Throttle ground wire install how-to

This is done on a 2008 Dodge Avenger w/2.4L engine, which does have an electronic throttle, but the basic process applies to most vehicles…

First, get your tools and supplies together:

i.e. 14g wire (or 12g, 6g or 0g, whichever you prefer), wire cutters (dikes), wire stripper, solderless terminals, etc.

Please take the normal safety precautions: …engine shut off, keys NOT in the ignition, parking brake set, jewelry removed, etc.

Find a suitable bolt on the throttle and a good grounding point. The grounding point does NOT have to be the battery negative terminal. See the pix below for some examples:

You can see the Avenger's throttle is buried, but this bolt is accessible.

Throttle ground wire install how-to

The RAM's throttle is easy to reach with the plastic air box permanently removed. :o)

The Avenger's factory ground point is good to use; the battery is buried in the left front fender.

Throttle ground wire install how-to

The RAM's ground point is already in use for a couple other mods…

Now start running the wire…

Throttle ground wire install how-to

Hold the wire at both ends along the path you want to run it…

Throttle ground wire install how-to

It's okay to have a little extra wire at the end; if it's too long you can tie a loop in it. If it's too short, you'll be upset. Now that you've measured, cut the wire! After that, get your wire strippers out and strip off about a quarter to 3/8 inch of insulation off each end.

Now, slip a solderless terminal on the stripped end and squeeze it down tight. I like using the non-cutting part of a pair of dikes for this…see picture. Not the best picture, but you can see the solderless terminal squeezed between the pliers. Lineman's pliers also work well as they let you apply a lot of force.

Throttle ground wire install how-to

If both ends of your wire use the same size fastener/bolt, go ahead and do the other one now. The Avenger's ground point is much larger, so I elected to strip a longer portion of the other end and make a loop to match it.

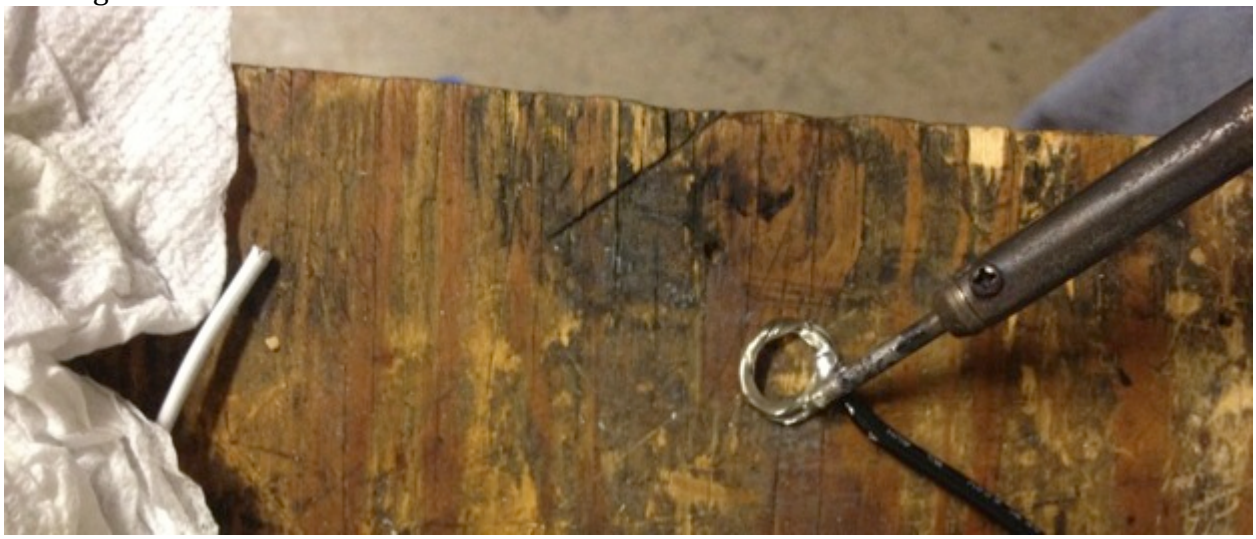
Once you have the terminals squeezed on, or in this case the loop bent to shape, plug in your soldering iron. Solder helps ensure good electrical conductivity, and makes the joint a little stronger physically. Once the soldering iron is warm enough (it will finally melt some solder if you touch it with your solder wire), press it against the metal of the wire and the solderless terminal.

> Don't press real hard, as you'll break the soldering tip off. You just want good contact to ensure heat transfer.

Yes, it is true soldering isn't technically necessary. However, I've seen too many solderless terminals slip off in my day, so I want to ensure a solid physical and electrical connection. Soldering will also help keep corrosion away.

Throttle ground wire install how-to

The same principle applies if you make a loop like I did on the other end; you have to get the metal of the wire hot enough for the solder to flow. Just touching the iron to them is not going to do the trick. Be careful not to overheat it though, as the wire insulation will start melting!



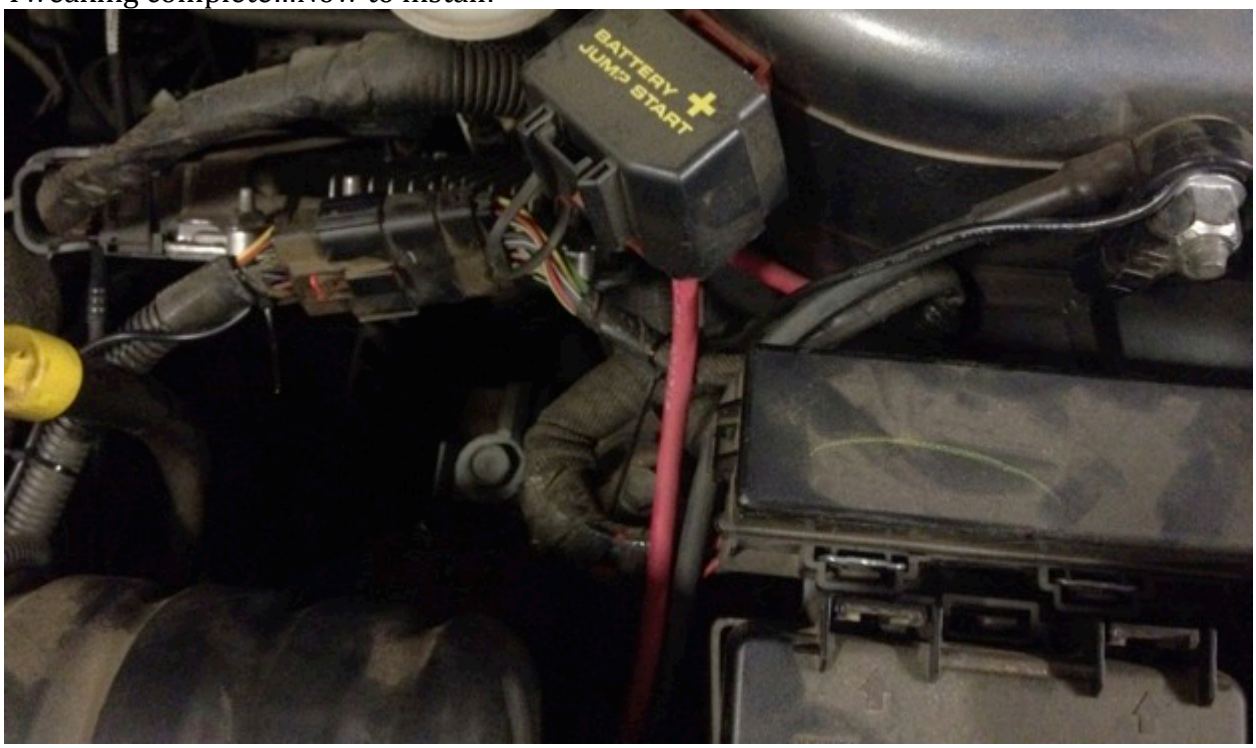
Throttle ground wire install how-to

So the wire ends are done, it's time to install the wire! Well, I had a problem when I pulled the throttle valve bolt: it wouldn't fit through the terminal.

Since it was a little big, I could have used a drill to open up the hole (which is a little tricky), or what I ended up doing which was cutting the end of the loop to make it split, allowing the bolt to pass through it. I could have avoided this if I'd had an open-ended/forked solderless terminal instead of a loop, but hind-sight is 20/20.

Throttle ground wire install how-to

Tweaking complete…Now to install!



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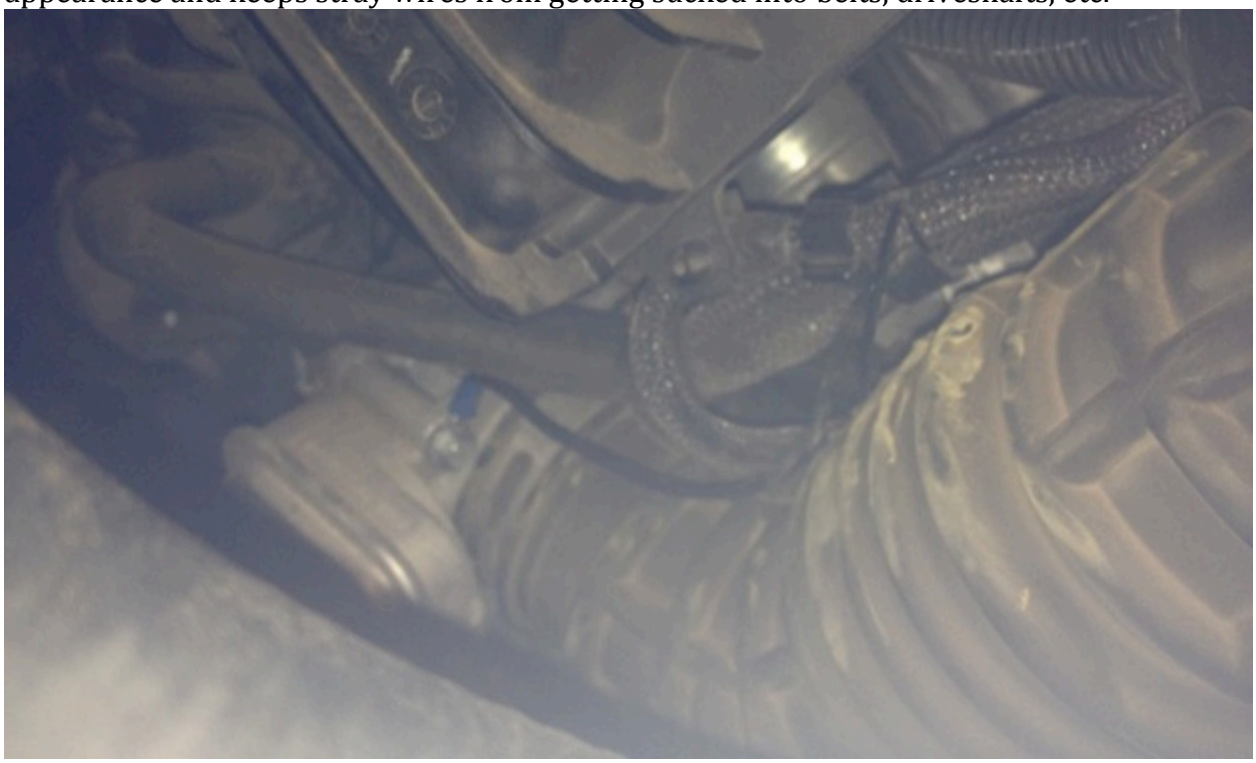
Please note the black tie wraps around the wire harnesses and how the new ground wire hugs wiring/harnesses already present in the engine bay. This maintains a neat appearance and keeps stray wires from getting sucked into belts, driveshafts, etc.



Put up the tools and take it for a spin. You are done! Good job!