

NUOVA AURELIA



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SAFETY REGULATIONS



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Carefully read the warnings in the manual for important information on safely installing, using, and maintaining the coffee machine.

It should only be used for the purposes described, and the manufacturer is not responsible for improper use. It is suitable for children aged 8 and above and individuals with reduced capabilities if supervised.

After unpacking, ensure the machine is undamaged and keep packaging materials away from children. It can only be used with ground coffee and must be installed on a horizontal surface above 1.2 m at least 900 mm high from the ground, away from water jets. Installation should be done by qualified personnel following applicable regulations.

Ensure the machine's power rating matches the available supply.

Use only the materials provided for installation, and always utilize new hoses for water connections.

Contact an authorized technician for any plumbing work.

During installation, a qualified electrician must install a circuit breaker switch that allows complete disconnection in overload conditions, following current safety regulations.

For Australia and New Zealand, this must comply with AS/NZS 3000.

In kitchens, connect the equipotential conductor to the designated terminal on the machine.

An earth leakage circuit breaker with a maximum differential current of 30mA is recommended.

The manufacturer is not liable for damages if the system is not grounded.

Ensure the machine is properly grounded and that the electrical capacity of the line is sufficient.



Basic electrical safety rules include:

- Never touch the machine with wet hands or feet.
- Avoid using the machine barefoot.
- Do not use extension cords in wet areas.
- Never pull the power cord to unplug the machine.
- Protect the machine from rain and direct sunlight.
- Only allow trained personnel to operate it.

The electrician must verify that the installation cables are adequately sized for the machine's power. Avoid using adapters or multiple jacks, and if necessary, consult a qualified electrician.

To prevent overheating, fully extend the power supply cord and keep intake and heat dissipation grills clear.

Users should not replace the power cord themselves; if damaged, the machine should be turned off and serviced by a qualified technician.

The machine must be connected to potable water that meets local regulations.

The installation engineer must confirm that the water complies.

For machines connected to mains water, ensure the pressure is between 0.2 MPa (2 bar) and 0.65 MPa (6.5 bar) for proper operation.

The coffee machine should operate within a temperature range of [+5, +25] °C.

If stored below 2 °C for a long time, the hydraulic system must be emptied to prevent freezing.

If it's frozen, let it warm to room temperature for at least 1 hour before use.

After installation, switch on the machine and bring it to "ready for operation" status.

This involves dispensing water from each group and the hot water wand for at least 10 seconds each, and emptying the steam boiler completely, repeating this process three times. It is advisable to document the installation process.

The machine must not be left unattended without a qualified operator.

The manufacturer Simonelli Group, is not responsible for any resulting damage.

Exercise caution with the steam nozzle; do not touch it after use or place hands under it.

Follow the manual's cleaning instructions closely, and do not interrupt the washing cycle to avoid detergent residue.

For breakdowns, turn off the machine and consult qualified personnel.

Repairs should only be made by the manufacturer or authorized service centers using original parts.

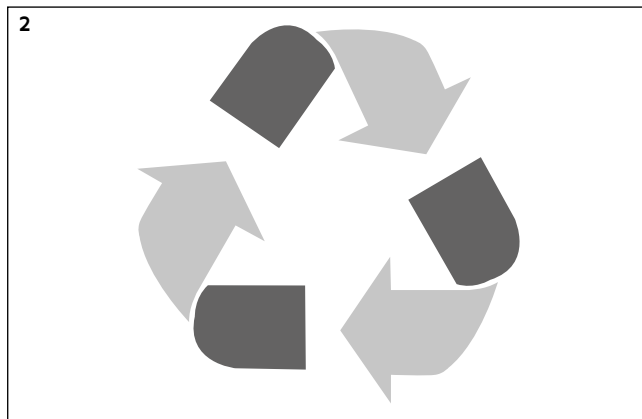
In case of fire, disconnect the machine by turning off the main switch and do not use water to extinguish the fire.

When leaving the machine unattended for long periods, close the water inlet tap.

Before any maintenance, ensure the machine is turned off and unplugged.

If you stop using the machine, make it inoperable by unplugging it and cutting the power cord.

Never dispose of the machine improperly; contact an authorized center or the manufacturer for disposal instructions.



1.1 IMPROPER USE

This chapter lists a few reasonably foreseeable improper uses.

The machine must, however, always be used in respect of the instructions given in this manual.

- Use by non-professional operators.
- Introduction of liquids other than softened drinking water with a maximum hardness of 5/6 French degrees (50/60 ppm).
- Touching the delivery areas with the hands.
- Introduction, into the portafilter, ground different than coffee.
- Placing objects other than cups on the cup warmer.
- Heating drinks or other non-food substances.
- Covering the cup warmer with cloths.
- Obstructing the vents with cloths or other items.
- Using the machine if wet.

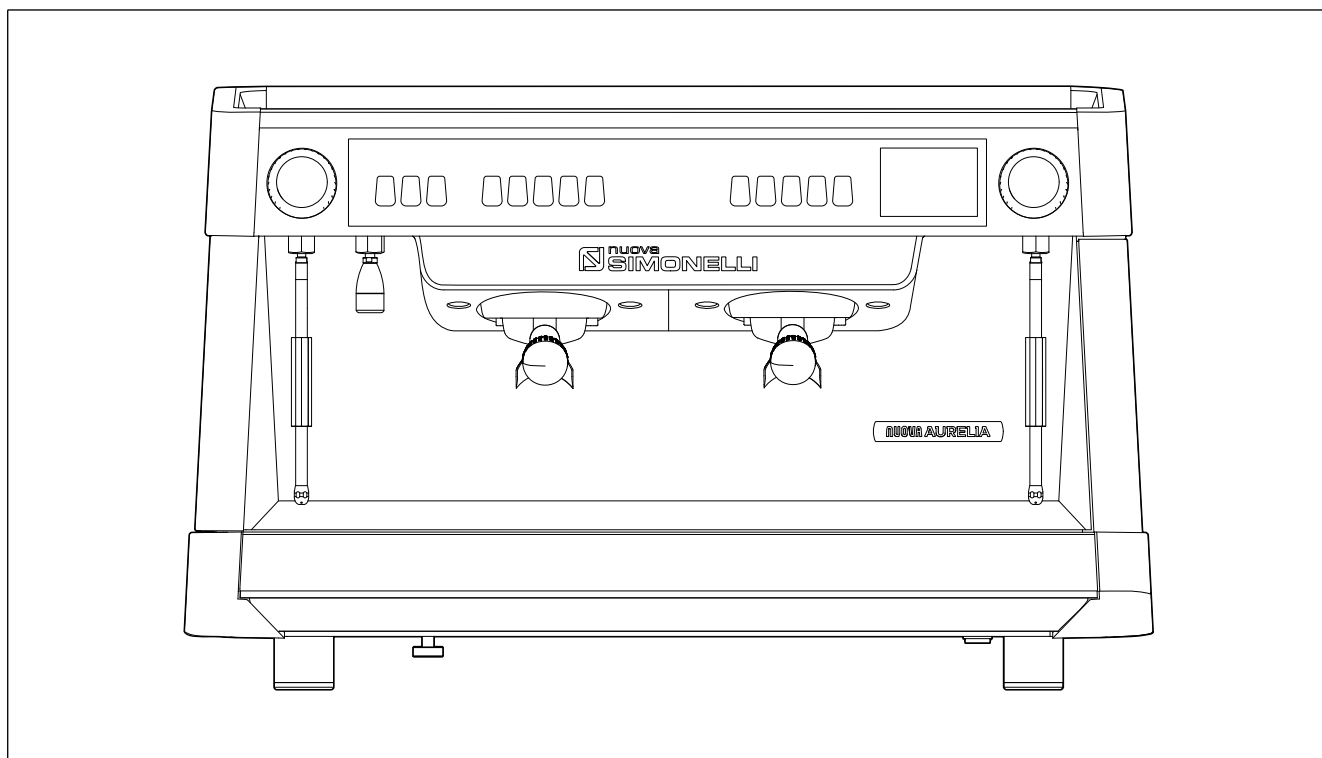
1.2 INTENDED USE

Machine designed and built respecting what is expressed in the declaration of conformity. It must be used by professionals in the sector for the supply of coffee, water and steam. The machine can only be used with ground coffee. An area for the preheating of the cups has been provided.

Only for this use must be used, any other use is to be considered improper use and therefore dangerous.

2

MACHINE DESCRIPTION



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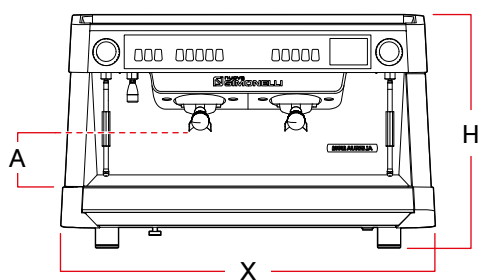
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2.1 TECHNICAL DATA

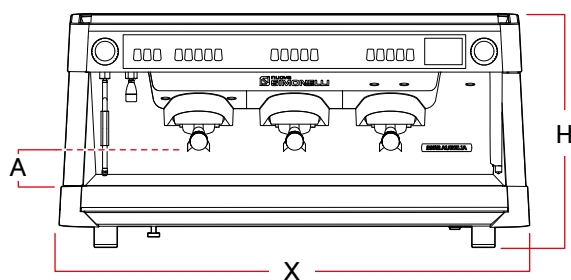
Version		MP		UX		V XT			S XT		
Groups		2	3	2	3	2	3	4	2	3	
Voltage	V	220-240 380-415		220-240 380-415		220-240 380-415			220-240 380-415		
Frequency	Hz	50-60		50-60		50-60			50-60		
Power	W	6000	7400	5300	6100	4700	5200	5800	4700	5200	
Steam boiler capacity	l	8		9,8	15,1	9,8	15,1	20,3	9,8	15,1	
Coffee boiler capacity	l	0,14		/		/			/		
Net weight	kg	79	94	79	94	78	92	103	78	92	
	lb	174,17	207,23	174,17	207,23	171,96	202,83	227,08	171,96	202,83	
Gross weight	kg	85	104	85	104	84	102	125	84	102	
	lb	187,39	229,28	187,39	229,28	185,19	224,87	275,58	185,19	224,87	
Noise level	dB(A)	<70		<70		<70			<70		
Dimensions											
X	mm	820	1030	820	1147	820	1030	1147	820	1030	
	inch	32.28	40.55	32.28	45.16	32.28	40.55	45.16	32.28	40.55	
Y	mm	562		562		562			562		
	inch	22.13		22.13		22.13			22.13		
H	mm	515		515		515			515		
	inch	20.28		20.28		20.28			20.28		
A	Low groups	mm	77		77		77			77	
		inch	4.8		4.8		4.8			4.8	
	High groups	mm	122		122		122			122	
		inch	3.03		3.03		3.03			3.03	

3

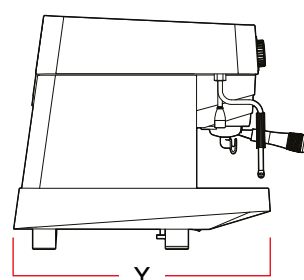
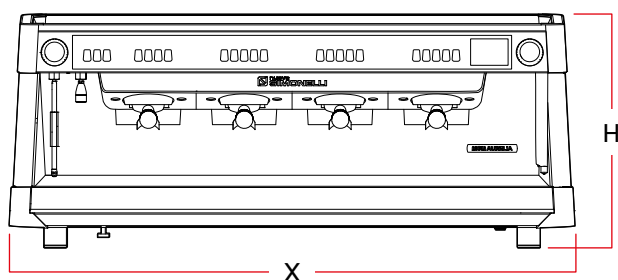
2 GROUPS



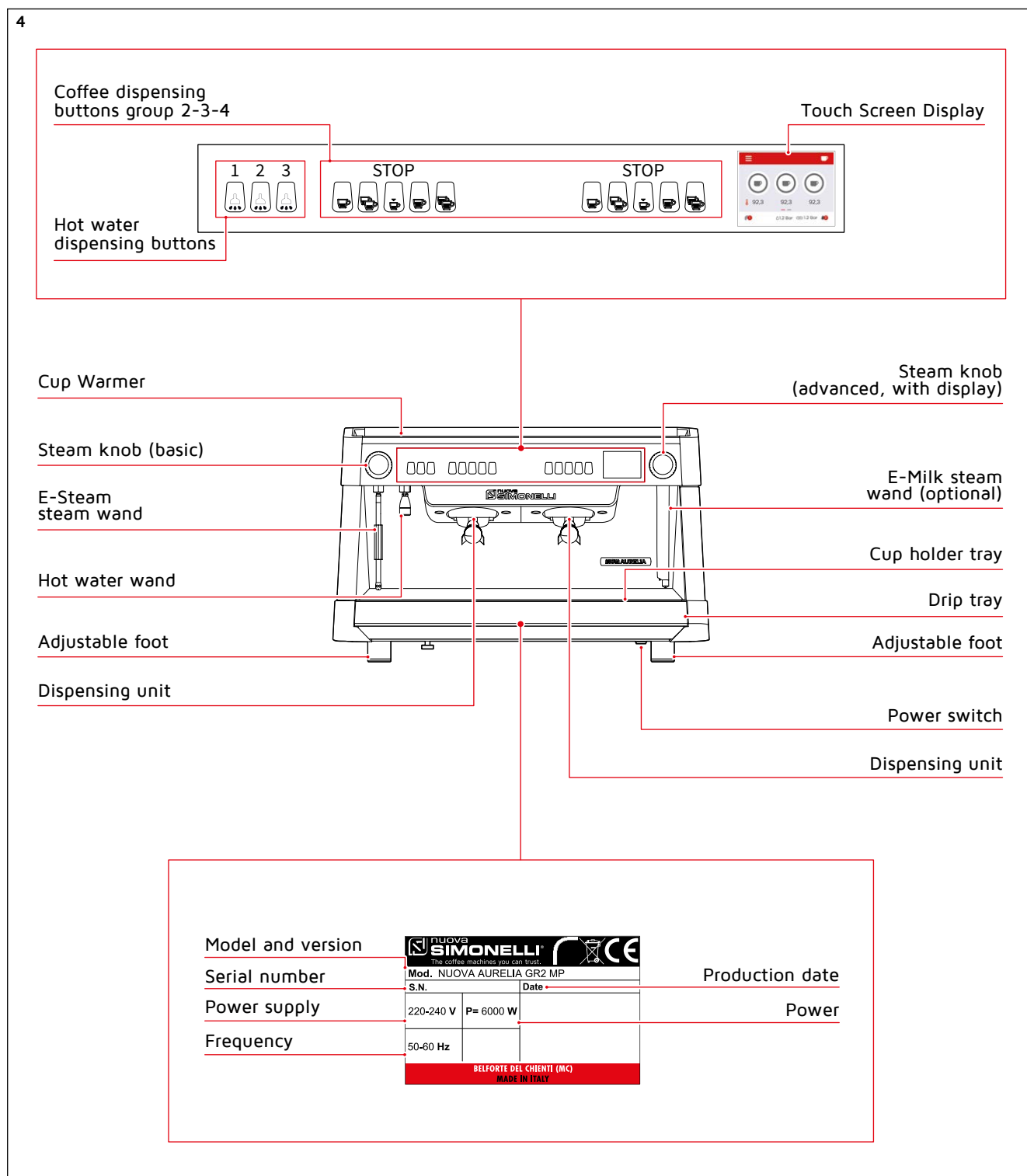
3 GROUPS



4 GROUPS



2.2 MACHINE DESCRIPTION



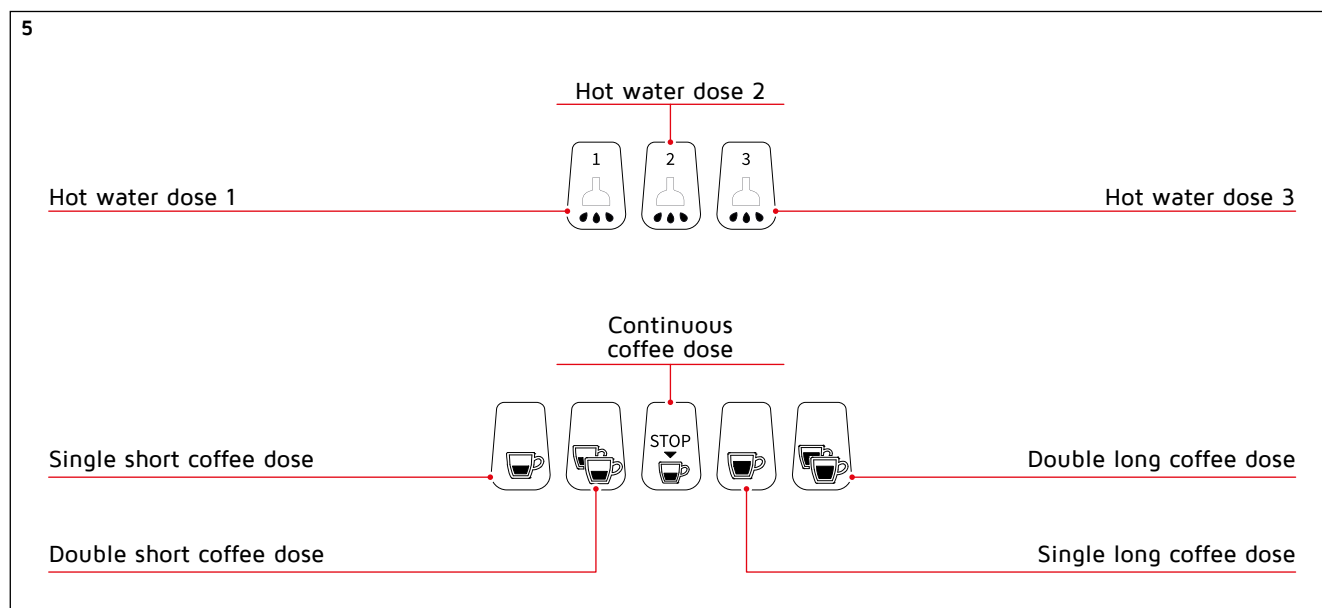
NUOVA AURELIA is an intelligent professional coffee machine.

Its solid and compact design allows for a more intensive use and intuitive ergonomics.

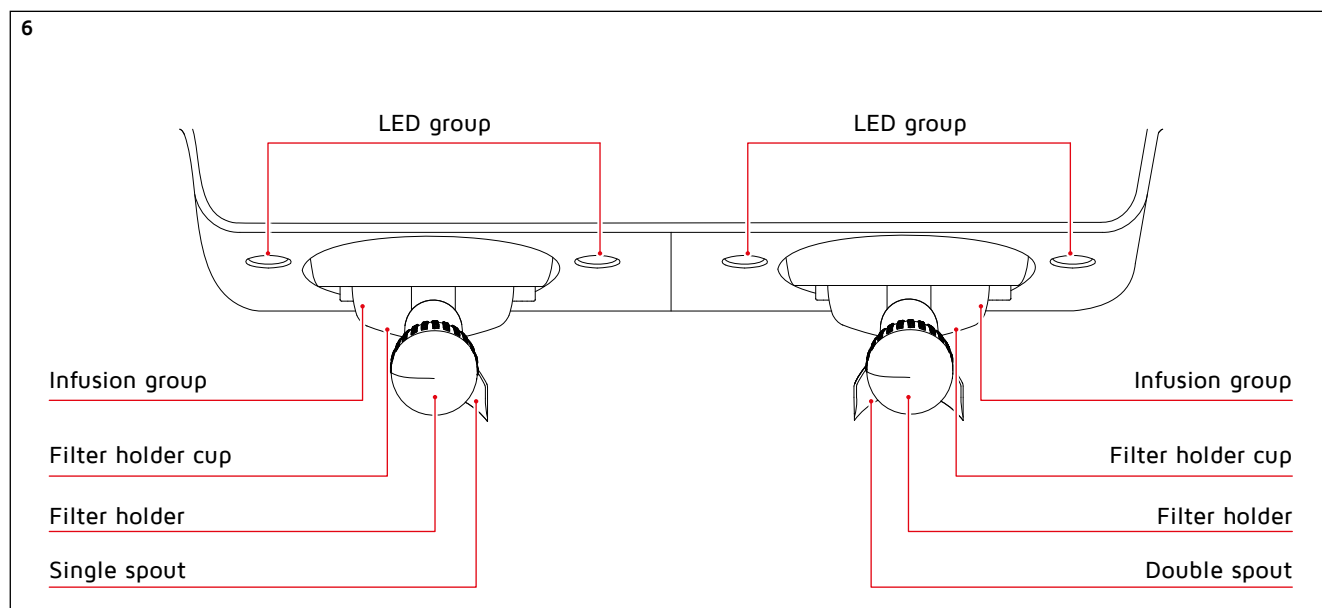
With its responsive technology, it allows a smooth workflow for a high-quality cup result with increased productivity.

NUOVA AURELIA is designed with 2 - 3 - 4 groups and is available in the following versions: **MP, UX, V XT** or **S XT**.

2.2.1 DISPENSING BUTTONS DESCRIPTION

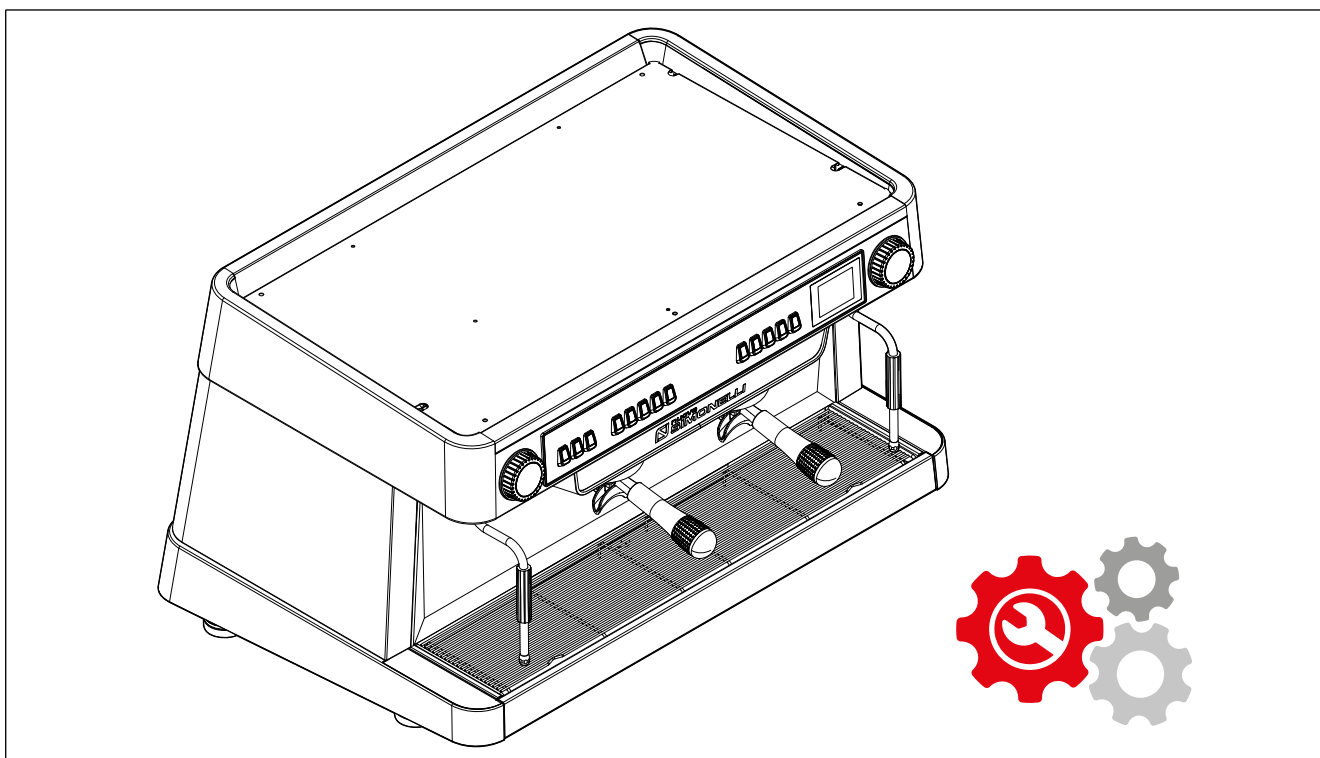


2.2.2 DISPENSING GROUPS DESCRIPTION



3

FIRST INSTALLATION AND PRELIMINARY OPERATIONS



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3.1 POSITIONING

Before installing the machine, make sure the area where it will be installed is compatible for the size and weight of the machine.

Position the machine on a horizontal plane at least 900 mm high from the ground.

Keep at least 150 mm around the machine for proper ventilation.

To adjust the height and levelling of the machine, rotate the feet:

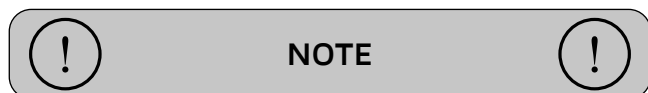
- Clockwise to decrease the height of the machine.
- Anti-clockwise to increase the height of the machine.

3.2 WATER CONNECTION

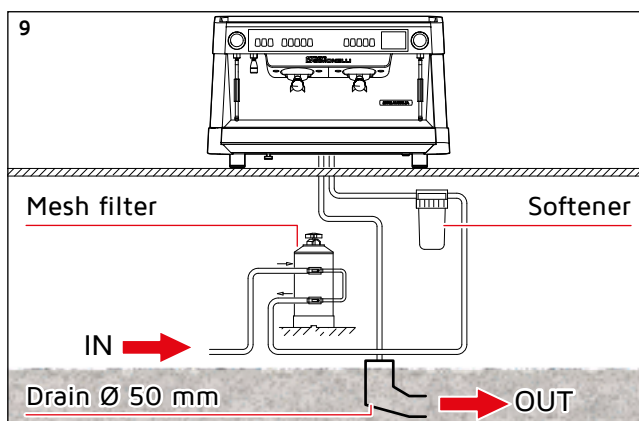
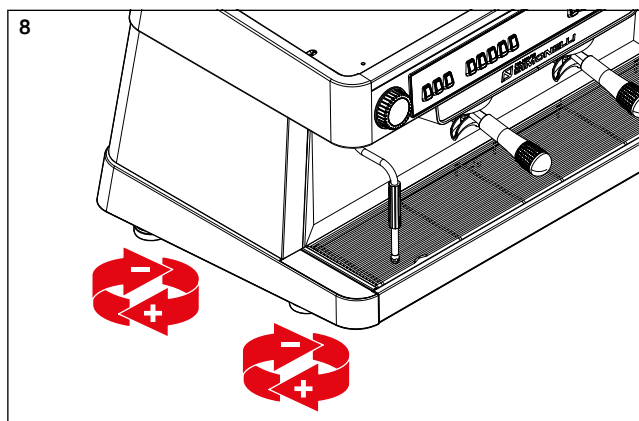
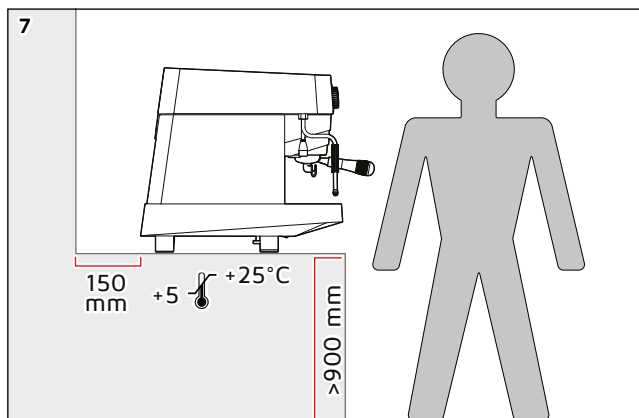
It is advisable to install a softener and then a mesh filter on the external part of the plumbing system, during preliminaries and after levelling the machine.



Avoid throttling in the connecting tubes. Assess that the drain pipe is able to eliminate waste. It is forbidden to use connecting pipes already used in the past. Filter maintenance is the responsibility of the purchaser.



For a correct functioning of the machine the water works pressure must not exceed 4 bars. Otherwise, install a pressure reducer upstream of the softener; the internal diameter of water entrance pipe must not be less than 6 mm (3/8").



3.3 WATER SPECIFICATIONS

Monitoring of water recipe to keep it within required levels and maintenance of filtration system is the user's responsibility.

Failing to meet and maintain water at the following levels will void the entire warranty.

Total hardness	50 - 60 ppm
Waterline pressure	2-5 bar (cold water)
Minimum flow	200 l/hr
Chloride	Less than 1.0 micron
Alkalinity	10-150 ppm
Total dissolved salts (TDS)	50 -250 ppm
Chloride	<0.5 mg/L
pH	6.0- 8.0

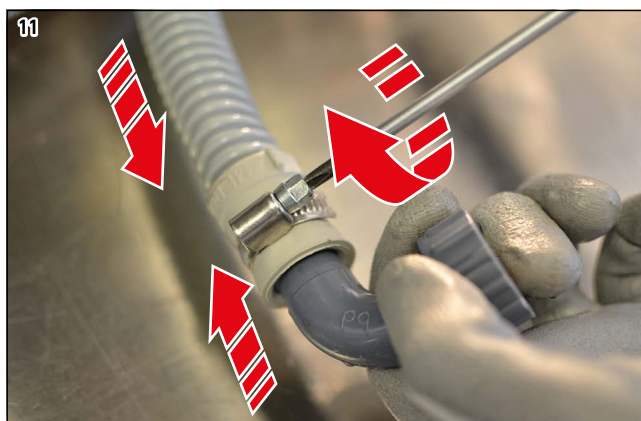
3.4 CONNECTION TO THE WATER SUPPLY

The machine comes with a loading tube with a 3/8" connection for the water main.

The cable is already installed in the machine, simply connect it to the water supply.

To connect the wastewater system, proceed as it follows.

- 1 Connect the supplied wastewater pipe to the supplied joint and use a Philips screwdriver to tighten.
- 2 Connect the wastewater pipe and the joint to the wastewater system by manually screwing it to the union.



3.5 ELECTRICITY SPECIFICATIONS



WARNING



The machine must always be protected by an automatic, omnipolar circuit breaker switch of adequate rating protection with an open distance between the contacts that permits the complete disconnection of the conditions regarding category III excess voltage surge. Simonelli Group cannot be held liable for any damage to people or things due to non observance of the safety prescriptions.

Prior to connecting the machine to the electrical mains, assess that the voltage shown on the machine's data plate corresponds with that of the mains.

If it does not, carry out the connections on the basis of the available electrical line, as in the images.



NOTE



At the beginning of the day's activities and in any case, if there are any pauses of more than 8 hours, then it is necessary to change 100% of the water in the circuits, using the relevant dispensers.



NOTE



In case of continuous services, carry out the above changes on a weekly basis.



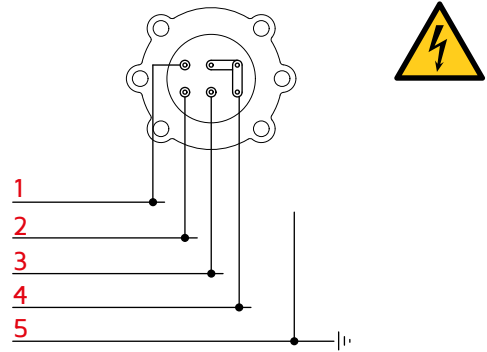
NOTE



In the event that the place of installation does not have the necessary total power output, the ECO WARMUP mode can be utilised. The ECO WARMUP mode permits a reduction of the power required during the initial heating phase. Utilising this mode, the various boilers are heated in sequential mode, rather than in parallel mode, thereby limiting the total consumption to approximately 5,500W, as opposed to a longer transitory time to arrive at operating heat.

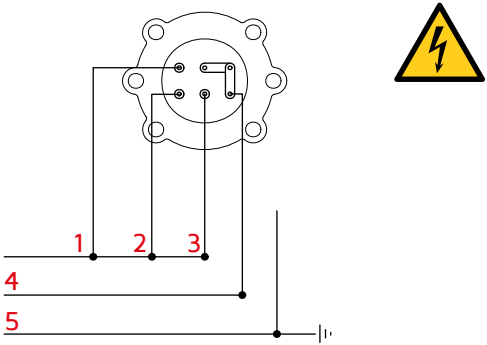
13

380 V - 3 phases + Neutral



14

230 V - single phase



- 1 Black
- 2 Grey
- 3 Brown
- 4 Blue
- 5 Yellow-Green

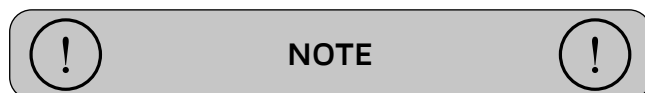
3.6 PROCEDURE OF FIRST INSTALLATION

All **NUOVA AURELIA** models have the power button at the bottom on the right-hand side.

The button has two states:

- 0 = machine OFF.
- I = machine ON.

After performing the operations described in the previous chapters, to switch the machine ON, press the power button to the 'I' position.



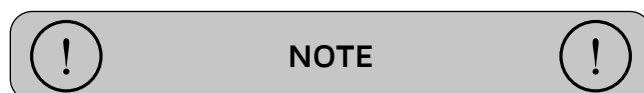
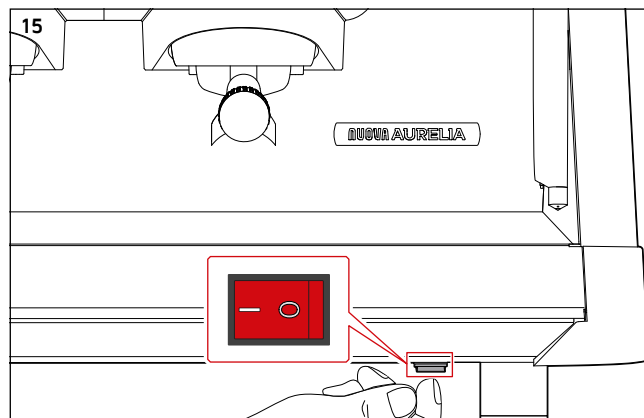
When switching ON for the first time or after a reset, the qualified technician must initially set some general parameters following a guided procedure:

- Display language.
- Date and time.
- Unit of measurement.

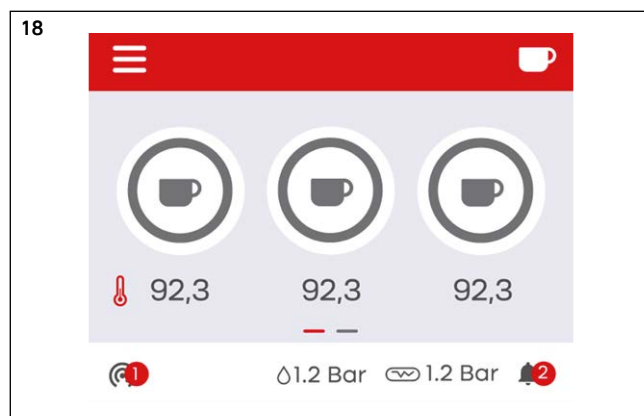
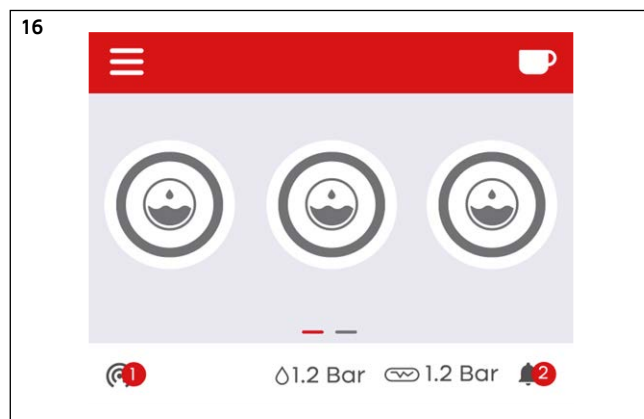
After the initial settings, the machine needs to fill the steam boiler and, if present, the coffee group boilers. The remaining filling time of the group boilers can be seen on the display.

In subsequent start-ups, the display will show the welcome page with the **Nuova Simonelli** logo for 3 seconds.

The **Home Page** will then be visible.



These settings remain stored for subsequent start-ups and, if necessary, can be changed via the display in the **General Settings** menu.

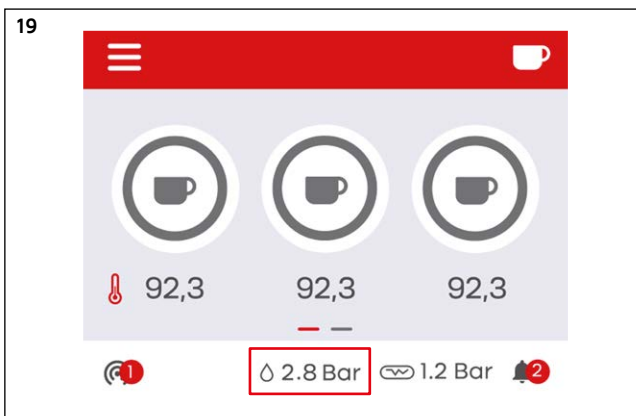


3.7 WATER INPUT PRESSURE

With machine ON, the touch screen will show the water input pressure.

Check that the water input pressure is between 2 and 5 bar.

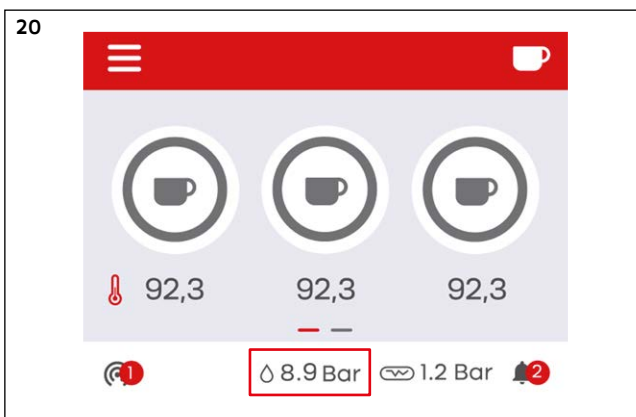
If the pressure is more than 5 bar, insert a pressure reducer upstream to ensure a value between 2 and 5 bar.



3.8 PRESSURE ADJUSTMENT

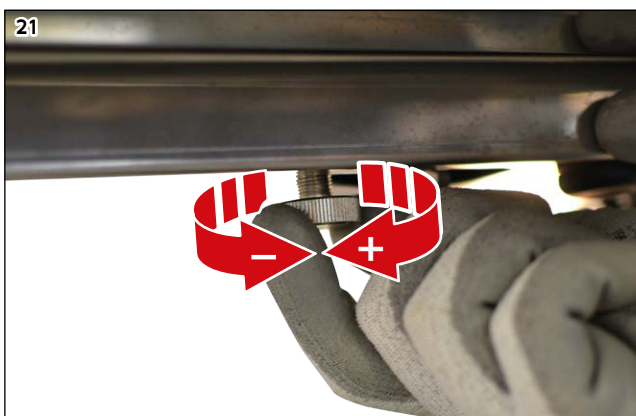
The pressure of the machine must be set while the coffee is brewing.

While coffee is delivered, check that the value on the screen reaches 9 bar, the optimum value.

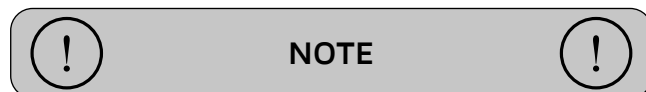


In the event that it would be necessary, use the knob located below the machine to make an appropriate adjustment.

Turning the knob clockwise raises the pressure, turning it counter-clockwise, turning it counter-clockwise decreases the pressure. When the machine is on stand by, the touch screen shows the value of the water pressure.



3.9 HOT WATER ECONOMISER ADJUSTMENT



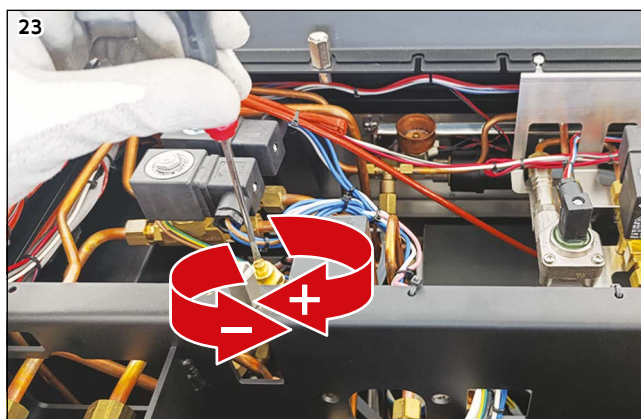
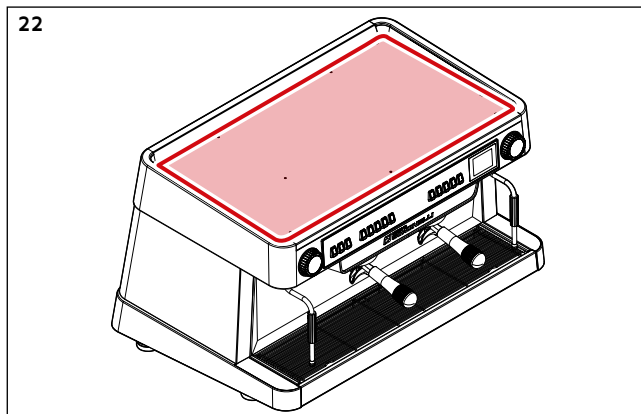
This operation can be carried out while the machine is turned ON.

Before carry out this operation, it's necessary to remove the top cover as explained in Chapter "4 **REMOVAL OF EXTERNAL SURFACE**".

The hot water mixer serves to adjust the temperature of the water leaving the wand and to optimise system performance.

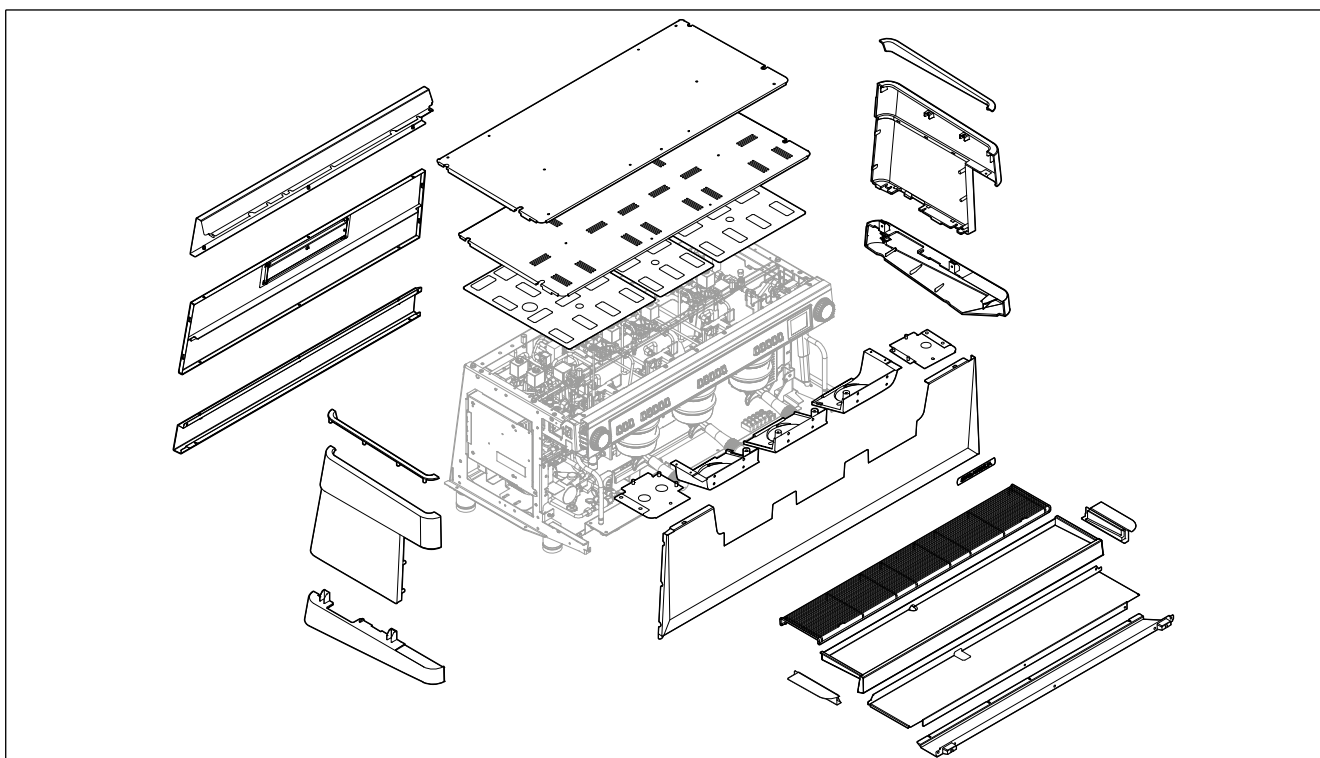
To set the hot water economizer, use a screwdriver on the screw in the top part of the machine, as shown in the figure.

Turn it **CLOCKWISE** to **INCREASE** or **ANTICLOCKWISE** to **REDUCE** the temperature of hot water.



4

REMOVAL OF THE EXTERNAL SURFACE



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DANGER



Before proceeding with the operations described in the Chapter make sure that the machine is turned OFF and unplugged from the mains.



NOTE



Use gloves to protect against sharp or hot surfaces that you can bump against involuntarily during operations. Before proceeding with the removal of the panels it is advisable to clean and free up enough space where the machine parts will rest so that they are not be unintentionally damaged.

4.1 TOP COVER REMOVAL

- 1 Unscrew the screws with a Philips screwdriver that is located on the cup warming tray.
- 2 Disconnect the temperature probe **A**.
- 3 Disconnect the power supply of the cup warmer (optional) **B** and remove the top cover panel.

24

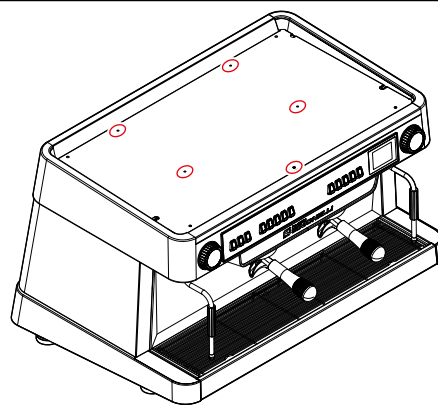


**ELECTRICAL
DANGER**

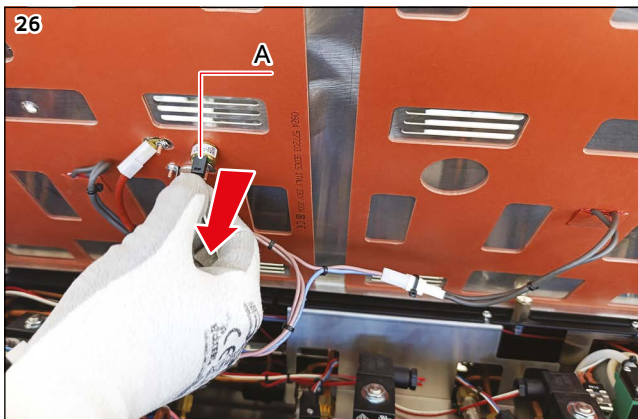


**HOT AND
CUTTINGS
SURFACES**

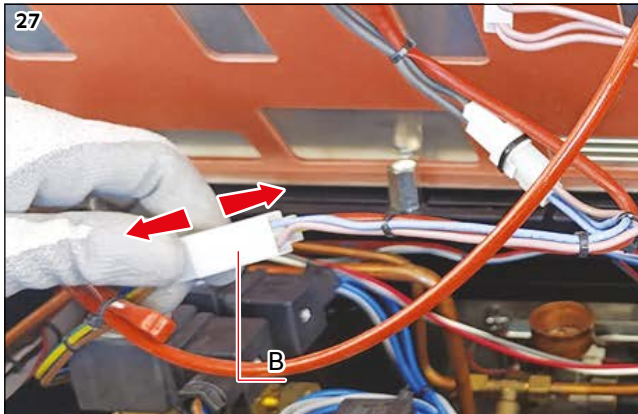
25



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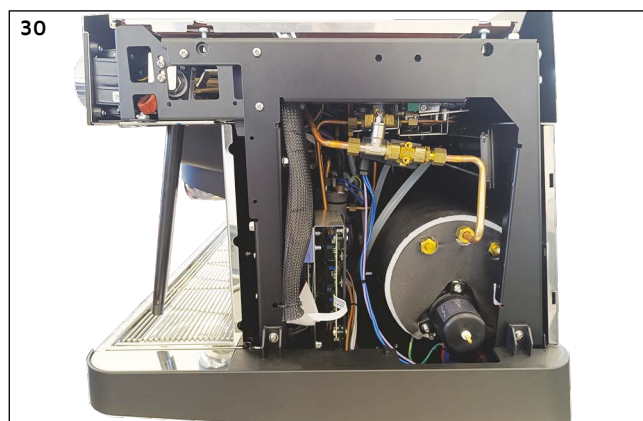


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4.2 SIDE PANELS REMOVAL

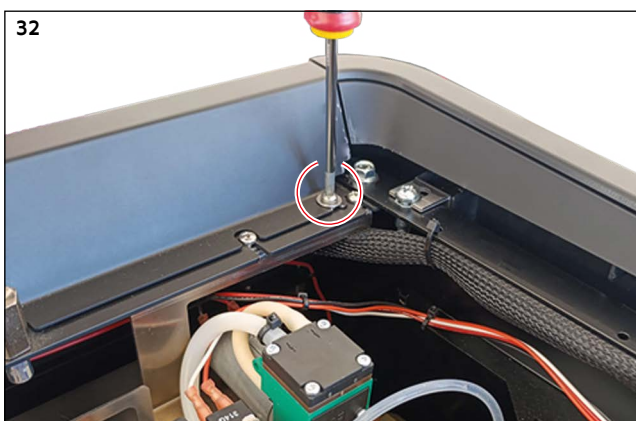
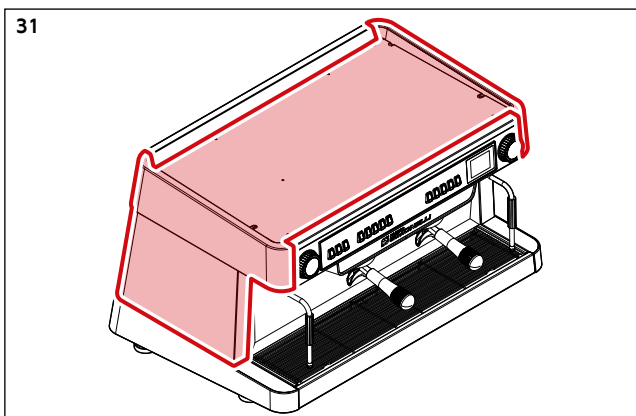
- 1 Use a Philips screwdriver to loosen the 2 screws on each side, located on the top of the machine.
- 2 With the Philips screwdriver, remove the side panel screws, located under the front control panel.
- 3 Gently remove the side panel of the machine and place it on a surface that does not compromise the integrity of the side panel.



4.3 REAR PANEL REMOVAL

To remove the back panel:

- 1 Initially remove the top cover and both the side panels as described in the paragraph "**4.1 TOP COVER REMOVAL**" and "**4.2 SIDE PANELS REMOVAL**".
- 2 Loosen the 2 screws found on the top and remove the panel.

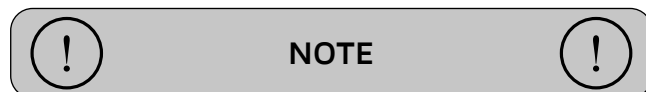


4.4 GROUP COVER REMOVAL

- 1 To access the groups, unscrew the screw of the group cover.
- 2 Then, remove the group cover and disconnect the LEDs light electrical connection.



4.5 LOWER FRONT PANEL REMOVAL



NOTE

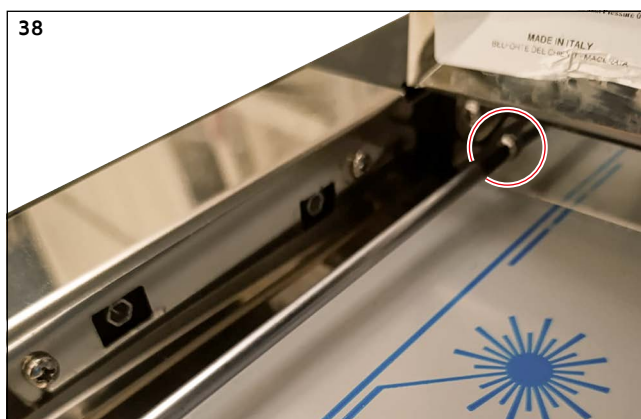
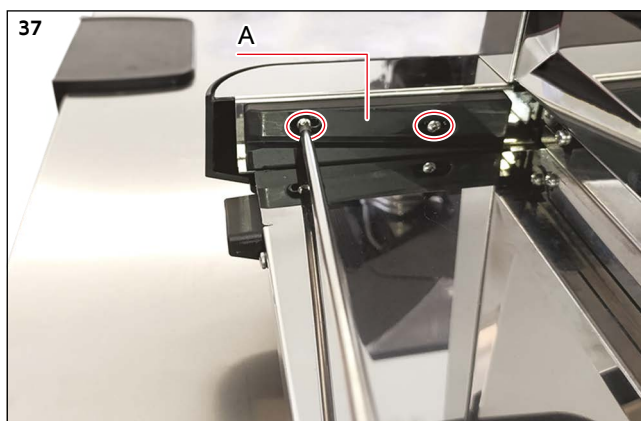
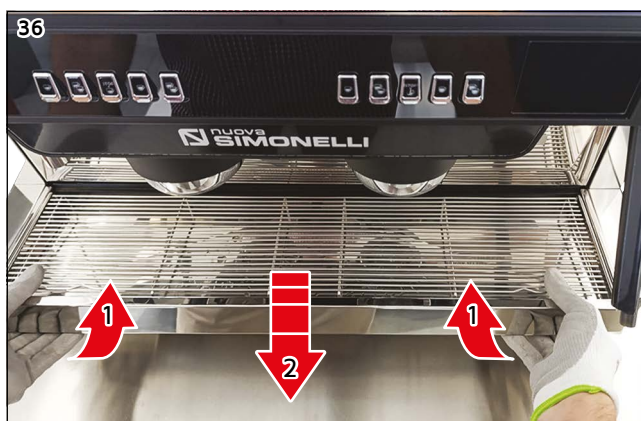
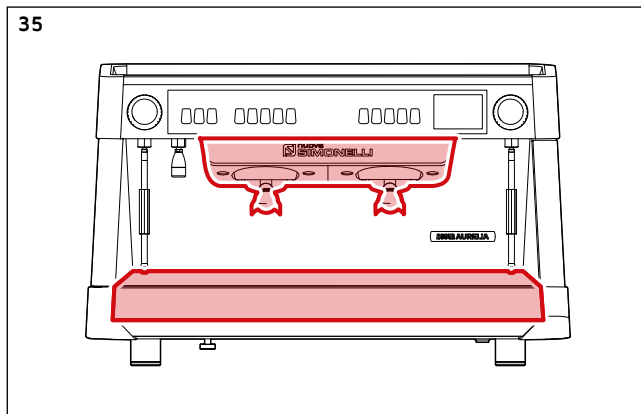
It is possible to remove the panel independently.

To remove the lower front panel, it is necessary to:

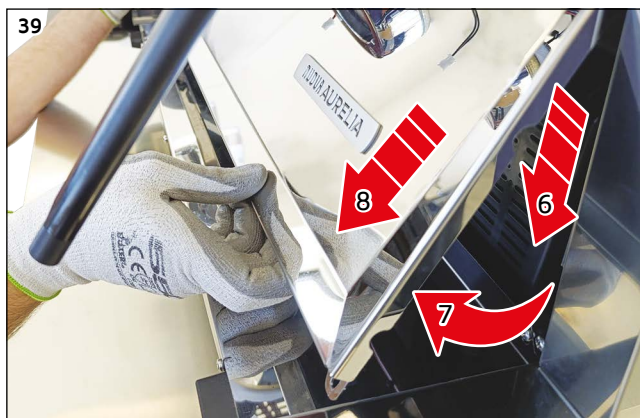
- 1 Lift all wands.
- 2 Remove the drip tray and the group cover, as described in paragraph "4.4 GROUP COVER REMOVAL".
- 3 Remove the work surface raising and slide out the drip tray.

- 4 Remove the black plastic guides **A** on both sides.

- 5 Partially unscrew the 2 side screws that hold the front panel in place.

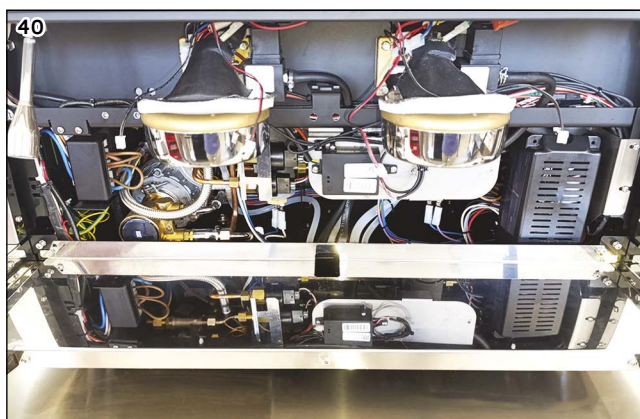


- 6 Pull down the front lower panel to free it from the upper fixing screws.
- 7 Then, rotate the panel toward the front of the machine.
- 8 Finally slide out to remove it.



From the front could access to:

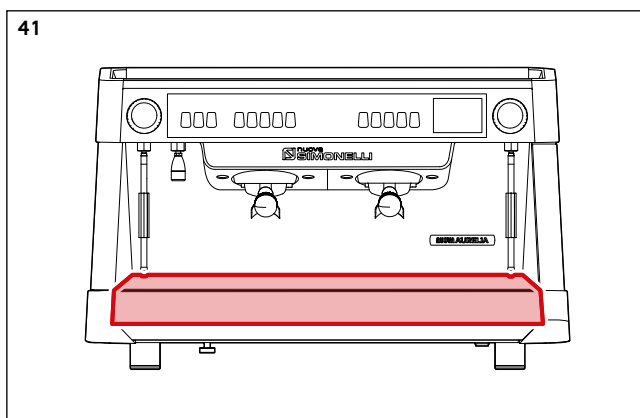
- Brewing solenoid valve and automatic filling solenoid valve.
- Water and steam pressure transducer.
- Steam boiler drainage.
- TRIAC control board.



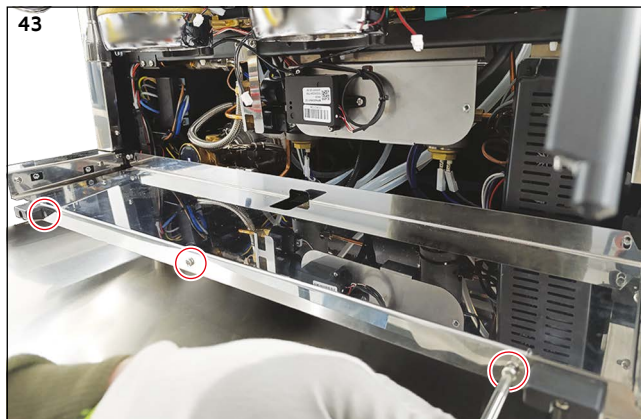
4.6 SAFETY COVER WORKTOP REMOVAL

To remove the safety cover worktop:

- 1 Initially remove the drip tray.
- 2 Using a Philips screwdriver, remove the two fixing screws located at its base.

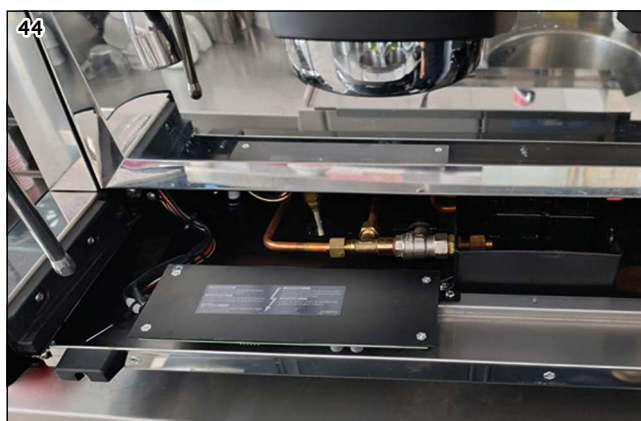


- 3 Finally, to remove the front lower frame, use a Philips screwdriver to remove the three fixing screws.



From the front could access to:

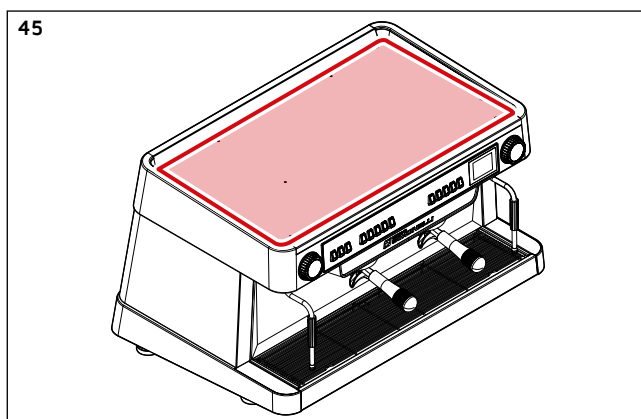
- Optional board (if present).
- Drip tray.
- Service tap to the boiler.



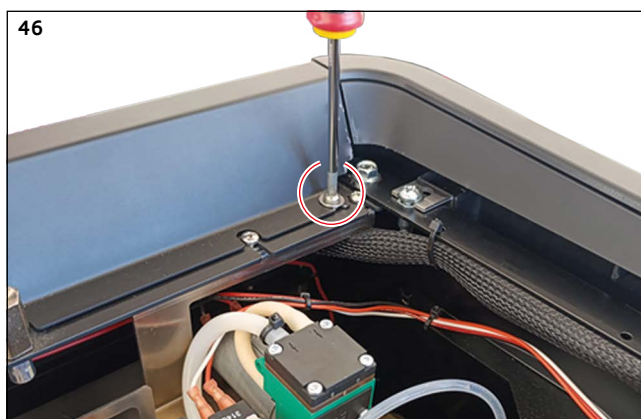
4.7 HIGHER FRONT PANEL REMOVAL

To remove the higher front panel:

- 1 Initially remove the top cover as described in the paragraph "**4.1 TOP COVER REMOVAL**".



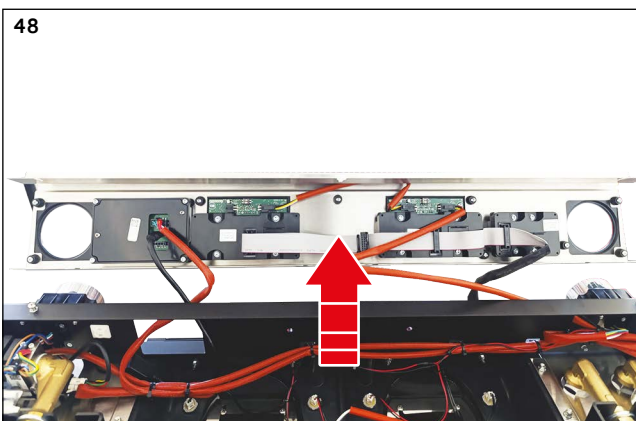
- 2 With a screwdriver, loosen the upper screws.



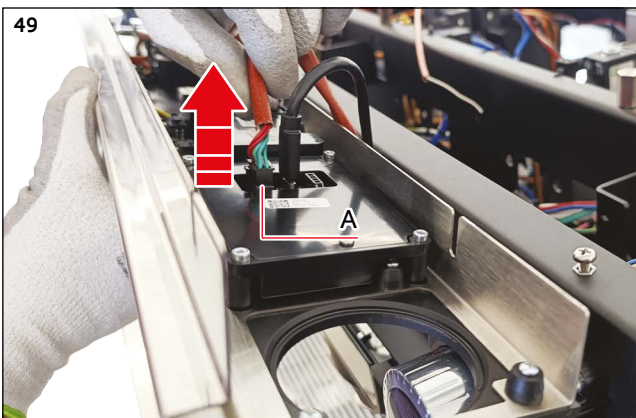
3 Then, unscrew the lower screws that fix the panel.



4 Slide out the panel toward the front of the machine.

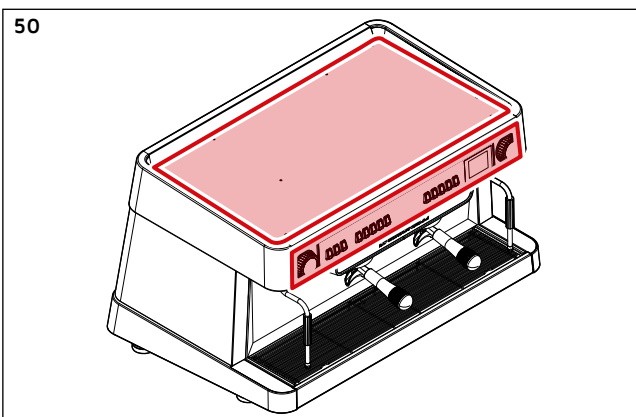


5 Disconnect the electrical connections to free completely the panel.



4.8 DISPLAYS REMOVAL

To remove the displays, initially remove the top cover and the higher front panel as described in the paragraphs "**4.1 TOP COVER REMOVAL**" and "**4.7 HIGHER FRONT PANEL REMOVAL**".

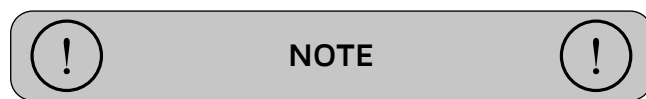


4.8.1 TOUCH SCREEN DISPLAY REMOVAL

To remove the touch screen display:

1 Disconnect the power wire of the display **A**.

2 Unscrew the four fixing screws and then slide out the display.



NOTE

The board of the touch screen display, is connected to the control unit by a flat cable, so it has an address that is set by utilizing the DIP switch.

When a board is replaced, it is necessary to set it with the same configuration.

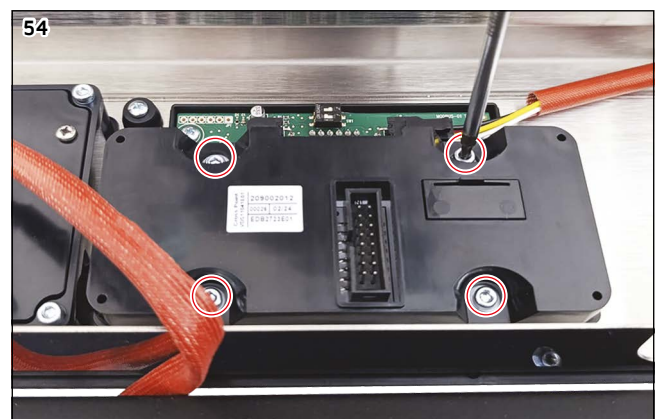
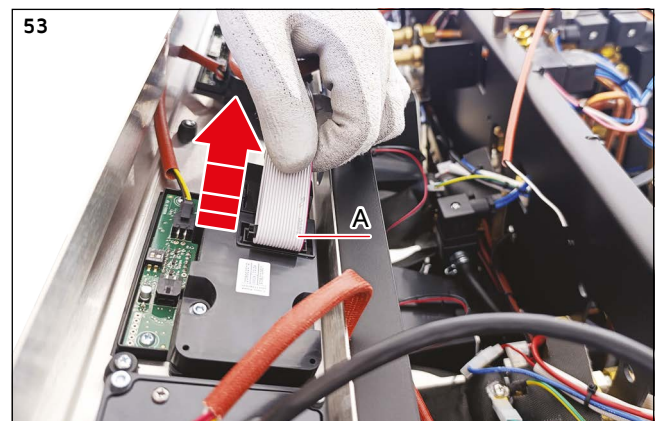
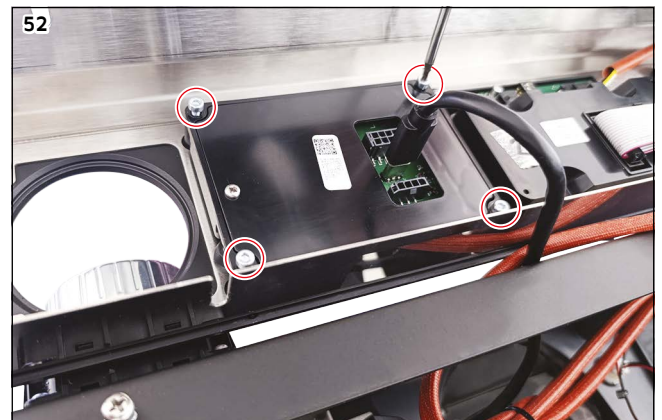
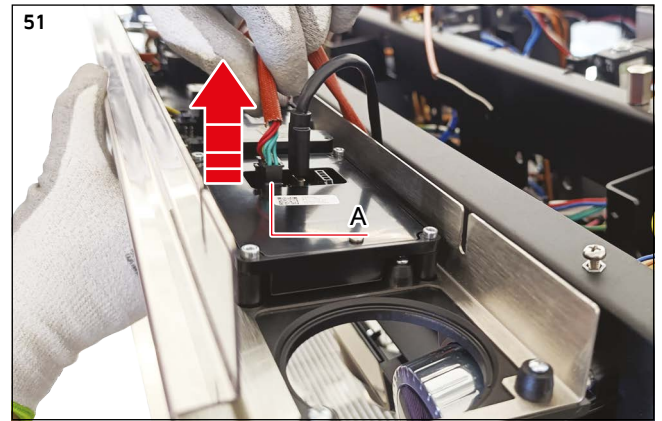
For more informations, refer to Chapter "**9 ELECTRICAL COMPONENTS**".

4.8.2 GROUPS DISPLAY REMOVAL

To remove the group display:

1 Disconnect cable connection of the 5-keys dispensing keypad **A**.

2 Unscrew the four fixing screws with a 2,5 mm Allen key and remove the 5-keys dispensing keypad.



- 3 Disconnect the electrical cable **B** and unscrew the fixing screw with a Philips screwdriver to remove the group display.

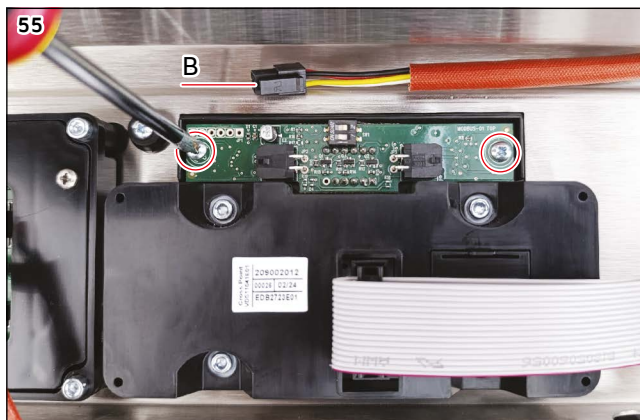


For all groups display, the boards are connected to the control unit by a unique flat cable.

Therefore, each group has a unique address that is set by utilizing the DIP switch.

When a board is replaced, it is necessary to set it with the same configuration.

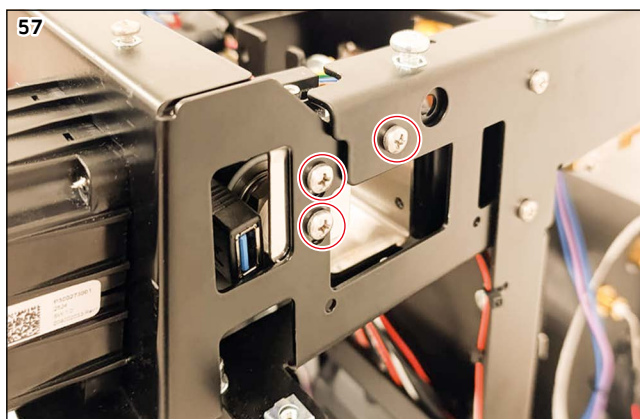
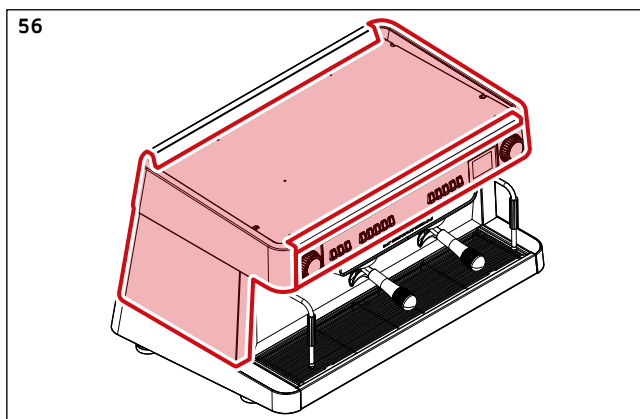
For more informations, refer to Chapter "**9 ELECTRICAL COMPONENTS**".



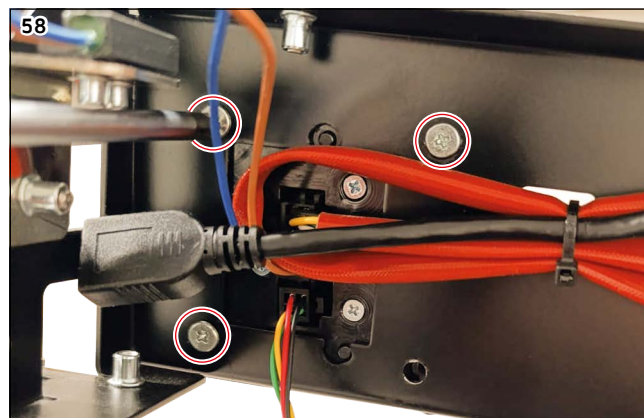
4.9 STEAM KNOB REMOVAL

To remove the left or right steam knob:

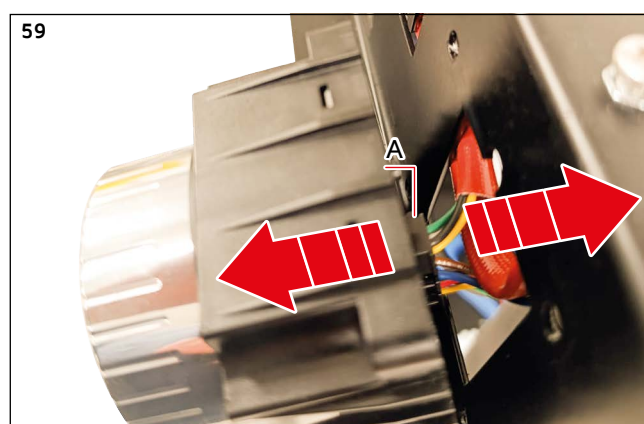
- 1 Initially remove the top cover, the higher front panel, the left and right side panels, as described in the paragraphs "**4.1 TOP COVER REMOVAL**", "**4.2 SIDE PANELS REMOVAL**" and "**4.7 HIGHER FRONT PANEL REMOVAL**".
- 2 Unscrew the three screws on each side of the front frame for easy access to the back of the knob.
- 3 Slide out the front frame.



- 4 Unscrew the three screws on the back of the knob and extract it out from the from side of the machine.

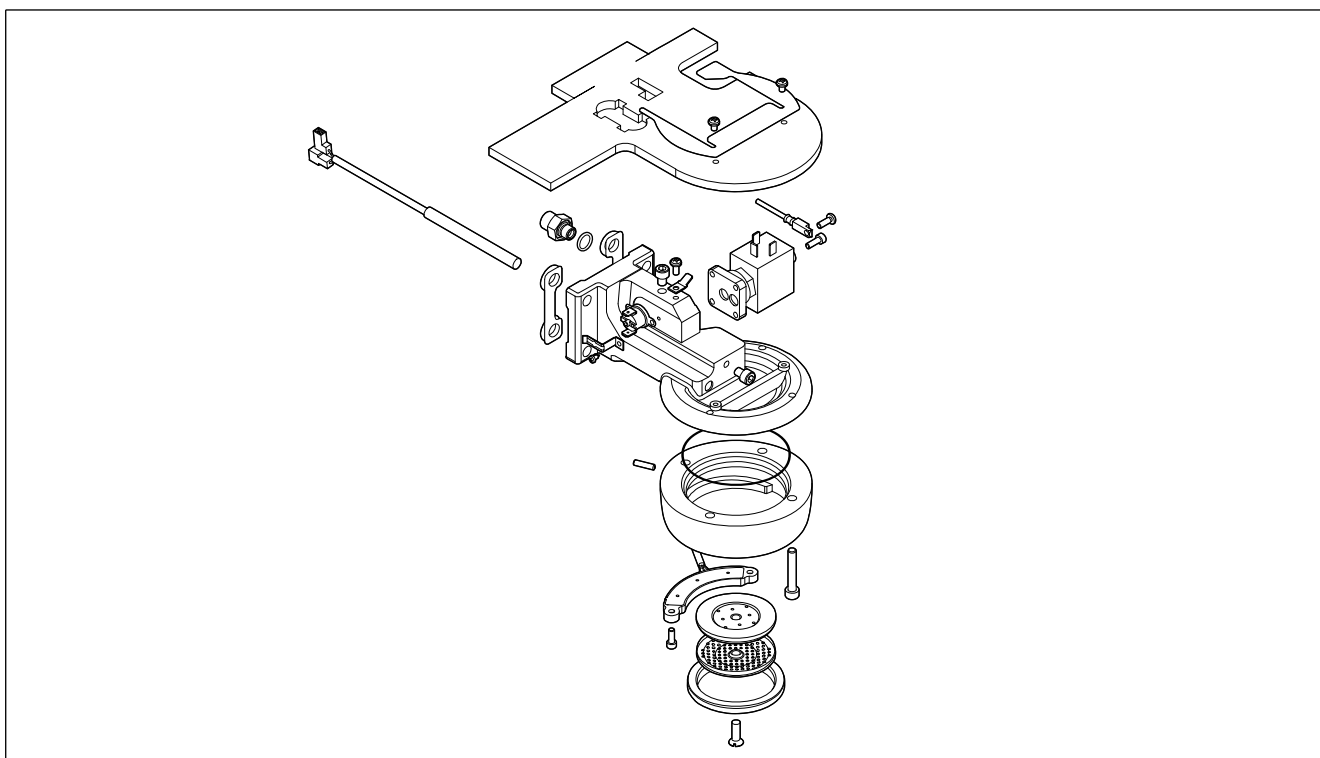


- 5 Disconnect the electrical wires **A** to free totally the knob.



5

INFUSION UNIT



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5.5 REMOVAL OF THE TEMPERATURE PROBE	40
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5.7.2 COFFEE VALVE REMOVAL	44

The infusion unit guarantees high performance while reducing the machine's energy consumption.

This is why this unit differs from common systems with thermosiphon circulation.

In fact, the temperature of the group is ensured by the presence of a cartridge of heating elements.

In addition, the thermal insulation reduces heat loss.

Each group is equipped with:

- A heating element cartridge of 300 W.
- A temperature probe that communicates with the control unit via the T3 card.
- A high-limit thermostat 135°C connected in series with the heating element.
- A three-way solenoid valve called coffee valve.
- Portafilter presence sensor (optional).
- Portafilter identification sensor.

The group section shows:

- A** Water supply into the group.
- B** Heating element.
- C** Coffee solenoid valve.
- D** Coffee outlet.

The machine is provided by the **SIS (Soft Infusion System)** (only for **MP** version). It optimizes the extraction and compensates any tamping errors so that it reduces waste and makes regularly perfect coffees. It uses a pre-infusion system that lets water evenly wet the coffee grounds before pressure is applied, ensuring balanced extraction.

How does the water flow work?

The water enters the group **A** and the coffee valve lets it pass through **C**.

Then the coffee cake is reached by the water **D** and is naturally wet.

The last part of the infusion group is houses a pavilion, a shower and underpan seal.

The pavilion distances the shower from the coffee, according to the need for different thickness.

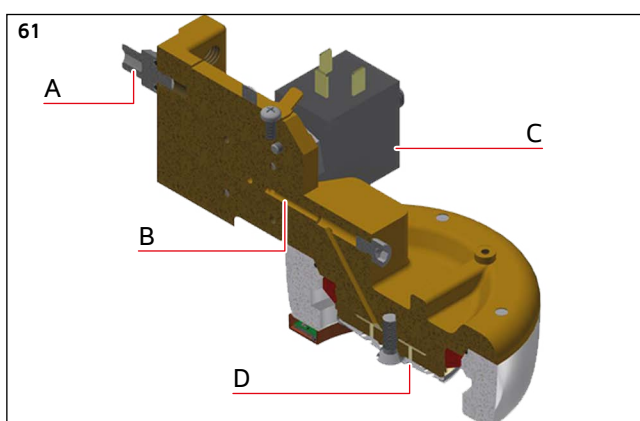
The standard machine comes with 3 mm pavilions.

Pavilions 4 mm or 5 mm are also available as original spare parts.

The shower is the interface between the coffee and the machine, preventing the coffee from rising inside the machine.

Shower and pavilion tend to get dirty and must be removed and cleaned at least weekly.

Furthermore, they must be replaced periodically.



The underpan seal prevents water from coming out from the sides of the pavilion and reach the capsule unevenly or spill from the portafilter.

Since the material is plastic and exposed to high temperatures, the seal must be replaced regularly because it tends to deform and lose elasticity.



Before proceeding with the operations described in the chapter make sure that the machine is turned OFF.



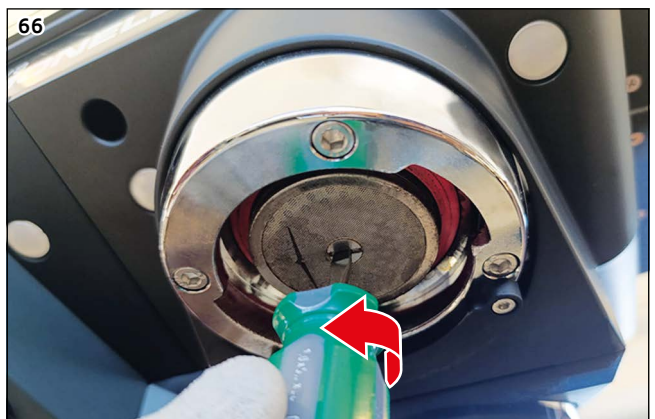
If the machine was turned OFF recently, protect yourself with terminal insulation gloves.

5.1 SHOWER, PAVILION AND SEAL REMOVAL

To remove the shower and pavilion it is sufficient to unscrew the central screw under the group.

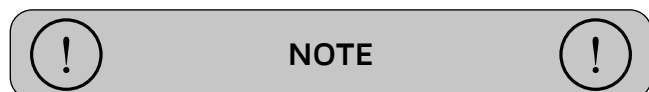
To change the seal use an awl or a slim flat-head screwdriver and at first remove one edge of the seal and then remove it entirely.

If the group is worn out just insert shims **02060014** under the seal so as to reduce the stroke of the portafilter.



5.2 PORTAFILTER PRESENCE SENSOR

The portafilter presence sensor **A** informs the control unit about the presence or not of the portafilter in the infusion group. In this way it permits the auto-purge feature. It is visible in the back of the group head and comes out in the inner of the group head.



NOTE

When the portafilter sensor is functioning, an orange light means the presence of the portafilter, while no light means its absence.

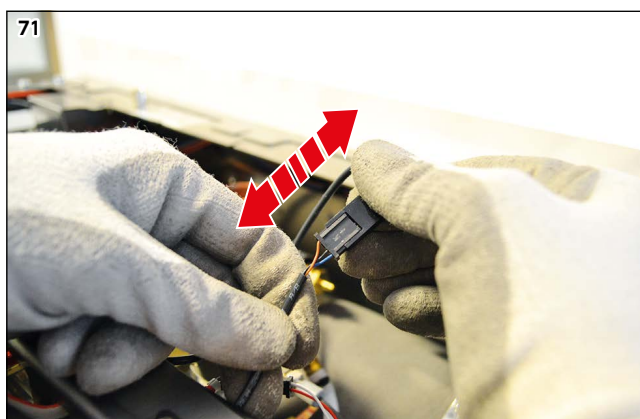
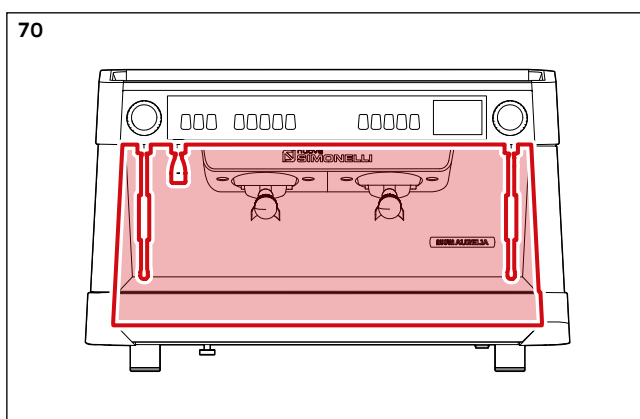
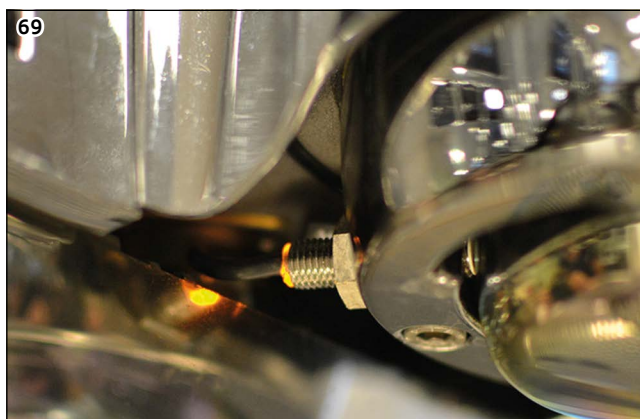
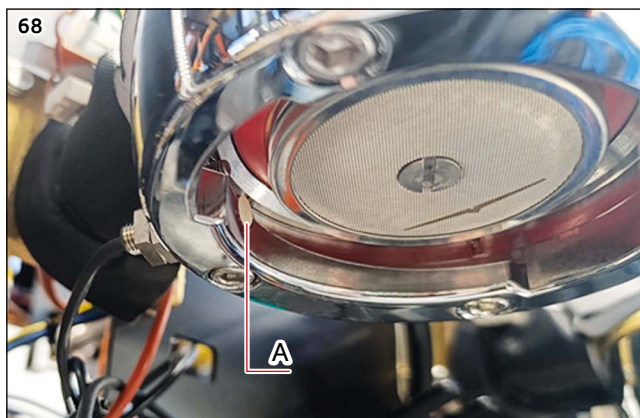
The sensor might not be functioning properly. Here are some possible scenarios:

- 1 The light remains constantly orange:
This indicates the sensor detects the presence of the portafilter even when it is absent.
 - Cause: The sensor is likely in a short circuit.
 - Solution: Replace the sensor.
- 2 The light is mostly OFF and turns ON only with specific movements of the portafilter:
This suggests the sensor may not be aligned flush with the inner surface of the group.
 - Cause: The sensor is positioned too far away.
 - Solution: Adjust the sensor to move it closer.

5.2.1 REMOVAL OF THE PORTAFILTER PRESENCE SENSOR

To remove the portafilter presence sensor, it is necessary to:

- 1 Remove the lower front panel, the drip tray and the proper group cover, as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Unplug the sensor wire from its extension.



3 Use a 13 mm wrench, loosen the sensor fixing nut.

4 Using a parrot pliers, slide out the sensor.



WARNING



When the portafilter sensor is reinserted, make sure it is aligned with the inner of the group head and verify the proper functioning.



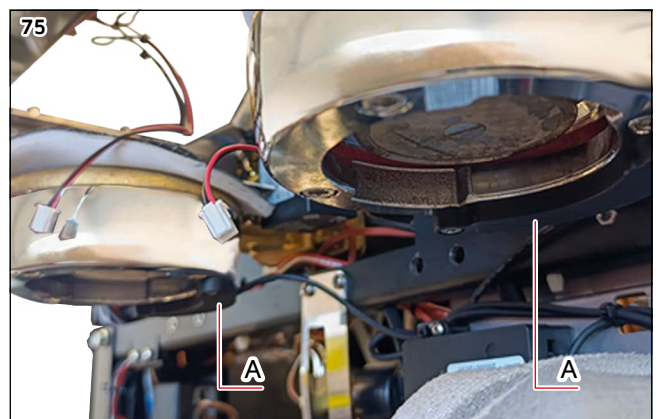
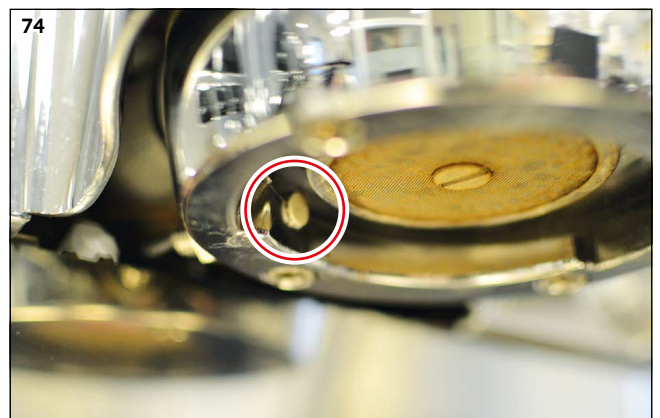
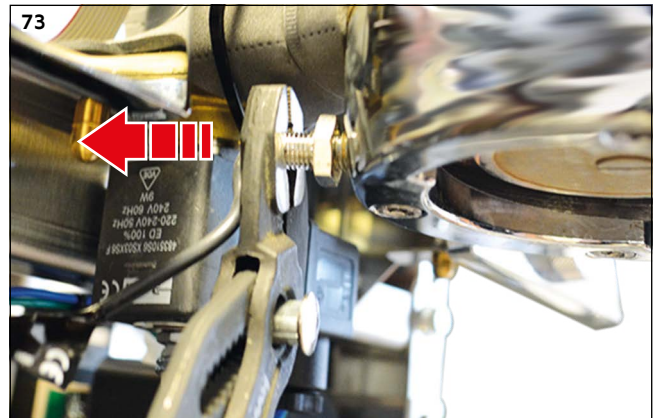
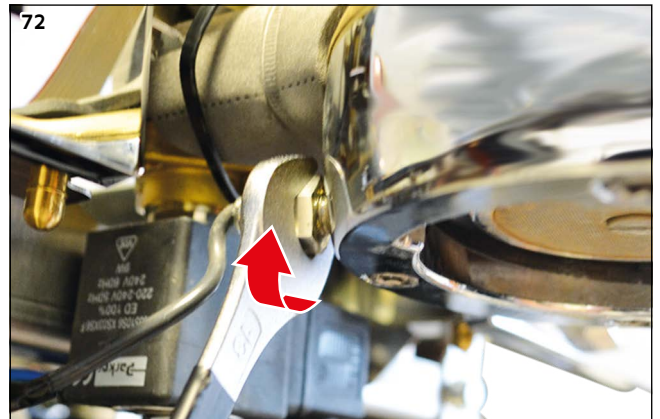
NOTE



To move the sensor closer, in order to align with the inner of the group head, follow steps 3 and 4 of the removal procedure and, when the position is fine, tighten the sensor fixing nut.

5.3 REMOVAL OF THE PORTAFILTER IDENTIFICATION SENSOR

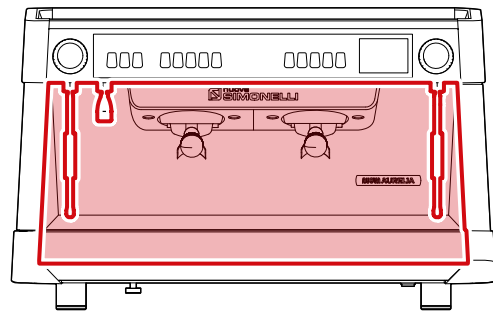
The portafilter identification sensor **A** performs two functions: portafilter presence and identification.



To remove the portafilter identification sensor, it is necessary to:

- 1 Initially remove the group cover, the drip tray, the safety cover worktop and the lower front panel, as explained in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".
- 2 Remove the Gateway board cover by unscrew the two indicated screws.
- 3 Disconnect the portafilter ID connector (the group is identified by the white numbers printed on the board).
- 4 Cut the clamps to release the cable.

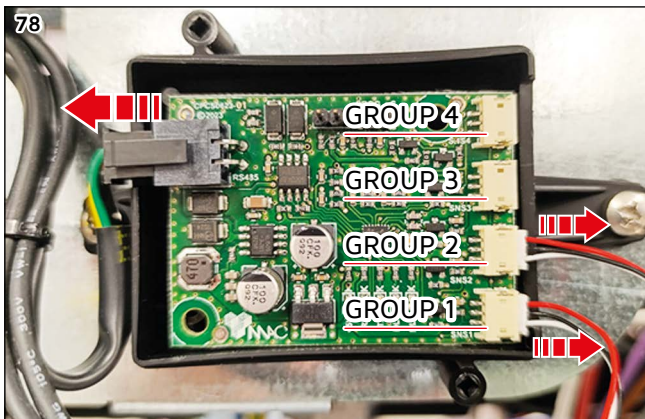
76



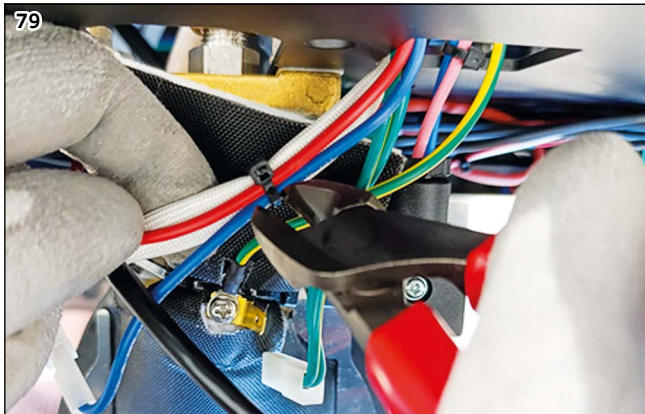
77



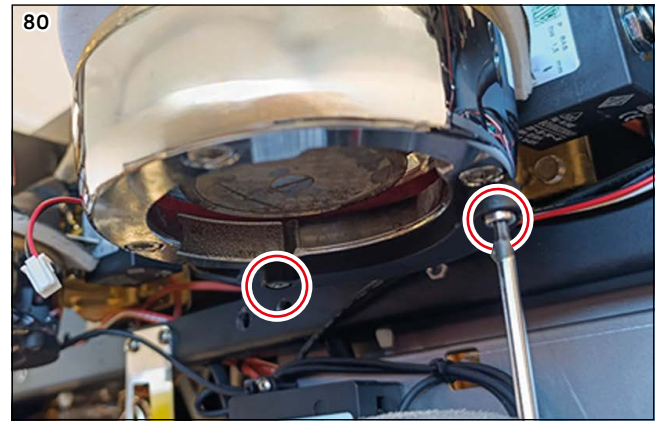
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- 5 Unscrew the sensor screws as shown in the image to remove the portafilter identification sensor.

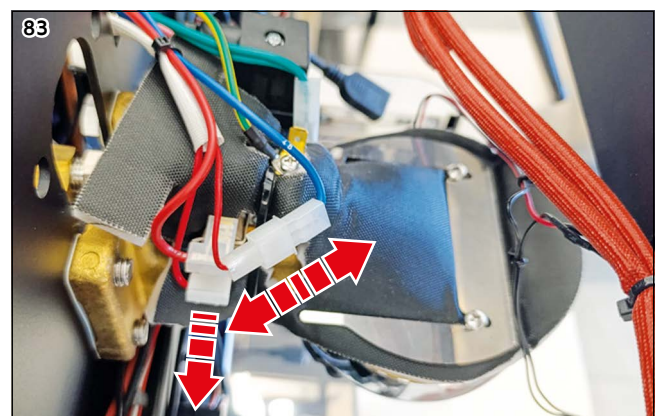
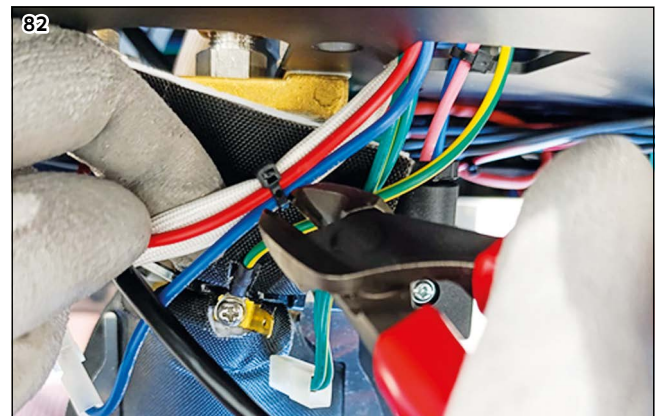
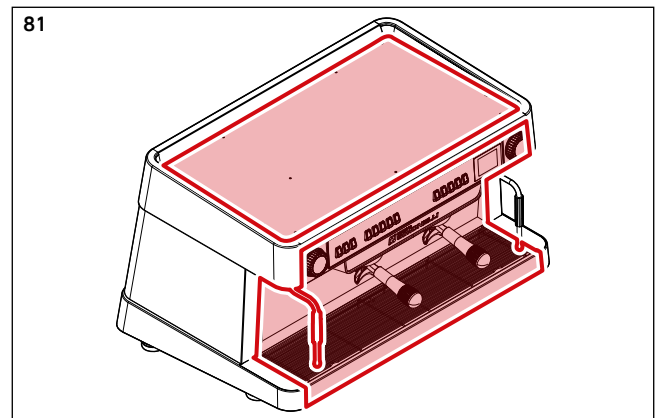


5.4 REMOVAL OF THE UNIT HEATING ELEMENTS

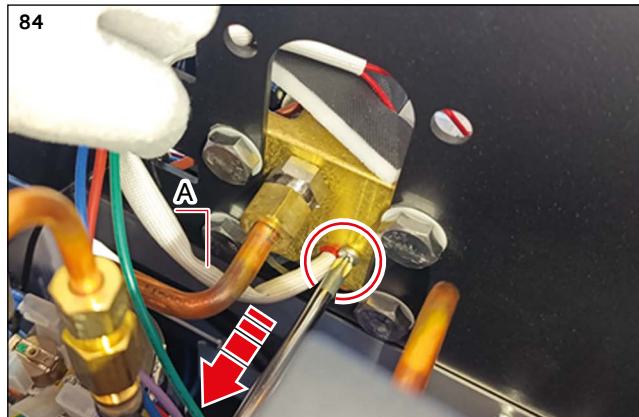
The heating element cartridge is accessible from the rear wall that holds the infusion unit.

To remove it, it is necessary to:

- 1 Initially remove the top cover, the group cover, the drip tray, the safety cover worktop and the lower front panel, as described in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".
- 2 Following the white cable, cut the clamps to release the cable.
- 3 Following the white cable, disconnect the heating element from the neutral and from the high-limit thermostat.



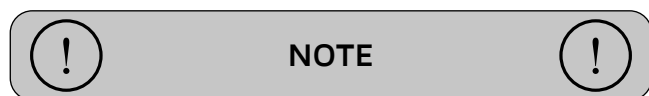
- 4 Use a Philips screwdriver, loosen the screw that block the heating element **A**.
- 5 Pull out the heating element **A**.



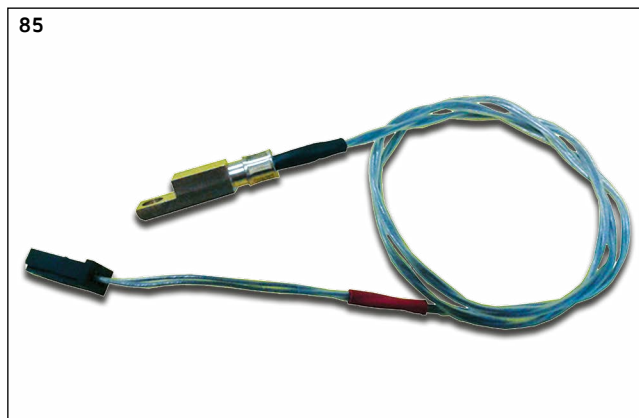
5.5 REMOVAL OF THE TEMPERATURE PROBE

The temperature probe of the infusion group interfaces with the control unit via the T3 card.

Moreover, it is equipped with an extension, so it is possible to replace it without accessing the T3 card.



For further information about the control unit and the T3 card, refer to Chapter "**9 ELECTRICAL COMPONENTS**".

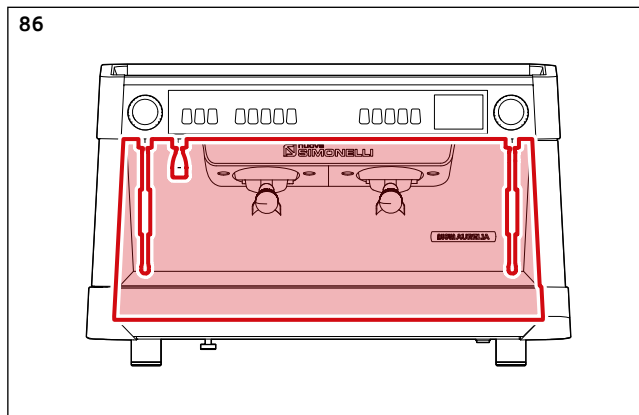


If the error indicates a group temperature probe issue, possible solutions are:

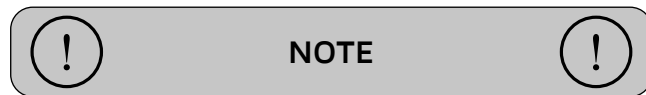
- Check the probe cable and its connection.
- Check the probe extension cable and its connection to the T3 card.
- Check the T3 card connection flat cable to the control unit.
- Replace the probe when necessary.
- Replace the extension cable when necessary.
- Replace the T3 card when necessary.

To remove the temperature probe, it is necessary to:

- 1 Initially remove the group cover, the drip tray, the safety cover worktop and the lower front panel, as described in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".



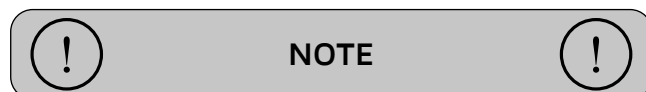
- 2 Disconnect the temperature probe from its extension.



The cables are identified with the group number.

- 3 Cut the clamps to release wires.

- 4 Use screw driver to remove the screw holding the probe to the group.

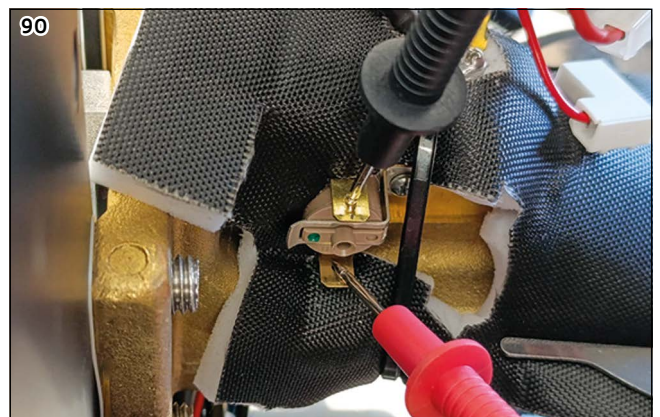
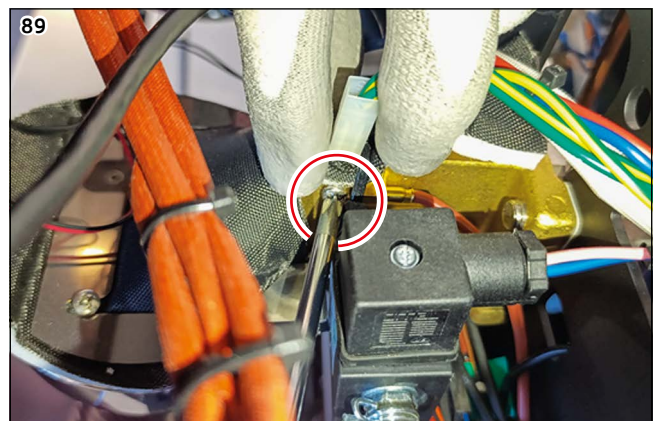
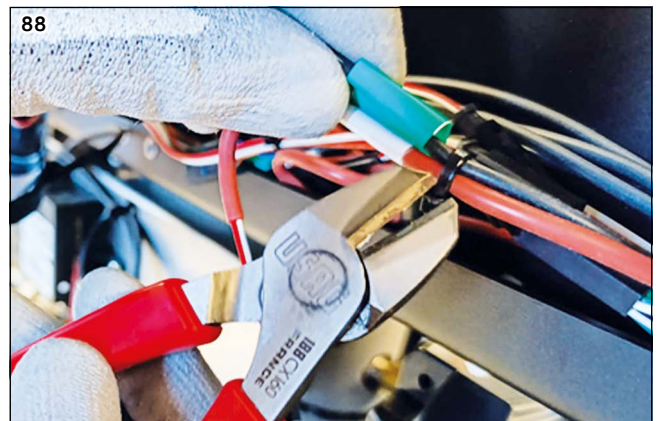
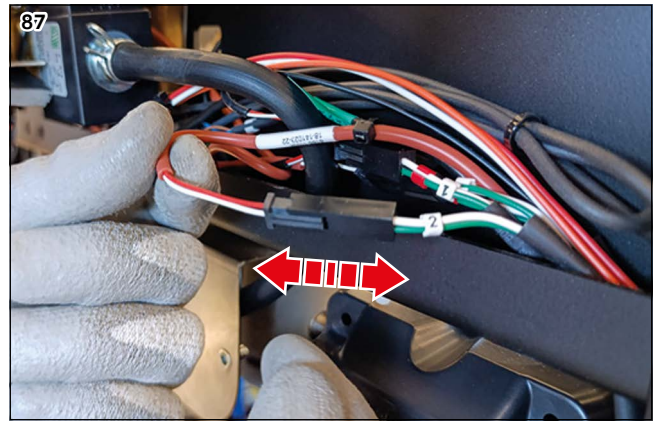


It is useful, at the end of replacement operations, to collect and to clamp the wires together to make accessing easier and to avoid contact with high temperature surfaces.

5.6 HIGH-LIMIT THERMOSTAT

The high-limit thermostat is connected in series with the heating element and opens the electrical circuit once the temperature limit of 135°C in the infusion group has been exceeded.

If the heating element does not turn ON, check the continuity of the high-limit thermostat.



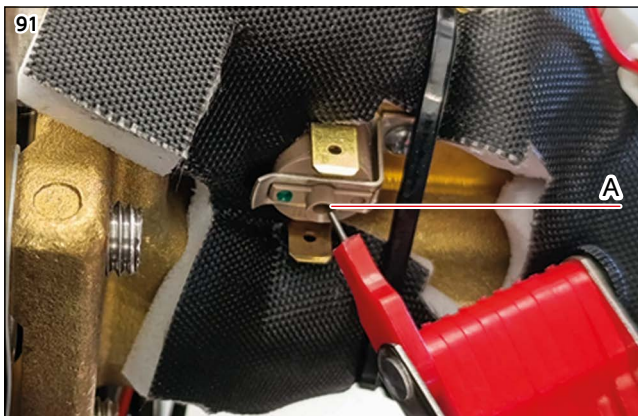
If there is not continuity, reset the high-limit thermostat by using a small pin pushing into the small hole **A**.



WARNING



The machine **MUST BE SWITCHED OFF** before reset the high-limit thermostat 135°C.



5.7 COFFEE VALVE

Each infusion group is provided with a three-way valve called coffee valve. It's a solenoid valve that is normally closed and opens when it receives a command to dispense coffee.

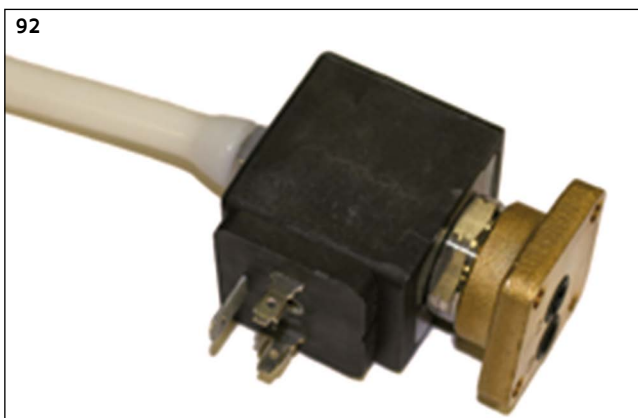
When this valve is closed, the liquid remaining in the group is pushed by pressure towards the third outlet of valve, that is connected, together with third outlets of other coffee valves to train tray.

When this occurs, the water under pressure in the group, that cannot pass through the coffee cake, is pushed towards the third outlet of the valve, thereby drying the cake.

TYPICAL PROBLEMS

If there are problems connected to the coffee cake being completely soaked, three hypothesis can be evaluated:

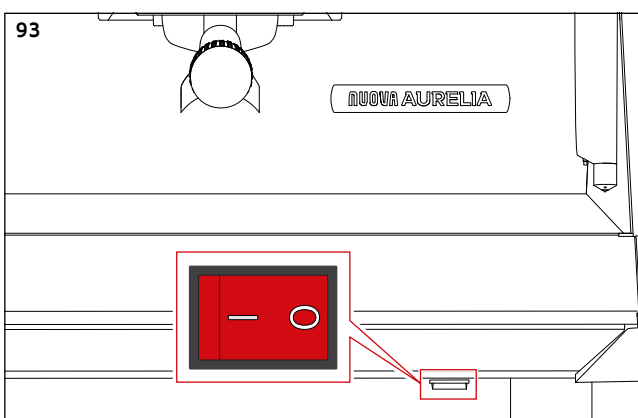
- The third outlet of the valve is obstructed, therefore the final section is less than it should be;
- Shower and pavilion are blocked because of poor machine cleaning;
- The group always drips, therefore soaks the cake.



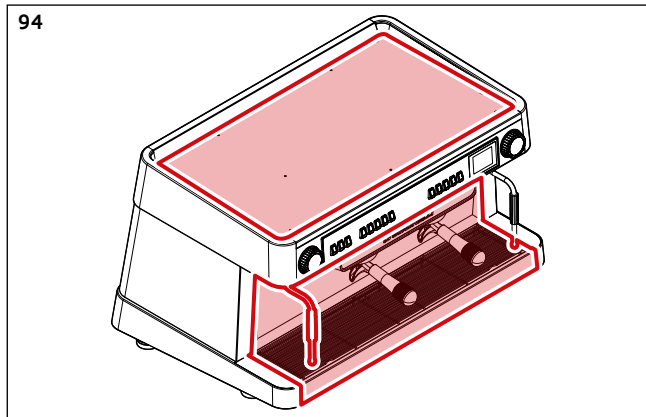
5.7.1 REDUCING OF THE COFFEE BOILER INNER PRESSURE

Before proceeding with some operations, if the machine is hot, it is suggestible to reduce the inner pressure of the coffee boiler, to avoid spurts of hot water.

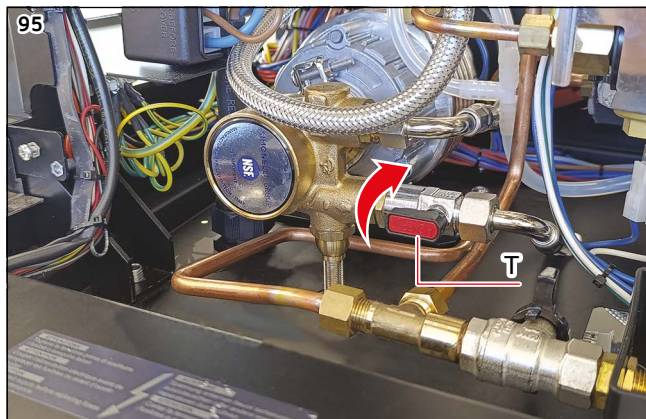
- 1 Turn the machine OFF.



- 2 Access the internal area of the machine by removing the top cover, the group cover, the drip tray, and the lower front panel, as described in Chapter "4 REMOVAL OF EXTERNAL SURFACE".



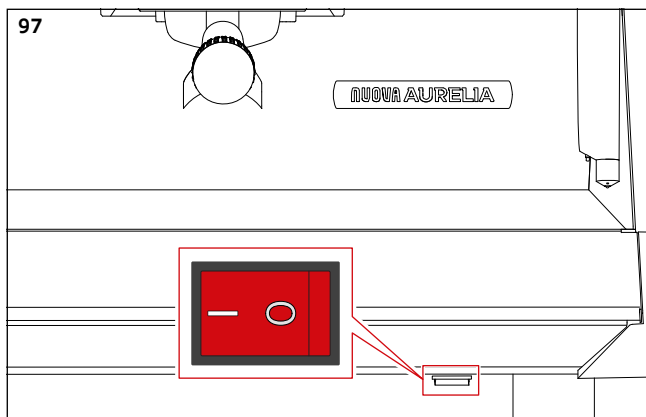
- 3 Close the pump tap **T** by turning it clockwise.



- 4 Put back the drip tray.



- 5 Then, turn the machine ON.



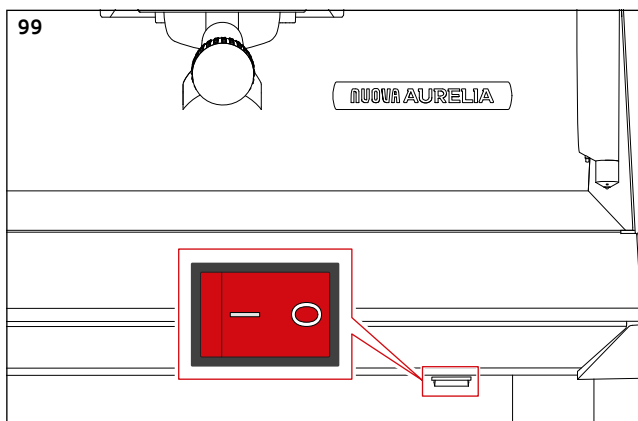
- 6 Push and stop after a few seconds a coffee dispensing button of the interesting infusion group, to partially empty the coffee boiler and reduce its inner pressure.

- 7 Turn the machine OFF.

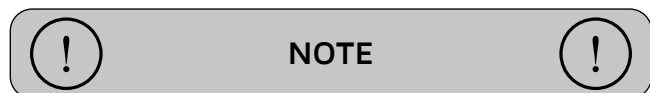
98



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5.7.2 COFFEE VALVE REMOVAL

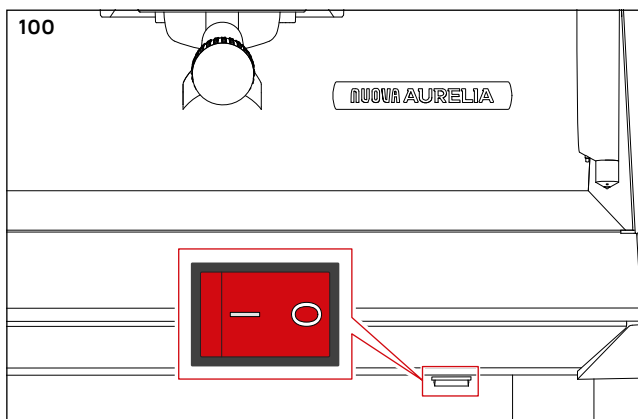


To replace the coffee valve, if the machine is hot, it is suggestible to reduce the inner pressure of the coffee boiler, as explained in the paragraph "**5.7.1 REDUCING OF THE COFFEE BOILER INNER PRESSURE**".

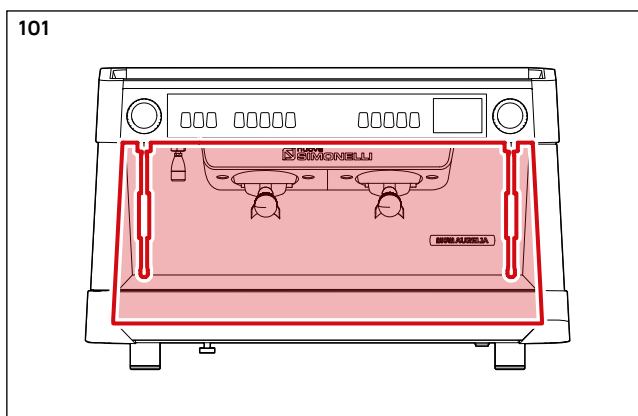
Then it is necessary to:

- 1 Turn the machine OFF.
- 2 Remove the side panels, the drip tray, the group cover and the lower front panel, as explained in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".

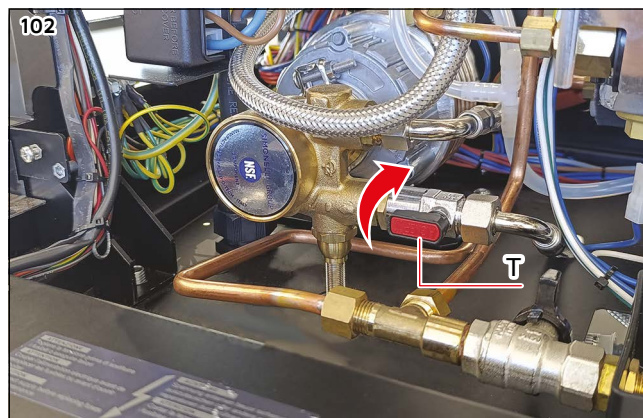
100



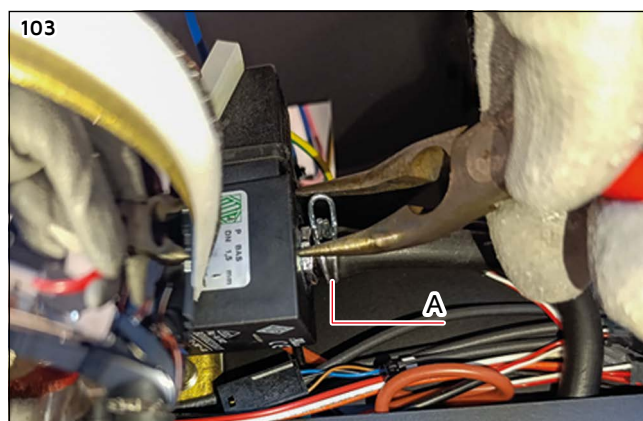
101



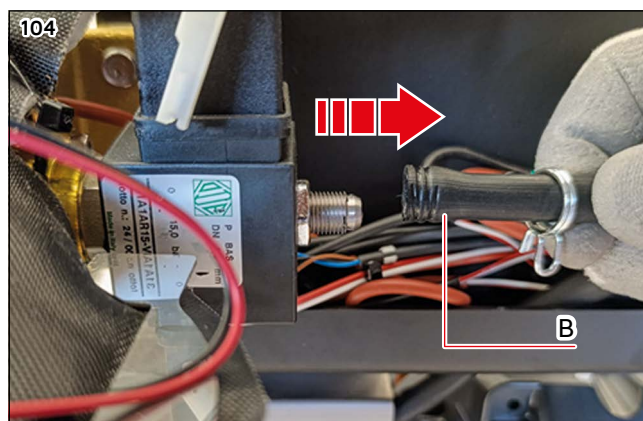
3 Close the pump tap **T** by turning it clockwise.



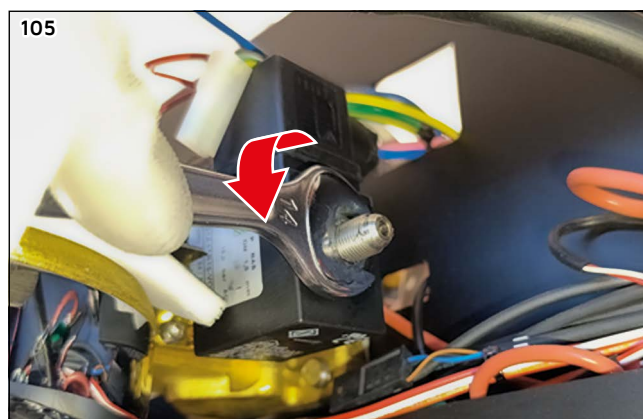
4 Using a pliers, remove the Teflon pipe holder clip **A** of the third outlet.



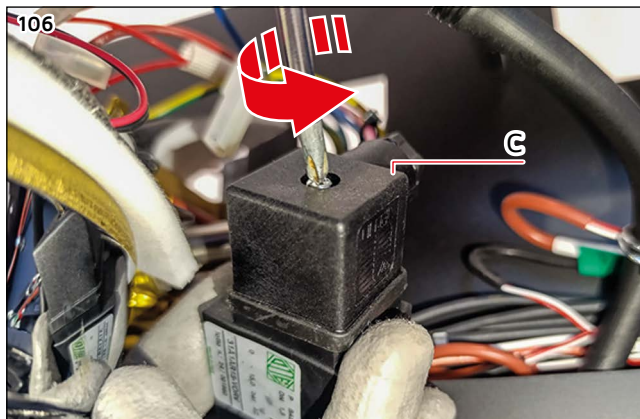
5 Disconnect the Teflon pipe **B** of the third outlet.



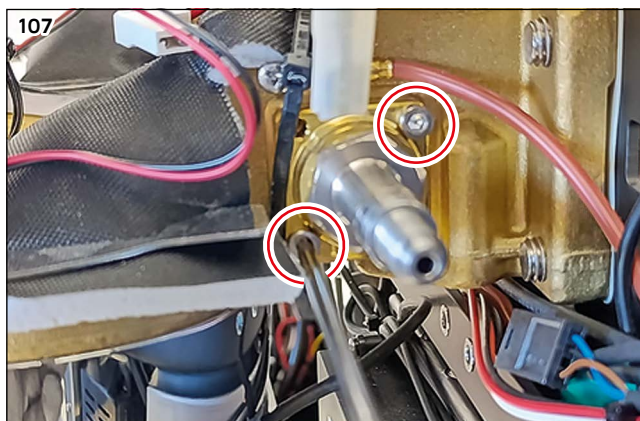
6 Use a 14 mm wrench, unscrew the fixing nut of the coil.



- 7 Use a Philips screwdriver, remove the head **C** fixing screw.



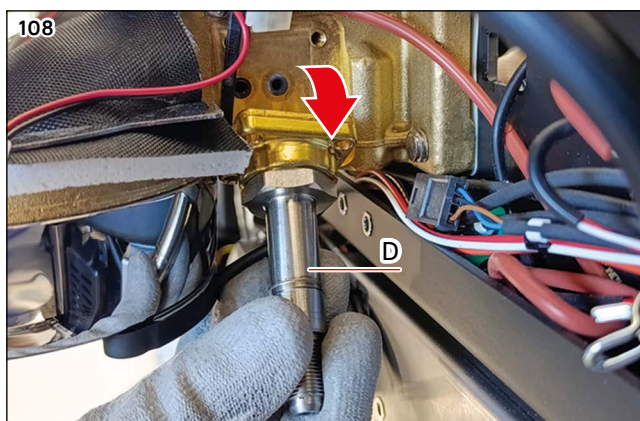
- 8 Place a cloth or absorbent paper underneath the valve and, using a 3 mm Allen key, remove the two screws that fix the body to the group.



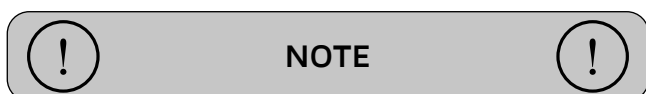
- 9 Remove the body of the valve **D**.

- 10 Check the contact points that often can be full of limescale.

- 11 Clean use an adequately pointed tool.



- 12 Use a vise and a 24 mm wrench, unscrew the valve base and check for the presence of limescale or oily residues.



NOTE

These residues could obstruct the free circulation of the water to the third outlet, thereby favouring stagnation of the water in the portafilter.



NOTE



In case of oily residues, properly instruct the staff using the machine to perform a regular, deep cleaning with suitable detergents.



WARNING



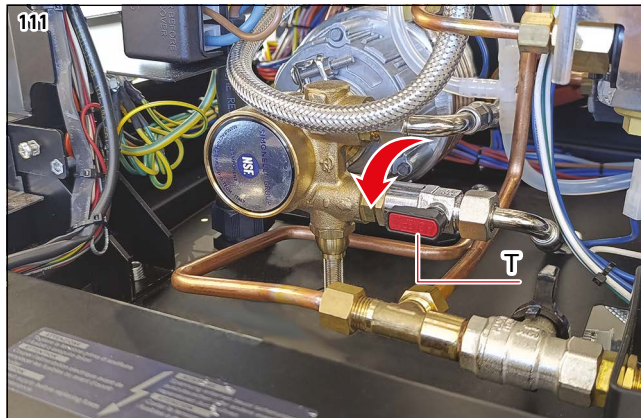
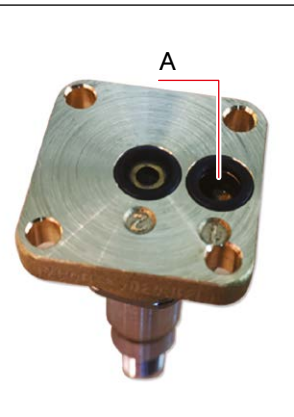
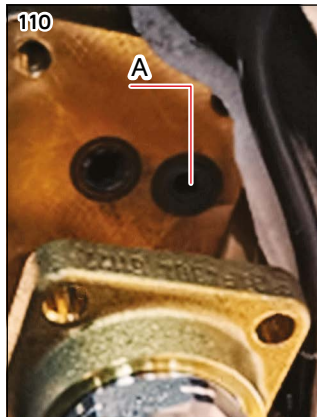
When reinstalling the coffee valve **MUST** pay attention the 2 water holes must be aligned with the group head water holes and the A O-ring **MUST** be present.



WARNING

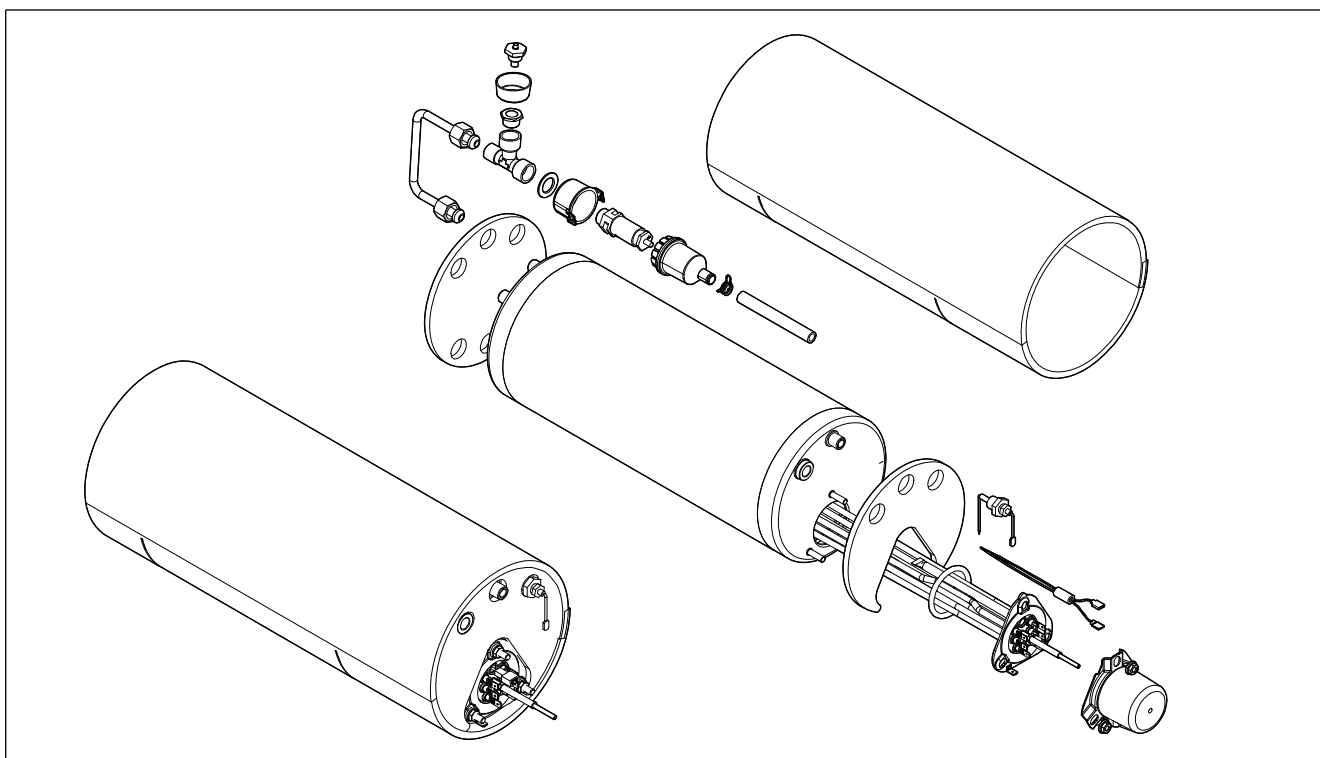


Once the coffee valve has been reinstalled, remember to open the pump tap T.



6

STEAM BOILER



SECTION INDEX

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6.8 SAFETY VALVE	57



Before proceeding with the operations described in the chapter make sure that the machine is turned OFF and unplugged from the mains. Discharge any residual pressure present in the steam circuit.



Before emptying the boiler, disconnect the water inlets inside the water circuit by turning OFF the inlet tap and disconnecting the tube. These operations are necessary to avoid any water leakage inside the machine that may cause damage.



If the machine was turned OFF recently, protect yourself with thermal insulation gloves.

6.1 STEAM BOILER PURGE

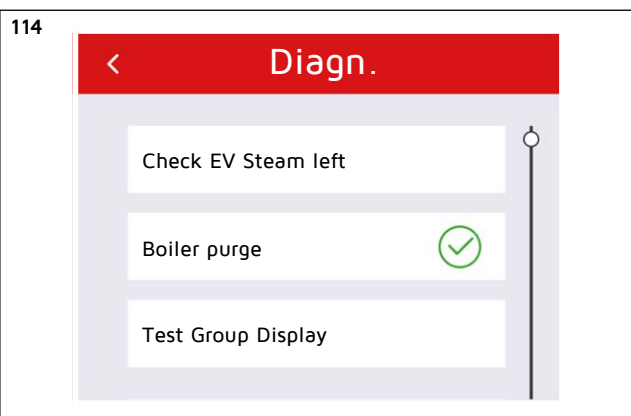
Before to work on steam boiler and relative parts, it is mandatory to reduce its inner pressure.

NUOVA AURELIA, compared to the other traditional machines, does not have manual steam levers, but electronic ones.

Hence, to reduce steam boiler pressure it is needed to run a software procedure, as described below.

With the machine ON, in the **Technical Settings**, select the **Diagnostic** menu, following the path:

MAIN MENU
 ↳ TECHNICAL SETTINGS
 ↳ INSERT PASSWORD
 ↳ DIAGNOSTIC
 ↳ Boiler Purge





WARNING



With the **boiler purge** command, the machine will automatically open the steam valves and the steam will release from both steam wands.

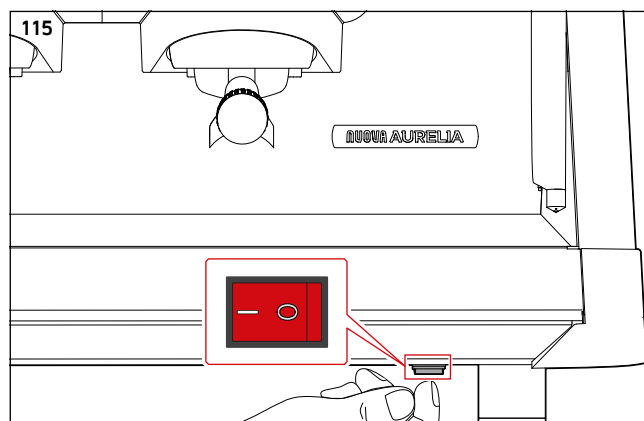


NOTE



If the **Boiler Purge** command is completed and steam is still present, repeat the **Boiler Purge** command more times.

As the **Boiler Purge** command is completed and the inner pressure has been completely reduced, turn OFF the machine by the main switch.

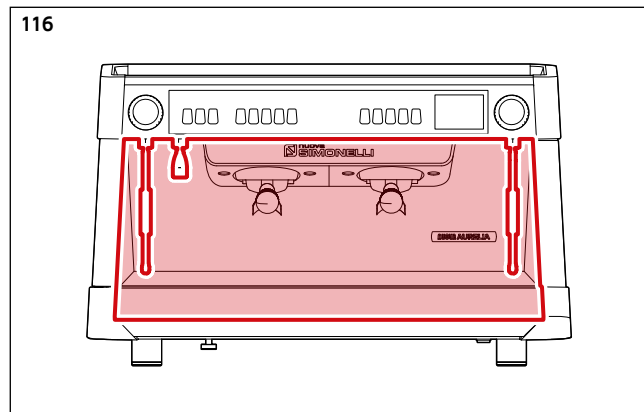


6.2 EMPTYING THE STEAM BOILER

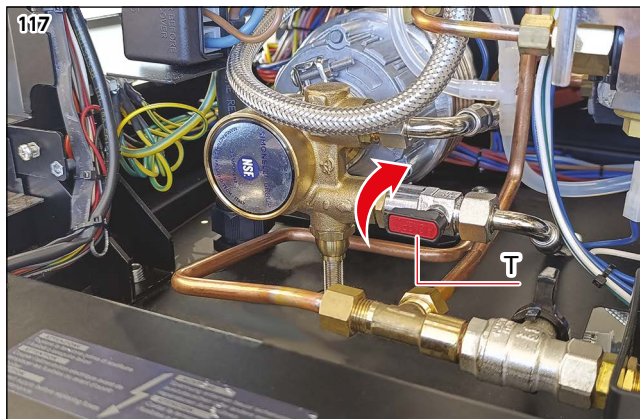
To empty the steam boiler, is necessary to firstly reduce its inner pressure, as described in the paragraph "**6.1 STEAM BOILER PURGE**".

As the inner pressure has been completely reduced and the machine has been turned OFF, proceed as follow:

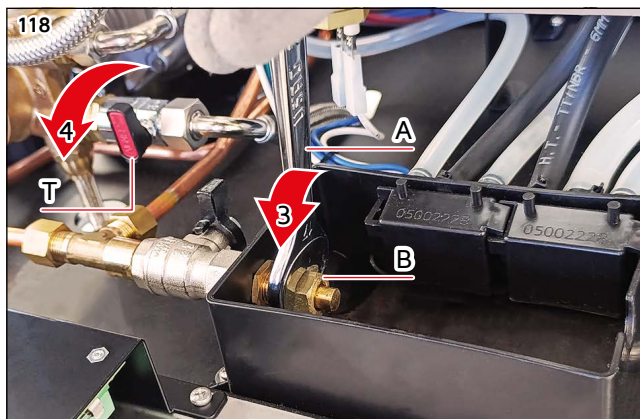
- 1 Remove the drip tray, the safety cover worktop, the group cover and the lower front panel, as explained in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".



2 Close the pump tap **T** by turning it clockwise.



3 Use a 17 mm wrench **A**, unscrew the bolt **B** inside the drain box.



4 Let the water completely drain out.



WARNING

When completed, remind to tighten the bolt **B** inside the drain box and to open the pump tap **T**.

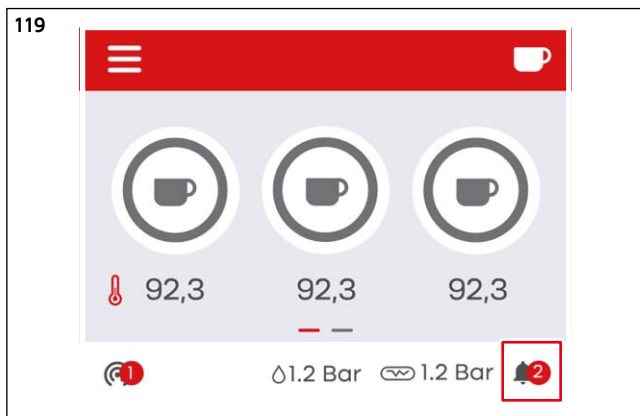


NOTE

When switching ON again, the automatic filling function will fill the boiler with water in 90 seconds.

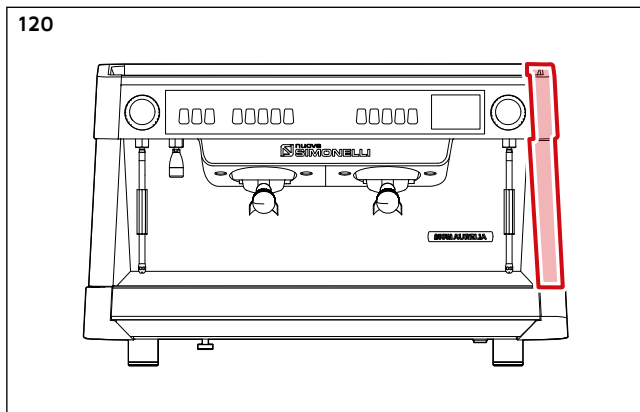
If the alarm **2** appears, switch the machine OFF and ON again by the main switch.

For more informations, see the Chapter "**12 TROUBLESHOOTING DIAGRAMS**".



6.3 ACCESS TO HEATING ELEMENT

To access the heating element and its connection terminals, remove the right side panel, as described in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".



The visible parts on the boiler are:

- A** The level probe.
- B** The cover of the heating element connection terminals.

To access the connection terminals and the thermal fuse, simply unscrew by hand the small white nut **C** in the middle of the cover **B**.

6.4 REMOVAL OF THE SAFETY THERMO-FUSE

The steam boiler is equipped with the following heating elements:

- 4000 W for the 2 groups version.
- 4500 W for the 3 - 4 groups version.

The resistor is composed of three single heating elements, one for each phase, therefore, in the connection terminals we find three neutrals and three phases, which arrive each to a different element, perfectly distributing the absorption of the current.

The steam boiler is equipped with a safety thermo-fuse (216°C).

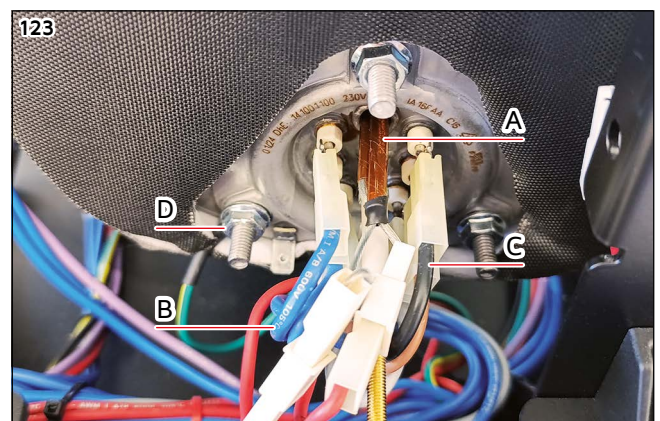
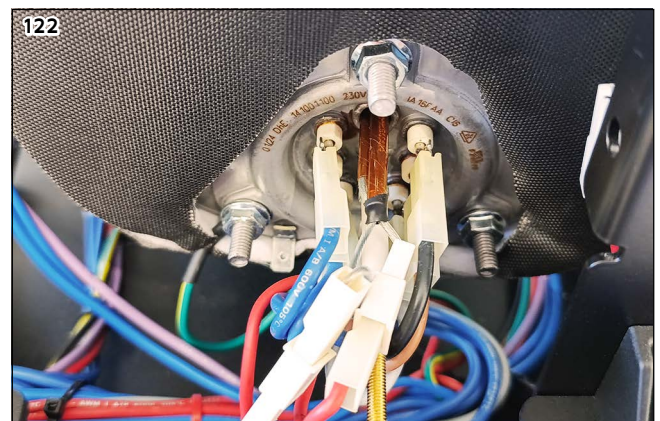
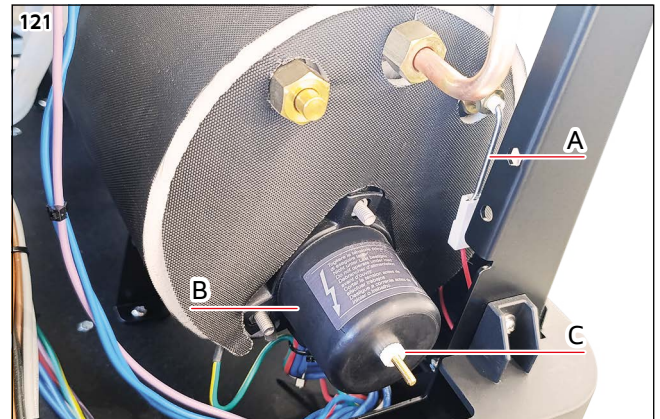
Looking at the connection terminals the visible parts are:

- A** The **red** wires, connections of the thermo-fuse.
- B** The **blue** wires, connections of the neutrals.
- C** The **grey, brown and black** wires, connection of the phases.
- D** The **green-yellow** wire, connection of the ground.

The three heating elements give typical values:

- 2 groups: 42 ± 3 Ohm.
- 3 - 4 groups: 36 ± 3 Ohm.

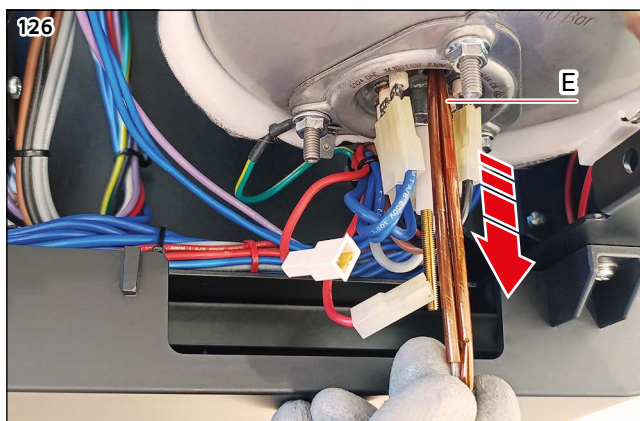
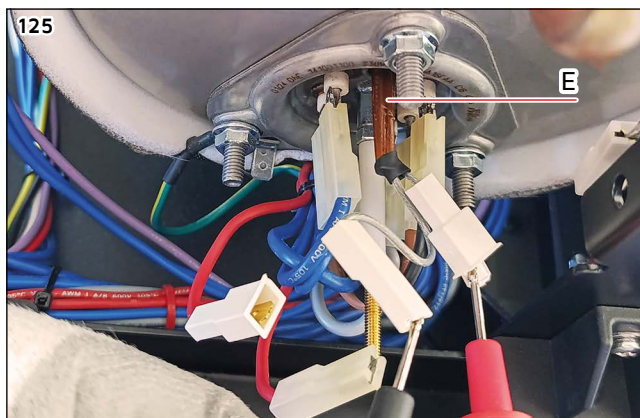
To check the Ohms value, place the tester probes on the elements of the same colour as shown in the figure.



The safety thermo-fuse **E** is connected in series with the control unit and opens the electrical circuit once the temperature limit of 216°C in the steam boiler has been exceeded.

If the machine does not turn ON, check the continuity of the safety thermo-fuse **E**.

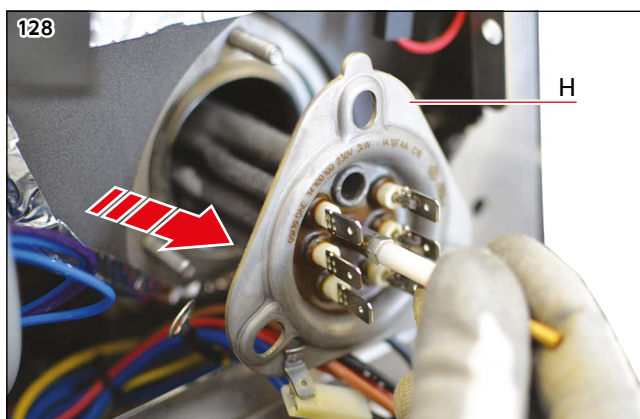
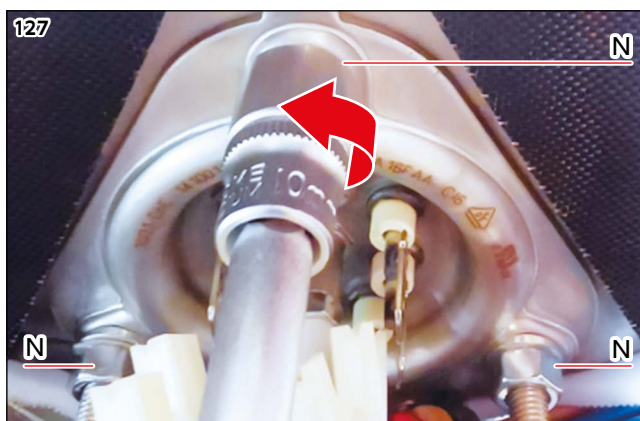
If there is not continuity, disconnect, pull out and replace the thermo-fuse **E**.



6.5 REMOVAL OF THE HEATING ELEMENT

If you need to remove the heating element to be cleaned from limestone or replaced, proceed as it follows:

- 1 Ensure water drained out from the steam boiler as explained in the paragraph "**6.2 EMPTYING THE STEAM BOILER**".
- 2 Disconnect all the wires and pull out the safety thermo-fuse, as explained in the paragraph "**6.4 REMOVAL OF THE SAFETY THERMO-FUSE**".
- 3 Use a 10 mm wrench / 10 mm socket wrench to remove the 3 nuts **N**.
- 4 Remove the ground connection and the 3 washers.
- 5 Remove the heating element **H**.





NOTE



Each time you replace the heating element **H** is also necessary to change the Viton O-ring **K** that seal it with the boiler because it is a wear and tear part, therefore the component must be ordered together with the heating element.

6.6 LEVEL PROBE REPLACEMENT

The water inside the steam boiler is maintained at a constant level using a level probe inserted inside the boiler.

This probe is connected to the electronic control unit that continuously detect the water level through the probe.

Being always exposed to high temperatures and steam / water it is subject to encrustations which can inhibit operations.

WHEN TO INTERVENE

- In case it is verified that there are no problems on the probe you can easily access the component and perform careful cleaning with abrasive or descaling agents.
- Make sure that the Teflon coating of the probe is not damaged. If it is, there would be a loss of steam and electric insulation and the probe should be replaced.

HOW TO REPLACE

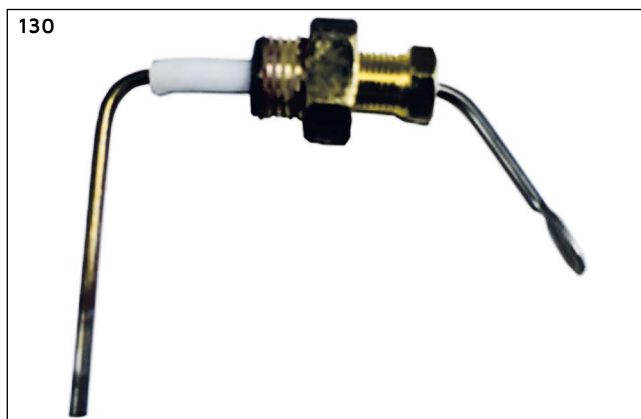
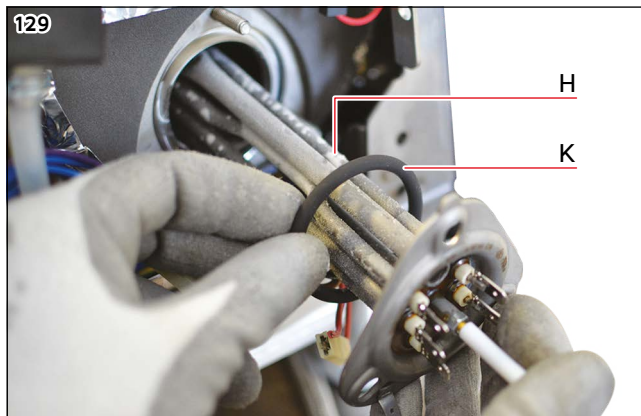
To remove the probe simply disconnect the red wire and unscrew the bolt with a 17 mm wrench.



NOTE



When replacing the probe, it is necessary to cover the threads with Teflon tape or liquid sealant and to tighten it not too much.



6.7 REMOVE OF THE VACUUM VALVE

To access the vacuum valve remove the back panel and the right side panel, as described in Chapter "4 REMOVAL OF EXTERNAL SURFACE".

The vacuum valve ensures that air enters the heater during the machine cooling phase. In this way the reduction of water volume due to cooling does not create decompressions that may give rise to drawbacks such as the suction of milk through the steam wand.

WHEN TO REPLACE

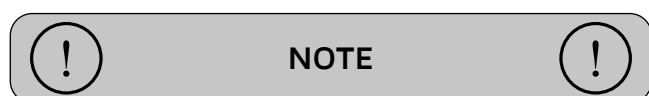
You can assume that there are problems with the vacuum valve when:

- The moving piston jammed.
- There is a strong smell of rot when making steam or water is extracted from the heater.
- The water leaving the heater is dirty.

In these cases, the valve is closed and is locked in this condition.

If the valve blocked / open because of limestone the signs would be:

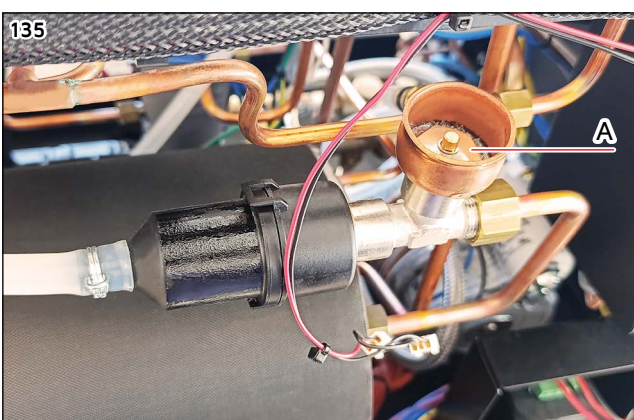
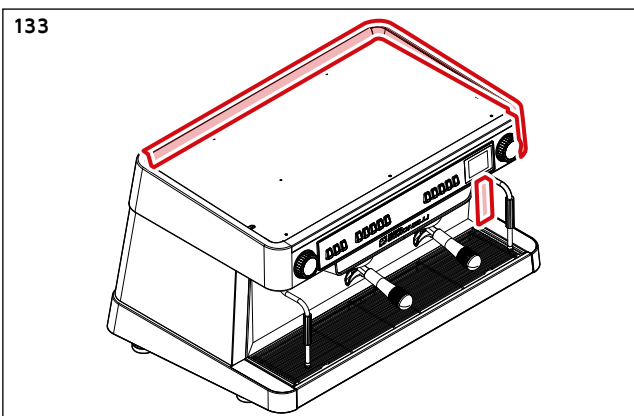
- A continuous slight whistling sound coming from the valve.
- Condensation drops near the valve.



We suggest that the vacuum valve **A** be replaced annually to ensure proper function and excellent sealing.



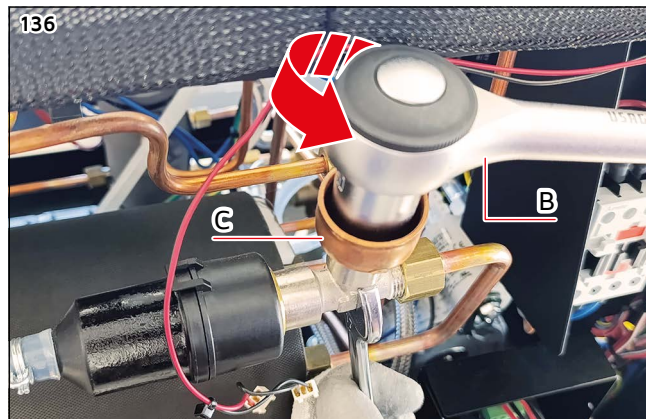
Operation to be carried out with the pressure in the boiler at zero (0 bar).



HOW TO REPLACE

Using a 19 mm hex socket **B** unscrew the vacuum valve from its housing **C**.

When inserting the new one, coat the threads with Teflon tape or with a few drops of Loctite.



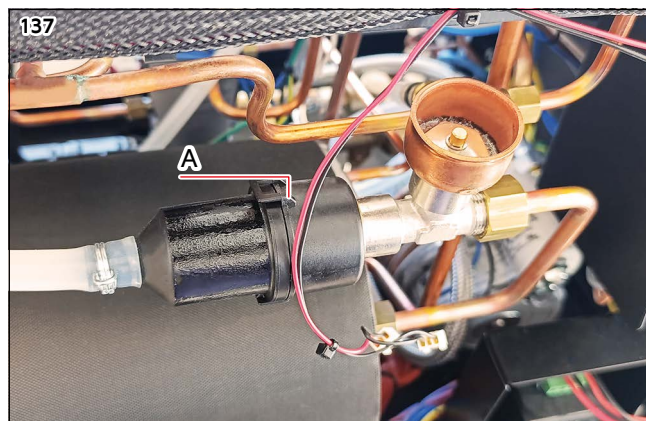
6.8 SAFETY VALVE

The steam safety valve **A** is made to open at the pressure of 3 bar.

WHEN TO REPLACE

For safety reasons each time the valve comes into operation it should be replaced to ensure perfect operation.

So if the heater floods or there is excess steam it is necessary to secure the machine by replacing the entire valve.

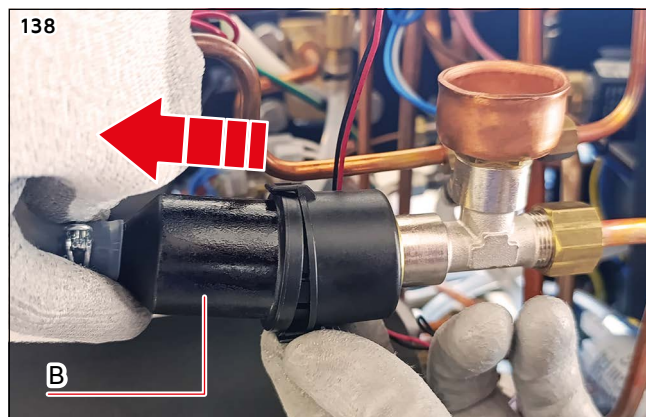


Operation to be carried out with the pressure in the boiler at zero (0 bar).

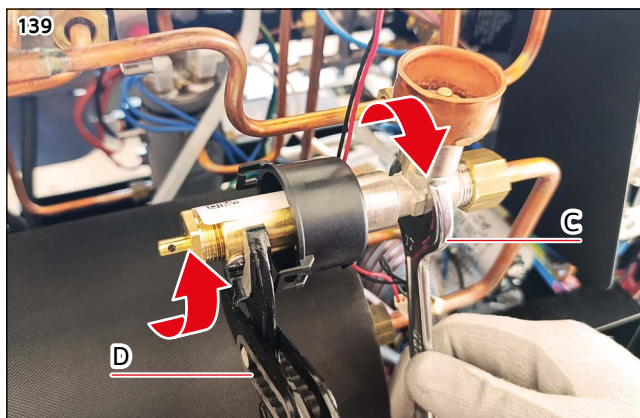
HOW TO REPLACE

To replace the safety valve proceed as it follows:

- 1 Remove the safety valve cover clip **B**.



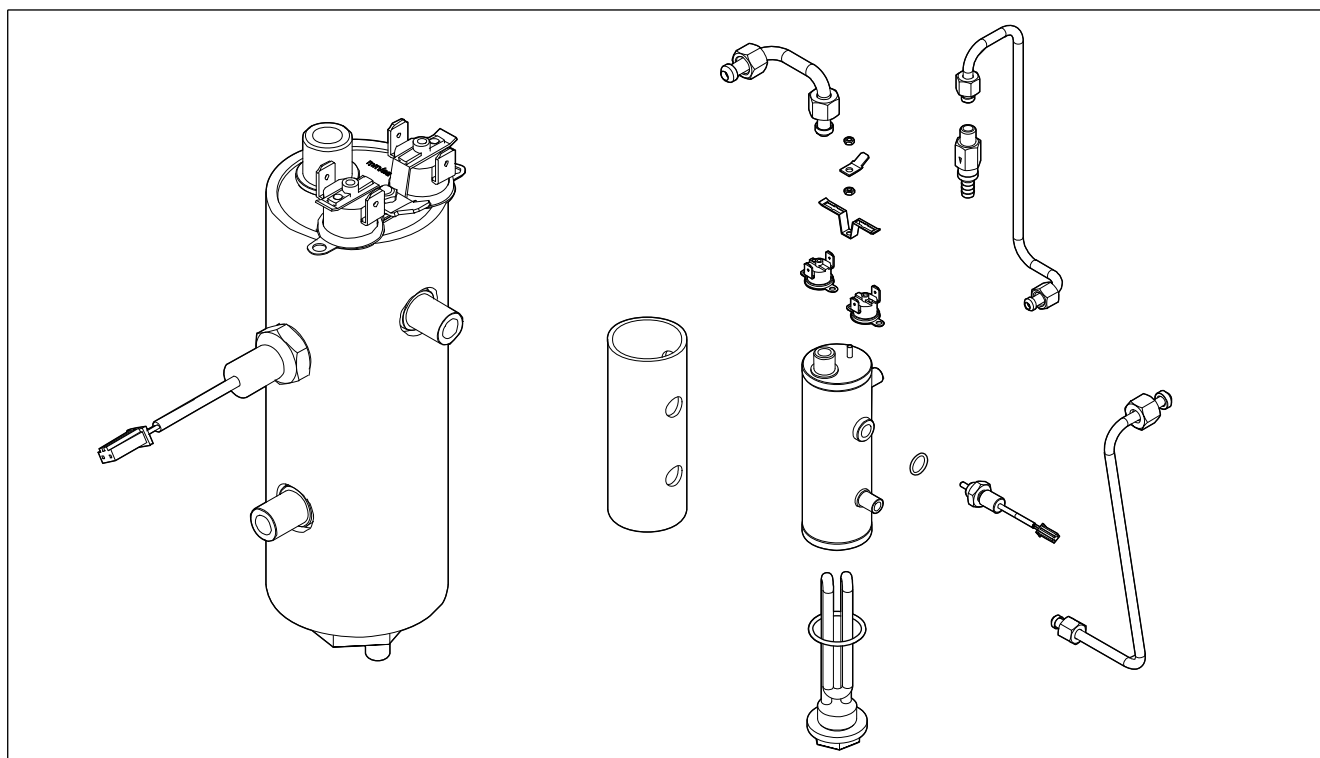
- 2 Use a 17 mm wrench **C** keep blocked the assembly and use a parrot pliers **D** to unscrew the valve.



- 3 The disassembled valve components are illustrated in picture.



7 COFFEE BOILER



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7.5.1 EXPANSION VALVE REMOVAL	69

NUOVA AURELIA provides for each group a Stainless-Steel coffee boiler of 0.14 litre.

The coffee boilers are part of the **MP (Maximum Performance)**, that guarantees high performance while reducing the energy consumption of the machine.

They are covered by thermal insulation to prevent heat dispersion.

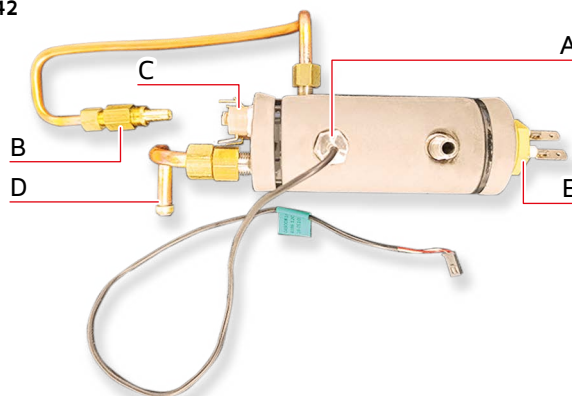
Each coffee boiler is equipped with:

- A** Temperature probe 150 1/8 S/S connector 3x8.
- B** Solenoid valve PULSE-JET to coffee boiler.
- C** No. 2 manual thermostat 135°C trip free green dripping.
- D** Coffee boiler pipe to coffee group.
- E** Heating element 600W 230V.

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DANGER

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**HOT AND
CUTTINGS
SURFACES**



Before proceeding with the operations described in the Chapter make sure that the machine is turned OFF and unplugged from the mains.



If the machine was turned OFF recently, protect yourself with thermal insulation gloves.

7.1 REMOVAL OF THE COFFEE BOILER



WARNING

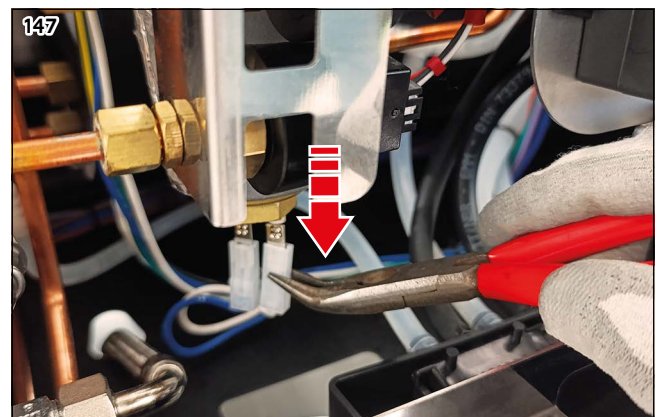
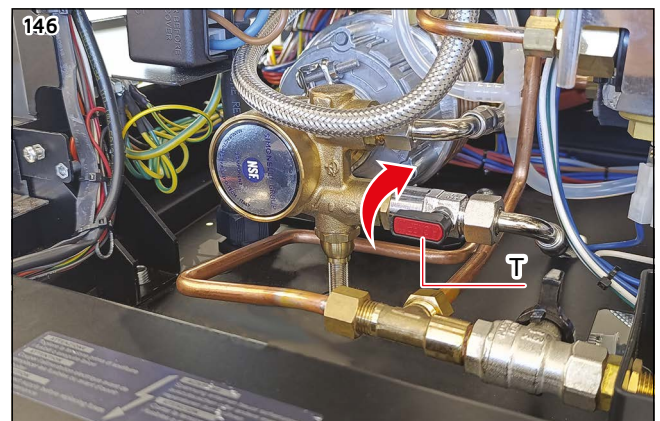
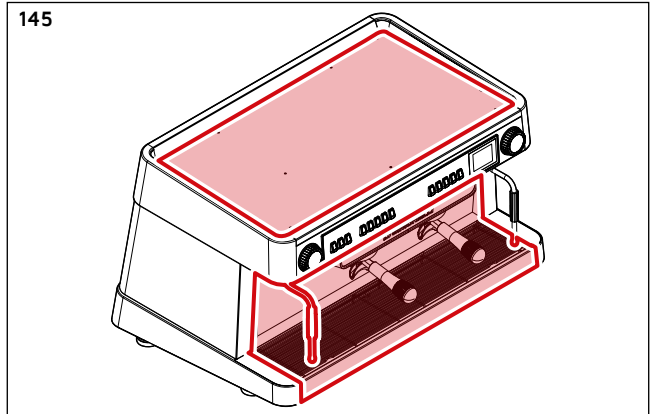


The coffee boiler contains just 0.14 litre of water, therefore it is not necessary to empty it when it is needed to remove it or its components. If the machine is hot, it is suggestible to reduce the inner pressure of the coffee boiler, as explained in paragraph "5.7.1 REDUCING OF THE COFFEE BOILER INNER PRESSURE".

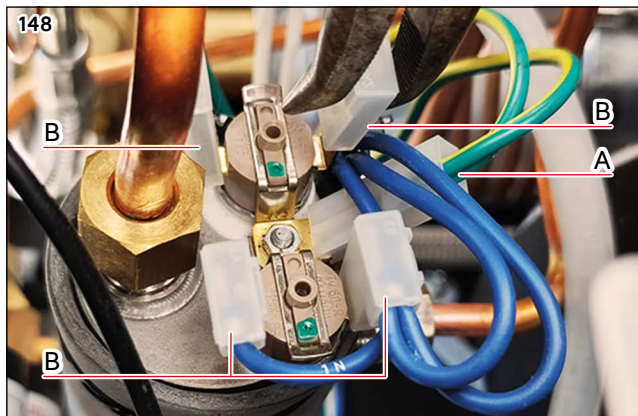
Moreover, it is always a good idea to place a cloth or absorbent paper underneath the coffee boiler pipes to avoid potential electrical damages.

To remove a coffee boiler, it is necessary to:

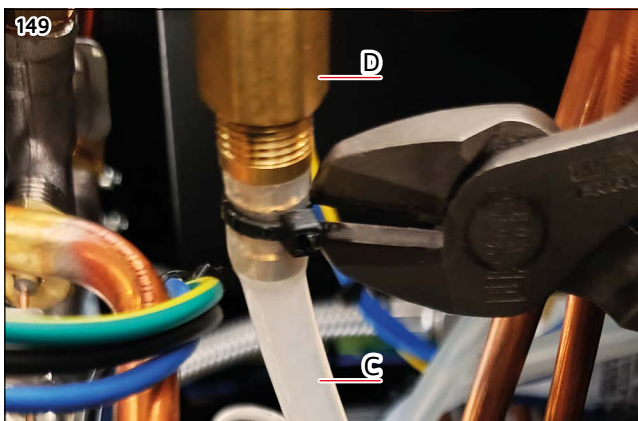
- 1 Remove the top cover, the group cover, the drip tray and the lower front panel, as described in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Close the pump tap **T** by turning it clockwise.
- 3 On the lower side of the coffee boiler, disconnect the heating element.



- 4 On the higher side, disconnect the ground connection **A** (yellow-green) and the manual thermostat connections **B** (blue).



- 5 Cut the clamps of the exhaust pipe **C** of the expansion valve **D**.



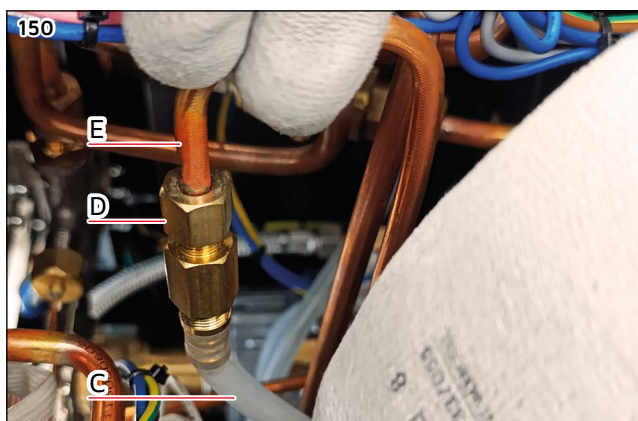
- 6 Hold the copper pipe **E** with an hand and disconnect the exhaust pipe **C** of the expansion valve **D**.



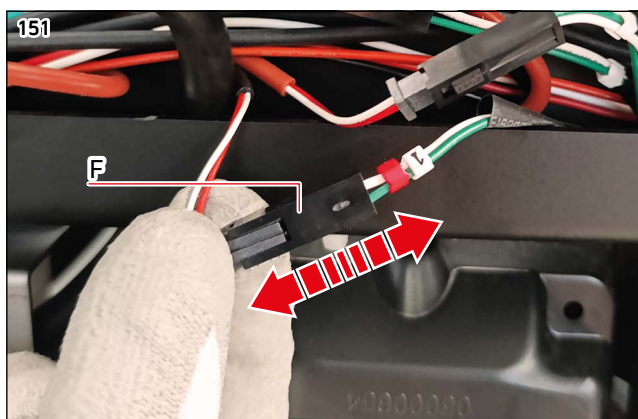
NOTE



During the disconnection of the exhaust pipe **C**, hold him with the other hand.



- 7 Cut the clamps and disconnect the temperature probe connection **F** from its extension.



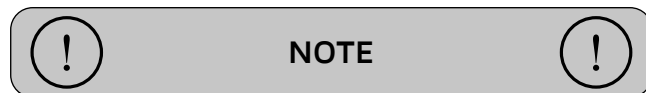
- 8 Utilizing a 13 mm wrench **G**, remove the water inlet copper pipe **H**.



NOTE

During the disconnection of the water inlet pipe **H**, hold him with the other hand.

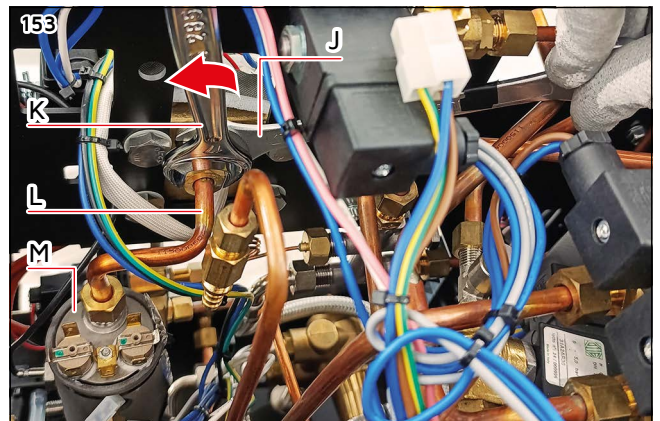
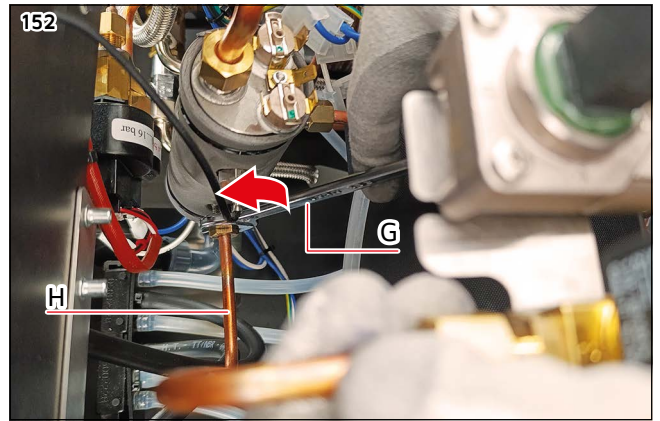
- 9 Utilizing two 17 mm wrenches **J** and **K**, remove the water output copper pipe **L**.



NOTE

Use wrench **J** to lock the connecting nut and use wrench **K** to unscrew the fixing nut.

- 10 Take off the boiler **M** paying attention to water spilling.



7.2 HEATING ELEMENT

The **MP** technology manages temperatures of the "infusion group and coffee boiler" system, to give a proper extraction water temperature, in accord with what has been set in the programming as:

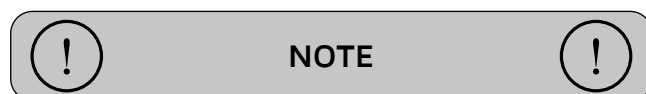
RECIPES MENU

↳ **COFFEE RECIPE**

↳ **Select Recipe**

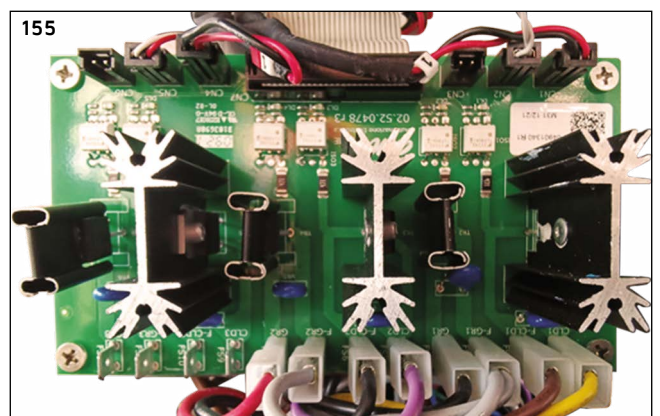
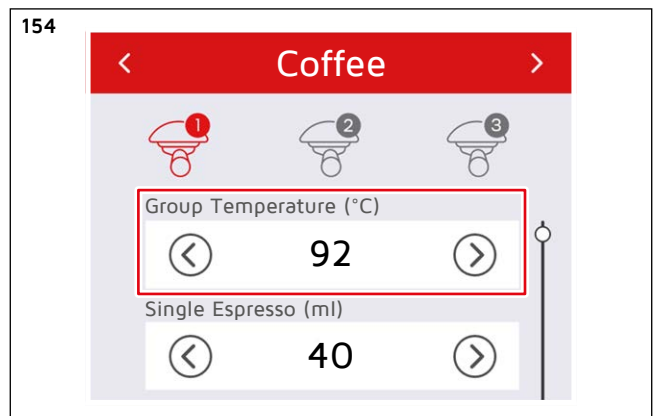
↳ **Group Temperature**

When the heating element of the coffee boiler needs to be powered on, the control unit activates it via the T3 card. To know when it is activated, it is possible to monitor LED's placed on the control unit and on the T3 card.



NOTE

For further information about the control unit and the T3 card, refer to Chapter "9 ELECTRICAL COMPONENTS".





NOTE



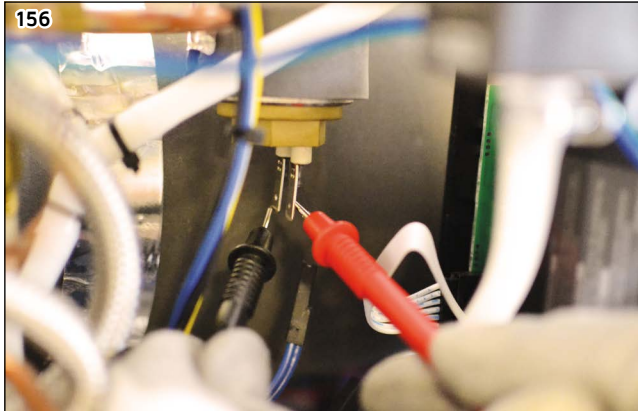
It is possible to read the current temperature of the infusion group in the **Diagnostic** menu.

Typical value of the heating element is **$90 \pm 7 \text{ Ohm}$** .
To detect if it is damaged, it is possible to verify its value with a tester.

If the breaker of the electric panel in the bar interrupts the power, the cause could be the heating element in short circuit. Use a tester to verify continuity of the heating element with the ground: continuity would mean the heating element is damaged.

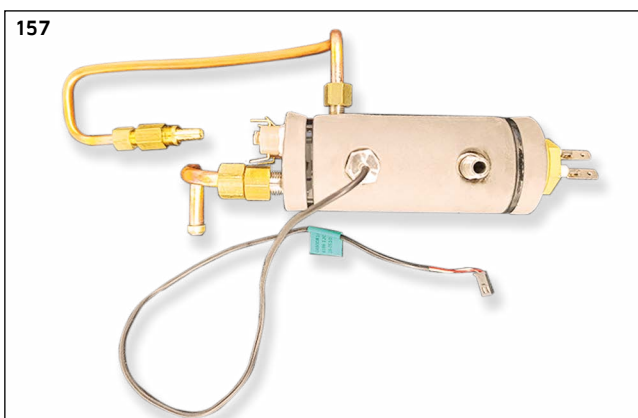
If the power does not interrupt but the water of the coffee boiler is cold, the cause could be the heating element in open loop.

Use a tester to verify continuity of the heating element itself: continuity would mean the heating element is fine.

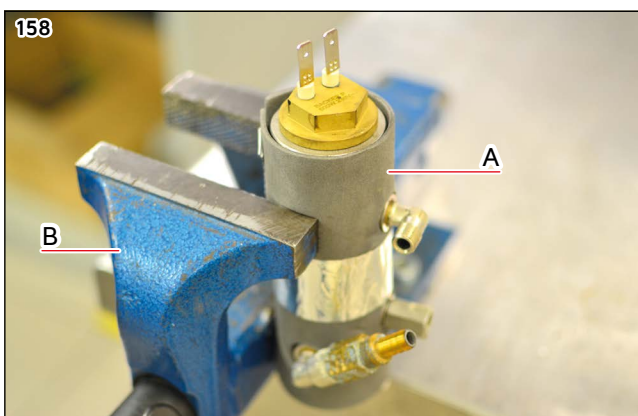


7.2.1 HEATING ELEMENT REMOVAL

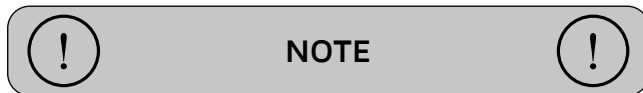
To remove the heating element, it is necessary to remove the coffee boiler as described in the previous paragraph "**7.1 COFFEE BOILER REMOVAL**".



- 1 Secure the coffee boiler **A** to a vice **B**.



- 2 Using a 26 mm wrench **C**, remove the heating element **D**.



NOTE

When replacing the heating element **D**, it is mandatory to replace a new O-ring **E**.

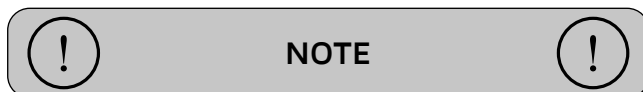


WARNING

After replacing the coffee boiler, proceed with restoring water inside the coffee boiler by pressing the continuous dose button .

7.3 TEMPERATURE PROBE

The temperature probe of the coffee boiler interfaces with the control unit via the T3 card. Moreover, it is equipped with an extension, so it is possible to replace it without accessing the T3 card.



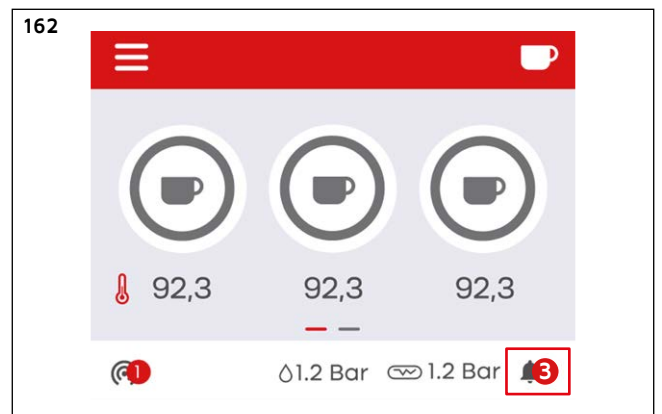
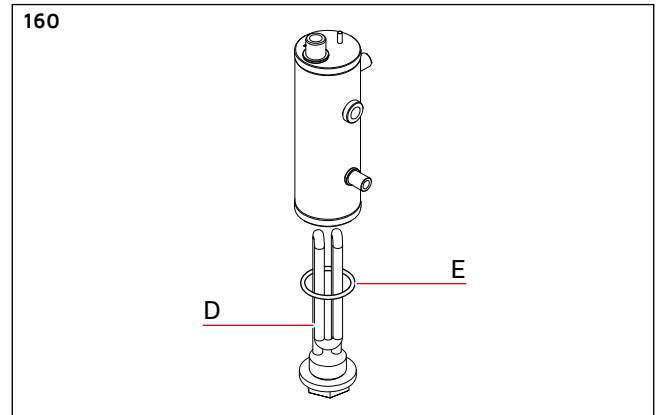
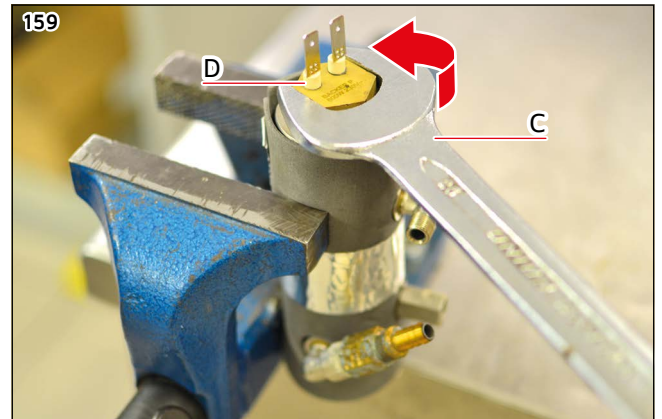
NOTE

For further information about the control unit and the T3 card, refer to Chapter "9 ELECTRICAL COMPONENTS".

Typical values of the temperature probe are approximately **40 kOhm at about 25°C** (room temperature) and **5 kOhm at about 90°C**.

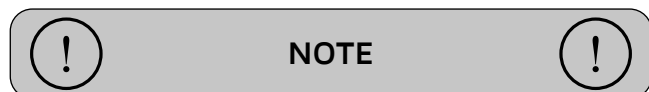
NUOVA AURELIA software can detect possible malfunctions of the temperature probe.

If alarms **3** or **4** are shown on the touch screen, check the exact alarm in the **Alarm History** menu.



If the error indicates a coffee boiler temperature probe issue, possible solutions are:

- 1 Check the probe cable and its connection to the extension.
- 2 Check the probe extension cable and its connection to the T3 card.
- 3 Check the T3 card connection flat cable to the control unit.
- 4 Replace the probe.



For further information on the temperature probe errors, refer to Chapter "**11 ALARMS AND CONTROL OF THE EMERGENCIES**".

If the temperature displayed is extremely high or quite unstable despite the smooth operations, remove and replace the probe with a new one.

Since the coffee boiler is always, full of high temperature water, common limestone problems do not excessively affect the temperature probe.

In fact, it is unlikely that the limestone will inhibit the operation on the probe, but more likely it will slow its capacity: a probe covered with limestone becomes less sensitive to temperature changes.

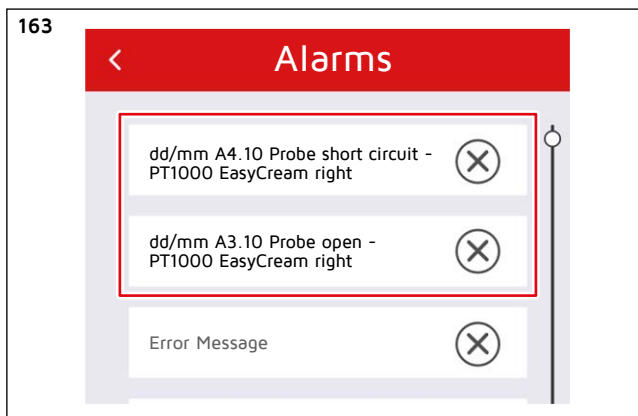
In cases like this in which there are no significant changes that place the coffee boiler under stress, the probe must be removed and controlled for the presence of limestone.

7.3.1 TEMPERATURE PROBE REMOVAL



If the machine is hot, it is suggestible to reduce the inner pressure of the coffee boiler, as explained in paragraph "**5.7.1 REDUCING OF THE COFFEE BOILER INNER PRESSURE**".

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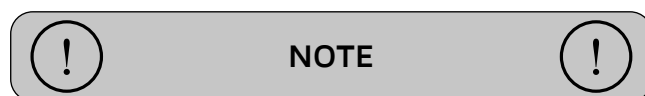
To remove the temperature probe, it is necessary to:

1 Remove the top cover, the group cover, the drip tray and the lower front panel, as described in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".

2 Close the pump tap **T** by turning it clockwise.

3 Disconnect the temperature probe **A** from its extension.

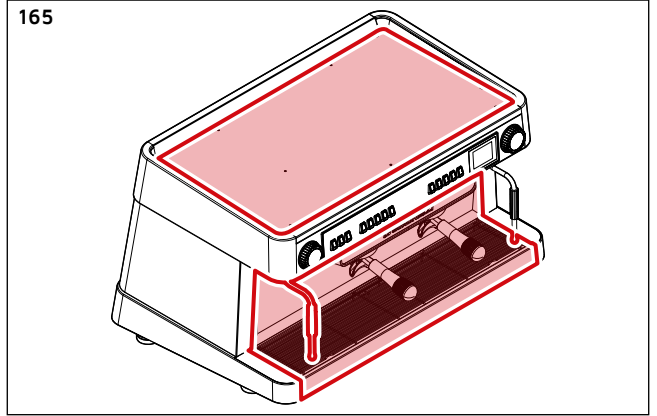
4 Use a 15 mm wrench **C** to remove the temperature probe **B**.



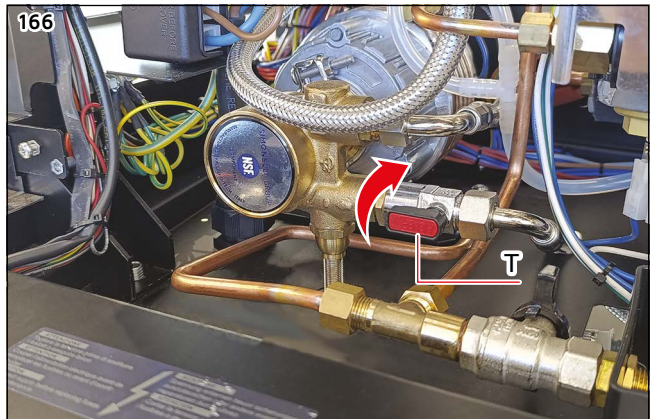
NOTE

Remove calcification with appropriate products.

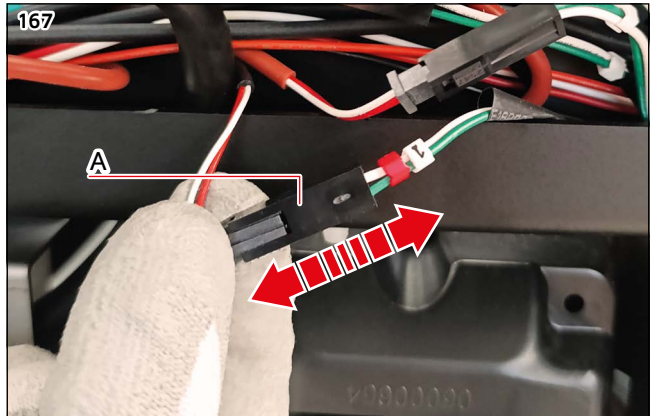
165



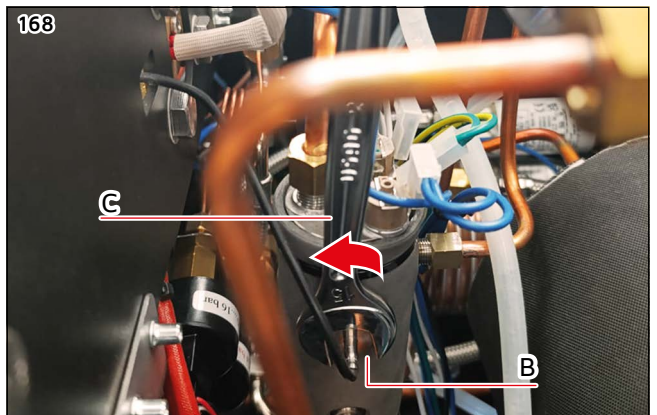
166



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NOTE



When replacing the temperature probe, wrap its threading with Teflon tape or use liquid Loctite to prevent leakage.

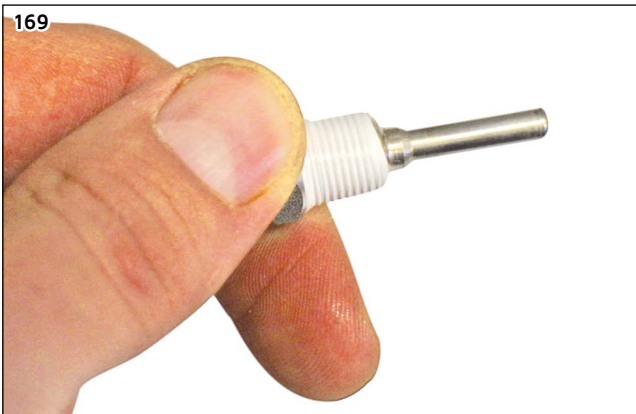


NOTE



It is useful, at the end of replacement operations, to collect and to clamp the wires together to make accessing easier and to avoid contact with high temperature surfaces.

169



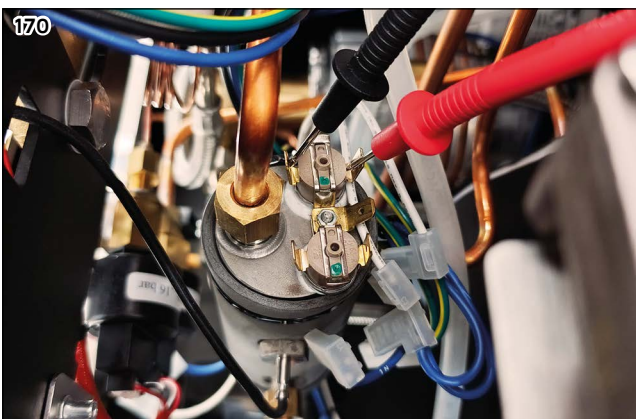
7.4 HIGH-LIMIT THERMOSTAT

The high-limit thermostat is connected in series with the heating element and opens the electrical circuit once the temperature limit of 135°C in the coffee boiler has been exceeded.

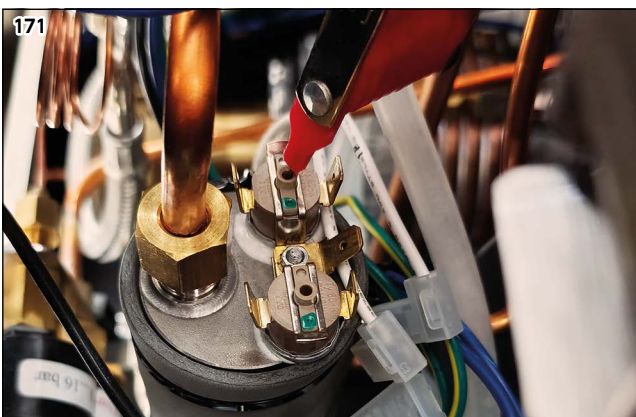
If the heating element does not turn ON, check the continuity of the high-limit thermostat.

If there is not continuity, rearm the high-limit thermostat by pushing the small red button.

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7.5 EXPANSION VALVE

The expansion valve releases water once the pressure limit of 16.5 bar in the coffee boiler has been exceeded.

If, when the machine was in stand-by, the first coffee dose is lower than the next, a reason could be the expansion valve damaged and opening before 16.5 bar.

7.5.1 EXPANSION VALVE REMOVAL



If the machine is hot, it is suggestible to reduce the inner pressure of the coffee boiler, as explained in paragraph "5.7.1 REDUCING OF THE COFFEE BOILER INNER PRESSURE".

To remove the expansion valve, it is necessary to:

- 1 Remove the top cover as described in Chapter "4 REMOVAL OF EXTERNAL SURFACE".

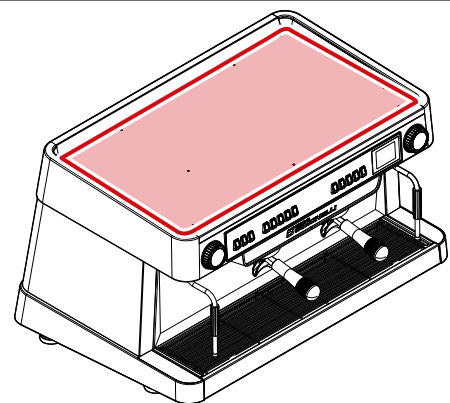
- 2 Close the pump tap **T** by turning it clockwise.

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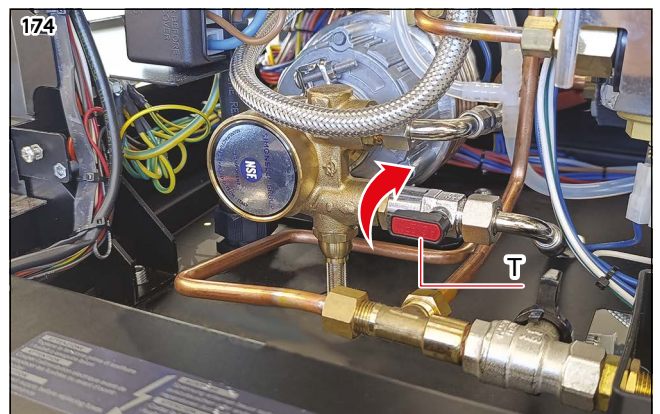


WARNING

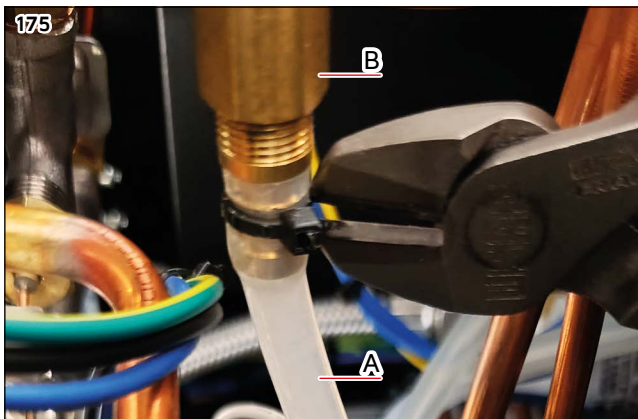
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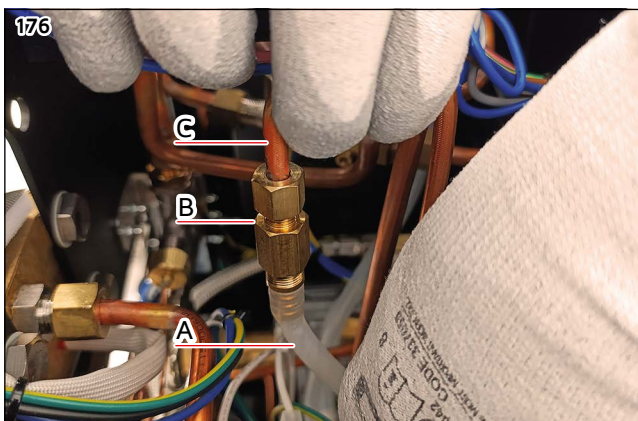
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- 3 Cut the clamps of the exhaust pipe **A** of the expansion valve **B**.

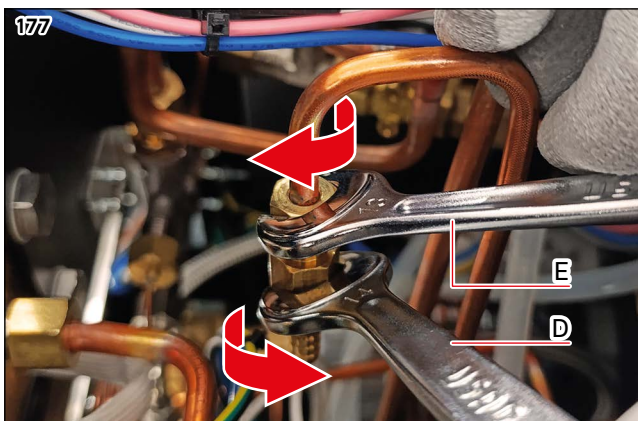


- 4 Hold the copper pipe **C** with an hand and disconnect the exhaust pipe **A** of the expansion valve **B**.

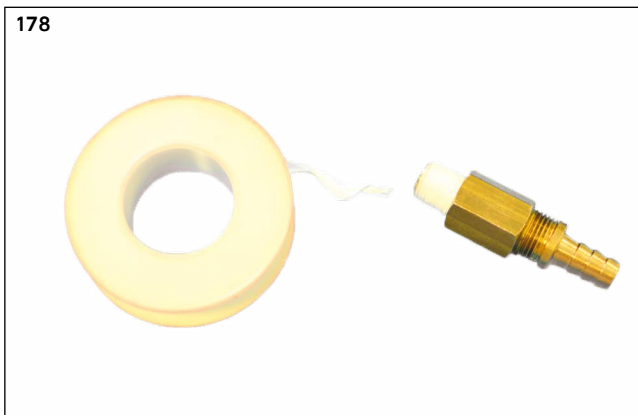


During the disconnection of the exhaust pipe **A**, hold him with the other hand.

Use a 14 mm wrench **D** and a 13 mm wrench **E**, remove the expansion valve.

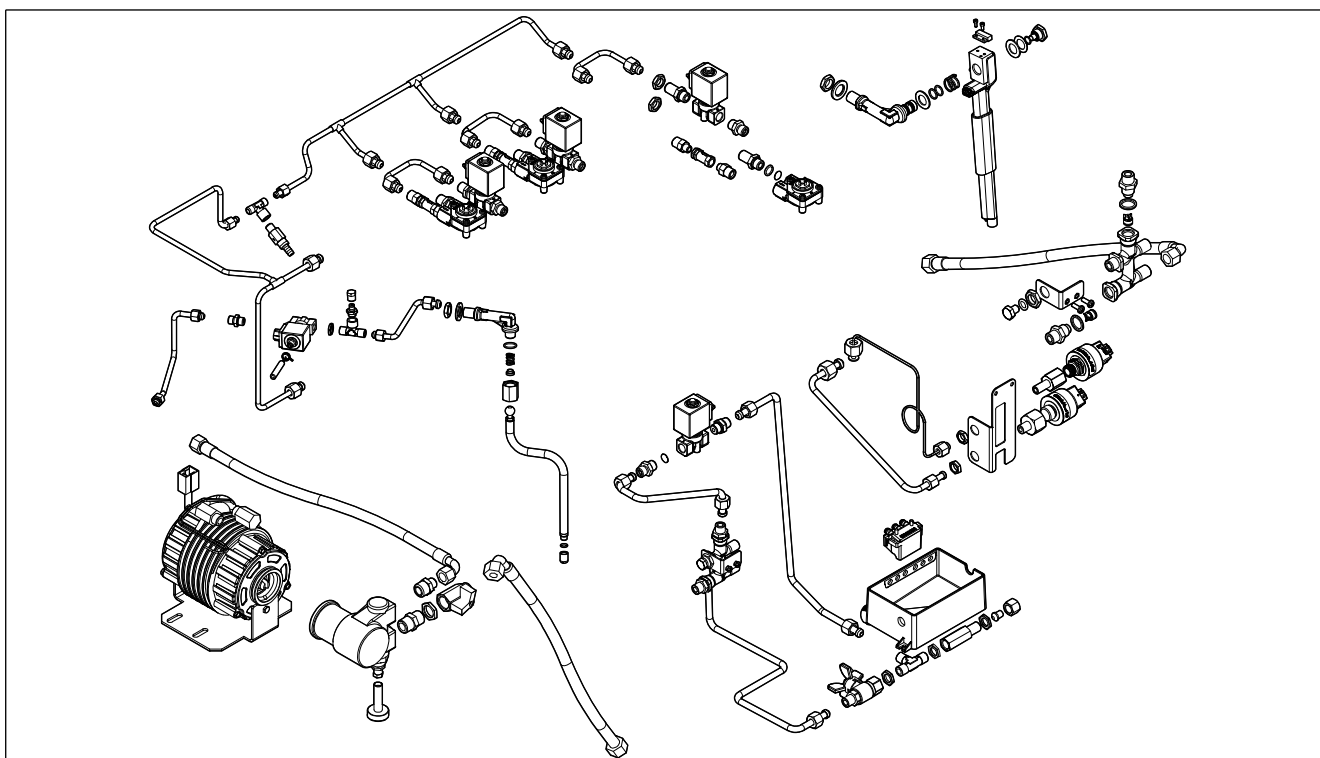


When replacing the expansion valve, wrap its threading with Teflon tape or use liquid Loctite to prevent leakage.



8

HYDRAULIC CIRCUIT



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The hydraulic circuit of **NUOVA AURELIA** follows a new technology: **MP (Maximum Performance)**.

The **MP** system uses an instant heating system allowing only the necessary amount of water for the extraction.

To be heated, thus using less amount of water and boilers optimization.

Productivity and performance remain constant, while energy efficiency increases.

8.1 DRAIN BOX AND TAPS

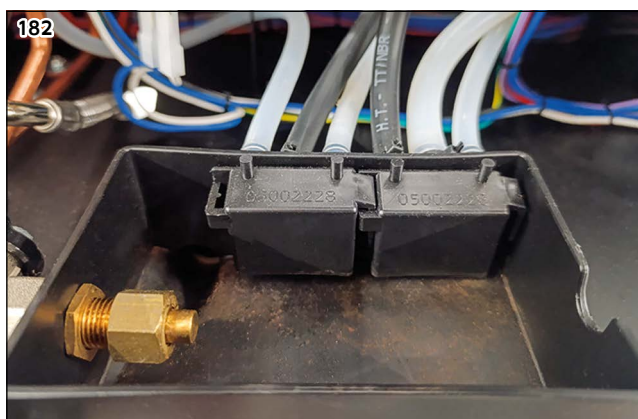
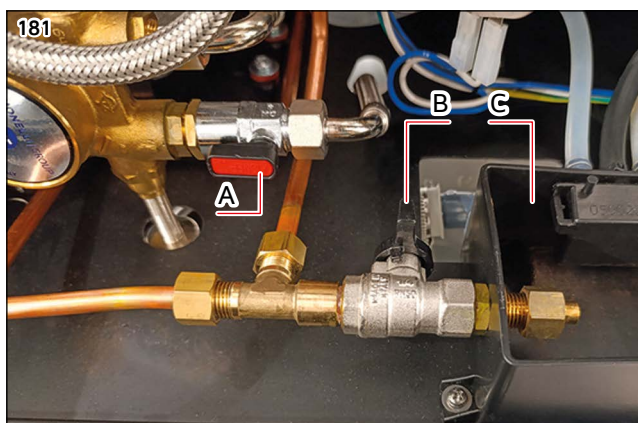
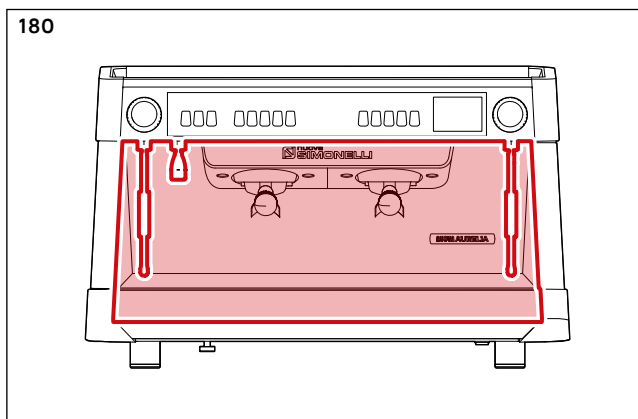
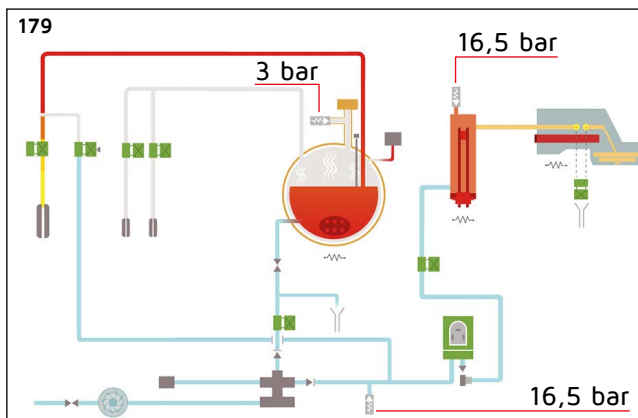
To access the hydraulic part at the base of the machine, it is necessary to remove the drip tray, the safety cover worktop, the group cover and the lower front panel, as explained in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".

Once removed, it is possible to see:

- A** The pump tap to close inlet water.
- B** The service tap to empty the boiler from returning into the circuit.
- C** The drain box.

The drain box has a lid to which are connected:

- Two or three black pipes from the third outlet of the coffee valves.
- Two silicone pipes from the third outlet of the steam or E-Milk / E-Steam expansion valves.
- One silicone pipe from the expansion valve.
- One silicone pipe from the safety valves of the coffee boilers, together in a unique pipe.
- One big silicon pipe from the steam boiler safety valve.



8.2 THE PUMPING ELEMENT

The pump is located on the left side of the machine.
The duration of the pump depends on the amount of daily work and the quality of the water.

The machine pressure set by the factory is ideal for the extraction of the coffee: **9 bar**.

8.3 PUMP REMOVAL

If the pump needs to be removed, it is necessary to:

- 1 Remove the left side panel, the drip tray, the group cover and the lower front panel, as explained in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".
- 2 Utilizing a Philips screwdriver, remove the screw and open the panel that blocks the control unit box.
- 3 Close the water inlet tap **T** upstream of the machine.



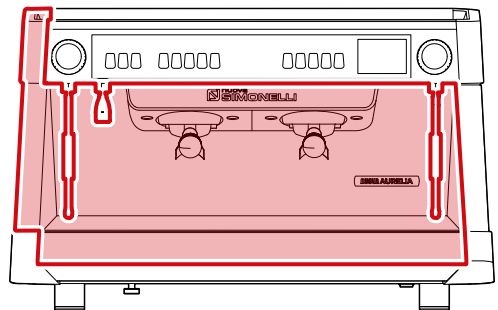
NOTE



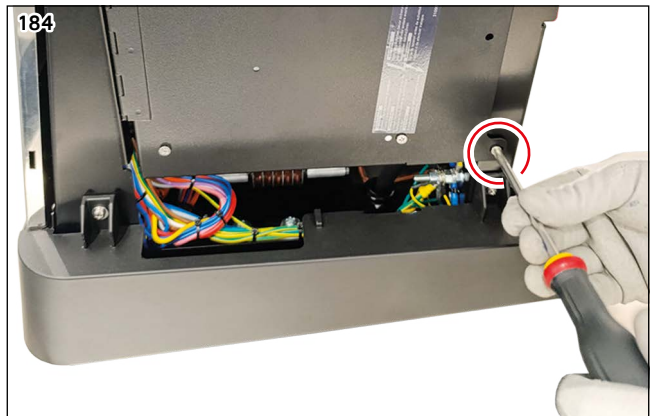
When to replace the pump:

- **It is noisy:** if the impurities enter inside the pump, the blades of the impeller may block, therefore making it impossible to load water.
- **Pressure not adjustable:** with time the impeller blades can wear out, therefore if it is not possible to adjust the pressure with the appropriate wheel it would be necessary.
- **Pressure fluctuation during dispensing:** the bypass or the impeller are damaged.

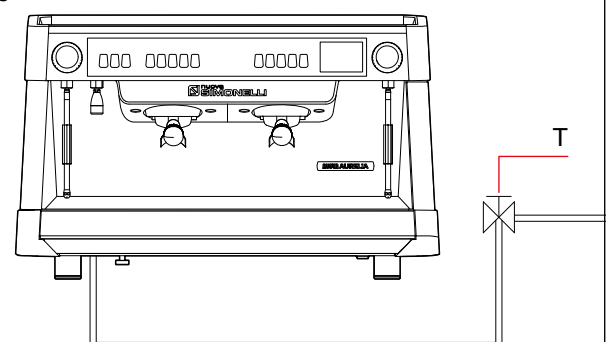
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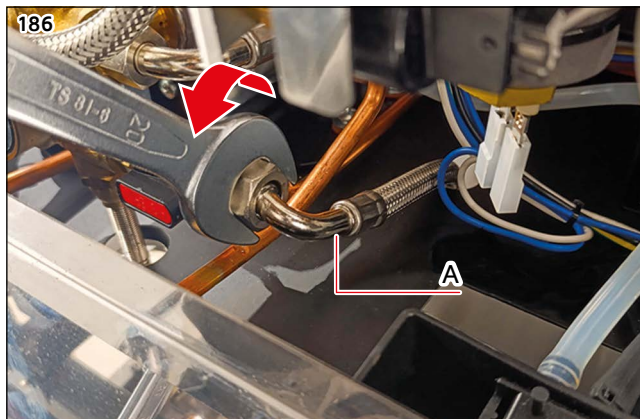
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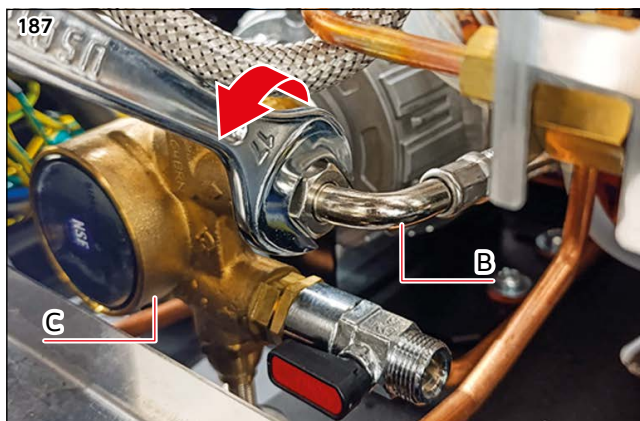
185



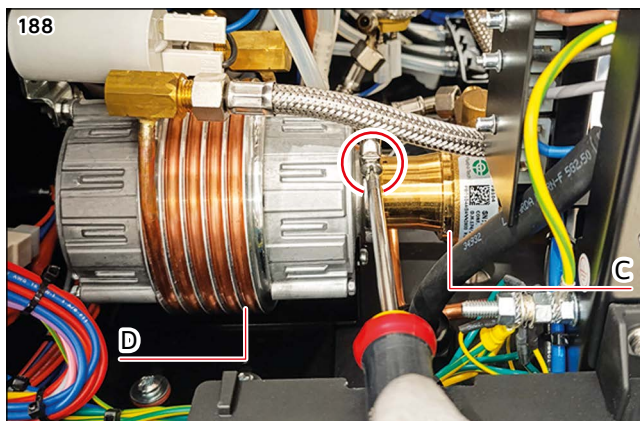
- 4 Utilizing a 20 mm wrench, disconnect the water inlet pipe **A**.



- 5 Utilizing a 17 mm wrench, disconnect the outlet flexible pipe **B** from the pump **C**.



- 6 Unscrew the metal hose clamp that keeps the pump **C** attached to the motor **D** and remove it.



- 7 Utilizing a 21 mm wrench and a 17 mm one, unscrew the unions and adapt them to the new pump utilising Teflon tape to seal the part.



8.4 CONDENSER REMOVAL



Before proceeding with this operations, make sure that the machine is turned OFF and unplugged from the mains.

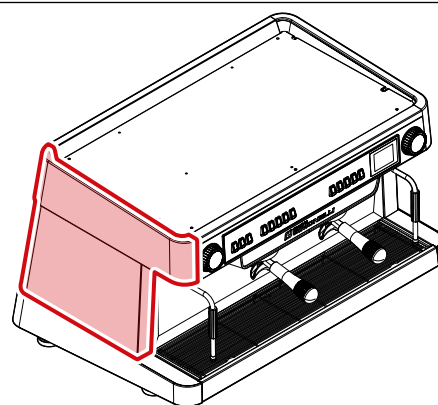
To remove the condenser, it is necessary to:

- 1 Remove the left side panel as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Utilizing a Philips screwdriver, remove the screw and open the panel that blocks the control unit box.
- 3 Utilizing a 13 mm wrench, remove the bolt that holds the condenser **A** to the motor **B**.

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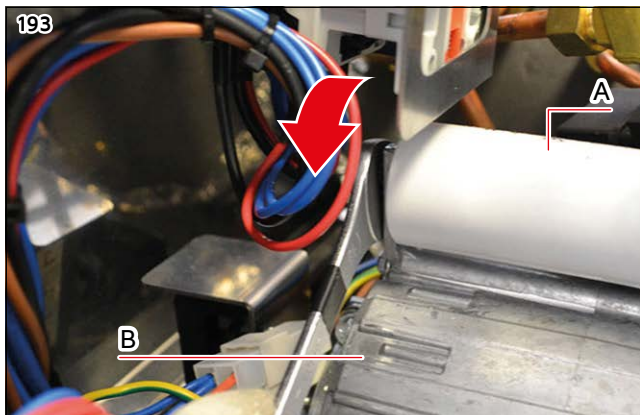
191



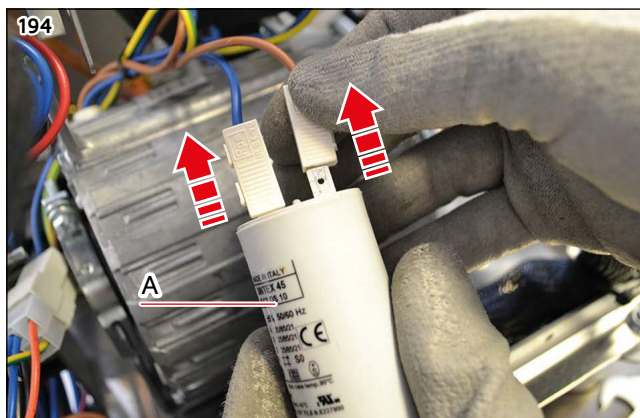
192



193



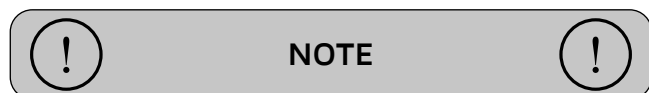
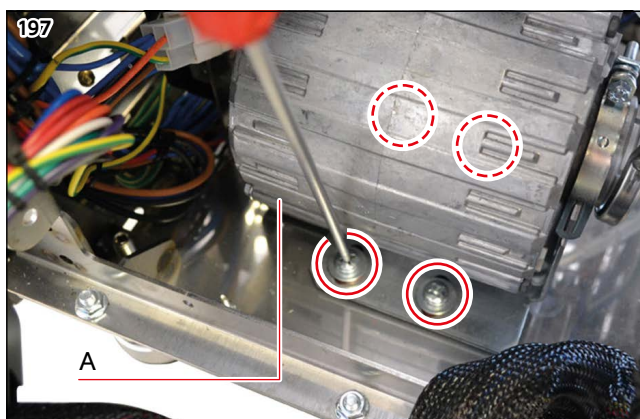
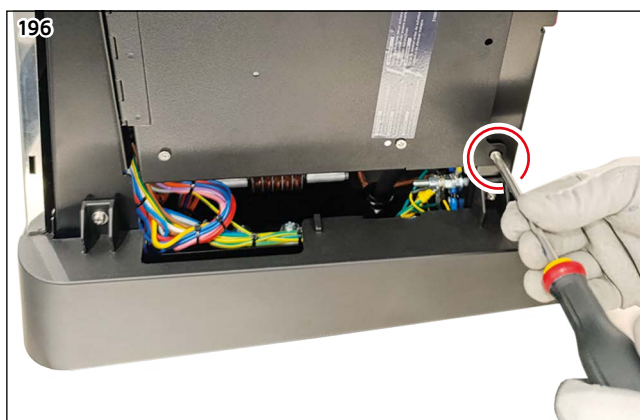
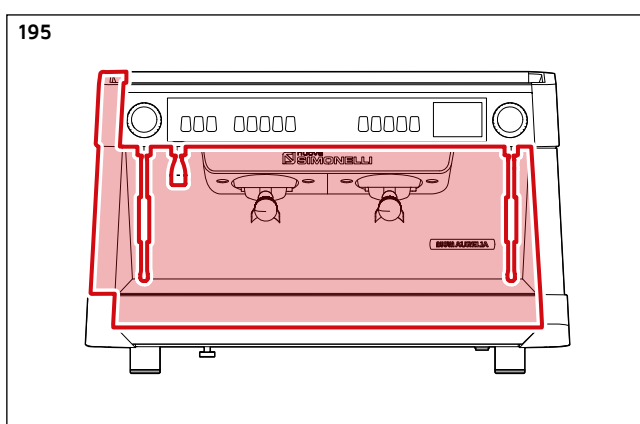
- 4 Disconnect the sockets and remove the condenser **A**.



8.5 MOTOR REMOVAL

If the motor needs to be removed, it is necessary to:

- 1 Remove the left side panel, the drip tray, the group cover and the lower front panel, as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Utilizing a Philips screwdriver, remove the screw and open the panel that blocks the control unit box.
- 3 Remove the pump as illustrated in the paragraph "8.3 PUMP REMOVAL".
- 4 Remove the condenser as described in the paragraph "8.4 CONDENSER REMOVAL".
- 5 Unscrew the four screws that hold the motor **A**.



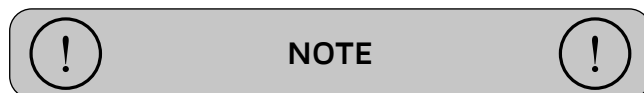
Carefully remove the motor **A** from the left side and disconnect power connections.

8.6 SOLENOID VALVES

Into the machine, there are installed some solenoid valves, that allow to manage any type of dispensing that the machine can do.

An overview of the installed solenoid valves is shown in the image:

- 1 Hot water valve (Normally Closed - 2 ways)
- 2 Automatic fill valve (Normally Closed - 2 ways)
- 3 Steam valve (Normally Closed - 3 ways)
- 4 Cold water valve (Normally Closed - 2 ways)
- 5 PULSE-JET valve (Normally Opened - 2 ways)
- 6 E-Milk valve (Normally Closed - 2 ways)
- 7 Coffee group valve (Normally Closed - 3 ways)



The number of coffee solenoid valve **7** is related to the number of coffee groups installed on the machine (2, 3 or 4).

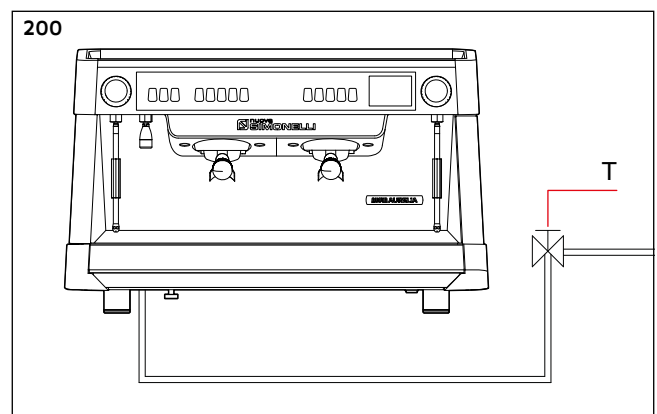
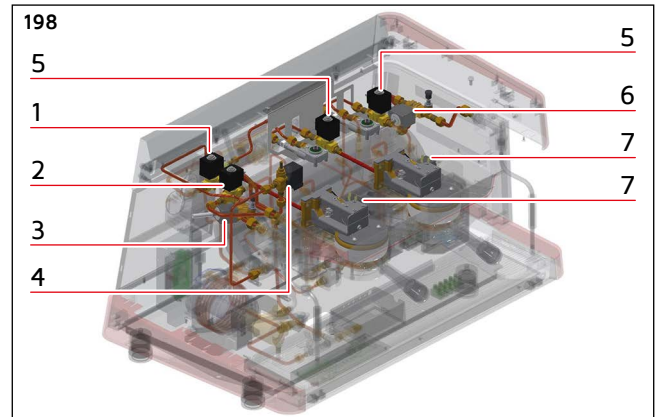


Before proceeding with this operations, make sure that the machine is turned OFF and unplugged from the mains.

It is advisable to place a cloth or absorbent paper underneath the valve to avoid potential electrical damages.



Every time it is necessary to operate on the solenoid valves, close the water inlet tap T upstream of the machine, discharge the steam boiler pressure, as described in the paragraph "6.2 EMPTYING THE STEAM BOILER" and discharge the coffee group boiler pressure as described in the paragraph "5.7.1 REDUCING OF THE COFFEE BOILER INNER PRESSURE".





NOTE

To access the installed solenoid valves, it is necessary to remove the top cover as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".

HOW TO INSPECT THE SOLENOID VALVE

After removing the solenoid valve, inspect it by following the steps:

- 1 Utilizing a vice and a 22 mm wrench, unscrew the valve base.

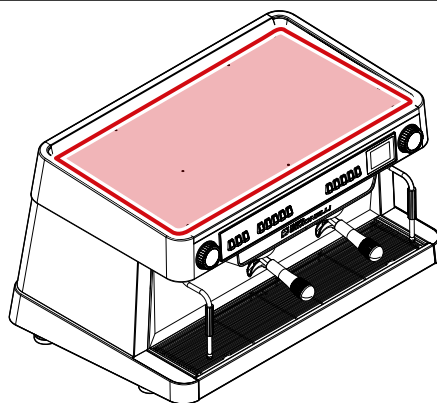
- 2 Check that the spring is working properly and that the inner cylinder is clean.



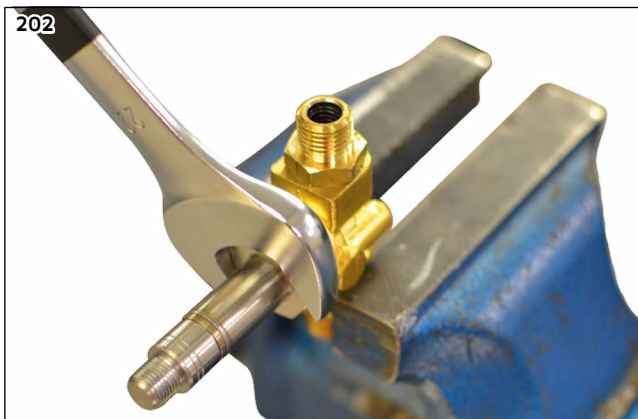
NOTE

If there is nothing visible that affects its use, replace the solenoid valve completely.

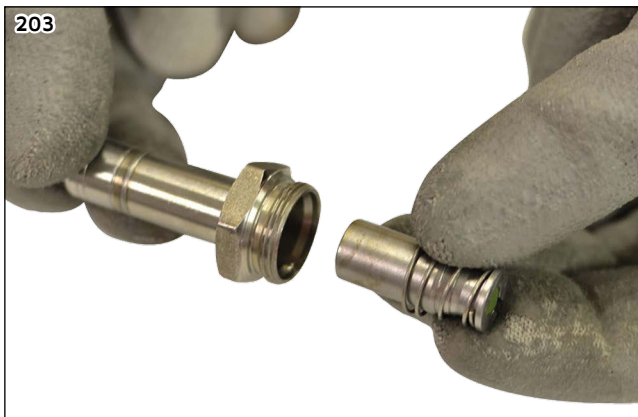
201



202



203



8.6.1 AUTOMATIC FILL VALVE REMOVAL



NOTE

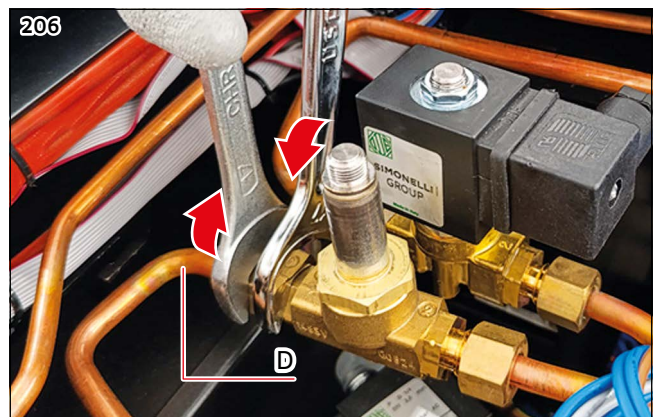
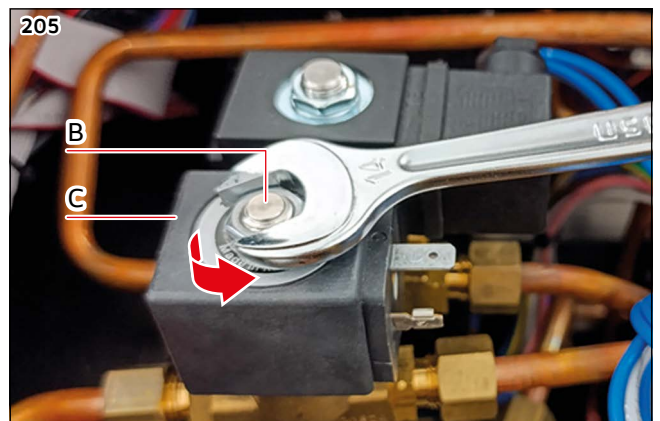
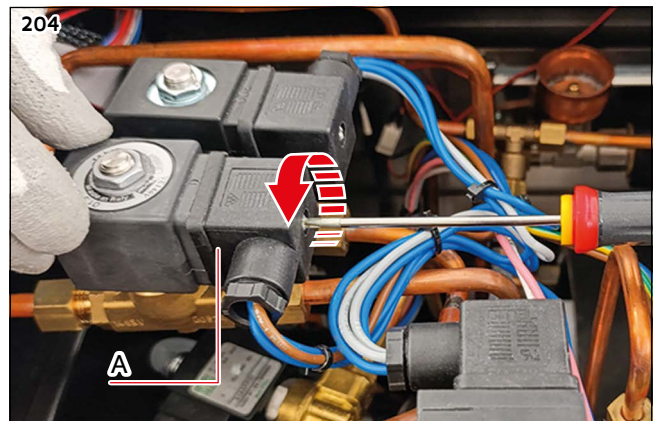


Before proceeding to remove the valve, carefully read the preliminary operations to be carried out, as described in the introduction part of the paragraph “**8.6 SOLENOID VALVES**”.

The automatic fill valve is positioned on the front side of the machine, over the pumps. Its operation regulates the amount of water that flows inside the heater during all phases of machine operation.

The control unit continuously interrogates the level sensor and opens the valve if the level of water in the boiler is not sufficient to cover the heating element.

- 1 Use a Philips screwdriver, unscrew and remove the head **A** of the automatic fill valve.
- 2 To remove the automatic fill valve use a 14 mm wrench, unscrew the nut **B** and slide out the head **C** of the automatic fill valve.
- 3 Using two 17 mm wrenches, disconnect the inlet pipes **D** to the automatic fill valve.



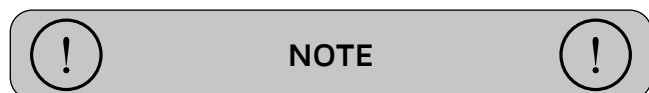
- 4 Using two 17 mm wrenches, disconnect the outlet pipes **E** from the automatic fill valve.



NOTE

When reassembling the automatic fill valve, once everything has been connected, do not forget to open the pump tap and the water mains tap.

8.6.2 PULSE-JET VALVE REMOVAL



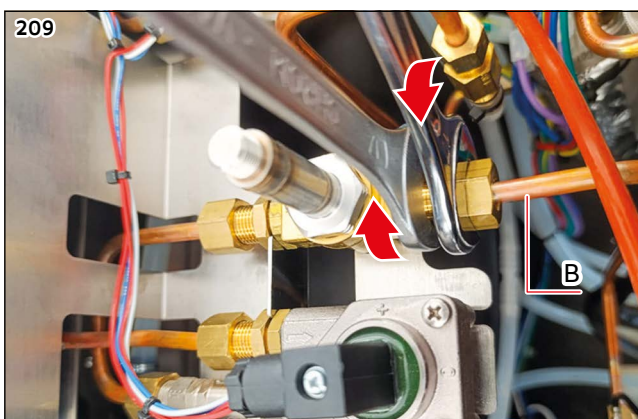
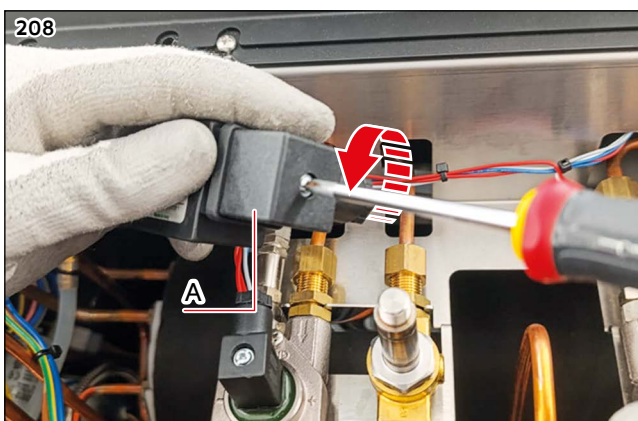
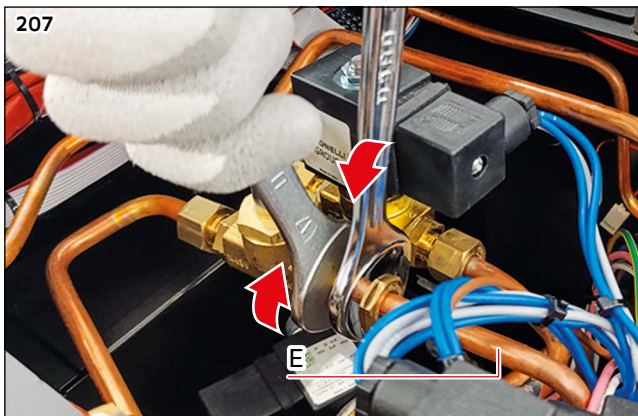
NOTE

Before proceeding to remove the solenoid valve, carefully read the preliminary operations to be carried out, as described in the introduction part of the paragraph “**8.6 SOLENOID VALVES**”.

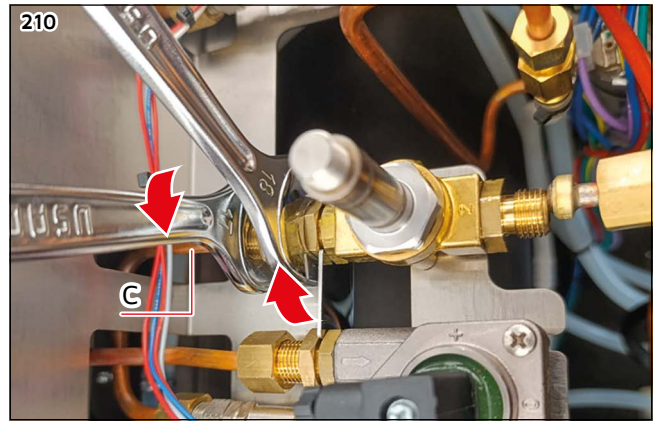
PULSE-JET is an ON/OFF espresso extraction technology that **avoids any over-extraction of your coffee cake**. It uses water pulses giving the coffee cake more space to expand, achieving **a more balanced result in the cup** in terms of aroma and flavours.

- 1 Use a Philips screwdriver unscrew and remove the head **A** of the PULSE-JET valve.

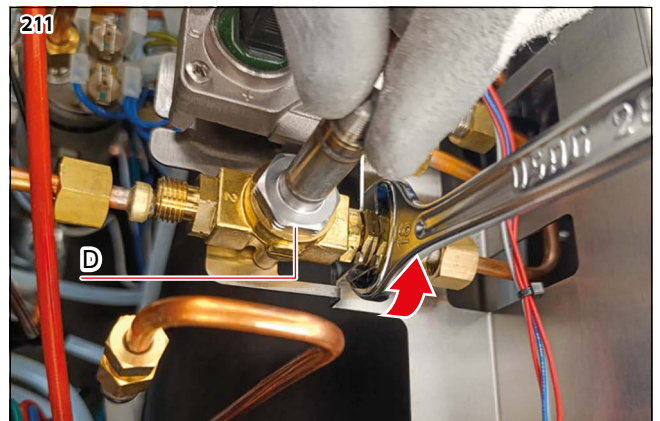
- 2 Using two 17 mm wrenches, disconnect the water outlet pipe **B** to the PULSE-JET valve.



- 3 Using two 17 mm wrenches, disconnect the water inlet pipe **C** to the PULSE-JET valve.



- 4 To remove the valve completely **D**, hold it with your hand and with an 18 mm wrench unscrew the tightening nut on the plate.



8.6.3 HOT AND COLD WATER VALVE REMOVAL

The **NUOVA AURELIA** is provided with a cold water valve with adjustable mixer.

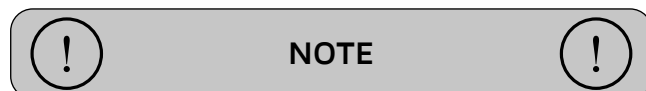
In this way the outlet water temperature can be lowered by mixing hot water from the boiler with cold water from the network, thus reducing the levy in the boiler and consequently saving on heating.

For this reason it is commonly called economizer of hot water.

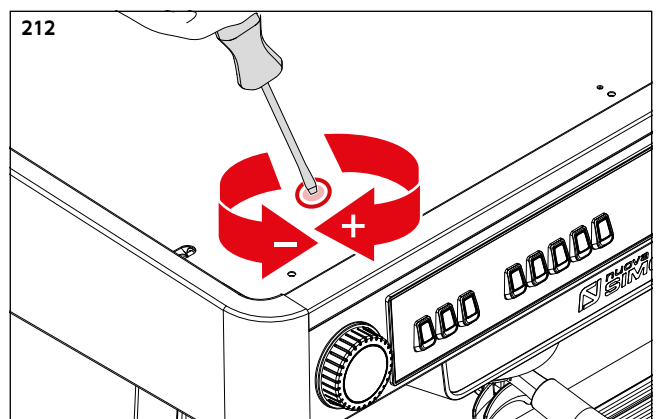
HOW TO ADJUST THE TEMPERATURE

To adjust the temperature use a flat screwdriver while the water is running to rotate the screw positioned on the left side of the cup warmer surface.

Turn it **CLOCKWISE** to **INCREASE** or **ANTICLOCKWISE** to **REDUCE** the temperature of hot water.



Do not reduce the temperature too much, otherwise the valve could emit an annoying noise.



WHEN TO INTERVENE

Problems that can be encountered in the economizing unit are:

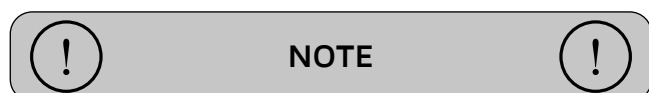
- 1 Failure to deliver water
- 2 Delivers only hot or only cold water
- 3 Continuous dripping
- 4 Erroneous programming

Cases **1**, **2** and **3** are due to malfunction of the valves so you need to access them and verify that they are working properly.

If both valves do not work and the classic opening and closing noise is not heard, there could be a problem with the relay in the control unit, therefore it is necessary to directly measure the voltage with a tester while water is being dispensed.

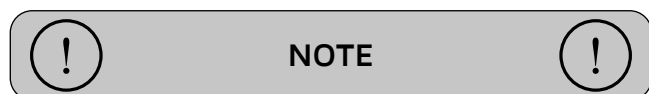
Position the tip at the point shown in the figure during delivery, considering that the hot water and cold water valves are parallel, simply verify the operation of this relay to check both valves.

HOW TO REMOVE THE SOLENOID VALVE



NOTE

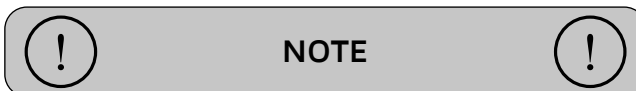
The removal procedure is identical for both **HOT** and **COLD WATER** valve.



NOTE

Before proceeding to remove the solenoid valve, carefully read the preliminary operations to be carried out, as described in the introduction part of the paragraph "**8.6 SOLENOID VALVES**".

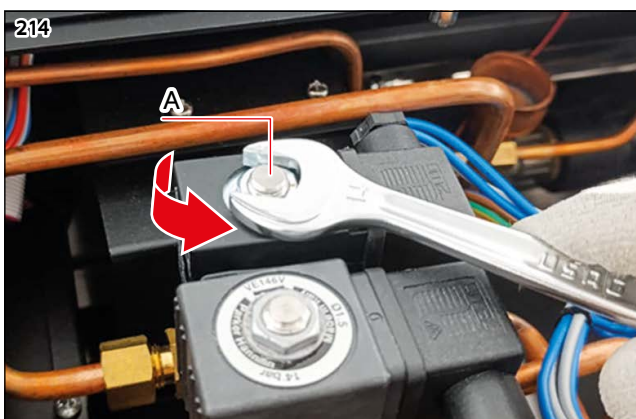
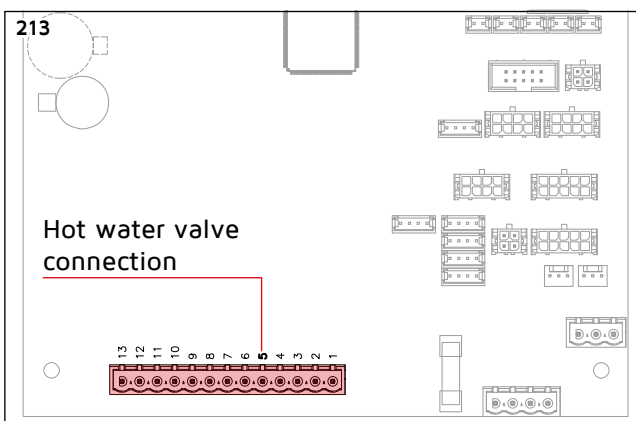
- 1 Use a 14 mm wrench, unscrew the nut **A** and remove the coil of the valve.



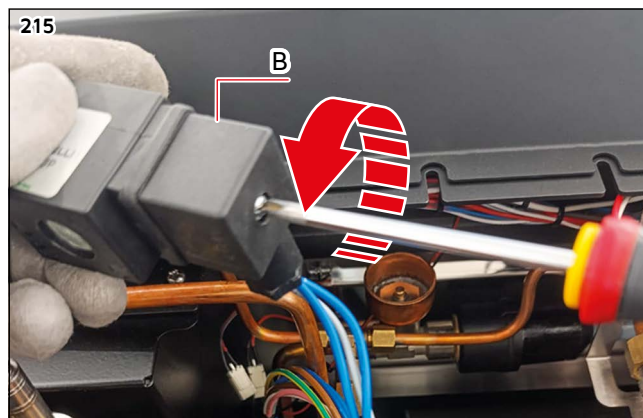
NOTE



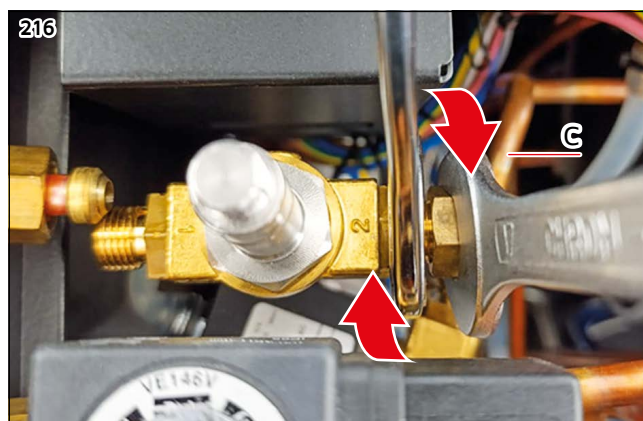
The valve may stop operating due to electrical problems or is not working properly due to obstructions for example caused by pieces of limestone that detach from the boiler and clog the valve.



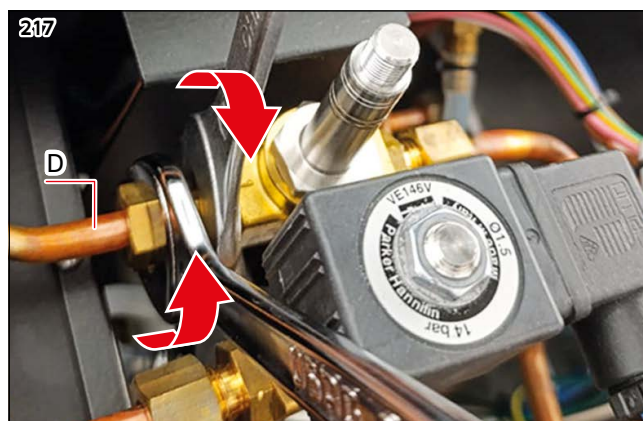
- 2 Use a Philips screwdriver, unscrew and remove the head **B**.



- 3 Use two 17 mm wrenches, disconnect the water outlet copper pipe **C** from the valve.



- 4 Use two 17 mm wrenches, disconnect the water inlet copper pipe **D** from the valve.



8.6.4 STEAM VALVE REMOVAL

WHEN TO INTERVENE

Problems that can be encountered in the steam service are:

- 1 Failure to deliver steam.
- 2 Continuous low steam flow.
- 3 Erroneous programming.

Cases **1** and **2** are due to malfunction of the valve so you need to access it and verify that it is working properly.

The valve may stop operating due to electrical problems or is not working properly due to obstructions for example caused by pieces of limestone that detach from the boiler and clog the valve.

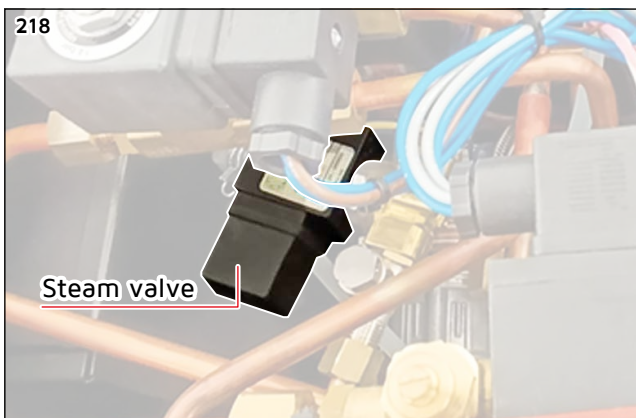
If the valve does not work and the classic opening and closing noise is not heard, there could be a problem with the relay in the control unit, therefore it is necessary to directly measure the voltage with a tester while steam is being dispensed, positioning the tip at the point shown in the figure during delivery.

HOW TO REMOVE THE SOLENOID VALVE

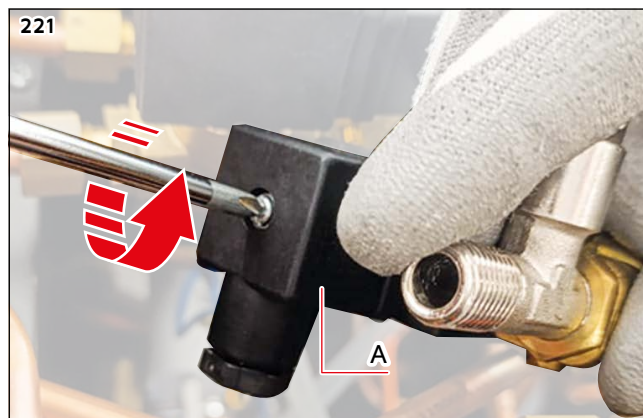


Before proceeding to remove the solenoid valve, carefully read the preliminary operations to be carried out, as described in the introduction part of the paragraph “**8.6 SOLENOID VALVES**”.

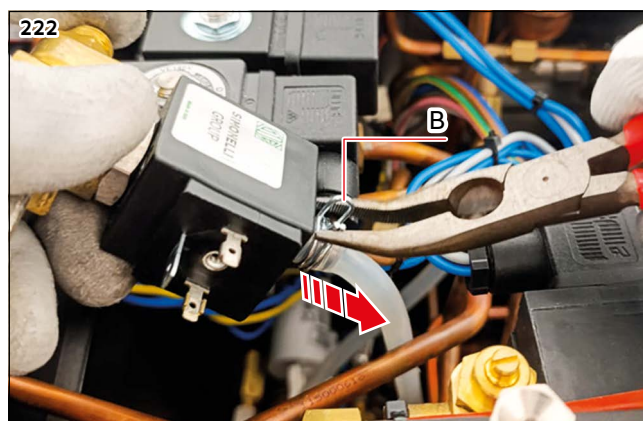
- 1 Use two 17 mm wrenches, disconnect the water outlet copper pipe from the valve.
- 2 Use two 17 mm wrenches, disconnect the water inlet copper pipe from the valve.



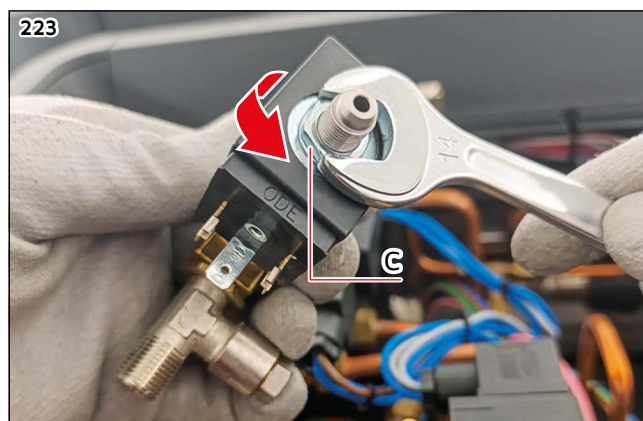
- 3 Use a Philips screwdriver, unscrew and remove the head **A**.



- 4 Remove the Teflon pipe holder clip **B** using pliers and slide out the pipe.



- 5 Use a 14 mm wrench to unscrew the nut **C** and remove the coil of the valve.



8.7 FLOWMETER AND NOT RETURN VALVE

For each group there is a flowmeter, also called fan.

They are located on the top of the machine, under the cup holder surface.

The issues related to the flowmeter are those that can be found when dosing coffee, therefore only when using the preset dosage buttons.

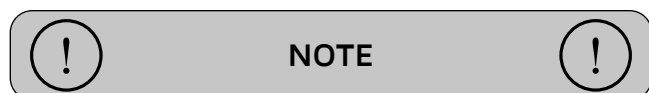
WHEN TO INTERVENE

The most common errors that you may encounter are:

- Wires disconnected accidentally or unintentionally (e.g. after replacing a card).
- There are impurities in the filter at the entrance of the fan.
- The coil of the magnetic sensor has deteriorated and no longer reads the values correctly.
- The not return valve is blocked.
- By pressing a button on one group dispensing begins on another group or on multiple group simultaneously.

If one of these cases occurs, pressing one of the settable buttons, the machine does not make coffee and does not stop (obstruction to the limit), or it can happen that the delivery does not stop as planned.

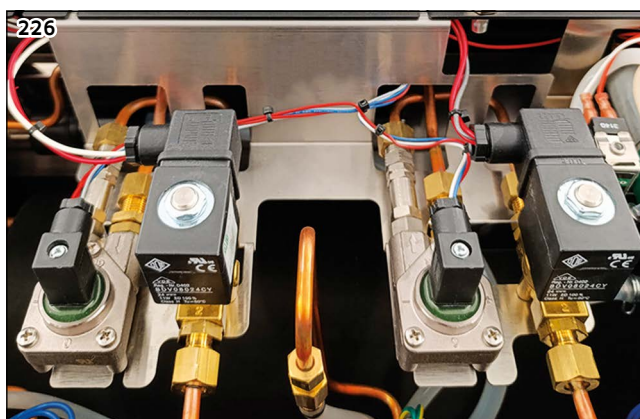
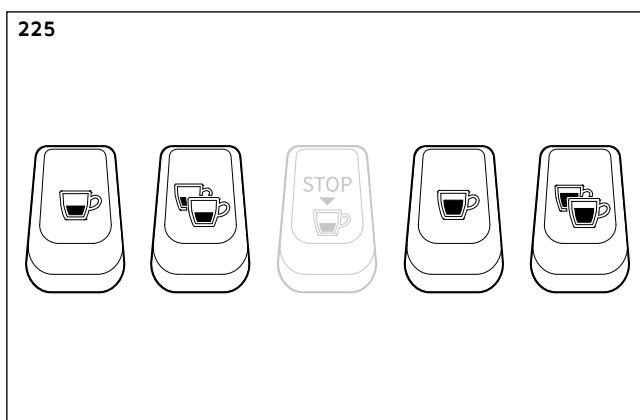
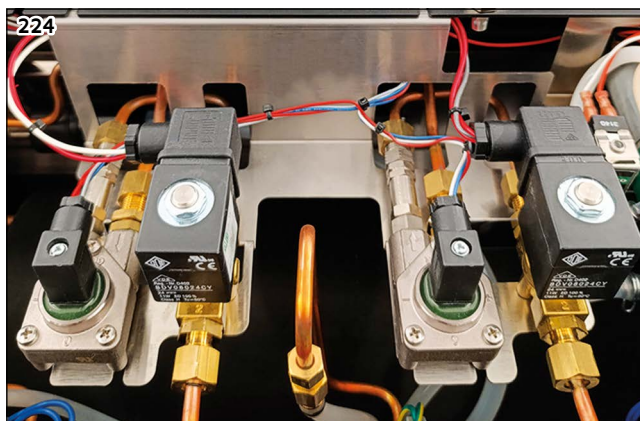
Moreover, the key pressed with the settable button will flash to highlight a malfunction.



Even if the programmed doses do not work, the machine will always operate in semi-automatic mode using only the start/stop button until the arrival of the technician.

To verify that the fan is effectively locked you can:

- 1 Check function by measuring the voltage supplied to the control unit during a delivery.
- 2 Directly inspect the part.

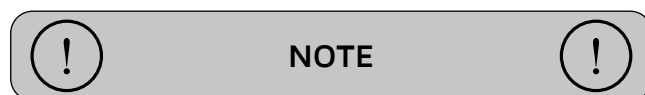


8.7.1 FLOWMETER SIGNAL VERIFY

To verify the flowmeter signal, it is necessary to:

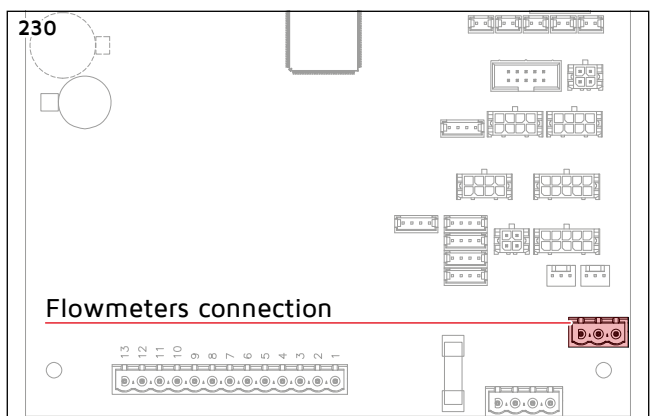
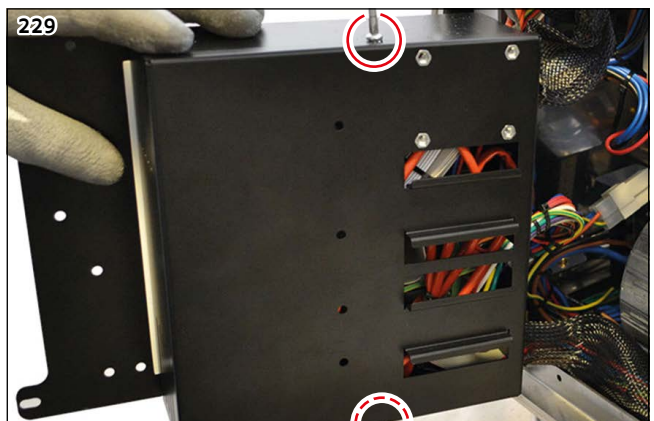
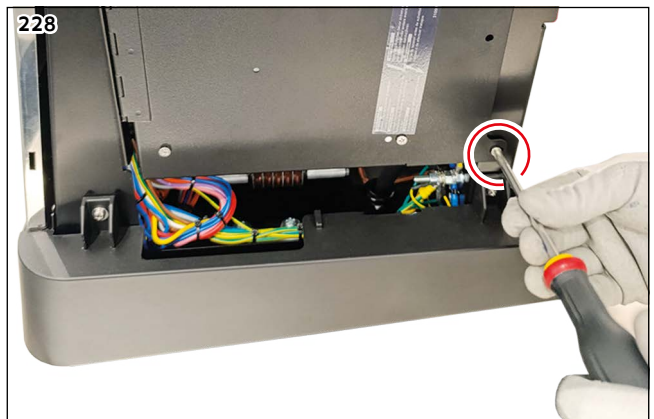
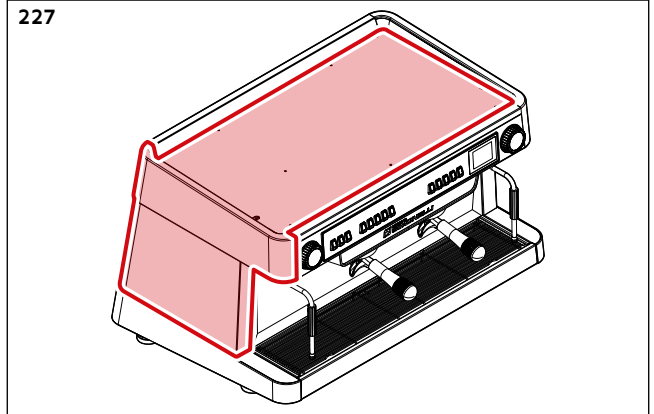
- 1 Remove the left side and the top cover, as described in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".
- 2 Remove the screw to open the flap.
- 3 Access the board by loosening the top and bottom screws with a Philips screwdriver.

With a tester measure the voltage alternating between the ends of the faulty flowmeter (see figure). Place the tester caps at the terminals of the doser using the references in the image.



The signal generated by the fan is a square wave of about **5V**.

If the fan is damaged we cannot read anything.



8.7.2 FLOWMETER REMOVAL



NOTE



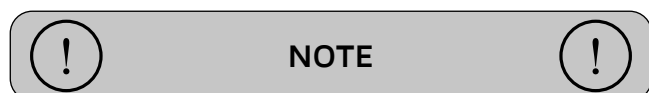
Before proceeding to remove the flowmeter, carefully read the preliminary operations to be carried out, as described in the introduction part of the paragraph "**8.6 SOLENOID VALVES**".

To access the installed flowmeter, it is necessary to:

- 1 Remove the top cover as explained in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".

- 2 Close the pump tap **T** by turning it clockwise.

- 3 Use a Philips screwdriver, unscrew and remove the head **A** from the flowmeter **B**.



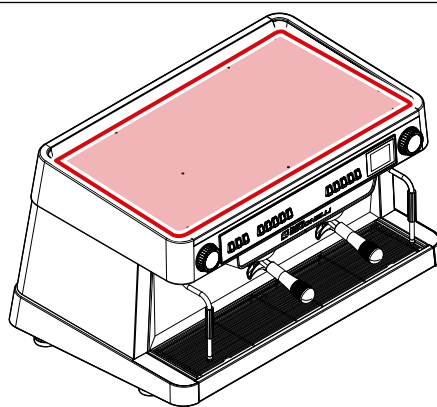
NOTE



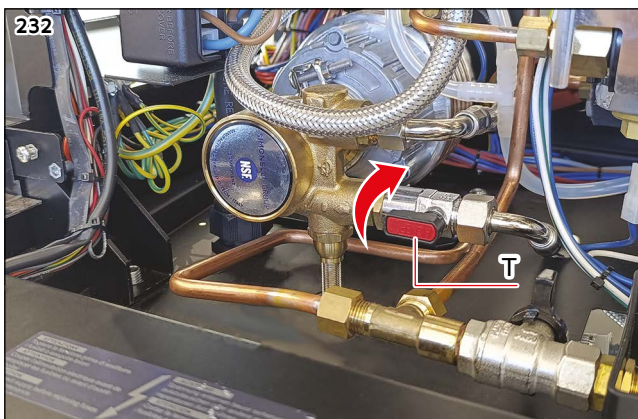
Even if it is needed to remove only one flowmeter, it is necessary to disconnect copper pipes from all flowmeters.

Position a cloth or absorbent paper underneath the small fan.

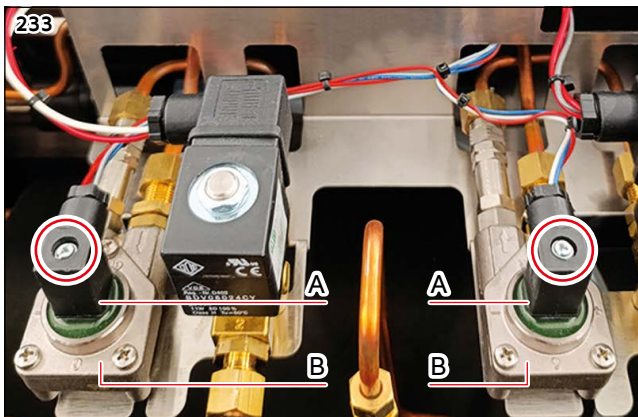
231



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NOTE

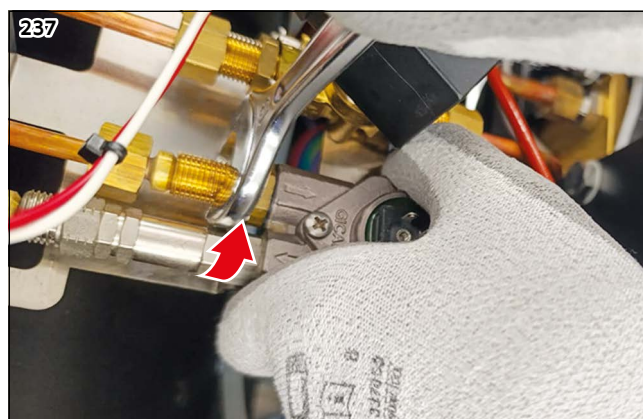
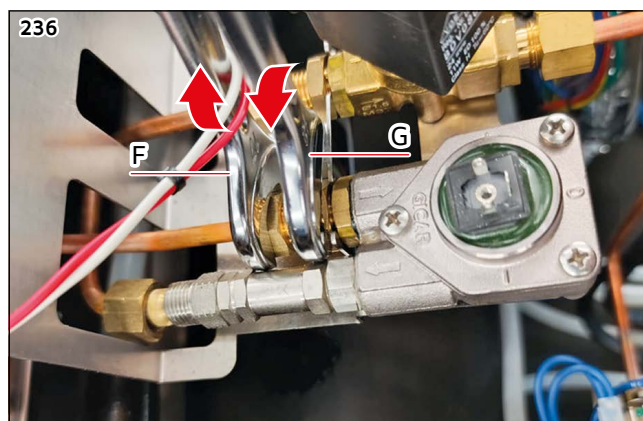
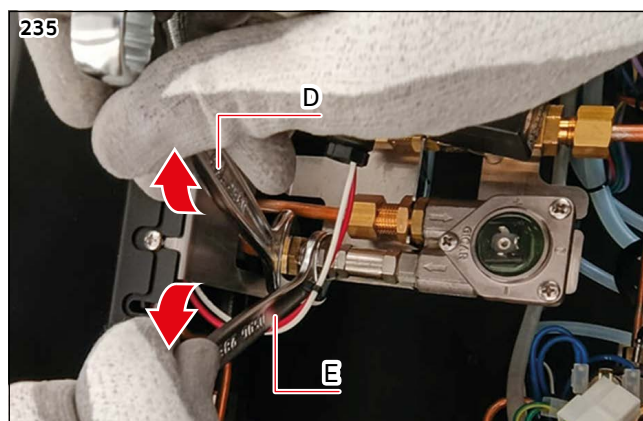
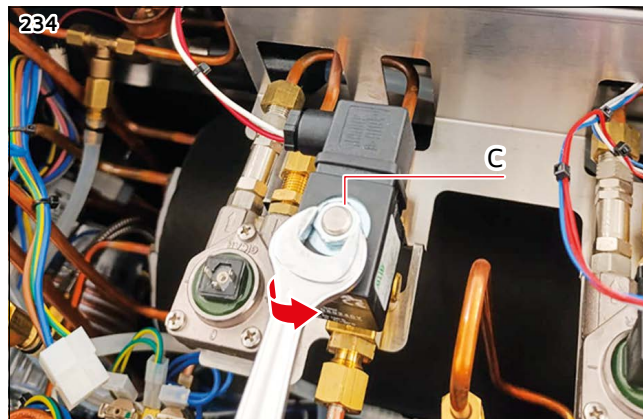


To facilitate removal of the flowmeter, loosen the nut **C** on the PULSE-JET solenoid valve and rotate the cap.

- 4 Use a 17 mm wrench **D** and a 14 mm wrench **E**, remove the outlet copper pipe from all flowmeters.

- 5 Use 17 mm **F** and 18 mm **G** wrenches, remove the inlet copper pipe from all flowmeters.

- 6 To remove the flowmeter, hold it with your hand and with an 18 mm wrench unscrew the tightening nut on the plate.





NOTE



The flowmeter is made of various parts, as shown in the picture.

It is good practice to substitute the gaskets each time it is completely inspected.

- 7 Check that there is no limestone in the fan input grid, unscrew the three screws that hold the cover and check that there is nothing to obstruct the regular operation.

- 8 To remove the filter, if it is particularly clogged, you can use a simple piece of wire to push the filter, if necessary even a common clip is sufficient.

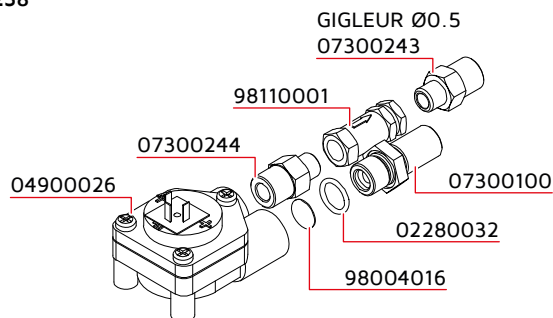
8.7.3 PRE-INFUSION RESTRICTOR REMOVAL

Attention must be given to the restrictor at the exit from the flowmeter **A**.

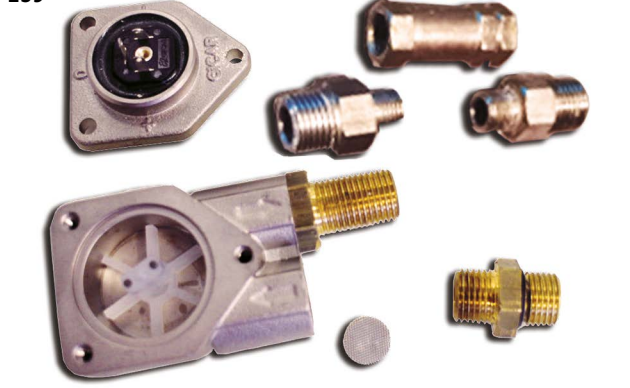
It is called pre-infusion restrictor, since its size effects the pre-infusion time: **bigger is the size, shorter is the pre-infusion**.

The default restrictor is **0.5 mm** and an optional one of **0.8 mm** is available.

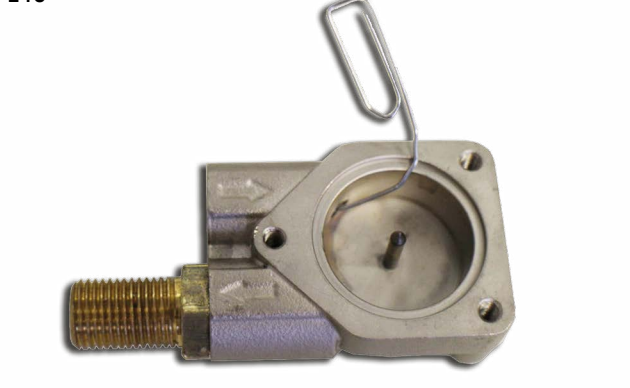
238



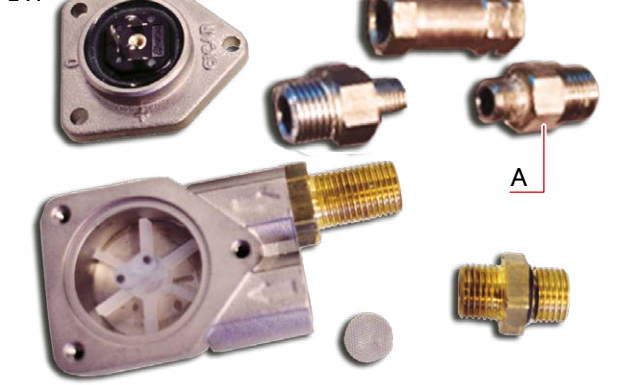
239



240



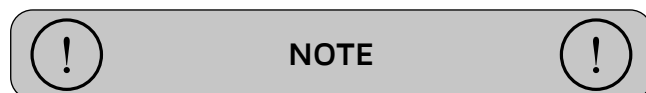
241



8.7.4 NOT-RETURN VALVE REMOVAL

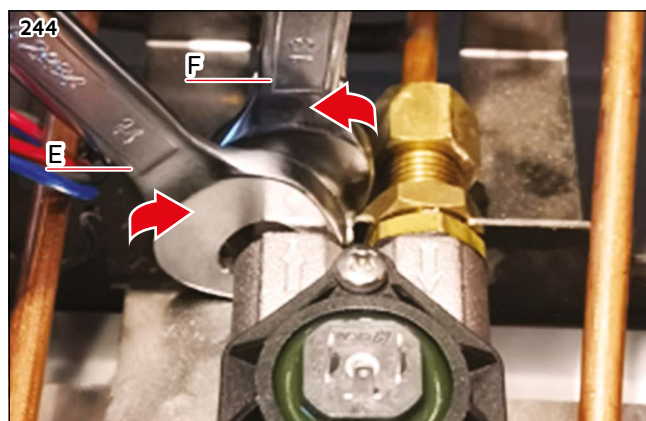
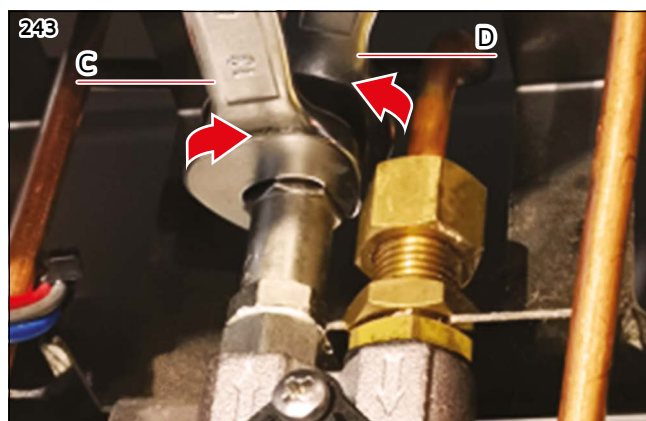
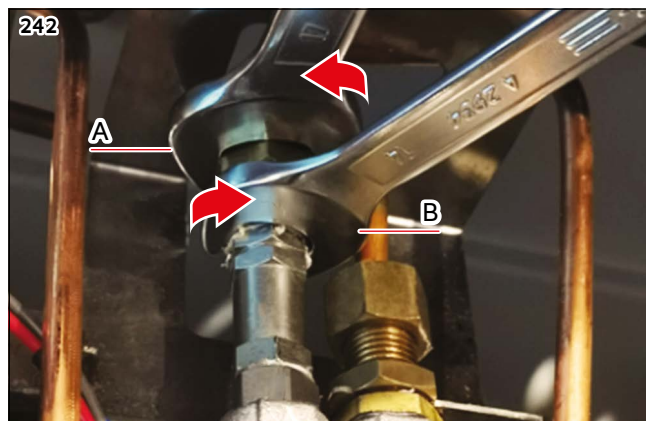
The not return valve is accessible once the flowmeter has been removed, but is possible to access it also without to remove the flowmeter, in the following way:

- 1 Use a 17 mm wrench **A** and a 14 mm wrench **B**, remove the outlet pipe from the flowmeter.
- 2 Use a 13 mm wrench **C** and a 14 mm wrench **D**, remove the fitting.
- 3 Use a 14 mm wrench **E** and a 13 mm wrench **F**, remove the not return valve.

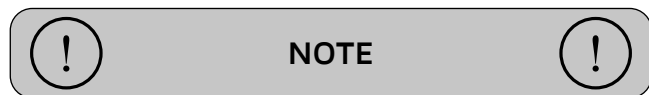


NOTE

We recommend changing the not return valve located down-stream of flowmeter at least once a year.



8.8 HOT WATER, E-STEAM AND E-MILK (OPTIONAL) WANDS



NOTE

E-Steam and **E-Milk** (optional) wands are “cool touch” type.

E-STEAM WAND

E-Steam is the electronic steam control. **Through to the new electronic knob, the E-Steam delivers precisely the right amount of steam continuously,** keeping up with demand at all times.

E-MILK WAND

The **E-Milk** technology enables **automatic milk frothing with up to nine customizable recipes,** requiring the operator to simply push a button for perfect foam without any training.

WHEN TO INTERVENE

In case of leaks or of low flow it can be necessary to dismantle the wand to replace O-rings, or the Teflon pipe, or to clean the water diffuser head

8.8.1 E-STEAM AND HOT WATER WAND DISMANTLING

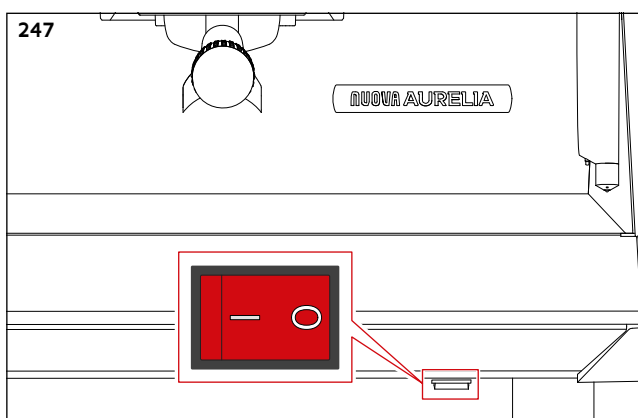
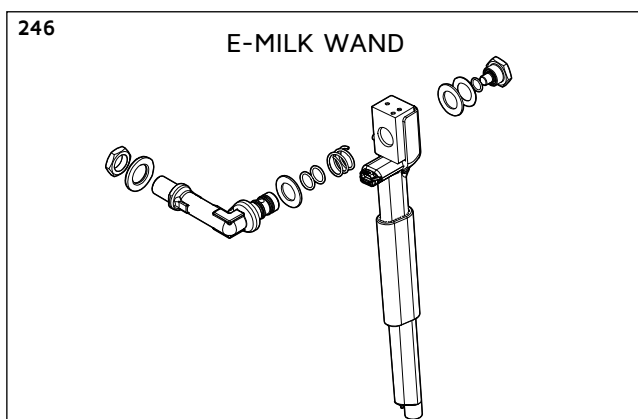
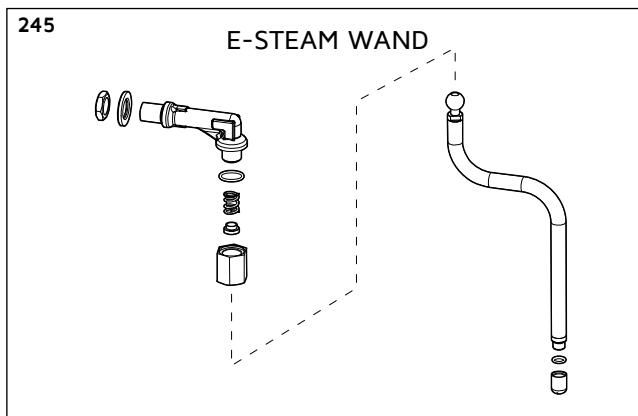


NOTE

The procedure to dismantle the hot water and the **E-Steam** wands, is basically the same.

Proceed as it follows.

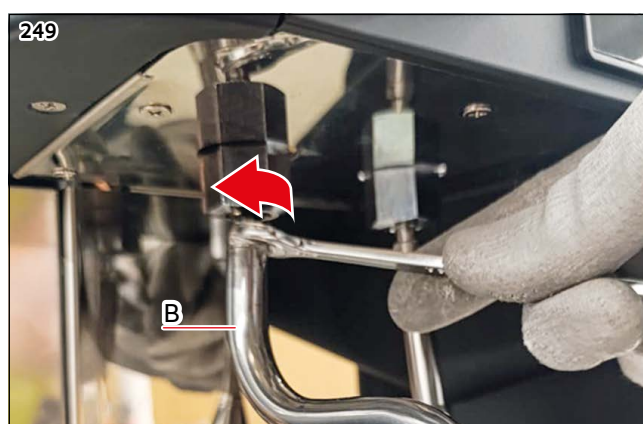
- 1 Turn the machine OFF.



- 2 Using pliers and cloth or paper to avoid damage, or simply by hand, unscrew the final part of the nozzle **A**.



- 3 Use a 9 mm wrench, block the upper part of the wand **B** and, by hand, unscrew the middle part of the nozzle.

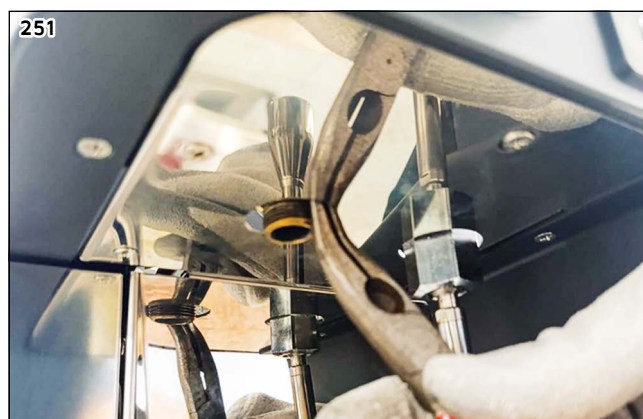


- 4 Use a 22 mm wrench to unscrew the copper pipe **C**.



- 5 With the help of pliers, remove the **E-Steam** wand gasket.

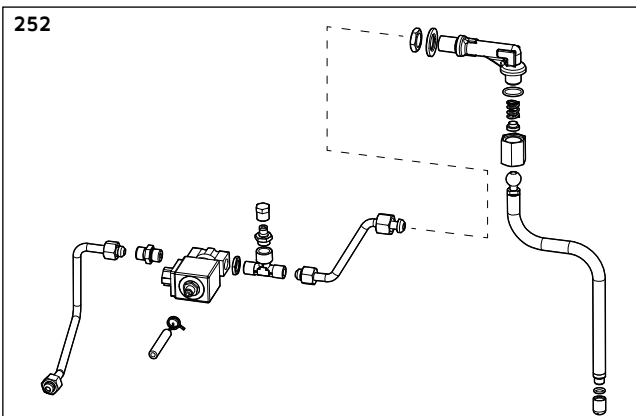
- 6 Once removed, it should be replaced with a new one.





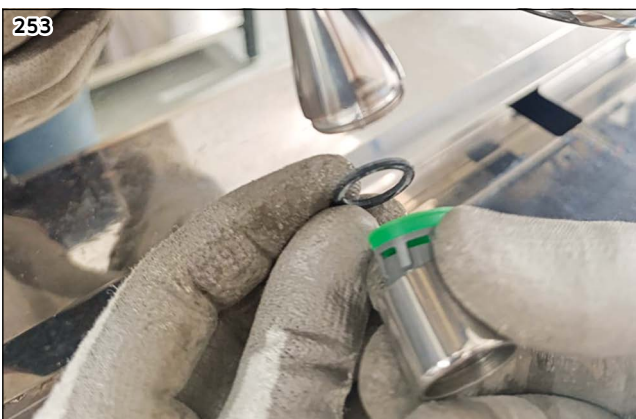
NOTE

The **E-Steam** wand is composed by many parts equipped with different O-rings and Teflon pipe. It can be needed to change O-rings in case of leaks and to change the Teflon pipe in case of low steam flow.



NOTE

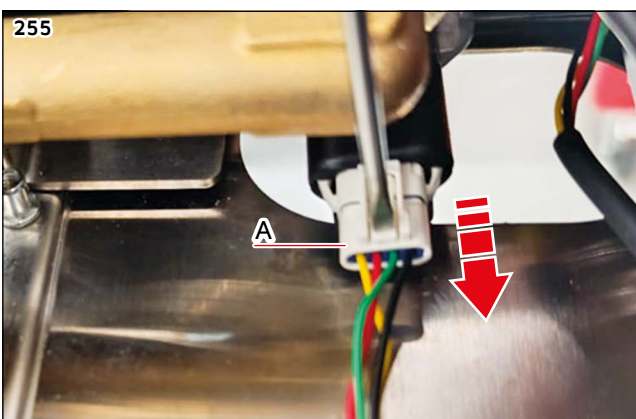
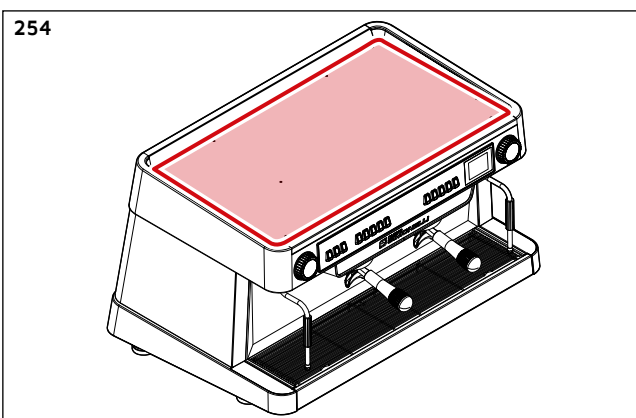
The final part of the hot water wand includes the water diffuser head. It can be needed to clean it if the water flow is not regular.



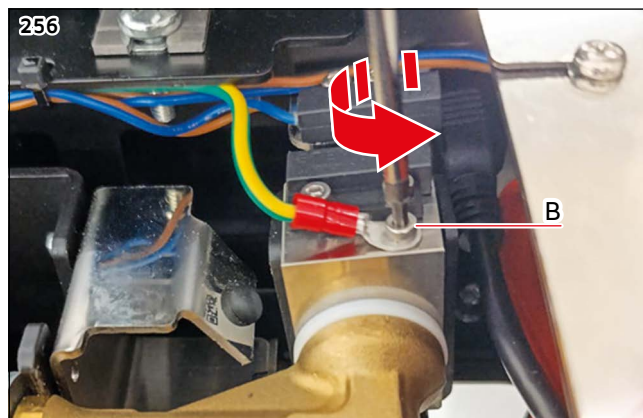
8.8.2 E-MILK (OPTIONAL) DISMANTLING

To access and dismantling the **E-Milk** wand (optional), it is necessary to:

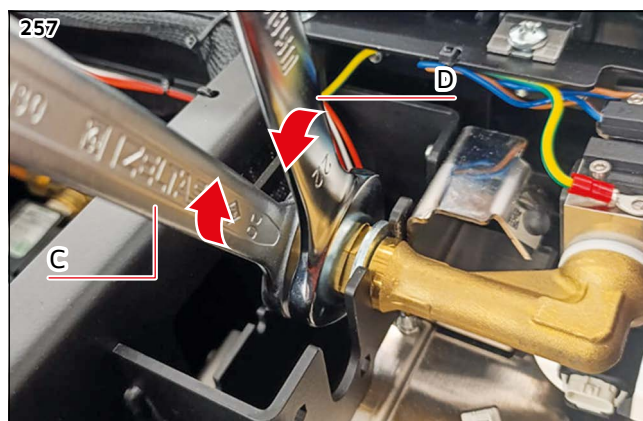
- 1 Remove the top cover as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Press down the center flap with the flat screwdriver and pull out the connector **A**.



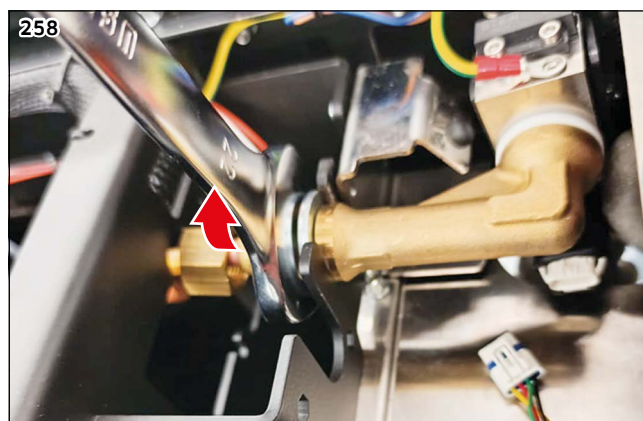
- 3 With a 3 mm Allen key, unscrew the grounding screw **B**.



- 4 Use a 20 mm wrench **C** and a 22 mm wrench **D**, remove the nut.

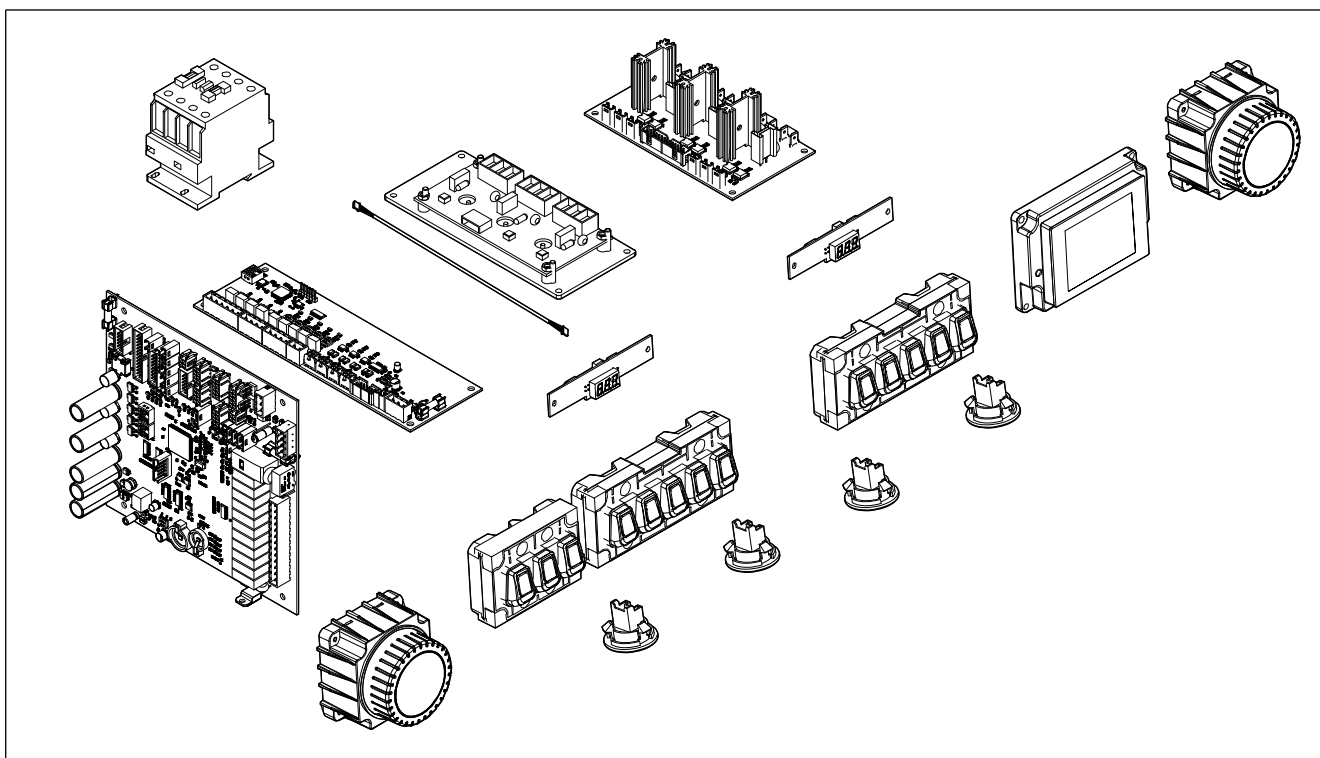


- 5 While holding the wand with one hand, use a 22 mm wrench to remove the nut.



- 6 Slide out from the top the **E-Milk** wand **E**.





SECTION INDEX

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DANGER



Before proceeding with the operations described in this Chapter, make sure that the machine is turned OFF and unplugged from the mains.

9.1 MAIN CONTROL UNIT

To access the main control unit, it is necessary to:

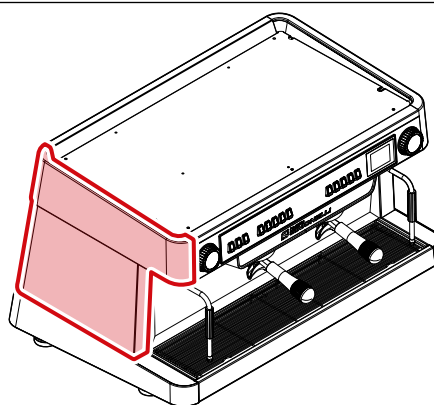
- 1 Remove the left side panel, as described in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Utilizing a Philips screwdriver, remove the screw and open the panel that blocks the control unit box.
- 3 Use a Philips screwdriver, loosen the two top and bottom screws and remove the cover.

260

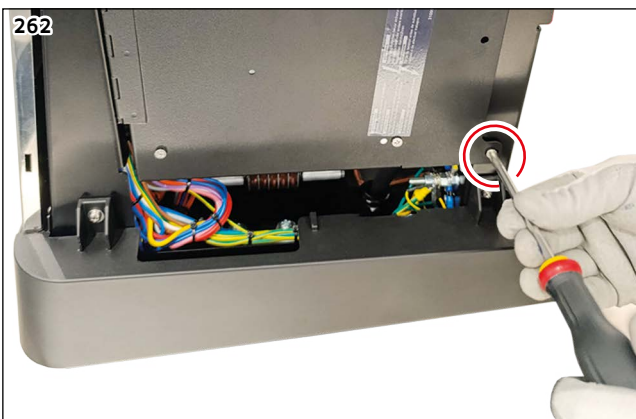


DANGER

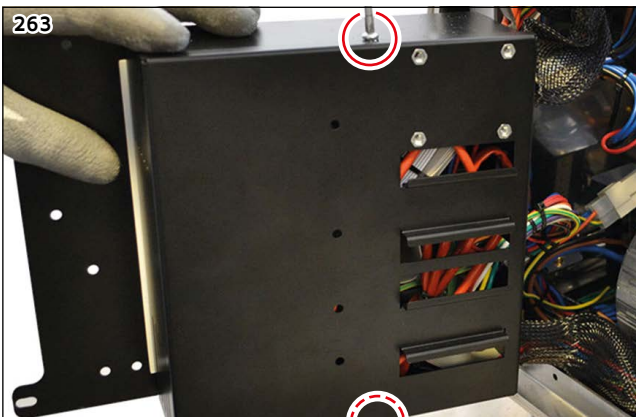
261



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- 4 The control unit without connections appears as shown in the figure.

FOCUS ON THE VARIOUS PARTS

Battery and fuses:

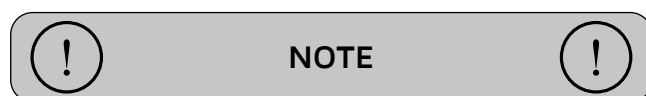
- F2** 2 Ampere fuse: low power IN (+24V) fuse.
- F1** 6.3 Ampere fuse: power IN (+220V) fuse.
- BT1** CR1225 3 Volt battery: to store date and time.

Connections on the right side are:

- 1** Connections to utilities (see following details).
- CN6** Water pressure transducer.
- CN5** Steam boiler pressure transducer.
- JTAG** JTAG connection.

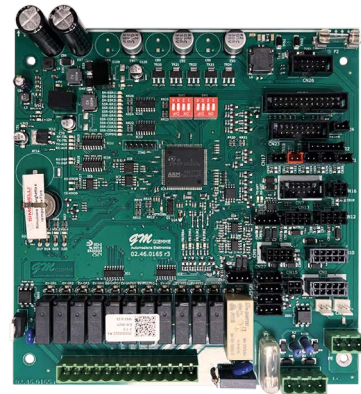
E-Steam, **E-Milk** and cup warmer temperature probes details.

- CN24** Cup warmer temperature probe.
- CN13** Right **E-Milk** temperature probe.
- CN12** Left **E-Steam** temperature probe.

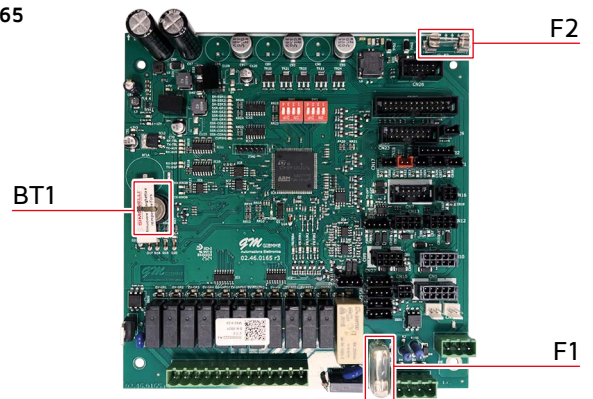


E-Steam, **E-Milk** and cup warmer are optional.
E-Milk or **E-Steam** cabling is present only in that case. Cup warmer cabling is always present.

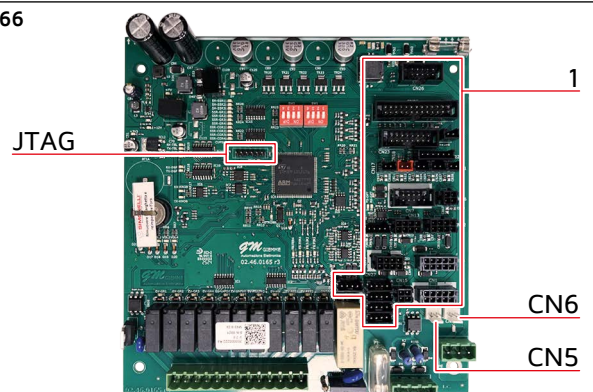
264



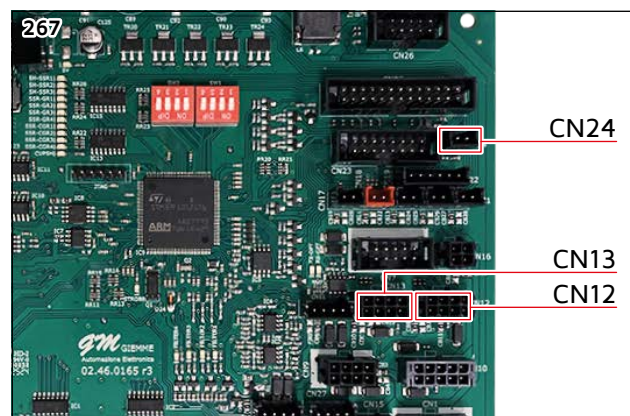
265



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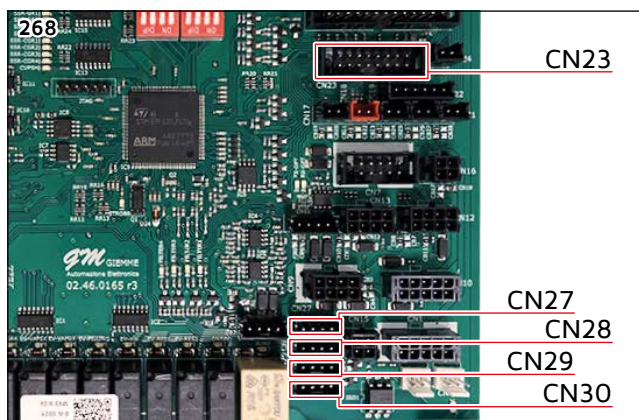


267



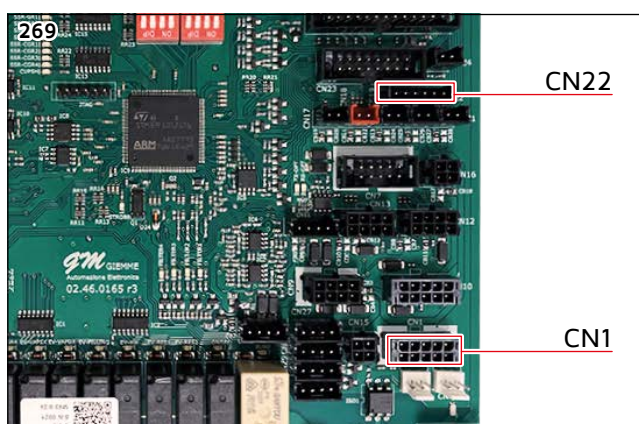
Group boards and portafilter presence sensor details:

- CN23** Groups service boards flat cable.
- CN27** Group 1 portafilter presence sensors.
- CN28** Group 2 portafilter presence sensors.
- CN29** Group 3 portafilter presence sensors.
- CN30** Group 4 portafilter presence sensors.



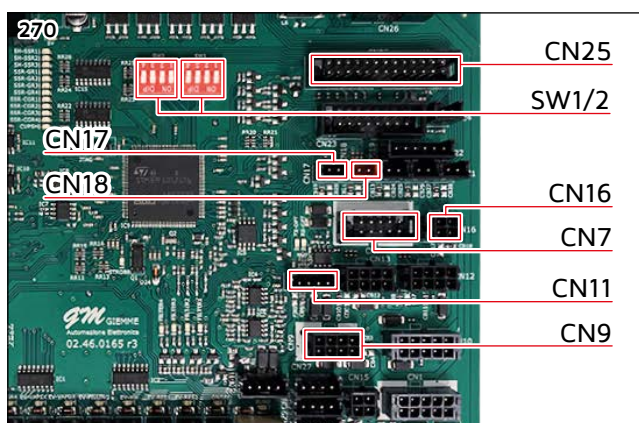
Flowmeters, boiler level and static relay details:

- CN22** Boiler static relays.
- CN1** Flowmeters 1-2-3-4 and boiler level probe.



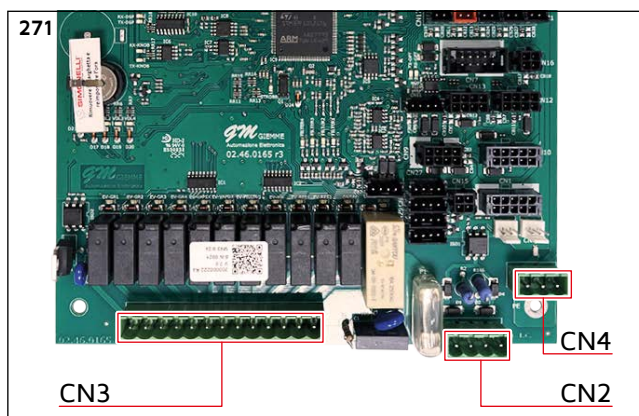
Power connections and led details:

- CN25** T3 card flat cable.
- SW1/2** DIP switch (used only by the Manufacturer).
- CN16** Group display power IN.
- CN7** Optional board RS485.
- CN11** RS232 connection cable.
- CN9** Main touch screen display power IN.
- CN18** Group led.
- CN17** Rear led.



Connections on the bottom are:

- CN4** Low power IN (+24V) from the transformer.
- CN2** Power IN (+230V) with bridge to the transformer.
- CN3** 13 pins green terminal (see following details).



13 pins green terminal details.

PIN	CONNECTION TO
1	Pump
2	Contactor
3	/
4	/
5	Hot water
6	Automatic fill valve
7	Right steam valve
8	Left steam valve
9	/
10	/
11	Group 2 coffee valve
12	Group 1 coffee valve
13	Ground connection

9.1.1 MAIN CONTROL UNIT LEDS

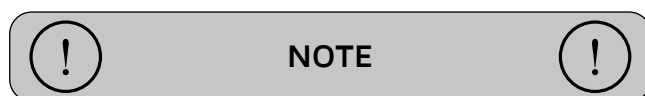
The control unit contains LEDs, useful to recognize the functioning of parts of the machine.

There is a writing next to each LED to indicate what it refers to.

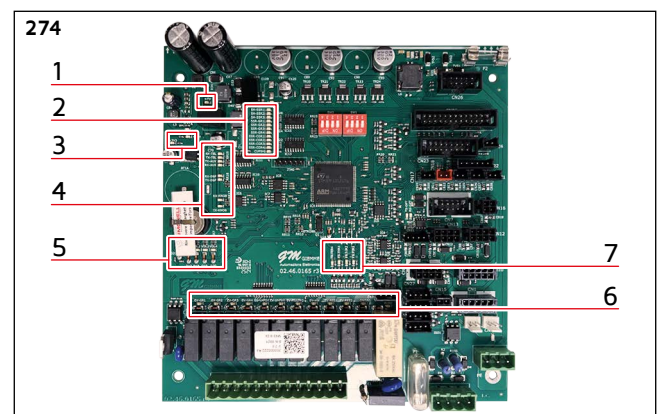
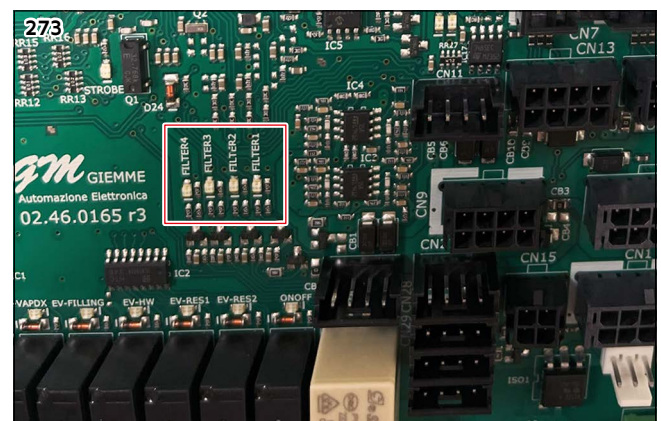
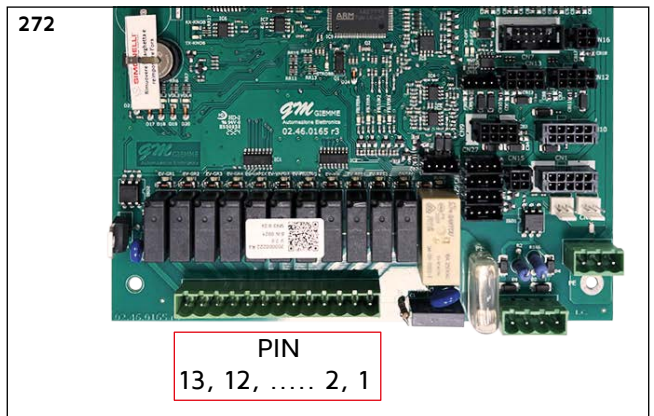
For example, the focus on the picture shows the writings **FILTER1**, **FILTER2**, **FILTER3**, and **FILTER4**, that indicate the portafilter presence sensor (if presents) of respectively group **1**, **2**, **3** and **4**.

Every LED can have a different meaning, based on the part it refers to.

It can mean for example: that function is fine, or the control unit is turning ON that part, or the control unit is receiving signal from that part.



The LED's labels and function are explain in the next page.



The most useful LEDs are:

REFERENCE ON THE IMAGE	WRITING NEXT TO LED	RELATIVE TO
1	+5V	Power supply +5V
	SH-SSR1	Static relay n.1
2	SH-SSR2	Static relay n.2
	SH-SSR3	Static relay n.3
	SSR-GR1	Group 1 heating element
	SSR-GR2	Group 2 heating element
	SSR-GR3	Group 3 heating element
	SSR-GR4	Group 4 heating element
	SSR-CGR1	
	SSR-CGR2	
	SSR-CGR3	
	SSR-CGR4	
	CUPSH	
3	+12V	Power supply +12V
	+3V3	Power supply +3.3V
4	RX-TEL	
	TX-TEL	
	TX-AUX	
	RX-AUX	
	RX-DSP	
	TX-DSP	
	RX-KNOB	
	TX-KNOB	
5	VOL1	Group 1 Flowmeter
	VOL2	Group 2 Flowmeter
	VOL3	Group 3 Flowmeter
	VOL4	Group 4 Flowmeter
6	EV-GR1	Group 1 dispensing solenoid valve
	EV-GR2	Group 2 dispensing solenoid valve
	EV-GR3	Group 3 dispensing solenoid valve
	EV-GR4	Group 4 dispensing solenoid valve
	EV-VAPSX	Left steam wand solenoid valve
	EV-VAPDX	Right steam wand solenoid valve
	EV-FILLING	Automatic boiler filling solenoid valve
	EV-HW	Hot water wand solenoid valve
	EV-RES1	
	EV-RES2	
	ON/OFF	Main control unit ON or OFF
	PUMP	Pump functioning
7	FILTER1	Group 1 portafilter presence sensor
	FILTER2	Group 2 portafilter presence sensor
	FILTER3	Group 3 portafilter presence sensor
	FILTER4	Group 4 portafilter presence sensor

9.1.2 MAIN CONTROL UNIT DIP SWITCH CONFIGURATIONS

KEYBOARDS GROUPS 5 KEYS

DIP	1	2	3	4	5	6	7	8
1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
3	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
4	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON

KEYBOARDS HOT WATER

DIP	1	2
HOT WATER	ON	OFF

DISPLAY GROUPS

DIP	1	2
GR1	OFF	OFF
GR2	ON	OFF
GR3	OFF	ON
GR4	ON	ON

MAIN CONTROL UNIT - VOL/SEM

DIP	FUNCTION	ON	OFF	DEFAULT
1	Demo Mood	- It is not possible to handle power loads (resistors, contactors, pumps, etc.). - The machine does not provide for connection to the water supply, therefore EV should not be activated. - The machine must be forced to be in a ready to use condition for the "dry" demonstration of its functionality.	Standard	OFF
2	Knob	If presence of steam knob with display.	Standard Knob	OFF
3	Mode	Sem	Vol	OFF
4	Reset	All default parameters will be reset.	Standard	OFF

MAIN CONTROL UNIT - MP/XT

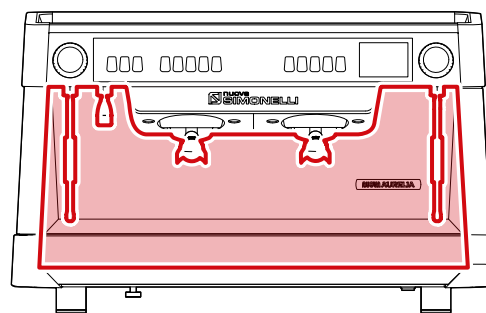
DIP	FUNCTION	ON	OFF	DEFAULT
1-1	Permanent Bootloader	This allows the memory to be reprogrammed in the event of loaded application firmware that cannot be restored. Useful in the case of failed CPU update.	Standard	OFF
1-2	Configuration	It is possible to configure the machine using the various combinations of operating modules by installing the necessary hardware components.	Standard	OFF
1-3	Demo Mood	- It is not possible to handle power loads (resistors, contactors, pumps, etc.). - The machine does not provide for connection to the water supply, therefore EV should not be activated. - The machine must be forced to be in a ready to use condition for the "dry" demonstration of its functionality.	Vol	OFF
1-4	Reset	All default parameters will be reset.	Standard	OFF
2-1	Filling group	The filling of the groups at each ignition.	Standard	OFF
2-2	Not used	/	/	/
2-3	Not used	/	/	/
2-4	Not used	/	/	/

9.2 OPTIONAL BOARD

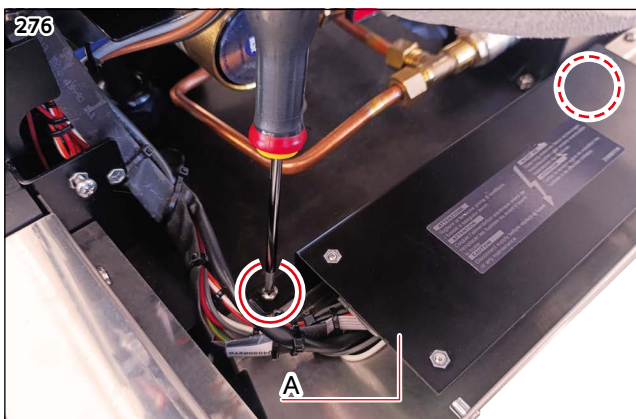
To access the optional board, it is necessary to:

- 1 Remove the lower front panel, the drip tray and the safety cover worktop, as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Using a Philips screwdriver, loosen the two fixing screws and rotate the bracket **A** to access the optional board.
- 3 Disconnect the electrical wires and using a 2,5 mm Allen key, remove the four fixing screw to free totally the optional board **B**.
- 4 The optional board without connections appears as shown in the figure.

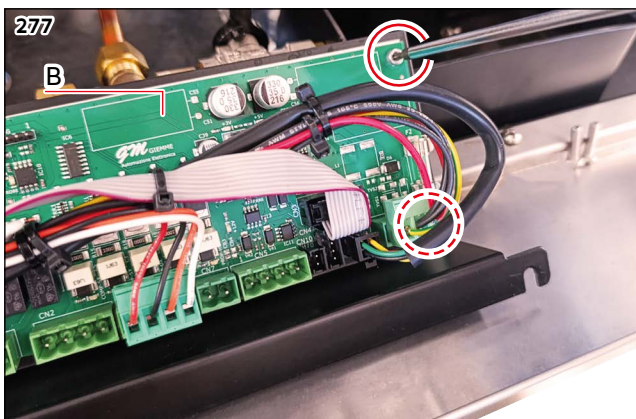
275



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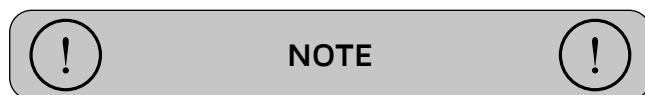
FOCUS ON THE VARIOUS PARTS

- SW1** Dip switch to configure the board.
- CN1** PULSE-JET valve for group 1-2-3-4.
- CN2** Left air compressor valve.
- CN6** Right air compressor valve.
- CN7** Hot water valve.
- CN5** E-Milk PRO RS485 gateway.
- CN16** C-Automation RS485 gateway.
- CN3** Main board RS485 gateway.
- CN10** Thermocouple type K.
- CN11** 24 V DC power IN.
- F2** 2 Ampere fuse: power IN (+24V) fuse.

As the main control unit, the optional board contains LEDs, useful to recognize the functioning of the parts. There is a writing next to each LED to indicate what it refers to.

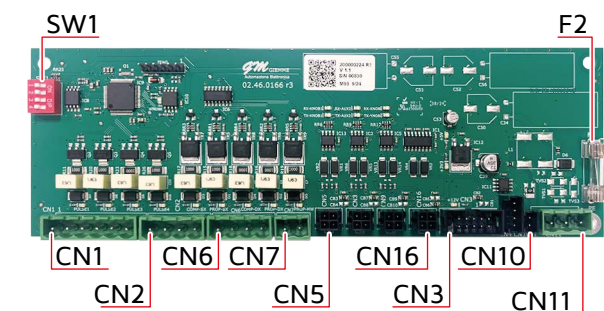
Every LED can have a different meaning, based on the part it refers to.

It can mean for example: that function is fine, or the control unit is turning ON that part, or the control unit is receiving signal from that part.

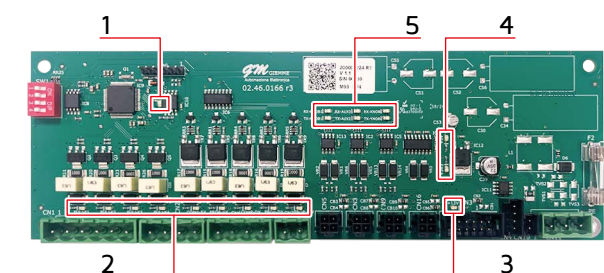


The LED's labels and function are explain in follow table.

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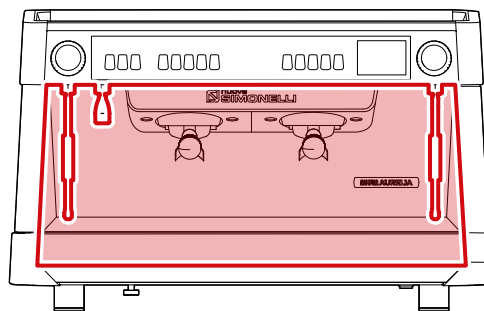
REFERENCE ON THE IMAGE	WRITING NEXT TO LED	RELATIVE TO
1	STROBE	
2	PULSE1	PULSE-JET valve 1
	PULSE2	PULSE-JET valve 2
	PULSE3	PULSE-JET valve 3
	PULSE4	PULSE-JET valve 4
	COMP-SX	
	PROP-SX	
	COMP-DX	
3	PROP-DX	
	PROP-HW	
4	+12V	Power supply +12V
5	+3V3	Power supply +3.3V
	+5V	Power supply +5V
5	RX-KNOB1	
	TX-KNOB1	
	RX-AUX2	
	TX-AUX2	
	RX-KNOB	
	TX-KNOB	

9.3 GATEWAY BOARD TELEMETRY AND C-AUTOMATION (OPTIONAL)

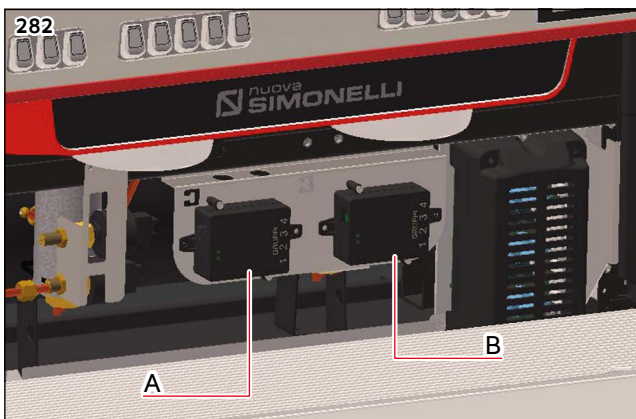
To access the optional board, it is necessary to:

- 1 Remove the group cover, the lower front panel, the drip tray and the safety cover worktop, as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Once removed the external surfaces, there are:
 - A Telemetry board, connected directly at the optional board.
 - B C-Automation board, connected at the optional board and, from the module, connected at the relevant portafilter sensors by numerated cables.
- 3 Remove the Gateway board cover **C** by unscrew the two indicated screws with a Philips screwdriver.
- 4 Slide out the cover to access the board **D**.

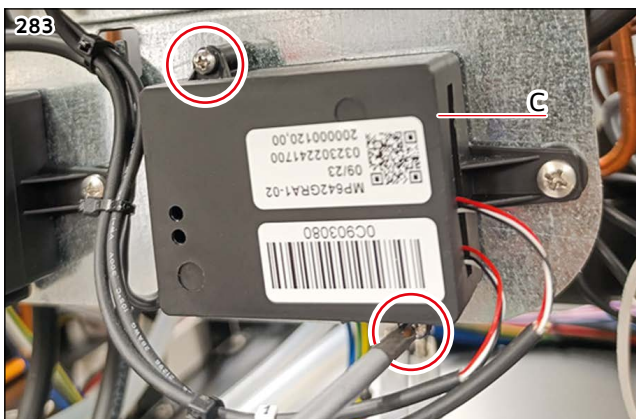
281



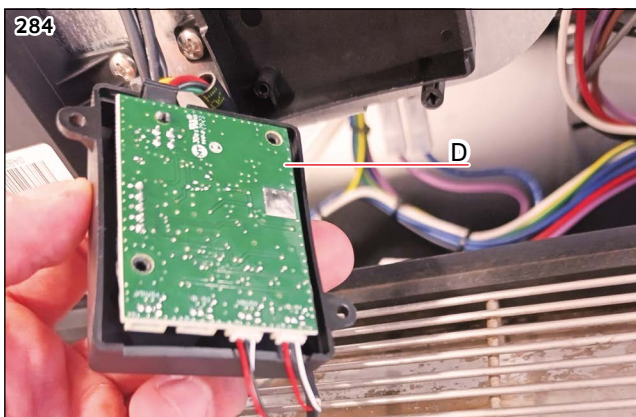
282



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9.4 PRESSURE TRANSDUCERS

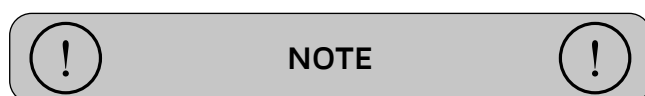
NUOVA AURELIA is equipped with two pressure transducers.

To access them, it is necessary to remove the group cover, the lower front panel and the drip tray as explained in Chapter "4 REMOVAL OF EXTERNAL SURFACE".

The upper pressure transducer reads the pressure of the water after the pump, shown on the touch screen as the left one **A**.

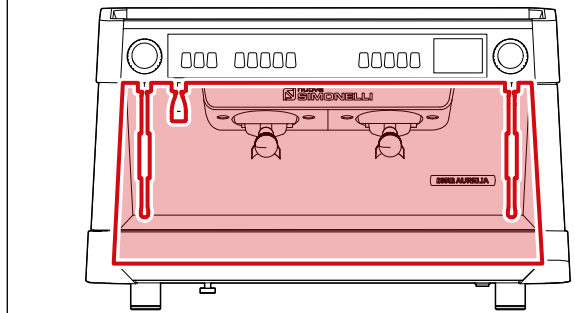
The lower one reads the steam boiler pressure, shown on the touch screen as the right one **B**.

Two different cables connect the two pressure transducers to the control unit.

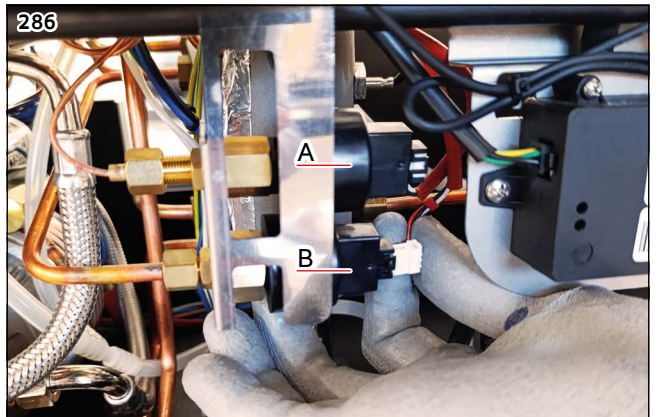


The cable of the steam boiler pressure transducer has a red label **C** to recognise it.

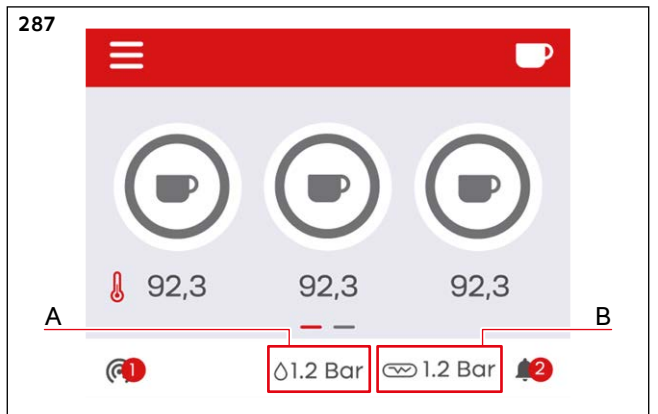
285



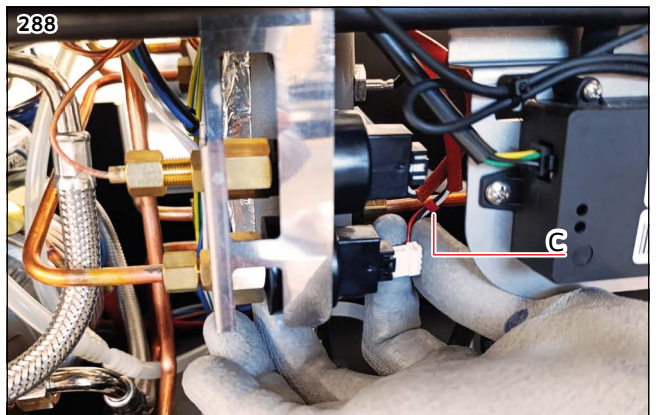
286



287



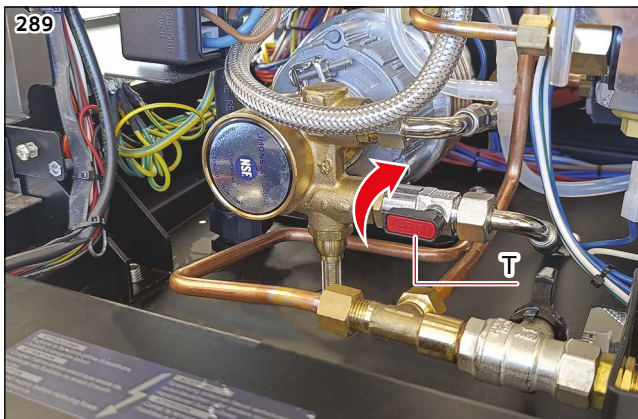
288



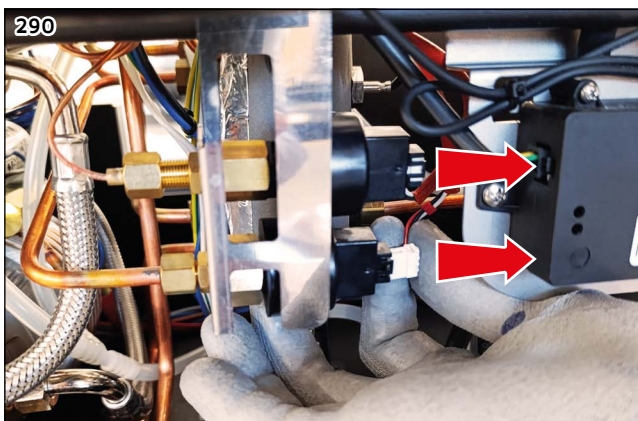
REPLACEMENT

If the pressure is unshown or certainly wrong, check the cabling or replace the proper pressure transducer, as it follows.

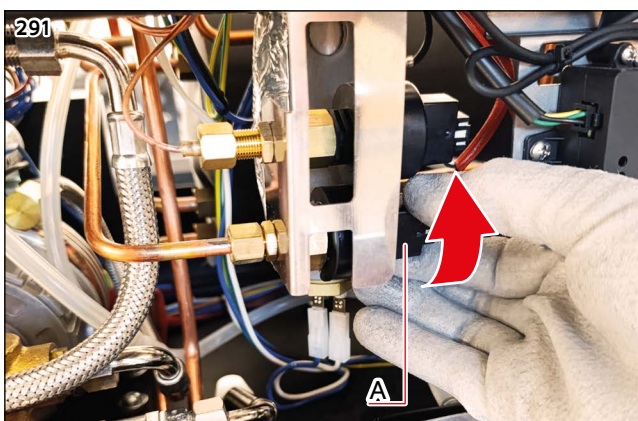
- 1 For the water pressure transducer, close the pump tap **T**. For the steam boiler pressure transducer, lower the steam boiler pressure by following the procedure described in the paragraph "**6.1 STEAM BOILER PURGE**".



- 2 Unplug the electrical connectors.



- 3 Unscrew and remove the pressure transducer **A** by hand.



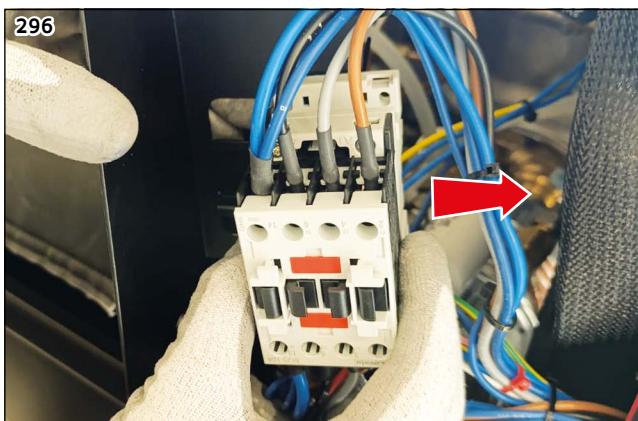
PROBLEMS

Normally, the contactor makes a characteristic noise when it closes the circuit, so if you cannot hear the typical noise, it is possible that the problem is upstream (level probe) or with the contactor itself.

REPLACEMENT

To replace the contactor, simply remove the element from the side and unplug all the cables with the help of a Philips screwdriver.

Insert the new contactor in the upper guide, pressing it into the lower guide until a click is heard.



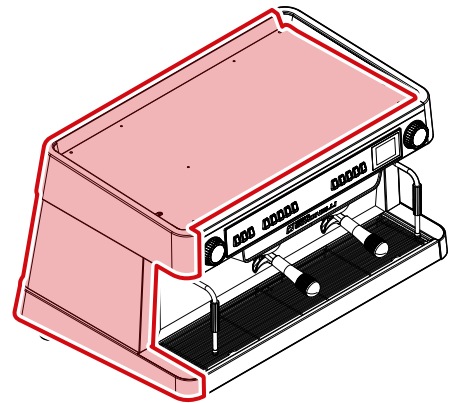
9.6 TRANSFORMER

The machine provides VDC to the control unit and to some components thanks to a transformer, not included in the control unit, but separated.

From the rear of the machine, it is possible to access the transformer, but not to remove it, so to facilitate the access to the transformer, remove the lower rear panel as follow:

- 1 Remove the left side panel, the lower left side panel, the rear panel and the top cover, as described in Chapter "**4 REMOVAL OF EXTERNAL SURFACE**".
- 2 Use a Philips screwdriver to unscrew the two external fixing screw.
- 3 Use a long Philips screwdriver to loosen the internal screw.
- 4 Slide out the lower rear panel **A**.

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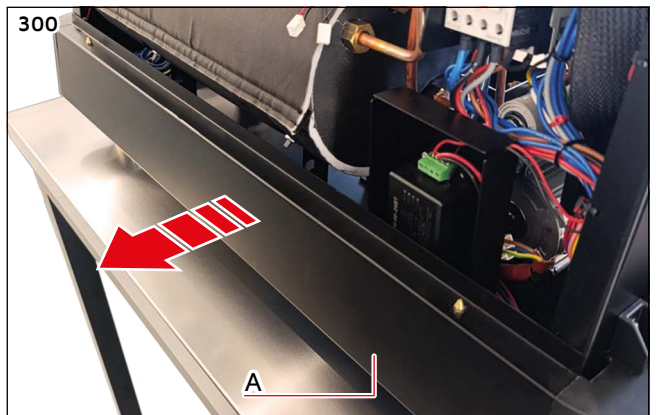
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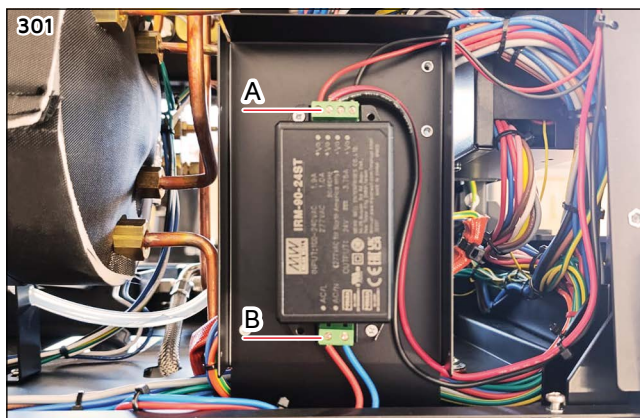
300



Once arrived at the transformer, looking at the connections, the visible parts are:

- A** Inputs 220V.
- B** Outputs 24 DC.

The outputs are connected to the control unit, as explained in paragraph **"9.1 MAIN CONTROL UNIT"**.



REPLACEMENT

If the outputs do not give +24V the transformer is broken.

In this case the control unit and the machine will appear completely OFF. To replace the transformer, proceed as it follows.

Use a Philips screwdriver, loosen the two screws, disconnect the electrical connections and slide out the transformer box.



9.7 TRIAC CARD

To access the TRIAC card:

- 1 Remove the right side panel, as described in Chapter **"4 REMOVAL OF EXTERNAL SURFACE"**.
- 2 It's placed between the front panel and the steam boiler, behind the T3 temperature control board.

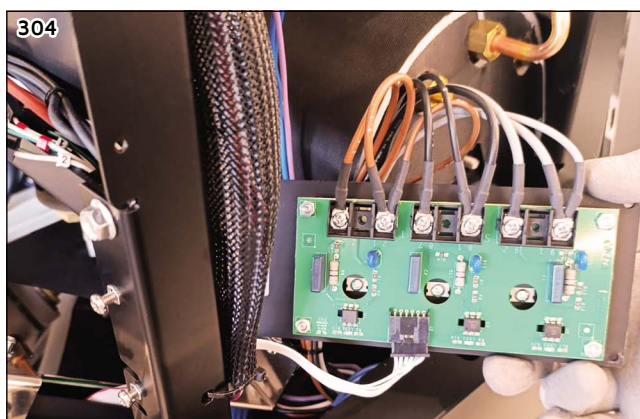
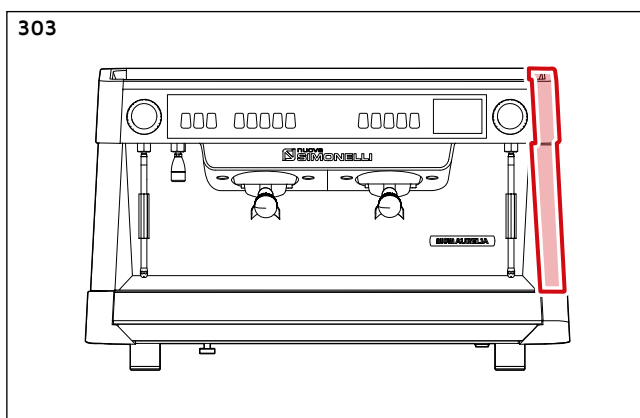
The TRIAC card control the heating element of the steam boiler.

They are activated when the pressure switch detects a pressure lower than that set.

Each TRIAC manages a different phase and the voltage availability is enabled by the contactor.

The switch ON / OFF command is piloted by the control unit.

The LEFT connections, LOAD, are those of the phases. The RIGHT ones, INPUT, are the commands of the TRIAC, and are connected to the control unit by a single connector.



The operation is checked by means of LEDs that light up in the heating phase of the machine.

To test, simply let out a lot of steam from a steam wand until the heating element starts again.

Optimum operation will be when impulses are spaced at varying intervals.

PROBLEMS

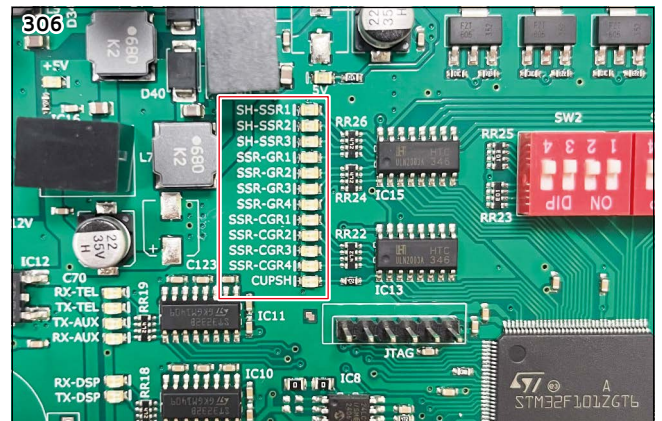
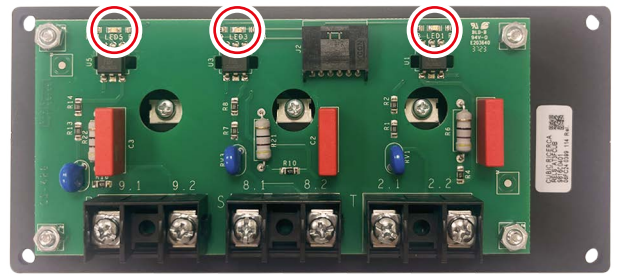
The TRIAC can be damaged in ON or OFF status, thereby giving high or low pressure in the steam boiler.

REPLACEMENT

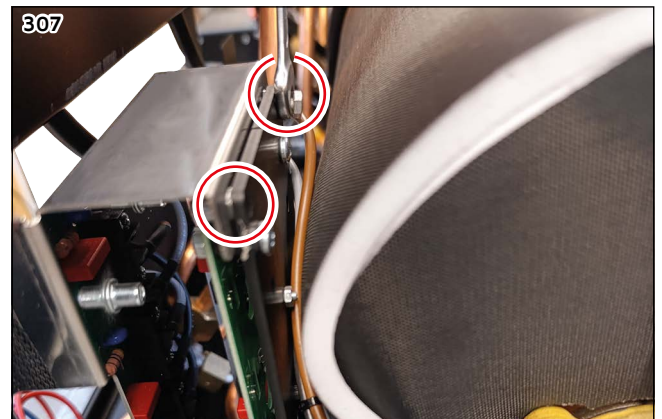
To replace the TRIAC card, proceed as it follows:

- 1 Use a 7 mm wrench to remove the two screws holding the plate.
- 2 Extract the TRIAC card from the machine and disconnect the electrical cables.

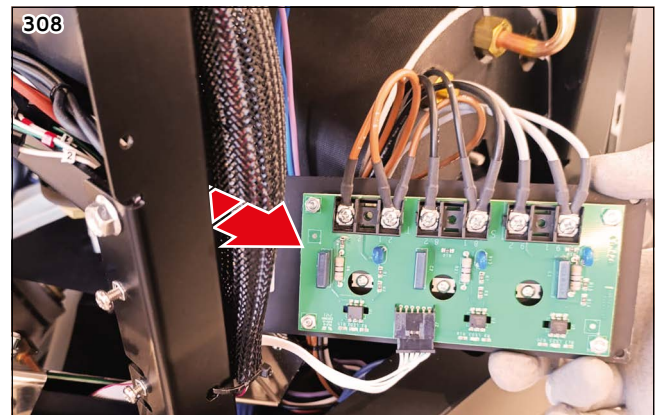
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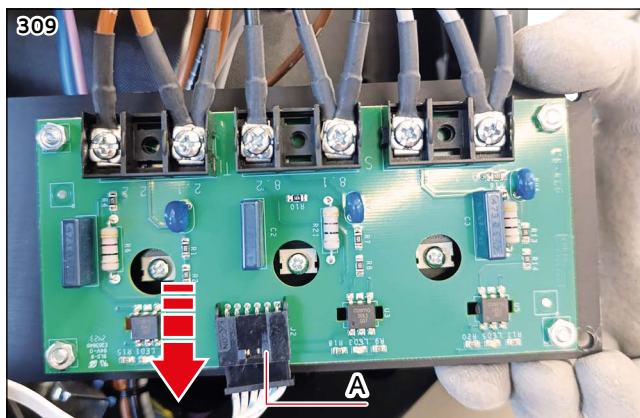
307



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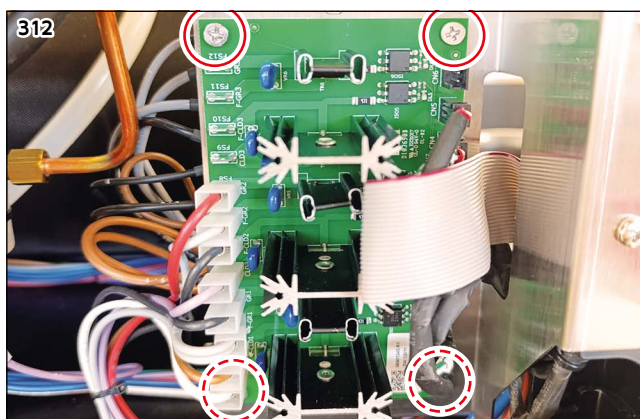
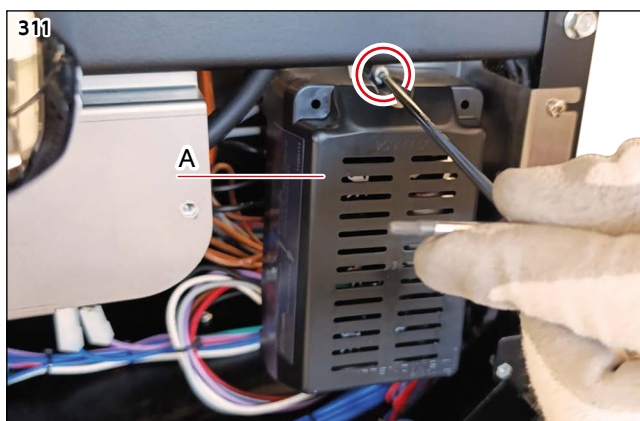
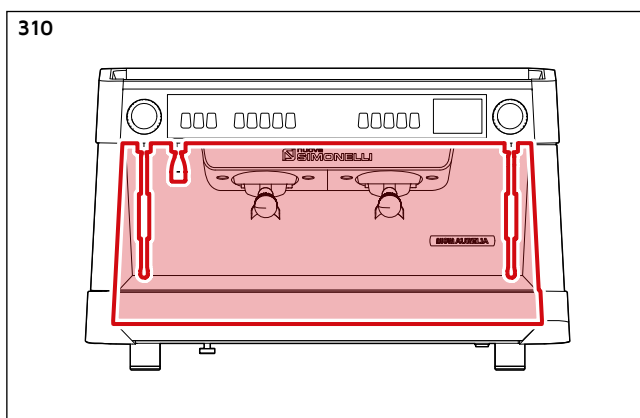
- 3 Unplug the connector **A** by hand and all the cables with the help of a Philips screwdriver.



9.8 TEMPERATURE CONTROL CARD (T3 CARD)

To access the T3 card:

- 1 Remove the group cover, the drip tray, the safety cover worktop and the swswswswswswswsw, as described in Chapter "4 REMOVAL OF EXTERNAL SURFACE".
- 2 Use a 3 mm Allen key, remove the screw and remove the T3 card cover **A**.
- 3 Using a Philips screwdriver, remove the four fixing screws and disconnect the electrical cables.



The T3 card is the interface between the coffee boilers, the groups and the control unit.

Looking at it, the visible parts are:

- A** The phases connections, incoming from the Static Relays, outgoing to heating elements of coffee boilers and groups.
- B** The TRIACs, to start and to stop the heating phase of each element.
- C** The LEDs, to show if the heating phase of each element is ON.
- D** The flat cable to control unit.
- E** The temperature probes to groups.

The T3 card receives data from the temperatures probes and transfers them to the control unit.

The control unit knows the temperatures set on the **Recipe** menu at the option **Group Temperature**.

Using the **MP** algorithm, it elaborates the incoming data from the T3 card and establishes if to turn ON each single element of the coffee boilers and of the groups.

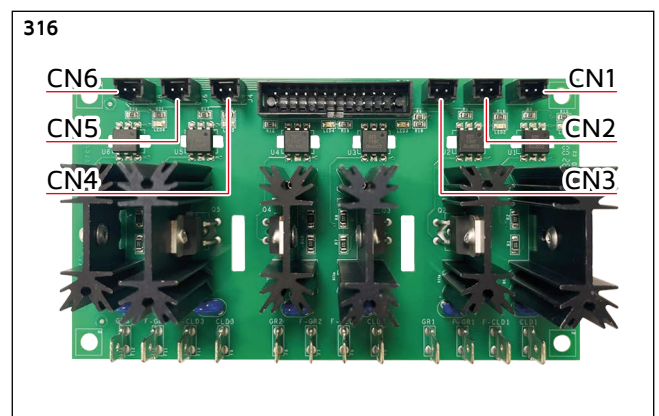
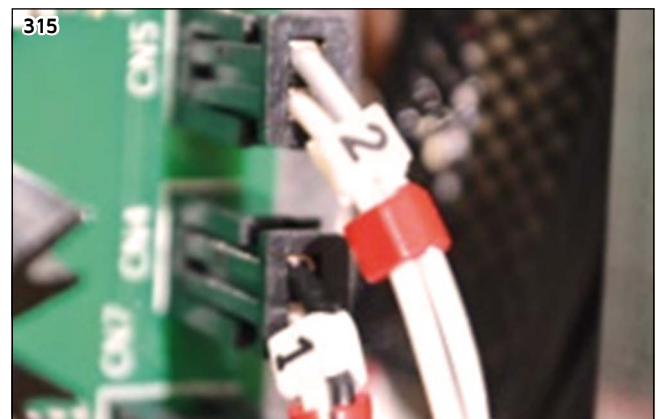
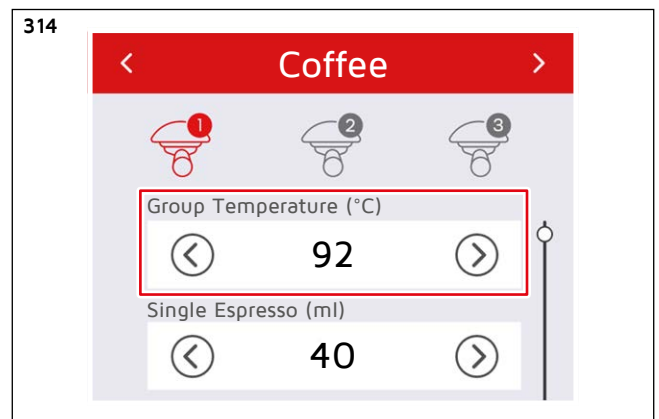
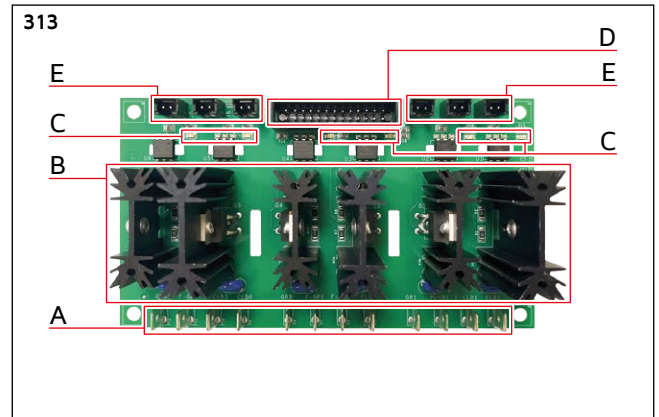
When a single element should be ON, the control unit enables the respective TRIAC on the T3 card, so that the phase reaches the heating element, and the respective LED on the T3 card lights up.

Each temperature probe has a label which identifies it. 1 or 2 or 3 identify coffee boiler and group number. Red or nothing identify respectively coffee boilers or groups.

For example, 2 and RED means coffee boiler 2.

Moreover, writings on the T3 card next to temperature probes connectors identify respectively:

- CN1** coffee group 1.
- CN2** coffee group 2.
- CN3** coffee group 3.
- CN4** coffee boiler 1.
- CN5** coffee boiler 2.
- CN6** coffee boiler 3.



On the other side of the card, writings next to phases connections identify each phase.



NOTE

GRx means group **x** and **CLDx** means coffee boiler **x**.
F means incoming phase.

For further information on electrical connections, follow electrical diagrams.

The LEDs are helpful to check the heating phase. Each LED corresponds with a heating element of the coffee boilers or of the groups. Optimum operation will be when impulses are spaced at varying intervals.

Writings near the LEDs identify respectively:

- DL1** coffee boiler 1.
- DL2** coffee group 1.
- DL3** coffee boiler 2.
- DL4** coffee group 2.
- DL5** coffee boiler 3.
- DL6** coffee group 3.

It is possible to verify LEDs on the control unit too.

The three groups' LEDs are labelled with **SSR-GRx**, while the three coffee boilers' LEDs are labelled with **SSR-CALD-GRx**.

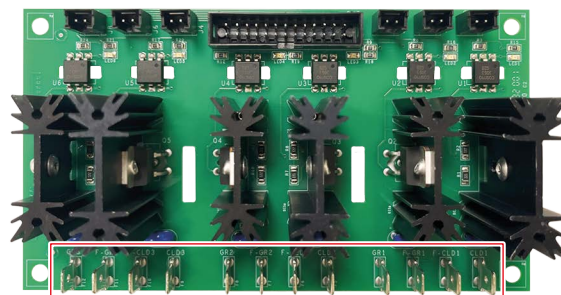
PROBLEMS

It is possible to check and understand if there are problems in the TRIACs or in the temperature probes or in the heating elements.

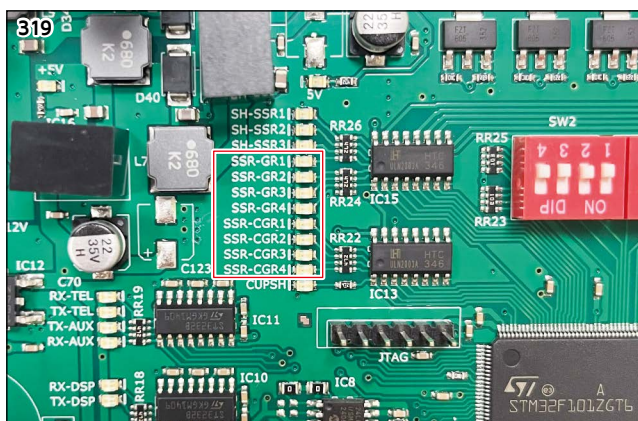
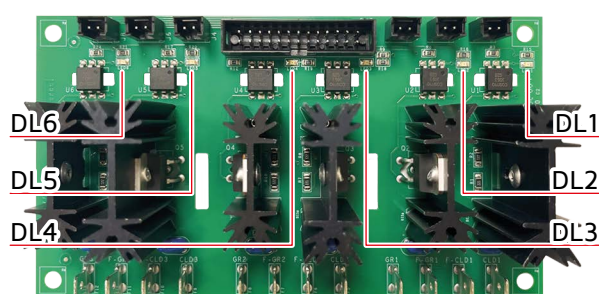
Example:

- 1 The probe does not read values, but the boiler / group is functioning: the problem is in the probe.
- 2 The TRIAC is energised but the corresponding heating element does not heat up: problems with the heating element or with its high-limit thermostat.
- 3 It is needed to rearm the high-limit thermostat of a heating element: the relative TRIAC is stuck in the ON state.

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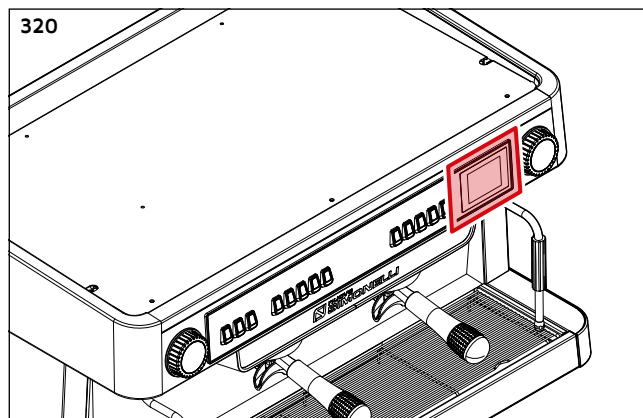
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9.9 TOUCH SCREEN DISPLAY

The touch screen display is installed in front of his electronic board.

To replace it, follow the procedure described in paragraph "**4.8.1 TOUCH SCREEN REMOVAL**" to remove the board.

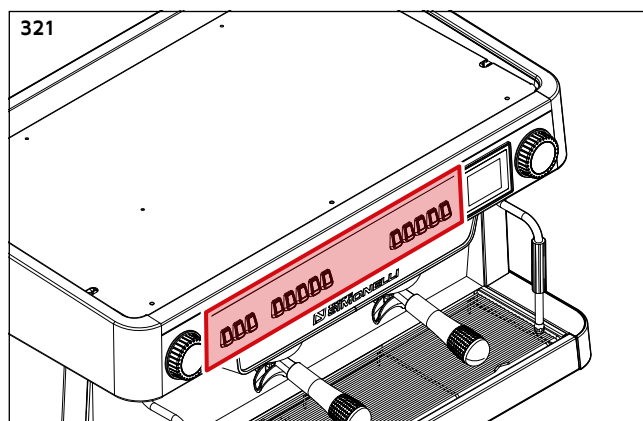


9.10 GROUP DISPLAY, GROUP BOARD AND SERVICE BOARD

Each group has its cover, where the service board is installed.

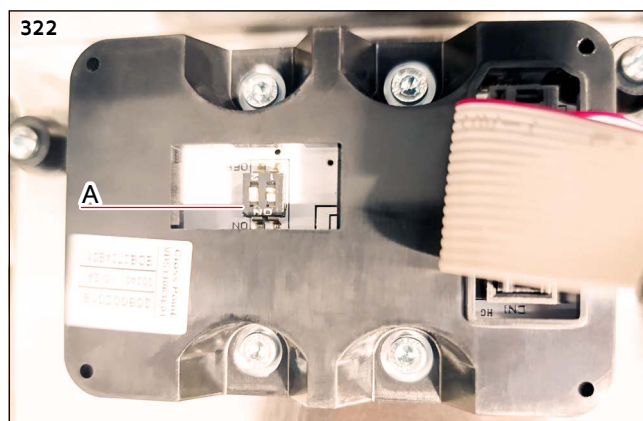
To access it, remove the group cover as described in paragraph "**4.8.2 GROUPS DISPLAY REMOVAL**".

E-Steam / E-Milk (left or right) and hot water (only left) must be connected to the proper group.



In accord with this information, each group must be configured and connected by its dip switch **A** as following table.

DIP	1	2
GROUP 1	OFF	OFF
GROUP 2	ON	OFF
GROUP 3	OFF	ON
GROUP 4	ON	ON

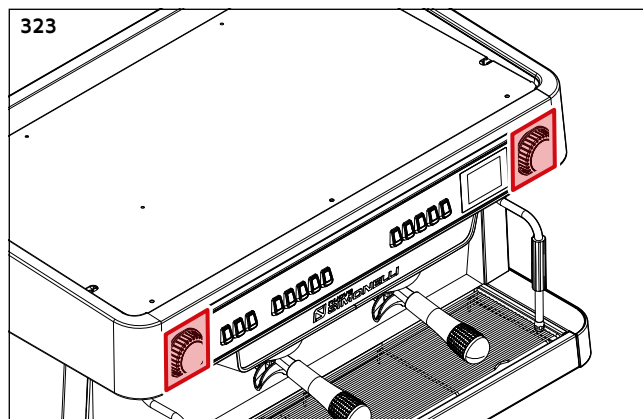


9.10.1 STEAM KNOB

Each steam wand (E-Milk or E-Steam), has its knob to start its service.

It is possible to push or rotate the knob, in accord with the programming.

If any knob is not working, check the cabling or replace it, as described in paragraph "**4.9 STEAM KNOB REMOVAL**".



9.11 LIGHTS (OPTIONAL)

NUOVA AURELIA can be equipped with lights: a LED on each side of the coffee groups and a LED bar on the back side of the machine.

9.11.1 GROUPS LED

All lights are connected with the same cabling in parallel to the control unit and their status can be managed in the programming, following the path:

MAIN MENU

↳ TECHNICAL SETTINGS

↳ INSERT PASSWORD

↳ KEYS AND DISPLAY

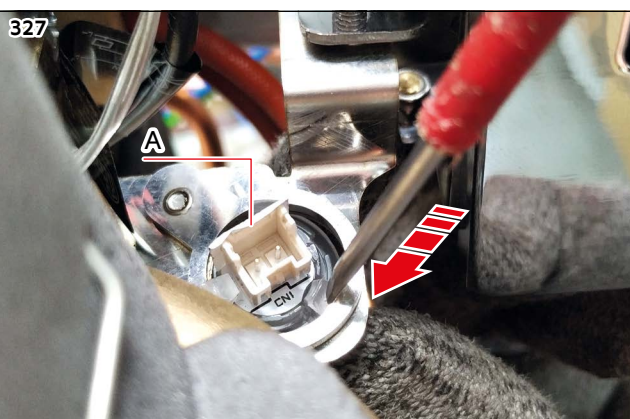
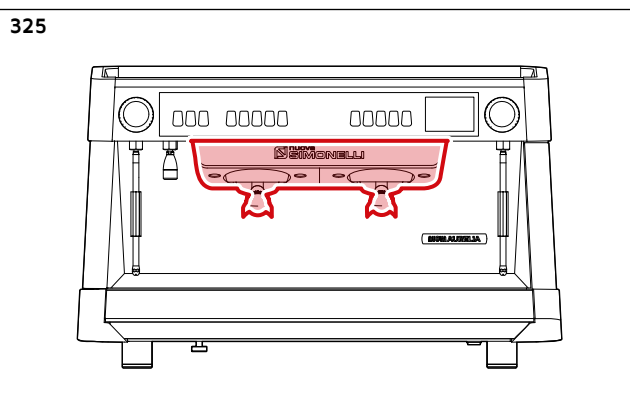
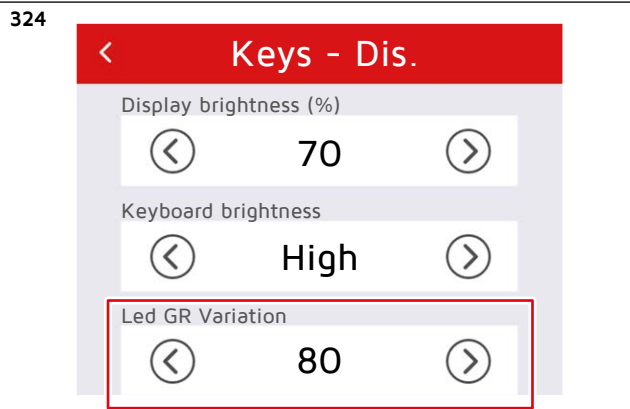
↳ Led GR Variation

In case of needs, to replace the groups LED, proceed as it follows:

- 1 Remove the group cover, as described in Chapter "4.4 GROUP COVER REMOVAL".

- 2 Use a pliers or by hand, disconnect the cabling.

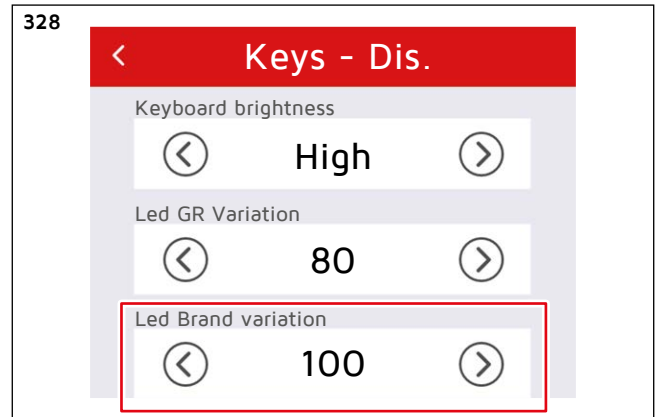
- 3 Use a small flat screwdriver, press the three little wings and push down the led **A**.



9.11.2 BACK PANEL LED

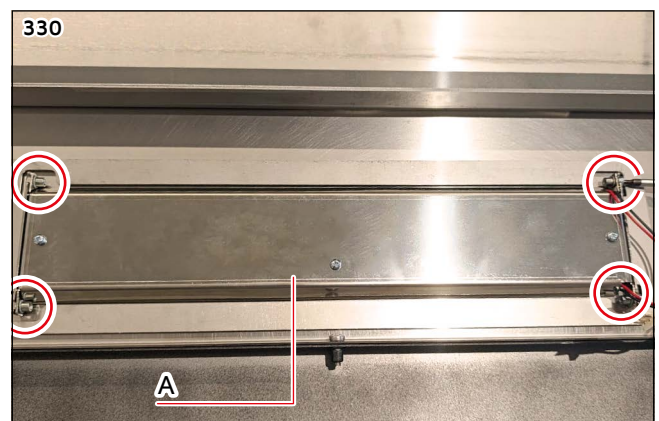
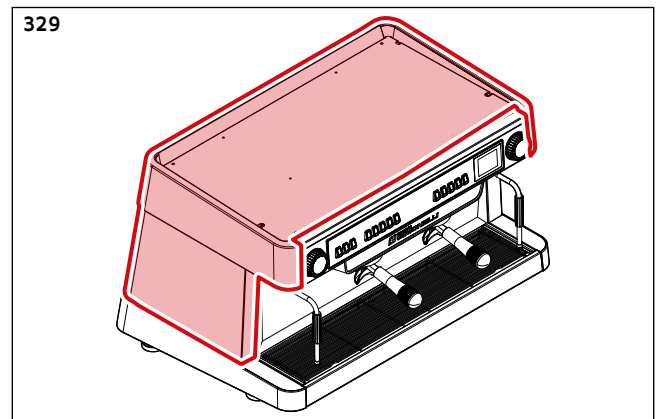
All lights are connected with the same cabling in parallel to the control unit and their status can be managed in the programming, following the path:

- MAIN MENU
 - ↳ TECHNICAL SETTINGS
 - ↳ INSERT PASSWORD
 - ↳ KEYS AND DISPLAY
 - ↳ Led Brand Variation



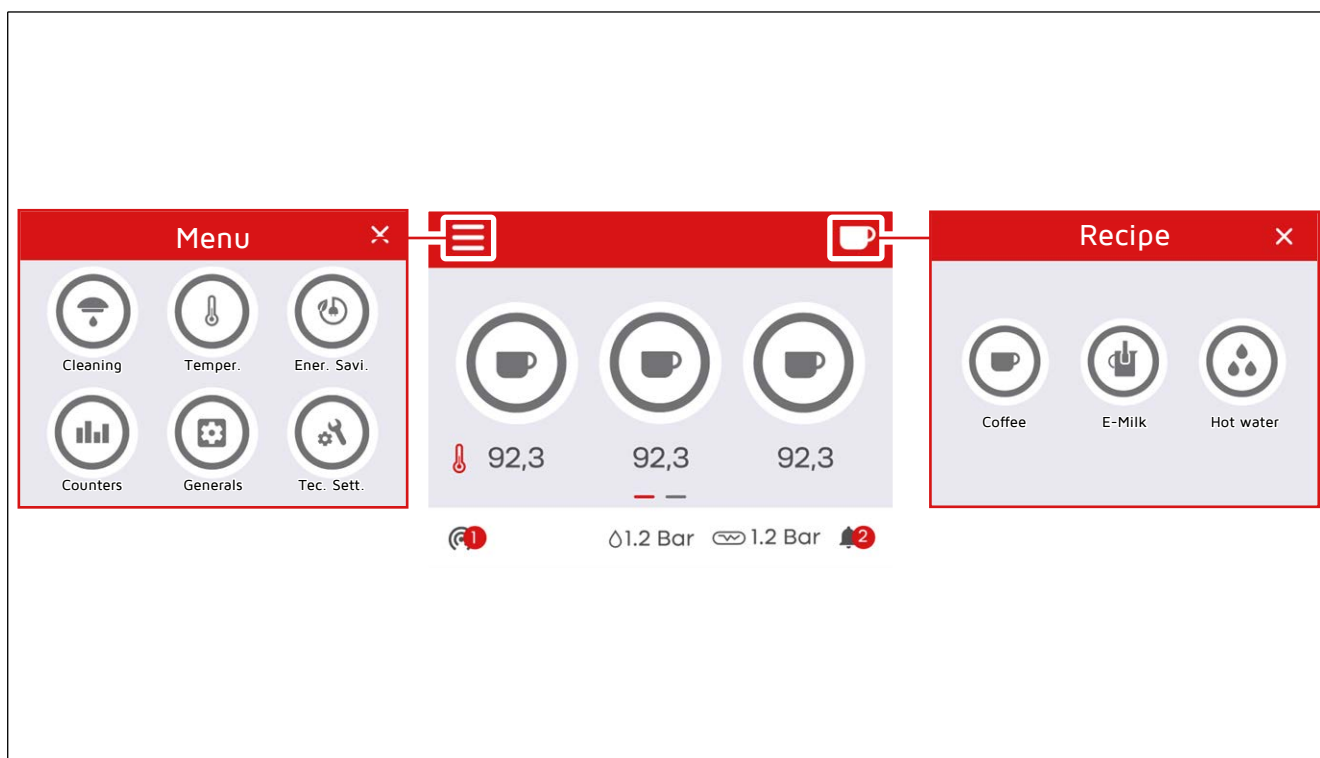
In case of needs, to replace the back panel LED, proceed as it follows:

- 1 Remove the rear panel, the top cover and side panels, as described in Chapter "**4 REMOVAL OF THE EXTERNAL SURFACE**".
- 2 Unscrew the four fixing screws using a 2,5 mm Allen key and remove the rear back panel led **A**.
- 3 The removed panel results as shown in picture.



10

BASIC PROGRAMMING



SECTION INDEX

10. BASIC PROGRAMMING	121
10.1 HOME PAGE	122
10.2 RECIPES MENU	122



NOTE



For more details about the machine programming, see the complete user manual.

To access the complete version of the **User Manual**, containing the entire description of the display and programming, scan the **QR Code**.



10.1 HOME PAGE

The **Home Page** displays:

- The status of the dispensing groups and the time during dispensing.
- The temperature of each group (versions **MP** or **UX**).
- The status of **C-Automation** (machine/grinder communication system - only visible if enabled for versions **MP**, **UX** or **V XT** up to a maximum of 3 grinders).
- The pressure of the inlet water supply.
- The pressure of the steam boiler.
- Any active alarms icon.



NOTE

Press on a group icon for 5 seconds to deactivate it. The group will have an icon.

It also allows access to:



Recipes menu.



Alarms menu (if alarms are active).



Grinder menu detected.



Main Menu.

10.2 RECIPES MENU

From the **Home Page**, press the button to access the **Recipes** menu.

Select a recipe type to access the relevant options:



Coffee recipes.

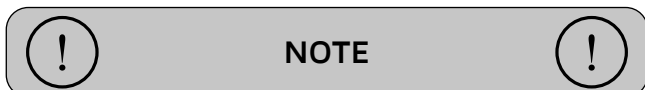


E-Milk recipes (milk – optional).



Hot water recipes.

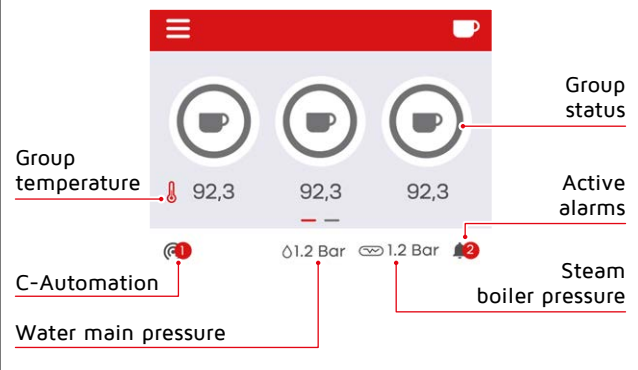
To return to the previous page, press .



NOTE

If the **E-Milk** steam wand is not present, the icon for milk recipes will not be visible.

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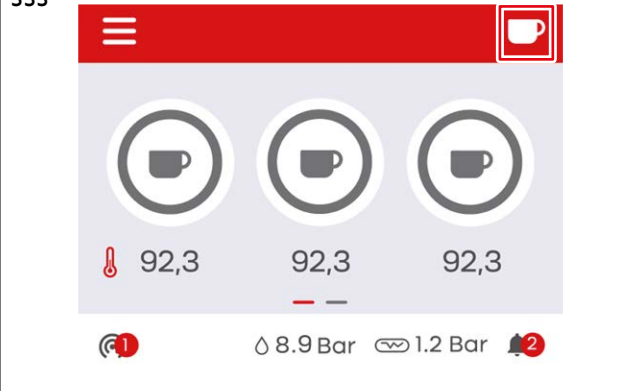


NOTE

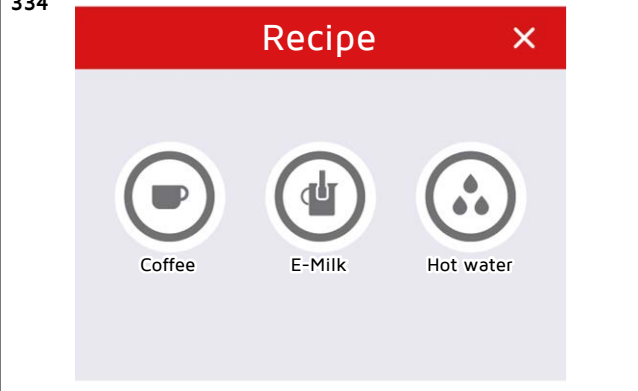
For the **V XT** version, only the inlet water supply pressure will be visible.

For **S XT** machine versions, only the pressures of the inlet water supply and boiler will be displayed.

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COFFEE RECIPES

From the **Recipes** menu, press the  button to access the coffee recipes management.

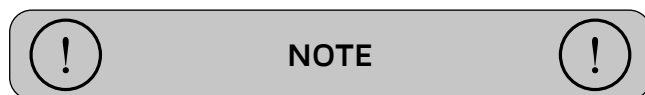
To return to the previous page, press .

The selected  recipe is highlighted in red.

To return to the previous page, press .

Press  to add a new recipe, and press  to modify an existing recipe.

To delete a recipe from the list, press ; the display will ask you to confirm the deletion.

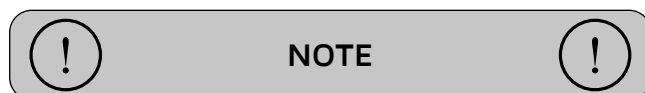


The Default recipe and the currently selected recipe cannot be deleted from the list.

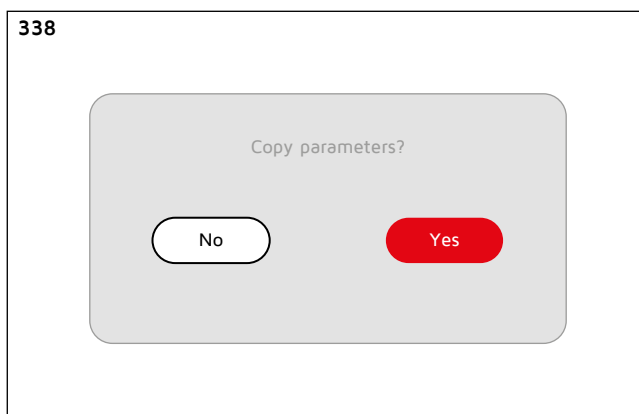
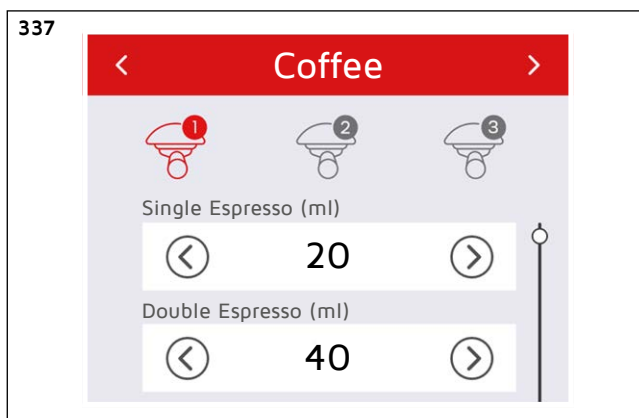
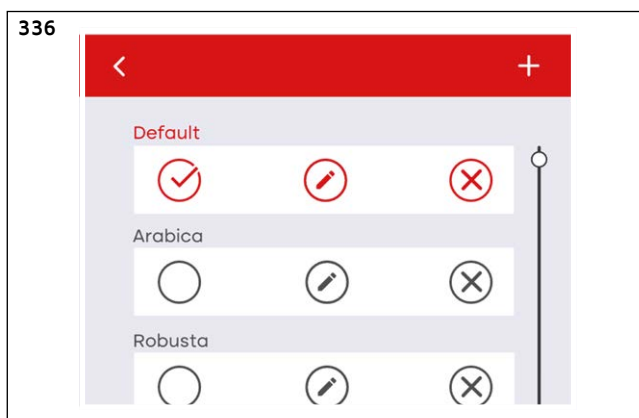
For each recipe, new or modified, it is possible to set the doses for the 4 dispensing buttons of each group.

Select group 1, 2 or 3 for which the recipe parameters are to be set by pressing its icon at the top.

To return to the previous page, press .

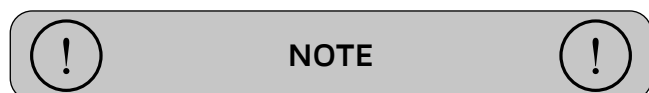


Whenever you switch from the first to the second or third group, you are asked whether to copy the recipe parameters from the first to the chosen group.



Modify parameter values with the   buttons.
The doses of the 4 dispensing buttons can also be programmed directly from the group:

- When the recipe parameter modification screen is visible on the display, insert the portafilter into the desired group.
- Press the dispensing button you wish to programme    .
- When the desired dose is reached, press the button again to stop dispensing.
- The dose dispensed will be saved in the recipe parameters.



For more details on the parameters, see the relevant Chapter "**13 DISPLAY PARAMETERS**".

After setting the parameters, press  to proceed to save the settings.

Using the alphanumeric keyboard, enter the name of the recipe that will appear in the list and press  to save, or press  to return to the previous page.

Before saving takes effect, confirmation will be requested.

In case of confirmation:

- If the recipe has been changed, the parameters will be updated.
- If the recipe is new, it will be added to the list of existing recipes.

If a recipe is created or edited and not saved, confirmation will be requested when exiting the settings.

If confirmed, all settings will not be saved and will be lost.

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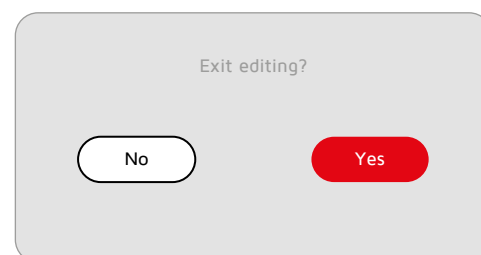
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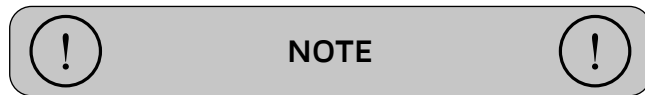
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MILK RECIPES (E-Milk - optional)



The milk recipe setting can only be accessed if the left or right **E-Milk** (optional) is activated.

From the **Recipes** menu, press the button to access the milk recipes management.

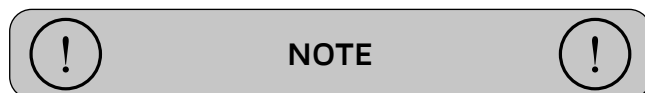
The selected recipe is highlighted in red and will be the one visible first on the steam knob or 10 seconds after another milk recipe has been dispensed. If no recipe is selected, the Default recipe will be displayed first on the steam knob.

To return to the previous page, press .

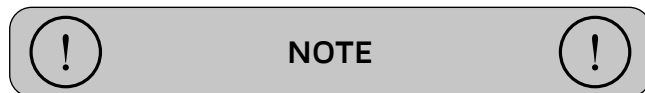
Press to add a new recipe, and press to modify an existing recipe.

Up to 9 recipes can be saved for each steam knob.

To delete a recipe from the list, press ; the display will ask you to confirm the deletion.

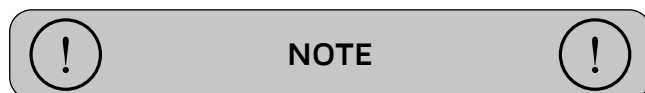


The Default recipe and the currently selected recipe cannot be deleted from the list.



If a recipe is deleted, the order of the recipes automatically changes.

Modify parameter values with the buttons.

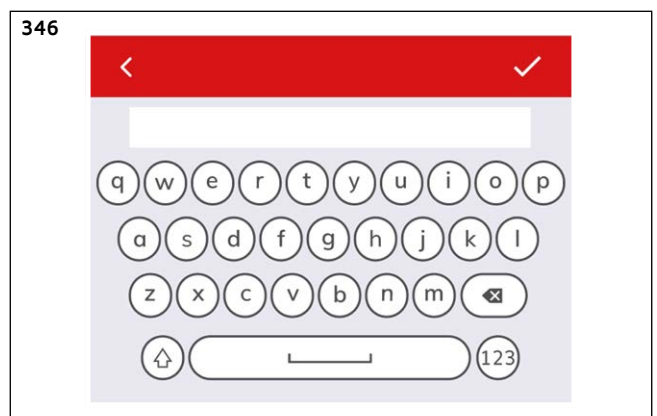
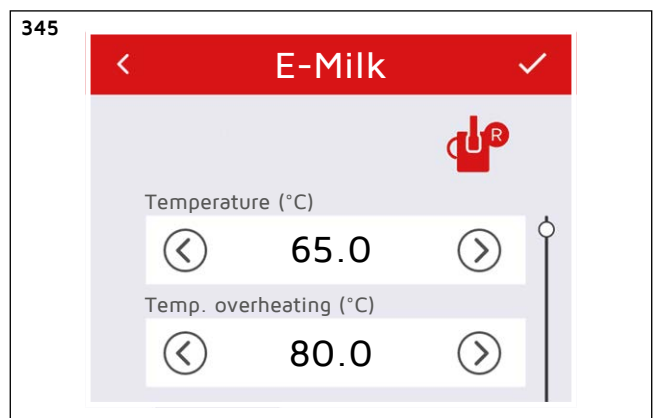
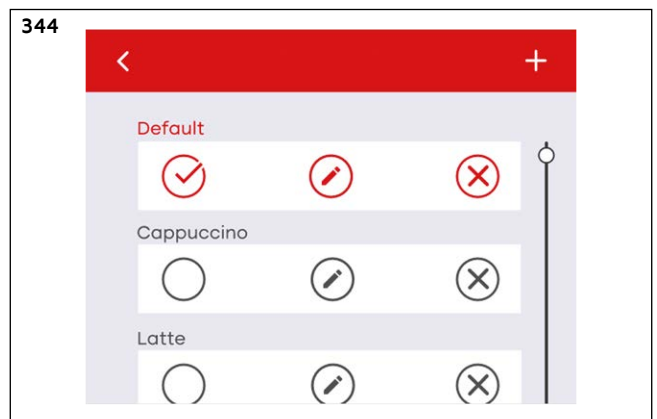
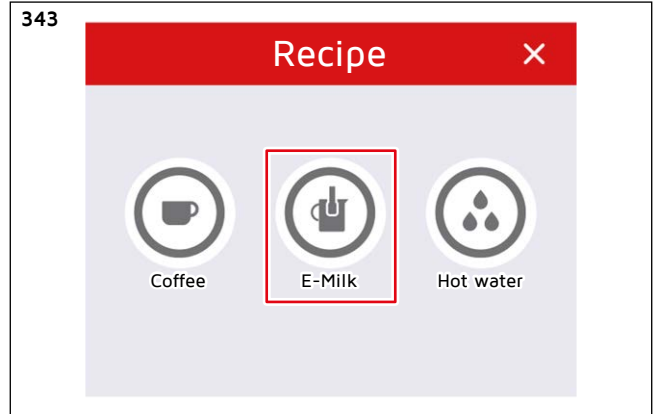


For more details on the parameters, see the relevant Chapter "**13 DISPLAY PARAMETERS**".

To return to the previous page, press .

After setting the parameters, press to proceed to save the settings.

Using the alphanumeric keyboard, enter the name of the recipe that will appear in the list and press to save, or press to return to the previous page.



Before saving takes effect, confirmation will be requested.

In case of confirmation:

- If the recipe has been changed, the parameters will be updated.
- If the recipe is new, it will be added to the list of existing recipes.

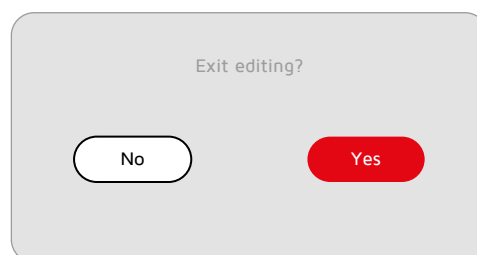
If a recipe is created or edited and not saved, confirmation will be requested when exiting the settings.

If confirmed, all settings will not be saved and will be lost.

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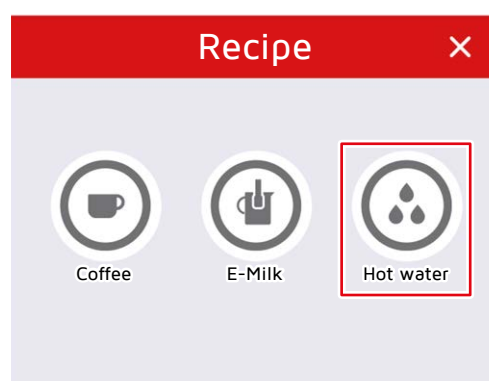
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HOT WATER RECIPES

From the **Recipes** menu, press the  button to access the hot water recipes management.

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This menu allows the parameters of the 3 doses of hot water to be set using the relevant buttons.

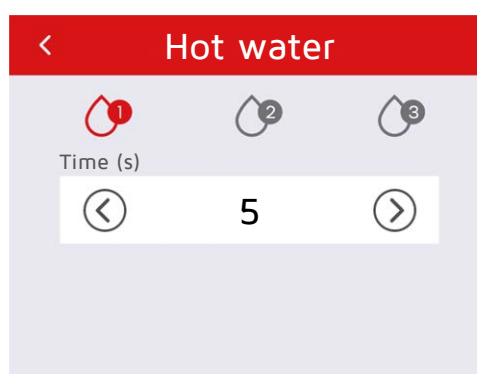
Select button 1, 2 or 3 to set the recipe parameters by pressing its icon at the top.

The red icon identifies the chosen key.

Modify parameter values with the   buttons.

To return to the previous page, press .

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SECTION INDEX

11. ALARMS AND CONTROL OF THE EMERGENCIES	127
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11.2 ALARMS AND SOLUTIONS.	129



NOTE



The Alarms list described in this chapter is based on firmware release 2.2.

The **NUOVA AURELIA** can alert the user with various “alarms” and “warnings” on the touch screen and by keypad signalling.

Below is a key to decoding the various alarms and signals.

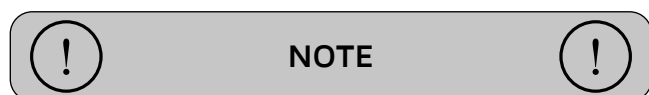
To follow the suggested solutions, if needed, refer to the relative chapters in this manual.

Please note that some alarms and warnings are significant only from certain firmware release on.

11.1 ALARMS MENU

In the **Home Page** the **Alarms Menu** icon is only visible if there is an error.

In this case, press  to access the **Alarms Menu**.



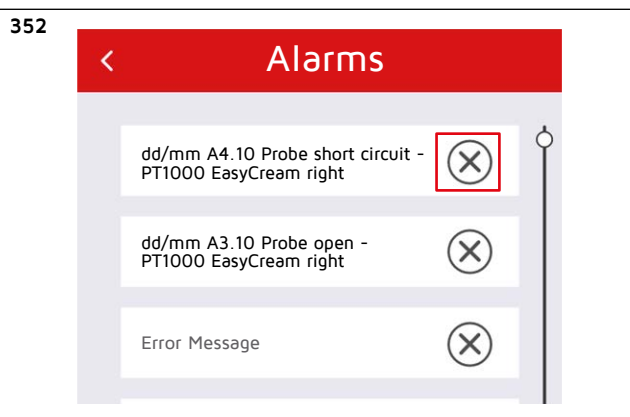
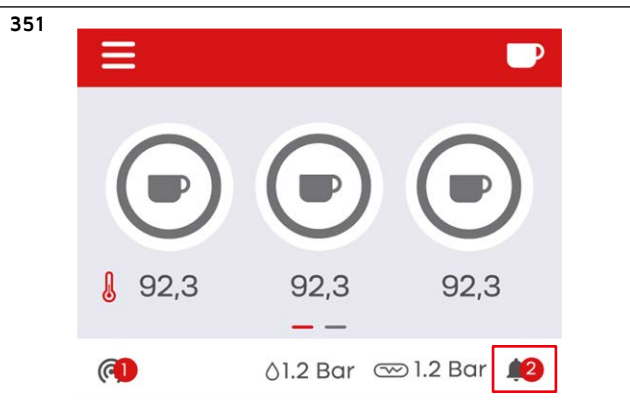
The number visible in the icon identifies the error present.

Access to the alarm list is possible even if no alarm is actually active.

To reset the alarms list, access the **Alarm History** menu:

MAIN MENU
↳ **TECHNICAL SETTINGS**
↳ **INSERT PASSWORD**
↳ **ALARM HISTORY**

Press  to delete an error line.



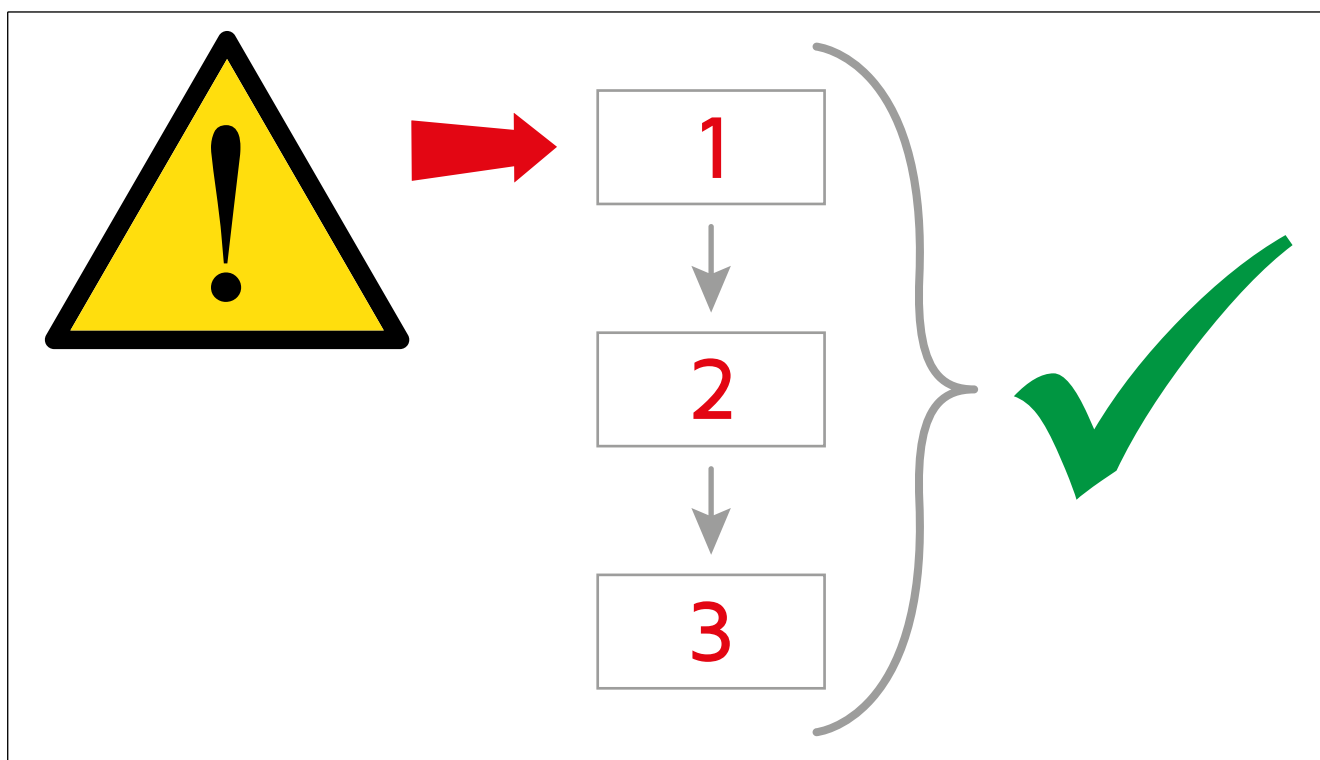
11.2 ALARMS AND SOLUTIONS

CODE	ALARM TYPE	SUB CODE	SOURCE ELEMENT	MAIN REASON	POSSIBLE SOLUTIONS
1	Filling Timeout	1	Services boiler	Filling alarm, it was not possible to fill the service boiler within the preset timeout.	Switch the machine OFF and ON to restart the automatic fill function. If not solved: • Check proper flow of inlet water from the mains or from the external tank. • Check the pump and the boiler filling valve manual Operations in the Diagnostic menu. • Check machine taps and potential leaks. • Check the level probe: the presence of limescale, the integrity of the plastic insulation and its sensitivity in the Configure CPU menu, can all effect the automatic fill function.
		2	Group 1		
		3	Group 2		
		4	Group 3		
		5	Group 4		
2	Heating Timeout	1	Services boiler	Heating alarm, it was not possible to reach the service boiler settled temperature within the preset timeout time.	In relation to the heating element of the steam boiler, cup warmer, coffee boiler X or of the group X: • Check the manual operation in the Diagnostic menu. • Check the thermo-fuse or high-limit thermostat continuity. • Check the heating element continuity and integrity. • Check the LEDs on the relative part: static relays and/or T3 card and/or control unit. • Check connections.
		2	Group 1 boiler		
		3	Group 2 boiler		
		4	Group 3 boiler		
		5	Group 4 boiler		
		6	Group 1		
		7	Group 2		
		8	Group 3		
		9	Group 4		
		10	Cup warmer		
3	Short Circuit Probe	1	Services boiler	Probe in short circuit alarm.	Check the steam boiler pressure transducer and its connection to the control unit.
		2	Group 1 boiler		Check the coffee group X boiler temperature probe and its connection to the T3 card.
		3	Group 2 boiler		
		4	Group 3 boiler		
		5	Group 4 boiler		
		6	Group 1		Check the group X temperature probe and its connection to the T3 card.
		7	Group 2		
		8	Group 3		
		9	Group 4		
		10	Cup warmer		
		11	Hot water		Check the cup warmer temperature probe and its connection to the control unit.
		12	Left E-Milk		Check the hot water temperature probe and its connection to the control unit.
		13	Right E-Milk		Check the Left E-Milk temperature probe and its connection to the optional board.
		14	Main pressure		Check the Right E-Milk temperature probe and its connection to the optional board.
					Check the main pressure probe and its connection to the control unit.

CODE	ALARM TYPE	SUB CODE	SOURCE ELEMENT	MAIN REASON	POSSIBLE SOLUTIONS
4	Open Circuit Probe	1	Services boiler	Probe open alarm (broken or disconnected).	Check the steam boiler pressure transducer and its connection to the control unit.
		2	Group 1 boiler		Check the coffee group X boiler temperature probe and its connection to the T3 card.
		3	Group 2 boiler		
		4	Group 3 boiler		
		5	Group 4 boiler		
		6	Group 1		Check the group X temperature probe and its connection to the T3 card.
		7	Group 2		
		8	Group 3		
		9	Group 4		
		10	Cup warmer		Check the cup warmer temperature probe and its connection to the control unit.
		11	Hot water		Check the hot water temperature probe and its connection to the control unit.
		12	Left E-Milk		Check the Left E-Milk temperature probe and its connection to the optional board.
		13	Right E-Milk		Check the Right E-Milk temperature probe and its connection to the optional board.
		14	Main pressure		Check the main pressure probe and its connection to the control unit.
5	Full Alarm History List	1	Alarm History	The alarm history list is full.	Delete some or all messages from the Alarm History list in the Technical Menu.
6	Area Data Loading	1	SW configuration	Data entry error	Contact technical support.
		2	Recipe		
		3	Alarm History		
		4	HW calibrations		
		5	Counters		
		6	Power Fail State		
		7	HW configuration		
7	Parameter Out of Range	1	SW configuration	Non-compliant parameters	Contact technical support.
		2	Recipe		
		3	Alarm History		
		4	HW calibration		
		5	Counters		
		6	Power Fail State		
		7	HW configuration		

CODE	ALARM TYPE	SUB CODE	SOURCE ELEMENT	MAIN REASON	POSSIBLE SOLUTIONS
8	Data Area Restored	1	SW configuration	Machine data errors	Contact technical support.
		2	Recipe		
		3	Alarm History		
		5	Counters		
		6	Power Fail State		
9	Volumetric sensor	2	Group 1	The control unit does not receive signals from the volumetric sensor.	Check the connection from the volumetric sensor to CPU. If don't connected correctly, connect and restart the machine. Check the volumetric sensor voltage. If there isn't a voltage replace volumetric sensor. Check for scale inside the gicleur or in the metal filter or volumetric dispenser and remove any limestone.
		3	Group 2		
		4	Group 3		
		5	Group 4		
	Data Area Modified	7	HW configuration	Machine data errors	Contact technical support.
10	External Board Communication	1	Optional Board	Error Communication.	This error may appear after another error has occurred or if the control unit does not communicate correctly with the touch screen. - Check the presence of another error in the Alarm History menu. - Check if the error disappears by switching the machine OFF and ON. - Check the connections of the cable between the control unit and the touch screen.
		2	Left E-Milk Knob		
		3	Right E-Milk Knob		
		4	Magnetic Portafilter reading device		
		5	X-tractor module		
11	Magnetic Portafilter reading device	1	System error	The Portafilter reading device does not work properly.	Check its manual functioning into the Diagnostic menu. If necessary, replace it.
		2	Bus Overload error		
		3	Power Supply Not Valid error		
		4	Device Sensor 5 error		
		5	Device Sensor 4 error		
		6	Device Sensor 3 error		
		7	Device Sensor 2 error		
		8	Device Sensor 1 error		
		9	System (Not Specified error)		
		10	Sensor 1 communication timeout		
		11	Sensor 2 communication timeout		
		12	Sensor 3 communication timeout		
		13	Sensor 4 communication timeout		
12	Monitoring of System	1	Backup Battery Discharge	Battery Discharged.	Change the CR1225 3 Volt battery on the control unit.
		2	Start Clock LSE	Control unit display is damaged.	Replace the control unit
		3	No power signal	220V power supply missing in control unit	Check the CN2 connector connection on the control unit.

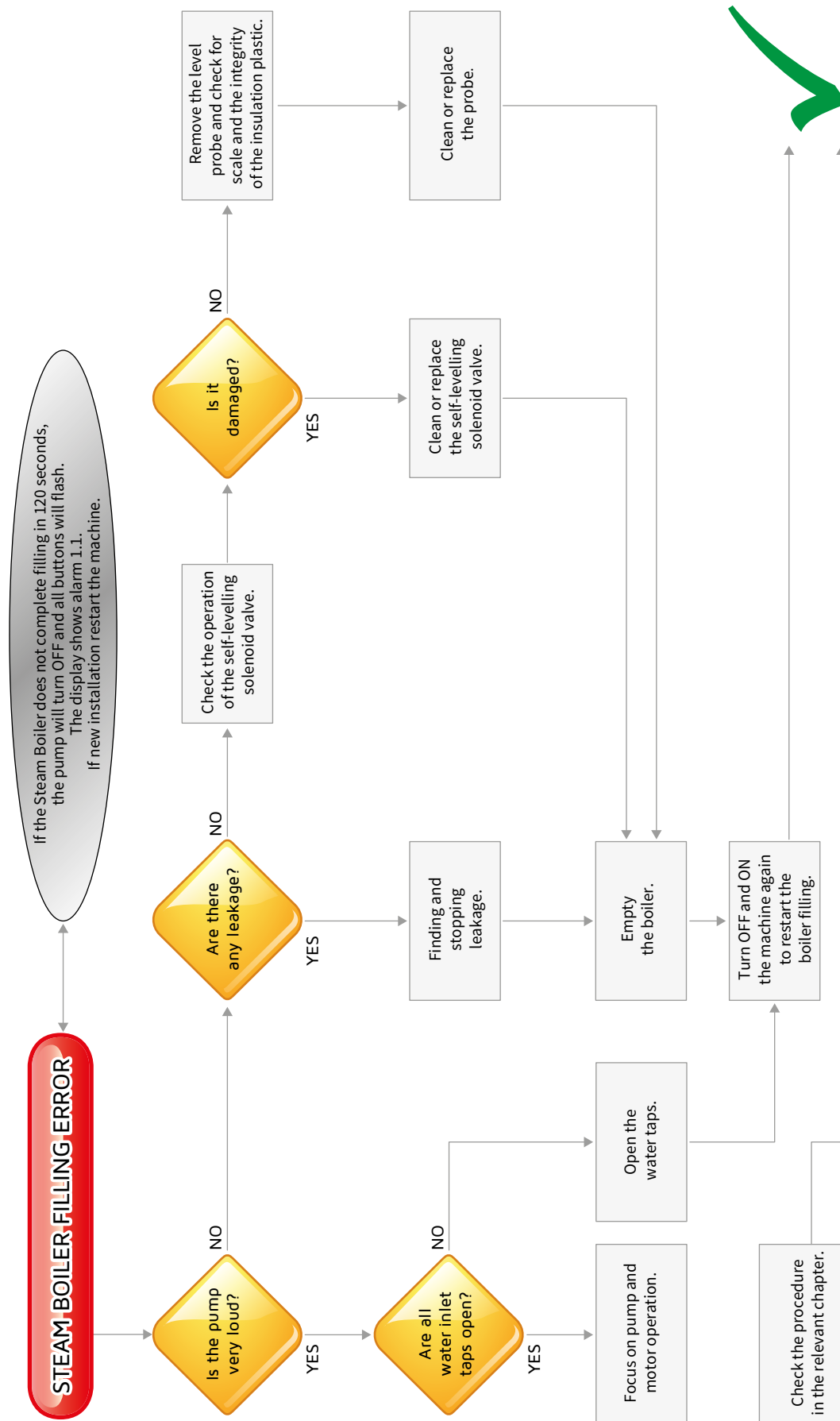
CODE	ALARM TYPE	SUB CODE	SOURCE ELEMENT	MAIN REASON	POSSIBLE SOLUTIONS
13	Cleaning to be Performed	2	Group 1	It signals the need to wash the units, as the washing alarm threshold was exceeded.	Wash all units. Check settings on Technical settings.
		3	Group 2		
		4	Group 3		
		5	Group 4		
14	Maintenance to be Performed	1	Maintenance for Cycles	This alarm signals the need to carry out the machine maintenance.	Reset the relevant maintenance counter into the Technical Menu.
		2	Maintenance for Data		
		3	Maintenance for Litres		
15	Pressure Value Below Threshold	14	Main pressure	The water mains pressure isn't in the correct working values range.	Check the water mains pressure.
16	Overpressure	1	Service boiler	The service boiler is not working properly	Perform a dispensing and verify that the value shown on the display is consistent. If not consistent replace the digital pressure switch. Check that the TRIAC board does not have a contact that is always closed, making sure that the output current varies correctly according to the expected operating conditions. If it is always closed replace the TRIAC. Verify that the LEDs in the CPU are always ON, if so, replace the CPU.
17	Filter holder not recognised	2	Group 1	The sensor does not detect the filter holder.	Contact technical support and replace the sensor.
		3	Group 2		
		4	Group 3		
		5	Group 4		



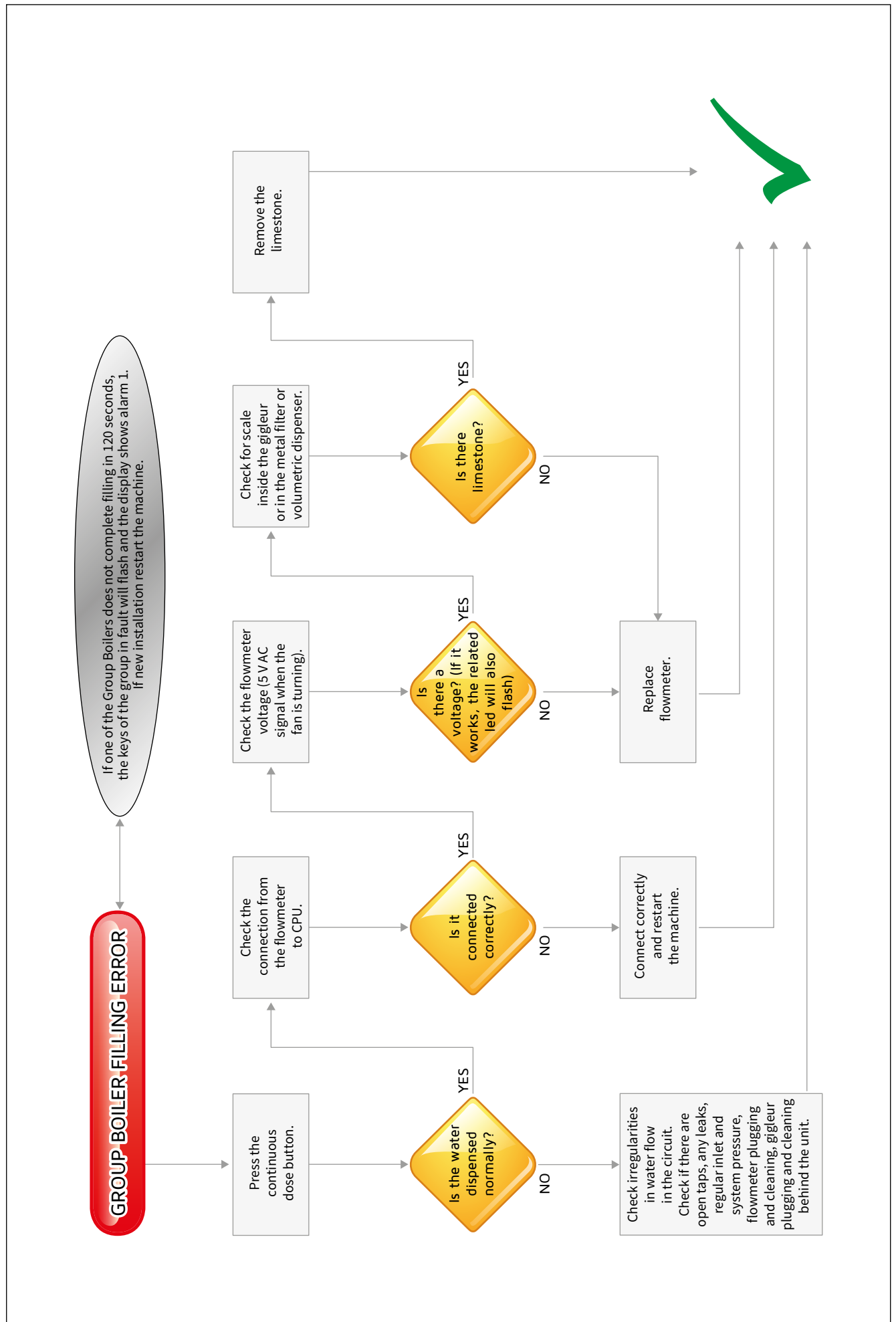
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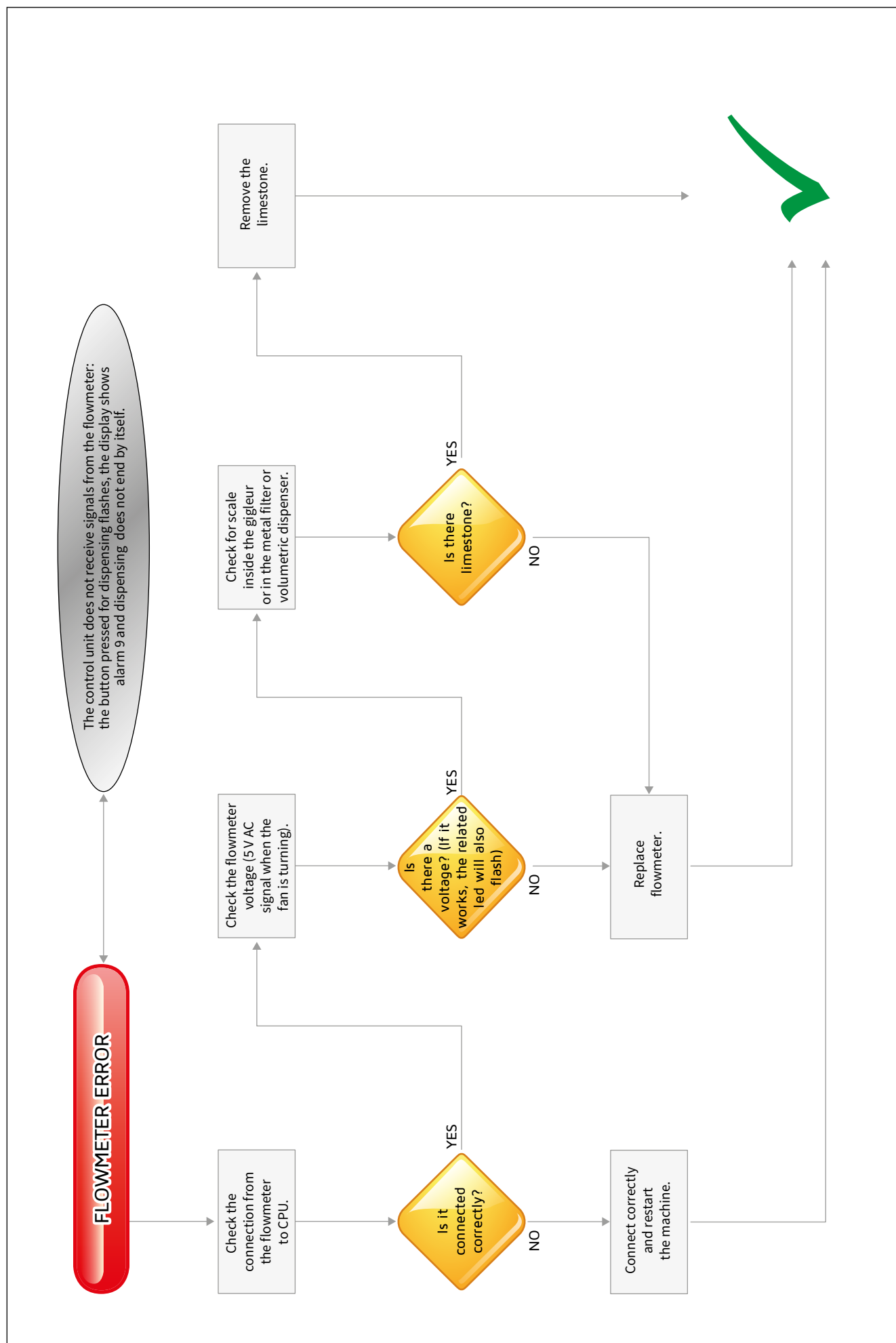
12.1 STEAM BOILER FILLING ERROR



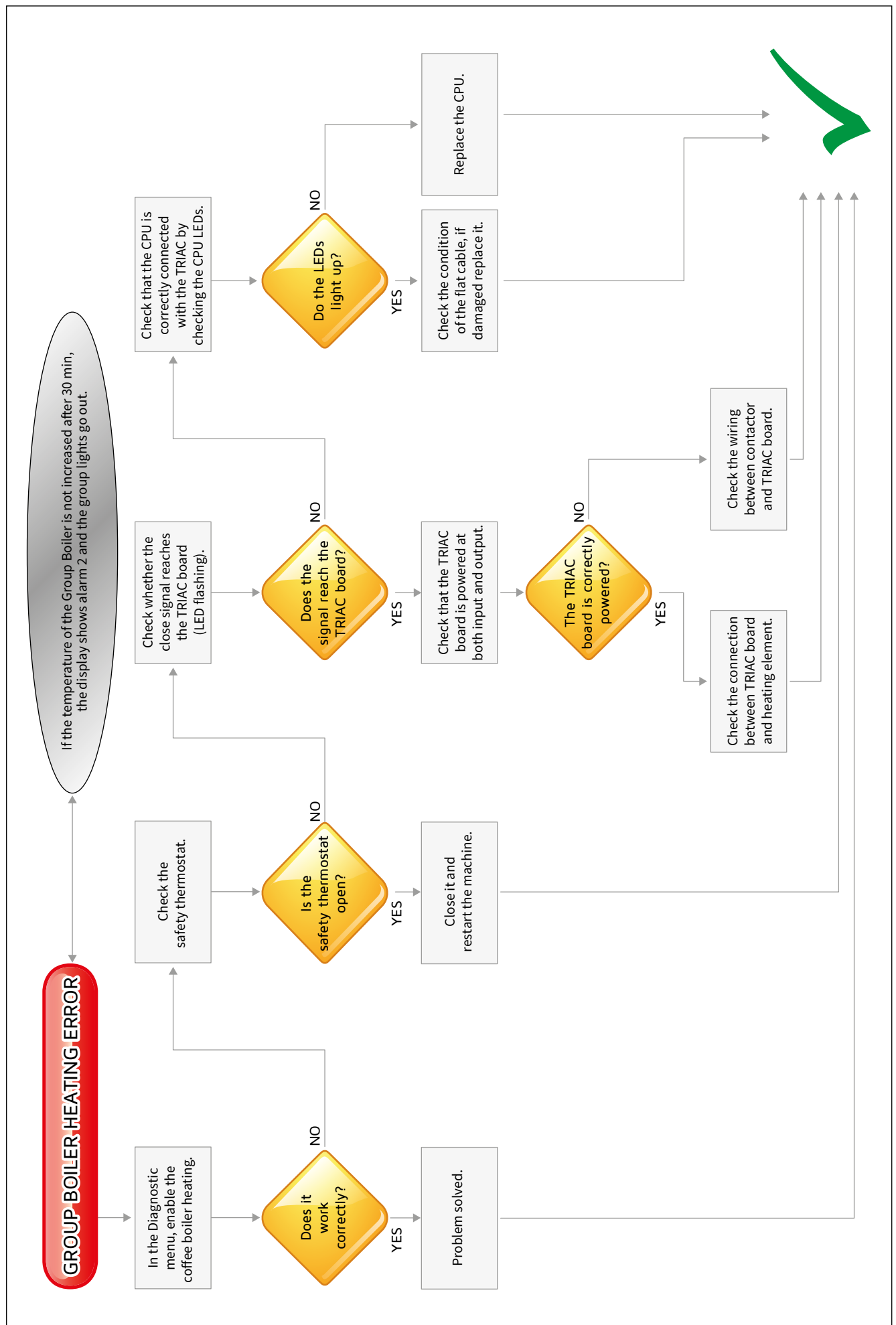
12.2 GROUP BOILER FILLING ERROR



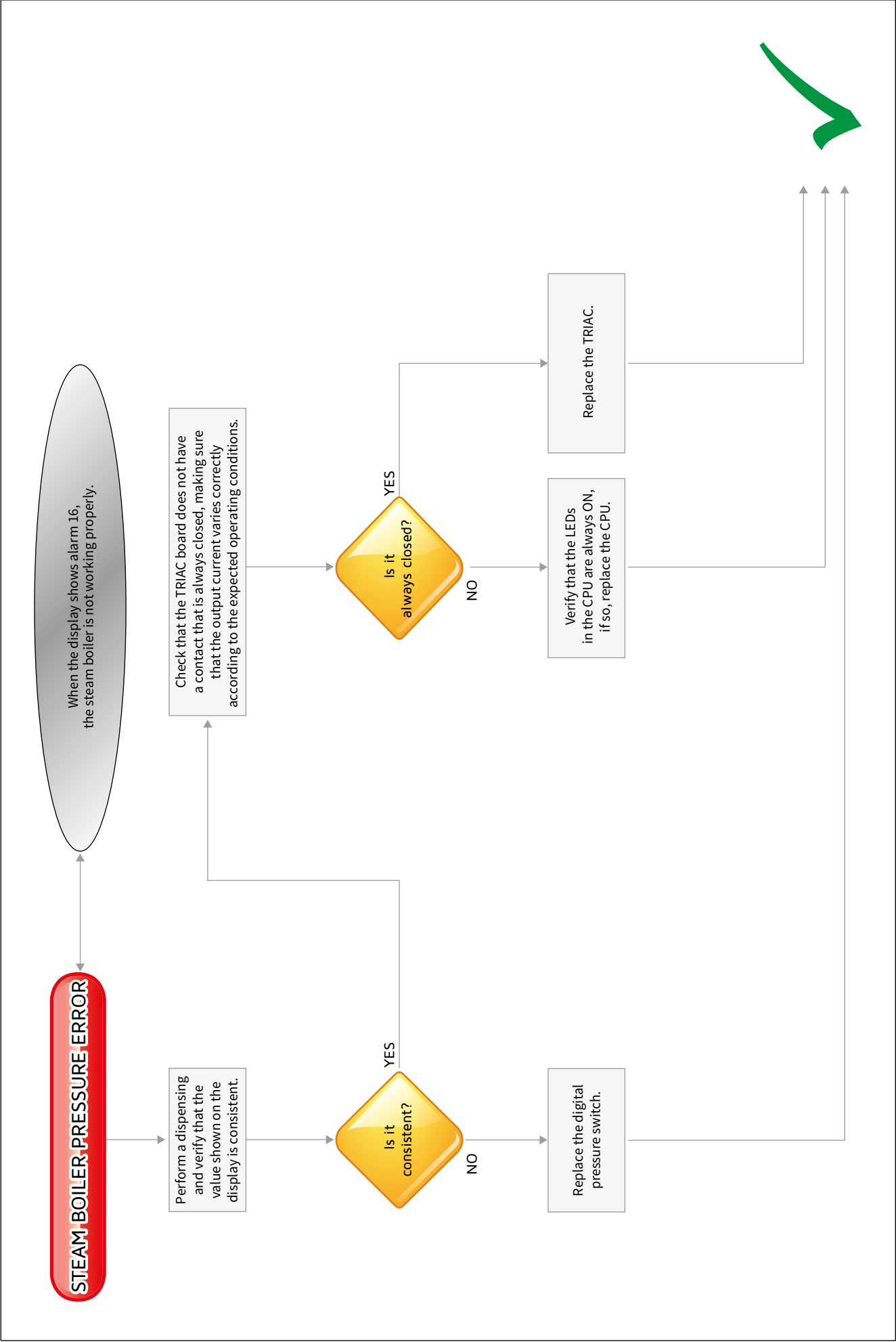
12.3 FLOWMETER ERROR



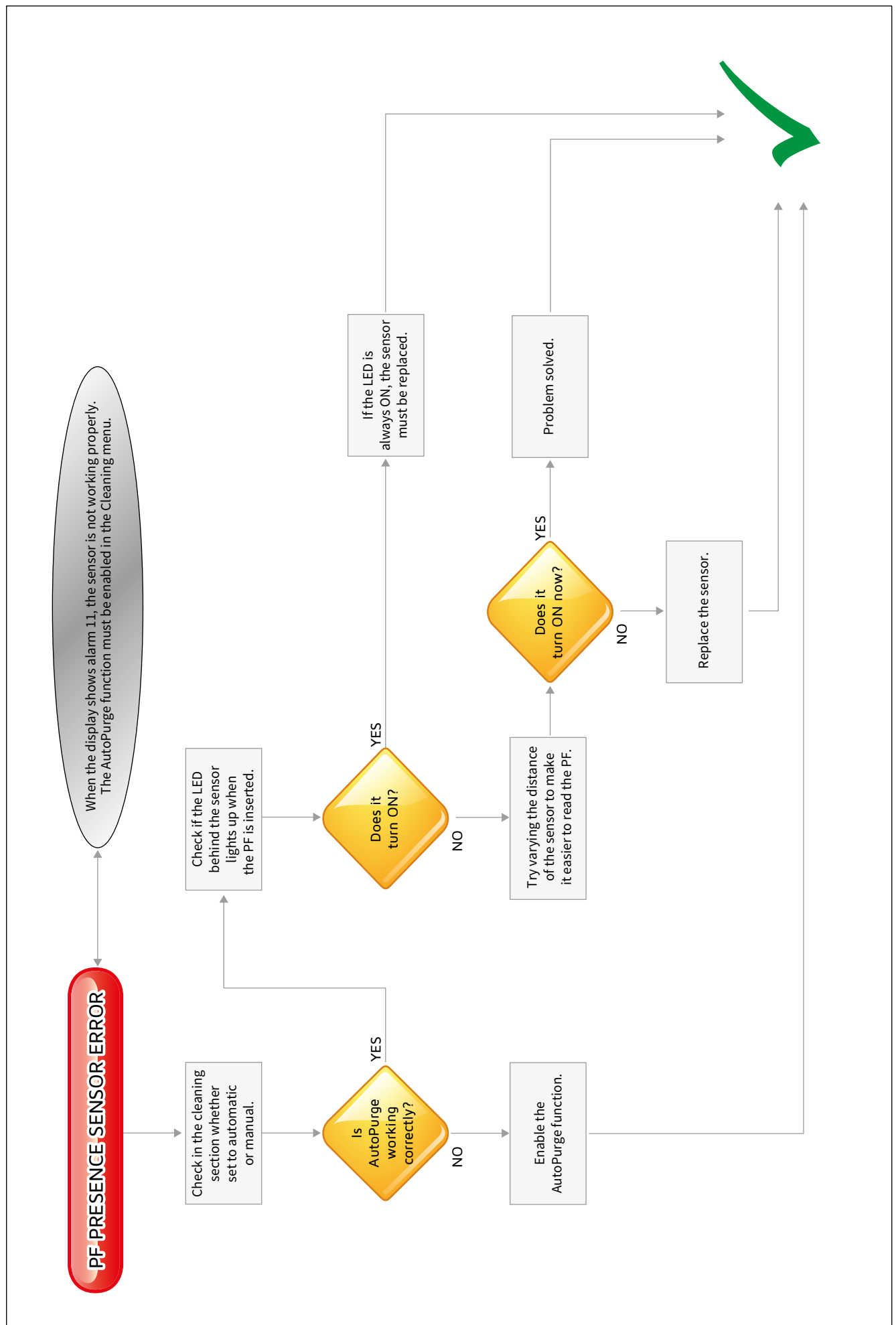
12.4 GROUP BOILER HEATING ERROR



12.5 STEAM BOILER PRESSURE ERROR



12.6 PORTAFILTER PRESENCE SENSOR ERROR



13

MAINTENANCE CHECK LIST



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NOTE



This Preventive Maintenance Plan is related at a **NUOVA AURELIA MP Standard version**, without optional (Revision 00, Date 18/10/2024):

- 98260000000376 - Maintenance Kit NUOVA AURELIA MP 2Vis 2Gr
- 98260000000377 - Maintenance Kit NUOVA AURELIA MP 2Vis 3Gr

13.1 FOUR -SIX (4-6) MONTHS MAINTENANCE

Approximate time for service is 1 hours uninterrupted.

This instruction takes into consideration that the technicians performing the service are aware of safety measures before commencing in regards to isolating power, pressure of steam and pressure of water.

Information should be sought from the site manger for any problems or concerns before commencing work, and to allow sufficient time to complete the task uninterrupted.

Remove all covers before commencing and check for damage/signs of leaks.

- | | |
|---|---|
| ☐ Check for any signs of leaking in machine. | ☐ Check for over all coffee product outcomes. |
| ☐ Check for any damaged wires or caballing. | ☐ Check boiler level. |
| ☐ Check for noisy pump motor. | ☐ Check for any signs of valves leaking. |
| ☐ Check for blockage in waste hose. | ☐ Check and inspect display, ensuring it is not faulty. |
| ☐ Check for leaking from hot water pipe. | ☐ Check for boiler leaks. |
| ☐ Check anti vacuum valve for leaks. | ☐ Check the cleaning cycle counts. |
| ☐ Check Safety Valve. | ☐ Check the absolute counter. |
| ☐ Check auto fill function. | ☐ Check Gr1_____Gr2_____Gr3_____Gr4_____ |
| ☐ Check steam pressure. | ☐ Replace cup gaskets (02280050). |
| ☐ Check the static water pressure. | ☐ Replace shower screens (03000066). |
| ☐ Check pump pressure. | ☐ Replace gasket, spring and bushing in the Steam Wand (02280037-08000043-07300293-026000152). |

Necessary Spare Parts

2 Groups

2 x 03000066
2 x 02280050
2 x 02280037
2 x 08000043
2 x 07300293
2 x 026000152

3 Groups

3 x 03000066
3 x 02280050
2 x 02280037
2 x 08000043
2 x 07300293
2 x 026000152

13.2 TWELVE (12) MONTHS MAINTENANCE

Approximate time for service is 1 hours uninterrupted.

This instruction takes into consideration that the technicians performing the service are aware of safety measures before commencing in regards to isolating power, pressure of steam and pressure of water.

Information should be sought from the site manger for any problems or concerns before commencing work, and to allow sufficient time to complete the task uninterrupted.

Remove all covers before commencing and check for damage/signs of leaks.

- | | |
|--|---|
| ☐ Check for any signs of leaking in machine. | ☐ Check the cleaning cycle counts. |
| ☐ Check for any damaged wires or caballing. | ☐ Check the absolute counter. |
| ☐ Check for noisy pump motor. | ☐ CheckGr1_____Gr2_____Gr3_____Gr4_____ |
| ☐ Check for blockage in waste hose. | ☐ Replace cup gaskets (02280050). |
| ☐ Check for leaking from hot water pipe. | ☐ Replace shower screens (03000066). |
| ☐ Check anti vacuum valve for leaks. | ☐ Replace gaskets (all), spring and bushing in the Steam Wand (02280037-08000043-07300293-02280041-026000152). |
| ☐ Check Safety Valve. | ☐ Replace two coffee filter (03000073). |
| ☐ Check auto fill function. | ☐ Replace one coffee filter (03000072). |
| ☐ Check steam pressure. | ☐ Replace anti vacuum valve (01000023). |
| ☐ Check the static water pressure. | ☐ Replace expansion valve (98120001). |
| ☐ Check pump pressure. | ☐ Replace gasket, spring and bushing in the Hot Water Wand (02280037-08000043-07300293-02600004). |
| ☐ Check for overall coffee product outcomes. | ☐ Replace Check Valve (98110001). |
| ☐ Check boiler level. | |
| ☐ Check for any signs of valves leaking. | |
| ☐ Check and inspect display, ensuring it is not faulty. | |
| ☐ Check for boiler leaks. | |

Necessary Spare Parts

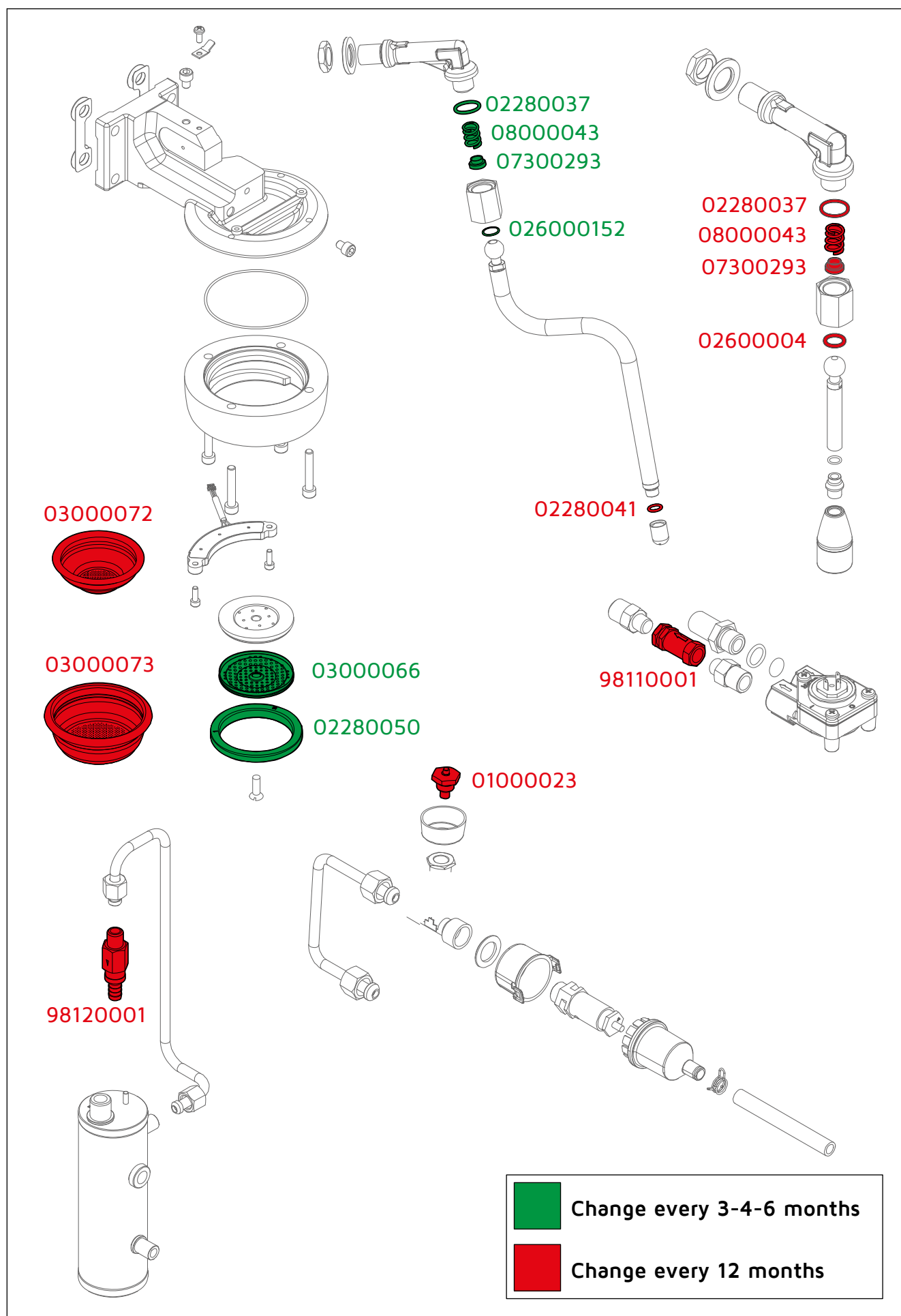
2 Groups

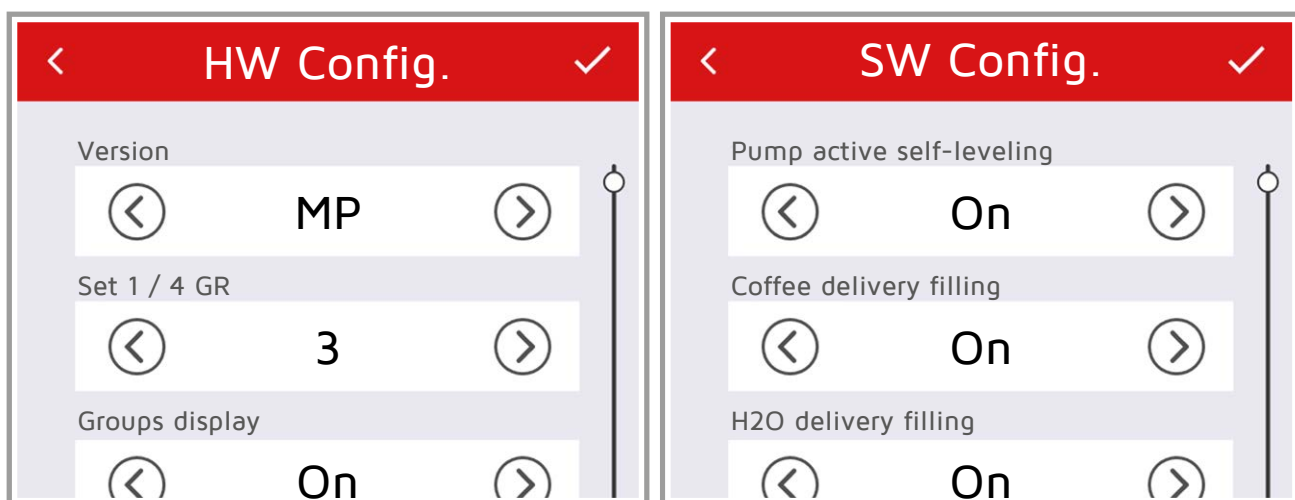
2 x 03000066
2 x 02280050
1 x 03000073
1 x 03000072
1 x 01000023
3 x 02280037
3 x 08000043
3 x 07300293
2 x 026000152
2 x 02280041
1 x 02600004
2 x 98120001
2 x 98110001

3 Groups

3 x 03000066
3 x 02280050
2 x 03000073
1 x 03000072
1 x 01000023
3 x 02280037
3 x 08000043
3 x 07300293
2 x 026000152
2 x 02280041
1 x 02600004
3 x 98120001
3 x 98110001

13.3 ONE YEAR MAINTENANCE KIT





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14.1 COFFEE RECIPE PARAMETERS

The parameters vary according to the machine's options.

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Group temperature *	70,0 °C	98,0 °C	93,4 °C	0,1 °C
Single Espresso	1 ml	500 ml	20 ml	1 ml
Double Espresso	1 ml	500 ml	40 ml	1 ml
Single long coffee	1 ml	500 ml	60 ml	1 ml
Double long coffee	1 ml	500 ml	120 ml	1 ml
Degassing	-	-	OFF	OFF / ON
Degassing ON duration (s)	1 s	10 s	1 s	0,5 s
Degassing OFF duration (s)	1 s	10 s	2 s	0,5 s
Pulsation mode **	-	-	OFF	OFF / ON
Portafilter pairing ***	-	-	OFF	OFF / ON

* Parameter not available for machine versions **V XT** and **S XT**.

** Parameter only available if the PULSE-JET option is activated.

*** Parameter only available if the optional portafilter recognition is activated.

14.2 DEFAULT MILK RECIPE PARAMETERS

PARAMETERS	FINAL TEMPERATURE	AIR TIME	AIR TEMPERATURE	% AIR SOLENOID VALVE
Flat white	60 °C	8 s	30 °C	25 %
Milk	65 °C	10 s	35 °C	30 %
Cappuccino	65 °C	12 s	40 °C	35 %

14.3 E-MILK RECIPE PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Right / Left Knob Temperature 1 *	40 °C	85 °C	65 °C	1 °C
Overheating Temperature **	65 °C	85 °C	80 °C	1 °C
Air temperature ***	10 °C	60 °C	40 °C	1 °C
Air time ***	1 s	40 s	8 s	1 s
Air valve	0 %	100 %	100 %	5 %
Steam knob icon ****	-	-	Select icon	-

* Refers to the desired temperature of the beverage at the end of the delivery.

** Refers to temperature 2 to be reached if the operator presses the knob again after reaching temperature 1.

*** Available options based on Technical Settings.

**** The user can link the drink to an icon visible on the knob directly by turning the knob.

14.4 HOT WATER RECIPE PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Hot water key 1 time dispensing	0 s	60 s	3 s	1 s
Hot water key 1 temperature dispensing *	60 °C	95 °C	90 °C	1 °C
Hot water key 2 time dispensing	0 s	60 s	6 s	1 s
Hot water key 2 temperature dispensing *	60 °C	95 °C	90 °C	1 °C
Hot water key 3 time dispensing	0 s	60 s	9 s	1 s
Hot water key 3 temperature dispensing *	60 °C	95 °C	90 °C	1 °C

* Water temperature regulation is optional.

14.5 AUTOPURGE PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Enable	OFF	Autom.	Autom.	Autom./Man/OFF
Delay	0 s	10 s	1 s	1 s
Duration	0 s	10 s	2 s	1 s

14.6 GROUP WASHING PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Group Washing Cycle	0	10	2	1
Group Rinsing Cycle	0	10	2	1
Washing Duration	0 s	59 s	10 s	1 s
Enable Alarm	-	-	OFF	ON/OFF
Alarm Hour	0	23	8	1 h
Alarm Minute	0	60	0	1 min

14.7 TEMPERATURE PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Cup warmer*	30 °C	80 °C	50 °C	1 °C
Steam boiler	0,5 bar	2,5 bar	2,1 bar	0,1 bar

* Cup warmer (optional) only available if activated.

14.8 STANDBY PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Enable	OFF	ON	OFF	ON / OFF
Boiler Pressure *	0,8 bar	1,8 bar	1 bar	0,1 bar

* For the **UX**, **V XT** and **S XT** models, the maximum settable pressure of the steam boiler, in standby mode, will be 0.8 bar. The **MP** model goes up to 1.8 bar.

14.9 SYNC PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
GR1	0	1000	952	1
GR2	0	1000	952	1
GR3	0	1000	952	1
GR4	0	1000	952	1

14.10 E-MILK R (STEAM) PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Right knob mode	-	-	Autom.	Manual / Semiauto. / Autom. / E-Steam + Temp
Autopurge delay	0 s	10 s	2 s	1 s
Autopurge duration *	0 s	10 s	3 s	1 s
Air mode	-	-	Temperature	Temperature / Time
Knob logic **	0	1	0	0 / 1

* Only available with Automatic or Semi-automatic E-Milk mode.

** Only available with E-Milk E-Steam+Temp mode.

14.11 MAINTENANCE PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Enable Maintenance	OFF	ON	OFF	ON / OFF
Dispensing cycle counter	10000	100000	50000	5000
Date	Day / Month / Year			
Litres	1	5000	1	25

14.12 KEYS AND DISPLAY PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Display brightness	0 %	100 %	70 %	1 %
Keyboard brightness	Low	High	High	Low/High
Led group variation	OFF	100	70	1
Led Brand variation	OFF	100	70	1
Led Brand front variation	OFF	100	70	1
Brewing Info persistence	0 s	60 s	10 s	1 s
Right Steam Knob	-	-	Icon	Icon, Name, Both
Knob icon	-	-	ON	ON/OFF

* Available right or left, only if E-Milk is activated (optional).

** Only available if group display is active (optional).

14.13 HW CONFIGURATION PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Version	-	-	-	MP, UX, V XT, S XT
Set groups 2 / 4	2	4	2	2 - 3 - 4
Groups display	OFF	ON	OFF	ON / OFF
C-Automation	OFF	ON	OFF	ON / OFF
Left steam	-	-	E-Steam	OFF, E-Steam, E-Steam + Temp, E-Milk
Right steam				
Cup warmer	OFF	ON	OFF	ON / OFF
PULSE-JET	OFF	ON	OFF	ON / OFF
Hot Water Temp. Management	OFF	ON	OFF	ON / OFF
Portafilter Sensors	-	-	OFF	OFF, Inductive, ID Identified

14.14 SW CONFIGURATION PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Pump active self-levelling	OFF	ON	ON	ON / OFF
Coffee delivery filling	OFF	ON	ON	ON / OFF
H2O delivery filling	OFF	ON	ON	ON / OFF
H2O with active pump	OFF	ON	ON	ON / OFF
Mains pressure alarm	OFF	16	OFF	0,1

14.15 OFFSET PARAMETERS

PARAMETERS	MINIMUM	MAXIMUM	DEFAULT VALUE	STEP
Pressure probe offset	-3,0	3,0	0,0	0,1
Steam boiler pressure offset	-1,0	1,0	0,0	0,1
GR1 probe offset	-10°	+10°	0,0°	0,1°
GR2 probe offset	-10°	+10°	0,0°	0,1°
GR3 probe offset	-10°	+10°	0,0°	0,1°
GR4 probe offset	-10°	+10°	0,0°	0,1°
GR1 coffee boiler probe offset	-10°	+10°	0,0°	0,1°
GR2 coffee boiler probe offset	-10°	+10°	0,0°	0,1°
GR3 coffee boiler probe offset	-10°	+10°	0,0°	0,1°
GR4 coffee boiler probe offset	-10°	+10°	0,0°	0,1°
Right E-Milk probe	-10°	+10°	0,0°	0,1°
Left steam probe	-10°	+10°	0,0°	0,1°
Cup warmer probe offset	-10°	+10°	0,0°	0,1°
Steam 1 offset	-10°	+10°	0,0°	0,1°
Steam 2 offset	-10°	+10°	0,0°	0,1°
Hot water offset	-10°	+10°	0,0°	0,1°



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