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Dyna FS Ignition

Yamaha YFZ450 ATV 2004 -
KIT No. DFS7-12P

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 vehicle 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 coil-on-plug ignition coil.

This kit includes: DynaFS ignition, mounting bracket, 8" tie wraps, Curve Selector Switch, and instruction sheets. This is a complete kit, and includes everything needed to install the ignition.

Installation

1) Turn ignition key off. Remove one end of the battery negative (-) cable. Locate the stock ignition box. It is mounted near the front of the vehicle, between the headlights. To make installation easier, remove the front headlights and the front plastic 'hood'.

2) 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 them. Remove the ignition from the vehicle. Keep the stock ignition in a safe place - it may be required for troubleshooting.

4) Insert the two rubber mounting nuts in the holes on the tab that mounted the stock module. Attach the supplied bracket using the flat head screws. Attach the Dyna ignition to the bracket and plug in the connectors, making sure the connector seals remain in place. 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.

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Calibration (continued)

Curve 4 is identical to the curve that came with the stock ignition module. 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 RPM 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 2000 rpm to 16,000 rpm, in 100 rpm increments. Stock rev limit is 10,750rpm. The rev limit is pre-programmed to 11,500. Because the rev limit is higher and can now be easily increased further, the performance limits of other engine parts (valve train 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.

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
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 Launch RPM is programmable and can be wired to the stock clutch switch (Black/Yellow wire), or to a separate clutch switch (not included) for a "two step/low side" launch limiter. See attached wiring diagram for installation. The launch limiter has a one-time only activation. If the ignition detects the purple wire is grounded, then the ignition will not rev past the low-side limit. When the low-side rpm limit is detected, and the purple wire becomes ungrounded, then the launch limiter is defeated and will not work again until the power is cycled off and back on.

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 (6 ohms minimum 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 vehicle shop manual.
If the vehicle 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 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 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.

Note: The Dyna FS ignition for the YFZ450 uses the voltage regulator charging signal for accurate RPM information. If this signal is lost, the ignition will resort to TDC firing at all RPM. The engine will feel sluggish and won't want to rev-out. Follow the test procedures outlined in your vehicle's shop manual for the charging system to pinpoint the problem.

Note: The Dyna FS ignition for the YFZ450 uses the stock T.O.R.S. (Throttle Over Ride System) to kill the ignition in the event of the throttle becoming stuck wide open. The ignition requires 8 engine revolutions of a non-grounded TORS input to determine ignition cut. If an aftermarket carburetor is used, the TORS input (Yellow/Black wire at the CDI module) can be permanently grounded to defeat this safety feature.

Note: For grounded tether switches: The Dyna FS ignition for the YFZ450 uses the stock pickups differently from the stock CDI. The stock CDI uses the White wire on the 4-pin connector as the pickup signal and the Red wire on the 8-pin connector as the pickup ground. The Dyna FS is opposite from this, and uses the Red wire as the pickup signal and the White wire is the signal ground. The simplest installation of this type of tether switch is to connect one kill wire to the White wire, and the other kill wire to the Red wire.

Note: For kick start applications, the battery should be left in place. The battery can be replaced with a smaller lead-acid battery, OR the flywheel can be replaced with a higher energy flywheel from Trailtech.net (1-360-687-4530) and a 4,700μF electrolytic capacitor can be installed in place of the battery.

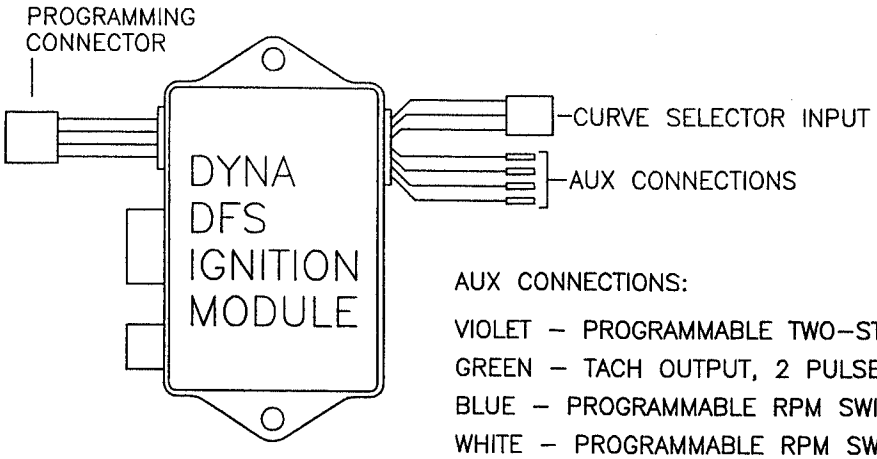
WARNING:

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

12V DC-CDI (YFZ450/Predator 500/Raptor 660/LTZ400/KFX400/etc.): Use a normally closed 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 (Red wire at the ignition module)

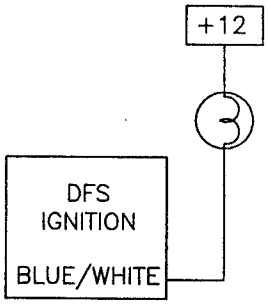
YFZ450 +12V POWER INPUT: RED/BLACK at the ignition module.

The RUN/STOP SWITCH is another +12V input into the ignition module.

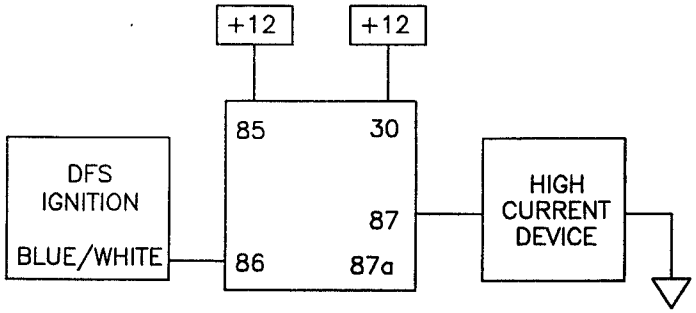


AUX CONNECTIONS:

VIOLET – PROGRAMMABLE TWO-STEP/LOW-SIDE LAUNCH LIMITER.
GREEN – TACH OUTPUT, 2 PULSES PER REV.
BLUE – PROGRAMMABLE RPM SWITCH 1 (2 AMPS MAX).
WHITE – PROGRAMMABLE RPM SWITCH 2 (2 AMPS MAX).

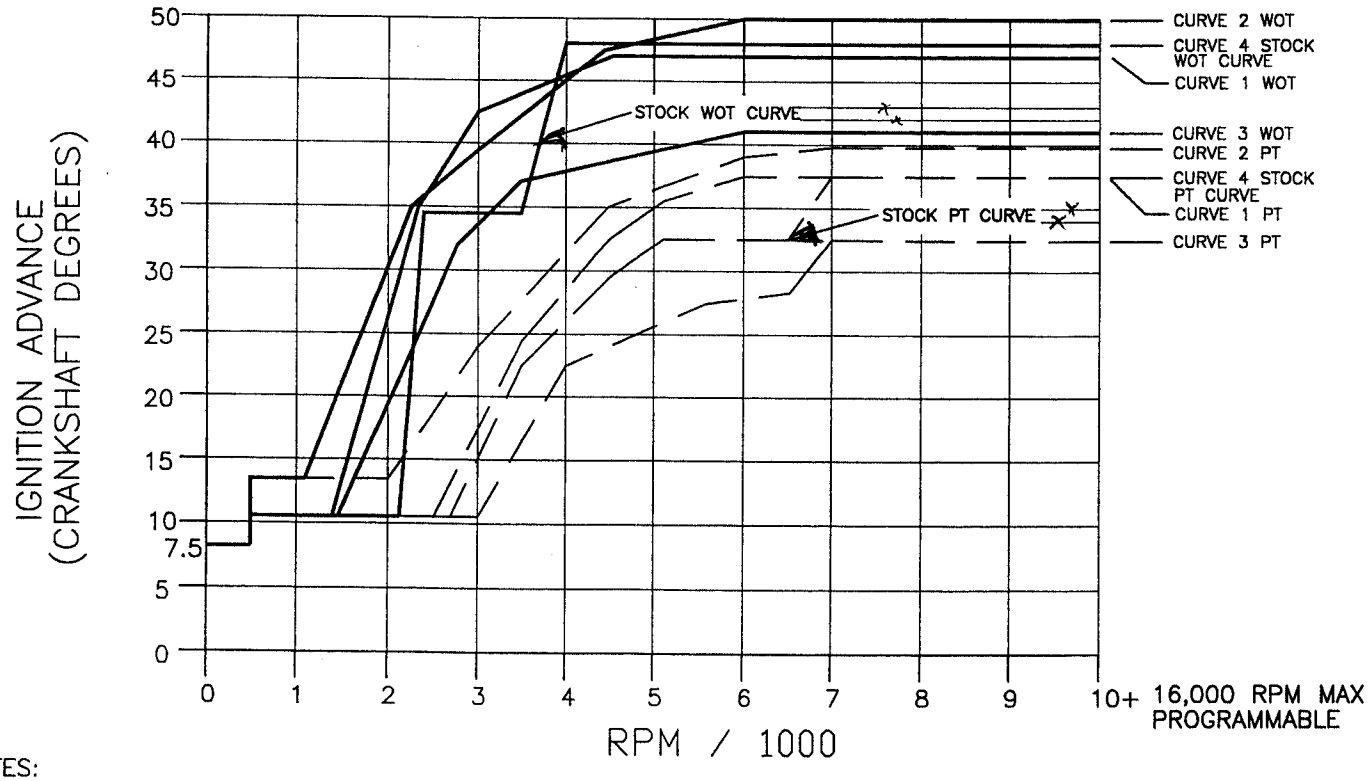


SHIFT LIGHT OR SOLENOID CONNECTION



RELAY CONNECTION FOR SWITCHING HIGH CURRENT LOADS.

DYNA FS / YAMAHA YFZ450 ATV IGNITION CURVES



NOTES:
1. UNIT IS PREPROGRAMMED WITH 11,500 RPM LIMIT (STOCK = 10,750).
2. ADVANCE VARIES SMOOTHLY BETWEEN WOT AND PT BASED ON TPS.
3. CURVE 4 SAME AS STOCK CURVE (ASSUMES 7.5° INITIAL TIMING).

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TITLE: YAMAHA YFZ450 ADVANCE CURVES

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