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: 133-3387

This unit will replace the following P/N's: 583387 and 584716.

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 according to the service manual for your engine.
4. Disconnect the Timer Sensor and Stator connector from the Power Pack.
5. Remove the Timer Sensor and Stator assembly from the engine. Make a note of the location of the mounting screws connecting the plate to the base section.
6. Using the Insertion and Pin removal tools, remove Black/White and White/Black sensor leads from Timer Sensor and Stator connector going to the Power Pack.
7. Remove the wire clamp on top of the Timer Sensor and Stator assembly holding the wires in place.
8. Turn the Timer Sensor and Stator assembly over and remove the wire clamp holding the wires in place.
9. Remove the old Timer Sensor from the Timer Sensor plate and save the mounting bolts.
10. Slide the wires from the old Timer Sensor out of the Timer Sensor and Stator assembly.
11. Slide the wires from the new Timer Sensor through the Timer Sensor and Stator assembly and sleeving, following the same path the old wires came out of.
12. Install the new Timer Sensor on the Timer Sensor and Stator assembly, leaving the mounting screws slightly loose.
13. Set the air gap according to the service manual, using PN: 553-4994 Locator Ring.
    A) 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.
    B) Slide the sensor and Stator assemblies out against the Locator Ring and hold them in place.
    C) Tighten the screws to 15-22 inch pounds and slide the Locator Ring off of the sensor and Stator assemblies.
14. Install the clamp on top of the armature plate to position and secure the Stator charge coil and Timer Sensor coil leads.
15. 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).
16. Install the Timer Sensor and Stator assembly and connect the linkage.
17. Re-install the flywheel according to the service manual for your engine.
18. Insert the Timer Sensor wires into the 5 pin connector, matching the wire color pin locations to the Power Pack connector.
19. Connect the Negative battery cable.
20. Reset ignition timing according to the service manual.

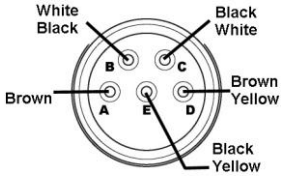
TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

1. 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).
2. 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.
3. Disconnect the Yellow wires from the Rectifier (if equipped) and retest. If the engine now sparks, replace the Rectifier.
4. 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)	Brown/Yellow (Stator)	520-600 Ω	150-400 V	150-400 V
Brown (Stator)	Engine Gnd	Open	150-400 V	-
Brown/Yellow (Stator)	Engine Gnd	Open	150-400 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	-
White/Black (#2 Sensor)	Engine Gnd	Open	0.6 V Minimum	-

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



BACK SIDE VIEW

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. 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.
4. 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.
5. Swap the Ignition coil with one that is sparking correctly.
6. 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.