

ERA Forum

Technical Help

(Editor's Note: If you haven't been on the Electrical Rebuilder's Association's new Web site—you're missing out on the best information sharing in the industry. New members and the old faithful are making the Technical Help Forum the place to go with rebuilding questions, and all sorts of technical info. Following is a sample of what's going on.)

POST: I have a warn winch. Rebuilt the motor and it is working in both directions. Replaced all four solenoids and repaired some wiring. I can get it to go in the forward direction no problem. But in the reverse direction all it does is buzz (the noise is coming from the solenoids). I have triple-checked my wiring to and from the solenoids and everything is wired right. I am thinking I have a bad controller but wanted a second opinion.

REPLY: Sounds like you are right. If possible, reverse the two control wires coming from the controller to your relays and see if the opposite happens. You might also try manually jumping the control wires at the relays (bypassing handheld controller).

REPLY: You might connect current meter to see how much it draws in the buzz condition. Could be excessive and the solenoid is losing its voltage. When it closes it de-energizes, then closes again giving you the buzz.

POST: Thanks guys, I switched the wires like you said, it is the controller.

POST: I finally found a used growler cheap. Sometime, somewhere, someone must have opened it up and resoldered the connections. This may be why it doesn't seem to work exactly right. Does anyone have a basic wiring diagram for Silver Beauty (yes, I did say 'old') growlers? Model number is 450.

REPLY: I have no wiring diagram. I have the same model. I would start with the basics. What part is not working; the growler, or the "bar to bar" test prods? Test continuity of AC cord for opens, test power switch and high/low test prod switch.

The growler part should work if you connect AC directly to its "transformer." If someone left the unit "on" without an armature in the "cradle," they may have burned it up. You also have an indicator light and a fuse, I

believe. Fuse good?

POST: The unit turns on. The light lights and the meter moves. If I touch the red probes to a bad armature, the light goes on or off depending on where I touch them. The meter moves when I use the black probes. However, I thought the meter should peg out when I touch the black prods together; it doesn't twitch. This place hasn't had a growler with a meter in decades, and no one is willing to say whether it's working correctly or not. For all I know, it's working fine and I'm the problem.

REPLY: Here is how I use the prods on my Silver Beauty Model 450:

1) Cable tie the two prods together (side by side).

2) Clean (sand) commutator.

3) Use "Low" position for most starter armatures.

4) Mark one bar with a marker (starting point).

Find the "sweet spot" on commutator (for a reading), which is usually below the center of the armature commutator at eye level. Make sure prods touch two bars. To do this you have to come in at an angle. Rotate armature towards you to the next bar and repeat. Keep prods in same position. In other words, move armature, not prods. Do a complete rotation and look for consistent "bar to bar" readings, which will normally be on the lower end of the meter. Takes a little practice, but once learned, can be done quickly. Hope this helps.

REPLY: RE: 'However, I thought the meter should peg out when I touch the black prods together; it doesn't twitch.' Probably have a AC meter. When touching prods together "no AC is found." Also the ones with DC cost considerably more "if they make them anymore" but are more dependable. I still use the hacksaw method, takes about 30 seconds to go around a com once you have done a few dozen. Then counting the sparks between each bar, that takes a few hundred years of experience.

POST: OK, I tried Denny's method on some new armatures and two from the scrap bin that had "short" written on them. The meter barely twitched for one of the new ones and stayed close to zero for the other one. It went all over the place for one of the shorted armatures and registered high for the other one.

Does this sound correct? I'm planning to test all the stored armatures here (hundreds) and I'd like to do it right.

REPLY: To test for shorts, you have to use the "hacksaw" over the top of the armature. What I previously described was for checking for "opens" or weak bar to bar connections.

REPLY: Growler testing—good topic for Tuesday night chat. In the meantime the AC current measured will vary from armature to armature, depends on wire size and number of turns. What we are looking for is the variations that occur as we go around the com. The hacksaw method (screwdriver if you like) checks for a "closed loop," the growler acts like a transformer and if the wires are shorted to each other we have a closed loop and current can flow in this loop creating a magnetic field which in turn magnetizes the hacksaw or screwdriver.

POST: Good morning, I need help bench testing a 8SC 3018V alternator. It is a 24V, 150 amp bus application. It is an insulated ground with B+, negative, R terminal on alternator. The regulator (8RL 3013A) has an ignition terminal and a purple push-on lead as well as a yellow push-on. On the test bench with just the ignition terminal on regulator to battery positive I show 28V and good amperage. If I connect the purple to the output it drops to 26.5V. Does anyone have information on this unit?

REPLY: This alternator is designed to operate without batteries. Contact Prestolite for testing instructions. I have some buried around here somewhere if they can't/won't help you.

REPLY: To contact Prestolite/Leece-Neville tech service call (800) 354-0560 ext. 133 or ext 115. They can help you. The purple and yellow wires control output with different voltage values for either. The purple should be the lower of the two voltage settings.

REPLY: Yellow wire = turn on with 12V purple wire = connect to + output ignition post = whatever, on the ones I have done I think it puts out the light.

POST: Thanks to all that replied, I learned that one can go to Prestolite's Web site, register and view brochures on any series alternator. Very informative.

POST: Customer is working with a Hummer Limo. The limo conversion company added a second alternator to power the goodies. It's a Ford 3G (7776 style) converted to 250 amps. The stator is custom and hooks up to only three of the rectifier terminals. The pulley is a custom billet aluminum job. They reworked the rotor for high rpm by wrapping the coil in a cloth mesh and putting about a pound of epoxy on each slip ring lead. No signs of rotor balancing. Naturally the epoxy came off from the high rpm and wiped out the rotor. I was able to repair it with a stock 3G rotor and some of Vensel's blue epoxy. No warranty. Does anyone know who is making these abominations? How about a complete replacement unit that is actually designed to stand up under limo usage?

REPLY: I have a stator/rectifier combo that produces on average 125 at idle (hot) and 225 at about 6,000 rotor rpm (hot). This is done with a stock 130A rotor.

REPLY: Check with Wrangler at (800) 962-2616. They have a good solution, too. I think it uses a CS unit.

REPLY: A few months ago I had a 3G off an Expedition with a one-inch pulley. Whoever designed that should be stood up in front of a firing squad! Every part of that thing was worn out! It left here with more Loctite than grease!

POST: I have a 1986 Chevy pickup with a 6.5 and two 27SI alternators, 24-volt system. Does anyone have a wiring schematic on this? Driver's sides seemed to be OK. Passenger side made me scratch my head. Not sure how they are wiring this. Any help would be appreciated.

REPLY: What problem are you having? These alternators are isolated. You have two 12V units, one for each battery. There are charge relays under the dash which control the alternators. If memory serves me they are in the center of dash under side.

REPLY: Hank is right about the alternators being isolated and each charging one battery. Most of the truck is 12V, and the main battery is grounded

to the frame and block. However, the positive side of the main battery is jumped to the negative side of the secondary battery, and both batteries are used for cranking the 24-volt starter. The secondary battery is used only for cranking, and maybe the glow plugs (I've never checked that part). I've got a wiring diagram for this truck and it's about 50 pages. What is the problem you are having? Best way to check these systems is one at a time. Let me know if you have a specific question.

REPLY: Thanks guys, I did some digging and found a fuse for the passenger side alternator was blown. I had first thought it was a 24V alternator that wasn't working. Tested it on bench and found it was an isolated ground 12-volt that was working. So all is well and I've learned a bit about that system.

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