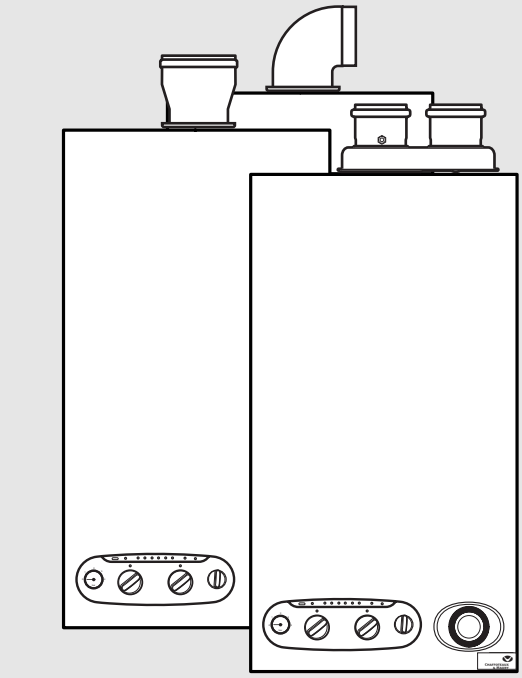
Calydra comfort

COMBINATION BOILER

Heating and Instantaneous Domestic Hot Water with TSS®

Fanned Flue system

Installation and Operating instructions



Calydra comfort 80
Calydra comfort 100

Manufactures N°	Model Type	Gas Council N°
200906789037.31	Calydra comfort 80 Nat	47 - 980 - 22
200906790037.31	Calydra comfort 100 Nat	47 - 980 - 23

CHAFFOTEAUX & MAURY

These instructions are suitable for the following boilers :

Calydra comfort 80
Calydra comfort 100

Do not forget the Logbook!

Chaffoteaux & Maury supports Benchmark, the heating industry code to ensure the correct installation, commissioning and servicing of domestic central heating systems.

To The Householder

Make sure you have a completed Logbook for your boiler. This provides a record of the commissionning of your boiler. It contains important information about your particular installation that may be required by service engineers. The logbook will also provide contact details for the installer should you need guidance in the use of this appliance or if there are any problems.

As with your car, your boiler will work more reliably and efficiently if regularly serviced. We recommend an annual service check. The service history of the appliance will be recorded on the logbook.

In the unlikely event of any problems with your boiler or system you should first contact your installer. If your installer cannot resolve the problem he should telephone our national service helpline.

A charge may be made if Chaffoteaux & Maury Service is called out to resolve a non-product related fault.

Your statutory rights are not affected.

TO CONTACT C&M SERVICE, PLEASE CALL THE NATIONAL WARRANTY HELPLINE ON:

0 870 243 0224

To The Installer

As part of the commissioning of this appliance it is vital that the Logbook is completed and given to the Householder. Please ensure that your customer is aware of the importance of keeping the Logbook safe as a record of the installation and the appliance service history.

Please ensure that your customer is aware of the correct operation of the system, boiler and controls.

CUSTOMER CARE

Chaffoteaux & 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 the national warrenty helpline 0870 243 0224.

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 invalidated 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. The appliance named below does not contain any asbestos or asbestos products, or mercury derivatives. Additional CFC's have not been used in this product.

The appliance does not contain any potential hazard in relation to the COSHH regulations.

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 where pressures exced 6 bars a pressure limiting is preferred.

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 ceramic lining, ensure that it is securely wrapped and wash hands after contact.

Contents

1 Introduction

By combining their modern highly efficient low water content fanned flue combination boiler concept and the brand new TSS®"Temperature Stabilised System", Chaffoteaux et Maury have created a whole new concept.

Calydra comfort

This unique combination is able to provide the user with hot water immediately at the outlet of the appliance and stable temperatures at both extremely low flow rates or when several taps are opened together.

The TSS® is a 5 litres, independently controlled mini unvented storage cylinder, powered by a 3 kW coil. It works in conjunction with the Chaffoteaux et Maury low pressure instantaneous domestic hot water system.

The Calydra comfort, as well as providing hot water, provides central heating. The boiler is designed for sealed systems only. A one speed circulating pump, diverter valve, expansion vessel as well as a pressure gauge and safety valve are included within the boiler.

The Calydra comfort provides the advantages of mains pressure hot water to taps and showers. Supplied directly from the main water supply the Calydra comfort does not need a separate feed cistern or vent pipe in the loft space.

The Calydra comfort has been tested and approved by the WRc as meeting with the requirements of the water by-laws scheme.
The boiler has been tested and approved to carry the CE mark.

The Calydra comfort can be installed with the standard horizontal flue, raised horizontal, concentric vertical, twin pipe flue or seduct arrangements. Adapters, bends and other accessories are available on request.

The boiler is packed in TWO cartons:

1. The boiler.

2. The flue assembly and fixing kit.

2 Description

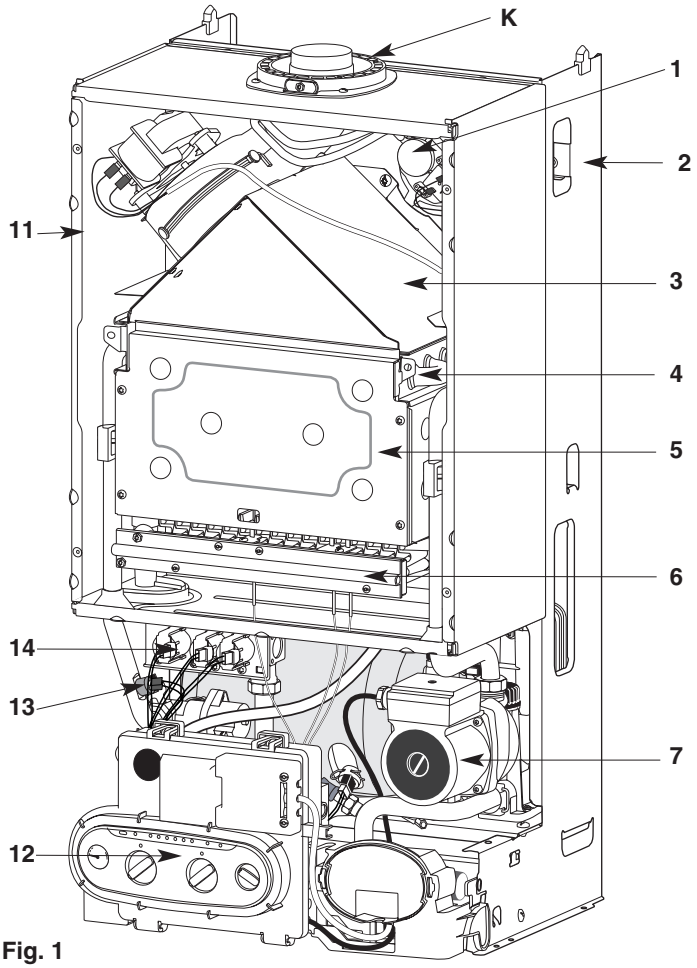


Fig. 1

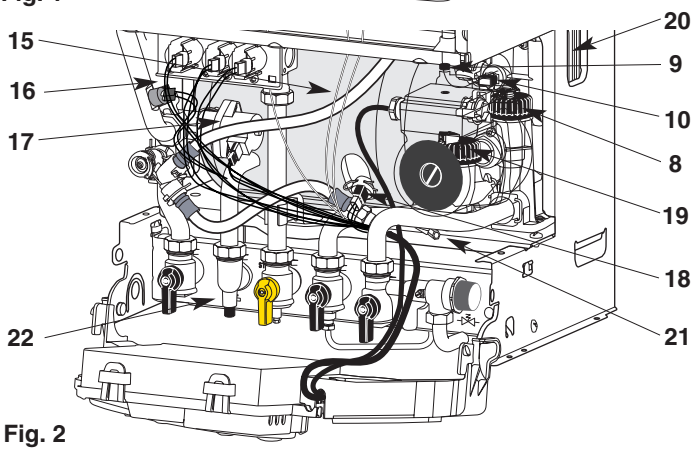


Fig. 2

Location of components

1. - Air pressure switch
2. - Steel chassis complete with expansion vessel
3. - Flue hood with fan
4. - Main heat exchanger
5. - Combustion chamber
6. - Multi- gas burner assembly comprising ignition and ionisation electrodes
7. - Pump
8. - Central heating eating flowswitch
9. - Automatic air separator and automatic vent
10. - DHW detector
11. - Sealed chamber
12. - Electrical box
13. - Overheat safety cutout
14. - Gas valve assembly
15. - TSS ® (mini cylinder)
16. - Central heating control thermistor
17. - Three way valve
18. - TSS® control thermistor
19. - Domestic hot water flowswitch
20. - Secondary heat exchanger
21. - DHW pressure relief valve
22. - Taps bracket
23. - Two position Selector switch

    OFF «O»

    ON «I»
24. - Domestic hot water temperature adjustment
25. - Heating flow temperature control knob
26. - Heating temperature indicator lights
27. - Green indicator - Power ON

28 - Orange indicator - Burner ON

29. - Red indicator - Lock out / flame failure
30. - Reset button
31. - Pressure gauge
32. - DHW mode indicator
33. - Heating mode indicator

K. - flue kit fixing point (refer to kit manual)

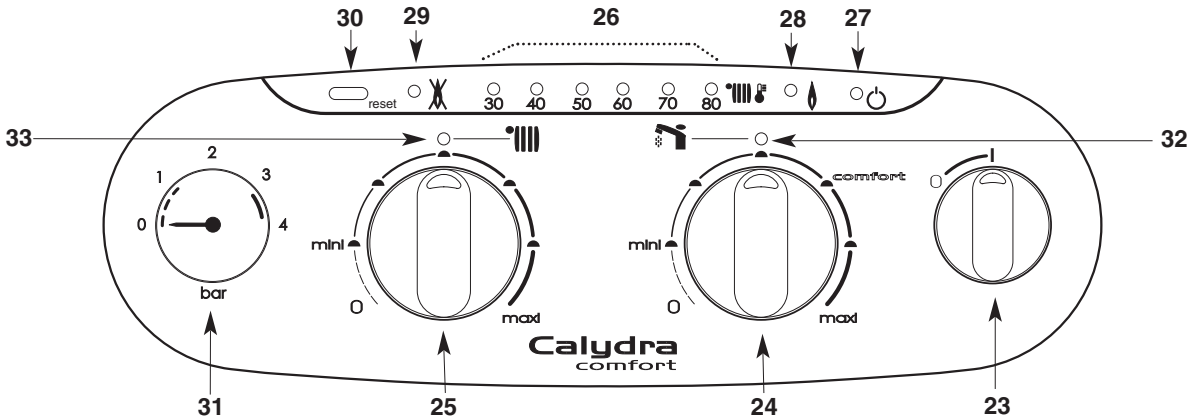


Fig.3

3 Technical data

Calydra comfort	80	100
Appliance category	Cat II $_{2H\ 3+}$	Cat Ii $_{2H\ 3+}$
Heat Gross input C/H & DHW		
Maximum in kW	28.7	34,6
Maximum in Btu/h	98000	117900
Heat output C/H & DHW		
Maximum in kW	24	28
Maximum in Btu/h	81910	95600
C/H operating temperature		
Max:	85° C	85° C
Mini:	35° C	35° C
C/H circuit pressures		
Min operating in bar	0.7	0.7
in lb/in²	10	10
Max operating in bar	2.5	2.5
in lb/in²	36.3	36.3
DHW flow rates		
@ AT 30 K in l/min	11.9	13.9
in gal/min	2.62	3.06
@ AT 35 K in l/min	10.02	11.9
in gal/min	2.24	2.62
Cold water mains pressures		
Min operating in bar	0.5	0.5
in lb/in²	7.25	7.25
Max operating in bar	10	10
in lb/in²	145	145
Flow limiter rate in l/min	8	10
Compartment ventilation	**n o t r e q u i r e d**	
Natural gas G20		
Gas rate		
Maximum in m³/h	2.74	3.29
Maximum in ft³/h	97	116
Inlet pressure		
Nominal in mbar	20	20
Nominal in in wg	8	8
Burner pressure		
Nominal in mbar	11	12.8
Nominal in in wg	4.4	5.1
Burner injector diameter		
Natural gas G20 in mm	1.23	1.28

Calydra comfort	80	100
PROPANE L.P.G. G31		
Gas rate		
Maximum in kg/h	2.00	2.42
Maximum in ft³/h	37	44,8
Inlet pressure		
Nominal in mbar	37	37
Nominal in in wg	14.8	14.8
Burner pressure		
Nominal in mbar	35	30.4
Nominal in in wg	14	12.2
BUTANE L.P.G. G30		
Gas rate		
Maximum in kg/h	2.04	2.45
Maximum in Lbs/h	4.50	5.40
Inlet pressure		
Nominal in mbar	28	28
Nominal in in wg	11.2	11.2
Burner pressure		
Nominal in mbar	26,7	24
Nominal in in wg	10.7	9.6
Burner injector diameter		
LPG G30 and G31 in mm	0.70	0.76
Safety discharge		
in bar	3	3
in lb/in²	43.5	43.5
Expansion vessel		
Pre-charge pressure in bar	0.7	0.7
Pre-charge pressure in lb/in²	10	10
Net capacity at 3 bar in liter	6	6
Automatic by-pass		
Electrical characteristics		
Supply	230 v	230 v
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

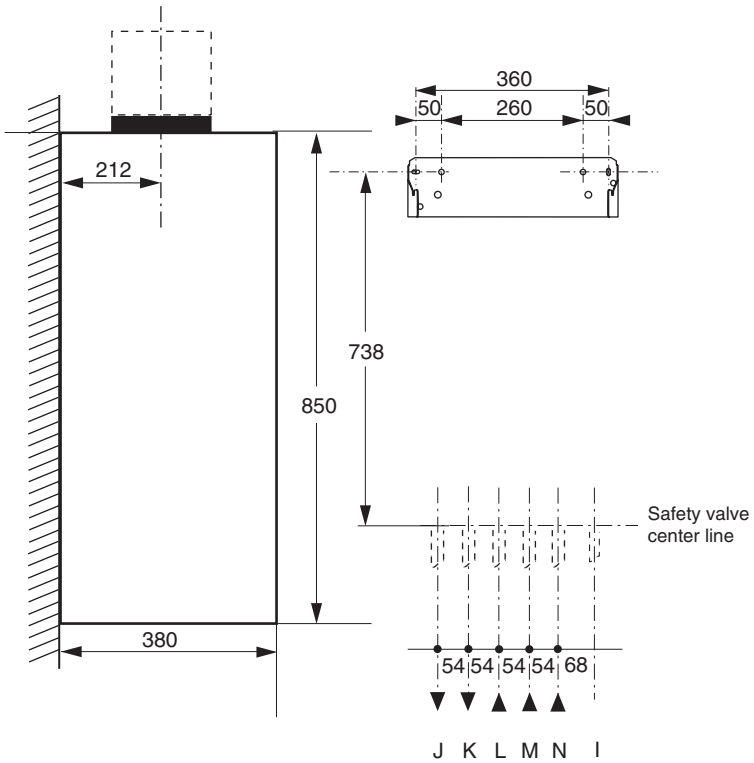
4 Dimensions

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

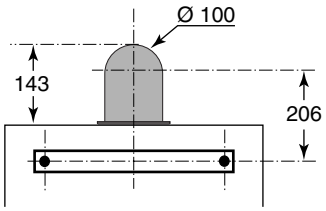
All dimensions in mm

Minimum clearances :

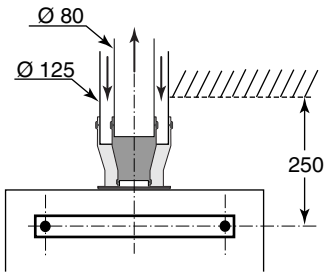
- Both sides	5 mm
- Above casing	170 mm
- Below casing	200 mm
- Front (for servicing)	500 mm
- Front (in operation)	5 mm



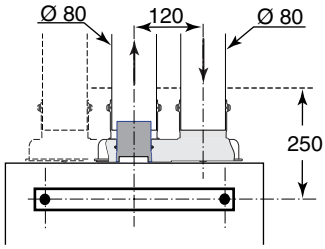
The boiler is suitable for the 3 flue types:
- Type C 12 or C 42
- Type C 22
- Type 32 xx
- Type C 32 xy



Type C12, C42 or C22



Type C 32 xx



Type C 32 xy

Fig. 4

Weights

With packaging :
- Calydra comfort 80 : 39,5kg
- Calydra comfort 100 : 40,5kg

Without packaging :
- Calydra comfort 80 : 37,5kg
- Calydra comfort 100 : 38,5kg

Lift weight :
- Calydra comfort 80 : 31,5 kg
- Calydra comfort 100 : 32,5kg

Tails diameter

I	Safety valve outlet	Ø 15 mm
J	Heating flow	Ø 22 mm
K	D.H.W. flow	Ø 15 mm
L	Gas supply	Ø 22 mm
M	Cold water inlet	Ø 15 mm
N	Heating return	Ø 22 mm

5 Operation

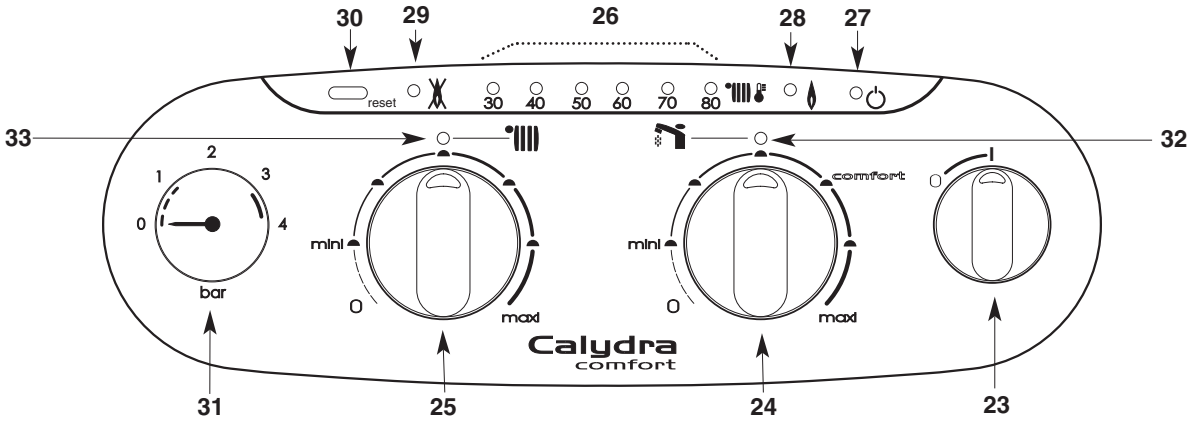


Fig.5

Domestic Hot Water Mode

In order to supply hot water, the main switch **23** (fig. 5) must be in ON position **I** This will be confirmed by the green indicator light ⏻ **27** (fig. 5). Turn DHW temperature adjustment knob **24** clock wise to establish the green DHW indicator **32** (fig. 5).

The hot water temperature in the mini cylinder can be adjusted between 40 and 60°C using control knob **24** (fig 5).

When a tap or shower is turned on, the flow of mains water, above 2 litres per min., will activate the 3 way valve **17** (fig. 2) to move to the DHW position. The pump will now circulate primary water heated by the main heat exchanger through the secondary heat exchanger.

The first stage solenoid **a** (fig. 6) and safety solenoid **c** (fig. 6) 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 **28** (fig. 5) will light and the second stage solenoid **b** (fig. 6) 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 **29** (fig. 5) will show. Over 2 l/min, the domestic hot water temperature is controlled by the hot water control thermistor **d** (fig. 6) and the heating control thermistor **e** (fig. 6), but dependant upon to the position of the DHW temperature adjustment knob **24** (fig. 5). This system anticipates the changes of temperature in the secondary heat exchanger and ensures accurate temperature regulation.

When the tap is closed the burner is extinguished and the pump stops. (unless the mini cylinder thermistor is calling for heat, in which case the burner will remain on at a low rate and the pump will continue running until the mini cylinder thermistor is satisfied). The boiler will now stay in the hot water mode for 30 seconds to be ready for a subsequent draw off

Priority is given to a demand for hot water. This will interrupt the central heating for the duration of hot water delivery or recovery of the mini cylinder.

When the boiler has been in standby in Hot Water Mode for some time or when drawing DHW at flow rates of less than 2 l/min the temperature in the mini cylinder will eventually decrease and the TSS® control thermistor **f** (fig. 6) will call for heat. Bringing the pump and burners to operate, until the cylinder thermistoris satisfied. this is quite normal.

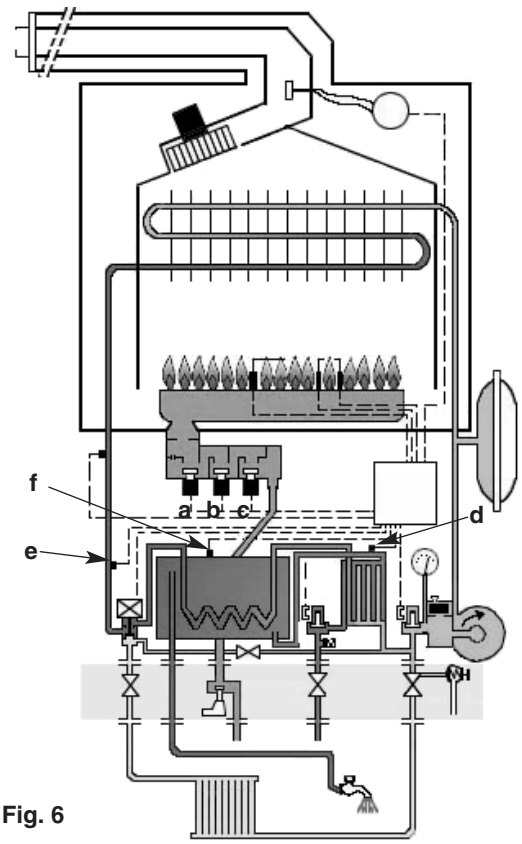


Fig. 6

Central Heating Mode

To be able to supply heating, the main switch **23** (fig. 5) must be in **I** position. This will be confirmed by the green indicator light ⏻ **27** (fig. 5.) Turn the temperature control knob **25** clock wise to establish the green heating indicator **33** (fig. 5).

When there is a demand for heating (either from the room thermostat or the clock) and the boiler temperature control is calling for heat. The pump starts allowing the ignition sequence to begin. The first stage solenoid **a** (fig. 6) and safety solenoid **c** (fig. 6) 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 **28** (fig. 5) will light. After 45 seconds the second stage solenoid **b** (fig. 6) 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 **29** (fig. 5) will show.

The central heating flow temperature is controlled by the central heating control thermistor **e** (fig. 6). 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 (it is possible to reduce the time to 30 s if necessary). When the room thermostat is satisfied the burner will switch off and the pump will remain running for a further 4 minutes before it to stops.

NB : It is possible to override the 3 minute delay by pressing the RESET button **30** (fig. 5).

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. 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

Detailed information on flue assembly is contained in the appropriate starter pack.

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 Above an opening, window, etc	300 mm
- C Horizontally to an opening, window, etc	300 mm
- D Below gutters, soils pipes or drain pipes	75 mm
- E Below eaves	200 mm
- F Below balconies or car port roof	200 mm
- G From a vertical drain pipe or soil pipe	150 mm
- H From an internal or external corner	300 mm
- I Above ground roof or balcony level	300 mm
- J From a surface facing the terminal	600 mm
- K From a terminal facing the terminal	1200 mm
- L From an opening in the car port into the dwelling	1200 mm
- M Vertically from a terminal on the same wall	1500 mm
- N Horizontally from a terminal on the same wall	300 mm
- Q Fixed by Ubbink Rolux 4 GM flue terminal	

It may be necessary to protect the terminal with a guard. 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

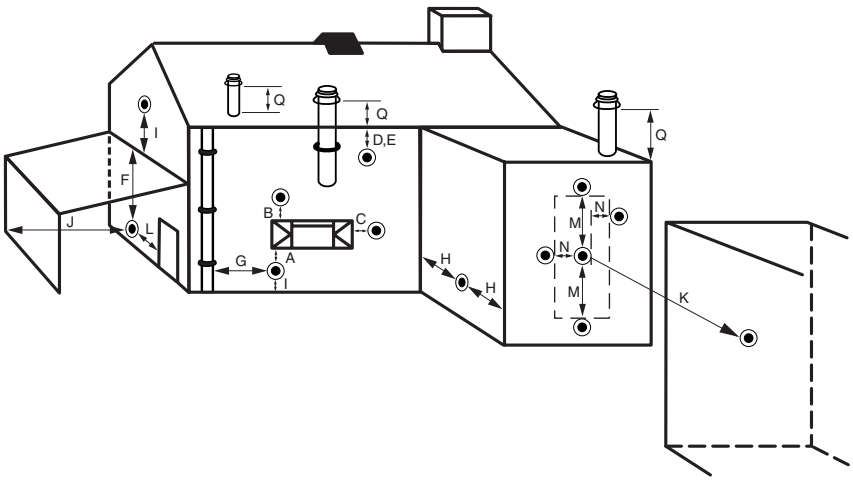


Fig. 7

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.**

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 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.

7 Installing the boiler

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

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 has to be fixed to the wall and used to locate the position of the hanging bracket and the centre for the flue hole..

Drill and plug the wall and secure the hanging bracket using the screws provided. Remove the boiler from its packaging as shown in fig. 9 and remove the outer case as shown in fig.10.

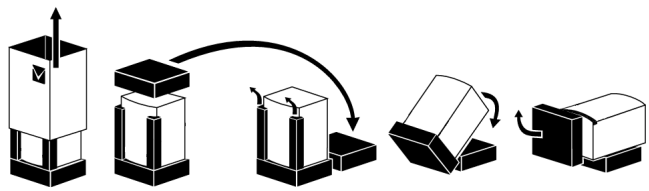


Fig. 8

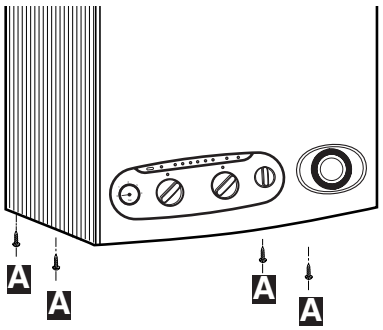


Fig. 9

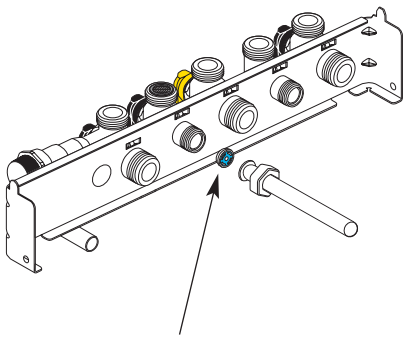


Fig. 10

Place the boiler on the wall on the hanging bracket. Using (fig. 16) for reference, connect the gas and water pipes and the valves to 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.

Connecting the boiler to the system

Attention ! Connecting tails are delivered with the boiler. You could ask your local dealer or Chaffoteaux et Maury Ltd for first installation tails kit or to replace existing boilers such as old Chaffoteaux et Maury models.

Before fitting the tails onto the connecting bracket, please check the correct location of the flow restrictor **L** (fig.10) on the main inlet.

Safety valve drains

The pressure relief valve tube is clear silicone. It should terminate below the boiler over a tundish or 22 mm pipe (see **I** fig 4) 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. The pipe should be connected to a drain is the conditions described in the relevant Brittish regulations.

Fitting the Horizontal Flue

The instructions for the 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 720 mm maximum. This means for rear flueing, the standard kit will accommodate a maximum wall thickness of 600 mm, and for side flueing a maximum wall thickness of 587 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 away from the boiler to the terminal. The flue should fall slightly to the terminal.

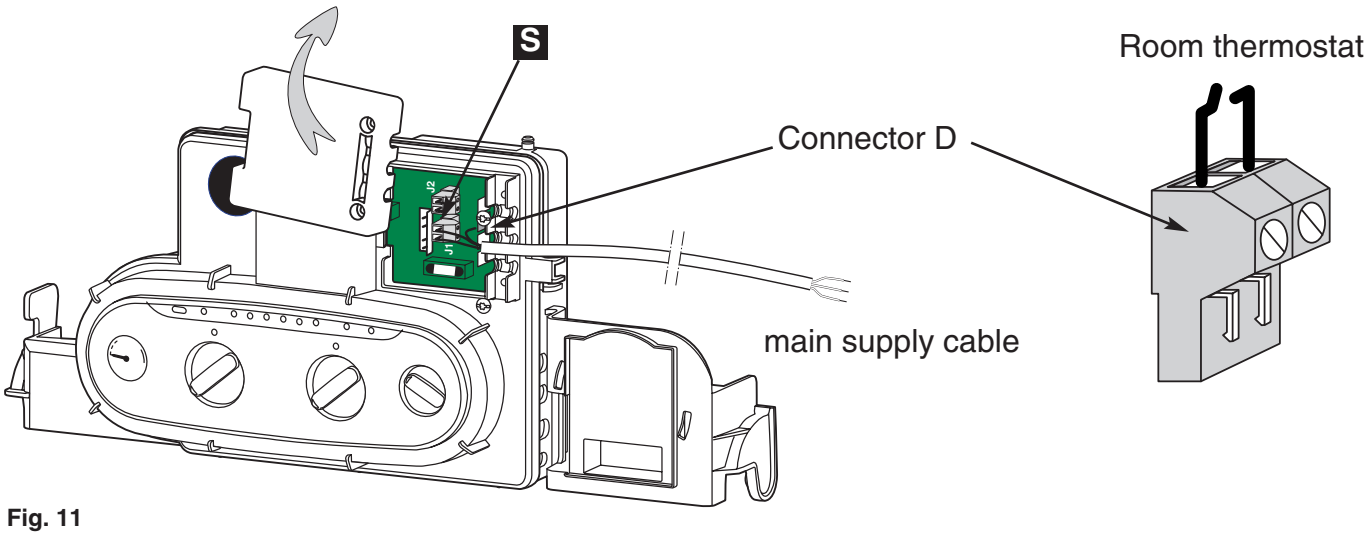


Fig. 11

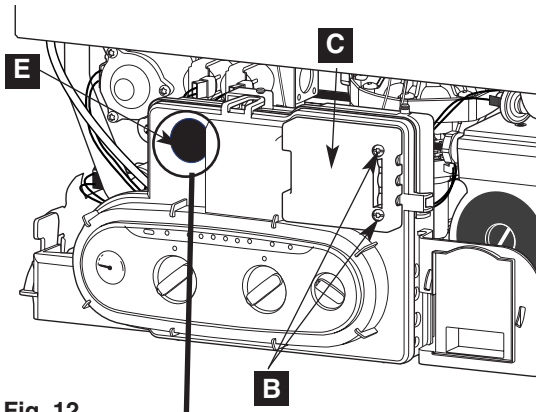


Fig. 12

Making the Electrical Connections:

Connect the live and neutral wires of the main cable. 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.

If using a room thermostat or other external control, undo the two retaining screws **B**, remove cover **C** (fig 12)**,** they can be connected in place of the link on the multipin plug.**D**.
Connect multipin plug into the socket on the power board. Replace the cover.

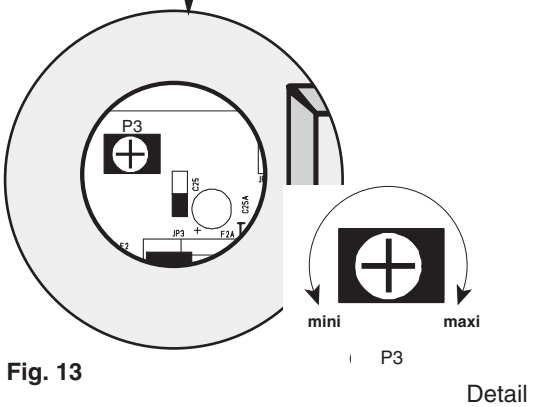


Fig. 13

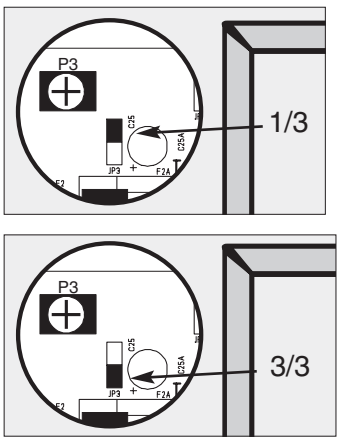


Fig. 14

ADJUSTMENT

Choice of mode :

- Function without room thermostat bridge **S** remains in place.
- Function with room thermostat remove bridge **S**, room thermostat connected as shown on connector **D** (fig. 11).

The external control switches both burner and pump. The external control switches the pump off after a delay of 3 min 30'

Choice of boiler operation :

In order to make these adjustment you will need to access the front of the electrical box.

Isolate mains electrical supply to boiler.

Remove boiler outer casing.
Remove rubber cover **E** (fig. 12) on face of electrical box.

Adjustment on the PCB Central Heating Mode (fig. 13) :

- P3 : potentiometer TAC (Temporisation Anti Cycle) may now be adjusted between 30 seconds and 3 minutes (see detail) (factory set at 3 minutes).
- JP3 : the spade connector (fig. 14) allows the gas rate to be reduced to 1/3 performance by positionning spade across pins as shown (fig. 14).
  Full performance across pins as shown (fig. 14).

After completling adjustments replace rubber cover and refit outer casing.

9 System guidance

The boiler is suitable for sealed systems only. The maximum cold water mains pressure for the appliance is 10 bar. All fittings and pipework connected to the appliance should be of the same standard. If there is a possibility of the incoming mains pressure exceeding 10 bar, particularly at night, then a suitable pressure limiting valve must be fitted.

The boiler is designed to provide hot water on demand. If there is a requirement for greater demands, for example if the property has several bathrooms and cloakrooms, a vented or unvented hot water storage system should be used.

Showers

Any shower valves used with the appliance should be of a thermostatic or pressure balanced type. Refer to the shower manufacturer for performance guidance and suitability.

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. If it is an existing system, an appropriate flushing and descaling agent should be used. 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 24V and so only controls of 24V or that have voltage free contacts should be used.

By pass and Pump

The boiler is fitted with an automatic by pass. Although adjustment is not necessary.

Expansion Vessel

The expansion vessel is pre-charged to 0.7 bar (10 lb/in^2). 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.

System capacity chart

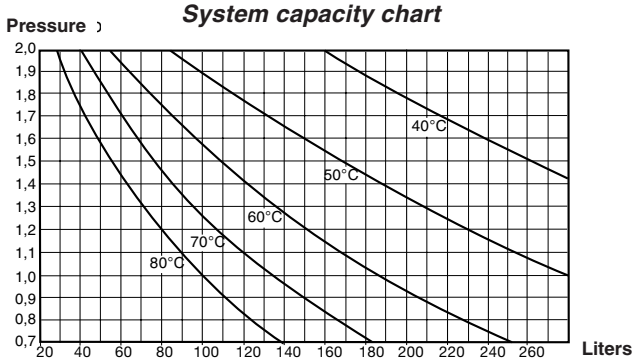


Fig. 15

10 Commissionning 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.

DHW
Open the main cold feed valve.
Open all hot taps to purge DHW system.
Check for water soundness.
Check flow rate at the bath tap is set correctly (see technical data).

Central Heating
Open flow and return valves on the boiler **34** and **38** (fig 16)
Open the automatic air vent **9** (fig 16)
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 **23** (fig 17) to position **I**
Turn the boiler thermostat to maximum.
Allow pump to run for several minutes.
Isolate electrical supply.
Drain boiler and check water filter for installation debris.
Replace filter and recharge system.

Lighting the Boiler
Connect gas pressure gauge to test point **14** (Fig. 16).
Turn on the gas supply and boiler gas tap **36** (Fig. 16).
Ensure electrical supply is on.
Ensure all external controls are calling for heat.

Turn selector switch **23** (fig. 17) to position **I**.

Turn the boiler thermostat to maximum **25** (fig 17).
The boiler will light.
Allow the boiler to heat system.
Check the inlet gas pressure (working pressure) while boiler is operating in hot water mode.(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 boiler thermostat and controls.
Set programmer to householder's requirements.
Set external controls.
Ensure the Logbook is fully completed with your contact details and required readings and details of the installation.

Handing Over to the Householder

Demonstrate the lighting and operation of the boiler.
Demonstrate how to maintain the system pressure.
Demonstrate the operation and setting of the built-in clock.
Explain the benefits of annual maintenance by a competent person.
Explain how to register guarantee.
Ensure the Householder countersigns the Logbook to confirm that these demonstrations have been carried out and understood.

Detail for the adjustment of the by-pass

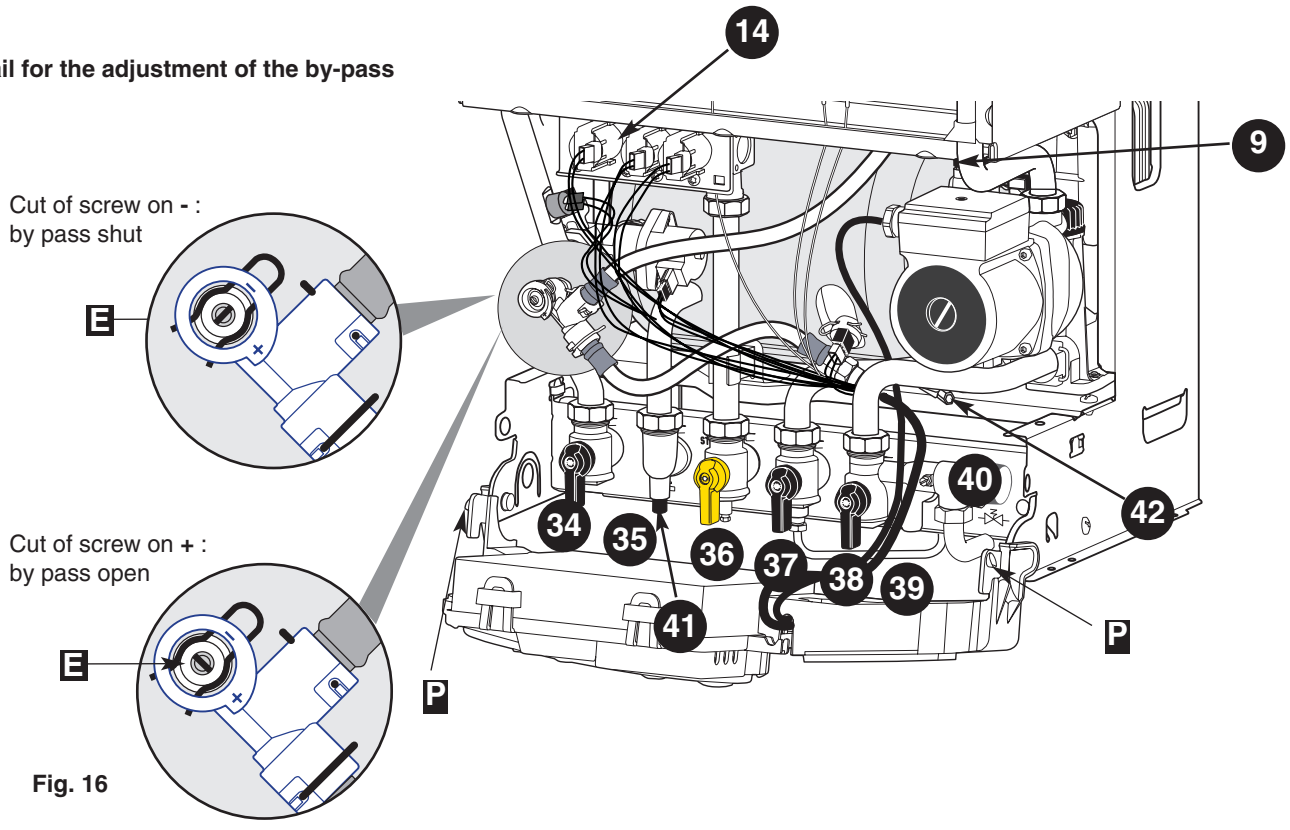


Fig. 16

11 User's instructions

Control panel (fig 17)

23. Two position Selector switch
    - **O** = Switched OFF
    - **I** = Switched ON
24. = Domestic hot water temperature control knob
25. = Heating flow temperature control knob
26. Heating temperature indicator lights
27. Green indicator - Power ON
28. Orange indicator - Burner ON
29. Red indicator - Lock out / flame failure
30 "**RESET**" Reset button
31. Pressure gauge
32. =- DHW mode indicator
33. =- Heating mode indicator

Isolating Taps (fig 16)
taps shown in Open position

34. CH Flow isolating valve
35. Domestic hot water outlet
36. Gas service tap
37. Water service tap
38. CH Return isolating valve

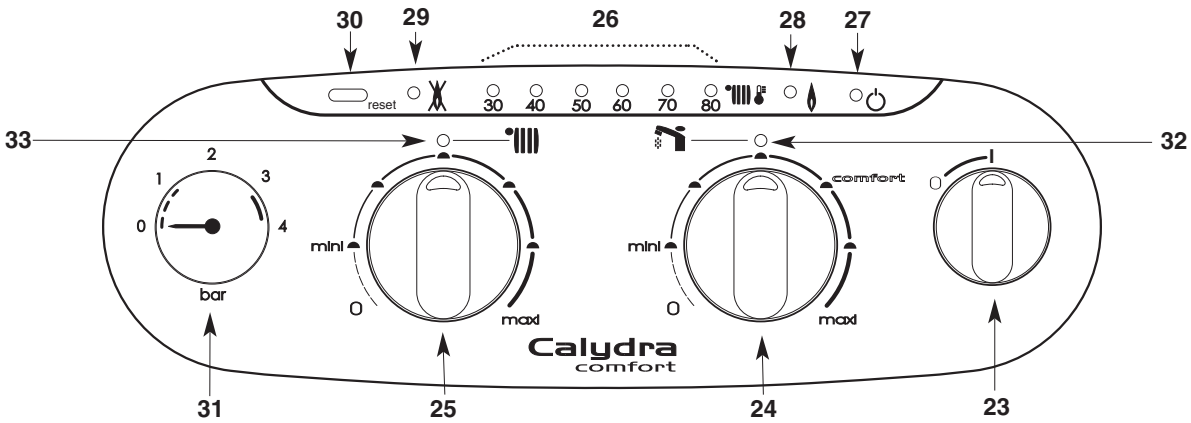


Fig.17

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 1.5 bar with the pressure gauge **31**.
3) Open the gas tap **36**.
4) The boiler is now ready to use.

Hot Water

1) Turn main switch **23** to position **I** . The green "power on" indicator **27** will light.
Turn the DHW temperature control knob clockwise **24**. The DHW indicator will light **32**.
2) Turn on a hot water tap, the orange "burner on" indicator will light **28** and the water will become hot.

Heating

1) Turn main switch **23** to on position **I** . The green "power on" indicator will light **27**.
Turn the CH temperature control knob clockwise **25**. The CH indicator will light **33**.
3) 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.
When there is a need for hot water while 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 off.

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 **30** and the boiler will light.

To Turn Boiler Off Completely

1) Turn the main switch **23** to the off position **O**.
2) Turn the gas tap **36** OFF.

12 Instruction for setting the built in clock (if fittied)

1. General layout

The mechanical clock covers a 24 hour period. Each tappet represents 15 minutes **A** (fig. 19). An override switch is located on the clock **B** (fig 19).

2. To set the time
To set the time of day, grasp the outer edge of the dial and turn slowly clockwise until the correct time is lined up with the arrow **C** (fig. 19).

3. To Set the "On" and "Off" times

The clock uses a 24hours system. e.g. 8 =8.00 am and 18 = 6.00 pm "ON" periods are set by sliding all tappets between the "ON" time and the "OFF" time to the outer edge of the dial.The tappets remaining at the centre of the dial are the "OFF" periods.

4. To select function mode

Put the selector switch **B** to symbol ⏲ to control the boiler by the clock. Put the switch **B** to «**I**» to select permanent operation or to «**0**» to turn heating off permanently.

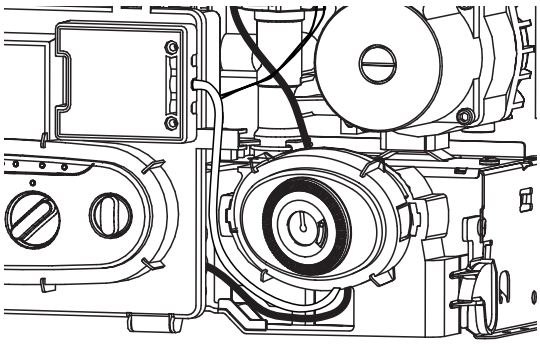


Fig. 18

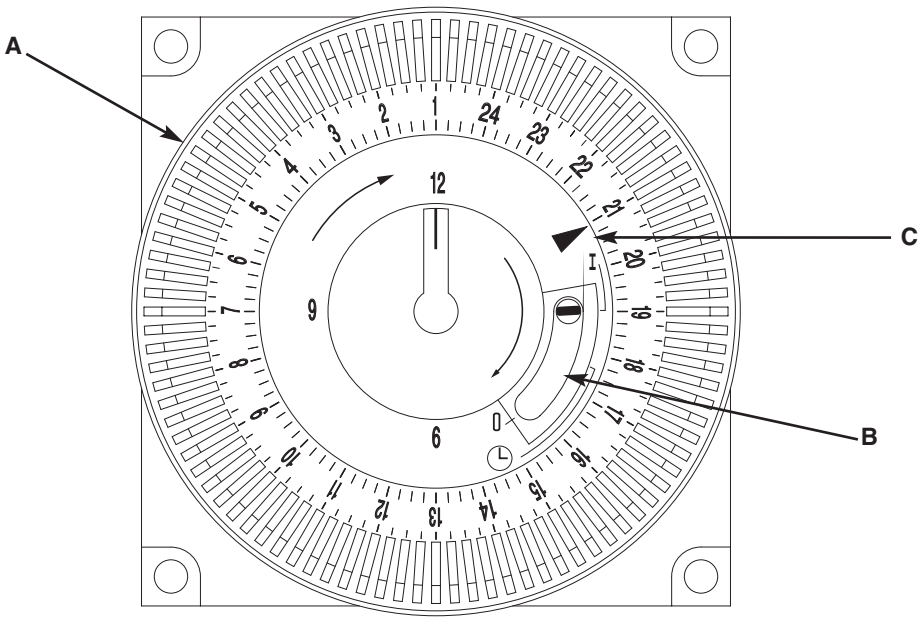


Fig. 19

13 Incorrect function

Incorrects functions is signalled by leds (rep 26) display flashing correspond with chart below.

CODE						FAULT	INFORMATION
30	40	50	60	70	80		
❍	❍	❍	❍	❍	●	Overheating safety feature	
❍	❍	❍	❍	●	❍	Overheating defect without locking	
❍	❍	❍	❍	●	●	Misfiring safety feature	
❍	❍	❍	●	❍	❍	Fire detection without burner working	
❍	❍	❍	●	❍	●		Besides freezing pump
❍	❍	❍	●	●	❍		Besides freezing burnerr
❍	❍	❍	●	●	●	Lack of water circulation.	
❍	❍	●	❍	❍	❍	Primary water circulation defect	
❍	❍	●	❍	❍	●	Thermistor sanitary open	
❍	❍	●	❍	●	❍	Thermistor sanitary bypassed.	
❍	❍	●	❍	●	●	Thermistor inlet heating open	
❍	❍	●	●	❍	❍	Thermistor inlet heating bypassed	
❍	●	❍	●	❍	●	Extractor on and pressure regulator at rest	
❍	●	❍	●	●	❍	Extractor off and pressure regulator at rest	
❍	●	●	❍	❍	●	Thermistor cylinder open	
❍	●	●	❍	●	❍	Thermistor cylinder bypassed	
❍	●	●	●	❍	●	Distribution valve stuck on heating	

❍ = **LED off**

● = **LED blinking**

Notes

Manufacturer: **Chaffoteaux & Maury - France**

Commercial subsidiary: **MTS (GB) Limited**
MTS Building
Hughenden Avenue
High Wycombe
Bucks HP13 5FT
Telephone: (01494) 755600
Fax: (01494) 459775
internet: www.chaffoteaux.co.uk
E-mail: info@mtsgb.ltd.uk
Technical Support Help Line: (01952) 222288

1309145 - 02/2002

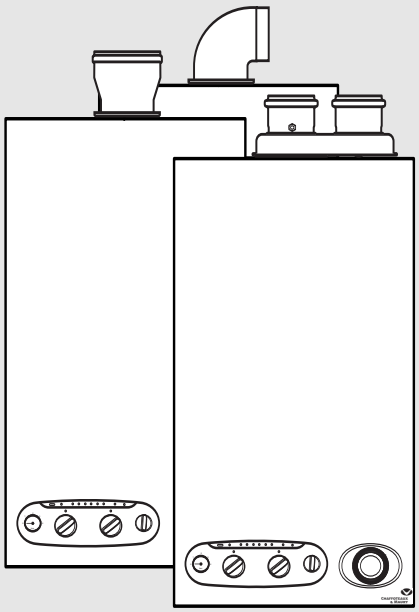
CHAFFOTEAUX & MAURY

MAINTENANCE AND SERVICE GUIDE

Calydra comfort

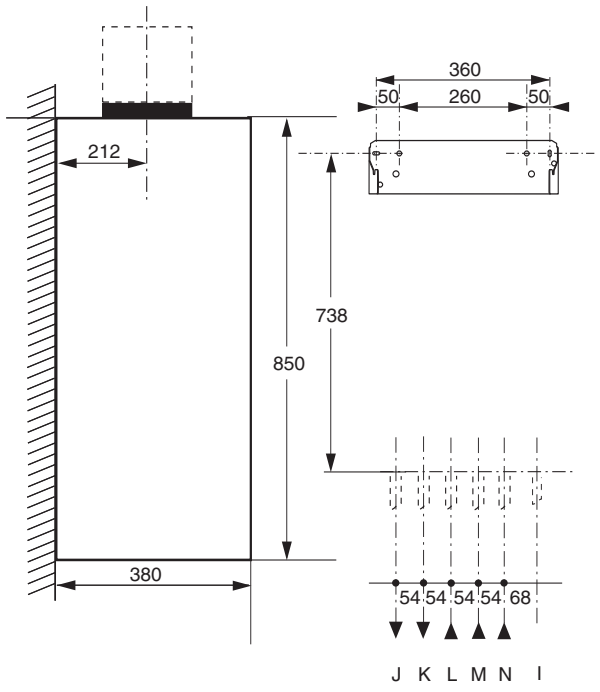
Fanned Flue Combination Boiler
Heating and Storage Domestic Hot Water

Dimensions



The boiler is suitable for the 4 flue types:
- type C 12
- type C 22
- type C 32 xx or C 32 xy
- type C 52

All dimensions in mm



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

Fig. 1

I Safety valve outlet
J Heating flow
K D.H.W. flow
L Gas supply
M Cold water inlet
N Heating return

Technical data

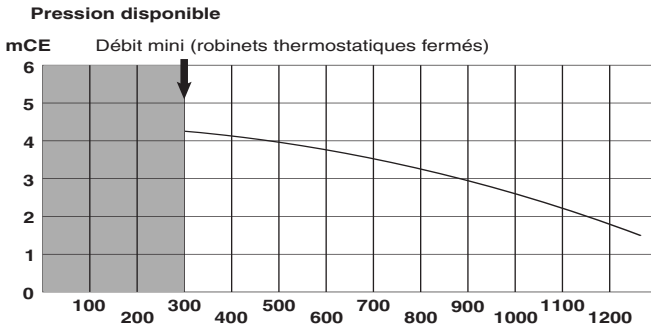
Heat input C/H & DHW	Cal. comfort 80	: 11.73 to 28.70 kW
	Cal. comfort 100	: 15.43 to 31.57 kW
Heat output C/H & DHW	Cal. comfort 80	: 9.5 to 24 kW
	Cal. comfort 100	: 12.5 to 28,2 kW
Max. operating pressure C/H circuit		: 2.5 bar
Expansion vessel net capacity		: 5.44 l
Expansion vessel initial pressure		: 0.7 bar
Electrical consumption		: 150 w
Voltage		: 230 v
Electrical protection index		: IP44
Fuses		: 2 A and 1.25 A

DHW flow rate at @ AT 30 K Cal. comfort	80	: 12.1 l/min
	Cal. comfort 100	: 14.1 l/min
DHW flow rate at @ AT 35 K Cal. comfort	80	: 10.4 l/min
	Cal. comfort 100	: 12.1 l/min
Minimum DHW operating flow rate		: 2.00 l/min
Minimum DHW working pressure		: 0.5 bar
Maximum DHW working pressure		: 10 bar
Gas category		: II 2H 3+

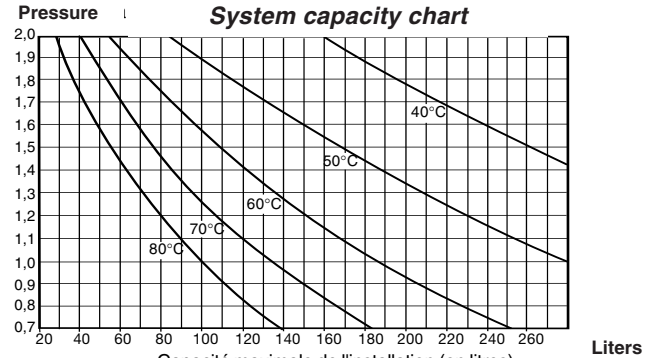
Nominal gas flow rate at 15°C and 1013 mbar	Calydra. comfort 80		Calydra. comfort 100	
	Maximum power 25,9 kW	Minimum power 9.5 kW	Maximum power 31,1 kW	Minimum power 9,5 kW
- Natural gas (G 20) at 20 mbar	2.74 m^3/h	1.00 m^3/h	3.29 m^3/h	1.00 m^3/h
- Butane gas (G 30) at 28 mbar	2.04 kg/h	0.74 kg/h	2.45 kg/h	0.74 kg/h
- Propane gas (G 31) at 37 mbar	2.00 kg/h	0.72 kg/h	2.42 kg/h	0.72 kg/h

Injectors and gas valves seat diameter	Calydra. comfort 80		Calydra. comfort 100	
	Natural gas	Butane or Propane	Natural gas	Butane or Propane
- Solenoid restrictor diameter	2.60 mm	1.75 mm	2.90 mm	2.00 mm
- Gas valve restrictor diameter	6.70 mm	4.90 mm	no resrictor required	6.70 mm
- Manifold injectors (16)	1.23 mm	0.70 mm	1.28 mm	0.76 mm

Pump and expanssion vessel characteristics



Head available / flow



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

21. DHW pressure relief valve
34. Heating Flow isolating valve
35. DHW outlet
36. Gas service tap
37. Water service tap
38. CH Return isolating valve

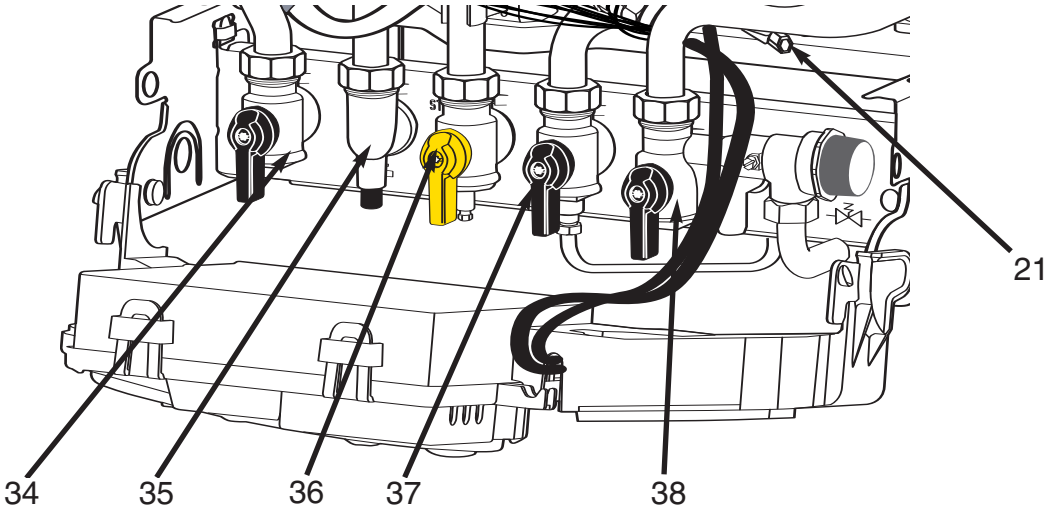


Fig. 2

1. Air Pressure switch
2. Steel chassis complete with expan sion vessel
3. Fan
4. Main heat exchanger
5. Combustion chamber made of alumi- nium coated steel with 4 ceramic fibre panels to provide heat insulation
6. Multigas burner comprising:
   6a. 16 burner head
   6b. Manifold
   6c. 2 Ignition electrode
   6d. Ionization electrode
7. Single speed pump
8. Heating flow switch
9. Automatic air separator and autimatic vent
10. DHW thermistor
11. Sealed chamber
12. Electrical box
13. Overheat safety cutou
14. Gas section comprising:
    14a. Security valve (grey)
    14b. 1/3 gas stage (blue)
    14c . 2/3 gas stage (black)
15. TSS mini cylinder
16. Central heating control thermistor
17. Three way valve
18. TSS thermistor
19. DHW flow switch
20. Secondary heat exchanger
23. Two position selector switch
24. DHW temperature adjustment
25. Heating flow temperature adjustment
26. Heating temperature indicator lights
27. Green indicator - Power ON
28. Orange indicator - Burner ON
29. Red indicator - Lock out / flame failure
30. Reset button
31. Pressure gauge
32 DHW mode indicator
33 Heating mode indicator
50. Adjustable by-pass
51. connecting bracket
52. 45° elbow including ventur
53. Expansion vessel (not visible)
54. Right hydraulic assy
55. Left hydraulic assy

FUNCTIONING

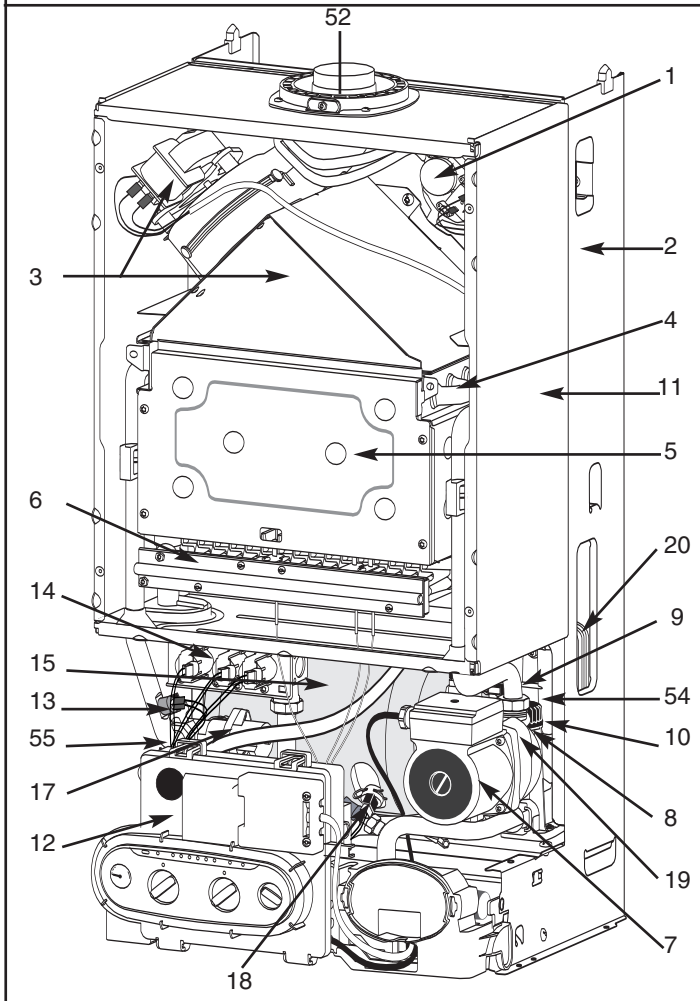


Fig. 3

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 1.5 bar with the pressure gauge **31**.
3) Open the gas tap **36**.
4) The boiler is now ready to use.
5) Turn main switch **23** to position **I** . The green "power on" indicator **27** ⏻ will light.

Hot Water

1) Turn the DHW temperature control knob clockwise **24**. The DHW indicator will light **32**.
2) Turn on a hot water tap, the orange "burner on" indicator 🔥 will light **28** and the water will become hot..

Heating

1)Turn the CH thermostat control knob clockwise **25** The CH indicator will light **33**.
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.

Control panel

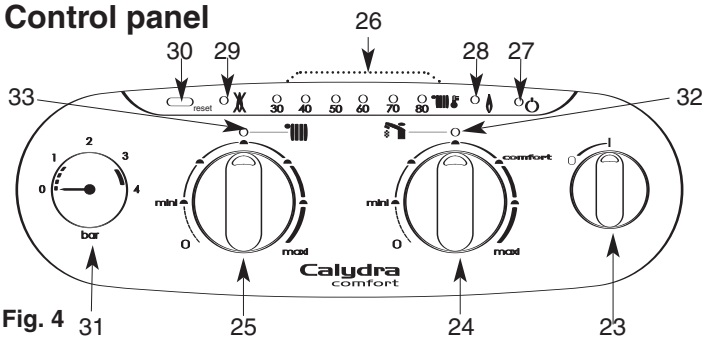
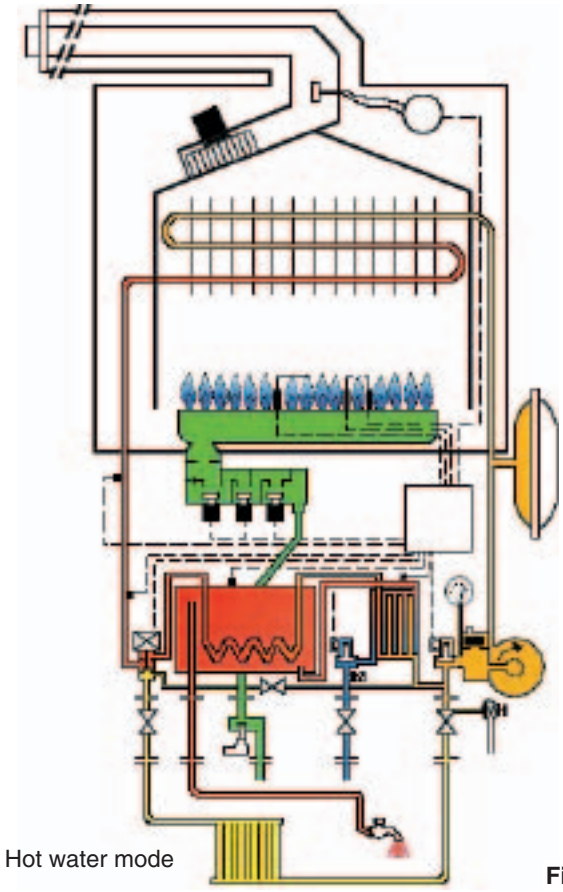


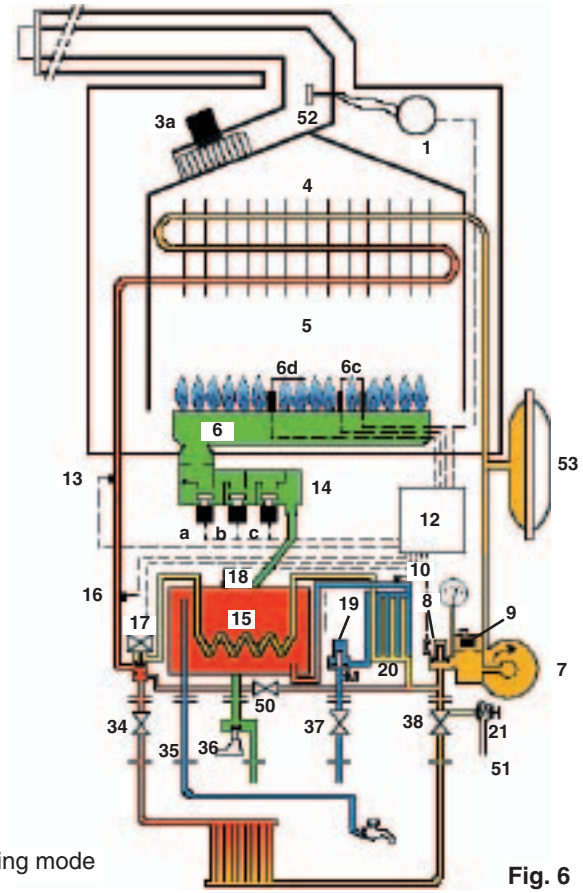
Fig. 4

CALYDRA FUNCTIONAL DIAGRAM



Hot water mode

Fig. 5



Heating mode

Fig. 6

When there is a need for hot water while 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 off.

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 **30** and the boiler will light.

To Turn Boiler Off Completely

1) Turn the main switch **23** to the off position **O**.

2) Turn the gas tap **36 (**fig.2) OFF.

Domestic Hot Water Mode

In order to supply hot water, the main switch **23** (fig. 4) must be in ON position **I**. This will be confirmed by the green indicator light ⏻ **27** (fig. 4). Turn DHW temperature adjustment knob **24** clock wise to establish the green DHW indicator **32** (fig. 4).

The hot water temperature in the mini cylinder can be adjusted between 40 and 60°C using control knob **24** (fig 4).

When a tap or shower is turned on, the flow of mains water, above 2 litres per min., will activate the 3 way valve **17** (fig. 4) to move to the DHW position. The pump will now circulate primary water heated by the main heat exchanger through the secondary heat exchanger.

The first stage solenoid **a** (fig. 6) and safety solenoid **c** (fig. 6) 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 🔥 **28** (fig.4) will light and the second stage solenoid **b** (fig. 6) 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 ✱ **29** (fig.4) will show. Over 2 l/min, the domestic hot water temperature is controlled by the hot water control thermistor **9** (fig.6) and the heating control thermistor **16** (fig.6), but dependant upon to the position of the DHW temperature adjustment knob **24** (fig.4). This system anticipates the changes of temperature in the secondary heat exchanger and ensures accurate temperature regulation.

When the tap is closed the burner is extinguished and the pump stops. (unless the mini cylinder thermistor is calling for heat, in which case the burner will remain on at a low rate and the pump will continue running until the mini cylinder thermistor is satisfied). The boiler will now stay in the hot water mode for 30 seconds to be ready for a subsequent draw off

Priority is given to a demand for hot water. This will interrupt the central heating for the duration of hot water delivery or recovery of the mini cylinder.

When the boiler has been in standby in Hot Water Mode for some time or when drawing DHW at flow rates of less than 2 l/min the temperature in the mini cylinder will eventually decrease and the TSS® control thermistor **18** (fig.6) will call for heat. Bringing the pump and burners to operate, until the cylinder thermistoris satisfied. this is quite normal.

Central Heating Mode

To be able to supply heating, the main switch **23** (fig.4) must be in **I** position. This will be confirmed by the green indicator light ⏻ **27** (fig.4.) Turn the temperature control knob **25** clock wise to establish the green heating indicator **33** (fig.4).

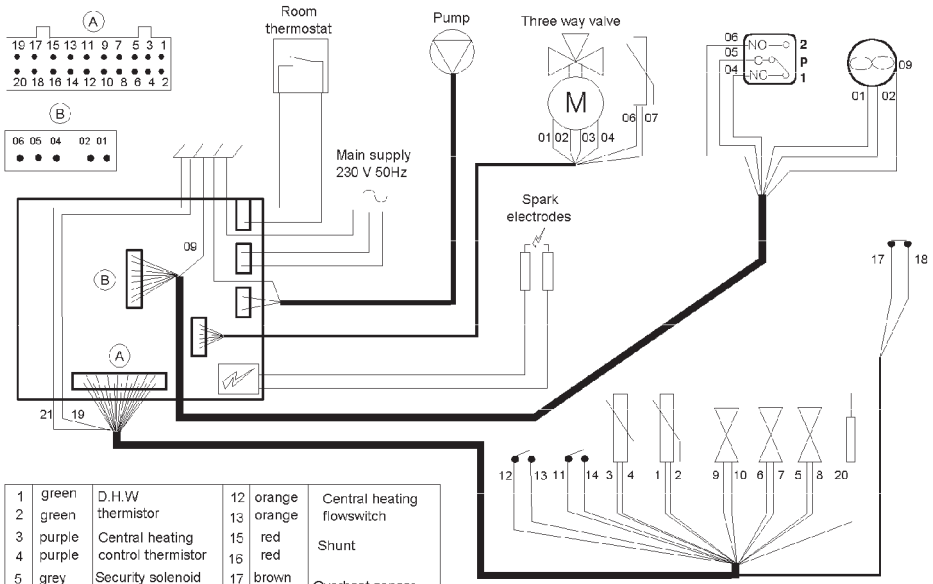
When there is a demand for heating (either from the room thermostat or the clock) and the boiler temperature control is calling for heat. The pump starts allowing the ignition sequence to begin. The first stage solenoid **a** (fig.6) and safety solenoid **c** (fig.6) open together to allow gas to the 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 🔥 **28** (fig.4) will light. After 45 seconds the second stage solenoid **b** (fig.6) 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 ✱ **29** (fig.4) will show.

The central heating flow temperature is controlled by the central heating control thermistor **16** (fig.6). 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 (it is possible to reduce the time to 30 s if necessary). When the room thermostat is satisfied the burner will switch off and the pump will remain running for a further 4 minutes before it to stops.

NB : It is possible to override the 3 minute delay by pressing the RESET button **30** (fig. 4)

WIRING

DIAGRAM

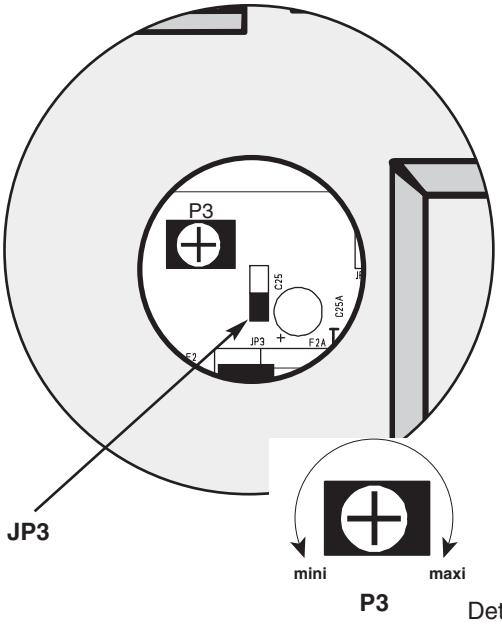


1	green	D.H.W thermistor	12	orange	Central heating flowswitch
2	green		13	orange	
3	purple	Central heating control thermistor	15	red	Shunt
4	purple		16	red	
5	grey	Security solenoid valve	17	brown	Overheat sensor
8	grey		18	brown	
6	blue	Security solenoid valve	19	brown	mass
7	blue				
9	black	Solenoid valve	20	white	Ionisation probe
10	black				
11	black	D.H.W flowswitch	21	green / yellow	mass
14	black				

01	yellow	Three way valve
02	white	
03	white	
04	orange	
06	blue	Mini-cylinder thermistor
07	blue	

01	brown	Modulating fan
02	blue	
04	white	Pressure switch
05	orange	
06	black	
09	green / yellow	Mass

ADJUSTMENTS ON CONTROL PCB



Detail

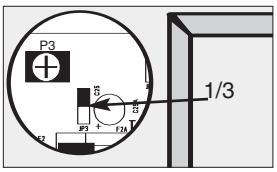
Adjustment on the PCB :

- P3 : potentiometer TAC (Temporisation Anti Cycle) may now be adjusted between 30 seconds and 3 minutes (see detail) (factory set at 3 minutes).

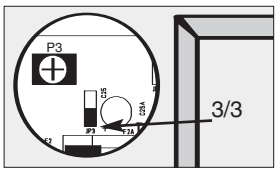
- JP3 : the spade connector allows the gas rate to be reduced to 1/3 performance by positionning spade across pins as shown **A**
  Full performance across pins as shown **B**.(factory set)

After completling adjustments replace rubber cover and refit outer casing

A



B



REGULATION

Temperature regulation for both C/H and 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

AIR PRESSURE SWITCH

The air flow rate is detected by a pressure differential created by a venturi located in the flue duct.

ON threshold	ΔP > 130 Pa
OFF threshold	ΔP < 100 Pa

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) Regulations.

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 the safety controls.
- Check combustion chamber insulation panels for damage.
- Clean the burner.
- Clean the heat exchanger.
- Check the burner manifold injectors.
- Clean gas and water filters.
- Check expansion vessel charge pressure.
- Clean and check operation of safety valve.

Additional Procedures that may be necessary:

- Check burner pressure and gas flow rates.
- Check that the fan blades are clean.
- Check, clean and 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 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

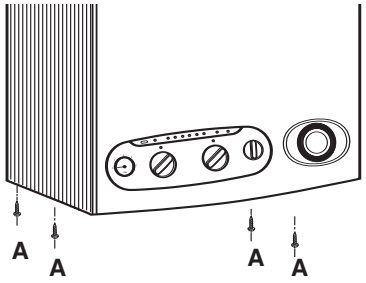
- Remove outer case
- Check the system pressure is at least 0.8 bar cold
- Check operation of solenoids.
- Check that the burner is extinguished fully when solenoids are closed in both DHW and C/H modes.
- Test ionisation functions and check that lockout occurs by turning off gas tap.

REMOVAL AND REPLACEMENT OF PARTS

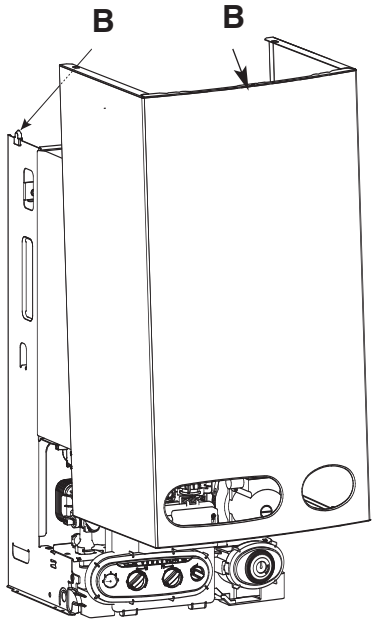
Before removing appliance case, isolate the gas and electrical supplies. Isolate boiler from the system and drain before removing any component in the waterways. Ensure that the appliance is cool.

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 the sealed chamber front panel and lift over top corner locating lugs. Unscrew four self tapping screws to release combustion chamber front plate and lift clear. Reassemble in reverse order.

3. Burner Manifold

Carry out steps **1** and **2** as above. Remove two screws securing the closure plate and the remaining four screws to release the manifold. Lift clear. Replace the manifold gasket. Reassemble in reverse order.

4. Ionisation Electrode

Carry out steps **1** and **2** as above. Loosen screws securing the closure plate and remove. Disconnect the lead from the main wiring loom. Remove screw securing electrode to burner. Thread wire through grommet and lift clear. Reassemble in reverse order.

5. Ignition Electrodes

Carry out steps **1** and **2** as above. remove the wiring cover undo the power lead plug open the electrical box 2 clips. Dicconnect leads from spark generator on PCB. 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.

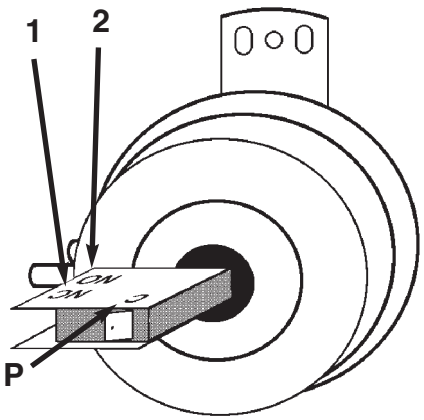
8. Fan Assembly

Remove outer case and sealed chamber front panel (See Steps **1** and **2**). Disconnect spade connectors noting positions. Remove two screws securing the front of the fan 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 the screw on the flue outlet tightened.

9. Flue Hood

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 hood to the chassis. Lift and remove taking care not to snag the pressure switch cables. Re-assemble in the reverse order ensuring that the hood is located behind the combustion chamber rear panel.

10. Pressure Switch



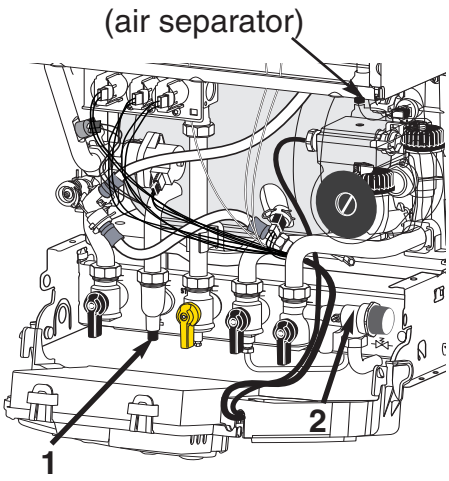
Remove outer case and sealed chamber front panel as in steps **1** and **2**. Disconnect three pressure switch cables noting their positions.
1 = white cable connected to NC
2 = black cable connected to NO
P = orange cable connected to C
Remove screw securing the switch bracket to the chassis. Disconnect 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

2 drain



points are located on the boiler.
1 = DHW circuit drain point
2 = Heating circuit drain point
(Pressure releave valve)

13. Water filters (Heating and DHW)

The C/H filter ensures a seal between the return tail and the tap **5** Fig. 2 unscrew the pipe nut and the tap nut. Pull the tap toward you and remove the C/H filter.
The DHW filter is located in the DHW command **37** Fig. 2 on the right hydraulic assembly. Remove the clip and pull toward you the DHW command remove the plug and clean the filter. Reassemble in reverse order.

14. DHW Flow switch

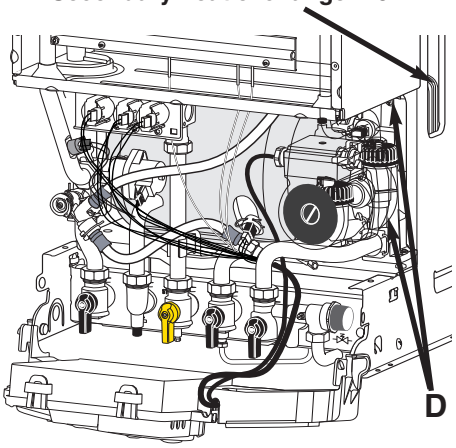
Disconnect the electrical connections undo the securing clip and remove the microswitch reassemble in reverse order.

15. Pressure relief valve

Drain the boiler first, unscrew the safety valve head with a 24 mm spanner. Reassemble in reverse order.

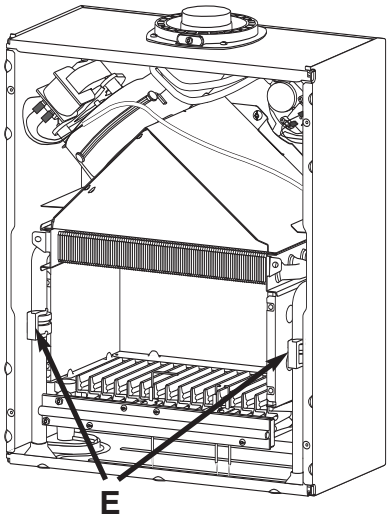
16. 3-Way valve
Drain boiler as in step **12**. Remove the 2 clips on the 3 way valve hydraulic motor **17** (fig. 6). Pull up the motor .Turn anti-clockwise the 3 way valve body, rise it up using a screw driver and remove it.
Reassemble in reverse order.

17. Secondary heat exchanger 20



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.

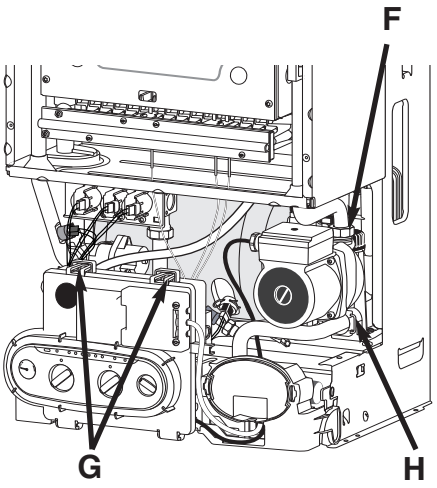
18. Main heat exchanger



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 them downwards. Pull the main exchanger toward you to remove. Reassemble in reverse order

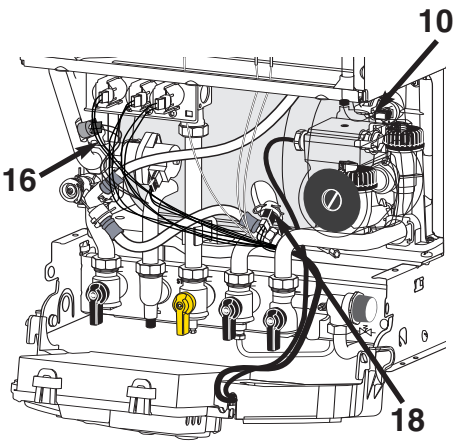
19. Expansion vessel
Remove the casing as step **1** and drain the boiler as step **12** above. Unscrew the connecting nuts and lift out the boiler from the wall. Place it on a side on the floor. Remove the expansion vessel bracket retaining screws, disconnect the pipe from the vessel and pull it toward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

20. Pump
Drain the boiler as in step **12**. Open the electrical box cover removing the 2 screws. Remove the main lead connection. Open the electrical box, 2 clips **G**



Remove the pump plug from the control board and earth plug from earth socket.
Pivot the electrical box downwards. Unscrew the nut **F** of the flow pipe from the volute. Remove the clip **H** on the pump volute and pull pump toward you. Remove the back clip.
Reassemble in reverse order.

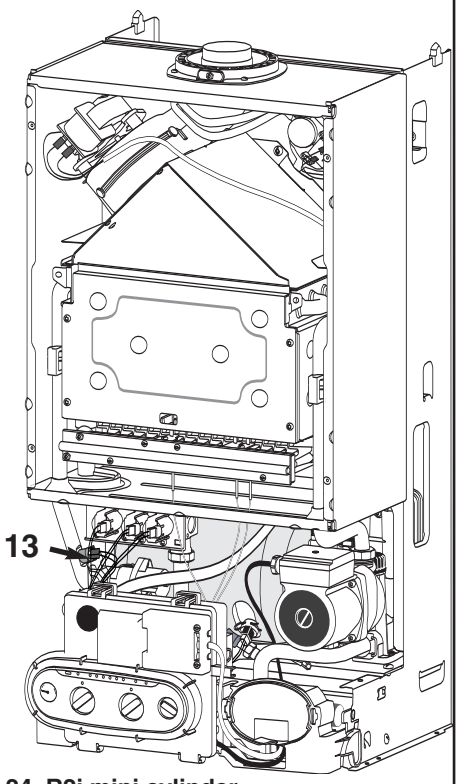
21. Thermistors
Drain the boiler as step **12**. Disconnect the plug, remove the retaining clip pull the thermistor out
Reassemble in reverse order.



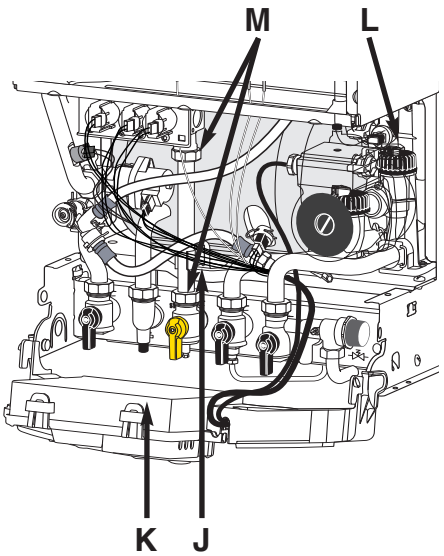
10 = DHW thermistor
16 = Heating thermistor
18 = TSS thermistor

22. Control board
Carry out step **1**, open the electrical box cover as mentionned in step **5**. unplug all cables from the PCB remove earth plug from earth socket undo the screw fixing the PCB. Hang out the control board.
Reassemble in reverse order.

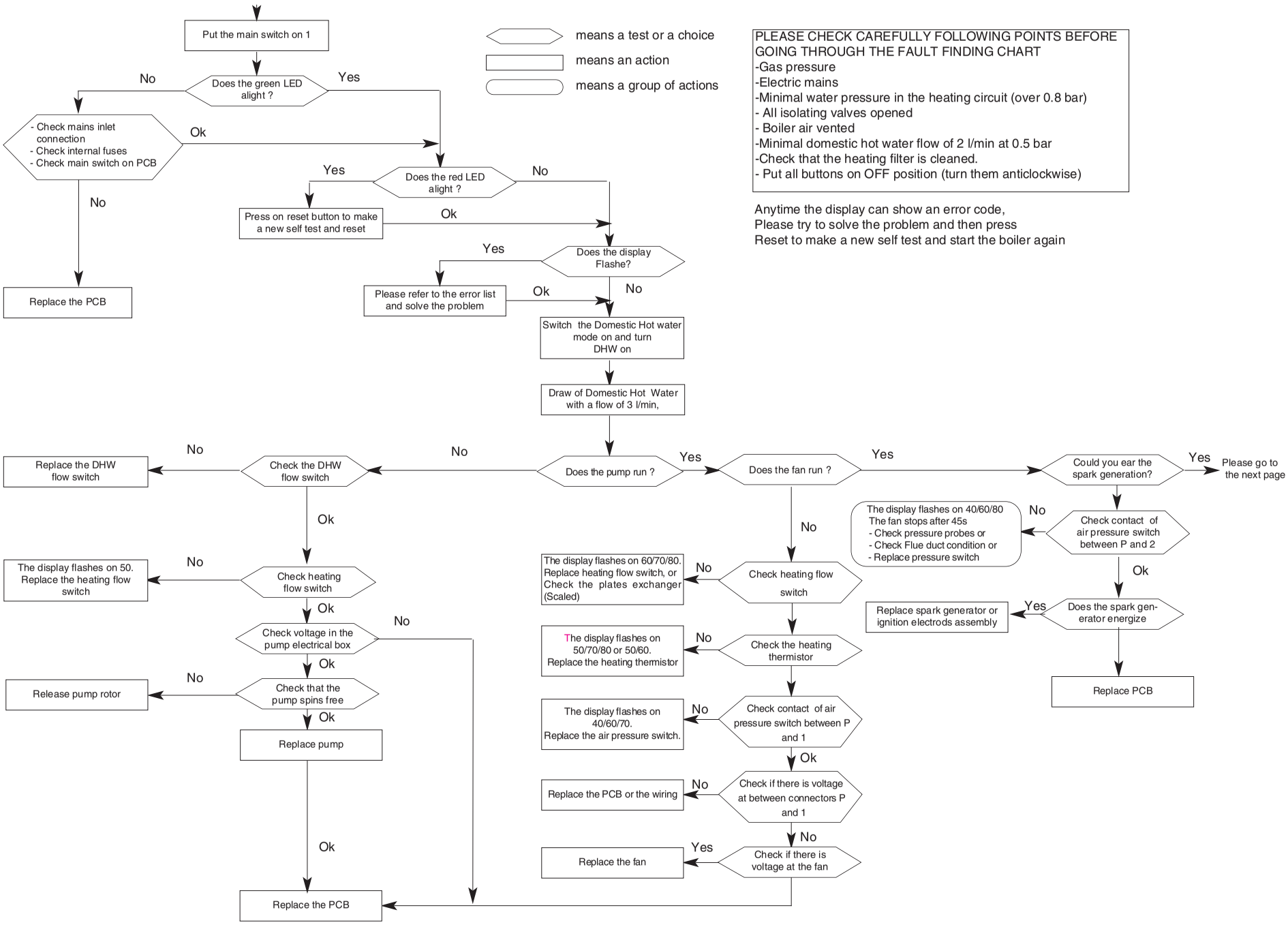
23. Safety thermostat
Remove the casing as step **1** unscrew four self tapping screws securing the sealed chamber front panel. Disconnect the 2 cables, pull out the sensor with the clip **13**. Reassemble in reverse order.



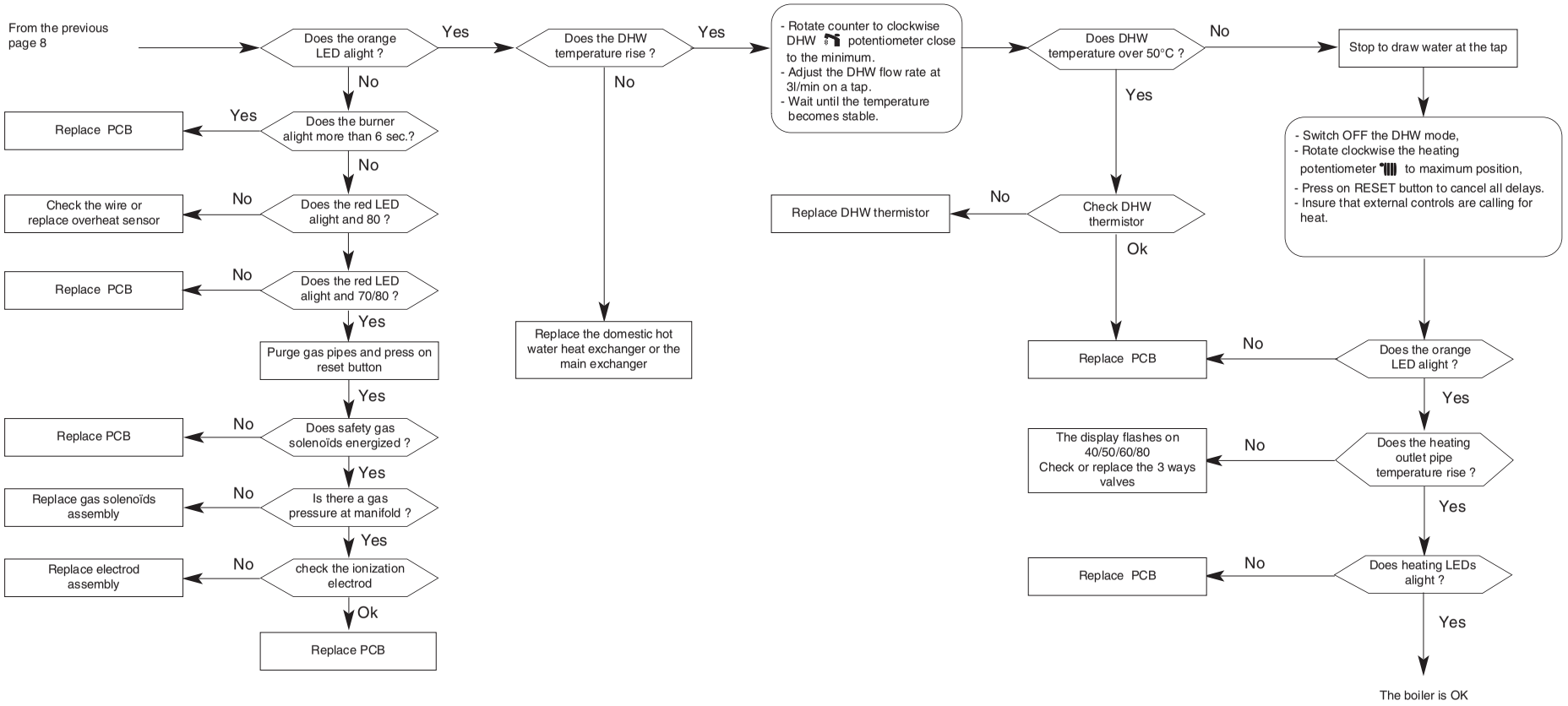
24. R2i mini cylinder
You have to remove the hydraulic bloc.
Carry out steps **1** and **2** as above.
Drain the cylinder by removing the drain plug **J.** Remove the 3 way valve as in step **16**. Remove all the connections of main wiring. Remove the lid of connections box **K**. Disconnect the pump from electronic circuit. Remove the manometer. Unscrew the nut **L** of the pipe between the pump and the primary heat exchanger. Remove the gas pipe by unscrewing the two nuts **M**.
Remove the gas block by removing the 4 screws. Unscrew the last nuts of connection from the pre-installation gig.
Remove the two fastening screws of the hydraulic block from the frame.
Pull all the hydraulic block toward you by inclining it slightly. Remove the two clips.
Unscrew the two nuts fixing the cylinder.
Reassemble in reverse order.



FAULT FINDING CHART Part 1



FAULT FINDING CHART Part 2



INCORRECT FUNCTION

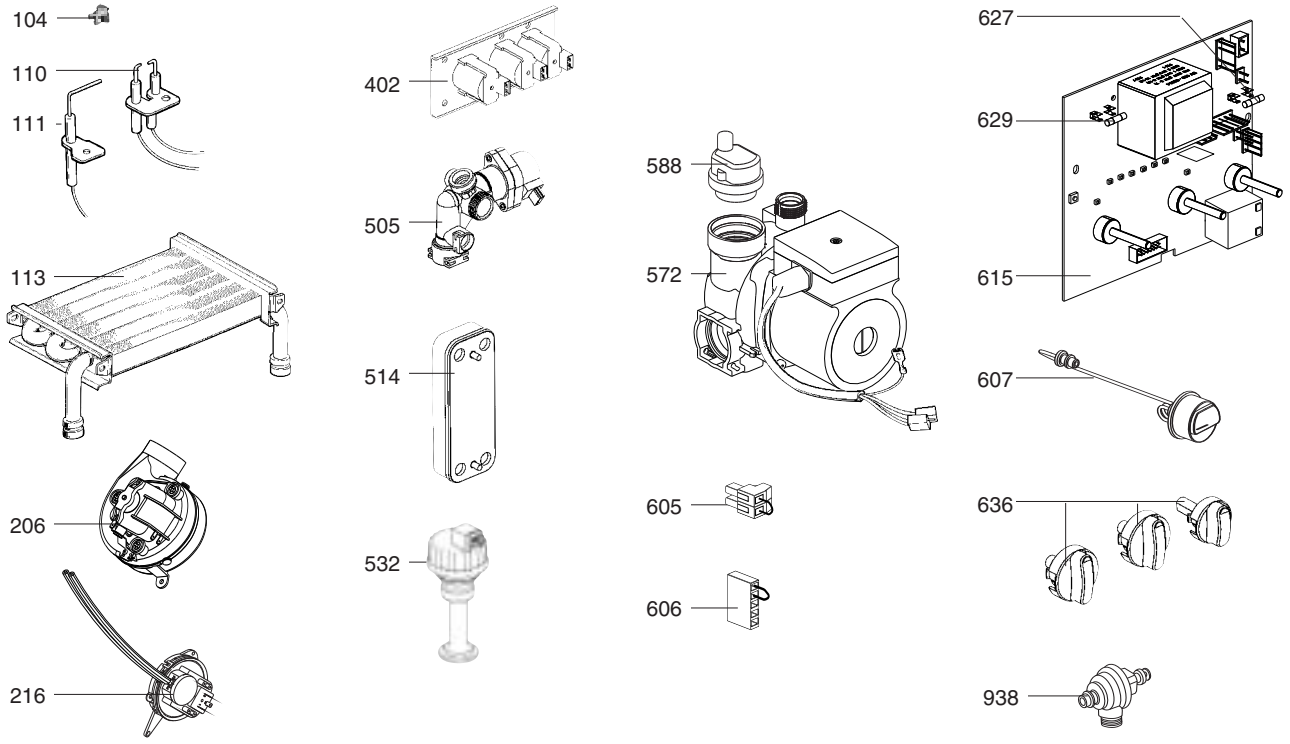
Incorrects functions is signalled by leds (rep 26) display flashing correspond with chart below.

CODE						FAULT	INFORMATION
30	40	50	60	70	80		
❍	❍	❍	❍	❍	●	Overheating safety feature	
❍	❍	❍	❍	●	❍	Overheating defect without locking	
❍	❍	❍	❍	●	●	Misfiring safety feature	
❍	❍	❍	●	❍	❍	Fire detection without burner working	
❍	❍	❍	●	❍	●		Besides freezing pump
❍	❍	❍	●	●	❍		Besides freezing burnerr
❍	❍	❍	●	●	●	Lack of water circulation.	
❍	❍	●	❍	❍	❍	Primary water circulation defect	
❍	❍	●	❍	❍	●	Thermistor sanitary open	
❍	❍	●	❍	●	❍	Thermistor sanitary bypassed.	
❍	❍	●	❍	●	●	Thermistor inlet heating open	
❍	❍	●	●	❍	❍	Thermistor inlet heating bypassed	
❍	●	❍	●	❍	●	Extractor on and pressure regulator at rest	
❍	●	❍	●	●	❍	Extractor off and pressure regulator at rest	
❍	●	●	❍	❍	●	Thermistor cylinder open	
❍	●	●	❍	●	❍	Thermistor cylinder bypassed	
❍	●	●	●	❍	●	Distribution valve stuck on heating	

❍ = **LED off**

● = **LED blinking**

SHORT LIST



Key N°	Description	G.C N°	Manf. Pt. N°	Type	CALYDRA COMFORT 80/100 FF	CALYDRA COMFORT FF	Manf. date from	Manf. date to
104	OVERHEAT THERMOSTAT 100°C	277783	1010572		●	●		
110	IGNITION ELECTRODE	277788	1002801		●	●		
111	IONIZATION ELECTRODE	277789	1002802		●	●		
113	HEAT EXCHANGER	277790	1010017		●			
	HEAT EXCHANGER	E00606	1011136			●		
206	FAN ASSY		1304720		●	●		
216	AIR PRESSURE SWITCH 24KW		1306697		●			
	AIR PRESSURE SWITCH 28KW		1307335			●		
402	SOLENOID VALVES KIT	E23494	81836	NAT	●	●		
505	THREE-WAY VALVE	E23510	81839		●	●		
514	WATER / WATER HEAT EXCHANGER		1302409		●	●		
532	WATER THROTTLE	277846	81471		●	●		
588	AIR SEPARATOR HEAD ASSEMBLY		1304608		●	●		
572	PUMP + AIR SEPARATOR 15/50		1301964		●	●		
	PUMP + AIR SEPARATOR 15/60		1303461		●	●		
605	CONNECTOR		1302101		●	●		
606	CONNECTOR		1303697		●	●		
615	PRINTED CIRCUIT BOARD		1307627		●	●		
627	FUSE 250V 2A - TEMPORIZED	277883	1003456		●	●		
629	FUSE 250V 1.25A - TEMPORIZED	277884	1003635		●	●		
607	PRESSURE GAUGE		1303159		●	●		
636	KNOBS SET		81979		●	●		
938	PRESSURE RELIEF VALVE		1020933		●	●		

This appliance is suitable for Natural gas or LPG. A gas conversion must be made by a competent person.

Manufacturer: **Chaffoteaux & Maury - France**

Commercial subsidiary: **MTS (GB) Limited**
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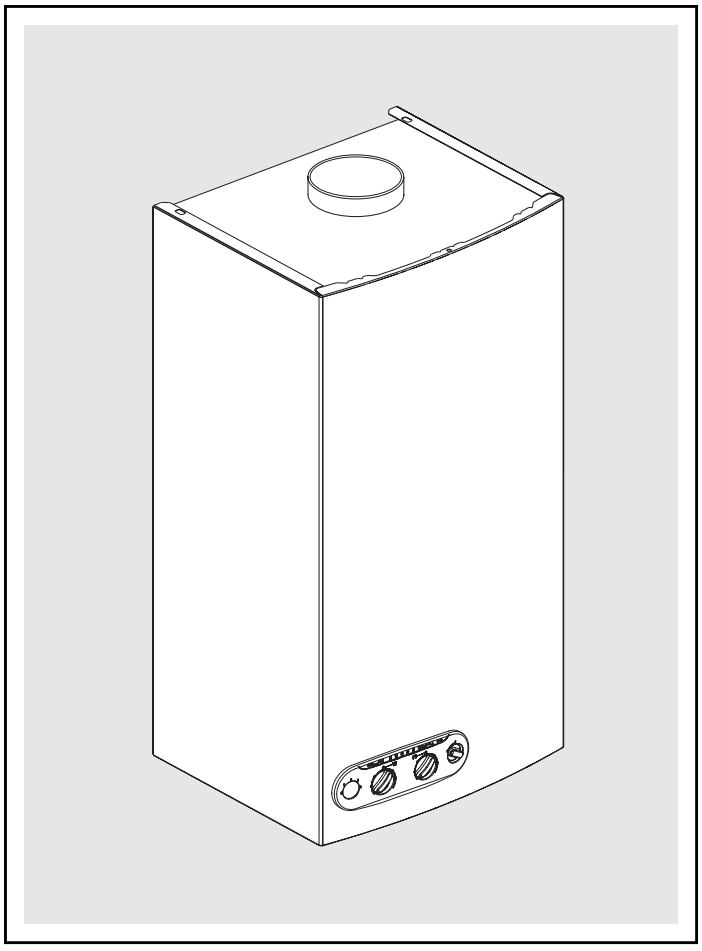
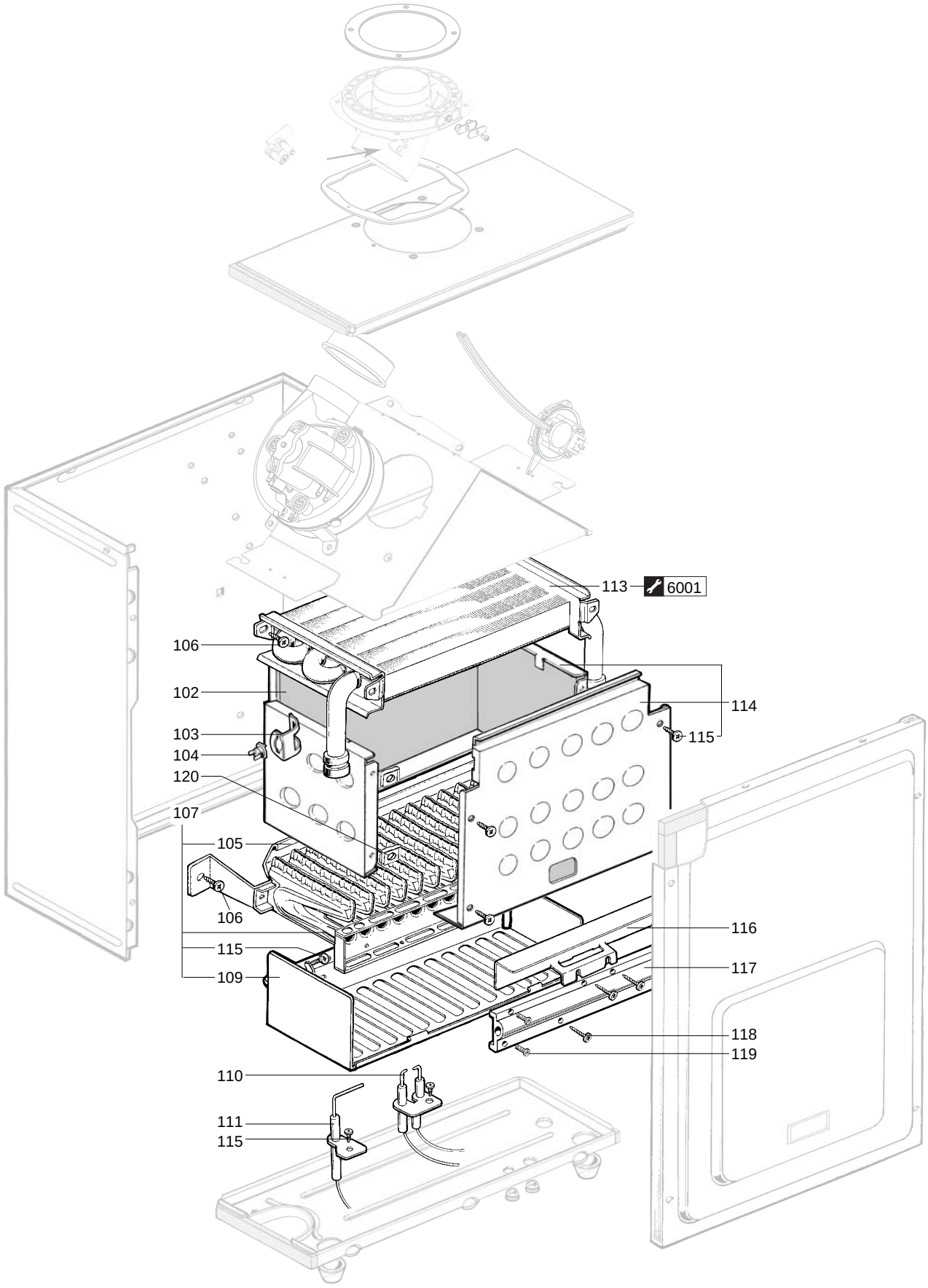
Technical Support Help Line: 0870 241 8180
Customer Service Help Desk: 0870 600 9888

Ref. : 1309148c - 06/2004

CALYDRA COMFORT



CALYDRA COMFORT 80
CALYDRA COMFORT 100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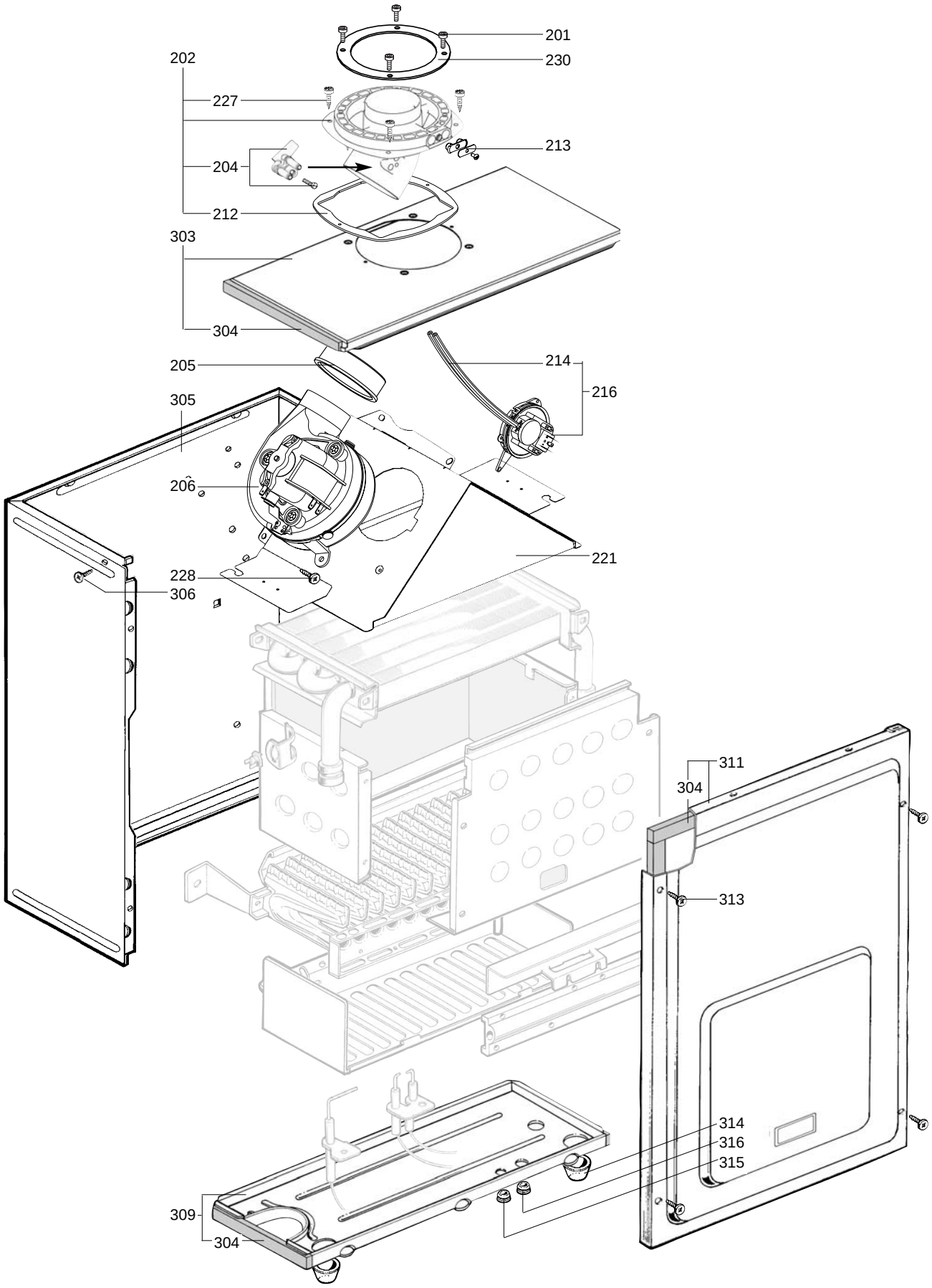
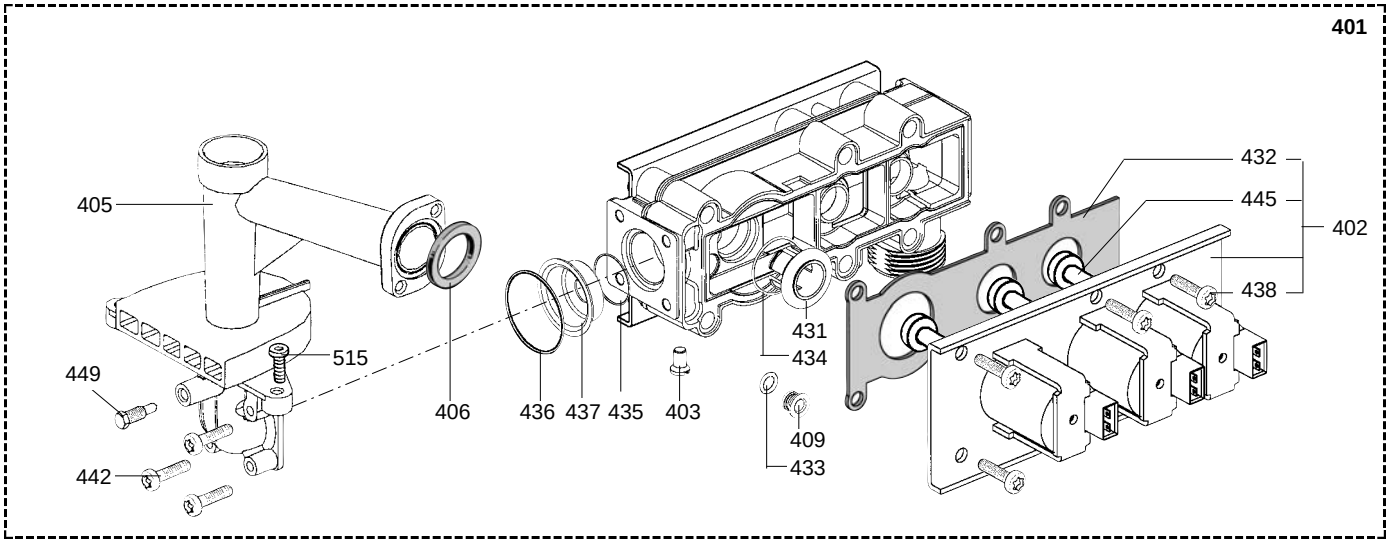
Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT	CALYDRA COMFORT	Manf. date from	Manf. date to
					FF	FF		
100	**BURNER ASSEMBLY**							
102	COMBUSTION CHAMBER LINING KIT	277781	81722		■	■		
103	CLIP	277782	1010050		■	■		
104	OVERHEAT THERMOSTAT 100∞C	277783	1010572		■	■		
105	CROSS LIGHTING STRIP	277784	1002811		■	■		
106	TAPPING SCREW CBLSX D: 6.3-13	277865	1010648		■	■		
107	BURNER HEAD		1010753		■	■		
109	GRILLE	277787	1010223		■	■		
110	IGNITION ELECTRODE	277788	1002801		■	■		
111	IONIZATION ELECTRODE	277789	1002802		■	■		
113	HEAT EXCHANGER	277790	1010017		■			
	HEAT EXCHANGER	E00606	1011136			■		
114	COMBUSTION CHAMBER ASSY	277791	81721		■	■		
115	TAPPING SCREW CBLSX D: 4.2-9.5	277792	1010125		■	■		
116	DEFLECTOR	277793	1010392		■			
	DEFLECTOR		1011642			■		
117	MANIFOLD 16 INJ.	277795	1010341	NAT	■			
	MANIFOLD 16 INJ.	E00607	1011305	NAT		■		
118	TAPPING SCREW CBLSX D: 4.2-25	277796	1010128		■	■		
119	SCREW HX M 5-12	277797	1010131		■	■		
120	SPIRE CLIP	366787	57488		■	■		

200 FAN
300 SEALED CASE



Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT	CALYDRA COMFORT		Manf. date from	to
					FF	FF			
200	**FAN ASSEMBLY**								
201	SCREW CLX M 5-20		1017600		■	■			
202	BEND 45∞ KIT		1306695		■	■			
204	VENTURI		1310050		■	■			
205	GASKET		1303825		■	■			
206	FAN ASSY		1304720		■				
	FAN ASSY		1304721			■			
212	GASKET		1300262		■	■			
213	PLUG KIT		1306698		■	■			
214	SILICONE TUBE D: 9x3 L: 1.30M	264444	81265		■	■			
216	AIR PRESSURE SWITCH 24KW		1306697		■				
	AIR PRESSURE SWITCH 28KW		1307335			■			
221	HOOD		1304712		■	■			
227	TAPPING SCREW CBLSX D:4.2-12.5		1010847		■	■			
228	TAPPING SCREW CBLSX D: 6.3-13	277865	1010648		■	■			
230	GASKET (/ Flue bend turret)		1300258		■	■			
300	**SEALED CASE**								
303	TOP PANEL BOX		1305438		■	■			
304	FOAM SEAL 12.5x5 L: 2.5M	264425	81273		■	■			
305	CASE	277814	1010106		■	■			
306	TAPPING SCREW CBLZ D: 4.2-13	277815	79486		■	■			
309	BASE - BOX	277816	1010588		■	■			
311	CASE COVER	E23478	81851		■	■			
313	TAPPING SCREW CBLZ D: 4.2-19	277818	1003114		■	■			
314	GROMMET	277819	1010109		■	■			
315	GROMMET	366877	39017		■	■			
316	GROMMET - DOUBLE	277820	42707		■	■			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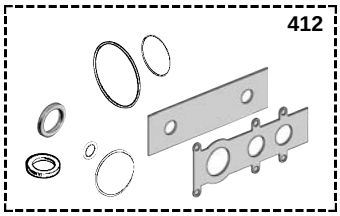
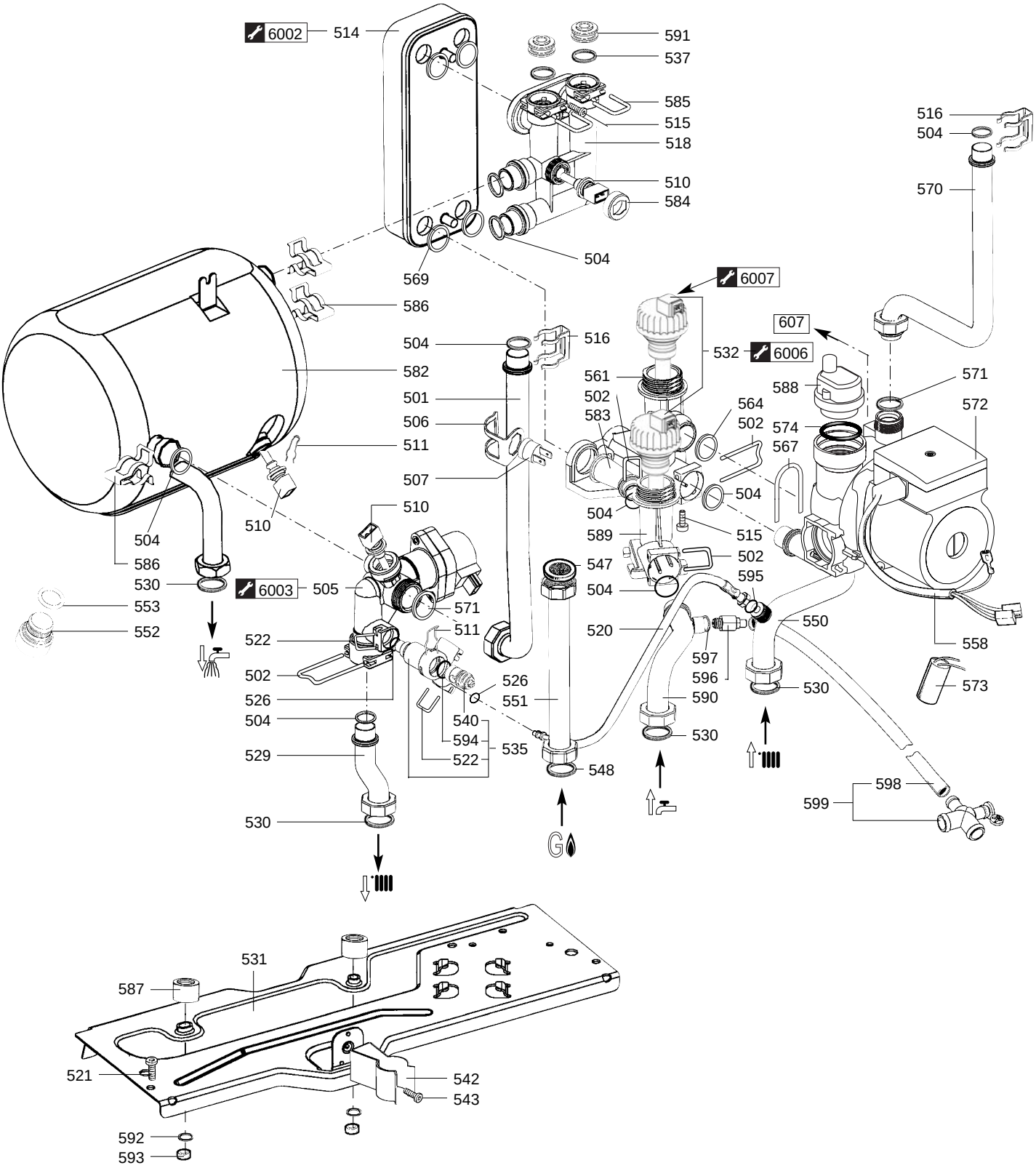

412

Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT FF	CALYDRA COMFORT FF		Manf. date from	to
400	**GAS SECTION**								
401	GAS VALVE NAT	E23484	1015196	NAT	■				
	GAS VALVE NAT	E23485	1015341	NAT		■			
402	SOLENOID VALVES KIT	E23494	81836	NAT	■	■			
403	PRESSURE TEST POINT SCREW	400004	19445		■	■			
405	BURNER BASE KIT	E23489	81835		■	■			
406	GASKET (/Manifold)	277798	1010071		■	■			
409	VALVE D: 2.60	E23492	1014420.04		■				
	VALVE D: 2.90	E23493	1014420.05			■			
410	FOAM SEAL 12x7 L: 5M	265412	81273.04		■	■			
412	GAS SECTION GASKETS KIT	E23495	81837		■	■			
431	RESTRICTOR	E23497	1013017		■	■			
432	GASKET (/Solenoid valve)	E23498	1013018		■	■			
433	"O"RING D: 6-1	E23499	21061.36		■	■			
434	"O" RING D: 14.1-1.6	E23500	21061.41		■	■			
435	"O" RING D: 17.1-1.6	E23501	21061.42		■				
436	"O" RING D: 22-2.6	E23502	21061.40		■	■			
437	RESTRICTOR D: 6.7	E23504	1013016.01	NAT	■				
438	SCREW CLXS M 5-45		1014414		■	■			
442	SCREW CBLXS M 4-20	E23487	1014415		■	■			
445	SOLENOID PISTONS KIT	277530	81368		■	■			
449	PRESSURE TEST POINT SCREW		1016378		■	■			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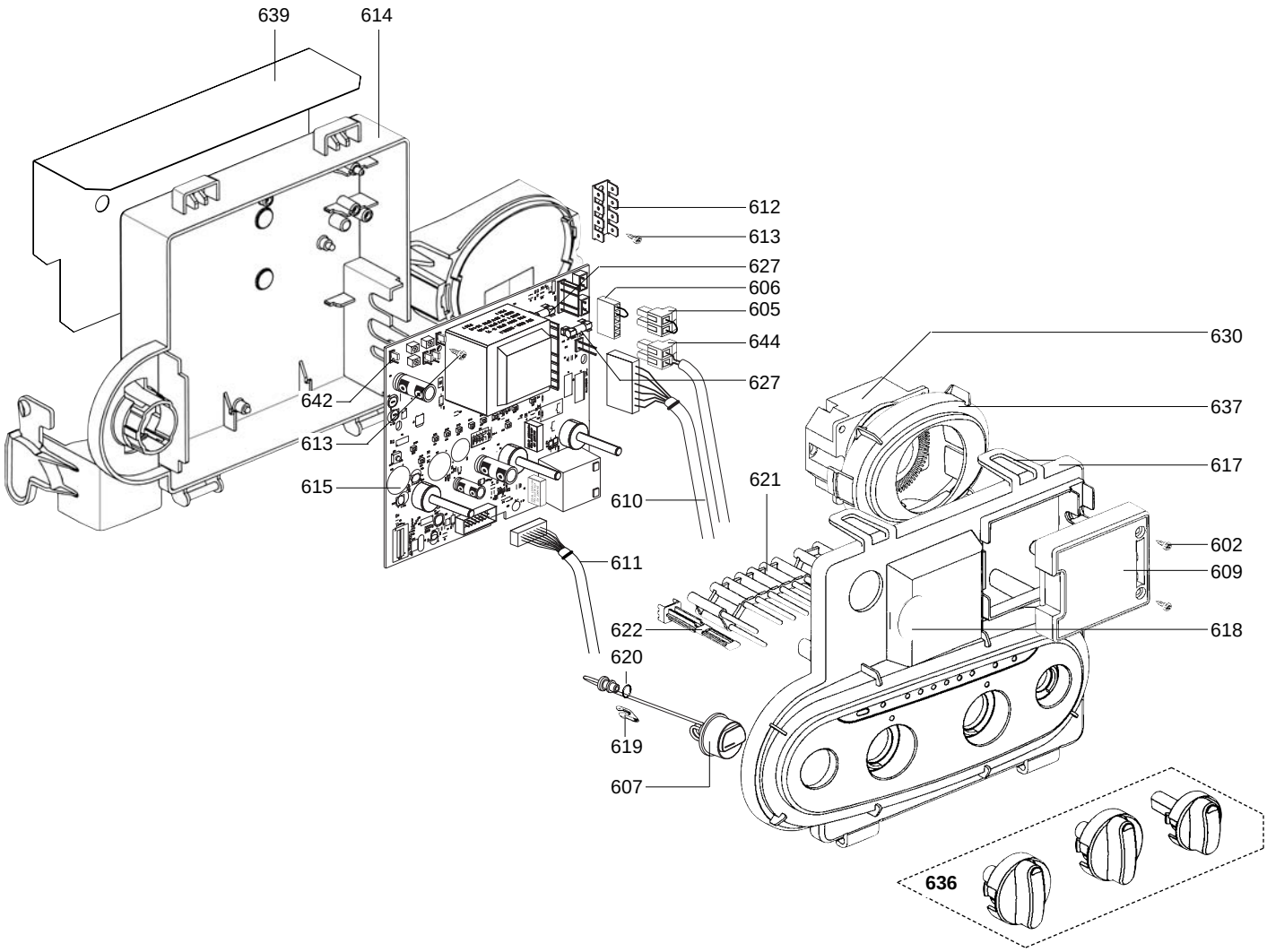
Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT	CALYDRA COMFORT		Manf. date	
					FF	FF		from	to
500	**HYDRAULIC BLOCK**								
501	TUBE-EXCHAN TO THREE-WAY VALVE	E23506	1014221		■	■			
502	HEATING CONNECTION PIN	E23507	1002399		■	■			
504	"O" RING D: 17-4	E00604	24164.51		■	■			
505	THREE-WAY VALVE	E23510	81839		■	■			
506	CLIP	277782	1010050		■	■			
507	OVERHEAT THERMOSTAT 100∞C	277783	1010572		■	■			
510	THERMISTOR TEMP. SENSOR	277834	1000733		■	■			
511	TEMPERATURE SENSOR CLIP	277835	1002083		■	■			
514	WATER / WATER HEAT EXCHANGER		1302409		■	■			
515	SCREW HX M 5-12	277797	1010131		■	■			
516	CLIP	277838	1010609		■	■			
518	TOP INTERFACE SYSTEM	E23512	1014228		■	■			
520	FLEXIBLE PIPE	E23513	1012952		■	■			
521	TAPPING SCREW CBLSX D: 6.3-13	277865	1010648		■	■			
522	CLIP	277841	1010005		■	■			
526	"O" RING D: 8.9-2.7	E00605	1009834.14		■	■			
529	HEATING FLOW TUBE	E23515	1014220		■	■			
530	SHEET GASKET D: 24-17-1.5	265389	61855.19		■	■			
531	HYDRAULIC PLATE	E23516	1014214		■	■			
532	WATER THROTTLE	277846	81471		■	■			
535	TAP BODY		1012963		■	■			
537	"O" RING D: 13.6-2.7	366048	24164.18		■	■			
540	SPINDLE	E23519	1012946		■	■			
542	CLIP	277851	79845		■	■			
543	TAPPING SCREW CBLSX D: 4.2-9.5	277792	1010125		■	■			
547	GAS FILTER	263545	37309		■	■			
548	SHEET GASKET D: 24-18.2-1.5	265091	22835.01		■	■			
550	HEATING RETURN TUBE	E23520	1014218		■	■			
551	GAS TUBE	277853	1010040		■	■			
552	PLUG	E23521	1015245		■	■			
553	"O" RING D: 8.9-1.9	264374	24164.13		■	■			
558	PUMP LEAD (2 SPEEDS)		1306995		■	■			
561	BOTTOM INTERFACE SYSTEM	E23522	1014172		■	■			
564	"O" RING D: 24.6-3.6		1009834.30		■	■			
565	HEATING FILTER		1305560		■	■			
567	CLIP	366887	30898.03		■	■			
569	LIP SEAL	277860	1002249		■	■			
570	TUBE : PUMP TO HEAT EXCHANGER	E23523	1015360		■	■			
571	"O" RING D: 16-1.9	E00615	1009833.37		■	■			
572	PUMP + AIR SEPARATOR 15/50		1301964		■	■			
	PUMP + AIR SEPARATOR 15/60		1303461		■	■			
573	CAPACITOR	E00616	1000652.10		■	■			
574	GASKET KIT		1304618		■	■			
582	CYLINDER 6L	E23527	1012790		■	■			
583	LINKING TUBE	E23528	1012808		■	■			
584	NUT		1012886		■	■			
585	PIN		1012909.02		■	■			
586	CLIP	E23531	1012983		■	■			
587	WASHER D: 12.5-5.2-5	E23532	1015757		■	■			
588	AIR SEPARATOR HEAD ASSEMBLY		1304608		■	■			
589	STOPPED WATER THROTTLE BODY	E23540	1012743		■	■			
590	COLD WATER TUBE	E23542	1014983		■	■			
591	PLUG	E23554	1002490		■	■			
592	WASHER D: 12-6.2-1.2	366808	7059.03		■	■			
593	NUT H M 6-1	366758	26501.03		■	■			
594	"O" RING D: 2.7-10.5	E23557	1009834.15		■	■			
595	SHEET GASKET D: 10.5-6.2-1.5	E23563	22831.07		■	■			
596	PRESSURE RELIEF VALVE DRAIN		61014984		■	■			
597	SHEET GASKET D: 13.9-10.4-1.5	E23568	61853.02		■	■			
598	TUBE PVC D: 9x12 L: 1M	E00634	81266		■	■			
599	CONNECTION		1020242		■	■			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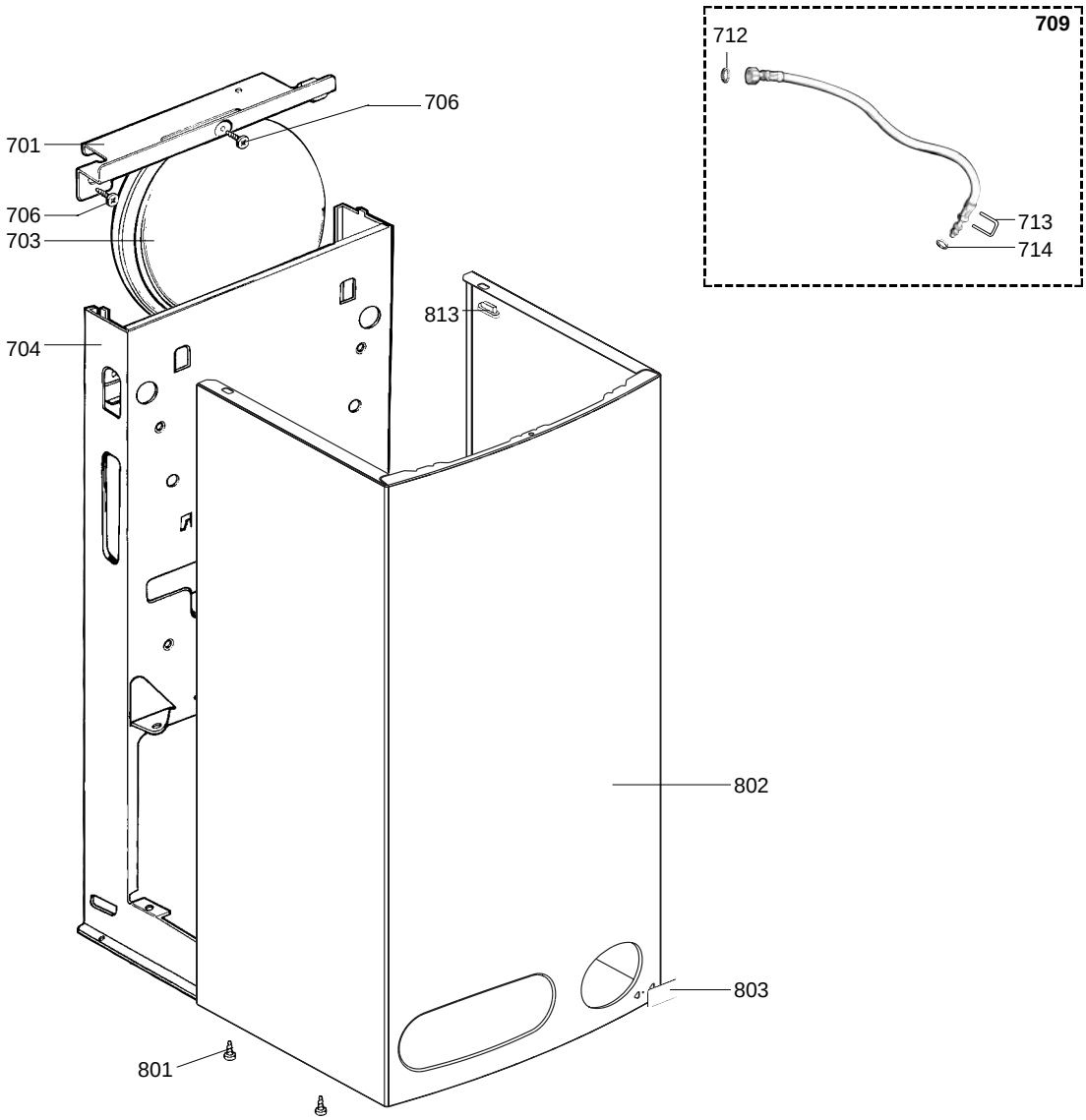
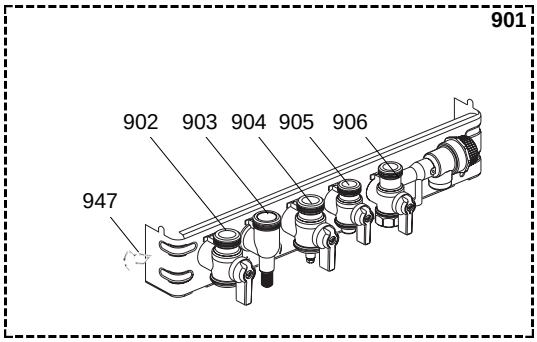
Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT	CALYDRA COMFORT	Manf. date from	Manf. date to
					FF	FF		
600	**ELECTRICAL BOX**							
602	SCREW FX90 L:16		1020510		■	■		
605	CONNECTOR		1302101		■	■		
606	CONNECTOR		1303697		■	■		
607	PRESSURE GAUGE		1303159		■	■		
609	CONNECTOR COVER		1302248		■	■		
610	CONNECTOR		1305269		■	■		
	FAN CABLE		1307799		■	■		
611	WIRE ASSEMBLY		1309144		■	■		
612	CONNECTION STRIP	277678	1002725		■	■		
613	TAPPING SCREW CBLSX L:10		1020509		■	■		
614	BASE - BOX		1302237		■	■		
615	PRINTED CIRCUIT BOARD		1307627		■	■		
617	ELECTRICAL BOX COVER		1303266		■	■		
618	PLUG	E00269	1011316		■	■		
619	CLIP	277848	1002406		■	■		
620	"O" RING D: 5.7-1.9	E00621	1009834.10		■	■		
621	TRANSMITTER OF LEDS		1302245		■	■		
622	IGNITION PUSH ROD		1302246		■	■		
627	FUSE 250V 0.125A TEMPORIZED		1000955		■	■		
	FUSE 250V 2A - TEMPORIZED	277883	1003456		■	■		
	FUSE 250V 1.25A - TEMPORIZED	277884	1003635		■	■		
630	TIMECLOCK		1303653		■	■		
631	PROGRAMMER CABLE	E23587	1013091		■	■		
636	KNOBS SET		81979		■	■		
637	HOLE PLATE (WITH HOLE)		1303633		■	■		
	HOLE PLATE (WITHOUT HOLE)		1303634		■	■		
638	CABLE THREE WAY VALVE		1307800		■	■		
642	BLACK SHUNT		61400030		■	■		
644	FEEDER		1308031		■	■		

700 CHASSIS
800 FRONT CASE



Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT FF	CALYDRA COMFORT FF		Manf. date from	to
700	**CHASSIS**								
701	TOP STAY PLATE	277864	1010029		■	■			
703	EXPANSION VESSEL	366979	56676.06		■	■			
704	CHASSIS	277866	1010028		■	■			
706	TAPPING SCREW CBLSX D: 6.3-19		1014516		■	■			
709	FLEXIBLE PIPE KIT	E23589	81824		■	■			
712	SHEET GASKET D: 12-8.1-2		1308868		■	■			
713	CLIP	277841	1010005		■	■			
714	"O" RING D: 8.9-2.7	E00605	1009834.14		■	■			
800	**FRONT CASE**								
801	TAPPING SCREW CBLSX D: 4.2-9.5	277792	1010125		■	■			
802	CASE (FOR PROG.)		1304631		■	■			
803	PLATE		1306066		■	■			
813	SPACER		1015797		■	■			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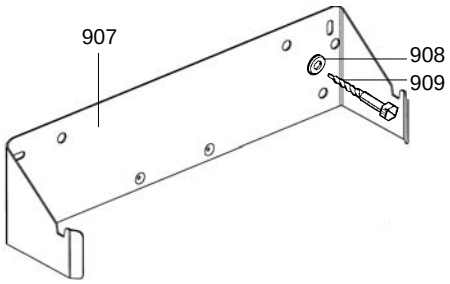
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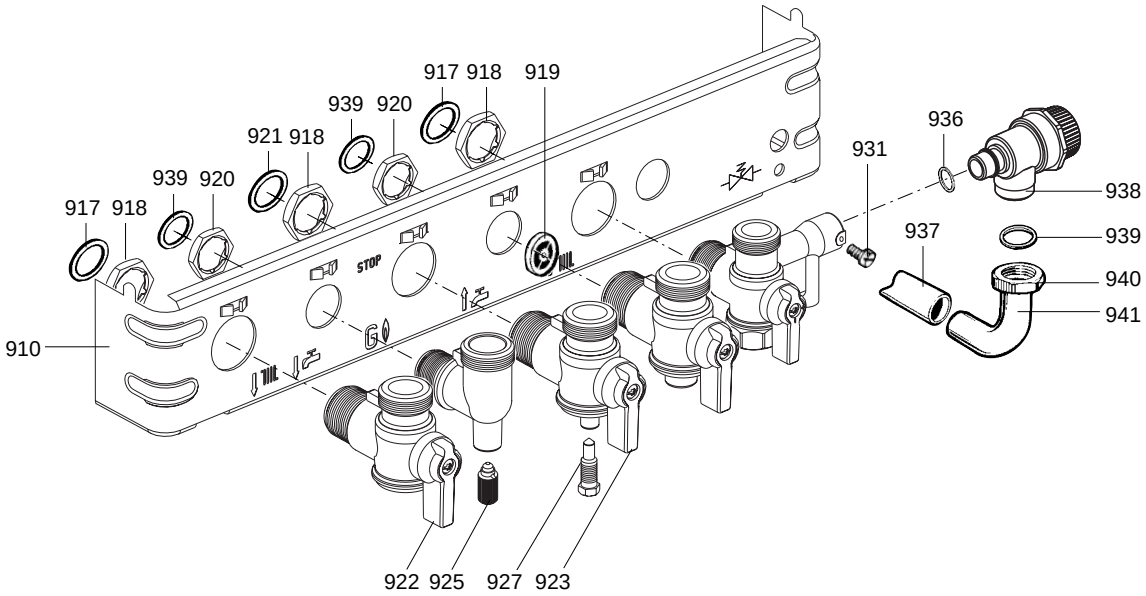
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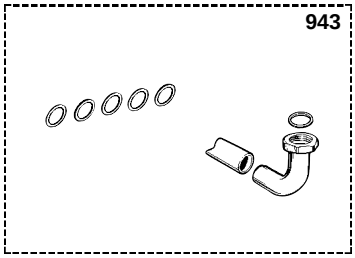
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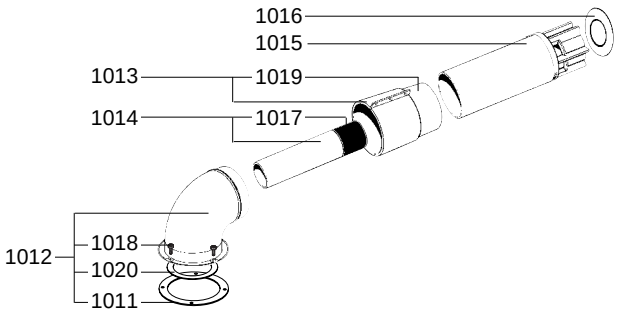
Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT CALYDRA COMFORT FF	FF		Manf. date from	to
900	**JIG PLATE & PIPE FITTING**								
901	PREFABRICATION	E00627	1012448		■	■			
902	WATER FLOW SERVICE TAP		1020388		■	■			
903	HOT WATER CONNECTION		1020916		■	■			
904	GAS SERVICE TAP		1020389		■	■			
905	COLD WATER TAP		1302612		■	■			
906	WATER RETURN SERVICE TAP		1312122		■	■			
907	HOOKING BRACKET	E23593	1012457		■	■			
908	WASHER D: 14.2-7.2-1.2	366764	5369.03		■	■			
909	WOOD SCREW	366017	25617.03		■	■			
910	BOTTOM STAY PLATE	E00630	1011683		■	■			
917	SHEET GASKET D: 24-17-1.5	265389	61855.19		■	■			
918	LOCK NUT	277909	31140		■	■			
919	FLOW REGUL. 7L/MIN(DARK GREEN)	277911	1002775.07		■	■			
	FLOW REGULATORE 8L/MIN (WHITE)	E23605	1002775.08		■	■			
	FLOW REGULATOR 10L/MIN (BLUE)	E00631	1002775.10		■	■			
	FLOW REGULATORE 12L/MIN (RED)	E23606	1002775.12		■	■			
	FLOW REGULATOR 14L/MIN (PINK)	277911	1002775.14		■	■			
	FLOW REGUL 15L/MIN(PALE GREEN)	E23607	1002775.15		■	■			
920	LOCK NUT H 1/2"	277910	31139		■	■			
921	SHEET GASKET D: 24-18.2-1.5	265091	22835.01		■	■			
922	HAND LEVER BLACK		1302611		■	■			
923	HAND LEVER YELLOW		1302610		■	■			
925	DRAIN SCREW ASSY	266043	81028		■	■			
927	PRESSURE TEST POINT SCREW		1016378		■	■			
931	GRUB SCREW		1304327		■	■			
936	"O" RING D: 13.6-2.7	E00633	1009834.18		■	■			
937	TUBE PVC D: 13x17 L: 1M	277912	81266.02		■	■			
938	PRESSURE RELIEF VALVE		1020933		■	■			
939	WASHER D: 18.4-12.2-1.5	265432	61855.14		■	■			
940	NUT 1/2" THICK: 10	277624	20747.68		■	■			
941	CONNECTING PIPE	277913	1010375		■	■			
943	ACCESSORY KIT		1310732		■	■			
947	CLIP	E23616	1012927		■	■			

1001



HORIZONTAL FLUE KIT | **D60-100**

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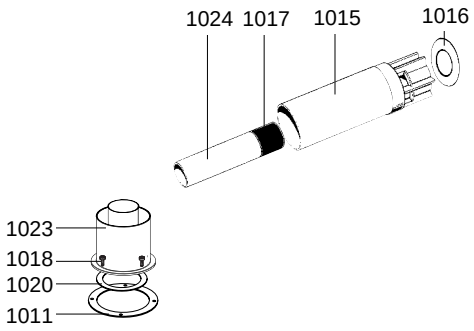

V./HORIZONTAL FLUE KIT | **D60-100**

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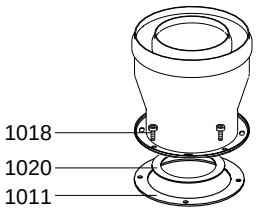

VERTICAL FLUE KIT | **D80-125**

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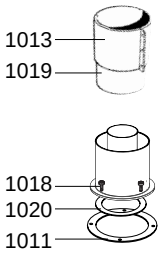

VERTICAL FLUE KIT | **D60-100**

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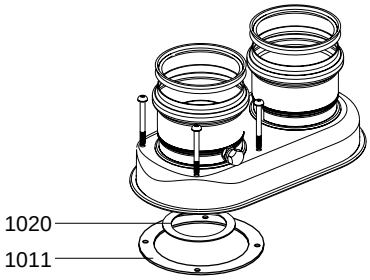


DOUBLE-FLOW FLUE KIT | **D80-80**

Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT	CALYDRA COMFORT		Manf. date	
					FF	FF		from	to
1000	**FLUE CONNECTION**								
1001	HORIZONTAL FLUE KIT D60-100		1303383		■	■			
1002	V./HORIZONTAL FLUE KIT D60-100		1306054		■	■			
1003	VERTICAL FLUE KIT D80-125		1304703		■	■			
1004	VERTICAL FLUE KIT D60-100		1309229		■	■			
1005	DOUBLE-FLOW FLUE KIT D80-80		1304704		■	■			
1011	GASKET (/ Flue bend turret)		1300258		■	■			
1012	FLUE BEND TURRET ASSY		1306699		■	■			
1013	SLEEVE D:100		61310308		■	■			
1014	FLUE DUCT SECOND SECTION		1306700		■	■			
1015	AIR DUCT		1300298		■	■			
1016	SEALING RING TRIM	366995	62079		■	■			
1017	SLEEVE JOINT	264357	62181		■	■			
1018	SCREW CLX M 5-20		1017600		■	■			
1019	GASKET		1303250		■	■			
1020	RESTRICTOR D:82		1304754		■	■			
	RESTRICTOR D:84		1305420		■	■			
	RESTRICTOR D:75		1306276		■	■			
	RESTRICTOR D:78		1307339		■	■			
	RESTRICTOR D:80		1307846		■	■			
	RESTRICTOR D:79		1308126		■	■			
1023	VERTICAL ADAPTATER		1305982		■	■			
1024	FLUE DUCT SECOND SECTION		1300300		■	■			

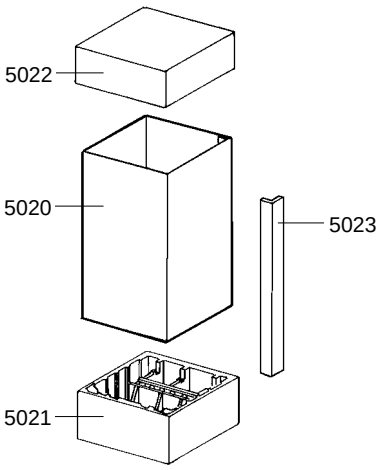
5000 ACCESSORIES

5001

NAT > LPG

5014
Connection
FIRST FITTING

5015
Connection
REPLACEMENT



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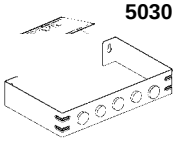

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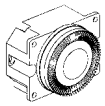

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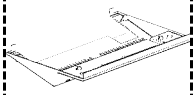

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Acoustic
Kit

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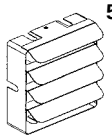

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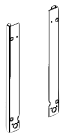

6000 MAINTENANCE

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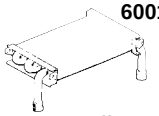
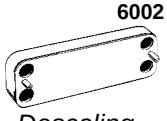


Descaling

6002



Descaling

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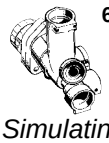
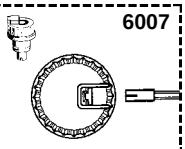


Simulating

6006

Spanner

6007



Key N°	Description	G.C N°	Manf. Pt. N°	Type	80 100 CALYDRA COMFORT	CALYDRA COMFORT		Manf. date	
					FF	FF		from	to
5000	**ACCESSORIES**								
5001	CONVERSION KIT NAT > LPG	E23659	1016142		■				
	CONVERSION KIT NAT > LPG	E23660	1016143			■			
5014	CONNECTION - FIRST FITTING	277922	1010429		■	■			
5015	CONNECT. ELM	E00648	1010182		■	■			
	CONNECT. VAILLANT	E00649	1010183		■	■			
	CONNECT. CELTIC	E00650	1010517		■	■			
	CONNECT. JUNKER	E00652	1011063		■	■			
	CONNECT. SAULNIER DUVAL FF		1303293		■	■			
5020	SLEEVE		1018789		■	■			
5021	EXTREMITY CHOCK DRAUG DIV SIDE		1014400		■	■			
5022	CHOCK - DRAUGHT DIVERTER SIDE	E00655	1010080		■	■			
5023	SIDE CHOCK	E00656	1010081		■	■			
5030	ASSEMBLING JIG		1309247		■	■			
5031	MECANICAL TIMECLOCK KIT		1305009		■	■			
5033	ROD PLATE	E23679	1010932		■	■			
5035	SOUNDPROOFING KIT		1305676		■	■			
5040	INSTRUCTIONS		1309145		■	■			
5046	DEFLECTOR 30∞ KIT	E23682	1014810		■	■			
5047	WALL SPACER KIT	E23683	1016144		■	■			
6000	**MAINTENANCE**								
6001	DESCAL. INTERFACE/HEAT EXCHA	E23685	1014100		■	■			
6002	DESCAL. INTERFACE/WATER EXCH		1011075		■	■			
6003	SIMULATING BOX 3 WAY VALVE	E23686	1012597		■	■			
6006	SPANNER		1302650		■	■			
6007	STOPPED W/THROT. CONNECTOR KIT		1306970		■	■			