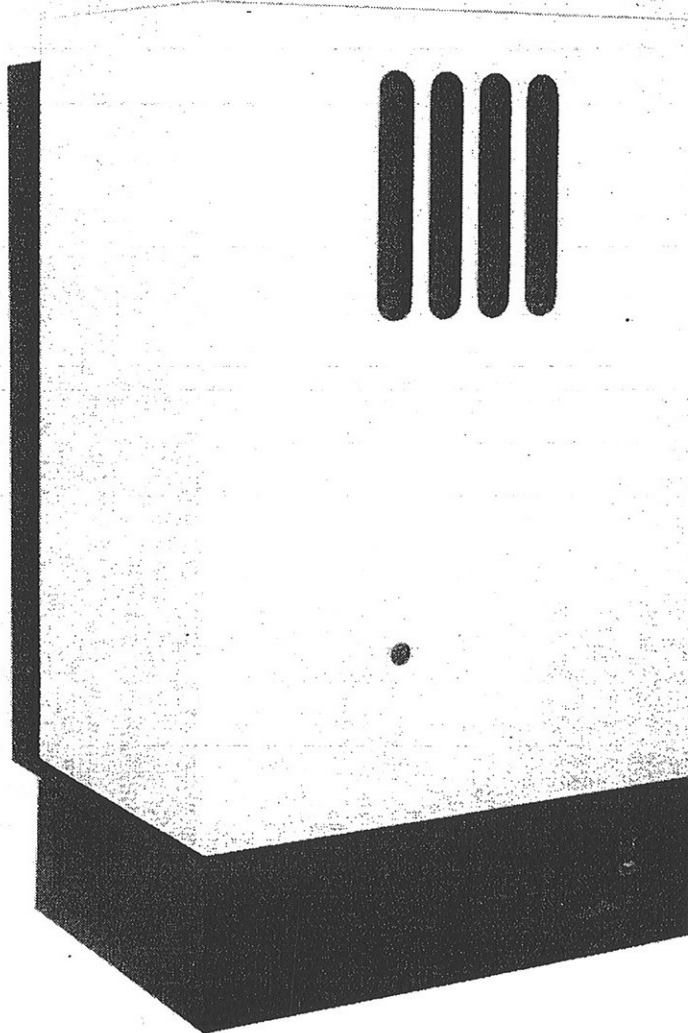


Installation and Servicing Instructions

Apollo 15/30C, 30/50C and 40C wall mounted gas boilers

G.C. Appliance No's. Apollo 15/30C: 41 789 55, Apollo 30/50C: 41 789 56,
 Apollo 40C: 41 789 78.



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

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1. INTRODUCTION

These open flue wall mounted boilers are for use on natural gas only.

The Apollo 15/30C and 30/50C boilers are range rated at the following outputs, and are factory set to the maximum output.

Apollo 15/30C: 4.4 to 8.8 kW (15 000 to 30 000 Btu/h)

Apollo 30/50C: 8.8 to 14.7 kW (30 000 to 50 000 Btu/h)

The Apollo 40C has a fixed output of 11.7 kW (40 000 Btu/h).

The boilers are designed for use only on fully pumped open vented or sealed systems with an indirect hot water cylinder.

THEY MUST NOT BE CONNECTED TO A DIRECT CYLINDER.

2. TECHNICAL DATA

Boiler	Apollo 15/30C	Apollo 30/50C	Apollo 40C
Burner type	Bray AB24013M	Bray AB24014M	
Burner injector	Bray 16/750	Bray 16/1400	Bray 28/950
Pilot injector	Honeywell 4500-4108-001 marked 38/36A		
Pilot flame	Approximately 20 mm long		
Spark gap	3.0 to 4.0 mm		
Ignition	Piezo push button		
Weight (empty)	16.80 kg (37.0 lb)	18.2 kg (40.0 lb)	
Lifting weight (installing)	10.10 kg (22.3 lb)	10.34 kg (22.8 lb)	
Water content	0.36 litre (0.08 gal)	0.5 litre (0.11 gal)	
Max. flow temperature	82°C		
Design temperature rise	9°C		
Maximum static head	30.5 m (100 ft)		
Minimum static head	200 mm (8 in) above the white case		
* Head loss	0.38 m (15 in)	0.71 m (28 in)	
Height	661 mm (26 in)		
Width	340 mm (13¼ in)		
Depth	300 mm (11¼ in)		
Clearance required for servicing	Top	50 mm (2 in)	
	Bottom	90 mm (3½ in)	
	Front	300 mm (11¼ in)	
	Sides	5 mm (¼ in)	
Flue size	100 mm (4 in) dia.		
Water connections	Compression fittings to accept 22 mm copper tube to BS2871		
Gas connection	Rp½		

* Head loss given is applicable only when the flow through the boiler is 690 litres/h (2.5 gal/min) for the Apollo 15/30C and 1146 litres/h (4.2 gal/min) for the Apollo 30/50C and Apollo 40C.

NOMINAL BOILER RATINGS

Boiler	Output		Input		Burner setting pressure	
	kW	Btu/h	kW	Btu/h	mbar	in wg
Apollo 15/30C	4.4	15 000	5.9	20 000	5.0	2.0
	6.6	22 500	8.5	29 000	9.8	3.9
	8.8	30 000	11.3	38 500	16.3	6.5
Apollo 30/50C	8.8	30 000	11.6	39 500	5.4	2.2
	11.7	40 000	15.2	52 000	9.3	3.7
	14.7	50 000	18.8	64 000	14.2	5.7
Apollo 40C	11.7	40 000	15.4	52 600	19.2	7.7

3. GENERAL REQUIREMENTS

The boiler must be installed in accordance with: The Gas Safety (Installation and Use) Regulations 1984 and the current issue of the Building Regulations, Building Standards (Scotland) Regulations, Local Building Regulations, Model and local Water Undertaking Byelaws and IEE Wiring Regulations.

Detailed recommendations are stated in the following British Standards: BS5440:1:1978, BS5440:2:1976, BS5449:1:1977, BS5546:1979, BS6798:1987 and BS6891:1988.

Note-Gas Safety Regulations 1984: It is the law that all gas appliances are installed by competent persons, 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.

4. DELIVERY

The complete boiler with wall mounting plate is delivered in a single package.

A plug-in programmer kit is available to fit inside the boiler casing. This programmer simplifies wiring and is suitable for use with all external control systems shown in the system wiring diagrams supplied with the boiler.

5. GAS SUPPLY

The natural gas requirements are as follows:

Apollo 15/30C: 1.1 m³/h (37 ft³/h), Apollo 30/50C: 1.8 m³/h (62 ft³/h), Apollo 40C: 1.4 m³/h (51 ft³/h)

The meter and supply pipes must be capable of delivering this quantity of gas in addition to the demand from any other appliances in the house.

The complete installation must be tested for gas soundness and purged as described in BS6891.

6. ELECTRICITY SUPPLY

240V ~ 50 Hz via a fused double pole switch with a contact separation of at least 3 mm in both poles or preferably a fused 3 pin plug and shuttered socket outlet (both complying with the requirements of BS1363) adjacent to the boiler.

Fuse the supply at 3 A. The minimum requirement for the power supply cable is that it should be a PVC sheathed flexible cord at least 0.75 mm² (24 x 0.2 mm) (code designation HO55 VV-F or HO5 VVH2-F) as specified in table 16 of BS6500:1984.

All external wiring to the boiler shall comply with the latest IEE Wiring Regulations and any local regulations which apply.

The appliance must be earthed.

In the event of an electrical fault after installation of the appliance, preliminary electrical system checks must be carried out as described in the British Gas multimeter instruction book.

7. AIR SUPPLY

Air supply for combustion and ventilation must be provided in accordance with BS5440:2.

1. If the boiler is installed in a room, the room must have a permanent air vent either direct to the outside air or to an adjacent room which itself has a permanent air vent to the outside air. The minimum effective air vent(s) required is:

Apollo 15/30C	20 cm ² (3 in ²)
Apollo 30/50C	51 cm ² (8 in ²)
Apollo 40C	37 cm ² (6 in ²)

2. If the boiler is installed in a cupboard or compartment, permanent air vents are required in the cupboard or compartment, one at high level and one at low level, either direct to the outside air or to a room. Both the high and low level air vents must communicate with the same room or must be on the same wall to outside air. The minimum effective areas required are given in the following table:

Boiler		Apollo 15/30C	Apollo 30/50C	Apollo 40C
Vents to outside air	High level	51 cm ² (8 in ²)	85 cm ² (13 in ²)	68 cm ² (10 in ²)
	Low level	102 cm ² (16 in ²)	169 cm ² (26 in ²)	136 cm ² (20 in ²)
Vents into a room	High level	102 cm ² (16 in ²)	169 cm ² (26 in ²)	136 cm ² (20 in ²)
	Low level	204 cm ² (32 in ²)	338 cm ² (52 in ²)	272 cm ² (40 in ²)

Where the cupboard or compartment is ventilated to a room, the room itself must have an air vent direct to outside air of minimum effective area as given above in paragraph 1.

Ensure that there is at least 300 mm (12 in) clearance in front of the boiler for air movement.

Note: Air vents in internal walls should not communicate with a bedroom, toilet, bathroom or kitchen.

3. **IMPORTANT:** The above areas are for natural circulation. If there is any type of extract fan fitted in the premises, there is a possibility that if adequate air inlet areas from outside are not provided, spillage of products from the boiler flue could occur when the fan is in operation. Where such installations occur, a spillage test with the fan running must be carried out as described in BS5440:1, Appendix B. The air inlet areas given above may have to be increased to prevent spillage.

8. FLUE SYSTEM

The boiler must be connected to a suitable flue which will provide a consistent updraught without undue cooling of the flue gases. The requirements of BS5440:1 should be followed. Horizontal flue runs should be avoided and the flue should terminate in accordance with the relevant recommendations given in BS5440:1. The flue must be fitted with a terminal, preferably one which has been tested and found satisfactory by British Gas.

Existing chimneys may be suitable but must be swept first and require an approved liner to be fitted. If in doubt regarding the suitability of a flue, consult the local Gas Region for advice.

If the flue is required to be taken through the wall on which the boiler is mounted, adequate space should be allowed between the ceiling and the top of the boiler for a suitable bend to be fitted. Check the height of the boiler above any working surface when deciding on the flue run.

A minimum clearance of 25 mm (1 in) should be maintained between the flue pipe and any adjacent combustible material.

Note: When the flue is taken through the ceiling and into the roof space, or the room above, it must be provided with a sleeve of non-combustible material sufficient to allow an air space between the sleeve and flue of 25 mm (1 in) minimum. A suitable non-combustible plate must be fitted to centre the flue and maintain the 25 mm (1 in) air gap.

Nominal flue size: 100 mm (4 in).

9. BOILER LOCATION

The boiler is not suitable for external installation.

The boiler must be mounted on a flat wall which is sufficiently robust to take the weight of the boiler.

The boiler is suitable for installation to a combustible wall e.g. wood cladding, provided that the flue pipe is not closer than 25 mm (1 in) to combustible material.

If the boiler is to be installed in a timber framed building it should be fitted in accordance with the British Gas publication - "Guide for Gas Installation in Timber Framed Housing" reference DM2. If in doubt advice must be sought from the local region of British Gas or from Myson Heating.

The boiler should not be installed in a bedroom and must not be installed in a room containing a bath or shower or in a garage. Where the installation of the boiler will be in an unusual position, special procedures may be necessary and BS6798 and BS5546 give detailed guidance on this aspect.

A cupboard or compartment used to enclose the boiler must be designed and constructed specifically for this purpose. An existing cupboard or compartment may be used provided that it is modified for the purpose. Details of essential features of cupboard/compartment design including airing cupboard installations are given in BS6798 and BS5546 and should be complied with.

If the boiler is to be installed in a run of kitchen units it is recommended that the boiler is fitted first or the adjacent units removed.

10. IMPORTANT INSTALLATION NOTES

1. The Apollo is to be used only on fully pumped systems, and with an indirect cylinder.
2. Only high head pumps producing at least 3.35 m (11 ft) head at a flow rate of 1146 litres/h (4.2 gal/min) must be used.
3. Connect the pump in the flow pipe as shown in the water system schematics.
4. Mains electricity and the pump must always be connected to the boiler to allow the pump overrun to function.
5. For open vented systems a combined or close coupled feed and vent must be connected as shown in the water system schematics.
6. A system by-pass is essential. The by-pass should be of 15 mm pipe and must be as short as possible across the 22 mm flow and return pipes and at least 1.5 m away from the boiler. Install the by-pass as shown in the water system schematics and adjust as described in the commissioning instructions.
7. The system wiring must be completed in accordance with the diagrams supplied with the boiler.
8. When commissioning, the system must be vented and the pump running before the main burner is lit.
9. The system must be flushed twice; initially cold with the pump removed and all valves open, and then after the first heating.
10. Where the Apollo replaces an older boiler in an existing system, make sure the cylinder is indirect.
11. In areas with hard or aggressive water we recommend that Fernox CP3 inhibitor should be used. See commissioning instructions for details of use.

11. WATER SYSTEM SCHEMATICS

The balancing valve should be of a type that is non adjustable by the householder and must have at least 1.5 m of 22 mm pipe each side between it and the boiler.

Compression fittings are supplied for flow and return to accept 22 mm copper tubing to BS2871.

Always ensure that the pump has sufficient static head. Check the pump manufacturers minimum head.

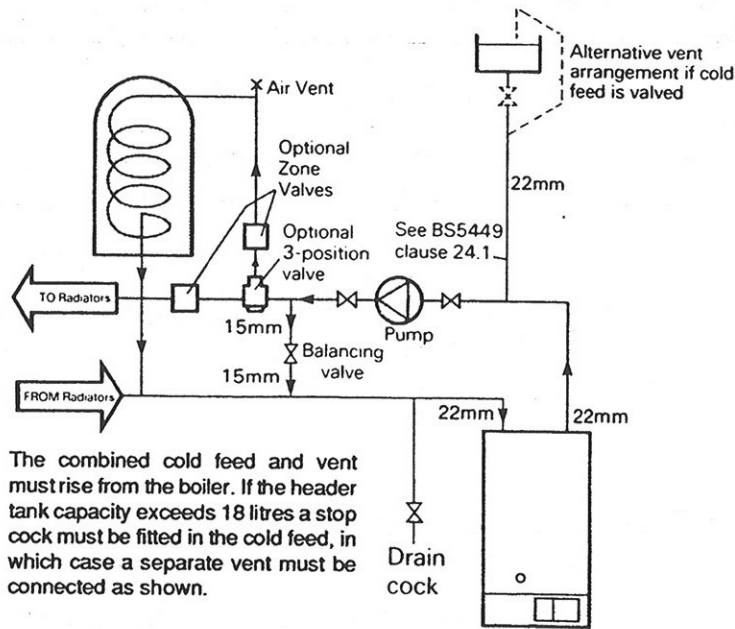
The flow through the boiler must not be allowed to fall below 690 litres/h (2.5 gal/min) for the Apollo 15/30C and 1146 litres/h (4.2 gal/min) for the Apollo 30/50C and Apollo 40C while the burner is alight.

Ensure that the pump is accessible for servicing. Isolating valves must be positioned as close to the pump as possible.

Fit one or more draining taps (BS2879) to enable the water system to be fully drained.

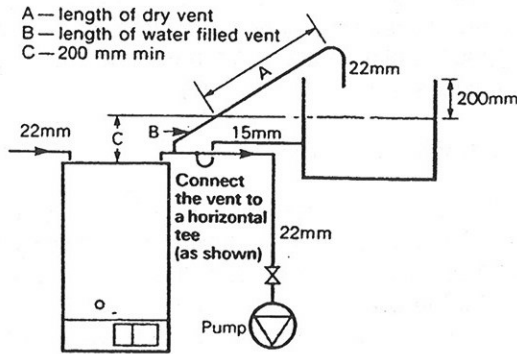
a. Fully pumped open vented system with combined cold feed and vent.

b. Length of wet and dry vents for close coupled cold feed.

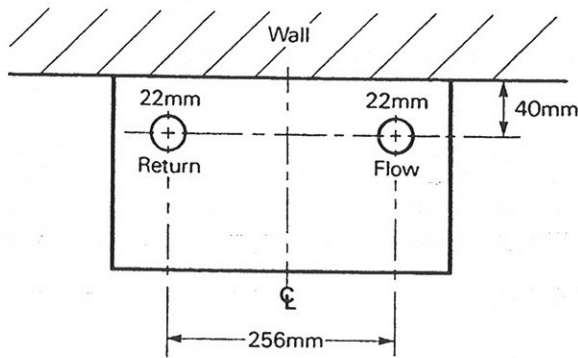


HEATING LOAD Btu/h	VENT LENGTH	
	A (mm)	B (mm)
50 000	420	330
40 000	330	290
30 000	230	260
20 000	140	200
10 000	50	200

The distance between the cold feed and vent connection to the system must not be more than 150 mm. The point of connection of these pipes should be as close to the boiler as practicable.



c. Water connections



Top view of boiler showing water connections

12. SEALED SYSTEM REQUIREMENTS

- a. The installation must comply with the requirements of BS6798 and BS5449:1. Maximum water temperature is $82^{\circ}\text{C} \pm 3^{\circ}\text{C}$.
- b. A safety valve set to operate at 3 bar (45 lbf/in²) shall be fitted in the flow pipe close to the boiler. There must not be any valves between the safety valve and the boiler. The valve should be positioned on a discharge pipe fitted to prevent any discharge creating a hazard to occupants or cause damage to electrical components and wiring.
- c. A pressure gauge covering at least the range 0 to 4 bar (0 to 60 lbf/in²) shall be fitted in the system.
- d. A diaphragm type expansion vessel, to BS4814, shall be connected at a point close to the inlet side of the pump. The vessel must be chosen to suit the volume of water in the system and the charge pressure must not be less than the static head at the point of connection. Further details can be obtained from "Material and Installation Specification for Domestic Central Heating and Hot Water" published by British Gas.

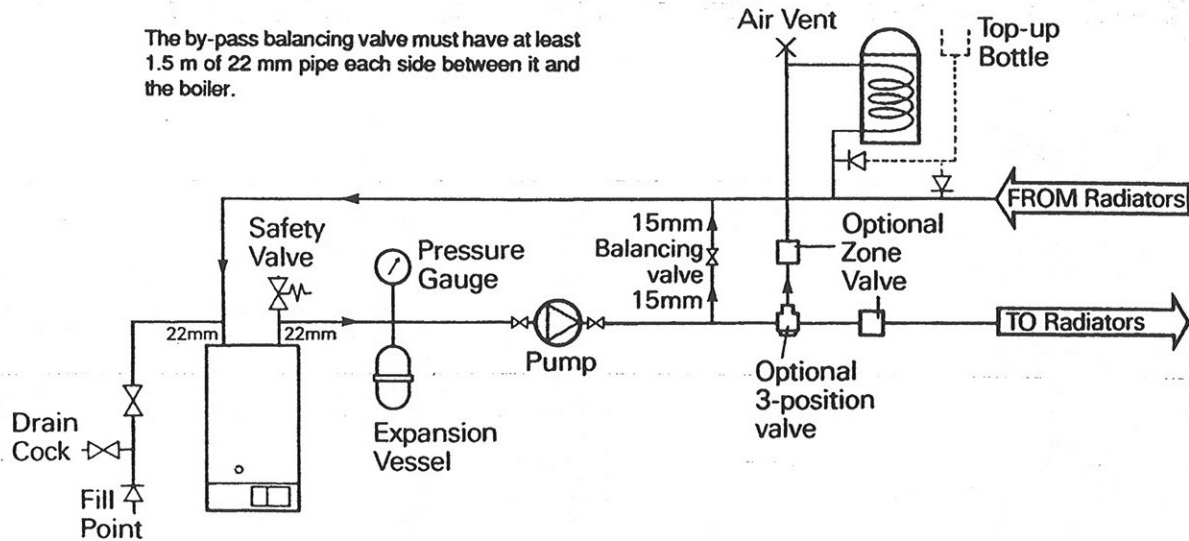
Sizing table:

Air or Nitrogen charge pressure (bar)	0.5		1.0	
Pre-pressurisation pressure (bar)	None	1.0	None	1.5
Expansion vessel volume (litres)	A x 0.07	A x 0.120	A x 0.088	A x 0.160

A = System volume (litres)

- e. The hot water cylinder shall either be the indirect coil type or a cylinder fitted with an immersion calorifier.
- f. Water lost from the system shall be replaced from a make-up vessel, and non return valve, mounted higher than the top of the system on the return side of the cylinder or radiators. Where access to a make-up vessel would be difficult, make-up can be provided by pre-pressurisation of the system.
- g. The system may be filled from the mains via a temporary hose connection from a draw-off tap supplied from a service pipe under mains pressure, provided that this procedure is acceptable to the local water authority. The following fittings should form a permanent part of the system and fitted in the order stated:
 - i) a stop valve complying with the requirements of BS1010:2, ii) a test cock, iii) an anti-vacuum valve of a type approved by the National Water Council and iv) a non-return valve of an approved type.
- h. Fill the system until the pressure gauge registers 1.5 bar (22 lbf/in²). Examine for leaks and rectify where necessary.
- i. Refer to the commissioning instructions, light the boiler and allow the system to reach its maximum working temperature. Examine for leaks then turn off the boiler. Drain the system while it is still hot. Refill, vent and adjust the cold fill pressure to the required value.

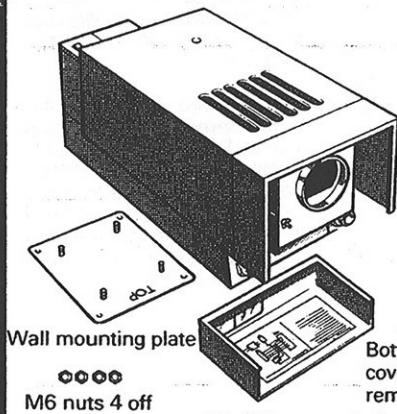
The by-pass balancing valve must have at least 1.5 m of 22 mm pipe each side between it and the boiler.



13. INSTALLATION PROCEDURE

1 UNPACK THE BOILER

- Carefully unpack the boiler. Do not discard the packing until all the items are found.
- Carefully slide off the bottom cover from the boiler, and remove the outer case by slackening the bottom fixing screw and sliding the case towards the top of the boiler then lifting it clear.



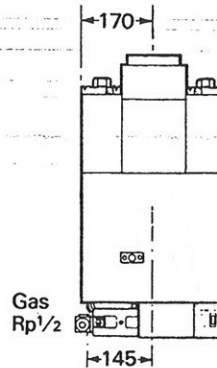
- Unscrew the two screws at the top and one at the bottom securing the inner case and lift off the case.
- Place the inner case, outer case and bottom cover safely aside to avoid possible damage.

Note:
Do not stand the boiler on its end as it will damage the gas valve.

Find these parts in the pack

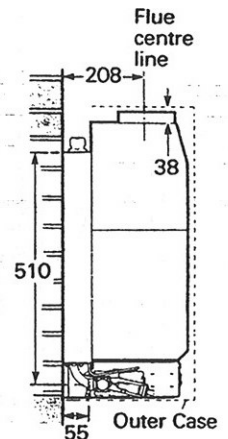
2 BOILER DIMENSIONS AND GAS CONNECTION

All dimensions in mm



Overall cased dimensions.

Height: 661 mm
Width: 340 mm
Depth: 300 mm

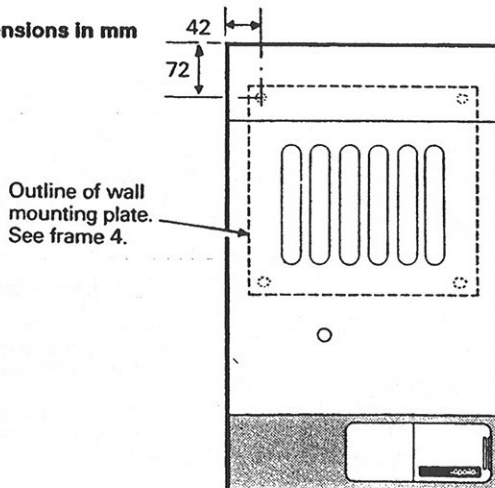


Clearance required for servicing.

Top: 50 mm
Bottom: 90 mm
Front: 300 mm
Side: 5 mm

3 FIX THE WALL MOUNTING PLATE

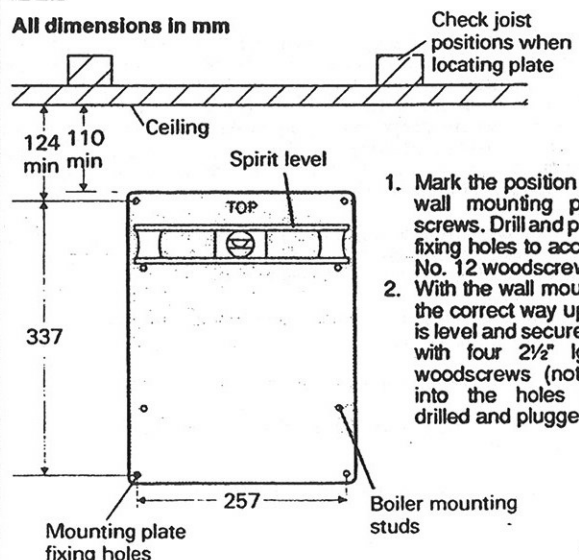
All dimensions in mm



Before deciding on the distance between the wall mounting plate and the ceiling, refer to the notes on the flue, given under 'Flue System' on page 5.

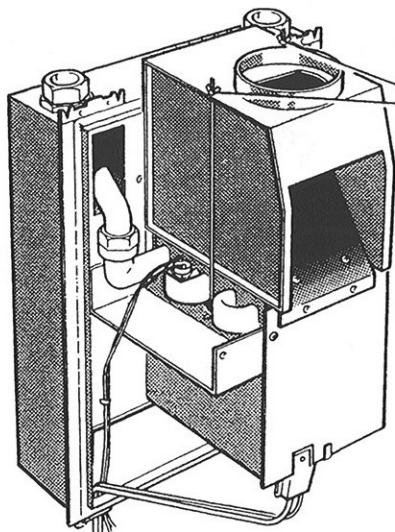
4 Wall Mounting Plate - continued

All dimensions in mm



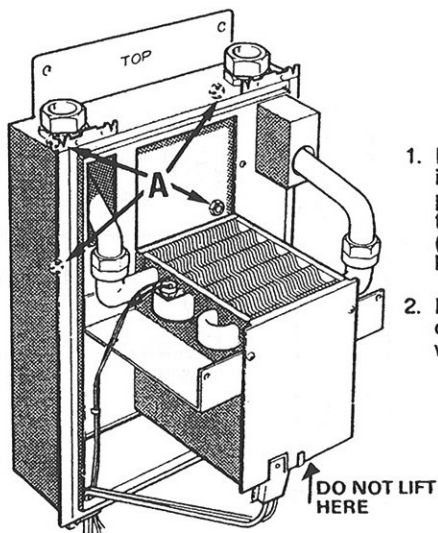
- Mark the position of the four wall mounting plate fixing screws. Drill and plug the four fixing holes to accept 2½" lg. No. 12 woodscrews.
- With the wall mounting plate the correct way up, ensure it is level and secure to the wall with four 2½" lg. No. 12 woodscrews (not supplied) into the holes previously drilled and plugged.

5 PREPARE THE BOILER



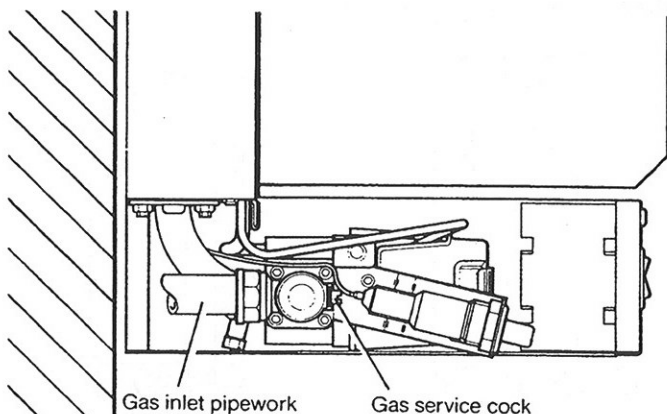
Remove the two draught diverter retaining wing nuts and take off the draught diverter by lifting upwards and withdrawing it.

6 SECURE THE BOILER TO THE WALL MOUNTING PLATE



1. Lift the boiler and offer it to the wall mounting plate and secure with the four nuts A (supplied with the boiler).
2. Replace the draught diverter and secure with two wing nuts.

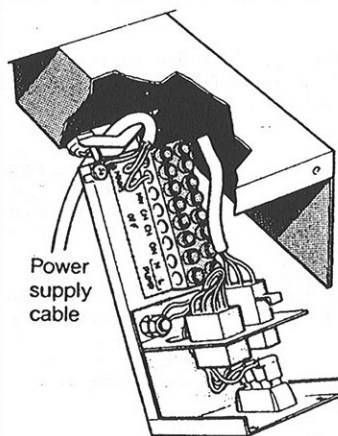
7 CONNECT THE GAS SUPPLY



Connect a 15 mm gas supply to the service cock.

Do not turn the gas supply on at this stage.

8 CONNECT THE POWER SUPPLY CABLE



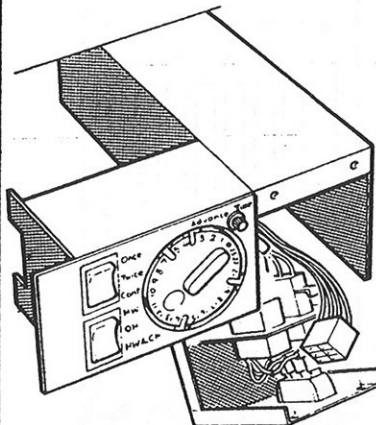
1. Remove the two screws securing the front of the wiring centre and carefully lower it. If access is difficult it may be disengaged and drawn forward. It may be necessary to unplug the 3-way plug on the gas valve lead to allow the wiring centre to be drawn forward.
2. Slacken two screws in the cable clamp below the wiring centre. Feed the power supply cable under the clamp and connect the wires, brown to L and blue to N on the terminal block and green and yellow to the earthing screw ($\frac{1}{2}$). See wiring diagram.

9 Power Supply Cable - continued

3. Keep the wiring centre in the open position, take up excess slack in the power supply cable between the terminal block and the cable clamp, then tighten the cable clamp screws. Check that the wiring centre will open and close freely without straining the power supply cable.
Note: When connecting the power supply cable to the terminal block and earthing screw, ensure that the length of the earth wire is such, that if the power supply cable slips out of the cable clamp the live and neutral wires become taut before the earth wire.
4. The pump lead and any external controls wiring should be connected to the terminal block. See wiring diagram. A bush is provided in the left hand side of the control box to pass the leads through.
5. If a programmer is not fitted, remove link HW to ON and connect a switched live to terminal ON.
6. Replace the 3-way plug if it was removed.
7. Replace the wiring centre and secure with two screws if the programmer kit is not to be fitted.

Do not switch on the electricity supply at this stage.

10 FIT THE PROGRAMMER KIT



1. Slide out and discard the fascia panel on the side of the control box.
2. Engage the programmer fixing into the slot in the side of the control box and push fully home.
3. Connect the programmer 6-pin plug to the 6-pin socket on the wiring centre, push fully home until the latch engages.
4. Replace the wiring centre and secure with two screws.

11 COMPLETE THE INSTALLATION

After connecting the flue and water connections, see water system schematics, page 5 thoroughly flush the whole system without the pump in position. Ensure that all valves are open. With the pump fitted, fill, vent and check for water soundness, rectifying where necessary.

14. COMMISSIONING

See page 10 for boiler controls.

1. Test for gas soundness and purge the supply

- With the boiler service cock closed (the cock is closed when the operating slot is vertical), pressure test the gas supply and inlet pipework connection to the boiler service cock for soundness in accordance with BS6891.
- Remove the screw securing the gas valve cover and lift off the cover.
- Loosen the gas inlet pressure test point screw one turn. Ensure the gas supply is on and open the boiler service cock to purge in accordance with BS6891. Retighten the test point screw and test for gas soundness.

2. Light the pilot

With the gas supply on, electricity supply off and the boiler thermostat switch set to O:

- Fully depress the gas valve operating button and keep it pressed in. At the same time operate the igniter button to light the pilot. If the pilot does not light, operate the igniter button repeatedly until it does.
- When the pilot lights, continue to hold the gas valve operating button in for a further 10 to 20 seconds, then release it slowly.
Caution: If the pilot does not stay alight, release the gas valve operating button and slide it in the direction of the arrow. Wait for 3 minutes and repeat operation 2a until the pilot is lit. Continue to hold the gas valve button in for a little longer then release it slowly.

3. Check the pilot flame

The pilot throttle is factory set fully open. Remove the two screws securing the pilot shield and lift off the shield. Check that the pilot flame (approximately 20 mm long) envelops the thermocouple tip. Adjust if necessary (clockwise to reduce the flame). Minimum closed circuit 5 mV. Replace the pilot shield and secure with two screws.

4. Test the pilot supply for gas soundness

With the pilot alight:

Test the pilot supply connections at the gas valve and pilot assembly for gas soundness using a suitable leak detecting fluid.

5. Test the main burner supply for gas soundness

With the pilot alight:

- Switch on the electricity supply, set the programmer switch to CONT, if a programmer is fitted and check that all system controls are calling for heat.
- Apply a suitable leak detecting fluid to the main burner manifold joint at the chassis and the gas valve and chassis connections of the gas valve manifold.
- Set the boiler thermostat switch to HIGH and check that the main burner lights smoothly from the pilot flame. With the main burner alight test the burner and manifold connections for gas soundness.

6. Check the main burner setting pressure

After the main burner has been alight for 10 minutes:

- Set the boiler thermostat switch to O. Remove the burner setting pressure test point screw on the gas valve manifold and connect a pressure gauge.
- Set the boiler thermostat switch to HIGH and if necessary adjust the burner setting pressure to give the heat input required. Turn the adjusting screw clockwise to decrease the setting pressure.
Note: The boiler is factory set to the maximum input. See Technical Data, page 3, for the boiler ratings and setting pressures.
- Set the boiler thermostat switch to O, disconnect the pressure gauge and replace the pressure test point screw. Set the boiler thermostat switch to HIGH to light the main burner and test for gas soundness around the pressure test point screw using a suitable leak detecting fluid.
- Check that the arrow on the boiler data plate (positioned on the front of the inner case at the bottom right hand corner) is against the correct boiler rating.

7. Replace the gas valve cover

Replace the gas valve cover, ensuring that the cable clamp is located correctly in the cover, and secure with its screw.

8. Replace the inner case

Replace the inner case and secure with three screws.

9. Check the flue

Check the flue for correct operation, as described in BS5440:1.

10. Final water system check and addition of inhibitor

- When the system has been tested turn the boiler off (set the boiler thermostat switch to O, drain the water while it is still hot in order to complete the flushing process.

b. When an inhibitor is added to the system, Fernox Manufacturing Co. Ltd. recommend Fernox CP3 for use with copper tube boilers and this should be used in accordance with their instructions. Where the boiler is used on an old system, special care is required. The system should be drained and flushed out, ensuring that all radiators are drained. When filling add the correct quantity of CP3 for the system volume. As a guide a 3 radiator system will on average require about 2¼ pints, a 6 radiator system 4¼ pints and a 9 radiator system about 6¼ pints.

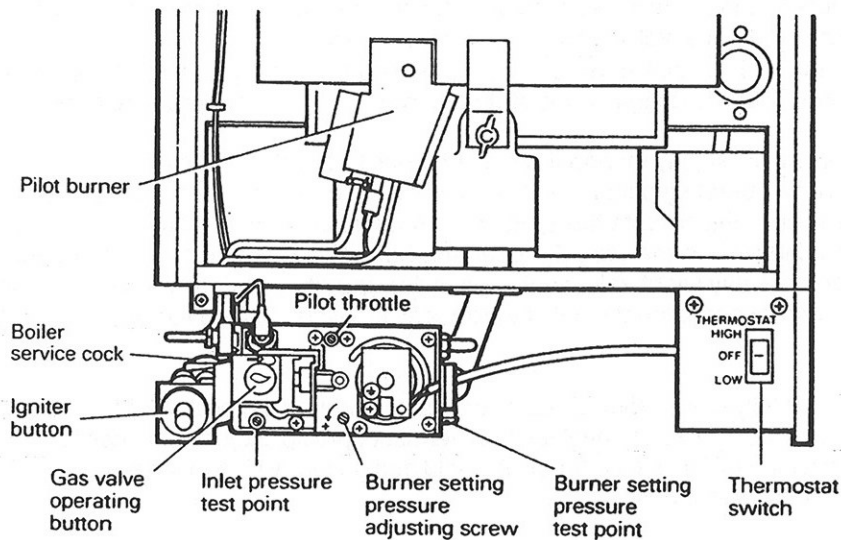
c. After the system has been filled, vent and make a final check for water soundness.

11. By-pass valve adjustment

- a. Fully close the by-pass valve and then open it one full turn. Light the boiler with the heating circuit only in operation and balance the system using pump and radiator valves to give an 11° C temperature drop across the individual radiators.
- b. Adjust the by-pass valve as necessary to give a temperature rise of 9° C across the boiler flow and return, i.e. measured before the by-pass.

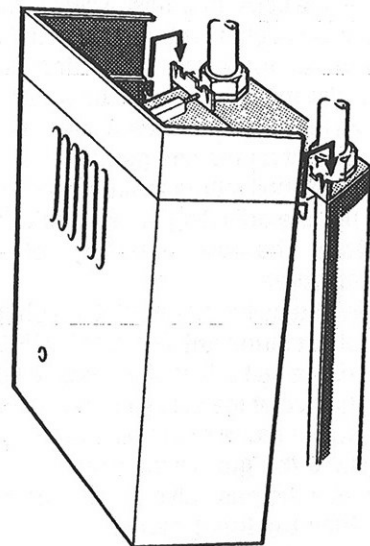
15. BOILER CONTROLS

(inner case, gas valve cover and fascia panel removed)



16. FINAL ASSEMBLY AND HANDING OVER THE INSTALLATION

1. Lift the outer case into position over the boiler, push back and lower to engage the case fixings into the top of the chassis sides.
2. Secure the case in position by tightening the bottom fixing screw.
3. If a programmer is fitted, set the clock to the correct time (do not rotate the dial anti-clockwise) and set the programme selector switches to the required settings. See User instructions.
4. Hand the User instructions to the User and instruct in the safe operation of the boiler and controls. Replace the bottom cover.
5. 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.
5. Advise the User that for continued efficient and safe operation of the boiler it is important that adequate servicing is carried out at least once a year by a qualified service engineer or the local Gas Region.
6. Leave a permanent card attached to the boiler giving:
 - a. Name and address of installer.
 - b. Date of installation.
 - c. A wiring diagram of the circuit.



17. ANNUAL SERVICING

The following aspects of the boiler and installation should be examined, and rectified as necessary.

1. Run the boiler and check the operation of its controls, observe the flame picture and ensure that the boiler responds to any switches and programmer.
2. Check the condition of the flue and ensure it is not obstructed.
3. Remove the deflector plate and combustion chamber front and check if the burner or heat exchanger requires cleaning.
4. Examine the main injector orifice and ensure it is clear and undamaged.
5. Remove any build up of carbon deposits from the thermocouple tip.
6. If a sufficiently large pilot flame cannot be achieved examine the pilot injector orifice to ensure it is clear and undamaged.

On completion of the service run the boiler and ensure that it operates satisfactorily.

The boiler data plate is positioned on the inner case at the bottom right hand corner.

The procedure for Annual Servicing is given in frames 12 to 17.

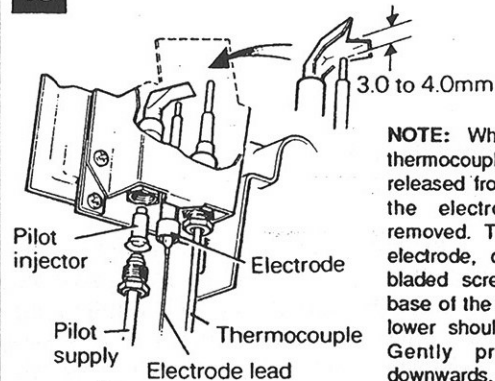
WARNING: Before commencing work slide off the bottom cover and slide the gas valve operating button in the direction of the arrow to turn off the boiler. Allow the boiler to cool and isolate the electricity supply. Turn off the gas supply at the gas service cock.

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

12 DISMANTLING

1. Slacken the screw securing the bottom of the outer case, lift the case up slightly and take it off. Place the case safely aside to avoid possible damage.
2. Unscrew the three inner case screws, two at the top and one at the bottom and remove the inner case.
3. Slacken the two wing nuts securing the draught diverter to the combustion chamber. Remove the two screws securing the deflector plate to the draught diverter and slide out the deflector plate.
4. Remove the two screws, above the boiler thermostat switch, securing the wiring centre and lower the wiring centre. If a programmer is fitted, unplug the programmer plug from the wiring centre and slide out the programmer. If a programmer is not fitted, slide out the fascia panel. Replace the wiring centre.
5. Remove the four screws and one wing nut securing the combustion chamber front cover and withdraw the cover.
6. Carefully prise the electrode out of the pilot assembly with a flat bladed screwdriver - see note in frame 13.

13 Dismantling - continued



NOTE: Whenever the pilot or thermocouple nuts are to be released from the pilot assembly, the electrode must first be removed. To avoid cracking the electrode, carefully apply a flat bladed screwdriver between the base of the pilot tube nut and the lower shoulder of the electrode. Gently prise the electrode downwards.

7. Undo the nut and disengage the thermocouple.
8. Remove the screw securing the gas valve cover and lift off the cover.
9. Slacken the pilot supply tubing nut at the gas valve, remove the tubing nut from the pilot assembly and disconnect the pilot supply from the pilot assembly.

14 Dismantling - continued

10. Carefully remove and retain the pilot injector.
11. From underneath the base of the chassis remove the two pozi screws securing the burner manifold.
12. Carefully move the pilot supply to one side and lift out the burner assembly. Take care not to lose the burner flange 'O' ring.
13. Cover the exposed gas way in the base of the chassis.

15 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. Remove the clamp securing the lint filter to the burner and carefully remove the filter. Clean the lint filter by brushing carefully with a soft brush, aided by blowing through the mesh.
3. Turn the burner upside down and tap gently to remove any debris.
4. Clean the pilot burner and electrode with a fine wire brush if necessary.
5. Unscrew the injector from the burner 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.
6. To clean or replace the pilot filter in the gas valve refer to frame 33.
7. Excessive build up of carbon on the thermocouple tip should be removed with a fine wire brush.

16**REASSEMBLY**

1. Replace the burner injector using a small amount of jointing compound.
Note: The 40C injector uses a sealing washer.
2. Replace the lint filter to the burner by carefully opening the filter and fitting over the burner. Secure the filter with the clamp and fixing screw previously removed.
3. Remove the protective covering from the gas way in the base of the chassis.
4. Check that the 'O' ring is in position in the burner flange.
5. Replace the burner assembly and secure with two screws previously removed.
6. Replace the pilot injector and reconnect the pilot supply to the pilot assembly. Fully tighten the pilot supply connection at the gas valve.
7. Re-engage the thermocouple and secure with nut.
8. Replace the electrode ensuring it is pushed fully home. Check that the spark gap is 3.0 to 4.0 mm, see frame 13.

17**Reassembly - continued**

9. Replace the combustion chamber front ensuring that the burner stud locates in the bracket and secure with four screws and wing nut.
10. Slide the deflector plate into position in the draught diverter, with the flange pointing vertically downwards, and secure with two screws. Retighten the two wing nuts securing the draught diverter.
11. Open the wiring centre and replace the programmer, if fitted and reconnect the programmer plug. Replace the fascia panel if a programmer is not fitted. Replace the wiring centre and secure with two screws.
12. Light the pilot and check the flame, test the pilot and main burner supplies for gas soundness, check the main burner setting pressure and replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
13. Lift the outer case into position over the boiler, push back and lower to engage the case fixings into the top of the chassis sides. Secure in position by tightening the bottom fixing screw.
14. Replace the bottom cover.

18. LIGHTING INSTRUCTIONS

See page 10 for boiler controls

With the gas supply on, electricity supply off and the boiler thermostat switch set to O:

1. Fully depress the gas valve operating button and keep it pressed in. At the same time operate the igniter button to light the pilot. If the pilot does not light, operate the igniter button repeatedly until it does.
2. When the pilot lights, continue to hold the gas valve operating button in for a further 10 to 20 seconds, then release it slowly.
Caution: If the pilot does not stay alight, release the gas valve operating button and slide it in the direction of the arrow. Wait for 3 minutes and repeat operation 1 until the pilot is lit. Continue to hold the gas valve operating button in for a little longer, then release it slowly.

When the pilot remains alight:

3. Switch on the electricity supply, set the programmer switch to CONT, if a programmer is fitted and check that all system controls are calling for heat.
4. Set the boiler thermostat switch to HIGH and the main burner will light.
5. If a programmer is fitted, ensure that the clock is set to the correct time (do not rotate the dial anti-clockwise) and that the programme selector switches are set to their previous settings.

19. REPLACEMENT OF PARTS

The procedure for the replacement of parts is given in frames 18 to 39.

WARNING: Before commencing work slide off the bottom cover and slide the gas valve operating button in the direction of the arrow to turn off the boiler. Allow the boiler to cool and isolate the electricity supply. Turn off the gas supply at the gas service cock.

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

18**TO REPLACE THE ELECTRODE**

Refer to diagram in frame 13.

1. Remove the outer and inner cases, see frame 12.
2. Disconnect the electrode lead from the electrode.
3. Carefully prise the electrode out of the pilot assembly with a flat bladed screwdriver - see note in frame 13.
4. Insert a new electrode, ensuring it is pushed fully home, and reconnect the electrode lead.
5. Remove the two screws securing the pilot shield. Lift off the pilot shield and check that the spark gap is 3.0 to 4.0 mm.
6. Operate the piezo unit to check that a spark is present.
7. Replace the pilot shield and secure with two screws.
8. Replace the inner case and programmer or fascia panel.
9. Replace the outer case.
10. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

19**TO REPLACE THE PILOT INJECTOR**

Refer to diagram in frame 13.

1. Remove the outer and inner cases, see frame 12.
2. Carefully prise the electrode out of the pilot assembly with a flat bladed screwdriver - see note in frame 13.
3. Remove the tubing nut at the pilot assembly and carefully disconnect the pilot supply.
4. Remove the pilot injector.
5. Fit a new injector, reconnect the pilot supply and replace the electrode.
6. Light the pilot and check the flame, test the pilot supply for gas soundness and replace the inner case as described in the commissioning instructions, page 9.
7. Replace the outer case.
8. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

20**TO REPLACE THE PILOT BURNER**

Refer to diagram in frame 13.

1. Remove the outer and inner cases, see frame 12.
2. Carefully prise the electrode out of the pilot assembly with a flat bladed screwdriver - see note in frame 13.
3. Undo the nut and disengage the thermocouple from the pilot assembly.
4. Undo the tubing nut and carefully disengage the pilot supply from the pilot assembly.
5. Remove the two screws securing the pilot shield and lift off the pilot shield.
6. Remove the remaining screw securing the pilot burner and remove the pilot burner.
7. Fit a new pilot burner and secure with two screws. Replace the injector, pilot supply, thermocouple and electrode. Check that the spark gap is 3.0 to 4.0 mm.
8. Remove the uppermost screw securing the pilot burner and replace the pilot shield securing it with two screws.
9. Light the pilot and check the flame, test the pilot supply for gas soundness and replace the inner case as described in the commissioning instructions, page 9.
10. Replace the outer case.
11. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

21**TO REPLACE THE THERMOCOUPLE**

1. Remove the outer and inner cases, see frame 12.
2. Remove the screw securing the gas valve plastic cover and lift off cover.
3. Remove the clamping bracket which retains the pilot supply, thermocouple and overheat cut-off device leads at the bottom left hand corner of the chassis.
4. Carefully prise the electrode out of the pilot assembly with a flat bladed screwdriver - see note in frame 13.
5. Disconnect the thermocouple from both the pilot assembly and gas valve.
6. Carefully bend the replacement thermocouple to match the discarded one.
7. Connect the thermocouple to the gas valve and pilot assembly. Ensure that the overheat cut-off device lead is in position before the thermocouple is secured to the gas valve, see frame 25.
8. Replace the electrode ensuring it is pushed fully home.
9. Replace the clamping bracket retaining the pilot supply, thermocouple and overheat cut-off device leads.
10. Replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
11. Replace the outer case.
12. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

22**TO REPLACE THE BURNER**

1. Remove the outer case, inner case and programmer or fascia panel, see frame 12.
2. Slacken the two wing nuts securing the draught diverter to the combustion chamber. Remove the two screws securing the deflector plate to the draught diverter and slide out the deflector plate.
3. Remove the burner assembly as described in frames 12, 13 and 14, paras 5 to 13.
4. Remove the pilot assembly, lint filter and main burner injector and fit to the new burner. Use a small amount of jointing compound on the burner injector. **Note:** The 40C injector uses a sealing washer.
5. Using a new 'O' ring in the burner manifold flange fit the burner and reassemble as described in frames 16 and 17, paras 3 to 10.
6. Open the wiring centre and replace the programmer, if fitted and reconnect the programmer plug. Replace the fascia panel if a programmer is not fitted. Replace the wiring centre and secure with two screws.
7. Light the pilot and check the flame, test the pilot and main burner supplies for gas soundness and replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
8. Replace the outer case and bottom cover.

23 TO REPLACE THE LINT FILTER

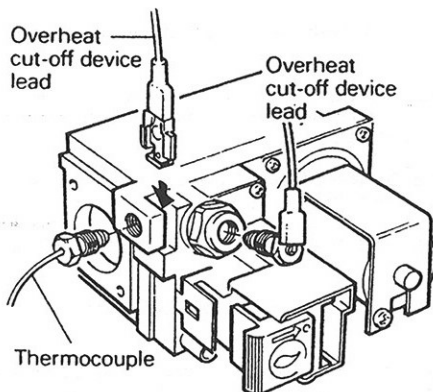
1. Remove the outer case, inner case and programmer or fascia panel, see frame 12.
2. Slacken the two wing nuts securing the draught diverter to the combustion chamber. Remove the two screws securing the deflector plate to the draught diverter and slide out the deflector plate.
3. Remove the burner assembly as described in frames 12, 13 and 14, paras 5 to 13.
4. Remove the lint filter from the burner and fit a new one.
5. Replace the burner assembly as described in frames 16 and 17, paras 3 to 10.
6. Open the wiring centre and replace the programmer, if fitted and reconnect the programmer plug. Replace the fascia panel if a programmer is not fitted. Replace the wiring centre and secure with two screws.
7. Light the pilot and check the flame, test the pilot and main burner supplies for gas soundness and replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
8. Replace the outer case and bottom cover.

24 TO REPLACE THE OVERHEAT CUT OFF DEVICE

The **overheat cut-off device** is mounted on the left hand side of the heat exchanger.

1. Remove the outer and inner cases, see frame 12.
2. Remove the screw securing the gas valve plastic cover and lift off cover.
3. Remove the clamping bracket which retains the pilot supply, thermocouple and overheat cut-off device leads at the bottom left hand corner of the chassis.
4. Unscrew the thermocouple from the gas valve and withdraw the cut-off device lead from the gas valve. See frame 25.
5. Remove the clip securing the cut-off device leads to the chassis.
6. Unscrew the fixing screws and remove the overheat cut-off device from the mounting plate on the heat exchanger.

25 Overheat Cut-Off Device - *continued*



7. Ensure that the mounting plate is clean and fit the new cut-off device, ensure that the leads are secured to the chassis with the cable clip. Reassemble in reverse order.
8. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

26 TO REPLACE THE 'HI' OR 'LO' THERMOSTATS

Two thermostats are mounted on the right hand (Flow) pipe from the heat exchanger. The 'Hi' thermostat is marked with brown paint and the 'Lo' thermostat with white paint.

1. Remove the outer and inner cases, see frame 12.
2. Remove the screw securing the thermostat cover, on the flow pipe and pull the cover forward.
3. Disconnect the two wires from the thermostat.
4. Unscrew the fixing screws and remove the thermostat.
5. Ensure that the mounting plate is clean, fit the new thermostat and secure in position.
6. Re-connect the two wires. The polarity of these wires is not important. Ensure that the brown wire goes to the 'Hi' thermostat and the white wire goes to the 'Lo' thermostat. The yellow wires are common. See wiring diagram.
7. Replace the thermostat cover.

27 'Hi' or 'Lo' Thermostats - *continued*

8. Replace the inner and outer cases.
9. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.
10. Check that the 'Hi' thermostat switches the boiler on and off when the boiler thermostat switch is set to HIGH. Set the boiler thermostat switch to LOW and check that the 'Lo' thermostat switches the boiler on and off.

28 TO REPLACE THE GAS VALVE ENSURE THAT THE GAS SUPPLY IS OFF

1. Remove the outer case, inner case and programmer or fascia panel, see frame 12.
2. Remove the screw securing the gas valve plastic cover and lift off cover.
3. Disconnect the push-on terminals (the polarity of these wires is not important) and unscrew the earth terminal from the side of the gas valve.
4. Remove the clamping bracket which retains the pilot supply, thermocouple and overheat cut-off device leads at the bottom left hand corner of the chassis.
5. Carefully prise the electrode out of the pilot assembly with a flat bladed screwdriver - see note in frame 13.
6. Disconnect the pilot supply and thermocouple from the gas valve and pilot assembly. Take care not to lose the pilot injector, see frame 13.
7. Disconnect the overheat cut-off device leads from the gas valve, see frame 25.
8. Disconnect the electrode lead from the piezo unit. Remove the one 3 mm socket screw securing the piezo unit mounting bracket and remove the bracket.

29

Gas Valve - continued

9. Remove the eight 3 mm socket screws securing the gas valve (four to the service cock and four to the burner manifold) and withdraw the gas valve.
10. Using new 'O' rings in the service cock and manifold flanges (both 'O' rings are the same size), reassemble and fit the new valve to the boiler in reverse order. Do not replace the plastic gas valve cover at this stage.
11. Open the wiring centre and replace the programmer, if fitted and reconnect the programmer plug. Replace the fascia panel if a programmer is not fitted. Replace the wiring centre and secure with two screws.
12. Light the pilot and check the flame, test the pilot supply connections and gas valve inlet and outlet connections for gas soundness, check the burner setting pressure, replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
13. Replace the outer case and bottom cover.

31

TO REPLACE THE PIEZO UNIT

1. Disconnect the electrode lead from the piezo unit.
2. Unscrew the piezo unit from the retaining nut on its support bracket.
3. Fit a new unit and reconnect the electrode lead.
4. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

30

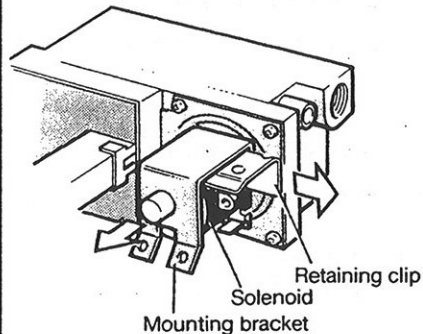
TO REPLACE THE BURNER INJECTOR

1. Remove the outer case, inner case and programmer or fascia panel, see frame 12.
2. Slacken the two wing nuts securing the draught diverter to the combustion chamber. Remove the two screws securing the deflector plate to the draught diverter and slide out the deflector plate.
3. Remove the burner assembly as described in frames 12, 13 and 14, paras 5 to 13.
4. Remove the lint filter and unscrew the injector from the manifold.
5. Screw in a replacement injector using a small amount of jointing compound. **Note:** The 40C injector uses a sealing washer.
6. Refit the lint filter and replace the burner assembly as described in frames 16 and 17, paras 3 to 10.
7. Open the wiring centre and replace the programmer, if fitted and reconnect the programmer plug. Replace the fascia panel if a programmer is not fitted. Replace the wiring centre and secure with two screws.
8. Light the pilot and check the flame, test the pilot and main burner supplies for gas soundness and replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
9. Replace the outer case and bottom cover.

32

TO REPLACE THE GAS VALVE SOLENOID

1. Remove the screw securing the gas valve plastic cover and lift off cover.
2. Disconnect the push-on terminals (the polarity of these wires is not important) and unscrew the earth terminal from the gas valve.
3. Carefully prise out the retaining clip from behind the solenoid and lift off the solenoid and its mounting bracket.
4. Position the new solenoid into the mounting bracket and reassemble in reverse order.
5. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

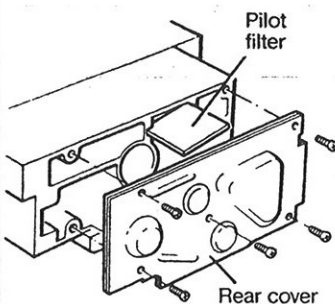


33

TO REPLACE THE PILOT FILTER

NOTE: It is extremely unlikely that the pilot filter will become blocked. If the pilot injector and pilot supply are clear and the filter is still suspect proceed as follows:

ENSURE THAT THE GAS SUPPLY IS OFF



1. Remove the gas valve as described in frames 28 and 29.
2. Remove the five screws securing the rear cover plate and carefully remove it. Discard the gasket.
3. Carefully remove the pilot filter and replace with a new one.
4. Replace the rear cover using a NEW gasket and secure by evenly tightening the five screws.
5. Replace the gas valve in reverse order to frames 28 and 29. Do not replace the inner and outer cases at this stage.
6. Turn on the gas supply and check the service cock to gas valve joint for gas soundness using a suitable leak detecting fluid.

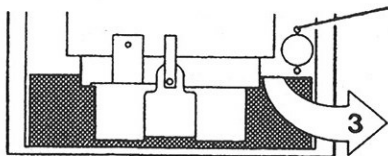
34

Pilot Filter - continued

7. Light the pilot and check the flame and test the pilot supply connections for gas soundness as described in the commissioning instructions, page 9.
8. Apply a suitable leak detecting fluid around the gas valve rear cover and the gas valve manifold joint at the gas valve outlet. Set the programme selector switch to CONT, if a programmer is fitted. Switch on the electricity supply and set the boiler thermostat switch to HIGH to light the main burner. Test the gas valve rear cover and outlet connection for gas soundness.
9. Replace the inner case, outer case and bottom cover.

35 TO REPLACE THE PUMP OVERRUN THERMOSTAT

1. Remove the outer and inner cases, see frame 12.



2. Remove the two screws securing the pump overrun thermostat.
3. Remove the thermostat from behind the chassis and disconnect the three leads.

4. Connect the leads to the new thermostat. Red to terminal 1, yellow to terminal 2 and brown to terminal 3. See wiring diagram.
5. Reassemble in reverse order.
6. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.
7. Allow the boiler to heat up fully then switch it off at the programmer or external controls and check that the pump continues to run for 5 to 15 minutes.

36 TO REPLACE THE PROGRAMMER (if fitted)

Refer to diagram in frame 10.

1. Remove the two screws securing the wiring centre and carefully lower it.
2. Unplug the programmer plug from the wiring centre.
3. Slide out the programmer from the control box.
4. Slide the new programmer into the control box, and push fully home.
5. Connect the programmer plug to the wiring centre.
6. Close the wiring centre and secure with two screws.
7. Refer to the lighting instructions, page 12. Light the boiler and replace the bottom cover.

37 TO REPLACE THE COMBUSTION CHAMBER INSULATION

1. Remove the outer case, inner case and programmer or fascia panel, see frame 12.
2. Remove the two wing nuts securing the draught diverter to the combustion chamber. Remove the two screws securing the deflector plate to the draught diverter and slide out the deflector plate.
3. Remove the burner assembly as described in frames 12, 13 and 14, paras 5 to 13.
4. Remove the four screws (two each side) securing the combustion chamber (and air restrictors on the 30/50C and 40C) to the chassis. Carefully lower and withdraw the combustion chamber.
5. Slide the front insulation out of the front cover and replace with a new panel.
6. Slide out the two side panels and remove the rear panel by pulling forwards at the top then lifting out. Fit a new rear panel, lower edge first and push back into position. Slide in two new side panels.

38 Combustion Chamber Insulation - *continued*

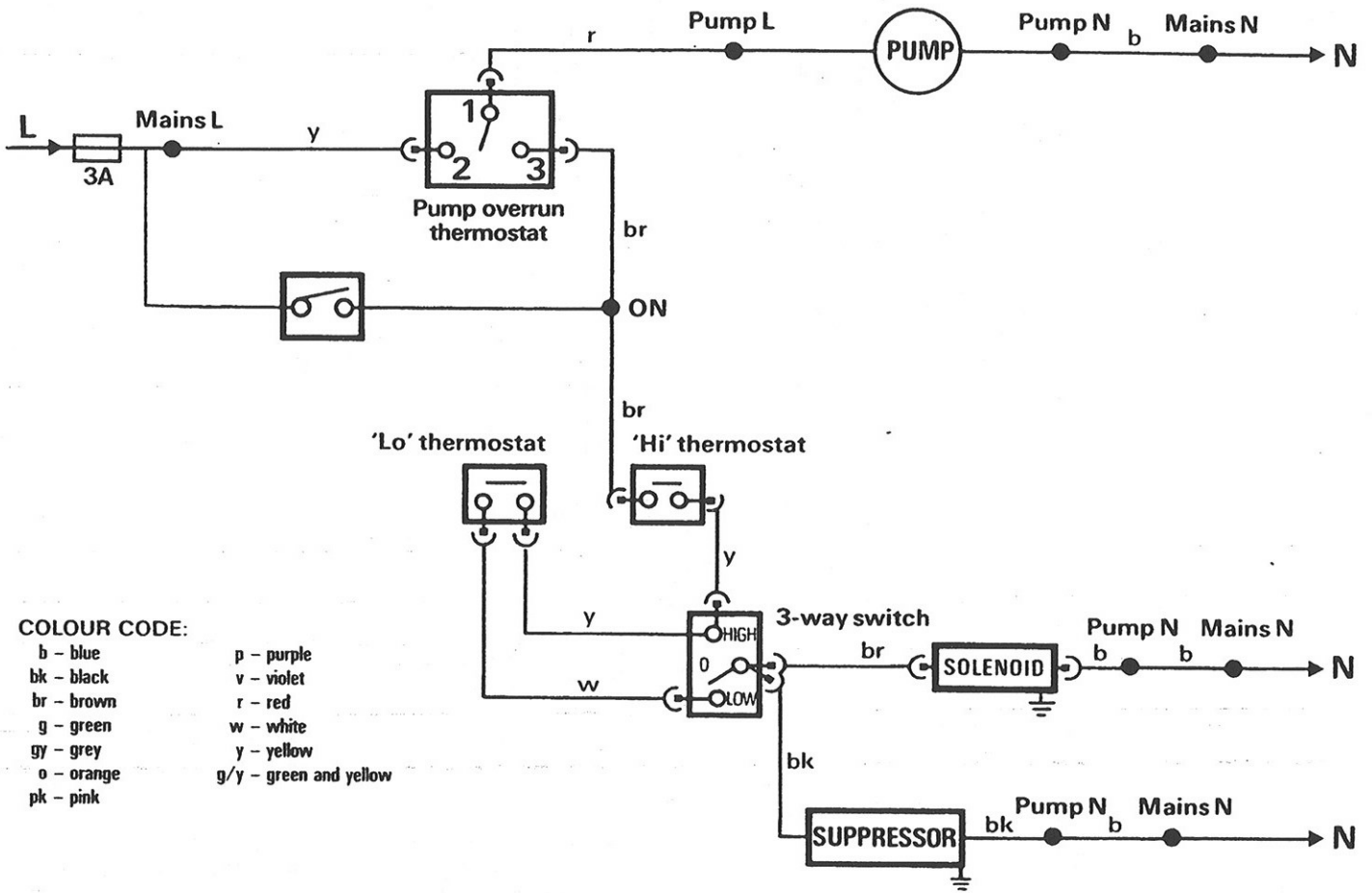
7. Replace the combustion chamber (and air restrictors on the 30/50C and 40C) and secure in position with the four screws previously removed. Replace the burner assembly as described in frames 16 and 17, paras 3 to 9.
8. Replace and fully tighten the wing nuts securing the draught diverter. Slide the deflector plate into position in the draught diverter, with the flange pointing vertically downwards, and secure with two screws.
9. Open the wiring centre and replace the programmer, if fitted and reconnect the programmer plug. Replace the fascia panel if a programmer is not fitted. Replace the wiring centre and secure with two screws.
10. Light the pilot and check the flame, test the pilot and main burner supplies for gas soundness and replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
11. Replace the outer case and bottom cover.

39 TO REPLACE THE MAIN HEAT EXCHANGER

1. Drain the system using the system draining tap.
2. Remove the combustion chamber as described in frame 37.
3. Remove the overheat cut-off device from the side of the heat exchanger.
4. Undo the fittings securing the inlet and outlet pipes to the heat exchanger.
5. Lower the heat exchanger to disengage it from the inlet and outlet pipes.
6. Reassemble in reverse order using a new heat exchanger.
7. Fill and vent the system.
8. Light the pilot and check the flame, test the pilot and main burner supplies for gas soundness and replace the gas valve cover and inner case as described in the commissioning instructions, page 9.
9. Replace the outer case and bottom cover.

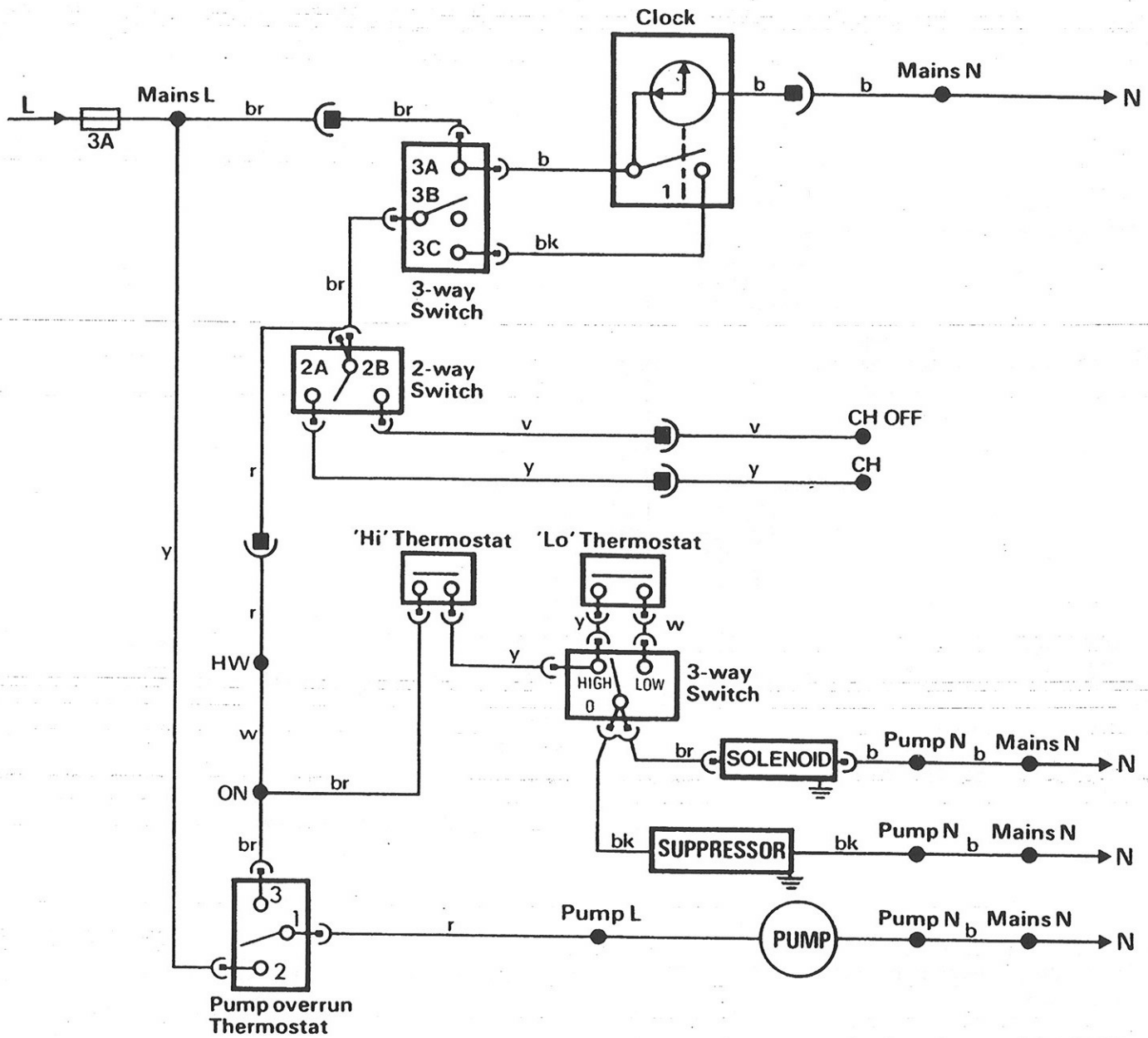
20. WIRING DIAGRAMS

a. Functional flow wiring diagram without programmer



NOTE: If a programmer is not fitted link HW to ON to be removed by the installer and a switched live connected to terminal ON.

b. Functional flow wiring diagram with Apollo pin set type programmer



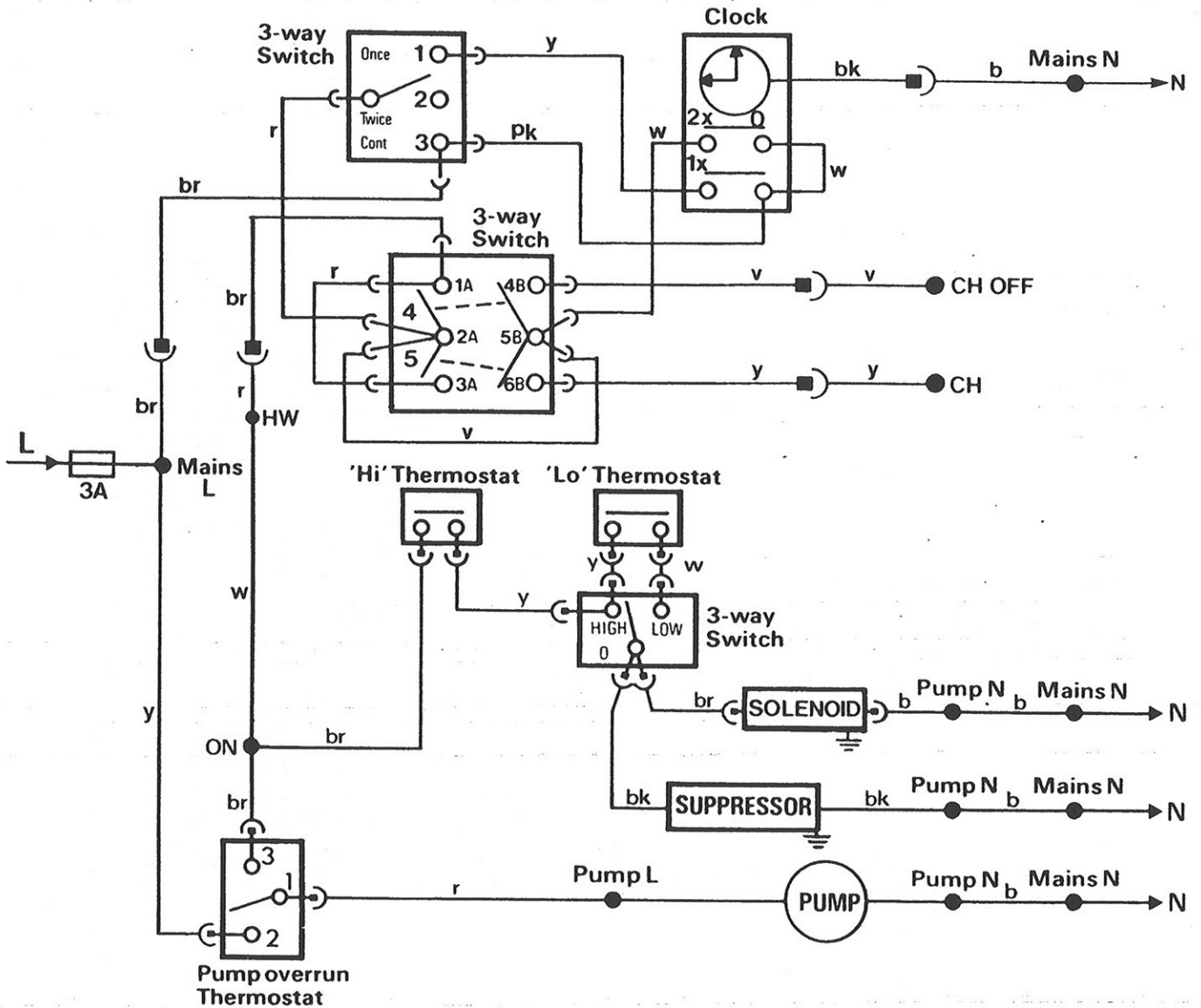
NOTE: Link HW-ON is removed when any external controls are fitted.

COLOUR CODE:

- b - blue
- bk - black
- br - brown
- g - green
- gy - grey
- o - orange
- pk - pink
- p - purple
- v - violet
- r - red
- w - white
- y - yellow
- g/y - green and yellow

SERVICE	SELECTOR SWITCH CLOSED					
	1	2A	2B	3A	3B	3C
OFF						
CH OFF, HW						
CH + HW						
CONT. CH + HW						
CONT. HW						

c. Functional flow wiring diagram with Apollo tappet type programmer



NOTE: Link HW-ON is removed when any external controls are fitted.

COLOUR CODE:

- b - blue
- bk - black
- br - brown
- g - green
- gy - grey
- o - orange
- pk - pink
- p - purple
- v - violet
- r - red
- w - white
- y - yellow
- g/y - green and yellow

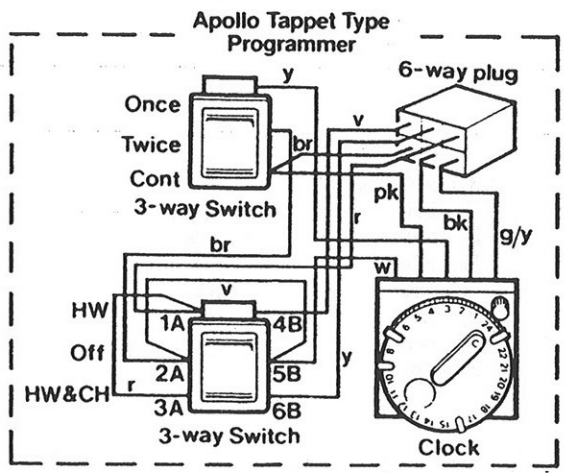
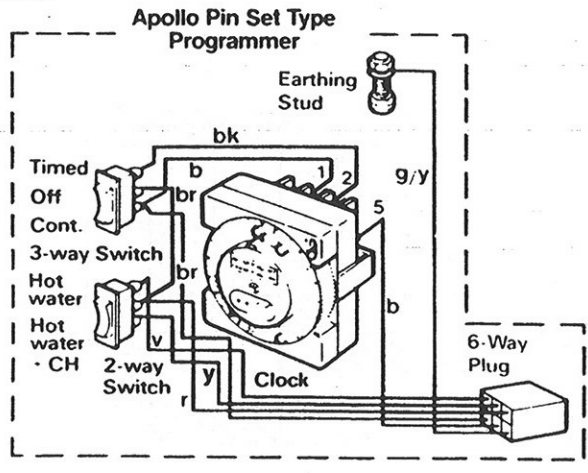
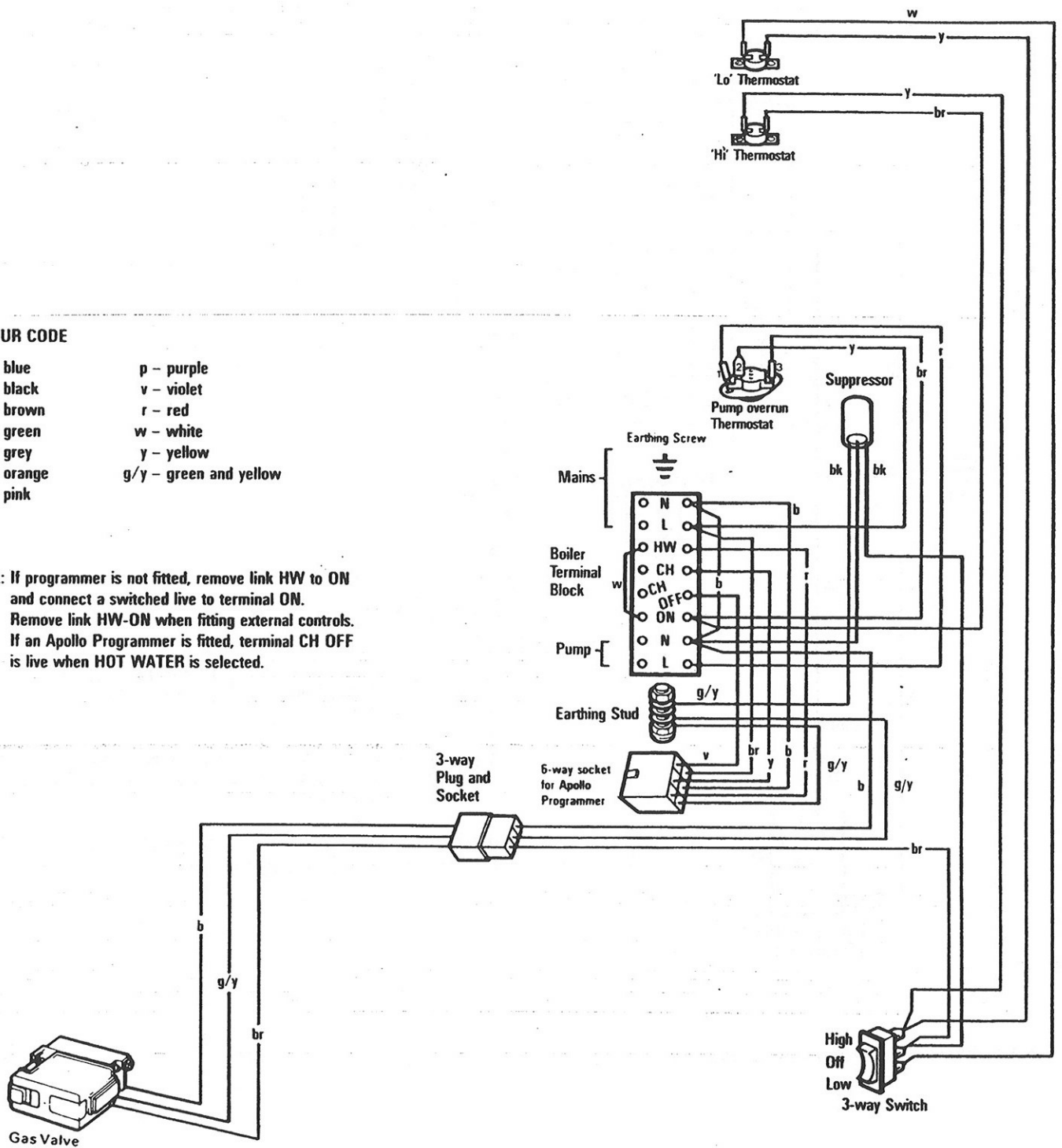
SERVICE	SELECTOR SWITCH CLOSED				
	1	2	3	4	5
OFF					
CH OFF HW2X					
CH OFF HW1X					
CH + HW2X					
CH + HW1X					
CONT CH + HW					
CONT HW					

d. Illustrated wiring diagram

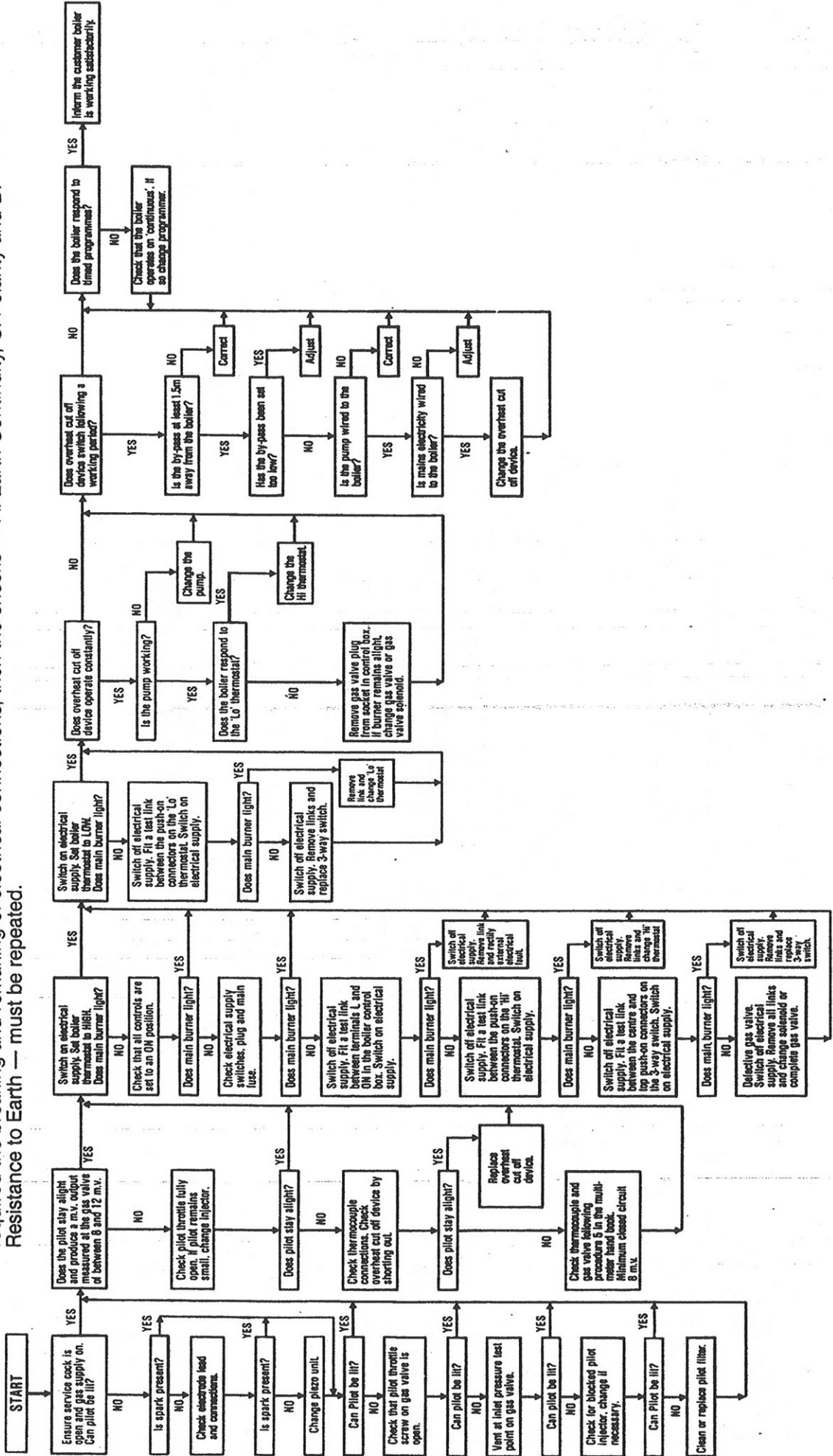
COLOUR CODE

- b - blue
- bk - black
- br - brown
- g - green
- gy - grey
- o - orange
- pk - pink
- p - purple
- v - violet
- r - red
- w - white
- y - yellow
- g/y - green and yellow

NOTE: If programmer is not fitted, remove link HW to ON and connect a switched live to terminal ON.
 Remove link HW-ON when fitting external controls.
 If an Apollo Programmer is fitted, terminal CH OFF is live when HOT WATER is selected.



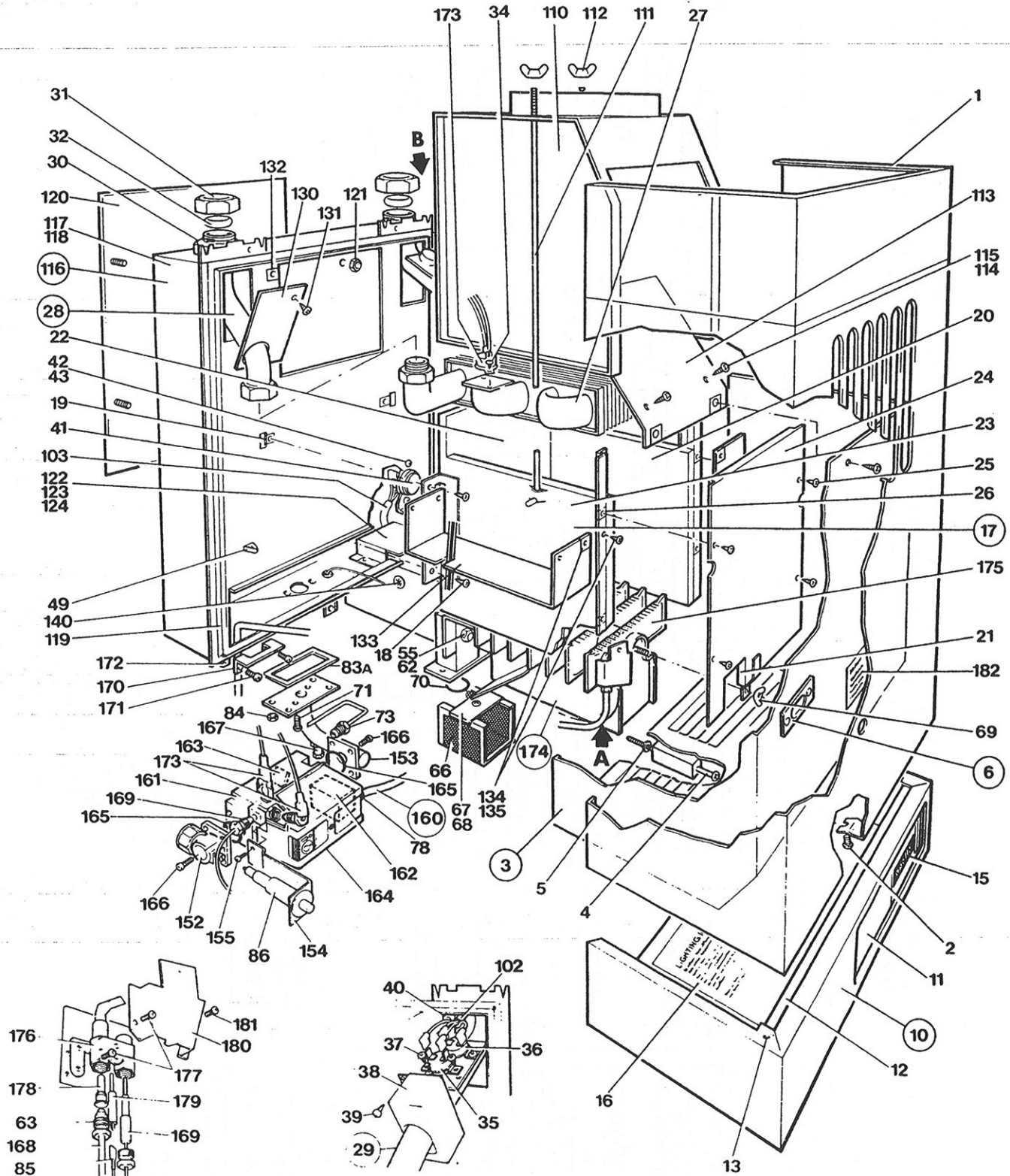
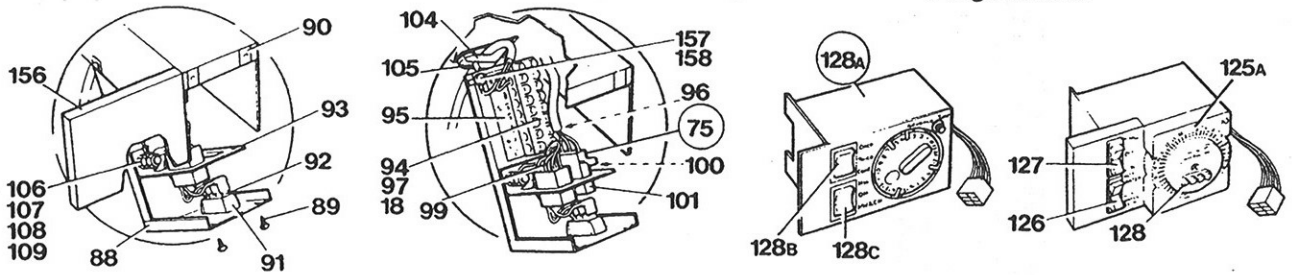
Preliminary electrical system checks as contained in the BGC multimeter instructions book are the first electrical checks to be carried out during a fault finding procedure. On completion of the service/fault finding task which has required the breaking and remaking of electrical connections, then the checks — A. Earth Continuity, C. Polarity and D. Resistance to Earth — must be repeated.



22. EXPLODED VIEW - APOLLO 15/30C, 30/50C and 40C
 (key No's. 133, 133A, 134 and 135 for 30/50C and 40C only. Key No. 62 for 40C only)

WIRING CENTRE DETAILS

Programmeters

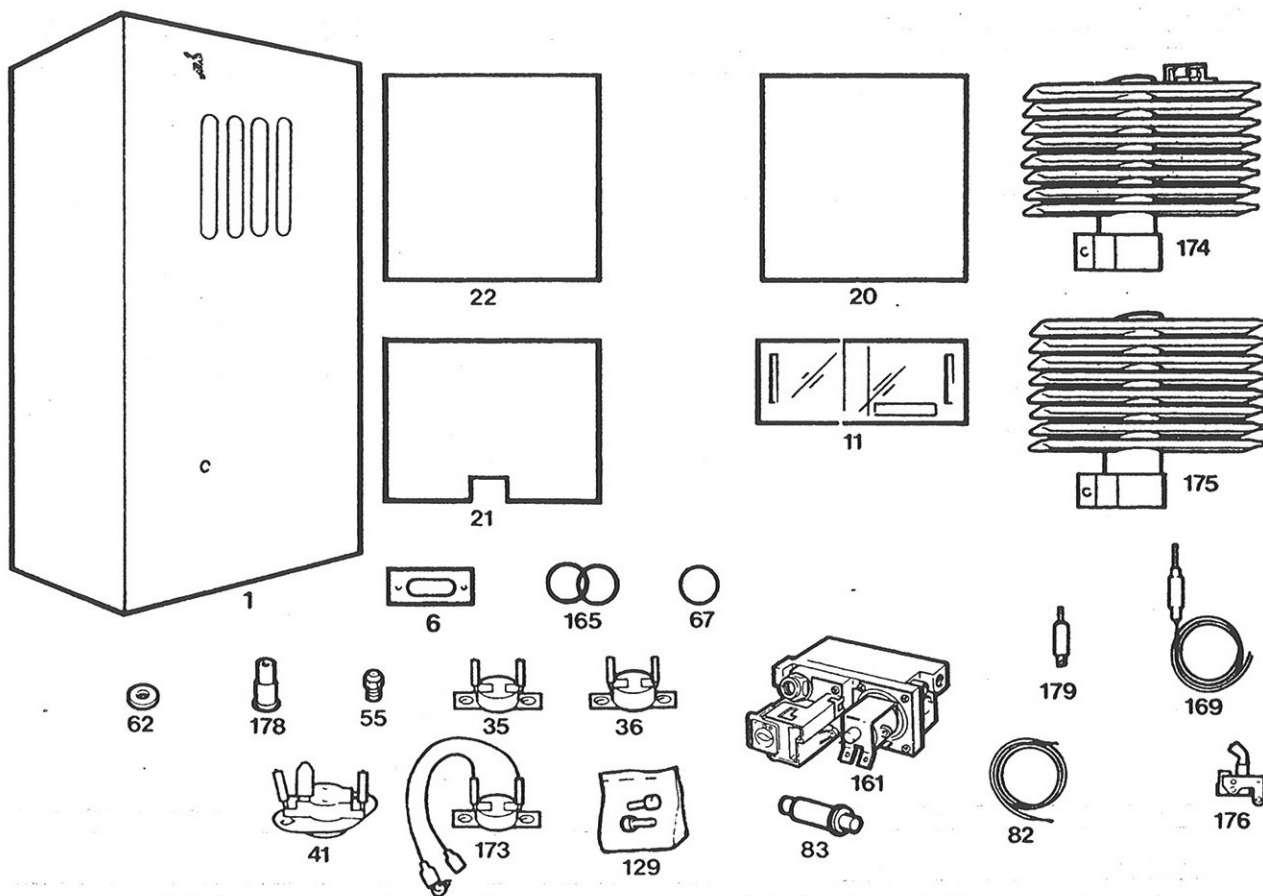


View on Arrow A

View on Arrow B

Encircled number denotes a complete assembly

23. SHORT LIST SPARES



Key No.	GC No.	Description	Qty.	Part No.
1	323 422	Outer case 15/30	1	402A380
1	323 439	Outer case 30/50, 40	1	402A381
6	377 000	Window assembly	1	402A2476
11	323 339	Plastic door	2	402C053
20	323 342	Combustion chamber insulation (sides)	2	402C104
21	323 405	Combustion chamber insulation (front) 15/30	1	402C105
21	323 343	Combustion chamber insulation (front) 30/40, 40	1	402C178
22	323 406	Combustion chamber insulation (rear) 15/30	1	402C141
22	323 344	Combustion chamber insulation (rear) 30/50, 40	1	402C181
35	382 397	'Hi' thermostat	1	402S114
36	382 373	'Lo' thermostat	1	402S115
41	382 374	Pump overrun thermostat	1	402S087
55	398 315	Main injector. Cat 16 size 750 15/30	1	402S389
55	398 329	Main injector. Cat 16 size 1400 30/50	1	307S527
55	398 481	Main injector. Cat 28 size 950 40	1	402S507
62	323 468	Main injector washer 40	1	402C532
67	323 361	Burner 'O' ring	1	402S098
82	323 367	Spark electrode lead with grommet	1	402S089
83	386 551	Piezo unit	1	402S083
129	323 452	Programmer pins (pack of 6)	1	402A302
161	395 685	Gas valve	1	V4700E1007
165	359 211	Gas valve 'O' ring	2	400-0016-7-32
169	390 131	Thermocouple	1	Q309A2721
173		Overheat cut off device with leads	1	402A2608
174		Burner and pilot assembly 15/30	1	402A2748
174	377 095	Burner and pilot assembly 30/50	1	402A2505
174	377 096	Burner and pilot assembly 40	1	402A2506
175	399 327	Burner 15/30	1	402S2514
175	399 328	Burner 30/50, 40	1	402S2515
176	386 511	Pilot burner	1	Q385A1046
178	384 980	Pilot injector 38/36A	1	4500-4108-001
179	386 512	Spark electrode	1	309S330

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O MYSON