Installation and Troubleshooting Guide

CDI P/N: 114-7778

This switch Box replaces these P/N's: 332-5524, 332-7778A1, 332-7778A3, 332-7778A5, 332-7778A6, 332-7778A9 and 332-7778A12.

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.

SERVICE NOTE: Connect a DC volt meter between the kill 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. Unbolt and remove the old switch box, saving the original bolts and nuts.
4. Install the new switch box using the original bolts and nuts.
5. Connect the black ground wire to engine ground.
6. Connect the ignition coil ground wire to the extra stud in the new switch box if the engine originally had the coil ground wires connected to the side of the switch box.
7. Reconnect battery cable.

TROUBLESHOOTING

NO SPARK:

1. Disconnect the Black/Yellow kill wire FROM BOTH PACKS.
2. Check for broken or bare wires on the unit, stator and trigger.
3. Check the resistance and DVA voltage of the stator as follows:

READ FROM	READ TO	OEM OHMS	CDI OHMS	DVA
Blue	Eng Gnd	5000-7000	2000-2500*	180V or more
Blue/White	Eng Gnd	5000-7000	2000-2500*	180V or more
Red	Eng Gnd	60-150	27-55*	20V or more
Red/White	Eng Gnd	60-150	27-55*	20V or more

* Verify the resistance readings are in the same ballpark. i.e, If one coil reads 30 ohms and the other reads 50, the stator is likely defective.

4. Check the trigger as follows:

BLACK SLEEVE	TO	YELLOW SLEEVE	Resistance	DVA Reading
Brown wire		White wire	1200-1400**	4V or more Connected
White wire		Purple wire	1200-1400**	4V or more Connected
Purple wire		Brown wire	1200-1400**	4V or more Connected
Brown wire	Engine Ground		Open	1 V or more Connected
White wire	Engine Ground		Open	1 V or more Connected
Purple wire	Engine Ground		Open	1 V or more Connected
	Engine Ground	Brown wire	Open	1 V or more Connected
	Engine Ground	White wire	Open	1 V or more Connected
	Engine Ground	Purple wire	Open	1 V or more Connected

** Verify the resistance readings are in the same ballpark. i.e, If one coil reads 1200 ohms and the other reads 1500, the trigger is likely defective.

5. Disconnect the rectifier. If the engine fires, replace the rectifier.

ENGINE WILL NOT STOP RUNNING:

Connect a jumper wire to the Black/Yellow terminal or wire coming out of the pack and short it to ground. If this kills the engine, the kill circuit in the harness or on the boat is bad, possibly the ignition switch.

HIGH SPEED MISS:

1. Disconnect the rectifier and retest. If miss is gone, the rectifier is usually at fault. Remember a problem rectifier can damage a stator.
2. Check DVA voltage on the red wires to engine ground on 3 & 6 cylinder) of the stator 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.
3. Using extreme caution, on the water or connected to a dyno, take the engine to the RPM where the problem is occurring and hold it for a few seconds, then perform a high speed shutdown at that RPM. Check the sparkplugs for differences in color or the presence of water droplets on the sparkplug (an indicator of a possible crack in the engine block).

NO SPARK WITH THE SPARKPLUGS INSTALLED:

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.

NO SPARK ON ONE BANK (ODD OR EVEN CYLINDERS ON INLINE 6 CYLINDER):

Check DVA voltage of the stator, checking from each red and blue wire to engine ground. The readings should be approximately 180 volts or more on the blue wires and 30 or more on the red wires. If a DVA meter is not available, swap both sets of the stator wires between the packs. If the problem moves, replace the stator. If the problem stays on the same bank, swap physical location and all connections of the two packs. If the problem stays with one pack, replace the pack. NOTE: If the pack is bad, it is recommended that BOTH packs be replaced if the packs are not manufactured by CDI Electronics. If the packs lose ground, internally or externally, the packs manufactured by other sources usually have severe damage to the bias circuit and have to be replaced as a set. The packs manufactured by CDI and RAPAIR will withstand loss of ground connection, normally with no damage to the bias circuitry. In most cases you will just lose fire.

INTERMITTANT SPARK ON ONE OR MORE CYLINDERS:

1. Disconnect the white/black wire between the packs on a 6 cylinder and retest. If all cylinders now fire, replace both packs as there is a problem in the bias circuitry.
2. On all others, check for low voltage from the stator and trigger. Disconnect the rectifier and retest. If the problem disappears, replace the rectifier.
3. Check the trigger as follows:

BLACK SLEEVE TO		YELLOW SLEEVE	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	1 V or more Connected
White wire	Engine Ground		Open	1 V or more Connected
Purple wire	Engine Ground		Open	1 V or more Connected
	Engine Ground	Brown wire	Open	1 V or more Connected
	Engine Ground	White wire	Open	1 V or more Connected
	Engine Ground	Purple wire	Open	1 V or more Connected

SPARK ON ALL CYLINDERS BUT ENGINE WILL NOT RUN:

On 3 and 6 cylinder engines, disconnect White/Black wire and check the bias circuit (white/black terminals) resistance to engine ground. Readings should be approximately 15,000Ω for standard packs. If the readings are correct on the packs, index the flywheel and check timing on all individual cylinders. If the timing varies, replace BOTH packs.

DESTROYED ONE OR TWO CYLINDERS/PISTONS:

1. Check Bias resistance, from the White/Black stud to engine ground, you should read 13,000-15,000 ohms. Readings above 15,000 ohms or less than 13,000 ohms indicate a defective switchbox. REPLACE BOTH SWITCHBOXES AS A SET ON 6 CYLINDER ENGINES!!!!
2. Use an ANALOG DC Voltmeter to check the voltage on the White/Black (Bias) terminal. 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, disconnect everything on the White/Black terminal except the jumper from the inside switchbox to the outside switchbox. Retest, if the problem persists, replace BOTH switch boxes. If the problem went away, reconnect the items taken off of the White/Black terminal one at a time, retest after every reconnection until you locate the source of the problem.