



# 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: 193-2905 Voltage Regulator

This unit replaces P/N: 582616, and 582905.

### WARNINGS:

**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.**

**DO NOT USE A MAINTAINENCE FREE, AGM OR DRY CELL BATTERY WITH THIS TYPE REGULATOR/RECTIFIER AS THIS WILL VOID THE WARRANTY!!!**

**NEVER DISCONNECT THE BATTERY WHILE THE ENGINE IS RUNNING AS THIS MAY BURN OUT THE REGULATOR/RECTIFIER. *If the boat is equipped with a battery switch, make sure that it is a make before break type.***

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

## INSTALLATION

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

**INSTALLATION NOTE: *These regulator/rectifiers will cause a small spark when you reconnect the battery and will draw a very small amount of current from the battery (Less than 0.001 amp).***

## TROUBLESHOOTING

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

### Tachometer:

1. 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.
2. Check the resistance between the gray wire and engine ground. You should read above 100K (100,000) ohms. Gray to red, and gray to the yellow wires should be a high reading, usually in the M range

### Maximum Output Test:

1. Install an ammeter capable of reading at least 15 amperes in-line between the red wire from the rectifier/regulator and 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 10-20 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 battery.
4. A continued high voltage reading may indicate a problem with rectifier/regulator.

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Web Support: [www.cdielectronics.com](http://www.cdielectronics.com) • Tech Support: 1-866-423-4832 • Order Parts: 1-800-467-3371

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