

Replacing Your Heating Element In ECM/Profitec Heat Exchange Machines

This write up applies to the ECM/Profitec heat exchange machines. It should work if you have machines like the ECM Technika (Profi), Mechnika (Profi, **NOT Slim**), Elektronika (Profi) or Profitec Pro 500 and 500PID. Housing removal should be mostly the same between these machines. The machine used in this write up is the ECM Technika IV Profi.

Note(s):

- 1) Please be careful when working with these lines. They are copper and very malleable, so if you apply too much pressure to them when removing/tightening they can bend/twist/sheer.
- 2) Some of these nuts can be hard to break free, you may need to do what's called, "shocking" with your wrench. This is where you place a wrench on the nut you're looking to break free, and hit that wrench with another object. A lot of the time another wrench is used to do this.
- 3) The type of heating element used has changed; it looks different. If you have an older style machine, you may have a long skinny element, where as the new ones will be a short, coil shaped element.

Tools you will need:

10inch adjustable wrench
12mm wrench
13mm socket/wrench
17mm wrench

Heating element(s):

ECM/Profitec Heating Element (SKU: US1000 for ECM Profi Models/Pro500/500PID)
ECM Heating Element for **NON-Profi** Models (ECM-US1003)

Heating Element Gasket:

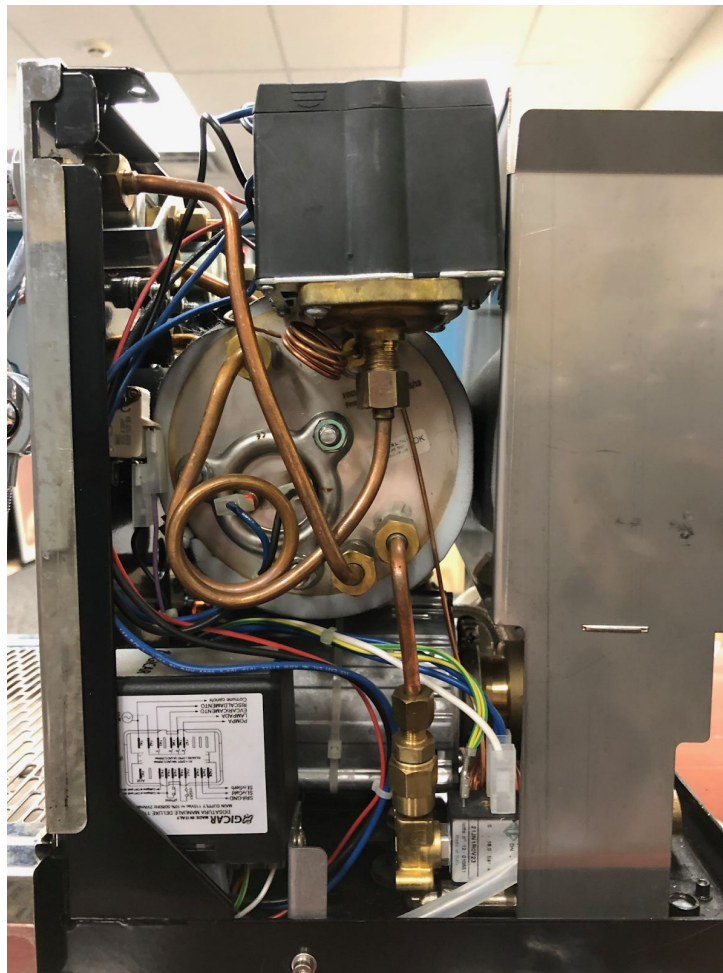
ECM/Profitec Heating Element Gasket (SKU: ECM-P9013 for ECM Profi Models/Pro500/500PID)
ECM/Profitec Heating Element Gasket (SKU: ECM-P1001 for **NON-Profi** Models/Technika/Mechanika/Elektronika)

Draining Your Machine:

Before removing the housing and digging in, you will need to drain the boiler. You will need the 10inch adjustable wrench to remove the mushroom nut from the group head. Make sure you wrap your mushroom nut or wrench in some tape or cover them in some way when undoing so you don't scratch or damage the group. You can follow this video below for a draining demonstration:

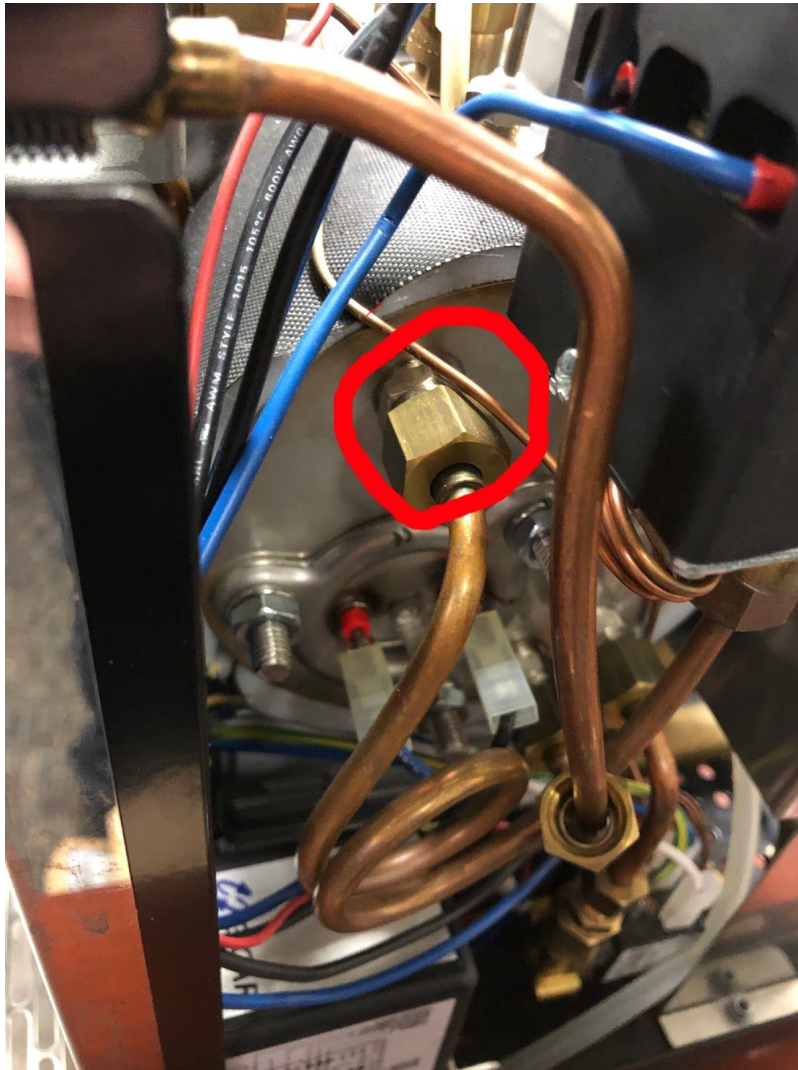
[How To Drain A Heat Exchanger](#)

Start by getting the casing off of your machine. Once you've got the case off of your machine, the heating element will be on the right side of the boiler. You should be looking at something similar to this:



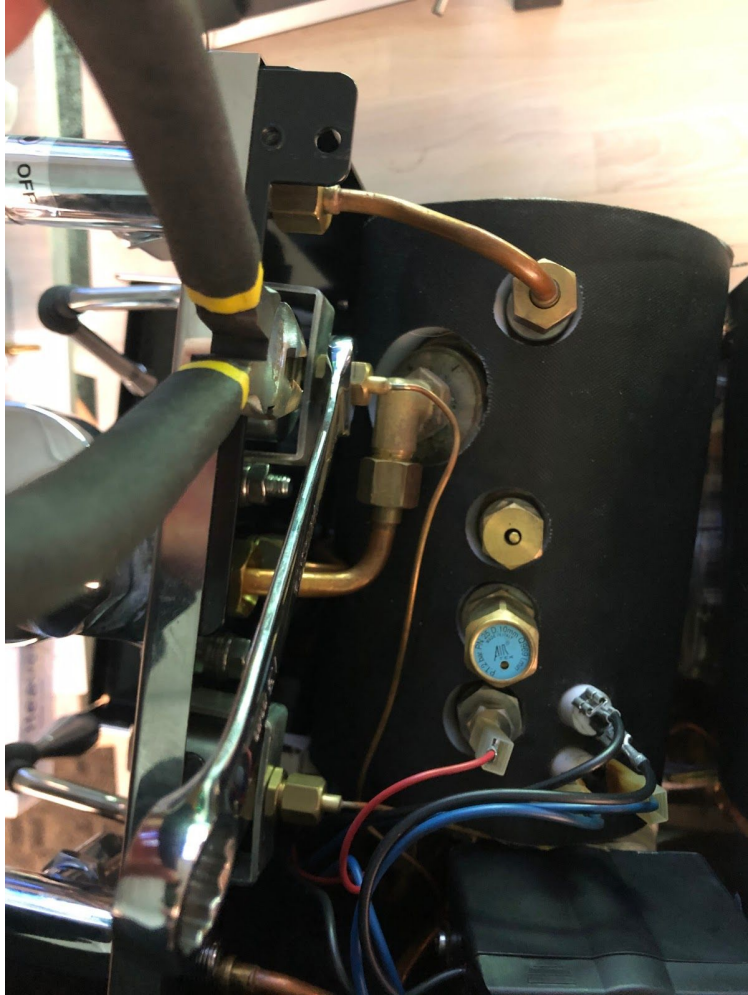
Depending on which machine you have, you may not be removing all of the same hard-lines. Machines like the Profitec Pro 500PID do not have as many hard-lines as the other machines in the line up, making them slightly less intensive to take apart.

Before you start taking things off. Look at how your hardlines are situated. Some of them of them will need to be removed before others, as they might block access to nuts to get other lines off as well. Here is an example:



You can see that the smaller hard-line is preventing you from undoing the other nut. You would need to remove the small line, before you can remove the larger one. In this case, we'll start here for our disassembly.

If we follow this line back, it will lead to our steam gauge. You will want to brace the square on the back of the gauge with something ; a thin wrench or pliers will work:

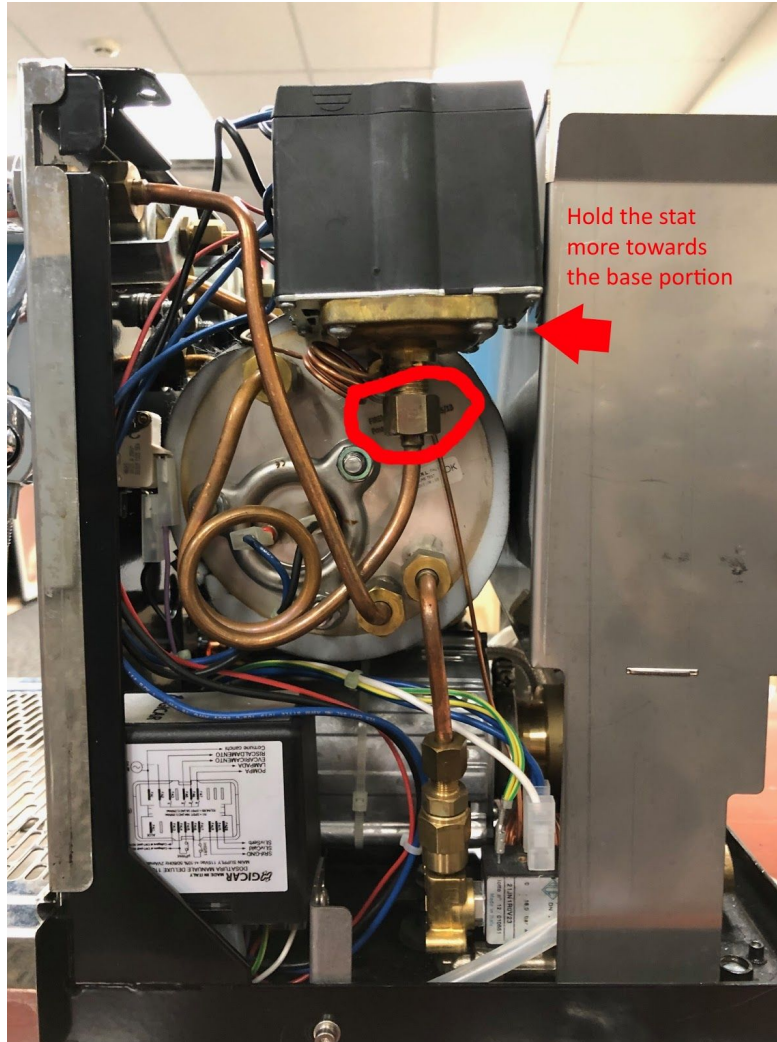


Undo the nut circled in the picture:

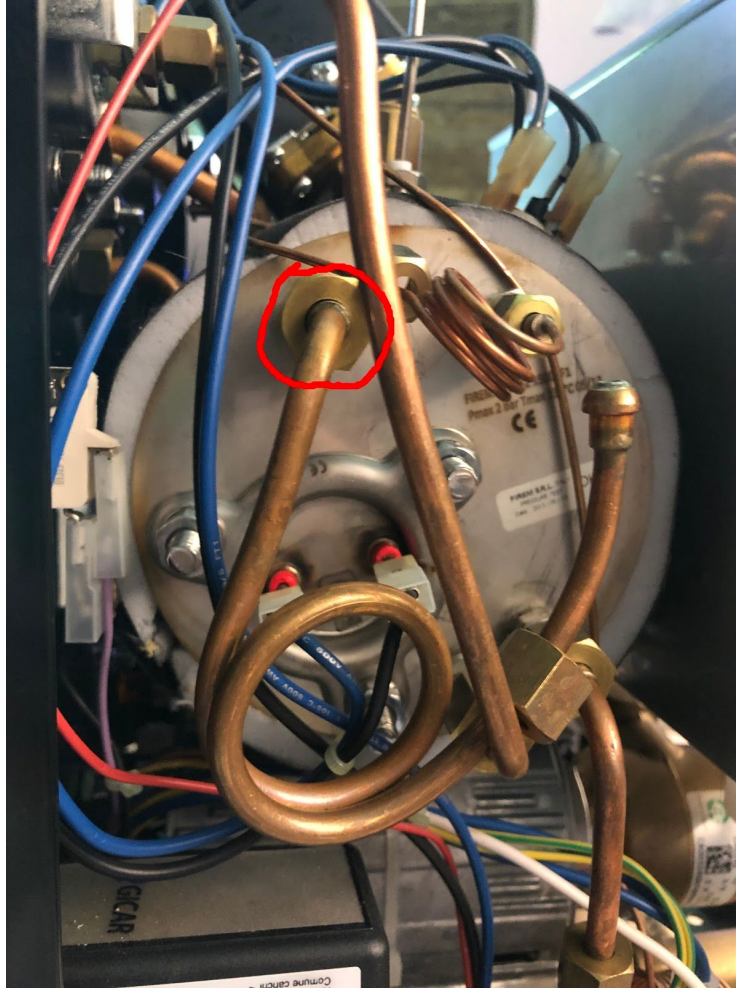


This should give you enough freedom to move the line out of the way so you can access the nut we referenced in the example earlier. To undo this nut, you will need your 12mm wrench.

Now that you've got that undone, you're going to want to move the pressure stat out of the way. You can hold onto the body of the stat, and break free just the nut that holds it on. You can leave the wires connected and just rest it on top of the boiler:



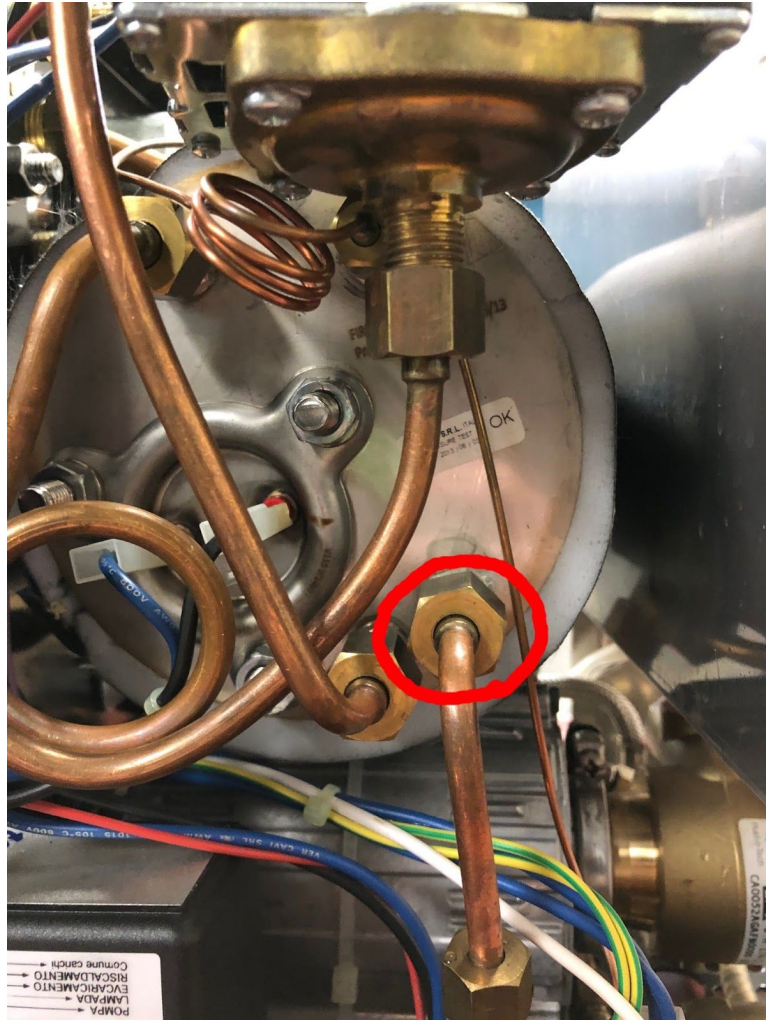
Once that is removed and set aside, you'll want to remove the hard-line that it was connected to. While you're in there, I would also recommend removing the other end of the steam pressure gauge as well. It can get in the way of undoing nuts later on. You will use your 17mm wrench to remove this line, and the 12mm again to remove the other end of the steam gauge line.



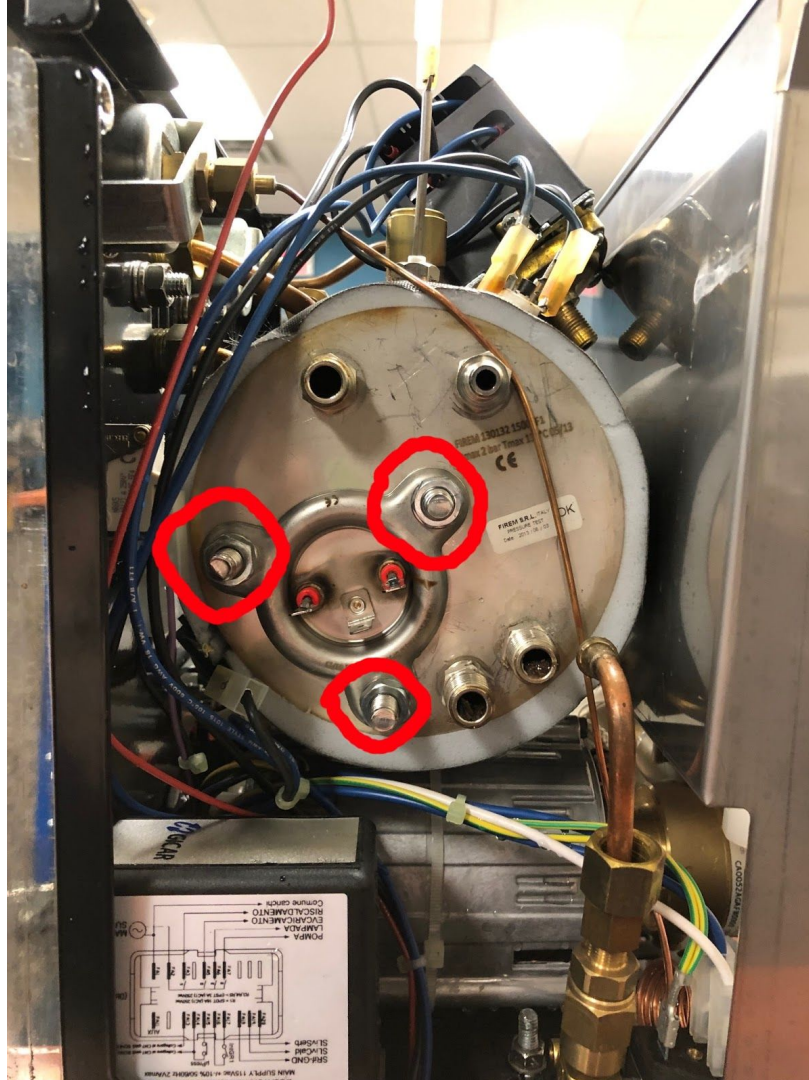
Now you'll need to remove your hot water valve hard-line. This is another line that will have a nut in the way that will prevent you from removing it. You can start by removing the nut at the back of the valve body first. This will use the 17mm wrench:



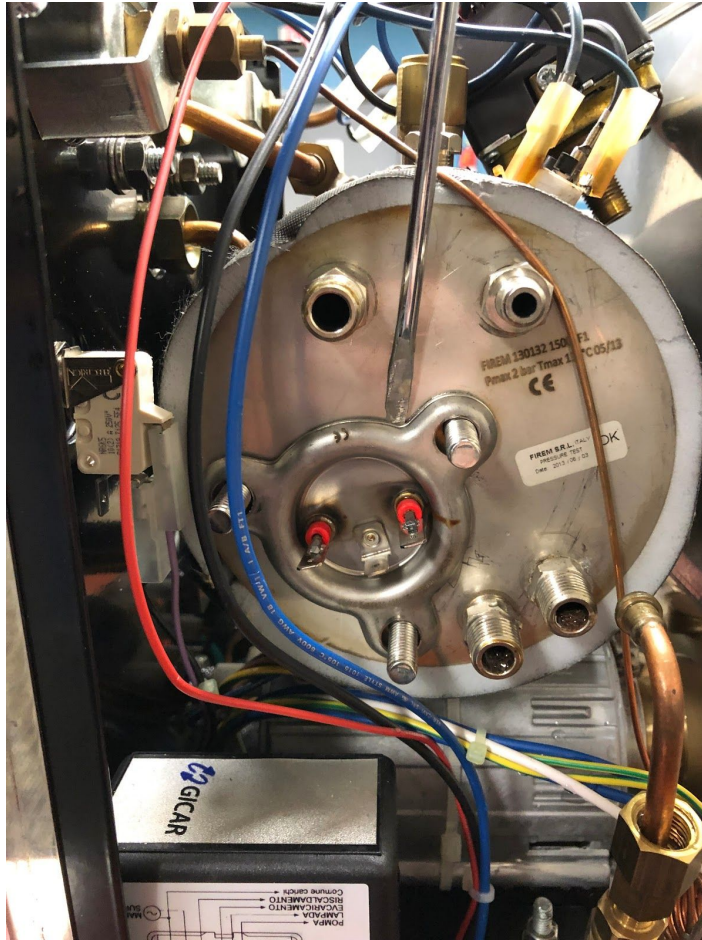
When you follow this line back to the other side to remove it, you'll run into the nut we mentioned earlier that will be in the way. You shouldn't have to remove the whole line, just undo the top nut with your 17mm wrench so you can get access to the other side of the hot water valve hard-line:



With that undone, you should now be able to remove your hot water valve hard-line. With everything undone and off, your boiler should now look something more like this:



Once you've got those removed, the heating element should be able to be slid out. You may need to work it loose at first with something like a flat head. Gently wedge the flat head in between the heating element flange and the boiler, and lightly wiggle around - similarly to say, opening a paint can:



Slide the element out, you should now be looking at an open boiler:



The old element can be disposed of if you're replacing it, along with the old gasket ; **do not ever re-use the heating element gasket**. The gasket might need to be worked off of the element, and can leave a little bit of debris. Just make sure you've cleaned the element of any of that before you put it back in. While you have the element out, it would be worth looking inside the boiler to see if there's any build up. Now would be the time to do any cleaning in there while you've got the element out, and the boiler drained. Once you're done cleaning, it's time to put the new element back in, or put your new gasket on and put your element back in. The gasket slides over the element like so:



Since this is one of our test machines at the office, this picture is just for demonstration. But you can see the orange debris left from the gasket on the heating element itself. That is the reference debris that you would want to clean off if you are reusing your heating element.

Once the gasket is back on, slide the element back in. When you're tightening down the nuts to secure the element, do it similarly to if you were putting lug nuts back on a car wheel. The gasket can sag, and you don't want to pinch it between the boiler and the heating element. Put the nuts back on by hand first to secure the element, make sure again that the gasket is not visible at all from the outside. If everything looks clear, begin tightening the nuts. You will want to use a "mechanics tightening" ; tighten the nut until it's snug, then give it one last tighten to secure it down. Reattach the electrical leads to the heating element, and reassemble the machine. You should now have your heating element changed, and be up and running.