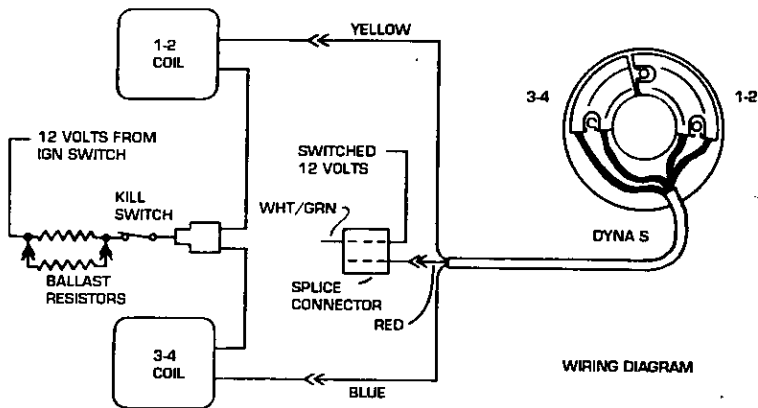


DYNA S ELECTRONIC IGNITION INSTALLATION INSTRUCTIONS

PART NO. DS1-3 FOR HONDA GL1000 MOTORCYCLES

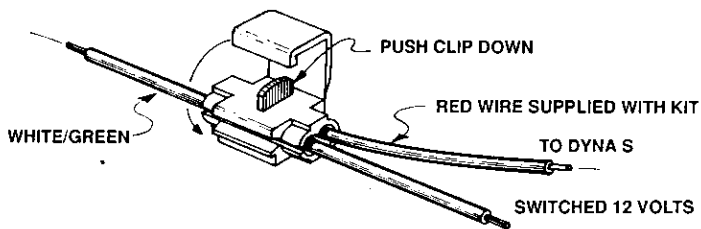
The DYNA S Electronic Ignition System replaces your entire points plate assembly and mounts in the original position. It was designed for use with stock coils, however, it may be used with other coils that have at least THREE OHMS primary resistance, in which case the ballast resistor will be bypassed.



INSTALLATION PROCEDURE -

- 1) Open the top and side compartments. Locate the two ignition coils and ballast resistor directly in front of the air cleaner intake. On some models it is best to remove the air cleaner for access to the coil area.
- 2) Unplug the wires from the ballast resistor. Connect the power resistor supplied with the kit across (parallel with) the ballast resistor, and reconnect the wires to the tabs provided. The resistor will become very hot during operation. That is normal, and not destructive to the resistor, however, care should be taken to keep cables and wires from coming in contact with it.

- 3) Locate the blinker relay just behind the fuse box in the left compartment. The white/green wire going to the relay carries 12 volts from the ignition switch. Using the splice connector provided, attach the separate red wire included in the kit to the white/green wire, as shown below. Do not strip the wires. On 1978 and 1979 models, the 12 volts can be obtained at the accessory terminal in the left side compartment.



- 4) Remove the points cover and battery cover.
- 5) Remove the 10 mm bolt holding the spark advance assembly to the engine.
- 6) Remove the screws holding the points plate to the engine. Disconnect the blue/yellow and yellow point wires where they plug into the wire harness and remove the entire point/plate assembly.
- 7) Notice that there are two other wires connected where the points plugged in. These are wires going to the condensers mounted in front of the battery. Unplug both wires and tuck them back out of the way. Do not reconnect.
- 8) Remove the spark advance assembly from the engine.
- 9) Remove the point cam from the advance assembly.
- 10) Coat the advance assembly shaft with oil. Place the DYNA S rotor on the shaft and while spreading the weights, push the rotor down until it engages the weights. Ensure that the rotor rotates freely on the shaft as the advance weights move out and back.
- 11) Install the advance/rotor assembly on the engine making sure the pin on the camshaft is engaged in the slot on the advance assembly. Install the washer and bolt, and tighten. Ensure that the rotor is still free to rotate.

- 12) Install the DYNA S using the screws previously removed. Orient the plate approximately as shown in the wiring diagram. Tighten screws, lightly.
- 13) Route the cable over to where the points originally plugged in. The grommet from the point cable may be used by slitting it with a razor blade to remove it.
- 14) Connect the wires with the blue and yellow bands to the receptacles where the original points connected, matching the colors.
- 15) Plug the red wire coming from the DYNA S into the red wire installed in Step 3.
- 16) This completes the installation. Make sure that all connections are secure and that all colors match.

TIMING PROCEDURE -

NOTE: The right module fires cylinders 1-2, and provides +/- 10° of adjustment. The left module fires cylinders 3-4, and is fixed. 3-4 timing is adjusted by rotating the plate.

- 1) To time the engine statically, connect a 12 volt test light from the junction of the blue coil wires to ground (engine case). Do not disconnect the wires. Remove the timing mark hole cap.
- 2) Turn ignition switch on. Slowly rotate the engine in the forward direction using the 12 mm generator bolt (see owners manual under timing) until the test light turns on. The F2 timing mark should align with the index mark on the engine case.
- 3) If the marks do not align, loosen the DYNA S screws and rotate the plate clockwise or counterclockwise as appropriate (.010 of sensor movement approximates 1°) and re-tighten screws.
- 4) Rotate the engine backward until the light goes out, and repeat Steps 2 and 3 until 3-4 timing is correct.
- 5) After 3-4 timing is verified, connect the test light to the yellow coil wire and repeat Step 2, using the F1 mark for cylinders 1-2. If it is necessary to adjust the 1-2 timing, loosen the cap screws holding the right module using allen wrench supplied with the kit; and move it clockwise or counterclockwise as appropriate, and re-tighten screws.
- 6) Recheck timing and adjust as necessary using the above procedure until proper timing is verified.

- 7) The engine can also be timed dynamically using a strobe light in the normal manner. Use the advance marks and an engine speed of about 2500 RPM (full advance).
- 8) After timing, replace the covers previously removed.

PROBLEM DIAGNOSIS -

The DYNA S Electronic Ignition is manufactured from the highest quality parts and materials available, using the greatest care possible. Many times operational problems are due to improper installation or intermittent connections.

During timing, if the test light remains bright at all times, it indicates that there is a bad connection in the wiring. Ensure that there is 12 volts at the red wire.

The DYNA S uses two identical power modules, one for each pair of cylinders. If loss of ignition on four cylinders is experienced, it is not likely to be caused by the DYNA S. The probable cause would be loss of 12 volts to the coils or to the red wire on the DYNA S.

If loss of ignition on two cylinders is experienced, remove spark plugs, replace in caps, and lay them on cylinder head. Turn engine over and watch sparks to determine which are missing. Disconnect (key off) the DYNA S output wires and reconnect them in reverse. If sparks transfer to opposite plugs, it indicates a bad DYNA S power module. If they stay with the same plugs, it indicates a bad coil, or a problem somewhere in the wiring.

If the bike fails to idle, runs poorly at low engine speeds but seems OK at higher speeds, a possible cause is a defective ballast resistor, or one of the wire connections associated with the part.

DYNATEK
164 S. VALENCIA ST.
GLENORA, CA 91741
(818) 963-1669
FAX (818) 963-7399

DYNA S IGNITION SYSTEM TESTING

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.

	<u>PRIMARY RESISTANCE</u>	<u>SECONDARY RESISTANCE</u>
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.

DYNA IGNITION COIL INSTALLATION INSTRUCTIONS

DUAL OUTPUT DYNA COILS are available with primary resistances of 5 ohms (DC8-1), 3 ohms (DC1-1), 2.2 ohms (DC4-1), and 1.5 ohms (DC2-1). Single output coils are available in 3 ohm (DC3-1) and 5 ohm (DC10-1). For optimum performance, the replacement coil resistance should be within 10% of the original coil resistance.

For breaker points, the 5 ohm coils should be used or the 3 ohm coils can be used and a 1 to 2 ohm ballast resistor placed in the 12 volt line going to the coils. Generally, a ballast resistor should not be used with DYNA COILS on electronic ignitions.

The secondary towers are designed to accept 7 or 8 mm automotive spark plug wire. Wire kits are available from DYNATEK.

- 1) Remove the gas tank. Locate the two ignition coils.
- 2) Unplug the primary wires coming from the coils and disconnect the high voltage wires from the spark plugs. Remove the coil mounting bolts, and remove the coils.
- 3) Cut or unsolder primary wires from coils. Crimp or solder ring terminals supplied with kit to primary wires.
- 4) Attach the primary wires to the DYNA COILS using the 10-32 x 5/16 pan head screws provided. Either wire can be mounted on either terminal of the dual output coils as they have no polarity. On the single output coils, the primary terminal opposite the side with the output tower has a + marking. Plus 12 volts from the ignition switch is applied to that terminal, and the points or ignition system output is connected to the other terminal. On a Kawasaki, make sure there is clearance between the screw head, and the mounting screw spacer. Do not over-tighten screws as damage to the coil could result.
- 5) Using the stock hardware, mount the coils to the frame in the original location. **NOTE:** The DYNA COIL mounting hole spacing is designed to accommodate early model Honda, Kawasaki, and Suzuki motorcycles. There are a wide variety of physical sizes and mounting configurations on the late model motorcycles and it may be necessary to modify existing mounting brackets, or fabricate a bracket to adapt the DYNA COILS to your particular motorcycle.

NOTE: Honda and Suzuki mounting uses the two holes that are farthest apart; with the secondary towers pointing down and back on Honda's, and down and forward on Suzuki's. Kawasaki mounting uses the two holes nearest the coil body. The secondary towers will point up and forward on 900/1000's and down and forward on KZ650's.

On the Honda GL1000, the towers should point down and it may be necessary to cut a small amount off the air filter intake. The ballast resistor must be bypassed when the coils are used with a Dyna ignition.

- 6) Route the primary wires to the connectors that were unplugged in Step 2, and connect the wires according to color.
- 7) Connect the high voltage wires from coils to spark plugs. Make sure that all wiring connections are secure. Replace gas tank.

DYNATEK

164 S. VALENCIA ST. • GLENDORA, CA 91741 • (626) 963-1669 • FAX (626) 963-7399