HLF 4600 G1/2/F

ENGLISH

RETAIN FOR FUTURE USE !

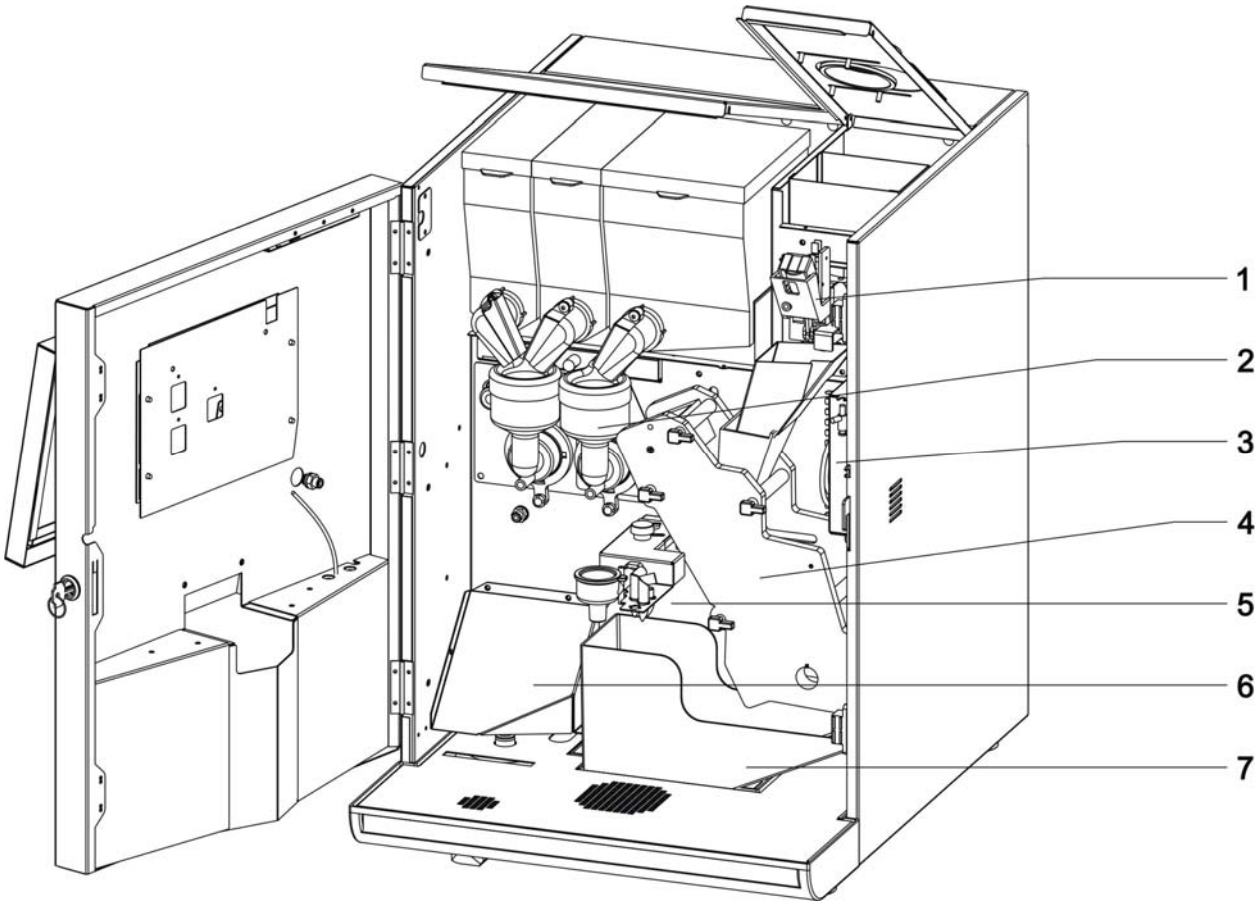
These Operating Instructions must be read and applied by anyone performing work with or on the equipment described.

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

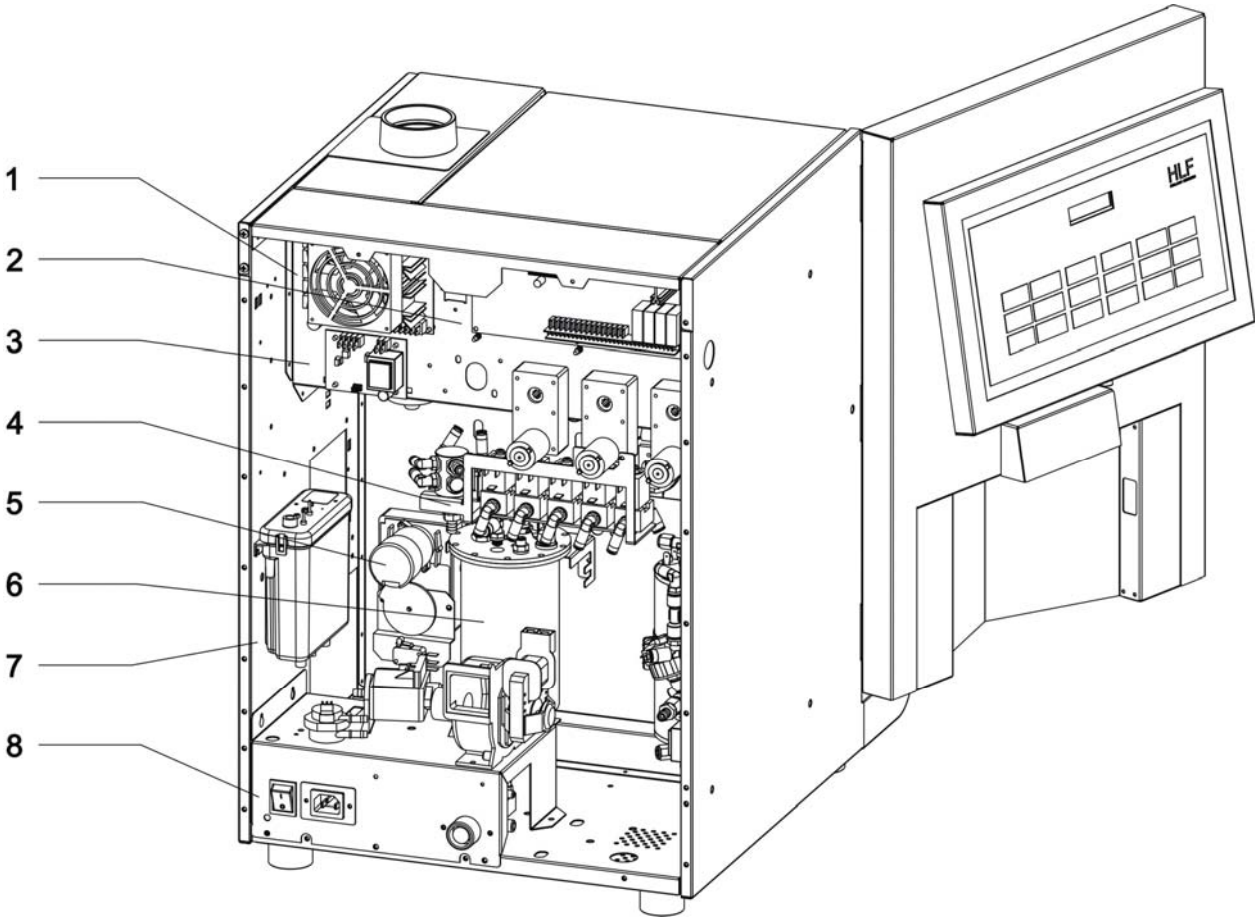
1 User manual

2 Exploded diagrams

2.1.1 General exploded diagram (4600 G1)

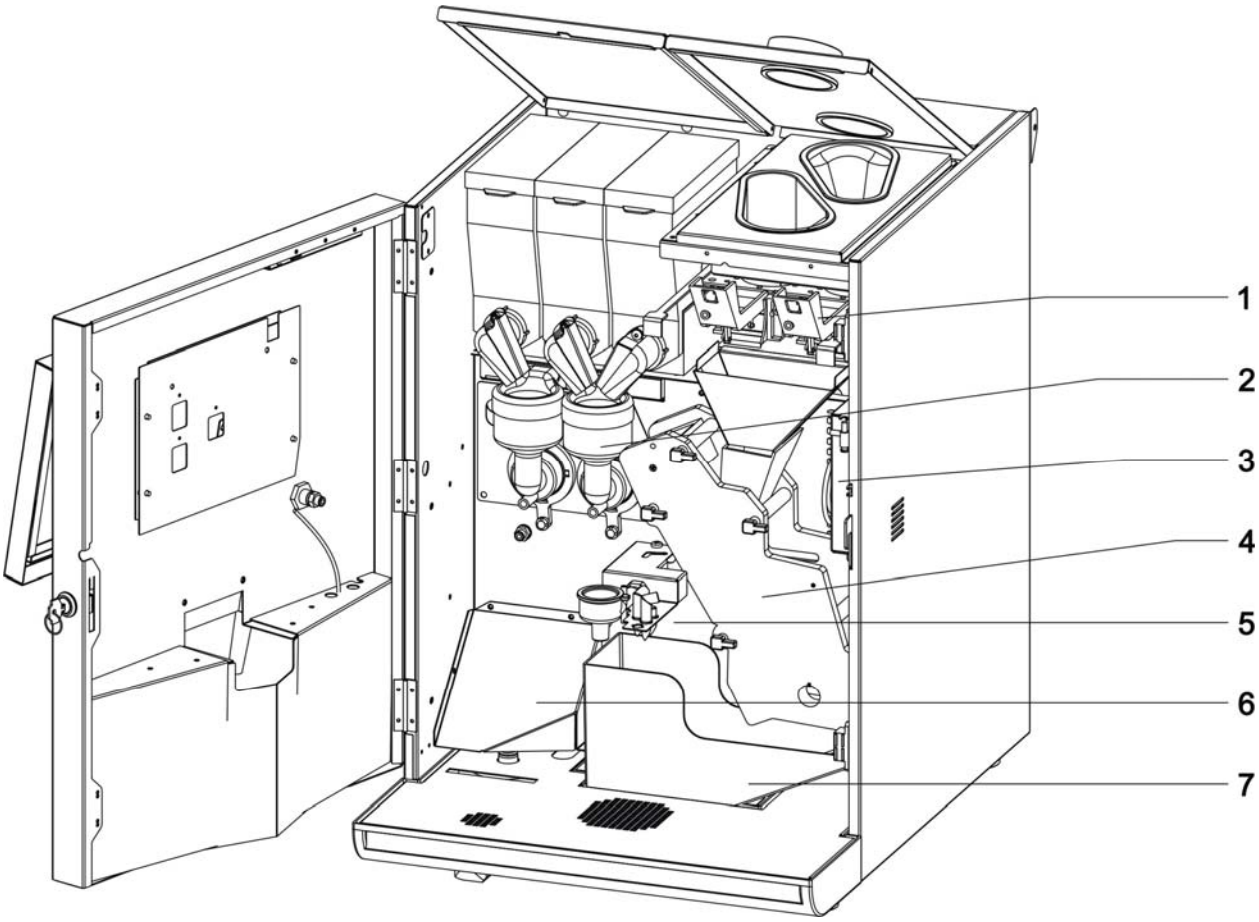


1. Coffee doser
2. Mixing bowl
3. Air solenoid valves set
4. Coffee group
5. Milk frother
6. Drip tray micro switch cover plate
7. Ground drawer



1. Power stabilizer
2. Main board
3. Water level board
4. Solenoid valves set
5. Coffee gear motor
6. Water boiler
7. Air-break
8. Power supply unit

2.1.2 General exploded diagram (4600 G2)



1. Coffee Doser
2. Mixing bowl
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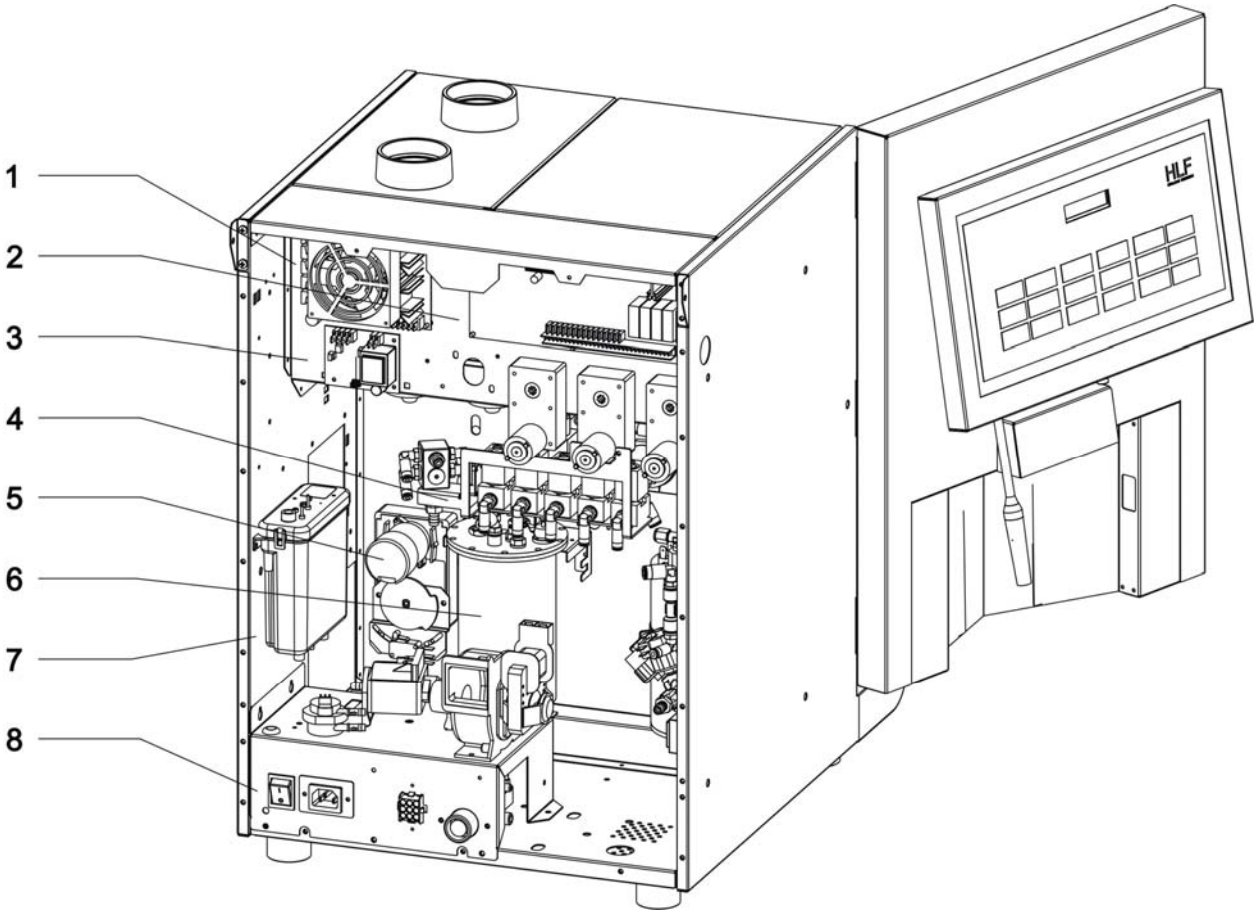
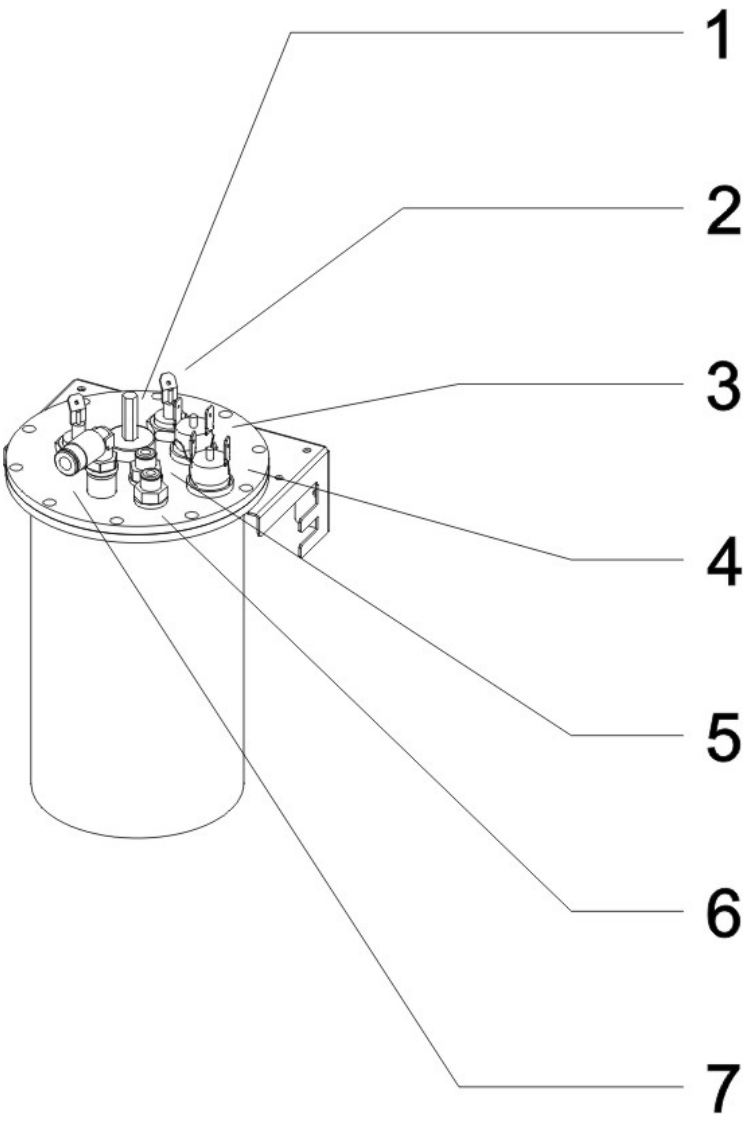
4. Coffee group
5. Milk frother
6. Drip tray micro switch cover plate
7. Ground drawer



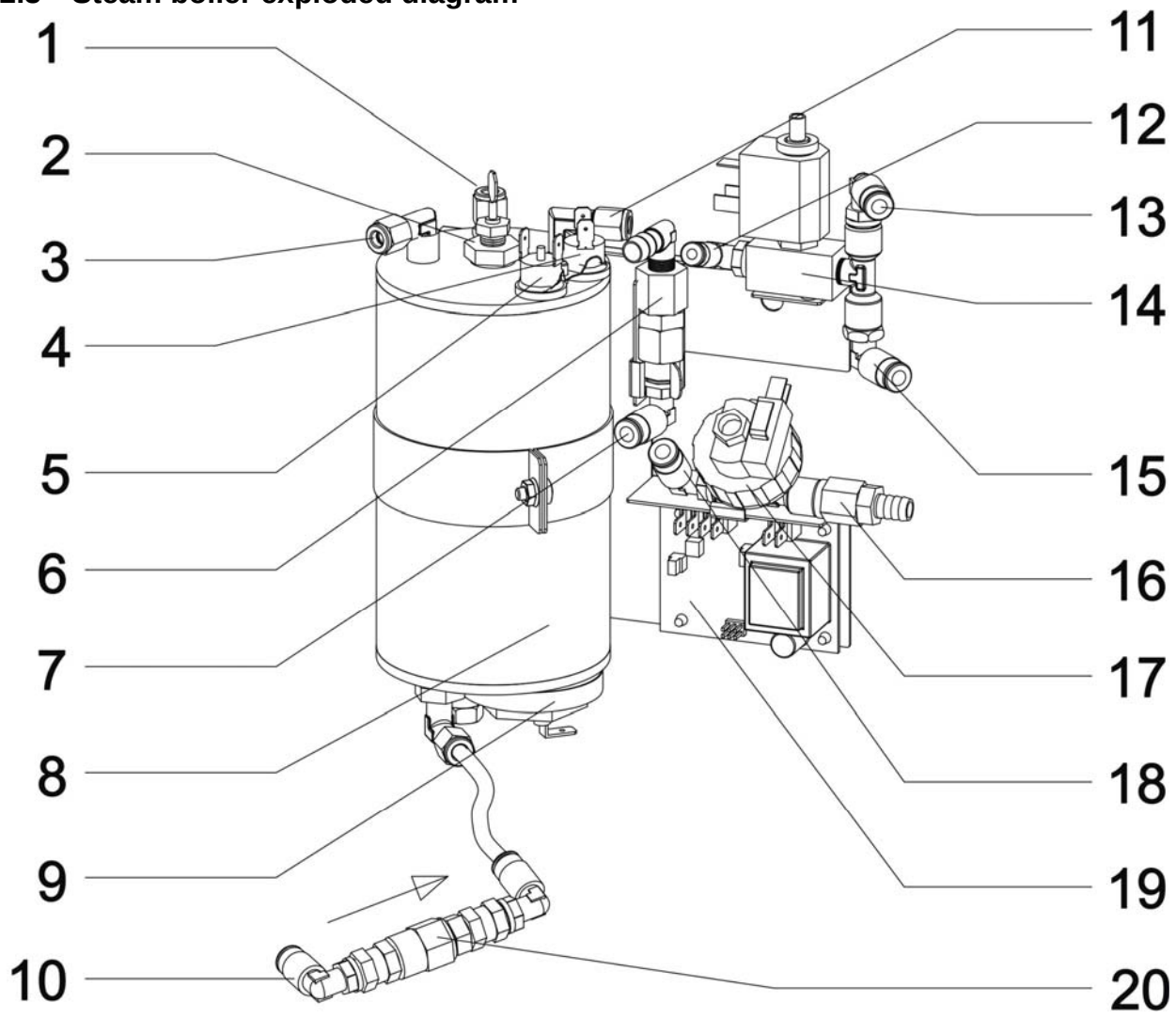
1. Power stabilizer
2. Main board
3. Water level board
4. Solenoid valves set
5. Coffee gear motor
6. Water boiler
7. Air-break
8. Power supply unit

2.2 Water boiler exploded diagram



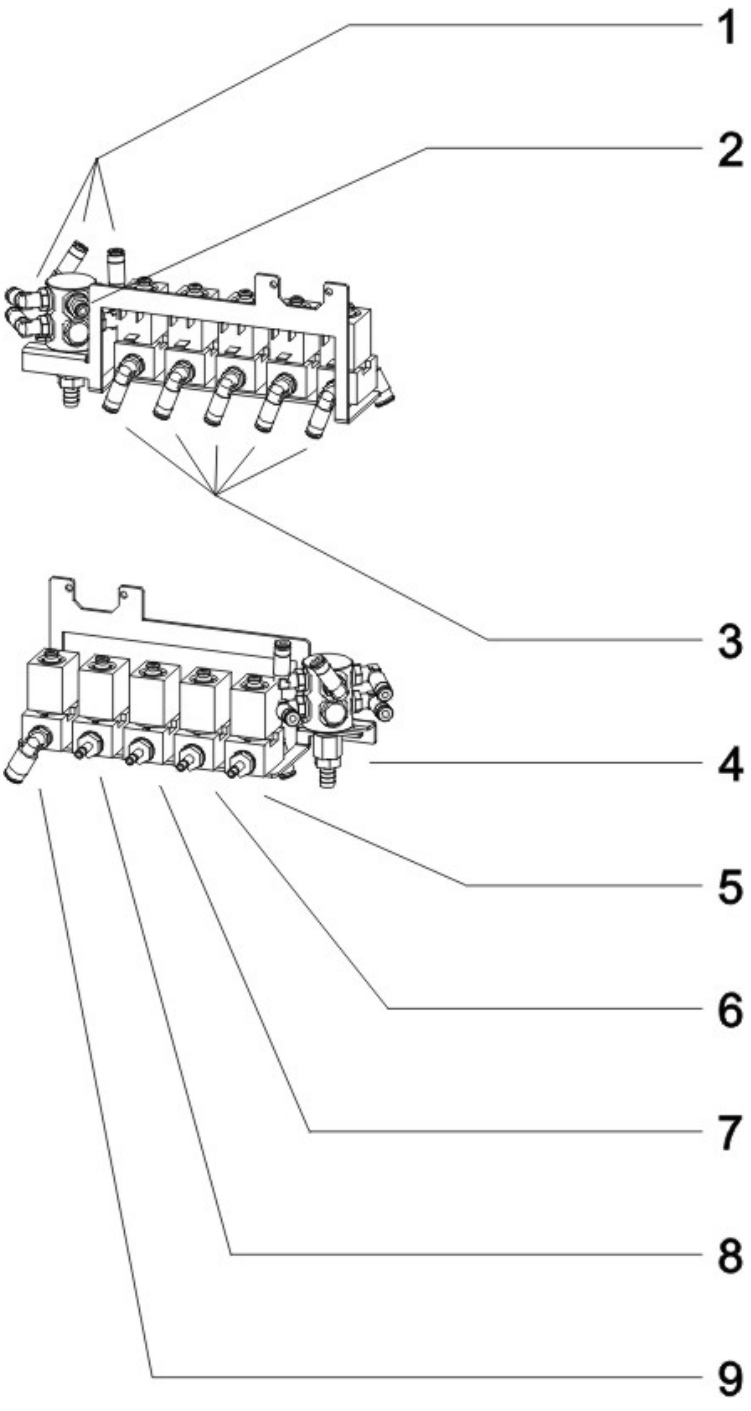
1. Temperature probe
2. Heating element
3. Manual thermostat
4. Automatic thermostat
5. Straight push fitting for the coffee solenoid valve pipe
6. Straight push fitting for the solenoid valve set pipe
7. Elbow push fitting for the water pump

2.3 Steam boiler exploded diagram



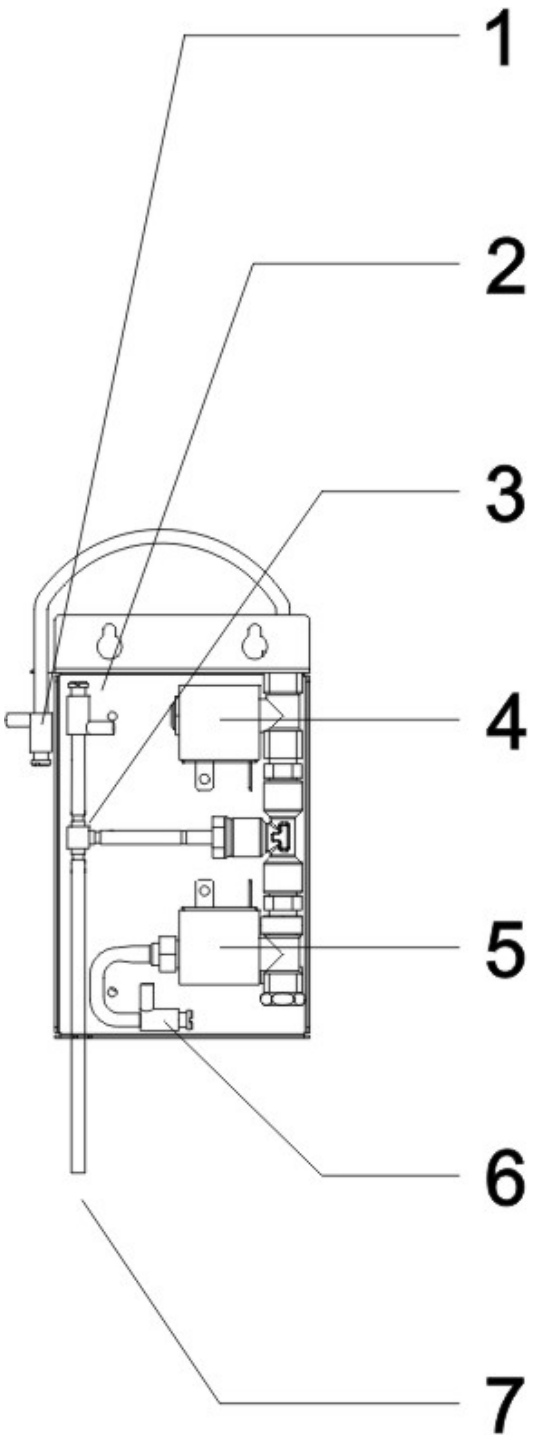
1. Straight fitting w/ olive connected to n. 18
2. Water level probe
3. Elbow fitting w/ olive connected to n. 12
4. Manual thermostat
5. Automatic thermostat
6. Anti – vacuum valve
7. Elbow push fitting connected to n. 11
8. Steam boiler
9. Steam boiler heating element
10. Elbow push fitting connected to steam inlet solenoid valve
11. Elbow fitting w/ olive connected to n. 7
12. Elbow push fitting connected to n. 3
13. Elbow push fitting connected to milk frother pipe
14. Steam outlet solenoid valve
15. Outlet for steam wand solenoid valve
16. Over pressure valve 6 bar
17. Pressure switch
18. Elbow push fitting connected to n. 1
19. Steam boiler water level board
20. One way valve

2.4 Solenoid valves set exploded diagram



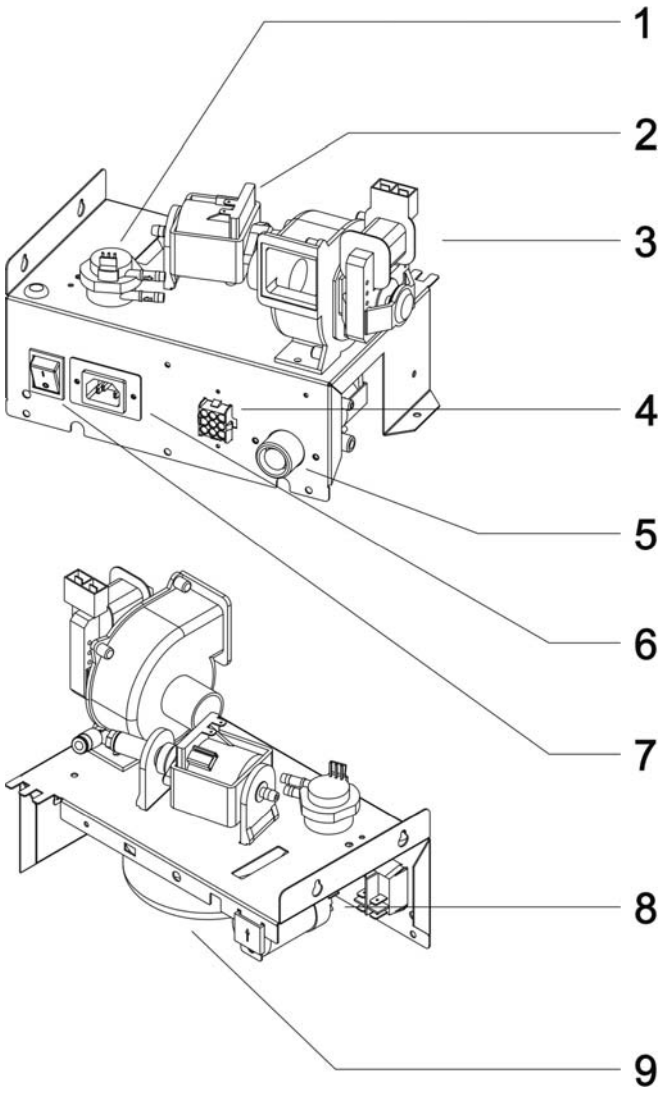
1. Elbow push fittings connected to numbers 3
2. Straight push fitting for steam boiler inlet solenoid valve pipe
3. Elbow push fittings connected to numbers 1
4. Overpressure valve 16 bar
5. Discharge solenoid valve
6. Mixer 1 solenoid valve
7. Mixer 2 solenoid valve
8. Hot water solenoid valve
9. Steam boiler inlet solenoid valve

2.5 Air solenoid valve set



1. Froth milk air regulator
2. Flat milk air regulator
3. T plastic connector
4. Froth milk solenoid valve
5. Anti-return solenoid valve
6. Anti-return air regulator
7. Milk frother air pipe

2.6 Power supply unit exploded diagram



1. Flow Meter
2. Water Pump
3. Fan
4. Connection to Milk Fridge
5. Main inlet water valve
6. Power cord socket
7. Main Switch
8. Net Filter
9. Transformer

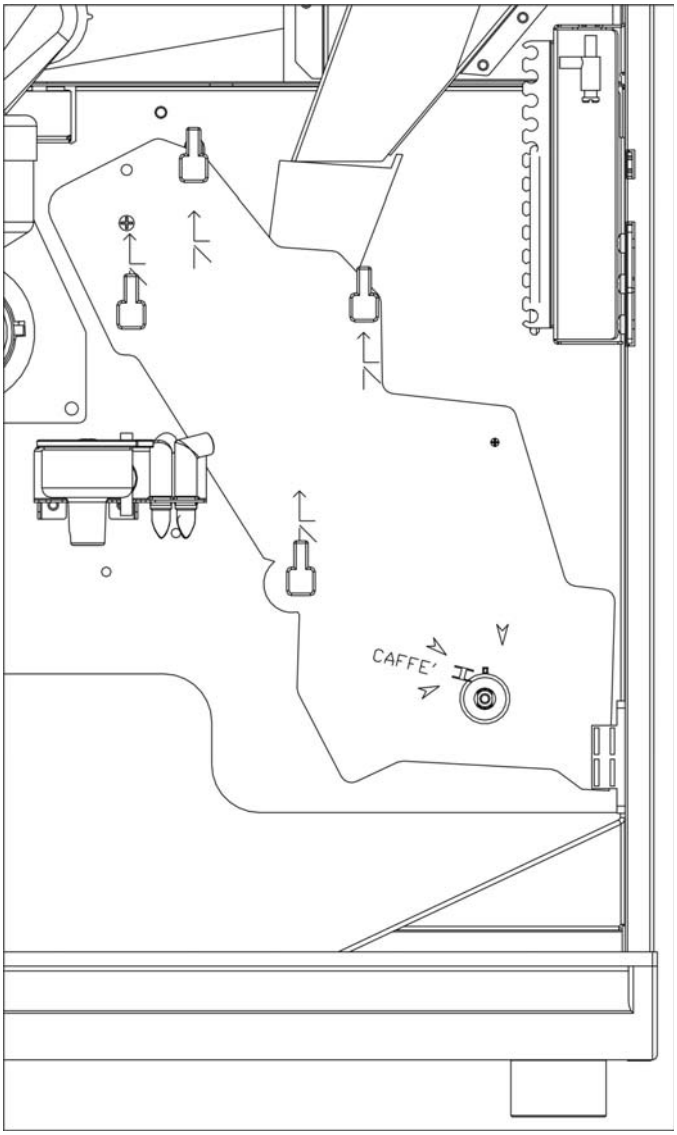
3

4 Ordinary maintenance

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

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

4.1 Removing the coffee group

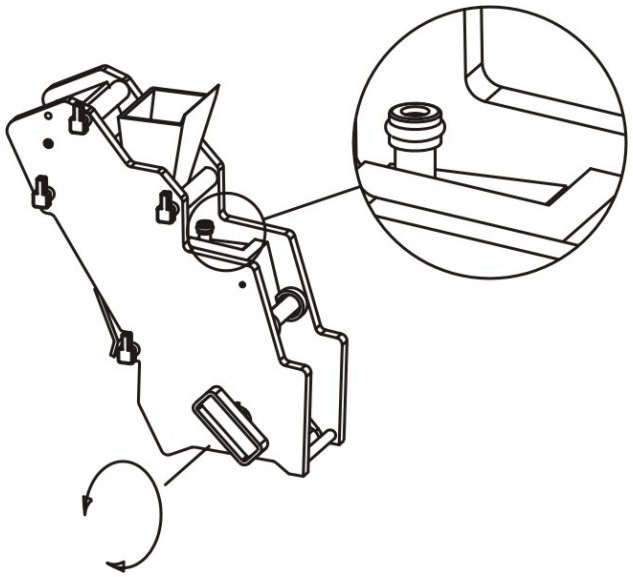
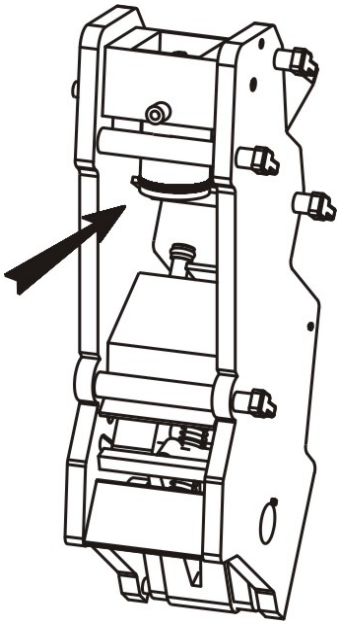
Step	Action	Illustration
1	Disconnect the **coffee group** pipe from the nozzle. (all drink pipes in the fresh milk version; Loose the **black knob** that holds the metal bracket and remove it. Take off the **drip tray** and the **grounds drawer**; Turn each of the four levers to the 12:00 o'clock position and pull the **coffee group** out.	

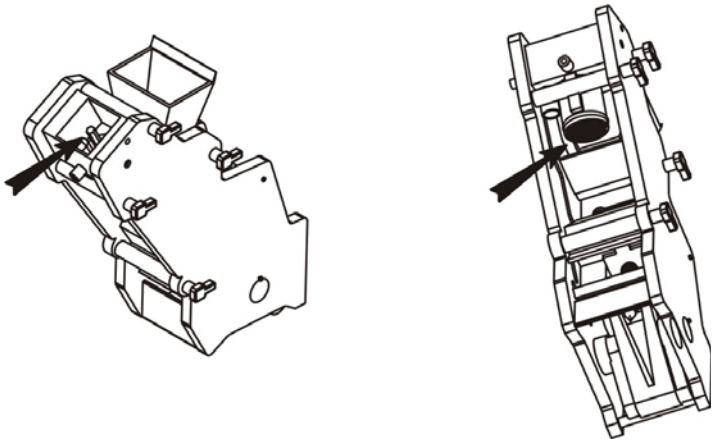
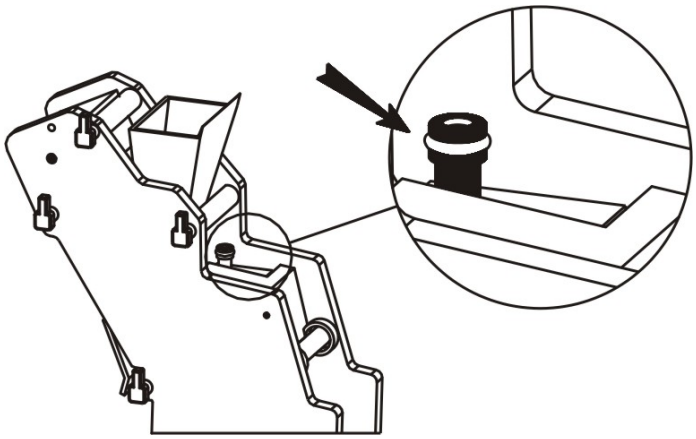
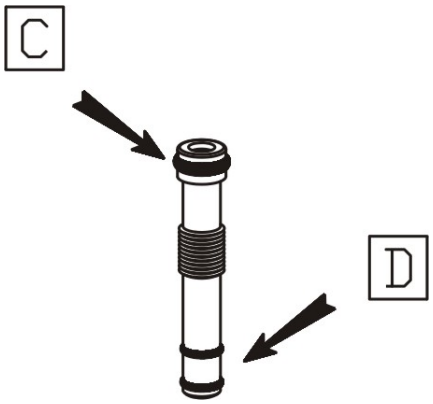
4.2 Sealing and filter replacement (10000 Cycles Kit Installation)

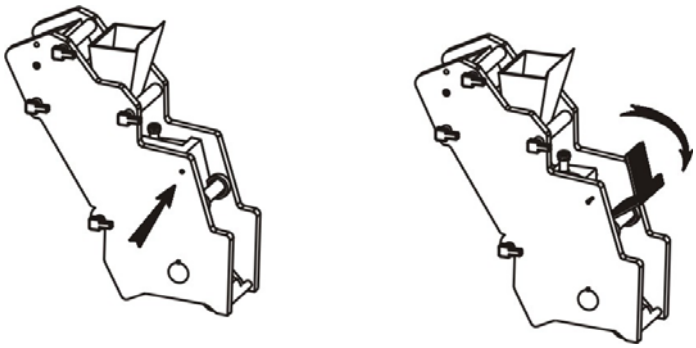
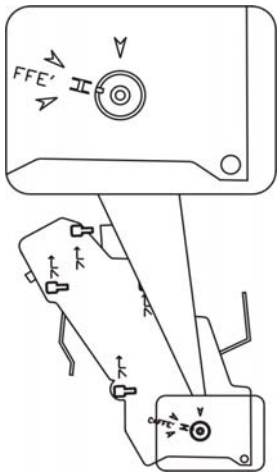
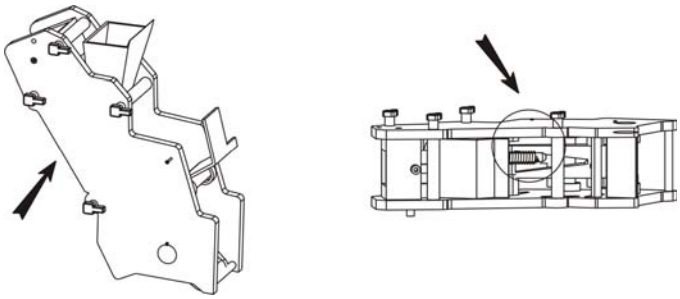
Components required:

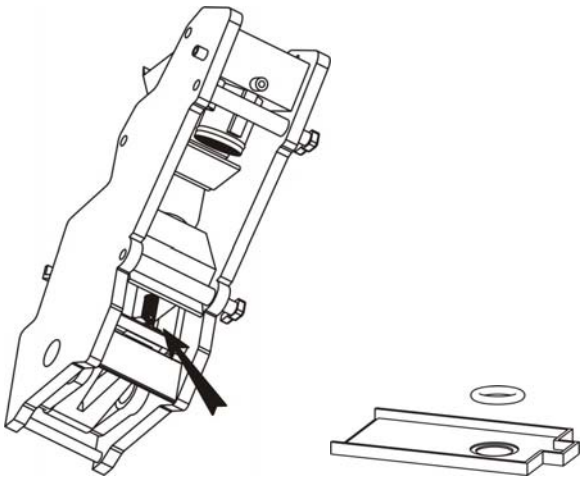
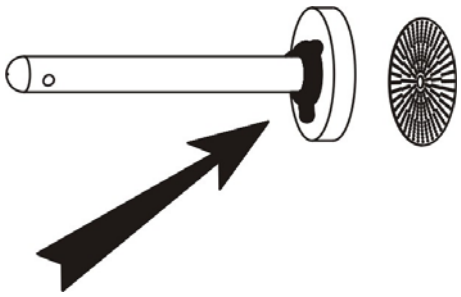
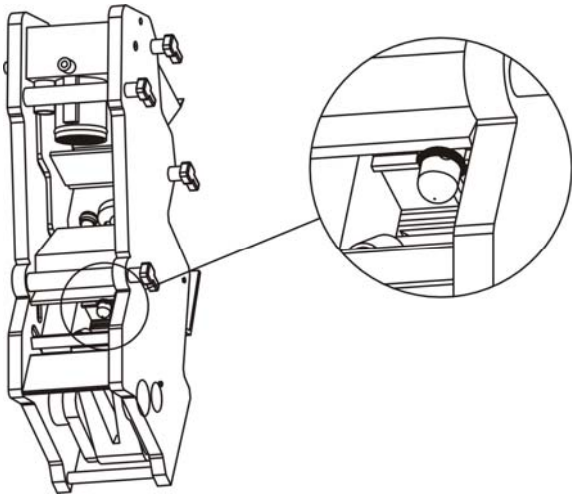
DESCRIPTION	ILLUSTRATION	QUANTITY	NAME
Red silicon o-ring 04118 – 3,53 mm x i.d. 29,75 mm		1	A
Inox filter for coffee group d.34 mm h.2,8 mm		1	B
Red silicon o-ring 3024 – 2,62 mm x i.d. 6,02 mm		1	C
Red silicon o-ring 2525 – 1,78 mm x i.d. 6,07 mm		2	D
Star silicon gasket for coffee group		1	E
Inox filter for coffee group d.32 mm h.3,4 mm		1	F
Red silicon o-ring 03037 – 2,62 mm x i.d. 9,19 mm		1	G
Silicon lip seal		3	H

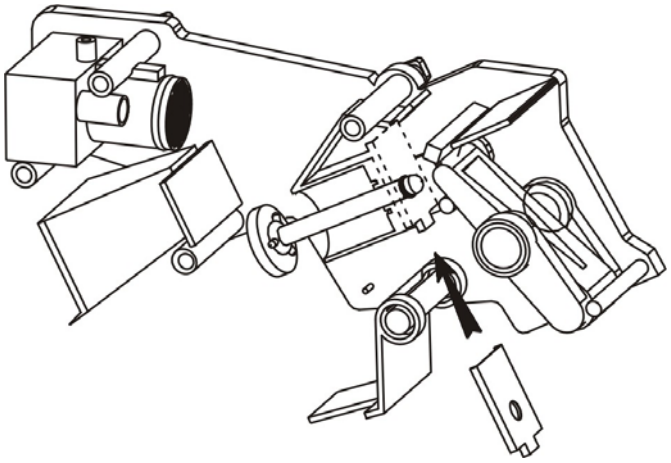
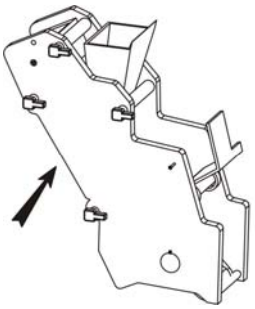
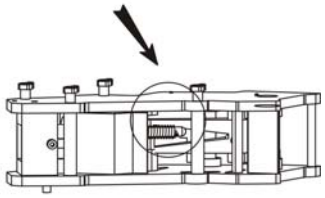
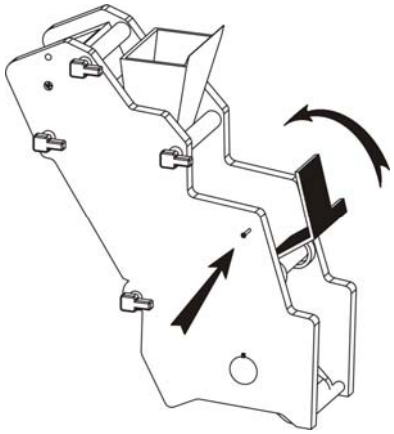
Before to do this operation follow the procedure described on paragraph 4.1.

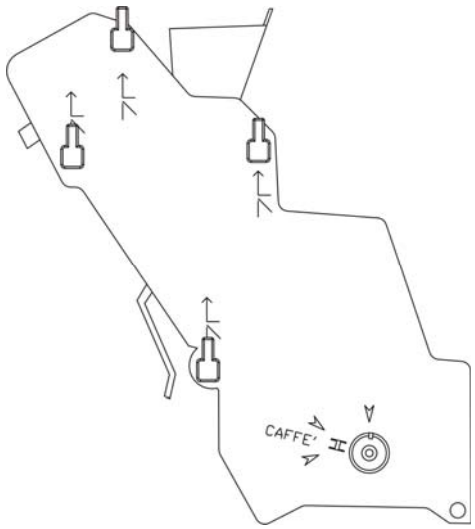
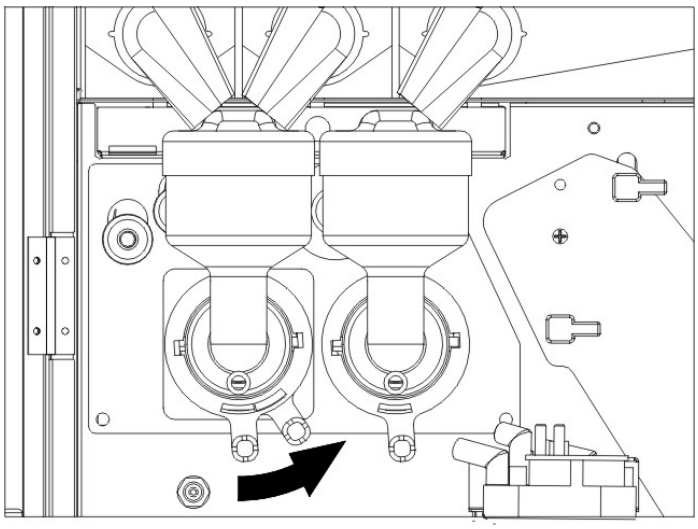
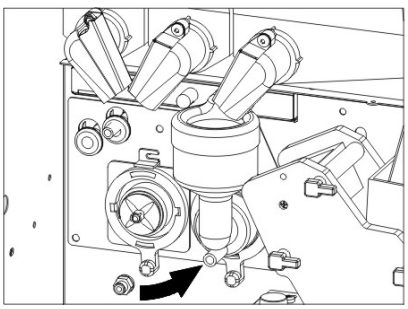
Step	Action	Illustration
1	Turn the **coffee group** chamber, using the proper **coffee group key**, until it reaches the position shown	
2	Replace the silicon gasket “A”.	

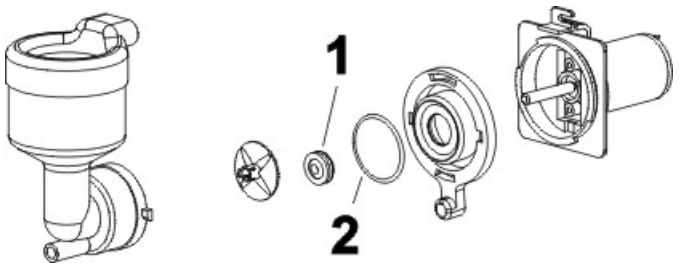
Step	Action	Illustration
3	Hold the screw that fix the filter just holding it with a finger, then loosen the brass hexagonal nut and replace the filter “B”.	
4	With the proper hexagonal key unscrew the injector and remove it.	
5	Replace the silicon gasket “C” and both gaskets “D” and put back on the injector.	

Step	Action	Illustration
6	Loosen the screw and lift the cover.	
7	Turn the chamber to the “CAFFÈ” position.	
8	Remove the screw on the shaft and take off the spring.	

Step	Action	Illustration
9	Replace the **coffee group** on the previous position (see step 1) and pull out the piston. Remove the plastic bracket which is inserted on the piston shaft under the chamber and pay attention to remove the silicon gasket placed there.	
10	Replace the star silicon gasket “E“ and the filter “F”.	
11	Put back the piston, holding the piston shaft just a little outside the bottom of the chamber and insert the new silicon gasket “G”.	

Step	Action	Illustration
12	Insert the bracket into the piston shaft. Then insert totally the piston into the chamber.	
13	Turn the **coffee group** on the “CAFFE’” position and put back the spring on the piston (under the chamber) and stop it with the screw inserted on the piston shaft.	 
14	Turn left the plastic cover and tight the screw.	

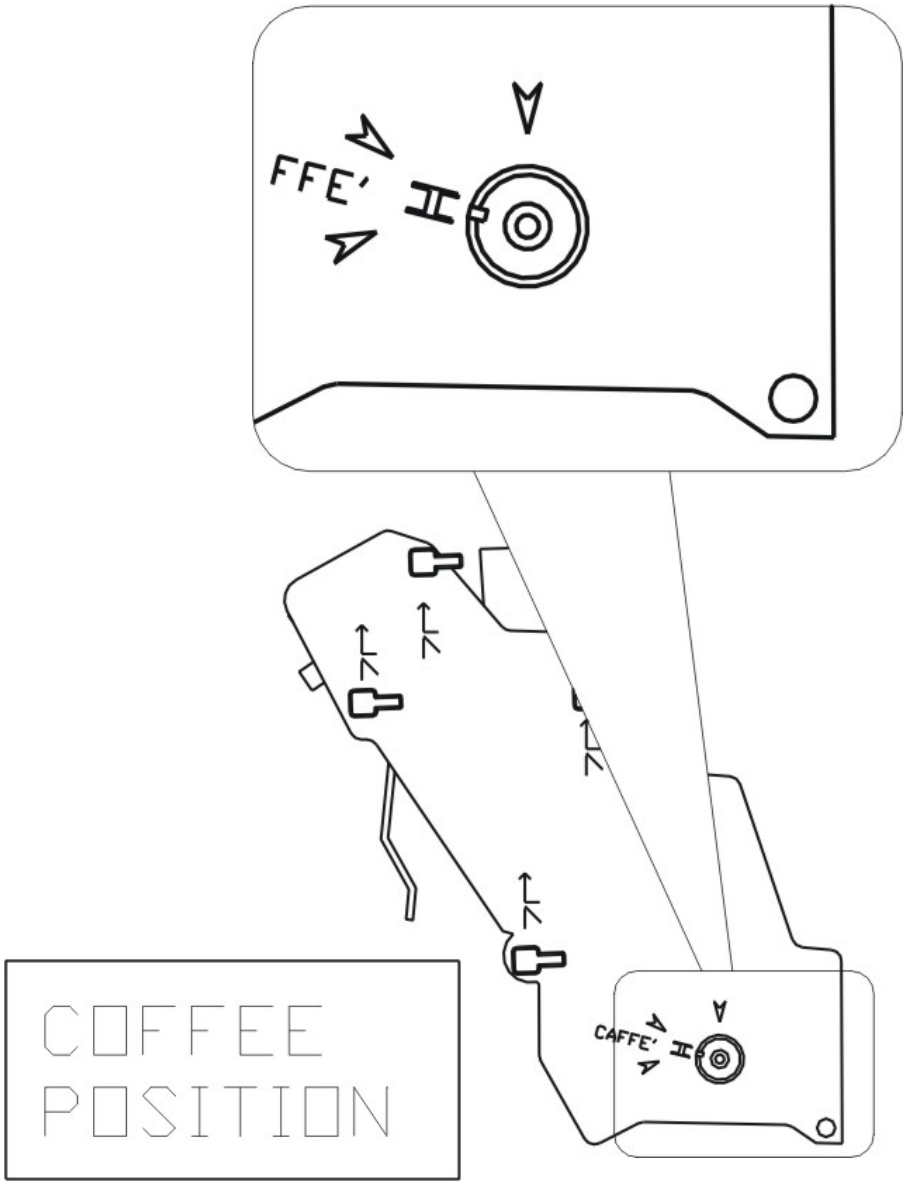
Step	Action	Illustration
15	Turn around the chamber and put it on the original position.	
16	Turn right the **mixing bowl holder** and pull out the **mixing bowl**; Pull out the **mixing blade**;	
17	Turn right the **mixing bowl holder** till the end and pull it out;	 

18	Replace the silicon O-ring and the lip gasket;	

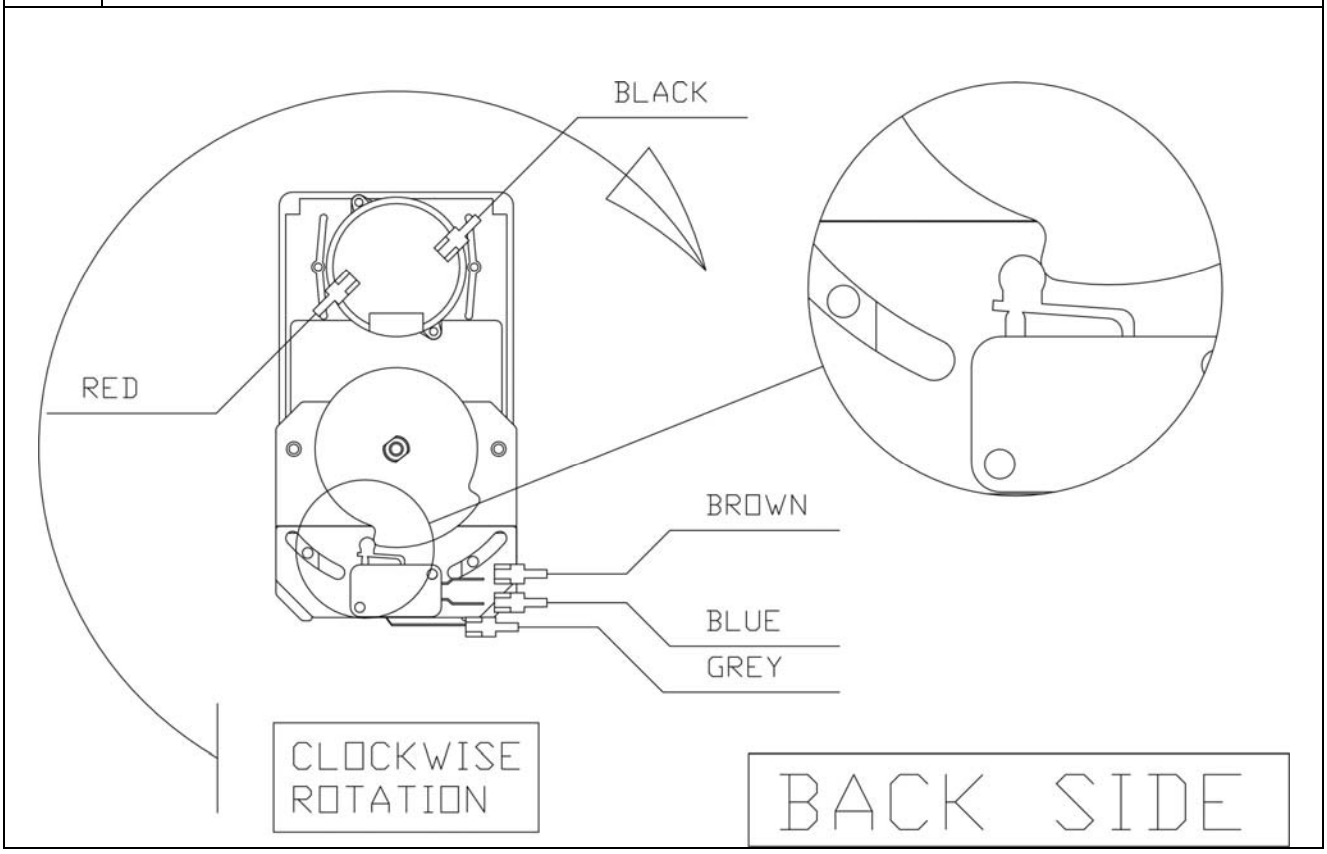
4.3 Coffee Gear Motor Cam Adjustment

- Remove the **back panel**.

Step	Action
1	Try to do a coffee cycle (pressing “espresso” key). Make sure that the plastic tooth stops between the two arrows named as “ CAFFE “. If don’t, press quickly STOP button to avoid any damage. Let the **coffee group** return to stand-by position and adjust the cam.



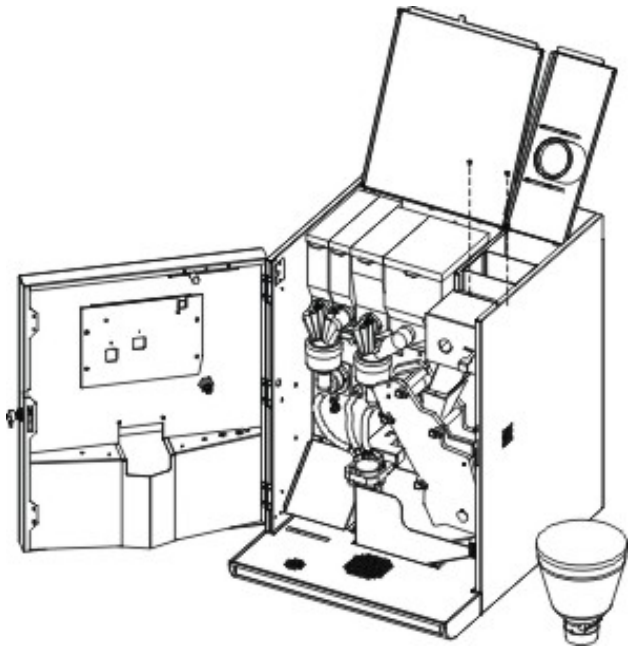
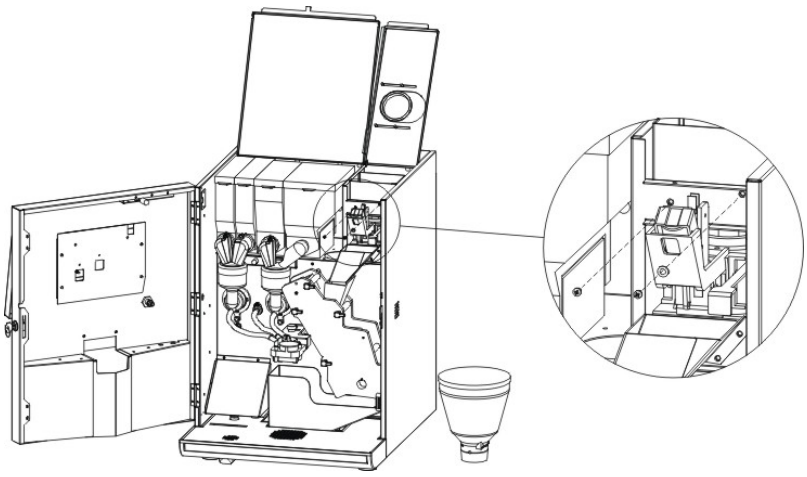
Step	Action
2	To adjust the cam, simply loosen the two screws which fix the microswitch bracket and turn it clockwise (if the plastic tooth is too much backward off the “CAFFE” position), or counter-clockwise (if the plastic tooth is too much backward off the “CAFFE” position). Try to do a coffee cycle (always pressing “espresso” key) until you see that the plastic tooth is between the two arrows.

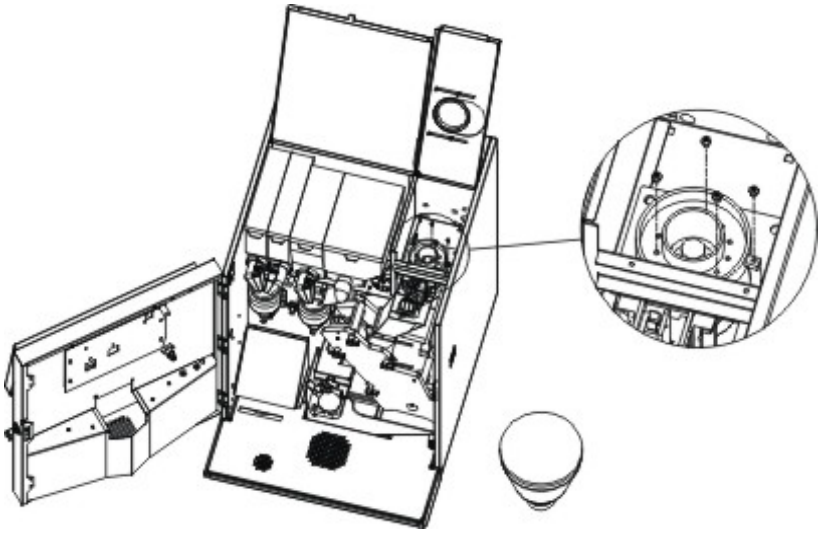
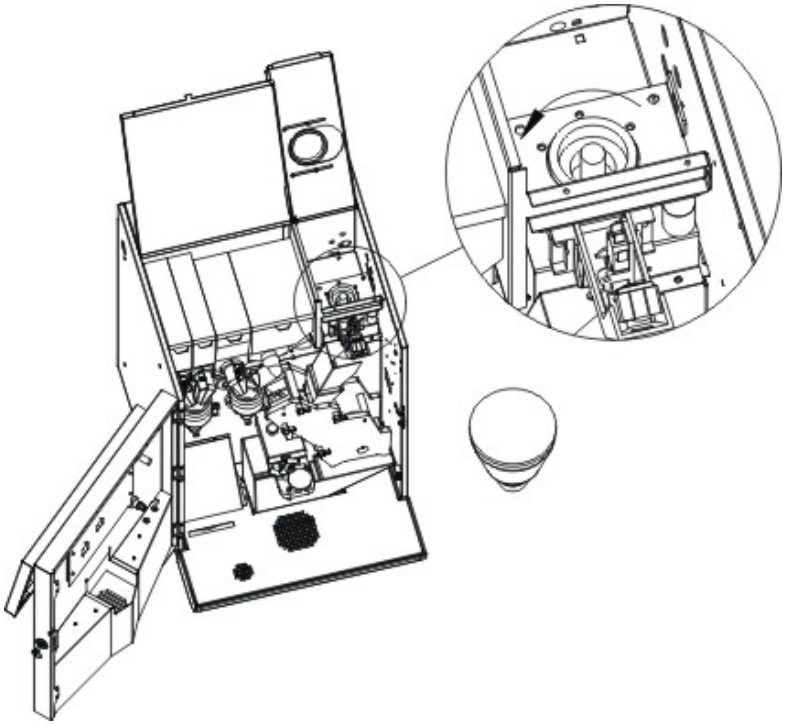


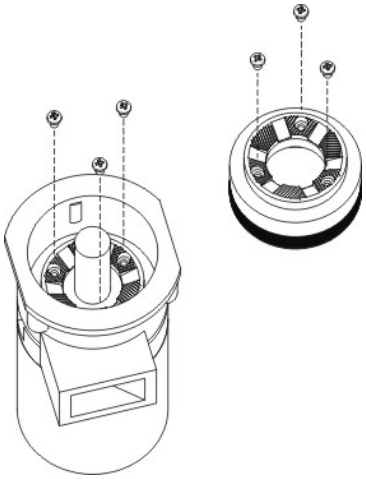
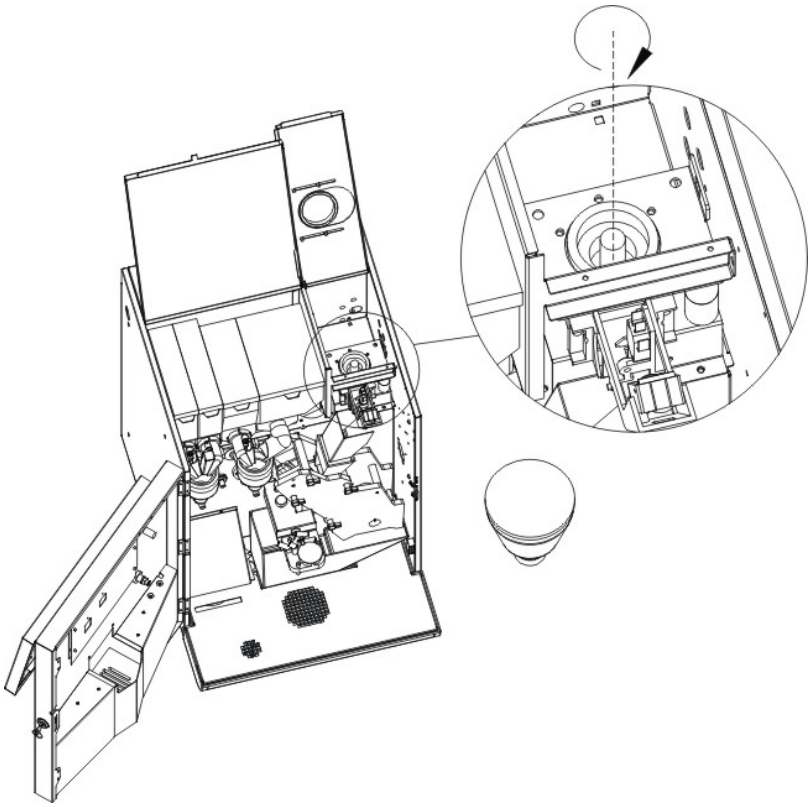
4.4 Grinder blades replacement

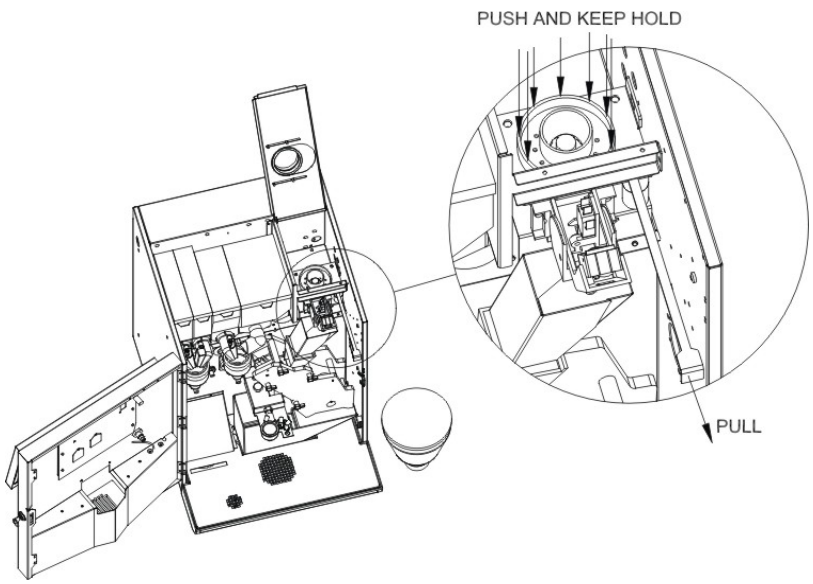
4.4.1 Grinder blades replacement (only for 4600 G1)

- Remove all the eventually beans into the **internal beans hopper** (using a vacuum).

Step	Action	Illustration
1	Remove the two screws which fix the **doser metal cover** and remove it.	
2	Loosen the two screws which fix the **internal beans hopper** and remove it.	

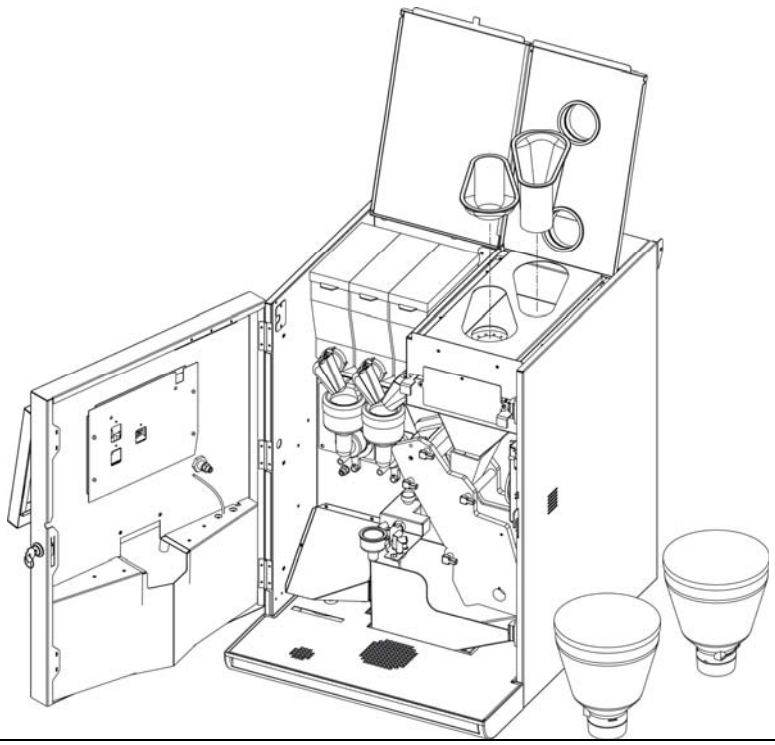
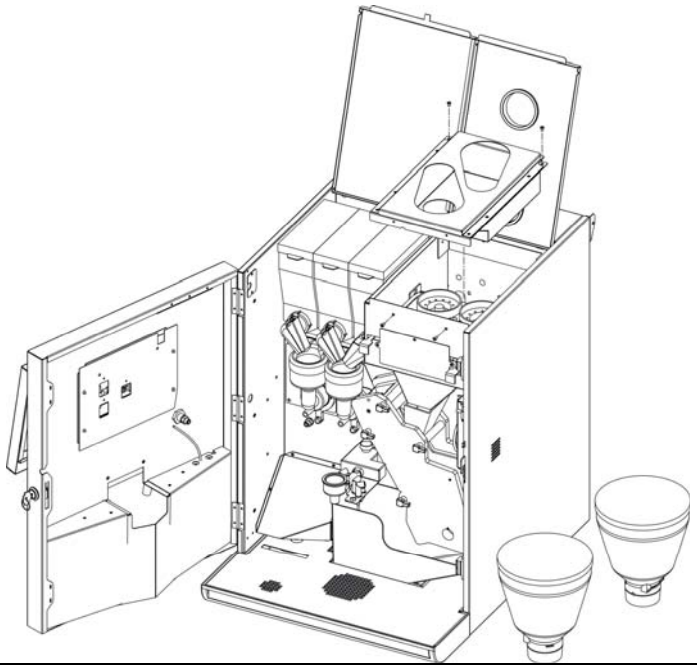
Step	Action	Illustration
3	Remove the three screws which fix the **grinder adjuster** and take it off. Pay attention! Do not let the screws to fall inside the **grinder**.	
4	Turn the **grinder head** counter-clockwise till it's totally out of the **grinder**.	

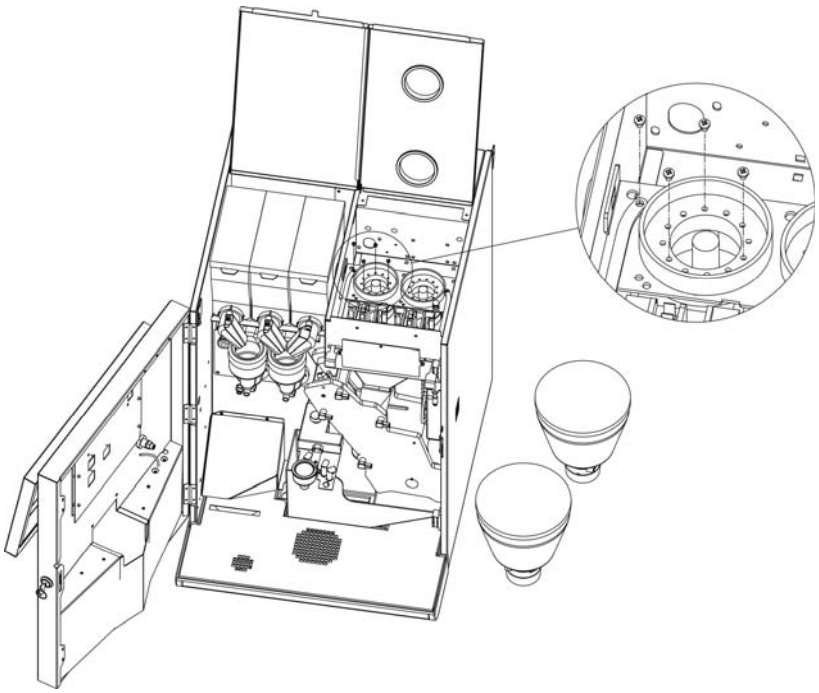
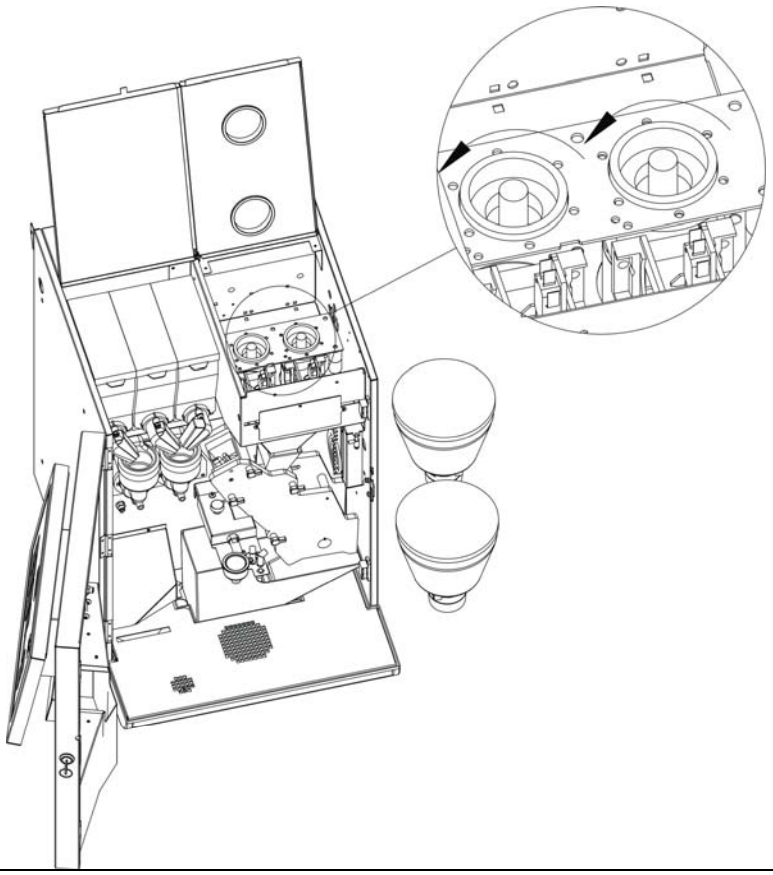
Step	Action	Illustration
5	Remove the screws which fix the **grinder blades** and replace them. Pay attention! Clear carefully the heads of the screws from residual coffee ground to avoid any damage.	
6	Replace the **grinder head** in the **grinder** body. Keep screwing the head and turn the brass spiral to hear if the blades are touching together. In this very moment you have reached the finest position.	

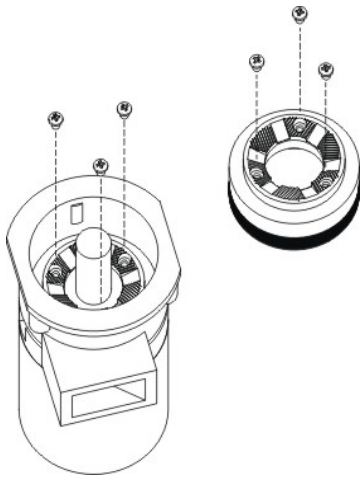
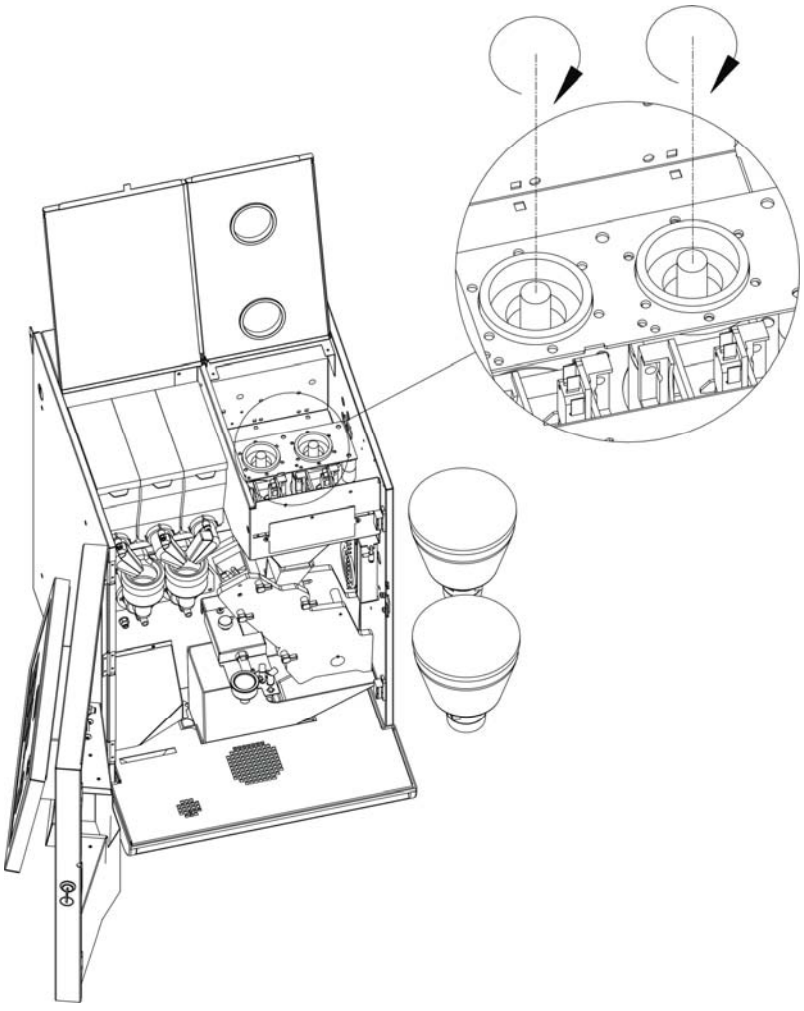
Step	Action	Illustration
7	Put the **grinder adjuster** on the **grinder head** and fix the lever with the proper screw. While pushing the **grinder adjuster** with your hand, pull the lever towards you until it stops. Now fix the **grinder adjuster** with the proper three screws. (see step 3). Go backward throughout steps 2 and 1 to replace the components previously removed.	

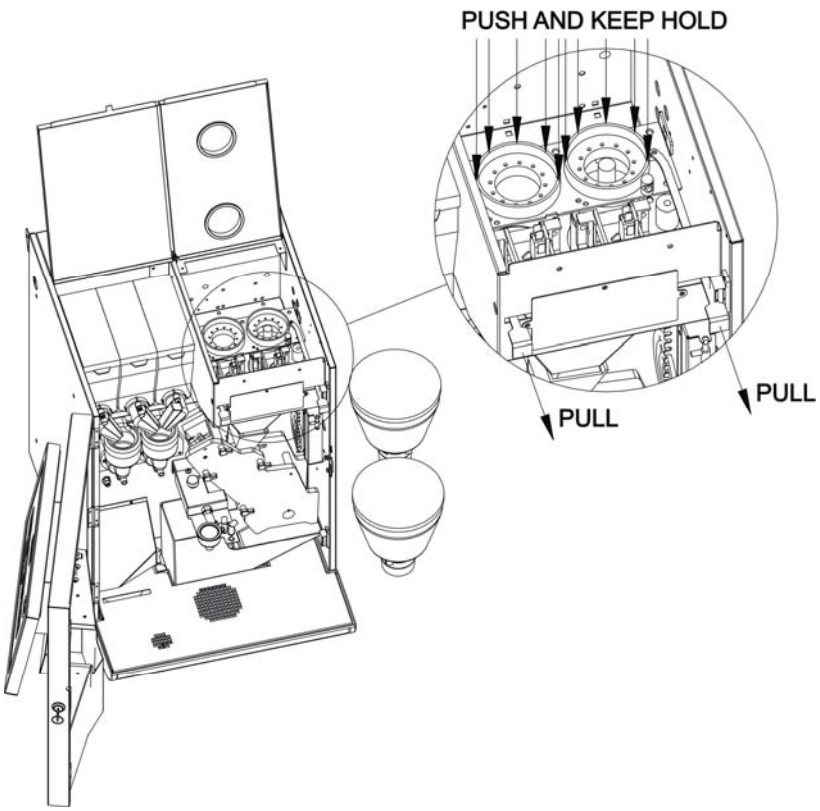
4.4.2 Grinder blades replacement (only for 4600 G2)

- Remove all the eventually beans into the **internal bean hoppers** (using a vacuum).

Step	Action	Illustration
1	Remove the two **internal bean hoppers**.	
2	Loosen the four screws which fix the bracket for the **internal bean hopper** and remove it.	

Step	Action	Illustration
3	Remove the three screws which fix the **grinder adjuster** and take it off. Pay attention! Do not let the screws to fall inside the **grinder**.	
4	Turn the **grinder head** counter-clockwise till it's totally out of the **grinder**.	

Step	Action	Illustration
5	Remove the screws which fix the **grinder blades** and replace them. Pay attention! Clear carefully the heads of the screws from residual coffee ground to avoid any damage.	
6	Replace the **grinder head** in the **grinder** body. Keep screwing the head and turn the brass spiral to hear if the blades are touching together. In this very moment you have reached the finest position.	

Step	Action	Illustration
7	Put the **grinder adjuster** on the **grinder head** and fix the lever with the proper screw. While pushing the **grinder adjuster** with your hand, pull the lever towards you until it stops. Now fix the **grinder adjuster** with the proper three screws. (see step 3). Go backward throughout steps 2 and 1 to replace the components previously removed.	

5

6 Extraordinary maintenance

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

WARNING

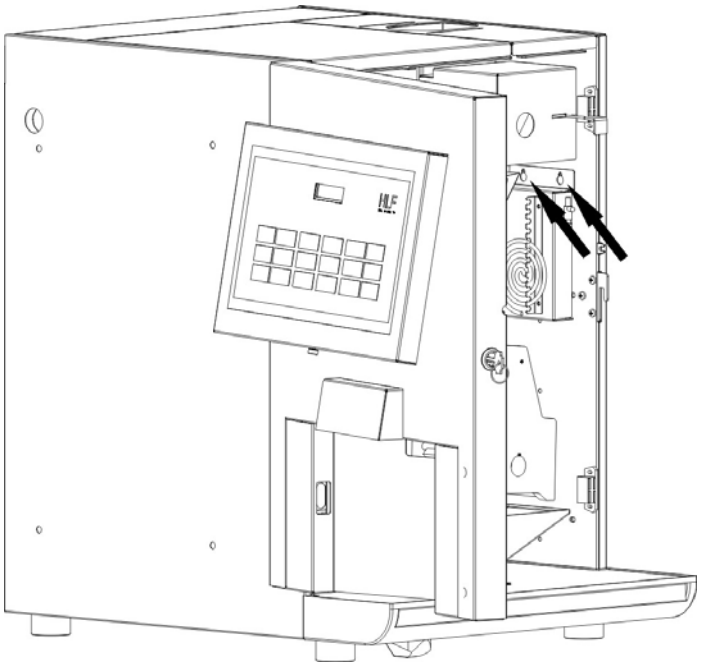
All the operations contained in this chapter has to be performed with the machine switched OFF and the power cord removed.

6.1 Removing the various metal plates

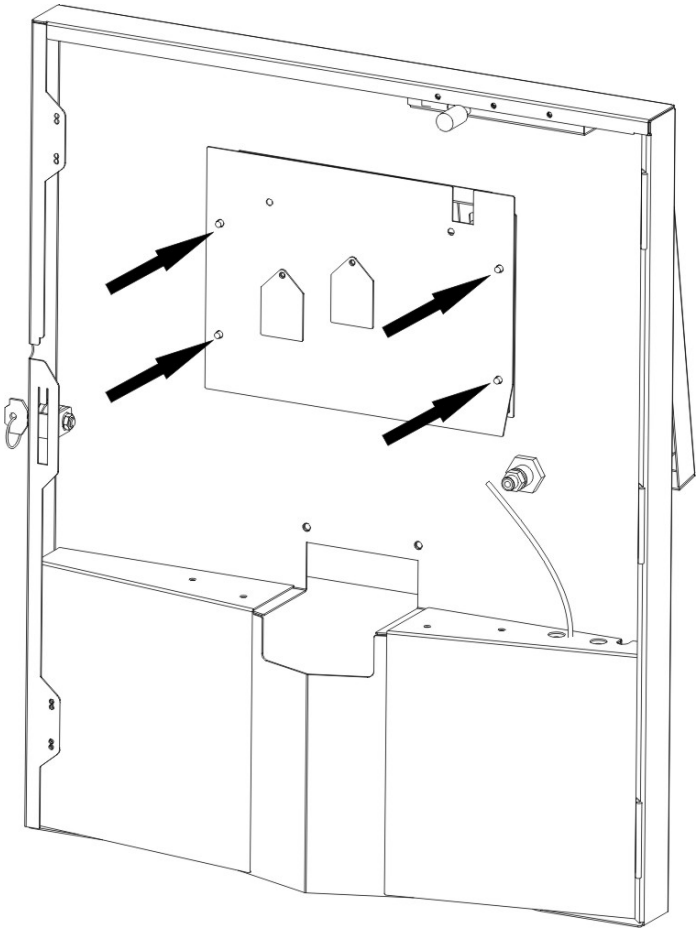
This paragraph shows hot to remove the various machine metal plates to reach the components.

6.1.1 Removing the air solenoid valves set

- Disconnect the 2 clear pipes coming from the milk frother;

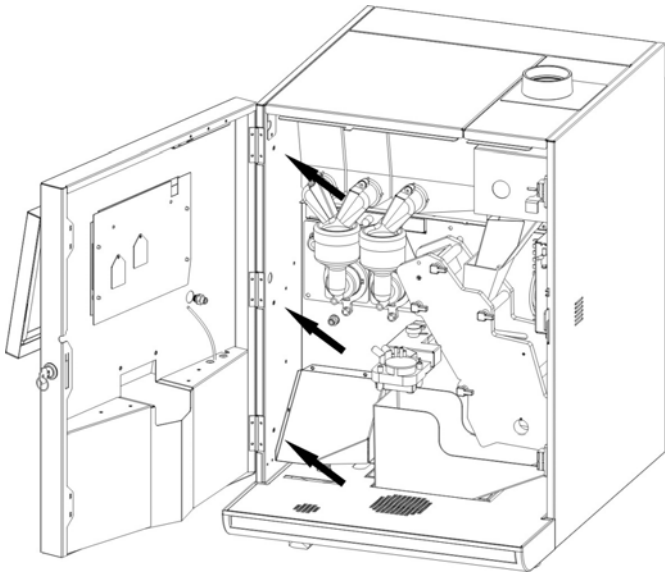
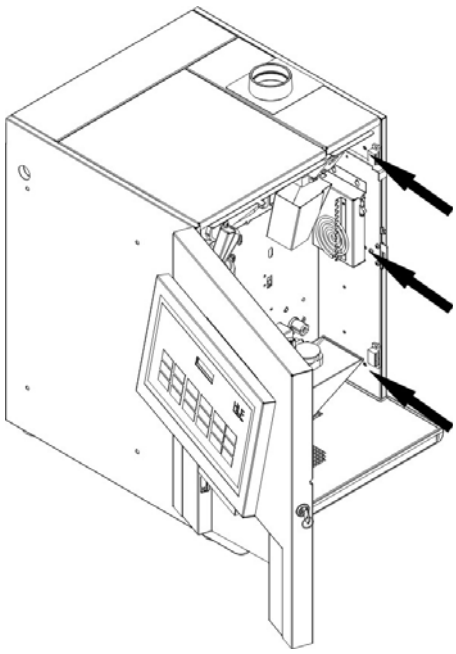
Step	Action	Illustration
1	Remove the 2 screws that hold the **air solenoid valves set** and take it off; **NOTE** Disconnect the connector for the **air solenoid valves set**.	

6.1.2 Removing the door board cover

Step	Action	Illustration
1	Remove the 4 nuts that hold the **door board cover**.	

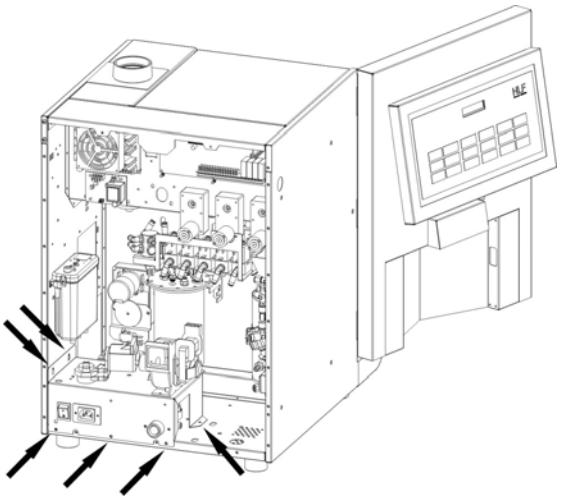
6.1.3 Removing the side panels

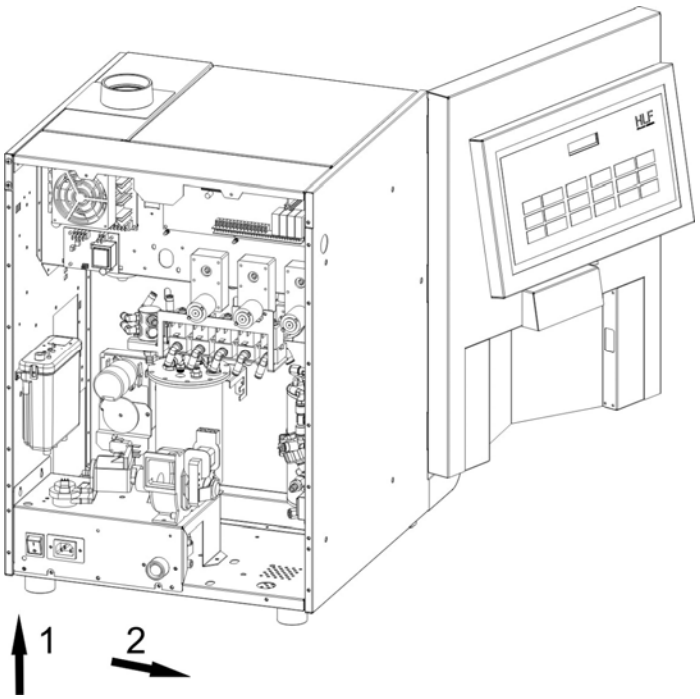
- Remove the **back panel**;
- Remove all the screws on the back of the machine

Step	Action	Illustration
1	Remove the 3 screws that hold the **left side panel** and take it off;	
2	Remove the 3 screws that hold the **right side panel** and take it off;	

6.1.4 Removing the power supply unit

- Remove the **back panel**;

Step	Action	Illustration
1	Remove the screws that hold the **power supply unit** to the machine basement;	
2	Remove the following pipes: 1. Silicon pipe from the flow meter to the air-break; 2. Silicon filling pipe from the main inlet water valve to the air break; 3. Silicon overflow pipe from the main inlet water valve to the air break; 4. Aspiration tube; 5. Teflon pipe from the water pump to the water boiler; Disconnect the white connector from the top of the flow meter and the **power supply unit** connector from the machine wiring;	

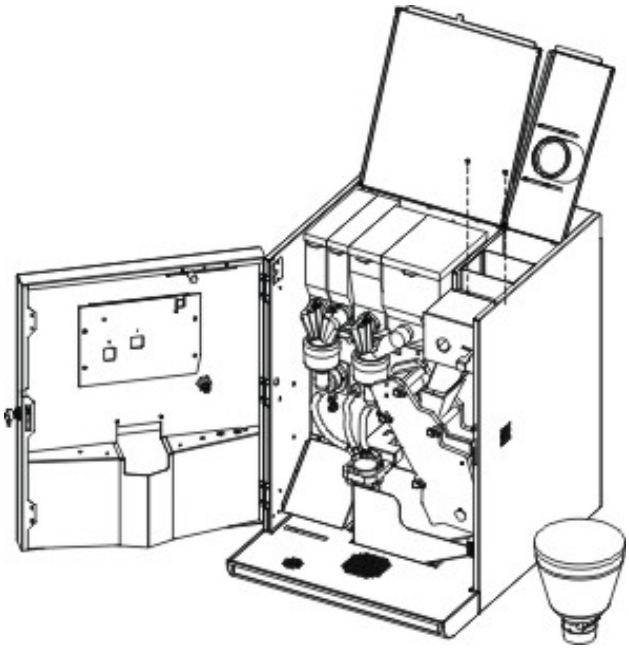
3	Lift the **power supply unit** up and pull it to the right to take it out.	

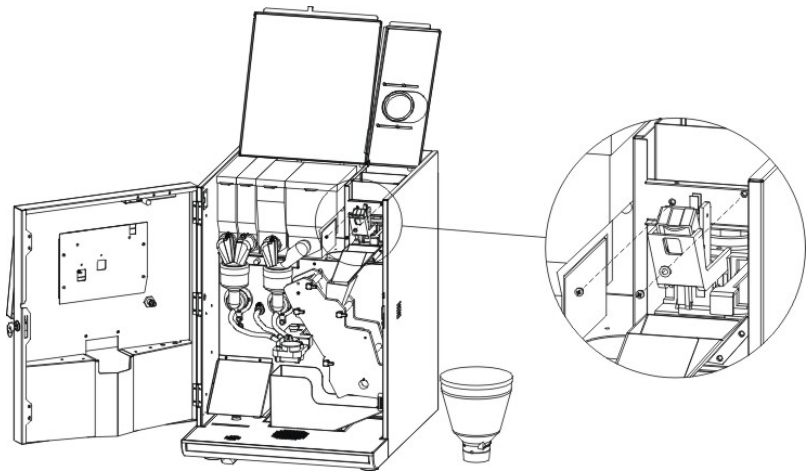
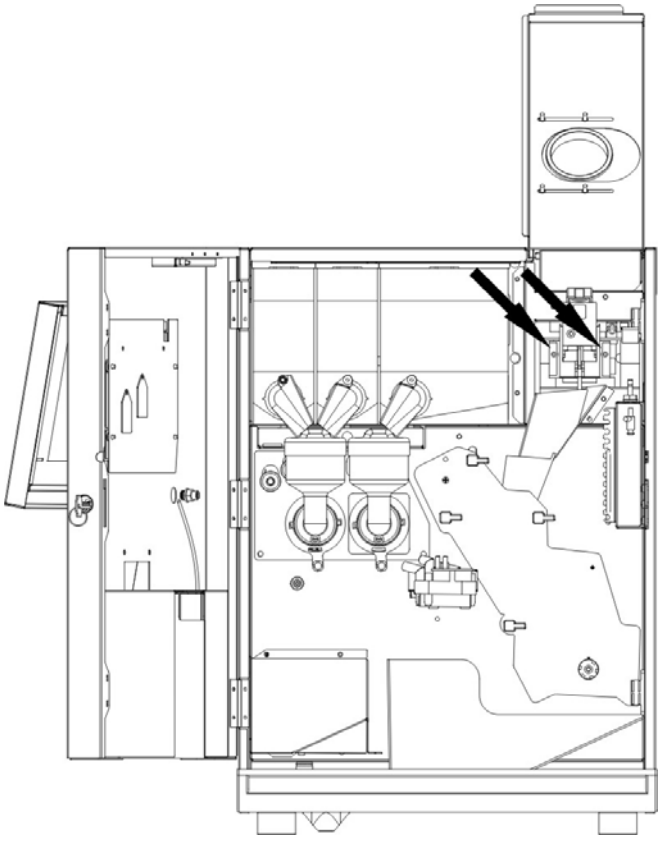
7

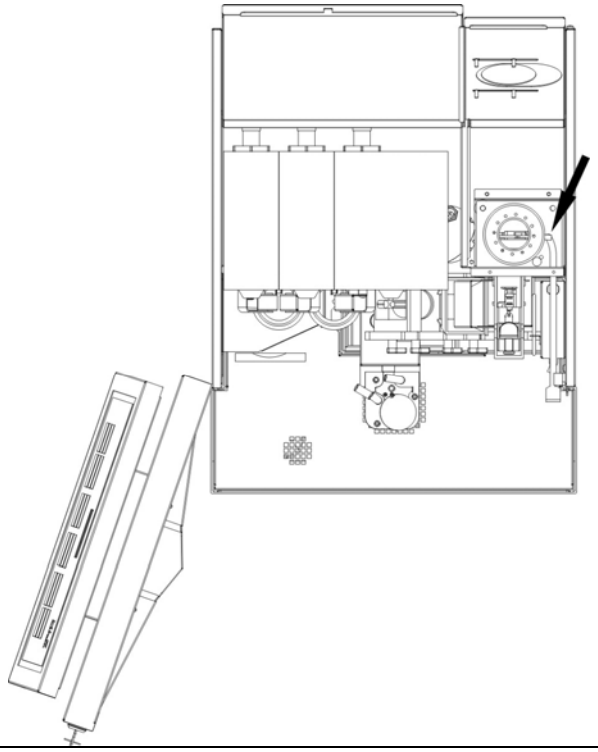
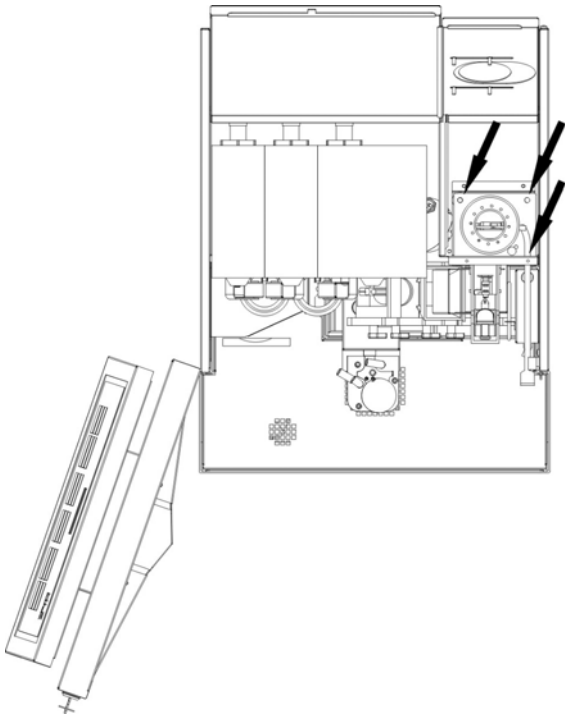
8 Removing components

8.1.1 Removing the grinder / doser (only for 4600 G1)

- Remove the **back panel**;
- Disconnect the **grinder** wiring from the connectors. (Cut the eventually plastic wrappers);
- Disconnect the magnet wiring from the connectors. (Cut the eventually plastic wrappers);
- Disconnect the 2 cables from the **doser micro switch**;

Step	Action	Illustration
1	Loosen the two screws that hold the **doser metal cover** and remove it.	

Step	Action	Illustration
2	Loosen the two screws that hold the **internal beans hopper** and remove it.	
3	Loosen the 2 screws that hold the **doser** to the **grinder**;	

Step	Action	Illustration
4	Loosen the screw that holds the **grinder adjusting lever** and take it off;	
5	Loosen the 3 screws and take off the **grinder**;	

- Remove the 3 screws that hold the plastic adjuster;

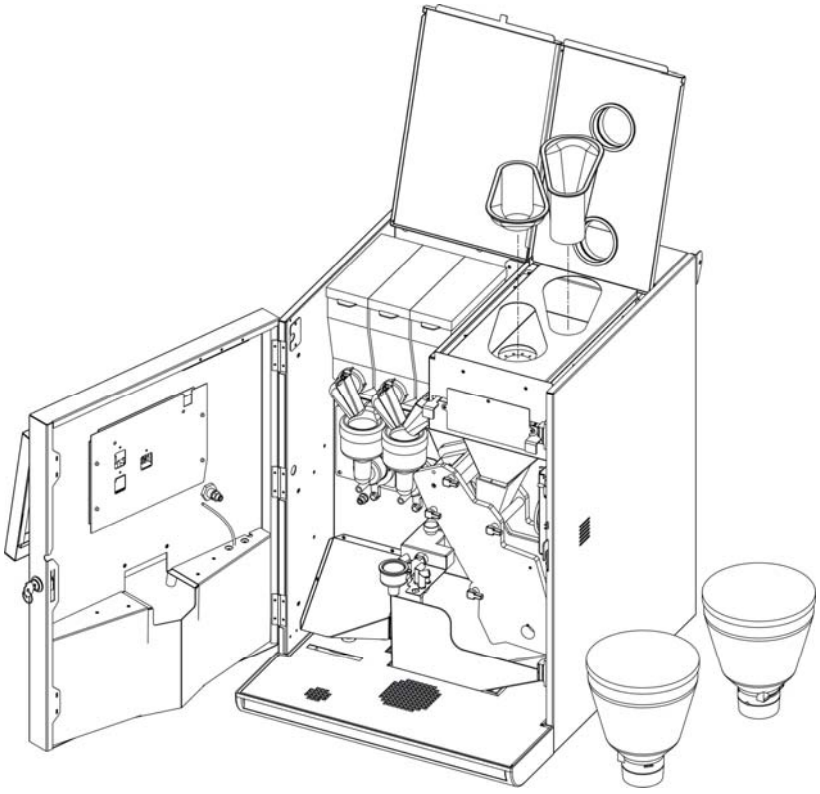
NOTE

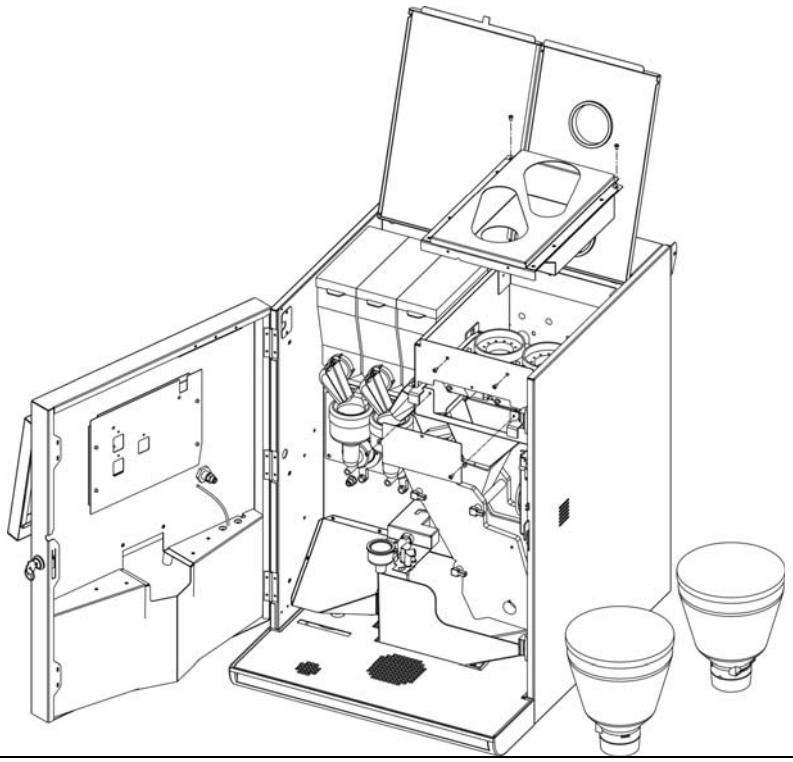
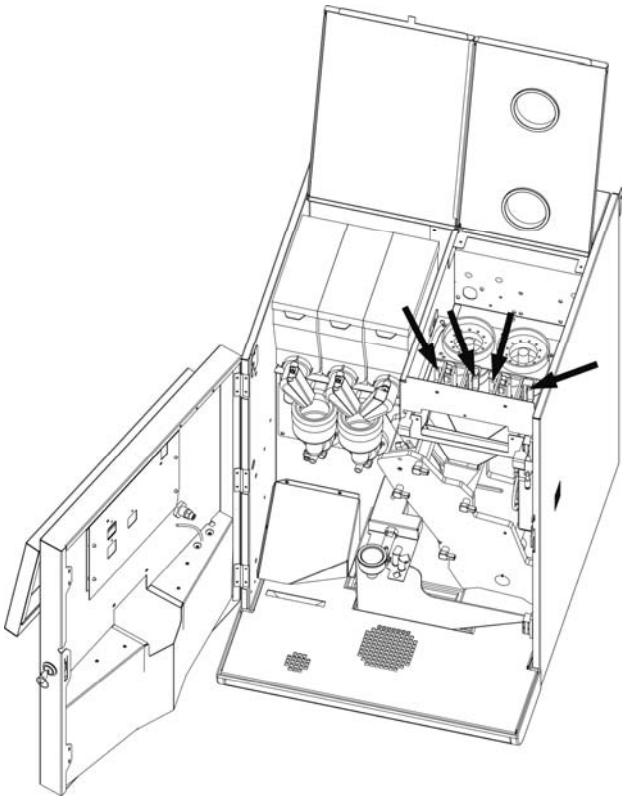
Be careful not to loose the 3 plastic pins with springs.

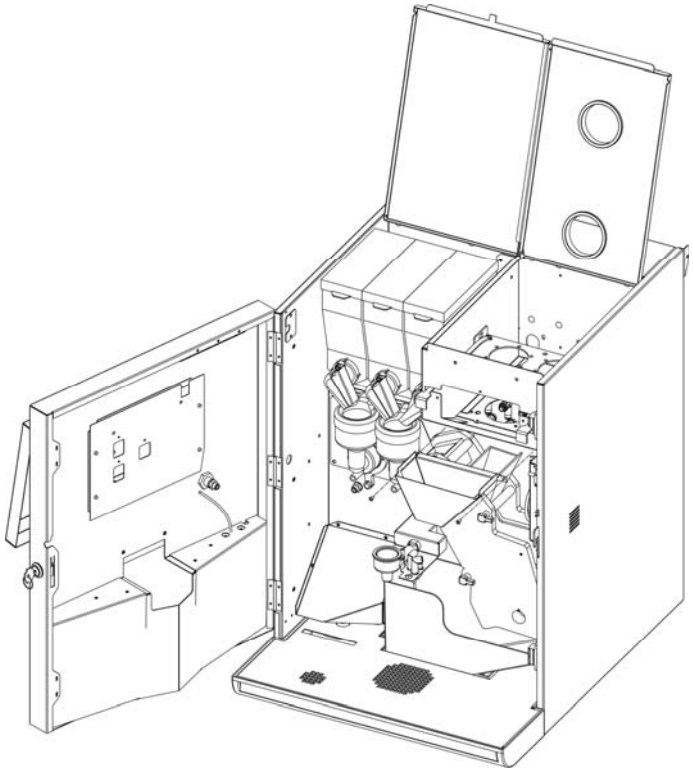
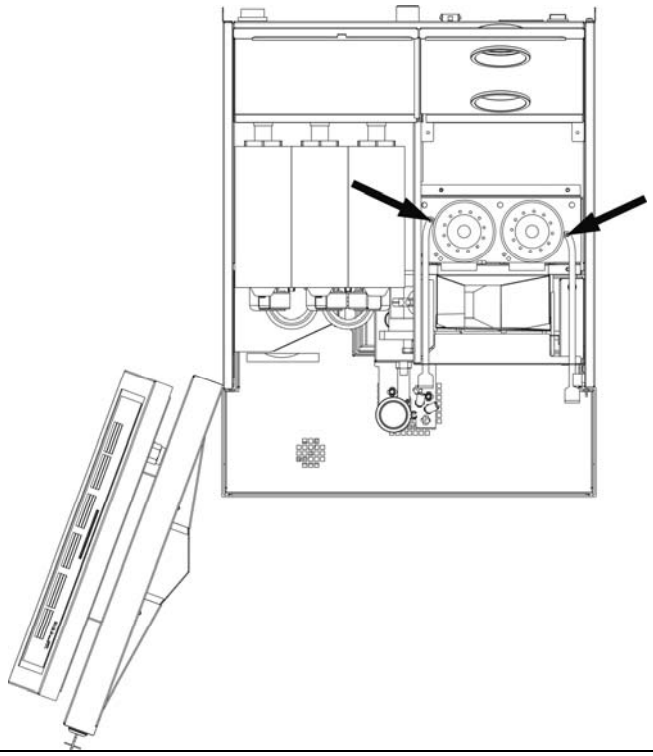
- Remove the 3 screws that hold the metal bracket;

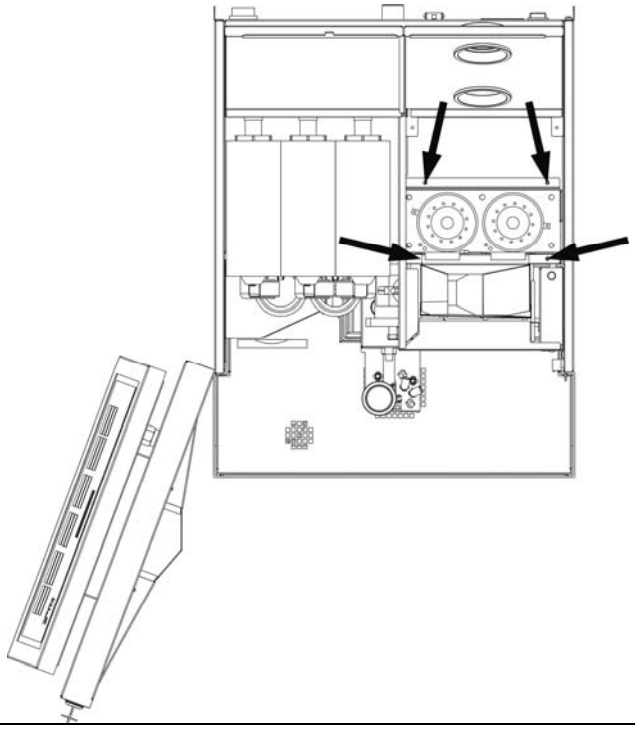
8.1.2 Removing the grinder / doser (only for 4600 G2)

- Remove the **back panel**;
- Disconnect the **grinder** wiring from the connectors. (Cut the eventually plastic wrappers);
- Disconnect the magnet wiring from the connectors. (Cut the eventually plastic wrappers);
- Disconnect the 2 cables from the **doser micro switch**;

Step	Action	Illustration
1	Remove the two **internal bean hoppers**.	

Step	Action	Illustration
2	Loosen the four screws which fix the bracket for the **internal bean hopper** and the two screws which fix the dosers cover plate and remove them. Loosen the two screws which fix the stainless steel coffee slide and remove it.	
3	Loosen the 2 screws that hold the **doser** to the **grinder**; Repeat the procedure for both dosers.	

Step	Action	Illustration
4	Loosen the two screws which fix the stainless steel coffee slide and remove it.	
5	Loosen the screws that hold the **grinder adjusting levers** and take them off;	

6	Loosen the 4 screws and take off the **grinders**;	

- Remove the 3 screws that hold the plastic adjuster;

NOTE

Be careful not to loose the 3 plastic pins with springs.

- Remove the 3 screws that hold the metal bracket;

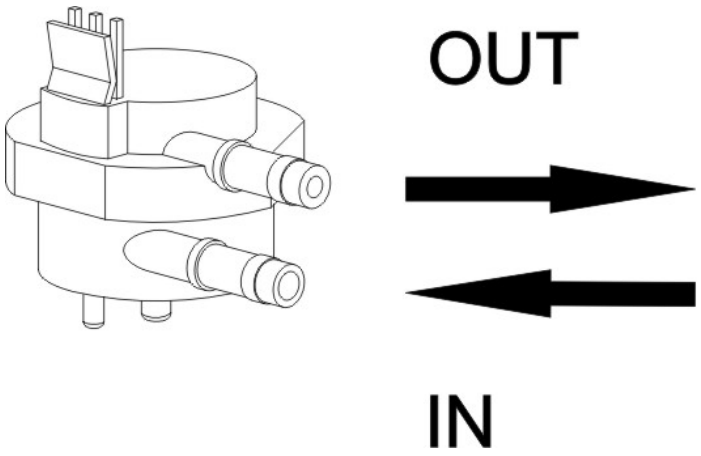
8.2 Removing the transformer

Before to do this operation follow the procedure described on paragraph 6.1.4.

- Disconnect the wires from the connectors attached to the transformer;
- Remove the **water pump** from the **water pump rubber supports**;
- Remove the screw and take off the transformers.

8.3 Removing the flow meter

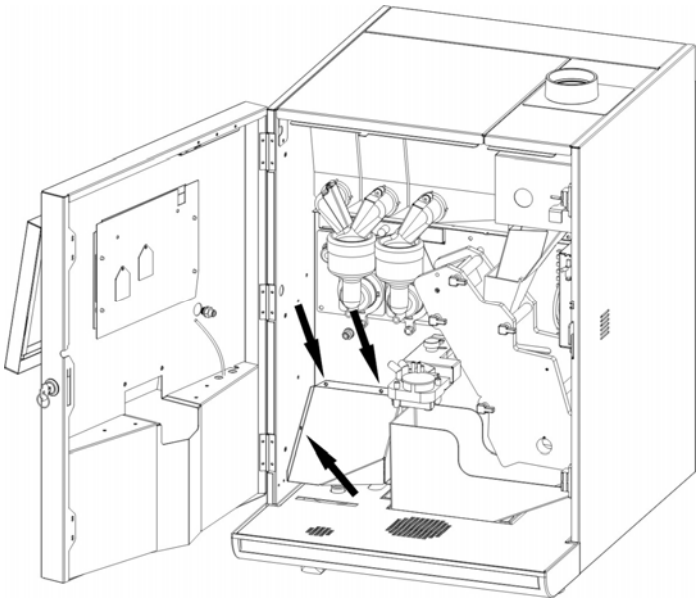
- Remove the **back panel**;

Step	Action	Illustration
1	Disconnect the pipe coming from the internal water tank, from the flow meter (bottom one); **NOTE** Once disconnected the pipe, catch the water inside it with a container. Disconnect the pipe coming from the water pump (top one);	

- Disconnect the white connector from the top of the flow meter;
- Pull the flow meter up to remove it from the **power supply unit**.

8.4 Removing the drip tray micro switch

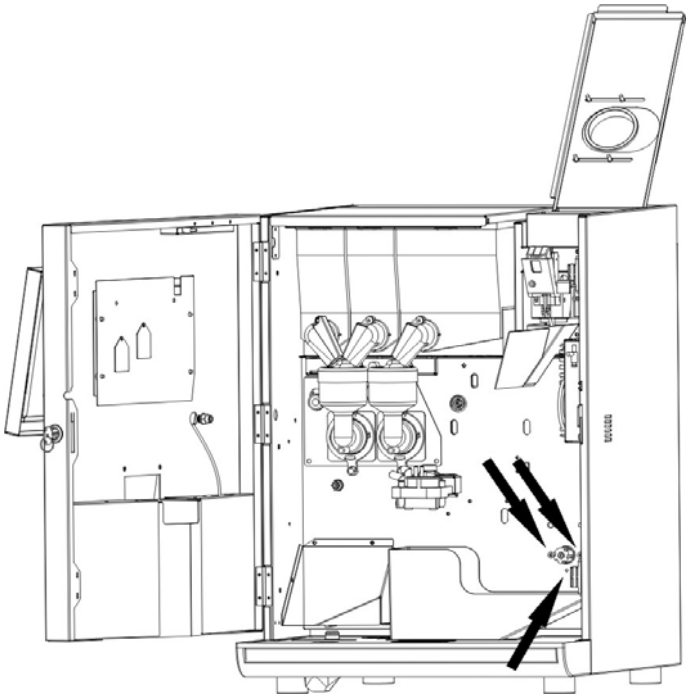
- Remove the **drip tray** and the **grounds drawer**;

Step	Action	Illustration
1	Remove the 3 screws that hold the **drip tray micro switch metal cover**.	
2	Remove the 2 cables connected to de **drip tray micro switch** Remove the 2 screws that hold the **drip tray micro switch** support from the front of the machine and take off the micro switch.	

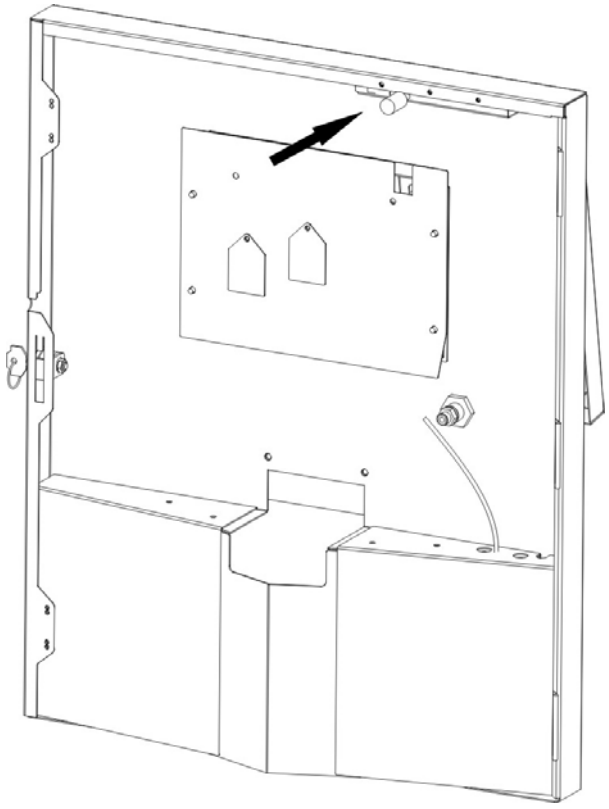
8.5 Removing the coffee gear motor

Before to do this operation follow the procedure described on paragraph 4.1

- Remove the **back panel**;

Step	Action	Illustration
1	Loose the 3 screws that hold the **coffee gear motor** to the metal plate. Hold the **coffee gear motor** with a hand, otherwise it will fall down. Disconnect all the cables of the **coffee gear motor** and take it off.	

8.6 Removing the door micro switch

Step	Action	Illustration
1	Remove the 3 screws that hold the **door microswitch plate** to the **front door** and take the plate off. **NOTE** Disconnect the 2 cables from the **door micro switch**.	

8.7 Removing the door board

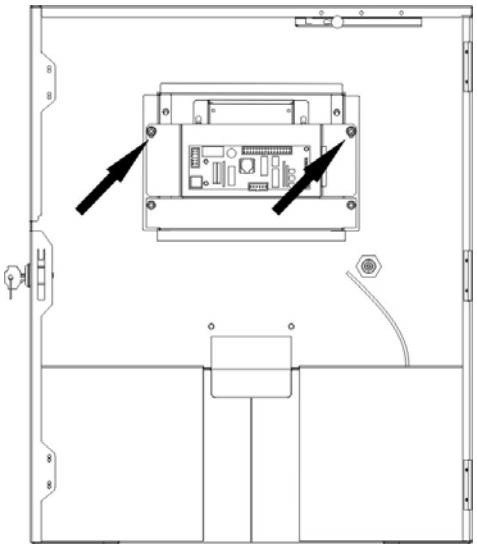
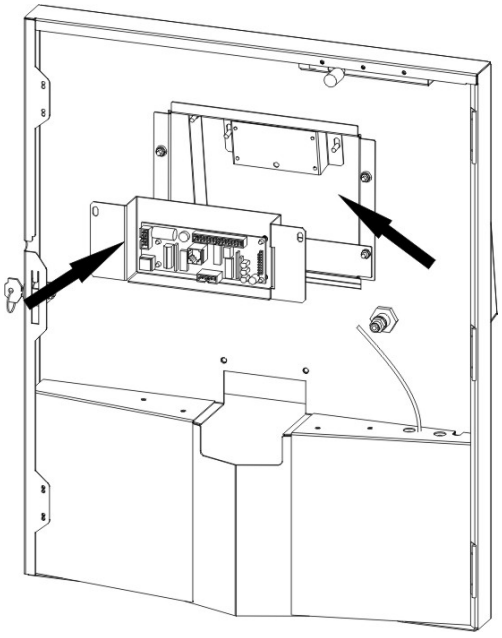
Before to do this operation follow the procedure described on paragraph 6.1.2.

- Disconnect the **LCD display** connector, the **serial cable** connector and the **soft touch panel** connector from the **door board**.
- Remove the **door board** from the plastic supports taking care not to damage them.

8.8 Removing the LCD display

Before to do this operation follow the procedure described on paragraph 6.1.2.

- Disconnect the **LCD display** connector, the **serial cable** connector and the **soft touch panel** connector from the **door board**.

Step	Action	Illustration
1	Remove the 2 nuts that hold the **door board plate** and take it off.	
2	Remove the2 nuts that hold the **LCD display plate** and take it off. Remove the **LCD display** from the plastic supports taking care not to damage them.	

8.9 Removing the soft touch panel

Before to do this operation follow the procedure described on paragraph 6.1.2.

- Disconnect the **LCD display** connector, the **serial cable** connector and the **soft touch panel** connector from the **door board**.
- Remove the **selection panel frame**;
- Remove the **selection panel**;
- Remove the **front door label**;
- Remove the **soft touch panel**.

8.10 Removing the net filter

Before to do this operation follow the procedure described on paragraph 6.1.4.

Step	Action	Illustration
1	Disconnect all the cables connected to the **net filter**. Remove the nut that holds the **net filter** and take it off.	

8.11 Removing the air solenoid valves

Before to do this operation follow the procedure described on paragraph 6.1.1.

- Remove the straight pipe fitting from the metal plate and take off the **air solenoid valve set**;
- Disconnect all the cables from the air solenoid valves.

8.12 Removing the door locker

Step	Action	Illustration
1	Remove the little nut first, that holds the **door hinge**. Take off the **door hinge** and remove the big nut that holds the **door locker** to the **front door**;	

NOTE

When replacing it, be sure to have the key teeth looking downward when the **door locker** is in closed position.

9

10 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.

10.1 Cooling down

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

- Switch OFF the machine and unplug the power cord;
- Disconnect the **water boiler heating element** cable from the **main board**;
- Disconnect the **steam boiler heating element** cable from the **main board**;
- Plug the power cord and switch ON the machine;
- Run at least 3 “Whipper Cleaning” to cool down the **water boiler**;
- Enter the tech program and start the discharge pressure routine to release all the steam from the **steam boiler**;
- When the steam stops to come out, just switch OFF the machine.
- Remove the power cord.

10.2 Emptying the boilers

Before to do this operation follow the procedure described on paragraph 10.1.

- Loosen the **temperature probe** for a little, or disconnect the teflon pipe going from the **water boiler** to the **solenoid valves set**, just to let air to pass through the hydraulic circuit;
- Disconnect the pipe coming from the **water pump** to the **water boiler**;
- Make a vacuum from the **water pump** pipe and catch the water coming out;
- Disconnect the pipe coming from the **one way valve** to the **steam boiler** and drain the water coming out;

CAUTION

Don’t connect back the heating element cables previously disconnected from the main board, during the time both the boilers stay empty.

After the maintenance is finished, remember to switch ON the machine and wait for the hydraulic circuit to be completely full of water.

On Powder Milk machines the operator must run some “Whipper Cleaning” routines until water comes out of the drink nozzles, which means the water boiler is completely full of water.

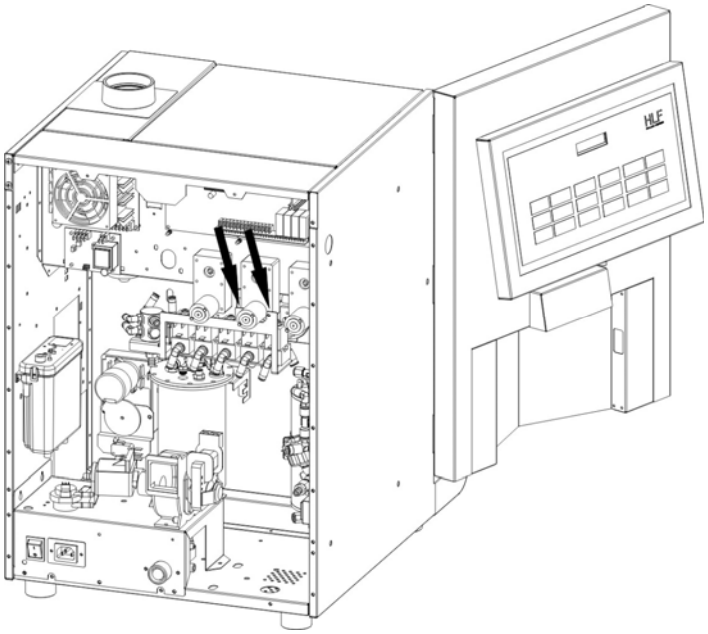
On Fresh Milk machines the water is filled automatically. The operator has just to switch ON the machine holding STOP button until the message “Wait for Heating” appears on the LCD display. This way the machine don’t care about the filling water timeout, and keep filling until both the boilers are full of water, without running up against a “Check Water” message

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

10.3 Removing the solenoid valve set

Before to do this operation follow the procedure described on paragraph 10.1.

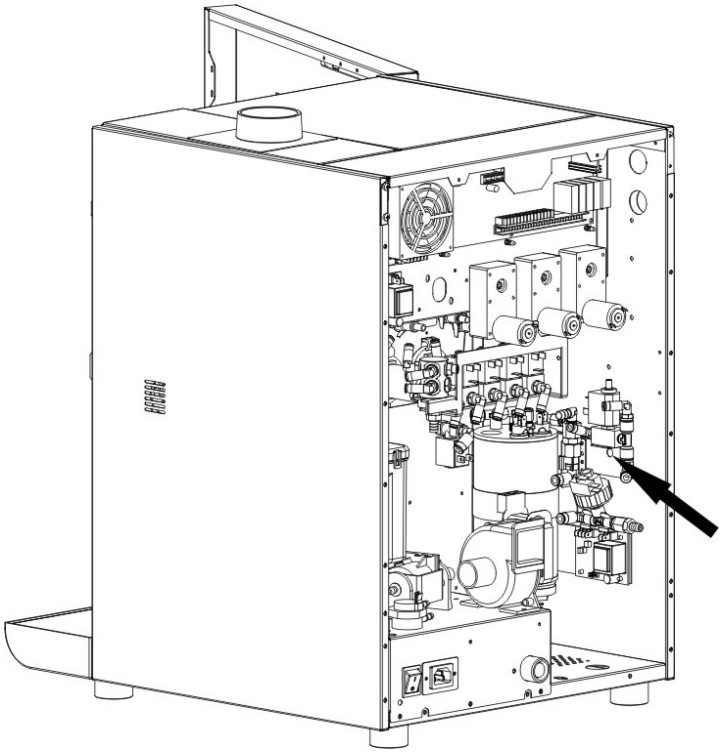
- Remove the **back panel**; **solenoid valves set**
- Disconnect all the cables connected to the **solenoid valves set**;
- Disconnect all the silicon hoses going from each **solenoid valve** to the **mixing bowls**;

Step	Action	Illustration
1	Remove the 2 screws that hold the **solenoid valves set** and take it off.	

10.4 Removing the steam outlet solenoid valve

Before to do this operation follow the procedure described on paragraph 10.1.

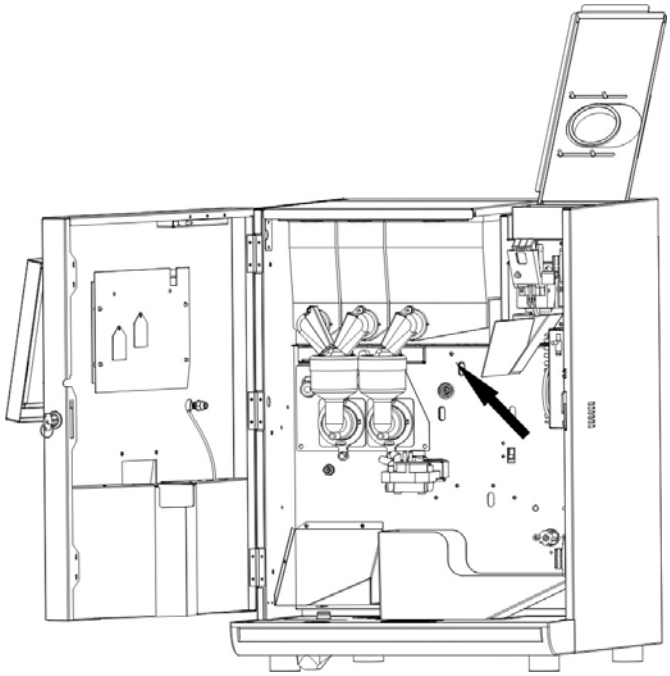
- Remove the **back panel**;
- Disconnect all the pipes connected to the **steam outlet solenoid valve**;

Step	Action	Illustration
1	Remove the 2 screw that holds the **steam outlet solenoid valve** and take it off.	

10.5 Removing the coffee group plate

Before to do this operation follow the procedure described on paragraph 10.1 and 4.1.

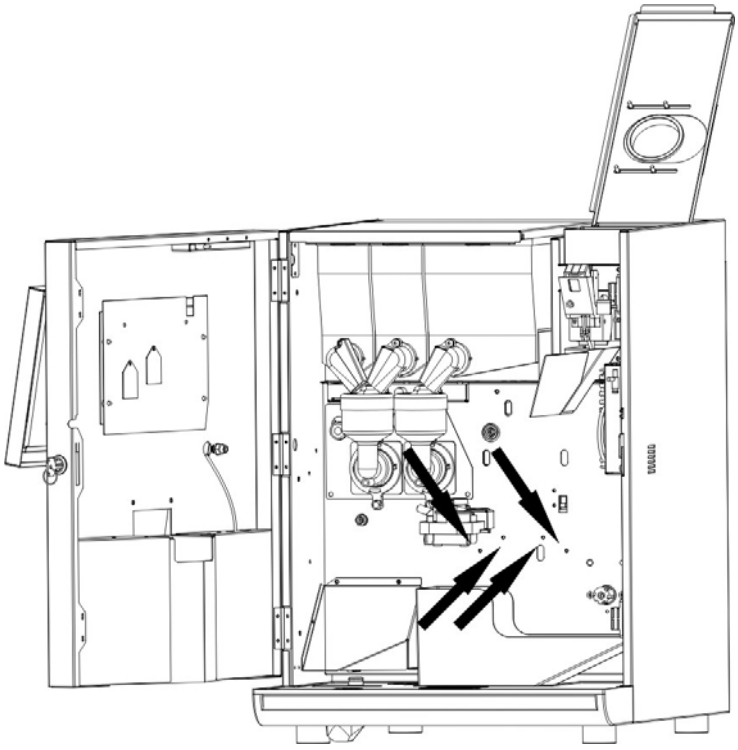
- Disconnect the pipe from the push fitting attached to the **coffee solenoid valve**;
- Disconnect the **coffee group heating element** cables from the connectors;

Step	Action	Illustration
1	Remove the screw that holds the **coffee group metal plate** to the machine and take it off.	

10.6 Removing the water boiler

Before to do this operation follow the procedure described on paragraph 10.1 and 4.1.

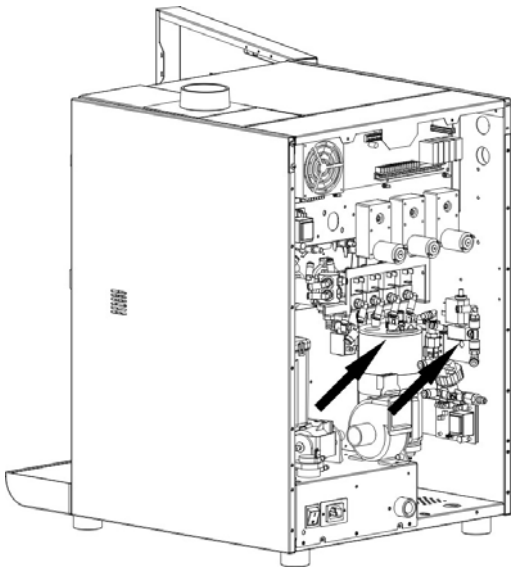
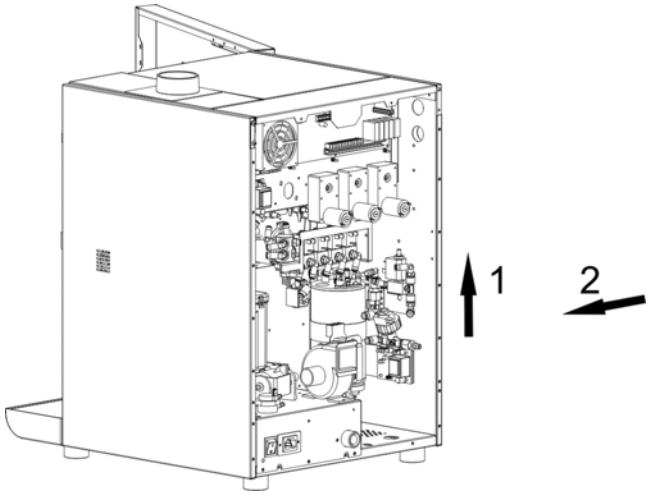
- Disconnect all the cables attached to the **water boiler**;
- Disconnect all the pipes attached to the **water boiler**;

Step	Action	Illustration
1	Remove the screw that holds the **water boiler** plate and take it off	

10.7 Removing the steam boiler

Before to do this operation follow the procedure described on paragraph 10.1.

- Disconnect the 12 poles connector attached to the machine wiring;
- Disconnect the pipe connected from the **steam outlet solenoid valve** to the **milk frother**, the inlet pipe from the **steam inlet solenoid valve**, and the silicon discharge pipe from the Y plastic connector;

Step	Action	Illustration
1	Loosen the screws that holds the **steam boiler plate**.	
2	Lift the **steam boiler set** and pull it to the left to take it out.	

11

12 Operating the computer software

12.1 Gaining access to the machine software

With the programming procedures described in this section it is possible to set all the parameters relating to machines configuration and payment.

Open the front door and push the red button for one second and release it. The message **Insert Password** will appear on the LCD display.

Insert Password . . . .

Insert the factory technical password using the drink selection buttons according with the number wrote on the right lower corner of each push button.

The factory password is: **5 6 7 8**.

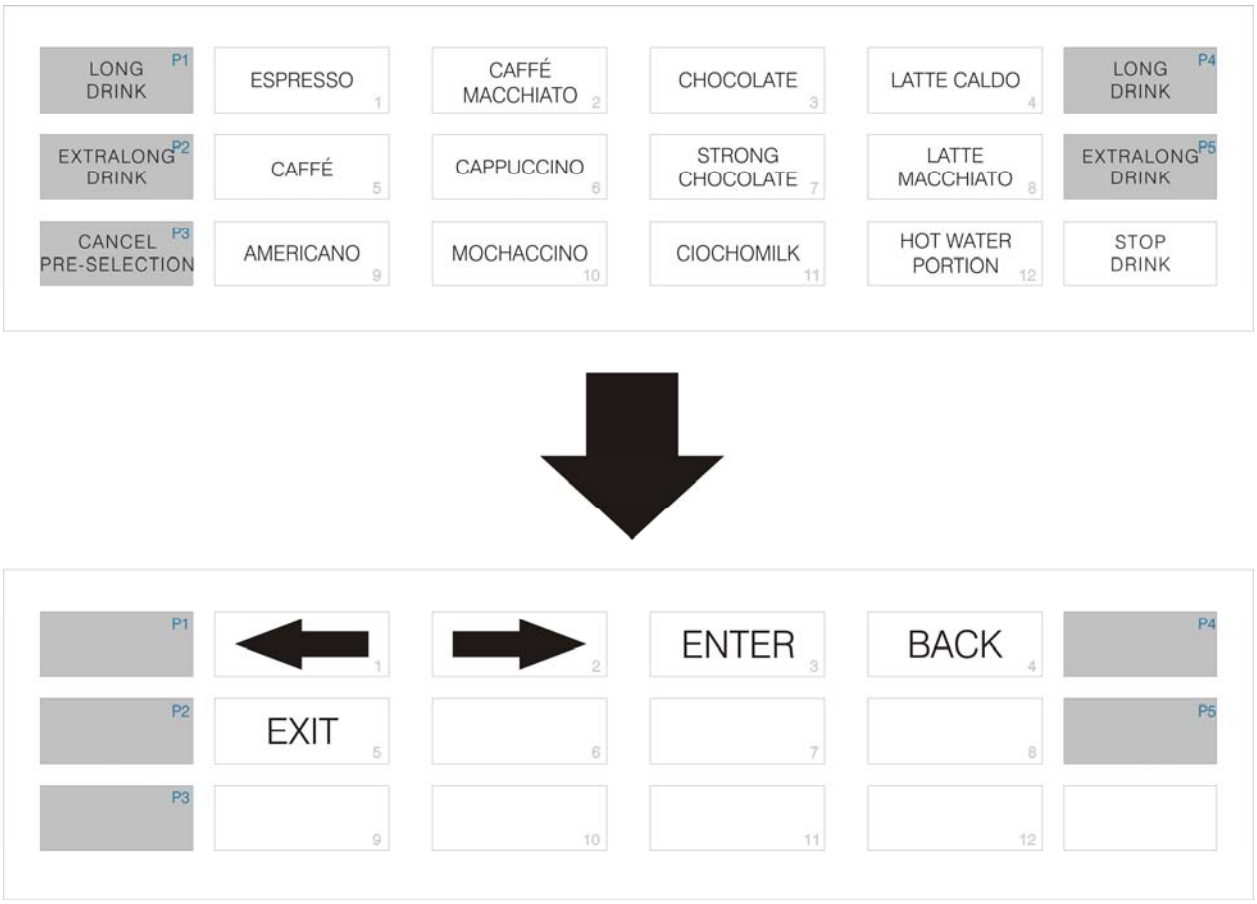
Each time you press the button, the "*dot*" showed on the LCD display will change to an equal sign. After have pushed the password, push a key to gain into the technical software of the HLF 4600 coffee maker.

12.2 Programming Steps

Gain into the software as described on previous paragraph 12.1. After the password check the first message that will appear on the LCD display will be **TECH PROGRAM Settings**.

TECH PROGRAM Settings

At this point is important to know the map of the keyboard to move through the software. The picture below shows the function associated to each push buttons to permit the entrance, the exit and the changes of the various software menu.



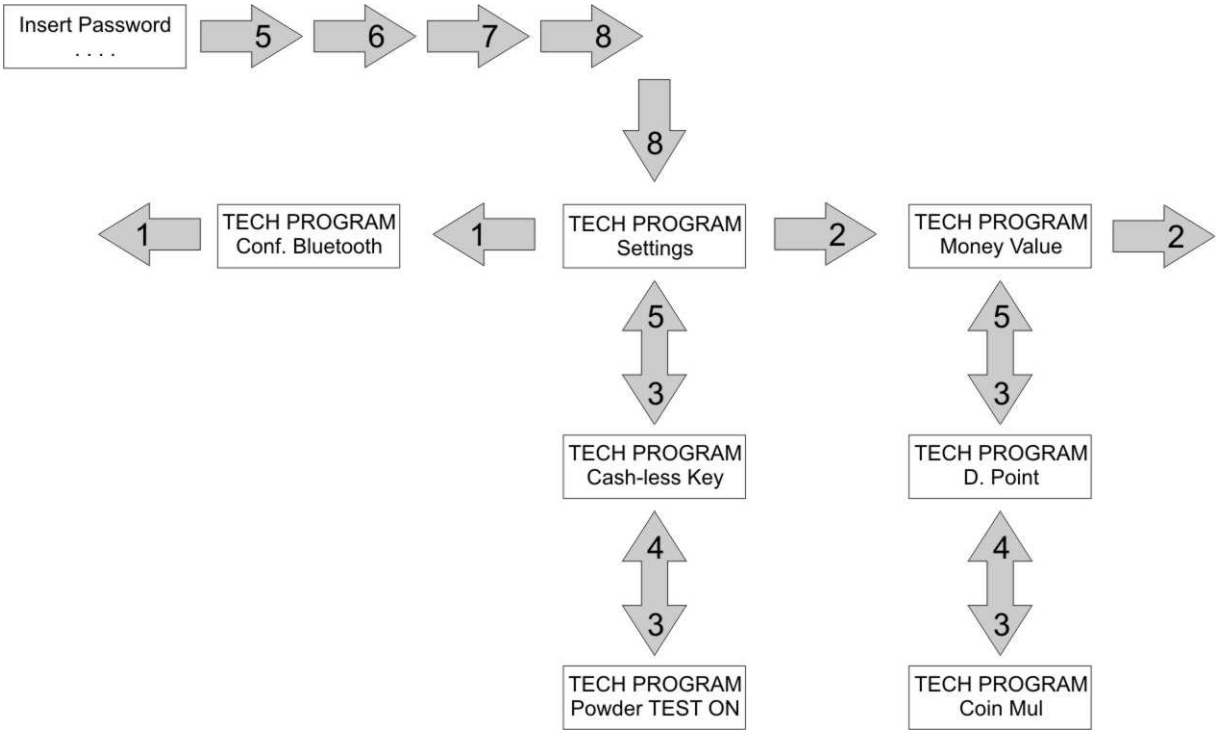
Buttons 1 and 2 are used to move forward or backward throw the various programming functions. These buttons are also used to decrease and to increase the various product doses and water amounts.

Button 3 serves to access into the menu once it appears on the LCD display. Button 3 is also used to confirm the changes done and to move a step forward.

Button 4 is used to move backward in the under menu.

Button 5 is used to exit from a function and/or quit the programming function.

When leaving the programming function you hear two "*beeps*". The following picture shows how to move through the software:



12.3 Programming Menu

These are the menu that can be viewed by scrolling with the use of buttons 1 and 2:

- **Settings**
- **Money Value**
- **Drink Price**
- **Change Password**
- **Set Factory Data**
- **Conf. Bluetooth**

12.3.1 Settings

This menu is used to set the main functions of machine.

When the display shows **TECH PROGRAM Settings**, press button 3.

TECH PROGRAM Settings

The LCD display will change to **TECH PROGRAM Cash-less Key=N**.

TECH PROGRAM Cash-less Key=N

This disables the Key control when the key reader payment system isn't installed into the cash box. It is possible to enable or disable the key control, with YES or NO, using buttons 1 or 2.

NOTE

When a key reader payment system is installed into the cash box, keep always activated this function. Otherwise, the correct working of the payment system may be compromised.

By pushing button 3 the message **TECH PROGRAM Powder TEST ON=N** will appear on the LCD display.

TECH PROGRAM Powder TEST ON=N

This function allows the operator to weight the amount of coffee ground used to make a coffee, or the powder amount used from the canisters.

1. Turn this function to **YES** and go out of the program menu to make a Powder Test.

2. Press the drink key to put to the test.

3. The HLF 4600 will grind the coffee with no water coming out, or without the milk process. In this way it will be possible to take off the **coffee group** and catch the coffee powder used for a coffee or a cappuccino, into a cup or a small container. After this, it will be possible to weight the powder using a regular scale.

4. The same way for the canisters of the HLF 4600. Just remove the mixing bowl and catch the powder under the funnels.

Use button 1 or 2 to change from **NO** to **YES**.

By pushing button 3 the message **TECH PROGRAM Extra Dose=X,Xs** will appear on the LCD display.

TECH PROGRAM Extra Dose=X,Xs

This is the quantity of coffee, in seconds, that the software will use to increase the amount of coffee ground on all the coffee drinks.

Normally the machine is calibrated to get 7,5 8 grams of coffee. With this option 9 grams max can be reached without adjusting manually the coffee **doser**.

By pushing button 3 the message **TECH PROGRAM Water DT = XX,Xs** will appear on the LCD display.

TECH PROGRAM Water DT = XX,Xs

Each 10 minutes within no soluble drink or hot water are dispensed, the machine will heat up the hydraulic circuit making hot water flushing for the time set in this option.

It's very useful i.e. to make an espresso with instant coffee. After 10 minutes of inactivity, the first instant coffee may be dispensed cold. That's because of the small quantity of water a standard espresso requires.

Thanks to this option, also the first instant espresso will be at the right temperature.

A recommended value is at least 5 seconds.

By pushing button 3 the message **TECH PROGRAM BestCof DT=X,Xs** will appear on the LCD display:

TECH PROGRAM BestCof DT=X,Xs

This is the quantity of water, in seconds, used to wet the coffee puck for the best coffee function, when this is activated. Use buttons 1 or 2 to increase or decrease this value.

Push again button 3 the message **TECH PROGRAM Temp Rising BC=N** will appear on the LCD display:

TECH PROGRAM Temp Rising BC=N

Activate this function if you want to warm up the water for the first coffee after 10 minutes of inactivity.

By pushing button 3 the message **TECH PROGRAM Steam Valve=Wan** will appear on the LCD display.

TECH PROGRAM Steam Valve=Wan

This setting permits to chose which steam point use when the function “Steam Wand Key” is activated on a key. Pushing buttons 1 or 2 it is possible to change this function between:

- **Wan** The steam key activates the steam wand
- **Cap** The steam key activates the milk frothier.

By pushing button 3 the message **TECH PROGRAM Steam Froth=N** will appear on the LCD display.

TECH PROGRAM Steam Froth=N

With this function it is possible to choose between getting the milk frothed or only warmed when the Steam Valve is set on “Cap”. Change this setting on YES if you want to get the milk frothed or on NO if you just need to warm it.

By pushing button 3, the message **TECH PROGRAM Disch.Pressure=N** will appear on the LCD display.

TECH PROGRAM Disch.Pressure=N

Activating this function the machine will discharge the pressure of the boiler, after 5 minutes the boiler won’t have steam anymore. Using buttons 1 or 2 it is possible to change it in YES or NO.

By pushing button 3, the message **TECH PROGRAM Filter C. N** will appear on the LCD display.

TECH PROGRAM Filter C. N

This is a counter which increments each time a de-scaling process or a reset by the user after the message “Descaling/Filter” occurred.

Depending on the following setting, it can means the number of the filters changed or the number of de-scaling processes run.

Push again button 3 the message **TECH PROGRAM Gr. Release = Y** will appear on the LCD display:

TECH PROGRAM Gr. Release = Y

This option serves to catch an eventual block of the grinder. If activated when a block occurred, the machine stops the drink and will then write “Check Grinder” on the LCD display.

By pushing button 3, the message **TECH PROGRAM Time Out W= XX s** will appear on the LCD display.

TECH PROGRAM Time Out W= XX s

This is the maximum time within which the clear tank of the water line kit (if installed) has to be filled. It can be changed by the user, depending on the pressure of the water line. The higher is the pressure, the faster is the filling, so less time out has to be set.

By pushing button 3, the message **TECH PROGRAM Fresh Milk Ver=Y** will appear on the LCD display.

TECH PROGRAM Fresh Milk Ver=Y

With this option the machine can behave like a powder milk only mode or a fresh milk mode.

- Turning it to “N” the machine works as a powder only machine. All the option regarding the steam time inside “Drink Number X” menu, inside “Function” menu and inside “Settings” menu (Tech menu) will be hidden. If there was some numbers set, they will be totally ignored, but not erased.
  Also the cleaning routines change, without asking for the milk cleaning.

- Turning it to “Y” the machine works as a fresh milk machine. All the settings are available.

By pushing button 3, the message **TECH PROGRAM Clean Cof. Gr.=N** will appear on the LCD display.

TECH PROGRAM Clean Cof. Gr.=N

Turn this option to Y if you want the machine to ask for a coffee group cleaning each 1000 coffee cycles.

The message “Clean Cof. Group” will start blinking on the LCD display without locking the drinks. The user should remove the coffee group from the machine and rinse it under the water tap.

The message will keep blinking until the Cleaning Red Button or P5 button is pushed.

By pushing button 3, the message **TECH PROGRAM Entire Clean. =Y** will appear on the LCD display.

TECH PROGRAM Entire Clean. =Y

This option enable / disable the “Entire Cleaning” routine.

Supposing the customer must run the Daily Cleaning every day, the effects of enabling / disabling this option are the following:

FRESH MILK MACHINE (Fresh Milk Ver = Y)

Entire Clean. = Y (Default value)

With this configuration the customer cleans the mixing bowls and the fresh milk system every day. The coffee group may be cleaned as required from the supplier or each 250 coffee cycles by enabling the option **Ent.Clean.Mess**

A **Whipper Cleaning** only can be done by the customer whenever he needs.

Key 1: **Whipper Cleaning**: cleaning routine for the mixing bowls only;

Key 2: **Daily Cleaning**: cleaning routine for the mixing bowls and the fresh milk system;

Key 3: **Entire Cleaning**: cleaning routine for the mixing bowls, milk system and coffee group.

Entire Clean. = N

With this configuration the customer cleans the mixing bowls, the fresh milk system and the coffee group every day.

A **Whipper Cleaning** only can be done by the customer whenever he needs.

Key 1: **Whipper Cleaning**: cleaning routine for the mixing bowls only;

Key 2: **Daily Cleaning**: cleaning routine for the mixing bowls, milk system and coffee group.

POWDER MILK MACHINE (Fresh Milk Ver = N)

Entire Clean. = Y: (Default value)

With this configuration the customer cleans the mixing bowls every day. The coffee group may be cleaned as required from the supplier or each 250 coffee cycles by enabling the option **Ent.Clean.Mess**

Key 2: **Daily Cleaning**: cleaning routine for the mixing bowls only;

Key 3: **Entire Cleaning**: cleaning routine for the mixing bowls, and coffee group.

Entire Clean. = N:

With this configuration the customer cleans the mixing bowls and the coffee group every day.

A **Whipper Cleaning** only can be done by the customer whenever he needs.

Key 1: **Whipper Cleaning**: cleaning routine for the mixing bowls only;

Key 2: **Daily Cleaning**: cleaning routine for the mixing bowls, and coffee group.

By pushing button 3, the message **TECH PROGRAM Ent.Clean.Mes.=N** will appear on the LCD display (only if **Entire Clean.=Y**).

TECH PROGRAM Ent.Clean.Mes.=N

Turn this option to Y if you want the machine to ask for an **Entire Cleaning** each 250 coffee cycles.

The message “Entire Cleaning Required” will start blinking on the LCD display without locking the drinks. The user must run an **Entire Cleaning** routine to clear the message.

NOTE

If **Entire Clean.=N** this option is hidden and automatically turned to N, cause the coffee group cleaning is already inside the **Daily Cleaning** which is supposed to be done everyday.

By pushing button 3, the message **TECH PROGRAM Force Ent.Cle.=N** will appear on the LCD display (only if **Ent.Clean.Mes.=Y**).

TECH PROGRAM Force Ent.Cle.=N

Turn this option to Y if you want to lock the machine when the message “Entire Cleaning Required” is blinking on the LCD display.

Once the message appears, the user has 100 coffee cycles more available before the machine locks the keyboard and automatically enter the **Entire Cleaning** routine. The user must run an **Entire Cleaning** routine to clear the message.

NOTE

If **Ent Clean.Mes.=N** this option is hidden and automatically turned to N, cause the message never appears.

By pushing button 3, the message **TECH PROGRAM Full Power = N** will appear on the LCD display.

TECH PROGRAM Full Power = N

As standard, the machine never gives power to both the boiler heating elements at the same time.

This way the machine power is 1800W at 230V for a consumption of 8A (1300W at 120V for a consumption of 11A).

Turning this option to Y the maximum power will be 3200W at 230V for a consumption of 14A (2400W at 120V for a consumption of 20A)

At this point the menu **Settings** is finished. Push button 5 to quit and go to the next menu.

12.3.2 Money Value

This menu is used to control a coin mechanism that can be attached on one side of the machine as an option, to accept coins or tokens, before dispensing a drink.

Push button 1 or 2 till the message **TECH PROGRAM Money Value** will appear on the LCD display.

TECH PROGRAM Money Value

Push button 3 to gain into this menu and the message **TECH PROGRAM D.Point 10.00** will appear on the LCD display.

TECH PROGRAM D.Point 10.00

This is the function to set the decimal point used on the currency that the coin mechanism will accept. By pushing buttons 1 or 2 it’s possible to move the dot between the digits.

By pushing button 3, the message **TECH PROGRAM Coin Mul X.XX** will appear on the LCD display.

TECH PROGRAM Coin Mul X.XX

This is the minimum coin accepted by the coin mechanism installed. This is going to work as multiplier for all the coins saved on the next steps. Push button 1 or 2 to change the value.

By pushing button 3, the message **TECH PROGRAM Money 1 X.XX** will appear on the LCD display.

TECH PROGRAM Money 1 X.XX

This is the value of the coin accepted from the coin mechanism on channel 1.

NOTE

Refer to the coin mechanism Instructions Manual to get the channels table.

Push buttons 1 or 2 to change the value and push button 3 to save it into the memory. Repeat the process for all six coins.

At this point the menu **Money Value** is finished. Push button 5 to quit and go to the next menu.

12.3.3 Drink Price

This menu is used to set a vend price to each drink when the coin mechanism is on one side of the machine. Push button 1 or 2 till the message **TECH PROGRAM Drink Price** will appear on the LCD display.

TECH PROGRAM Drink Price

By pushing button 3, the message **TECH ROGRAM Drink 1 X** will appear on the LCD display.

TECH PROGRAM Drink 1 X

This is the price to assign to each drink once the coin mechanism is installed on the side of the HLF 4600 coffee maker. Push buttons 1 or 2 to change the value.
Push button 3 to save changes and step to the next price till drink number 8.

At this point the menu **Drink Price** is finished. Push button 5 to quit and go to the next menu.

12.3.4 Change Password

This menu is used to change the password requested to access the software of the HLF 4600 coffee maker.

Push button 1 or 2 till the message **TECH PROGRAM Change Password** will appear on the LCD display.

TECH PROGRAM Change Password

By pushing button 3, the message **TECH PROGRAM Password= 5678** will appear on the LCD display.

TECH PROGRAM Password= 5678

This is the current password assigned by the factory. It can be changed using the drink buttons on the drink selection panel. The combination of the numbers from 5 to 9 can be used to create a new password.

To set the password insert four digits and push button 3 to save the new password into the memory, and to quit the menu.

12.3.5 Set Factory Data

This function is used to re-set the memory of the HLF 4600 coffee maker to the original factory setting. Push button 1 or 2 till the message **TECH PROGRAM Set Factory Data** will appear on the LCD display.

TECH PROGRAM Set Factory Data

Pushing button 3 the message **TECH PROGRAM Key 1 to Confirm** will appear on the LCD display.

TECH PROGRAM Key 1 to Confirm

By pushing the drink button number 1 the memory of the HLF 4600 coffee maker will be re-set to the factory setting. Any other button will quit the function.

WARNING

This function has to be used only in those cases where the operator is not able to get the result desired after the modifications made. Using this function all the numbers changed till now will be lost.

12.3.6 Conf. Bluetooth

If an HLF Bluetooth Serial Programmer is always connected to the machine, the technician can set the device with the name and serial number of the machine.

Pushing button 3 the message **TECH PROGRAM Key 1 to Confirm** will appear on the LCD display.

TECH PROGRAM Key 1 to Confirm

By pushing the drink button number 1 the HLF Bluetooth Serial Programmer will be initialized with the following data:

Device name: **4600G_XXXXXXXX** (Where the X are the serial number)

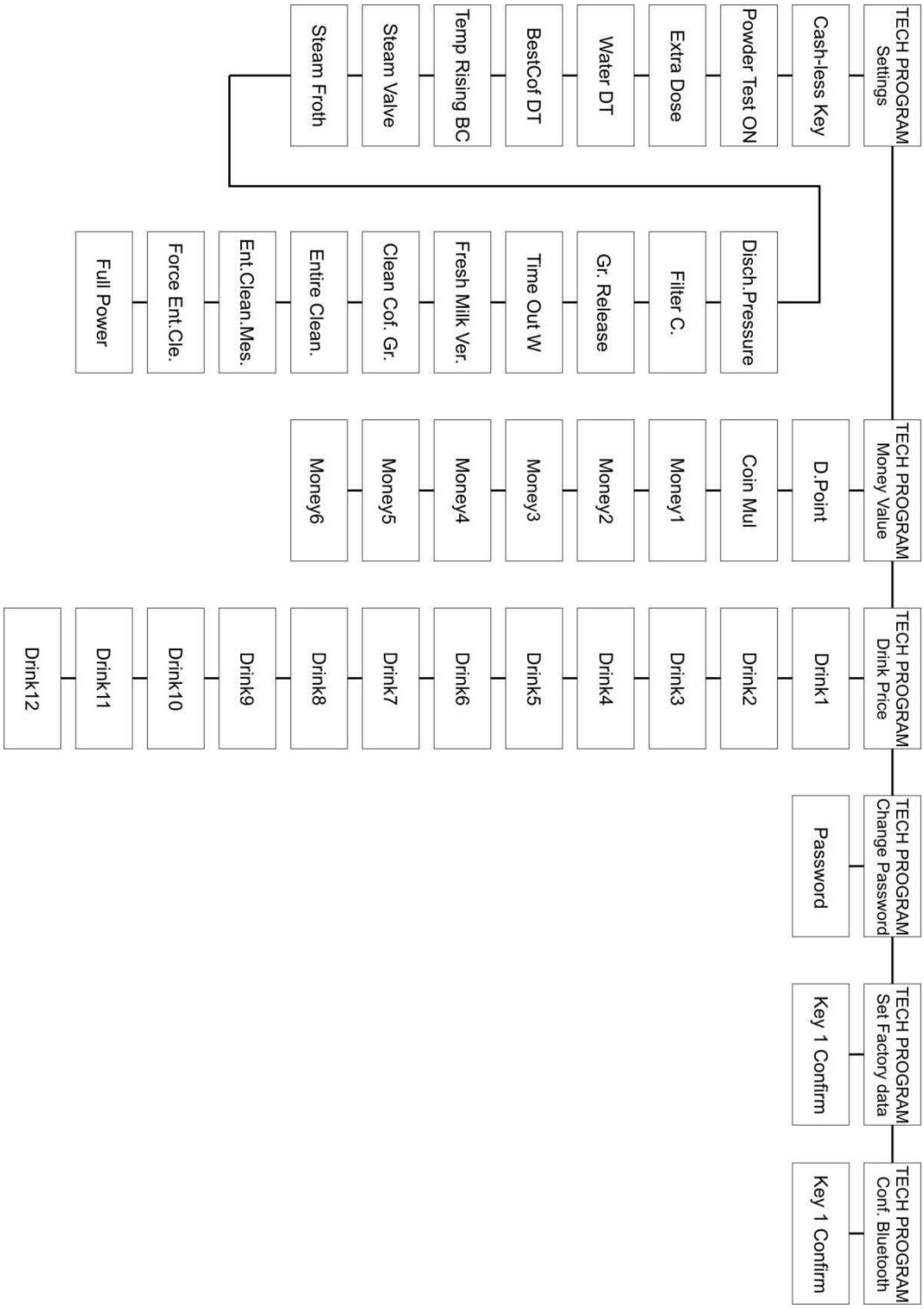
Default password: **1234**.

In this way, when the technician will connect his mobile device to the machine using the HLF Android Application, he will found the machine under the above name.

This is the last menu of the software. Pushing button 1 or 2 the next menu will be again **TECH PROGRAM Settings**, that is the first menu described on paragraph 1.3.1.

Push button 5 to exit the software mode and get back to the operation mode.

13 Software Table



14

15 Troubleshooting

15.1 Error messages

15.1.1 Out Of Coffee

C A U T I O N Out Of Coffee

Why?

The **grinder** has worked for more than 20 seconds, without filling the **doser** with ground coffee

Cause of fault	Troubleshooting measure(s)
Coffee beans hopper is empty or closed;	Re-fill coffee beans hopper with fresh coffee beans and open the slide;
The **grinder** runs, but there's no coffee inside the **doser** (try to open it with your finger to see if some ground coffee falls down);	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 while the **doser** is full of ground coffee (typical short circuit noise).	The **doser micro switch** is damaged. Replace the **doser** refer to paragraph 8.1.1

15.1.2 Check Grinder

C A U T I O N
Check Grinder

Why?

The **grinder** is blocked.

Cause of fault	Troubleshooting measure(s)
Something is blocking the blades	Move as more as possible the **grinder blades** to the coarse position and run a coffee. If the **grinder** starts, maybe there was some impurity. Check anyway if 20.000 cycles are reached, maybe the blades need to be changed;
The coffee **grinder** is blocked also with the blades totally opened.	Open the **grinder blades** and check if there something inside (refer to paragraph 4.4.

15.1.3 Drip Tray Full

C A U T I O N
Drip Tray Full

Why?

The **drip tray micro switch** is engaged.

Cause of fault	Troubleshooting measure(s)
The **drip tray** is full of waste water;	Remove the tray, empty and clean it;
The plastic float is blocked;	Check if the plastic float inside the **drip tray** is free to move;
The **drip tray micro switch** is damaged;	Switch off the **drip tray micro switch** inside the programming, to let the machine working anyway (refer to chapter 5 of the user manual); Replace the micro switch.

15.1.4 Flow Meter K.O.

C A U T I O N
Flow Meter K.O.

Why?

The flow meter is not feeling the water passing trough the circuit.

Cause of fault	Troubleshooting measure(s)
The message appears during a coffee cycle;	Check that the coffee is not too slow. If this is the cause, move the **grinder blades** to the coarse position; The coffee valve got fault. Replace it (refer to paragraph 10.5); The coffee valve may be blocked by lime scale. See below;
The message appears after a soluble drink or hot water;	Some valves may be blocked by lime scale. Try to run a de-scaling process. Check the “Service Index” (Refer to chapter 5 of the User manual), maybe the machine is not configured to ask the user to run a de-scaling process after certain liters; The valve responding to that drink got fault. Replace it (refer to paragraph 10.3);
The message appears while the machine is idle and the pump start to run (the machine is trying to fill the steam boiler).	The steam boiler inlet solenoid valve may be blocked by lime scale. See above. The steam boiler inlet solenoid valve got fault. Replace it (refer to paragraph 10.3).

15.1.5 Coffee Gear Motor

C A U T I O N
Coffee Gear Motor

Why?

The **coffee gear motor** has run for more than 10 seconds, without engaging the **coffee gear motor micro switch**.

Cause of fault	Troubleshooting measure(s)
A loud noise comes from the **coffee gear motor** when the coffee group starts to run;	The gear motor is broken. Replace it (refer to paragraph 8.5).
The **coffee group** is not running at all and no sound comes.	The **coffee gear motor** cables may be disconnected. Check the 2 cables connected to the motor. Using a multimeter, check the continuity of the coffee gear motor cables from the main board to the coffee gear motor. Try to see if the **coffee gear motor** relay is clicking when the **coffee gear motor** should run. If not replace the main board.

15.1.6 Temp Sensor K.O.

C A U T I O N
Temp Sensor K.O.

Why?

The temperature probe is measuring a temperature above 120°C or below 0°C inside the water boiler.

If possible, activate the “Show Temper.” option inside TECH MENU in order to check the temperature inside the boiler.

Cause of fault / Symptoms	Troubleshooting measure(s)
The boiler is hot and the message stands still;	Probably the temperature is above 120°C. Wait for the temperature to cool down.
The boiler is cold and the message stands still;	The temperature probe got fault, replace it;
The temperature on the display reaches the set point, but when dispensing drinks, boiling water comes out	The temperature probe got fault, replace it;
The temperature on the display keeps raising also above the set point, but the heating element LED on the main board is OFF.	The main board got fault. Replace it.

15.1.7 Check Water

C A U T I O N
Check Water

Why?

The machine has asked for water inside the air-break for more than the time set on the option “Time Out W.” inside TECH MENU.

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 low. If yes, it means the pressure of the plumb circuit is very low;	Raise up the “Time Out W” inside TECH MENU;
The machine is not filling water at all and the LED on the water level board is OFF;	The water level board is gone. Replace it.
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 drain the air-break first. See paragraph 15.1.7.1
The machine is not filling water at all but the LED on the water level board is ON. The inlet valve has been already unblocked;	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;	Check the sensibility bridge on the water level board. Only the position 1 should be engaged. If yes, the water level board 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 switches OFF once reached the probes;	The inlet water valve stays open all the time. Check with a multimeter if there's still voltage on the solenoid, also after the LED on the water level board is OFF. If not, the inlet water valve got fault. Replace it If yes, the main board or the water level board got fault. Replace the water level board first if nothing changes, put back the old water level board and replace the main board. If nothing changes replace both the boards.

15.1.7.1 How to unblock the main inlet water valve

- Switch OFF the machine;
- Disconnect the water line pipe;
- Disconnect the overflow silicon pipe from the main inlet valve and drain the eventually water inside;
- Switch back ON the machine for 10 seconds to let the valve open;
- Switch OFF the machine and connect back the water line pipe and the overflow silicon pipe;
- Switch ON the machine.

15.1.8 Serial Time Out

* A L L A R M * Serial Time Out

Why?

The communication between the main board and the front door board is compromised.

Cause of fault	Troubleshooting measure(s)
The message appears after a replacement of the microchip;	The microchip is not programmed or it's mounted upside down.
The microchip got fault;	Install another microchip, which for sure works and see if the problem is fixed. If yes, replace the microchip.
The main board or the front door board got fault.	Replace the door board first and at least the main board.

15.1.9 Clean Cof. Group

Clean Cof. Group

Why?

More than 1.000 coffee cycles has been run.

Cause of fault	Troubleshooting measure(s)
	Tap the CLEANING button to get rid of it.

15.1.10 Door Open

Door Open

Why?

The front door micro switch is closed.

Cause of fault	Troubleshooting measure(s)
The front door is open;	Close the front door;
The front door is closed, but the message stays still.	The front door micro switch is damaged. Replace it (refer to paragraph 8.6**Errore. L'origine riferimento non è stata trovata.**)

15.1.11 Descaling / Filter

Descaling / Filter

Why?

It’s programmed to do a de-scaling procedure or to change the water filter.

Cause of fault	Troubleshooting measure(s)
	Tap the CLEANING button to get rid of the message and replace the filter. Refer to the user manual to de-activate the message.

15.1.12 Grounds Drawer

Grounds Drawer

Why?

The machine has count 40 puck inside the **grounds drawer**.

Cause of fault	Troubleshooting measure(s)
	Tap the CLEANING button to get rid of the message. Refer to the user manual to de-activate the message.

15.1.13 Entire Cleaning Required

Entire Cleaning Required

Why?

The machine has count 250 coffee cycles, so it’s time to make an “Entire Cleaning”.

Cause of fault	Troubleshooting measure(s)
	Run an “Entire Cleaning” to clear the message. Turn to N the option “Ent.Clea.Mes.” if you want to switch OFF this message. See paragraph 12.3.1

15.2 Strange behaviours

15.2.1 The LCD display is blanked or shows lots of squares

Cause of fault	Troubleshooting measure(s)
The problem happened after a replacement of the microchip;	The microchip is not programmed or it has been mounted upside down;
The problem happened suddenly	Replace the LCD display first and at least the front door board

15.2.2 The drinks are cold

Activate the option “Show Temper.” inside TECH MENU to check the temperature inside the boiler.

Cause of fault	Troubleshooting measure(s)
The temperature is above the set point	The temperature probe is gone. Replace it.
The temperature is low (60° is the minimum shown)	The machine may be over heated. Check if the manual thermostat of the water boiler has the pin pulled up. If yes, push it down and check the way of the machine is heating up. (refer to paragraph 15.1.6 to see how to manage)

15.2.3 “Wait for Heating” stays all the time on the display

Refer to paragraph 15.2.2

15.2.4 “ENTIRE CLEANING” and all the instructions for the “Entire Cleaning” routine, appear straight away even when just switch ON the machine.

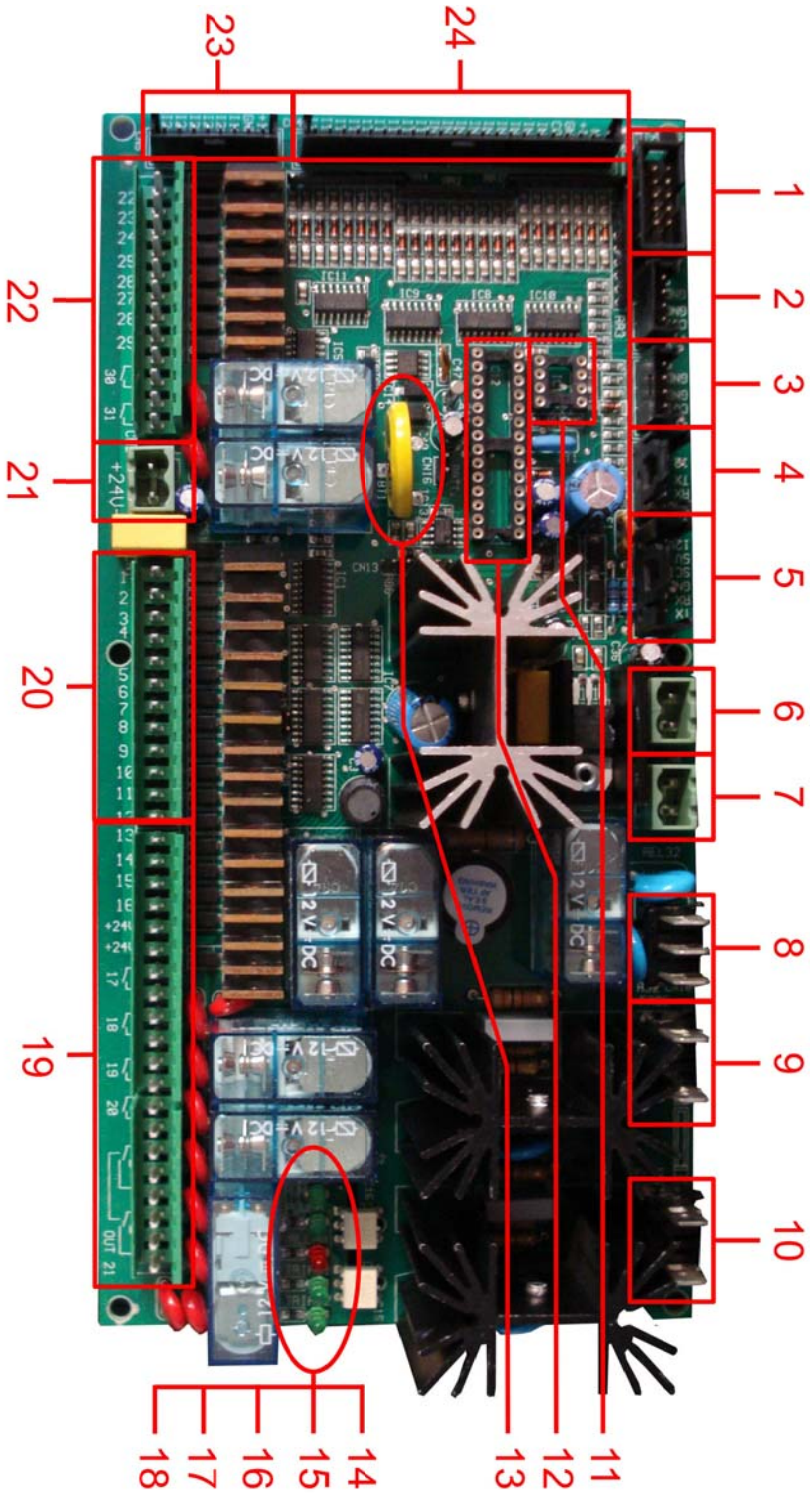
Why?

The message “Entire Cleaning Required” has kept blinking for further 100 coffee cycles. The machine is forcing the “Entire Cleaning” routine.

Cause of fault	Troubleshooting measure(s)
	Run an “Entire Cleaning” to clear the message. Turn to N the option “Force.Ent.Cle.” if you want to switch OFF this procedure. See paragraph 12.3.1

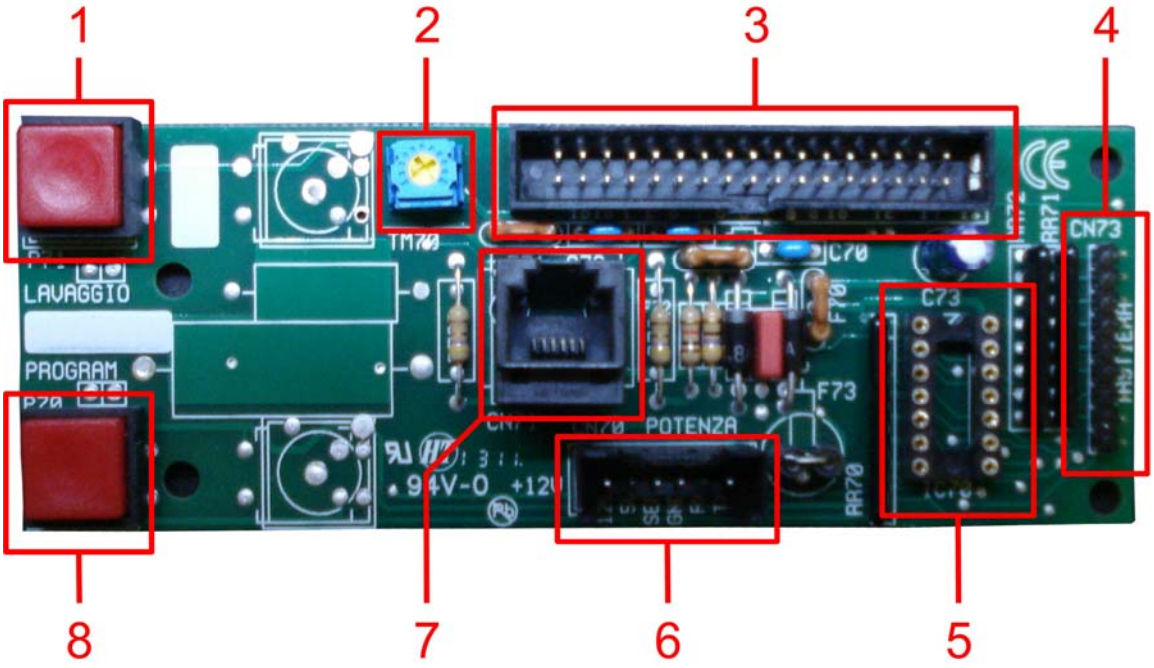
16 Electronic boards description

16.1 Main board



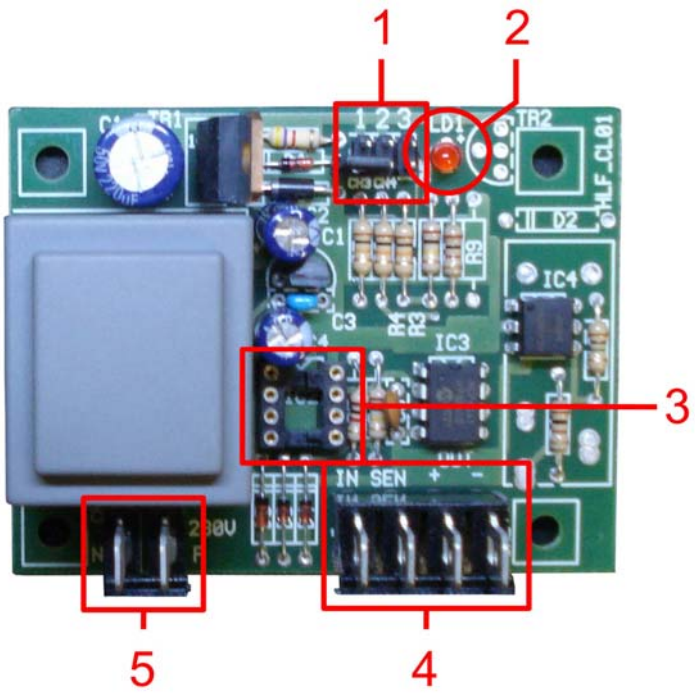
1. Coin mechanism cable connection
2. Flow meter 2 cable connection (unused)
3. Flow meter 1 cable connection
4. Modem cable connection
5. Serial cable connection
6. Temperature probe 2 cable connection (unused)
7. Temperature probe 1 cable connection
8. 230V AC Relays (unused)
9. Heating element 2 cables connection (unused)
10. Heating element 1 cables connection
11. External Whachdog System (unused)
12. Software microchip socket
13. Battery for clock system
14. “RUN” led: Blinking when the flow meter is running
15. “POWER” led: lightened when the board gets power
16. “ALLARM” led: lightened when the machine shows an error message
17. “TRIAC 1” led: lightened when the **water boiler heating element** is working
18. “TRIAC 2” led: lightened when the **steam boiler heating element** 2 is working
19. Output connection
20. Output connection
21. Board power supply connection
22. Output connection
23. Input connection
24. Input connection

16.2 Door board



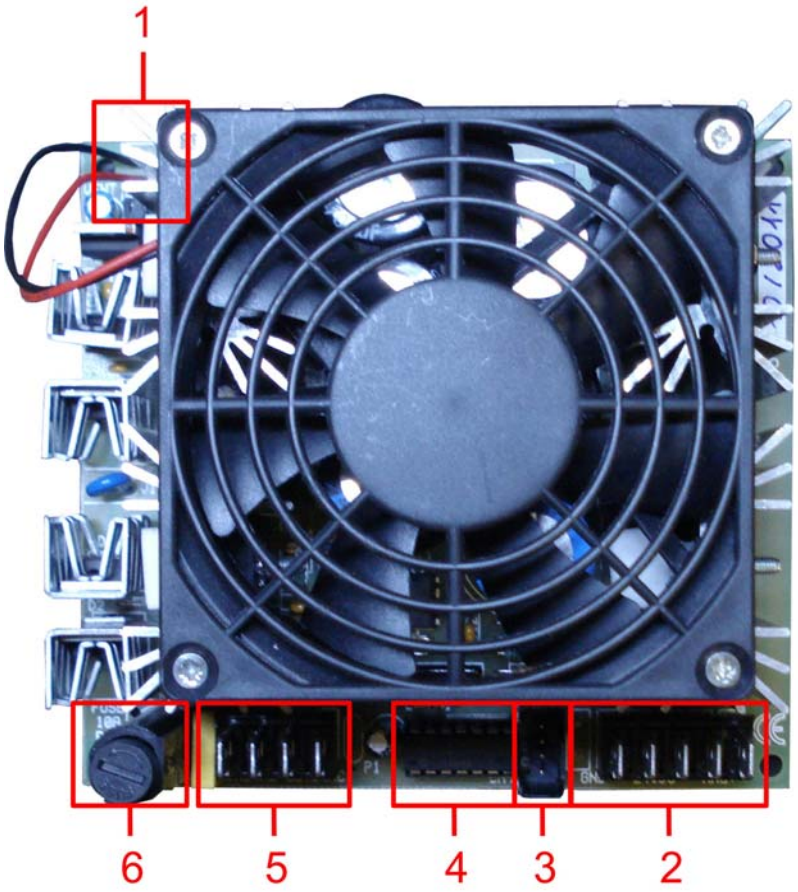
1. CLEANING button
2. Trimmer for LCD display contrast
3. LCD display cable connection
4. Soft touch panel cable connection
5. Door board microchip
6. Serial cable connection
7. Fast Programmer kit cable connection
8. PROGRAM button

16.3 Water level board / Steam boiler water level board



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 revel reaches the maximum, the machine will fill for 2 seconds more (default position for air-break);
   - 2 = Less sensibility that 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
4. Inlets connection
5. 230V AC connection

16.4 Power stabilizer



1. Fan connection
2. 24V DC connection
3. Output connection
4. Power stabilizer microchip
5. 24V AC connection
6. 10 Amps fuse

17 Planning diagram

18 Electric diagram

19 Hydraulic circuit

20 Spare part list