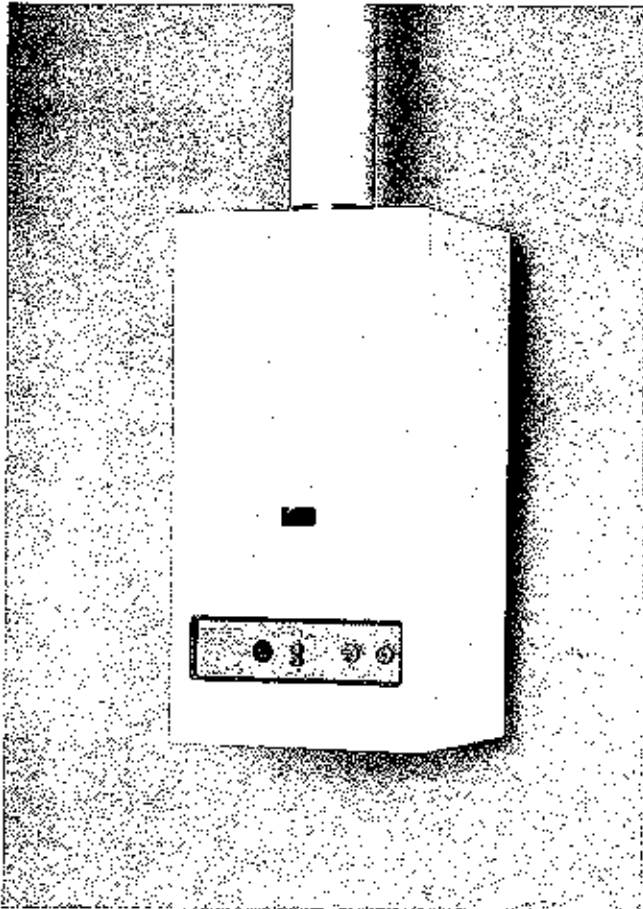




**BOSCH
EUROTHERM COMBI 26 N1 CF**

G.C No.....

WALL MOUNTED OPEN FLUE COMBINATION
BOILER FOR USE WITH NATURAL GAS ONLY



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1 INTRODUCTION

The Eurotherm Combi 26 N1 CF is a wall-mounted, natural draught open flued gas combination boiler. The appliance features an attractive white enamelled casing with an inset grey control fascia panel.

The Eurotherm Combi provides central heating and domestic hot water at outputs between 9.5kW (32,400 Btu/h) and 26.4kW (90,000 Btu/h). Heat output is varied according to demand on both domestic hot water and central heating by the modulating gas control. The appliance gives priority to domestic hot water supply.

The appliance incorporates a thermo-electric flame failure device and a permanent pilot which is ignited by a piezo unit. A mode selector switch enables the user to select the desired mode of operation, either hot water only (for summer use) or hot water and central heating (for winter use). In addition, a standby position is provided. When there is a demand for heat the main burner ignites at it's minimum setting to ensure a smooth quiet ignition before gradually rising to maximum, then modulating according to demand. If the load falls below minimum rate, the burner will cycle on and off to meet the demand.

The boiler is designed for use with sealed water systems and is supplied fully assembled with a circulation pump, pressure and temperature gauges, safety valve and CH expansion vessel. All service connections have isolation valves, and a DHW expansion vessel is also fitted as standard.

An optional Bosch room thermostat or combined room thermostat and time clock (24 hour or 7 day) may be used with this appliance. refer to section 3.7 for further details. Note that only a Bosch room thermostat can be used.

An integral clock kit is available for use with this appliance as an optional extra. Separate literature concerning the fitting and utilisation of this clock is supplied with the kit.

This appliance has been designed to include several benefits for the installer, including an adjustable thermostat differential, and an electronic modulator override switch to assist commissioning. The heat exchanger is a tube in tube type and when operating in hot water mode, the pump does not run, thereby ensuring the minimum delay in supplying hot water.

2 TECHNICAL SPECIFICATIONS

2.1 PERFORMANCE DATA

NOMINAL BOILER RATINGS.

(HOT) DHW & CENTRAL HEATING.

CH & DHW	Output kW (Btu/h) x 100	Input kW (Btu/h) x 100	Burner Pressure mbar (inwg)
Minimum	9.5 (32,4)	13.0 (44,3)	2.0 (0.8)
Maximum	26.4 (90,0)	33.6 (114,6)	11.5 (4.6)

Approximate DHW Flowrate 45°C

Temperature rise = 8.4 l/min (1.9gpm)

Approximate DHW Flowrate 40°C

Temperature rise = 9.5 l/min (2.1gpm)

Approximate DHW Flowrate 35°C

Temperature rise = 10.8 l/min (2.4gpm)

2.2 GENERAL SPECIFICATIONS

Main Burner Injectors	No off	18
	Dia	1.15mm
Water capacity	l (Galls)	1.9 (0.4)
Minimum CH water flow	l/min (gpm)	19 (4.2)
Minimum DHW water flow	l/min (gpm)	2.8 (0.62)
Minimum static head	bar (psi)	0.5 (7.3)
Maximum static head	bar (psi)	3 (43.5)
Minimum DHW Pressure	bar (psi)	0.5 (7.3)
Maximum DHW Pressure	bar (psi)	7.0 (102)
Empty weight	kg (lb)	41(90)
Max lift weight	kg (lb)	40 (88)
Total weight (Full)	kg (lb)	43 (95)
Electrical Supply	220 - 240 V~, 50 Hz, Fused at 3A	
Internal PCB Fuses	T2.5A, & T1A	
Max Power Consumption	Watts 100	
Max Gas Consumption DHW	m ³ /h (ft ³ /h)	3.2 (113)
Max Gas Consumption CH	m ³ /h (ft ³ /h)	3.2 (113)
Max Working Temperature Approx	°C (F)	85 (180)
Integral expansion vessel capacity	l (Galls)	8 (1.5)
CONNECTION SIZES		
Gas Connection	Rc 1/2	
Central Heating Flow	Rp 3/4	
Central Heating Return	Rp 3/4	
Domestic Water Inlet	15mm Compression	
Domestic Water Outlet	15mm Compression	
Pressure Relief Valve Outlet	15mm Compression	

2.3 APPLIANCE DIMENSIONS

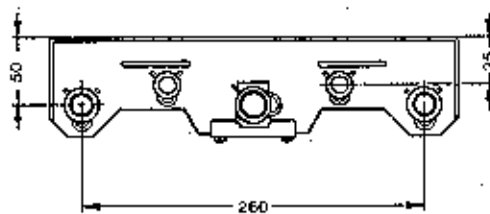
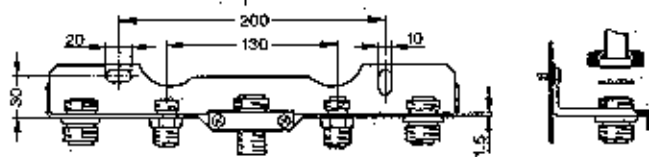
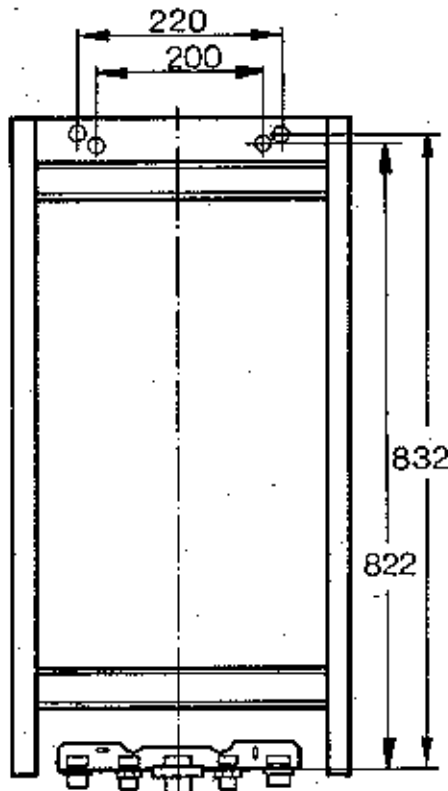
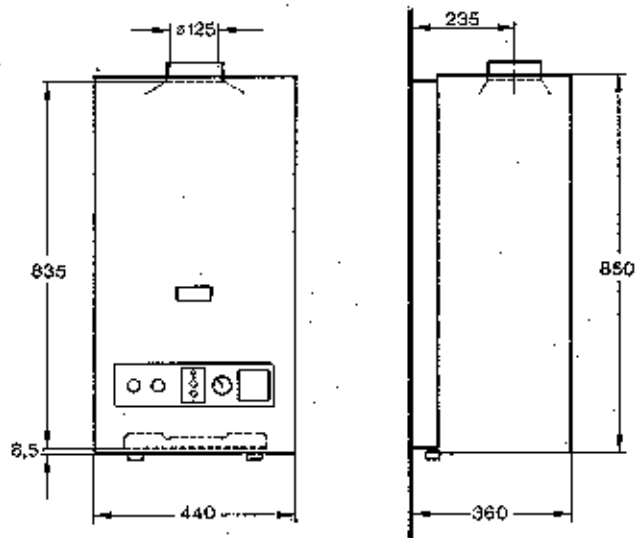


FIG 1 OVERALL DIMENSIONS

2.4 MINIMUM CLEARANCES

The appliance must be mounted at least 900mm above the floor (measured to the bottom of the casing)
The following minimum clearances must be maintained for installation, servicing, and satisfactory operation of the appliance.

Above the appliance casing	350mm	14in
At the R.H.S	50mm	2in
At the L.H.S	50mm	2in
Below the appliance casing	200mm	8in
In front of the appliance	450mm	18in

SPECIAL REQUIREMENTS FOR INSTALLATION IN A COMPARTMENT OR CUPBOARD

If the appliance is to be installed in a cupboard or compartment, the dimensions given in Fig 2 are the minimum required. In addition, it must be possible to remove the door to achieve the above front clearance for servicing.

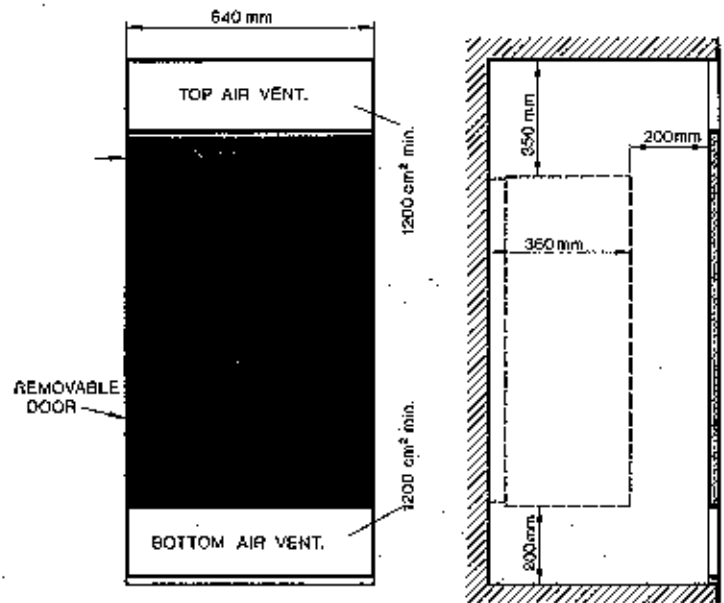


FIG 2 COMPARTMENT DIMENSIONS

FIG 3 EXPLODED DIAGRAM

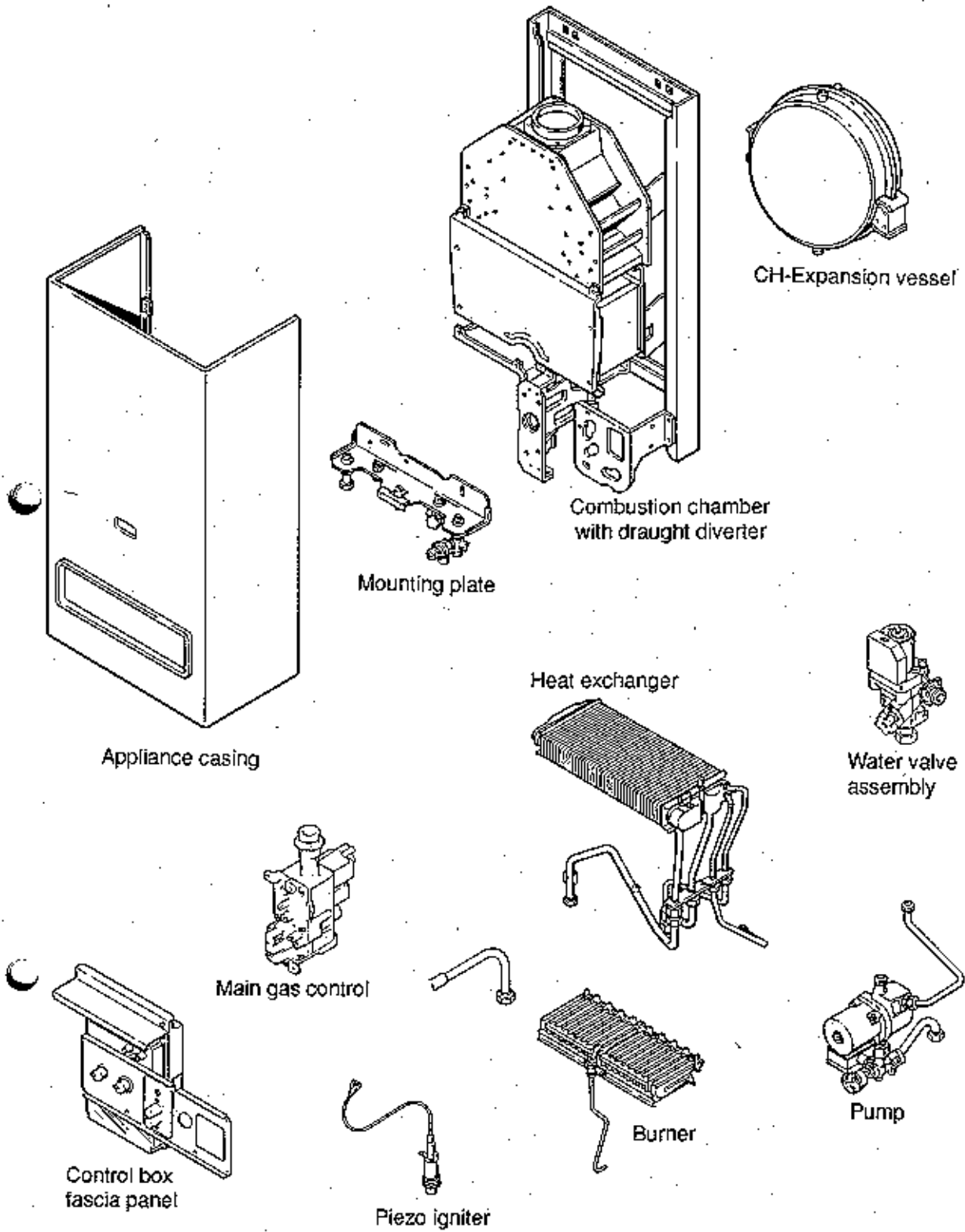
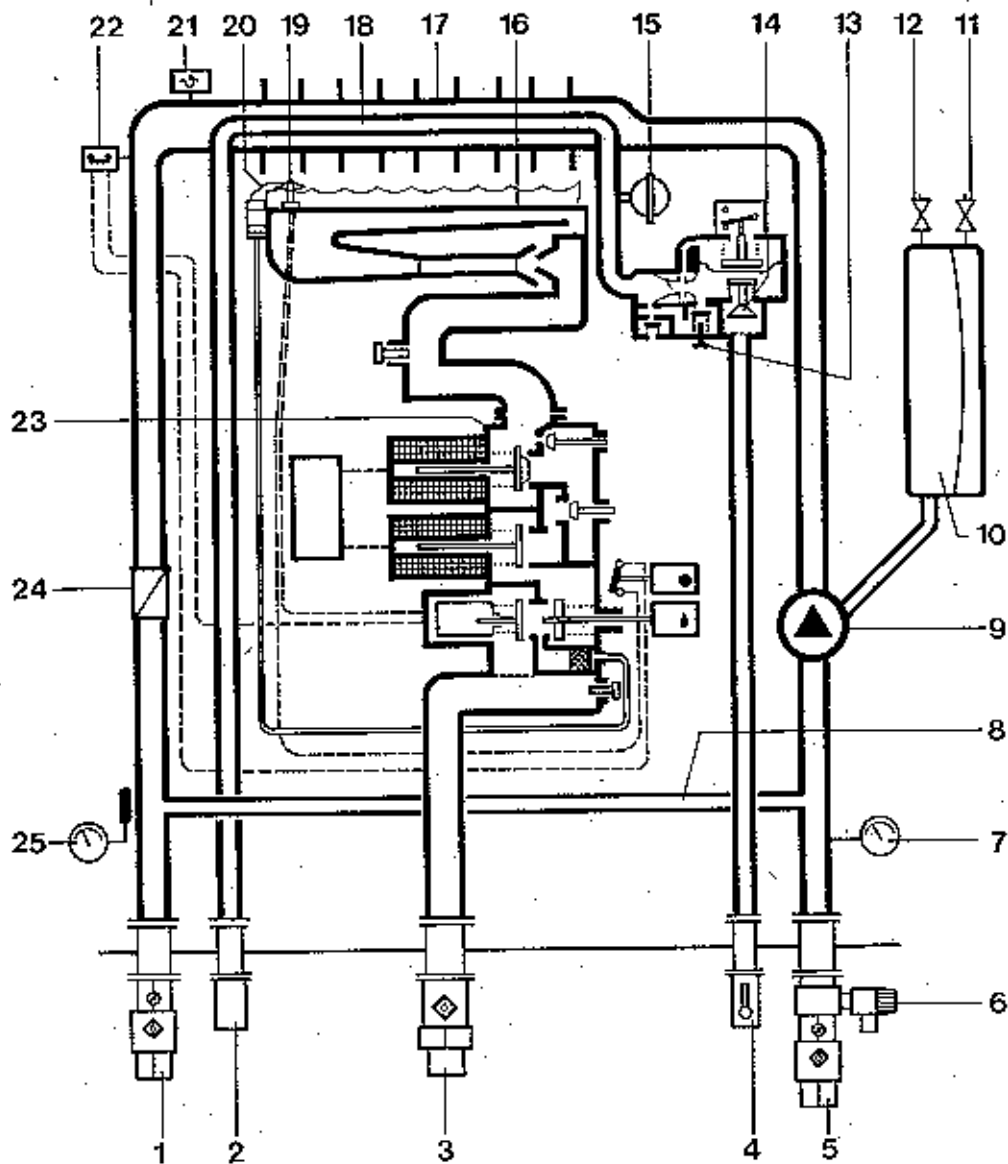


FIG 4 HYDRAULIC CIRCUIT



- 1 Central heating flow isolation valve
- 2 Domestic hot water outlet
- 3 Union gas service cock
- 4 Domestic hot water inlet isolation valve
- 5 Central heating return isolation valve
- 6 Pressure relief valve
- 7 Pressure gauge
- 8 By-pass
- 9 Pump
- 10 CH expansion vessel
- 11 CH expansion vessel pressuration valve
- 12 Air vent
- 13 Water governor restrictor screw
- 14 Water governor
- 15 DHW expansion vessel
- 16 Main burner
- 17 Primary heat exchanger
- 18 Secondary heat exchanger
- 19 Thermocouple
- 20 Pilot burner
- 21 NTC (Temperature sensor)
- 22 Overheat thermostat (in thermocouple circuit)
- 23 Main gas control
- 24 Non-return valve
- 25 Temperature gauge

3 INSTALLATION REQUIREMENTS

3.1 STATUTORY REQUIREMENTS

THE GAS SAFETY (INSTALLATION AND USE) REGULATIONS 1984 (AS AMENDED). It is the law that all gas appliances are installed by a competent person, in accordance with the above regulations. Failure to install appliances correctly could lead to prosecution. It is in your own interest, and that of safety, to ensure that the law is complied with.

In addition to the above regulations, this appliance must be installed in accordance with the current IEE Wiring Regulations, local building regulations, the Building Standards (Scotland) (Consolidation) Regulations and bye laws of the local water undertaking. It should also be in accordance with the relevant recommendations in the current editions of the following British Standards and Codes of Practice: BS5449, BS5546, BS5440:1, BS5440:2, BS6798, BS6891, and BG.DM2 **IMPORTANT NOTE:** Manufacturer's instructions must NOT be taken in any way as over-riding statutory obligations.

3.2 BOILER POSITION

In siting the combination boiler, the following limitations **MUST** be observed:

- a) The boiler is not suitable for external installation. The position selected for installation should be within the building, unless otherwise protected by a suitable enclosure, and **MUST** allow adequate space for installation, servicing, and operation of the appliance, and for air circulation around it. (Sections 2.4 and 3.3)
 - b) This position **MUST** allow for a suitable flue system to be fitted. The combination boiler must be installed on a flat vertical wall which is capable of supporting the weight of the appliance and any ancillary equipment.
 - c) If the combination boiler is to be fitted in a timber framed building it should be fitted in accordance with the British Gas publication Guide for Gas Installations In Timber Frame Housing, Reference DM2. If in doubt, advice must be sought from the Local Gas Region.
 - d) This appliance **MUST NOT** be installed in any room containing a bath or a shower and **MUST NOT** be installed in a garage. The Gas Safety (Installation and Use) Regulations 1984 (as amended) and the Building Regulations (Section J) forbid the use of open flued appliances in these rooms.
 - e) A compartment used to enclose the appliance **MUST** be designed and constructed specifically for this purpose. The requirements given in section 2.4 must be strictly adhered to. An existing cupboard, or compartment, may be used provided it is modified accordingly. BS 5376:2 gives details of the essential features of cupboard / compartment design, including airing cupboards.
- NOTE :** Installation in airing cupboards is **NOT** recommended.
- f) Where installation will be in an unusual location, special procedures may be necessary. BS 6798 gives detailed guidance on this aspect.

3.3 VENTILATION REQUIREMENTS

Detailed recommendations for air supply are given in BS 5440:2. The following notes are for general guidance.

- a) It is necessary to have a purpose provided air vent in the room or internal space in which the appliance is installed. This air vent must be permanent and have a free area of at least 120 cm² (19 in²)
- b) If the boiler is to be installed in a cupboard or compartment, permanent air vents are required for satisfactory performance in the cupboard or compartment at both high and low levels (See fig 2). Both air vents must communicate with either the same internal room / space or be on the same wall to external air and both air vents must have a minimum effective free area of 1200 cm². (186 in²). Note that this requirement is in excess of the ventilation requirements stated in BS 5440, but is necessary to ensure maximum performance of this appliance. Failure to meet these requirements could cause a severe safety hazard.

3.4 GAS SUPPLY

- a) The Local Gas Region should be consulted at the installation planning stage in order to establish the availability of an adequate supply of gas.
 - b) An existing service pipe **MUST NOT** be used without prior consultation with the Local Gas Region.
 - c) A gas meter can only be connected by the Local Gas Region or by a Local Gas Region Contractor.
 - d) An existing meter should be of sufficient size to carry the maximum boiler input plus the demand of any other installed appliance. BS 6891: 1988 The gas required for the boiler is 3.2m³ /h (110ft³/h).
 - e) The governor at the meter must give a constant outlet pressure of 20 mbar (8 in.wg) when the appliance is running.
 - f) The gas supply line should be purged.
- WARNING:** Before purging open all doors and windows, also extinguish any cigarettes, pipes, and any other naked lights.
- g) The complete installation must be tested for gas soundness.

3.5 FLUE SPECIFICATIONS

The flue **MUST** be installed in accordance with the recommendations of BS:5440:1

The following notes are for general guidance only:

- a) The cross sectional area of the flue, which serves the boiler, **MUST** be **NOT** less than the area of the flue outlet of the boiler. If flue pipe is used, it **MUST** be **NOT** less than 125 mm (5 in) in diameter.
- b) The appliance is designed to accept flue pipes constructed to BS 715. One of the following materials should be used for the construction of flue pipes and fittings:
 - (i) Aluminium
 - (ii) Stainless Steel
 - (iii) Other approved material

c) If double walled flue pipe is used, it should be of a type acceptable to British Standards and the building regulations.

d) If a chimney is to be used, preferably it should be composed of, or lined with, a non-porous acid resistant material.

NOTE Chimneys which are lined with salt-glazed, earthenware pipes are acceptable if the pipes comply with BS 65 and BS 5440:1. For the initial connection to the lined chimney, a flue pipe constructed from one of the above materials 2(a), 2(b), or 2(c) should be used. Where a chimney is to be used that is not composed of or lined with, a non-porous, acid resistant material, it should be lined with a stainless steel flexible flue liner which is acceptable to British Gas. The internal diameter of the liner **MUST NOT BE LESS** than 125mm (5") and the number of joints **MUST** be kept to a minimum.

e) Before inserting a liner, or connecting a boiler, into a previously used flue, the flue **MUST** be thoroughly swept clean of any loose material or soot. If a register plate, restrictor plate, or damper etc. is fitted in the flue, then it **MUST** be removed before connecting the boiler to the flue, or inserting a liner into the flue.

f) The flue should terminate according to the relevant recommendations given in BS 5440:1.

g) A terminal **MUST** be fitted to the flue, and should be of a type which has been tested by British Gas and found satisfactory.

h) The secondary flue system must comply with the requirements of BS5440 part 1.

i) The **MINIMUM** and **MAXIMUM** effective vertical flue heights are 1.0m (3.3ft) and 10m (33ft) respectively, measured from the top of the appliance casing.

j) The flue must take the most direct route practicable and rise continually towards the terminal. Horizontal or very shallow runs should be avoided. A minimum of 600mm (2ft) of vertical flue directly above the draught diverter should be provided. **TO FACILITATE SERVICING, a SLIP SOCKET CONNECTOR MUST be fitted within the 600mm (2ft) long vertical section in order to ensure easy disconnection of the flue pipe from the appliance flue outlet.**

k) The effective vertical flue height must be sufficient to enable the flue to overcome its own resistance i.e. the resistance of the equivalent length, including bends, vertical-horizontal sections, and the terminal. **IN ADDITION, there must be sufficient net suction at the diverter relief outlet to avoid spillage when the appliance is both hot and cold.**

IMPORTANT

It is absolutely **ESSENTIAL** to ensure, in practice, that the flue discharge is in a downdraught free zone, and products of combustion discharging from the terminal cannot re-enter the building, or any other adjacent building, through windows, ventilators, doors, other sources of natural air infiltration or forced ventilator/air conditioning systems.

Test for spillage in accordance with BS5440 Pt 2.

Do not forget to repeat the test with any extractor fan or other gas appliance turned on.

3.6 ELECTRICITY SUPPLY 240V~, 50Hz, Fuse 3A

a) Wiring external to the appliance must be in accordance with the current I.E.E. Wiring Regulations and any local regulations which apply.

b) The mains cable must be at least 0.75mm (20/0.2mm) PVC Insulated to BS6500 table 16.)

c) **THIS APPLIANCE MUST BE EARTHED.**

d) The method of connection to the mains supply must facilitate complete electrical isolation of the appliance. Either a 3A Fused three pin plug and unswitched shuttered socket outlet, both complying with BS1363, or a 3A fused double pole switch having a 3mm contact separation in both poles and serving only the boiler (and its external controls) may be used.

3.7 EXTERNAL CONTROLS

The appliance can be used in conjunction with any of the following Bosch controls (Available as optional extras - see short parts list in section 10 for part numbers.)

INTEGRAL CLOCK KIT*(Clips into the appliance fascia panel.)

BOSCH TR 21 Room Thermostat

BOSCH TRQ 21 T Combined 24 hour clock and room thermostat.

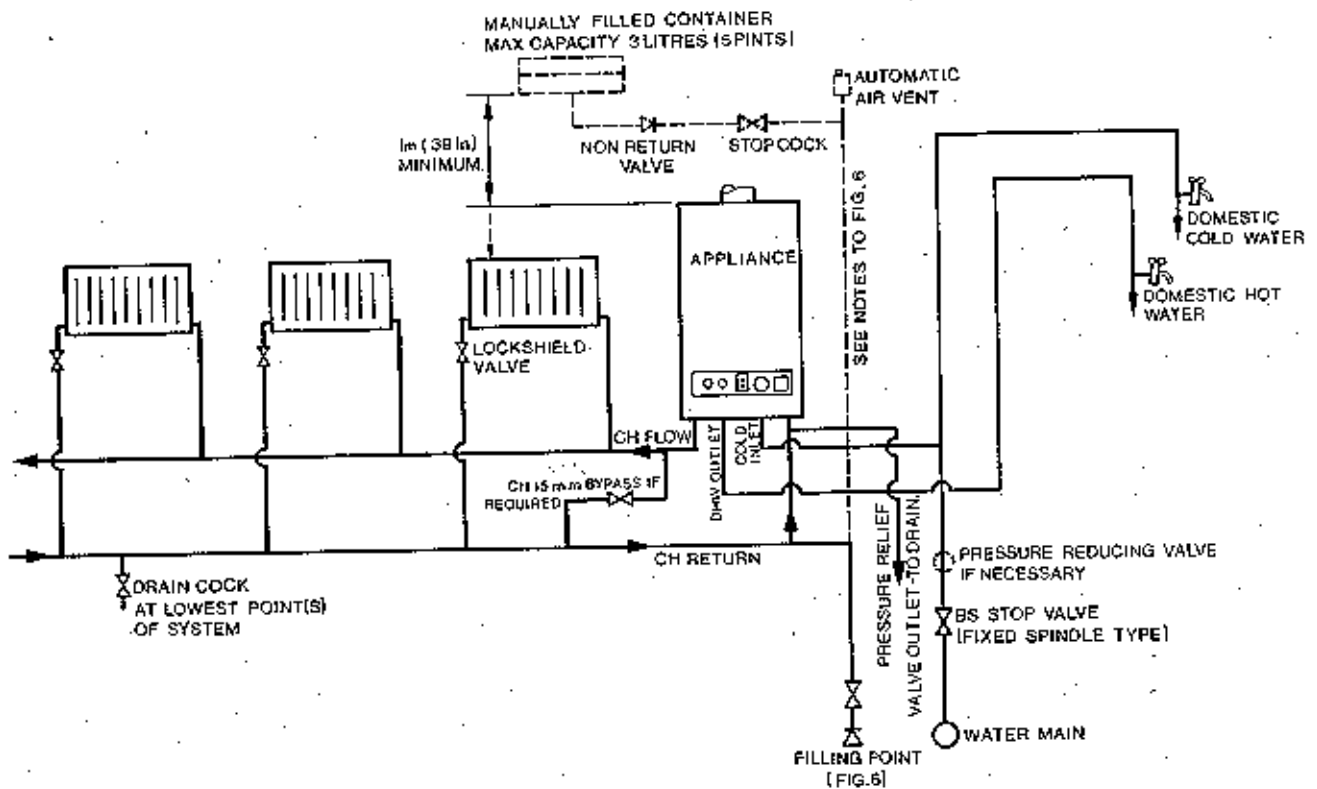
BOSCH TRQ 21 W Combined 7 day clock and room thermostat.

BOSCH TRP 31 Digital combined clock and room Thermostat.

Any of these controls may be wired to the purpose provided terminals in the appliance control box. Fitting instructions are supplied with each control.

* Where a room thermostat is to be used in addition to the integral clock kit, the TR 21 should be specified.

FIG 5 TYPICAL SYSTEM DESIGN

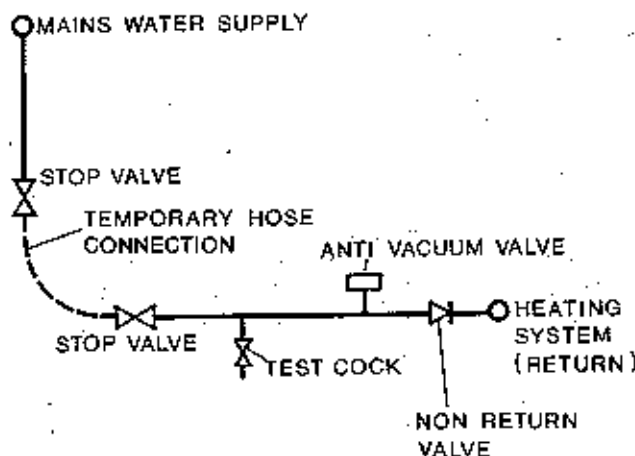


3.8 WATER CIRCULATION SYSTEM - CENTRAL HEATING

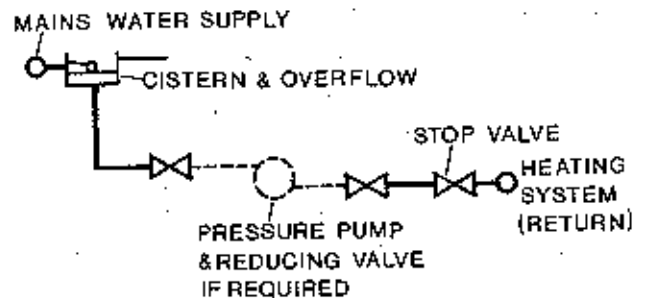
- a) This appliance is designed for connection to sealed central heating water systems only. Refer to Fig 5 for a typical system design.
- b) A sealed system must only be filled by a competent person using one of the approved methods shown in Fig 6. The system design should incorporate the connections appropriate to one of these methods.

FIG 6 Alternative methods of filling a sealed system (BS 6798)

METHOD A



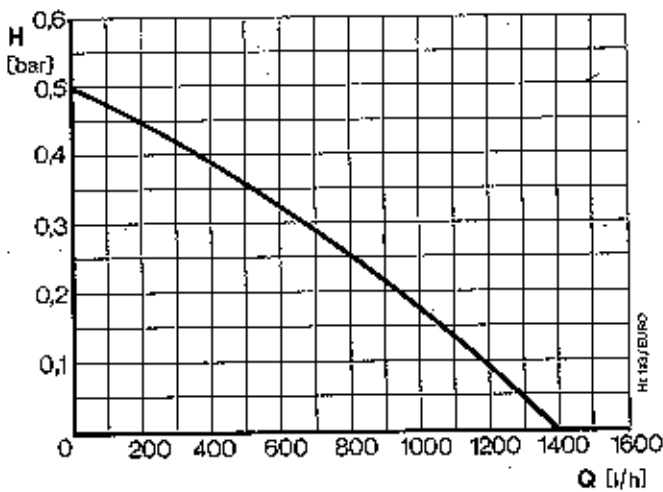
METHOD B



NOTES:

- If it is not possible to avoid a situation where the initial system pressure and static head are equal, a manually fitted top up container should be fitted as shown in fig 5.
- Note that the feed pipe connection should be made to the heating return as close as possible to the appliance.
- The local water undertaking must approve all connections between the system and a water storage system or water main supplying domestic hot water.
- c) The available pump head is given in Fig 7.
- d) A minimum flow rate corresponding to a heating differential of 20°C must be obtained at all times.
- e) Where appropriate a heating by-pass should be fitted to ensure condition (d) is satisfied. A bypass should always be fitted if thermostatic radiator valves are used. (Fig 5)

FIG 7 AVAILABLE PUMP HEAD



f) The following paragraphs outline the specifications of the items fitted to the boiler.

PUMP

The available head shown in Fig 7 is that in excess of the appliance hydraulic resistance, i.e. that available for the system at a heating load of 26.4 kW (90,000 Btu/h).

EXPANSION VESSEL

The following table (Fig 8) gives the maximum system volume that the integral 8 litre expansion vessel can sustain under different charge pressure conditions.

If the system volume exceeds that shown, an additional expansion vessel must be fitted and connected to the heating system primary return pipe as close as possible to the appliance. If an extra vessel is required, ensure that the total capacity of both vessels is adequate. Further details are available in the current issues of BS5449 and BS6798.

NOTE: If the pressure gauge indicates 2.65 bar or greater when the appliance is at maximum temperature with all radiators in circulation an extra expansion vessel is required.

PRESSURE GAUGE

A pressure gauge is situated on the appliance behind the fascia panel and this can be viewed from underneath the front of the appliance.

TEMPERATURE GAUGE

A temperature gauge is included on the fascia panel for the user's convenience.

FIG 8 EXPANSION VESSEL REQUIREMENTS

Vessel charge and initial system pressure	0.5 bar 7.3 psi	1.0 bar 14.5 psi	1.5 bar 21.8 psi
Total water content of system using 8l (1.76 gal.) capacity expansion vessel supplied with appliance.	96 l 21gal	73 l 16gal	51 l 11gal
For systems having a larger capacity multiply the total system capacity in litres (gallons) by the factor to obtain the total minimum expansion vessel capacity required litres (gallons).	0.833	1.09	1.56

PRESSURE RELIEF VALVE

A pressure relief valve set at 3 bar (43.5 psi) is supplied with the appliance for fitting into the heating return connection (6, Fig 3). A discharge pipe should be fitted to terminate safely away from the appliance and where a discharge would not cause damage to persons or property but would be detected. The pipe should be able to withstand boiling water, be a minimum of 15mm in diameter, and not include any horizontal runs prone to freezing.

3.9 DOMESTIC HOT WATER SYSTEMS

a) Check that the mains water pressure is sufficient to produce the required DHW flow rate, but does not exceed the maximum DHW pressure (10 bar). If necessary, a pressure reducing valve must be fitted to the mains supply before the DHW inlet connection.

b) The final 600mm (24in) of the mains supply pipe to the boiler must be copper.

c) A maximum DHW flow rate of 11 l/m (2.4gpm) is recommended. Higher flow rates will not damage the appliance but may lower the water temperature below an acceptable level.

d) If the appliance is installed in an area where the temporary hardness of the water supply is high, say over 150ppm, the fitting of an in line scale inhibitor may be an advantage. Consult the Local Water Undertaking if in doubt.

e) For specific information relating to fittings (eg. showers, washing machines etc) suitable for connection in the DHW circuit, consult the Local Water Undertaking, however the following information is given for guidance:

DOMESTIC HOT/COLD WATER SUPPLY TAPS AND MIXING TAPS.

All equipment designed for use at mains water pressure is suitable.

SHOWERS & BIDETS

Any mains pressure shower or bidet complying with the Local Water Undertaking byelaws is suitable.

4 INSTALLING THE APPLIANCE

4.1 UNPACKING AND PREPARING THE APPLIANCE

a) The appliance is supplied bolted to a wooden pallet inside the carton, underneath these instructions. Ensure that the carton is the correct way up and remove the appliance. A package containing the mounting plate and fittings will be found at the base of the appliance, and a folded paper template will be found inside the carton.

b) Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards. Remove the cardboard packing piece from the front of the combustion chamber.

c) Release the appliance from the wood pallet by removing the two wing nuts and two machine nuts.

4.2 PREPARING THE WALL

Before preparing the wall, ensure that the chosen position is suitable (section 3.2), and check that the requirements for flueing (section 3.5), ventilation (section 3.3), and minimum clearances (section 2.4) are satisfied. The minimum clearances are necessary for satisfactory operation of the appliance.

a) Open the paper template (Fig 9) and tape the template onto the wall in the desired position.

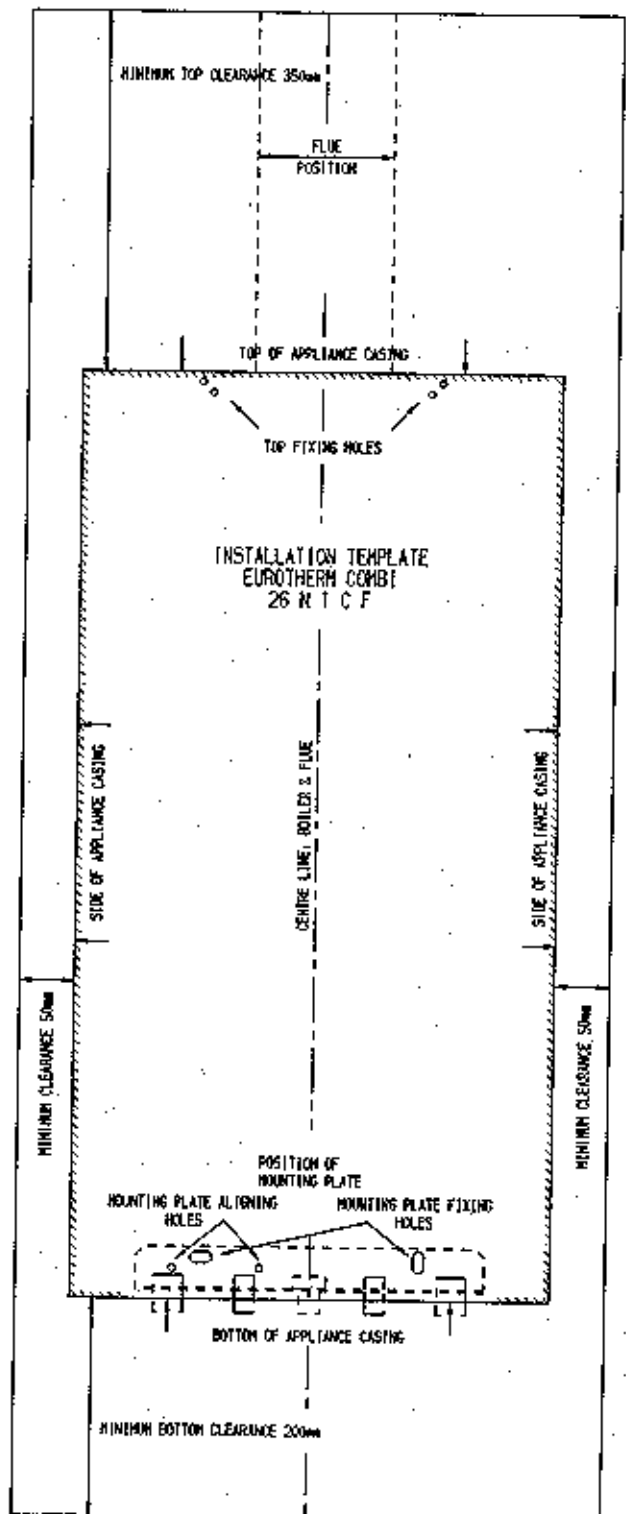
b) Mark the position of the four top fixing holes, the two mounting plate fixing holes, and the two mounting plate alignment holes.

c) Remove the template and drill four of the fixing holes - two at the bottom, and one either side at the top at least 70mm deep using a 10mm masonry drill, then insert the four plastic plugs provided. If either of the top holes is not sound, drill and use the alternative fixing hole position.

d) Screw the mounting plate to the wall (as shown on the template) (Fig 9) with two of the large screws and washers provided in the mounting plate box. Ensure that the mounting plate is horizontal, (by using the alignment holes) and fully tighten the screws.

g) Connect the water, gas, and pressure relief outlet as described in sections 4.3, 4.4, 4.5, and 4.6 before proceeding to hang the appliance on the wall.

FIG 9 WALL MOUNTING TEMPLATE

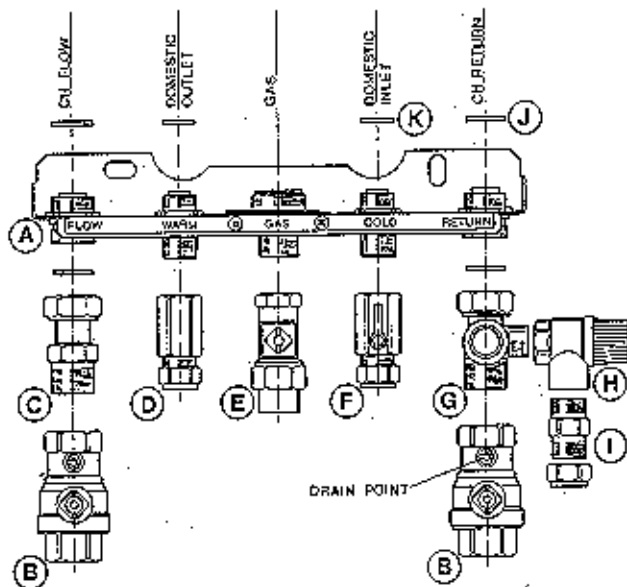


4.3 MOUNTING PLATE CONNECTIONS

Before connecting the system pipework to the mounting plate it is necessary to assemble the connections supplied with the mounting plate. Follow the sequence below, referring to Fig 10. Use a suitable jointing compound where necessary. It is possible to temporarily remove each connector from the mounting plate by removing the spring retaining clip.

This should be done when working in a confined space, but care must be taken to replace the connectors correctly after the joint has been made.

FIG 10 SERVICE CONNECTIONS



- A Mounting Plate as supplied
- B Flow/Return Isolation Valves
- C Straight Adaptor (Flow)
- D Domestic Water Outlet adaptor
- E Union Gas Service Cock
- F Domestic Water Inlet Isolation Valve
- G "T" Adaptor (Return)
- H Pressure Relief valve
- I Pressure Relief Valve Outlet Adaptor
- J Large Fibre Washer
- K Small Fibre Washer

- a) Screw the straight adaptor (C) into one of the flow / return isolation valves (B) as shown in Fig 10, then secure the adaptor nut onto the flow connection using a large fibre washer (J) to ensure a watertight seal.
- b) Screw the domestic water outlet adaptor (D) onto the connection marked 'WARM'.
- c) Screw the Union Gas Service Cock (E) onto the connection marked 'GAS'. Ensure that the union cock is the correct way round (Fig 10).
- d) Screw the domestic water inlet isolation cock (F) onto the connection marked 'COLD'.
- e) Screw the 'T' adaptor (G) onto the other flow / return isolation valve (B). Screw the pressure relief valve (H) onto the side outlet (The PTFE ring will form a seal) and screw the pressure relief valve outlet adaptor (I) into the relief valve outlet. Finally secure the assembly onto the connector marked RETURN, using a large fibre washer.

4.4 WATER CONNECTIONS

- a) Connect the domestic water and central heating pipework to the appropriate connections.

4.5 GAS CONNECTION

- a) Connect the gas supply pipe to the gas service cock as required.

4.6 PRESSURE RELIEF VALVE CONNECTION

- a) Fit pipework to the safety valve outlet as necessary to ensure that any discharge from the safety valve is safely routed to a drain. The discharge pipe must be a minimum of 15mm copper, and should avoid sharp corners or upward pipe runs where water may be retained.

4.7 FITTING THE APPLIANCE ON THE WALL

- a) Remove the plastic covers over the connections on the top of the mounting plate and fit the fibre washers (supplied fastened to the DHW pipework at the bottom of the boiler) Refer to Fig 10. Remove the plastic plugs from the ends of the pipe connections on the boiler, taking care to collect any residual water.
- b) With help from an assistant, lift the appliance onto the mounting plate, align the connections (taking care not to lose or damage the fibre washers) and push the top of the appliance back against the wall.
- c) Screw the two remaining large screws and washers through the top fixing holes to secure the appliance to the wall.
- d) Connect and tighten the connections at the base of the appliance.

4.8 FLUE CONNECTION

- a) When the appliance is securely fixed on position, make the flue connection to the top of the appliance. Ensure that the flue system complies with the requirements of section 3.5. A split collar flue connection must be fitted immediately above the appliance to facilitate servicing.

4.9 WIRING INSTRUCTIONS

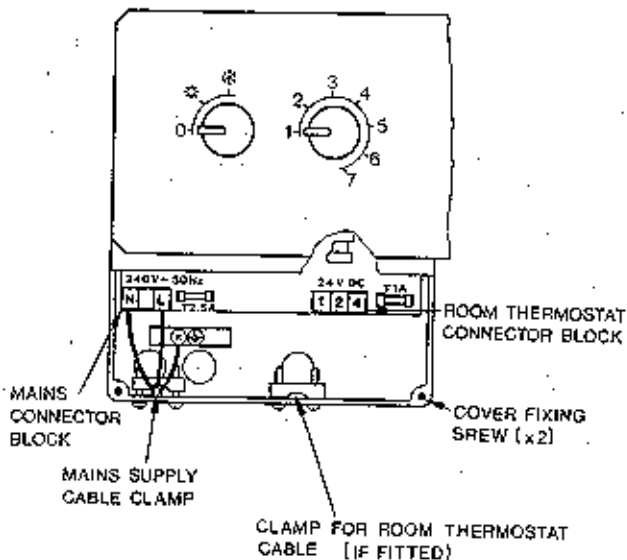
- a) Remove the two screws securing the transparent plastic connection cover situated at the bottom of the control box and route the external supply cable into the control box through the grommet provided (Fig 11).
- b) Connect the supply cable through the cable clamp and connect the brown (or red) wire to the terminal marked L, the blue (or black) wire to the terminal marked N and the green/yellow (or green) wire to the terminal marked ⊕. Ensure that the earth conductor length is such that if pulled from its anchorage the current carrying conductors become taut before the earth conductor.

If a room thermostat is to be fitted, it must be one of the Bosch room thermostats quoted in section 3.7. It must be connected to terminals 1,2 and 4, but specific instructions for installation are contained in each of the available kits.

If the optional integral clock kit is to be fitted, refer to the instructions contained in the clock kit.

After installation carry out preliminary electrical system checks i.e. earth continuity, short circuit, polarity, and resistance to earth.

FIG.11 ELECTRICAL CONNECTIONS



5 COMMISSIONING AND TESTING

Before commissioning the appliance, the whole gas installation including the meter **MUST** be purged and tested for gas soundness in accordance with BS 6891:1988. **IMPORTANT** : Open all doors and windows, extinguish naked lights, and **DO NOT SMOKE** whilst purging the gas line.

Before commencing the commissioning procedure, ensure that the gas service cock is turned on, the electricity supply is isolated, and that the DHW and CH isolation valves are in the closed position

5.1 FILLING THE WATER SYSTEMS

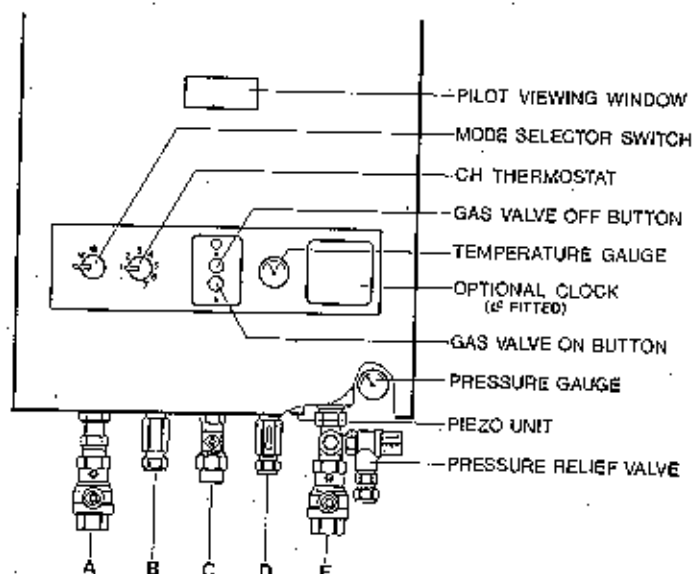
- Open the CH flow and CH return valves. Fig 10.
- Loosen the air vent cap on the expansion vessel behind the draught diverter. Item 12 Fig 4.
- Open all radiator valves and system air vents. Fill the system with water using one of the approved methods described in section 3.8 to about 0.5 bar greater than the system design pressure. Close all air vents except the automatic one on the expansion vessel!
- Check the system for water soundness.
- Completely drain the appliance and heating system, thoroughly flush the system, and refill as in (c) to the system design pressure.
- Open the DHW Inlet valve (Item F Fig 10), open any hot tap, clear of air bubbles. Close hot tap. (Note it is not necessary to vent the DHW expansion vessel)

5.2 COMMISSIONING THE APPLIANCE

- Slacken the screw and connect a pressure gauge to the burner pressure test point on the burner manifold. (Fig 14).
- Ensure that the mode selector knob on the fascia panel (Fig 12) is set to the OFF position and that the gas service cock is turned on.
- Depress the gas valve 'ON' button (lower button Fig 12) and repeatedly press the piezo unit (Fig 12) until the pilot is seen to light through the viewing window.

Continue to hold the button depressed for a further 15 seconds after the pilot has ignited.

FIG 12 FASCIA PANEL AND APPLIANCE CONTROLS



- Central heating flow isolation valve
- DHW outlet connection
- Gas service cock
- DHW inlet isolation valve
- Central heating return isolation valve

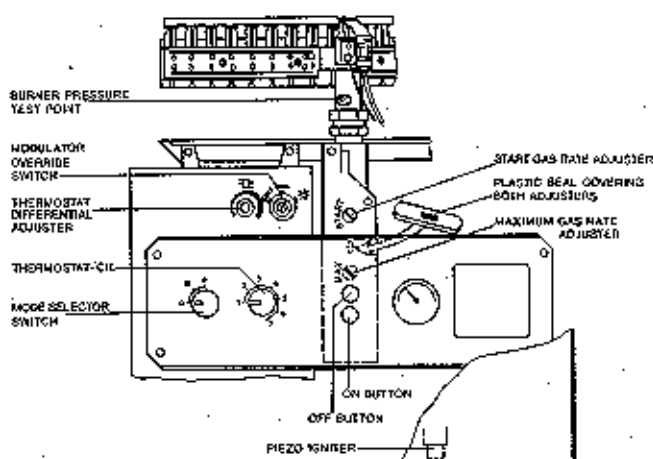
d) If the pilot burner fails to remain alight when the button is released wait three minutes and repeat (c) above, but hold the button depressed for longer than 15 seconds.

WARNING. In the event of the pilot flame being extinguished, always wait three minutes before attempting re-ignition.

If this condition is repeated, check that the pilot flame is approximately 20mm long and envelops the thermocouple (If not, replace the pilot injector as described in section 9 - It is not possible to adjust the pilot flame). If the pilot still fails to remain alight check that the thermocouple output (measured at the gas valve) is at least 5mV. If not, check all thermocouple connections and if necessary replace the thermocouple.

- Test the pilot supply pipe connections for gas soundness using leak detection fluid.
- Turn the mode selector switch to DHW position, (Fig 12) and turn on the electrical supply. Fully open any DHW tap and the burner will light. For the first 5 seconds, the burner will operate at low setting, then increase automatically up to maximum pressure.

FIG 13 INSTALLER CONTROLS



g) Allow the boiler to run for at least five minutes and check that the burner pressure is as stated in section 2.1. This is done by rotating the modulator override switch (Fig 13) to max and min positions to check max and min burner pressures respectively. The burner pressures are factory set and should not require adjusting. If it is necessary to adjust the burner pressure remove the plastic seal retaining the plastic cap (Fig 13), remove the plastic cap, and adjust the max or min setting as appropriate. (Screw clockwise to decrease or anti-clockwise to increase the pressure). Turn the appliance on and off a few times to re-check the burner pressure. Replace the plastic cap and seal using a piece of wire.

DO NOT FORGET TO RESET THE MODULATOR OVERRIDE SWITCH TO NORMAL MODE (Fully clockwise) AFTER CHECKING OR SETTING THE BURNER PRESSURES.

h) Reduce the DHW draw off rate to the minimum necessary to maintain the burner alight by carefully adjusting the DHW Inlet valve and check that the burner pressure decreases in response to DHW temperature rise. Fully open the inlet valve.

i) Close the DHW tap and ensure that the burner is extinguished.

j) Turn the mode selector knob to the heating position. Ensure that the room thermostat (if fitted) is calling for heat. Turn the CH thermostat knob (Fig 12) to maximum (fully clockwise) and the burner will light. For the first 90 seconds (approximately) the burner will operate at low setting, then increase automatically upto maximum pressure. Check that the low setting is 2.0 mbar (0.8 inwg). If adjustment is required, the procedure is described above.

k) Remove the pressure gauge and tighten the sealing screw.

l) Re-light and test for gas soundness.

m) Re-fit the casing by sliding it on from the front, hooking the side guides over the steel rails, and lifting the top to hook it into position before finally tightening the two retaining screws (Fig 18).

5.3 DOMESTIC HOT WATER FLOWRATE

The appliance is fitted with a water governor (and bypass) factory set to ensure satisfactory operation of the appliance as described in the appliance specification (section 2). In normal circumstances this governor does not require any adjustment.

If an installation demands a higher flow rate, but at a lower temperature, this may be provided by rotating the water valve adjuster knob (Fig 17) anticlockwise. (This is accessible from underneath the appliance) The maximum flow rate achievable will depend upon the inlet water pressure.

5.4 FINAL CHECKS

a) When operating at low load on central heating, the appliance will cycle on and off regularly when the system is at maximum temperature. Check that the cycle time is reasonable for the installation. If the appliance is found to cycle very rapidly (less than two minutes), this can be avoided by adjusting the thermostat differential adjuster clockwise to increase the differential. (Fig 13). NOTE: This adjustment is not normally necessary and should not be made unless a problem is found to exist.

b) Set the central heating thermostat to the required setting.

c) Ensure that any external controls are set to their desired settings.

5.5 USER'S INSTRUCTIONS

a) Upon completion of commissioning and testing the system, hand over to the user, with reference to the following.

a) Give the 'Users Instructions' to the householder and emphasise their responsibilities under 'The Gas Safety (Installation and Use) Regulations 1984 (as amended).

b) Explain and demonstrate the lighting and shutdown procedures.

c) Advise the householder on the efficient use of the system, including the use and adjustment of all system controls for both DHW and CH.

d) Advise the user of the precautions necessary to prevent damage to the system, and to the building, in the event of the system remaining inoperative during frost conditions.

e) Explain the function of the boiler over-heat thermostat, and how to re-light the pilot. Emphasise that if cut-out persists, the boiler should be turned off and the installer or service engineer consulted.

f) Stress the importance of an annual service by a competent heating engineer.

6 ROUTINE SERVICING INSTRUCTIONS

To ensure continued efficient operation of the appliance, it is recommended that it is checked and serviced as necessary at regular intervals. The frequency of servicing will depend upon the particular installation conditions and usage but in general once a year should be adequate. It is the law that any service work must be carried out by a competent person such as British Gas or other CORGI registered personnel. Before commencing any service operation, ISOLATE the mains electrical supply, and TURN OFF the gas supply at the main service cock.

Service the appliance by following the full procedure detailed below.

a) MAIN BURNER ASSEMBLY

- 1) Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards (Fig 18).
- 2) Unscrew the 6 screws securing the combustion chamber front panel and remove the panel, taking care not to damage the insulation. (Fig 18).
- 3) Unscrew the pilot pipe union to release the pilot pipe from the pilot assembly, then remove the pilot assembly from the main burner by unscrewing the two screws securing the pilot burner assembly on to the main burner.
- 4) Unscrew the heat shield retaining screw and remove the heat shield.
- 5) Unscrew the burner manifold union and lift the complete assembly out of the appliance. (Fig 14)
- 6) Remove the burner manifold from the burner assembly by disconnecting the posi-head screws. (Fig 14)
- 7) Inspect and if necessary, clean the injectors.
- 8) Inspect and if necessary, clean the main burner bars.
- 9) Re-assemble the main burner assembly by reversing step 6 but do not re-assemble any other components until the service has been completed.

b) PILOT ASSEMBLY

- 10) Carefully unscrew and remove the pilot injector from the pilot burner.
- 11) Inspect the pilot injector. Clean if necessary.
- 12) Inspect and clean (if necessary) the pilot burner. Ensure that it is free from debris.
- 13) Re-assemble the pilot burner assembly but do not re-assemble any other components until the service has been completed.

c) HEAT EXCHANGER

- 14) Inspect the heat exchanger from below the fins. If it is necessary to clean the heat exchanger it is first necessary to remove the draught diverter. To remove the draught diverter, disconnect the flue, unscrew the four diverter fixing screws, and release the two steel clips. (Fig 18) then lift the draught diverter clear of the appliance. Place a clean cloth over the pilot assembly, burner manifold union, and all lower controls to prevent the ingress of dirt before cleaning the fins with a

suitable brush.

- 15) Check that the flue and draught diverter is free from obstructions.

d) SEALED WATER SYSTEM

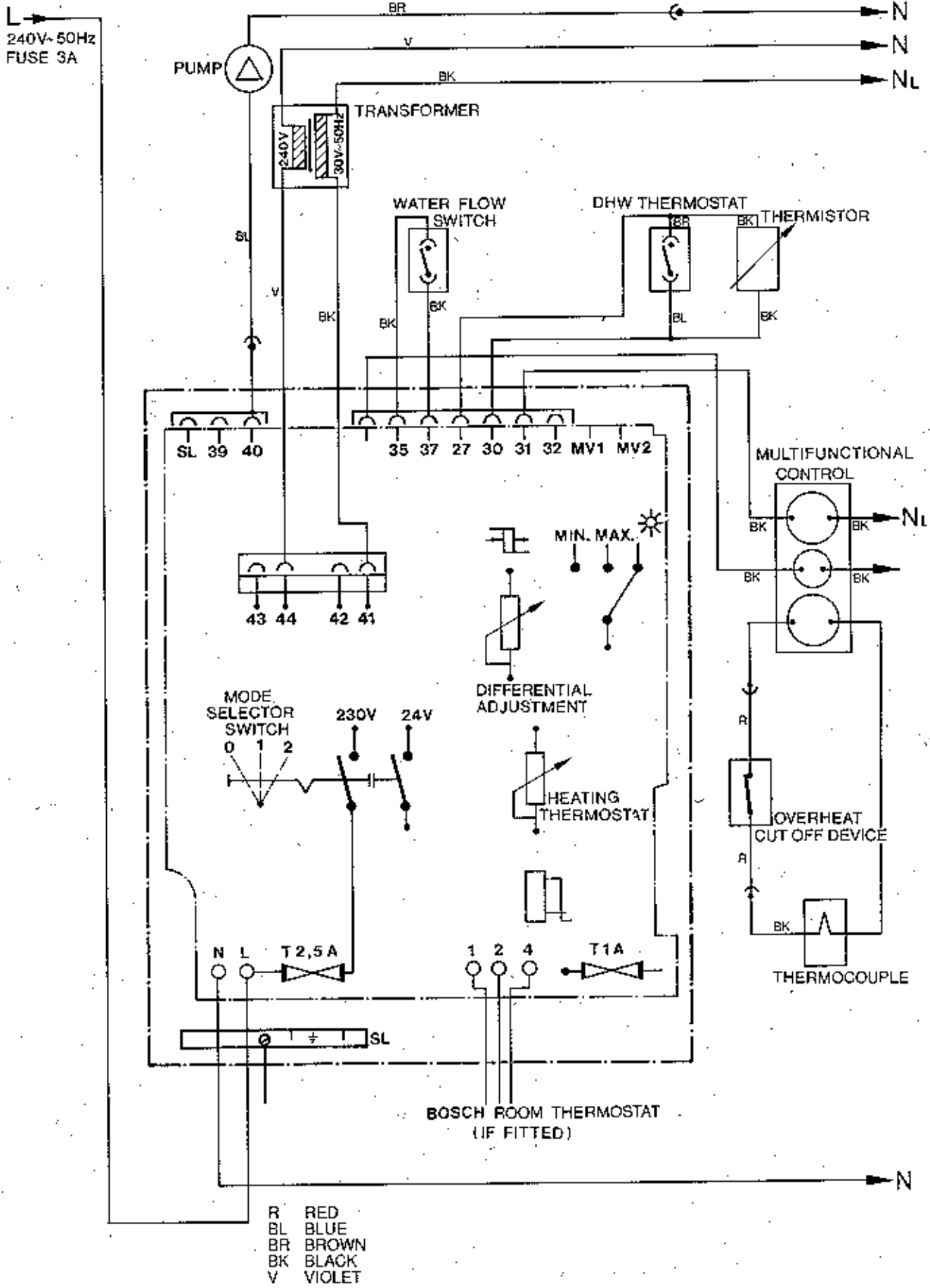
- 16) Check the operation of the pressure relief valve (Fig 10) by rotating the plastic head anti-clockwise 1/4 of a turn and checking that water is discharged. Ensure the valve seats correctly and does not leak. If the valve leaks or is stuck closed, replace it.
- 17) Check the correct operation of the temperature and pressure gauges.
- 18) Check that the sealed system is at its original (Cold) design pressure. (Indicated by the pointer on the pressure gauge) If not, re-pressurise the system as described in section 5.

e) RE-ASSEMBLY AND RE-COMMISSIONING.

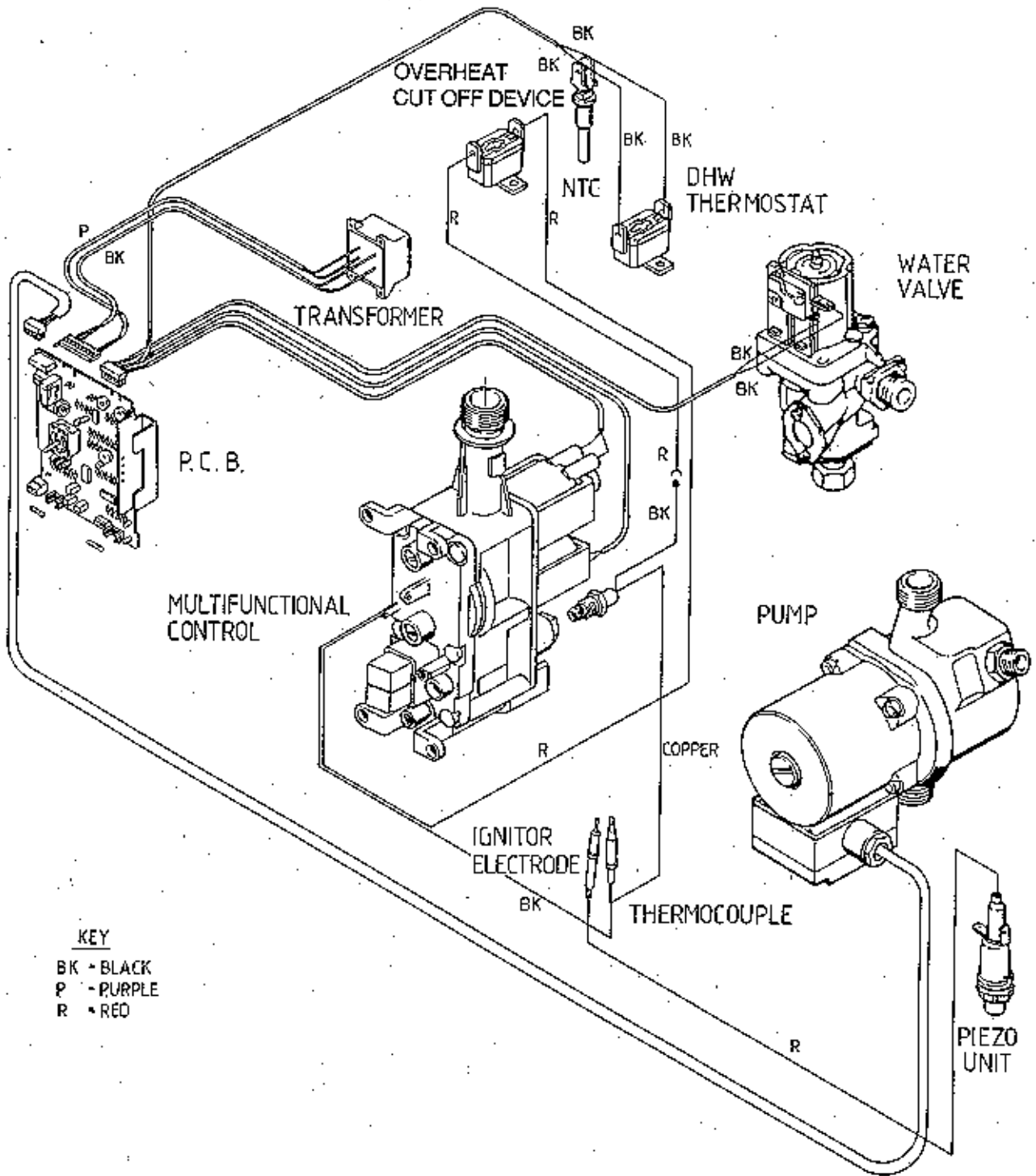
- 19) Re-assemble all components in reverse order and ensure that all joints and seals are correctly fitted.
- 20) Turn on the gas supply, light the pilot and check for gas soundness before fitting the casing. Securely fit the casing and turn on the electricity supply.
- 21) Check the operation of the appliance in both CH and DHW mode. Loosen the burner pressure test point screw (Fig 14) and connect a pressure gauge. Check that the burner pressure after at least 5 minutes running is as stated on the data badge or in section 2.1 and adjust if necessary as described in section 5.2. Remove the pressure gauge and tighten the sealing screw. Re-light the appliance and test for gas soundness.
- 22) Check that the temperature difference between the flow and return pipes is 20 C or less. Adjust the system by-pass if necessary. (Fig 5 - If fitted)
- 23) Check that the system pressure (Hot) is less than 2.5 bar. (If not, an extra expansion vessel is required.)
- 24) Return all appliance and external controls to their original settings.

7 INTERNAL WIRING DIAGRAMS

7.1 FUNCTIONAL FLOW DIAGRAM



7.2 PICTORIAL WIRING DIAGRAM



8 FAULT FINDING

The following fault finding charts are for guidance only, and are not intended to comprehensively cover every fault condition.

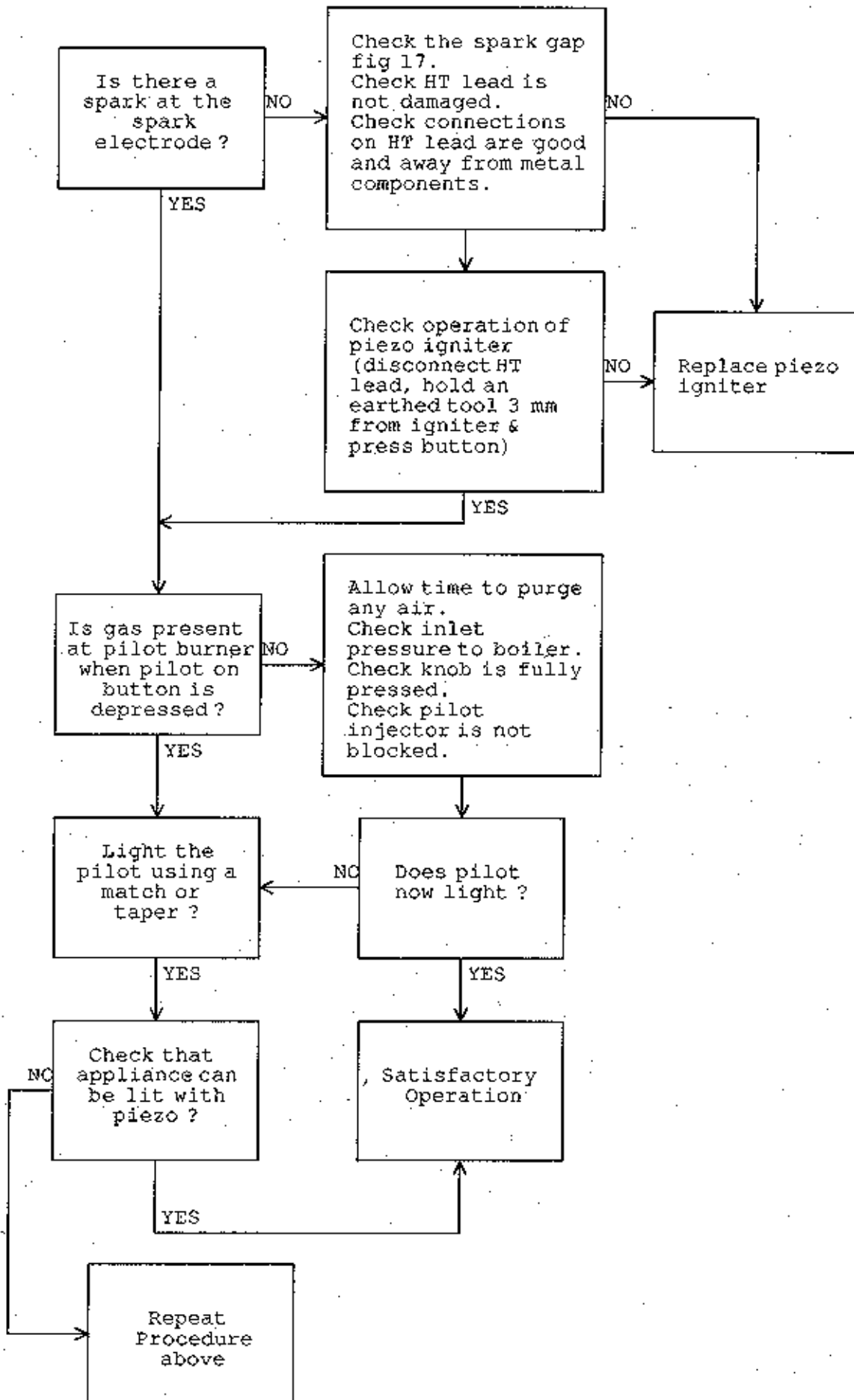
If necessary contact Bosch Technical Services (Address at the front of these instructions) for further advice or assistance.

Before looking for a fault condition, always check that:

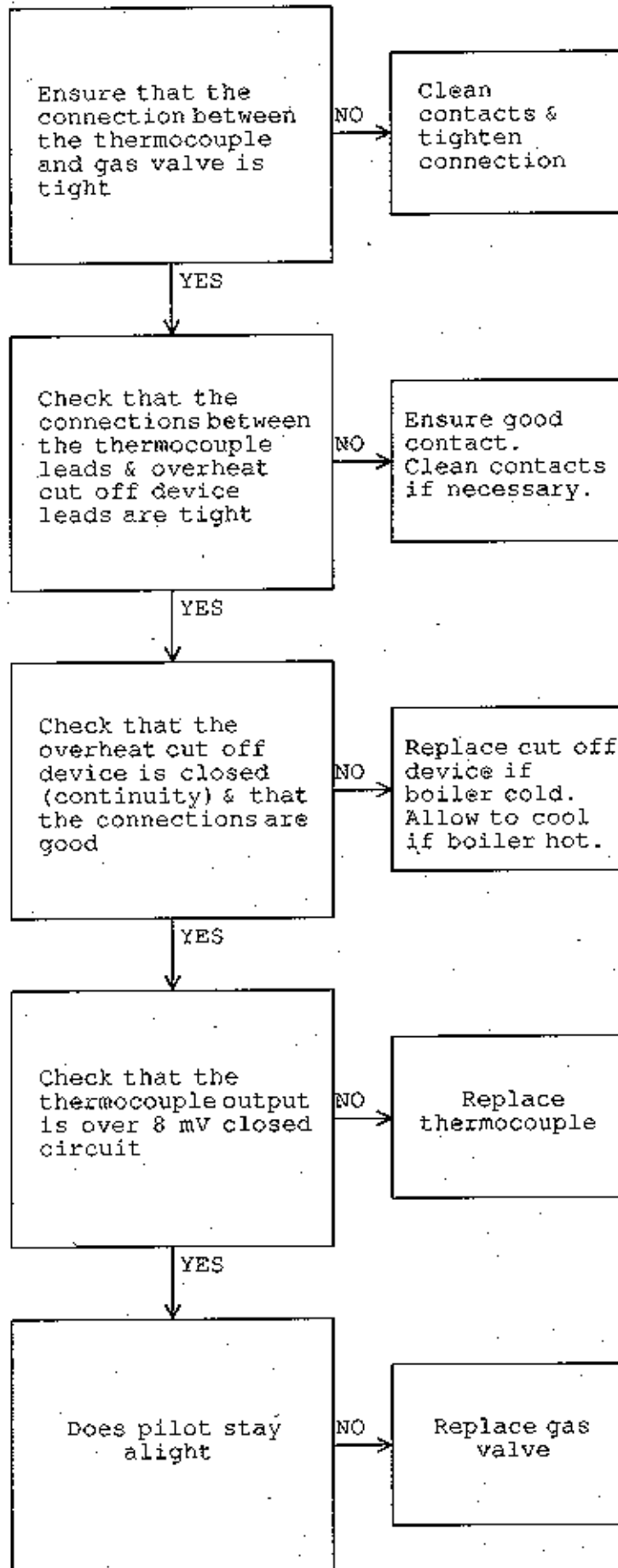
- The gas service cock is open.
- The DHW and CH valves are open.
- The heating system is at its initial design pressure.
- Any external controls are calling for heat.

Always conduct the preliminary electrical system checks, i.e. earth continuity, short circuit, polarity, and resistance to earth before attempting any electrical fault finding.

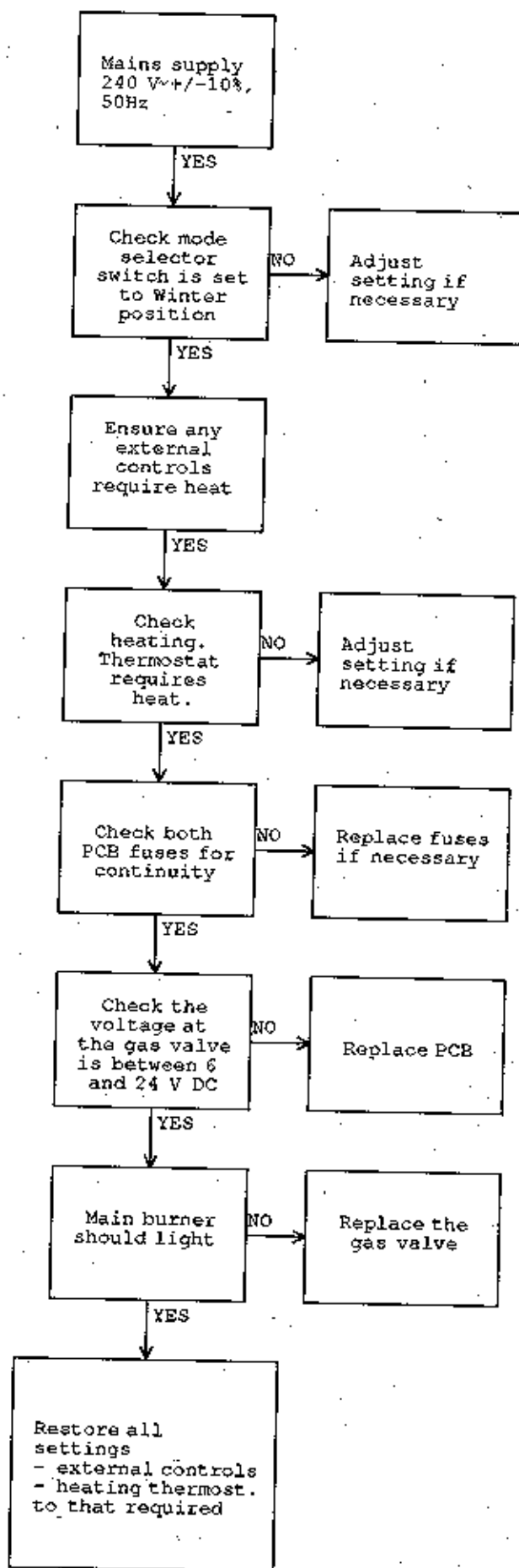
8.1 PILOT WILL NOT IGNITE



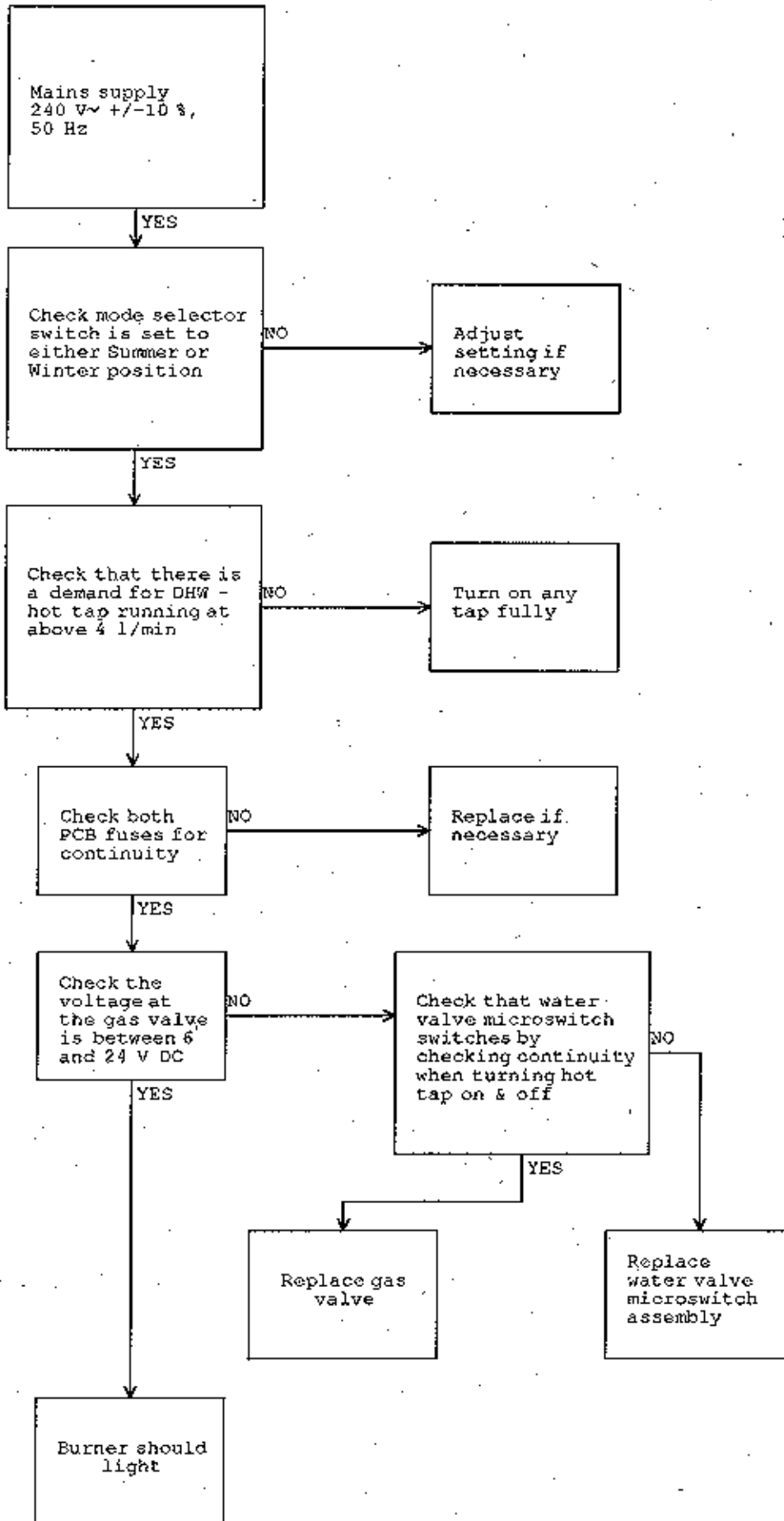
8.2 PILOT LIGHTS BUT WILL NOT STAY ALIGHT
WHEN BUTTON IS RELEASED



8.3 CENTRAL HEATING MODE - PILOT LIT, BUT NOT THE MAIN BURNER



8.4 DOMESTIC HOT WATER MODE - PILOT LIT,
BUT NOT THE MAIN BURNER



9 REPLACEMENT OF PARTS

Before commencing any service operation, ISOLATE the mains electrical supply, and TURN OFF the gas supply at the main service cock. It is the law that any service work must be carried out by a competent person such as British Gas or other Corgi registered personnel.

9.1 HEAT EXCHANGER

- Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.
- Isolate the CH flow and return (Valves B, Fig 10), and drain the heat exchanger using either drain point above the isolation valves (Fig 10).
- Isolate the domestic water inlet (Valve F, Fig 10), and drain the DHW circuit by opening all DHW-hot taps.
- Unclip and remove the NTC from it's pocket.
- Remove the overheat thermostat by unscrewing the single fixing screw.
- Unscrew the 6 fixing screws securing the combustion chamber front panel and remove the panel, taking care not to damage the insulation. (Fig 18)
- Unscrew the four heat exchanger unions (taking care to collect any residual water) (Fig 18). If the appliance is installed with the minimum RH side clearance, remove the burner as described in section 9.3 steps c to e (to gain access to the unions from inside the combustion chamber). Lift out the heat exchanger complete with the non return valve.
- Transfer the non return valve onto the new heat exchanger using a suitable jointing compound and re-assemble all components in reverse order. Ensure that all joints and seals are correctly fitted, refill, and re-commission the system as described in section 5.

9.2 HEAT EXCHANGER INSULATION

The design of this appliance is such that the rear and side insulation should not require replacement unless mechanically damaged. To replace the insulation front panel or the side panels, proceed as follows:

- Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.
- Unscrew the 6 fixing screws securing the combustion chamber front panel and remove the panel, taking care not to damage the insulation. (Fig 18)
- Replace the front insulation panel and/or side panels. Re-assemble in reverse order. If the rear panel has been damaged, replace it as follows.
- Remove the heat exchanger as described in section 9.1, steps a to g.
- Remove the draught diverter as follows:- Disconnect the flue, unscrew the four diverter fixing screws, and release the two steel clips, (Fig 18) then lift the draught diverter clear of the appliance.
- Remove the rear insulation panel and re-assemble in reverse order, refill, and re-commission the system as described in section 5.

9.3 MAIN BURNER ASSEMBLY

- Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards
- Unscrew the 6 screws securing the combustion chamber front panel and remove the panel, taking care not to damage the insulation. (Fig 18).
- Unscrew the two screws supporting the pilot burner assembly on the main burner and pull the pilot burner assembly slightly forwards to clear the main burner.
- Unscrew the heat shield retaining screw, and remove the heat shield.
- Unscrew the burner manifold union and lift the complete assembly out of the appliance. (Fig 18)
- Re-assemble all components in reverse order and ensure that all joints and seals are correctly fitted. Turn on the gas supply, light the pilot and check for gas soundness before fitting the casing. Securely fit the casing and turn on the electricity supply.

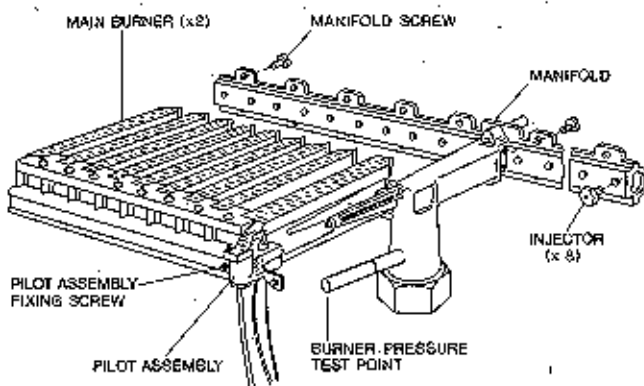


FIG 14 BURNER ASSEMBLY

NOTE: RH burner not shown for clarity. LH & RH burners are not interchangeable.

9.4 PILOT ASSEMBLY

- Remove the casing and combustion chamber front panel as described in section 9.3 a & b.
- Unscrew the pilot pipe from the pilot burner and withdraw the pipe. Carefully remove the pilot injector.
- Carefully remove the thermocouple and spark electrode from the pilot burner.
- Unscrew the two screws supporting the pilot burner assembly on the main burner and pull the pilot burner assembly slightly forwards to clear the main burner.
- Re-assemble all components in reverse order and ensure that all joints and seals are correctly fitted. Turn on the gas supply, light the pilot and check for gas soundness before fitting the casing. Securely fit the casing and turn on the electricity supply.

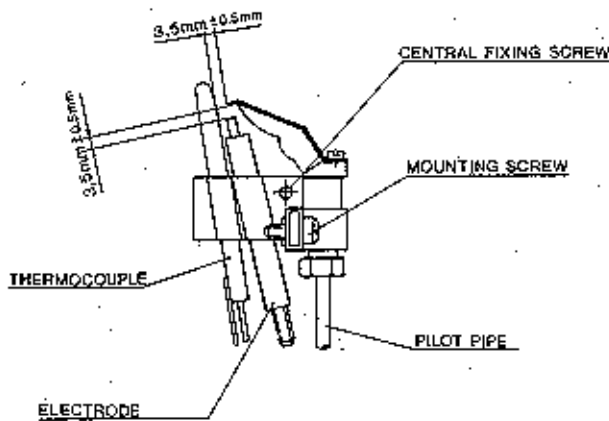


FIG 15 PILOT ASSEMBLY

9.5 MULTIFUNCTIONAL CONTROL

- Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- Pull off the fascia panel knobs and remove the fascia panel by unscrewing the four fixing screws. Note that two types of screw are used.
- Disconnect the HT lead from the piezo unit.
- Unscrew the two screws retaining the thermometer gauge mounting plate to the front support bracket. Remove the two screws securing the multifunctional control to the front support bracket, and the two screws securing the front support bracket to the rear support bracket. Remove both the front bracket and the mounting plate, complete with the thermometer gauge, whose capillary and phial should be released from the flow pipe.
- Remove the burner as described in section 9.3 steps b to e.
- Release the pilot pipe from the multifunctional control by unscrewing the compression fitting and carefully pulling the pipe forwards.
- Unscrew the inlet pipe connection immediately behind the bottom of the multifunctional control. Remove the two screws securing the control to the bracket. Carefully withdraw the multifunctional control to gain access to the wiring.

NOTE THAT THE INLET PIPE SHOULD NOT BE DISTURBED. (Fig 16)

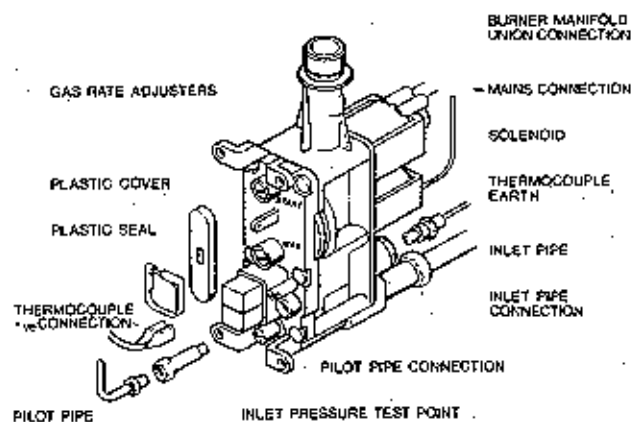


FIG 16 GAS VALVE

h) Disconnect the multifunctional control electrical connections and flame failure device.

i) Replace the multifunctional control, and re-assemble in reverse order. Note that when re-fitting the fascia panel the two larger, wide threaded screws must be used to secure the panel to the plastic control box. Re-light the appliance, check for gas soundness, and re-commission in accordance with section 5, 5.1, & 5.2.

9.6 OVERHEAT CUT-OFF DEVICE

- Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- Locate the overheat cut-off device. (Fig 18) Disconnect the tab connectors from the overheat cut-off device and remove the device by unscrewing the single fixing screw.
- Replace the overheat cut-off device and re-assemble in reverse order.

9.7 DOMESTIC HOT WATER THERMOSTAT

- Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- Locate the DHW thermostat (Fig 18). Disconnect the tab connectors from the DHW thermostat and remove the thermostat by unscrewing the single fixing screw.
- Replace the DHW thermostat and re-assemble in reverse order.

9.8 NTC

- Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- Unclip and remove the NTC from its pocket. (Fig 18)
- Pull off the electrical connections and replace the NTC then re-assemble in reverse order. Ensure that the NTC is correctly clipped in position.

9.9 PCB

- Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- Remove the heat shield retaining screw, and remove the heat shield from above the control box.
- Pull off the fascia panel knobs and remove the fascia panel by unscrewing the four fixing screws. Note that two types of screw are used.
- Remove the two screws securing the lower control box cover and then the four screws securing the top part of the cover.
- Disconnect all electrical connections to the PCB and remove the PCB.
- Replace the PCB and re-assemble in reverse order. Ensure that the mains cable shroud is correctly re-fitted. Note that when re-fitting the fascia panel the two larger, wide threaded screws must be used to secure the panel to the plastic control box.

9.10 TRANSFORMER

- a) Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- b) Remove the heat shield retaining screw, and remove the heat shield from above the control box.
- c) Pull off the fascia panel knobs and remove the fascia panel by unscrewing the four fixing screws. Note that two types of screw are used.
- d) Remove the two screws securing the lower control box cover and then the four screws securing the top part of the cover.
- e) Disconnect all electrical connections to the PCB and remove the PCB.
- f) Unscrew the four transformer fixing screws, thread the harness through the control box, and remove the transformer.
- g) Replace the transformer and re-assemble in reverse order. Ensure that the mains cable shroud is correctly re-fitted. Note that when re-fitting the fascia panel the two larger, wide threaded screws must be used to secure the panel to the plastic control box.

9.11 THERMOCOUPLE

- a) Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- b) Unscrew the heat shield retaining screw, and remove the heat shield.
- c) Unscrew the pilot pipe from the pilot burner and withdraw the pipe. Carefully remove the pilot injector.
- d) Unscrew the two screws supporting the pilot burner assembly on the main burner and pull the pilot burner assembly forwards to clear the main burner.
- e) Unscrew the central screw on the pilot burner to release the thermocouple from the assembly. (Fig 15)
- f) Follow both wires from the thermocouple and disconnect both tab connections and the connection to the rear of the multifunctional control.
- g) Replace the thermocouple, and re-assemble in reverse order. Re-light the appliance, check for gas soundness before re-fitting the casing, and re-commission in accordance with section 5, 5.1, & 5.2.

9.12 PIEZO UNIT

- a) Unscrew the locking nut on the bottom of the piezo unit (Fig 12), lower the unit slightly, then disconnect the H.T. lead.
- b) Replace the piezo unit, and refit in reverse order.

9.13 PUMP

- a) Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.
- b) Isolate the CH flow and return (Valves B, Fig 10), and drain the heat exchanger using either drain point above the isolation valves (Fig 10).

- c) Pull off the fascia panel knobs and remove the fascia panel by unscrewing the four fixing screws. Note that two types of screw are used.
- d) Remove the pump plug in connection at the rear of the control box.
- e) Unscrew the pump top union, the bottom union, and the expansion vessel connection. Remove the pump, complete with the electrical lead.
- f) Replace the pump, disconnect and transfer the wires from the old to the new pump, then re-assemble all components in reverse order. Ensure that all gaskets and seals are correctly fitted, refill, and re-commission the system as described in section 5.

9.14 WATER VALVE MICROSWITCH

- a) Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.
- b) Locate the water valve microswitch (Fig 17). Remove the microswitch cover by sliding it upwards 10mm and forwards. Pull off the microswitch (Forwards).
- c) Transfer the electrical connections onto the new microswitch and re-assemble in reverse order ensuring that the microswitch cover is correctly located.

9.15 WATER VALVE

- a) Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.

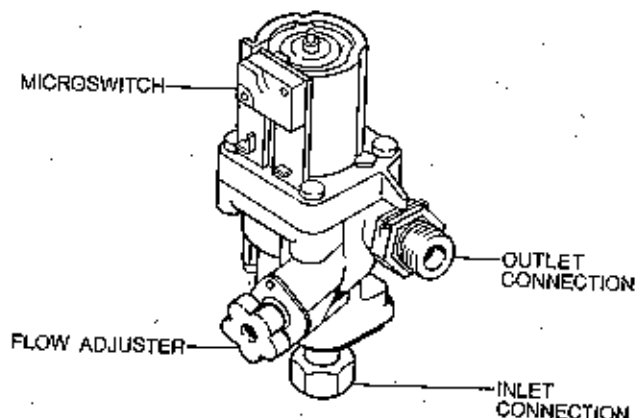


FIG 17 WATER VALVE ASSEMBLY

- b) Isolate the domestic hot water valve (Valve F, Fig 10), and drain the DHW circuit by opening all hot taps.
- c) Locate the water valve microswitch (Fig 17). Remove the microswitch cover by sliding it upwards 10mm and forwards. Pull off the microswitch (Forwards).
- d) Unscrew the two pipe unions from the water valve, and remove the valve. Take care to collect any residual water.
- e) Replace the water valve and re-assemble all components in reverse order. Ensure that all joints and seals are correctly fitted, refill, and re-commission the DHW circuit as described in section 5.

9.16 EXPANSION VESSEL - CENTRAL HEATING

- a) Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.
- b) Isolate the CH flow and return (Valves B, Fig 10), and drain the heat exchanger using either drain point above the isolation valves (Fig 10).
- c) Unscrew the four CH expansion vessel clamping screws at the rear of the appliance. Where the appliance is installed with minimum side clearances this can be done from above.
- d) Unscrew the union connection at the base of the expansion vessel.
- e) Replace the CH expansion vessel and re-assemble in reverse order. Ensure that the gasket is correctly fitted, refill, and re-commission the system as described in section 5.

9.17 EXPANSION VESSEL - DOMESTIC HOT WATER

- a) Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.
- b) Isolate the domestic hot water valve (Valve F, Fig 10), and drain the DHW circuit by opening all hot taps.
- c) Release the pipe supporting the DHW expansion vessel by unscrewing the connection at the top of the pipe and then removing the water valve as detailed in section 9.15 (c) and (d). Lower the pipe until the expansion vessel can be unscrewed from below the appliance.
- d) Replace the DHW expansion vessel and re-assemble in reverse order. Ensure that all gaskets are correctly fitted, refill, and re-commission the DHW circuit as described in section 5.

9.18 TEMPERATURE GAUGE

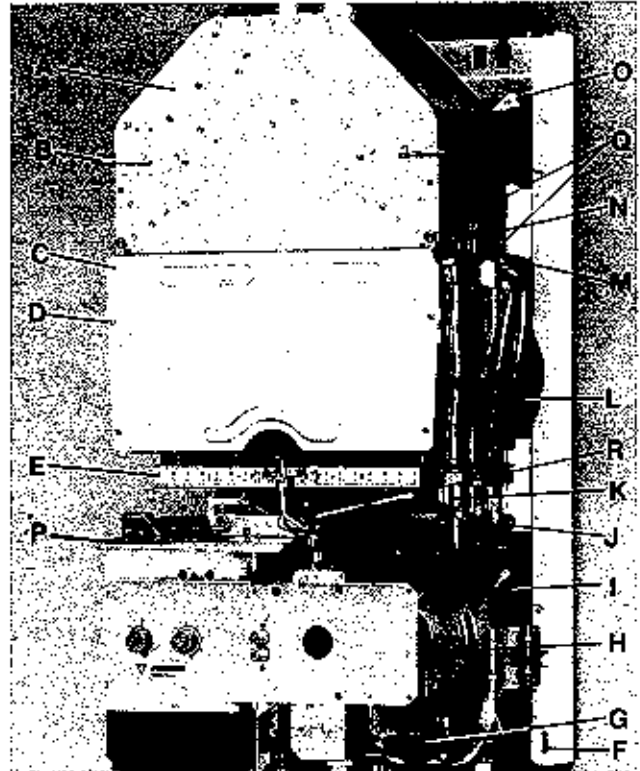
- a) Remove the casing by unscrewing the two lower fixing screws, lifting the casing slightly, and pulling forwards.
- b) Pull off the fascia panel knobs and remove the fascia panel by unscrewing the four fixing screws. Note that two types of screw are used.
- c) Unclip the temperature gauge phial from the flow pipe. Squeeze the plastic tabs on the gauge head, and withdraw the gauge through the hole in the support bracket.
- d) Replace the temperature gauge and re-assemble in reverse order.

9.19 PRESSURE GAUGE

- a) Remove the appliance casing by unscrewing the captive screws (Fig 18), sliding the casing upwards, and pulling forwards.
- b) Isolate the CH flow and return (Valves B, Fig 10), and drain the heat exchanger using either drain point above the isolation valves (Fig 10).
- c) Unscrew the pressure gauge union and withdraw the gauge TAKE CARE not to lose the sealing washer.

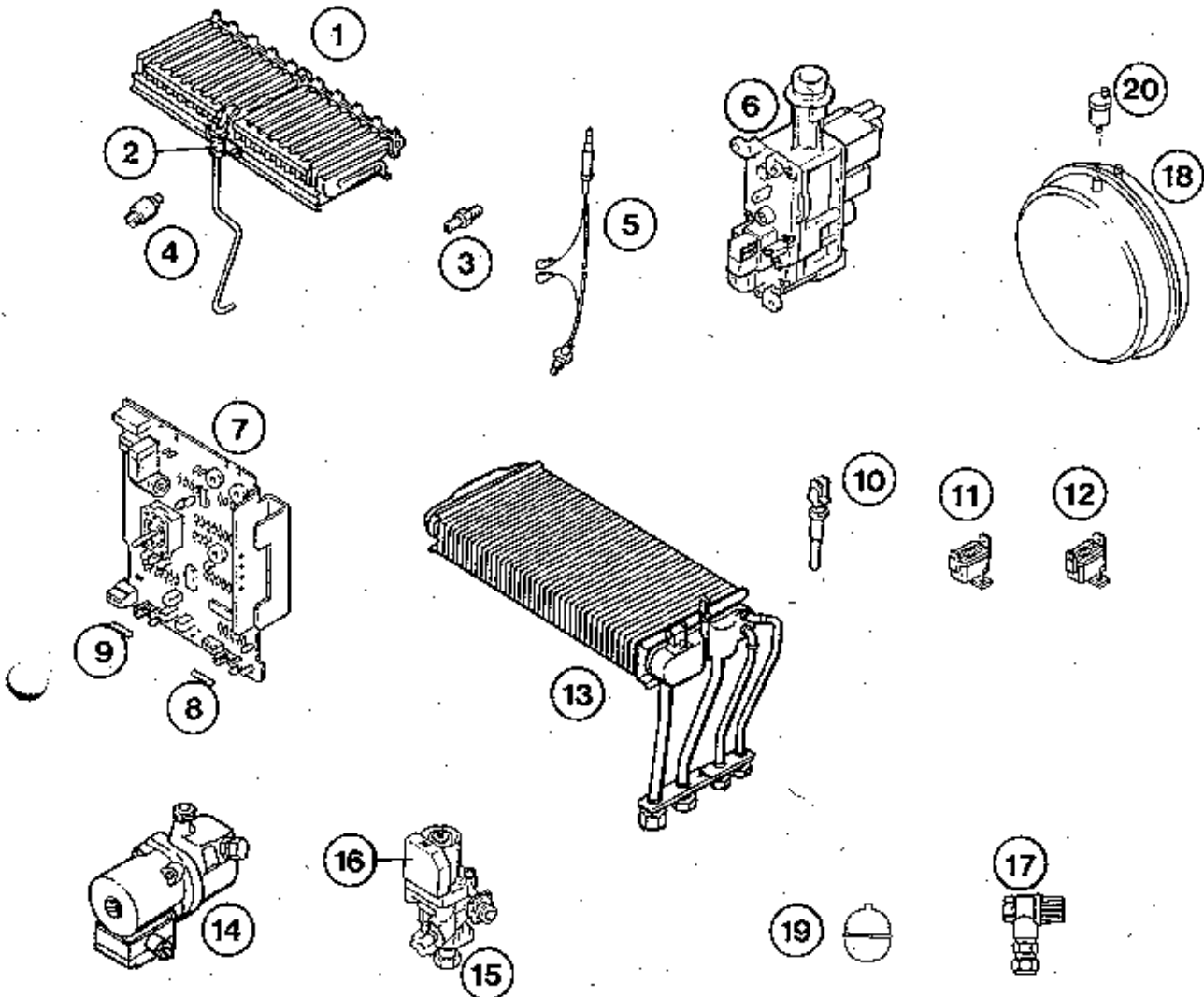
- d) Replace the pressure gauge and re-assemble in reverse order. Refill, and re-commission the system as described in section 5.

FIG 18 GENERAL ARRANGEMENT - CASING REMOVED



- A Draught diverter
- B Draught diverter clips
- C Combustion chamber front panel
- D Combustion chamber front panel fixing screw
- E Burner assembly
- F Casing fixing screw
- G Pressure gauge
- H Pump
- I DHW expansion vessel
- J DHW thermostat
- K Non return valve
- L Central heating expansion vessel
- M N.T.C.
- N Overheat cut off device
- O Automatic air vent
- P Heatshield
- Q Draught diverter fixing screws
- R Burner assembly union nut

10 REPLACEMENT PARTS



KEY	GC P'T NO	DESCRIPTION	NO OFF	MAKER'S PT NO
1	295 014	MAIN BURNER	1	8 718 120 481
2	295 015	PILOT BURNER	1	8 708 105 313
3	378 310	MAIN INJECTOR	18	8 708 202 115
4	378 311	PILOT INJECTOR	1	8 708 200 140
5	378 071	THERMOCOUPLE	1	8 747 202 084
6	378 312	MULTIFUNCTIONAL CONTROL	1	8 747 003 156
7	378 313	PCB	1	8 748 300 165
8	378 314	PCB FUSE T1A	1	1 904 521 436
9	378 315	PCB FUSE T2.5A	1	1 904 521 342
10	378 316	NTC SENSOR	1	8 714 500 029
11		OVERHEAT CUT OFF DEVICE	1	8 717 206 169
12		DHW THERMOSTAT	1	8 717 002 170
13	295 016	HEAT EXCHANGER	1	8 715 406 152
14	295 017	PUMP	1	8 717 204 196
15	295 018	WATER VALVE	1	8 717 002 107
16	295 019	WATER VALVE MICROSWITCH	1	8 717 200 038
17		PRESSURE RELIEF VALVE	1	8 717 401 017
18		CH EXPANSION VESSEL	1	8 715 407 155
19		DHW EXPANSION VESSEL	1	8 715 407 166
20	295 020	AUTOMATIC AIR VENT	1	8 718 505 017
	295 021	INTEGRAL CLOCK KIT EU 3T	Opt	7 719 000 842
	378 317	TR 21 ROOM THERMOSTAT	Opt	7 744 901 016
	378 318	TRQ 21T 24 HR CLOCK T'STAT	Opt	7 744 901 057
	378 319	TRQ 21W 7 DAY CLOCK T'STAT	Opt	7 744 901 058
		TRP 31 DIGITAL CLOCK T'STAT	Opt	7 744.901 059

