



# 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: 197-6G5-A0 Voltage Regulator/Rectifier 3, 4 and 6 Cylinder

This unit replaces P/N: 197-1960 and 6G5-81960-A0-00

### NOTE:

- 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 BATTERIES AS THE USE OF THESE TYPE BATTERIES COULD VOID THE WARRANTY AND DAMAGE THE REGULATOR/RECTIFIER AND OR THE STATOR!!!**
- **NEVER DISCONNECT THE BATTERY WHILE THE ENGINE IS RUNNING AS THIS MAY DAMAGE THE REGULATOR/RECTIFIER. *If the boat is equipped with a battery switch, make sure that it is a make before break type.***
- ***This Regulator/Rectifier draws a very small amount of current as a standby voltage. This draw is typically around 0.00005 amps. If the boat is to be stored for an extended time, it is recommended that the battery be disconnected from the engine and a maintenance charger connected to the battery.***
- **DO NOT REMOVE THE Y JUMPER FROM THE RED WIRES AS BOTH RED WIRES MUST BE CONNECTED TO 12 VDC IN ORDER FOR THE REGULATOR/RECTIFIER TO WORK.**
- **It is recommended that dielectric grease (i.e. CDI P/N 991-9705) be used in the bullet nose connectors to help prevent corrosion.**

## INSTALLATION

1. Disconnect the negative battery cable.
2. Disconnect and remove the old Regulator/Rectifier.
3. Mount the new adapter plate using the flat head bolts supplied (Use heat sink compound on the back of the new adapter plate before mounting).
4. Mount the new Regulator/Rectifier to the adapter plate (use heat sink compound on the back of the new Regulator/Rectifier).
5. Connect the Black wire that went to the ground terminal of the old Regulator/Rectifier to one of the mounting studs for the new Regulator/Rectifier.
6. Cut the ring terminals off from the two Green wires from the stator. Strip approximately 3/16" of insulation from each. Slide a female bullet connector sleeve onto each Green wire, then crimp and solder the female bullet terminals on the wires. Connect these wires to the two Yellow wires from the new Regulator/Rectifier.
7. Cut the ring terminal off from the single Green (or Green/White wire) Tachometer lead from the engine harness. Strip approximately 3/16" of insulation from the cut end. Slide the male bullet connector sleeve onto the wire, then crimp and solder the male bullet terminal on the wire. Connect the male bullet terminal Green wire to the Grey wire from the Regulator/Rectifier.
8. Cut the ring terminals off from the two Red wires from the engine harness. Strip approximately 3/16" of insulation from each. Slide the female bullet connector sleeve over the two Red wires, then crimp and solder the female bullet terminal on the wires (be careful to not get solder up into the main part of the female terminal). Connect this Red wire to the male bullet terminal of the Y Jumper from the Regulator/Rectifier. Note: If your harness only has a single Red wire, connect it to the Red male bullet terminal of the Y Jumper from the Regulator/Rectifier. Do NOT remove the Y jumper on the Red wire.
9. Reconnect the negative battery cable.

## TROUBLESHOOTING

1. At 800-1000 RPM, check output on the Grey wire, reading should be at least 8 volts with a DVA meter. A low reading usually indicates a bad regulator if the system is charging the battery.
2. Check the resistance between the Grey wire and engine ground. You should read above 100K  $\Omega$ . Grey to Red, and Grey to the yellow wires should be a high reading, usually in the M  $\Omega$  range.

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

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## WILL NOT CHARGE BATTERY:

1. Check the DVA voltage between the two Green Stator wires connected to the Yellow wires from the Regulator/Rectifier). You should read 12.5 V minimum (Note: 12.5 V is required to turn on the Regulator/Rectifier).
2. Check the resistance between the two Green wires coming from the stator. You should read approximately 1  $\Omega$ .
3. Check the resistance of each of the two Green wires coming from the stator, reference to engine ground. You should read no resistance (open circuit).
4. Install an ammeter capable of reading at least 25 amperes in-line between the Red wires from the Regulator/Rectifier and the starter solenoid.
5. Connect a load bank to the battery.
6. In the water or on a Dynamometer, start the engine and bring the RPM up to approximately 4,500 RPM in gear.
7. Turn on the load bank switches to increase the battery load to equal 25 Amps.
8. Check the ammeter, you should see approximately 15 Amps from the Regulator/Rectifier.
9. If the amperage is low,
  - a. Check the load bank for battery draw.
  - b. Reconnect the ammeter between the Red wire from the Regulator/Rectifier and the terminal strip. Retest. You should show about 15 Amps from the Regulator/Rectifier.
  - c. If the output amperage is still low, check and clean all connections between the battery and the Regulator/Rectifier plate.
  - d. If the output amperage is still low, check the Y jumper for a good connection.
10. If the amperage is correct, but the battery voltage remains low, replace the battery.

## BENCH TEST

### METER TESTING:

Test the Regulator/Rectifier as follows:

Red Meter Lead	Black Meter Lead	Ohms
Yellow Stator Leads (each)	Red Regulator Y Jumper	30 K – 50 K $\Omega$ (a)
Yellow Stator Leads (each)	Case	Open, M $\Omega$ or OL(Out of Limit)
Red Regulator (w/Barrel Terminal)	Red Regulator Y Jumper	Open, M $\Omega$ or OL(Out of Limit)
Case	Yellow Stator Lead (each)	Open, M $\Omega$ or OL(Out of Limit)
Case	Red Regulator Y Jumper	Open, M $\Omega$ or OL(Out of Limit)
Case	Grey Terminal	10K $\Omega$

(a) If one of the Yellow wires shows a low reading of about 10 K  $\Omega$ , leave the meter connected for a minute. It should change to the **30 K – 50 K  $\Omega$**  range.