

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: 113-1726

Replaces: 581334, 581493, 581551, 581552, 581713, 581925, 581726, 582057, 18-5754, 18-5757, 75330, and 75360.

**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.**

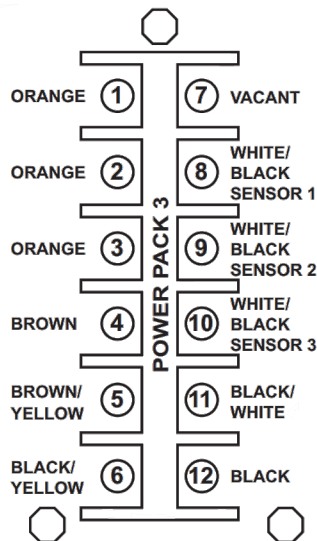
**This Power Pack does not have an RPM Limiter built in!**

### How to test the Engine Stop Circuit (Kill) for DC Voltage:

- DC voltage present on the kill circuit of the Power Pack due to a faulty key switch, boat harness, or engine harness will severely damage the Power Pack's internal kill circuit. Connect a Digital Multi Meter to the Ignition Stop wire AT THE POWER PACK while disconnected from the Power Pack in reference to a known good engine ground. Turn the Ignition switch on and off several times. If, at any time, you see over 2 VDC on the kill wire, there is a problem with one or both harnesses and/or the Ignition switch. The Ignition Stop wire should not be connected back to the new Power Pack at any point until the problem is corrected **OR DAMAGE TO THE POWER PACK WILL OCCUR!**

## INSTALLATION (3 Cylinder Engine)

- Disconnect the negative battery cable.
- Remove the old Power Pack cover.
- Disconnect all wires from the old Power Pack.
- Remove the old Power Pack and save the mounting bolts.
- Install the new Power Pack using the original bolts.
- Connect the wires to the new Power Pack according to the connection guide below (also located on the cover).
- Install the new cover and gasket using the new screws included with the new Power Pack.



## INSTALLATION (6 Cylinder Engine)

- Disconnect the negative battery cable.
- Remove the cover from the old Power Pack.
- Take notice of how the Timer base wires are connected from the Timer Base to the Power Pack.
- Disconnect all wires from the old Power Pack.
- Remove the old Power Pack and save the mounting bolts.
- Install the new Power Pack using the original bolts.
- Connect the Stator, stop wire, and Primary coil wires to the new Power Pack.
- Connect the White Timer Base wire to the Black/White Terminal. Connect the Blue Timer Base wire to the White/ Black Terminal for cylinder #1.



# Installation and Troubleshooting Guide



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9. Connect the Green Timer Base wire to the White/ Black Terminal for cylinder #2
10. Connect the Violet Timer Base wire to the White/ Black Terminal for cylinder #3.
11. Reconnect the wires according to the connection guide located on the cover.
12. Install the new cover and gasket using the new screws included with the new Power Pack.
13. Reconnect the negative battery cable.

## TROUBLESHOOTING

### NO SPARK ON ANY CYLINDER:

1. Disconnect the Black/Yellow stop wire from the Power Pack and retest. If the engine's ignition 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 of less than 250 RPM 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.
3. Disconnect the Yellow wires from the Rectifier and retest. If the engine now sparks, replace the Rectifier.
4. Check Stator and Timer Base resistance and DVA:

| Read from            | Read to                | OEM Ohms      | CDI Ohms  | DVA Connected | DVA Disconnected |
|----------------------|------------------------|---------------|-----------|---------------|------------------|
| Brown (Stator)       | Brown/Yellow (Stator)  | 870-930 Ω (a) | 650-850 Ω | 150-400 V     | 150-400 V        |
| Brown (Stator)       | Brown/Yellow (Stator)  | 555-705 Ω (b) | 650-850 Ω | 150-400 V     | 150-400 V        |
| Black/White (Common) | White/Black (#1 Input) | 10-20 Ω       | 35-55 Ω   | 0.6 minimum   | 0.6 minimum      |
| Black/White (Common) | White/Black (#2 Input) | 10-20 Ω       | 35-55 Ω   | 0.6 minimum   | 0.6 minimum      |
| Black/White (Common) | White/Black (#3 Input) | 10-20 Ω       | 35-55 Ω   | 0.6 minimum   | 0.6 minimum      |

#### (a) 1973 (b) 1974-1978

5. Check the DVA on the Black/Yellow kill wire on the screw terminal of the Power Pack. You should have a reading of at least 150 DVA or more. The Stator and Timer Base should be connected to the Power Pack for this test. If you do not, check the DVA on the Stator and Timer Base. If the DVA on the Stator and Timer Base is good but the DVA on the Black/Yellow Kill wire on the screw terminal of the Power Pack is low, the Power Pack is likely faulty.
6. Using a digital multi-meter set to Diode scale, check the Power Pack as follow:

| Red meter lead               | Black meter lead             | Reading  |
|------------------------------|------------------------------|----------|
| 1.) Orange (coil #1)         | 12.) Black (ground)          | Reading* |
| 2.) Orange (coil #2)         | 12.) Black (ground)          | Reading* |
| 3.) Orange (coil #3)         | 12.) Black (ground)          | Reading* |
| 4.) Brown (Stator)           | 12.) Black (ground)          | Reading* |
| 5.) Brown/Yellow (Stator)    | 12.) Black (ground)          | Reading* |
| 6.) Black/Yellow (Stop wire) | 12.) Black (ground)          | Reading* |
| 7.) Vacant                   | 12.) Black (ground)          | Open*    |
| 8.) White/Black (#1 Sensor)  | 12.) Black (ground)          | Reading* |
| 9.) White/Black (#2 Sensor)  | 12.) Black (ground)          | Reading* |
| 10.) White/Black (#3 Sensor) | 12.) Black (ground)          | Reading* |
| 11.) Black/White (Common)    | 12.) Black (ground)          | Reading* |
| 12.) Black (ground)          | 1.) Orange (coil #1)         | Open*    |
| 12.) Black (ground)          | 2.) Orange (coil #2)         | Open*    |
| 12.) Black (ground)          | 3.) Orange (coil #3)         | Open*    |
| 12.) Black (ground)          | 4.) Brown (Stator)           | Open*    |
| 12.) Black (ground)          | 5.) Brown/Yellow (Stator)    | Open*    |
| 12.) Black (ground)          | 6.) Black/Yellow (Stop wire) | Open*    |
| 12.) Black (ground)          | 7.) Vacant                   | Open*    |
| 12.) Black (ground)          | 8.) White/Black (#1 Sensor)  | Open*    |
| 12.) Black (ground)          | 9.) White/Black (#2 Sensor)  | Open*    |
| 12.) Black (ground)          | 10.) White/Black (#3 Sensor) | Open*    |
| 12.) Black (ground)          | 11.) Black/White (Common)    | Open*    |

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



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## NO SPARK ON ONE CYLINDER:

1. Swap the Orange Primary coil wire of the cylinder without spark with one that does on the Power Pack and see if the spark moves from one Ignition coil to the other one. If it does, the Power Pack or Timer Base is likely bad. If the spark stays on the same cylinder, the Ignition coil is likely bad. If the spark moves, swap the Timer Base wire for the non-firing cylinder with another one. If this moves the spark again, the Timer Base is likely bad.
2. Swap the Timer Base wires on the Power Pack and see if the spark moves from one cylinder to the other one. If it does, the Timer Base is likely bad. If the spark stays on the same cylinder, the Power Pack is likely bad.
3. Disconnect the Timer Base from the Power Pack and check the resistance in the Power Pack as follows:

| Red meter lead            | Black meter lead             | Ohms      |
|---------------------------|------------------------------|-----------|
| 11.) Black/White (Common) | 8.) White/Black (#1 Sensor)  | 100-200 Ω |
| 11.) Black/White (Common) | 9.) White/Black (#2 Sensor)  | 100-200 Ω |
| 11.) Black/White (Common) | 10.) White/Black (#3 Sensor) | 100-200 Ω |

**Note: All readings should be fairly even. If the sensor reading in the Power Pack for the cylinder not firing shows over a 10% different reading compared to the other sensors, the Power Pack is likely defective.**

4. Disconnect the Timer Base wires and check the resistance of the Timer Base as follows:

| Red meter lead               | Black meter lead               | OEM Ohms | CDI Ohms |
|------------------------------|--------------------------------|----------|----------|
| 8.) White/Black (#1 Sensor)  | 11.) Black/White wire (Common) | 10-20 Ω  | 35-55 Ω  |
| 9.) White/Black (#2 Sensor)  | 11.) Black/White wire (Common) | 10-20 Ω  | 35-55 Ω  |
| 10.) White/Black (#3 Sensor) | 11.) Black/White wire (Common) | 10-20 Ω  | 35-55 Ω  |

## MISS AT ANY RPM:

1. Disconnect the Yellow wires from the Stator to the Rectifier and retest. If the miss clears, replace the Rectifier.
2. In the water or on a Dynamometer, check the DVA on the Orange wires from the Power Pack 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 Power Pack or Timer Base.
3. 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 Power Pack or Ignition coil. Occasionally a Timer Base will cause this same problem. Check the Timer Base DVA (see **NO SPARK ON ANY CYLINDER**).
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.
5. Check the Trigger and Charge coil flywheel magnets for cracked, broken, or loose magnets.

## ENGINE WILL NOT STOP (KILL):

1. Disconnect the Black/Yellow wire at the Power Pack. Connect a jumper wire to the stop wire from the Power Pack and short it to engine ground. If this stops the Power Pack from sparking, the stop circuit has a fault. Check the key switch, harness, and shift switch (if present).

## POWER PACK OR TIMER BASE REPEATEDLY BLOWS ON SAME CYLINDER:

1. Check the Timer Base wires for shorts to engine ground as a shorted Timer Base wire can destroy a SCR inside the Power Pack.
2. In contrast, a shorted SCR inside the Power Pack can destroy a Timer Base. Check the Timer Base resistance and DVA (see **NO SPARK ON ANY CYLINDER**).
3. Replace the Ignition coil on the cylinder dropping spark.