



Installation and Troubleshooting Guide



NOTE: 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: 113-4488 Power Pack Conversion Kit 2 Cylinder

This kit will replace the following P/N's: 583663, 583667 and 584488

WARNING! This product is designed for installation 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.

INSTALLATION

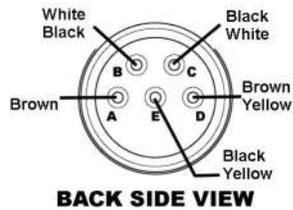
1. Disconnect the negative battery cable.
2. Clean all battery cable connections and engine grounds.
3. Remove the flywheel.
4. Disconnect the Orange and Orange/Blue ignition coil wires.
5. Remove the base assembly with the old CD module mounted on it.
6. Remove the old power pack from the timer base plate and save the mounting bolts.
7. Cut the Black/Yellow kill wire close to the old power pack and save the wire.
8. Disconnect the Charge coil wires from the old CD module.
9. Replace the old charge coil with the new one (**Remember to install the shunt plate on the outside of the charge coil ONLY IF THE OLD CHARGE COIL HAD A SHUNT PLATE INSTALLED**). Bend the top lamination up and the bottom lamination down to wedge the coil in place against the frame.
10. Route the charge coil wires and the new sensor wires through the top of the timer base plate.
11. Slide the charge coil and sensor wires through the new sleeving.
12. Install the new sensor and plate assembly (Plate side up). **Set the air gap according to the service manual, using PN: 553-4994 Locator Ring**. NOTE: On some engines, you may have to remove some of the excess aluminum on the original stator plate assembly in order for the new sensor plate assembly to mount correctly with the sensor plate being straight.
13. Place the **553-4994 Locator Ring** over the outside of the sensor and stator assemblies, seating it over the mounting bosses in the armature plate.
14. Loosen the mounting screws holding the sensor and stator assemblies in place **ONLY** if the air gap needs to be adjusted.
15. If the sensor air gap requires adjustment:
 - A) Remove and apply the Red Locktite 271 to the screws holding sensor to the mounting plate.
 - B) Slide the sensor outward until the pickup is even with the outside of the mounting plate.
 - C) Lightly tighten the screws holding the mounting plate in place and align the sensor against the **553-4994 Locator Ring**, sliding the sensor inward or outward to get the correct air gap.
 - D) Tighten the screws holding the sensor on the plate to 15-22 inch pounds.
 - E) Remove the screws holding the mounting plate in place, one at a time and apply the Red Locktite 271 to the screws holding sensor to the plate and tighten them to 40-50 in lbs.
 - F) Slide the sensor and stator assemblies out against the Locator Ring and hold them in place.
 - G) Tighten the sensor screws to 15-22 in. lbs. of torque.
 - H) Tighten the sensor plate and stator screws to 30-40 in. lbs. of torque.
16. Install the clamp on top of the armature plate to position and secure the charge coil and sensor coil leads. Make sure the wires are flat and do not cross over another wire.
17. Slide the sleeving up to the armature plate to protect the wiring and install the cover on the bottom of the plate (align the notch in the cover with the notch in the plate). Make sure the wires are flat and do not cross over another wire.
18. Apply Blue thread locker to the screws securing the ignition plate to the retainer plate and tighten them to 25-35 in. lbs. of torque.
19. Install the timer base assembly and tighten the screws to 25-35 in lbs. of torque.
20. Connect the linkage.
21. Re-install the flywheel according to the service manual.
22. Mount the new power pack to the engine (or to the adapter plate if there are no mounting bosses for the power pack, keeping the wires to the inside edge of the plate). If needed, mount the adapter plate on the port side of the engine at the top of the water jacket.
23. Route the trigger and charge coil wires around and over to the new CD module,
24. Insert the charge wires and sensor wires into the 5 pin connector, matching the wire color pin locations to the power pack connector.

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

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25. Re-connect the battery cable and reset ignition timing according to the service manual.

TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

1. Check the cranking speed, the engine should be turning 250 RPM or more. (Check the battery and starter).
2. Disconnect the Black/Yellow Kill wire from the power pack. If spark returns, there is a problem in the Kill circuit.
3. Check the ohms of resistance DVA output of the Stator and Timer Base:

Read from	Read to	Ohms-Disconnected	DVA - Connected
Brown	Brown/Yellow	500-650 Ω	150 – 400 V (a)
Brown	Eng Ground	Open	150 – 400 V
Brown/Yellow	Eng Ground	Open	150 – 400 V
Black/White Trigger wire	White/Black Trigger wire	45-55 Ω	0.6 V Minimum

a) If the voltage is below 150 V and jumps to over 225V when disconnected– the pack is likely bad. A reading that remains below 150V usually indicates a bad stator coil.

4. Check the DVA voltage on the Kill wire coming out of the power pack. You should read over 150 volts. If it is low, disconnect the Orange/Blue and the Orange/Green wires one at a time. If fire returns on one cylinder when the coil primary wire is disconnected from the other coil, the coil not connected and the power pack have to be replaced at the same time. The defective ignition coil blew the power pack.
5. Check the stator input diodes connected inside the power pack using a meter set to diode scale. If the readings show a short or open, replace the power pack.

Red meter lead	Black meter lead	Reading
Brown wire	Black wire	0.500 (The actual reading will vary, depending upon your meter.)
Brown/Yellow wire	Black wire	0.500 (The actual reading will vary, depending upon your meter.)
Black/Yellow wire	Brown wire	0.500 (The actual reading will vary, depending upon your meter.)
Black/Yellow wire	Brown/Yellow wire	0.500 (The actual reading will vary, depending upon your meter.)

NO SPARK ON ONE CYLINDER:

1. Check the DVA voltage on the Black/Yellow Kill wire coming out of the power pack. You should read over 150 volts.
2. Swap the Orange coil wire of the cylinder without spark with the one that does on the pack and see if the spark moves from one coil to the other one. If it does, the pack is likely bad. If the spark stays on the same cylinder, the ignition coil is probably bad.
3. Swap the White/Black Trigger wire with the Black/White trigger wire and retest. If the spark moves from one cylinder to the other, replace the trigger. If it does not move, the pack is likely bad.
4. Swap the Brown stator wire with the Brown/Yellow stator wire and retest. If the fire moves from one cylinder to the other, replace the stator coil.

INTERMITTENT ON ONE OR BOTH CYLINDERS:

1. Check the resistance and DVA output of the stator and Timer Base:

Read from	Read to	Ohms-Disconnected	DVA - Connected
Brown	Brown/Yellow	500-650 Ω	150 – 400 V (a)
Brown	Engine Ground	Open	150 – 400 V
Brown/Yellow	Engine Ground	Open	150 – 400 V
Black/White Trigger wire	White/Black Trigger wire	45-55 Ω	0.6 V Minimum

2. If the DVA voltage is below 150 V DVA, but jumps to over 225V when disconnected– the pack is likely bad. A reading that remains below 150V usually indicates a bad stator coil.

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3. Check the DVA output on the Orange wires from the power pack while connected to the ignition coils. You should have a reading of at least 150V or more. If the reading is low on one cylinder, disconnect the Orange wire from the ignition coil for that cylinder and reconnect it to a 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.

