

Ignition Troubleshooting: No Spark

The ignition system is fairly easy to troubleshoot in the case of malfunction. There are 6 major components that work together to produce spark, if any of these is defective, spark will be lost. What we will be doing here is troubleshooting these ignition parts.

Ignition energy travels along the following path starting at the stator:

1. Stator 6th winding
 - └ Trigger wire magnetic pickup
2. CDI unit
 - └ A. On/Off Switch
3. Ignition Coil
4. Spark Plug

1. 6th Stator winding -- Directly supplies CDI with power. This 6th winding is dedicated solely to providing energy to the CDI. It is easily distinguished from the other windings as it is the only one covered in white wrapping.

1(A). Trigger wire at the stator -- A simple type of crankshaft position sensor. Sends a signal to the CDI to let it know when to energize the ignition coil.

Troubleshooting:

- Disconnect the **Black/Red** and **Blue/Yellow** wires where they plug into the main harness (and connect to the **BLK/R** & **BLK/W** wires).
- While cranking the engine, use a multimeter to check for positive voltage coming from the **Red/Black** (CDI Power wire) and the **Blue/Yellow** (trigger wire) coming from stator. Place ground lead of multimeter on a metal surface of the engine.
- There should be between 50vAC ~ 100vAC coming from the CDI power wire (**Black/Red**), although as low as 1vAC will still be able to produce spark. Less than 1vAC here will keep you from getting spark, stator unit must be replaced.
- There should be at least 0.40vAC coming from the trigger wire (**Blue/Yellow**). Lower than this will keep you from getting spark, stator unit must be replaced.

2. CDI Unit -- The CDI unit is powered by the AC current coming from the 6th stator winding. This current is stored in a capacitor within the CDI unit. When a signal is received from the trigger wire magnet pickup passing over the flywheel magnet, the CDI will discharge the stored energy into the wires leading to the ignition coil.

Troubleshooting: At this stage, two parts could be causing lack of spark -- the CDI, or the Ignition Switch. Use a multimeter to check voltage going into the CDI while cranking the engine over (Check the **red/black** & **white/black** wires for positive voltage), with the ground lead of multimeter going to a metal surface of the engine. If positive voltage is present perform the following: With the green ignition switch in the ON position check for continuity from the **green** CDI wire, to ground. If there IS NOT continuity the CDI is bad. If there is continuity, the ignition switch is bad.

3. Ignition Coil -- The function of the ignition coil is to step up the voltage of the discharged current from the CDI, and send it to the spark plug.

Troubleshooting: Primary Coil: Check for 0.1 ohm ~ 1.0 ohm across the two primary coil terminals. Secondary Coil: Check for 7 ~ 9 ohms of resistance. The best way to tell if the coil is bad is to perform steps 1, 2, and 4. If there is still no spark, the coil is likely bad.

4. Spark Plug -- The spark plug uses the stepped-up voltage from step three to create a spark across the electrode that extend into the combustion chamber. If the plug is fouled or cracked it may not spark.

Troubleshooting: Replace the spark plug.
