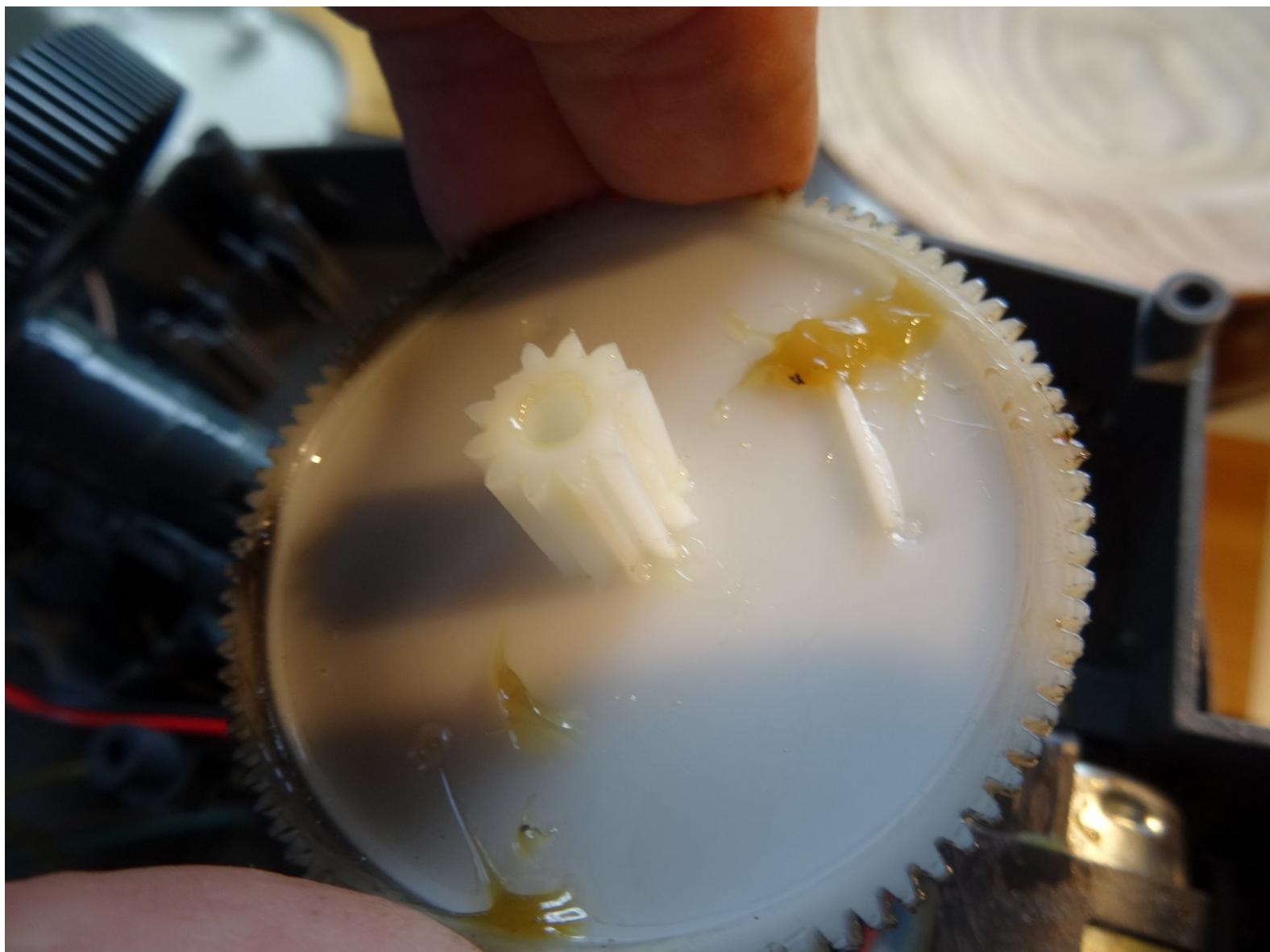




Saeco Royal Cogwheel replacement

Replace the defective Cogwheel of a Saeco Royal coffee machine.

Written By: VauWeh



INTRODUCTION

If your device sputters and doesn't make coffee anymore, it's likely that you have a worn out cogwheel. This guide will show you how to replace it.

You will need to open the device and remove the heating block. This guide shows you how to disconnect the heating block. But this isn't absolutely necessary and you can skip steps 11-17 - if you want. The model shown here is a Saeco Royal Sup 014 but other models are very similar.

TOOLS:

- Phillips #2 Screwdriver (1)

PARTS:

- New Item (1)

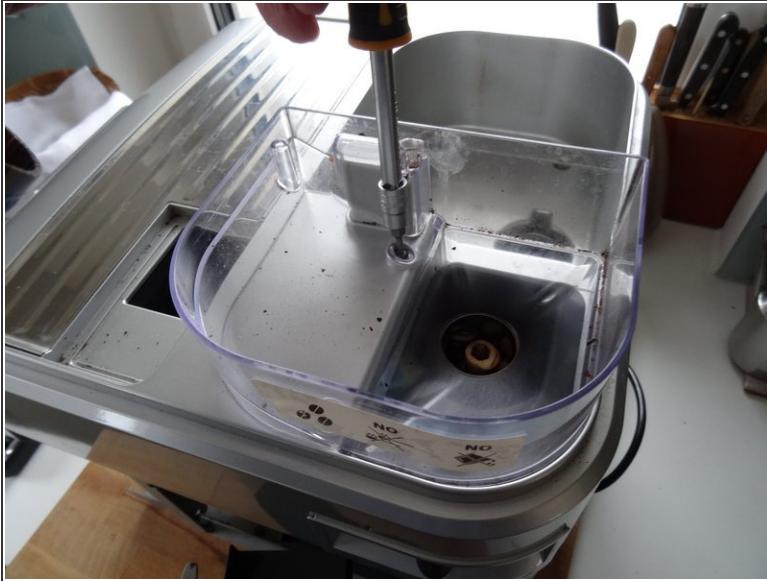
Step 1 — Preparing



⚠️ Unplug!

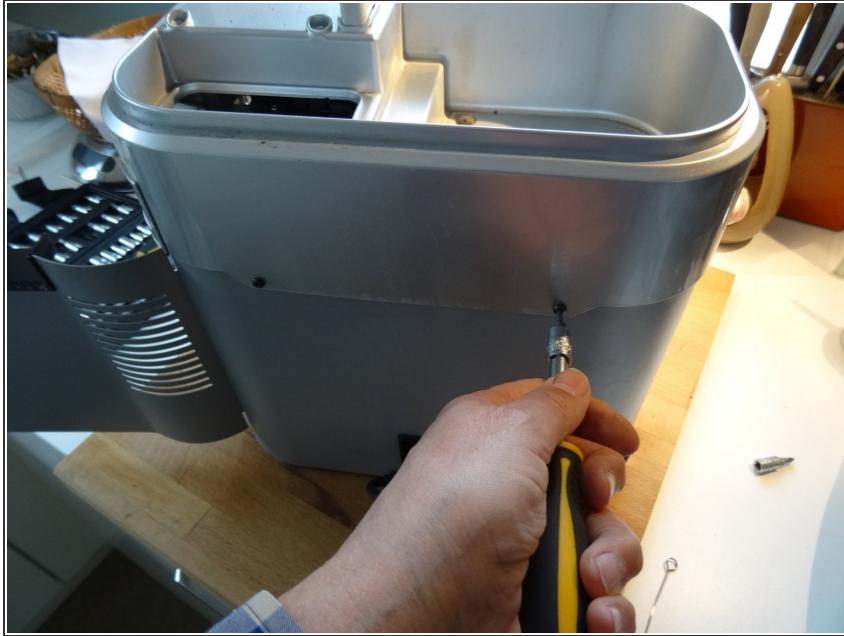
- Remove all attachments like water tank, brewing unit etc.

Step 2 — Top



- The coffeebean supply is fixed with two screws. Unscrew them and lift it off.
- The adjuster of the grinder has to be solved. Mark the position or just take a picture. This type is fixed with a screw, others are only stucked together.

Step 3 — Rear side



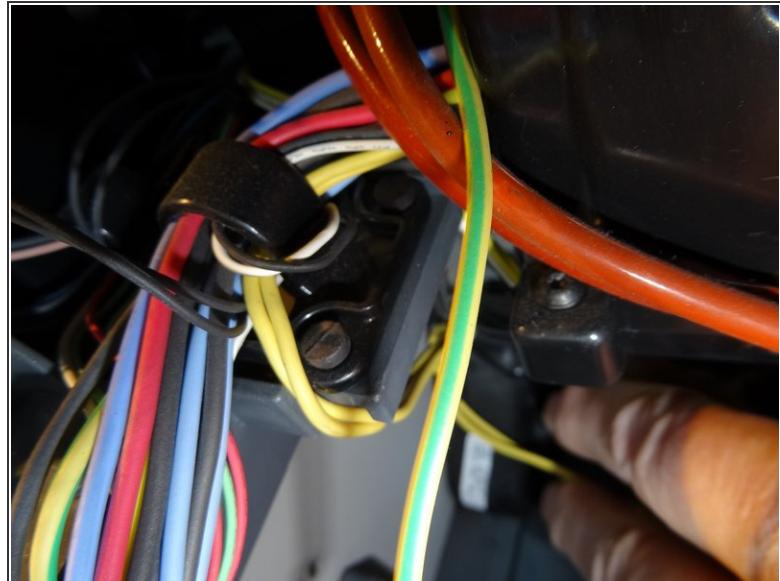
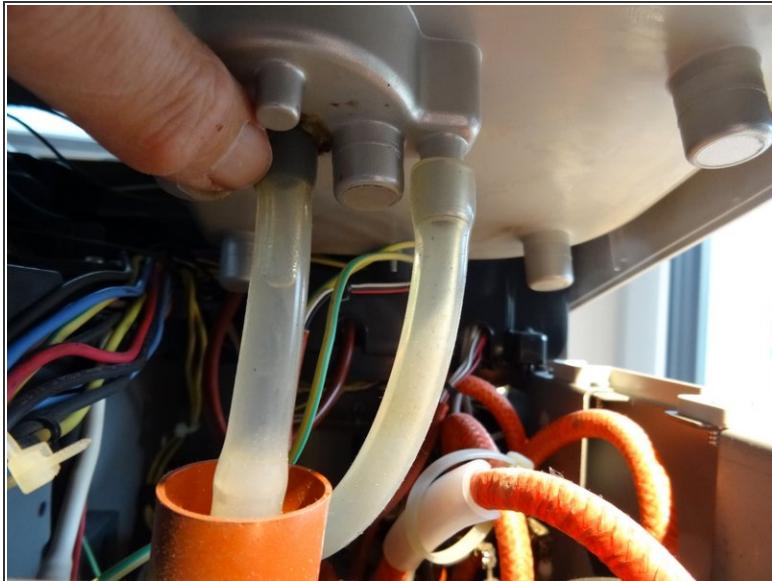
- There are two screws to be turned out.

Step 4 — Front



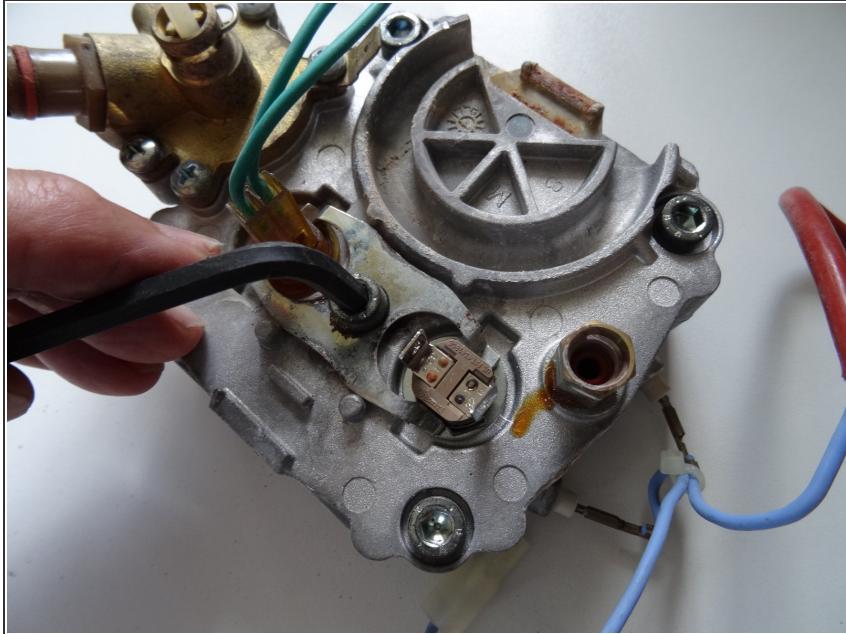
- The screws are situated on the underneath of the cover. This type is held by four screws.

Step 5 — Lift cover off



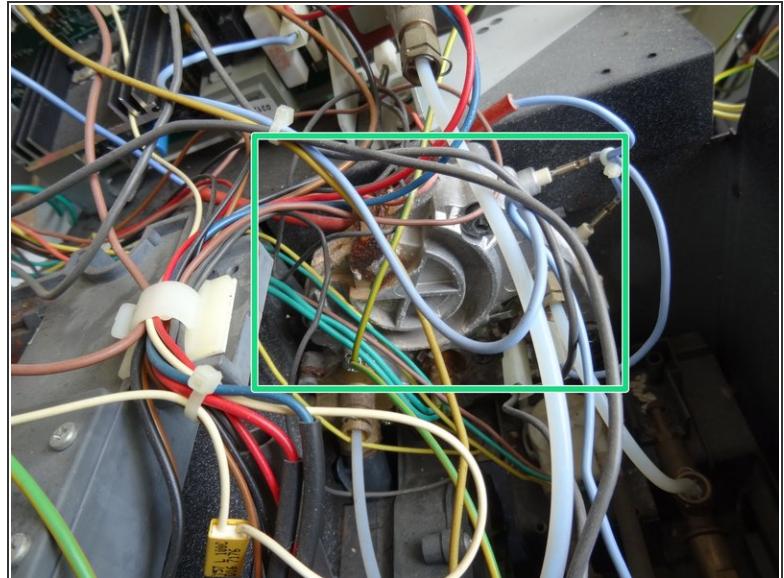
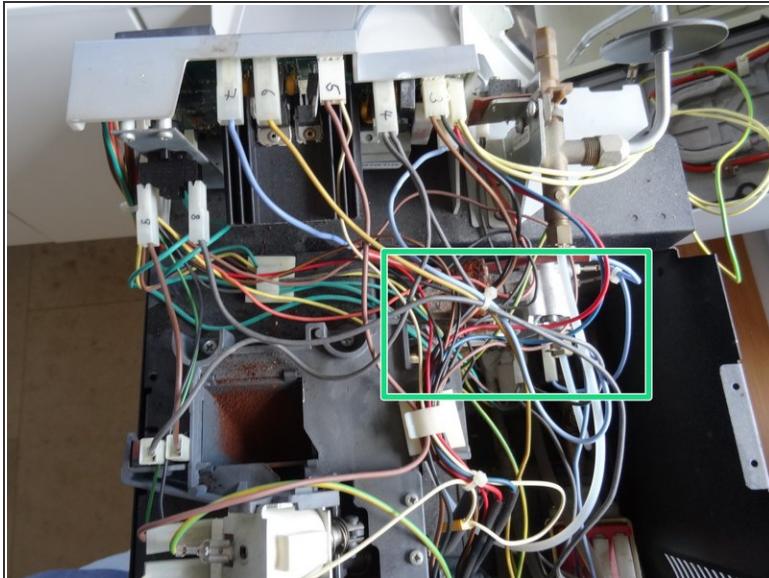
- Now the cover can be raised: first grip on left and right rear side and lift about 10 cm (4 in). Sometimes the cover jams a little bit.
- Solve the hoses which lead to the water tank. Perhaps you have to pull out some contacts, (e.g. the yellow-green protection lead), don't forget to put them on again later.
- The cover can be drawn aslant towards the front, sliding it over the hot water pipe.
- Most repairs can be done with the cover being laid up partially , it must not be completely removed.

Step 6 — Remove thermoblock



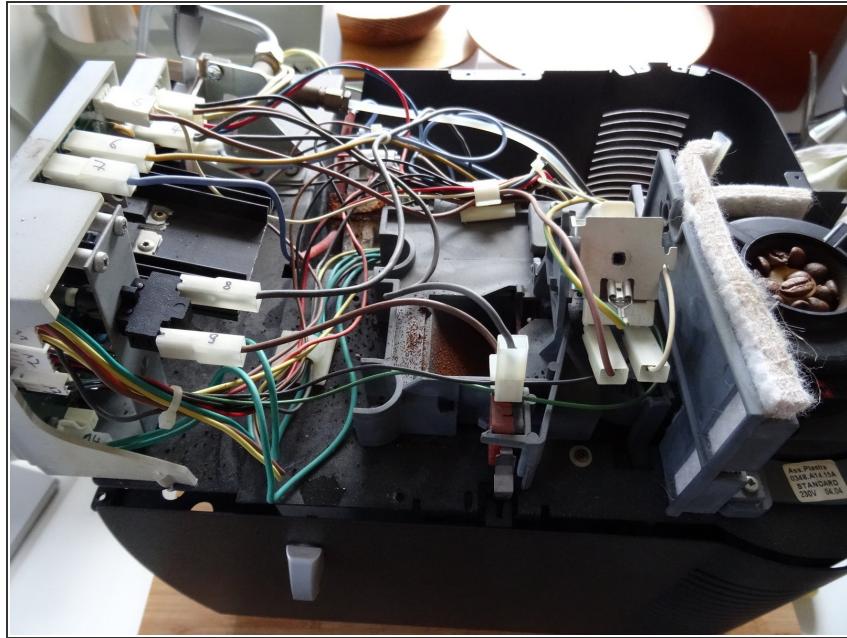
- This is what the removed thermoblock looks like. This one was 14 years old and leaking in various places.

Step 7



- A look into the open device. The thermoblock is hidden under a pile of cables and tubes.

Step 8



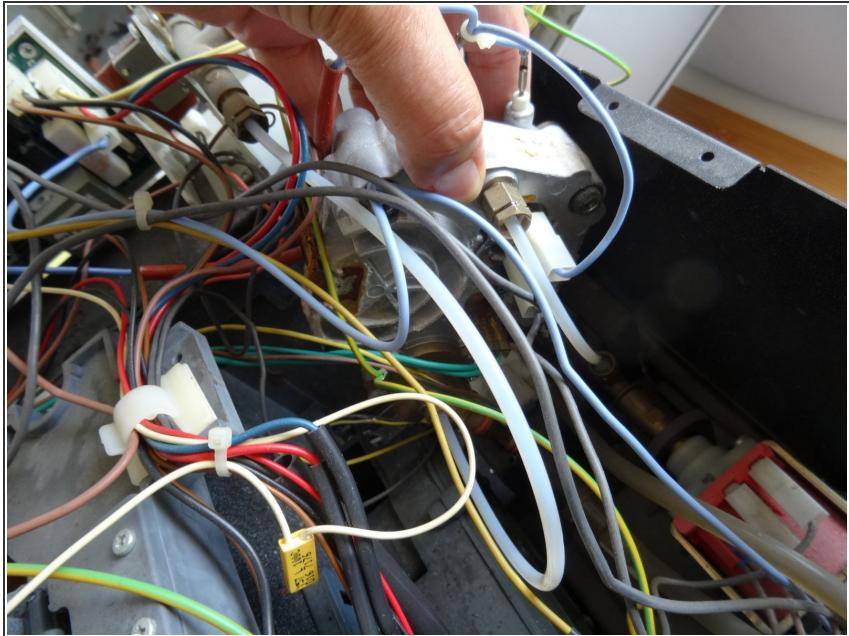
- It's safer to number the cable connectors on the electronics. You probably just need to disconnect the slightly hidden # 14 connector on the two green cables at the very bottom and # 7 on the blue cable on the top.

Step 9



- The thermoblock is attached to the wall behind the brew group with only two Phillips screws.
- Remove the two Phillips screws circled in red.

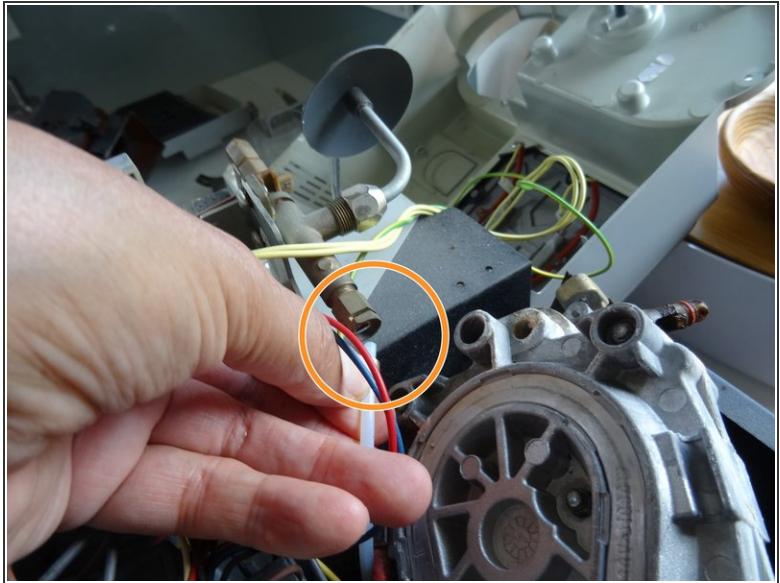
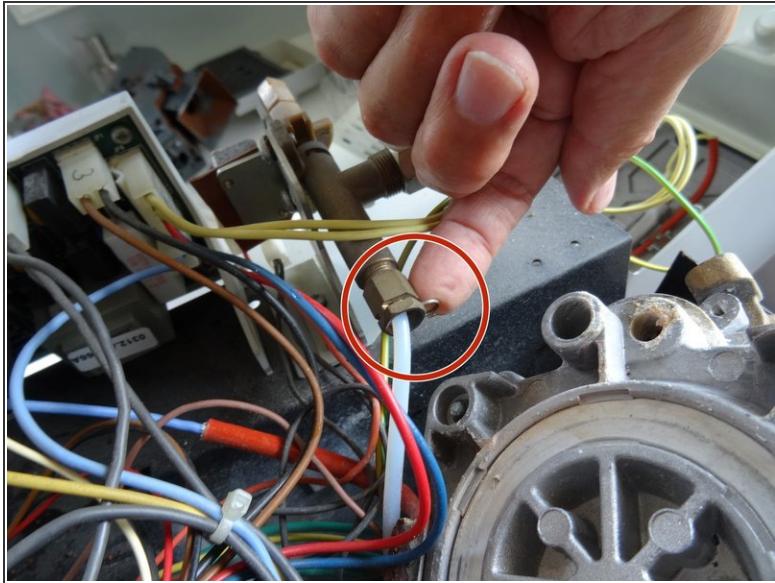
Step 10



- Take out the thermoblock and place it on the machine.

⚠ Hold on! The thermoblock is still connected to the machine by many cables and hoses. Don't attempt to completely remove it just yet!

Step 11

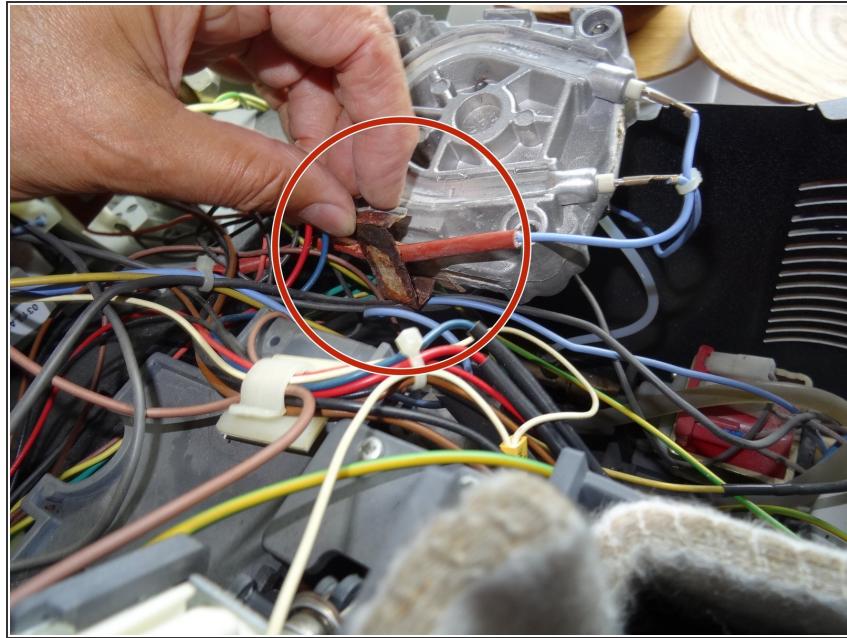


- Pull the clamp on the hose to the steam valve off.
- Pull the hose circled in orange out.

(i) There are two seals at the end of the hose that stick to the hose. Exchange them during re-assembly.

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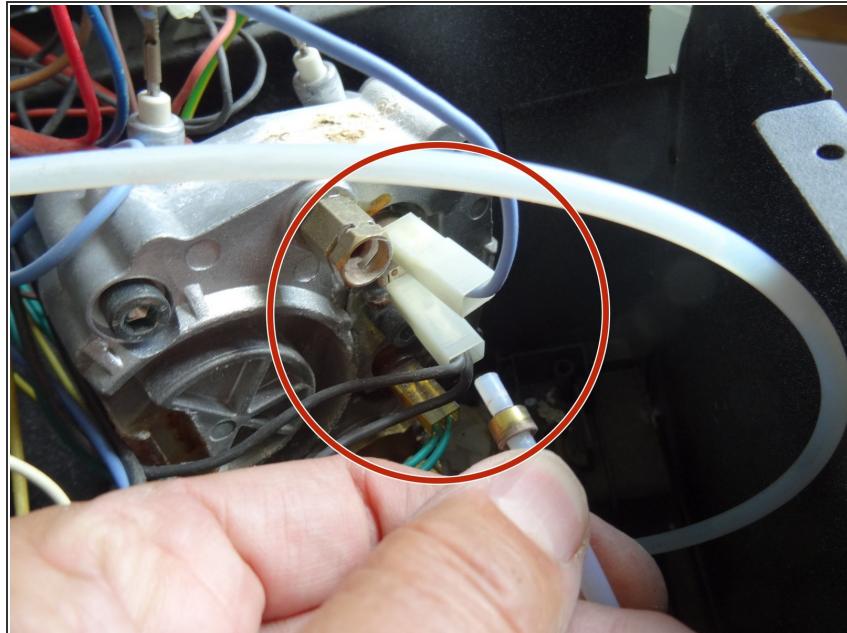
Step 12



- Remove the metal holder of the thermal fuse.

(i) My thermal fuse holder is heavily rusted, this may or may not be the case for you.

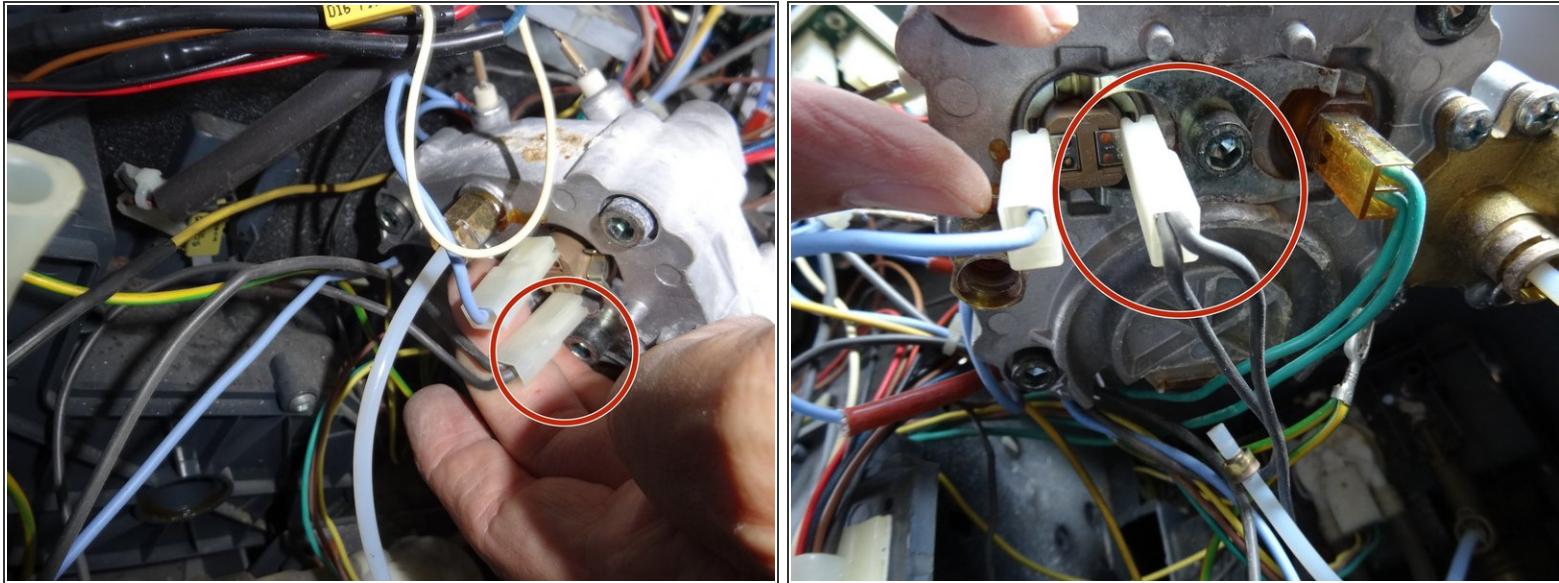
Step 13



- Pull first the clamp, and then the second pressure hose out of the thermoblock.

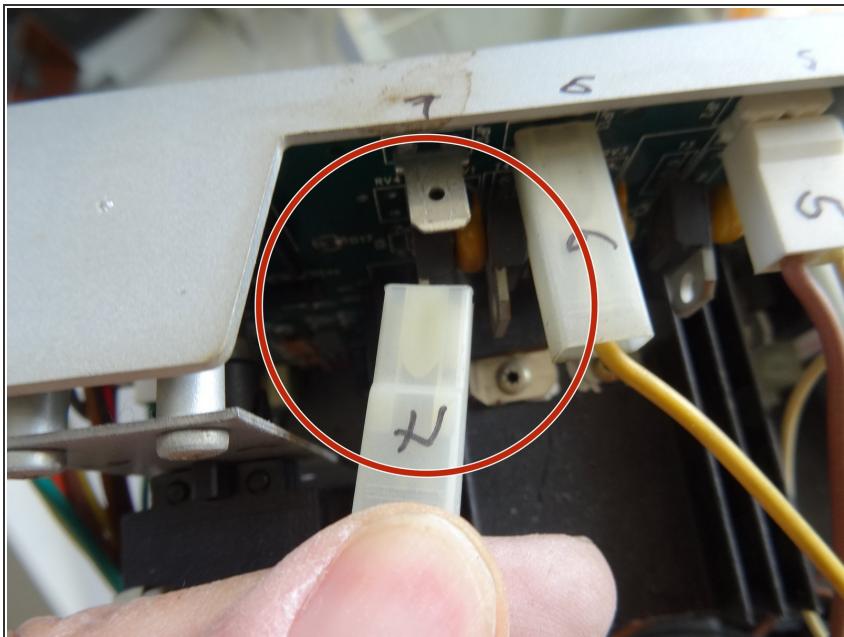
(i) There are two seals at the end of the hose. They stay stuck either at the end of the hose or afterwards, so don't try to remove them. Exchange them during re-assembly.

Step 14



- Disconnect the connector with the two gray cables from the thermal switch.

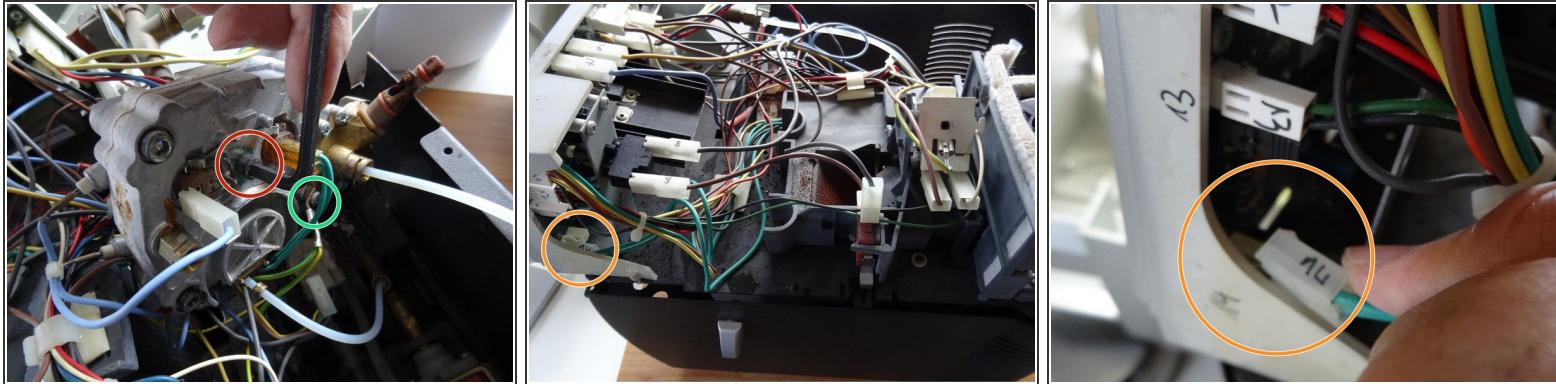
Step 15



- The blue cable from the thermoblock leads to the connector on the electronics, which is marked with 7

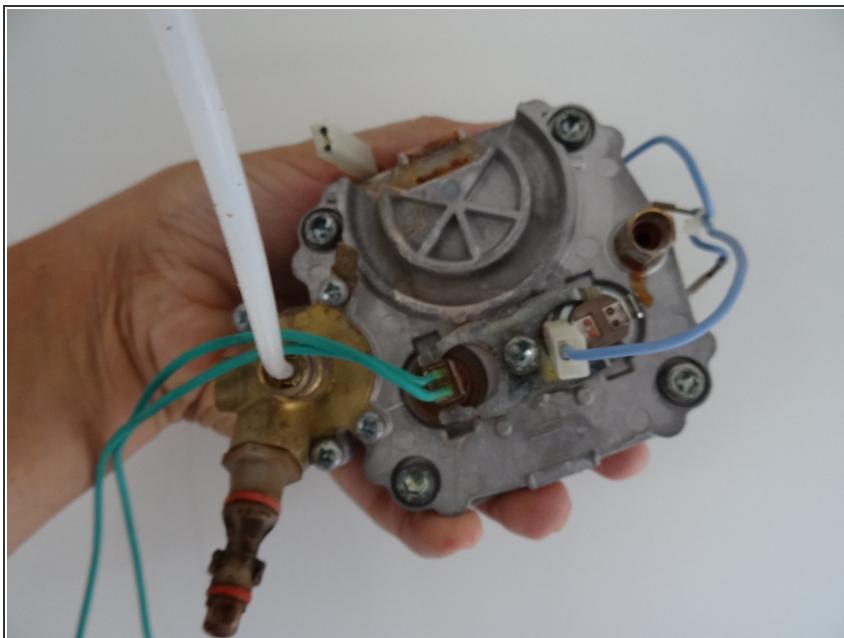
here. This particular plug stuck a lot, so force was required to pull it out.

Step 16



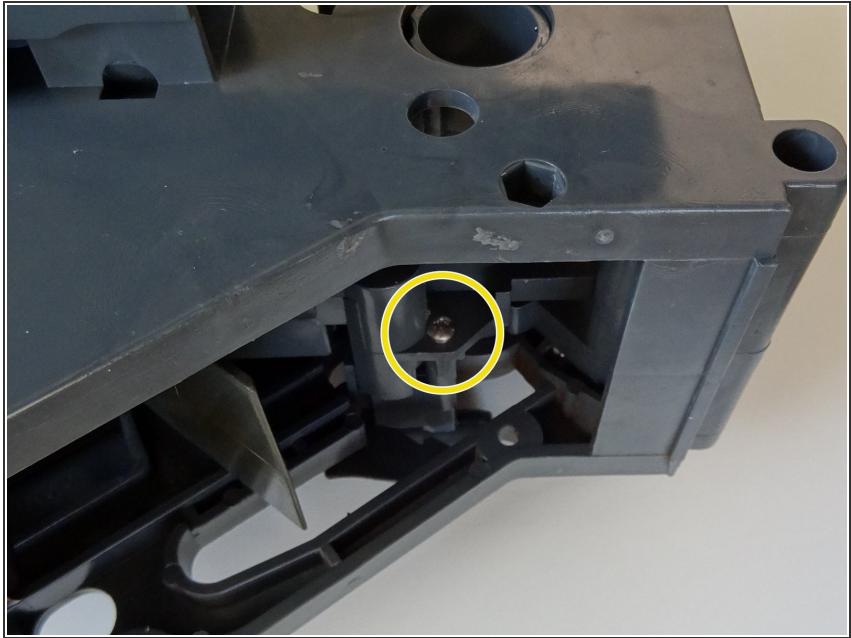
- The Allen screw, which holds the holder of the two thermocouples, was not easy to open...
ⓘ This can also be a Phillips screw. It may vary which appears for you.
- Therefore, the plug on the electronics with the two green cables was pulled out. The plug has the mark 14 and is at the very bottom of the electronics.
- Disconnect the plug with the yellow-green grounding wire from the support valve.

Step 17



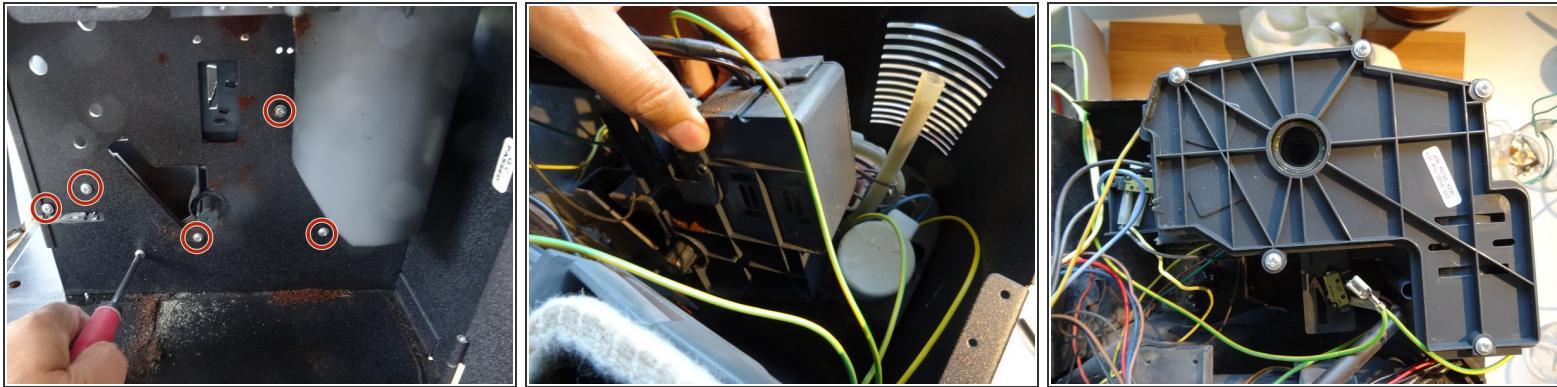
- Thread the green and blue cables out.
- The thermoblock is free. Lift it out of the machine.
ⓘ To replace the thermoblock, the attached components must be removed from the old block and transferred to the new part.

Step 18 — Cogwheel in the gearbox



- ⓘ The brewing group is likely stuck in the machine, this is because the inlet nozzle gets stuck in the support valve.
- In order to remove the brewing group, you first have to unscrew the Phillips screw with which the inlet nozzle is fastened.
- Then, you can take the brew group out with a lot of force. At the same time, the inlet nozzle loosens and gets stuck in the support valve, which there it can be easily removed.

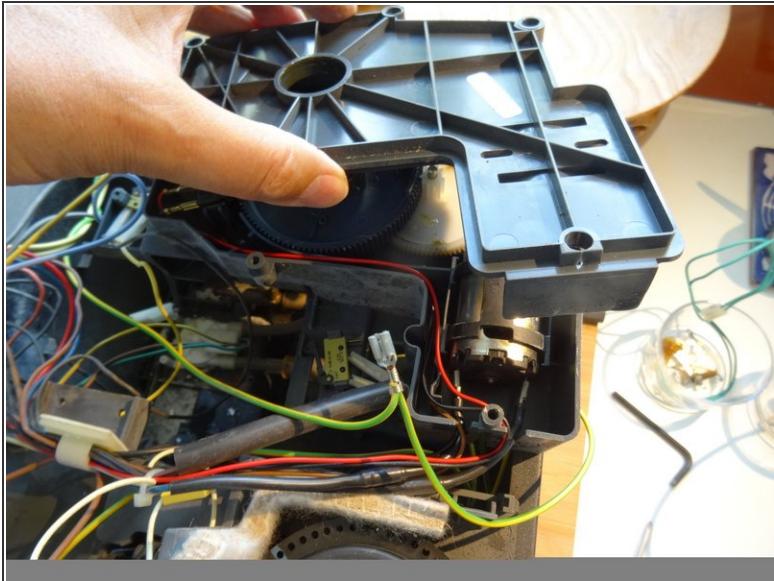
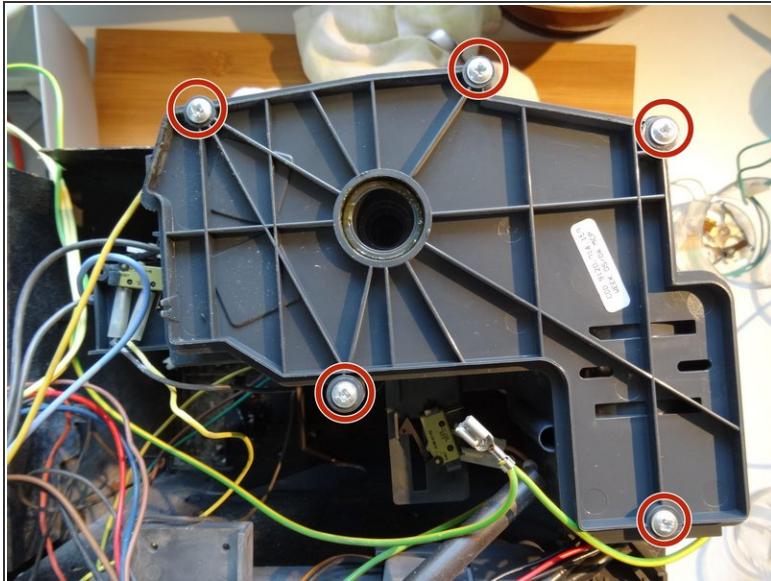
Step 19



- The gearbox is attached to the center wall with five Phillips screws. Remove them.
- Take out the gearbox and set it down on the machine.

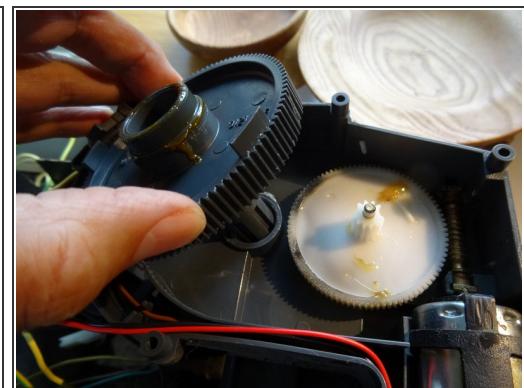
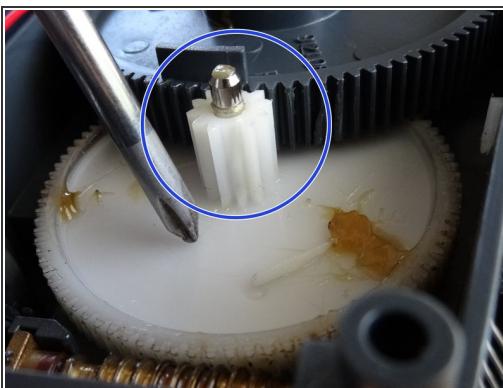
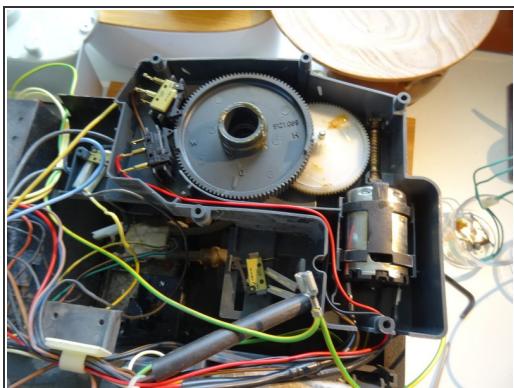
ⓘ All cables can remain connected to the gearbox during repair.

Step 20



- Remove the five Phillips screws securing the gear cover.
- Lift off the gearbox cover.

Step 21



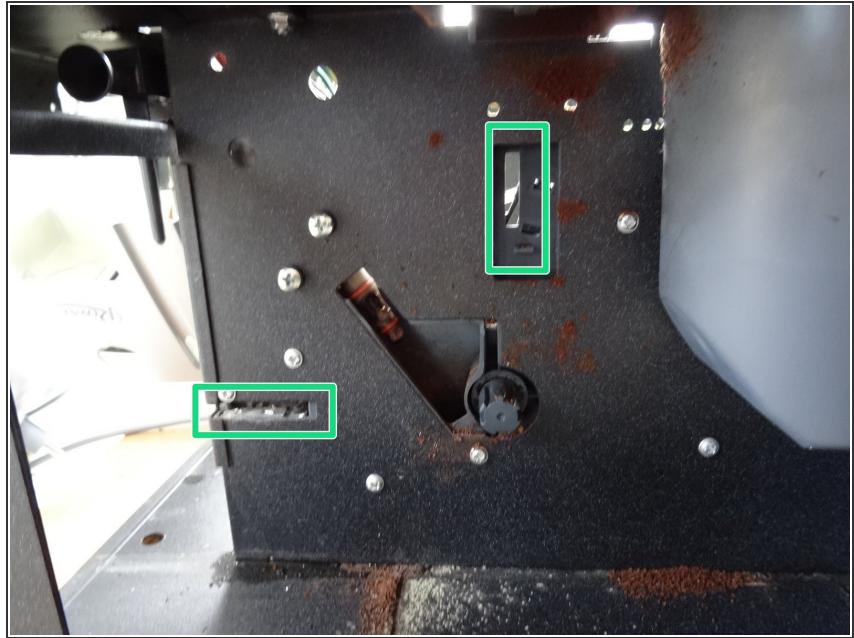
- The white gear has lost a few teeth.
- Lift up the gray gear, you can then remove the white gear.

Step 22



- When installing, insert the gray gear so that the zero mark points to the axis of the white gear.
- Apply suitable grease to the gears before assembly.

Step 23



- ⓘ The machine can only function when three microswitches are switched on: one at the front of the middle wall, which is switched by the pomace drawer, one at the top of the middle wall, which is switched by the brewing group and one at the top right outside, which is switched from the side door (in the picture not shown).
- The brew group is unlikely to be used properly because the drive shaft is not yet in the correct position. The machine does it by itself, but the microswitches have to be tricked into it: insert small cardboard strips until the switches click.
- Engage the machine without brew group and the engine should go to its home position. Now you can remove the cardboard strips and insert the brewing group.

To re-assemble your device, follow the steps above in reverse order.