



37. Heating thermistor

50. 45° elbow comprising venturi

51. Fan

38. DHW thermistor

2

FUNCTIONING

COMPONENTS LOCATION



BRITONY COMBI FUNCTIONAL DIAGRAM



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 $\textcircled{}{}^{\textcircled{}}$ (8).

3) Open the gas tap (3) by turning from right to left.

4) The boiler is now ready to use.

Hot Water

1) Turn selector switch (15) to position \checkmark . The green "power on" indicator \bigcirc (20) will light.

2) Turn on a hot water tap, the orange "burner on" indicator (21) will light and the water will become hot.

Heating and Hot Water

1) Turn selector switch (15) to position \checkmark "III. The green "power on" indicator \bigcirc will light (20).

3) If the room thermostat (if fitted), the boiler temperature control

"IIII and the clock (if fitted) are all calling for heat, the orange





the heating will be on.

the heating is on, it is only necessary to turn on a hot tap. The heating will be interrupted momentarily while the hot water is being delivered. The boiler will switch back automatically to heating when the tap is turned When the tap is closed the burner is extin-

Note: If the boiler has been turned off for some time the first attempt to light it may result in a lockout * (22) . If this happens press the reset button (23) and the boiler will light.

Domestic Hot Water Mode

switch 15 must be in either on 希 or *III 🐔 position. This will be confirmed by the green indicator light \bigcirc (20)

When a tap or shower is turned on, the flow of mains water, above 2 litres per min., will tor light \bigcirc (20). activate the DHW flow switch (44) and allow the 3 way valve (42) to move to the DHW position. The pump can now circulate (either from the room thermostat or the primary water heated by the main heat clock) the pump starts. If the boiler tempeexchanger through the secondary heat rature control is calling for heat and primaexchanger.

The first stage solenoid (31) (blue) and security solenoid (30) (grey) 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 (21) will light and the second stage solenoid (32) (black) 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

water control thermistor 38 and the central bulb 🏶 22 will light. When there is a need for hot water while heating control thermistor (37). This system anticipates the changes of temperatuensures accurate temperature regulation.

> three minutes to maintain temperature to for a further 3 minutes before it too stops. ensure a fast response in the event of a subsequent hot water demand.

Priority will be given to a demand for hot by pressing the RESET button (23). water. This will interrupt the central hea-To be able to supply hot water, the selector ting for the duration of hot water delivery.

Central Heating Mode

To be able to supply heating, the selector switch (15) must be on 'III a position. This will be confirmed by the green indica-

When there is a demand for heating ry flow rate over 4 ltr/min, the central heating flow switch operates allowing the ignition sequence to begin. The first stage solenoid (31) (blue) and security solenoid If an overheat is detected by the sensor (30) (grey) 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 🏽 (21) will light. After 45 seconds the second stage solenoid (32) (black) opens to allow the full gas rate. If a flame is not detected, after 8 bulb $\hat{*}$ (22) will light. The domestic hot seconds, the security solenoid closes and

"burner on" indicator 🇯 (21) will light and water temperature is controlled by the hot shuts off the gas. The red lockout indicator

The central heating flow temperature is controlled by the central heating control re in the secondary heat exchanger and thermistor (37). 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. When the guished and the pump stops. The boiler room thermostat is satisfied the burner will will now stay in the hot water mode for switch off and the pump will remain running

NB

It is possible to override the 3 minute delay

Lock out procedure

Flame disappearance :

When the ionisation electrode (28) does not detect flame presence. The orange indicator lamp (21) extinguishes. A lighting cycle starts. If a flame is not detected before 8 seconds, the grey security solenoid (30) and the blue 1/3 solenoid (31) will close. The lock out red indicator (22) lights, the pump (35) runs and the 3 way valve (42) stays in its position.

After a few seconds, it will become possible to reset the boiler by pressing the reset button (23).

Overheat detection :

(13), the grey security solenoid (30) and the blue 1/3 (31) closes, the orange indicator lamp (21) extinguishes. The ignitor is energised for 8 seconds and the red lockout indicator (22) ligths. If the burner cannot relight the boiler will go to lockout.



ELECTRICAL WIRING continuation			ADJUSTMENTS ON CONTROL PCB	
N°	Designation	Wiring colours	The following adjustme	nts are available on the regulation PCB. To
13.	-Overheat sensor	Brown		vot down electrical box, remove the rear
14.	-Electrical box			el of electrical box, unplug connectors from
14a.	-Regulation PCB	.	regulation PCB and pul	
14b.	-Ignitor	Red, Black		,
14c.	-Fuse 1.25 A		Heating output limitation	n :
14d.	-Fuse 2A		- Functioning without lin	
14e.	-Power PCB		- Functioning at 1/3 gas	
14f.	-Room thermostat		3 . 3	,
14g.	-Mains 230V 50 Hz		Burner functioning:	
18.	-Pressure switch	2: Black P: Orange	- Regulation available 3	/3, 1/3, 0 plug D on "NOR"
~7		1: White	- Functioning at full gas	
27.	-Spark electrodes	White		
28.	-Ionisation probe	White		
30.	-Security solenoid (grey)	Grey	P.O.	
31.	-2/3 gas stage solenoid (black)			
32.	-1/3 gas stage solenoid (blue)	Blue		
35.	-Pump	\/ielet		
37.	-C/H thermistor	Violet		
38.	-DHW thermistor	Green		
42.	-3 way valve	White, Yellow, Orange		
44.	-DHW flow switch	Brown		
45.	-C/H flow switch	Red Brown Blue		
51.	-Fan	Brown, Blue		
REGULATION			ROUTINE SERVICING	
DHW circuits are controlled by 2 thermistors. The C/H knob allows the adjustment of temperature between 35 and 85°C. The DHW temperature is limited to 60°C. DHW and C/H thermistors are identical and interchangeable. Resistance value are -5000 Ω at 25 °C -2631 Ω at 40°C -620 Ω at 80°C -255 Ω at 110°C FLOW SWITCHES Flow in both D.H.W. and Heating circuits are detected by 2 flow switches. A piston with a magnet at the top operates a REED switch. The piston is lifted by flow rates listed below : Flow rate threshold : D.H.W. 120 I/h ±20 I/h C/H 250 I/h ±20 I/h		the following optimized and semination of the service scheme sche	edule should include	 Check, clean and replace components as necessary. Carry out combustion test utilising the test points in the flue turret. SUGGESTED SEQUENCE for SERVI-CING Before disconnecting or removing any parts, isolate the gas and electricity supplies. Ensure that the appliance is cool. (for detail please see section on Parts Removal and Replacement) Preliminary Checks
		 Check the press Check the correspondence. Check the correspondence. Check the correspondence. 	sure in the system. ect operation of the ect operation of the gas ions of the safety	 Remove outer case Check the system pressure is at least 0.7 bar cold Check operation of 1/3 and 2/3 solenoids Check that the burner is extinguished fully when both solenoids are closed in both DHW and C/H modes. Test ionisation functions and check that
AIR PRESSURE SWITCH			ion chamber insulation ge.	lockout occurs by turning off gas tap. - Whilst boiler is operating, check operatio
The air flow rate is detected by a pressure differential created by a venturi located in the flue duct.		d in Clean the heat - Check the burn - Clean gas and	exchanger. er manifold injectors. water filters.	of primary flow switch by closing heating flow valve and by pass screw (turn clockw se) noting the number of turns so that it may be reset correctly.
	threshold $\Delta P > 130 Pa$ AP < 100 Pa	re.	on vessel charge pressu- k operation of safety	

Additional Procedures that may be necessary:

- Check burner pressure and gas flow rates.

REMOVAL AND REPLACEMENT OF PARTS

Before removing appliance case, isolate 5. Ignition Electrodes the gas and electrical supplies. Isolate boi- Carry out steps 1 and 2 as above. Hinge ving any component in the waterways. tabs P on either side. Ensure that the appliance is cool.

1. Outer Case

Remove four screws in base of case and



lift free. When replacing, carefully locate on lugs (B) on top edge of chassis.



2. Combustion Chamber

Unscrew four self tapping screws securing Reassemble in reverse order.

3. Burner Manifold

Carry out steps 1 and 2 as above. Remove two screws securing the closure plate and the screw on the flue outlet tightened. the remaining four screws to release the manifold. Lift clear. Replace the manifold 9. Flue Hood gasket. Reassemble in reverse order.

4. Ionisation Electrodes

trode to burner. Thread wire through grom- tion chamber rear panel. met and lift clear. Reassemble in reverse order.

ler from the system and drain before remo- down electrical box by pressing retaining

Remove wiring cover C. Disconnect leads



from spark generator. Loosen screws securing the closure plate and remove. Remove grommet from base of sealed chamber. Remove screw securing electrode bracket and lift clear easing spade connectors through the grommet. Reassemble in reverse order, twisted together electrodes cable at least 10 times to avoid electrical interference.

6. Burner Assembly

Carry out steps 1,2, disconnect electrodes as mentionned in section 4 and 5. Remove two screws securing burner assembly to the back panel of the boiler. Lift right hand back corner first. Reassemble in reverse order.

7. Gas Solenoids

Disconnect colour coded leads. Remove six screws. The solenoids are attached to their base plate. Lift clear taking care not to lose the three plungers and springs. Reassemble in reverse order replacing the cork gasket.

8. Fan Assembly

Remove outer case and sealed chamber the sealed chamber front panel and lift front panel (See Steps 1 and 2). Disconnect over top corner locating lugs. Unscrew four spade connectors noting positions. Remove self tapping screws to release combustion two screws securing the front of the fan chamber front plate and lift clear. assembly and loosen screw on flue outlet. Twist fan assembly anticlockwise to disengage from flue outlet and lift clear.

> Re-assemble in the reverse order ensuring that the wiring is re-connected correctly and

Carry out steps 1 and 2 as above. Remove fan assembly as in step 8. Remove the three screws securing the angled top of the Carry out steps 1 and 2 as above. Loosen hood to the chassis. Lift and remove taking screws securing the closure plate and care not to snag the pressure switch cables. remove. Disconnect the lead from the main Re-assemble in the reverse order ensuring wiring loom. Remove screw securing elec- that the hood is located behind the combus-

10. Pressure Switch

Remove outer case and sealed chamber

front panel as in steps 1 and 2. Disconnect three pressure switch cables noting their positions.

1 = white cable connected to NC 2 = black cable connected to NO



P = orange cable connected to C Remove screw securing the switch bracket to the chassis. Disconnect the sampling tubes again noting their positioning (+ and -). Remove switch. Reassemble in reverse order.

11. Pressure Switch Venturi

Carry out steps 1, 2 and 8, as above. Disconnect the sampling tubes and remove the screw securing the venturi to the flue outlet. Remove venturi by the bottom of the 45° elbow. Reassemble in reverse order.

12. Drain down

5 drain points are located on the boiler.



- 1 = DHW circuit drain point
- 2 = Heating circuit drain point

13. Water filters (DHW and Heating)

The DHW filter ensures a seal between the connecting bracket and the pipe to the DHW flow switch. Drain the boiler as in step 12. Unscrew the pipe nut and remove the clip on the hydraulic assy. Pull the pipe toward you and remove the water filter from its location.

The C/H filter is located in the right hydraulic assembly. Remove the return pipe as described previously and withdraw the filter. Reassemble in reverse order.

14. Flow switches

Drain boiler as in step 12. Disconnect the electrical plug, turn the top cover anti- 18. Pump clockwise, remove the O-ring and the Drain boiler as in step 12. Pivot the electical

15. 3-Way valve

on the exchanger flow pipe. Pull the pipe down then pull it out of the 3 way valve. Disconnect the plug from the motor. Unscrew the nut on the pipe between the connecting bracket and the 3 way valve and pull it toward you. Rotate the 3 way valve body anti-clockwise to unclip it from the left hydraulic assembly.

16. Secondary heat exchanger

Drain both circuits of the boiler as in step 12. Unscrew the 2 fixing screws (D) and remove the DHW exchanger from the front.



Prior to reassembly, check that the 4 gas- 20. Thermistors kets are correctly positioned. The heat Drain the boiler as step 12. Disconnect the exchanger is so designed that it cannot be plug, remove the retaining clip pull the therremounted incorrectly.

17. Main heat exchanger

Carry out steps 1 and 2 as above. Drain boiler as in step 12. Remove the 2 clips (E) located on return and flow pipes and pull



toward you to remove. Reassemble in reverse order.

brass piston. Reassemble in reverse order. box downwards. Open the electrical box cover removing the 2 screws. Remove the pump plug from the power board and earth Drain boiler as in step 12. Remove the 3 plug from earth socket. Unscrew the nut (F) clips on the 3 way valve. Remove the clip of the return pipe from the volute. Remove



the clip (G) on the pump volute and pull pump toward you. Reassemble in reverse order.

19. Pressure relief valve

The pressure relief valve can be serviced from the front of the appliance. Drain the boiler first, undo the retaining screw and pull and proceed as step 23. Reassemble in out the valve.Reassemble in reverse order.

mistor out. Reassemble in reverse order. 38 = DHW thermistor

37 = Heating thermistor



21. Safety thermostat

Remove the casing as step 1 and hinge down the electrical box as step 5. Disconnect the 2 cables, pull out the sensor with the clip (13). Reassemble in reverse



22. Spark generator

Carry out steps 1, 2, and open the electrical box cover as mentionned in step 5. Undo the 4 screws of the electrical rear panel and remove it. Unplug electrodes wires, remove the ignitor connector from the PCB, remove earth plug from earth socket. Hang out the ignitor. Reassemble in reverse order.

23. Power board

Carry out steps 1, 2, and open the electrical box cover as mentionned in step 5. Undo the 4 screws of the electrical rear panel and remove it. Unplug all cables from the PCB. remove earth plug from earth socket. Hang out the power board. Reassemble in reverse order.

24. Control board

Pull out plastic knob from the front panel reverse order.

25. Expansion vessel

Remove the casing as step 1 and drain the boiler as step 12 above. Unscrew the connecting tails nuts and lift out the boiler from the wall. Place it on a side on the floor. Remove the expansion vessel bracket retaining screws, disconnect the pipe from the vessel and pull ti toward you. Reassemble in reverse order.

them downwards. Pull the main exchanger order.





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 - Chaffoteaux et Maury Ltd Trench Lock Trench Telford Shropshire TF1 4SZ Tel: 01952 222727 Fax: 01952 243493

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