

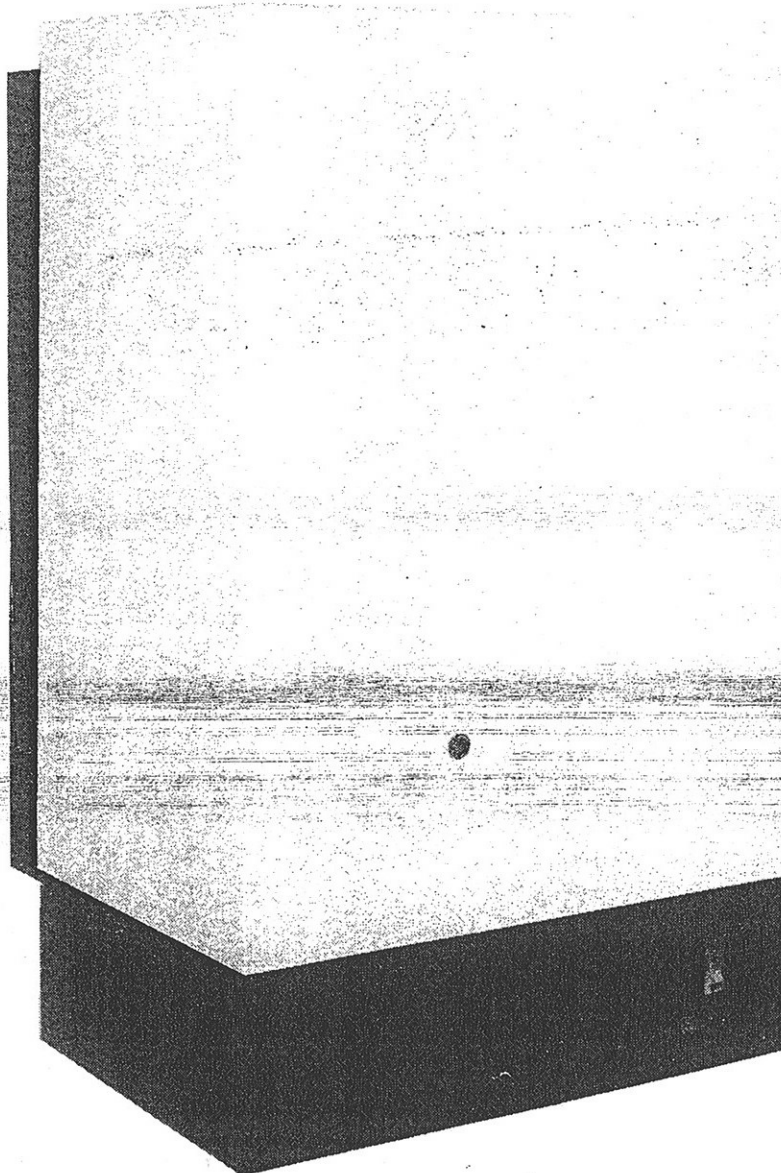
OMYSON

402C2474 Iss. 01

Installation and Servicing Instructions

Apollo 15/30B, 30/50B and 40B Wall mounted gas boilers

G.C. Appliance No's. Apollo 15/30B: 41 789 53, Apollo 30/50B: 41 789 54,
Apollo 40B: 41 789 79.



**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 room-sealed wall mounted boilers are for use on natural gas only.

The Apollo 15/30B is range rated from an output of 4.4 to 8.8 kW (15 000 to 30 000 Btu/h).

The Apollo 30/50B is range rated from an output of 8.8 to 14.7 kW (30 000 to 50 000 Btu/h).

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

The Apollo 15/30B and 30/50B are factory set to the maximum output.

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 15/30B	Apollo 30/50B	Apollo 40B
Burner type	Seven bladed		
Burner injector	16/800	16/1400	28/950
Pilot injector	Size 5		
Pilot flame	Approximately 20 mm long		
Electrode gap	3.0/4.0 mm		
Ignition	Piezo push button		
Weight (empty)	16.10 kg (35.5 lb)	17.46 kg (38.5 lb)	
Lifting weight (installing)	11.02 kg (24.3 lb)	11.25 kg (24.8 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 white case		
*Head loss	0.38 m (15 in)	0.71 m (28 in)	
Height	565 mm (22¼ in)		
Width	340 mm (13⅜ in)		
Depth	300 mm (11¾ in)		
Clearance required for servicing	Top	50 mm (2 in)	
	Bottom	90 mm (3½ in)	
	Front	300 mm (11¾ in)	
	Sides	5 mm (¼ in)	
Flue terminal size	300 mm high x 276 mm wide x 120 mm deep		
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 15/30B and 1146 litres/h (4.2 gal/min) for the Apollo 30/50B and Apollo 40B.

NOMINAL BOILER RATINGS

Boiler	Output		Input		Burner setting pressure	
	kW	Btu/h	kW	Btu/h	mbar	in wg
Apollo 15/30B	4.4	15 000	5.6	19 200	3.8	1.5
	6.6	22 500	8.4	28 500	8.2	3.3
	8.8	30 000	11.0	37 500	13.5	5.4
Apollo 30/50B	8.8	30 000	11.2	38 200	5.3	2.1
	11.7	40 000	14.8	50 500	8.8	3.5
	14.7	50 000	18.3	62 500	13.2	5.3
Apollo 40B	11.7	40 000	14.7	50 000	18.0	7.2

3. GENERAL REQUIREMENTS

The boiler must be installed in accordance with: The Gas Safety (Installation and Use) Regulations 1984, 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 Standard Codes of Practice: CP331:3:1974, BS5376:2:1976, BS5546:1979, BS5440:1:1978, BS5440:2:1976 and BS5449:1:1977.

Note: Gas Safety Regulations: 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 unit is delivered in two packages (1) the cased boiler and (2) the balanced flue terminal type A, B, C or D as required. 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. A pump and by-pass kit is available which positions the pump in a readily accessible position above the boiler, includes a built in by-pass and allows a combined cold feed and vent to be connected directly to the boiler. The kit includes an outer case extension which increases the boiler height to 750 mm.

5. GAS SUPPLY

The Apollo 15/30B requires 1.1 m³/h (37 ft³/h) of natural gas, the Apollo 30/50B 1.8 m³/h (62 ft³/h) and the Apollo 40B 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 CP331:3.

6. ELECTRICITY SUPPLY

240 V ~ 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 outlet socket, 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 H05 VV-F or H05VVH2-F) as specified in table 16 of BS6500:1975. Any wiring external 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

The room in which the boiler is installed does not require a purpose provided air vent.

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 high and low level air vents must communicate with the same room or must both be on the same wall to the outside air. Both the high level and low level vent must each have a free area of 99 cm² (15 in²) for the Apollo 15/30B, 165 cm² (25 in²) for the Apollo 30/50B and 133 cm² (20 in²) for the Apollo 40B. The free area of each vent may be halved if the ventilation is provided directly from outside.

8. FLUE SYSTEM

Four telescopic terminal assemblies are available to fit the following wall thicknesses.

Size A: 100-150 mm.

Size B: 150-230 mm.

Size C: 230-380 mm.

Size D: 380-610 mm.

Unless otherwise specified the size C terminal will be supplied with the boiler.

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 duct is not closer than 25 mm (1 in) to combustible material. A metal sleeve should be installed to surround the flue duct to provide a 25 mm (1 in) annular space. Further guidance is given in BS5440:1:1978, sub-clause 20.1.

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 may be installed in any room, although particular attention is drawn to the requirements of the current IEE Wiring Regulations and, in Scotland, the electrical provisions of the Building Standards applicable in Scotland, with respect to the installation of the boiler in a room containing a bath or shower.

Where a room-sealed appliance is installed in a room containing a bath or shower, any electrical switch or appliance control, utilising mains electricity should be so situated that it cannot be touched by a person using the bath or shower. Where the installation of the boiler will be in an unusual position, special procedures may be necessary and BS5376:2 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. Details of essential features of cupboard/compartment design including airing cupboard installations are given in BS5376:2 and BS5546 and should be complied with.

The boiler requires only the clearances stated in the technical data, page 3, after installation. If it is felt that extra space is required for installation any adjacent kitchen units or fittings may have to be removed.

The boiler must be installed so that the flue terminal is exposed to the external air. It is important that the position of the terminal allows the free passage of air across it at all times.

The minimum acceptable spacings from the terminal to obstructions, corners and ventilation openings are specified in the following table.

Terminal position	Minimum spacing
Directly below an openable window, air vent or any other ventilation opening	300 mm (12 in)
Below gutters, soil pipes or drain pipes	300 mm (12 in)*
Below eaves	300 mm (12 in)*
Below balconies	600 mm (24 in)
Above adjacent ground or balcony level	300 mm (12 in)†
From vertical soil pipes or drain pipes	75 mm (3 in)
From an external corner	340 mm (13 in)
From an internal corner	600 mm (24 in)
From a surface facing the terminal	600 mm (24 in)
From a terminal facing the terminal	600 mm (24 in)
Vertically from a terminal on the same wall	1500 mm (60 in)
Horizontally from a terminal on the same wall	300 mm (12 in)
Adjacent to an opening window	150 mm (6 in)
From an opening in a car port i.e. door or window into the house	1200 mm (48 in)

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

†If the terminal is fitted less than 2 m (6.6 ft) above a balcony, above ground or above a flat roof to which people have access then a suitable terminal guard must be provided and fitted.

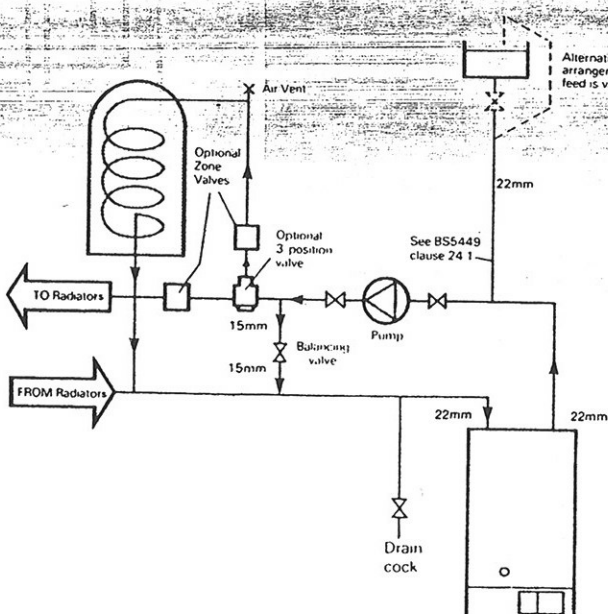
A type A protective guard is available from Tower Flue Components Ltd. at Vale Rise, Tonbridge, Kent TN9 1TB. Tel: 0732 351555.

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

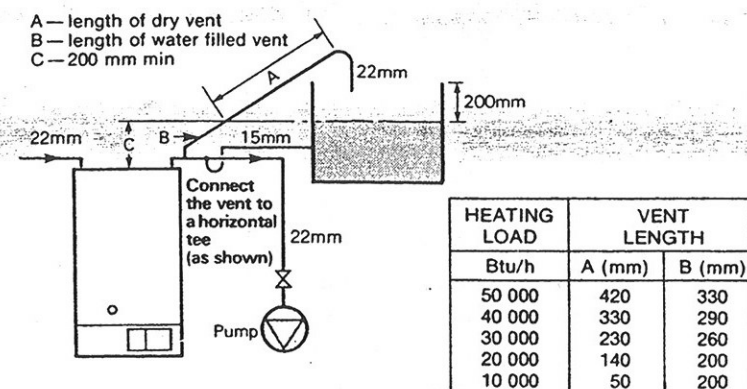
- a. Fully pumped open vented system with combined cold feed and vent.



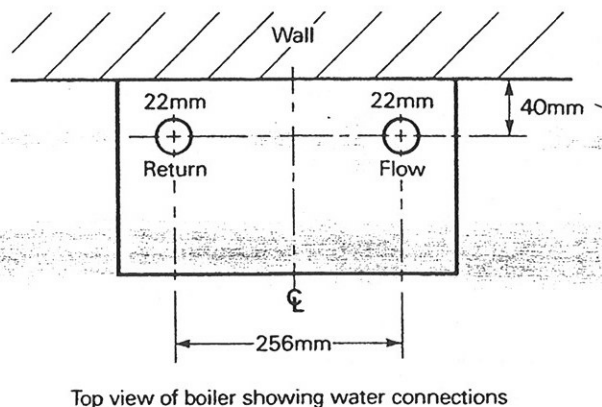
The combined cold feed and vent must rise from the boiler. Some water authorities require a stop cock in the cold feed, in which case a separate vent must be connected as shown.

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

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.



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 15/30B and 1146 litres/h (4.2 gal/min) for the Apollo 30/50B and Apollo 40B while the burner is alight. Fit one or more drain cocks to enable the water system to be fully drained.

12. SEALED SYSTEM REQUIREMENTS

a. The installation must comply with the requirements of BS5376:2 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 in the return pipe close to the boiler. 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)

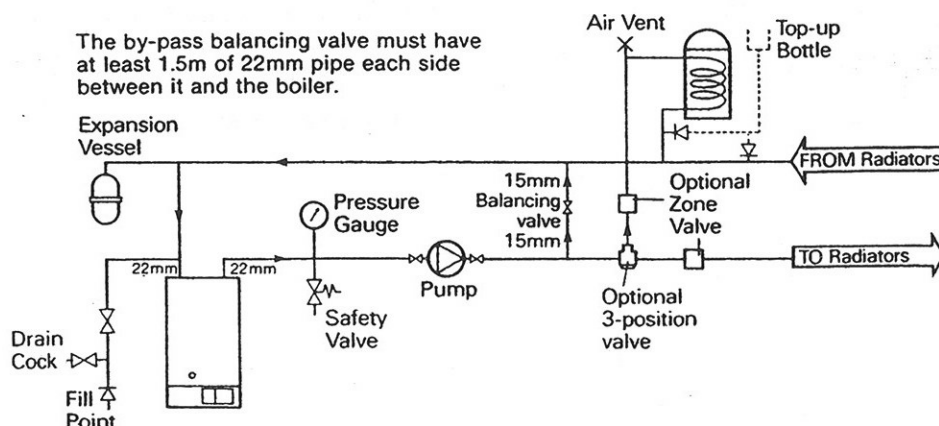
e. The hot water cylinder shall either be the indirect coil type or a cylinder fitted with an immersion calorifier.

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 to 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. Refer to the commissioning instructions, page 9 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.



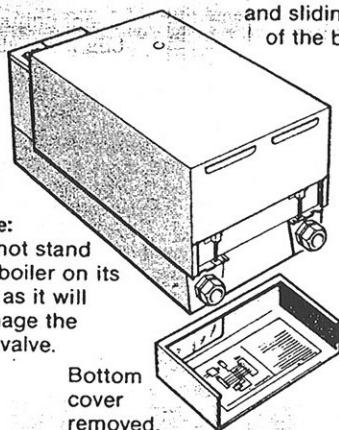
13. INSTALLATION PROCEDURE

1 UNPACK THE BOILER

1. Carefully unpack the boiler and discard the packing.
2. 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.

Note:

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



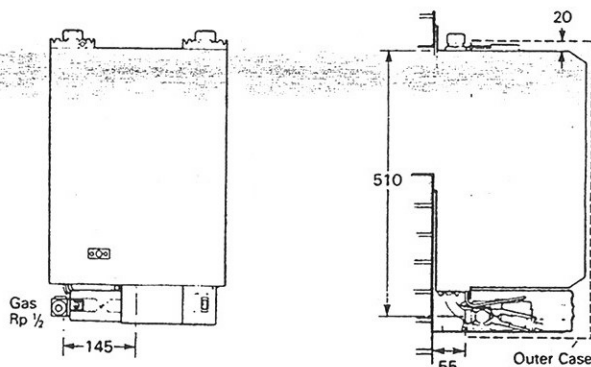
Bottom cover removed.

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

Find these parts in the pack

2 BOILER DIMENSIONS AND GAS CONNECTION

All dimensions in mm

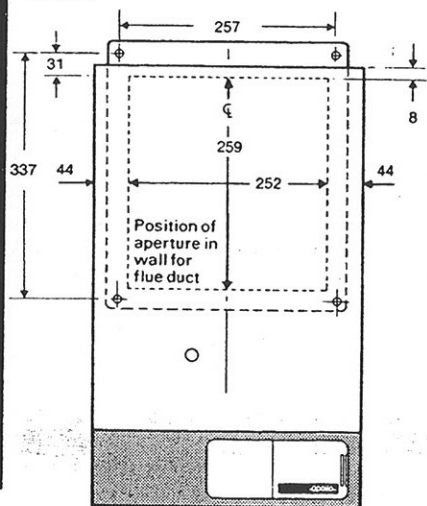


Overall case dimensions
Height: 565 mm
Width: 340 mm
Depth: 300 mm

Clearance required for servicing
Top: 50 mm
Bottom: 90 mm
Front: 300 mm
Side: 5 mm

For installation clearances see section 9, page 4.

3 PREPARE THE WALL

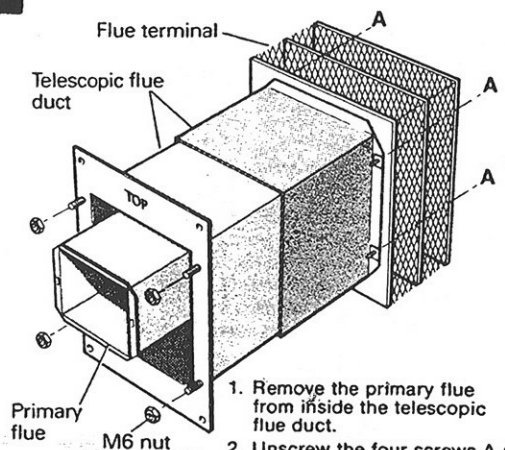


All dimensions in mm.

1. Decide upon the position of the boiler, ensuring that the flue terminal will meet the requirements given on page 5.
2. Mark the position of the hole for the flue duct and the four wall plate fixing screws.
3. Cut the hole in the wall for the flue duct.
4. Drill and plug the four fixing holes to accept 2 1/2" lg. No. 12 woodscrews.

Flue terminal size:
300 high x 276 wide x 120 deep

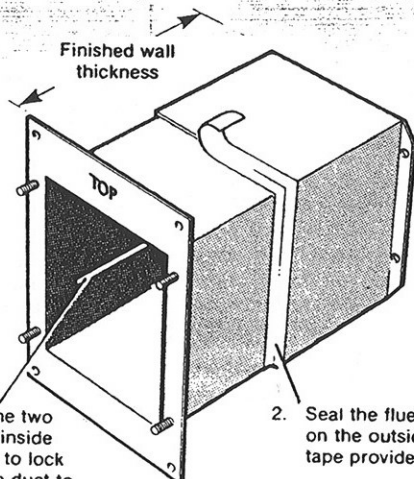
4 UNPACK THE FLUE TERMINAL



1. Remove the primary flue from inside the telescopic flue duct.
2. Unscrew the four screws A (do not remove screws) securing the flue terminal to the flue duct and remove the terminal.
3. Remove the four nuts from the wall plate. Retain these nuts. See frame 8.
4. A roll of sealing tape is supplied to seal the telescopic flue duct after it has been adjusted to the correct length.

5 ADJUST THE FLUE DUCT

1. Adjust the telescopic flue duct to suit the finished wall thickness ensuring that the metal straps are still within their location.

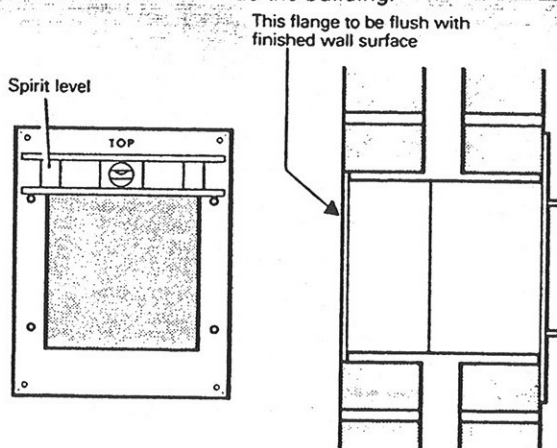


3. Bend back the two metal straps inside the flue duct to lock the outer flue duct to the inner flue duct.

2. Seal the flue duct joint on the outside with the tape provided.

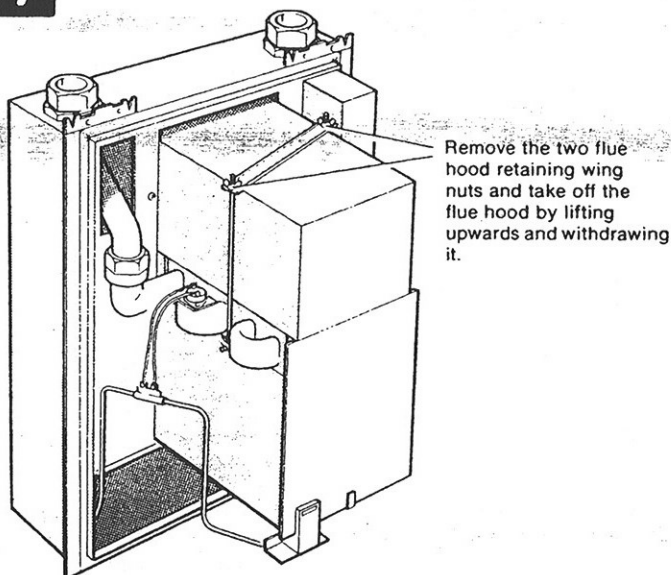
6 FIT THE TERMINAL WALL PLATE

1. Ensure that the flue is the correct way up and insert it into the wall from inside the building.

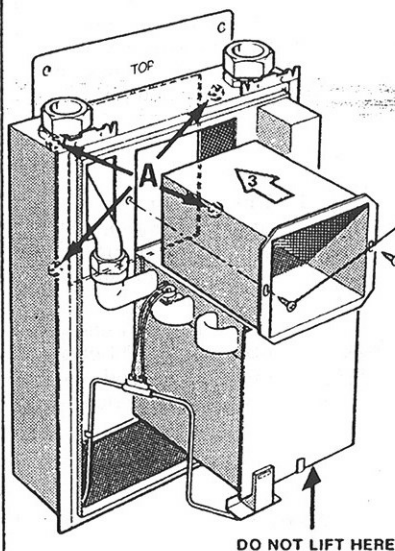


2. Ensure that the wall plate is level and fasten to the wall with four 2 1/2" lg. No. 12 woodscrews (not supplied) into the holes previously drilled and plugged.

7 PREPARE THE BOILER



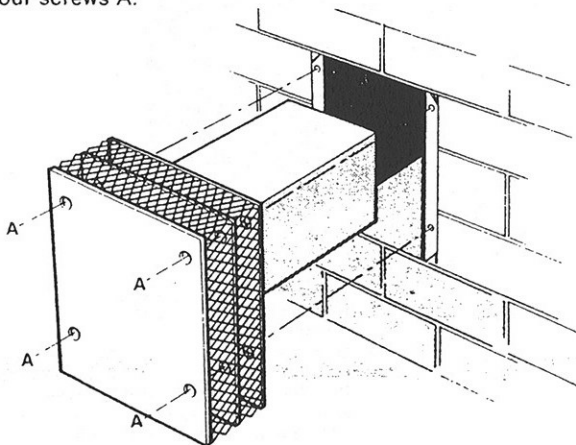
8 SECURE THE BOILER TO THE TERMINAL WALL PLATE



1. Lift the boiler and offer it to the terminal wall plate and secure to the wall plate with the four nuts A removed in frame 4. Tighten to form a seal.
2. Remove the two screws parked at either side of the flue opening.
3. Push the primary flue into the flue opening. Refit the two screws but do not tighten fully, the primary flue should be free to move up and down slightly.
4. Replace the flue hood, inserting the spigot into the primary flue and secure with two wing nuts.
5. Replace the inner case and secure with three screws.

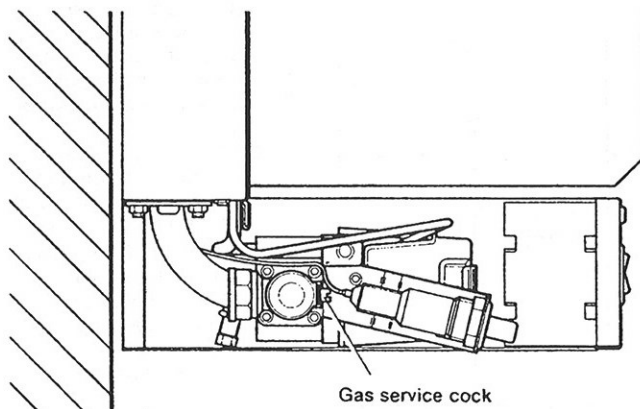
9 FIT THE TERMINAL

1. Make good the outside wall around the flue duct.
2. Fit the terminal into the flue duct and secure with four screws A.



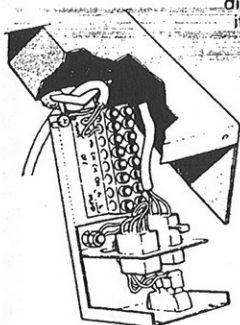
3. Seal the terminal to the wall using a suitable outdoor mastik.

10 GAS SUPPLY



Connect the gas supply to the service cock.
Pressure test for gas soundness and purge the supply in accordance with CP331:3.

11 CONNECT THE MAINS



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.

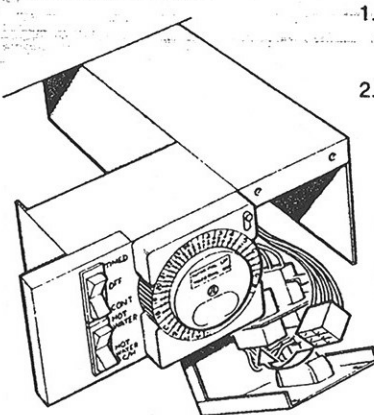
2. Slacken two screws in the cable clamp below the wiring centre. Feed the mains lead under the clamp and connect the wires, brown to L and blue to N on the terminal block and green and yellow to the earthing screw. See wiring diagram.

3. Keep the wiring centre in the open position, take up excess slack in the mains lead 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 mains lead.

Note: When connecting the mains lead, ensure that the length of the earth lead is such, that if the mains lead slips out of the cable clamp the live and neutral leads become taut before the earth lead.

4. The pump lead and any external controls wiring should be connected to the terminal block. See wiring diagram.
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 if the programmer kit is not to be fitted.

12 FIT THE PROGRAMMER KIT



1. Slide out and discard the facia panel on the side of the control box.
2. Engage the programmer fixing into the slot in 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 fix in position with two screws.

13 COMPLETE THE INSTALLATION

After connecting the 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 below for boiler controls.

1. Ensure that the electricity supply is OFF and the boiler thermostat switch set at O. Remove the screw securing the gas valve cover and lift off cover. Loosen the gas valve inlet pressure test point screw one turn. Turn on the gas supply and open the gas service cock (The service cock is open when the slot in the operating head is horizontal) to purge in accordance with CP331:3. Retighten the test point screw and test for gas soundness around the screw.

2. Fully depress the gas valve operating button and keep it pressed in. At the same time operate the igniter button to light the pilot, which can be seen through the inspection window. If the pilot does not light, operate the igniter 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 2 until the pilot is lit. Continue to hold the gas valve button in for 20 seconds, then release it slowly.

3. Check that the pilot throttle is fully open and that the pilot flame (approximately 20 mm long) envelops the thermocouple tip. Adjust if necessary.

4. Turn on the electricity supply and set the programme switch to CONT if a programmer is fitted. Check that all system controls are turned on. 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 integral gas supplies and joints for soundness using a suitable detecting fluid.

5. Allow the burner to run for 10 minutes and check the setting pressure as follows:

a. Set the boiler thermostat switch to O. Remove the burner setting pressure test point screw on the burner manifold and connect a pressure gauge.

b. 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 burner setting pressure.

Note: The boiler is factory set to the maximum input. See Technical Data, page 3 for the boiler ratings and setting pressures.

6. Set the boiler thermostat switch to O, disconnect the pressure gauge and replace the test point screw. Test for gas soundness around the screw.

7. Replace the gas valve plastic cover and secure with its screw. Ensure the cable clamp is located correctly in the cover.

8. Check that the arrow on the data plate is against the correct boiler rating.

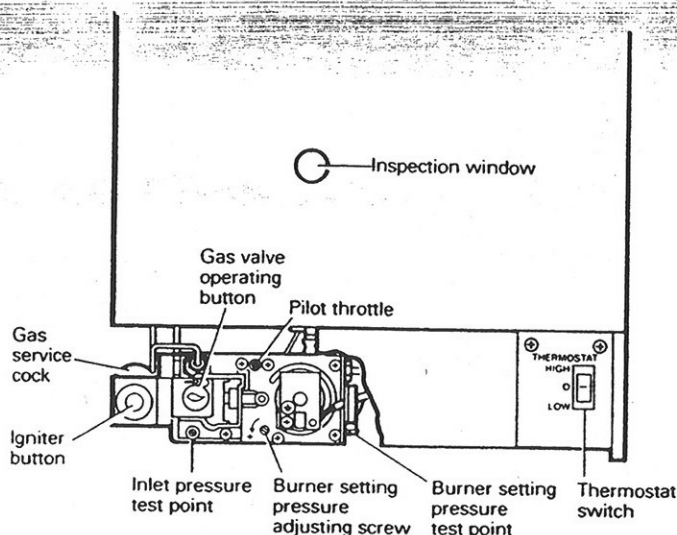
When the system has been tested, drain the water while it is still hot in order to complete the flushing process. Where an inhibitor is added to the system, Fernox Manufacturing Co. Ltd. recommend Fernox CP3 for use with copper tube boilers and this should be used in accordance with their instructions. Where the boiler is used on an old system, special care is required. The system should be drained and flushed out, ensuring that all the 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. After the system has been filled, vent and make a final check for water soundness.

Adjust the by-pass valve as follows:

1. Fully close the by-pass valve and then open it one full turn. Start 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.

2. 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 (gas valve cover removed)



16. FINAL ASSEMBLY AND HANDING OVER THE INSTALLATION

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 the case in position by tightening the bottom fixing screw.

If a programmer is fitted, set the clock to the correct time (do not rotate the dial anti-clockwise) and the programme and selector switches to the required settings. See User instructions.

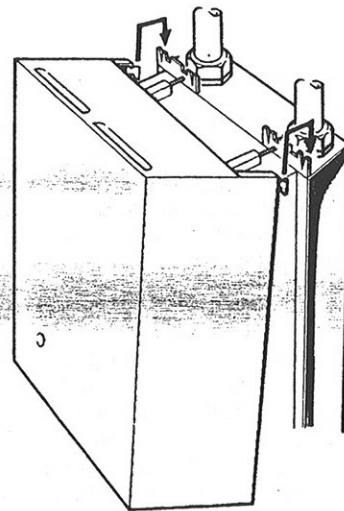
Hand the User instructions to the User and instruct in the safe operation of the boiler and controls. Replace the boiler bottom cover.

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.

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.

Leave a permanent card attached to the boiler giving:

1. Name and address of installer.
2. Date of installation.
3. 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 installation of the flue terminal and ensure it is not obstructed.
 3. Remove the flue hood 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.
 7. When refitting the inner case check that the seal is in good condition and ensure that it compresses satisfactorily.
- On completion of the service run the boiler and ensure that it operates satisfactorily.

The boiler data plate is positioned on the inner case.

The procedure for Annual Servicing is given in frames 14 to 19.

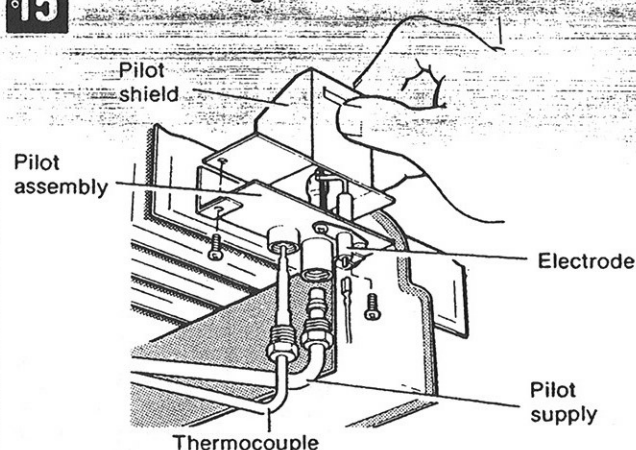
WARNING: Before commencing work slide off the bottom cover and slide the gas valve operating button in the direction of the arrow to turn off the boiler. Allow the boiler to cool and isolate the electricity supply. Turn off the gas supply at the gas service cock.

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

14. 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. Remove the two wing nuts securing the flue hood to the combustion chamber and remove the flue hood by lifting it upwards and withdrawing it forwards.
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 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. Undo the nut and disengage the thermocouple, see frame 15.
7. Pull off the electrode lead.
8. Undo the tubing nuts and disconnect the pilot supply tube from both the pilot assembly and gas valve.
9. From underneath the base of the chassis remove the two pozi screws securing the burner manifold.

15. Dismantling—continued



10. Carefully move the pilot supply to one side and lift out the burner assembly. Take care not to lose the burner flange 'o' ring.
11. Cover the exposed gas way in the base of the chassis.
12. Remove the two screws securing the pilot shield and remove shield. Lift off the pilot assembly.

16 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. Clean the thermocouple tip using a fine wire brush.
3. Turn the burner upside down and tap gently to remove any debris.
4. Unscrew the injector from the burner manifold, clean by blowing through or washing. Do **NOT** clear the injector with a pin or wire.
5. Lift off the pilot burner head from the pilot assembly and check that the slots and ports are clear. Clean with a fine wire brush if necessary.
6. Unscrew the pilot injector and clean by blowing through or washing. Do **NOT** clear the injector with a pin or wire.

To clean or replace the pilot filter in the gas valve refer to frame 30.

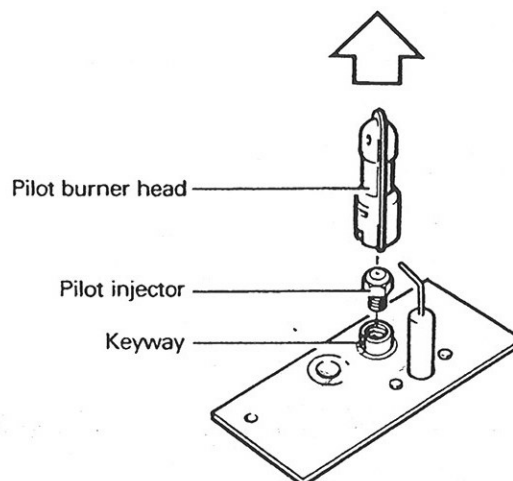
17 REASSEMBLY

1. Replace the pilot injector and pilot burner head. Make sure that the key in the burner head lines up with the key way in the base plate housing, see frame 19.
2. Check that the gap between the pilot burner head and the tip of the electrode is 3 to 4 mm.
3. Replace the pilot assembly and pilot shield and secure with screws previously removed. Ensure that the base plate is fitted on top of the burner mounting brackets.
4. Replace the burner injector using a small amount of jointing compound. **Note:** the 40B injector uses a fibre sealing washer.
5. Remove the protective covering from the gas way in the base of the chassis.
6. Check that the 'o' ring is in position in the burner flange.
7. Replace the burner assembly and secure with two screws previously removed.
8. Reconnect the pilot supply to the gas valve and pilot assembly.
9. Re-engage the thermocouple and secure with nut.
10. Re-connect the electrode lead.

18 Reassembly—continued

11. Replace the combustion chamber front ensuring that the burner stud locates in the bracket and secure with four screws and wing nut.
12. Replace the flue hood, inserting the spigot into the primary flue, engage the tie rods through the top clamping bracket and secure with two wing nuts.
13. 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. Refer to the commissioning instructions, page 9. Check the pilot flame, test for gas soundness and check the burner setting pressure.
14. Ensure the inner case seal is intact around the boiler chassis. Fit the inner case and secure with three screws. Tighten sufficiently to form a seal.
15. 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.
16. If a programmer is fitted, set the clock to the correct time and the selector switches to their previous settings.
17. Replace the bottom cover.

19 PILOT ASSEMBLY



18. REPLACEMENT OF PARTS

The procedure for the replacement of parts is given in frames 20 to 34.

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.

20 TO REPLACE THE SPARK ELECTRODE, PILOT INJECTOR OR PILOT BURNER HEAD

Remove the outer and inner cases, see frame 14.

Spark electrode:

Disconnect the electrode lead, remove the two fixing screws and remove electrode. When the new electrode is fitted remove the two screws securing the pilot shield. Remove the pilot shield and visually check that the gap between the pilot burner head and the tip of the electrode is 3 to 4 mm. Replace the pilot shield.

Pilot injector or Pilot burner head:

Disconnect the electrode lead, remove the thermocouple and disconnect the pilot supply. Remove the two screws securing the pilot assembly and remove pilot shield and pilot assembly from the burner. Lift off the pilot burner head and unscrew the pilot injector.

Fit the new injector or burner head. Make sure that the key in the burner head lines up with the keyway in the base plate housing, see frame 19. Check that the gap between the pilot burner head and the tip of the electrode is 3 to 4 mm.

Replace the pilot assembly and pilot shield and secure with screws previously removed. Ensure that the base plate is fitted on top of the burner mounting brackets. Replace the electrode lead.

Re-assemble:

Refer to the commissioning instructions, page 9. Check the pilot flame and test for gas soundness.

Replace the inner and outer cases.

Replace the bottom cover.

21 TO REPLACE THE BURNER

NOTE: The burner fitted may be either Furigas (silver) or Bray (blue) either may be used as a replacement for the other.

1. Remove the outer case, inner case and programmer or facia panel, see frame 14.
2. Slacken the two wing nuts securing the flue hood and remove the burner assembly as described in frames 14 and 15, paras 5 to 12.
3. Unscrew the injector from the burner manifold.
4. Using a new 'o' ring in the burner manifold fit the burner and re-assemble as described in frames 17 and 18 paras 3 to 11.
5. Fully tighten the wing nuts securing the flue hood.
6. Replace the programmer or facia panel. Refer to the commissioning instructions, page 9. Check the pilot flame and test for gas soundness.
7. Replace the inner and outer cases.
8. Replace the bottom cover.

22 TO REPLACE THE BOILER '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 14.
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 and flue hood, if it was removed.
8. Replace the inner and outer cases.
9. Refer to the commissioning instructions, page 9, light the boiler and allow it to heat up. Check that the 'Hi' thermostat switches the boiler off and on 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 off and on.
10. Replace the bottom cover.

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

1. Remove the outer case, inner case and programmer or facia panel, see frame 14.
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 gas valve.
4. Disconnect the thermocouple and pilot supply from both the pilot assembly and gas valve.
5. Disconnect the electrode lead from the piezo unit. Remove the one 3mm socket screw securing the piezo unit mounting bracket and remove bracket.
6. Remove the eight 3mm socket screws securing the gas valve (four to the service cock and four to the burner manifold).
7. Hold the thermocouple and pilot supply aside and withdraw the gas valve.
8. Using new 'o' rings in the service cock and manifold flanges (both 'o' rings are the same size), reassemble the new valve to the boiler in reverse order. Do not replace the plastic gas valve cover at this stage.
9. Replace the programmer or facia panel. Refer to the commissioning instructions, page 9. Check the pilot flame, test for gas soundness and check the burner setting pressure.
10. Replace the inner and outer cases.
11. Replace the bottom cover.

24 TO REPLACE THE BURNER INJECTOR

1. Remove the outer case, inner case and programmer or facia panel, see frame 14.
2. Slacken the two wing nuts securing the flue hood and remove the burner assembly as described in frames 14 and 15, paras 5 to 11.
3. Unscrew the injector from the burner manifold.
4. Screw in a replacement injector using a small amount of jointing compound. **Note:** Use a new sealing washer with the 40B injector.
5. Replace the burner assembly as described in frames 17 and 18, paras 5 to 11.
6. Fully tighten the wing nuts securing the flue hood.
7. Replace the programmer or facia panel. Refer to the commissioning instructions, page 9. Check the pilot flame and test for gas soundness.
8. Replace the inner and outer cases.
9. Replace the bottom cover.

25 TO REPLACE THE PIEZO UNIT

1. Disconnect the electrode lead from the piezo unit.
2. Unscrew the nut securing the piezo unit and remove unit.
3. Fit a new unit and reconnect the electrode lead. Check spark is present at pilot.
4. Replace the bottom cover.

26 TO REPLACE THE THERMOCOUPLE

1. Remove the outer and inner cases, see frame 14.
2. Remove the screw securing the gas valve plastic cover and lift off cover.
3. Remove the clip securing the thermocouple to the chassis.
4. Disconnect the thermocouple from both the pilot assembly and gas valve.
5. Remove the two screws and washers securing the overheat cut off device leads to the thermocouple. If access to these two screws is limited then remove the two screws securing the cut off device to the side of the heat exchanger.
6. Carefully bend the replacement thermocouple to match the discarded one.
7. If the cut off device was removed from the boiler, disconnect it from the old thermocouple and connect to the new one using new screws and washers if necessary. Fit the washers in the correct order, ring tag, lockwasher then plain washer. Ensure that the leads are fully secured to make a good contact.
8. Connect the thermocouple to the gas valve and pilot assembly. If the overheat cut off device was not removed, connect it to the new thermocouple using new screws and washers if necessary as described in para 7.

27 Thermocouple—continued

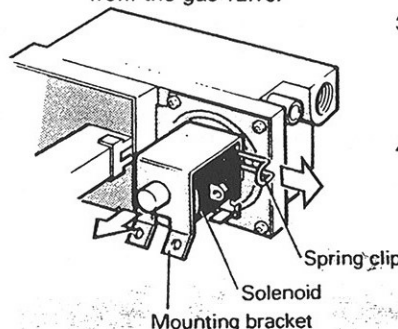
9. Secure the thermocouple to the chassis with the clip previously removed.
10. Replace the gas valve plastic cover and secure with its screw. Ensure that the cable clamp is located correctly on the right hand side.
11. Replace the inner and outer cases.
12. Refer to the commissioning instructions, page 9. Light the pilot and check that the gas valve operating button may be released after 20 seconds, with the pilot remaining alight.
13. Replace the bottom cover.

28 TO REPLACE THE OVERHEAT CUT OFF DEVICE

1. Remove the outer and inner cases, see frame 14.
2. Remove the two screws securing the overheat cut off device to the side of the heat exchanger.
3. Remove the two screws and washers securing the cut off device leads to the thermocouple. If access to these two screws is limited then the cut off device and thermocouple must be removed complete, see frame 26.
4. If the thermocouple was removed from the boiler disconnect it from the old cut off device.
5. Connect the new cut off device to the thermocouple as described in frame 26.
6. Replace the thermocouple, if it was removed, as described in frames 26 and 27.
7. Secure the cut off device to the heat exchanger, ensuring that the leads are routed in the same way as the discarded one.
8. Replace the inner and outer cases.
9. Refer to the commissioning instructions, page 9. Light the pilot and check that the gas valve operating button may be released after 20 seconds, with the pilot remaining alight.
10. Replace the bottom cover.

29 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. Pull out the spring clip at the base of the solenoid and lift off the solenoid and its mounting bracket.
4. Position the new solenoid into the mounting bracket and re-assemble in reverse order.

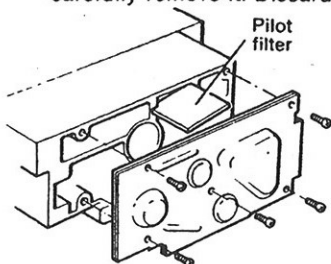
5. Refer to the commissioning instructions, page 9. Light the boiler to check the gas valve operation.
6. Replace the bottom cover.

30 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 the gas supply is OFF.

1. Remove the gas valve as described in frame 23.
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 frame 23.
6. Replace the programmer or fascia panel. Refer to the commissioning instructions, page 9. Light the boiler and test for gas soundness.
7. Replace the inner and outer cases.
8. Replace the bottom cover.



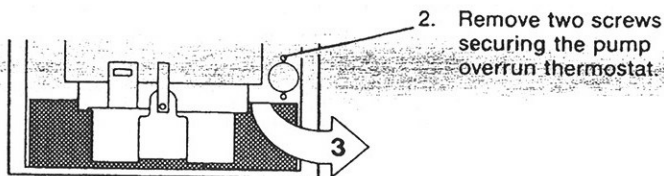
31 TO REPLACE THE PROGRAMMER (if fitted)

Refer to illustration in frame 12.

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 commissioning instructions, page 9, light the boiler and check controls.
8. Set the programmer clock to the correct time and the switches to their previous settings.
9. Replace the bottom cover.

32 TO REPLACE THE PUMP OVERRUN THERMOSTAT

1. Remove the outer and inner cases, see frame 14.



2. Remove two screws securing the pump overrun thermostat.

3. Remove the thermostat from behind the chassis and disconnect the three leads.
4. Connect the three leads to the new thermostat. Red to terminal 1, yellow to terminal 2 and brown to terminal 3, see wiring diagram.
5. Re-assemble in reverse order.
6. Refer to the commissioning instructions, page 9. Light the boiler and allow it to heat up fully. Switch off the boiler at the programmer or external controls and check that the pump runs for 5-15 minutes.
7. Replace the bottom cover.

33 TO REPLACE THE COMBUSTION CHAMBER INSULATION

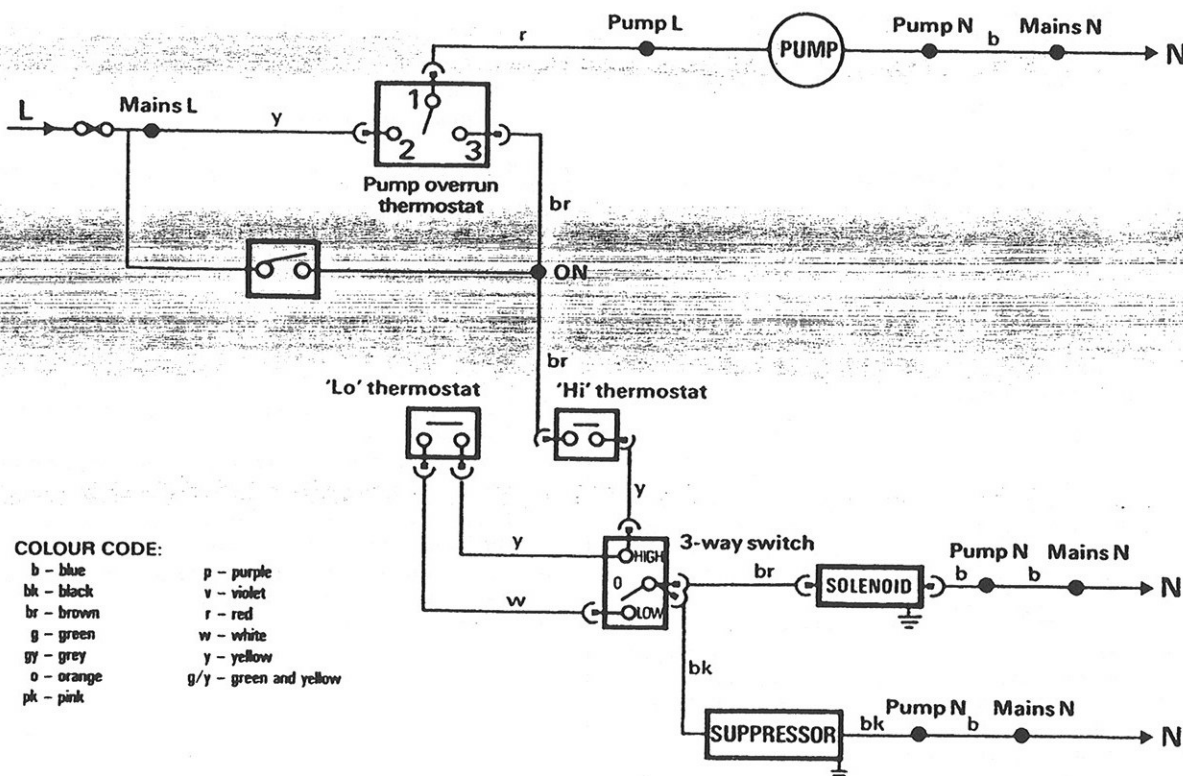
1. Remove the burner as described in frames 14 and 15, paras 1 to 11.
2. Remove the four screws (two each side) securing the combustion chamber to the chassis. Carefully lower and withdraw the combustion chamber.
3. Slide the front insulation out of the front cover and replace with a new panel.
4. Slide out the two side panels and remove the rear panel by pulling forwards at the top then lifting out.
5. Fit a new rear panel, lower edge first and push back into position. Slide in two new side panels.
6. Replace the burner assembly as described in frames 17 and 18, paras 5 to 11.
7. Fully tighten the wing nuts securing the flue hood.
8. Replace the programmer or facia panel. Refer to the commissioning instructions, page 9. Check the pilot flame and test for gas soundness.
9. Replace the inner and outer cases.
10. Replace the bottom cover.

34 TO REPLACE THE MAIN HEAT EXCHANGER

1. Drain the system using the system drain cock.
2. Remove the burner and combustion chamber as described in frame 33.
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. Re-assemble in reverse order using a new heat exchanger.
7. Fill and vent the system.
8. Before replacing the inner case, outer case and bottom cover refer to the commissioning instructions, page 9. Check the pilot flame and test for gas soundness.

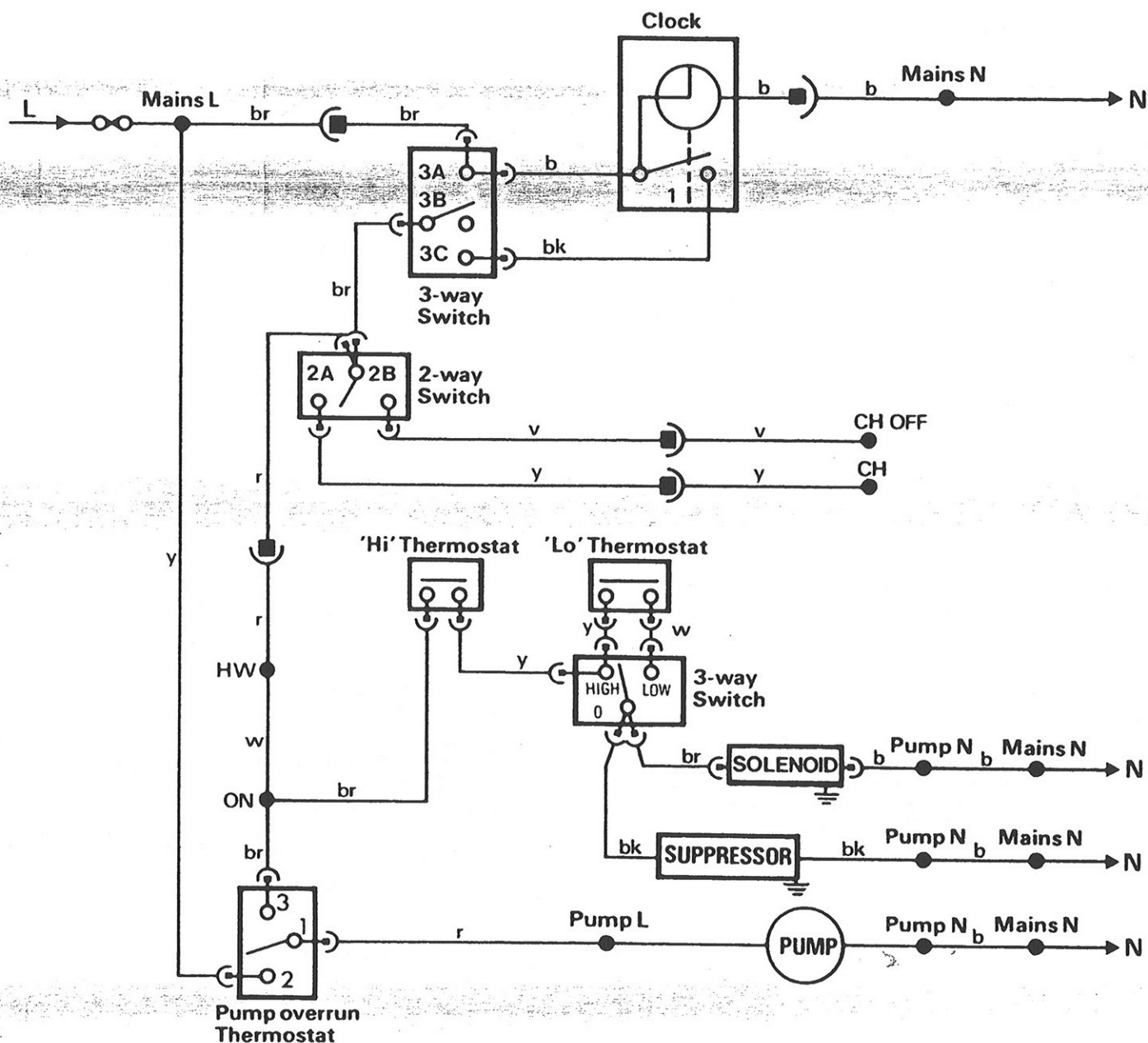
19. WIRING DIAGRAMS

a. Functional flow wiring diagram without programmer



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

b. Functional flow wiring diagram with Apollo 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

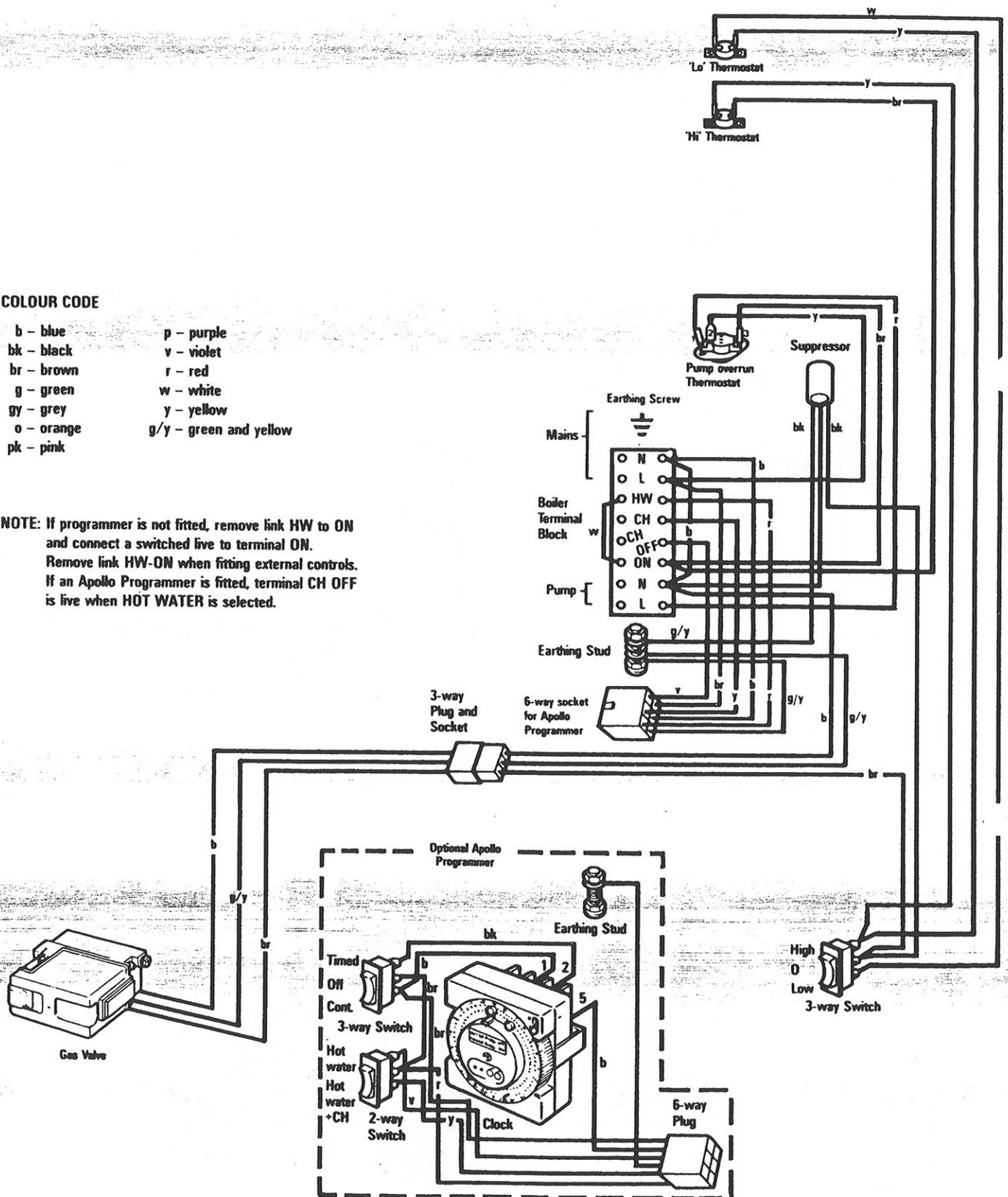
SERVICE	SELECTOR SWITCH CLOSED					
	1	2A	2B	3A	3B	3C
OFF						
CH OFF, HW						
CH + HW						
CONT. CH + HW						
CONT. HW						

c. Illustrated wiring diagram

COLOUR CODE

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

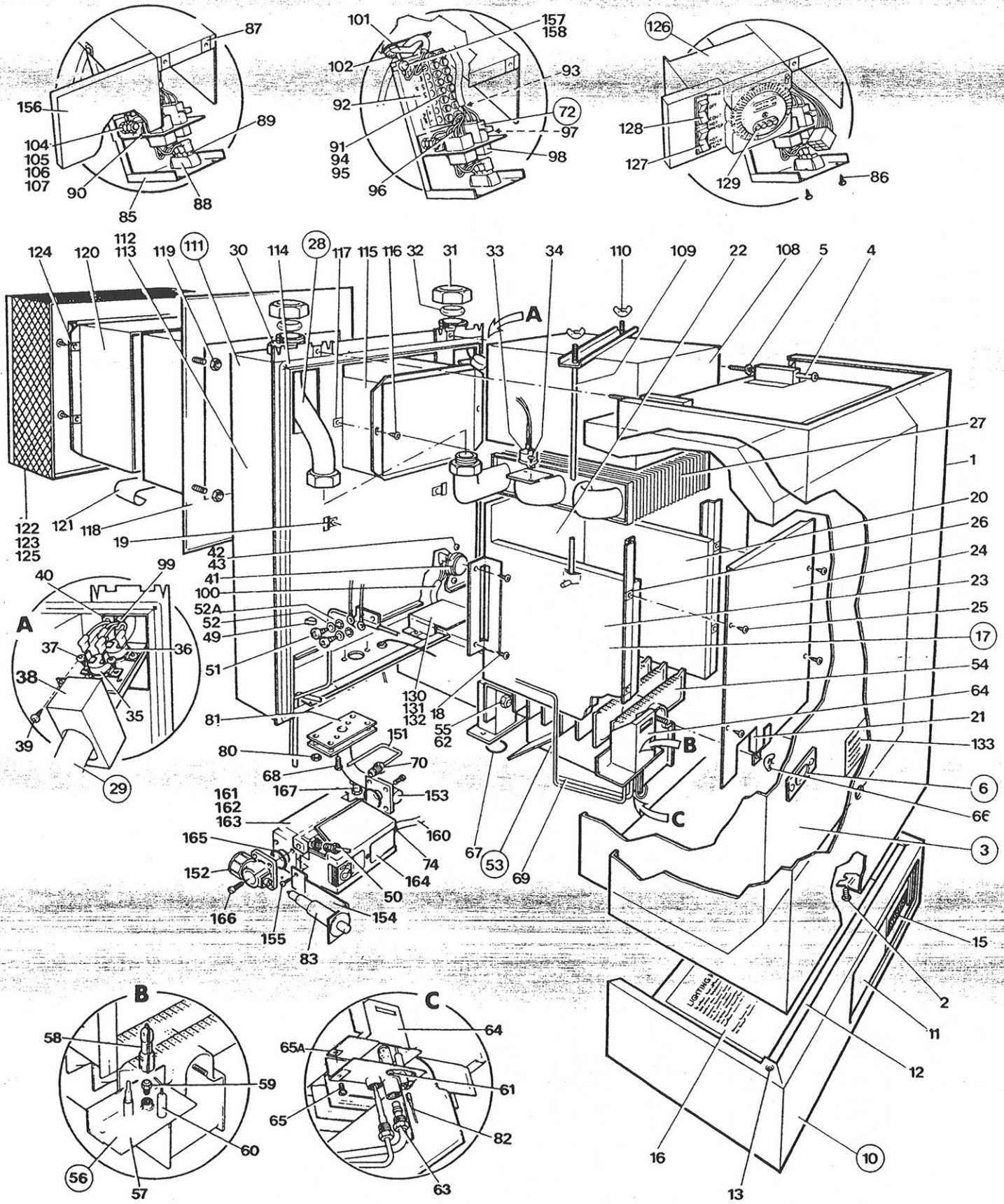
NOTE: If programmer is not fitted, remove link HW to ON and connect a switched live to terminal ON. Remove link HW-ON when fitting external controls. If an Apollo Programmer is fitted, terminal CH OFF is live when HOT WATER is selected.





21. EXPLODED VIEW — APOLLO 15/30B, 30/50B, 40B
(Key No. 62 for 40B only)

WIRING CENTRE DETAILS



Encircled number denotes a complete assembly

22. SHORT LIST SPARE PARTS

Key No.	GC No.	Description	Qty.	Part No.
1	323 333	Outer case	1	402A004
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) 30/50, 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
33	382 396	Overheat cut off device	1	402A043
35	382 397	'Hi' thermostat	1	402S114
36	382 373	'Lo' thermostat	1	402S115
41	382 374	Pump overrun thermostat	1	402S087
50	381 884	Thermocouple	1	402S2460
53	323 455	Burner and pilot assembly. 15/30	1	402A457
53	323 454	Burner and pilot assembly. 30/50	1	402A459
53	359 522	Burner and pilot assembly. 40	1	402A2112
54	398 296	Burner. 15/30	1	402S1165
54	398 273	Burner. 30/50, 40	1	402S1166
55	398 316	Main injector. Cat 16 size 1800 15/30	1	402S067
55	398 329	Main injector. Cat 16 size 1400 30/50	1	307S527
55	398 481	Main injector. Cat 28 size 950	1	402S507
56	323 358	Pilot assembly	1	402A045
58	359 141	Pilot burner head	1	402S420
59	398 622	Pilot injector size 5	1	402S388
60	382 500	Spark electrode	1	308S116
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	393 889	Piezo unit	1	402S083
129	323 452	Programmer pins (3 red, 3 green)	6	402A302
161	395 685	Gas valve	1	V4700E1007
165	359 211	Gas valve 'o' ring	2	400-0016-7-32

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Gateshead
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NE11 0PG

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Fax: 0191 491 7568

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Tel: 0990 103030
Fax: 0191 4876688

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Fax: 01926 882971

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O MYSON