



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: 134-6453

This unit replaces the following P/N's: 68162A 3, 68162A 6, 96455A 1, and 96455A 8.

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.

INSTALLATION

1. Disconnect the Negative battery cable.
2. Check and clean all battery terminals and engine grounds.
3. Remove the flywheel according to the service manual.
4. Remove the Stator and the Trigger wires from the Switchbox.
5. Install the new Trigger by matching wire colors to the wires or stud legend in the plastic base plate.
6. Re-install the Stator and flywheel according to the service manual for engine.
7. Reconnect the Negative battery cable.
8. Re-set and verify the ignition timing according to the service manual.

TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

1. Disconnect the Black/Yellow (or Orange) stop wire AT THE SWITCHBOX 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 has spark, replace the Regulator/Rectifier.
3. Check the cranking RPM. A low cranking speed 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.
4. Inspect and clean all engine and Ignition ground connections.
5. 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	2.0-2.4K Ω	180-400 V	180-400 V (*)
Red (High Speed Coil)	Engine Gnd	135-165 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	500-700 Ω	400-550 Ω	180-400 V	180-400 V (*)
Blue (Adapter Module)	Engine Gnd	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 re-check the DVA. If the reading stays low, the Stator is bad. If the reading is now within specification, the Switchbox is bad.

6. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.



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NO SPARK OR INTERMITTENT SPARK ON ONE OR MORE CYLINDERS:

1. Check the Trigger resistance and DVA as given below:

Read from	Read to	Ohms	DVA (Connected)	DVA (Disconnected)
Brown (Trigger)	White/Black (or Black) (Trigger)	0.8-1.4K Ω	4 V Minimum	4 V Minimum (*)
White (Trigger)	White/Black (or Black) (Trigger)	0.8-1.4K Ω	4 V Minimum	4 V Minimum (*)
Purple (Trigger)	White/Black (or Black) (Trigger)	0.8-1.4K Ω	4 V Minimum	4 V Minimum (*)
Brown (Trigger)	Engine Gnd	Open	1 V Minimum	-
White (Trigger)	Engine Gnd	Open	1 V Minimum	-
Purple (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 more than likely bad. If the reading is now within specification, the Switchbox is more than likely bad.

2. Check the DVA on the Green wires from the Switchbox while connected to the Ignition coils. Check the reading on the Switchbox terminal AND on the Ignition coil terminal. You should have a reading of at least 150 DVA or more at both terminals. If the reading is low on one cylinder, disconnect the Green 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 symptom indicates a bad Switchbox.
3. If the cylinders are only misfiring above an idle, connect an inductive tachometer to all cylinders and try to isolate the problem cylinders.
4. Swap the wires on the Switchbox as shown below. If the miss or no spark problem moves to another cylinder, replace the Switchbox. If it stays on the same cylinder(s), retest the Trigger and check the Ignition coils ferrite core for cracks or broken cores (dismount the coils and carefully slide the coils out of the holder to expose the rubber boot covering the side opposite end of the coil from the sparkplug wire. If the dark grey ferrite core is damaged, replace the coil.
 - A. Swap the Green Coil Wire with the Green/Red Coil Wire
 - B. Swap the Green/White Coil Wire with the Green/Black Coil Wire
 - C. Swap the Purple Trigger Wire with the Brown Trigger Wire
 - D. Swap the White Trigger Wire with the White/Black (or solid Black) Trigger Wire
5. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.

SWITCHBOX 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 Switchbox. In contrast, a shorted SCR inside the Switchbox can destroy a Trigger coil. Check the Trigger resistance and DVA (see **NO SPARK OR INTERMITTENT SPARK ON ONE OR MORE CYLINDERS**). Replace the Ignition coil on the cylinder dropping spark.

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.

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.



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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.
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.

WILL NOT IDLE BELOW 1500 RPM:

1. Check the Bias resistance from the Black/White **terminal** (wire disconnected) on the Switchbox to engine ground. Reading should be 13-15K Ω .
2. Check the Stator and Trigger Resistance and DVA (see **NO SPARK ON ANY CYLINDER**).
3. Check for air leaks.