



# 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: 114-5772

This Switchbox replaces these P/N's: 18-5881, 332-5772A 1, 332-5772A 2, 332-5772A 3, 332-577A 4, 332-5772A 5, and 332-5772A 7.

**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.**

### 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(s) 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. Check and clean all battery terminals and engine grounds.
3. Remove all wires from the old Switchbox.
4. Unbolt and remove the old Switchbox, saving the original bolts and nuts.
5. Install the new Switchbox using the original bolts and nuts.
6. Connect the Black ground wire to engine ground.
7. Connect all wires removed from the old Switchbox to the new Switchbox, matching the scribed notations on the Switchbox.
8. Reconnect the Negative battery cable.

## TROUBLESHOOTING

### NO SPARK ON ANY CYLINDER:

1. Disconnect the Black/Yellow kill 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 now has spark, replace the Regulator/Rectifier.
3. Check the cranking RPM. A cranking speed less than 250 RPM will 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. 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)	Blue/White (Low speed Coil)	5.8-7.0K $\Omega$	2.0-2.5K $\Omega$	180-400 V	180-400 V (*)
Red (High Speed Coil)	Red/White (High speed Coil)	125-155 $\Omega$	45-55 $\Omega$	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)	Blue/White (Low speed Coil)	3.25-3.65K $\Omega$	515-635 $\Omega$	180-400 V	180-400 V (*)
Red (High Speed Coil)	Red/White (High speed Coil)	75-90 $\Omega$	28-35 $\Omega$	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 $\Omega$	400-550 $\Omega$	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	-

(\*) 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.

5. Check the DVA on the Black/Yellow kill wire stud on 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 stud on the Switchbox is low, the Switchbox is likely faulty.

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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	Ohms	DVA (Connected)	DVA (Disconnected)
Purple (#1 Trigger)	White (#2 Trigger)	0.8-1.4K $\Omega$	4 V Minimum	4 V Minimum (*)
Brown (#3 Trigger)	White/Black (or Black) (#4 Trigger)	0.8-1.4K $\Omega$	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. Swap the Stator's Red and Blue wires with the Red/White and Blue/White wires to see if the no spark problem follows one side of the Stator. If it does, the Stator is bad. If the problem remains on the same 2 cylinders, the Switchbox or the Trigger is probably at fault.

## 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. Repeat the test from the Blue/White wire. 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. Repeat the test from the Red/White wire.
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.
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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## INTERMITTENT SPARK ON ONE OR MORE CYLINDERS:

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

Read from	Read to	Ohms	DVA (Connected)	DVA (Disconnected)
Purple (#1 Trigger)	White (#2 Trigger)	0.8-1.4K $\Omega$	4 V Minimum	4 V Minimum
Brown (#3 Trigger)	White/Black (or Black) (#4 Trigger)	0.8-1.4K $\Omega$	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	-

3. Disconnect the Regulator/Rectifier and retest. If the problem disappears, replace the Regulator/Rectifier.

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