BRAND NAME

NOVA FLORIDA

ALTAIR RTN

INSTALLATION, USE AND MAINTENANCE

EN

IST 04 C 259 - 02

Dear Customer,

Thank you for choosing and buying one of our boilers. Please read these instructions carefully in order to install, operate, and maintain this equipment properly.

GENERAL NOTES FOR THE USER AND THE INSTALLER

This INSTRUCTION BOOKLET is an integral and essential part of this product and must be handed to the user by the installer for safekeeping and consultation when necessary.
This instruction booklet is to be handed over with the equipment should it be sold or transferred.

The boiler must only be used for the purposes that are expressly foreseen. Any other use is to be considered improper and therefore dangerous.

The installation must be carried out in compliance with current standards and following the manufacturer's instructions contained in this booklet. Incorrect installation may result in harm to people, animals, and/or property, and the manufacturer accepts no responsibility for such damage.

The unit must be installed in a room that is sufficiently well ventilated, in compliance with current standards and laws.

The Manufacturer does not accept any contractual or extra-contractual responsibility for any damage caused due to errors in installation or operation, or resulting from failure to follow the instructions below.

Before installing this equipment make sure that the technical data for the unit meet the requirements for its proper use in the plant.

Also check that the equipment is complete and that it has not been damaged in transit or during handling.
Do not install any equipment that is clearly damaged and/or defective.
Do not obstruct the air intake and/or heat dissipation grilles.

For all equipment with optional extras or kits (including electrical ones), only original accessories must be used.

When installing the equipment do not throw the packing away. All the materials can be recycled and must be taken to specific separated collection areas.

Keep the packing out of reach of children, as, by its very nature, it may constitute a source of danger.

Should the equipment break down and/or function defectively, switch it off and do not attempt to repair it yourself. Call in only qualified personnel.

Any repairs to this product must be made using only original spare parts.
Failure to comply with the above may compromise the safety of the equipment and expose people, animals, and property to danger.

The owner is obliged to have routine maintenance carried out on the equipment once a year, as indicated in the programme given in the relevant section of this booklet, in order to ensure that it works efficiently and correctly.

Where the equipment is not to be used for an extensive period of time, disconnect it from the electrical power supply and shut the fuel stopcock.

Where there is a danger of freezing, add antifreeze. Draining the system is not recommended as this may damage the overall system. For this purpose use non-freeze products specifically made for multi-metal heating equipment.

IMPORTANT
For equipment powered by gas fuel, if you smell gas in the area, proceed as follows:
- Do not activate any electric switches or start any electric equipment.
- Do not light any flames and do not smoke.
- Shut the central gas stopcock.
- Open all doors and windows.
- Contact a Service Centre, qualified installer, or the gas supply company.

Using naked flames to check for gas leaks is completely forbidden.

ATTENTION

This unit is built for installation in the destination Country specified on the technical data plate.
Installation in any country other than that indicated may pose a danger to people, animals, or property.

CONTENTS

1. INSTRUCTIONS FOR THE USER

1.1 CONTROL PANEL

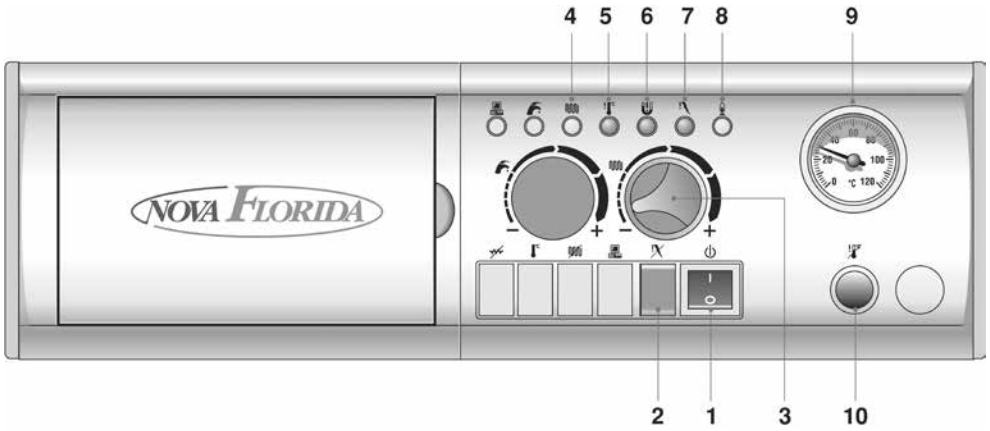

fig. 1

1. General switch with line light (green)
2. Reset button
3. Temperature adjustment for the heating water
4. Heating pump operation light (yellow)
5. Overheating cut-out LED (red)
6. LED to indicate cut-out due to no draught on the flue or low gas pressure (low gas pressure for models RTN 70 to 100)
7. Burner cut-out LED (only "E" models)
8. Burner operation LED (yellow)
9. Water thermometer (models RTN 18 to RTN 48) or thermometer/pressure gauge (for models RTN 60 to RTN 100 and all PV models)
10. Safety thermostat manual reset

Main lit switch (green) (1)
When the switch is in the 0 position the boiler is switched off and the switch is not lit.
When the switch is in the I position the boiler is switched on and the switch is lit.

Reset button (2)
When the reset button is pressed the boiler is restarted.

Temperature adjustment for the heating water (3)
This knob is used to set the temperature for the water in the heating system. It can be set between a minimum of 45°C and a maximum of 85°C.

Heating function LED (yellow) (4)
This LED indicates that the system is calling for heating.

Overheating cut-out LED (red) (5)
This light indicates that the cut-out connected to the safety thermostat has tripped due to malfunctioning. It must be reset manually.

Cut-out LED (red) (6)
(On all models) This light indicates that the flue gas safety device has tripped due to a lack of draught on the flue (albeit only temporary) or low gas supply pressure (for models RTN 70 to RTN 100). It must be reset manually.

Burner cut-out LED (red, only "E" models) (7)
This light indicates that the burner safety device has tripped due to a malfunction.

Burner operation LED (yellow) (8)
This light indicates that the burner is operating.

Thermometer or pressure gauge (9)
The thermometer's function is to indicate the temperature of the water in the boiler, while the thermometer / pressure gauge is used to indicate the pressure as well.

Safety thermostat manual reset (10)
The safety thermostat is used to protect the boiler in case of a fault. The thermostat reset button can be accessed by removing the protective cover.

1.2 Operating the boiler (fig. 1)

1.2.1 Switching on

For "E" models:

* Open the fuel stopcock.
* Switch the boiler's main switch **1** to the ON position (the switch lights up).
• Turn the heating water temperature adjustment knob **3** to set the temperature required for the heating system.
• Set the ambient temperature using the ambient thermostat (if there is one).
• When the heating system calls for heat the heating request light **4** comes on.
• When the burner is operating, the burner operation light **8** comes on.

For models with a thermoelectric valve:

• Open the fuel stopcock.
• Make sure that the main switch is in the OFF position (the switch is not lit up).
• Remove the front panel on the boiler. This allows access to the gas valve and the piezoelectric device and the pilot burner can be switched on.
• Turn the cover over the pilot burner so that it can be seen through the relevant hole.
• Pushing the gas valve knob gently, rotate it anti-clockwise from the • (off) position to the ✷ (pilot) position.
• Hold the knob down and push the piezo until the pilot burner is burning.
• Hold the knob down for about 20 seconds.
• After releasing the knob turn it anticlockwise to the (main burner) position.
• Put the cover plate for the pilot burner back in its original position.
• Replace the front panel on the boiler.
• Switch the boiler's main switch **1** to the ON position (the switch lights up).
• Turn the heating water temperature adjustment knob **3** to set the temperature required for the heating system.
• Set the ambient temperature using the ambient thermostat (if there is one).
• When the heating system calls for heat the heating request light **4** comes on.
• When the burner is operating, the burner operation light **8** comes on.

Please Note: When igniting the burner after the boiler has been out of use for a long period of time, especially in the case of LPG boilers, there may be airlocks in the pipes.
The boiler's burner may cut-out a few times. Restart the burner using the reset button (see the following paragraphs).

1.2.2 Switching off

For "E" models:
Set the main switch on the OFF position (the switch is not lit up). If necessary, shut the fuel stopcock.

For models with a thermoelectric valve
On these models, when the main switch is on the OFF position (switch not lit up) the main burner is extinguished but the pilot burner stays alight.
If you wish to extinguish the pilot burner as well, after setting the main switch to the OFF position, remove the boiler's front panel and turn the gas valve knob to the • (off) position by turning it clockwise.

1.2.3 Burner cut-out

When any functioning faults arise the boiler's burner cuts out automatically.
On **"E"** models the cut-out light **7** comes on. Should this happen, proceed as follows:
• First check the fuel supply, make sure that the gas stopcock is open and that the gas mains have gas in them by lighting a cooking ring in the kitchen, for example.
• Having checked the fuel supply, reset the burner by pushing the reset button **2** on the control panel.

Models with a thermoelectric valve do not have any cut-out indication light.
The boiler must be re-ignited as per instructions given in paragraph 1.2.1 and this can only be done 60 seconds after it has gone out (automatic safety device).
If the equipment does not restart and cuts out again, after trying three times contact a Service Centre or qualified personnel to carry out maintenance.
If the burner cuts out frequently this is a sign that there is an ongoing operating fault.
Contact qualified personnel or a Service Centre for maintenance.

1.2.4 Cut-out do to overheating

Should the red cut-out light **5** indicating overheating come on, this means that the safety thermostat cut-out has tripped and must be reset manually. This is due to an operating fault and a Service Centre or qualified personnel must be contacted for maintenance.

1.2.5 Cut-out due to incorrect draught in the flue

Should conditions arise that lead to a faulty draught in the flue, the boiler cuts out and red light **6** comes on.
To restart the boiler proceed as follows:
• Switch the boiler's main switch **1** to the **0** position (the boiler is switched off and the switch is not lit up).
• Remove the front panel on the boiler.
• Push the button on the thermostat that checks proper evacuation of flue gas (fig. 2).

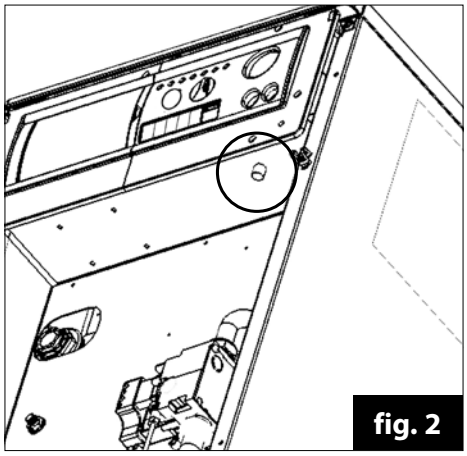

fig. 2

• Replace the front panel on the boiler.
• Switch the boiler's main switch **1** to the **I** position (the boiler is switched on and the switch is lit up).

WARNING

If after resetting the boiler does not start working properly again and cuts out again, contact qualified personnel or a Service Centre for maintenance.

1.2.6 Cut-out due to insufficient gas pressure (on models RTN 70 to RTN 100)

Should the gas supply pressure be insufficient, the boiler does not start up and red light **6** lights up.
If the unit remains in this state for any length of time, contact the gas supply company.

1.3 Maintenance

The user is obliged to have routine maintenance done on the boiler and the burner once a year.

Correct maintenance of the boiler allows it to work under the best conditions, protects the environment, and makes the equipment fully safe for people, animals, or property.

The boiler must be maintained only by qualified personnel.

The user may only clean the casing on the boiler, and this must be done using products for cleaning furniture.

Do not use water!

1.4 Notes for the user

The user is not authorised to remove the casing of the boiler and to work on parts inside.

NOBODY, INCLUDING QUALIFIED PERSONNEL, IS AUTHORISED TO MODIFY THE BOILER.

Qualified personnel may install specific original kits on the boiler.

The Manufacturer accepts no responsibility for damage to people, animals, or property that may arise due to tampering or incorrect work done on the boiler.

The heating system can be effectively protected against freezing by using specific anti-freeze products that are suitable for multi-metal systems.

Do not use anti-freeze products for car engines, and check the effectiveness of the product over the time.

This boiler is fitted with a thermometer to allow you to check the water temperature.

2. TECHNICAL CHARACTERISTICS AND DIMENSIONS

2.1 Technical characteristics

These boilers are fitted with a high performance heat exchanger that works with gas burners at atmospheric pressure.

The following models are available:
RTN E 18 and RTN 18 with a heat output of 18 kW.
RTN E 24 and RTN 24 with a heat output of 24 kW.
RTN E 32 and RTN 32 with a heat output of 31,5 kW.
RTN E 36 and RTN 36 with a heat output of 36 kW.
RTN E 48 and RTN 48 with a heat output of 48 kW.
RTN E 60 with a heat output of 60 kW.
RTN E 70 with a heat output of 70 kW.
RTN E 80 with a heat output of 80 kW.
RTN E 90 with a heat output of 90 kW.
RTN E 100 with a heat output of 100 kW

RTN 18 to **RTN 36** and **RTN E 18** to **RTN E 36** models can be supplied in a **PV** version, which means that they have a circulation pump and an 8 lit. expansion vessel.

RTN E boilers are equipped with an electronic card for checking the flame and have an electronic ignition (which is indicated by the addition of the letter **E** in the model name).

The models from **RTN 18** to **RTN 48** are fitted with a thermoelectric valve and a piezoelectric ignition unit.

These boilers meet the essential requirements laid down in EEC Directives for this product and
- Gas Directive 90/396/EEC dated 29th June 1990,
- Performance Directive 92/42/EEC dated 21st May 1992.
- EMC Directive 89/336/EEC dated 3rd May 1989, as amended by Directive 92/31/EEC dated 28th April 1992,
- European Community Low Voltage Directive 73/23/EEC dated 19th February 1973, as amended by Directive 93/68/EEC dated 22nd July 1993

and they are fitted with all the safety devices called for in the current standards for this type of product.

The main technical characteristics of the boilers are listed below:

• High-performance cast-iron heat exchanger.
• Insulation in glass wool with thick aluminized paper (50 mm).
• Casing in electrically galvanised steel plating, epoxy-polyester powder coated.
• Lit main switch.
• LED indications for: power on, heating pump operation, burner operation, overheating cut-out, cut-out due to lack of draught in the flue or low gas pressure (low gas pressure only RTN 70 to RTN 100 models) and burner cut-out (only "E" models).
• Heating temperature selector (45/85°C).
• Safety limit thermostat (110°C).
• Flue gas safety thermostat.
• Minimum gas supply pressure switch (models RTN 70 to RTN 100).
• Thermometer or thermometer/pressure gauge (for models RTN 60 to RTN 100 and all PV models).
• System drain cock.
• Electrical system with printed electric circuit.
• Provision for the electrical connection of a heating pump.
• Can take a safety pressure switch to guard against insufficient water.
• Provision for the connection of a card for managing a remote water cylinder (optional kit).
• Provision for the connection of a climatic unit (optional kit).
• Provision for the connection of a card for managing three heating areas (optional kit).
• 8-lit. expansion vessel (for PV models).
• Single-speed circulation unit (for PV models).

2.2 Dimensions

MODEL	L (mm)	Flow M	Return R	Gas G	Flue gas duct D (mm)
RTN / RTN E 18	525	G1″ 1/2	G1″ 1/2	G 3/4″	110
RTN / RTN E 24	525	G1″ 1/2	G1″ 1/2	G 3/4″	130
RTN / RTN E 32 - RTN / RTN E 36	625	G1″ 1/2	G1″ 1/2	G 3/4″	130
RTN / RTN E 48	765	G1″ 1/2	G1″ 1/2	G 3/4″	150

NOTA: In PV models, equipped with circulation pump and expansion vessel, R and M connections are Ø G3/4

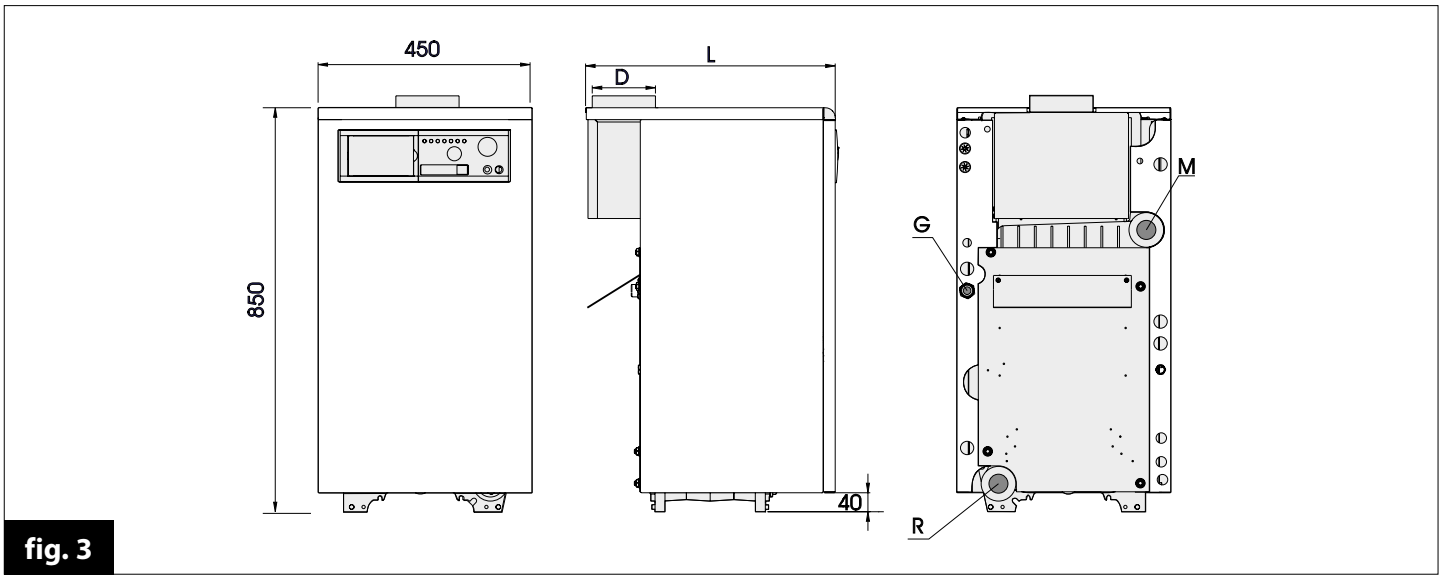

fig. 3

MODEL	L (mm)	Flow M	Return R	Gas G	Flue gas duct D (mm)
RTN E 60	905	G1″ 1/2	G1″ 1/2	G1″	180
RTN E 70	1052	G1″ 1/2	G1″ 1/2	G1″	180
RTN E 80	1153	G1″ 1/2	G1″ 1/2	G1″	200
RTN E 90	1280	G1″ 1/2	G1″ 1/2	G1″	220
RTN E 100	1430	G1″ 1/2	G1″ 1/2	G1″	250

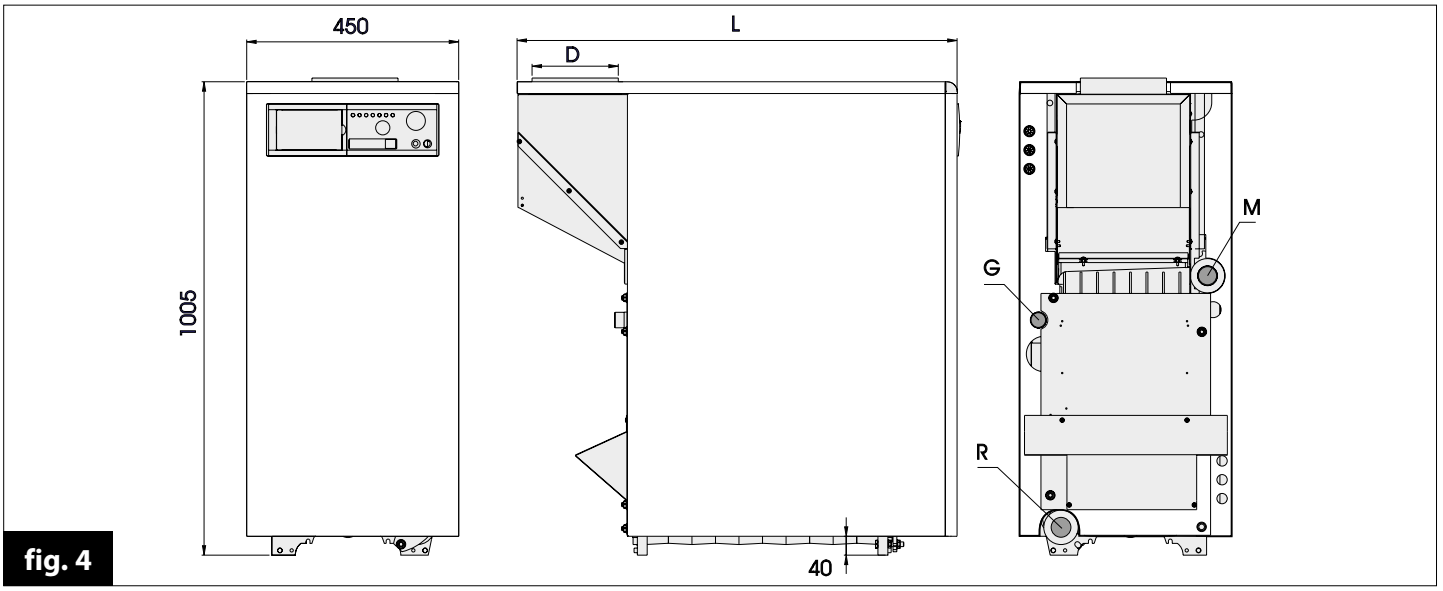

fig. 4

2.3 Technical Data

		MODELS				
		RTN/RTNE 18	**RTN/RTNE 24**	**RTN/RTNE 32**	**RTN/RTNE 36**	**RTN/RTNE 48**
EC Efficiency class		★★	★★	★★	★★	★★
EC PIN		49BN3789				
Category		II2H3+				
Type		B11BS				
Heat output	kW	18.0	24.0	31.5	36.0	48.0
Heat input	kW	20.0	26.6	34.4	39.2	52.8
Performance at nominal load	%	89.6	90.9	90.9	90.83	91.84
Performance at reduced load (30%)	%	89.2	91.1	89.0	90.75	90.4
Maintenance losses ΔT=50°C	%	3.6	2.8	3.1	1.57	1.76
Flue losses with burner off	%	0.2				
Flue losses with burner on	%	6.8	6.3	6.0	7.6	6.4
N° of elements of the heat exchanger	-	3	3	4	4	5
Net weight	Kg	105	105	138	138	173
Water content	l	10.0	10.0	13.4	13.4	16.8
Minimum water flow	l/h	400	520	680	770	1030
Flue gas duct diameter	mm	110	130	130	130	150
Maximum operating pressure	bar	4				
Working temperature	°C	45 - 85				
Electrical power supply	V-Hz	230/50				
Electrical power	W	10				
Fuse on power supply	A	4				
Natural gas G20						
CO_2 value	%	5.8	5.5	6.4	6.5	7.0
Flue gas temperature	°C	110/120	110/120	120/130	120/130	120/130
Flue gas mass flow	Kg/h	42	56	63	70	88
Number of main burner nozzles	-	3				
Diameter of main burner nozzles	mm	2.2	2.5	3.0	3.0	3.1
Diameter of pilot nozzle	mm	2 x 0.27				
Gas pressure at burner	mbar	9.5	11.0	9.5	12.0	12.5
Burner supply pressure	mbar	20				
Gas flow rate (15°C / 1013 mbar)	Stm^3/h	2.11	2.81	3.64	4.15	5.58
Gas G30						
CO_2 value	%	6.3	6.9	8.2	8.7	8.7
Flue gas temperature	°C	110/120	110/120	120/130	120/130	120/130
Flue gas mass flow	Kg/h	40	53	60	64	80
Number of main burner nozzles	-	3				
Diameter of main burner nozzles	mm	1.25	1.50	1.70	1.80	2.05
Diameter of pilot nozzle	mm	1 x 0.22				
Gas pressure at burner	mbar	29				
Burner supply pressure	mbar	26	26	25.5	26.0	26.0
Gas flow rate (15°C / 1013 mbar)	Kg/h	1.6	2.1	2.7	3.1	4.2

		MODÈLES				
		RTNE60	**RTNE70**	**RTNE80**	**RTNE90**	**RTNE100**
EC Efficiency class		★★	★★	★★	★★	★★
EC PIN		49BN3790				
Category		II2H3+				
Type		B11BS				
Heat output	kW	60	70	80	90	100
Heat input	kW	66	76.3	87.3	98.2	109.7
Performance at nominal load	%	91.7	91.7	91.7	91.6	91.6
Performance at reduced load (30%)	%	90.6	90.4	90.3	90.3	90.2
Maintenance losses ΔT=50°C	%	1.8	1.7	1.6	1.5	1.2
Flue losses with burner off	%	0.2				
Flue losses with burner on	%	6.5	6.6	6.7	7.0	7.2
N° of elements of the heat exchanger	-	6	7	8	9	10
Net weight	Kg	215	250	285	320	355
Water content	l	20.2	23.5	26.8	30.1	33.4
Minimum water flow	l/h	1200	1500	1700	1900	2100
Flue gas duct diameter	mm	180	180	200	220	250
Maximum operating pressure	bar	4				
Working temperature	°C	45 - 85				
Electrical power supply	V-Hz	230/50				
Electrical power	W	20				
Fuse on power supply	A	4				
Natural gas G20						
CO_2 value	%	6.5	6.3	6.8	5.5	5.5
Flue gas temperature	°C	110/120	110/120	120/130	110/120	110/120
Flue gas mass flow	Kg/h	114	136	144	200	223
Number of main burner nozzles	-	3				
Diameter of main burner nozzles	mm	3.9	4.1	4.5	4.9	5.2
Diameter of pilot nozzle	mm	2 x 0.27				
Gas pressure at burner	mbar	11.55	13.4	12.0	11.0	11.6
Burner supply pressure	mbar	20				
Gas flow rate (15°C / 1013 mbar)	Stm^3/h	6.97	8.13	9.23	10.44	11.60
Gas G30						
CO_2 value	%	6.5	6.5	7.3	5.7	5.7
Flue gas temperature	°C	110/120	110/120	120/130	110/120	110/120
Flue gas mass flow	Kg/h	134	154	158	225	252
Number of main burner nozzles	-	3				
Diameter of main burner nozzles	mm	2.4	2.6	2.75	2.9	3.05
Diameter of pilot nozzle	mm	1 x 0.22				
Gas pressure at burner	mbar	29				
Burner supply pressure	mbar	26	26	25.5	26.8	26
Gas flow rate (15°C / 1013 mbar)	Kg/h	5.2	6.1	6.9	7.8	8.7

3. INSTRUCTIONS FOR THE INSTALLER

3.1 Installation standards

This boiler must be installed in compliance with current laws and standards, which are taken as being an integral part of this booklet.

3.2 Installation

3.2.1 Packaging

The boilers are supplied packed in a strong cardboard box on a wooden pallet. On removing the cardboard box, make sure that the boiler is complete.
The packing materials can be recycled. Dispose of them via specific waste collection sites.
Keep the packing out of the reach of children, as, by its very nature, it may constitute a source of danger.

The Manufacturer accepts no responsibility for damage to people, animals, or property due to failure to observe the instruction above.

The pack contains a packet in which you will find the installation, operation, and maintenance manual.

3.2.2 Choosing where to install the boiler

The following must be taken into account when choosing where to install the boiler:
• It is advisable to leave at least 50 cm on each side of the boiler to facilitate future maintenance.
• Do not install in damp or dusty rooms.
• The boiler room must not be accessible to outsiders, children, or animals.

3.2.3 Installing the boiler

Before connecting the boiler to the piping for the hot water and heating systems, clean the piping carefully to eliminate any metal residue left during working and welding, and any oil or grease that may be left and that could damage the boiler or alter its operation if it reaches the boiler.

NB: Do not use solvents, as these could damage the components.

The Manufacturer accepts no responsibility for damage to people, animals, or property due to failure to observe the instructions above.

To install the boiler proceed as follows:
• Remove the galvanised plate on the lower back part of the boiler.
• Unscrew the four screws which block the brackets fixing the boiler to the timber pallet (Fig. 5)
• Remove the boiler from the pallet without damaging it.
• Put spacers between the floor and the boiler's feet if necessary, to make the installation stable.
• Connect the boiler to the system's delivery and return pipes.

fig. 5

• Remember that the plumbing system must include all the safety and control elements required in terms of current standards (safety valve, water pressure switch, heat discharge valve, pressure gauge, etc.).
• Couple the boiler to the flue.
• Connect to the electrical system of the boiler: the ambient thermostat, the heating pump, and the heating water pressure switch.
• Connect to the electrical mains.

3.2.4 Ventilation of boiler room

The boilers have open combustion chambers and are designed for being connected to a flue gas chimney.
The combustion-supporting air is drawn directly from the room in which the boiler is installed.
It is obligatory that the boiler be installed in an adequate room in terms of the current standard, **which is taken as an integral part of this booklet.**

3.2.5 Flue gas discharge system

The BALI boilers are fitted with a flue gas discharge coupling that is suitable for connecting to a flue gas chimney with a diameter as specified in the technical data tables.
Current standards must be complied with when discharging flue gas into the atmosphere, and **these standards are taken as being an integral part of this booklet**.

The flue gas ducts from the boiler are to be connected to a flue gas discharge system formed as indicated in current standards, **which are taken as being an integral part of this booklet**.
The following obligatory requirements for flue gas chimney and flue gas ducts must be kept in mind:
• They are to be of a diameter not less than that on the boiler outlet.
• They are to be made of impermeable material that can withstand the flue gas temperature and related acid condensate.
• They are to have low thermal conductivity, sufficient mechanical strength, be properly sealed, and of a calculated height and cross-section.
• The vertical inclination (flue gas duct) and section are to be constant, without any bottlenecks.
• Where horizontal flues sections have to be used, these must be at an incline of at least 5%.
• The end of the flue pipe is to be such that it can ensure efficient, constant evacuation of flue gas under any weather conditions.
• The end section of the flue pipe is to be at least 0,5 m above any adjacent structure within a 5 m radius.

3.2.6 On-site measurement of combustion efficiency

To determine combustion efficiency the following measurements must be taken:
• The temperature of the combustion-supporting air.
• The temperature of the flue gas and the percentage of CO_2 in samples drawn from the hole provided for this purpose in the flue gas duct.
Take the specific measurements with the boiler running at normal load.

3.2.7 Connecting to the gas mains

The gas supply pipe must have a cross-section that is equal to or greater than that on the burner.

Installation standards must be complied with and are taken as being an integral part of this booklet.

Remember that before putting an internal gas distribution system into service, before it is connected to the meter, it must be checked for leaks.

If any part of the system is inaccessible the tightness test must be carried out before the pipes are covered up.
The tightness test must not be carried out using combustible gas. Use air or nitrogen for this purpose.

Once there is gas in the pipes, checking for leaks using a naked flame is forbidden.
Use the products made for this purpose that are available on the market.

3.2.8 Connecting to the electrical mains

These boilers have a terminal board for connection to a three-pole power supply cable, and a suitable cable clamp to prevent it from being torn out.

This boiler must be connected to a 230V-50Hz electrical power supply**.**
When forming the connection respect the phase/neutral polarity.

During installation relevant standards must be complied with and are taken as being an integral part of this booklet.

A two-pole switch must be fitted upstream of the boiler to allow all maintenance work to be carried out in complete safety.

The power supply to the boiler must be fitted with a differential magnetictherma l trip-switch of a suitable tripping power.

The electrical power supply must be safely earthed.
This basic safety requirement must be checked. In case of doubt, call in professionally qualified personnel to check the electrical system carefully.

The Manufacturer accepts no responsibility whatsoever for any damage caused due to failure to earth the system. Gas, water or heating system pipes are not suitable for earthing the system.

3.2.9 Plumbing connections

Before installation, the boiler should be cleaned in order to remove, as far as possible, the impurities that may come from the components as far as possible, as these could damage the circulation pump or the heat exchanger.

The heating delivery and return pipes must be connected to the respective couplings on the boiler.

When sizing the piping for the heating system, bear in mind the load losses caused by radiators, thermostatic valves, radiator gate valves, and the configuration of the system itself.

3.2.10 Installation of original kits

The Manufacturer provides original kits for installing clock programmers, cards for managing a remote water storage cylinder, and for installing a heat regulating unit.
These original kits are to be installed in compliance with the instructions supplied with them.

3.3 Filling the system

Once all the connections in the system have been completed, the heating circuit can be filled.
This operation must be carried out carefully, and in the following steps:
• Open the bleeding valves on the radiators and make sure that the vent valve installed in the boiler room is working.
• Gradually open the relevant stopcock to fill the system and make sure that all automatic air vents installed in the system are working properly.
• Close the vent valve as soon as water comes out of it.
• Use the pressure gauge installed in the boiler room to check when the pressure reaches 0.8 / 1 bar.
• Shut the filling stopcock and bleed any air out again using the bleeding valves on the radiators.
• Having started the boiler and brought the system up to its working temperature, stop the pump and repeat the air bleeding operations.
• Allow the system to cool and return the water pressure to 0.8/1 bar.

WARNING
It is essential to treat the water of domestic heating systems using specific products that are compatible with multimetal systems. This must be made to optimise performance and safety, to preserve these conditions over time, to ensure longlasting regular operation of auxiliary equipment as well, and to minimise energy consumption, thereby integrating current laws and standard.

Note: The boiler is equipped with a drain cock at the front of the unit that can be used to empty the system

3.4 Starting the boiler

3.4.1 Preliminary checks

Before starting the boiler it is advisable to check that:
• The flue gas duct has been installed in compliance with instructions. **When the boiler is running no products generated by combustion are to leak from any of the gaskets**.
• The boiler power supply is 230 V – 50 Hz.
• The system is properly filled with water (pressure on the water gauge 0.8 / 1 bar).
• All stopcocks in the system's piping are open.
• The fuel supply stopcock is open.
• There are no gas leaks.
• The external main switch is on.
• The boiler's safety valve is not blocked.
• There are no water leaks.

To speed up and facilitate igniting the boiler for the first time, bleed the air out of the gas piping using the gas pressure valve socket.
Close the pressure socket carefully after bleeding the system.

3.4.2 Starting up and switching off

For starting up and switching off the boiler, follow the "User's Instructions".

3.5 Wiring diagrams

BC: Flame control
EA: Ignition electrode
ER: Flame detection electrode
F1: Protection fuse F4A 250V
IG: Main switch [marked "on/off" on the printed circuit]
L1: Flue gas thermostat / gas pressure gauge indication
L3: CH pump indication
L4: Burner ON indication
L5: Safety thermostat indication
L6: Burner cut-out indication (only E models).
Lon:Power ON indication
Mn: Minimum thermostat (optional) [marked "Tm" on the printed circuit]
MT: Motor timer (optional) [marked TIMER on the printed circuit]
PA: Water pressure switch (optional) [marked with the pressure switch symbol on the printed circuit]
PC: CH pump
Pgas: Gas pressure switch
PZ: Ignition piezoelectric unit
P1: Burner reset button
R: Heating thermostat [marked "Tr" on the printed circuit]
TA: Ambient thermostat
TS: Safety thermostat
TF: Flue gas thermostat
TM: Contact timer (optional) [marked TIMER on the printed circuit]
VG, VG1,VG2: Gas Valve

a = Light blue
br = Brown
g = Grey
p = Pink
v = Violet
bl = Dark blue
bk = Black
gn = Green
r = Red
y = Yellow
w = White
ygn = Yellow/Green
o = Orange

The plant pump must be connected directly to the boiler terminal board (terminals 11 and 12).

3.5.1 General layout

mod. 18 - 48 RTN

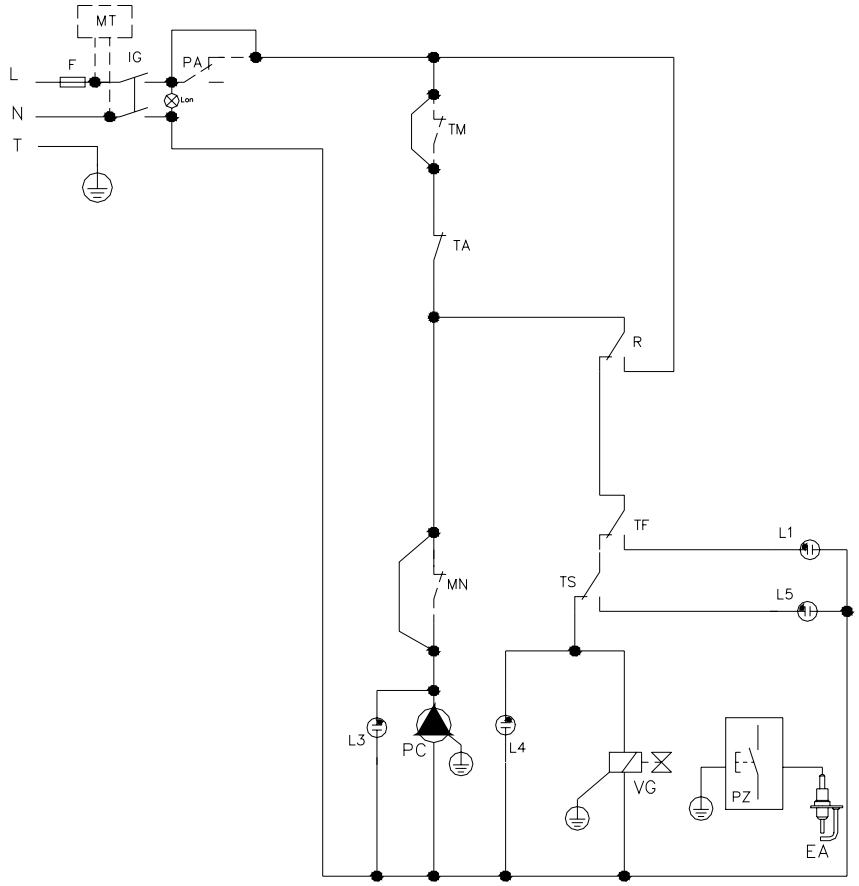

fig. 6

mod. 18 - 48 RTN E

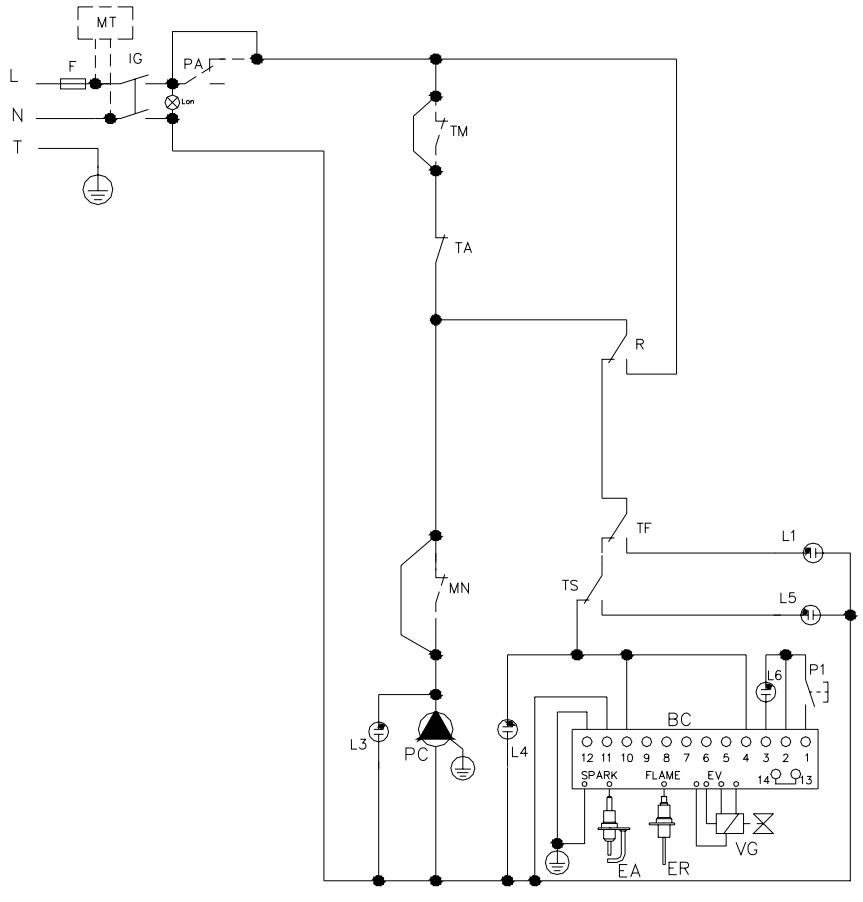

fig. 7

mod. 60 RTN E

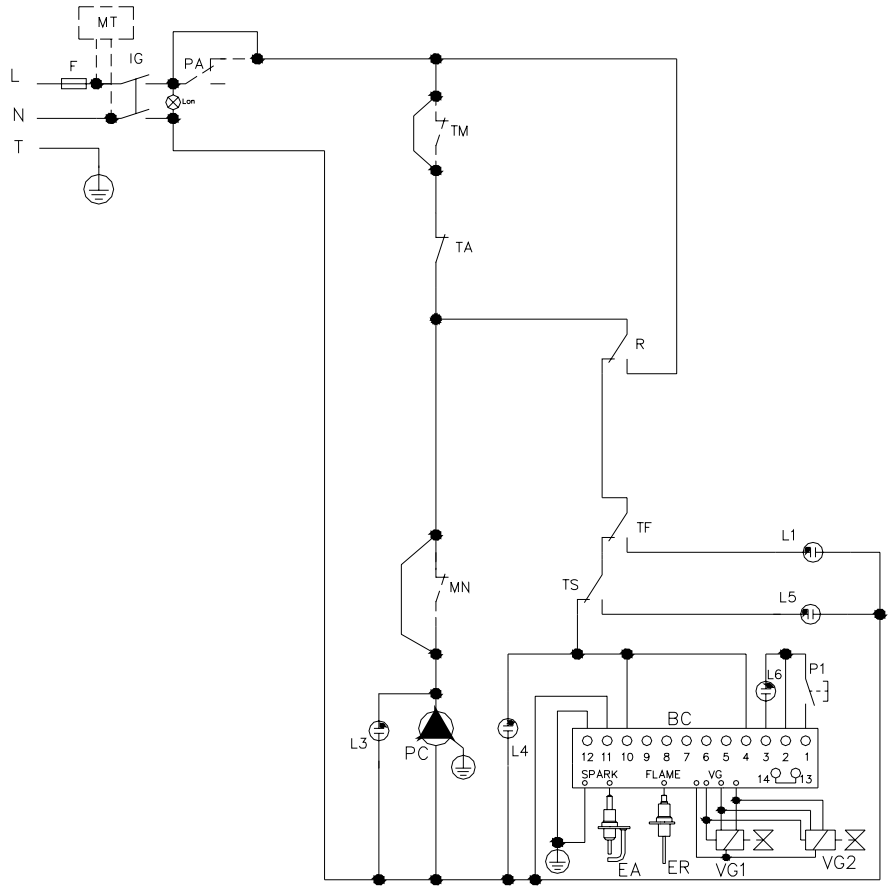

fig. 8

mod. 70 - 100 RTN E

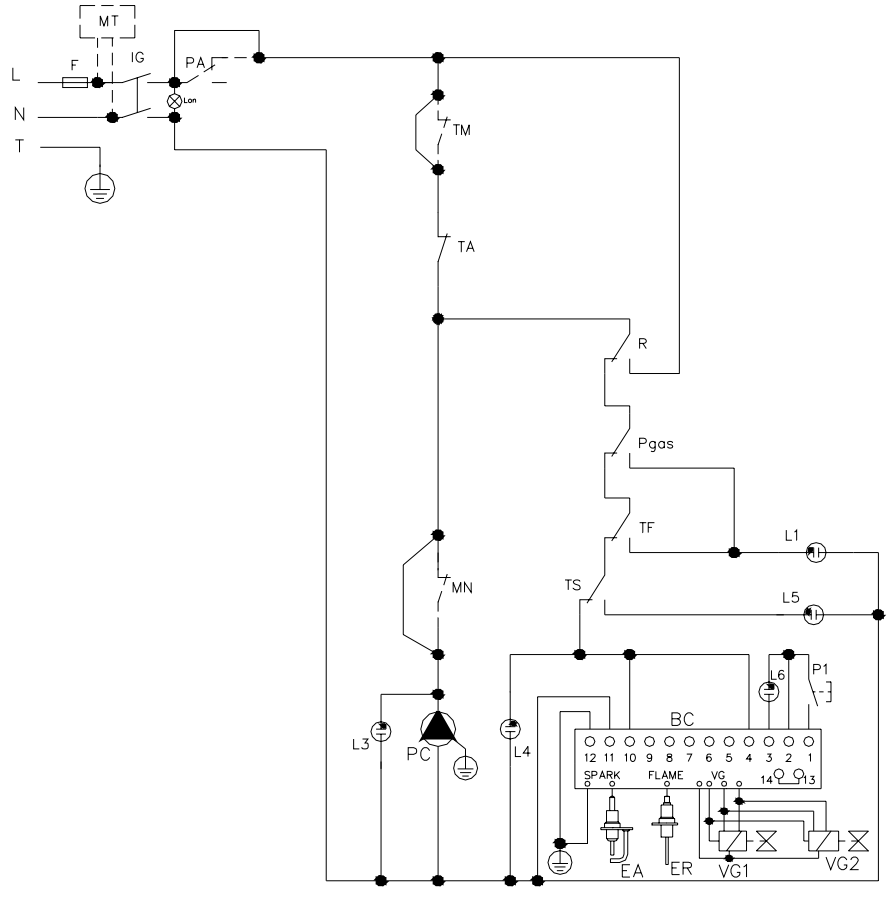

fig. 9

3.5.2 Topographical diagrams

mod. 18 - 48 RTN

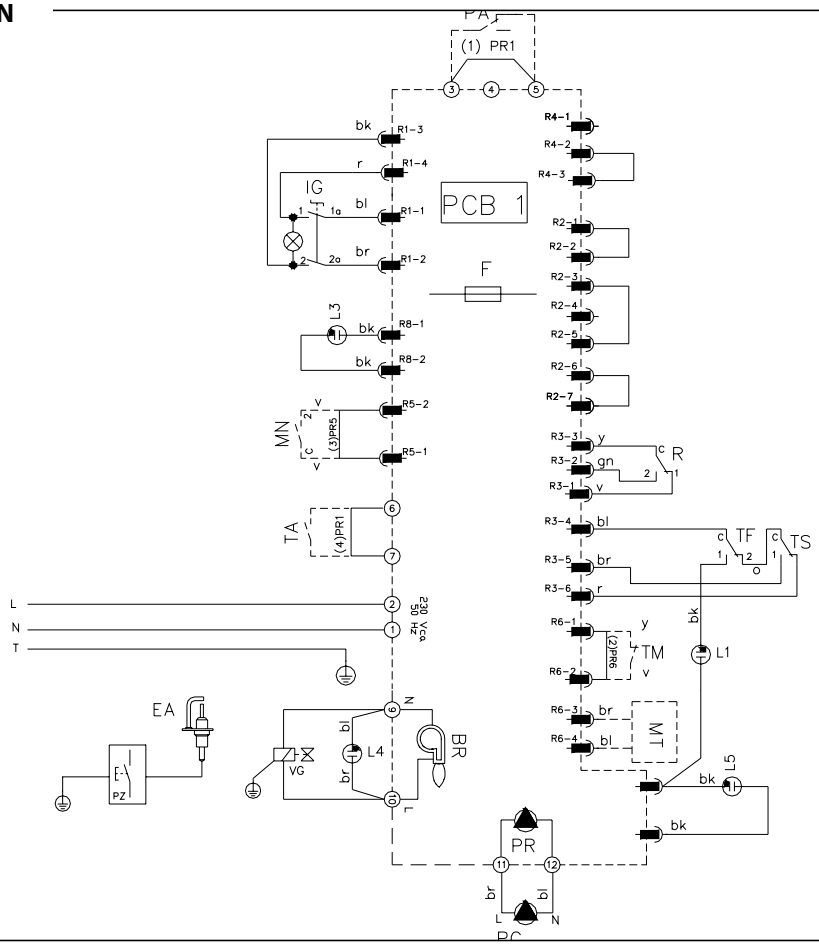

fig. 6A

mod. 18 - 48 RTN E

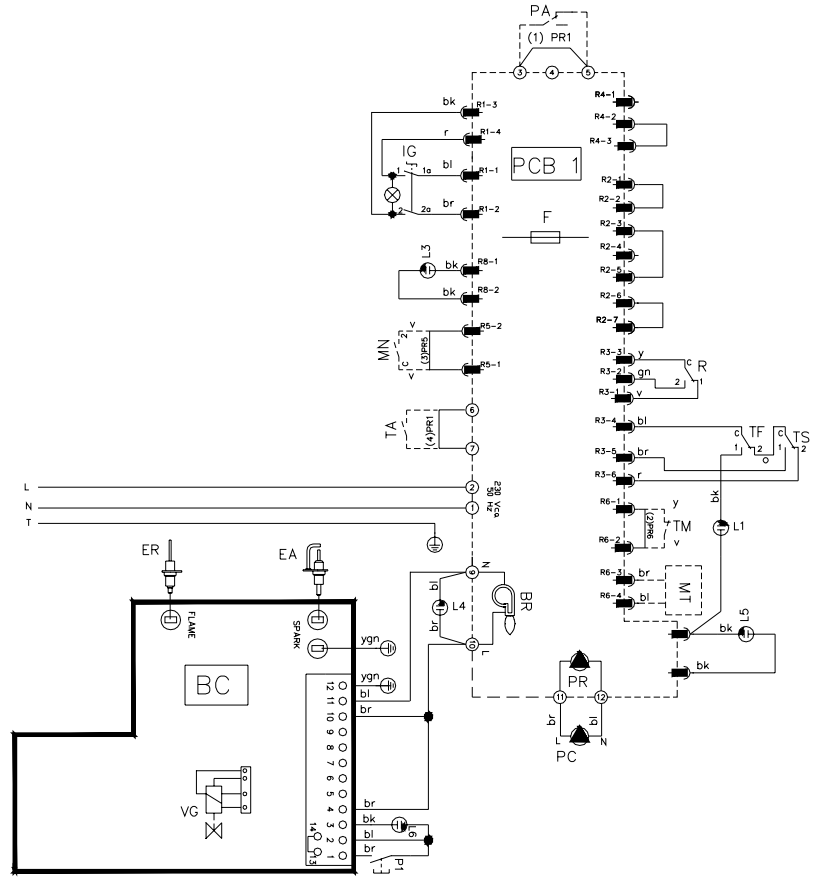

fig. 7A

mod. 60 RTN E

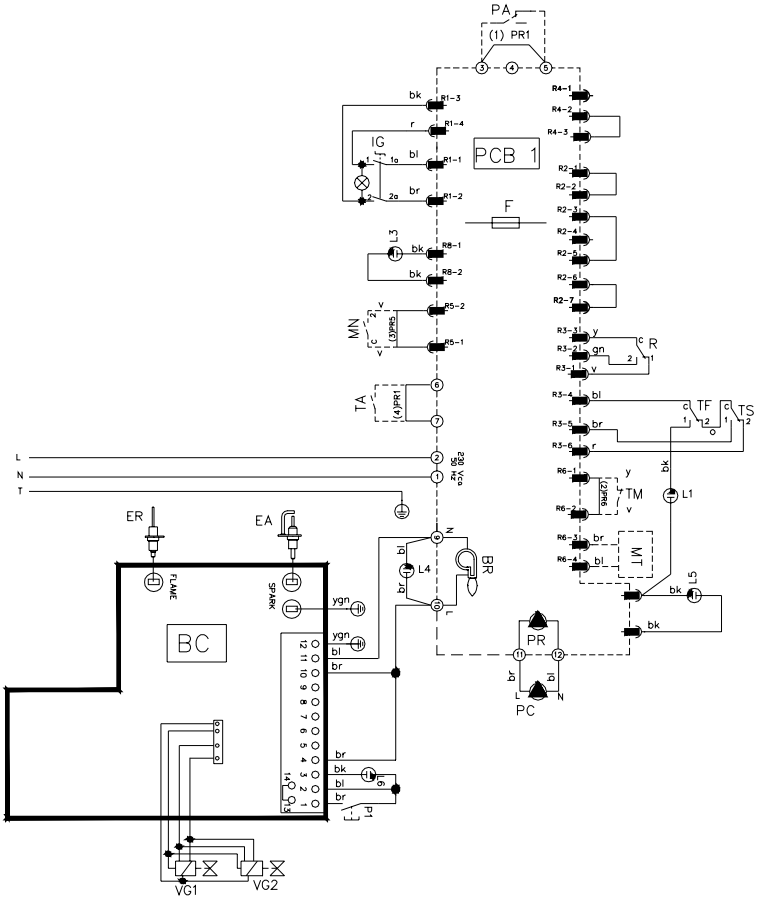

fig. 8A

mod. 70 - 100 RTN E

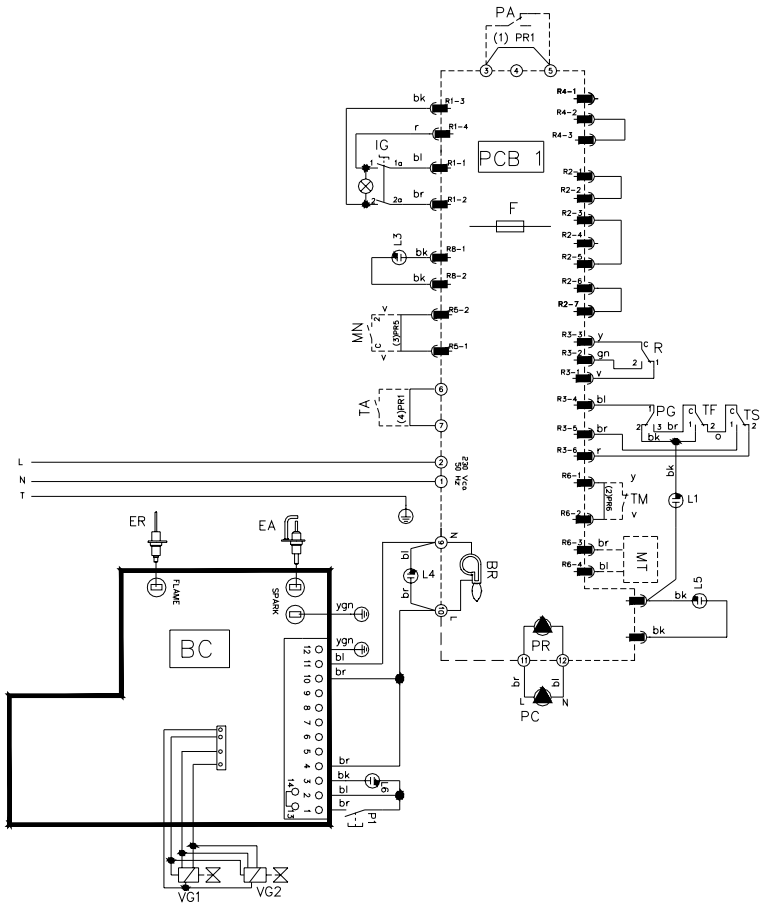

fig. 9A

3.6 Gas conversions

Changing a boiler over from natural gas to LPG and vice versa is only to be carried out by qualified personnel.

To check the setting values for the nozzles and gas supply pressure, use a pressure gauge connected to the pressure sockets on the valves.

3.6.1 Conversion from natural gas to LPG

Proceed as follows:
• Remove the natural gas nozzle from the pilot burner after having unscrewed the nut that holds the olive and vent the gas supply pipe to the pilot burner.
• Position the LPG nozzle checking that it is as indicated in the technical data table, and after repositioning the gas supply pipe tighten the nut that secures the olive.
• Remove the natural gas nozzle on the main burner and fit the LPG nozzle, checking that this is as indicated in the technical data table.
• Unscrew the pressure regulating cap on the gas valve and tighten the pressure regulating screw all the way.
• Screw the pressure regulating cap back on and seal it (using paint or a self-adhesive label, for example).
NOTE: for models RTN E 60 to RTN E 100 the regulating operations must be carried out on both gas valves.
• Check the gas circuit for leaks, especially the points that were disconnected.
• Affix the self-adhesive label provided that indicates the type of gas and pressure for which the equipment is set.

3.6.2 Conversion from LPG to natural gas

Proceed as follows:
• Remove the LPG nozzle from the pilot burner after having unscrewed the nut that holds the olive and vent the gas supply pipe to the pilot burner.
• Position the natural gas nozzle checking that it is as indicated in the technical data table, and after repositioning the gas supply pipe tighten the nut that secures the olive.
• Remove the LPG nozzle on the main burner and fit the natural gas nozzle, checking that this is as indicated in the technical data table.
• Unscrew the pressure regulating cap on the gas valve and unscrew the pressure regulating screws so that the pressure at the outlet is as specified in the technical data table.
• Screw the pressure regulating cap back on and seal it (using paint or a self-adhesive label, for example).
NOTE: for models RTN E 60 to RTN E 100 the regulating operations must be carried out on both gas valves, taking care to balance them correctly.
• Check the gas circuit for leaks, especially the points that were disconnected.
• Affix the self-adhesive label provided that indicates the type of gas and pressure for which the equipment is set.

4. MAINTENANCE

In order to ensure that the equipment is efficient and that it functions correctly, maintenance must be carried out annually, based on the programme laid out below:

It is obligatory for all maintenance (and repair) operations to be carried out by qualified personnel.
Before starting any maintenance work that involves replacing components and/or cleaning the inside of the boiler, disconnect the equipment from the electrical power supply.

Maintenance programme
Routine maintenance must include the following checks:
- Check of the general integrity of the boiler.
- Checking the gas supply to the boiler for leaks.
- Checking ignition of the boiler.
- Checking the boiler's combustion parameters by analysing the flue gas (this check is done every two years if the boiler is installed on its own.
Where the boiler is installed in a cascading system, this check is run annually).
- Checking the integrity, good state of preservation, and tightness test on the flue gas discharge system.
- Checking the integrity of safety devices on the boiler in general.
- Checking for water leaks and rusting on the boiler's couplings.
- Checking the efficiency of the system's safety valve.

The following cleaning is to be done (with the boiler cold):
- General internal cleaning of the boiler.
- Cleaning of the burner and resetting of the same if necessary, as per instructions provided by the manufacturer.
- Cleaning of the ventilation grille for the boiler room.
- Cleaning of the flue gas side of the heat exchanger. This can be done using swabs and vacuum cleaners to remove soot deposits on the sides and fins used for exchanging heat.
Alternatively specific chemical products can be used in compliance with the instructions for use of the same.
Do not use inflammable products such as petrol, solvents or any other such material to clean the heat exchanger.

When working on the boiler for the first time, check:
- The suitability of the boiler room.
- The ventilation openings in the room.
- The flue gas discharge ducts, and the diameters and lengths of these.
- That the boiler has been correctly installed as per instructions contained in this booklet.

If the equipment is not able to work correctly, or where it poses any danger to people, animals or property, inform the person responsible for the plant and draw up a statement in this regard

BRAND NAME

NOVA FLORIDA

Uff. Pubblicità Fondital IST 04 C 259 - 02 Febbraio 2014 (02/2014) 0LIBISEN59

0LIBISEN59

Fondital S.p.A.
Via Cerreto, 40
25079 VOBARNO (Brescia) Italia
Tel. +39 0365 878.31
e mail: info@fondital.it
www.novaflorida.it