



Installation and Troubleshooting Guide



This installation is to be completed by an Authorized Dealer or Professional Service Technician. For questions regarding installation or warranty, call CDI Tech Support at 866-423-4832. Do not return to the Dealer or Distributor where the part was purchased. Contact CDI Electronics Directly for Return Material Authorization.

CDI P/N: 113-3241

This unit replaces the following P/N's: 18-5764, 396077, 582261, 582504, 582714, 582800, 582889, 583172, 583174, 583175, 583241, 583604, 584508, 584528, 584746, 586633, 586634, 586689, 586691, 586693, 586695, 586696, 763798, and 9-25010.

WARNING! This product is designed to be installed by a professional marine mechanic. CDI Electronics cannot be held liable for injury or damage resulting from improper installation, abuse, neglect, or misuse of this product.

This Power Pack has a 5800 RPM limit.

Please use the factory recommended QL77JC4 spark plugs!

How to test the Engine Stop Circuit (Kill) for DC Voltage:

- DC voltage present on the kill circuit of the Power Pack due to a faulty key switch, boat harness, or engine harness will severely damage the Power Pack's internal kill circuit. Connect a Digital Multi Meter to the Ignition Stop wire AT THE POWER PACK while disconnected from the Power Pack in reference to a known good engine ground. Turn the Ignition switch on and off several times. If at any time you see over 2 VDC on the kill wire, there is a problem with one or both harnesses and/or the Ignition switch. The Ignition Stop wire should not be connected back to the new Power Pack at any point until the problem is corrected **OR DAMAGE TO THE POWER PACK WILL OCCUR!**

INSTALLATION

- Disconnect the Negative battery cable.
- Remove the Power Pack mounting bolts and disconnect all of the wires going to the old Power Pack.
- Connect the wires from the new Power Pack to the Stator and Timer Sensor.
- Mount the new Power Pack using the original bolts.
- Connect the Orange/Blue Primary wire to the #1 (Top) Ignition coil and the Orange Primary wire to the #2 (bottom) Ignition coil.
- Reconnect the Negative battery cable.

TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

- Disconnect the Black/Yellow stop wire from the Power Pack and retest. If the engine's ignition has spark, the stop circuit has a fault. Check the key switch, harness, and shift switch (if present).
- Check the cranking RPM. A cranking speed of less than 250 RPM may 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.
- Disconnect the Yellow wires from the Rectifier (if equipped) and retest. If the engine now sparks, replace the Rectifier.
- Check Stator and Timer Sensor as follows:

Check from	Check to	Resistance	DVA (Connected)	DVA (Disconnected)
Brown (Stator)	Brown/Yellow (Stator)	520-600 Ω	150-400 V	150-400 V
Brown (Stator)	Engine Gnd	Open	150-400 V	Less than 2 V
Brown/Yellow (Stator)	Engine Gnd	Open	150-400 V	Less than 2 V
Black/White (#1 Sensor)	White/Black (#2 Sensor)	45-55 Ω	0.6 V Minimum	0.6 V Minimum
Black/White (#1 Sensor)	Engine Gnd	Open	0.6 V Minimum	Less than 2 V
White/Black (2 Sensor)	Engine Gnd	Open	0.6 V Minimum	Less than 2 V

- Check the Stator input diodes connected inside the Power Pack using a multi-meter set to diode scale. If the readings show a short or open, replace the Power Pack.

Red meter lead	Black meter lead	Reading
Black wire	Brown wire	Reading*
Black wire	Brown/Yellow wire	Reading*
Black wire	Black/Yellow wire	Reading*
Brown wire	Black/Yellow wire	Reading*
Brown/Yellow wire	Black/Yellow wire	Reading*

*** This Measurement is with the meter set to the diode scale. Where you see the term "Reading" represents a reading on the meter. Actual Meter readings will vary depending on type of meter.**

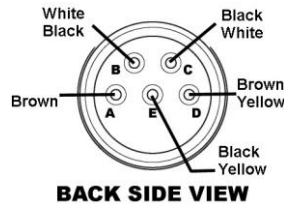
CDI Electronics, LLC • 353 James Record Road SW • Huntsville, AL 35824 USA

Web Support: www.cdielectronics.com • Tech Support: 1-866-423-4832 • Order Parts: 1-800-467-3371

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6. Inspect the flywheel magnets to see if they are loose or broken.
7. Check the wire pin-out as follows:



NO SPARK OR INTERMITTENT ON ONE OR MORE CYLINDERS:

1. Check the resistance and DVA of the Stator and Timer Sensor (see **NO SPARK ON ANY CYLINDER**).
2. Check the DVA on the Orange Primary wires from the Power Pack while connected to the Ignition coils. You should have a reading of at least 150 V or more. If the reading is low on one cylinder, disconnect the Orange Primary wire from the Ignition coil for that cylinder and reconnect it to a Pack Load resistor. Retest. If the reading is now good, the Ignition coil is likely bad. A continued low reading usually indicates a bad Power Pack.
3. Check the kickback diodes connected inside the Power Pack using a meter set to diode scale:

Red meter lead	Black meter lead	Reading
Black (Ground)	Org/Blue (#1 Primary)	Reading*
Black (Ground)	Org (#2 Primary)	Reading*

** This Measurement is with the meter set to the diode scale. Where you see the term "Reading" represents a reading on the meter. Actual Meter readings will vary depending on type of meter.*

4. Swap the Brown Stator wire with the Brown/Yellow wire and see if the problem moves. If it does, one of the Stator wires is likely arcing or shorted to engine ground.
5. Swap the Black/White Timer Sensor wire with the White/Black Timer Sensor wire and see if the problem moves. If it does, one of the Timer Sensor wires is likely shorted to engine ground.
6. Swap the Ignition coil with one that is sparking correctly.
7. Rare causes include a weak Timer Sensor magnet. If possible, try another flywheel.

ENGINE WILL NOT STOP (KILL):

1. Disconnect the Black/Yellow wire at the Power Pack. Connect a jumper wire to the stop wire from the Power Pack and short it to engine ground. If this stops the Power Pack from sparking, the stop circuit has a fault. Check the key switch, harness, and shift switch (if present). If this does not stop the Power Pack from sparking, replace the Power Pack.

MISS AT ANY RPM:

1. Disconnect the Yellow wires from the Stator to the Rectifier (if equipped) and retest. If the miss clears, replace the Rectifier.
2. In the water or on a Dynamometer, check the DVA on the Orange wires from the Power Pack while connected to the Ignition coils. You should have a reading of at least 150 DVA or more, increasing with engine RPM until it reaches 300-400 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 Power Pack or Timer Sensor.
3. Connect a DVA meter between the Brown and Brown/Yellow wires and do a running test. AT NO TIME SHOULD THE VOLTAGE EXCEED 400 V. If it does, the regulator circuit in the Power Pack is bad. The voltage should show a smooth climb and stabilize, gradually falling off at high RPM (above 5,000 RPM). If you see a sudden drop in voltage right before the miss becomes apparent, the problem is likely in the Stator.
4. 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 Power Pack or Ignition coil. Occasionally a Timer Sensor will cause this same problem. Check the Timer Sensor DVA (see **NO SPARK ON ANY CYLINDER**).
5. 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.
6. Check the Timer Sensor and Charge coil flywheel magnets for cracked, broken, or loose magnets.

POWER PACK OR TIMER SENSOR REPEATEDLY BLOWS ON SAME CYLINDER:

1. Check the Timer Sensor wires for shorts to engine ground as a shorted Timer Sensor wire can destroy a SCR inside the Power Pack.
2. In contrast, a shorted SCR inside the Power Pack can destroy a Timer Sensor. Check the Timer Sensor resistance and DVA (see **NO SPARK ON ANY CYLINDER**).
3. Replace the Ignition coil on the cylinder dropping spark.