



# Installation and Troubleshooting Guide

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**CDI P/N's: 153-4597**

This rectifier replaces P/N: 584597.

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.

**SAFETY NOTICE: PLEASE DISCONNECT THE BATTERY BEFORE SERVICING THE RECTIFIER!**

**DO NOT USE A LOW MAINTAINENCE or MAINTAINENCE FREE BATTERY IN THIS TYPE SYSTEM AS OVER-CHARGING MAY RESULT!!!! AN UNREGULATED CHARGING SYSTEM USES THE BATTERY AS THE REGULATOR.**

## Installation

1. Disconnect and remove the old rectifier.
2. Install the replacement rectifier using the original bolts. Be sure to insert the Black wire's fork terminal under one of the mounting screws for a ground connection.
3. Connect the yellow wires from the new rectifier to the yellow wires from the stator (ignore any stripes on the stator wires as the new rectifier does not require the yellow wires to be connected to any particular wire from the stator).
4. Connect the gray tachometer wire with one of the yellow wires.

## Troubleshooting

Before troubleshooting the charging system, check the water level in the battery and make sure the battery is fully charged.

### Tachometer

At 800-1000 RPM, check output on the yellow wire where the gray wire is attached, reading should be at least 8 volts with a DVA meter. If you get a low reading, move the gray wire to the other yellow wire. If the tachometer now reads, the stator or rectifier is shorted to ground.

### Maximum Output Test

1. Install an ammeter capable of reading at least 15 amperes in-line on the red wire from the rectifier to the starter solenoid.
2. Connect a load bank to the battery.
3. In the water or on a Dynometer, start the engine and bring the RPM up to approximately 4500 in gear.
4. Turn on the load bank switches to increase the battery load to equal 10 Amps and check the ammeter.
5. If the amperage is low,
  - A) Check the load bank connections and meter for battery draw.
  - B) If the output is still low, check and clean all connections between the battery and the rectifier. Inspect stator windings for burned or discolored windings.
6. If the amperage is correct, but the battery voltage remains low, replace the battery.

### Overcharging

1. Using a voltmeter, check the voltage on the battery and compare it to the voltage on the red wire connected to the starter solenoid to engine ground.
2. If the voltage is high on the engine compared to the voltage on the battery, do a voltage drop test and try to isolate the area where the problem is.
3. If the voltage is the same on the battery and the engine, but is over 15.5 volts at 4500 RPM, replace the battery with a known good high quality MARINE Flooded Cell Starting battery.
4. A continued high voltage reading may indicate the need for a regulator/rectifier combination instead of an rectifier only.

### Bench Test

#### Diode check:

Using an ohmmeter, check the resistance of the forward diodes between the two yellow wires and the red wire. You should get a low reading in one direction and a high reading on the other. Check the resistance from each of the yellow wires to case ground, you should get a low reading in one direction and a high reading on the other.

| Red Lead    | Black Lead  | Reading |
|-------------|-------------|---------|
| Red wire    | Yellow wire | High    |
| Yellow wire | Red wire    | Low     |
| Yellow wire | Case Ground | High    |
| Case ground | Yellow wire | Low     |

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