



Installation and Troubleshooting Guide

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CDI P/N: 114-4953-32

This Switch Box replaces these P/N's: 18495A22 and 18495A32.

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 negative battery cable.
2. Check and clean all battery terminals and engine grounds.
3. Remove the wires from the old switchbox. NOTE: Put a wire tie around the Red and Blue wires from the stator to each switchbox so they do not get crossed. Solid colors stay together and the Striped wires stay together.
4. Unbolt and remove the old switch box, saving the original bolts and nuts.
5. Install the new switch box using the original bolts and nuts.
6. Connect the black ground wire to engine ground.
7. Connect the 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.
8. Reconnect battery cable.

TROUBLESHOOTING

NO SPARK ANY CYLINDER:

1. Disconnect stop wire AT THE PACKS. If spark returns, there is a problem in the Kill circuit. Check the Stop/Kill switch and engine harness (remember the RPM limiter can 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:

WIRE	READ TO	OEM OHMS	CDI OHMS	DVA (Connected)	DVA (Disconnected)
Blue	Engine GND	1000-1600	500-600	180-400 V	200-400 V (*)
Blue/White	Engine GND	1000-1600	500-600	180-400 V	200-400 V (*)
Red	Engine GND	75-90	28-32	25-100 V	25-100 V (*)
Red/White	Engine GND	75-90	28-32	25-100 V	25-100 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 likely bad. If the reading is now within spec – the pack is bad.

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

BLACK SLEEVE TO	YELLOW SLEEVE TO	Resistance	DVA Reading
Brown wire	White wire	800-1400	4V or more Connected
White wire	Purple wire	800-1400	4V or more Connected
Purple wire	Brown wire	800-1400	4V or more Connected
Brown wire	-	Engine Ground	Open
White wire	-	Engine Ground	Open
Purple wire	-	Engine Ground	Open
-	Brown wire	Engine Ground	Open
-	White wire	Engine Ground	Open
-	Purple wire	Engine Ground	Open

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.

NO SPARK ONE BANK:

1. Check the stator resistance and DVA output as given below:

WIRE	READ TO	OEM OHMS	CDI OHMS	DVA (Connected)	DVA (Disconnected)
Blue	Engine GND	1000-1600	500-600	180-400 V	200-400 V (*)
Blue/White	Engine GND	1000-1600	500-600	180-400 V	200-400 V (*)
Red	Engine GND	75-90	28-32	25-100 V	25-100 V (*)
Red/White	Engine GND	75-90	28-32	25-100 V	25-100 V (*)

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- Swap the stator Red and Blue wires from switchbox to the other switchbox. If the spark moves to the other bank, replace the stator. If it stays on the same bank, replace that switchbox.

ENGINE WILL NOT STOP RUNNING:

- Verify both banks are still firing. Check stop/kill circuit in the packs by using a jumper wire connected to the black/yellow wires coming out of the each 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. If the engine is still running on one bank, replace the switchbox that is still firing.

HIGH SPEED MISS (OVER 2700 RPM):

- Disconnect the rectifier and retest. If miss is gone, the rectifier is usually at fault.
- Check DVA voltage on the red wires 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:

- Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.
- 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.
- Check the trigger resistance and DVA output as given below:

BLACK SLEEVE TO	YELLOW SLEEVE TO	Resistance	DVA Reading
Brown wire	White wire	800-1400	4V or more Connected
White wire	Purple wire	800-1400	4V or more Connected
Purple wire	Brown wire	800-1400	4V or more Connected
Brown wire	-	Engine Ground	Open
White wire	-	Engine Ground	Open
Purple wire	-	Engine Ground	Open
-	Brown wire	Engine Ground	Open
-	White wire	Engine Ground	Open
-	Purple wire	Engine Ground	Open

(#) 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 switchbox is bad. NOTE: A defective switchbox can cause the other switchbox to lose spark on one cylinder.

ALL CYLINDERS HAVE SPARK BUT ENGINE WILL NOT RUN:

- Disconnect the white/black wires going to each switchbox and check the bias circuit (white/black wire) resistance reference to engine ground on each switchbox. 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. If a problem is found in the bias circuit, replace BOTH switchbox as a set.
- If the bias readings are correct on the pack, index the flywheel and check timing on all individual cylinders. If the timing varies, replace BOTH switchbox as a set.

DESTROYED ONE OR TWO CYLINDERS:

Using an analog DC Voltmeter, check the voltage on the white/black (Bias) wire. With everything connected, run the engine at various Rpm's and watch the voltage reading. It should remain steady for a set RPM. Fluctuation in voltage indicates a problem in the bias circuit. If there is a problem, replace BOTH switch boxes.

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