ELECTRONIC DUAL FIRE IGNITION
INSTALLATION INSTRUCTIONS
MID-USA PART # 17572

Installation instructions for **street application** using **70 & Later coils with 4~5 ohms** of primary resistance. If installing in a **race application**, you may use **3 ohm coils**. Bikes with dual plug heads can use two 1.5 ohm coils wired in series (3 ohms total resistance) for race or street. Do not use the factory electronic coil for street applications.

1. Remove the point cover.
2. Remove the two standoffs holding the point plate to the engine. Unplug the wire going to the points and remove point/plate assembly.
3. Remove the bolt holding the spark advance assembly to the engine and remove the assembly.
4. Remove the point cam from the advance assembly.
5. Coat the advance assembly shaft lightly with oil. Slip the magnetic rotor over the shaft. Push the rotor down until it engages the weights on the advance assembly (it will only go on one way). Ensure that the rotor rotates freely on the shaft as the advance weights move out and back.
6. Install the advance/rotor assembly on the engine making sure the pin on the advance weights move out and back.
7. Remove the wire that connects the points and ignition coil.
8. Install the ignition assembly using the standoffs previously removed and tighten. The plate should be oriented so that the large power module is at 12 o'clock or 3 o'clock, depending on the model.
9. Route the cable from the ignition assembly out the hole in the engine case and over to the ignition coils, being careful to avoid the exhaust system.
10. Crimp the connectors supplied with the kit onto the ignition wires.
11. Connect the blue wire from the ignition assembly out the hole in the engine case and over to the ignition coil, being careful to avoid the exhaust system.
12. Connect the white wire to the other (12 volt) end of the coil.
13. This completes the wiring. Make sure all the connections are secure. ***If the white and blue wires are reversed, the ignition will be destroyed instantly on power up.***

Timing Adjustment

1. All timing adjustments should be made using the advance timing marks on the flywheel. Refer to a factory shop manual to determine the timing mark for your particular engine.
2. Rotating the ignition plate clockwise advances the timing and counterclockwise movement retards the timing.

Dynamic Timing Adjustment

1. Remove the crank case timing hole plug and replace it with a transparent timing mark view plug.
2. Connect a stroke timing light to the front cylinder spark plug.
3. Run the engine at normal operating temperature at 2000 rpm.
4. Aim the light into the inspection hole.
5. Rotate the ignition plate clockwise or counterclockwise as appropriate until the front cylinder timing mark is in the center of the hole. Retighten standoffs.
6. Replace crank case hole plug and side cover.

Static Timing Adjustment

1. Connect a 12 volt test light from the blue coil wire to ground (engine case).
2. Rotate the engine until the front cylinder is on the compression stroke.
3. Remove the crank case timing hole plug.
4. Turn the ignition on.
5. While holding the rotor in the advance position with the flywheels against their stops (counterclockwise), slowly rotate the engine in the forward direction until the test light becomes bright. The advance mark for the front cylinder should be in the center of the inspection hole. If it is, proceed to Step 7.
6. If the timing mark is not centered in Step 5, loosen the standoffs holding the ignition in plate, and rotate the plate to advance or retard the timing as appropriate and re-tighten the standoffs. Recheck timing as in Step 5.
7. Replace the crank case hole plug and side cover.

ELECTRONIC IGNITION
SYSTEM TESTING
MID-USA PART # 17572 & 17573

Visual Instruction

Check to see that the rotor is not rubbing on the power modules or the ignition plate. Fully advance the rotor and it should snap back to the original position. Inspect when the motor is cold and at operating temperature. Mark the location of the ignition plate and remove. Check for any signs of the advance unit contacting the ignition plate. Check the wires for damage caused by pinching or heat. Make sure areas of splicing and crimping are firmly attached. Insure connections at the coil are clean and tight. Remove the spark plug wires and inspect for corrosion and cracked or chipped insulation. Using an ohmmeter, check the resistance of the plug wire. Inspect the spark plugs and replace if necessary.

Testing the Voltage

Check the ignition coil or coils for proper primary resistance – do not forget to take the resistance of the meter leads into consideration. If the ohmmeter shows shorting or open primary, you must replace the coils. After performing this test, you can manually rotate the engine until the rotor's magnet is directed away from the power modules. Turn the ignition on and then measure the voltage between the ground and the coil (+) terminal. If you get a reading that is approximately one volt less than the battery voltage, this is to be expected because the wiring has its own resistance. If the voltage is noticeably lower, you can try to find the voltage drops which may occur at any splicing, connectors, circuit breakers, switches, or other devices in the wiring that interrupt the power to the coils. **IMPORTANT NOTE: Do not keep the ignition on longer than 4-5 minutes while doing this test because the coils can overheat and be damaged.** Using the voltmeter, find the voltage between each coil (-) terminal and ground. Expect it to be 0.8 to 1.4 volts when the magnet is directed away from the power modules. Manually rotate the engine so the magnet points at the sensor located behind the raised line on the front of the module. The voltage should rise to approximately the battery voltage, indication that the power module is switching off and on and probably working correctly.

If the voltage is still low, the gap between the sensor and rotor may be too large. If the gap between the sensor and rotor is greater than 0.040", it can be the reason the module doesn't switch. The proper gap between the two components is between 0.025" and 0.040". If the output has a short, this will also keep the voltage low. If the voltage is consistently high, make sure the mounting plate is firmly grounded and that the power modules are receiving power. If this checks out, it could mean that the module is not working.

Test with Ohmmeter

Disconnect the unit wires from the coils, then connect the negative ohmmeter lead to the mounting plate and positive lead to one of the coil (-) wires. This should give an open reading (infinite ohms) on all ranges. Any other reading than this indicates you have a damaged output. If the ohmmeter has a diode test, reverse the leads and a diode drop of 0.5 ~ 0.6 will be the reading. **NOTE:** Many inexpensive ohmmeters reverse the polarity of the leads inside the meter. This causes a false "bad" reading due to the resistance of the reverse diode as described. **DO NOT** attempt to meter the ohms between any other points or with power applied to the module because these readings may not be reliable due to differences in the meter or component tolerances.

Testing the Coils

Remove all wiring from the coils and measure the primary resistance between the screw terminals. Next, measure the secondary resistance between the high voltage outputs. If you are using single output coils, you can measure the resistance between the high voltage output and either of the screw terminals.

Note on Ohmmeters

If possible, use a good quality ohmmeter that has a low ohms range to measure the primary resistance accurately. Depending on the quality of the ohmmeter and the leads resistance, the readings will vary somewhat. If the coil is damaged, if will usually show up with open or shorted leads on the primary or secondary.

Check coil resistance specifications with the manufacturer