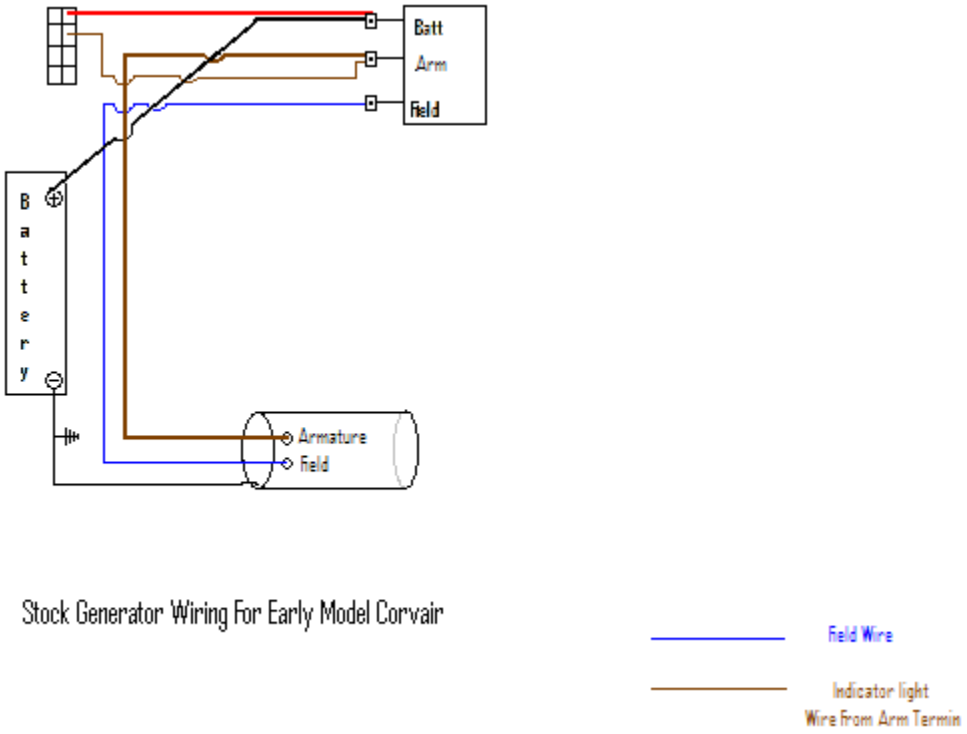
Converting An Early Model Corvair Charging System To Use An Alternator

By Geoffrey A. Johnson

The stock generator worked fine on a Corvair and still does, or other cars of the era. There are definate advantages to an alternator though, so if needed, it is a simple swap. There are several options in the conversion. You will see advertised one wire setups. They do not supply proper voltage sensing, or an output for the idiot light, but will work.

Here is a diagram of the stock Corvair generator wiring



Stock Generator Wiring For Early Model Corvair

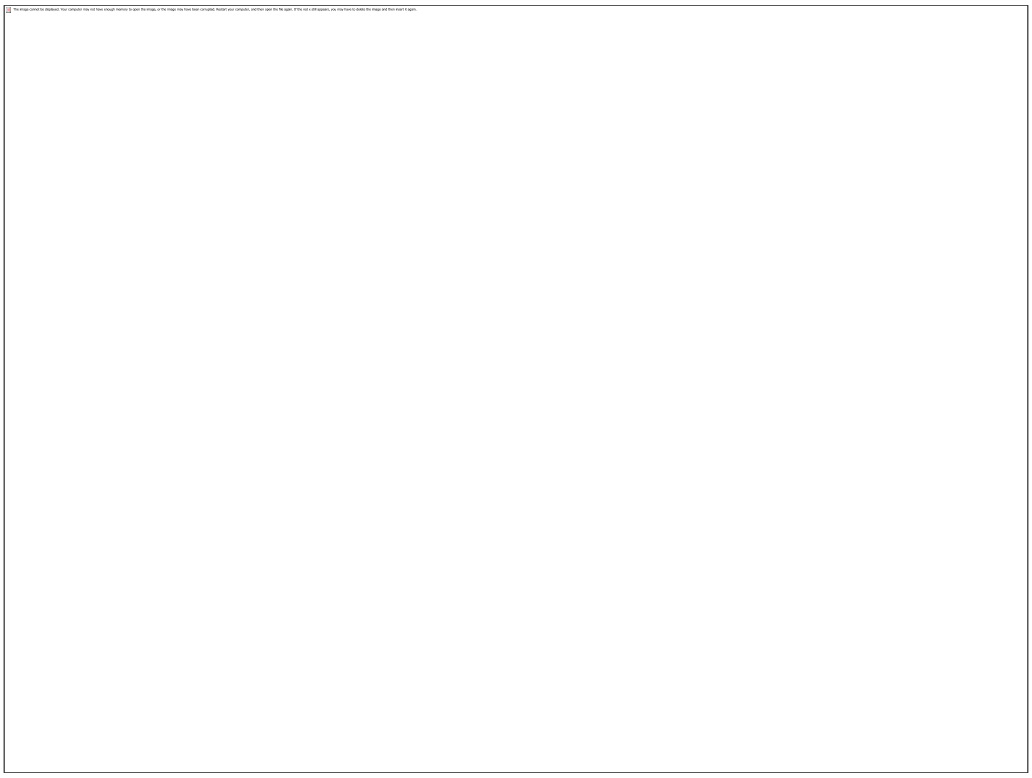
You can order a kit from a Corvair Vendor or do the conversion yourself if you have a Corvair alternator. It is also critical to use a *correct* Corvair alternator fan. The alternator turns in the opposite direction from a standard GM alternator. This does not matter to operation of the alt, but it is critical for air movement from the fan. A bi-directional fan off of a marine use GM alternator will work as well as long as the pulley and spacing are the same. Do your homework if you go this route. The fan off the old generator can be used as well in a pinch. You will need a late model Corvair alternator adaptor as well. This is the 'delcotron' adaptor that the alternator mounts too. The old one for the generator will not work. This is the part bolted to to the engine that mounts the fuel pump and oil filler as well. It is a lot easier in terms of wiring to go with a later GM internally regulated alternator instead of the 10DN that was stock in late model

Corvairs. This can also be more reliable, as internally regulated units use a solid state regulator versus points.

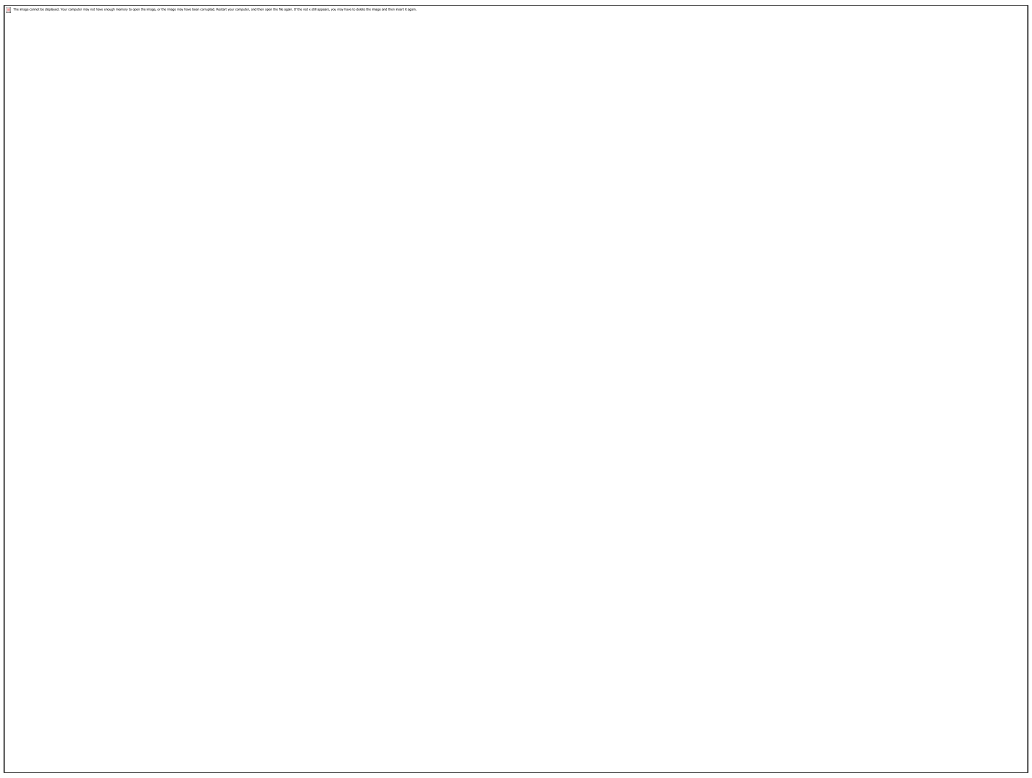
You can get a internally regulated GM alternator from an auto parts store or a junkyard. It is easiest to look for a mid-seventies V8 GM application. The two kinds to consider are the 10SI or 12SI. The cat's meow is a 12SI Lester #7294 rated at 94 amps, look for one off of an '85 Buick Riviera. Not that you would ever need that much. A note, heat generated by the alternator goes up with the square of amperage multiplied by ohms of resistance. This means the higher the amperage the more heat. So in reality you should not need something that high, and to avoid heat problems, you may consider the 10SI. It can be argued either way.

I go to the junkyard to find an alternator core when building one. It is surprising to look through and see how many cars may have an almost new alternator on them - a last ditch effort by the PO to save the car? Usually one can be found that has been recently refurbished. For 10$ a piece versus $80 at an auto parts store, this is quite economical, considering you will be throwing out most of the parts anyway. A good example is an alternator off of a '76 Pontiac wagon with AC. Swap the end housing of the alternator to the Corvair unit. It bolts together easily, with few tricks. You need to use the stock Corvair pulley and fan though to keep the cooling flow correct. It is hard to get the pulley nut off, and usually you need an impact wrench. A chain wrench works very well if you have one. Once off replace the ball bearing in the Corvair housing with one off the new alternator (even if new, it is worth checking that the bearing has adequate grease, the sealed cap can be pried off with a sharp point, then pushes back in place). Then put the new rotor in the Corvair housing. Keep the bearing spacer rings in proper order. When putting the two halves together use a paperclip inserted through the hole in the back to hold the brushes in place. Assemble it so that the two terminals face the back of the car in the installed position. This is not an absolute, but allows for easy wire routing.

It should be self apparent to disconnect the battery before doing the following! You can clip the wiring plug for the alternator off a car in the junkyard, or they can be purchased in the wiring section of any auto parts store. Basically, you connect the old generator Armature wire (the large brown wire on the middle armature terminal on the regulator) to the Battery terminal on the Regulator. Then connect the other end of it to the #2 terminal on the Alternator.
Note, the Alternator should be marked with a **1** and **2** cast into the housing by the terminals.
A new #10 gauge red wire should then be run from the battery terminal on the regulator to the battery terminal on the alternator. This is the main power output line. I advise soldering the connectors for longevity.
The "field" wire can be cut, and used to connect to the #1 connector on the alternator. As in diagram. Then clip the small 18 gauge brown wire off of the middle terminal of the regulator (attached to the old armature wire, presumably already moved to the Battery terminal). Then clip the blue field wire end at the regulator and connect it to the small brown clipped wire from the middle terminal. This is the the wire to the light on the dash. That is about it.
This is what the new wiring will look like.



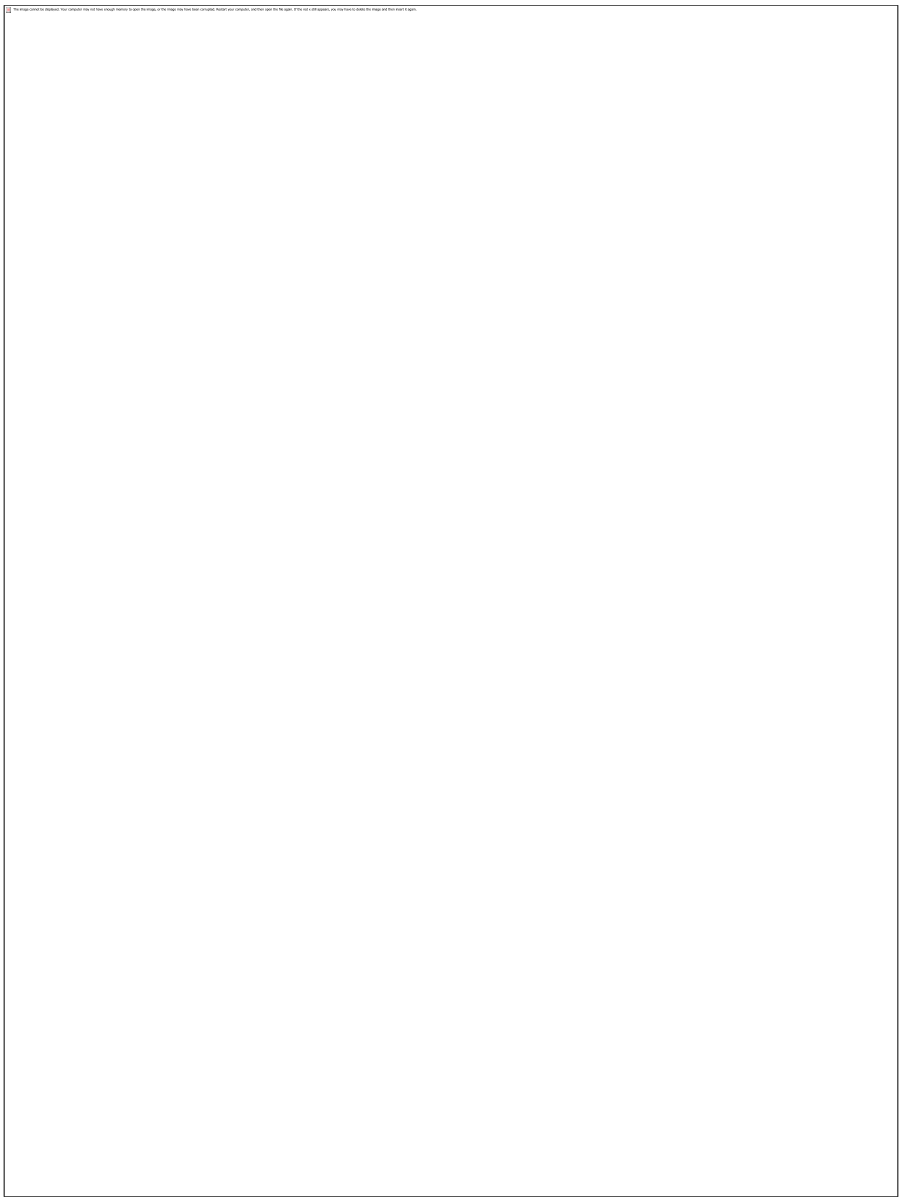
This is a simpler (yet somewhat incorrect) way to connect the wires, but all contacts must be perfect, and is not as accurate. That said, I have seen plenty of GM cars in the junkyard with this type of wiring. Where the sense wire terminal (Terminal #2) is jumpered to the output terminal. It does not sense power from the distribution junction (what is now the Battery terminal on the old regulator) therefore with voltage drop in the lines it does not get an accurate reading of system voltage. This is basically a 'one wire' setup.



So now you have an alternator that works. The old voltage regulator is hanging there, its only purpose to serve as a junction block. Why not get rid of it? Go to a junkyard or an auto parts store, and get the distribution block that is on the firewall of a GM full size truck. What say '72-whenever. The entire alternator wiring from a S-10 truck works very well, and supplies the wire from the alternator to the junction block with factory connections. It is perfect. Has raised walls around it to keep things from hitting it and shorting. I mount them in front of the battery below the hood prop. Move the wires there and get rid of the old regulator. It looks stock! They are extremely ubiquitous, and practically free.

One last note of consideration. The internally regulated alternators do not have a bolt hole in the correct location to attach the rear support strut that the stock alternators used. Several options are to bend the stock one to fit, make a new one out of sheet metal, or leave it off completely.

Note: The following pictures were taken before I put the battery clamp back in.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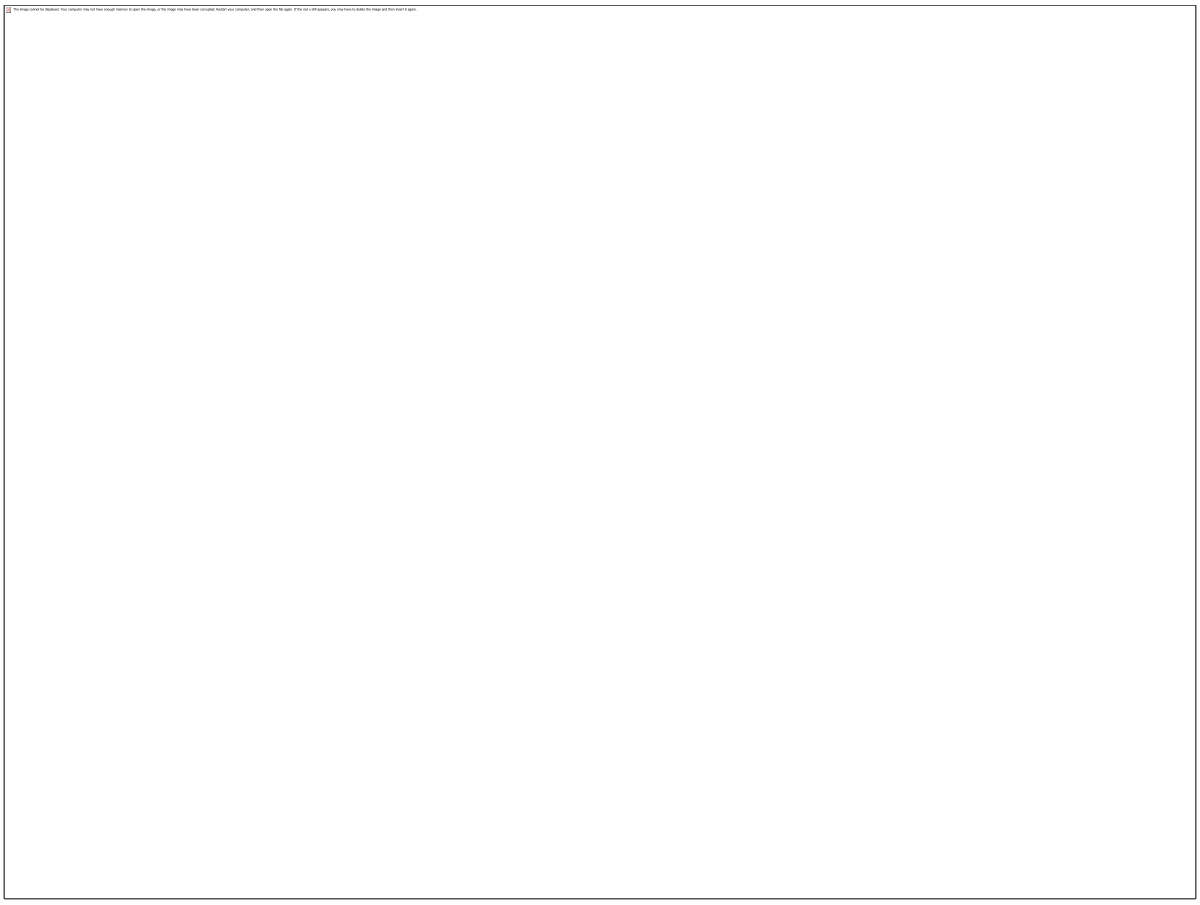

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