



# Saeco Royal Pressure Relief Valve rebuild

Revision of the pressure relief valve on a Saeco Royal coffee machine

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## INTRODUCTION

The pressure relief valve of this machine can get stuck and no longer be properly working. It is also possible for the valve seal to be damaged. Here's how you can revise or replace the valve.

### TOOLS:

- Phillips #2 Screwdriver (1)

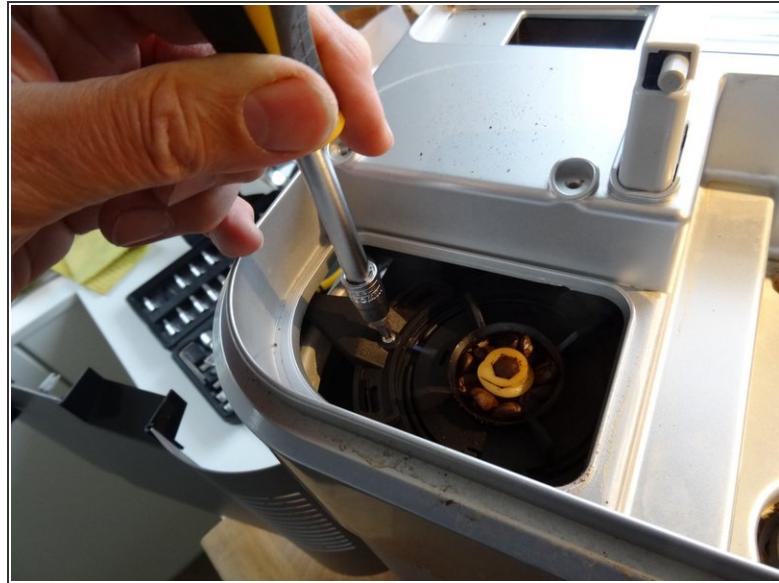
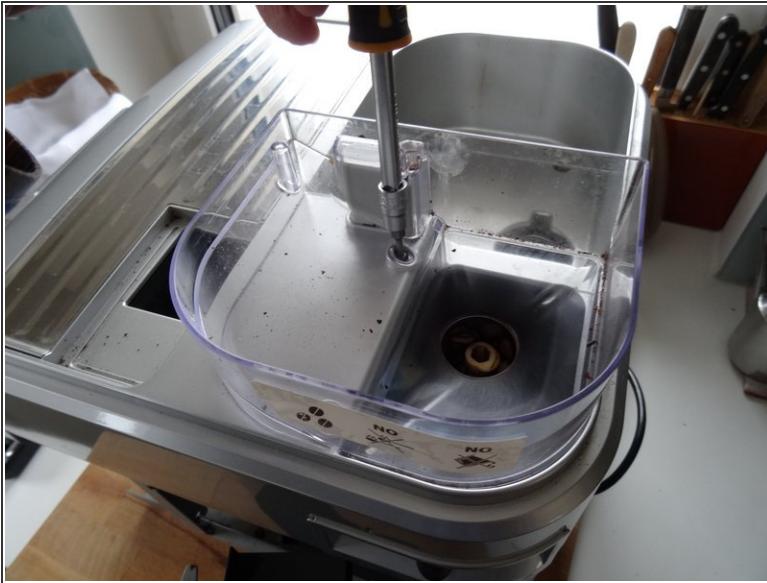
## Step 1 — Preparing



⚠️ 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



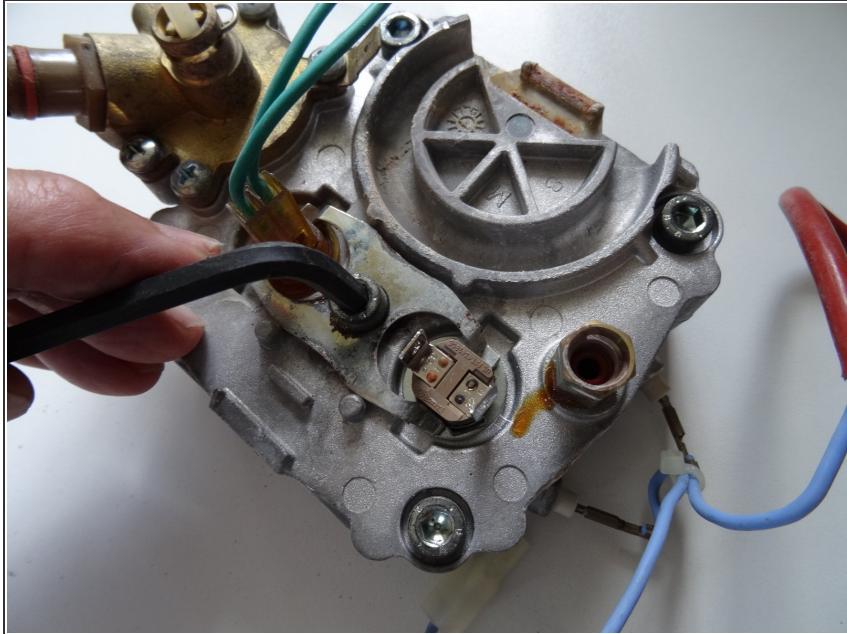
- The screws are situated on the underneath of the cover. This type is held by four screws.

## Step 5 — Lift cover off



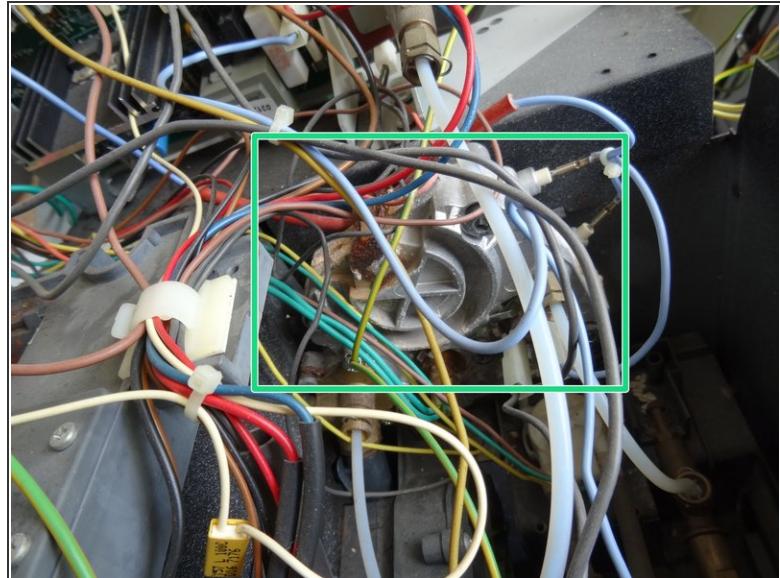
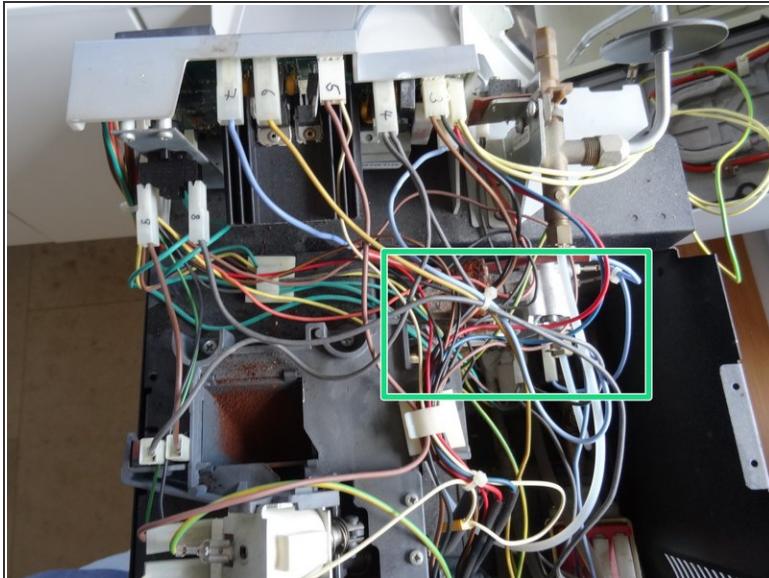
- Now the cover can be raised: first grip on left and right rear side and lift about 10 cm (4 in). Sometimes the cover jams a little bit.
- Solve the hoses which lead to the water tank. Perhaps you have to pull out some contacts, (e.g. the yellow-green protection lead), don't forget to put them on again 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



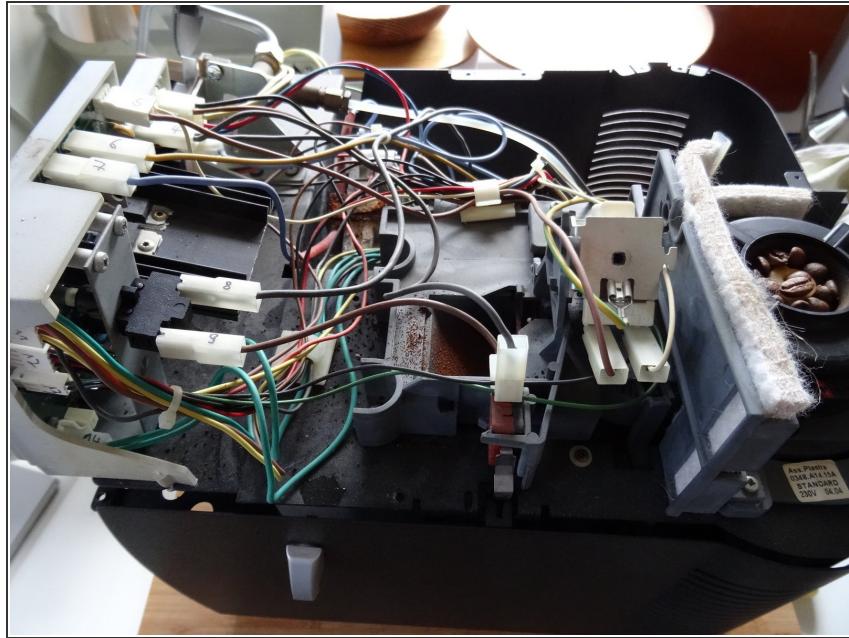
- This is what the removed thermoblock looks like. This one was 14 years old and leaking in various places.

## Step 7



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

## Step 8



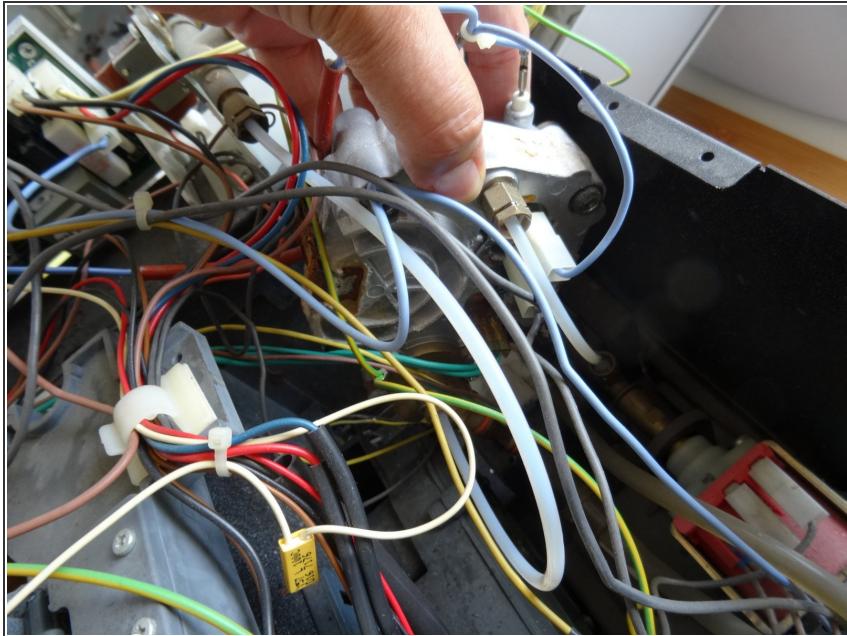
- It's safer to number the cable connectors on the electronics. You probably just need to disconnect the slightly hidden # 14 connector on the two green cables at the very bottom and # 7 on the blue cable on the top.

## 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.

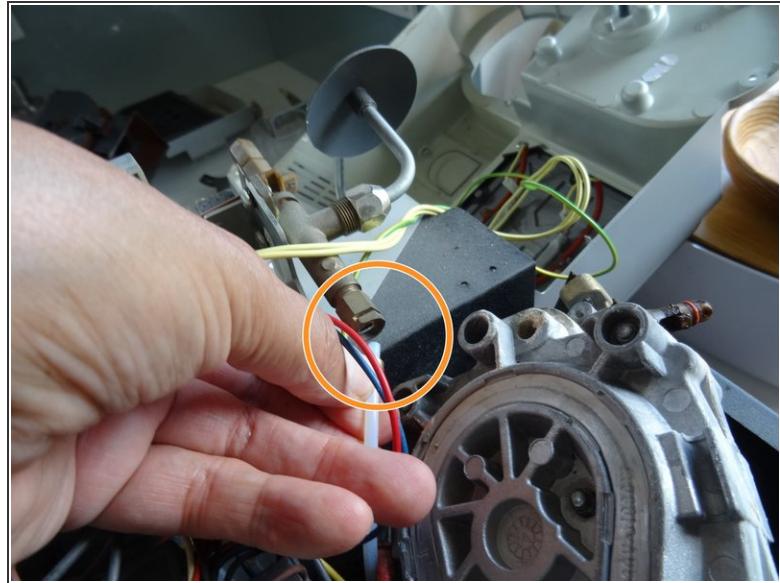
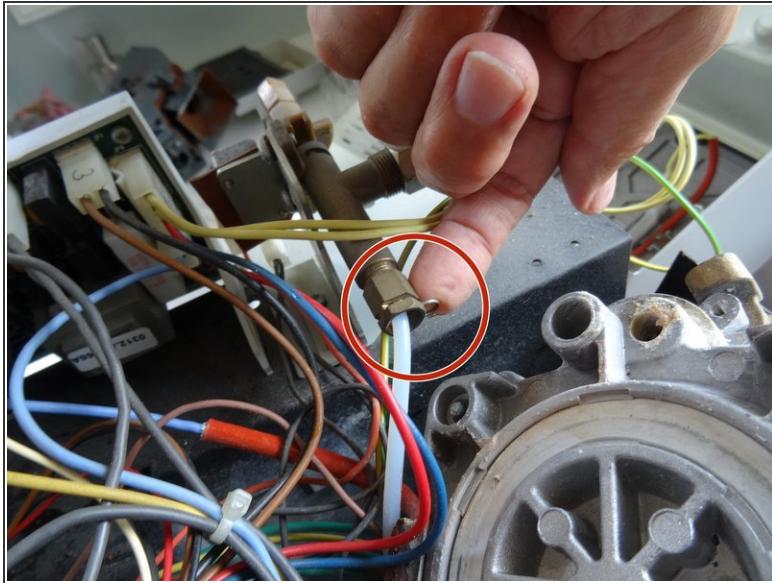
## Step 10



- 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

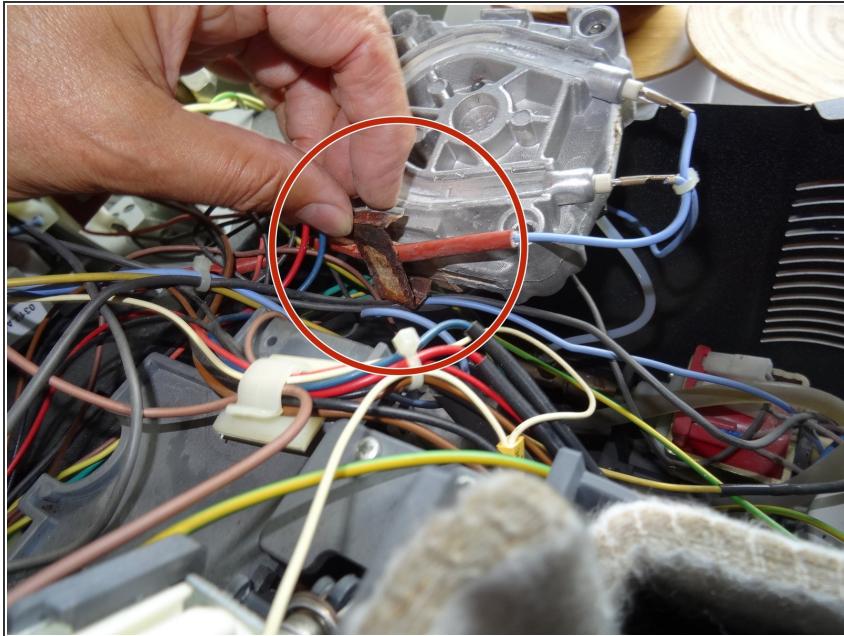


- Pull the clamp on the hose to the steam valve off.

- 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.

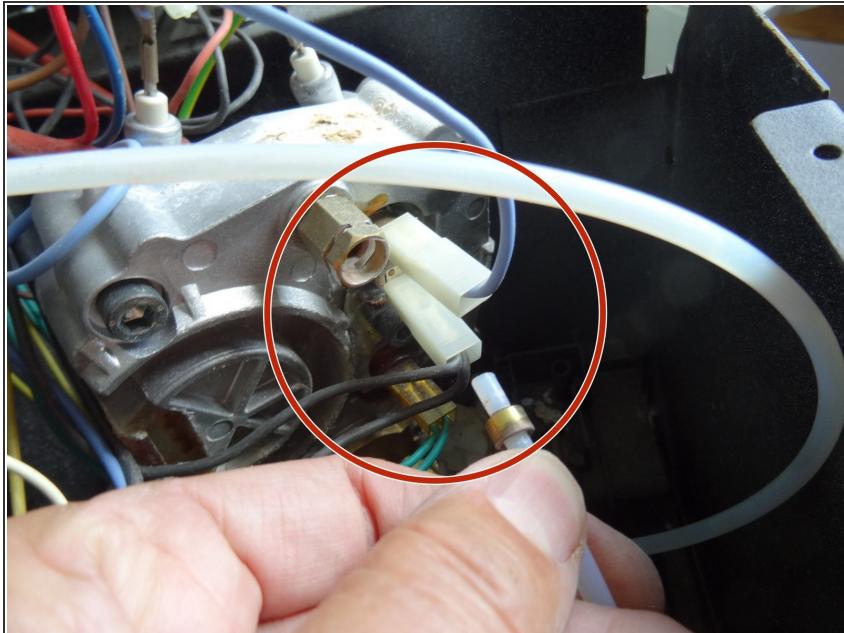
## Step 12



- 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.

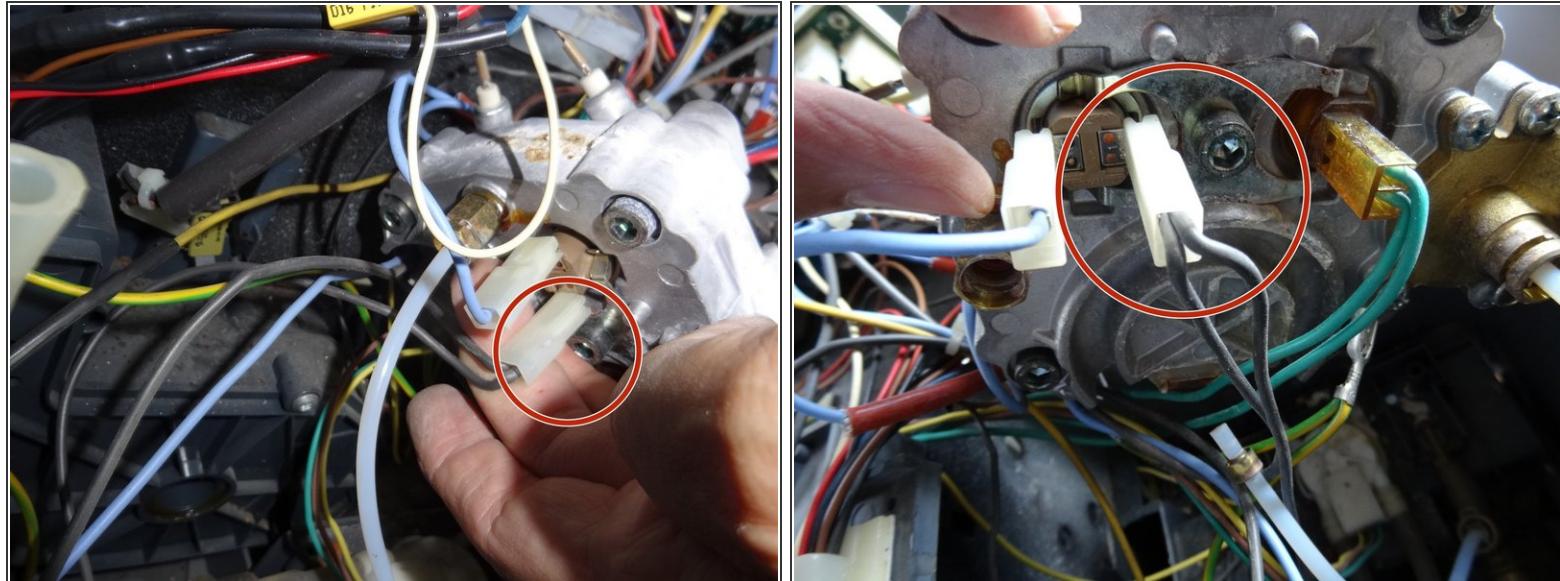
## Step 13



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

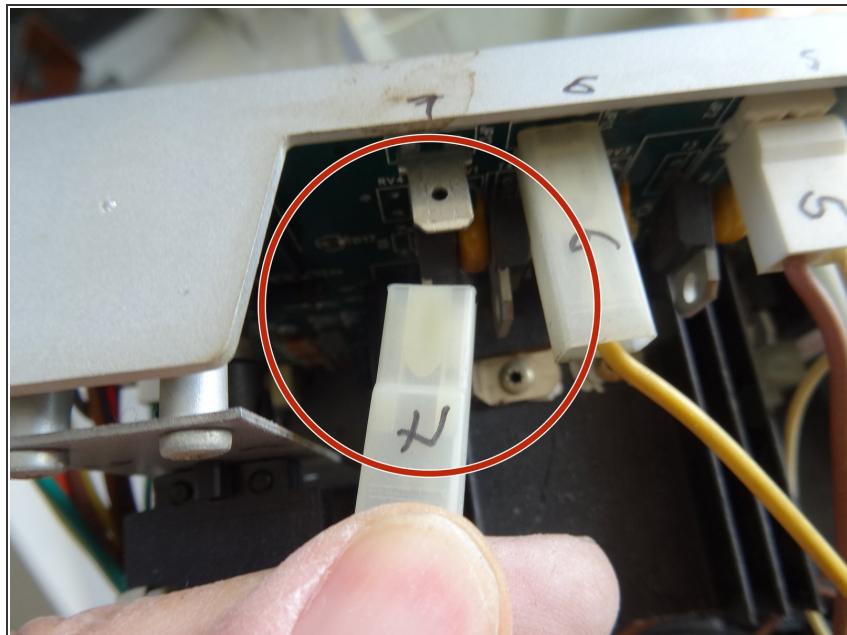
*(i)* There are two seals at the end of the hose. They stay stuck either at the end of the hose or afterwards, so don't try to remove them. Exchange them during re-assembly.

## Step 14



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

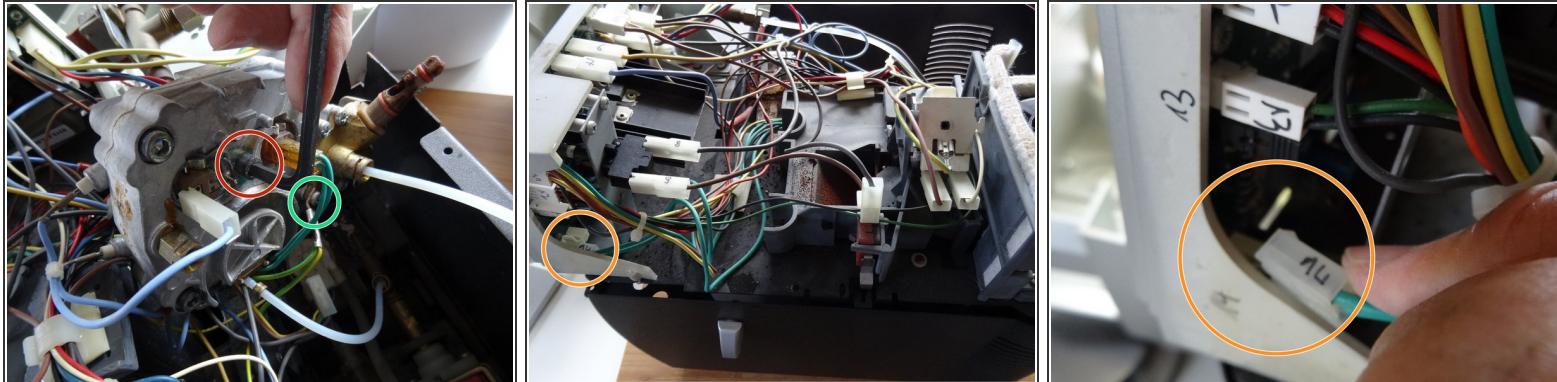
## Step 15



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

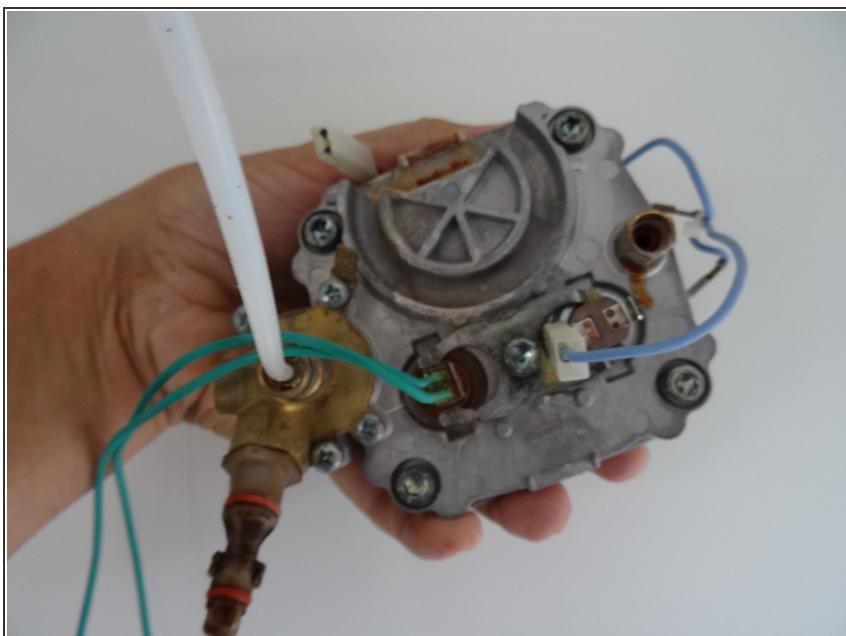
here. This particular plug stuck a lot, so force was required to pull it out.

## Step 16



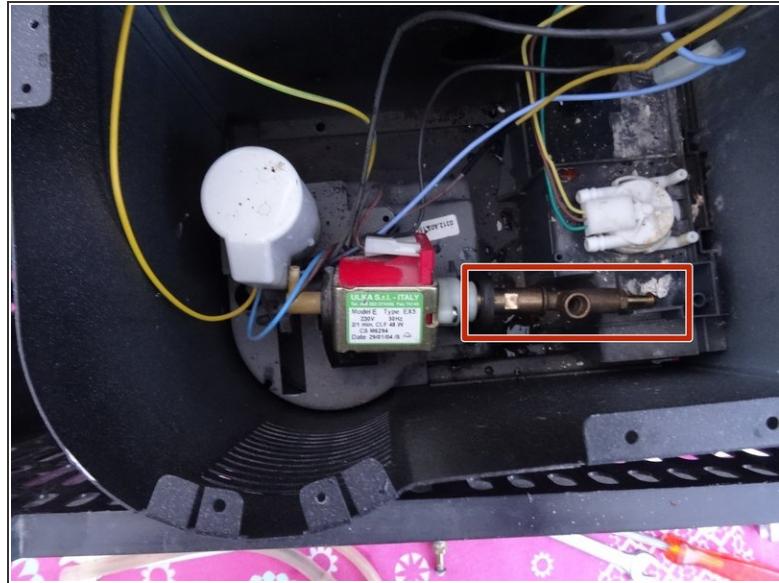
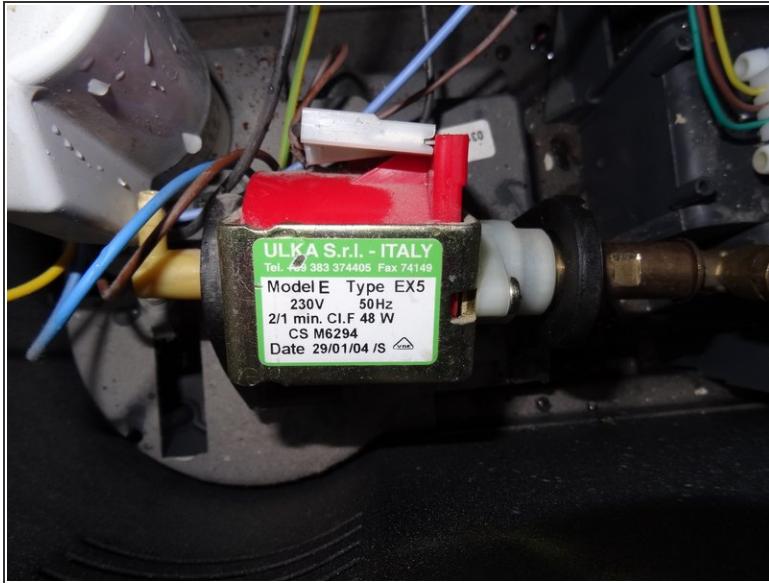
- The Allen screw, which holds the holder of the two thermocouples, was not easy to open...
- *i* This can also be a Phillips screw. It may vary which appears for you.
- Therefore, the plug on the electronics with the two green cables was pulled out. The plug has the mark 14 and is at the very bottom 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.
- *i* To replace the thermoblock, the attached components must be removed from the old block and transferred to the new part.

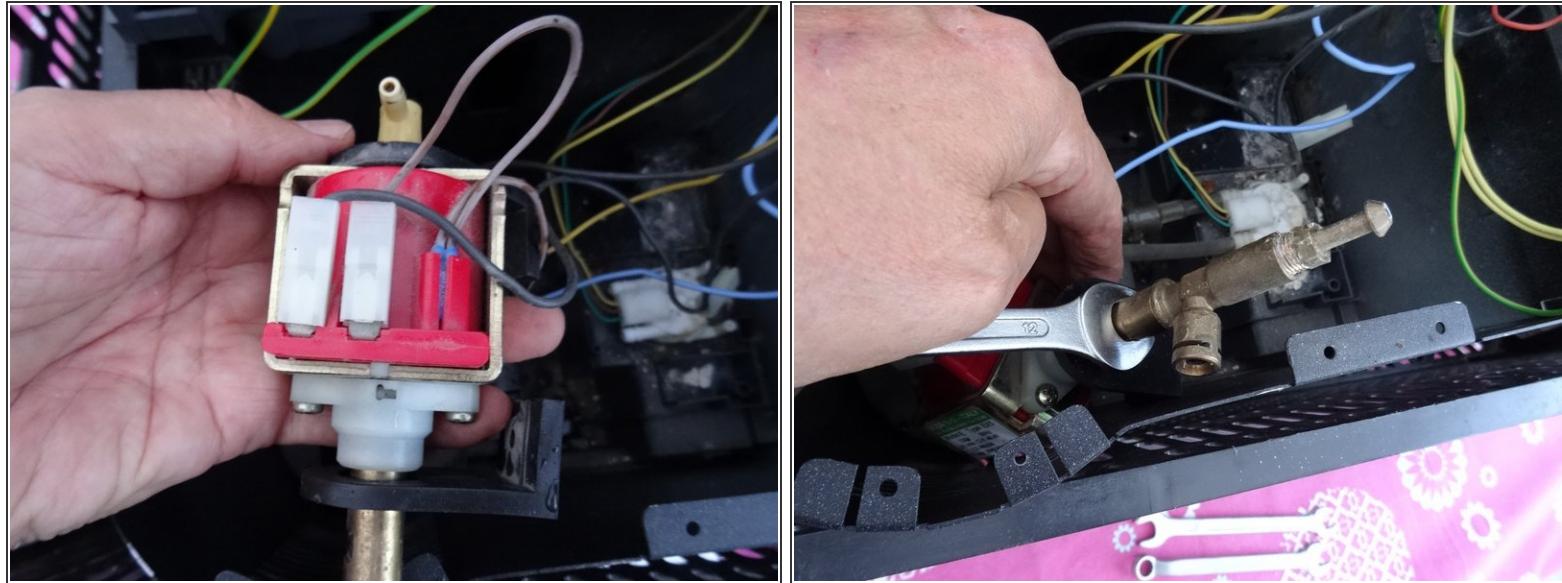
## Step 18 — Pump



- Here the pump viewed from above, a Ulka EX5 with 230V. The pump is stored in rubber pieces.
- Pull the silicone hose off the rear elbow.
- If not already done, remove the clamp on the pressure hose on the pressure relief valve. Then remove the pressure hose.

**i** The pressure hose is sealed with two O-rings at the end. These will usually hang at the end. Replace them before re-assembling.

## Step 19



- Pull the angled molded rubber parts out of their spots on the floor.
- Lift the pump with the rubber moldings out of the machine.

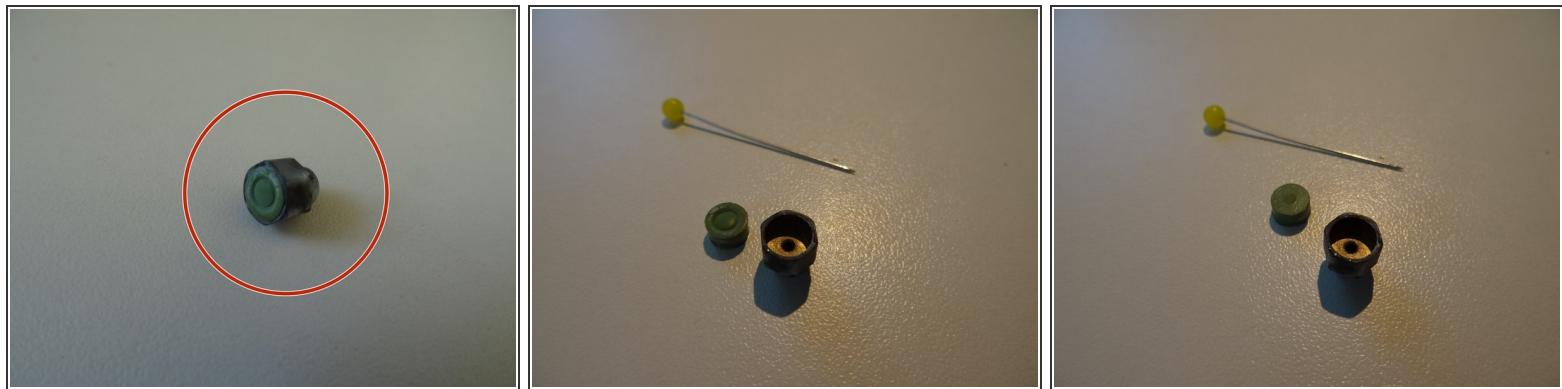
## Step 20 — Pressure Relief valve rebuild



- The pressure relief valve can be opened with a 10mm open-end wrench. The screws can be very tight.

*(i)* The complete pressure relief valve consist of the valve body, the valve spring, the valve stamp with seal and the outlet.

## Step 21



- Check if the stamp is stuck. If it is it will be necessary to free it.
- Look at the seal: is there a deep circular groove pressed into it? If so then it is possible that it does not close properly anymore.
- The whole valve can be replaced with a new one.
- It is also possible to gently pry out the seal with a needle and then turn it over. The back of the seal will seal properly if it is flat and smooth. Picture two and three show the front and back.

To reassemble your device, follow these instructions in reverse order.