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 PN: 414-0004 Harness, Ignition 3 Cylinder CDM

Replaces: 84-850221A 1, 84-850221A 2.

Fits: 1998-2001 (30HP Jet) 2002-2005 (40HP Jet) 1997-2005 (40HP Jet) 1998-2001 (40HP) 1998-2005 (50HP Jet) 1998-2007 (55HP) 1998-2007 (60HP)

WARNING 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.

INSTALLATION

1. Disconnect the negative battery cable.
2. Disconnect and remove the old CDM Harness from the CDM Modules, RPM Limiter (if present), Trigger, Stator, Kill Circuit, and engine ground.
3. Connect the new Harness's Two Black ground wires to the CDM Mounting Plate.

NOTE: Put a small amount of Dielectric Grease in the Female Bullet terminals and on the Blue seals to help seal out moisture (also makes assembly easier).

4. Connect the Purple (Violet), Brown, White, and Black wires to the Trigger leads, matching wire colors.
5. Connect the Green/White and White/Green wires in the new Harness to the stator.
6. Connect the 4 pin connector with the Purple Trigger wire in it to the #1 (Top) CDM Module.
7. Connect the 4 pin connector with the White Trigger wire in it to the #2 (Middle) CDM Module.
8. Connect the Brown and Black/Yellow wires to the RPM Limiter (If present).
9. Connect the 4 pin connector with the Brown Trigger wire in it to the #3 (Bottom) CDM Module.
10. Reconnect the negative battery cable.

TROUBLESHOOTING

NO SPARK ON ANY CYLINDER:

NOTE: A 511-5207A 1 CDM Test Harness is highly recommended for testing these parts.

1. Disconnect the Black/Yellow kill wires from the Harness and retest. If the engine's ignition now has spark, the kill circuit could possibly have a fault in the Key Switch or Harness.
2. Some of these engines have a RPM Limiter on them. Locate and disconnect the Black/Yellow Stripe and the Brown wires from it. If spark returns, replace the RPM Limiter. The **144-1889-51** (5200 RPM) or the **144-1889-52** (5800 RPM) Limiters are available from CDI Electronics.
3. Check/Clean all engine ground connections from both the terminals and the grounding location.
4. Install a secondary 10 or 12 Gauge ground wire from the grounding point of the **414-0004**, routed around the engine, connecting it with the negative battery cable on the engine.
5. Check Connector pinout as follows:

Pin A = Black - Ground	Pin C = (Purple, White, Brown) - Trigger
Pin B = Black/Yellow Stripe - Kill	Pin D = (Green/White or White/Green) - Stator

6. Install a **511-5207A 1** test harness inline to one of the CDM Modules and unplug the Black/Yellow wires in the test harness (if connected together). This will isolate that CDM from all other connections. If spark returns on that CDM with the Black/Yellow wires unplugged, test the remaining CDMs. If you disconnect one CDM and all other CDMs now have spark, the one the test harness is connected to is defective.
7. Disconnect the Yellow wires from the stator to the rectifier and retest. If spark returns, replace the rectifier.
8. Check the resistance of the Black wire in the 4 pin connector to the CDM, referenced to engine ground. It should show a short, less than 0.5 Ω. Remember to touch your meter leads together and subtract that reading from the reading obtained when testing the Black wire to engine ground. If a high reading or an open reading exist, check the Black wire at the ground terminal as it indicates a break in the Black wire.
9. Check the stator resistance and DVA as given below:

Read from	Read to	OEM Ohms	CDI Ohms	DVA Connected	DVA Disconnected
White/Green (Stator)	Green/White (Stator)	500-700 Ω	400-550 Ω	180 V Minimum	200 V Minimum

10. Check the resistance of the CDM Modules as follows (**934-0006** Test Harness is recommended):

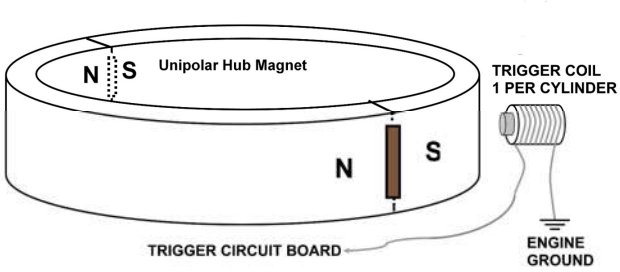
	Red Lead	Black Lead	OEM Ohms	CDI Ohms
CDM Pin #	(A) Gnd	(C) Trigger	1.2-1.4 K Ω	1.2-1.4 K Ω
CDM Pin #	(D) Stator	(A) Gnd	Open*	Open*
CDM Pin #	(A) Gnd	(D) Stator	Reading*	Reading*
CDM Pin #	(D) Stator	(B) Kill Circuit	Reading*	Reading*
CDM Pin #	(B) Kill Circuit	(D) Stator	Open*	Open*
CDM Pin #	(A) Gnd	(B) Kill Circuit	Reading*	Reading*
CDM Pin #	(B) Kill Circuit	(A) Gnd	High M Ω or Open*	High M Ω or Open*
	High Tension Lead	(A) Gnd	0.7-1.3K Ω	2.2-2.4K Ω

* ***This Measurement is with the meter set to the diode scale. Where you see the term "Reading", it represents a value on the meter. Where you see the term "Open", it represents no value showing on the meter.***

11. Verify you have the correct flywheel. The base number of the casting is the same for both the older ignitions and the CDM ignition. The only visible difference is the Trigger magnet. If you do not see the 2 slots in the steel band around the magnetic material, you have the wrong flywheel.

Mercury CDM Hub Magnet Design

1996 to 2006 2, 3 and 4 cylinder engines with CDM Modules



INTERMITTENT SPARK OR NO SPARK ON ONE OR MORE CYLINDERS:

1. Verify the correct sparkplugs are installed and gapped properly. Refer to the EPA Data plate for specifications.
2. Check the resistance of the Black wire in the 4 pin connector to the CDM, referenced to engine ground. It should show a short, less than 0.5 Ω. Remember to touch your meter leads together and subtract that reading from the reading obtained when testing the Black wire to engine ground. If a high reading or an open reading exist, check the Black wire at the ground terminal as it indicates a break in the Black wire.
3. If the cylinders are only acting up above an idle, connect an inductive Tachometer to all cylinders and try to isolate the problem cylinders.

   NOTE: This trigger has the Bias circuit built into it, therefore you cannot meter it as you do on the older engines.

4. Using the **511-5207A 1** CDM Test Harness, check the Trigger DVA as given below:

Read from	Read to	Ohms	DVA Connected	DVA Disconnected
Purple wire (#1 Cyl)	Engine Gnd	Open	0.5-1.5 V**	1 V Minimum
White wire (#2 Cyl)	Engine Gnd	Open	0.5-1.5 V**	1 V Minimum
Brown wire (#3 Cyl)	Engine Gnd	Open	0.5-1.5 V**	1 V Minimum

   *****A DVA voltage reading that is close to the same reading connected as disconnected may indicate a broken ground wire.***

5. If one cylinder has no spark, try cross connecting the Trigger wires and crossing the wires to the CDM to match (this keeps the engine in time). If the no spark does not move, the Trigger likely has a fault. If the no spark does move to another cylinder, the CDM likely has a fault.

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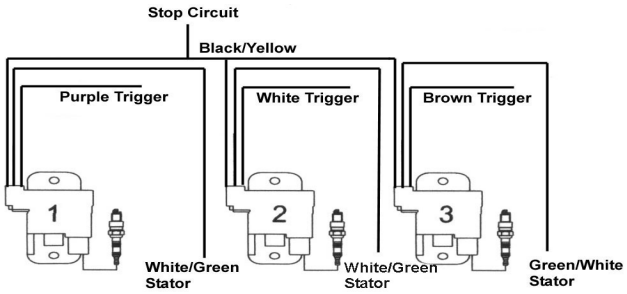

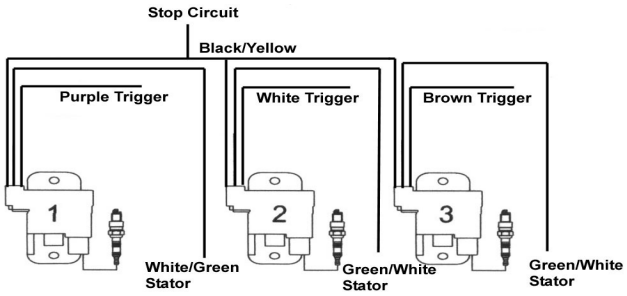

REPLACEMENT PARTS AVAILABLE FOR THIS ENGINE FROM CDI ELECTRONICS

Coils - **114-7509**

Trigger - **134-4512-3**

Regulator/Rectifier - **194-5279**

Stator - **174-2075K 1 (9 Amp Battery Charge Capacity)**
- **174-2075K 2 (16 Amp Battery Charge Capacity)**

RPM Limiter - **144-1889-51 (5200 RPM Limit)**
144-1889-52 (5800 RPM Limit)