

# CDI Electronics®

## Chrysler/Force

### Capacitive Discharge Module with Alternator (ADI – Alternator Driven Ignition)

#### Three and Four Cylinder Engines Using Separate Switch Boxes and Ignition Coils

1. Check for broken wires and terminals, especially inside the plastic plug-in connectors. We recommend that you remove the pins from the connectors using the CDI 511-9706 pin removal tool and visually inspect them.
2. Check the flywheel for a broken or loose magnet.
3. Disconnect the stop wires from the CD. Measure DC voltage from the stop wires (from the harness) to engine ground. Turn the ignition switch on and off several times. DC voltage should never exceed 2V. If it does, the stop circuit has a fault. Check the key switch, harness and shift switch.
4. Visually inspect stator for burned or discolored areas. If found, replace the stator. If the areas are on the battery charge windings, it indicates a possible problem with the rectifier.

#### NO SPARK ON ANY CYLINDER:

1. Disconnect stop wire AT THE POWER PACK.
2. Disconnect the rectifier. If the engine sparks, replace the rectifier.
3. Check for broken or bare wires on the unit, stator and trigger. Check the stator and trigger as follows:
4. Check the stator and trigger resistance and DVA voltage as follows:

WIRE	READ TO	OEM RESISTANCE	CDI RESISTANCE	DVA
Brown/Blue (or Blue)	Brown/Yellow (or Yellow)	680-900	250-350	180-400 V Connected
Brown/Blue (or Blue)	Engine GND	Open	Open	< 2 V Disconnected
Brown/Yellow (or Yellow)	Engine GND	Open	Open	< 2 V Disconnected
White/Orange (or Orange)	White/Yellow (or Green)	45-55	45-55	0.5 V + Connected
White/Red (or Red)	White/Green	45-55	45-55	0.5 V + Connected

(NOTE) Remember that the stator may use Brown/Yellow or Brown/Black/Yellow for Yellow and Brown/Blue or Brown/Black/Blue for Blue.

- A. The DVA reading to engine ground is checking a circuit inside the power pack. If the readings are not fairly equal, swap the stator wires going to the power pack and recheck. If the low reading stays on the same wire from the stator, replace the stator. Otherwise, replace the power pack.
- B. Most meters will pick up a small amount of voltage due to inductive pick-up. As long as the voltage is very low, it will not indicate a problem.

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

1. Check the stator and trigger resistance and DVA voltage (see NO SPARK ON ANY CYLINDER above).
2. If readings are good, disconnect the stop wire from one pack. If the dead cylinder starts sparking, the problem is likely the blocking diode in the opposite pack. Remember the terminal strip can short and cause a cylinder to not have spark.

#### POWER PACK 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 power pack.
2. In contrast, a shorted SCR inside the power pack 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.

#### NO SPARK ON TWO CYLINDERS:

1. If two cylinders from the same CD unit will not spark, the problem is usually in the stator. Test per above.
2. If the engine has a CDI stator installed:
  - A. If #1 and #3 are the ones not firing, disconnect the Yellow stator wire from the # 1 pack and see if the #3 cylinder starts firing. If so, replace the #1 pack. If not, then reconnect the Yellow stator wire to the # 1 pack and disconnect the Yellow stator wire from the # 2 pack and see if the #1 cylinder starts firing. If so, replace the # 2 pack.
  - B. If #2 and #4 are the ones not firing, disconnect the Blue stator wire from the # 1 pack and see if the #4 cylinder starts firing. If so, replace the #1 pack. If not, then reconnect the Blue stator wire to the # 1 pack and disconnect the Blue stator wire from the # 2 pack and see if the #2 cylinder starts firing. If so, replace the # 2 pack.

#### ENGINE WILL NOT SHUT OFF:

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

#### COILS ONLY HAVE SPARK WITH SPARK PLUGS OUT:

Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.

#### MISS AT ANY RPM:

1. Disconnect the rectifier from the stator and retest. If the miss clears, replace the rectifier.
2. In the water or on a Dynameters, check the DVA output from the power pack outputs 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).

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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.

## Connections

<b>Pack #1 (Firing #1 and #2 Cylinders)</b>		<b>Pack #3 (Firing #3 and #4 Cylinders)</b>	
<b>Pack:</b>	White/Orange Stripe White/Yellow White/Red White/Green Stripe	<b>Trigger:</b>	White/Orange Stripe White/Yellow (a) White/Red (a) White/Green Stripe
<b>Pack:</b>	Brown/Yellow Stripe Brown/Blue Stripe	<b>Stator:</b>	Brown/Yellow Stripe Brown/Blue Stripe
<b>Pack:</b>	Orange/Blue Blue/Red	<b>Coil:</b>	White White
<b>Pack #2 (Firing #3 Cylinder)</b>			
<b>Pack:</b>	White/Orange Stripe White/Yellow White/Red White/Green Stripe	<b>Trigger:</b>	White/Orange Stripe White/Yellow (a) No Connection No Connection
<b>Pack:</b>	Brown/Yellow Stripe Brown/Blue	<b>Stator:</b>	Brown/Yellow Stripe No Connection (must be connected to the blue terminal on pack 1)
<b>Pack:</b>	Orange/Blue Blue/Red	<b>Coil:</b>	White No Connection

- (a) CDI replacement triggers do not have a connection for this wire from the power pack as the new trigger uses a common ground wire. This allows the wires going to the power pack from the trigger to be larger and more durable. The power pack uses that color as a ground wire for the trigger.

### Sample Connection for a 4 Cylinder Using New Design CDI Trigger

<b>Pack #1 (Firing #1 and #2 cylinders)</b>		<b>Pack #2 (Firing #3 and #4 cylinders)</b>	
<b>Pack:</b>	White/Orange Stripe White/Yellow White/Red White/Green Stripe	<b>Trigger:</b>	White/Orange Stripe No Connection No Connection White/Green Stripe
<b>Pack:</b>	Yellow Blue	<b>Stator:</b>	Yellow Blue
<b>Pack:</b>	Orange/Blue	<b>Coil #1:</b>	White
		<b>Pack:</b>	Blue/Red
		<b>Coil #4:</b>	White
		<b>Pack:</b>	Yellow Blue
		<b>Stator:</b>	Yellow Blue
		<b>Coil #3:</b>	White
		<b>Coil #2:</b>	White
		<b>Pack:</b>	

### Color Code Cross Reference

FUNCTION	OLD	NEW
Trigger	Orange	White/Orange Stripe
Trigger	Green	White/Yellow Stripe
Trigger	Red	White/Red Stripe White/Green Stripe
Trigger	White/Green Stripe	White/Green Stripe
Stator	Blue	Brown/Blue Stripe
Stator	Yellow	Brown/Yellow Stripe
Pack Output to Coil	Orange	Orange/Blue
Pack Output to Coil	Red	Blue/Red
Ignition Coil	White	Orange/Blue
Stop Circuit	White	Black/Yellow