

# CDI Electronics®

## Two Cylinder Engines 1974-1985 (With 114-4911/332-4911/332-4733 Switch Box)

### NO SPARK ON ANY CYLINDER:

1. Disconnect the Orange (or Black/Yellow) stop wire AT THE SWITCH BOX and retest. If the engine's ignition now has spark, the stop circuit has a fault. Check the key switch, harness and shift switch.
2. Disconnect the Yellow wires from the stator to the rectifier and retest. If the engine sparks, replace the rectifier.
3. Check the cranking RPM. A cranking speed of less than 250-RPM will not allow the system to spark properly. This can be caused by a weak battery, dragging starter, bad battery cables or a mechanical problem inside the engine.
4. Inspect and clean all engine and ignition ground connections.
5. Check the stator and trigger resistance and DVA output:

WIRE	READ TO	OEM RESISTANCE	CDI RESISTANCE	DVA (Connected)	DVA (Disconnected)
Blue	White	6000-7400 (a)	2000-2500 (a)	180-400 V	180-400 V (*)
Blue	Engine GND	5200-7000 (b)	2000-2500 (b)	180-400 V	180-400 V (*)
Red	Blue	185-205 (a)	160-200 (a)	25-100 V	25-100 V (*)
Red	Engine GND	180-340 (b)	160-200 (b)	25-100 V	25-100 V (*)
Brown	White (or Brown)	800-1000 (a)	800-1000 (a)	0.5 V +	0.5 V + (#)
Brown	White (or Brown)	140-160 (b)	140-160 (b)	0.5 V +	0.5 V + (#)

(\*) This reading can be used to determine if a stator or pack has a problem. For instance, if you have no spark on any cylinder and the stator's DVA reading is low – disconnect the stator wires and recheck the DVA output. If the reading stays low – the stator is bad. If the reading is now within spec – the pack is bad.

(#) This reading can be used to determine if a pack has a problem in the triggering circuit. For instance, if you have no spark on one cylinder and the trigger's DVA reading for that cylinder is low – disconnect the trigger wires and recheck the DVA output. If the reading stays low – the trigger is bad. If the reading is now within spec – the pack is bad.

(a) 1973-1974

(b) 1976-1978 (w/ full ring stator CDI part# 174-5255)

6. Check the center hub triggering magnet in the flywheel. A loose magnet can cause this problem.
7. Check the triggering and charge coil flywheel magnets for cracked, broken and loose magnets.

### ENGINE HAS SPARK BUT WILL NOT RUN:

1. Index the flywheel and check the timing. If it is out by 180 degrees, swap the trigger wires to the switch box.
2. If the timing is off by any other degree, check the flywheel key.

### NO SPARK OR INTERMITTENT SPARK ON ONE CYLINDER:

1. Check the DVA output from the switch box on the Green wire while it is connected to the ignition coil. You should have a reading of at least 150V or more. If the reading is low, you can have a problem firing both cylinders (the one that is firing will usually show a weak spark).
2. Connect an inductive tachometer to each cylinder and compare the RPM readings at the RPM where the problem is occurring. If only one cylinder is dropping out, swap the ignition coil locations and retest. If the problem follows a coil, replace the coil. If it stays on the same spark plug, replace the switch box.
3. Check the triggering and charge coil flywheel magnets for cracked, broken and loose magnets.

### SWITCH BOX OR TRIGGER REPEATEDLY BLOWS ON SAME CYLINDER:

1. Check the trigger wires for shorts to engine ground as a shorted trigger wire can destroy a SCR inside the switch box.
2. In contrast, a shorted SCR inside the switch box can destroy a trigger coil. Check the trigger resistance and DVA output (see NO SPARK ON ANY CYLINDER above).
3. Replace the ignition coil on the cylinder dropping spark.

### ENGINE WILL NOT SHUT OFF:

Disconnect the stop wire at the switch box. Connect a jumper wire to the stop wire from the switch box and short it to engine ground. If this stops the switch box from sparking, the stop circuit has a fault. Check the key switch, harness and shift switch. If this does not stop the switch box from sparking, replace the switch box. Repeat test as necessary for additional switch boxes.

### MISS AT ANY RPM:

1. Disconnect the Yellow wires from the stator to the rectifier and retest. If the miss clears, replace the rectifier.
2. In the water or on a Dynameters, check the DVA output on the Green wires from the switch box while connected to the ignition coils. You should have a reading of at least 150V DVA or more, increasing with engine RPM until it reaches 300-400V DVA maximum. A sharp drop in DVA right before the miss becomes apparent on all cylinders will normally be caused by a bad stator. A sharp drop in DVA on less than all cylinders will normally be the switch box or trigger.
3. Connect an inductive tachometer to each cylinder in turn and try to isolate the problem. A high variance in RPM on one cylinder usually indicates a problem in the switch box or ignition coil. Occasionally a trigger will cause this same problem. Check the trigger DVA voltage (see NO SPARK ON ANY CYLINDER above).
4. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem.
5. Check the triggering and charge coil flywheel magnets for cracked, broken and loose magnets.
6. Rotate the stator one bolt hole in either direction and retest.