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: 18-99408

This unit replaces the following P/N's: 99021A 2, 99021A 6, and 99021K 2.
This unit replaces CDI P/N: 134-9021-4

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.

INSTALLATION

1. Disconnect the Negative battery cable.
2. Remove the flywheel according to the service manual for your engine.
3. Label and disconnect the Trigger leads from the Switchbox if the Switchbox isn't labeled.
4. Disconnect the Trigger linkage arm from the Trigger.
5. Remove the Stator bolts and lay the Stator out of the way carefully.
6. Remove the old Trigger and install the new Trigger along with the Stator according to the service manual.
7. Lightly grease the bushing with a high-quality marine grease.
8. Connect the Trigger linkage to the Trigger.
9. Connect the Trigger leads to the Switchbox, matching wire colors to the labeling on the Switchbox.
10. Replace the flywheel according to the service manual for your engine.
11. Reconnect the Negative battery cable.
12. Verify and adjust ignition timing as needed according to the service manual for your engine.

TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

1. Disconnect the Black/Yellow kill 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).
2. Check the cranking RPM. A cranking speed less than 250 RPM will 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.
3. Check the Stator resistance and DVA as given below:

Black Stator using Flywheel with Bolted-In Magnets

Read from	Read to	OEM Ohms	SIE Ohms	DVA (Connected)	DVA (Disconnected)
Blue(Low Speed Coil)	Blue/White (Low speed Coil)	5.8-7.0K Ω	2.0-2.5K Ω	180-400 V	180-400 V (*)
Red (High Speed Coil)	Red/White (High speed Coil)	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	SIE Ohms	DVA (Connected)	DVA (Disconnected)
Blue (Low Speed Coil)	Blue/White (Low speed Coil)	3.25-3.65K Ω	515-635 Ω	180-400 V	180-400 V (*)
Red (High Speed Coil)	Red/White (High speed Coil)	75-90 Ω	28-35 Ω	25-100 V	25-100 V (*)

Red Stator Kit

Read from	Read to	OEM Ohms	SIE 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)	Blue (Adapter Module)	Open	-	180-400 V	180-400 V (*)
Blue (Adapter Module)	Engine Gnd	Open	Open	180-400 V	-

(*) This reading can be used to determine if a Stator (or Adapter Module) or Switchbox has a problem. For instance, if you have no spark on any cylinder and the Stator's DVA reading is low disconnect the Stator wires and recheck the DVA. If the reading stays low, the Stator is bad. If the reading is now within specification, the Switchbox is bad.

5. Check the DVA on the Black/Yellow kill wire stud on the Switchbox. You should have a reading of at least 150 DVA or more. The Stator and Trigger should be connected to the Switchbox for this test. If you do not, check the DVA on the Stator and the Trigger. If the DVA on the Stator and Trigger but the DVA on the Black/Yellow Kill wire stud on the Switchbox is low, the Switchbox is likely faulty.
6. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the engine now has spark, replace the Regulator/Rectifier.

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NO SPARK OR INTERMITTENT SPARK ON ONE OR MORE CYLINDERS:

1. Check resistance and DVA of the Trigger:

Read from	Read to	Ohms	DVA (Connected)	DVA (Disconnected)
Purple (#1 Trigger)	White (#2 Trigger)	0.8-1.4K Ω	4 V Minimum	4 V Minimum (*)
Brown (#3 Trigger)	White/Black (or Black) (#4 Trigger)	0.8-1.4K Ω	4 V Minimum	4 V Minimum (*)
Purple (#1 Trigger)	Engine Gnd	Open	1 V Minimum	-
White (#2 Trigger)	Engine Gnd	Open	1 V Minimum	-
Brown (#3 Trigger)	Engine Gnd	Open	1 V Minimum	-
White/Black (#4 Trigger)	Engine Gnd	Open	1 V Minimum	-

(*) This reading can be used to determine if a Switchbox has a problem in the Trigger circuit. For instance, if you have no spark on one cylinder and the Trigger's DVA reading for that cylinder is low, disconnect the Trigger wires and check the DVA again. If the reading stays low, the Trigger is bad. If the reading is now within specification, the Switchbox is bad.

2. Swap the Stator's Red and Blue wires with the Red/White and Blue/White wires to see if the no spark problem follows one side of the Stator. If it does, the Stator is bad. If the problem remains on the same 2 cylinders, the Switchbox or the Trigger is probably at fault.

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. 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.
2. 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.
3. 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.
4. 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.
5. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the engine now has good spark, replace the Regulator/Rectifier.
6. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.

MISS AT ANY RPM:

1. 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.
2. 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**).
3. 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.
4. Check the Trigger and Stator coil flywheel magnets for cracked, broken, or loose magnets.
5. Disconnect the Yellow wires from the Stator to the Regulator/Rectifier and retest. If the miss clears up, replace the Regulator/Rectifier.
6. 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.

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