



DYNATEK DFS9-3 IGNITION with EFI REV-EXTEND

(P/N DFS9-3 FOR 2008+ POLARIS RzR EFI)

7,000 RPM LIMIT (6,500 stock RzR)

CAUTION: This ignition will increase the engine rev-limiter!

CAUTION: This ignition removes the reverse rev-limiter!

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 about an hour, but proper setup for your specific vehicle may take longer. The DynaFS ignition was designed to work best with the Dynatek coil kit DCK9-2 (or stock coil), plug cap, and spark plug. Use the stock resistor style spark plug cap and resistor spark plug.

Description

The DYNATEK Ignition Module for the 2008+ Polaris RzR is a piggyback add-on device that will increase the performance of the stock ignition and fuel injection system. This Module is designed to work in conjunction with the stock ECU, and will take complete control of the Ignition Timing while safely extending the fuel injection rev-limit. With the optional Dynatek CurveMaker software or the Dynatek DRSP-1 remote serial programmer, the ignition curves, fuel maps, and rev-limits can be custom tailored for any application.

Installation

This kit includes: DynaFS ignition, electrical wiring, mounting hardware, cable tie-wraps and instruction sheet. This is a complete kit, and includes everything needed to install the ignition. Route all wires carefully. Secure wires using the supplied cable-ties to ensure electrical wires do not chafe or touch anything sharp or hot.

1. Turn ignition key off, remove the seats and rear service panel. Use the supplied longer screws and spacers to install the ignition in the preferred location, piggybacked on top of the stock ECU.
2. Connect the Pickup Intercept (located on the left-hand side of the vehicle below the transmission) by unplugging the stock black 3-wire connectors with white/yellow, brown, and black wires, and connecting the matching DFS harness connectors in-line (picture 1).
3. Remove the two push rivets and hose clamp on the Clutch Outlet Duct and remove the duct for access to the Throttle Position Sensor connector.
4. Connect the Throttle Position Intercept (rear side of throttle body) by unplugging the stock 3-wire connectors with green, violet, and orange wires, and connecting the matching DFS harness connectors inline. Route the harness carefully using the supplied tie-wraps (picture 2).
5. Route the Fuel Injector Intercepts under the frame, towards the ignition coil (picture 3). Connect the Fuel Injector Intercepts by unplugging the stock 2 wire connectors with red/black and white for the PTO side cylinder, and red/black and white/black for the MAG side cylinder, and connecting the matching DFS harness connectors inline.
6. Route the Coil Connections Harness under the frame towards the coil (picture 4). Disconnect the stock connector from the ignition coil, seal it with electrical tape, and tie-wrap it away from the ignition coil. Connect the DFS connector to the ignition coil. Keep all other wiring away from the ignition coil and coil wires.
7. Connect the DFS BLACK GROUND wire to the stock frame ground (several brown wires, behind the battery).
8. Finally, tie-wrap the DFS Accessory Wires away from the engine and away from sharp objects.
9. Double-check your wiring and secure all loose wires using tie-wraps.
10. Installation is complete! Replace the Clutch Outlet Duct, Rear Service Panel, and seats.

Calibration

The DynaFS is pre-programmed with a single performance advance curve, +4° over stock, and a 7,000 RPM rev-limit. A quicker throttle response and increased power over the stock curve is achieved. For other advance curve information, see the CurveMaker software. This ignition will allow the engine to rev to a higher RPM, and is adjustable to 10,000 RPM max by using the CurveMaker software. Because the rev limit is increased, the performance limits of other engine parts (valve train, piston or crankshaft, for example) may be found. It may be necessary to replace these parts for best engine performance. The DFS9-3 is shipped from Dynatek with 0% adjustments to all of the fuel injection settings. For more information on fuel settings, see the section on Using the DRSP-1 Remote Programmer.

Picture 1: Crankshaft Position Sensor connector
Located under transmission on left side of RzR



Picture 2: Throttle Position Sensor connector
Located behind air filter



Picture 3: Injector connectors with Intercepts
Located behind rear service panel



Picture 4: Ignition Coil
Located behind rear service panel



Using the DRSP-1 Remote Serial Programmer

The DRSP-1 Remote Serial Programmer (sold separately) for the Polaris RzR is a plug-in programmer for adjusting the fuel injection and ignition advance curves. Simply plug the DRSP-1 into the DFS HARNESS and mount the Remote to the vehicle's dashboard for easy access. The Remote allows adjustment to the stock fuel injections signal in multiple stages.

NOTE: It is HIGHLY RECOMMENDED to use a wide band oxygen sensor and quality gauge (such as Dynojet's Wide Band Commander) when tuning the fuel injection. Without a gauge, the air/fuel ratio cannot be determined and possible engine damage can occur.

FUEL BASE – this setting will adjust the entire fuel map: 1 = 0% 2 = +5% 3 = +10% 4 = -5%
FUEL LOW – this setting will adjust fuel from 0 rpm to 4,000 rpm, in the ranges of: -17.5% to 0% to +20%
FUEL MID – this setting will adjust fuel from 4,001 rpm to 6,000 rpm, in the ranges of: -17.5% to 0% to +20%
FUEL HIGH – this setting will adjust fuel above 6,000 rpm, in the ranges of: -17.5% to 0% to +20%
IGN CURVE – this setting will adjust the Ignition Curve, up to 4 selectable and all can be custom programmed using the CurveMaker Software. (see attached Curve Chart)

NOTE: The DRSP-1 can be removed after adjusting the settings, and the DynaFS will keep the settings even with the battery disconnected. If the LED on the Remote does not turn on, or the LED flashes continuously after 10 seconds, then the ignition and Remote should be returned to Dynatek for testing.

Additional Features

The DFS for the Polaris RzR has a RPM window switch output. This is pre-programmed and can be accessed using Dynatek CurveMaker Software (not supplied with the ignition). If the ignition was not purchased directly from Dynatek, the dealer may have programmed a custom set of ignition curves and fuel injection settings. The dealer should be consulted with any questions regarding the curves and settings that are programmed into the ignition.

The DFS ignition for the Polaris RzR is shipped with an additional lead coming out of the ignition. This lead allows the ignition to control other features. To program these features, follow the instructions in the programming kit.

BLUE – Optional 1/4-amp RPM window activated switch to ground, referenced as “RPM Switch 1” in the CurveMaker Software.

The Blue wire is a 1/4-amp switch that can be used to activate a shift light or relay. Connect the relay with hot +12v wired to one side of the relay coil, and the other side connected to 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 1/4 Amp (Amps=Volts/Resistance). See attached wiring diagram for wiring the relay.

Data Recording

The DFS9-3 for the Polaris RzR will continuously record important engine operating parameters. This information can only be accessed through the Dynatek CurveMaker in the Diagnostics Tab of the software (sold separately). The recorded data includes:

Number of Engine Starts (recorded after 2.25min of run time)	Histogram Barchart of Engine Speed VS. Time
Total Time Engine at WOT (hours)	Maximum Engine Speed
Total Operating Time (hours)	Time Near Rev Limit
Longest Continuous WOT Operation (seconds)	Programmed Rev Limit

Troubleshooting

Troubleshooting the Dyna ignition is simple. If the dashboard "Check Engine Light" is ON, or the vehicle will not start or run at all, follow these 3 steps:

- 1) Disconnect the Fuel Injector Intercept connectors and reconnect the stock connector to the fuel injector,
- 2) Disconnect the DFS ignition coil connector, and reconnect the stock connector.

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 engine or vehicle. Follow the troubleshooting procedures outlined in your vehicle shop manual.

If you are using non stock spark plug, or stator, replace them with OEM units. Then follow the procedures in the calibration section to set the Dyna ignition up to work with your vehicle. If calibration 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.

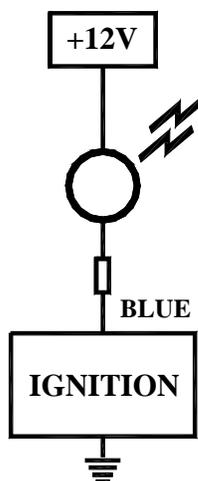
CurveMaker bench programming

If you are programming the DFS9-3 with CurveMaker while the DFS is not on the vehicle, it will be necessary to ground the Pickup Intercept signal at the DFS connectors. Connect a jumper between ground (located on the 4 pin connector, the pin nearest the 8 pin connector, on the opposite side from the connector latch) and the pickup signal (located on the 6 pin connector, the pin nearest the 8 pin connector, on the opposite side from the connector latch). When viewing the DFS 6, 8, and 4 pin connectors with the DFS label and connector latch up, this is the lower left pin of the 4 pin connector, and the lower right pin of the 6 pin connector. This jumper must be connected before connecting the CurveMaker programming connector. This jumper will prevent noise on the disconnected pickup input. This noise will cause the DFS to ignore CurveMaker communication, and attempt to communicate with the optional DRSP-1 Remote Serial Programmer. If noise is present, CurveMaker will report "Ignition Not Found" when attempting to communicate with the DFS9-3.

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Examples of RPM Activated Switch wiring:

SHIFT LIGHT or SMALL SOLENOID



USING A BOSCH STYLE RELAY TO SWITCH HEAVY LOADS

