Dyna FS Ignition DFS3-12P

2005 Suzuki LT-Z400 w/TPS & 2005 Kawasaki KFX400 w/TPS

10,500 RPM LIMIT (9,100 stock)

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 bike will take longer.

The DynaFS ignition was designed to work best with the stock coil, coil wire, plug cap, and spark plug. The increase in spark energy from using the DynaFS ignition is enough so that adding any of these will not improve performance, and can cause problems. Use resistor type spark plugs ONLY. Use the stock resistor style spark plug cap.

This kit includes: DynaFS ignition, 8" tie wrap, 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 for safety, remove the battery negative (-) cable whenever attempting electrical work or welding. Locate the stock ignition box, it is mounted to the left side of the airbox, below the riders left leg.

2)   Remove the two 8mm bolts that hold the ignition to the bike. Notice the top ignition mounting tab is sandwiched between the metal frame tab and the plastic airbox. The lower bolt uses a square nut. Careful not to lose the square nut, it can fall out of its slot.

3)   Unplug the stock ignition, taking care not to damage the harness connector. There is a small tab on the harness connector that must be pushed in to unplug it. Remove the stock ignition from the bike. Keep the stock ignition in a safe place - it may be required for troubleshooting.

4)   Place the Dyna ignition in the stock ignition mounting location. Plug the Dyna ignition in. Plug in the Curve Selector Switch. Zip-tie any loose accessory wires to the frame.

5)   Mount switch in desired location. You may want to mount it so that it is easily accessible for initial tuning. Do not cut or lengthen the wires!

Calibration

The Dyna FS ignition is preprogrammed with 4 timing curves. The curves are selected by the curve selector switch. Removing the switch will cause the ignition to default to the curve in position 4 (labeled STOCK on the curve switch) which is the stock timing curve.

Curve 4 is identical to the curve that came with the stock ignition module. The advance is based on throttle position and varies smoothly from Closed Throttle to WOT. Due to improved microprocessor control and significantly higher spark energy, the performance of this curve will be enhanced. A quicker throttle response and increased power over stock is still achieved with the stock ignition curve. For the other 3 timing curves, see the attached chart for the timing information.

Use of this ignition may require rejetting of the carburetor to supply more fuel to maximize performance gains. If you are unsure of this tuning process, the services of a competent mechanic should be employed. Curve 4, the stock curve, is least likely to require any sort of jetting adjustment.

Using the other curves may result in a lean misfire condition at high RPMs when the jetting is not properly set. Do not operate the engine in a lean condition for extended periods or damage may result.

This ignition will allow the engine to rev to a higher RPM than what it has before. The rev limit is programmable from 2000rpm to 14,000rpm. Stock rev limit is 9100rpm. The revlimit is pre-programmed to 10,500. Because the rev limit is increased, the performance limits of other engine parts (valvetrain 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.

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.

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.

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.

PURPLE – Programmable launch limiter. Ground this wire to activate (requires separate clutch switch)
GREEN – Tachometer output, for a standard 12v, two pulse per rev aftermarket tach.
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 Blue & White 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 bike 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 bike. Follow the troubleshooting procedures outlined in your bike shop manual.
If the bike runs, but poorly, put the stock ignition back on the bike. 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. Then follow the procedures in the calibration section to set the Dyna ignition up to work with your bike. 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.
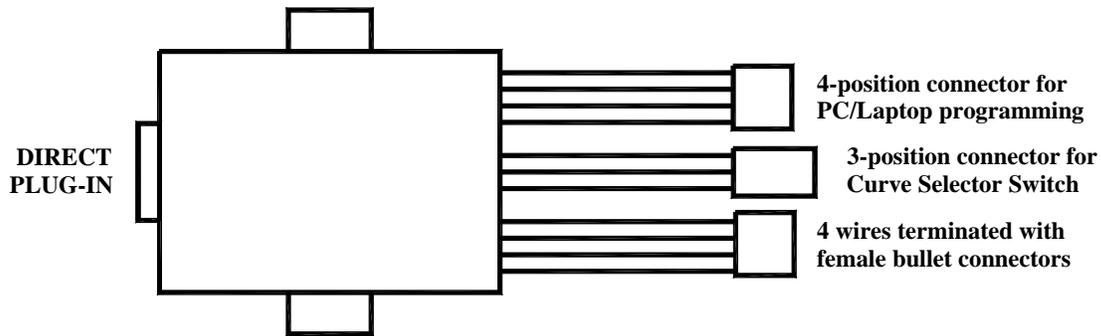
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WARNING:

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

12V DC-CDI (LTZ400/KFX400/etc.): 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.

LTZ400/KFX400 +12V POWER INPUT: BLACK/ORANGE at the ignition module.

The RUN/STOP SWITCH is another +12V input into the ignition module. Either wire (ORANGE/WHITE or ORANGE) can be disconnected to remove +12V from the ignition.

DIRECT PLUG-IN

4-position connector for PC/Laptop programming

3-position connector for Curve Selector Switch

4 wires terminated with female bullet connectors

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.

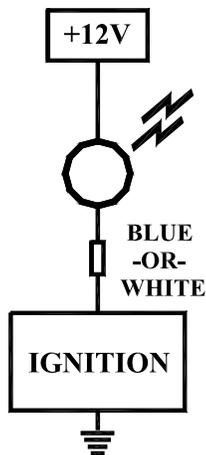GREEN = Tach output, 2 pulse per rev, 12V

BLUE = Programmable Speed Switch, 2 AMP MAX
   (referenced as "RPM Switch 1" in PC software)

WHITE = Programmable Speed Switch, 2 AMP MAX
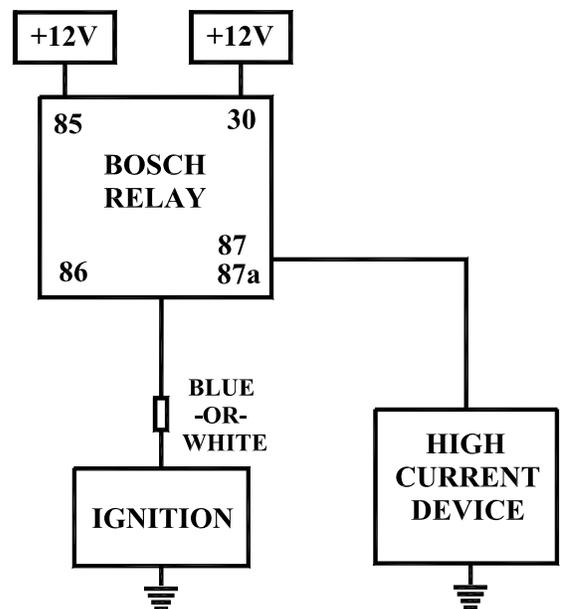   (referenced as "RPM Switch 2" in PC software)

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.
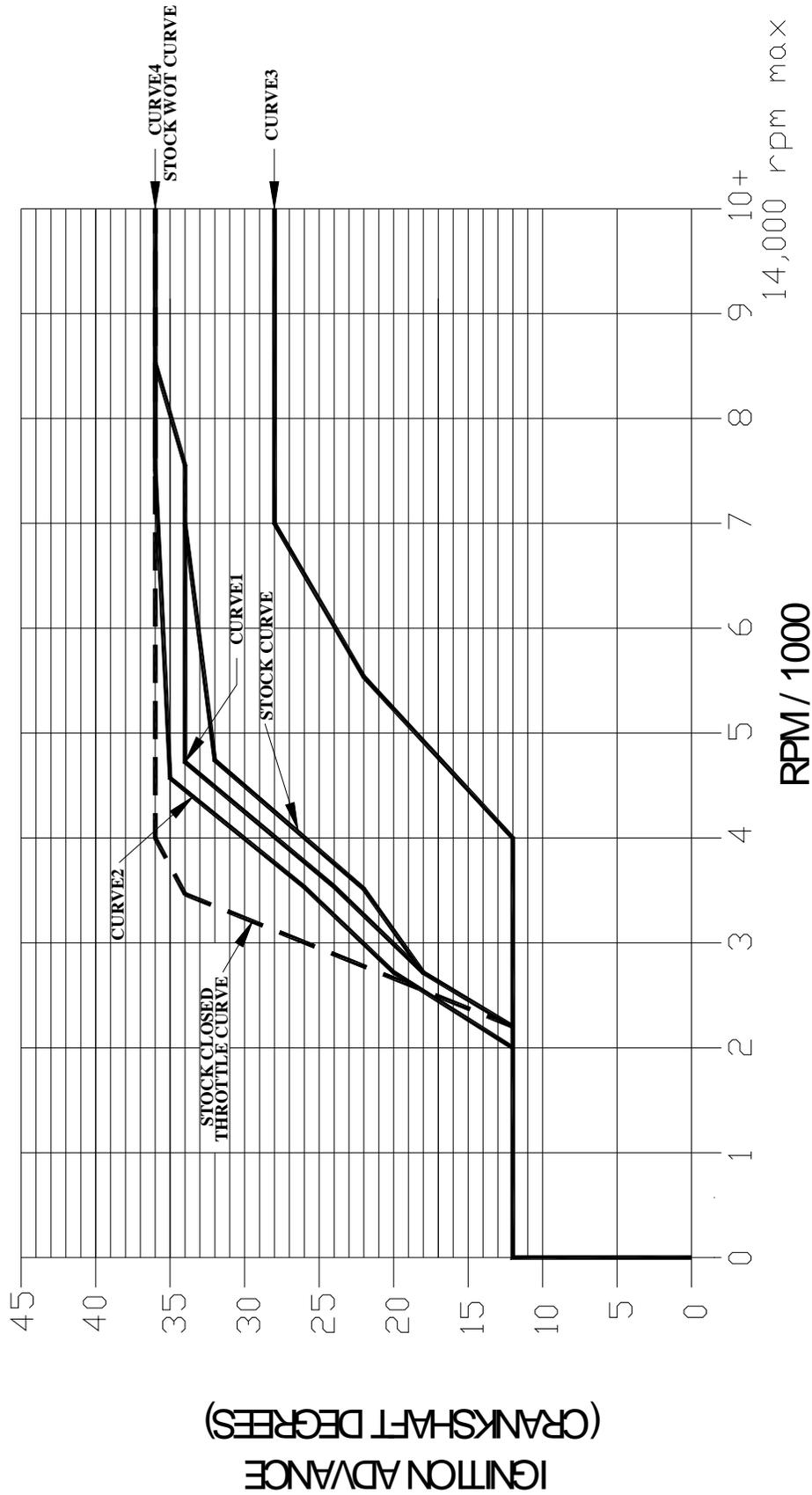

SHIFT LIGHT or SMALL SOLENOID

+12V

BLUE
-OR-
WHITE

IGNITION

USING A BOSCH STYLE RELAY TO SWITCH HEAVY LOADS

+12V   +12V

BOSCH RELAY

85   30

87
86   87a

BLUE
-OR-
WHITE

IGNITION

HIGH CURRENT DEVICE

2005 DYNA FS / SUZUKI LT-Z400 QUADSPORT IGNITION CURVES

CURVE4
STOCK WOT CURVE

CURVE3

CURVE1
STOCK CURVE

CURVE2

STOCK CLOSED
THROTTLE CURVE

14,000 rpm max

RPM / 1000

IGNITION ADVANCE
(CRANKSHAFT DEGREES)

45 40 35 30 25 20 15 10 5 0

0 1 2 3 4 5 6 7 8 9 10+

CURVE4 = STOCK ADVANCE
(Chart includes the 10° base timing)

Preprogramed with 10,500 Limit (9,100=stock)

Note: Advance is based on TPS (throttle
position sensor) and it varies smoothly from
Closed Throttle to WOT.