# Dyna FS Ignition DFS 7-21P
## 2006+ Yamaha Raptor 700R

9,100 RPM LIMIT (9,000 stock YFM700R)
**CAUTION:** This ignition can increase the engine rev-limiter! The stock fuel injection limits at 9,000RPM

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 one half hour, but proper setup for your specific bike may take longer. The DynaFS ignition is designed to work with the stock coil, coil wire, plug cap, and spark plug. Use the stock resistor style spark plug cap. For additional spark energy, use the Dyna Coil Kit DCK7-1.

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

### *Note:*
Route all wires carefully. Secure wires in factory loops or use the supplied cable-ties to ensure electrical wires do not chafe or touch anything sharp or hot.

### *Installation*
1) Turn ignition key off. It is not necessary, but recommended to remove the front plastics and fuel tank to make routing of the electrical harness easier.
2) The DynaFS ignition for the Raptor 700R was designed to fit in the document/tool tray area behind the airbox, under the seat. Find a suitable location if this area has been changed.
3) The DFS electrical harness has two parts. The first part: ground, pickup and TPS(yellow) harness was designed to route along the left side of the airbox, to the battery and left side of the engine.
    a) Connect the black ground wire (with eyelet) to battery ground.
    b) Crank position sensor wires are on the left side, above the starter motor and behind the throttle body. Wire colors are Blue/Yellow and Black/Blue. Unplug the two position WHITE connector with these colors. Plug the white connectors to the Dyna ignition, forming a "Y" intercept. (see pictures 1, 2)
    c) Connect yellow Dyna wire to yellow wire at the Throttle Position Sensor (right side of throttle body) using the supplied T-Tap connector. Unplug the TPS connector. Unwind electrical tape at TPS connector. Cut a one inch slice in the protective sleeve, to expose the yellow wire. Place T-Tap connector over yellow wire. Close T-Tap on wire using pliers. Plug on yellow Dyna wire. Reposition sleeve, and re-tape. Plug the TPS connector back onto the TPS sensor. (see pictures 3, 4, 5)
4) The second part of the electrical harness: coil intercept and power wires get routed along the left side of the airbox, then across the frame behind the fuel tank, then along the right side of the frame up to the ignition coil.
    a) Disconnect the Orange wire from the ignition coil negative and connect it to the DFS orange wire. Plug the DFS Orange/Black wire onto the ignition coil negative. (see pictures 6, 7 ,8)
    b) Disconnect the Red/Black wire (Switched +12V) from the ignition coil positive, and install the DFS Red/Black piggyback spade connector onto the ignition coil positive, connect the Raptor Red/Black wire onto the DFS piggyback terminal.
    c) The DFS – BLACK/WHITE wire is an extra KILL INPUT for connecting an aftermarket Tether Switch for racing. Ground this input to activate.
    d) The DFS - PURPLE wire is for activating the two-step launch limiter (RPM must be programmed in Dynatek Curve Maker). Ground to activate low-side limiter.
5) Zip-tie loose harness or accessory wires to the frame. Use the supplied velcro to mount the ignition.
6) Plug in the Curve Selector Switch. Mount the Curve Selector Switch in desired location. You may want to mount it so that it is easily accessible for initial tuning. <u>Do not</u> cut or lengthen the wires

*Calibration*

        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, however, the STOCK EFI will limit the engine to 9,000 RPM by shutting off the fuel injector.  Because the rev limit can potentially 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.

*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
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 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 (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, disconnect the pickup intercept connector and connect the Raptor Orange wire back to the ignition coil negative. 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 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 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.

# WARNING:

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

**12V Inductive Ignition (Raptor 700R/etc.):  For <u>normally open</u> tether switches:  The simplest installation of this type of tether switch is to connect one kill wire to the External DFS BLACK/WHITEwire, and the other kill wire to chassis ground.**
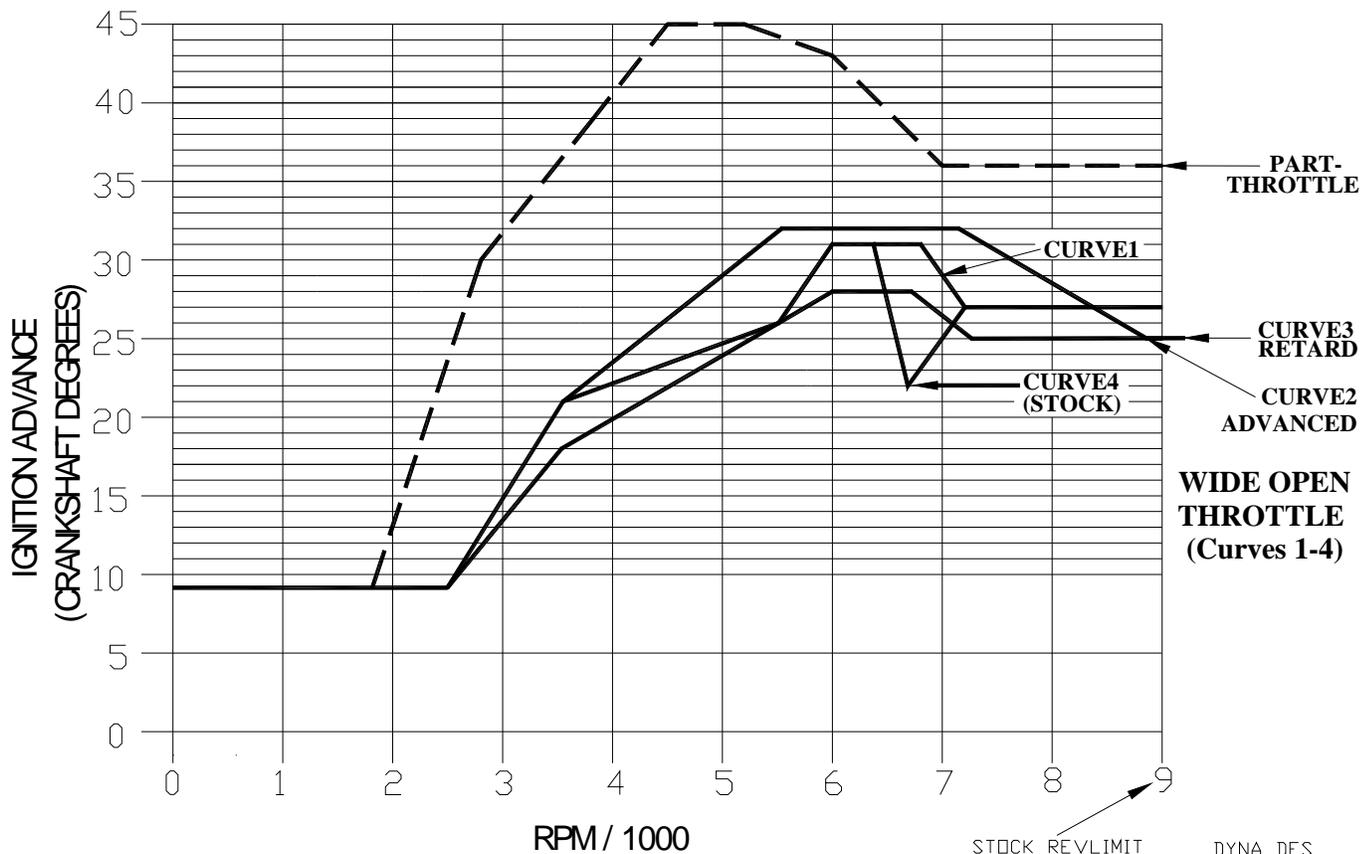
**To use a <u>normally closed</u> tether kill switch connected in series with the +12V input (RED/BLACK) to the ignition.  When the tether is removed, it should disconnect the +12V power to the ignition.**

*DYNATEK 164 S. Valencia St., Glendora, CA 91741  800-928-3962  www.dynaonline.com*
2801312C

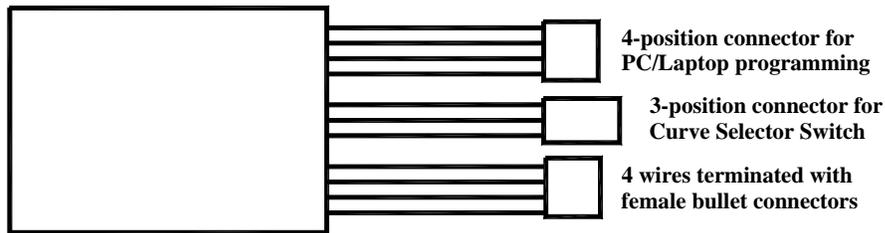# DYNA FS / YAMAHA RAPTOR 700R - IGNITION CURVES

IGNITION ADVANCE (CRANKSHAFT DEGREES)

45
40
35 — **PART-THROTTLE**
30 **CURVE1**
25 **CURVE3 RETARD**
20 **CURVE4 (STOCK)** **CURVE2 ADVANCED**
15 **WIDE OPEN THROTTLE (Curves 1-4)**
10
5
0

0  1  2  3  4  5  6  7  8  9

RPM / 1000

STOCK REVLIMIT          DYNA DFS
9,000 EFI SHUTOFF     9100 RPM LIMIT

CURVE4 = STOCK ADVANCE
(Assumes 9° base timing)

2801312C

**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, 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.
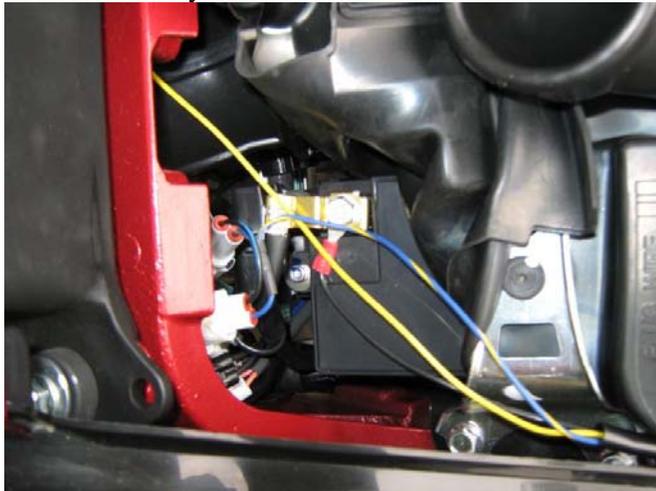
### SHIFT LIGHT or SMALL SOLENOID

+12V

BLUE -OR- WHITE

IGNITION
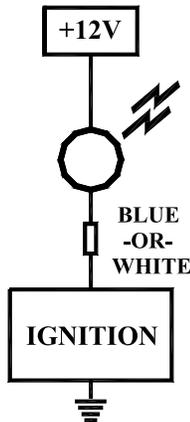
### USING A BOSCH STYLE RELAY TO SWITCH HEAVY LOADS

+12V          +12V

85          30

BOSCH RELAY

87
86          87a

BLUE -OR- WHITE

IGNITION

HIGH CURRENT DEVICE
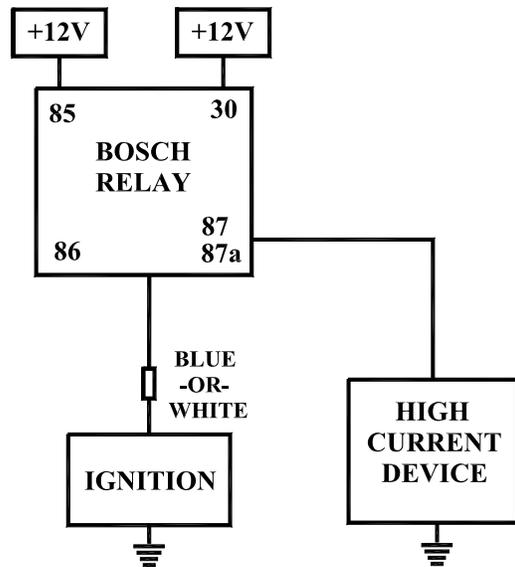
DYNATEK
164 S. VALENCIA ST., GLENDORA, CA 91741  (626)963-1669

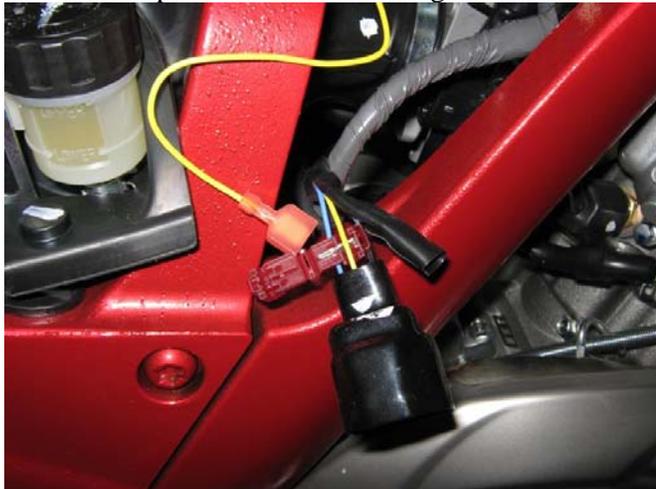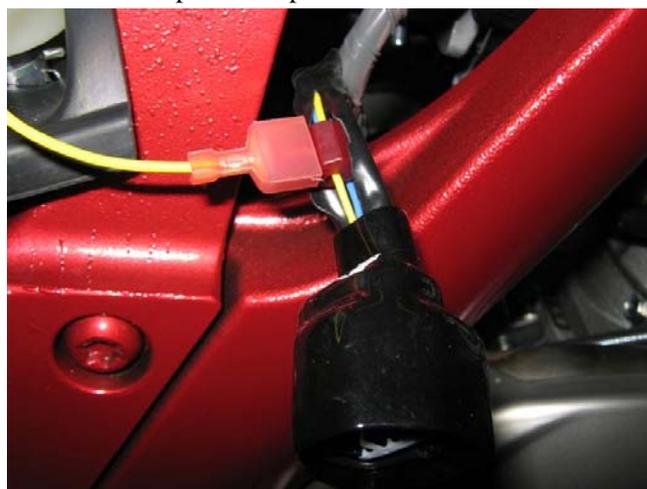| TITLE DFS AUX WIRING | | |
|---|---|---|
| DATE 11-20-06 | MODEL DFS- ATV | REV 1.0 |

Picture1: Battery Ground.



Picture2:  Crank Pickup intercept connectors.
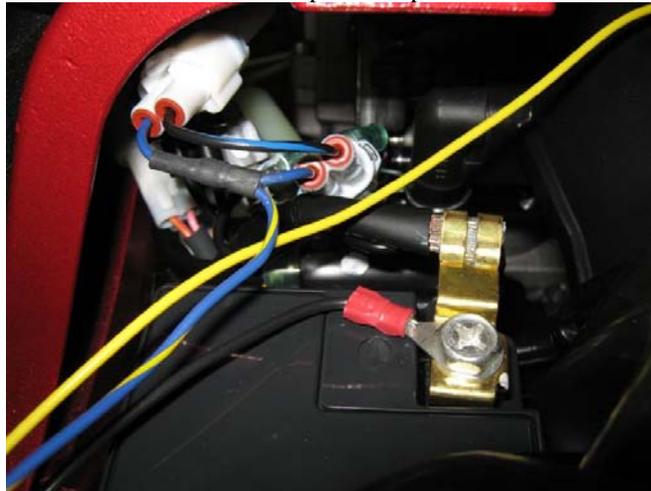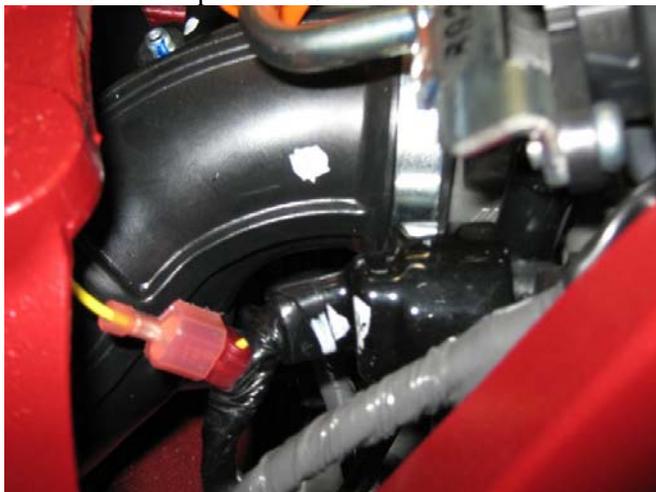


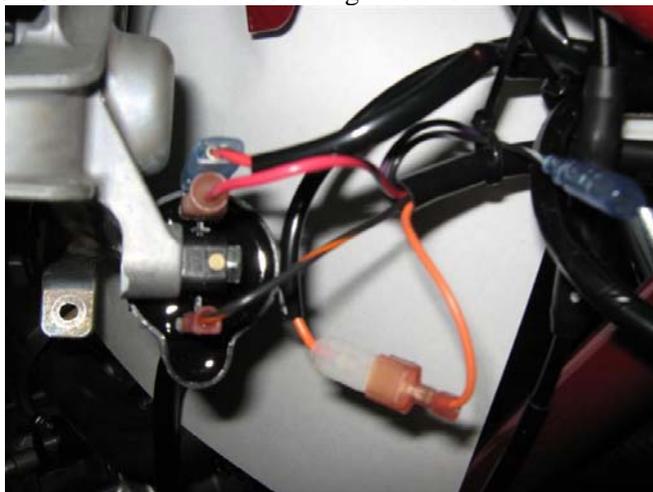Picture3:  Expose the Yellow TPS signal wire.



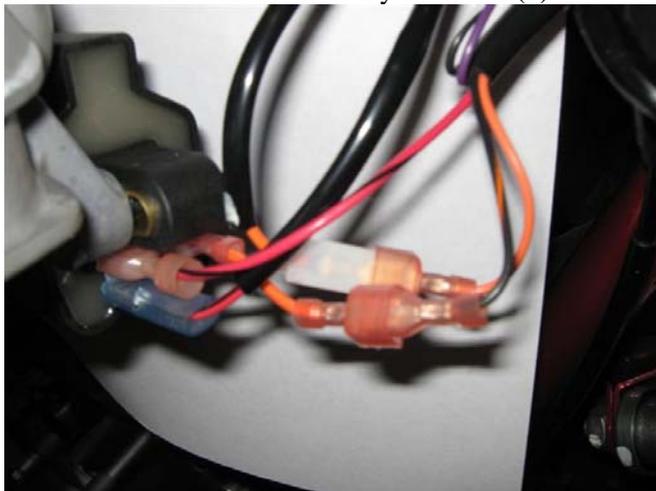Picture4: Crimp the T-tap connector until it clicks.

Picture5: Re-Tape the TPS connection.        Picture6: Coil connections to stock ignition coil.





Picture7: Coil connections to Dynatek Coil(1)     Picture8: Coil connections to Dynatek Coil(2)