EdgeStar Thermoelectric Cooling Node Replacement

The following installation guide will show you how to install a new cooling node (Peltier Cooler) into a Koldfront TWR series wine refrigerator. Your unit may not be identical to the unit shown but the steps will be very similar.

The technical skill level required for this job is a 7 out of 10. If you are not comfortable with some of the steps shown, you will want to seek out the assistance of a professional.

Materials Required:

- Zip Ties
- Heatsink Compound (Thermal Paste)
- Gloves (Some of the paste gets a little messy)
- Long #2 Phillips Head Screwdriver
- Standard Flat Blade Screwdriver
- Needle-nose Pliers
- Wire Cutters
- Drill (Suggested)

Unplug the unit before making any repairs.

**Read through this guide in its entirety before beginning repairs.**

1) **Remove the back panel of the unit**

- Remove the Philips head screws that attach the back panel of the unit
- You may use a drill to remove these screws to save some time
- Make the top center screw the last screw you remove. This will keep the panel from flopping around and make it easier to remove all of the other screws.
- Set the panel aside where it will not get bent or damaged
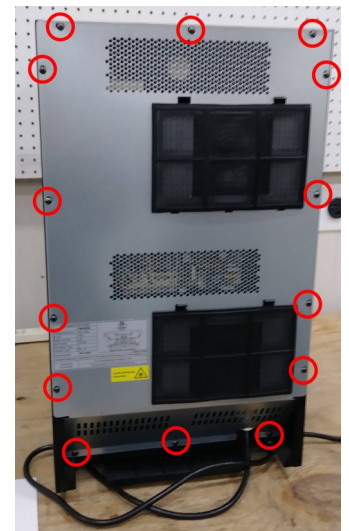
2) Remove the zip ties around the wires

- Using your wire cutters, remove the zip ties keeping the wires in a bunch from the desired cooling assembly. (In this image, we are replacing the node for the top zone, so we removed the zip ties from the wires for that node only)
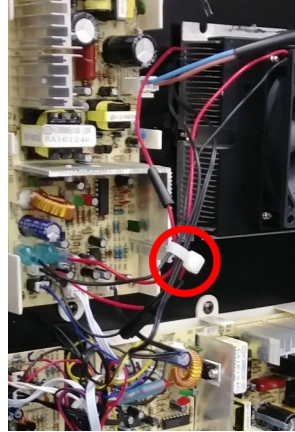

3) Unplug the fan and cooling node connectors

- It is recommended that you take several clear pictures of the connected wires before removing them to assist with reassembly.

- There are several types of connectors depending on your model.

- The fans should be attached with a plug style connector.

- The cooling node will either be soldered directly to the circuit board, or attached with spade style electrical connectors depending on the model. Spade connectors can simply be unplugged, but if the node is soldered to the board, you will need to cut the wires. If cutting the wires, make sure to leave plenty of room to splice the new node to the wires.
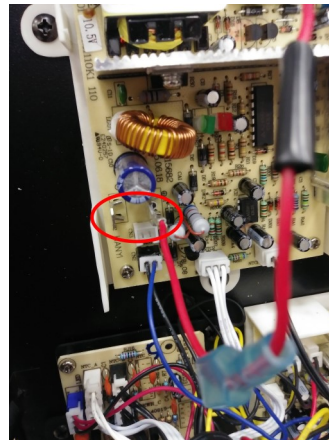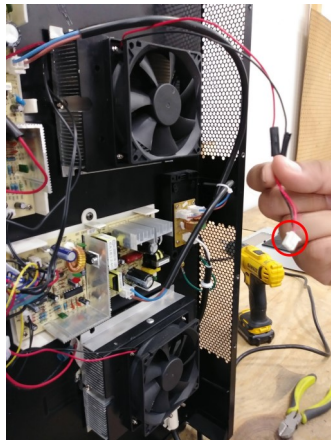
Note: If you are having trouble removing the spade style connector for the cooling node, you may need to locate the locking tab. This tab can be released with the corner of your flat blade screwdriver.
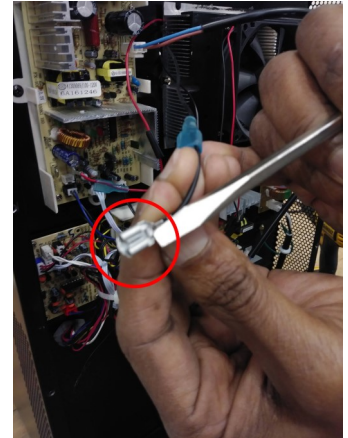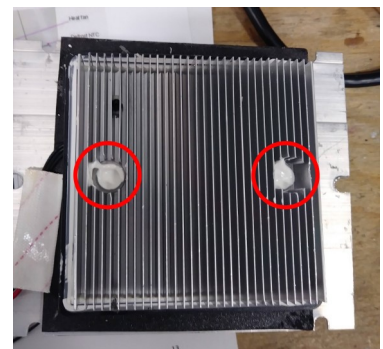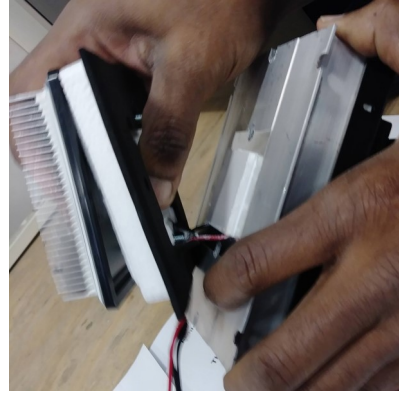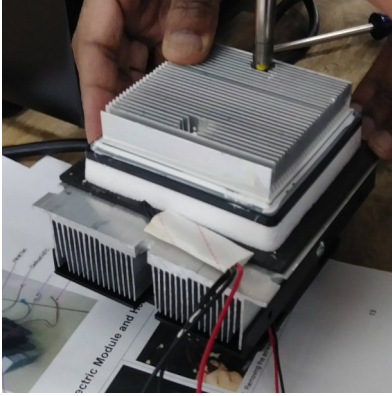
4) Remove the cooling assembly from the unit

- Remove the two screws securing the cooling assembly to the back of the unit

- Gently pull cooling module away from the back of the unit (you may need to wiggle it to get it free)

5) Separate the cooling assembly exposing the cooling node

- Remove the caulking that covers the head of the screws. You can apply a little force to your Philips screwdriver to get to the screw or you can use a small pick or a small screwdriver to try and dig the caulking out of the holes.

- Once the caulking is removed, remove the two Philips screws

- After the screws are removed, gently separate the cooling assembly from the heatsink

- Be sure to take pictures of the cooling node sitting inside of the cooling assembly so the new node can be installed the same way. Take note of how the wires pass through the assembly.

Note— There are some loose parts that may fall out when separating the assembly. These are the holders for the screws and will just need to be lined back up when reassembling the cooling assembly.
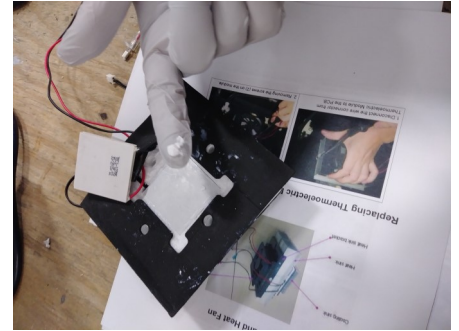

6) Remove the cooling node from the cooling assembly

- With the cooling assembly separated, make note of the orientation of the cooling node (the side with the words printed on it vs the blank side). This will be important for reinstalling the node properly. The blank side should face the side with the black gasket.

- Feed the wires back through the gasket (be careful not to damage that gasket)

- Lift the cooling node out of the cooling assembly

- With a clean towel or rag, clean the location where the cooling node was installed

7) Apply heatsink compound / thermal paste to new node

- Apply a liberal amount of thermal paste to your finger (heatsink compound is not toxic, but is quite messy. We recommend you use gloves for this reason)

- Rub a thin layer covering the surface of both sides of the node completely

- Remove any excess paste and wipe off on a towel. Too little or too much paste will cause the node to not perform at its optimal efficiency.

- You should also apply a small amount to the cooling assembly to keep the node from sliding around during assembly.
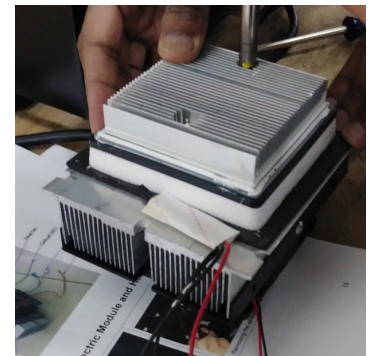

8) Install the cooling node into the cooling assembly

- Refer back to your pictures and set the cooling not back into the cooling assembly the same was as the node you removed.

- Feed the wires back under the gasket where they previously had run. This will ensure the gasket can make a good seal and the wires will not be damaged by the metal cooling assembly.
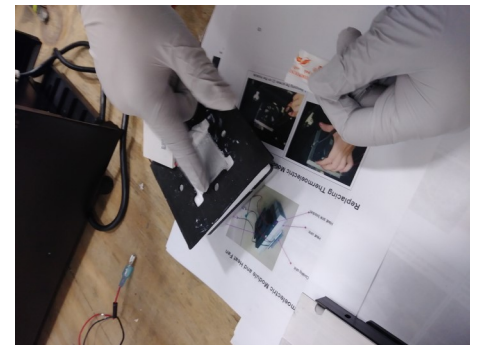
9) Reassemble the cooling assembly

- Sandwich the cooling assembly back together. Be sure to line up the holes for the screws.

- Insert and tighten the screws. Do not overtighten the screws. This will cause damage to the new node.

10) Install the cooling assembly back into the unit

- Line your cooling assembly up with the unit and slide it back into location.

- Slowly start each of the two screws that attach the assembly to the back of the unit.

- After both screws are started, use a screwdriver and tighten the screws by hand until they are snug. Do not overtighten these screws.

- Make sure you install the assembly in the correct manner allowing you to properly reconnect the wires to the circuit board.

11) Reconnect the cooling node and fan wires to the circuit board

- Referring back to the pictures you took during disassembly, reconnect the cooling node and outer fan wires to the circuit board.

- The fan connects with a plug in connector.

- The cooling node will connect with two spade connectors. Note, if you install these wires incorrectly, you will be blowing hot air into the unit instead of cold.
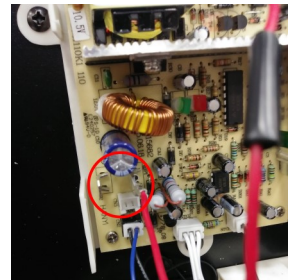
12) Plug the unit in and allow it to run before assembling the rest of the unit.
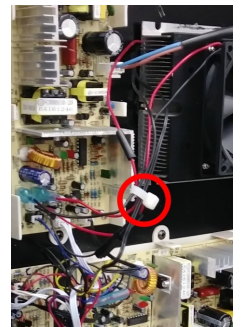
13) Attach a zip tie to the node and fan wires to help keep them neat and organized.

14) Reinstall the back panel on the unit.