



Service Manual

“ Incanto RONDO ”



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Documentation required

The following technical documentation is required for repairs:

Instruction booklet of specific model
Technical documentation of specific model

Equipment

As well as the standard equipment, the following tools are required:

1 Special screwdriver with Torx T10 tip
1 Digital thermometer with scale of $> 150^{\circ}\text{C}$
Must be suitable for measuring in liquids and on surfaces

Safety warnings

Before starting operations on the machine, consult the relative instruction booklet.

Observe all current standards related to repairs of domestic appliances.

Always disconnect the power plug from the mains before carrying out repairs. Simply turning off the main switch is not sufficient to prevent electrical discharge.

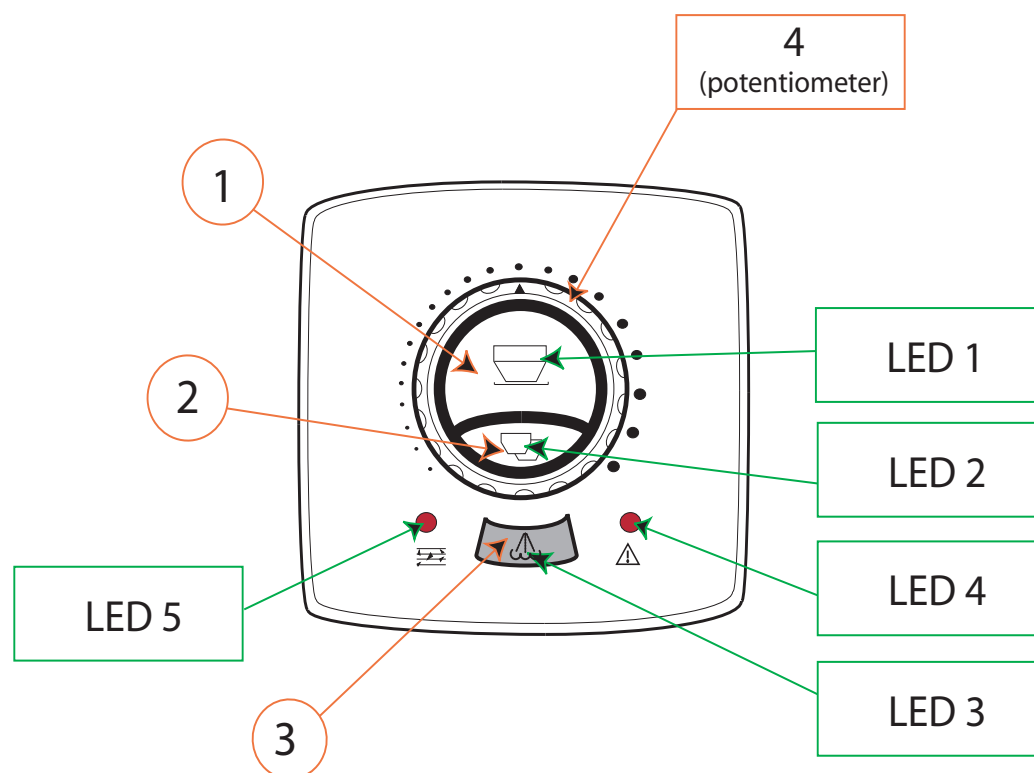
The Rondò models are class 1 appliances. On completion of repairs the insulation and dielectric rigidity tests must be performed.

“ Incanto RONDO’ ” Technical data

Power supply and output:	230 V \sim ; 50 Hz ; 1250 W 120 V ; 60 Hz ; 1250W 100 V ; 60 Hz ; 1250 W
Safety system:	Safety thermostat at 175 °C Pressure relief valve on boiler
Heat exchanger output:	1090 W - for preparation of coffee, steam and water
Gearmotor:	DC motor in two directions of rotation (33 V)
Pump:	Ulka with reciprocating piston; type EX5 230V ; 50 Hz ; 48 W 120V ; 60 Hz ; 41 W 100V ; 50/60 Hz ; 55 W
Coffee grinder:	DC motor (230 V DC) with ceramic grinders, increment pin in brass (max. absorption 0.9 A).
Absorption:	During heating phase – approx. 4.5 A (230V) – approx. 9 A (120V) – approx. 11 A (100V)
Dimensions:	285/375/400 (mm)
Power cable length	1.2 m
Weight:	approx. 9 kg
Coffee container capacity:	300 g
Residue container capacity:	13 residue
Water tank capacity (removable):	approx. max. 2 L
Water circuit filling time:	approx. 10 sec. On first filling cycle
Heating time:	approx. 60 sec. with water at 10 °C
Delivery temperature:	approx. 84 °C (\pm 5°C)
Quantity of coffee delivered	From 20 cc to 240 cc
Grinding time:	approx. 5-7 sec.
Covering material:	ABS
Housing material:	metal

INCANTO RONDO' test mode

In test mode, faults can be easily identified thus reducing the time required for fault finding procedures.
To enter test mode, the machine must be switched off with the valve closed.



To enter test mode, press the following buttons

The side valve must be closed.
Press buttons 1 and 3
Turn on the machine by means of the rear switch.

Potentiometer 4 in position MINIMUM

Gearmotor anticlockwise rotation (delivery position)

Button 3

Ensure correct anticlockwise rotation of the gearmotor.
Check the noise level of the gearmotor.
Ensure correct lifting of the unit
When the gearmotor has reached the delivery phase, LED 1 illuminates

Pump operation

Button 1 + knob open

Ensure correct operation of the pump.
Check the noise level of the pump.
Check that LED 4 flashes (turbine)

Potentiometer 4 in position MEDIUM

Gearmotor clockwise rotation (rest position)

Button 3

Ensure correct clockwise rotation of the gearmotor.
Check the noise level of the gearmotor.
Ensure correct lowering of the unit
When the gearmotor has reached the rest position, LED 1 illuminates

Boiler resistance absorption

Button 1

Check correct absorption of the boiler by means of an ammeter

Potentiometer 4 in position MAXIMUM

Coffee grinder operation

Button 3

Ensure correct operation of the coffee grinder.
Check the noise level of the coffee grinder.
(At the end of grinding, led 4 turns off)

Check microswitches in test mode

LED	MICROSWITCH	POS. POTENTIOMETER
LED 1	Delivery gearmotor microswitch	Minimum
	Rest gearmotor microswitch	Medium
	Float (fixed)	Maximum
LED 2	Unit microswitch	/
LED 3	Valve microswitch	/
LED 4	Residue microswitch	/
	Unit microswitch	Medium
LED 5	Door microswitch	/

Functions of LED 4 and LED 5

LED 4 fixed
Remove residue
No coffee
Fill circuit
Fill water tank
LED 4 flashing
No unit
No residue tray
Door open
LED 5 flashing
Replace the acqua prima filter (reset the counter and the LED by pressing and holding the steam button for five seconds)




Temperature settings

To set the temperature, a reference resistance must be inserted on the card, with a precise value of 3246 Ohm.

After this, in test mode, set the POTENTIOMETER to the MEDIUM position and then press the TWO COFFEES key (the "2 coffees" led remains lit).



Then check illumination of leds 1,3 and 4 to enable display of the set temperature.

Temperature	 LED 1 ON	 LED 3 ON	 LED 4 ON
Less than or equal to 94°C			X
95°C	X		X
96°C	X		
97°C	X	X	
Greater than or equal to 98°C		X	

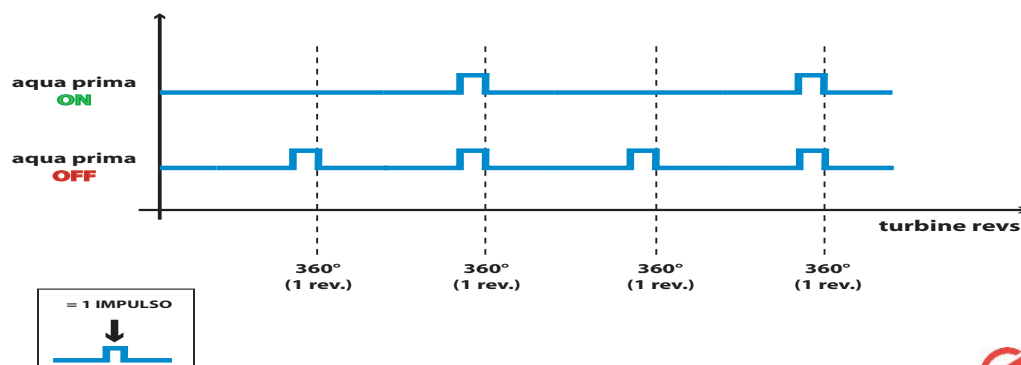
Operating logic with "AQUA PRIMA" filter

When use of the "aqua prima" filter is selected on the user menu or via the control panel, the system water count logic is as follows:

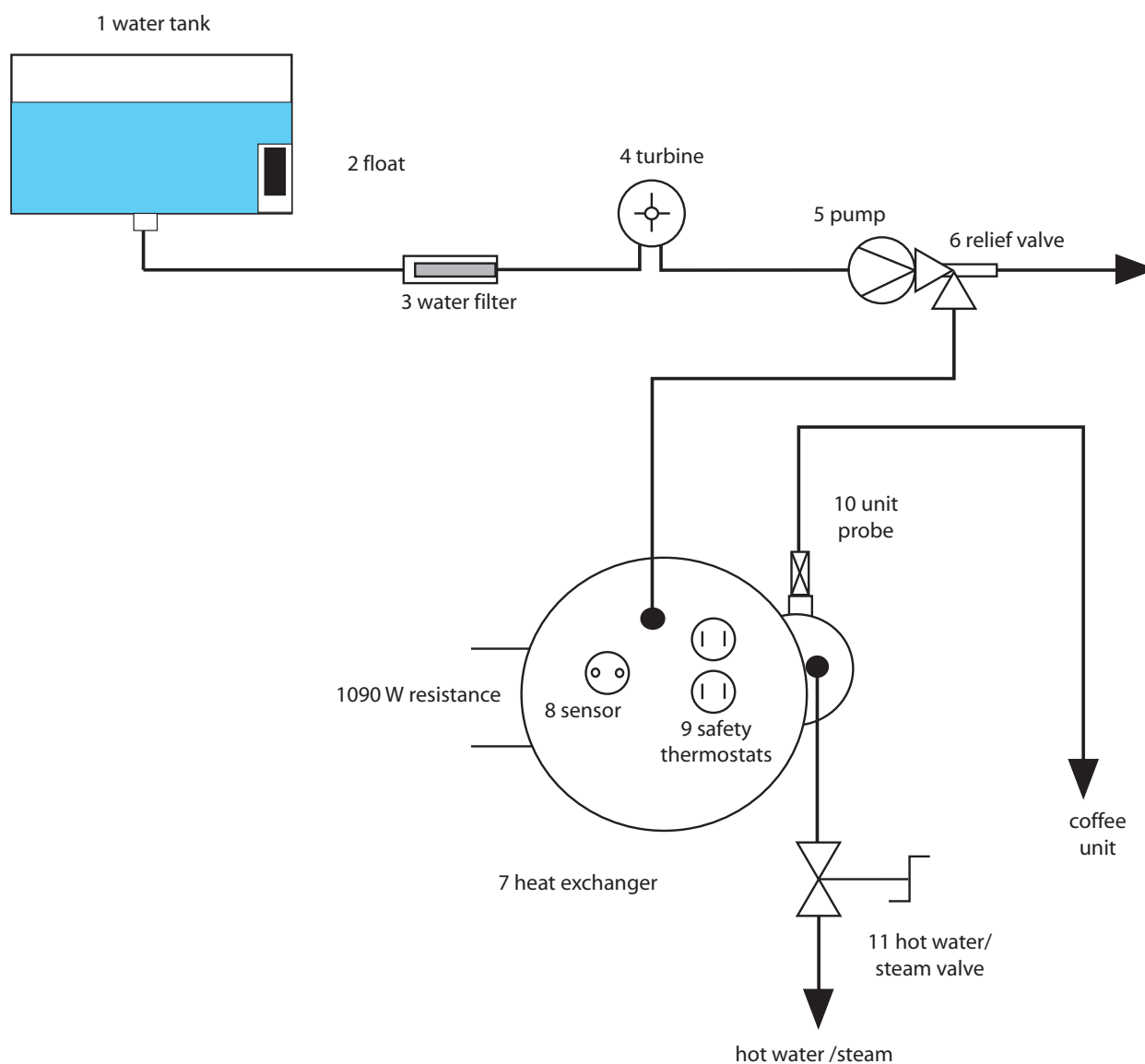
If the "aqua prima" function is **enabled**, the electronics performs a pulse count of the turbine, recording **one pulse every 2 revolutions**.

If the "aqua prima" function is **disabled**, the electronics performs a pulse count of the turbine, recording **one pulse every revolution**.

The figure below provides a graph, illustrating this function

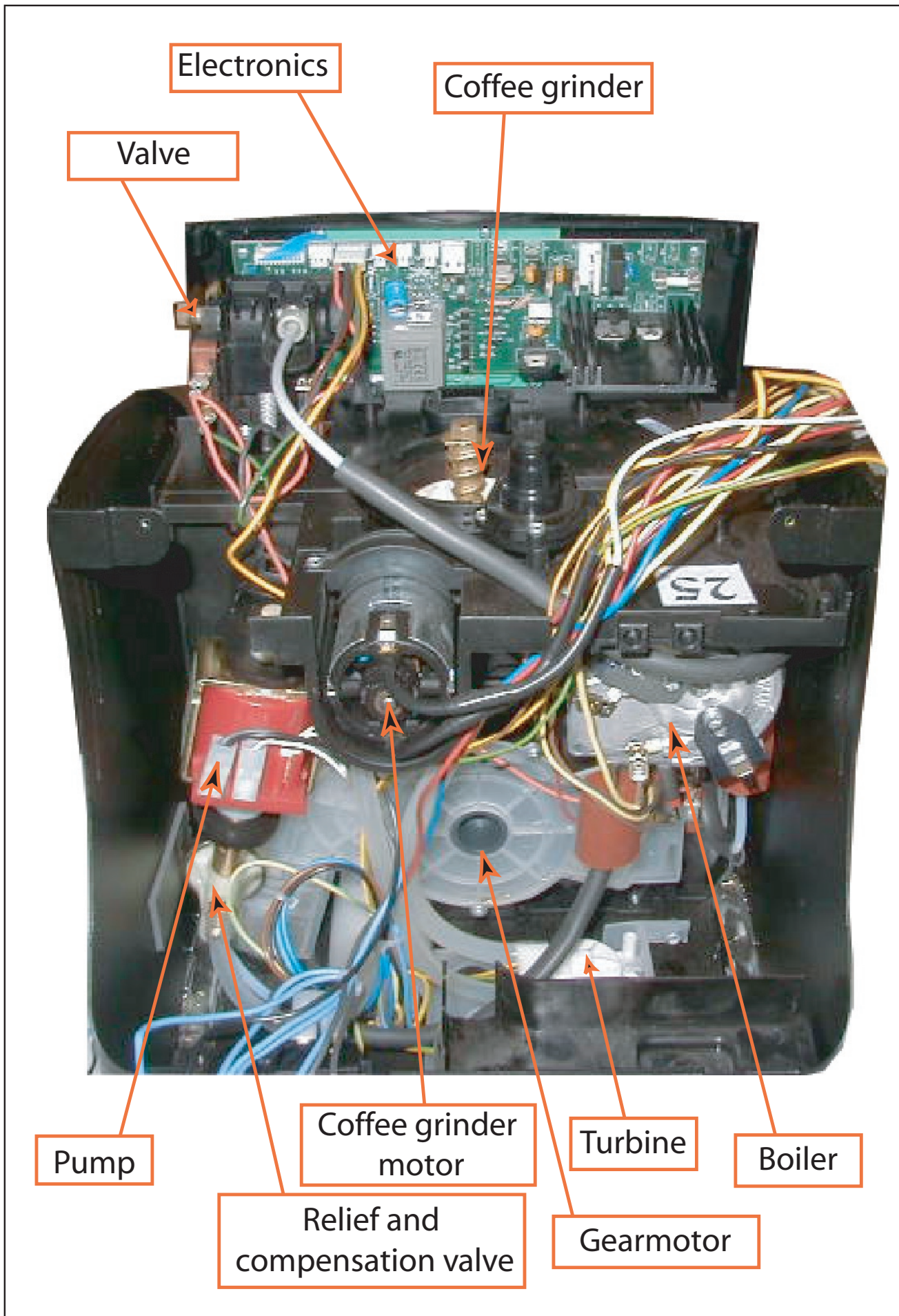


INCANTO RONDO' water circuit diagram



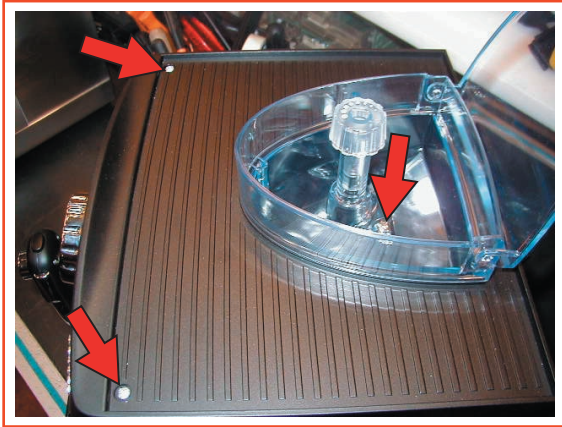
	Component	Function
1	Water tank	Water supply
2	Float	Water empty recognition
3	Water filter	Elimination of solids from water
4	Turbine	Flow measurement by means of pulses, regulates quantity
5	Pump	Water flow rate/pressure (15 bar)
6	Relief valve	Protects the water circuit from overload (opens at 17-19 bar)
7	Heat exchanger/heating	Heats for delivery of water, coffee and steam
8	Temperature sensor	Sends current temperature values to the electronics
9	Safety thermostats	In the event of temperature overload, shuts off power supply to machine
10	Unit probe	On activation of the delivery unit, the unit probe opens the water route to the delivery unit.
11	Hot water /steam valve	For delivery of hot water and steam

“ INCANTO RONDO’ ” components



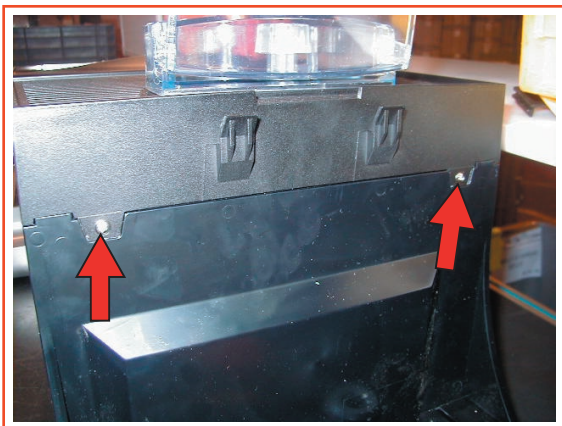


COVER disassembly



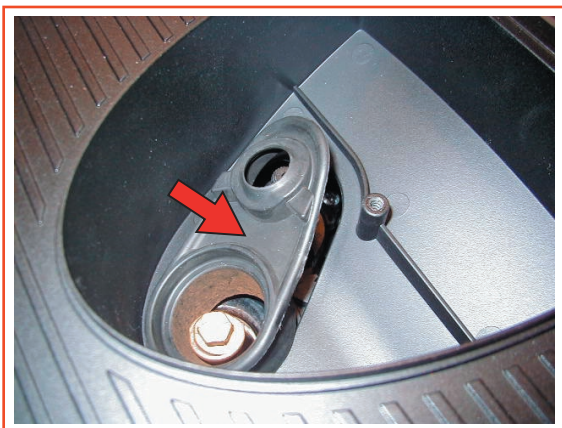
Phase 1

Loosen the 2 cover screws
Remove the coffee grinder screw



Phase 2

Loosen the 2 rear cover screws



Phase 3

Remove the seal from the coffee container



Phase 3

Pull the side knob to remove
Remove the cover.

N.B.

For assembly, perform the above procedure in reverse order

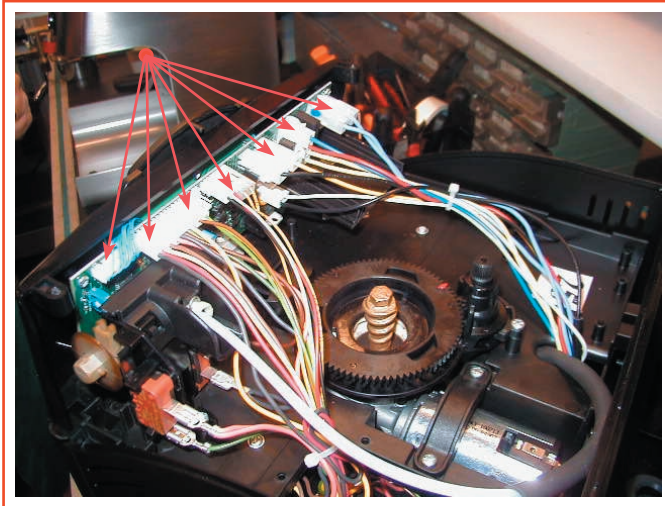




ELECTRONICS disassembly

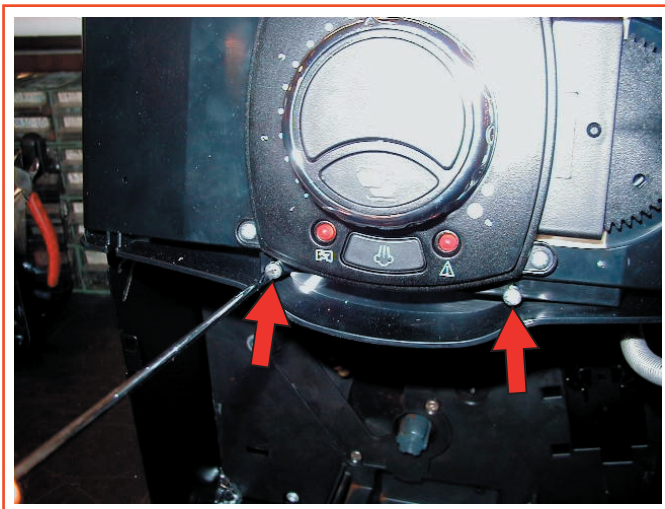
Phase 1

Locate and detach all contacts on the electronics



Phase 2

Loosen the two screws securing the card to the plate.



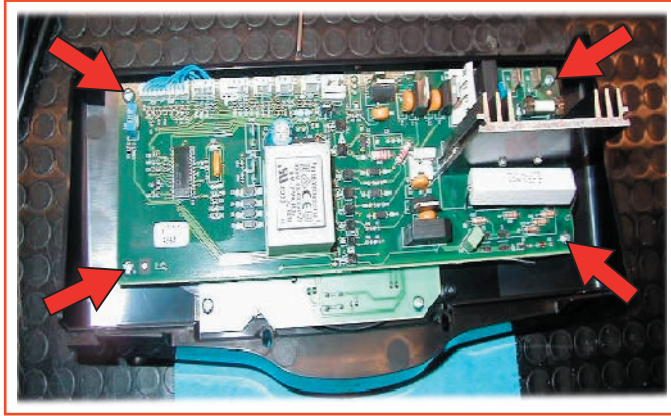
Phase 3

Remove the card support assembly.



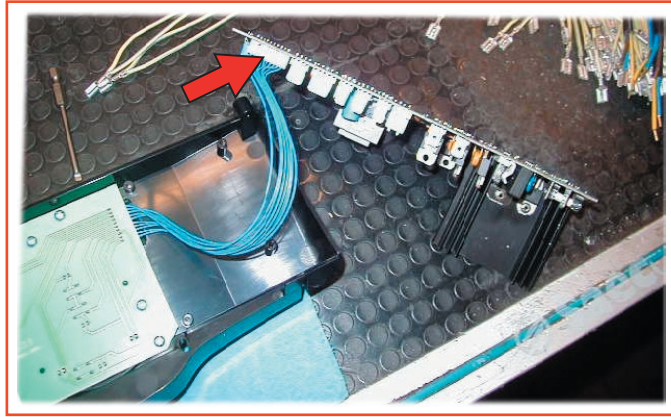
N.B.
For assembly, perform the above procedure in reverse order





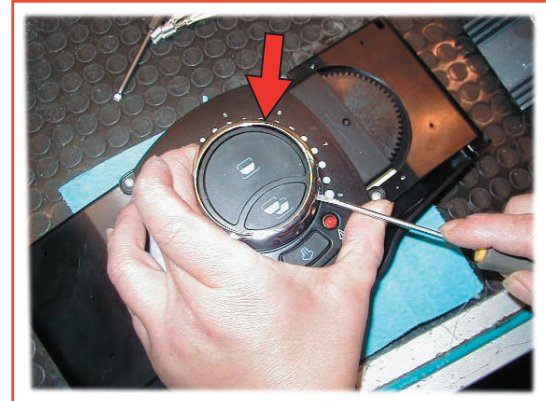
Phase 4

Loosen the 4 screws securing the card to the support.



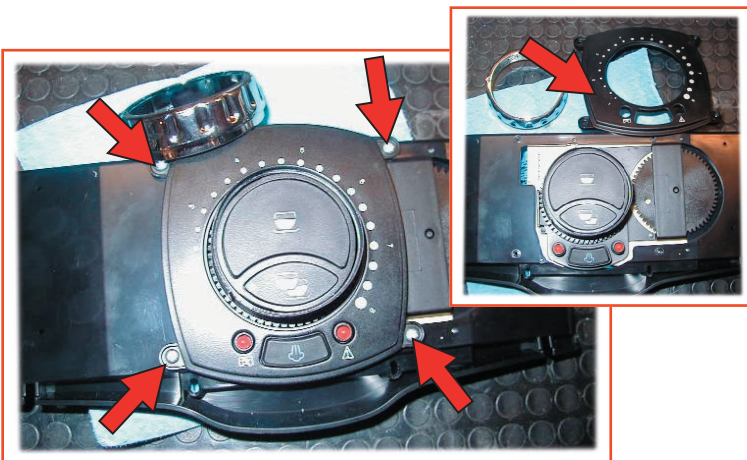
Phase 5

Remove the flat cable from the power/ CPU card



Phase 6

Use a small screwdriver to prise off the chrome plated adjustment ringnut.



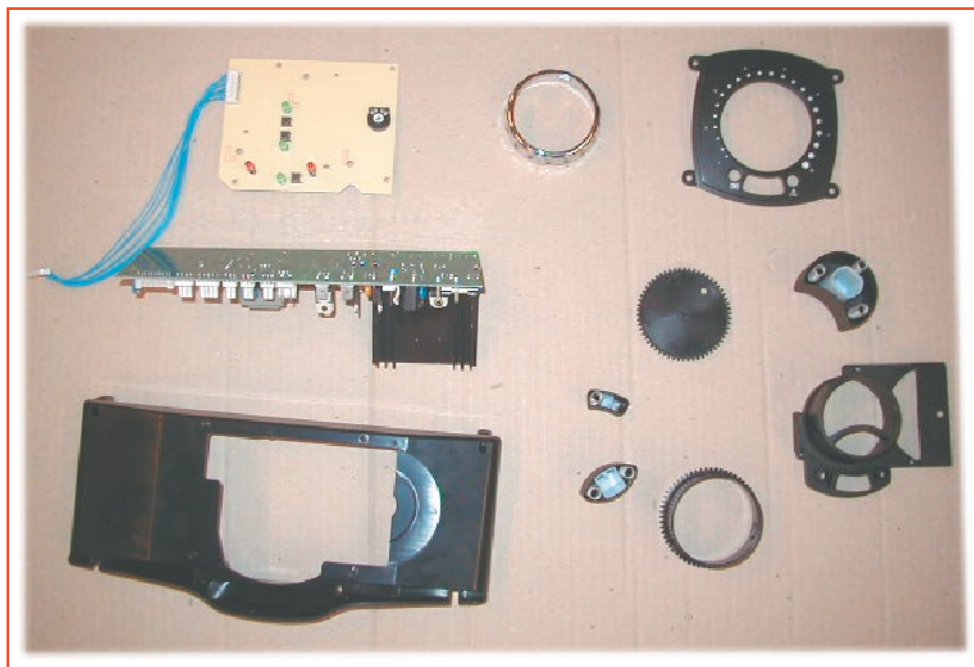
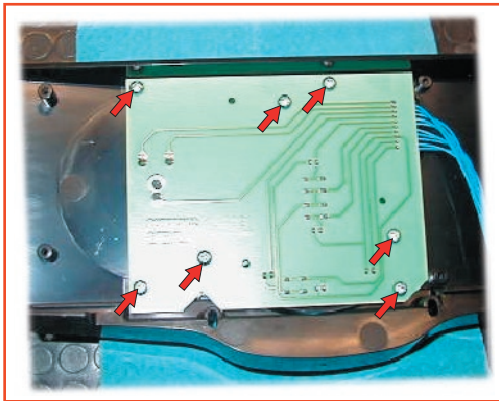
Phase 7

Loosen the 4 screws and remove the front panel.



Phase 8

Loosen all screws securing the card to the support.



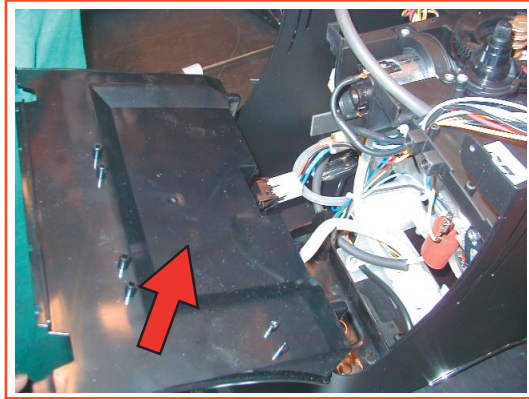
The figure illustrates the electronic assembly completely disassembled.

N.B.

For assembly, perform the above procedure in reverse order

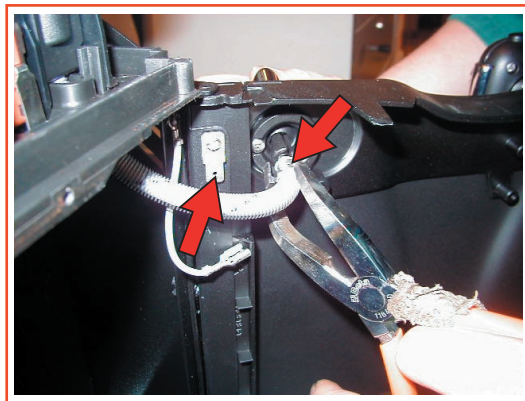


PLATE UNIT DISASSEMBLY



Phase 1

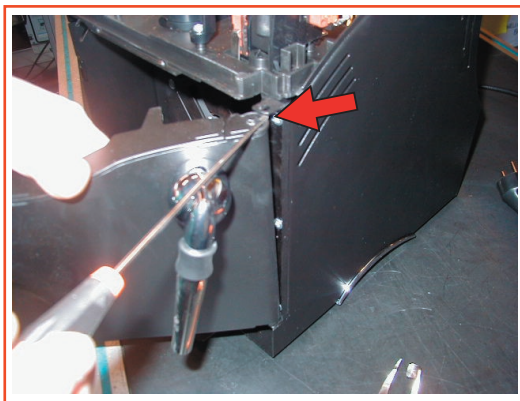
Remove the rear tank support.



Phase 2

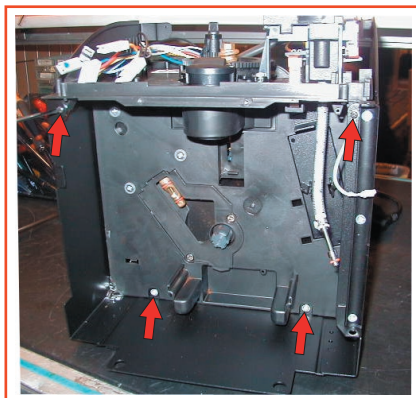
Detach the earthing faston connector on the door.

Disconnect the steam pipe.



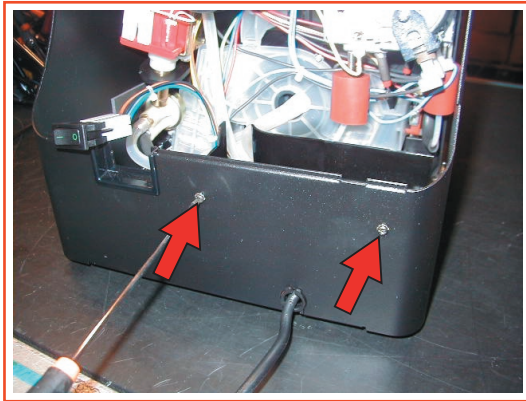
Phase 3

Detach the door from the housing.



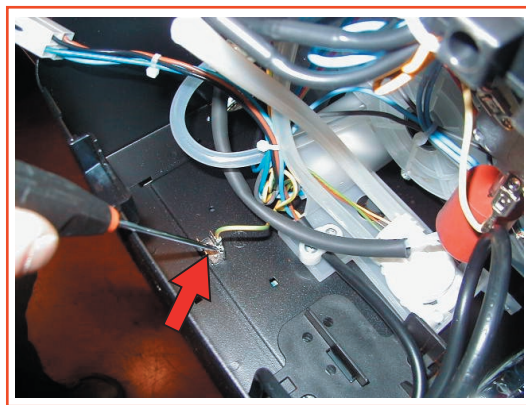
Phase 4

Loosen the 4 screws securing the plate to the housing.



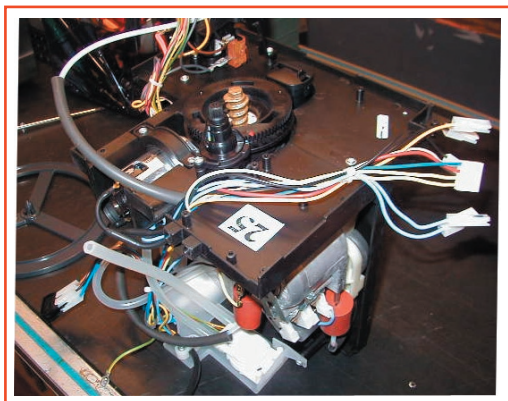
Phase 5

Loosen the two screws securing the cable winder.



Phase 6

Detach the earthing fastener connector shown in the figure.



Phase 7

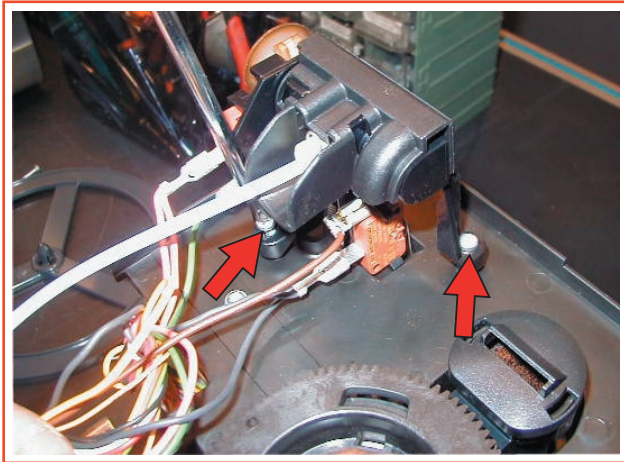
Remove the assembly plate unit from the housing.

N.B.
For assembly, perform the above procedure in reverse order



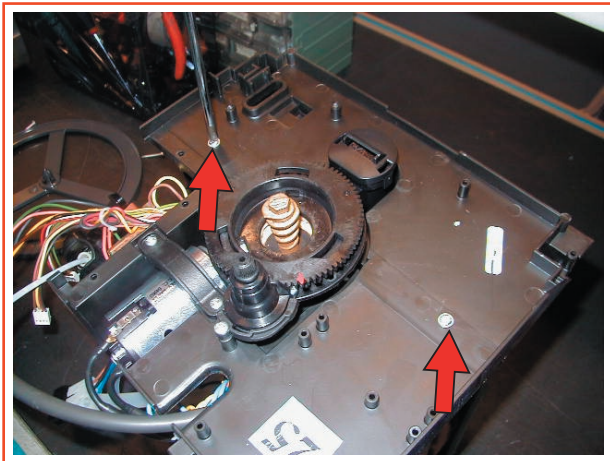


COFFEE GRINDER PLATE disassembly



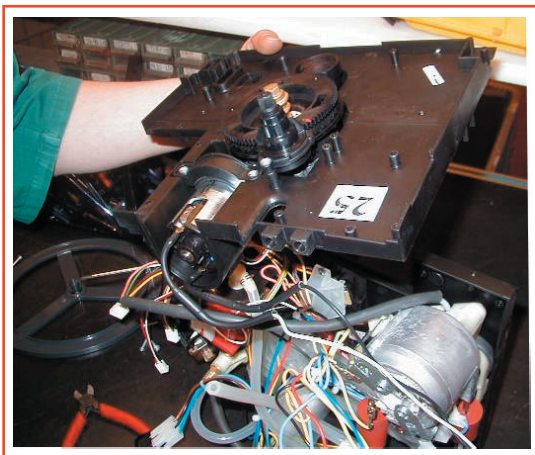
Phase 1

Loosen the two screws of the valve.



Phase 2

Remove the two screws on the plate.



Phase 3

Cut the retainerclips and remove the coffee grinder plate.

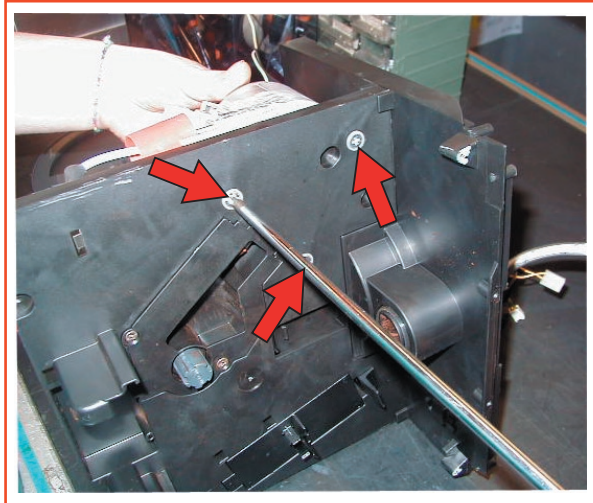
N.B.

For assembly, perform the above procedure in reverse order



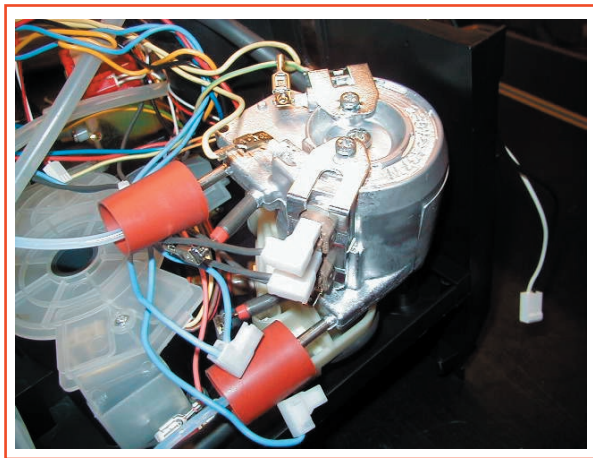


BOILER disassembly



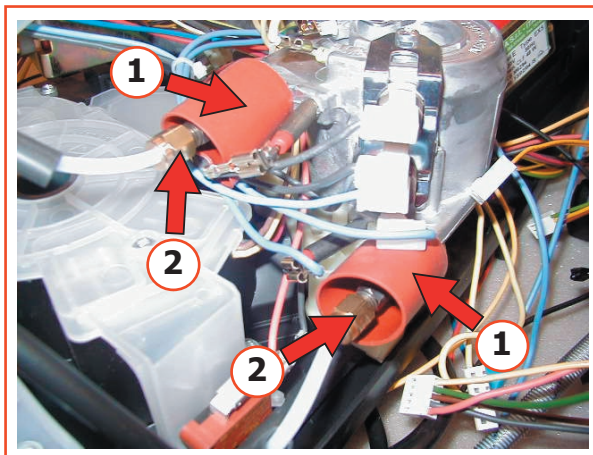
Phase 1

Loosen the 3 screws securing the boiler to the plate.



Phase 2

Detach all faston connectors on the boiler.



Phase 3

Lift the protection covers (1)

Loosen and detach the connection pipes (2)

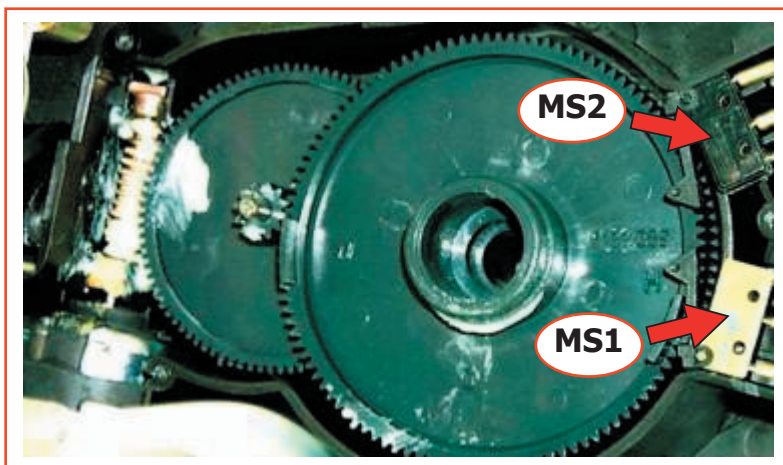
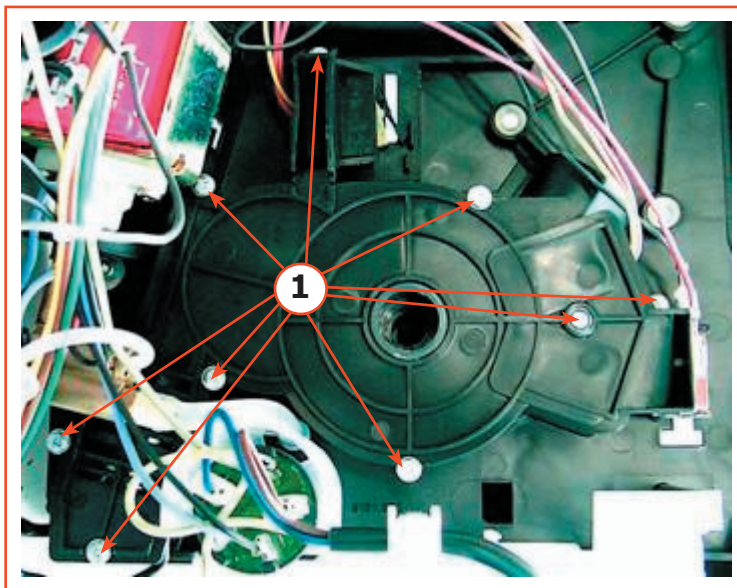
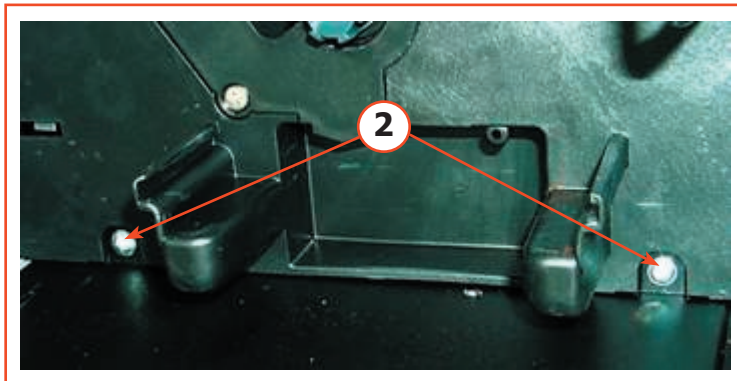
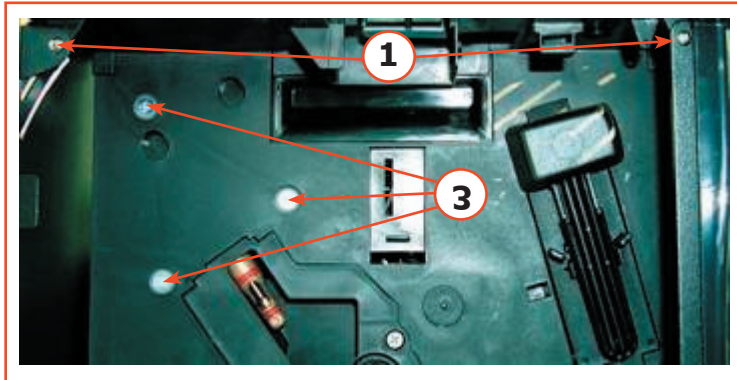
N.B.

For assembly, perform the above procedure in reverse order





GEARMOTOR disassembly



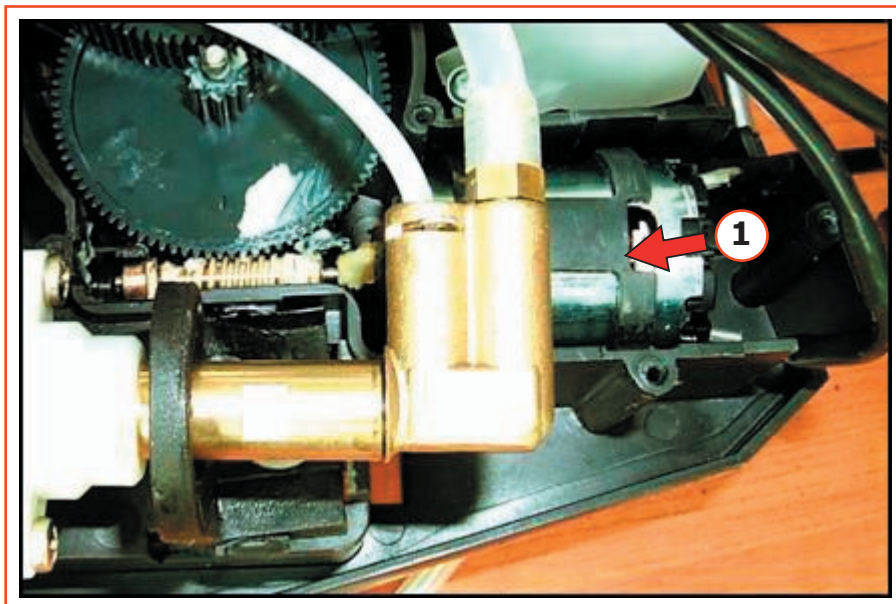
Phase 1

- 1) disassembly THE HOUSING
- 2) Remove the base plate: loosen the upper fixing screws (1) and lower fixing screws (2). Remove the earthing wire of the housing and lift the housing plate.
- 3) Loosen the screws of the heat exchanger (3)
- 4) Remove the heat exchanger power supply.
- 5) Extract the coffee grinder motor from its support

Phase 2

Remove the 9 screws (1) of the gearmotor cover and remove the latter.

The figure alongside illustrates the microswitches of the gearmotor.

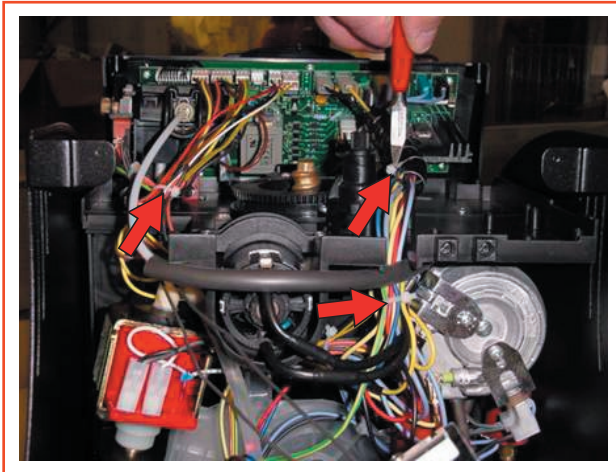
**WARNING!**

The motor of the gearmotor (1) cannot be removed without disassembling the pump.

N.B.
For assembly, perform the above procedure in reverse order

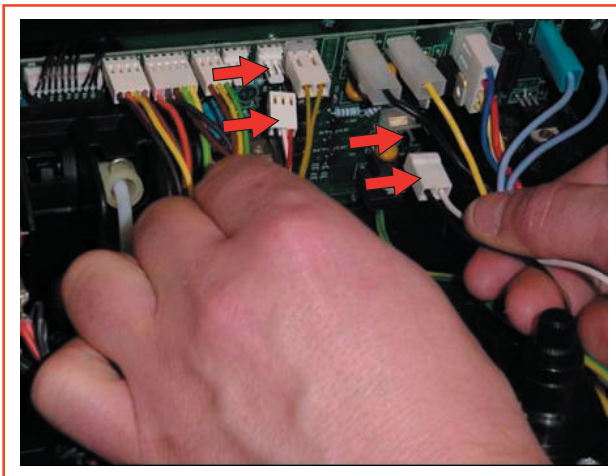


Coffee grinder disassembly and assembly



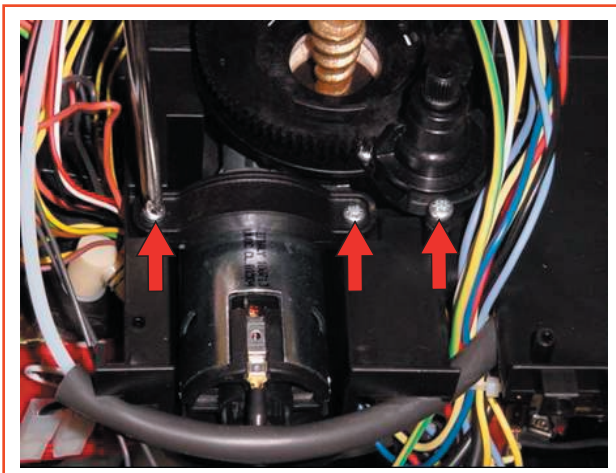
Phase 1

Disconnect the grinder motor wiring from the rest of the wiring by cutting the three clips indicated by the arrows (taking great care not to cut the wires) and remove the black circular clip.



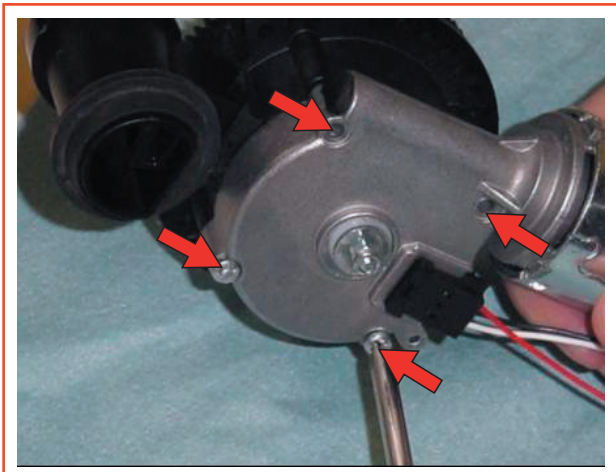
Phase 2

Detach the power cable and grinder motor sensor cable from the control card.



Phase 3

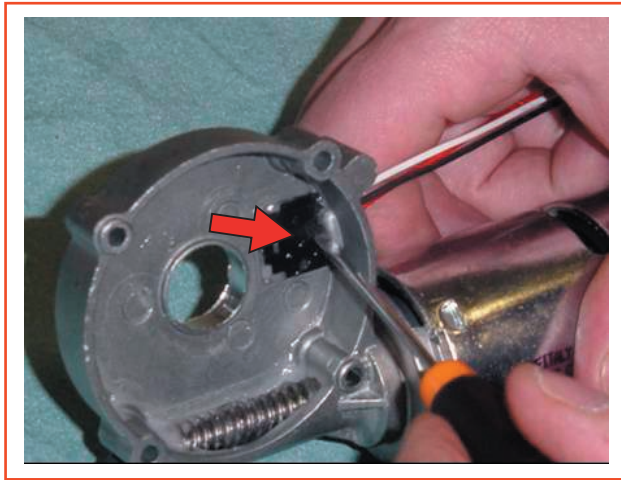
Loosen the three fixing screws using a Phillips screwdriver.



Phase 4

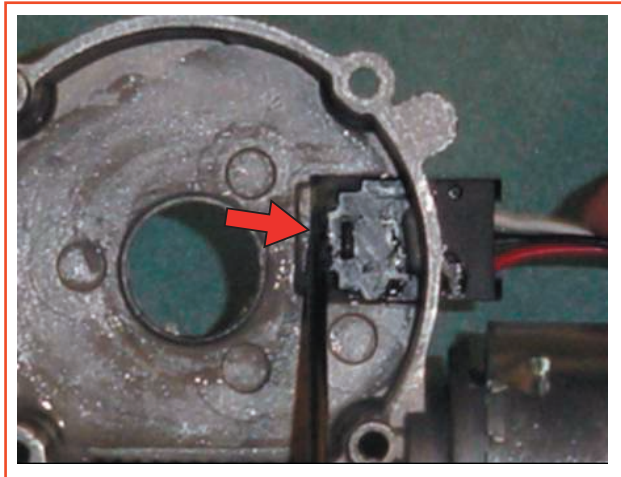
Loosen the four fixing screws of the grinder motor flange.





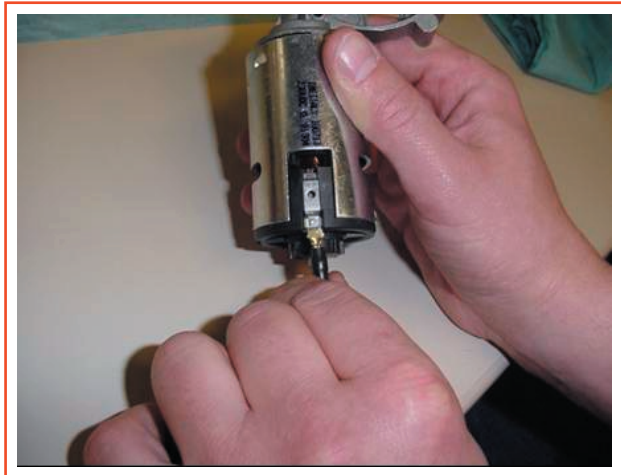
Phase 5

Proceed with removal of the sensor from the flange seat, pressing on the anchoring tab.



Phase 6

Remove the sensor support from the flange seat with the aid of a small screwdriver (as shown in the figure).



Phase 7

Disconnect the motor power cables.



Phase 8

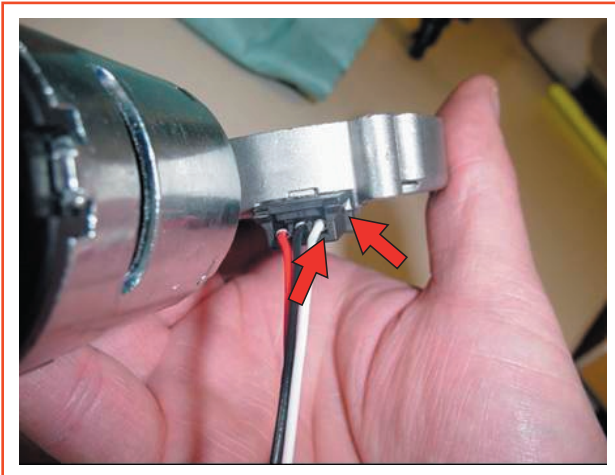
Remove the rubber cap of the motor flange.





Phase 9

Fit the rubber cap of the flange of the new grinder motor.



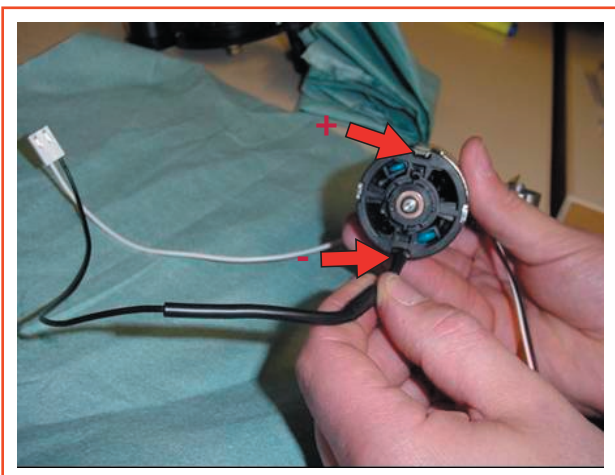
Phase 10

Insert the sensor assembly removed from the old grinder motor onto the flange of the new grinder motor, taking care to align to with the sensor insertion guides.



Phase 11

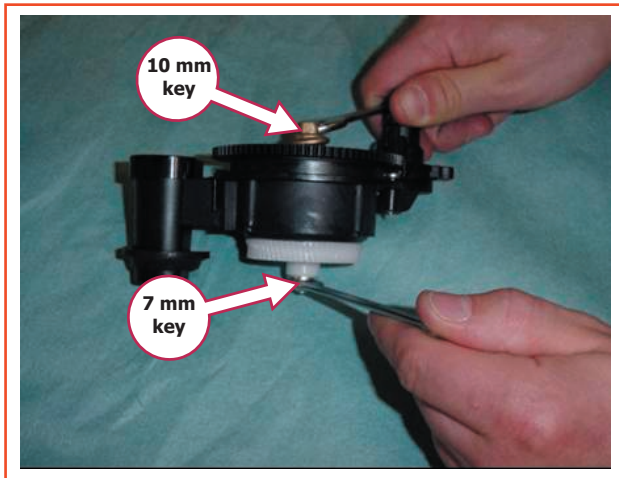
Completely secure the sensor by pushing the unit right into its seat and pressing against the flange to lock the sensor anchoring tab.



Phase 12

Proceed with wiring of the new grinder motor, taking care to insert the black wire in connector (-), and the white wire on connector (+).

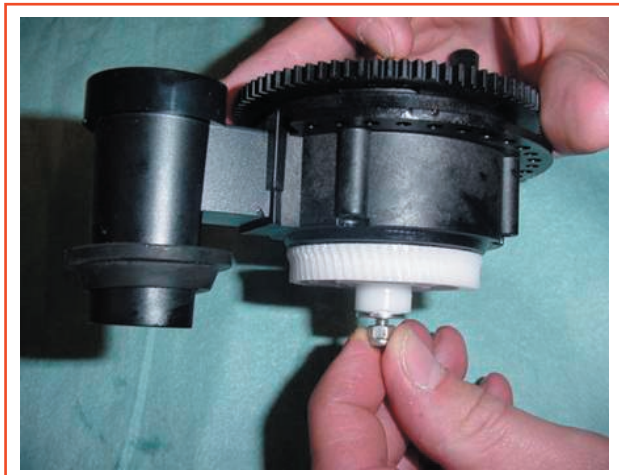




Phase 13

If the gearwheel ring is damaged, disassemble the toothed wheel using a 10 mm key and a 7 mm key to unscrew the locknut.

Otherwise, proceed from Phase 23.



Phase 14

Insert the new gearwheel ring and couple with the gear of the pin and proceed with fixture by inserting with washer and locknut.



Phase 15

Lock the nut on the shaft of the brass pin using 7 and 10 mm keys.



Phase 16

Proceed with application of grease on the entire ring.

WARNING!
use exclusively grease type
"Interflon fin food grease 2"

code no. 14-INTGR22002 packs of 150 ml
code no. 14-INTGR22004 packs of 400 ml





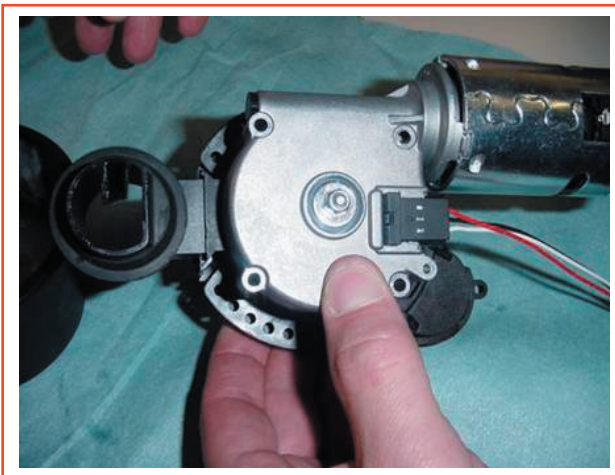
Phase 17

Distribute the grease uniformly and generously on the entire toothed wheel.



Phase 18

Apply grease also on the teeth of the worm gear on the grinder motor shaft.



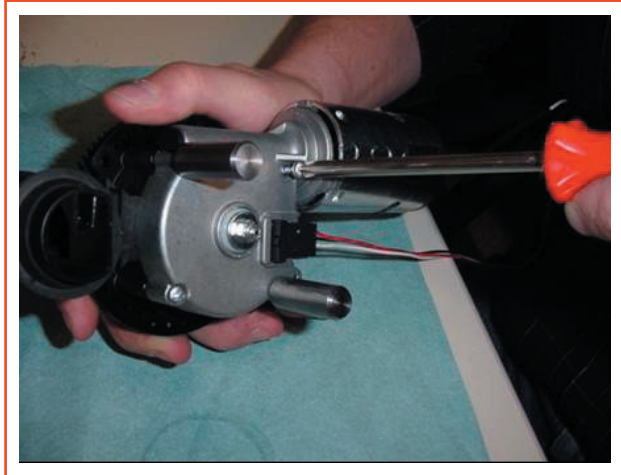
Phase 19

Couple the motor flange with the rest of the unit as shown in the figure.



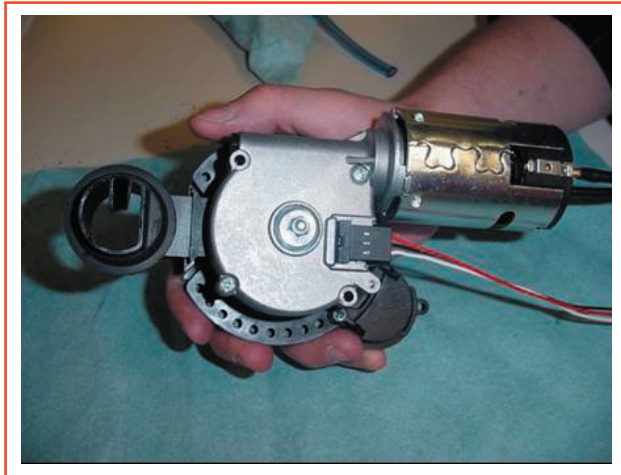
Phase 20

Insert the locking pins as shown in the figure and press fully down.



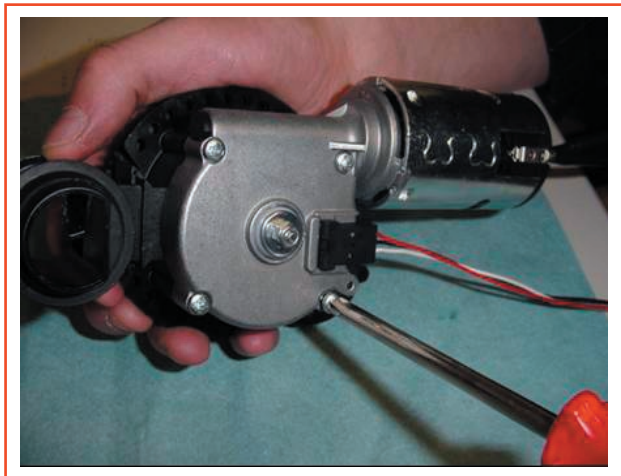
Phase 21

Proceed with fixture of the flange by means of the first two screws, tightening them fully down.



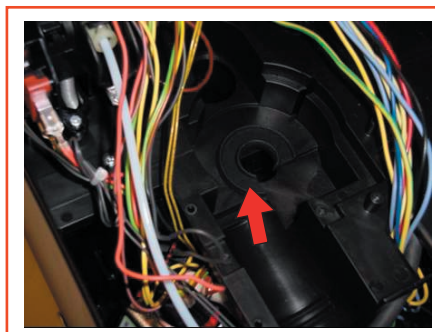
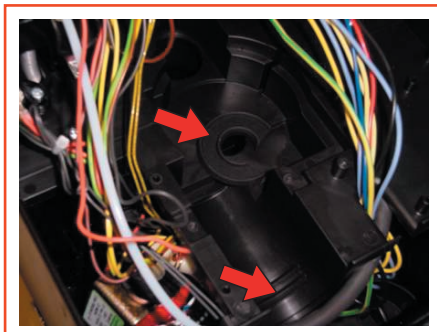
Phase 22

Remove the two pins and proceed with fixture of the two remaining screws



Phase 23

Tighten the flange fixing screws fully down.

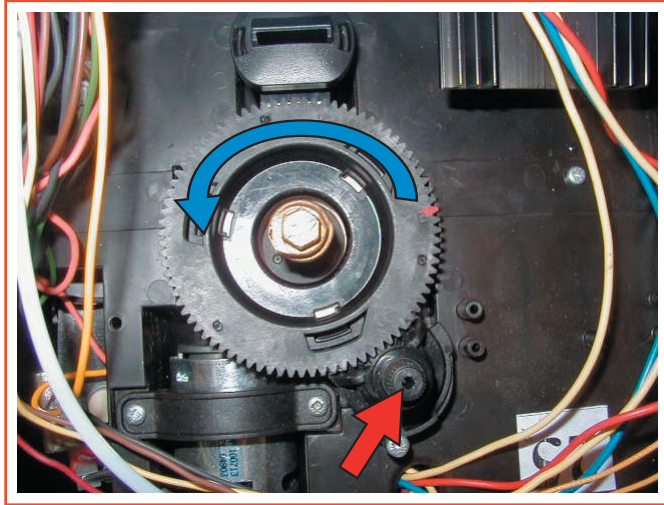


Before fixing the grinder motor to the rest of the machine, check that the details indicated in the figure are positioned correctly





Grinder disassembly



Phase 1 (upper grinder disassembly)

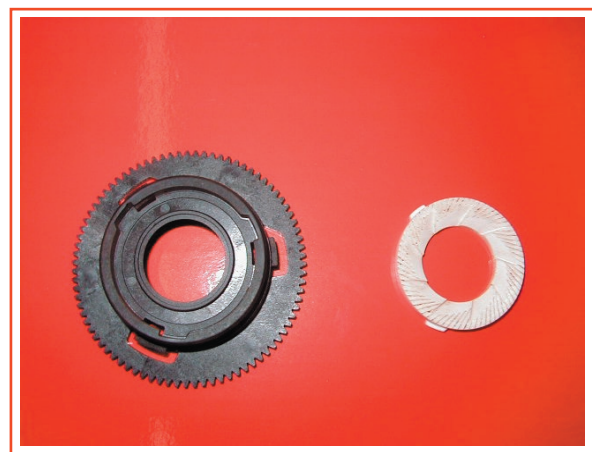
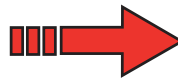
Press the release button indicated by the red arrow and at the same time turn the ringnut (indicated by the blue arrow) anticlockwise to the end of its stroke and remove the adjustment nut.



Phase 2 (upper grinder disassembly)

To facilitate disassembly, use a small screwdriver to remove the coffee pressed into the three seats and complete the operation with the aid of compressed air and vacuum cleaner.

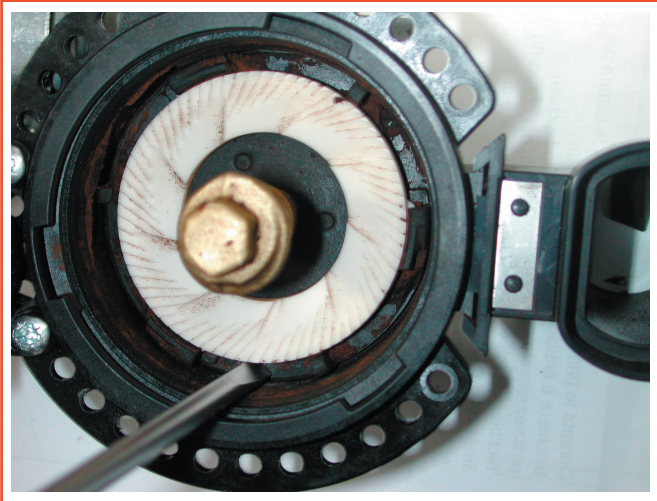
Use a small screwdriver to turn and prise off the white ceramic grinder at the point indicated by the arrow.



Phase 3 (upper grinder disassembly)

After releasing the grinder, it can be removed from the relative support.

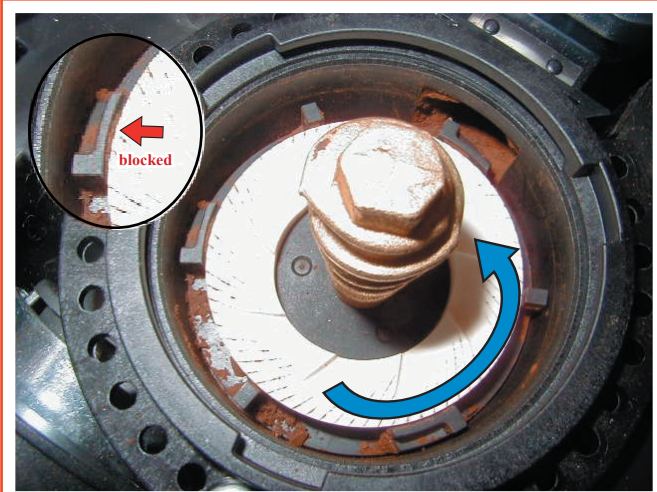




Phase 4 (lower grinder disassembly)

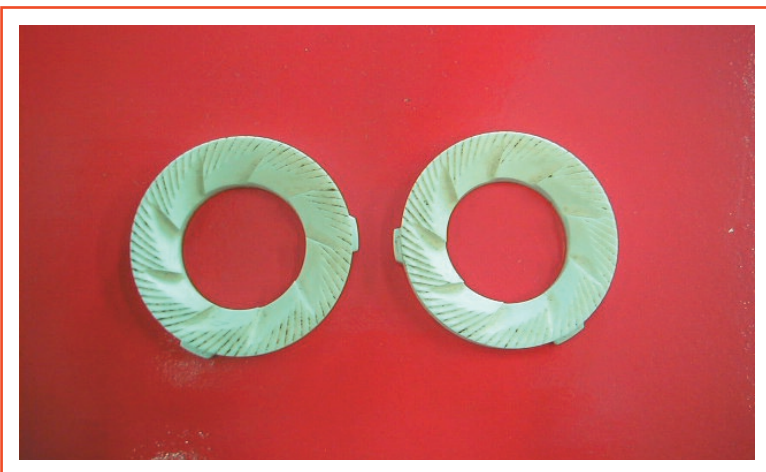
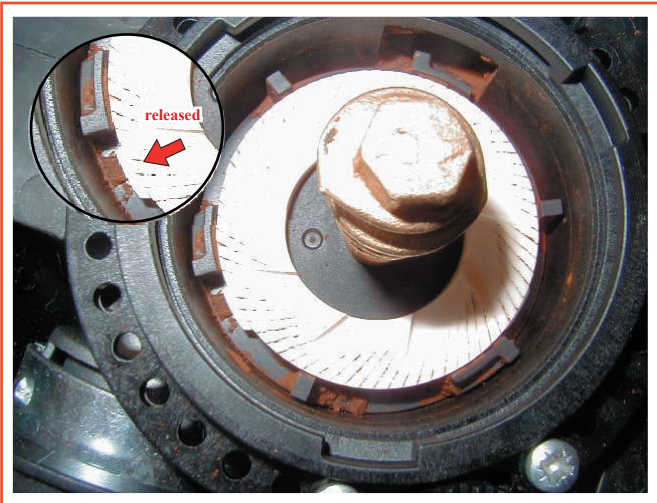
Use a small screwdriver to completely remove the coffee residue with the aid of compressed air and vacuum cleaner

Rotate the grinder anticlockwise, using a small screwdriver to lever it off as shown in the first figure.



Phase 5 (lower grinder disassembly)

After releasing the lower grinder, it can be removed from the relative support.



The upper and lower grinders are made of ceramic material and are identical.

N.B.
For assembly, perform the above procedure in reverse order

Grinder settings

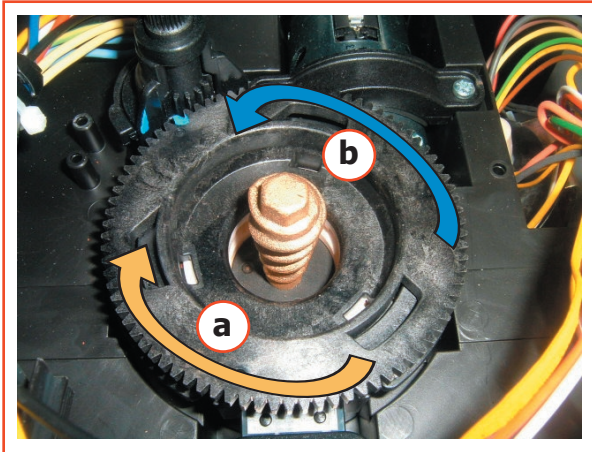


fig.1

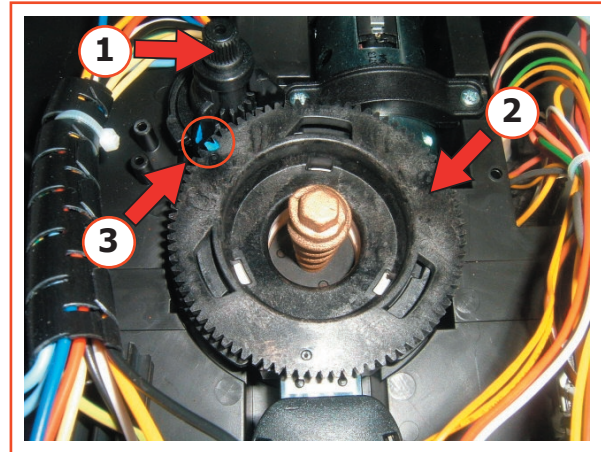


fig.2



fig.3

To calibrate the grinders, proceed as follows:

- 1) Press the pin (pos.1 / fig.2) and rotate the ringnut (pos.2 / fig.2) clockwise (fig.1 / a) to fully tighten down the grinders (DO NOT FORCE).
- 2) The rotate the ringnut anticlockwise (fig. 1 / b) so that the two blue dots (on the upper ringnut and the activation button) are aligned (pos. 3 / fig.2).

N.B. The final position (after calibration) must be aligned approximately with the second dot on the container adjustment knob (see fig.3)

Ground coffee dose adjustment

The coffee dose can be adjusted by means of potentiometer R26 on the electronic card (must only be performed by a Service Centre).

Potentiometer R26 varies the input voltage to the microprocessor from 0 to 5 V.

The following table provides comparisons for dose adjustments:

Voltage (V)	Coffee grinder pulses	Coffee dose (g) *
0	80	6,8
1	92	7,5
2	97	8,2
3	106	8,9
4	114	9,6
5	122	10,3

Il grinding time on average 1.3 – 1.5 g /sec.

Factory settings are 100 pulses, equal to a dose of approx. 8.5 g

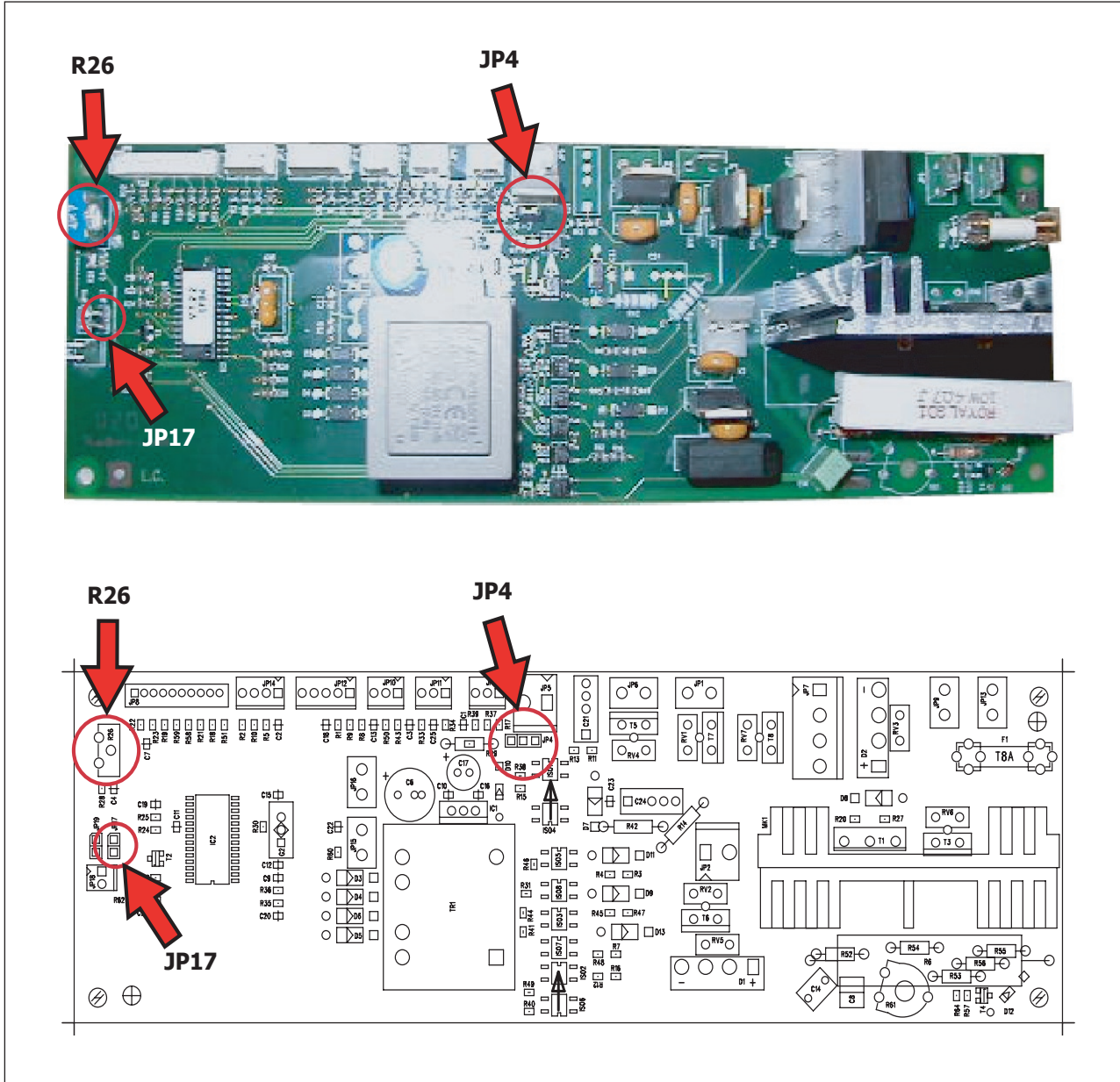
Turn potentiometer R26 anticlockwise to increase the dose of ground coffee (=122 pulses).

Turn potentiometer R26 clockwise to decrease the dose of ground coffee (=80 pulses).

*** The dose varies according to the coffee blend used.**



Electronics (operation of jumpers on the card).



POS.	COMPONENT DESCRIPTION	FUNCTION
R26	Potentiometer 4 K7-5K / +- 20%	The coffee dose can be varied by means of the potentiometer
JP17	Jumper	Jumper fitted: "water absence" not managed.
JP4	Jumper	Boiler temperature sensor setting

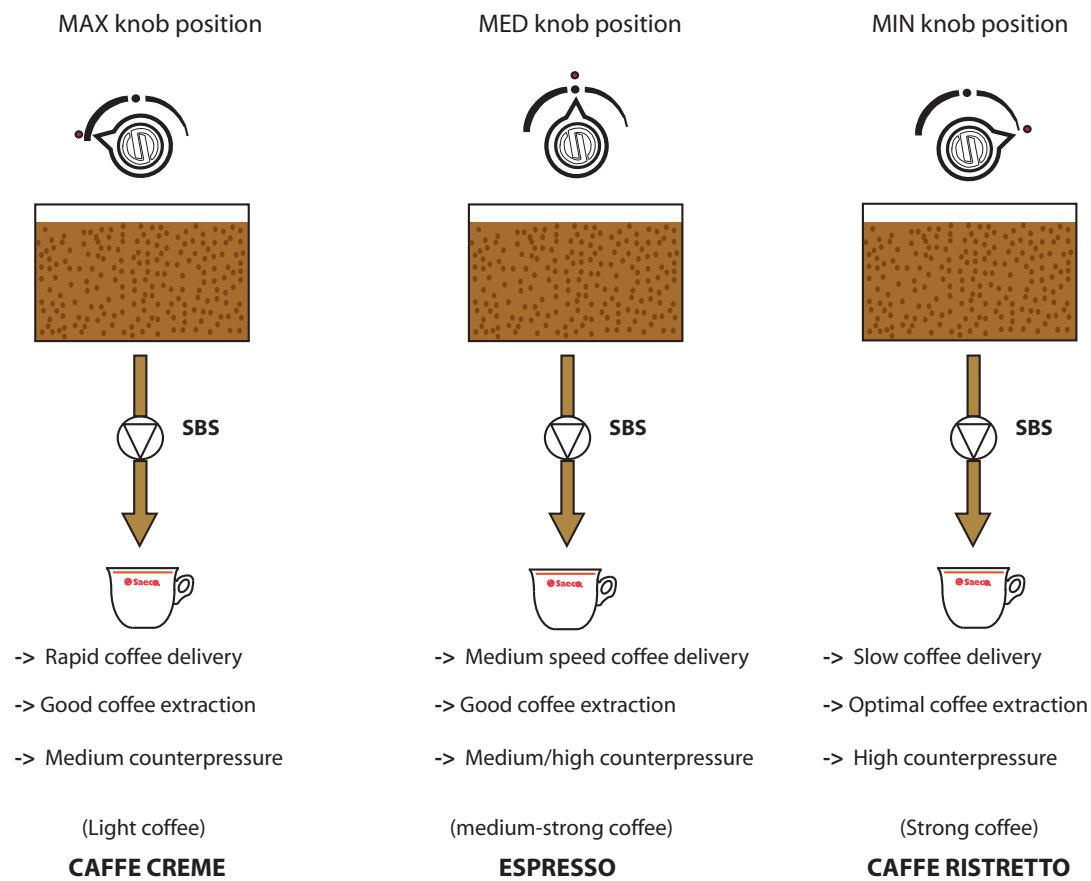


Valve SBS

To ensure correct operation of the valve SBS a long espresso coffee should be made, and during preparation of the latter, check the difference in speed of delivery between the maximum and minimum positions.

The difference in delivery speed is approx. 2.5 times greater (and therefore VERY obvious!).

An excessively fine grinding influences operation of the valve SBS.

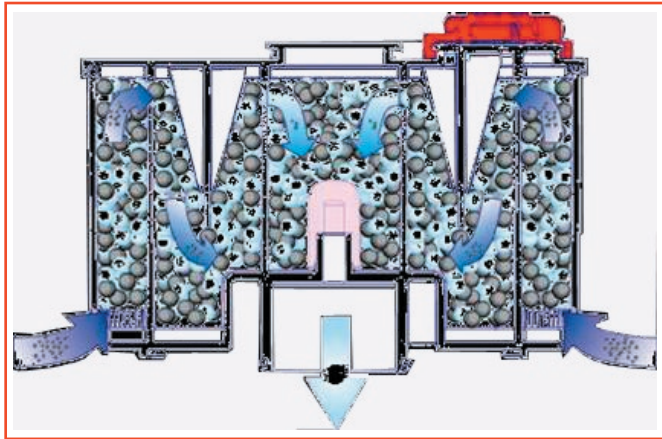


Troubleshooting

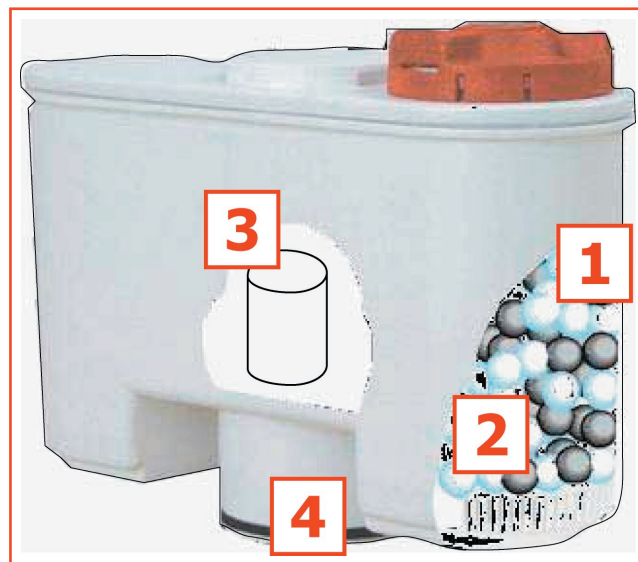
Fault	Probable causes	Remedies
The coffee is delivered slowly with SBS in the maximum position (pos.1)	Grinding too fine	Set to a coarser grinding level.
The coffee is not delivered with SBS in the minimum position (pos.2)		
- The text "fill circuit" appears on display (Digital model) - The red water low indicator light is flashing	Grinding too fine	Set to a coarser grinding level.
	The water circuit is empty	Fill the water circuit

The AQUA PRIMA filter

The models Incanto s-class (Sirius and Rondò) are equipped with a softener filter that significantly reduces water hardness, thus minimising possible problems caused by lime scale. In fact, to obtain a perfect coffee, the water is an essential element, on a par with the blend and roast of the coffee: it must always therefore be clear and fresh. The filter operating modes and features are described below.



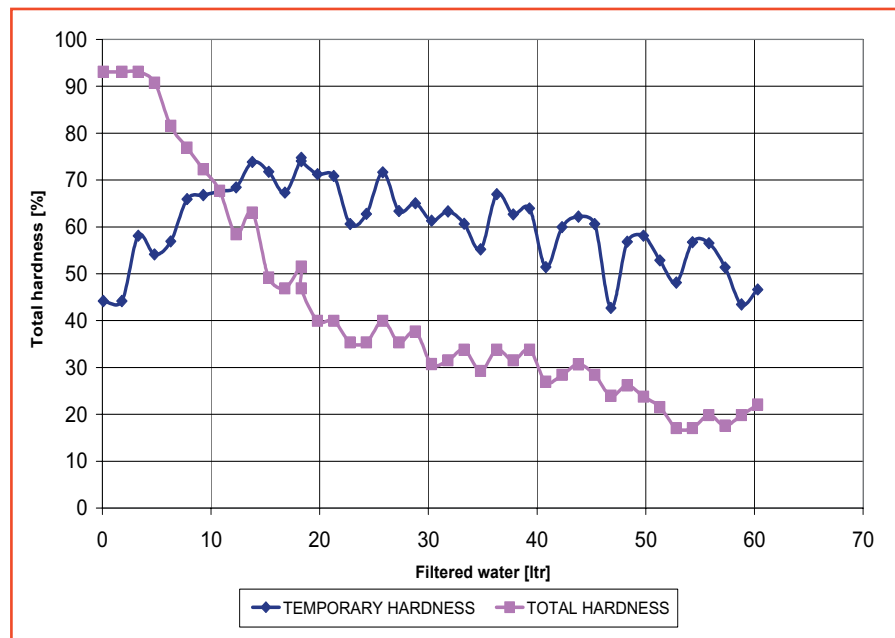
The water to prepare the coffee is filtered just before delivery. This guarantees constant optimal water for a perfect coffee.



In four phases Saeco water first purifies the water, to achieve a unique coffee.

- 1.** The active carbons eliminate unpleasant odours or substances from the water, such as chlorine. The silver coating of the active carbon obstructs the reproduction of germs.
- 2.** The ion exchanger reduces the lime scale deposit and eliminates heavy metals and suspended substances from tap water.
- 3.** A special porous filter retains undesired micro particles.
- 4.** The corpuscular filter, used as a connection between the tank and appliance, filters the water, retaining any suspended substances or impurities.

As can be noted in the graph below, the "aqua prima" filter reduces water hardness by up to 50 %



The aqua prima filter filters up to 60 litres of water or around 600 coffee cups.

It should be replaced every 3 months.

On the Incanto s-class models, the need to replace the filter is indicated by a lamp or message on display. If the machine is not equipped with these control devices, observe the expiry date printed on the filter packaging



All parts comprising the aqua prima filter system have been tested for contact with food.



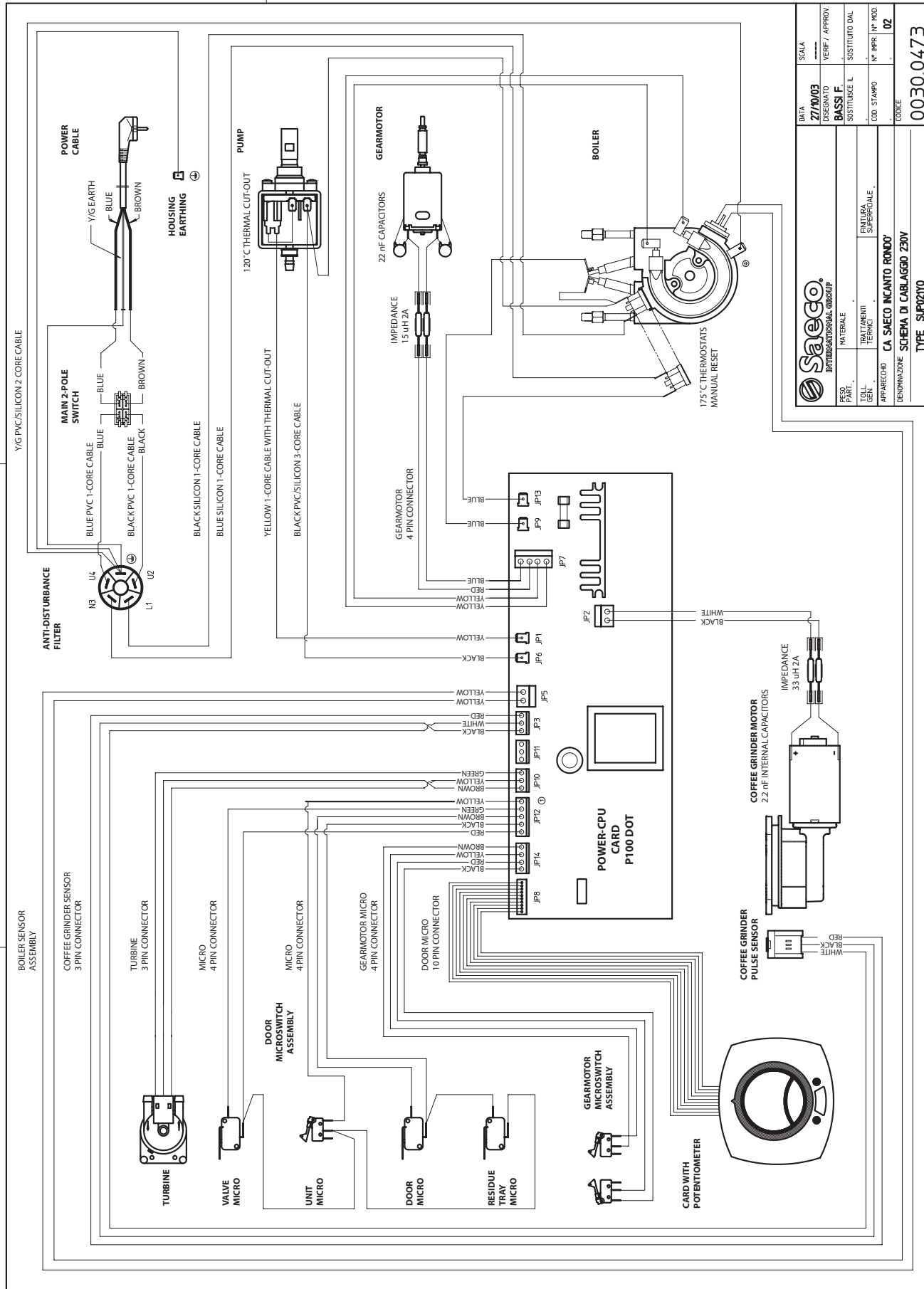
The aqua prima filter respects the environment and is 100% recyclable.



The aqua prima filter pack complies with recycling standards specified by the "green dot".



INCANTO DOT wiring diagram



Saeco INTERNATIONAL GROUP		SCALA	02
DATA	27/10/03	VERIF. / APPROV.	
DESIGNATO	BASSI F.	SOSTITUITO DAL	
PRODOTTORE	BASSI F.	FINITURA	SUPERFICIALE
MATERIALE		APPARECCHIO	CA SAECO INCANTO RONDO
TOLL. GEN.		DETERMINAZIONE	SCHEMA DI CABLAGGIO Z300
APPARECCHIO		TYPE	SUP0270
COOKE	0030.0473		

LA PROPRIETA' DI QUESTO DISEGNO E' RISERVATA A TERMI DI LEGGE. METATO OMINO RIPRODURRO E' RENDIBRO NITO A TERZI

FORMATO A2
UNI 936-76

user:6/archivio/0030 SCHEMI EL 0030 04/0030 0473

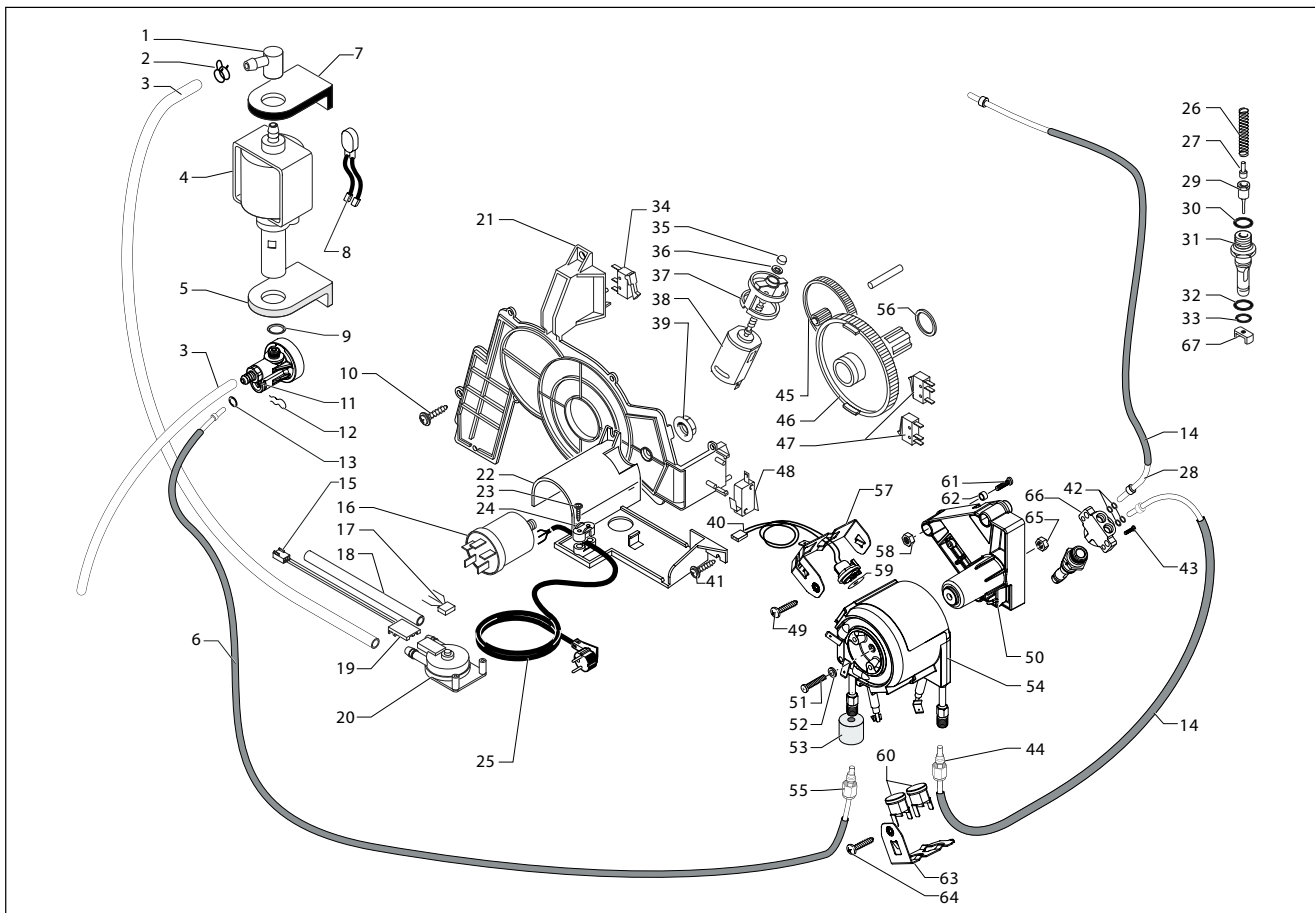
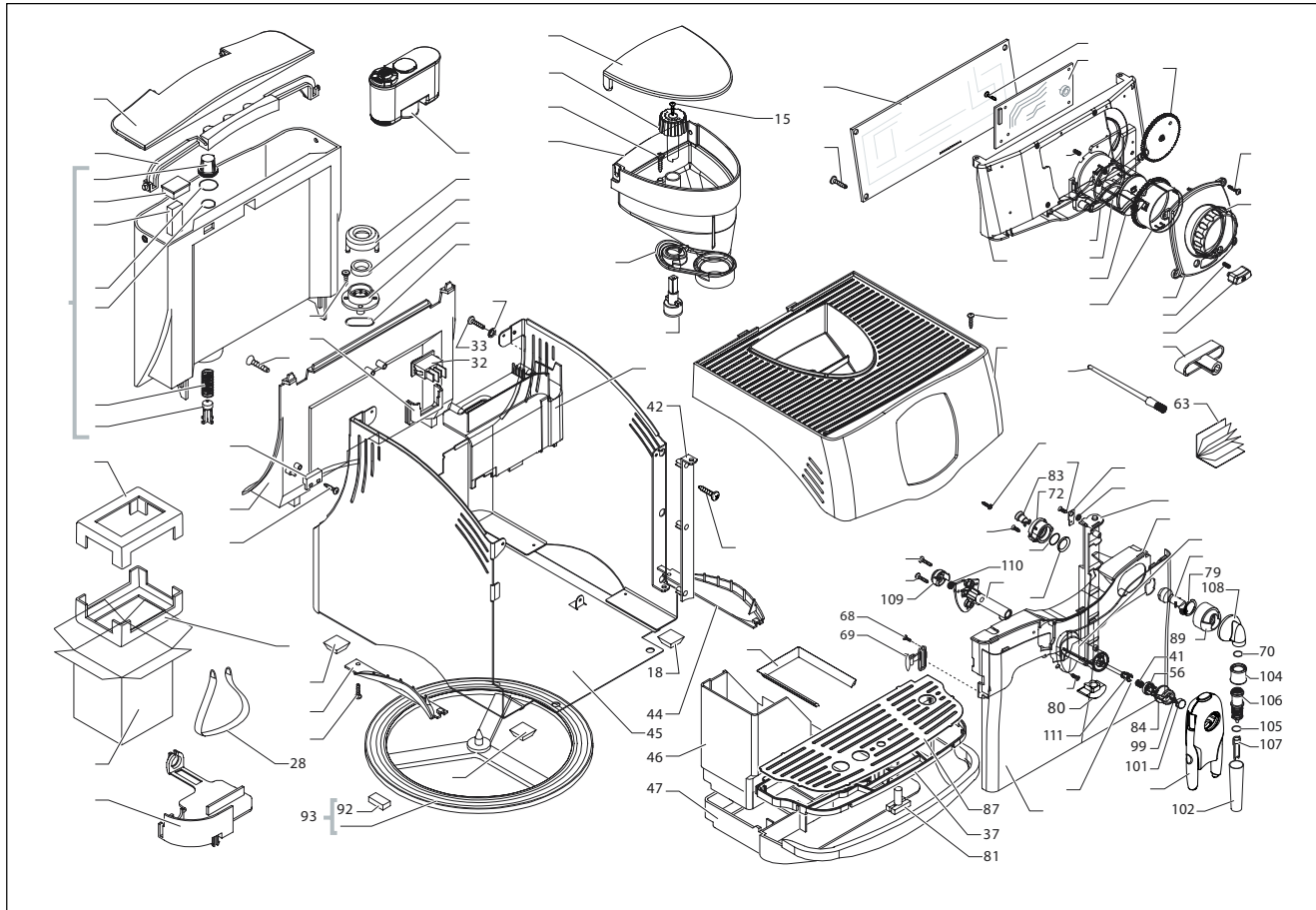
MORE...
M...
M...
M...

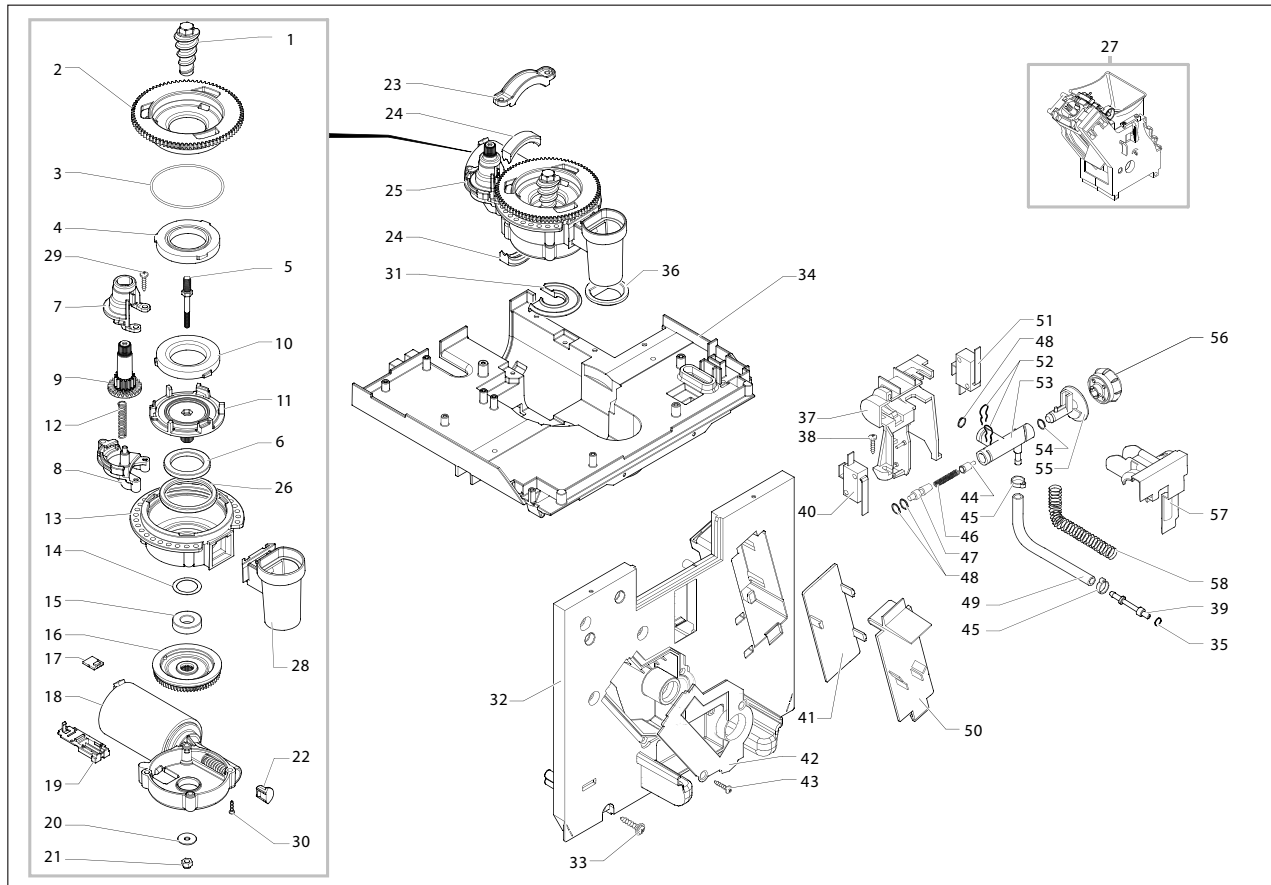
MORE...
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INCANTO RONDO' exploded drawing





N.B.

For code numbers refer to the updated exploded drawings in your possession

