DYNA 2000
DIGITAL PERFORMANCE IGNITION
INSTALLATION GUIDE

KIT NUMBER DDK2-17C FOR 1972-75 KAWASAKI H2 750 TRIPLE

DESCRIPTION
The Dyna 2000 Digital Performance Ignition represents a breakthrough in motorcycle ignition flexibility. The Dyna 2000 system consists of a state of the art microprocessor controlled ignition module along with an adjustable Dyna triple sensor crank trigger. For the first time you can actually set the ignition timing to what you want to maximize engine performance. The Dyna 2000 ignition system is programmable to allow you to maximize your performance. A number of different advance curve modes and a broad range rev limiter let you tailor the ignition to your needs. The Dyna 2000 also has the following built-in features:

*Full static timing adjustment - You can set the timing accurately to the desired value without having the engine running.
*Independent R, C, L cylinder timing - The Dyna triple sensor crank trigger uses one sensor for each allowing you to accurately set the timing for each cylinder.
*Built-in static timing light - An LED light built in to the Dyna 2000 ignition module allows you to monitor the crank trigger signal status and easily set the ignition timing.
*Different advance curves - You can advance slowly to dial out pinging on high compression motors or bring the advance in quickly on quick revving motors or select a curve in between to maximize the performance of your combination.
*Different retard modes - The Dyna 2000 is an ideal solution for turbo or nitrous applications.
*Test mode - System check out and trouble shooting is a breeze with this feature.
*Broad range rev limiter - The Dyna 2000 rev limiter is adjustable from 7,500 to 12,000 rpm to let you run in any range you want.
*High energy - An innovative dwell control scheme maximizes spark energy all the way to 12,000 rpm! For maximum high RPM spark energy, use Dyna DC3-1 green coils
*Complete wiring harness - The Dyna 2000 kit includes a complete wiring harness to simplify installation.
*Anti-Reverse Rotation software – The Dyna 2000 will not allow the 2-stroke engine to unintentionally run backwards.
*Low cost! - The Dyna 2000 system in most cases costs less than a stock ignitor box.
**INSTALLATION:**

**IMPORTANT** Remove the Battery negative (-) before continuing.

**IMPORTANT** Refer to the wiring diagram included with these instructions while installing the Dyna 2000.

**IMPORTANT** This system does not require the stock ignitor box. Remove the stock ignitor box from your bike before installing the Dyna 2000 ignition system.

**IMPORTANT** It is necessary to use suppression core spark plug wires with the Dyna 2000 ignition system. Spiral core or carbon core spark plug wires are acceptable.

**IMPORTANT** Thoroughly read these instructions before starting the installation of this system.

**IMPORTANT** You may need a new ignition cover gasket for your engine during this installation. This is the gasket for the left side engine cover.

**IGNITION MODULE PLACEMENT**

1A. The Dyna 2000 will mount in the same location as the solid state magneto boxes. Disconnect the wires and remove the bracket that holds the four magneto boxes under the seat. Remove the magneto boxes from the bracket. Use the supplied template to drill four mounting holes for the Dyna 2000. Attach the Dyna 2000 to the bracket and install the bracket back where it was.

1B. Locate the main wiring harness included with your Dyna 2000 kit. Plug the eleven-pin connector of the wiring harness into the Dyna 2000 ignition module.

1C. The main wiring harness has two main groups of wires. The group of wires with two connectors at the free end is the crank trigger group. The other group of wires with the standard 1/4" male spade connectors is the coil group. Extend the crank trigger wire group toward the rear of the engine. The Dyna 2000 module should be located such that the crank trigger wire group can easily reach the area under the carburetors. This is where the plug on the crank trigger will end up after the crank trigger is installed.

1D. Extend the coil wire group of the harness toward the ignition coil location. You will have to remove the gas tank to access the ignition coils.
IGNITION MODULE POWER AND GROUND

2A. Locate the 13 inch red wire which extends by itself from the Dyna 2000 module end of the harness. This wire has two bullet terminals on its free end. Disconnect the (switched +12v) red/white wire terminals under the seat and near the rear fender. Connect the 13 inch red wire between the red/white wire terminals. This connection is for “Key-on, Lights-on” switched +12V. Other switched +12V will work, providing power is switched OFF when the bike is not being operated.

2B. Locate the 8 inch black wire which extends by itself from the Dyna 2000 module end of the harness. This wire has a 1/4” ring terminal on its free end. Connect the ring terminal directly to the negative post of the battery.

COIL INSTALLATION

3. Remove the gas tank as necessary to expose the ignition coils. Locate the green Dyna coils and their hardware. Before mounting Dyna coils to bike, fasten (2) terminal tabs to each coil using lock-washers and screws. Disconnect all wire from the original coils and remove the old coils from the bike (the stock coils are NOT compatible with the DYNA2000 ignition. The right and left Dyna coils will mount in the same position as the original right and left coils, and the center Dyna coil will mount directly behind the R&L coils. The mounting position of all three coils will be with one bolt hole towards the front of bike and the two bolt holes towards the rear. Use the bolt hole furthest from the coil body for mounting the rear of the coils. Refer to the picture. The rear of the center coil is attached to the frame backbone with a hose clamp around a U-shaped stud bracket. This bracket has two squares punched in it for the hose clamp to go through. Secure the center coil rear on the U-shaped bracket, with stud pointing down, between a .650” standoff and a lock nut. Secure the center coil front on a flat stud bracket, stud pointing up, with two circles punched in it for bolting to the rear of the right and left coils. Secure the right and left coil rear on S-shaped brackets. The longer stud on the S-shaped bracket should go through the rear of the right and left coils, and the shorter stud should go through the tabs welded to the frame. Secure the right and left coil fronts using the (2) .850” standoffs with bolts and locknuts. Secure the center coil front bracket to the right and left coil rear S-brackets using locknuts.

Coil wiring - The coil wire group of the harness contains four colors of wires:

<table>
<thead>
<tr>
<th>Color</th>
<th>Destination</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>white</td>
<td>coil R</td>
<td>fires the coil for the right cylinder</td>
</tr>
<tr>
<td>violet</td>
<td>coil C</td>
<td>fires the coil for the center cylinder</td>
</tr>
<tr>
<td>blue</td>
<td>coil L</td>
<td>fires the coil for the left cylinder</td>
</tr>
<tr>
<td>red</td>
<td>+12V</td>
<td>this wire needs switched 12 volts to power the ignition</td>
</tr>
</tbody>
</table>

NOTE - The Dyna 2000 ignition must be used with 3 ohm coils. For maximum spark energy use Dynatek part number DC3-1, 3 ohm single output ignition coils (green).

The portion of the Dyna 2000 harness that contains the coil wires should already be routed to the coil area. Locate the red wire in the Dyna 2000 coil harness. This wire is branched into (3) terminals at its ends, and will supply the coils with +12volts. Connect it to one terminal tab on each coil that is marked with a white plus symbol “+”. This terminal is at rear of each coil and
close to the top. Locate the white wire in the Dyna 2000 coil harness. This wire should be connected to the right coil terminal tab, located at the rear and close to the bottom. Locate the violet wire in the Dyna 2000 coil harness. This wire should be connected to the center coil terminal tab, located at the rear and close to the bottom. Locate the blue wire in the Dyna 2000 coil harness. This wire should be connected to the left coil terminal tab, located at the rear and close to the bottom.

INSTALLING SPARK PLUG WIRES
4. Remove spark plugs and put a gold tip on each. Reinstall spark plugs. Install the first plug wire on the right cylinder. Run the wire up to the coil for the right cylinder. Cut wire with ½ inch extra length. Strip off ½ inch off insulation to expose the center. Fold the ½ inch center over the insulation, and crimp on a terminal end. Put rubber boot over wire end. The remainder of the right wire will be cut to length for the center cylinder. The wire for the center cylinder may have to be looped so it can easily reach the center coil. Cut the remaining wire to length for the left cylinder. Connect spark plug wires for R, C, and L cylinders to corresponding coils with WHITE, VIOLET, and BLUE primary wires.

CRANK TRIGGER HARNESS
5. The crank trigger portion of the Dyna 2000 harness should be routed to the left side of the engine near the carburetors. The crank trigger harness contains a six-pin plug with five wires for the crank trigger.

CRANK TRIGGER INSTALLATION
6A. Locate the triple sensor crank trigger included with your kit. The crank trigger has a blue anodized base plate with three black sensor modules on it and is prewired with the exception of the connector.

6B. Locate the black anodized crankshaft rotor included with this kit. The Dyna 2000 crankshaft rotor has one magnet in it.

6C. Remove the ignition pickup cover on the left side of the engine. Remove the front sprocket cover. Disconnect all wires that lead to the left side of the engine from the harness junction under the seat. Remove the rotor from the end of the crankshaft. Remove the alternator/ignition pickup & aluminum housing assembly from the left side of the engine. Use a razor blade to carefully split and remove the two rubber grommets from the alternator/ignition pickup harness. Cut from the middle of the flat section toward the center of the wires, but only through the grommet. Remove all hardware holding the three pickups to the alternator. Before removing each pickup and its white wire, take notice of the path the center pickup wire makes through the alternator. You will need to use this same path for the Dyna crank trigger harness. Pull each wire, for the three pickups, out of the harness and off the adjusting plate. Some string that ties wires together may need to be cut. Use the six screws of the adjusting plate to fasten the blue crank trigger plate so the 15° BTDC mark is pointing up towards the cylinders. Run the Dyna crank trigger wire harness so it goes into an opening at the top of the alternator and along the same path as the white center pickup wire which was removed. Look at pictures to verify location. Make sure the harness will be out of the way of the spinning alternator. Use small zip-ties to keep wires together where string ties had to be removed. Run the crank trigger harness out of the alternator at the
same location as the alternator wires. Clean the alternator harness, and use electrical tape to wrap the two harnesses together up to the harness split where the green neutral wire comes out. Put the grommets back on the harness and use silicone to make a permanent seal. Install the alternator/ignition pickup & aluminum housing assembly back on the engine.

6D. Align the rotor on the crankshaft so the pin fits in the slot. Fasten the rotor using the original bolt, original lock washer, and a supplied flat washer in the parts bag.

6E. Locate the white six-position pin connector included with this kit. Examine the six-position socket connector on the Dyna 2000 main harness. The crank trigger harness should be installed and routed through the alternator and toward the seat. Insert the crank trigger pins into the six position connector such that the crank trigger harness wires will mate to the Dyna 2000 main harness with matching colors on both connectors, i.e. red to red, black to black, white to white, violet to violet, and blue to blue.

IGNITION MODULE POWER CHECK

*NOTE* The crank trigger must be fully plugged into the Dyna 2000 ignition harness for the following test to work.

The Dyna 2000 ignition module has a power check feature when you first turn on ignition power. At this point in the installation, you should have already connected ignition power (+12V) and ground to the ignition module. Turn the ignition key to the ON position. Move the LIGHTS ON / LIGHTS OFF switch from “off” to “on”. When power is first applied to the Dyna 2000 module you should see the LED on the end of the ignition module blink on then off.

If the crank trigger is not plugged into the harness, the LED will simply stay on when you turn on ignition power in TEST MODE only.

STATIC TIMING INSTRUCTIONS

7A. Remove the spark plugs so the crankshaft will turn easily.

7B. Keep the following in mind when timing the Dyna 2000: The initial timing (cranking & low-speed idling rpm) firing point for all cylinders is established by the trailing edge of the magnet as it passes a Dyna crank trigger sensor when the crankshaft is turned in its normal forward direction. The LED lamp on the end of the Dyna 2000 module will light whenever the magnet is in front of a Dyna crank trigger sensor, when ignition power is on, and will stay lit when in TEST MODE until the magnet completely passes the sensor.

7C. Loosen the three screws that hold the crank trigger plate to the aluminum alternator housing. This plate has slots that allow for a total adjustment range of 12°. Set the adjustment to the middle of the range, so that the screws are at the middle of the slots, and there is 6° to each side. Tighten the screws to hold the plate at that location.
7D. The position of the left, right, and center pistons must be synchronized with the corresponding sensors. The LED must blink off every 120°, when each piston is 15° BTDC, for the timing of the three cylinders to be synchronized. The timing marks on the crank trigger and the rotor will be used to position each sensor with its corresponding piston. Now, with ignition power on, watch the red LED on the Dyna 2000 module. Rotate the crankshaft in its normal forward direction, counterclockwise, until the magnet on the crankshaft rotor nears the left sensor on the Dyna trigger plate. The left sensor has a blue wire. Rotate the crankshaft until the LEFT timing mark on the rotor aligns with the 15° BTDC timing mark on the trigger plate. When these marks align, the red LED should blink off. Loosen the two nuts holding the left sensor, and rotate the sensor back and forth until finding the proper position of where the LED blinks off. Tighten the sensor in that position. Double check the sensor position by rotating the crankshaft 360° until the left rotor mark again approaches the 15° mark, while watching LED. When the led blinks off, stop rotating the crank, and read the timing marks. Readjust the left sensor if necessary, until the left timing mark on the rotor aligns with the 15° timing mark on the trigger plate. Follow the same procedure for adjusting the right piston and right sensor. Use the right timing mark on the rotor and the sensor with the white wire. Follow the same procedure for adjusting the center piston and center sensor. Use the center timing mark on the rotor and the sensor with the violet wire.

7E. Reinstall the engine side cover and spark plugs.

STARTING THE ENGINE

8. After the crank trigger has been installed and timed you should be able to start the engine. Use the following procedure:

A. Temporarily reinstall the gas tank if it has been removed so the carbs will have gas.
B. On the Dyna 2000 module turn the advance curve mode knob to curve 1.
C. On the Dyna 2000 module turn the rev limiter knob to the rev limit appropriate for your bike.
D. Turn on your ignition key switch.
E. Set your handle bar LIGHTS ON/LIGHTS OFF switch to the on position (depending on the wiring of the switched +12V power). You should be able to see the red LED on the Dyna 2000 module blink on then off when the module receives power from the bike.
F. Start the bike as you normally would. The engine should start easily. If the engine will not start, refer to the trouble shooting section of these instructions.

REV LIMITER

9. The Dyna 2000 includes an extremely accurate broad range rev limiter that is adjustable between sixteen different settings from 7,500 rpm to 12,000 rpm. The rev limiter is adjusted by turning the rev limit knob on the end of the Dyna 2000 module to the desired position.
ADVANCE MODES
10. The Dyna 2000 ignition module allows selection between NINE different advance modes. See the Advance Curve Graphs for actual timing details.

The total ignition timing that your motor will see at high rpm is dictated by where you set the initial crank trigger position. The Dyna 2000 ignition will generate an advance curve based upon the initial timing that you set with the crank trigger.

Curves 1,2,3 and 4 generate a flat curve similar in ranges to the stock ignition.

Curves 4,5,6,7,8 and 9 are standard 2-stroke power curves for use with chambered exhaust pipes.

Refer to the Advance Curve Graphs included with these instructions to see complete timing details.

TEST MODE
11. The Dyna 2000 ignition system includes a Test Mode which allows easy inspection of ignition operation without running the engine. Test Mode is selected by turning the mode knob on the end of the Dyna 2000 ignition module to the Test Mode position.

*NOTE* Do not try to start the engine with the ignition set to Test Mode. The engine will not run.

In Test Mode, if you slowly turn the engine with a wrench, with ignition power turned on, the Dyna 2000 module turns the status LED on as the magnet on the crankshaft rotor passes by the sensor for each cylinder. This allows you to easily determine that each Crank Trigger sensor is working.

Taken out of TEST MODE (knob turned to 1-9 Advance mode):
When the magnet in the crankshaft rotor reaches the sensor for cylinder 1, and the trailing edge of the magnet is detected, the coil for cylinder 1 should make a spark. When the magnet in the crankshaft rotor reaches the sensor for cylinder 2, and the trailing edge of the magnet is detected, the coil for cylinder 2 should make a spark. And when the magnet in the crankshaft rotor reaches the sensor for cylinder 3, and the trailing edge of the magnet is detected, the coil for cylinder 3 should make a spark.
TROUBLE SHOOTING TIPS

12A. You should experience trouble free operation of your Dyna 2000 ignition system. If you are having a problem the following questions should help you narrow down the source of your trouble.

12B. When you first turn on ignition power with the ignition key and run/stop switch, does the LED on the 2000 module blink? If not check the +12V and ground wire connections to the Dyna 2000. Use a voltmeter if necessary to verify that +12V is getting to the red wire of the 2000 harness. Check your battery voltage. The battery should measure about +12.5 volts when the engine is not running. Check that the main battery ground cable goes to an engine case bolt.

12C. When you have ignition power on, and you turn the engine over slowly with a wrench, does the LED on the 2000 module come on when the magnet on the crankshaft rotor passes each Crank Trigger sensor module? If not you may have a bad connection on one of the Crank Trigger wires. With ignition power on, measure the voltage on each Crank Trigger wire. The red wire should have +12 volts on it, the black wire should have 0 volts on it. The white, violet, and blue wires should switch from 0 to +12 volts as you turn the crankshaft. When the magnet on the crankshaft rotor is in front of a sensor, the output wire for that sensor (white, violet, or blue wire) should have +12 volts on it. When the magnet is away from that sensor, its output wire should have 0 volts on it.

12D. If the Crank Trigger operation is correct and the ignition module LED responds properly, you may have a problem with an ignition coil. With primary wires disconnected from a coil, you can measure if the coil is internally shorted by using a digital ohmmeter. Measuring from one primary terminal of the coil to the other primary terminal of the same coil, you should see 3 ohms resistance. If you measure the resistance from one spark plug tower to another you can check the secondary of the coil. The secondary resistance should be more than 10,000 ohms (10K ohms). If the coil has a shorted or open winding, it must be replaced.

12E. If the ignition module and coils check out OK, take a close look at your spark plug wires. Inspect for damage or breakage of the internal conductor.
The crank trigger wire harness should be installed through the top of the alternator.

Mount all three coils to the frame as shown.

The crank trigger harness must go between these alternator poles.

The wire harnesses must be taped together as one.
IGNITION ADVANCE (CRANKSHAFT DEGREES)

RPM / 1000

DYNATEK

DNA 2000 IGNITION CURVES

INITIAL CAN BE ADJUSTED ± 6 DEGREES.
NOTE: ADVANCE ASSUMES A 15 DEGREE INITIAL AT CRANK.

CURVES 5-9
IGNITION MOUNTING INSTRUCTIONS

1. REMOVE MAGNETOS AND MOUNTING PLATE FROM BIKE.
2. REMOVE MOUNTING PLATE FROM MOUNTING PLATE.
3. CUT TEMPLATE OUT.
4. PLACE TEMPLATE OVER MOUNTING PLATE.
5. MARK 4 HOLE CENTERS.
6. USE 3/16 DRILL BIT.
7. MOUNT DYNA IGNITION.

DATE

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