

Avanti Repair

Modern Alternator for Early Avanti

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Gauges are great, as long as you actually pay attention to them. I'll confess I didn't really notice my ammeter's needle slipping into the "minus" zone. I looked at it a couple of times, barely noticing it was reading only a little below the middle on the "bad" side, I assumed maybe the gauge was wrong. That's it.

That was my dismissive opinion until my Avanti R2 refused to start one afternoon, luckily not far from home. A friendly stranger gave me a jump, and when I got back to the garage, a quick check with my multimeter showed that my 45 amp alternator was putting out only 15 amps; not enough juice to charge my battery.

Original Prestolite alternators are rather rare, and might have a reputation today of being somewhat unreliable (imagine- after only 50 years of service!) while mine showed signs of prior repairs and was likely still rebuildable, I decided to look for a more



modern alternative, carefully boxing up the original for posterity.

I searched the usual sources online to find out what solutions others had found, and while some recommended Chrysler and AC Delco units, I finally settled on the Remy / Nippondenso unit that is used on the 1988 Toyota Tercel. (look up Remy 14341, available from many parts sources including www.rockauto.com)

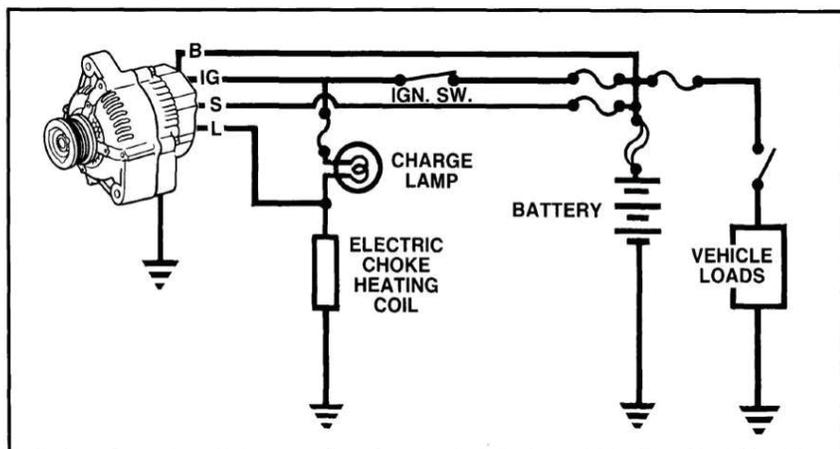
There are a few reasons why I picked this one. First, it looks nearly identical to the original Prestolite unit; it bolts right in as a replacement. It requires no washers, spacers or fabrication of brackets to get it to mount in the close quarters under the hood on an R2 engine. The front fan cover looks just like the Prestolite unit as well—flat, smooth and without the cooling blades showing. Next, it puts out 55 amps—an improvement over the old part, but not so much as to require rewiring the harness with thicker gauge wires. Finally, it is internally regulated, meaning I can bypass and eliminate the equally troublesome and expensive Prestolite regulator.

(above left) Remy replacement unit on left, original Prestolite alternator on right. Nearly identical in appearance, the Remy unit is internally regulated, eliminating the need for the fender-mounted external regulator.

(at left) factory wiring diagram for the new alternator cribbed from the Toyota service manual. Note that an "always-hot" wire runs to this alternator, unlike the old setup. On the back of the alternator, use a short jumper wire to connect terminals "E" and "S". The "L" terminal is not used, since the Avanti instrument panel has no warning light.

Facing page left: Hefty 60 Amp blade fuse inserted between always-hot battery wire and terminal "E" on the alternator, for safety.

Facing page right: circle denotes where interference required a small bit of grinding of the alternator case. I used a locking plug for the wiring and put rubber boots over all lugs and used heat shrink tubing over all soldered wire splices.

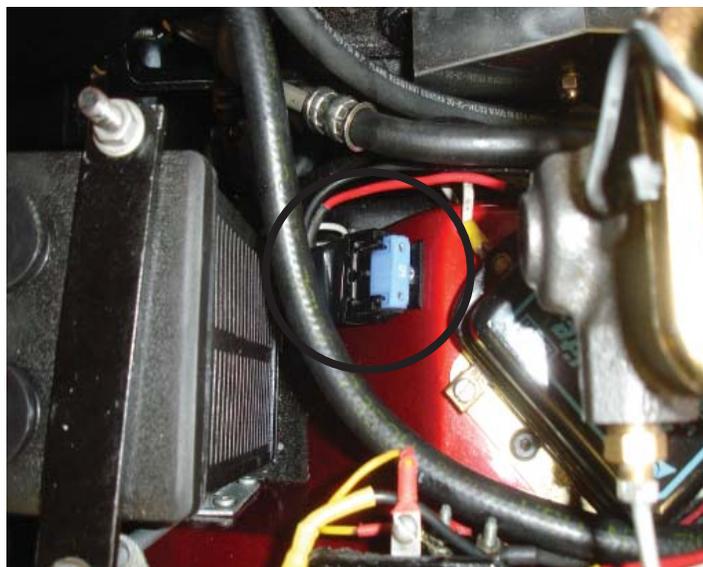


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Unbolt the old, bolt on the new

It probably would have made sense to have removed the car hood and to have worked from the front instead of wrestling as I did in a confined space from the side, but the job was not impossible done this way. The new unit has the same dimensions as the old with one small difference. One of the case screw bosses interfered only slightly with my heater hose water neck. Perhaps yours will not interfere, as the engine protrusion is a threaded pipe bung that is probably positioned slightly differently on every car. Nevertheless, using my angle grinder, I quickly took about 1/8" off of the casting and it fit neatly into place using the original bolts.

Simple and smart wiring



Because this alternator has an internal regulator, the original relic screwed on the inside fender can be bypassed. I chose to leave the old regulator in there so as not to change the car's appearance, but I "reassigned" the three original wires from the wiring harness so they now serve new functions.

Note that the new alternator requires an always-hot battery wire to be attached to it. The old one did not. This is accomplished by moving the white with red stripe wire that is originally on the regulator terminal marked "FLD" to the terminal marked "BAT". The white with red stripe wire that is in the harness will now become the new battery wire to the alternator, and will allow the alternator to charge the battery while you drive. Please first carefully note the condition of this original wire. If you are using your car's old original harness, be sure that the wiring is in good condition. If you have any doubts at all, run a new 10 or 12 gauge wire from either the battery side of the starter solenoid (or the BAT terminal on the old regulator) to the alternator's BAT terminal. At the alternator end, you may want to cover the terminal posts with rubber boots as I did for added safety.

Now with an always-energized battery wire running past the hot engine and snaked through the accessories to the back of the

alternator, please be smart and install a fuse on this wire near the battery. You can hide it on the inner fender right below the old voltage regulator. I used a rather beefy 60 AMP fuse, because while our new alternator is rated at 55 amps. It would be rare for the wire to be carrying that much current often or for very long. But this is a safe rating and will prevent a disaster should a wire ever become frayed.

The alternator has a three-prong socket on it that will accept simple blade connectors. The terminals are marked "S", "IG" and "L". However, you want to do it right, don't you? For safety and reliability, substitute a secure-fitting locking-plug alternator pigtail #RC1700J from www.repairconnector.com.



Run a simple jumper wire from the BAT terminal on the back of the alternator to the S blade terminal. The "IG" terminal needs a wire connected to it that is hot with the key turned to the ON position. Moving the white with black stripe wire from the FLD connector to the IGN lug on the voltage regulator will provide that.

The "L" terminal on the alternator is not used here, it would be used to power the ALT warning light on the dash, a light the Avanti does not have.

Finally, attach the white wire to a grounding lug in the alternator's case back.

Firing the car up, the ammeter needle immediately swung far to the right, indicating urgent charging of my half-depleted battery. The car immediately ran smoother and seemed altogether happier, and has continued to provide reliable starting and charging ever since I've found that I have lost my instinct to grit my teeth and wince fearing the sound of "nothing" whenever I get ready to turn the key.

Creative credit for this swap is owed to Studebaker enthusiast John Winn from Bastrop Texas, who first submitted it as a tech tip to the invaluable Bob Johnstone online web resource in 2004. (<http://www.studebaker-info.org/rjtechx3.html>)