

The “Portland Tap”

Portland, Oregon has more beer breweries than any other city in the world and thousands of home-brewers like me are proud to call it home. In honour of this great city, I call this the “Portland Tap”.

The Portland Tap is a simple, but elegant twist on a traditional “kegerator”. Instead of drilling holes through a freezer or refrigerator for the beer faucets, the Portland Tap hangs them from the underside of the freezer lid. Open the freezer and it is ready to use. Close the freezer and everything is out of sight. Closing the freezer also means that you can also control access to the contents (which is important in many situations). However, the best feature of the Portland Tap is that it keeps the beer faucets at the same temperature as the beer. So every glass of beer, even the first one, comes out cold and without foaming.



Making the Portland tap is straight forward and consists of two main parts; the Beer Freezer, and the Portland Tap itself.

The Beer Freezer:

A Portland Tap can be designed for almost any freezer, but is easiest to make for a chest freezer. I happened to find a used Montgomery Ward 15.7 cu ft. chest freezer for \$25. It holds 4-6 Cornelius kegs, my CO₂ bottle, and a few miscellaneous other items. I control the temperature in the freezer with a Ranco ETC-111000 digital temperature controller. These normally cost about \$80, but I got lucky and found a used one on eBay for \$20. I just hang the temperature probe for this controller over the back, down into the freezer. You can see the wire to the right of the glass of beer in the picture above. The wire is thin enough that the top still closes just fine.

To carbonate and dispense my beer, I have a 5 gallon CO₂ bottle with a dual stage regulator set to 30 psi. It is plumbed into a two-way air distributor so I have one hose available for carbonating my kegs, and one for soda pop. The three-way air distributor is connected through a second, single-stage regulator, to drop the pressure down to about 12-14 lbs for dispensing my beer. Almost all of the parts, including the kegs, the CO₂ bottle and the regulators, I found used on Craigslist and eBay. In doing this I was able to keep the total cost of the beer freezer under \$250.



The Portland Tap:

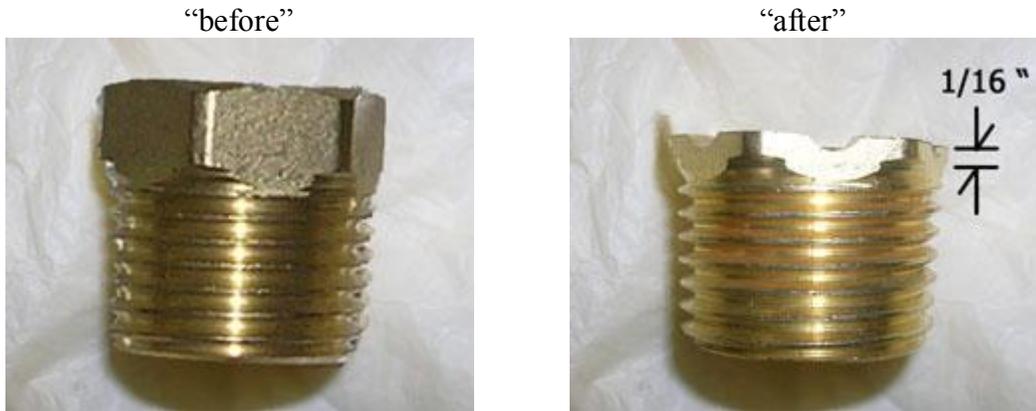
The following steps detail how to build the Portland Tap. Keep in mind that if you have a different number of beer faucets or a different size freezer, you will need to modify the dimensions. Also, before you start, look around your garage and see what materials you have available. It makes no sense to go out and buy something if you can use what you already have. That is what I did and it kept the cost of the Portland Tap to about \$25, excluding the beer faucets and shanks. I splurged on them and bought Ventmatic forward-sealing faucets with 4 1/4" stainless steel shanks. I love them, but they set me back about \$140.

Step-by-Step Instructions:

1. Make the Drip Tray:

Rather than spend a lot of money on a stainless steel drip tray, I bought a small plastic tray for a couple of dollars, added a drain, and made an aluminum grate that fits inside the tray. The following steps describe these modifications.

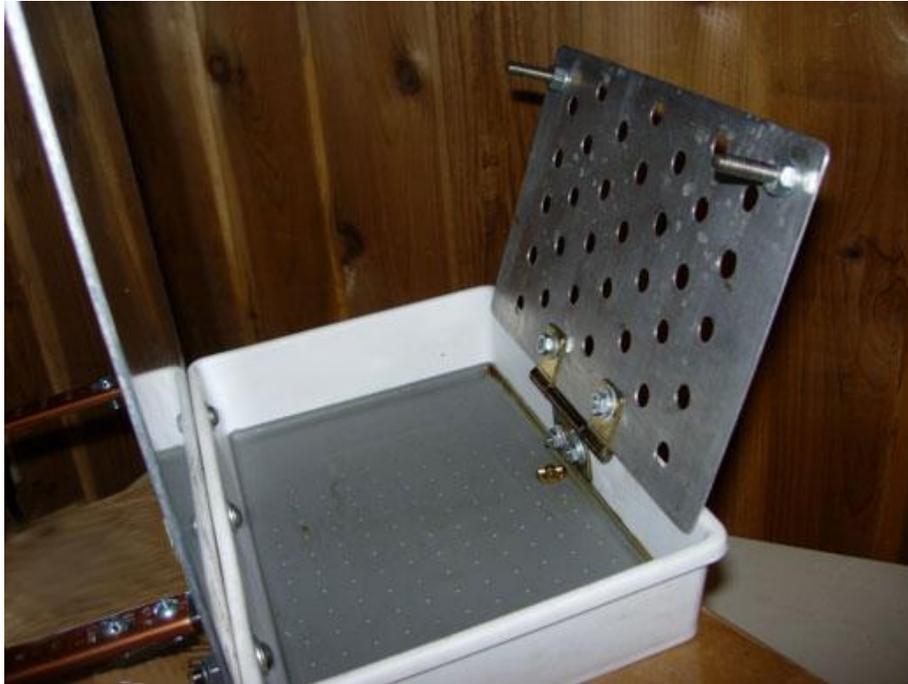
- a. Start by modifying a brass hex pipe fitting for the drip tray drain. Grind the fitting until the top "hex" portion is about 1/16", as shown below. Then use a file to add some grooves. The low height of the fitting and the grooves will allow any beer spills to be drained into a hose, and down into a waste bottle.



- b. Here is the modified hex fitting, along with the brass hose barb adapter that it screws into.



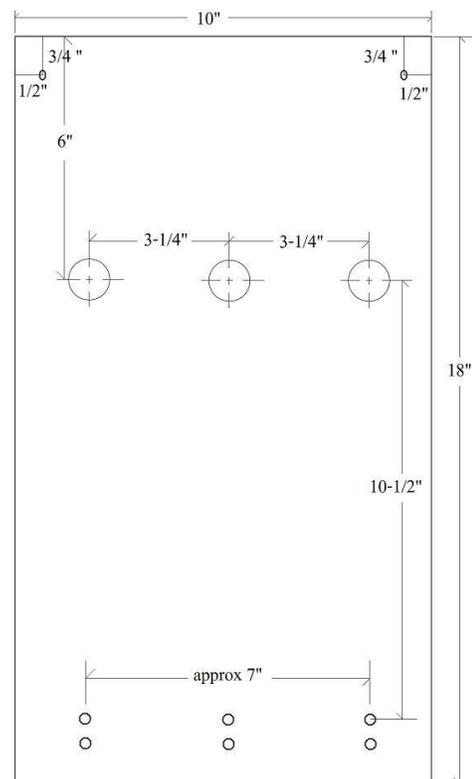
- c. Drill the drain hole in the bottom of your plastic drip tray just large enough for the hex fitting. Slip the hex fitting through the hole and screw it tightly into the hose barb adapter. This should pull the hex fitting snug against the bottom. My plastic tray has a rubberized coating on the bottom, so I did not bother with a gasket. However, it may be a good idea to add a thin rubber washer between the hex fitting and the bottom.
- d. Next make a grate for the drip tray. I cut a piece of aluminum to fit inside the plastic tray, and drilled a series of holes in it, spaced about 1" apart. I fastened this to a "non-mortise hinge" I had handy. (I used a hinge so I could clean under the grate). Whatever hinge you use, look for one that is very tight, so the tray does not flop open every time the lid is closed. The picture below shows how it all fits together, along with the two bolts that I used as "legs".



- e. The last step in making the drip tray is to drill three mounting holes in the plastic tray along the back, and whatever holes you need on the front of the tray to attach the hinge. Then using short bolts, fasten the hinged grate to the drip tray.

2. Make the Backsplash:

- a. Measure your freezer, and decide how many faucets you want. This will determine how large your backsplash will be. Whatever size you choose, be sure that it is not too large to fit, once the lid is closed! I wanted to have three faucets, and decided to make my backsplash 10" wide x 18" tall.
- b. I cut the backsplash out of a piece of thin aluminum sheet I had left over from another project. It is approximately 1/16" thick.
- c. The first thing I did was to polish the aluminum. Use a high quality metal polish and lots of elbow grease. It is amazing how good it looks once you're done!



- d. Mark and drill the three mounting holes for the drip tray. Then drill three more holes below them for the bolts and washers that act as spacers to keep the drip tray perpendicular to the backsplash. (See step 5a for more details).
- e. Next drill two holes at the top for fastening the backsplash to the lid. I used a file to elongate the top mounting holes somewhat, because the bolt goes through them at an angle.
- f. Finally, determine where you want your faucets to go and drill the holes for them. Double check that your faucet shanks will not hit the plastic liner before you cut the holes. I chose to mount the faucets about 10" above my drip tray, and I used a hole-saw to cut the holes.

3. Prepare the freezer:

- a. A latch or locking hinge is necessary to support the extra weight of the faucets hanging on the freezer lid. Otherwise, the lid will not stay open while you try to pour your beer! I built a small spring-latch that is mounted to the shelves above my freezer. It works extremely well. Alternatively, you could install a "toy box lid support" or a locking hinge, both available at woodworking stores. This is a close-up of the latch I built:



- b. Open the freezer and use your latch or locking hinge to hold it open. Holding the backsplash, use a felt pen to mark the plastic liner where the upper

mounting holes go. (The backsplash will be attached to the plastic liner using hollow wall anchors, otherwise known as “Molly Bolts”).

- c. Drill the upper two mounting holes. These should go ONLY through the plastic liner. Make them just large enough for the hollow wall anchors.
 - d. Install the hollow wall anchors into the freezer lid and carefully tighten them until they are snug.
4. Construct the support pieces
- a. Temporarily mount the backsplash panel to the inner lid. Leave the hollow wall anchor bolts fairly loose at this time.
 - b. Use a small level to hold the backsplash vertical while you measure the length of the two rear support pieces.
 - c. Cut the supports to the correct length. I used a piece of metal from an adjustable shelving unit for my supports, because it was handy and it fit the angle brackets perfectly.
 - d. Temporarily mount the supports to the backsplash using 90° angle brackets.
 - e. Carefully, try closing the lid. Watch to see that the supports and backsplash do not hit your CO₂ bottle or anything else in your freezer. Make any changes necessary so that everything fits nicely.
 - f. Notice that the angle where the supports attach to the back of the freezer lid is not 90 degrees. So, using two pairs of pliers, bend the two rear angle brackets until they are the correct angle to fit. Once you have done this, fasten the brackets to the back of the supports and use a felt pen to mark where the holes in the plastic need to go. In the picture below, you can see how the supports are fastened to the backsplash, and how the rear brackets are bent to the correct angle:



- g. Remove the supports from the backsplash and take the backsplash off of the freezer.
- h. Drill small pilot holes in the spots that you just marked for the rear angle brackets.

5. Final assembly

- a. Install the three “spacer” bolts with enough washers so that the drip tray will be perpendicular to the backsplash. This is what the spacers will look like from the side, once everything is assembled:



- b. Tighten the angle brackets to the support pieces.
- c. Install the three bolts holding the drip tray to the backsplash. Note that the two outer bolts also fasten to the rear support’s angle brackets.
- d. Assemble the faucets to the shanks, and mount them to the backsplash using the hardware and flanges provided by the faucet vendor. Double check that they are tight. Do not put the nipple-assemblies (“tail pieces”) on the faucets at the time. They go on easier at the end.
- e. Use the two hollow wall anchor bolts to hang the backsplash assembly on the inner freezer liner.
- f. Fasten the rear angle brackets to the liner plastic, using two self tapping machine screws.
- g. Now attach the beer hoses to the faucets. (I used about 6’-8’ of 3/16” tubing). This is done by pushing the barbs of the nipple-assemblies (“tail pieces”) onto the beer hoses, and then tightening them to the back of the shanks. Double check to ensure that they are tight and that the beer hoses will not be kinked as the freezer lid closes.



6. You're done! Clean the faucets and beer lines and then pour yourself a nice, cold glass of beer!



Portland Tap - Parts List		
Beer Faucets	Ventmatic (stainless steel, forward-seal)	3 ea
Shanks	4.25" stainless steel, with fittings	3 ea
backsplash	Aluminum sheet (approx 1/16" thick)	1 ea
Drip tray	MadeSmart Medium Bin, approx. 7" x 10"	1 ea
Drip tray grate	1/16" thick aluminum, sized to fit drip tray	1 ea
Drip tray grate hinge	Non-Mortise Hinge	1 ea
Drip Tray drain fitting	Pipe Hex Bushing, 1/2" MIP x 3/8" FIP	1 ea
Drip Tray hose fitting	Hose Barb Adapter, 1/2" Barb x 1/2" MIP	1 ea
Latch for Freezer lid	Homemade latch, or "toy box lid support" or locking hinge	1 ea
Lower Supports	Metal, 9 1/2" long x 1/2" wide	2 ea
Angle brackets	90° metal angle bracket, 1 1/2" legs x 1/2" wide	4 ea
Hollow-wall anchors	"Molly Bolts", extra-small (for 1/16"-1/4" walls)	2 ea
Nuts & Bolts	I used Stainless Steel wherever possible	-