



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: 114-5713

This Switchbox replaces P/N's: 855713A 3, and 855713A 4.

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:

1. 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 AT THE SWITCHBOX 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

1. Disconnect the Negative battery cable.
2. Remove the old Switchbox and clean all ground wires and mounting plate.
3. Check the Trigger, Stator, and the kill wire for breaks, corrosion, or broken insulation.
4. Connect the Green/Yellow wire to the #1 (Top) cylinder's Ignition coil and the Green wire to the #2 (Bottom) cylinder's Ignition coil.
5. Connect the Black wire to engine ground and the Ignition coils' Negative side.
6. Connect the Green/White and White/Green Stator wires.
7. Connect the Brown/White and Brown/Yellow wires to the Brown/White and Brown/Yellow Trigger wires.
8. Connect the Black/Yellow stop wire to the Black/Yellow wire from the engine harness.
9. Install the new Switchbox using the original bolts.
10. Reconnect the Negative battery cable.

TROUBLESHOOTING

NO SPARK ON EITHER CYLINDER:

1. Disconnect the Black/Yellow stop wire AT THE SWITCHBOX and retest. If the engine now has spark, the stop circuit has a fault. Check the key switch and harness.
2. Verify the Flywheel has 4 outer magnets not 2 magnets. The older ignition system has a 2 magnet Flywheel and uses a 114-7452K 1 Switchbox and 174-6617K 1 Stator with the Black/Yellow & Black/White wires.
3. Inspect and clean all engine and ignition ground connections. Make sure the Switchbox and Ignition coils are grounded.
4. Disconnect the Yellow wires from the Stator to the Rectifier and retest (If present). If the engine has spark, replace the Rectifier.
5. 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.
6. Check the ignition system resistance and DVA as given below:

Read from	Read to	OEM Ohms	CDI OHMS	DVA Connected	DVA Disconnected
Green/White (Stator)	White/Green (Stator)	370-445 Ω	310-385 Ω	150 V Minimum	150 V Minimum
White/Green (Stator)	Engine Gnd	Open	Open	150-400 V	Less than 2 V
Green/White (Stator)	Engine Gnd	Open	Open	150-400 V	Less than 2 V
Brown/White (#1 Trigger)	Brown/Yellow (#2 Trigger)	650-850 Ω	650-850 Ω	4 V Minimum	4 V Minimum
Green/Yellow (#1 Primary)	Engine Gnd	-	-	150 V Minimum	150 V Minimum
Green (#2 Primary)	Engine Gnd	-	-	150 V Minimum	150 V Minimum

7. 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 is good but the DVA on the Black/Yellow Kill wire coming out of the Switchbox is low, the Switchbox is likely faulty.
8. Swap the Green/White and White/Green Stator wires and retest. If the problem moves, the Stator is likely faulty.
9. Using a set of jumper wires, cross connect the Brown/White and Brown/Yellow Trigger wires so that you have a Brown/White connected to a Brown/Yellow. If the problem moves, the Trigger is likely faulty. If the problem stays on the same cylinder, the Switchbox is likely faulty.
10. Check the flywheel magnets for cracked, broken, or loose magnets.

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ENGINE WILL NOT STOP (KILL):

1. Check the kill circuit in the Switchbox by using a jumper wire connected to the Black/Yellow wire (remember to leave the Black/Yellow from the Stator connected to the Switchbox) coming out of the Switchbox and shorting it to ground. If this kills the engine, the kill circuit in the harness or on the boat is bad, possibly the ignition switch. If this does not stop the Switchbox from sparking, replace the Switchbox.

HIGH SPEED MISS:

1. Check the DVA of the Stator while running the engine. It should show a smooth climb on the Green/White and White/Green Stator wires. If there is a sudden or fast drop in voltage right before the miss becomes apparent, the Stator is usually at fault.
2. 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.

BOTH CYLINDERS HAVE SPARK BUT THE ENGINE WILL NOT RUN:

1. Check the flywheel shear key.
2. Index the flywheel and check timing on both cylinders. If the timing is off, check the Trigger and flywheel center hub Trigger magnet. If no other fault is found, replace the Switchbox.

WILL NOT ACCELERATE BEYOND 3000-4000 RPM:

1. Connect a DVA meter between the Stator's Green/White and White/Green wires. Run the engine up to the RPM where the problem is occurring. The DVA should show a smooth climb in voltage and remain high through the RPM range. A sharp drop in DVA right before the problem occurs usually indicates a bad Stator.
2. 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.
3. Check the flywheel magnets for cracked, broken, or loose magnets.

MISS AT ANY RPM:

1. Disconnect the Yellow wires from the Stator to the Rectifier and retest. If the miss clears, replace the Rectifier.
2. In the water or on a Dynamometer, check the DVA on the Green and Green/Yellow Primary 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. Check the flywheel magnets for cracked, broken, or loose magnets.

SWITCHBOX 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. Replace the Ignition coil on the cylinder dropping spark.