

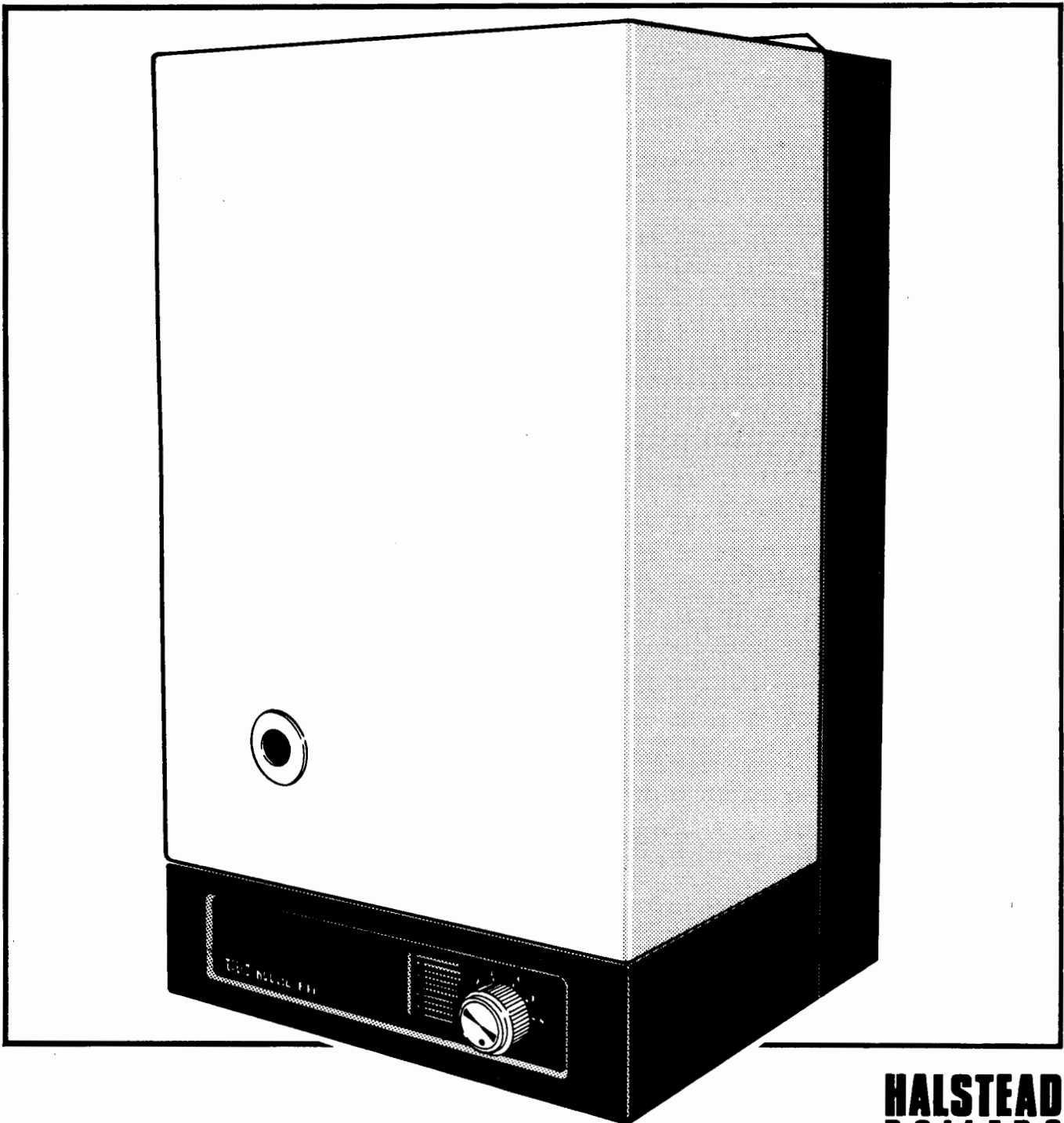
INSTALLATION AND SERVICING INSTRUCTIONS

BALMORAL 45F, 55F & 65F Wall Mounted Fanned Balanced Flue Boiler

45F: G.C. No. 41-333-13

55F: G.C. No. 41-333-15

65F: G.C. No. 41-333-14



**HALSTEAD
BOILERS**

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1 INSTALLATION

1.1 TECHNICAL DATA

Gas Connections	RC 1/2 (Female)
Water Connections	22mm Copper (45/55) - 28mm (65)
Electrical Supply	240V A.C. 50Hz Fused at 3 amp.
Internal Fuse	F1a to B.S. 4265
Water Capacity	1 Litre
Minimum Water Flow:	
65F	25 litre/min (5.5 gal/min)
55F	21.1 litre/min (4.6 gal/min)
45F	17.2 litre/min (3.8 gal/min)
Minimum Static Head	0.8 Metres
Maximum Static Head	30 Metres
Maximum Boiler Thermostat Setting	82°C (180°F)
Flue Length	
Side Flue	Minimum 89mm (3 1/2") Maximum 1908mm (75")
Rear Flue	Minimum 89mm (3 1/2") Maximum 2012 (79 1/4")
Empty Weight of Boiler	27kg
Maximum Installation Lift	
Weight	22kg

1.2 GENERAL NOTES

IMPORTANT: These Appliances are for use on NATURAL GAS only.

It is important that the boiler should be installed strictly in accordance with these instructions. The installer should pay particular attention to the following points.

- This boiler is suitable for fully pumped, open vented or sealed systems only and cannot be used on gravity systems.
- The capacity of the pump must be adequate for the system.**
- An indirect cylinder, not of the self priming type, must be used for the provision of hot water.
- The pump must always be wired to the boiler control box.
- Correct balancing of the system is important.
- The system must be vented before firing the boiler.
- The boiler is not suitable for external installation.
- The system must be properly flushed.

This boiler must be installed by a competent person and the installation must be in accordance with the relevant requirements of the current Gas Safety (Installation and Use) Regulations, 1984, local building regulations including the Building Standards (Scotland) Regulations and by-laws of the local water undertaking. The electrical wiring must be in accordance with current IEE regulations.

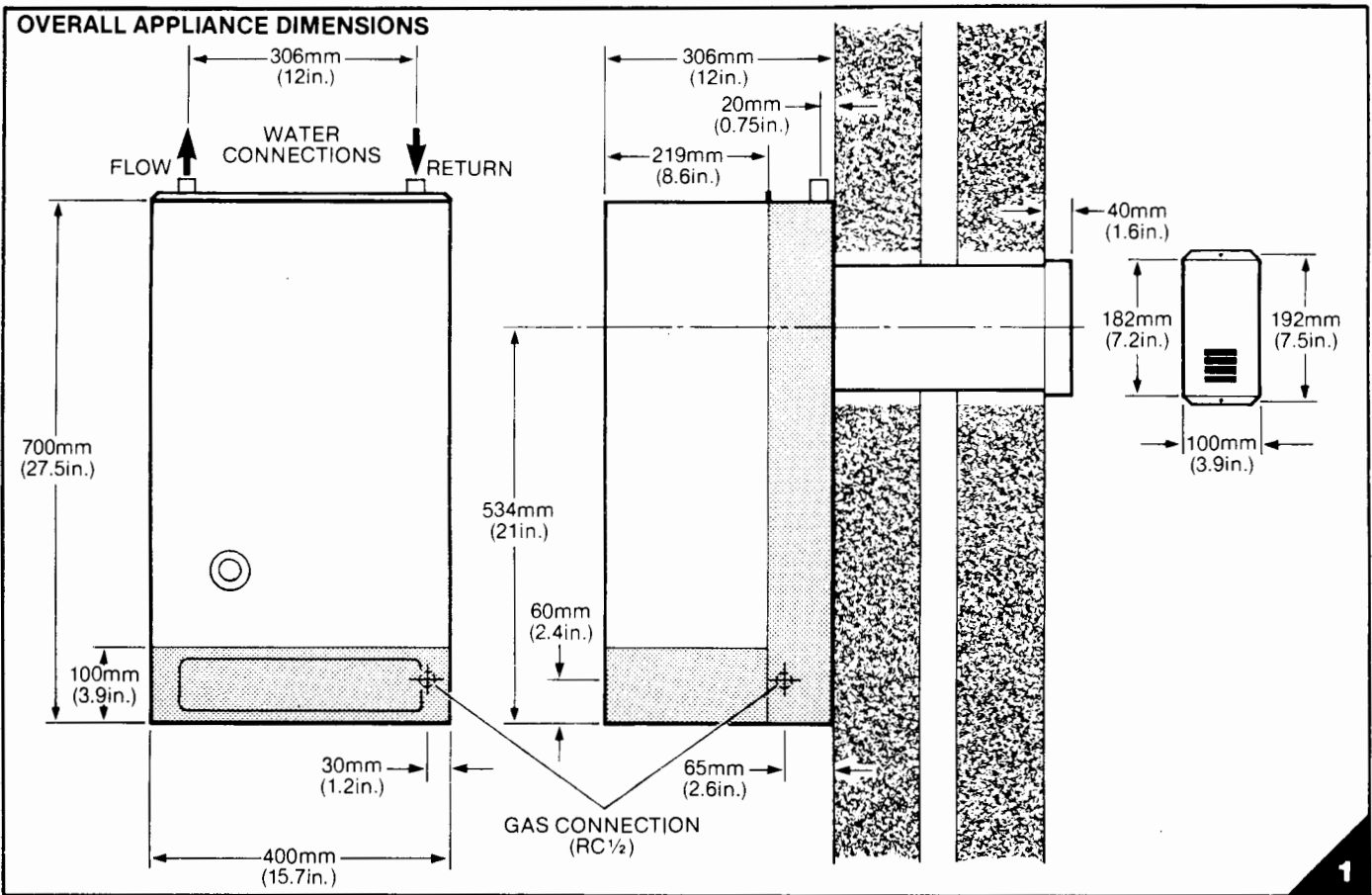
The method of connection to the mains electrical supply must facilitate complete isolation of the boiler. Preferably by the use of a fused 3-pin plug and shuttered socket outlet. Alternatively a fused double-pole switch, having a 3mm contact separation in both poles, and serving only the boiler may be used.

Detailed recommendations are in the following British Standards code of practice and British Gas publications, CP331:3:1974, BS6798:1987, BS5449:1:1979, BS5446:1979, BS5440:1:1978 and BS5440:2:1976. Guide to Gas Installation in timber framed housing: British Gas Publication DM2.

NOTE: The gas pipework to the boiler must be of adequate size and pipes should be no smaller than the boiler inlet connection. The installation must be tested for gas soundness as described in the above codes.

Range Rating

The 45F, 55F & 65F are range rated appliances and may be adjusted to suit different systems. The maximum, minimum, and mid range outputs are given in the following table. The boiler input should be adjusted to the system requirements, as it is preset at the factory to its medium rating.



45F

Range Rating	Minimum	Medium	Maximum
Nominal Heat Input kW	9.4	12.9	16.25
Nominal Heat Input Btu/h	32 000	44 000	55 500
Nominal Heat Output kW	7.30	10.25	13.19
Nominal Heat Output Btu/h	25 000	35 000	45 000
Burner Setting Pressure m.bar	5.4	8.7	13.1
Burner Setting Pressure in.w.g.	2.2	3.5	5.3
Injector Size:	3.4mm		

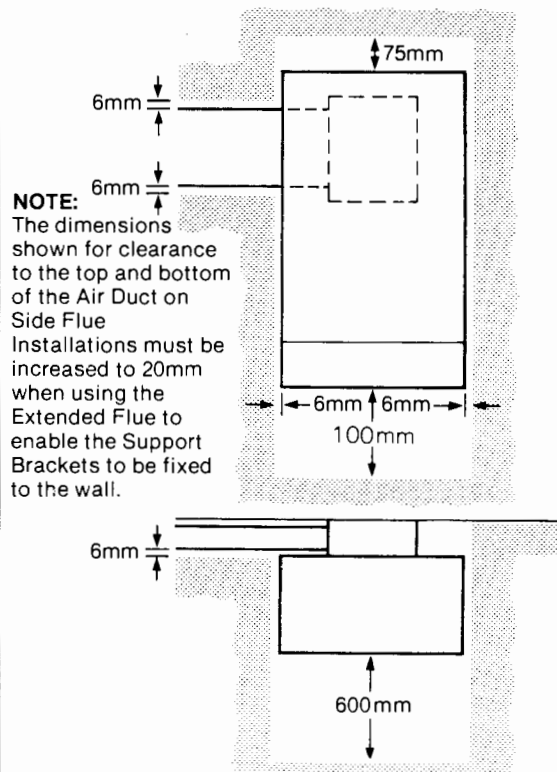
55F

Range Rating	Minimum	Medium	Maximum
Nominal Heat Input kW	16.56	18.49	20.4
Nominal Heat Input Btu/h	56 500	63 050	69 600
Nominal Heat Output kW	13.19	14.65	16.12
Nominal Heat Output Btu/h	45 000	50 000	55 000
Burner Setting Pressure m.bar	8.75	10.20	11.5
Burner Setting Pressure in.w.g.	3.5	4.08	4.6
Injector Size:	3.9mm		

65F

Range Rating	Minimum	Medium	Maximum
Nominal Heat Input kW	20.4	22.1	23.88
Nominal Heat Input Btu/h	69 600	75 400	81 500
Nominal Heat Output kW	16.20	17.58	19.05
Nominal Heat Output Btu/h	55 000	60 000	65 000
Burner Setting Pressure m.bar	7.3	8.3	9.6
Burner Setting Pressure in.w.g.	2.9	3.3	3.9
Injector Size:	4.4mm		

MINIMUM BUILT-IN DISTANCES FROM WALLS, FLOORS, CEILINGS, WORKTOPS, CUPBOARDS AND ANY PERMANENT OBJECTS.

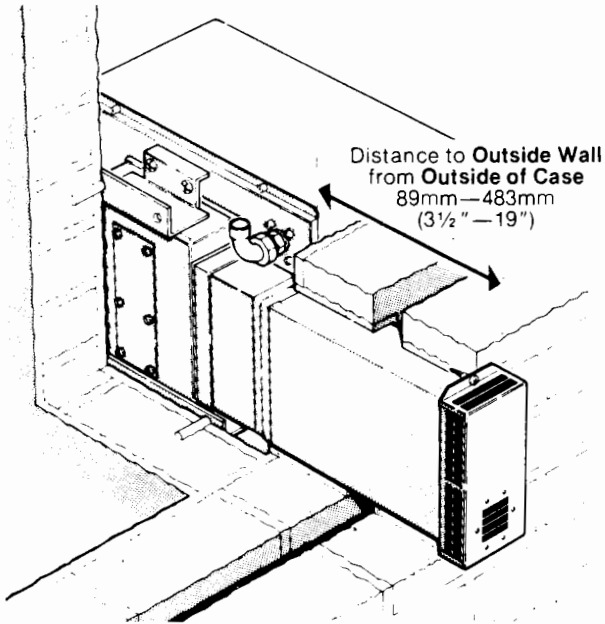


1.3 CLEARANCES REQUIRED

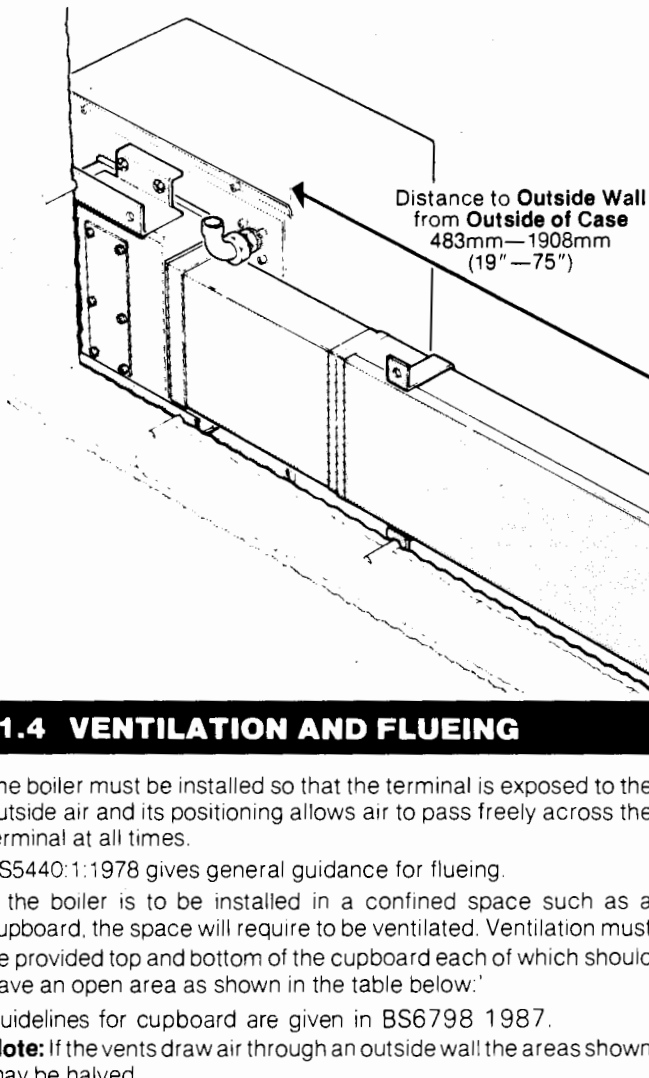
The boiler should be positioned giving the minimum clearances shown in Figure 2. If the boiler is to be positioned in an unusual

location, attention should be paid to BS5376-2:1976 which gives guidance, and British Gas Publication: Guide to Gas Installation in timber framed housing. Reference DM2. The boiler can be installed onto a combustible wall.

STANDARD SIDE FLUE



EXTENDED SIDE FLUE



1.4 VENTILATION AND FLUEING

The boiler must be installed so that the terminal is exposed to the outside air and its positioning allows air to pass freely across the terminal at all times.

BS5440:1:1978 gives general guidance for flueing.

If the boiler is to be installed in a confined space such as a cupboard, the space will require to be ventilated. Ventilation must be provided top and bottom of the cupboard each of which should have an open area as shown in the table below:

Guidelines for cupboard are given in BS6798 1987.

Note: If the vents draw air through an outside wall the areas shown may be halved.

	Open Area	Open Area
45F	147cm ²	22½in ²
55F	180cm ²	28in ²
65F	214cm ²	33in ²

Where the boiler is installed in a room, the boiler does not require an air vent.

1.5 BOILER POSITION

The boiler can be installed on a party or external wall, using either the side or rear flue positions as appropriate. See Figures 3 and 4.

1.6 SITING OF THE TERMINAL

Refer to diagram for minimum clearances. (Page 5).

Avoid positions where the terminal is adjacent to projections, particularly immediately under a balcony; immediately adjacent to a drainpipe or immediately inside a re-entrant position.

If the boiler is fitted under a window (or under a ventilator) and this window is openable no part of the opening shall be within 0.3m (1 ft) of the nearest part of the terminal.

It is normal for the flue gases to be seen as a white vapour particularly, when external temperatures are low. Consideration should be given to the siting of the terminal where this may cause a nuisance.

If the flue terminal is installed so that it is 2m (6ft) or less from any ground, balcony or flat roof or place to which any person has access and which adjoins the walls in which the outlet is situated, a terminal guard must be fitted to the outside wall. Guards are available from Tower Flue Components Ltd (0732) 351555 Quote type H.

The terminal guard should be fixed to the wall with 4 off 1 inch x No. 10 screws. Ensure that the guard is placed symmetrically over the terminal with a 76mm (3in) gap on all sides.

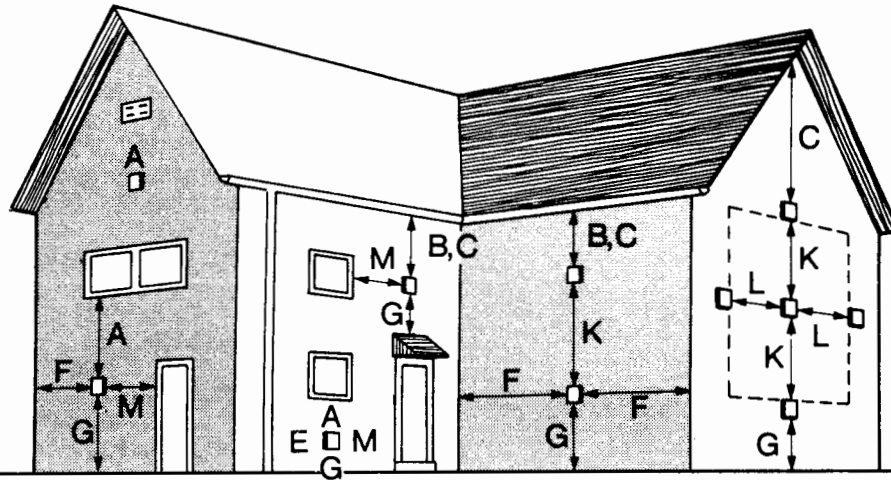
If the terminal is fitted within 850mm (34in) of a plastic or painted gutter or 450mm (18in) of painted eaves an aluminium shield of at least 750mm (30in) long should be fitted to the underside of the gutter or painted surface.

Detailed recommendations on protection of combustible materials will be found in BS5440:1:1976.

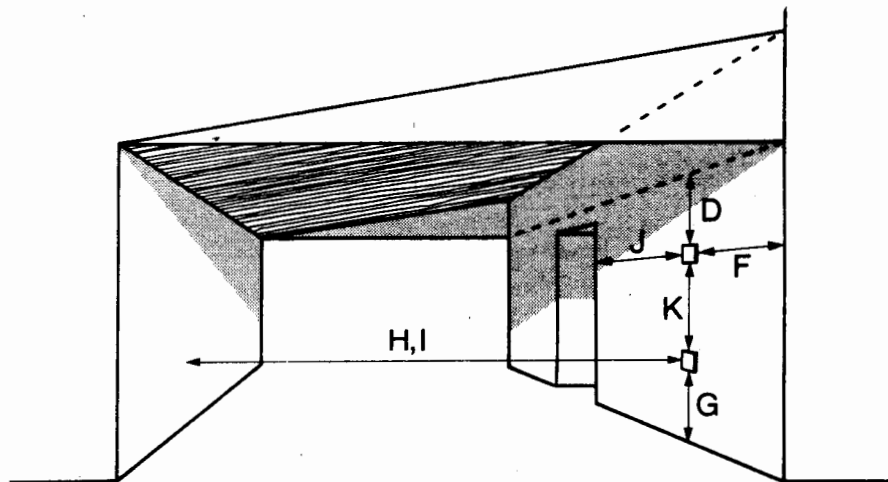
1.7 WATER SYSTEMS

The maximum water pressure to which the appliance can be subjected is a head of 30 metres.

Important Note: The system used for this boiler should have its pump fitted in the flow pipe from the boiler, and isolating valves



Under Carport, etc.



MINIMUM SITING DIMENSIONS FOR FANNED FLUE TERMINALS

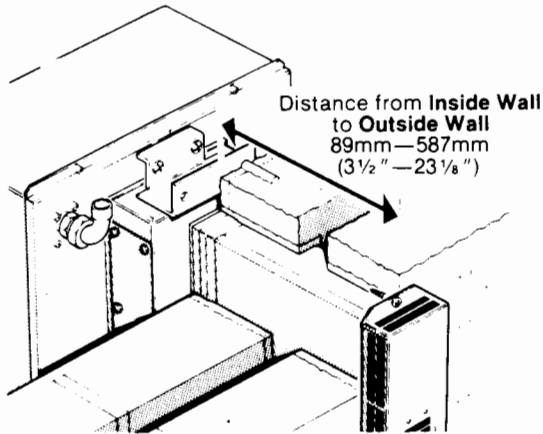
POSITION

MINIMUM SPACING

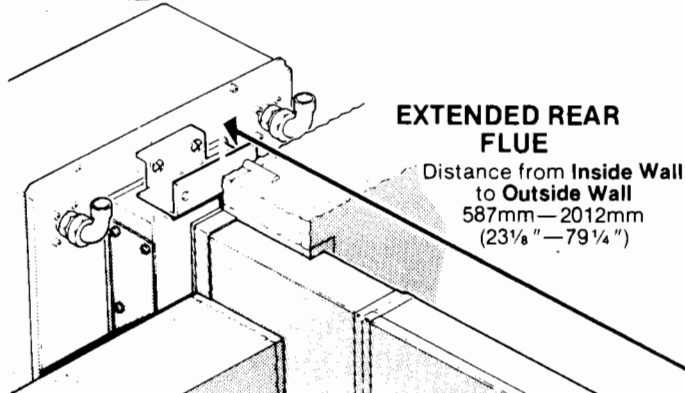
A	DIRECTLY BELOW AN OPENABLE WINDOW, AIR VENT, OR ANY OTHER VENTILATION OPENING	300
B	BELOW GUTTER, DRAIN/SOIL PIPE	75
C	BELOW EAVES	200
D	BELOW A BALCONY OR CAR PORT	200
E	FROM VERTICAL DRAIN PIPES AND SOIL PIPES	75
F	FROM INTERNAL OR EXTERNAL CORNERS	300
G	ABOVE ADJACENT GROUND OR BALCONY LEVEL	300
H	FROM A SURFACE FACING THE TERMINAL	600
I	FACING TERMINALS	1200
J	FROM OPENING (DOOR/WINDOW) IN CAR PORT INTO DWELLING	1200
K	VERTICAL FROM A TERMINAL	1500
L	HORIZONTALLY FROM A TERMINAL	300
M	ADJACENT TO OPENING	150

mm

STANDARD REAR FLUE



Distance from Inside Wall
to Outside Wall
89mm—587mm
(3½"—23⅛")



EXTENDED REAR FLUE

Distance from Inside Wall
to Outside Wall
587mm—2012mm
(23⅛"—79¼")

fitted as close to the pump as possible. The pump must be capable of passing the design flow rate against the system index resistance. It is recommended that a **high head pump** be used such as a Grundfos UPS 18/60 SMC Comador 2-130/60 for the model 55 & 65F and for the 45F where high resistance systems such as micro-bore and/or thermostat radiator valves are used. For the model 45F on low resistance systems suitable models are - Grundfos VPS 15/50, SMC Comet 2, Euramo Gold, Myson Unit 3 or equivalent models. It is recommended that the pump should be capable of producing at least an 8ft (2.5m) head when passing a flow rate through the boiler of 25 litre/min (5.5 gal/min) in the 65F, 21.1 litre/min (4.6 gal/min) in the 55F and 17.2 litre/min (3.8 gal/min) in the 45F, giving a temperature rise of approximately 11°C (20°F). This will usually require the pump set to maximum.

The maximum flow temperature of the appliance is 82°C (180°F). See graph (Figure 5) for pressure loss of appliance.

When the system is commissioned, the differential of 11°C should be checked at points A and B (Figure 6) and the design requirements met by suitable adjustment of the pump regulator and radiator valves, with the by-pass shut. Ensure that the cylinder heating rate is satisfactory and check for absence of "kettling", if required adjust and set the lockshield valve on the domestic hot water return.

Inhibitor

All new systems should be fully flushed and when considered necessary we recommend a pre-treatment with Fernox BC-1 cleanser. When a Balmoral is fitted into an **existing system**, full cleansing of the original installation is desirable to avoid problems with sludge and other contaminants. Contact: Fernox Manufacturing Co Ltd. (079-985-811) for specific recommendations.

It is important that a 15mm valved by-pass be fitted in the pipework as shown in Figure 6 and that the pipework to the cylinder should not be less than 22mm copper.

The by-pass setting is done with both motorised valves shut with the system starting from cold. The by-pass valve should be initially set to the open position and progressively closed to produce the correct design temperature differential between the flow and return at the boiler.

When using a vented system a safety valve need not be used unless local regulations require them to be fitted. (A safety valve **must** be fitted on a sealed water system).

The hot water cylinder should be of the fully indirect (double feed) type. Self priming (single feed) cylinders must not be used.

(On sealed systems a fully indirect (double feed) **must** be used.)

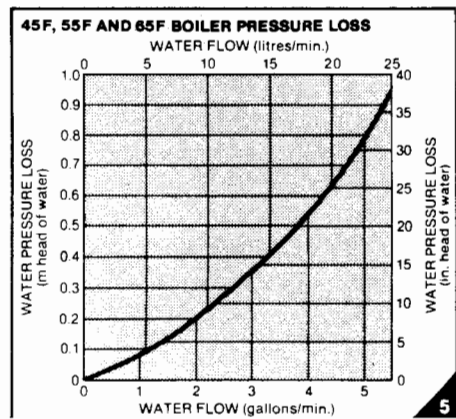
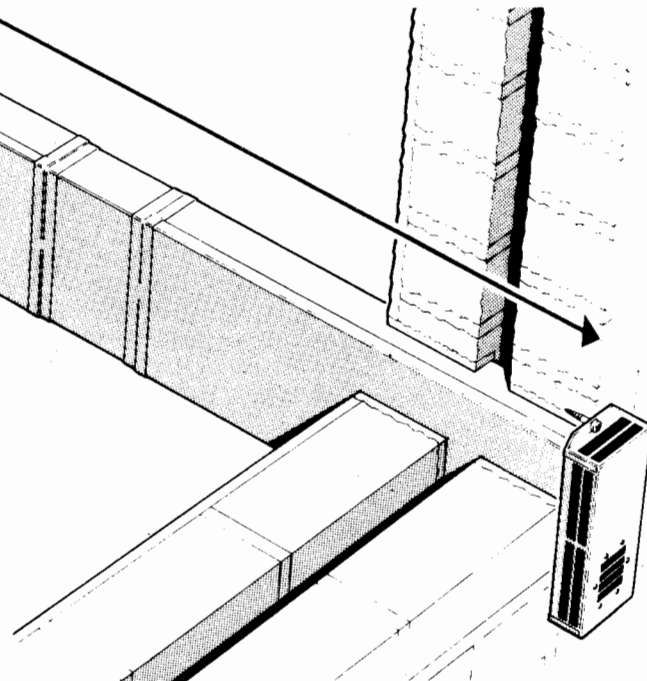
Water Connections

The boiler is supplied with female copper capillary joints to accept tubing to BS2871.

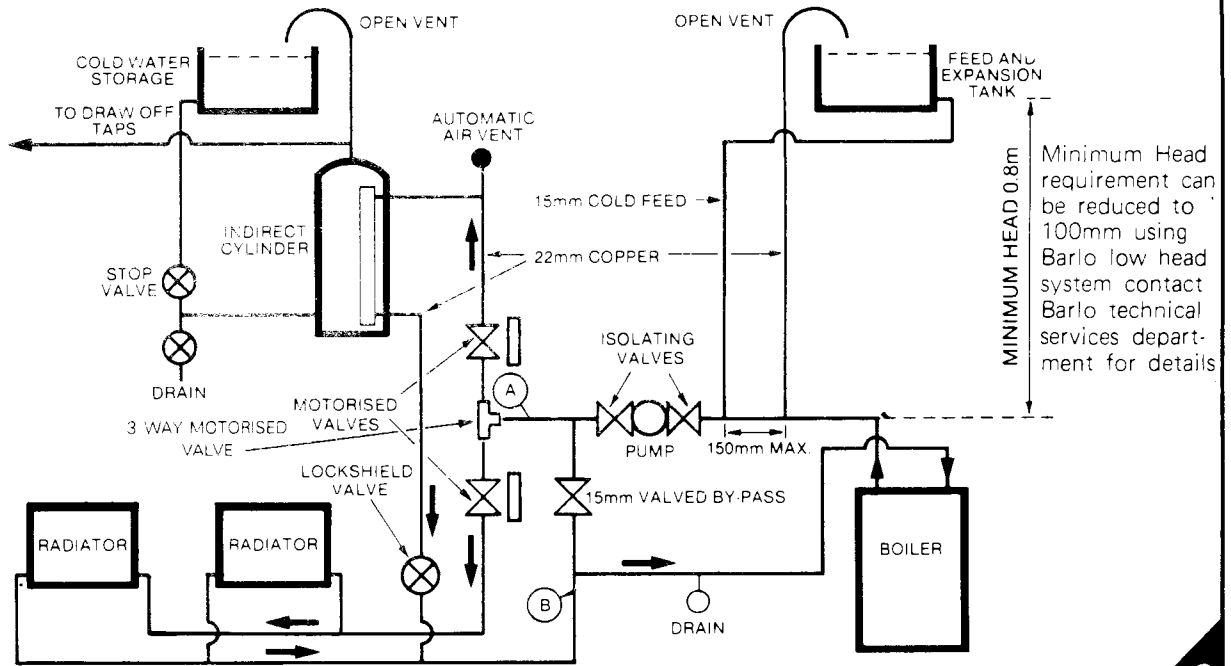
NOTE: DO NOT ANGLE THE ELBOWS ON THE REAR OF THE APPLIANCE BELOW THE HORIZONTAL.

Drain-off cocks

These must be fitted at the lowest points in the system adjacent to the boiler. The boiler thermostat pocket should be removed to drain heat exchanger.

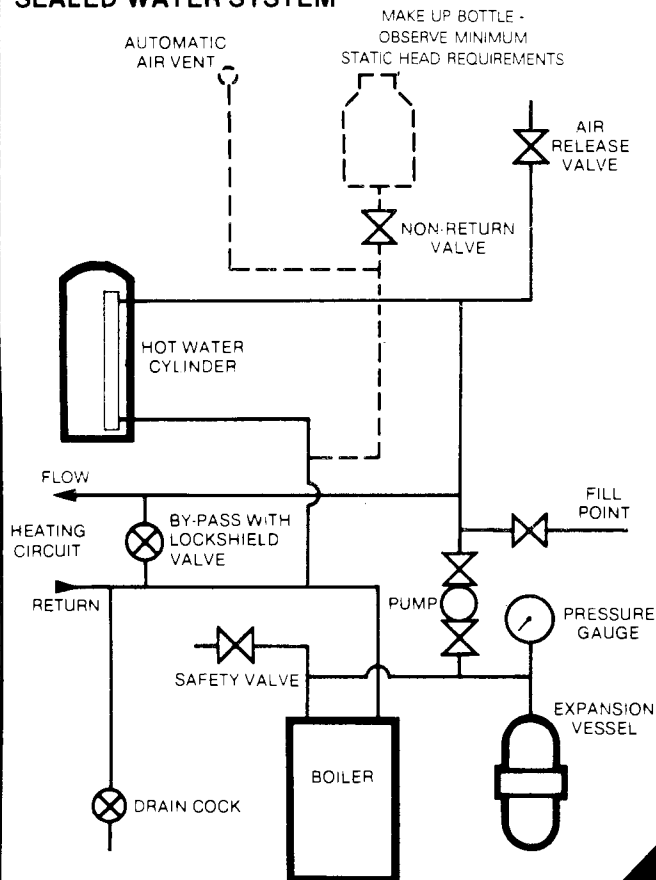


PIPE LAYOUT USING BY PASS AND CLOSE COUPLED FEED AND VENT



6

SEALED WATER SYSTEM



7

1.8 VENTED SYSTEMS (Figure 6)

An open vent pipe of 22mm diameter must be fitted in the flow line from the boiler and, discharging into the expansion cistern. The open vent must rise continuously from its connection with the systems.

Horizontal runs must be avoided.

The expansion cistern should not have a smaller capacity than 22 litres (5 gallons). The cold feed should be of 15mm minimum diameter.

The cistern must not be higher than 27.5m (90ft) above the boiler, or less than 0.8m (32").

The by-pass should be of 15mm diameter.

1.9 SEALED SYSTEMS (Figure 7)

Safety Valve

A safety valve complying with the requirements of BS759 must be fitted to the flow pipe as near as possible to the boiler with no restriction in the flow before the valve. The valve should be fitted by a horizontal or vertically upwards connection and accessible for testing.

The valve should be so positioned so that any discharge of steam or water cannot cause any harm to occupants or electrical installations.

Pressure Gauge

A pressure gauge with a range of 0-4 bar must be fitted so that it is visible to the person filling the system.

Expansion Tank

The expansion tank must be of the diaphragm type and should be connected close to the inlet side of the pump.

The expansion vessel must suit the volume of the system — BS5449:1:1977, clause 25.

The system pressure should be not less than the static height, this being the highest point in the system above the expansion tank.

The expansion vessel has to be suitable to accommodate the change in volume in the system when burning between 10°C to 110°C. See BS5449:1 for further information.

VOLUME OF WATER IN APPLIANCE = 1.0 litre.

Hot Water Cylinder

The cylinder used should be of the indirect type, suitable to operate at a total pressure of 0.35 bar (5lb/in²) plus the pressure at which the safety valve is set.

Do Not Use A Single Feed Indirect Cylinder.

Filling Point

The system must be provided with a low level filling point fitted with a stop cock. The method adopted for filling the system should comply with local Water Authority regulations.

Provisions should be made for replacement of system water losses by using a make up vessel which must be fitted above the highest point in the system, or by pre-pressurising the system.

Refer to BS5376 part 2:1976 clause 14.3.5.

The complete installation must be tested for gas soundness including all pipes and meter. The supply line should be purged.

WARNING: Before purging all windows should be open and all naked lights extinguished and cigarettes and pipes must also be extinguished.

Note: When fitting the gas inlet pipe, always allow at least 150mm (6in) vertical distance from the service cock, before bringing the supply forwards, to allow the control box to drop for access.

2.5 WATER CONNECTIONS

The boiler is supplied with female copper capillary joints to accept tubing to BS2871. Refer to Section 1.7 to 1.9 for installation details.

2.6 WIRING INSTRUCTIONS

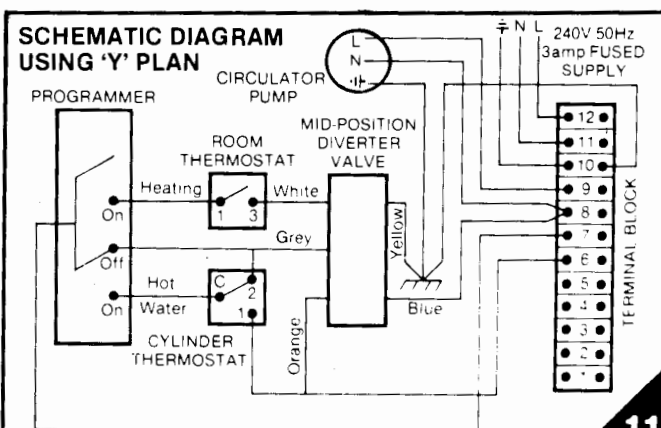
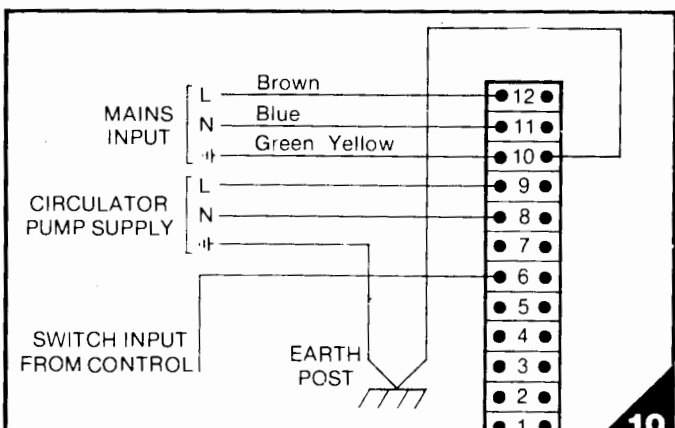
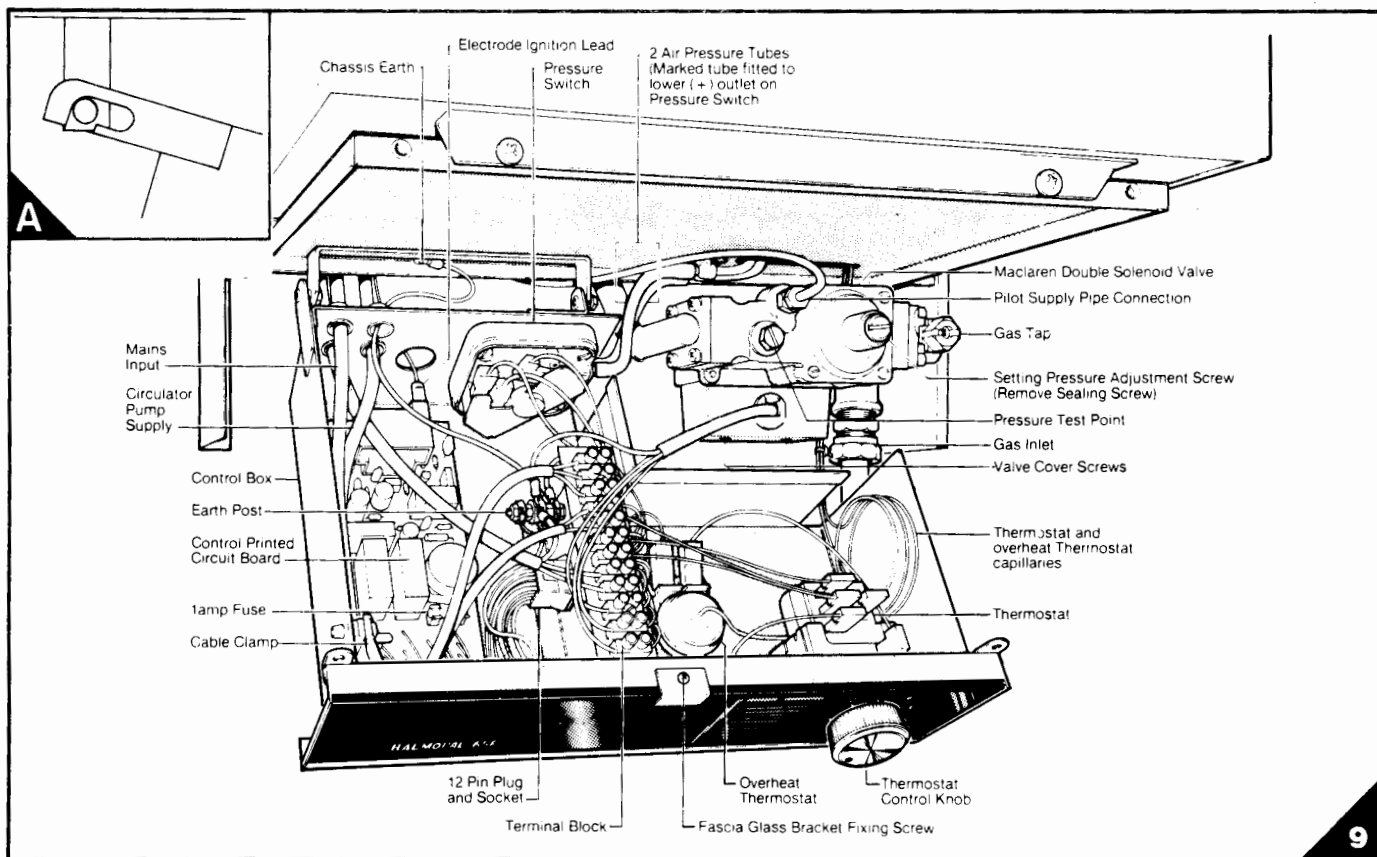
THIS APPLIANCE MUST BE EARTHED. (Failure to do so will result in appliance malfunction.)

1. Remove the two screws fixing the control box as shown in Figure 8. The control box is hinged at its rear and will drop down to allow access for wiring up the boiler (Figure 9.) If necessary the control box can be removed from the boiler chassis by lifting the rear of the box (Figure 9) to disengage from its rear support brackets, lowered to clear the pressure switch and pulled gently forward, **taking care not to place any undue force onto the connecting wiring or thermostat capillaries.**

2. Thread the mains input cable through one of the bushed holes at the rear of the control box. Remove the two screws in the cable clamp (Figure 9). Connect the cable to the terminal block (Figures 9 and 10) and loop the cable through the cable clamp allowing the cable to hang freely between the clamp and terminal block. Refit the two screws previously removed and clamp the cable ensuring the fan connecting lead is also secured by the clamp.

Note: When making connections onto the terminal block make sure that the earth conductor is longer than the live and neutral conductors. For complete Internal Wiring Diagrams, see Section 6.

3. The **pump must be connected to the terminal block** as shown in Figures 10, 11, 11 a & 11 b, and threaded through one of the cable bushes in the rear of the control box.
4. The installation must comply with the current I.E.E. wiring regulations taking into account any local regulations. All wiring to the control box must use 0.75mm² (24/0.2mm)
5. The boiler and all secondary control circuit wiring must be supplied from the same single isolating switch or plug and socket.
6. There is a wire link between terminal 6 and 7 on boiler terminal block for testing prior to connection of external controls once installation has been completed and provided that external controls have been used, the link should be removed and discarded.



3 COMMISSIONING & TESTING

CHECKS TO ENSURE ELECTRICAL SAFETY SHOULD BE CARRIED OUT BY A COMPETENT PERSON. DO NOT USE THE BOILER WITHOUT THE OUTER CASE FITTED CORRECTLY.

3.1 VENTED WATER SYSTEMS

- Fit the outer casing with the screws previously removed as shown in Figure 8.
- Fill and flush the system with all valves open. Refill the system and check for water leakage. Vent the system including radiators and make sure the pump isolating valves are fully open, also the by-pass and motorised valves (if fitted).
- Turn on gas and check for gas soundness around boiler components using leak detection fluid. **DO NOT USE A NAKED FLAME.**
- Remove the pressure test screw and fit pressure test gauge (see Figure 12).
- Ensure that all secondary controls (timer, room thermostat and cylinder thermostat where fitted) are turned to maximum.
- Turn on the electrical supply and check the pump is working and is circulating water through the system.
- Turn the boiler thermostat fully clockwise to its maximum setting. After a few seconds the boiler will light. The burner flame can be viewed through the viewing glass in the front of the outer case.
- If the boiler fails to light, reset the overheat thermostat by pressing the button found underneath the centre of the control box.
- If the boiler still fails to ignite a check must be carried out on all electrical connections, then refer to the fault finding section.
- The gas rate can now be set as required by adjusting the flow rate adjusting screw. See Figure 12. Turn clockwise to increase the flow. For heat output/pressure setting refer to table on page 3.
- Set the data badge indicator arrow to show the adjusted gas rate.
- Remove the pressure test gauge and refit the pressure test screw. Check for gas soundness with leak detection fluid.
- If the control box has been removed from the boiler chassis, refit by engaging the rear support brackets as shown in figure 9a. Reposition the thermostat capillaries taking extreme care not to kink or trap. Pull excess ciring, e.g. fan and H T lead back into the control box.
- Lift the front edge of the control box and replace the two fixing screws previously removed.
- Replace the control box cover and fix with the two screws previously removed.
- Make sure all secondary controls (e.g. timer, thermostat, etc.) do control the boiler.

- Adjust the system as previously described in Section 1.
- The boiler and system should now be allowed to reach maximum working temperature and examined for leaks.
- Turn off the system and rapidly drain whilst still hot.
- Refill, and vent ensuring all air is cleared from the system. Adjust sealed water systems to the initial design pressure.
- Turn the boiler thermostat to the required setting.
- Fit the rear side panels (if required) (instructions are supplied with the panels). These cannot be fitted if permanent features are within 75mm of the sides of the appliance.

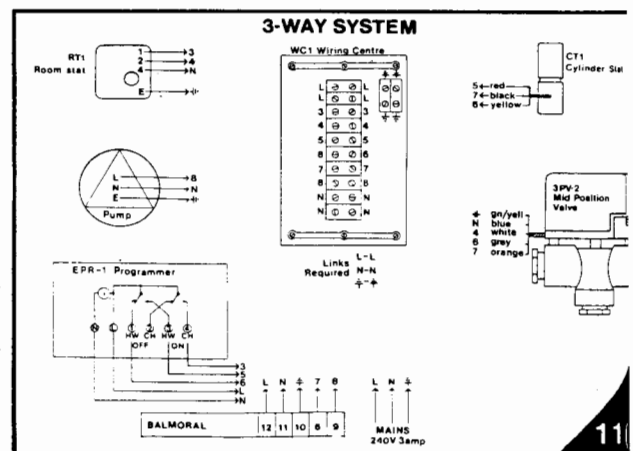
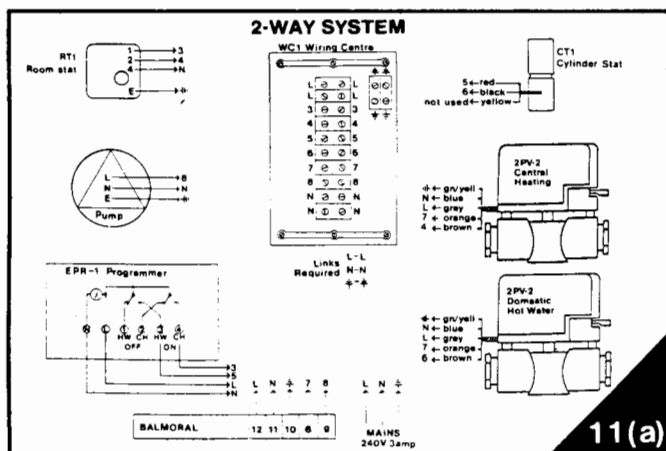
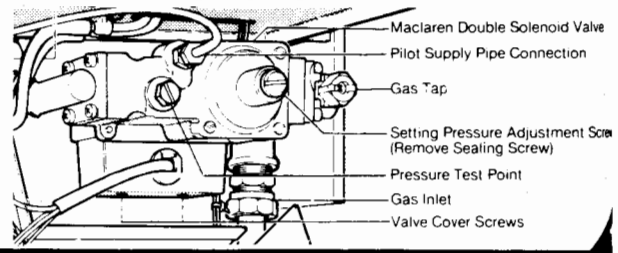
3.2 SEALED WATER SYSTEMS

- Perform the operations as in Section 3.1.1 to 3.1.16, proceed as following.
- Remove the pump and flush the system. Replace the pump and fill the system until the pressure gauge reads 1.5 bar (lb/in²).
- Check the operation of the safety valve which should be within 0.3 bar (4.3 lb/in²) of the pre-set system pressure.
- Charge the water system to the initial design pressure, the boiler and allow to run to maximum working temperature. Turn off boiler. Check for leaks and drain system while still hot.
- Refill and vent system. Adjust to initial design pressure. set any pointer on the pressure gauge to coincide with the pressure. Check for leaks.

3.3 USERS INSTRUCTIONS

Hand the users instructions to the user for retention and instruct the efficient and safe operation of the boiler and heating/hot water system. Advise the user of the precautions necessary to prevent damage to the heating/hot water system and the building in the event of the system remaining inoperative during frost conditions. Finally advise the user that for continued efficient and operation of the boiler it is important that adequate servicing be carried out at intervals recommended.

Johnson/Maclaren Double Solenoid Valve



4 SERVICE INSTRUCTIONS

Before attempting any service to the boiler, **ISOLATE FROM THE ELECTRICAL SUPPLY AND TURN OFF THE GAS SUPPLY AT THE MAIN SERVICE COCK.**

4.1 HEAT EXCHANGER

1. Remove the two screws on the underside of the control box cover and remove cover.
2. Remove the four screws securing the boiler outer case and remove case (Figure 8).
3. Remove the two wing nuts holding the securing angle bracket (see Figure 13) and remove angle and connecting rods.
4. Remove the two captive screws (see Figure 13) securing the flue collector hood and remove hood, taking care not to damage the gasket on its rear face.
5. Remove the burner wingnut and the four screws securing the heat exchanger front panel (Figure 13) and remove panel.
6. Remove the two pilot/electrode assembly fixing screws (Figure 13). Withdraw the main burner off the injector taking

care not to damage the pilot/electrode assembly and the insulation on the heat exchanger sides.

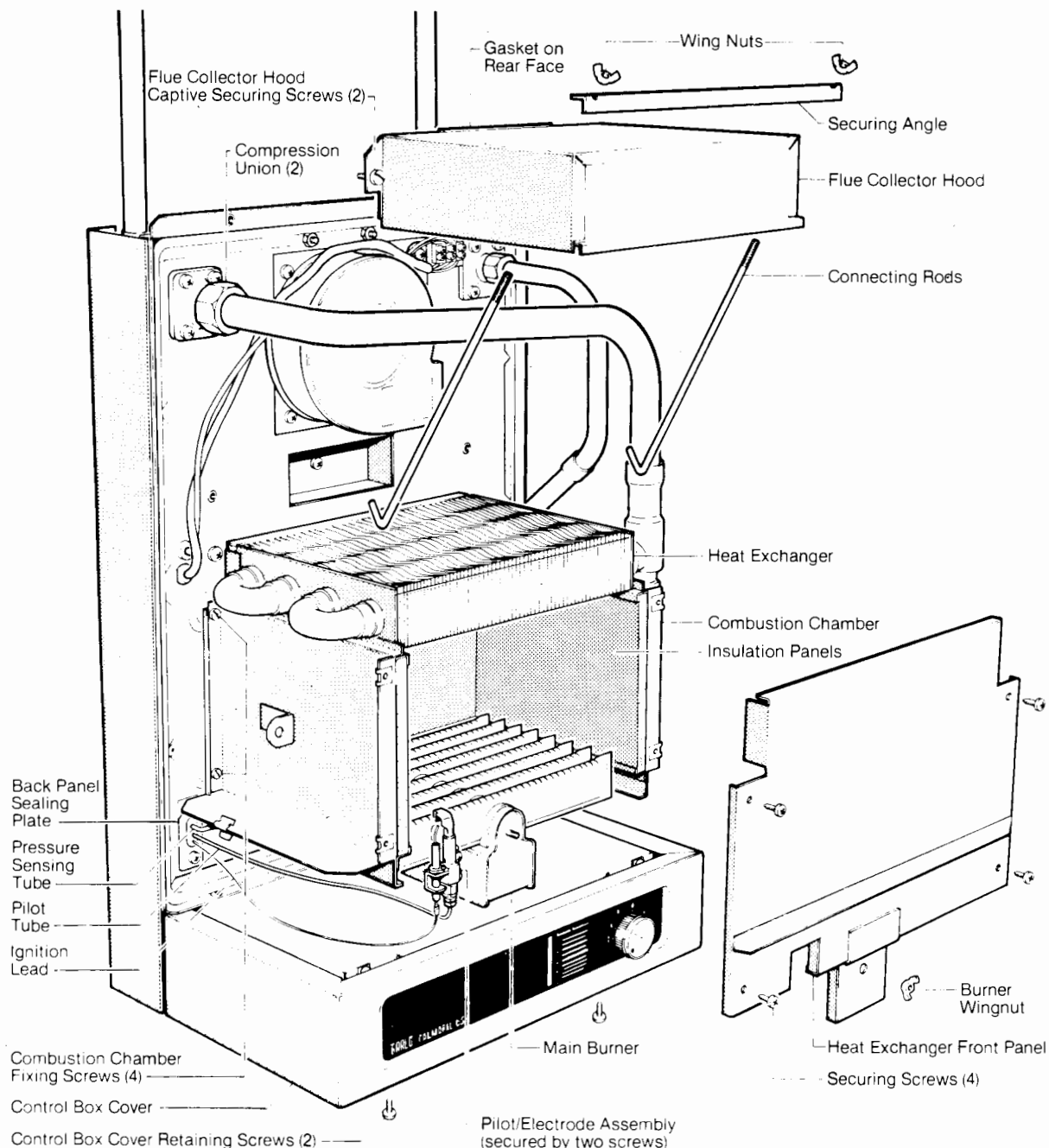
7. Cover the pilot assembly and thoroughly clean the heat exchanger fins using a suitable brush. Remove any debris.
8. Clean the main burner.
9. Replace all parts in reverse order making sure the main burner is pushed fully home on the injector and square in the combustion chamber.
10. Ensure a good seal when fixing the flue collector hood to the back panel.

4.2 MAIN BURNER (Figure 13)

Clean the Main Burner.

4.3 MAIN INJECTOR

1. Ensure the main injector is clear of any debris etc. If necessary, remove the injector as follows:



Unscrew the injector at the rear of the combustion chamber. When replacing ensure sealing compound is used on the injector and test for gas soundness.

4.4 PILOT ASSEMBLY (Figures 13/14)

1. Disconnect the ignition lead from the electrode.
2. Undo the tube nut and olive connection at the bottom of the pilot burner.
3. Remove assembly. Ensure the pilot burner is clean and free from debris.

4.5 ELECTRODE

Ensure the electrode ceramic and tip is not damaged. If necessary remove electrode by removing the fixing screw and withdrawing the electrode upwards (Figure 14).

4.6 PILOT TUBE

1. Remove the two retaining screws securing the control box as shown in Figure 8 on page 7. The control box is hinged at its rear and will drop down to allow access (Figure 15). If necessary the control box can be removed (see 2.6.1. page 9).
2. Undo the pilot tube, tube and olive and remove tube from valve assembly (Figure 15).
3. Ensure the pilot tube is clear of any obstruction. If necessary, remove the tube as described below.
4. Remove the back panel sealing plate (Figure 13).
5. Disengage the pilot tube from the silicon seal and push the tube through the back panel and remove tube.
6. Replace all components in reverse order ensuring a good seal at the back panel sealing plate.

4.7 FAN ASSEMBLY

See Replacement of Parts.

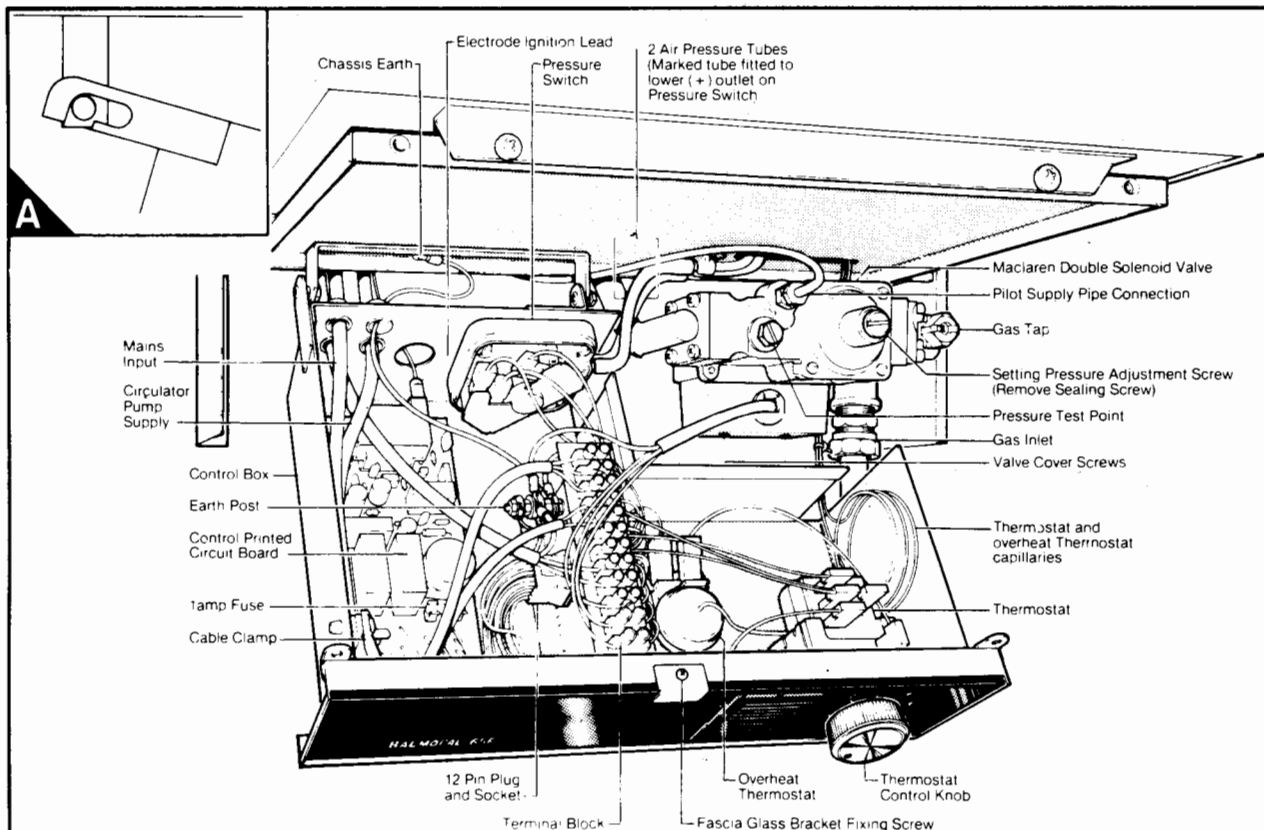
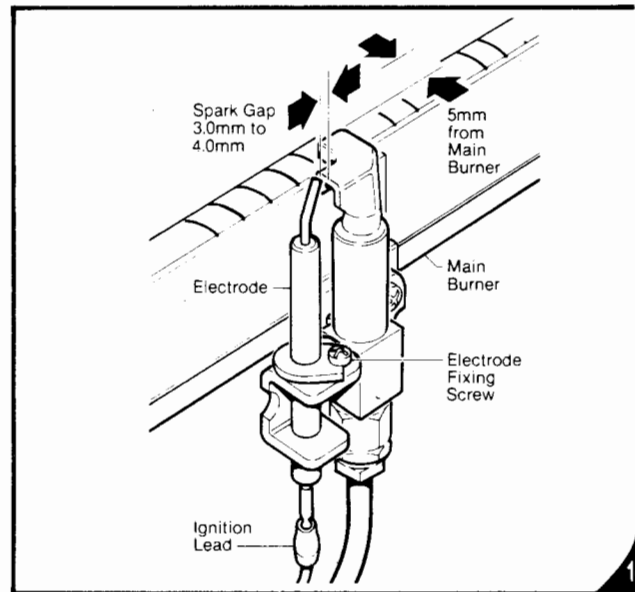
AFTER SERVICING

Test all gas points for soundness using a suitable soap solution after completing and/or exchanging of a component involving disconnection and reconnection of a joint.

4.8 RE-ASSEMBLY

Re-assemble all parts removed during Routine Servicing reverse order, ensuring:

1. The electrode gap is as shown in Figure 14.
2. The main burner sits correctly on the main injector.
3. Care is taken not to damage any of the insulation board sealing gaskets.
4. A good seal between the flue collector hood and the top panel.
5. If the control box has been removed from the boiler chamber (see 3.1.13. Page 10).



5 FAULT FINDING

Important Notice

If an electrical fault occurs on the appliance the preliminary electrical system checks contained in the British Gas Multimeter Instruction Booklet must be carried out first.

When any service or replacement of electrical components which has required the breaking and re-making of electrical connections has taken place, the following tests must be repeated:

1. Earth Continuity.
2. Polarity.
3. Resistance to Earth.

5.1 EARTH CONTINUITY CHECK

Appliances must be electrically disconnected, meter set on Ω (ohms) x 1 scale and adjust zero if necessary.

Test leads from any appliance earth point (e.g. inside control box) see wiring diagrams (Section 6) to earth pin on plug. Resistance should be less than 1 Ω (ohm). If the resistance is greater than 1 Ω (ohm) check all earth wires for continuity and all contacts are clean and tight.

If the resistance to earth is still greater than 1 Ω (ohm) then this should be reported to your supervisor.

5.2 SHORT CIRCUIT CHECK

Switches turned FULL ON — meter set on Ω (ohm) x 1 scale. Test leads from L to N on appliance terminal block, if meter reads 0 then there is a short circuit. Meter set on Ω (ohms) x 100 scale.

Repeat test with leads from L to E. If meter reads less than infinity (∞) there is a fault.

Note: Should it be found that the fuse has failed but no fault is indicated a detailed continuity check (i.e. by disconnecting and checking each component) is required to trace the faulty component. It is possible that a fault could occur as a result of local burning/arcing but no fault could be found under test. However, a detailed visual inspection should reveal evidence of burning around the fault.

5.3 POLARITY CHECK

Appliance reconnected to mains supply and meter set on 300 V ac scale. Test at appliance terminal block.

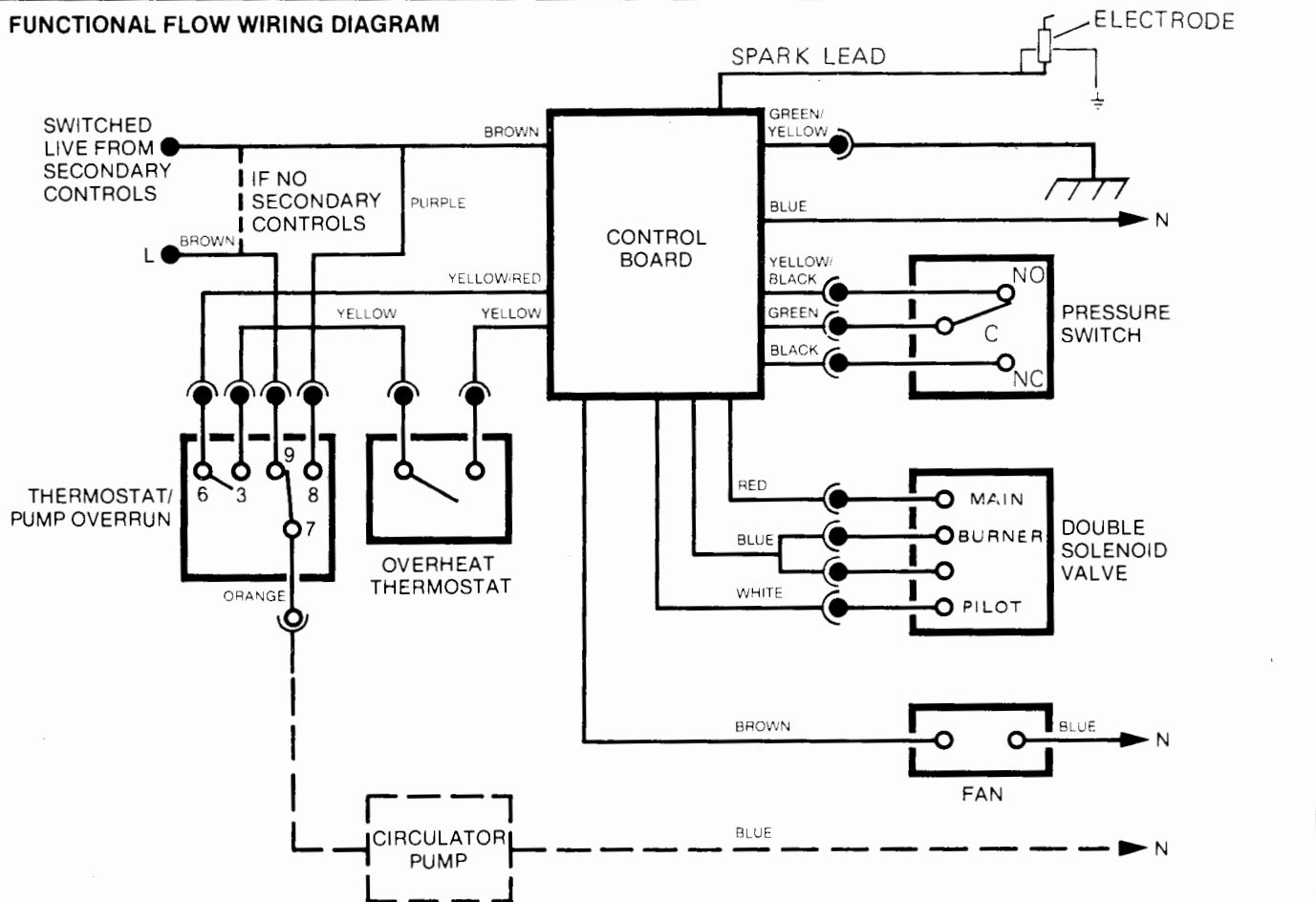
- (a) Test leads from L to N meter reads approx. 240 V ac.
- (b) Test leads from L to E (earth) meter reads approx. 240 V ac.
- (c) Test leads from N to E (earth) meter reads from 0 to 15 V ac.

5.4 RESISTANCE TO EARTH CHECK

Appliance must be disconnected from main supply and meter on Ω (ohms) x 100 scale. All switches including thermostat on-test leads from L to E — if meter reads other than infinity (∞) there is a fault which should be isolated. A detailed continuity check is required to trace the faulty component.

IMPORTANT: These series of checks are the first electrical checks to be carried out during a fault finding procedure. On completion of the service/fault finding task which has required the breaking and remaking of electrical connections then the checks 5.1 Earth Continuity, 5.3 Polarity and 5.4 Resistance to Earth must be repeated.

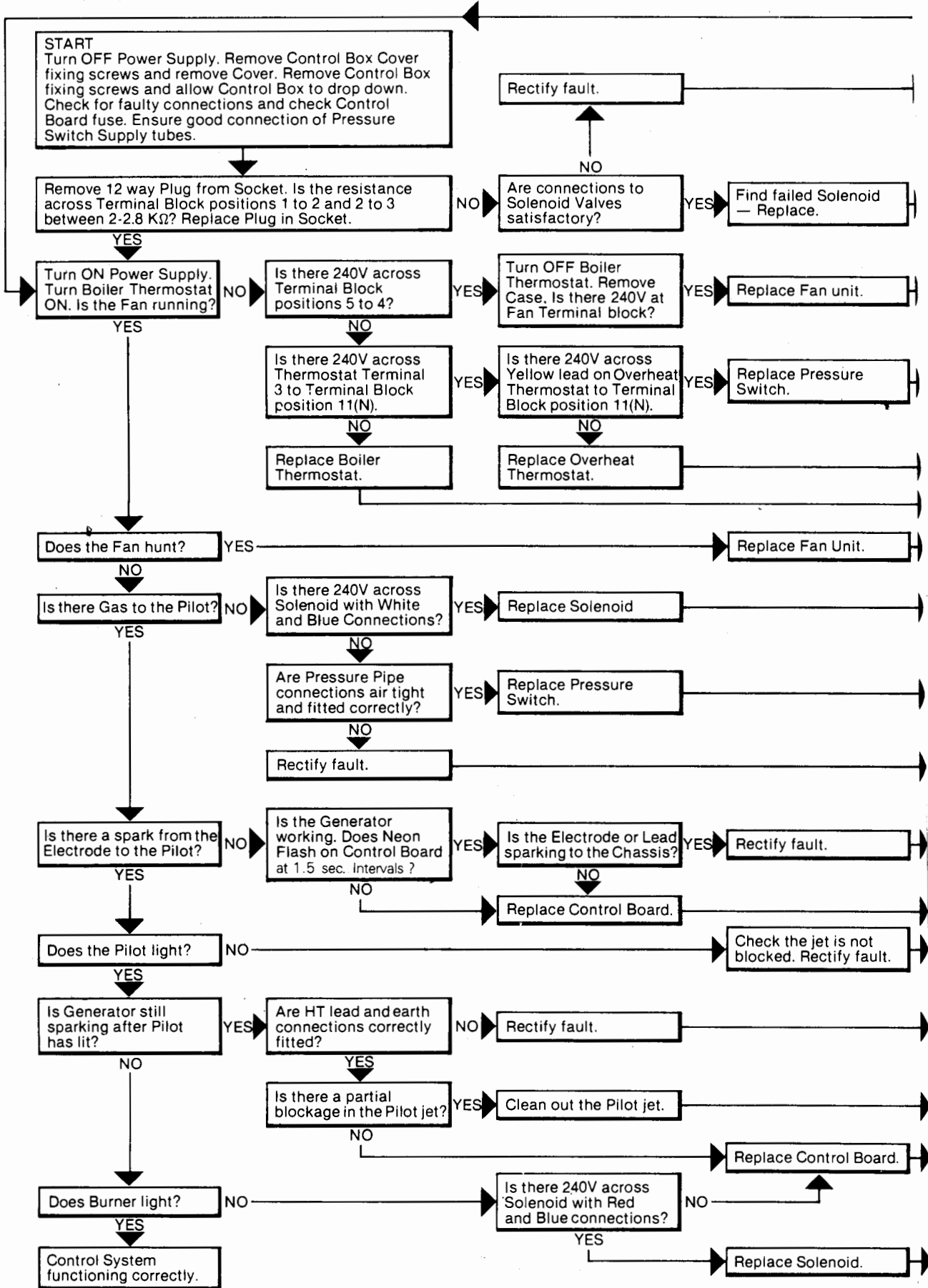
FUNCTIONAL FLOW WIRING DIAGRAM



5.5 FAULT FINDING CHART

BOILER WILL NOT OPERATE WITH WHITE CASE REMOVED

To check Electrical Components, turn all External to Boiler controls (secondary) e.g. Cylinder and Room Thermostats ON. Ensure Gas Supply is turned ON at all cocks, check for blockages and purge out any air in line. Turn Boiler Thermostat to MAX. Check Overheat Thermostat has not operated.



FAULT FINDING GUIDE BALMORAL BOILER

BOILER WILL NOT OPERATE WITH WHITE CASE REMOVED

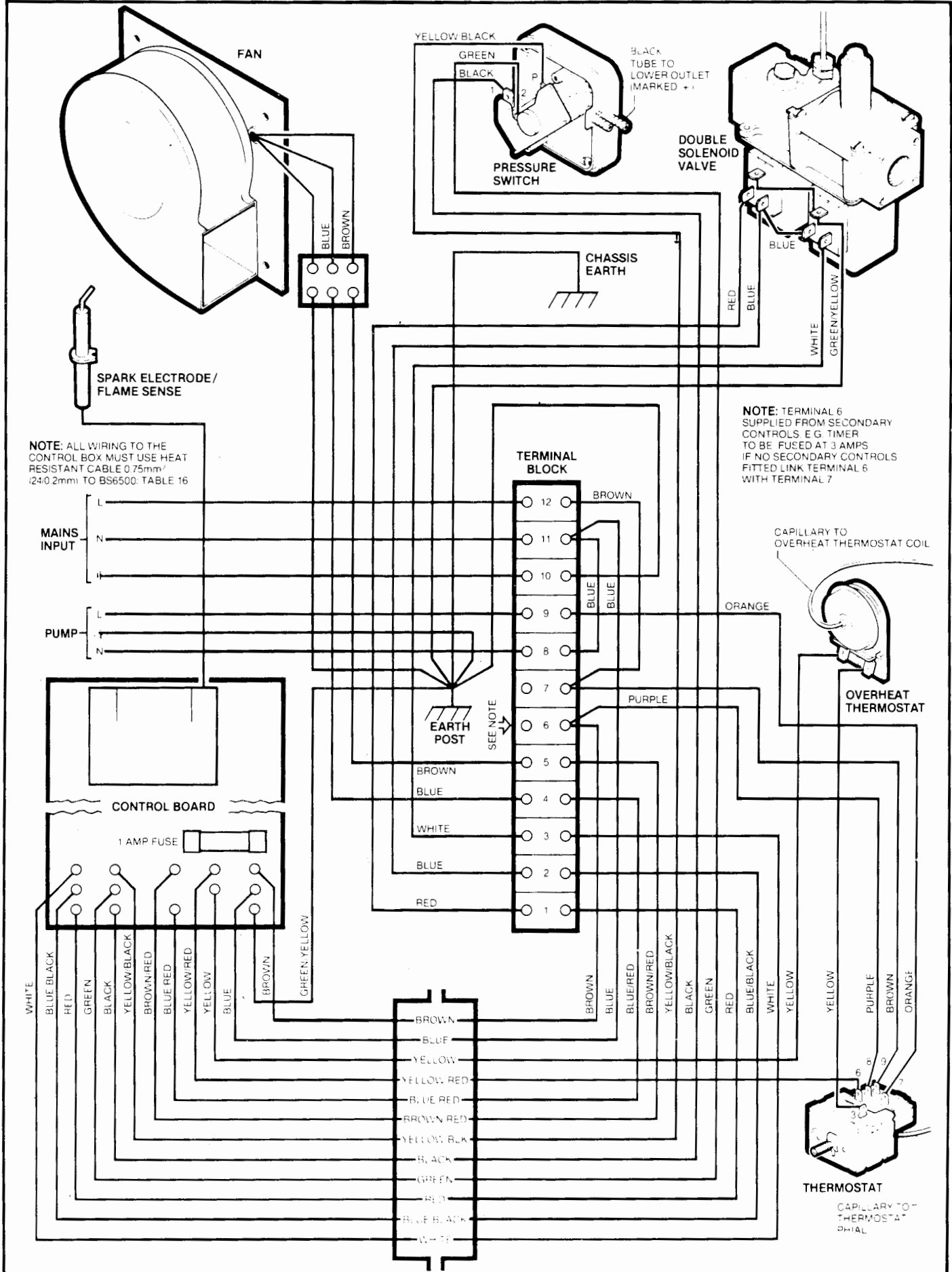
Fault	Possible Cause	Remedy
1. Boiler will not start - Fan fails to run - Pump fails to run	<ul style="list-style-type: none"> i) Electricity Supply or Controls not turned on ii) Wiring connections to boiler incorrect iii) Boiler stat set too low iv) Boiler stat defective 	<ul style="list-style-type: none"> i) Turn on - check live power supply to terminal 6 check 240V across 6 and 11 ii) Check and Correct as necessary iii) Turn Up. iv) Replace Boiler stat.
2. Boiler will not start - Fan Fails to run - Pump running	<ul style="list-style-type: none"> i) Overheat stat tripped out ii) Fuse blown on PCB iii) Boiler stat defective iv) Pressure switch rubber connection tubes kinked or disconnected v) Pressure switch defective vi) Fan Motor defective vii) PCB defective viii) Internal Wiring fault in boiler 	<ul style="list-style-type: none"> i) Reset overheat stat ii) Replace Fuse and investigate reason for Fuse Failure. iii) Replace Boiler stat iv) Check and Rectify v) Replace pressure switch vi) Replace fan assembly vii) Replace PCB viii) Trace and rectify - Check 12 way plug connections
3. Boiler Will not Ignite . - Fan Running - No Spark	<ul style="list-style-type: none"> i) See 2 iv) ii) Pressure Switch defective iii) Spark electrode Lead detached from PCB iv) Electrode or Lead assembly damaged v) Boiler Case Not Sealed vi) PCB Defective vii) Blockage In Flue 	<ul style="list-style-type: none"> i) See 2 iv) ii) Replace Pressure Switch iii) Reconnect lead iv) Replace electrode or Lead assembly. v) Reseal Case vi) Replace PCB vii) Check and Clear
4. Boiler will not ignite - spark present	<ul style="list-style-type: none"> i) Gas supply not turned on ii) Blocked pilot injector iii) Spark gap too large iv) Internal wiring fault - No supply to pilot solenoid v) Pilot Solenoid defective vi) Defective PCB 	<ul style="list-style-type: none"> i) Turn On and purge if necessary ii) Clean and Clear injector iii) Adjust gap to 3-4mm iv) Trace and rectify v) Replace solenoid coil vi) Replace PCB
5. Pilot ignites - No main burner	<ul style="list-style-type: none"> i) Pilot flame too small ii) Electrode lead damaged iii) PCB defective iv) Internal wiring fault - No supply to main solenoid v) Main solenoid defective vi) Broken earth connection or Reversed Polarity 	<ul style="list-style-type: none"> i) Clean and clear pilot injector ii) Replace Electrode and lead assembly iii) Replace PCB iv) Trace and rectify v) Replace gas valve assembly vi) Check and rectify
6. Boiler fails safe - Main burner and pilot extinguished together and then repeats ignition sequence and fail safe	<ul style="list-style-type: none"> i) Insufficient working gas pressure at appliance inlet ii) Partially Blocked Pilot iii) Incorrect flue installation 	<ul style="list-style-type: none"> i) Should be 8" w.g. Check working pressure at meter, should be 8.3" w.g. if low contact local gas region for service. If pressure at meter O.K. - check for incorrect pipe size or partial blockage in supply to boiler. ii) Clean and Clear Pilot iii) Check instructions for correct flue assembly

Continued

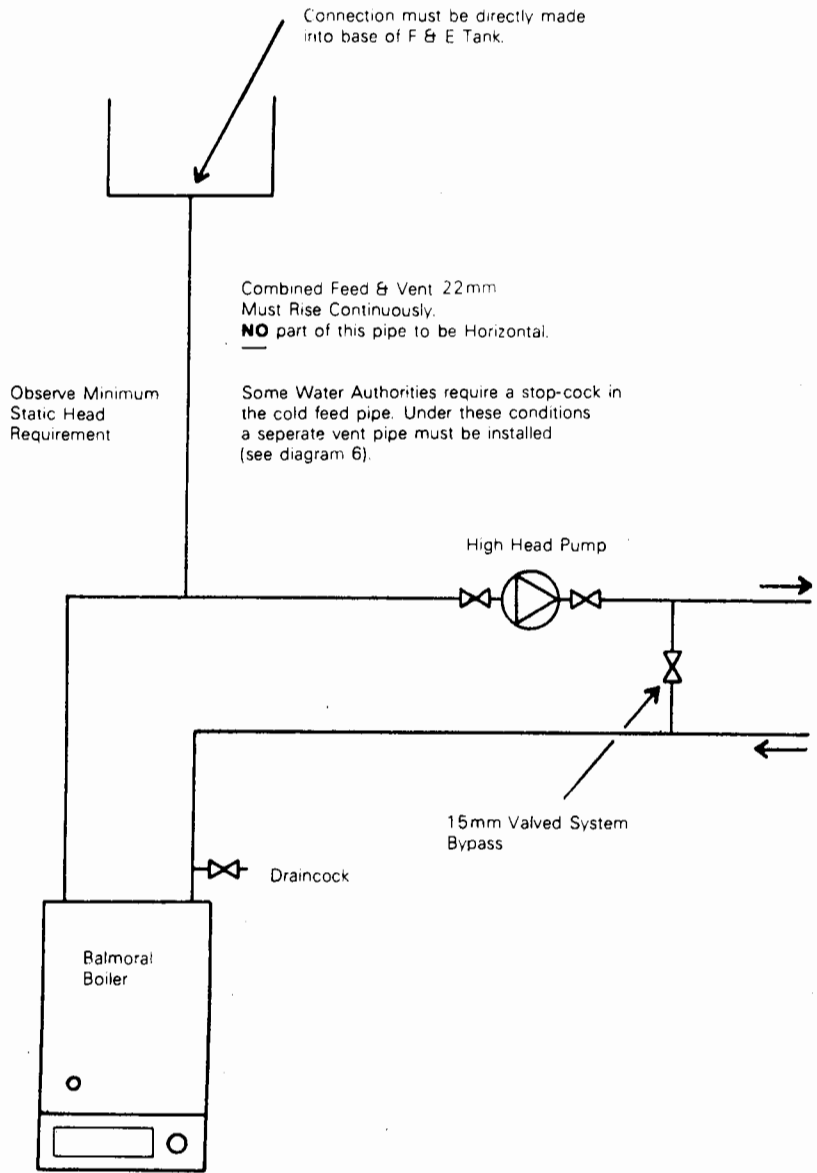
7. Lack of heat (Low flow Temperature)	i) Burner pressure too low ii) Boiler stat set too low iii) Boiler stat defective iv) Pump speed too high	i) Check and adjust (see also 6 i) ii) Turn up boiler stat iii) Replace boiler stat iv) Adjust pump speed to achieve 11°C temp rise across boiler.
8. Boiler Noisy (Kettling)	i) burner pressure too high ii) Pump speed too low or pump duty inadequate iii) System by-pass out of adjustment iv) Partial blockage in heat exchanger v) System water highly aerated	i) Check and adjust to system require ii) Adjust pump speed to achieve temp rise across boiler. Change pump for high head model iii) Adjust by-pass iv) Descale and/or flush heat exchanger v) Inspect system design for pumping over, ineffective vent, air entrainment etc and rectify as necessary.
9. Boiler Noise (Whistling)	i) Swarf or burr in main injector	i) Clear injector.
10. Boiler Overheats (Very high flow temp)	i) Thermostat sensing bulb not located in thermostat pocket ii) Boiler stat defective iii) Solenoid defective - fails to close when de-energised iv) Boiler connected back to front i.e. incorrect direction of flow through boiler.	i) Replace stat sensing bulb into pocket ii) Replace boiler stat iii) Replace gas valve assembly. iv) Check and remedy
11. Overheat stat trips out prematurely	i) Insulating sleeve missing from capillaries ii) Defective overheat stat iii) Pump Problem	i) Fit sleeve ii) Replace overheat stat iii) See 12 i) and ii)
12. Pump fails to run	i) Pump siezed ii) Pump incorrectly wired to boiler	i) Clean or replace pump ii) Check and rectify wiring
13. Pump fails to overrun when water in boiler is above 76°C	i) Pump not wired to boiler ii) Boiler stat defective	i) Wire pump back to boiler - Pump live to terminal No. 9. ii) Replace boiler stat.
14. Pilot remains alight when boiler turned off - Main burner fails to relight	i) Dirt on valve seating at pilot solenoid	i) Clean or replace gas valve assembly.

6 INTERNAL WIRING DIAGRAM

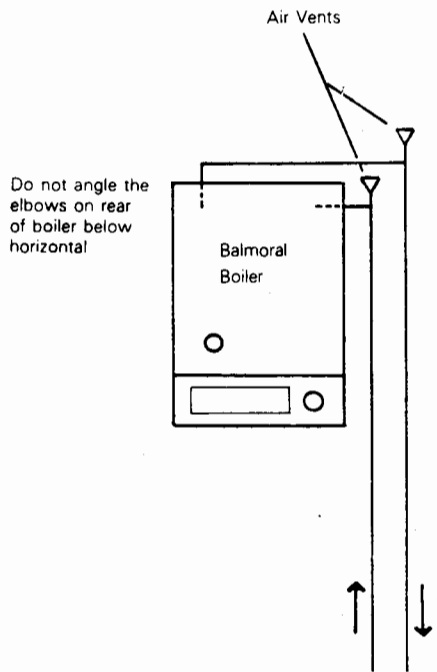
INTERNAL WIRING DIAGRAM — JOHNSON/MACLAREN VALVE



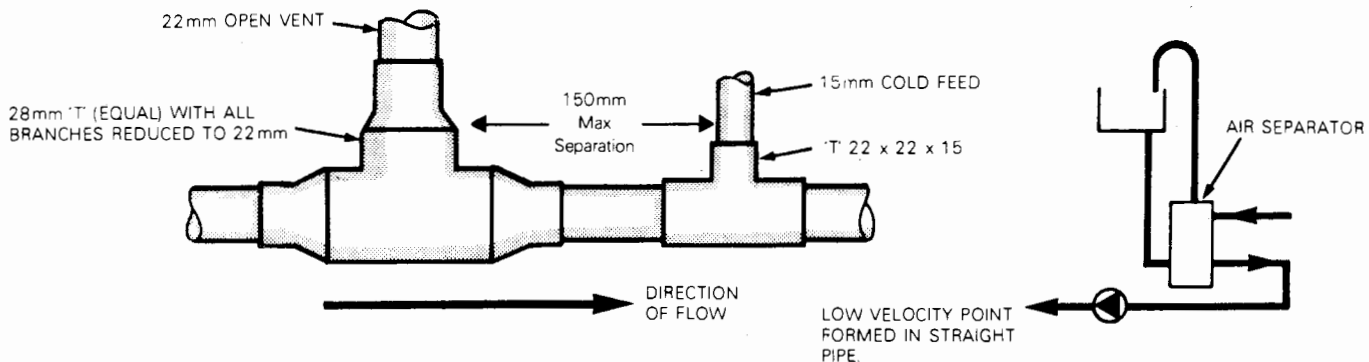
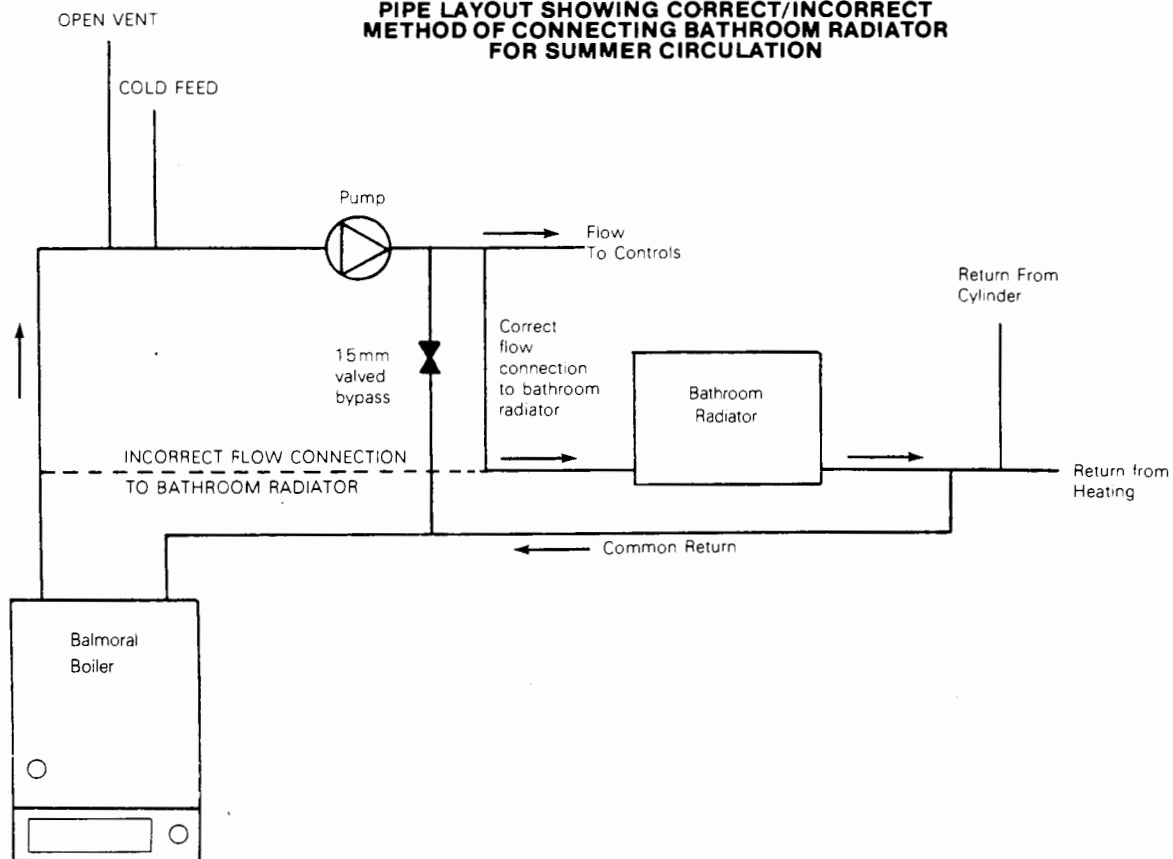
PIPE LAYOUT USING BY-PASS AND COMBINED FEED & VENT



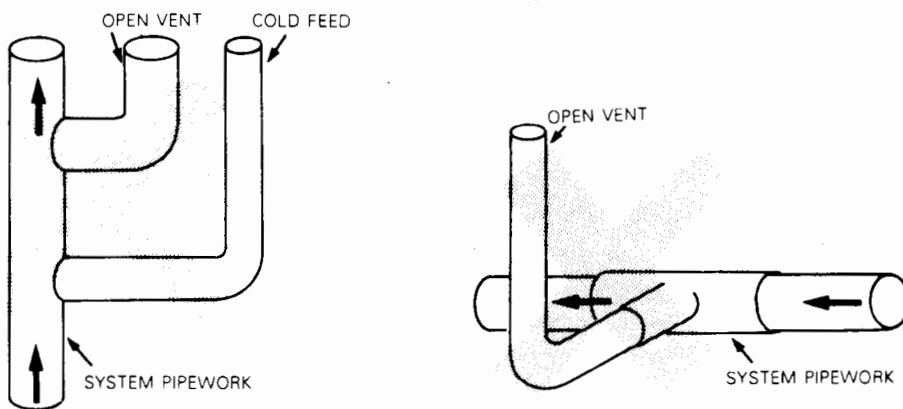
PIPE LAYOUT SHOWING FLOW AND RETURN RISING TO BOILER



PIPE LAYOUT SHOWING CORRECT/INCORRECT METHOD OF CONNECTING BATHROOM RADIATOR FOR SUMMER CIRCULATION



RECOMMENDED COLD FEED AND OPEN VENT CONNECTIONS



INCORRECT COLD FEED AND OPEN VENT CONNECTIONS

7 REPLACEMENT OF PARTS

Replacement of parts must be carried out by a competent person. Always disconnect from the electrical supply and turn off gas supply at service cock.

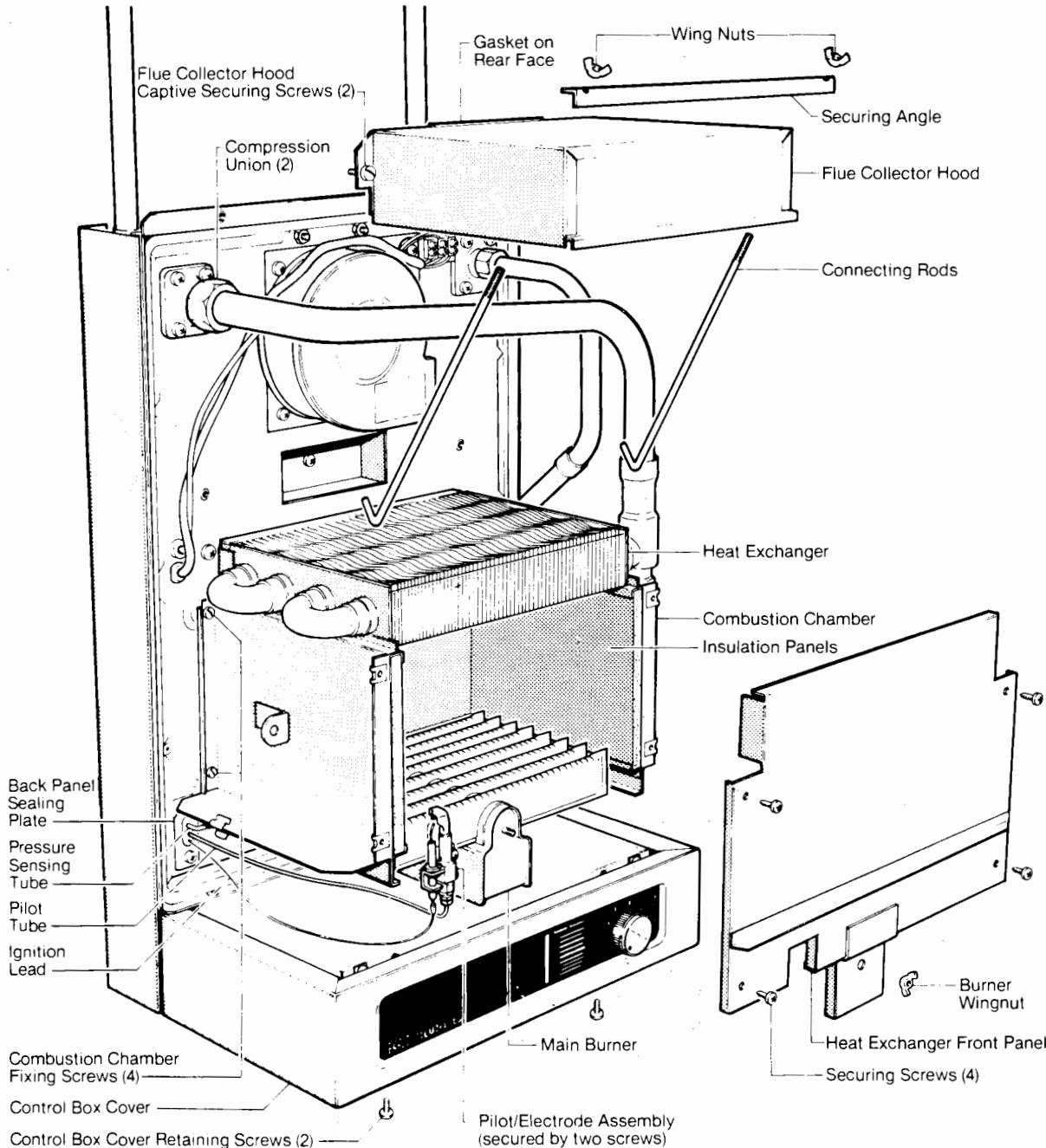
7.1 INSULATION BOARDS

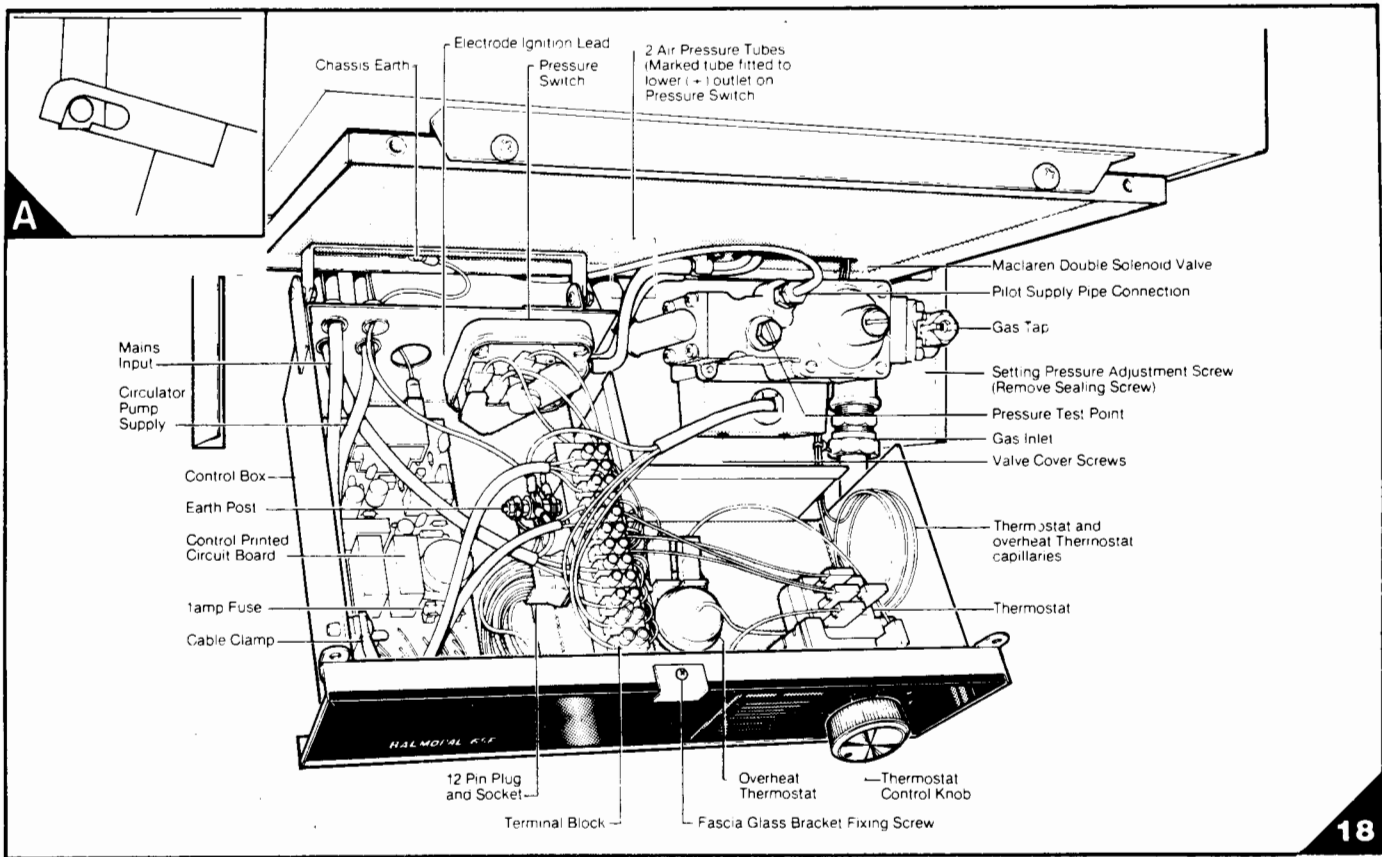
1. Perform the operations as in 4.1.1. to 4.1.6.
2. Remove the combustion chamber by firstly removing the pressure sensing pipe from its spring clip on the left hand side. Remove the four screws (Figure 17) and remove the combustion chamber side panels. Lower the combustion chamber rear panel until the rear edge clears the underside of the heat exchanger, then withdraw the panels.
3. The insulation boards can now be removed from the combustion chamber components. The front and back are removed by pulling the board out at the top and lifting out of the bottom angle. The sides are removed by sliding out at the front or back of the panel.

4. Replace all parts in reverse order making sure the main burner is pushed fully home on the injector.
5. Ensure a good seal when fixing the flue collector hood to the back panel.

7.2 HEAT EXCHANGER

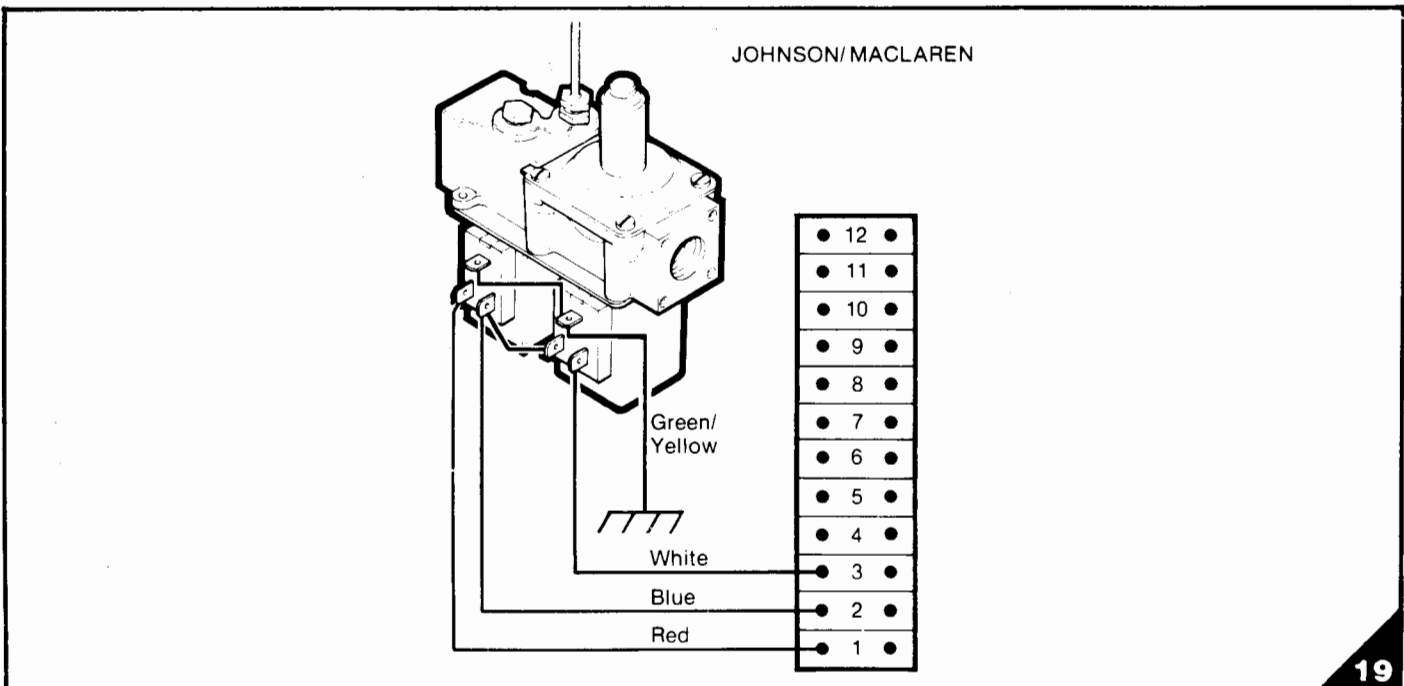
1. Remove all components as in 7.1.1 to 7.1.2.
2. Remove the clip securing the thermostat phial into the pocket and remove phial.
3. Drain the system at its lowest point.
4. Remove the thermostat pocket to drain the heat exchanger ensuring no water enters control box.
5. Undo the unions as shown in Figure 17 and remove heat exchanger.
6. Replace all parts in reverse order, ensure a good seal when fixing the flue collector hood to the back panel.
7. Ensure the heat exchanger unions and thermostat pocket do not leak prior to replacing the outer case.





7.3 DOUBLE SOLENOID VALVE

1. Ensure the electrical supply is off.
2. Remove the two screws on the underside of the control box cover and remove cover.
3. Remove the two screws which secure the valve cover to the valve, from underneath (Figure 18).
4. Remove the two retaining screws securing the control box as shown in Figure 8 on page 7. The control box is hinged at its rear and will drop down to allow access (Figure 18). If necessary the control box can be removed (see 2.6.1. Page 8).
5. Remove the electrical connection to the valve and disconnect the pilot supply pipe (Figures 18 and 19).
6. Remove the four screws at either end of the valve and remove valve.
7. Make sure the 'O' rings are correctly positioned in the manifold and gas cock and replace valve, ensuring arrow points in correct direction of gas flow.
8. Replace all parts in reverse order, testing for gas soundness. (Refer to Figure 19 for correct positions of electrical connections). If control box removed from chassis (see 3.1.13 Page 9).
9. The gas supply may require to be purged.



7.4 CONTROL BOARD (PCB) R.V. (GREEN)

1. Ensure the electrical supply is off.
2. Drop down the control box as in 7.3.2. to 7.3.4. (Figure 18).
3. Disconnect the 12 pin plug from its socket in the terminal block bracket (Figure 20).
4. Disconnect the earth connection (Figure 21).
5. Disconnect the electrode lead from the rear of the control board.
6. Remove the control board by easing off fixing pegs, carefully using a screwdriver if necessary.
7. Replace all components in reverse order ensuring correct assembly of the earth terminal (Figure 21) and 12 pin plug. If control box removed from chasis (see 3.1.13 Page10).

7.4 CONTROL BOARD (PCB) PACTROL (BLUE)

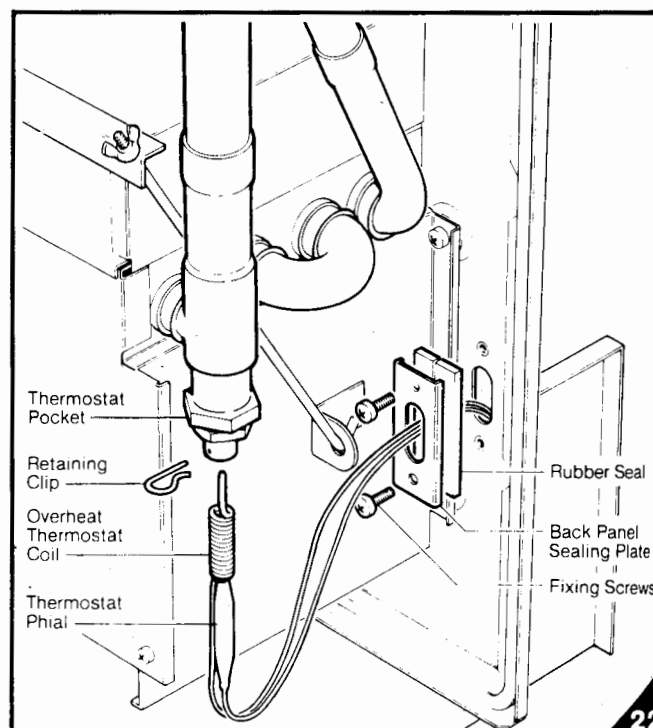
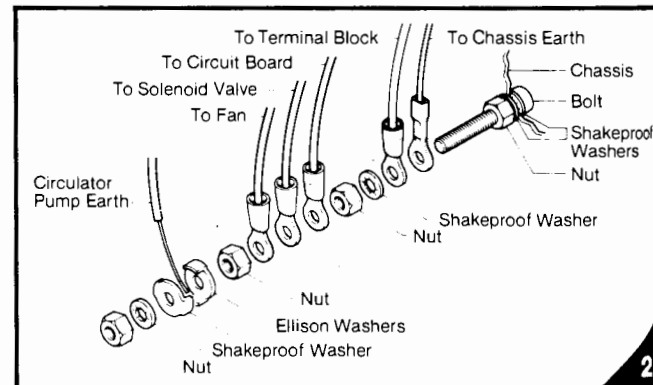
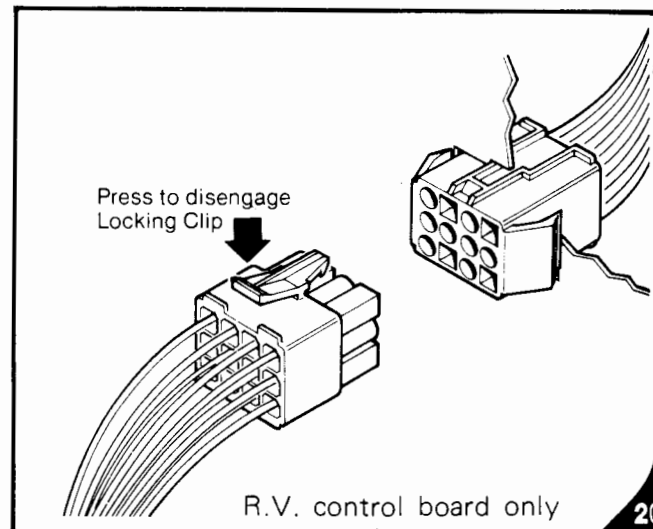
1. Ensure the electrical supply is off.
2. Drop down the control box as in 7.3.2. to 7.3.4. (Figure 18).
3. Disconnect plugs from circuit board
4. Disconnect the electrode lead from the rear of the control board.
5. Remove the control board by easing off fixing pegs, carefully using a screwdriver if necessary.
6. Replace all components in reverse order. If control box removed from chasis (see 3.1.13 Page10).

7.5 AIR PRESSURE SWITCH

1. Ensure the electrical supply is off.
2. Drop down the control box as in 7.3.2. and 7.3.4. (Figure 18).
3. Disconnect the electrical connections from the air pressure switch (Figure 18).
4. Remove the two screws securing the air pressure switch and disconnect the two tubes at the right hand side of the switch.
5. Replace the switch ensuring the black tube is fitted to the lower outlet marked (+) on the switch side.
6. Replace all components in reverse order referring to the wiring diagram (Section 6, pages 14–15) before making the connections to the switch. If control box removed from chasis (see 3.1.13 Page 9).

7.6 OVERHEAT THERMOSTAT

1. Ensure the electrical supply is off.
2. Drop down the control box as in 7.3.2. and 7.3.4. (Figure 18).
3. Remove the outer case as described in 4.1.1. and 4.1.2.
4. Remove the clip securing the thermostat phial into the pocket and remove the thermostat phial and overheat stat coiled capillary (Figure 22). Remove the foil insulation.
5. Remove the two screws on the back panel sealing plate, releasing plate and rubber seal.
6. Feed the capillary through the hole in the back panel and pull clear at the bottom.
7. Disconnect the connections on the overheat thermostat (Figure 18).
8. Remove the nut securing the overheat thermostat from underneath and remove.
9. Push the re-placement overheat thermostat coiled capillary up the right hand rear of the boiler (uncoil only enough of the supply capillary as required to reach the pocket) into the guide until it is visible and can be pulled through the hole in the back panel, then feed it through the sealing plate.
10. Smear both phial and coil in heat sink paste before replacing both into the pocket, coil first. Re-place clip.
11. Refit back panel sealing plate and ensure seal (Figure 22).
12. Replace all components in reverse order, positioning the excess capillary in the control box. Replace foil insulation around the capillary within the case. If control box removed



7.7 THERMOSTAT

1. Perform operations described in Sections 7.6.1. to 7.6.5.
2. Feed the thermostat phial through the hole in the back panel, and pull clear at the bottom.
3. Remove the fascia glass bracket fixing screw (Figure 18) and remove control knob and glass panel.
4. Remove the connections on the thermostat.
5. Remove the two thermostat fixing screws and remove thermostat.
6. Refit replacement thermostat with the two screws previously removed.
7. Push the thermostat phial up the right hand rear of the boiler (uncoil only enough of the capillary to reach the pocket) into the guide until it is visible and can be pulled through the hole in the back panel, then feed it through the sealing plate.
8. Smear both phial and coil with heat sink paste before replacing both into the pocket, coil first.
9. Refit back panel sealing plate and ensure seal.
10. Replace all components in reverse order, positioning the excess capillary in the control box. Replace foil insulation around the capillary within the case. If control box removed from chassis (see 3.1.13 Page 9).
11. Refer to wiring diagram (Section 6, pages 14-15), for correct positions of electrical connections.

7.8 FAN ASSEMBLY

1. Ensure the electrical supply is off.
2. Perform the operations described in 4.1.1 and 4.1.2.
3. Disconnect the three leads from the fan at the three way terminal block.
4. Remove the four screws securing the fan assembly and remove fan by lifting up and forwards.
5. Replace all components in reverse order using new gasket between fan and back plate.

Note: The correct spacing from the fan impeller to the fan mounting plate is 7-8mm.

7.9 ELECTRODE

1. Disconnect from the electrical supply.
2. Remove the two screws securing the control box cover and remove cover (Figure 17).
3. Remove the four screws securing the boiler outer case and remove case (Figure 8).
4. Disconnect the ignition lead from the electrode (Figure 17).
5. Remove the electrode fixing screw (Figure 14) and remove electrode by lifting vertically out of bracket.
6. Replace all components in reverse order maintaining all dimensions as shown in Figure 14.

7.10 IGNITION LEAD

1. Ensure the electrical supply is off.
2. Drop down the control box as described in 7.3.2. and 7.3.4. (Figure 18).
3. Remove the outer case as described in 4.1.1. and 4.1.2.
4. Remove the left-hand back panel sealing plate screws (Figure 17).
5. Pull off the ignition lead at the control board PCB (Figure 18) and at the electrode (Figure 17).
6. Pull the lead through and replace with new lead.
7. Replace all components in reverse order. If control box removed from chassis (see 3.1.13 Page 9).

7.11 MAIN BURNER

1. Perform operations described in 4.1.1. to 4.1.6.
2. Replace in reverse order, ensuring that the burner sits correctly on the main injector.

7.12 MAIN INJECTOR

Perform operations described in 4.1.1. to 4.1.6. and 4.3.

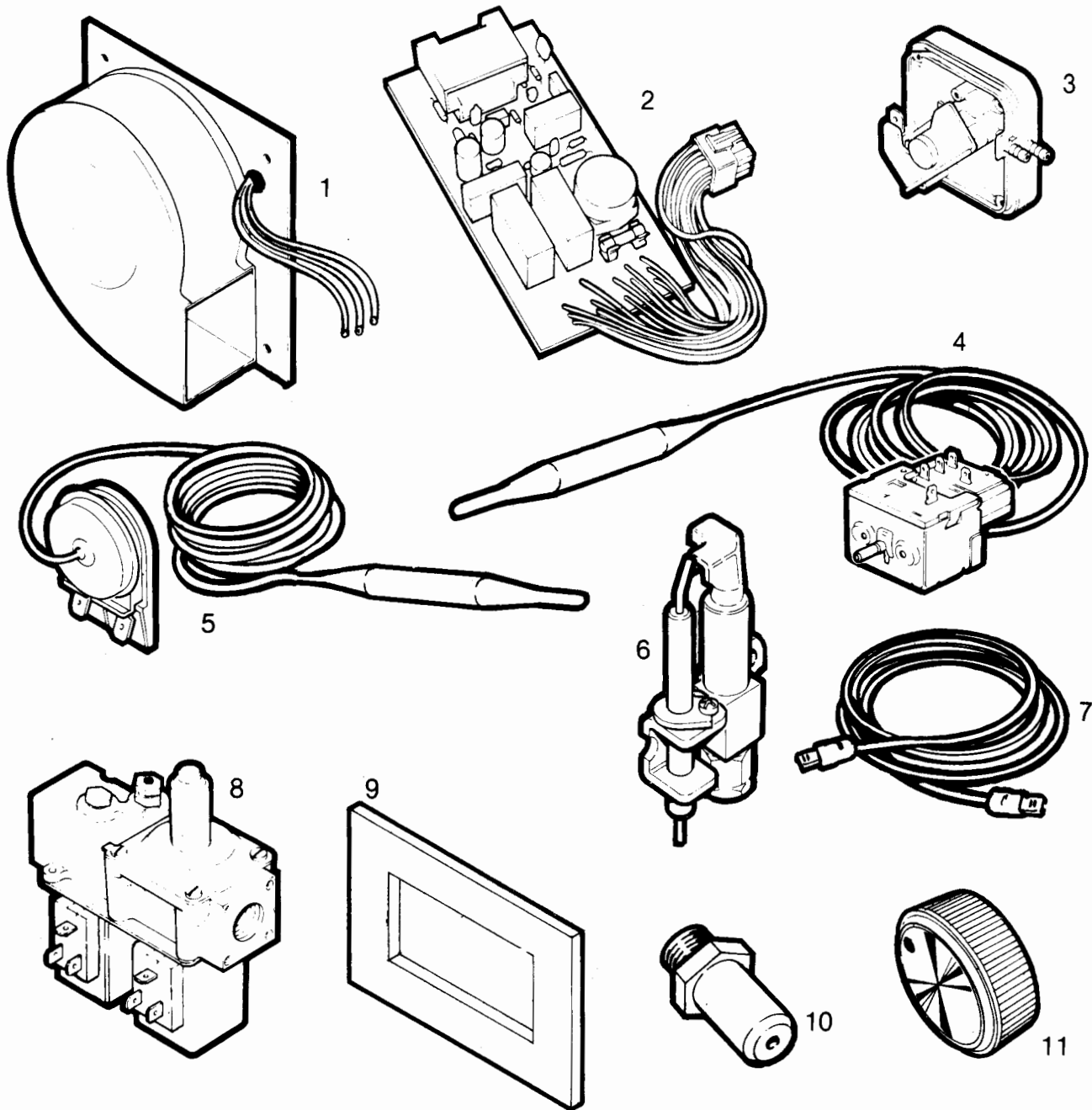
7.13 PILOT ASSEMBLY

1. Perform operations described in 4.1.1, 4.1.2, 4.4.1. to 4.4.3, and 4.5.
2. Replace in reverse order ensuring that the dimensions given in Figure 14 are maintained.

7.14 PILOT TUBE

1. Ensure the electrical supply is off.
2. Drop down the control box as described in 7.3.1 and 7.3.3.
3. Remove the outer case as described in 4.1.2.
4. Remove the left-hand back panel sealing plate screws (Figure 17).
5. Cut pilot supply tube in front of sealing plate and disconnect tube from pilot burner (Figure 17) and control valve (Figure 18).
6. Remove faulty pilot tube, taking care not to damage the seal. Remove and retain the nuts from the tube.
7. Fit new pilot tube by feeding through the sealing plate and seal from the front, bending to suit.
8. Fit nuts previously removed and new olives supplied with replacement tube and connect to pilot burner and control valve.
9. Replace all other components in reverse order ensuring a good seal at the back panel sealing plate. If control box removed from chassis (see 3.1.13 Page 9).

8 REPLACEMENT PARTS



Item No.	Part No.	Description	Maker	Makers Part Ref.
1	601001	Fan Assembly	Sifan	FFb—0219—Class E
2	600503	Control Board (PCB) (Blue)	Pactrol	FSC
3	550501	Pressure Switch	Dungs	LCW 3—A1
4	550502	Thermostat	Ranco	C77P0114000
5	500503	Overheat Thermostat	Ranco	LM7P805200
6	500508	Electrode/Pilot Burner Assembly	Maclaren/Johnson	27T1 D1 M421
7	401503	Electrode Lead	Silicone Engineering	
8	500507	Double Solenoid Valve	Maclaren/Johnson	G700 Series
9	351002	Gasket (Flue hood).	Albion	
10	701004	Injector 45F	Furigas	
	701006	Injector 55F		
	701005	Injector 65F		
11	300520	Control Knob	Ray, Eng.	

9 AIR/FLUE DUCT-SIDE OUTLET

9.1 GENERAL

Ensure that the correct flue pack has been chosen for the installation. Refer to ventilation and flueing (Section 1.4 page 4) and Figures 24 and 25 of these instructions.

9.2 SITING THE BOILER

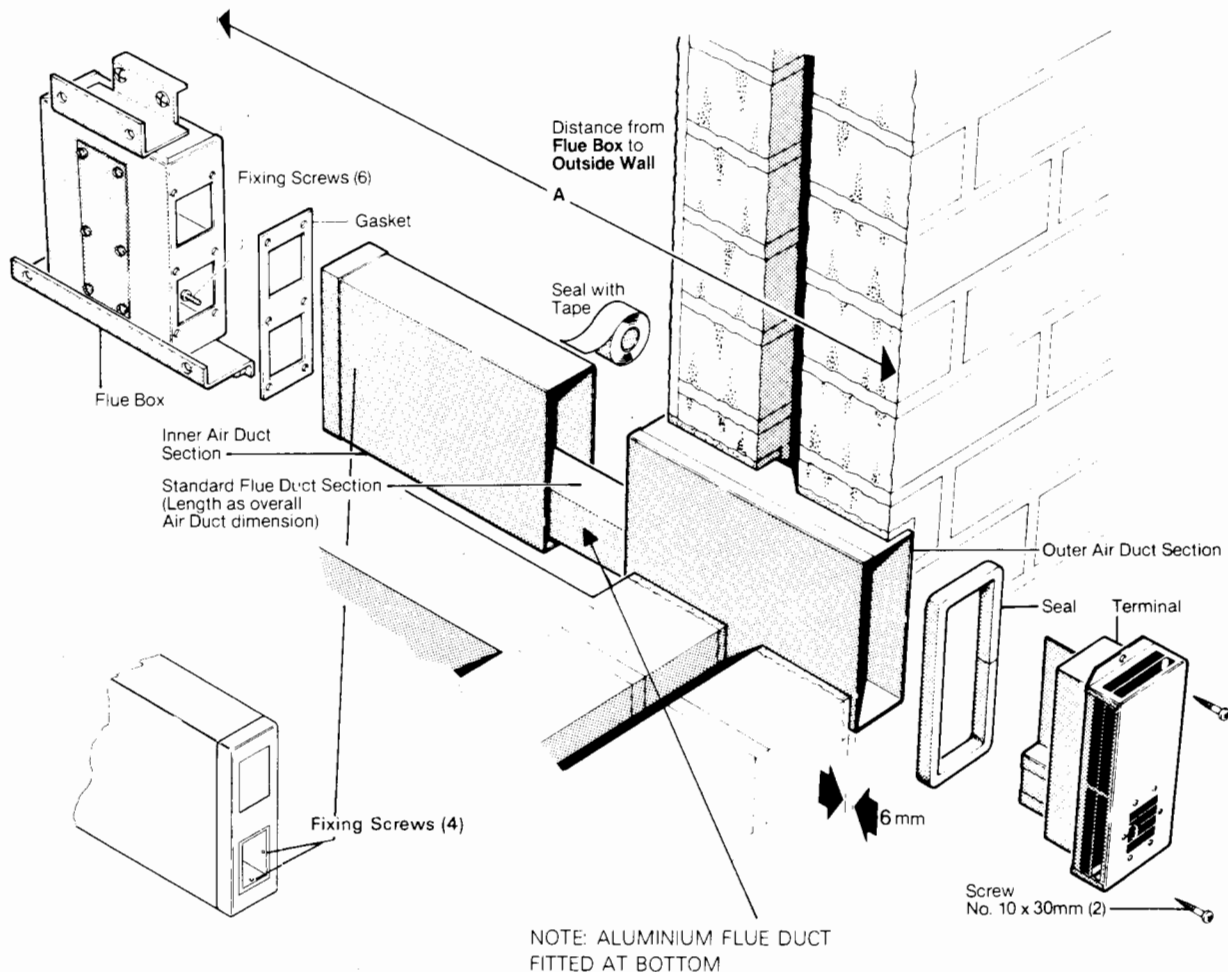
1. Refer to the boiler installation instructions to determine the position of the boiler. Using the template supplied with the boiler, mark out the four flue box fixing holes. Mark the centre line (⊘) of the flue box on the wall and extend this line horizontally, using a spirit level, to the wall face through which the flue is to pass.
2. Using the side flue template supplied with the boiler, mark out the rectangular hole on the exit wall.
3. Cut out the rectangular hole (170mm x 70mm) in the exit wall.
4. Drill out the four flue box fixing holes and fit the plugs supplied.

9.3 STANDARD SIDE FLUE (Figure 24)

1. Remove the four screws from the flue box side cover plate on the exit side. Discard plate and screws. If the gasket is removed with the plate, retain, as this is to be re-fitted between the flue box and the flue ducting.
2. Fit the flue box to the wall using the four No. 10 x 50mm screws provided, and measure the distance from the exit side of the flue box to the outside of the exit wall (Dimension A).
3. Make up the air duct to the required length which must be 6mm greater than the flue box to outside wall dimension (i.e. $A + 6\text{mm}$). Refer to Figure 24 to determine which components are required for certain lengths.
4. The flue duct should be cut to the dimension $(A + 6)\text{mm}$. Fit the flue duct to the inner air duct section with the 4 screws provided (see diagram).

NOTE: UNDER NO CIRCUMSTANCES MUST THE SQUARE FLUE DUCT EXTRUSION BE JOINED.

STANDARD SIDE FLUE PACK



Dimension $(A + 6)\text{mm}$

Air/Flue Duct Components required

Action necessary

206mm to 375mm
(8 1/4" to 14 3/4")

■ Inner Air Duct
■ Standard Flue Duct
■ Outer Air Duct Section

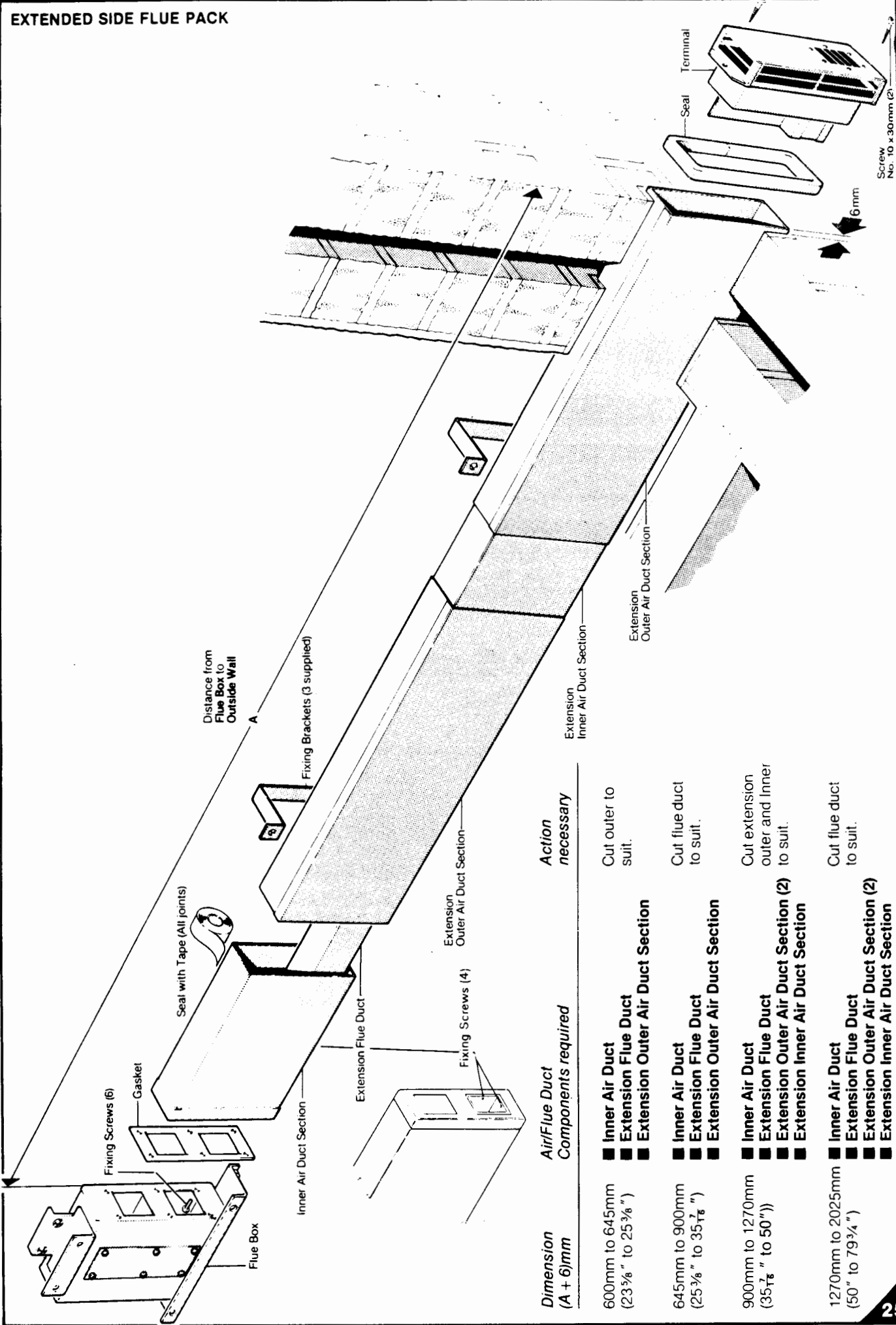
Cut both to suit.

375mm to 600mm
(14 3/4" to 23 5/8")

■ Inner Air Duct
■ Standard Flue Duct
■ Outer Air Duct Section

Cut flue duct to suit.

EXTENDED SIDE FLUE PACK



Screw No. 10 x 30mm (2)

Dimension (A + 6)mm	Air/Flue Duct Components required	Action necessary
600mm to 645mm (23 5/8" to 25 3/8")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section 	Cut outer to suit.
645mm to 900mm (25 3/8" to 35 7/8")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section 	Cut flue duct to suit.
900mm to 1270mm (35 7/8" to 50")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section (2) ■ Extension Inner Air Duct Section 	Cut extension outer and Inner to suit.
1270mm to 2025mm (50" to 79 3/4")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section (2) ■ Extension Inner Air Duct Section 	Cut flue duct to suit.

9.4 EXTENDED SIDE FLUE (Figure 25)

1. Proceed as detailed in 9.3.1. to 9.3.4 above, but refer to Figure 25 to determine which components are required for certain lengths.

NOTE: UNDER NO CIRCUMSTANCES MUST THE SQUARE FLUE DUCT EXTRUSION BE JOINED.

2. The standard flue duct must be discarded. Fit the extension flue duct within the inner air duct section with the 4 screws provided.
3. Tape the air duct up to give the required length. Always allow 50mm minimum overlap between sections.
4. The complete air duct must be supported with the brackets supplied. Support the ducts in the horizontal position and mark holes for the brackets, equally spaced, such that the duct will rest on the lower edge of the bracket when fitted.

Note: For certain intermediate lengths cutting of the air ducts will be necessary. See Figure 25.

5. Proceed as detailed in 9.3.6 and 9.3.8 to 9.3.11 above.

5. Tape the air duct up to give the required length. Always allow 50mm minimum overlap between sections.
 6. Remove the flue box from the wall and assemble the air/flue duct assembly to it using the six screws provided (flue duct at bottom). Pass the assembly through the side wall and refit the flue box to the wall. (The gasket must be included between the air duct and the flue box — foil side towards exit wall).
 7. For installations where $(A + 6)$ mm is less than 375mm, the inner air duct section should be cut to 30mm less than dimension $(A + 6)$ mm (Figure 24), and the outer duct section cut to give a minimum 50mm overlap on the inner duct section to produce the overall length of dimension $(A + 6)$ mm.
- Note:** For installation into cavity walls the air duct at the entry to the inner wall must be sealed.
8. The self-adhesive seal can now be fitted to the inside of the flue terminal as shown in Figure 24.
 9. Fit the flue terminal (grill at bottom) and mark the position for the fixing screws. Remove the terminal, drill the holes and fit the plugs provided.
 10. Replace the terminal and fit the two stainless steel fixing screws.
 11. Refer back to the boiler installation instructions (Section 2).

10 AIR/FLUE DUCT-REAR OUTLET

10.1 GENERAL

Ensure that the correct flue pack has been chosen for the installation. Refer to ventilation and flueing (Section 1.4 page 4) and Figures 26 and 27 of these instructions.

10.2 SITING THE BOILER

1. Refer to the boiler installation instructions to determine the position of the boiler. Use the rear flue template supplied with the boiler, mark out the rectangular hole for the air duct and the four flue box fixing screw points.
2. Cut out the rectangular hole 170mm x 70mm in the rear wall.
3. Drill out the four holes and fit the plugs supplied.

10.3 STANDARD REAR FLUE (Figure 26)

1. Measure the thickness of the wall (Dimension W, Figure 26). The completed air duct (both inner and outer) should measure 13mm longer than the wall thickness (W + 13mm).

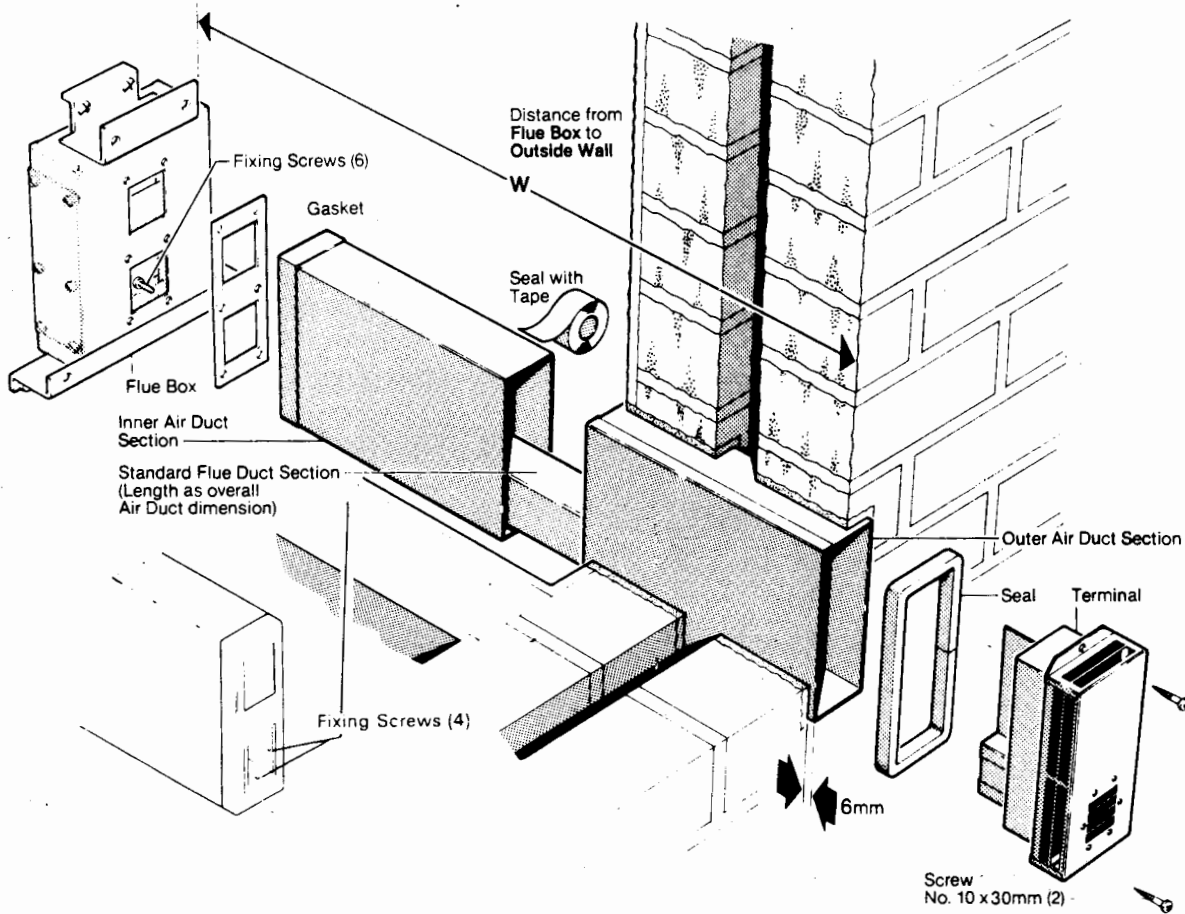
2. For (W + 13) of less than 375mm the inner air duct should be cut to 50mm less than the dimension (W + 13)mm, (Figure 26), and the outer duct cut to give a minimum overlap of 50mm on the inner duct to produce the overall length dimension (W + 13)mm.
3. Cut the flue duct to dimension (W + 13)mm. Fit the flue duct to the inner air duct section with the 4 screws supplied.

NOTE: UNDER NO CIRCUMSTANCES MUST THE SQUARE FLUE DUCT EXTRUSION BE JOINED.

4. Tape the air duct to give the required length. Always allow a minimum of 50mm of overlap between sections.
5. Remove the four screws fixing the flue box rear cover plate and gasket, discarding plate screws making sure not to damage the gasket.
6. Assemble the air/flue duct assembly onto the flue box using the six screws provided and gasket (foil side to exit) previously removed.

Note: For installation into cavity walls the air duct at the entry to the inner wall must be sealed. Self adhesive seal supplied should be fitted to the wall directly around the air duct to ensure a seal onto the rear of the flue box.

STANDARD REAR FLUE PACK



Dimension (W + 13)mm

Air/Flue Duct Components required

Action necessary

89mm to 375mm
(3½" to 14¾")

- Inner Air Duct
- Standard Flue Duct
- Outer Air Duct Section

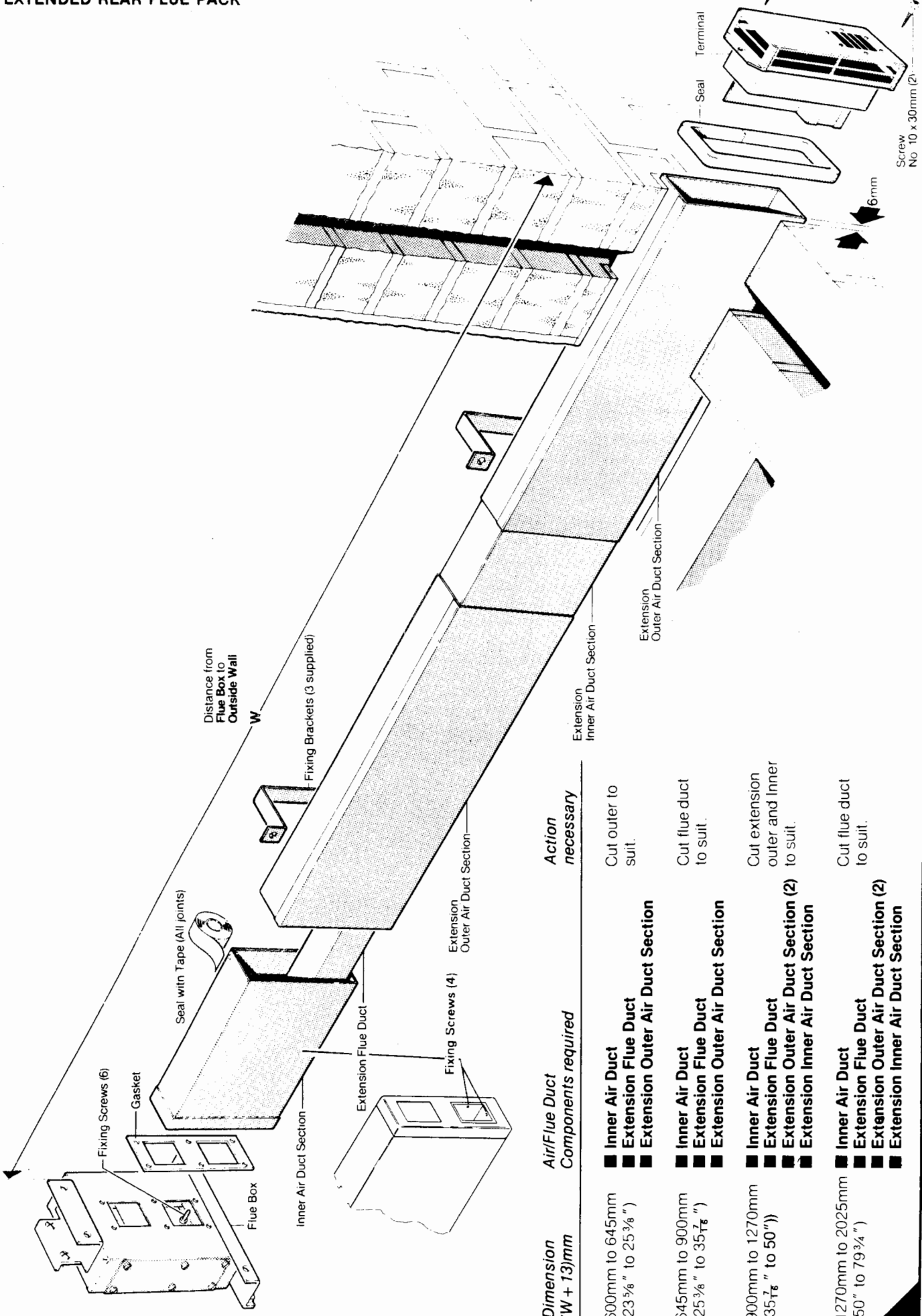
Cut both to suit.

375mm to 600mm
(14¾" to 23⅝")

- Inner Air Duct
- Standard Flue Duct
- Outer Air Duct Section

Cut flue duct to suit.

EXTENDED REAR FLUE PACK



Screw
No. 10 x 30mm (2)

Dimension (W + 13)mm	Air/Flue Duct Components required	Action necessary
600mm to 645mm (23 5/8" to 25 3/8")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section 	Cut outer to suit.
645mm to 900mm (25 3/8" to 35 7/8")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section 	Cut flue duct to suit.
900mm to 1270mm (35 7/8" to 50")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section (2) ■ Extension Inner Air Duct Section 	Cut extension outer and inner to suit.
1270mm to 2025mm (50" to 79 3/4")	<ul style="list-style-type: none"> ■ Inner Air Duct ■ Extension Flue Duct ■ Extension Outer Air Duct Section (2) ■ Extension Inner Air Duct Section 	Cut flue duct to suit.

7. Pass the assembly through the wall and fix with the four No. 10 x 50mm long screws provided.
8. The self adhesive seal can now be fitted to the inside of the flue terminal as in Figure 26.
9. Fit the flue terminal and mark the position for fixing screws. Remove the terminal, drill the wall and fit the plugs provided.
10. Replace terminal and fit the two stainless steel fixing screws supplied.
11. Refer back to the boiler installation instructions.

10.4 EXTENDED REAR FLUE (Figure 27)

1. The standard flue duct must be discarded. Fit the extension flue duct within the inner air duct section with the 4 screws provided.
2. Make up the extended air duct to the required length (W + 13). Refer to Figure 27 to determine which components are required for certain lengths.
3. The flue duct should be cut to the same length as the air duct.

NOTE: UNDER NO CIRCUMSTANCES MUST THE SQUARE FLUE DUCT EXTRUSION BE JOINED.

4. Tape the air duct up to give the required length. Always allow 50mm minimum overlap between sections.
5. Remove the four screws fixing the flue box rear cover plate and gasket; discard plate screws making sure not to damage the gasket.
6. Assemble the air/flue duct onto the flue box using the six screws provided and gasket (foil side to exit) previously removed.

NOTE: For installation into cavity walls the air duct at the entry to the inner wall must be sealed. Self adhesive seal supplied should be fitted to the wall directly around the air duct to ensure a seal onto the rear of the flue box.

7. Pass the assembly through the wall and fix with the four No. 10 x 50mm long screws provided.
8. The self adhesive seal can now be fitted to the inside of the flue terminal as shown in Figure 27.
9. Fit the flue terminal (grille at bottom) and mark the position for fixing screws. Remove the terminal, drill the holes and fit the plugs provided.
10. Replace the terminal and fit the two stainless steel fixing screws.
11. Refer back to the boiler installation instructions (Section 2).

10.5 GUARANTEE AND PARTS WARRANTY

Halstead Boilers are fully guaranteed for a period of twelve Months from date of Installation
The guarantee and warranty conditions are as follows

GUARANTEE OF CONTRACT

1. The Company shall mean Halstead Boilers Ltd.
2. The one year manufacturer's guarantee covers free spare parts and labour provided that the work is undertaken by the original installer or an approved Service Agent.
3. The guarantee covers breakdowns caused by fair wear and tear. Failure of parts caused by any other means, e.g. incorrect installation, neglect, accident or failure to operate the boiler in accordance with the User Instructions are excluded.
4. We strongly recommend that you complete and return the guarantee registration card but would advise you that failure to do so does not affect your statutory rights.
5. This contract is not Transferable unless sanctioned by the Company.
6. The Company will endeavor to provide prompt service under this Contract, but cannot be held responsible for any consequence of delay however caused.

DO NOT NEGLECT YOUR GAS BOILER. HAVE IT SERVICED ANNUALLY BY YOUR INSTALLER OR GAS REGION. MAKE A NOTE HERE OF YOUR INSTALLERS NAME AND ADDRESS.

OUT OF WARRANTY SPARES

A complete range of spares can be supplied quickly and efficiently from our spares stocklists.

7. Pass the assembly through the wall and fix with the four No. 10 x 50mm long screws provided.
8. The self adhesive seal can now be fitted to the inside of the flue terminal as in Figure 26.
9. Fit the flue terminal and mark the position for fixing screws. Remove the terminal, drill the wall and fit the plugs provided.
10. Replace terminal and fit the two stainless steel fixing screws supplied.
11. Refer back to the boiler installation instructions.

10.4 EXTENDED REAR FLUE (Figure 27)

1. The standard flue duct must be discarded. Fit the extension flue duct within the inner air duct section with the 4 screws provided.
2. Make up the extended air duct to the required length (W + 13). Refer to Figure 27 to determine which components are required for certain lengths.
3. The flue duct should be cut to the same length as the air duct.

NOTE: UNDER NO CIRCUMSTANCES MUST THE SQUARE FLUE DUCT EXTRUSION BE JOINED.

4. Tape the air duct up to give the required length. Always allow 50mm minimum overlap between sections.
5. Remove the four screws fixing the flue box rear cover plate and gasket; discard plate screws making sure not to damage the gasket.
6. Assemble the air/flue duct onto the flue box using the six screws provided and gasket (foil side to exit) previously removed.

NOTE: For installation into cavity walls the air duct at the entry to the inner wall must be sealed. Self adhesive seal supplied should be fitted to the wall directly around the air duct to ensure a seal onto the rear of the flue box.

7. Pass the assembly through the wall and fix with the four No. 10 x 50mm long screws provided.
8. The self adhesive seal can now be fitted to the inside of the flue terminal as shown in Figure 27.
9. Fit the flue terminal (grille at bottom) and mark the position for fixing screws. Remove the terminal, drill the holes and fit the plugs provided.
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