



Service Manual : Gaggia Espresso

Rev.00 21/08/2023

EG2109



TYPE EG2109/05
TYPE EG2109/04
TYPE EG2109/01

ESPRESSO



TYPE EG2111/03
TYPE EG2111/01
TYPE EG2111/66
TYPE EG2111/64

ESPRESSO EVOLUTION



TYPE EG2115/03
TYPE EG2115/01

TYPE	SUP	12NC	DESCRIPTION
EG2109/05	SIN045	688001000007	EG2109/05 GAG.ESPRESSO GAGGIA ORANGE EU
EG2109/04	SIN045	886210901010	EG2109/01 GAG. ESPR.GAGGIA BLACK
EG2109/01	SIN045	688001000020	EG2109/04 GAG.ESPRESSO GAGGIA GREY EU
EG2111/03	SIN045	688001000008	EG2111/03 GAG.ESPRESSO STYLE RED EU
EG2111/01	SIN045	886211101010	EG2111/01 GAG. ESPRESSO STYLE BLACK
EG2111/66	SIN045	688001000013	EG2111/66 EU GAG.ESPRESSO DE LUXE GREEN
EG2111/64	SIN045	688001000009	EG2111/64 GAG.ESPRESSO DE LUXE GREY EU
EG2115/01	SIN045	886211501010	EG2115/01 GAG.ESPR.EVOLUTION BLACK
EG2115/01	SIN045	688001000224	EG2115/01 US GAG.ESPR.EVOLUTION BLACK (US)
EG2115/01	SIN045	688001001104	EG2115/01 US GAG.ESPR.EVOLUTION BLACK (AU)
EG2115/03	SIN045	688001000014	EG2115/03 EU ESPRESSO EVOLUTION RED
EG2115/03	SIN045	688001000530	EG2115/03 EU ESPRESSO EVOLUTION RED (US)
EG2115/03	SIN045	688001001105	EG2115/03 EU ESPRESSO EVOLUTION RED (AU)

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Published by Gaggia.

Subject to modification

PROUDLY MADE IN ITALY

Technical specification	
	STAND-BY VERSION SIN045
Power supply	"230V 50Hz 1900W"
Pump pressure	15 bar
By-packed filters	1 "Crema perfetta" filter double wall 1 Pod filter + pod system
Water tank	Integrated & removable
Water tank capacity	1,2 l
Boiler	Aluminium
Control panel	Buttons + indicator lights
Filter-holder	Optimized filter holder
Size in cm. (L x H x D)	255 X 199 X 303
Weight	3,7 kg
Bodywork	Plastic
Color	see model
Accessories	Ground coffee doser, tamper, filters
Automatic shut-off	Yes (30 min.)
Energy efficiency class	A

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CHAPTER 1



INTRODUCTION

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1.1. Specific tools and equipment

As well as the standard equipment, the following is required:

12NC	Description	Notes
-	Flathead screwdriver	# 0, # 2
-	Torx screwdriver	(T10-T20)
-	Head screwdriver	
-	Cutter	
-	Cable tie tightening tool	
-	Pliers for Oetiker clamps	
-	Digital Thermometer	Type K (accuracy for temperature of 0,05 % or $\pm 0,3^{\circ}\text{C}$)
-	Temperature probe	80PK-22 (80AK-A Thermocouple adapter required)
-	Scale	KERN EMB 500-1 or comparable device with a base accuracy of 0,05 % or $\pm 0,5$ g
-	Power meter	Voltcraft EnergyCheck 3000 or comparable device with a base accuracy of 1 % or $\pm 5\text{W}$
-	Stopwatch	Basic model

1.2. Maintenance Products

12NC Code	Material	Description
-	Thermal paste	Heat resistance $> 200^{\circ}\text{C}$
996530010512	Descaler	"DECALCIFYING LIQUID"

1.3. Safety warnings

Please, read the Service manual of the machine before starting any maintenance.

Operation, maintenance and/or repair of this device has to be carried out only by qualified persons, trained for work at or with electric devices.

The technicians to operate under safety conditions, needs to:



1. Use personal safety devices;
2. Disconnect the appliance from the power mains before repairing;
3. Before and after repair, it is recommended to perform dielectric strength tests (This domestic appliance is rated as insulation class 1).



During the machine disassembly the operator has to pay attention to hot and under pressure parts. All parts involved can be found in the hydraulic circuit below schema.



The machine hydraulic circuit can reach maximum pressure of 11 +1/-0,5 bar.

When the machine arrives at the Service Center in descaling mode interrupted, or making Descaling, take EXTREME CARE to avoid any unintentional contacts with the descaler.

After the product has been repaired, it should function properly and has to meet the safety requirements and legal regulations as officially laid down at this moment.

1.4. Water circuit diagram

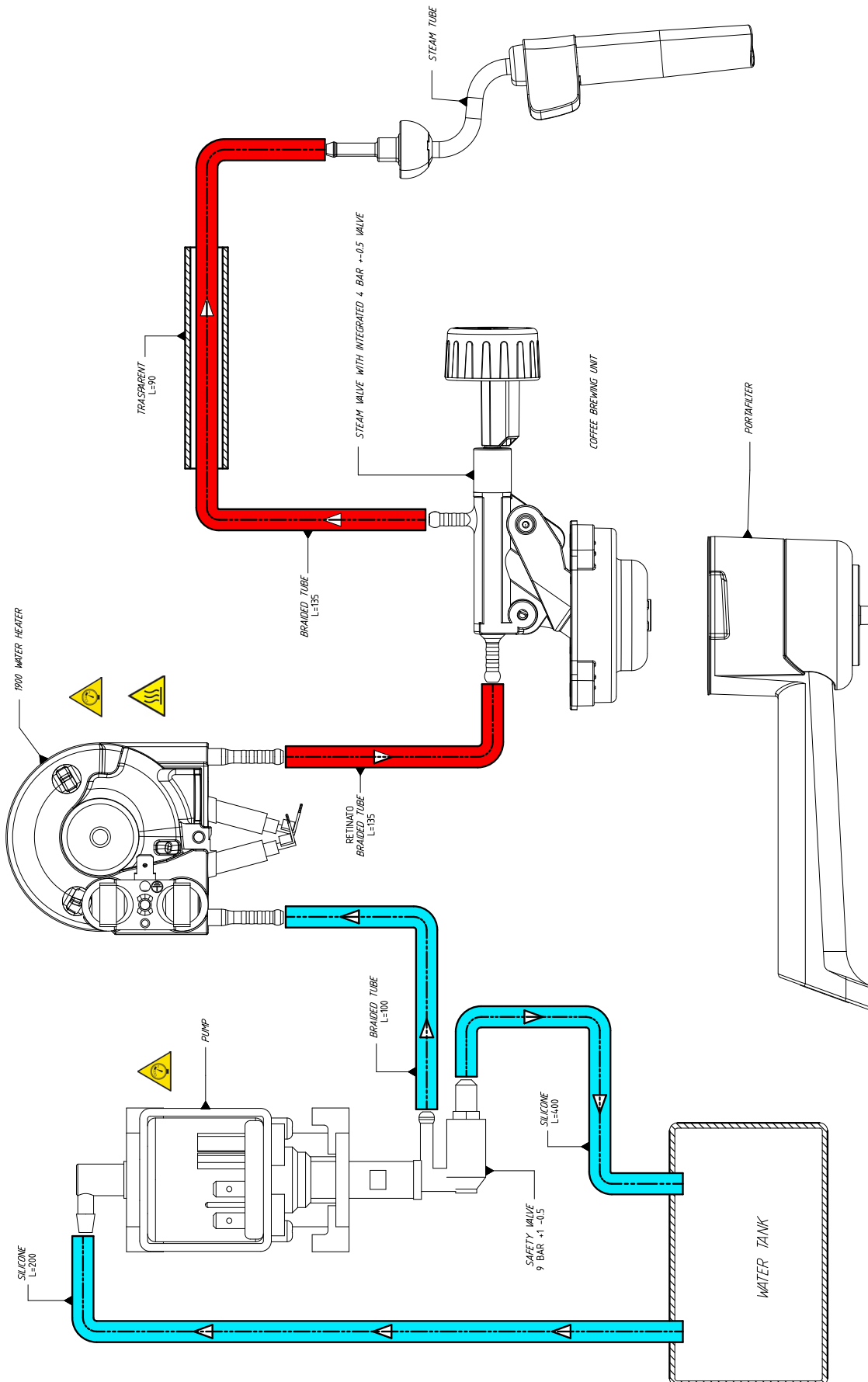
- █ Water
- █ Hot water /steam



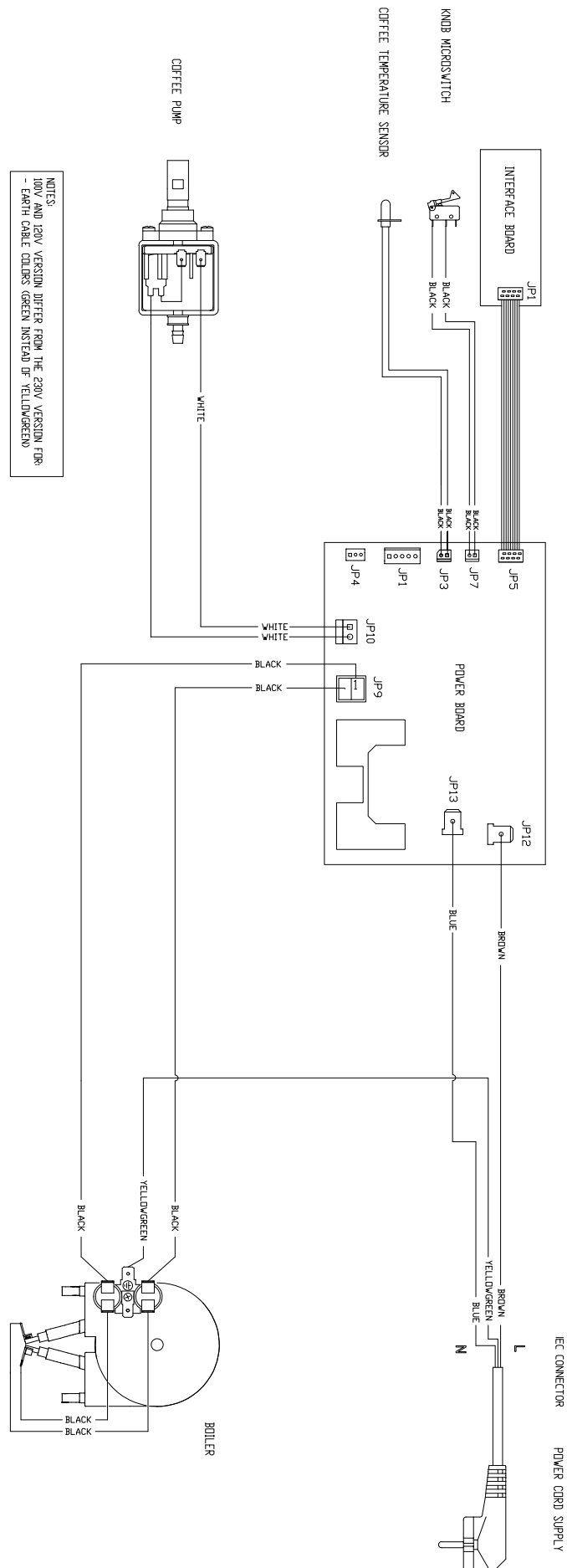
From this point circuit in pressure



From this point circuit High temperature



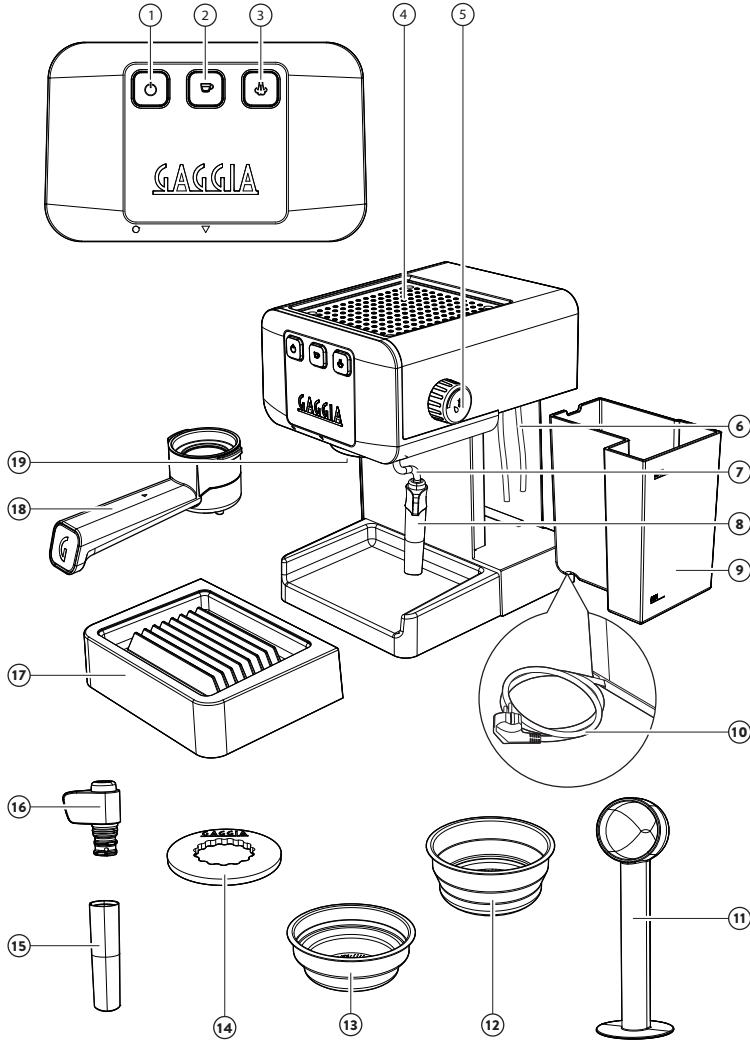
1.5. Electrical diagram



1.6. Service POLICY grid as used for coffee machine

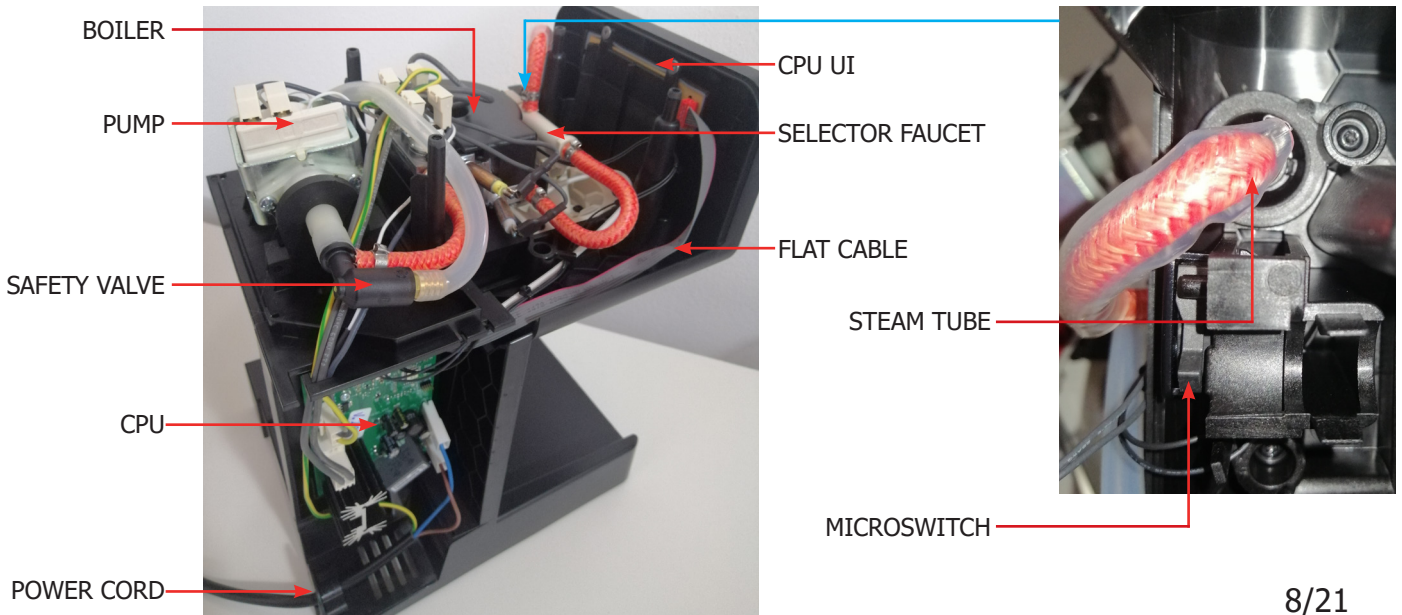
During the repair is always recommended to use, if possible, single parts rather than the correspondent assembly.

1.7. External machine parts



1	ON/OFF button
2	Coffee button
3	STEAM button
4	Cup holder
5	Steam/hot water knob
6	Water tank silicone tubes
7	Steam/hot water tubes
8	Pannarello
9	Water tank
10	Power cord
11	Coffee measure/coffee tamper
12	Perfect cream filter 2 cups
13	Perfect cream filter 1 cup / Single-serving pod
14	"Pod System"
15	Classic Pannarello lower part
16	Classic Pannarello top
17	Drip tray
18	Optimized prefilter
19	Dispensing group

1.8. Internal machine parts



CHAPTER 2



TECHNICAL SPECIFICATIONS

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2.1. Specification for the measurement of the coffee products temperature.

The below procedure is also contained in the Symptom Cure 97832.

The temperature is influenced by the flow from the dispenser and stratification of temperatures in the glass. In order to consider these phenomena and to introduce measures that allow comparisons in controlled conditions, below guidelines must be followed:

Conditions:

- Water temperature in tank: 23°C (+/-2°C).
- It must be used a plastic cup (see picture N°1).
- It must be used a thermocouple thermometer (e.g. type K - see picture N°2).
- The coffee machine is tested without any change of parameters or calibrations, which may affect the temperature of products, so the measurement of temperature must be done with machine in default factory setting.

Procedure:

- The temperature must be measured in the cup, immediately after dispensing. Cup has to be placed on a non-metal surface using a thermocouple thermometer (Picture 1).
- The temperature in the cup is measured by immersing the probe of the thermometer up to touch the bottom. The probe then must be moved in a circular motion for 5/6 rotations. At the end of the rotations, stop in the center of the cup (Picture 2).
- The highest temperature measured during the rotations is the value we are searching for, and that must be reported;
- Test measurement: from end of dispensing to the end of rotations must be completed within 12 seconds.
- The distance of the probe from the bottom of the glass is a function of the quantity of coffee dispensed: 10mm for 35gr - 17mm for 60gr - 35mm for 120gr and superior (Picture 3).

Limits of acceptability

The acceptance limits are divided by features and products and are the following:

Espresso Coffee Q.ty 25/60 gr. (One product)

Temperature of 1st product 69°C ≤ 85°C

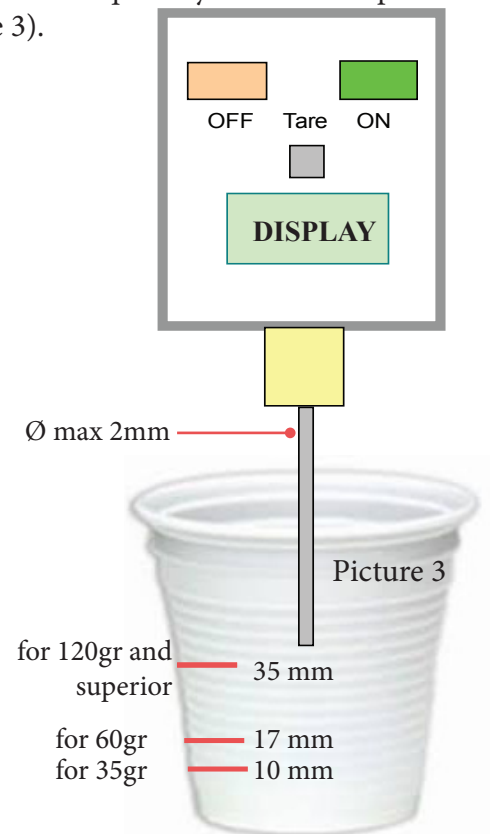
Temperature of 2nd product 72°C ≤ 85°C



Picture 1



Picture 2



CHAPTER 3



TEST MODE

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3.1. Test mode

1 Test Mode

1.1 How to enter

To Enter in Test Mode follow the below step:

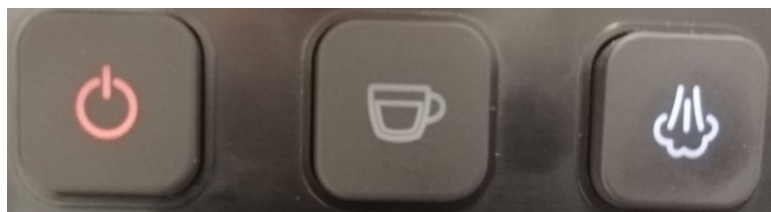
1. Open the steam knob;
2. Press coffee button;
3. Insert the power cable.



Note1: To make sure that you have entered in test mode, the steam button first flashes and then becomes steady white



Note2: If the on-off button flashing orange the boiler temperature is above 90°C, press the coffee button to lower it.

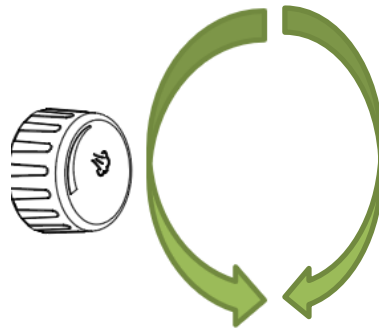


1.2 Navigation in test mode

Starting point:



1. By opening and closing the steam knob, the steam button will turn white steady and off, indicating the functionality of the micro and the LED;



2. Pressing the coffee button will turn white steady and the pump it will activate, indicating the functionality of the pump and the LED;



3. Pressing the on-off button will turn white steady and the boiler it will activate, indicating the functionality of the boiler and the LED.



Note1: For safety reasons, the boiler is only activated for a few seconds.

Note2: To check the correct functionality of the boiler, connect the machine to an ammeter to check the increase in electrical absorption.

3.2. Steam out

2 Steam out

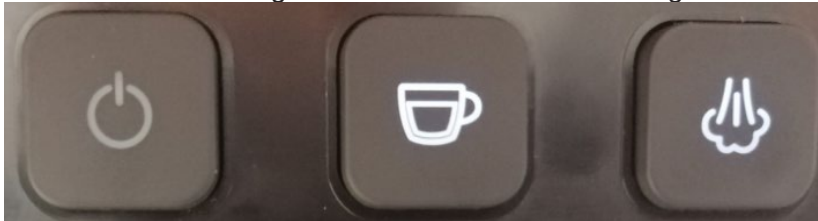
- a. From starting point of the test mode:



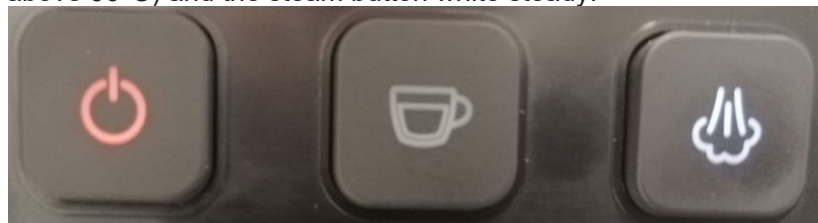
- b. To Enter in Steam out press both on-off and steam button for a few seconds.



- c. Both coffee and steam button flashing white and the machine discharge water from the pannarello.



- d. The machine ends the steam out process when the on-off button flashing orange (this mean that the temperature is above 90°C) and the steam button white steady.



- e. To exit, unplug the power cord.

Note: if temperature is above 90°C the machine don't perform the steam out process.

CHAPTER 4



DISASSEMBLY

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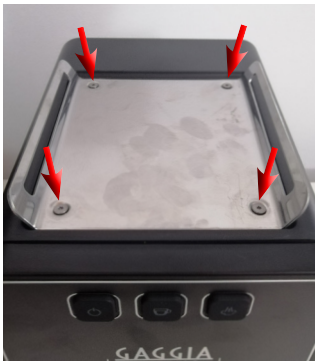
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4.1. Outer Shell



Remove the water tank, water drip tray, grid, pannarello, steam knob, portafilter and all accessory.

Casing



Unscrew the screws highlighted and remove the casing.

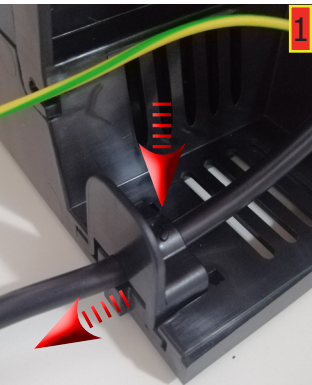
Note: the cup holder is specific only for specific models.

4.2. Cpu



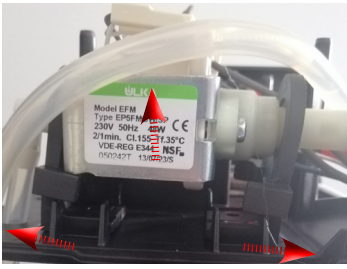
- 1) Disconnect all electrical connection;
- 2) Unscrew the screws highlighted and slip out the CPU.

4.3. Power cable



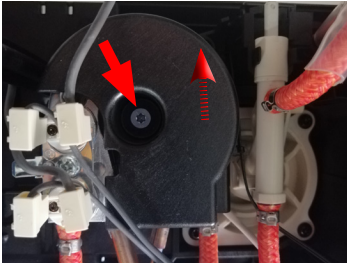
- 1) Push on the cable clamp and pull it out;
- 2) Disconnect the yellow/green cable on the boiler

4.4. Pump



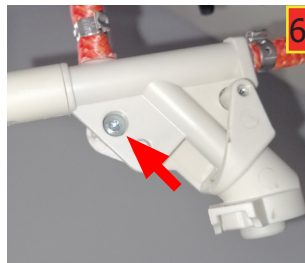
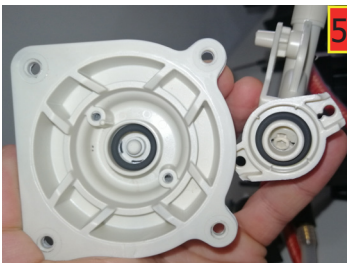
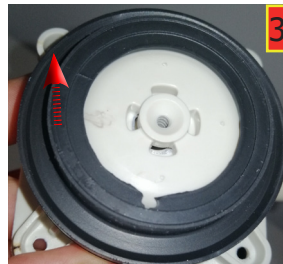
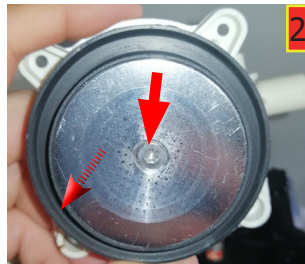
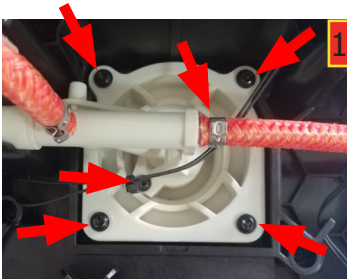
Disconnect all hydraulic/electrical connections, slide out the supports and remove the pump.

4.5. Boiler



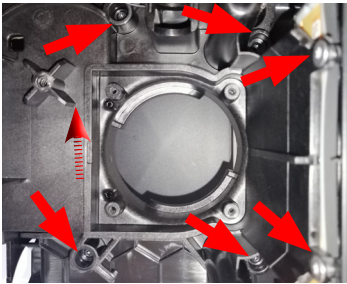
Disconnect all hydraulic/electrical connections, unscrew the screws highlighted slide out the cover and the boiler.

4.6. Selector faucet and filter holder conveyor



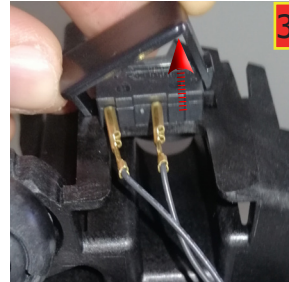
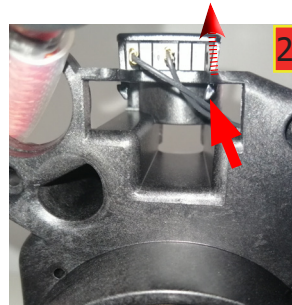
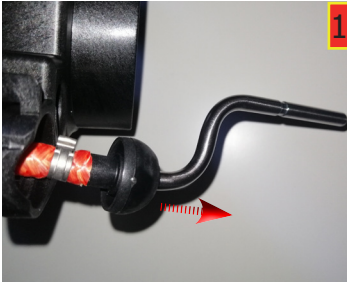
- 1) Disconnect all hydraulic connections and unscrew the screws highlighted;
- 2) Unscrew the screws highlighted and slide out the percolator;
- 3) Slide out the seal;
- 4) Slide out the selector faucet from the holder conveyor;
- 5) During reassembly pay attention to the o'rings;
- 6/7) Unscrew the screws highlighted and slide out the support connection;
- 8) During reassembly pay attention to the o'rings.

4.7. Central plate



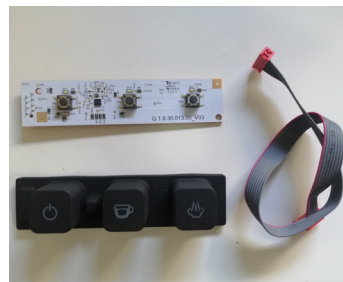
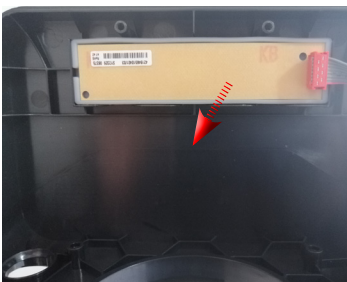
Unscrew the screws highlighted and slip out the central plate.

4.8. Microswitch and steam tube



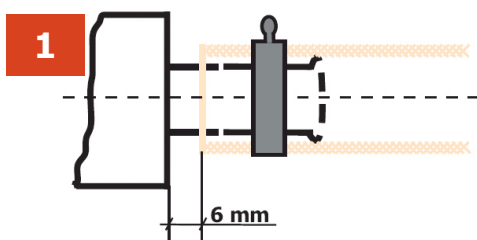
- 1) Disconnect the hydraulic connection and slide out the steam tube from it's spheric connection;
- 2) Press on the pin of the micro support and lift it up;
- 3) Slide out the microswitch.

4.9. UI

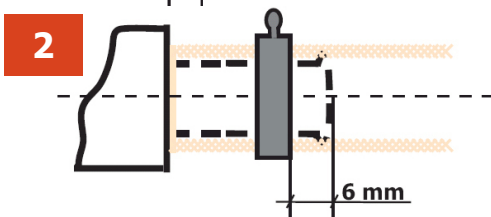


Slide out the UI board and silicon button.

4.10. Fitting and removing Oetiker clamps



1) Boiler connection



2) Other connections



Replacing the pipes

1) Use a suitable pair of pliers to remove the clamp (as shown in the picture)

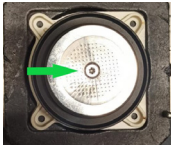
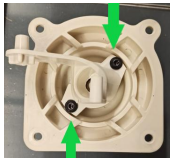



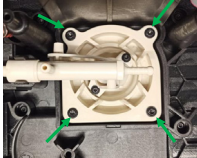
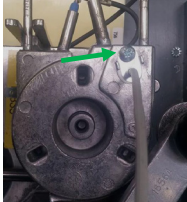
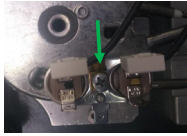
2) Tighten the clamp as shown in the pictures



4.11. Tightening torques

The purpose of this paragraph is to define the correct tightening torque of each screw present on the Gaggia Espresso machine models.

A manual dynamometer must be used to check the tightening torque.

Screw	Quantity	Image	tightening torque
Srew for perculator.	1		0,7 Nm \pm 0,1
Srew for selector faucet support.	2		1,0 Nm \pm 0,1
Srew for selector faucet support.	1		1,2 Nm \pm 0,1

Screw	Quantity	Image	tightening torque
Srew for selector faucet support.	1		1,2 Nm \pm 0,1
Srew for filter holder conveyor.	4		1,4 Nm \pm 0,1
Srew for mounting plate.	4		0,7 Nm \pm 0,1
Srew NTC sensor.	1		2,0 Nm \pm 0,1
Srew for termostat support	1		2,0 Nm \pm 0,1
Screw for boiler cover	1		2,0 Nm \pm 0,1
Safety valve.	1		1,0 Nm \pm 0,1
Screw for central plate.	2		0,4 Nm \pm 0,1
Srew for CPU.	2		0,4 Nm \pm 0,1

Screw	Quantity	Image	tightening torque
Screw for cup holder.	4		0,7 Nm \pm 0,1
Srew for casing.	2		0,7 Nm \pm 0,1