

Custom Ground Wires DIY project

By Derek Nishimura

Here is a step by step instructions on how to make and install custom ground wires onto an 1998 automatic RAV4, other years and manual transmission may vary.

Materials Needed:

- 9 ft. of 4 gauge power/ground wires (can be found at any audio installation shop)
- Gold plated negative battery terminal with 2 inputs for 4 gauge wires (not necessary)
- 16 gold plated wire terminal connectors (gold plating is not necessary)
- Tube of silicone adhesive
- Heat shrink tubing for 10 – 2 gauge wire

Tools Needed:

- Measuring Tape (to measure custom length of wires)
- Wire Cutter (to cut wires to length)
- Utility Knife (to cut away silicone shielding from wire)
- Scissors (to cut heat shrink tubing)
- Heat Gun or Hair Dryer (for heat shrink tubing)
- Socket Wrench Set (to remove various bolts in engine bay)
- 10 pound Mallet/Hammer (to crimp wire connector to wire)



Here is a picture of the 4 gauge wire that I used. The brand is SCOSCHE EFX2. It handles extreme temperatures (221 degrees to –22 degrees F).



Here is a picture of some of the tools you may need to do the job. Wire cutters are very useful for cutting through the thick 4 gauge wires, measuring tape is useful for measuring the custom lengths of wires that you will need. The heat gun for shrinking the heat shrink tubing. On the left is a wire stripper/crimper tool, but that one pictured does not do a good job for crimping 4 gauge connectors.

Here are the gold plated wire connectors and negative battery terminal. Make sure that the battery terminal has 2 inputs for 4 gauge connectors.





Here is what it looks like on the bottom of the negative battery terminal. You can screw on 2 wire terminals on either end with an Allen wrench.

Making Custom Wires



The first step is to measure from point A to point B how much wire is needed to go between each location. This is how much wire you will cut off from your 9 feet of wire. Make sure that you allow enough space for the wire connectors on each end.



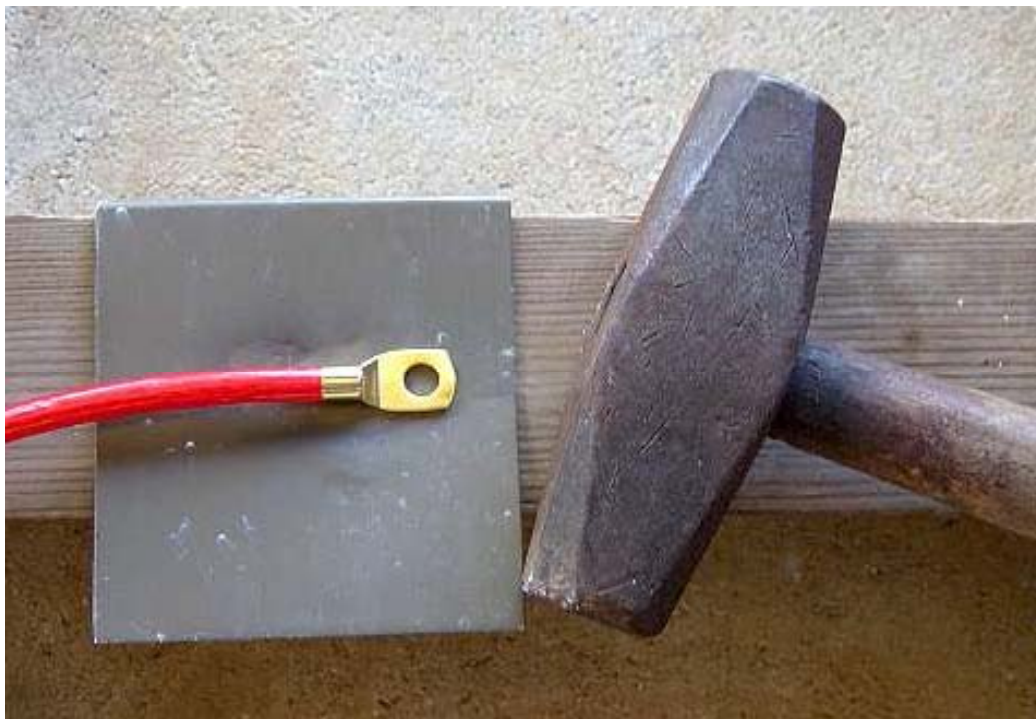
Next, you need to measure the length of wire that you need and cut it with the wire cutters. This type of cutter shown above will cut the 4 gauge insulated wire with ease.



Cut the insulation surrounding the wire that matches with the wire connector housing. A utility knife works well.



This is what the wire end will look like once you cut off the insulating material. Slide the wire connector over the exposed wire and get ready to crimp it.



Unless you have a professional grade wire crimper, your best way to crimp these 4 gauge wire terminals is with a huge 10 lb. Hammer/mallet. Believe me, this works the best. Give it a few heavy hits until the terminal is tight onto the wire.



Apply some silicone sealant around the edges where the terminal and wire sleeve meet. You do not want any moisture to seep in and corrode the copper wires, so be generous with the sealant.



Cut some heat shrink tubing to fit around the siliconed area, and use a heat gun or hair dryer to shrink the tube into place. The gold plated connectors come with a plastic housing, you can slip them into place.



This is what the finished end should look like. Repeat on the opposite side, and you will have made a custom ground wire. Just a note, depending on the size of the hole in your connector, you may have to drill it out bigger to fit some of the attaching bolts.

Please refer to Part 2 of this DIY which illustrates where to install the custom ground wires.