

GB

# Planet Super 4 f.s.

## *Installation & Servicing Instructions*



*The code of practice for the installation,  
commissioning & servicing for central heating systems*

CERTIFICAZIONE  
DEL SISTEMA DI  
QUALITÀ AZIENDALE

**ISO 9001**  
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# INSTALLER INSTRUCTIONS

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***The code of practice for the installation,  
commissioning & servicing for central heating systems***

Please refer to commissioning instructions for filling in the log book

Note: All CORGI registered installers carry a CORGI ID Card.  
You can check your installer is CORGI Registered by calling 01256 372300

## SIME COMBINATION BOILERS

### Installer checklist

Please remember to carry out the following checks after installation. This will achieve complete customer satisfaction, and avoid unnecessary service calls. A charge will be made for a service visit where the fault is not due to a manufacturing defect.

- Has a correct by-pass been fitted and adjusted?
- Has the system and boiler been flushed?
- Is the system and boiler full of water, and the correct pressure showing on the pressure gauge?
- Are the Auto Air Vent open?
- Has the pump been rotated manually? (protect electrics if pump has to be freed)
- Is the gas supply working pressure correct?
- Is the boiler wired correctly? (See installation manual).
- Has the D.H.W. flow rate been set to the customer requirements?
- Has the customer been fully advised on the correct use of the boiler, system and controls?
- Has the log book provided been completed?

# 1 DESCRIPTION OF THE BOILER

## 1.1 INTRODUCTION

The "PLANET SUPER 4 F.S." wall hung boilers with D.H.W. storage tank allow a variety of requests to be met thanks to the abundance of water which the capacious tank

unit makes available and thanks also to an electronic management and control system via a microprocessor: They are designed and built in compliance with European directives 90/396/EEC, 89/336/EEC, 73/23/EEC, 92/42/EEC and the European norms EN

483 - EN 625. They may be fuelled by natural gas (methane) and butane gas (G30) or propane (G31).

Follow the instructions given in this manual for the correct installation and perfect functioning of the apparatus.

## 1.2 DIMENSIONS

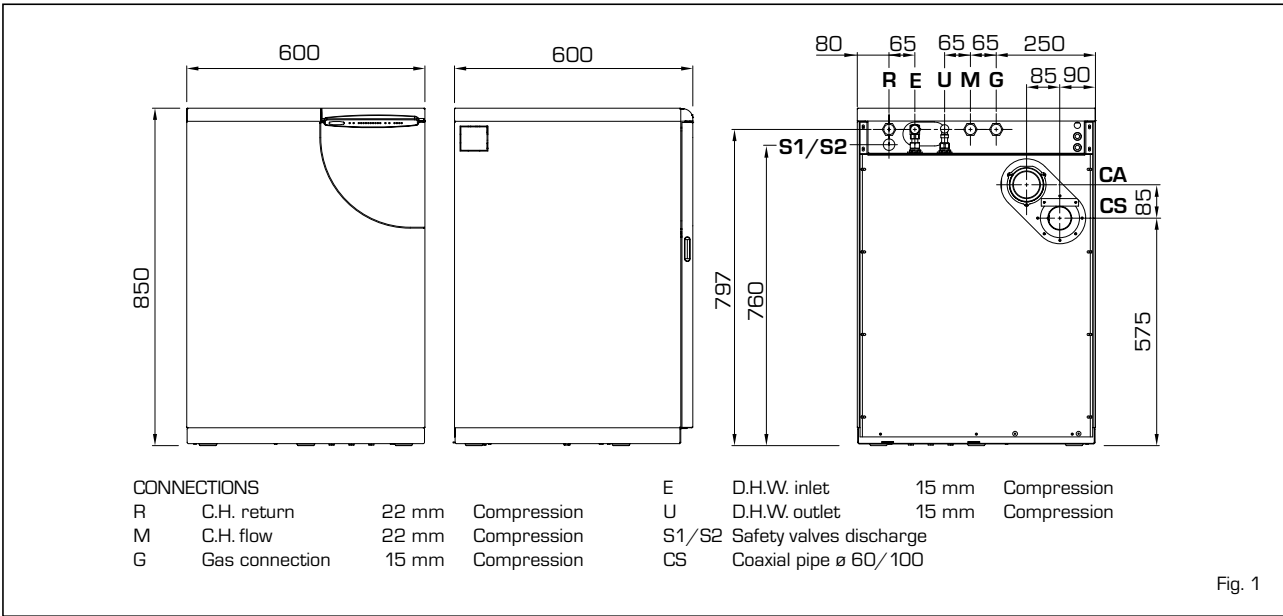


Fig. 1

## 1.3 TECHNICAL FEATURES

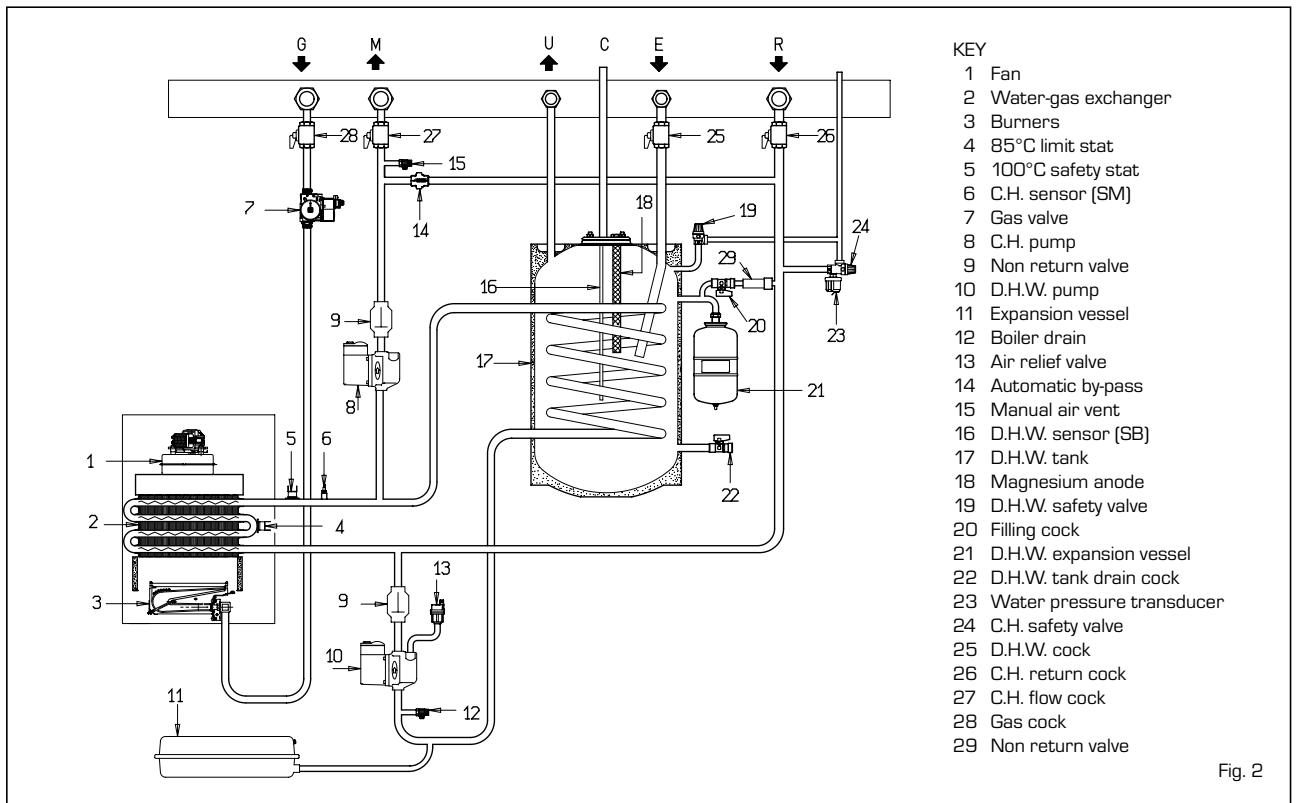
		4 F.S.	
<b>Heat output</b>			
Nominal	kW	29.0	
	Btu/h	98,950	
Minimum	kW (Btu/h)	11.4 (38,900)	
<b>D.H.W. heat output</b>			
Nominal	kW (Btu/h)	29.0 (98,950)	
<b>Heat input</b>			
Nominal	kW	31.6	
	Btu/h	107,800	
Minimum	kW (Btu/h)	13.5 (46,050)	
<b>Class NOx</b>		3	
<b>Water content</b>	l	13	
<b>Expansion vessel</b>			
Capacity/Preloading pressure	l/bar	8/1	
<b>C.H. setting range</b>	°C	40÷80	
<b>D.H.W. setting range</b>	°C	10÷60	
<b>D.H.W. production</b>			
Tank unit capacity	l	50	
D.H.W. flow rate EN 625*	l/min	15.6	
Contin. D.H.W. flow rate (Δt 30°C)	l/h	810	
D.H.W. expansion vessel	l	2.5	
Tank unit maximum water head	bar	7	
Recovery time from 25 to 55°C	min	3'40"	
<b>Absorbed power consumption</b>	W	180	

		4 F.S.	
<b>Electrical protection grade</b>			
		IP X4D	
<b>Maximum water head</b>	bar	3	
<b>Maximum temperature</b>	°C	85	
<b>Smokes temperature</b>	°C	138	
<b>Smokes flow</b>	gr/s	17.9	
<b>Category</b>			
<b>Type</b>		C12-32-42-52-82	
<b>Shipping weight</b>	kg	104	
<b>Main gas nozzles</b>			
Quantity	n°	15	
Natural gas	ø mm	1.30	
G30 - G31	ø mm	0.76	
<b>Gas flow **</b>			
Natural gas	m³/h	3.34	
Butane (G30)	kg/h	2.49	
Propane (G31) LPG	kg/h	2.45	
<b>Burner gas pressure</b>			
Natural gas	mbar	2.2÷11.3	
Butane (G30)	mbar	5.5÷28.9	
Propane (G31) LPG	mbar	7.3÷36.2	
<b>Gas supply pressure</b>			
Natural gas	mbar	20	
Butane (G30)	mbar	30	
Propane (G31) LPG	mbar	37	

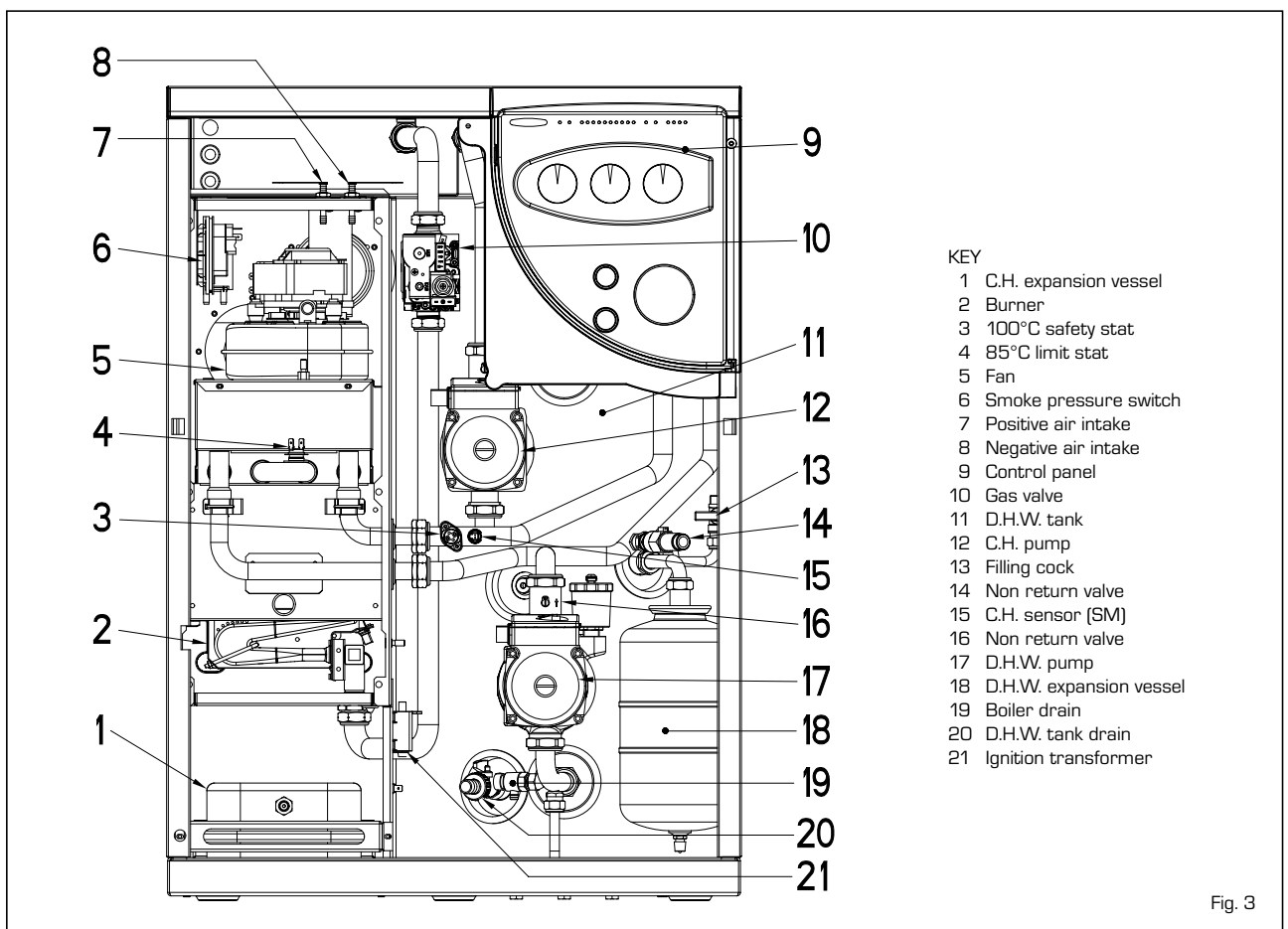
\* Flow calculated with a fixed temperature on the D.H.W. potentiometer of 60 °C for a maximum period of 10 minutes.

\*\* The gas flow refers to the inferior calorific value in standard conditions of 15°C - 1013 mbar

### 1.4 FUNCTIONAL DIAGRAM



### 1.5 MAIN COMPONENTS



## 2 GENERAL REQUIREMENTS FOR INSTALLATION

### 2.1 STATUTORY REQUIREMENTS

**GAS SAFETY (INSTALLATION AND USE) REGULATIONS** (as amended). It is the law that all gas appliances are installed by a registered person, in accordance with the above regulations. Failure to install appliances correctly could lead to prosecution. It is in your own interest, and that of safety, to ensure that the law is complied with.

In addition to the above regulations, this appliance must be installed in accordance with the current IEE Wiring Regulations (BS 7671), Local Building Regulations, the Building Standards (Scotland) (Consolidation) Regulations, Byelaws of the local water undertaking, and Health and Safety Document No 635 'The Electricity at Work Regulations 1989'.

It should also be in accordance with the relevant recommendations in the current editions of the following British Standards and Codes of Practice: BS5449, BS5546, BS5440:1, BS5440:2, BS6798, BS6891, and BG.DM2, BS7074, and BS5482 for propane installations.

**Manufacturer's instructions must NOT be taken in any way as over-riding statutory obligations.**

### 2.2 BOILER POSITION

In siting the combination boiler, the following limitations **MUST** be observed:

- The boiler is not suitable for external installation. The position selected for installation should be within the building, unless otherwise protected by a suitable enclosure, and **MUST** allow adequate space for installation, servicing, and operation of the appliance, and for air circulation around it (section 2.4).
- This position **MUST** allow for a suitable flue termination to be made. The combination boiler must be installed on a flat vertical wall which is capable of supporting the weight of the appliance, and any ancillary equipment.
- If the combination boiler is to be fitted in a timber framed building it should be fitted in accordance with the British Gas publication Guide for Gas Installations In Timber Frame Housing, Reference DM2. If in doubt, advice must be sought from the gas supplier.
- If the appliance is installed in a room containing a bath or shower, any electrical switch or control utilising mains electricity must be so situated that it cannot be touched by a person using the bath or shower. Attention is drawn to the requirements of the current I.E.E. Wiring Regulations (BS 7671), and in Scotland the electrical provisions of the Building Regulations applicable in Scotland.
- A compartment used to enclose the appliance **MUST** be designed and constructed specifically for this purpose. An existing cupboard, or compartment,

may be used provided it is modified accordingly.

- Where installation will be in an unusual location, special procedures may be necessary. BS6798 gives detailed guidance on this aspect.

### 2.3 FLUE TERMINAL POSITION

Detailed recommendations for flue installation are given in BS5440:1. The following notes are for general guidance:

- The boiler **MUST** be installed so that the terminal is exposed to the external air.
- It is important that the position of the terminal allows free passage of air across it at all times.
- It is **ESSENTIAL TO ENSURE**, in practice that products of combustion discharging from the terminal cannot re-enter the building, or any other adjacent building, through ventilators, windows, doors, other sources of natural air infiltration, or forced ventilation/air conditioning. If

this does occur, the appliance **MUST** be turned **OFF IMMEDIATELY** and the gas supplier consulted.

- The minimum acceptable dimensions from the terminal to obstructions and ventilation openings are specified in fig. 4.
- If the terminal discharges into a pathway or passageway check that combustion products will not cause nuisance and that the terminal will not obstruct the passageway.
- Where the lowest part of the terminal is fitted less than 2 m (78 in) above ground, above a balcony or above a flat roof to which people have access, the terminal **MUST** be protected by a purpose designed guard. Terminal guards are available from Quinnell, Barrett, and Quinnell, Old Kent Road, London. State model C2, (G.C. Part No 382946).
- Where the terminal is fitted within 850 mm (34 in) of a plastic or painted gutter, or 450 mm (18 in) of painted eaves, an aluminium shield at least 1,500 mm (59 in) long must be fitted to the underside of

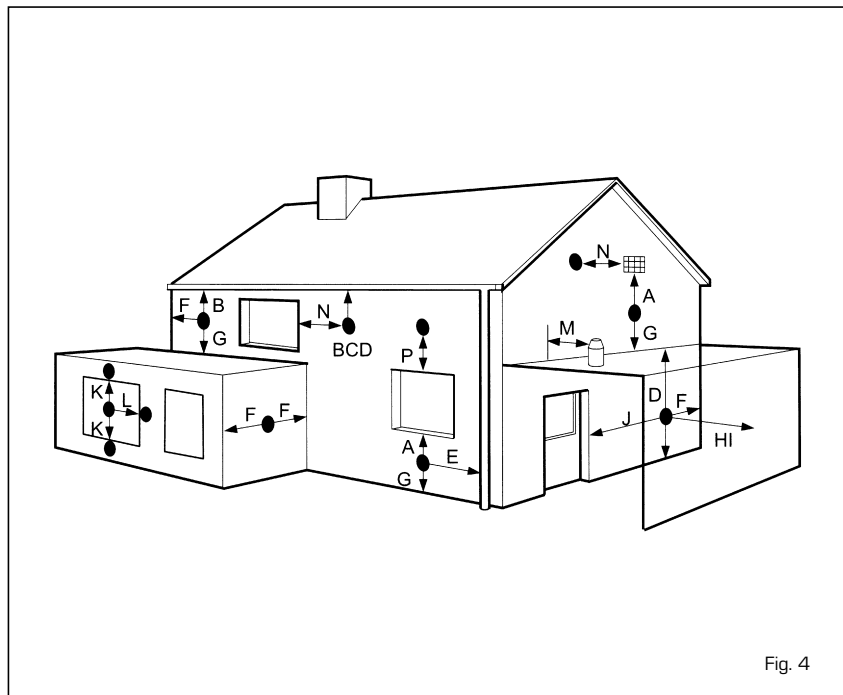


Fig. 4

TABLE 1

Terminal position	Minimum spacing
<b>A</b> Directly below an openable window, air vent or any other ventilation opening	300 mm 12 in
<b>B</b> Below guttering, drain pipes or soil pipes	75 mm 3 in
<b>C/D</b> Below eaves, balconies or carport roof	200 mm 8 in
<b>E</b> From vertical drain pipes or soil pipes	75 mm 3 in
<b>F</b> From internal or external corners	300 mm 12 in
<b>G</b> Above adjacent ground, roof or balcony level	300 mm 12 in
<b>H</b> From a surface facing the terminal	600 mm 24 in
<b>I</b> From a terminal facing the terminal	1,200 mm 48 in
<b>J</b> From an opening in the carport (eg door, window into dwelling)	1,200 mm 48 in
<b>K</b> Vertically from a terminal on the same wall	1,500 mm 60 in
<b>L</b> Horizontally from a terminal on the same wall	300 mm 12 in
<b>M</b> Adjacent to opening	300 mm 12 in

the painted surface.

- The air inlet/outlet flue duct **MUST NOT** be closer than 25 mm (1 in) to combustible material.
- In certain weather conditions the terminal may emit a plume of steam. This is normal but positions where this would cause a nuisance should be avoided.

## 2.4 VENTILATION REQUIREMENTS

Detailed recommendations for air supply are given in BS5440:2. The following notes are for general guidance:

- It is not necessary to have a purpose provided air vent in the room or internal space in which the appliance is installed.

## 2.5 GAS SUPPLY

- The gas supplier should be consulted at the installation planning stage in order to establish the availability of an adequate supply of gas.
- An existing service pipe **MUST NOT** be used without prior consultation with the gas supplier.
- A gas meter can only be connected by the gas supplier or their contractor.
- An existing meter should be of sufficient size to carry the maximum boiler input plus the demand of any other installed appliance. (BS6891:1988). The gas required for the boiler is specified in the point 1.3.
- The governor at the meter must give a constant outlet pressure of 20 mbar (8 inwg) for natural gas when the appliance is running.
- The gas supply line should be purged.

**NOTE: Before purging open all doors and windows, also extinguish any cigarettes, pipes, and any other naked lights.**

- The complete installation must be tested for gas soundness.
- It is important to assure an adequate gas supply to the appliance. No more than 3 m of 15 mm pipe should be used. Where the supply exceeds 3 m the pipe should be suitably sized only reducing to 15 mm for the last 3 m prior to the appliance.

## 2.6 ELECTRICITY SUPPLY

The appliance **MUST** be earthed. A mains supply of 230 V - 50 Hz single phase is required. All external controls **MUST** be **LOW** voltage.

Wiring should be in 3 core PVC insulated cable **NOT LESS** than 0.75 mm<sup>2</sup> (24 x 0.2 mm) to BS6500, Table 16. Wiring external to the boiler **MUST** be in accordance with current I.E.E. Wiring Regulations (BS 7671) and local regulations. The supply connection to the flying lead provided **MUST** be made to a fused

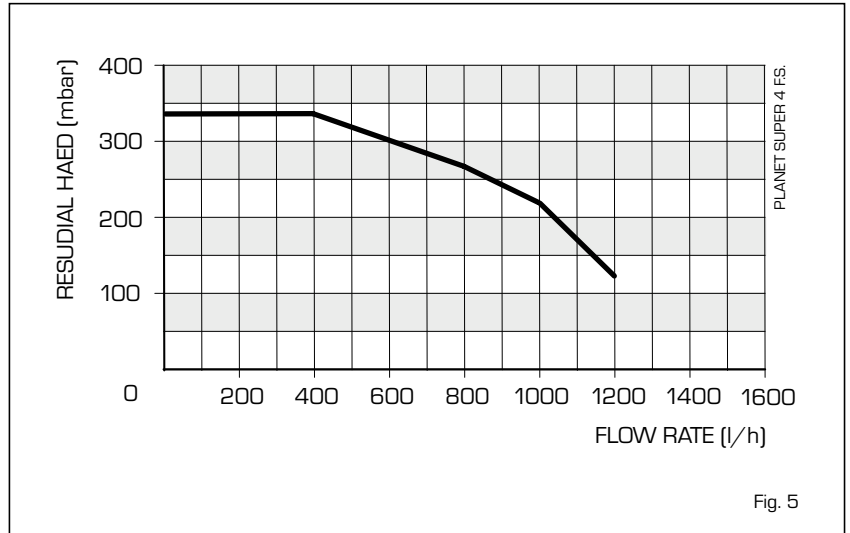


Fig. 5

double pole switch, having a 3 mm (1/8 in) contact separation in both poles, serving only the boiler and system controls.

The fuse rating should be as per the original instructions. This connection should be readily accessible and be made adjacent to the boiler (except in the case of bathroom installations for domestic boilers where the point of connection to the mains **MUST** be outside of the bathroom).

## 2.7 WATER SYSTEMS - GENERAL

- This appliance is designed for connection to sealed central heating water systems.
- Check that the mains water pressure is sufficient to produce the required D.H.W. flow rate, but does not exceed the maximum D.H.W. pressure (point 1.3). If necessary, a pressure reducing valve must be fitted to the mains supply before the D.H.W. inlet connection.

## 2.8 REQUIREMENTS FOR SEALED WATER SYSTEMS

The heating system design should be based on the following information:

- The available pump head is given in fig. 5.
- The appliance is equipped with an internal by-pass that operates with system heads (H) greater than 3,5 m. If thermostatic radiator valves are to be installed, at least one radiator should be without a thermostatic valve (usually the bathroom radiator).

d) A sealed system must only be filled by a competent person. The system design should incorporate the connections appropriate to one of these methods.

e) The following paragraphs outline the specifications of the items fitted to the boiler.

### 2.8.1 Pump

The available head shown in fig. 5 is that in excess of the appliance hydraulic resistance, i.e. that available for the system at any given heating load up to the maximum output in C.H. mode. Never reduce the pump speed below maximum as this will reduce D.H.W. output. The pump speed is indicated on the side of the pump speed selector switch (if fitted).

### 2.8.2 System volume (total water content)

The following Table gives the maximum system volume that the integral expansion vessel can sustain under different charge pressure conditions. If the system volume exceeds that shown, an additional expansion vessel must be fitted and connected to the heating system primary return pipe as close as possible to the appliance.

If an extra vessel is required, ensure that the total capacity of both vessels is adequate. Further details are available in the current issues of BS5449 and BS6798.

TABLE 2

Vessel charge and initial system pressure	bar	0.5	1.0	1.5
	psi	7.3	14.5	21.8
Total water content of system using 8 l (1.76 gal)	l	87	64	44
capacity expansion vessel supplied with appliance	gal	19.1	14.0	9.7
For systems having a larger capacity multiply the total system capacity in litres (gal) by the factor to obtain the total minimum expansion vessel capacity required litres (gal)		.0833	.109	.156

**NOTE: If the pressure gauge indicates 2.65 bar or greater when the appliance is at maximum temperature with all radiators in circulation an extra expansion vessel is required.**

### 2.8.3 Pressure gauge

A led type pressure display is located on the appliance fascia panel.

### 2.8.4 Safety valve

A safety valve set at 3 bar (43.5 psi) is fitted to the appliance and a discharge pipe is routed to outside of the appliance.

This discharge pipe should be extended to terminate safely away from the appliance and where a discharge would not cause damage to persons or property but would

be detected. The pipe should be able to withstand boiling water; be a minimum of 15 mm in diameter; and not include any horizontal runs prone to freezing.

## 2.9 D.H.W. SYSTEMS

- The authority of the local Water Company should be obtained before the appliance is connected to the cold water mains supply. Check that the mains supply pressure is within the prescribed limits (point 1.3). If necessary, a pressure reducing valve should be fitted to the mains supply before the D.H.W. inlet connection.
- The final 600 mm (24 in) of the mains supply pipe to the boiler must be copper.
- If the appliance is installed in an area where the temporary hardness of the water supply is high, say over 150 ppm, the fitting of an in line scale inhibitor may

be an advantage. Consult the Local Water Undertaking if in doubt.

- Devices capable of preventing the flow of expansion water: e.g. non return valves and/or loose-jumpered stop cocks should not be fitted unless separate arrangements are made for expansion water.
- For specific information relating to fittings (eg. Showers, washing machines etc.) suitable for connection in the D.H.W. circuit, consult the Local Water Undertaking, however the following information is given for guidance.

### 2.9.1 Domestic hot/cold water supply taps and mixing taps

All equipment designed for use at mains water pressure is suitable.

## 3 INSTALLATION

### 3.1 CONNECTING UP SYSTEM

Before proceeding to connect up the boiler, you are recommended to make the air circulating in the piping in order to eliminate any foreign bodies that might be detrimental to the operating efficiency of the appliance.

When making the hydraulic connections, make sure that the dimensions indicated in fig. 1 are respected.

**The discharge pipe of the safety valve must be connected to a collector funnel for channelling away any discharge if the safety valve goes into action.**

The gas connection must be made using seamless steel pipe (Mannesmann type), galvanized and with threaded joints provided with gaskets, excluding three-piece connections, except for initial and end connections.

Where the piping has to pass through walls, a suitable insulating sleeve must be provided. When sizing gas piping, from the meter to the boiler, take into account both the volume flow rates (consumption) in m<sup>3</sup>/h and

the relative density of the gas in question. The sections of the piping making up the system must be such as to guarantee a supply of gas sufficient to cover the maximum demand, limiting pressure loss between the gas meter and any apparatus being used to not greater than:

- 1.0 mbar for family II gases (natural gas);
- 2.0 mbar for family III gases (butane or propane).

An adhesive data plate is located inside the front panel; it contains all the technical data identifying the boiler and the type of gas for which the boiler is arranged.

#### 3.1.1 Filter on the gas pipe

The gas valve is supplied ex factory with an inlet filter, which, however, is not adequate to entrap all the impurities in the gas or in gas main pipes.

To prevent malfunctioning of the valve, or in certain cases even to cut out the safety

device with which the valve is equipped, install an adequate filter on the gas pipe.

### 3.2 FLUE AND TERMINAL PREPARATION

The telescopic air inlet-smoke outlet assembly ø 60/100 is supplied in kit code 8098602 and comes with an instruction sheet for the assembly.

If the wall thickness is less than 0.5 m (19 in) the flue/air duct may be fitted without access to the outside wall.

#### 3.2.1 Flue/air duct lengths

- Determine whether an extension duct is required with reference to the flue lengths information given in *Table 3*.
- If no extension ducts are required, proceed to 3.3.
- If an extension duct or ducts is/are to be used, the flue and air ducts should be joined before proceeding to the next section.

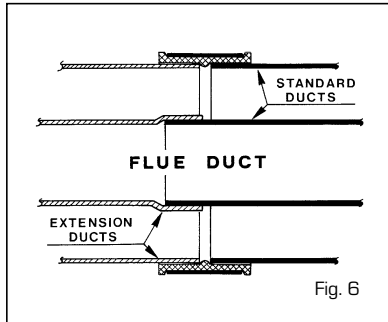


Fig. 6

The extension ducts should be joined to each other and to the standard ducts using the following procedure (fig. 6):

- For the flue ducts in turn, push the plain end of the standard and (if using two extensions) extension duct into the swaged end of the extension duct(s).
- Push an air duct in to the clamp. Join the air ducts (larger ducts) and tighten the screws on the clamp to connect them.

### 3.2.2 Cutting the flue/air duct to the correct length

- Select the air duct [larger duct] and starting at the formed end, 'mark off' the length to be cut.
- Cut the air duct square to the mark and remove all burrs and sharp edges.
- Hold the air duct at the plain end, and slide the flue duct (small duct) inside the air duct (terminal first) until it stops against the terminal, then mark off the length to be cut which leaves 20 mm protruding flue duct.
- Remove and cut the flue duct square to the mark and remove all burrs and sharp edges.

## 3.3 FLUE AND TERMINAL INSTALLATION

### 3.3.1 Installations from inside the room

Wall thicknesses up to 0.5 m (19 in) only, Hole diameter sufficient to accept wall liner

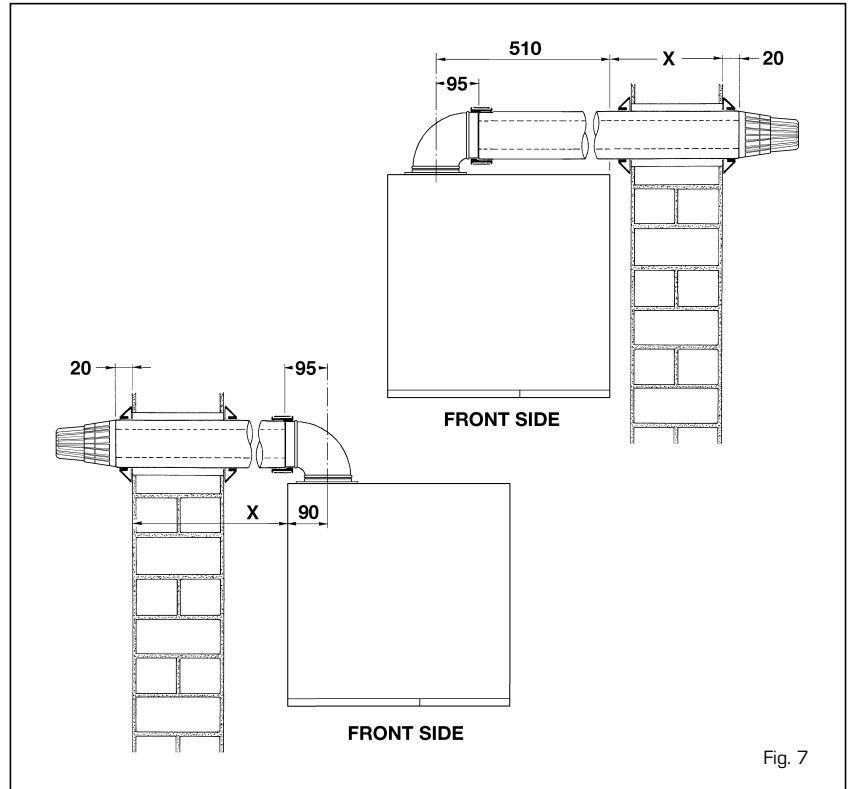


Fig. 7

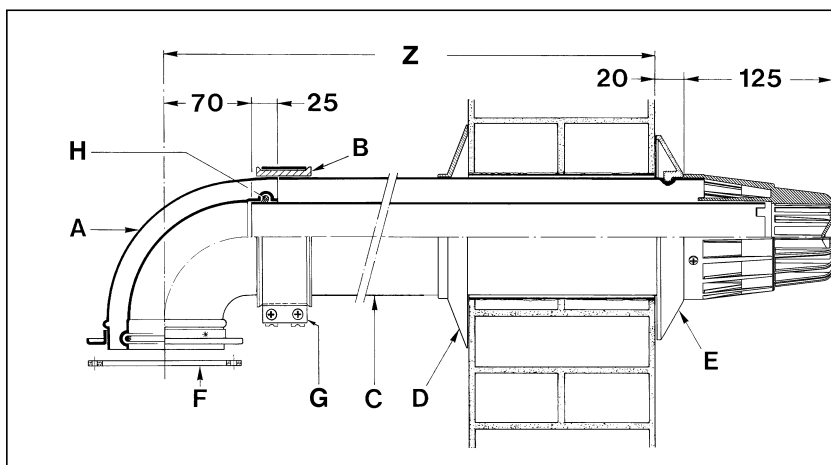
TABLE 3 - Maximum flue lengths (measured from appliance casing to outside wall face)

	R.H. side outlet		L.H. side outlet	
	mm	in	mm	in
<b>STANDARD FLUE KIT</b>	290	11 3/8	720	28 3/8
<b>WITH 1 EXTENSION KIT</b>	1,110	43 3/4	1,540	60 5/8
<b>WITH 2 EXTENSION KITS</b>	1,930	76	2,360	92 7/8

130 mm (5 1/4 in) if optional kit is used.

- A wall liner, 127 mm (5 in) internal diameter, 500 mm (19 in) long is available as an optional extra for use when fitting the flue/air duct from inside the building, (or where it is required to seal the hole through a cavity wall). Cut the liner to the wall thickness, insert into the hole, and seal with mortar at inner and outer wall faces. Access to the outside can be made by inserting one's hand through the liner.

- Fit the rubber sealing ring into the swaged groove in the duct as shown in fig. 8. Ensure that it is the correct way around and spray the outside surface with talcum powder or soap solution to reduce friction.
- From inside the building slide the duct assembly into the wall liner until the sealing ring passes completely through the wall, then pull the air duct back until the ring is pulled up to the wall surface.
- Proceed to section 3.3.3.



#### KEY

- A Elbow
- B Junction collar
- C Outer duct
- D Inner rubber sealing ring
- E Outer rubber sealing ring
- F Neoprene gasket
- G Protective metal collar
- H Inner lip seal

Fig. 8



### 3.3.2 Installations from outside the building only (Hole diameter 100 mm - 4 in)

- From inside or outside the building, slide the duct assembly into the wall until the sealing ring forms a good seal against the outside wall.
- Fit the rubber sealing ring into the swaged groove in the air duct as shown in fig. 8. Ensure that it is the correct way around.

### 3.3.3 Connecting the duct assembly All installations

- With reference to fig. 8, slide on the rubber ring (D), check that the rubber sealing ring (E) is pulled up to the wall and that the duct assembly is horizontal.
- Push the junction collar (B) over the air duct until the air duct touches the inner part of the collar where the diameter becomes smaller.
- Push the elbow socket into the junction collar and onto the flue duct.
- Fit the protective metal collar (G) over the junction collar.
- Place the gasket (F) under the flange of the elbow and fit the elbow onto the air smoke manifold, taking care to ensure that the silicon seal on the elbow correctly engages and forms a seal at its joint with the manifold.
- Secure the elbow onto the air/smoke manifold using the four screws provided.

### 3.3.4 Diaphragm installation

The boiler is supplied with 2 diaphragm to be installed only when the length of the  $\varnothing$  60/100 coaxial duct is less than 1 m. See fig. 9 for the positioning.

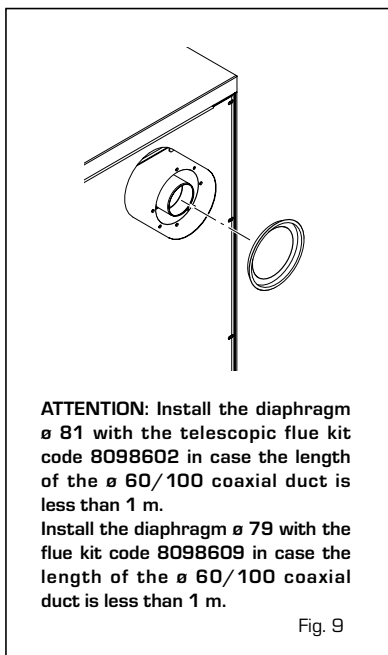


Fig. 9

### 3.4 SEPARATE DUCTS (Optional alternative twin pipe system)

When installing the separate ducts, comply with the requirements of the current standards, as well as the following practical pointers:

- With direct intake from outside, when the pipe is longer than 1 m, you are recommended to insulate the piping so as to prevent formation of dew on the outside of the piping during particularly cold periods of the year.
- With the outlet pipe outside the building or in cold indoor environments, insulation is necessary to prevent burner ignition failure. In such cases, provide for condensate drainage.

- If a segment of the flue passes through a flammable wall, this segment must be insulated with a glass wool pipe insulator 30 mm thick, with a density of 50 kg/m<sup>3</sup>.

**The maximum overall length of the intake and exhaust ducts depends on the head losses of the single fittings installed (excluding the adaptors) and must not be greater than 10.5 mm H<sub>2</sub>O.** For head losses in the fittings, refer to Table 4.

#### 3.4.1 Separate flue accessories

Part No 8089904 is supplied for this purpose. The sectored diaphragm is to be used

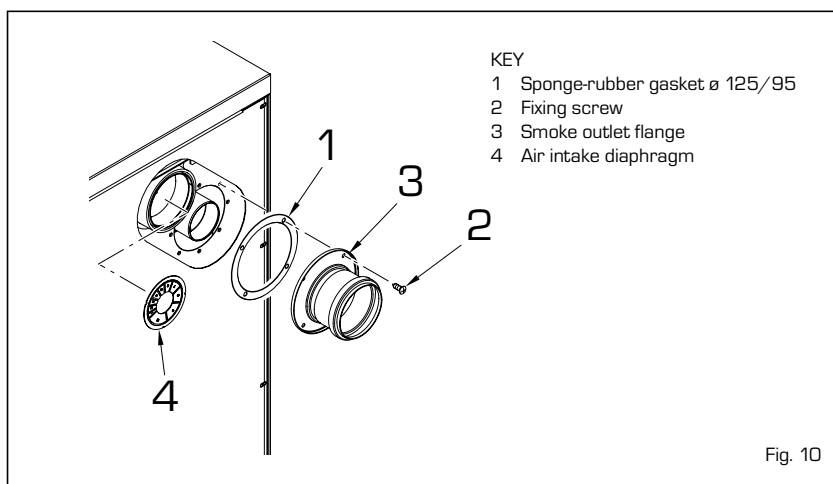


Fig. 10

TABLE 4

Accessories $\varnothing$ 80	Head loss (mm H <sub>2</sub> O)		
	Inlet	Outlet	Roof outlet
90° elbow MF	0.30	0.50	-
45° elbow MF	0.20	0.40	-
Extension L. 1000 (horizontal)	0.20	0.40	-
Extension L. 1000 (vertical)	0.30	0.30	-
Outlet terminal	-	0.40	-
Inlet terminal	0.10	-	-
Doubler fitting	0.50	1.80	-
Roof outlet terminal L.1240	-	-	0.60
Tee condensation outlet	-	1.10	-

Example of allowable installation calculation in that the sum of the head losses of the single fittings is less than 10.5 mm H<sub>2</sub>O:

	Inlet	Outlet
7 meter horizontal pipe $\varnothing$ 80 x 0,20	1.40	-
7 meter horizontal pipe $\varnothing$ 80 x 0,30	-	2.80
n° 2 90° elbows $\varnothing$ 80 x 0,30	0.60	-
n° 2 90° elbows $\varnothing$ 80 x 0,40	-	1.00
n° 1 terminal $\varnothing$ 80	0.10	0.40
<b>Total head loss</b>	<b>2.10</b>	<b>+ 4.20 = 6.3 mm H<sub>2</sub>O</b>

With this total head loss, remove the segments from no. 1 to no. 7 from the diaphragm in the inlet pipe.

N° segments to remove	Total head loss	
	mm H <sub>2</sub> O	Pa
none	0 ÷ 1	0 ÷ 10
n° 1	1 ÷ 2	10 ÷ 20
from n° 1 to 2	2 ÷ 3	20 ÷ 29
from n° 1 to 3	3 ÷ 4	29 ÷ 39
from n° 1 to 4	4 ÷ 5	39 ÷ 49
from n° 1 to 5	5 ÷ 6	49 ÷ 59
from n° 1 to 6	6 ÷ 7	59 ÷ 69
from n° 1 to 7	7 ÷ 8	69 ÷ 78
from n° 1 to 8	8 ÷ 9	78 ÷ 88
from n° 1 to 9	9 ÷ 10	88 ÷ 98
from n° 1 to 10	10 ÷ 11	98 ÷ 108

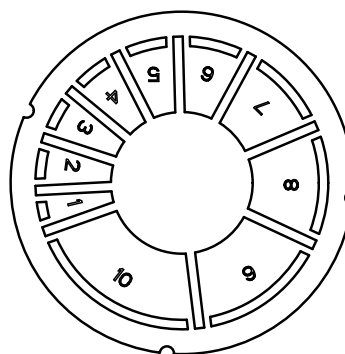


Fig. 11

according to the maximum head loss allowed in both pipes, as given in fig. 11.

### 3.4.2 Use of air intake (fig. 12)

To use the air intake in this type of outlet you must perform the following operations:

- Remove the base of the air intake, using a tool to cut it off [a];
- Overturn the air intake [b] and replace the seal [5] with the seal supplied in the kit code 8089904;
- Insert the intake diaphragm supplied in the kit code 8089904, pushing it in until it is in contact with the beat;

You can now insert the extension or curve in its housing to complete the intake (you need not use any seal or sealant).

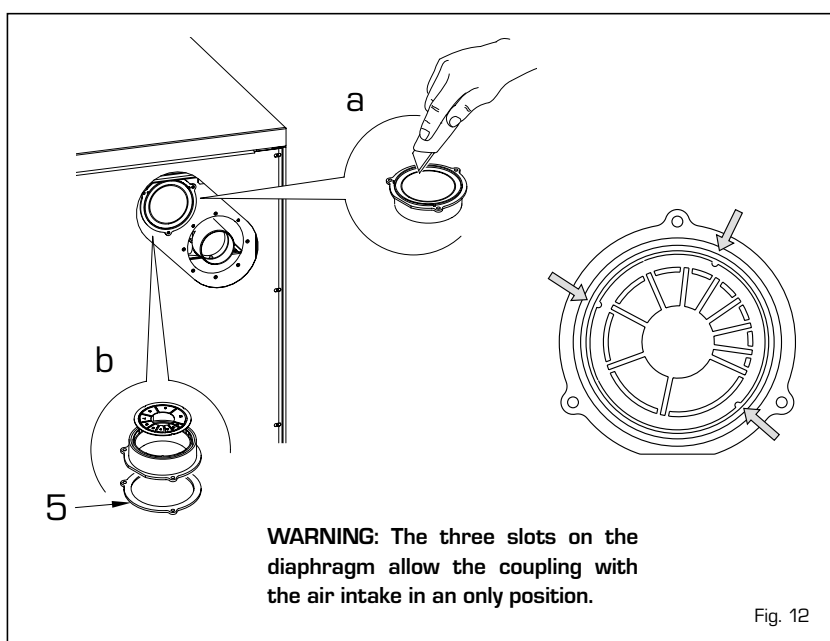


Fig. 12

## 3.5 CHARACTERISTICS OF FEEDWATER

IT IS ABSOLUTELY ESSENTIAL THAT THE WATER FOR THE CENTRAL HEATING SYSTEM IS TO BE TREATED IN THE FOLLOWING CASES:

- Very extensive system (with high contents of feedwater).
- Frequent addition of makeup water into the system.
- Should it be necessary to empty the system either partially or totally.

## 3.6 SYSTEM FILLING

The filling of the boiler and the system is done by the filling cock located on the R.H. side of the boiler (13 fig. 3). The filling pressure of the system cold must be **1 bar**.

**Once the filling has been completed, close the filling cock and disconnect the flexible pipe.**

## 3.7 ELECTRICAL CONNECTION

The boiler is supplied with an electric cable. Should this require replacement, it must be purchased exclusively from SIME. The electric power supply to the boiler

must be 230V - 50 Hz single-phase through a fused main switch, with at least 3 mm spacing between contacts. Respect the L and N polarities and the earth connection.

**NOTE: SIME declines all responsibility for injury or damage to persons, animals or things, resulting from the failure to provide for proper earthing of the appliance.**

### 3.7.1 Room stat connection

To gain access to the TA-CR-SE-SB (J2) electronic board connector, remove the control panel cover and connect the room stat to the terminals 5-6 after having removed the jumper (fig. 14).

The thermostat or timer-thermostat, recommended for better room temperature control, must be class II as specified by standard EN 60730.1 (clean contact).

**Warning: Applying mains voltage to the terminals of board TA-CR-SE-SB will irreparably damage the control board.**

**Make sure that any connections to be made are not carrying mains voltage.**

### 3.7.2 Connection "Logica Remote Control" (fig. 14 pos. B)

The electrical plants must be in compliance with local norms and cables must be laid observing the safety low voltage specifications EN 60730.

For lengths up to 25 m use cables with sections of 0.25 square mm and for lengths greater than 50 m use cables with sections of 0.5 square mm. First of all assemble and cable the socket [2] and then insert the apparatus that will start as soon as it receives electricity.

To have access to the connector [3] remove the cover of the control panel and electrically connect the climate regulator to the terminals CR (6-7).

**ATTENTION: External electricity cannot be connected to terminals 1-2-3-4 of the socket. The telereducer of the telephone with a contact of zero potential or a win-**

### 3.9.4 Wiring diagram

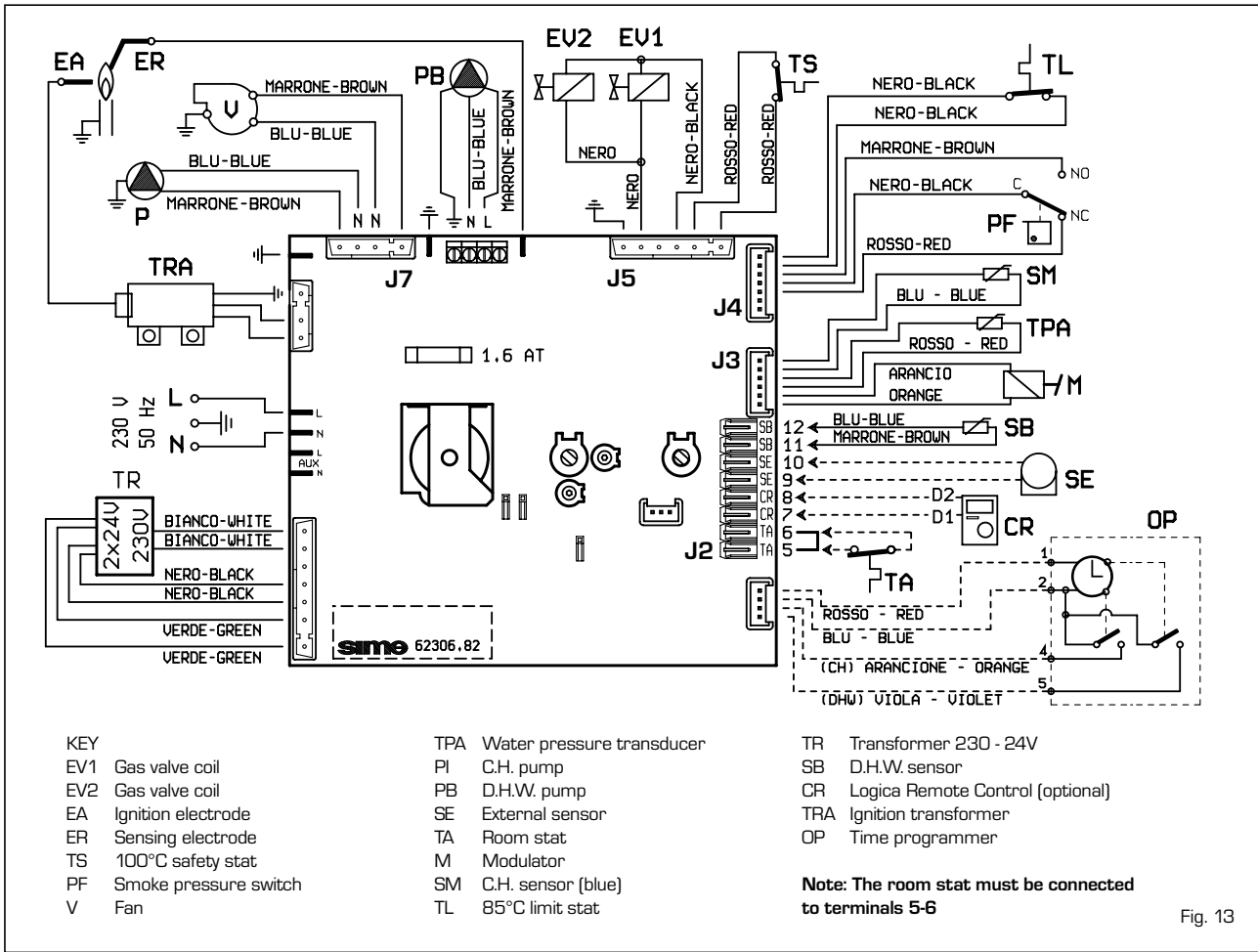


Fig. 13

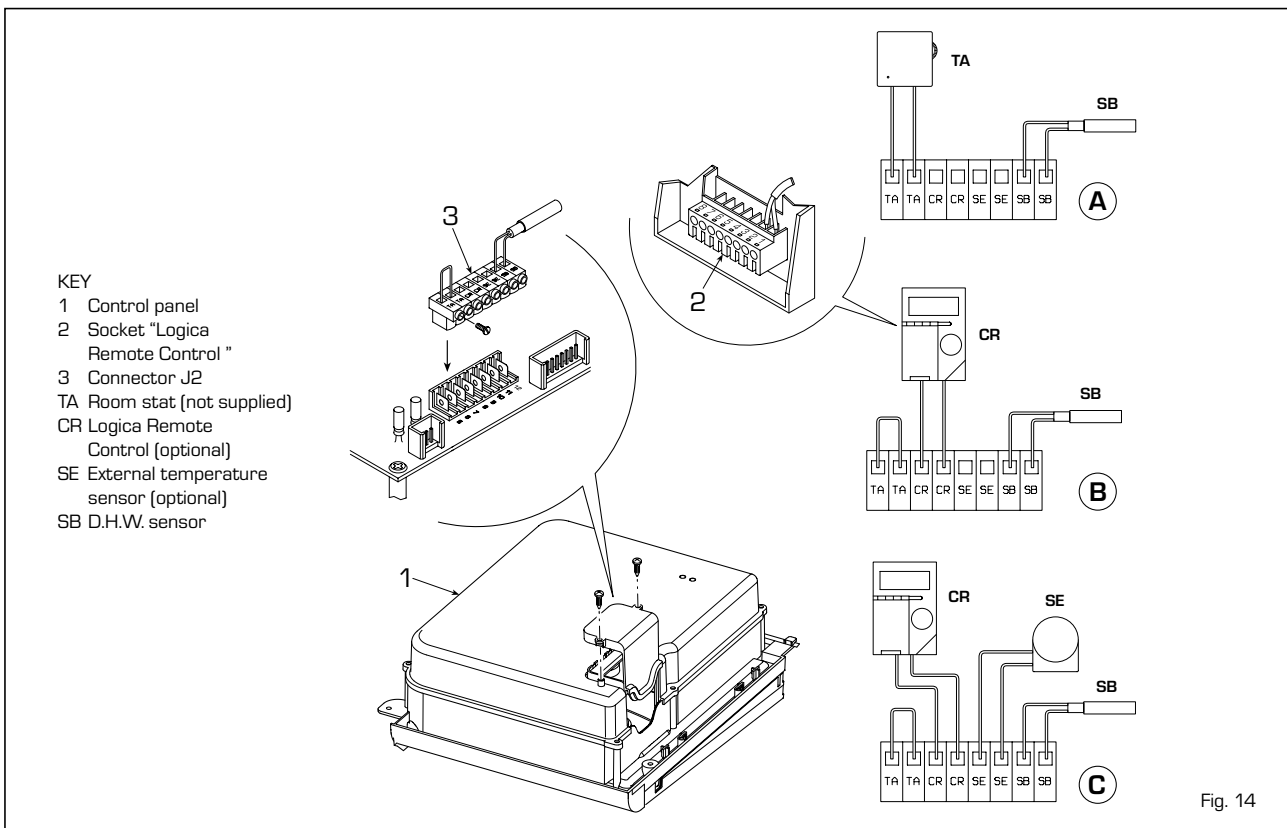


Fig. 14

down contact can be connected to terminals 3-4.

A type of electronic apparatus for the control of civil plants via a telephone line that can be pointed out is the model TEL 30.4 LANDIS & STAЕFA.

### 3.7.3 Connection external temperature sensor (fig. 14 pos. C)

The cables must be laid observing the safety low voltage specifications EN 60730. For lengths up to 25 m use cables with sections of 0.25 square mm and for lengths greater than 50 m use cables with sections of 0.5 square mm.

To have access to the connector of the boiler (3) remove the cover of the control panel and electrically connect the external temperature sensor to the terminals SE (8-9).

## 3.8 LOGICA REMOTE CONTROL

All the boiler's functions can be managed by a optional digital multifunctional device code 8092204 for the remote of the boiler itself and for regulating room climatic conditions with an operational reserve of 12 hours.

The heating circuit is controlled by the room temperature sensor built-in the equipment or by the atmospheric conditions, with or without environmental inflow, if the boiler is connected to an external sensor:

### Characteristics:

- Ergonomic control unit divided according to function (control levels).
- Clear division of basic functions:
  - operating regime, correction of set value and presence button are directly accessible;
  - Different real current values are accessible through the "info" button;
  - other functions can be programmed after the cover has been opened;
  - special service level with protected access;
- Each setting or modification is displayed and confirmed.
- Tome setting (special line for changing BST/CET).
- Heating programme with max. 3 heating periods per day, individually selectable.
- Copy function for easy transfer of heating programme to the next or previous day.
- Holiday programme: the programme is interrupted for the holiday period and automatically restarted on returning home.
- Option to return the heating program to default values.
- Programming lock (child safety).

### Functions:

- Delivery temperature control guided by the atmospheric conditions, taking into account the dynamics of the building.

- Delivery temperature control guided by atmospheric conditions with influence of ambient temperature.
- Ambient temperature control only.
- Adjustable influence of ambient temperature shift .
- Switch-on and switch-off optimisation.
- Rapid lowering.
- ECO functions (daily heating limiter; automatic summer/winter switch-over).
- Controllable maximum C.H. flow temperature limit (specifically for floor plants).
- Limitation of increase in pre-set C.H. flow temperature.
- Anti-freeze protection for buildings.
- Hourly programming of the tank unit temperature on two levels: comfort and reduced.
- Domestic hot water control with nominal value requirement and enable.
- Connection to room sensor or switching of operating regime through the telephone system with external contact or through a window contact.
- Anti-bacterial.

### 3.8.1 Installation



The unit must be installed in the main living room. For installation, follow the assembly instructions inserted in the package. At this point, with the selector knob on [ 5 ], the



installer can adjust the basic parameters settings according to the individual needs (point 3.8.2). **If there is a thermostatic radiator valve fitted, this must be set to maximum.**

### 3.8.2 Installation settings

The settings for the basic operating parameters for individual needs are reported in the instruction leaflet supplied with the "Logica Remote Control" and in the section reserved for the user in this manual.

For further adjustments which can be carried out by the installer; the "Logica Remote Control" offers a level of service and parameterising which can only be accessed through a special combination of buttons.

To activate this level of service or parameterising press buttons  and  at least 5 seconds.

This will activate the parameterising level. Then use the same arrow buttons to select the individual input lines and adjust the values with  or .

### 3.8.3 Gradient of the characteristic heating curve

The gradient of the characteristic heating curve is imposed on the current value "15" of Logica. Increasing the gradient as shown

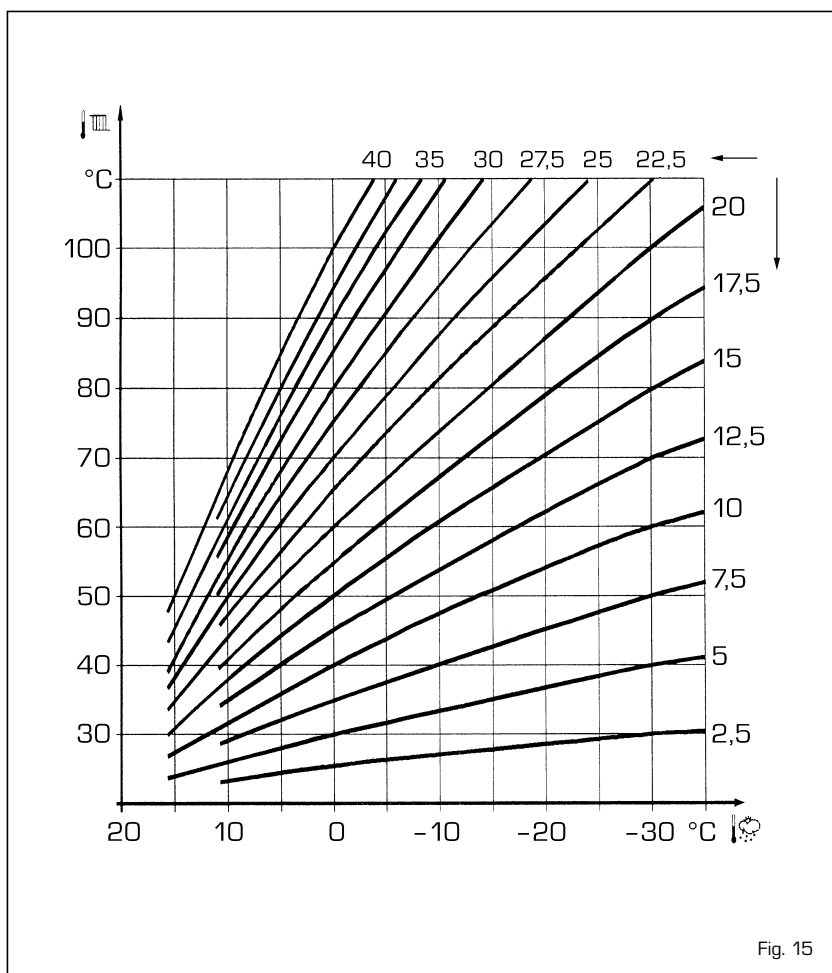


Fig. 15

in the drawing of fig. 20, the C.H. flow temperature increases in correspondence to the outside temperature.

EXAMPLE: Choosing a gradient of 15 with an outside temperature of -10°C we shall have a C.H. flow temperature of 60°C.

### 3.9 EXTERNAL TEMPERATURE SENSOR

The "Logica Remote Control" can be connected to an external temperature sensor available as an optional extra (code 8094100). This configuration ensures and maintains














the required temperature constant in the room. The ambient temperature is, in fact, indicated and evaluated as the calculated mean of the value measured inside and outside the dwelling.

For installation, follow the assembly instructions inserted in the package.

#### SETTINGS THE HEATING CIRCUIT PARAMETERS

<b>Antifreeze protection</b> <b>"Pre-set ambient temperature value"</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">51</div>	Heating takes place up to this pre-set value if the plant is activated in standby (e.g. holidays). In this way, the building antifreeze function is active, preventing an excessive lowering of the ambient.
<b>Summer/Winter switch-over temperature</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">52</div>	This parameter regulates the temperature of the automatic summer/winter switch-over.
<b>Type of control:</b> <b>0 = with ambient influence</b> <b>1 = without ambient influence</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">53</div>	This parameter de-activates the ambient influence and as a result all the optimisations and adaptations. If a valid external temperature is not transmitted, the controller switches to the pure ambient control guide variable.
<b>Influence of ambient temperature</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">54</div>	If the ambient controller is used only as a remote control (placed in the reference room and without an external sensor connected), the value must be set at 0 (zero). If the change in ambient temperature from the pre-set value remains high during the entire day, the influence must be increased. If the ambient temperature is around the pre-set value (control oscillation), the influence must be reduced. <b>Note: If the ambient temperature influence constant is set at 0, the adaptation of the heating curve is deactivated. In this case, parameter 57 will have no effect at all.</b>
<b>Maximum limit of C.H. flow temperature</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">55</div>	The C.H. flow temperature is limited to the maximum set value.
<b>Variation of the maximum speed of the C.H. flow temperature</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">56</div>	The increase per minute of the prescribed C.H. flow temperature value sent in °C is limited to the imposed value.
<b>Activation of adaptation</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">57</div>	With the activation of the adaptation, the pre-set value transmitted to the boiler regulator is adapted to the effective heat need. The adaptation functions with both the atmospheric guide with ambient influence and with pure ambient control. If the "Logica Remote Control" is set as a remote control only, the adaptation must be deactivated.
<b>Optimisation of switch-on time</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">58</div>	If the switch-on time optimisation is active, the "Logica Remote Control" modifies the heating gradient until it finds the optimum heating point <b>0 = OFF    1 = ON</b>
<b>Heating gradient</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">59</div>	The "Logica Remote Control" selects the switch-on time such that the set value has more or less been reached at the start of the usage time. The more severe the night-time cooling, the earlier the heating time starts.  Example: Current ambient temperature            18.5°C Nominal ambient temperature            20°C Heating gradient                            30 min/K Presetting of switch-on time: 1.5 K x 30 min/K                        =            45 minutes  00 means that the switch-on time has not been pre-set (function disabled).
<b>Presetting switch-off time (00 = off)</b>	<div style="border: 1px solid black; padding: 2px; width: 30px; margin: 0 auto;">60</div>	If the switch-off time optimisation is active (value > 0), the "Logica Remote Control" modifies the pre-set time until it finds the optimum switch-off time.

## SETTING THE D.H.W. PARAMETERS

<b>Reduced D.H.W. temperature value</b>		<p>The hot water may be set to a reduced temperature value, such as 40°C, which is outside the comfort zone, such as 60°C (daily programme 8).</p>
<b>D.H.W. filling</b>		<p><b>0</b> = 24 hours/ day - Hot water is always available at the temperature set with user parameter n°3.</p> <p><b>1</b> = standard - Hot water according to the daily heating programme. In the comfort areas of heating the temperature of the D.H.W. tank is regulated to the value set with user parameter n° 3. In the reduced areas of heating the temperature of the D.H.W. tank is regulated to the value set with parameter n° 61 of the service level.</p> <p><b>2</b> = service disconnected</p> <p><b>3</b> = second daily programme {8} - Every day of the week the temperature of the hot water is set according to programme 8. In this case there is a single programming for all the days of the week and three time zones are available. In the time spans set the temperature of the D.H.W. tank is regulated according to that set in parameter n°3. In the remaining hours the D.H.W. tank is controlled to the temperature set with parameter n° 61 the of service level.</p>
<h3>SERVICE VALUES</h3>		
<b>Final user level 2 programming block</b>		<p>This block {1} can be activated to display all the parameters without modifying them. Pressing buttons  or  displays "OFF".</p> <p><b>WARNING:</b> The activation block can be deactivated temporarily by pressing buttons  and  simultaneously; a confirmation sign appears on the display. At this point press simultaneously the buttons  and  for at least 5 seconds. To permanently remove the activation block, set parameter 63 on 0.</p>
<b>Entrance function terminal 3-4</b>		<p>The freely programmable input (terminals 3 and 4 of the socket) allows three different functions to be activated. The parameter has the following significance:</p> <p><b>1</b> = If an external sensor is connected, the display will show the temperature of the external sensor ( _ _ = no sensor connected, function disabled).</p> <p><b>2</b> = With an external contact, it is possible to switch-over to "reduced pre-set value of the ambient temperature".</p> <p><b>3</b> = With an external contact, it is possible to switch-over to "reduced pre-set value of the antifreeze ambient temperature" (short circuit 0 0 0 or interruption _ _ _). The display shows the current status of the external contact.</p>
<b>Operating mode of external contact</b>		<p>If the entrance (terminals 3 and 4 of the socket) is connected to a zero potential external contact (parameter 64 = 2 or 3), the operating mode of the contact can be determined (remote telephone switch or window contact). The operating mode specifies the status of the contact in which the required function is active.</p> <p>Display:    Operating mode closed (short circuit)    0 0 0                          Operating mode open (interruption)        _ _ _</p>
<b>External and ambient sensor influence</b>		<p>Determines the mix ratio between the internal and external ambient sensor when parameter 64 = 1.</p> <p><b>0 %</b>    = internal sensor only active (0% external - 100% internal)  <b>50 %</b>    = mean value of external + internal sensor  <b>100 %</b>   = external sensor only active</p> <p>The set mix is used for ambient control and display. If the external sensor is short circuited or interrupted, the operation continues with the internal sensor.</p>
<b>Anti-bacterial function</b>		<p>This function allows the hot water to be brought to a high temperature once a week in order to eliminate eventual pathogenic agents. It is active every Monday for a maximum duration of 2.5 hours at a delivery temperature of 65°C.</p> <p><b>0 = not active      1 = active</b></p>

## 4 CHARACTERISTICS

### 4.1 ELECTRONIC PANEL

Made in accordance with the Low Voltage EEC directive 73/23, supplied with 230 Volt; via a transformer it sends 24 Volt to the following components: gas valve, safety stat, C.H. and D.H.W. sensors, external temperature sensor (optional), modulator, water pressure transducer, smoke stat, room stat or "Logica Remote Control".

An automatic and continuous modulating system allows the boiler to adjust the power to the various plant or user demands. The electronic components are guaranteed to work in a temperature range between 0 and +60 °C.

#### 4.1.1 Functioning faults

The leds that show an irregular and/or incorrect functioning of the apparatus are shown in fig. 16.

#### 4.1.2 Devices

The electronic panel has the following devices:

- **Trimmer "POT. RISC."** (10 fig. 17)  
It regulates the maximum value of heating power. To increase the value turn the trimmer in a clockwise direction and to decrease it turn the trimmer in an anti-clockwise direction.
- **Trimmer "POT. ACC."** (6 fig. 17)  
Trimmer for the changing of the ignition

pressure level (STEP) of the gas valve. According to the type of gas for which the boiler is predisposed, the trimmer must be regulated so as to provide the burner with a pressure of around 3 mbar for methane gas or 7 mbar for butane gas (G30) and propane gas (G31). To increase the pressure turn the trimmer in a clockwise direction, to decrease it turn the trimmer in an anti-clockwise direction.

The level of pressure of slow ignition is able to be set during the first 5 seconds from the starting of the burner.

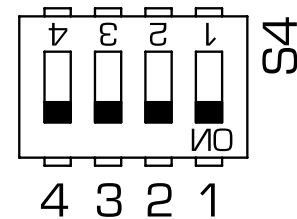
After having established the level of pressure at ignition (STEP) according to the type of gas, check that the heating gas pressure is still on the value set beforehand.

- **Connector "MET-GPL"** (7 fig. 17)  
With the connector disconnected, the boiler is ready to function with METHANE; with the connector connected with LPG.
- **Connector "ANN. RIT."** (5 fig. 17)  
The electronic panel is programmed, in heating phase, with a technical pause by the burner of around 90 seconds, both at the beginning when the plant is cold and in the subsequent startings. This is so to avoid ignitions and switching off with very short intervals, that may in particular be found in plants with high losses. At every restarting, following the period of slow ignition, the boiler will position itself for around 1 minute to the minimum modulating pressure to then

return to the set value of heating pressure. With the insertion of the bridge both the technical pause programmed and the period of functioning at minimum pressure in the ignition phase will be eliminated.

In such a case, the time that runs between the switching off and the next ignition will be in function of a variance of 5°C, as shown by the C.H. sensor (SM).

- **DIP SWITCH** (13 fig. 17)  
Ensure that the riders are inserted in the position shown in order for the boiler to work:



- **Connector "Modureg Sel."** (14 fig. 17)  
With the bridge disconnected the boiler is predisposed to function with the SIT gas valve, and with the bridge connected it is predisposed to function with the HONEYWELL gas valve.

#### ATTENTION:

**All of the operations described above must be carried out by authorised personnel.**

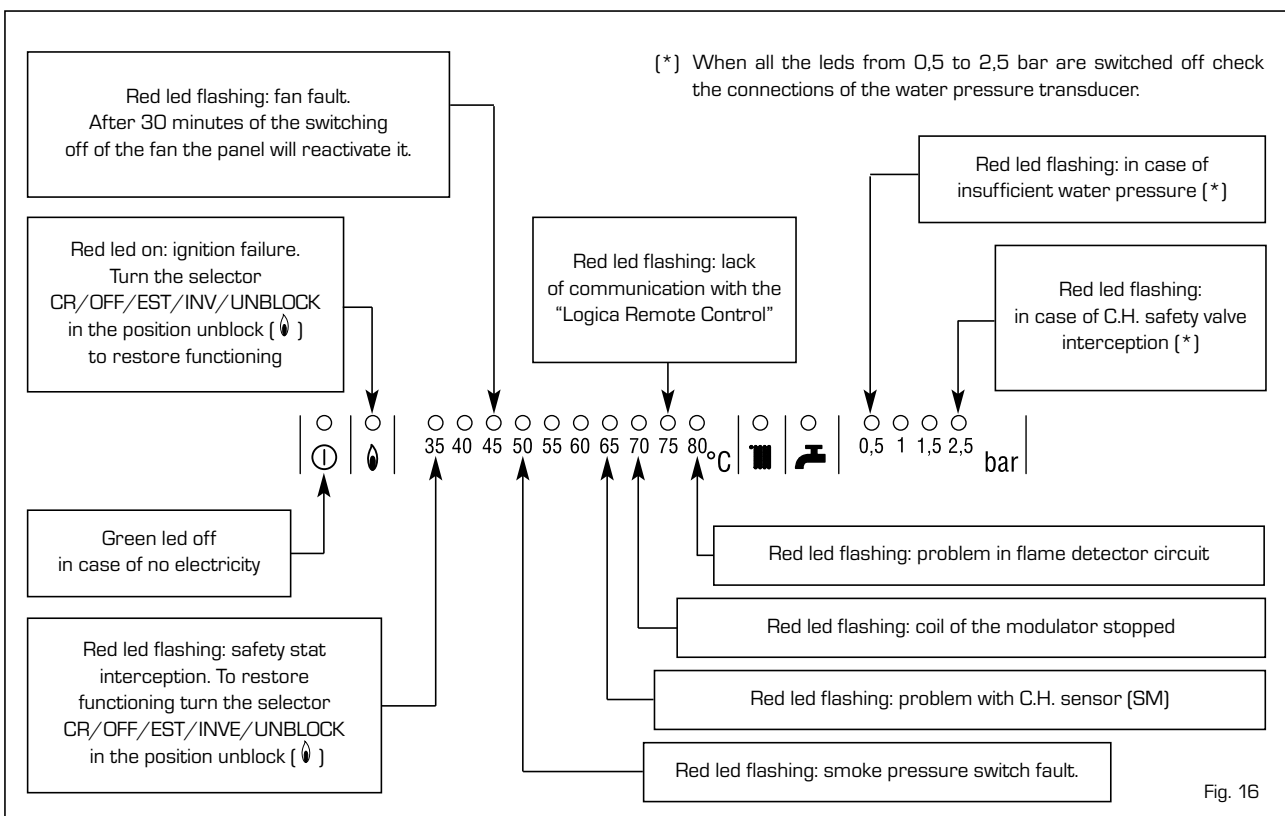


Fig. 16

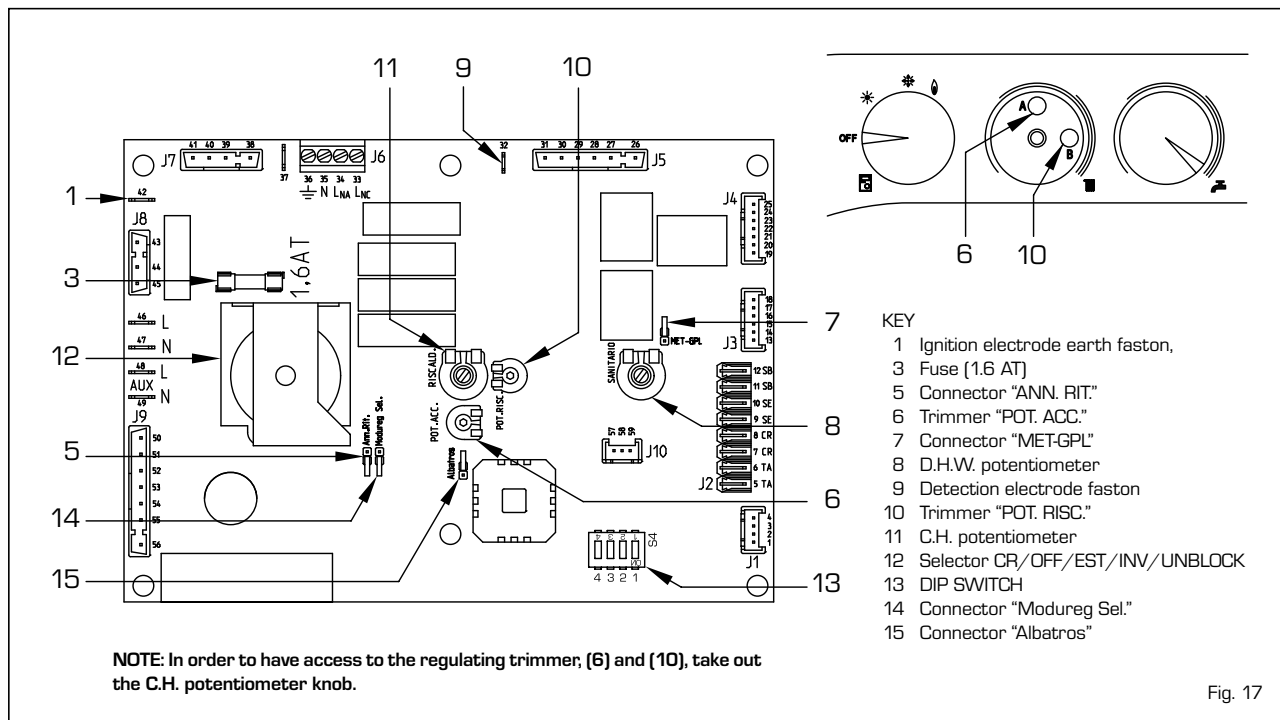


Fig. 17

#### 4.2 TEMPERATURE SENSORS AND WATER PRESSURE TRANSDUCER

Tables 5 - 5/a show the resistance values ( $\Omega$ ) that are obtained on the sensors as the temperature varies and the transducer when the pressure varies.

**With the C.H. sensor (SM) interrupted the boiler will not function with both services.**

**With the D.H.W. sensor (SB) interrupted the boiler functions only with heating.**

TABLE 5 (Sensors)

Temperature ( $^{\circ}\text{C}$ )	Resistance ( $\Omega$ )
20	12,090
30	8,313
40	5,828
50	4,161
60	3,021
70	2,229
80	1,669

TABLE 5/a (Transducer)

Pressure (bar)	Resistance ( $\Omega$ )	
	min	max
0	297	320
0.5	260	269
1	222	228
1.5	195	200
2	167	173
2.5	137	143
3	108	113
3.5	90	94

#### 4.3 ELECTRONIC IGNITION

The ignition and flame sensing are controlled by two electrodes that guarantee the maximum safety, with a time of intervention of one second for accidental switching off or lack of gas.

##### 4.3.1 Functioning cycle

Turn the selector knob to summer or winter and note, from the lighting up of the green led ( $\odot$ ), whether electricity is present. The starting up of the burner should take place within a maximum of 10 seconds. We can summarise the manifestations of a failure to start, with consequent activation of the failure signal as follows:

##### - Gas failure

The ignition electrode continues to spark for a maximum of 10 seconds, the pilot burner does not start, the blockage indicator lights up.

This may occur at the first ignition attempt or after long periods of inactivity with the presence of air in the tubing. May be due to the gas cock being closed or a break in the valve coil, which do not allow opening.

##### - The ignition electrode does not give a jump spark

In the boiler only the gas opening to the burner is noted, after 10 seconds the block signal lights up.

May be due to the fact that the cable of the electrode is interrupted or is not well fixed to the terminal of the ignition transformer.

##### - The flame is not detected

From the time of the ignition a continuous jump spark from the electrode is noted despite the burner being lit. After 10 seconds the sparking stops, the burner goes off and the block signal lights up.

The cable of the detector electrode is interrupted or the electrode itself is earthed; the electrode is very worn and needs to be replaced.

The control board is faulty.

Due to a sudden fall in electricity the burner is immediately arrested, once the electricity is restored, the boiler will automatically restart.

#### 4.4 SMOKE PRESSURE SWITCH

The switch with a fixed setting 3.5-4.5 mm  $\text{H}_2\text{O}$ , is able to guarantee the functioning of the boiler with inlet and outlet pipes at the maximum limit length allowed.

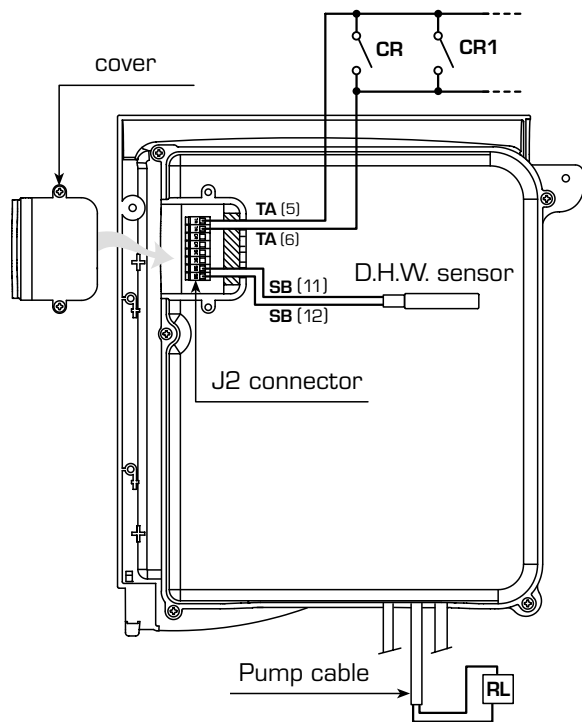
The value of the smoke pressure switch signal is measured with a special instrument connected to the positive and negative pressure plugs on the upper part of the sealed chamber.

#### 4.5 MAINS ELECTRICITY CONNECTION

Use a separate electric line to link up the room stats and relative zone valves or pumps.

The connection of the micros or the relay contacts is carried out on the connector of control board (J2) after having removed the existing bridge (fig. 18).

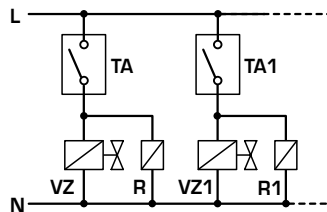




KEY

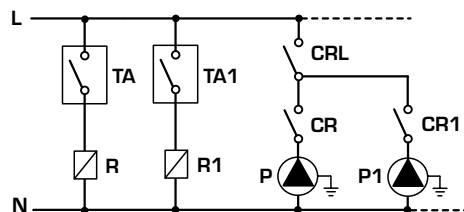
TA - TA1	Zone room stat
VZ - VZ1	Zone valve
R - R1	Zone relay
CR - CR1	Relay contact or zone micro valve
RL	Power relay
CRL	Power relay contact
P-P1	Zone pump

### 1 CIRCUIT WITH ZONE VALVES



NOTE: Relays are used only if the zone valves have no microswitches.

### 2 CIRCUIT WITH ZONE PUMPS



NOTE: Replace the C.H. pump with the optional connecting pipe, code 8094001. Connect the pump cable to a power relay (RL).

Fig. 18

## 4.6 TIME-CLOCK

The **PLANET SUPER 4 F.S.** boiler is set up for connection with a time clock, to be inserted on the instrument panel after removing

the cover on its housing. Refer to the diagram in fig. 13 for wiring.

The boiler has a 4 pole wired connector for connection with a programming clock with two channels.

On request, Sime can supply two wired time clocks complete with instruction booklets:

- mechanical daily time clock, code 8092205
- digital weekly time clock, code 8092206.

## 5 USE AND MAINTENANCE

### SIME SUPPORT THE BENCHMARK INITIATIVE

All relevant sections of the logbook must be filled in at the time of installation and thereafter service information on the back page of the logbook.

Commissioning of the boiler is not complete until the logbook is filled in.

### 5.1 D.H.W. PRODUCTION

The preparation of hot water is guaranteed by the glass enamelled tank unit with magnesium anode for the protection of the tank and inspection flange for its control and cleaning. The magnesium anode must be checked annually and substituted when it is worn. If the boiler does not produce hot water, make sure that the air has been released by pressing on the manual vents after having switched off the main switch.

### 5.2 GAS VALVE

The boiler is produced with SIT 845 SIGMA gas valve (fig. 19) and HONEYWELL VK 8105N gas valve (fig. 19/a).

**NOTE:** In case of replacement of the SIT gas valve to HONEYWELL or vice-versa, set properly the Modureg connector of electronic panel (14 fig. 17 - point 4.1.2). With the jumper inserted the boiler is set for the SIT gas valve; with the jumper removed the boiler is set for the HONEYWELL gas valve.

The gas valve is set at two pressure values: maximum and minimum, that correspond, according to the type of gas, to the values indicated in Table 6. The setting of the gas pressure at minimum and maximum values is carried out by SIME: variations are discouraged. Only in the passing from one type of gas supply (methane) to another (butane or propane) is a change in the working pressure allowed.

**It is essential that this operation is carried out by authorised personnel.**

**Once the change in working pressure has been carried out, seal the regulators.**

When proceeding with the setting of the pressure, it is necessary to follow a pre-established order: first the MAXIMUM and then the MINIMUM.

#### 5.2.1 Maximum and minimum pressure adjustment SIT 845 SIGMA

In order to carry out the setting of the maximum pressure proceed in the following way (fig. 21):

- Connect the differential manometer as shown in fig. 20.
- Remove the plastic cap of the modulator (1).
- Place the D.H.W. potentiometer knob on the maximum value.

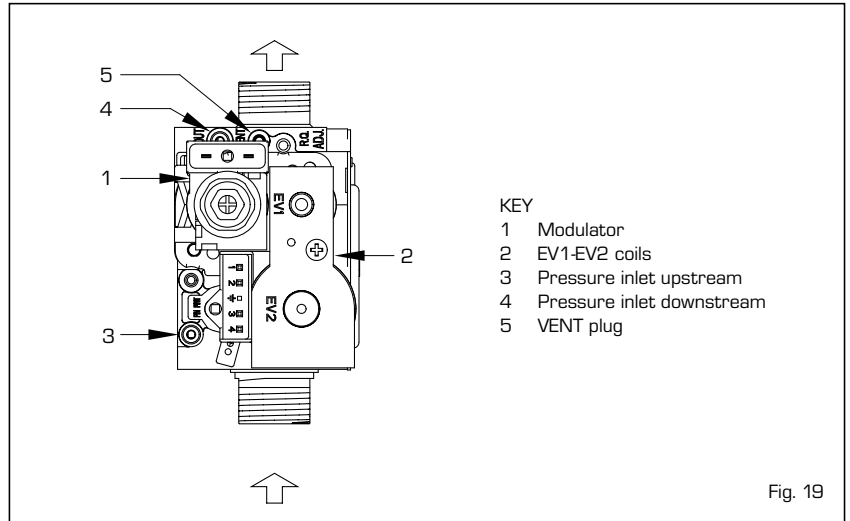


Fig. 19

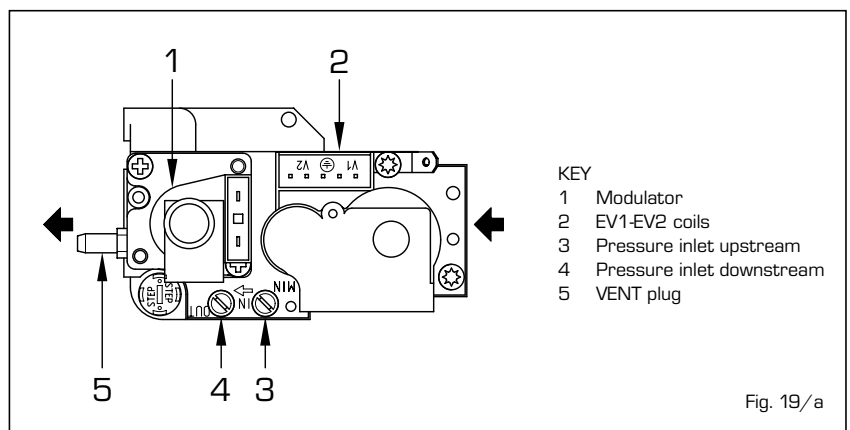


Fig. 19/a

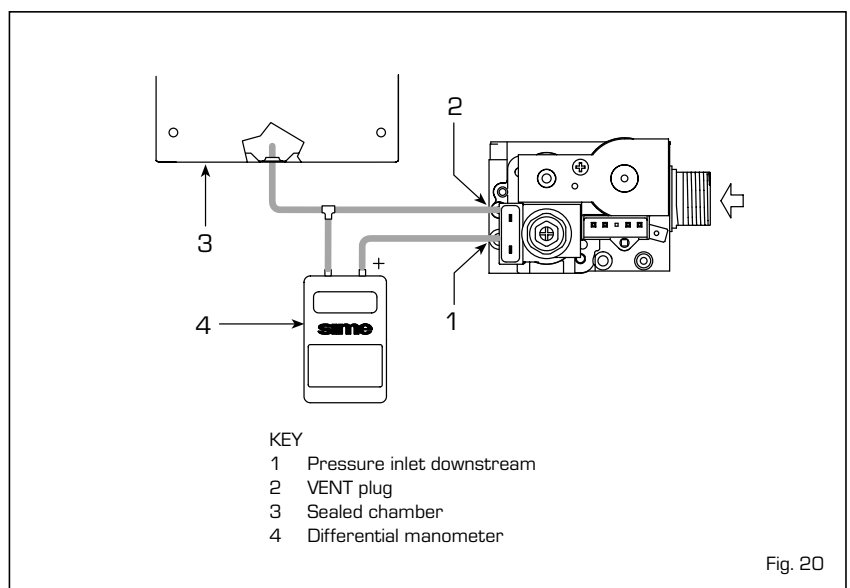


Fig. 20

TABLE 6

Gas type	Burner max.	Modulator	Burner min.	Modulator
	pressure	current	pressure	current
	mbar	mA	mbar	mA
Methane (G20)	11.3	130	2.2	0
Butane (G30)	28.9	165	5.5	0
Propane (G31)	36.2	165	7.3	0

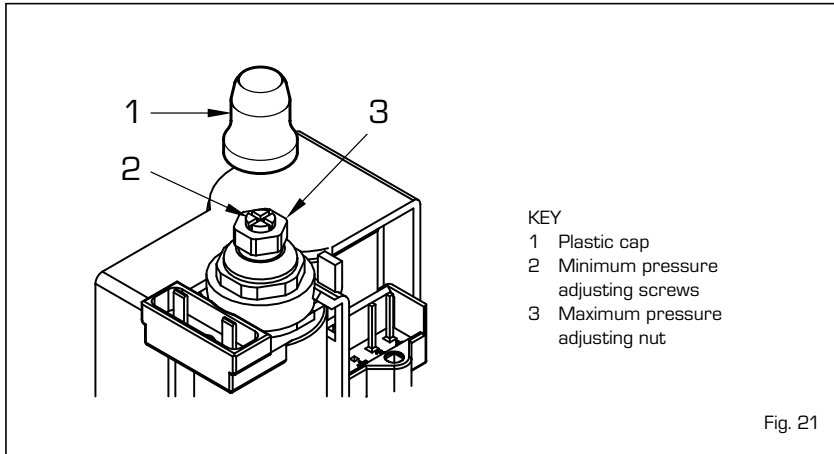


Fig. 21

- Start the boiler by pressing the rotary switch and open the hot water cock.
- Using a  $\varnothing$  10 wrench turn the nut (3) to find the maximum pressure as shown in *Table 6*; to reduce the pressure turn the nut anti-clockwise, to increase the pressure turn the nut clockwise.
- Turn off and turn on the boiler a few times whilst keeping the hot water cock constantly open to verify that the pressure corresponds to the values given in *Table 6*.

After having regulated the maximum pressure, proceed with the setting of the minimum pressure (fig. 21/a):

- Disconnect the electric supply of the modulator:
- With the D.H.W. potentiometer knob on the maximum value, the hot water cock open and the burner alight, holding the nut (3) blocked, turn the screw (2) to find the minimum pressure value as shown in *Table 6*: to decrease the pressure turn the nut anti-clockwise and to increase the pressure turn the nut clockwise.
- Turn on and turn off the boiler a few times whilst keeping the hot water cock constantly open and verify that the pressure corresponds to the values fixed.
- Reconnect the electrical supply of the modulator.
- Replace the plastic cap (1).

### 5.2.2 Maximum and minimum pressure adjustment HONEYWELL VK 8105N

For the setting of the maximum pressure proceed in the following way (fig. 21/a):

- Connect the differential manometer as shown in fig. 20.
- Remove the plastic cap of the modulator (1).
- Place the D.H.W. potentiometer knob on the maximum value.
- Start the boiler and open the hot water cock.
- Using a  $\varnothing$  9 wrench turn the nut (3) to find the maximum pressure as shown in *Table 6*: to reduce the pressure turn the nut anti-clockwise, to increase the pres-

- sure turn the nut clockwise.
- Turn off and turn on the boiler a few times whilst keeping the hot water cock constantly open to verify that the pressure corresponds to the values given in *Table 6*.

After having set the maximum pressure, for the setting of the minimum pressure proceed in the following way (fig. 21/a):

- Disconnect the electric supply of the modulator:
- With the D.H.W. potentiometer knob on the maximum value, the hot water cock open and the burner alight, using a  $\varnothing$  7 wrench turn the nut (2) to find the minimum pressure value as shown in *Table 6*: to decrease the pressure turn the nut anti-clockwise and to increase the pressure turn the nut clockwise.
- Turn on and turn off the burner a few times whilst keeping the hot water cock constantly open and verify that the pressure corresponds to the values of *Table 6*.
- Reconnect the electric supply of the

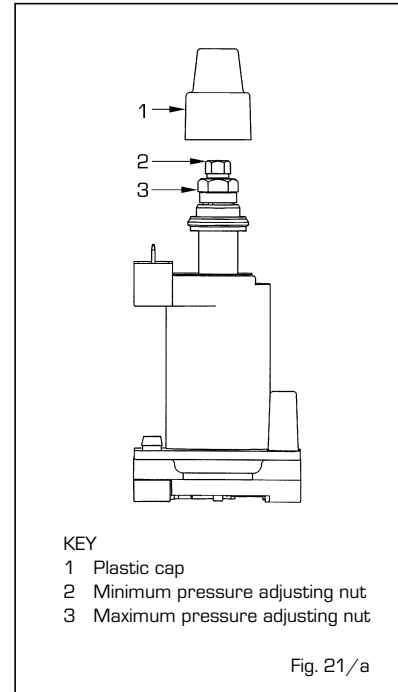


Fig. 21/a

modulator:

- Replace the plastic cap (1).

### 5.3 REGULATION OF HEATING POWER

To regulate the heating power, modifying the factory settings whose power value is around 22 kW, it is necessary to work with a screwdriver on the trimmer of the heating power (10 fig. 17).

To increase the operating pressure turn the trimmer in a clockwise direction, to decrease the pressure turn the trimmer in an anti-clockwise direction.

To facilitate the search for the adjusting of

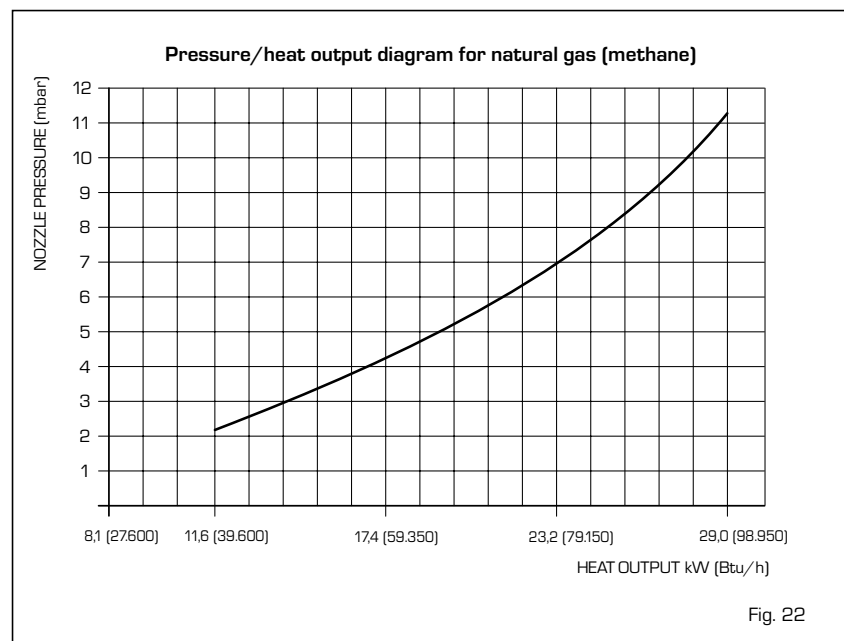
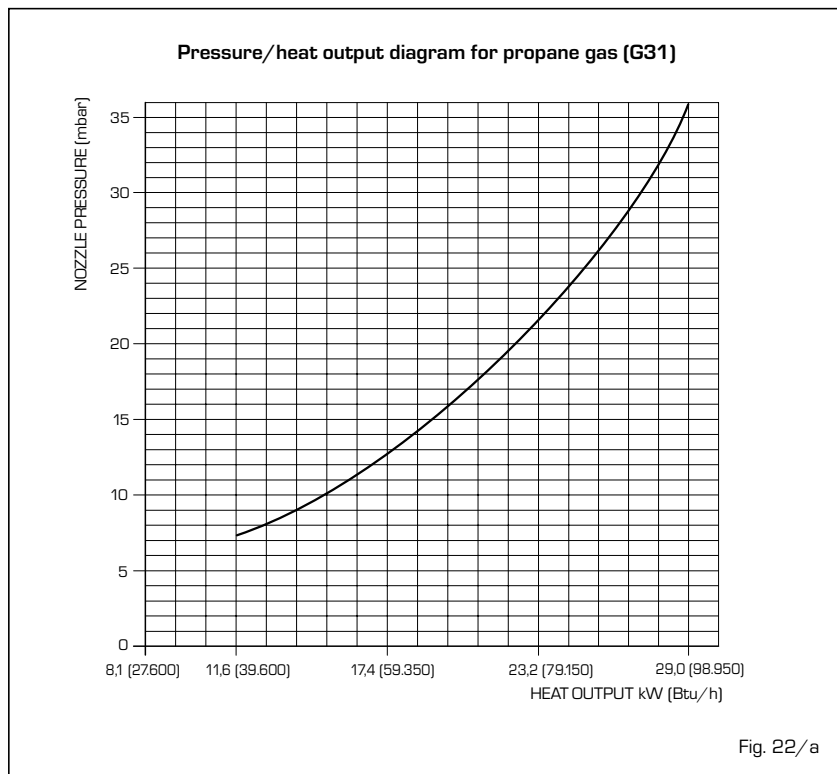


Fig. 22



the heat output see the pressure/heat output diagrams for natural gas (methane) and butane or propane gas are available (fig. 22 - 22/a).

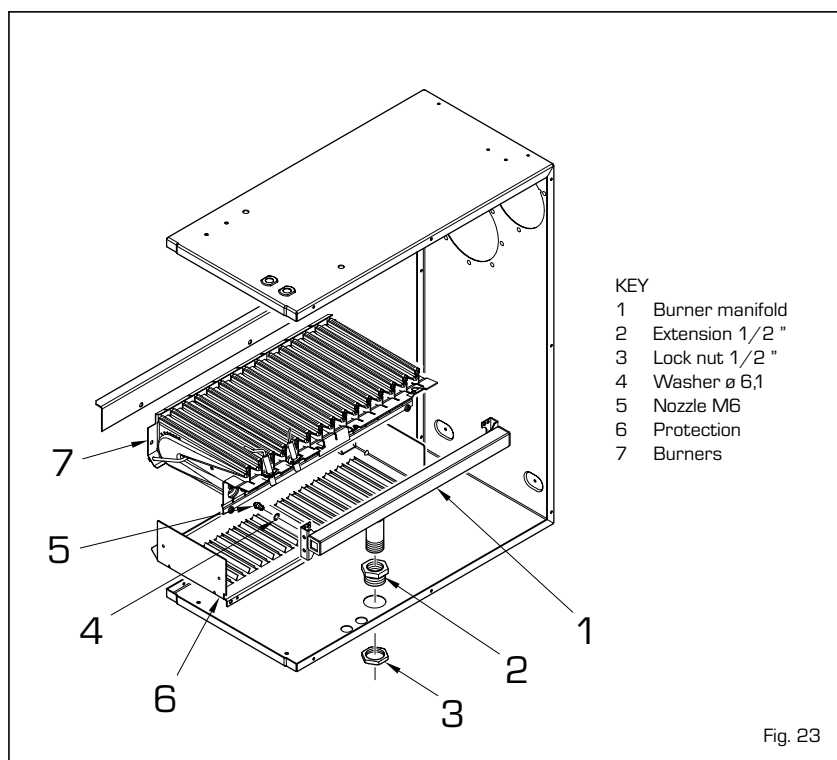
#### 5.4 CONVERSION TO ANOTHER GAS

For the functioning with propane (G31) gas,

a kit with that needed for the conversion is supplied.

To convert from one gas to another carry out the following operations (fig. 23):

- Close the gas cock.
- Undo the burner group
- Replace the main nozzles (5) supplied in kit, and placing the copper washer (4); to carry out this operation use a  $\varnothing 7$  wrench.
- Insert the bridge of the "GPL-MET" con-



nector of the electronic panel onto the "GPL" position (7 fig. 17).

- For the setting of the values of the maximum gas pressure and the minimum follow the indications as specified in point 5.2.

**Once the operating pressure changes have been carried out seal the regulators.**

- The supply pressure must never be greater than 50 mbar.
- Once the operations have been finished cover, with the label supplied, the gas pre-setting data on the data tag.

**NOTE: After assembly the sealing capacity of all the gas connections must be tested, using special products, and avoiding the use of naked flames. The conversion must be carried out only by authorised personnel.**

#### 5.5 DISASSEMBLY OF EXPANSION VESSEL

For disassemble the expansion vessel proceed in the following way:

- Make sure that the boiler has been emptied of water
- Unscrew the union that connects the expansion vessel and the screw that release it from its bracket.

Before beginning to fill the system, make sure that the expansion vessel is pre-filled to a pressure of  $0.8 \div 1$  bar.

#### 5.6 CLEANING AND MAINTENANCE

Carry out the cleaning of the generator in the following way:

- Remove the electricity supply to the boiler and close the gas supply cock.
- Dismantle the burner - gas manifold group (fig. 23).
- To clean direct a stream of air towards the inner part of the burner to blow out any dust that has accumulated.
- Then clean the heat exchanger removing dust and combustion deposits.
- In cleaning the heat exchanger and that of the burner, chemical products or steel brushes must never be used.
- Make sure that the top perforated part of the burners is free of encrustations.
- During the assembly and disassembly of the burner it is recommended that attention be paid to the ignition and detection electrodes.
- Reassemble the parts removed from the boiler, observing the succession of the phases.
- Check the functioning of the main burner.
- After the assembly all the gas connections must be checked for the seal, using soapy water or specific products, avoiding the use of naked flames.

**The programmed maintenance of the generator is carried out annually.**

**5.6.1 Casing cover and control panel dismantling (fig. 24)**

To dismantle the casing cover remove the screws (1 - 2) that fix it to the control panel.

To facilitate the maintenance operations place the "A" side of the bracket located on the R.H. side of the casing so that the control panel can be hooked on it.

**5.6.2 Chimney sweep function**

To carry out the verification of combustion in the boiler, turn the selector and stop on the position (☉) until the yellow led (■) starts to flash intermittently (fig. 25).

From that moment the boiler will start functioning in heating mode at the maximum power, with switching off at 80°C and restarting at 70°C.

Before activating the chimney sweep function make sure that the radiator valves or eventual zone valves are open.

The test may be carried out also during hot water functioning.

To do so it is enough, after having activated the chimney sweep function, to take some hot water from one or more cocks; after a few minutes the request of the D.H.W. sensor is activated and it automatically switches on the led (☼).

Even in this condition the boiler functions at the maximum temperature always with the primary controlled between 80°C and 70°C. During the entire duration of the testing the hot water cocks must remain open.

After verifying the combustion the boiler should be switched off by placing the selector on the **OFF** position; then return the selector to the desired function.

**ATTENTION: After about 15 minutes the chimney sweep function automatically deactivates.**

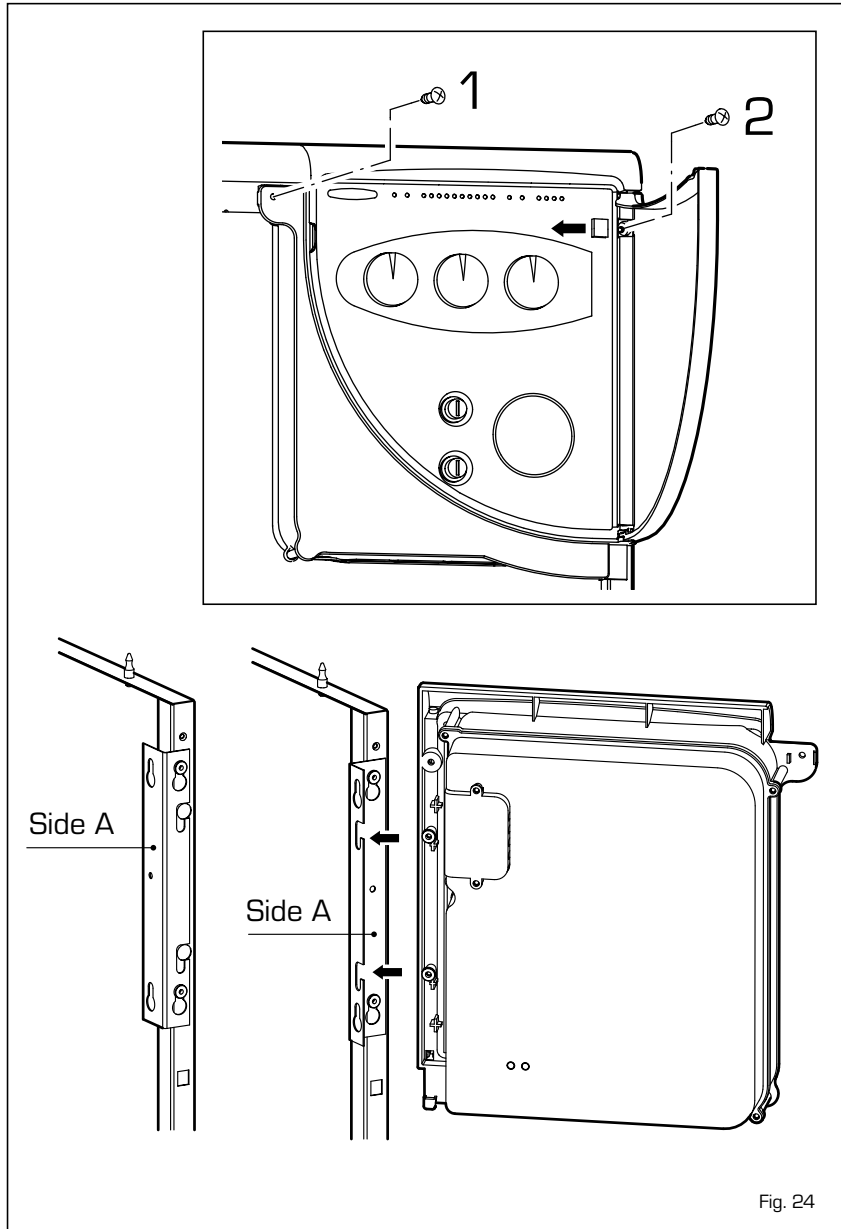


Fig. 24

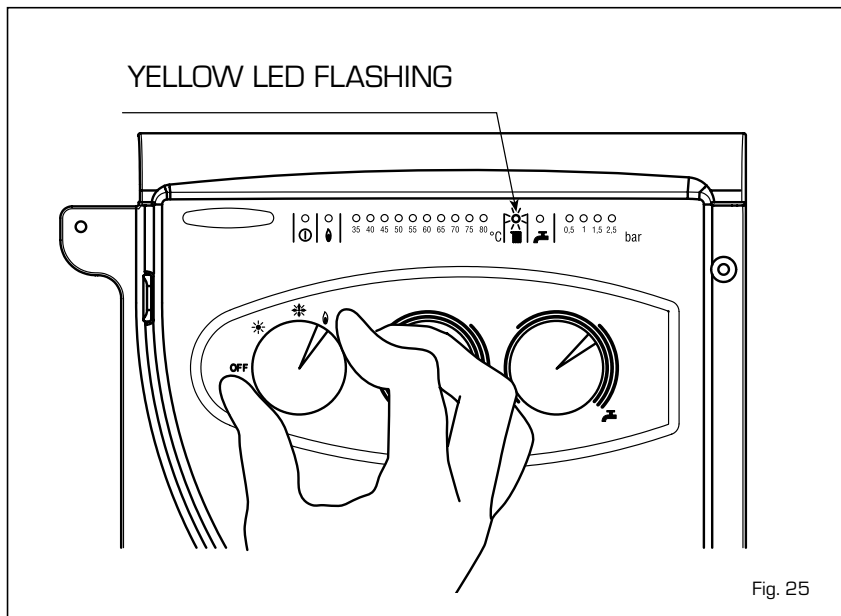


Fig. 25

## 6 STANDARD SETTINGS OF THE “LOGICA REMOTE CONTROL”

C.H. WITHOUT ZONE				MULTI-ZONE C.H.			
WITH EXTERNAL TEMPERAT. SENSOR		WITHOUT EXTERNAL TEMPERAT. SENSOR		WITH EXTERNAL TEMPERAT. SENSOR		WITHOUT EXTERNAL TEMPERAT. SENSOR	
Function	Value	Function	Value	Function	Value	Function	Value
15	20 - 25°C	-	-	15	20 - 22°C	-	-
51	5 - 6°C	51	5 - 6°C	51	5 - 6°C	51	5 - 6°C
52	15 - 16°C	52	15 - 16°C	52	15 - 16°C	52	15 - 16°C
53	0	53	0	53	1	53	1
54	14 - 15	54	14 - 15	54	0	54	0
55	70 - 80°C	55	70 - 80°C	55	70 - 80°C	55	70 - 80°C
56	7,5°C/min.	56	7,5°C/min.	56	7,5°C/min.	56	7,5°C/min.
57	1	57	0	57	1	57	0
58	0	58	0	58	0	58	0
59	0	59	0	59	0	59	0
60	0	60	0	60	0	60	0
61	immaterial	61	immaterial	61	immaterial	61	immaterial
62	0	62	0	62	0	62	0
63	0	63	0	63	0	63	0
64	1	64	1	64	1	64	1
65	0 0 0	65	0 0 0	65	0 0 0	65	0 0 0
66	immaterial	66	immaterial	66	immaterial	66	immaterial

## 7 EXPLODED VIEWS

### 7.1 HYDRAULIC CIRCUIT

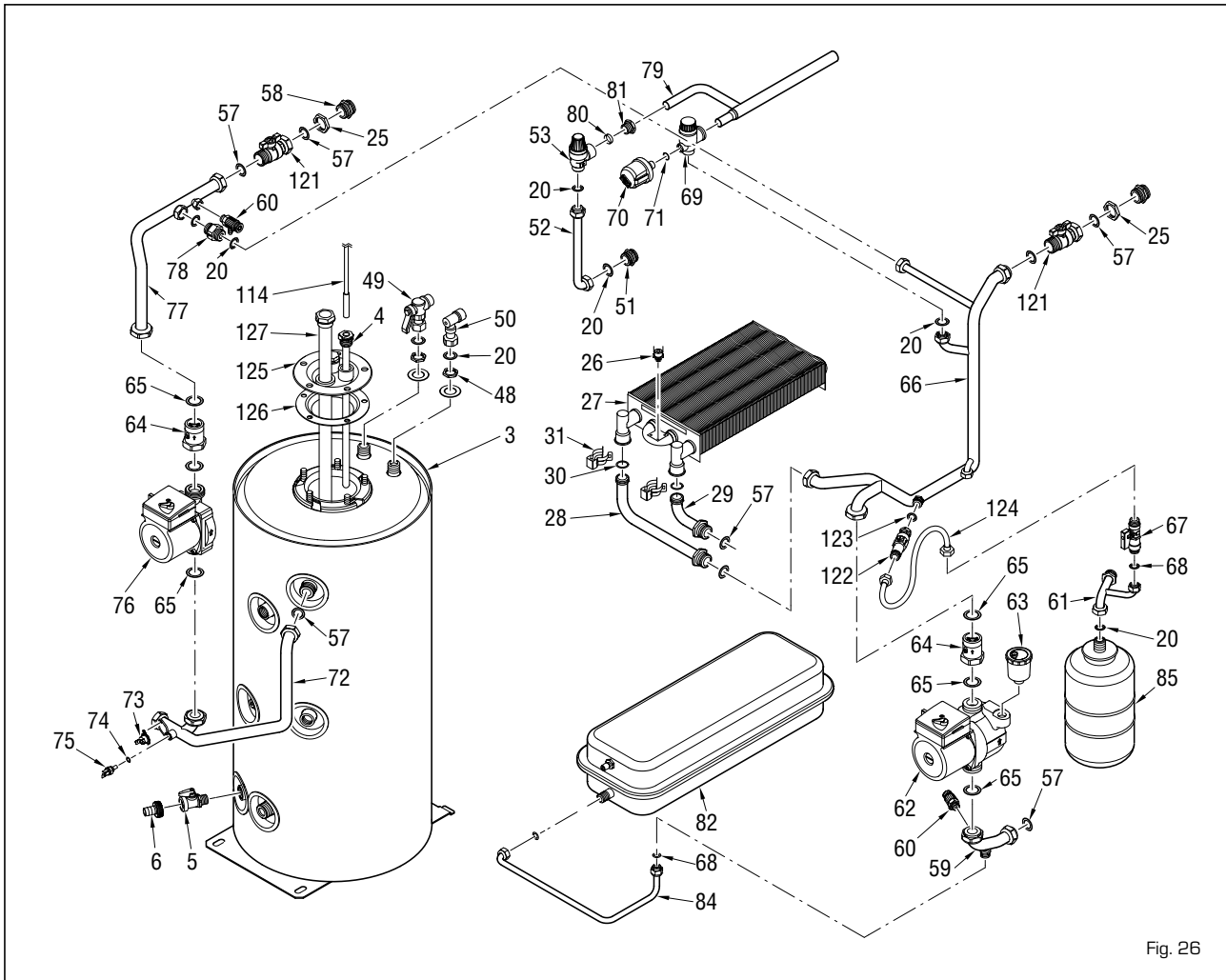


Fig. 26

Position	Code	Description
3	• 5167704	D.H.W. storage tank
4	5002403	Bulb holder 1/2" Ø 7,5x8,5x360
5	6179102	Drain cock 1/2"
6	6179200	Holder complete with locking nut
20	2030227	Gasket Ø 12x18x2
25	6146302	Brass nut 3/4"
26	• 6146711	Limit stat 80°C
27	• 6174225	Heat exchanger
28	6265102	Heat exchanger inlet pipe
29	• 6265103	Heat exchanger outlet pipe
30	• 6226412	O-ring 3068
31	• 6226601	Spring for heat exchanger connection
48	6146301	Brass nut 1/2"
49	6177503	Ball cock 1/2"M x 1/2"F
50	6142331	Quarter bend 1/2"M x 1/2"F
51	6120501	Nipple 1/2"x1/2" OT
52	6153803	Pipe connecting pressure relief valve
53	• 6029000	Pressure relief valve 1/2" - 7 bar
57	2030228	Gasket Ø 17x24x2
58	6120511	Nipple 3/4"x3/4" OT
59	6216008	D.H.W. storage tank outlet pipe
60	• 6017210	Manual air vent 1/4"
61	6227614	Pipe connecting D.H.W. expans. vessel
62	• 6124808	Circulating pump Grundfos UPS 15-50
63	• 6013100	Automatic air vent 3/8"
64	• 6238303	Non return valve 1"Mx1"F
65	• 2030229	Gasket Ø 22x30x2
66	6215621	C.H. return pipe

Position	Code	Description
67	6146600	Filling cock Ruval 3/8" MM
68	2030226	Gasket Ø 10,2x14,8x2
69	• 6042201	Pressure relief valve 1/2" - 3 bar
70	• 6273601	Water pressure transducer
71	2030225	Gasket Ø 5,5x11x2
72	6215808	C.H.+D.H.W. tank flow pipe
73	• 6146701	100°C safety stat
74	• 6022010	Sensor gasket
75	6231351	Plunged sensor
76	• 6254605	Grundfos circulating pump UPS 15-60
77	6216226	C.H. flow pipe
78	6270900	By-pass
79	6157614	Pressure relief valve drain pipe
80	6100202	Ogive for pipe Ø 15
81	6168401	Locking nut for pipe Ø 15
82	• 5183700	Rectangular expansion vessel 8 l. 3/8"
84	6227647	Pipe connecting expansion vessel
85	• 6245102	Sanitary D.H.W. tank - 2.5 L.
114	• 6231330	Temperature sensor L=1120
121	6177515	Ball cock 3/4"
122	6078612	Non-return valve
123	2030243	Gasket Ø 10,2x15x2 Dutral
124	6017403	Flexible pipe
125	6192905	D.H.W. cylinder flange Ø 138
126	• 6193000	Rubber gasket Ø 130
127	• 6072700	Magnesium anode Ø 22 L=400

• Recommended stock parts

## 7.2 COMBUSTION CIRCUIT

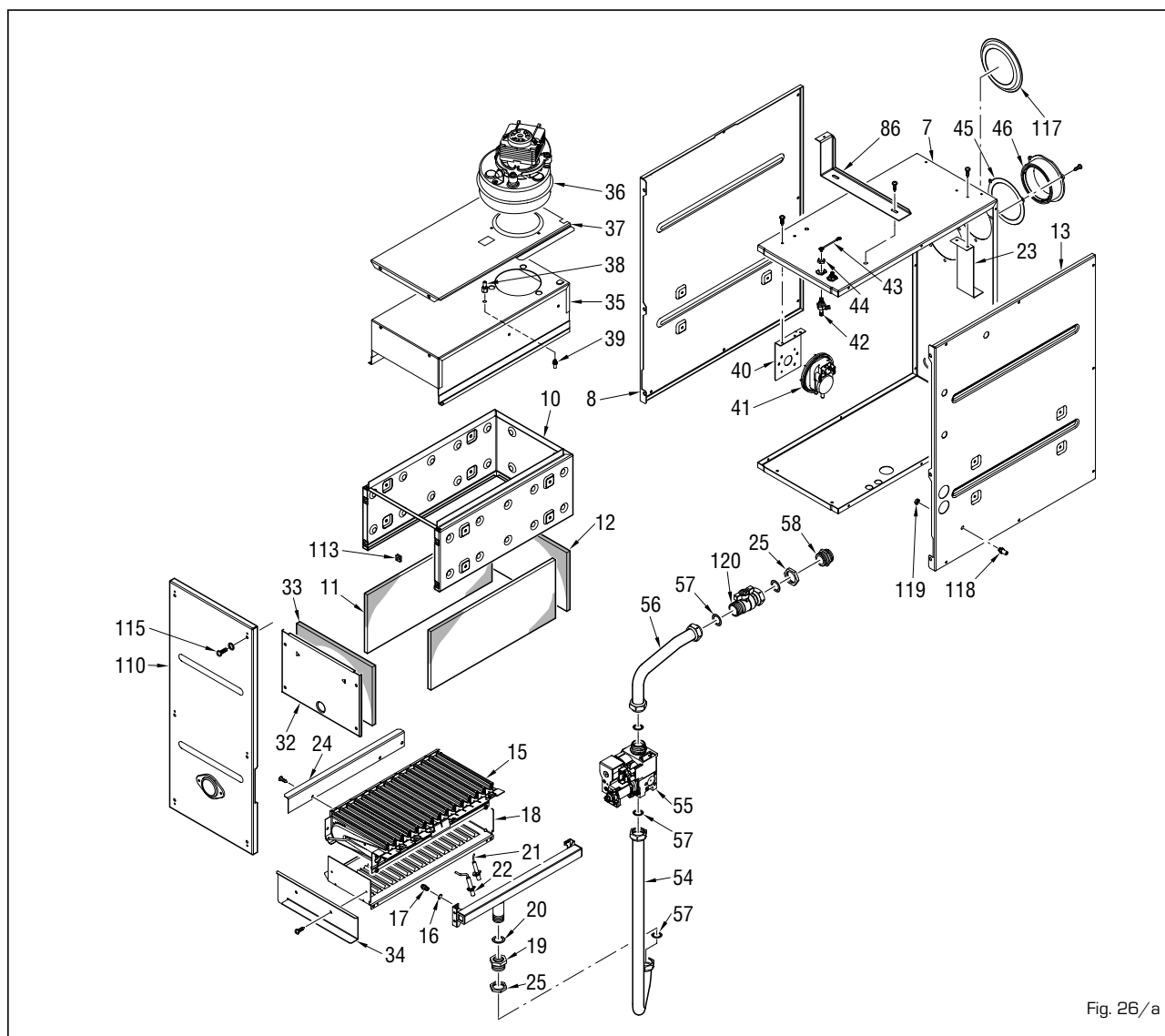


Fig. 26/a

Position	Code	Description
7	6266060	Sealed chamber rear panel
8	6266140	Sealed chamber left hand side panel
10	6213604	Combustion chamber
11	6139723	Combustion chamber side insulation
12	6139724	Combustion chamber rear insulation
13	6266130	Sealed chamber right hand side panel
15	5172720	Main burner assembly
16	6022004	Copper washer Ø 6
17	6154402	Main burner nozzle NP 130 natural gas
17 A	6154411	Main burner nozzle NP 76 M6 LPG
18	6175104	Protecting shield
19	6070803	M.F. reducer 3/4"x1/2" OT
20	2030227	Gasket Ø 12x18x2
21	• 6235930	Ignition electrode
22	• 6235916	Ionisation electrode
23	6257515	Rear air deflector
24	6009561	Burner side bracket
25	6146302	Brass nut 3/4"
32	6229007	Combustion chamber front panel
33	6139760	Combustion chamber front insulation
34	6257516	Burner front deflector
35	5172309	Smoke chamber assembly
36	• 6225615	Fan
37	6229220	Fan mounting plate

Position	Code	Description
38	6235800	Venturi pressure nipple
39	6235804	Pressure test nipple M6
40	6229101	Smoke pressure switch bracket
41	• 6225710	Air pressure switch
42	6280500	3-ways junct. with press. test nipple
43	6280550	Cap for 3-ways junction
44	6146303	Brass Nut 1/8"
45	6028707	Air intake gasket
46	6288000	Air intake
54	6258201	Pipe connecting gas valve-main burner
55	• 6243811	SIT gas valve type 845 SIGMA
56	6226819	Gas inlet pipe
57	2030228	Gasket Ø 17x24x2
58	6120511	Nipple 3/4"x3/4" OT
86	6009573	Casing panel fixing bracket
110	6228882	Sealed chamber front panel
113	• 2013302	Fastener for self tapping screw
115	2004180	Self-tapping screw TCB 8SPx3/4"
117	6028620	Air diaphragm Ø 81
117 A	6028621	Air diaphragm Ø 79
118	6235801	Pressure test nipple M6
119	2010118	Nut M6
120	• 6177516	Gas cock 3/4"

• Recommended stock parts



### 7.3 STRUCTURAL COMPONENTS AND CONTROL & REGULATIONS

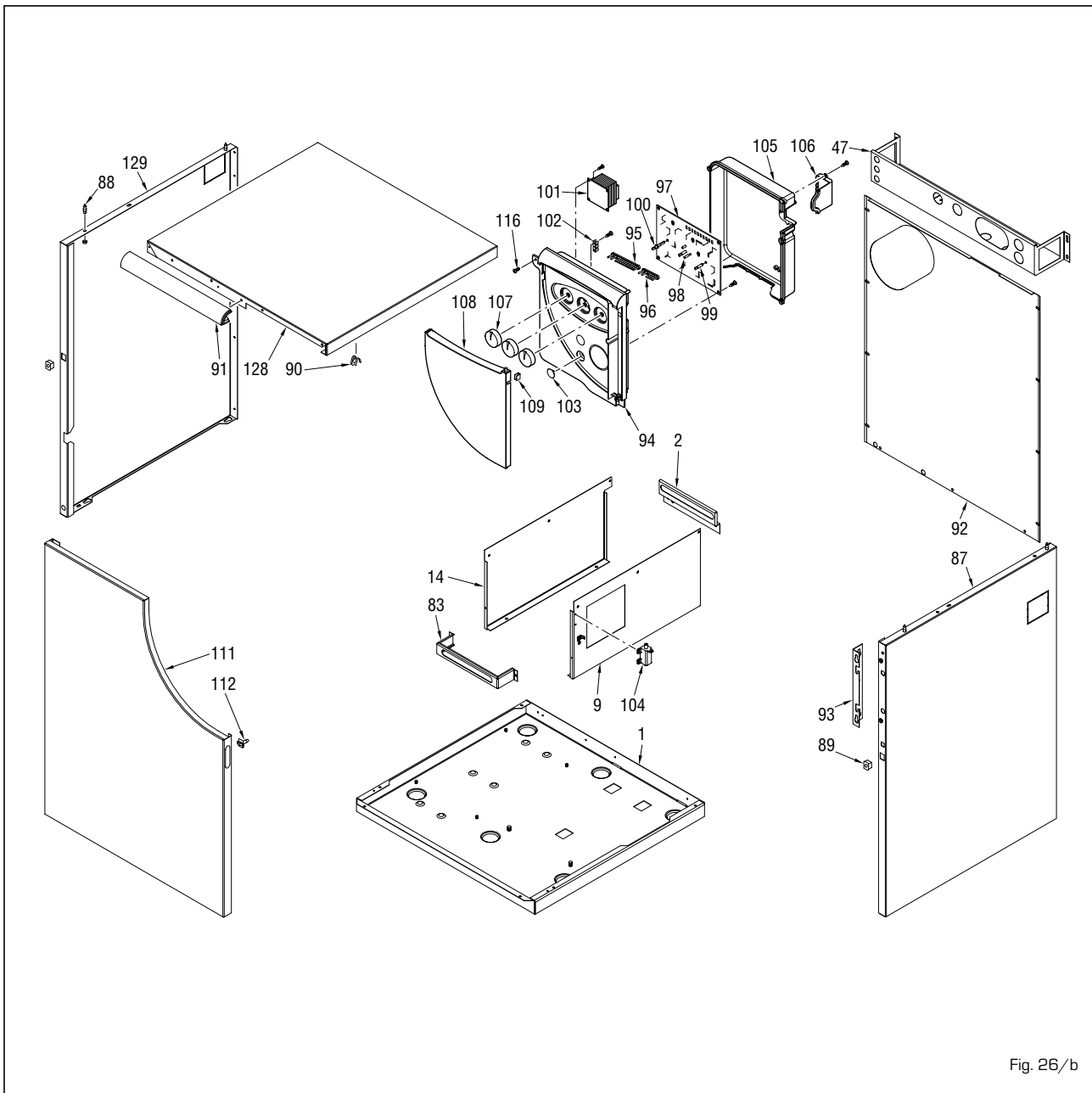


Fig. 26/b

Position	Code	Description
1	6251943	Tray
2	6073311	Expansion vessel supporting bracket
9	6258610	Sealed chamber RH side support
14	6258611	Sealed chamber LH side support
47	6258508	Rear upper jig
83	6073310	Expansion vessel fixing bracket
87	6280911	Casing right hand side panel
88	2003000	Pin M5 Zn
89	6258850	White plastic spring
90	2015000	Spring clip MO/AB
91	6282103	Section for casing top cover L=337
92	6281320	Rear panel
93	6267102	Control panel supporting bracket
94	6281600	Control panel
95	6273200	Guidelight - 12 ways out
96	6273201	Guidelight - 6 ways out
97	• 6230682	Main PCB with ignition
98	• 6201501	Trimmer spindle Ø 5

Position	Code	Description
99	• 6201502	Trimmer spindle Ø 6
100	• 6201503	Selector spindle
101	• 6240703	Transformer 230/24V
102	2211610	Earth faston
103	6119343	Cap for stat hole
104	• 6098305	Ignition transformer
105	6281800	Control panel protecting cover
106	6281900	Room stat cover
107	6230921	Knob Ø 40
108	6281700	Flap door
109	6282000	Flap door tap
111	6280861	Casing front door
112	6258800	Plastic pin
116	2004110	Self tapping screw TCB 8Px1/2" Zn
128	6287820	Casing top cover
129	6293600	Casing left hand side panel
		• Recommended stock parts







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