

Electrical Output Testing Procedure

This bulletin covers the following Champion Power Equipment models:

2800w – 9500w Generators, Brush Type System

Note: Read instructions completely before performing service.

1. Flash Test DC Voltage to Brush Assembly.
 - I. Remove the round yellow end cover, to the left of the muffler. At the uppermost position you will see a red wire (positive) and a white wire (negative) connected to the brush assembly.
 - II. Remove the white wire. With the wire disconnected start the engine, scratch the wire against the terminal it was originally removed from. This should produce an electrical arc. This is DC power only and there is no danger of electrical shock.
 - III. If spark does appear, reconnect the white wire to its terminal and there should be power to the outlets and meter. If there is power, re-assemble the unit.
 - IV. If there is no spark, remove the brush holder and examine the carbon brushes for damage, uneven or excessive wear.
 - Remove the bolt below the red wire (positive). Remove the brush support plate and lift the brush assembly up and out of its position.
 - The brushes should be between 3/8" and 3/16" and be relatively equal in length. Regular use of the generator can cause wear of the brushes; if the brushes are damaged or worn excessively they will need to be replaced.
 - V. If the brushes appear to be in good condition, continue to the next test. Leave the brush assembly removed for the next test.
2. Rotor Test
 - I. With the brush assembly removed, using a multi-tester; set the tester to the 'Ohms 1K' scale. With the probes of the tester, touch each copper slip ring and there should be a reading between 45 and 75 ohms.
 - This test should be performed with the generator not running, turned off.
 - If the ohms reading is less than 45, that is a sign that the rotor is failing and will need to be replaced.
 - II. If the reading is between 45 and 75 ohms, examine the soldering of the rotor wiring to the slip rings. Be sure all solders are solid and completely connected. If there is a broken wire or solder point, refer to bulletin 2050011.
 - III. If the ohm reading is within the appropriate range continue to the next test. Put the brush assembly back in place, attach the support plate and secure with the bolt previously removed. Leave the yellow end cover off for the next test.

3. DC Output from AVR to Brush Assembly

- I. Check the red wire (positive) and white wire (negative) on the brush assembly, be sure they're pressed on snugly.
- II. With a multi-tester, set the scale to 'DC Volts', and place the probes on the red and white wires. There should be a voltage reading between 15 and 18 volts DC.
 - This test should be performed with the generator running, turned on.
 - If your reading is below 15 volts DC, continue to the Exciter Field test before replacing the voltage regulator (AVR).

4. Exciter Field Winding Output

- I. Locate the white nylon connector with 4 wires coming from the stator and connecting to the AVR and disconnect the plug.
- II. Of the 4 wires find the 2 yellow wires and the terminal they are plugged in to on the nylon plug. With the engine running and using a multi-tester, set the scale to 'AC Voltage' and with the meter probes touch the terminals. The meter should read between 4 and 8 volts AC.
 - This test should be performed with the generator running, turned on.
 - When testing a generator over 3,500 watts, the exciter field windings are the 2 blue wires. Test the 2 blue wires for A/C voltage.
 - When touching the probes to the terminals there is no specific direction the probes need to be placed.
 - If the meter reading does not fall between 4 and 8 volts the stator will need to be replaced. Refer to bulletin 2010001
 - There is a slight chance that the stator has not failed and one of the magnets on the rotor has either come loose, cracked or broke. Before ordering parts, remove the stator from the rotor and examine the rotor thoroughly.
 - If the meter reading is between 4 and 8 volts the voltage regulator will need to be replaced (AVR). Refer to bulletin 2050001.

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

Champion Power Equipment, Inc.
12039 Smith Ave.
Santa Fe Springs, CA 90670

Phone: 1-877-338-0999

Email: tech@championpowerequipment.com