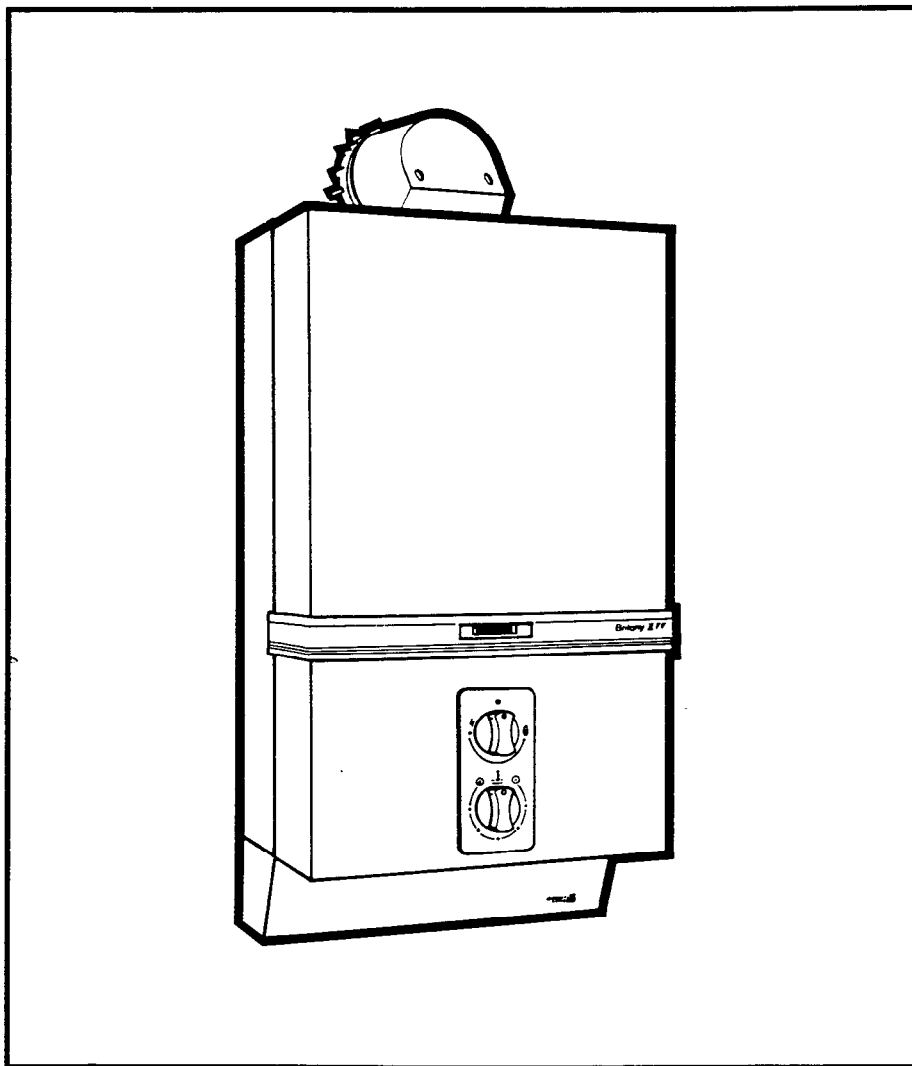


CHAFFOTEAUX LIMITED  
**BRITONY II FF**

G.C. No 52.980.21

This appliance has been tested and certificated by British Gas  
(For use on natural gas only)



**installation and  
servicing instructions**

(leave these instructions adjacent to the gas meter)

1.

**GENERAL**

The BRITONY II FF is a fanned draught, balanced flued instantaneous multipoint appliance. The flue is suitable for rear outlet, or to either side. The maximum recommended flue length is 3 m. straight.

The appliance is for connection to a mains cold water supply only.

A permanent electrical connection is required and should be provided by use of a fused spur. The external electrical supply should be via a double pole switch having 3 mm. contact separation in both poles. If the appliance is installed in a bathroom the fused spur must be external to the bathroom.

When on pilot only the fan runs at 'low speed' increasing to normal speed when there is a demand for hot water. Included are a pressure switch, which operates if the fan stalls or if the flue is obstructed, and a low temperature sensor which will turn off the fan when the appliance is running on pilot only (fan low speed) in the event of low air temperatures likely to cause freezing in the appliance.

1.1

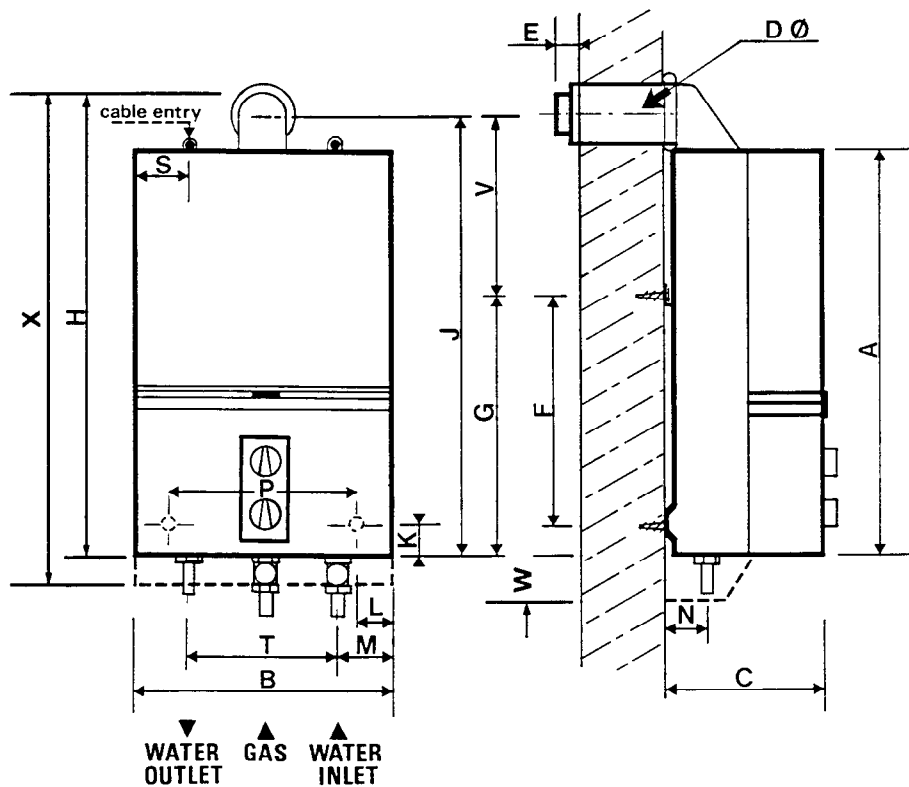
**Guarantee**

The guarantee on this appliance is void if it is not installed in accordance with the recommendations made herein or in a manner approved by the manufacturer.

1.2

**Dimensions**

	mm	ins.
A	658	25.9
B	395	15.5
C	270	10.6
D	100	4.0
E	40	1.6
F	385	15.15
G	438	17.25
H	778	30.6
J	728	28.6
K	53	2.1
L	55	2.15
M	98	3.8
N	70	2.75
P	285	11.22
S	105	4.13
T	199	7.8
V	290	11.4
W	90	3.54
X	868	34.14



1.3

**Technical Data**

Heat input nominal .....	28.6 kW	97583 Btu/h
Heat output nominal .....	22.4 kW	76000 Btu/h
Gas rate (maximum) .....	2.67 m <sup>3</sup> /h	94.3 ft <sup>3</sup> /h
Burner pressure .....	10.9 mbar	4.4 in.w.g.
Burner pressure tolerance .....	± 1.0 mbar	± 0.4 in.w.g.
Main burner injectors .....	1.23 mm (stamped 1,23)	
Pilot injectors .....	0.23 mm (stamped 23)	
Water flow rate - raised 50 °C (90 °F) .....	6.3 l/min	1.4 gpm
Water flow rate - raised 30 °C (54 °F) .....	10.9 l/min	2.4 gpm
Minimum operating head .....	7.5 m.	25 ft ( 10 psi)
Maximum operating head .....	100 m.	328 ft (150 psi)
Electrical Connections - 240 V 50 Hz supply fused 3 A.		

The minimum water pressure is for the correct operation of the appliance only. An additional allowance must be made for the resistance of pipework and fittings particularly where showers and washing machines are used. This should be equivalent to 2 m. (6.5 ft) head.

Water inlet (Compression type fittings) .....	Right hand connection	15 mm Copper
Water outlet (Compression type fittings) .....	Left hand connection	15 mm Copper
Gas (Compression type fittings) .....	Centre connection	15 mm Copper
Height (including flue bend) .....	778 mm (30.6 in)	
Width .....	395 mm (15.5 in)	
Depth .....	270 mm (10.6 in)	
Weight .....	20 kg. (42 lb)	
Space for fixing - top (above flue) .....	50 mm ( 2 in)	
- bottom (below case) .....	178 mm ( 7 in)	
- sides .....	25 mm ( 1 in)	
- front .....	600 mm (24 in)	
Hole for the air inlet duct .....	107 mm ( 4 in) Ø (diameter)	

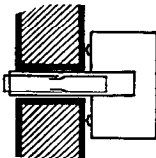
The BRITONY II FF is supplied in one carton.

1.4

**Flue Length**

Minimum Wall Thickness 3 in (75 mm)

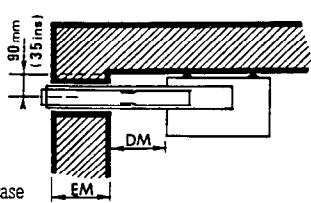
Rear Outlet



Wall thickness	Up to 612.5 mm	Over 612.5 mm
	Delivered with appliance	Extension available Pt N° 61061

Flue duct length = wall thickness + 25 mm  
 Air inlet duct length = wall thickness + 25 mm

Side Outlet



EM + DM	Up to 500 mm	500 mm to 1400	1401 mm to 2300	2300 mm to 2787
	Deliv. with appliance	1 extn. Pt N° 61061	2 extn. 2 x 61061	3 extn. 3 x 61061

EM = Wall thickness  
 DM = Distance from wall to case

Flue duct length EM + DM + 130 mm  
 Air inlet duct length EM + DM + 130 mm

## 2. INSTALLATION REQUIREMENTS

### 2.1 Related Documents

The installation of the heater must be in accordance with the relevant requirements of the Gas Safety (Installation and Use) Regulations 1984, Building Regulations, the current IEE Wiring Regulations and the Byelaws of the local water undertaking. It should also be in accordance with any relevant requirements in British Standard Codes of Practice. Detailed recommendations are contained in the following British Standard Codes of Practice : CP 331 : Pt. 3 : 1974., BS 5546 : 1979, BS 5440 : Pt. 1 : 1978 and BS 5440 : Pt. 2 : 1976.

### 2.2 Location

The location chosen for the appliance must permit the provision of a satisfactory flue termination. The location must also permit adequate space for servicing and air circulation around the appliance.

The appliance may be installed in any room or internal space although particular attention is drawn to the requirements of the IEE Wiring Regulations and, in Scotland, the electrical provisions of the Building Standards applicable in Scotland, with respect to the installation of a heater in a room or internal space 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 appliance will be in an unusual location special procedures may be necessary and BS 5546 gives detailed guidance on this aspect.

A compartment used to enclose the appliance must be designed and constructed specifically for this purpose. An existing cupboard or compartment may be used provided that it is modified for the purpose.

Details of essential features of cupboard/compartment design are given in BS 5546.

### 2.3 Gas Supply

An adequate sized gas meter must be connected to the service pipe. Where necessary the local Gas Region of British Gas will arrange for the existing meter to be checked or for a suitable meter to be installed. On no account must any work be carried out on the gas meter other than by the local Gas Region or their specifically authorised contractor.

Installation pipes should be fitted in accordance with CP 331 : 3. Pipework from the meter must be of adequate size. Pipes of a smaller size than the gas connection should not be used.

The complete installation must be tested for gas soundness and purged in accordance with CP 331 : 3.

### 2.4 Siting the Flue Terminal

The flue must be installed in accordance with BS 5440 : Pt. 1.1978. The flue is suitable for STRAIGHT flue application only.

The following notes are intended to give general guidance.

The standard flue set is suitable for walls having a thickness of 75 mm (3 in.) to 612,5 mm (24 in.) for rear outlet fluing or up to 500 mm (19,5 in.) for side outlet fluing. Other flue options are available to a maximum of 3 m (9 ft. 8 in.) to special order.

The appliance must be installed so that the flue terminal is exposed to external air. The appliance must NOT be installed so that the terminal discharges into another room or space such as an outhouse or lean-to. It is important that the position of the terminal allows a free passage of air across it all times. The minimum acceptable spacings from the terminal to obstructions and ventilation openings are specified in the following chart.

	Terminal Position	Minimum Spacing Fanned Draught
1.	Directly below an openable window, air vent or any other ventilation opening.	300 mm (12 in.)
2.	Below guttering, drain pipes or soil pipes.	75 mm (3 in.)
3.	Below balconies or eaves.	200 mm (8 in.)
4.	Above adjacent ground or balcony level.	300 mm (12 in.)
5.	From vertical drain pipes or soil pipes.	75 mm (3 in.)
6.	From internal or external corners.	300 mm (12 in.)
7.	From a surface facing the terminal.	600 mm (24 in.)
8.	From a terminal facing the terminal.	1200 mm (48 in.)

**Note** – Where the terminal is fitted within 850 mm (34 in.) of a plastic or painted gutter or 450 mm (18 in.) of painted eaves an aluminium shield of at least 750 mm (30 in.) long should be fitted to the underside of the gutter or painted surface.

Where the lowest part of the terminal is less than 2 m. (6.5 ft) above the level of any ground, balcony, flat roof or place to which any person has access and which adjoins the wall in which the terminal is situated must be protected by a guard of durable material (a terminal guard is available from Chaffoteaux Limited) or from Quinnell Barrett & Quinnell. 01.639.1357. (GC No 381.782)

The air inlet/products outlet duct and the terminal of the appliance must not be closer than 25 mm (1 in.) to any combustible material. Detailed recommendations on the protection of combustible material are given in BS 5440 Pt. 1 : 1978 (Sub-clause 20.1).

**IMPORTANT NOTICE : TIMBER FRAMED HOUSES.** If the appliance is to be fitted in a timber framed building it should be fitted in accordance with the British Gas publication "Guide for Gas Installations in Timber Framed Housing" reference DM2. If in doubt advice must be sought from the local Gas Region of British Gas.

### 2.5 Wall Mounting

The appliance should be installed on a flat non-combustible material which will not reverberate. What ever the thickness of the wall a hole 100 mm (4 in.) in diameter will be required for the appliance flue assembly. It is recommended that a core drill be used to form this hole.

For dimensions and clearances see sections 1.2 and 1.3.

### 2.6 Flue Terminal Assembly

The flue may be fitted from inside or outside of the building. If fitting from inside the flue duct should be assembled into the air inlet duct and the assembly passed through the hole in the wall. The outside diameter of the terminal is the same as outside diameter of the air inlet duct.

## 2.7 Air supply

The appliance does not require any purpose provided ventilation unless installed in a compartment. A compartment enclosing an appliance requires high and low level openings. These openings must either communicate with a room or internal space or be direct to outside air. The minimum FREE area of the opening must be :

	High level	Low level
Air from room or internal space	258 cm <sup>2</sup> (40 in. <sup>2</sup> )	258 cm <sup>2</sup> (40 in. <sup>2</sup> )
Air direct from outside . . . . .	129 cm <sup>2</sup> (20 in. <sup>2</sup> )	129 cm <sup>2</sup> (20 in. <sup>2</sup> )

## 2.8 Electrical Connections

The appliances must be earthed.

The installation should be undertaken by a competent electrician and should be in accordance with the current edition of the IEE Wiring Regulations.

Particular attention should be paid to cross bonding.

The appliance must be provided with a means of isolation. If installed in a bathroom the means of isolation must be external to the bathroom or a double pole cord switch fitted.

Acceptable methods of connection are :

1. A switched, double pole fused spur with 3 mm contact separation on all poles.
2. A double pole switch where the supply must be suitably fused 3 A.
3. An un-switched socket outlet complying with BS 1363. The method of connecting the plug brown wire to live (L) blue wire to neutral (N) and green/yellow to earth ( ), see fig. 3.

A three core cable should be used and a heat resisting cable of 0.75 mm<sup>2</sup> (24 x 0.2 mm) is considered suitable.

The cable should be passed through the gland on the top of the appliance and the clamp tightened to secure the cable. Ensure current carrying conductors become taught before earthing conductor should cable slip from the cord anchorage. Connection to the appliance should be made in accordance with diagram (see section 3, 6, 2).

## 2.9 Description of Operation

Read in conjunction with figs 1, 2 and 4).

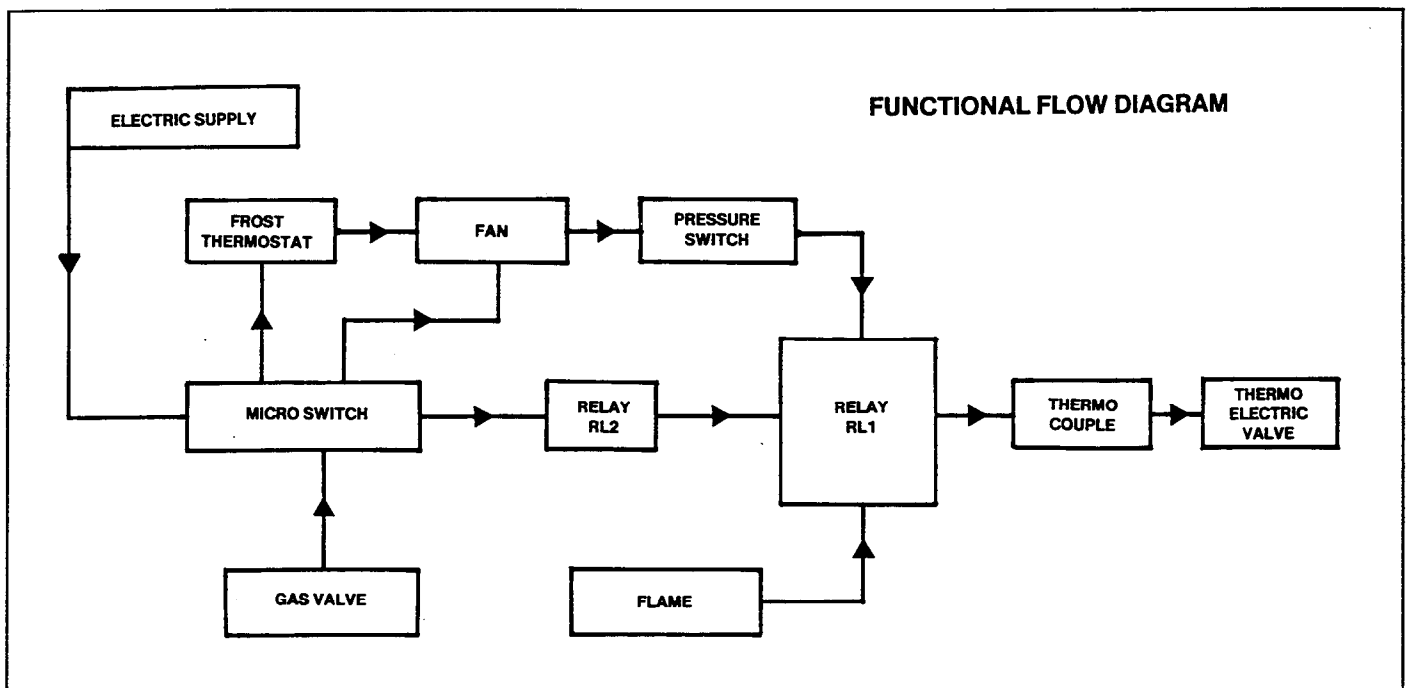
The controls on the BRITONY II FF are comprised of a range of thermal, electric and electronic switches. Broadly, the thermal controls are for the pilot flame supervision, the electrical controls are functional switching and the electronic controls act as a security for the functional controls.

The circuit is designed so that, under normal conditions, the fan runs continuously at low speed and automatically changes to high speed when the gas valve opens. If, however, the incoming air temperature approaches 0 °C the integral frost protection thermostat interrupts the low fan speed signal. Under this condition, if there is a demand for hot water, then the fan recommences at high speed. There is an in-built delay circuit to prevent the safety devices operating prematurely.

The pilot can only be established under the control of the thermocouple flame failure circuit after the mains electricity connection is made since it is dependent upon the energising of relay-RL1.

If the air flow is not proved on high speed the flame failure device will operate by interrupting the thermocouple as a result of the failure of the circuit through relay-RL1.

Additional security is provided for the condition where, because the linkage is mechanical, the main gas burner is initiated but the microswitch has remained in the low fan speed position. If the burner is sensed in the low fan speed circuit the appliance fails safe.



CIRCUIT DIAGRAM

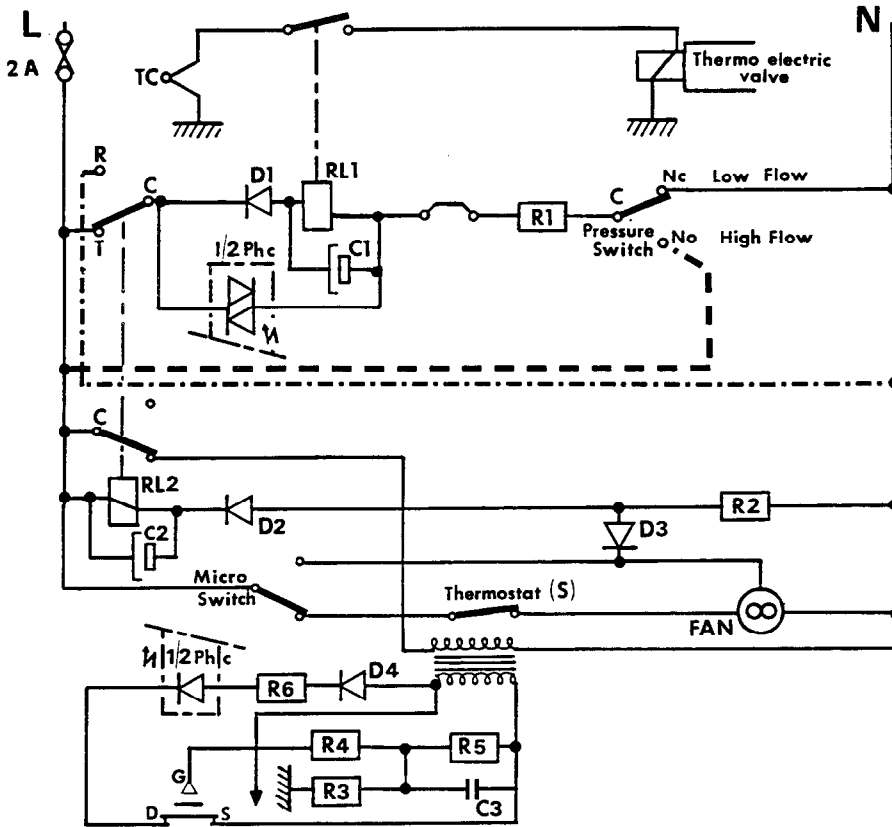


Fig. 1

WIRING DIAGRAM

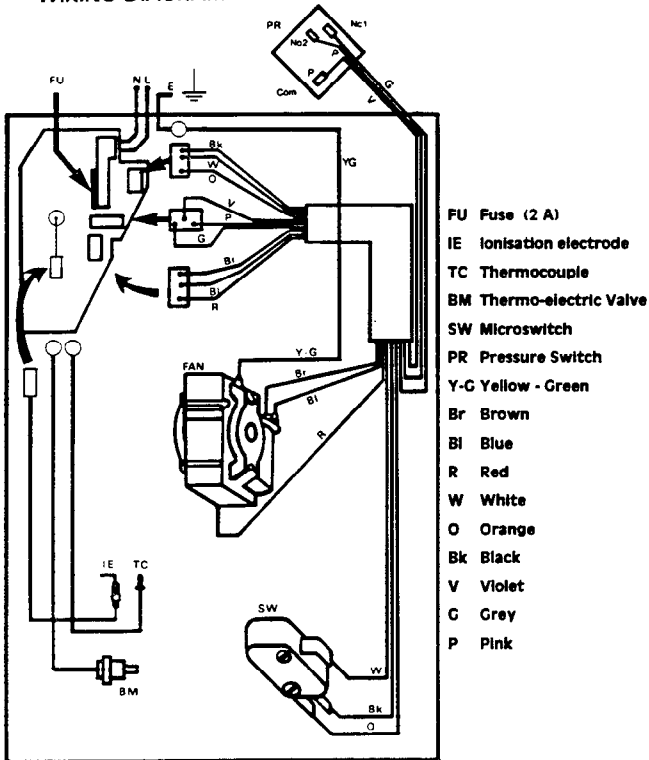
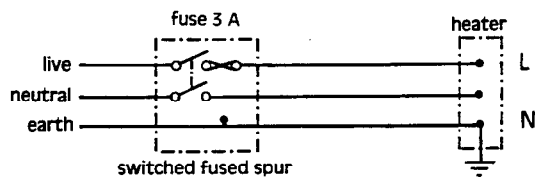


Fig. 2

ELECTRICAL CONNECTION



NB: IF APPLIANCE INSTALLED IN A BATHROOM SPUR MUST BE EXTERNAL TO ROOM

NB: IF APPLIANCE INSTALLED IN A BATHROOM SWITCH TO BE OF PULL CORD TYPE

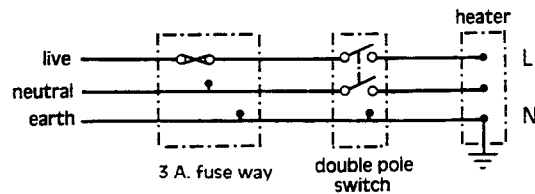


Fig. 3

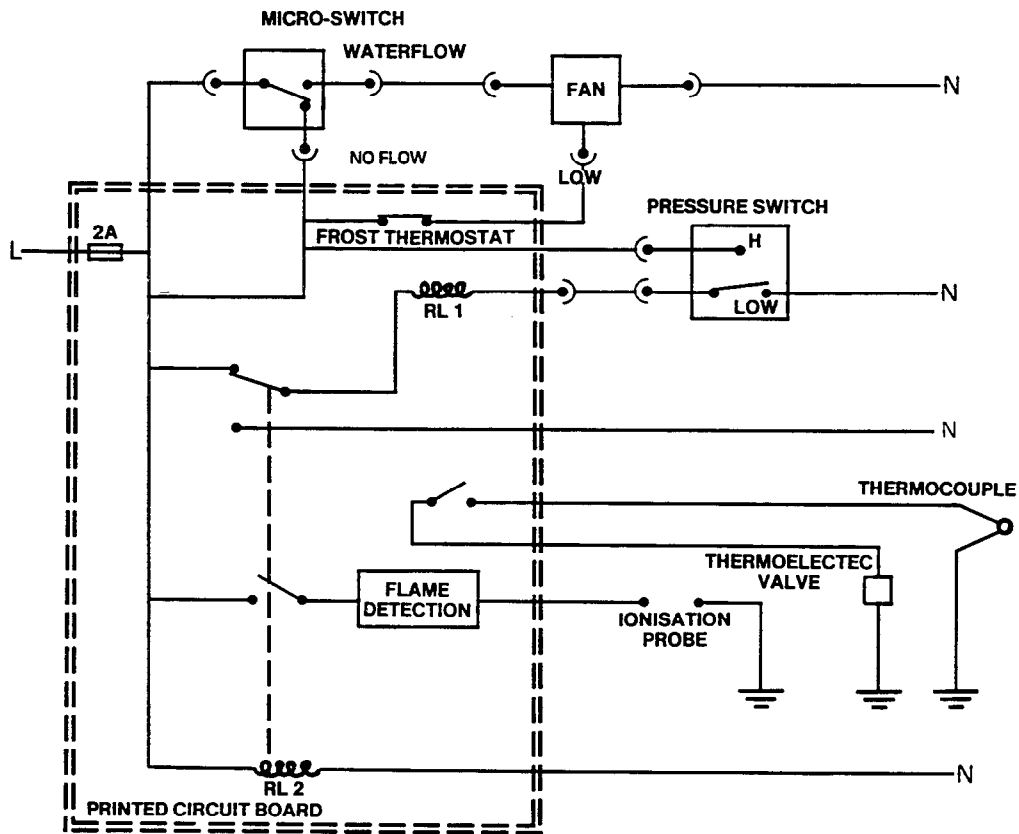


Fig. 4

### 3. INSTALLING THE APPLIANCE

A vertical flat area is required for the appliance : 1006 mm high × 445 mm wide (39.6 in × 17.5 in). The surface on which the appliance is mounted must be of a non combustible material.

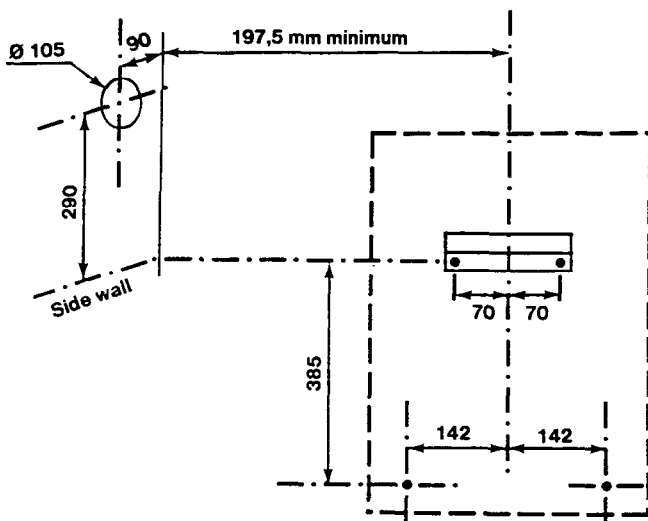
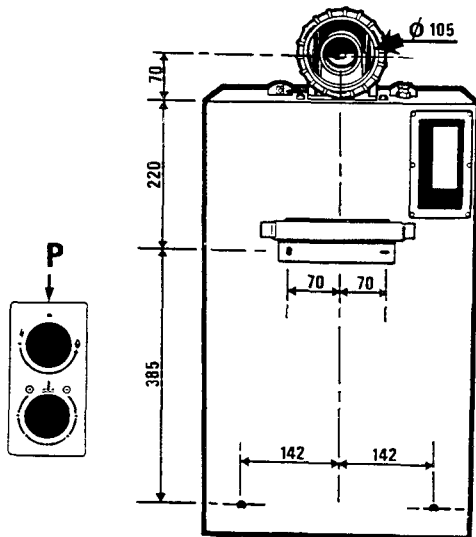
#### 3.1 Packaging

The appliance is attached to the wall via the mounting bracket and two bottom screw fixings. The appliance is packed in a single carton. Remove contents from carton and check against list.

- 1) APPLIANCE - Assembled with trims.
- 2) FLUE ASSEMBLY :
  - a) Air inlet duct complete with terminal.
  - b) 2nd section flue duct (inside air inlet duct).
  - c) Flue turret with 1st section flue duct fitted.
  - d) Plastic turret cover.
- 3) ACCESSORY BOX - containing :
  - mounting bracket
  - gas and water connections with washers, nuts and olives
  - flue locking ring and 'O' ring seal
  - 2 gaskets
  - 4 wall mounting screws
  - 4 turret fixing screws
  - 2 turret cover fixing screws
  - 1 gas control knob
  - 1 temperature selector knob

## 3.2

### Preparing and fitting the appliance



#### Preparation :

- Remove the bottom trim by pulling forwards.
- Slide the controls facia plate (P) upwards to disengage from retaining bracket.
- Release the front case by removing the four fixing screws and washers positioned at the top, bottom and centre of appliance.
- Remove the front case by lifting off the top locating lugs and pulling forward to clear the water section at the base of the appliance.

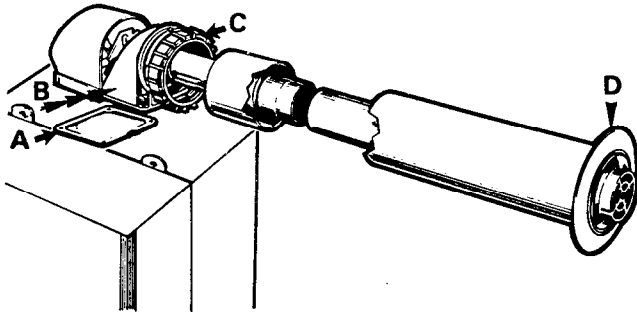
**NOTE :** A template is not supplied with this appliance. Particular care is therefore necessary to ensure that the appliance mounting bracket is fitted level and positioned accurately, relative to the flue.

- Refer to the drawings opposite for rear and side flue applications and/or to the dimensions given in Section 1.4, refer also to Section 2.4 for flue terminal siting.
- Set out and rill hole for flue using a 100 mm (4 in) core drill.
- Using the dimension 290 mm (11.4 in) accurately mark position for bracket.
- Drill and plug the wall.
- Fix bracket to wall using No. 12 screws provided, ensuring that the bracket is level. If necessary adjust bracket, finally secure in position.
- Hang the appliance on the bracket, and re-check for level. Mark bottom fixing holes, remove appliance, drill and plug the wall to suit No. 12 screws.
- Re-hang appliance and secure with screws provided.



### 3.3

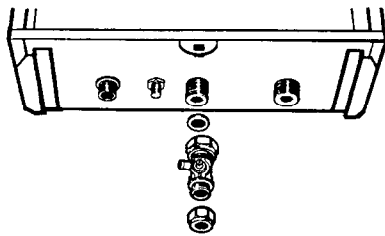
#### Fitting the flue



- Measure the wall thickness and cut flue duct and air inlet duct to required length, (see Section 1.4).
- Peel off protective paper from adhesive side of cork gasket (A) and place on mating side of flue turret (B) lining up screw holes and press down.
- Fit locking ring (C) and 'O' ring over the air inlet duct.
- Fit flue duct and turret so that it engages into the terminal.
- Engage locking ring over lugs by turning in an anti-clockwise direction viewed from behind turret.
- Pass the assembled flue through the wall.
- If long flue sections are used (up to 3 metres) and difficulty is found, these can be assembled whilst being passed through the wall.
- Seat the turret onto the top of the appliance ensuring the gaskets are in position.
- Secure with 4 screws provided.
- Do not fit plastic turret cover or the front case until electrical connections have been made and the appliance tested for gas and water soundness (see Section 5.1).
- A sealing ring (D) is supplied which can be used to seal the air inlet duct to wall joint-externally.
- Make good inside wall surface.

### 3.4

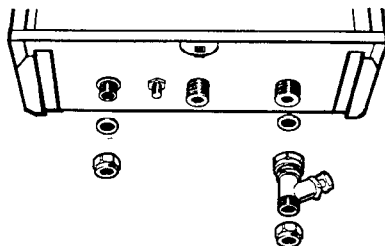
#### Gas Connection



- Fit the gas service cock provided using the fine filter/washer to seal the connection. Fit the nut and olive onto the 15 mm gas supply pipe and tighten.
- Test the complete gas installation for soundness and purge (CP : 331.3).

### 3.5

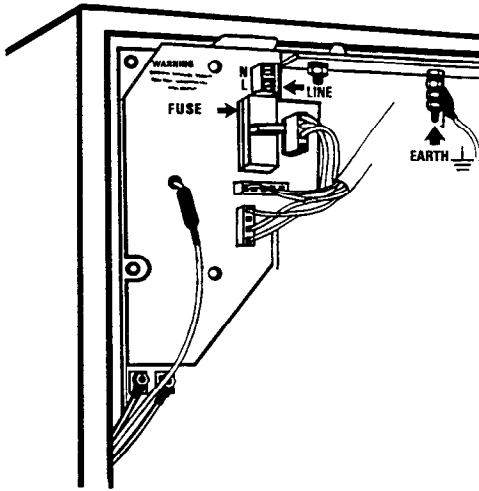
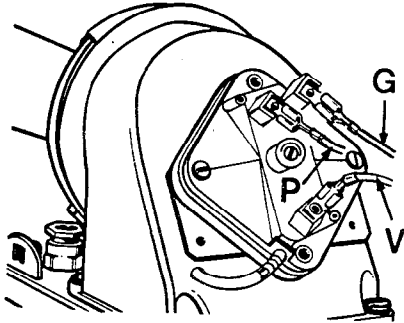
#### Water connections



- Remove the plastic covers protecting the water inlet and the water outlet connections.
- Fit the water service cock provided to the right hand connection at the bottom of the appliance using the coarse filter/washer to seal the connection.
- Fit the nuts and olives onto the supply and delivery pipes.
- Connect the inlet supply to the water service cock and tighten.
- The water service cock supplied with the appliance incorporates a drain plug.
- Ensure that all water connections are fully tightened.

## 3.6


### Electrical connections



#### 3.6.1. Pressure Switch

- Connect the wires at the top of the appliance to the pressure switch.
- The **grey** wire is connected to normally closed (NC 1) contact.
- The **pink** wire to the normally open (NO 2) contact.
- The **violet** wire to the common (P) contact.
- Fit the flue turret cover passing the wire through one of the slots provided and secure with the screws provided.
- See figure.

#### 3.6.2. Mains Connection

- Pass 0.75 mm<sup>2</sup> heat resisting cable through cable gland.
- The earth wire (green yellow) must be connected to the earth pillar (  ).
- The live (brown) and neutral (blue) should be connected as indicated into the terminal block.
- Check that component plugs are pushed home.
- Check for continuity, polarity and earthing.

## 4. APPLICATIONS OF THE BRITONY II FF

The appliance is designed to serve a variety of hot water draw off points including washing machines and showers. The appliance can be connected to all hot water draw-off points in the installation. If more than one outlet is open simultaneously the total flow of water cannot exceed that quoted in the Technical Data.

The appliance is compatible with most current automatic washing machines but care should be taken to ensure that the machine is capable of accepting water at the design flow of the appliance. Hot and cold fill machines normally require a hot water temperature of 60 °C (140 °F), the appliance producing approximately 6.5 l/min (1.44 gpm) at this temperature. The advice of the washing machine manufacturers should be sought but generally it is only necessary to remove the water flow restrictor (if fitted) in the hot water inlet connection of the machine to obtain a satisfactory appliance operation.

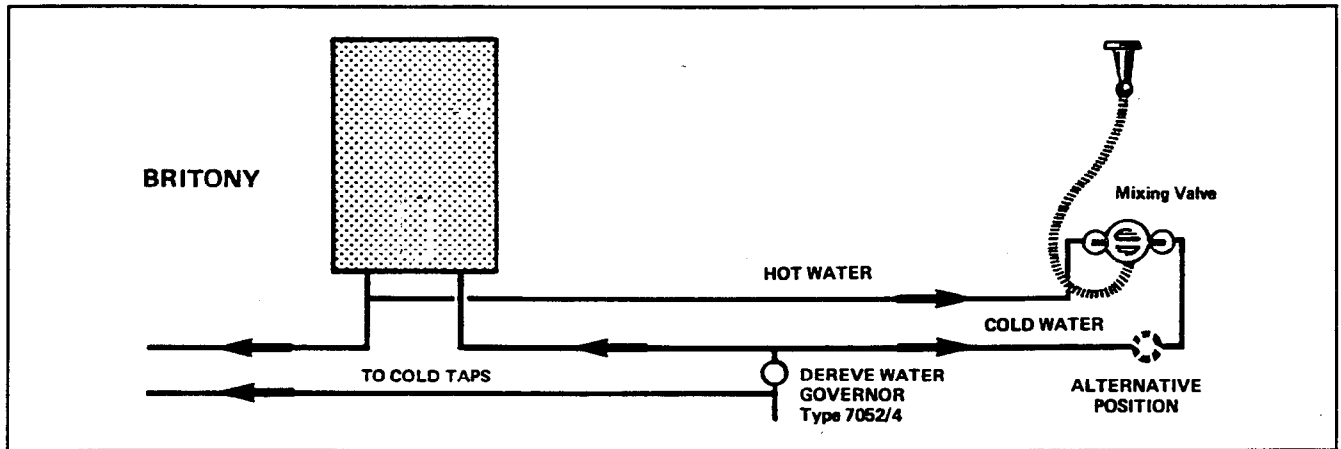
Contact Chaffoteaux Limited for details of those machines known to be compatible with the BRITONY II FF.

Do not use the appliance with push on hand showers that fit over existing hot and cold water taps or with mixer taps unless both supplies come from the same source. Showers forming part of bath mixers are not recommended for satisfactory operation of the appliance.

### 4.1 Pipework

The following notes are for general guidance only.

- (i) The appliance performance may be affected if the installation has old pipework forming dead-legs or air reservoirs. Always ensure that any old pipework is either removed or capped off immediately adjacent to the pipework that will be in use.
- (ii) The size of the pipework between the appliance and the various draw-off points should be sized to ensure an adequate flow at all draw-off points when used individually.
- (iii) A check should be made of all stop cocks in the incoming supply and it should be ensured that they are of the fixed jumper pattern. Loose jumpers can be pinned or soldered into position.



The appliance can be used to supply hot water to a separate shower draw-off. The appliance should not be used to supply more than one shower mixing valve. The recommended pipework arrangement for a single shower head is shown above. Only those fittings detailed should be used with the appliance. Chaffoteaux Limited do not supply the water governor or any shower fittings. For local suppliers of these please contact :

### 4.2

A water reservoir is provided on the outlet side of the heat exchanger to limit the water temperature due to « after heat ».

**Water governor** – Dereve (Flow Controls) Limited  
Park lane  
HANDSWORTH  
Birmingham B21 8LE  
Tel :021 5537 021

**Shower Accessories** – Caradon Mira Ltd.  
Cromwell Road, CHELTENHAM  
Gloucester GL 52 5EP  
Tel : 0242 27953

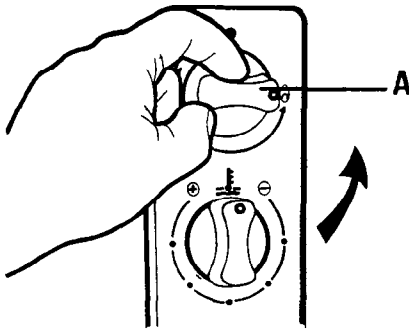
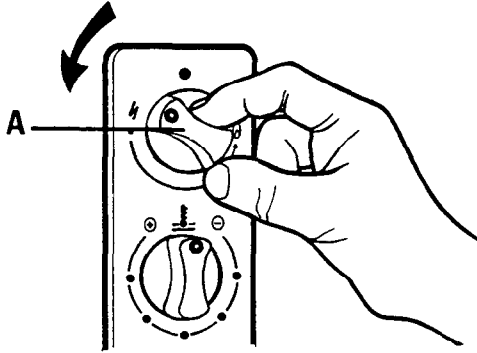
Aqualisa Products Limited  
Horton's Way, London Road,  
WESTERHAM, Kent, TN16 1BT  
Tel : 0959 63240

5.

**COMMISSIONING**

5.1

**Putting into Service**



**5.1.1.** Open the gas and water service cocks beneath the appliance, purge the gas supply (CP331:3). Turn on an adjacent tap and purge the water side of the installation.

Test for water soundness at all appliance and external pipework connections.

Switch on electrical supply, fan will run at low speed.

**5.1.3. To light the pilot** temporarily fit the gas control knob (A) and light the pilot by turning the knob 90° anti-clockwise. It may be necessary to purge the pilot gas supply, if so, wait a few minutes, return the gas control knob to the OFF position and repeat. (The pilot supply will only purge when the gas control knob has been turned 90° anti-clockwise).

**5.1.4.** When the pilot is lit turn the control knob (A) fully anti-clockwise as shown in the diagram. Test for gas soundness using leak detection fluid on all gas connections.

**5.1.5. Check the operation of the flame failure device** by blowing out the pilot light, the flow of gas to the pilot will cease and the thermoelectric valve should drop out with an audible 'click' within approximately 30 seconds.

**5.1.6.** Remove gas control knob (A).

**5.1.7.** Switch off electrical supply.

**5.1.8.** Fit front case by locating bottom first and ensuring top of case locates over bracket. Secure with 4 screws and washers previously removed.

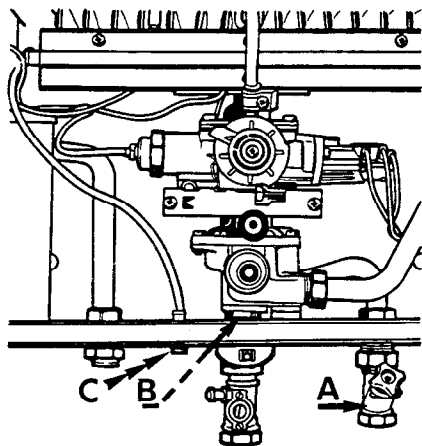
- The centre screw and plastic washer retains the fascia mounting bracket.
- Replace the control fascia plate by sliding down onto the support bracket.
- Fit bottom trim by sliding onto rails.
- Fit the gas control knob (A) and the temperature selector knob (B). The temperature selector knob should be pushed onto the spline until it locates. Turn fully clockwise to (+), reposition knob as required, so that indicator dot is opposite the (+) sign.

**5.1.9.** Switch on electrical supply.

- Light the pilot and turn gas control knob (A) fully anti-clockwise to, the main gas position.
- If the pilot is now extinguished for any reason return the gas control knob to the OFF position and wait approximately 30 seconds for the safety interlock to reset before repeating.

## 5.2

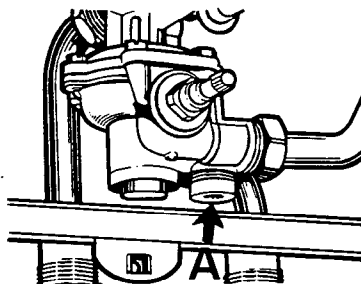
### Gas Pressure



- Turn on an adjacent hot water draw off, the appliance will now light and the fan will change to high speed.
- With the front case fitted, check the burner setting pressure at the pressure test point (C).
- If the burner setting pressure is not correct, check that the pressure at the gas service cock, test point is 20 mbar (8 in.w.g.) with the appliance operating. If the inlet pressure is not correct, check for any possible blockage or restriction in the pipework to the appliance. If the inlet supply pressure cannot be corrected contact your local gas region. The heat input to the appliance is pre-set and non-adjustable.

## 5.3

### Slow Ignition



- Check burner ignition which should be smooth and quiet (not explosive).
- If slow ignition requires adjustment proceed as in Section 6.1 to remove front case.
- Adjust slow ignition device 1/4 turn at a time. Refit front case and recheck operation.

**NOTE :** Turning screw A clockwise delays ignition.

## 5.4

### Microswitch

The microswitch is factory set and should not require adjustment. When the appliance is at rest the fan runs continuously at low speed. check operation as follows set temperature selector to +. open draw off. The fan should now come to high speed before the burner ignites. On closing draw off burner should extinguish before the fan resumes at low speed. If fan/burner operational sequence is NOT as described consult or contact Chaffoteaux Ltd (Service Department).

## 5.5

### The Pressure Switch

Check the operation of the pressure switch as follows : Open draw off, fan comes to high speed and the burner ignites. Close draw off, burner extinguishes and when fan resumes at low speed listen for the 'click' as the relay changes over. This should be followed within 15 seconds by a lighter 'click' as the pressure switch changes over. If the time separation is greater than 15 seconds or if the pilot extinguishes it suggests that the pressure switch is incorrectly set and should be referred to Chaffoteaux Ltd (Service Department).

## 5.6

### **Thermoelectric Circuit**

The Thermocouple Circuit is fitted with an interrupter so that if the air flow is not proved on high speed the circuit is incomplete and the flame failure device will operate. In the case of intermittent pilot failure or permanent pilot failure the thermocouple circuit can be checked with a British Gas Multimeter or suitable Millivolt Meter to determine if the pilot failure is due to poor thermocouple output, high resistance through Relay-1 contact or faulty thermoelectric valve. (See Section 2.9 Fig. 1).

## 5.7

### **Handing Over**

Hand the User' instructions to the user or purchaser and instruct in the correct and safe operation of the appliance.

Explain to the user or purchaser that if the appliance is not used for long periods it is recommended that the appliance is drained, this is particularly important during the winter months (see servicing instructions for procedure to drain appliance).

Finally, advise the user or purchaser that, for continued efficient and safe operation of the appliance it is important that adequate servicing is carried out at regular intervals.

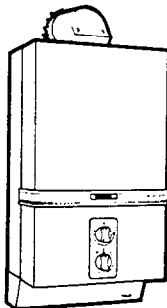
## 6. SERVICING INSTRUCTIONS

Before commencing any service work :

1. Isolate electrical supply.
2. Remove bottom trim by sliding forward.
3. Turn off gas at gas service cock.
4. Turn off water at water service cock.
5. Drain the appliance by opening hot water outlet tap and removing drain plug in the water service cock.

### 6.1

#### Front Casing

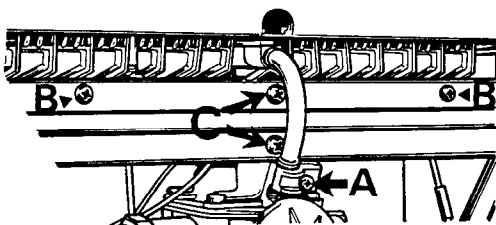


#### To remove :

- Pull off gas control and temperature selector knobs.
- Remove controls facia plate by sliding upwards.
- Remove the four fixing screws which secure the front case (top, bottom and centre) taking care not to loose facia retaining bracket and washers.
- Remove the front case by lifting off the to locating lugs and pulling forward to clear the water section at the base of the appliance.

### 6.2

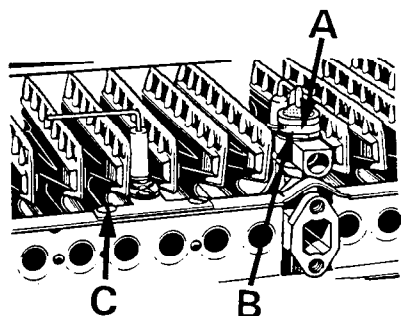
#### Burner



- Remove the combustion chamber front panel as detailed below.
- Remove two threaded screws which secure the front panel of the combustion chamber skirt to the flue hood (A) Section 6.4.
- Remove three self-tapping screws on either side of combustion chamber skirt (B) Section 6.4.
- Unscrew the pilot tube clamping screw (A) and remove the clamp and screw and pilot tube. Disconnect the pressure test point tube from the left hand end of the manifold.
- Remove the burner manifold by unscrewing the two screws (B) and two screws and washers (C).
- Unplug ionisation electrode at the connector.
- Withdraw the burner head assembly taking care not to damage the pilot burner/electrode assembly or the ignition leads.
- The burner head should be turned upside down and cleaned by brushing.
- Replace in reverse order making sure that the gasket between the burner manifold and gas section is in place and is in good condition. If necessary replace gasket and ensure that the burner head assembly is correctly located on the two spigots at the rear.

### 6.3

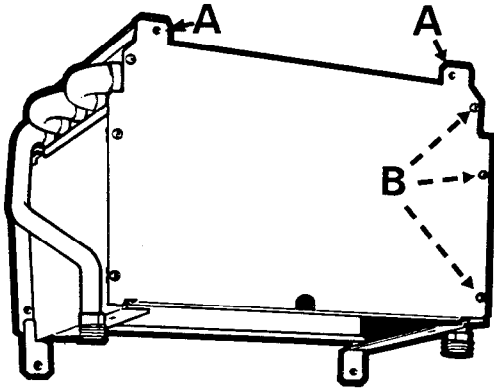
#### Pilot



- Remove combustion chamber front panel, burner and pilot tube as in 6.2 if not already removed.
- Blow through the tube to remove any dust.
- Remove screw securing spark electrode. Lift out of 'D' slot and ease to one side.
- Unscrew the knurled pilot burner outer ring (A).
- Remove flame retention gauze.
- Unscrew the pilot body (B) with a 15 mm spanner. Clean by brushing and blowing.  
DO NOT CLEAN HOLES WITH A WIRE.
- Re-assemble in reverse order ensuring pilot body is screwed down tightly.

## 6.4

### Heating Body



#### a) The heat exchanger can be examined in position :

- Remove combustion chamber front panel as in Section 6.2 if not already removed. Prior to cleaning the heat exchanger adequate precaution should be taken to protect the pilot burner/gas valve assembly to prevent the ingress of dust etc.
- If extensive cleaning is necessary, the heat exchanger will need to be removed as follows.

#### b) To remove heat exchanger

- Slide out combustion lining and retain.
- Disconnect the unions on either side of the heat exchanger.
- Remove two screws securing the combustion chamber/heating body assembly to the rear panel.
- Remove heat exchanger and combustion chamber.
- Remove two screws at the rear of the combustion chamber securing the combustion chamber to the heat exchanger to separate the components.

**Care should be taken when handling the heating exchanger to ensure that the fins are not damaged.**

- Replace in reverse order.

## 6.5

### Descaling Procedure

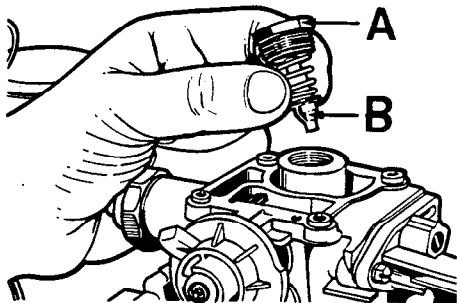
Periodically it may be necessary to remove scale deposits from the waterways of the appliance to ensure continued and efficient operation.

The frequency will depend largely on the hardness of the water in each specific area. If this is necessary contact your local water authority for advice.

Advice with regard to descaling is available from Chaffoteaux Ltd (Service Department).

## 6.6

### Main Gas Valve



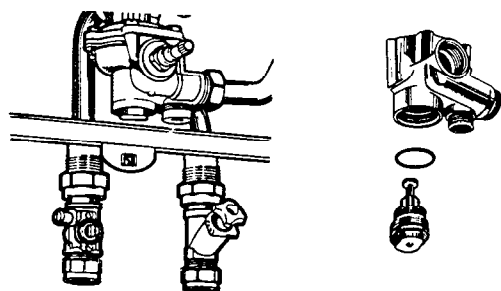
#### To inspect and clean

- Remove the burner (see Section 6.2).
- Disconnect the thermocouple at the PCB and ignitor lead from the piezo unit.
- Remove the four screws and washers fastening the top of the gas section to the base and the two screws at the back holding it to the rear case.
- Lift the gas section top off the base, taking care not to damage the cork gasket.
- Remove the hexagonal spring retainer (A) from the top of the assembly (20 mm).
- Remove the spring and gas valve and clean the valve seating (B).
- Renew facing rubber washer on the gas valve if necessary.
- Replace in reverse order, ensuring that the hexagonal spring retaining nut is screwed fully down and the whole assembly is screwed fully down into the gas section.



## 6.7

### Water Governor

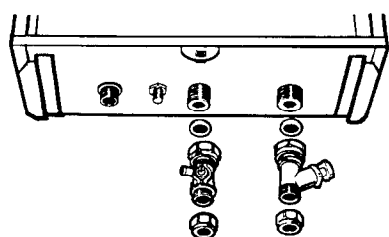


#### To clean

- Turn off the cold water supply to the appliance and drain into receptacle.
- Remove the governor situated in the base of the water section.
- Clean the components with water.
- Check that the spring loaded piston moves freely.
- Replace in reverse order.

## 6.8

### Gas and Water Filters



#### Gas and water inlet filters are fitted between the inlet service cocks and the appliance.

- To clean, turn off the service cocks, unscrew the union nuts attaching the cocks to the appliance and remove the filters.
- Clean the filters by blowing or washing in water. DO NOT USE ANY SOLVENTS.
- Replace ensuring that the coarse filter is fitted in the water inlet and the fine filter in the gas inlet.

## 6.9

### Microswitch

The microswitch operating mechanism is factory set and if the microswitch requires replacement or adjustment proceed as in Section 7.12 and 7.13.

#### Pressure switch :

The pressure switch is factory set. To replace or adjust proceed as in Section 7.10 and 7.11

## 6.10

### Greasing of Components

Care should be taken during the annual service of an appliance to grease the gas valve spindle (see Section 6.6) and the diaphragm spindle (see Section 7.5). Use either graphited or silicone grease.

## 6.11

### Heat Input

It is a requirement of the Gas Safety (Installation and Use) Regulations 1984 that the burner pressure and gas rate are checked each time an appliance is serviced, likewise the service engineer should satisfy himself with regard to gas soundness and the adequacy of combustion and ventilation air if this is appropriate.

The heat input is preset and non-adjustable.

The heat input and burner pressure should be checked against Table 1.

If the heat input/burner pressure is not correct check the working pressure at the pressure test point on the gas service cock. This should be 20 mbar (8 in wg).

The gas installation should be examined for any possible blockage if the pressure is incorrect.

## 7

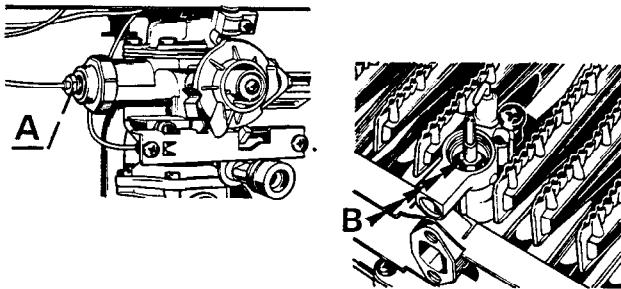
### REPLACEMENT OF COMPONENTS

Before commencing any work involving component replacement :

1. Isolate electrical supply.
2. Turn off gas at the gas service cock.
3. Turn off water at the water inlet cock.
4. Drain the appliance by opening hot water outlet tap and removing the drain plug in the water service cock.
5. Remove the front casing (see Section 6.1).

#### 7.1

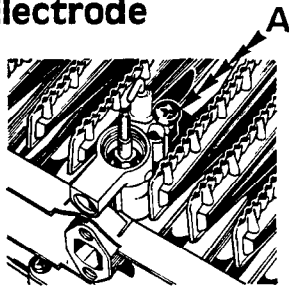
##### Thermocouple



- Remove the burner (see Section 6.2).
- Remove the pilot (see Section 6.3).
- Trace the thermocouple and disconnect at the terminal on the PCB.
- With a 7 mm boxspanner, unscrew the nut (B) holding the thermocouple into the gas section.
- Thread the thermocouple and wire up through the gas section.
- Replace in reverse order.

#### 7.2

##### Spark Electrode

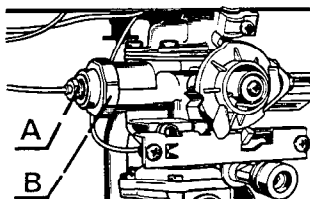


- Remove the burner (see Section 6.2).
- Remove the electrode retaining screw (A).
- Pull off the electrode cable from the piezo cartridge.
- Lift the electrode out of the gas section.
- Re-assemble in reverse order, and note that the slot in the connector on the end of the electrode cable is vertical when pushed onto the cartridge.

**NOTE :** Spark gap is 3-5 mm

#### 7.3

##### Thermoelectric valve

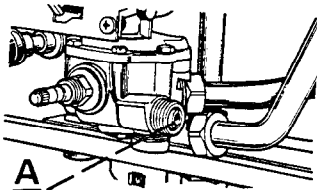


- To renew, remove the thermocouple conductor lead nut (A).
- Unscrew cap (B) from the side of the gas section and withdraw the thermoelectric valve.

**NOTE** - This heater is fitted with a safety interlock. When the pilot is turned off, the appliance cannot be relit until the thermocouple cools down and the lighting sequence is repeated.

#### 7.4

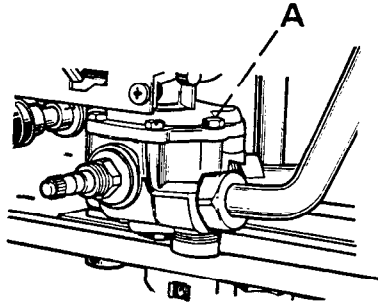
##### Water Section Venturi



- Disconnect the right hand heating body leg from the water section and remove the venturi (A).
- Clean or replace as necessary and re-assemble in reverse order.

## 7.5

### Diaphragm

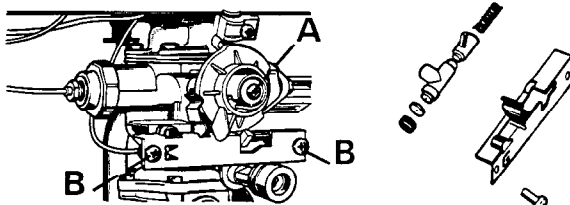


- To renew ensure that the cold water supply and gas are turned off.
- Drain the appliance by removing the water governor plug situated in the base of the water section.
- Disconnect the two water connections at the water section.
- Unscrew the six screws (A) which hold the water section to the gas section.
- Remove the water section complete with the diaphragm.
- Carefully remove and inspect the plastic water section top cover.
- Re-assemble in reverse order.

**NOTE :** Fit the water governor last. It is easier if the cold water inlet connection is partially engaged before fitting the screws and reconnecting the union nuts.

## 7.6

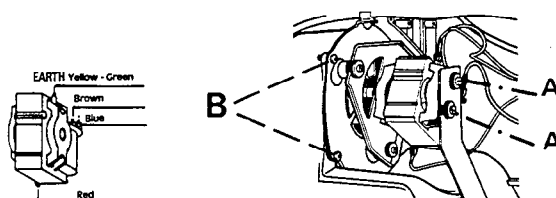
### Piezo Unit Cartridge



- Disconnect the spark electrode lead from the piezo unit cartridge.
- Remove the screw holding the gas control cam and remove the cam (A).
- Remove the two screws (B) holding the retaining plate.
- Remove the piezo cartridge and renew.
- On reassembling ensure that the locating pins on each end of the spring are correctly engaged in their location holes.

## 7.7

### Fan Assembly

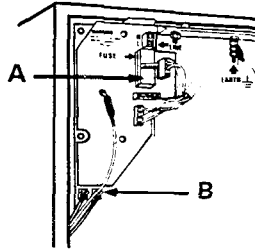


- Disconnect electrical connectors from assembly. Note positions.
- Remove two screws and washers (B) securing support bracket to flue hood.
- Remove the two screws and washers securing the fan assembly to the flue hood.
- Release wiring loom from support clip.
- Gently ease the fan assembly away from the flue hood disengaging lug at rear of fan assembly.
- Remove two screws and washers (A) holding support bracket to motor.
- Re-assemble in reverse order.

**NOTE :** The dimension – back plate to front face of impellor is : – 57.5 mm + 0.5 mm – 0.0 mm

## 7.8

### To Replace Fuse or PCB



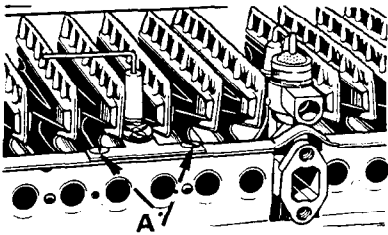
Isolate electrical supply.

**(A) FUSE** : – Pull out fuse holder (A) from board and slide fuse out of holder.

**(B) PCB** : – Remove connections (fan, microswitch, pressure switch and ionisation lead complete with sleeve)  
 – Disconnect mains supply cable from terminals.  
 – Remove two nuts and washers (B) retaining thermocouple and conductor lead.  
 – Remove fuse and ease board from plastic retaining clips.  
 – Remove four screws and remove PCB.  
 – Re-assemble in reverse order.

## 7.9

### To replace ionisation probe



- Remove pilot tube (see Section 6.3).
- Remove combustion chamber front cover (see Section 6.4 a).
- Disconnect ionisation lead.
- Remove screw (A) securing probe to bracket.
- Pull out probe whilst feeding lead through burner.
- Replace in reverse order.

## 7.10

### To replace pressure switch

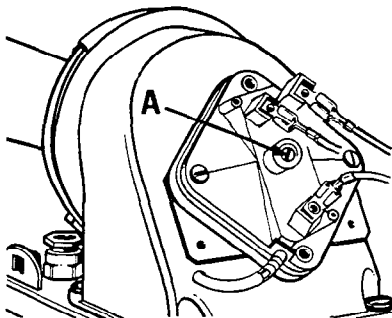
- Isolate electrical supply.
- Remove two screws securing plastic turret cover.
- Pull off tag connectors from terminals.
- Remove low pressure tube from pressure switch.
- Remove two screws securing pressure switch to bracket.
- Lift off pressure switch.
- Remove 'O' ring from spigot on the underside of the pressure switch.
- Replace in reverse order referring to colour coding label on top of appliance.

## 7.11

### Adjustment of pressure switch

a) If pilot extinction occur within 5/10 seconds of turning hot tap off, it is possible that the pressure switch is out of adjustment. If the pressure switch remains in the high flow position in excess of 5/10 seconds after the fan switching to low speed interruption of the thermoelectrical current to the flame failure valve occurs. It is possible to adjust the pressure switch to ensure a rapid return of the pressure switch from high to low flow.

#### Adjustment Sequence :

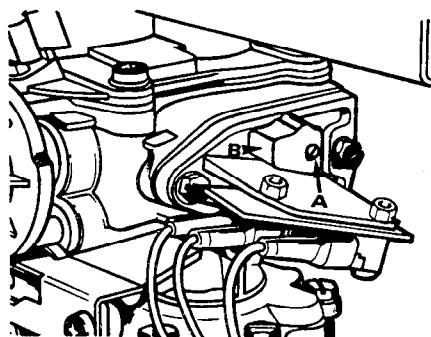


- Adjusting the pressure switch
- Ensure the front case is on.
- Isolate electrical supply.
- Remove two screws securing plastic turret cover and lift off cover.
- Remove terminal cover from pressure switch exposing the adjusting screw (A).
- Set a multimeter to 240 V scale and connect it across the common and one other terminal of the switch.
- Re-establish electrical supply and ensure that gas is off at gas control.
- Turn on a hot tap to give high fan speed.
- Using a suitable screwdriver screw the adjusting screw (A) in until changeover of the pressure switch contacts are observed.
- Screw out adjusting screw (A) 3 turns to achieve the setting point.
- Check operation of the pressure switch (see section 5.5).
- Replace the plastic terminal cover on the pressure switch.
- Replace the plastic turret cover and fixing screws.

b) If main burner extinction occurs during hot water demand, it is possible that the pressure switch is out of adjustment. Screw adjusting screw (A) out until flush with top of moulding, then follow adjustment sequence above.

## 7.12

### Replacement of Microswitch



- Isolate electrical supply.
- Part connector plug on leads to microswitch.
- Remove two lock nuts (4 mm) from microswitch retaining screws.
- Remove screws securing microswitch.
- Remove switch together with plastic insulating plate.
- Renew microswitch and replace in reverse order.

## 7.13

### Adjustment of Microswitch operating mechanism

- Re-establish electrical supply – leave gas cock and hot water taps off.
- Set temperature selector to +.
- Slacken lock screw (B) using 1,5 mm hexagon socket screw key.
- Check whether fan is at high or low speed.
- If fan at low speed screw out adjustment screw (A) until high speed is obtained, then screw in until high speed is observed then a further 3 full turns.
- If fan runs at high speed screw in adjustment screw (A) until low speed is observed then a further 3 full turns.
- With the fan now at low speed turn on a hot tap.
- Screw adjustment screw (A) out until high speed fan operation is obtained.
- Continue unscrewing adjustment screw (A) for a further 1 turn.
- Hold screw in position with screwdriver and lock with hexagon socket screw (B).
- Check operation of microswitch (see Section 5.4).

## 7.14

### To replace the Gas and Water Section

- Remove the burner see 6.2.
- Disconnect microswitch by parting plug connector on leads.
- Remove the conductor lead at thermoelectric valve (see Section 7.3).
- Remove thermocouple lead at PCB.
- Remove spark electrode lead from piezo cartridge (see Section 7.6).
- Disconnect the gas union at rear of gas section.
- Disconnect the water connections from the water section. Mains inlet and water section to heating body.
- Remove the two screws securing the burner base to the rear chassis.
- Re-assemble in reverse order.

## 7.15

### To replace Ceramic Liners in Heating Body

- Remove the burner (see Section 6.2).
- Remove two threaded screws (A) (Section 6.4), which secure the top front panel of the heating body to the flue hood.
- Remove six self tapping screws (B) (Section 6.4), from front panel of heating body.
- Slide out front and side ceramic liners from locating channels.
- Ease heat exchanger forward to allow rear ceramic liner to be lifted clear of lower channel.
- Lift panel and withdraw lower edge first.
- Re-assemble in reverse order.

## 8

## FAULT FINDING CHART FOR BRITONY II FF

	PROBLEM	CAUSE	REMEDY
8.1	<b>Pilot does not light</b>	<ul style="list-style-type: none"> <li>i) Gas service cock closed</li> <li>ii) Air in pipe</li> <li>iii) Pilot injector blocked</li> <li>iv) No ignition spark</li> </ul>	Open service cock Purge line Clean or change Check electrode, lead and ignitor
8.2	<b>Poor Pilot Flame</b>	<ul style="list-style-type: none"> <li>i) Pilot injector dirty</li> <li>ii) Wrong injector</li> <li>iii) Pilot head blocked</li> <li>iv) Faulty pilot tube</li> <li>v) Pilot injector loose</li> </ul>	Clean or change Change for correct diameter (0.23) Clean Clean or replace Tighten
8.3	<b>Pilot will not stay alight</b>	<ul style="list-style-type: none"> <li>i) Pilot flame poor</li> <li>ii) Thermocouple not working</li> <li>iii) Thermoelectric valve faulty</li> <li>iv) Gas pressure low/variable</li> <li>v) Terminal wrongly positioned</li> <li>vi) Badly assembled flue</li> <li>vii) Pressure switch out of adjustment</li> <li>viii) Pressure switch faulty</li> <li>ix) Plugs loose on PCB</li> <li>x) PCB faulty</li> </ul>	(See 8.2) Above a) Check connection clean and tighten as necessary b) Replace if output less than 8 mv. Replace if drop out greater than 5 mv. Check at inlet to appliance (see 5.2) Re-position (see 2.4) Re-fit check sealing a) Check operation (see 5.5) b) Adjust (see 7.11) Replace (see 7.10) Secure Replace (see 7.8)
8.4.1	<b>Main burner does not light</b>	<ul style="list-style-type: none"> <li>i) Gas service cock not open fully</li> <li>ii) Gas pressure low</li> <li>iii) Water rate low</li> <li>iv) Gas valve not opening</li> <li>v) Diaphragm punctured</li> <li>vi) Venturi blocked or loose</li> <li>vii) Gas control tap faulty</li> <li>viii) Slow ignition device screwed fully home</li> </ul>	Open fully Check at manifold and at inlet with the appliance running (see page 3 and 5.2) Check if water rate is sufficient (see page 3) Check (v) and (vi) Change diaphragm (see Section 7.5) Check venturi Check operation of User's gas control tap Adjust (see 5.3)
8.4.2	<b>Burner goes out on hot water demand</b>	<ul style="list-style-type: none"> <li>i) Fan not switching to high speed</li> <li>ii) Pressure switch out of adjustment</li> <li>iii) High pressure tube detached</li> <li>iv) Flue blocked</li> <li>v) PCB faulty</li> </ul>	a) Check micro-switch operation (see 5.4) b) Adjust micro-switch (see 7.13) c) Micro-switch defective - replace (see 7.12) d) Fan defective - replace (see 7.7) a) Check pressure switch operation (see 5.5) b) Adjust pressure switch (see 7.11) c) Pressure switch defective - replace (see 7.10) Refix Check and clear Replace (see 7.8)

## 8

**FAULT FINDING CHART FOR BRITONY II FF**

	<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
<b>8.5</b>	<b>Explosive Ignition</b>	<ul style="list-style-type: none"> <li>i) Pilot too small</li> <li>ii) Slow ignition not adjusted</li> </ul>	Check pilot tube and injector Check and adjust (see 5.3)
<b>8.6</b>	<b>Gas control tap stiff (User's)</b>	<ul style="list-style-type: none"> <li>i) Grease dried</li> <li>ii) Operating mechanism replaced incorrectly</li> </ul>	Clean and regrease  Refit
<b>8.7</b>	<b>Low Water Temperature</b>	<ul style="list-style-type: none"> <li>i) Water rate too high</li> <li>ii) Insufficient gas flow</li> <li>iii) Water governor sticking</li> <li>iv) Incorrect venturi</li> <li>v) Main burner injector dirty</li> </ul>	Check water governor Check rate and if user's tap is open Remove and clean or replace (see 6.7) Replace (3.65 mm) (see Section 7.4) Clean or replace (see Section 6.2)
<b>8.8</b>	<b>Burner stays on</b>	<ul style="list-style-type: none"> <li>i) Air in pipework</li> <li>ii) Gas valve stays open</li> <li>iii) Dirt on gas valve facing</li> <li>iv) Dirt or foreign matter in water section</li> <li>v) Loose jumper on house stock cock tap</li> </ul>	Check for dead legs Clean and grease gas spindle Strip and clean gas valve (see Section 6.6)  Clean water section Replace water stop tap or pin down jumper
<b>8.9</b>	<b>Yellow Flames – Soot Formed</b>	<ul style="list-style-type: none"> <li>i) Heating body fins blocked</li> <li>ii) Primary air supply restricted</li> <li>iii) Wrong injectors</li> </ul>	Remove heating body and clean (see 6.4) Check burner manifold and clean (see 6.2) Check injector sizes
<b>8.10</b>	<b>Unstable Flame</b>	<ul style="list-style-type: none"> <li>i) Water in gas line</li> <li>ii) Faulty flue</li> </ul>	Drain and purge Check terminal position and flue ducts (see Section 3.3)
<b>8.11</b>	<b>Heating Body Noise</b>	<ul style="list-style-type: none"> <li>i) Scale</li> <li>ii) Excessive gas</li> <li>iii) Insufficient water flow</li> </ul>	Descale heating body Check gas pressure (see 1.3 and 5.2) See below
<b>8.12</b>	<b>Fan Noisy</b>	<ul style="list-style-type: none"> <li>i) Fan remaining at high speed</li> <li>ii) Fan out of balance</li> </ul>	a) Check micro-switch operation (see 5.4) b) Adjust micro-switch (see 7.13) Replace (see 7.7)
<b>8.13</b>	<b>Insufficient Water</b>	<ul style="list-style-type: none"> <li>i) Water service tap closed</li> <li>ii) Blocked venturi</li> <li>iii) Low water pressure</li> <li>iv) Water governor faulty</li> <li>v) Water governor sticking</li> <li>vi) Foreign matter in water section</li> <li>vii) Water filter blocked</li> </ul>	Check it is fully opened (see 3.5) Remove and clean venturi (see 7.4) Check water pressure (see Section 1.3) Change governor Remove and clean or replace (see 6.7) Remove and clean (see Section 7.4) Remove and clean/replace (see 3.5)

**Chaffoteaux**



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