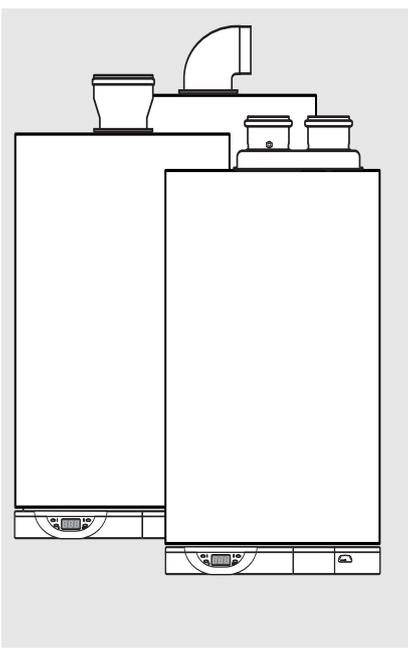


# MAINTENANCE AND SERVICE GUIDE

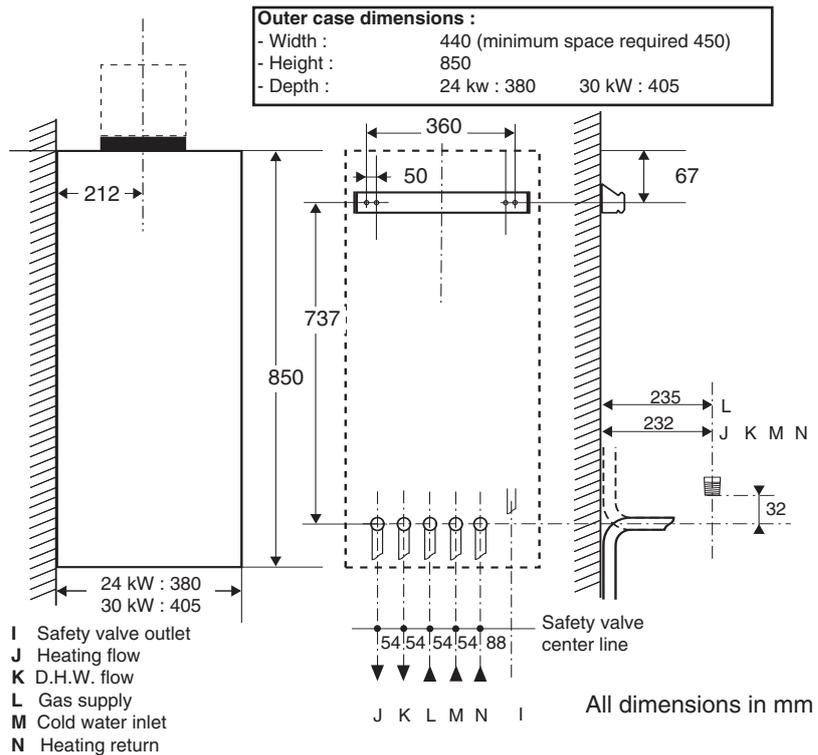


## Fanned Flue Condensing Combination Boiler Heating and Storage Domestic Hot Water with TSS®

### Dimensions



Flue types:  
C 13: - C 33 - C 53

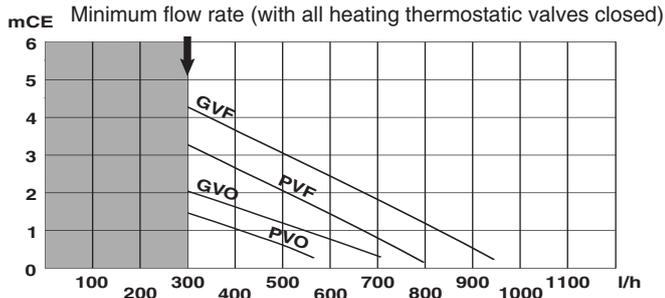


### Technical data

	24 kW	30 kW		24 kW	30 kW
Heat gross input C.H. max .....	9.2-27.8 kW	10.4-31.6 kW	<b>Natural gas G20</b>	Gas rate C.H. max .....	2.64 m <sup>3</sup> /h    3.01 m <sup>3</sup> /h
Heat gross input D.H.W. max .....	9.2-27.8 kW	10.4-31.6 kW		Gas rate D.H.W. max .....	2.64 m <sup>3</sup> /h    3.01 m <sup>3</sup> /h
Heat output C.H. 50°/30° max .....	9-26 kW	10-30 kW	Gas rate C.H. & D.H.W. min ...	0.87 m <sup>3</sup> /h    1 m <sup>3</sup> /h	
Heat output C.H. 80°/60° max .....	8-24 kW	9-28 kW	Gas valve restrictor diameter ..	without    without	
Heat output DHW maxi .....	8-24 kW	9-30 kW	<b>Propane L.P.G G31</b>	Gas rate C.H. max. ....	1.94 kg/h    2.21 kg/h
C.H. operating temperature .....	80°C max	80°C max		Gas rate D.H.W. max. ....	1.94 kg/h    2.21 kg/h
C.H. circuit pressures Min operating .....	0.7 bar	0.7 bar	Gas rate C.H. & D.H.W. min ...	0.64 kg/h    0.73 kg/h	
C.H. circuit pressures Max operating .....	2.5 bar	2.5 bar	Gas valve restrictor diameter ..	4.40 mm    4.8 mm	
D.H.W. flow rates 30°C .....	12.5 l/min	14.5 l/min			
D.H.W. flow rates 35°C .....	10.7 l/min	12.4 l/min			
Cold water mains pressures Min operating...	0.5 bar	0.5 bar			
Cold water mains pressures Max operating..	10 bar	10 bar			
Flow limiter rate .....	8 l/min	10 l/min			
Safety discharge .....	3 bar	3 bar			
Expansion vessel - Pre-charge pressure .....	0.7 bar	0.7 bar			
Net capacity at 3 bar in litres .....	5.44	5.44			
Supply .....	230 v	230 v			
Consumption .....	150 w	150 w			
Protection .....	IP 44	IP 44			
Fuse F1/F2/F3/F4 .....	2 A/1.25 A/0.315 A/0.250 A				
External controls .....	24 v	24 v			

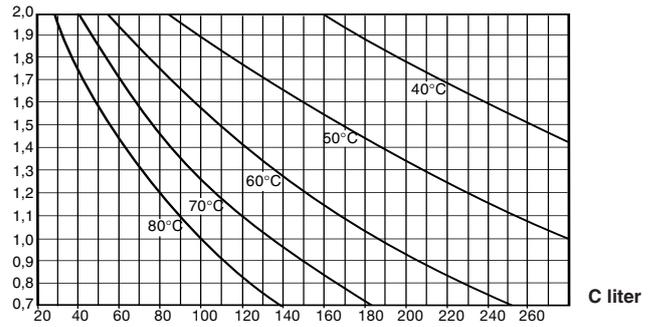
# Pump and expansion vessel characteristics

Pump head available



GV F = high speed by-pass closed  
 GVO = high speed by-pass open  
 PV F = low speed by-pass closed  
 PVO = low speed by-pass open

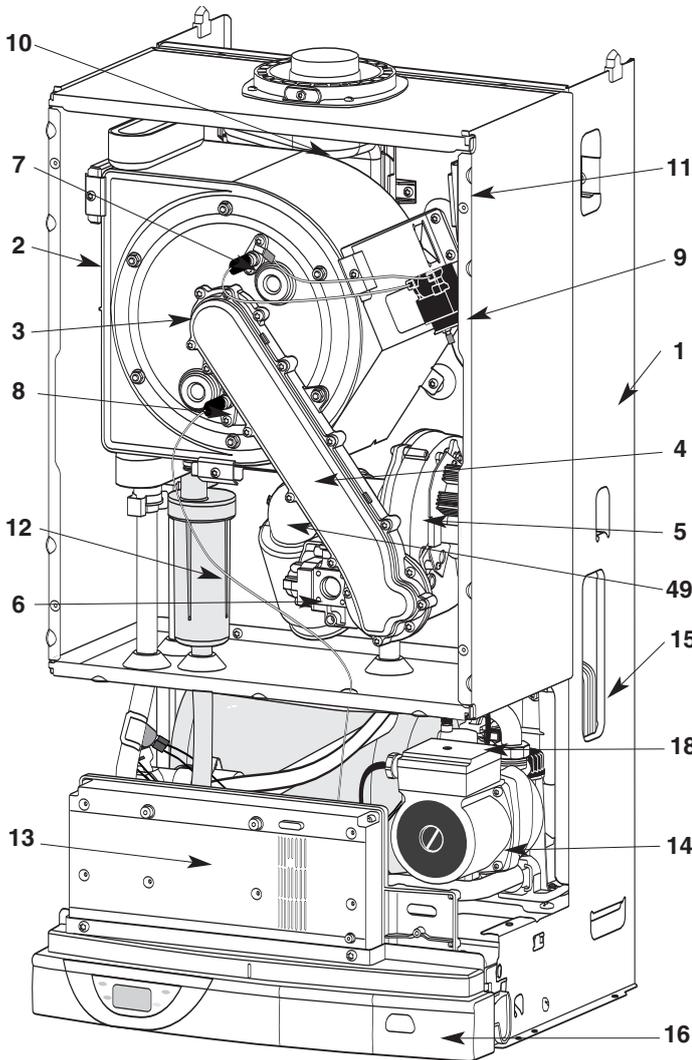
Central heating initial pressure when cold (in bar)



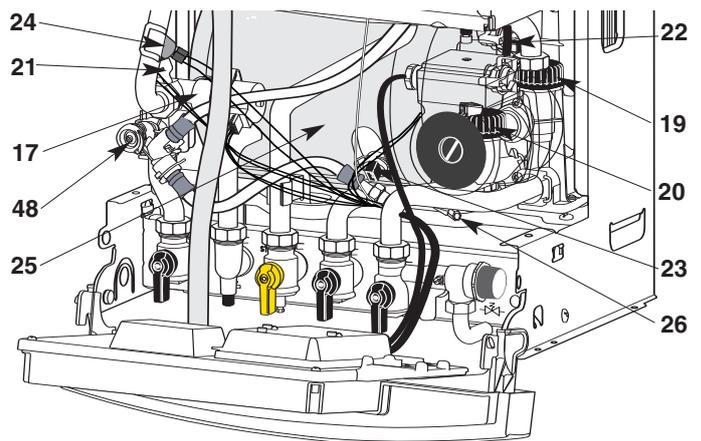
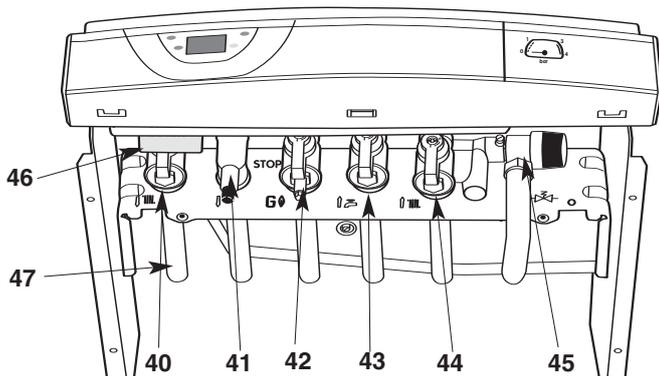
System capacity chart

Note : The system initial pressure should be over the following value :  
 $\frac{\text{System static height (in metre)}}{10} + 0.7 = \text{Initial pressure (in bar)}$

## Components location

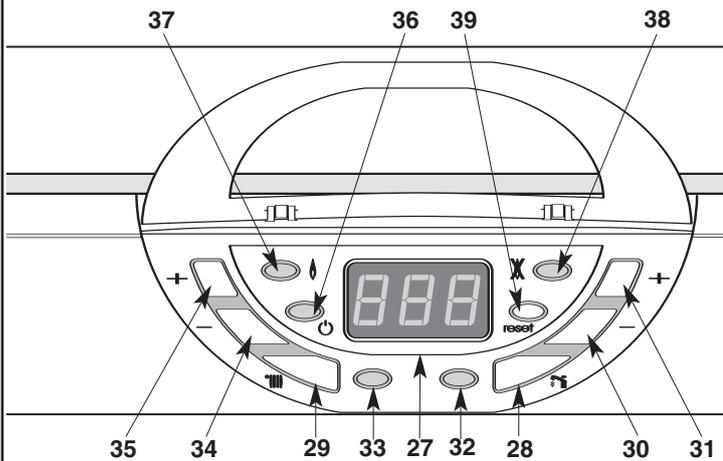


- 1.- Steel chassis complete with expansion vessel
- 2.- Sealed chamber
- 3.- Burner and heat exchanger assembly
- 4.- Air / gas connection
- 5.- 24 V modulating fan
- 6.- Gas valve
- 7.- Ignition electrode
- 8.- Ionisation probe
- 9.- Ignitor
- 10.- Combustion products manifold
- 11.- 24 V transformer
- 12.- Siphon
- 13.- Electrical box
- 14.- Pump
- 15.- Secondary heat exchanger
- 16.- Pressure gauge
- 17.- Three way valve
- 18.- Automatic air separator and automatic vent
- 19.- Central heating flowswitch
- 20.- Domestic hot water flowswitch
- 21.- Central heating control thermistor
- 22.- Hot water control thermistor
- 23.- TSS Control thermistor
- 24.- Overheat sensor
- 25.- TSS<sup>®</sup> (mini cylinder)
- 26.- DHW pressure relief valve.
- 40.- Central heating flow isolating valve
- 41.- Domestic Hot Water outlet
- 42.- Gas service tap
- 43.- Water service tap
- 44.- Central heating return isolating valve
- 45.- Central heating pressure relief valve
- 46.- User's guide
- 47.- Connecting tails (x 5)
- 48.- Adjustable by-pass
- 49.- Silencer



## FUNCTIONING

### Control panel



- 27 - Display
- 28.- Domestic Hot water switch
- 29.- Green indicator – Domestic Hot Water mode ON
- 30.- D.H.W. temperature reducing key
- 31.- D.H.W. temperature increasing key DHW mode indicator
- 32.- Central Heating switch
- 33.- Green indicator – Central Heating mode ON
- 34.- Central Heating temperature reducing key
- 35.- Central Heating temperature increasing key
- 36.- Green indicator – Power ON
- 37.- Orange indicator - Burner ON
- 38.- Red indicator - Lock out / flame failure
- 39.- Reset key

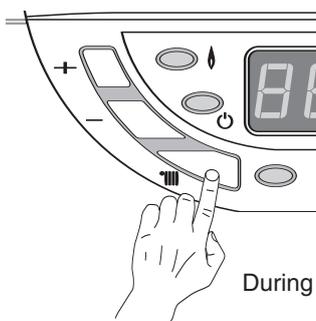
### Switching on

1. Check that the pressure in the Central Heating system is above 0.7 bar and below 1.5 bar with the pressure gauge **16**.
2. Check that the gas service tap is opened at the gas meter and the main power is on. Green indicator  Power ON **36**.
3. Open the gas tap **42**.

The boiler is now ready to use.

**Attention !** If the boiler remains off for a prolonged period of time, air may collect in the gas pipes and can hinder the boilers initial attempts to light. (please refer to section 18 Incorrect Function)

### Switching on the Central Heating



Press key **29** , the green indicator **33** will light and the display will show the Heating flow temperature. 

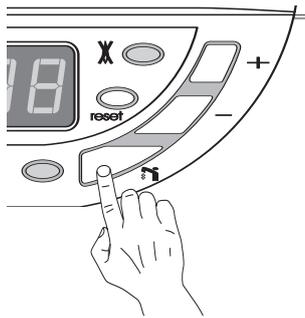
Keys **34**  and **35**  allow the adjustment of the temperature required in the Central Heating system depending on the weather conditions.

- press  to increase temperature when the weather is cold
- press  to reduce temperature when the weather is fair

During the temperature setting operation the display will flash.

If the room thermostat is calling for heat, a dot will be displayed at the bottom of the 3rd digit 

## Switching on the Domestic Hot Water



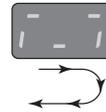
Press key **28** , the green indicator **32** will light :

If there is no water demand

the display will show the following graphic 

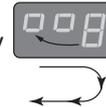
If the tank is heating up

the digit will move clockwise on the display



In case of draw off

a square made of 4 digits will move clockwise on the display



Keys **30**  and **31**  allow the adjustment of the temperature required for the Domestic Hot Water flow. During the temperature setting operation the display will flash.

**Note :** The configuration of the C.H. system can generate some gravity effect when the boiler is set in D.H.W. mode only. It may result in a temperature rise of the heating pipes close to the boiler (or eventually a radiator). To avoid this, it is possible to close during the summer period (Central Heating switched off) the heating flow isolating tap (**40**). Don't forget to open it before switching on the Central Heating mode again.

## Switching on the Domestic Hot water and Central Heating together

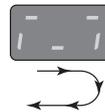
Press key **29** , the green indicator **33** will light.

Press key **28** , the green indicator **32** will light.

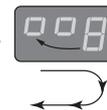
If there is no water demand the display will show the heating flow temperature 

If the tank is heating up

the digit will move clockwise on the display



In case of draw off a square made of 4 digits will move clockwise on the display



## Stand by mode



A fixed digit at the centre of the display and the green indicator **36** on

Putting the boiler in stand by mode and anti-freeze system. :

Press keys **29**  and **28** , to switch off both DHW and CH mode. The green indicators **33** and **32** will stop.

**During the duration of the stand-by mode, an automatic anti-sticking system will switch on the pump for 1 minute and make a movement of the 3 way valve every 23 hours.**

**The stand-by mode will disable the anti-freeze function of the room thermostat (if fitted). To leave the room thermostat anti-freeze system operative, please leave the Central Heating mode on.**

The boiler is equipped with an automatic anti-freeze system which is permanently on.

If the Central Heating temperature decreases below 7°C, the pump will start.

If the Central Heating temperature decreases below 4°C, the pump and the burner will start.

## Turn off the boiler

- Press keys **29**  and **28** , to switch off both D.H.W. and C.H. mode. The green indicators **33** and **32** will stop
- Switch off the main electrical supply
- Shut off the gas service tap **42**

**Note :** In this condition, the **anti-freeze** system is inoperative

### Domestic Hot Water Mode

To be able to supply hot water, the DHW mode should be ON. Press on key **28**

, the green indicator **32** will light.

If there is no water demand, the display will show the following graphic  if

the TSS<sup>®</sup> is cold, the burner

will light immediately. In case of draw off, a square made of 4 digits will move

 clockwise on the display .

Keys **30**  and **31**  allow the adjustment of the temperature required for D.H.W., flow. During the temperature setting operation, the display will flash. When a tap or a shower is turned on, the flow of mains water, above 2 litres per min., will activate the DHW flow switch **20** or if the TSS<sup>®</sup> thermistor is calling for heat and allow the 3 way valve **17** to move to the DHW position. The pump can now circulate primary water heated by the main exchanger through the secondary heat exchanger and TSS<sup>®</sup> coil. The primary flow switch checks that this flow rate is over 4lt./min. before allowing the lighting sequence to begin.

The fan on the gas valve assembly starts and when the lighting speed is reached (detected by a hall effect sensor) the 2 safety solenoids 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 led **34** will light and the regulation system will be able to adjust the gas rate regarding the heat load. If the TSS<sup>®</sup> thermistor is

calling for heat, the burner will stay in minimum output. If a flame is not detected, after 10 seconds, the security solenoids close together and shut off the gas. The red lockout indicator led **38** will light. Press the reset button to re-light the burner.

For flow rates of less than 2 l/min, the domestic hot water temperature is controlled by TSS<sup>®</sup> thermistor **23** and heating thermistor **21**. For flow rates over 2 l/min, the domestic hot water temperature is controlled by hot water control thermistor **22** and the central heating control thermistor **21**. This system anticipates the changes of temperature in the secondary heat exchanger and ensures accurate temperature regulation.

When the tap is closed the burner may stay alight until the TSS<sup>®</sup> cylinder is up to temperature. Then the burner is extinguished and the pump stops. The boiler will now stay in the hot water mode for 3 minutes to maintain temperature to ensure a fast response in the event of a subsequent hot water demand. Priority will be given to a demand for hot water or re-heating of the TSS<sup>®</sup> cylinder. This will interrupt the central heating for the duration of hot water supply.

### Central Heating Mode

To be able to supply heating, the mode should be switched ON. Press key **29** , the green indicator **33** will light, and the display will show the Heating Flow temperature.

Keys **34**  and **35**  allow the adjustment of the temperature required for the

Central Heating system regarding the weather conditions. During the setting operation, the display will flash.

When there is a demand for heating, (either from the room thermostat or the clock) the pump starts. If the boiler temperature control is calling for heat and the primary flow rate is over 4 lt./min., the central heating flow switch operates, allowing the ignition sequence to begin. The fan on the gas valve assembly starts and when the lighting speed is reached (detected by a hall effect sensor) the 2 safety solenoids 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 LED **37** will light and the regulation system will be able to adjust the gas rate regarding the heat load. If a flame is not detected, after 10 seconds, the security solenoids close together and shut off the gas. The red lockout indicator LED **38** will light. Press the reset button to re-light the burner.

The Central Heating flow temperature is controlled by the Central Heating control thermistor **21**. The boiler has been designed to minimise cycling and will not attempt to re-light for at least 3 min. after the boiler thermostat has been satisfied. When the room thermostat is satisfied, the burner will switch off and the pump will remain running for a further 3 minutes before it too stops.

**Note:** It is possible to override the 3 minute delay by pressing the Reset key **39**.

**Lockout procedure**

Flame disappearance :

When the ionisation electrode **8** does not detect flame presence. The orange indicator led **37** extinguishes. A lighting cycle starts. If a flame is not detected, before 10 seconds, the safety solenoids will close. The lockout red indicator **38** lights and the display shows the error

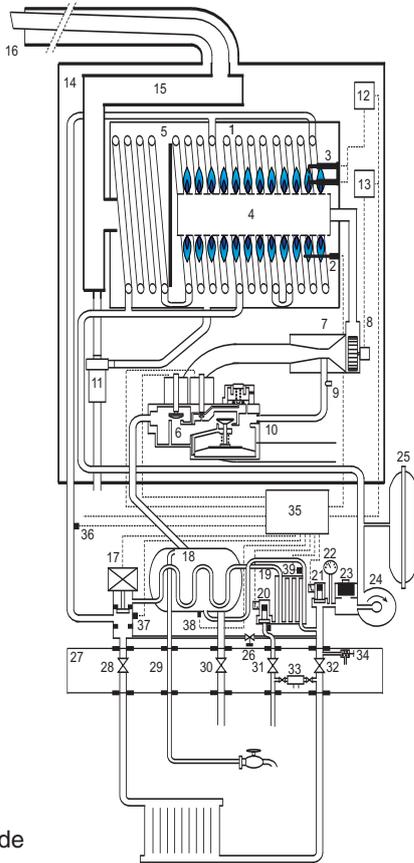
code. The pump runs and the 3 way valve **17** stays in its position. After a few seconds, it will become possible to reset the boiler by pressing the reset key **39**.

**Overheat detection :**

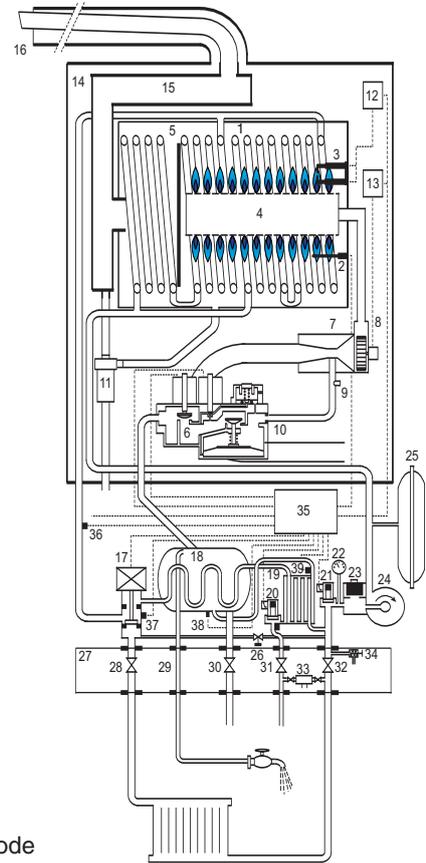
If an overheat (over 100°C) is detected in the primary circuit by the sensor **23**, the safety solenoids close and the fan stops.

The orange LED **37** extinguishes and the pump remains running for 3 minutes. The reset will only be possible once the primary temperature has dropped below 76°C.

**CALYDRA GREEN FUNCTIONAL DIAGRAM**



Heating mode



Hot Water mode

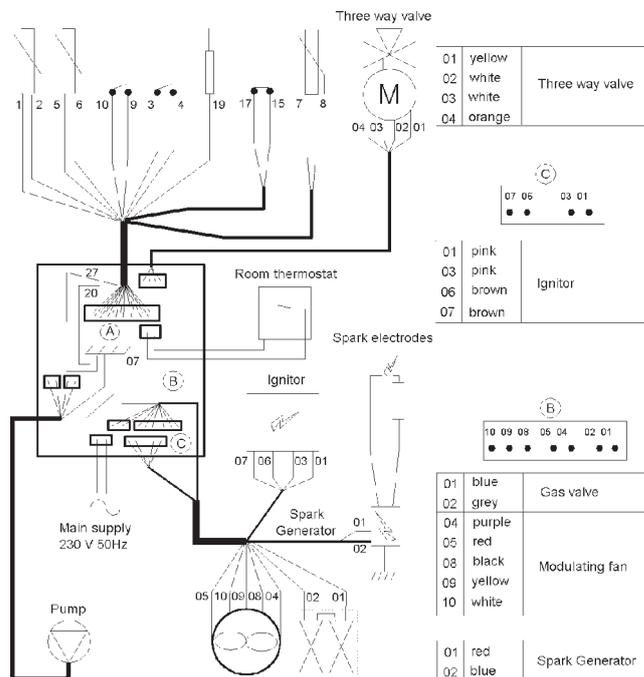
**ELECTRICAL WIRING**

**DIAGRAM**



1	purple	Central heating control thermistor
2	purple	Central heating control thermistor
3	orange	Central heating flowswitch
4	orange	Central heating flowswitch
5	green	Domestic hot water control thermistor
6	green	Domestic hot water control thermistor
7	blue	Thermistor cylinder
8	blue	Thermistor cylinder
9	black	Domestic hot water flowswitch
10	black	Domestic hot water flowswitch
11		
12		
13		
14		
15	brown	Overheat sensor
16	brown	Overheat sensor
17	brown	Overheat sensor
18	brown	Overheat sensor
19	white	Ionisation probe
20	green / yellow	Mass
27	green / yellow	Mass

1311419 /



**ACTION**

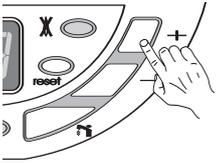
**CONFIGURATION**

**DISPLAY**



5 "

**Menu - 1 - Default register**  
Record the last 10 defaults



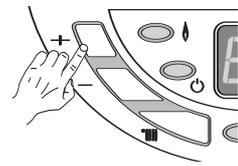
x times



Section	Digit 1	Digit 2 and 3
Last default occurred	0.	code from 01 to 99
Last but one default occurred	1.	code from 01 to 99
...	...	code from 01 to 99
Last default occurred before the previous one	9.	code from 01 to 99



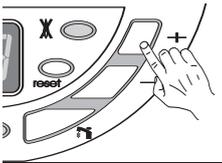
Note -- is displayed if no default is recorded.



once

**Menu - 2 - Boiler conditions**

Indicates the conditions or the configurations of the boiler

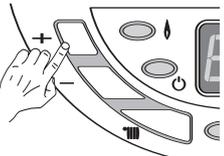
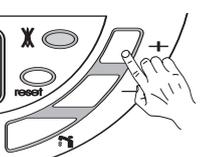
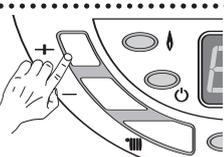
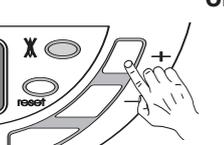


x times



Section	Digit 1	Digit 2 and 3
Software version of display PCB	0.	10 to 99
Flue type	2.	1 : FF variable speed
Room thermostat is calling for heat	3.	0 : no
	3.	1 : yes
Theoretical position of the 3 way valve	4.	0 : DHW
	4.	1 : CH
DHW flow temperature in Celsius degrees	5.	from 00 to 99
TSS® temperature in Celsius degrees	6.	from 00 to 99
CH flow temperature in Celsius degrees	7.	from 00 to 99
Software version of main PCB	9.	10 to 99

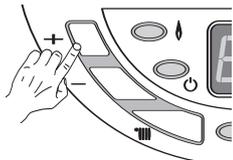


ACTION	CONFIGURATION	DISPLAY																																										
	<b>Menu - 3 - Boiler options</b>	- 3 -																																										
once	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Section</th> <th style="width: 10%;">Digit 1</th> <th style="width: 40%;">Digit 2 and 3</th> </tr> </thead> <tbody> <tr> <td>Under floor heating system</td> <td style="text-align: center;">0</td> <td>0 : no 1 : yes</td> </tr> <tr> <td>DHW Delay (time before CH relight after a DHW cycle)</td> <td style="text-align: center;">5</td> <td>0 to 5 mn by step 0.5mn</td> </tr> <tr> <td>DHW flow swith Delay (time before DHW flow detection to override pressure peak problem)</td> <td style="text-align: center;">6</td> <td>0 to 20 1/10 seconde</td> </tr> </tbody> </table>	Section	Digit 1	Digit 2 and 3	Under floor heating system	0	0 : no 1 : yes	DHW Delay (time before CH relight after a DHW cycle)	5	0 to 5 mn by step 0.5mn	DHW flow swith Delay (time before DHW flow detection to override pressure peak problem)	6	0 to 20 1/10 seconde	0 0	✓																													
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	9	Value from 0 to 10																																										
		0 1	✓																																									
x times		1 0	✓																																									
		1 1	✓																																									
		2 0 0																																										
		2 0 5																																										
		2 1 0	✓																																									
		2 5 0	✓																																									
		4 5 0																																										
		4 8 0	✓																																									
		8 0 0																																										
		8 0 5																																										
		8 2 5	✓																																									
		8 5 0	✓																																									
		9 0 6	✓																																									
		9 0 6	✓																																									

**ACTION**

**CONFIGURATION**

**DISPLAY**



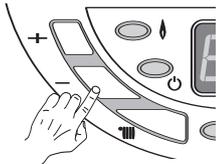
press once

**Menu - 5 - Combustion rate control mode**



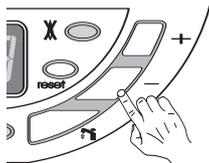
wait 5 "

Effect	Display
Combustion rate control mode OFF	-.-.-



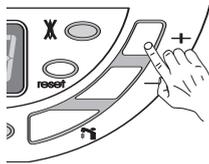
press once

Switching on the combustion rate control mode. Central heating output reaches the maximum power set in menu 4 section 9.	Central heating temperature is displayed in celsius degrees. The 3 dots indicate that the combustion rate control is ON at maximum output.	XX.X°
--	--	-------



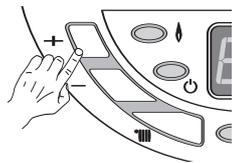
press once

Switching the combustion rate down to minimum power.	Central heating temperature is displayed in celsius degrees. The dot indicates that the combustion rate control is ON at minimum output.	XX.X°
--	--	-------



press once

Switching on the combustion rate to maximum output set in menu 4 section 9.	Central heating temperature is displayed in celsius degrees. The 3 dots indicate that the combustion rate control is ON at maximum output.	XX.X°
---	--	-------



press once

Switching off the combustion rate control mode.		-1-
---	--	-----

**Locking conditions of the combustion rate control mode :**

- boiler in stand by mode
- D.H.W. draw off
- room thermostat is not calling for heat
- room thermostat is calling for heat but the maximum temperature is reached
- boiler in lockout mode
- after a reset or if the main supply fails
- end of the mode if operator leave menu 5
- after 15 minutes if there is no actions on keyboard

**Note :** As soon as the combustion rate control mode is on, Central Heating and Domestic Hot Water keys are inactive.

### C.H. heat output setting :

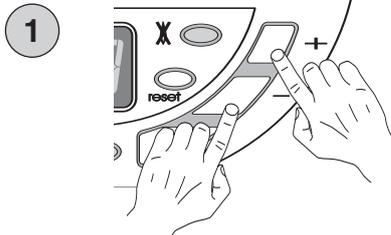
If you would like to change the setting of the C.H. heat output, please proceed as follows:  
(note: the factory setting is 18 kW and the following explanation refers to menu 4 section 9)

Display

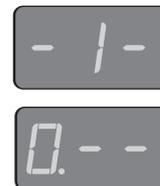
- 1** - Switch to installer mode, press key **+** and **-** on DHW side for 5 seconds.

The display shows :

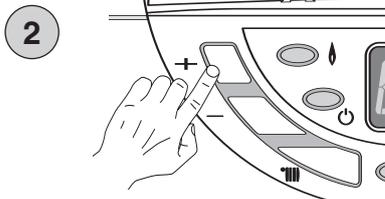
**-1-** then **0.--** if there is no default in the default register.



5''



- 2** - press 3 times on menu key **+** (on C.H. side) to gain access to menu **-4-**, The display shows :  
**-4-** then the value set for section 0 (**00** or **01** respectively Action on burner only or pump and burner)



x 3



or

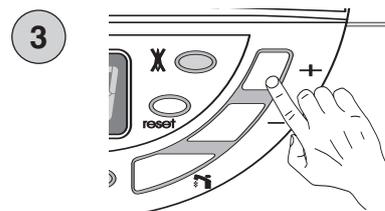


- 3** - change to section 9 (Adjustment of C.H. heat output). Press key **+** on D.H.W. side 9 times.

The display shows:

**906** (which corresponds to the 18 kW which is the factory setting)

**9** = section 9      **06** = 18 kW



x 9



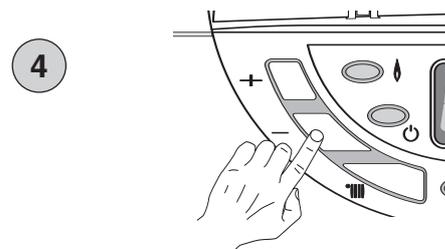
- 4** - press setting key **-** (on CH side) once, the 2nd and 3rd digits flash together. Then press the **-** or **+** key on the D.H.W. side to change the C.H. heat output step between **00** and **10**.

Press the setting key to confirm the value. The display stops flashing.

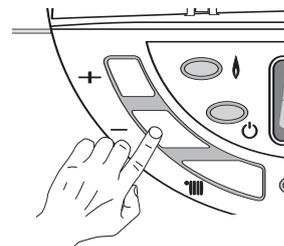
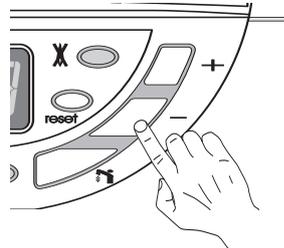
Setting procedure is finished.

To exit from setting mode, leave the boiler for approx. 1 minute, the computer will switch back to user mode.

After programming please close the door **P**.



4



## REGULATION

Temperature regulation for both C.H., TSS<sup>®</sup> and D.H.W. circuits are controlled by 3 thermistors. The C.H. knob allows the adjustment of temperature between 35 and 85°C. The D.H.W. temperature is limited to 60°C. TSS<sup>®</sup>, D.H.W. and C.H. thermistors are identical and interchangeable.

Resistance value are

- 5000  $\Omega$  at 25 °C
- 2631  $\Omega$  at 40°C
- 620  $\Omega$  at 80°C
- 255  $\Omega$  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 l/h  $\pm$ 20 l/h
- C.H. 250 l/h  $\pm$ 20 l/h

## ROUTINE SERVICING

To ensure continued efficient operation of the appliance, it is recommended that it is checked and serviced as necessary at regular intervals. The frequency of servicing will depend upon the particular installation condition and usage, but in general, once a year should be adequate.

It is the law that any service work must be carried out by a competent person such as your local Chaffoteaux Service Centre, British Gas or other CORGI registered personnel in accordance with the current Gas Safety (Installation and Use) regulation.

Attention ! the air/gas connection pipe between the gas valve and the burner should never open. The seal can be checked only in the factory.

### The service schedule should include the following operations :

- Check the pressure in the system
- Check the correct operation of the appliance
- Check the correct operation of the gas controls
- Check the functions of safety controls
- Clean the electronic board of the fan located on the gas valve assembly and the different transformers in the sealed chamber.
- Check combustion chamber insulation panels for damage
- Check the lighting and ionisation electrodes condition
- Clean the burner (Never use a metallic brush as this can damage the stainless steel)
- Clean the heat exchanger (Never use a metallic brush as this can damage the stainless steel)
- Clean the siphon and pay attention to the acidity of its contents
- Check the correct seal of the drain system
- Clean gas and water filters
- Check expansion vessel charge pressure
- Clean and check the operation of the safety valve
- Check the correct seal of the flue system.

### Additional procedures that may be necessary :

- Check the burner pressure and the gas flow rates
- Check, clean or replace components as necessary
- Carry out combustion test utilising the test points in the flue turret

### Suggested sequence for servicing :

Before disconnecting or removing any part, isolate the gas and electricity supplies. Ensure that the appliance is cool, and take care about the condensate products content in the siphon which are acid.

(For detail, please see section on Parts Removal and Replacement)

### Preliminary checks

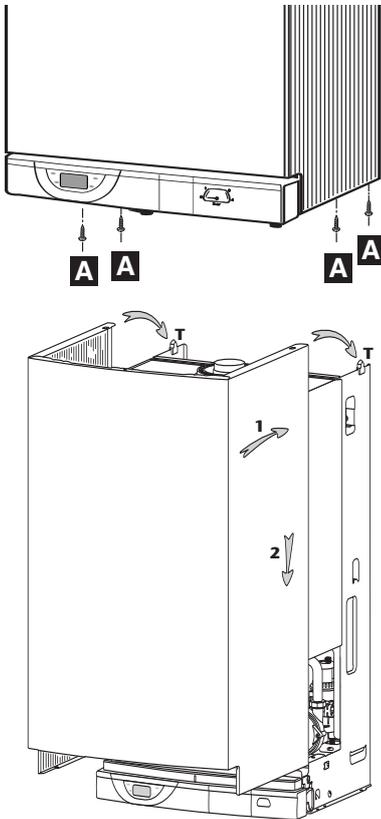
- Remove outer case
- Check the system pressure is at least 0.7 bar cold
- Check the modulation of the gas valve in DHW mode by reducing progressively the flow rate at a tap.
- Check that the burner is extinguished fully when both solenoids are closed and fan is off.
- Test ionisation functions and check that lockout occurs by turning off gas tap.
- Whilst the boiler is operating, check the operation of the primary flow switch by closing the Central Heating flow valve and bypass screw (turn clockwise ) noting the number of turns so that it may be reset correctly.
- Check the correct flood of condensate into the siphon which is transparent.

## REMOVAL AND REPLACEMENT OF PARTS

Before removing the appliance case, isolate the gas and electrical supplies. Isolate the boiler from the system and drain before removing any component in the waterways. Ensure that the appliance is cool.

### 1. Outer Case

Remove the four screws **A** in the bottom of the case and lift free. When replacing,



carefully locate on lugs **T** on the top edge of the chassis.

### 2. Sealed chamber front panel

Unscrew the four self tapping screws securing the sealed chamber front panel and lift over the top corner locating lugs. Reassemble in reverse order.

### 3. Combustion Chamber front panel and air/gas connection

Carry out steps 1 and 2 as above. Unscrew the three screws securing the air/gas connection pipe onto the gas valve assembly. Disconnect the ionisation and lighting electrodes from their wiring. Unscrew the six nuts to release the combustion chamber front panel and pull the assembly towards you. Reassemble in reverse order.

### 4. Ionisation electrode

Carry out steps 1 and 2 as above. Disconnect the ionisation electrode from its wiring. Loosen the 2 screws and pull it out from the combustion chamber front panel. Replace the ionisation gasket provided. Reassemble in reverse order.

### 5. Lighting electrode

Carry out steps 1 and 2. Disconnect the lighting electrode from its wiring. Loosen the 2 screws and pull it out from the combustion chamber front panel. Replace the ionisation gasket provided. Reassemble in reverse order.

### 6. Burner

Carry out steps 1, 2 and 3. Remove the 4 Philips screw retaining the burner onto the combustion chamber. Pull it out with care to avoid any damage to the ceramic panel protecting the combustion chamber front panel. Replace the burner gasket. Reassemble in reverse order.

### 7. Gas valve assembly

Carry out steps 1 and 2. Unscrew the three screws securing the air/gas connection pipe onto the gas valve assembly. Disconnect the connectors from the gas solenoids and fan. Loosen the gas pipe nut. Unscrew the six nuts to release the combustion chamber front panel and pull the assembly towards you. Replace the gas filter before fitting the full assembly back into the boiler.

### 8. Fan assembly

Carry out all the operations mentioned in step 7. Unscrew the three screws securing the air/gas connection pipe onto the gas valve assembly. Separate the gas valve assembly and the venturi from the fan assembly by loosening the two hexagonal head screws. Reassemble in reverse order and replace all necessary gaskets.

### 9. Gas section

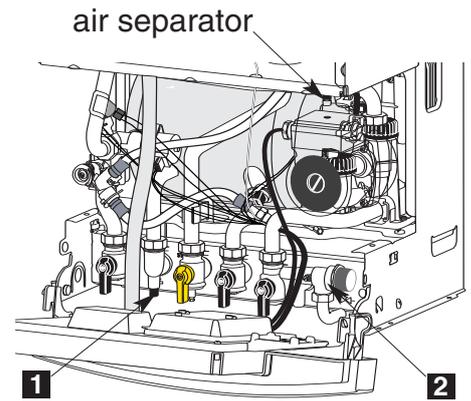
Carry out all operations mentioned in step 7. Unscrew the three screws securing the air/gas connection pipe onto the gas valve assembly. Separate the gas valve assembly and the venturi from the fan assembly by loosening the two hexagonal head screws. The venturi and the gas section can be separated by loosening the 2 screws located at the top of the gas valve. Replace all necessary gaskets before reassemble in reverse order.

### 10. Venturi in the gas section

Carry out all operations mentioned in step 7. Unscrew the three screws securing the air/gas connection pipe onto the gas valve assembly. Separate the gas valve assembly and the venturi from the fan assembly by loosening the two hexagonal head screws. The venturi and the gas section can be separated by loosening the 2 screws located at the top of the gas valve. Replace all necessary gaskets before reassembling in reverse order.

### 11. Drain down

2 drain points are located on the boiler.



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

### 12. 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 11. 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.

### 13. Flow switches

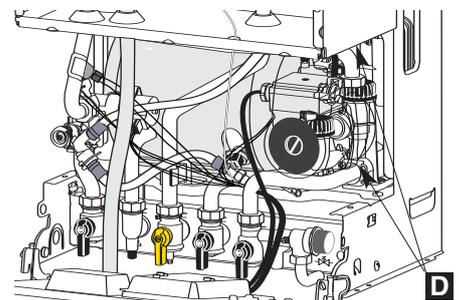
Drain boiler as in step 12. Disconnect the electrical plug, turn the top cover anti-clockwise, remove the O-ring and the brass piston. Reassemble in reverse order.

### 14. 3-Way valve

Drain boiler as in step 12. Remove the 3 clips on the 3 way valve. Remove the clip 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.

### 15. 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 gaskets are correctly positioned. The heat exchanger is so designed that it

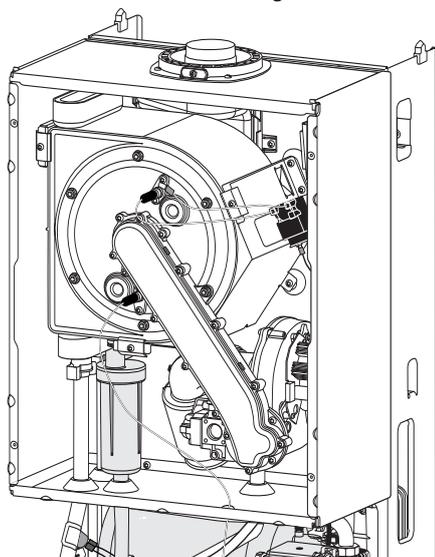


cannot be remounted incorrectly.

### 16. Main heat exchanger

Carry out steps 1 and 2. Drain down the boiler as in step 12. Unscrew the three screws securing the air/gas connection pipe onto the gas valve assembly. Disconnect the ionisation and lighting electrodes from their wiring. Unscrew the six nuts to release the combustion chamber front panel and pull the assembly towards you. Undo the two clips of the pipes to the main exchanger and pull down the pipes. Unscrew the three screws located at the bottom, top left and the right with the retaining system to be able to pull the main heat exchanger towards you.

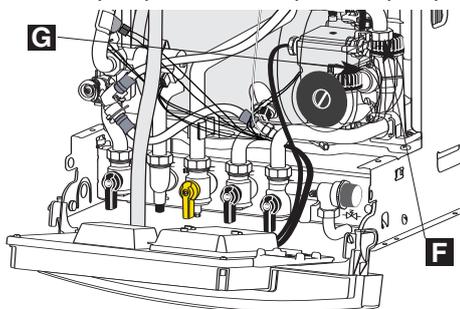
Reassemble in reverse order taking care about the location of the gasket on the



fumes collector and replace all necessary gaskets.

### 17. Pump

Drain boiler as in step 12. Pivot the electrical box downwards. Open the electrical box cover removing the 2 screws. Remove the pump plug from the power board and the earth plug from the earth socket. Unscrew the nut **F** of the return pipe from the volute. Remove the clip **G** on the pump volute and pull the pump



toward you. Reassemble in reverse order.

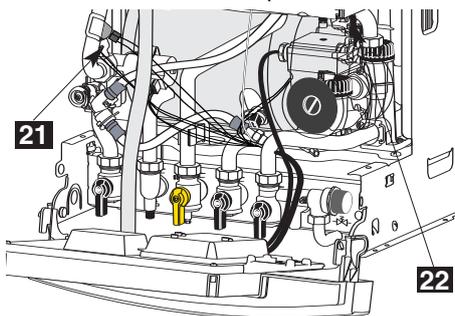
### 18. Pressure relief valve

The pressure relief valve can be serviced from the front of the appliance. Drain the boiler first, undo the retaining

screw and pull out the valve. Reassemble in reverse order.

### 19. Thermistors

Drain the boiler as step 12. Disconnect



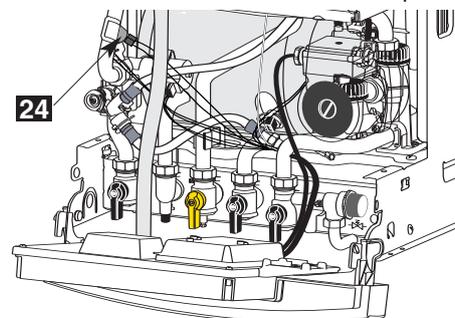
the plug, remove the retaining clip pull the thermistor out. Reassemble in reverse order.

**22** = DHW thermistor

**21** = Heating thermistor

### 20. Safety thermostat

Remove the casing as step 1 and hinge down the electrical box as step 5.



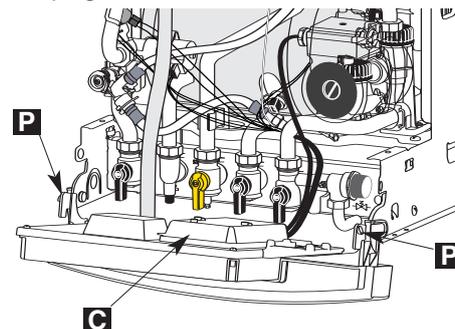
Disconnect the 2 cables, pull out the sensor with the clip (13). Reassemble in reverse order.

### 21. Spark generator

Carry out steps 1 and 2. Unplug the connector from the spark generator located on the right hand side of the main heat exchanger. Loosen the two screws to remove the igniter. Reassemble in reverse order.

### 22. Main control board

Carry out step 1 as above and hinge down the electrical box by pressing the retaining tabs **P** on either side. Remove wiring cover **C**. Undo the 4 screws of the electrical rear panel and remove it. Unplug all cables from the PCB, remove



the earth plug from the earth socket. Hang out the main PCB. Reassemble in

reverse order.

### 23. Display PCB

Carry out step 1 and hinge down electrical box by pressing the retaining tabs **P** on either side. Remove the pressure gauge clip. Rotate the electrical box back into the upper position. Undo the 2 screws retaining the front panel, put your two hands at the bottom of the front panel and pull it down to release it from the 2 clips. Hinge down again the electrical box. Undo the 4 screws of the electrical rear panel and remove it. Unplug the display board cables from the main PCB. Reassemble in reverse order.

### 24. 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 it toward you. Reassemble in reverse order.

### 25. Pressure gauge

Carry out step 1 and drain the boiler as step 12. Hinge down the electrical box by pressing the retaining tabs **P** on either side. Press on the clip to remove it and pull it out. Remove the clip which holds the connection of the capillary onto the pump hose. Hang out the pressure gauge with its capillary. Reassemble in reverse order.

### 26. TSS®

Drain both circuits of the boiler as in step 11. Unscrew all nuts from the connecting bracket and remove the gas pipe from the gas section. Remove the main exchanger flow pipe to the 3 way valve. Remove the pump as in step 17. Unplug all thermistors, 3 way valve, flow switches. Unscrew the 2 retaining screws of the hydraulic section to the chassis. Pull the hydraulic assembly toward you. Reassemble in reverse order and check the gas section for soundness and the water circuits for leakages.

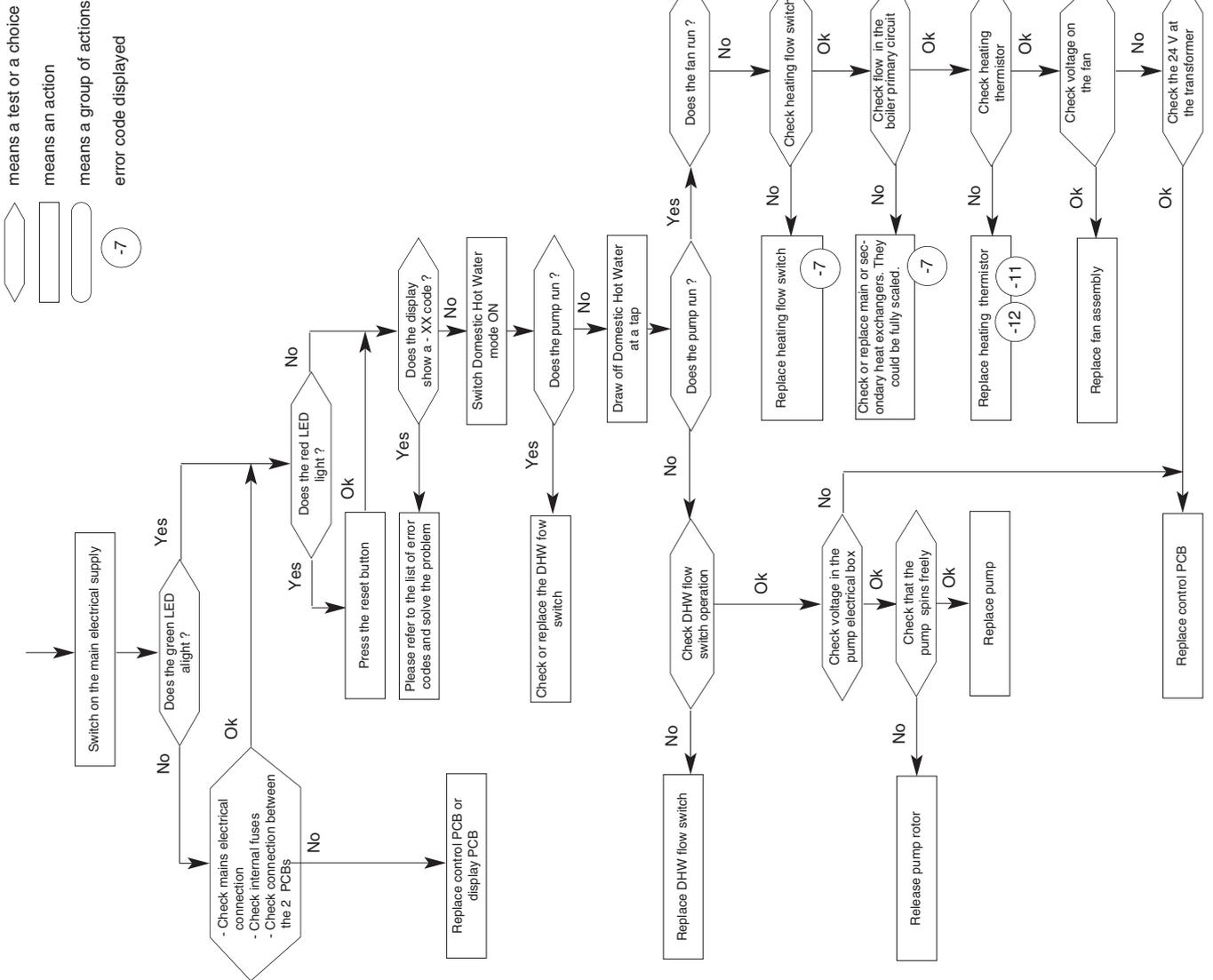
# FAULT FINDING CHART Part 1

- ◊ means a test or a choice
- ▭ means an action
- means a group of actions
- 7 error code displayed

**PLEASE CHECK THE FOLLOWING POINTS CAREFULLY BEFORE GOING THROUGH THE FAULT FINDING CHART**

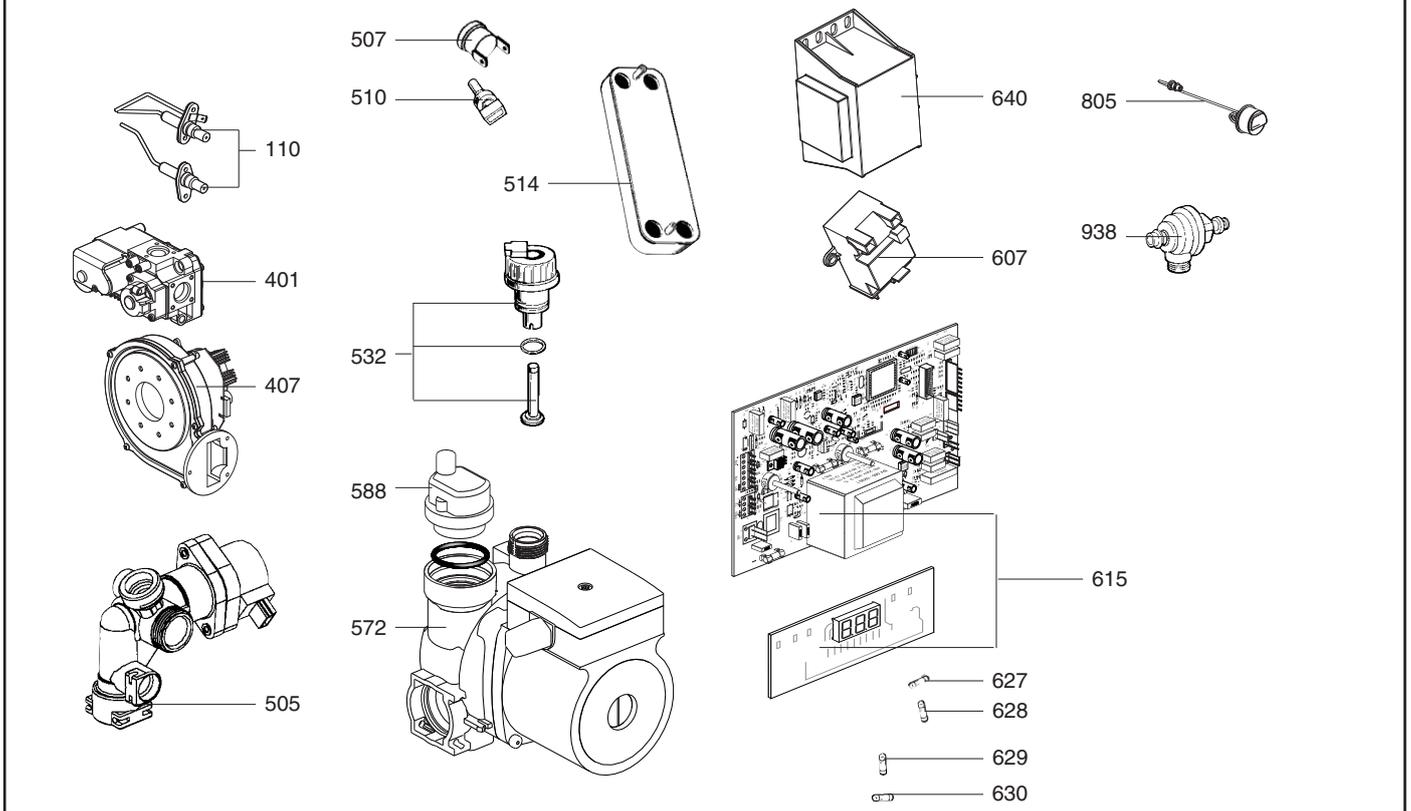
- Gas pressure
- Electric mains
- Minimum water pressure in the heating circuit (over 0.8 bar)
- All isolating valves have been opened
- Boiler air vented
- Minimum domestic hot water flow of 2 l/min
- Check that the heating filter is clear.
- Remove the front panel of the sealed chamber

Error code	Description
1	Overheating LockOut
3	No flame detection
5	Anti-frost mode on
6	Anti-frost mode on
7	No water circulation
8	Faulty water circulation in the primary circuit
9	DHW thermistor faulty, Opened circuit
10	DHW thermistor faulty, Short circuit
11	Central heating thermistor faulty, Opened circuit
12	Central heating thermistor faulty, Short circuit
18	Ignition test
20	Faulty connexion
23	Low speed fan
24	Faulty control functioning fan
25	TSS® thermistor faulty opened circuit
26	TSS® thermistor faulty short circuit
29	3 ways valve locked in Heating position
31	Error communication with EEPROM
32	Error communication with the main PCB





# SHORT LIST



Key N°	Description	G.C N°	Manf. Pt. N°	Type	CALYDRA GREEN 24		CALYDRA GREEN 30		Manf. date	
							from	to		
110	ELECTRODE KIT		1309624		●	●				
401	GAS VALVE (24 kW)		1308957		●					
	GAS VALVE (30 kW)		1310129			●				
407	FAN ASSY		1307585		●	●				
505	THREE-WAY VALVE	E23510	81839		●	●				
507	OVERHEAT THERMOSTAT 100°C	277783	1010572		●	●				
510	THERMISTANCE	277834	1000733		●	●				
514	WATER/WATER HEAT EXCHANGER		1302409		●	●				
532	WATER THROTTLE	277846	81471		●	●				
572	PUMP + AIR SEPARATOR 15/50		1301964		●	●				
	PUMP + AIR SEPARATOR 15/60		1303461		●	●				
588	AIR SEPARATOR HEAD ASSEMBLY		1304608		●	●				
607	IGNITER		1002105.20		●	●				
615	PRINTED CIRCUIT BOARD		1310357		●	●				
627	FUSE 250V 2A - TEMPORIZED	277883	1003456		●	●				
628	FUSE 250V 1A - TEMPORIZED		1003634		●	●				
629	FUSE 250V 1.25A - TEMPORIZED	277884	1003635		●	●				
630	FUSE 250V 0.315A - TEMPORIZED		1307845		●	●				
640	TRANSFORMER		1308149		●	●				
805	PRESSURE GAUGE		1303158		●	●				
938	PRESSURE RELIEF VALVE		1020933		●	●				

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