INSTALLATION,
AND MAINTENANCE MANUAL
FOR GAS FIRED, WALL-HUNG BOILERS

Model **RSF 20 E – RSF 24 E**

TYPE C ROOM SEALED

The code of practice for the installation, commissioning & servicing of gas fires and wall heaters

CE 0694

ENGLISH

Technical Specification **RADIANT BRUCIATORI S.p.A.** Montelabbate (PU) ITALY By Technical Department

INDEX

THE FRIENDLY POWER OF HEAT

Thank you for choosing RADIANT

Declaration for purposes of Art. 7 of Law 46 of 5 April 1990.
RADIANT BRUCIATORI S.p.A. hereby declares that all of its products are constructed to industry standards as required by the Article in question and by Article 5 of the law in effect (D.P.R. no. 447/97).

RADIANT BRUCIATORI S.p.A. products are type tested **EC.**

All **RADIANT** boilers are constructed according to UNI - CIG **(EC)** norms. The materials used, such as copper, brass, and stainless steel form a compact, homogeneous, highly functional unit that is easy to install and simple to operate. The wall-mounted boiler is equipped with all of the approved accessories required to make it a true, independent heating plant for home heating and for the production of hot water for domestic needs. All boilers are fully inspected, and come with a certificate of quality signed by the inspector and with a warranty certificate. This booklet must be read carefully and stored in a safe place, accompanying the boiler at all times**.**

RADIANT BRUCIATORI S.p.A. declines any and all responsibility for misinterpretations of this booklet deriving from any translations of same.
RADIANT BRUCIATORI S.p.A. will not be responsible for non-observance of the instructions contained in this booklet or for the consequences of any action not specifically described herein.

INSTALLATION INSTRUCTIONS - WARNINGS

THIS INSTALLATION, USE, AND MAINTENANCE MANUAL IS AN ESSENTIAL AND INTEGRAL PART OF THE PRODUCT, AND MUST ALWAYS BE KEPT NEAR THE DEVICE.
THE WARNINGS CONTAINED IN THIS SECTION ARE ADDRESSED BOTH TO THE USER AND TO INSTALLATION AND MAINTENANCE PERSONNEL.
THE USER WILL FIND INFORMATION ON OPERATION AND LIMITS OF USE IN THE ACCOMPANYING MANUAL, WHICH SHOULD BE READ VERY CAREFULLY.
STORE THE MANUAL CAREFULLY FOR FUTURE REFERENCE.

1) GENERAL WARNINGS

INSTALLATION MUST BE PERFORMED IN OBSERVANCE OF CURRENT NORMS, ACCORDING TO THE CONSTRUCTOR'S INSTRUCTIONS, AND BY PROFESSIONALLY QUALIFIED PERSONNEL.

THE INSTALLATION INSTRUCTIONS MANUAL MUST BE ALWAYS ACCOMPANY THE BOILER.

PROFESSIONALLY QUALIFIED PERSONNEL ARE THOSE HAVING TECHNICAL COMPETENCE IN THE SECTOR OF APPLICATION OF THE DEVICE (CIVIL OR INDUSTRIAL), AND, IN PARTICULAR, THE CONSTRUCTOR'S AUTHORISED SERVICE CENTRES.

INCORRECT INSTALLATION MAY CAUSE DAMAGE TO PERSONS, ANIMALS, OR PROPERTY, FOR WHICH THE CONSTRUCTOR ASSUMES NO LIABILITY.

- After completely removing the packing, make sure that the contents are in perfect condition.
- In case of doubt, do not use the equipment. Consult the supplier.
- Packing materials (cardboard carton, wooden crate, nails, clips, plastic bags, polystyrene, etc.) are potentially dangerous and must be kept away from children.
- Before performing any cleaning or maintenance operation, turn off the unit by means of the mains switch and/or by means of the appropriate cut-off devices.
- Do not block the air intake or heat dissipation grates.
- In the event of breakdown and/or poor functioning of the device, turn it off and do not attempt to repair it or take any direct action. Refer to professionally qualified personnel only.
- Any repairs must be performed exclusively by a service centre authorised by the constructor, and with original spare parts only.
- Non-observance of the above instruction may compromise the safety of the device. To guarantee efficient and correct operation, the device should undergo period maintenance by professionally qualified personnel according to the constructor's instructions.
- Whenever the device is to be put out of service, secure all potentially hazardous parts to prevent accidents or damage.
- If the device is sold or transferred to another owner, or if you move and leave the boiler, make sure that this booklet stays with the boiler so that it may be consulted by the new owner and/or by the installer.
- Use only original spare parts for all devices with optionals or kits (including electrical ones).

WARNING: this device must be used for its intended purpose, i.e., heating and production of domestic hot water. Any other use is improper and therefore dangerous. The constructor will have no contractual or extracontractual liability for damage caused by incorrect installation and/or use or by non-observance of instructions supplied by the constructor.

This device must be used exclusively with a sealed central heating system equipped with an expansion vessel.

2) WARNINGS REGARDING INSTALLATION

Warranty expires **12 months from date of installation and in all cases no later than 18 months from date of construction**. First start-up must be performed by **authorised personnel only**. For any operation on the hydraulic, gas, or electrical circuit regarding the heating unit, refer to **authorised technicians only and use original spare parts only**. Wall-mounted boilers are not to be installed in damp rooms, and must be protected against sprays or jets of water or other liquids to prevent malfunctions of the electrical and heating devices. They must not be exposed to direct steam from cookers, and nothing must be placed on top of them. This heating unit has been constructed to heat the home and to produce hot water. **The constructor declines all responsibility for incorrect installation and/or use of the device.** Do not leave the device on when it is not being used: **close the gas cock and turn off the mains switch**. If you smell gas in the room in which the device is installed, do not operate any electrical switches, telephones, or any other device that might cause a spark. Immediately open doors and windows to create an air current to clear the room. Close the main gas cock (at the meter) or the cylinder cock, and request immediate technical service.
Do not tamper with the device.

SYSTEMS WITH THERMOSTATS

A by-pass must be installed in heating systems with radiators thermostats.
As required by current norms, these devices must be installed by **qualified personnel only**, who must respect norms **UNI-CIG 7129 and 7131** and revisions, fire department regulations, and requirements of the local gas company. Before installing the boiler, make sure that the water and heating systems are compatible with its output. The room must be properly ventilated by means of an air intake (see UNI 7129/92 and UNI 7129/95 FA).
The air intake must be at floor level open flue only, at a point where it cannot be obstructed, and protected by a grate that does not reduce the useful section of flow.
The use of air flows from adjacent rooms is permitted as long as such rooms are in depression with respect to the outside and as long as there are **no wood-burning fireplaces or fans** installed there. If the boiler is to be installed externally (for example, on balconies or terraces), make sure that it is protected against atmospheric agents to prevent damage to components and voiding of the warranty. In such cases we recommend building a heat compartment to protect the boiler against inclement weather.
Check the technical data on the packing and on the plate located inside the front casing. Check that the burner is suitable for use with the type of gas available.
Make sure that all pipes and connections are perfectly sealed and that there are no gas leaks.
All pipework should be chemically flushed to remove any residues that might negative effect the operation of the boiler.

3) GENERAL WARNINGS BASED ON TYPE OF POWER SUPPLY

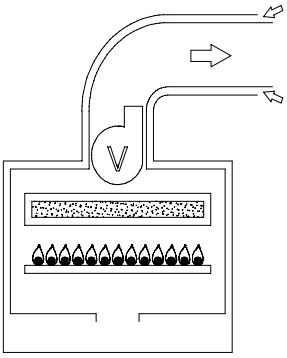
POWER SUPPLY
Electrical safety is achieved only when the device is correctly and efficiently earthed as per current safety norms (IEC 64-8 Electrical Part).

- This fundamental safety requirement must be checked. In case of doubt, request a check of the electrical system by professionally qualified personnel. The constructor will not be liable for any damage caused by lack of or improper earthing of the system.
- Have professionally qualified personnel check that the electrical system is adequate for the maximum absorbed power of the device (indicated on the plate). In particular, make sure that the section of the system wires is suitable for the maximum absorbed power of the device.
- Do not use adapters, multiple sockets, and/or extension cords to power the device from the electrical mains.
- Provide a unipolar switch as required by current safety regulations to connect the device to the mains.
- The use of any electrical device requires the observance of some fundamental rules, such as:
- do not touch the device with wet or damp parts of the body and/or with bare feet
- do not pull on electrical cables
- do not expose the device to atmospheric agents (rain, sun, etc.) unless specifically provided for
- do not allow the device to be used by children or anyone unfamiliar with its operation
- The power cable must not be replaced by the user.
- If the cable becomes damaged, turn off the device and have the cable replaced by professionally qualified personnel only.
- If you decide not to use the device for an extended length of time, turn off the mains switch that feeds all components of the system using electrical energy (pumps, burner, etc.).

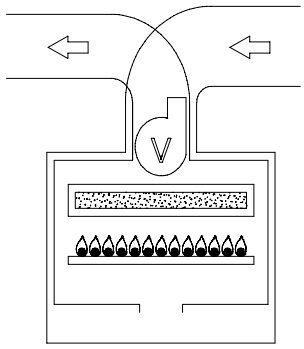
TECHNICAL DATA

Type C unit

Type C devices are devices in which the combustion circuZ it (air intake, combustion chamber, exchanger, combustion exhaust) is sealed off from the place where they are installed.



C32 Coaxial vertical
C12 Coaxial horizontal

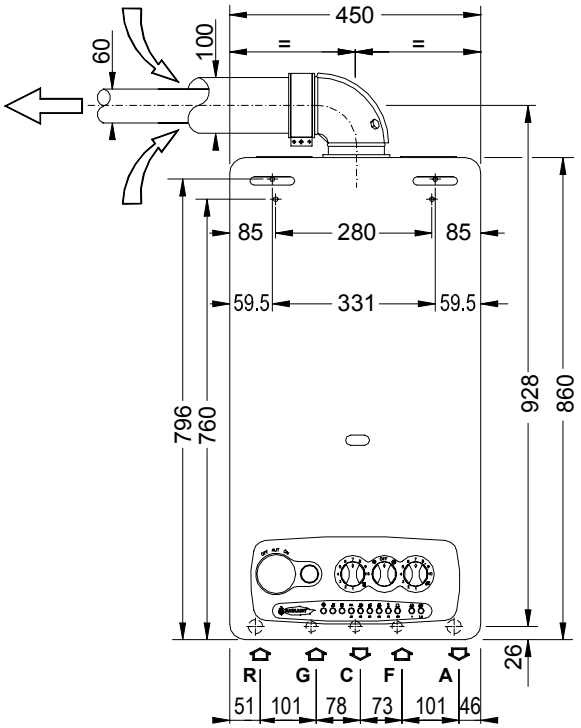


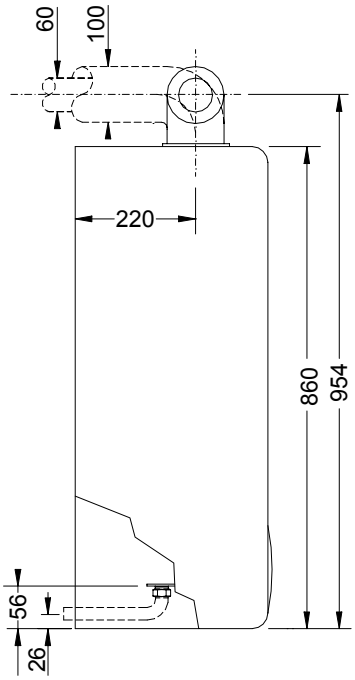
C52 Double

CENTRAL HEATING - DOMESTIC HOT WATER
sealed combustion circuit type
RSF 20 E - electronic ignition
RSF 24 E - electronic ignition

Technical data

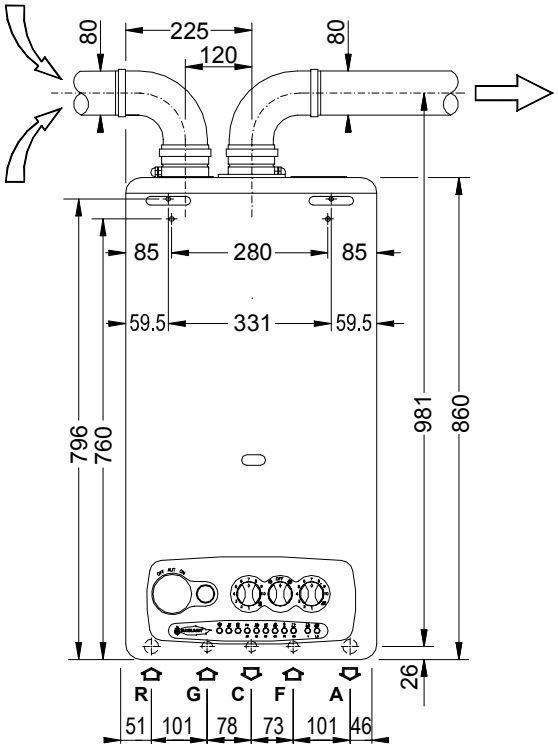
MODEL		RSF 20 E	RSF 24 E
Maximum rated input	KCal/h	22900	25628
	Kw	26.6	29.8
	BTU/h	90867	101692
Minimum rated input	KCal/h	11000	15000
	Kw	12.8	17.5
	BTU/h	43648	59250
Maximum rated output	KCal/h	20900	23090
	Kw	24.34	26.85
	BTU/h	82931	91621
Minimum rated output	KCal/h	9450	12900
	Kw	11	15
	BTU/h	37498	51187
Heating temperature adjustment	°C	30-80	30-80
Max. working pressure (heating)	bar	3	3
Min. working pressure (heating)	bar	0.3	0.3
Expansion vessel capacity (initial pressure 1 bar)	Litres	8	8
Hot water flow rate Δt 25°	Litres	13	15
Max. working pressure (water)	bar	6	6
Min. working pressure (water)	bar	0.5	0.5
Width	mm.	450	450
Height	mm.	860	860
Depth	mm.	345	345
Weight	Kg.	49	49
Coaxial exhaust flue diameter Double exhaust flue diameter		100/60 80/80	100/60 80/80
Flow/return connections	Ø	3/4" - 3/4"	3/4" - 3/4"
Cold water connections	Ø	1/2"	1/2"
Hot water connections	Ø	1/2"	1/2"
Gas connections	Ø	1/2"	1/2"
Electrical connection 50 Hz	V	230	230
Power supply	W	170	170
Burner jets NP 13 G30	Ø	1.25	1.25
Burner jets NP 13 G30	Ø	0.75	0.77
Gas category: **IT II2H3**	Gas supply pressure: **G20** 20 mbar / **G30/31** 29-30/37 mbar		
FORCED CIRCULATION			

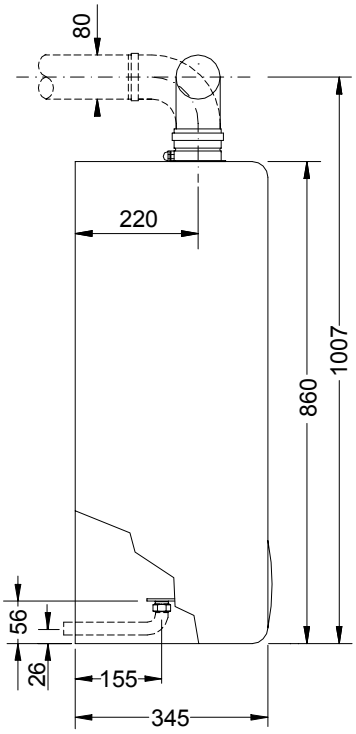




TYPE C WALL-MOUNTED BOILERS
SEALED COMBUSTION CIRCUIT:

Kit A
Horizontal coaxial exhaust flue system with 360° rotation.
It allows the flue exhaust and the air intake directly to an external wall. .
To insert a bend, reduce total flue length by 0.8 m.





Kit B
Double exhaust/emission twin flue system with 360° rotation.
It allows the flue exhaust into a flue duct and the air intake directly from an external wall.
To insert a bend, reduce total flue length by 1.5 m.

R RETURN ¾"
G GAS ½"
C HOT WATER ½"
F COLD WATER ½"
A HEATING FLOW ¾"

NOTE: USE ORIGINAL RADIANT APPROVED FLUE KIT SYSTEMS, FLUE ACCESSORIES AND FLUE DIAPHRAGMS ONLY. APPROVED RADIANT FLUE DIAPHRAGMS AND ADJUSTMENT TABLES ARE SUPPLIED WITH RADIANT ORIGINAL FLUE KIT SYSTEMS.

GENERAL INSTALLATION REQUIREMENTS

GAS SAFETY

It is the law that all gas appliances are installed by a CORGI registered installer (you can check this by contacting corgi on 01256.372200) in accordance with the regulations listed below. 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. Failure to have your appliance installed to comply with the installation instructions and the requirements listed below could invalidate your guarantee.

RELATED DOCUMENTS

The installation of the boiler must be in accordance with the relevant requirements of the Gas Safety regulations, Building regulations, I.E.E. regulations and the bylaws of the local water authority.
It should be in accordance also with any relevant requirements of the local authority and the relevant recommendations of the following British Standard Codes of Practice:

B.S 6400:	1985 & B.S. 6891 : 1988.
BS 5376:	Selection and Installation of Gas Space Heating (1 and 2 family gases) Part 2: Boilers of rated input not exceeding 60 Kw
BS 5449:	Central Heating for domestic premises Part 1: Forced circulation Hot Water System
CP 342:	Centralised Hot Water Supply BS 6700 : 1987 Part 2: Buildings other than individual
BS 5440:	Flues and air supply for Gas Appliances of rated input not exceeding 60 Kw (1 and 2 family gases) Part 1: Flues Part 2: Air Supply
BS 5446:	1990: Installation of Gas Hot Water supplies for domestic purposes

GAS SUPPLY

Service Pipes: The local gas region should be consulted at the installation planning stage in order to establish the availability of supply of gas. An existing service pipe must not be used without prior consultation with the local gas region.
Meters: A gas meter is connected to the service pipe by the local gas region or local gas region contractor. An existing meter should be checked to ensure that it is capable of passing an additional 3.4 m3/hr (125 ft/hr) before the appliance is installed. The meter outlet governor should ensure a nominal dynamic pressure of 20m Bar, (8 in wg) at the boiler. Installation pipes should be fitted in accordance with BS6891.1988. **Pipework that supplies the boiler must be a 22 mm. ininterrupted supply from meter to the isolation cock of the boiler.** The complete installation must be tested for soundness as described in the above code, BS 6400: 1985 & BS6891.

IMPORTANT: BOTH THE USER AND THE MANUFACTURER RELY UPON THE INSTALLER, WHOSE JOB IS TO INSTALL THE BOILER AND CONNECT IT TO A CORRECTLY DESIGNED HEATING SYSTEM. THE INSTALLER SHOULD ACQUAINT HIMSELF WITH THE CONTENTS OF THIS PUBLICATION AND THE RELEVANT BRITISH STANDARDS CONCERNING INSTALLATION REQUIREMENTS.

LOCATION OF BOILER

In siting the combination boiler, the following limitations MUST be observed:
The position selected for installation should be within the building, and MUST allow
adequate space for installation, servicing and operation of the combination boiler, and for air circulation around it. The boiler is not suitable for external installation.
This position MUST also allow for a suitable flue termination to be made. The boiler must be installed on a flat vertical wall which is capable of supporting the weight of the combination boiler, and any ancillary equipment.
If the 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 IGE/UP/6. If in doubt, advice must be sought from the local region of British Gas.
The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E. Wiring Regulations, and in Scotland the electrical provisions of the Building Regulations applicable in Scotland, with respect to the installation of the boiler in a room or internal space containing a bath or shower.
Where a room-sealed appliance is installed in a room containing a bath or shower, any electrical switch or appliance control utilising mains electricity must be so situated that it cannot be touched by a person using the bath or shower.
A compartment used to enclose the combination boiler 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. BS 6798 gives detailed guidance on this aspect.
For clearances to be made available for installation and servicing, see Sections 5.2.2. to 5.2.4.

FLUE POSITION

IMPORTANT: THE FLUE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN BS 5440:1.
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.
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.
In certain weather conditions a terminal may emit a plume of steam. Positions where this would cause a nuisance should be avoided.
IMPORTANT REQUIREMENT: The correct dimensional relationship between the terminal and any obstruction, openable window or ventilator as shown in Fig 1 pag.7 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 systems. If this should occur, the appliance MUST BE TURNED OFF IMMEDIATELY and the local gas region consulted.
Where the lowest part of the terminal is fitted less than 2m (6.6ft) above a balcony, above ground, or above a flat roof to which people have access, the terminal MUST be protected by a purpose designed guard.
Where the terminal is fitted within 850mm (34in) of a plastic or painted gutter, or 450mm (18in) of painted eaves, an aluminium shield of at least 1000 mm (40in) long should be fitted to the underside of the gutter painted surface.
The air inlet/products outlet duct and the terminal of the boiler MUST NOT be closer than 25mm (1in) to combustible material.

TERMINAL POSITION

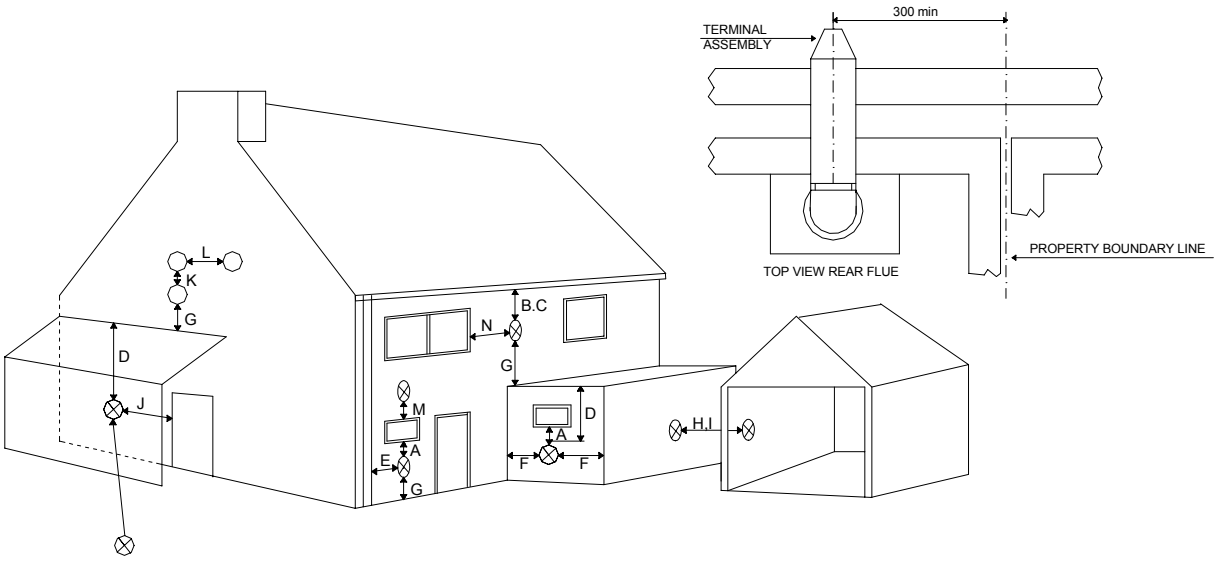


Fig. 1

A	Directly below an openable window, air vent or any other ventilation opening.	300 mm
B	Below gutter, drain pipes or soil pipes.	25 mm
C	Below eaves.	25 mm
D	Below balcony or carport roof.	25 mm
E	From vertical drain pipes or soil pipes.	25 mm
F	From internal or external corners.	25 mm
G	Above adjacent ground, roof or balcony level.	300 mm
H	From a surface facing the terminal.	600 mm
I	Facing the terminals.	1200 mm
J	From opening (door, window)in the carport into dwelling.	1200 mm
K	Vertically from a terminal on the same wall	1500 mm
L	Horizontally from a terminal on the same wall	300 mm
M	Above an opening, air brick, opening window etc.	300 mm
N	Horizontally to an opening, air brick, opening window etc.	300 mm

MINIMUM DISTANCES FOR FIXING TO WALL

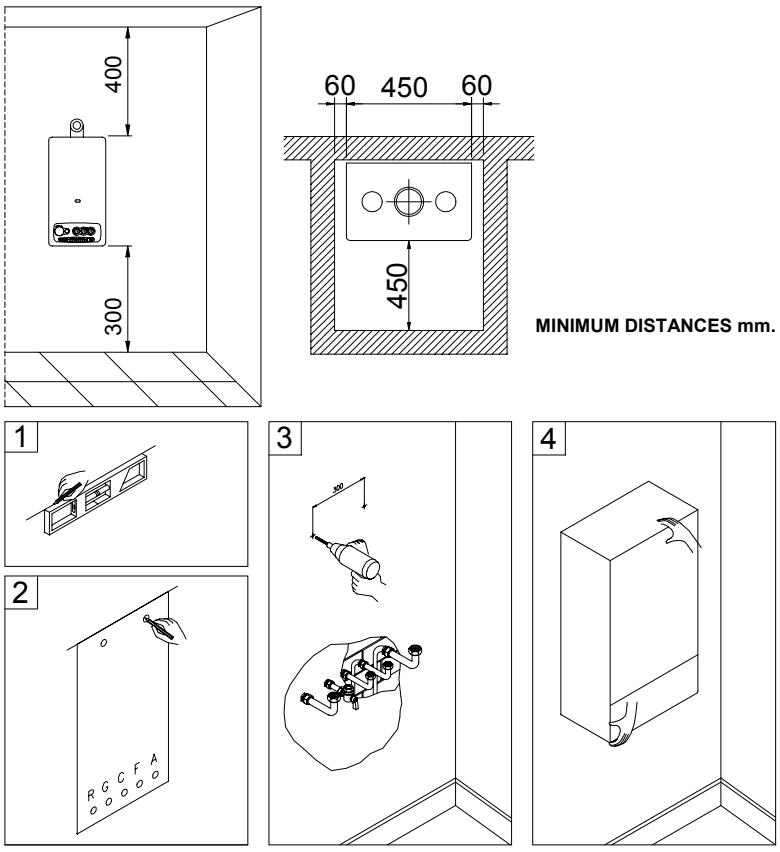


Fig. 1

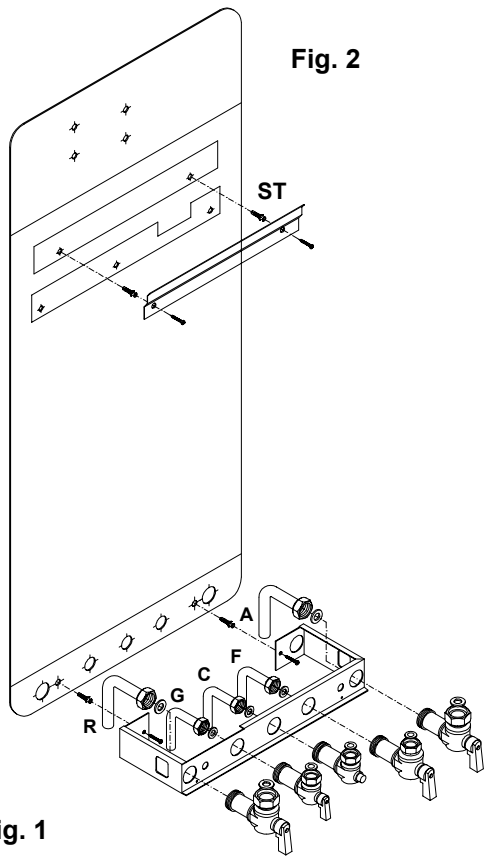


Fig. 2

To allow access in the boiler for maintenance operations, the minimum distances shown below must be respected (fig. 1):
To facilitate installation, the boiler is supplied with a template for advance location of connections to pipes. In this way, you may simply hook up the boiler when wall work is completed (fig.2).

Installation Instruction

1) With a spirit level, draw a line on the wall on which the boiler will be installed (fig. 1).
2) Position the top of the template on the line drawn with the spirit level (respecting the distances – see fig. 1) than mark the three points for insertion of the 3 screw anchors or wall anchors for fixing the boiler hanging bracket. (choose proper anchors according to the wall type). Next, mark the two points for insertion of the two screw anchors for fixing the JIG to wall.
3) Fix the hanging bracket and the JIG.
4) Make connections to the hot and cold water supply, to the gas pipe and to the heating system with the fittings supplied with the boiler JIG. Connect pipes and valves as shown in the picture
5) Position the boiler paying attention to hang it to the hanging bracket (do not lean the boiler on the JIG) and make final connections.

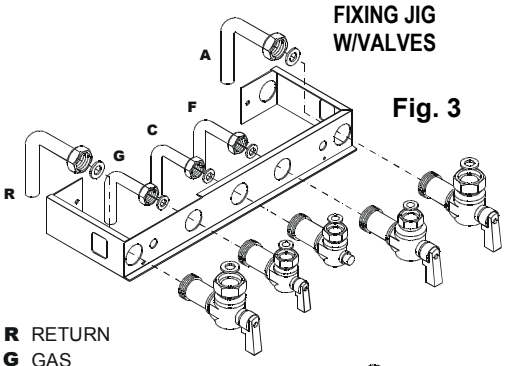


Fig. 3

R RETURN
G GAS
C HOT WATER OUTLET
F COLD WATER INLET
A FLOW

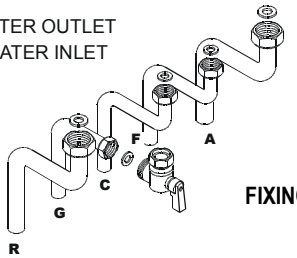


Fig. 4

WATER CONNECTIONS

To facilitate installation, the boiler is equipped with a fittings kit (see fig. 3 and 4).

IMPORTANT:

Before connecting the heating system pipes, carefully clean the system to prevent residual dirt from entering into circulation and negatively affecting boiler function. Install a funnel with discharge under the safety valve (calibrated to 3 bar) to collect water in case of leaking due to overpressure. No safety valve is needed for the domestic hot water circuit, but if the cold main inlet pressure exceeds 5 bar a pressure reducing value should be fitted.

- avoid using pipelines of reduced diameter;
- avoid the use of tight bends and adapters in important sections;
- clean out the system thoroughly before connecting up the boiler in order to eliminate any residue left in the pipes and radiators.

N.B.: *Make sure that the water and heating pipes are not used as earth connections for electrical apparatus.*

GAS CONNECTIONS

The gas supply must be connected up by a corgi registered fitter.
The following standards must be complied with: UNICIG 7131/72 and UNICIG 7129/92 (of 21/04/93)

Before installing the boiler, make sure of the following:

- the pipeline must be of an adequate section and length to carry the flow required and must be fitted with all safety devices and measures prescribed by current norms;
- before turning on the boiler make sure the type of gas which it is designed to run on is available
- the gas supply pressure must lie within the values shown on the plate it is recommended that the gas supply pipeline should be checked for residual obstructions before installing the boiler;
- where the internal gas supply pipe meets the boiler, the gas isolation cock supplied with the boiler must be fitted;
- check thoroughly that the gas inlets and outlets are properly sealed.
- conversion to allow the boiler to run on LPG to natural gas or vice versa must be carried out by a qualified gas fitter in accordance with law no.46 of 5th March '90 (see p.18).

ANTI-FREEZE SYSTEM

ANTI-FROST SYSTEM
Radiant boilers are equipped with an Anti-Freeze system which comes into operation when the temperature falls to 5° C (Heating sensor) and 4° C (Hot water sensor) and protects the boiler down to –2°C external temperature.
To protect the internal Radiators, a room thermostat or remote control must be fitted.

NOTE**:** The frost system will only come into operation if the boiler is filled with water, and connected to a live gas supply, with electrical supply and boiler controls in the "ON" position (With the Main switch turned to Summer or Winter position) *) and the gas supply turned on.*

FOR THE INSTALLER

For boilers installed outdoors, where the temperature may drop below -2° degrees Centigrade, the system should be filled with antifreeze liquid by an authorised technician and a set of electrical heating elements should be fitted to protect the domestic hot water heat exchanger.

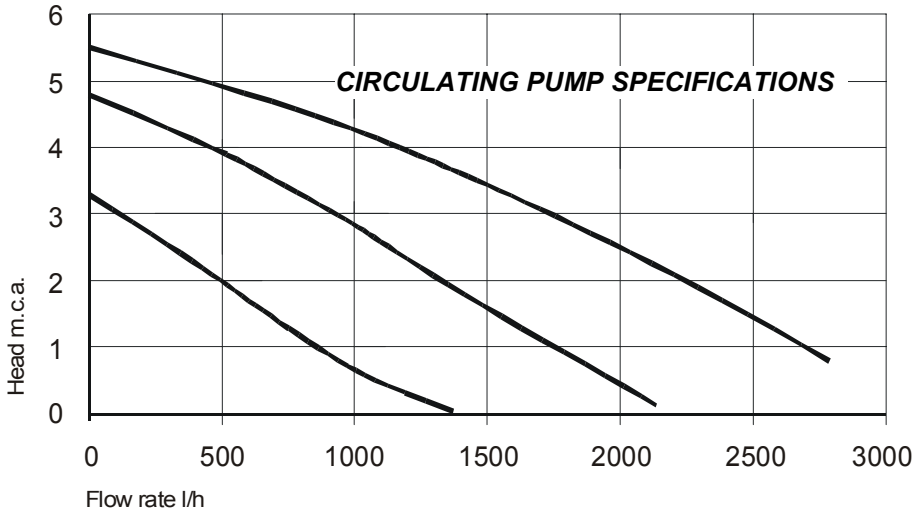
Table n°1

Antifreeze	Temperature	
Ethylene glycol (%) volume	freezing point (°C)	boiling point (°C)
10	- 4	101
20	-10	102
30	- 17	104
40	- 27	106
50	- 40	109
60	- 47	114

ADVICE FOR THE SERVICE TECHNICIAN

If the boiler is out of service because it is frozen, check that no parts have been locked in position by ice before putting it into operation.
It is advisable to empty the boiler and the system in case of no operation for a long period.

*Recommended percentage of glycol for temperatures down to - 8°C is 20%.*The antifreeze liquid used must be of a good make and in a solution which has already been diluted to avoid the risk of uncontrolled dilution.



ELECTRICAL CONNECTIONS

The boiler works with 230 V 50 Hz AC current and has maximum input of 170 W. Connection to the electrical mains must be performed with a device having an omnipolar opening of at least 3 mm. Make sure the live and neutral connections conform to the diagram. **A secure earth connection is compulsory.**

IMPORTANT

If you need to replace the power supply cable, use cable having the same characteristics: (HO5 W-F) 3x1 with maximum external diameter 8 mm.). Connect to the terminal block located in the instrument panel as follows:

A. Turn off the electrical power supply at the mains.
B. Remove the boiler front casing.
C. Undo the two side screws on the panel using the phillips screwdriver VT and turn it to the position shown in fig.1 (pos. 1).
D. After pulling the panel downwards, undo the four rear screws on the housing and open the electrical control box by lifting the cover as shown in fig.1.
E. With the electrical control box now open make the following connections:

- Connect the yellow/green wire to the terminal marked with the earth symbol " ⏚ " (see fig.1).
- Connect the blue wire to the terminal marked with the letter "N".
- Connect the brown wire to the terminal marked with the letter "L".

CONNECTION OF ROOM THERMOSTAT

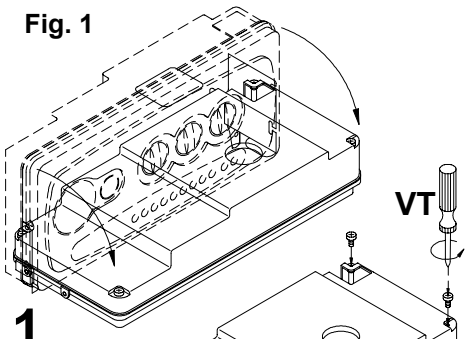
NOTE: use low voltage room thermostats only.

The thermostat wire must not be placed in the channel containing high tension wires, but must have its own line
The room thermostat lead must not exceed 50m n length; minimum section 0.5 mm.

Connection: after carrying out the operations described on page 15, proceed as follows:

A. Insert the room thermostat lead into the entry point on the electrical control box along with all the other leads on the boiler.
B. Move the bridge **PT** (see fig.1) from terminal **TA** to the free one next to it.
C. Insert the thermostat wires (fig.2) one in terminal **TA** and the other in the one next to it occupied by bridge **PT** which you have just moved.

Fig. 1



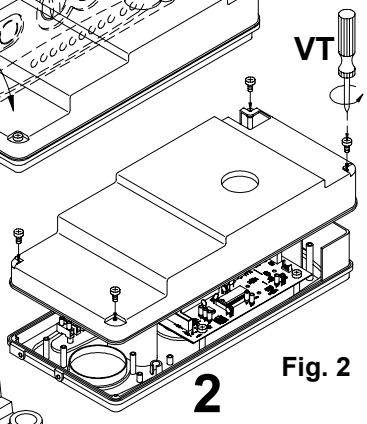


Fig. 2

Fig. 3

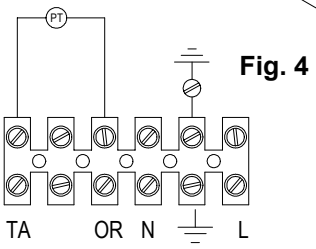


Fig. 4

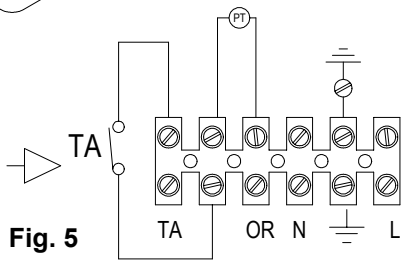


Fig. 5

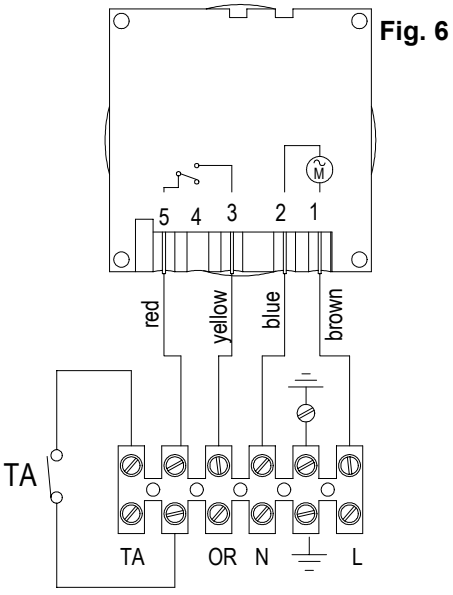


Fig. 6

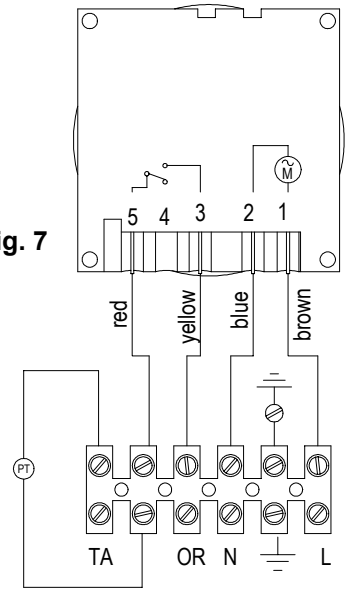


Fig. 7

If a timer is fitted as well as a room thermostat, carry out the electrical connections for the timer according to the indications in figures 3 (tipe clock + room thermostat) and 4 (time clock only).

CONTROL PANEL

LEGEND (see fig. 1)

1. SUMMER-WINTER ON-OFF SWITCH
2. LOCK-OUT INDICATOR
3. HEATING TEMPERATURE ADJUSTMENT KNOB
4. WATER TEMPERATURE ADJUSTMENT KNOB
5. SPACE FOR ADDING AN OPTIONAL TIMER

SELF- DIAGNOSTIC LEGEND (see fig. 2)

6. OPERATING/ POWER INDICATOR
7. DOMESTIC HOT WATER OPERATION
8. HEATING OPERATION
9. FLASHING LIGHT DENOTING AIR PRESSURE SWITCH FAILURE
10. FLASHING LIGHT DENOTING DOMESTIC WATER SENSOR FAILURE
11. FLASHING LIGHT DENOTING HEATING SENSOR FAILURE
12. FLASHING LIGHT DENOTING 90° C MAX TEMPERATURE SENSOR FAILURE
13. FLASHING LIGHT DENOTING LACK OF WATER IN SYSTEM
14. WATER PRESSURE LEVEL 1 BAR
15. WATER PRESSURE LEVEL 1.5 BAR
16. ELECTRONIC TEMPERATURE INDICATOR

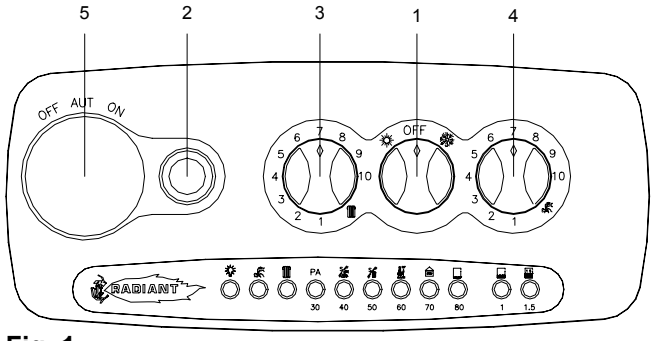


Fig. 1

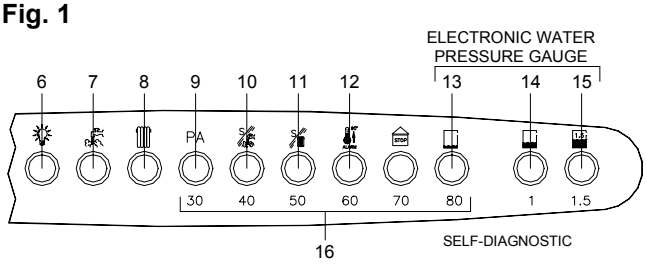


Fig. 2

STARTING UP THE BOILER

After connecting up the water supply, before starting up the boiler, carry out the following procedures:

Preliminary procedure

- Do as follows:
- make sure the power supply for the boiler is the same as that stated on the plate (230V - 50Hz) and that the live, neutral and earth connections have been properly connected;
- make sure the type of gas being supplied is the same as the type for which the boiler has been tested and approved (see plate data);
- make sure the unit is properly earthed;
- make sure there are no flammable liquids or materials in the immediate vicinity of the boiler;
- make sure that any shut-off valves in the heating circuit are open;
- open the gas cock and check the gas seals, making sure the counter shows no sign of leaks; in any case, double check by using a soapy solution and eliminate all eventual leaks. The checking procedure for the gas burner attachment is carried out with the boiler working;
- make sure the electrical mains switch is OFF;
- remove the front cover by pulling it forwards;
- undo the side screws and rotate the panel downwards

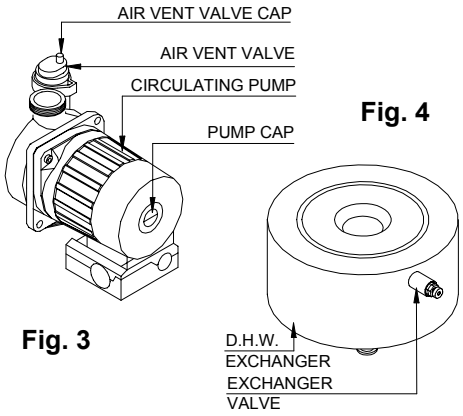


Fig. 3

Fig. 4

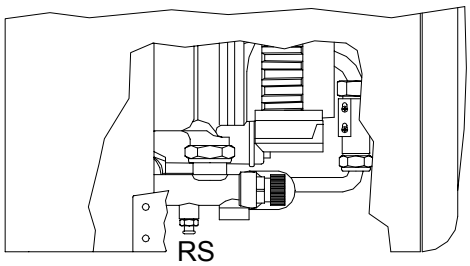


Fig. 5

Filling the system

After making sure the gas cock is closed, fill the heating system as follows;

- fill the system until a pressure of 1.5 bar has been reached (light no. 16 ON; see fig. 2) and then close the tap on the filling loop;
- make sure the cap on the auto air vent valve is slightly loose to allow air to escape from the system (see fig. 1);
- undo the cap on the circulation pump to eliminate any eventual air locks (see fig. 3). Undo the valve on the heat exchanger and then close it again as soon as water appears (see fig. 4); it is a good idea to purge all radiators of air at this point too;
- before starting up the boiler the water pressure must be checked again; if this is seen to be below 0.5 bar (light no. 13; see fig. 2), bring it back up to 1.5 bar (light no. 15 ON; see fig. 2) **and close the tap on the filling loop;**
- switch on the electrical power supply to the boiler;
- turn selector switch **1** to the WINTER ❄ position (see fig. 1), after a few seconds the pump will come into action;
- once the boiler is working, if any noises are heard in the system, repeat the above air purging procedures until there is no air left in the system;
- turn on a hot water tap briefly;
- if any noises are heard, loosen the valve on the heat exchanger (see fig.4) and close it again as soon as water appears;
- check there are no obstructions in the exhaust duct;

- check the pressure in the system: if this has gone down and LED 13 (see fig. 2 pag. 9) comes restore pressure*;*
- **close the tap on the filling loop** once this operation is completed;

Starting up the boiler

- open the gas cock;
- turn on the boiler;
- set selector switch **1** to either the ☼ summer or ❄ winter symbols (see fig.1 pag. 9); make sure that no. **6** light is ON (see fig. 2 pag. 9). The automatic ignition system will turn the burner on. It may be necessary to repeat the procedure a few times to purge air from the pipes. To repeat the ignition procedure press release button **2** (see fig.1 pag. 9) and then try the ignition procedure once again. If the boiler does not start, press the reset button 2 (see fig. 1 pag. 9). **IMPORTANT** should the boiler fail to ignite **wait 3 minutes** before pressing button again.
- turn selector switch **1** to the «off» position (see fig. 1 pag. 9), insert a gauge into the pressure point (see fig. 4 pag. 12; pos. no. 4), turn on the boiler and check the minimum and maximum calibration pressures of the modulator in accordance with those stated on the gas plate; (to check the maximum modulation pressure of the modulator, turn on a hot water tap and check that the maximum pressure is equal to that stated on the plate; to check the minimum, undo one wire from the modulator coil and check on the gauge that the minimum pressure is equal to that stated on the plate; if the maximum pressure is not the same as stated on the plate, calibrate the modulator again;
- once the calibration procedure has been completed, unplug the mains lead or turn off the mains switch, close the gas cock and remove the gauge from the pressure point; tighten the screw making sure there are no gas leaks;
- after carrying out this operation, return the panel to its correct position and put the front casing back.

CHECK the maximum heating power.
For procedure regarding regulation of the heating system thermal capacity see «BOILER ADJUSTMENTS».

EMPTYING THE CENTRAL HEATING SYSTEM

Whenever it is necessary to empty the system, proceed as follows:

- turn off the main power supply switch;
- wait for the boiler to cool down;

turn the system drain tap **RS** (see fig. 5 pag. 9) and use a container to collect the water that runs out;

EMPTYING THE DOMESTIC HOT WATER SYSTEM

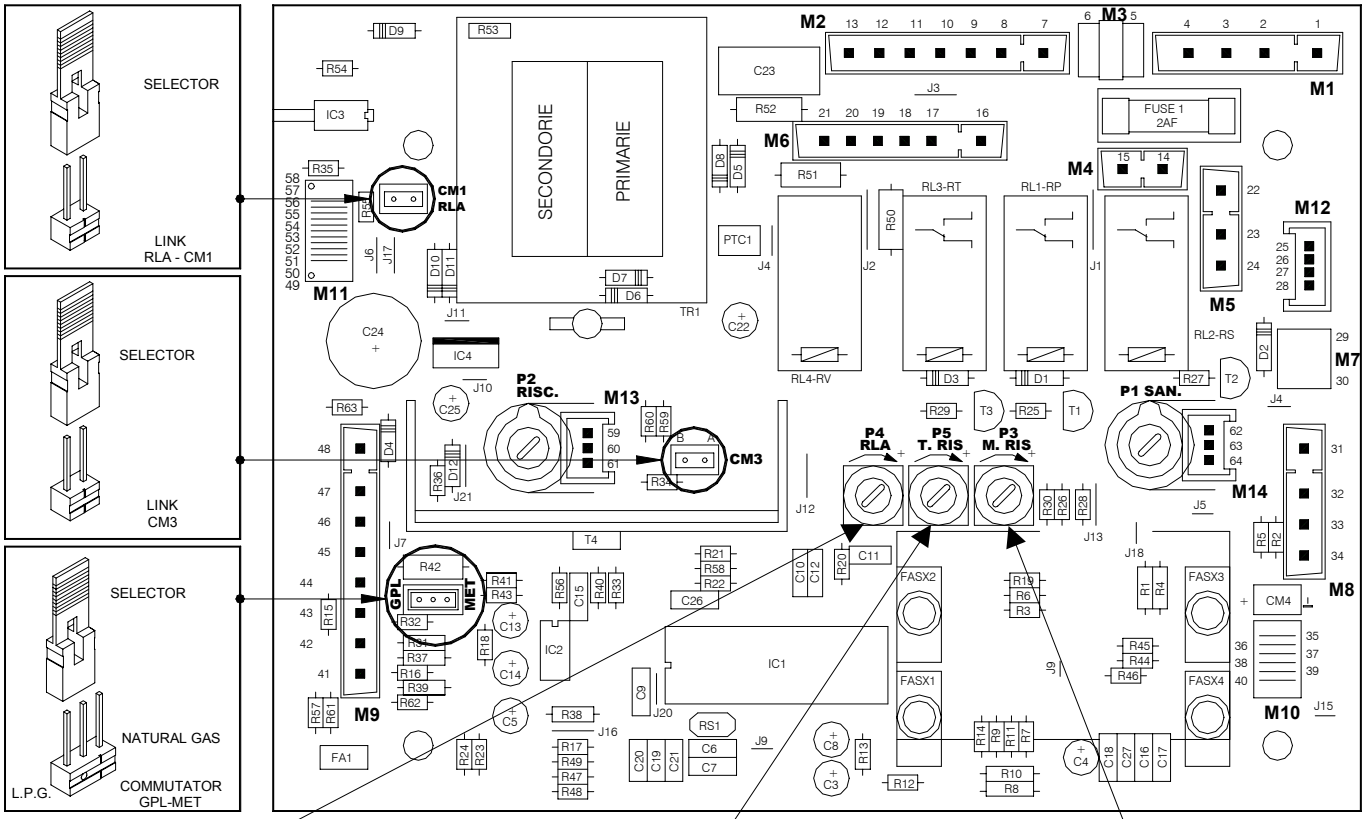
Whenever there is danger of freezing, the hot water system should be emptied in the following way:

- shut off the water at the mains;
- open all hot and cold water taps;
- empty from the lowest point (where possible).

WARNING

Please ensure that the boiler in commissioned in line with all BENCHMARK BOOKLET REQUIREMENTS. Failure to do this may in validate the guarentee.

BOILER ADJUSTMENTS



STARTING STEP RLA P4

This trimmer is a slow ignition regulator and it is calibrated at minimum during factory test.

Use a small screwdriver for any adjustments. Turn clockwise to increase gas pressure to the burner at start-up (by setting the trimmer to maximum calibration pressure of modulator – see page 16).

Turn counter-clockwise to decrease gas pressure to the burner at start-up (by setting the trimmer to the minimum pressure at start-up will correspond to minimum calibration pressure of modulator –see page 16).

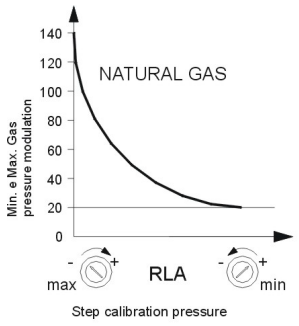
Through the RLA commutator you can verify the minimum gas pressure adjusted to the modulator. Remove the commutator from the MET-GPL selector located on the RAMIRE 2 circuit board and insert it on the RLA CM1 selector located on the same circuit board. Once pressure on the gauge has been checked, remove the commutator and insert it on the MET-GPL selector.

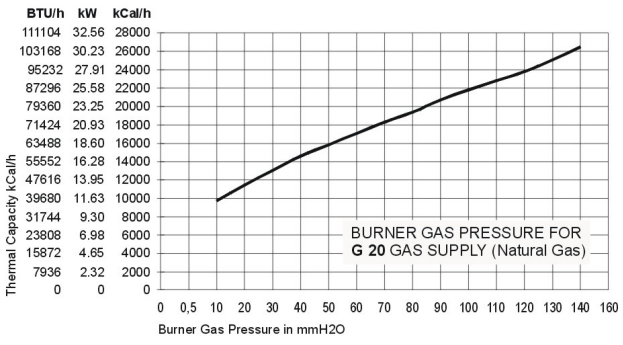
HEATING TIMER

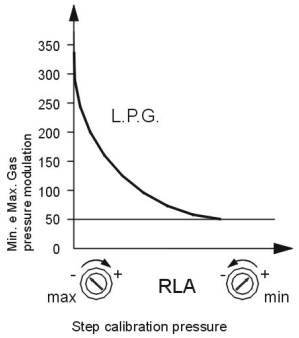
Delays start-up times of the various ignitions once the boiler has reached optimum temperature (the range of adjustment is from 0 to 6 minutes, the value set during testing at the factory, to 2.5 min.) Use a screwdriver to adjust the delay time. Turn clockwise to increase time and counter-clockwise to decrease time down to zero.

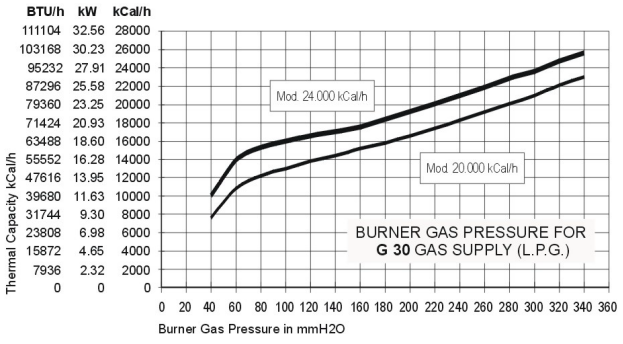
MAXIMUM HEATING TRIMMER.

The trimmer is calibrated at 80% of the max. rated output during factory testing. For the first ignition of the boiler, adjust according to heating power of the system. Use a screwdriver to adjust it. Turn clockwise to increase, counter-clockwise to decrease.









GAS TYPE CONVERSION

Conversion of the boiler from natural gas to LPG and vice versa must be performed by qualified personnel only. Conversion is performed as follows:

a) turn off the main power switch;
b) close the gas cock;
c) substitute the jets on the main burner as follows:

- undo the gas pipe 5 (fig.1) from the burner manifold using a size 24 spanner;
- separate the burner manifold 2 from the burner ramps 1 by undoing the 4 screws 3 using a Philips screwdriver;
- fit new jets 4 to the burner suitable for the type of gas the boiler will run on using a no. 7 spanner. The jets must be fitted with new gaskets;

GAS BURNER UNIT

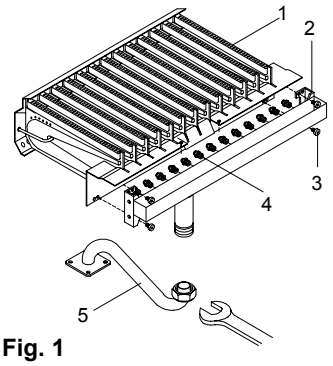
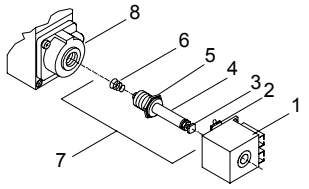


Fig. 1

PRESSURE MODULATOR



LEGEND:
1. Modulating coil
2. Fastening clips
3. Min. gas pressure adjustament srew
4. Max. gas pressure adjustament core
5. Core lock nut
6. Calibrator spring (blue natural gas) (grey L.P.G.)
7. Pressure modulator
8. Gas valve stabiliser

Fig. 2

Link Jumper on RAMIRE ciruit board

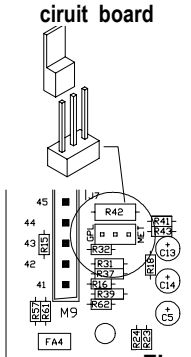


Fig. 3

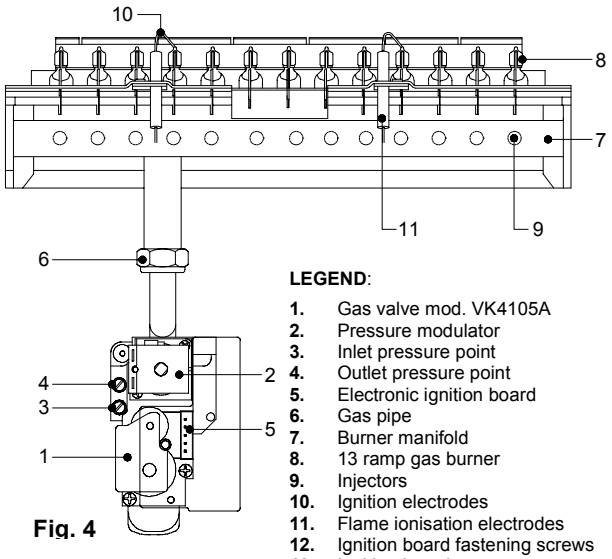


Fig. 4

LEGEND:
1. Gas valve mod. VK4105A
2. Pressure modulator
3. Inlet pressure point
4. Outlet pressure point
5. Electronic ignition board
6. Gas pipe
7. Burner manifold
8. 13 ramp gas burner
9. Injectors
10. Ignition electrodes
11. Flame ionisation electrodes
12. Ignition board fastening screws
13. Ignition board cover

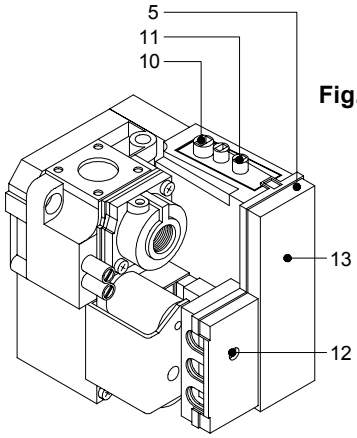


Fig. 5

- reassemble the entire burner unit. Use the soapy water method to check for gas leaks each time gas connections are dismantled and reassembled;

d) change the spring 6 (fig.2) to suit the type of gas used. The spring is located inside the stabiliser in the gas valve 8. To change the spring, open the fastening clips 2 and, after unhooking the coil 1, remove the modulator core 7 and change the spring; once this has been done reassemble everything;

e) move the jumper on the circuit board to suit the type of gas (fig.4).

f) replace the gas setting plate that indicates the type of gas and nominal pressure for the boiler. When converting the boiler to work with a different type of gas, remove the existing plate and replace it with the new one supplied in the conversion kit.

g) calibrate the new max. and min. settings for the modulator.

DATA TABLE

Models: **RSF 20 E**		**NATURAL GAS G 20**	**LIQUID BUTAN GAS G 30**	**LIQUID PROPANE GAS G 31**
Lower Wobbe index (15°C; 1013 mbar)	MJ/m3n	45.67	80.58	70.69
Rated feed pressure	mbar(mm c.w.)	20(204)	30(306)	37(377)
Minimum feed pressure	mbar(mm c.w.)	17(173.4)	20(204)	25(255)
Main burner: 13 jets - Ø jet	mm.	1.25	0.75	0.75
Consuption (15°C; 1013 mbar)	mc/h.	2.8		
Consuption (15°C; 1013 mbar)	Kg/h.		2.10	2.07

Models: **RSF 24 E**		**NATURAL GAS G 20**	**LIQUID BUTAN GAS G 30**	**LIQUID PROPANE GAS G 31**
Lower Wobbe index (15°C; 1013 mbar)	MJ/m3n	45.67	80.58	70.69
Rated feed pressure	mbar(mm c.w.)	20(204)	30(306)	37(377)
Minimum feed pressure	mbar(mm c.w.)	17(173.4)	20(204)	25(255)
Main burner: 13 jets - Ø jet	mm.	1.25	0.77	0.77
Consuption (15°C; 1013 mbar)	mc/h.	3.15		
Consuption (15°C; 1013 mbar)	Kg/h.		2.35	2.32

REGULATING THE GAS PRESSURE

Maximum and minimum modulation pressures.
N.B. The following operations must only be carried out by authorised personnel and are necessary when the boiler is converted to run on one type of gas or another or also in cases where the maximum pressure is not the same as that shown on the plate.

Calibration pressure.

Boiler Power Rating		Natural Gas		L.P.G.	
		Min.	Max.	Min.	Max.
20.000 kcal/h	mmbar	2	11	5	29
24.000 kcal/h	mmbar	4.2	13	5	31

KEY: (see fig. A)
1) Modulating coil
2) Fastening clips
3) Min. gas pressure adjustment screw
4) Max gas pressure adjustment core
5) Core lock nut
6) Calibrator spring
7) Modulator core
8) Gas valve stabiliser

Fig. B) Widen locking clips (2);

Fig. C) Slide out the coil (1) located above the gas valve;

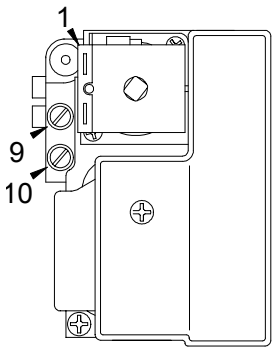
Fig. D) Tighten plastic screw (3) by turning it clockwise, be careful not to break it.

Fig. E) Use a no.17 spanner to undo the lock nut (5) which holds the core (4) of the coil in place; undo the screw and insert a pressure gauge;

Fig. F) Turn on the boiler, regulate the maximum pressure by turning the core (4) (clockwise to increase pressure, counter clockwise to decrease). Once maximum pressure has been set, tighten the lock nut (5);

Fig. G) Adjust minimum modulation pressure with the coil disengaged: slowly unscrew plastic screw (3) until the pressure gauge shows the minimum pressure required.

Fig. H) Once these operations are completed, seal the plastic screw with paint or enamel; reassemble the coil (1) by pressing it back into place; remove the gauge, tighten the screw and use a soapy solution to check for any eventual l leaks.



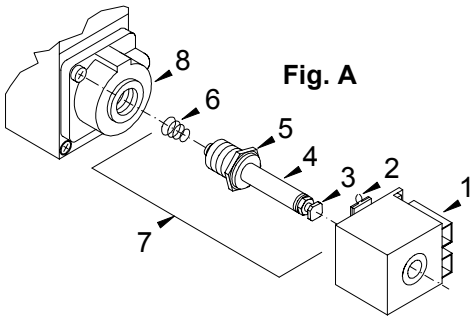


Fig. A

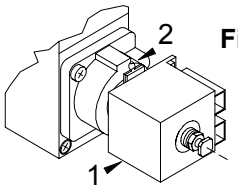


Fig. B

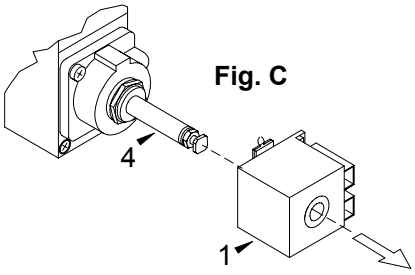


Fig. C

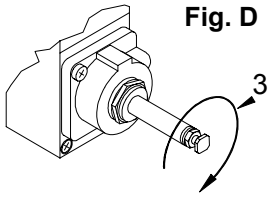


Fig. D

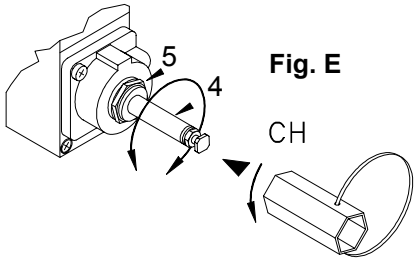


Fig. E

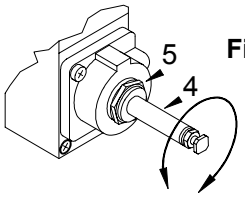


Fig. F

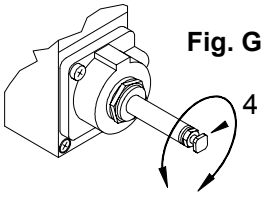


Fig. G

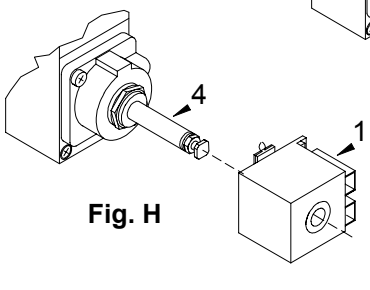


Fig. H

TECHNICAL DATA

DIFFERENTIAL AIR PRESSURE SWITCH FOR FAN CONTROL

To guarantee maximum safety in flue exhaust, a differential pressure switch is installed on the Room Sealed Combustion Chamber Model (wall-mounted, room-sealed boilers) and on forced draught boilers. This pressure switch automatically controls perfect functioning of the fan and the passage of both external air and exhaust flue pipes.

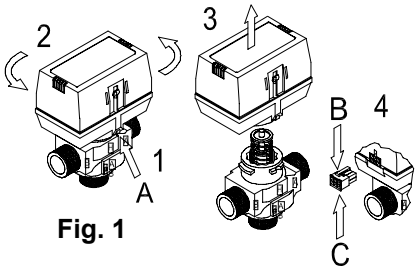


Fig. 1

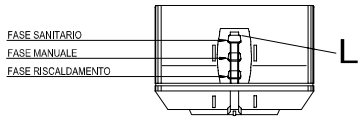


Fig. 2

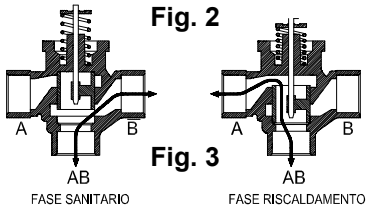


Fig. 3

DIVERTER VALVE VC 6012MG6000

The diverter valve is the device which controls the boiler switching from central heating to d.h. water circuit and vice versa. The diverter valve is fitted with a manual command lever **L** (see fig. 2) which, when set on the top position, towards the valve head, allows the boiler operating on the domestic hot water circuit while, when set on the low position, the boiler operates on the central heating circuit.

When the **L** lever is set on the central position, it allows the actuator on midway.

In this position, *to be used only in case of motor failure or damage*, both central heating and domestic hot water ports are open and both domestic hot water and central heating circuits are operating.

For restore the initial position, separate the actuator and the valve body following instructions from no.1 to no.4 (see fig.1).

To separate the motor from the valve body proceed as follows:

1. Press button **A** under the motor.
2. Simultaneously keep the **A** button pressed and turn the actuator counter-clockwise;
3. Lift off the motor
4. To disconnect the power supply cable press the **B** tap located on the pin **C**.

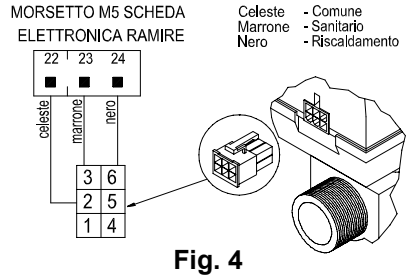


Fig. 4

See fig.4 to perform the electrical wiring of the diverter valve to the main printed circuit board.

LIMITER

The boiler is equipped with a variable flow limiter at the cold water inlet. The flow limiter can be adjusted by turning the screw (see fig.2 pos.**C**) in order to obtain the correct flow rate of domestic hot water for the specific boiler output.

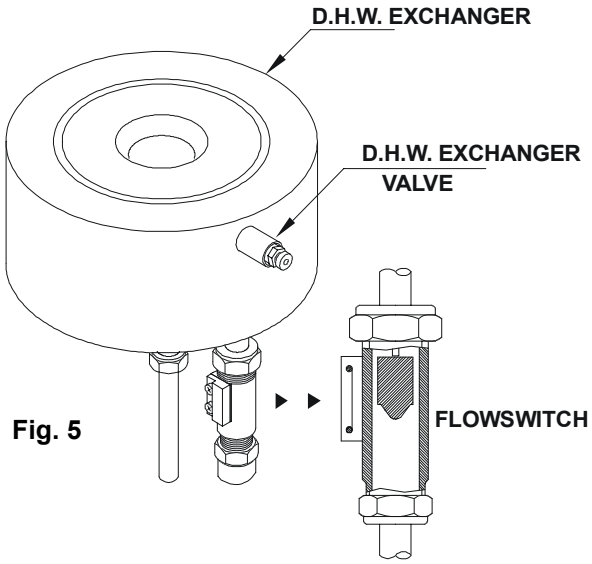


Fig. 5

FLOWSWITCH

This device gives precedence to domestic hot water and is fitted to boilers which supply instantaneous hot water. It allows conversion to hot water even with a minimum hot water demand (min. 2 litres), using an electromagnetic (see fig. 5) principle with electrical switching by means of a relay. The device is made of non-toxic, corrosion-proof ZYTEL 101 L plastic material which has type approval with non-toxic characteristics and is unaffected by hard water. In addition, a filter is fitted before the flowswitch and at the cold water inlet which eliminates any water impurities. These features guarantee that the flowswitch operation is highly efficient.

BY-PASS

All boilers are fitted with a by-pass. This element is essential in the following cases:

- if a two-way zone valve is installed
- if thermostat valves are installed in the radiators.

To adjust the by-pass proceed as follows (see fig.1 pos.**A**):
fit the screwdriver to the plastic screw of the by-pass, bearing in mind that when the slot of the screw is horizontal the by-pass is totally open, allowing all the water to pass, while when it is vertical the by-pass is totally closed. For partial by-pass flows, use the adjuster screw.

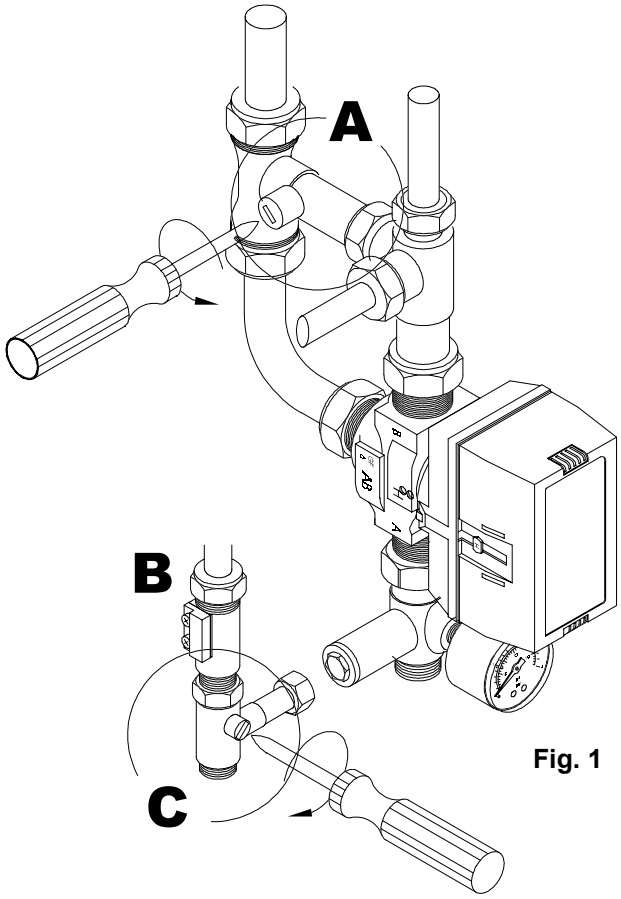


Fig. 1

MAIN COMPONENTS

mod. **RSF 20 E - RSF 24 E**

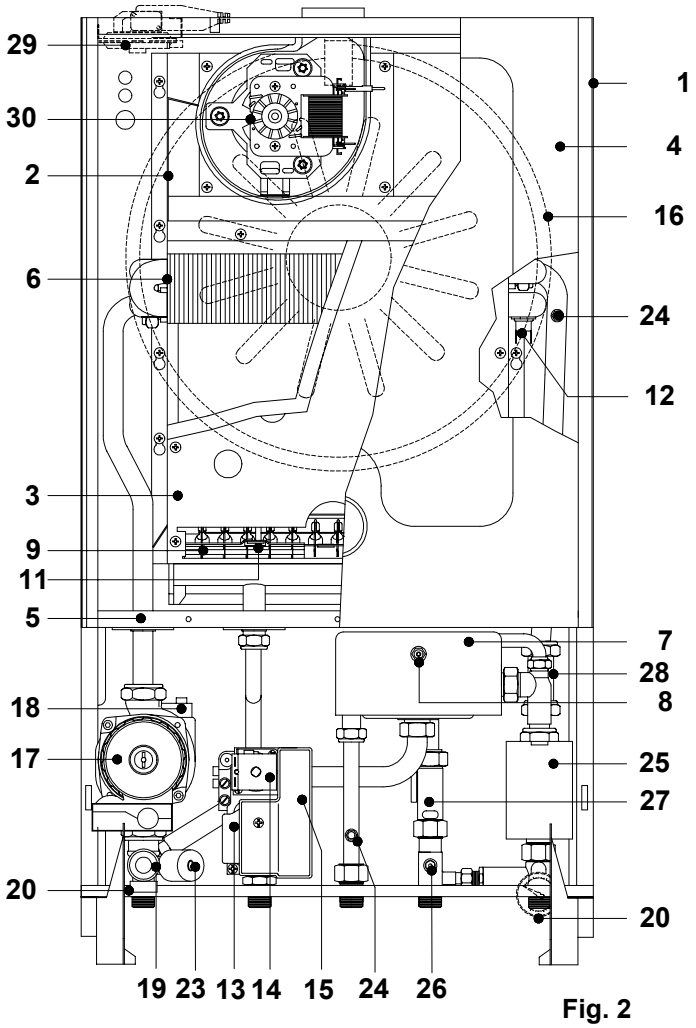


Fig. 2

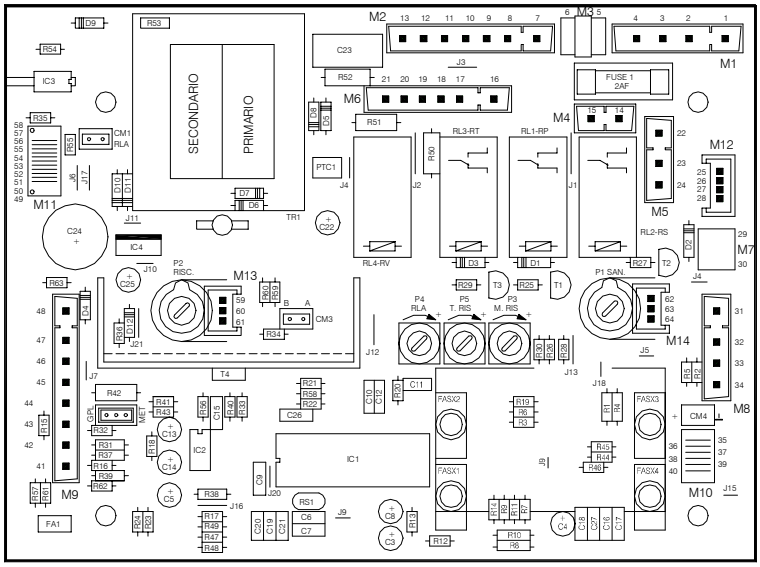
KEY

1. FRAME
2. FLUE HOOD – ROOM SEALED COMBUSTION CHAMBER
3. COMBUSTION CHAMBER
4. ROOM SEALED CHAMBER COVER
5. ROOM SEALED CHAMBER BACK
6. HEAT EXCHANGER Mod. 20.000
   HEAT EXCHANGER Mod. 24.000
7. D.H.W. EXCHANGER H20-H20 PB 21-73
   D.H.W. EXCHANGER H20-H20 PB 24-73
8. EXCHANGER AIR VENT VALVE
9. MULTIGAS BURNER WITH 13 RAMPS
10. IGNITION ELECTRODE
11. FLAME IONISATION ELECTRODE
12. HEATING SAFETY THERMOSTAT
13. ELECTRONIC GAS VALVE VK4105 A 1001
14. GAS PRESSURE MODULATOR
15. ELECTRONIC IGNITION BOARD
16. EXPANSION VESSEL
17. 3-SPEED CIRCULATION PUMP WITH AIR VENT
18. AUTOMATIC AIR VENT
19. HEATING CIRCUIT 3 bar PRESSURE RELIEF VALVE
20. DRAINING TAP
21. WATER PRESSURE GAUGE
22. WATER PRESSURE SWITCH
23. HEATING SENSOR
24. HOT WATER SENSOR
25. 3-WAY DIVERTER VALVE
26. FLOWSWITCH CONNECTION WITH FLOW LIMITER
27. ELECTRONIC FLOWSWITCH
28. BY-PASS
29. AIR PRESSURE SWITCH
30. FAN

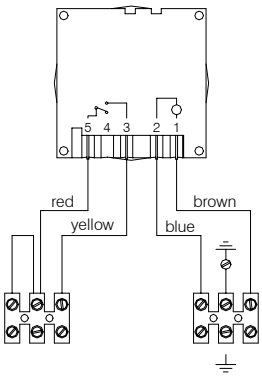
ELECTRICAL CONNECTION FOR ROOM SEALED COMB. CHAMBER ELECTRONIC IGNITION BOILER – mod. RSF 20 E - RSF 24 E

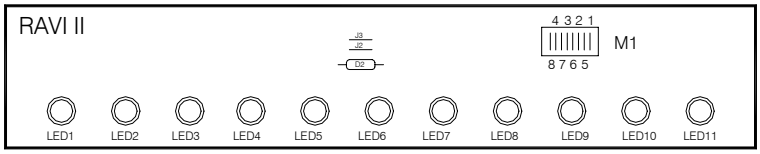
N.B. M1 CONNECTOR OF THE RAVI 2 CIRCUIT BOARD MUST BE CONNECTED TO THE M11 CONNECTOR OF THE RAMIRE 3 CIRCUIT BOARD.

RAMIRE 3 CIRCUIT BOARD STANDARD ON ALL MODELS



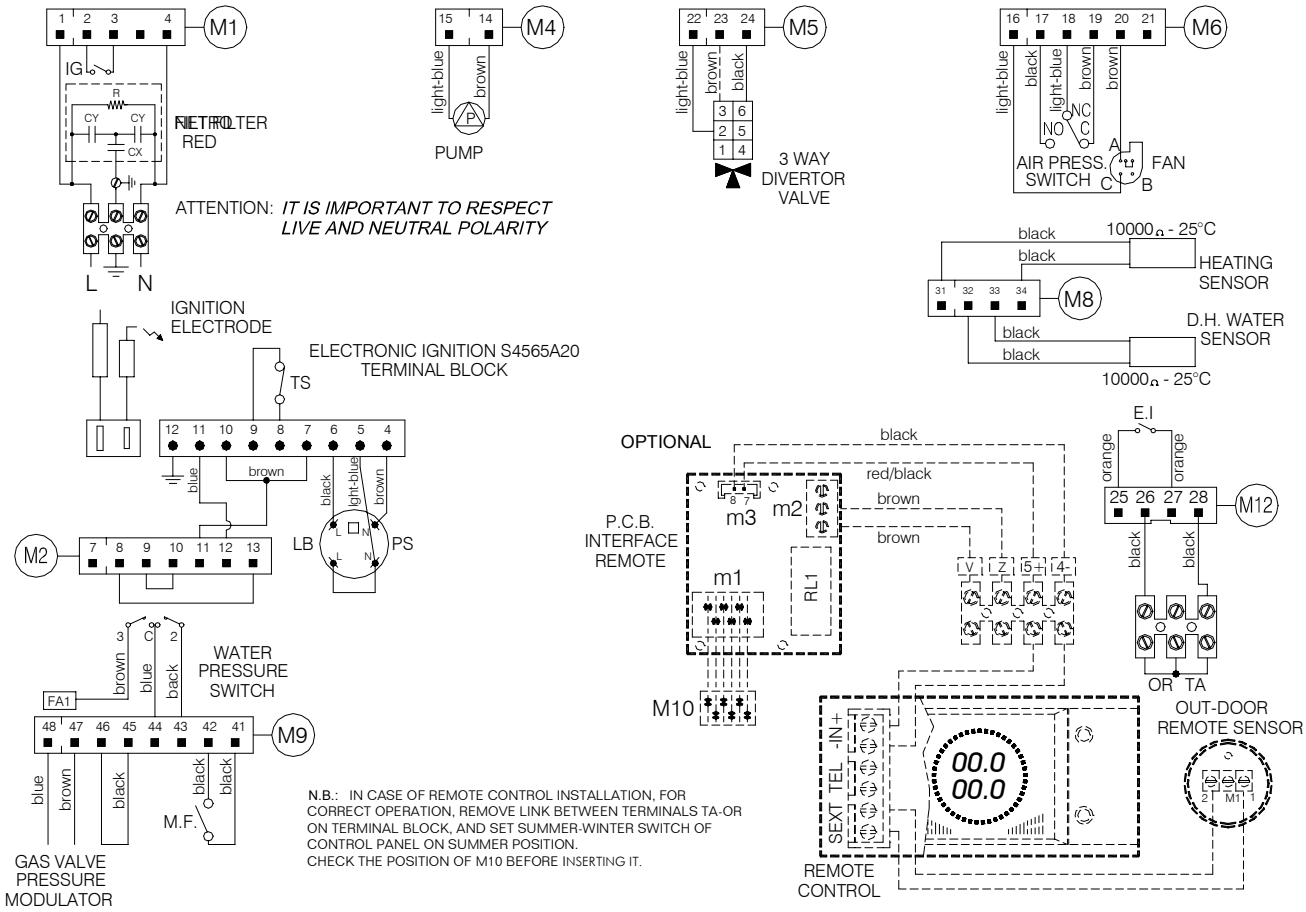
TIME CLOCK
Wiring diagram





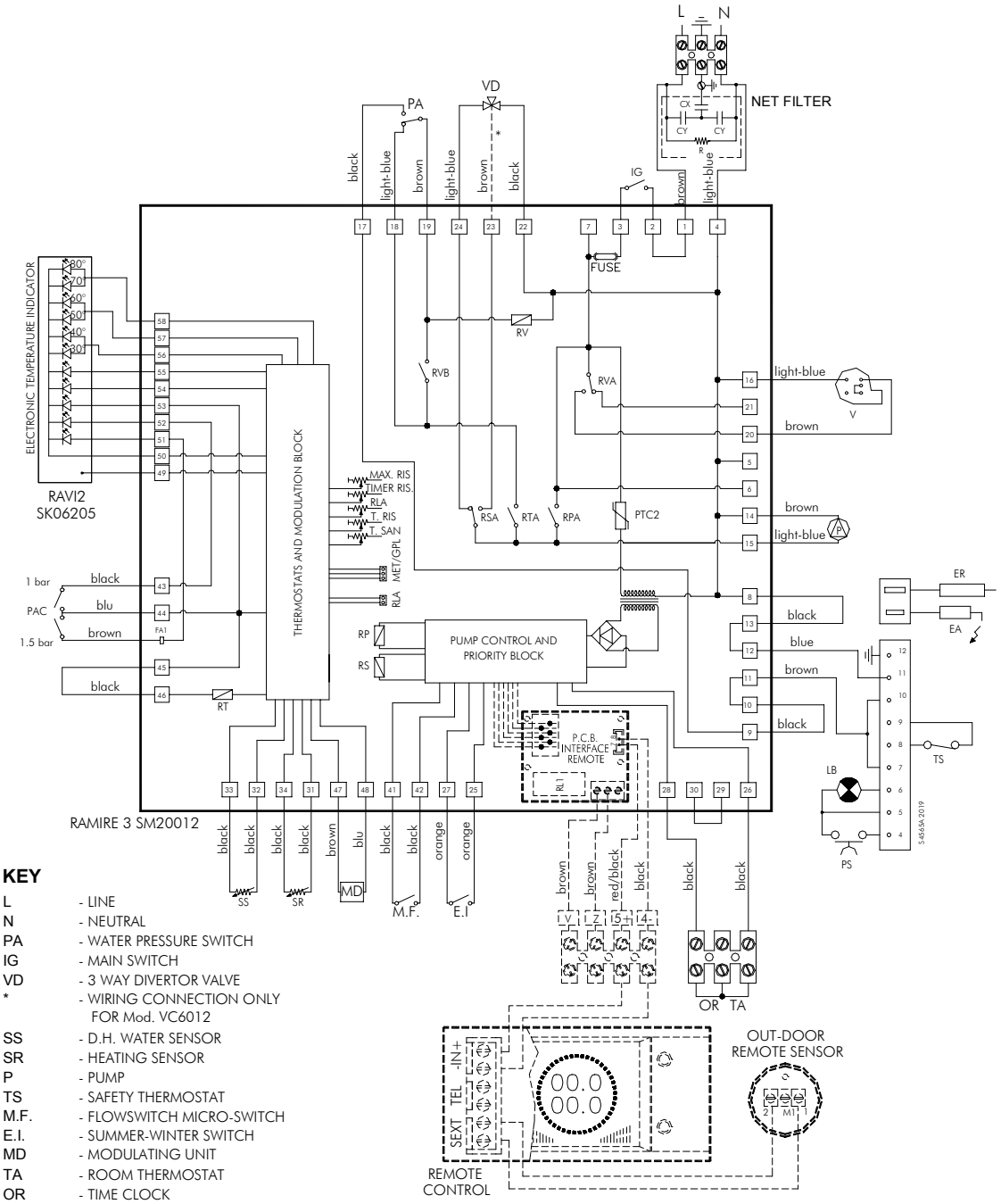
RAVI 2 CIRCUIT BOARD-ELECTRONIC TEMPERATURE INDICATOR WITH SELF-DIAGNOSTIC

WIRING OF COMPONENTS BY MEANS OF CONNECTORS



N.B.: IN CASE OF REMOTE CONTROL INSTALLATION, FOR CORRECT OPERATION, REMOVE LINK BETWEEN TERMINALS TA-OR ON TERMINAL BLOCK, AND SET SUMMER-WINTER SWITCH OF CONTROL PANEL ON SUMMER POSITION.
CHECK THE POSITION OF M10 BEFORE INSERTING IT.

WIRING DIAGRAM FOR
ROOM SEALED COMB. CHAMBER ELECTRONIC IGNITION BOILER – mod. RSF 20 E - RSF 24 E



KEY

L	- LINE
N	- NEUTRAL
PA	- WATER PRESSURE SWITCH
IG	- MAIN SWITCH
VD	- 3 WAY DIVERTOR VALVE
*	- WIRING CONNECTION ONLY FOR Mod. VC6012
SS	- D.H. WATER SENSOR
SR	- HEATING SENSOR
P	- PUMP
TS	- SAFETY THERMOSTAT
M.F.	- FLOWSWITCH MICRO-SWITCH
E.I.	- SUMMER-WINTER SWITCH
MD	- MODULATING UNIT
TA	- ROOM THERMOSTAT
OR	- TIME CLOCK
PS	- RESET BOTTON
LB	- LOCK-OUT INDICATOR
EA	- IGNITION ELECTRODE
ER	- IONISATION ELECTRODE
PA	- AIR PRESSURE SWITCH
V	- FAN
RS	- D.H. WATER RELAY
RP	- PUMP RELAY
RV	- FAN RELAY
RT	- THERMOSTAT RELAY
RPA	- PUMP RELAY CONTACT
RSA	- D.H. WATER RELAY CONTACT
RVA-RVB	- FAN RELAY CONTACT
RTA	- THERMOSTAT RELAY CONTACT

N.B.: IN CASE OF REMOTE CONTROL INSTALLATION, FOR CORRECT OPERATION, REMOVE LINK BETWEEN TERMINALS TA-OR ON TERMINAL BLOCK, AND SET SUMMER-WINTER SWITCH OF CONTROL PANEL ON SUMMER POSITION.
CHECK THE POSITION OF M10 BEFORE INSERTING IT.

MAINTENANCE

To keep the boiler in efficient and safe operating condition, we recommend you perform the following checks at least once a year:

- Check all seals on the gas side and replace gaskets to restore perfect seal as required.
- Check all seals on the water side and replace gaskets to restore perfect seal as required.
- Visually check combustion and the combustion chamber; dismantle and clean the chamber if necessary.
- Check the primary exchanger and clean it if necessary.
- Check functioning of gas safety systems: Insufficient gas safety device (flame detection sensor for electronic ignition boilers) thermocouple for pilot light boilers.
- Check functioning of heating safety systems: safety thermostat for temperature limit, safety sensor for pressure limit.
- Check the exhaust flue safety device
- Check the max. and min. modulation pressures and the modulation.
- Check that the electrical connection conforms to the description in the instruction manual for the boiler.
- Check the domestic hot water flow rate and temperature.

When dismantling the boiler casing, be careful when removing the side panels after having removed the front panel; the front panel is removed by undoing the lower and front fixing screws and then removing as shown in fig.1, lifting it and then pulling it away. The new side panels are connected to the frame by means of two hooks which correspond with two slots on the frame to ensure quick and efficient fixing

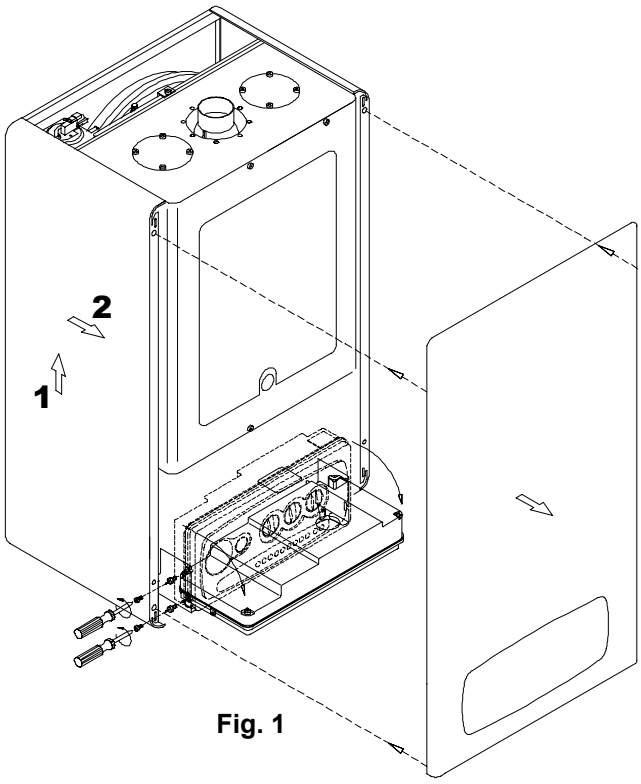


Fig. 1

UNPACKING

A. Set the packed boiler (fig. 2) down on the floor making sure that the arrow is pointing upwards and remove the sticking tape. Open the 4 flaps outwards.
B. Turn the boiler 180° supporting it by hand.
C. Lift the boiler with the packing pieces positioning it vertically in order not to damage the lower corners of the casing and remove the packing pieces. Lift the boiler by holding it at the back and proceed with installation.

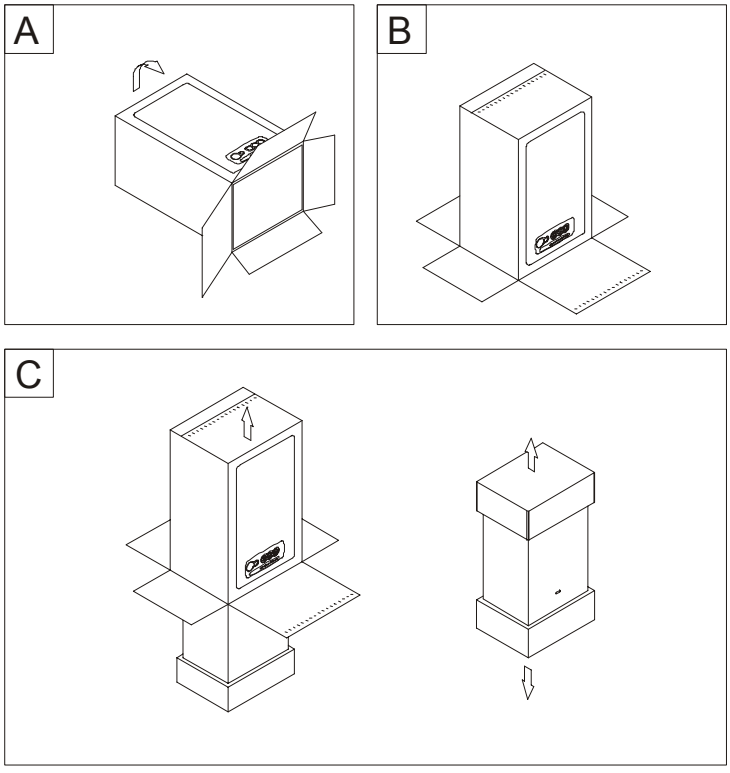


Fig. 2

N.B. It is recommended that the boiler be unpacked before installation. The manufacturer cannot be held responsible for any damage caused to the boiler due to incorrect handling of the boiler.

IMPORTANT!
The packing materials (cardboard) are recyclable.

IMPORTANT!
The inner packing materials (plastic bags, polystyrene foam, nails etc.) are potentially dangerous and must not be left within reach of small children.

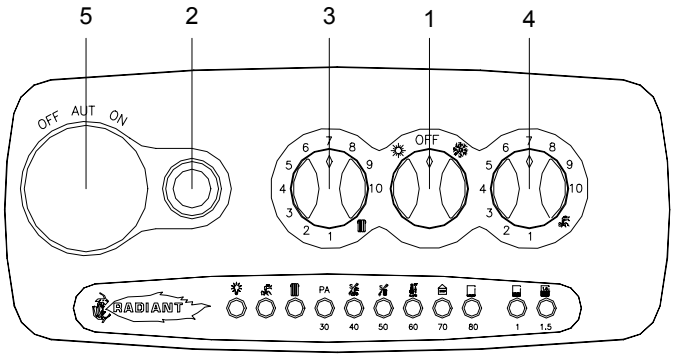


Fig. 1

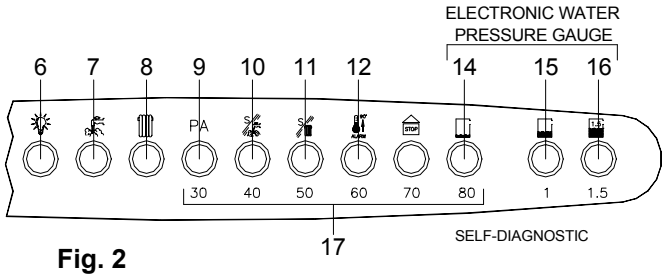
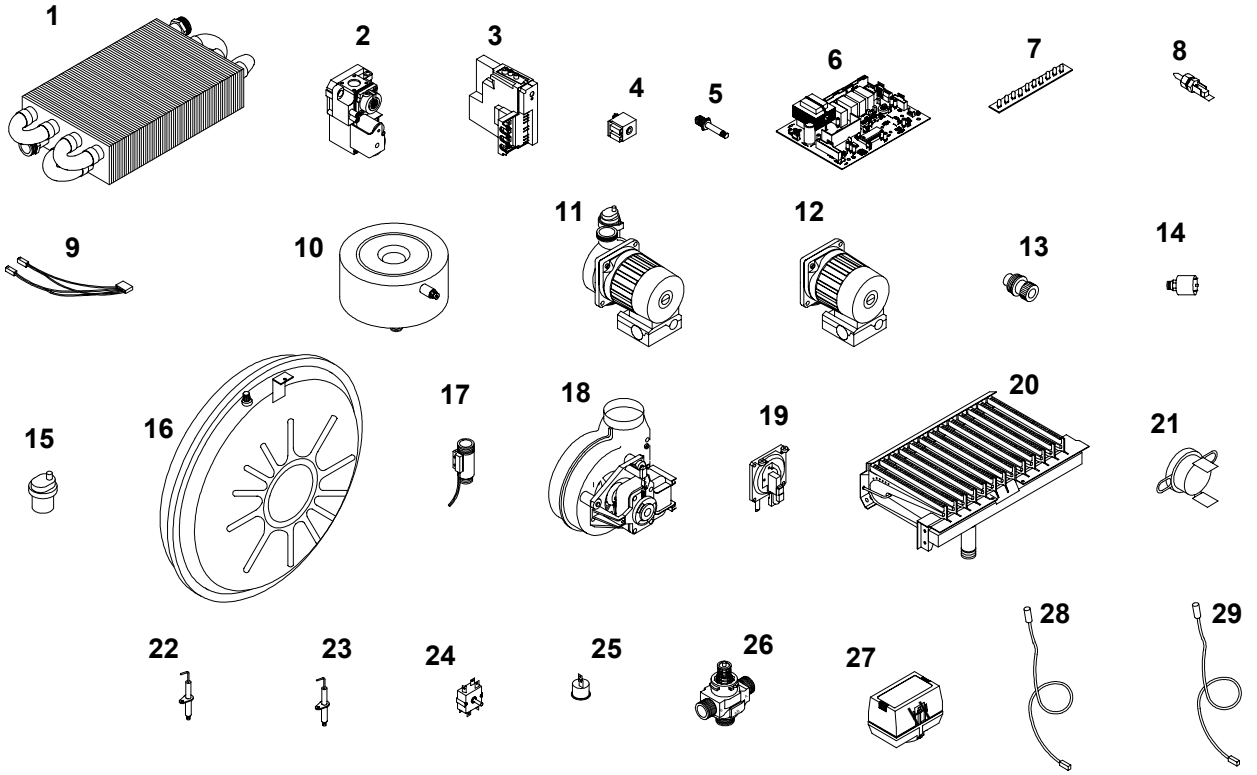


Fig. 2

	MALFUNCTION	POSSIBLE CAUSE	SOLUTION
1)	Light **6** (fig.2) is on but nothing works.	**a.** water pressure switch **b.** water pressure below 0.5 bar (light **14** fig. 2 flashing). **c.** RAMIRE circuit board damaged	**a.** replace it **b.** load water **c.** replace it
2)	Light **6** (fig.2) is on, the circulation pump is running, but the flame does not ignite	**a.** RAMIRE circuit board malfunction **b.** broken sensors (lights **10** or **11** fig. 2 flashing) **c.** gas valve failure (light **2** fig.1 on) **d.** ignition unit broken (light **2** fig.1 on) **e.** electric fan does not work (light **9** fig. 2 on) **f.** air switch does not work **g.** gas turned off (light **3** fig. 1 on) **h.** modulator regulated to below minimum (light **2** fig.1 on) **i.** ignition electrode broken (light **2** fig.1 on) **j.** ignition electrode wire detached (light **2** fig.1 on) limit thermostat broken or wrongly calibrated (light **2** fig. 1 on)	**a.** replace it **b.** replace it **c.** replace it **d.** replace it **e.** replace it **f.** replace it **g.** open gas cock **h.** adjust it **i.** replace it **j.** re-connect it **k.** replace it
3)	Light **6** (fig.2) is on, the circulation pump is running , the flame ignites but goes out after 10 seconds	**a.** flame ionisation electrode broken (light **2** fig.1 on) **b.** flame ionisation electrode wire detached, broken or damp (light **2** fig.1 on) **c.** ignition unit broken (light **2** fig.1 on) **d.** LIVE - NEUTRAL polarity inverted (light **2** fig.1 on) **e.** no earth connection (light **2** fig.1 on) **f.** power supply (LIVE - LIVE) (light **2** fig.1 on)	**a.** replace it **b.** re-connect or replace it **c.** replace it **d.** change over polarity **e.** make earth connection **f.** fit conversion kit
4)	Boiler on, temperature rises rapidly and extinguishes flame (light **2** fig.1 on)	**a.** circulation pump burned out or blocked **b.** air in system **c.** flowswitch jammed open **d.** heating system turned off	**a.** unblock or replace it **b.** bleed system **c.** unblock or replace it **d.** open heating system cut-off valve
5)	Noise as flame ignites	**a.** ignition electrode wrongly positioned **b.** RLA trimmer set too high **c.** modulator minimum too high **d.** dirty pilot burner **e.** dirty main burner	**a.** check the distance between burner and electrode is 2.5 - 3 mm. **b.** adjust it **c.** adjust it **d.** clean it **e.** clean it
6)	Boiler ignites but goes out when temperature is reached without modulating	**a.** modulator tube blocked **b.** modulator only calibrated at maximum **c.** RAMIRE circuit board breakdown	**a.** unblock or replace it **b.** re-calibrate **c.** replace it
7)	Boiler on (light **6** fig.2 on), selector switch 1 (fig.1) set to Winter, but radiators do not heat up	**a.** diverter valve blocked or broken **b.** valve VC 6012 connecting wires wrongly positioned	**a.** unblock or replace it **b.** connect wires correctly
8)	Boiler on (light **6** fig.2 on), but gas pressure at burner is always at minimum	**a.** broken modulator coil **b.** RAMIRE circuit board breakdown **c.** MAX. HEATING trimmer at minimum (only on Winter setting)	**a.** unblock or replace it **b.** replace it **c.** make adjustments
9)	No hot water when tap is turned on	**a.** cold water entry pressure below 0.3 bar **b.** dirty cold water entry filter **c.** microflowswitch broken or piston demagnetised	**a.** increase pressure **b.** clean filter **c.** replace

SPARE PARTS SHORT LIST

n°	CODE	DESCRIPTION	RSF 20 E	RSF 24 E
			Room Sealed Electronic Ignition	Room Sealed Electronic Ignition
1	58006LP	MAIN HEAT EXCHANGER Mod. 20.000 - 63 A	✓	
	58007LP	MAIN HEAT EXCHANGER Mod. 24.000 - 66 A		✓
2	36064LA	ELECTRONIC GAS VALVE VK4105 A 1035B	✓	✓
3	76616LA	ELECTRONIC IGNITION BOARD S4565 A 2019	✓	✓
4	18003LA	MODULATING COIL	✓	✓
5	97007LA	MODULATING UNIT	✓	✓
6	76623LA	PRINTED CIRCUIT BOARD RAMIRE 3 SM 20012	✓	✓
7	76622LA	INDICATORS P.C.B. RAVI 2 CE	✓	✓
8	73507LA	D.H.WATER – HEATING 1/8" SENSOR	✓	✓
9	31011LA	D.H.W. – HEATING SENSOR WIRE	✓	✓
10	20029LA	D.H. WATER EXCHANGER H20-H20 PC21	✓	
	20035LA	D.H. WATER EXCHANGER H20-H20 PC25		✓
11	24027LA	CIRCULATING PUMP GOLD 50V1 SHUL CLF6 W/ AIR VENT	✓	✓
12	24028LA	CIRCULATING PUMP MOTOR	✓	✓
13	96008LA	3 BAR PRESSURE RELIEF VALVE 1/2''	✓	✓
14	59010LA	WATER PRESSURE SWITCH 1/8"	✓	✓
15	96030LA	AUTOMATIC AIR VENT VALVE 5020 3/8''	✓	✓
16	95011LA	8 LT. EXPANSION TANK W/BRACKET	✓	✓
17	96007LA	ELECTRONIC FLOWSWITCH - 1/2" CONNECTIONS	✓	✓
18	37008LA	EXHAUST FAN 230V	✓	✓
19	59006LB	AIR PRESSURE SWITCH CE C6065AH1095	✓	✓
20	21001LA	GAS BURNER 13 R. 1,25 NATURAL GAS	✓	✓
	21002LA	GAS BURNER 13 R. 0,75 L.P.G.	✓	
	21004LA	GAS BURNER 13 R. 0,77 L.P.G.		✓
21	86006LA	SAFETY THERMOSTAT 95°C WATER	✓	✓
22	35007LA	IGNITION ELECTRODE x ELECTRONIC	✓	✓
23	35009LA	IONISATION ELECTRODE	✓	✓
24	47021LA	3 POSITION COMMUTATOR SWITCH R11C2X401	✓	✓
25	47014LA	LOCK-OUT INDICATOR 60118C00	✓	✓
26	96023LA	DIVERTER VALVE BODY VCZMG6000E	✓	✓
27	96022LA	DIVERTER VALVE VC6012 MOTOR	✓	✓
28	31054LA	IGNITION ELECTRODE CABLE x ELECTRONIC	✓	✓
29	31055LA	IONISATION ELECTRODE CABLE	✓	✓



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UK – Radiant Helpline – 01329.828555

The code of practice for the installation, commissioning & servicing of gas fires and wall heaters

Code 99943NA • September 2002

USER MANUAL

Model **RSF 20 E - RSF 24 E**

TYPE C ROOM SEALED

The code of practice for the installation, commissioning & servicing of gas fires and wall heaters

CE 0694

ENGLISH

Technical Specification **RADIANT BRUCIATORI S.p.A.** Montelabbate (PU) ITALY By Technical Department

BOILER OPERATION AND ADJUSTMENT PROCEDURES FOR USER

Before turning on the boiler read the following warnings carefully .
Make sure that the warranty booklet carries the stamp of the CORGI registered technician (you can check this by contacting corgi on 01256.372200) responsible for installing the boiler. Installation, starting up for the first time, adjustments and maintenance operations must all be carried out solely by qualified technicians. Incorrect installation may cause damage to persons, animals or property for which the manufacturer cannot be held liable.

WARNING!

⇒ ***Do not start the boiler unless you are sure it has been thoroughly tested by an authorised technician.***

⇒ ***Check that the regulations regarding air intakes and ventilation of the room where the boiler is installed have been fully complied with.***

⇒ ***The anti-freeze system will come into operation only if the boiler is in the* winter (❄) or summer (☼) *position (with selector switch 1 in fig. 1 turned to the summer or winter position) and the gas supply turned on. The manufacturer can accept no responsibility for damage to the boiler caused by lack of observation of these requirements.***

⇒ ***If the boiler should freeze up, under no circumstances attempt to turn it on but call the RADIANT HELP LINE – (1329.828555) immediately.***

LEGEND (see fig. 1)

1. SUMMER-WINTER ON-OFF SWITCH
2. LOCK-OUT INDICATOR
3. HEATING TEMPERATURE ADJUSTMENT KNOB
4. WATER TEMPERATURE ADJUSTMENT KNOB
5. SPACE FOR ADDING AN OPTIONAL TIMER

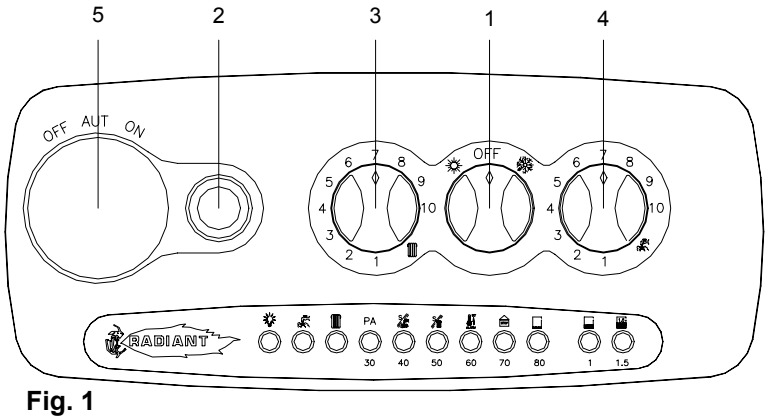

Fig. 1

SELF- DIAGNOSTIC LEGEND (see fig. 2)

6. OPERATING/ POWER INDICATOR
7. DOMESTIC HOT WATER OPERATION
8. HEATING OPERATION
9. FLASHING LIGHT DENOTING AIR PRESSURE SWITCH FAILURE
10. FLASHING LIGHT DENOTING DOMESTIC WATER SENSOR FAILURE
11. FLASHING LIGHT DENOTING HEATING SENSOR FAILURE
12. FLASHING LIGHT DENOTING 90° C MAX TEMPERATURE SENSOR FAILURE
13. FLASHING LIGHT DENOTING LACK OF WATER IN SYSTEM
14. WATER PRESSURE LEVEL 1 BAR
15. WATER PRESSURE LEVEL 1.5 BAR
16. ELECTRONIC TEMPERATURE INDICATOR

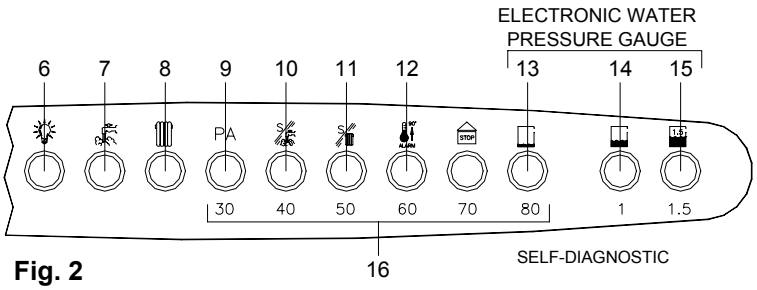

Fig. 2

Turning on procedure for electronic ignition

- turn on the gas cock situated under the boiler grill;
- turn selector switch **1** to the ❄ symbol denoting winter (see fig.1);
- make sure that **6** light is ON (see fig. 2) and the no.**14** or no.**15** lights are ON (see fig. 2);

if light no.**13** flashes, it means water deficiency in the system: open the tap on the filling loop and fill the system until a pressure of 1.5 bar has been reached (light no.**15** ON; see fig. 2) and then **close the tap**.

- The automatic ignition system will turn the burner on.

It may be necessary to repeat the procedure a few times to purge air from the pipes. To repeat the ignition procedure press release button **2** (see fig. 1 pag. I) and then try the ignition procedure once again. If the boiler does not start, press the reset button (see fig. 1 pag. I). **IMPORTANT** should the boiler fail to ignite **wait 3 minutes** before pressing button again.
If locking-out persists, turn boiler OFF and call **RADIANT HELP LINE - 01329.828555.**

Turning off boilers with electronic ignition :

- turn selector switch **1** to the **OFF** position;
- if the boiler will not be used for long periods it is recommended that the gas cock under the boiler grill be shut off.

Summer-winter use (see fig. 1 pag. I).

- turn the selector switch **1** to the ❄ program to operate the boiler in the WINTER position for both heating and hot water;
- turn the selector switch **1** to the ☼ program to operate the boiler in the SUMMER position for just hot water;
- if the system has a room thermostat, set this to the temperature required;

REGULATING THE HEATING TEMPERATURE

The heating temperature is regulated by turning knob **3** (see fig. 1 pag. I).

- turn it counter-clockwise to lower the temperature.
- turn it clockwise to raise the temperature.
- the temperature range can be adjusted from a minimum of 30°C to a maximum of 80°C.

REGULATING THE HOT WATER TEMPERATURE

The hot water temperature is regulated by turning knob **4** (see fig. 1 pag. I).

- turn it counter-clockwise to lower the temperature
- turn it clockwise to raise the temperature
- the temperature range can be adjusted from a minimum of 35°C to a maximum of 60°C.

RESETTING THE BOILER

If boiler locks-out (fig. 1 page I, indicator no.2 ON) proceed as follows:

- wait approximately 3 minutes from the last shut down
- press red reset button (2) (fig.1 page I)
- The boiler comes into operation.
- If lock-outing persists, turn the boiler OFF and call the RADIANT HELP LINE - 01329.828555.

WARNINGS FOR THE USER

To keep the boiler in efficient and safe operating condition, carefully follow the instructions listed below:

- Have normal maintenance performed at least once a year by one of our authorised service centres (a fee will be charged), combustion tests are necessary every two years and should again be carried out by a qualified technician authorized by the manufacturer (in accordance with D.P.R. 412 regulations, 26-08-93).
- Periodically check system pressure on the pressure gauge and check that pressure is between 0.5 - 1.5 bar with the system cold.
- Do not clean the casing or internal parts of the boiler with reducing agents or solvents. Clean only with soap and water.
- Never leave flammable materials in the immediate vicinity of the boiler.
- For greater comfort and more rational use of heat, it is advisable to install a room thermostat connected to a clock timer to turn the boiler on and off during the course of the day or week (in accordance with D.P.R. 412 regulations, 26-08-93).
- The boiler is equipped with an anti-freeze system, which is operative with switch 1 in either SUMMER ☼ or WINTER ❄ position, even if the room thermostat is set at zero, as long as there is electrical power and gas feed.
- Please ensure you have a fully completed BENCHMARK BOOKLET and this is kept with your installation instructions.

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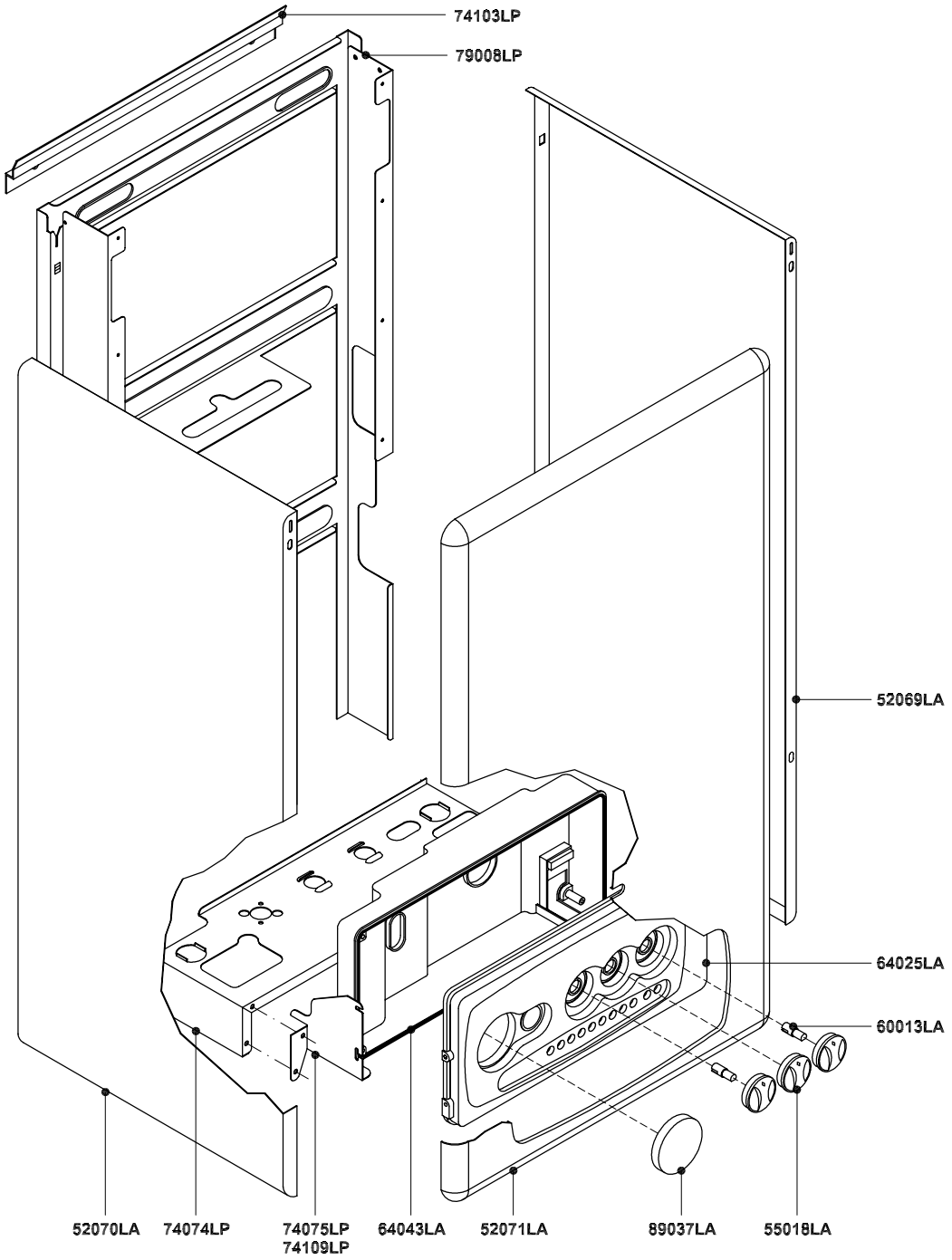
UK – Radiant Helpline – 01329.828555

The code of practice for the installation, commissioning & servicing of gas fires and wall heaters

Code 99947NA • November 2002

Rev.	Description	Date



Pos.	Code	Description	U.M.	Qt.
			G00.02.2901	methane
			G00.02.2902	L.P.G.
				heavy oil

RADIANT BRUCIATORI S.p.A.

Description:
Wall hung boiler - Spare parts
FRAME and CASING COMPONENTS

Date: 29.01.2001
Scale: ---
Department: tecnico

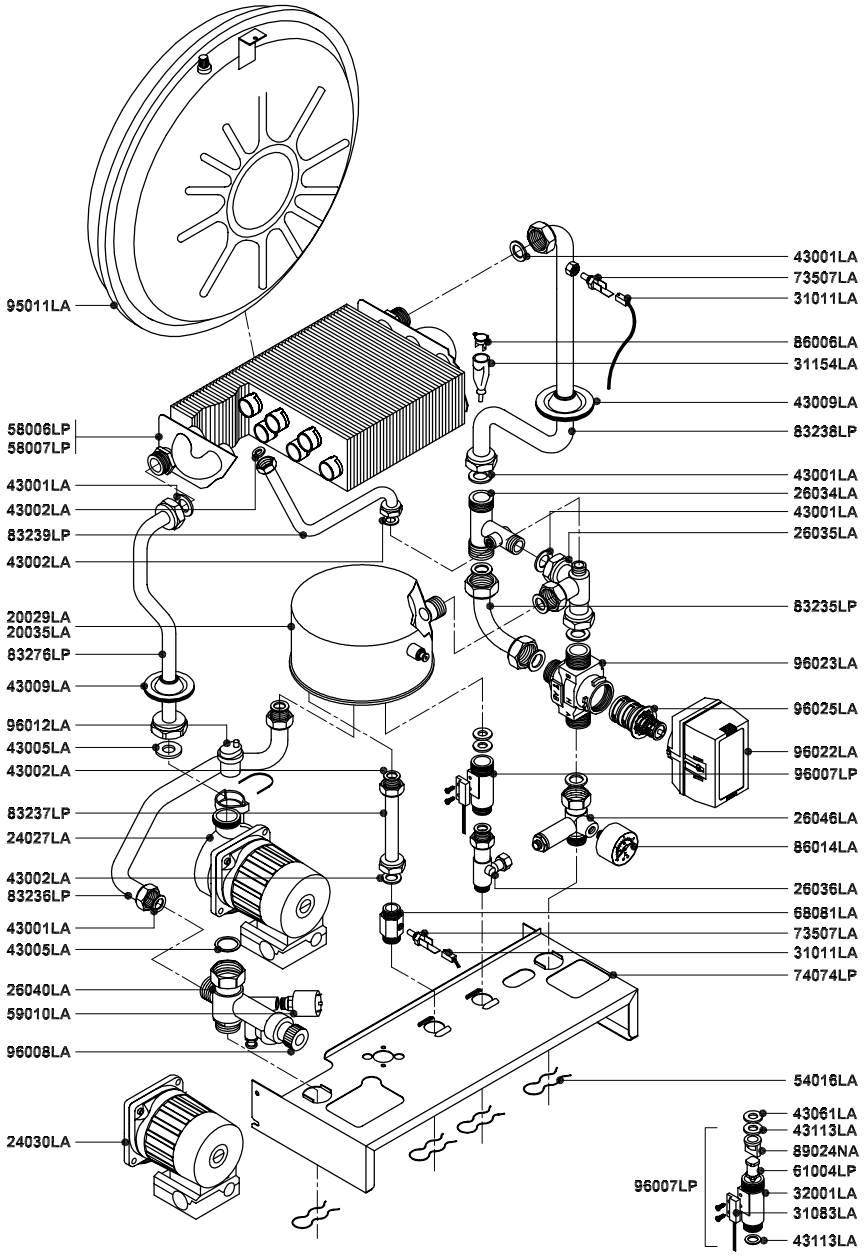
Code no.:

Object / model:
mod. **RSF 20 E**
Room sealed - electronic ignition

Designed by:
Controlled by:
Approved by:

Sheet no.: **B0045_AB1**

Rev.	Description	Date



Pos.	Code	Description	U.M.	Qt.
			G00.02.2901	methane
			G00.02.2902	L.P.G.
				heavy oil

RADIANT BRUCIATORI S.p.A.

Description:
Wall hung boiler - Spare parts
HYDRAULIC SYSTEM

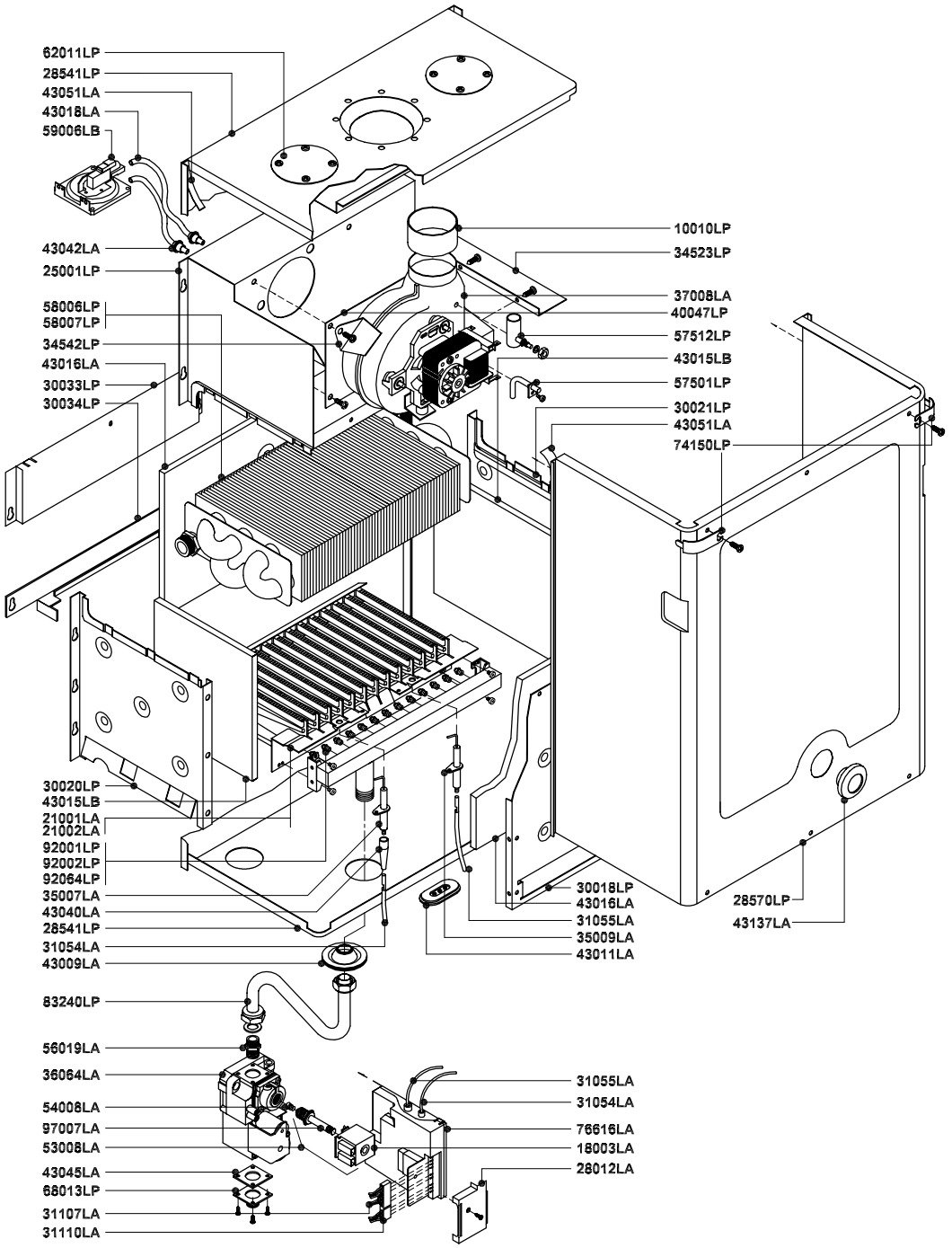
Object / model:
mod. **RSF 20 E**
Room sealed - electronic ignition

Date: 29.01.2001
Scale: ---
Department: tecnico
Designed by:
Controlled by:
Approved by:

Code no.:

Sheet no.: **B0046_AB1**

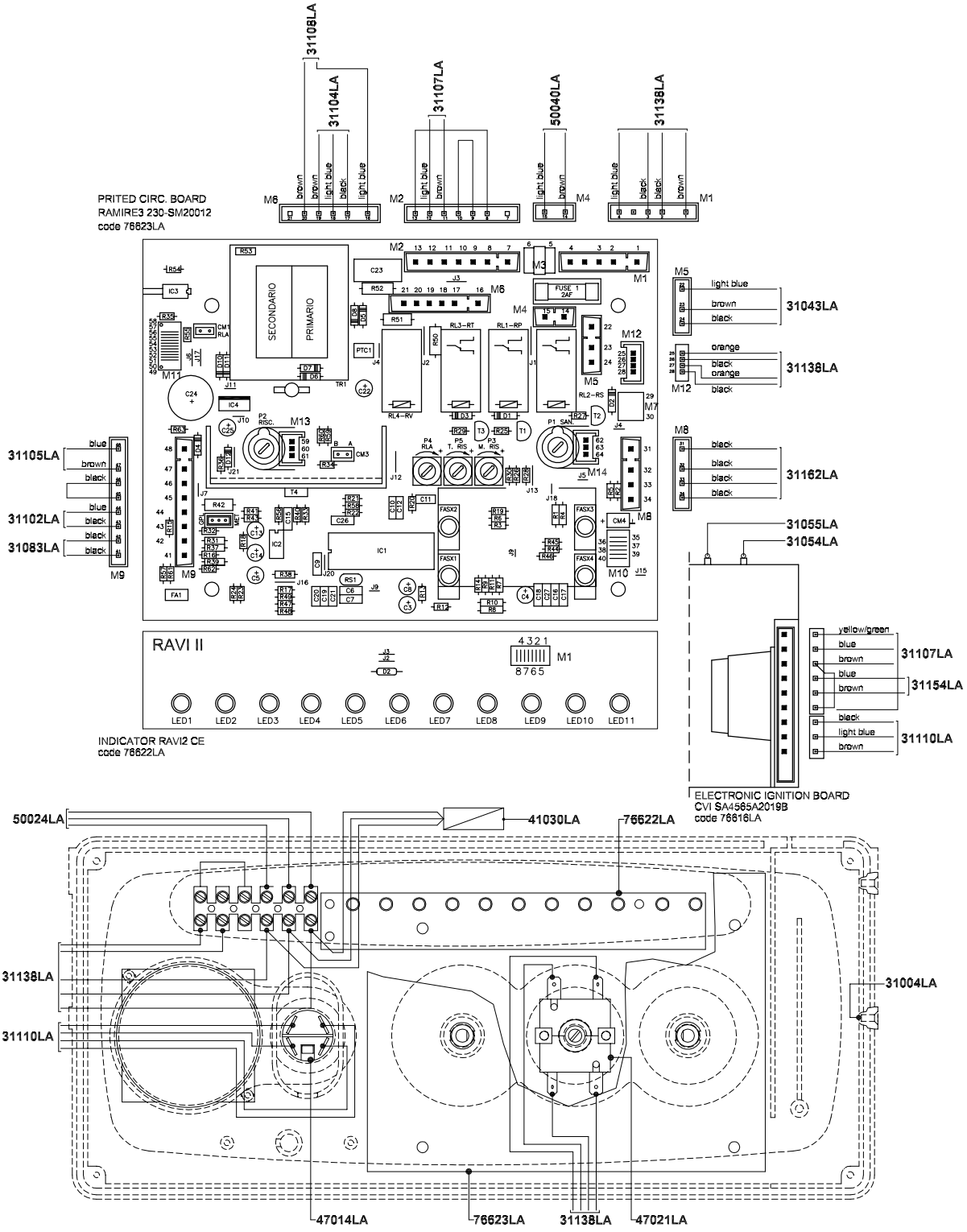
Rev.	Description	Date



Pos.	Code	Description			U.M.	Qt.
		Description:	Date: 29.01.2001	Code no.:	G00.02.2901	methane
		Wall hung boiler - Spare parts	Scale: ---		G00.02.2902	L.P.G.
		THERMAL SYSTEM (ROOM SEALED - ELECT. IGNITION)	Department: tecnico			
		Object / model:	Designed by:			heavy oil
		mod. **RSF 20 E**	Controlled by:			
		Room sealed - electronic ignition	Approved by:		Sheet no.: **B0047_AB1**	

RADIANT BRUCIATORI S.p.A.

Rev.	Description	Date



Pos.	Code	Description		U.M.	Qt.
		Description: **Wall hung boiler - Spare parts** *ELECTRIC SYSTEM (ROOM SEALED - ELECTR. IGNITION)*	Date: 29.01.2001	G00.02.2901	methane
			Scale: ---	G00.02.2902	L.P.G.
			Department: tecnico		
		Object / model: mod. **RSF 20 E** Room sealed - electronic ignition	Designed by:		heavy oil
			Controlled by:		
			Approved by:	Sheet no.:	**B0048_AB1**

RADIANT BRUCIATORI S.p.A.

Code no.:

Heat technology since 1959

INSTALLATION,
AND MAINTENANCE MANUAL
FOR GAS FIRED, WALL-HUNG BOILERS

Model **RSF 30 E**

TYPE C ROOM SEALED

SEDBUK BAND D

The code of practice for the installation, commissioning & servicing of gas fires and wall heaters

CE 0694

TA01A011.B1003

INDEX

THE FRIENDLY POWER OF HEAT

Thank you for choosing RADIANT

Declaration for purposes of Art. 7 of Law 46 of 5 April 1990.
RADIANT BRUCIATORI S.p.A. hereby declares that all of its products are constructed to industry standards as required by the Article in question and by Article 5 of the law in effect (D.P.R. no. 447/97).

RADIANT BRUCIATORI S.p.A. products are type tested **EC.**

All **RADIANT** boilers are constructed according to UNI - CIG **(EC)** norms. The materials used, such as copper, brass, and stainless steel form a compact, homogeneous, highly functional unit that is easy to install and simple to operate. The wall-mounted boiler is equipped with all of the approved accessories required to make it a true, independent heating plant for home heating and for the production of hot water for domestic needs. All boilers are fully inspected, and come with a certificate of quality signed by the inspector and with a warranty certificate. This booklet must be read carefully and stored in a safe place, accompanying the boiler at all times**.**

RADIANT BRUCIATORI S.p.A. declines any and all responsibility for misinterpretations of this booklet deriving from any translations of same.
RADIANT BRUCIATORI S.p.A. will not be responsible for non-observance of the instructions contained in this booklet or for the consequences of any action not specifically described herein.

INSTALLATION INSTRUCTIONS - WARNINGS

THIS INSTALLATION, USE, AND MAINTENANCE MANUAL IS AN ESSENTIAL AND INTEGRAL PART OF THE PRODUCT, AND MUST ALWAYS BE KEPT NEAR THE DEVICE.
THE WARNINGS CONTAINED IN THIS SECTION ARE ADDRESSED BOTH TO THE USER AND TO INSTALLATION AND MAINTENANCE PERSONNEL.
THE USER WILL FIND INFORMATION ON OPERATION AND LIMITS OF USE IN THE ACCOMPANYING MANUAL, WHICH SHOULD BE READ VERY CAREFULLY.
STORE THE MANUAL CAREFULLY FOR FUTURE REFERENCE**.**

1) GENERAL WARNINGS

INSTALLATION MUST BE PERFORMED IN OBSERVANCE OF CURRENT NORMS, ACCORDING TO THE CONSTRUCTOR'S INSTRUCTIONS, AND BY PROFESSIONALLY QUALIFIED PERSONNEL.

THE INSTALLATION INSTRUCTIONS MANUAL MUST BE ALWAYS ACCOMPANY THE BOILER.

PROFESSIONALLY QUALIFIED PERSONNEL ARE THOSE HAVING TECHNICAL COMPETENCE IN THE SECTOR OF APPLICATION OF THE DEVICE (CIVIL OR INDUSTRIAL), AND, IN PARTICULAR, THE CONSTRUCTOR'S AUTHORISED SERVICE CENTRES.

INCORRECT INSTALLATION MAY CAUSE DAMAGE TO PERSONS, ANIMALS, OR PROPERTY, FOR WHICH THE CONSTRUCTOR ASSUMES NO LIABILITY.

- After completely removing the packing, make sure that the contents are in perfect condition.
- In case of doubt, do not use the equipment. Consult the supplier.
- Packing materials (cardboard carton, wooden crate, nails, clips, plastic bags, polystyrene, etc.) are potentially dangerous and must be kept away from children.
- Before performing any cleaning or maintenance operation, turn off the unit by means of the mains switch and/or by means of the appropriate cut-off devices.
- Do not block the air intake or heat dissipation grates.
- In the event of breakdown and/or poor functioning of the device, turn it off and do not attempt to repair it or take any direct action. Refer to professionally qualified personnel only.
- Any repairs must be performed exclusively by a service centre authorised by the constructor, and with original spare parts only.
- Non-observance of the above instruction may compromise the safety of the device. To guarantee efficient and correct operation, the device should undergo period maintenance by professionally qualified personnel according to the constructor's instructions.
- Whenever the device is to be put out of service, secure all potentially hazardous parts to prevent accidents or damage.
- If the device is sold or transferred to another owner, or if you move and leave the boiler, make sure that this booklet stays with the boiler so that it may be consulted by the new owner and/or by the installer.
- Use only original spare parts for all devices with optionals or kits (including electrical ones).

WARNING: this device must be used for its intended purpose, i.e., heating and production of domestic hot water. Any other use is improper and therefore dangerous. The constructor will have no contractual or extracontractual liability for damage caused by incorrect installation and/or use or by non-observance of instructions supplied by the constructor.

This device must be used exclusively with a sealed central heating system equipped with an expansion vessel.

2) WARNINGS REGARDING INSTALLATION

Warranty expires **12 months from date of installation and in all cases no later than 18 months from date of construction**. First start-up must be performed by **authorised personnel only**. For any operation on the hydraulic, gas, or electrical circuit regarding the heating unit, refer to **authorised technicians only and use original spare parts only**. Wall-mounted boilers are not to be installed in damp rooms, and must be protected against sprays or jets of water or other liquids to prevent malfunctions of the electrical and heating devices. They must not be exposed to direct steam from cookers, and nothing must be placed on top of them. This heating unit has been constructed to heat the home and to produce hot water. **The constructor declines all responsibility for incorrect installation and/or use of the device.** Do not leave the device on when it is not being used: **close the gas cock and turn off the mains switch**. If you smell gas in the room in which the device is installed, do not operate any electrical switches, telephones, or any other device that might cause a spark. Immediately open doors and windows to create an air current to clear the room. Close the main gas cock (at the meter) or the cylinder cock, and request immediate technical service.
Do not tamper with the device.

SYSTEMS WITH THERMOSTATS

A by-pass must be installed in heating systems with radiators thermostats.
As required by current norms, these devices must be installed by **qualified personnel only**, who must respect norms **UNI-CIG 7129 and 7131** and revisions, fire department regulations, and requirements of the local gas company. Before installing the boiler, make sure that the water and heating systems are compatible with its output. The room must be properly ventilated by means of an air intake (see UNI 7129/92 and UNI 7129/95 FA).
The air intake must be at floor level open flue only, at a point where it cannot be obstructed, and protected by a grate that does not reduce the useful section of flow.
The use of air flows from adjacent rooms is permitted as long as such rooms are in depression with respect to the outside and as long as there are **no wood-burning fireplaces or fans** installed there. If the boiler is to be installed externally (for example, on balconies or terraces), make sure that it is protected against atmospheric agents to prevent damage to components and voiding of the warranty. In such cases we recommend building a heat compartment to protect the boiler against inclement weather.
Check the technical data on the packing and on the plate located inside the front casing. Check that the burner is suitable for use with the type of gas available.
Make sure that all pipes and connections are perfectly sealed and that there are no gas leaks.
All pipework should be chemically flushed to remove any residues that might negative effect the operation of the boiler.

3) GENERAL WARNINGS BASED ON TYPE OF POWER SUPPLY

POWER SUPPLY
Electrical safety is achieved only when the device is correctly and efficiently earthed as per current safety norms (IEC 64-8 Electrical Part).

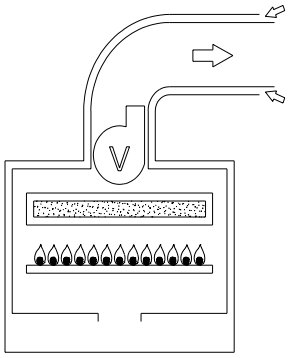
- This fundamental safety requirement must be checked. In case of doubt, request a check of the electrical system by professionally qualified personnel. The constructor will not be liable for any damage caused by lack of or improper earthing of the system.
- Have professionally qualified personnel check that the electrical system is adequate for the maximum absorbed power of the device (indicated on the plate). In particular, make sure that the section of the system wires is suitable for the maximum absorbed power of the device.
- Do not use adapters, multiple sockets, and/or extension cords to power the device from the electrical mains.
- Provide a unipolar switch as required by current safety regulations to connect the device to the mains.
- The use of any electrical device requires the observance of some fundamental rules, such as:
- do not touch the device with wet or damp parts of the body and/or with bare feet
- do not pull on electrical cables
- do not expose the device to atmospheric agents (rain, sun, etc.) unless specifically provided for
- do not allow the device to be used by children or anyone unfamiliar with its operation
- The power cable must not be replaced by the user.
- If the cable becomes damaged, turn off the device and have the cable replaced by professionally qualified personnel only.
- If you decide not to use the device for an extended length of time, turn off the mains switch that feeds all components of the system using electrical energy (pumps, burner, etc.).

TECHNICAL DATA

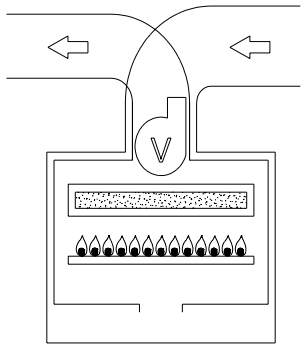
Type C unit

Type C devices are devices in which the combustion circuit (air intake, combustion chamber, exchanger, combustion exhaust) is sealed off from the place where they are installed.

CENTRAL HEATING - DOMESTIC HOT WATER
sealed combustion circuit type
RSF 30 E - electronic ignition



C32 Coaxial vertical
C12 Coaxial horizontal

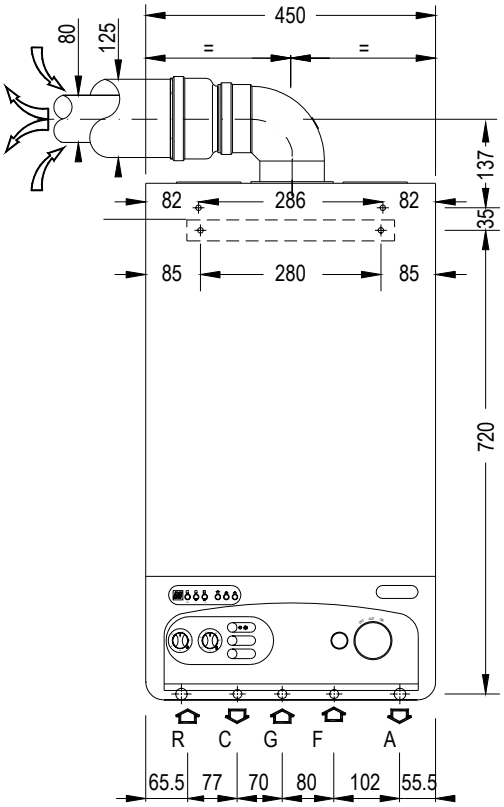


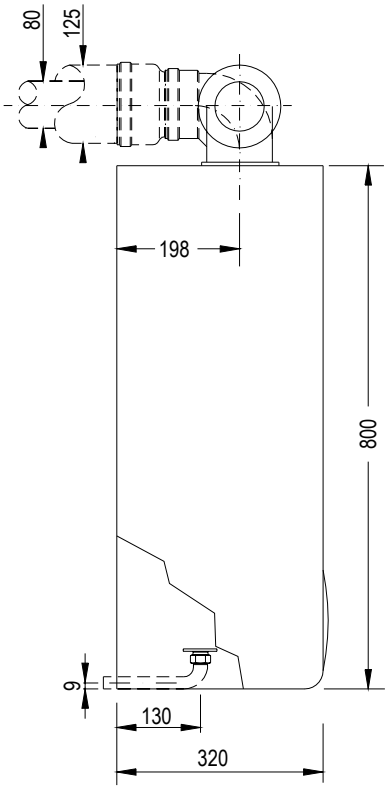
C52 Double

Technical data

MODEL		RSF 30 E
Maximum rated input	kcal/h	29670
	kW	34.50
	BTU/h	117731
Minimum rated input	kcal/h	16340
	kW	19
	BTU/h	64837
Maximum rated output	kcal/h	27440
	kW	31.90
	BTU/h	108882
Minimum rated output	kcal/h	14560
	kW	16.90
	BTU/h	57774
Heating temperature adjustment	°C	30-80
Max. working pressure (heating)	bar	3
Min. working pressure (heating)	bar	0.3
Expansion vessel capacity (initial pressure 1 bar)	Litres	10
Hot water flow rate Δt 30°	Litres	15.24
Max. working pressure (water)	bar	6
Min. working pressure (water)	bar	0.5
Width	mm.	450
Height	mm.	800
Depth	mm.	320
Weight	Kg.	49
Coaxial exhaust flue diameter	Ø	125/80
Double exhaust flue diameter	Ø	80/80
Flow/return connections	Ø	3/4" - 3/4"
Cold water connections	Ø	1/2"
Hot water connections	Ø	1/2"
Gas connections	Ø	1/2"
Electrical connection 50 Hz	V	230
Power supply	W	170
Burner jets NP 17 G20	Ø	1.20
Burner jets NP 17 G30	Ø	0.75
Gas category: **IT II2H3**	Gas supply pressure: **G20** 20 mbar / **G30/31** 29-30/37 mbar	
FORCED CIRCULATION		

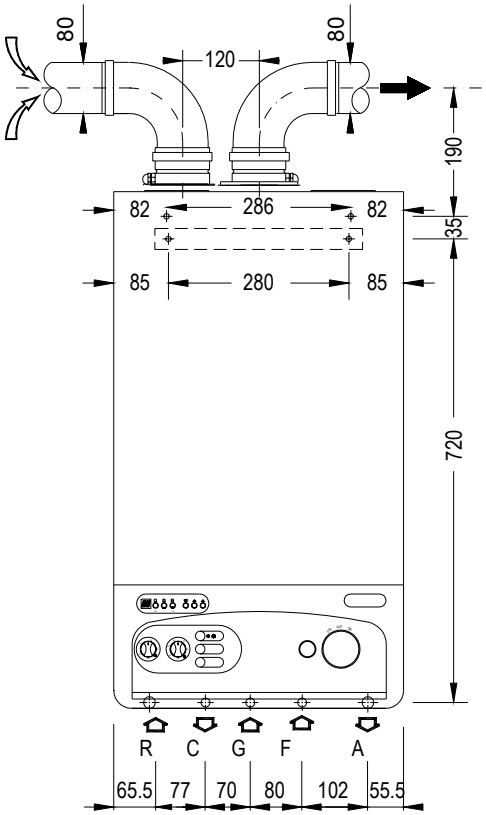
OVERALL DIMENSIONS - EXHAUST FLUE SYSTEM

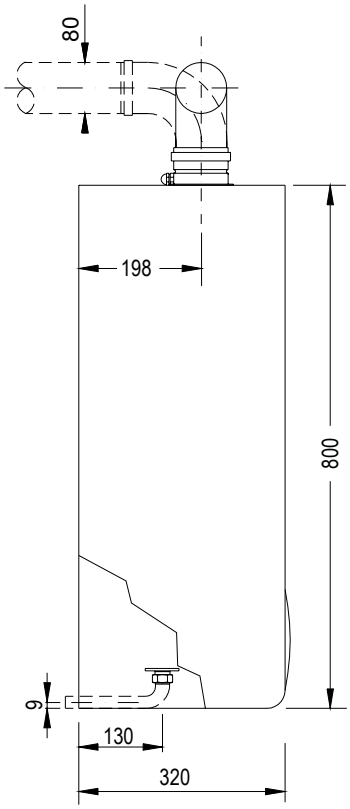




TYPE C WALL-MOUNTED BOILERS
SEALED COMBUSTION CIRCUIT:

Kit G
Horizontal coaxial exhaust flue system with 360° rotation.





Kit B
Double exhaust/emission twin flue system with 360° rotation.

R RETURN ¾"
G GAS ½"
C HOT WATER ½"
F COLD WATER ½"
A HEATING FLOW ¾"

OTE: USE ORIGINAL RADIANT APPROVED FLUE KIT SYSTEMS, FLUE ACCESSORIES AND FLUE DIAPHRAGMS ONLY. APPROVED RADIANT FLUE DIAPHRAGMS AND ADJUSTMENT TABLES ARE SUPPLIED WITH RADIANT ORIGINAL FLUE KIT SYSTEMS.

GENERAL INSTALLATION REQUIREMENTS

GAS SAFETY

It is the law that all gas appliances are installed by a CORGI registered installer (you can check this by contacting corgi on 01256.372200) in accordance with the regulations listed below. 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. Failure to have your appliance installed to comply with the installation instructions and the requirements listed below could invalidate your guarantee.

RELATED DOCUMENTS

The installation of the boiler must be in accordance with the relevant requirements of the Gas Safety regulations, Building regulations, I.E.E. regulations and the bylaws of the local water authority.
It should be in accordance also with any relevant requirements of the local authority and the relevant recommendations of the following British Standard Codes of Practice:

B.S 6400:	1985 & B.S. 6891 : 1988.
BS 5376:	Selection and Installation of Gas Space Heating (1 and 2 family gases) Part 2: Boilers of rated input not exceeding 60 Kw
BS 5449:	Central Heating for domestic premises Part 1: Forced circulation Hot Water System
CP 342:	Centralised Hot Water Supply BS 6700 : 1987 Part 2: Buildings other than individual
BS 5440:	Flues and air supply for Gas Appliances of rated input not exceeding 60 Kw (1 and 2 family gases) Part 1: Flues Part 2: Air Supply
BS 5446:	1990: Installation of Gas Hot Water supplies for domestic purposes

GAS SUPPLY

Service Pipes: The local gas region should be consulted at the installation planning stage in order to establish the availability of supply of gas. An existing service pipe must not be used without prior consultation with the local gas region.
Meters: A gas meter is connected to the service pipe by the local gas region or local gas region contractor. An existing meter should be checked to ensure that it is capable of passing an additional 3.4 m3/hr (125 ft/hr) before the appliance is installed. The meter outlet governor should ensure a nominal dynamic pressure of 20m Bar, (8 in wg) at the boiler. Installation pipes should be fitted in accordance with BS6891.1988. **Pipework that supplies the boiler must be a 22 mm. ininterrupted supply from meter to the isolation cock of the boiler.** The complete installation must be tested for soundness as described in the above code, BS 6400: 1985 & BS6891.

IMPORTANT: BOTH THE USER AND THE MANUFACTURER RELY UPON THE INSTALLER, WHOSE JOB IS TO INSTALL THE BOILER AND CONNECT IT TO A CORRECTLY DESIGNED HEATING SYSTEM. THE INSTALLER SHOULD ACQUAINT HIMSELF WITH THE CONTENTS OF THIS PUBLICATION AND THE RELEVANT BRITISH STANDARDS CONCERNING INSTALLATION REQUIREMENTS.

LOCATION OF BOILER

In siting the combination boiler, the following limitations MUST be observed:
The position selected for installation should be within the building, and MUST allow
adequate space for installation, servicing and operation of the combination boiler, and for air circulation around it. The boiler is not suitable for external installation.
This position MUST also allow for a suitable flue termination to be made. The boiler must be installed on a flat vertical wall which is capable of supporting the weight of the combination boiler, and any ancillary equipment.
If the 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 IGE/UP/6. If in doubt, advice must be sought from the local region of British Gas.
The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E. Wiring Regulations, and in Scotland the electrical provisions of the Building Regulations applicable in Scotland, with respect to the installation of the boiler in a room or internal space containing a bath or shower.
Where a room-sealed appliance is installed in a room containing a bath or shower, any electrical switch or appliance control utilising mains electricity must be so situated that it cannot be touched by a person using the bath or shower.
A compartment used to enclose the combination boiler 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. BS 6798 gives detailed guidance on this aspect.
For clearances to be made available for installation and servicing, see Sections 5.2.2. to 5.2.4.

FLUE POSITION

IMPORTANT: THE FLUE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN BS 5440:1.
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.
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.
In certain weather conditions a terminal may emit a plume of steam. Positions where this would cause a nuisance should be avoided.
IMPORTANT REQUIREMENT: The correct dimensional relationship between the terminal and any obstruction, openable window or ventilator as shown in Fig 1 pag.7 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 systems. If this should occur, the appliance MUST BE TURNED OFF IMMEDIATELY and the local gas region consulted.
Where the lowest part of the terminal is fitted less than 2m (6.6ft) above a balcony, above ground, or above a flat roof to which people have access, the terminal MUST be protected by a purpose designed guard.
Where the terminal is fitted within 850mm (34in) of a plastic or painted gutter, or 450mm (18in) of painted eaves, an aluminium shield of at least 1000 mm (40in) long should be fitted to the underside of the gutter painted surface.
The air inlet/products outlet duct and the terminal of the boiler MUST NOT be closer than 25mm (1in) to combustible material.

TERMINAL POSITION

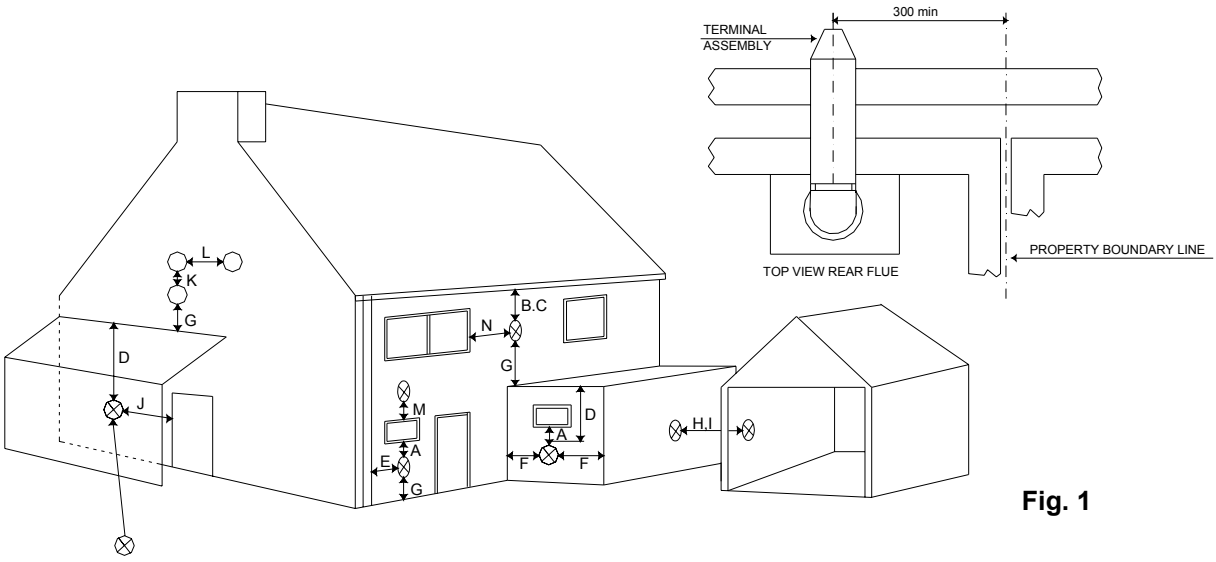


Fig. 1

A	Directly below an openable window, air vent or any other ventilation opening.	300 mm
B	Below gutter, drain pipes or soil pipes.	25 mm
C	Below eaves.	25 mm
D	Below balcony or carport roof.	25 mm
E	From vertical drain pipes or soil pipes.	25 mm
F	From internal or external corners.	25 mm
G	Above adjacent ground, roof or balcony level.	300 mm
H	From a surface facing the terminal.	600 mm
I	Facing the terminals.	1200 mm
J	From opening (door, window)in the carport into dwelling.	1200 mm
K	Vertically from a terminal on the same wall	1500 mm
L	Horizontally from a terminal on the same wall	300 mm
M	Above an opening, air brick, opening window etc.	300 mm
N	Horizontally to an opening, air brick, opening window etc.	300 mm

MINIMUM DISTANCES FOR FIXING TO WALL

To allow access in the boiler for maintenance operations, the minimum distances shown below must be respected (fig. 1):
To facilitate installation, the boiler is supplied with a template for advance location of connections to pipes. In this way, you may simply hook up the boiler when wall work is completed (fig.2).

Installation Instruction

a) with a spirit level, draw a line on the wall on which the boiler will be installed (fig. 1);
b) position the top of the template on the line drawn with the spirit level (respecting the distances – see fig. 1) than mark the three points for insertion of the 3 screw anchors or wall anchors for fixing the boiler hanging bracket (choose proper anchors according to the wall type);
c) fix the hanging bracket
d) make connections to the hot and cold water supply, to the gas pipe and to the heating system with the fittings. Connect pipes and valves as shown in the picture;
e) position the boiler paying attention to hang it to the hanging bracket and make final connections;

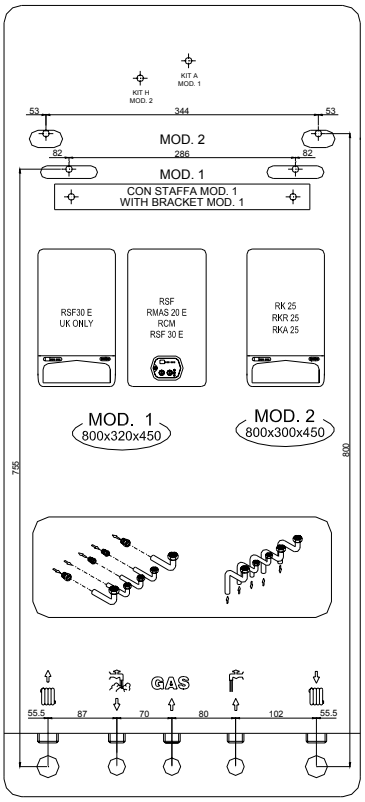
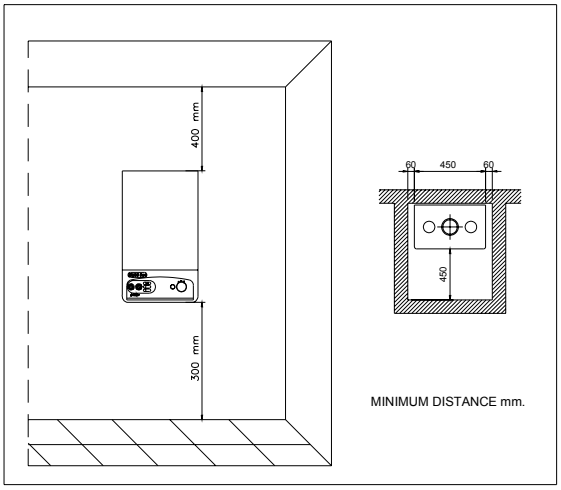


Fig. 1



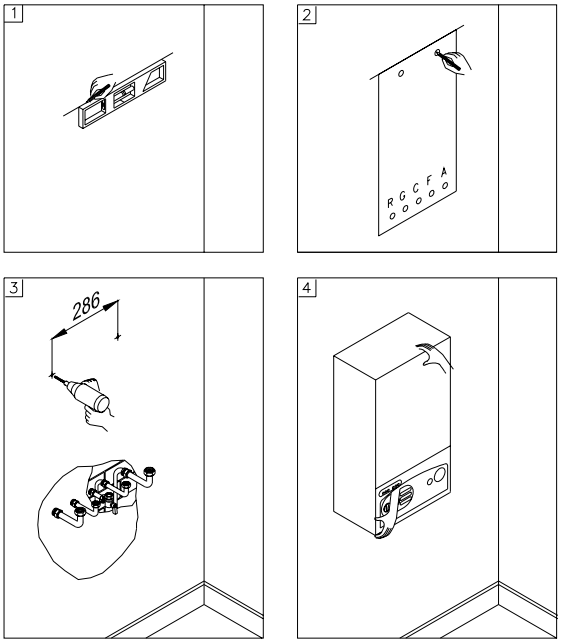


Fig. 2

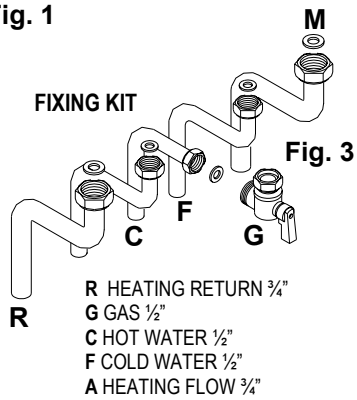


Fig. 3

R HEATING RETURN ¾"
G GAS ½"
C HOT WATER ½"
F COLD WATER ½"
A HEATING FLOW ¾"

WATER CONNECTIONS

To facilitate installation, the boiler is equipped with a fittings kit (see fig. 3).

IMPORTANT:

Before connecting the heating system pipes, carefully clean the system to prevent residual dirt from entering into circulation and negatively affecting boiler function. Install a funnel with discharge under the safety valve (calibrated to 3 bar) to collect water in case of leaking due to overpressure. No safety valve is needed for the domestic water circuit, but be sure that pressure does not exceed 6 bar.

- avoid using pipelines of reduced diameter;
- avoid the use of tight bends and adapters in important sections;
- clean out the system thoroughly before connecting up the boiler in order to eliminate any residue left in the pipes and radiators;

N.B.: *Make sure that the water and heating pipes are not used as earth connections for electrical apparatus.*

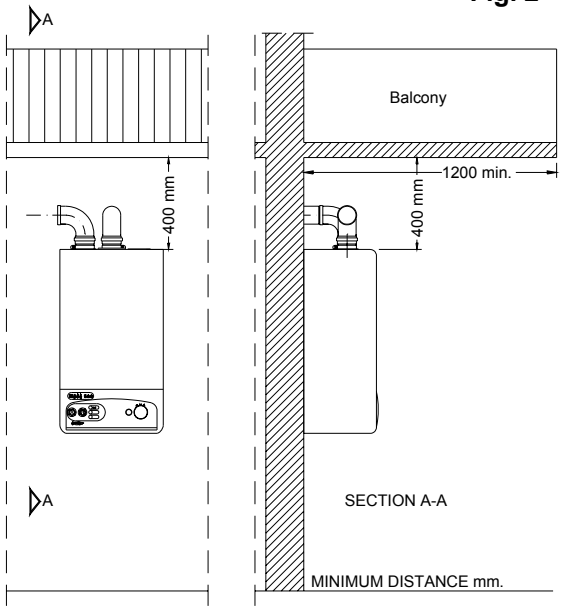


Fig. 4

WARNINGS

Boilers can be installed externally, in a partially protected place (balcony – see fig. 4) in conformity with local Building Regulation and if the outside minimum temperature is not lower than –10°C. The manufacturer is not responsible for external installations where the outside temperature is lower than – 10°C or not in conformity with above instructions.

GAS CONNECTIONS

The gas supply must be connected up by qualified person.

The following standards must be complied with: UNICIG 7131/72 and UNICIG 7129/92 (of 21/04/93)

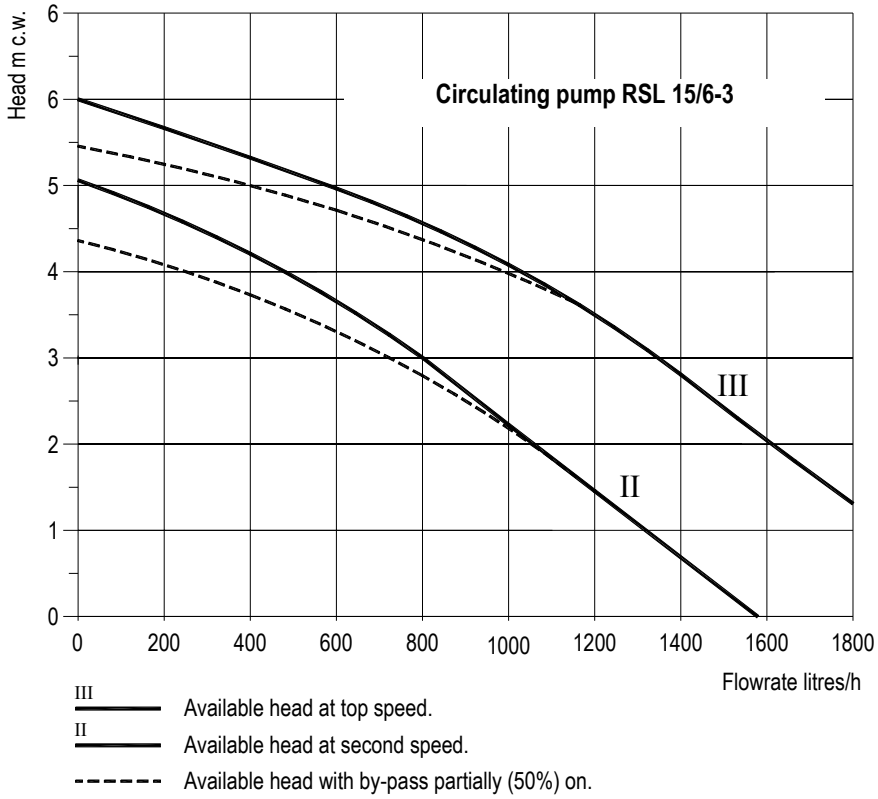
Before installing the boiler, make sure of the following:

- the pipeline must be of an adequate section and length to carry the flow required and must be fitted with all safety devices and measures prescribed by current norms;
- before turning on the boiler make sure the type of gas which it is designed to run on is available
- the gas supply pressure must lie within the values shown on the plate it is recommended that the gas supply pipeline should be checked for residual obstructions before installing the boiler;
- where the internal gas supply pipe meets the boiler, a gas shutter cock must be fitted which has the same diameter as the gas inlet pipe;
- check thoroughly that the gas inlets and outlets are properly sealed.
- conversion to allow the boiler to run on LPG to natural gas or vice versa must be carried out by a qualified gas fitter in accordance with law no.46 of 5th March '90 (see p.18).

Table n°1

Antifreeze	Temperature	
Ethylene glycol (%) volume	freezing point (°C)	boiling point (°C)
10	- 4	101
20	-10	102

Recommended Glycol 20% percentage for temperatures down to –8°C.



ANTI-FREEZE SYSTEM

ANTI-FROST SYSTEM

Radiant boilers are equipped with an Anti-Freeze system which comes into operation when the temperature falls to 5° C (Heating sensor) and 4° C (Hot water sensor) and protects the boiler down to –10°C external temperature.

To protect the internal Radiators, a room thermostat or remote control must be fitted.

NOTE**:** The frost system will only come into operation if the boiler is filled with water, and connected to a live gas supply, with electrical supply and boiler controls in the "ON" position (With the Main switch turned to Summer or Winter position) *and the gas supply turned on.*

N.B. For external installations, see instructions at page 6.

FOR THE INSTALLER

For boilers installed outdoors, where the temperature may drop below -2° degrees Centigrade, the system should be filled with antifreeze liquid by an authorised technician and a set of electrical heating elements should be fitted to protect the domestic hot water heat exchanger.

ADVICE FOR THE SERVICE TECHNICIAN

If the boiler is out of service because it is frozen, check that no parts have been locked in position by ice before putting it into operation.

It is advisable to empty the boiler and the system in case of no operation for a long period.

*Recommended percentage of glycol for temperatures down to - 8°C is 20%.*The antifreeze liquid used must be of a good make and in a solution which has already been diluted to avoid the risk of uncontrolled dilution.

ELECTRICAL CONNECTIONS

For qualified personell only:
the boiler works with 230 V 50 Hz AC current and has maximum input of 170 W. Connection to the electrical mains must be performed with a device having an omnipolar opening of at least 3 mm. Make sure the live and neutral connections conform to the diagram.
A secure earth connection is compulsory according to national and local ragulations.

IMPORTANT

If you need to replace the power supply cable, use cable having the same characteristics: (HO5 W-F) 3x1 with maximum external diameter 8 mm.). Connect to the terminal block located in the instrument panel as follows:

A. Turn off the electrical power supply at the mains.
B. Remove the boiler front casing.
C. Undo the two screws on the panel and turn it to the position shown in fig.1 (pos. 1).
D. After pulling the panel downwards, undo the screws on the housing and open the small rear panel plate as shown in the figure 1.
E. With the electrical box now open make the following connections.

- Connect the yellow/green wire to the terminal marked with the earth symbol " ⏚ " (see fig.1).
- Connect the blue wire to the terminal marked with the letter "N".
- Connect the brown wire to the terminal marked with the letter "L".
- Terminal identified as: Ta ⇒ Room thermostat
  Se ⇒ External sensor

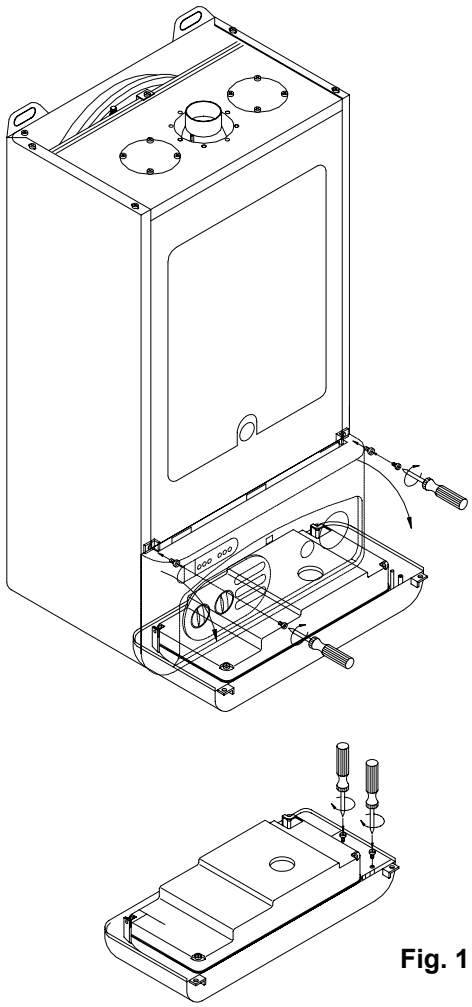


Fig. 1

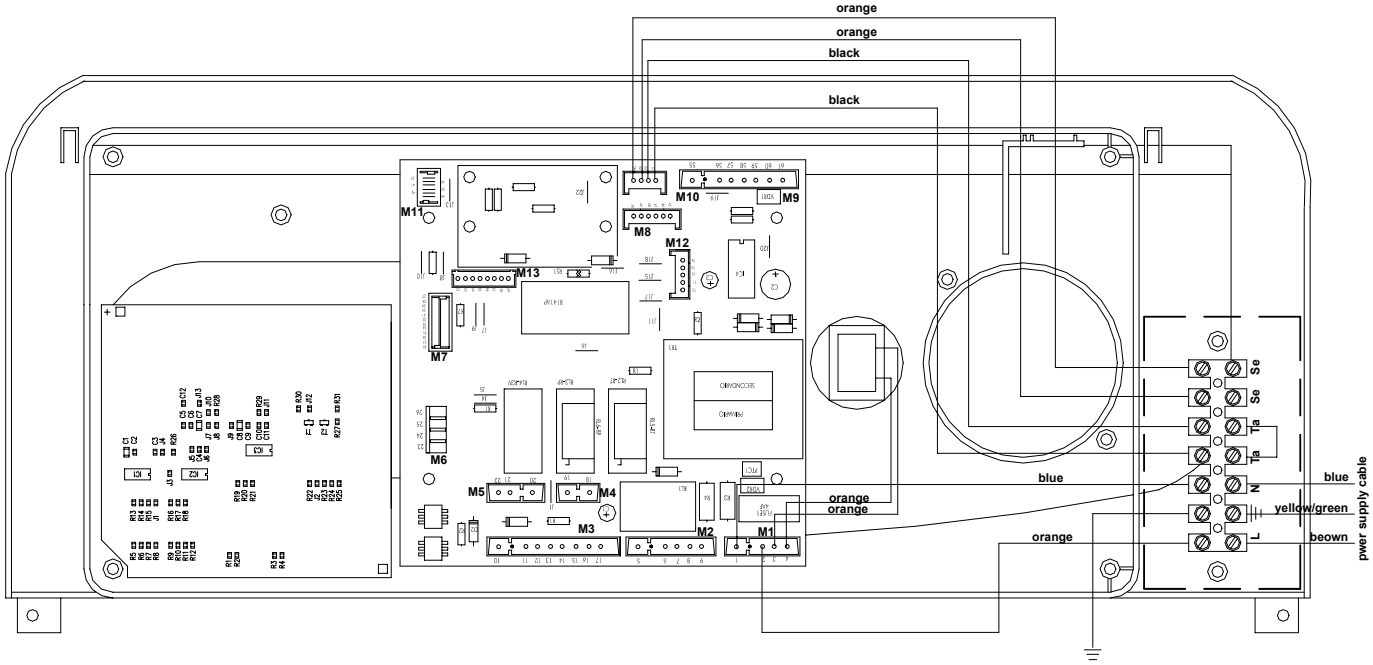


Fig. 2

CONTROL PANEL

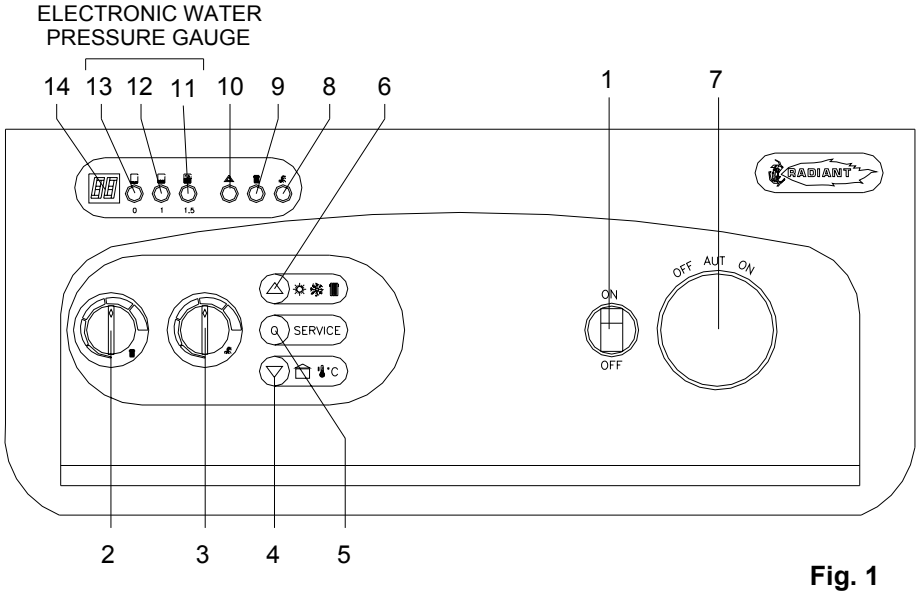


Fig. 1

LEGEND (see fig. 1)

1. ON / OFF POWER SWITCH
2. HEATING TEMPERATURE ADJUSTMENT KNOB
3. DOMESTIC HOT WATER TEMPERATURE ADJUSTMENT KNOB
4. OUTSIDE TEMPERATURE DISPLAY PAD (ONLY WITH OPTIONAL OUTSIDE TEMPERATURE SENSOR FITTED)
5. CHIMNEY-SWEEPER SELECTION PAD / PARAMETER SETTING SERVICE PAD
6. MODE SELECTION PAD (SUMMER ONLY / WINTER ONLY / SUMMER AND WINTER)
7. SPACE FOR AN OPTIONAL TIME CLOCK
8. DOMESTIC HOT WATER MODE (STABLE LIGHT)
DOMESTIC HOT WATER OPERATION (FLASHING LIGHT)
9. HEATING MODE (STABLE LIGHT)
HEATING OPERATION (FLASHING LIGHT)
10. GENERAL LOCK-OUT WITH FLASHING ERROR CODE ON DISPLAY (14)
11. WATER PRESSURE LEVEL **1.5 BAR** INDICATOR
12. WATER PRESSURE LEVEL **1 BAR** INDICATOR
13. WATER DEFICIENCY INDICATOR
14. TEMPERATURE AND ERROR CODES DISPLAY

ERROR CODES:

1. IONISATION LOCK-OUT
2. HIGH LIMIT THERMOSTAT LOCK-OUT
3. FLUE SAFETY THERMOSTAT LOCK-OUT (Not applicable)
4. WATER PRESSURE SWITCH LOCK-OUT
5. HEATING SENSOR FAILURE
6. DOMESTIC HOT WATER SENSOR FAILURE
12. STORAGE TANK WATER SENSOR FAILURE
14. AIR PRESSURE SWITCH / WATER PRESSURE SWITCH LOCK-OUT
22. REQUEST OF PARAMETERS RE-SETTING

STARTING UP THE BOILER

After connecting up the water supply, before starting up the boiler, carry out the following procedures:

Preliminary procedure

- Do as follows:
- make sure the power supply for the boiler is the same as that stated on the plate (230V - 50Hz) and that the live, neutral and earth connections have been properly connected;
- make sure the type of gas being supplied is the same as the type for which the boiler has been tested and approved (see plate data);
- make sure the unit is properly earthed;
- make sure there are no flammable liquids or materials in the immediate vicinity of the boiler;
- make sure that any shut-off valves in the heating circuit are open;
- open the gas cock and check the gas seals, making sure the counter shows no sign of leaks; in any case, double check by using a soapy solution and eliminate all eventual leaks. The checking procedure for the gas burner attachment is carried out with the boiler working;
- make sure the electrical mains switch is OFF;
- remove the front cover by pulling it forwards;
- undo the side screws and rotate the panel downwards

Filling the system

After making sure the gas cock is closed, fill the heating system as follows;

- fill the system until a pressure of 1.5 bar has been reached (light no. 11 ON; see fig. 1) and then close the filling tap (see fig. 2 pag 10) located under the boiler;
- make sure the cap on the auto air vent valve is slightly loose to allow air to escape from the system (see fig. 1 pag 10);
- undo the cap on the circulation pump to eliminate any eventual air locks; it is a good idea to purge all radiators of air at this point too;
- before starting up the boiler the water pressure must be checked again; if this is seen to be below 0.5 bar , bring it back up to 1.5 bar (light no. 11 ON; see fig. 1) **and then close the filling tap** located under the boiler;

- set ON/OFF switch in ON position (see fig.1), after a few seconds the pump will come into operation;
- once the boiler is working, if any noises are heard in the system, repeat the above air purging procedures until there is no air left in the system;
- check there are no obstructions in the exhaust duct;
- check the pressure in the system: if this has gone down, comes on restore pressure*;*
- **close the filling tap R (see fig. 2) once this operation is completed**;

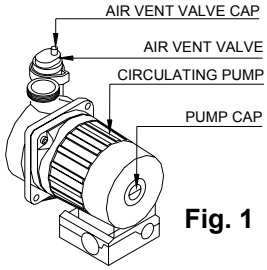


Fig. 1

Filling the system

After making sure the gas cock is closed, fill the heating system as follows;

- fill the system until a pressure of 1.5 bar has been reached (light no. 11 ON; see fig. 1 pag. 9) and then close the tap on the filling loop;
- make sure the cap on the auto air vent valve is slightly loose to allow air to escape from the system;
- undo the cap on the circulation pump to eliminate any eventual air locks; it is a good idea to purge all radiators of air at this point too;
- before starting up the boiler the water pressure must be checked again; if this is seen to be below 0.5 bar, bring it back up to 1.5 bar (light no. 11 ON; see fig. 1 pag. 9) **and close the tap on the filling loop**
- set ON/OFF switch in ON position (fig.1 page 9), after a few seconds the pump will come into operation;
- once the boiler is working, if any noises are heard in the system, repeat the above air purging procedures until there is no air left in the system;
- check there are no obstructions in the exhaust duct;
- check the pressure in the system: if this has gone down, comes on restore pressure*;*
- **close the tap on the filling loop once this operation is completed**;

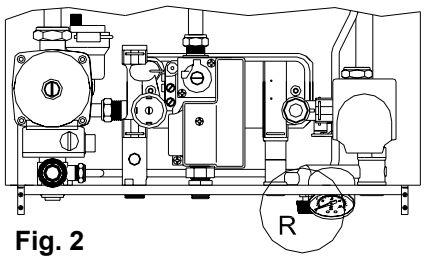


Fig. 2

Starting up the boiler

- open the gas cock;
- turn on the boiler;
- push Pad 5 and select the SUMMER only – WINTER only or SUMMER and WINTER mode- Led 8-9 ON confirm the selection;

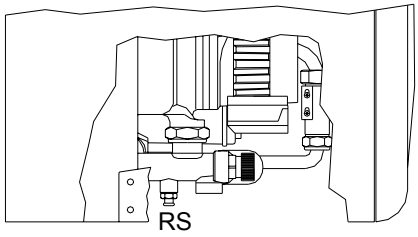


Fig. 3

the automatic ignition system will turn the burner on It may be necessary to repeat the procedure a few times to purge air from the pipes. Set the ON/OFF switch 1 (see fig.1) to OFF and then ON position and try the ignition procedure once again. If the boiler does not start, reset boiler and Set the ON/OFF switch 1 to OFF and then ON position.

IMPORTANT should the boiler fail to ignite **wait 3 minutes** before a new ignition procedure.

In case of water deficiency the display shows code 04 intermittent and the Led 8 is ON. To restore water pressure open the tap on the filling loop and fill the system, when led 10 (1.5 bar pressure) is ON, close the tap.

- set ON/OFF switch in OFF position (fig.1 page 9), insert a gauge into the pressure point no.4 (fig.2 page 11). Turn ON the boiler and check the minimum and maximum gas pressure setting in accordance with values stated on the gas data plate (to check maximum gas pressure value, turn ON a hot water tap and check that the maximum pressure is equal to that stated on the gas data plate; to check the minimum gas pressure, close the hot water tap, and select WINTER mode, the pressure gauge will show the minimum gas pressure value for 10 seconds. If the pressure values are not the same as those stated on the gas data plate, calibrate pressure again
- once the calibration procedure has been completed, unplug the mains lead or turn off the mains switch, close the gas cock and remove the gauge from the pressure point; tighten the screw making sure there are no gas leaks;
- after carrying out this operation, return the panel to its correct position and put the front casing back.

CHECK the maximum heating power.

For procedure regarding regulation of the heating system thermal capacity see «BOILER ADJUSTMENTS».

EMPTYING THE CENTRAL HEATING SYSTEM

Whenever it is necessary to empty the system, proceed as follows:

- set ON/OFF switch in OFF position (fig.1 page 9);
- wait for the boiler to cool down;

turn the system drain tap **RS** (see fig. 3) and use a container to collect the water that runs out;

EMPTYING THE DOMESTIC HOT WATER SYSTEM

Whenever there is danger of freezing, the hot water system should be emptied in the following way:

- shut off the water at the mains;
- open all hot and cold water taps;
- empty from the lowest point (where possible).

WARNING

Please ensure that the boiler in commissioned in line with all BENCHMARK BOOKLET REQUIREMENTS. Failure to do this may in validate the guarentee.

CONVERSION OF GAS TYPE

Conversion of the boiler from natural gas to LPG and viceversa must be performed by qualified personnel only. Conversion is performed as follows:

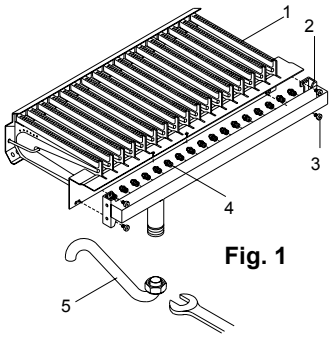


Fig. 1

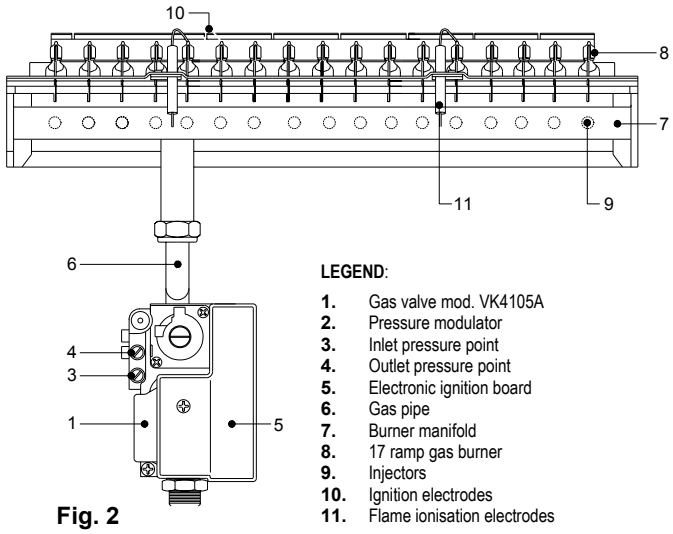


Fig. 2

LEGEND:

1. Gas valve mod. VK4105A
2. Pressure modulator
3. Inlet pressure point
4. Outlet pressure point
5. Electronic ignition board
6. Gas pipe
7. Burner manifold
8. 17 ramp gas burner
9. Injectors
10. Ignition electrodes
11. Flame ionisation electrodes

a. turn off the main power switch;

b. close the gas cock;

c. substitute the jets on the main burner as follows:

- undo the gas pipe 5 (fig.1) from the burner manifold using a size 24 spanner;
- separate the burner manifold 2 from the burner ramps 1 by undoing the 4 screws 3 using a Philips screwdriver;
- fit new jets 4 to the burner suitable for the type of gas the boiler will run on using a no. 7 spanner. The jets must be fitted with new gaskets;
- reassemble the entire burner unit. Use the soapy water method to check for gas leaks each time gas connections are dismantled and reassembled;

d. calibrate the new max. and min. settings for the modulator.

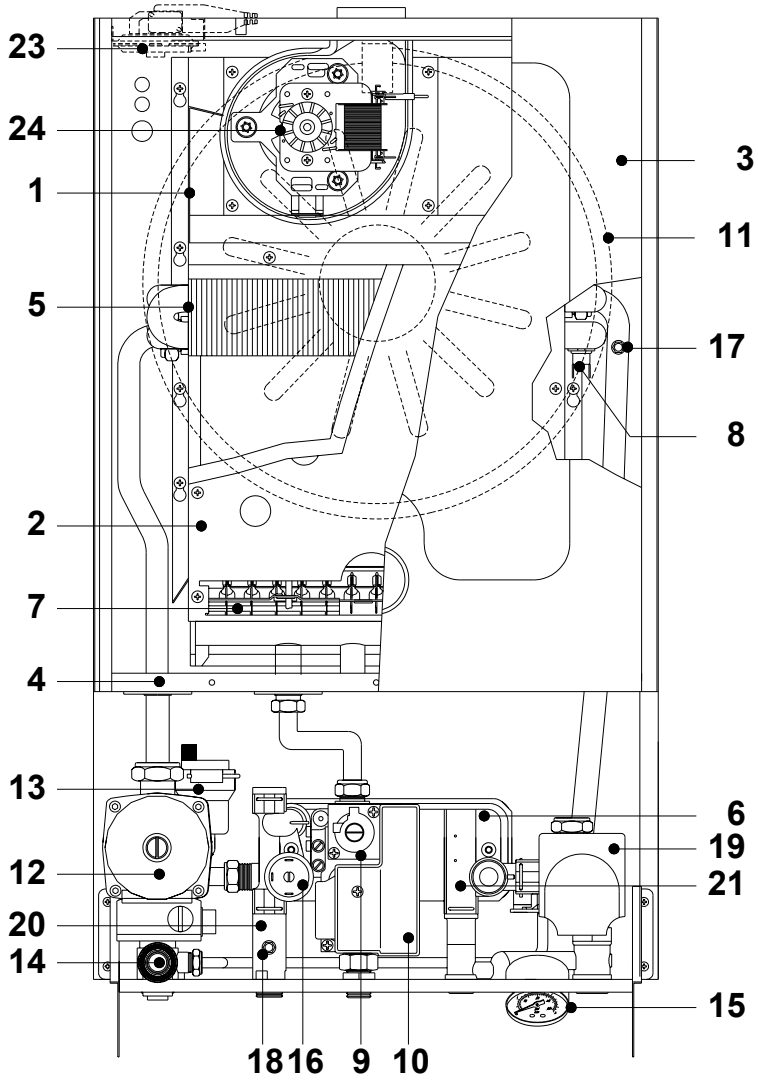
e. *replace the gas setting plate that indicates the type of gas and nominal pressure for the boiler. When converting the boiler to work with a different type of gas, remove the existing plate and replace it with the new one supplied in the conversion kit.*

GAS DATA TABLE

Models: **RSF 30 E**		**NATURAL GAS G 20**	**LIQUID BUTAN GAS G 30**	**LIQUID PROPANE GAS G 31**
Lower Wobbe index (15°C; 1013 mbar)	MJ/m3n	45.67	80.58	70.69
Rated feed pressure	mbar(mm c.w.)	20(204)	30(306)	37(377)
Minimum feed pressure	mbar(mm c.w.)	17(173.4)	20(204)	25(255)
Main burner: 17 jets - Ø jet	mm.	1.20	0.75	0.75
Consuption (15°C; 1013 mbar)	mc/h.	3.65		
Consuption (15°C; 1013 mbar)	Kg/h.		2.72	2.68

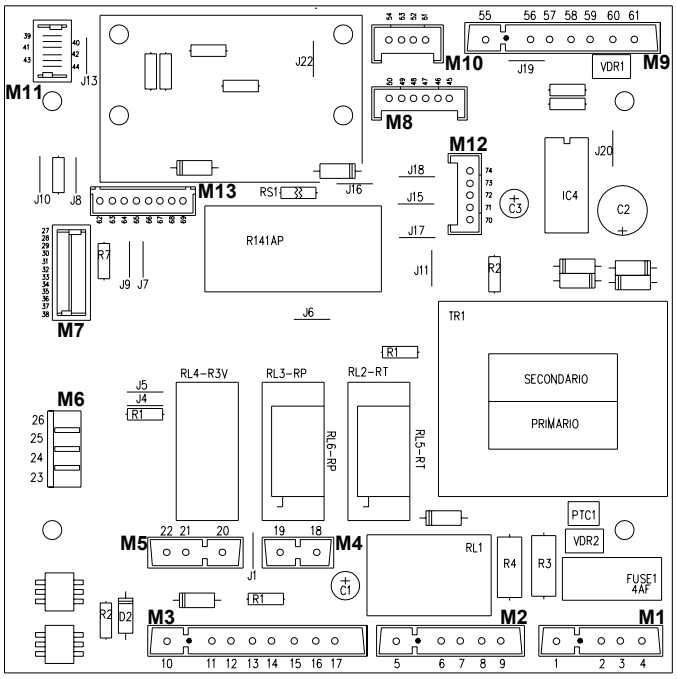
MAIN COMPONENTS

1. FLUE HOOD – ROOM SEALED COMBUSTION CHAMBER
2. COMBUSTION CHAMBER
3. ROOM SEALED CHAMBER COVER
4. ROOM SEALED CHAMBER BACK
5. HEAT EXCHANGER Mod. 30.000
6. FLAT PLATE TYPE EXCHANGER
7. MULTIGAS BURNER WITH 17 RAMPS
8. HEATING SAFETY THERMOSTAT
9. ELECTRONIC GAS VALVE VK4105
10. ELECTRONIC IGNITION BOARD
11. EXPANSION VESSEL
12. 3-SPEED CIRCULATION PUMP WITH AIR VENT
13. AUTOMATIC AIR VENT
14. HEATING CIRCUIT 3 bar PRESSURE RELIEF VALVE
15. WATER PRESSURE GAUGE
16. WATER PRESSURE SWITCH
17. HEATING SENSOR
18. HOT WATER SENSOR
19. 3-WAY DIVERTER VALVE
20. FLOWSWITCH CONNECTION WITH FLOW LIMITER
21. ELECTRONIC FLOWSWITCH
22. BY-PASS
23. AIR PRESSURE SWITCH
24. FAN

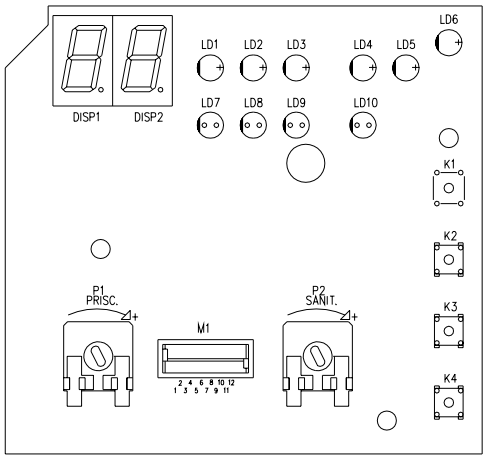


ELECTRICAL CONNECTION

PRINTED CIRCUIT BOARD CVI-M SM20015 (cod. 76655LA)

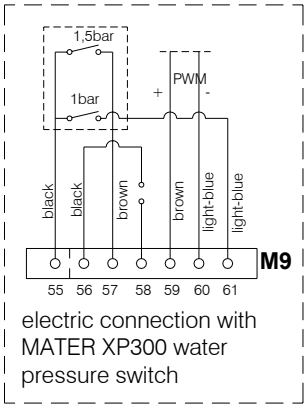


DISPLAY DIGITAL BOARD 2000 SKO6206
(COD. 76654LA)



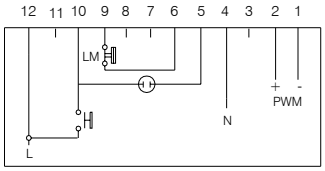
KEY

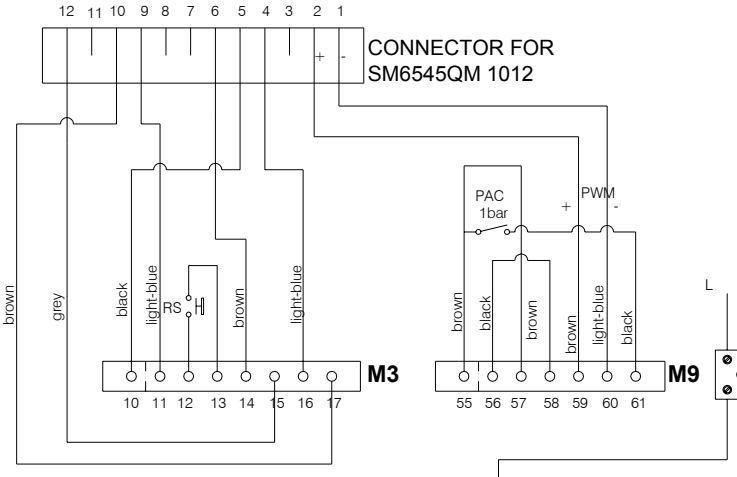
L - LINE
N - NEUTRAL
PA - AIR PRESSURE SWITCH
PAC - WATER PRESSURE SWITCH
MF - ELECTRONIC FLOWSWITCH
IG - MAIN SWITCH
SS - D.H. WATER SENSOR
SR - HEATING SENSOR
C - CIRCULATION PUMP
TS - SAFETY THERMOSTAT
SE - OUTDOOR SENSOR TEMPERATURE
TA - ROOM THERMOSTAT
VD - 3-WAY DIVERTER VALVE
EA - IGNITION ELECTRODE
ER - IONISATION ELECTRODE
EV - FAN

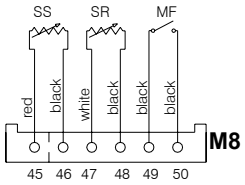


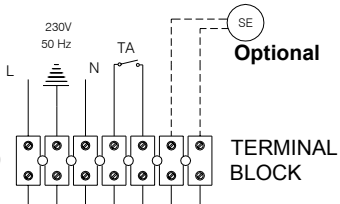
electric connection with
MATER XP300 water
pressure switch

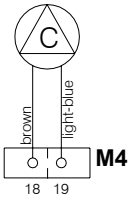
ELECTRONIC IGNITION BOARD
CVI S4565 A 2019B (COD. 76631LA)

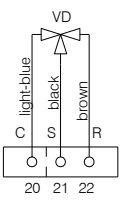


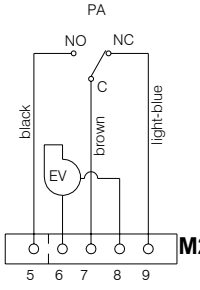


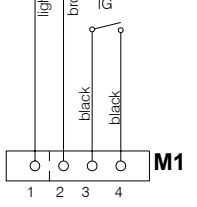


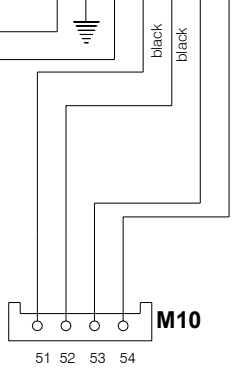












WIRING DIAGRAM FOR REMOTE CONTROL INSTALLATION (no zone valves)

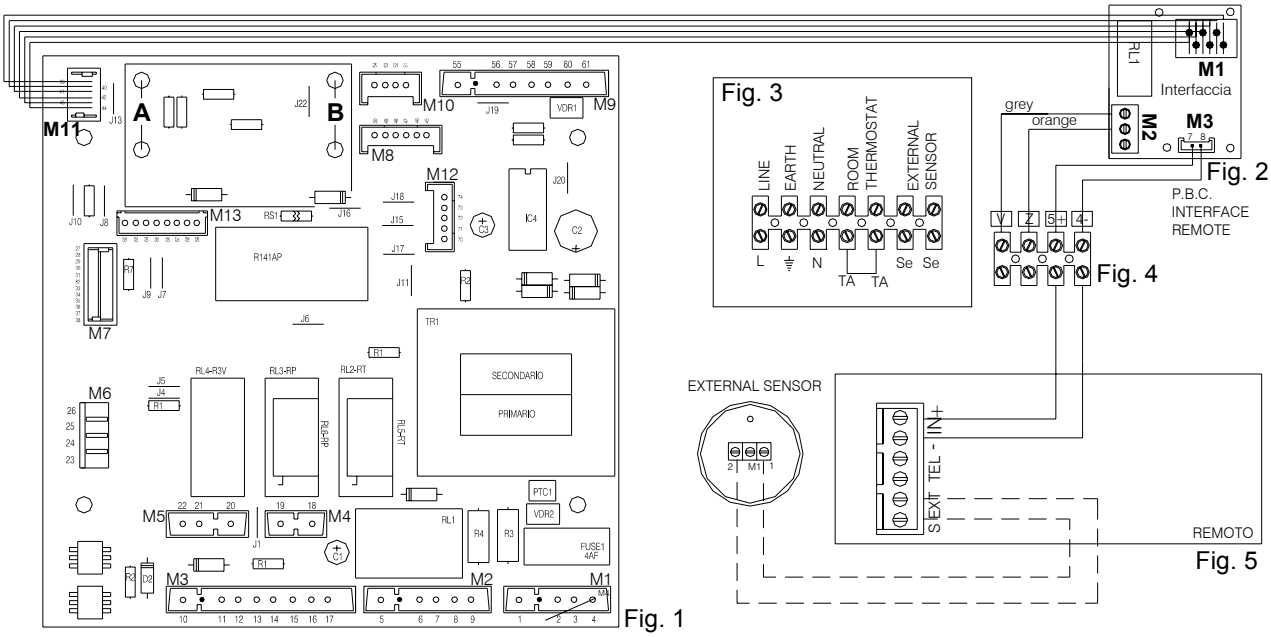


Fig. 1

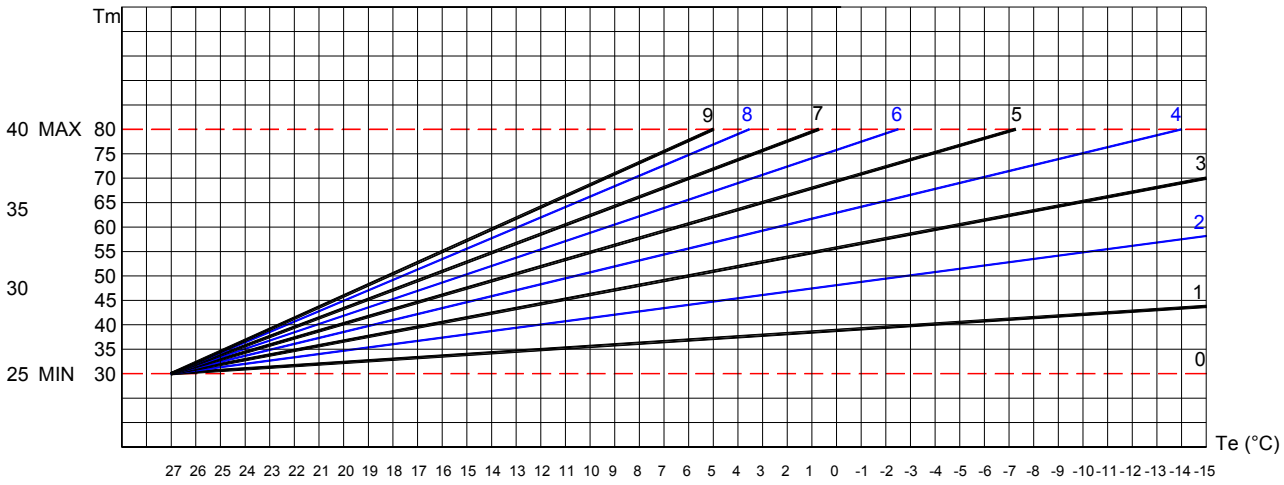
Fit the interface (fig. 2) on the circuit board (fig. 1) into the holes A and B provided (see fig. 1).
Connect plug M1 on the interface circuit board (fig. 2) to plug M11 on the modulation circuit board (fig. 1).
Connect the grey and orange wires in plug M2 of the interface circuit board (fig. 2) and in the terminal block (fig. 4).
Connect the wires of plug M3 on the interface circuit board (fig. 2) in the terminal (fig. 4).
Remove the link TA-TA (fig. 3) and set the boiler to SUMMER mode.
Connect the remote control to the terminal block (fig. 4) using a cable with a minimum section of 2 x 0.5 mm2 section and max. length of 50 m being careful to observe the +/- polarity.

THE EXTERNAL SENSOR IS OPTIONAL. The connection can be made to either the remote control (fig. 5) or to the terminal block (fig. 3 - dotted line) on the terminals marked SE-SE.

WARNING! The remote control connection cable must pass through a channel which is separate from any system supplied with power. If this is not possible, fit a screened cable.

EXTERNAL SENSOR

FLOW TEMPERATURE CORRECTION LAW HOW IN THE RELATION TO THE EXTERNAL TEMPERATURE AND POSITION OF THE USER HEATING TEMP. ADJUSTMENT.



TM - MAX / MIN = Range of flow temperature selected

Te = External temperature Tm = flow temperature

MAINTENANCE

To keep the boiler in efficient and safe operating condition, we recommend you perform the following checks at least once a year:

- Check all seals on the gas side and replace gaskets to restore perfect seal as required.
- Check all seals on the water side and replace gaskets to restore perfect seal as required.
- Visually check combustion and the combustion chamber; dismantle and clean the chamber if necessary.
- Check the primary exchanger and clean it if necessary.
- Check functioning of gas safety systems: Insufficient gas safety device (flame detection sensor for electronic ignition boilers) thermocouple for pilot light boilers.
- Check functioning of heating safety systems: safety thermostat for temperature limit, safety sensor for pressure limit.
- Check the exhaust flue safety device
- Check the max. and min. modulation pressures and the modulation.
- Check that the electrical connection conforms to the description in the instruction manual for the boiler.
- Check the domestic hot water flow rate and temperature.

When dismantling the boiler casing removing as shown in fig.1.

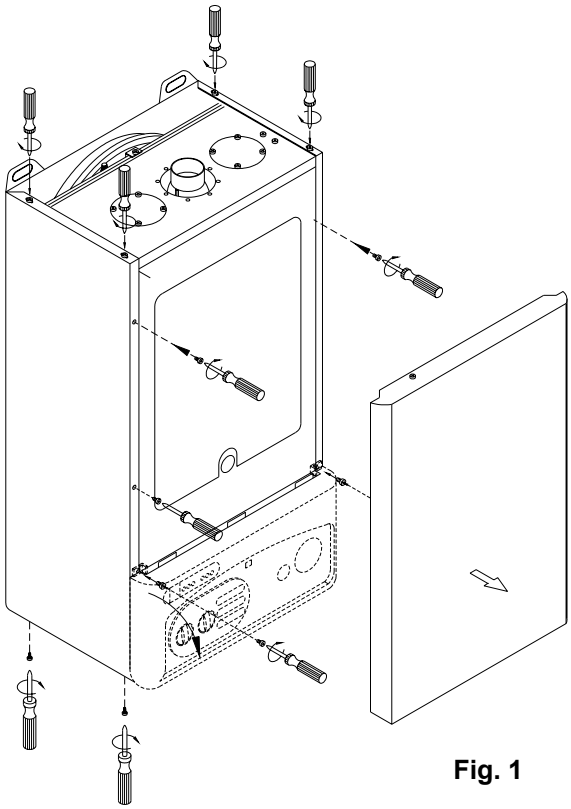


Fig. 1

UNPACKING

A. Set the packed boiler (fig. 2) down on the floor making sure that the arrow is pointing upwards and remove the sticking tape. Open the 4 flaps outwards.
B. Turn the boiler 180° supporting it by hand.
C. Lift the boiler with the packing pieces positioning it vertically in order not to damage the lower corners of the casing and remove the packing pieces. Lift the boiler by holding it at the back and proceed with installation.

N.B. It is recommended that the boiler be unpacked before installation. The manufacturer cannot be held responsible for any damage caused to the boiler due to incorrect handling of the boiler.

IMPORTANT!
The packing materials (cardboard) are recyclable.

IMPORTANT!
The inner packing materials (plastic bags, polystyrene foam, nails etc.) are potentially dangerous and must not be left within reach of small children.

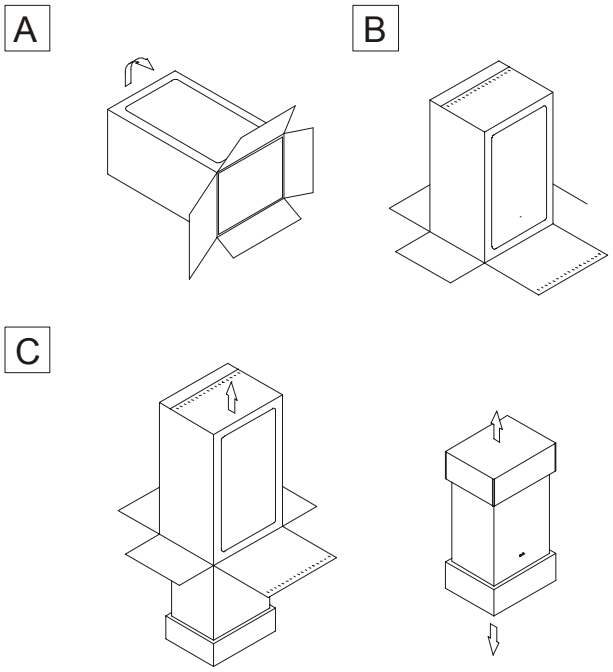


Fig. 2

SPARE PARTS SHORT LIST

CODE	DESCRIPTION	RSF 30 E
20046LA	24 PLATE EXCHANGER 17B1902406	✓
21032LA	GAS BURNER 17 R. 1,20 NATURAL GAS	✓
21033LA	GAS BURNER 17 R. 0,75 L.P.G.	✓
24040LA	CIRCULATING PUMP GOLD 50V1 SHUL CLF6 15/6 W/ AIR VENT	✓
24041LA	CIRCULATING PUMP MOTOR SHUL CLF6 15/6	✓
31011LA	D.H.W. – HEATING SENSOR WIRE	✓
35007LA	IGNITION ELECTRODE x ELECTRONIC	✓
35009LA	IONISATION ELECTRODE	✓
36066LA	ELECTRONIC GAS VALVE VK4105 G1112	✓
37016LA	EXHAUST FAN 230V ES 30-108 G 00-0416	✓
43157LP	SEALING + CLIPS KIT FOR MULTIPLEX GROUP	✓
58009LP	MAIN HEAT EXCHANGER mod. 30.000 kCal/h	✓
59012LP	AIR PRESSURE SWITCH CE C6065FH1748B	✓
59015LA	WATER PRESSURE SWITCH 1/8'' PC 5411	✓
73507LA	HEATING 1/8'' SENSOR	✓
73508LA	D.H.WATER 1/8'' SENSOR	✓
76631LA	ELECTRONIC IGNITION BOARD CVI S4565 A 2019B	✓
76654LA	DISPLAY DIGITAL BOARD 2000 SKO6206	✓
76655LA	PRINTED CIRCUIT BOARD CVI-M SM 20015	✓
86006LA	SAFETY THERMOSTAT 95°C WATER TB 1NT BN0D095FV	✓
86014LA	WATER PRESSURE GAUGE 40 0-4 G1-8C/DC+	✓
95018LA	LT.10 EXPANSELL VESSEL 13D00010	✓
96008LA	3 BAR PRESSURE RELIEF VALVE 1/2'' 2809	✓
96032LA	DIVERTER VALVE ATV-03 M.PLEX 561128	✓
96034LA	DIVERTER VALVE MOTOR 561128	✓

Heat technology since 1959

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The code of practice for the installation, commissioning & servicing of gas fires and wall heaters

TA01A011.B1003

Heat technology since 1959

USER MANUAL

Model **RSF 30 E**

TYPE C ROOM SEALED

The code of practice for the installation, commissioning & servicing of gas fires and wall heaters

CE 0694

TA01B011.B1003

BOILER OPERATION AND ADJUSTMENT PROCEDURES FOR USER

Before turning on the boiler read the following warnings carefully .
Make sure that the warranty booklet carries the stamp of the CORGI registered technician (you can check this by contacting corgi on 01256.372200) responsible for installing the boiler. Installation, starting up for the first time, adjustments and maintenance operations must all be carried out solely by qualified technicians. Incorrect installation may cause damage to persons, animals or property for which the manufacturer cannot be held liable.

WARNING!

⇒ ***Do not start the boiler unless you are sure it has been thoroughly tested by an authorised technician.***

⇒ ***Check that the regulations regarding air intakes and ventilation of the room where the boiler is installed have been fully complied with.***

⇒ **Boilers can be installed externally, in a partially protected place (see page no.7) in conformity with local Building Regulations and only if the outside minimum temperature is not lower than –10°C; the manufacturer is not responsible for external installations where the outside temperature is lower than – 10°C.**

⇒ ***The anti-freeze system will come into operation only if the ON/OFF switch 1 (see fig.1) is ON and the gas supply turned on. The manufacturer can accept no responsibility for damage to the boiler caused by lack of observation of these requirements.***

⇒ ***If the boiler should freeze up, under no circumstances attempt to turn it on but call the RADIANT HELP LINE immediately.***

CONTROL PANEL

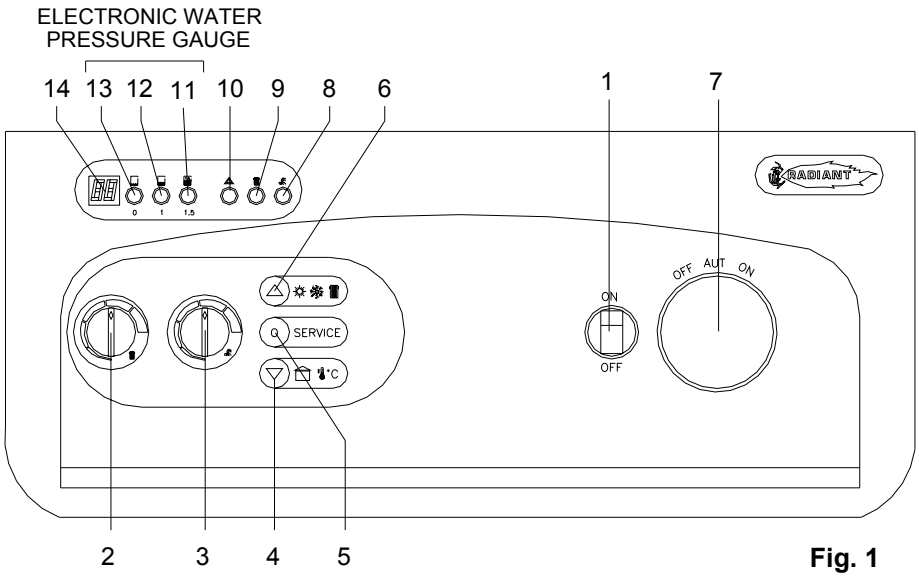

Fig. 1

LEGEND (see fig. 1)

1. ON / OFF POWER SWITCH
2. HEATING TEMPERATURE ADJUSTMENT KNOB
3. DOMESTIC HOT WATER TEMPERATURE ADJUSTMENT KNOB
4. OUTSIDE TEMPERATURE DISPLAY PAD (ONLY WITH OPTIONAL OUTSIDE TEMPERATURE SENSOR FITTED)
5. CHIMNEY-SWEEPER SELECTION PAD / PARAMETER SETTING SERVICE PAD
6. MODE SELECTION PAD (SUMMER ONLY / WINTER ONLY / SUMMER AND WINTER)
7. SPACE FOR AN OPTIONAL TIME CLOCK
8. DOMESTIC HOT WATER MODE (STABLE LIGHT)
   DOMESTIC HOT WATER OPERATION (FLASHING LIGHT)
9. HEATING MODE (STABLE LIGHT)
   HEATING OPERATION (FLASHING LIGHT)
10. GENERAL LOCK-OUT WITH FLASHING ERROR CODE ON DISPLAY (14)
11. WATER PRESSURE LEVEL **1.5 BAR** INDICATOR
12. WATER PRESSURE LEVEL **1 BAR** INDICATOR
13. WATER DEFICIENCY INDICATOR
14. TEMPERATURE AND ERROR CODES DISPLAY

Turning on procedure for electronic ignition

- turn on the gas cock situated under the boiler grill;
- set the ON/OFF switch 1 (see fig.1) to ON;
- push Pad 6 to select heating mode (led 9 ON intermittent) or D.H.W. mode (led 8 ON intermittent);
- make sure that display light is ON (see fig. 1) and the no.9 or no.10 lights are ON (see fig. 1); if light no.13 flashes, it means water deficiency in the system: open the filling tap located under the boiler and fill the system until a pressure of 1.5 bar has been reached (light no.11 ON; see fig. 1) and then **close the tap on the filling loop**.
- The automatic ignition system will turn the burner on.
- In case of water deficiency the display shows code 04 intermittent and the Led 13 is ON. To restore water pressure open the tap on the filling loop and fill the system, when led 11 (1.5 bar pressure) is ON, close the tap.

It may be necessary to repeat the procedure a few times to purge air from the pipes. Set the ON/OFF switch 1 (see fig.1) to OFF and then ON position and try the ignition procedure once again. If the boiler does not start, reset boiler and set the ON/OFF switch 1 to OFF and then ON position.

IMPORTANT should the boiler fail to ignite **wait 3 minutes** before a new ignition procedure.
In case of water deficiency the display shows code 04 intermittent and the Led 13 is ON. To restore water pressure open the tap on the filling loop and fill the system, when led 11 (1.5 bar pressure) is ON, close the tap.
If locking-out persists, turn boiler OFF and call an authorised radiant service engineer.

Turning off boilers with electronic ignition :

- turn selector switch 1 to the OFF position (see fig. 1 pag. I).;
- if the boiler will not be used for long periods it is recommended that the gas cock under the boiler grill be shut off.

THE BOILER IN USE

Summer-winter use (see fig. 1 pag. I).
Push Pad 6 (fig. 1) to select WINTER ONLY program – Led 9 ON for heating only Mode or SUMMER ONLY program – Led 8 ON for water only Mode or SUMMER and WINTER program Led 8 – 9 both ON for heating and hot water mode.

REGULATING THE HEATING TEMPERATURE

The heating temperature is regulated by turning knob 2 (see fig. 1 pag. I).

- turn it counter-clockwise to lower the temperature.
- turn it clockwise to raise the temperature.
- the temperature range can be adjusted from a minimum of 30°C to a maximum of 80°C.

REGULATING THE HOT WATER TEMPERATURE

The hot water temperature is regulated by turning knob 3 (see fig. 1 pag. I).

- turn it counter-clockwise to lower the temperature
- turn it clockwise to raise the temperature
- the temperature range can be adjusted from a minimum of 35°C to a maximum of 60°C.

RESETTING THE BOILER

If boiler locks-out (fig. 1 page I, indicator no.10 ON) and intermittent error code on the display :

- wait approximately 3 minutes from the last shut down
- Set the ON/OFF switch 1 to OFF and then ON position (see fig.1 page I)
- once the Led and the error code are OFF, the boiler switch on automatically
- If lock-outing persists, turn the boiler OFF and call an authorised service engineer.

WARNINGS FOR THE USER

To keep the boiler in efficient and safe operating condition, carefully follow the instructions listed below:

- Have normal maintenance performed at least once a year by one of our authorised service centres (a fee will be charged), combustion tests are necessary every two years and should again be carried out by a qualified technician authorized by the manufacturer (in accordance with D.P.R. 412 regulations, 26-08-93).
- Periodically check system pressure on the pressure gauge and check that pressure is between 0.5 - 1.5 bar with the system cold.
- Do not clean the casing or internal parts of the boiler with reducing agents or solvents. Clean only with soap and water.
- Never leave flammable materials in the immediate vicinity of the boiler.
- For greater comfort and more rational use of heat, it is advisable to install a room thermostat connected to a clock timer to turn the boiler on and off during the course of the day or week (in accordance with D.P.R. 412 regulations, 26-08-93).
- The boiler is equipped with an anti-freeze system, which is operative with switch 1 in ON position;
- Please ensure you have a fully completed BENCHMARK BOOKLET and this is kept with your installation instructions.

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TA01B011.B1003

RSF 30 E GB

CODE	DESCRIPTION
10010LP	EXHAUST FAN D.60x32 COLLAR
20046LA	PLATE EXCHANGER 24 P. RSF 30 17B1902406
21032LA	BURNER 17 R. 1,20 NATURAL GAS
24022LA	CIRCULATING PUMP RSL15/6-3-CLF6 WILO
25037LP	FLUE HOOD RSF 30 2003
26058LA	D.H. WATER CONNECTION MULTIPLEX
26059LA	PUMP MANIFOLD MULTIPLEX 279 8
26063LA	COLD WATER-HEATING FLOW CONNECTION MULTIPLEX
28012LA	VK4100 45900401-044B IGNITION BOARD COVER
28585LP	ROOM-SEAL CHAMBER BACK SIDE RSF 30
28587LP	ROOM-SEAL CHAMBER COVER RS-RSF30
30033LP	COMBUSTION CHAMBER BACK PANEL- TOP SECTION
30045LP	COMBUSTION CHAMBER BACK PANEL -BOTTOM SECTION
30047LP	COMBUSTION CHAMBER RIGH H.SIDE PANEL RSF24/30
30048LP	COMBUSTION CHAMBER LEFT H.SIDE PANEL RSF24/30
30054LP	COMBUSTION CHAMBER FRONT PANELRSF 30 2003
31054LA	IGNITION ELECTRODE CABLE E. RCM-RSF
31055LA	IONISATION ELECTRODE CABLE RCM-RSF
31207LA	POWER SUPPLY CABLE
31209LA	P.C.B. SM20015 CABLE
31210LA	AIR PRESSURE SWITCH CABLE
31211LA	EXHAUST FAN CABLE RSF 30
31212LA	LIMIT THERMOSTAT CABLE RSF30
31213LA	FRAME-EARTH CABLE RSF 30
31222LA	D.H.W. HEATING SENSOR CABLE OBLO'
31223LA	DIVERTER VALVE LEAD OBLO'
31224LA	CIRCULATING PUMP CONNECTOR OBLO'
31237LA	WATER PRESSURE SWITCH DIGITAL CABLE
31244LA	FLOWSWITCH MICRO LEAD
33028LA	GAS VALVE CAP 1/2" OT E. 24x15Df. 15
35007LA	IGNITION ELECTRODE E. 0774527
35009LA	IONISATION ELECTRODE EL.0774929
36066LA	GAS VALVE VK4105 G1112 EL.MIDY/S13-SF16/VENTED
37016LA	EXHAUST FAN ES 30-108 G00-0416
38509LA	PANEL PUSH CLOSURE
40047LP	EXHAUST FAN D.85 FLANGE
41016LA	FLOWSWITCH FILTER
43001LA	WASHER D.23.5x17x2 3/4" -AFM34
43002LA	WASHER D.18.5x10.2x2 1/2" -AFM34
43003LA	WASHER D.15x8x2 3/8" -AFM34
43005LA	WASHER D.30x23x2 1" AFM34
43009LA	FB10/1 SYLICON RED WASHER ROUND TYPE
43010LA	FB11/1 SYLICON RED WASHER CONE TYPE
43011LA	FB12/1 SYLICON RED WASHER OVAL TYPE
43018LA	SYLICON/TRANSPARENT PIPE D.8x4
43040LA	ELECTRODE RED RUBBER CAP 0619/36
43042LA	RED SYLICON WASHER FOR SYLICON PIPES D.8x4
43051LA	SELF-ADHESIVE AERSTOP WASHER N12/A 15x2
43120LA	SELF-ADHESIVE AERSTOP WASHER N12/A 15X3
43135LA	3-WAY VALVE FLANGE WASHER -MPLEX.
43137LA	SYLICON WASHER W/INSPECTION WINDOW D.35
43139LA	PLATE EXCHANGER O-RING MULTIPLEX
43145LA	3-WAY VALVE MOTOR O-RING MULTIPLEX

43147LA	CERAMIC FIBRE FRONT 295x210x10
43148LA	CERAMIC FIBRE BACK 317x210x10
43149LA	CERAMIC FIBRE RIGHT-LEFT 198x185x7.5SP
43150LA	EPDM O-RING FOR BRASS CONNECTIONS MULTIPLEX
43151LA	BY/PASS REGULATOR EPDM O-RING 5x2 MULTIPLEX
43159LA	WASHER EPDM 80 SH M.PLEX 16x24x2,5
47019LA	2 POSITIONS COMMUTATOR SWITCH
50015LA	PRESSURE SWITCH CABLE FIXING
50024LA	ELECTRIC PLUG SCHUKO LIN.3x0.75 258/34180551
52182LA	RIGHT SIDE CASE PANEL
52183LA	LEFT SIDE CASE PANEL
52184LA	FRONT SIDE CASE PANEL
52185LA	FRONT PANEL BRACKET
54022LA	ZINC-PLATED STEEL FIXING CLIP MULTIPLEX
54023LA	BY PASS SPRING MULTIPLEX
54024LA	BY PASS-REGULATOR FIXING CLIP MULTIPLEX
55021LA	FRONT PANEL KNOB
57501LP	AIR PRESSURE POINT D.6
57512LP	VENTURI D.15x38 NEGATIVE PRESSURE POINT
58015LP	MAIN HEAT EXCHANGER 30K - 2003
59001LA	AIR PRESSURE SWITCH C6065AH1095 CE
59012LA	AIR PRESSURE SWITCH x RSF 30 C6065FH1748B
61004LP	FLOWSWITCH PISTON
62011LP	D.100 HOLES CLOSING PLATE FOR R/S CHAMBER TOP
62023LP	THERMOSTAT FIXING PLATE
62063LP	MULTIPLEX TEMPLATE PLATE
62066LP	SIDE GUIDE X EXCHANGER
64043LA	INSTRUMENT PANEL BACK PIECE SLIM/MIDY/RBA/SF/S
64060LA	FLOWSWITCH GROUP MULTIPLEX - INST.BOILER
64063LA	BY PASS NYLON BUSH MULTIPLEX
64064LA	PUMP CONNECTION BODY MULTIPLEX
64065LA	3-WAY VALVE BODY-BACK PIECE MULTIPLEX
64066LA	FLOWSWITCH/PUMP CONNECTION CAPMULTIPLEX
64067LA	BY PASS REGULATOR MULTIPLEX
64068LA	3-WAY VALVE BODY-CENTRAL SECTION MULTIPLEX
64072LA	BY PASS FIXING PLATE MULTIPLEX
64075LA	BY PASS MULTIPLEX
64078LA	DIGITAL INSTRUMENT PANEL
64080LA	DIGITAL INSTRUMENT PANEL PLASTIC COVER
64083LA	WATER PRESSURE SWITCH CONNECTION MULTIPLEX
64093LA	PUMP CONN. PLUG M.PLEX 0206T1
67018LA	1/2" GAS COCK
68126LP	FITTINGS CONNECTION KIT RBC-RBS MIDY
73507LA	D.H.W.-HEATING 1/8" WHITE SENSOR S010056
74174LP	BOTTOM BOILER PLATE FOR CONNECTIONS MULTIPLEX
74175LP	FRONT PANEL SUPPORT BRACKET RIGHT
74176LP	FRONT PANEL SUPPORT BRACKET LEFT
74247LP	STAFFA A MURO CALDAIA RSF 30
76631LA	ELECTR.IGNIT.BOARD S4565QM1012 MIDY/SF/S
76654LA	DIGITAL INDICATORS P.C.B. SK06206
76655LA	MAIN PRINTED CIRC. BOARD SM20015
79025LP	FRAME 2002 SLIM
83412LP	PIPE D.14 MULTIPLEX-PUMP MANIFOLD
83423LP	PIPE D.18 HEATING FLOW
83424LP	PIPE D.18 HEATING RETURN
83425LP	PIPE D.14 GAS VALVE

83426LP	PIPE D.8 EXPANSION VESSEL
83461LP	EXCHANGER D.22x331 PIPE
86006LA	LIMIT THERMOSTAT 95gr(°)E.
86014LA	WATER PRESSURE GAUGE M3A-ABS 400-4 PB120417
89037LA	BIG PANEL CAP-WHITE COMF./SLIM/MIDY
95018LA	10 LT. EXPANSION VESSEL RS/RSF30 13D00010
96012LA	AUTOMATIC AIR VENT VALVE 3/8" 5020
96032LA	DIVERTER VALVE ATV 300/13