

## TROUBLESHOOTING GUIDE FOR PERMANENT MAGNET DC GENERATORS

If there is too much resistance to turning the generator:

**1.** Completely disconnect the generator (both wires)

If the resistance disappears, there was a load or a short circuit in the external wiring.

**2.** If the resistance is still present, unscrew the brushholders and remove the brushes.

If the resistance disappears, there is excessive brush pressure, such as caused by a nearly-worn-out brush catching on a commutator segment and getting jammed, or the brush has somehow become gummed up, or debris such as a magnet fragment has got in between the brush and the commutator.

To correct, inspect the brushes, replace one or both if necessary, or brush and blow out around the commutator.

**3.** If the resistance is still present, determine whether the resistance is constant or varying as the shaft is turned.

If the resistance is varying - dragging at certain points as the shaft is turned - then there is probably one or several short circuits in the armature winding, caused by overheating, resulting in the enamel insulation melting and the windings contacting each other. If this is the problem, the armature or complete generator has to be replaced.

If the resistance to turning is constant as the shaft is turned, the cause is likely failure of one or both bearings. Typically the front bearing can fail prematurely if the generator is operated with excessive side pressure, such as from a too-tight v-belt.

To correct, disassemble the generator, remove the armature, determine which bearings are hard to turn, and replace them.

**4.** Occasionally, a generator can be disabled by a fragment of magnet breaking off and lodging between the edge of a magnet and an armature segment. If this happens, disassemble the generator and remove the fragment, and also clean out any other such fragments, which will be adhering strongly to the magnets.

Call Windstream Power LLC for parts and repair 802-425-3435