

6. SERVICING THE APPLIANCE

6.1 General Warnings

- ⚠ All maintenance operations must be carried out by professionally qualified personnel, authorised by Radiant Bruciatori Spa. For servicing within Australia refer to contact details on page 2 of this manual.**
- ⚠ The frequency of boiler maintenance must comply with current law and, nevertheless, should be carried out once a year.**
- ⚠ In order to guarantee the long life of the appliance and in accordance with the current gas safety regulations, only use original spare parts**
- ⚠ Before carrying out any type of maintenance operation, disconnect the appliance from the mains electricity supply and close the gas valve.**

6.2 Boiler inspection

6.2.1 Main electricity supply

Fluctuations in mains voltage (230 V) of about +10 % -15 % do not bring functioning problems. The main electricity production must be in compliance with the CEI relevant and current standards. The boiler must also be equipped of a safety device able to ensure the mains voltage's multipolar disconnection with an opening distance of the contacts of at least 3 mm.

6.2.2 Periodical checks

In order to ensure that the boiler operates efficiently and safely, it is recommended that the appliance is inspected by a suitably competent technician at least once a year.

The following operations should be carried out annually:

- Check the condition of the gas seals and replace where necessary;
- Check the condition of the water seals and replace where necessary;
- Visually inspect the condition of the combustion chamber and flame;
- When required, check that the combustion is correctly regulated and if necessary proceed in line with section "Commissioning the boiler";
- Remove and clean any oxidation from the burner;
- Check that any water leaks and/or oxidation on connections is present;
- Check that the seal of the room-sealed chamber is undamaged and positioned correctly;
- Check the primary heat exchanger and clean if necessary;
- Check the condition and operation of the ignition and gas safety systems. If necessary, remove and clean the scaling from the ignition and flame detection electrodes, paying particular attention to replace them at the correct distance from the burner;
- Check the heating safety systems: temperature limit safety thermostat, pressure limit safety device;
- Check the safety valve/s on the heating circuit
- Check the pre-fill pressure of the expansion vessel (see expansion vessel data plate);
- Check and if necessary re-set the correct pressure value of the system;
- Check the correct circulation inside the boiler through filtering devices;
- Check that the boiler is sloped of 3/4° toward the back side. Check that the condensate drain system, including outside the boiler (flue system condensate collection devices), allows the condensate to flow freely to the collection devices. If the condensate is discharged to the domestic drainage system, install an inspection trap in the condensate system prior to it entering the drainage system to interrupt the continuity between the two systems;

- Check that the permanent air intake/ventilation points are present, correctly dimensioned and functioning compared with the installed devices and that they are in compliance with current local and national standards.
- Periodically check the integrity of the flue exhaust system for the safety and the good functioning of the boiler;
- Check that the connection to the mains electricity supply complies with that reported in the boiler's instruction manual;
- Check the electrical connections inside the control panel;
- Check the condensate trap and that the condensate drain system is working correctly, including any parts of the system outside the boiler such as condensate collection devices along the length of the flue and/or any acid neutralising devices;
- Check that the condensate flows freely and that there are no exhaust fumes present within the appliance.

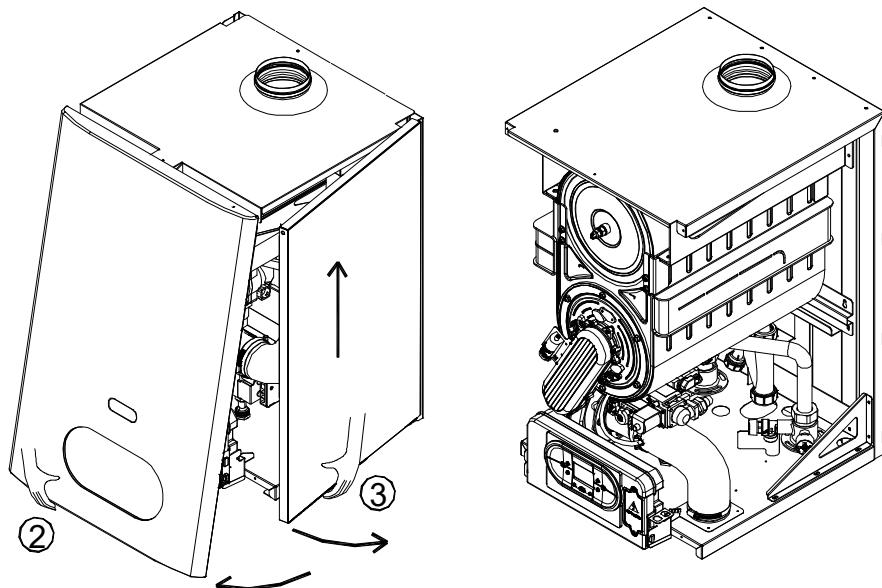
6.3 Accessing the boiler

All maintenance operations require one or more of the boiler casing panels to be removed.

The side panels can only be removed after the front panel has been removed.

Front panel:

- Remove the fixing screws at the lower edge of the front panel.
- Grasp the panel ② and pull it outwards (fig. 1).



Left and right side panel:

- Remove the fixing screws at the front and lower edge of the side panel to remove.
- Grasp the bottom of the panel, move it sideways and then upwards to remove it ③.

To access the electrical connections of the control panel, proceed as follows:

- Remove the front panel (see fig. 1).
- Grasp the left and right control panel support brackets ④ and pull them outwards, at the same time rotating the panel downwards.
- Unscrew the four fixing screws ⑤ and remove the cover.

Fig. 1

6.4 Draining the central heating system

If the need arises to drain the system, this can be done as follows:

- Switch the system to "WINTER" mode and ignite the boiler.
- Switch off the power supply to the boiler.
- Wait for the boiler to cool down.
- Connect a hosepipe to the system drain point and locate the other end of the hose in a suitable drainage system.
- Open the system drain valve (see fig. 1).
- Open the air vents on the radiators, starting with the highest and moving down the system to the lowest.
- When the system has been drained, close the radiator breather valves and the drain valve.
- **If only the boiler needs to be drained, close the flow/return isolating valves on the heating circuit and open the drain valve located at the bottom of the boiler on the pump manifold (see fig. 1);**

6.5 Boiler deactivation

When the appliance is no longer required for use, the necessary operation (disconnect the appliance from the main electricity / gas / water supply) must be made by qualified personnel.

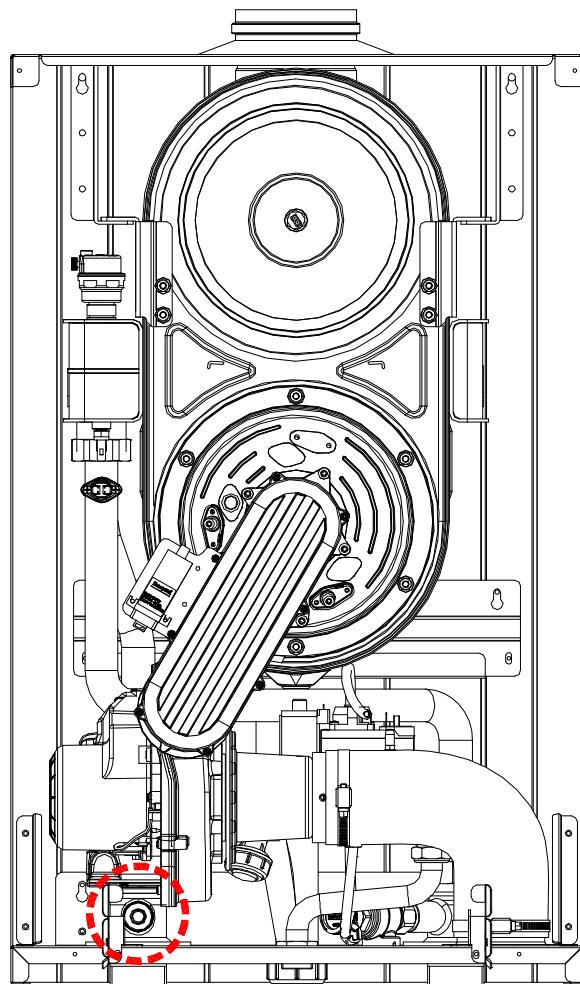


Fig. 1

6.6 Maintenance operations

⚠ Before carrying out any cleaning or part replacement operations, ALWAYS turn off the ELECTRICITY, WATER and GAS supplies to the boiler.

The Manufacturer will not be held responsible for damage to any of the boiler's components caused by non-compliance with this instruction.

For all maintenance operations requiring removal of the boiler casing, refer to the procedures described in paragraph 6.3 "Accessing the boiler".

6.6.1 Cleaning the main exchanger module and combustion unit

- Switch off the power and gas supplies to the boiler;
- Disconnect the electrical connections of the electric fan;
- Disconnect the joint and remove the pipe linking the gas valve to the injector unit;
- Un-plug the ignition electrode and flame detection wires from the ignition control unit;
- Remove the transformer and the fixing plate;
- Unscrew the fixing screws and remove from the venturi manifold, the air intake pipe;
- Remove the flue exhaust connection and the room-sealed chamber top
- Unscrew the nuts securing the burner unit (consisting of a fan, manifold and burner) to the primary heat exchanger;
- Remove the burner unit, paying particular attention not to remove the ceramic fibre protection from the bottom of the heat exchanger;
- Check that the burner is not affected by deposits, scaling or excessive oxidation. Check that all the holes in the burner are free;
- Clean the electrodes carefully without altering their positions with respect to the burner;
- Clean the burner cylinder using a non-metal brush and without damaging the ceramic fibre;
- Check the integrity of the gasket on the cover of the burner;
- Clean the heat exchanger (fig. 1) using a household detergent for stainless steel, distributing the product on the spirals of the exchanger using a brush. Do not wet the ceramic fibre coating. Wait a few minutes then remove the deposits using a non-metal brush. Then remove the residues under running water;
- Remove the pipe clip, remove the condensate drainpipe and clean under running water;
- Unscrew the joint to the condensate trap, remove the trap and wash under running water;
- With the cleaning completed, re-assemble the components following the above procedure in reverse order;
- Finally, check the boiler to make sure that all gas and exhaust joints are tight.

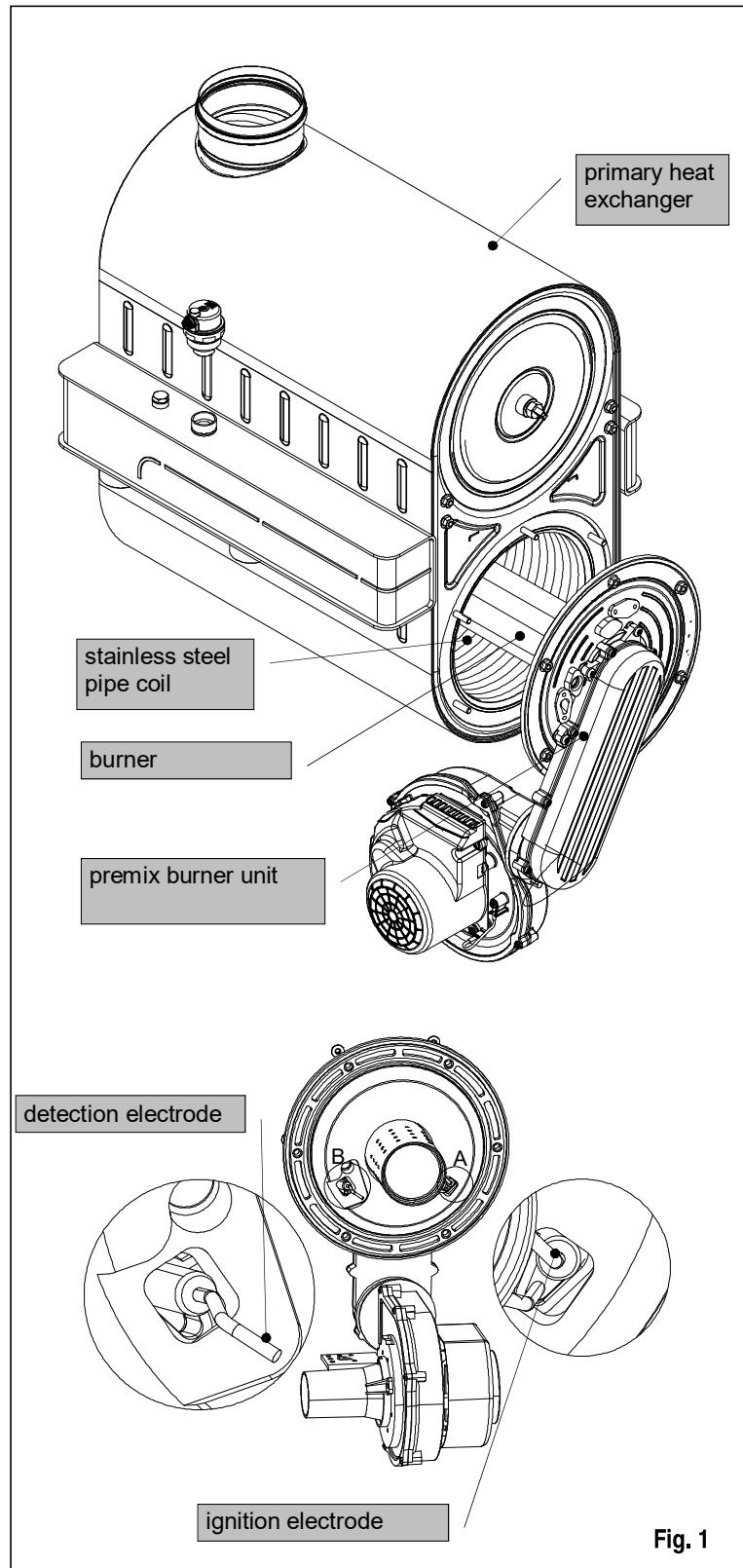
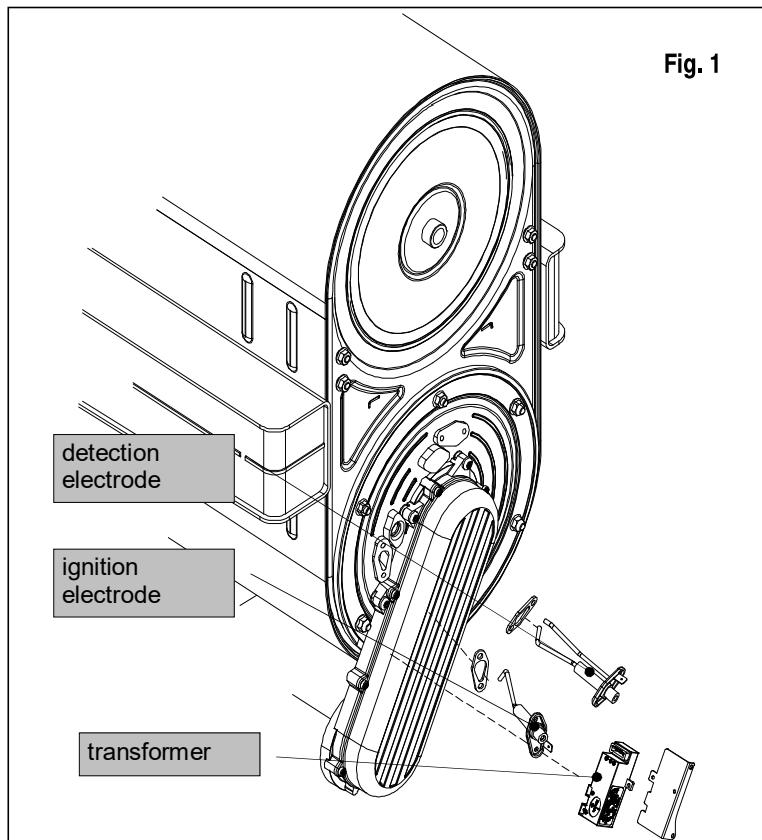


Fig. 1

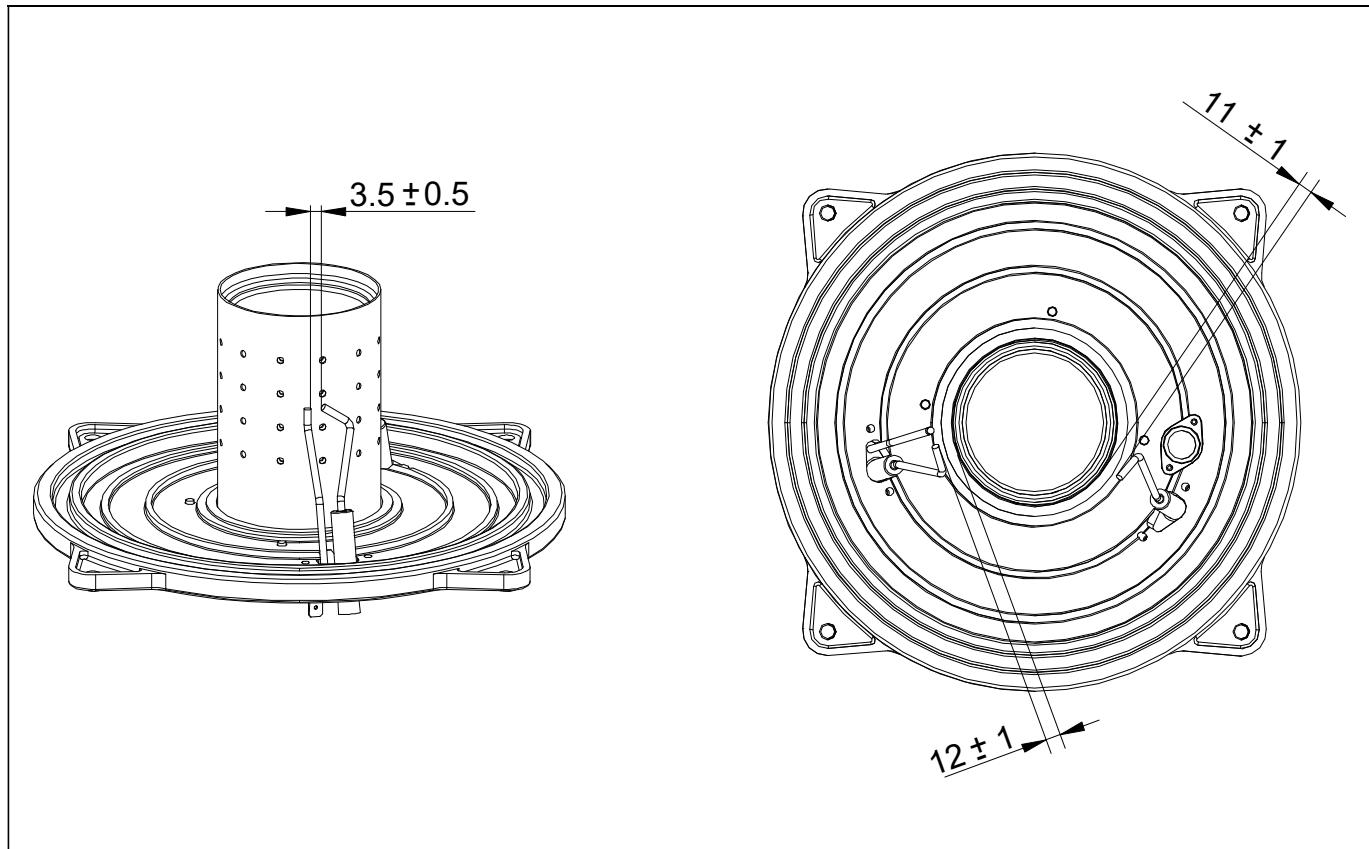
6.6.2 Ignition and/or flame detection electrodes (fig. 1)

- Switch off the power supply;
- Un-Plug the electrode wires;
- Slacken the fixing screws;
- Remove the electrodes. When fitting the new ones, check that the seals are not damaged. Replace if necessary;
- Reconnect the wires and re-assemble the components following the above procedure in reverse order;
- Switch on the power supply and restart the appliance;

! Check the default positions: make sure that there is a gap of 3 ± 1 mm between detection electrodes, 11 ± 1 mm between ignition electrode and burner, 12 ± 1 mm between detection electrode and burner, to avoid a boiler malfunction.



IGNITION / FLAME DETECTOR ELECTRODE POSITION



6.6.3 Trasformer (fig. 1)

- Switch off the power supply;
- Un-plug the ignition electrode cable and the plug connecting the cable and the printed circuit board;
- Slacken the fixing screws securing the support plate;
- Replace the transformer;
- Reconnect the wires and re-assemble the components following the above procedure in reverse order;
- Switch on the power supply and restart the appliance;

6.6.4 Electric fan (fig. 2)

- Switch off the power and gas supplies to the boiler;
- Remove and dismantle the entire burner unit (see 6.6.1 “Cleaning the main exchanger module and combustion unit”);
- Unscrew the four nuts securing the electric fan to the gas manifold and then remove the electric fan;
- Unscrew the fixing screws from the venturi and remove the electric fan, paying particular attention not to damage the cork gasket;
- Replace the electric fan and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and check the soundness of the joint by measuring the CO₂ levels (see “5.5.1 Max power supply regulation- CO₂ value”)

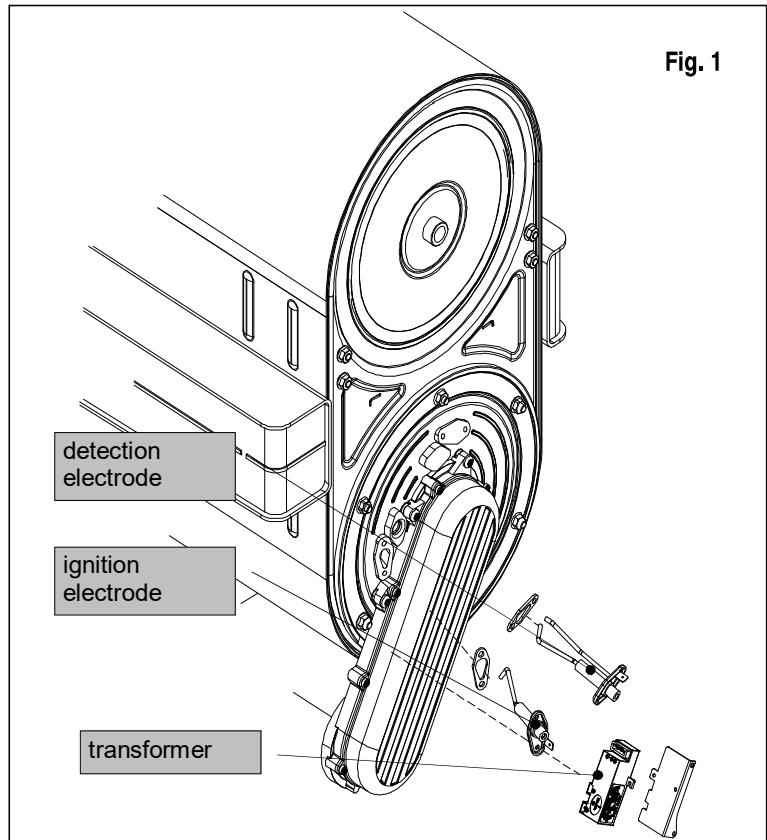


Fig. 1

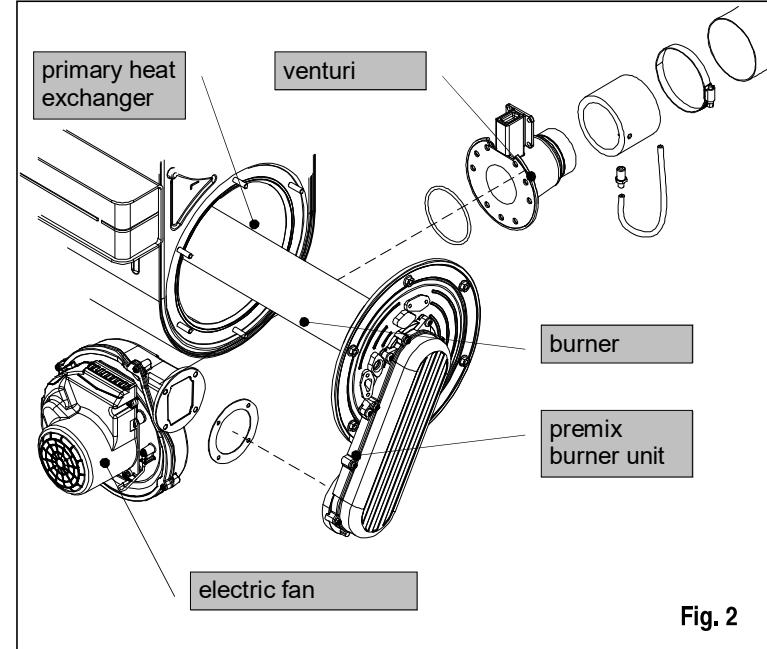


Fig. 2

6.6.5 Safety thermostat (fig. 1)

- Switch off the power supply;
- Un-Plug the connecting wire;
- Unscrew the fixing screws and remove the thermostat;
- Replace the thermostat and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and restart the appliance;

6.6.6 Heating sensor (fig. 1)

- Switch off the power supply;
- Close the drain valves and drain the central heating circuit of the boiler;
- Un-Plug the connecting wire;
- Use a 13 mm spanner to remove the heating sensor;
- Replace the sensor and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies, open the shut-off valves and fill the central heating circuit. Then restart the appliance, remembering to discharge any air that may be trapped in the system.

6.6.7 Gas valve (fig. 2)

- Switch off the power and gas supply to the boiler;
- Remove and dismantle the entire burner unit (see 6.6.1 “Cleaning the main exchanger module and combustion unit”);
- Unscrew and remove the screws securing the gas valve to the venturi;
- Replace the gas valve and re-assemble the components following the above procedure in reverse order;
- Replace all the gas seals;
- Fully tighten the gas connections;
- Switch on the electricity, water and gas supplies and check for any gas leaks using a soapy solution or leak detector spray;
- Proceed with the Off-set regulation (see “5.5 Regulating the Gas Valve Offset ”)

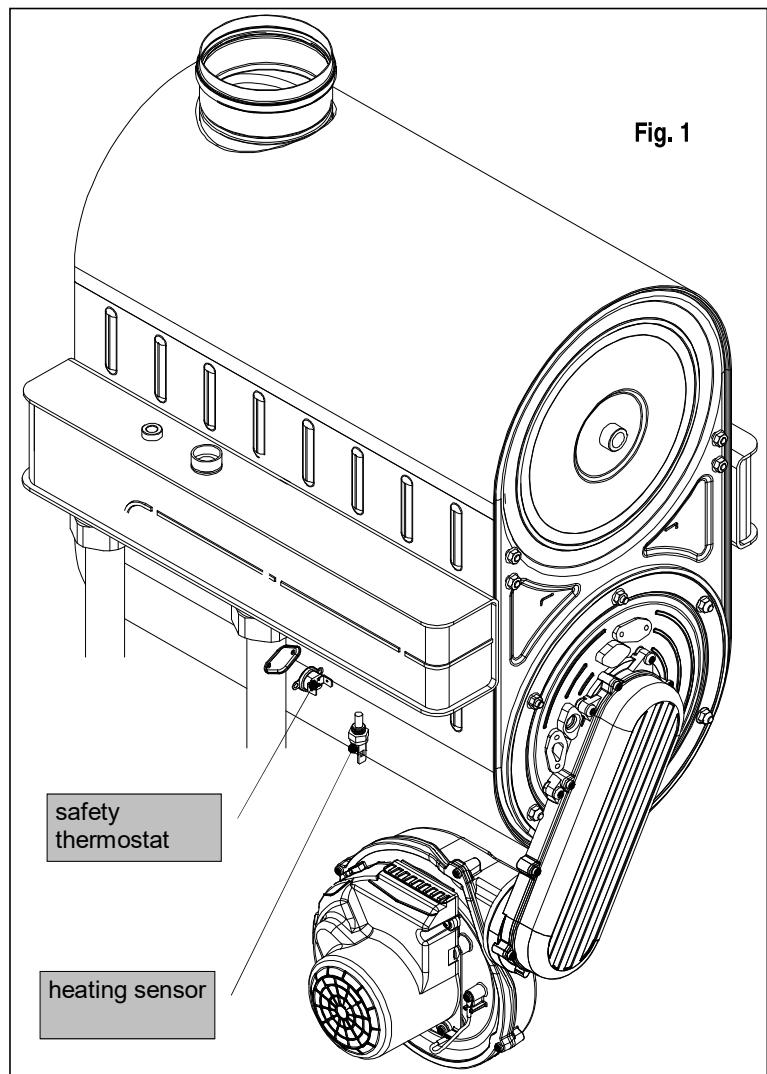


Fig. 1

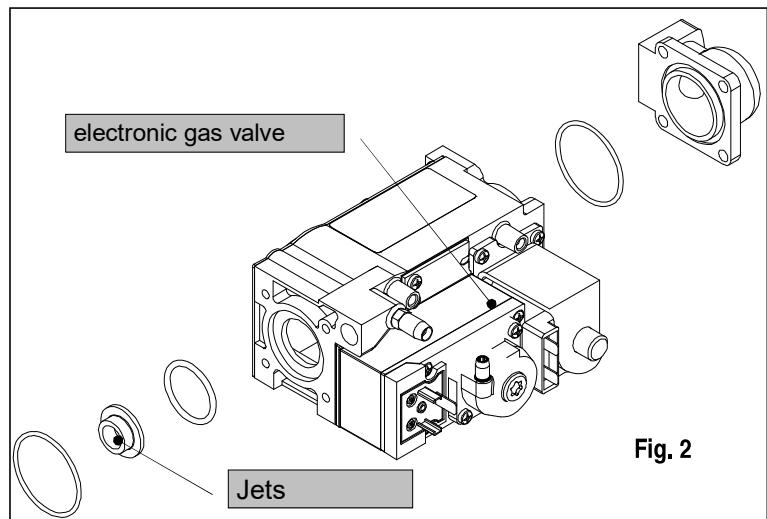
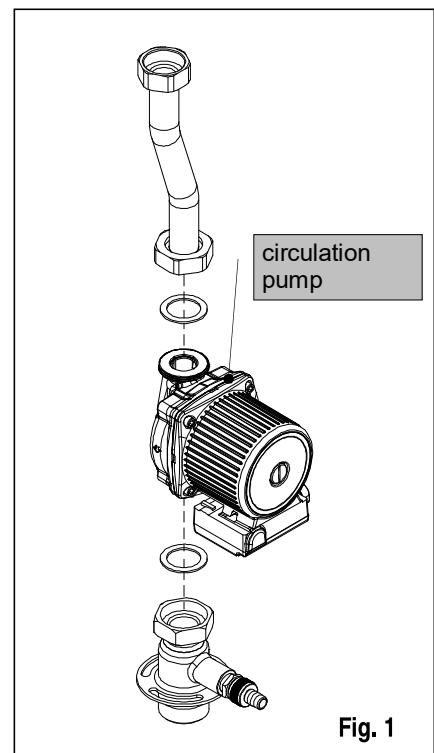


Fig. 2

6.6.8 Circulating pump (motor body) (fig. 1)

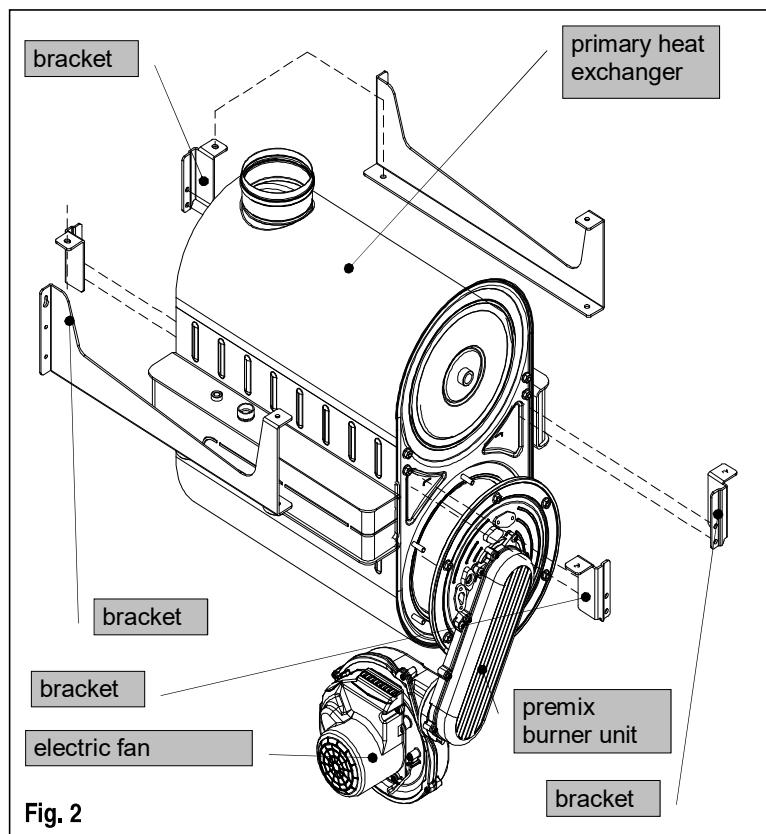
- Switch off the power and water supply to the boiler;
- Close the shut-off valves and drain the central heating circuit of the boiler;
- Unscrew the four screws securing the motor body to the impeller body;
- Remove the motor body and check the condition of the washer. If necessary, replace the washer.
- Replace the circulation pump and re-assemble the components following the above procedure in reverse order.
- Switch on the electricity, water and gas supplies and fill the system with water. Check for any leaks from the joints and bleed off any air from the circuit. Restart the boiler.



6.6.9 Primary heat exchanger (fig. 2)

Due to the considerable weight of the heat exchanger, pay attention during maintenance operations.

- close the shut-off valves and drain the central heating circuit of the boiler;
- Switch off the power, gas and water supply to the boiler;
- Remove the spring and then the condensate drainpipe;
- Remove the fixing springs and then the delivery and return pipes;
- Remove and dismantle the entire burner unit (see "6.6.1 Cleaning the main exchanger module and combustion unit");
- Remove the support brackets and pull out the heat exchanger;
- Remove the regulation sensor and the support brackets from the old heat exchanger. Refit them to the new one;
- Replace the heat exchanger and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and fill the system with water. Check for any leaks from the joints and bleed off any air from the circuit. Restart the boiler, making sure that there are no gas leaks;



6.6.10 Modulation circuit board (see fig. 1-2)

- Open the control panel (see 6.3 "Accessing the boiler"); □
- Disconnect all the connectors, remove the regulating knobs, unscrew the four fixing screws and remove the modulation circuit board;
- Replace the circuit board and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and regulate the boiler (see 5.4 "Gas data");

! *The present parameters of the printed circuit board correspond to a 100 kw only heating condensing boiler fed by natural gas.*

When replacing the modulation circuit board, it's necessary to set parameter according to the boiler model (see 5.3 "Setting the parameters").

