HLF 2700

ENGLISH

CE

RETAIN FOR FUTURE USE !

These Operating Instructions must be read and applied by anyone performing work with or on the equipment described.

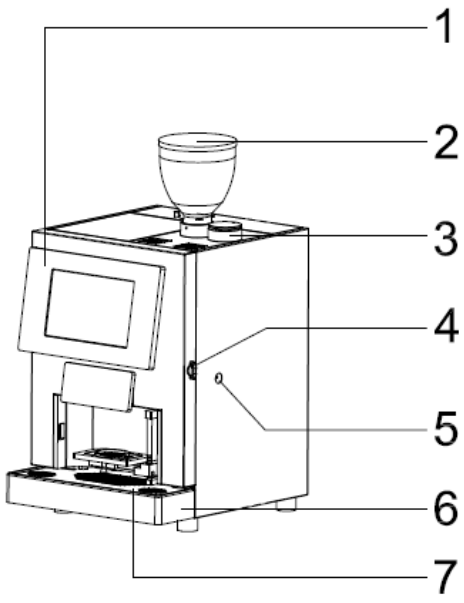
In particular, it is imperative that all such persons familiarise themselves with the safety instructions.

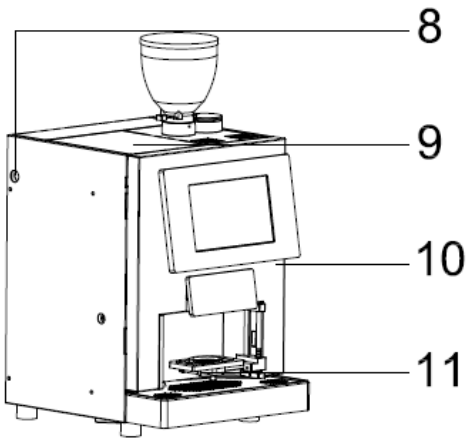
Index

1 User Manual

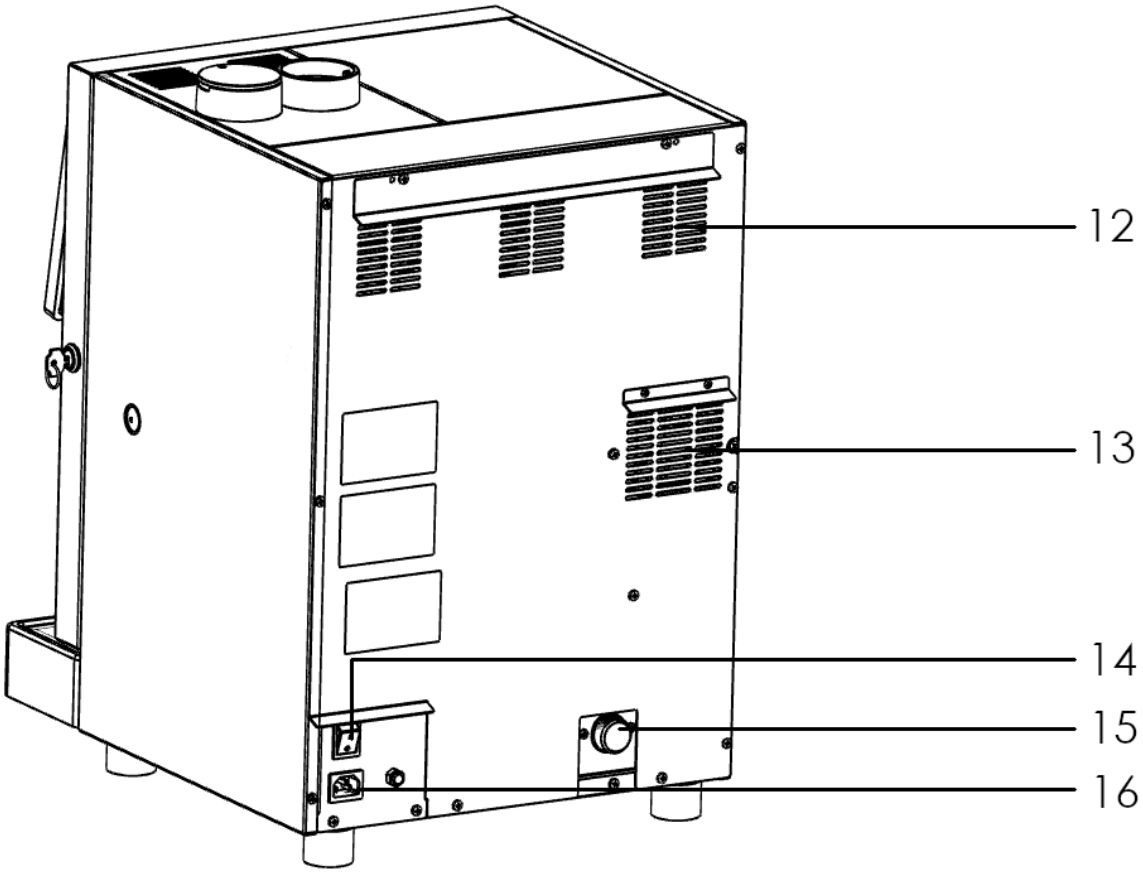
2 Exploded views

2.1 General exploded view

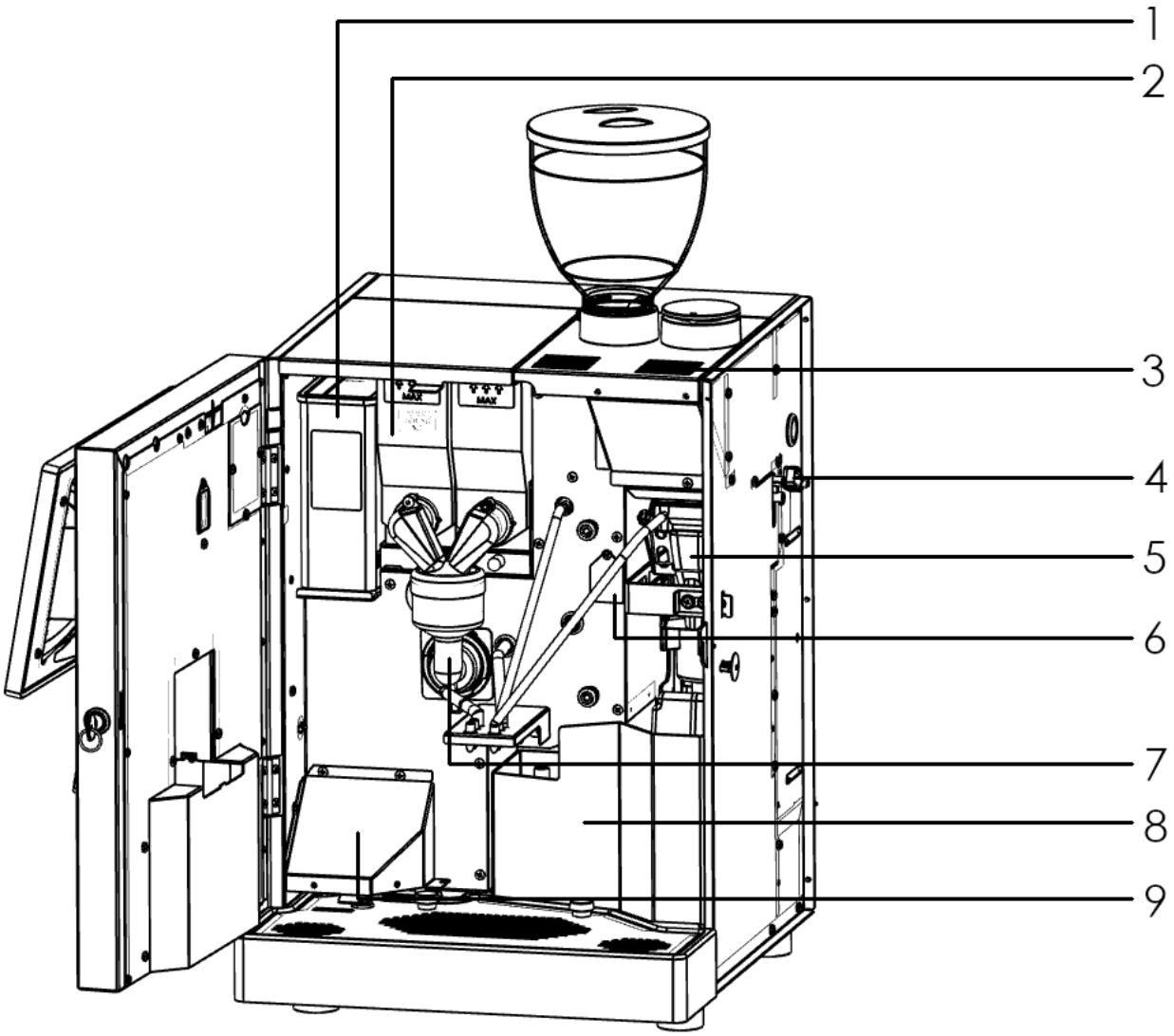




1. Touch screen assembly
2. Coffee beans hopper
3. Pre-ground coffee chute
4. Key Lock
5. Milk tube passage hole
6. Drip tray
7. Cup holder grid
8. Payment system connection hole
9. Detergent tank / Soluble containers top lid
10. Door
11. Cup raiser



12. Ventilation Grid
13. Aspirator fan
14. Main Switch
15. Inlet water valve
16. Inlet for cord plug power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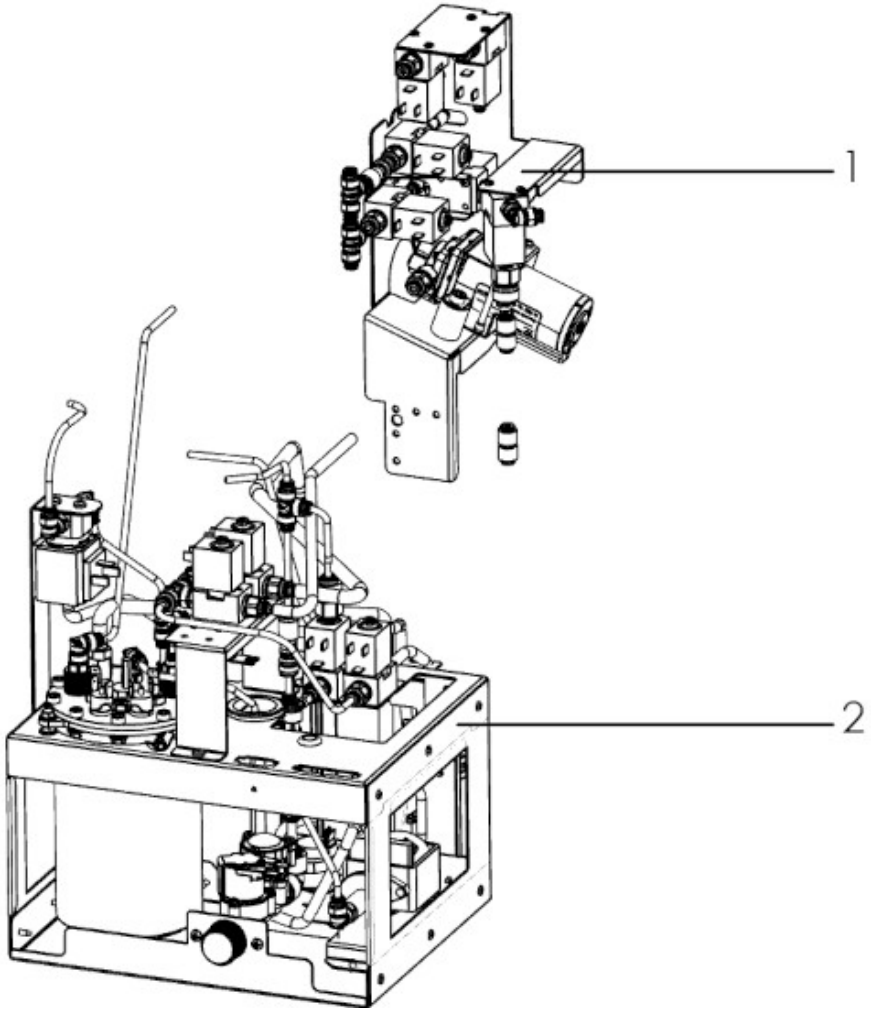
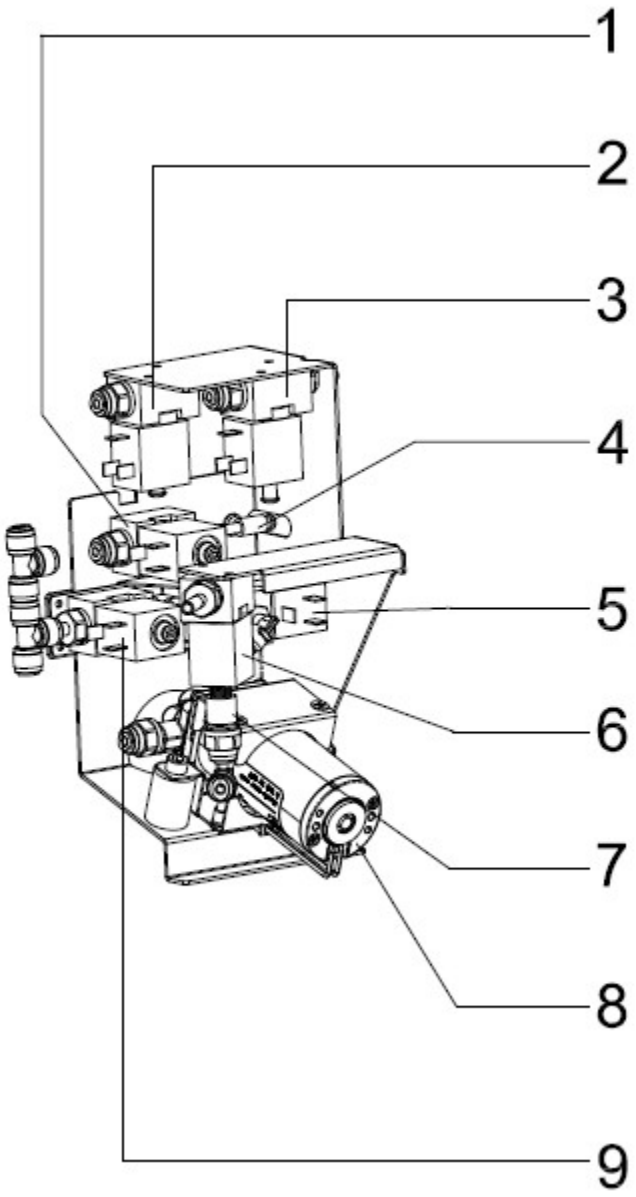
1. Detergent Tank
2. Powder Containers
3. Coffee ventilation
4. Coffee group sensor switch
5. Coffee group
6. Milk air regulator cover
7. Whipper bowl
8. Grounds drawer
9. Drip tray float sensor cover

2.2 Hydraulic assembly (with fresh milk assembly) exploded view



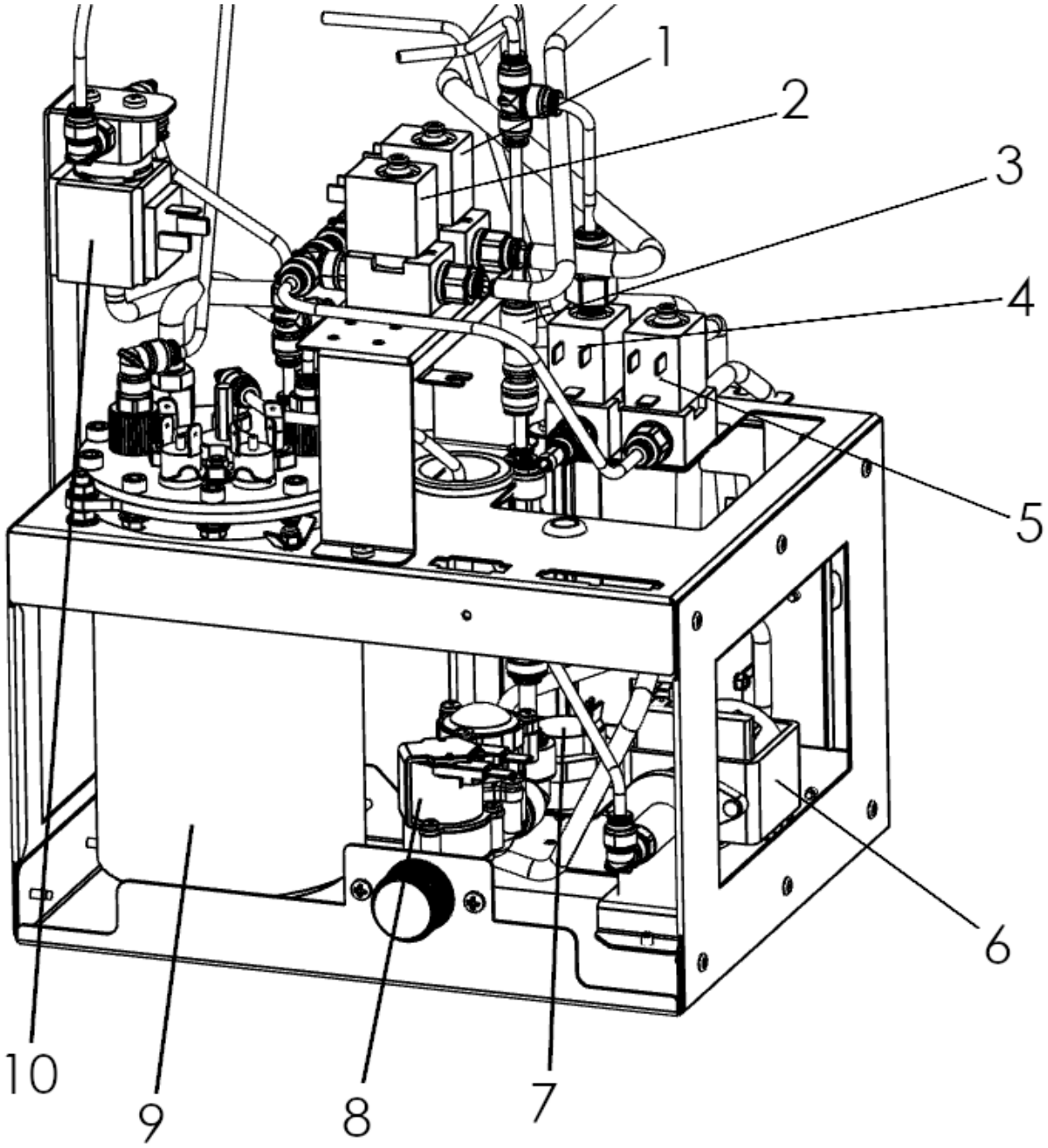
1. Fresh milk assembly
2. Hydraulic assembly

2.3 Fresh milk assembly exploded view



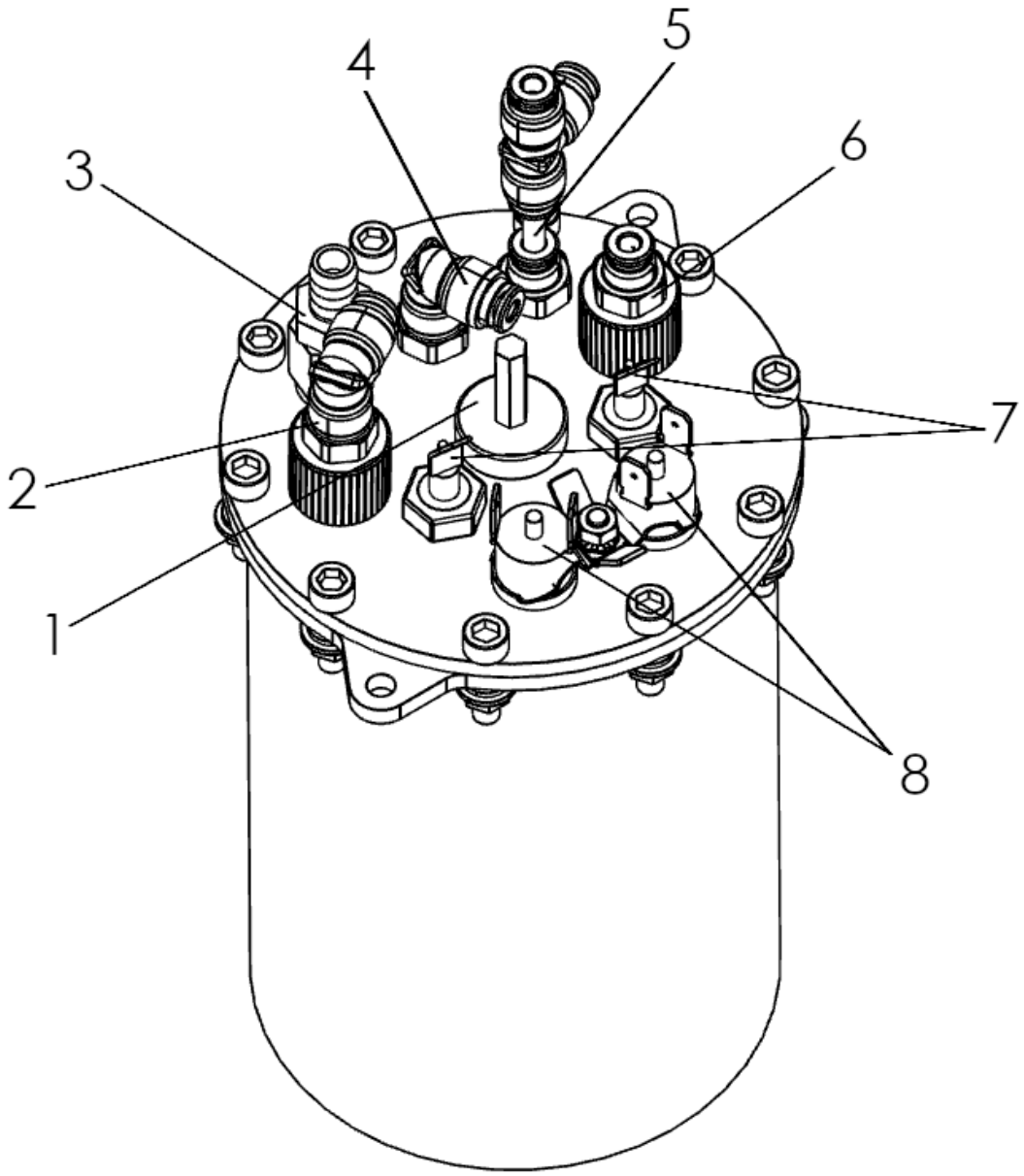
1. Hot milk air valve (2 ways)
2. Milk circuit rinsing valve (2 ways)
3. Hot milk output / discharge valve (3 ways)
4. Hot milk air regulator
5. Milk inlet valve / Self cleaning inlet valve (3 ways)
6. Inlet pipe rinse / Hot milk serpentine exchange valve (3 ways)
7. Hot milk reducers
8. Hot milk pump
9. Milk inlet valve (2 ways)

2.4 Boiler assembly exploded view



1. Hot water outlet valve
2. Mixer 1 hot water valve

   *2700 without fresh milk system is not equipped with Item N.3 and N.4 and it is instead equipped with an additional 2 ways valve right next to Item N.2 with the purpose of bringing hot water to the whipper bowl 2
3. Non-return valve (1 way)
4. Detergent/Water switch valve (3 ways)
5. Discharge valve
6. Water pump
7. Flow meter
8. Water inlet valve (incl. inlet filter, pressure reducer and check valve out)
9. Boiler
10. Coffee valve (3 ways)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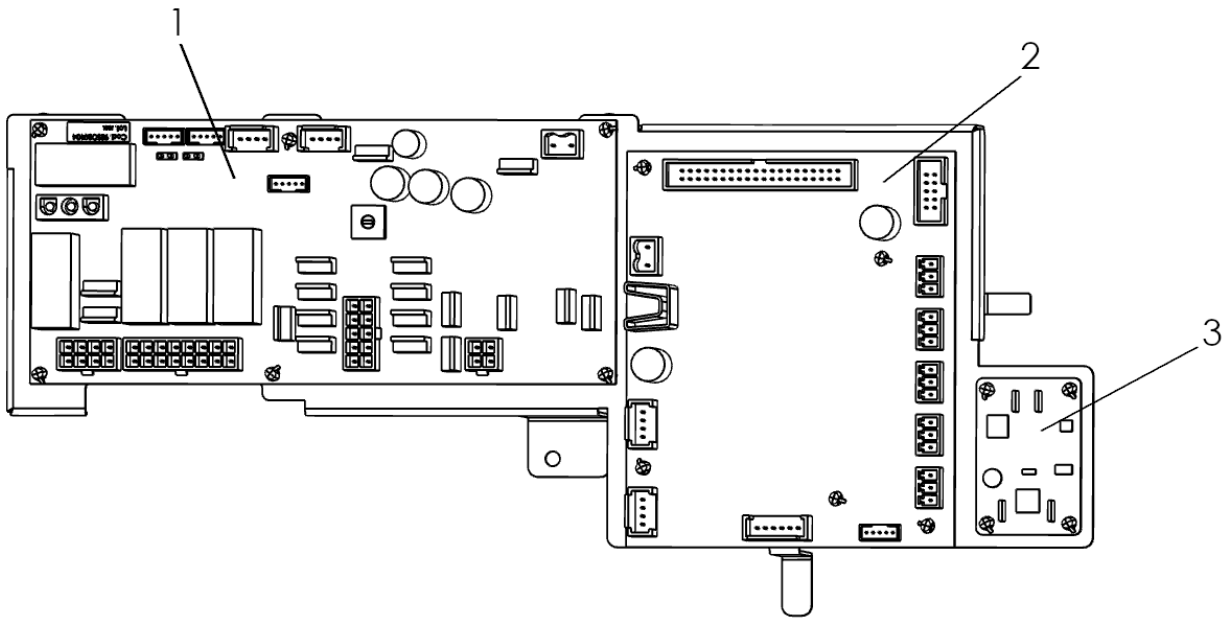
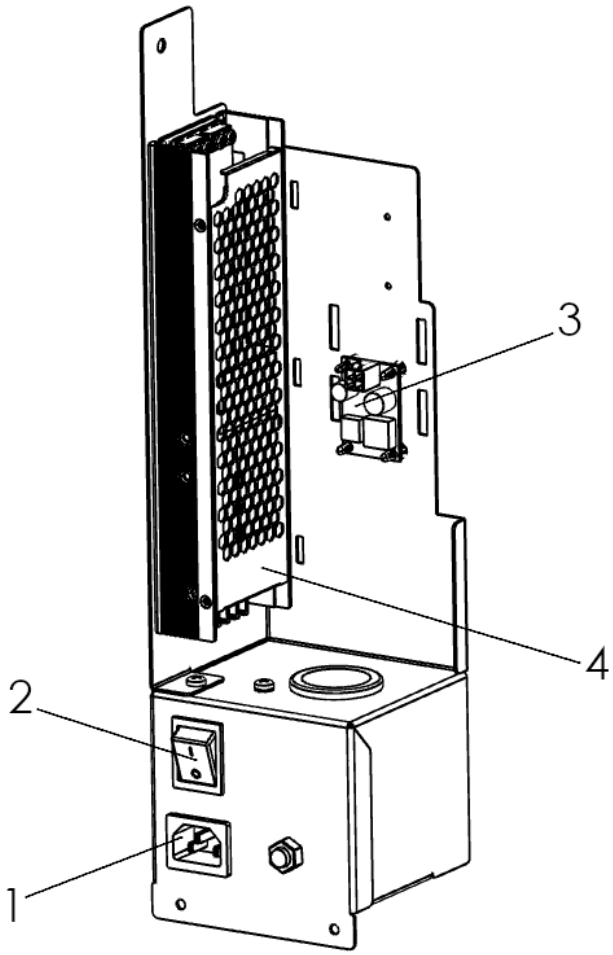
1. Temperature probe
1. Milk coil inlet
2. Safety valve
3. Water inlet connector
4. Water outlet connector
5. Milk coil outlet
6. Heating element connectors
7. Thermostats

2.5 Electronic boards assembly exploded view



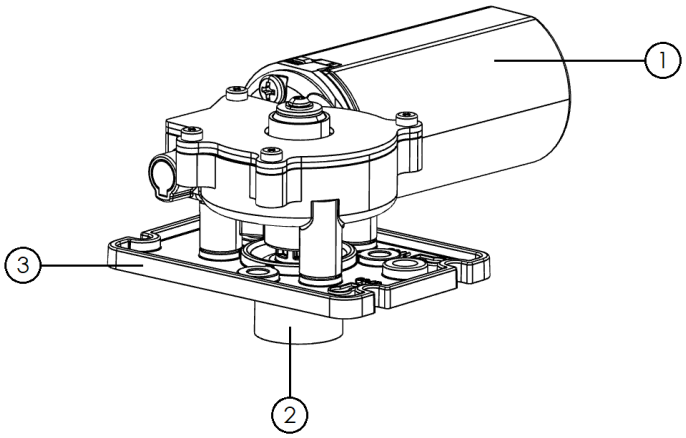
1. Output board 1
2. Motherboard
3. Pump driver board

2.6 Power supply assembly exploded view



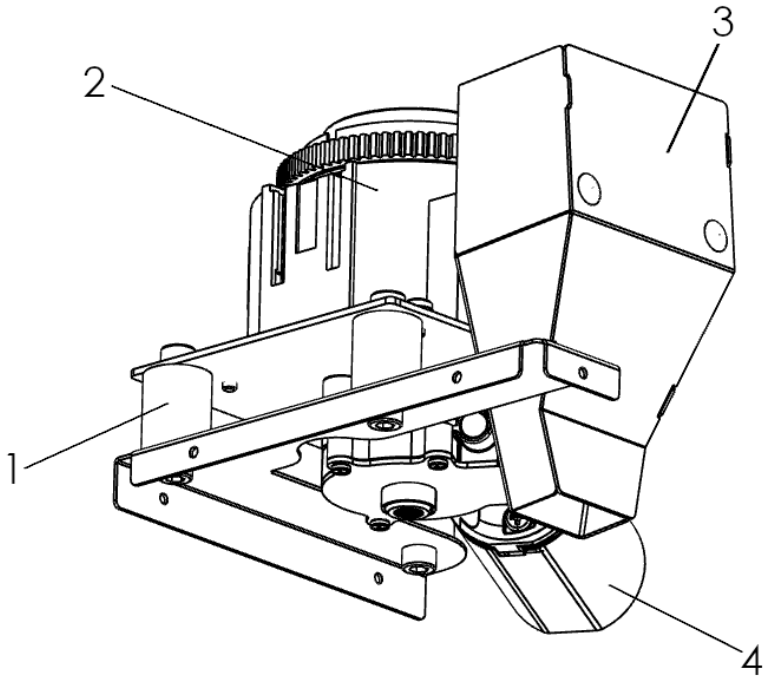
1. Power cable socket
2. Main Switch
3. Touch screen power supplier
4. 24VDC power supplier

2.7 Coffee group gear motor exploded view



1. Coffee group gear motor
2. Gear motor shaft
3. Coffee group motor’s support plate

2.8 Grinder assembly exploded view



1. Anti-vibrations feet
2. Grinder
3. Grinder chute
4. Grinder motor

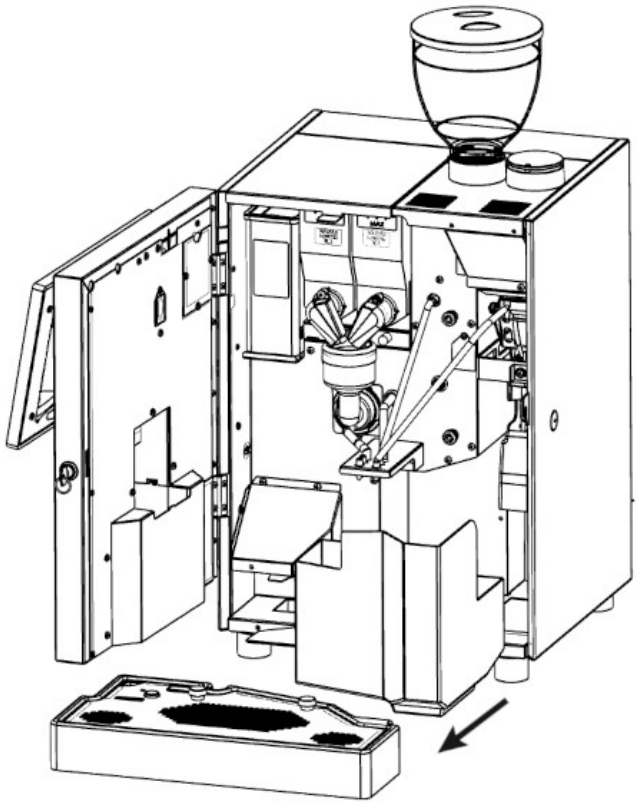
3

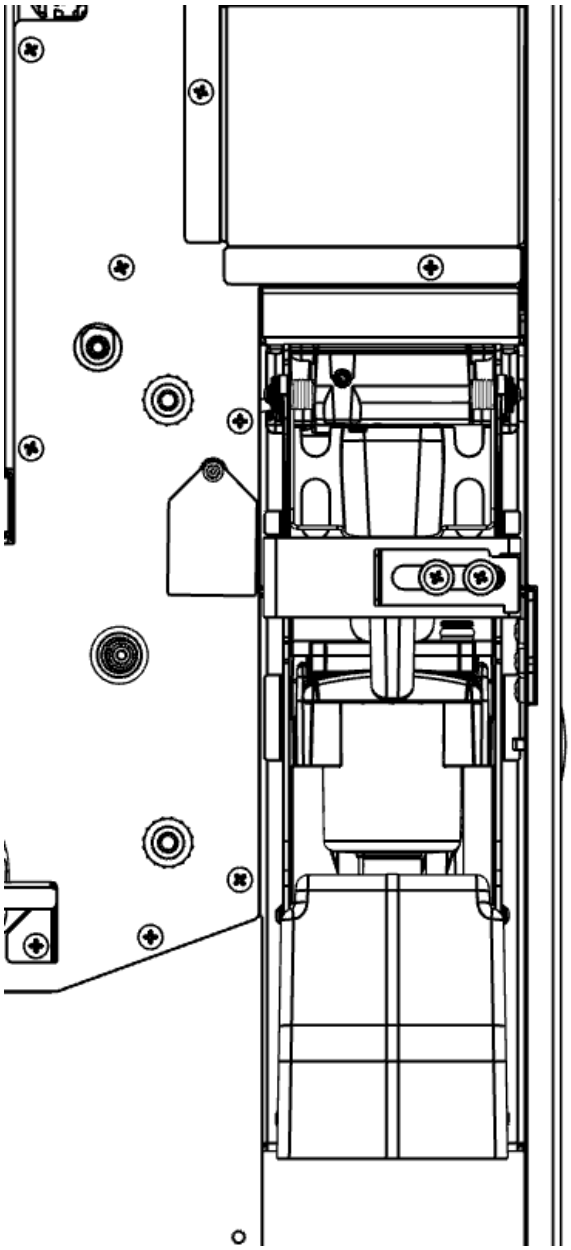
4 Ordinary maintenance

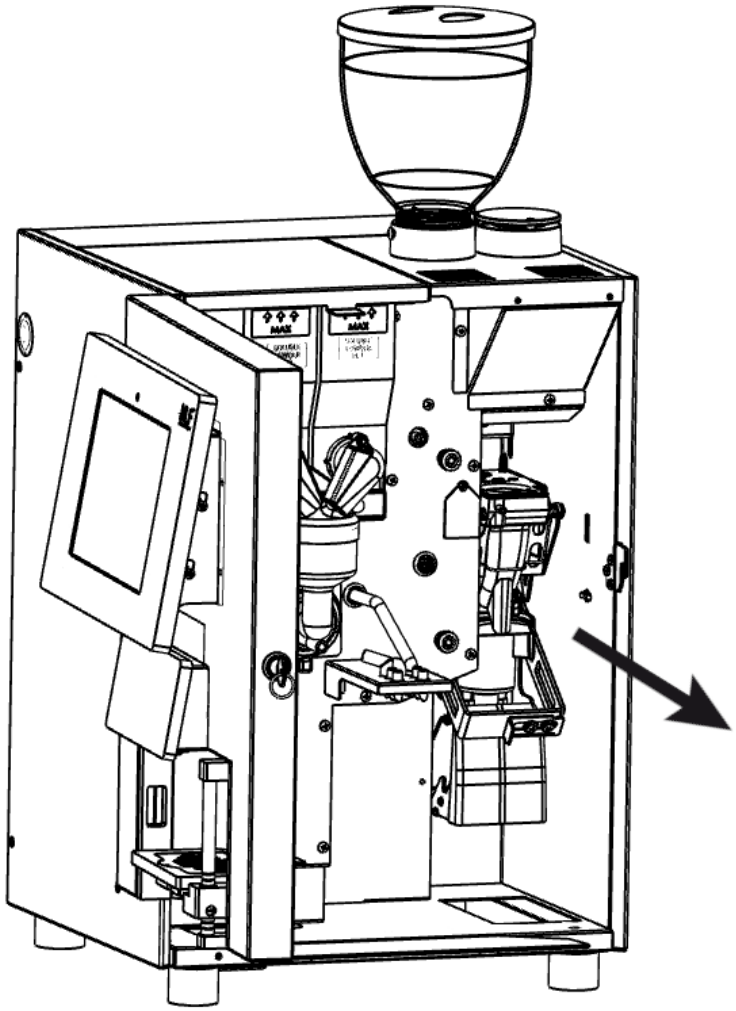
This kind of maintenance has to be considered as a periodical maintenance.

It consists in all those operations to do after an estimated period, according to the factory recommendations.

4.1 Removing the coffee group

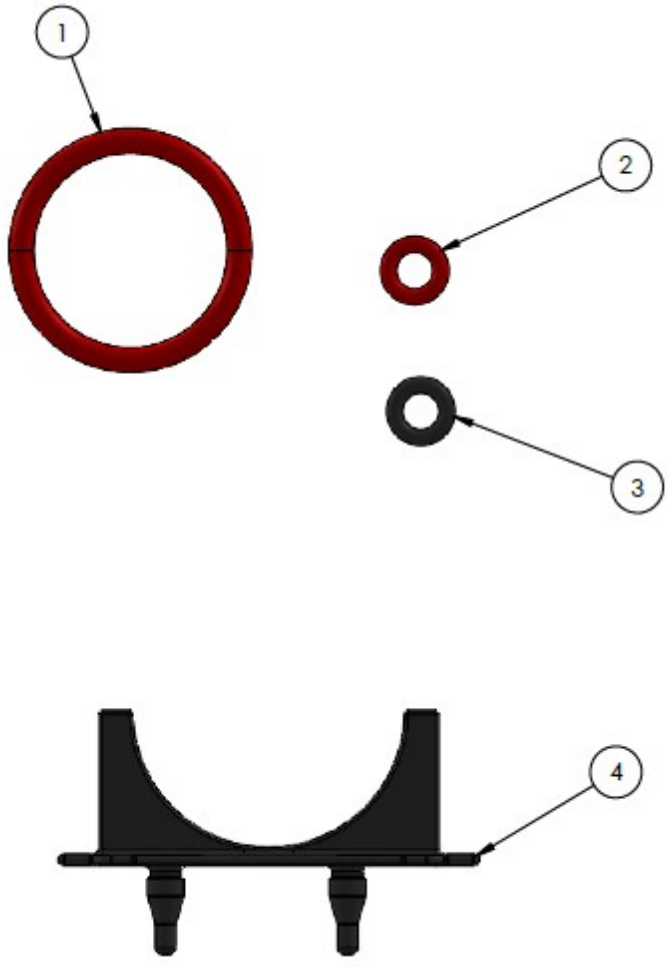
Step	Action	Illustration
1	Open the door. Remove the **drip tray** and the **grounds drawer**. Remove the grey tube connected to the **coffee group**, from the drink spouts.	

Step	Action	Illustration
2	Slightly pull up the **coffee group stainless steel lever** and pull the **small blue lever** to the left.	

Step	Action	Illustration
3	Turn the **coffee group lever** downward and let the **coffee group** to go down. Pull the **coffee group** toward you and take it off the machine. **Note**: Before to start pulling the **coffee group** towards you, make sure you have one hand holding the **coffee group** from the bottom and with the other hand you can hook the **coffee group**'s hole on the top.	

4.2 Sealings replacement (10000 Cycles Kit Installation)

Components provided with the kit:



1. 9R0001005 – TOP PISTON O-RING

2. 9RORS2060 – TOP REAR PISTON O-RING

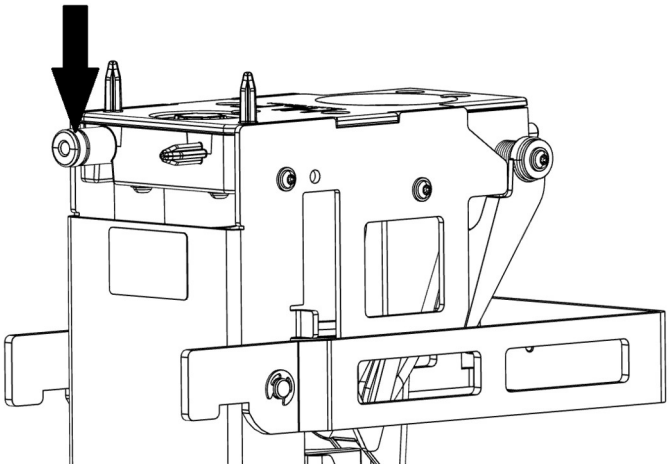
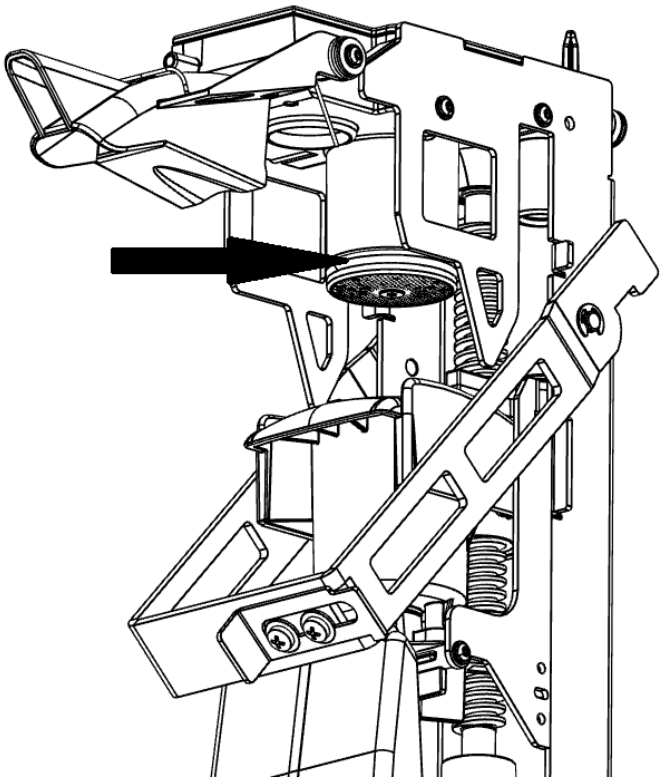
3. 9R0001025 – CHAMBER'S PISTON O-RING

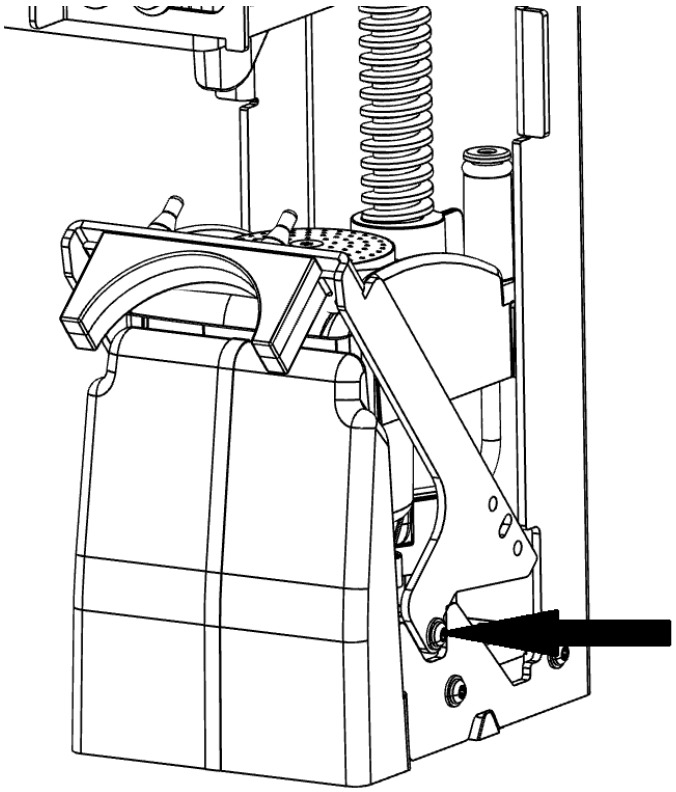
4. 9P0001027 – EJECTOR

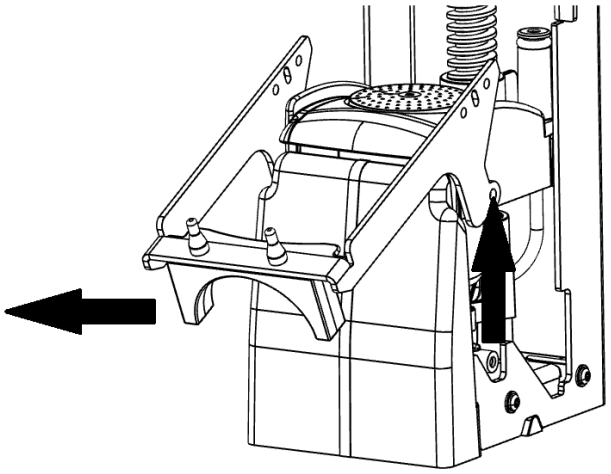
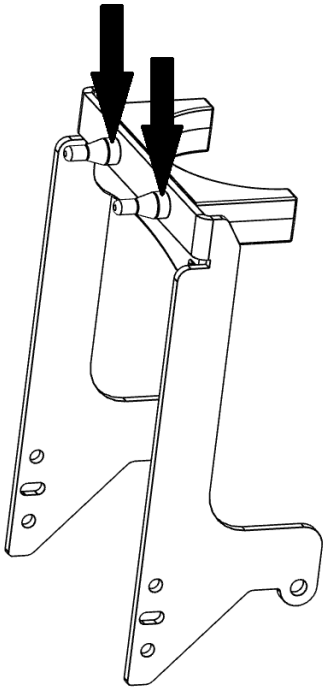
Optional components (not provided and not suggested to be changed after 10'000 drinks):

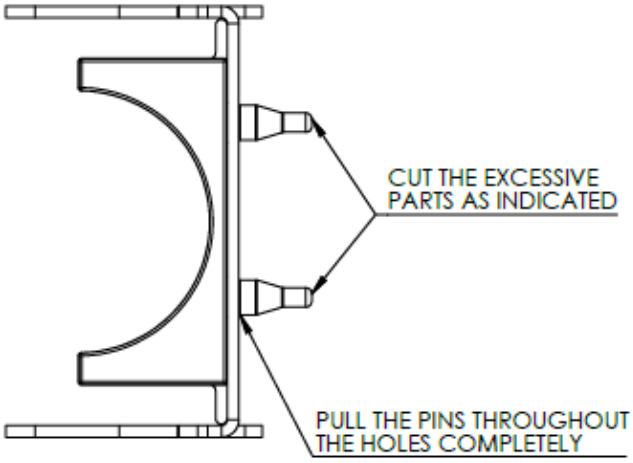
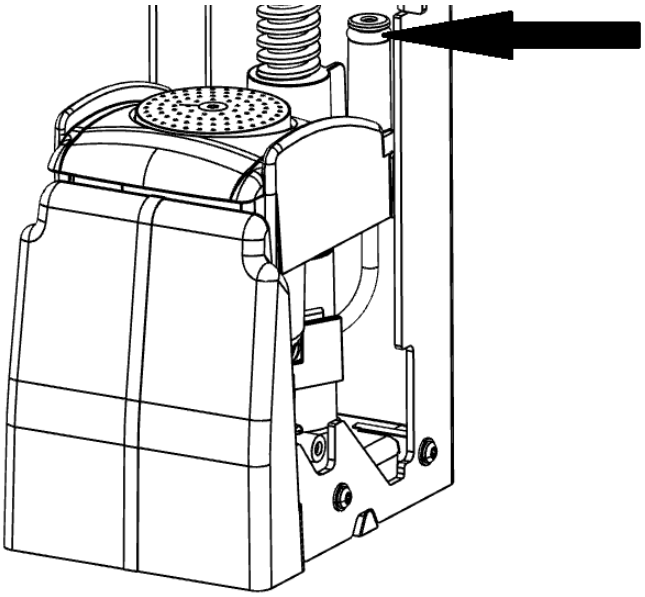
9P0001024 – BOTTOM FILTER

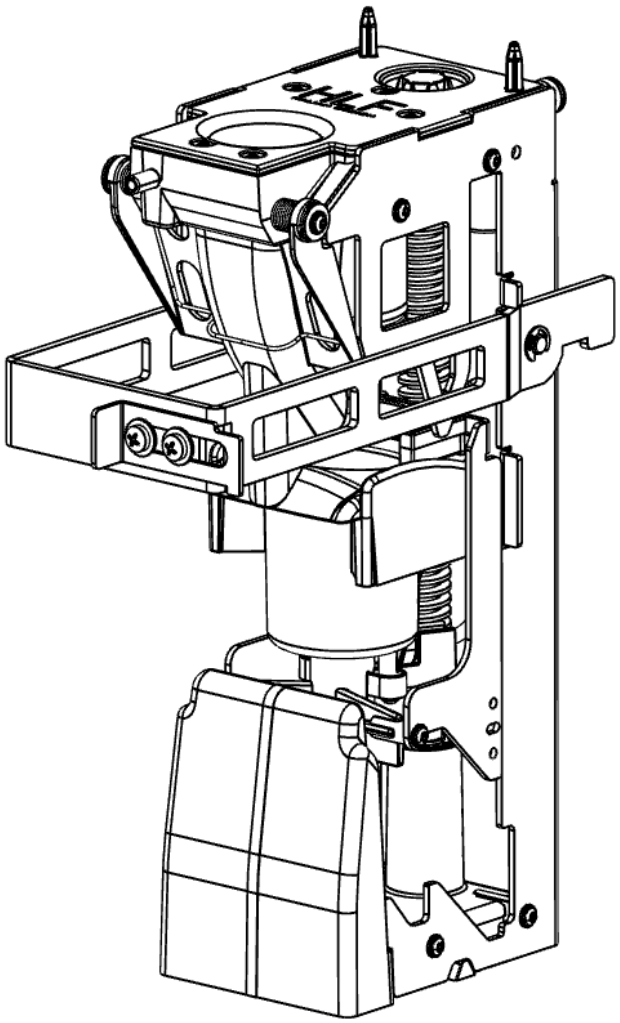
9I0001035 – TOP FILTER

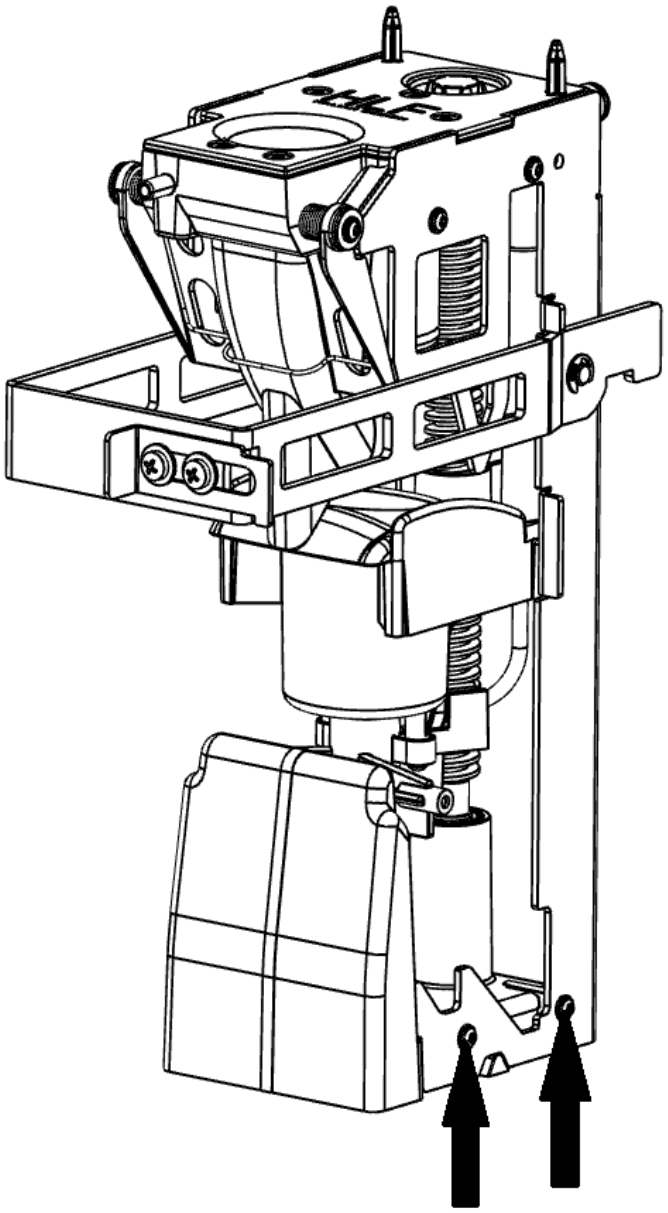
Step	Action	Illustration
1	Remove the o-ring from the top rear piston and change it with the 9RORS2060 (small red o-ring). Apply a slight amount of food grease on the o-ring's entire diameter.	
2	Lift up the coffee chute by rotating it. Pinch the top piston o-rings from the sides and remove it by pulling it down and out. Install the new o-ring 9R0001005 (large red o-ring). Apply a slight amount of food grease on the o-ring's entire diameter.	

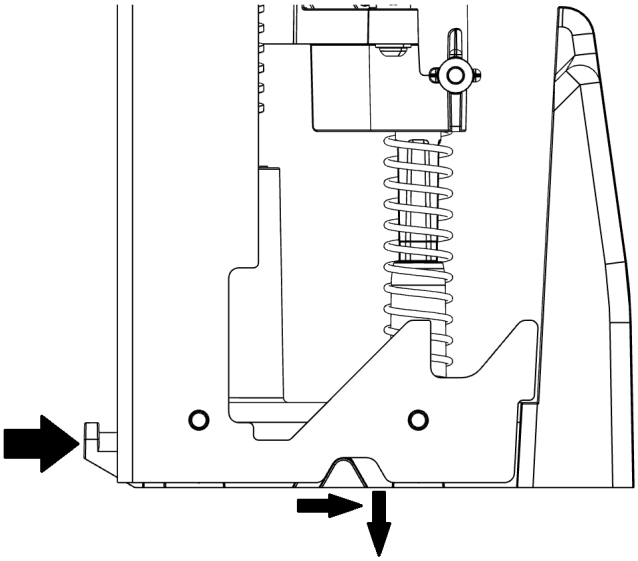
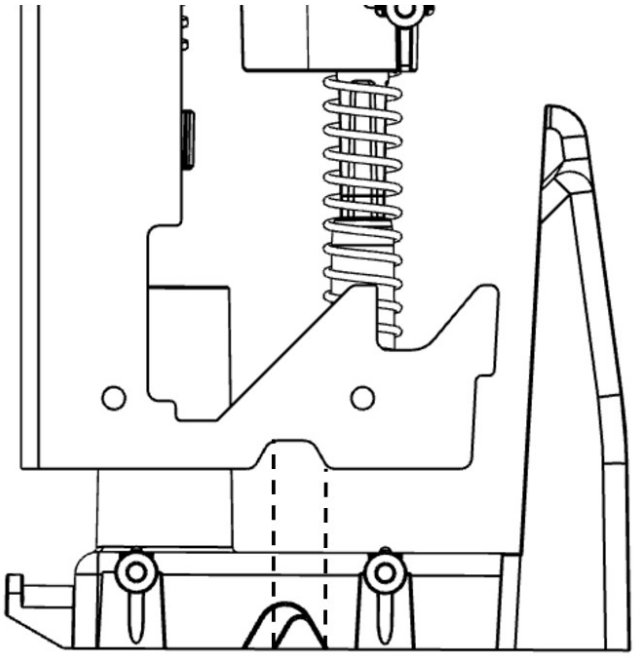
Step	Action	Illustration
3	Rotate the coffee group top gear counterclock-wise by using the coffee group service key, until the ejector reaches the position shown. Completely unscrew the 2 screws (using a T10 screwdriver) that fixes the ejector metal brackets in place (left and right sides).	

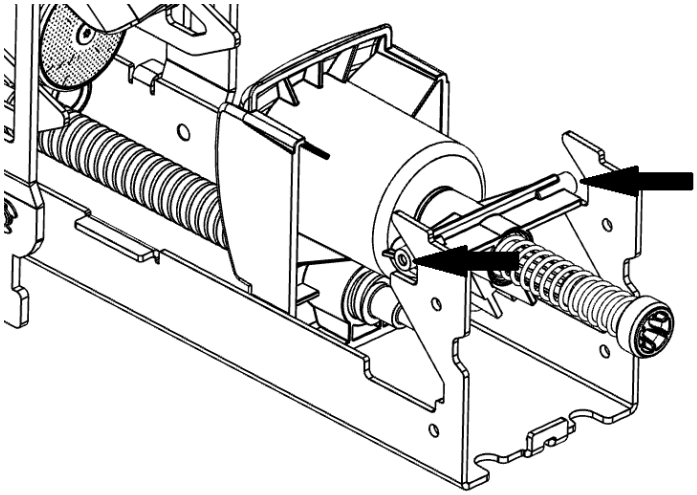
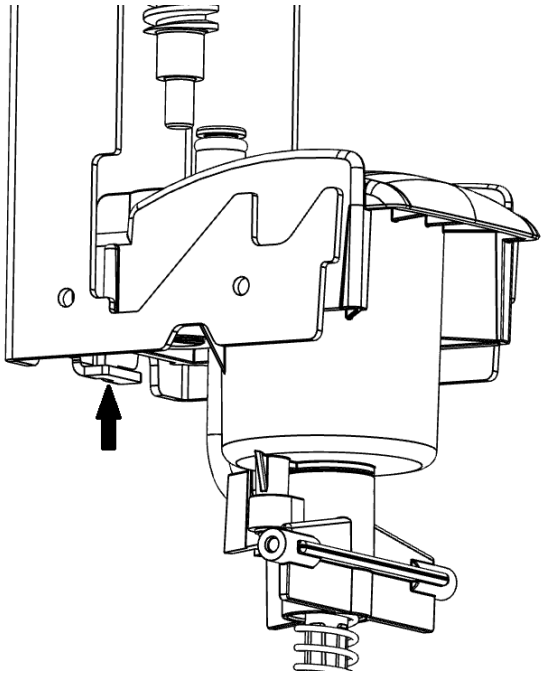
Step	Action	Illustration
4	Pull the handle with the blue lever up. Rotate the ejector assembly counterclock-wise (so that the fixing holes of the ejector's brackets pass above the frontal bottom plastic cover) and then pull it outside the coffee group.	
5	Using a cutter, cut the 2 rubber ejector's pins and remove the ejector from the bracket.	

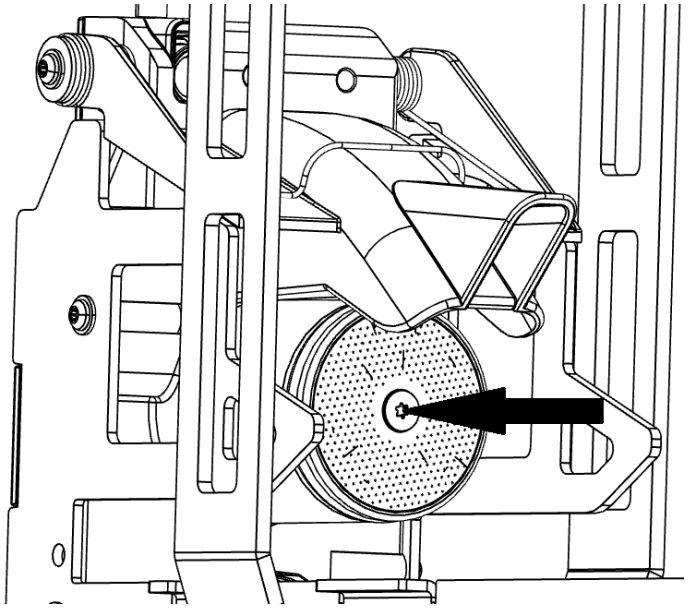
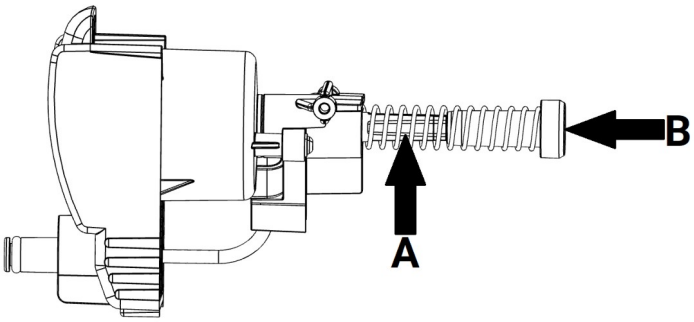
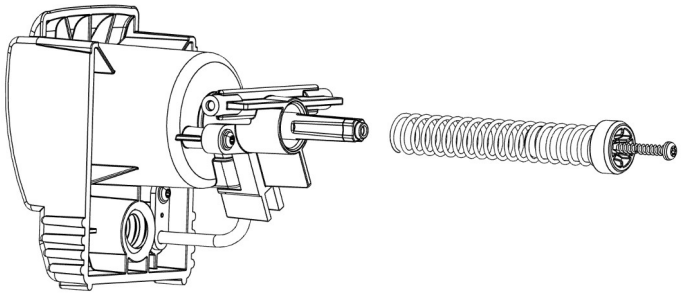
Step	Action	Illustration
6	Install the ejector 9P0001027 as shown.	
7	Before fixing back the ejector assembly, carefully remove the chamber's piston o-ring, using a small flat screwdriver. Pay attention not to scrape the piston with the screwdriver. Install the 9R0001025 (small black o-ring). Apply a slight amount of food grease on the o-ring's entire diameter.	

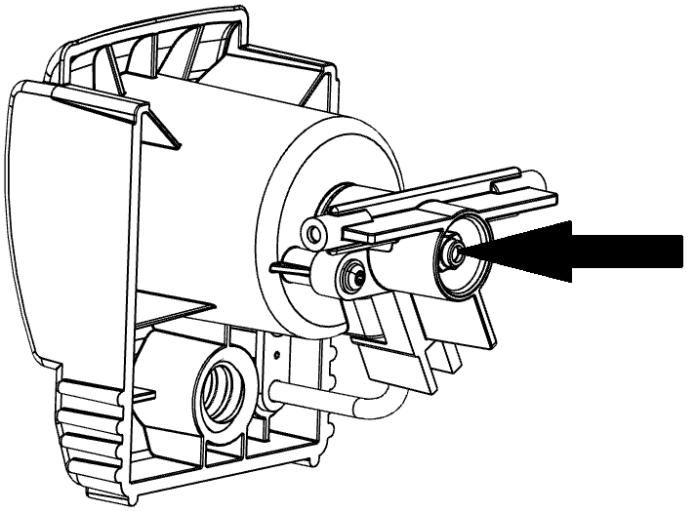
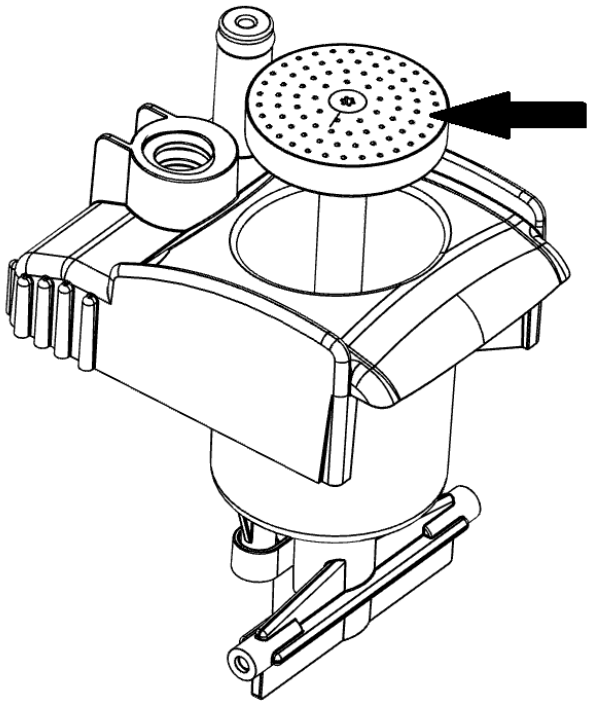
Step	Action	Illustration
8	At the end of this step, the 10’000 cycles kit maintenance will be finished. If you also want to change the filters, then skip this chapter and its instructions below. Follow the step 4 (bottom up) to reinstall the ejector assembly and step 3 to then move the coffee group chamber up, to the standby position as shown.	

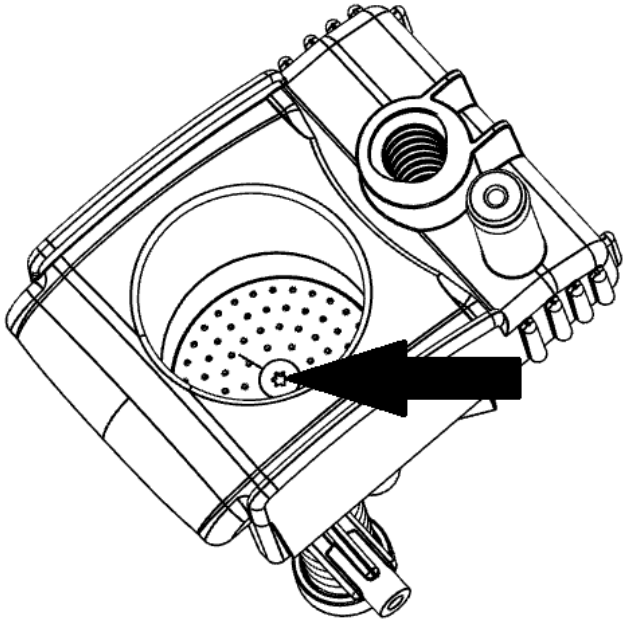
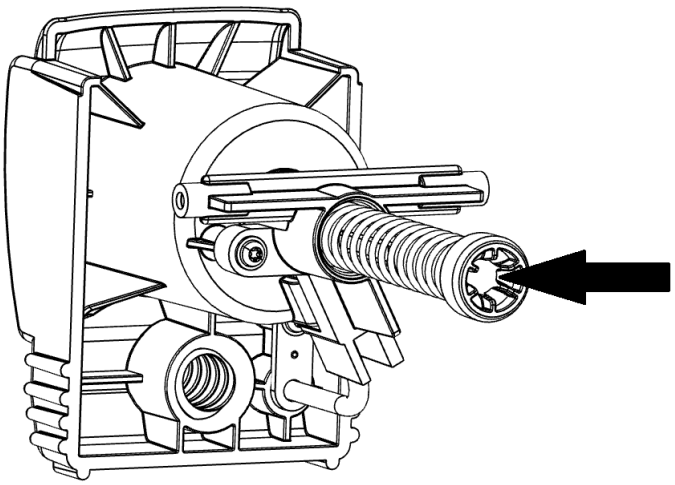
Step	Action	Illustration
9	Rotate the coffee group top gear clock-wise by using the coffee group service key, until the chamber reaches the standby position as shown (take a look at the chamber's bottom shaft with the spring, it should not touch the coffee group bottom base). Completely unscrew the 4 screws (using a T10 screwdriver) that fixes the coffee group bottom base (left and right sides).	

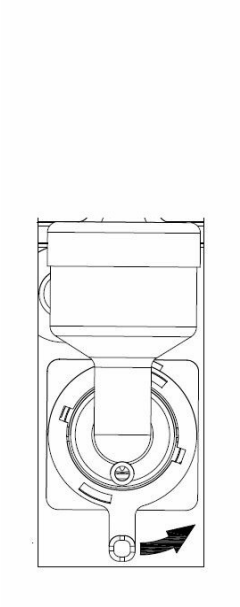
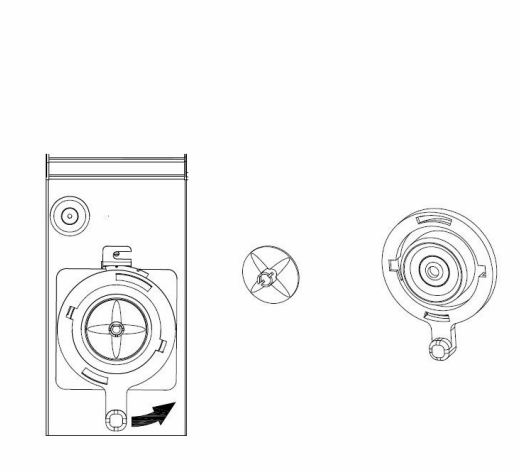
Step	Action	Illustration
10	Push on the bottom rear pins. Make sure the bottom sides triangle shaped parts move towards the front of the metal bracket.	
11	Pull the whole plastic bottom base down, disconnecting it from the main screw.	

Step	Action	Illustration
12	Rotate the coffee group top gear counterclock-wise by using the coffee group service key, until the chamber disconnects from the main screw. Keeping the coffee group in a horizontal position, allows you to check the whole descending movement of the chamber. Pay attention not to trap the indicated points on the metal brackets, and let the whole chamber travel down and within the metal brackets.	
13	Pull the whole plastic bottom base down, disconnecting it from the main screw. Pull it slightly to the front to let the chamber jump over the small “L” shaped metal part on the base shown.	

Step	Action	Illustration
14	Completely unscrew the top filter screw (using a T15 screwdriver). Change the filter with the provided new one and fix the screw again.	
15	To change the bottom filter, first fix the point A shown, with a wrench (8 sized metric standard). Make sure not to ruin the spring while using the wrench. Then fit a T10 screwdriver into the shaft (see point B) and unscrew the shaft inner screw.	 

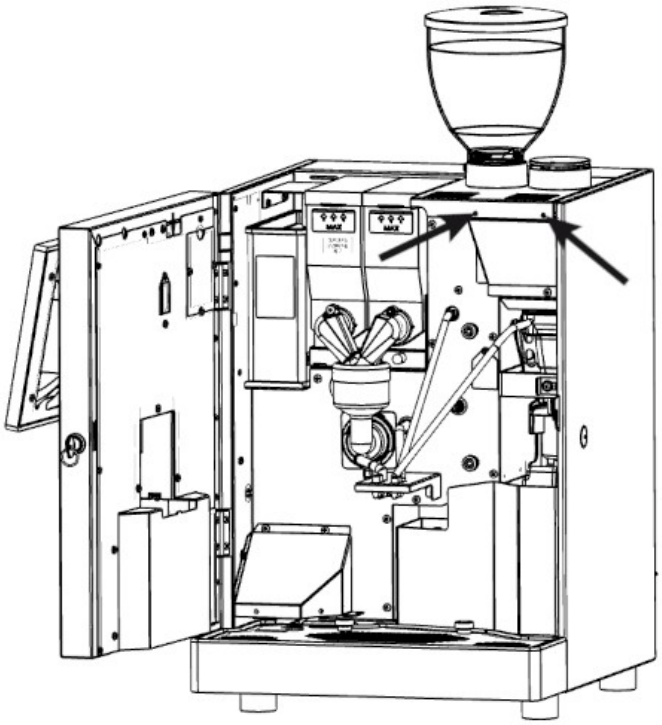
Step	Action	Illustration
16	Push out the bottom filter shaft completely. You can use the T10 screwdriver for an easy push.	
17	Remove the bottom filter from the chamber. Remove the screw (with a T15 screwdriver) from the bottom filter. Fix the screw (with a T15 screwdriver) on the new bottom filter. Insert the new bottom filter into the chamber and push it down with your hands until it stops moving down.	

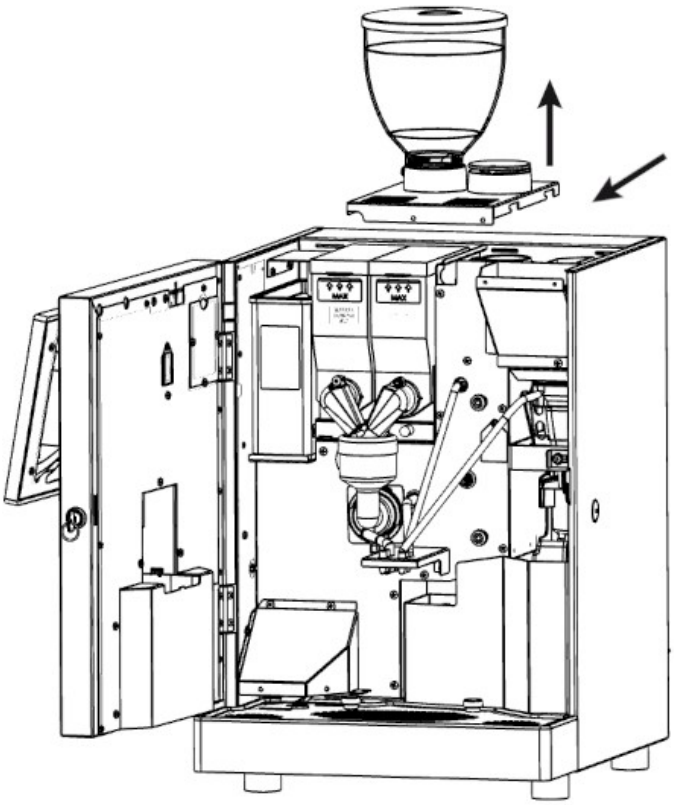
Step	Action	Illustration
18	To fix the bottom filter, you will need to use 2 screwdrivers (T10 and T15) simultaneously. First, fit the T15 screwdriver on the bottom filter top screw.	
19	Second, fit the T10 screwdriver into the bottom part of the chamber (within the shaft, reaching the screw). Make sure to have a strong fix on the top screw with your T15 screwdriver. Push from the bottom part, with your T10, by compressing the spring until the bottom screw reaches its thread in the bottom part of the filter shaft and start fixing it slowly. Follow the steps backwards, from 13 to 8 to finish.	

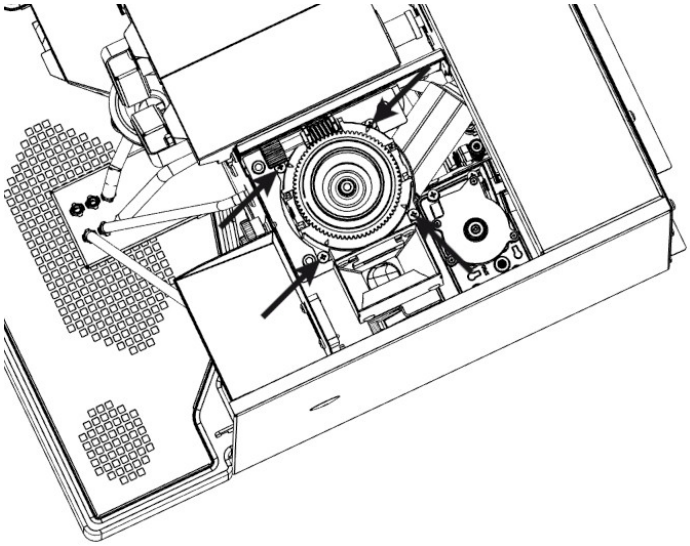
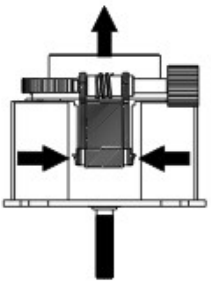
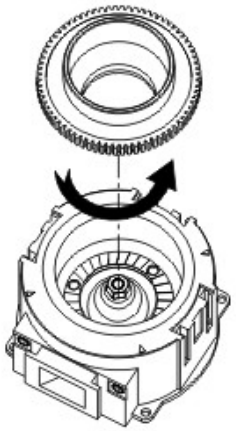
Step	Action	Illustration
20	Turn right the **mixing bowl holder** and pull out the **mixing bowl**. Pull out the **mixing blade**.	
21	Turn right the **mixing bowl holder** till the end and pull it out. Replace the lip gasket and the silicon O-ring.	

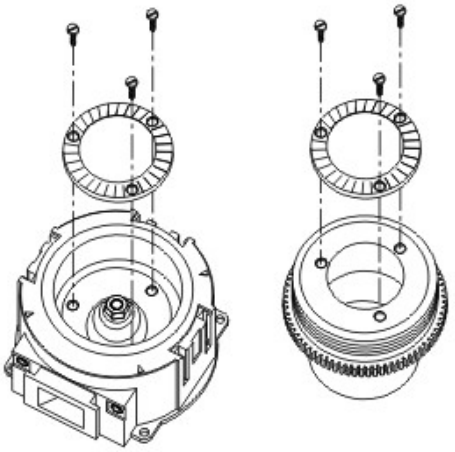
4.3 Grinder blades replacement

Before to do this operation, follow the procedure described on paragraph **6.1.1 Removing the top lid**.

Step	Action	Illustration
1	Remove the 2 screws fixing the grinder's lid.	

Step	Action	Illustration
2	Pull the whole grinder’s lid towards you and lift it up to remove it from the machine.	

3	Remove the sound proof material by pulling it up from the grinder. Unscrew the 4 screws that hold the **grinder assembly** and lift it up completely.	
4	Push both the internal clips of the grinder regulator's plastic support and pull it up. Turn the **grinder head** counter-clockwise until it's completely out of the base.	 

5	Unscrew the 3 screws for both **grinder head** and **grinder base** and pull up the blades. Install the new blades and follow the instructions backwards. Lastly, after fixing the plastic grinder regulator to the grinder base, make sure to push the internal clips to the internal sides, to ensure a more solid fixing position.	

5

6 Extraordinary maintenance

This kind of maintenance has to be considered in case of faults.

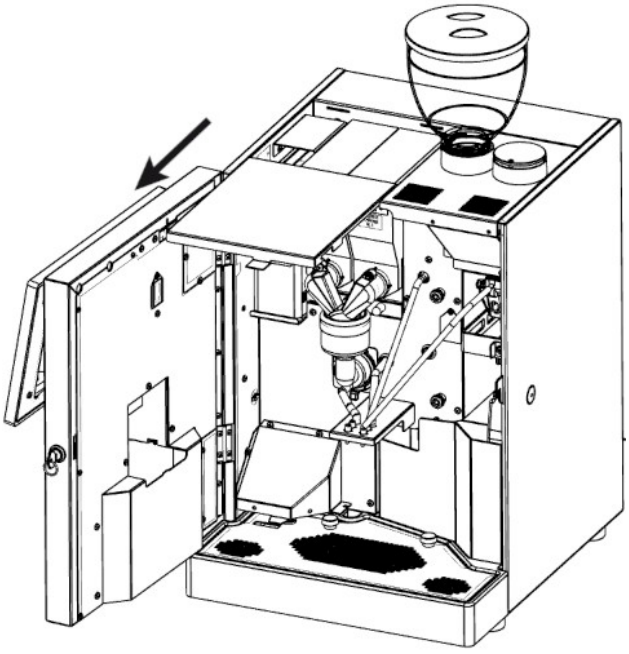
WARNING

All the operations contained in this chapter has to be performed with the machine switched OFF and the power cord removed.

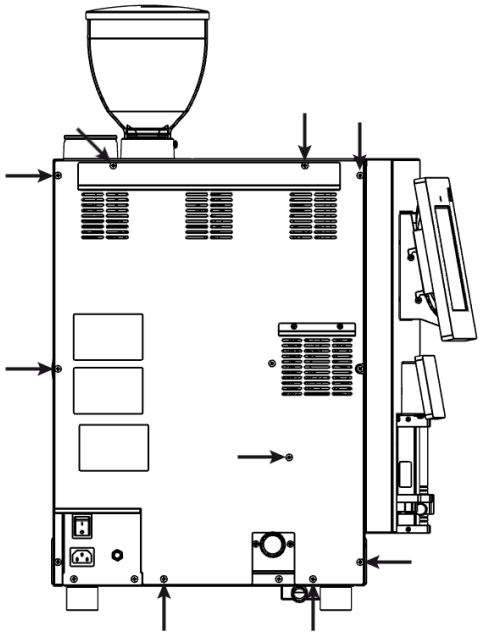
6.1 Removing the various metal plates

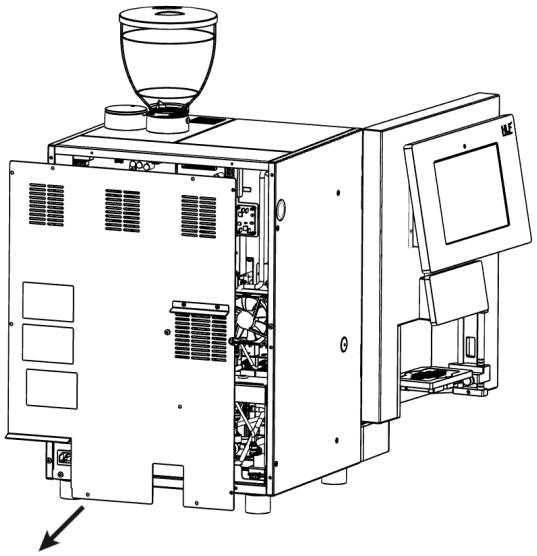
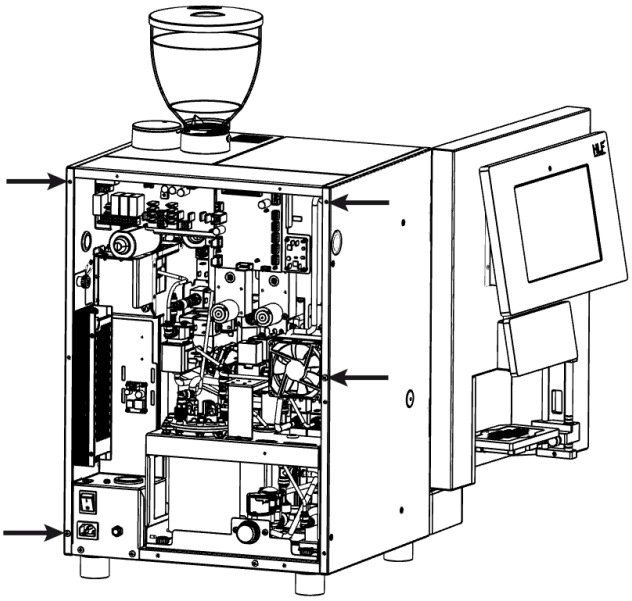
This paragraph shows how to remove the various machine metal plates to reach the components.

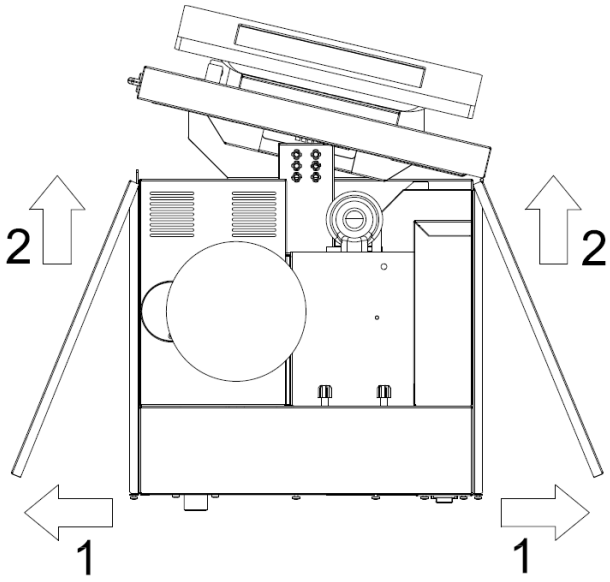
6.1.1 Removing the top lid

Step	Action	Illustration
1	Pull the **top lid** above the soluble containers/detergent tanks towards you. **Note**: When fixing it back to the machine, make sure to the 4 fixing cutouts on the **top lid** plate match the screws head in the machine.	

6.1.2 Removing the external panels

Step	Action	Illustration
1	Take off the drip tray. Unscrew the 9 screws that hold the **back panel**.	

2	Pull the **back panel** towards you and disconnect the ground wiring that connects the machine to the panel.	
3	Unscrew the 4 screws that hold the **side panels**.	

4	Slightly open the door. Open the **side panels** and push each one to the front.	

7

7 Removing assemblies

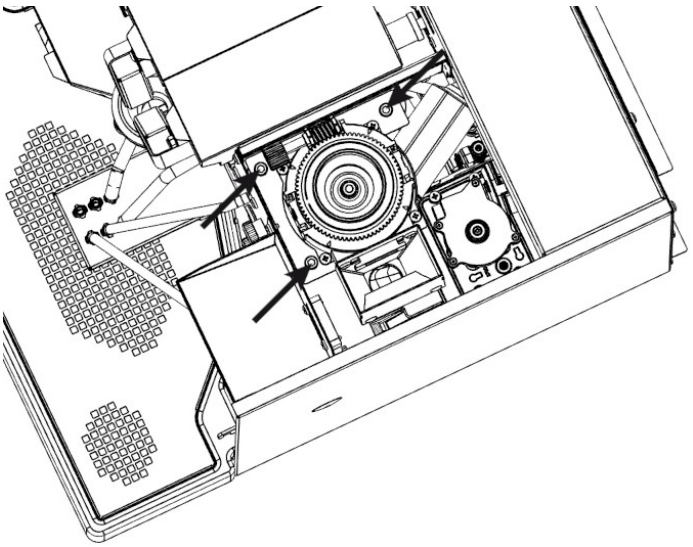
This kind of maintenance has to be considered in case of faults.

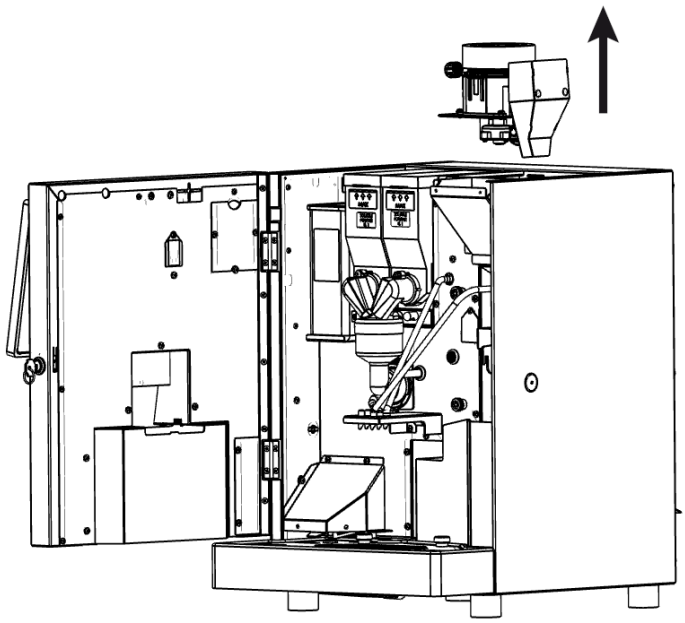
WARNING

All the operations contained in this chapter has to be performed with the machine switched OFF and the power cord removed.

7.1 Removing the grinder assembly

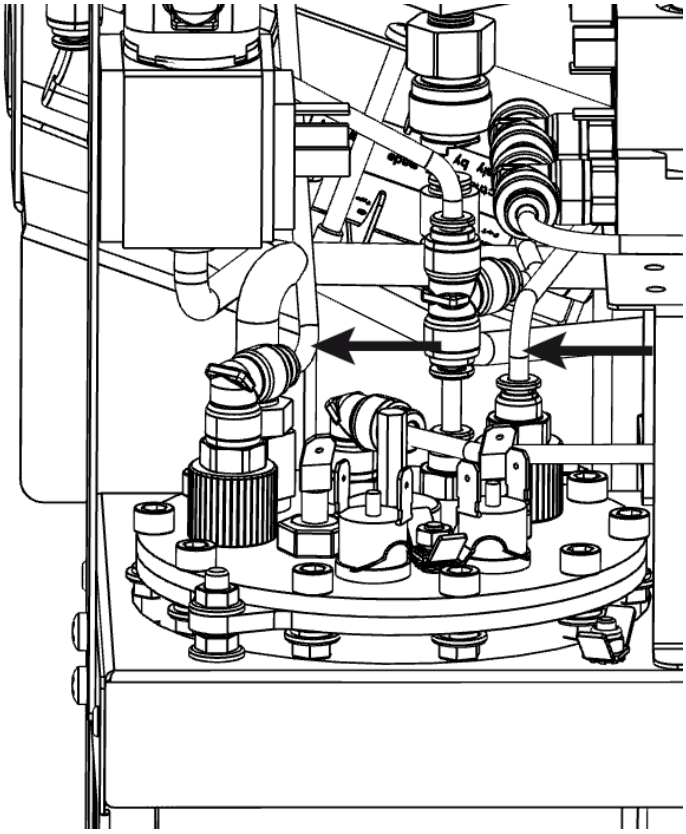
Before to do this operation, follow the procedure described on paragraph **6.1.1 Removing the top lid**.

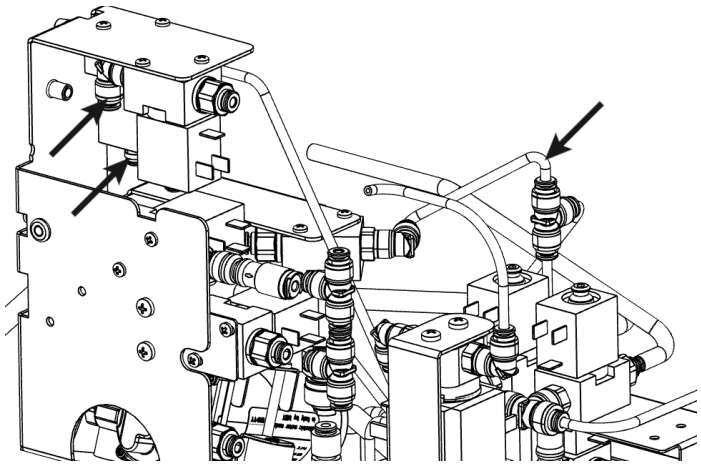
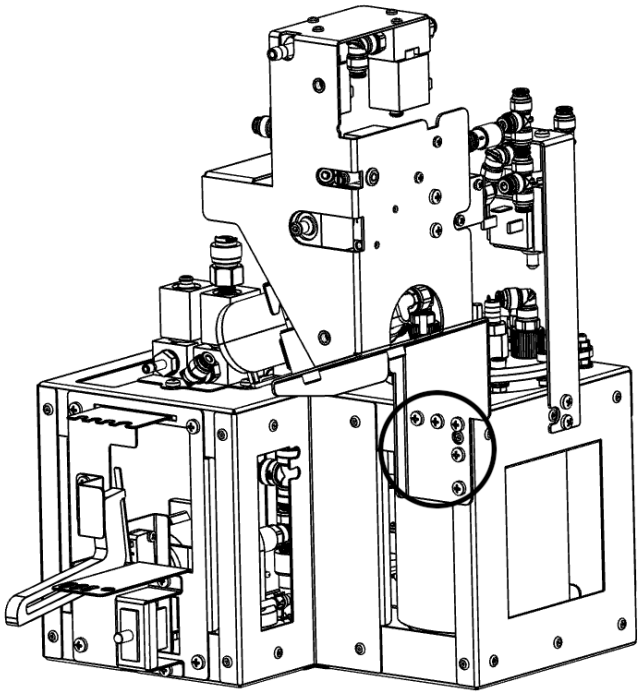
Step	Action	Illustration
1	Remove the sound proof material by pulling it up from the grinder. Remove the screws that hold the **grinder assembly** and pull it up. **Note:** while removing the **grinder assembly**, unplug the 6 ways connector connected to it.	

2	Pull up the whole grinder assembly and then remove the 3 screws that fixes the grinder motor to the grinder base.	

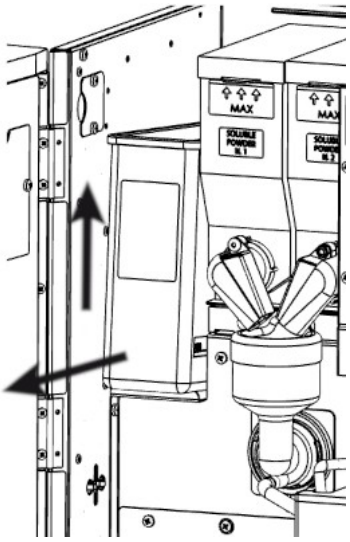
7.2 Removing the milk assembly

Before to do this operation, follow the procedure described on paragraph **9.1 Cooling down,** paragraph **6.1.2** Removing the external (STEP 1-2) and paragraph **7.4 Removing the hydraulic assembly.**

Step	Action	Illustration
1	Disconnect the inlet and outlet tubes of the milk serpentine.	

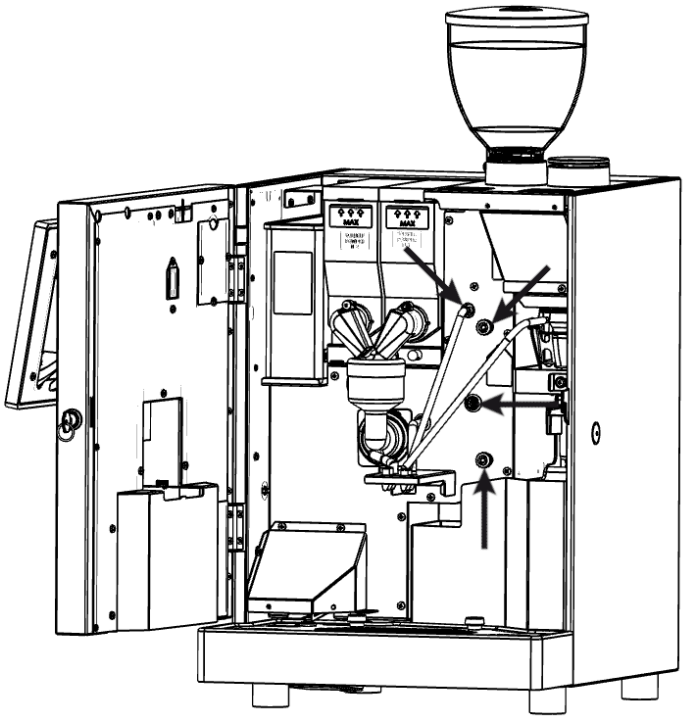
Step	Action	Illustration
2	Remove the rigid tube from the milk circuit rinsing valve and the silicon tube from the milk output / discharge valve. Remove the rigid tube from the T fitting on the right.	
3	Hold the milk assembly and remove the screws that fix it to the hydraulic assembly. Remove the milk assembly from the hydraulic assembly.	

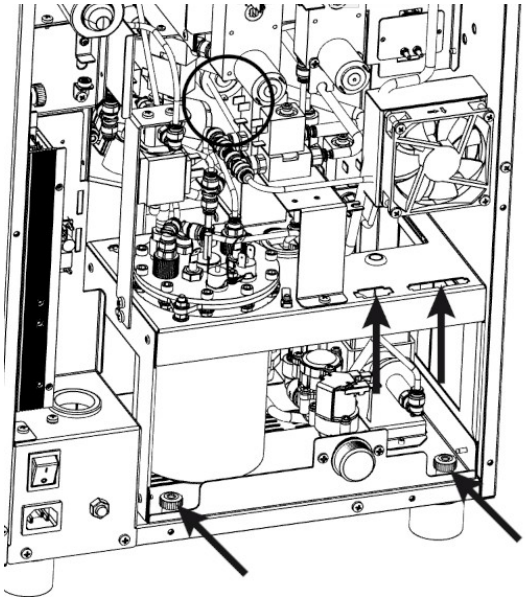
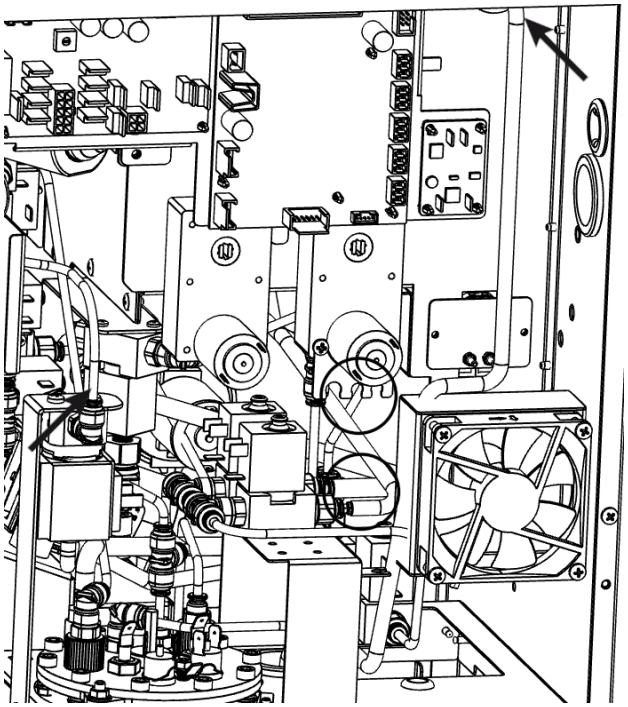
7.3 Removing the detergent tank

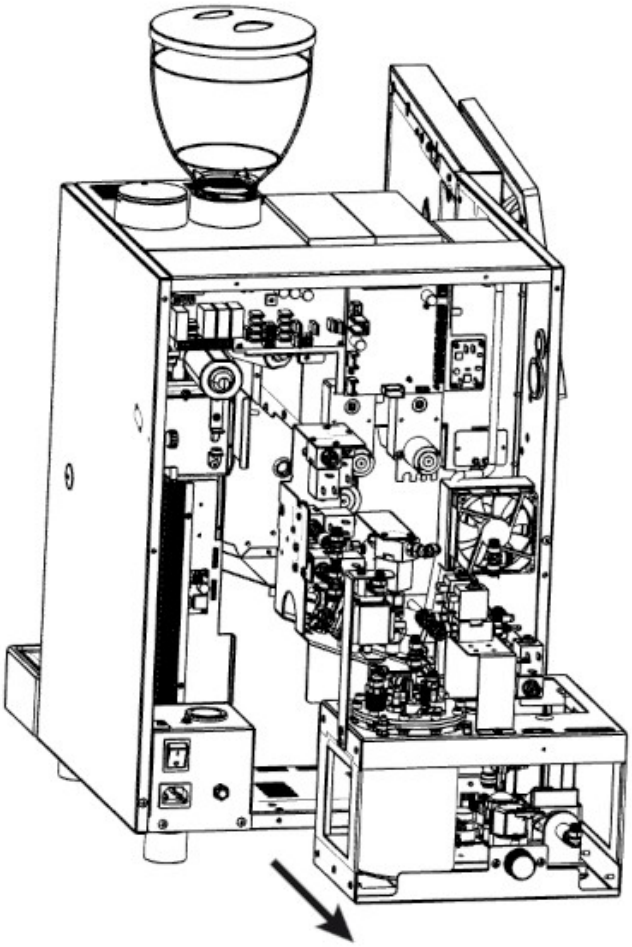
Step	Action	Illustration
1	Open the door and slightly lift up the **detergent tank** and then pull it towards you to remove it. **Note**: The **detergent tank** lid is not air tight, therefore manage the tank with care and pay attention not to spill out any liquid.	

7.4 Removing the hydraulic assembly

Before to do this operation, follow the procedure described on paragraph **9.1 Cooling down,** paragraph **6.1.2** Removing the external (STEP 1-2).

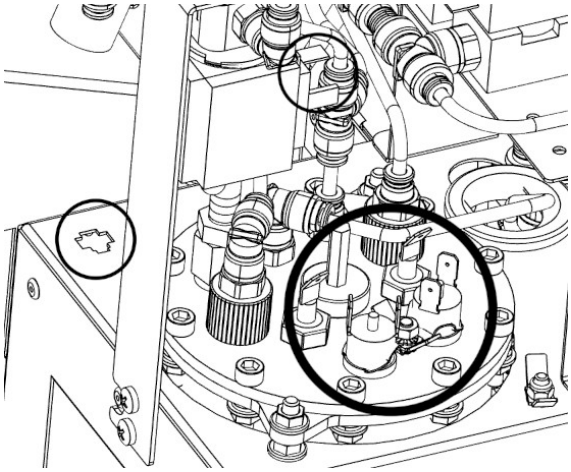
Step	Action	Illustration
1	Remove the 2 knobs that fix the hydraulic assembly from the front. Also remove the milk inlet and outlet tubes from their respective fitting points. **Tip**: hot water and whipper outlet tubes don't require being disconnected from the front.	

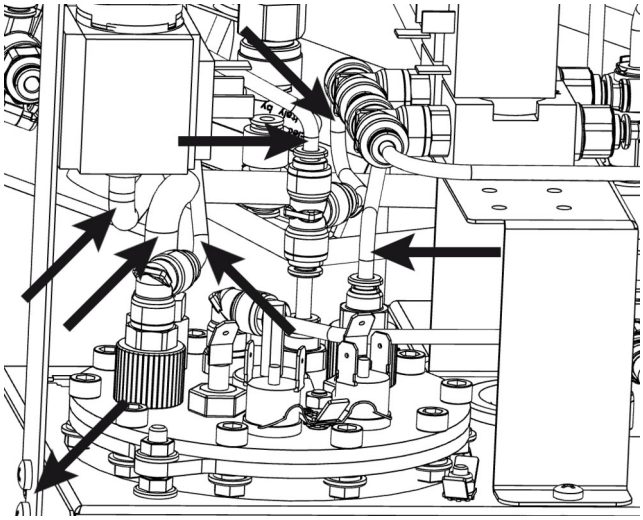
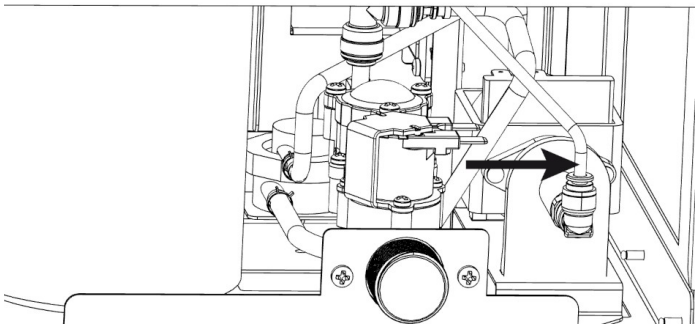
Step	Action	Illustration
2	Remove the 2 knobs at the bottom. Remove the 2 electrical connectors on the right side of the hydraulic assembly. Remove the milk assembly connector which is floating near the coffee valve (indicated by the circled area, for fresh milk machines only).	
3	Remove the coffee valve tube on the left. Remove the detergent tube on the top right. Remove the hot water tube and the whipper(s) tubes and fit them in the metal support bracket placed underneath the soluble motor (see circled areas). **Note**: tubes might contain water or traces of detergent, handle them with care.	

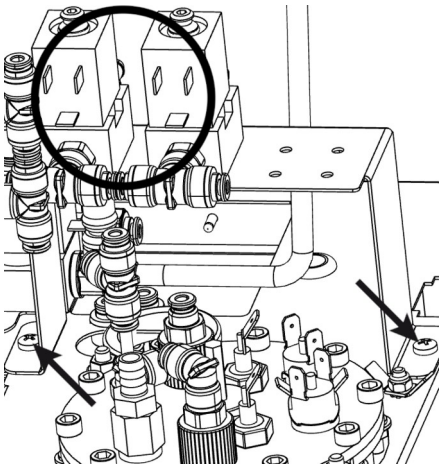
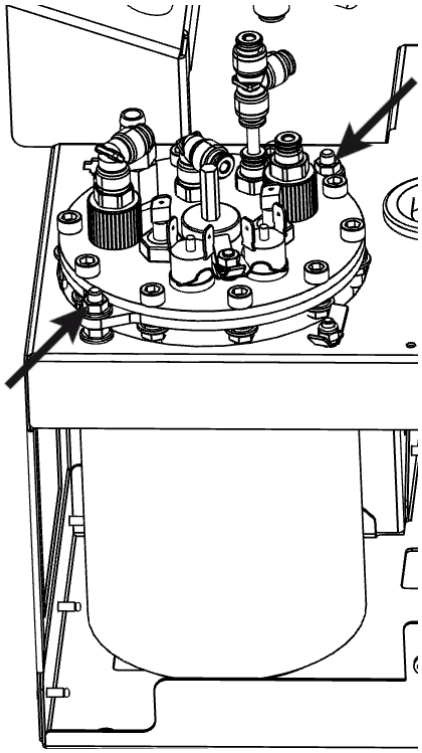
4	Pull the whole hydraulic out. **Note**: pay attention to any tubes that could be scratched while removing the assembly (especially the coffee valve rigid tube that will be left floating). Pay attention to the wiring and make sure it's not getting scratched while removing the assembly (especially the grinder motor/coffee group motor wirings and the 2 previously removed connectors of the hydraulic assembly). Pay attention to any cutting edge in general when handling the metal brackets.	

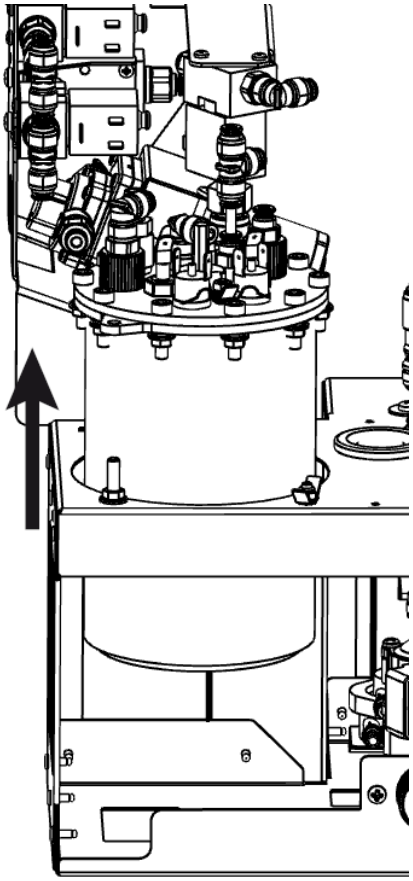
7.5 Removing the boiler

Before to do this operation, follow the procedure described on paragraph **9.1 Cooling down,** paragraph **6.1.2** Removing the external (STEP 1-2) and paragraph **7.4 Removing the hydraulic assembly.**

Step	Action	Illustration
1	Remove the 2 ways connector (temperature probe, circled area on the far left). Remove the coffee valve electrical connectors. Remove the boiler's lid connectors (heating element, ground and thermostats).	

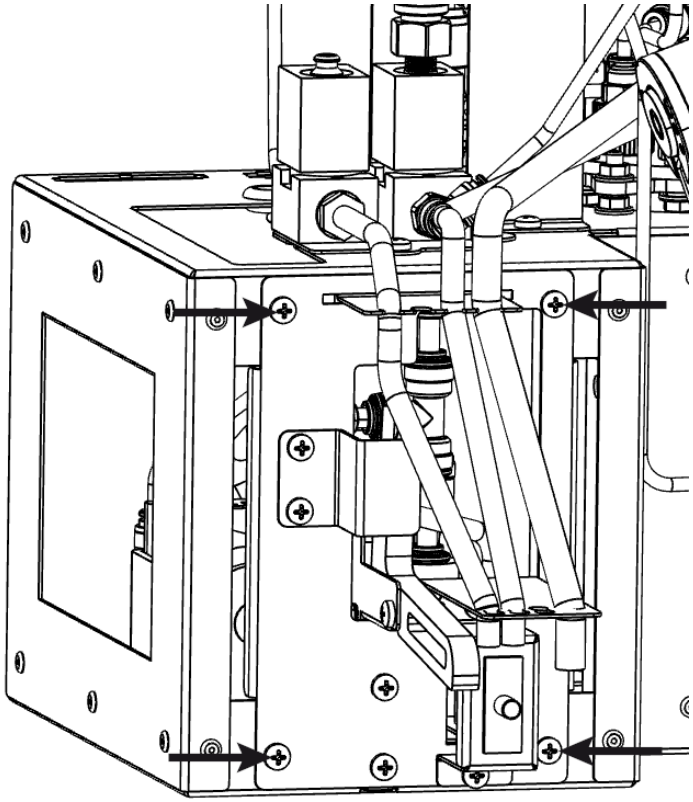
2	Disconnect the indicated tube first. Remove the 2 screws that hold the coffee valve bracket in place and carefully pull the coffee valve and its bracket away from the hydraulic assembly. Disconnect the rigid tube (boiler water inlet) from the pump.	 

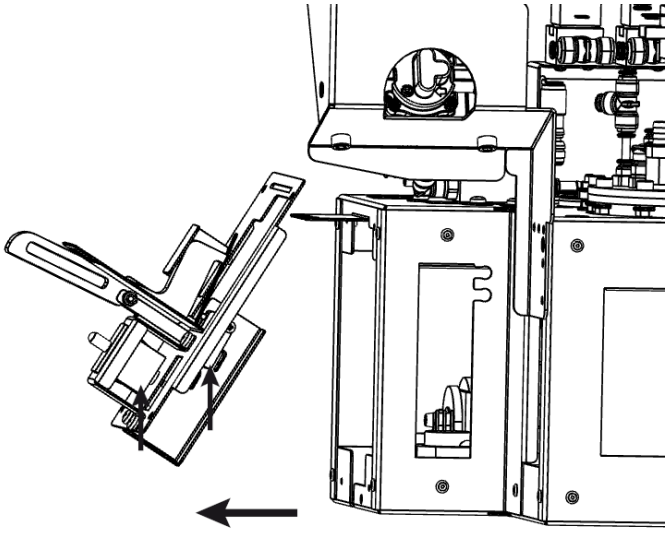
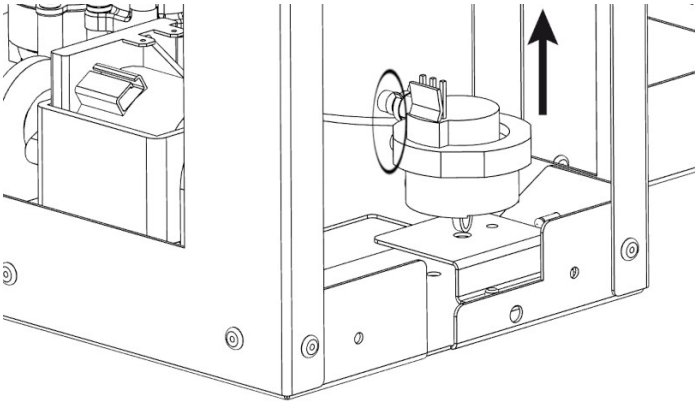
3	Remove the valves electrical connectors (in non-fresh milk machines, there will be an additional valve on the right). Remove the 2 screws fixing the valves support bracket and carefully remove the valves assembly away from the hydraulic assembly.	
4	Remove the 2 nuts fixing the boiler in the assembly.	

5	Lift up the boiler and remove it from the hydraulic assembly.	

7.6 Removing the flow meter

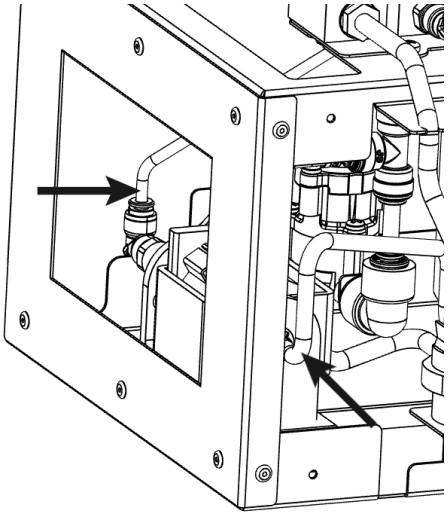
Before to do this operation, follow the procedure described on paragraph **9.1 Cooling down,** paragraph **6.1.2** Removing the external (STEP 1-2) and **7.4 .**

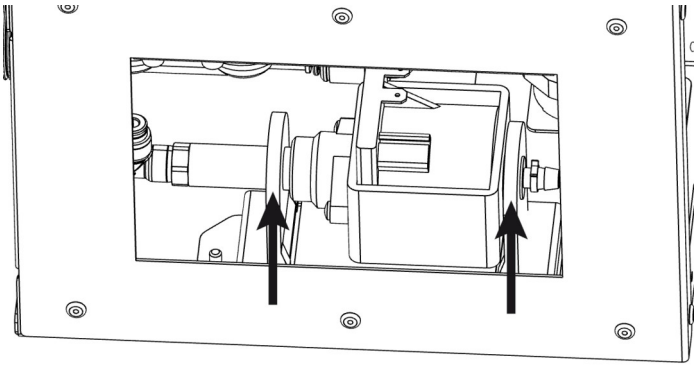
Step	Action	Illustration
1	Pull out the silicon tubes from the brackets. Remove the 4 screws fixing the front plate of the hydraulic assembly.	

2	Carefully pull the front cover assembly to the front and twist it up to access the microswitches. Remove the microswitches wires to completely remove the front cover assembly from the hydraulic assembly.	
3	Disconnect the silicon tubes from the flow meter, then pull it up from its bracket.	

7.7 Removing the water pump assembly

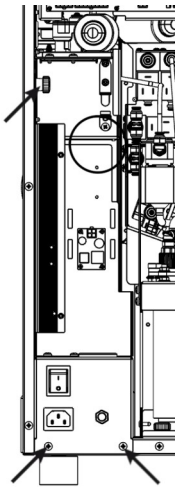
Before to do this operation, follow the procedure described on paragraph (prerequisite steps in separate paragraphs and STEP 1-2, so up until the front cover is removed).

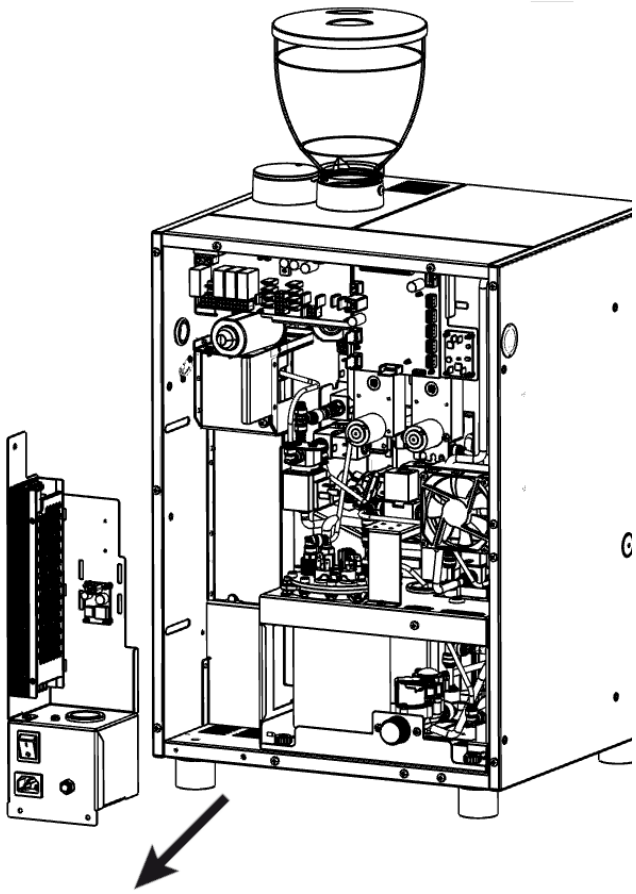
1	Disconnect the 2 tubes from the pump. Disconnect the electrical connectors from the pump.	

2	The pump can be then disconnected from its 2 rubber supports. There is no need to remove the connector on the back of the pump, but it's sufficient to slide it out by twisting the pump on the rubber support.	

7.8 Removing the power supply assembly

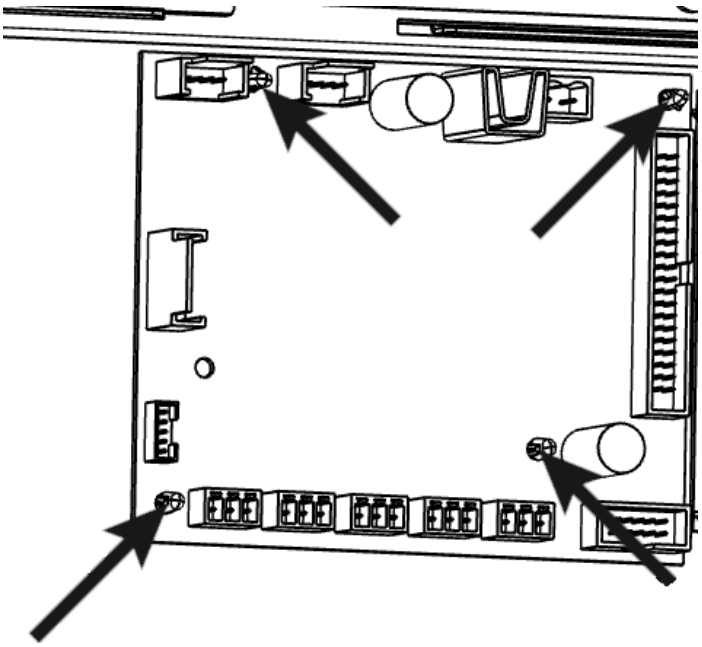
Before to do this operation, follow the procedure described on paragraph **6.1.2** Removing the external (STEP 1-2).

Step	Action	Illustration
1	Remove the 6 ways connector that you will find near the circled area. Remove the 2 screws that fix the power supply assembly at the bottom. Remove the knob at the top left side of the assembly.	

Step	Action	Illustration
2	Carefully slide out the power supply assembly from the machine.	

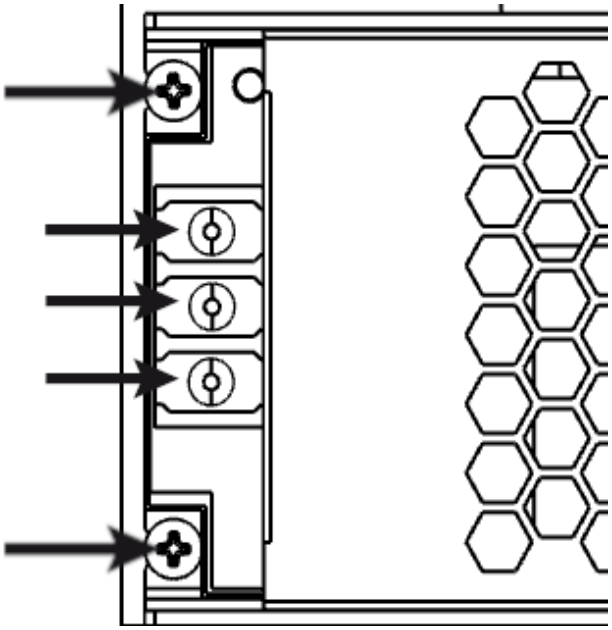
7.9 Removing the electronic boards

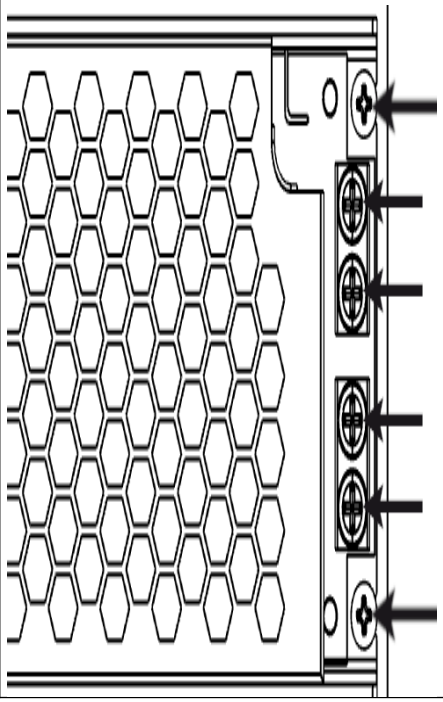
Before to do this operation, follow the procedure described on paragraph **6.1.2** Removing the external (STEP 1-2).

Step	Action	Illustration
1	Every electronic board is fixed to the support bracket with some white plastic fittings. It's not necessary to remove the whole **electronic boards assembly** to remove one of the boards. Simply disconnect all the necessary connectors and then disconnect the desired board by pushing the side of the associated white plastic fittings. See an example of removing the plastic fittings from motherboard on the picture to the right (also see paragraph **14.1** for the connectors locations). The removing operation applies to all the boards, with the only difference being the number of plastic fittings.	

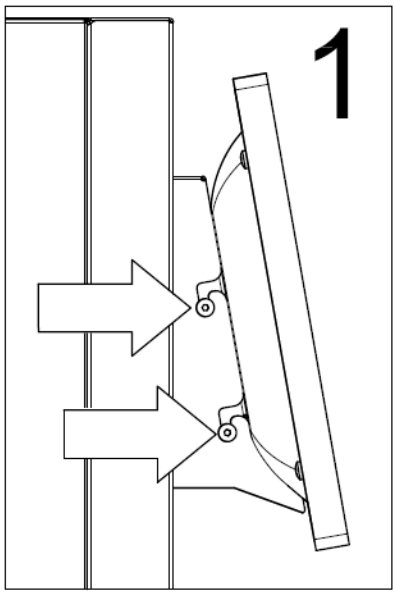
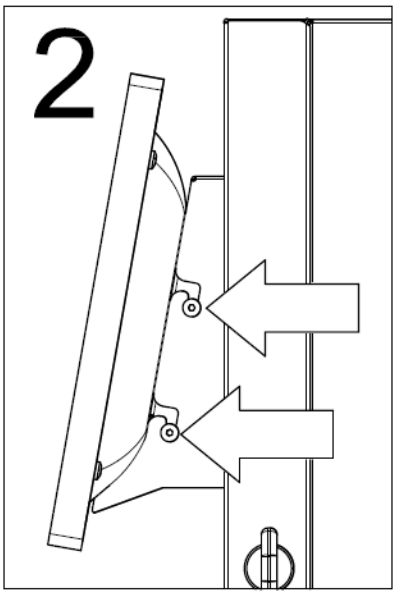
7.10 Removing the power stabilizer board and rectifier board

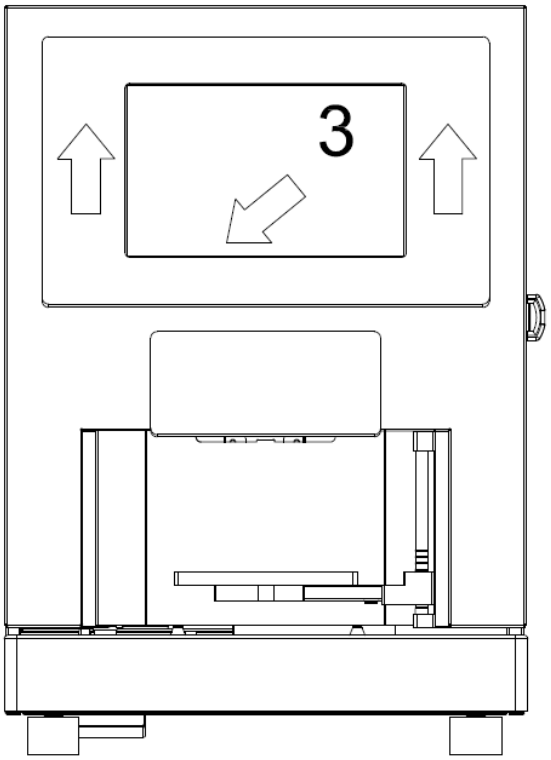
Before to do this operation, follow the procedure described on paragraph **6.1.2** Removing the external (STEP 1-2) and paragraph **7.8 Removing the power supply assembly**.

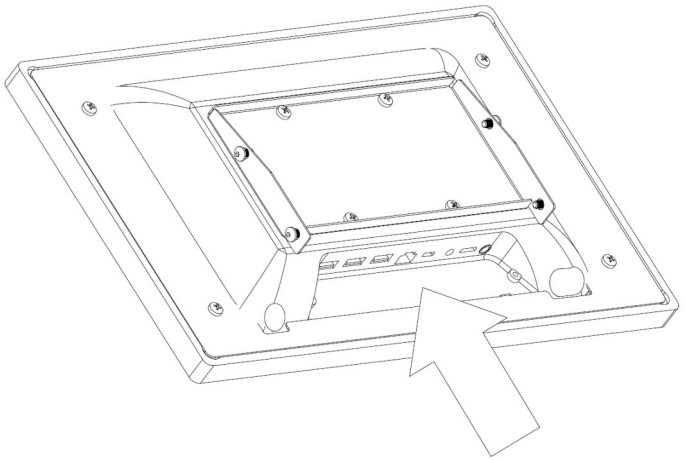
Step	Action	Illustration
1	Remove the plastic cover to access the screws that fix the L,N,GND cables. Loosen the screws that fix the L, N, GND cables from the **power supplier unit**. **Note**: only loosen the screws enough to pull the cables out from the sockets, without disconnecting the screws completely. Unscrew the 2 screws located in the top and bottom corner of the **power supply unit**.	

2	Loosen the screws that fix the +24 and GND cables from the **power supplier unit**. **Note**: only loosen the screws enough to pull the cables out from the sockets, without disconnecting the screws completely. Unscrew the 2 screws located in the top and bottom corner of the **power supply unit**.	

7.11 Removing the touch screen assembly

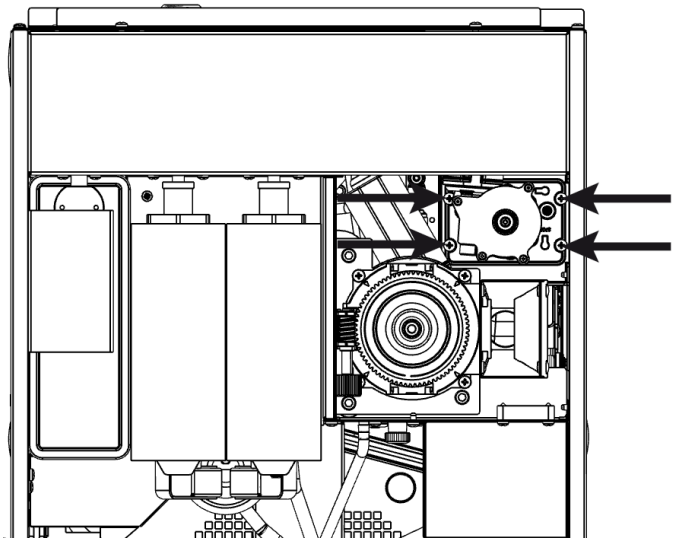
Step	Action	Illustration
1	Slightly unscrew the side screws that fixes the **touch screen assembly** to the machine's door support bracket.	 

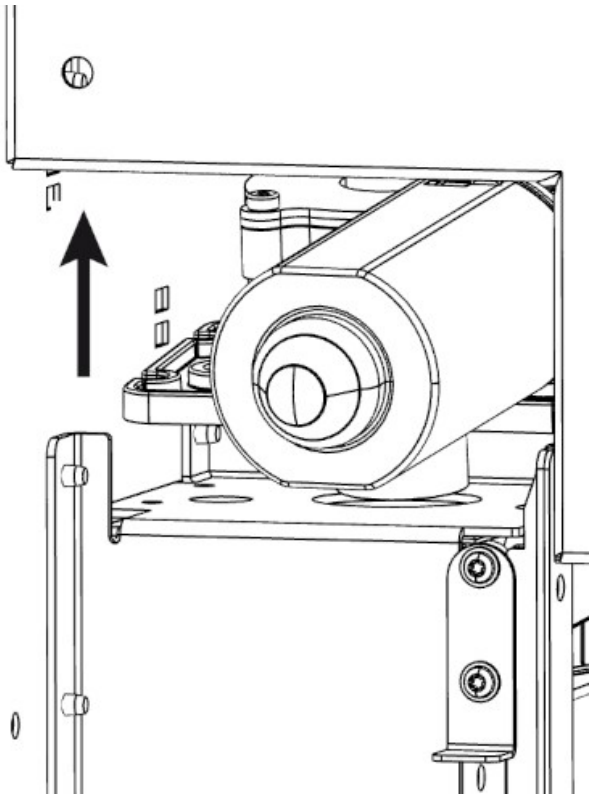
2	Lift up the **touch screen assembly** and then carefully pull it toward you.	

3	Remove all the connectors from the touch screen in order to completely remove the **touch screen assembly** from the machine.	

7.12 Removing the coffee group gearmotor

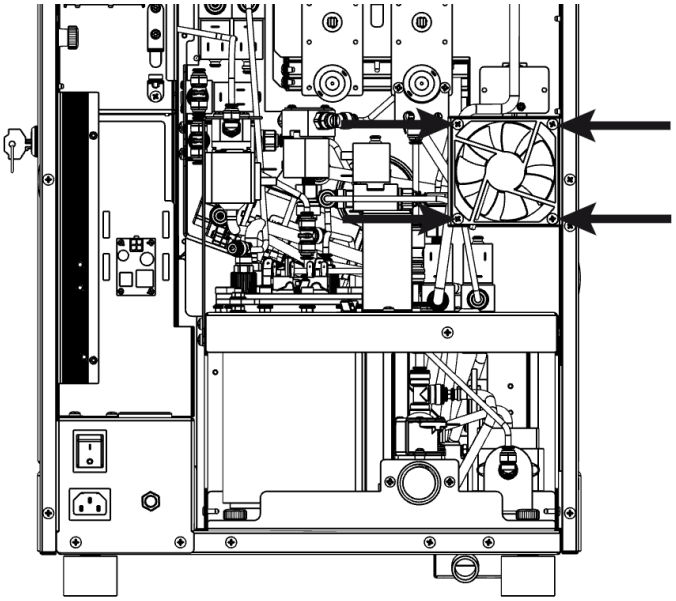
Before to do this operation, follow the procedure described on paragraph **6.1.2 Removing the external** (STEP 1-2), paragraph **4.1** Removing the coffee group and paragraph **6.1.1 Removing the top lid.**

Step	Action	Illustration
1	Remove the 4 screws that fix the **coffee group gearmotor** from above.	

2	Unplug the **coffee group gearmotor** connector from the back of the machine. Lift up and slightly rotate the **coffee group gearmotor** with its bracket and pull it from the back of the machine.	

7.13 Removing the aspirator

Before to do this operation, follow the procedure described on paragraph **6.1.2 Removing the external** (STEP 1-2).

Step	Action	Illustration
1	Disconnect the 2 ways connector from the **aspirator**. Unscrew the 4 screws that fix the **aspirator** and pull it out of the machine.	

8

9 Operations on the hydraulic circuit

All the operations described in this chapter needs to put the machine into safety conditions, to avoid any damage to the component and to the operator.

9.1 Cooling down

The machine MUST BE COLD. If not, the operator must do the following operations first.

- Turn **ON** the option “HEATING CONTROL” inside the “Technician menu” (see paragraph **5.3.6.2** on the **User Manual**);
- Switch **OFF** the machine and unplug the power cord;
- Disconnect the **heating element connectors** from the top of the boiler.
- Put back the power cord and switch **ON** the machine;
- Run a “Whipper Cleaning” (it’s called “Daily Cleaning” on non-fresh milk machines) to cool down the **water boiler**;
- Turn **ON** the option “HEATING CONTROL” again, at the end of the cleaning cycle (this is an additional security measure that will become useful when reassembling everything).

- Switch OFF the machine and remove the power cord.

After the above steps, carefully unscrew the boiler temperature probe with a key, in order to release any remaining pressure. Surround the boiler lid surface (around the probe) with a piece of paper before unscrewing the probe, in order to collect any water that would come out.

Secure the probe back again before to take out the boiler assembly.

9.2 Emptying the boiler

Before to do this operation follow the procedure described on paragraph **9.1 Cooling down** and paragraph **6.1.2 Removing the external**.

- Put compressed air (1 bar maximum) from the water inlet connector. Water will come out from the water outlet connector.

CAUTION

Don’t connect back the heating element connector previously disconnected from the top of the boiler, during the time the boiler stays empty.

After the maintenance is finished, remember to switch ON the machine and run some “Whipper Cleaning” (“Daily Cleaning” on non-fresh milk machines) routines until water comes out of the drink nozzles, which means the water boiler is completely full of water.

Now the user can switch OFF the machine, connect back the heating element connector and switch back ON the machine.

10

11 Operating the computer software

12

13 Troubleshooting

This troubleshooting helps technician to find the cause of a problem starting from the error message shown by the **touch screen**.

All these error messages has been covered during the HLF Technical Training Course, where we strongly recommended to have a multimeter always available, in order to check possible bad connections.

13.1 E11-DRIP TRAY FULL

Why?

The option **DRIP TRAY SENSOR FLOAT** is active and the **drip tray switch** is engaged.

Cause of fault	**Troubleshooting measure(s)**
The **drip tray** is full of waste water;	Remove the **drip tray**, empty and clean it. Check if the plastic float inside the **drip tray** is free to move.
The plastic float is blocked;	Turn off the option **DRIP TRAY FLOAT SENSOR** inside the programming, to let the machine

	working anyway (refer to the user manual);
The **drip tray switch** is damaged or doesn't work;	Replace the **drip tray switch**.
	Check the wires from the **drip tray switch** to the **motherboard** (refer to the **Input/Output** table to understand which input number);
The connection is compromised	Replace the **motherboard**.

13.2 E13-FLOW METER KO

Why?

The flow meter is not detecting the water passing through the circuit.

Cause of fault	**Troubleshooting measure(s)**
The message appears during a coffee cycle only, and not during a hot water or soluble drink. No coffee comes out or at least a very poor flow:	Launch a **Coffee Group Cleaning Cycle**.
The **coffee group** is dirty;	Wash the **coffee group** under hot water.
The **grinder** is set too fine;	Move the **grinder blades** to a coarser position.
	Take it off and clean it or replace it.

The **coffee valve** may be blocked by lime scale;	Replace it.
The **coffee valve** got fault.	
The connection is compromised.	Check the wires from the **coffee valve** to the **output board** (refer to the **Input/Output** table to understand which output number).
The message appears during the dispensing of a specific product, while is not appearing during the dispensing of all the other products; The water for that specific product doesn't come out:	
The **valve** related to the product that fails may be blocked by lime scale;	Take it off and clean it or replace it.
The **valve** related to the product that fails got fault;	Replace it.

Cause of fault	**Troubleshooting measure(s)**
The connection is compromised.	Check the wires from the **valve** related to the product that fails, to the **output board** (refer to the **Input/Output** table to understand which output board and output number).
The message appears during the stand-by:	
• The **discharge valve** may be blocked by lime scale;	Take it off and clean it or replace it.
• The **discharge valve** doesn't work.	Replace it.
The connection is compromised.	Check the wires from the **discharge valve** to the **output board** (refer to the **Input/Output** table to understand which output number).

The message appears during the dispensing of any product and the water doesn't come out:	
▪ The **air-break** is empty, but no **E-16 CHECK WATER** message appears;	Refer to paragraph **13.4 E16-CHECK WATER**
▪ The **pump** doesn't work:	Check the connection between the **pump** and the **output board** (refer to the **Input/Output** table to understand which output number).
▪ The **pump** got fault;	Replace it.
▪ The **output board** got fault.	Replace it.

Cause of fault	**Troubleshooting measure(s)**
▪ The **flow meter** is blocked; The message appears during the dispensing of any product and the water comes out for few seconds, then stops:	Check if the **flow meter** is blocked. If yes, replace it.
• The connection is compromised;	Check if the green LED of the **motherboard** blinks while the pump is working. It shouldn't. Check the wires from the **flow meter** to the **motherboard** (refer to the **Input/Output** table to understand which input number).
• The **flow meter** got fault.	Replace it.

13.3 E15-COFFEE GROUP OUT

Why?

The **coffee group presence switch** is not engaged.

Cause of fault	**Troubleshooting measure(s)**
The **coffee group** is not in the correct position;	Check the **coffee group**.
The **coffee group presence switch** is damaged or doesn't work;	Replace the **coffee group presence switch**.
The connection is compromised	Check the wires from the **coffee group presence switch** to the **motherboard** (refer to the **Input/Output** table to understand which input number).
	Replace the **motherboard**.

13.4 E16-CHECK WATER

Why?

The machine has asked for water inside the **air-break** for more than the time set on the option **FILLING WATER TIMEOUT**.

Cause of fault	**Troubleshooting measure(s)**
Switch ON the machine and look if the time the air-break needs to fill up completely is too long. If yes, it means the pressure of the plumb circuit is very low;	Raise up the **FILLING WATER TIMEOUT** option.
The machine is not filling water at all, but the LED on the water level board is ON:	
▪ Maybe the overflow system has been engaged because the machine has been moved without draining the **air-break** first;	Follow the procedure at the end of the paragraph.
▪ The **main inlet water valve** is gone.	Replace it.

The machine is filling water, but once reached the shorter probe, it keeps filling all the time. The LED on the water level board is still ON;	
• Wrong sensitivity setting;	Check the sensitivity bridge on the water level board. Only position 1 should be activated.
• The **air-break probes** are dirty;	Clean them.
• The connection is compromised;	Check the connections from the **air-break probes** to the **water level board**.
• The **wate level board** got fault.	Replace it.

Cause of fault	**Troubleshooting measure(s)**
The machine is filling water, but once reached the shorter probe, it keeps filling all the time. The LED on the water level board turns OFF once reached the shorter probes;	
▪ The **main inlet water valve** stays open all the time;	Replace it
▪ The **output board** got fault;	Replace it.
▪ The **motherboard** got fault;	Replace it.

How to unblock the main inlet water valve

- Switch OFF the machine;
- Disconnect the water line pipe;
- Disconnect the overflow pipe from the **main inlet water valve** and drain the water inside;
- Switch back ON the machine and wait for the **coffee group** positioning. The **main inlet water valve** opens.
- Switch OFF the machine and connect back the water line pipe and the overflow pipe;
- Switch ON the machine.

13.5 E17-HEATING

Why?

The machine is heating up the **boiler**. Wait for the machine to be ready.

During this phase the heating element is supposed to receive power from the board. If no power is reaching the heating element (or the heating element is broken), the message E17-HEATING will disappear and the machine will show E129-BOILER HEATING FAILURE.

13.6 E18-CLEANING CYCLE REQUIRED

Why?

Or the option **HEATING CONTROL** is active.

Maybe it's the first time the machine is installed and it needs a cleaning cycle in order to fill the **boiler** with water, or somebody has switched ON the **HEATING CONTROL** option.

NOTE

Once the option **HEATING CONTROL** is activated, it can't be turned off from the programming.

Access the cleaning routine and run a **WHIPPER CLEANING**.

13.7 E19-DESCALING REQUIRED

Why?

The number of liters set in the **DESCALING CAPACITY** option has been done and the option **IN-LINE FILTER** is disable.

Clean the water boiler from lime scale by dismounting it from the machine.

After that, go into the programming > **COUNTERS** > **TECHNICAL DATA** and clear the liters counter.

13.8 E23-EMPTY GROUNDS DRAWER

Why?

The number of coffee set in the **MAX NUMBER OF GROUNDS** option menu has been done.

Follow the instruction manual to clear the message.

13.9 E24-DOOR OPEN

Why?

The front door micro switch is not engaged.

Cause of fault	**Troubleshooting measure(s)**
The **front door** is open;	Close it;
The front door is closed, but the message stays still.	The **front door micro switch** is damaged. Replace it
The connection is compromised	Check the wires from the **front door switch** to the **motherboard** (refer to the **Input/Output** table to understand which input number). Replace the **motherboard**.

13.10 E25-CHECK FILTER

Why?

The number of liters set in the **DESCALING CAPACITY** option has been done and the option **IN-LINE FILTER** is active.

Replace the de-scaling filter with a new one and go into the programming > **COUNTERS** > **TECHNICAL DATA** and clear the liters counter.

13.11 E39-COFFEE GROUP POSITIONING

Why?

The coffee group is moving. Wait for the completion of the movement.

Cause of fault	**Troubleshooting measure(s)**
The message stays still even if the coffee group doesn't move.	Maybe you've just put back the coffee group. Remove the **white door key** and put it back, or close the **front door**.

13.12 E58-BOILER 1 PROBE OVER TEMPERATURE

Why?

The board is measuring a temperature above 120°C

Cause of fault	**Troubleshooting measure(s)**
The temperature probe got fault;	Replace it.

13.13 E59-BOILER 1 PROBE DISCONNECTED

Why?

The board is measuring a temperature below 0°C

Cause of fault	**Troubleshooting measure(s)**
The temperature probe is disconnected;	Check the connections
The temperature probe got fault.	Replace it.

13.14 E62-CHECK GRINDER 1/E61-CHECK GRINDER 2

Why?

The **grinder** is blocked.

Cause of fault	**Troubleshooting measure(s)**
A harder beans has gone into the grinder.	Move as more as possible the **grinder blades** to the coarse position and run a coffee. Check if it's time to replace the blades;
The coffee **grinder** is blocked also with the blades totally opened.	Open the **grinder blades** and check if there is something inside.

13.15 E72-CLEAN COFFEE GROUP

Why?

The machine has detected an unusual current consumption of the **coffee group gearmotor**.

Cause of fault	**Troubleshooting measure(s)**
The **coffee group** is dirty.	Remove the **coffee group** and clean it from the coffee. Put some grease on the main screw and O-Rings.

13.16 E73-FLASH MEMORY ERROR / E102-EEPROM WRITE ERROR MOTHERBOARD

Why?

Error while saving data on the motherboard. Replace it.

13.17 E74-COFFEE GROUP TIMEOUT

Why?

The **coffee group** has taken too much time to finish a positioning than usual.

Cause of fault	**Troubleshooting measure(s)**
The **coffee group** wasn't in the position the machine expected.	Push on the notification to reset the coffee group.

13.18 E75-COFFEE GROUP MOTOR TIMEOUT

Why?

The **coffee group counter** is no more counting.

Cause of fault	**Troubleshooting measure(s)**
The **coffee group** has suddenly blocked during a movement;	Check that the **coffee group chamber** is not completely on the bottom or on the top of the unit.
The **coffee group** is dirty;	Clean the coffee group.
The **coffee group** is full of coffee puck;	Remove the coffee group and clean it.
The connection is compromised;	Check the connection between the **coffee group motor counter** and the **output board**.
The **motor counter** got fault.	Replace it.

13.19 E80-GRINDERS MODULE DISCONNECTED

Why?

The connector from the machine wiring is not connected to the module, or there's a loose connection on the presence wire (either on the module's/machine's connectors or on the motherboard 40 ways connector).

13.20 E82-BOILER MODULE DISCONNECTED

Why?

The connector from the machine wiring is not connected to the module, or there's a loose connection on the presence wire (either on the module's/machine's connectors or on the motherboard 40 ways connector).

13.21 E100-FLASH WRITE ERROR OUTPUT BOARD 1

Why?

Error while saving data on the output board 1. Replace it.

13.22 E102-EEPROM WRITE ERROR MOTHERBOARD

Why?

Error while saving data on the output board 1 or 2. Replace it.

13.23 E111-OUTPUT BOARD 1 VERSION INCOMPATIBLE

Why?

The motherboard has detected an output board 1 software version that is not compatible to its current version.

Usually the problem happens after a manual motherboard software update, because the motherboard software version becomes more recent while the output board software version is too old to suite the motherboard new features.

NOTE

Normally you shouldn’t need to upgrade a board manually, because everytime a new touch screen software version is installed, the touch screen automatically updates the boards according to its features.

Solution:

Make sure to have all the boards upgraded to the latest versions at the same time.

13.24 E119-CHANGE GIVER INCOMPATIBLE

Why?

The change giver connected to the machine is not compatible to the current machine settings.

Cause of fault	**Troubleshooting measure(s)**
The base coin of the change giver is different than the one set into the machine.	Check which base coin the change giver uses (refer to the instruction manual of the change giver) and make sure the machine is using the same value.

13.25 E120-CASHLESS DEVICE INCOMPATIBLE

Why?

The cashless device connected to the machine is not compatible to the current machine settings.

Cause of fault	**Troubleshooting measure(s)**
The base coin of the cashless device is different than the one set into the machine.	Check which base coin the cashless device uses (refer to the instruction manual of the cashless device) and make sure the machine is using the same value.

13.26 E121-BILL VALIDATOR INCOMPATIBLE

Why?

The bill validator connected to the machine is not compatible to the current machine settings.

Cause of fault	**Troubleshooting measure(s)**
The base coin of the bill validator is different than the one set into the machine.	Check which base coin the bill validator uses (refer to the instruction manual of the bill validator) and make sure the machine is using the same value.

13.27 E122-OUT OF COFFEE GRINDER 1/E123-OUT OF COFFEE GRINDER 2

Why?

1. The **coffee group** has not been able to press the coffee properly.

Cause of fault	**Troubleshooting measure(s)**
The **beans hopper** is empty or closed;	Re-fill coffee **beans hopper** with fresh coffee beans and open the coffee stopper making sure the safety pin is completely out of the hopper;
The **grinder** runs, but there's not enough coffee inside the **coffee group chamber**;	The blades need to be changed (verify if 20000 cycles are reached) or the ground is too fine. Open the **grinder adjuster**;
The **grinder** runs but no coffee falls inside the **coffee group chamber**.	The coffee is blocked somewhere. Check the **grinder funnel**.

13.28 E124-COFFEE GROUP CLEANING REQUIRED

Why?

The number of coffee set with the option **NUMBER OF COFFEES FOR CLEANING CYCLE** has been reached.

Enter the cleaning routines and run a **Coffee Group Cleaning**.

13.29 E125-NOT CONNECTED

Why?

The **touch screen** is not connected to the **Bluetooth module** installed on the **motherboard**.

Cause of fault	**Troubleshooting measure(s)**
The screen is stucked;	Switch OFF the machine and back ON again.
The Bluetooth device used by the touch screen is not matching the one installed into the machine;	Follow the connection procedure at the end of this paragraph

The **Bluetooth module** got fault.;	Replace it
The **touch screen** got fault.	Replace it.

Bluetooth module connection procedure

Everytime there's the need to replace the **Bluetooth module** or the **touch screen**, the connection must be set up from the beginning.

- Enter the programming > Settings > BLUETOOTH

- Press the button **RESET DEVICE LIST** to clear all the devices previously registered. (all the buttons should become unavailable for few seconds)

- Once the buttons are back available, press **SEARCH**;

- On the "Bluetooth device search" window Press **SEARCH** again. The touch screen is now searching for any bluetooth device around;

  During the searching, the button **SEARCH** turnes into **STOP**. Once the touch screen has finished the searching it will turn back to **SEARCH** again. (This could take even few minutes);

- Push on the device that's named with the serial number of the machine (i.e. 140000123) The message **CONNECTING…** will be displayed in yellow;

- After few seconds the touch screen will ask for a PIN. Put **1234**;

- In few seconds the message **CONNECTING…** should turn into **CONNECTED** displayed in green;

- Go all the way back pushing the arrow on the the top left corner.

13.30 E126-DRIP TRAY OUT

Why?

The option **DRIP TRAY SENSOR** is active and the **drip tray switch** is engaged.

Cause of fault	**Troubleshooting measure(s)**
The **drip tray** is not in place;	Check if the **drip tray's** knobs/rubber pins located on the grid are in place. They're used to keep the tray in place, by being pushed by the door when closing it.
The **drip tray switch** is damaged or doesn't work;	Turn off the option **DRIP TRAY SENSOR** inside the programming, to let the machine working anyway (refer to the user manual); Replace the **drip tray switch**.

The connection is compromised	Check the wires from the **drip tray switch** to the **motherboard** (refer to the **Input/Output** table to understand which input number); Replace the **motherboard**.

13.31 E128-CASHLESS 2 MALFUNCTION

Why?

The mobile cashless device is reporting a generic malfunction

Cause of fault	**Troubleshooting measure(s)**
Generic malfunction of the mobile cashless device.	Check with the Service and Support of the mobile cashless device.

13.32 E129-BOILER HEATING FAILURE

Why?

The boiler has taken more than 5 minutes to reach the temperature set.

Cause of fault	**Troubleshooting measure(s)**
The communication is compromised.	Check the continuity between the wires that goes on the thermostats from the output board (refer to the **Input/Output** table to understand which output number).
The boiler heating element got fault.	Replace it.
The output board got fault.	Replace it.

13.33 E130-REFUND CASHLESS 1 NOT AVAILABLE

Why?

The cashless device is reporting that it doesn’t have the capability to refund money if a transaction goes wrong.

No solutions

13.34 E131-CASHLESS DEVICE 2 INCOMPATIBLE

Why?

The mobile cashless device connected to the machine is not compatible to the current machine settings

Cause:

The base coin of the mobile cashless device is different than the one set into the machine.

Solution:

Check which base coin the mobile cashless device uses (refer to the instruction manual of the mobile cashless device) and make sure the machine is using the same value.

13.35 E132-REFUND CASHLESS 2 NOT AVAILABLE

Why?

The mobile cashless device is reporting that it doesn’t have the capability to refund money if a transaction goes wrong.

No solutions

13.36 E133-CASHLESS 1 MALFUNCTION

Why?

The cashless device is reporting a generic malfunction

Cause of fault	**Troubleshooting measure(s)**
Generic malfunction of the cashless device.	Check with the Service and Support of the cashless device

13.37 E137-BEANS HOPPER 1 OUT/E167-BEANS HOPPER 2 OUT

Why?

The **beans hopper presence switch** is not engaged.

Cause of fault	**Troubleshooting measure(s)**
The **beans hopper** is not in the correct position;	Check the **beans hopper's** support fixing point.
The **beans hopper** presence switch or the metal lever located in the internal bottom part of the grinder's top lid is damaged or doesn't work;	Replace the **beans hopper** presence switch or check the internal bottom part of the grinder's top lid lever system (lever + spring + nuts).
The connection is compromised	Check the wires from the **beans hoppers presence switch** to the **motherboard** (refer to the **Input/Output** table to understand which input number). Replace the **motherboard**.

13.38 E141-FILLING WATER

Why?

The option **FILLING WATER CONTROL** is active and the machine is filling the **air-break**.

This opton is active by default, because it guarantees that the **air-break** is full of water before to start the dispensing of any drink.

This avoid potential blockage of the milk coil due to a lack of water from the main water line and also makes a possible water line problem more visible.

CAUTION

The decision to switch this option to OFF is completely responsibility of the technician, who must make sure at least to meet the minimum requirements reported on the Instructions Manual of the machine.

13.39 E143-DRIP CATCHER MOVEMENT TIMEOUT

Why?

The machine has detected an unusual current consumption of the **drip catcher gearmotor** or it's not moving at all.

Cause of fault	**Troubleshooting measure(s)**
The **drip catcher** has suddenly blocked during a movement;	Check that the **drip catcher** is free to move backwards and forwards.
The connection is compromised;	Check the connection between the **drip catcher motor** and the **output board**.
The **drip catcher** got fault.	Replace it.

13.40 E168-OUTPUT BOARD 1 INCOMPATIBLE

Why?

The machine is detecting that the hardware of the output board 1 is not compatible with the machine.

Cause of fault	**Troubleshooting measure(s)**
The **output board** hardware is not compatible with the machine;	Please check if the boards code, printed on the board's label is 9SSOB0104. If it is different, remove it and replace with one with the right code.
The **output board** got fault.	Replace it.

13.41 E170-DRIP CATCHER DISCONNECTED

Why?

The machine is detecting that the connector of the drip catcher module is disconnected.

Cause of fault	**Troubleshooting measure(s)**
The connector is disconnected;	Check the connector.
The connection is compromised;	Check the connection between the connector and the **motherboard.**
The **motherboard** got fault.	Replace it.

13.42 E171-MILK FLOW METER KO

Why?

The machine is not detecting any water flow from the inlet line during any milk circuit rinse process.

Cause of fault	**Troubleshooting measure(s)**
The message appears aftera milk drink cycle or during a daily cleaning cycle:	Reset the alarm to force an additional attempt of rinsing. If nothing comes out in the drip tray, launch a daily cleaning cycle.
• The milk circuit is dirty;	If the machine has hot&cold system, test both the system to understand if the problem is affecting both the circuit parts. Check and clean with compressed air the milk reducers. Check and clean the milk coil.

• The milk pump got fault (not running).	Replace it and check if the circuit is dirty (see above) or check for electrical issues (loose connection or missing power from the output board).
• The connection is compromised.	Check the wires from the **milk flow meter** to the **motherboard** (refer to the **Input/Output** table to understand which input number).
• Water is missing from the line	Check if the problem is on the water inlet system of the machine or externally (water filter, main water line building switch, ...).
• The **valve** related to the rinsing phase that fails may be blocked by lime scale;	Open it and clean it.
• The **valve** related to the rinsing phase that fails got fault;	Check for electrical issues (loose connection or missing power from the output board).

13.43 E198-DETERGENT TANK LEVEL LOW

Why?

The machine is detecting that the detergent inside the tank is insufficient.

Cause of fault	**Troubleshooting measure(s)**
Insufficient level of detergent in the tank.	Fill the detergent tank.
The **detergent tank level sensor** got fault.	Replace it.

13.44 E225-COMMUNICATION ERROR

Why?

The touch screen is not communicating with the machine.

Cause of fault	**Troubleshooting measure(s)**
The **usb communication board** is faulty.	Replace the board.
The serial cable that connects the **usb communication board** to the motherboard is interrupted.	Replace the serial cable.
The cables and the board are fine but there's no power coming from the motherboard.	Check the main supply to the motherboard, if present change the motherboard.

13.45 E226-USB NOT CONNECTED

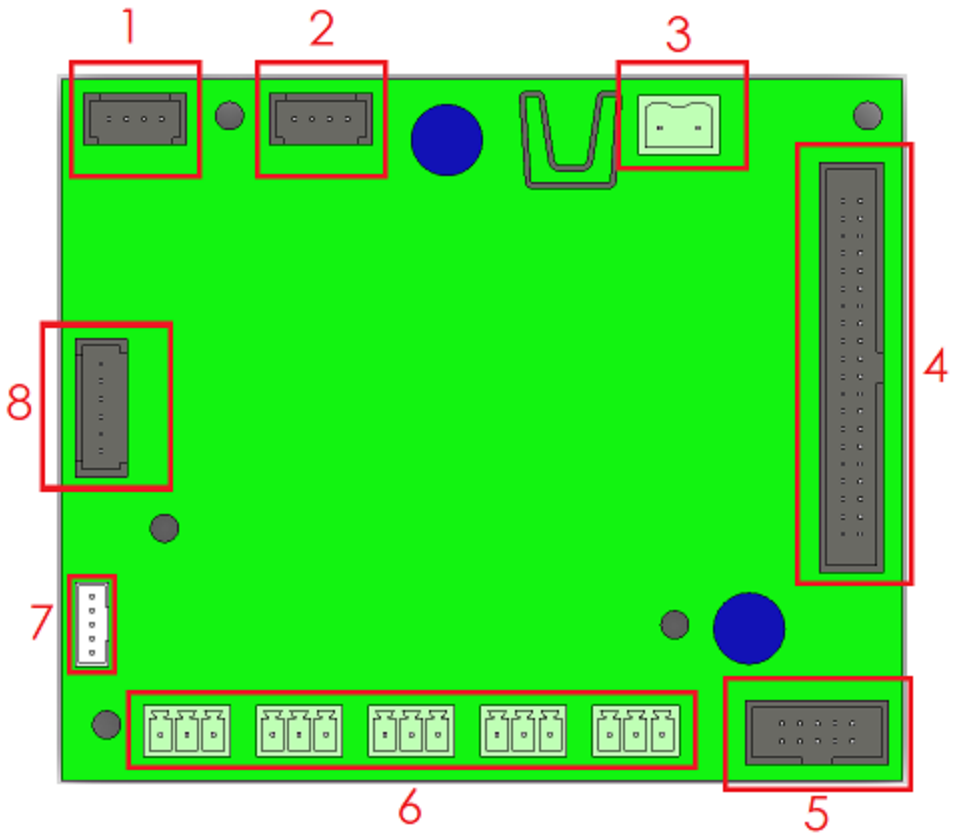
Why?

The touch screen is not connected to the usb communication board.

Cause of fault	**Troubleshooting measure(s)**
The **usb communication board** is faulty.	Replace the board.
The usb cable that connects the **usb communication board** to the touch screen is interrupted.	Ensure the usb cable is connected to the touch screen's port. Replace the usb cable.
The cable and the board are fine but the error is still showing.	Change the usb port where the usb cable is connected to. Change the touch screen.

14 Electronic boards description

14.1 Mother board



1. MDB system serial connector

2. Machine bus connector

3. 24VDC power supply

4. Inputs connector (40 ways connector)

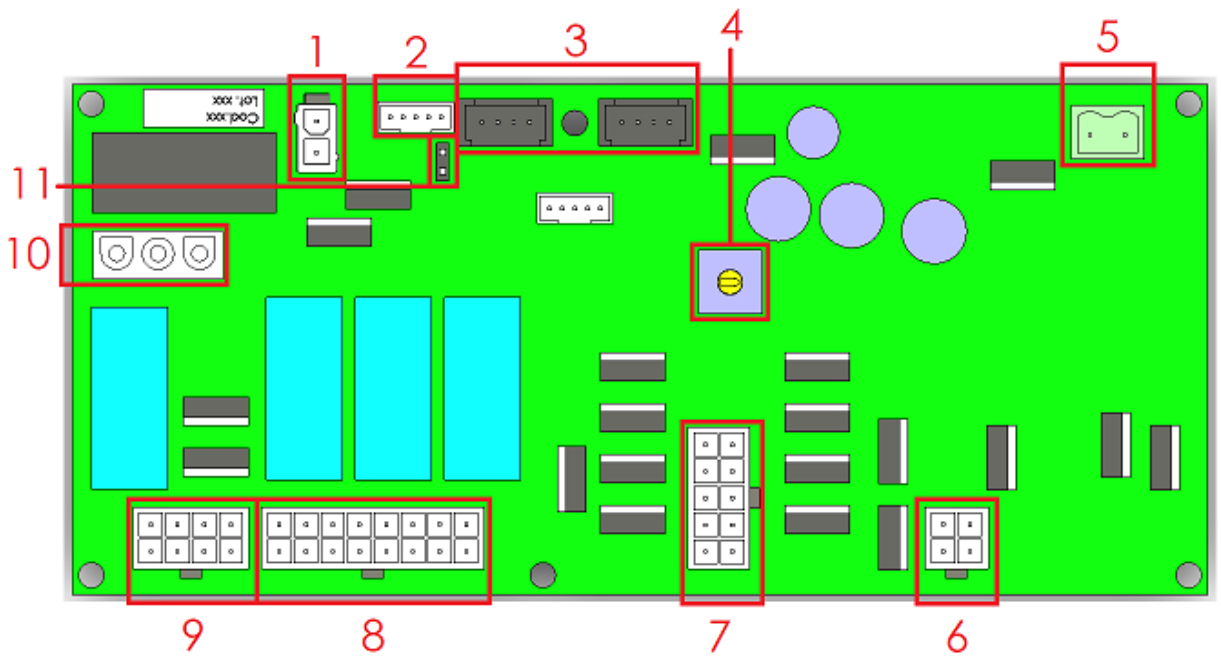
5. Coin mechanism connector

6. Probes connectors (check Input/Output lines file for the connector position and functionality).

7. Hardware programming (for manufacturer only)

8. Touch screen serial communication connector

14.2 Output board



1. Outputs connector #1

1. Coffee group gearmotor encoder connector

2. Machine bus connectors

3. Output board number selector

4. +24VDC power supply connector

5. Outputs connector #2

6. Outputs connector #3

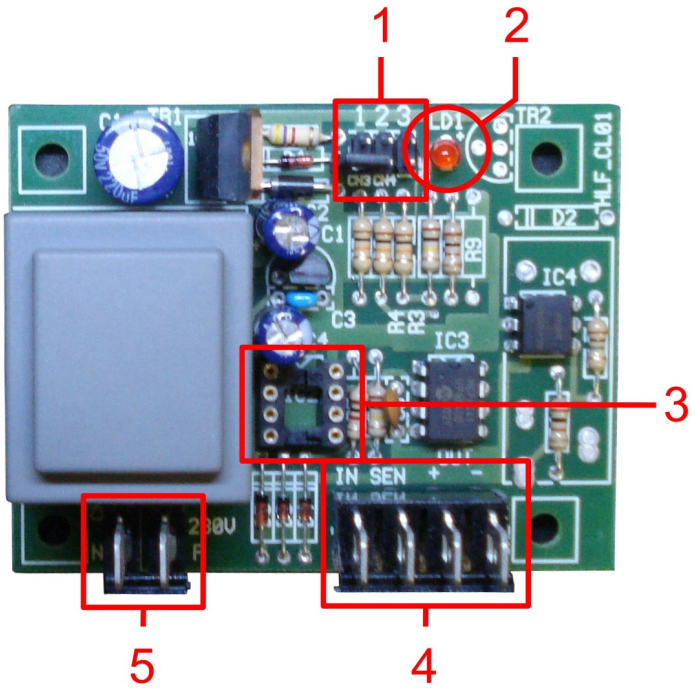
7. Outputs connector #4

8. Outputs connector #5

9. Outputs connector #6

10. Coffee group gearmotor encoder bridge (must be present when machine is equipped with cofffee group gearmotor with internal encoder)

14.3 Water level board (air-break machines only)



1. Sensibility bridge:

   - None = Minimum sensibility. The board feel the presence even of distilled water;
   - 1 = Independently of the sensibility, when filling, in the moment the water level reaches the maximum, the machine will fill for 2 seconds more (default position for air-break);
   - 2 = Less sensibility than None
   - 3 = Less sensibility than 2 (default position for steam boiler)
   - 2+3 = Less sensibility than 3 (for really hard water)

2. Led: lightened when the water level is below the minimum

3. Water level board microchip socket

4. Inputs connection

5. 230V AC connection

15 Planning diagram

16 Electric diagram

17 Hydraulic circuit

18 Spare part list