

I've had many e-mails over the years asking about the Prestolite Stator, how it works, why is there 2 coils (hi-speed & low-speed), what are the symptoms of failure & why do they fail: Here's my typical response to those question: 😊

WHY 2 COILS (HI & LOW SPEED)?: 2 coils is required because as the RPM's increase, the efficiency drops. The low-speed coil is wound to work from 10 RPM's to around 4000 RPM's, then, as RPM's increase, you have copper losses and eddy currents (hysteresis etc) that cause the output efficiency to drop. The hi-speed coil has very low output until almost 2000 RPM's then it catches up and outputs MAX until around 10K RPM's or so. The cross-over is around 3000 RPM's.

WHAT IS THE SYMPTOM OF FAILURE?: If you ever had a low-speed coil fail, the sled will run during a failure, but if you shut it off, you can't pull it over fast enough to transition to the hi-speed, so voltage is low & no spark results. That's why people are so amazed that "It ran great until I shut it off"...then no spark, which is typical failure.

BUT IT RAN AGAIN A WHILE LATER?: Sometimes they cool down & will work again, but it's short lived. Many times people think it's the CDI box, because they replace the box, the engine cools down & it runs again.

WHAT IS THE VALUE OF THE LOW-SPEED COIL?: 2.6K~2.7K is typical value of low-speed coil. If it's lower...you will soon be replacing it. Warming it up with a hair-driver often times will show it fall off in value, which indicates soon failure.

WHY DID IT FAIL?: Failure is caused by multiple things. Rust between the laminations will spread them apart & stretch the wires, thus flaking off the varnish, soon creating a hot-spot for failure. Heat is also a killer. A grass-drag sled will kill a stator much quicker because of the elevated temps & softening of the varnish & eventual shorting of windings.

WHY IS FAILURE SO COMMON?: The magnets are weak rubber types in the Prestolite system, so to get the hi-voltage, you need lot's of turns of wire. Lots of turns of wire takes up space, so a very small wire is used (thinner than human hair) in the low-speed coil to create the hi-voltage needed with low speed & weak magnetic fields...the thin wire is not rugged, hence the failures of the low-speed coils so often.

IS THIS A TYPICAL STATOR?: Some sled use the single coil, ROTAX does, as does some Yamaha's, so it can be done. I think it's just a matter of the designer preference.

For all the resistance values, go to www.CDIBOX.com & click on the Kohler FIREPLUG CDI link...the information is available under TECHNICAL INFORMATION link, near the bottom of that page.

<http://www.hewtechelectronics.com/sledparts/kohler.htm>