6. MAINTENANCE (authorized personnel)

6.1 General Warnings

All maintenance operations must be carried out by professionally qualified personnel, authorized by PENSOTTI

The frequency of boiler maintenance is REQUIRED to 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 replacement parts

Before carrying out any type of maintenance operation, disconnect the appliance from the electrical supply and shut off the gas valve.

Warranty will not be offered if required maintenance is not followed.

Keep appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.

In order to safeguard all waterside components the supplied Fernox Commissioning Kit must be used in its entirety.

6.2 Maintenance

Periodic examination of the entire venting system is REQUIRED. Make sure all the venting connections/joints are tight and in good condition.

Clean the burner cylinder using a non-metal brush and without damaging the ceramic fiber.

Clean the heat exchanger using a recommended detergent from PENSOTTI for the stainless steel. Do not wet the ceramic fiber coating.

Visually inspect the burner flame. The flame must burn with a clean, stable flame. If the burner flame appearance is not satisfactory or debris is visible on the burners, remove and clean with a vacuum cleaner.

All electric motors are permanently lubricated and do not need oiling. Remove the combustion air blower and clean wheel and housing with soft brush or vacuum.

Verify proper operation after any servicing using a properly calibrated electronic combustion analyzer.

Verify proper operation of safety circuits.

Wipe the outside surface with a wet cloth; then dry the surface. Use a neutral detergent to clean any stains.

Vent termination should be inspected for blockage during maintenance checks.

Check for blockage at the drain pipe and condensate trap.

Clean condensate trap and check for correct level of water.

Check for water leaks from the equipment and piping.

Warranty will not be offered if required maintenance is not followed.

6.3 Boiler inspection

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.
- 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.

If a relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact a qualified plumber to correct this situation. DO NOT PLUG THE RELIEF VALVE.

- 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 maximum and minimum modulation pressures and the modulation itself.
- 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 pre-fill pressure of the expansion tank (see expansion tank rating plate).
- For safety reasons, periodically check the integrity and operation of the exhaust system.
- 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 D.H.W flow rate and temperature.
- Check 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 exhaust vent and/or any acid neutralizing devices.
- Check that the condensate flows freely and that there are no exhaust fumes present within the appliance.

Warranty will not be offered if required maintenance is not followed.

6.4 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 lower part of the panel and pull it outwards ② (fig. 1) and then up.

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 it③.

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.

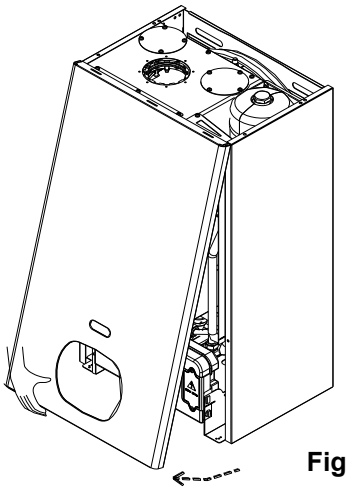


Fig. 1

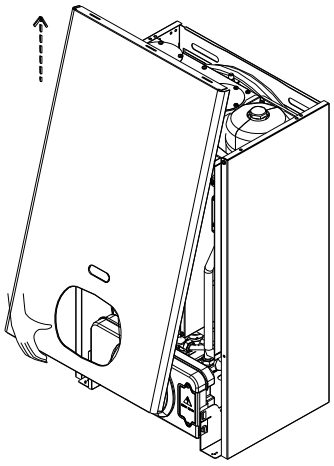


Fig. 2

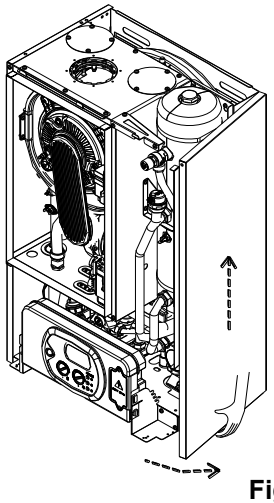


Fig. 3

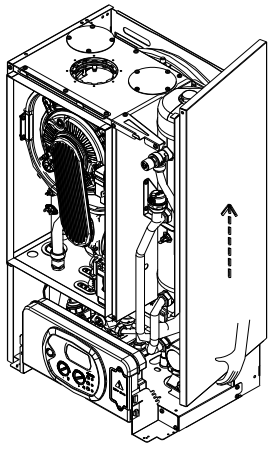


Fig. 4

6.5 Flushing out the primary side

Fill the boiler as per the filling instructions.

Using a drain off cock on the lowest point of the system allow the water to drain from the system and boiler.

In order to flush the system correctly, turn off all radiators or fan coils. Open the filling loop and drain cock simultaneously and allow the water to flow through the boiler.

Open each individual radiator or fan coil, allowing water to flow through. Then turn that radiator or fan coil off and repeat for all radiators or fan coil on the system.

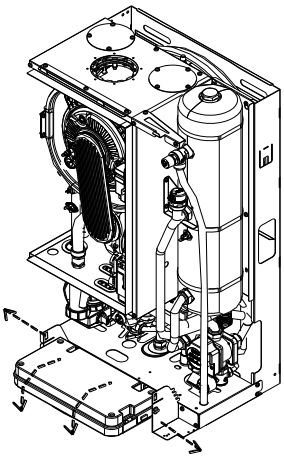


Fig. 5

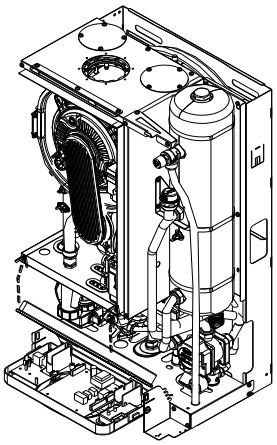


Fig. 6

Turn off the filling loop and close the drain cock open all radiators and open the filling to fill the system. Continue to fill the system until the pressure gauge reads in the Green section of the gauge (14.5 psi = 1 bar)

In order to safeguard all waterside components the supplied Fernox Commissioning Kit must be used in its entirety.

6.6 Draining the central heating system

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

- Switch the system to “HEAT” mode and ignite the boiler.
- Switch off the power supply to the boiler.
- Wait for the appliance to cool down.
- Connect a hosepipe to the system drain point **R** and locate the other end of the hose in a suitable drainage system.
- Open the system drain valve (fig. 1).
- Open the manual air vent located on the primary heat exchanger.
- 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 air vents 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 R located at the bottom of the boiler on the pump manifold (see fig. 1);**

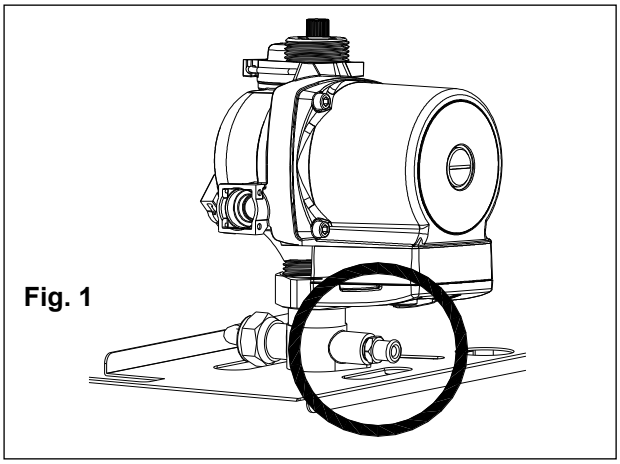


Fig. 1

Draining the domestic hot water system

If there is a danger of freezing, the domestic hot water system should be drained. This can be done as follows:

- Close the main water supply valve.
- Joint the water draining pipe and open the cylinder draining tap (see fig. 2)
- Open all the hot and cold water taps.
- **On completion, close all the previously opened taps.**

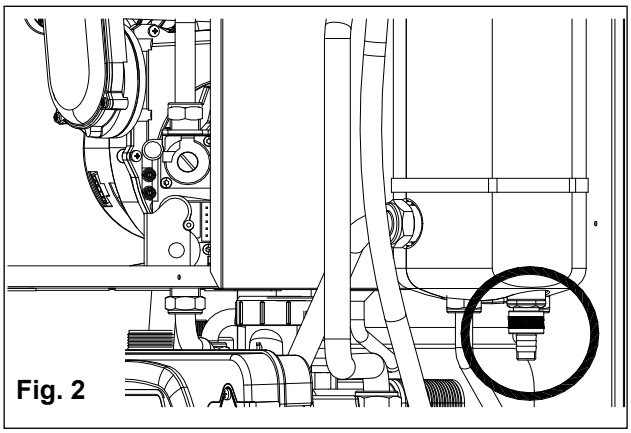


Fig. 2

Freeze Protection

⚠ **Glycol must not be used in Domestic Hot Water applications.**

System winterization (non-operative system)

Because it may be impossible to completely drain the boilers heating circuit, D.H.W circuit and distribution system. Pensotti recommends the introduction of the proper type antifreeze to protect these systems from freezing damage. **Glycol must not be used in Domestic Hot Water applications.**

System winterization (operating system)

Pensotti boilers are certified for indoor use ONLY. Proper precautions for freeze protection are recommended for boilers and associated piping in areas where the danger of freezing exists. Do not use automotive antifreeze. Pensotti recommends the use of inhibited glycol concentrations between 20-35% glycol. Glycol products must be maintained properly so they do not become inactive or corrosive, consult glycol specifications for more information.

STORAGE CYLINDER MAINTENANCE AND MAGNESIUM ANODE REPLACEMENT

Check the magnesium anode inside the D.H.W. storage cylinder for erosion, a minimum of every 12 months or more frequently in case of hard water or continuous operation. If it is worn-out, replace it immediately. A non correct maintenance will invalidate the cylinder warranty.

To check the anode, unscrew the anode nut located on the top of the cylinder (see fig.3) by turning it counter-clockwise. If, at the opening of the valve, water comes out of the valve, the anode is worn and needs to be replaced; if no water comes out of the valve, the anode is not worn and therefore still functioning. **Once this operation has been completed, close the small valve.**

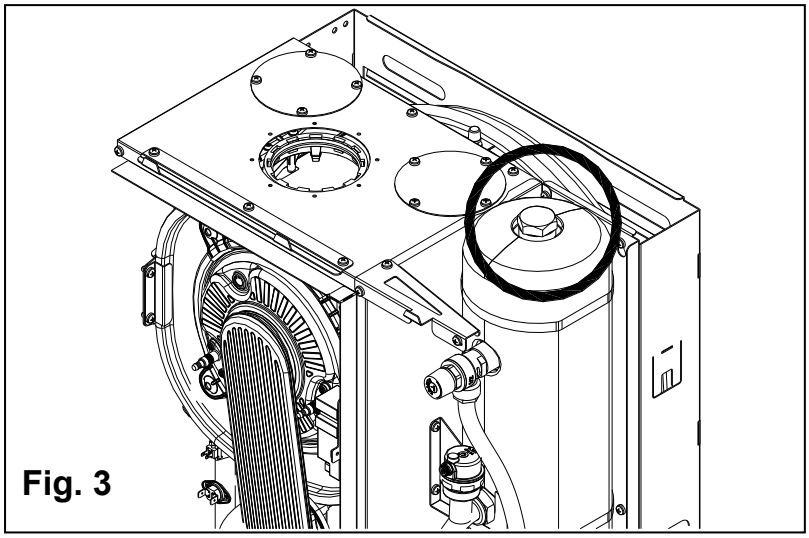


Fig. 3

6.7 Maintenance operations

All maintenance operations must be carried out by professionally qualified personnel, authorised by Granby/Pensotti LLC.

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 main electricity supply and close the gas valve.

For all maintenance operations requiring removal of the boiler casing, refer to the procedures described in paragraph *6.4 "Accessing the boiler".*

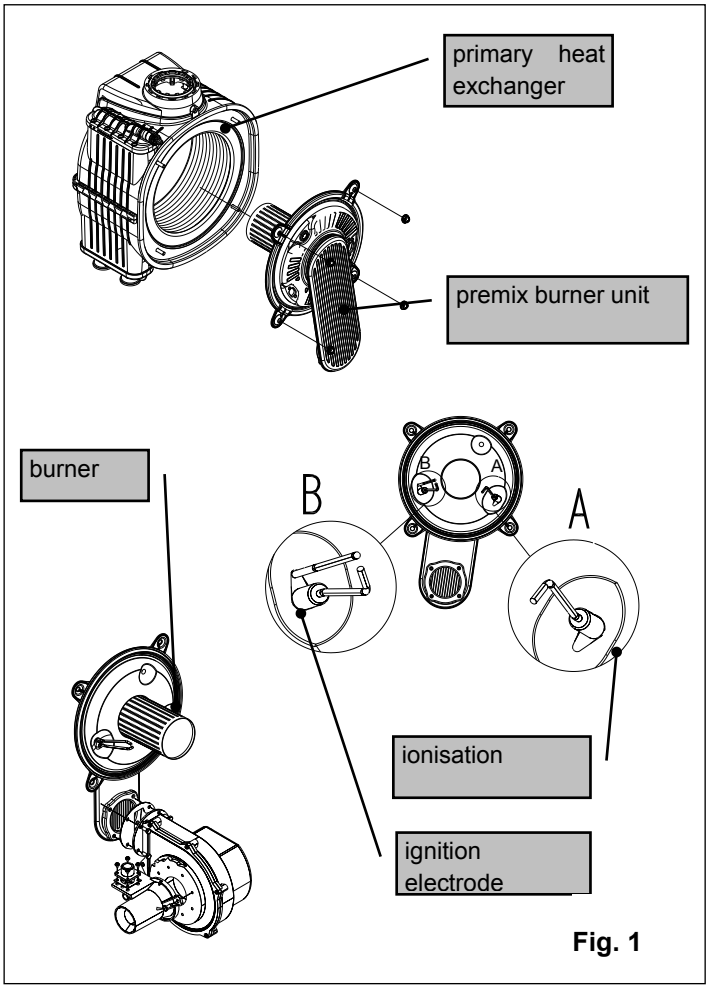


Fig. 1

Cleaning the main exchanger module and combustion unit **(fig. 1)**

- Disconnect the electrical connections of the electric fan.
- Disconnect the joint and remove the pipe linking the gas valve to the injector unit (venturi).
- Disconnect the joint and remove the gas feed pipe from the gas valve.
- Un-plug the ignition electrode and flame detection wires from the ignition control unit.
- Unscrew the ring-nut at the bottom of the room-sealed chamber and remove the gas valve.
- 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.

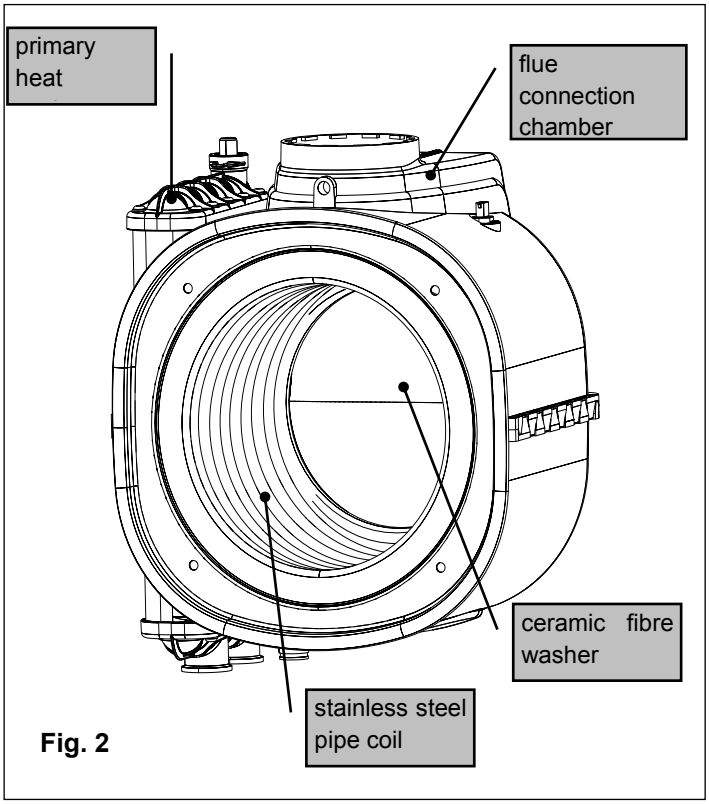


Fig. 2

- Clean the heat exchanger 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.

Annual Maintenance

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

The following is a minimum recommendation of service that 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.
- Remove and clean any oxidation from the burner.
- Check that the seal of the room-sealed chamber is undamaged and positioned correctly.
- Check the primary heat exchanger and clean if necessary using a soft nylon brush and subtitle vacuum. It is important the spaces between the heat exchanger tubes be cleaned. Use a nonabrasive piece of plastic to scrap between the sections, removing any build up. Do not use a razor blade.
- Check the condition and operation of the ignition and gas safety systems.
- Remove and clean the scaling from the ignition and flame detection electrodes, paying particular attention to place them at the correct distance from the burner. Fig 1.
- Check the pre-fill pressure of the integral expansion tank
- Check the presence of air intake/permanent ventilation openings correctly sized according to the boiler installed and in respect with current law.
- Check the integrity and operation of the flue gas exhaust system.
- Check the integrity of the gas piping system.
- Check that the connection to the electricity supply complies with that reported in the boiler's instruction manual.
- Check the electrical connections inside the control panel.
- Check Fernox inhibitor integrity
- Check and clean if necessary the dirt separator
- Check for and remove any combustible or flammable materials that are in the vicinity of the boiler
- Lubricate the 3-way valve using a TPFE aerosol lubricant. Fig 2
- Check Relief Valve or proper operation
- Check the High Fire CO2 and (if necessary) Low Fire CO2 using a combustion analyser. See Section 5.3.
- Check that the combustion is correctly regulated and if necessary make adjustments according to section 4.4 "Starting the boiler".
- Check all heating safety systems. Ex; temperature safety limit, air pressure switch, flame failure, etc.

Fig 2.

Cleaning the D.H.W heat exchanger

(see fig. 1)

- Close the shut-off valve and drain the domestic hot water circuit and central heating circuit of the boiler;
- Use a 4 mm Allen key to unscrew the four screws securing the heat exchanger to the multiplex unit;
- Remove the heat exchanger from the left side of the boiler, note its orientation;
- De-scale the heat exchanger by chemically washing the plates
- Fit new rubber washer, inserting them in their housings on the multiplex unit;
- Re-assemble the heat exchanger and components following the above procedure in reverse order;
- Fill the system with water and check for any leaks from the joints.

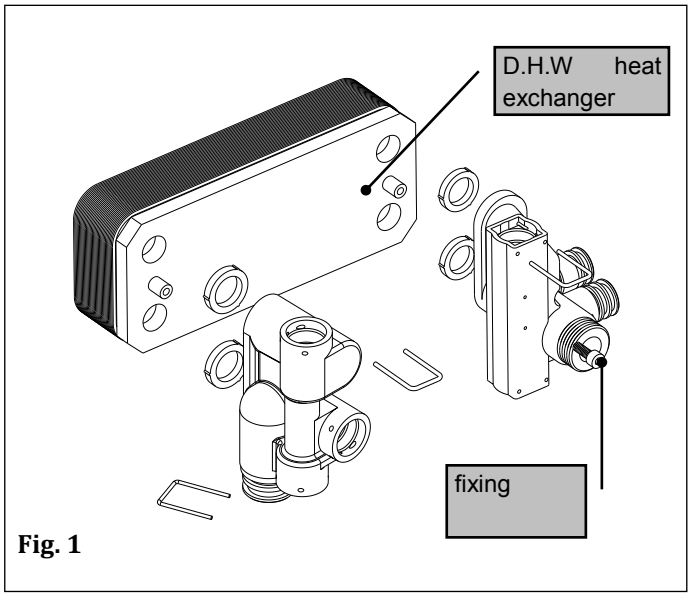


Fig. 1

Part replacement:

Ignition and/or flame detection electrodes

(see fig. 2)

- **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;

⚠ *If the boiler does not restart, check the positions of the electrodes (especially the ignition electrode). Make sure that original position and distances between the electrodes and the burner are respected to avoid a boiler malfunction).*

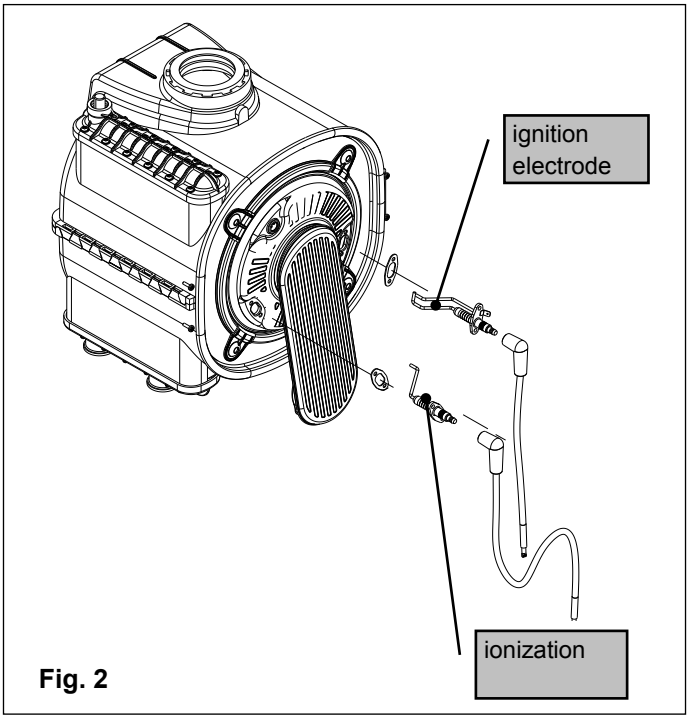
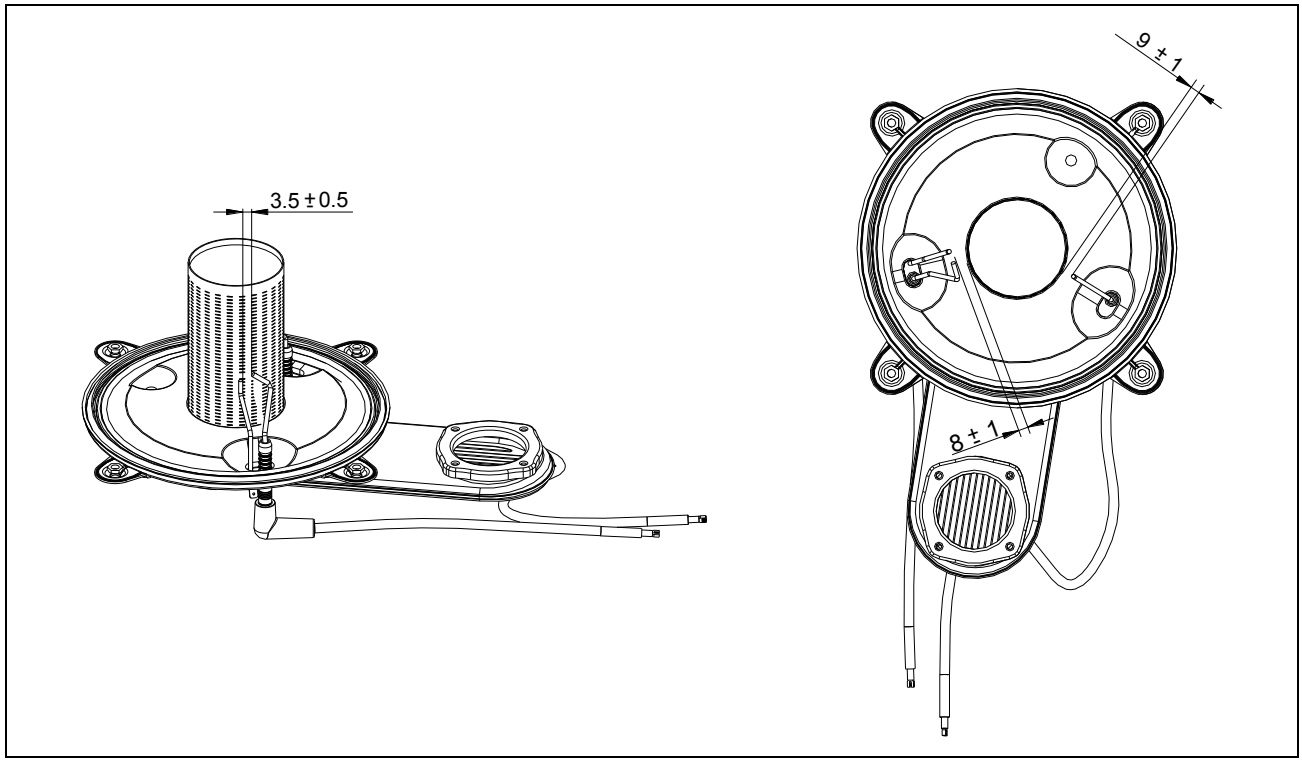


Fig. 2

POSITIONING THE IGNITION ELECTRODE AND THE IONISATION ELECTRODE



Safety thermostat (see fig. 1)

- **Disconnect 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.

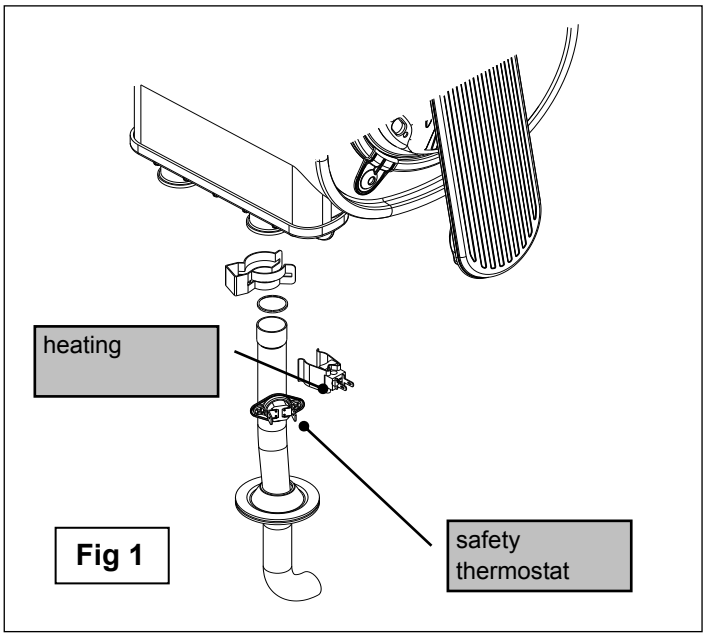


Fig 1

Heating sensor (see fig. 1)

- **Un-Plug the connecting wire;**
- 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;

Gas valve (see fig. 2)

- **Unscrew the screws connecting the gas valve to the venturi.**
- Disconnect the gas feed pipe and valve ring-nut at the bottom of the room-sealed chamber.
- Remove the flanged elbow coupling of the existing valve and fit it to the new valve; also fit a new cork washer and a new fiber gasket.
- 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;

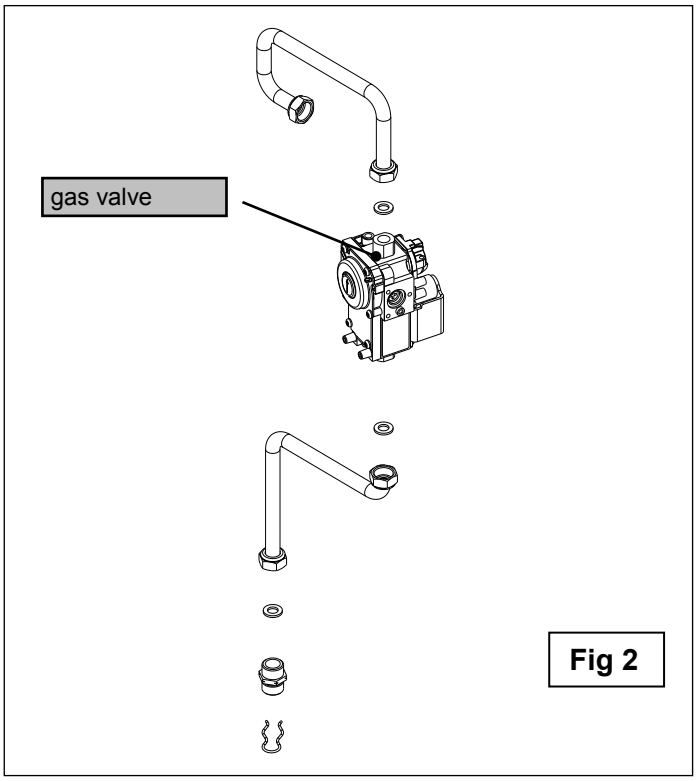


Fig 2

Electric fan (see fig. 1)

- **Remove and dismantle the entire burner unit *(see "Cleaning the burner unit")*.**
- Use an 8 mm spanner to unscrew the four nuts securing the electric fan to the gas manifold and then remove the electric fan, noting the positions of the washer.
- Remove the air intake duct, unscrew the two 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 CO_2 levels; using an electronic combustion analyzer.

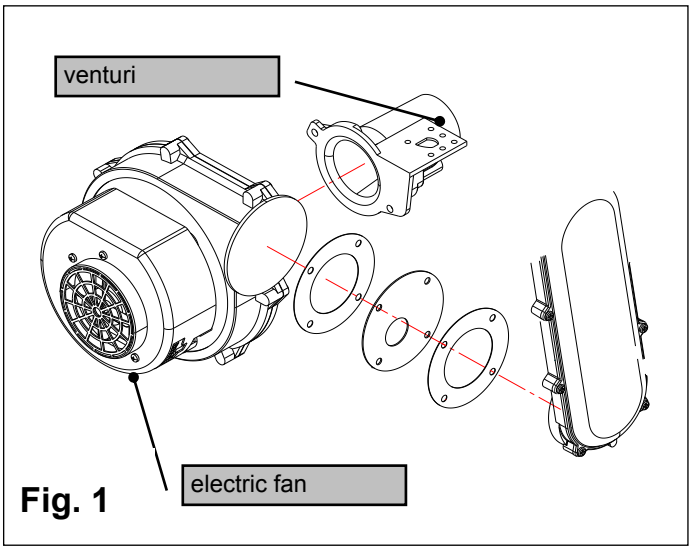


Fig. 1

Circulating pump (motor body) (see fig. 2)

- Close the shut-off valves and drain the central heating circuit of the boiler;
- Use a 5 mm Allen key to 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 or cartridge only 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 all air from the circuit. Restart the boiler.

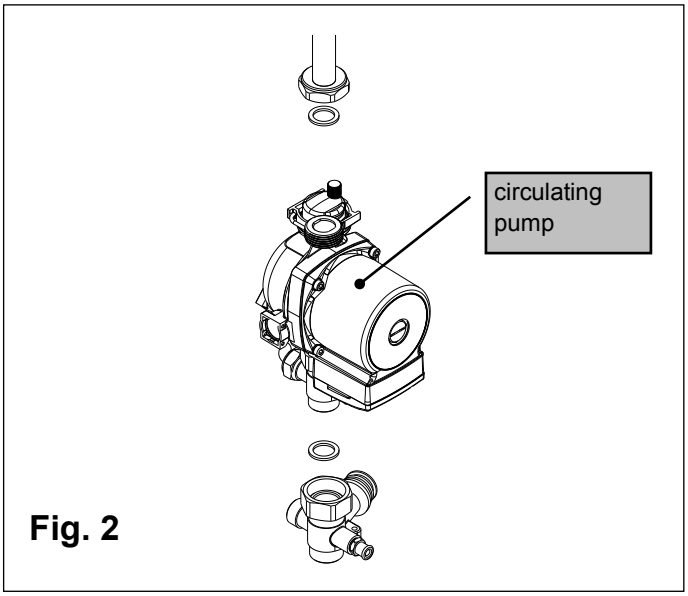


Fig. 2

Cleaning the D.H.W heat exchanger (see fig. 3)

- Close the shut-off valve and drain the domestic hot water circuit and central heating circuit of the boiler;
- Use a 4 mm Allen key to unscrew the four screws securing the heat exchanger to the multiplex unit;
- Remove the heat exchanger from the left side of the boiler, note its orientation;
- De-scale the heat exchanger by chemically washing the plates
- Fit new rubber washer, inserting them in their housings on the multiplex unit;

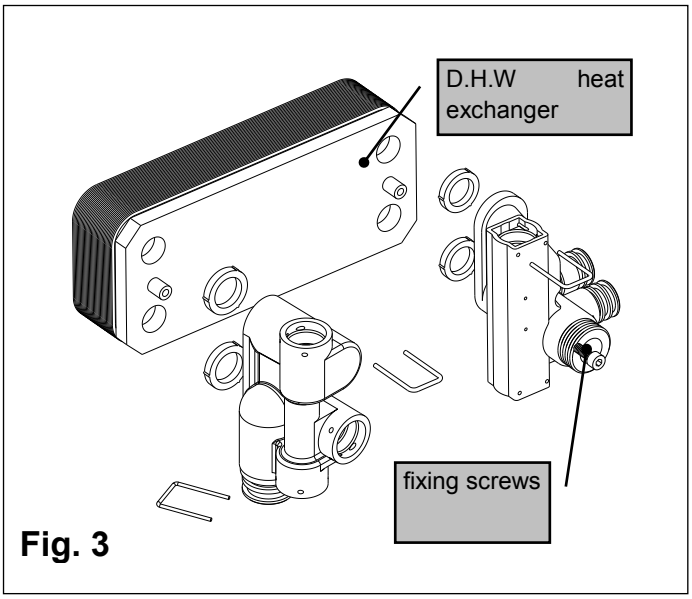


Fig. 3

- Re-assemble the heat exchanger and components following the above procedure in reverse order;
- Fill the system with water and check for any leaks from the joints.

Diverter valve (see fig. 1)

Replacing the motor

- Unscrew the fixing screws securing the transparent cover of the diverter valve and remove the cover;
- Unscrew the two motor fixing screws and disconnect the wires;
- Replace the motor and re-assemble the components following the above procedure in reverse order;
- Replace the motor and re-assemble the components following the above procedure in reverse order;

Replacing the diverter valve

- Close the shut-off valves and drain the central heating circuit of the boiler;
- Disconnect the joints securing the valve to the pipes;
- Replace the valve body 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.

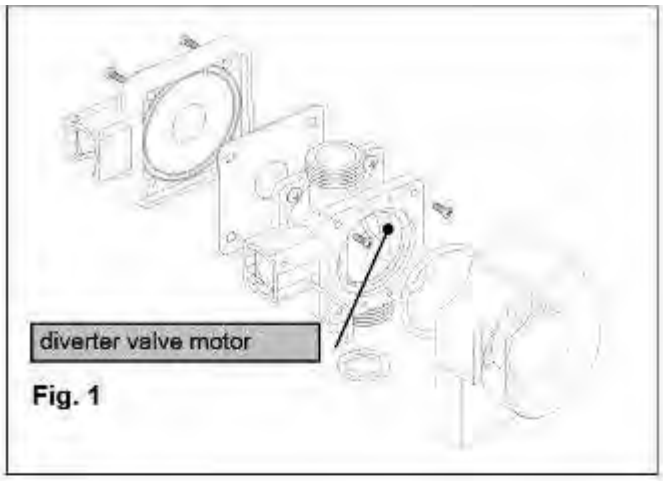


Fig. 1

Electric fan circuit board (see figs. 2-3)

- **Open the control panel *(see 6.4 "Accessing the boiler")*;**
- Disconnect the two connectors from the circuit board, unscrew the two fixing screws and remove the 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.

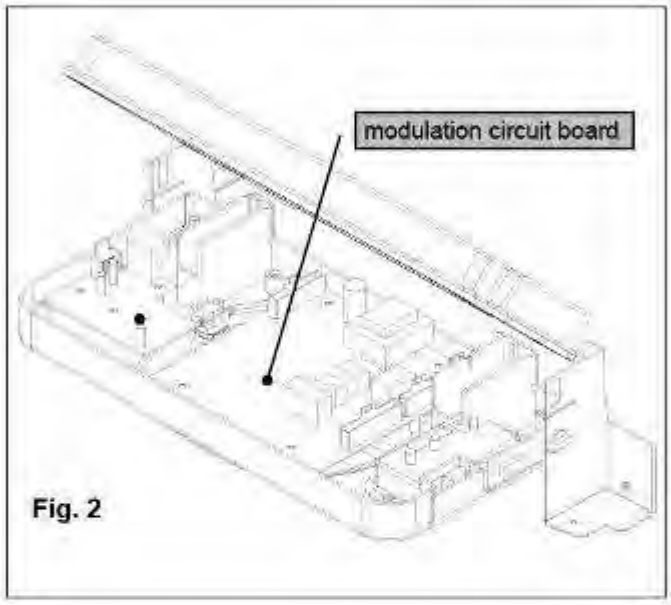


Fig. 2

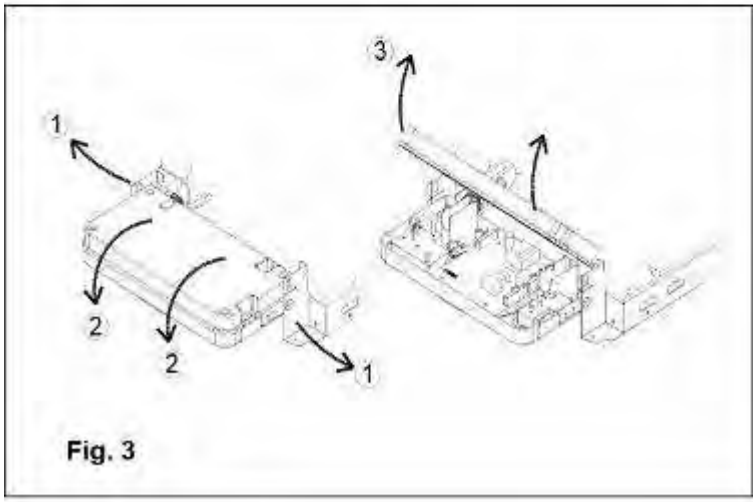


Fig. 3

Primary heat exchanger (see fig. 1)

- Close the shut-off valves and drain the central heating circuit of the boiler;
- **Switch off the power and gas supply to the boiler;**
- **Remove and dismantle the entire burner unit *(see "Cleaning the condensation module and burner unit");***
- **Remove the gas valve;**
- Remove the spring and then the condensate drainpipe;
- Remove the fixing springs and then the delivery and return pipes;
- Remove the support brackets and pull out the heat exchanger;
- Remove the regulation sensor from the old heat exchanger and refit it together with the two condensate drainpipes 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;

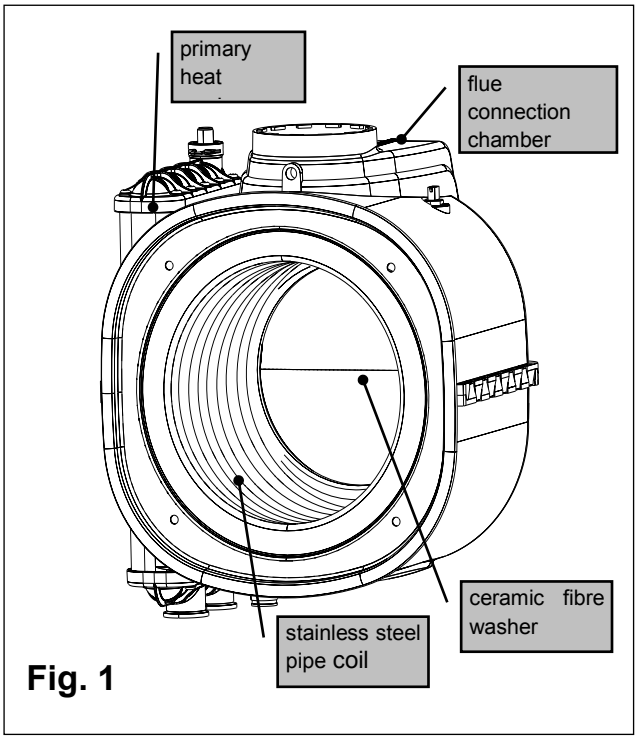


Fig. 1

Expansion vessel (see fig. 2)

- Close the shut-off valves and drain the central heating circuit of the boiler.
- Use a 19 mm spanner to unscrew the pipe coupling to the vessel.
- Unscrew the fixing screws and remove the upper mounting bracket. Remove the expansion vessel from the left side of the boiler.
- Replace the expansion vessel 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;

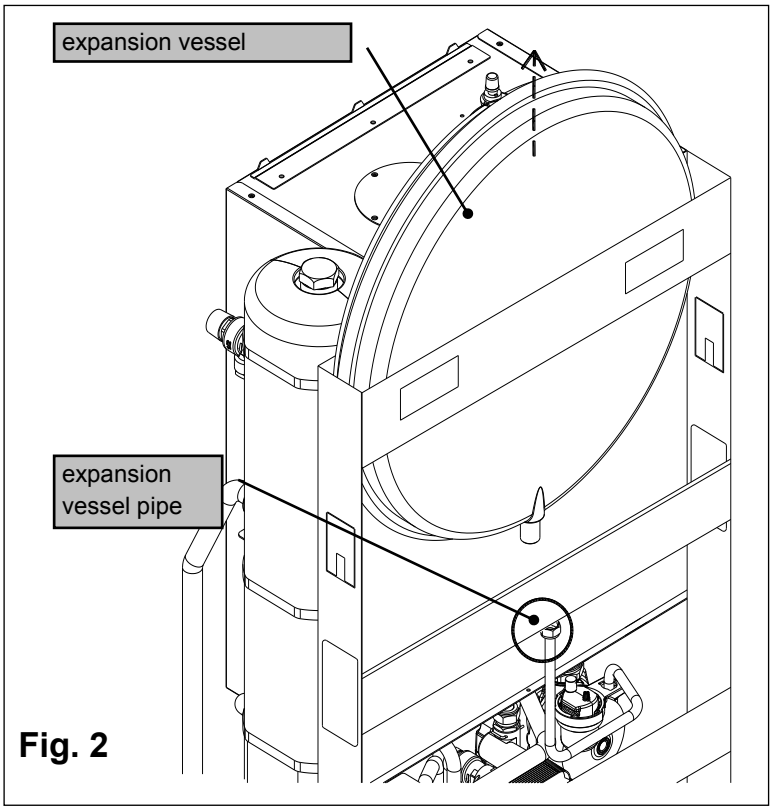


Fig. 2

D.H.W heat exchanger (see fig. 1)

- Close the shut-off valve and drain the domestic hot water circuit and central heating circuit of the boiler.
- Use a 4 mm Allen key to unscrew the four screws securing the heat exchanger to the multiplex unit.
- Remove the heat exchanger from the left side of the boiler, note its orientation.
- Fit new rubber washer, inserting them in their housings on the multiplex unit.
- Replace the heat exchanger and re-assemble the components following the above procedure in reverse order.
- Switch on the electricity, water and gas supplies, fill the system with water and check for any leaks from the joints.

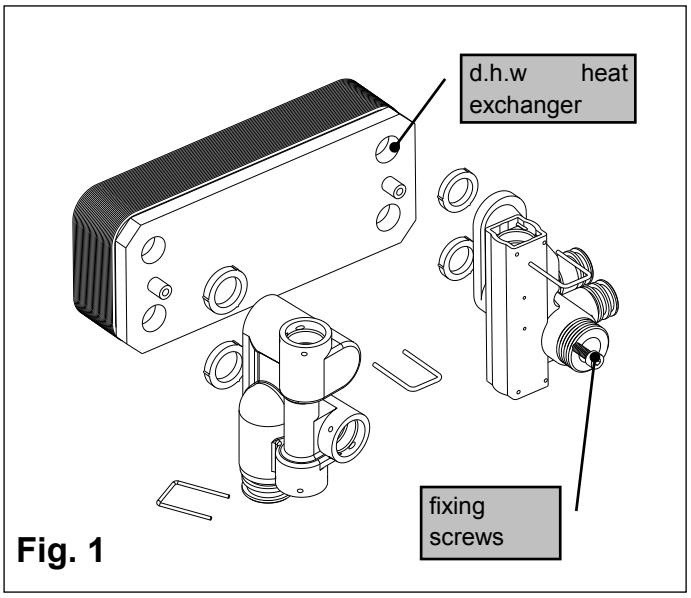


Fig. 1

Storage Cylinder (see fig. 2)

- Close the shut-off valves and drain the central heating circuit of the boiler;
- Use a 30 mm key to unscrew the heating flow and return pipes (fig. 2 – pos. A);
- Use a 24 mm key to unscrew the D.H.W flow and return pipes (fig. 2 - pos.B);
- Lift the storage cylinder by releasing it from the boiler frame (fig. 2 - pos.C);
- Remove the storage cylinder by shifting it on the right side (fig. 2 - pos.C);
- Replace the storage cylinder 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

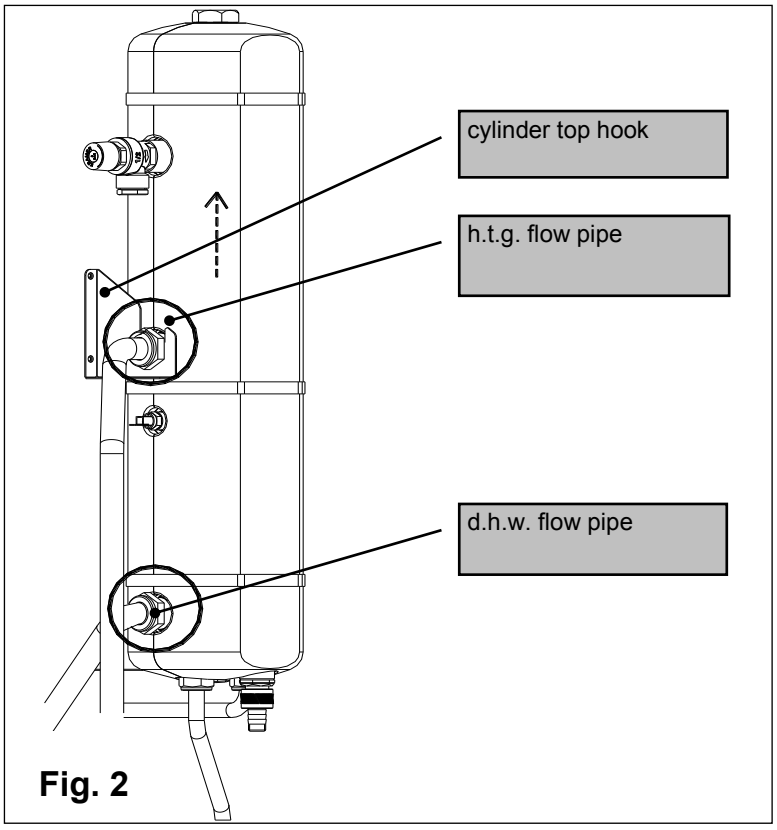


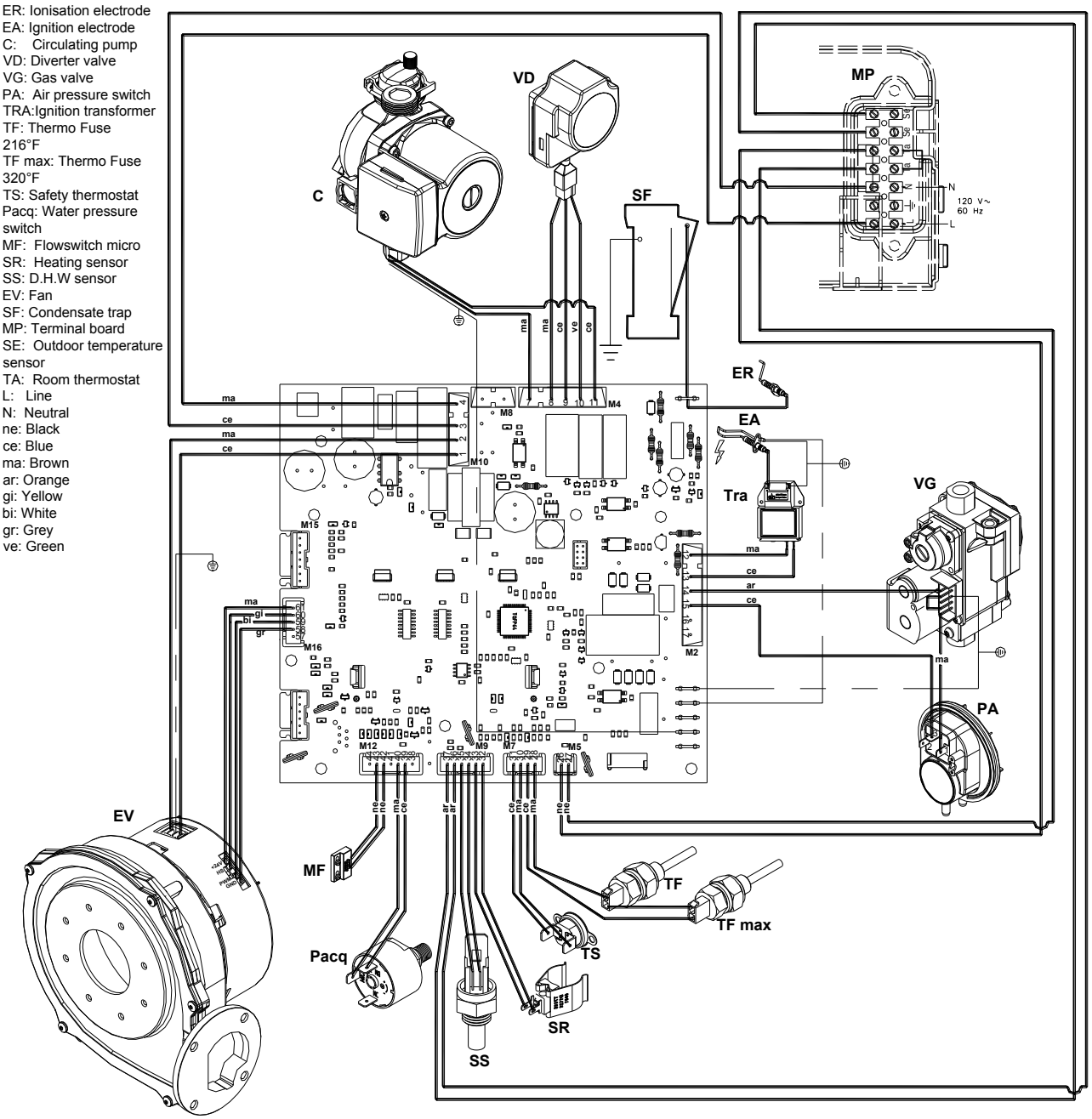
Fig. 2

6.8 Wiring diagrams

Models:
PCI 18/8
PCI 34/20
PCC 34

Key

ER: Ionisation electrode
EA: Ignition electrode
C: Circulating pump
VD: Diverter valve
VG: Gas valve
PA: Air pressure switch
TRA:Ignition transformer
TF: Thermo Fuse 216°F
TF max: Thermo Fuse 320°F
TS: Safety thermostat
Pacq: Water pressure switch
MF: Flowswitch micro
SR: Heating sensor
SS: D.H.W sensor
EV: Fan
SF: Condensate trap
MP: Terminal board
SE: Outdoor temperature sensor
TA: Room thermostat
L: Line
N: Neutral
ne: Black
ce: Blue
ma: Brown
ar: Orange
gi: Yellow
bi: White
gr: Grey
ve: Green



Connecting the room thermostat (Option)

Connect the wires to the terminal board inside the instrument panel as follows:

TA terminals are 24volt DC. Accordingly, only a non-power stealing device can be installed to these terminals.

a. switch off the power supply at the main switch.
b. remove the front case panel of the boiler.
c. slacken the screws and remove plate A (see fig.1).
d. remove jumper TA -TA from the terminal board B;
e. connect the room thermostat/end switch wires;

When the wires have been connected, place plate "**A**" back to position and then the front case panel.

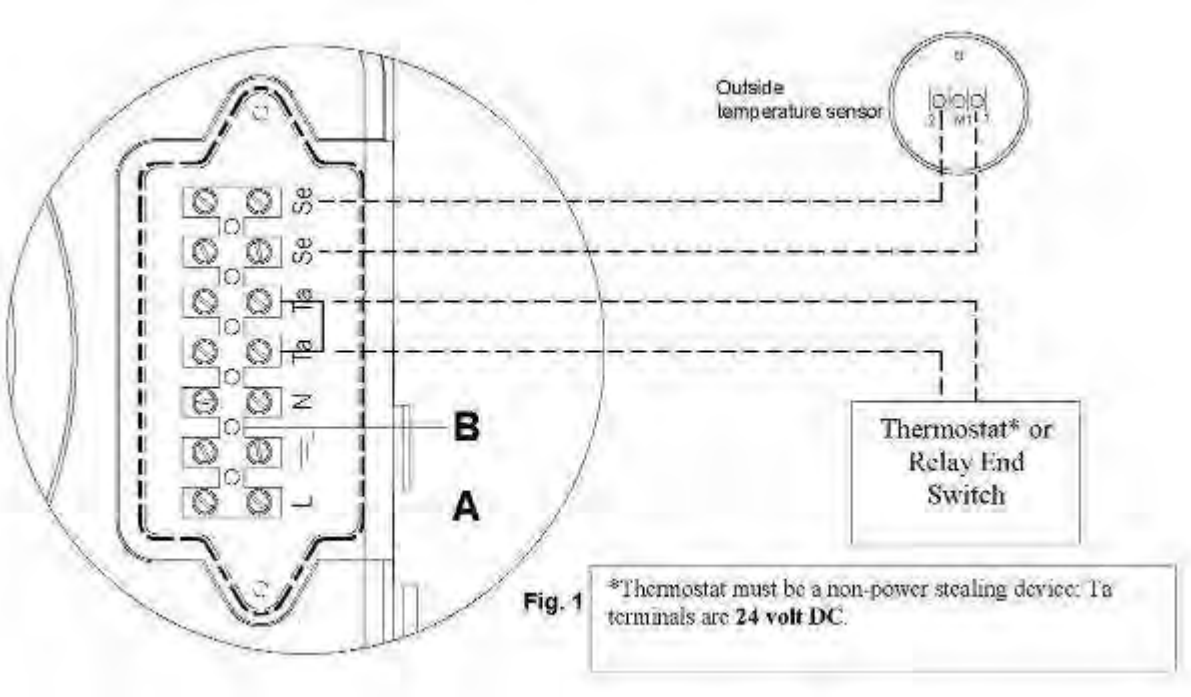


Fig. 1 *Thermostat must be a non-power stealing device: Ta terminals are **24 volt DC**.

Connecting the outside temperature sensor (Option)

Connect the wires to the terminal board inside the instrument panel as follows:

a. switch off the power supply at the main switch.
b. remove the front case panel of the boiler.
c. slacken the screws and remove plate A (see fig.1).
d. connect the outside temperature sensor on contacts marked as SE-SE on the terminal board B ;
e. refer to the following page to set the reset curves.

When the wires have been connected, place plate "**A**" back to position and then the front case panel.

6.10 Troubleshooting

ERROR CODE	PROBLEM	POSSIBLE CAUSE	REMEDY	RESET
E01	IONISATION PROBLEM	*WITHOUT FLAME IGNITION* a. NO GAS. b. IGNITION ELECTRODE BROKEN OR EARTHED. c. GAS VALVE MALFUNCTION. d. IGNITION SEQUENCE SET TOO LOW. e. GAS VALVE INLET PRESSURE TOO HIGH (FOR LPG BOILERS ONLY). *WITH FLAME IGNITION* f. POWER SUPPLY LINE AND NEUTRAL CABLES REVERSED. g. IONISATION ELECTRODE MALFUNCTION. h. IONISATION ELECTRODE CABLE DISCONNECTED.	a. CHECK MAINS GAS SUPPLY. b. REPLACE PART. c. REPLACE PART. d. SET THE IGNITION SEQUENCE. e. CHECK THE MAXIMUM GAS PRESSURE SETTING. f. CONNECT THE BOILER PROPERLY. g. REPLACE PART. h. CONNECT THE IONISATION ELECTRODE CABLE.	Manual Reset (press the ' Ⓡ ' Reset button)
E02	SAFETY THERMOSTAT TRIPPED (203 °F)	i. THERMOSTAT MALFUNCTION OR OUT OF CALIBRATION. j. THERMOSTAT CABLE DISCONNECTED.	i. REPLACE PART. j. CHECK THE WIRING.	Manual Reset (press the ' Ⓡ ' Reset button)
E03	215 °F THERMO FUSE TRIPPED	k. THERMO FUSE BROKEN. l. THERMO FUSE CABLE OR POWER SUPPLY DISCONNECTED.	k. REPLACE PART; l. CHECK THE WIRING AND THE POWER SUPPLY CONNECTION.	Manual Reset (press the ' Ⓡ ' Reset button)
E04	NO WATER IN THE SYSTEM	m. INSUFFICIENT WATER PRESSURE IN THE SYSTEM (STOPS AT 0.3 BAR). n. WATER PRESSURE SWITCH CABLE DISCONNECTED. o. WATER PRESSURE SWITCH MALFUNCTION.	m. FILL THE SYSTEM. n. CHECK THE WIRING. o. REPLACE PART.	Automatic
E05	HEATING SENSOR	p. SENSOR MALFUNCTION OR OUT OF CALIBRATION (RESISTANCE VALUE 10 kOhms AT 77 °F). q. SENSOR CABLE DISCONNECTED OR WET.	p. REPLACE PART. q. CHECK THE POWER SUPPLY CONNECTION.	Automatic
E06	D.H.W SENSOR / CYLINDER	r. SENSOR MALFUNCTION OR OUT OF CALIBRATION (RESISTANCE VALUE 10 kOhms AT 77 °F). s. SENSOR CABLE DISCONNECTED OR WET.	r. REPLACE PART. s. CHECK THE POWER SUPPLY CONNECTION.	Automatic

ERROR CODE	PROBLEM	POSSIBLE CAUSE	REMEDY	RESET
E15	RETURN SENSOR (Not Applicable)	t. SENSOR MALFUNCTION OR OUT OF CALIBRATION (RESISTANCE VALUE 10 kOhms AT 77°F). u. SENSOR CABLE DISCONNECTED OR WET.	t. REPLACE PART. u. CHECK THE POWER SUPPLY CONNECTION.	Automatic
E16	FAN	v. BURNT w. POWER SUPPLY CABLE MALFUNCTION	v. REPLACE PART. w. REPLACE PART.	Automatic
E18	INADEQUATE CIRCULATION	x. PRIMARY OR SECONDARY HEAT EXCHANGER OBSTRUCTED. y. PUMP MALFUNCTION OR PUMP IMPELLER DIRTY.	x. CLEAN OR REPLACE PART. y. CLEAN OR REPLACE PART.	Automatic
E21	GENERAL PCB MALFUNCTION	z. MICROPROCESSOR MALFUNCTION: IT DETECTS A WRONG SIGNAL .	z. THE PCB RESETS AUTOMATICALLY THE ERROR.	Automatic
E22	PARAMETER PROGRAMMING REQUEST	aa. LOSS OF MICROPROCESSOR MEMORY.	aa. REPROGRAM PARAMETERS.	Manual Reset (Switch off the power supply)
E35	FLAME DETECTION MALFUNCTION	bb. IONISATION ELECTRODE MALFUNCTION cc. IONISATION ELECTRODE CABLE MALFUNCTION cc. PRINTED CIRCUIT BOARD MALFUNCTION	bb. REPLACE OR CLEAN PART cc. REPLACE PART dd. REPLACE PART	Manual Reset (press the ' ® ' Reset button)
E40	ELECTRIC POWER SUPPLY	dd. ELECTRIC POWER SUPPLY OUT OF THE OPERATION RANGE	ee. CHECK THE POWER SUPPLY NETWORK (THE ERROR DISAPPEARS AUTOMATICALLY WHEN THE POWER SUPPLY IS BACK WITHIN THE REQUIRED RANGE)	Automatic