT:

For installations with BOTTOM WATER CONNECTIONS ONLY - the pipe runs shown in frame 15 MUST be made BEFORE the boiler is mounted on the wall.

NOTE:

FOR BOTH TOP AND BOTTOM WATER CONNECTIONS:

If required, connection to the system pipework may now be made BEFORE the boiler is mounted on the wall - PROCEED TO 'WATER CONNECTIONS' (FRAME 44).

33 PRE-WIRING

REFER TO FRAME 16.

The mains supply and other external wiring may now be made, if required, BEFORE the boiler and combi. modules are mounted on the wall.

Refer to Frames 17, 18 and 19.

34 MOUNTING THE BOILER MODULE

NOTE:

Remove the cardboard controls protection box.

1. Disconnect the 2 fan electrical connections and the fan earth to back panel connection.

2. Remove the 4 screws, each with two washers, retaining the fan assembly.

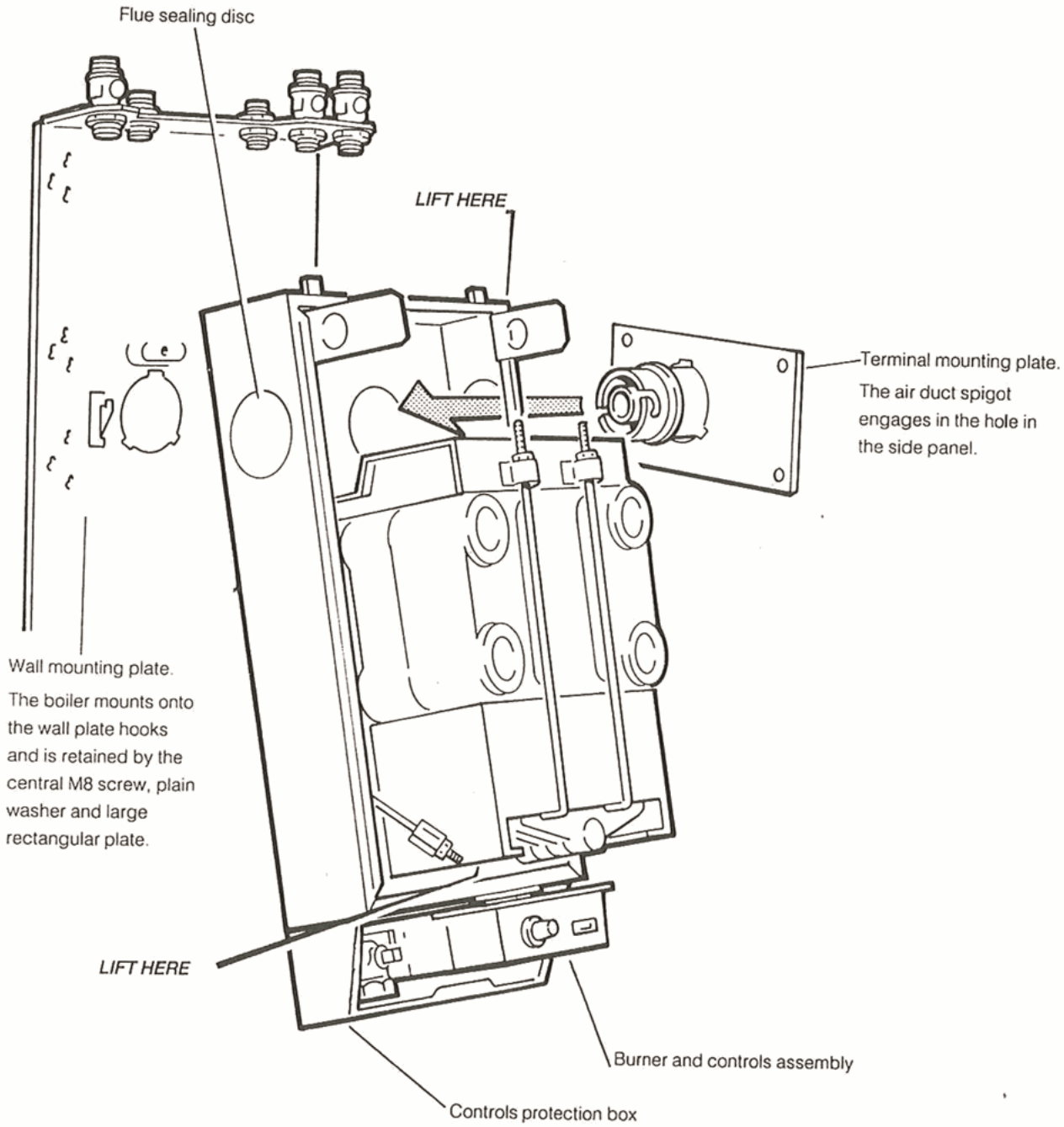
3. Pull of the silicon rubber pipe connection on top of the fan. Taking care not to damage the glass fibre gasket, remove the fan to a safe place.

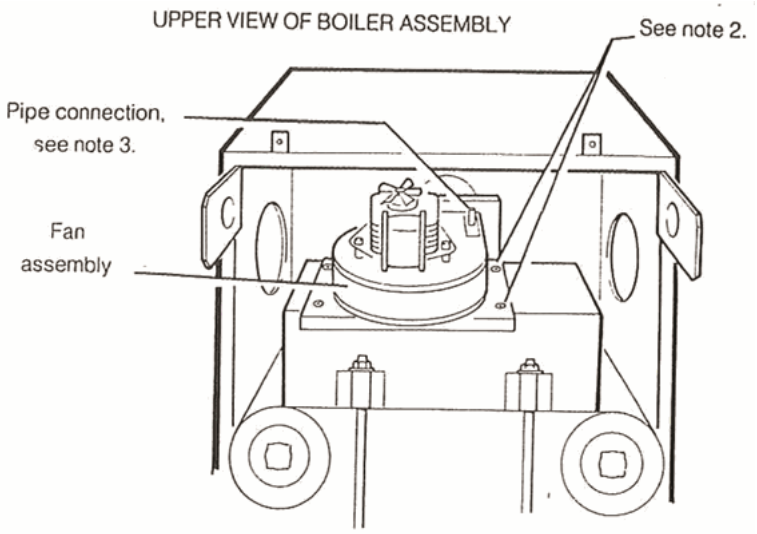
NOTE:

Always take care when handling the fan, to preserve the balance of the impeller.

4. Fit a pair of blanking plates and discs to the rear flue outlet hole.

Have ready to hand the M8 fixing screw, plain washer and large rectangular plate supplied in the Hardware Pack.





5. Lift the boiler onto the wall mounting plate as shown. The air duct spigot engages in the hole in the side panel.

IMPORTANT:

The boiler module MUST be positioned CENTRALLY on the wall mounting plate. Refer to the index mark on the back panel

DO NOT USE THE BURNER/CONTROLS ASSEMBLY FOR LIFTING.

6. Fit the M8 screw, plain washer and large rectangular plate to retain the boiler.

NOTE:

Before fully tightening the M8 screw, check the boiler alignment using a spirit level and adjust as necessary with the jacking screw. Refer to Frame 5.

7. Adjust the jacking screw until the hole in the wall mounting plate lines up with the hole in the jacking screw plate.

Locate a No. 10 × 2 in. screw in the boiler lower fixing hole and secure to the wall.

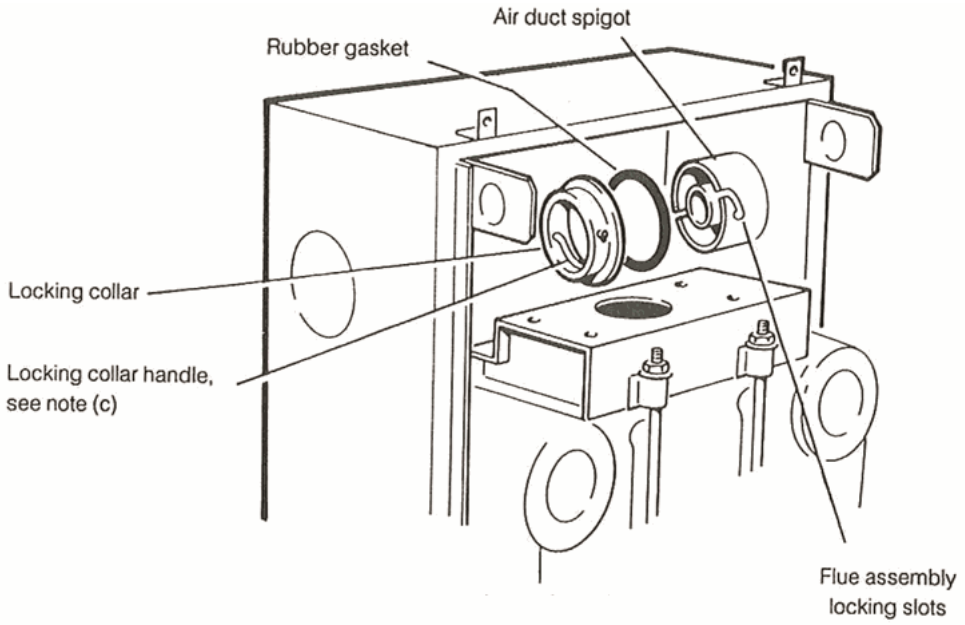
DO NOT USE THE BURNER/CONTROLS ASSEMBLY FOR LIFTING.

DO NOT REST THE BOILER ON THE ASSEMBLY - AS DAMAGE MAY RESULT.

35 SEALING THE BOILER AND FLUE/REFITTING THE FAN ASSEMBLY

1. Sealing the Boiler and Flue.

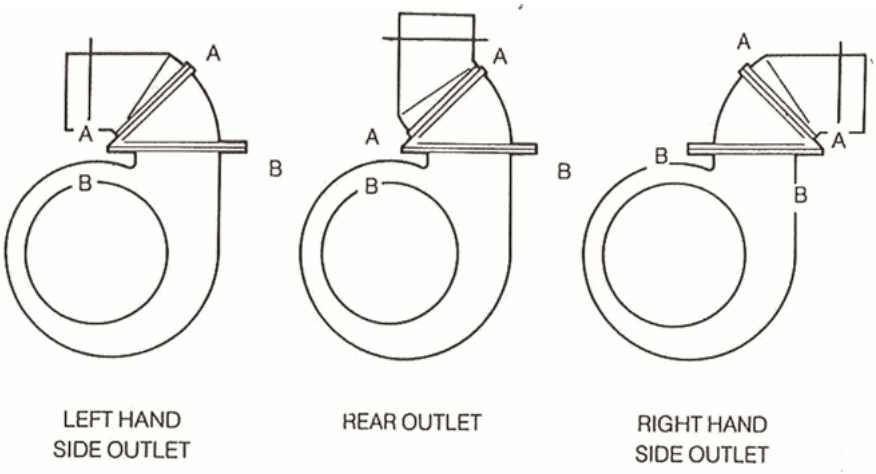
a. Stretch the rubber gasket over the air duct spigot.
b. Fit the collar as shown and rotate to engage with the flue assembly locking slots.
c. Fold the locking handle as shown.



2. Fan Outlet Arrangement.

The fan outlet is supplied for rear outlet installation.

Re-arrange the outlet elbow to suit either a left hand side or a right hand side outlet as shown below.



NOTE:

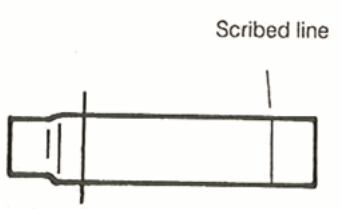
When altering the arrangement of the fan outlet elbow, for either side, slacken the extended nuts at joint 'B - B' to help alignment when re-fitting the fan assembly.

LEFT HAND SIDE OUTLET: Disconnect at joint 'A - A' and rotate through 180°.

RIGHT HAND SIDE OUTLET. Disconnect at joint 'A - A' and 'B - B' and rotate both through 180°.

3. Fan Assembly Refitting.

(a) For R.H. side outlet ONLY. Cut the side outlet flue pipe connector at the scribed line.



(b) Fit the flue pipe connector onto the fan outlet elbow.

(c) Ensure that the flue baffles are fully pushed down in the heat exchanger.

(d) Refit the fan assembly onto the collector hood, fully engaging the flue pipe connector into the flue pipe. Secure the assembly with the four screws previously removed. Re-tighten the extended nuts at joint ‘B - B’ on the flue outlet elbow.

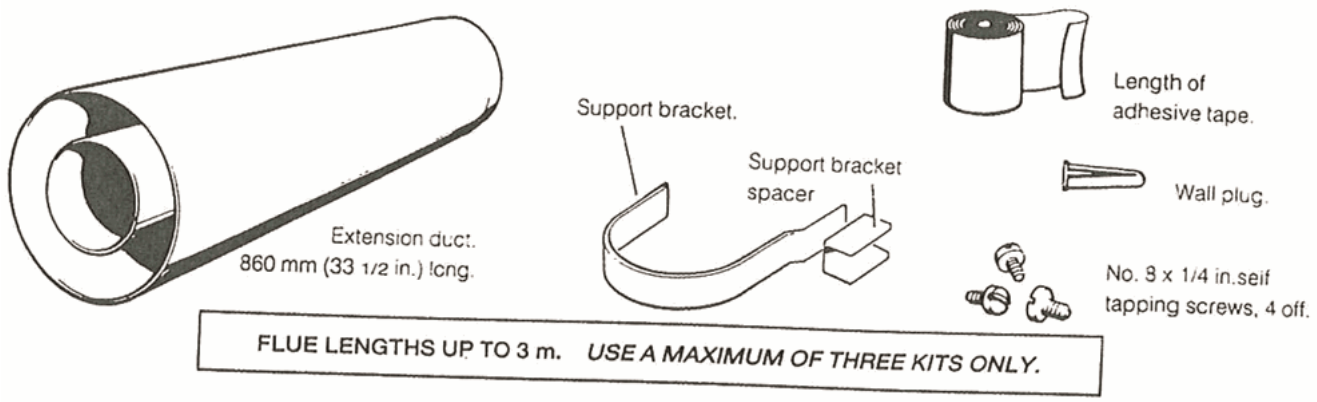
(e) Reconnect the 3 fan electrical connections, ensuring that the earth is correctly fitted.

(f) Reconnect the positive pressure silicon rubber pipe to the connection on top of the fan.

PROCEED TO FRAME 38

36 PACK ‘D’ CONTENTS AND GENERAL ARRANGEMENT OF THE FLUE DUCTS

PACK ‘D’ FLUE EXTENSION DUCT KIT CONTENTS. Unpack the Kit and check the contents.

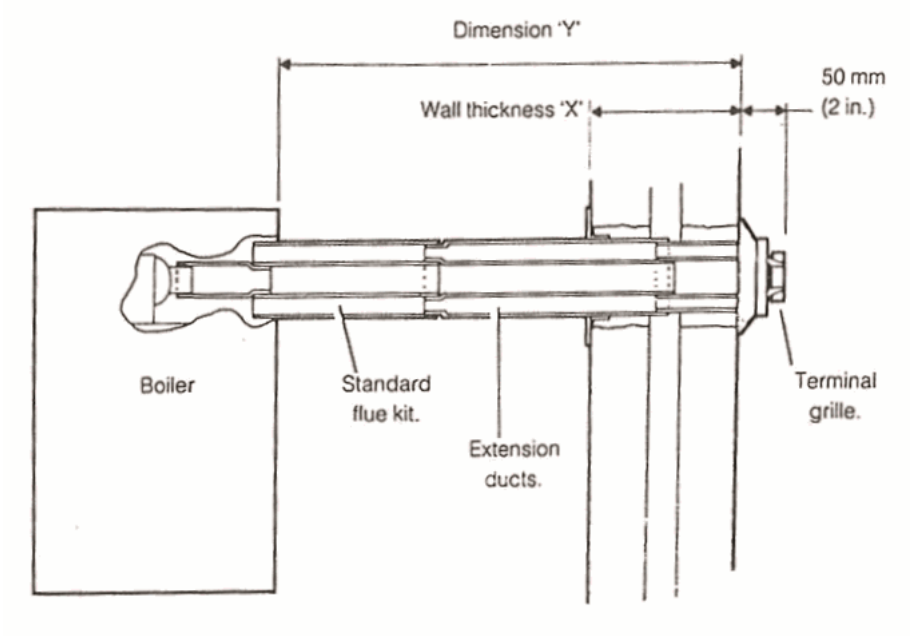


GENERAL ARRANGEMENT.

NOTE:

Side flue configuation shown.

1. A MAXIMUM OF THREE KITS ONLY may be used together.
2. Always cut the extension ducts at the plain ends only.
3. Ensure that there is at least a 25 mm (1 in.) overlap at each joint.
4. For flue lengths of less than 457 mm (18 in.), ensure that the collar is positioned on an air duct (outer).
5. Flue extensions of greater length than 1 m (39 in.) should be supported with the bracket provided.
6. Tape all air duct connections.
7. Always align the seams when re-assembling the ducts.
8. Use the support bracket spacer ONLY with installations having BOTTOM WATER CONNECTIONS.



37 FITTING THE KIT

IMPORTANT:

Read in conjunction with Frame 36.

1. Separate the Flue duct assembly.

2. Insert the appropriate extension duct(s) with the plain end(s) toward the terminal.

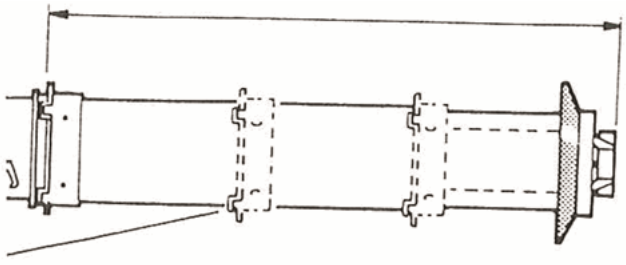
3. Re-assemble the terminal and the duct assemblies.

4. Push the sliding collar back to the boiler end of the duck or to its intended position.

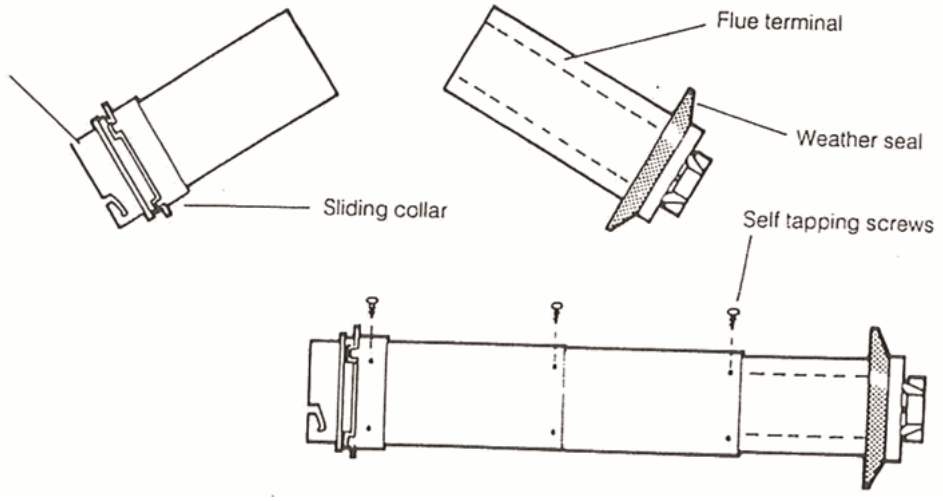
5. Set the assembly to length, i.e. Dimension X' (wall thickness) plus 50 mm for top water connections.

Dimension 'X' plus 45 mm (wall thickness plus 45 mm) plus 50 mm for bottom water connections.

Dimension 'Y' (wall thickness and boiler spacing) plus 50 mm (2 in.) for side flue installations.



6. Using the sliding collar as a template at the joins of any ducts nark the positions the fixing screws (3 screws for each jont).



7. Drill at the markings with a 3.2 mm. drill.

8. Lock the assembly in position with the self tapping screws provided.

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

NOTE:

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

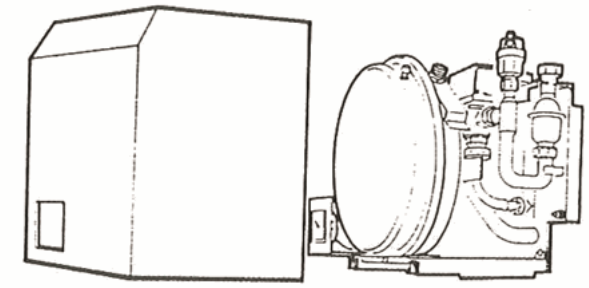
LIANCES FITTED WITH A *REAR OUTLET FLUE:* PLEASE REFER TO FRAME 6 (PAGE 9).

LIANCES FITTED WITH A *SIDE OUTLET FLUE* PLEASE REFER TO FRAME (PAGE 14).

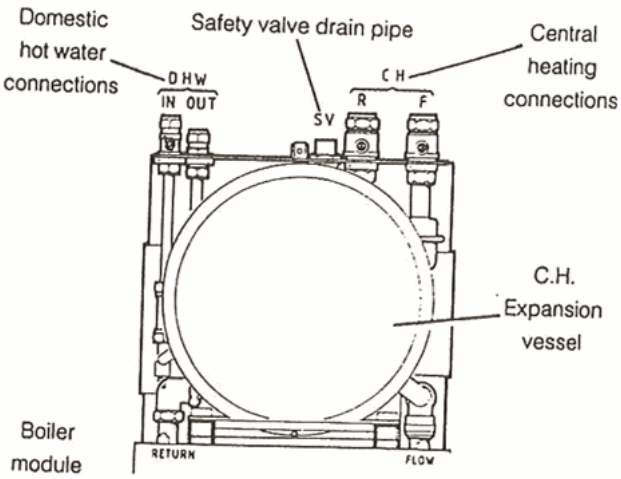
38 MOUNTING THE COMBI MODULE

1. Remove the Combi module from its box.

2. Lift off the Combi module cover, as shown.



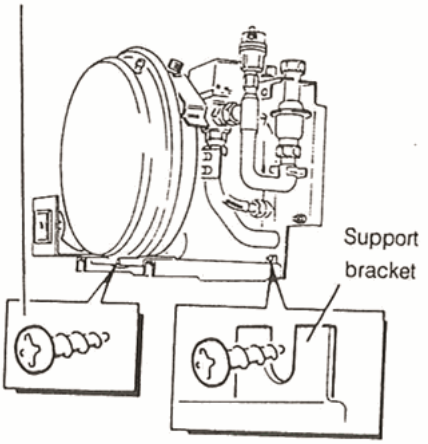
VIEW OF COMBI MODULE WITH COVER REMOVED



3. Slacken the retaining screw, lift out the C.H. expansion vessel and place safely to one side.

4. Remove the transit packing.

5. Slacken the 2 retaining screws, lift out the C.H. expansion vessel support bracket (complete with the pressure gauge) & place safely to one side.

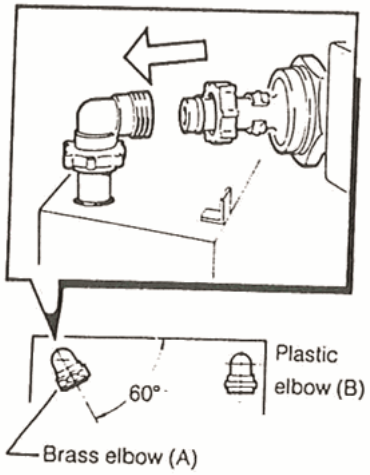


6. Fit the brass compression elbow (A), provided, on to the boiler RETURN pice and angle it at approximately 60° - as shown.

7. Snap the plastic compression elbow (B), provided, on to the boiler FLOW pipe, facing forwards - as shown. Apply soap solution to ease fitting.

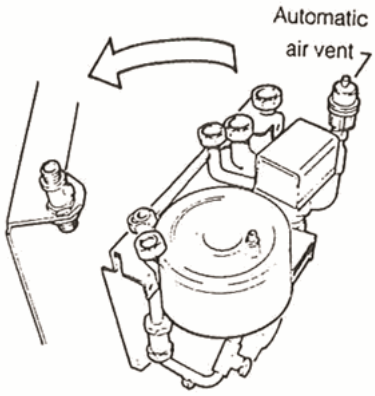
NOTE:

Ensure that the elbow is pushed fully home onto the pipe.



8. Offer the Combi module on top of the boiler module and engage the Combi module RETURN pipe within the brass compression elbow (A).

9. Swing the Combi module into position, as shown, & snap the Combi module FLOW pipe into the plastic/elbow (B), ensuring that it is pushed fully home (to the index mark on the Combi module FLOW pipe). DO NOT TIGHTEN THE BRASS COMPRESSION ELBOW UNIONS.



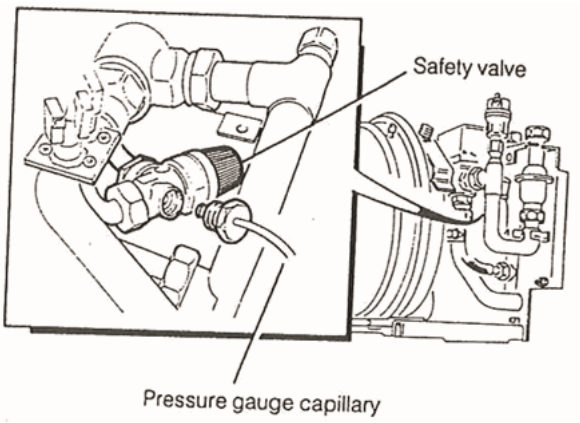
10. Connect the D.H.W. inlet & outlet pipes, safety valve drain pipe & the central heating flow and return pipes to the bulkhead fittings, on top of the wall mounting plate, using the 5 sealing washers provided. Fully tighten. Refer to view opposite.

NOTE:

(a) Make the 2 outside connections first, i.e. D.H.W. inlet & C.H. flow. Tighten & draw the assembly up.

(b) The automatic air vent may be removed, to gain better access to the C.H. union connections.

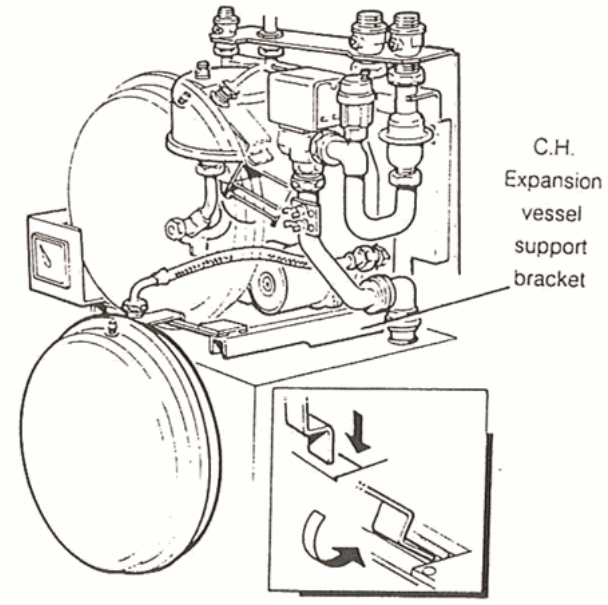
11. Tighten the union nuts of the brass compression elbow (A).



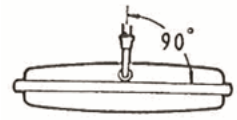
12. Fit the C.H. expansion vessel support bracket.

13. Connect the pressure gauge capillary to the safety valve. VIEW OF BOILER MODULE WITH C.H.EXPANSION VESSEL IN THE SERVICING POSITION

VIEW OF COMBI MODULE WITH COVER REMOVED



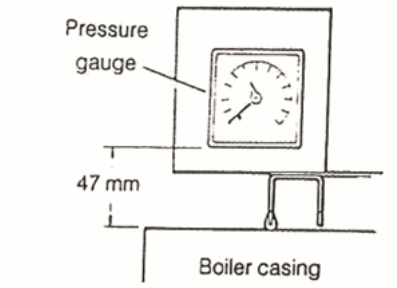
14. Hang the C.H. expansion vessel in the servicing position and connect the flexible pipe, using the sealing washer provided. Ensure that the pipe is positioned at 90° to the vessel, as shown.



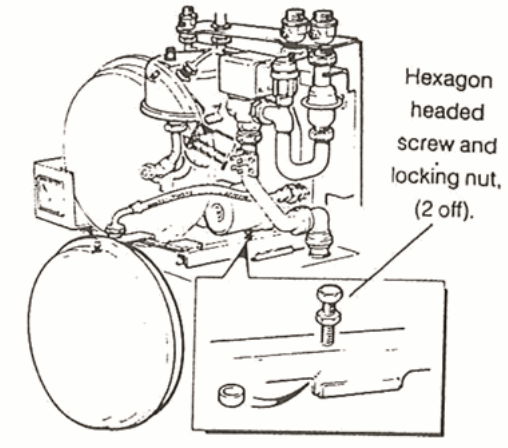
38 A PRESSURE GAUGE HEIGHT ADJUSTMENT

It may be found necessary to adjust the position of the pressure gauge in order for it to locate centrally in the aperture provided in the module casing.

This can be eased by checking the dimension from the bottom of the pressure gauge bezel and the top of the boiler casing, at the point when the expansion vessel is fitted.

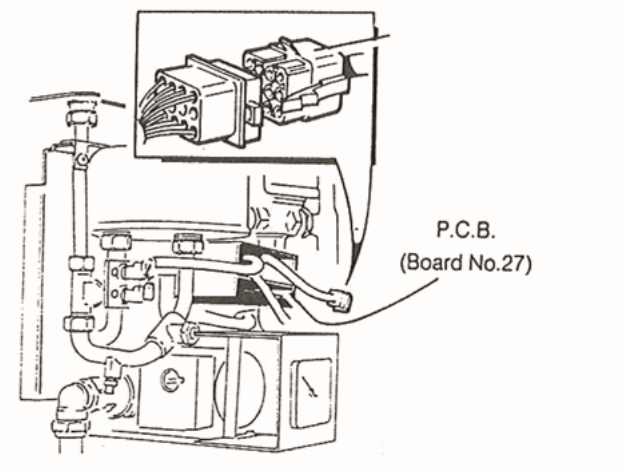


If adjustment is found to be necessary, undo the 2 locking nuts provided. Adjust the hexagon headed screws until the 47 mm dimension is achieved and tighten the locking nuts.

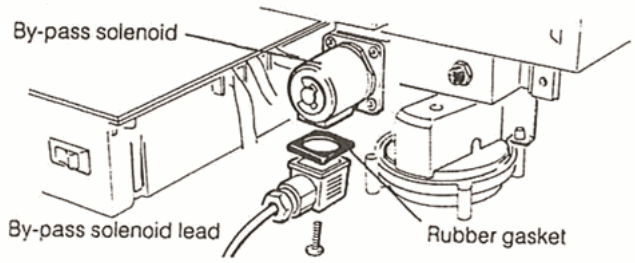


39 WIRING THE BOILER MODULE TO THE COMBI MODULE

1. Plug the wall plate wiring harness lead into the P.C.B. (Board No. 27), as shown.

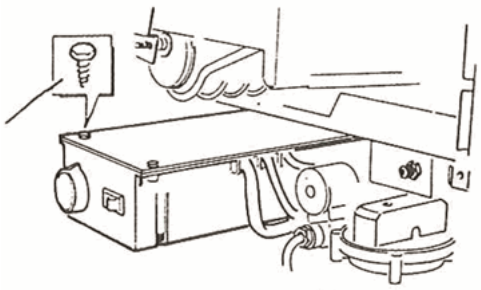


2. Fit the rubber gasket, provided, & plug the by-pass solenoid lead (from the wall plate) into the valve. Tighten the securing screw.

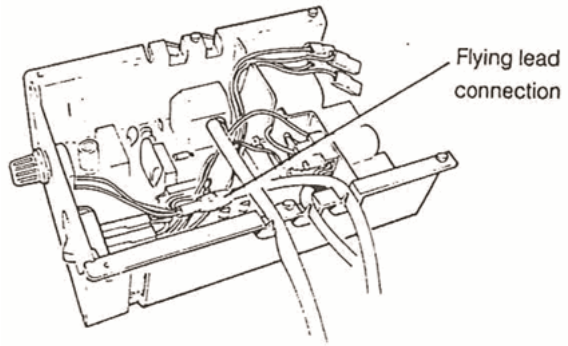


3. Connect the earth lead, from the wall plate wiring harness, to the earth post on the underside of the boiler back panel.

4. Remove the control box lid fixing screws. Disengage the lid retention hooks and remove the lid.



5. Route the remaining lead of the wiring harness into the control box, as shown, and plug it into the flying lead within the box. VIEW OF BOILER CONTROL 80X

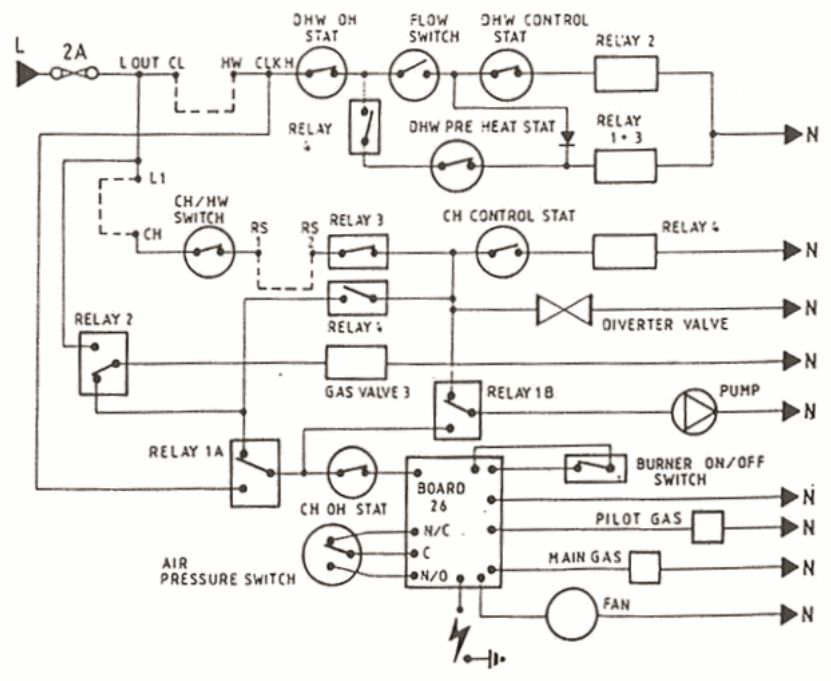


6. Replace the control box lid and retain with the 2 screws previously removed.

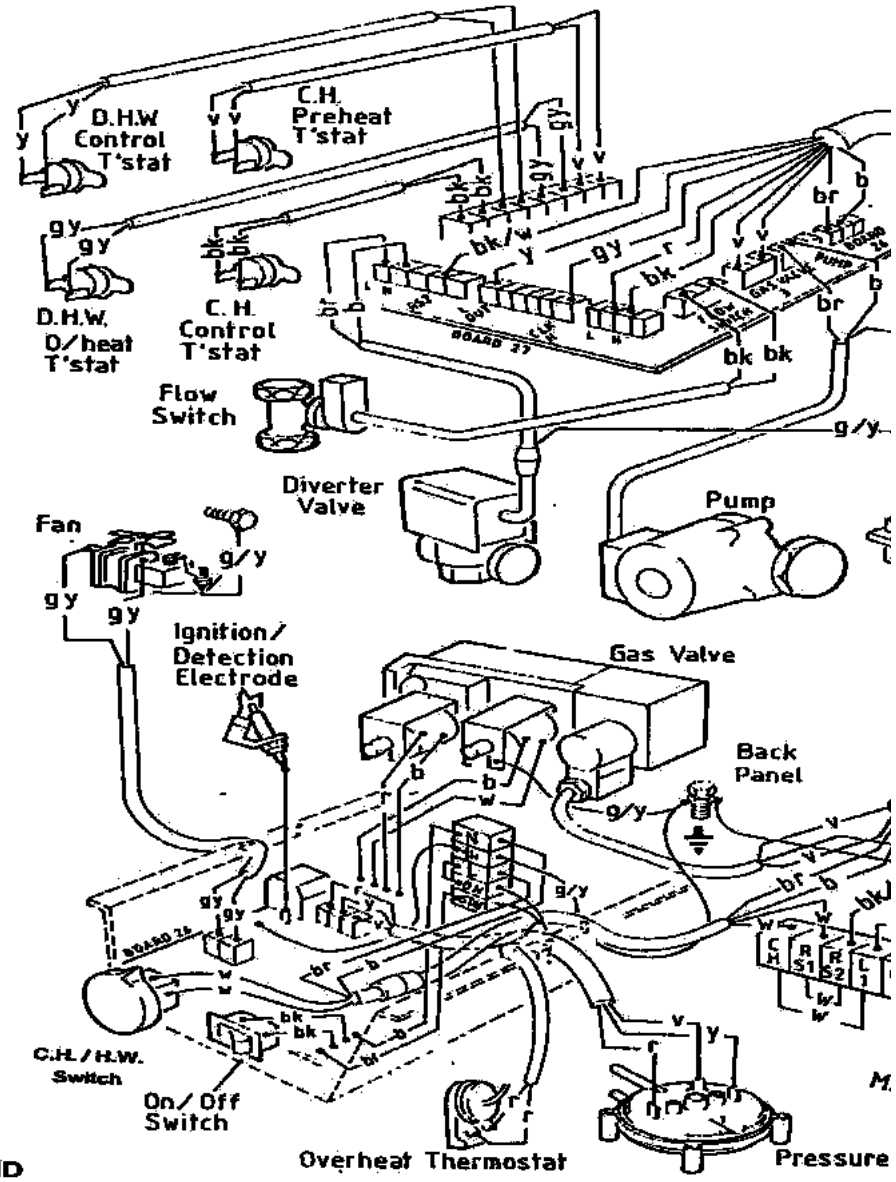
NOTE:

Ensure that no basic insulation is accessible outside of the control box.

40 FLOW WIRING DIAGRAM



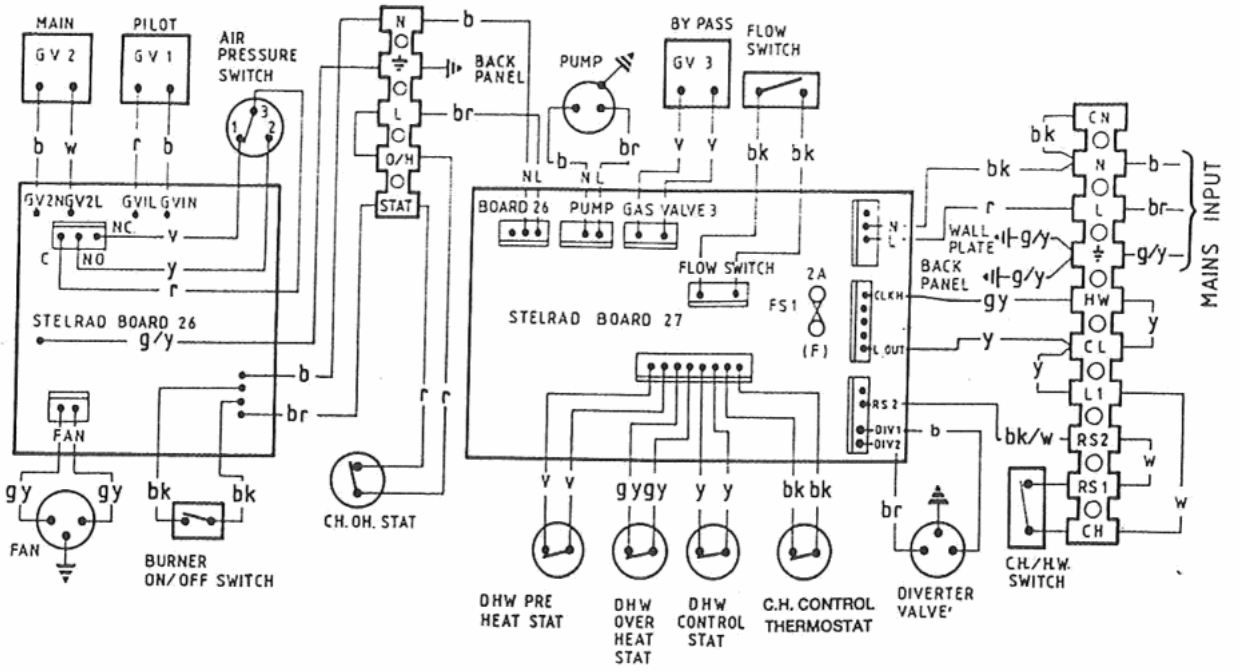
41 PICTORIAL WIRING DIAGRAM



LEGEND

gy grey	v violet	r red	w white	g/y green/yell
br brown	b blue	y yellow	bk black	bk/w black/wh

42 SCHEMATIC WIRING DIAGRAM



LEGEND

gy	grey	v	violet	r	red	w	white	g/y	green/yellow
br	brown	b	blue	y	yellow	bk	black	bk/w	black/white

43 GAS CONNECTION

Refer to 'Gas Supply' **(page 3) and** Frame 4 **(page 8) for gas inlet service dimensions**

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

2. Extend a gas supply pipe NOT LESS THAN 15 mm O.D. to the boiler and connect to the gas service cock situated at the bottom L.H. side of the boiler. Connection must be made from below the boiler.

If the pipe run from the meter to the boiler is greater than 3 m (10 ft.). it is recommended that 22 mm O.D. pipe is used. To facilitate connection it is recommended that the gas cock is not removed from the gas control valve.

3. Test the gas installation for soundness and purge, in accordance with BS. 6891: 1988. Refer to 'Commissioning and Testing' (Frame 49)

44 WATER CONNECTIONS

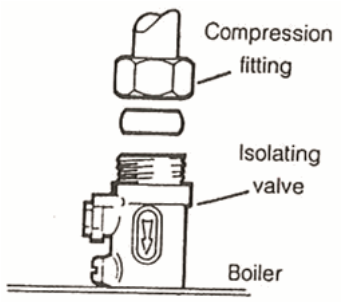
Central Heating

- When the central heating load exceeds 20.5 kW (70 000 Btu/h) then 28 mm (1 in.) pipes should be used, both to & from the boiler, as soon as is practicable after the initial 22 mm connection shown.
- For methods of filling refer to Frame 48.

1. Connect the central heating flow and return pipes to the boiler, as shown, or to the pipework previously fitted (installations with BOTTOM CONNECTIONS ONLY. Refer to Frame 15).

2. Ensure that the central heating isolating valves are open.

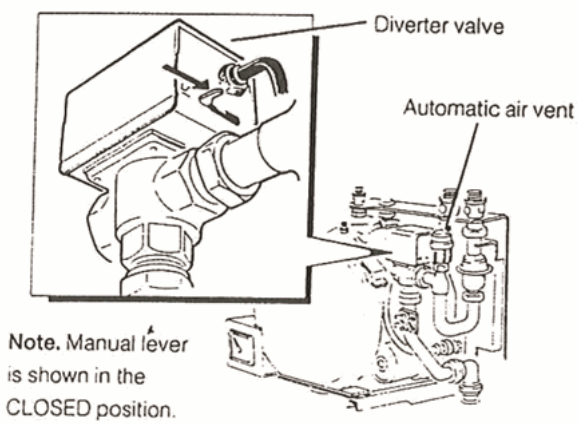
3. Fill and vent the system. Check for water soundness.



IMPORTANT:

When filling:

(a) Set the diverter valve manual lever to the OPEN position.



When filling is complete, return the lever to its CLOSED position,

(b) The cap on the automatic air vent MUST be loose at all times. When filling there may be a slight water leak from the vent, therefore electrical connections should be protected.

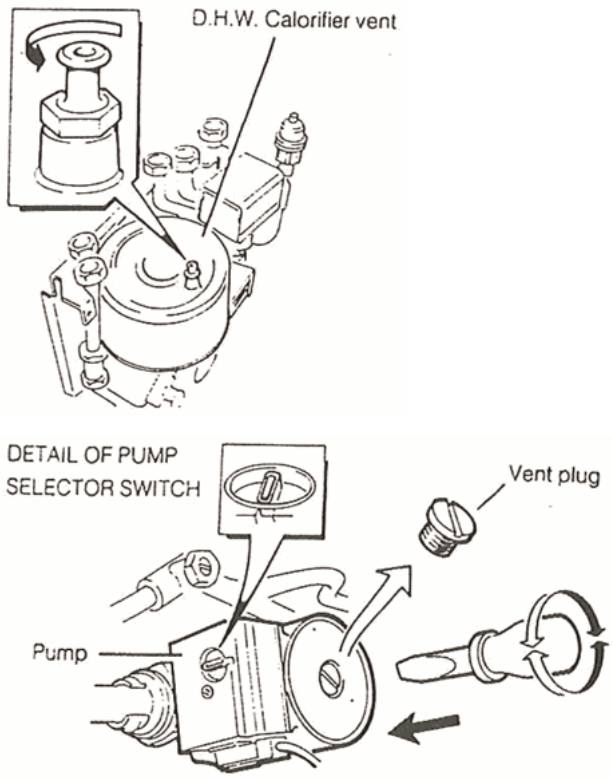
(c) Vent the D.H.W. calorifier circuit via the manual air vent on top of the calorifier.

4. Ensure that the pump selector switch is set to No. 3 and that the pump is free to rotate.

a. Remove the vent plug.
b. Using a screwdriver, rotate the shaft several times.
c. Replace the vent plug.

NOTE:

Some slight water leakage will occur.



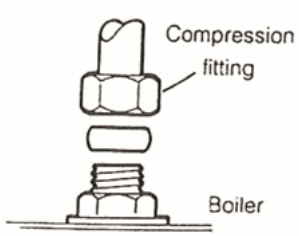
Domestic Hot Water Supply

- The D.H.W. supply pipe MUST be thoroughly flushed BEFORE connecting to the boiler.
- The boiler incorporates a D.H.W. filter, therefore no external device is necessary.
- It is recommended that a water softening device is fitted on the cold water inlet supply, particularly in hard water areas.
- Ensure that the mains supply pressure is sufficient to provide the maximum delivery of domestic hot water (approximately 0.9 bar, minimum). In areas where the mains water pressure is known to be high (greater than 10 bar), it is recommended that a water governor is fitted on the cold inlet supply to the boiler.

IMPORTANT:

Devices incorporating non-return valves MUST NOT be fitted to the D.H.W. inlet, unless provison is made to accommodate the expansion of the D.H.W. contained within the appliance. A suitable expansion vessel of the 'Zilmet' or 'W.M.P.' type should be fitted, externally to the boiler, between the non-return valve and the boiler.

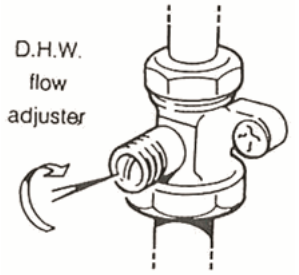
1. Connect the hot and cold water supply pipes to the boiler, as shown, or to the pipework previously fitted (installations with BOTTOM CONNECTIONS ONLY. Refer to Frame 15).



2. Open the domestic hot water draw-off taps, clear air locks and check for water soundness.

3. Domestic hot water flow rate setting.

a. Fully open all D.H.W. taps in turn & ensure that water flows freely from them.
b. Close all taps, except the furthest from the boiler, and check that the boiler is firing at maximum rate.
c. Turn the D.H.W. flow adiuster CLOCKWISE, to reduce the D.H.W. flow rate, until a rate of approximately 9.6 l/min. (2.1 g.p.m.) is obtained at the tap.
d. Turn off the D H.W. tap.



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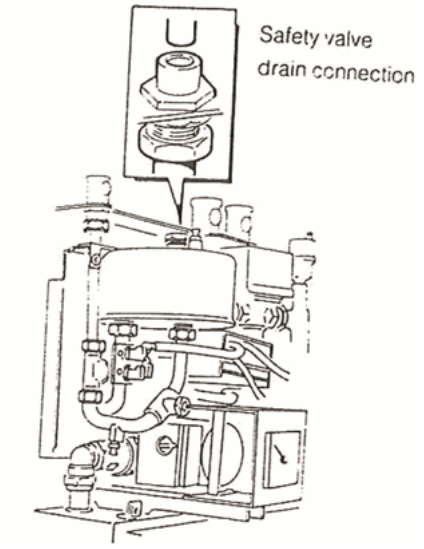
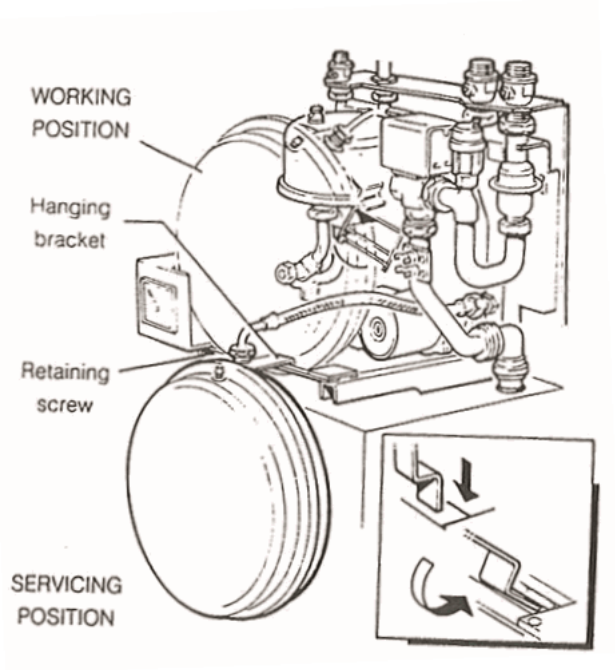
Route a 15 mm pipe from the safety valve drain connection, on top of the wall mounting plate, to a position outside of the building - such that any discharge of water or steam from the valve cannot create a hazard to the occupants or damage to electrical components and wiring.



46 C.H. EXPANSION VESSEL LOCATION

Fit the CH expansion vessel in its working position and secure with the retaining screw.



NOTE:

Ensure that the expansion vessel is orientated as shown to facilitate the fitting of the Combi module cover.

47 SYSTEM REQUIREMENTS

Central Heating

NOTE:

(a) Any connection for filling or replenishing of a sealed primary circuit from a supply pipe is conditional upon a water undertaking seeking and obtaining consent for a relaxation of its Byelaws 3 and 8 (1) from the Secretary of State.

(b) The method of filling, re-filling, topping up or flushing sealed primary hot water circuits from the mains via a temporary hose connection is only allowed if acceptable to the Local Water Authority.

(c) Anti-freeze fluid, corrosion and scale inhibitor fluids suitable for use with boilers having cast iron heat exchangers may be used in the central heating system. For further information contact;

Fernox Manufacturing Co. Ltd.,

Britannic Works, Clavering, Essex. or

Grace Service Chemicals,

Grace Dearborn Ltd., Widnes, Cheshire.

1. The installation must comply with the requirements of BS. 6891: 1988 and BS. 5449:1.

2. The installation should be designed to work with flow temperatures of up to 82° C.

3. All components of the system must be suitable for a working pressure of 3 bar (45 psi) and temperature of 110° C. Extra care should be taken in making all connections so that the risk of leakage is minimised. The following components are incorporated within the appliance.

a. Circulating pump.
b. Safety valve: with a non-adjustable pre-set lift pressure of 3 bar (45 psi).
c. Pressure gauge; covering a range of 0 to 6 bar.
d. 8 litre expansion vessel; with an initial charge pressure of 0.75 bar.

For further details refer to BS. 5449:1 and British Gas Corporation publication ‘Specifications for Domestic Central Heating and Hot Water’.

4. ‘Make-up’ water. Provision must be made for replacing water loss from the system either:

a. From a manually filled ‘make-up’ vessel with a readily visible water level. The vessel should be mounted at least 150 mm (6 in.) above the highest point of the system & be connected through a non-return valve to the system, fitted at least 150 mm (6 in.) below the ‘make-up’ vessel on the return side of the radiators.
b. Where access to a ‘make-up’ vessel would be difficult, by pre-pressurisation of the system. Refer to Frame 48 ‘Filling’. The maximum cold water capacity of the system should not exceed 127 litres if not pressurized. However, if the system is to be pressurized the efficiency of the expansion vessel will be reduced and a larger vessel (or smaller system volume) may be necessary. If the capacity of the vessel is not considered sufficient for this, or for any other reason, an additional vessel MUST be installed on the return to the boiler. Guidance on vessel sizing is given below & also in BS. 7074:1 & BS. 5449:1.

Safety valve setting	bar	3.0	
Vessel charge pressure	bar	0.5 to 0.75	
System pre-charge pressure	bar	None	1.0
System volume litres		Expansion vessel volume litres	
25		1.6	1.8
50		3.1	3.7

75	4.7	5.5
100	6.3	7.4
125	7.8	9.2
150	9.4	11.0
175	10.9	12.9
190	11.9	14.0
200	12.5	14.7
250	15.6	18.4
300	18.8	22.1
For other system volumes - multiply by the factor across:	0.063	0.074

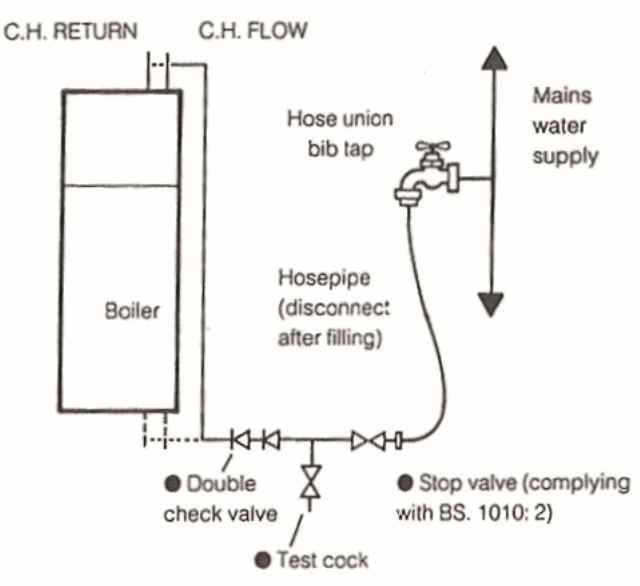
48 SYSTEM REQUIREMENTS. Central Heating

5. Mains Connection. There must be no direct connection to the mains water supply or to any water storage tank supplying domestic water, even through a non-return valve, without the approval of the Local Water Authority.

6. Filling. The system may be filled by one of the following methods:

(a) Through a temporary hose correction from a 'draw off' tap, supplied from a service pipe under mains pressure. Where the mains pressure is excessive a pressure reducing valve must be used to facilitate filling.

i. Thoroughly flush out the whole system with cold water.
ii. Fill and vent the system until the pressure gauge registers 1.5 bar (21.5 psi.), and examine for leaks.
iii. Check the operation of the safety valve by raising the water pressure until the valve lifts. This should occur within 0.3 bar (4.3 psi.) of the pre-set lift pressure.
iv. Release water from the system until the minimum system design pressure is reached; 1.0 bar (14.5 psi.) if the system is to be pre-pressurised.

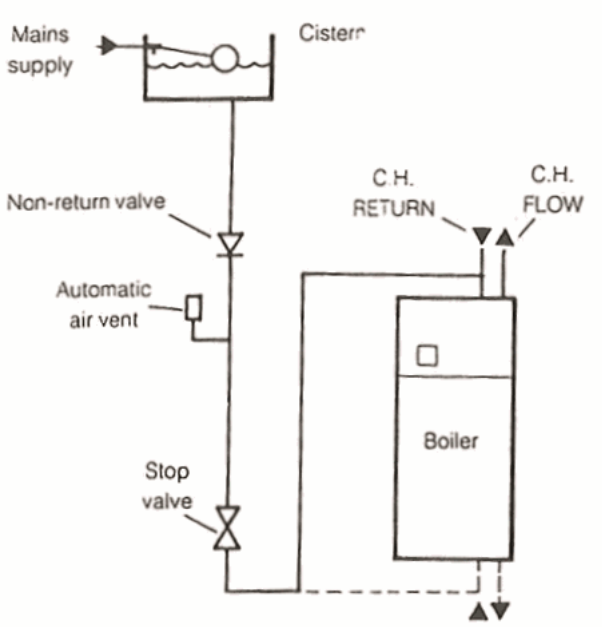


• These fittings to form a permanent part of the system

(b) Through a cistern, used for no other purposes, via a ball valve permanently connected directly to a service pipe and/or a cold water distributing pipe. The static head available from the cistern should be adequate to provide the desired initial system design pressure.

NOTE:

The stop valve may remain open during normal operation of the system if automatic water 'make-up' is required.



7. The maximum recommended system hydraulic losses are given below.

System Load	kW	23.4	19.0	4.4
	(Btu/h)	(80 000)	(65 000)	(15 000)
Water Flow Rate	l/min.	22.5	24.8	5.7
	(gal./h)	(297)	(327)	(75)
Temperature Differential	°C	15	11	11
	°F	(27)	(20)	(20)
Pressure available for system	mbar	157	118	391
	(in.w.g.)	(63)	(47)	(157)

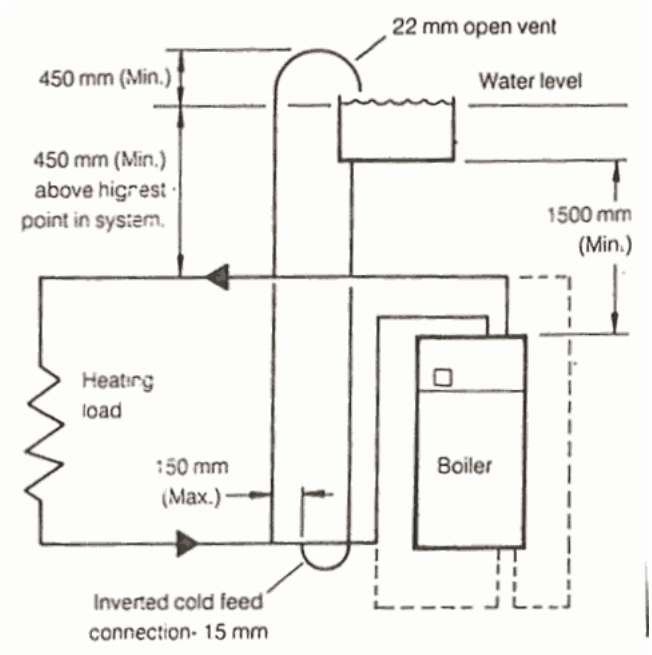
8. Thermostatic Radiator Valves. Caradon Heating Ltd., support the recommendations made by leading manufacturers of domestic heating controls that heating systems utilising full thermostatic radiator valve control of temperature in individual rooms should also be fitted with a room thermostat controlling the temperature in a space served by radiators not fitted with such a valve. Such an arrangement will provide for a more efficient control of the environment and will also avoid the continuous running of the circulation pump during programmed heating 'ON' periods, saving electrical energy.

It is therefore strongly recommended that, when thermostatic radiator valves are used, the space heating temperature control over a living/dining area or a hallway having a heating requirement of at least 10 % of the boiler output is achieved using a room thermostat, whilst other rooms are individually controlled by thermostatic radiator valves.

9. Open Vented Systems. The Ideal Classic Combi NF 80 is designed for use with sealed systems, but can also be connected to open vented systems if required.

NOTE:

To comply with the relevant requirements of BS. 5449:1 and BS. 6798 the positions of the cold feed and vent must be as shown.



Domestic Hot Water.

Domestic Hot Water Requirements. The Ideal Classic Combi NF 80 is suitable for connection to most types of washing machine and dish washing appliances. When connecting to suitable showers, ensure that:

- The cold inlet to the boiler is fitted with an approved anti-vaccuum or syphon non-return valve.
- Hot & cold water supplies to the shower are of equal pressure.

IMPORTANT:

Provision MUST be made to accomodate the expansion of D.H.W. contained within the appliance if a non-return valve is fitted to the D.H.W. inlet. Refer to Frame 47.

49 COMMISSIONING & TESTING

(a) Electrical Installation

1. Checks to ensure electrical safety should be carried out by a competent person.
2. ALWAYS carry out the preliminary electrical system checks. ie. earth continuity, polarity, resistance to earth and short circuit using a suitable test meter.

(b) Gas Installation

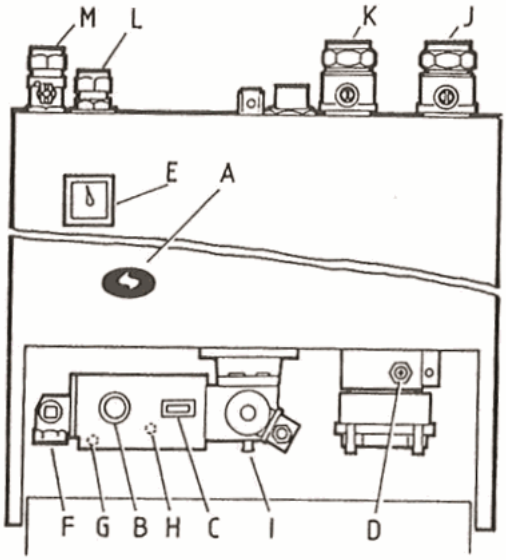
1. The whole of the gas installation, including the meter, must be inspected and tested for soundness, and purged in accordance with the recommendations of BS. 6891.
2. Purging air from the gas installation may be expedited by loosening the screws on the gas service cock and purging until gas is smelled.
3. Retighten the screws 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 and DO NOT SMOKE.

50 INITIAL LIGHTING

BOILER CONTROLS



LEGEND

A Sightglass.
B C.H. / H.W. switch.
C Burner ON / OFF switch.
D Overheat thermostat reset button.
E Central heating pressure gauge.
F Gas service cock.
G Inlet pressure test nipple.
H Main burner pressure adjuster.
I Burner pressure test nipple.
J Central heating flow isolating valve.
K Central heating return isolating valve.
L Domestic hot water outlet.
M Domestic hot water inlet isolating valve.

1. Check that the electricity supply is OFF.

2. Check that all the drain cocks are closed and the central heating isolating valves (J and K), and the domestic hot water isolating valve (M) are OPEN. Check that the diverter valve manual lever is in the CLOSED position - refer to Frame 44.

3. Check that the gas service cock (F) is OPEN. Also check that the central heating switch (B) and the burner ON/OFF switch (C) are OFF.

4. Fit the boiler module casing but do not fit the combi module cover or the controls casing pod.

WARNING:

DO NOT OPERATE THE BOILER WITH THE CASING REMOVED - AS DAMAGE TO THE CONTROL BOX MAY RESULT.

5. Slacken the screw in the burner pressure test nipple (I) and connect a gas pressure gauge via a flexible tube.

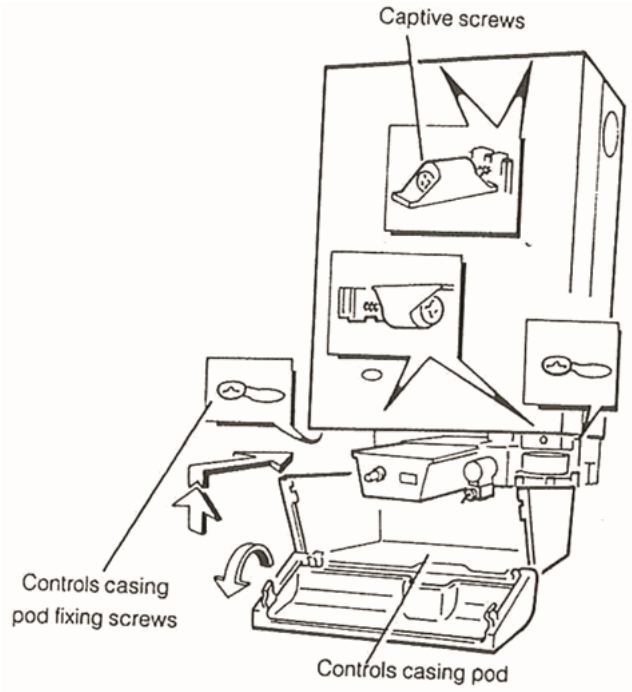
6. Switch the electricity supply ON and check that all external controls are calling for heat. The pump will start.

FITTING THE BOILER CASING

Boiler module

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

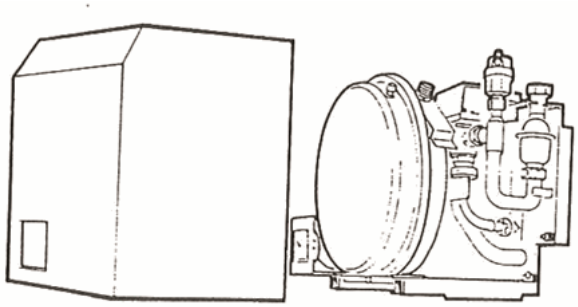
Visually check the side seals, but if side clearances are limited then check that the top & bottom edges of the casing are correctly located.



Controls casing pod

Locate the pod on the two fixing screws. Push the pod forward to engage in the keyhole slots, and tighten the fixing screws.

Combi module cover



Lift the cover up to the module and push forward to engage in the keyhole slots. Secure with the 2 1/2 in. pozi screw provided.

TO LIGHT TO THE BOILER

7. Set the burner ON/OFF switch to ON and the fan (and pump) will start. After the fan has run for a few seconds the pilot solenoid valve will open & the intermittent spark commence, continuing until the pilot is established. The main burner will then light at low rate - approximately 6.1 mbar (2.4 in.w.g.) burner pressure. If this sequence does not occur then refer to the 'Fault Finding' section.

8. Check that the pilot flame envelopes the ignition/detection electrode. If the pilot flame appears incorrect then refer to 'Pilot Burner Replacement' of the 'Servicing' section.

9. Test for gas soundness around ALL boiler gas components using leak detection fluid. Particularly check gas valve flanges.

10. Set the burner ON/OFF switch to OFF.

51 INITIAL LIGHTING Continued from Frame 50.

CENTRAL HEATING

1. Set the C.H./H.W. switch (B) to C.H. & H.W. and the burner ON/OFF switch (C) to ON. Check that:

(a) The pump is running.

(b) The diverter valve energises - no resistance should be felt when the manual lever is moved by hand (Frame 44).

(c) The fan starts and the main burner cross-lights smoothly at maximum rate.

NOTE:

The burner may fire initially at low rate but should increase to maximum rate after 1 - 2 mins.

2. Operate the boiler for 10 mins. to stabilise the burner temperature.

3. The boiler central heating control operates at a fixed burner pressure of 14.1 mbar (5.7 in.w.g.). Turn the adjusting screw (H) CLOCKWISE to DECREASE the burner pressure.

NOTE:

Burner setiing pressures and boiler performance details are given in Tables 2 & 3 and on the Data Plate located on the upper L.H. side of the back panel.

DOMESTIC HOT WATER

1. With the burner firing as above, fully open a D.H.W. tap and set the C.H./H.W. switch (B) to H.W. ONLY Check that:

a. The pump continues to run.
b. The diverter valve de-energises.
c. The burner continues to fire at maximum rate.

2. Reduce the D.H.W. draw-off rate to the minimum required to keep the boiler firing. After a short delay the burner pressure should reduce to 6.1 mbar (2.4 in.w.g.) ± 0.7 mbar (0.3 in.w.g.). This pressure is pre-set and should be correct, provided that the maximum burner pressure has been correctly set. No adjustment is possible without affecting the maximum setting.

3. Turn off the D.H.W. tap & set the burner ON/OFF switch to OFF.

52 GENERAL CHECKS

DOMESTIC HOT WATER MODE.

1. Set the C.H./H.W. switch (B) to H.W. ONLY & the burner ON/OFF switch (C) to ON. The pump should start, circulating water through the D.H.W. calorifier, & the burner should fire at minimum rate for about 3 minutes - preheating the D.H.W. calorifier.

a. If no D.H.W. is drawn off, the boiler will fire periodically for a short time to maintain the calorifier temperature.
b. The D.H.W. pre-heat operates 24 hours a day - unless a programmer is fitted, when it can be timed.

2. Fully open a D.H.W. tap; check that the pump starts & the main burner fires at maximum rate. Check that D.H.W. is delivered.

3. Reduce the D.H.W. draw-off rate to the minimum required to keep the boiler firing and check that the burner pressure reduces to low rate in response to D.H.W. temperature rise.

4. Close the D.H.W. tap and check that the main burner extinguishes and the pump stops.

CENTRAL HEATING & DOMESTIC HOT WATER MODE

1. Set the C.H./H.W. switch (B) to C.H. & H.W. Check that the main burner fires at the maximum rate.
2. Fully open a D.H.W. tap and check that hot water is delivered.
3. Close the D.H.W. tap and turn off the C.H./H.W. switch. Check that the main burner extinguishes and the pump stops.
4. Check the correct operation of the programmer, if fitted, and all other system controls. Operate each control separately and check that the main burner responds.
5. Remove the pressure gauge & tube. Tighten the sealing screw in the pressure test nipple, ensuring that a gas tight seal is made.

WATER CIRCULATION SYSTEM

1. With the system cold, check that the initial pressure is correct to the system design requirements. For pre-pressurised systems this should be 1.0 bar (14.5 p.s.i.).
2. Set the RED fill-pressure indicator on the pressure gauge (E) to the initial system pressure. Refer to frame 48 ‘Filling’.
3. With the system hot examine all water connections for soundness. The system pressure will increase with temperature rise but should not exceed 2.5 bar (36.6 p.s.i.).
4. With the system still hot turn off the gas, water & electricity supplies to the boiler & drain down to complete the flushing process.
5. Refill & vent the system, as described in ‘Guide to System Requirements’. Clear all air locks & again check for water soundness.
6. Reset the system initial pressure to the design requirement.
7. Balance the system.

FINALLY

1. Fit the Combi module cover. Refer to Frame 50.

2. Refit the controls casing pod & tighten the 2 front fixing screws.

3. Set the controls to the user's requirements & close the pod door.

• The design water output temperatures are as follows:

Central heating - 82° C Maximum.

Domestic hot water - 70° C *(approx) at 3.5 l/min (nominal) draw-off & 35° C temperature rise at 9.6 l/min draw-off.*

• If a programmer is fitted, refer to the programmer Instructions.

4. Check that the casing is seated correctly and compressing the sealing strip all around the casing.

IMPORTANT:

It is absolutely ESSENTIAL to ensure, in practice, that products of combustion discharging from the terminal cannot re-enter the building, or any other adjacent building, through ventilators, windows, doors, other sources of natural air infiltration or forced ventilation/air conditioning.

If this should occur, the appliance MUST be turned OFF IMMEDIATELY and the Local Region of British Gas plc. called to investigate.

WARNING:

DO NOT operate the boiler with the casing removed.

53 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 Instruction to the Householder and explain his/her responsibilities under the Gas Safety (Installation and Use) Regulations 1990.

2. Draw attention to the Lighting Instruction label affixed to the inside of the controls pod door.

3. Explain & demonstrate the lighting & shutting down procedures.

4. The operation of the boiler & the use & adjustment 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 & hot water consumption.

Advise the User of the precautions necessary to prevent damage to the system, and to the building, in the event of the system remaining in-operative during frosty conditions.

5. Explain the function and the use of the boiler heating and domestic hot water controls.

6. Explain the function of the boiler over-heat thermostat.

Emphasise that if cut-out occurs, the boiler should be turned off and the local Heating Installer consulted.

7. Explain & demonstrate the function of time & temperature controls, radiator valves, etc. for the economic use of the system.

8. If a programmer is fitted, then draw attention to the programmer instructions and hand them to the Householder.

9. LOSS OF SYSTEM WATER PRESSURE. Explain that the dial on the Combi module indicates the central heating system pressure and that if the normal COLD pressure of the system, indicated by the red arrow on the dial, is seen to decrease over a period of time then a water leak is indicated. In this event the local Heating Installer should be consulted.

DO NOT FIRE THE BOILER IF THE PRESSURE HAS REDUCED TO ZERO FROM THE ORIGINAL SETTING.

10. Stress the importance of regular servicing by the Local Gas Region or by a qualified Heating Engineer & that a comprehensive service should be carried out AT LEAST ONCE A YEAR.

CLEANING AND ADJUSTMENT

SERVICING

To ensure the continued safe and efficient operation of the appliance, it is recommended that it is checked at regular intervals and serviced as necessary. The frequency of servicing will depend upon the installation condition and usage, but should be carried out at least annually. It is the law that any service work must be carried out by a competent person.

1 SCHEDULE

a. Light the boiler and carry out a 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 is sealed correctly.
f. If the appliance has been installed in a compartment, check that the ventilation areas are clear.

The servicing procedures are covered more fully in Frames 2 to 9 and 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 the 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, the boiler casing must be removed (Frame 2).

IMPORTANT:

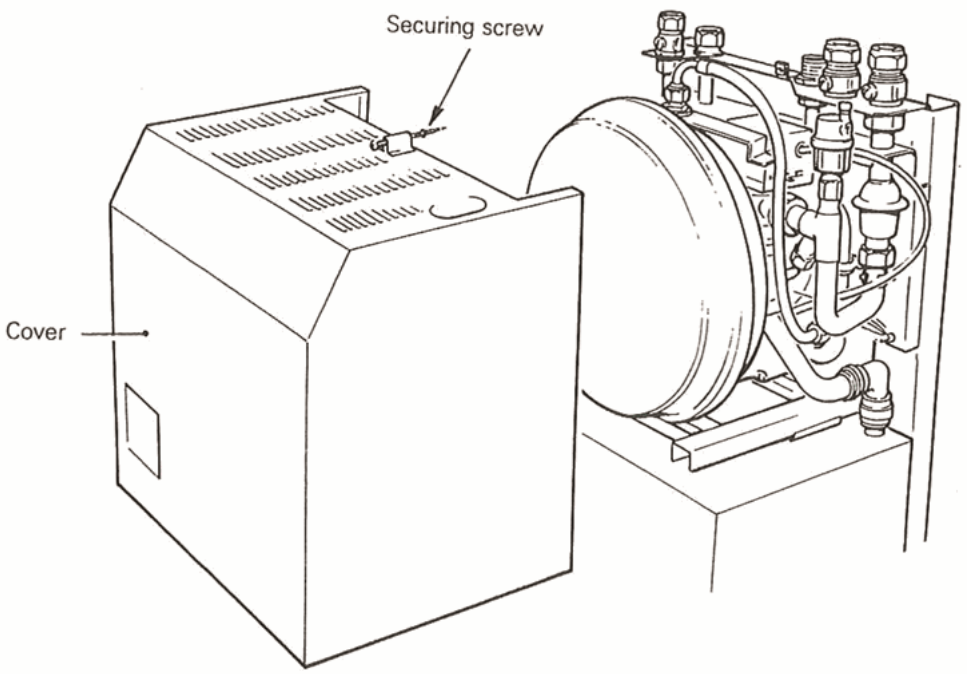
When work is complete the casing MUST be correctly re-fitted, ensuring that a good seal is made.

DO NOT OPERATE THE BOILER IF THE CASING IS NOT FITTED.

2 BOILER CASING REMOVAL

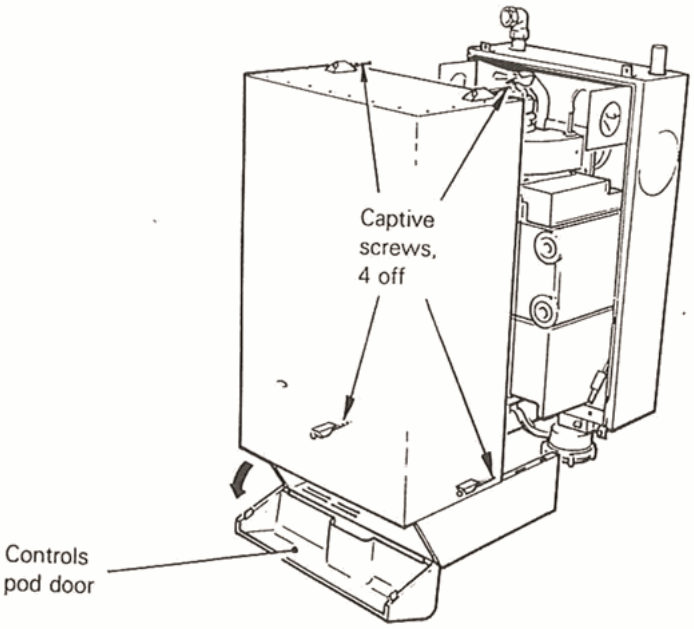
a) Combi module cover

Release the securing screw and withdraw the cover



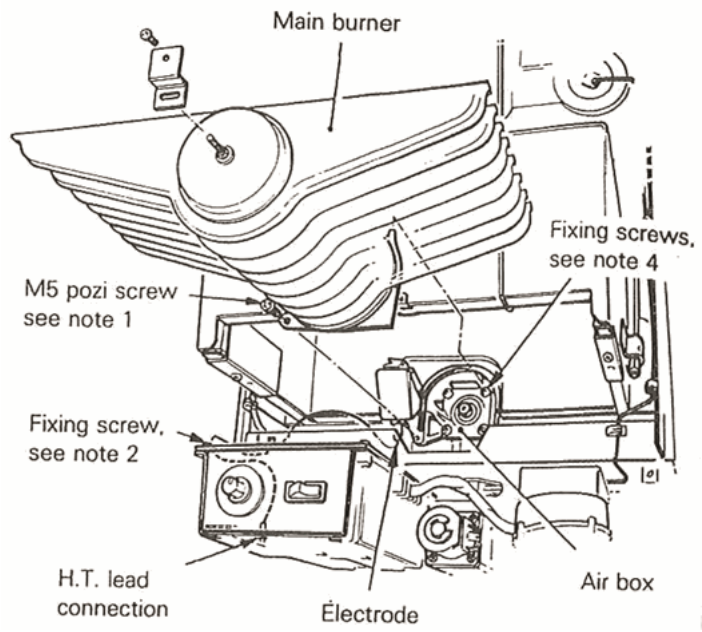
b) Boiler module casing

1. Open the controls pod door.
2. Release the 4 captive screws at the top and bottom of the casing. Lift the casing off the boiler and retain in a safe place.
3. Isolate the gas supply at the service cock. Refer to Frame 10.



3 BURNER AND AIR BOX REMOVAL

1. Remove the screw retaining the front burner support bracket to the combustion chamber. Remove the M5 pozi screw situated at the L.H. bottom rear of the burner and pull the burner downwards to disengage the retention tab. Remove burner to a safe place for inspection and cleaning.
2. Remove the control box lid fixing screws. Pull the lid forwards and upwards to disengage the catches and remove the lid.
3. Pull the H.T. lead connection off the printed circuit board and pull the lead upwards through the bottom panel grommet.
4. Remove the four screws retaining the air box/pilot assembly to the vertical manifold and carefully remove the assembly.



4 CLEANING THE BURNER AND PILOT ASSEMBLY

1. Brush off any deposits that may have fallen on to the burner head, ensuring the flame ports are unobstructed and remove any debris that may have collected.

NOTE:

Brushes with metallic bristles MUST NOT be used.

2. Remove the main burner injector and ensure there is no blockage or damage. Clean or renew as necessary.

3. Refit the injector using an approved jointing compound sparingly.

4. Inspect the pilot burner and ignition/detection electrode. Ensure that they are clean and in good condition. Check that:

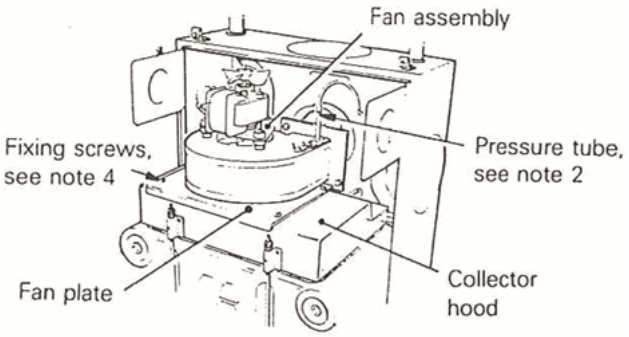
a. The pilot burner injector is not blocked or damaged. Refer to Frame 14 for removal details.
b. The pilot burner is clean and unobstructed.
c. The ignition/detection electrode is clean and undamaged.
d. The ignition/detection lead is in good condition.
e. The spark gap is correct (Frame 14).

NOTE:

The pilot shield is fitted around the pilot assembly bracket and is located by the electrode retaining nut.

Clean or renew components as necessary.

5 CLEANING THE FAN ASSEMBLY



1. Disconnect the fan leads and the fan earth connection.

2. Pull off the silicon rubber pressure tube on top of the fan casing.

3. Remove the four screws retaining the fan plate to the collector hood.

4. Pull the fan assembly to disengage the flue. Remove the fan assembly and gasket.

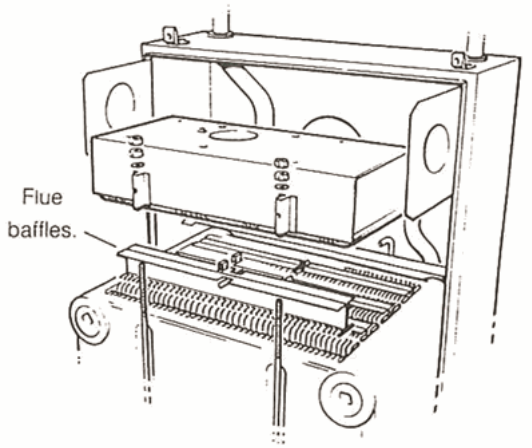
5. Remove the fan plate to check that the fan impeller runs freely. Clean with a soft brush or renew as necessary, refer to Frame 20.

NOTE:

Always take care when handling the fan, to preserve the balance of the impeller.

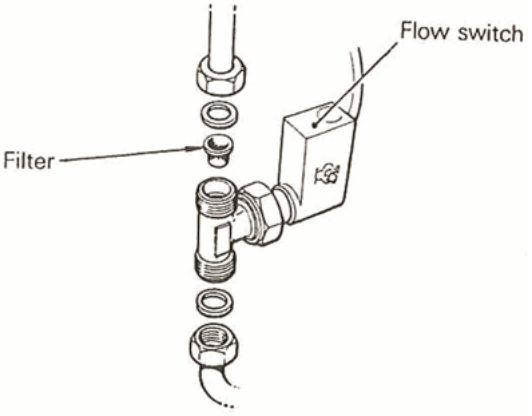
6. Check that the boiler air inlet duct and flue duct are unobstructed.

6 CLEANING THE FLUEWAYS



1. Pull off the silicon rubber negative pressure tube on the L.H. side aluminium pipe.
2. Remove the rear central fixing screw and both front tie rods. Lift off the collector hood.
3. Remove the flue baffle clips and remove the flue baffles.
4. Replace the controls box cover and protect the controls box from any falling heat exchanger deposits.
5. Remove all loose deposits from the heat exchanger, particularly between the fins, using a suitable brush.

7 CLEANING THE DOMESTIC HOT WATER (D.H.W.) FILTER



1. Remove the D.H.W. flow switch - refer to Frame 27.
2. Prise the filter from the housing in the flow switch inlet and clean or renew as necessary.

8 RE-ASSEMBLY

Re-assemble the boiler in the following order.

1. Return the D.H.W. filter using new sealing washer.

2. Refit the flue baffles.

3. Inspect the collector hood rope gasket and replace if necessary, ensuring that the self adhesive rope is fitted centrally onto the lip of the collector hood. The boiler efficiency will be adversely affected if incorrectly fitted. Refit the collector hood and retain with the two front rods and the rear central fixing screws. Tighten the nuts and screw. Ensure that the sealing gasket is compressed. Refit the negative pressure pipe to the L.H. side aluminium pipe. Inspect the fan plate gasket and replace if neccessary.

4. Refit the fan mounting plate to the fan and the refit fan assembly. Refit the positive pressure tube on the top of the fan housing. Reconnect the electrical leads.

5. Refit the air box assembly and burner. Ensure that the burner front fixing is refitted.

6. Refit the control box lid.

7. Re-connect the gas supply and the electrical wiring. Refer to Frames 17 and 43 of the ‘Installation’ section.

8. Check the sightglass in the boiler casing. Clean or renew as necessary. Refer to Frame 11.

9. Check for gas soundness. Refer to Frame 43 and 50 of the ‘Installation’ section. Check the gas service cock, flanges and pressure test point.

10. Return the boiler module casing.

IMPORTANT:

When work is complete the casing MUST be correctly refitted. Ensure that a good seal is made.

11. Close the controls pod door.

12 Refit the Combi module cover.

9 GAS PRESSURE ADJUSTMENT

PILOT

Light the boiler and check that the pilot flame envelopes the ignition/detection electrode. The pilot is factory set to maximum and no further adjustment is possible. However, if the pilot flame length is incorrect then remove and inspect the pilot injector. Refer to Frame 14.

Re-light in accordance with 'Initial Lighting'.

Refer to Frames 50 and 51 of the 'Installation section.

MAIN BURNER

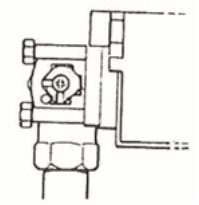
After any servicing, reference should be made to Table 2 which quotes details of the rated output with the related burner setting pressure and the heat input. Any required adjustments should be made by using the pressure adjustment screw. Refer to 'Initial Lighting' (Frame 51 of the 'Installation' section).

COMPONENT REPLACEMENT

10 GENERAL

When replacing any component:

1. Isolate the electricity supply.
2. Turn OFF the gas supply
3. Remove the boiler casings. Refer to Frame 2.



IMPORTANT:

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

NOTE:

In order to assist fault finding the control box printed circuit board is fitted with 4 indicator lights:

Neon I_1, Air pressure switch made

Neon I_2 Fan voltage indication

Neon I_3 Main supply to PCB 26

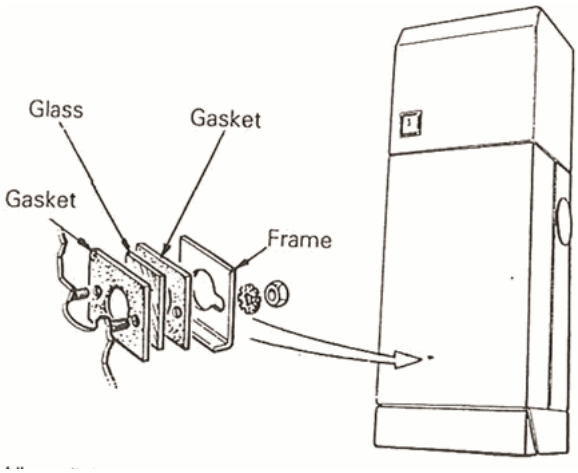
Neon SG1 Flashes to indicate spark operation (stops after detection).

DO NOT OPERATE THE BOILER IF THE CASING IS NOT FITTED.

11 SIGHTGLASS REPLACEMENT

1. Refer to Frame 10

2. Unfasten the two nuts and washers holding the sightglass assembly to the casing front panel.

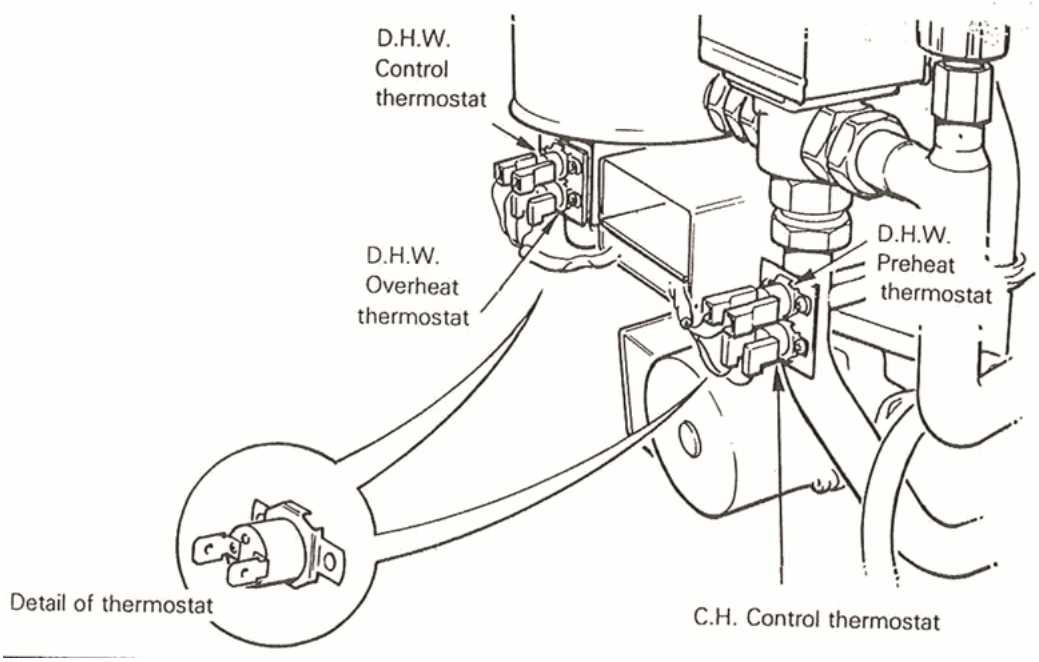


3. When fixing the new assembly, ensure that the parts are in the correct order. The frame must have the return edge at the bottom.

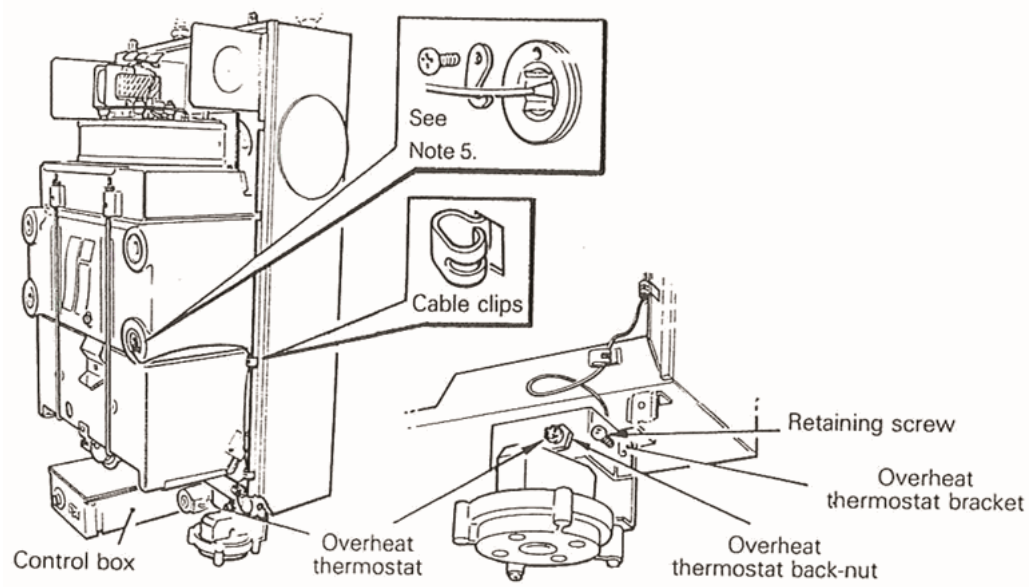
4. Re-tighten the 2 nuts to ensure an airtight seal. DO NOT OVER-TIGHTEN.

12 D.H.W. PRE-HEAT, CONTROL, OVERHEAT AND C.H. CONTROL THERMOSTAT REPLACEMENT

1. Refer to Frame 10.
2. Release the retaining screw and hang the CH expansion vessel in the servicing position - Refer to Frame 46 of the 'Installation' section.
3. Remove the two securing screws and withdraw the faulty thermostat.
4. Pull off the two electrical leads from the thermostat.
5. Fit the new thermostat and re-assemble in reverse order (polarity is immaterial).

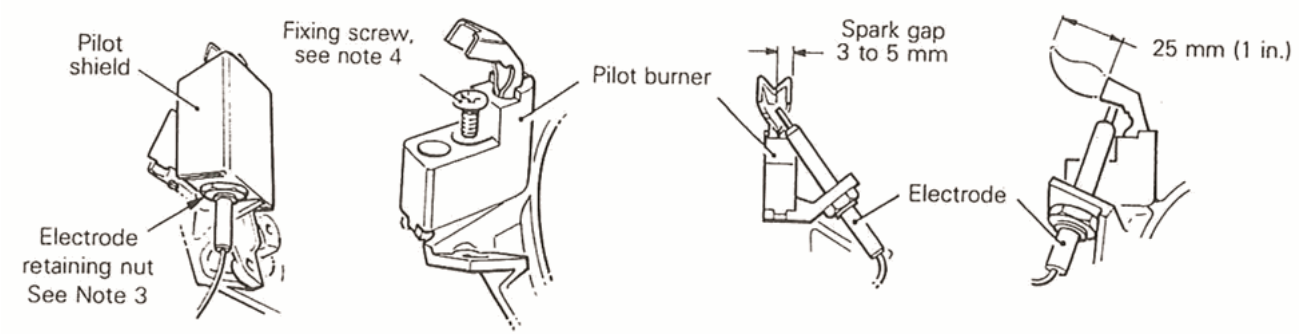


13 C.H. OVERHEAT THERMOSTAT REPLACEMENT



1. Refer to Frame 10.
2. Remove the retaining screw and withdraw the overheat thermostat and bracket complete.
3. Pull off the electrical connections at the thermostat.
4. Remove the back-nut retaining the thermostat to the bracket.
5. Remove the retaining clip and withdraw the thermostat phial from the pocket.
6. Disengage the capillary from the cable clips and withdraw the thermostat from the boiler.
7. Fit the new thermostat and re-assemble in reverse order.

14 PILOT BURNER REPLACEMENT



1. Refer to Frame 10.

2. Remove the burner and air box assembly. Refer to Frame 3.

3. Remove the electrode retaining nut and remove the pilot shield and electrode.

4. Unscrew the central pilot fixing screw and lift the pilot clear, of the pilot injector. The pilot injector may now be unscrewed if required.

5. Fit the new pilot burner (and injector if necessary) and retain with the M4 screw previously removed.

Ensure that the copper sealing washer is replaced when re-fitting the pilot injector.

6. Re-assemble in reverse order.

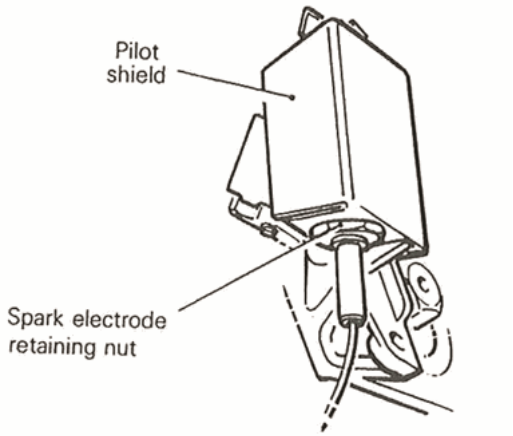
7. Check the pilot burner relationship to the main burner and the spark gap.

8. Re-fit the boiler module casing.

9. Check the pilot flame length & operation (cross-lighting etc.).

15 SPARK ELECTRODE AND LEAD REPLACEMENT

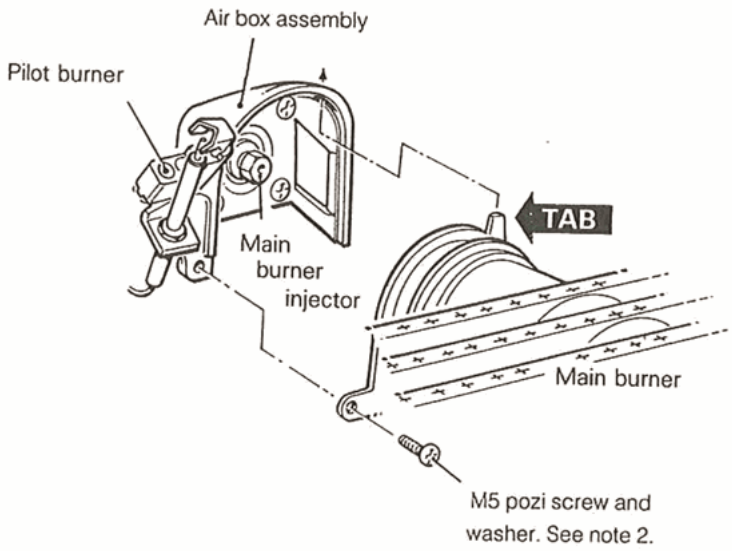
1. Refer to Frame 10.
2. Remove the burner and air box assembly. Refer to Frame 3.
3. Remove the electrode retaining nut.
4. Remove the pilot shield.
5. Remove the spark electrode and integral lead.
6. Fit the new electrode and lead.
7. Re-assemble in reverse order, ensuring that the pilot shield is re-fitted.
8. Check the spark gap - Refer to Frame 14.
9. Refit the boiler module casing.
10. Check the pilot ignition.



DETAIL OF PILOT BURNER

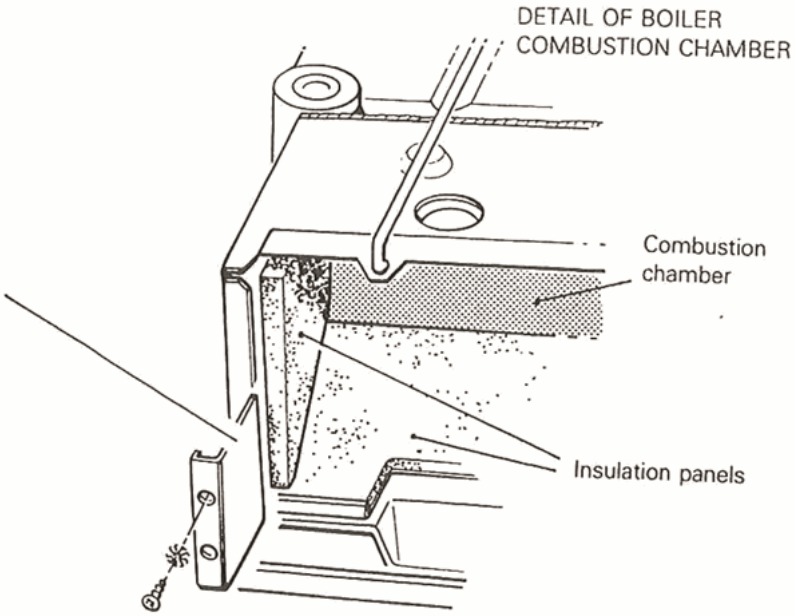
16 MAIN BURNER AND MAIN BURNER INJECTOR REPLACEMENT

1. Refer to Frame 10.
2. Remove the screw retaining the front burner support bracket to the combustion chamber.
3. Remove the M5 pozi screw and washer, situated at the left hand bottom rear of the burner. Pull the burner downwards to disengage the retention tab and remove the burner.
4. At this stage the main burner injector can be removed, checked, cleaned or replaced as required. Ensure that an approved jointing compound is used sparingly.
5. Fit the new burner, ensuring that the retention tab is correctly located in the air box slot.
6. Refit M5 retaining screw and washer.
7. Refit the boiler module casing.
8. Check the burner for cross-lighting and flame stability.



17 COMBUSTION CHAMBER INSULATION REPLACEMENT

1. Refer to Frame 10.
2. Remove the burner and air box assembly. Refer to Frame 3.
3. Remove the two front tie rods.
4. Remove the two side panel retaining brackets.
5. Remove the side insulation panels.
6. Remove the front and rear insulation panels.
7. Fit the new front and rear insulation panels.
8. Fit the new side panels and retain with the brackets and screws previously removed.
9. Re-fit the front tie rods.
10. Re-assemble the rest of the appliance in reverse order.



18 GAS CONTROL VALVE (DOUBLE SOLENOID) AND BYPASS VALVE REPLACEMENT

NOTE:

Refer also to Frame 42, 'Exploded Views', for illustration of the procedure detailed below.

1. Refer to Frame 10.

2. Remove the control box as follows:

a. Remove the control box lid fixing screws. Pull the lid forward and upward, to disengage the catches, and remove the lid. Unclip and remove the front panel by lifting it upwards - refer to Frame 23.
b. Release the central fixing screw - refer to Frame 24. Withdraw and suspend the control box.
c. Pull off the solenoid electrical connections, noting their positions, and unscrew the earth lead at the gas control valve. Refer to Frame 42 of the 'Installation' section.

3. Release the screw and unplug the electrical lead from the bypass valve.

4. Remove the four M4 extended nuts securing the gas service cock to the gas valve.

5. Remove the main burner and air box assembly - Refer to Frame 3.

6. Whilst supporting the gas control valve, remove the two screws retaining the manifold to the back panel.

7. Withdraw the gas control/manifold assembly from the boiler.

8. Remove the four screws securing the burner manifold to the bypass valve.

9. Remove the four elongated screws securing the bypass valve to the gas control valve.

10. Fit the new gas control valve and/or bypass valve ensuring that:

a. The valve is fitted the correct way round (an arrow engraved on the back indicates the direction of flow).
b. The sealing gasket and 'O' ring supplied with the valve are correctly fitted.

11. Re-assemble in reverse order.

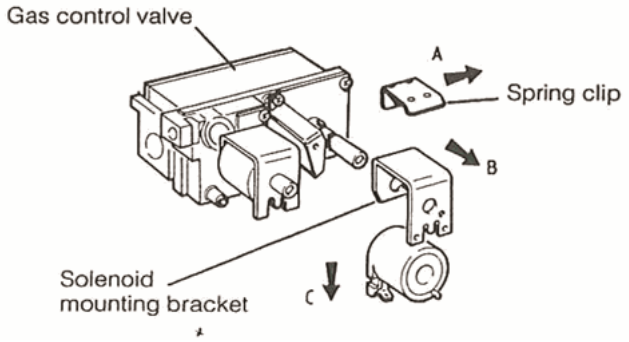
12. Replace the burner/air box assembly.

13. Refit the boiler module casing.

14. Check the gas valve operation.

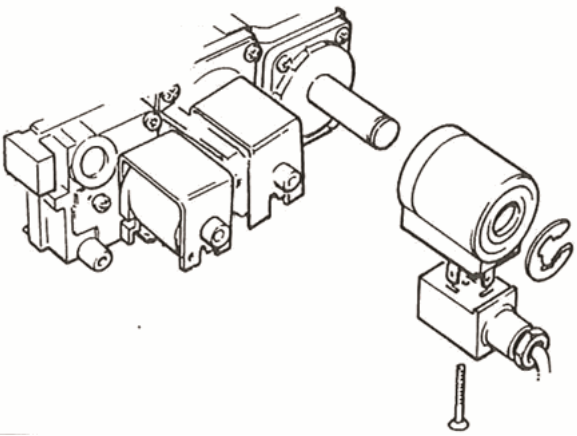
19 GAS CONTROL VALVE SOLENOID REPLACEMENT

1. Refer to Frame 10.
2. Remove the control box from the gas control valve. Refer to Frame 18.
3. Slide out the spring clip and remove the solenoid from the gas control valve.
4. Fit the now solenoid and re-assemble in reverse order.



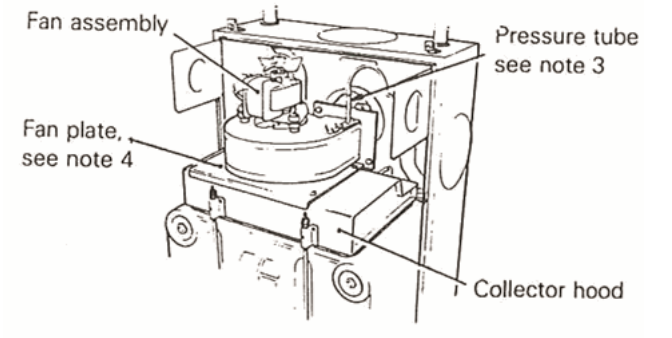
20 BYPASS VALVE SOLENOID REPLACEMENT

1. Refer to Frame 10.
2. Release the screw and unplug the electrical lead from the valve.
3. Prise off the retaining clip and withdraw the solenoid.
4. Fit the new solenoid and re-assemble in reverse order.



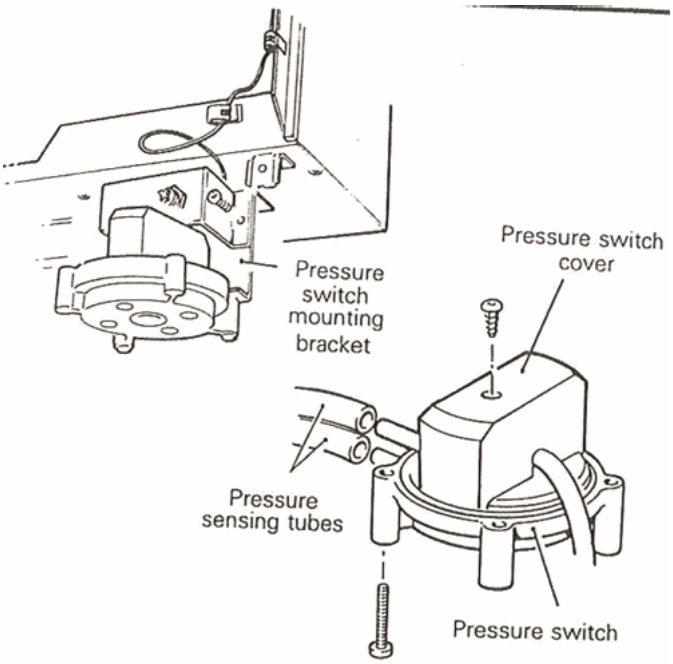
21 FAN UNIT REPLACEMENT

1. Refer to Frame 10.
2. Disconnect the fan leads and fan earth connection.
3. Pull off silicon rubber pressure tube on top of the fan housing.
4. Remove the 4 screws retaining the fan plate to the collector hood.
5. Pull the fan assembly to disengage the flue and remove the fan assembly. **Note.** Always take care when handling the fan in order to preserve the balance of the impeller.
6. Remove the 3 screws retaining the fan plate to the fan and transfer the plate to the new fan. Inspect the gasket and renew if necessary.
7. Remove the two screws and nuts retaining the aluminium elbow to the fan and transfer the elbow to the new fan.
8. Remove the two screws retaining the pressure sensing device and transfer the sensing device to the new fan. Retain with the two screws previously removed.
9. Fit the new fan unit and re-connect all electrical leads.
10. Refit the boiler module casing.
11. Check the boiler operation.

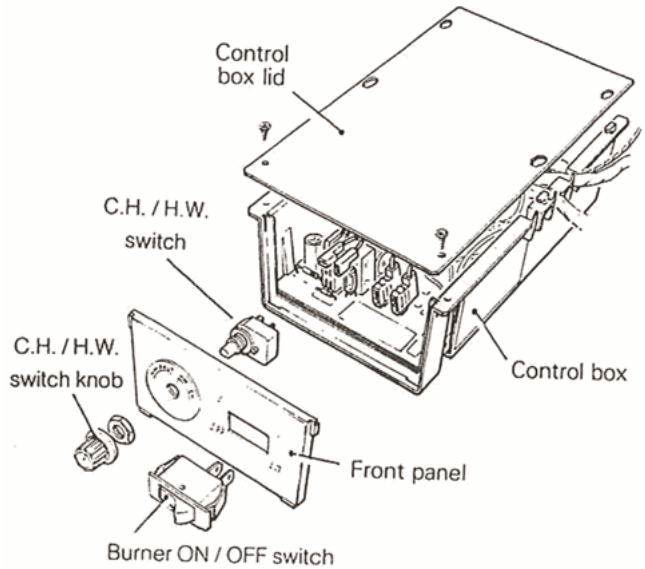


22 PRESSURE SWITCH REPLACEMENT

1. Refer to Frame 10.
2. Pull both of the sensing tubes off the pressure switch.
3. Remove the 2 screws securing the pressure switch to the bracket and withdraw the switch.
4. Remove the pressure switch cover by removing the fixing screw.
5. Disconnect the three electrical leads.
6. Transfer the electrical connections to the new pressure switch. Yellow to No. 2, red to No. 3, and violet to No. 1.
7. Fit the new pressure switch and re-assemble in reverse order. Ensure that the 2 rubber pipes are reconnected to the correct pressure switch connections (red pipe to lower connection marked with a red dot and white pipe to upper connection).
8. Refit the boiler module casing.
9. Check the boiler operation.



23 BURNER ON/OFF AND CH/HW SWITCH REPLACEMENT



1. Refer to Frame 10.

2. Remove the control box lid.

a. Remove the control box lid fixing screws. Pull the lid forward and upward to disengage the catches and remove the lid.
b. Unclip and remove the front panel by lifting it upwards.

3. Disconnect the two electrical leads from the switch.

4. BURNER ON/OFF SWITCH ONLY

Compress the retaining clips and prise the defective switch out of the front panel.

C.H./H.W. SWITCH ONLY

a. Pull off the knob.
b. Remove the back nut and withdraw the switch.

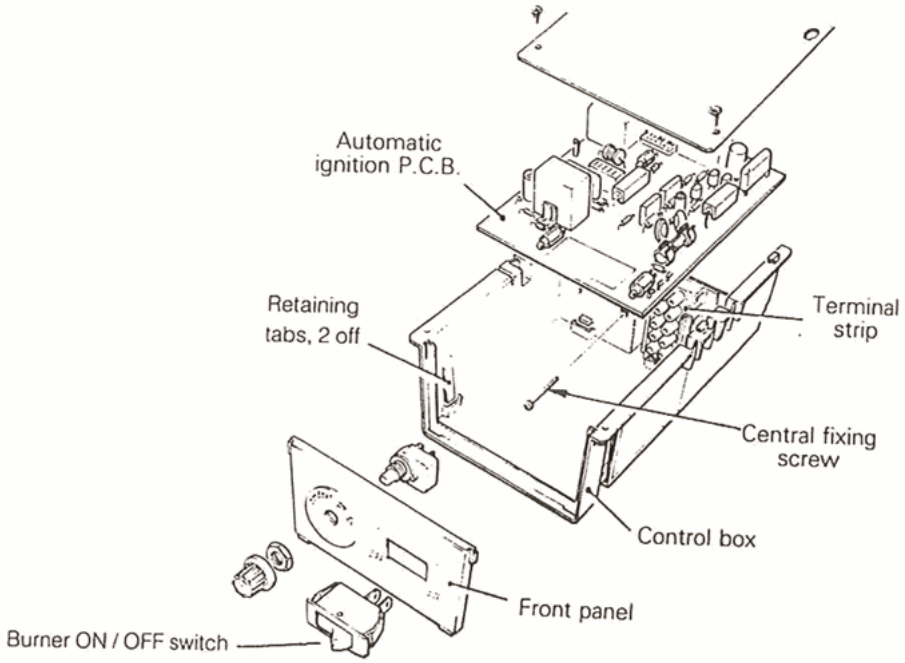
5. Fit the new switch and re-assemble in reverse order. Ensure that the switch is the correct way round, i.e. with the terminals towards the right - as shown, (burner ON/OFF switch) or that the switch is correctly orientated (C.H./H.W. switch). Polarity is immaterial

6. Refit the boiler module casing.

7. Check the operation of the switch.

24 AUTOMATIC IGNITION P.C.B. 26 REPLACEMENT

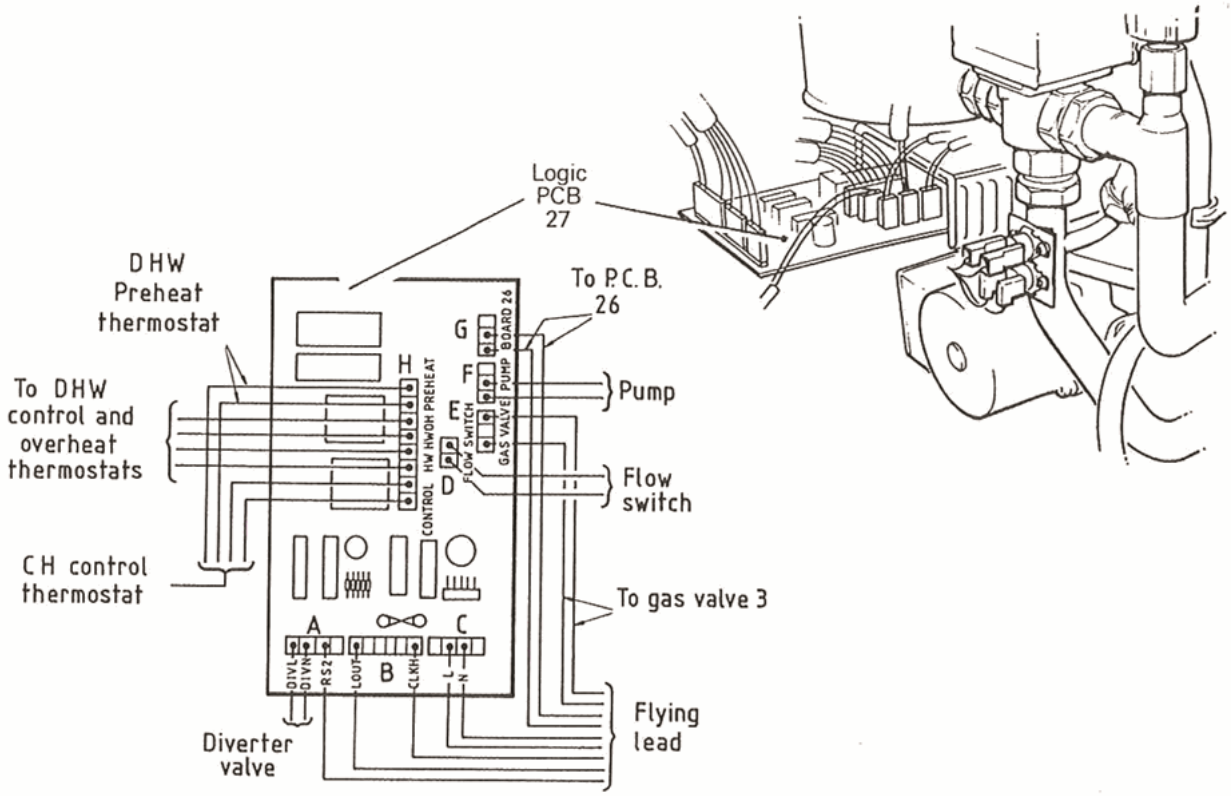
1. Refer to Frame 10.
2. Remove the control box lid. Refer to Frame 23.
3. Disconnect the ignition/detection lead from the P.C.B.
4. Disconnect the 'plug-in' leads from the P.C.B.
5. Unplug the wiring harness '4-way' connector.
6. Disconnect the live, neutral & earth leads from the terminal strip.
7. Disconnect the leads from the burner ON/OFF switch.
8. Remove the control box central fixing screw, draw the box forward and disconnect the 4 electrical leads from the gas valve solenoids.
9. Pull out the 2 side retaining tabs and remove the P.C.B.
10. Fit the new P.C.B. and re-assemble in reverse order. Ensure that all electrical connections are correctly re-made. Refer to Frame 42 of the 'Installation' section.
11. Re-fit the boiler module casing.
12. Check the ignition operation.



25 LOGIC P.C.B. 27 REPLACEMENT

1. Refer to Frame 10 (the Combi module cover only need be removed).

2. Release the retaining screw and hang the C.H. expansion vessel in the servicing position. Refer to Frame 46 of the 'Installation' section.



3. Withdraw the P.C.B. and unplug the 8 electrical leads (‘A’ to ‘H’).

4. Fit the new P.C.B. 27 and re-assemble in reverse order.

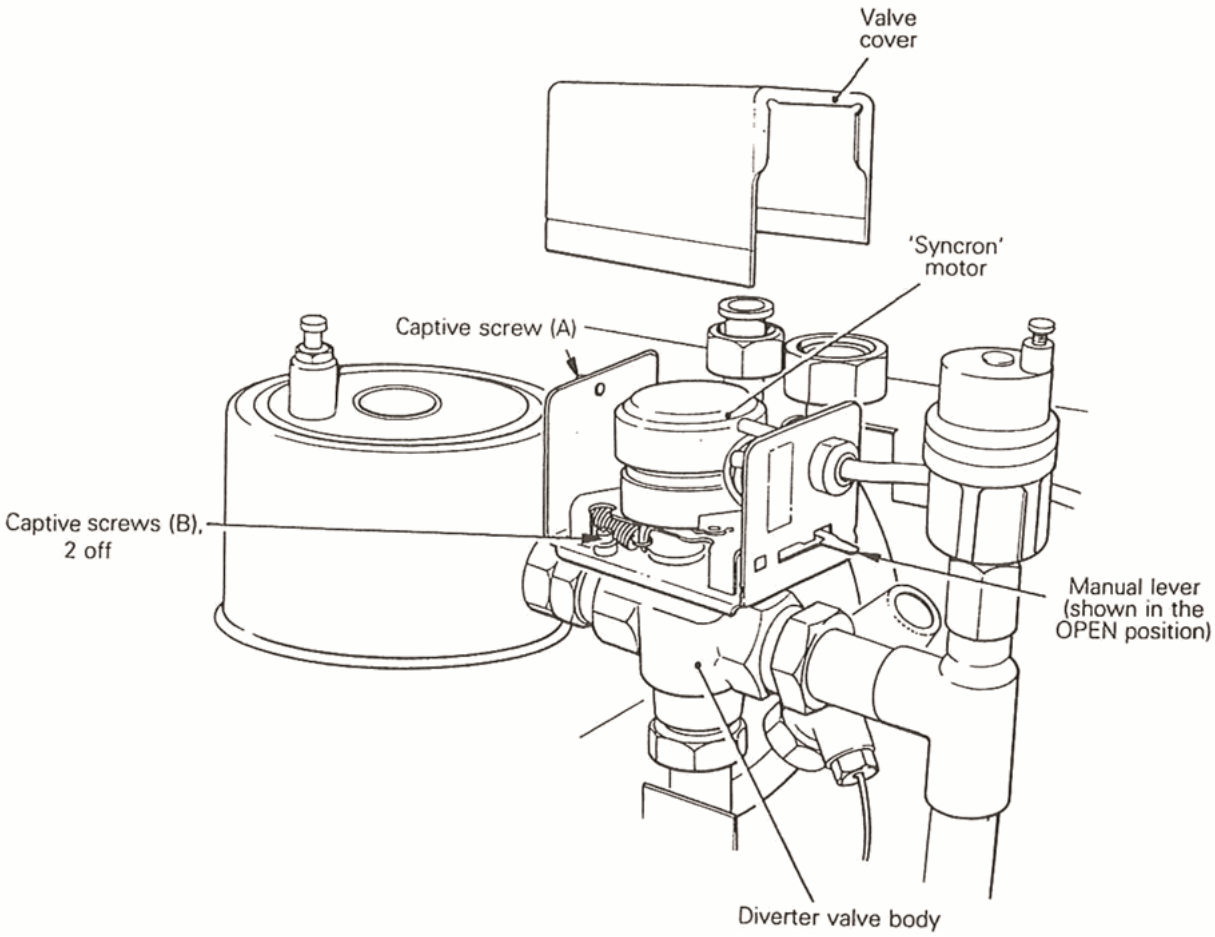
26 DIVERTER VALVE ACTUATOR REPLACEMENT

1. Refer to Frame 10 (the Combi module cover only need be removed).

2. Release the retaining screw and hang the central heating expansion vessel in the servicing position. Refer to Frame 46 of the ‘Installation’ section.

3. Disconnect the diverter valve at the ‘in-line’ connector.

4. Release the captive screw (‘A’) and lift off the valve cover.



5. SET THE MANUALLY OPERATED VALVE LEVER TO OPEN.

6. Release the two captive screws (B) and lift the actuator off the valve body.

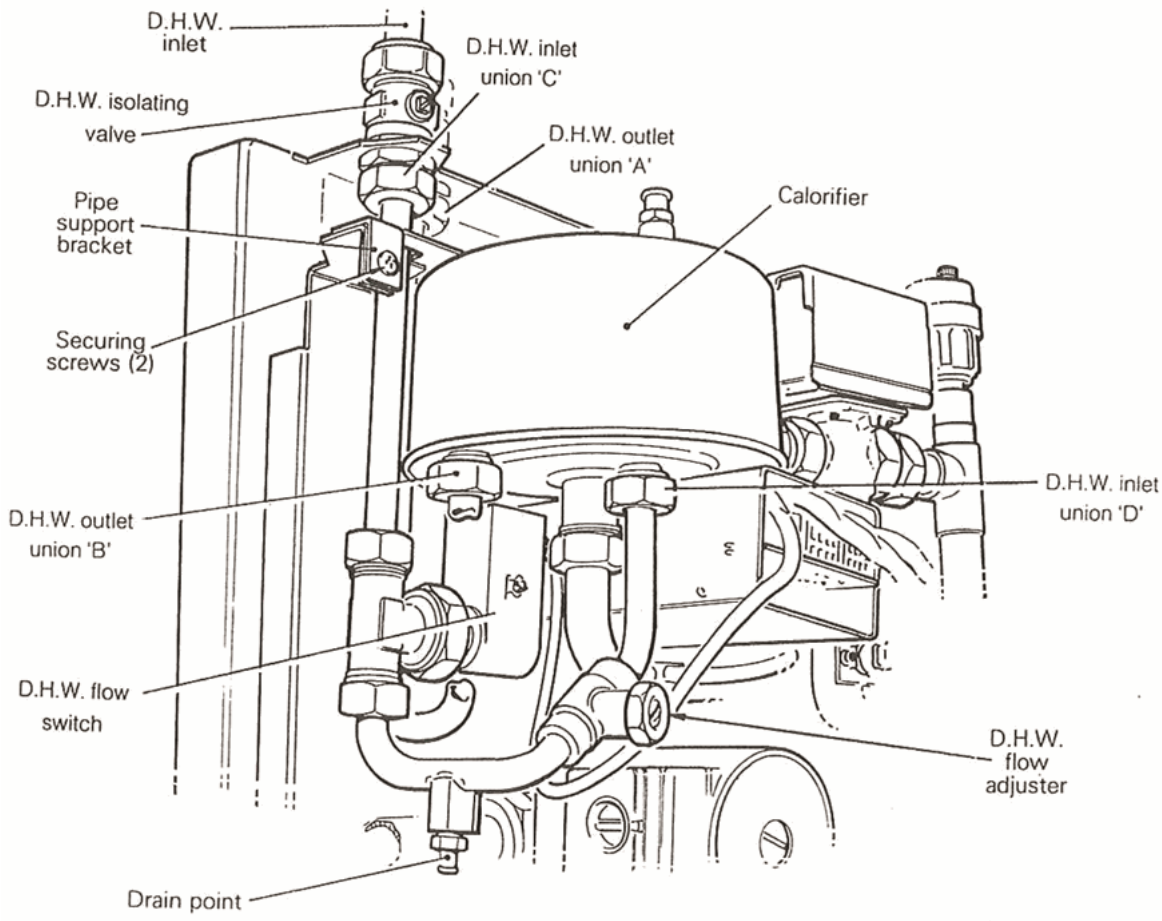
NOTE:

At this stage, if required, the Syncron motor may be replaced. Refer to the instructions supplied with the replacement motor.

7. Fit the new actuator. PRESET TO THE OPEN POSITION and re-assemble in reverse order.

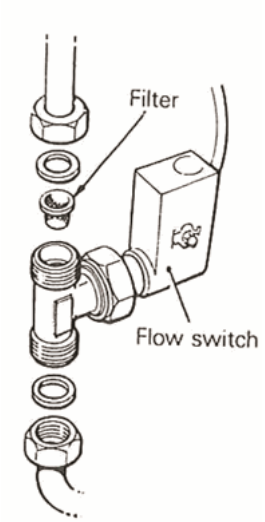
27 D.H.W. FLOW SWITCH REPLACEMENT

1. Refer to Frame 10 (the Combi module cover only need be removed).
2. Release the retaining screw and hang the central heating expansion vessel in the servicing position. Refer to Frame 46 of the 'Installation' section.
3. Disconnect the flow switch lead from the Logic P.C.B. 27.
4. Remove the 2 securing screws and withdraw the pipe support bracket.
5. Close the D.H.W. isolating valve.
6. Open the lowest D.H.W. draw-off tap.
7. Drain any residual water into a receptacle via the D.H.W. drain point.
8. Undo the D.H.W. outlet pipe union nuts A & B and move the pipe aside.
9. Undo the D.H.W. inlet pipe union nuts C & D and withdraw the switch assembly.
10. Transfer the pipes and D.H.W. filter (Refer Fr. 28)
11. Fit the new flow switch complete with new sealing washers, ensuring that the switch is fitted the right way round. An arrow on the switch head indicates the direction of flow (downwards).
12. Re-assemble in reverse order.



28 D.H.W. FILTER REPLACEMENT

1. Refer to Frame 10 (the Combi module cover only need be removed).
2. Remove the D.H.W. flow switch - Refer to Frame 27.
3. Prise the filter from the housing in the flow switch inlet, and clean or renew as necessary.
4. Re-assemble in reverse order.



29 DRAINING THE BOILER

IMPORTANT:

IN ORDER TO REPLACE THE COMPONENTS IN FRAMES 30 TO 38, IT IS NECESSARY TO DRAIN THE BOILER

NOTE:

Refer to Frames 40 and 41 (Boiler and Combi modules - Exploded views) for illustration of the procedure detailed below

1. Refer to Frame 10.
2. Close the C.H. isolating valves.
3. Remove the heat exchanger drain plug using a 3/16 in. Allen key, and drain the water into a suitable receptacle.
4. Refit the drain plug using a suitable jointing compound.
5. In order to re-fill the boiler, refer to Frame 48 of the 'Installation' section.

30 PRESSURE GAUGE REPLACEMENT

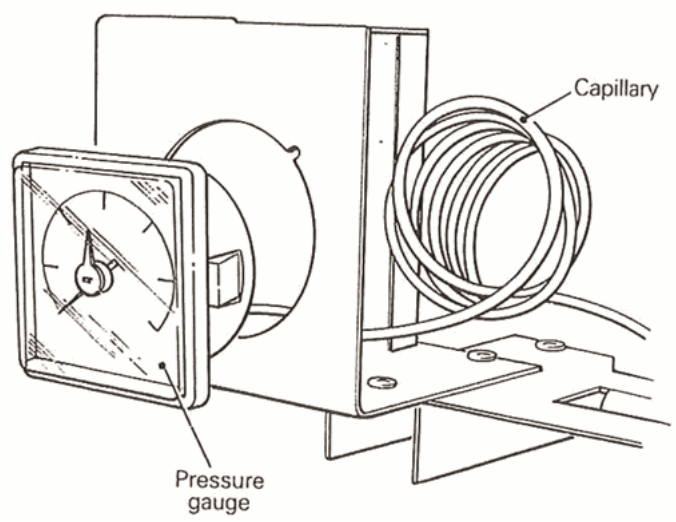
1. Refer to Frame 10.

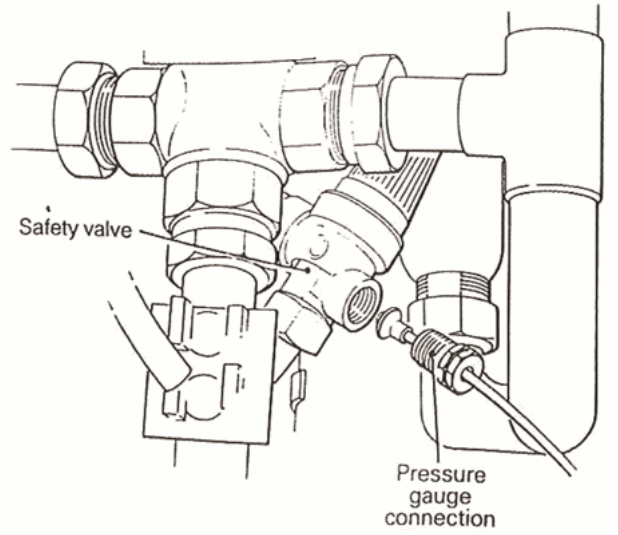
2. Drain the boiler - Refer to Frame 29.

3. Release the retaining screw and hang the C.H. expansion vessel in the servicing position. Refer to Frame 46 of the 'Installation' section.

4. Disconnect the pressure gauge capillary from the safety valve.

5. Compress the retaining lugs and withdraw the gauge from the bracket.



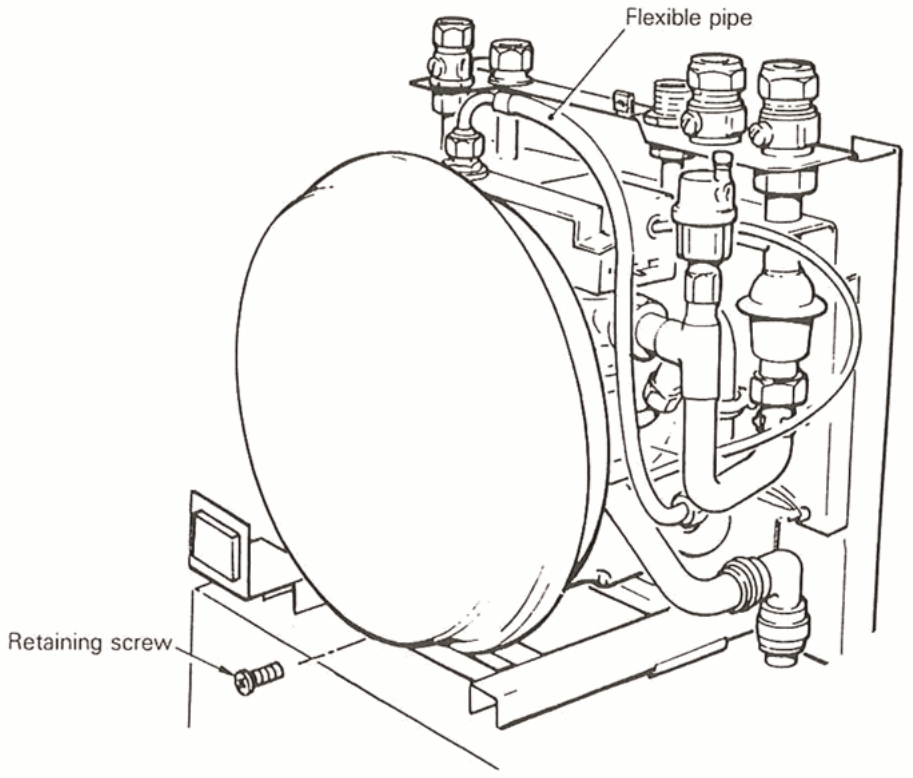


6. Fit the new gauge and re-assemble in reverse order, ensuring that:

a. The capillary is carefully and neatly routed, as previously.
b. The gauge is correctly orientated within the housing.

31 C.H. EXPANSION VESSEL REPLACEMENT

1. Refer to Frame 10.
2. Drain the boiler - Refer to Frame 29.
3. Disconnect the flexible pipe from the vessel.
4. Release the retaining screw and withdraw the expansion vessel.
5. Fit the new expansion vessel, complete with the new sealing washer, and re-assemble in reverse order.



32 D.H.W. CALORIFIER REPLACEMENT

1. Refer to Frame 10.
2. Drain the boiler - Refer to Frame 29.
3. Remove the C.H. expansion vessel - Refer to Frame 31.
4. Remove the 2 securing screws and withdraw the pipe support bracket.
5. Close the D.H.W. inlet isolating valve.
6. Open the lowest D.H.W. draw-off tap.
7. Drain any residual water into a receptacle via the D.H.W. drain point.
8. Undo the unions on the D.H.W. inlet pipe and move the pipe aside.
9. Slacken diverter valve union nut ‘C’.
10. Undo calorifier union nut ‘D’.
11. Undo calorifier unions ‘A’ and ‘B’, and withdraw the calorifer from the boiler.
12. Fit the new calorifier, complete with the new sealing washers provided and re-assemble in reverse order.

To descale the calorifier:

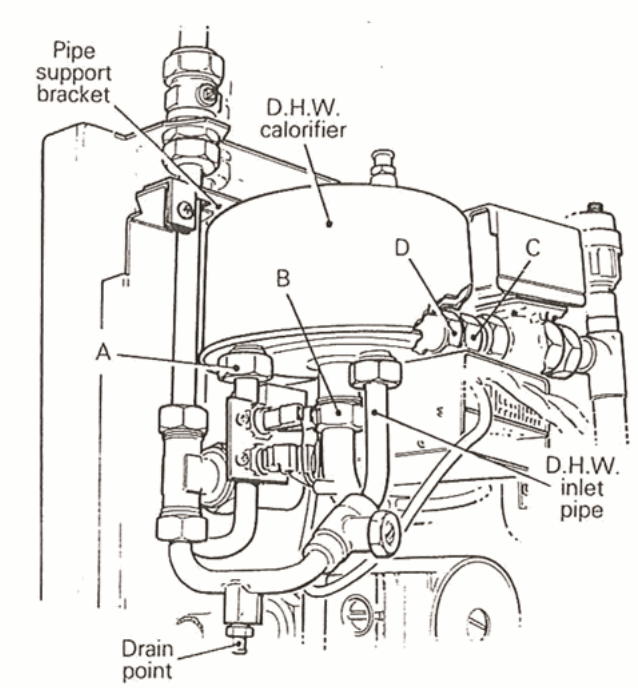
a. Remove the calorifier from the boiler as described above.
b. Descale the domestic hot water coil, using a proprietary descaling agent.
c. Rinse thoroughly with clean water.
d. Re-assemble in reverse order.

WARNING:

The agents are highly corrosive and ingestion or contact with skin, eyes and clothing MUST be avoided. Protective clothing should be worn and the descaling operation conducted out of doors in a well ventilated area.

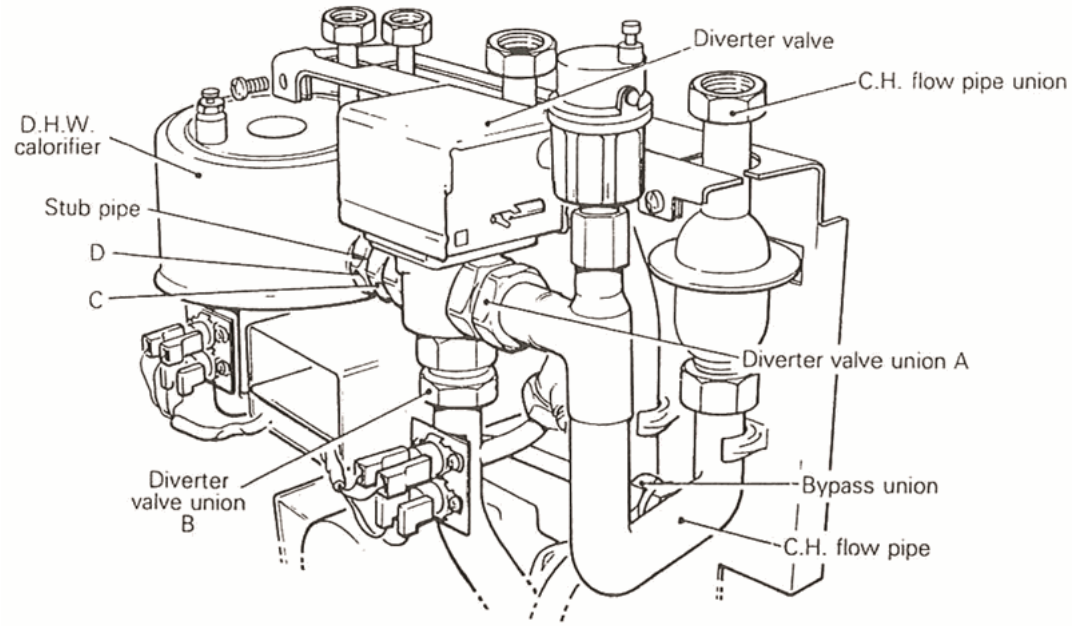
NOTE:

The names and addresses of suppliers of suitable descaling agents are given in Frame 47 of the ‘Installation’ section.



33 DIVERTER VALVE (COMPLETE) REPLACEMENT

1. Refer to Frame 10.
2. Drain the boiler - Refer to Frame 29.
3. Remove the C.H. expansion vessel - Refer to Frame 31.
4. Remove the automatic air vent. Refer to Frame 36.
5. Disconnect the diverter valve lead at the 'in-line' connector.
6. Undo diverter valve union A' and the by-pass union.
7. Slacken the C.H. flow pipe union.
8. Undo diverter valve union 'B'.
9. Slacken diverter valve union C as far back as possible.
10. Preventing union nut C from turning, undo calorifier union nut D. This will jack the diverter valve towards the right, and permit its withdrawal from the boiler complete with stub pipe.
11. Transfer the stub pipe to the new valve.
12. Fit the new diverter valve and re-assemble in reverse order.



34 PUMP REPLACEMENT

1. Refer to Frame 10.

2. Drain the boiler. Refer to Frame 29.

3. Remove the C.H. expansion vessel. Refer to Frame 31.

4. Disconnect the pressure gauge capillary from the safety valve. Refer to Frame 30.

5. Slacken the 2 securing screws and remove the C.H. expansion vessel support bracket. Refer to Frame 38 of the 'Installation' section.

6. Remove the pump terminal box cover and disconnect the electrical leads.

7. Slide the cable entry out, and withdraw the cable from the terminal box.

NOTE:

If required, the pump head only may now be replaced.

a. Remove the 4 socket screws and withdraw the pump head.
b. Fit the new head and re-assemble in reverse order.

To remove the complete pump proceed as follows.

8. Undo the boiler return elbow unions.

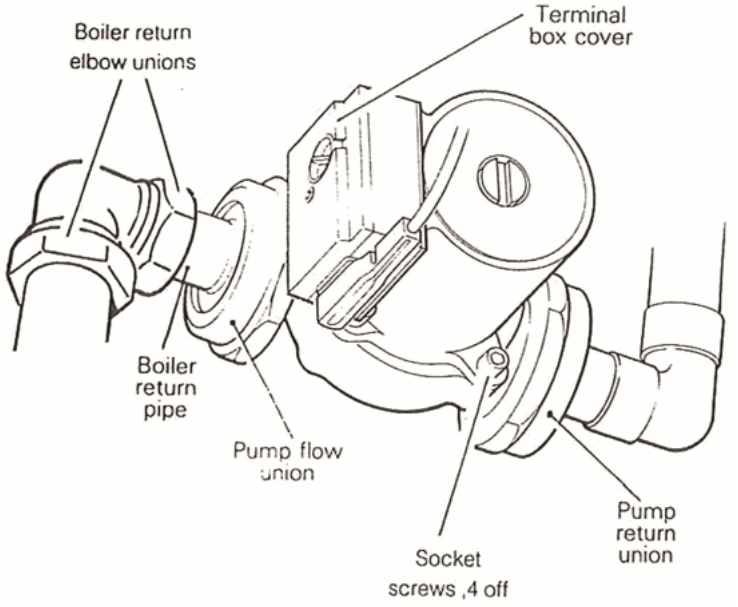
9. Undo the pump return union.

10. Swing the pump to disengage the boiler return pipe from the clip, and withdraw the pump complete with return pipe.

11. Undo the pump flow union and, using one of the new gaskets provided, transfer the boiler return pipe to the new pump.

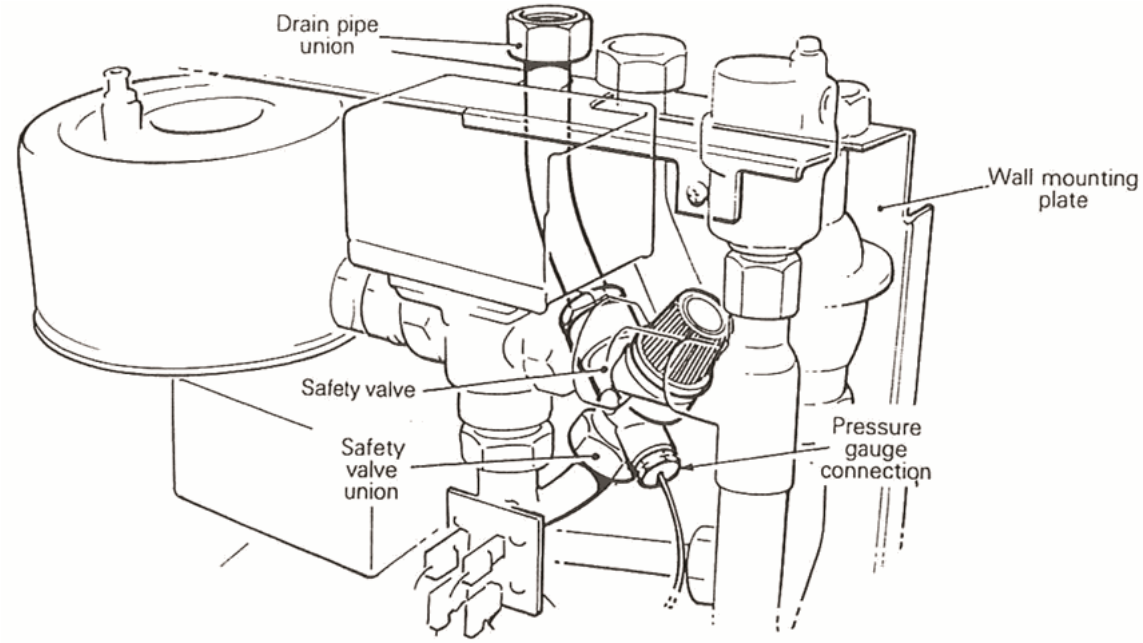
12. Fit the new pump and re-assemble in reverse order, ensuring that:

a. The new sealing gasket provided is fitted at the pump return union.
b. The electrical connections are correctly re-made - Refer to the diagram inside the terminal box cover
c. The pump selector switch cover is correctly fitted and that the switch is set at position ‘3’.



35 SAFETY VALVE REPLACEMENT

1. Refer to Frame 10.
2. Drain the boiler - Refer to Frame 29.
3. Remove the C.H. expansion vessel - Refer to Frame 31.
4. Remove the 2 securing screws and withdraw the pipe support bracket. Refer to Frame 27.
5. Disconnect the pressure gauge capillary from the safety valve.
6. Disconnect the drain pipe at the bulkhead fitting on top of the wall mounting plate
7. Undo the safety valve union and withdraw the valve complete with the drain pipe.
8. Transfer the drain pipe to the new valve, ensuring that its orientation is the same as that of the previous assembly (use the arrow engraved on the side of the valve to aid re-alignment)
9. Fit the new safety valve, complete with new sealing washers provided, ard re-assemble in reverse order.

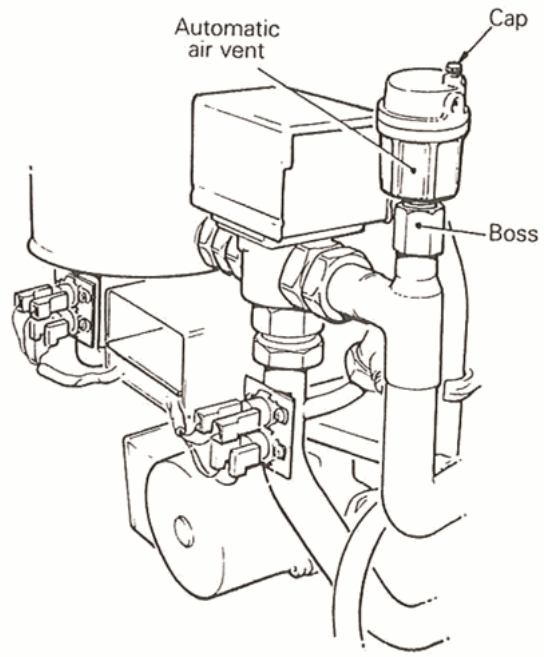


36 AUTOMATIC AIR VENT REPLACEMENT

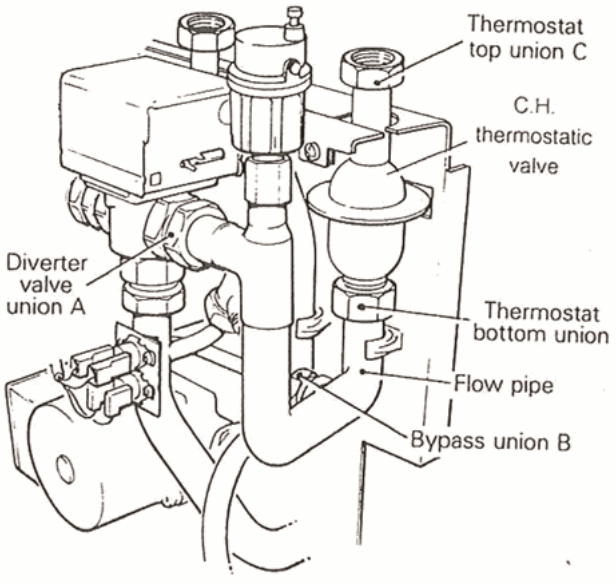
1. Refer to Frame 10.
2. Drain the boiler - Refer to Frame 29.
3. Unscrew the automatic air vent from the boiler flow header applying an appropriate counter force to the boss in order to prevent damage.
4. Fit the new air vent, using the 'O' ring provided, and re-assemble in reverse order.

IMPORTANT:

Ensure that the vent cap is loose.



37 C.H. THERMOSTATIC VALVE REPLACEMENT



1. Refer to Frame 10.
2. Drain the boiler - Refer to Frame 29.
3. Remove the C.H. expansion vessel - Refer to Frame 31.
4. Remove the automatic air vent - Refer to Frame 36.
5. Remove the 2 securing screws and withdraw the pipe support bracket. Refer to Frame 27.
6. Undo the diverter valve union A, the bypass union B, and the thermostat top union C.
7. Swing the flow pipe to the right to clear the diverter valve union, unclip and withdraw the pipe complete with thermostat.
8. Transfer the flow pipe to the new thermostat and re-assemble in reverse order, using the new sealing washers provided.

38 BOILER HEAT EXCHANGER REPLACEMENT

IMPORTANT:

Before starting the removal procedure, protect the gas and electrical controls with a water-proof sheet or similar.

NOTE:

Refer to Frame 41 'Boiler assembly - Exploded View' for illustration of the procedure detailed below.

1. Refer to Frame 10.

2. Drain the boiler. Refer to Frame 29.

3. Remove the C.H. expansion vessel. Refer to Frame 31.

4. Remove the Combi module following the procedure, in reverse order, described in Frames 38 & 39 of the 'Installation' section.

NOTE:

An extraction tool is provided (in the Hardware Pack) to remove the plastic elbow from the boiler and Combi modules.

5. Remove the burner/air box assembly. Refer to Frame 3.

6. Remove the fan assembly. Refer to Frame 5.

7. Remove the collector hood. Refer to Frame 6.

8. Remove the combustion chamber by unscrewing the nuts retaining the side tie rods.

9. Remove the control box. Refer to Frame 18, note 2.

10. Remove the 4 extended nuts retaining the gas service cock to the gas control valve.

11. Remove the 2 screws retaining the manifold/gas control valve assembly to the back panel and remove the assembly.

12. Remove the thermostat phial from the pocket on the heat exchanger - Refer to Frame 13, Note 5.

13. Slacken 3 turns only the 4 heat exchanger/inter panel retaining screws.

14. Lift the heat exchanger/inter panel assembly upwards and forwards to disengage key hole fixings. Pull the assembly downwards to clear the water pipes from the back panel.

15. Remove the two rubber sealing grommets from the top of the back panel to facilitate fitting the new assembly.

16. Fit the new heat exchanger assembly, complete with water pipes, and hang it on the key hole slots and screws.

17. Retighten the screws.

18. Replace the 2 rubber sealing grommets.

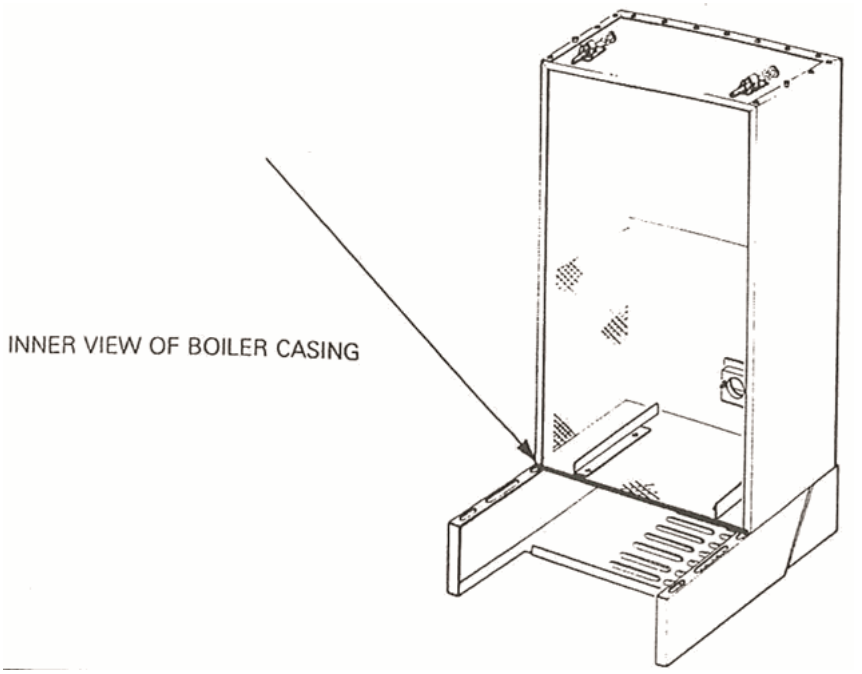
19. Re-assemble in reverse order.

20. Remake all water connections, ensuring that the compression fittings (if used) are correctly refitted.

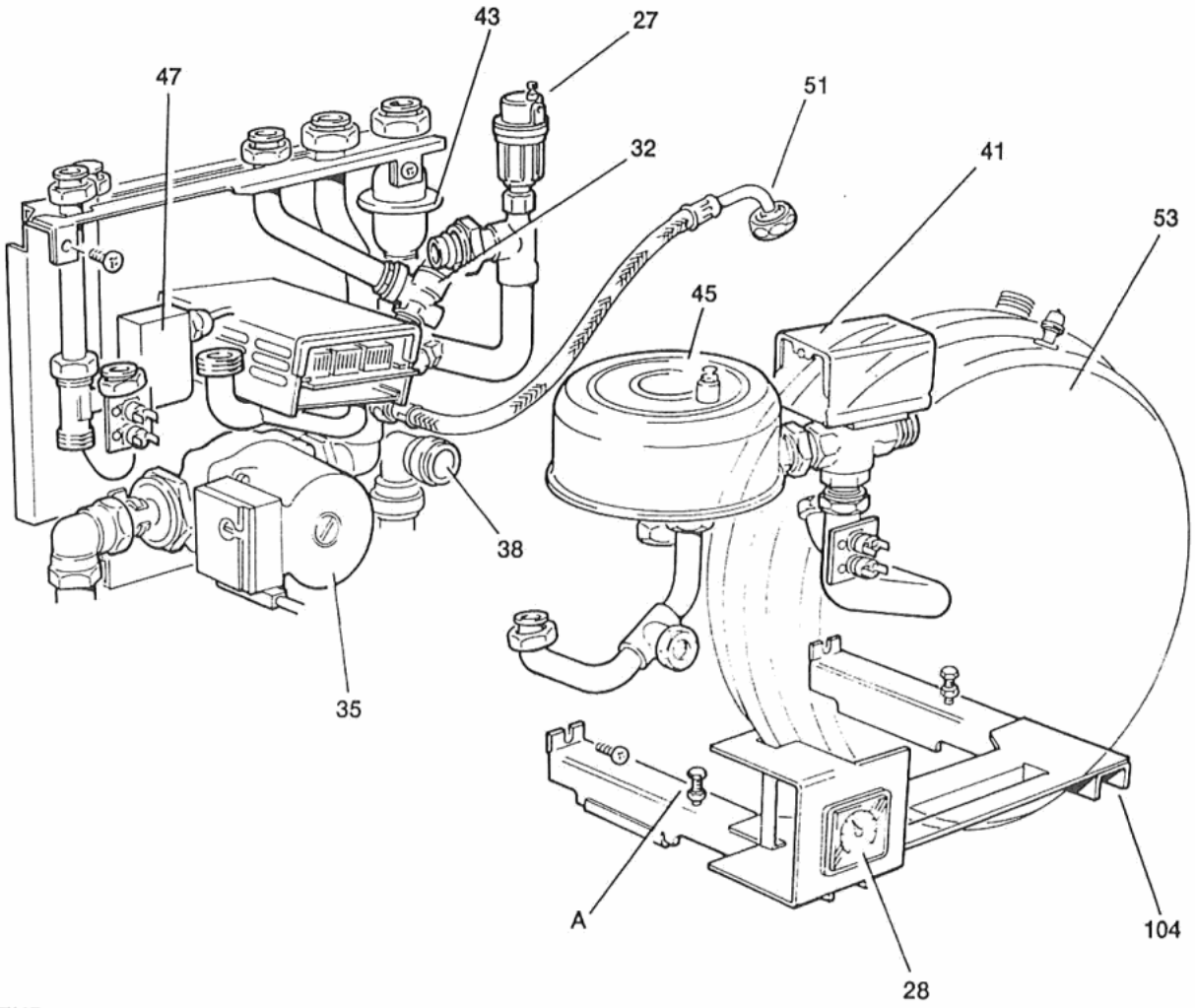
21. Fully test all functions, including water and gas soundness.

39 BOILER CASING SEAL REPLACEMENT

1. Refer to Frame 10.
2. Remove the old seal from the bottom edge of the casing (shown) and, also, from the bottom edges of the boiler back panel (refer to Frame 41).
3. Fit the new self adhesive seals.



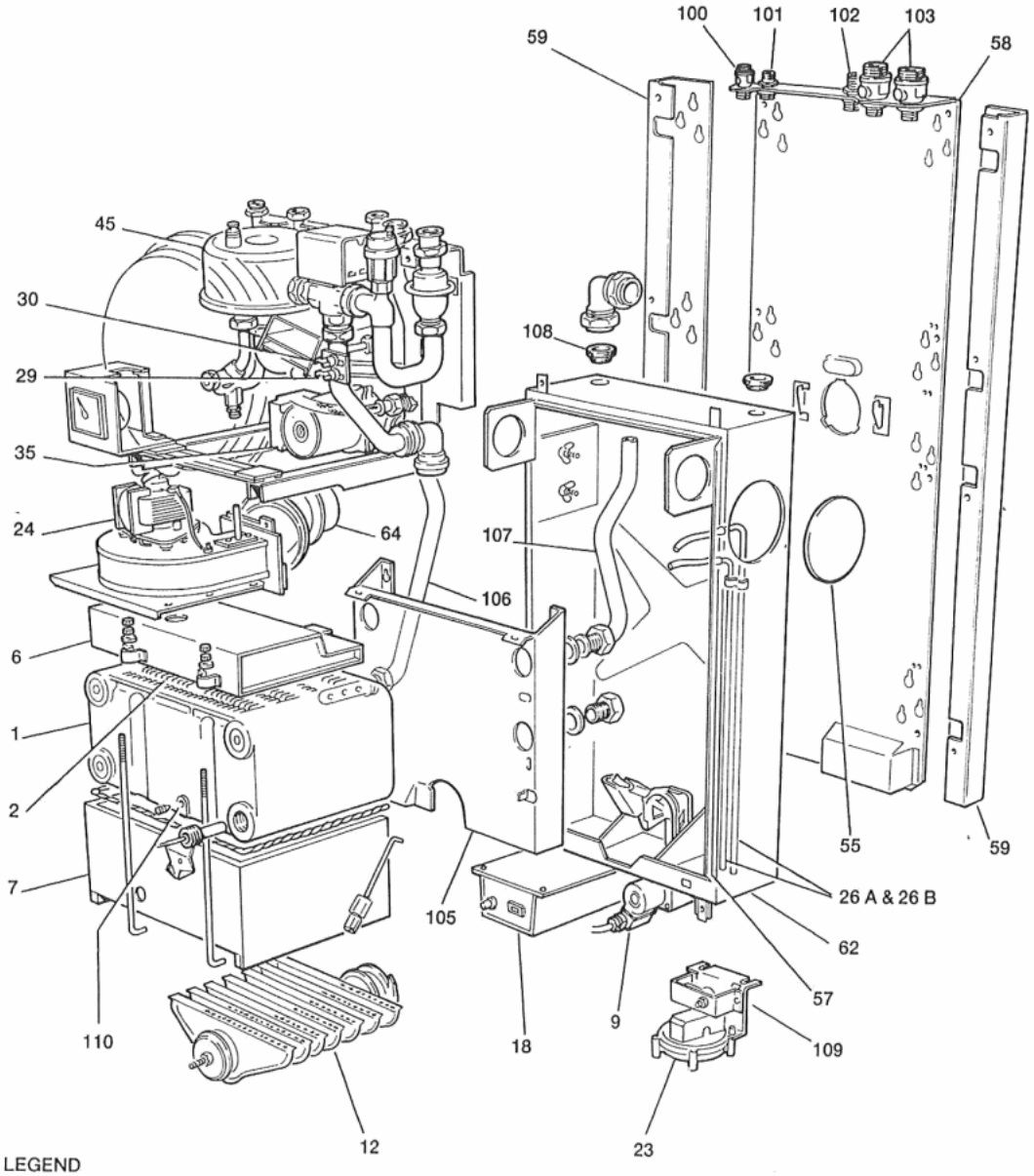
40 COMBI MODULE - Exploded view



LEGEND

27.	Automatic air vent.	**43.**	C.H. thermostatic valve.	**A.**	Pressure gauge height adjustment screws and locking nuts, 2 off.
28.	Pressure gauge.	**45.**	Calorifier.		
32.	Safety valve.	**47.**	D.H.W. flow switch.		
35.	Pump.	**51.**	Flexible hose.		
38.	'Speedfit' elbow.	**53.**	C.H. expansion vessel.		
41.	Diverter valve.	**104.**	C.H. expansion vessel support bracket.		

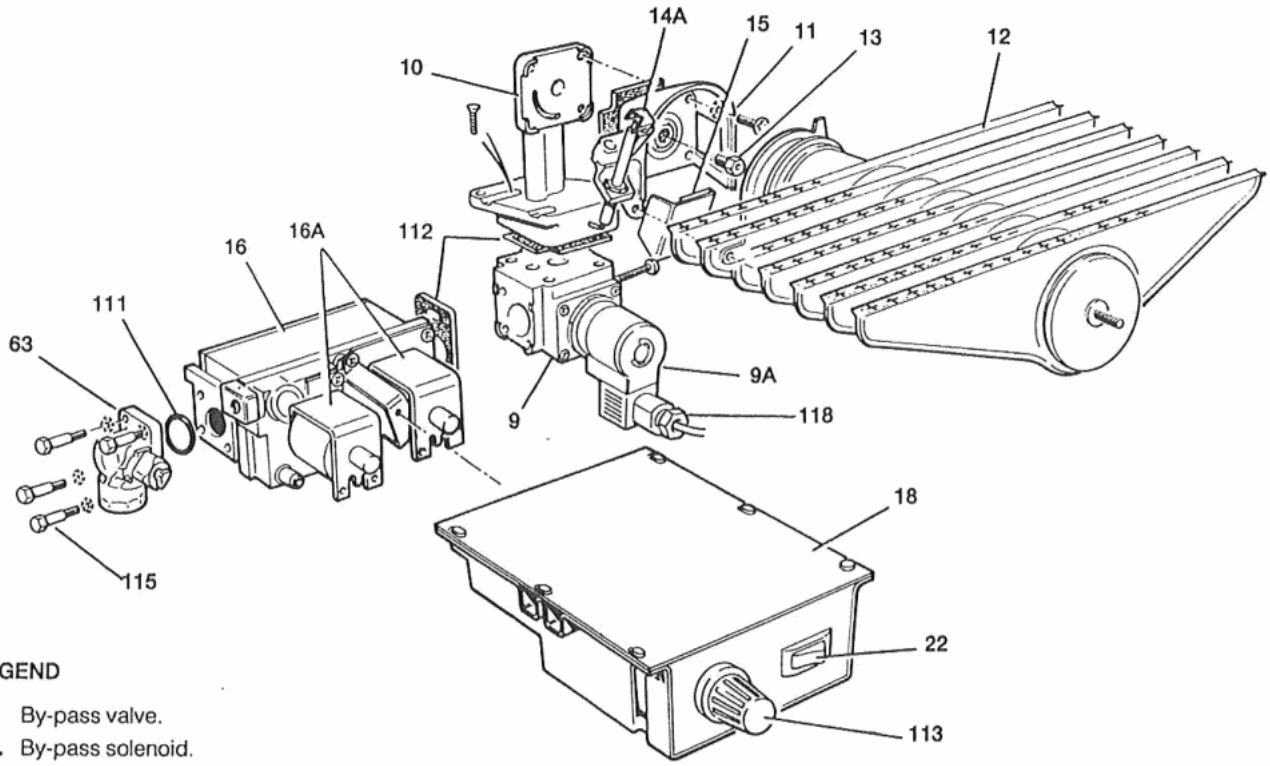
41 BOILER MODULE - Exploded View



LEGEND

1. Heat exchanger.
2. Flue baffles.
6. Collector hood assembly.
7. Combustion chamber.
9. By-pass solenoid valve.
12. Main burner.
18. Control box (mounted on the gas control valve).
23. Pressure switch.
24. Fan assembly.
26 A & 26 B. Pressure sensing pipes.
29. C.H. control thermostat.
30. D.H.W. preheat thermostat.
35. Pump.
45. Calorifier.
55. Sealing plates, 2 off.
57. Casing seal.
58. Wall mounting plate.
59. Stand-off brackets (L.H.S. & R.H.S.).
62. Back panel.
64. Flue outlet elbow.
100. D.H.W. inlet isolating valve.
101. D.H.W. outlet connection.
102. Safety valve drain connection.
103. C.H. flow and return isolating valves.
105. Inter-panel.
106. Pumped return pipe.
107. Pumped flow pipe.
108. Rubber sealing grommets.
109. Pressure switch mounting bracket.
110. Boiler drain point.

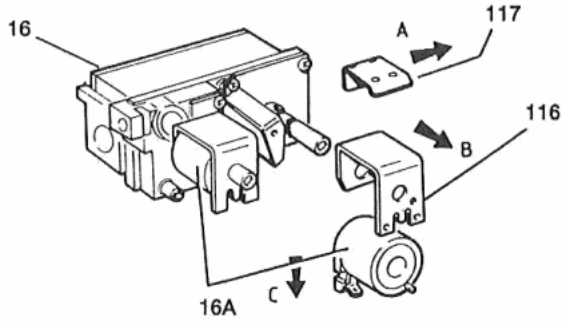
42 BURNER ASSEMBLY - Exploded view



LEGEND

9. By-pass valve.
9A. By-pass solenoid.
10. Burner manifold.
11. Air box.
12. Main burner.
13. Main burner injector.
14A. Pilot burner.
15. Pilot shield.
16. Gas control valve (double solenoid).
16A. Gas control valve solenoids.
18. Control box.
22. Burner On/Off switch.
63. Gas service cock
111. 'O' ring.
112. Sealing gaskets.
113. C./HW. switch knob.
115. Extended screws.
116. Solenoid mounting bracket.
117. Spring clip.
118. Bypass valve plug.

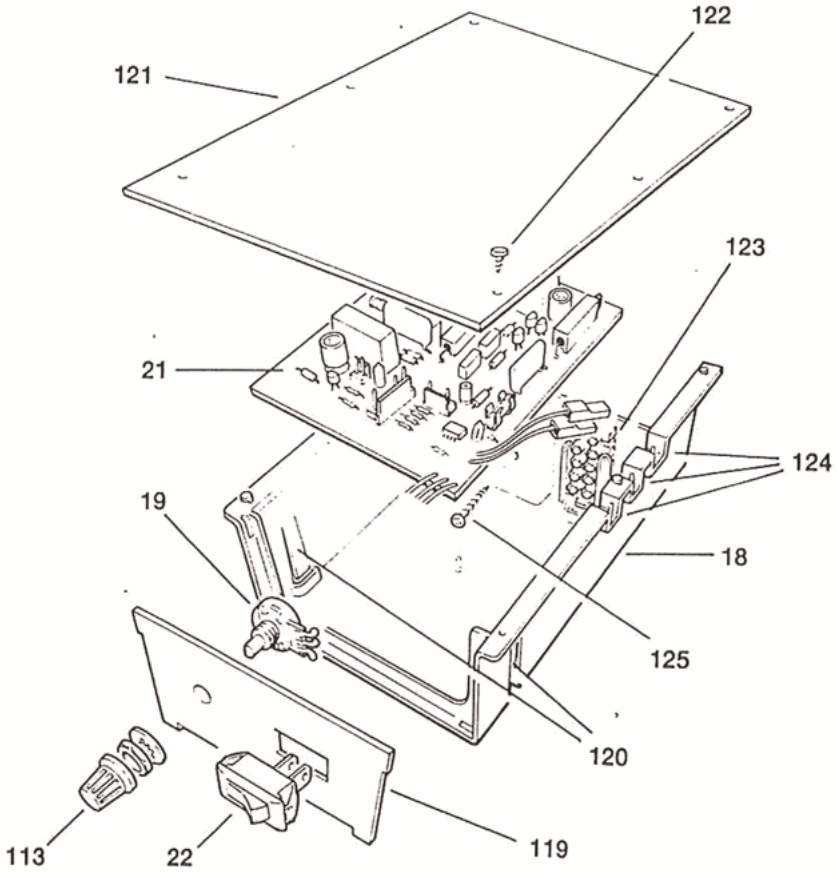
DETAIL OF GAS VALVE SOLENOID



43 CONTROL BOX ASSEMBLY - Exploded View

LEGEND

18. Control box.
19. C.H. / H.W. switch.
21. Printed circuit board No. 26.
22. Burner On / OFF switch.
113. C.H. / H.W. switch knob.
119. Control box front cover.
120. Printed circuit board retaining clips.
121. Control box lid.
122. Control box lid fixing screws.
123. Terminal strip.
124. Strain relief bushes.
125. Central fixing screw.



Before attempting to rectify any electrical fault, ALWAYS carry out the preliminary electrical system checks using a suitable test meter. Detailed instructions on the replacement of faulty parts are contained within the 'Servicing' section of this publication.

NOTE:

1. Ensure that the boiler and system is full of water, free from air locks and that the pump is running.

2. Press the overheat thermostat reset button and continue with the fault finding procedure. Replace the thermostat if it operates before the normal working temperature is reached.

3. In order to assist fault finding, the control box printed circuit board is fitted with four indicator lights.

Neon I_1 Air pressure switch made

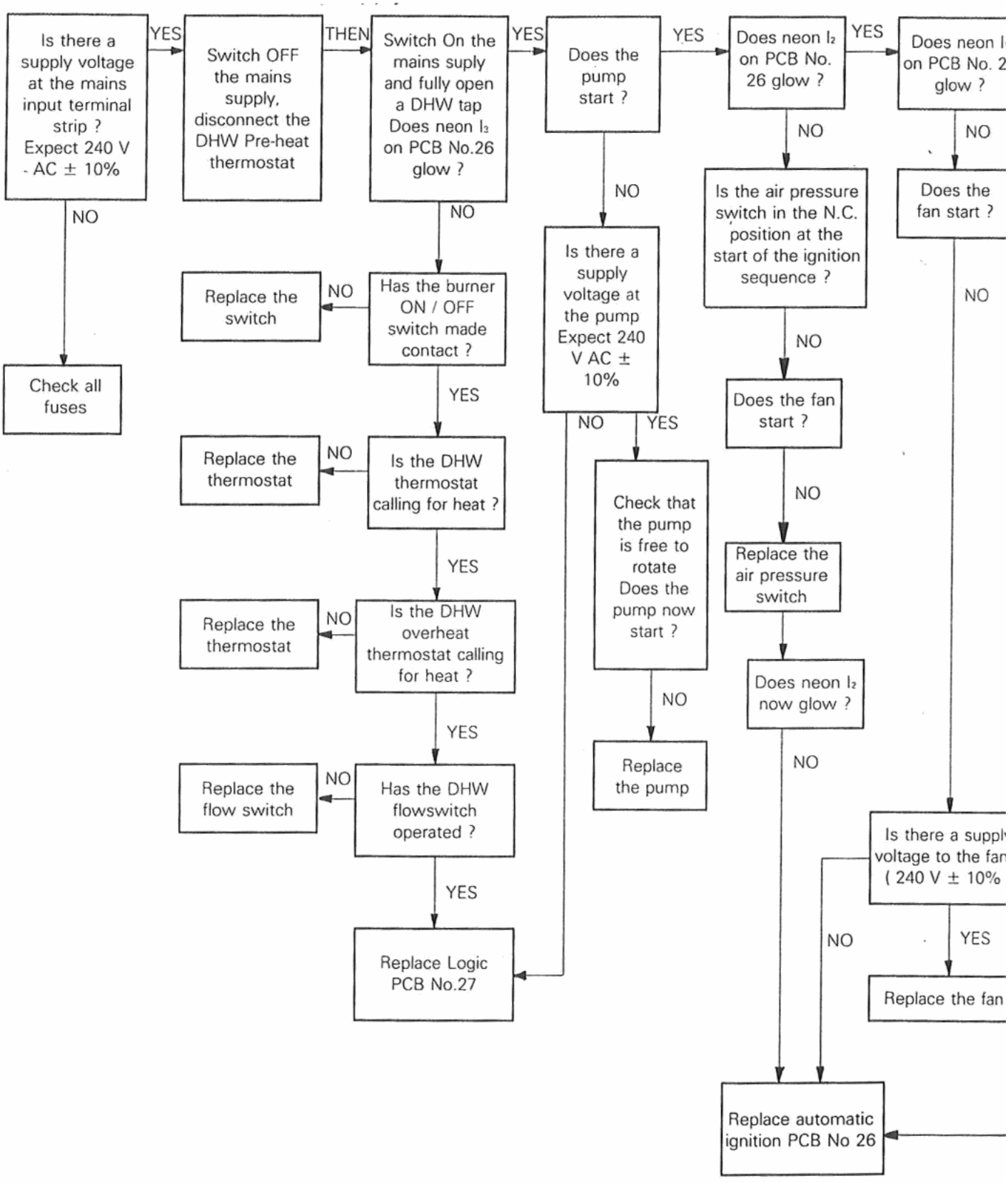
Neon I_2 Fan voltage indication

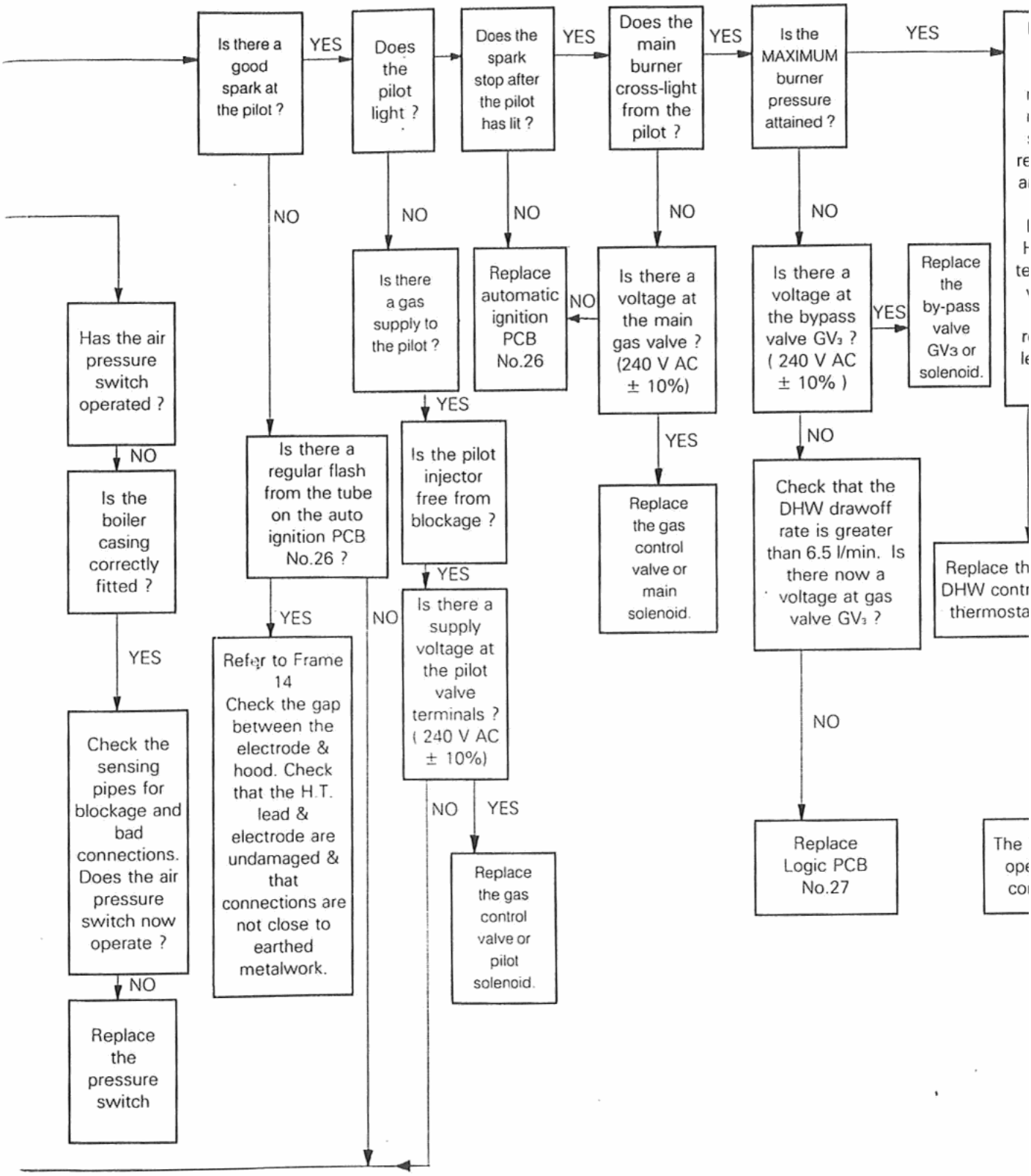
Neon I_3 Mains supply to P.C.B. 26

Neon SG 1 Flashes to indicate spark operation (stops after detection)

44 DOMESTIC HOT WATER MODE

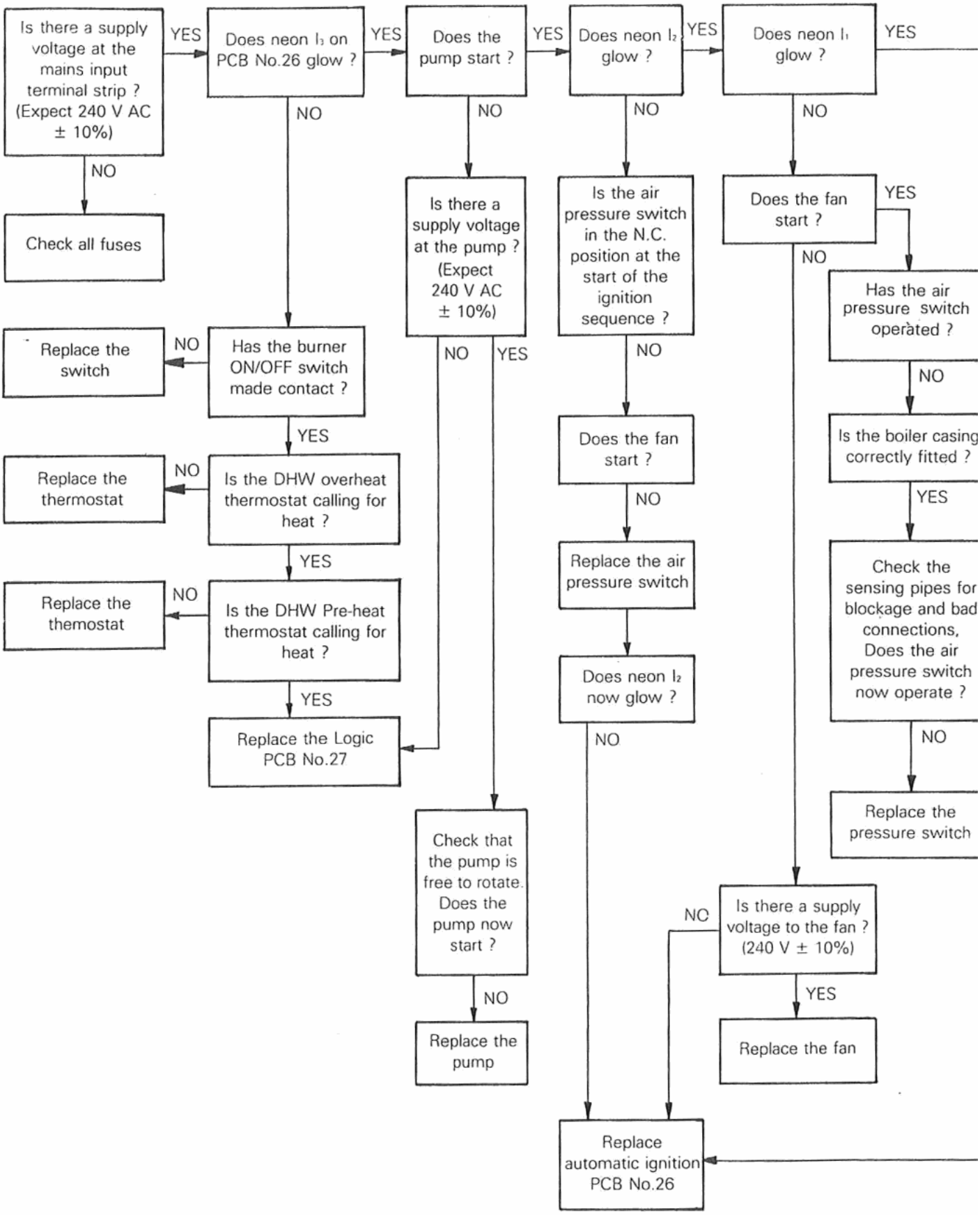
Start from cold. Turn the C.H./H.W. switch to H.W. ONLY and the burner ON/OFF switch to ON. Also turn any time clock ON and switch ON the mains electricity supply.

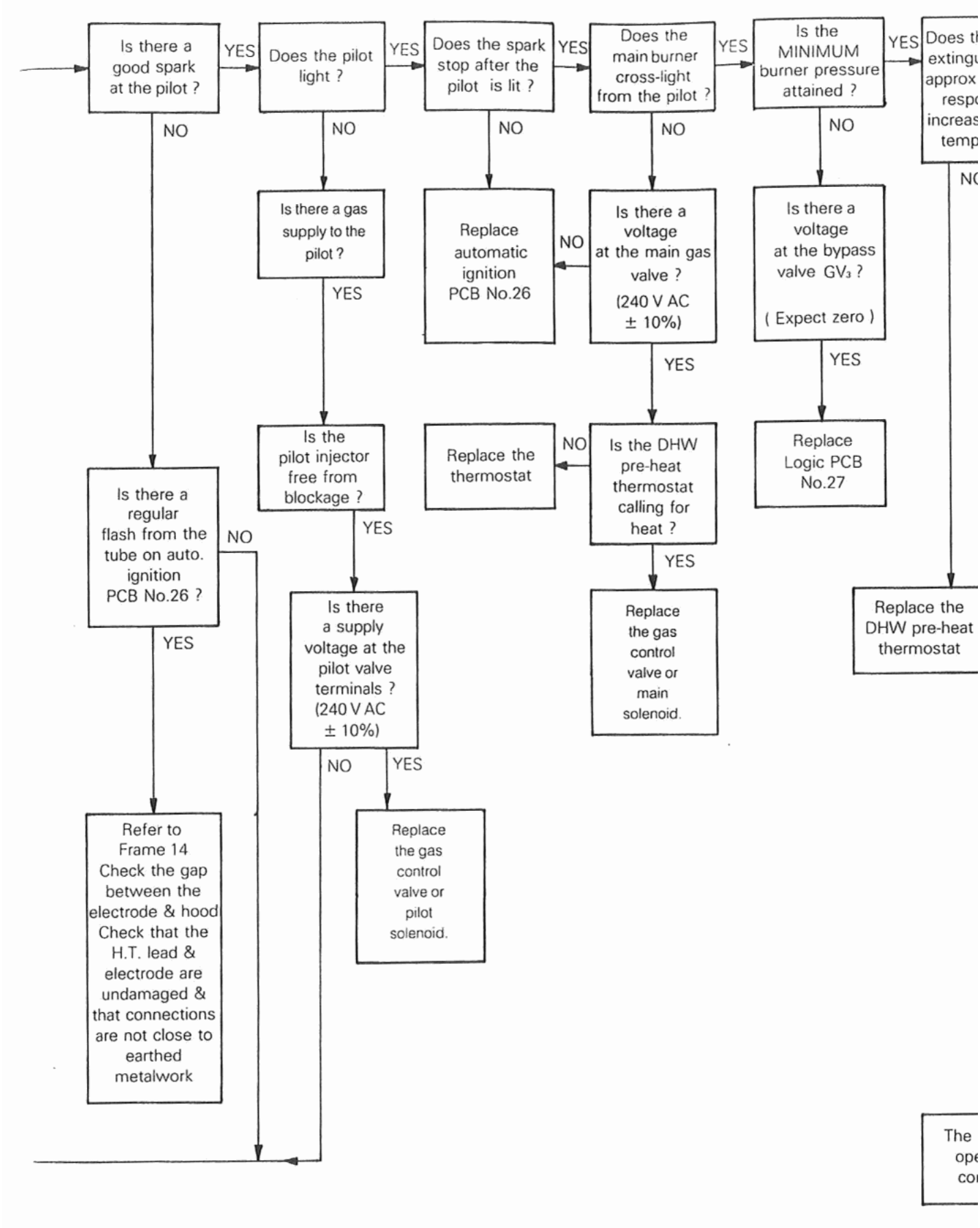

Is there a supply voltage at the mains input terminal strip ? Expect 240 V - AC ± 10%
YES
Switch OFF the mains supply, disconnect the DHW Pre-heat thermostat
THEN
Switch On the mains suply and fully open a DHW tap Does neon I2 on PCB No.26 glow ?
YES
Does the pump start ?
YES
Does neon I2 on PCB No. 26 glow ?
YES
Does neon I on PCB No. 2 glow ?
NO
Check all fuses
NO
Replace the switch
NO
Has the burner ON / OFF switch made contact ?
YES
Replace the thermostat
NO
Is the DHW thermostat calling for heat ?
YES
Replace the thermostat
NO
Is the DHW overheat thermostat calling for heat ?
YES
Replace the flow switch
NO
Has the DHW flowswitch operated ?
YES
Replace Logic PCB No.27
NO
Is there a supply voltage at the pump Expect 240 V AC ± 10%
NO
YES
Check that the pump is free to rotate Does the pump now start ?
NO
Replace the pump
NO
Is the air pressure switch in the N.C. position at the start of the ignition sequence ?
NO
Does the fan start ?
NO
Replace the air pressure switch
Does neon I2 now glow ?
NO
NO
Does the fan start ?
NO
Is there a supply voltage to the fan (240 V ± 10%
YES
NO
Replace the fan
Replace automatic ignition PCB No 26



45 PRE-HEAT MODE

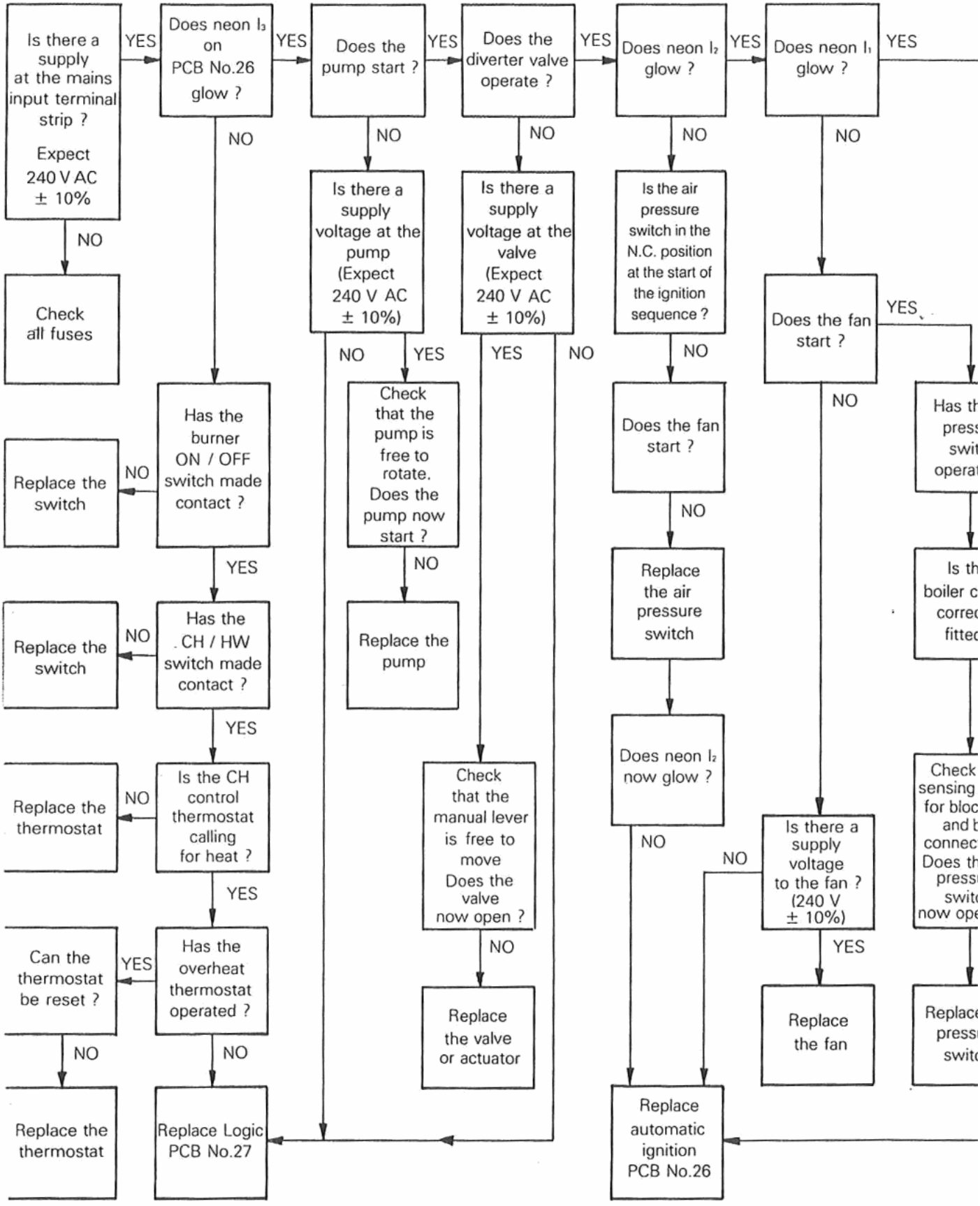
Start from Cold. Turn the CH/HW switch to HW ONLY, and any time clock ON. Ensure that all DHW taps are OFF. Re-connect the DHW preheat switch. Turn the burner ON/OFF switch ON. Switch ON the mains supply.

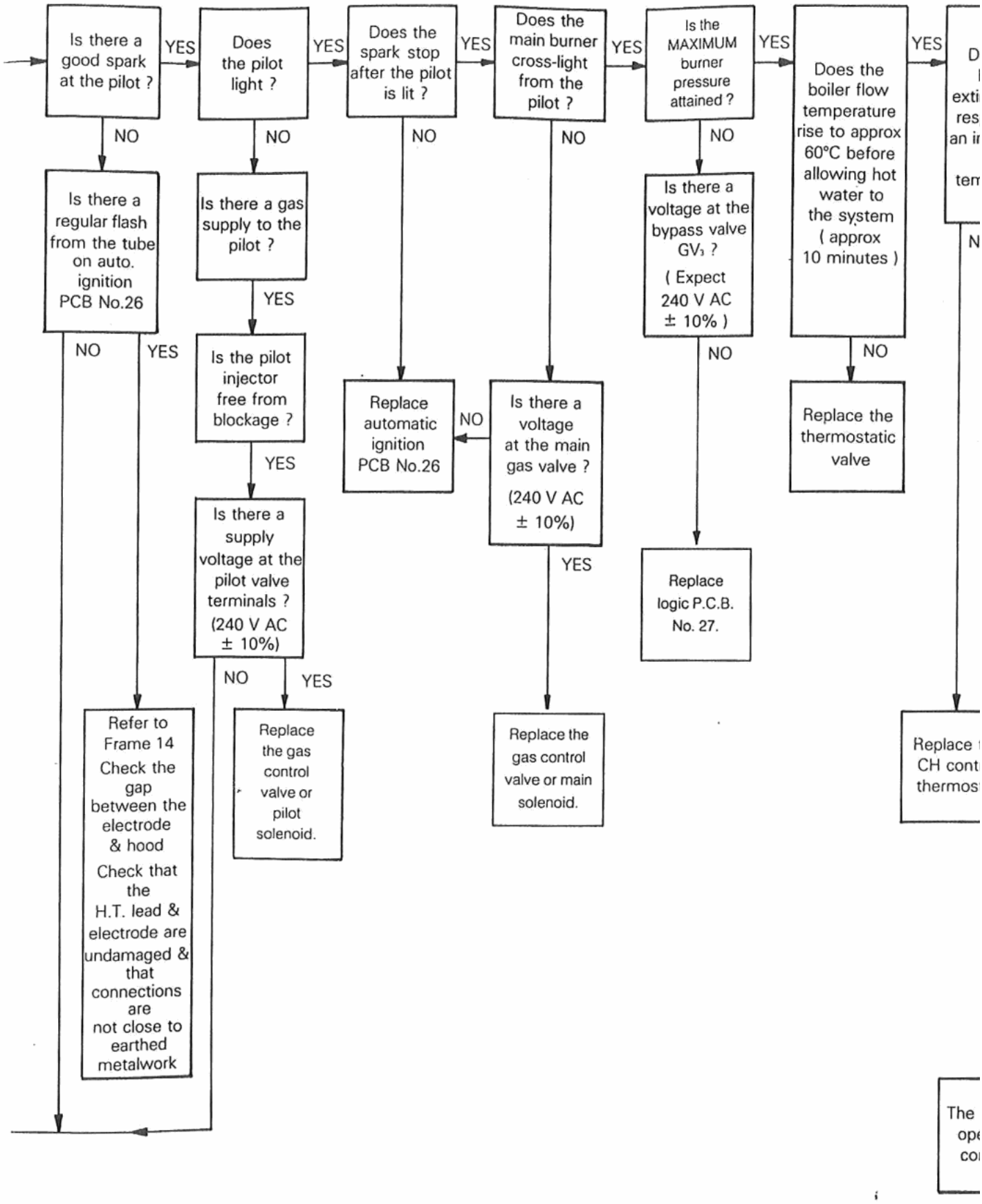

Is there a supply voltage at the mains input terminal strip ? (Expect 240 V AC ± 10%)
YES
Does neon I3 on PCB No.26 glow ?
YES
Does the pump start ?
YES
Does neon I2 glow ?
YES
Does neon I1 glow ?
YES
NO
Check all fuses
NO
Has the burner ON/OFF switch made contact ?
NO
Replace the switch
YES
Is the DHW overheat thermostat calling for heat ?
NO
Replace the thermostat
YES
Is the DHW Pre-heat thermostat calling for heat ?
NO
Replace the themostat
YES
Replace the Logic PCB No.27
Is there a supply voltage at the pump ? (Expect 240 V AC ± 10%)
NO
YES
Check that the pump is free to rotate. Does the pump now start ?
NO
Replace the pump
Is the air pressure switch in the N.C. position at the start of the ignition sequence ?
NO
Does the fan start ?
NO
Replace the air pressure switch
Does neon I2 now glow ?
NO
Does the fan start ?
YES
NO
Has the air pressure switch operated ?
NO
Is the boiler casing correctly fitted ?
YES
Check the sensing pipes for blockage and bad connections, Does the air pressure switch now operate ?
NO
Replace the pressure switch
Is there a supply voltage to the fan ? (240 V ± 10%)
NO
YES
Replace the fan
Replace automatic ignition PCB No.26



46 CENTRAL HEATING MODE

Start from Cold. Turn the CH/HW switch to CH & HW, and any time clock and room thermostat ON. Ensure that all DHW taps remain OFF. Turn the burner ON/OFF switch ON. Switch ON the mains supply.


Is there a supply at the mains input terminal strip ?
Expect 240 V AC ± 10%
YES
NO
Check all fuses
Does neon I3 on PCB No.26 glow ?
YES
NO
Has the burner ON / OFF switch made contact ?
NO
Replace the switch
YES
Has the CH / HW switch made contact ?
NO
Replace the switch
YES
Is the CH control thermostat calling for heat ?
NO
Replace the thermostat
YES
Has the overheat thermostat operated ?
YES
Can the thermostat be reset ?
NO
Replace the thermostat
NO
Replace Logic PCB No.27
Does the pump start ?
YES
NO
Is there a supply voltage at the pump (Expect 240 V AC ± 10%)
NO
YES
Check that the pump is free to rotate. Does the pump now start ?
NO
Replace the pump
Does the diverter valve operate ?
YES
NO
Is there a supply voltage at the valve (Expect 240 V AC ± 10%)
YES
NO
Check that the manual lever is free to move Does the valve now open ?
NO
Replace the valve or actuator
Does neon I2 glow ?
YES
NO
Is the air pressure switch in the N.C. position at the start of the ignition sequence ?
NO
Does the fan start ?
NO
Replace the air pressure switch
Does neon I2 now glow ?
NO
Replace automatic ignition PCB No.26
Does neon I1 glow ?
YES
NO
Does the fan start ?
YES
NO
Is there a supply voltage to the fan ? (240 V ± 10%)
NO
YES
Replace the fan
Has th press swit operat
Is th boiler c correc fitte
Check sensing for bloc and b connec Does th press swit now ope
Replace press swit



SPARE PARTS

Details of the British Gas Lists are held by Gas regions, CARADON Distributors and by Merchants.

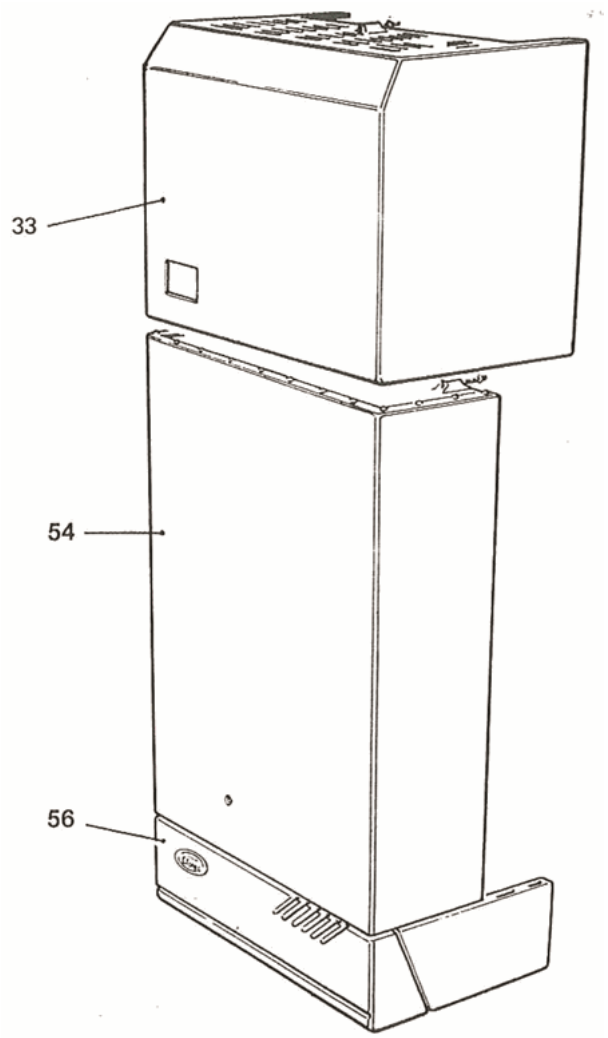
Ideal Classic Combi NF 80 Combination Gas Boiler.

When ordering spares please quote:

1. Boiler Model
2. Appliance G.C. Number
3. Description
4. Maker's Part Number

5. Quantity

48 BOILER CASING ASSEMBLY



CARADON HEATING pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

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