

## Basic Diagnostics for Testing AC Output

This bulletin covers the following Champion Power Equipment models:

79cc – 439cc Engine Powered Generators

Note: Read instructions completely before performing service.

1. Remove the two (2) 7mm bolts in the yellow end cover on the generator end.
2. Locate the AVR (Automatic Voltage Regulator) at 7 o'clock position (Silver curved aluminum device, Brush assembly at 11 o'clock and the Terminal block at 4 o'clock.
3. Identify the Terminal block connections as 1 thru 4 from high to low.
4. Test the brushes for DC power excitement by removing either wire from the brush holder and scratching against its connection to notice a bright blue spark. This is only 12 volts DC so there is no danger of electrical shock. (Flash Test)
5. If no spark appears, then remove the brush assembly and check for damage. (i.e. - burnt contacts, broken carbon brush or any other physical damage that is evident.) Remove brush assembly and inspect for any damage, re-install and repeat flash test for spark. If spark does appear re-install terminal and check for voltage output at meter.
6. If no spark appears, then excite the brushes with an external 12 volt power source. If this produces panel voltage on the volt meter, then the stator and rotor are initially OK and replacement of the AVR is necessary. If replacing the AVR does not correct it then it is possible the excitor winding is defective and not producing satisfactory AC excitement to the Regulator Rectifier (AVR) that will convert this signal to a DC voltage for the brushes. Complete Stator replacement would now be required.
7. If still there is no voltage, it is time to check the rotor for continuity. Remove the brush holder and using a continuity tester, touch each of the slip rings that contact the brushes for continuity. The tester should be giving you a closed test or continuity. If you have no continuity between the slip rings on the rotor, then check to see if there is a broken wire at the connection between the stator and slip rings. You can see the connections with the brushes removed.
8. Test the AC output at the terminal block by attaching your voltage multi-meter at the terminal block between connections #1 and #2, #2 and #3 (#3 and #4 on 4 wire connections). Both of these tests should show 115-125 volts. If either test is low, then you probably have a defective stator. If the voltage is good at these connections, then you must check all the wiring between the terminal block and the panel for poor or broken connections.
9. The hot leads will normally be brown or blue (120v). The neutral or common will usually be white in color. If all voltage is lost after plugging in an outside load, then the neutral wire has a poor connection in its circuit. If you only lose one winding's output, then the brown or blue wires will possibly have a broken connection in its circuit. Stator replacement is needed.

If you have any questions, please contact Champion Power Equipment:



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