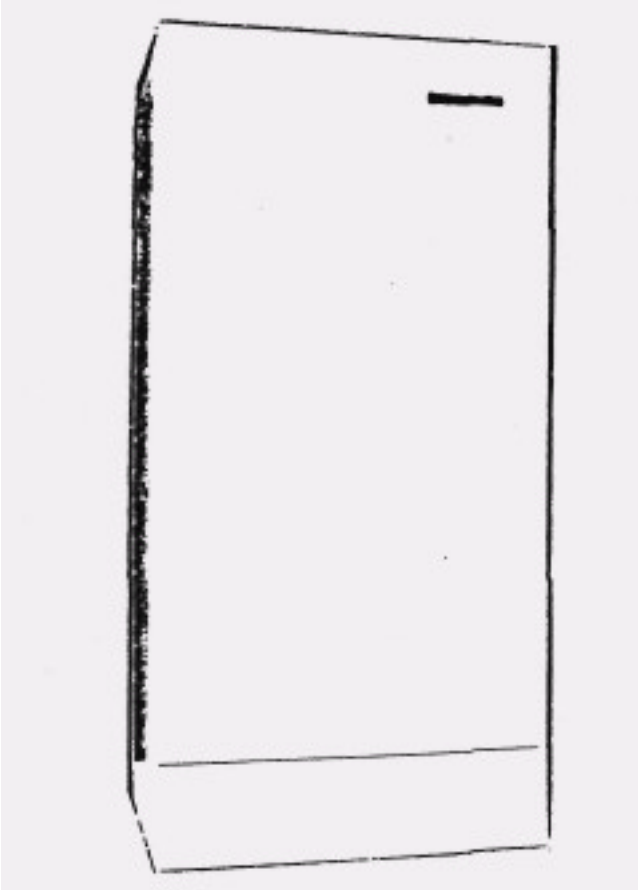
THERMOMATIC

COMBINATION WALL HUNG GAS BOILER

MODEL RSM 20/FB

INSTALLATION & SERVICING INSTRUCTIONS



DATA BADGE UNDER FRONT PANEL ON BURNER COVER

Manufactured by
THERMOMATIC SRL Casalecchio Di Reno Bologna Italy
exclusively for

KESTON
Boilers

High Efficiency Domestic & Commercial Boilers
34 West Common Road Hayes Bromley Kent BR2 7BX
Telephone : 020 8462 0262 Fax : 020 8462 4459
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TECHNICAL DATA

Heal input (fixed)	26.2kW (89.400 Btu/h)
Heal output	23kW (78.500 Btu/h)
Burner pressure	14mbar(5.6in.w.g.) Inlet 2Ombar
Burner	Worgas Thermomatic 3 injector 2.35 - 2.70 - 2.35 n
Gas control valve	Honeywell VK 4105G
Control Box	Honeywell VK 4105G
Filling loop	Inter Albion with Alhilil double *check* valve
Boiler control thermostat	Ranco K36 Y21
Bimetallic Priority thermostat	Cewal 91931199
Overheat thermostat	Ranco LM7 P5 043
Anticondensing Thermostat	Imit TR2
Electrical supply	240V-50HZ
Power consumption	180 W
Internal fuse rating	3A
Weight empty	77 kg (169.7 Ib)
Weight full	92 kg (203.O Ib)
CH max pressure	3 bar (44 psi)
CH min working pressure	0.5 bar (7.4 psi)
DHW max pressure	10 bar (146 psi)
DHW min working pressure	0.6 bar (8.7 psi)
CH expansion vessel	8 litres charged to 0.5 bar (7.4 psi)
DHW expansion vessel	0.1 60 litres charged lo 3.5 L (51.5 psi)
CH max temperature	90°C
Design temperature rise	11°C
DHW flow at 30'c rise	11.0 l/min
DHW flow at 35'c rise	9.21 l/min

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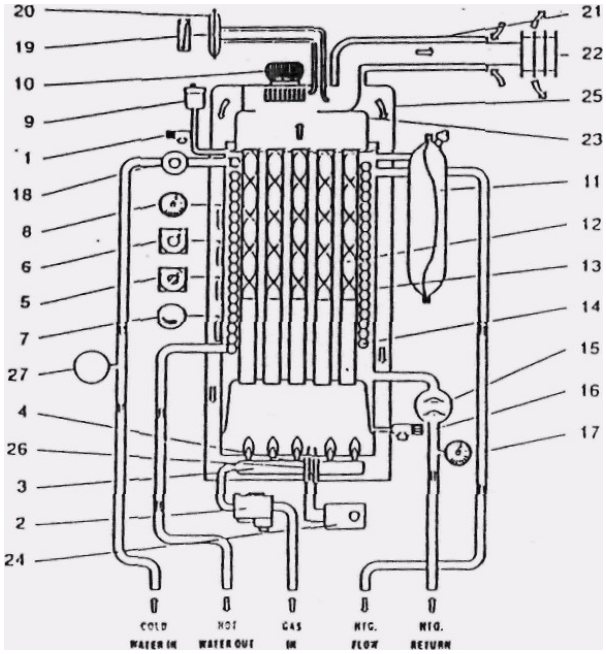
1 GENERAL DESCRIPTION (Fig.1.1)

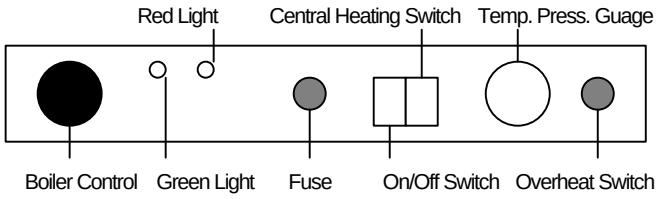
The Thermomatic RSM 20/FB is a wall mounted water jacketed vertical tube Combination Boiler fitted with a copper coil to give an immediate supply of hot water.
The appliance is room sealed and fitted with a coaxial duct for fan powered ventilation, designed for exit to either side or to the rear of the appliance.
The copper coil containing 2 litres of hot water is indirectly heated, giving an immediate and continuous hot water supply.
The central heating pump will not operate until the boiler temperature reaches 60°C. The pump is controlled by a capillary thermostat called the anti-condensing thermostat. In addition, a bimetallic priority thermostat will stop the pump as soon as domestic hot water is drawn. This allows the full heat output to be directed to supplying hot water only.
The appliance jacket extends to burner level, so the walls of the combustion chamber are water-cooled. This prevents the intense local heating usually associated with combination boilers and considerably prolongs the appliance life.
The domestic hot water, being indirectly healed through a coil of a larger diameter than normally used, is not so easily affected by calcium impurities that build up lime scale. This together with the flexing of the coil due to temperature changes, means calcium "build-up" is considerably lessened.
With the Summer/Winter switch set to Winter the appliance will automatically adjust to the central heating output, which may be a single radiator, ot any number within the heat ouput of the appliance. The Thermomalic does not require a 'by-pass' and all radiators can be fitted with thermostatic radiator valves.
Unlike many other combination boilers, the Ther-momalic will operate on low water pressures. The boiler within the casing is cylinder shaped and fitted with vertical copper flue tubes through which the gas products pass. These tubes are fitted wiih stainless steel baffles to increase efficiency and to rapidly conduct the heat from the gas products to the water contained within the cylindrical heat exchanger.
An extended copper coil fitted around the vertical flue tubes is within the water content. The water content connects to the central healing system and indirectly heats the domestic water passing through the coil.
A SIT Controls multifunctional control with electric ignition is used and temperatures of both central heating and hot water ate controlled by capillary thermostats.
The flue extract fan incorporates a pressure control switch which activates the gas control. In the case of a fan failure of any kind the gas control fails to safely.
It is recommended that a scale inhibitor should be fitted in hard water areas.

FIG.1.1 INTERNAL DESIGN



1 Manual air vent cock
2 Gas control valve
3 Stainless steel burners
4 Ignition electrode
5 Pocket for an anticondensing thermostat phial
6 Pocket For safety thermostat phial
7 Pocket for boiler healing thermostat phial
8 Water temperature gauge
9 Automatic air vent
10 Fan motor
11 Expansion vessel
12 Stainless steel Hue baffles
13 Boiler shell
14 Domestic hoi water copper coil
15 Circulating pump
16 Pressure relic! Safely valve
17 Water pressure gauge
18 Bimetallic priority thermostat
19 Air pressure microswitch
20 Air pressure switch body
21 Concentric flue/air pipe
22 Flue terminal
23 Flue hood
24 Electronic control box
25 Room sealed combustion chamber
26 Flame detection probe
27 Mini expansion vessel (Domestic)

2 OPERATING SEQUENCE *(Fig.2.1}*



2.1 ON-OFF MAIN SWITCH

Allows the appliance to be manually switched on and off.

2.2 CENTRAL HEATING SWITCH (SUMMER-WINTER)

Allows the central heating and domestic hot water supply to be switched on. or domestic hot water only to be switched on.

2.3 BOILER CONTROL THERMOSTAT

Controls the temperature of the water fed to the central healing system. The temperature can be manually adjusted between approximately 50" - 90*C ± 2°C.

2.4 OVERHEAT SWITCH

A boiler overheat switch will operate if the boiler thermostat exceeds 90*C ± 3%. After determining the season (of the boiler overheat thermostat operating, the thermostat can be manually re-set. Note: thermostat control cannot be re-set until boiler temperature falls below 80"C.

2.5 PRESSURE AND TEMPERATURE GAUGE

A combined boiler pressure and temperature gauge indicates the pressure and temperature of the water in the boiler. As a guide the pressure of water in the boiler, with a pressurised system, can be set at 1 bar when the water is cold.

2.6 BIMETALLIC PRIORITY THERMOSTAT

A bimetallic priority thermostat is fitted al the connection of the domestic cold water inlet to the boiler. When a hot lap is opened, the bimetallic priority thermostat is operated by the flow of cold water into the boiler.

If the central heating switch (summer/winter switch) is in the Winter position (i.e. central heating ON) the bimetallic priority thermostat turns off the central healing circulating pump.

When the domestic hoi water demand is satisfied the bimetallic priority thermostat allows the pump to restart.

When only a small domestic hot water flow is drawn the bimetallic priority thermostat does not intervene.

2.7 ANTICONDENSING THERMOSTAT

This thermostat prevents the central heating emulating pump from operating until the boiler water temperature reaches 60"C

3 GENERAL REQUIREMENTS

3.1 RELATED DOCUMENTS

It is the law that gas appliances be fitted by a competent person. Failure to do so could lead to prosecution. It is in your own interest, and that of safety, to ensure compliance with the law. Installation shall be in accordance with the following documents:

- Gas Safety (Installation and Use) Regulation 1984
- Building Regulations
- Building Standards (Scotland) Consolidation
- Current IEE Wiring Regulations
- By-Laws of the Local Water Authority
- BS.6798: Boilers of rated input not exceeding 60KW
- BS5449: Forced circulation hot water systems
- BS.5546: Gas hot water supplies
- BS.5440: Part 1: Flues
- BS.5440: **Part** 2: Ventilation
- BS.6891: Gas supply
-

Where the appliance is installed in a timber framed building, reference should be made to the British Gas Publication reference DM2.

3.2 GAS SUPPLY

See fig.3.1 for connection

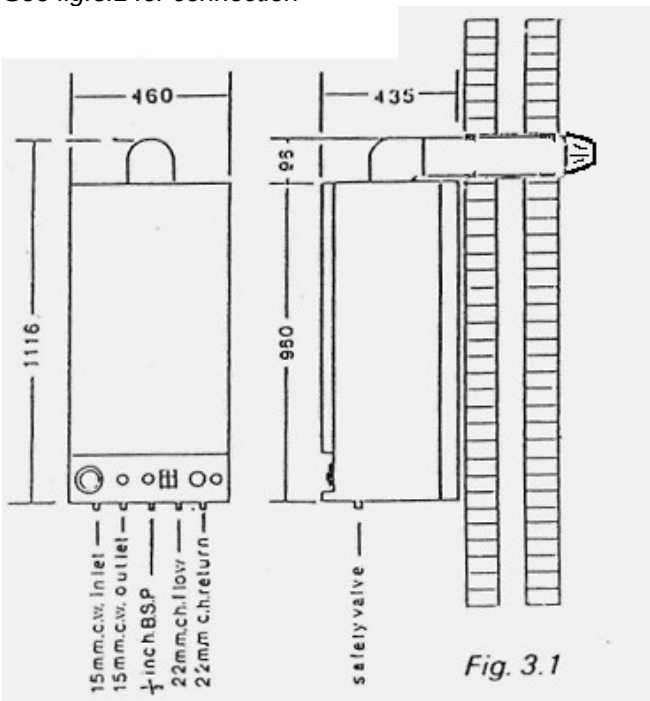


Fig. 3.1

A gas meter can only be connected by local gas legions or by a local gas region contractor. An existing meter should be checked, preferably by the gas region, to ensure the meter is adequate to deal with the rate of gas supply.

Installation of pipes should be in accordance with BS.6891.

Pipework from the meter to the appliance must be of adequate size.

Do not use pipes of a smaller size than the appliance gas inlet connection.

The complete installation must be tested for soundness and purged as described in the above code

3.3 WATER SYSTEMS

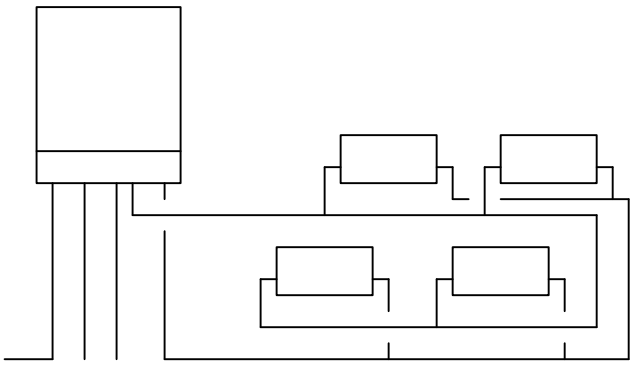


Fig. 3.3 TYPICAL HEATING SYSTEM

3.3.1 Central heating

See Fig.3. f for connections

WARNING: When radiator(s) are at a higher level than the boiler. A NON-RETURN VALVE MUST BE FITTED lo the central healing systems flow pipe.

A. Old systems.

These* are likely to contain sludge and debris which, if passed into the appliance, may cause irreparable damage to the pump and other components. It is. therefore, highly recommended that the old system be thoroughly flushed using such as Fernox cleaner - use in accordance with the manufacturer's instructions.

B. New systems

Must always be flushed of debris.

C. Design of system

The primary system must be of the sealed type, the designed temperature rise should be 1 PC.

The following sealed system components are included on the appliance:

i. Double check valve, stop valve and filling loop,
ii. 8 lilre central heating expansion vessel,
iii. Circulating pump.
iv. CALEFFI relief (safety) valve.
v. D.H.W, Expansion Vessel
vi. Combined temperature and pressure gauge.

D. Expansion vessel/sizing of system

Guidance is provided in BS.7074. Part 1 and BS.5449. The maximum permissible capacity of the system, including the appliance, will depend upon the initial design pressure.
As an example, for an initial design pressure of 1 bar the maximum permitted capacity, including the appliance, is 70 titles.

For calculation purposes:
Existing vessel capacity - 8 litres
(charged at 0.5 bar)
Capacity of appliance - 15 litres
Safely valve setting - 3 Bar

If the system capacity exceeds the allowed value then an additional vessel must be provided, connected as close as possible to the appliance heating return.

E. Pressure relief (safety) valve

The valve outlet must be routed to a suitable point of drainage where there will be no hazard to occupants and where freezing will not take place.

F. Filling the system

A double check valve, stop valve and filling loop are supplied. Before using ensure that the arrangement complies with the requirements of the Local Water Authority. Alternatively BS 5449:1990 (fig 3.1A) shows other methods of filling.

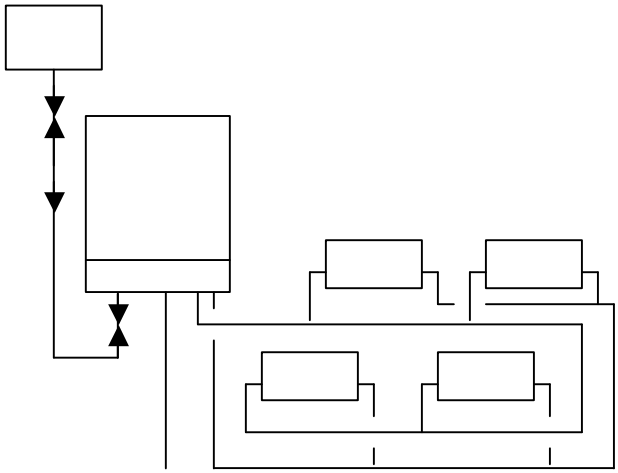


Fig. 3.1.A ALTERNATIVE TOP UP SYSTEM

G. System make up

There must be no direct permanent connection to the mains water supply, hence the filling loop must be disconnected at one end alter use.
If an automatic top up method is required, then this must be done via either a cistern which has no other purpose or a top up bottle. Full details are provided in BS.5449:! 990 (fig 3.1 B) Again, always check local Water By-laws before installation. See also Fig.3. l.A.

H. Pump performance

Fig.3.2 shows the pump performance characteristics and values given take due account of the losses through the appliance.

I. Thermostatic radiator valves

A by-pass is not required and such valves can be fitted on all radiators if desired.

J. Drain points

Drain taps should be lilted on the lowest point of the system, the taps complying with BS.2879

K. Vents

Although an automatic air vent & manual air vent is provided on the appliance, further facility to vent the system should be provided.

L. All components and fillings used should be suitable for temperatures of up to 11O°C and pressures of up to 3 bar.

All syslem components added must be in occoidance with US 5-149 and BS.G798.

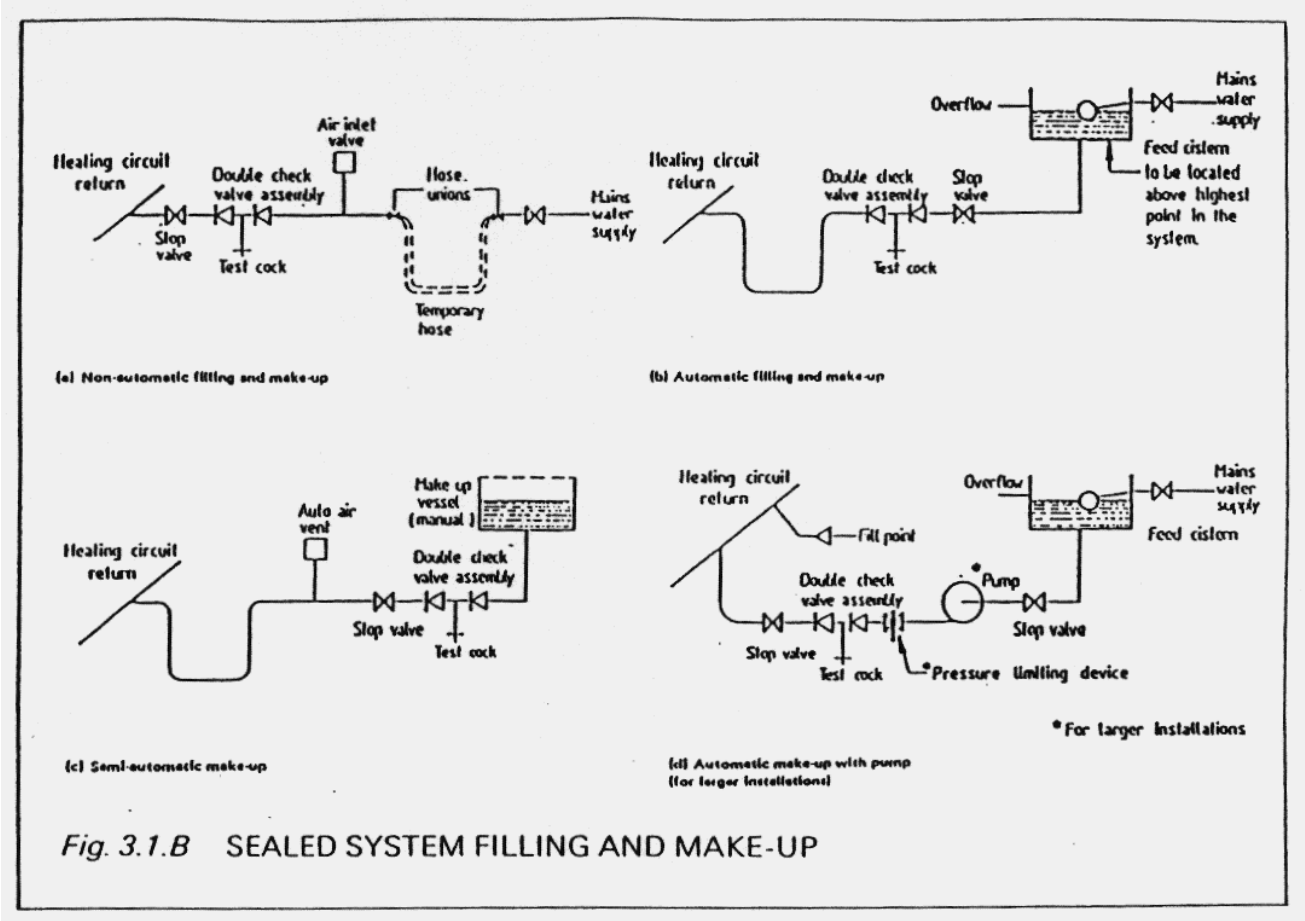


Fig. 3.1.B SEALED SYSTEM FILLING AND MAKE-UP

Speed	RPM	Watts Input	Full Load Current in Amps
Position 1	1000	30-35	016
Position It	170O	45-60	025
Position III	2450	72.92	038

Fig. 3-2 PUMP PERFORMANCE

M. Central heating pressure

We recommended that the initial design pressure, i.e. when cold, be 1 bar When fully heated and drawing a full load, the resultant hot pressure must not exceed 2.7 bar. The safety valve will discharge at 3 bar ± 0.3 bar.

N. System design

A typical sealed system is shown in Fig.3.3.

3.3.2 Domestic hot water circuit

See Fig.3.1 for connections

An extended copper coil is filled which is healed from the primary water. Starting from cold, the appliance should be fully heated before full capacity hot water supply is obtained

IMPORTANT

To conform to the requirements of the National Water Council, il the main water pressure is at any lime in excess of 73 psi. (5 bars) {1 69(1) a Pressure Limiting or Pressure Reducing Valve must be fined by the installer into the mains supply in an inconspicuous approved by Ihe NWC and must not allow more than 73 psi. (5 bars) pressure to the appliance.

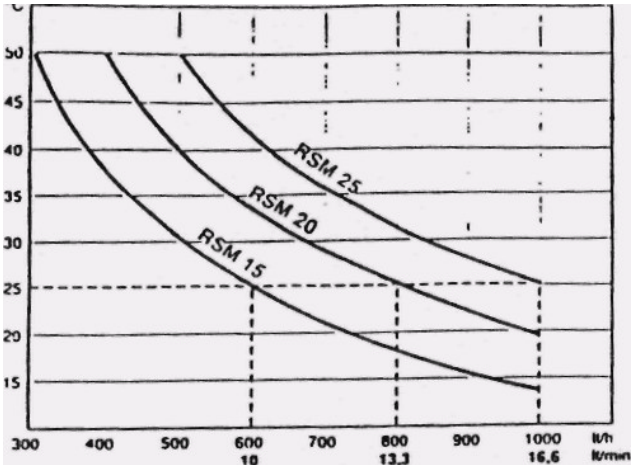


Fig. 3.4 DOMESTIC HOT WATER SUPPLY

3.4 FLUE SYSTEM

3.4.1 The standard balanced flue system can be directed to the right, left or rear of the appliance.

3.4.2 As supplied, the standard horizontal flue assembly will cover a distance of up to 910 mm from the centre line of (he appliance for side flues. for rear flues, a wall thickness of up to 800mm can be accommodated. Both dimensions are to the outside wall face.

An optional 1m extension flue system kit (Pan No R3000050) is available which allows the maximum lengths to be increased to 1840 mm and 1730 mm respectively.
An optional 2m extension flue system kit (Pan No R3000014) is available which allows the maximum lengths to be increased lo 2840 and 2730 respectively

3.4.4 If a vertical flue is required an optional vertical flue system kit (Part No R3000030) is available which replaces the standard 1m horizontal Hue assembly supplied. The vertical flue assembly will cover a distance of up to 1m from the top of the boiler flue hood to the end of the air pipe and comes complete with a terminal rain hood.
Optional extension flue system kits are available to allow the maximum vertical lengths lo be increased lo 1975mm (Part No 3OO0050) or 2975mm (Part No 3000014).

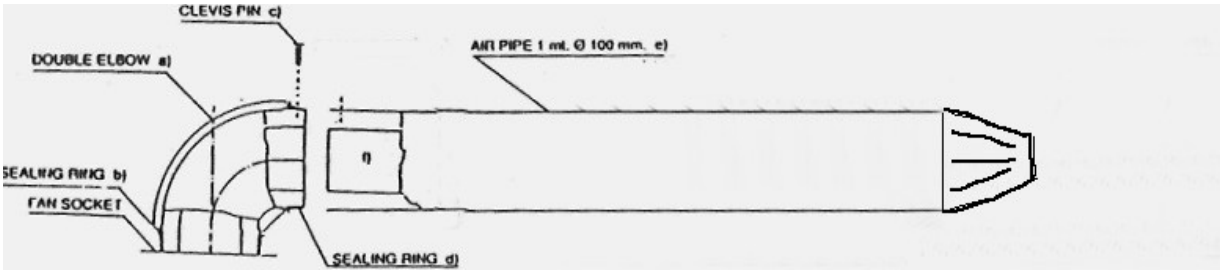


Fig. 3.5 STANDARD HORIZONTAL FLUE SYSTEM KIT COMPONENTS

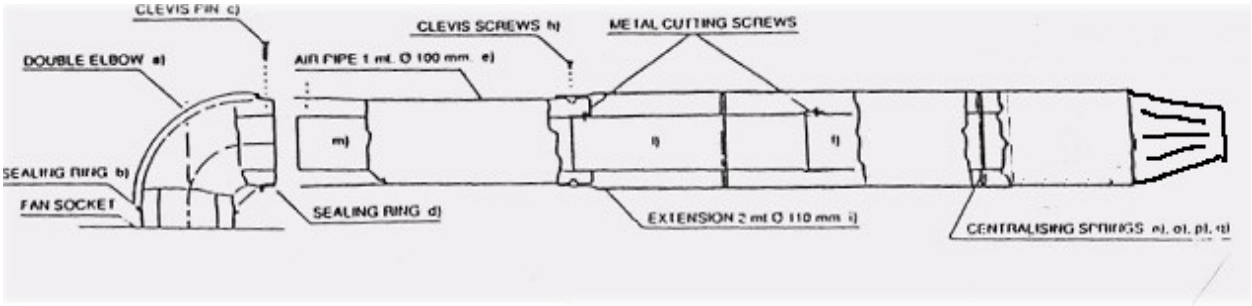


Fig. 3.6 **OPTIONAL HORIZONTAL EXTENSION FLUE SYSTEM KIT COMPONENTS**

3.4.5 The flue system must be installed in accordance with BSS440 Part 1.

3.4.6 Siting of flue terminal

It is essential that products of combustion cannot enter any building through such as openable windows, doors, air bricks, etc.

Fig 3.7 gives details of the minimum required spacing of the 'terminal from building features.

3.4.7 Terminal guard

Where the terminal is fitted within 2m of a walkway. a balcony or a fiat roof to which people have access, then a terminal guard, model C.1 must be fitted centrally over the terminal. This guard is available from KESTON BOILERS.

3.4.8 Air supply

This appliance is room sealed and. when installed in a room or space, requires no ventilation. If installed in a cupboard/compartment, air is required for cooling purposes, as follows:

Position of Air Vents	Air from Room or Internal Space	Air Direct from Outside
High level	236 cm² 36-6 ins²	1 1 8 cm² 18.3 ins²
Low level 36.6 ins²	236 cm² 18.3 ins²	1 1 8 cm²

Both air vents must communicate with the same room or space, or both must be on the same wall to outside air.

3.5 APPLIANCE LOCATION

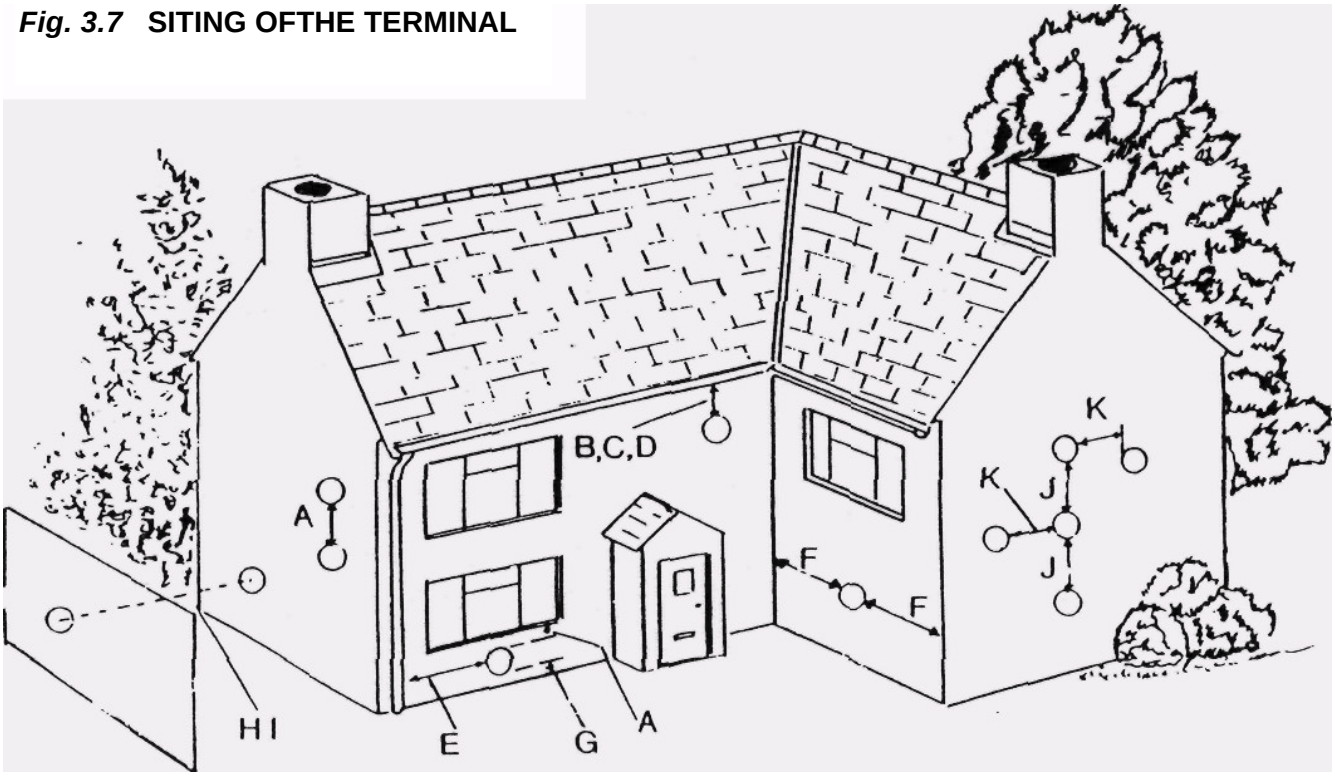
3.5.1 This appliance is not suitable for external installation.

3.5.2 The wall on which the appliance is mounted must be of suitable load bearing capacity

3.5.3 Installation in a compartment is permitted (full guidance is provided in BS.6798).

3.5.4 Adequate space must be allowed for installation, subsequent servicing, and safe operation. Appliance dimensions and the minimum allowable clearances required are shown in Figs. 3. t and 3.8

Fig. 3.7 **SITING OFTHE TERMINAL**



TERMINAL POSITION — Minimum distance Fanned draught.

A.	Directly below an openable window or other opening. e.g. an air brick	300 mm
B.	Below gutters, soil pipes or drain pipes	75 mm
C.	Below eaves	200 mm
D.	Below balcony	200 mm
E.	From vertical drain pipes and soil pipes	75 mm
F.	From internal or external corners	300 mm

TERMINAL POSITION — Minimum distance Fanned draught.

G.	Above ground or balcony level	300 mm
H.	From a surface facing a terminal	600 mm
I.	From a terminal facing a terminal	1200 mm
J.	Vertically from a terminal on the same wall	1500 mm
K.	Horizontally from a terminal on the same wall	300 mm

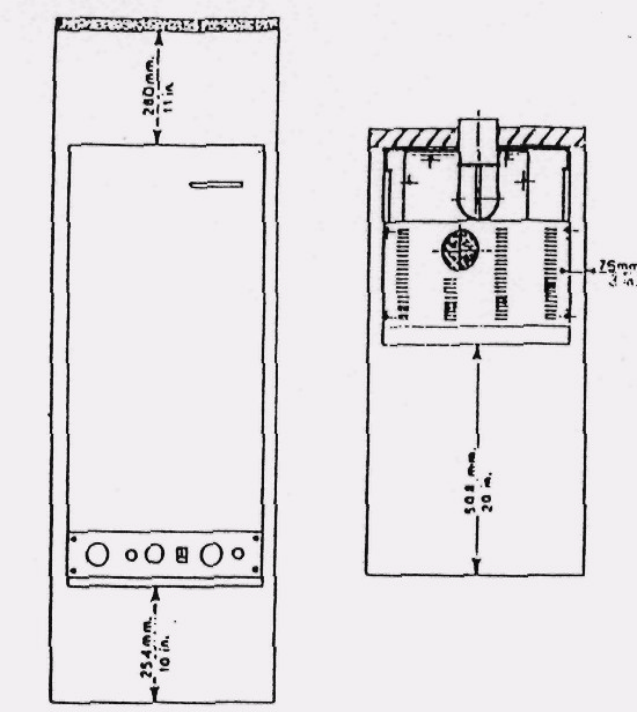


Fig. 3.8 MINIMUM CLEARANCES

3.5.6 The position must allow for correct termination of the flue system (see Section 3.4).

3.5.6 The combination boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E. Wiring Regulations, and in Scotland, the electrical provisions of the Building Regulations applicable in Scotland, with respect to the installation of the combination 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, any electrical switch or appliance control utilising mains electricity should be so situated that it cannot be touched by a person using the bath or shower.

3.6 ELECTRICAL

3.6.1 Electrical connections and installation must conform to current IEE Regulations and. in Scotland, the electrical provisions of the Building Regulations.
The appliance must be earthed.
Wiring external to the appliance MUST be carried out by a competent person in accordance with the current IEE Regulations and Local Regulations which apply. The Thermornatic Combination Boiler is supplied for connection to a 240V-50Hz single phase. The appliance is fused at 3A

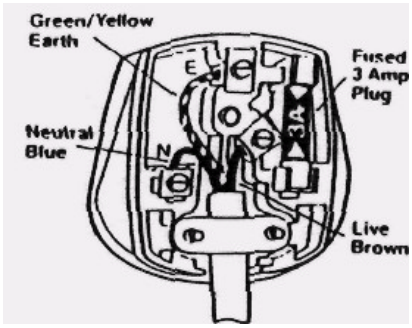
3.6.2 The method of connection to the electricity supply MUST provide means of completely isolating the electricity supply to the boiler and its ancillary control, preferably by using a 3A fused three-pin plug and unswitched shuttered socket outlet both complying with the requirements of 8S.1 363. or alternately a 3A fused double-pole switch having n 3 mm contact separation on both poles.

A flexible three-core PVC insulated cable must be used between the isolator and terminal block with a minimum cable size of 0.75 mm1 (24 x 0.2 mm) BS.6500 Table 16
Ensure all cables are secure.

3.6.3 ELECTRICITY SUPPLY

WARNING: THIS APPLIANCE MUST BE EARTHED.
Connection shall be made to a 240 Volts 50 Hz - supply. K a mains plug connection is used it must be of a three-pin type and fused to 3 Amps.

To connect a plug



As the colour of the wires in the mains lead of (he appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:—
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol or coloured green or green-and-yellow.
The wire which is coloured blue must be connected to the terminal which is marked with the tetler:N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

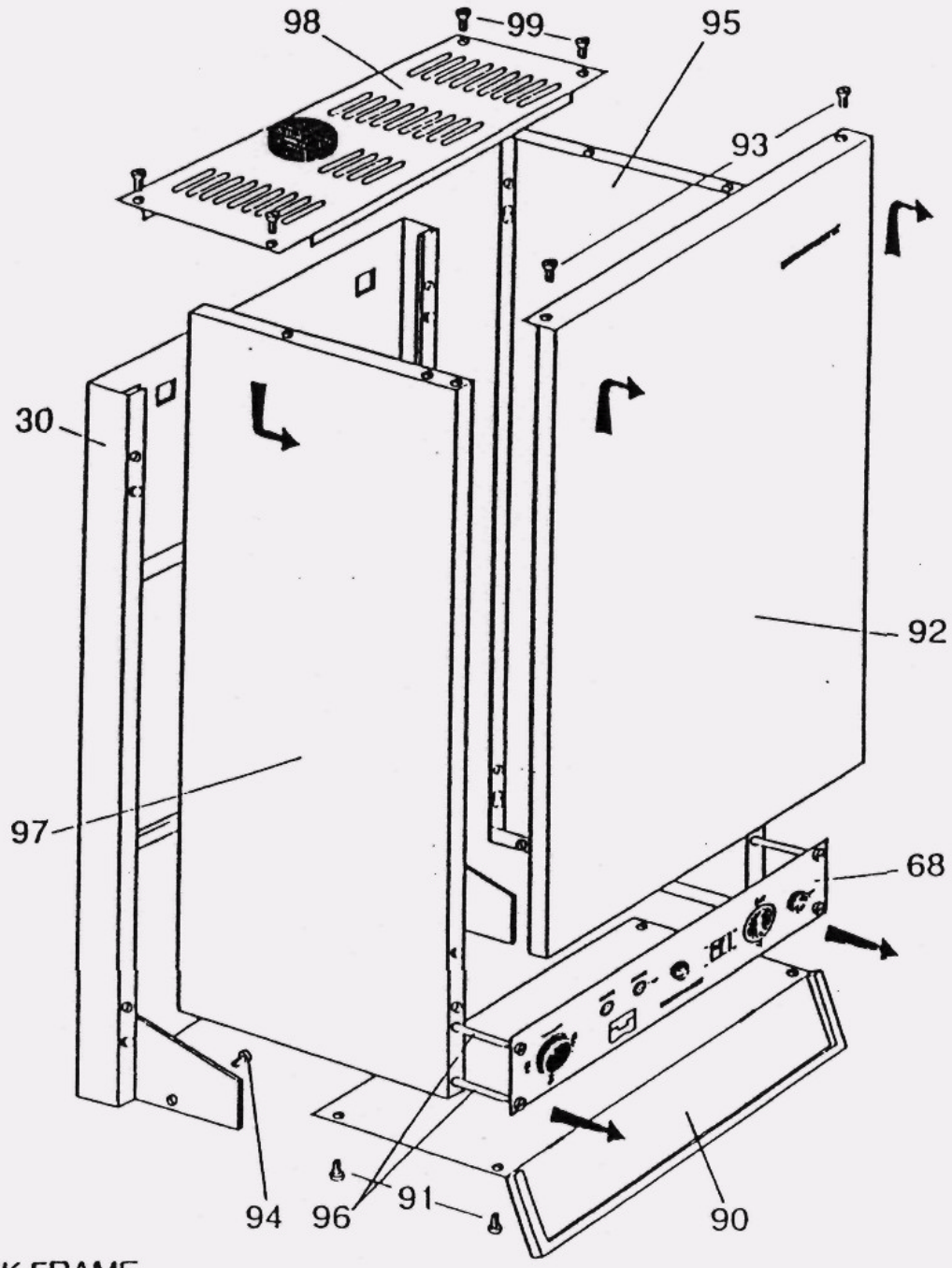
ELECTRICAL CONNECTIONS

3.6.4 To gain access to the terminal block remove me four screws fixing (he base panel with the attached front door and remove the panel (see Fig. 3.10, item 9'1

3.6.5Thread the main supply cable through the cable restraining clamp, leave enough cable for removal of control panel to replace any boiler controls.

3.6.6 Ensure earth wire is longer than current carrying conductors so that if cables are strained or slip in their anchorage, the current carrying conductors become taut before the earth wire.

Fig. 3.10 EXPLODED DRAWING OF DISASSEMBLING OF BOILER PANELS



LEGEND

30	BACK FRAME
68	INSTRUMENT PANEL
90	BASE PANEL & INSTRUMENT COVER
91	BASE PANEL FIXING SCREWS
92	FRONT PANEL
93	FRONT PANEL FIXING SCREWS
94	SIDE PANEL FIXING SCREW
95	RIGHT SIDE PANEL
96	INSTRUMENT PANEL FIXING SCREWS
97	LEFT SIDE PANEL
98	TOP PROTECTIVE GUARD
99	TOP PROTECTIVE GUARD FIXING SCREW

4. INSTALLATION PROCEDURES

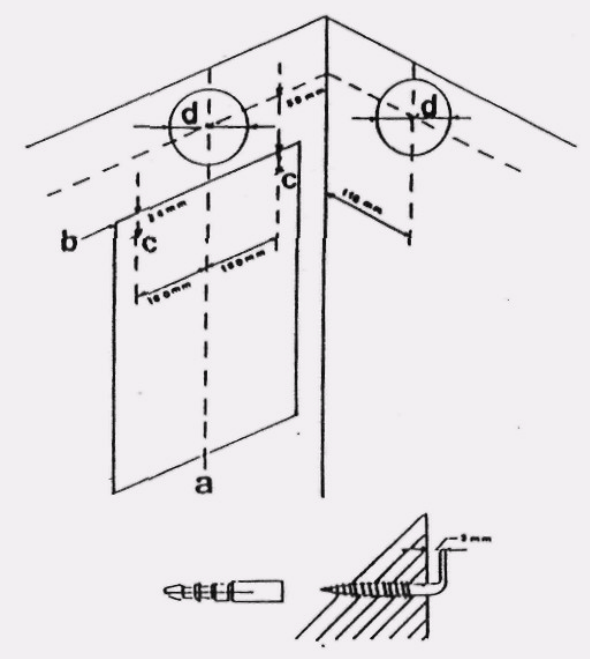
4.1 Unpack the appliance, check the contents:

i	Combination boiler	v	T-bar template
ii	Wall plugs	vi	Flue assembly with elbow
iii	Fixing brackets	vii	Wall liner with flexible washer
iv	Connection plate with ball valves	vii i	Filling loop with double check valve

4.2 Select the appliance position, taking due account of Section 3.

4.3 PREPARATION FOR MOUNTING THE APPLIANCE

The Thermomatic Combination Boiler is supplied with a connection plate with ball valves and a T-bar template that allow the installer to make all water and



gas connections and test the system before hanging the boiler. Hence, the boiler itself need only be hung at the final stage of the works.

a Mark a vertical line for the centre of the appliance
b Mark a horizontal line for the top of the appliance.
c Lay the top edge of the T-bar template onto the horizontal line and mark two holes on the wall for the fixing brackets.
d Mark the flue hole centre, either on the rear wall. ceiling or extended to the required side wall as shown.
e For standard flue systems, drill the flue hole 130mm diameter, preferably using a core drill.
For extended Flue systems, drill the Flue hole 145 mm diameter

f Insert the plastic plugs and screw in the fixing brackets to within 2 of 3 mm ol the wall face.

4.3 Hang the T-bar template on the fixing brackets and check that it is perfectly horizontal and seated on the fixing brackets.

4.4.1 Hang the connection plate carrying the valves on the T-bar template hung on the wall in 4.4 and fix together using the screws.
Drill four holes in the wall for fixing the connection plate to the wall, using the existing holes on the connection plate as a template.
Fix the connection plate to the wall using lour screws in the holes drilled.

4.4.2 Once the T-bar template and connection plate have been fixed securely lo the wall make all the gas and water connections.

4.4.3 Remove the T-bar template and hang the appliance on the fixing brackets via the two square cut outs on the top of the appliance.

4.5 Remove the base panel. 4 screws (see fig. 3.10 item 91 Exploded drawing of disassembling the boiler panels).

4.6Remove the front panel. 2 screws (see fig 3.10 item 93). lift and disengage. Remove the plugs from the cold water inlet and domestic hot water outlet

4.7 FLUE SYSTEM: CUTTING AND ASSEMBLY

4.7.1 Standard Flue Systems
When fully assembled, the standard flue system will be shown, side or rear flue (fig. 4.2).

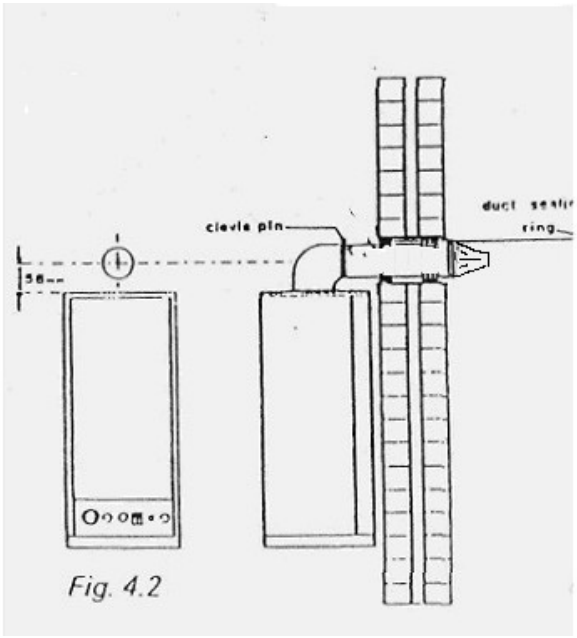


Fig. 4.2

IMPORTANT: The plastic liner must always be used and the air pipe fixed at the appliance elbow ONLY.

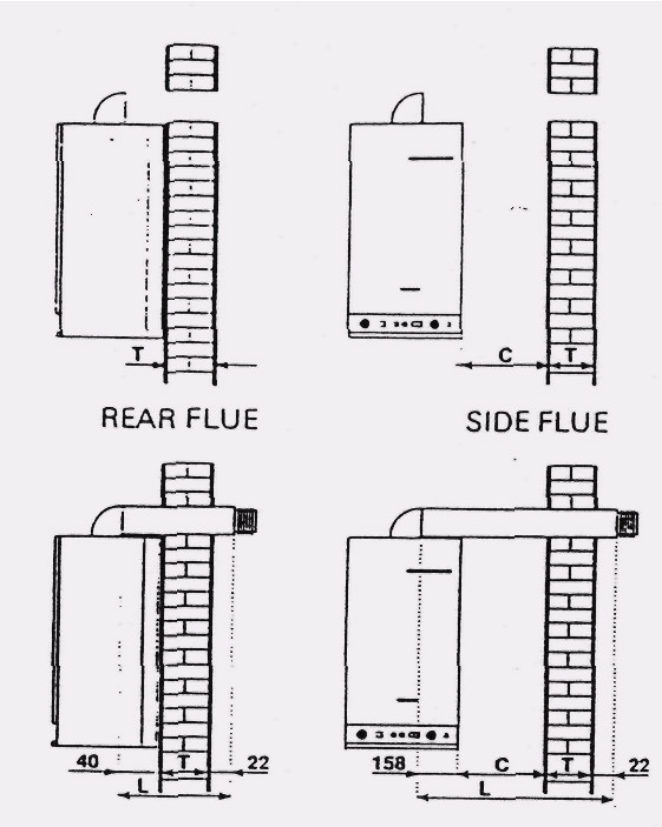


Fig. 4.3

a Measure the wall thickness T (fig. 43).

b Maximum available lengths of plastic liner:

Rear flue Maximum wall thickness (standard liner):
580 mm (T)
Maximum wall thickness (optional extension liner) 828 mm (T).
Side flue Maximum distance from appliance side to outer wail face: 680 mm (T+ C)
(with maximum wall thickness T as for rear flues)

When measuring and cutting, always separate the inner (flue) pipe wiih terminal from the outer (air) pipe.

c Cut the air pipe fig. 3.5 — cut from the plain end.
Rear Flue To overall length (L) oFT + 62 mm.
Side Flue To overall length (L) ofT + C+ 180mm

When cutting the air pipe, take care not to ovalise it and remove the internal sharp edges produced when cutting the pipe.
Drill again a hole (4 mm diameter) at a distance of 7mm from the pipe end F) Fig 3 5 to [he hole center

d Cut the flue pipe — cut from the plain end.
Any Flue Cut off exactly the same amount as removed from the air pipe.
Drill again a hole (3mm diameter) at a distance of 16 mm from the end of pipe to the centre of hole

e Cut the plastic- liner (S)

f Insert the flue pipe/terminal F) into the elbow A) and secure with the specific screw.

g Insert the terminal into the plain, i.e. unchannelled end of the air pipe E).

h IMPORTANT
Before inserting the air pipe into the elbow. LUBRICATE THE ELBOW SEAL WITH OIL. then insert the air pipe completely into the elbow.
If the elbow seal is not lubricated, it is not possible to insert the air pipe into the elbow.
Take care to let the holes correspond, then insert the clevis pin (fig 4.4).

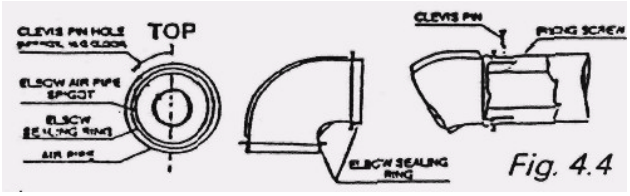


Fig. 4.4

i Pass the flue/air pipe assembly through the plastic liner S).

j Fully insert the elbow A) into the fan socket, ensuring that the elbow seal is correctly located.

k Check that the terminal protrudes the correct amount from the wall face (fig. 4.3.).

4.7.2 HORIZONTAL EXTENSION FLUE SYSTEM
a Measure wall thickness T (rig. 4.3)

Maximum distance from appliance side to outer wall face:.273Qmm (T+ C), or (torn inner wall lace to outer wall face: 2840 mm.
When measuring and cutting, always separate the flue pipe with terminal from the air pipe.

b Join air pipe extension to standard pipe, cut the air pipe extension (I) 110 mm diameter (fig. 3.6).
Cut from plain end to overall length of T + C + 1 80mm.
When culling the air pipe, take care not to ovalize it and remove the internal sharp edges produced when cutting the pipe.

c Cut the flue pipe (I) (fig.3.6) —cut from the plain end:
Any flue: cut off exactly the same amount as removed from the air pipe.
Drill again a hole (3 mm diameter) at the same distance from the pipe end as it was before.

d Position the centralising springs n) o) p) q) (fig.3.6) at about half of each flue pipe extension (I) and (f).

e Insert flue pipe (m) into (I) and secure with the specific metal cutting screw; then insert flue pipe with terminal (f) into (I) and secure with the specific screw.

f Insert the air pipe extension onto the standard air pipe (e). and make sine that (he hole on the air pipe extension corresponds to the groove on the standard air pipe

g Insert the extended flue pipe into the extended air pipe, from the side of bigger diameter (0110 mm).

h Insert the Hue pipe into Ilie elbow and secure it with the specific screw
m Slip the ducting sealing ring over the air pipe and position it near the terminal, at about 50 mm from the air pipe end.
Then see section 4.7.1 k, l. rn. n. o.

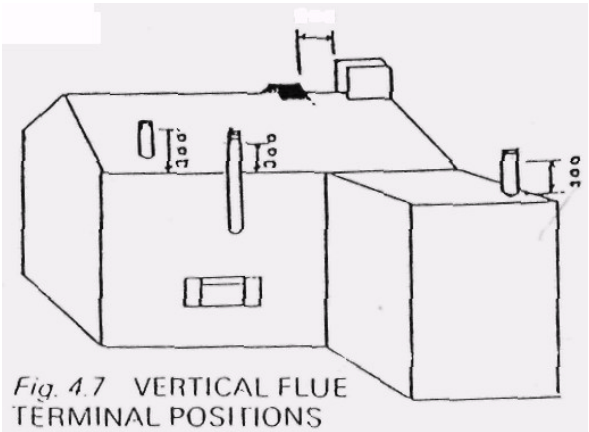


Fig. 4.7 VERTICAL FLUE TERMINAL POSITIONS

4.7.3 VERTICAL FLUE SYSTEM

a Unpack the 1m vertical flue kit (kit VF/1). The contents should be:

1 off 3060218 Fan socket sealing washer (1)
1 off R3560630 Conical adaptor Ø118/Ø80 with test point (2)(3)
1 off R3560632 Concentric roof terminal Ø118 length 120cm(4)
1 off Roofing tile(5)

b Preparations:

- Drill a hole Ø130mm on the roof, in axis to the fan socket. If this is not possible, consider the above mentioned losses for every bend.
- In relation to the overall length, arrange for the proper anchorages along the wall where the flue kit is going to be positioned.

c Installation:

1. Fit the sealing washer (1) onto the fan socket.
2. Fit the conical adaptor (2)(3)m to the fan socket.
3. In case of extensions, check that in the sockets of the flue pipe extensions Ø180mm (7) there are the Ors (6) and that these are correctly positioned. Measure the overall length to be realized and, if necessary, shorten always from the plain end of the pipe extensions.
4. In case of extension, connect the air intake extensions Ø118 (8) one to the other, after having shortened the extensions, if necessary, of the same size and always from the plain end of the air intake extension.
5. Insert the so-assembled flue pipe extension into the air pipe extension, then fit the whole assembly into the adaptor(2)(3) already on the boiler.
6. Properly position the roof finishing tile (5) and insert the terminal (4) into the hole on the roof, so that the tile remains at the roof outside.
7. Make the sliding air intake pipe of the terminal to slide upwards, so to leave the flue pipe uncovered, and insert the flue pipe into the flue pipe extension already fitted on the boiler. Then make the sliding air intake terminal pipe to slide downwards and fit it into the air intake extension already on the boiler.
8. Anchor the so assembled flue kit to the wall by means of proper anchorages.
9. Finish the internal wall face around the hole in the ceiling.

IMPORTANT:
For vertical concentric flue kits shorter than 1 meter and up to 1 meter of length, from paragraph B) read directly paragraph F).

If the flue length required falls between 1m and 1975 mm. reduce the 910 mm length of 110 mm air pipe by the required amount and remove the same amount from the plain end of the inner flue pipe.
If the flue length required falls between 1975mm and 2975mm. reduce the 191O mm length of 110mm air pipe by the required amount and remove the same amount from the plain end of the inner flue pipe.
NB: The minimum height of a vertical flue is 1 metre.

f Measure a distance of 113 mm from the face of the wall to the centre of the flue position and drill a hole of 130 mm diameter through the ceiling or roof above the boiler to receive the 100 mm diameter pipe or a hole of 145 mm diameter to receive the 110 mm diameter pipe.
N6: If the ceiling is of a combustible material use a Ceiling Fire Stop Plate in accordance with the manu- facturers instruction.

g Wall mount the boiler in accordance with the paras 4.3 to 4.6. leaving a minimum distance of 450 mm above the boiler.

h Fit the flue and air pipe extension pieces to the flue and air connections on the top of the Boiler i If the extended vertical flue kit is not being used continue the procedure from step q of these Installation Steps.
For extended vertical flues only, (for tm vertical flues skip steps j to p):

j Fix the wall bracket in the correct position to support the flue assembly when in place. (See Fig 4.6)

k Separate the flue pipe with the terminal from the 1 metre length of 1OO mm diameter air pipe.

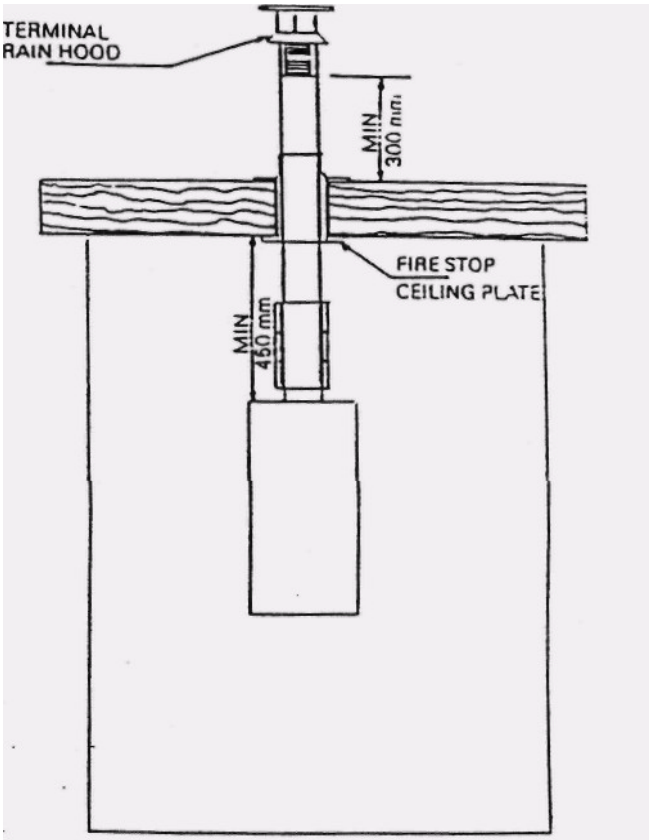
I Fit the spring clips at equal intervals onto the metre length flue pipes from the Extended Vertical Flue Kit. m Fit the110 mm x 100 mm reducing adaptor to the plain end of the metre length of 100 mm diameter air pipe so that the air pipe contacts the stop pins in the reducing adaptor Use the reducing adaptor as a template to pre-drill 2 mm diameter holes and secure using the screws provided.

n Fully engage the 110 mm air pipe to the 110 mm x 100 mm reducing adapter. Again use the reducing adaptor as a template to pre-drill 2 mm diameter holes and secure using the screws provided to Fit the flue pipe with terminal to the remaining Section(s) of flue pipe to form a complete length of flue pipe. Use the pre-drilled holes as a template to drill 2 mm diameter holes and secure all connection with the screws provided

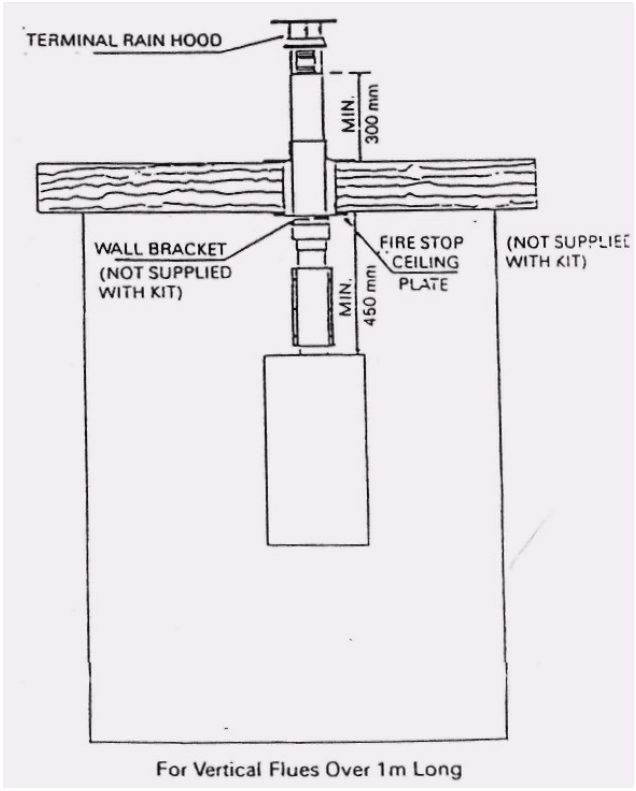
p Push the assembled flue pipe through the assem-bled air pipe so that the terminal is just clear of the air pipe as shown in Figs 4 8 & 4 9 For 1m and extended vertical flues.

q Slacken off the screws on the detachable flue pipe sleeve and slide over the end of the flue pipe extension piece attached to the outer (See fig 4 8)

r Lousely assemble the 110 mm long by 60 mm diameter distance piece into the open end of the detachable flue pipe sleeve (See Fig 3)



For Vertical Flues 1m Long



For Vertical Flues Over 1m Long

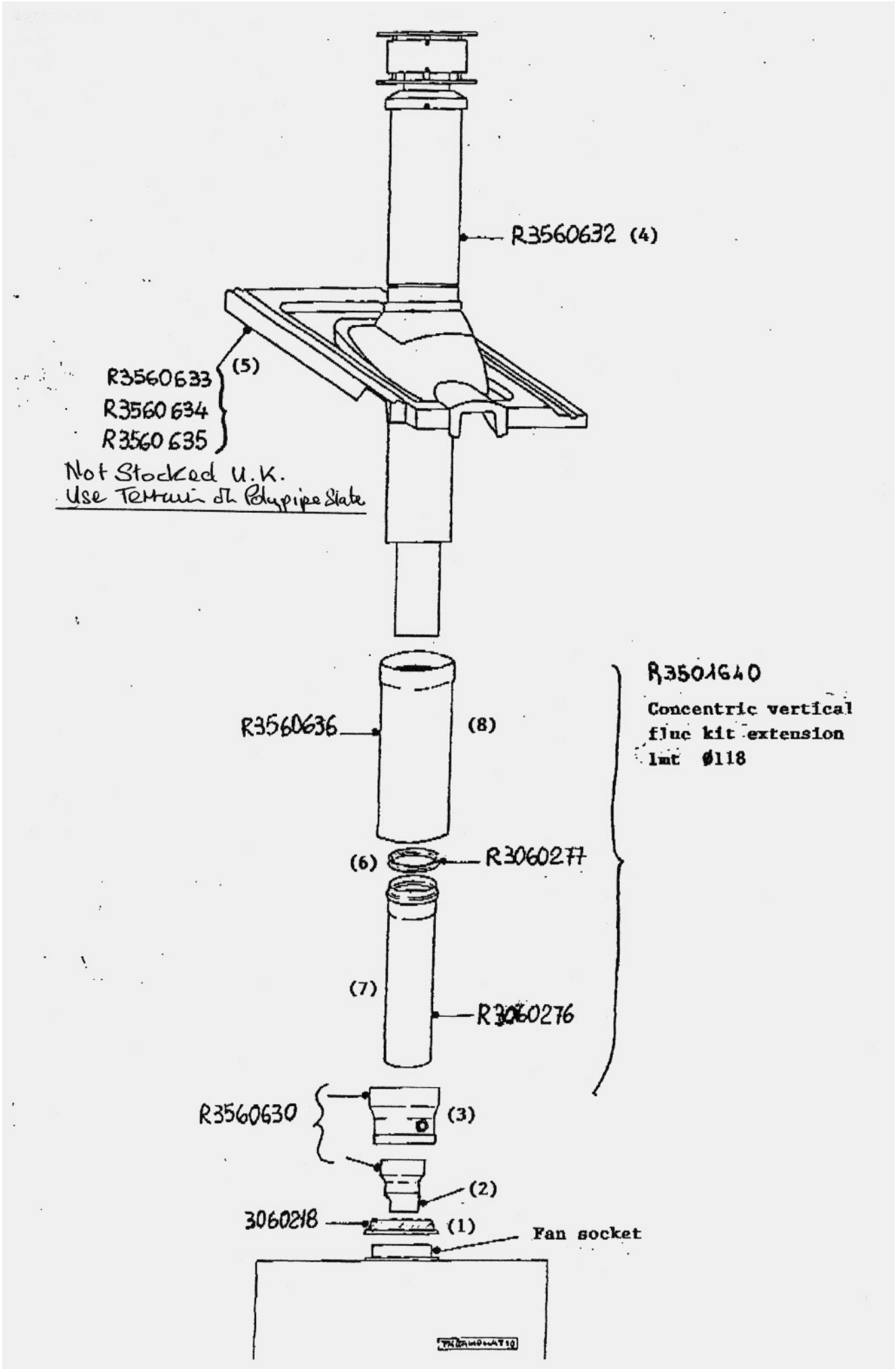

R3560632 (4)
R3560633
R3560634
R3560635
(5)
Not Stocked U.K.
Use Termin dh Polypipe Slate
R3560636
(8)
R3501640
Concentric vertical
flue kit extension
lmt Ø118
(6)
R3060277
(7)
R3060276
R3560630
(3)
(2)
3060218
(1)
Fan socket

Fig. 4.10 RAIN HOOD ASSEMBLY

s Working from either the roof or floor level, which-ever is the most convenient, pass the complete flue/air assembly through the pre-drilled hole(s) in the ceiling(s). Ensure that the inner flue pipe abuts the distance piece (See Fig. 4.8).

t Securely fix the flue assembly in position using the wall bracket fitted in Step 4.3. The outer pipe (air pipe) must be securely bracketed or strapped if in the roof space (Roof strapping is not supplied).

4.8 Connect the gas and water services (Fig 3.1)

i Gas: 15mm compression,
ii CH flow and return: 22mm compression
iii DHW in and out: 15mm compression,
iv Safety valve. 1 5mm compression.

4.9 Assemble the filling loop system.
(Refer to Fig 4 11 Filling Loop Assembly)
Loosely connect the flow end of the double check valve (D) to the matching connection of the 'S' shaped pipe (E)
Loosely connect the wingnut end of the flexible pipe (C) to the free end of the double check valve (D)
Having rolled the flexible hose (C) about one turn the connection point on the heating return ball valve (F) including one of the fibre washers supplied (B)

Connect the free end of the filling loop assembly to the filling cock (A) including the other fibre washer supplied (B). Ensure that the assemble filling loop does not interfere with the operation of the gas cock (G).
Tighten all connections.

4.70 Connect the electrical supply:
i Thread the main input cable through the cable damp.
ii Connect the cables to terminal block as shown in the functional flow wiring diagram.

4.11 In preparation for Commissioning, close all appliance service cocks and isolate the electrical supply.

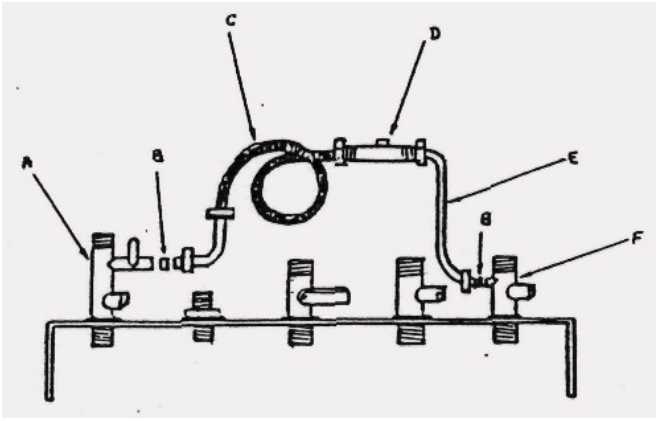


Fig. 4.11 FILLING LOOP ASSEMBLY

5. COMMISSIONING

5.1- GAS INSTALLATION
Inspect the entire gas installation, including the meter, purge and test for soundness in accordance with BS6891.
(Open doors and windows when purging. Extinguish naked flames and do not smoke.)

5.2 ELECTRICAL INSTALLATION
Preliminary electrical system checks to ensure electrical safety must be carried out by a competent person (earth continuity, polarity, short circuit, resistance to earth), if a fault has occurred on the appliance the fault finding procedure (Section 7) should be followed as specified.

5.3. WATER INSTALLATIONS
Ensure that the systems, old or new. have been thoroughly flushed and cleaned without the appliance in circuit

5.3.1 Connect the appliance to the connection plate already fixed to the wall and assemble the Tighten all connections & open all valves

5.3.2 Fill the central heating circuit (loosen the cap on the automatic air vent, item 47 Fig. 6.1) &open the manual air vent below.

5.3.3 Continue to fill until water comes out of the manual air vent. Dose the manual air vent.

5.3.4 Repeat the process with the manual air vent until the appliance has been thoroughly vented. If necessary restore the pressure to about 1.2 bar.

5.3.5 Test the complete system for water soundness

5.3.6 Drain the system to rectify any leaks and refill to the initial system design pressure venting all radiators. DO NOT LOOSEN THE VALVE CAP ON THE EX-PANSION VESSEL. Set the red pointer on the press-ure gauge to the initial system design pressure.

5.3.7 Once filling is complete, ensure the water supply valve is off, then DISCONNECT THE FILLING LOOP AT THE OUTLET FROM THAT VALVE. Permanent connection of the loop is not permitted.

5.3.8 Open all hot taps and allow water in flow until no air is present. Close the laps.

5.3.9 Check the water supply connections for sound-ness. Rectify leaks where necessary.

5.4 Fully open the remotest hot tap. and check that the flow rate is at least 8.8 litres/min.

5.4.1 With all services checked. all valves open, continue to commission the appliance.

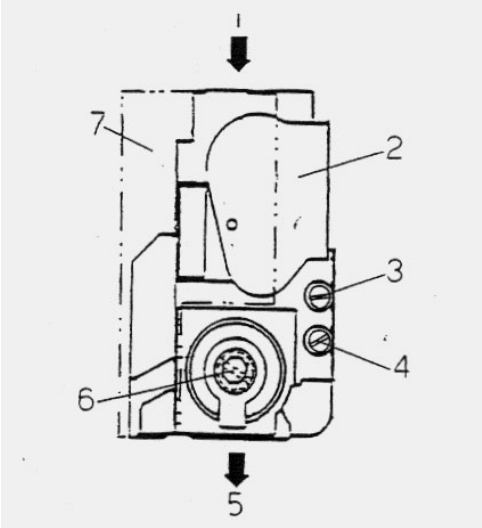
5.4.2 Isolate the electrical supply.

5.4.3 Remove the boiler front panel (Section 6-2.1).

5.4.4 Light the burner {fig 1.1)
i Connect the electrical supply.
ii Select MAX on boiler control thermostat.
iri Select WINTER on the SUMMER/WINTER switch.
iv Turn on the electrical supply and set any external controls to call for heat
v Select ON on the ON/OFF switch.

The boiler will now go through its ignition sequence and the green light will illuminate when the burner has lit.
If the burner fails to light, the appliance will go to lockout (red light illuminated) In this case the cause is probably air in the gas supply line. Wait 10 seconds. Then press the fed button to restart the sequence. Once lit the appliance will heal the content of the appliance then commence supplying central heating.

5.4.6. After 10 minutes check that the burner press-ure reading is as given in Section 2. If it is not adjust the pressure as follows (fig.5 J):



1	Gas Inlet	5	Gas outlet
2	Solenoid inlet and protection	6	Gas pressure regulatory screw with cap
3	Inlet gas pressure test point	7	Control box with first step (ignition flame) regulatory roller.
4	Outlet gas pressure test point		

PROCEOURE TO ADJUST THE GAS PRESSURE TO THE BURNER

Connect a suitable pressure gauge to the burner pressure test point (fig 51 item G) The pressure should read 14 mbar.
Remove the black dust cap covering the inlet gas pressure lest point (fig 5.1 item 8).
Rotate the regulating screw (fig 5.1 item 3) under-neath the cap: clockwise will decrease the pressure, anti-clockwise will increase the pressure.

5.4.7 Open a hot tap fully, the burner will light; green operating light ON.

5.4.8 Select SUMMER on the SUMMER/WINTER switch Operating light ON.

5.4.9 Recheck the burner pressure.

5.4.10 Close the hot tap select OFF on the ON/OFF switch, the burner will extinguish

5.4.11 Remove the' pressure gauge, retighten the screw.

5.4.12Relight and check for gas soundness of the appliance components.

5.4.13Reassemble
i Refil the base panel.
ii Relit the (rout panel

5.4.14 Relight the appliance and leave it running checking that all air is vented, that all radiators function and that all system controls react to various demands.

5.5 HAND OVER THE INSTALLATION TO THE USER

5.5.1 Hand the Users Instructions to the user and explain how to operate the appliance and any additional controls.

5.5.2 Advise of the precautions necessary to prevent damage to the appliance and system by frost

5.5.3 Advise that, for continued safe and efficient operation of the appliance it is recommences that it be serviced at less; annually.

5.5.4Either hand these instructions to the user or leave them at the gas meter.

6. REPLACEMENT OF PARTS

6.1 GENERAL

6.1.1 Part numbers — see exploded diagram, fig. 6.1

6.1.2 Isolate the electricity supply and turn off the gas supply at the service cock (item 31).

6.1.3 Always check for gas and water soundness of joints broken during Servicing.

6.2 ACCESS

Certain items need to be removed for access:

6.Z1 Front panel
Remove two screws (fig. 3.10. B). lift and disengage.

6.2.2 Top panel
Remove four screws (fig. 3. JO. 8). and remove.

6.2.3Base panel with attached front door.
Remove four screws and remove panel (fig.3. JO. B)

6.2.4Side panels
After having removed the front, top and base panels. remove the two screws securing the instrument panel to the respective side panel. Remove the respective side panel fixing screw Pull down to disengage (fig.3. 10. item 94).

6.2.5 Withdrawal of instrument panel
Open the front door.
Unscrew four screws until firs: section of thread is free.
Withdraw panel forwards (fig. 3.10. A).

6.3 DRAINING WATER CIRCUITRY OF APPLIANCE

6.3.1 Isolate the circuit via the cocks (item 41 and 33 [2 off]).

6.3.2 Drain the central heating circuit via the safety valve (item 27).

6.3.3 Drain the domestic hot water circuit via a hot tap.

6.3.4 Whenever the central heating circuit of the appliance is drained, the pressure in the sealed system must be restored upon completion of work.

6.3.5 If the DHW isolation cock is closed, it must later be readjusted to give a flow of 10 litres/minute at any tap.

6.4 REPLACEMENT

6.4.1 Replacement is always in reverse order to dismantling unless otherwise stated.

6.4.2 Electrical connections must be remade in accordance with the wiring diagram. Fig 3.11

6.5 FAN, ITEM 7

6.5.1 Refer to sections 6.1, 6.2.1, 6.2.2 and 6.4 above.

6.5.2 Disconnect leads at the in line connectors and remove the earth wire From the top of the appliance.

6.5.3 Remove three screws from the fan mountings, remove fan,

6.5.4 Tighten mounting screws evenly.

6.6 AIR PRESSURE SWITCH, ITEM 16

6.6.1 Refer to Sections 6.1. 6.2.1 and 6.4 above.

6.6.2 Disconnect plastic lubes from switch.

6.6.3 Disconnect three wires from switch.

6.6.4 Remove two screws from supporting bracket and remove switch.

6.6.5 Plastic tubes are identified red to red.

6.7 DOMESTIC HOT WATER EXPANSION VESSEL ITEM 46

6.7.1 Refer to Sections 6.1. 6.2.1. 6.2.2. 6.2.4 (left hand side panel) 6.3 (drain DHW circuit) and 6.4.

6.7.2 Unscrew the vessel.

6.8 AUTOMATIC AIR VENT. ITEM 47

6.8.1 Refer to Sections 6.1. 6.2.1. 6.2.2. 6.4. (draining not necessary.

6.8.2 Unscrew vent from hexagon nut.

6.9 *CENTRAL* HEATING *EXPANSION* VESSEL. ITEM 49.

6.9.1 Refer to Sections 6.1. 6.2.1. 6.3 (central heating) and 6.4.

6.9.2 Release union on the top of the vessel.

6.9.3 Remove vessel.

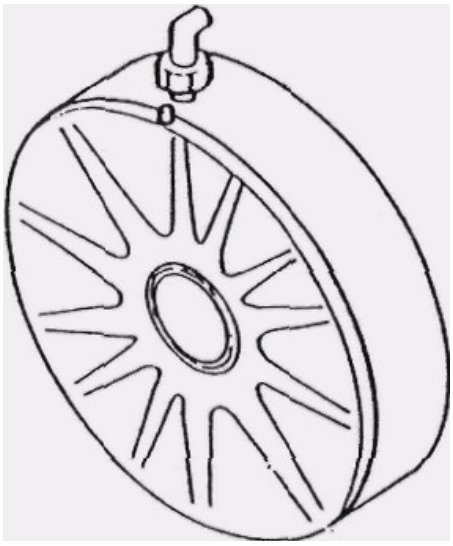


Fig. 6-2

6 10 BIMETALLIC PRIORITY THERMOSTAT ITEM 43.

6.10.1 Refer to Sections 6.1, 6.2.1, 6.2.2, 6.2.4 (left hand side panel) and 6.4

6.10.2 Disconnect the leads to the thermostat.

6.10.3 Unscrew the two screws & remove the thermostat.

6.12 CIRCULATING PUMP ITEM 24

NOTE: The base section of the pump should never require replacement. Instructions detail replacement of the pumphead.

6.13.1 Refer (o Section 6.1. 6.2.1. 6.3 (drain CH circuit) and 6.4.

6.13.2 Remove electrical cover from pump — one screw.

6.13.3 Disconnect two wires and remove the earth connection — one screw.

6.13.4 Undo two alien screws and remove pump-head.

6.13.5 When replacing, speed adjuster is at top. Set to the speed setting previously used.

6.14 THERMOSTATS AND TEMPERATURE / PRESSURE GUAGE

6.14.1 Refer to sections 6.1, 6.2.1, 6.2.4 (right hand side panel), 6.2.5 (except Anticondensing Thermostat) and 6.4

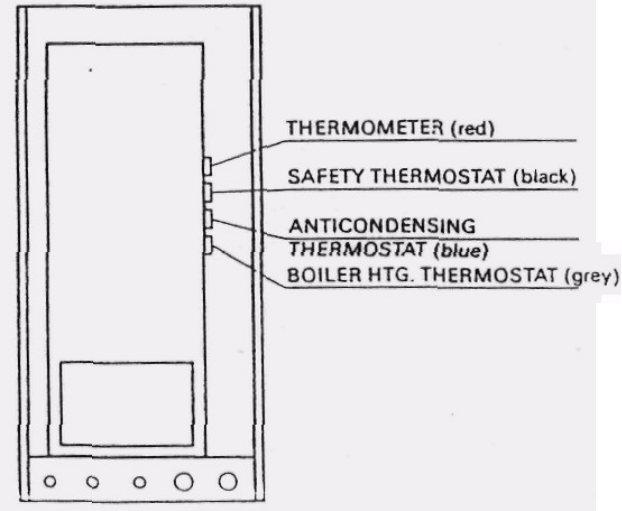


Fig 6.4 POSITION OF THERMOSTATS AND THERMOSTAT PHIALS

Thermometer/pressure gauge only — drain CH circuit — Section 6.3.

6.14.2 Identify the phial of the thermostat or thermometer to be replaced (fig. 6.4).

6.14.3 Remove the spring clip from the respective phial boss.

6.14.4 Trace the capillary to the control body.

6.14.5 Safety (overheat) thermostat, item 65
i) Unscrew the reset button cover.
II) Disconnect two leads.
iii) Unscrew locknut and remove thermostat.

6.14.6 Anticondensing thermostat, item 62
i) Disconnect two leads and remove thermostat.
ii) Remove the two screws attaching the anticondensing thermostat to the fixing bracket.

6.14.7 Boiler thermostat, item 61
i) Remove control knob.
ii) Remove two fixing screws.
iii) Disconnect two electrical leads.

6.14.8 Pressure temperature gauge, item 67
I)Unscrew the pressure sensor (Union, item 29).
ii) Depress two plastic clips and push gauge out. forwards

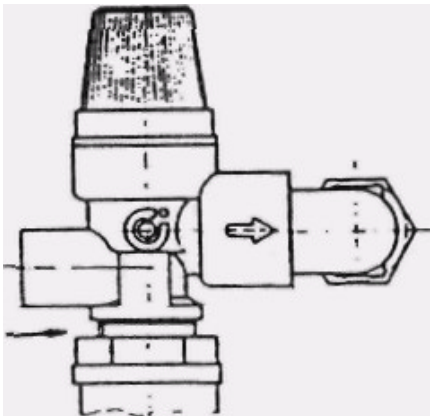


Fig 6.5 PRESSURE RELIEF VALVE

6.15.1 Refer to Sections 6.1. 6.2.1 (right). 6.2 4. 6 3 (Drain CH circuit) and 6.4

6.15.2 Disconnect the water pressure gauges probe (placed on the top of the valve).

6.1 5.3 Disconnect the valve from the union on the respective pipe coming out of the boiler Remove the valve

WARNING- It is essential to fit a suitable discharge pipe (1 5mm diameter) 10 the pressure relief valve

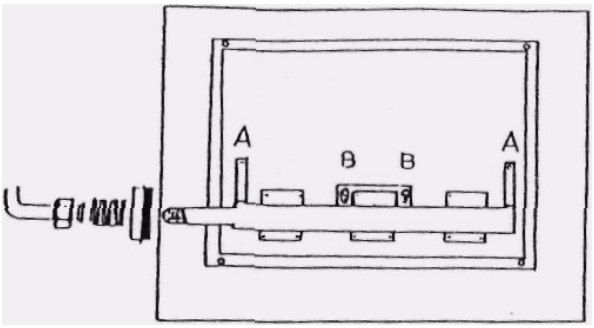


Fig. 6.7 BURNER

6.16.1 Refer to Sections 6.1, 6.2.1, and 6.4.

6.16.2 Disconnect the union of the gas feed pipe to the burner pipe (item 54) and take the spring away. Remove the union at the left side of the gas valve pipe (item 51).

6.16.3 Gently press off the sealing plate (item 55) from the burner cover.

6.16.4 Remove four screws, lift the cover a little and move it lo the left until it is disengaged.

6.16.5 Disconnect the electrode leads.

6.16.6 Remove the two screws A (fig 6.7) and withdraw the burner.

6.16.7 Transfer the injectors (6.17) and electrodes (6.18) to the new burner. Ensure that the larger injector is sited in the center burner bar.

6.16.8 When reassembling, ensure that the two seals, one under the burner cover and the other on the sealing plate, are in good condition. Respective positions of the electrode leads are not important — the electrodes are interchangeable.

6:17 INJECTORS. ITEM 78.

6.17.1 Remove the burner sections 6.16.1 to 6.16.7 above.

6.17.2 Unscrew the injectors

6.17.3 Refer to 6.16.8 when reassembling. Ensure the larger injector is fitted in the center burner bar.

6.18 FLAME SENSING AND IGNITION ELECTRODES, ITME 59

It is recommended that these are replaced as a pair.

16.18.1 Gain access to the burner – 6.16.1 to 6.19.9

6.18.2 Remove the fixing screws of each electrode & withdraw the electrodes.

6.18.3 Refer to 16.16.8 when reassembling.

6.19 ELECTRONIC CONTROL BOX. ITEM 66.

6.19.1 Disconnect leads.

6.19.2 Remove the 2 control box fixing screws and remove the box. Replace if required.

6.20 GREEN OPERATING LIGHT, ITEM 71 & RED LOCKOUT BUTTON.

6.20.1 Refer to Sections 6.1. 6.2.1. 6.2.5 and 6.4.

6.20.2 Disconnect the electrical leads.

6.203 Press in catches & push lamp forward to remove it

6.21 ON/OFF — SUMMER/WINTER SWITCHES ITEM 69.

6.21.1 Refer to Sections 6.1. 6.2.5 and 6.4.

6.21.2 Disconnect four leads,

6.21.3 Press in catches and push switch forwards.

6.22 FILLING LOOP, ITEM 39.

6.22.1 Refer to sections 6.1. 6.2 3. 6.3 (Drain CH circuit of appliance).

6.22.2 Disconnect the filling loop at both ends.

SECTION 7 Fault finding algorithm Thermomatic combination boiler model RSM 20/FB

Carry out initial fault finding checks i.e. check gas, water, electrical system check i.e. earth continuity, resistance to, short circuit, polarity.
Repeat checks after any servicing / fault finding.

Fig. 7.1. **CONDITION 1.**

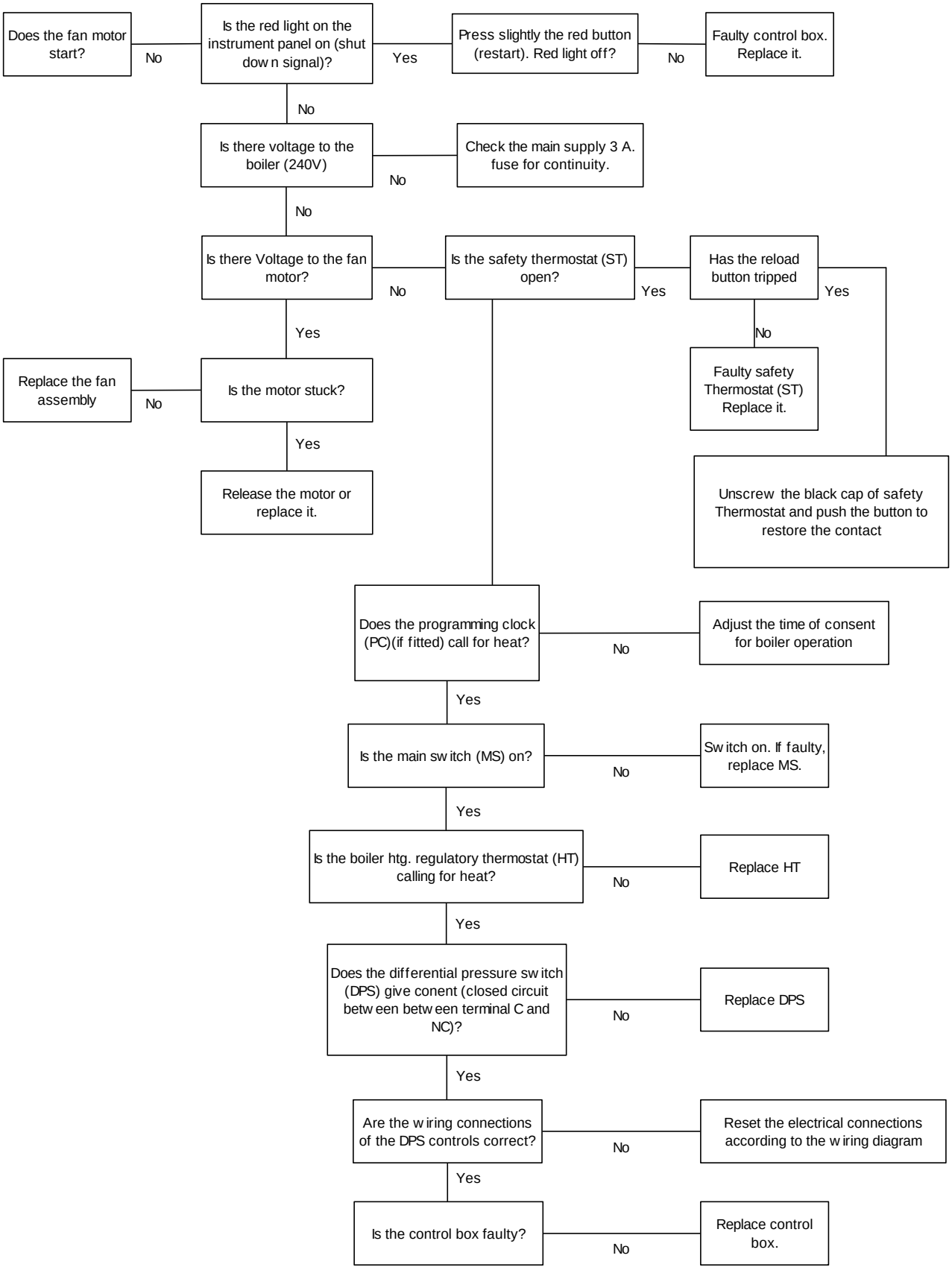


Fig. 7.2. **CONDITION 2.**

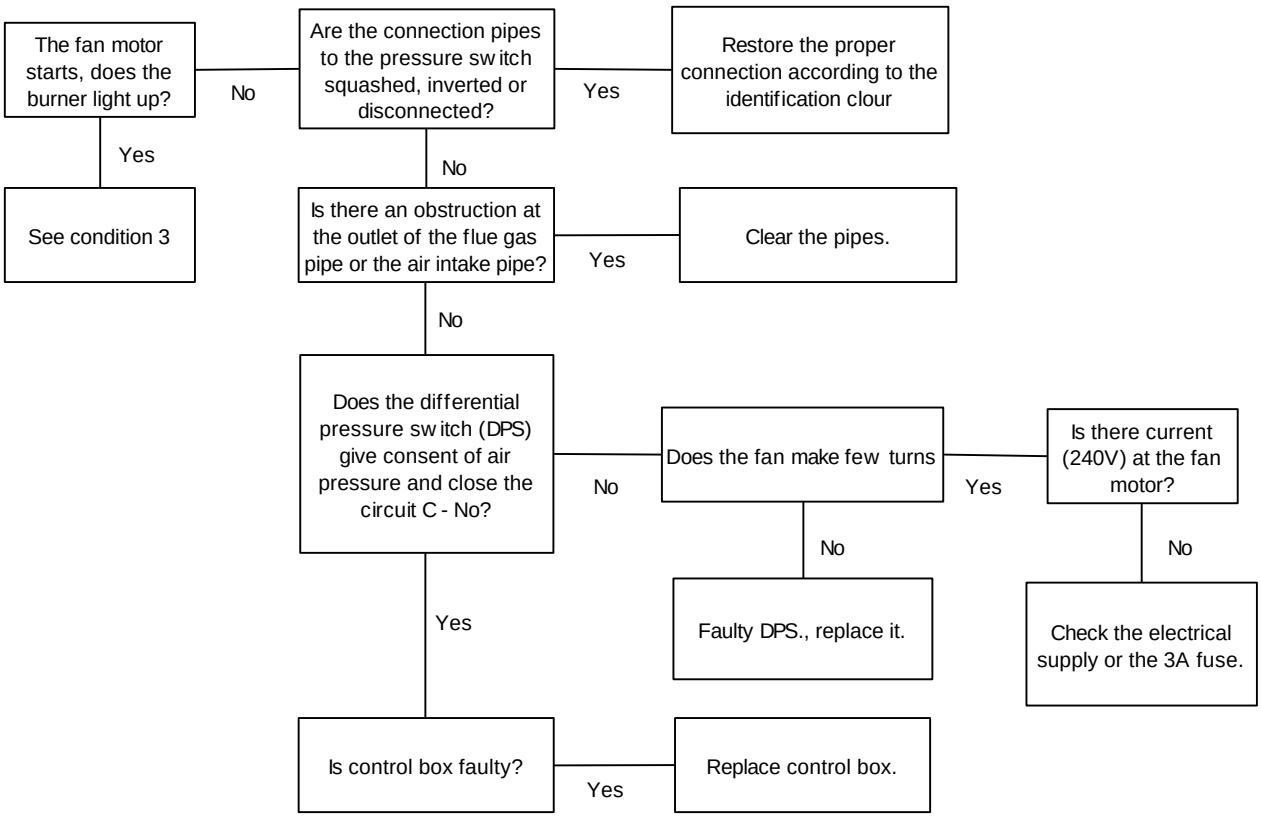


Fig. 7.3. **CONDITION 3.**

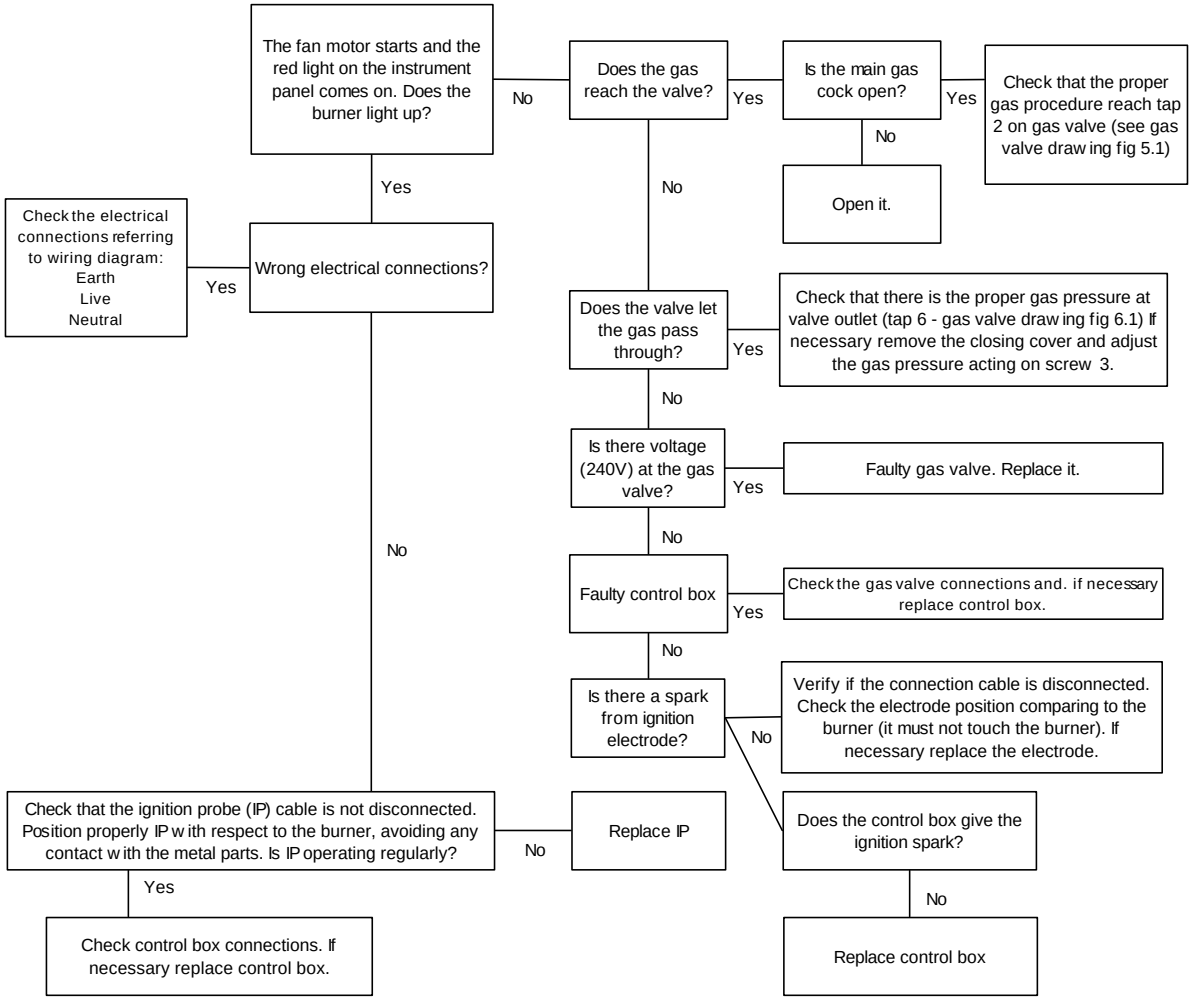


Fig. 7.4. **CONDITION 4.**

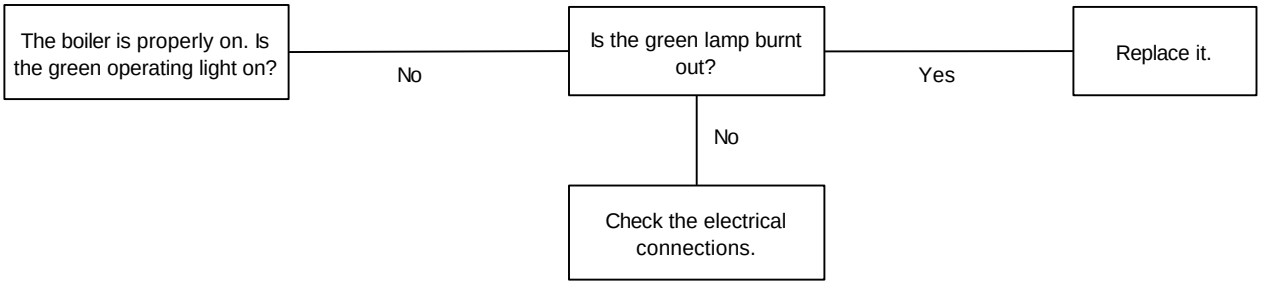


Fig. 7.5. **CONDITION 5.**

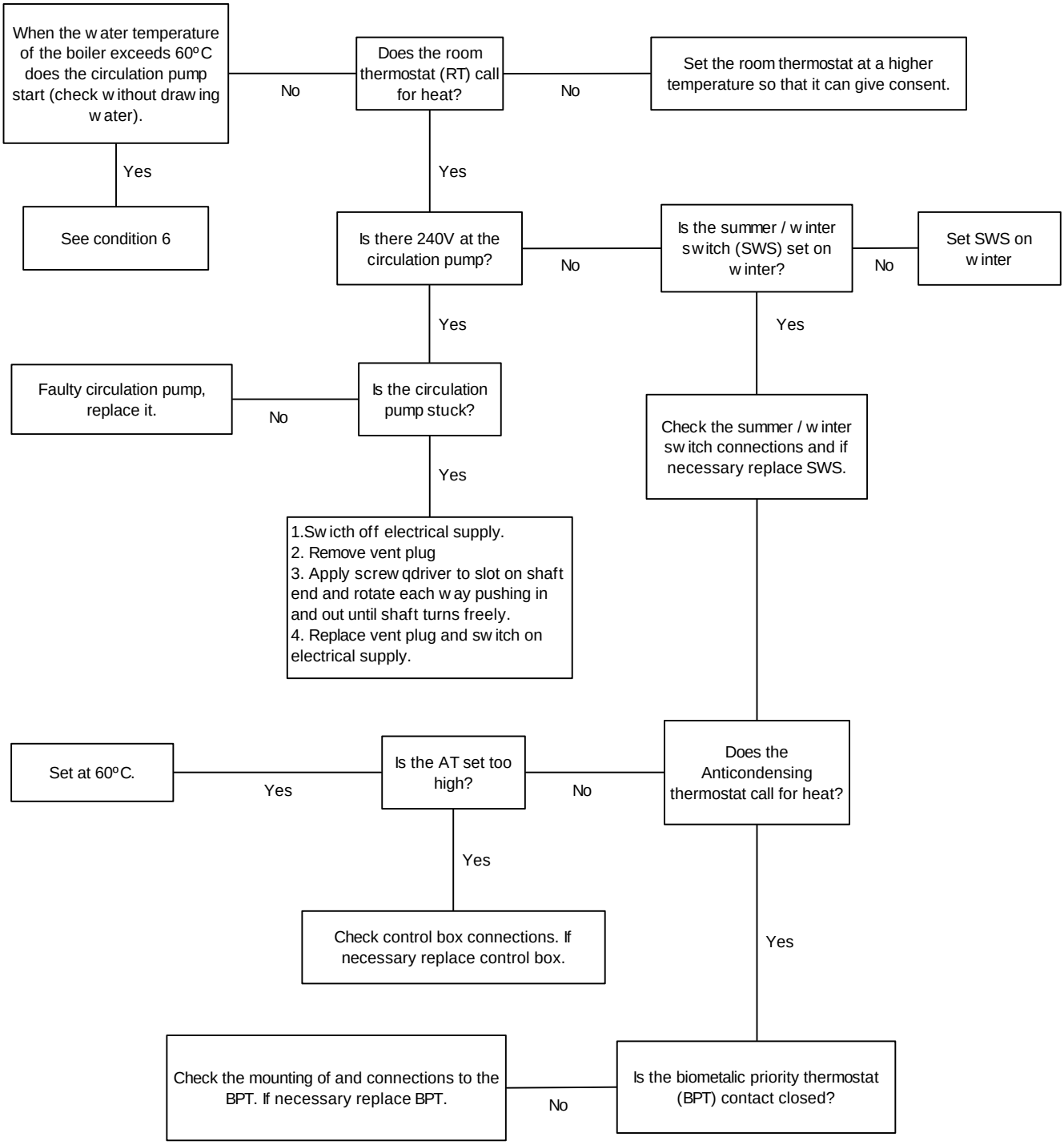


Fig. 7.6. **CONDITION 6.**

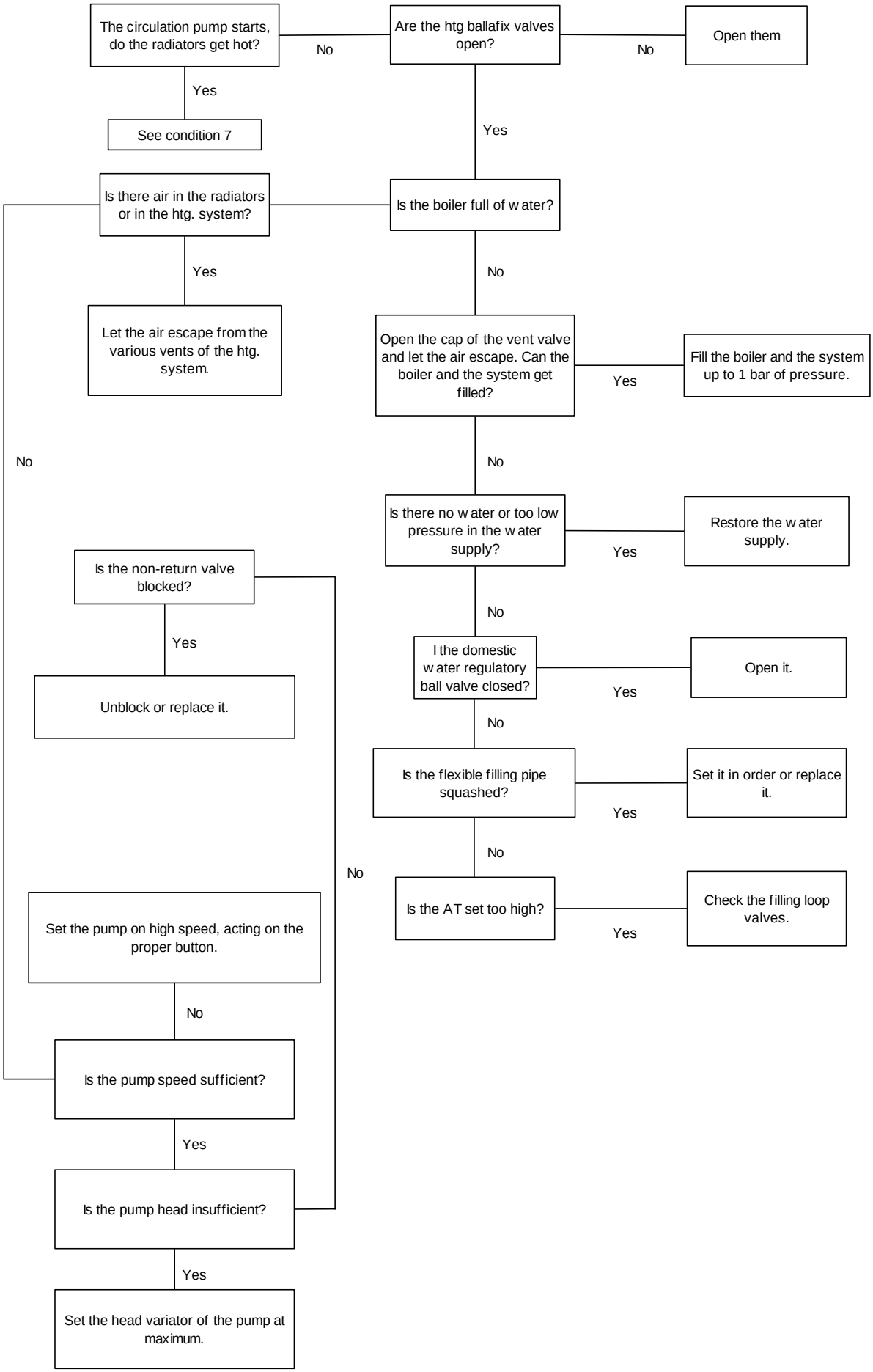


Fig. 7.7. **CONDITION 7.**

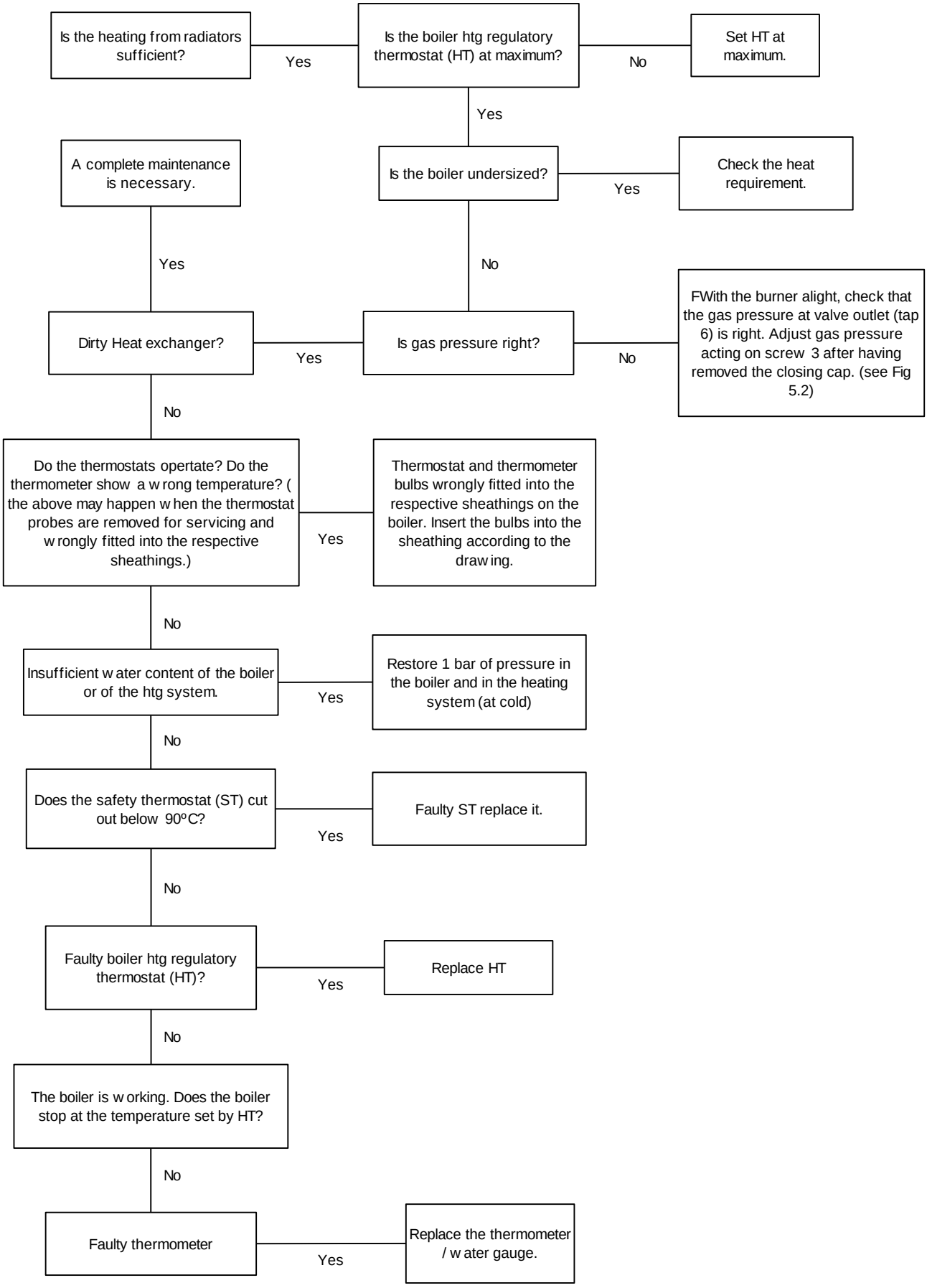


Fig. 7.8. **CONDITION 8.**

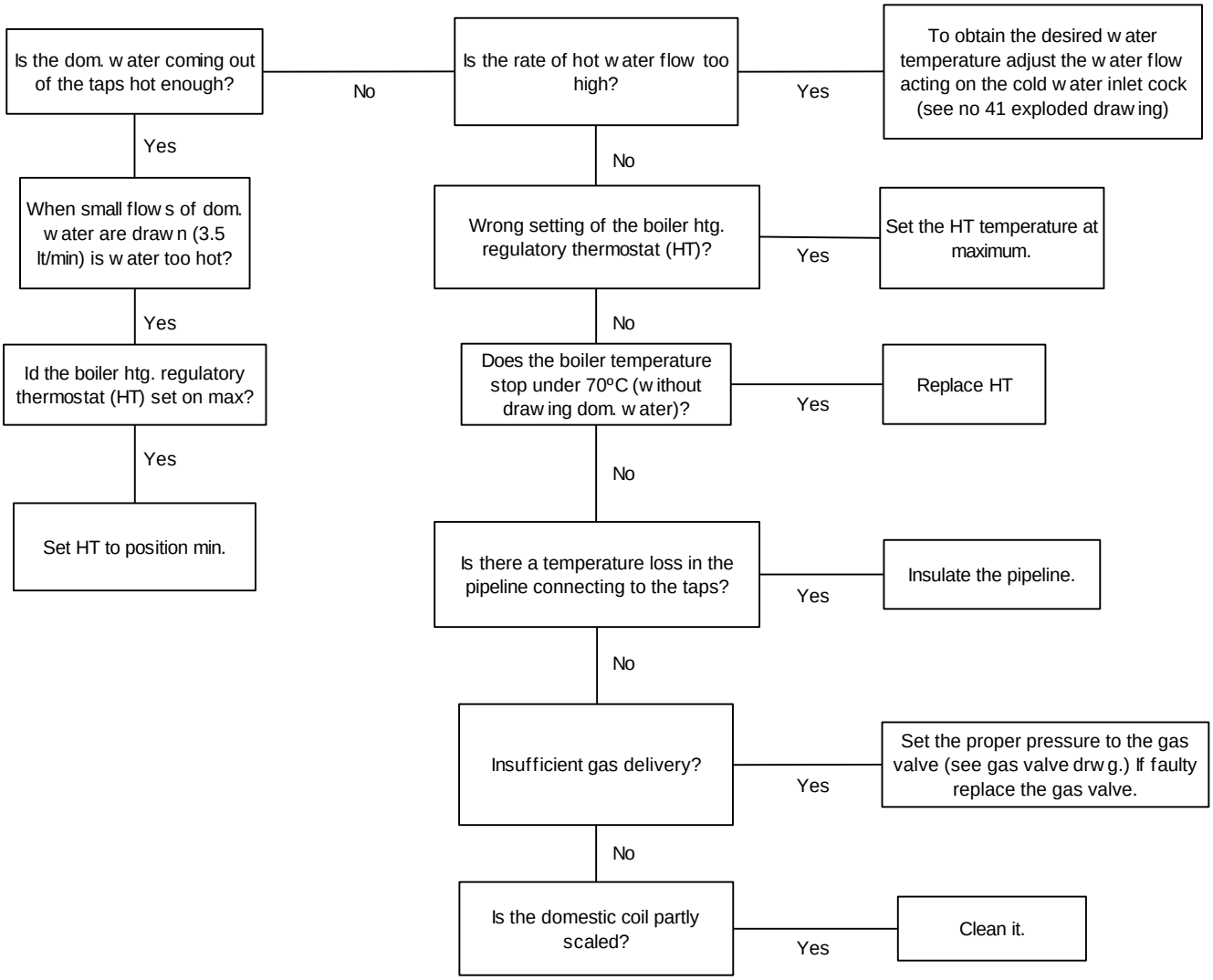


Fig. 7.9. **CONDITION 9.**

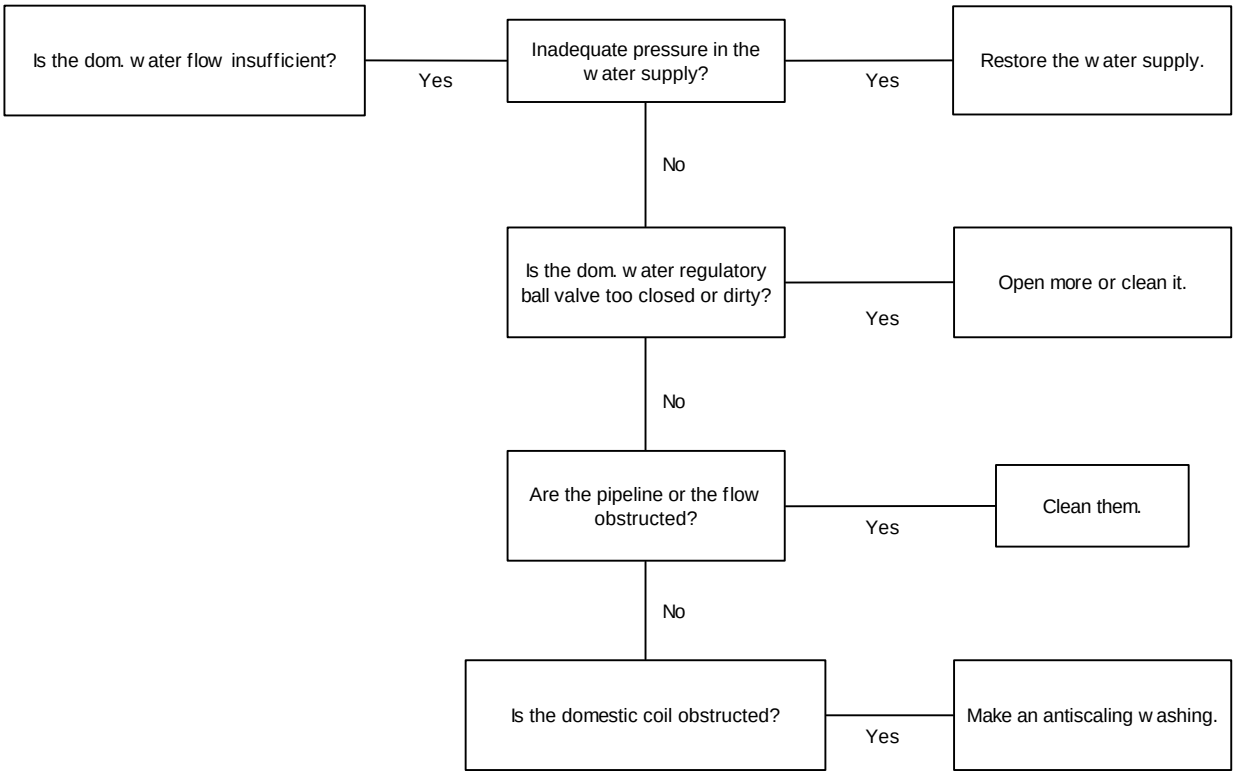


Fig. 7.10. **CONDITION 10.**

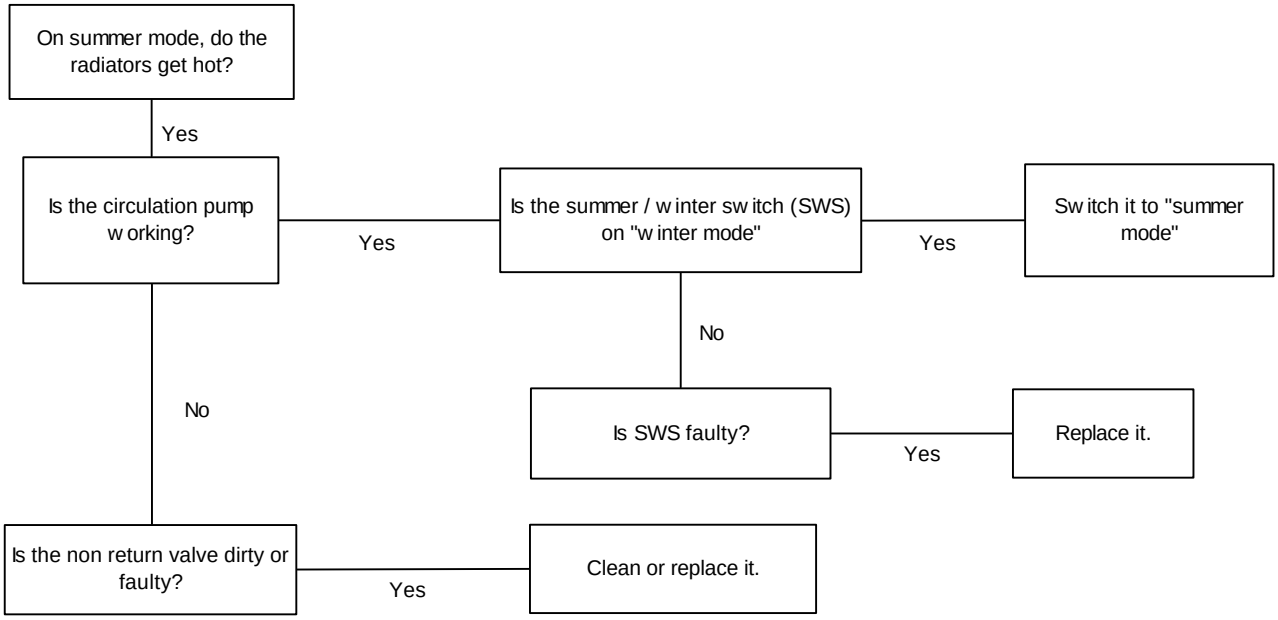


Fig. 7.11. **CONDITION 11.**

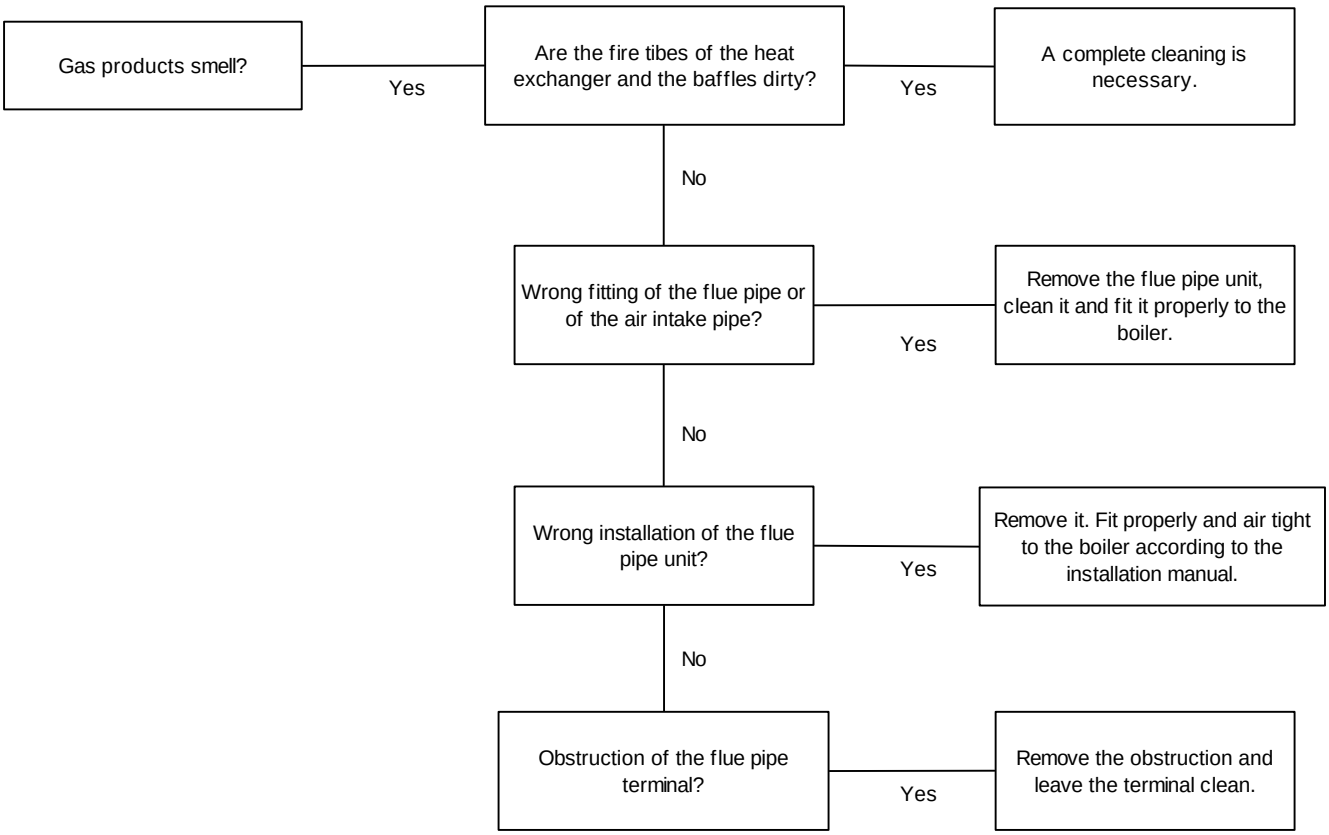


Fig. 7.12. **CONDITION 12.**

8. ROUTINE SERVICING INSTRUC-TIONS

To ensure continued safe and efficient operation of the appliance, it is recommended that servicing and cleaning of the boiler be carried out at regular intervals by a competent person.
The frequency of cleaning depends mainly on usage, but generally once a year should be sufficient. Run the appliance and detect any faults or servicing which may be required, noting that the heat exchanger and burner will be cleaned anyway.

WARNING
Before starting any servicing or replacement of com-ponents, always isolate electricity supply to appliance and turn off the gas supply at the service cock.

8.1 ACCESS
Remove the front, top and base panels (see Section 6.2).

8.2 BURNER/ELECTROOES/INJECTORS

8.2.1Remove the main burner (Section 6171 to 6.17.7).

8.2.2 Clean the burner blades with a soft brush.

8.2.3 Check the condition of-the two electrodes.

8.2.4 If required, remove the injectors and blow or wash through to clear any deposits.

8.2.5 Do not replace the burner at this time.

8.3 HEAT EXCHANGER CLEANING (HORIZONTAL FLUE SYSTEMS)

8.3.1 Disconnect the pressure tubes from the inner top panel (a. fig. 8.!)

8.3.2 Disconnect leads a (the in line connectors (b).

8.3.3 Lift and disconnect the elbow from the fan socket, then pull the flue assembly out of the plastic liner.

8.3.4 Remove 8 screws (c) and lift away the fan and inner top panel complete

8.3.5I n turn, remove the baffle from each heat exchanger tube and clean the tubes with a suitable brush

8.4.6 Rotate the fan checking it runs freely

8.3.7 Replace the baffles, the inner top panel/fan and the flue elbow Connect the leads (polarity immaterial) and the pressure tubes (red to red)

8 3.8 Clean any debris from the burner chamber and order

8.4.1 HEAT EXCHANGER CLEANING (VERTICAL FLUE SYSTEMS)

8.4.1 Disconnect leads at the in line connectors (b fig 8 1)

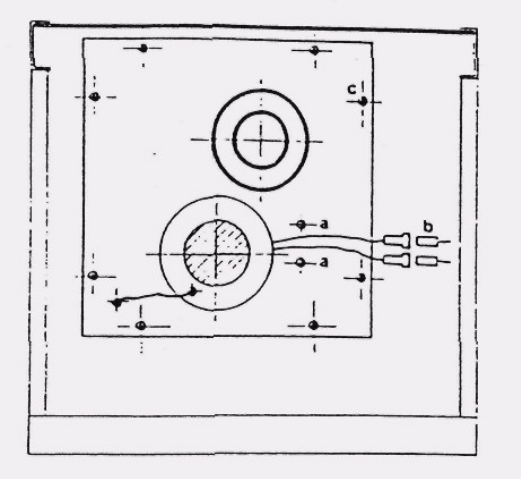


Fig. 8.1 TOP VIEW OF THE BOILER
(Without top protective guard)

8.4.2 Remove the three retaining screws down each side of the Air Pipe Detachable Sleeve and remove the sleeve.

8.4.3 Slacken off the screws on the Flue Pipe De-tachable Sleeve and slide the sleeve up the flue pipe and remove the 110 mm length flue pipe distance

8.4.4 Disconnect the pressure tubes from (he inner top panel (See fig 8.1).

8.4.5 Remove 8 screws {c) and lift away the fan and inner top panel complete.

8.4.6 In turn, remove the baffle from each heat exchanger tube and clean the tubes with a suitable brush.

8.4.7 Replace the baffles and rotate the fan checking it runs freely

8.4.8 Replace the inner top panel/fan.

8.4.9 Replace the flue Pipe Distance Piece and pull the flue pipe detachable sleeve back down the flue pipe until the sleeve covers the top 30 mm of the flue pipe immediately below the distance piece. Place the two piece of the air pipe detachable sleeve over the gap in the air pipe, replace the screws and tighten.

8.4.10 Connect the leads (polarity immaterial) and the pressure tubes {red to red).

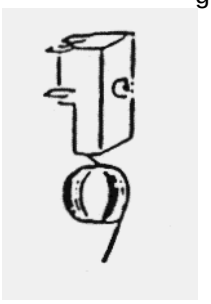
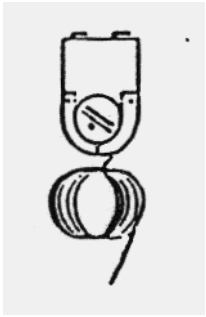
8.4.11 Clean any debris from the burner chamber and reassemble the remaining components in reverse order.

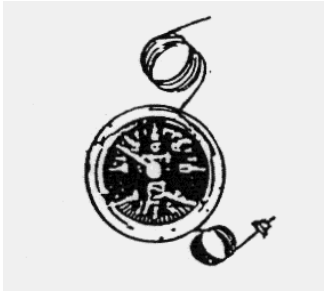
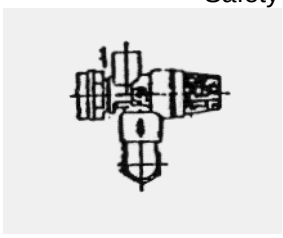
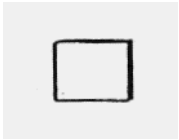
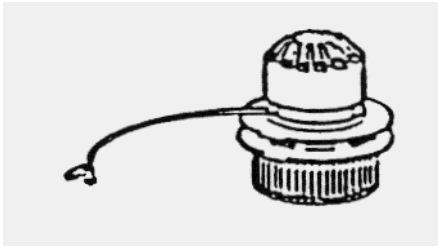
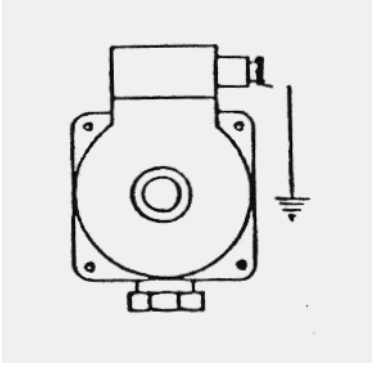
8.5 Clean or replace any other components considered necessary (Instructions for removal are given in Section 6).

8.6 Relight and check for gas and water soundness of appliance components.

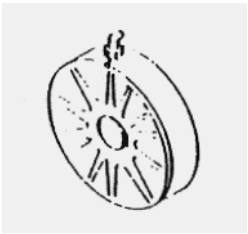
8.7 Reassemble the appliance casing

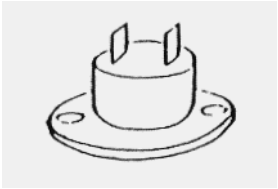
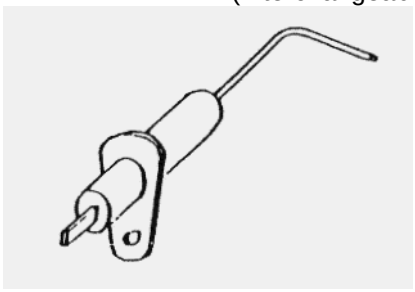
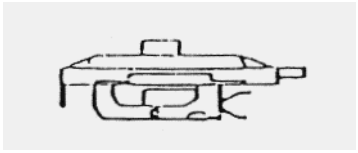
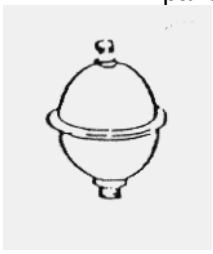
SHORT SPARE PARTS LIST THERMOMATIC COMBINATION GAS BOILER
MODEL RSM 20/FB

Key No	Code	Part Denomination
62	3020114	Aniticondensing Thermostat.
		
65	3120112	Overheat Safety Thermostat
		
61	3023115	Boiler Heating Regulatory Thermostat.
		
69	303201	On / Off Summer / Winter Switch
		

Key No	Code	Part Denomination
67	3130201	Temperature & Pressure Guage
		
27	3330342	Pressure Relief Safety Valve
		
100	3063287	Inspection Glass
		
7	R.3000013	Fan Motor
		
24	3033101	Circulating Pump
		

SHORT SPARE PARTS LIST THERMOMATIC COMBINATION GAS BOILER
MODEL RSM 20/FB

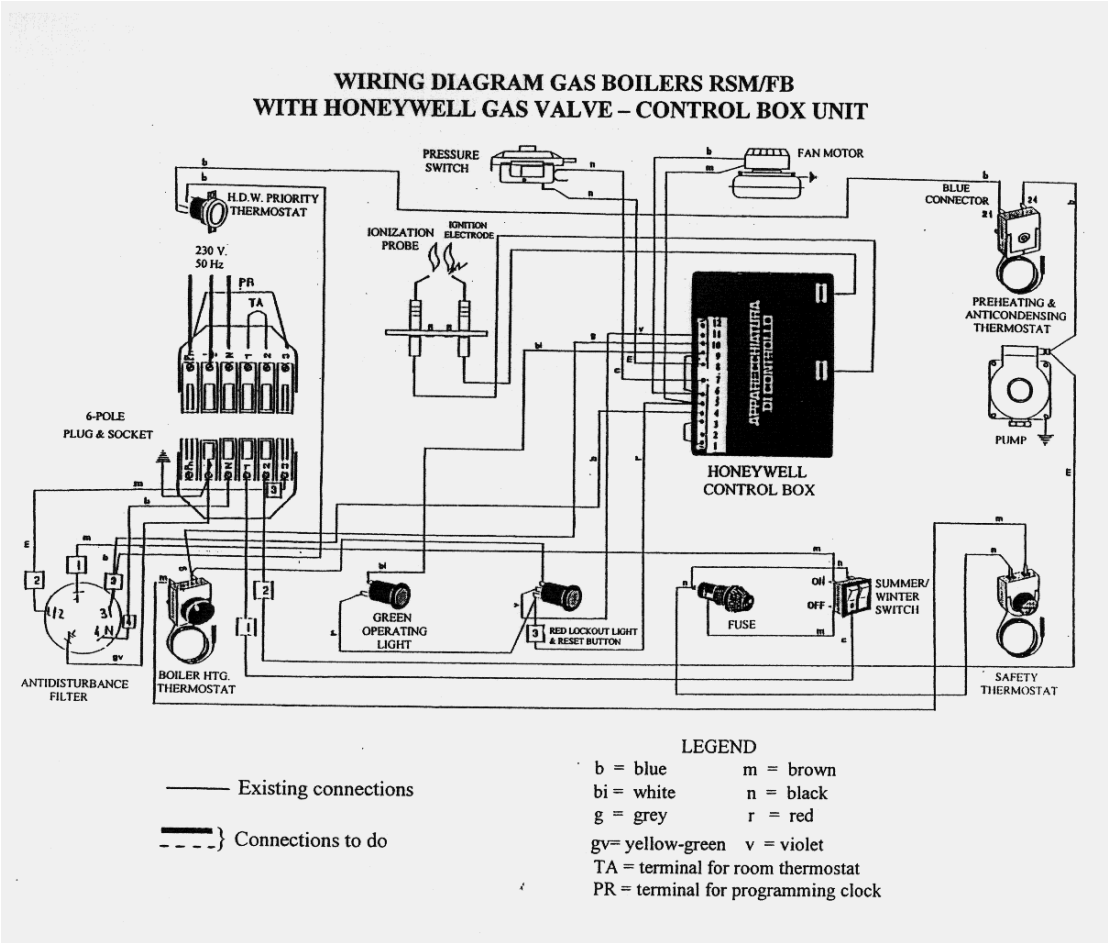
Key No	Code	Part Denomination
8	3063218	Sealing Ring.
		
47	3330343	Automatic Air Vent Valve
70	3520131	Operating Light Neon Bulb.
71	3020157	Lamp Holder
49	3030315	C.H. Expansion Vessel
		
53	3544410	Gas Control Valve

Key No	Code	Part Denomination
43	3424110	Bimetallic Priority Thermostat
		
59	3450113	Electrode (Interchangeable)
		
16	3063325	Air Flow Switch
		
66	3523110	Control Box
46	3033315	Domestic Water mini Expansion Vessel.
		

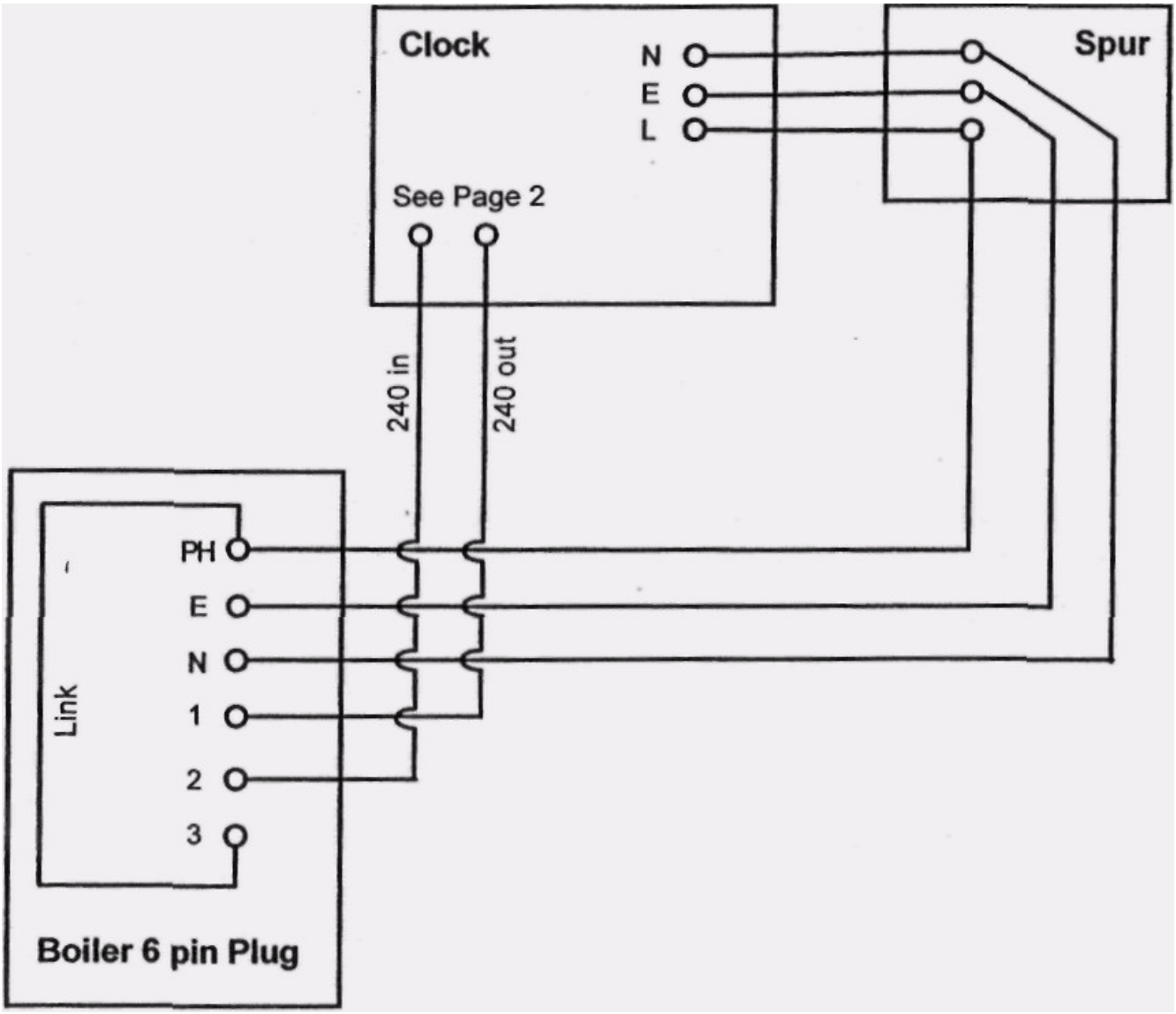
SHORTSPART PARTS LISTTHERMOMATIC COMBI GAS BOILER MODEL RSM20/FB

Key No	CODE	PART DENOMINATION
7	R3000013	FAN MOTOR (240Volls)
B	3063218	SEALING RINGS
16	3063325	PRESSURE SWITCH
23	3030341	WASHER FOR WATER CIRCULATOR
24	3033101	WATER CIRCULATOR
27	3330342	SAFETY VALVE TYPE 31 41
31	3033322	GAS COCK TYPE 45
38	3033320	DOUBLE CHECK VALVE'ALBIFIL
40	3033317	FILLING BALL VALVE'ALBIFIL
43	3424110	BIMETALLIC PRIORITY THERMOSTAT
46	3033315	INOX MINI VESSEL
47	3330343	AUTOMATIC AIR VENT
49	3030315	CH. EXPANSION VESSEL 8 LITRES
53	3544410	GAS VALVE
59	3450113	ELECTRODE
61	3023115	HEATING THERMOSTAT
62	3020114	ANTICONDENSING THERMOSTAT
65	3120112	OVERHEAT SAFETY THERMOSTAT
66	3523110	CONTROL SOX
67	3130201	THERMOMETER/WATER GAUGE
69	3033201	DOUBLE SWITCH (Main and Summer/Winter)
78	R3590M20	INJECTORS FOR NATURAL GAS (NG)
	R3590G20	INJECTORS FOR LIQUID PROPANE GAS (LPG)
	R3000014	OPTIONAL 2M EXTENSION FLUE SYSTEM Kl f
100	3063287	INSPECTION GLASS

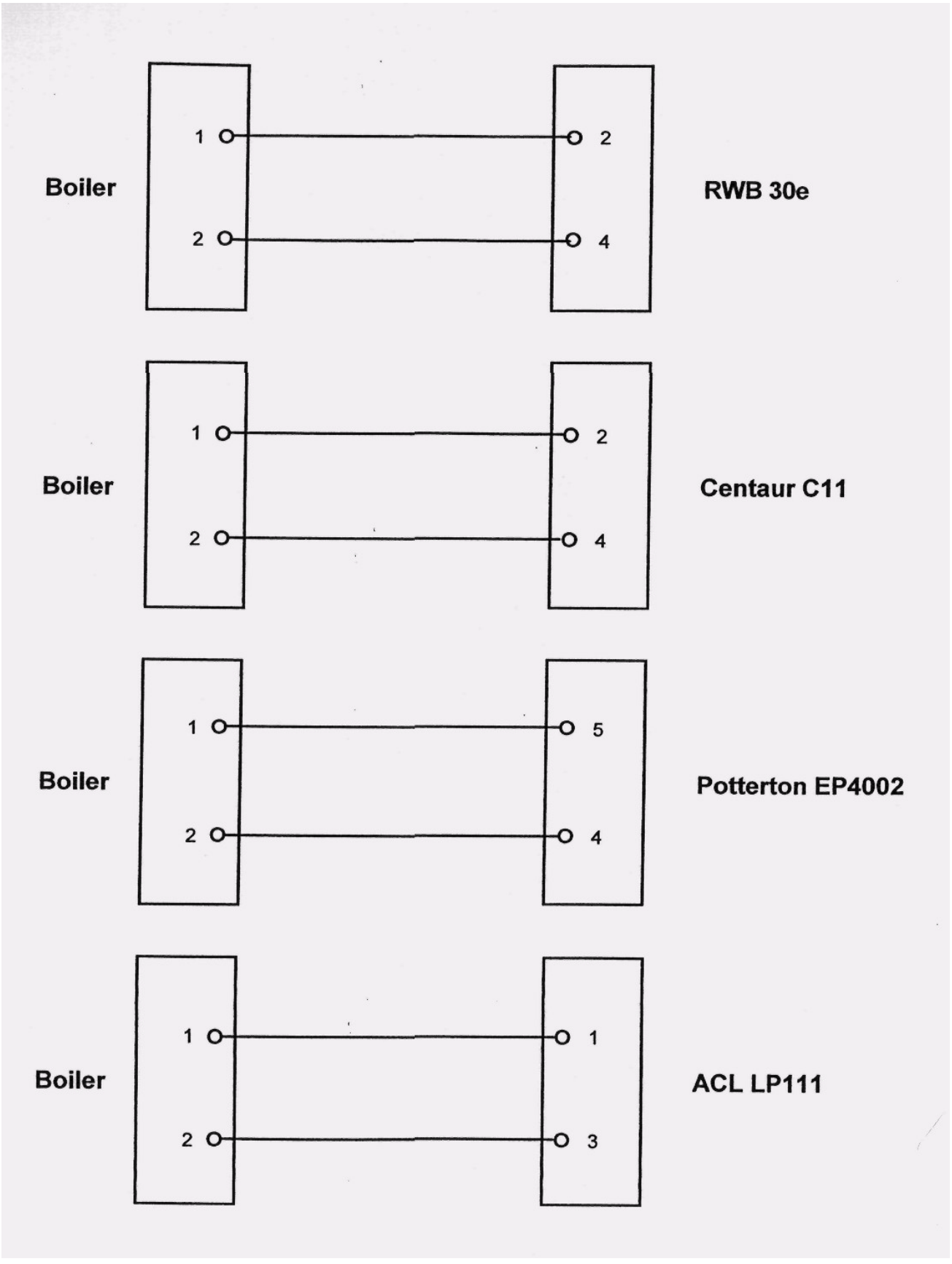
Complete boiler wiring schematic.



New Thermomatic wiring diagram as from S/No. 00054



When wiring the boiler in conjunction with a time switch, remove the link plug from the 5 wire block, (left hand side at the bottom).



Examples of standard wiring connections to most popular models.

Addendum to existing manual.

REGULATION OF THE GAS PRESSURE TO THE NOZZLES

The Thermomatic boilers are delivered already prepared for the required gas, with the gas supply pressures showed by the specific label slicked inside the front door panel, and also by the scheme of technical data in the installation instructions (see page 1).

l)First of all check that the available gas and the supply pressure correspond to those for which the boiler has been prepared.
Should it be necessary to do some adjustment (for example if the supply pressure is another than the mentioned one (see the specific label), precede as follows:

2)Connect a suitable pressure gauge to the burner pressure test point on the gas control valve (n° 6 in the gas control valve drawing).

3)Remove the screw cap that covers the gas pressure regulatory screw (6). With the help of an octagonal screwdriver, turn the regulatory screw (6) until the same burner pressure as shown by the scheme of technical data (page 1) is achieved:

-turn to the right to decrease the gas pressure;
-turn to the left to increase the gas pressure.

HORIZONTAL CONCENTRIC FLUE EXTENSION FOR RSM20/FB
Identification n^{r} R3501693

In addition to the standard Horizontal Concentric Flue Kit id.n° R3501613 supplied with the boiler, on request an Extension Kit 1 mt. long (id.n° R3501693) is available.

Important: maximum linear length 3 mt. after the flue elbow;
for every 45° flue elbow consider 0.5mt less;
for every 90° flue elbow consider 1 .Omt less.

The Extension Kit for RSM20/FB id.n° R3501693 consists of:
-Imt. air intake pipe 0100mm. (see n°8 in the enclosed drawing).
-Imt. flue gas ejection pipe 060mm. (7) with centralising spring (9).
-Sealing washer 0100mm. (6) with fixing clamp (10).

On Request:
-R3566490 90° elbow 0100mm/60mm without test points;
-R3566445 45° elbow 0100mm/60nim without test points.

PREPARATION
1)Remove the elbow (4) after having loosened the respective fixing clamp (10), then remove the standard concentric flue kit Imt. long.
2)Fit the ORs (3) and sealing washers (2) to the flue elbow (4), and then fit the elbow onto the fancsocket (1) on the top of the boiler.
3)Drill a hole 110mm of diameter through an outer wall, in line with the flue bend (4) (see also the dimensions in the Boiler Installation Instructions).

INSTALLATION
l)Properly position the centralising springs (9); insert the flue pipe extensions 060mm (7) one into the other and then into the standard flue pipe (5).
Shorten, if necessary, always from the plain end of the pipe.
2)Position the sealing washer for pipe junction 0100mm (10) on one end of each air pipe extension 0100mm (8).
3)Fit the air pipe extensions (8) one to the other; properly position the sealing washer (6) on each pipe junction and tighten it by means of the specific clamp (10).
In case of shortening, cut the air intake pipe of the same length as the flue pipe.
4)Fit the extended flue pipe into the extended air pipe.
5)Fil the wall finishing washer (11) onto the end of the assembled concentric duct.
6)Insert the extended duct into the hole through the wall; make the air pipe slide a little, then fit the flue pipe into the concentric flue elbow (4).
7)Approach the extended air duct to the flue elbow; properly position the sealing washer (6) and then fix the air duct to the elbow by means of the fixing clamp (10).
8)Properly finish the internal wall face by means of the wall finishing washer (11).

Horizontal Concentric Flue Extension for RSM20/FB - **Legend:**

1. Fan socket
2. 3060218 Flue elbow sealing washer
3. 3566291 O-Rings (2 pcs.)
4. 3566290 90° Flue elbow 0100/60 with test points
5. 3566294 Imt Flue ejection pipe 060 (included in the standard flue kit)
6. 3566292 Sealing washer for air pipe junction
7. 1 mt Flue pipe extension 060
8. Imt Air pipe extension 0100
9. 3566296 Centralising spring
10. 3566293 Sealing washer fixing clamp for pipe junction
11. 3566297 Finishing washer for internal wall face
12. 3566295 Imt Air pipe 0100 (included in the standard flue kit)
13. 3566299 Anti-wind terminal
14. 3566298 Finishing washer for external wall face

On Request:

R3566490 90° Concentric elbow 0100/60 without test points
R3566445 45° Concentric elbow 0100/90 without test points

PRESSURE RELIEF VALVE:
-Remove the front and the right panels. Then empty the boiler.
-Unscrew and remove the pressure relief valve.

HONEYWELL GAS CONTROL VALVE:
-Close the gas cock in the boiler.
-Remove the front panel.
-Unscrew the fixing screw and remove the electronic control box from the electrical connector on the gas control valve.
-Unscrew the gas inlet and outlet connections from the gas control valve and remove the valve.
-If the valve needs to be replaced, unscrew the small flanges at the gas inlet and outlet, and fit them to the new valve.

Warning:

When fitting the small flanges back, take care to fit the flange with calibrated hole at the gas outlet side of the gas control valve.

WATER CIRCULATING PUMP:
-Remove the front and the right panels, then empty the boiler.
-Unscrew the specific screws and open the electrical contact cover on the pump.
-Disconnect the electrical contacts, included the earth contact.
-If necessary, unscrew the two screws that fix the pump body.

Important:

Check that the pump be set at a velocity that suits the system.

EXPANSION TANK:
-Remove the front panel and empty the boiler.
-Unscrew the connection and remove the tank, taking care to cause no damage to the washer.

HONEYWELL ELECTRONIC CONTROL BOX:
-Remove the front panel.
-Unscrew the fixing screw and remove the box from the electrical connector on the gas valve.
-Disconnect the electrical connector of the control box.

Important:

When fitting the box back, do not forget the insulating washer which must be fitted underneath the box.

ANTI-CON DENS ATE THERMOSTAT:
-Remove the front and the right panels.
-Disconnect the electrical contacts.
-Remove the thermostat probe (see drawing at page 15).
-Unscrew the two fixing screws and remove the thermostat.

Important:

When fitting the thermostat back, take care to carry out the electrical connections following exactly the wiring diagram (see page 9).

HOT DOMESTIC WATER PRIORITY THERMOSTAT:
-Remove the front panel and disconnect the electrical contacts.
-Unscrew the two fixing screws and remove the thermostat.

AUTOMATIC AIR VENT VALVE:
-Remove the front panel and, if necessary, also the top cover.
-Unscrew and remove the vent valve.

CONDITIONS OF GUARANTEE

The Thermomatic Combination gas boiler has been designed to give an efficient and reliable service. As with any modern heating appliance, it will only do so if properly installed.

The installation of the boiler must be in accordance with the instruction supplied with every unit.

(1) The Thermomatic Boiler must be installed by a fully qualified Corgi Registered technician.

(2) The apparatus/appliance must be subject to normal use, and regular annual maintance by a trained engineer.

(3) Under these conditions, the appliance is guaranteed for a period of one year from the date of purchase and/or from the first day after the installation of the appliance.

(4) The date must be brought to our notice by an appointed distributor or installer by means of the guarantee certificate. This must apply in every case, even when the distributor/installer undertakes the servicing/maintenance of the appliance.

(5) The guarantee covers all manufacturing defects and faults as well as the efficient working of the appliance for a period of one year.

(6) This guarantee does not cover deterioration whatever its nature, resulting from a maintenance or installation fault, or from polluted atmosphere, defective circulation, (water or air), abnormal variations of pressure, or bad or incorrect electrical connections.

(7) This guarantee is null and void if the appliance has been subject to modification or repair by any person not recognised as an authorised dealer or technician by Keston Boilers in these appliances.

(8) The guarantee does not in any way affect the statutory rights of the purchaser.

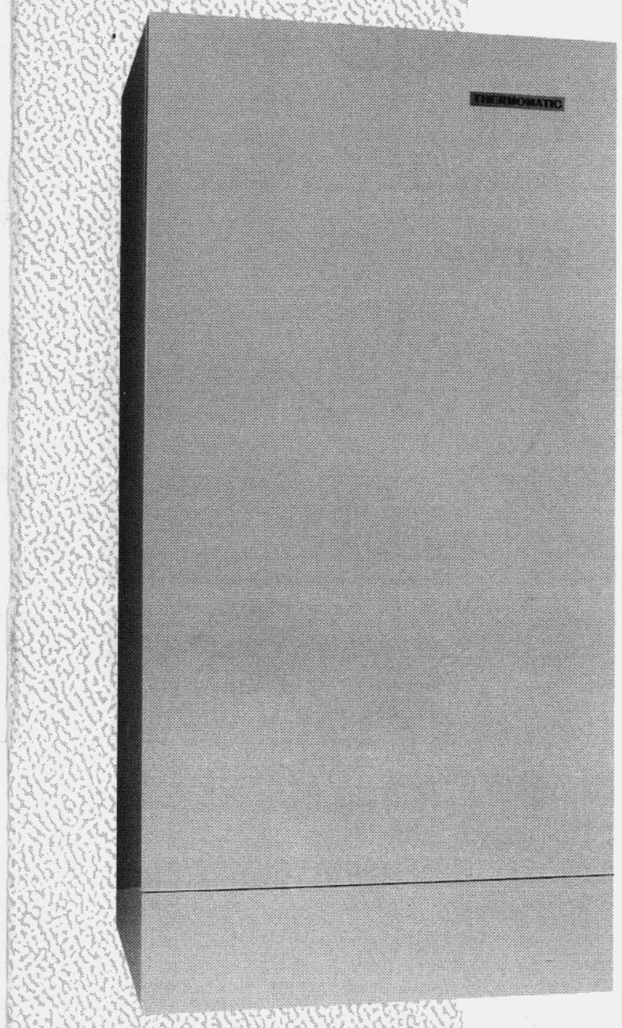
NOTE: If you have a problem you must contact your installer for attention.

Installed by:

Guarantee

KESTON BOILERS
34 West Common Road, Hays, Bromley, Kent BR2 7BX
Telephone: 0181-462 8822

KESTON BOILERS
34 WEST COMMON ROAD
HAYES, BROMLEY
KENT
BR2 7BX



THERMOMATIC

COMBINATION BOILER

MODEL RSM 20/FB
G.C. No. 47 751 01

USERS INSTRUCTIONS

- **Instant Hot Water available from boiler**
- **Fully Automatic Ignition Simple Controls**
- **High Efficiency Low Running Costs**
- **Long Life Simple Maintenance**

KESTON
Boilers

Keep this booklet close to boiler and leave it for next occupier if you move.

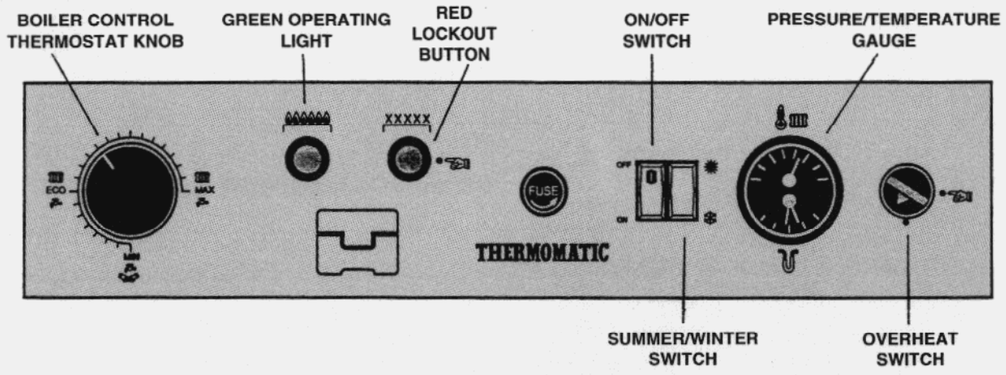
OPERATION AND CONTROLS

Your hot water supply is heated through a copper coil within the boiler unit.

The Boiler Control Thermostat Knob controls the temperature of the water and can be adjusted to the markings shown around the control knob.

During summer periods, the Summer/Winter switch can be set for summer use which gives hot water only.

When set for winter use, both Central Heating and Hot Water will be available. If however, the water temperature falls to 50°C shown on the pressure/temperature gauge the boiler pump will not operate the Central Heating circuit, but will switch on automatically above this temperature.



HOW TO LIGHT YOUR BOILER

1. Before lighting check the following:

(i) The water pressure cold should read as set by the red pointer on the gauge. If the reading is observed to drop over a period of time, a leak is indicated which must be rectified. (The lower pointer on the gauge indicates central heating water pressure and the upper pointer the central heating water temperature.)

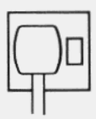
(ii) Water is available at the hot water taps.

(iii) Gas is turned on at gas tap beneath appliance.

(iv) The room thermostat (if fitted) is set above the room temperature.

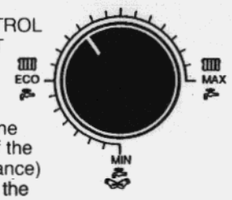
(v) The programmer or clock (if fitted) is in an ON or OVERRIDE position.

2. Switch on the electricity supply, set ON/OFF switch to ON.



If the system water is not up to maximum temperature the appliance should now light and a green light will appear on the control panel, irrespective of the setting of the Summer/Winter switch.

3. Adjust the BOILER CONTROL THERMOSTAT KNOB to the position required. This controls the temperature of the primary (appliance) water. Turning the control knob so that the White Mark is at the bottom will give the lowest temperature.



Turning the control clockwise increases water temperature. Adjust the control knob to the position required. If set beyond the ECO position, be sure the Summer/Winter switch is at the Winter position if central heating is needed.

BOILER FAILS TO LIGHT

The overheat switch operates only if the water overheats. Should this happen the Overheat Switch shuts down the appliance. Should this occur, wait until the temperature gauge reading falls.

Unscrew the plastic cover and press the spindle beneath. The burner should now ignite and the green burner light appear. Should the appliance continue to shut down, contact your Installer/Service Engineer or your local British Gas Region.

Should a red light appear on the small disc on the control panel, switch off at the ON/OFF switch, wait 20 seconds, switch to ON and gently press the small disc for no more than 1 or 2 seconds. The burner should now ignite, (green light on).

Should the burner fail to light after three attempts contact your Service Engineer – Installer or your local region of British Gas PLC.

TO SHUT DOWN THE BOILER FOR LONG PERIODS

Switch off the power supply to boiler. Turn off Gas.

TO SHUT DOWN THE BOILER FOR SHORT PERIODS

Leave boiler switch on control panel in OFF position.

NOTE

See general information below about risk of freezing.

RISK FROM FREEZING

If the appliance and its associated pipework are sited in an unheated space or the dwelling is likely to be left unheated for long perods during cold weather then consideration should be given to frost or freezing conditions.

Precautions which may be considered are:

1. Draining down the complete system, including the domestic hot water circuit. (Sealed systems must be drained down and refilled by a competent person).
2. The fitting of Set – back controls.
3. The fitting of a frost thermostat.

Any frost precaution controls should be fitted to Manufacturers instructions.

PROPER INSTALLATION CLEARANCES

Minimum clear space needed around the appliance:

TOP	250 mm. (10")
BOTTOM	250 mm. (10")
SIDES	76 mm. (3")

These clearances must not be obstructed in any way. Blocking the clearance spaces could result in damaging the boiler and prevent servicing.

If installed in a compartment do not obstruct any purpose made ventilation openings.

Do not use for storage purposes e.g. of food.

WARNINGS

IN CASE OF GAS LEAKS

If a gas leak or fault is suspected, turn off the appliance, isolate the gas supply and consult your local region of British Gas PLC., or your service engineer.

MAINTAINING YOUR BOILER

The Thermomatic Combination Boiler requires very little maintenance but it is advisable to have the boiler serviced and cleaned at regular intervals, depending on the particular installation, conditions and usage. Generally, once per year is adequate.

THIS APPLIANCE MUST BE EARTHED

Connection shall be made to a 240 Volts 50Hz ~ supply. If a mains plug connection is used it must be of a three-pin type and fused to 3 Amps.

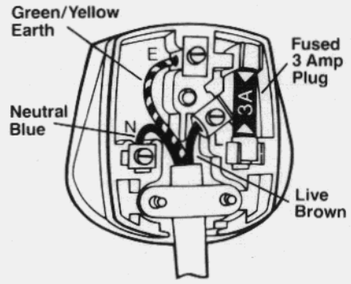
SAFE INSTALLATION

It is the law that gas appliances be installed by a qualified competent person in accordance with Gas Safety (Installation and Use) Regulations.
Failure to do so could lead to prosecution. It is in your own interest, and that of safety, to ensure compliance with the law.

TO CONNECT A PLUG

As the colour of the wires in the mains lead of the appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol ⏚ or coloured green or green-and-yellow.



The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

A 3 Amp Fuse should be fitted.

THERMOMATIC COMBINATION BOILER GUARANTEE REGISTRATION CARD

Boiler Serial No. _____ Model ref _____ Date of Installation _____

Name and Address of Installer	Name and Address of Occupier	Name and Address of Owner (if different from Occupier)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Post Town _____ Post Code _____	Post Town _____ Post Code _____	Post Town _____ Post Code _____
Telephone No. _____	Telephone No. _____	Telephone No. _____

To be completed and posted – postage stamp necessary