

## PowerPole Splitter Project – Connector Workshop – 10 September 2023



The project as described below is built with 10-gauge solid copper wire and 30 Amp PowerPole contacts. I recommend keeping the total amperage when in use to a maximum of 30 Amps.

Please contact me with any questions regarding the project. I can also arrange for you to borrow any needed tools to complete your kit and/or build additional kits.

Any construction comments are welcome for consideration for a future update to the documentation.

This document is also available online for reference/download at:

<https://thewebniche.net/>

73

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Provided Kit Parts:

- (4) 3" 10 AWG wire pieces (AWG = American Wire Gauge)
- (2) Crimp Sleeves 18-10 AWG
- (8) 30A PowerPole contacts
- (1) 1" diameter, 3" long 2:1 Heat Shrink Tubing
- (4) Black 15-30-45A PowerPole Housings
- (4) Red 15-30-45A PowerPole Housings
- (2) 2" long cable insulation piece



PowerPole Splitter Kit Components

Additional supplies required (not provided):

Electrical tape

Solder

Recommended tools:

PowerPole Crimper

Crimper with non-insulated terminal die (6 mm)

Solder gun/tool

Heat Gun or Hair Dryer

Wire Cutters

Pliers

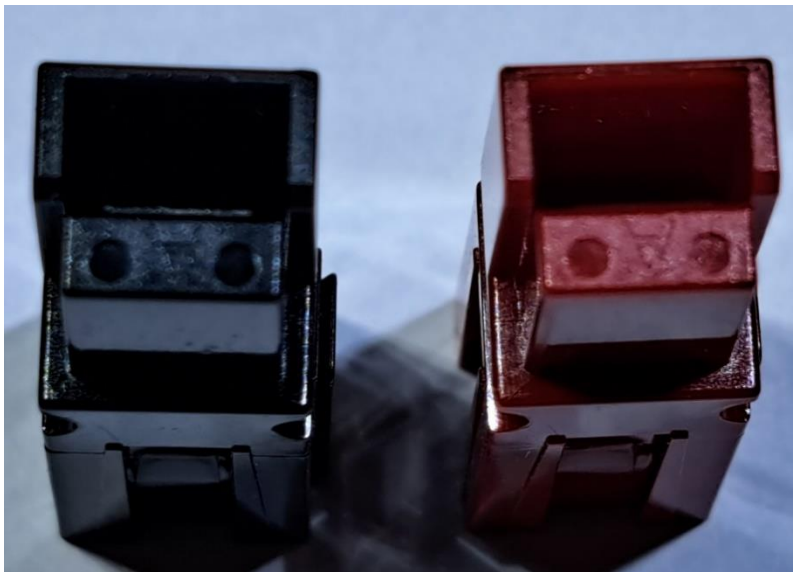
Proper PowerPole Orientation is critical to the success of this project.

Red Right Tongue Up

This is the correct orientation. Always ensure that this orientation is maintained.



This is the incorrect orientation. This is Red Right Tongue Down. **DO NOT USE THIS ORIENTATION!**

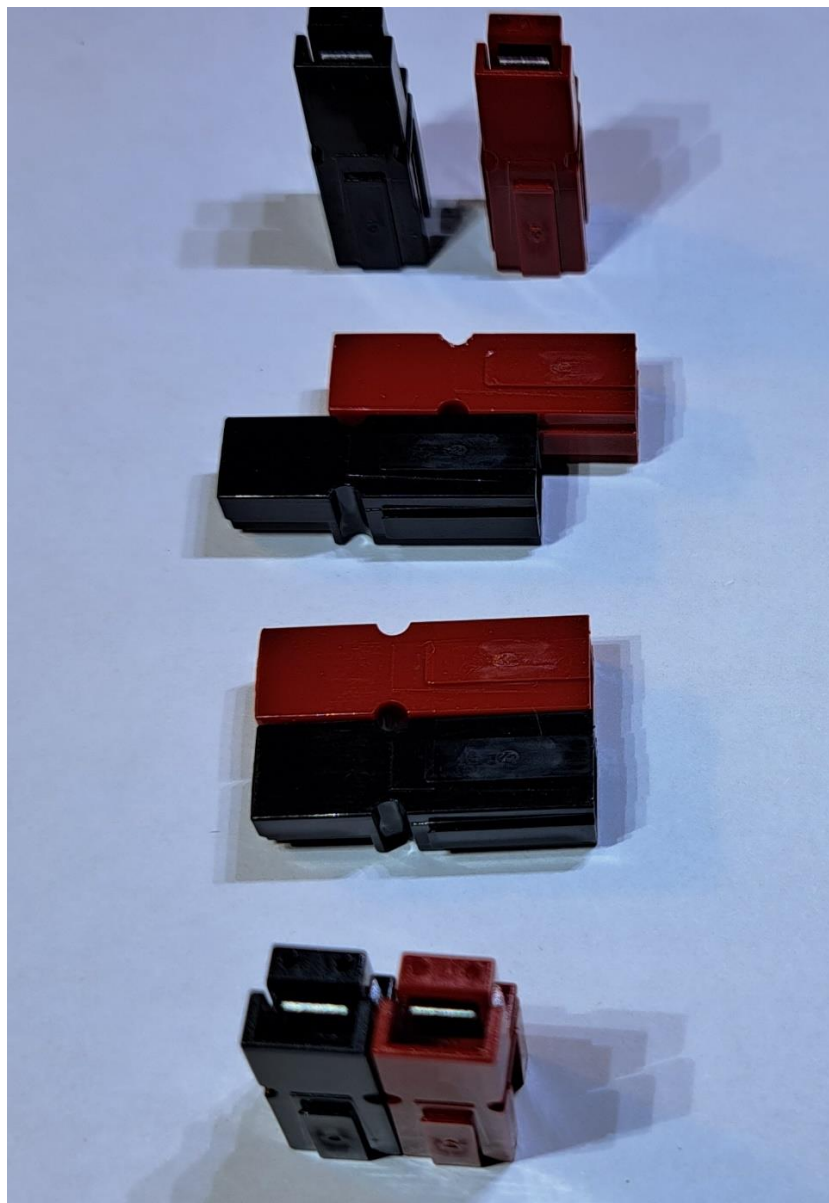


Slide one black and one red housing together in the correct orientation.

This is one pair of PowerPole housings.

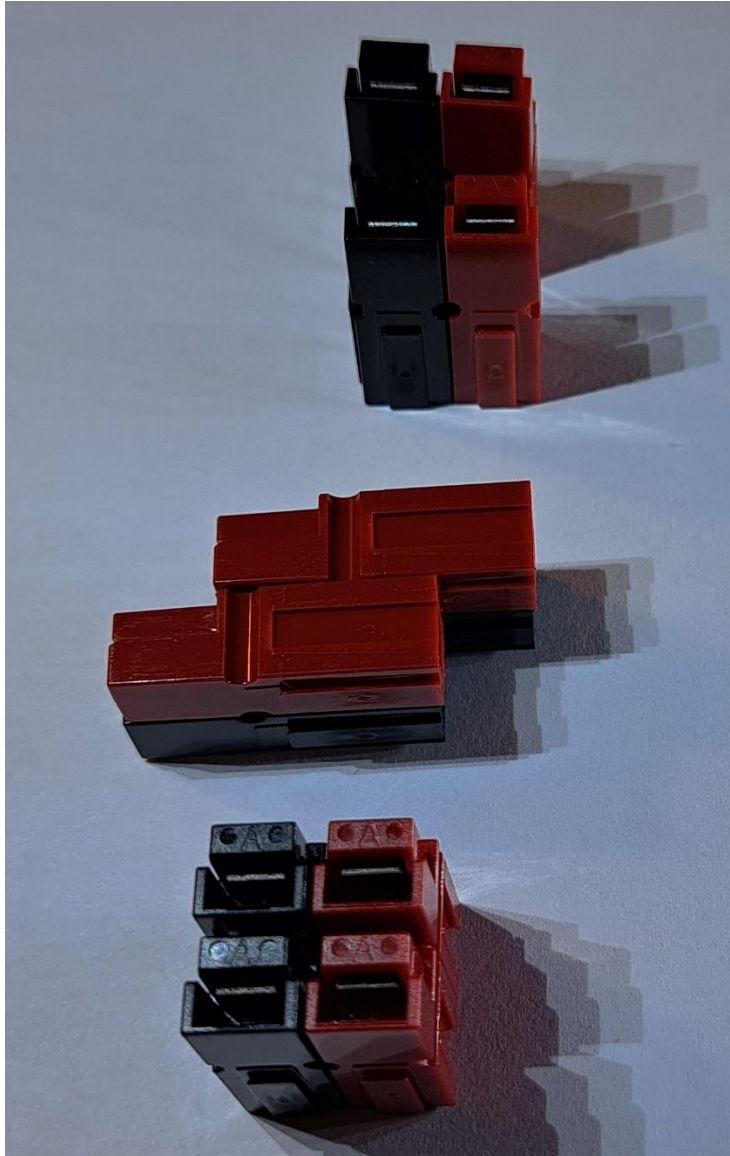
Continue to complete assembly of four individual pairs of PowerPole housings.

Check each assembled pair and ensure Red Right Tongue Up has been obeyed.



Take two individual pairs of housings and slide them together to make a block of four housings.

Ensure your block is Red Right Tongue Up.



Make another block so that you have a total of two blocks. Double check that the block orientation is Red Right Tongue Up.

Some folks were having issues with orientation of the PowerPole contacts during the workshop build session. The following steps are a modification of the procedures used at the workshop to help you maintain PowerPole Contact orientation.

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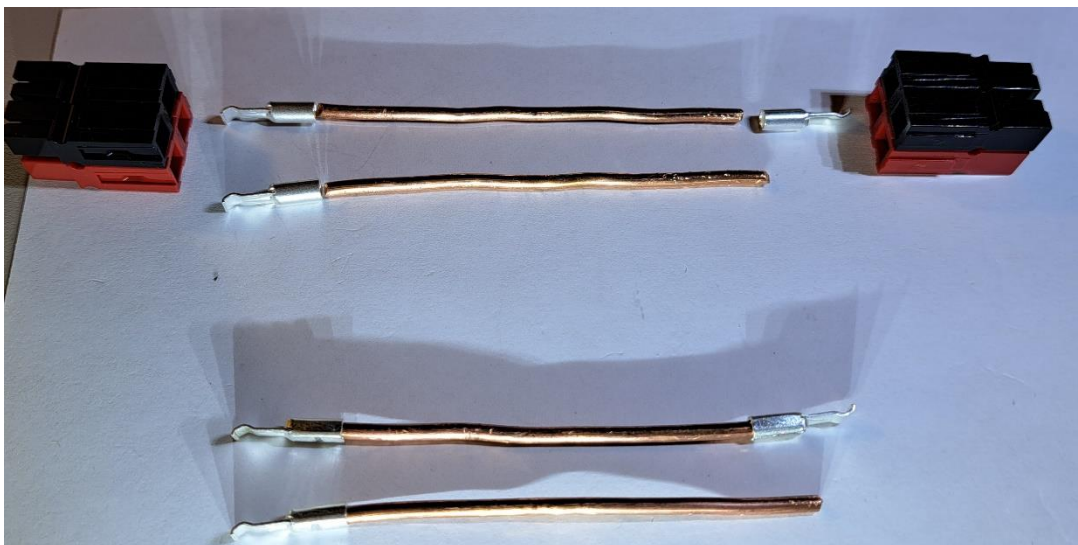
Position two ten-gauge wires, the two PowerPole housing blocks, and three Powerpole contacts as shown in the upper part of the below photo.

Notice that the hooks on the contacts are facing down on the left and the hook on the right side is facing up.

Dry fit the three contacts onto the ends of the 10-gauge wires. Ensure that you can insert the wire completely into the contact.

Convince yourself that the hooks must be facing as depicted to slide into the housings and engage over the end of the metal piece in the housings. 10-gauge wire is difficult to adjust after the contact is crimped on. Crimp on the three contacts using a PowerPole Crimper; you should end up with the two wires configured as shown in the lower half of the below photo.

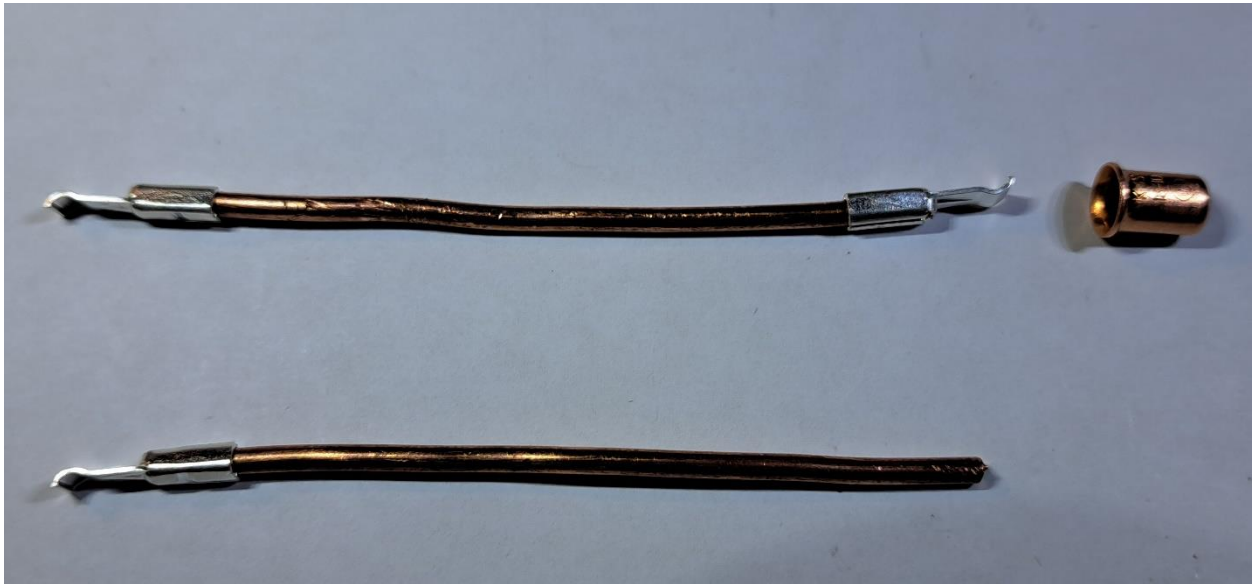
Repeat the above process with the other two wires and three more PowerPole contacts. One set of two wires will connect all black housings and the other set will connect all red housings.



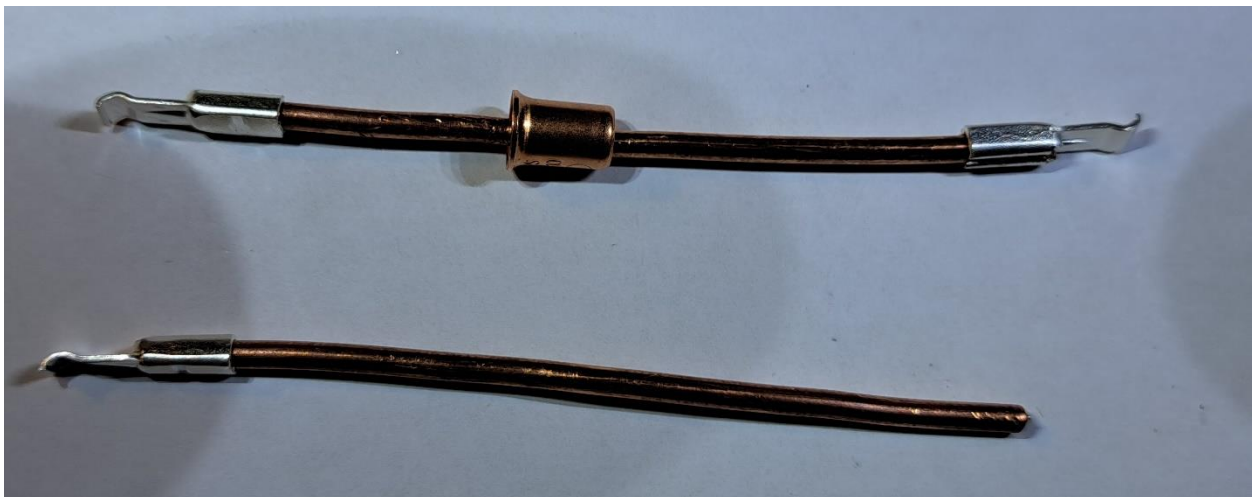
Why did I leave a bare wire end with no contact crimped on you may ask?

Answer: Because the crimp sleeves you are going to use in the next step will only accommodate a maximum of two 10-gauge wires. With contacts crimped on all four ends, you will not be able to insert two wires into the crimp sleeve.

Position one set of two wires and a crimp sleeve as shown below.

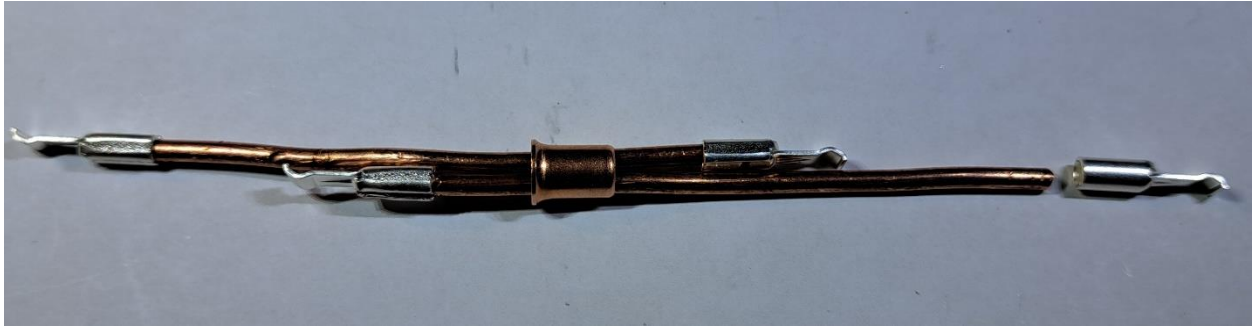


Then





Then, wrestle the two wires into the below configuration. You may have to use pliers to get the wires in, but do not accidentally crimp the crimp sleeve with your pliers while maneuvering them into position. Dry fit a fourth contact onto the remaining end. Ensure that you have the contact hooks facing up on the left and the two contact hooks on the right facing down.



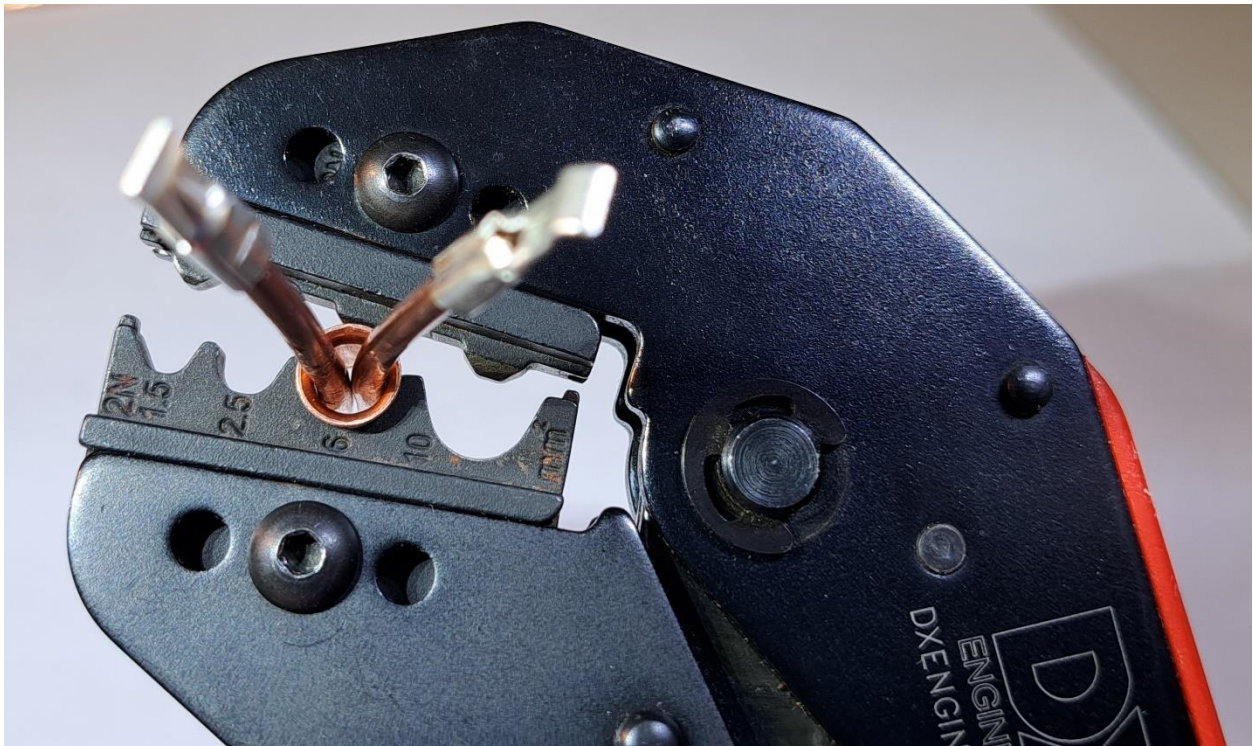
The orientation above will allow you to crimp on the fourth contact by inserting it into a PowerPole Crimper. Ensure the fourth contact is oriented properly, e.g., it did not slip while you were inserting it into the Crimper.

Repeat the above process with the other set of two wires.

Wrestle the wires into the configuration below. Gently spread the wires to keep them from sliding around. Position the crimp sleeve in the middle of the assembly. Try to keep the wires parallel to each other in the crimp sleeve as shown. Ensure that the contact hooks are facing up on one end and facing down on the other end.



Position the crimp sleeve into crimper with an uninsulated contact crimper die and crimp.



Goal is this:



Repeat to assemble the other set.

Bend, wrestle, and coerce the wires into the below configuration using your two four-housing block sets as guides. Dry fit the positions, but do not insert the contacts completely into the housings yet. Get them so that the contacts are in position and ready to insert. Remember one wire “x” will connect all red housings and the other will connect all black housings.

The below photos show a dry fit positioning for the red housings.

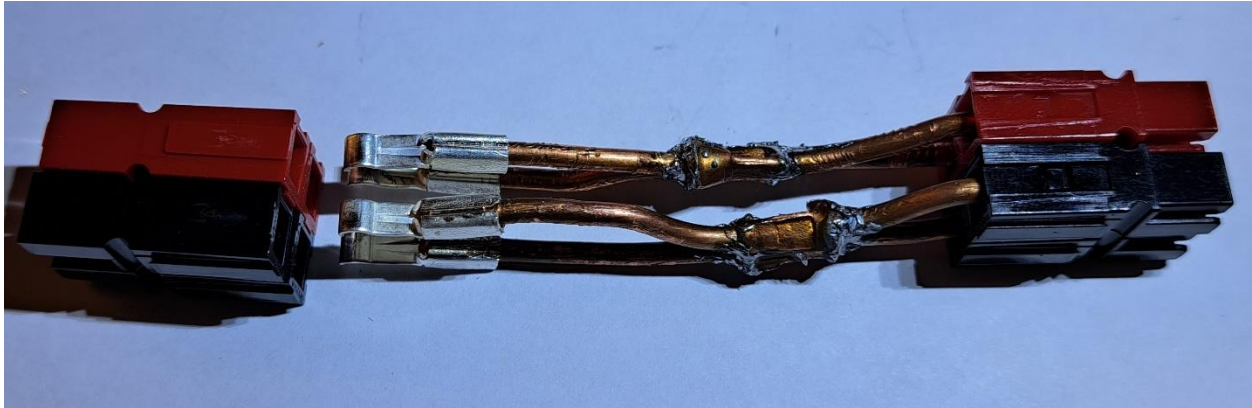


Repeat the dry fit procedure for the wire “x” that will connect the black housings.

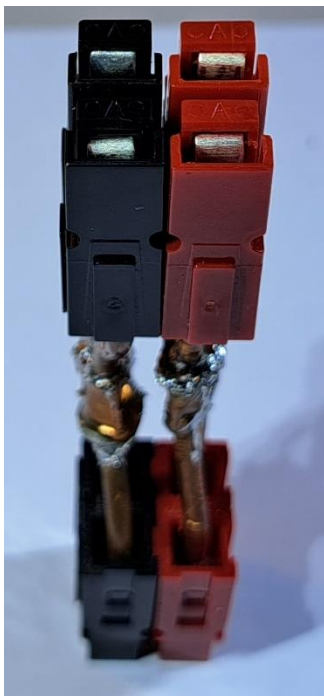
Fill each crimp sleeve with solder to ensure good electrical continuity. It does not have to be pretty (mine sure are not). It is best to solder the crimp sleeves now before inserting the contacts into the housings to avoid excess heating of the housings during the soldering process.

Completely insert one end of the one wire “x” into the red housings and one end of the second wire “x” into the black housings of one 4-housing block.

If your dry fittings were accurate, hopefully you will hear four clicks as each of the four contacts seats home on the one block. **Important:** complete the 4 insertions into one 4-housing block first. Do not do both ends of one “x” first or you will not be able to get the second “x” in.



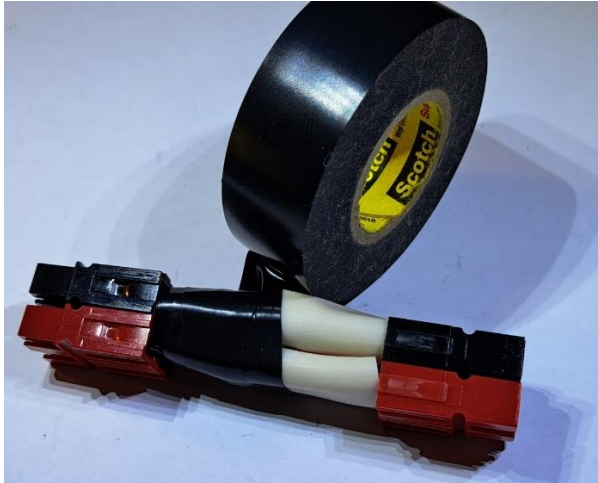
This will leave the other 4-housing block ready for insertion. Start each of the four contacts into its housing and push them in until you hear four clicks indicating assembly success. Visually inspect each of the eight housings and ensure that the hook of each contact has seated properly.



Use the insulation pieces to cover each wire "x;" trim to fit with scissors, if necessary. Put the split in the insulation to the outside. Goal is to have maximum insulation between the positive "x" and the negative "x."



Wrap the pieces of insulation with electrical tape.



Wrapping complete.



Position heat shrink tubing as shown below and shrink it on.



Final product.



Splitter In-use example. Power in + PowerPole Continuity Tester (green light = good to go) + 12V Red Trailer Marker Light + 2<sup>nd</sup> 12V Red Trailer Marker Light.

