



USER INSTRUCTIONS

DYNA 4000 PRO HIGH ENERGY IGNITION SYSTEM

FOR
FOUR CYLINDER ENGINES

(QUAD OUTPUT MODEL DP 4000-2, FOR DUAL PLUGGED HEADS)

This ignition is a quad output model for use with dual plugged heads. This DP 4000-2 ignition module may also be used with single plugged heads if the extra two coil outputs are simply not connected to anything. If you intend to use this module with single plugged heads, refer to the single plug system wiring diagrams and installation instructions included with the DP 4000-1 dual output ignition module.

DESCRIPTION

The DYNA 4000 Pro Ignition is a high energy inductive ignition designed to meet the needs of the professional drag racer. The DYNA 4000 includes a built-in two stage rev limiter that is used for launch control and over rev protection.

The DYNA 4000 ignition represents a significant enhancement in the ignition performance available to the serious racer. Traditionally the two types of ignitions available, inductive and capacitive discharge, both have limitations in the racing environment. Inductive ignitions have the benefit of a very long spark duration, but the disadvantage that they can't fully charge the coil at high rpm due to slow charging coils. Capacitive discharge (CD) ignitions can work at high rpm, but can't deliver much spark energy and have a very short spark duration (about 1/5 the spark duration of an inductive system).

The answer!

The best ignition imaginable would have a long spark duration and deliver high spark energy even at very high rpm. This is exactly what the DYNA 4000 has been designed to accomplish. By using specially designed coils, and special microprocessor based control circuitry to manage the high currents that these coils draw, the DYNA 4000 can deliver four times the spark energy of the most popular CD booster all the way up to 17,000 rpm! These high energy sparks also have the desirable long duration characteristics of inductive ignitions. This translates directly into better engine performance across the board.

The DYNA 4000 is not only a powerful ignition system, but also the smoothest two stage rev limiter available. The DYNA 4000 has a programmable launch limiter activated by a clutch switch to help maintain consistency at the starting line. A programmable over rev limiter is also implemented to prevent engine damage due to drive line breakage or missed shifts. The DYNA 4000 launch system is the choice of world champion drag racers due to its rock steady limiting characteristics. Other popular launch limiters cause engine harming banging and popping due to their unsteady limiting. The DYNA 4000 holds the rpm to a perfectly steady and smooth limit while preparing to launch.

The DYNA 4000 is not just an improvement in available ignition technology for drag racing, it sets a new standard of performance and quality.

INSTALLATION

****IMPORTANT**** With any microprocessor based engine system, such as the DYNA 4000, you must use carbon core type suppression spark plug wires with a resistance of at least 3000 ohms per foot to reduce radio frequency interference caused by ignition sparks. Use of copper or spiral core wires may cause malfunction of this ignition system due to severe electrical noise.

****** The DYNA 4000 Pro ignition uses the popular DYNA S ignition as a pickup signal source. The DYNA S must be fitted with the special two magnet rotor included with this kit for the DYNA 4000 to function.

****** The DYNA 4000 must be used with DYNATEK #DC9-1, 0.7 ohm, blue ignition coils. The DYNA 4000 will not work properly with other coils.

1. Choose a mounting place for the DYNA 4000 that is well away from the ignition coils and spark plug wires. The coils are a source of intense magnetic interference which can cause erratic operation of sensitive electronics. The most common ignition placement is under the seat near the rear tire.

2. Mount the DC9-1 coils close to the spark plugs to minimize spark plug wire length. Assign two coils to cylinders 1 and 4 and the other two coils to cylinders 2 and 3. Connect carbon core spark plug wires from the output towers of the coils to the spark plugs according to the spark plug wire wiring diagram included with these instructions. The spark plug wires must be cross wired according to the diagram; i.e. one coil must feed two cylinders as on a single plug application. If you do not cross wire the spark plug wires, you will get half the energy per spark sequence in a cylinder under compression that you get with the coils cross wired.

*******Refer to the included system wiring diagram during the following steps

3. Find the main extension harness in your kit (the one with the six pin connector). Position the six pin connector in the area where you will be mounting the DYNA 4000. This harness has six 16 gauge wires: red, black, blue, white, purple, and yellow. Route these wires to the coil area. It is best to route the blue, white, purple and yellow wires away from the red and black wires. For instance, run the blue, white, purple, and yellow wires down one side of the frame backbone and the red and black wires down the other side of the frame backbone. This will help to isolate the high voltage pulses found in the blue, white, purple, and yellow wires from the rest of the system.

Connect the 16 gauge white wire to one of the primary terminals on the 1st coil assigned to cylinders 1 and 4. Connect the 16 gauge yellow wire to one of the primary terminals on the 2nd coil assigned to cylinders 1 and 4. Connect the 16 gauge blue wire to one of the primary terminals on the 1st coil assigned to cylinders 2 and 3. Connect the 16 gauge purple wire to one of the primary terminals on the 2nd coil assigned to cylinders 2 and 3.

4. You may need some additional 16 gauge red wire to complete this step. Attach a length of 16 gauge wire to the unused primary terminal of each coil. This will be the +12V supply to each coil. Connect these four wires together along with the 16 gauge red wire coming from the DYNA 4000. This joint should be made well, preferably with solder, to insure a good connection. Route a heavy gauge (at least 14 gauge) wire from the ignition switch to this junction of wires to provide the +12V supply to the coils and to the DYNA 4000. A four coil system can draw more than 10 amps of current at high rpm, so it is very important to have large gauge power wires from the battery, through the ignition and kill switches to the coils and ignition module. Some kill switches and ignition switches have small gauge wires permanently attaches to them, if you have one of these - replace it! By far the most common cause of electrical problems on race bikes is poor power distribution through inadequate or faulty

switches or through the use of wire that is too small to handle the required current. (After you finish your installation check the supply voltage at the coil +12V terminals with the engine running at mid rpm. If there is more than a one volt drop from the battery +12V terminal to the coil +12V terminals with the engine running you need to improve your power wiring to the coils and ignition system.)

5. Connect the 16 gauge black wire from the DYNA 4000 to a good chassis ground point.

6. Locate the pickup extension harness. This harness contains four wires: red, black/wht, white, and blue. Route these wires separately from the main harness going to the coils for best electrical noise isolation. Route the DYNA 4000 pickup wires to the wires coming from your DYNA S ignition. Connect the DYNA 4000 pickup wires to the DYNA S wires as follows:

<u>DYNA 4000 pickup wire</u>	<u>to</u>	<u>DYNA S wire</u>
red	to	red
white	to	white
blue	to	black
black/wht	to	DYNA S base plate mounting screw

Route the black/wht pickup wire from the DYNA 4000 down to the DYNA S ignition base plate and connect it to one of the base plate mounting screws using a ring terminal.

7. Install the special two magnet DYNA S rotor onto the crankshaft. The extra magnet is located 90 degrees ahead of the normal firing magnet as seen by the pickups when the crankshaft is rotating. There should be a mark on the top of the special rotor indicating its type: 3P - DYNA 4000 Kawasaki
6P - DYNA 4000 Suzuki

8. After the main extension harness and pickup harness have been installed and the two magnet DYNA S rotor is in place and the 0.7 ohm coils have been installed, you are ready to static time the motor. Plug the DYNA 4000 ignition module onto the six pin main harness and the four pin pickup harness connectors. Apply +12V power to the DYNA 4000 by turning on the ignition switch. While slowly turning the crankshaft in its normal forward direction with a wrench, watch the red LED lamp located on the top of the DYNA 4000. When either magnet of the DYNA S pickup rotor passes in front of one of the DYNA S modules, the red LED will light. This indicates the switching action of the pickup. When the crankshaft is turned in its normal forward direction, the first magnet to pass the DYNA S module is the 90 degree lead magnet. Do not static time off this magnet. Static timing must be checked when the second magnet comes near the DYNA S, at the point where the LED comes on.

9. You should be able to start the motor at this point. If the motor will not start, check that you are getting +12V from the ignition switch to the coils and DYNA 4000 and check all other wiring. If it still doesn't start, try swapping the blue and purple wires with the white and yellow wires at the coils, you may have the cylinder 1/4 and 2/3 circuits mixed up or the DYNA S rotor on backwards.

10. In order to use the two stage rev limiter, complete the following: Locate the red and black two wire extension harness in your kit. Connect the two pin connector on the harness to the mating two pin connector on the DYNA 4000 ignition module. The red and black wires should be routed to the clutch switch on the handle bar. Again it is best to route these wires on the opposite side of the frame as the blue, white, purple and yellow coil wires to minimize electrical noise in the clutch switch circuitry. Connect the red and black wires to either side of the clutch switch. When the clutch switch is closed (lever pulled in) the DYNA 4000 low side rev limiter will be active. When the clutch switch is open (lever released) the high side rev limiter will be active. If you do not connect these wires to anything, the high side limiter will always be active.

12. If you wish to use an air kill switch to interrupt the ignition during shifts, complete the following: Locate the orange and black two wire extension harness included with your kit. Connect the two pin connector on the harness to the mating connector on the DYNA 4000 ignition module. The orange and black wires should be connected to either side of the air kill switch. Use the switch contacts that are normally open. When the switch contacts close, connecting the black and orange wires, the ignition will be interrupted. No other wires should be connected to the air kill switch. Do not run +12v ignition power through the air kill switch as you would with other systems.

13. Tach out wire. The green tach output wire extending from the DYNA 4000 ignition module can be used to directly drive an electronic tachometer or other crank speed sensing device, such as a DYNA Shiftminder or Datalog computer.

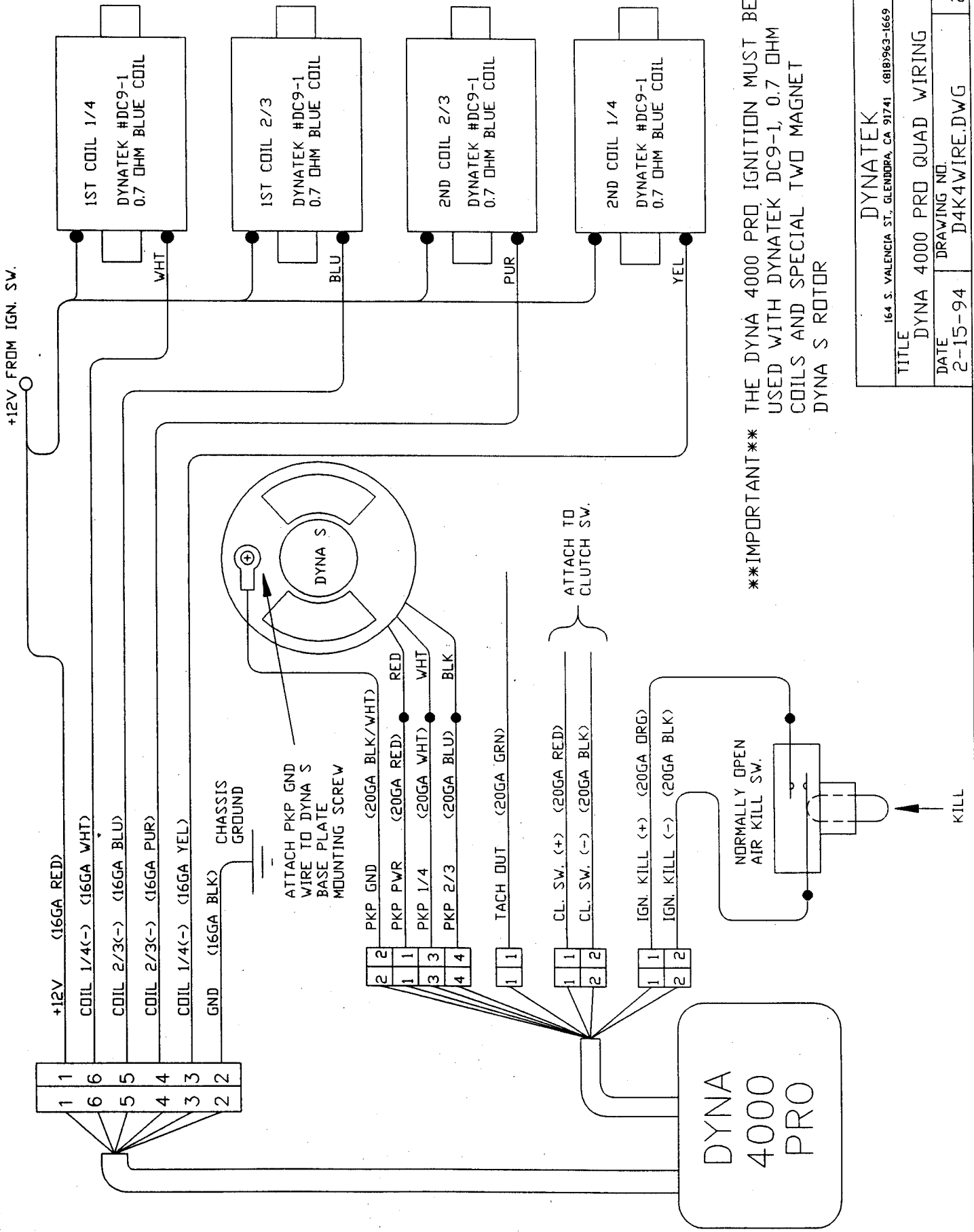
USING YOUR DYNA 4000 SYSTEM

You should have your system completely installed at this point, and the motor timed and ready to run. Locate the two white knobs on the end of the DYNA 4000 ignition module. These are used to set the rev limiters. Adjust the left knob according to the legend to set the low side launch limit to the desired rpm. Adjust the right knob according to the legend to set the high side over rev limit. Both rev limiters are adjustable in 250 rpm increments.

The DYNA 4000 reads the settings of the rpm limit switches only when the unit is first turned on. In other words, if you make an adjustment to one of the rev limit switch settings while the ignition power is on, you must turn off power to the DYNA 4000 then reapply power for the new switch settings to be recognized.

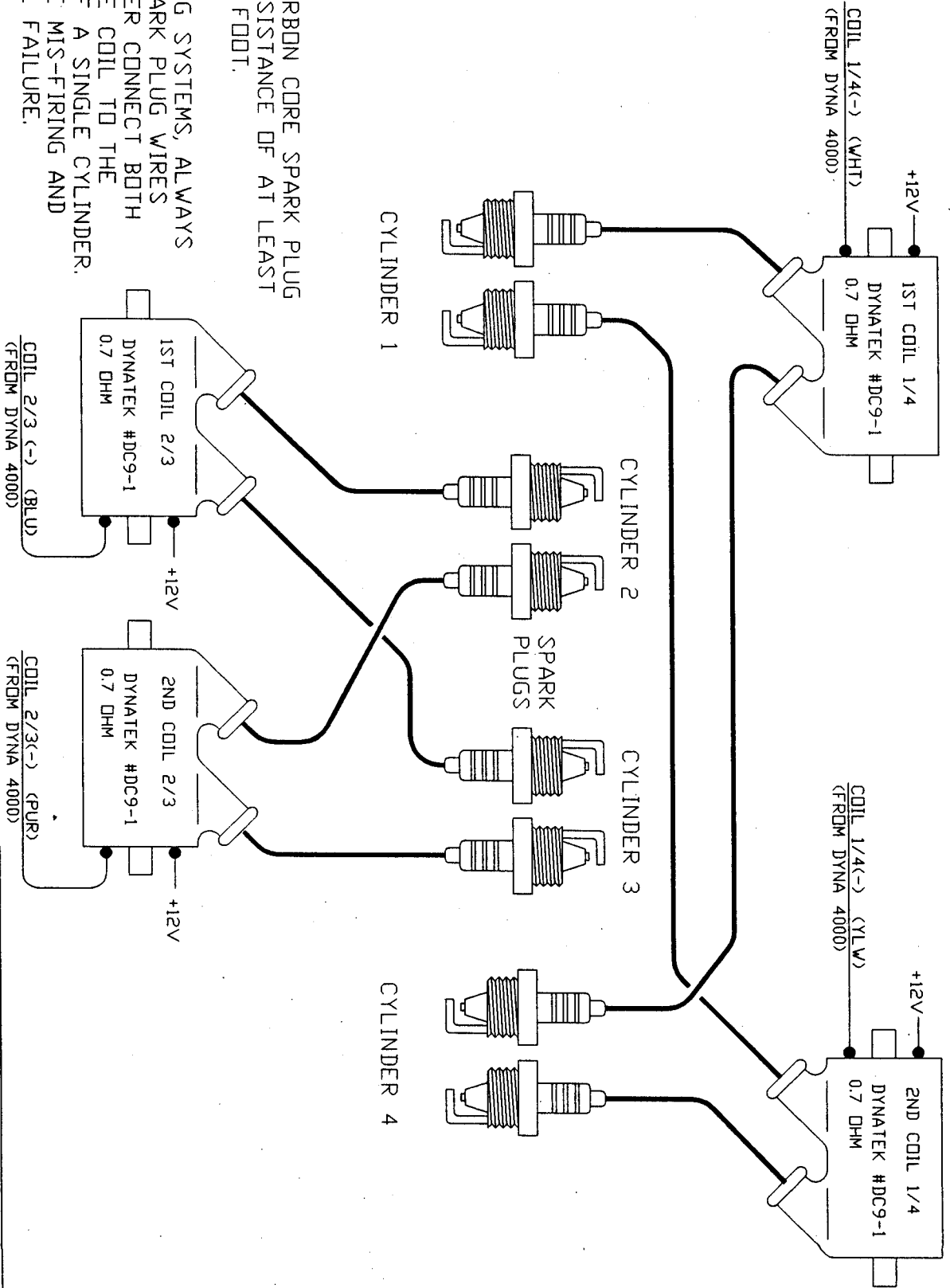
When you have the clutch lever pulled in you should be able to rev the motor up to the preset low side limit and slowly roll the throttle wide open. The limiter should hold the motor to the desired rpm until the clutch lever is released, then the high side limit will take over.

DYNA 4000 PRO - QUAD SYSTEM WIRING



DYNATEK 164 S. VALENCIA ST., GLENDDORA, CA 91741 (818)963-1669	
TITLE	DYNA 4000 PRO QUAD WIRING
DATE	2-15-94
DRAWING NO.	D4K4WIRE.DWG
REV	2.0

DYNA 4000 PRO - QUAD SYSTEM COIL WIRING



IMPORTANT
 1. USE ONLY CARBON CORE SPARK PLUG WIRES WITH RESISTANCE OF AT LEAST 3000 OHMS PER FOOT.

2. ON DUAL PLUG SYSTEMS, ALWAYS CROSS WIRE SPARK PLUG WIRES AS SHOWN. NEVER CONNECT BOTH OUTPUTS OF ONE COIL TO THE SPARK PLUGS OF A SINGLE CYLINDER. THIS CAN CAUSE MIS-FIRING AND PREMATURE COIL FAILURE.

DYNATEK	
164 S. VALENCIA ST., GLENORA, CA 91741 (818)963-1669	
TITLE DYNA 4000 QUAD COIL WIRING	
DATE 2-15-94	DRAWING NO. D4K4COIL.DWG
REV 2.0	