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 Materiel Authorization.

CDI P/N: 116-8301 Ignition Pack 2/3/4/5 Cylinder

NOTE: This unit will replace the following P/N's: 658301-2, (300-F658301-2), 685301-2, 300-888788 and 300-F685301-2).

Warning! This product is designed for installation 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.

INSTALLATION

1. Disconnect the negative battery cable.
2. Loosen the mounting plate for the ignition coils and power packs.
3. Disconnect the old power pack wires and remove it from the mounting plate, saving the mounting bolts.
4. Clean and inspect the ignition coil, power pack and mounting plate ground pints and wires.
5. Install the new power pack on the mounting plate using the bolts removed previously. Make sure the ground wire is on a clean ground point.
6. Connect the new power pack as the old one was connected. Use the connection guides below as a template. NOTE: Due to the changes in the wire colors by the original manufacturer, the following chart is used as a guide.

Color Code Cross Reference

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FUNCTION	OLD	NEW
Trigger	Orange	White/Orange Stripe
Trigger	Green	White/Yellow Stripe
Trigger	Red	White/Red Stripe
Trigger	White/Green Stripe	White/Green Stripe

Color Code Cross Reference

FUNCTION	OLD	NEW
Stator	Blue	Brown/Blue Stripe
Stator	Yellow	Brown/Yellow Stripe
Ignition Coil	White	Orange/Blue
Stop (Kill) Circuit	White (Brown)	Black/Yellow

CONNECTION GUIDE

Pack #1 (Firing #1 and #2 Cylinders) Pack #2 (Firing #3 and #4 Cylinders on a 4 Cylinder engine)

Pack #3 (Firing #4 and #5 on a 5 Cylinder Engine)

Pack: White/Orange Stripe	**Trigger:** White/Orange Stripe	**Pack:** White/Orange Stripe	**Trigger:** White/Orange Stripe
White/Yellow	White/Yellow	(a) White/Yellow	White/Yellow (a)
White/Red	White/Red	(a) White/Red	White/Red (a)
White/Green Stripe	White/Green Stripe	White/Green Stripe	White/Green Stripe
Pack: Brown/Yellow Stripe	**Stator:** Brown/Yellow Stripe		
Pack: Brown/Yellow Stripe	**Stator:** Brown/Yellow Stripe		
Brown/Blue Stripe	Brown/Blue Stripe	Brown/Blue Stripe	Brown/Blue Stripe
Pack: Orange/Blue	**Coil:** White		
Pack: Orange/Blue	**Coil:** White		
Blue/Red	White Blue/Red White		

Pack #2 (Firing #3 Cylinder on a 3 Cylinder OR #5 on a 5 Cylinder Engine)

Pack: White/Orange Stripe		
Trigger: White/Orange Stripe	White/Yellow	White/Yellow (a)
White/Red	No Connection	
White/Green Stripe	No Connection	
Pack: Brown/Yellow Stripe		
Stator: Brown/Yellow Stripe		
Brown/Blue	No Connection (must be connected to the blue terminal on pack 1)	
Pack: Orange/Blue		
Coil: White Blue/Red	No Connection	

(a) CDI replacement triggers do not have a connection for this wire from the power pack as the new trigger uses a common ground wire. This allows the wires going to the power pack from the trigger to be larger and more durable. The power pack uses that color as a ground wire for the trigger.

TROUBLESHOOTING

1. DVA readings should always be taken with everything hooked up.
2. Check for broken wires and terminals, especially inside the terminals.
3. Check the flywheel for broken or loose magnets.
4. Disconnect the kill wires from the CD and connect a DC voltmeter between the kill wires and engine ground, turn the ignition switch on and off several times. If, at any time, you see voltage appearing on the meter, there is a problem in the harness or ignition switch. At NO TIME SHOULD YOU SEE BATTERY VOLTAGE ON A KILL CIRCUIT.
5. Visually inspect stator for burned or discolored areas. If found, replace the stator. Burned areas on the battery charge windings indicate a possible problem with the rectifier.

IF NO FIRE ON ANY CYLINDER:

1. Disconnect and separate the White or Black/Yellow kill wires AT THE PACKS and retest. If spark returns, there is a problem in the kill circuit, possibly the ignition switch, harness or a pinched wire. Connect the two White or Black/Yellow kill wires together

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and see if you lose spark again. If so, replace the ignition packs.
2. Check for broken or bare wires on the unit, stator and trigger.
3. Measure the DVA voltage and resistance of the stator and trigger:

Meter Red Lead	Meter Black Lead	Ohms Reading	DVA Reading
Blue (Brown/Blue)	Yellow (Brown/Yellow)	680-850 (OEM)/250-350 (CDI)	180V +
Blue (Brown/Blue)	Engine Ground	Open	180V + (a) Connected (≤ 2V disconnected)
Yellow (Brown/Yellow)	Engine Ground	Open	180V + (a) Connected (≤ 2Vdisconnected)
Orange (White/Orange)	Green (White/Yellow)	45-55 0.5V +	
Red (White/Red)	White/Green	45-55 0.5V +	

(NOTE) Remember that the stator may use Brown/Yellow or Brown/Black/Yellow for Yellow and Brown/Blue or Brown/Black/Blue for Blue.
a) The DVA reading to engine ground is checking a circuit inside the power pack. If the readings are not fairly equal, swap the stator wires going to the power pack and recheck. If the low reading stays on the same wire from the stator, replace the stator. Otherwise, replace the power pack.
b) Most meters will pick up a small amount of voltage due to inductive pick-up. As long as the voltage is very low, it will not indicate a problem.

4. Disconnect the rectifier. If the engine now has spark, replace the rectifier.

NO FIRE OR INTERMITTENT ON ONE CYLINDER:

Measure the DVA voltage and resistance of the stator and trigger:

Meter Red Lead	Meter Black Lead	Ohms Reading	DVA Reading
Blue (Brown/Blue)	Yellow (Brown/Yellow)	680-850 (OEM) 250-350 (CDI)	180V +
Blue (Brown/Blue)	Engine Ground	Open	180V + Connected (≤ 2V disconnected)
Yellow (Brown/Yellow)	Engine Ground	Open	180V + Connected (≤ 2V disconnected)
Orange (White/Orange)	Green (White/Yellow)	45-55 0.5V +	
Red (White/Red)	White/Green	45-55 0.5V +	

2. If readings are good, disconnect stop wire from one pack. If the dead cylinder starts sparking, the problem is likely the blocking diode in the opposite pack.
3. If #2 or #4 is the one not firing and the engine has a CDI stator installed, disconnect the Blue wire going to the #2 pack and see if the #2 cylinder starts firing. If so, reconnect the Blue wire with the Blue wire going to the #1 pack.

NO FIRE ON TWO OR 3 CYLINDERS ON A 5 CYLINDER ENGINE:

1. If two cylinders from the same CD unit will not fire, Measure the DVA voltage and resistance of the stator and trigger:

Meter Red Lead	Meter Black Lead	Ohms Reading	DVA Reading
Blue (Brown/Blue)	Yellow (Brown/Yellow)	680-850 (OEM) 250-350 (CDI)	180V +
Blue (Brown/Blue)	Engine Ground	Open	180V + Connected (≤ 2V disconnected)
Yellow (Brown/Yellow)	Engine Ground	Open	180V + Connected (≤ 2V disconnected)
Orange (White/Orange)	Green (White/Yellow)	45-55 0.5V +	
Red (White/Red)	White/Green	45-55 0.5V +	

2. If the engine has a CDI stator installed:

   a. If #1 and #3 (and #5) are the ones not firing, disconnect the Yellow stator wire from the # 1 pack and see if the #3 (and #5) cylinders starts firing. Is so, replace the #1 pack. If not, then reconnect the Yellow stator wire to the # 1 pack and disconnect the Yellow stator wire from the # 2 pack and see if the #1 (and #5) cylinders start firing. If so, replace the # 2 pack. If not, then reconnect the Yellow stator wire to the # 2 pack (5 cylinder) and disconnect the Yellow stator wire from the # 3 pack and see if the #1 (and #3) cylinders start firing. If so, replace the # 3 pack.
   b. If #2 and #4 are the ones not firing, disconnect the Blue stator wire from the # 1 pack and see if the #4 cylinder starts firing. Is so, replace the #1 pack. If not, then reconnect the Blue stator wire to the # 1 pack and disconnect the Blue stator wire from the # 2 pack and see if the #2 cylinder starts firing. If so, replace the # 2 pack.

ENGINE WILL NOT SHUT OFF:

Check the stop circuit in the packs by using a jumper wire connected to the stop wire coming out of each pack and shorting it to ground. If this stops the pack from firing, the stop circuit in the harness or on the boat is bad. The ignition switch could also be bad. If no change, replace the pack.

COILS ONLY FIRE WITH THE SPARK PLUGS OUT:

Check for dragging starter or low battery causing slow cranking speed. DVA test stator and trigger.

HIGH SPEED MISS:

1. Using the Fluke meter with the 511-9773 peak reading adapter, (or CD-77) and 511-9770 piercing probes, DVA check stator voltage to each pack at high speed. If it exceeds 400 volts, replace the pack.
2. Disconnect the rectifier and retest. If the miss is gone replace the rectifier.

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