DYNATEK DFS2-19 IGNITION with EFI REV-EXTEND

(P/N DFS2-19 FOR 2009+ Kawasaki Teryx 750 EFI)

9,000 RPM LIMIT (8000 RPM stock)
CAUTION: This ignition will increase the engine rev-limiter!
CAUTION: This ignition removes the forward and reverse speed 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 DCK2-6 (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 2009 Kawasaki Teryx 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.

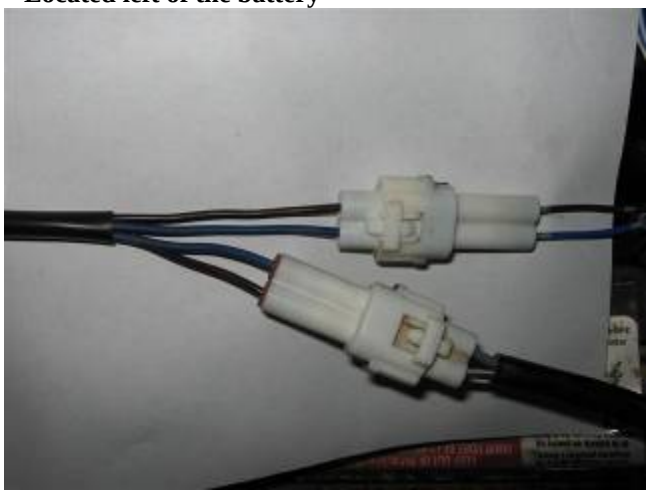
Installation
This kit includes: DynaFS ignition, electrical wiring, mounting hardware, cable tie-wraps and instruction sheet. This is a complete kit, and includes everything needed to install the ignition. Route all wires carefully. Secure wires using the supplied cable-ties to ensure electrical wires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

1. Turn ignition key off, remove the seats and engine cover. Use the supplied Velcro 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 left of the battery) by unplugging the stock white 2-wire connectors with blue and black/red/white wires, and connecting the matching DFS harness connectors in-line (picture 1).
3. The black 6-pin Injector and Throttle Position Sensor connector is located to the right of the throttle body. Route the DFS 6-pin intercept under the frame on the right of the battery, under the throttle body, to the black 6-pin connector. Unplug the stock connector, and plug in the mating DFS connectors to the stock 6-pin connectors (picture 2).
4. Connect the DFS ground terminal to the frame (picture 3). DO NOT use battery (-).
5. Locate the front cylinder ignition coil in front of the battery. Disconnect the green/white wire from the coil, and connect the green wire of the DFS harness. Connect the stock green/white wire to the blue wire of one of the DFS coil loads. Remove the brown 12v wire from the coil, and connect it to the male piggyback terminal of the brown wire of the DFS coil load. Connect the female half of the piggyback terminal to the ignition coil.
6. Locate the rear cylinder ignition coil on the right of the engine. Disconnect the blue/white wire from the coil, and connect the blue wire of the DFS harness. Connect the stock blue/white wire to the blue wire of the remaining DFS coil load. Remove the brown 12v wire from the coil, and connect it to the male piggyback terminal of the brown wire of the DFS coil load. Connect the female half of the piggyback terminal to the ignition coil (picture 4).
7. Finally, tie-wrap the DFS Accessory Wires away from the engine and away from sharp objects.
8. Double-check your wiring and secure all loose wires using tie-wraps.
9. Installation is complete! Replace the engine cover and seats.

Calibration

The DynaFS is pre-programmed with a single performance advance curve, +4° over stock, and a 9,000 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 DFS2-19 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 connection
Located left of the battery



Picture 2: Injector and Throttle Position Sensor connection
Located right of the throttle body

Picture 3: Ground connection
Located right of the battery

Picture 4: Rear Ignition Coil
Located right of engine

Using the DRSP-1 Remote Serial Programmer
The DRSP-1 Remote Serial Programmer (sold separately) for the Kawasaki Teryx 750 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 = Full Exhaust 3 = Slipon Exhaust 4 = Stock
FUEL LOW – this setting will adjust fuel from 0 rpm to 3,000 rpm, in the ranges of: -17.5% to 0% to +20%
FUEL MID – this setting will adjust fuel from 3,001 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 Feature
The DFS for the Kawasaki Teryx 750 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 Kawasaki Teryx 750 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 DFS2-19 for the Kawasaki Teryx 750 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)
Total Time Engine at WOT (hours)
Total Operating Time (hours)
Longest Continuous WOT Operation (seconds)
Histograph Barchart of Engine Speed VS. Time
Maximum Engine Speed
Time Near Rev Limit
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 steps:

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

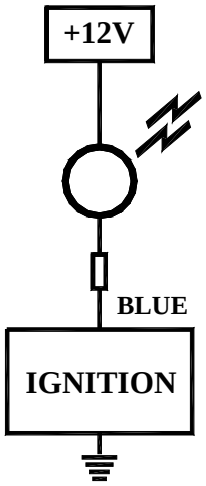
If this fixes the problem, then the Dyna ignition should be returned to Dynatek for testing. If this does not fix the problem, then the problem is somewhere else on the engine or vehicle. Follow the troubleshooting procedures outlined in your vehicle shop manual.

If you are using non stock spark plug, or stator, replace them with OEM units. If the problem persists when using the stock ignition then the problem is external to the Dyna ignition.

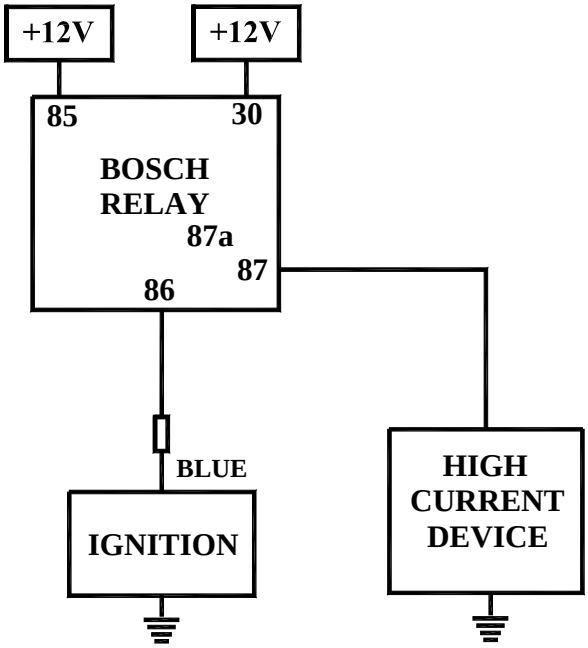
CurveMaker bench programming: If you are programming the DFS2-19 with CurveMaker while the DFS is not on the vehicle, it will be necessary to ground the Pickup Intercept signal at the DFS connectors. Connect a jumper between ground (located on the 4 pin connector, the pin nearest the 8 pin connector, 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 DFS2-19.

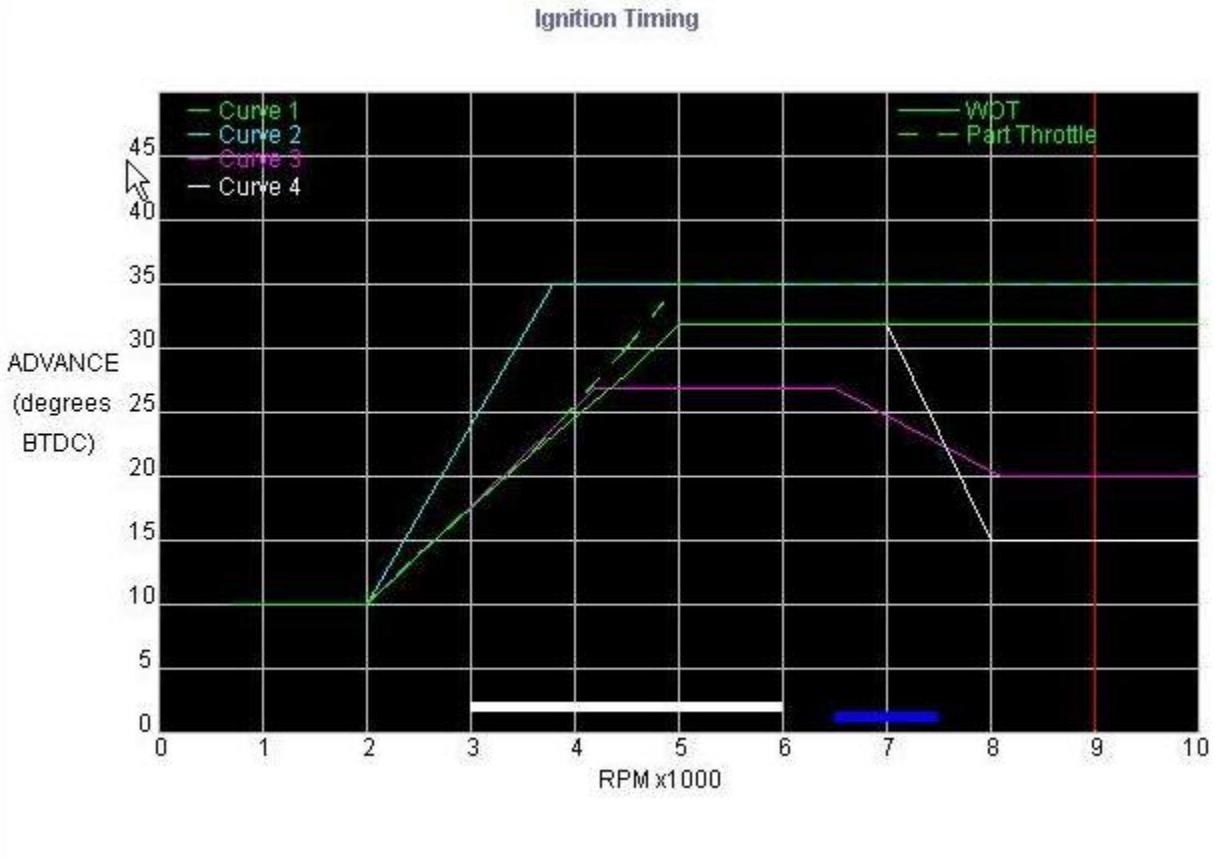
Examples of RPM Activated Switch wiring:

SHIFT LIGHT or SMALL SOLENOID



USING A BOSCH STYLE RELAY TO SWITCH HEAVY LOADS




Ignition Timing
Curve 1
Curve 2
Curve 3
Curve 4
WOT
Part Throttle
ADVANCE (degrees BTDC)
45
40
35
30
25
20
15
10
5
0
0
1
2
3
4
5
6
7
8
9
10
RPM x1000