Congratulations!

You have purchased the finest Air/Fuel Ratio Switch Available. Follow the directions below as a guide for installation and tuning. Remember, The DynoTune Nitrous A/F switch is an instrument that will give your engine a fighting chance if a serious fuel or nitrous system malfunction occurs but due to the nature of nitrous oxide and tuning, there are never any guaranties when engines are placed under these extreme conditions!. Tuning should be done on a Dyno with Wide band O2 system for accurate calibration. This switch is designed for race/off road use only.

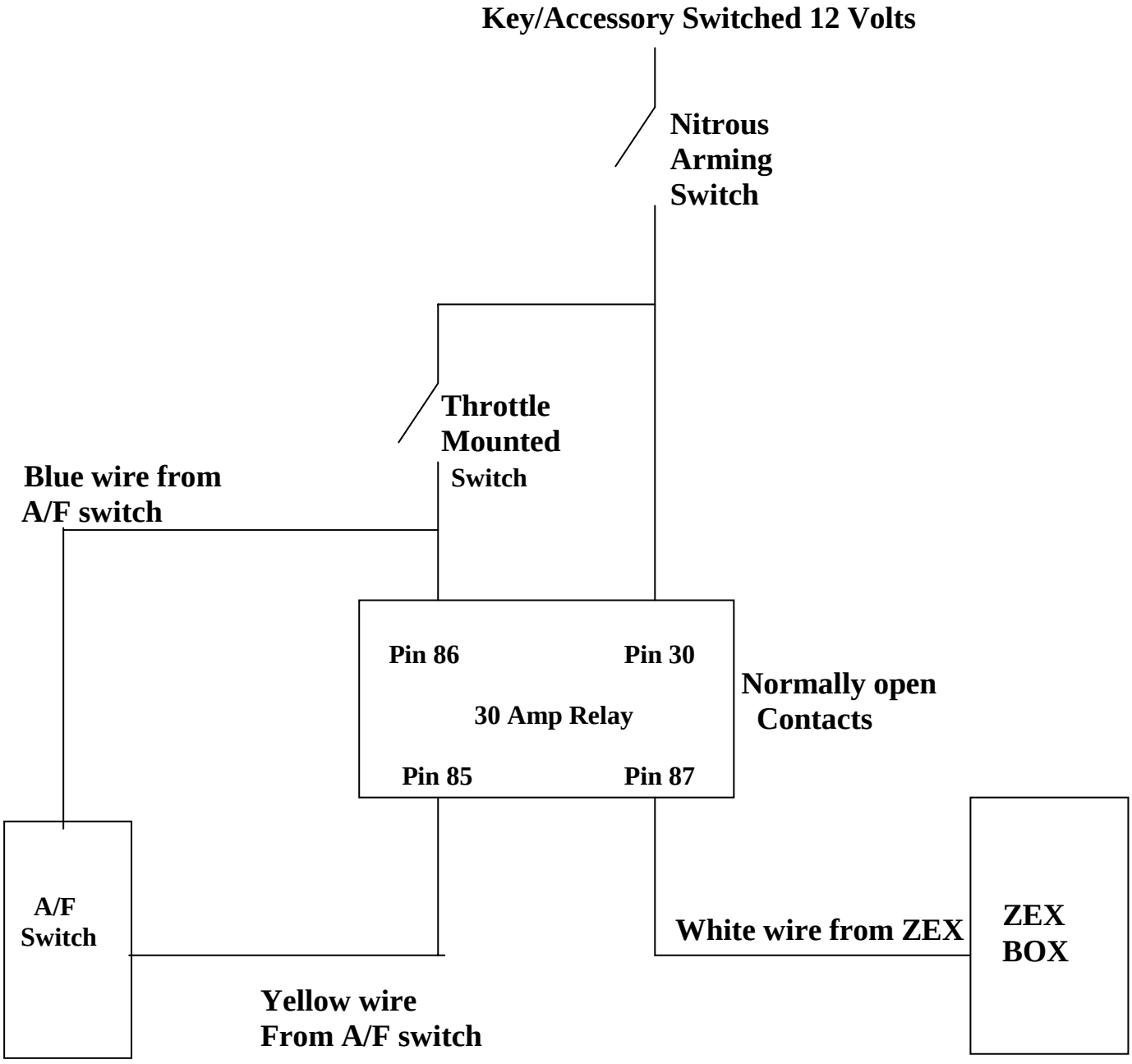
Index

Section 1
Operation overview

The DynoTune Nitrous A/F switch is designed to help you control your Nitrous System in the event of a malfunction. When installed properly it should shut off the power to your nitrous system if the A/F ratio goes severely lean or rich during a Nitrous assisted Run. It works with standard OEM oxygen sensors with an output from 0-1 Volts. During the Nitrous run if the A/F goes lean the nitrous will shut off and the display will flash “Lean” for 15 seconds before it resets and is ready to run once again. Same as above with the “Rich” message, the system will shut down. The electrical operation of the system is simple, imagine the A/F switch is a regular toggle switch. This toggle switch goes in series with the ZEX trigger white wire. If the A/F goes out of the safe zone than the switch opens the connection to White wire and the ZEX box shuts off and as does the nitrous.

Section 2
Installation of the DynoTune Nitrous A/F switch for "ZEX" Nitrous Systems

1) Mount the DynoTune Nitrous A/F switch in a place where you can see the display, preferably out of direct sunlight. Use the right angle brackets or Velcro as needed.
2) Attach the red wire to accessory power (+12 volts).
3) Attach the Green wire to ground (Battery ground is best).
4) You must use a throttle mounted switch (set it to close at wide open throttle!!)
5) You must use a Normally open 12v relay. The purpose of this modification is as follows: The white wire use to go to the (TPS) throttle position sensor but this signal is the main trigger for the ZEX box. The A/F switch needs to use a 12v signal not the TPS 5v signal!
6) Connect the blue wire to pin 86, connect the Throttle switch to pin 86 as well.
7) Connect the Top of the throttle switch to pin 30 and the bottom of the Arming Switch.
8) Connect the yellow wire to pin 85, connect the white wire to pin 87.



9) You need to determine what type of oxygen sensor you have in your Exhaust pipe, 1 wire, 2 wire, 3-wire or 4 wire. Once you find the oxygen sensor and determine how may wires you have, follow the directions for that type of sensor. You will need to cut the sensors signal wire on your sensor, or splice the three wires together using the splice provided. Optionally you can just strip back a little of the wire and solder/splice the A/F switch'' wire to the sensors wire. In either case make sure and seal the joint with electrical tape!! Note: You can connect the A/F switch to the signal wire near your vehicle's computer if you have the correct wiring diagrams.
1-wire oxygen sensors these sensors are the basic original style sensor with one wire for the signal and the ground connection is made through the exhaust. Connect using the provided splice, the A/F Switch "**black"** wire to the wire coming out of the Oxygen Sensor.
2 wire oxygen sensors these sensors are the basic original style sensor with one wire for the signal and one for the ground connection. Connect using the provided splice, the A/F Switch "**Black"** wire to the Oxygen Sensor's signal wire (usually comes out of the center of the sensors body).
3 wire oxygen sensors these sensors are the newer ones with built in heaters. They have a signal wire and two heater wires (Heater wires are usually the same color, gray). Connect using the provided splice, the A/F Switch "**Black"** wire to the Oxygen Sensor's signal wire (usually black or purple).
4 wire oxygen sensors these sensors are the newer ones with built in heaters. They have a signal wire, two heater wires (usually the same color, gray) and a ground wire. Connect using the provided splice, the A/F Switch "**Black"** wire to the oxygen Sensor's signal wire (usually black or purple).

Note: If you do not have any of the color wires listed you need to do some detective work. The heater wires are typically always the same color so rule those out. The ground wire is attached to the body of the sensor, use a multi-meter to check for continuity. The only wire that is left is the signal wire!!

Section 3
Air/Fuel RatioTuning Guidelines

Use the chart below to help guide you in the right direction.

Gasoline		
DynoTune Meter reading	**Full Throttle**	**Air/Fuel Ratio**
.00mv		17.0:1
.10mv		17.0:1
.20mv		16.0:1
.30mv		15.5:1
.40mv		15.0:1
.50mv		14.7:1
.60mv	Dangerously lean	14.6:1
.70mv	A/F Switch shuts off the Nitrous—Very lean	14.5:1
.80mv	Max power (Lean) normally aspirated	14.2:1
.87mv	Max power normally aspirated	13.5:1
.90mv	Max power (Rich) (NOS, Blower, Turbo)	13.2:1
1.00v	A/F switch shuts off Nitrous --Very rich	12.5:1

Note: Three or four wire heated oxygen sensors are recommended! One and two wire oxygen sensors can be used but they take a while to heat up before stable Air/Fuel ratios can be determined. The system may shut off premature due to in-accurate readings caused by these sensors until they are up to operating temperature..

Section 4
Troubleshooting

- **The meter display does not light**-Check all the connections and make sure the wires are not reversed.
- **The meter Readout cycles up and down at idle and cruise**-This is perfectly normal and will continue to do this until wide-open throttle at which point the oxygen sensor is hot and starts to put out a steady voltage.
- **The meter does not stay steady under wide-open throttle-** Check and make sure your oxygen sensor is functioning properly and that the A/F Switch is connected to the output of the oxygen sensor.
- **The meter does not stay steady under wide-open throttle-** Some of the one & two wire oxygen sensors (Non heated) may take a while to warm up under part throttle driving. Readings will not be stable until the sensor heats up. Go on the highway then do full throttle and check your reading.
- **The meter reads ".00"**- You have accidentally hooked the meters signal wire to the oxygen sensors ground wire.
- **The Nitrous system does not activate-** check that the A/F switch yellow wire is connected to the negative side of the nitrous systems coil typically pin 85.
- **The system goes rich or lean instantly and flashes one of the messages-** The Nitrous system needs to be run at wide open throttle only! If your throttle activation switch is set at anything other than wide open throttle the oxygen sensor will not give you an accurate reading and may flash a warning message. Make sure you nitrous system is working properly before continuing!

Section 5
Specifications

	DynoTune Nitrous A/F Switch	
Min. operating Supply voltage	12 volts	
Max. Operating Supply voltage	15 volts	
Current consumption	200 milliamps	
Display Accuracy	.05 volts	