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 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: 144-1889-51

This unit replaces the following P/N's: 821889A19, 821889A22, 821889A29, 821889A34, 821889A38, 821889A40, 821889A42, 821889A45, 821889A46, 821889A50, and 821889A51.

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

This unit is a 5200 RPM Limiter.

INSTALLATION

1. Disconnect the Negative battery cable.
2. Disconnect the Purple, Tan (or Brown), Black/Yellow, and Black wires from the old RPM Limiter.
3. Remove the old RPM Limiter and save the mounting bolts.
4. Clean all ground wires and mounting plate.
5. Install the new RPM Limiter, reusing the original mounting screws.
6. Lubricate the Bullet connectors using a good quality dielectric grease and connect the Purple, Tan (or Brown), Black/Yellow, and Black wires to the new RPM Limiter.
7. Reconnect the Negative battery cable.

TROUBLESHOOTING

NO SPARK OR WEAK SPARK ON ALL CYLINDERS:

1. Disconnect the Black/Yellow Kill wire from the new RPM Limiter and retest for spark. If spark returns, the RPM Limiter is defective.
2. If there is no change, Disconnect the Black/Yellow(s) stop wire AT THE SWITCHBOX and retest. If the engine's Ignition now has spark, the stop circuit has a fault. Check the key switch, harness, and shift switch (if present).
3. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the engine has spark, replace the Regulator/Rectifier.
4. Check the cranking RPM. A low cranking speed may not allow the system to spark properly. This can be caused by a weak battery, dragging starter, bad battery cables, or a mechanical problem inside the engine.
5. Check the connections from the Stator, Trigger, and engine grounds to make sure they are clean, free of corrosion and tight.
6. If the engine is using CDM Modules, disconnect one CDM Module at a time and see if the other CDM Modules start sparking. If they do, the CDM Module you just unplugged is bad.
7. Check the Stator resistance and DVA as given below:

Black Stator using Flywheel with Bolted-in Magnets

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)	DVA (Disconnected)
Blue(Low Speed Coil)	Engine Gnd	5.8-7.0K Ω	2.2-2.4K Ω	180-400 V	180-400 V
Red (High Speed Coil)	Engine Gnd	125-155 Ω	45-55 Ω	25-100 V	25-100 V

Black Stator using Flywheel with Glued-in Magnets

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)	DVA (Disconnected)
Blue (Low Speed Coil)	Engine Gnd	3.25-3.65K Ω	515-635 Ω	180-400 V	180-400 V
Red (High Speed Coil)	Engine Gnd	75-90 Ω	28-32 Ω	25-100 V	25-100 V

Red Stator Kit

Read from	Read to	OEM Ohms	CDI Ohms	DVA (Connected)	DVA (Disconnected)
White/Green (Stator)	Green/White	500-700 Ω	400-550 Ω	180-400 V	180-400 V
Blue (Adapter Module)	Engine Gnd	Open	-	180-400 V	180-400 V

ENGINE WILL NOT STOP (KILL):

1. Disconnect the Black/Yellow (or Orange) wire(s) at the Switchbox. Connect a jumper wire to the stop wire from the Switchbox and short it to engine ground. If this stops the Switchbox from sparking, the stop circuit has a fault. Check the key switch, harness, and shift switch (if present). If this does not stop the Switchbox from sparking, replace the Switchbox. Repeat the test as necessary for any additional Switchboxes.

WILL NOT ACCELERATE BEYOND 3000-4000 RPM:

1. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the engine now has good spark, replace the Regulator/Rectifier.
2. Connect a DVA meter between the Stator's Blue wire and engine ground. Run the engine up to the RPM where the problem is occurring. The DVA should increase with RPM. A sharp drop in DVA right before the problem occurs usually indicates a bad Stator. Repeat the test from the Blue/White wire. Read from Blue wire out of the Adapter Module to engine ground if the engine has a Red Stator kit installed.
3. Connect a DVA meter between the Stator's Red wire and engine ground. The DVA should show a smooth climb in voltage and remain high through the RPM range. A reading lower than on the Blue wire reading indicates a bad Stator. Repeat the test from the Red/White wire.
4. Connect an inductive tachometer to each cylinder in turn and try to isolate the problem. A single cylinder dropping spark will likely be a bad Switchbox or Ignition coil. All cylinders not sparking properly usually indicates a bad Stator.
5. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem because the water will evaporate off the spark plug before you can identify it.
6. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.

MISS AT ANY RPM:

1. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the miss clears up, replace the Regulator/Rectifier.
2. Disconnect the Regulator/Rectifier and retest. If miss is gone, the Regulator/Rectifier is usually at fault.
3. Disconnect the RPM Limiter and retest. If miss is gone, the RPM Limiter may be defective.
4. In the water or on a Dynamometer, check the DVA on the Green wires from the Switchbox while connected to the Ignition coils. You should have a reading of at least 150 DVA or more, increasing with engine RPM until it reaches 300-400 DVA maximum. A sharp drop in DVA right before the miss becomes apparent on all cylinders will normally be caused by a bad Stator. A sharp drop in DVA on less than all cylinders will normally be the Switchbox or Trigger.
5. Connect an inductive tachometer to each cylinder in turn and try to isolate the problem. A high variance in RPM on one cylinder usually indicates a problem in the Switchbox or Ignition coil. Occasionally, a Trigger will cause this same problem. Check the Trigger DVA (see **NO SPARK OR INTERMITTENT SPARK ON ONE OR MORE CYLINDERS**).
6. Perform a high-speed shutdown and read the spark plugs. Check for water. A crack in the block can cause a miss at high speed when the water pressure gets high, but a normal shutdown will mask the problem because the water will evaporate off the spark plug before you can identify it.
7. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.
8. Rotate the Stator one bolt hole in either direction and re-test. If the miss is gone, leave the Stator as is. If the miss is worse, rotate the Stator back where it was.