# DYNA S ELECTRONIC IGNITION INSTALLATION INSTRUCTIONS

## Part No. DS6-1 for 1970 to 1978 Harley-Davidsons

**The DS6-1 must be used with coils or combinations of coils having 3 ohms or more primary resistance)**

## PROCEDURE

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 assembly is engaged in the slot on the engine. Install the bolt and tighten. Ensure that the rotor is still free to rotate.
7. Remove the wire that connected the points and ignition coil.
8. Install the ignition assembly using the two standoffs previously removed, and tighten. The plate should be oriented so that the power module is at 12 o'clock or 3 o'clock, depending on model.
9. Route the wires from the ignition assembly out the hole in the engine case and over to the ignition coil, being careful to avoid the exhaust system.
10. Crimp the connectors supplied with the kit on to the ignition wires.
11. Connect the blue wire from the ignition assembly to the ignition coil where the point wire previously connected (negative end).
12. Connect the white wire from the ignition assembly to the other (positive) end of the coil.
13. This completes the wiring. Make sure that all connections are secure.

## TIMING

**Note:**

A. All timing adjustments should be made using the advance timing marks on the flywheel. The advance mark for the front cylinder is a vertical line.

B. Rotating the ignition plate clockwise advances the timing and counterclockwise movement retards the timing.

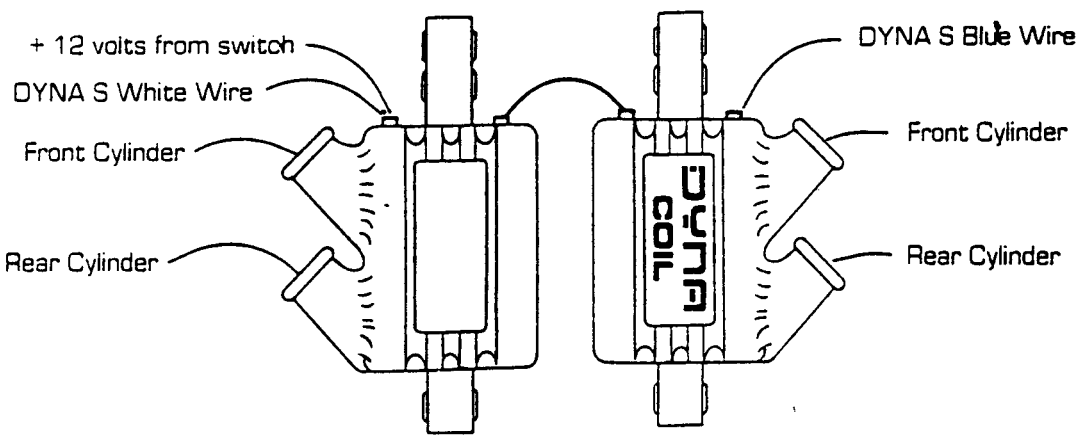
## STATIC TIMING

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 ignition on.
5. While holding the rotor in the advance position with the fly weights 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 plate, and rotate the plate to advance or retard the timing as appropriate, and retighten the standoffs. Recheck timing as in Step 5.
7. Replace crank case hole plug and side cover.

## DYNAMIC TIMING

1. Remove the crank case timing hole plug and replace it with a transparent timing mark view plug.
2. Connect a strobe timing light to the front cylinder spark plug.
3. Run the engine at normal operating temperature at 2,000 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.

### DC2-1 1.5 OHM
### DYNA COIL CONNECTION FOR
### HARLEY-DAVIDSON DUAL SPARK PLUG CONVERSION



# DYNA HARLEY-DAVIDSON IGNITION/COIL APPLICATION CHART

## DS6-1 IGNITION

**COILS**

### SINGLE PLUG HEADS (2 SPARK PLUGS)

| | |
|---|---|
| RACE (1) 3 OHM COIL | DC1-1 OR DC6-1 |
| STREET (1) 5 OHM COIL | DC7-1 OR DC8-1 |

### DUAL PLUG HEADS (4 SPARK PLUGS)

| | |
|---|---|
| RACE OR STREET (2) 1.5 OHM COILS WIRED IN SERIES | DC2-1 OR DC5-1 |

## DS6-2 IGNITION

### SINGLE PLUG HEADS (2 SPARK PLUGS)

| | |
|---|---|
| RACE OR STREET (2) 3 OHM COILS, SINGLE OUTPUT | DC3-1 |

### DUAL PLUG HEADS (4 SPARK PLUGS)

| | |
|---|---|
| RACE (2) 3 OHM COILS | DC1-1 OR DC6-1 |
| STREET (2) 5 OHM COILS | DC7-1 OR DC8-1 |

## INSPECTION

Check that the rotor is not rubbing the modules or the wiring. Turn the rotor to the advanced position and release. It should snap back crisply. Check when motor is cold and again when hot. Make a timing mark on the case and Dyna S plate. Remove the Dyna S and check that the advancer is not rubbing the plate.

Inspect the cable for burned or pinched sections. Firmly pull on all splices and crimp terminals. Check that coil connections are tight and clean. Install split lock washers on screws.

Remove spark plug wires and inspect for corroded terminals and cracked insulation. Connect an ohmmeter to each end and gently pull and twist the wire to check for breaks. Check the spark plugs. Replace if excessively fouled - do not clean.

## VOLTAGE TEST

First check the primary resistance of the ignition coils. They should be at least 3 ohms (remember to subtract the resistance of the meter leads). Replace coils that read an open or shorted primary before proceeding.

Rotate the motor so that the magnet in the rotor is pointing away from the modules. Turn on the ignition and measure the voltage between ground and coil (+). A reading of about 1 volt less than battery voltage is normal due to resistance in the wiring.

If the voltage is much lower, check for voltage drops across any switches, splices, connectors, circuit breakers, etc., that feed power to the coils. Do not leave the ignition on for more than about 5 min. when doing this test - the coils may overheat and become damaged.

Measure the voltage between each coil (-) terminal and ground. This should measure in the range of 0.8 to 1.4 volts when the magnet is pointed away from the modules.

Rotate the motor until the magnet points at the sensor (the sensor is located behind the raised rib on the face of the module). The voltage should go up to approx battery voltage. This indicates the module is switching on and off and is probably OK.

If the voltage stays low, check that the gap between the rotor and sensor is in the range of 0.025" to 0.040". Gaps larger than 0.040" may cause the module not to switch. The voltage will also stay low if the output is shorted.

If the voltage stays high all the time, check that the mounting plate has a solid ground and that there is power going to the modules. If this is OK, the module may be bad.

## OHMMETER TEST

Disconnect the Dyna S wires from the coils. Connect the negative ohmmeter lead to the mounting plate and the positive lead to one of the coil (-) wires. This should read open (infinite ohms) on all ranges. Any other reading indicates a damaged output. If the meter has a diode test, the leads can be reversed and a diode drop of 0.5 to 0.6 volts will be read.

Note: many low cost ohmmeters reverse the polarity of the leads inside the meter. This will cause a false bad reading due to the resistance of the reverse diode described above.

Do not attempt to ohm between any other points, or with power applied to the module. Due to component tolerances, differences in meters, etc., these readings will vary greatly and are not a reliable measurement.

## COIL TEST

Remove all wires from the coils. Measure the primary resistance between the screw terminals. Measure the secondary resistance between the high voltage outputs. For single output coils, measure the resistance between the high voltage output and either one of the screw terminals.

Accurate measurement of the primary resistance requires a good quality ohmmeter with a low ohms range. Readings will vary slightly from those listed below depending on the quality of the meter and the resistance of the meter leads. Damaged coils will typically will have much different readings - open or shorted on the primary or secondary.

| | PRIMARY RESISTANCE | SECONDARY RESISTANCE |
|---|---|---|
| DC1-1 | 2.9 - 3.2 ohms | 13.5K - 14.5K |
| DC3-1 | 2.9 - 3.2 ohms | 13.5K - 14.5K |
| DC6-1 | 3.2 - 3.7 ohms | 11.0K - 12.0K |
| DC7-1 | 4.8 - 5.2 ohms | 17.0K - 18.0K |
| DC8-1 | 4.8 - 5.2 ohms | 17.0K - 18.0K |
| DC10-1 | 4.8 - 5.2 ohms | 13.5K - 14.5K |

## REPAIR

The Dyna S ignition is not user serviceable and must be returned to the factory for repair. Do not cut off the cable, remove the modules, or attempt to service as this may substantially increase the repair cost and/or void the warranty.