

Baxi Bermuda 401

Cat. 1 2H G 20 Supply Pressure 20mb

**Gas Fireside Central
Heating Unit**

**Installation and Servicing
Instructions**

Boiler Unit

GC No. 44 077 49

Supplied by freeboilermanuals.com

KIT CONTENTS

The kit supplied with this boiler contains:

Various fixing screws and fittings.

Plus the following essential items:-

A) Water Spreader & Adaptor - 1 off

B) Injector Tee - 1 off

C) Restrictor Ring - 1 off

These items must be fitted in accordance with the instructions contained within the booklet.

**These instructions must be read in conjunction with the separate instructions for the Fire Section.
Please leave these instructions adjacent to the gas meter.**



Bermuda 401

Cat. 1 2H G 20 Supply Pressure 20 mb

INTRODUCTION

This unit is the boiler section of a combined central heating boiler and gas fire designed for installation in a living room. It is fitted in the normal builders opening at the base of the chimney and can be installed into most tiled surrounds, proprietary surrounds or as a panel fire. The unit is for use with Natural Gas only.

The boiler unit output is ranged from 4.4 kW (15,000 Btu/h) to 11.7 kW (40,000 Btu/h). This appliance is supplied pre set at its maximum rate.

Any one of eleven gas fire units may be used with the boiler.

B	GC No. 37 077 06
C3	GC No. 37 077 10
PW3 De Luxe	GC No. 37 077 21
C3W	GC No. 37 077 20
W3	GC No. 37 077 14
GF Super	GC No. 37 077 15
LFE3 Super	GC No. 37 077 16
VP	GC No. 37 077 17
SP	GC No. 37 077 18
SL	GC No. 37 077 26
RG	GC No. 37 077 30

SITE REQUIREMENTS

Builders Opening (Fig. 1)

This opening is used to accommodate the boiler.

The minimum dimensions required are 343 mm (13½in) deep x 584 mm (23in) wide x 584 mm (23in) high. Such openings should be soundly constructed of brickwork, pre-cast concrete or material such as asbestos free Marinite. Care must be taken to mount the pre-cast units or boxes at a height appropriate to the type of installation e.g. wall or hearth fix, and the dimensional requirements must be maintained.

The Surround and Fireplace Opening (Fig. 2)

If a surround is to be used it must have a vertical flat area centrally placed about the fireplace opening. The areas required for the different gas fires are shown in table 1 below.

The Hearth

The floor of the builders opening must be sound in accordance with current building Regulations and ON THE SAME LEVEL AS THE FRONT HEARTH.

No Surround

The unit can be fitted as a hearth fire without a surround but a non-combustible hearth is always necessary.

Wall Fixing

The unit can be wall mounted using a fire support plate supplied with each fire. The base of the builders opening on which the boiler rests should be 100 mm (4in) to 125 mm (5in) above the floor level. IF A SURROUND IS BEING REMOVED THE OPENING SHOULD BE MADE TO THE MAXIMUM DIMENSIONS INDICATED IN TABLE 2.

Flue

A variety of types of flue may be used for the unit, but they all must be equivalent to a straight flue of 3m (10ft) height from hearth level and be a minimum cross sectional area of 130cm² (20in²) i.e. equivalent to a 125mm (5in) internal diameter pipe. The affects of bends are covered in BS 5440 Part 1.

GAS FIRE	VERTICAL FLAT AREA	
	MINIMUM DIMENSIONS	
	HEIGHT	WIDTH
VP+SP	765mm (30 ¹ / ₈ in)	765mm (30 ¹ / ₈ in)
B	675mm (26 ⁵ / ₈ in)	765mm (30 ¹ / ₈ in)
C3	660mm (26in)	920mm (36 ¹ / ₄ in)
C3W	675mm (26 ³ / ₈ in)	920mm (36 ¹ / ₄ in)
G.F. Super/SL	720mm (28 ³ / ₈ in)	765mm (30 ¹ / ₈ in)
LFE3 Super	789mm (31in)	998mm (39 ⁵ / ₁₆ in)
W3	700mm (28 ³ / ₈ in)	1200mm (47 ¹ / ₄ in)
PW3 Deluxe	660mm (26in)	1010mm (39 ³ / ₄ in)
RG	810mm (31 ⁷ / ₈ in)	800mm (31 ¹ / ₂ in)

Table 1.

(a) **9in x 9in brick chimneys**— These must be of sound construction and lined with a 125 mm (5in) flue liner terminating with an approved terminal. Previously used

chimneys should be swept and dry before a flue liner is fitted. A seal around the space between the liner and the chimney is required at the top and bottom of the chimney.

(b) **Pre cast flue blocks**— These must conform to BS 5440 Part 1.

(c) **Acid resistant liners**— If the chimney is already fitted with acid resistant liners suitable for gas appliances then a further liner is not necessary but an approved terminal is required. A short length of 125 mm (5in) diameter flue pipe to BS 567 is required to connect the boiler to the chimney. It is necessary to seal the space between the short piece of the flue pipe and the chimney.

(d) **Light quality cement flue pipes and proprietary insulated flue pipes**— Flues of this type can be used taking care to design and install in accordance with good practice and the flue manufacturers' recommendations.

(e) **Terminals**— A suitable approved type of terminal is required.

If the flue exceeds 4.3m (14ft) in height the restrictor ring, which is supplied with the unit will be required

Gas Supply The connection of the unit is Rc½ (½in BSPT) internal, located on the right hand side of the appliance. For the full information on gas supply pipes, pipe sizes etc. reference should be made to BS 6891: 1988. Generally it is advisable to run a 22 mm (¾in) supply pipe from the meter to the builders opening with the last 1 m (3ft) in 15mm (½in) pipe.

Electrical Supply— All external wiring should be correctly earthed and polarised and in accordance with I.E.E. wiring regulations. For wiring instructions see "Electrical Connection".

Water Circulation Systems - The unit is suitable for use with fully pumped systems (small bore and micro bore with open vents) and gravity domestic hot water with pumped central heating systems. The unit is suitable for use on sealed systems when used in conjunction with the approved kit (230 336). It can be modified for use on sealed systems by fitting an optional overheat thermostat kit (230 336). When the unit is to be installed to an existing or new gravity domestic hot water and pumped central heating system the following considerations should be given to the design of the gravity domestic hot water flow and return pipes.

- (i) The minimum circulating head should be not less than 1m (3ft) with a maximum horizontal run of 3m (10ft) when using 28 mm (1in) pipes. Smaller pipe sizes and longer horizontal runs are acceptable with suitably increased circulating heads.
- (ii) The system must be designed to prevent reverse circulation.
- (iii) Pipes should be laid to maximum fall avoiding points of possible air lock.

The following conditions should be observed on all types of system:

- (i) THE WATER SPREADER ADAPTER MUST BE FITTED TO THE BOILER RETURN CONNECTION ON ALL SYSTEMS.
- (ii) The static head must not exceed 30m (100 ft) of water
- (iii) The boiler must only be used with an indirect cylinder

SURROUND OPENING ALL FIRES		
HEIGHT	560 mm (22in)	
	MINIMUM DIMENSION	MAXIMUM DIMENSION
WIDTH	406 mm (16in)	584 mm (23in)
		508 mm (20in)
		SP + VP ONLY

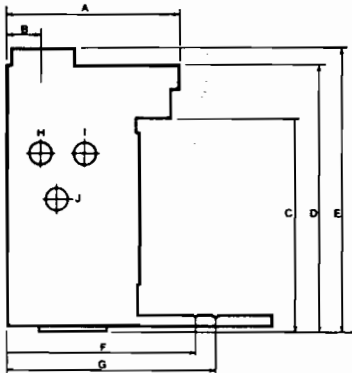
TABLE 2

- (iv) Drain points should be fitted to the lowest points in the system.
- (v) All electrical wiring, gas and water pipes must be installed in a way which will not restrict the servicing of the boiler.
- (vi) Arrangements must be made so that gravity circulation does not take place in the heating circuit when the pump is not in use.

Boiler Connections — The boiler is supplied with flow and return connections on the left hand side. If the connections are required on the right hand side the boiler casting can be reversed within the combustion chamber. (See Boiler Connections on page 4).

Ventilation

Ventilation via a permanent air vent of 66cm² (10in²) to the outside atmosphere is required. This vent may be directly into the room other than a room or internal space containing a bath or shower which has a similarly sized permanent air vent to the room containing the appliance. The vent must NOT be placed in the builders opening.



BOILER DIMENSIONS		
	From Back of Boiler	From Hearth Level
A	328 mm (12 ⁵ / ₁₆ in)	—
B	82 mm (3 ⁷ / ₁₆ in)	—
C	—	401 mm (16in)
D	—	504 mm (20in)
E	—	529 mm (20 ¹⁵ / ₁₆ in)
F	343 mm (13 ¹ / ₂ in)	—
G	390 mm (15 ³ / ₁₆ in)	—

TABLE 3

FLOW AND RETURN TAPPINGS			
	From Back of Boiler — When on		From Hearth Level
	Left Hand	Right Hand	Level
H Rear Flow	71 mm (2 ¹³ / ₁₆ in)	99 mm (3 ⁷ / ₁₆ in)	333 mm (13 ¹ / ₁₆ in)
I Front Flow	158 mm (6 ¹ / ₄ in)	186 mm (7 ⁵ / ₁₆ in)	333 mm (13 ¹ / ₁₆ in)
J Return	100 mm (3 ¹⁵ / ₁₆ in)	158 mm (6 ¹ / ₄ in)	241 mm (9 ¹ / ₂ in)

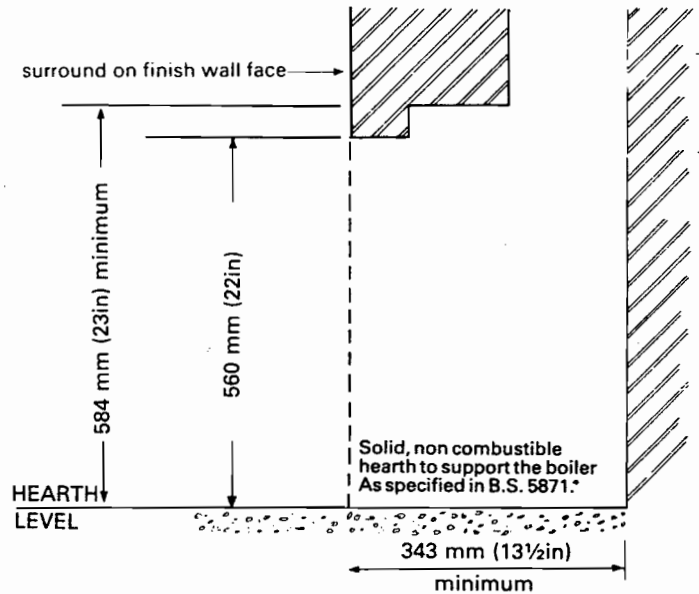
TABLE 4

Boiler details

- Height — 533 mm (21in)
- Width — 295 mm (11⁵/₁₆in) (including service tap 318 mm (12¹/₂in))
- Weight — 38 kg (84lbs)
- Water content — 2.2 litres (0.48 gals)
- Boiler tappings — 3 x Rc1 (1in BSPT internal)
- Gas connection — Rc¹/₂ (1/2in BSPT internal)
- Electrical supply — 240 volts 50 Hz—3 amp fuse
- Hydraulic Resistance — 13 mbar (5in w.g.) at 900 l/h (3.3 g.p.m.)

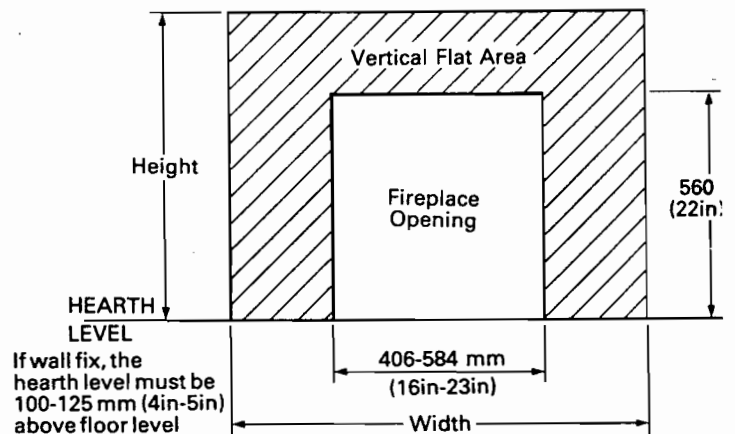
IMPORTANT:

If a false chimney breast is intended to house the boiler, a simulated builders opening, within the breast, must be provided. See BUILDERS OPENINGS. The builders opening must not communicate with voids, pipe ducts or spaces other than the room in which the appliance is situated.



When correctly installed the centre line of the boiler flue socket will be 258 mm-305 mm from the surround on finish wall face.

Fig. 1. Builders Opening



If the opening is being purposely prepared the maximum dimensions are strongly recommended. If the fireplace opening is to the minimum dimension it may be necessary to use the pipe access holes to make the pipe connections.

Fig. 2. Fireplace Opening

Installation

The boiler must be installed by a competent installer and satisfy the relevant requirements of the Gas Safety Regulations, Building Regulations, Local Authorities, Local Water Authorities and the Gas Region.

Reference should be made to current British Standard Codes of Practice BS 6891, 5440 Parts 1 & 2, BS 6798, BS 5871, BS 5546, BS 5449

Siting the unit

The complete unit (boiler and fire) can be used in different circumstances:

- With a tiled surround and hearth.
- Without a tiled surround but with a hearth.
- As a wall mounted fire.
- In a proprietary surround constructed of suitable material.

The general method of installation is the same in all cases, but slight changes of procedure must be made to suit the particular circumstances.

Boiler Connections (Fig. 3)

If the boiler connections are required on the right hand side proceed as follows:

- Remove the transit packing but do not lift the boiler off the transit base.
- Remove the thermostat capillary from behind the clip on the front panel and withdraw the thermostat phial.
- Remove the front panel (Fig. 6). Transfer the thermostat pocket blanking disc to the right hand hole.
- Slide out the baffles from between and above the heat exchanger castings and slide out the blanking plate (Fig. 3).
- Remove the casting securing bolt at the left hand side.
- Lift out the heat exchanger. Retrieve the three sealing rings and boiler clamping plate.
- Reverse boiler casting and re-assemble ensuring that:
 - The three sealing rings are correctly positioned after refitting the casting.
 - The blanking plate is fitted at the left hand side of the casting.
 - The heat exchanger baffles are fitted between and above the casting.
 - The casting is secured by the clamping plate and bolt.
 - Route the thermostat capillary under the heat shield and up the left hand side (Fig. 7). The thermostat phial now fits in the pocket at the LEFT HAND SIDE IN THE LOWER SECTION.

Fitting the boiler (Fig. 4)

- Remove the fireback, back boiler rubble, etc., and expose the builders opening.
- Line the flue. Terminate the lower end of the liner at 508 mm (20in) above the finished hearth level (Fig. 1).
- Build up a level solid hearth within the builders opening flush with the front of the hearth. Scribe a centre line on the hearth from the front finished face to a point at least 150 mm (6in) forward of the face.

4. Lift the boiler off the transit base. Place the boiler in the builders opening, and remove the heat shield over the controls. Check that the front finished face lies between the two notches on the sides of the boiler base (Fig. 4) and that the arrowhead cut out at the front is on the centre line of the hearth. With the boiler now in position drill directly through the fixing holes and secure with the plugs and screws provided (See page 15).

5. Attach the liner to the socket with the three screws provided and seal the joint.

6. Connect the gas supply to the service tap. It is preferable to have the gas supply coming from the right of the builders opening. If however it does come from the left hand side and must pass in front of the boiler then for ease of servicing it is imperative that the pipe passes under the burner feed pipe and the pilot feed pipe.

REPLACE THE HEAT SHIELD, UNLESS AN L.F.E. 3 SUPER, GF SUPER, SL, VP OR SP FIRE IS TO BE FITTED. IF SO FIT THE HEAT SHIELD PROVIDED WITH THE FIRE, USING THE SCREWS PREVIOUSLY REMOVED.

7a Gravity domestic hot water and pump central heating The flow and return connections to the boiler MUST be made as follows: (Fig. 5)

- The water spreader adaptor and the injector tee must be fitted in the lowest of the three tappings with the branch facing straight down. It is acceptable for the branch to be angled at 45° either side of this position.
- Connect the pumped heating return to the compression fitting end of the injector tee.
- Connect the gravity hot water return to the branch of the injector tee.
- Connect the pumped heating flow to the top front tapping for left hand connections or the top rear tapping for right hand connections.
- Connect the gravity hot water flow to the remaining top tapping.

7b Fully Pumped Systems The flow and return connections to the boiler to be made as follows (Fig. 6).

- Fit the adaptor with the plastic water spreader in the bottom return tapping on the boiler. Do not use excessive jointing compound which may obstruct the holes in the spreader.
- Use either of the top flow tappings and plug the unrequired flow connection with a 1in BSP plug.
- Connect the pumped flow to the top front tapping for left hand connections or the top rear tapping for right hand connections.
- Plug the remaining top tapping using a 1 in BSP plug.

8. Connect the electrical supply – see 'Electrical Connections'.

9. Any holes within the builder's opening e.g. to accommodate pipework etc must be made good.

10. Complete the installation as described under 'Commissioning the Boiler'.

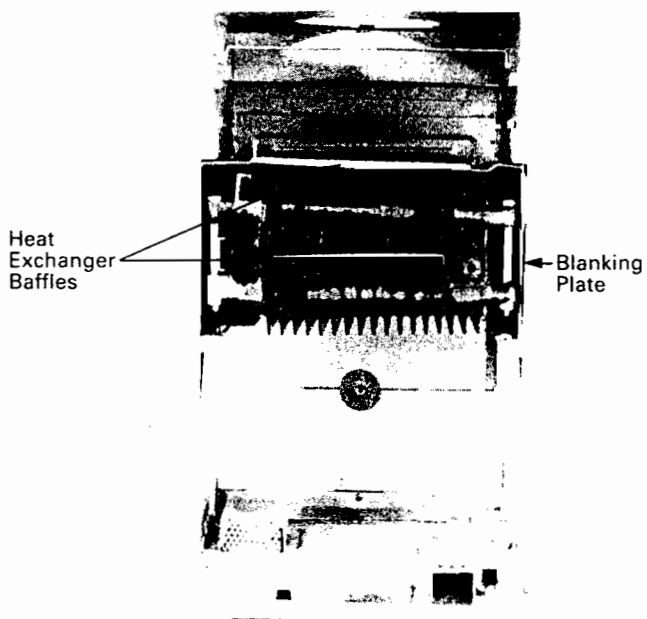


Fig. 3. Boiler Connections

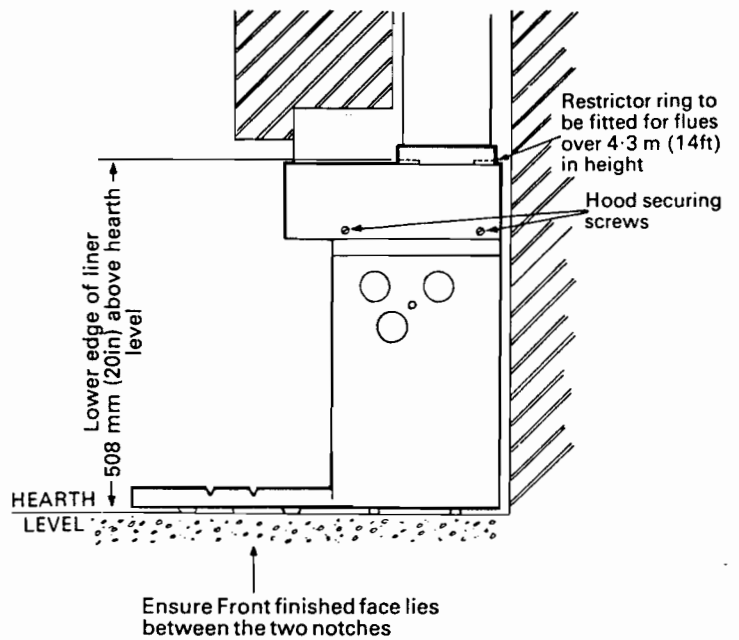


Fig. 4. Boiler in Builders Opening

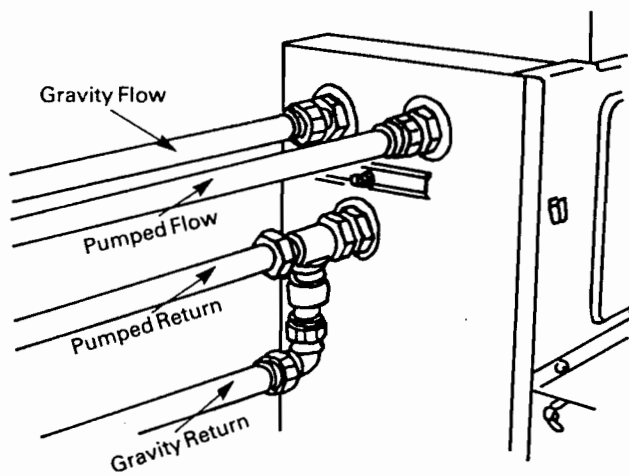


Fig. 5. Gravity D.H.W.

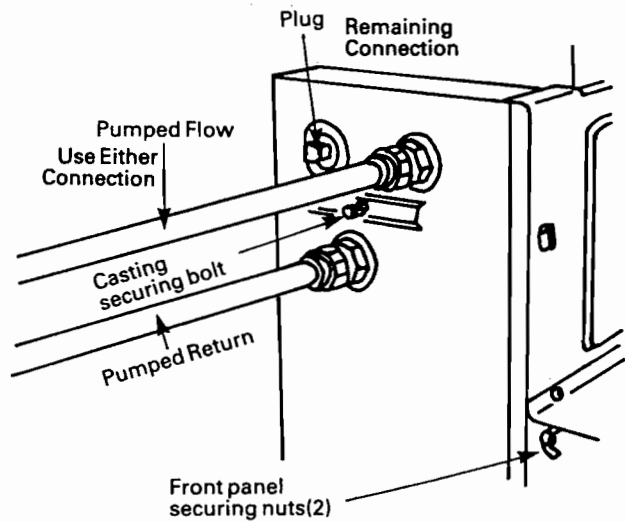


Fig. 6. Fully Pumped System

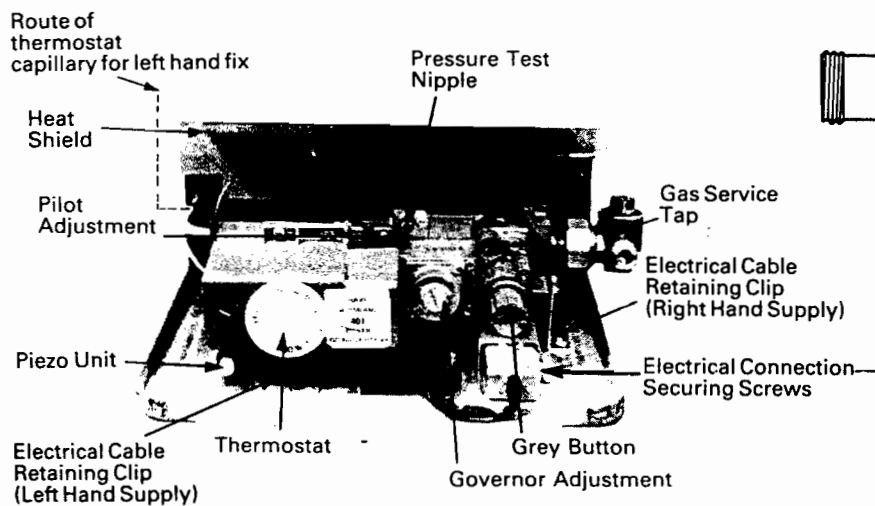


Fig. 7. Boiler Controls

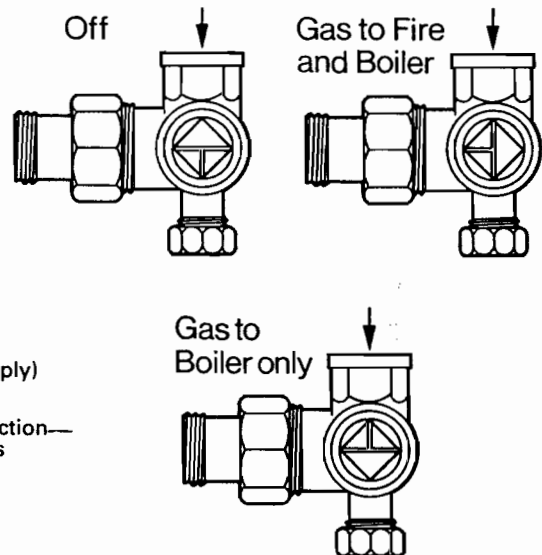
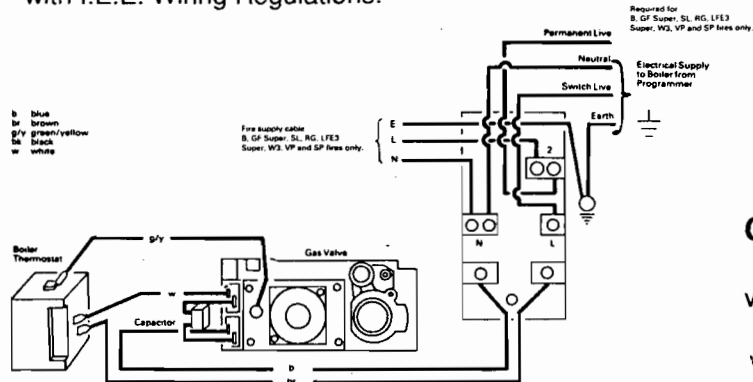


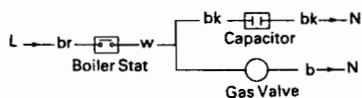
Fig. 8. Gas Service Tap

Electrical Connections

The main supply required is 240V - 50Hz fused at 3A. A double pole switch having a contact separation of at least 3mm should be used, servicing only the appliance and system controls. All electrical wiring should be correctly earthed and polarised and in accordance with I.E.E. Wiring Regulations.



Illustrated Wiring Diagram



Functional Flow Diagram

Electrical supply to the controls

The recommended cable for the connection to the boiler terminal strip is 0.75mm² — 24/0-20 PVC heat resistant grade (70°C) to B.S. 6500 Table 16. It is preferable to have the electrical supply cable coming from the right hand side of the builders opening. If however it must come from the left hand side it must be fitted to the alternative clip provided. It is important to route any input cable to avoid contact with the combustion box sides.

To connect the electrical wiring to the boiler proceed as follows.

1. Remove the screw retaining the controls connection plug and disconnect.
2. Remove the screw retaining the input socket and slide the socket to the right then lift to remove.
3. Connect the wires to the socket as follows:
 - (a) Connect the brown wire (live) to the terminal marked 'L'.
 - (b) Connect the blue wire (neutral) to the terminal marked 'N'.
 - (c) Route the green and yellow (earth) $\frac{1}{2}$ through the cut out in the side of the socket housing leaving sufficient length to connect the wire to the adjacent earth terminal on the base. The earth wire should be sufficiently long so that if the supply cable is pulled on the live and neutral wires become taut before the earth wire.
 - (d) If a B, GF Super, SL, LFE3 Super, W3, SP, VP or RG fire is to be fitted, connect a permanent live supply to the remaining terminal in the socket, marked 2.

Cut away the plastic web at the inlet of the electrical socket and fit the fire supply cable (See Fire Section installation instructions).

N.B. BOTH THE FIRE AND BOILER MUST BE SUPPLIED BY THE SAME ISOLATING SWITCH.

- (e) Secure the cable in the socket with the cable clarr. For 3 core cable use with the flat side downwards. 4 core cable use with the radiused side downwards. Reassemble the socket to the base.
- (f) Connect the earth wire to the earth terminal.
- (g) Refit the controls connection plug and replace its securing screw.
- (h) Clamp the cable to the boiler base with the plastic clip and screw found in the kit.
- (i) In the event of an electrical fault after installation preliminary electrical checks can be carried out as described in British Gas Multimeter Book. The recommended range of thermocouple outputs is between 10-15 MV.

Commissioning the Boiler

1. The water system should be thoroughly flushed out with cold water without the pump in position.
2. With the pump fitted, fill the system with water, vent the radiators and check there are no leaks.
3. Turn the gas service tap clockwise $\frac{1}{2}$ turn from the off position, this will supply gas to the boiler only. (Fig. 8)
4. Purge the air from the gas supply pipe at the gas service tap. Test for gas soundness.
5. Ensure that all external controls e.g. room thermostat timer etc., are calling for heat.
6. Turn the boiler thermostat to the "OFF" position.
7. Turn on the mains electrical supply.
8. Slacken the test point sealing screw and connect a pressure gauge.
9. Hold in the grey button on the gas control valve (Fig. 7).
10. Press the Piezo unit button and release. Repeat until the pilot lights. Hold in grey button for a further 15 seconds and then release. The pilot should then stay alight. If the pilot fails to remain alight twist the grey button clockwise and release wait three minutes and start again from 9. The pilot flame should be without a yellow tip and approximately 25 mm (1 in) long. Adjust if necessary.
11. Operate the burner by turning the boiler thermostat knob to the high setting. CHECK THE OPERATION OF THE FLAME FAILURE DEVICE by turning the grey ON/OFF button clockwise. The burner and the pilot should go out.
12. Turn the boiler thermostat to the OFF position. Wait three minutes and re-light the pilot.
13. Operate the burner by turning the boiler thermostat knob to the high setting.
14. Remove the cover screw and adjust the appliance governor to the setting pressure corresponding to the required input. Check the pressure after ten minutes burning time and adjust if necessary. Adjust the input indicator arrow on the data label if necessary.
15. The system should be flushed again, when hot, refilled and check that there are no leaks.
16. Make a final check for gas soundness.
17. Turn the boiler thermostat to the required setting.
18. Turn off the electrical supply.
19. Remove pressure gauge and tighten the test point sealing screw. Ensure a gas tight seal is made.
20. Fit the gas fire section as described in the Fire Section installation instructions.

RATINGS & SETTING PRESSURES

Heat Input	15.9 kW (54,400 Btu/h)	11.6 kW (39,500 Btu/h)	6.2 kW (21,100 Btu/h)
Heat Output	11.7 kW (40,000 Btu/h)	8.5 kW (29,000 Btu/h)	4.4 kW (15,000 Btu/h)
Natural Gas	18.2 mbar (7.3in w.g.)	9.7 mbar (3.9" w.g.)	3.2 mbar (1.3in w.g.)

Notes for Guidance System Design

1. Pipe Sizing

- (a) The sizes of flow and return pipes from the boiler should be determined by normal methods according to the requirements of the system. Generally an 11°C (20°F) drop across the system.
- (b) The open vent pipe must be a minimum of 22 mm and must rise continuously to above the feed & expansion tank. The flow pipe from the boiler may form part of the open vent. No part of the open vent should contain a valve.
- (c) In a fully pumped system the cold feed pipe (15 mm) may be connected to the flow pipe, 6 inches away from the vent pipe (close coupled), but there must always be a cold water path to the boilers return connection.
- (d) The system should be designed so that gravity circulation does not take place in the heating system when the pump is not running.

Fuel Economy

When designing a control system for a central heating installation, better fuel economy is achieved by exercising control of the boiler from a room thermostat or cylinder thermostat as appropriate. Allowing the boiler to cycle under the control of the boiler thermostat does not produce the best results. The examples given below and on the following pages indicate alternatives to meet different circumstances.

Fully Pumped Systems (Fig. 9 & 10)

One Zone Valve (Fig. 11)

Zone valve with auxiliary switch fitted at point V. A cylinder thermostat and a room thermostat are used to control both the pump and the boiler. The room thermostat also controls the zone valve to stop water circulation in the heating system.

Two Zone Valves (Fig. 13)

Zone valves are fitted at points V and U to stop water circulation to the heating system and the cylinder. The valves are controlled by a room thermostat and a cylinder thermostat respectively, each of which also control the boiler and the pump.

Diverter Valve (Fig. 14)

A diverter valve is inserted at point W to direct water circulation to either the cylinder or the heating system. The valve along with the pump and the boiler is controlled by a cylinder thermostat and a room thermostat.

Gravity D.H.W. Systems

Sundial Control (Fig. 12)

Both the boiler and the pump are controlled by a cylinder thermostat and a room thermostat. The room thermostat overrides the cylinder thermostat when heating is called for.

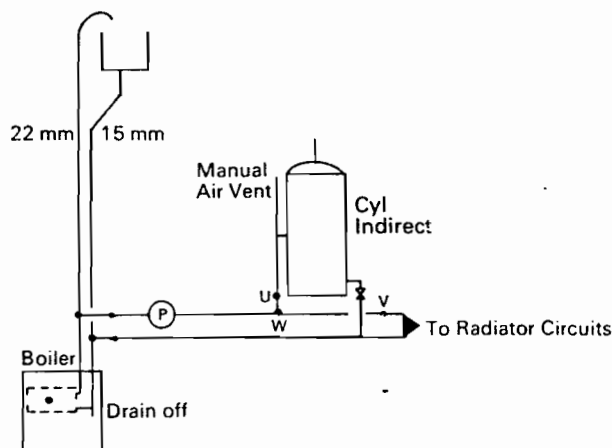


Fig. 9. Rising Flow and Return Pipes

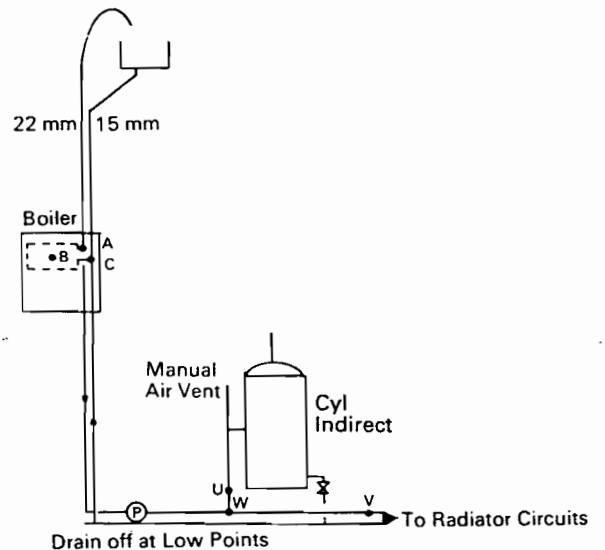


Fig. 10. Dropping Flow and Return Pipes

Electrical Control System Baxi Bermuda 401

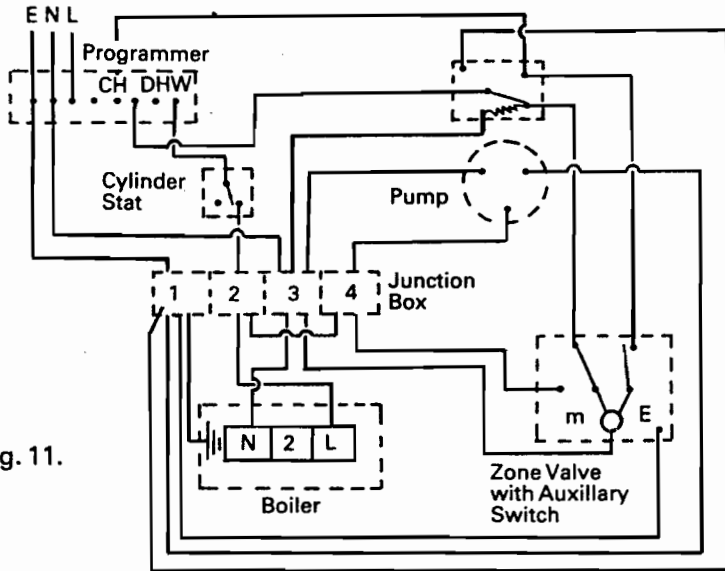


Fig. 11.

Fig. 11. One Zone Valve - Fully Pumped System

Fig. 12. Sundial Control - Gravity Domestic Hot Water System

Fig. 13. Two Zone Valve - Fully Pumped System

Fig. 14. Diverter Valve - Fully Pumped System

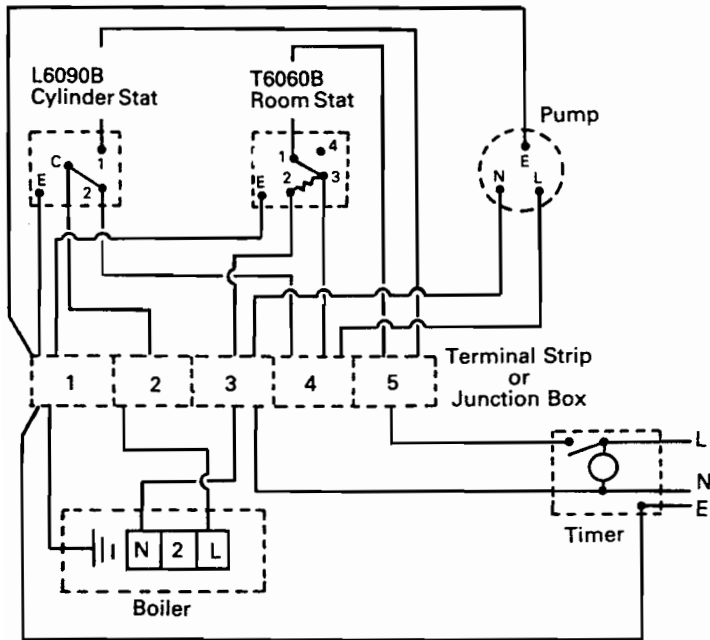


Fig. 12.

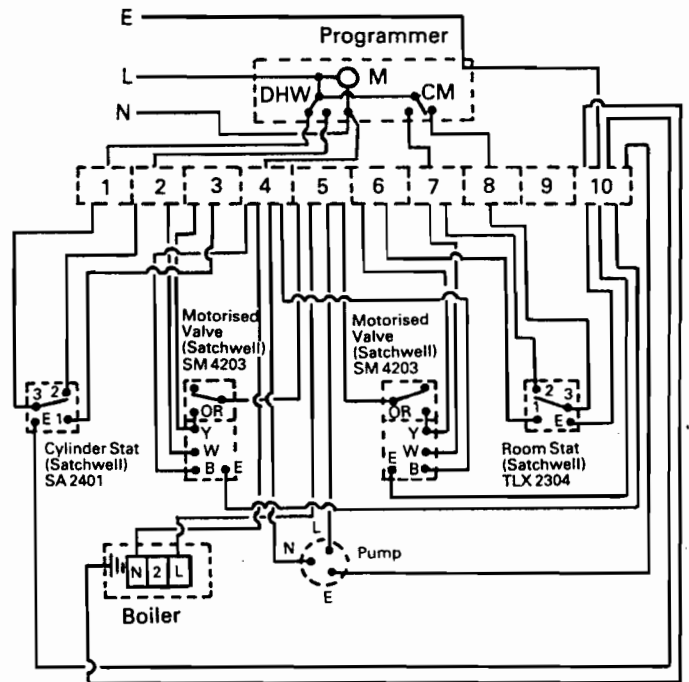


Fig. 13.

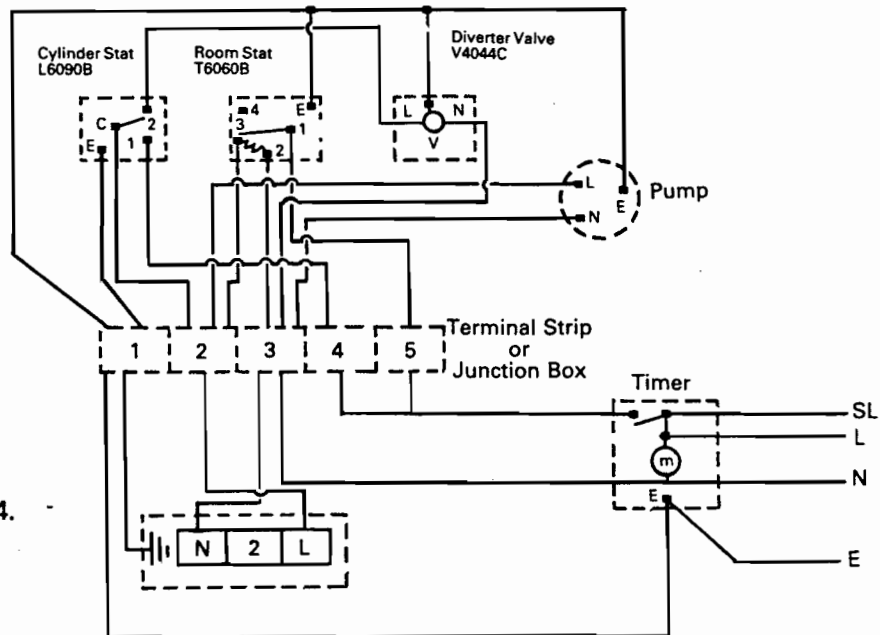
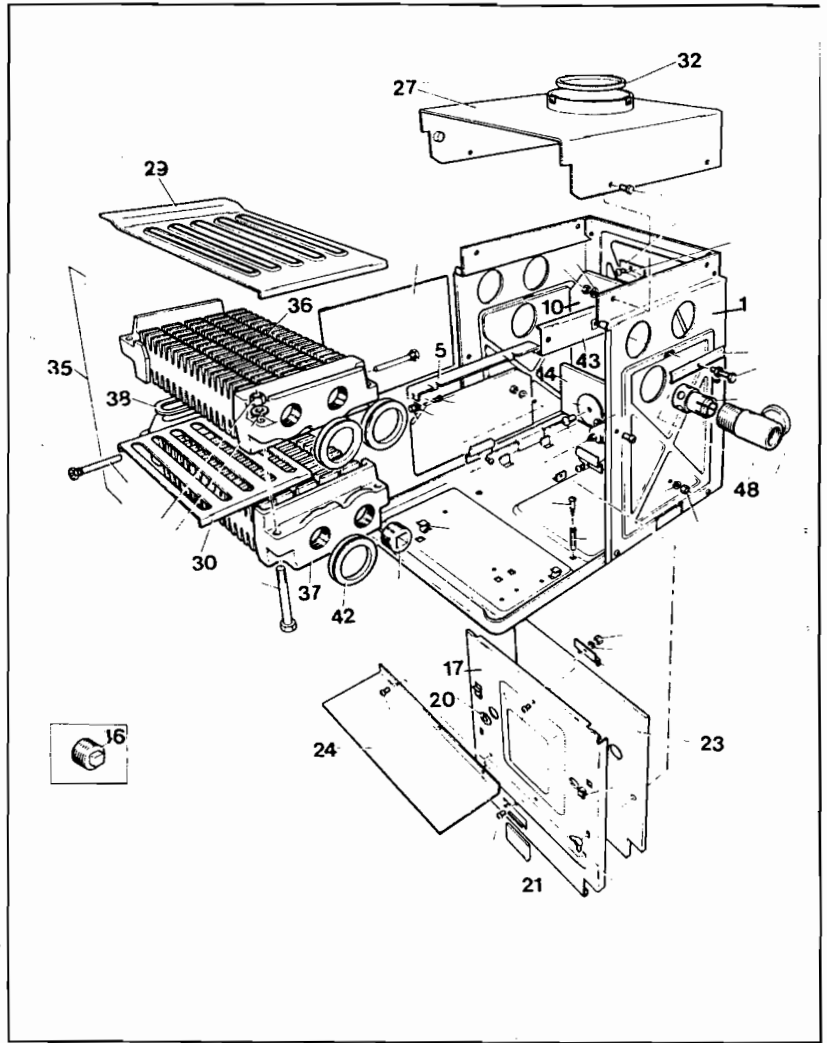
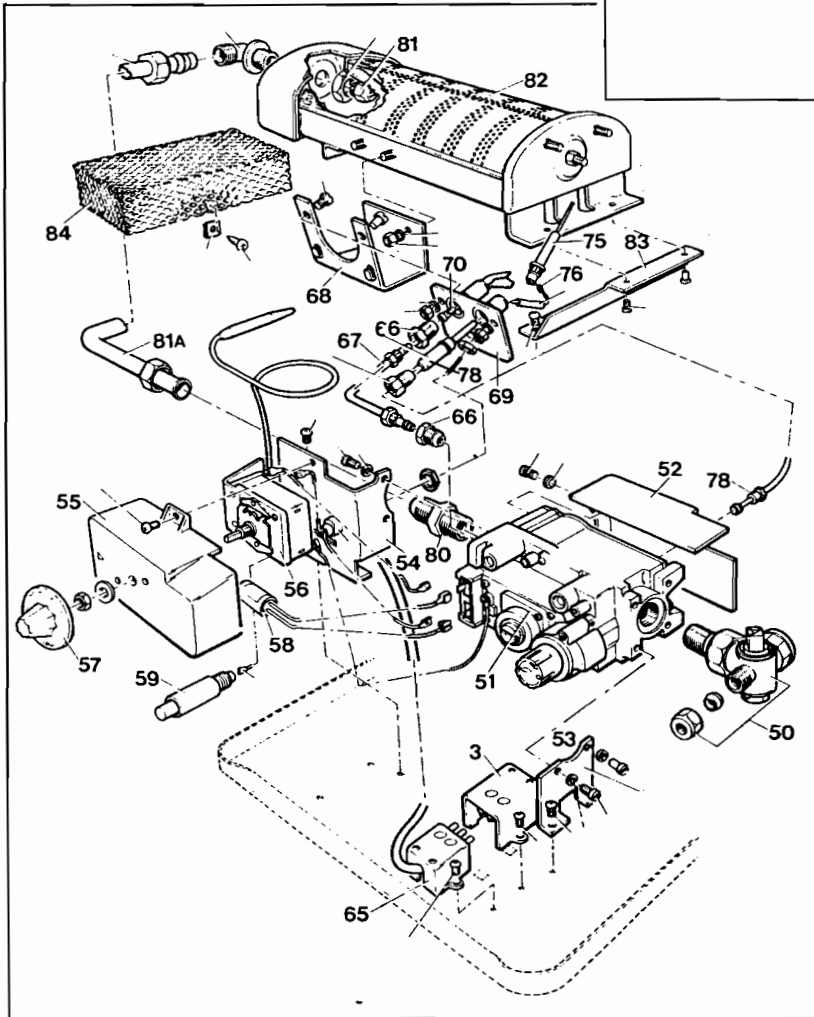


Fig. 14.

**Servicing the Unit
Baxi Bermuda 401 — Boiler
Exploded Diagram**



Boiler and Combustion Chamber



Burner and Controls

Lists of parts are available on request.
Short Parts List illustrated on back page.

Servicing the Unit

Fire— See separate instructions provided for the Fire Section.

Boiler—

1. Isolate the electrical supply.
2. Remove the fire as described in the separate instructions supplied for the Fire Section.
3. After noting its original setting turn the boiler thermostat to "OFF".
4. Turn off the gas supply at the service tap and disconnect the union.
5. Remove the screw and washer securing the controls connection plug, unclip the wiring, and disconnect the plug and the inlet socket.
6. Unclip the capillary and remove the thermostat phial from the boiler.
7. Remove the front panel.
8. Remove the burner and controls complete. (three screws) (Fig. 16) and remove the clip securing the lint arrester to the base of the appliance (Fig. 17).
9. Slide out the heat exchanger baffles (Fig. 17).
10. Remove the insulation as follows:
 - (a) Remove the two side insulation panels by removing the securing clamps and sliding downwards from behind the lugs on the heat exchanger support bracket.
 - (b) Remove the rear bottom insulation by removing the securing clamp and securing washer.
 - (c) Remove the securing clamp at the top of the rear top insulation panel and slide the panel down from behind the heat exchanger.
11. Clean the top section of the heat exchanger with a bristle brush from front to back and then end to end between the finned tubes. Brush between the two boiler sections and clean the underside of the heat exchanger, taking care not to damage the insulation. Suitable brushes for cleaning the heat exchanger are:
 - 2in diameter x 6in long bristle brush, or
 - 1in diameter x 2½in long bristle brush.Brush out the bottom of the combustion box and then replace the insulation panels and the heat exchanger baffles. (Fig. 17).
12. **Clean the Burner (Fig. 18 and 19)**
 - (a) Disconnect the burner feed pipe and pilot tube nuts at each end and remove both pipes.
 - (b) Remove the nuts and washers securing the pilot bracket to the burner (Fig. 18).
 - (c) Remove burner end plate as follows:
 - (i) **Aeromatic Burner**
Remove centre securing nut and washer, remove end plate.
 - (ii) **Worgas Burner**
Remove the 2 nuts and screws securing the end plate and remove.
 - (d) Clear away any lint deposits that may have accumulated inside the burner replace the end plate in reverse order ensuring that on burners with gaskets fitted these are not damaged and fit flush to their sealing faces, replace if necessary. Inspect, clean or exchange burner injector, thermocouple and spark electrode if necessary.
13. Clean the pilot as follows:
 - (a) Disconnect and remove the pilot tube and adaptor.
 - (b) Remove the adaptor and the pilot injector from the pilot head and clean these items.
 - (c) Re-assemble the pilot components in the reverse order of dismantling.
14. Clean all traces of lint and dust from the lint arrester.
15. Replace the controls and lint arrester and all other items except the front panel in reverse order of dismantling.
16. Reconnect the gas union nut and turn on the tap ½ turn in a clockwise direction. (This will supply gas to the boiler only). Check for gas soundness. Replace the front panel.
17. Turn on the electrical supply to the boiler. (Ensure that all external controls are calling for heat).

18. Turn the thermostat to the "OFF" position (Fig. 15).
19. Slacken the pressure test point screw and connect a pressure gauge.
20. Hold in the grey button on the gas control valve (Fig. 7).
21. Press the piezo unit button and release. Repeat until the pilot lights. Hold the flame failure button for a further 15 seconds and then release. The pilot should then stay alight. If the pilot fails to remain alight twist the grey button clockwise and release, wait 3 minutes and start again from 20. The pilot flame should be without a yellow tip and be approximately 25 mm (1in) long. Adjust if necessary (Fig. 7).
22. Operate the boiler burner by turning the thermostat knob to its highest setting.
23. Check that the correct pressure corresponding to the range rated output is adequate for the installation (see data label). If necessary remove the cover screw and adjust the appliance governor (Fig. 15). (Turn the screw clockwise to increase pressure) ensuring that the position of the input indicator arrow on the data label is correctly set.
24. Turn the boiler thermostat off. Remove the pressure gauge and tighten the test point sealing screw.
25. Turn the boiler thermostat to its original setting noted at 3.
26. Replace the fire.
27. Service the fire as described in the separate instructions for the Fire Section.

Exchange of Individual Components

In all cases it is necessary to carry out items 1 to 8 of the servicing instructions.

Thermocouple (Fig. 18)

1. Release the thermocouple nut at the control valve and the nut securing the thermocouple to the pilot bracket.
2. Withdraw the thermocouple.
3. Fit the new thermocouple securing at the control valve and pilot bracket.
4. Re-assemble in reverse order. Tighten only ¼ turn with a spanner beyond finger tight.

Spark Electrode (Fig. 18)

1. Disconnect the spark electrode lead at the spark electrode.
2. Disconnect the locking nut securing the spark electrode to the pilot bracket and remove the spark electrode.
3. Fit the new spark electrode checking that the spark gap is between 3.5 and 4.5 mm and reconnect the spark electrode lead.
4. Test the piezo unit and check that the spark electrode is sparking correctly to the pilot shroud.
5. Re-assemble in reverse order.

Piezo Unit (Fig. 19)

1. Disconnect the igniter lead.
2. Unscrew the nut securing the piezo unit to the thermostat housing bracket and replace the igniter.
3. Reconnect the lead and check that the piezo unit is sparking correctly at the pilot shroud.
4. Re-assemble in reverse order.

Burner (Fig. 18 and Fig. 19)

1. Disconnect the burner feed pipe nuts at each end and remove the pipe.
2. Remove the two nuts and washers securing the pilot support bracket to the burner.
3. Remove the two screws securing the burner fixing bracket to the burner end plate and re-fit to the new burner.
4. Remove injector assembly (one nut) from burner and refit to new burner.
5. Re-assemble in reverse order.

Boiler Thermostat (Fig. 20)

1. Remove the thermostat knob.
2. Remove the screw securing the thermostat housing to the mounting bracket.
3. Unhook the thermostat housing and pull forward until the three spade electrical connections on the thermostat can be disconnected. Remove the capacitor from within the thermostat housing.
4. Remove the nut and washer securing the thermostat to the housing.
5. Replace the thermostat and re-assemble in the reverse order. Ensure that the green/yellow wire is fitted to the earth tag on the thermostat. Refit the thermostat knob.

Honeywell Gas Valve

1. Remove the thermostat housing and disconnect the wires from the valve, noting position.
2. Remove the inlet union from the valve inlet.
3. Disconnect the thermocouple nut at the valve.
4. Disconnect and remove the pilot feed pipe.

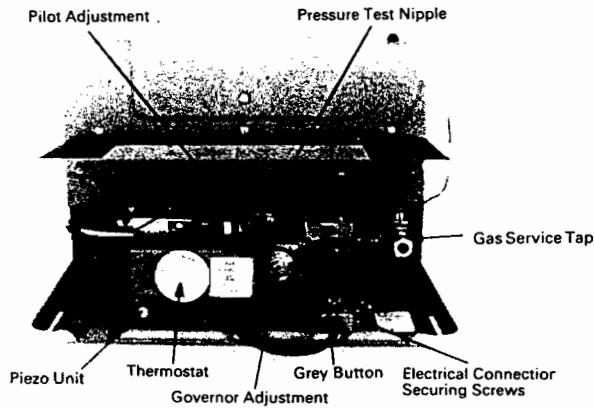


Fig. 15. Boiler Controls

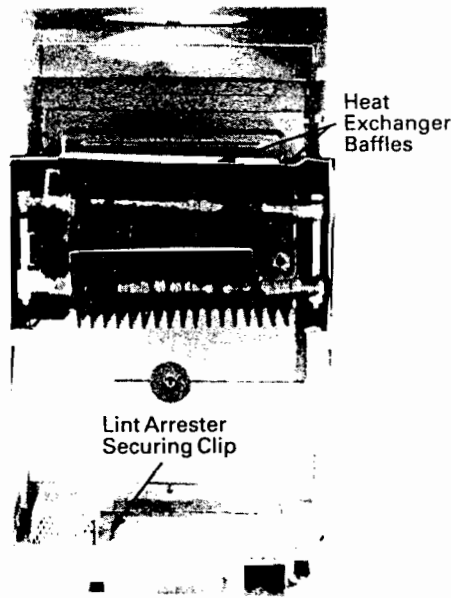


Fig. 17. Combustion Chamber

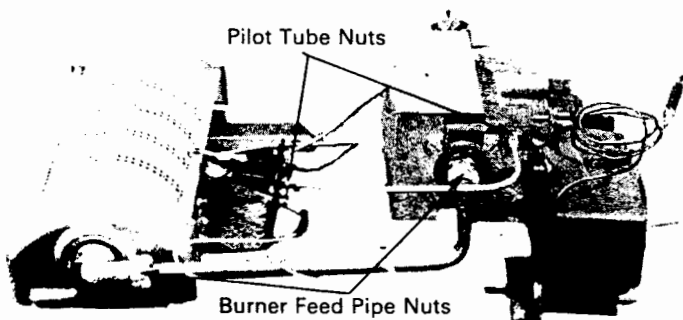


Fig. 19. Burner and Controls (2)

5. Disconnect the burner feed pipe.
6. Remove the thermostat mounting bracket, the valve heat shield and the valve mounting bracket.
7. Remove the adaptor from the valve outlet.
8. Individual sub-components of the valve may be replaced as outlined by Honeywell instructions.
9. Re-assemble the new valve in reverse order of dismantling using suitable jointing compound wherever necessary.

Insulation in Combustion Chamber

Remove the insulation as follows:

1. Remove the two side insulation panels by removing the securing clamps and sliding downwards from behind the lugs on the heat exchanger support bracket.
2. Remove the rear bottom insulation by removing the securing clamp and securing washer.
3. Remove the rear top insulation panel by sliding the panel down behind the heat exchanger.
4. Re-assemble with new insulation in reverse order.

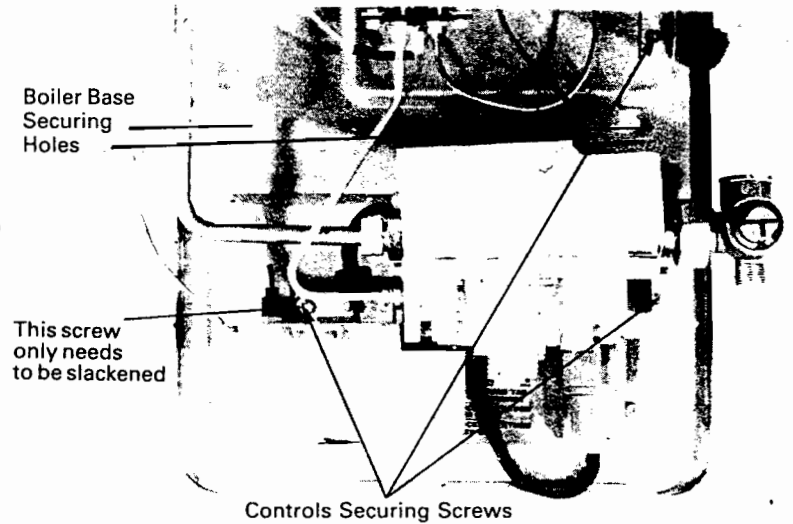


Fig. 16. Securing Screws

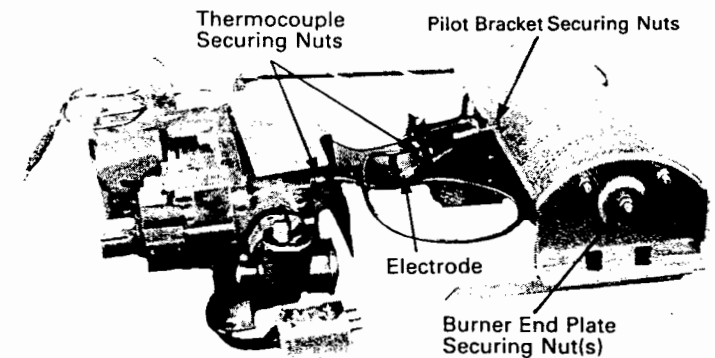


Fig. 18. Burner and Controls (1)

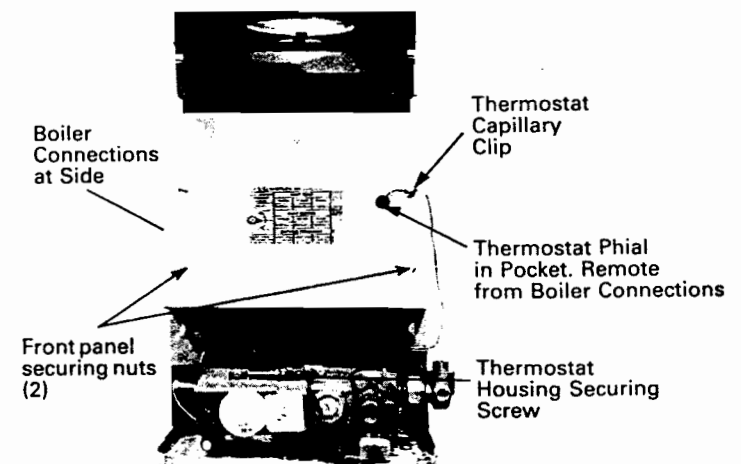


Fig. 20. Boiler Assembly

Wall Fixing Bermuda 401 & 251

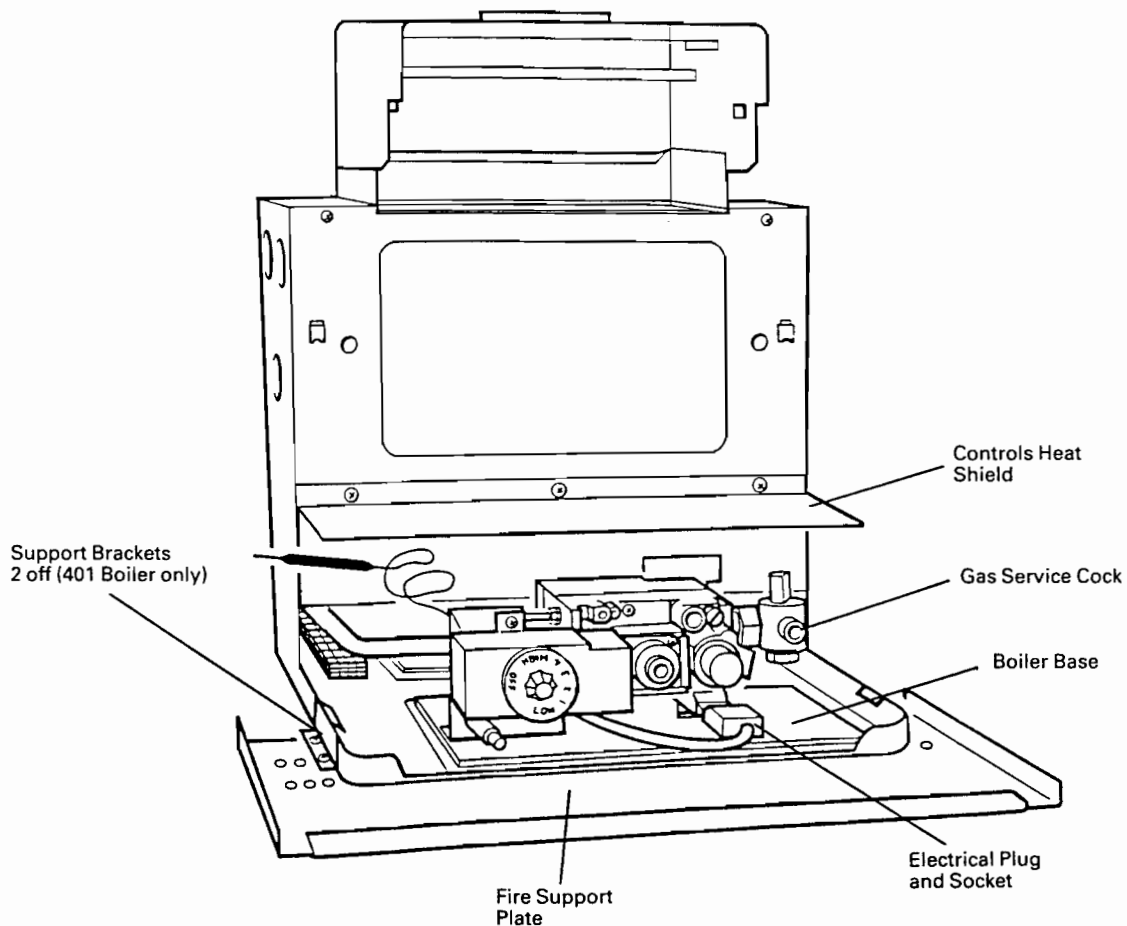
If the fire is to be Wall Mounted the two brackets supplied in the plastic bag require fitting to the support plate (packed with the fire section), using the four inner holes. The nuts, screws and washers required are in the plastic bag supplied with the fire section.

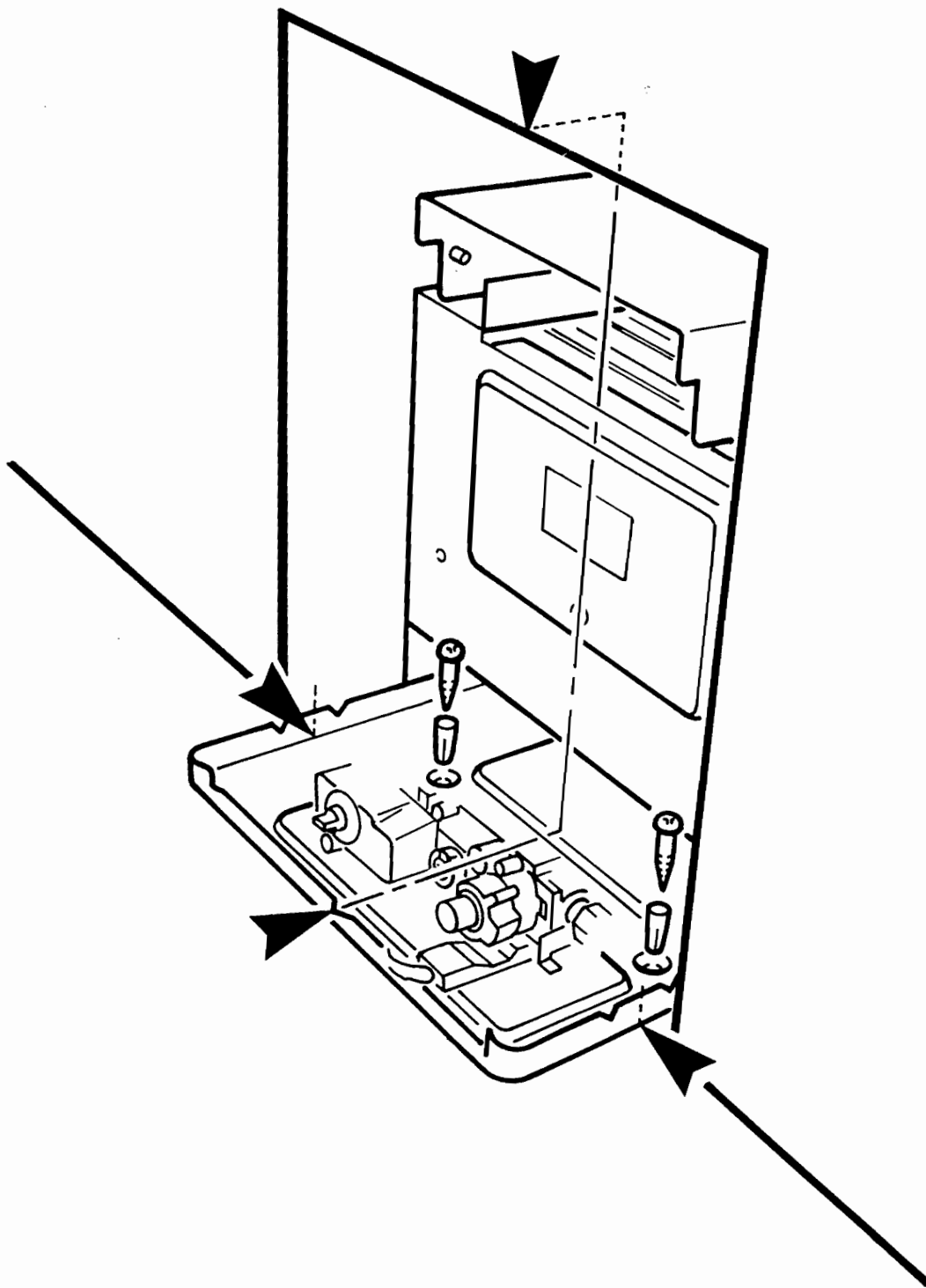
Overheat Thermostat Replacement

(Optional Extra)

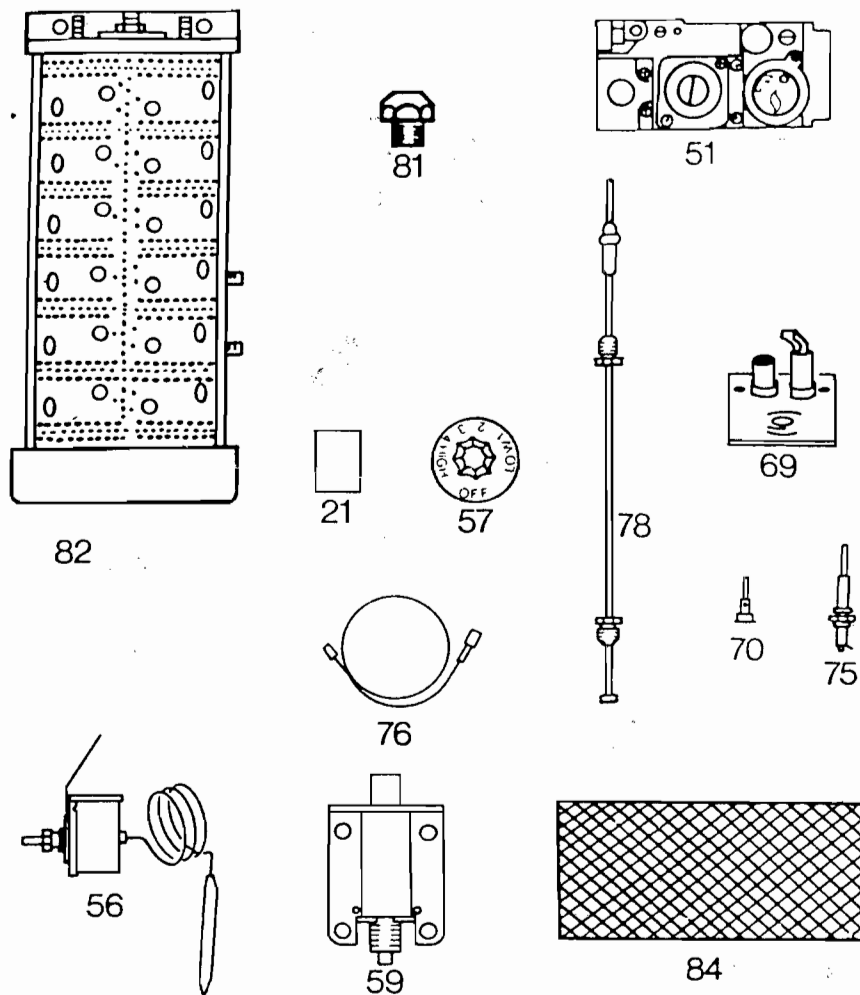
1. Slacken off the plastic cable tie and remove the thermostat phial from its pocket.
2. Disconnect the 2 wires from the thermostat by pulling the flag ends upwards.
3. Unscrew the securing nut from the thermostat and remove it by sliding away from the bracket.
4. Fit the new thermostat and re assemble in reverse order.

Wall Fixing





Back Boiler Fixing Position



SHORT PARTS LIST

Key Number	G.C. Number	Description	Makers Part Number
21	183 530	Viewing Window	082109
51	393 180	Valve Control — Honeywell V4600C 1029	062623
56	384 686	Thermostat — Boiler	102027
57	183 630	Knob — Control — Thermostat — Ranco 83151/36	042717
59	183 936	Kit — Piezo Unit	040456
69	391 532	Burner — Pilot — Honeywell Q359A 1041	062638
70	364 282	Injector — Pilot — Honeywell 0-38/36A	112011
75	387 665	Electrode — Pilot Ignition — Kigass E3356	102024
76	183 628	Lead Electrode	042740
78	390 131	Thermocouple — 18in Honeywell Q309A 2606	102005
81	183 881	Injector/Stereomatic 4 — 1.55 mm	042857
82	393 360	Burner	042859
84	393 361	Arrestor - Lint	040073

CUSTOMER CARE

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