



Installation and Troubleshooting Guide

This installation is to be completed by an Authorized Dealer or Professional Service Technician. For questions regarding installation or warranty, call Technical Support at (800) 648-3976. Do not return to the Dealer or Distributor where the part was purchased. Contact Sierra Directly for Return Goods Authorization.

SIERRA P/N: 18-99437

This unit replaces P/N's: 157-664-61, 157-7061, 664-81970-60-00, 664-81970-61-00, 664-81970-62-00, 676-81970-00-00, 6E9-81970-70-00, 6G1-81970-00-00, 6G1-81970-60-00, 6G1-81970-61-00, 6G1-81970-62-00, 6G1-81970-A0-00, 810937M, 814995M, 81652M, and 84329M.

This unit replaces CDI P/N: 157-664-61

Warning! This product is designed for installation by a professional marine mechanic. Dometic cannot be held liable for injury or damage resulting from improper installation, abuse, neglect, or misuse of this product.

DO NOT USE A MAINTENANCE FREE, AGM, OR DRY CELL BATTERIES AS THE USE OF THESE TYPE BATTERIES WILL VOID THE WARRANTY AND CAUSE DAMAGE TO THE RECTIFIER, ENGINE, AND/OR THE STATOR!

NEVER DISCONNECT THE BATTERY WHILE THE ENGINE IS RUNNING AS THIS MAY DAMAGE THE RECTIFIER.

If the boat is equipped with a battery switch, make sure that it is a make before break type.

INSTALLATION

1. Disconnect the Negative battery cable from the battery.
2. Disconnect and remove the old Rectifier.
3. Visually check the Stator for burned battery charge windings. Dark Brown or Black charge windings indicate the Stator has been overheated and needs replacement.
4. Install the replacement Rectifier using the original bolts. Use the provided kit if the connectors on the Rectifier do not match the Lighting coil, or if the connectors on the Lighting coil are damaged.
5. Connect the Green wires to each one of the Green wires from the Lighting coil. Polarity does not matter, and the Green wires can be connected in either wire from the Lighting coil.
6. Connect the Red wire to the Red wire that comes from the Starter solenoid for 12 VDC constant battery voltage.
7. Connect the Black ground wire to a viable engine block ground point.
8. Reconnect the Negative battery cable.

TROUBLESHOOTING

BATTERY CHARGING ISSUES:

1. Regardless of whether the charging issue is overcharging or not charging at all, the #1 cause of all charging issues is the battery often due to improper style and/or charging neglect. #2 is the battery's connections. #3 is the Rectifier. #4 is the Stator.
2. The recommended type of battery for outboards is a single (NOT more than one) 850+ CCA dual purpose or cranking/starting **non-maintenance-free battery**.
3. Non-maintenance-free batteries (lead-acid flooded cell; has vent caps on its top) have heavy, thick plates. They're ideal for outboards, where batteries are commonly drained by accessories while fishing, etc. when there is no charge applied to a battery while the battery is in use. Its heavy plates can withstand constant discharging and charging. These batteries have much more reserve time and are much more suited for this behavior.

NOTE: Some Maintenance free batteries will have vented caps on top. When in doubt, change the battery to a non-maintenance free type.

4. Maintenance-free batteries should **NEVER** be used in an Outboard application. A new, fully charged maintenance-free battery may work fine at first but their life span is dramatically shortened due to the constant charging and discharging. This activity will cause the cells to become weak, and/or the cells will become dead. When this happens, the battery is unable to accept a full charge, thus putting the Rectifier at extreme risk of failure. Therefore, maintenance-free style batteries commonly cause charging issues shortly after installation.
5. Check all battery connections, particularly at engine ground. Make sure that all connections are tight and free of corrosion. Do **NOT** use wing nuts as they tend to loosen over a period of time from vibration. A loose connection **WILL** cause a premature battery and/or Rectifier failure(s).
6. If there is no change, try a single (**NOT** more than one) known good fully charged battery that is 850+ CAA Dual Purpose, or a cranking/starting battery that is non-maintenance free. Make sure the battery is a lead acid flooded cell battery (has vent caps on its top).
7. Measure the DVA across the Lighting coil's Green battery charge wires, while connected to the Rectifier. At idle the DVA will normally be between 8-25 DVA. If not, disconnect the Green wires from the Rectifier and retest. DVA will normally be 17-50 DVA at idle. If the voltage is low, the Lighting coil is possibly faulty. Perform a visual of the Stator for browning and varnish dripping. These are signs that the Stator has overheated. If the visual inspection shows any of these signs, replace the Stator.

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BATTERY NOT CHARGING:

1. Clean and service the battery cable connections (both on the engine and on the battery). Stainless hex nuts and lock washers are recommended to connect the cables to the battery.
2. Charge and load test the battery.
3. Remove the flywheel and inspect the Lightning coil for discoloration. If the windings are a dark color, replace the Lightning coil. Typical resistance readings of the Lightning coil should measure less than 2 Ω .

MAXIMUM OUTPUT TEST

1. This test will vary depending on the charging output of your particular engine. Most of these engines will have a 6 amp Lightning coil installed. Check with the factory service manual for your engine for more details.
2. Install an ammeter capable of reading at least 6 amperes in-line on the Red wire connected to the starter solenoid.
3. Connect a load bank to the battery.
4. In the water or on a Dynamometer, start the engine.
5. Turn on the load bank switches to increase the battery load to equal 6 Amps and bring the RPM up to approximately 4500 in gear.
6. Check the ammeter. You should show approximately the rated amperage of the Stator.
7. If the amperage is low, check the load bank connections and meter for battery draw. If the output is still low, check and clean all connections between the battery and the Rectifier.
8. If the amperage is correct, but the battery voltage remains low, replace the battery.

OVERCHARGING BATTERY:

1. Using a multi meter, 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 14.5 VDC at 4500 RPM, replace the battery with a known good flooded wet lead acid marine cranking battery.

BENCH TEST:

1. Disconnect all wires from the Rectifier. Using an multi meter, check the resistance of the forward diodes between the two Yellow wire stud posts and the positive stud post on the Rectifier. You should get a low reading in one direction and a high reading on the other. Check the resistance from each of the Yellow wire stud posts to case ground of the Rectifier. You should get a low reading in one direction and a high reading on the other.

<u>Black Lead</u>	<u>Red Lead</u>	<u>Reading</u>
Red wire	Green wire	High
Green wire	Red wire	Low
Green wire	Black ground	High
Black ground	Green wire	Low