

## **Rotor, Stator or Engine Removal with Champion Puller**

This bulletin covers the following Champion Power Equipment models:

196cc – 439cc Engine Powered Generators

Note: Read instructions completely before performing service.

**Rotor or Engine only Removal:** When removing the rotor only, it is usually much faster to remove the engine from the generator chassis. When doing the removal by this method you can leave all wires intact on the generators stator attached to the terminal block underneath the yellow end cover of the generator. However, it is recommended to remove the brush holder assembly since failure to remove can result in broken brushes.

1. Remove gas tank by removing four corner bolts and end bar (2 bolts) on fuel cock side of generator. Slide tank from generator chassis. Be sure to turn fuel off and remove fuel line from tank first.
2. Place tank in a safe location away from any possible damage until reassembly is needed.
3. Next remove muffler mounts, guards header nuts and muffler. Secure the fasteners in a container to prevent loss.
4. Remove isolators holding the engine in place. (2 nuts on corner of engine and 2 nuts on underside of frame)
5. Next remove the round yellow cover on the generator assembly. (2 – 7mm socket bolts) Locate brush assembly at about 12 o'clock position. Remove wire tie on main harness for more flexibility. There is plenty of space for the wires without the wire tie replaced.
6. Locate the brush assembly wires with a white band and a positive identifier (+). This wire could be red or blue. Remove this wire from brush holder contact brass terminal (blade type). Remove the negative wire (-) located to the right of positive (+) connector. This wire will be either yellow or white.
7. A single bolt located under the positive (+) connector will allow the brush holder assembly to be removed as a single unit. It will stay fully assembled.
8. Removing the brush holder first eliminates the possibility of damaging the carbon brushes which are very brittle as in pencil lead.
9. Next remove the center bolt of the rotor by air impact or using a breaker bar and securing the spark plug and insert a length of starter rope or similar to prevent the rotation of the engine. Be sure to remove the rope before completion and reinstallation of the spark plug.
10. There are two techniques to separating the rotor from the engine depending on the tools on hand.
  - a. To remove the rotor, you will insert the long removal bolt from the puller tools and turn in with a flat blade screwdriver as far as possible. Next using the short bolt included with the tool set, thread in the end of the rotor and behind the long bolt previously inserted. Continue tightening the short push bolt until the rotor releases from the engines crankshaft. An air driven impact wrench will make this an easy removal. If you use only a breaker bar and hammer, be sure you secure the engine from turning with the previous rope method. This method can be used to tighten the

actual rotor bolt during reassembly. After breaking the rotor free from the engine, you can now remove the engine from the chassis in one piece and replace the rotor. Note: By using a motorcycle type tie down strap attached to the upper frame tubes, you can cradle the stator while the rotor and the engine are removed. This keeps your alignment of the generator to the engine for reassembly. A Light lubricant, oil or grease on the end of the crank will assist in centering during the tightening of the rotor securing bolt.

- b. Using the 2 ½" bolt, wrap Teflon tape on the threads of the bolt and put the generator in an uphill position. Fill the rotor bolt cavity with standard motor oil, do not exceed 40 weight. Insert the 2 ½" bolt with Teflon covered threads in to the cavity and tighten with an air impact wrench. As the bolt is tightened in to the hole the rotor will hydraulically separate from the engine and will cause no damage to any parts.

**Stator only Removal:**

1. When removing only the stator with rotor, you will not remove the engine. You must disconnect the harness wires at the terminal block, remove the brush set, remove the AVR, and remove the 2 green wires on the diode assembly.
2. Remove the rubber isolator mount nuts and the nut holding the isolator from the frame member (underneath frame).
3. Remove the four long 6mm bolts alongside the outside of the stator (field winding assembly). These will allow removal of the stator after the end cover is removed.
4. Carefully support the engine assembly with a block/s of wood for stability and alignment after lighting the generator assembly and removing the motor mount isolator. By using the motorcycle tie down to provide support at this time also, you can suspend the end housing of the generator by carefully cross tapping the end cover it will remove itself from the end bearing. If you find this difficult to remove, then using a 100w light bulb at the bearing end, you can heat the end cover with enough expansion heat to make removal much easier, Leave the bulb as close as possible but away from any wires, which should already be removed or relaxed away from the bearing end.
5. Once the end cover is removed, you can now slide the stator assembly off.
6. Follow reverse procedures after replacing the stator assembly. Be sure to insert the wires from the stator through the end cover during your reassembly.
7. It is always a good practice to write down an illustration of the wire connections before disassembly takes place.

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

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