



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: 134-6454

This item replaces the following P/N's: 77000A1, 96453A1, and 96453A2.

Warning! This product is designed for installation by a professional marine mechanic. CDI 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. Remove the flywheel according to the service manual for your engine.
3. Label and disconnect the Trigger leads from the Switchbox.
4. Disconnect the Trigger linkage arm from the Trigger.
5. Check the bushings included with the new trigger to see which one fits the linkage arm you disconnected. Mark the bushing with a marker.
6. Remove the Stator bolts and lay the Stator out of the way.
7. Remove the old Trigger and clean up any debris that may have been under the old Trigger .
8. Install the new Trigger.
9. Install the Stator according to the service manual for your engine.
10. Lightly grease the bushing with a high quality marine grease and insert the bushing into the Trigger arm from the top side.
11. Connect the Trigger linkage to the bushing and then connect the Trigger leads to the Switchbox, matching wire colors.
12. Replace the flywheel according to the service manual for your engine.
13. Reconnect the negative battery cable.
14. Verify and adjust ignition timing according to the service manual for your engine.

TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

1. Disconnect the Black/Yellow kill wires from the harness and retest. If the engine's Ignition now has spark, the stop circuit has a fault. Check the key switch, harness, and shift switch (if present).
2. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the engine now has spark, replace the Regulator/Rectifier.
3. Check the cranking RPM. A cranking speed less than 250 RPM may not allow the system to fire properly.
4. Check the Stator resistance and DVA as given below:

Black Stator using Flywheel with Bolted-In Magnets

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)	DVA (Disconnected)
Blue(Low Speed Coil)	Engine Gnd	5.8-7.0K Ω	2.2-2.4K Ω	180-400 V	180-400 V (*)
Red (High Speed Coil)	Engine Gnd	125-155 Ω	45-55 Ω	25-100 V	25-100 V (*)

Black Stator using Flywheel with Glued-in Magnets

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)	DVA (Disconnected)
Blue (Low Speed Coil)	Engine Gnd	3.25-3.65K Ω	488-662 Ω	180-400 V	180-400 V (*)
Red (High Speed Coil)	Engine Gnd	75-90 Ω	28-32 Ω	25-100 V	25-100 V (*)

Red Stator Kit

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)	DVA (Disconnected)
White/Green (Stator)	Green/White (Stator)	500-700 Ω	400-550 Ω	180-400 V	180-400 V (*)
Blue (Adapter Module)	Blue (Adapter Module)	Open	-	180-400 V	180-400 V (*)
Blue (Adapter Module)	Engine Gnd	Open	Open	180-400 V	180-400 V (*)

(*) This reading can be used to determine if a Stator (or Adapter Module) or Switchbox 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. If the reading stays low, the Stator is bad. If the reading is now within specification, the Switchbox is bad.

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

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NO SPARK OR INTERMITTENT SPARK ON ONE OR MORE CYLINDERS:

1. Check resistance and DVA of Trigger:

Read from	Read to	CDI Ohms	DVA (Connected)	DVA (Disconnected)
Purple (#1 Trigger)	White (#2 Trigger)	0.8-1.0K Ω	4 V Minimum	4 V Minimum (*)
Brown (#3 Trigger)	White/Black (or Black) (#4 Trigger)	0.8-1.0K Ω	4 V Minimum	4 V Minimum (*)
Purple (#1 Trigger)	Engine Gnd	Open	1 V Minimum	-
White (#2 Trigger)	Engine Gnd	Open	1 V Minimum	-
Brown (#3 Trigger)	Engine Gnd	Open	1 V Minimum	-
White/Black (#4 Trigger)	Engine Gnd	Open	1 V Minimum	-

(*) This reading can be used to determine if a Switchbox has a problem in the Trigger 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 check the DVA again. If the reading stays low, the Trigger is bad. If the reading is now within specification, the Switchbox is bad.

2. **FOR CRANKING TEST ONLY-** Swap the Trigger Purple wire with the Brown wire, and White wire with the White/Black wire. If the problem moves, the Trigger may be defective. No change usually indicates an issue with the Switchbox.

NOTE: Make sure to note the orientation of the Trigger wires to the Switchbox before testing. Connecting the Trigger wires incorrectly to the Switchbox will result in backfiring or engine running out of time.

ENGINE WILL NOT STOP (KILL):

1. Disconnect the Black/Yellow (or Orange) wire(s) at the Switchbox. Connect a jumper wire to the stop wire from the Switchbox and short it to engine ground. If this stops the Switchbox from sparking, the stop circuit has a fault. Check the key switch, harness, and shift switch (if present). If this does not stop the Switchbox from sparking, replace the Switchbox. Repeat the test as necessary for any additional Switchboxes.

ENGINE HAS SPARK ON ALL CYLINDERS BUT WILL NOT RUN OR BACKFIRES:

1. Verify the wiring is correct to the Switchbox and Ignition Coils.
2. Check the flywheel key to see if it has sheared.
3. If the engine has a flex plate Flywheel, verify the flywheel has not been rotated on the center hub, resulting in the timing grid being out of place.
4. Check resistance and DVA of the Trigger. (see **NO SPARK OR INTERMITTENT SPARK ON ONE OR MORE CYLINDERS**).
5. Index the flywheel by locating TDC (top dead center) for each cylinder and marking the flywheel with the number of that cylinder.
6. Using a spark tester, connect to each cylinder's sparkplug wire in turn and crank the engine using the starter. Typically, #1 cylinder is near TDC on the timing grid. Make sure that ALL of the remaining cylinders have the same off set of timing as #1 cylinder. If the timing is very different between the top 2 cylinders and the bottom 2 cylinders, the Switchbox may be defective.

WILL NOT ACCELERATE BEYOND 3000-4000 RPM:

1. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the engine now has good spark, replace the Regulator/Rectifier.
2. Connect a DVA meter between the Stator's Blue wire and engine ground. Run the engine up to the RPM where the problem is occurring. The DVA should increase with RPM. A sharp drop in DVA right before the problem occurs usually indicates a bad Stator. (Read from Blue wire out of the Adapter Module to engine ground if the engine has a Red Stator kit installed).
3. Connect a DVA meter between the Stator's Red wire and engine ground. The DVA should show a smooth climb in voltage and remain high through the RPM range. A reading lower than on the Blue wire reading indicates a bad Stator.
4. Connect an inductive tachometer to each cylinder in turn and try to isolate the problem. A single cylinder dropping spark will likely be a bad Switchbox or Ignition coil. All cylinders not sparking properly usually indicates a bad Stator.
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 because the water will evaporate off the spark plug before you can identify it.
6. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.

MISS AT ANY RPM:

1. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the miss clears up, replace the Regulator/Rectifier.
2. In the water or on a Dynamometer, check the DVA on the Green wires from the Switchbox 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 Switchbox or Trigger.

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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 Switchbox or Ignition coil. Occasionally, a Trigger will cause this same problem. Check the Trigger DVA (see **NO SPARK OR INTERMITTENT SPARK ON ONE OR MORE CYLINDERS**).
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 because the water will evaporate off the spark plug before you can identify it.
5. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.
6. Rotate the Stator one bolt hole in either direction and re-test. If the miss is gone, leave the Stator as is. If the miss is worse, rotate the Stator back where it was.

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