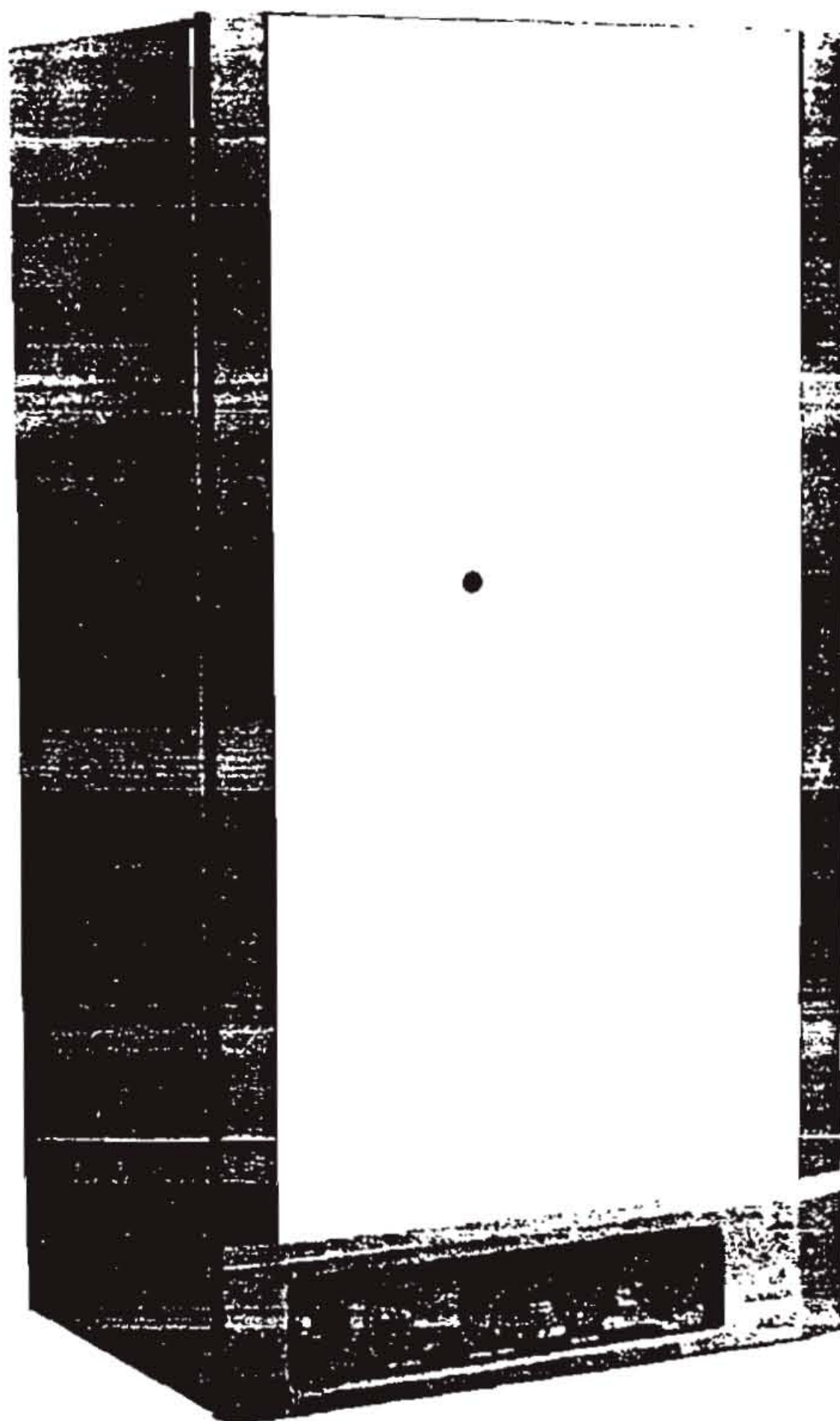


Myson Heating

Installation and Servicing Instructions

Midas B wall mounted combination gas boiler

**G.C. Appliance No. 47.838.01
FOR SEALED SYSTEMS ONLY**



**Read these instructions thoroughly before working on the boiler.
For use with Natural Gas only. (Leave these instructions adjacent to the gas meter).**

1. INTRODUCTION

This balanced flue, natural draught combination boiler is for use on natural gas only.

The 'MIDAS B' is a modulating output central heating boiler with a maximum output of 20.5 kW (70,000 Btu/h) combined with a modulating output instantaneous hot water heater, with a maximum output of 24.3 kW (83,000 Btu/h).

It is designed for use on sealed central heating systems only, and all the necessary components are included within the casing. An external bypass must be provided.

2. TECHNICAL DATA

1	Maximum heat input, hot water	30.4 kW (103,800 Btu/h)
1	Maximum heat output, hot water	24.3 kW (83,000 Btu/h)
3	Maximum burner pressure, hot water	15.2 mbar (6.1 in wg)
2	Maximum heat input, heating	25.7 kW (87,500 Btu/h)
2	Maximum heat output, heating	20.5 kW (70,000 Btu/h)
	Maximum burner pressure, heating	10.7 mbar (4.3 in wg)
2	Minimum heat input, hot water or heating	9.6 kW (32,900 Btu/h)
2	Minimum heat output, hot water or heating	7.3 kW (25,000 Btu/h)
	Minimum burner pressure, hot water or heating	1.5 mbar (0.6 in wg)
	Burner type	Furigas 7 bladed
	Burner injector	4.6 mm (0.181 in)
	Pilot injector	Honeywell 0.38/0.36 mm
	Pilot flame	9-12 mm long
	Electrode gap	3-4 mm
	Height (case)	900 mm (35 1/8 in)
	Width (case)	480 mm (18 7/8 in)
	Depth (case)	350 mm (13 3/4 in)
	Minimum clearance, sides	10 mm (3/8 in)
	Minimum clearance, top	75 mm (3 in)
	Minimum clearance, bottom	125 mm (5 in)
	Minimum clearance, front	610 mm (24 in)
	Weight, total	78 kg (172 lb)
	Lift weight, installing	65 kg (143 lb)
	Water content	3.5 litre (6 pt)
	Maximum heating system temperature	85° C (185° F)
	Minimum heating water flow rate	1900 l/h (420 gal/h)
	Heating temperature rise	11° C (20° F)
	Maximum heating system pressure	3 bar (44 lbf/in ²)
	Minimum heating system pressure	0.5 bar (7 lbf/in ²)
	Head available for heating system	3.5 mwg (11.5 ft wg)
	Maximum domestic hot water temperature	70° C (158° F)
	Maximum domestic hot water flow rate	8.0 l/min (1.8 gall/min)
	Minimum domestic hot water flow rate	2.5 l/min (0.6 gall/min)
	Domestic hot water performance	7.8 l/min raised 45° C
	Maximum mains water inlet pressure	10 bar (145 lbf/in ²)
	Minimum mains water inlet pressure	0.5 bar (7 lbf/in ²)
	Water connections	15 mm and 22 mm compression fittings
	Gas connection	Rc 1/2
	Electricity supply	240V ~ 50Hz fused at 3A
	Power rating	200 W
	Internal Fuses	T1A and F2A to BS4265 (20 mm)
	Standard flue	Wall thickness 230 mm (9 in) to 355 mm (14 in)

3. STATUTORY REQUIREMENTS

The installation of the appliance must be in accordance with : the current issue of the Gas Safety (Installation and Use) Regulations, Building Regulations, Building Standards (Scotland) Regulations, current IEE Regulations and Model and Local Water Undertaking by-laws.

Detailed recommendations are contained in the following British Standards and Codes of Practice: CP342 Part 3 1970, BS5440 Part 2 1976, BS5449 Part 1 1977, BS5440 Part 1 1978, BS5546 1979, BS6798 1987, BS6891 1988.

NOTE: Gas Safety (Installation and Use) Regulations: It is the law that all gas appliances are installed by competent persons in accordance with the above regulations. It is in your own interest and that of safety to ensure that the law is complied with.

4. DELIVERY

The appliance is delivered in two packages: (1.) The boiler plus casings.
(2.) The balanced flue terminal.

Isolating valves and the flow regulator components are included in the boiler carton. Ensure that all items shown on the contents list are located before discarding the cartons.

10. METHOD OF OPERATION

The appliance operates in two distinct modes: Central Heating and Domestic Hot Water

It will not supply heating and hot water at the same time, preference is always given to hot water. Therefore if a hot tap is turned on when the boiler is providing heating, the heating will be interrupted until the hot tap is turned off. This interruption is generally unnoticeable due to the quantity of heated water held in the system.

Central Heating Mode: When heating is called for, water passes through the boiler heat exchanger, where it is heated by the burner which operates at a maximum pressure of 10.7 mbar (4.3 in wg). The burner pressure is automatically adjusted, or modulated to suit the system requirements.

The temperature of the water leaving the boiler can be controlled from 30°C to a maximum of 85°C before it is pumped into the heating circuit.

Domestic Hot Water: When a hot tap is turned on water commences to flow through the calorifier coil and operates a flow switch. This signals that hot water is required and switches on a pump which circulates hot water from the boiler heat exchanger through the primary side of the calorifier to heat the water issuing from the tap. When the tap is closed the flow switch signals that hot water is no longer required and switches off the pump.

The mains inlet water flow is automatically restricted to a flow of a maximum of 8 l/min (1.8 gal/min). The burner pressure is automatically modulated to maintain the outlet temperature as set on the temperature control, with a maximum pressure of 15.2 mbar (6.1 in wg).

When the control system switches to central heating or if the boiler is on 'stand by' a small quantity of hot water remains in the calorifier. As this cools a temperature sensor also cools until it switches, and the water in the calorifier is re-heated. Thus a small store of hot water is available for immediate use. This reheating facility can be switched off if required.

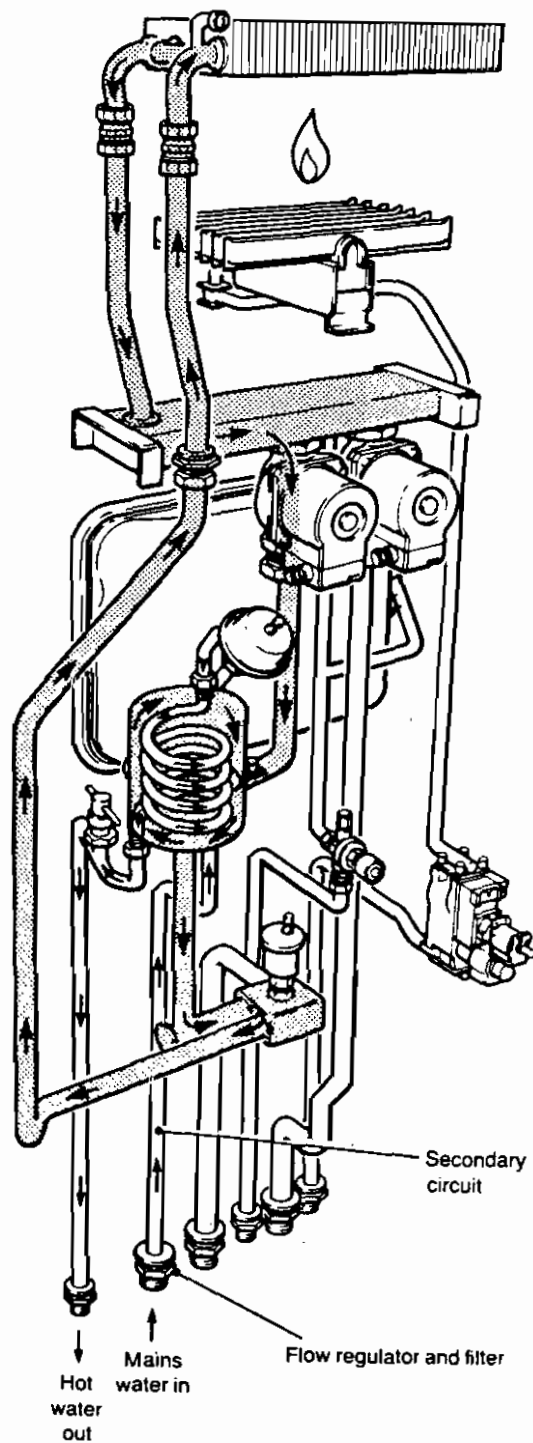
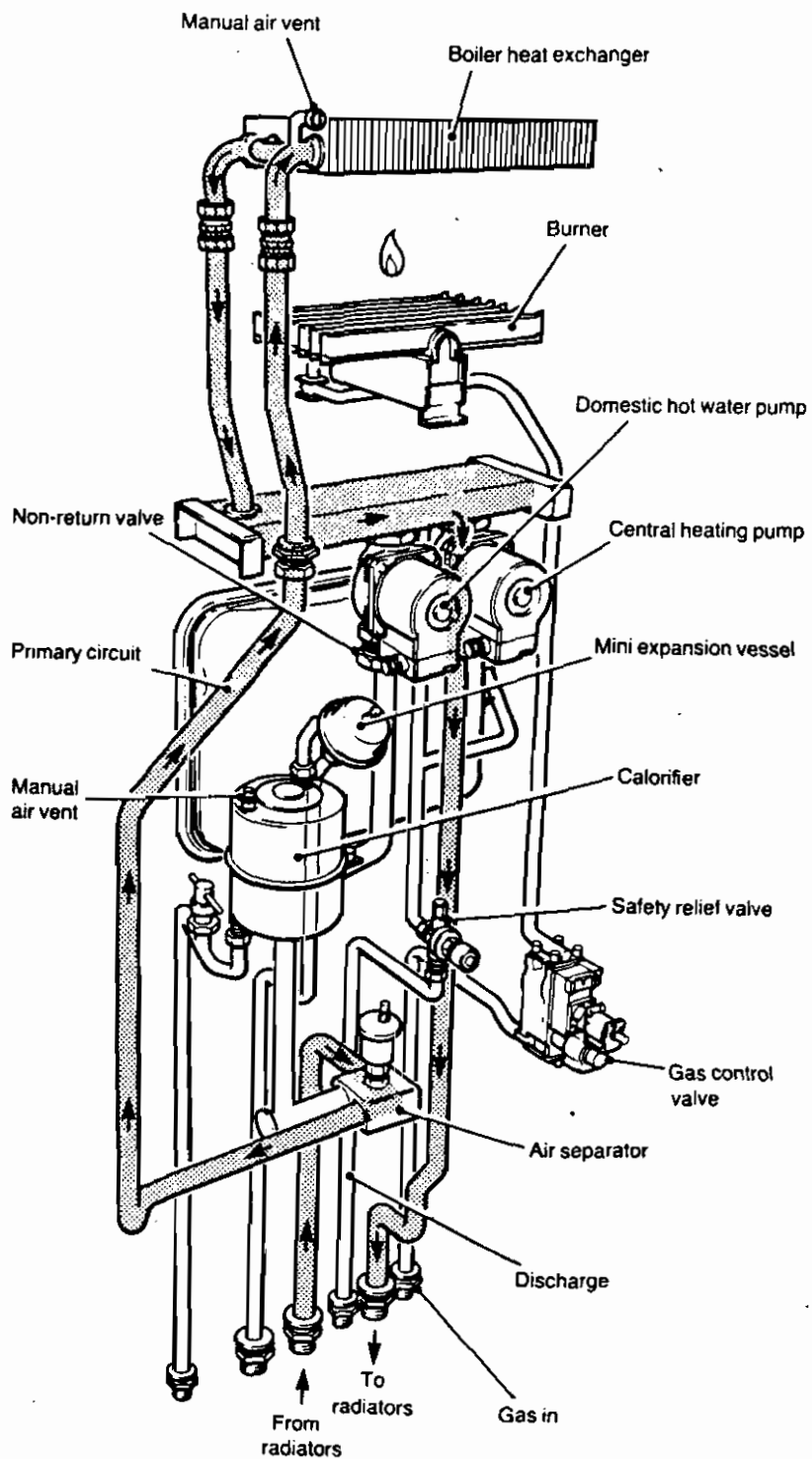
11. INSTALLATION PROCEDURE

Unpack the appliance and locate all items shown on the contents list before discarding the packings.

9. BOILER INTERNAL OPERATION

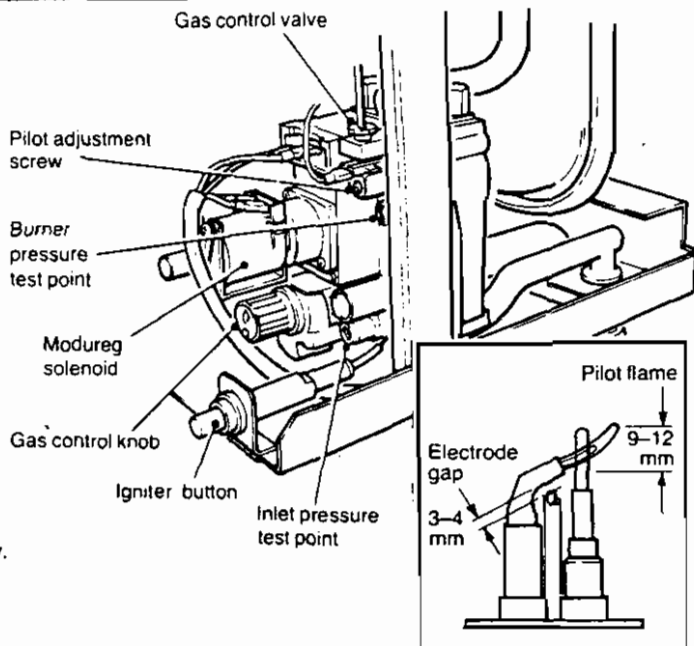
CENTRAL HEATING ON

DOMESTIC HOT WATER ON



11 TESTING THE PILOT FLAME

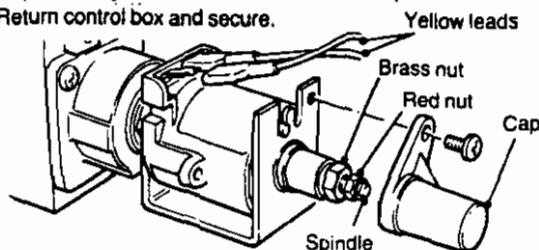
1. Slacken the screw in the gas control valve inlet pressure test point, turn on the gas supply and open the gas service cock to purge air from the appliance supply pipe. Retighten the test point screw and allow the purged gas to disperse. Test for gas soundness around the screw.
2. Slacken the burner pressure test point screw and connect a pressure gauge. Press and hold in the gas control knob. Press and release the piezo igniter button repeatedly until the pilot flame can be seen. When the pilot has lit continue to press in the gas control knob for a further fifteen seconds then release. The pilot should stay alight.
Note: Should the pilot go out at this or any other stage, turn the gas control knob clockwise and release. Wait 3 minutes, then repeat step 2.
3. Check the pilot flame is 9–12 mm long. If necessary adjust, turning the pilot adjustment screw anti-clockwise to increase, clockwise to decrease. Check for gas soundness at the pilot pipe connection to the pilot assembly, using leak detection fluid.
4. Replace the combustion chamber door and tighten all screws fully.
5. Set the selector switch to C.H. CONT/D.H.W. INSTANT and check the main burner lights smoothly from the pilot. Test for gas soundness around all boiler gas components using leak detection fluid. Allow the boiler to run for ten minutes.



12 TESTING MAXIMUM AND MINIMUM BURNER PRESSURES

The maximum and minimum burner pressures are factory set and should not need adjustment. Check the pressures as follows:

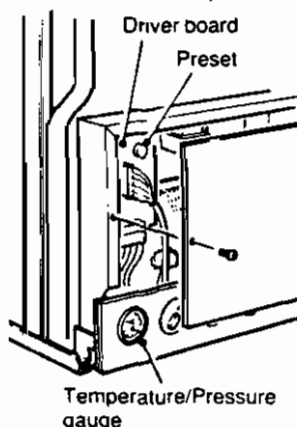
1. Remove the grey cap (1 screw) from the gas valve Modureg solenoid and disconnect one yellow lead (24V).
2. The minimum pressure should be 1.5 mbar (0.6 in. wg.). If the pressure is not correct adjust by turning the brass nut. Anti-clockwise decreases the pressure.
3. Push the spindle gently inward until it stops and hold it in. The maximum pressure should be 15.2 mbar (6.1 in. wg.). If the pressure is not correct adjust by turning the red nut. Anti-clockwise decreases the pressure.
Note: Always adjust the minimum pressure first.
4. Replace the yellow lead and the solenoid cap.
5. Return control box and secure.



13 TESTING THE CENTRAL HEATING PRESSURES

The central heating burner pressure must be checked with the actual central heating water flow temperature, as shown by the temperature gauge, at least 10°C below the temperature set by the central heating temperature control due to the modulating control system. Also it must be checked when the appliance has been supplying central heating for at least four minutes, due to a timing circuit in the control system.

1. The pressure should be 10.7 mbar (4.3 in. wg.). If the pressure is not correct adjust by turning the preset on the driver board, accessible through the front of the control box. Clockwise increases the pressure. Always adjust by reducing the pressure below the required setting, then increase to the required setting.
2. Set the selector switch to C.H. OFF/D.H.W. DELAY, disconnect the pressure gauge and retighten the test point screw.
3. Set the selector switch to C.H. CONT/D.H.W. INSTANT and test for gas soundness around the screw.



14 FINAL CHECKS

1. Check the operation of the flame failure device in the gas control valve as follows. With the main burner lit turn off the gas supply at the service cock. A 'click', indicating that the device has operated, should be heard within 60 seconds.
2. Make a final check for water soundness. Drain the system while hot. Refill and vent the system, adding an inhibitor if it is necessary. Contact the inhibitor manufacturer for information on their most suitable product. The venting procedure at the start of this section must be followed.

15 FINAL ADJUSTMENTS

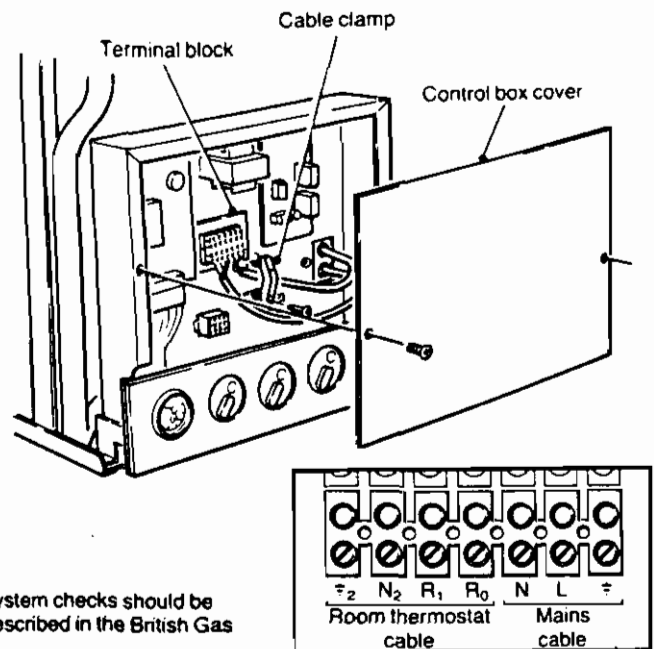
1. Adjust the cold fill pressure to 0.75 bar (11 lbf/in²), set the adjustable pointer on the pressure gauge to 0.75 bar and disconnect any temporary connection to the mains water supply.
2. Adjust the system bypass as follows. Open the bypass valve one full turn from the fully closed position. If noise is experienced when the system is on minimum load ie all radiators closed off, open the bypass valve slightly further.
Note: When the boiler is first fired a smell may occur. This will clear within a few hours of operation.
A limit thermostat is fitted to the boiler causing safety shut down in the event of an overheat condition. This limit thermostat is a self resetting type. Should it shut down the boiler during commissioning allow the system to cool then relight the boiler.

9

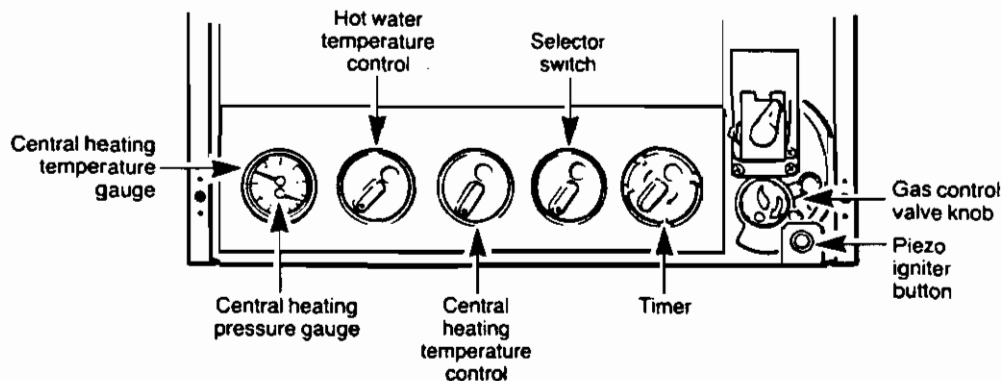
CONNECT THE ELECTRICITY SUPPLY

Refer also to page 4, section 6.

1. Remove the control box cover (2 screws).
2. Feed the mains cable through grommet in base plate and grommet in rear cover plate into the control box and connect to the terminal block: brown (Live) to L, blue (Neutral) to N and green/yellow (Earth) to ϵ . Clamp the cable using cable clamp provided.
Note: When connecting the mains cable to the terminal block, ensure that the length of the earth wire is such that if the mains cable slips out of the cable clamp the live and neutral wires become fault before the earth wire.
3. If a room thermostat is not to be fitted, leave the factory fitted link from Ro to Ri in position. Otherwise remove the link.
4. Feed the cable for the room thermostat through the grommet in the base plate and the bush in the rear cover plate into the control box and connect to the terminal block, Ro being the permanent live connection to the thermostat and Ri being the switched live connection from the thermostat. Terminal N₂ is provided for the connection of a room thermostat neutral and terminal ϵ_2 for the connection of a room thermostat earth, as required.
5. Leave sufficient slack in the cables between the control box and the bottom bracket of the appliance to facilitate servicing.
6. Replace the control box cover and fixing screws.
Note: In the event of an electrical fault after installation, preliminary system checks should be carried out (i.e. earth continuity, polarity and resistance to earth) as described in the British Gas Multimeter hand book.



12. BOILER CONTROLS



13. COMMISSIONING

A data badge is located on the front of the control box.

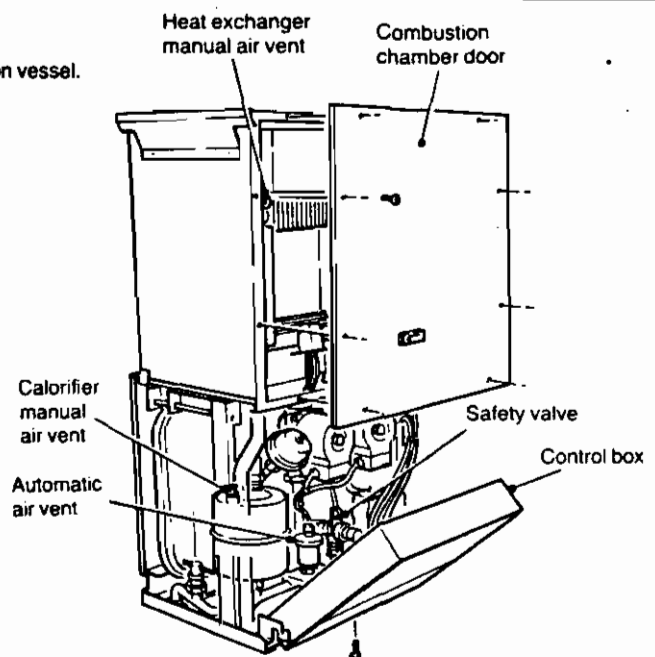
WARNING: Before starting tests ensure that electricity and gas are turned off.

Remove the combustion chamber door (8 screws). Unfasten the control box (1 screw) to swing it down. Now proceed as follows:

10 TESTING THE SYSTEM

IMPORTANT: Do NOT release the air from either red expansion vessel.

1. Check that the isolation valves are open.
2. Slacken the black cap on the automatic air vent by one turn.
3. Use the manual air vent on the heat exchanger and calorifier to clear air from the appliance.
4. Manually open the safety valve: Turn the red knob a quarter turn until water from the discharge pipe is clear of air.
5. Check for water soundness at a pressure of 1.5 bar (22 lbf/in²), rectifying where necessary. Raise the pressure to 3.0 bar (44 lbf/in²) to check the operation of the safety valve. Depressurise to 1.5 bar (22 lbf/in²).
6. Check the room thermostat is set to high and the timer to an ON period.
7. Switch the electricity ON.
8. Use the selector switch to alternately operate each pump by selecting C.H. OFF/D.H.W. INSTANT or C.H. TWICE/D.H.W. DELAY. If either pump becomes airlocked return the selector switch to C.H. OFF/D.H.W. DELAY and reopen the safety valve until water from the discharge pipe is clear of air.
9. Again use the selector switch to alternately operate each pump. Allow water to circulate until the system is quiet and free of air.
10. Return the selector switch to C.H. OFF/D.H.W. DELAY.
11. Open a hot water tap to clear air from the secondary water system, then close the tap.



18

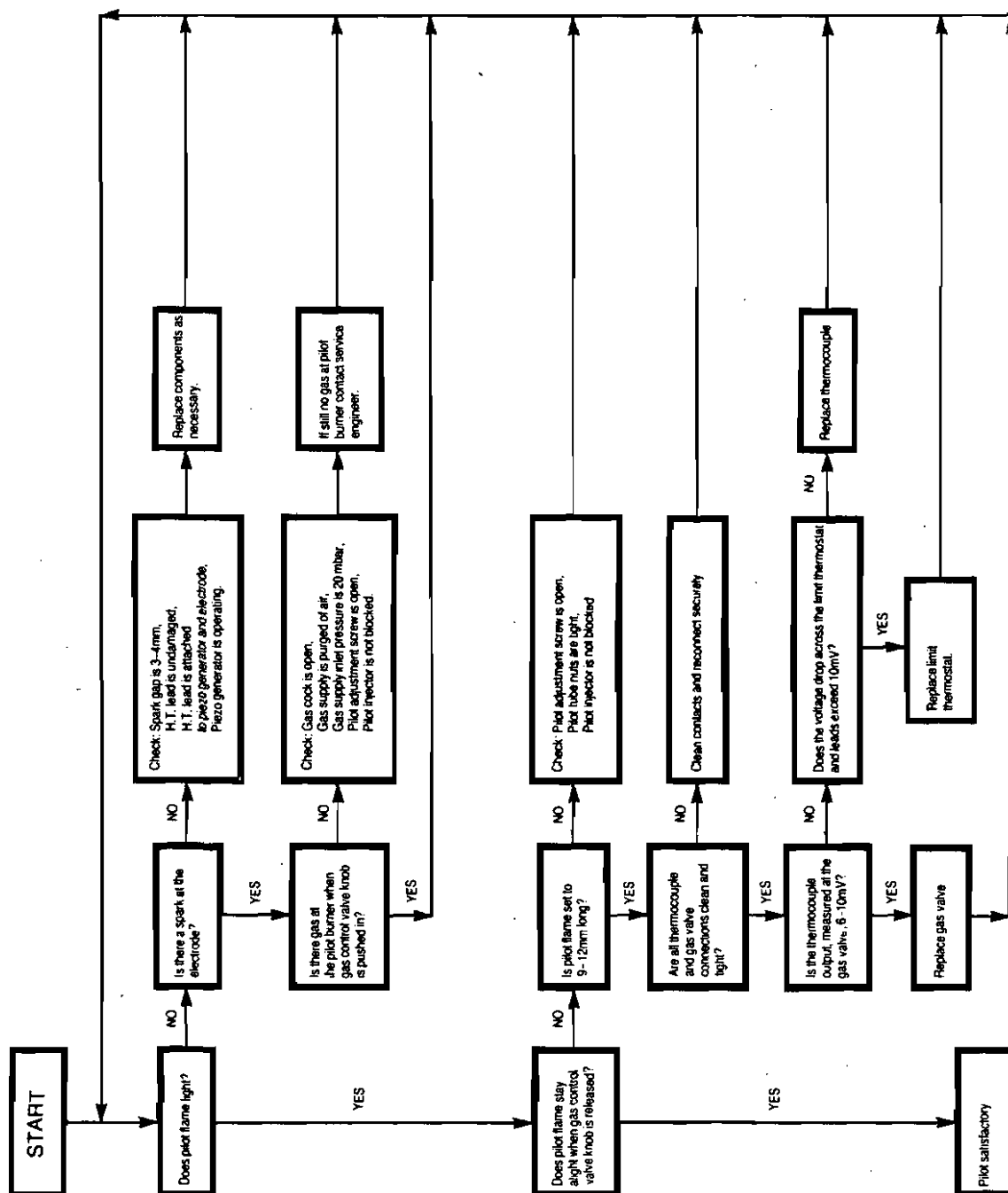
REASSEMBLY AND FINAL CHECKS

1. Reassemble in reverse order of dismantling. Ensure that the main burner is correctly located on the main injector. Relocate pilot injector in the pilot assembly.
2. Check for gas soundness at the pilot tube nut before replacing the combustion chamber door.
3. Any damaged insulation must be replaced.
4. The combustion chamber door must be correctly located and all fixing screws fully tightened.
5. Remove control box fixing screw and swing the control box down. Inspect water section for soundness.
6. Check water flow rate from a fully open hot water tap is 8 l/min (1.8 gal/min) $\pm$ 1 litre/min (0.2 gal/min). If flow rate is outside these limits, clean or replace mains inlet filter and flow regulator (see frame 47).
7. Restore gas supply and check for gas soundness.
8. Restore electricity.
9. Check that all controls are functioning correctly, i.e. the selector switch, temperature controls and room thermostat.
10. Check for correct operation of the flame failure device.
11. Check for correct operation of gas pressure modulation system. The main burner flame should be seen to reduce as the central heating temperature increases.
12. Check minimum and maximum pressures (see frame 12).
13. Reassemble remaining components in reverse order.

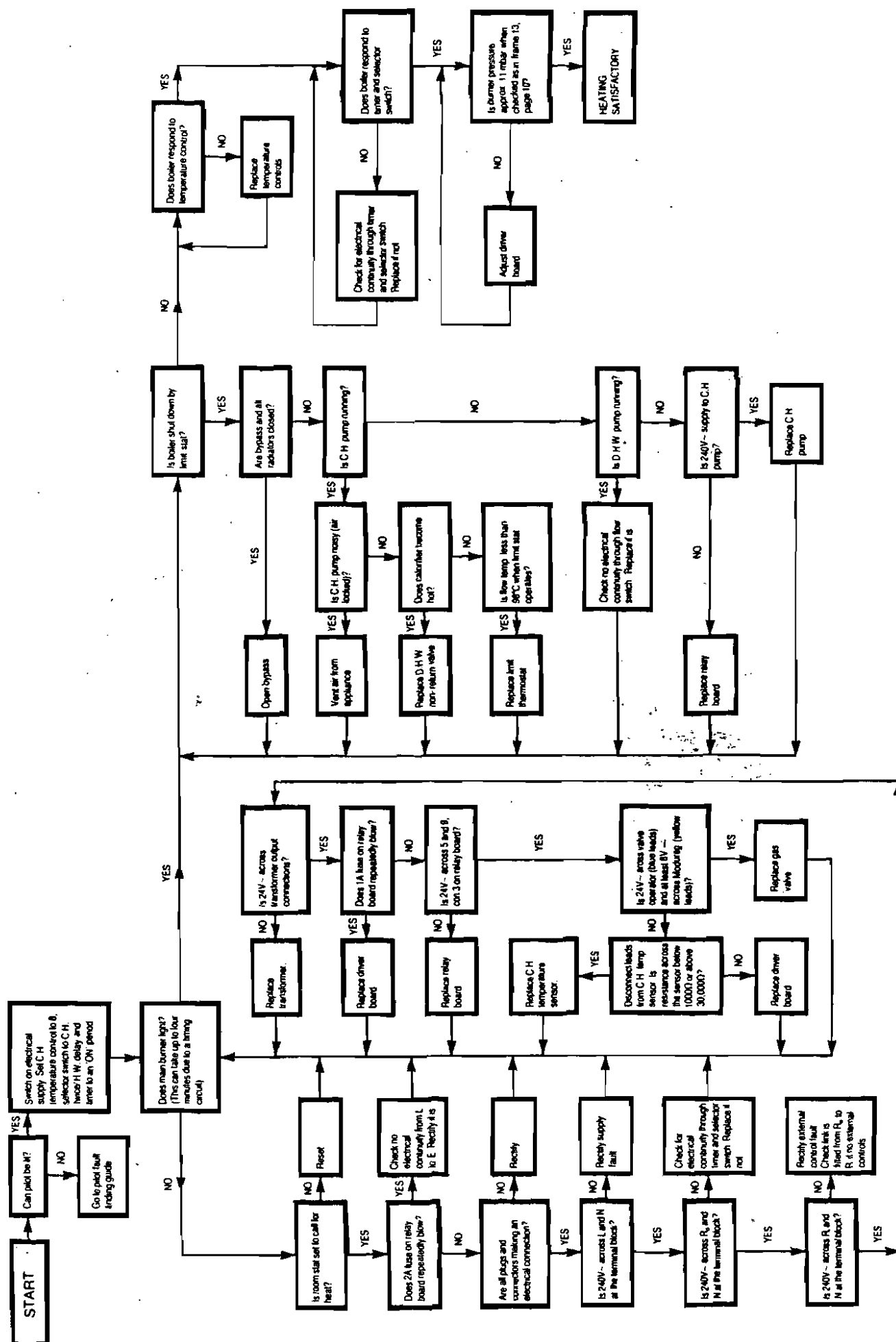
18. FAULT FINDING GUIDES

Before attempting any electrical fault finding ALWAYS carry out preliminary electrical system checks as detailed in the Instruction Book for the British Gas multimeter.

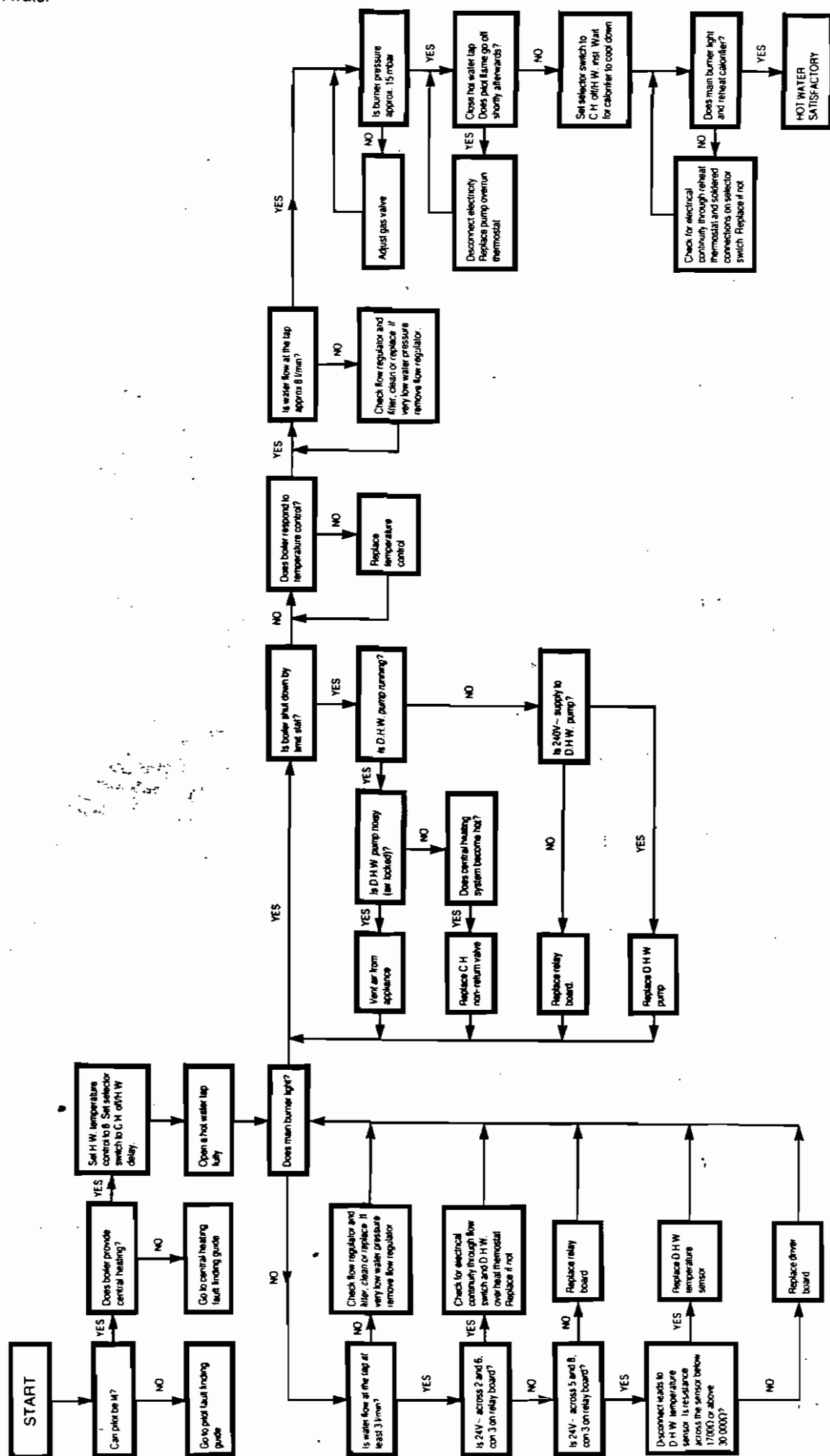
a. No pilot



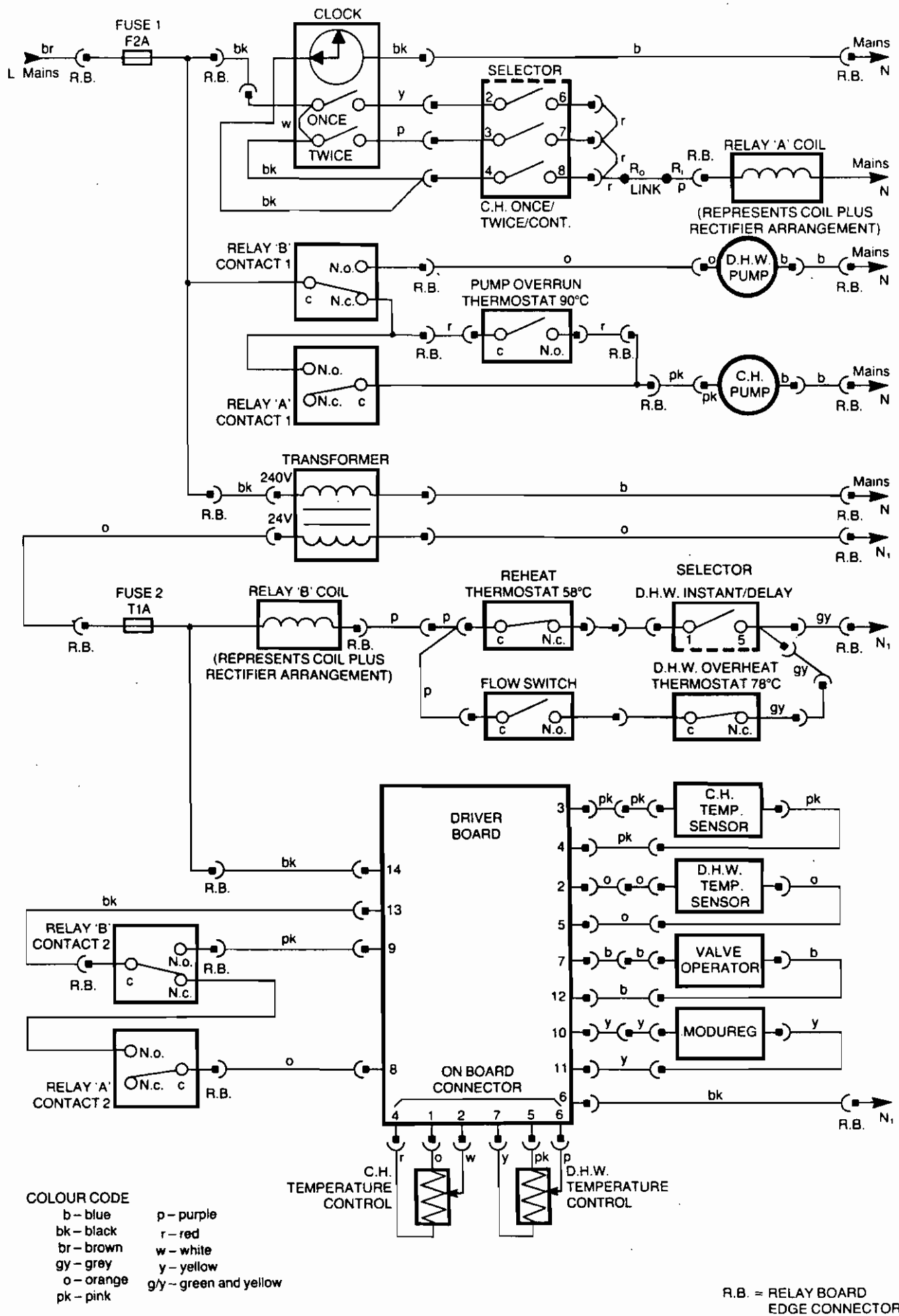
b. No central heating



c. No hot water

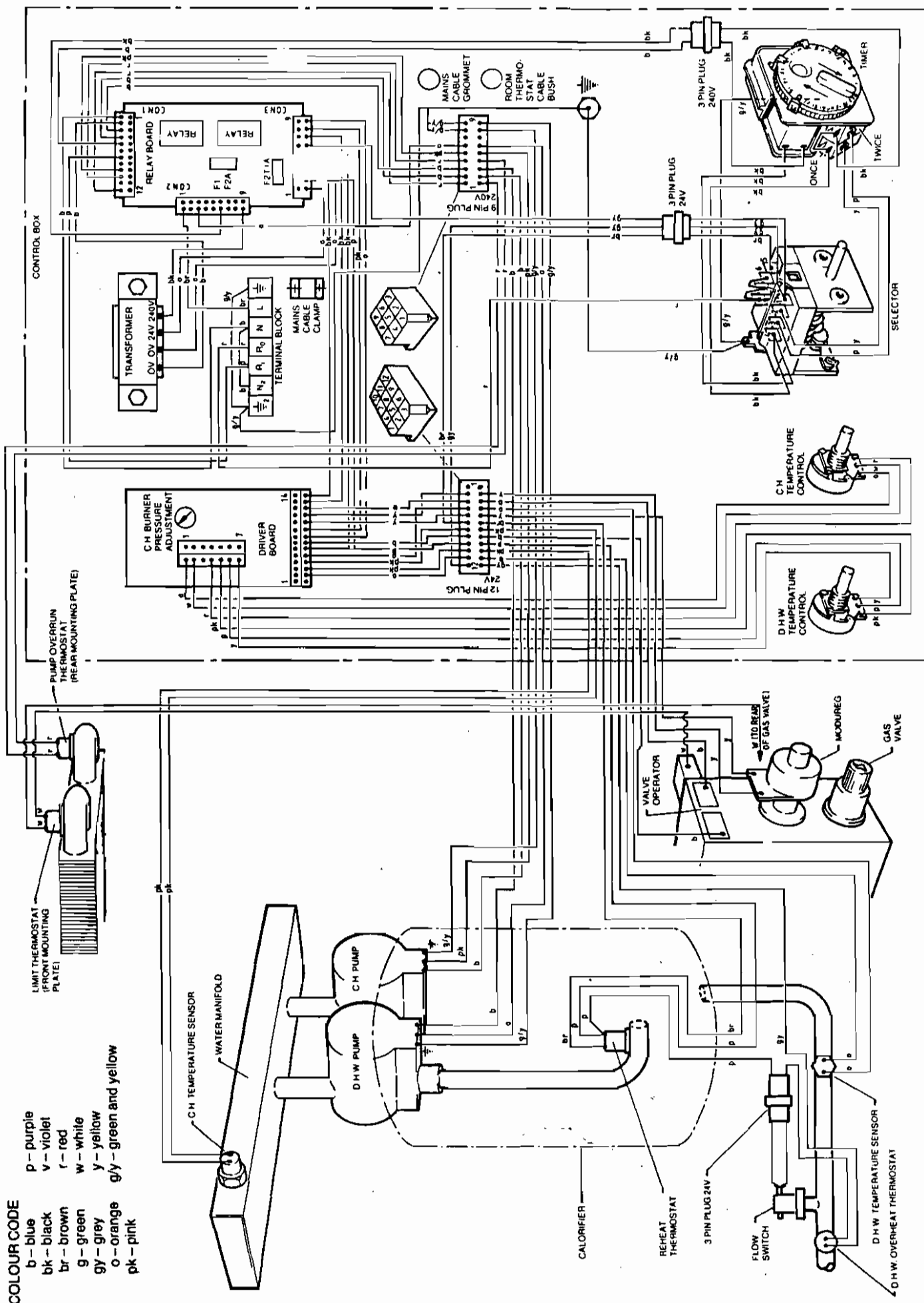


b. Functional flow wiring diagram.



17. WIRING DIAGRAMS

a. Illustrated wiring diagram.



14. FINAL ASSEMBLY AND HANDING OVER THE INSTALLATION

Fit and secure the outer casings and fascia cover with reference to frame 2, page 7. The outer casings each clip on at the top and are secured with 2 screws at the bottom. The front casing is pressed on to 4 studs and secured with 2 screws at the bottom flange. The fascia cover is simply pressed onto 2 studs.

Set the timer and temperature controls to the desired settings, see user instructions.

Hand all instructions to the user for retention, demonstrate and explain the safe and efficient operation of the appliance. Advise the user that, for continued safe and efficient operation of the appliance it is important that servicing is carried out annually by a competent person.

15. ANNUAL SERVICING

The annual routine service entails:

1. Run the boiler and check that the water system and all controls are operating correctly.
2. Remove the combustion chamber door and check if the burner or heat exchanger require cleaning.
3. Examine the main injector orifice and ensure it is clear and undamaged.
4. Check the pilot assembly. If necessary, examine the pilot injector orifice to ensure it is clear and undamaged.

On completion of the service run the boiler to ensure that it operates satisfactorily and check all controls. The boiler data plate is positioned on the front of the control box.

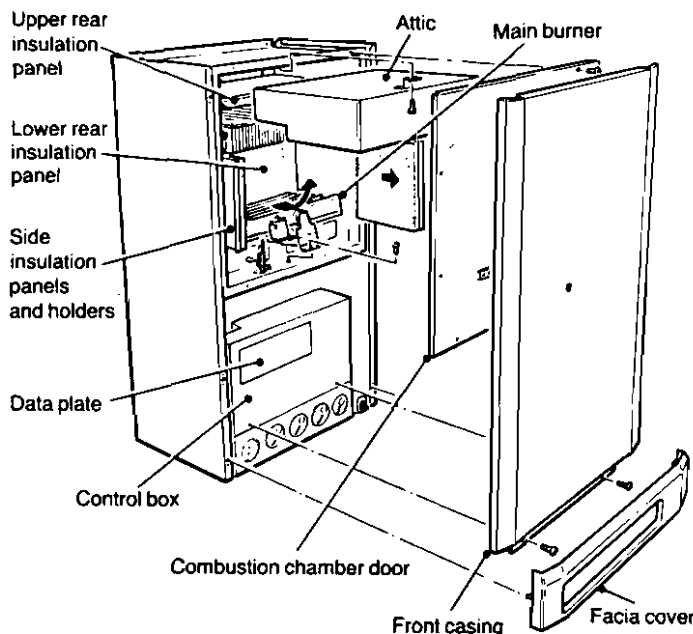
The procedure for Annual Servicing is given in frames 16 to 18. See frames 19 to 48 for replacement of parts.

WARNING: Before commencing work turn off the gas supply at the gas service cock and disconnect the electricity supply.

IMPORTANT: Always test for gas soundness after completing any servicing of gas carrying components and carry out functional checks of controls.

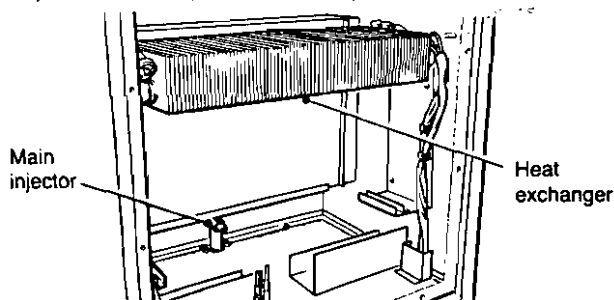
16 DISMANTLING

1. Pull off the fascia cover.
2. Remove front casing (2 screws at bottom flange). Keep these decorative items safe from damage.
3. Remove combustion chamber door (8 screws)
4. Slacken 2 sealing plate screws under combustion chamber base at the front. Refer to frame 19 for illustration of pilot assembly.
5. Disconnect electrode lead.
6. Unscrew thermocouple nut and pilot tube nut under base plate of pilot assembly.
7. Remove 1 screw securing main burner and withdraw burner by pulling forward and tilting upward. Note position of pilot injector in pilot assembly.
8. Remove 1 screw securing attic and remove the attic by pulling forward.
9. Remove the two side insulation holders by pulling forward. The lower rear insulation panel will now tend to fall forward at the top. Lift out of its holder flange to remove. The upper rear insulation panel may be removed by lifting from behind the heat exchanger.



17 CLEANING THE BOILER

1. Brush the heat exchanger from above and below using a suitable brush. Brush back to front NOT sideways. Remove any fallen deposits from the boiler base.
2. Turn the burner upside down and tap gently to remove any debris.
3. Unscrew the main injector from the manifold, clean by blowing through or washing. Do NOT clear the injector with a pin or wire. Clean the pilot injector in a similar manner.
4. Clean the pilot burner and electrode with a fine wire brush if necessary. Replace the electrode if damaged (see frame 20).
5. Examine thermocouple. If its tip is burnt away or cracked, replace thermocouple (see frame 21).



18 REASSEMBLY AND FINAL CHECKS

1. Reassemble in reverse order of dismantling. Ensure that the main burner is correctly located on the main injector. Relocate pilot injector in the pilot assembly.
2. Check for gas soundness at the pilot tube nut before replacing the combustion chamber door.
3. Any damaged insulation must be replaced.
4. The combustion chamber door must be correctly located and all fixing screws fully tightened.
5. Remove control box fixing screw and swing the control box down. Inspect water section for soundness.
6. Check water flow rate from a fully open hot water tap is 8 l/min (1.8 gal/min) $\pm$ 1 litre/min (0.2 gal/min). If flow rate is outside these limits, clean or replace mains inlet filter and flow regulator (see frame 47).
7. Restore gas supply and check for gas soundness.
8. Restore electricity.
9. Check that all controls are functioning correctly, i.e. the selector switch, temperature controls and room thermostat.
10. Check for correct operation of the flame failure device.
11. Check for correct operation of gas pressure modulation system. The main burner flame should be seen to reduce as the central heating temperature increases.
12. Check minimum and maximum pressures (see frame 12).
13. Reassemble remaining components in reverse order.

16. REPLACEMENT OF PARTS

The procedures for the replacement of parts are given in frames 19 to 48.

Before replacement of any water carrying components, close the appropriate isolating valves, two 22 mm valves when working on the appliance primary system or one 15 mm valve when working on the appliance secondary (mains) system. Drain the appropriate system, opening the safety valve and drain point on the air separator for the primary system, and the lowest hot water tap and drain point in the isolating valve for the secondary system. After reassembly of the appliance primary system fill and vent according to the Commissioning instructions on page 9 (Section 13).

WARNING: Before commencing work turn off the gas supply at the gas service cock and disconnect the electricity.

IMPORTANT: Always test for gas soundness after completing any exchange of gas carrying components and carry out functional checks of controls.

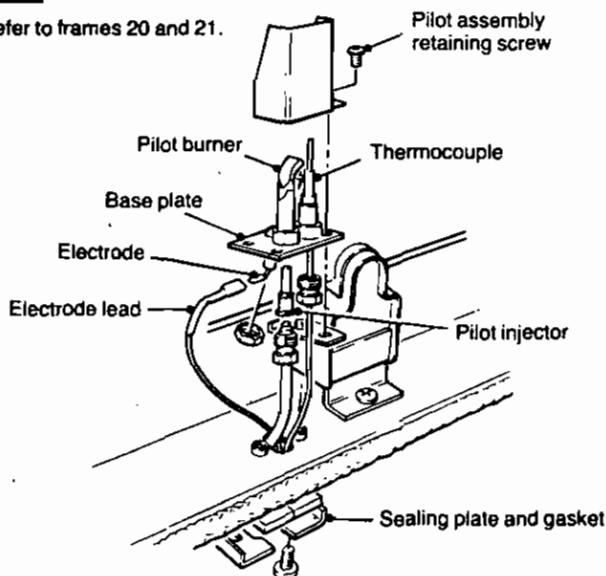
All operations require the fascia cover and front casing to be removed. See Dismantling, frame 16, page 11. Some operations will be facilitated by the removal of one or both side casings (2 screws at bottom flange – pull casing away and lift).

Frames 19 to 25 involve replacement of components within the room-sealed section of the boiler and necessitate removal of the combustion chamber door – see Dismantling, frame 16. When refitting ensure that the door is correctly located and all fixing screws are fully tightened. Removal of the combustion chamber insulation panels is also dealt with in frame 16.

Many operations require the control box to be unfastened (1 screw at base of boiler) and swung down. Some operations involving the plumbing system may be better served by removing the control box altogether, in which case refer to frame 37.

19 PILOT ASSEMBLY

Refer to frames 20 and 21.



20 TO REPLACE THE ELECTRODE AND PILOT ASSEMBLY

Refer to illustration, frame 19.

1. Slacken 2 sealing plate screws at the front of the combustion chamber.
2. Unscrew thermocouple nut and pilot tube nut under the pilot assembly base plate.
3. Disconnect electrode lead from spark electrode.
4. Remove front screw retaining pilot assembly and remove assembly. Note position of pilot injector.
5. Unscrew electrode and remove.
6. Reassemble in reverse order with new part. Check that the electrode gap is 3–4 mm (see frame 11, page 10).
7. Check for gas soundness at the pilot assembly.

21 TO REPLACE THE THERMOCOUPLE

Refer to illustration, frame 19.

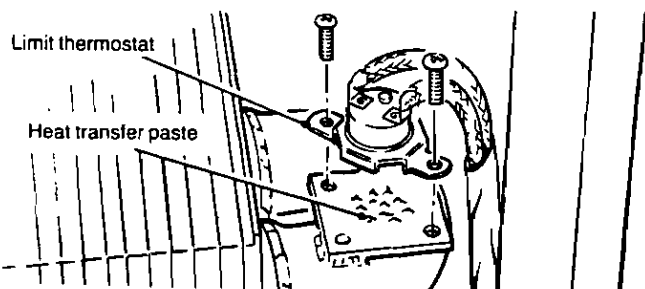
1. Remove sealing plate and gasket (2 screws) at the front of the combustion chamber.
2. Unscrew thermocouple nut under the pilot assembly base plate.
3. Disconnect electrode lead from the electrode.
4. Withdraw lead through hole in the base of the combustion chamber.
5. Unfasten the control box and swing it down.
6. Unscrew thermocouple nut from the top of the gas valve (see frame 33).
7. Remove thermocouple.
8. Replace with new thermocouple, bending to match discarded one. No bend to be less than 12 mm radius. Check interrupter body is held in position in gas valve but do not overtighten.

22 TO REPLACE THE MAIN BURNER OR MAIN INJECTOR

1. Remove burner as described in frame 16, steps 1 to 7.
2. Unscrew the injector from the manifold (see illustration, frame 17).
3. Replace with new injector, using a small amount of gas sealant.
4. Reassemble in reverse order, ensuring that the main burner is correctly located on the injector.
5. Check for gas soundness at the pilot assembly.

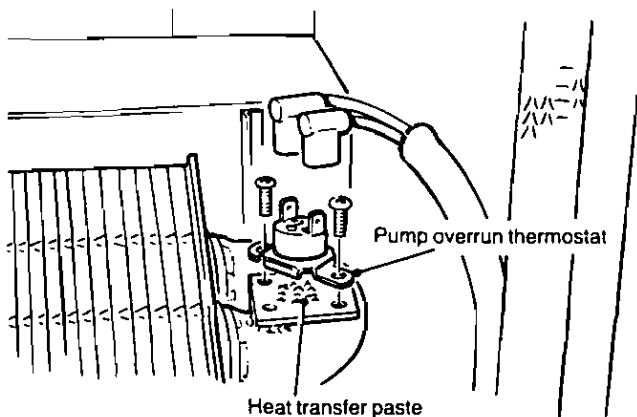
23 TO REPLACE THE LIMIT THERMOSTAT

1. Remove attic (see frame 16).
2. Unfasten the control box and swing it down.
3. Disconnect white thermostat leads from interrupter bodies on the gas valve (see frame 33).
4. Remove heat shield (1 screw).
5. Unclip leads from the right-hand side of the combustion chamber and pull through base.
6. Remove thermostat (2 screws) from the front mounting plate on the heat exchanger. Do not remove heat transfer paste from the mounting plate.
7. Reassemble in reverse order with new thermostat.



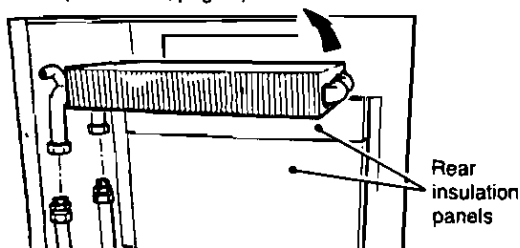
24 TO REPLACE THE PUMP OVERRUN THERMOSTAT

1. Remove attic (see frame 16).
2. Disconnect red leads from the rear thermostat on the right-hand side of the heat exchanger.
3. Remove thermostat from mounting plate (2 screws). Do not remove heat transfer paste from the mounting plate.
4. Reassemble in reverse order with new thermostat.



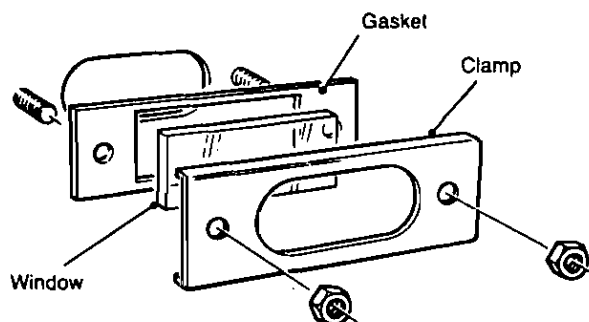
25 TO REPLACE THE HEAT EXCHANGER

1. Remove attic (see frame 16).
2. Close the central heating isolation valves (see frame 8, page 8) and drain primary circuit by manually opening safety valve (illustrated frame 10, page 9).
3. Remove thermostats from heat exchanger (frames 23, 24). Do not remove heat transfer paste from thermostats.
4. Remove side insulation holders (see frame 16).
5. Unscrew the 2 upper unions on the heat exchanger pipes. Lift heat exchanger, tilting with right side higher to remove.
6. Reassemble in reverse order with new part, ensuring that the upper and lower rear insulation panels are properly located.
7. Fill and vent the system as described in the Commissioning instructions (Section 13, page 9).



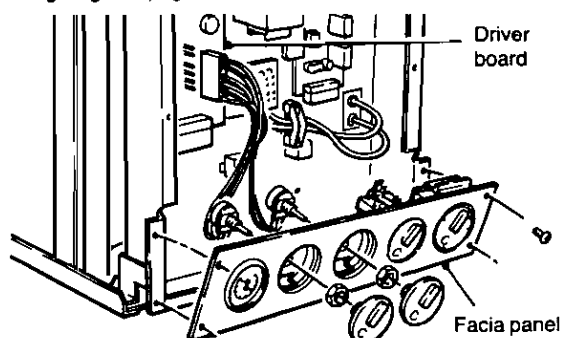
26 TO REPLACE THE VIEWING WINDOW

1. Remove viewing window from combustion chamber door (2 nuts, 2 washers).
2. Replace with new window and new gasket.



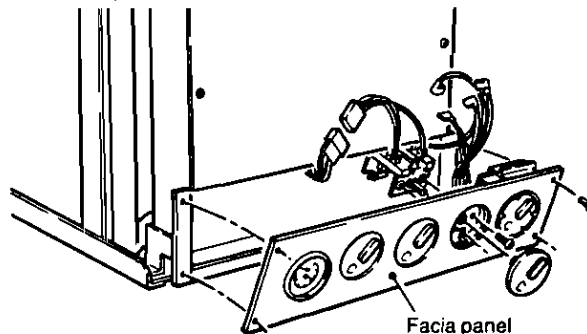
27 TO REPLACE THE TEMPERATURE CONTROLS

1. Detach the control box facia panel (4 screws) and carefully pull forward. Remove cover (2 screws). Refer to illustration, frame 37.
2. Disconnect terminal housing from the driver board.
3. Push off the front knobs using a screwdriver from behind through spaces provided in the facia panel.
4. Unscrew 2 front mounting nuts and remove both temperature controls.
5. Reassemble in reverse order with new parts and check with wiring diagram, page 18.



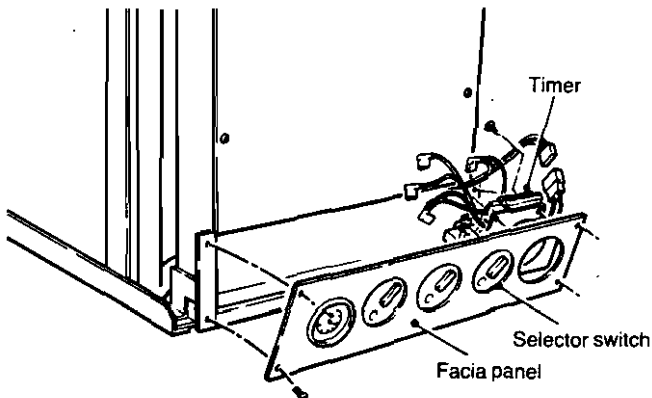
28 TO REPLACE THE SELECTOR SWITCH

1. Detach the facia panel (4 screws) from the control box and carefully pull forward.
2. Carefully note the connections to the selector switch and disconnect.
3. Push off the front knob using a screwdriver from behind through spaces provided in the facia panel.
4. Unscrew 2 front mounting screws and remove selector switch.
5. Reassemble in reverse order with new switch and check with wiring diagram, page 18.



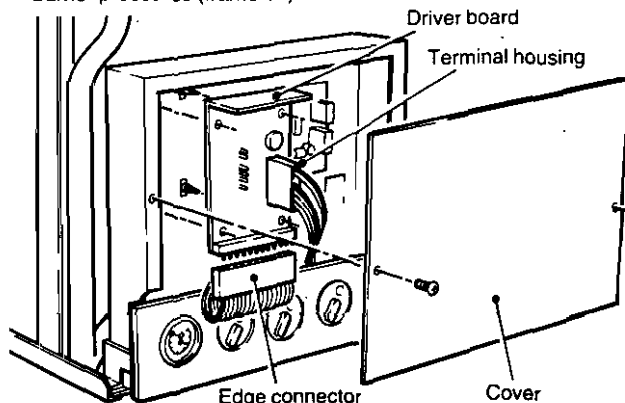
29 TO REPLACE THE TIMER

1. Detach the fascia panel (4 screws) from the control box and carefully pull forward.
2. Carefully note the 4 connections from the timer to the selector switch and disconnect. Disconnect plug.
3. Remove timer from fascia panel (3 screws).
4. Reassemble in reverse order with new parts and check with wiring diagram, page 18.



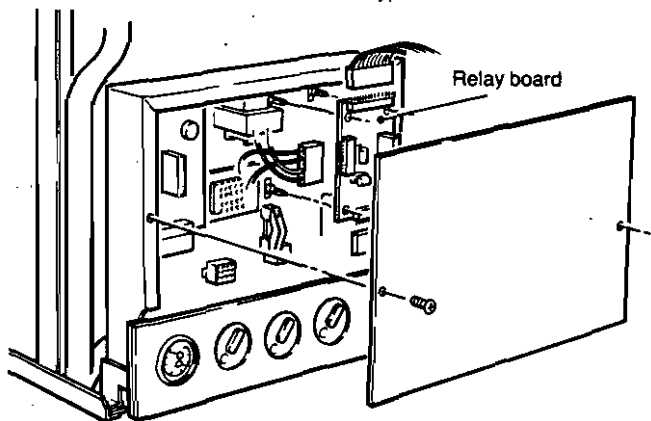
30 TO REPLACE THE DRIVER BOARD

1. Remove the control box cover (2 screws).
2. Carefully pull off the edge connector and terminal housing from the driver board.
3. Pull the board off the mounting pillars.
4. Reassemble in reverse order with a new driver board.
5. Refer to Commissioning instructions, page 9, and adjust the burner pressures (frame 13).



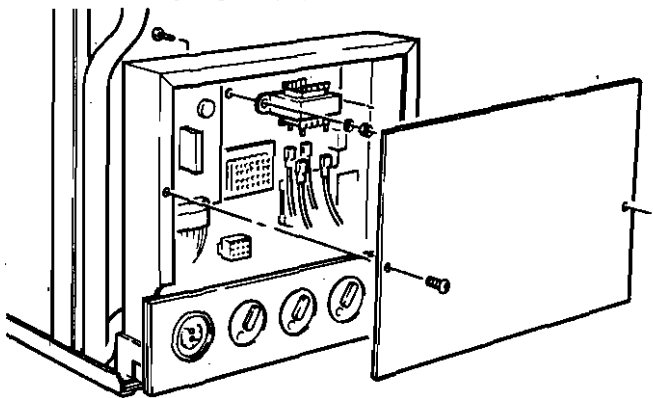
31 TO REPLACE THE RELAY BOARD

1. Remove the control box cover (2 screws).
 2. Carefully remove edge connectors from the relay board.
 3. Pull the board off the mounting pillars.
 4. Reassemble in reverse order with a new relay board.
- Note:** When replacing fuses on the relay board use correct rating. The 1A fuse must be the slow blow type.



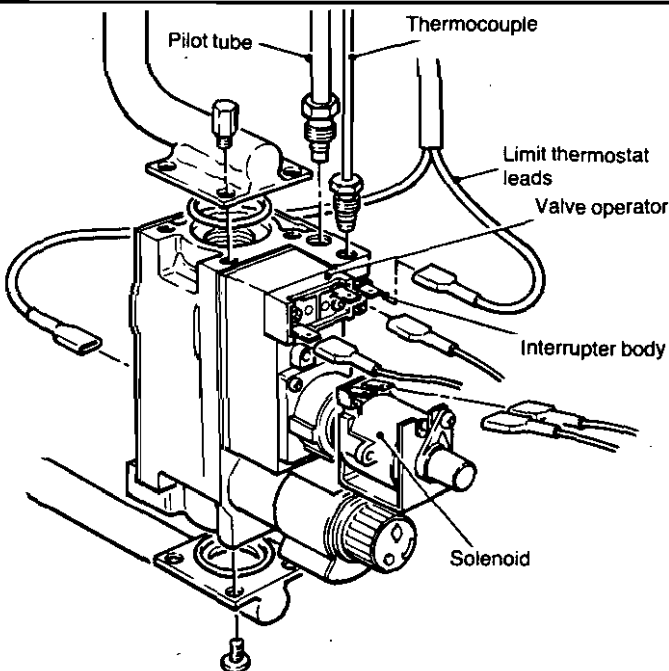
32 TO REPLACE THE TRANSFORMER

1. Remove the control box cover (2 screws).
2. Carefully note connections to the transformer terminals and disconnect.
3. Unfasten the control box and swing it down.
4. Remove transformer (2 screws, nuts, washers).
5. Reassemble in reverse order with new transformer and check with the wiring diagram, page 18.



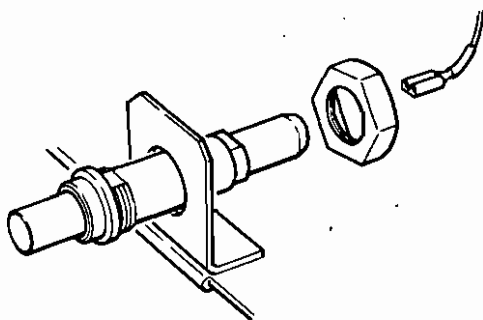
33 TO REPLACE THE GAS VALVE

1. Unfasten the control box and swing it down.
2. Disconnect the white limit thermostat leads from adaptors at top and rear of the gas control valve.
3. Disconnect blue leads from the valve operator and yellow leads from the solenoid.
4. Unscrew thermocouple nut from the top of the valve and remove interrupter body.
5. Unscrew pilot tube nut from the top of the valve.
6. Remove 4 fixing screws from top flange and 4 fixing screws from bottom flange.
7. Remove gas control valve. Note positions of 'O' rings between valve and both flanges.
8. Reassemble in reverse order with new valve and using new 'O' rings. Tighten the fixing screws evenly in a diagonal sequence.
9. Check for gas soundness.
10. It is essential to adjust the minimum and maximum burner pressures. Refer to Commissioning instructions, frames 12 and 13, page 10.



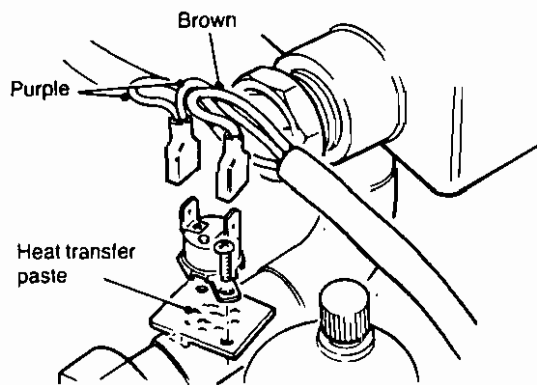
34 TO REPLACE THE PIEZO IGNITER

1. Disconnect electrode lead from Piezo igniter.
2. Unscrew mounting nut and remove igniter.
3. Reassemble in reverse order with new part.



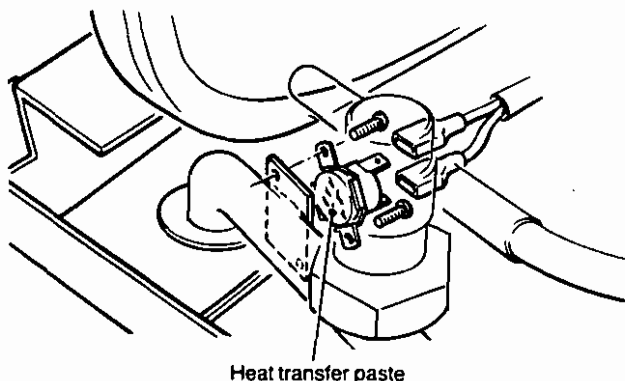
35 TO REPLACE THE REHEAT THERMOSTAT

1. Unfasten the control box and swing it down.
2. Disconnect leads (2 purple, 1 brown – note location) from thermostat on the outlet pipe beneath the left-hand pump.
3. Remove thermostat (2 screws) from mounting plate. Do not remove the heat transfer paste.
4. Reassemble in reverse order with new thermostat.



36 TO REPLACE THE DOMESTIC HOT WATER OVERHEAT THERMOSTAT

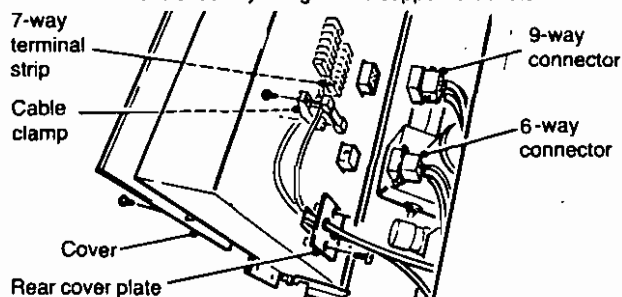
1. Unfasten the control box and swing it down.
2. Disconnect 2 grey leads from the thermostat on the hot water outlet pipe behind the flow switch.
3. Remove thermostat (2 screws) from mounting plate. Do not remove the heat transfer paste.
4. Reassemble in reverse order with new thermostat.



37 TO REMOVE THE CONTROL BOX

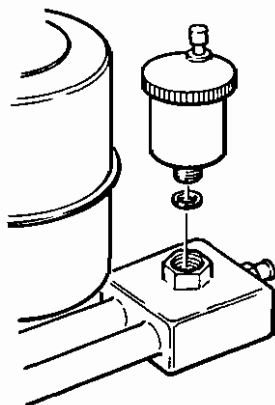
The complete control box can be removed to improve access to the plumbing components as follows:

1. Unfasten the control box and swing it down.
2. Separate the 9 and 12 way plug/sockets on back of control box.
3. Remove cover plate from the back of the control box (2 screws).
4. Remove cover (2 screws) and detach top of cable clamp (2 screws).
5. Separate the 7 way plug/socket terminal strip and remove the socket through the hole in the back of the control box.
6. Remove the temperature gauge phial from its pocket and the pressure gauge connection from the check valve on the safety valve (see frame 39).
7. Remove the control box by lifting off the support brackets.



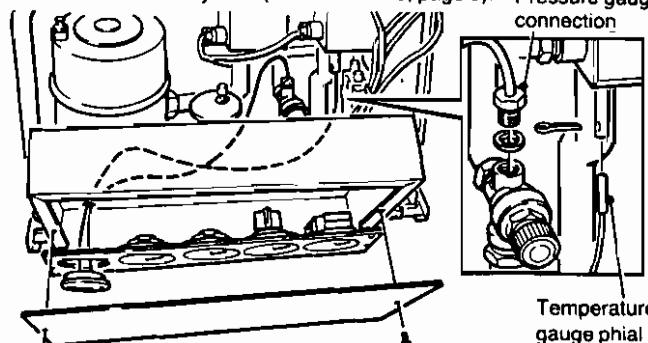
38 TO REPLACE THE AUTOMATIC AIR VENT

1. Unfasten the control box and swing it down.
2. Close the central heating isolation valves (see frame 8, page 8) and drain primary circuit by opening the drain point on the air separator (refer to illustration, page 6).
3. Unscrew automatic air vent and remove.
4. Reassemble in reverse order with new part and new washer.
5. Fill and vent the system as described in the Commissioning instructions (Section 13, page 9).



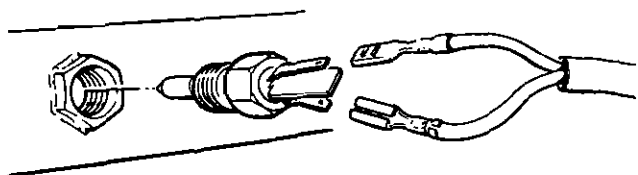
39 TO REPLACE THE TEMPERATURE/PRESSURE GAUGE

1. Unfasten the control box and swing it down.
2. Remove temperature gauge phial from pocket on flow pipe.
3. Close the central heating isolation valves (see frame 8, page 8) and drain primary circuit by manually opening the safety valve.
4. Unscrew pressure gauge connection from top of the safety valve.
5. Remove the control box cover (2 screws).
6. Compress clips on body of gauge and push through.
7. Reassemble in reverse order with new gauge and new washer.
8. Fill and vent the system (see Section 13, page 9).



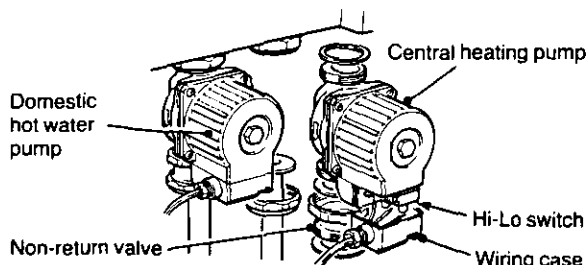
40 TO REPLACE THE CENTRAL HEATING SENSOR

1. Unfasten the control box and swing it down.
2. Close the central heating isolation valves (see frame 8, page 8) and drain primary circuit by manually opening safety valve (illustrated frame 10, page 9).
3. Disconnect pink leads from sensor in manifold under combustion chamber. Unscrew sensor.
4. Reassemble in reverse order with new sensor using thread sealant.
5. Fill and vent the system as described in the Commissioning instructions (Section 13, page 9).



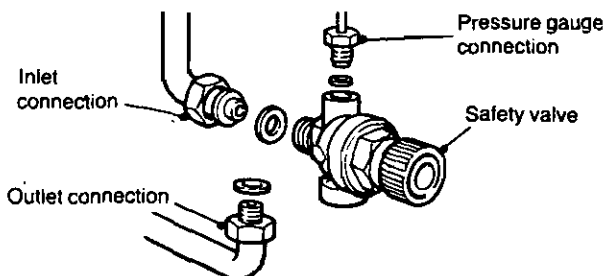
41 TO REPLACE A PUMP OR NON-RETURN VALVE

1. Unfasten the control box and swing it down.
2. Close the central heating isolation valves (see frame 8, page 8) and drain primary circuit by manually opening safety valve (illustrated frame 10, page 9), and drain point on the air separator (illustrated frame 43, page 16).
3. Remove wiring case (1 screw) beneath pump. Note connections, disconnect leads and remove pump and valve.
4. Reassemble in reverse order with new pump or non-return valve, using new washers. Pump runs downward. Set to highest speed.
5. Fill and vent the system as described in the Commissioning instructions (Section 13, page 9).



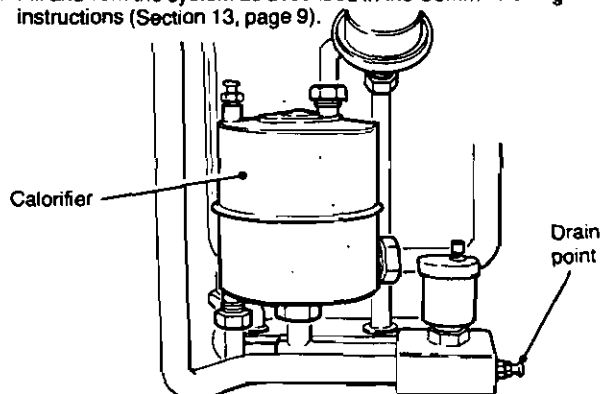
42 TO REPLACE THE SAFETY VALVE

1. Unfasten the control box and swing it down.
2. Close the central heating isolation valves (see frame 8, page 8) and drain primary circuit by manually opening safety valve (illustrated frame 10, page 9).
3. Unscrew pressure gauge connection from the safety valve.
4. Unscrew outlet connection from under the safety valve.
5. Unscrew inlet connection from rear of safety valve.
6. Remove safety valve and reassemble in reverse order with new part and new washers.
7. Fill and vent the system as described in the Commissioning instructions (Section 13, page 9).



43 TO REPLACE THE CALORIFIER

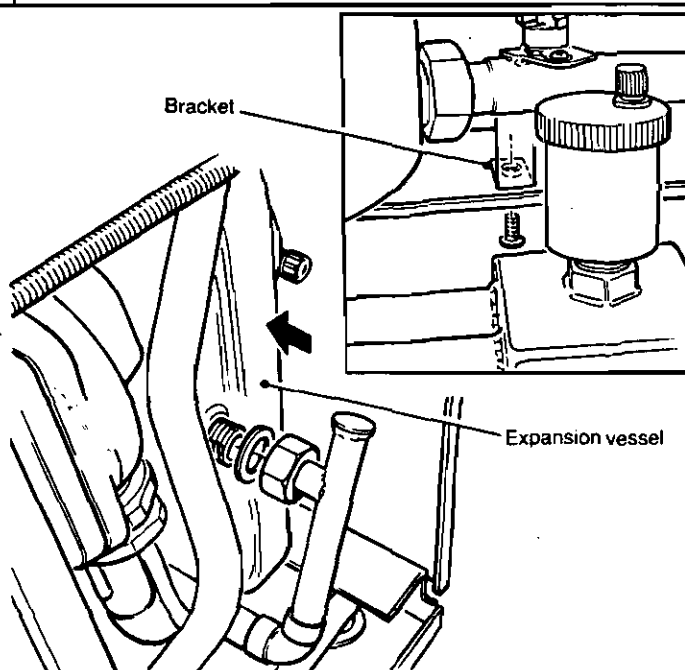
1. Unfasten the control box and swing it down.
2. Close all isolation valves. Drain the system using the lowest hot water taps, the drain points on the mains isolation valve and air separator, and by manually opening the safety valve.
3. Unscrew the 4 union nuts and remove calorifier.
4. Reassemble in reverse order with new part and new washers.
5. Fill and vent the system as described in the Commissioning instructions (Section 13, page 9).



44 TO REPLACE THE CENTRAL HEATING EXPANSION VESSEL

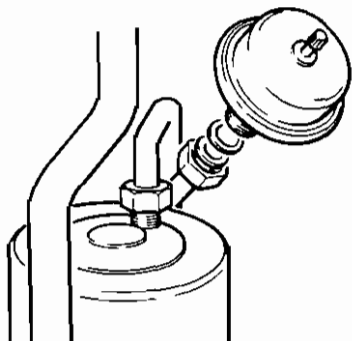
If 450 mm clearance is available to the left of the boiler the expansion vessel can be removed in situ. Otherwise, the boiler will have to be removed from the wall, in which case refer to the Installation instructions (Section 11) and use, in reverse order, frames 9, 8, 7 and 5. On completion refer to Section 13: Commissioning instructions. Alternatively fit new expansion vessel into the flow pipe, external to the boiler.

1. Unfasten the control box and swing it down.
2. Remove the left-hand casing.
3. Close all isolation valves and drain the system using the lowest hot water taps, the drain point in the mains isolation valve and by manually opening the safety valve.
4. Remove flow switch from hot water outlet pipe (see frame 48).
5. Remove bracket from bottom plate below expansion vessel (1 screw).
6. Unscrew union at right-hand side of expansion vessel.
7. Slide expansion vessel out to the left of the boiler.
8. Reassemble in reverse order with new expansion vessel and new washer.
9. Fill and vent the system as described in the Commissioning instructions (Section 13, page 9).



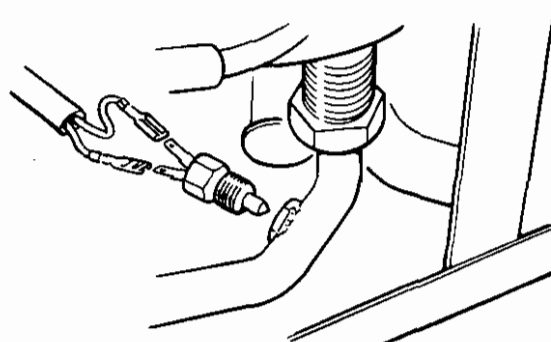
45 TO REPLACE THE MINI EXPANSION VESSEL

1. Unfasten the control box and swing it down.
2. Close mains water inlet isolation valve (see frame 8, page 8) and drain the secondary circuit by using the drain point at the isolation valve and by opening the lowest hot water taps.
3. Unscrew the mini expansion vessel and remove.
4. Reassemble in reverse order with new part using new washer.
5. Fill and vent the system as described in the commissioning instructions (Section 13, page 9).



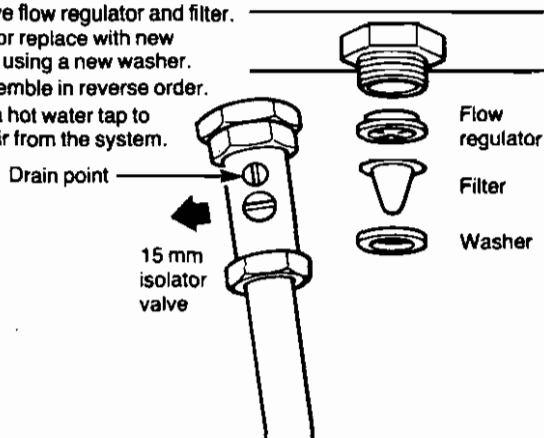
46 TO REPLACE THE DOMESTIC HOT WATER SENSOR

1. Unfasten the control box and swing it down.
2. Close mains water inlet isolation valve (see frame 8, page 8) and drain the secondary circuit by using the drain point at the isolation valve and by opening the lowest hot water taps.
3. Disconnect orange leads from sensor in 15 mm outlet pipe.
4. Unscrew sensor from pipe.
5. Reassemble in reverse order with new sensor using thread sealant.
6. Open a hot water tap to clear air from the system.



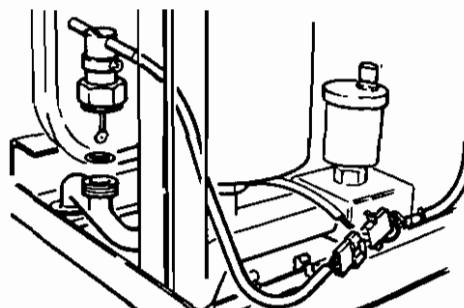
47 TO REPLACE THE FLOW REGULATOR AND FILTER

1. Close mains water inlet isolation valve. Drain by opening the lowest hot water taps and the drain point in the mains isolation valve.
2. The flow regulator and filter housing is situated in the 15 mm mains inlet. Unscrew the union, ease the inlet pipe aside and allow to drain.
3. Remove flow regulator and filter. Clean or replace with new part(s) using a new washer.
4. Reassemble in reverse order.
5. Open a hot water tap to clear air from the system.



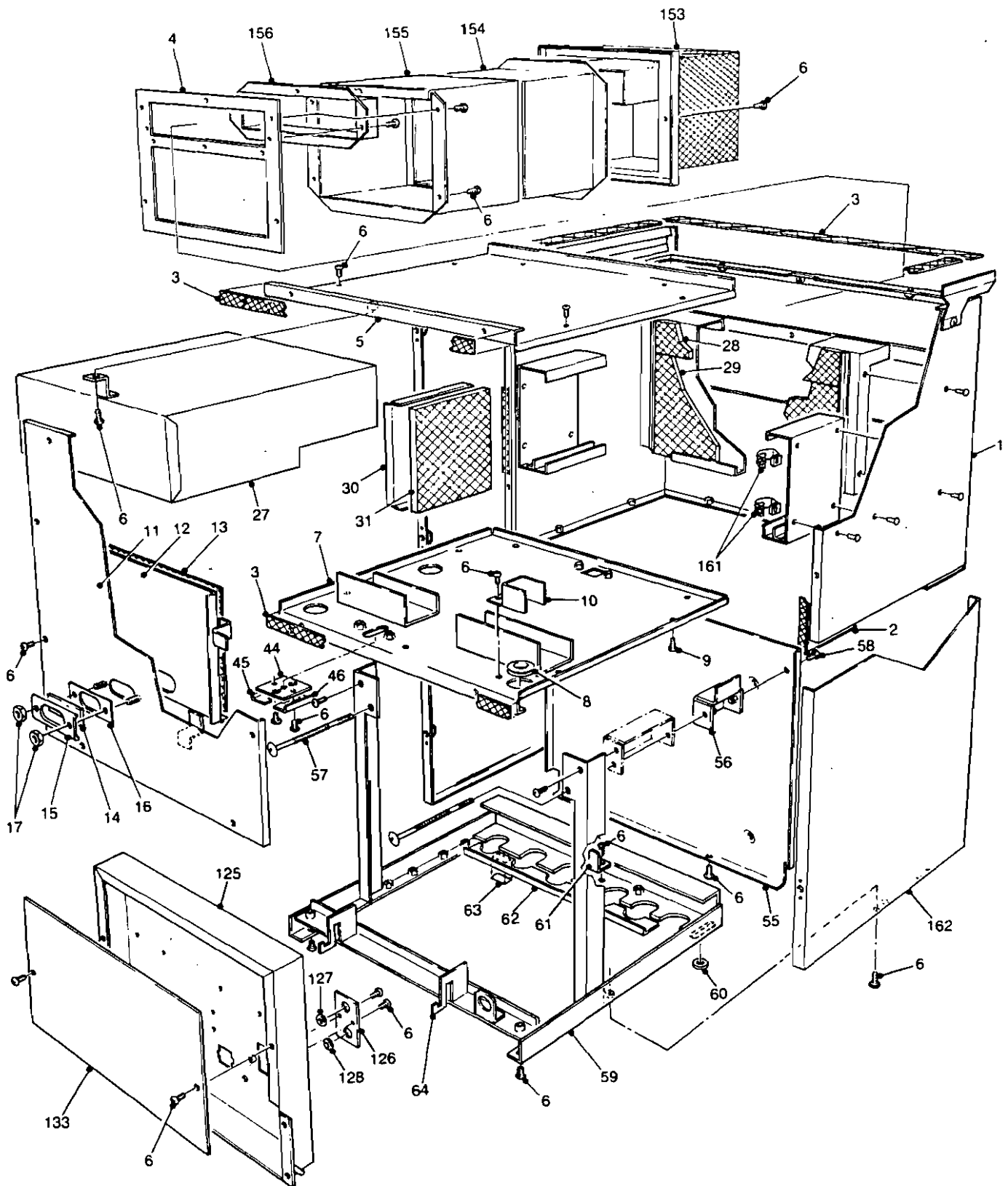
48 TO REPLACE THE FLOW SWITCH

1. Unfasten the control box and swing it down.
2. Close mains water inlet isolation valve (see frame 8, page 8) and drain the secondary circuit by using the drain point at the isolation valve and by opening the lowest hot water taps.
3. Disconnect 3-way connector plug and socket.
4. Unscrew union and remove flow switch.
5. Reassemble in reverse order with new part and new washer. Ensure that the arrow on top of the switch points rearward, parallel to the pipe.
6. Open a hot water tap to clear air from the system.



19. EXPLODED VIEWS

a. Panels and chassis



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.



20. SHORT LIST OF SPARE PARTS

| Key No. | BG.C
Part No. | Item - Description | Qty. | Myson
Part No. |
|---------|--------------------|--|------|-------------------|
| 14 | 322 934 | Sight glass | 1 | 305C282 |
| 16 | 323 149 | Sight glass gasket | 1 | 305C280 |
| 24 | 382 979 | Pump overrun thermostat (Elmwood 2455R 90° C) | 1 | 68/2021/32 |
| 26 | 382 980 | Limit thermostat (Elmwood 2455R 102° C) | 1 | 68/2021/31 |
| 32 | 382 987 | Main burner | 1 | 69/0013/01 |
| 33 | 391 664 | Pilot burner (Honeywell Q359A1041) | 1 | 68/2516/03 |
| 36 | 384 980 | Pilot injector J.38/0.36 mm (Honeywell 45003-508-001) | 1 | 68/2516/12 |
| 39 | 390 039 | Thermocouple (Honeywell Q309A2739) | 1 | 68/2509/07 |
| 42 | 382 984 | Electrode (Vernitron 60951) | 1 | 68/2021/35 |
| 43 | 382 985 | Electrode lead | 1 | 68/2021/36 |
| 47 | 394 214 | Piezo generator (Vernitron 66212) | 1 | 68/2021/14 |
| 51 | 392 927 | Temperature sensor (Honeywell V7335A1004) | 2 | 68/2021/34 |
| 54 | 339 973 | Rubber washer, 45 mm x 33 mm | 4 | 403S332 |
| 66 | 382 978 | Main injector 4.6 mm | 1 | 69/0012/01 |
| 69 | 339 956 | 'O' ring, gas valve | 2 | 99/0019/23 |
| 70 | 381 849 | Multifunctional gas control (Honeywell V8600N2015) | 1 | 68/2021/28 |
| 75 | 339 958 | Expansion vessel, central heating | 1 | 69/0034/62 |
| 77 | 339 960 | Rubber washer, 18 mm x 9 mm | 7 | 403C146 |
| 78 | 339 961 | Safety valve | 1 | 68/2016/30 |
| 79 | 339 962 | Rubber washer, 11 mm x 8 mm | 1 | 99/0016/75 |
| 84 | 394 250 or 392 953 | Pump, central heating (SMC Commodore Combi or Myson Unit 6) | 1 | 69/0018/02 |
| 86 | 339 966 | Rubber washer, 48 mm x 30 mm | 2 | 99/0016/76 |
| 87 | 339 967 | Non return valve | 2 | 69/0018/05 |
| 88 | 395 769 or 382 987 | Pump, domestic hot water (SMC Comet 2-130 or Myson Unit 5) | 1 | 69/0018/01 |
| 90 | 339 969 | Expansion vessel, domestic hot water | 1 | 69/0034/01 |
| 95 | 382 986 | Flow switch (Sika VH315ME) | 1 | 68/2021/30 |
| 96 | 307 330 | 'O' ring, flow switch | 1 | 99/0019/24 |
| 98 | 382 981 | Reheat thermostat (Elmwood 2455R 58° C) | 1 | 68/2021/33 |
| 99 | 339 974 | Rubber washer, 23 mm x 16 mm | 2 | 403C145 |
| 102 | 339 975 | Automatic air vent | 1 | 68/2016/27 |
| 104 | 383 000 | Domestic hot water overheat thermostat (Elmwood 2455R 78° C) | 1 | 68/2021/38 |
| 134 | 382 982 | Driver board (Honeywell W7335B1047) | 1 | 69/0036/01 |
| 135 | 339 984 | Relay board | 1 | 69/0036/02 |
| 135a | — | Fuse 2A, 20 mm | 1 | — |
| 135b | — | Fuse 1A anti surge 20 mm | 1 | — |
| 137 | 339 986 | Temperature controls | 1 | 69/0053/03 |
| 139 | 339 988 | Selector switch | 1 | 99/0153/22 |
| 141 | 382 983 | Time switch (Smith 101274) | 1 | 99/0153/21 |
| 147 | 339 992 | Transformer 24V, 20VA | 1 | 99/0100/30 |
| 171 | 307 311 | Flow regulator 8l/min | 1 | 68/2016/31 |
| 172 | 307 312 | Water filter | 1 | 403C263 |
| 173 | 307 313 | Rubber washer, 23 mm x 13 mm | 1 | 403C258 |