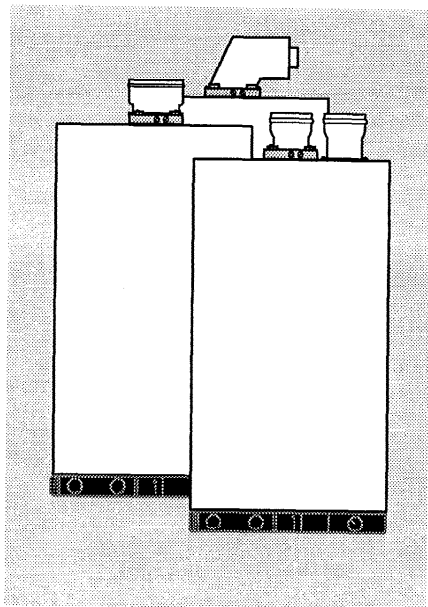


# Britony



System 40

System 60

## SYSTEM BOILER

Central Heating  
Fanned Flue system

## Installation and Operating instructions

Chaffoteaux  
et Maury



These instructions are suitable for the following boilers :

Britony System 40

Britony System 60

## CUSTOMER CARE

Chaffoteaux et Maury Ltd., as a leading manufacturer of domestic and commercial water heating appliances, is committed to providing high quality products and a high quality after sales service. If it is necessary to contact an engineer, then telephone your local Chaffoteaux Service Centre. The number can be obtained from the leaflet enclosed in the customer care pack with your boiler or by telephoning the Chaffoteaux Customer Services Department at Telford.

Advice on installation or servicing can also be obtained by contacting the Chaffoteaux Customer Services Department at Telford.

### CUSTOMER SERVICES DEPARTMENT

Tel: 01952 222288

Fax: 01952 260915

## GUARANTEE

The manufacturer's guarantee is for 12 months from the date of purchase. The guarantee is voidable if the appliance is not installed in accordance with the recommendations made herein or in a manner not approved by the manufacturer. To assist us in providing you with an efficient after sales service, please return the guarantee registration card enclosed with the boiler without delay.

## STATUTORY REQUIREMENTS

The installation of this appliance must be carried out by a CORGI Registered person or other competent person and in accordance with the requirements of the Gas Safety (Installation and Use) Regulations.

In addition, the installation must also comply with the current byelaws of Local Water Undertakings, Building Regulations, IEE Wiring Regulations, Local Authority Building Standards (Scotland) Regulations and the Safety Document 635 The Electricity at work Regulation.

It should also be carried out in accordance with current editions of the following British Standards Codes of practice: BS 6891, BS 5440 parts 1 and 2, BS 5449 part 1, BS 7593, BS 6798, BS 5546, BS 4814, BS 7074 part 1 and 2, BS 7671 and BG DM2.

If there is a possibility of the incoming mains water pressure exceeding 10 bar then a suitable pressure limiting valve must be fitted.

Precautions: During servicing, keep the dust generation to a minimum and avoid inhaling any dust and contact with the skin and eyes. Normal handling and use will not present any discomfort, although some people with a history of skin complaints may be susceptible to irritation. When disposing of the lining, ensure that it is securely wrapped and wash hands after contact.

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# 1 - Introduction

The BRITONY SYSTEM is a fully automatic, wall mounted, low water content boiler. It is a room sealed, fan assisted, balanced flued appliance providing central heating. It has electronic ignition and is suitable for use with all modern electrical control systems. The boiler is designed for sealed systems only and a circulating pump, expansion vessel together with a pressure gauge and safety valve are included within the boiler.

The standard horizontal flue kit is suitable for lengths 300 mm minimum to 680 mm maximum and includes an elbow adapter that can be rotated through 360°. The horizontal flue can be extended (refer to Flue Installation Instructions), 45° and 90° flue bends are also available as accessories.

The BRITONY SYSTEM is also suitable for concentric vertical and twin pipe flueing. Adapters and accessories are available.

The boiler is packed in two cartons:

1. the boiler
2. the flue assembly and the pre installation kit

## 2 - Description

### Location of components

1. Air pressure switch
2. Steel chassis complete with expansion vessel
3. Main heat exchanger
4. Combustion chamber
5. Multi- gas burner assembly comprising ignition and ionisation electrodes
6. Automatic air separator and automatic vent
7. Heating circuit flow switch
8. Pump
9. Electrical box
11. Overheat thermostat
12. Gas valve assembly
13. Sealed chamber
14. Flue hood with fan
16. Central heating control thermistor
18. CH Flow isolating valve
19. Two position Selector switch
20. User's instruction panel.
21. Heating flow temperature adjustment
22. Green indicator - Power ON
23. Orange indicator - Burner ON
24. Red indicator - Lock out / flame failure
25. Reset button

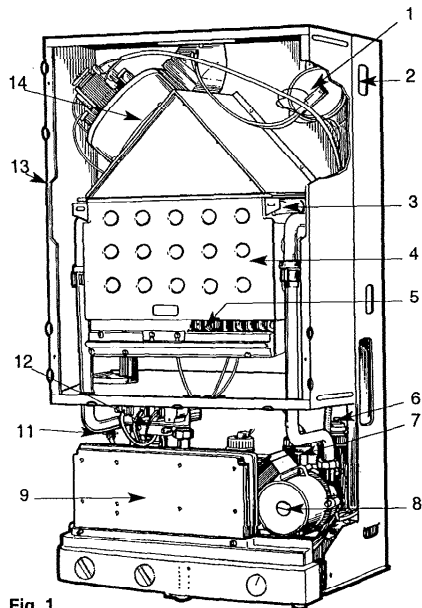


Fig. 1

# Description (continued)

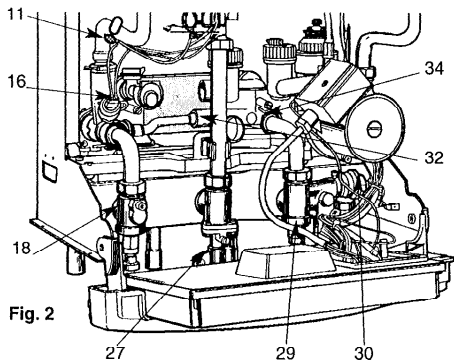


Fig. 2

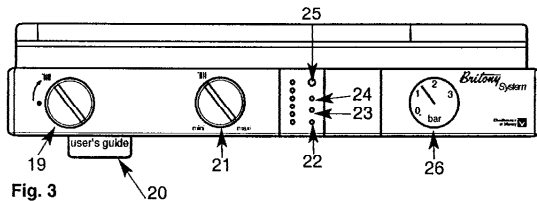
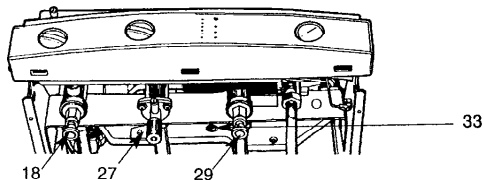


Fig. 3



- 26. Pressure gauge
- 27. Gas service tap
- 29. CH Return isolating valve
- 30. Pressure relief valve
- 32. By pass
- 33. By pass adjustment screw
- 34. Location of central heating filter

# 3 - Technical data

BRITONY SYSTEM type	40	60	BRITONY SYSTEM type	40	60
Appliance category.....	Cat II <sub>2H3+</sub>	Cat II <sub>2H3+</sub>	Natural gas G20		
Heat input C/H			Gas rate		
Maximum in kW.....	13.41	20.22	Maximum in m <sup>3</sup> /h.....	1.42	2.14
Maximum in Btu/h.....	45764	69005	Maximum in ft <sup>3</sup> /h.....	50	76
Heat output C/H			Inlet pressure		
Maximum in kW.....	12	18	Nominal in mbar.....	20	20
Maximum in Btu/h.....	40952	61428	Nominal in in wg.....	8	8
C/H circuit pressures			Burner pressure		
Min operating in bar.....	0.7	0.7	Nominal in mbar.....	2.9	6.7
in lb/in <sup>2</sup> .....	10	10	Nominal in in wg.....	1.2	2.7
Max operating in bar.....	2.5	2.5	Burner injector diameter		
in lb/in <sup>2</sup> .....	36.3	36.	Natural gas G20 in mm.....	1.18	1.23
Compartment ventilation is not required			PROPANE L.P.G. G31		

Gas rate		
Maximum in kg/h.....	1.03	1.55
Maximum in ft <sup>3</sup> /h.....	2.27	3.42
Inlet pressure		
Nominal in mbar.....	37	37
Nominal in in wg.....	14.8	14.8
Burner pressure		
Nominal in mbar.....	9.2	21.0
Nominal in in wg.....	3.7	8.4



# Technical data (continued)

BRITONY SYSTEM type	40	60	BRITONY SYSTEM type	40	60
<b>BUTANE L.P.G. G30</b>					
<b>Gas rate</b>			<b>Safety discharge</b>		
Maximum in kg/h .....	1.05	1.58	in bar .....	3	3
Maximum in Lbs/h .....	2.32	3.48	in lb/in <sup>2</sup> .....	43.5	43.5
<b>Inlet pressure</b>			<b>Expansion vessel</b>		
Nominal in mbar .....	28	28	Pre-charge pressure in bar ..	0.7	0.7
Nominal in in wg .....	11.2	11.2	Pre-charge pressure in lb/in <sup>2</sup>	9.4	9.4
<b>Burner pressure</b>			Net capacity at 3 bar in liter .	5.44	5.44
Nominal in mbar .....			<b>Adjustable by-pass</b>		
Nominal in in wg .....			Minimum flow rate in l/h .....	100	100
<b>Burner injector diameter</b>			Minimum flow rate in gal/min	0.36	0.36
LPG G30 and G31 in mm .....	0.70	0.70	Maximum flow rate in l/h .....	700	700
			Maximum flow rate in gal/min	2.56	2.56
<b>Compartment ventilation</b>	<b>n o t r e q u i r e d</b>		<b>Electrical characteristics</b>		
			Supply .....	230 v	50 Hz
			Consumption .....	150 w	150 w
			Protection .....	IP 44	IP 44
			Fuse n°1 .....	2 A	2 A
			Fuse n°2 .....	1.25 A	1.25 A
			External controls .....	24 v	24 v

# 4 - Dimensions

## Weights

### With packaging :

-BRITONY SYSTEM 40 :	41.5 kg
-BRITONY SYSTEM 60 :	41.5 kg

### Without packaging :

-BRITONY SYSTEM 40 :	39.5 kg
-BRITONY SYSTEM 60 :	39.5 kg

### Lift weight :

-BRITONY SYSTEM 40 :	33.5 kg
-BRITONY SYSTEM 60 :	33.5 kg

## Tails diameter

I	Safety valve outlet	Ø 15 mm
J	Heating flow	Ø 22 mm
L	Gas supply	Ø 22 mm
N	Heating return	Ø 22 mm

## Outer case dimensions :

- Width :	440 (minimum space required 450)
- Height :	850
- Depth :	380

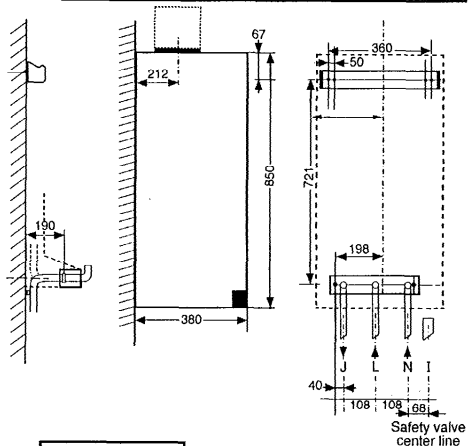


Fig. 4

# Dimensions (continued)

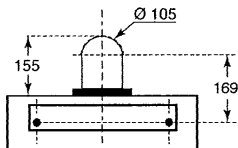
## Minimum clearances :

- Both sides 5 mm
- Above casing 170 mm
- Below casing 200 mm
- Front ( for servicing) 500 mm
- Front (in operation) 5 mm

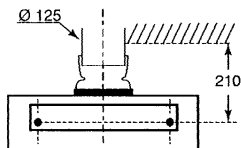
The boiler is suitable for the 3 flue types :

- type C 12 or C 42
- type C 22
- type C 32 xx or C 32 xy

TYPE C12 or C42



TYPE C32 xx



TYPE C32 xy

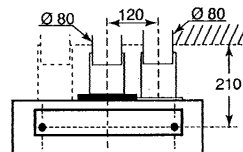


Fig. 5 Dimensions in mm



# 5 - Operation

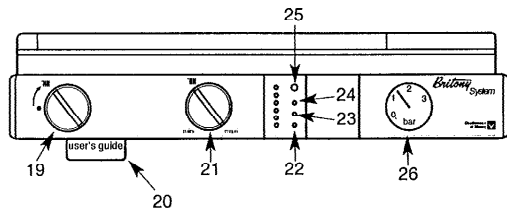



Fig. 6

## Central Heating

To be able to supply heating, the selector switch 19 fig. 6 must be turned fully clockwise to "III" position.


This will be confirmed by the green indicator light  22 fig. 6.

When there is a demand for heating (either from the room thermostat or the external programmer) and the boiler temperature control is calling for heat.

The pump starts and at a flow rate of 4 ltr/min the central heating flow switch operates allowing the ignition sequence to begin.

The first stage solenoid 12a fig. 7 and safety solenoid 12c fig. 7 open together to allow gas to the burner.

The ignition sequence begins and a continuous high speed spark ignites the gas.

As soon as a flame is detected the orange indicator bulb  23 fig. 6 will light.

# Operation (continued)

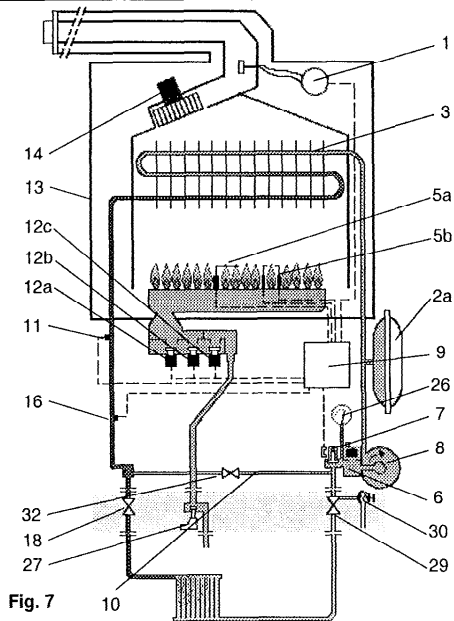


Fig. 7

After 45 seconds the second stage solenoid 12b fig. 7 opens to allow the full gas rate.

If a flame is not detected, after 8 seconds, the security solenoid closes and shuts off the gas.

The red lockout indicator bulb 24 fig. 6 will light.

The central heating flow temperature is controlled by the central heating control thermistor 16 fig. 7.

The boiler has been designed to minimise cycling and will not attempt to relight for at least 3 minutes after the boiler thermostat has been satisfied (this «TAC delay» can be set to 30 seconds if required. See Maintenance and Service Guide).

When the room thermostat is satisfied the burner will switch off and the pump will remain running for a further 3 minutes.

## NB

It is possible to override the TAC delay by pressing the RESET button (25 fig. 6).

# 6 - Installation requirements

## Location

The boiler can be installed on any suitable internal wall. Provision must be made to allow the correct routing of the flue and siting of the terminal to allow the safe and efficient removal of the flue products. The appliance may be installed in any room, although reference must be made to the IEE regulations if it contains a bath or shower. A compartment or cupboard may be used provided that it has been purpose-built or modified for the purpose. It is not necessary to provide permanent ventilation for cooling purposes. Detailed recommendations are given in BS 5440 pt 2. If it is proposed that it is installed in a timber framed building then reference must be made to British Gas Document DM2, or advice sought from CORGI.

## Flue

The boiler must be installed so that the flue terminal is exposed to the free passage of external air at all times. It must not be allowed to discharge into another room or space such as an outhouse or closed lean-to. The minimum acceptable clearances are shown below:

- |  |        |
|--|--------|
| - A Directly below an opening, window, etc   | 300 mm |
| - B Below gutters soils pipes or drain pipes | 75 mm  |
| - C Below eaves                              | 200 mm |
| - D Below balconies or car port roof         | 200 mm |
| - E From a vertical drain pipe or soil pipe  | 75 mm  |

- |   |         |
|---|---------|
| - F From an internal or external corner                     | 300 mm  |
| - G Above ground roof or balcony level                      | 300 mm  |
| - H From a surface facing the terminal                      | 600 mm  |
| - I From another terminal facing the terminal               | 600 mm  |
| - J From an opening into the dwelling when under a car port | 1200 mm |
| - K Vertically from a terminal on the same wall             | 1500 mm |
| - L Horizontally from a terminal on the same wall           | 300 mm  |
| - M fixed by the flat roof ubbink rolux 4GM flue terminal   |         |
| - N fixed by a pitched roof ubbink rolux 4GM flue terminal  |         |

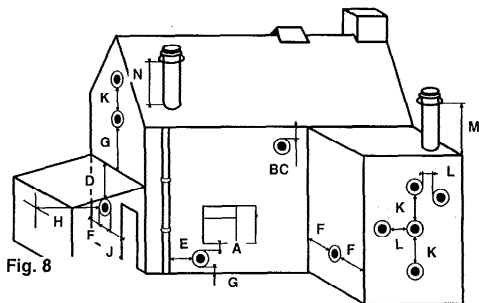


Fig. 8

# Installation requirements (continued)

It may be necessary to protect the terminal with a guard if it is accessible and could be damaged. Reference should be made to the Building Regulations for guidance. Suitable guards may be obtained from the following manufacturer:

Quinnel Barret & Quinnel Wireworks  
Old Kent Road  
London SE15 1NL  
Tel: 0171 639 1357

## Ventilation

The room in which the boiler is installed does not require specific ventilation. **IF IT IS INSTALLED IN A CUPBOARD OR COMPARTMENT PERMANENT VENTILATION IS NOT REQUIRED FOR COOLING PURPOSES.** If vents are installed, they must communicate with the same room or be on the same wall to outside air.

## Gas Supply

The gas installation and soundness testing must be in accordance with the requirements of BS 6891. The boiler requires a 22 mm supply. Ensure that the pipe size is adequate for the demand including other gas appliances on the same supply.

## Electrical Supply

The appliance requires an earthed 230V - 50 Hz supply and must be in accordance with current I.E.E. It must also be possible to be able to completely isolate the appliance electrically. Connection should be via a 3 amp fused double-pole isolating switch with contact separation of at least 3 mm on both poles. Alternatively, a fused 3 Amp. 3 pin plug and unswitched socket may be used, provided it is not used in a room containing a bath or shower. It should only supply the appliance.

## 8 - Installing the boiler

Please check that you are familiar with the installation requirements before commencing work.(section 6)

### Installation

The installation kit included with the flue components comprise following items :

- Hanging bracket
- A paper template (showing the dimensions of the boiler with 5 mm side clearances, fitting instructions and commissioning instructions)
- Connection tails
- Screws and wall plugs
- Connection washers
- Pre-piping jig
- Installation manual

Method of positioning the boiler on the wall.

The paper template can be used to ensure the correct positioning of kitchen cabinets etc. It also details the commissioning instructions.

The paper template is fixed to the wall and used to locate the position of the hanging bracket, the centre for the flue hole and, if required, the fixings for the pre-piping jig.

Drill and plug the wall and secure the hanging bracket using the screws provided (refer to the paper template drawings). Remove the boiler from its packaging as shown in fig. 13 and remove the outer case as shown in fig.14. Place the boiler on the wall on the hanging bracket after removing the pre-installation jig.

If required, there is space for all piping to pass behind the

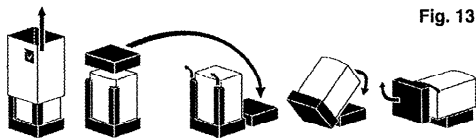


Fig. 13

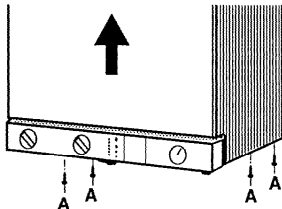


Fig. 14



# Installing the boiler (continued)

boiler. Using fig. 15 for reference, connect the gas and water pipes to the valves located at the base of the appliance using the tails provided. There is a 190 mm space between the valves and the wall to make these connections.

Provision must be made to fill and recharge the system

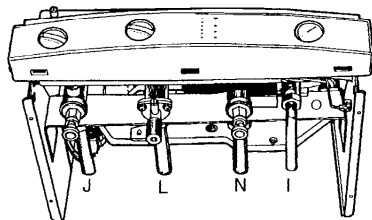


Fig. 15

I	Safety valve outlet	Ø 15 mm
J	Heating flow	Ø 22 mm
L	Gas supply	Ø 22 mm
N	Heating return	Ø 22 mm

pressure. This can be achieved using a filling loop or other methods approved by the local water authority.

The pressure relief should terminate below the boiler over a tundish or 22 mm pipe (see I fig 15) which should in turn discharge safely outside the premises. Care should be taken that it does not terminate over an entrance or window or where a discharge of heated water could endanger occupants or passers by.

The system should be carefully checked for leaks, as frequent refilling could cause premature system corrosion or unnecessary scaling of the heat exchanger.

## Fitting the Horizontal Flue

The instructions for the elevated horizontal, vertical and biflux (twin pipe) flue options are included with the relevant adapter kits.

The standard flue supplied with the appliance is suitable for lengths from 300 mm minimum to 610 mm maximum. This means for rear flueing, the standard kit will accommodate a maximum wall thickness of 490 mm, and for side flueing a maximum wall thickness of 477 mm. This takes into account the minimum appliance side clearances of 5 mm.

If the fixing is a rear exit flue, the template provides the position of the centre for drilling the flue hole with a core drill.

If the flue is a side exit installation then calculate the position of the hole with a slope of 5 mm / metre to the terminal.

# Installing the boiler (continued)

## Connecting of the boiler to the system

- Hinge down the electrical box to gain access to the valves connections. Push in the tabs (P Fig 19) on either side of the boiler and pivot the box forward.
  - Remove the yellow caps from connecting pipes and connect the boiler to the taps using gaskets provided in the plastic bag.
- Rubber washer "R" for gas connection.

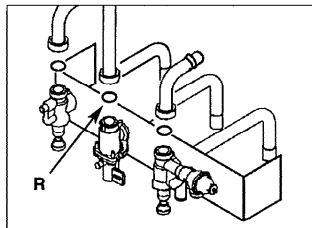


Fig 16

# Installing the boiler (continued)

## Making the Electrical Connections

Hinge down the electrical box to gain access to the electrical connections. Push in the tabs (P fig. 19) on either side of the boiler and pivot the box forward.

Undo the two retaining screws, remove cover and remove cable clamp. (A fig. 19)

Connect the live and neutral wires to the multipin plug leaving sufficient earth wire to connect to the earthing point. (B fig. 20).

**Note:** The connections should be made so that should the lead be pulled from its anchorage, the current carrying wires become taut before the earth wire.

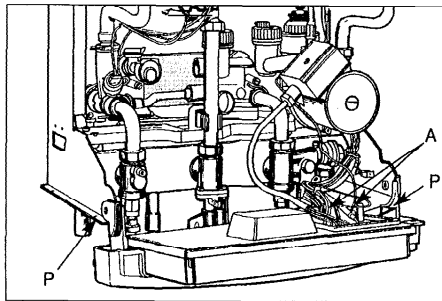
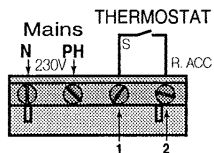


Fig. 19

# Installing the boiler (continued)



connector **C**

If using a room thermostat or other external control, they can be connected in place of the link on the multipin plug (fig 21).

Fig. 20

Connect multipin plug onto into the socket on the power board. Secure the cable using the cable clamp and replace the cover.

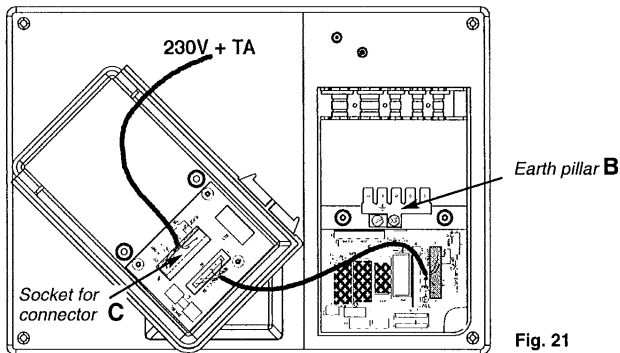


Fig. 21

# 9 - Commissioning and testing

## Pre-commissioning

Ensure that the system has been adequately flushed.  
Purge gas supply of air and test for soundness.  
Carry out final electrical tests to ensure the correct polarity and earthing continuity.

## Central Heating

Open flow and return valves on the boiler.(18 and 29 Fig. 22)

Open the automatic air vent (6 Fig. 23)

Fill system and vent radiators.

Set system pressure and remove filling loop.

Check for leaks.

Manually check pump is free to turn.

Switch on electrical supply.

Turn selector switch (19 Fig. 23) fully clockwise to «ON»

position (heating). \*||||

Allow pump to run for several minutes.

Isolate electrical supply.

Drain boiler and check water filter (34 Fig. 2) for installation debris.

Replace filter and recharge system.

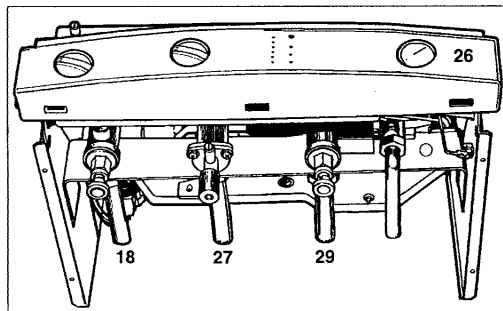


Fig. 22

## Lighting the Boiler

Connect gas pressure gauge to test point (43 Fig. 23).

Turn on the gas supply and boiler gas tap (27 Fig. 22).

Ensure electrical supply is on.

Ensure all external controls are calling for heat.

Turn selector switch (19 Fig. 23) fully clockwise to «ON» position (heating) \*|||| .

# Commissioning and testing (continued)

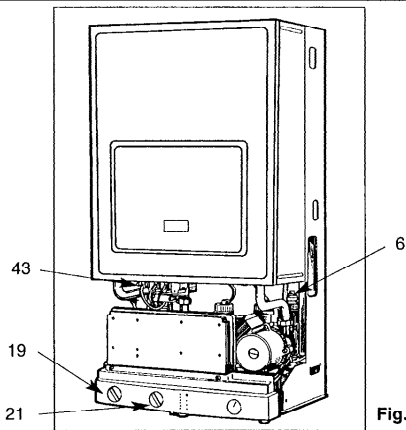


Fig. 23

Turn the boiler thermostat to maximum (21 fig 23).

The boiler will light.

Allow the boiler to heat system.

Check the inlet gas pressure (working pressure) while the boiler is operating. (Refer to technical data)

Check the operation of the boiler controls and safety devices.

(see separate servicing leaflet for details)

Set the by pass (Refer to system guidance)

Re-flush the system to remove any dissolved oils and fluxes.

Recharge system pressure and introduce any water treatment as required.

## Post Commissioning

Ensure system pressure has been set correctly.

Set the by pass.

Set boiler thermostat and controls.

Set programmer to householder's requirements.

Set external controls.

## Handing Over to the Householder

Demonstrate the lighting and operation of the boiler.

Demonstrate how to maintain the system pressure.

Explain the benefits of annual maintenance by a competent person.

Explain how to register guarantee.

Leave users instructions, installation manual and all other documentation with the householder.

## 7 - System guidance

The boiler is suitable for sealed systems only. The maximum working pressure for the appliance is 3 bar. All fittings and pipework connected to the appliance should be of the same standard.

### Flushing and Water Treatment

The performance of the appliance could be impaired by system debris or the effects of corrosion. The system must be flushed thoroughly to remove metal filings, solder, machining oils and other fluxes and greases before connecting the boiler. An appropriate flushing and descaling agent should be used, particularly if it is an existing system. Refer to BS 7593 (1992) for guidance. For more information on the use of corrosion inhibitors, flushing and descaling agents, advice can be sought from the manufacturers of water treatment products such as:

Betz Dearborn Ltd  
Foundry Lane  
Widnes  
Cheshire  
WA8 8UD  
Tel: 0151 424 5351

Fernox Manufacturing  
Britannica Works  
Clavering  
Essex  
CB11 4QZ  
Tel: 01799 550811

### System Controls

The boiler is electrically controlled and is suitable for most modern electronic time and temperature controls. The addition of such external controls can be beneficial to the efficient operation of the system. The boiler connections for external controls are 230V and so only controls of 230V or that have voltage free contacts should be used.

# System guidance (continued)

## By pass and Pump

The boiler is fitted with a pre-adjusted by pass. Although adjustment is not normally necessary, the by pass can be reset by turning screw ( D Fig. 9 ) anticlockwise to open the by-pass using the chart below for guidance.

If used on a system with thermostatic radiator valves, the flow rate with the thermostatic valves closed should be adjusted to at least 100 l/hr. The chart below indicates the residual head of the pump available for the system.

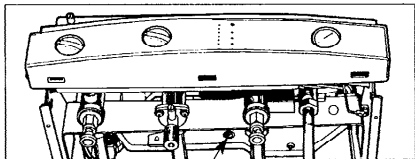


Fig. 9

D

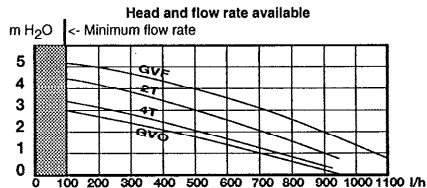


Fig. 10



# System guidance (continued)

## Expansion Vessel

The expansion vessel is pre-charged to 0.7 bar (10 lb/in<sup>2</sup>). The vessel is suitable for systems up to 145 litres capacity. For systems of greater capacity an additional expansion vessel will be required. Refer to the chart below and BS 7074 pt 1 or BS 5449.

## Filling Point

Provision must be made to be able to charge the system on commissioning and to make up any subsequent pressure loss. The method of connection must utilise approved equipment and must comply with the water regulations. A filling loop can be so installed as to be hidden beneath the boiler.

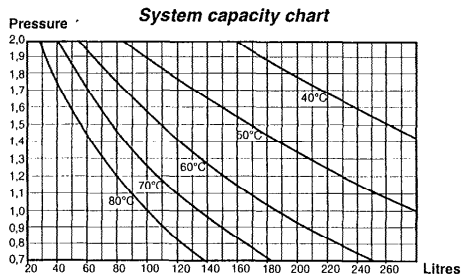
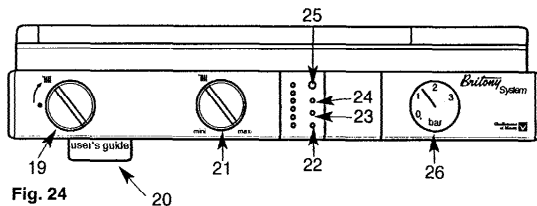


Fig. 11

# 10 - User's instructions

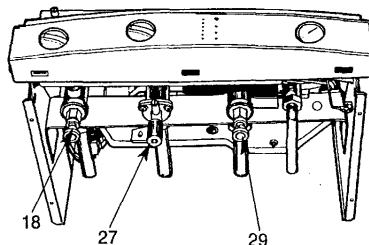
## Control panel

- 19. Two position Selector switch
  - = Switched OFF
  - ☰ = Central heating
- 20. User's instruction panel.
- 21. ☰ Heating flow temperature adjustment
- 22. ○ Green indicator - Power ON
- 23. 🟡 Orange indicator - Burner ON
- 24. 🔴 Red indicator - Lock out / flame failure
- 25. "RESET" Reset button
- 26. 🌡 Pressure gauge



## Isolating Taps

- 18. CH Flow isolating valve
- 27. Gas service tap
- 29. CH Return isolating valve



# 10 - User's instructions (continued)

## Switching on

- 1) Check that the gas service tap is opened at the gasmeter and main power is on.
- 2) Check that pressure in central heating system is above 0.7 bar and below 2.5 bar with the pressure gauge ☺ (26).
- 3) Open the gas tap (27) by turning from right to left. ⚡
- 4) The boiler is now ready to use.

## Heating

- 1) Turn selector switch (19) fully clockwise to position "||||". The green "power on" indicator ○ will light.
- 2) If the room thermostat (if fitted), the boiler temperature control "||||" and the clock (if fitted) are all calling for heat, the orange "burner on" indicator ⚡ will light and the heating will be on.

**Note:** If the boiler has been turned off for some time the first attempt to light it may result in a lockout ⚡. If this happens press the reset button (25) and the boiler will light.

## To Turn Boiler Off Completely

- 1) Turn the selector switch (19) to the off position ●.
- 2) Turn the gas tap (27) from left to right "STOP".

Chaffoteaux et Maury are continuously improving their products and therefore reserve the right to change specifications without prior notice and accepts no liability for any errors or omission in the information contained in this document.

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