



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: 134-6456

This item replaces the following P/N's: 18-5795, 18-5798, 68162A 1, 68162A 5, 68162A 8, 96454, 96455A 6, 96455A 9, 96455A10, and 96455A11.

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 and remove the flywheel according to the service manual.
2. Label and disconnect the Trigger leads from the Switchboxes. Remember the Yellow banded leads go to cylinders 2, 4 & 6 and the Black banded leads go to cylinders 1, 3, and 5.
3. Disconnect the Trigger linkage arm from the Trigger.
4. Remove the bushing from the old Trigger arm and install it in the new Trigger arm.
5. Remove the Stator bolts and lay the Stator out of the way.
6. Remove the old Trigger and install the new Trigger and the Stator according to the service manual.
7. Connect the Trigger linkage to the bushing and then connect the Trigger leads to the Switchbox, matching wire colors.
8. Replace the flywheel according to the service manual and reconnect the negative battery cable.
9. Verify and adjust Ignition timing according to the service manual for your engine as needed.

TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

1. Disconnect the Black/Yellow (or Orange) stop wires AT THE SWITCHBOXES 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.

NO SPARK OR INTERMITTENT SPARK TO ONE OR MORE CYLINDERS:

1. If two cylinders on separate Switchboxes are not firing, check the Trigger as described in step 2 below. The Trigger has three pickup coils to Trigger six cylinders. #1 and #4, #2 and #5, #3 and #6 each share a Trigger coil.
2. Connect a spark gap tester and verify which cylinders are misfiring. If the cylinders are only misfiring above an idle, connect an inductive Tachometer to all cylinders and try to isolate the problem cylinders.
3. Check the resistance and DVA of the Stator and Trigger as shown below:

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)
Blue (Low speed coil)	Engine Gnd	5.0-7.0K Ω	2.0-2.4K Ω	180 V Minimum
Blue/White (Low speed coil)	Engine Gnd	5.0-7.0K Ω	2.0-2.4K Ω	180 V Minimum
Red (High speed coil)	Engine Gnd	90-200 Ω	27-55 Ω	20 V Minimum
Red/White (High speed coil)	Engine Gnd	90-200 Ω	27-55 Ω	20 V Minimum
Brown (#1 Trigger) (a)	White (#4 Trigger) (b)	0.8-1.4K Ω	0.8-1.4K Ω	4 V Minimum
White (#3 Trigger) (a)	Purple (#6 Trigger) (b)	0.8-1.4K Ω	0.8-1.4K Ω	4 V Minimum
Purple (#5 Trigger) (a)	Brown (#2 Trigger) (b)	0.8-1.4K Ω	0.8-1.4K Ω	4 V Minimum
Brown (#1 Trigger) (a)	Engine Gnd	Open	Open	1 V Minimum
White (#3 Trigger) (a)	Engine Gnd	Open	Open	1 V Minimum
Purple (#5 Trigger) (a)	Engine Gnd	Open	Open	1 V Minimum
Brown (#2 Trigger) (b)	Engine Gnd	Open	Open	1 V Minimum
White (#4 Trigger) (b)	Engine Gnd	Open	Open	1 V Minimum
Purple (#6 Trigger) (b)	Engine Gnd	Open	Open	1 V Minimum

(a) Black Band- Inside Switchbox (Engines using studded Switchboxes)

(b) Yellow Band- Outside Switchbox (Engines using studded Switchboxes)



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4. 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 V Minimum 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.

NO SPARK ON ONE BANK (ODD OR EVEN CYLINDERS ON INLINE 6 CYLINDER):

1. Check the resistance and DVA of the Stator as follows:

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)
Blue (Low speed Coil)	Engine Gnd	5-7K Ω	2-2.4K Ω	180 V Minimum
Blue/White (Low speed Coil)	Engine Gnd	5-7K Ω	2-2.4K Ω	180 V Minimum
Red (High speed Coil)	Engine Gnd	90-200 Ω	27-55 Ω	20 V Minimum
Red/White (High speed Coil)	Engine Gnd	90-200 Ω	27-55 Ω	20 V Minimum

2. Swap both sets of the Stator wires between the Switchboxes. If the problem moves, replace the Stator.
3. If the problem stays on the same bank, swap physical location and all connections of the two Switchboxes. If the problem stays with one Switchbox, replace the Switchbox. If the Switchbox is bad, it is recommended that BOTH Switchboxes be replaced AS A SET.

ALL CYLINDERS HAVE SPARK BUT THE ENGINE WILL NOT RUN:

1. Check Ignition Timing for #1 Cylinder. Remember the Yellow banded leads go to cylinders 2, 4 & 6. and the Black banded leads go to cylinders 1, 3 and 5. The Green Coil Primary leads could be swapped
2. Index the flywheel for all cylinders. ALL Cylinders should have approximately the same Ignition timing offset as # 1 Cylinder.
3. Check the Resistance on each Switchbox's White/Black wire, referenced to engine ground while disconnected. You should read 13-15 K Ω on each Switchbox. If there is over a 10% variance between the two Switchboxes, replace BOTH Switchboxes as a set.
4. Check Ignition Timing on *all* cylinders. If the Ignition Timing varies, replace *both of the Switchboxes as a set*.

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.
2. 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**).
3. 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(s) 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.
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.