



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: 114-7452A 3

This unit replaces the 18-5776, 339-7452A 2 and A 3 switch boxes.

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.

How to test the Engine Stop Circuit (Kill) for DC Voltage:

- DC voltage present on the kill circuit of the Switchbox due to a faulty key switch, boat harness, or engine harness will severely damage the Switchbox's internal kill circuit. Connect a Digital Multi Meter to the Ignition Stop wire(s) AT THE SWITCHBOX(S) while disconnected from the Switchbox in reference to a known good engine ground. Turn the Ignition switch on and off several times. If, at any time, you see over 2 VDC on the kill wire(s), there is a problem with one or both harnesses and/or the Ignition switch. The Ignition Stop wire should not be connected back to the new Switchbox at any point until the problem is corrected **OR DAMAGE TO THE SWITCHBOX WILL OCCUR!**

INSTALLATION

- Disconnect the Negative Battery cable.
- Disconnect the Stator, Trigger, Ground wire, and Kill switch wires from the Switchbox.
- Disconnect the Green Primary wires from the Ignition coils, paying close attention to the position of each wire in reference to each Ignition coil.
- Unbolt and remove the old Switchbox.
- Bolt the new Switchbox to the engine using the original bolts for your engine.
- Connect the Stator and Trigger wires to the new Switchbox.
- Connect the Kill switch wire and engine ground wires.
- Connect the Green Primary wires to the ignition coils in the correct position.
- Reconnect the Negative battery cable.

TROUBLESHOOTING

NO SPARK ON EITHER CYLINDER:

- Disconnect the Black/Yellow 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).
- Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the engine has spark, replace the Regulator/Rectifier.
- 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.
- Inspect and clean all engine and Ignition ground connections.
- DVA test the Stator and Trigger as follows:

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)	DVA (Disconnected)
Black/Yellow (Low Speed coil)	Engine Gnd	3.25-3.8K Ω	2.2-2.75K Ω	180 V Minimum	180 V Minimum
Black/White (High Speed coil)	Engine Gnd	150-250 Ω	200-250 Ω	25 V Minimum	25 V Minimum
Brown/Yellow (#1 Trigger)	Brown/White (#2 Trigger)	650-850 Ω	700-800 Ω	4 V Minimum	4 V Minimum
Brown/Yellow (#1 Trigger)	Engine Gnd	Open	Open	1 V Minimum	-
Brown/White (#2 Trigger)	Engine Gnd	Open	Open	1 V Minimum	-

- Check the DVA on the Black/Yellow kill wire coming out of the Switchbox. You should have a reading of at least 150 DVA or more. The Stator and Trigger should be connected to the Switchbox for this test. If you do not, check the DVA on the Stator and the Trigger. If the DVA on the Stator and Trigger but the DVA on the Black/Yellow Kill wire coming out of the Switchbox is low, the Switchbox is likely faulty.

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

Tech support: 1-866-423-4832 • Web support: cdielectronics.com • Sales Support: 1-800-467-3371

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NO SPARK OR INTERMITTENT SPARK ON ONE CYLINDER:

1. Inspect the flywheel for broken or loose magnets.
2. Check the Trigger Resistance and DVA (see **NO SPARK ON EITHER CYLINDER**).
3. 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.
4. Using two jumper leads, swap the Brown/Yellow and the Brown/White Trigger wires from the Trigger to the Switchbox. Connect the Spark plug wires to a spark tester to prevent engine from trying to start. Check to see if the cylinder that was sparking continued to spark, or did the problem move to the other cylinder. If the cylinder that was sparking continued to spark, then there is likely a problem with the Switchbox. If the Problem moved to the other cylinder, then the issue is likely with the Trigger or the Flywheel.
5. Check the Ignition coil's Primary resistance for the positive (+) terminal to the negative (-) terminal. You should read 0.02-0.04 Ω on the OEM and 0.04-0.08 Ω on a CDI Electronics Ignition coil.
6. Check the Ignition coil's secondary resistance from the sparkplug wire to engine ground. You should read 0.8-1.1K Ω on the OEM Ignition coil and 1.31-1.45K Ω on the CDI Electronics Ignition coil. IF out of this range, replace the Ignition coil.

ENGINE WILL NOT STOP (KILL):

1. Disconnect the Black/Yellow stop wire 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 Rectifier (if equipped) and retest. If the engine now has good spark, replace the Rectifier.
2. Connect a DVA meter between the Stator's Black/Yellow 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 Black/White 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 Black/Yellow 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 Rectifier (if equipped) and retest. If the miss clears up, replace the 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 ON EITHER CYLINDER**).
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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