



INSTALLATION AND MAINTENANCE MANUAL FOR GAS FIRED HEATER

Model	SF 16 E	FLUTRONIC
TYPE C	ROOM SEALED	



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

CE 0694

ENGLISH

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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 have a negative effect on 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.).

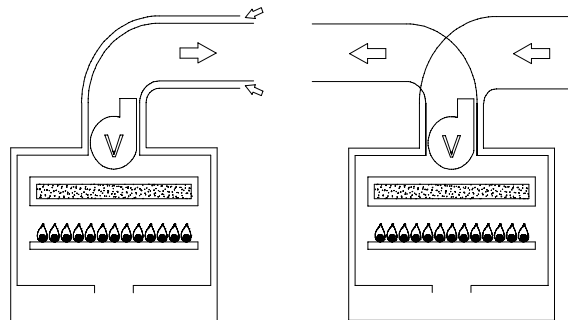
TECHNICAL SPECIFICATION

Type C device

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 – D.H.W.

room sealed circuit type
mod. **RBS 20 E**



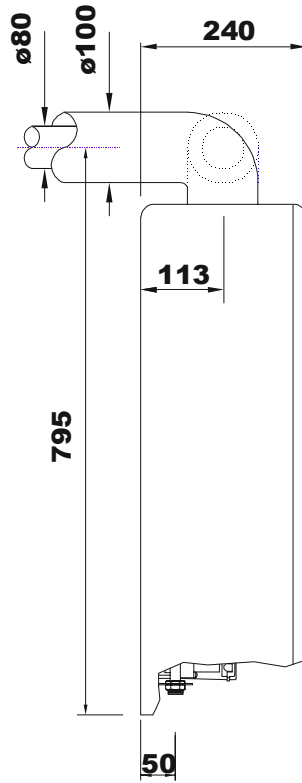
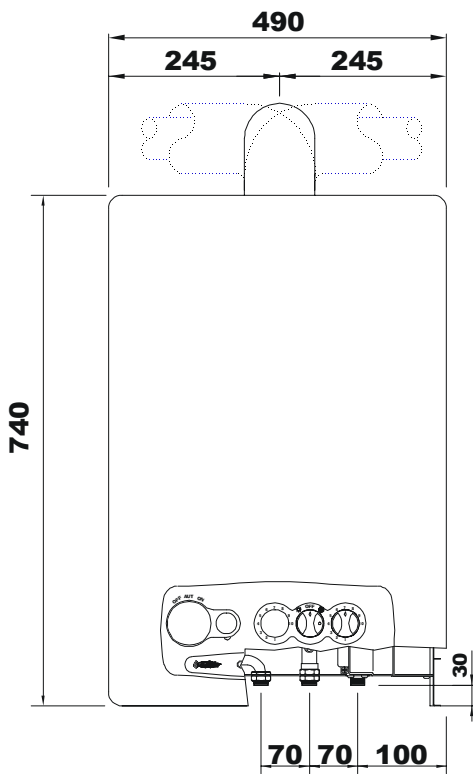
C32 Coaxial vertical
C12 Coaxial horizontal

C52 Double

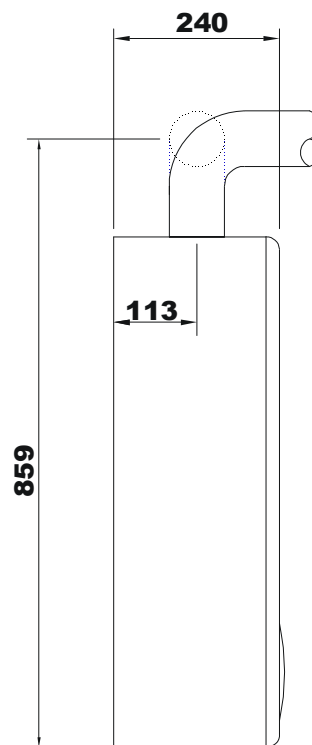
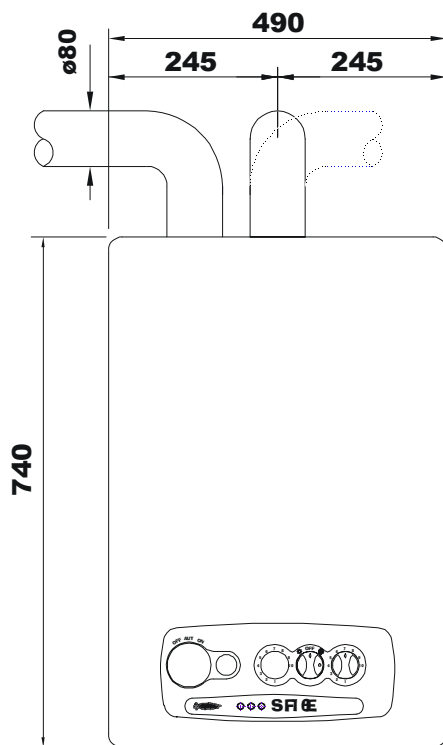
Technical data

Model		SF 16 E			
		KW		BTU/h	
Maximum Rated Output		25		85275	
Maximum Rated Output		13.2		45025	
Maximum Rated Input		29.7		101308	
Maximum Rated Input		16.3		55599	
Efficiency		84 %			
Gas Type		Methane Gas		Liquid Gas (LPG)	
		(G20)		(G30)	
Lower Wobbe Index (at 15°C - 1013 mbar)	MJ/m ³	34.02		0116.09	
	MJ/Kg.			45.65	
Rated Feed Pressure	mbar (mmCA)	20 (204)		30 (306)	
Consumption	m ³ /h	3.14			
	Kg/h			2.34	
Burne Nozzle	Ø mm	1.25		0.75	
Gas Connections		1/2"		1/2"	
Acqua					
Minimum Pressure	bar.	0.4			
Normal Pressure	bar.	2			
Maximum Pressure	bar.	6			
Temperature Adjustment	°C	40 °C - 60 °C			
Domestic Hot Water Maximum Flow		Δt 25 °C / 15l/min			
Water Connexions		1/2"			
Flue Diameter	mm	100/60 KIT A - 80/80 Kit B			
Power Supply	W	70			
Fuse	A	1			
Electrical Connection	V/Hz	230 / 50			
Dimension and Weights		Water Heater		Packing	
Height	mm	710		750	
Width	mm	480		530	
Depth	mm	240		285	
Weight	Kg	24		26	

OVERALL DIMENSIONS



Kit. A.
Horizontal coaxial exhaust system, revolves 360°: for flue exhaust and inlet of air from external wall.
N.B.: To insert a flue bend, reduce total length of exhaust 0.8 m.



Kit. B.
Double system, revolves 360°: twin-tube system for exhaust of fumes into flue duct and emission of air from outside.
N.B.: To insert a flue bend, reduce total length of flue by 0.5 m.

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 ft³/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. uninterrupted 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

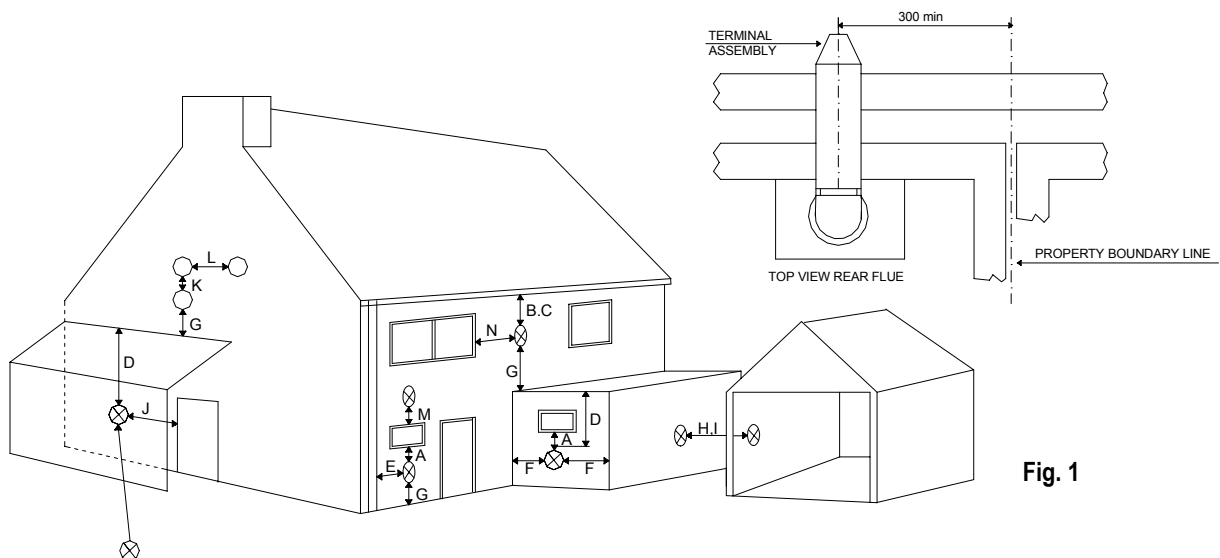
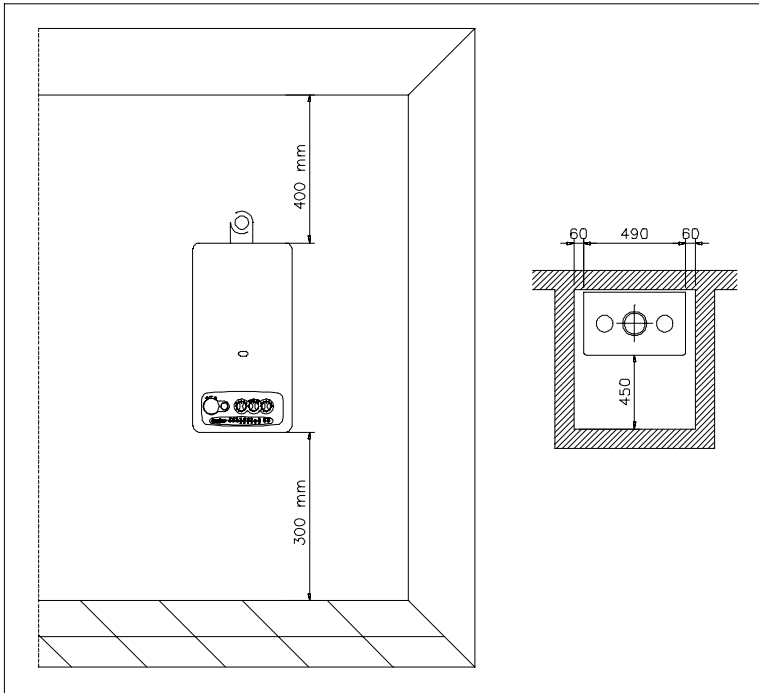


Fig. 1

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

DISTANCES FOR FIXING TO WALL



The water heater must be installed in a suitable wall.

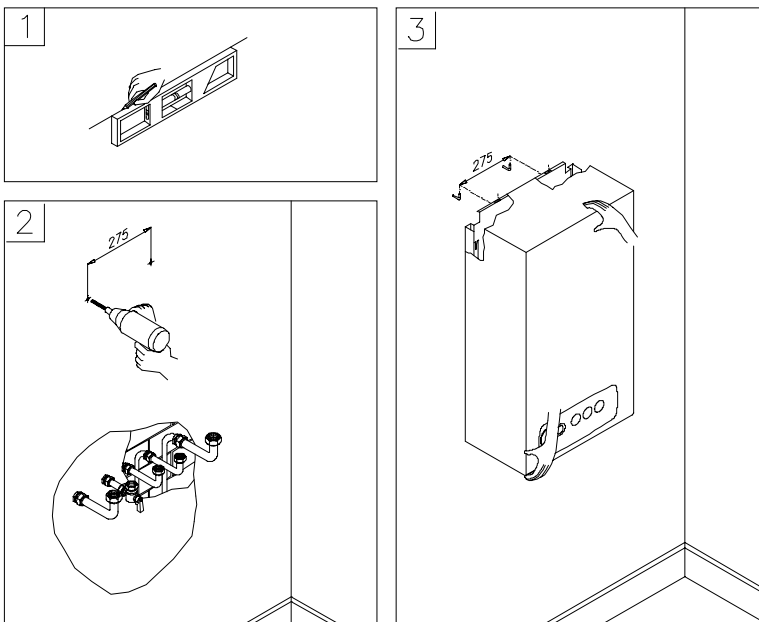
The water heater must not be fitted in a cupboard or cabinet and to allow access for maintenance operations, the minimum distances shown below must be respected.

FIXING TO WALL

The installation and fixing to wall of the water heater must conform to the national standards and safety norms.

Follow these instructions:

1. With a spirit level (min.length 40 cm.), draw a line on the wall on which the water heater will be installed.
2. 2) On the line drawn with the spirit level mark the two points for insertion of the two screw anchors or wall anchors $\varnothing 9$ mm. Next, with a drill, make the two $\varnothing 9$ holes.
3. Hang the water heater and make hydraulic connections.



N.B.: a fittings kit is supplied by request. (option).

WATER AND GAS CONNECTION

For the installation respect national standards and safety norms.

GAS CONNECTION

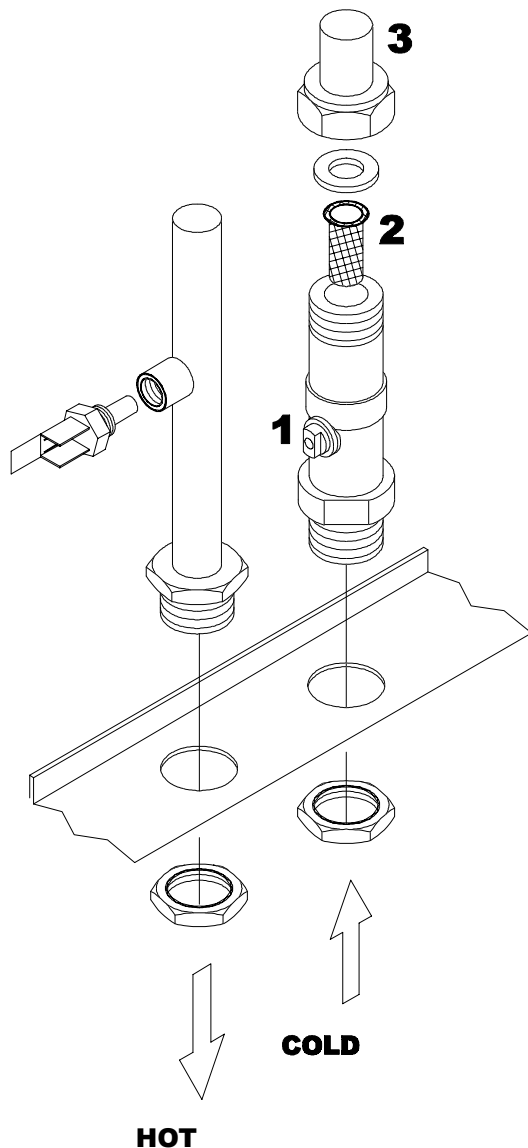
- The pipe must have sufficient section with respect to its length and to necessary flow rate, and must be equipped with all the safety devices and controls required by the law.
- The unit must be fed by the appropriate type of gas (see plate)
- The gas supply pressure must be within the limits stated on the plate.
- Before installation, it is good practice to blow compressed air in the pipe to remove any machining residue.
- A gas on/off cock must be installed on the internal gas feed pipe upstream of the water heater (looking at the front of the water heater, the gas feed connection is on the right. See overall dimensions on p. 5).
- Check the internal and external seal of the gas feed system.
- If the unit is not used for an extended time, close the main gas feed cock.
- Conversion of the unit from Nat. Gas to LPG must be performed by qualified personnel only.

WATER CONNECTION

Connect the heater to the water mains and install a water cock upstream (for the heater connection outfeed, see overall dimensions).

SETTING OF MAXIMUM FLOW RATE

Maximum water flow rate (15 liters/min.) is set by means of key 1 (see fig. A). The unit is equipped with a large, stainless steel water filter (2) to filter any impurities from the water. To clean the filter, unscrew sleeve (3) and remove.



CONNECTION OF COMBUSTION EXHAUST FLUE PIPE

Observe installation norms according to the national standards and safety norms. See page no.8 of this manual for external positioning of flue terminal.

A flue kit is supplied with the unit.

For installation, see overall dimensions at page 9; for the various type of exhaust pipes, see page 6.

GAS OPERATION AND ADJUSTMENTS

Conversion of the water heater from NATURAL GAS to LPG and vice versa **must be performed by qualified personnel only**. Conversion is performed as follows:

- 1 - Make sure to disconnect the power supply and that the gas tap is closed.
- 2 - To replace the main burner injectors: Separate the burner manifold from the burner ramps by unscrewing the 4 screws (see fig. A) with a cross-point screw driver. Unscrew the gas tube with a size 24 hexagonal wrench (see fig. A no.2). Replace the injectors on the manifold by using (see fig. A no. 3) a size 7 wrench (for LP GAS: 16 injectors Ø 0.75, for natural gas: 16 injectors Ø 1.20). The injectors must be installed with new gaskets. Reassemble the entire burner unit.
- Attention:** after every disassembly and re-assembly of gas connections, check carefully with soap and water.
- 3 - Move the selector / link on the printed circuit board mod.W4115C1000B according to the gas required. (see fig. B).
- 4 - Replace the gas setting plate indicating gas type and pressure. When converting the boiler to function with a different type of gas, remove the existing plate and replace it with a new one supplied in the conversion kit.

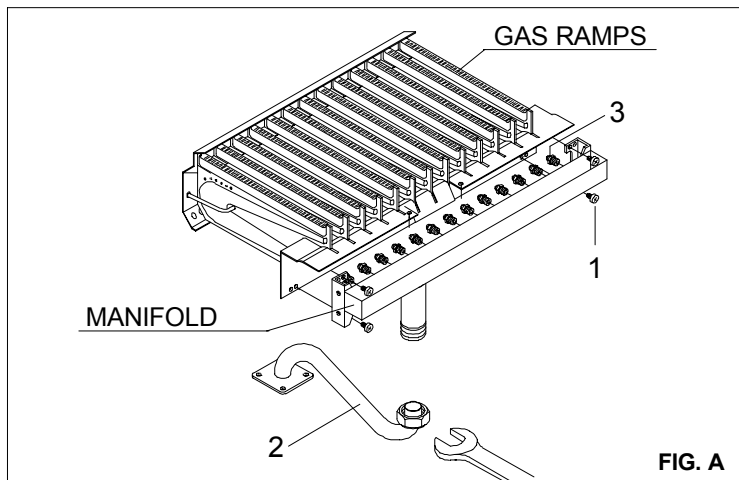


FIG. A

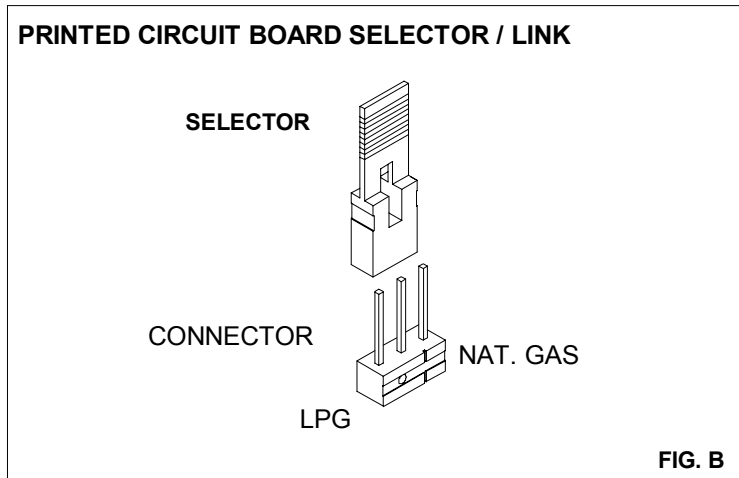
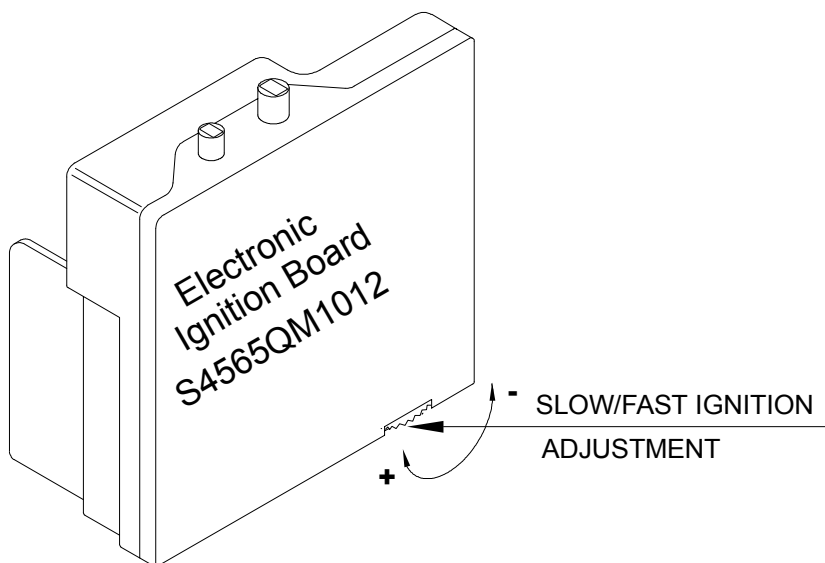
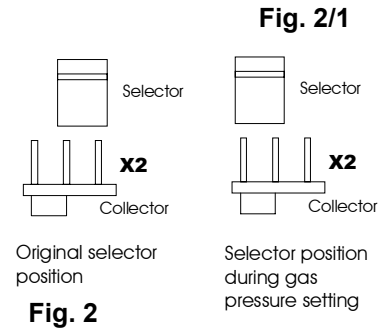
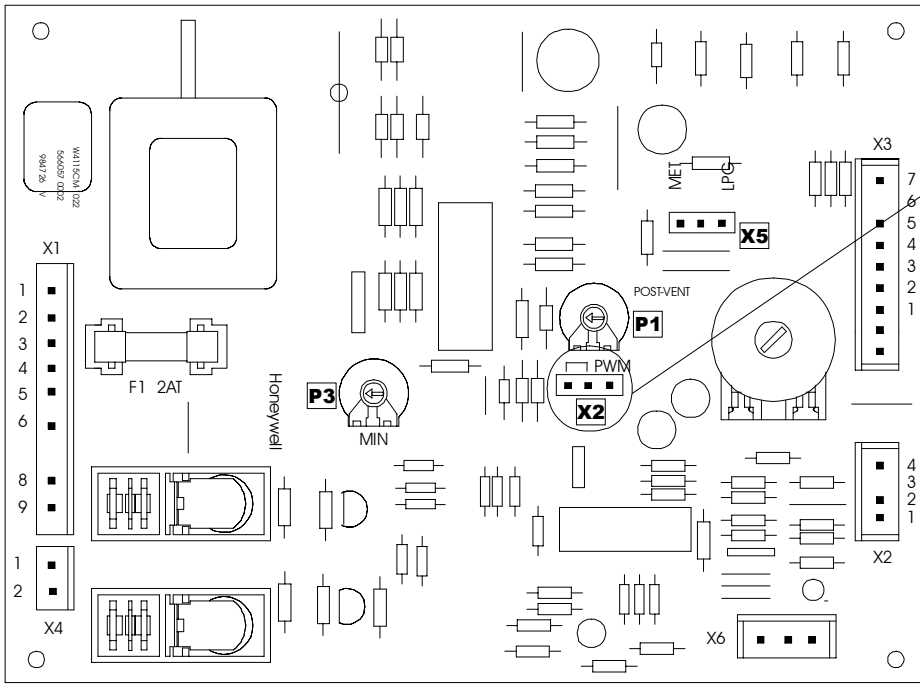


FIG. B

FAN OVER-RUN (Lime-scale prevention)

To avoid the appliance reaching too high temperatures due to long-time operations and maximum flue lengths, it is possible to set a fan over-run timer adjustable from 0 to 8 minutes.





- Fig. 2**
- A** Maximum gas pressure adjusting screw
 - B** Gas burner pressure point
 - C** Inlet gas pressure point
 - D** Minimum pressure mechanical adjustment
 - X2** Selection for electrical and mechanical minimum pressure adjustment
 - X5** Natural Gas - LPG link
 - P1** Fan over-run adjustment
 - P3** Minimum setting adjustment

Fig. 1

ELECTRONIC IGNITION BOARD W4115CM1022 FOR CVIm VALVE

GAS VALVE MODULATION MINIMUM AND MAXIMUM GAS PRESSURE SETTING

- Adjust burner gas pressure through screw **A** (fig.3) as follows:
- ◆ Undo the screw of pressure point **B** (fig.3) and insert a pressure gauge.
 - ◆ Unscrew and remove the aluminium cap of regulator **A** (fig.3)
 - ◆ Turn ON the water heater by opening a hot water tap to maximum
 - ◆ Once the burner has fired, set the maximum gas pressure by turning the regulator clockwise to increase (+) and anti-clockwise to decrease (-) gas pressure.
 - ◆ Once the maximum gas pressure has been set, without removing the pressure gauge, proceed as follows to set the minimum gas pressure.
 - ◆ With the hot water tap still open at its maximum flow, move the **X2** selector in the position shown in fig.2/1 ('selector position during gas pressure setting') and then turn **P3 trimmer** (fig.1) clockwise to increase (+) or anti-clockwise to decrease (-) gas pressure.
 - ◆ Once the minimum gas pressure has been set, move **X2** selector back (fig.2) to its original position.
 - ◆ Tighten the aluminium cap of the regulator, remove the pressure gauge (fig.3) and tighten the **B** pressure point screw.

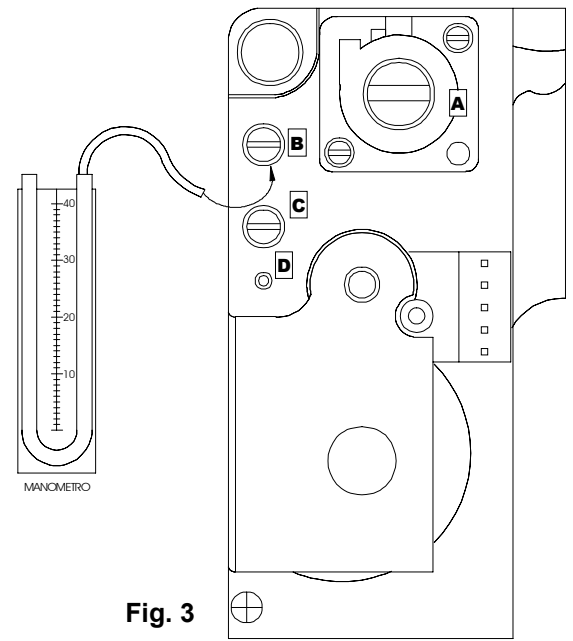


Fig. 3

VALVOLA GAS VK4105G1005

Gas type	Natural Gas		Liquid gas (LPG)	
		(G20)	(G30)	(G31)
Lower Wobbe Index (at 15°C - 1013 mbar)	MJ/m ³	34.02	116.09	88
	MJ/Kg		45.65	46.34
Rated feed pressure	mbar(mmCA)	20 (204)	30 (306)	37 (377)
minimum and maximum pressure	mbar	2.8 / 10.5	8.8 / 27	8.8 / 33
Consumption	m ³ /h	3.14		
	Kg/h		2.34	2.30
burner injectors Ø	mm	1.20	0.75	
Gas connection		1/2"	1/2"	

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) 3x1.5 with maximum external diameter 9 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 VT screwdriver 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".

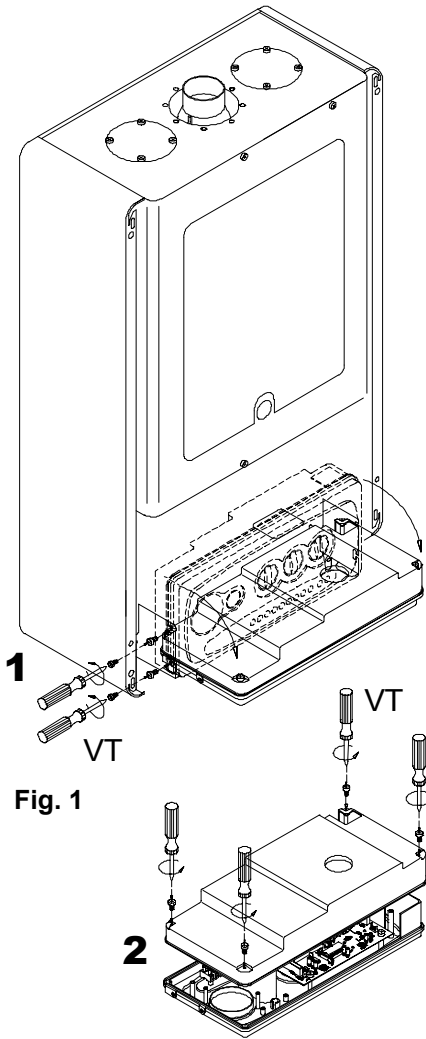


Fig. 1

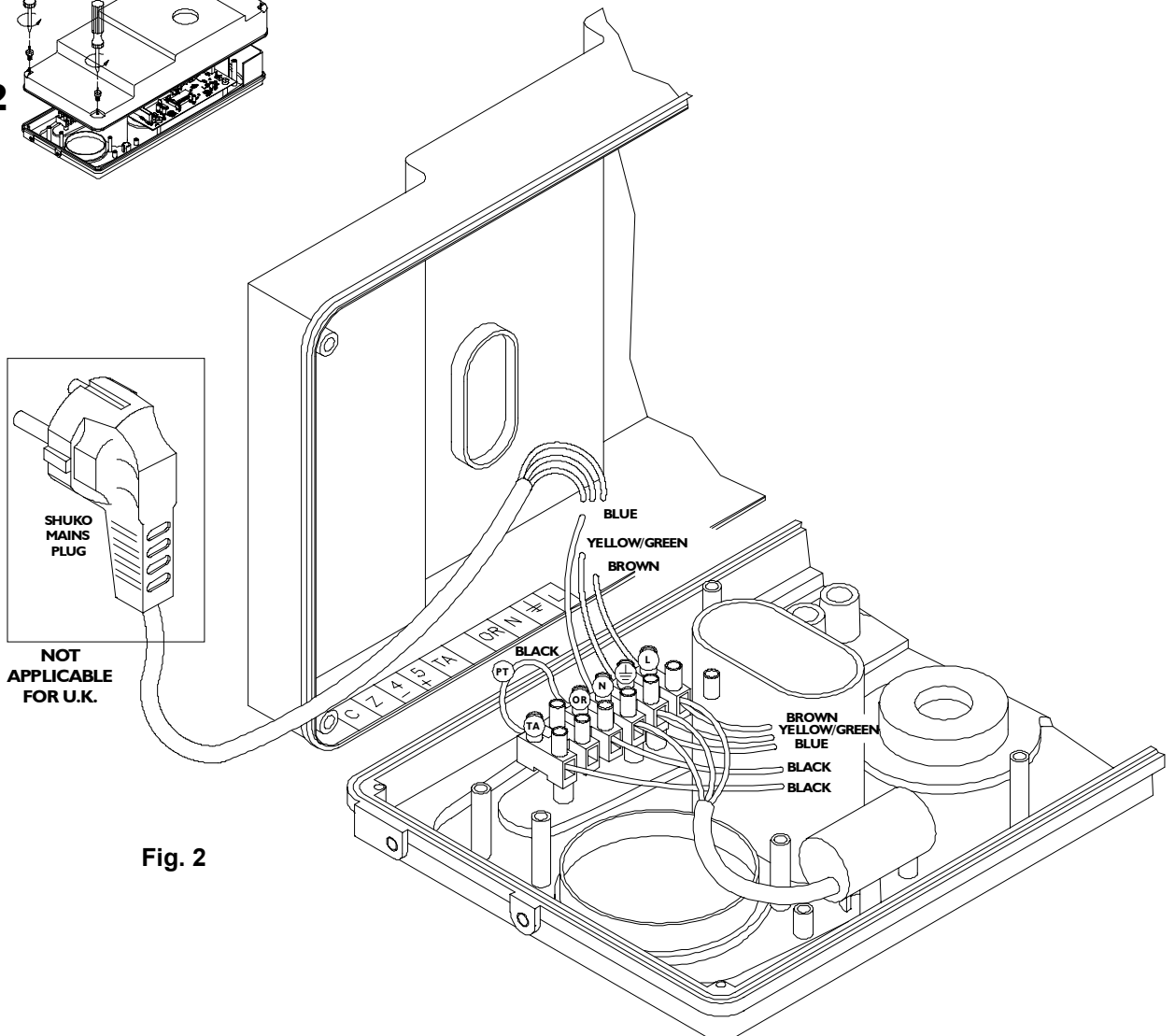
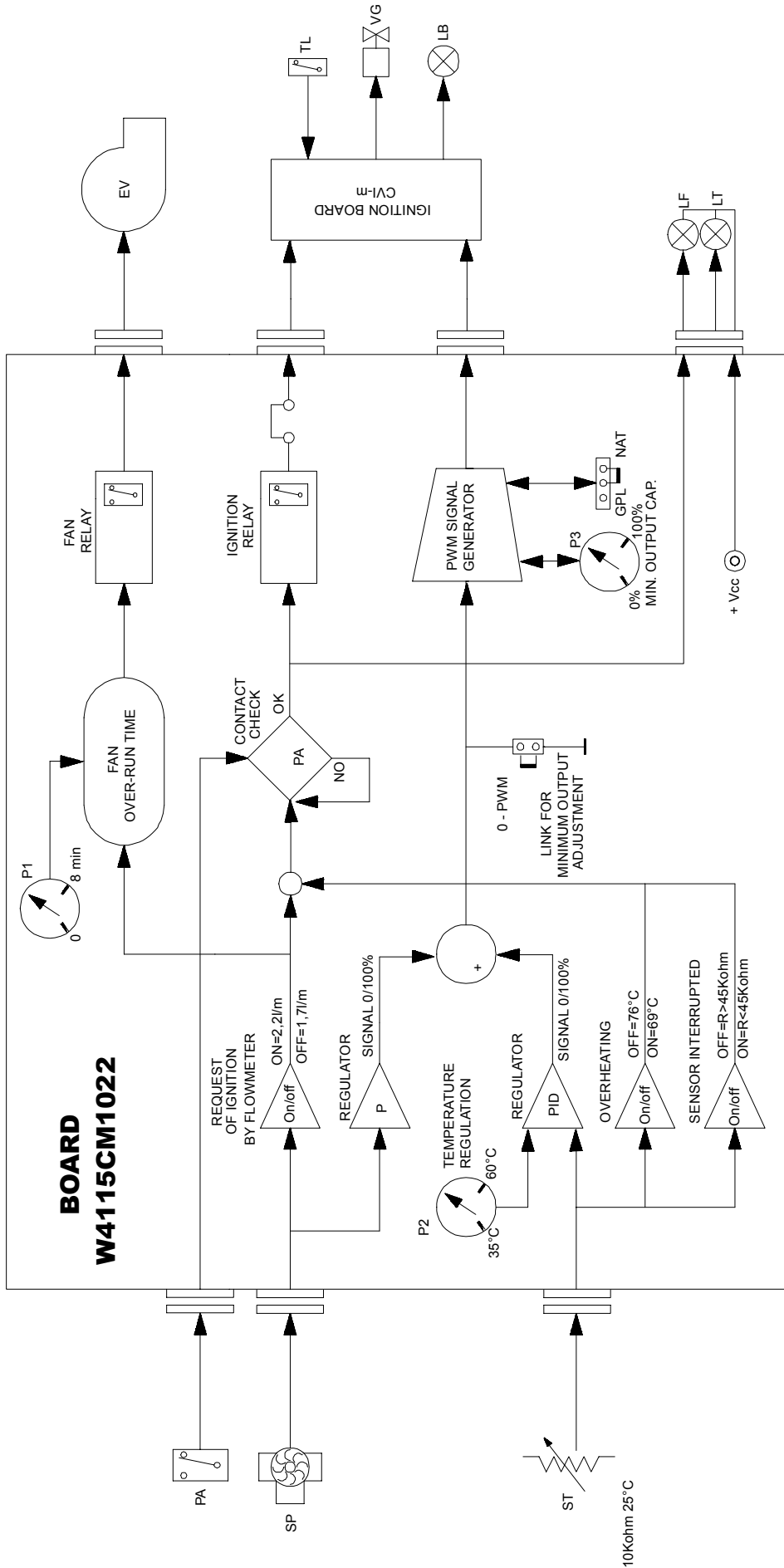


Fig. 2

ELECTRIC WIRING DIAGRAMS

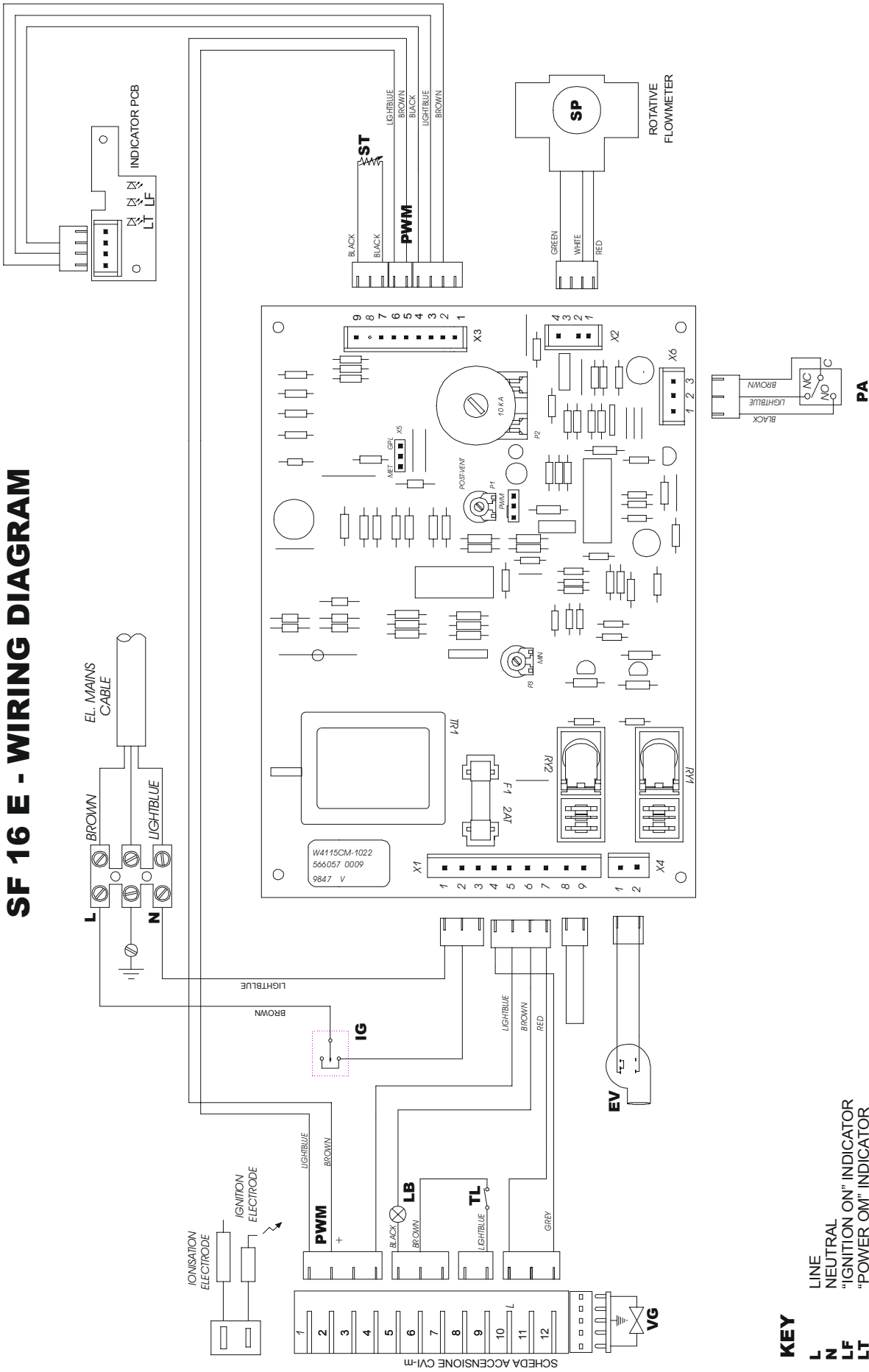


KEY

- PA** AIR PRESSURE SWITCH
- SP** WATER FLOW SENSOR
- ST** TEMPERATURE SENSOR
- LT** POWER ON INDICATOR
- TL** LIMIT THERMOSTAT
- EV** EXHAUST FAN

- CVI-m** ELECTRONIC IGNITION BOARD
- PWM** CVI-m MODULATION SIGNAL
- LF** IGNITION ON INDICATOR
- VG** GAS VALVE
- LB** LOCK-OUT INDICATOR

SF 16 E - WIRING DIAGRAM



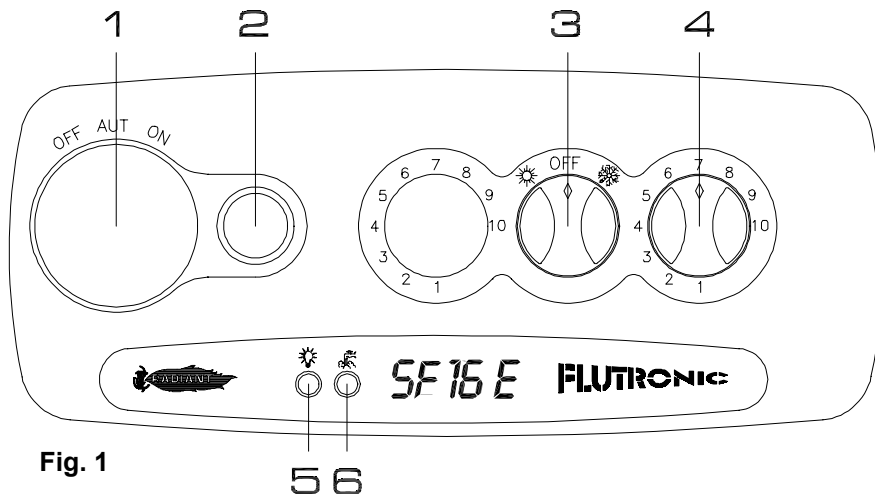
IMPORTANT!
DO NOT REVERSE L/N POLARITY

KEY

- L LINE
- N NEUTRAL
- LF "IGNITION ON" INDICATOR
- LT "POWER ON" INDICATOR
- LB LOCK-OUT INDICATOR
- PWM CV/m MODULATION SIGNAL
- IG POWER SWITCH
- TL LIMIT THERMOSTAT
- EV EXHAUST FAN
- ST TEMPERATURE SENSOR
- SP WATER FLOW SENSOR
- VG GAS VALVE
- PA AIR PRESSURE SWITCH

INSTRUMENT PANEL**Legend:**

1. ON/OFF SWITCH
2. D.H. WATER TEMPERATURE SETTING KNOB (40 - 60 °C)
3. POWER INDICATOR
4. D.H.WATER OPERATION INDICATOR
5. RESET BUTTON

**Fig. 1****PRELIMINARY OPERATIONS**

- Make sure that the gas cock and all water taps are closed.
- Open the cock for the gas counter or for the liquid gas tank meter.
- Open the gas cock (not supplied as standard) located immediately upstream of the heater on the gas intake pipe.
- Make sure that the electrical power to the device is on, and check line, neutral and earth.
- Set switch 1 to **ON**: power indicator no. 3 will light up. (see fig. 1)
- Open the hot water tap: the d. h. water operation indicator no.4 will light up and the exhaust fan will turn on. The electronic ignition board will turn on the main burner. When the water demand stops, the burner will turn off and the water heater will wait for the next water demand.
- If flame does not ignite, after 10 seconds the gas flow is interrupted and the water heater shuts down. The indicator no.5 will light up.
- Shut down requires manual resetting: to restore operation, wait ten seconds and then push reset button 5. Re-ignition is provided if the main burner accidentally shuts down. The heater will shut down if the burner does not resume operation after ten seconds.
- The solenoids will cut gas flow in the vent of electrical failure. When electrical power is restored, repeat the ignition sequence.
- If flame detection electrode (ionisation) does not work properly, gas flow will be cut and the unit will shut down. (Positive safety).
- These devices are built to operate with normal water pressure (not exceeding 6 bar), and are equipped with a water temperature adjustment knob (40° - 60°C) see fig. 1 no. 2.
- **MINIMUM** water temperature (40°C) is obtained by turning temperature knob 2 all the way to the left.
- **MAXIMUM** water temperature (60°C) is obtained by turning temperature knob all the way to the right.
- Whatever the position of the temperature knob, the burner modulates according to flow rate (modulation of flow rate) To put the device out of service, cut electrical power, set switch 1 to OFF and close the gas cock.

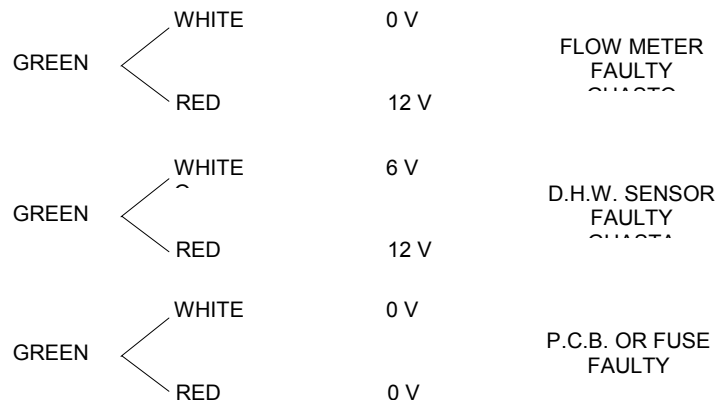
WARNING

Please ensure that the boiler is commissioned in line with all BENCHMARK BOOKLET REQUIREMENTS. Failure to do this may invalidate the guarantee.

MALFUNCTION	POSSIBLE CAUSE	REMEDY
The water heater doesn't work Gas and water tap opened Power indicator ON D. Hot Water operation indicator OFF	_ Rotative flow meter _ D. Hot Water 1/8" sensor _ Fuse _ Main Circuit Board (See table 1)	_ Replace it _ Replace it _ Replace it _ Replace it
The water heater doesn't work Power indicator ON D. Hot Water operation indicator ON	_ High temperature limit thermostat _ Exhaust fan _ Electronic ignition board faulty	_ Replace it _ Replace it _ Replace it
Power indicator ON D. Hot water operation indicator ON Exhaust fan working but flame doesn't ignite and the water heater doesn't lock-out.	_ Air pressure switch _ Air intake flue pipe obstructed _ Electronic ignition board faulty	_ Replace it _ Clean the flue pipe _ Replace it
Power indicator ON D. Hot water operation indicator ON Exhaust fan working The flame ignites but after 10 seconds the water heater locks out.	_ Line / Neutral polarity reversed _ Ionisation electrode _ Ionisation electrode lead _ Electronic ignition board	_ Reverse polarity _ Check and adjust the electrode position _ Replace it _ Replace it
Power indicator ON D. Hot water operation indicator ON Exhaust fan working The ignition electrode sparks but does not ignite the burner and after 10 seconds the water heater locks-out.	_ Ignition electrode in bad position _ Electronic ignition board faulty _ Gas valve faulty _ insufficient fuel (gas)	_ Check that the distance from the burner is 2.5 / 3 mm _ Replace it _ Replace it _ Open the gas tap
The water heater always runs at minimum output	_ Modulator lead broken or disconnected _ Modulator calibrated incorrectly _ Flow meter calibrated incorrectly	_ Replace or connect it _ Calibrate it _ Calibrate it

Table 1 MALFUNCTIONS DIAGRAM

ON THE MAIN PRINTED CIRCUIT BOARD CHECK THAT ON FLOW METER TERMINAL THERE IS VOLTAGE AMONG GREEN - WHITE AND GREEN - RED LEADS.
THE MEASUREMENTS MUST BE DONE WHILE THE WATER HEATER IS WORKING.



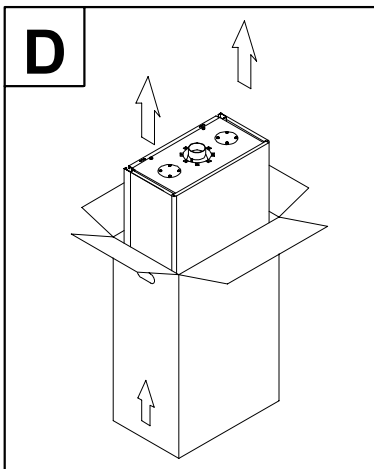
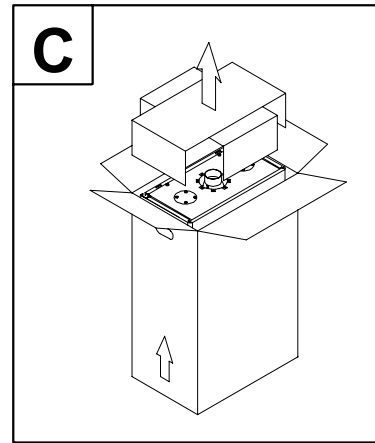
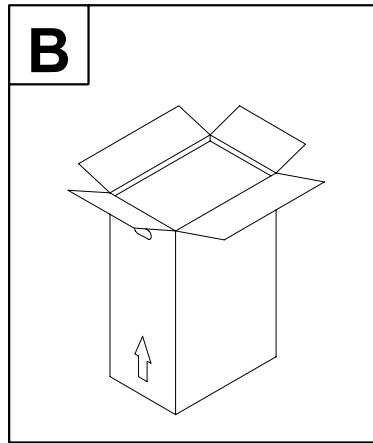
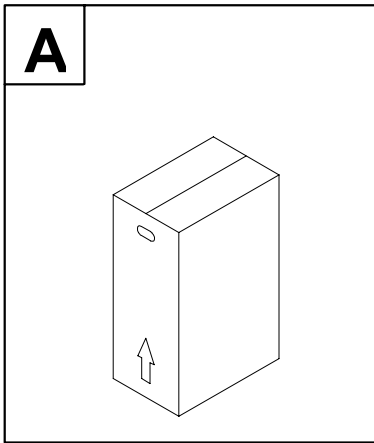
UNPACKING

- A** Set the packed water heater on the floor. Make sure the arrow is pointing up.
- B** Remove the tape and open the 4 flaps toward the outside.
- C** Remove the inside cardboard packing.
- D** Hold the water heater from the rear (frame) when lifting.

IMPORTANT !

The packing material (cardboard) is recyclable.

The inner packing material (plastic bag, cardboard, nails etc.) are potentially dangerous and must not be left in the reach of children.





RADIANT BRUCIATORI S.p.A.

Registered Office:

61025 Montelabbate (PU) Italy • Via Pantanelli, 164
Phone +39 0721 90791 15 linee
telefax. +39 0721 9079299 (italy) - +39 0721 9079279 (export)
Email: italia@radiant.it • tecnico@radiant.it • export@radiant.it
Internet: <http://www.radiant.it>

UK – Radiant Helpline – 01329.828555



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

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