Dyna FS Ignition

DFS 7-13P 2004+ Yamaha Rhino 660

CAUTION! 9,000 RPM LIMIT (stock ignition 7,700)
CAUTION! No Forward or Reverse vehicle speed limiter. (See CALIBRATION below)

Congratulations on your purchase of a Dynatek ignition. Please take a moment to read these instructions completely before installing the ignition. The installation will only take a few minutes, but proper setup for your specific engine will take longer.

The DynaFS ignition was designed to work best with the stock coil, coil wire, plug cap, and spark plug. Use resistor type spark plugs ONLY. Use the stock resistor style spark plug cap.

This kit includes: DynaFS ignition, Curve Selector Switch, and instruction sheet. This is a complete kit, and includes everything needed to install the ignition.

Installation

1) Turn ignition key off, and remove the battery negative (-) cable for safety. Locate the stock ignition box, it is under the front hood, next to the battery and mounted vertically.
2) Remove the screw that holds the ignition to the battery box.
3) Unplug the stock ignition, taking care not to damage the harness connectors. There is a small tab on the harness connectors that must be pushed in to unplug it. Remove the stock ignition from the vehicle. Keep the stock ignition in a safe place - it may be required for troubleshooting.
4) Plug the Dyna ignition in. Install the Dyna ignition in the factory location. Route the Auxillary Programming Harness to a location that can be easily accessed. Reconnect the battery terminal, make sure all fasteners are tight.

Calibration

NOTE - Use of this ignition may or may not require rejetting of the carburetor to supply more fuel to maximize performance gains. Idle speed may also need to be readjusted. If you are unsure of this tuning process, the services of a competent mechanic should be employed. Do not operate the engine in a lean condition for extended periods or damage may result.

NOTE - The stock ignition has a 7,700 RPM rev limit. The DFS rev limit is pre-programmed to 9,000 RPM. Because the rev limit is so high, the performance limits of other engine parts (valvetrain or connecting rod for example) may be found. It may be necessary to replace these parts for best engine performance. Consult with an engine builder for answers on what works best for your engine.

The DynaFS is programmed with 4 advance curves. A quicker throttle response and increased power over the stock curve is achieved. For other advance curve information, see the attached Advance Chart.

This ignition can potentially allow the engine to rev to a higher RPM. Because the rev limit can be increased, the performance limits of other engine parts (valvetrain or piston for example) may be found. It may be necessary to replace these parts for best engine performance.

This ignition for the Rhino utilizes the stock VEHICLE SPEED SENSOR, and through the optional laptop programming software “DFS CurveMaker”, can be programmed for any forward speed limit. The ignition comes with the factory 40 MPH limit when Curve 4 is selected (or when the Curve Selector Switch is disconnected). The other three curves are set to approximately 99 mph. This can be adjusted in the CurveMaker and sent to the ignition via a programming cable (not included with ignition).

The REVERSE engine rev-limit can also be adjusted in the CurveMaker, it comes default at 9000 rpm (same RPM as the forward rev-limit. Reverse vehicle speed limit is not programmable, and is unlimited.

Programmable ignitions

Lap-top/PC Programmable versions (suffixed with a P in the part number) require a separate programming kit to reprogram them. It is not supplied with the ignition. If the programmable ignition was not purchased directly from Dynatek, the dealer may have programmed a custom set of ignition curves. The dealer should be consulted with any questions regarding the curves that are programmed into the ignition.

Programmable ignitions are shipped with additional leads coming out of the ignition. These leads allow the ignition to control other features. To program these features, follow the instructions in the programming kit.

GREEN – Tachometer output, 12V, 1 pulse per rev, square wave.
PURPLE – Programmable launch limiter. Ground this wire to activate.
BLUE – Optional 2-amp switch to ground, referenced as "RPM Switch 1" in PC Software.
WHITE – Optional 2-amp switch to ground, referenced as "RPM Switch 2" in PC Software.

The Launch RPM is programmable and can be wired to a separate clutch switch (not included) for a "two step/low side" launch limiter. See attached wiring diagram for installation.

The White & Blue 2-amp switches can be used to activate a solenoid or relay. Connect the relay with hot +12v wired to one side of the relay coil, and the other side connected to White or Blue. When the rpm activates the switch, it will be grounded inside the ignition box, causing current to flow through the relay coil. DO NOT connect any device which requires more than 2 Amps (Amps=Volts/Resistance). See attached wiring diagram for wiring the relay.

Troubleshooting

Troubleshooting the Dyna ignition is simple. If the vehicle will not start or run at all, reinstall the stock ignition. If this fixes the problem, then the Dyna ignition should be returned to Dynatek for testing. If this does not fix the problem, then the problem is somewhere else on the vehicle. Follow the troubleshooting procedures outlined in your shop manual.

If the engine runs, but poorly, put the stock ignition back on the vehicle. If this fixes the problem, reinstall the Dyna ignition. If you are using non stock plug wires, plug cap, ignition coil, spark plug, or stator, replace them with OEM units. If this doesn't fix the problem, the ignition should be returned for testing. If the problem persists when using the stock ignition then the problem is external to the Dyna ignition.

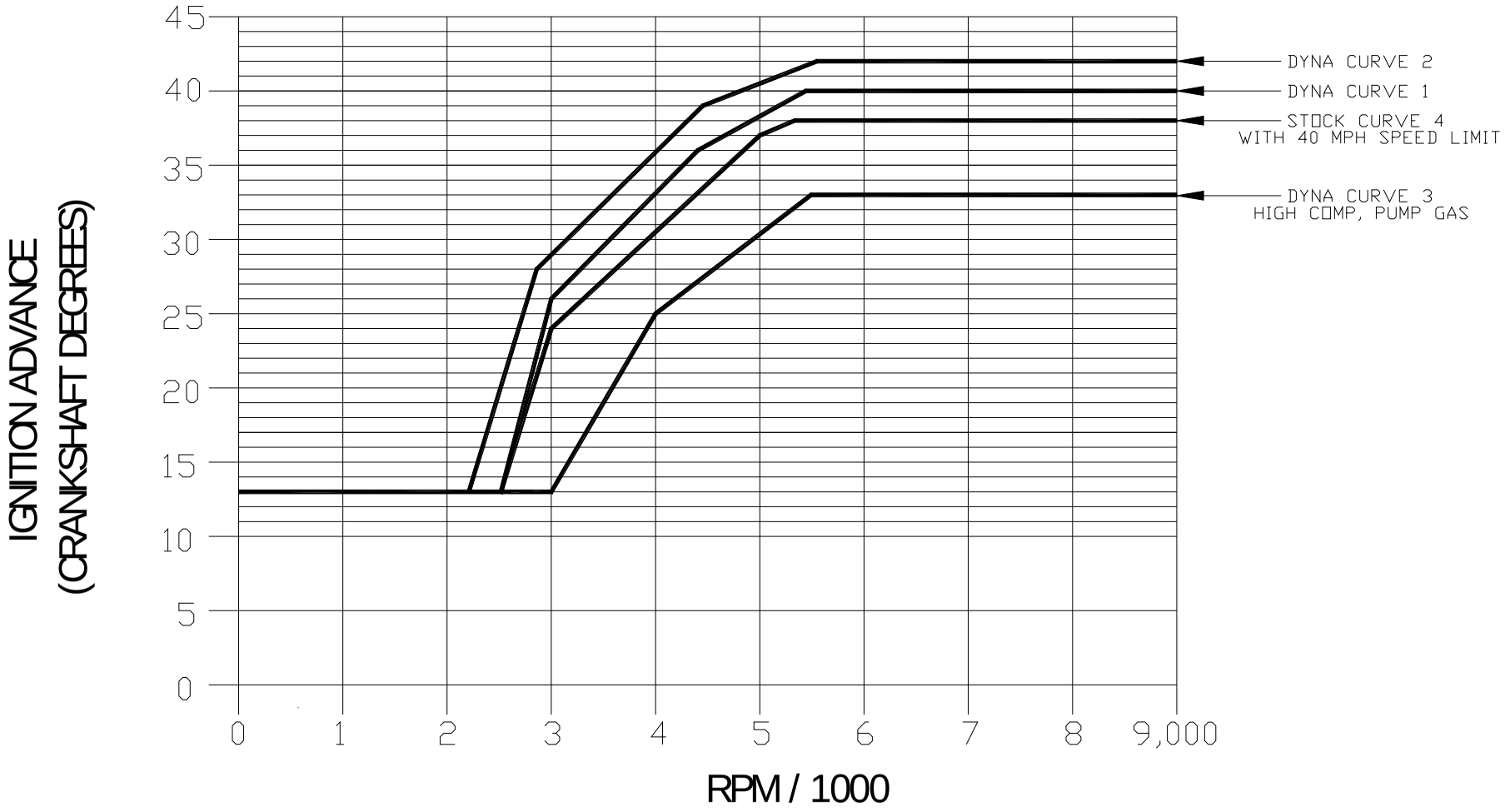
WARNING:

Installation of a grounded tether kill switch to the ignition coil signal will damage the CDI and void the warranty.

12V DC-CDI (Yamaha Rhino 660): Use a <u>normally closed</u> tether kill switch connected in series with the +12V input to the ignition. When the tether is removed, it should disconnect the +12V power to the ignition. If a normally closed tether kill switch cannot be located, then a grounded tether can be used to ground the pickup signal (White with red stripe wire in the stock ignition harness)

2801332 2-27-07 REV A

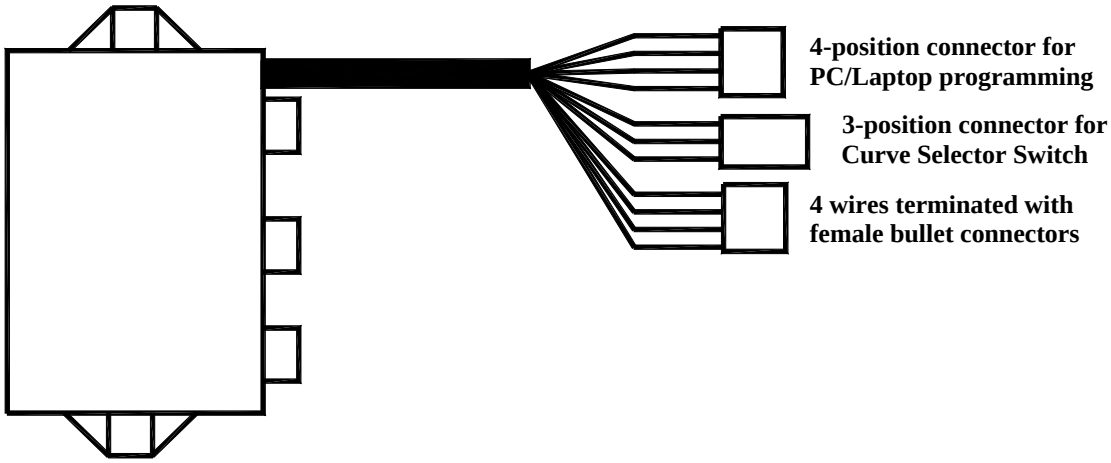
DYNA FS 7-13P / YAMAHA RHINO 660 PROGRAMMABLE IGNITION CURVES



Note: With Curve Selector Switch removed, Curve 4 is selected with stock 40MPH speed limit. All other curves have 99 mph speed limit as default. All Speed Limits can be reprogrammed with DFS CurveMaker laptop software.

Assumes 12° base timing

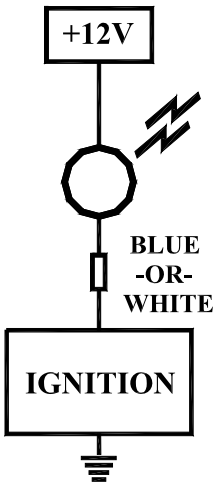
DYNATEK 164 S. VALENCIA ST., GLENDORA, CA 91741 (800)928-3962		
TITLE YAMAHA RHINO ADV. CURVES		
DATE 2-27-07	MODEL YAMAHA RHINO 660	REV 1.0



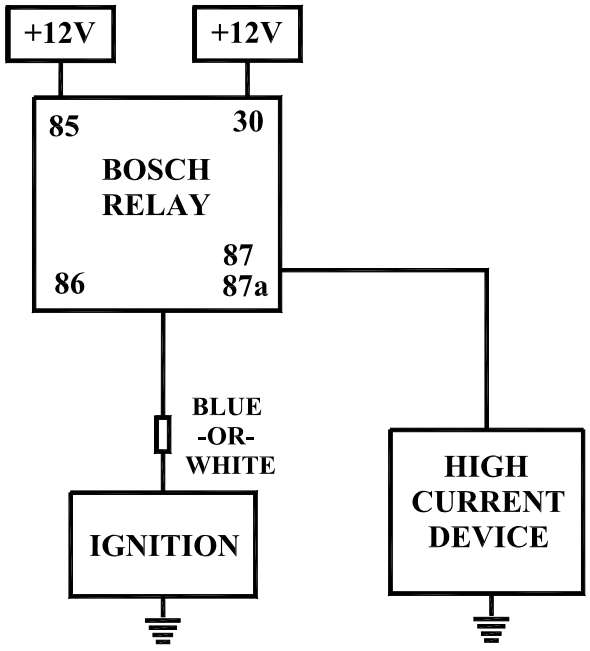
PURPLE = Two-step/low-side Launch Rev Limiter, requires a seperate switch (not included). Ground this wire to activate the limiter. Use programming software to adjust the launch rpm.
GREEN = Tach output, 1 pulse per rev, 12V
BLUE = Programmable Speed Switch, 2 AMP MAX
(referenced as "RPM Switch 1" in PC software)
WHITE = Programmable Speed Switch, 2 AMP MAX
(referenced as "RPM Switch 2" in PC software)

NOTE1: White and Blue power switches can be programmed individually or together. Can be used to turn on a shift light, or activate a small solenoid, or switch a Bosch style relay for even heavier loads.
NOTE2: The ignition will ground the White or Blue white inside the CDI when the pre-programmed RPM is achieved.

SHIFT LIGHT or SMALL SOLENOID



USING A BOSCH STYLE RELAY TO SWITCH HEAVY LOADS



DYNATEK 164 S. VALENCIA ST., GLENDORA, CA 91741 (626)963-1669		
TITLE DFS AUX WIRING		
DATE 2-27-07	MODEL DFS- ATV	REV 1.0