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Tutorial
"Figjam Bucket Swamp Cooler"
Update 2018

Project Notes:

- This is a project to do at home. It's too MOOPY and intricate to do on-playa
- PlayaLabs does not claim credit for inventing this device! All hail Lord Figjam for his brilliance and kindness sharing the design and several years answering countless questions on the original **eplaya** forum
- All credit ascribed to the eplaya forum and consolidated feedback from commenters (including PlayaLabs testers).
- This tutorial is an edited and gently re-formatted version of the forum recap from June 29, 2016.
- Photo credits from Figjam's public eplaya forum.

Shopping:

From hardware store

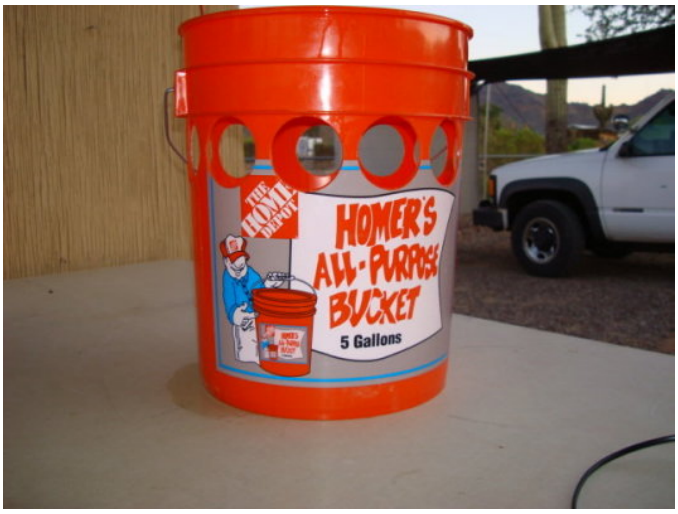
- 5-gallon bucket and lid
- 40" of 3/8" clear poly hose.
- T connector for hose above
- Misc wire nuts and connectors
- Misc small nuts and bolts

From **online links**

- Duracool pad
- 5 inch flex-duct
- Fan
- Pump
- 12v power cables
- Gator clips
- ABS Coupling: 4" coupler (this piece is actually 5" in diameter)
- E6000 Adhesive

1) BUCKET PREP

Start with your 5 gallon bucket.
Use a power drill and hole saw to cut large holes in the upper ⅓ of the bucket.
You can do 1 or 2 rows of holes:



2) DURACOOL PAD

You will need a pad 29x30 inches
These can be hard to find. Use the genuine product from our **online links**.
Don't use off-brand, Aspen pad, or green scrubby pad. Get the real thing online.

> *Measure the inside of your bucket from the bottom to the top of the rim. It should be about 13 inches but some buckets are different. Cut the first pad 30 x 13 inches* (or whatever is the height of your bucket)

Roll this pad into a tube:

Test fit the cylinder it into your bucket.
It should sit completely in the bucket without touching the inner side of the bucket:

The lid should fit on and just slightly touch the top of the blue cylinder.
Test fit and trim the pad as needed:

When the pad fits correctly, silicone or hand stitch the seam with needle and thread.
This will give you a cylinder ~13 inches tall:

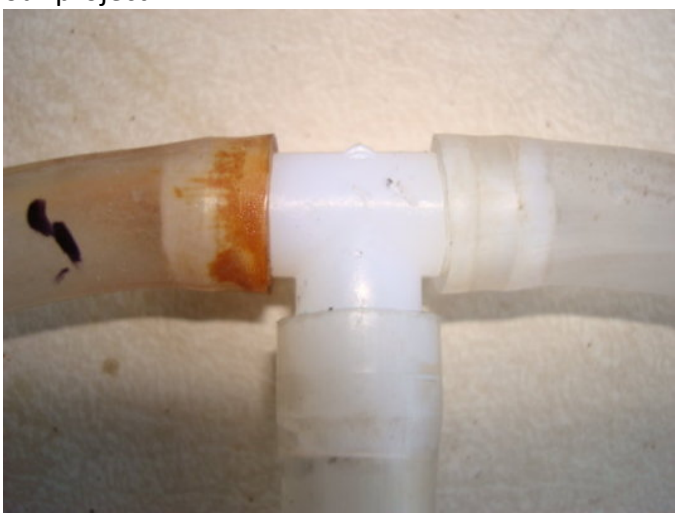
Cut a second piece of pad approx. 24x13 inches and roll into a tight tube.
You don't need to glue or stich the seam of this small cylinder:

Slip the second smaller cylinder into the first blue cylinder, but not all the way in, leave the second cylinder about an inch popped out. This creates a double-layered pad with more evaporative surfaces:

3) DRIP RING:

Now we built this Drip-Ring "Lasso":

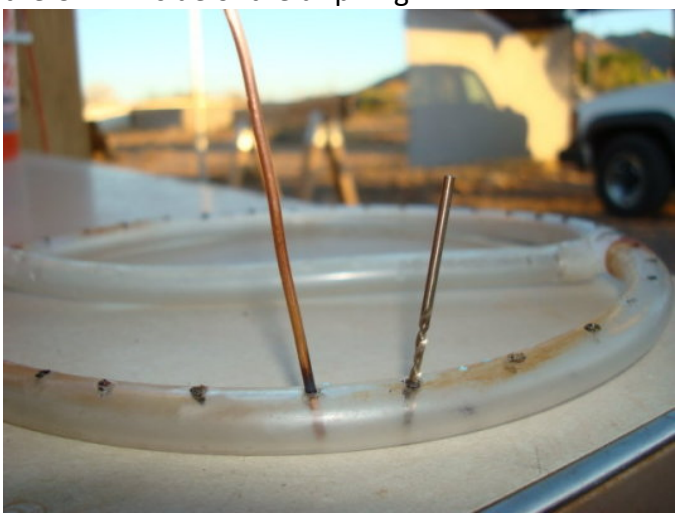
T-Connector: The branches of your T connector may be too long. Using a sharp exacto knife, cut off the excess branches, leaving approx ½ inch at each branch of the T connector. This creates a smaller joint for our project:



Next, loop a piece of the 3/8" clear poly hose into a circle and test fit it, so that it lies on top of the blue cylinder like so (it'll be about 28" of hose):

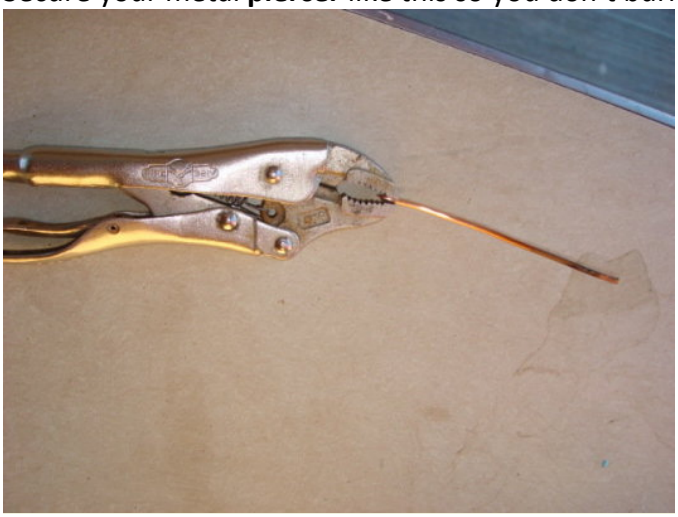
Cut the hose at the correct length, and plug in the T connector. Put a piece of leftover hose on the stem of the T-connector to complete the "lasso" *(We will trim the excess hose later):*

Now to create the drip holes, you will punch holes in the LOWER side of the drip-ring.
So, remove the Lasso from the bucket, flip it over on the work table. Note that you are now working on the UNDER side of the drip ring:



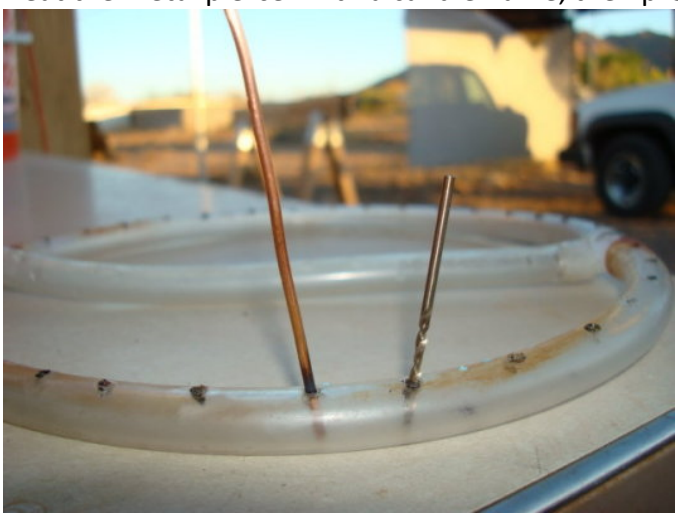
Get a candle and a thin piece of metal as a **piercer** (such as a thin nail or wire scrap. 12 gauge wire works well). A push-pin is a little too small but can work in a pinch. A power drill makes too jagged of a hole.

Secure your metal **piercer** like this so you don't burn your fingers.



The holes in the drip-ring need to be uniform and evenly spaced.
Use a Sharpee to mark dots around the **bottom surface** drip-ring every inch all the way around.

Heat the metal piercer with a candle flame, then press the hot metal through the drip line at each dot:



Spin the hot metal so it makes a nice hole and melts thru. Make sure you don't punch through the second layer of the hose! Don't make the holes too big! You can always enlarge them later if needed.
Repeat every inch. You'll have to reheat the metal piercer several times so keep the candle burning.

4) PUMP IT UP

Place your pump in the bottom of the bucket (these photos are an old model of the pump, yours will be smaller):

Install the the drip-line “lasso”; test fit so there’s just a little slack from the pump to the top of the blue pad. Trim the excess hose, then connect the “lasso” to the pump nozzle:

Guide the power lines from the pump up and out of the bucket.
Cut a small notch at the rim of the bucket to route the power lines to the exterior of the bucket so the wires don’t get kinked by when you put the lid on.

Fill the bucket with a few inches of water.
DO NOT run the pump DRY!

You can safely test the 12V pump with a simple 9v battery. It will not run at full power but you’ll get the idea. Duct tape the red and black pump wires onto the 9v battery terminals and look for a nice, even flow of water thru the drip line. Adjust the drip line as needed. You may need to re-melt a few of the holes if they are not dripping well. Do not make the holes too big!

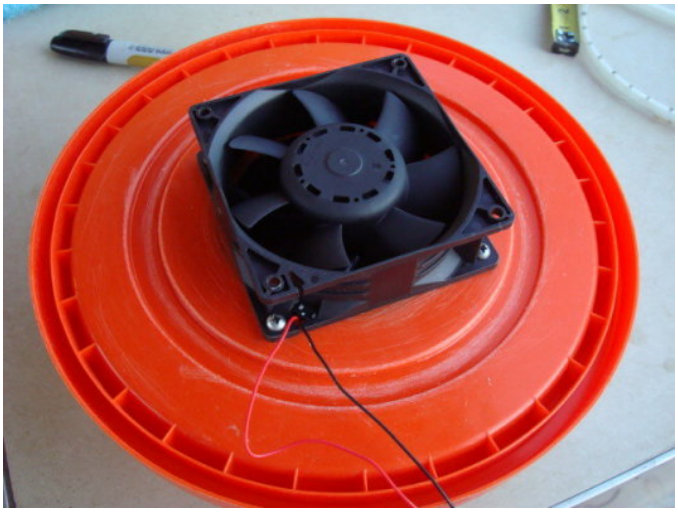
This is designed so that when the lid is put on, the drip line is gently pinched between the lid and the pad, so it stays secure.

5) FAN

Trace the **inside** of your ABS Coupling* onto the bucket lid and carefully cut this out with a sharp exacto knife. The hole should be exactly sized to fit the round part of your fan:

> **The **ABS Coupling** is actually 5 inches across. Dammit! It's called a "4-inch coupler" because it's meant to couple 4-inch pipes together, but that means the coupling itself is actually larger.*
>
> *Make sure to pick out the correct product at the store (or order via PlayaLabs **parts links**)*
>
> *This coupler will fit perfectly into a 5 inch flexible duct and also matches the size of the CPU fan.*

Mount the fan on the inside (ie bottom) of the bucket lid. Use the E6000 adhesive and short bolts/nuts to hold it in place. Slop some silicon sealer on any gaps. The fan woks best on the bottom of the lid to keep the unit compact and to make ducting easier. Having the fan on the inside also helps the blue pad hold its shape:



You can drill a small hole in the bucket lid to route the fan's power lines up thru the lid.

Wipe the PVC coupler and the bucket lid with alcohol to remove any grime.
Then use the E6000 adhesive to glue the 4-inch Schedule 80 PVC coupler to the top side of the bucket lid.
Weigh this down with heavy books and let it cure for a few hours to ensure a good seal:

6) ASSEMBLY

After letting the adhesive cure, assemble the bucket and lid.
Be careful that the fan tucks gently into the blue-pad cylinder as you put the lid on, and don't smash the power wires.

Assemble it in a way that lets the fan and pump power lines line up to each other. You may have to rotate the lid or adjust the placement of the pump to make this work.

Once the fan and pump wires are close to each other, you can splice red-to-red and black-to-black, and run extension wires to your 12V battery power source.

We have a new tutorial on wiring everything together and connecting with a DIY solar panel setup!)

Now you can use 4 inch Schedule 80 pieces or a **5inch flex duct** to run cool air into your space:

Add some water and test it out:

- More tips and tricks on the eplaya forum
- Thank you Figjam and eplaya community for making this possible!
- All photo credits to the original Figjam eplaya forum.