

How to Add a Glycol Reservoir to Your Picobrew Zymatic

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Based on advice from Mike Howard and MemphisBrews on Homebrewtalk forums

Note - there is a risk of shock / injury / death from this installation, since you're be working near electricity and sharp metal. Please take appropriate precautions and do not take on the project if you don't feel comfortable!

So, you are interested in adding a reservoir to your Zymatic. This is a project that can be accomplished for less than \$40, and has a few advantages. First of all, your machine will have a reserve of glycol, so if some proportion is lost from the heat exchange loop, you will have a buffer before the heat exchange stops working and you need to top things off. Secondly, this moves the "refill" point to a much more convenient location in the machine. You will no longer have to disassemble things to the point of accessing the inner loop, and you'll be much less likely to spill glycol during the top off.

This installation doesn't require cutting new holes in your machine, and this does not require any additional tools beyond a regular glycol top off, except for a large Allen wrench to seat the plug in the reservoir.

Aside from the screw clamps (you'll need an additional 6 clamps - I found them to be most affordably purchased from Harbor Freight as a set, but there are lots of options!), you'll need about 3 feet of silicone hose (inner diameter $\frac{3}{8}$ ", outer diameter $\frac{5}{8}$ ") and a metal reservoir. Not essential, but recommended is a 90 degree, $\frac{3}{8}$ " barbed elbow. This will help make the tubing make a sharp turn to exit the machine without kinking. Stainless steel is ideal for this, with brass a reasonable second option.

Reservoir Link: <https://smile.amazon.com/gp/product/B07HBYZ5B6>

Tubing Link: <https://smile.amazon.com/gp/product/B08PYF7X2C>

Stainless Elbow: <https://smile.amazon.com/gp/product/B08CVF31QS>

(6 hose clamps)

This guide does *not* cover disassembly of the Zymatic. For this process, follow the instructions for glycol top off prepared by Mike Howard, disassembling the machine to the point where the glycol pump is visible.



There is a brass filter inside the reservoir. This is not necessary for using this purpose, and if you leave it in, it will create resistance in the line, the glycol will not circulate properly and will give an error. The reservoir itself can be unscrewed by hand (just turn the top part counterclockwise from the bottom), but you will need an adjustable wrench to remove the filter.

Once the filter is removed, attach the barbed ports and drain plug to the reservoir as shown. Before connecting them, use either teflon tape or pipe dope around the threads of the attachments to ensure a leak-proof seal. You will need an Allen wrench to properly seat the plug.



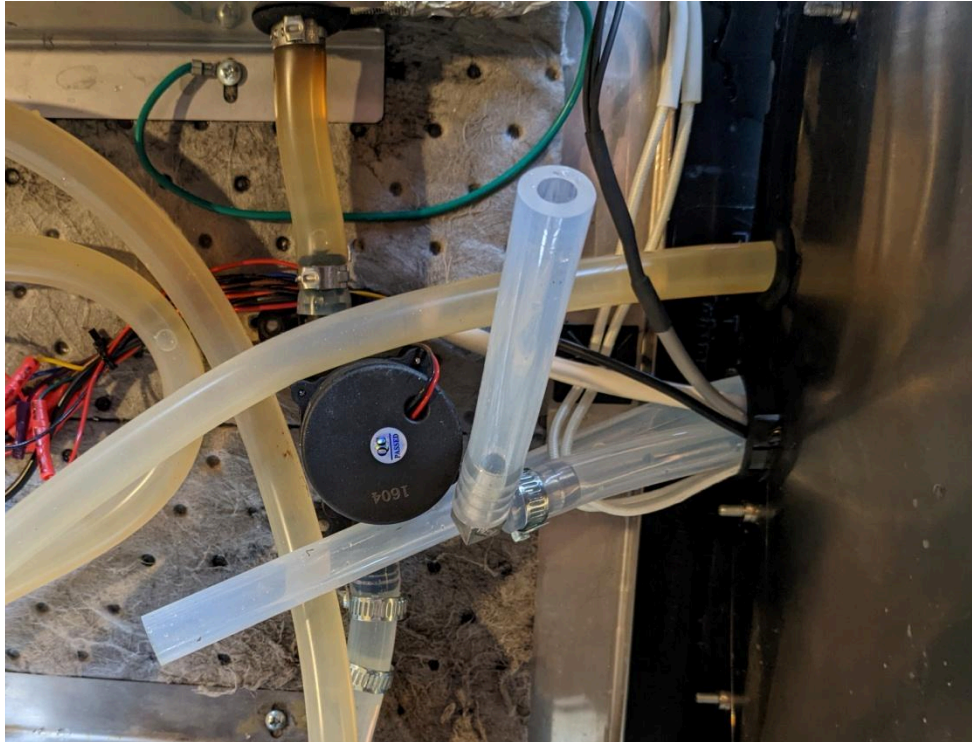
For the tubing itself, you'll need to cut three pieces. The measurements of the pieces shown are 4.5 inches and 10 inches (joined together with the stainless steel right angle into an L shape), and a longer piece 21 inches long.

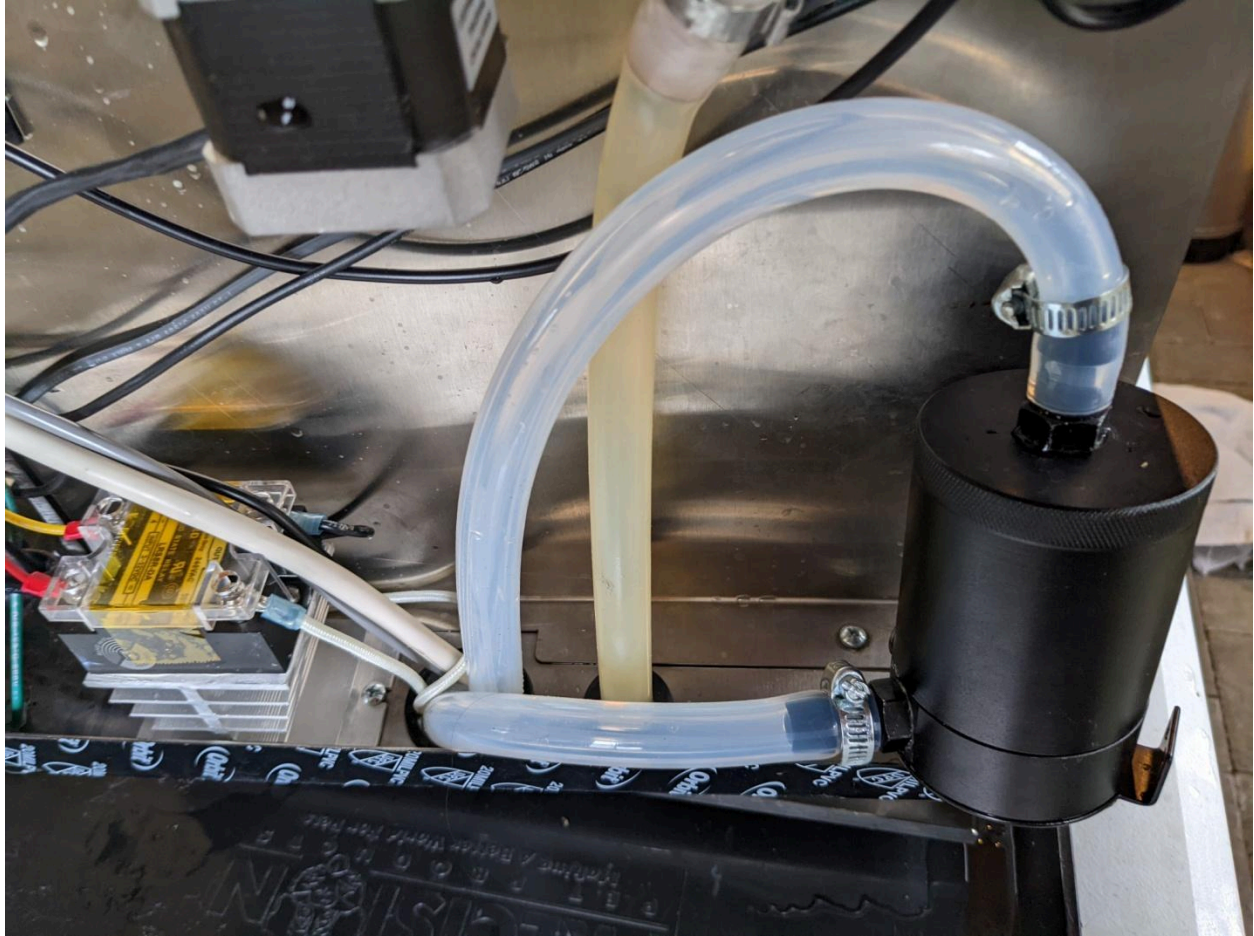


Looking inside the Zymatic, you'll see a short piece of hose connecting the pump for the glycol to the HEX (heat exchanger). This will likely have two Oticker-style clamps that need to be cut off to remove the tubing. Before you do this, elevate the left side of the base, so that this tubing is above the rest of the heat exchanger. This is not 100% critical, but will keep you from losing more glycol than necessary when you do remove the tubing.



You will need to thread the new tubing through the place where the wiring is routed. It may be a tight fit, but there should be enough space to route the new tubing.





On the other side of the hole will be the final place for the reservoir. Thread the clamps over the tubing and connect the tubing as shown - the "L" shaped tube to the bottom port and the longer tube to the top - just to get the position right. You can screw down the lower clamp, but leave the top tube unclamped - this will be where you add the new glycol.



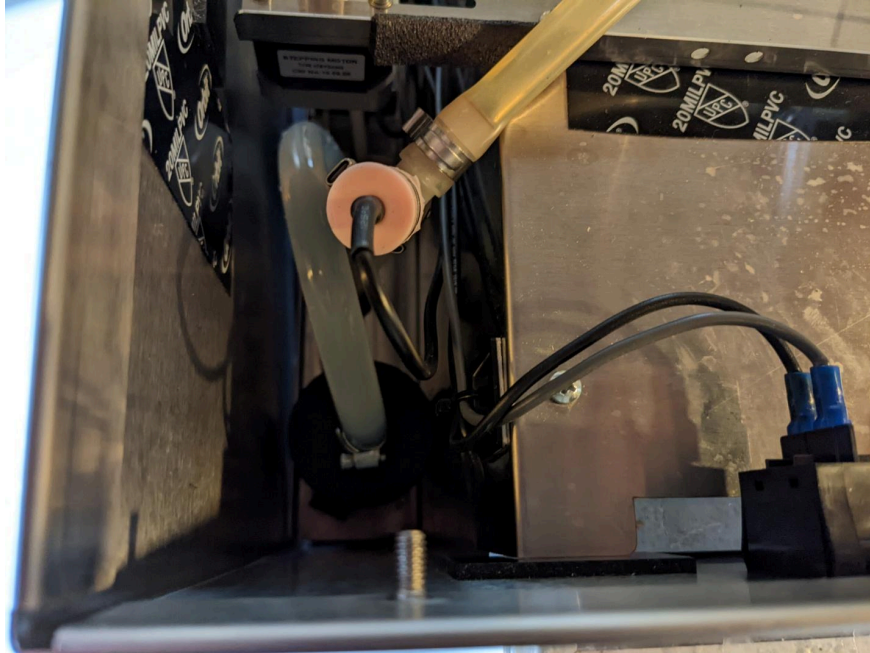
Connect the tubing on the inside with clamps as shown - the drain tube (L shape) connects directly to the glycol pump, while the longer run is connected to the heat exchanger. Note that it can be tricky to connect the tubing to the pump as it is seated. It can be helpful to remove the four screws securing the pump to the base, so that you can lift it up and seat the tubing appropriately.



Returning to the outside, it is time to add the glycol to the reservoir. You can use a small funnel; in my case, I found that a small gooseneck kettle that I was using for pour-over coffee was perfect. Do not use the glycol straight - it should be mixed 2 parts with 2 parts distilled water first. You will not need very much to top things off. Disconnect the top hose, and lower it a bit so that it is just a bit higher than the upper connector for the reservoir. Add the glycol mix slowly, until you just see it starting to overflow the top of the reservoir.

At that point, reconnect the tubing to the top.. Tap the reservoir a few times to make sure there isn't air still inside, and connect the tubing back to the top of the reservoir. There should not be much air - a small bubble or two isn't a problem, but if the line is too empty (say, more than a couple inches of air in the tube), disconnect it and add more glycol. Once most of the air is removed, clamp the top hose as well.

You can now reassemble the Zymatic. It might be a good idea to leave the top cover and back cover off, while you start up the Zymatic and let the glycol circulate. Stop it, and make sure that you don't have excess air...topping off if necessary. At this point, you may want to also consider adding a thin layer of insulation around the reservoir before putting the covers on.



This shows what the loop should look like once it is situated. When you are happy with the arrangement, run a quick cleaning cycle to verify that you don't get any Fatal Error #1 messages, and, upon success, reattach the covers.