

# CDI Electronics

## Installation and Troubleshooting Guide

**CDI P/N: 114-7778R2**

This switch Box replaces these P/N's: 332-7778A2, 332-7778A4, 332-7778A8, 332-7778A10 and 332-7778A14.

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 kill wire(s):** 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.

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 THE SWITCH BOX

#### **Unit will not fire:**

1. Disconnect kill wire AT THE PACK.
2. Check for broken or bare wires on the unit, stator and trigger.
3. Check the DVA voltage of the stator, (Read from each red and blue wire to engine ground), with everything connected. The readings should be approximately 180 volts or more on the blue wires, and 30 volts or more on the red wires.
4. Disconnect the rectifier. If the engine fires, replace the rectifier.

#### **Engine will not kill:**

Check kill circuit in the pack by using a jumper wire connected to the black/yellow terminal or wire coming out of the pack 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.

#### **High speed miss:**

1. Disconnect the rectifier and retest. If miss is gone, the rectifier is usually at fault.
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.

#### **Coils fire with spark plugs out but not in:**

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 fire on one bank (odd or even cylinders on Inline 6 cylinder engines):**

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 or RAPAIR. 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.

#### **Intermittent firing on one or more cylinders:**

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. On all others, check for low voltage from the stator and trigger. Disconnect the rectifier and retest. If the problem disappears, replace the rectifier.

#### **All cylinders fire but the engine will not crank and 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 and 9600 for racing units. 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 (6 cylinder):**

Using a DC Voltmeter 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 pack to pack. 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.

Thank you for using CDI Electronics.

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