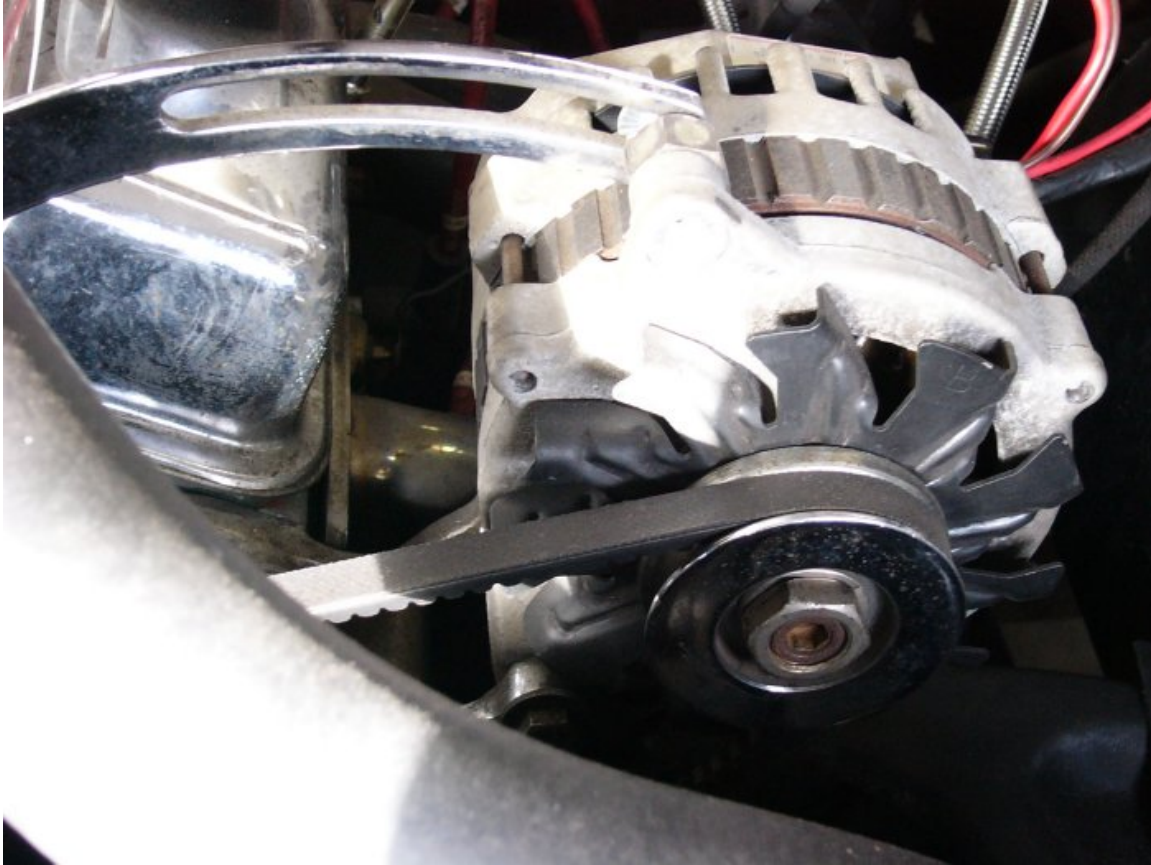


CS / SI Alternator Swap

Written By: Matthew Rogers



For anyone interested in upgrading their stock charging system, this is the easiest, fastest, and coolest way to do it. I introduce to you the CS alternators. What I will be discussing is the installation of a CS130 100 AMP alternator.

The picture above is actually the wrong alternator for this swap...I just used what I had to make it work. I did not use the proper casing so mine looks a little different, with its modified upper bracket.

Worth mentioning is the CS144, which compared to the CS130, is bigger, has a higher output, and tends to stay cooler. I will stick to the CS130 for the install because it's cheaper by a long shot and a lot easier to find and install. The following info all pertains to the CS144 as well with the exception of the upper adjustable bracket.

First is identification. You need to find the case that best suits your application. There are three common cases to watch out for, and they are designated by the location of the mounting tabs and the plug socket. The tab style is read by looking at the alternator like a clock, with the plug socket at the top at the 11 o'clock or 12 o'clock location.

With the plug socket at the top, the main mounting bolt tabs will be at 6 o'clock. The upper tab, which bolts to the adjustable upper bracket, will either be at 10 o'clock, 12 o'clock, or 2 o'clock. Here is what an SI alternator looks like with the 12 & 6 clocking.



You can see how the mounting tabs oppose one another.

This is a Corvette style clocking, that fits the stock C3 brackets. Knowing this it's best to find an alternator that best matches this case style. Luckily, the best fitting case is found on another Corvette, but a C4 Corvette. To be more specific the '87 – '91 Corvettes with the 5.7 Liter 350.

If you do have or if buy an alternator with a clocking other than 12 & 6, you can clock it yourself in a bench vice. You can contact me directly or search for my paper on properly clocking an alternator.

Here is the alternator information for finding or ordering a new one.

- GM part # 19135926
- O'Reilly part #01-0388
- Delco part #1101264 & #1101601

Depending on where you get your alternator and what year it's for it can have either a V-belt pulley or a 6 groove serpentine belt pulley. It's very easy to swap out the serpentine pulley for your stock V-belt pulley.

Place the original SI style alternator lower mount in a vice. Use a large towel, rag, or even a heavy duty glove to hold the pulley while you remove the shaft nut with an air powered impact gun. A strap wrench also works for holding the pulley. Once the nut and lock washer is off, the pulley, fan, and spacer bushing just slide out.

The same procedure works for removing the new alternator's serpentine pulley. Once you have removed both sets of pulleys put the new alternator in the vice. Install the stock fan and V-belt pulley the same way you removed the old ones.

Now you should have a CS130 alternator with a V-belt pulley and fan ready to be installed.

The next step is wiring. Stop by a local parts store, and buy a CS alternator plug replacement pigtail. It's a black connector with three wires, red, black, and brown. The black wire is not needed, so you can cut it now, or do it when the harness is adapted.

Here is what the pigtail will look like.



Your Corvette's factory SI plug will have two wire combinations. It will have either a brown and red wire set or a white and red wire set. My '77 had brown and red but some other years or models may have had the white.

The red wire will be a constant hot wire that can be checked with a multi meter. The brown or white wire will be a switched 12V sourced from the GEN warning light in the center console. This is also called a sense light telling the alternator when to put out. If the brown or white wire is not connected, the alternator will just spin and won't generate power.

You can go about installing the new plug two ways. You can purchase a female SI plug adapter or you can cut off the stock SI plug as I did. It's a cleaner install. Cut the plug off, slide some heat shrink tubes over the wires, and solder the two wires together. Red goes to red and the white or brown goes to brown. Use a heat gun or lighter to shrink the wrap and you will have a nice clean look.

IMPORTANT NOTE: GEN LIGHT NOT PRESENT!!!

If you have a C3 with NO GEN light in the dash, then your harness will not provide enough resistance for the CS alternators to function properly. They will work for fine for a few months, but then the alternator will fail. So, if you do NOT have a GEN light in your dash, you'll need to add at least 35 OHMs of resistance to the Sense wire, which is brown, or in some cases, white.

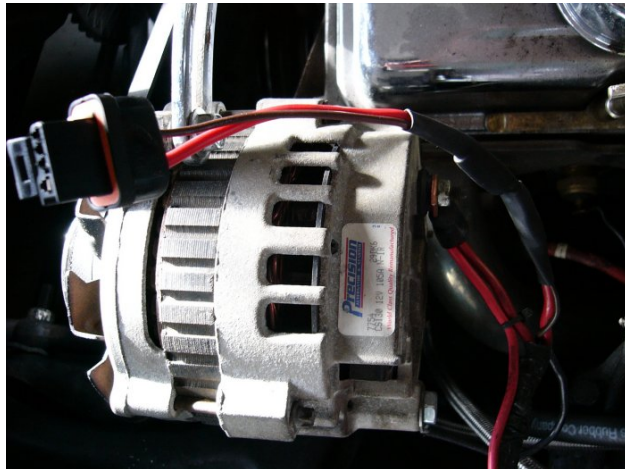
You can either splice in your own resistor, or you can buy a pre-made adapter for this purpose. Napa sells it, part #EC82. It's a two piece connector that adapts the SI plug on your harness to the CS plug in the alternator. You can either plug and play, or you can cut off the SI female plug and splice the CS plug and resistor to your existing wiring after cutting off the stock SI plug.

Napa Part #EC82 \$16.69 + Shipping

[http://www.napaonline.com/NOLPPSE/\(S\(wi5qcx45yqak5m5543vjnqm5\)\)/Detail.aspx?R=ECHEC82_0215724428](http://www.napaonline.com/NOLPPSE/(S(wi5qcx45yqak5m5543vjnqm5))/Detail.aspx?R=ECHEC82_0215724428)



Here is what my harness looked like after I cut off the stock SI plug, and spliced on the new CS plug. I used proper crimping tools and heat shrink for an easy installation.



Next we have to install the alternator itself. The 6 o'clock mount goes in the stock location on the lower bracket. The bolt that originally held your SI alternator will do the same for the CS alternator. The upper mount should be in almost the exact same

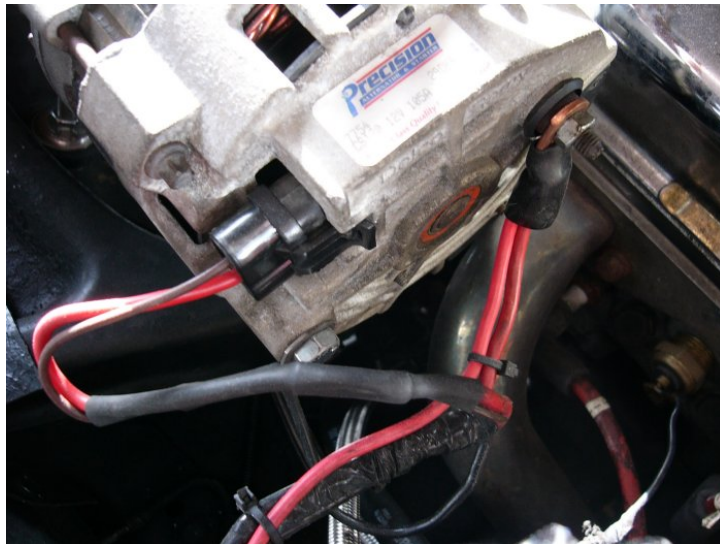
position on both alternators, but depending on year or model this upper adjustable bracket may need to be modified. Your specific situation will determine this.

If the upper adjustable bracket lines up with the adjustment hole on the 12 o'clock position, secure it to the case with a metric #8 bolt. These new GM cases used metric bolts instead of standard.

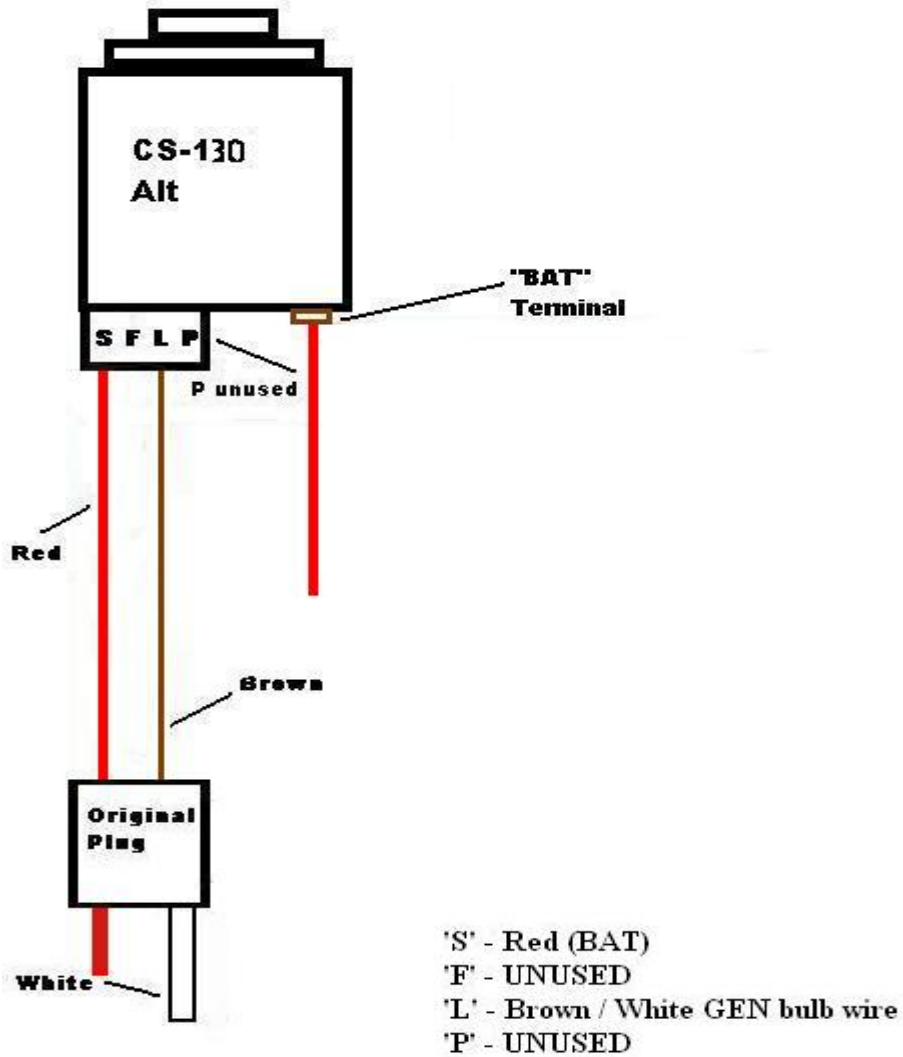
Slip the belt over the pulley, put tension on the belt, and check to make sure the belt is lined up properly with the crank and water pump pulley. If everything lines up, simply tighten the bolt while keeping tension on the belt. You want it tight, but not too tight. You want about a 1/4" of flex up or down in the belt.

Now, the rest of the wiring consists of a red power wire and a black ground coming from the original harness. The black wire goes to the ground terminal on the back of the alternator, and the red goes to the stock BAT terminal as it did before.

You won't have to add or subtract from the factory harness, but it would be a good idea to run a 10 gauge jumper wire from the BAT terminal to the starter motor where the positive battery cable mounts.



Here is a wiring diagram to help understand how the factory wires splice to the new plug. It includes the letter designations on the plug and which wire they correspond to. Remember that two of the positions are not used.



That's basically the extent of the install. Please make sure of the following things before you start the engine after this alternator swap has taken place.

- Pulley and fan are tightly secured by washer and retaining nut.
- Pulley and fan spin freely before belt is in place.
- Belt is in place, lined up properly, and tensioned properly.
- Wiring matches examples.
- Power wire is sufficient size or jumper wire added.
- Both upper and lower bolts are tight and secure.

Thanks so much for reading. You can always contact me with any questions.
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