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Wiring Tutorial For Swamp Cooler and Solar Power May 2018

Get ready to to wire your [Swamp Cooler](#) and run it from your [Solar Power Station](#).

Project Notes:

- Hey, this tutorial will be more techy than some others, but you can do it!
- Can be done at home or on-Playa, just watch for wire MOOP scraps

1) Are You Ready?

If you're new to the PlayaLabs, start with the [other Tutorials](#) and come back when you're ready.

You need a 12V battery to test everything. If you haven't made your [Solar Station](#), you can use your car battery to test, but be safe and disconnect everything right afterwards!

2) [Purchase list](#)

The PlayaLabs has researched and found the least expensive and easiest way (that still gets good results and works for beginners). It's definitely not the only way!

Wire strippers
Barrel connectors
Wire Nuts
Extra-Long Wire
Gator Clips

The PlayaLabs always links to free-shipping. The connectors above come in a multi-pack so so you can share with campmates (still these links are pretty cheap):

3) Wiring your swamp cooler:

Your Swamp Cooler should be 99% built by now. If not, go back. The fan and pump for the Swamp Cooler don't come with a lot of wire. We splice on longer wires so you have room to work:

Take your extra 25 ft wire. Cut an 18-inch length off the wire. Pull apart the red and black sections about 2 inches on each end. Strip off ½ inch of insulation from each wire tip using the wire strippers. It's ok if you mess up stripping the wires, just re-cut the whole wire and try again. Here's a 2 minute lesson:

<https://www.youtube.com/watch?v=TZFTKbT4XFs>

So now you have this:

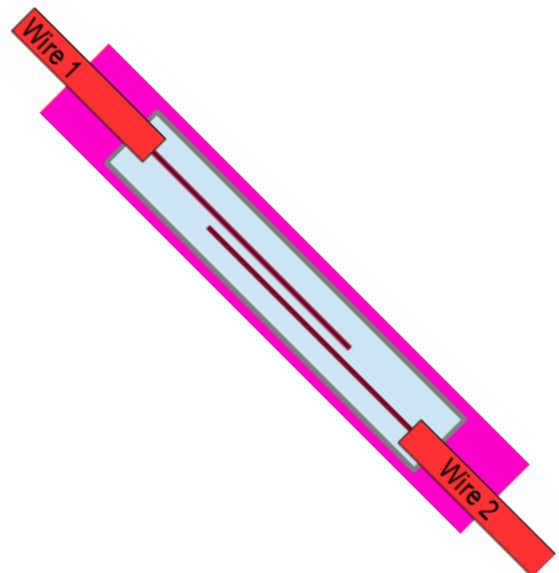


4) Getting Pumped

Now that you know how to use the strippers, move on to the pump: pull the red and black wire tips apart about 2 inches, and strip ½ inch of insulation off each tip. The wires are very thin so be careful stripping!

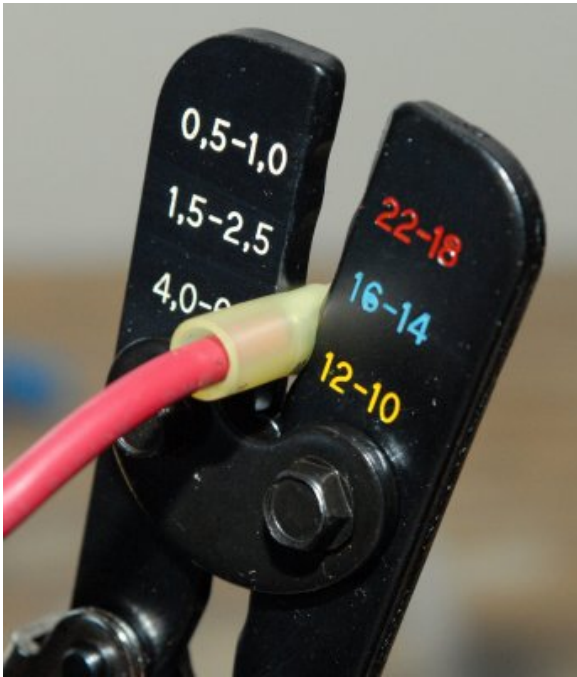


Put the red-wire from the pump into a Barrel Connector. Insert the 18-inch extra red wire into the other end of the Barrel Connector:



It's tricky to insert the wires correctly. You want to make sure that both metal wire tips are inserted fully into the inner metal sleeve inside the Barrel Connector. The exposed metal of Wire 1 and Wire 2 should be fully inside the inner metal sleeve: Yeah it's hard to describe but look at the diagram above.

Look closely and make sure everything is lined up. Once it's lined up, crimp the barrel connector with your wire tool or pliers. You are just trying to squeeze the metal connector enough to crimp the wires, it doesn't take a lot of pressure.



Pliers also work:



You will end up with this: Tug *gently* on the wires to make sure they are secure.



Repeat with the black wires from the pump. .

5) Blow Me

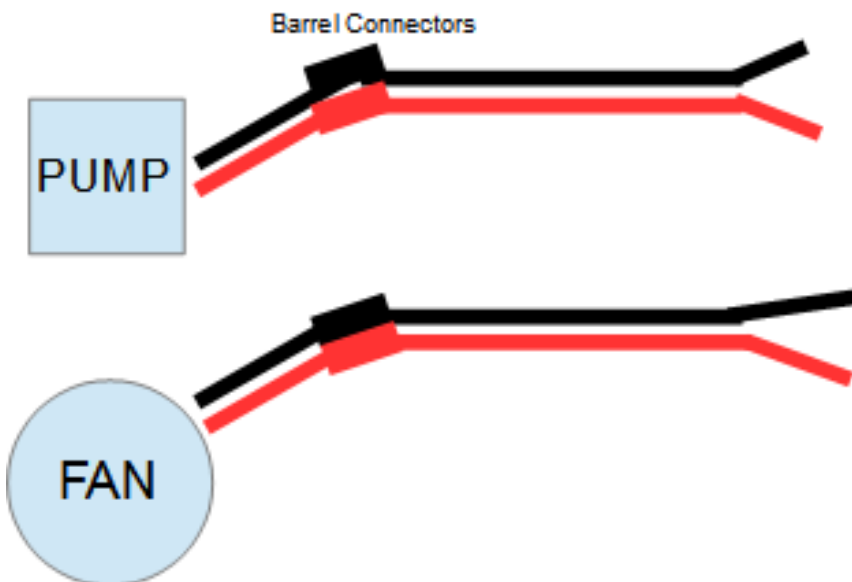
Now, you will repeat the process for the FAN.

Cut *another* the other 18 inch piece of extension wire, strip ½ inch” of insulation to make this:



Carefully strip ½” of insulation from the red and black wires coming from your fan (ignore the blue wire). Use barrel connectors to connect the black fan wire to the black extension wire. Repeat with the red wires.

You end up with this: A Fan and and Pump, each with extension wires attached:



6) A Connection is Made

The whole point was to lengthen the wires from your fan and pump. Now we wire everything together. PAY ATTENTION here it's easy to get confused:

You still have a ~20 foot long piece of extra wire. Peel the black and red sections apart a few inches on one end and strip off ½” of insulation from the red and black wires.

Take one black-wire tip from the extra long wire, and grab the black wire tip from the PUMP and the black wire tip from the FAN. You should have 3 black wire tips in your hand. Line up all 3 wire tips perfectly even, then twist all 3 of these wires together like so.



Use a Wire Nut to twist onto the metal tips. Try the small or medium size wire nut in your variety pack. Quick video lesson:

<https://www.youtube.com/watch?v=fxYKb6D8eds>

You should end up with this:



Repeat with the 3 red tips from the Fan, Pump, and Extension wire.

Ok we are almost done! Gently tug on all wire connections to make sure they are secure.

7) Later Gator

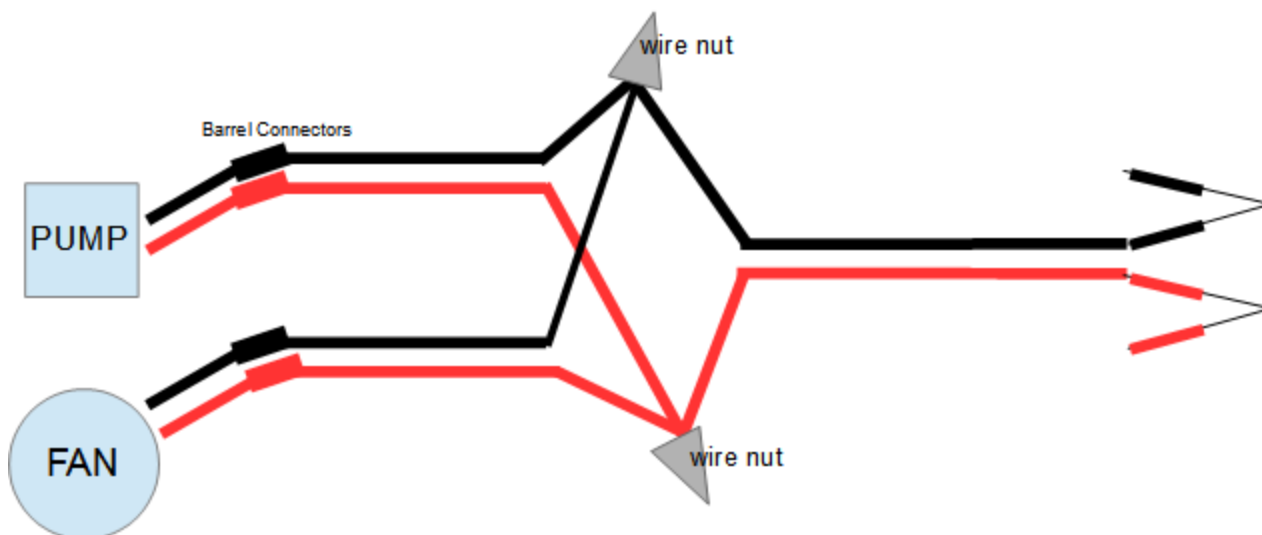
Add gator clips to the far end of your long black and red wire:

Strip a few inches of insulation off the red and black wire tips. Twist and insert the metal through the holes on your gator clips and wrap excess wire around the handle of the clip: Like so:



Repeat with the BLACK wire and BLACK gator clip.

The final product should look like this:



You're done!

8) Testing, Testing

Add some water to the swamp cooler. DO NOT run the pump when dry. Put the pump down inside the bucket and put the lid on, taking care not to pinch your wires.

PlayaLabs recommends cutting a notch at the top lip of your bucket to run the wires through. (Run the blue wire from the fan out of the bucket and tape it down to the bucket, just to keep it out of the way)

Clip the Red and Black gator clips directly to the battery terminals in your solar station or your car battery:

Red to Positive+, Black to Negative-.

Set up the solar station as described in our [other Tutorial first](#), then clip on the Gator Clips as the last step.

Once you clip the gator clips, the fan and pump should jump to life. If not, DISCONNECT the gator clips before any troubleshooting.

To turn off your swamp cooler, simply unclip one of the clips. Clip it onto the handle of the battery or some other plastic object nearby so you don't tangle it.

9) Troubleshooting:

Neither fan nor pump run:

- Battery is dead

- Gator clips are not properly attached to battery

- Wire nuts are not secured:

- Unclip the battery**, untwist the wire nuts, and make sure the three blacks and three red wires are all lined up and twisted together well. Re-do the wire nut. You may need to try a larger or smaller wire nut.

Fan Runs, but not Pump (Or vice versa).

- Fan or Pump is dead?

- A Barrel Connector is loose.

- Unclip the battery**. Gently tug the barrel connectors.. You may have to re-cut and start over.

- Do not cut too much off the Fan and Pump wires, they are too short already. Use excess wire from your 20 foot extension wire.

- Make sure you stripped enough insulation (but not too much) so the metal part of the wires fits into the sleeve inside the barrel connector.

- Don't over crimp the barrel connector.

Hey Assholes!

Turn off your swamp cooler!

Unclip one of the gator clips.

Otherwise you drain the battery and kill your pump.