

# Alternator Wiring Upgrade

by **svxcess**

An explanation of the wiring mod: **Remember, you are only ADDING wires to those already in place. You are not replacing anything.** There are only 3 wires to add:

**1 ADD** a 4 gauge wire to the positive lug at the back of the **alternator**, (the lug is under the black rubber boot at the left rear of the **alternator**). Run this wire from the positive lug directly to the positive terminal of the battery. (That is the red wire in the photograph). <http://www.subaru-svx.net/photos/files/svxcess/248.jpg>

**2 ADD** a 4 gauge ground wire from the air conditioning compressor mounting bolt to the negative terminal of the battery. (This is the brownish wire in the photo)  
<http://www.subaru-svx.net/photos/files/svxcess/249.jpg>

**3 ADD** another 4 gauge ground wire from the negative terminal of the battery to chassis ground. (You will see a small black ground wire coming off of the negative post of the battery and attaching to the body in front of the battery.) ADD the 4 gauge wire to the existing wire at this mounting point. (That's the brown wire going out of the photo the right)

That's it! Now there is ample current flow from the **alternator** to the battery. (The **alternator** case is its own ground) The engine is now solidly grounded to the battery and the battery is solidly grounded to the chassis. You should pick up a minimum of 2 volts.

If your battery is fine, you will notice the difference. If you need to replace your battery, I strongly suggest using the Optima "**red top**" battery with this mod. It makes all the difference by eliminating internal resistances and makes charging much easier. You can also get the Optima battery under the Interstate battery label for a few dollars less.

My local stereo shop fabricated these wires out of 4 gauges, fine strand 100% oxygen-free copper wire, attached soldered and crimped gold-plated ring terminals, and installed them on my 92 for about \$60.00. You should be able to buy this cable by the foot from any auto stereo shop or electronics store that sells home stereo equipment. On my 96 I had the same stereo shop make a duplicate set of wires for \$20.00 and I installed them myself. The whole job should be less than 30 minutes.

Wiring by the foot is available here: [http://www.julianos.com/battery\\_cable.html](http://www.julianos.com/battery_cable.html)

As for adding 4 gauge wires to the starter circuit or to the fuse box, I found this is not necessary. The starter turns over very quickly and all other circuits perform very well.

And as for the lights, 2 volts or more make a lot of difference. In my case I have the PIAA Platinum Series Super whites in my low beams/high beams and fog lights. Even in the daylight Aredub will not let me drive behind him, even with his tinted windows.

# Alternator wiring upgrade: TEST RESULTS

by svxcess

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Just thought I would give you the long term test results of the **alternator wiring upgrade** I did about 8 months ago. The electrical system has performed flawlessly since that mod.

I ordered a custom made digital plug-in voltmeter, with green numbers (they now are offered only in red) from Nordskog Performance

<http://www.nordskogperformance.net/m9025.html>

Besides constantly monitoring the voltage, it has a button which recalls the highest voltage measured. After 2 weeks in the car, monitoring various loads, here are the results:

Start-up voltage in the morning, cold engine: 14.5 volts

Normal highway speeds, stereo on: 14.1 volts

Normal highway speeds, high electrical load (high and low beams, stereo, rear defroster, air conditioning): 13.8 volts

700 rpm idle, no load: 13.9 volts

700 rpm idle, high electrical load: 13.5 volts.

My last test was turn on everything that could possibly be turned on. This full load included everything mentioned above plus hazard flashers, cruise control, room and map lights, heated mirrors, and front and rear wipers. At highway speeds, voltage dropped to 13.5 volts and at idle it was 12.2 volts. No matter what I did, as long as the engine was running, the voltmeter never went below 12 volts (at which point it would blink rapidly)

## Interesting notes:

On my car the difference between headlights on or off is only 0.1 volt. It makes no difference when I change to high beams.

My rear window defroster only draws about 0.2 volts, but it is the heated mirrors which really suck current. I am not sure why that is.

Electrical system: Original stock 95amp **alternator**, Optima "red top" battery, 4 gauge wire **upgrade**.

Photos of this modification can be seen in my personal locker under "Modifications/Fixes" [HERE](#) and [HERE](#)

**See Pictures on next page:**

