



Installation and Troubleshooting Guide



NOTE: 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: 114-4953 Switch Box 3 Cylinder

This switch Box replaces these P/N's: 18495A10, A12, A18, A19, A26 and 18-5790.

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.

Disconnect the engine stop wire(s): Connect a DC volt meter between the engine stop wires and engine ground. Turn the ignition switch on and off several times. If, at any time, you see DC voltage on the kill wires, there is a problem with the harness or ignition switch. Battery voltage on the kill circuit will destroy most ADI type switch boxes.

Installation

1. Disconnect the positive battery cable.
2. Check and clean all battery terminals and engine grounds.
3. Using a Whiteout pen or Silver pen, write on or near the ignition coils, the color of the Green, Green/White and Green/Red wires for each cylinder.
4. Remove the wires from the switch box.
5. Unbolt and remove the old switch box, saving the original bolts and nuts.
6. Check for DC voltage on the kill (stop) wires (usually Black/Yellow) with the key-switch in the on and off position. At no time should you see over 2 volts DC on this wire as severe damage to the power pack can occur.
7. Install the new switch box using the original bolts and nuts.
8. Connect the black ground wire to engine ground and the remaining wires to the new switch box as they were on the old switch box (IF THE OLD SWITCH BOX DID NOT HAVE ANY WIRES CONNECTED TO THE RED TERMINAL, DO NOT CONNECT ANY WIRE TO THE RED TERMINAL ON THE NEW SWITCH BOX). The second black/yellow wire is for use with the rev limiter (if equipped).
9. Reconnect battery cable.

Troubleshooting

NO SPARK:

1. Disconnect stop wire AT THE PACK. If spark returns, there is a problem in the Kill circuit. Check the Stop/Kill switch and engine harness. Remember, some engines have a RPM limiter that will stop the engine from firing.
2. Disconnect the rectifier. If the engine has spark, replace the rectifier.
3. Check for broken or bare wires on the unit, stator and trigger.
4. Check the stator resistance and DVA output as given below:

Black Stator using Flywheel with Bolted-in Magnets

WIRE	READ TO	OEM OHMS	CDI OHMS	DVA (Connected)	DVA (Disconnected)
Blue	Engine GND	5800-7000	2200-2400	180-400 V	180-400 V (*)
Red	Engine GND	135-165	45-55	25-100 V	25-100 V (*)

Black Stator using Flywheel with Glued-in Magnets

WIRE	READ TO	OEM OHMS	CDI OHMS	DVA (Connected)	DVA (Disconnected)
Blue	Engine GND	3250-3650	500-600	180-400 V	180-400 V (*)
Red	Engine GND	75-90	28-32	25-100 V	25-100 V (*)

Red Stator Kit

WIRE	READ TO	OEM OHMS	CDI OHMS	DVA (Connected)	DVA (Disconnected)
White/Green	Green/White	500-700	500-600	180-400 V	180-400 V (*)
Blue	Engine GND	OPEN	OPEN	180-400 V	180-400 V (*)

(*) This reading can be used to determine if a stator or pack 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 output. If the reading stays low – the stator is bad. If the reading is now within spec – the pack is bad.

5. Check the trigger resistance and DVA output as given below:

WIRE	READ TO	OHMS	DVA (Connected)	DVA (Disconnected)
Brown	White/Black (or Black)	800-1400	4 V +	4 V + (#)
White	White/Black (or Black)	800-1400	4 V +	4 V + (#)
Purple	White/Black (or Black)	800-1400	4 V +	4 V + (#)
Brown	Engine GND	Open	1 V +	N/A
White	Engine GND	Open	1 V +	N/A
Purple	Engine GND	Open	1 V +	N/A

(#) This reading can be used to determine if a pack has a problem in the triggering 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 recheck the DVA output. If the reading stays low – the trigger is bad. If the reading is now within spec – the pack is bad.

6. Check the center hub triggering magnet in the flywheel. A loose magnet can cause this problem.
7. Check the triggering and charge coil flywheel magnets for cracked, broken and loose magnets.

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ENGINE WILL NOT STOP RUNNING:

Check stop/kill circuit in the pack by using a jumper wire connected to the black/yellow wire coming out of the pack and shorting it to ground. If this stops the engine, the stop/kill circuit in the harness or on the boat is bad, possibly the ignition switch.

HIGH SPEED MISS (OVER 2700 RPM):

1. Disconnect the rectifier and retest. If miss is gone, the rectifier is usually at fault.
2. Check DVA voltage on the red wire of the stator to engine ground at high speed. **NOTICE:** Use caution when doing this and do not exceed the rated voltage range of your meter. The readings should show a smooth climb in voltage. If there is a sudden or fast drop in voltage right before the miss becomes apparent, the stator is usually at fault. If there is no indication of the problem, it could be mechanical problem.

COILS ONLY HAVE SPARK WHEN THE SPARK PLUGS ARE OUT:

1. Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.
2. Disconnect rectifier, regulator and retest. If the problem goes away, replace the rectifier and/or regulator.

INTERMITTANT SPARK ON ONE OR MORE CYLINDERS:

Check for low voltage from the stator and trigger. Disconnect the rectifier and retest. If the problem disappears, replace the rectifier.

ALL CYLINDERS HAVE SPARK BUT ENGINE WILL NOT RUN:

1. Disconnect the white/black wire and check the bias circuit (white/black terminal) resistance reference to engine ground. Readings should be approximately 13-15,000Ω. A shorted bias circuit can advance the ignition timing as high as 40 degrees above the set point.
2. If the bias readings are correct on the pack, index the flywheel and check timing on all individual cylinders. If the timing varies, replace the pack.
3. Check the firing order. Remember there are at least 4 different firing orders for these engines. Connect the Green wires to the ignition coils to match the firing order.