INSTRUCTIONS

#82028 Diesel Nitrous System

Thank you for choosing ZEX™ products; we are proud to be your manufacturer of choice. Please read this instruction sheet carefully before beginning installation, and also take a moment to review the included limited warranty information.



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Part #ZEX150
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Why our nitrous system is better:

Performance enthusiasts know the potential of nitrous oxide injection systems to generate big horsepower gains. For diesel engines, the installation of a ZEX™ Diesel Nitrous System adds great power with no additional tuning but offers huge power gains when used in tandem with propane injection and power programmers that add additional fuel. By more thoroughly burning the increased volume of diesel fuel entering the engine, the ZEX™ Diesel Nitrous System increases power, reduces exhaust gas temperatures, cools the inlet air temp and gets rid of excessive exhaust smoke.

PARTS LIST

Description	Qty.	Description	Qty.
Nitrous Solenoid	1	.054 N20/Fuel Jet	1
24" Hose, -4AN, purple w/ -3 AN end	1	.072 N20/Fuel Jet	1
16' Hose, -4AN, purple	1	.088 N20/Fuel Jet	1
Nitrous Nozzle	1	.105 N20/Fuel Jet	1
Bulkhead Fitting and Nut	1	Nitrous Wiring Harness & Arming Switch	1
10lb. Nitrous Bottle w/Valve	1	Arming Switch Cover	1
Bottle Bracket (short)	1	TPS Throttle Activation switch	1
Bottle Bracket (long)	1	Red 18 GA. Wire	15 ft.
Solenoid Bracket	1	5/16-18 x 1" Bolt for Bottle Brackets	4
.026 N20/Fuel Jet	1	5/16 - 18 Nut for Bottle Brackets	4
.032 N20/Fuel Jet	1	5/16 Flat Washers	4
.040 N20/Fuel Jet	1	10-32 Solenoid Bracket Screws	2
.046 N20/Fuel Jet	1	1/16-27 NPT Tap	1

Quick Start Reference Guide:

- **How the ZEX™ Diesel Nitrous System works**: The ZEX™ Part #82028 Diesel Nitrous System begins with a connection to a supply cylinder containing pressurized liquid nitrous oxide. This connection goes to the system's nitrous solenoid. The solenoid is normally closed, but is opened when the nitrous system is armed, and the TPS throttle switch is activated by going to wide-open throttle. Once this solenoid opens, the nitrous is delivered to the engine via a braided stainless steel delivery line that is connected to the nitrous nozzle. The amount of nitrous that is injected is adjustable by means of a metering jet installed in the nitrous nozzle. This metering jet allows for easy changes in horsepower settings.

- **Work safely.** Always wear eye protection and gloves when working with lines or hoses that contain pressurized nitrous oxide. Never transport nitrous cylinders loose in a trunk or the bed of a pick-up truck and especially **NOT** within a vehicle's interior whether the cylinder is empty or full. Always disconnect the **GROUND** side of the battery when working on any electrical components.

- **Nitrous oxide will not fix problems you already have**. Before you install your nitrous system, be sure your engine is in good mechanical condition. Intermittent wiring problems, etc., can lead to erratic system performance and possible engine damage.

- **Never defeat the operation of the safety relief disc in the nitrous cylinder's valve stem**. It's required by law and is there for your safety. Never drill, machine, weld, deform, scratch, drop, or modify a nitrous oxide cylinder in **ANY** way whatsoever!

- **Never overfill nitrous cylinders**. That little bit extra will put you and others at risk of injury. More often than not, when the cylinder warms up, the pressure goes above the limit of the safety relief disc, and you lose all the nitrous you just paid for.

- **All the power comes from the fuel, not the nitrous**. Nitrous oxide is simply a tool that allows you to adjust how much and how quickly the engine burns the fuel. If the fuel isn't there, the power won't be either.

- **When system is activated, if something doesn't feel or sound right, BACK OFF!** If you hear any pinging or feel anything unusual, get off the throttle. It's a lot easier to check everything over than it is to just try to drive through it and damage expensive parts.

- **Clear nitrous lines after use**. Close the bottle valve and use a purge kit to relieve the nitrous line pressure or open one of the line's fittings to let the pressure bleed off.

- **Do not use Teflon sealing tape on any fittings in a ZEX™ nitrous system.** It is easy for Teflon tape to get pulled into the system, causing blockages that can ultimately lead to incorrect nitrous system performance and potentially, engine damage. Only use liquid thread sealer for all NPT type fittings. Do not use any thread sealing compound on AN style fittings.

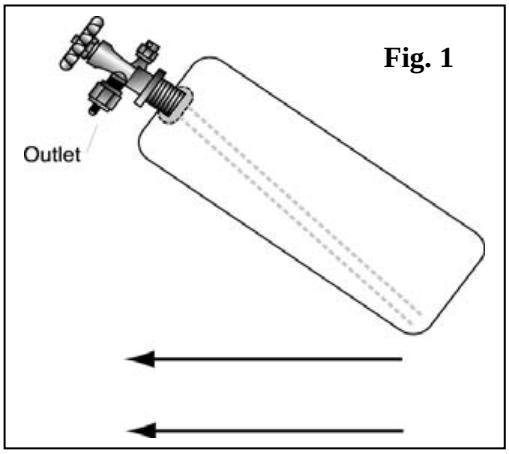
- **When finished using your nitrous system, close the nitrous bottle valve and relieve the line pressure**. This eliminates the possibility that nitrous could inadvertently accumulate in the intake manifold while the nitrous system is not being used.

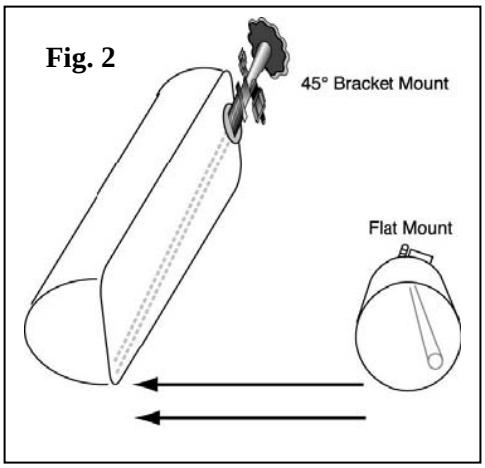
- **Do not run excessive bottle pressures**. Excessive bottle pressures over 1100psi will not improve system performance. Your ZEX™ nitrous system is calibrated and optimized to operate from 900-1000psi. Over 1100psi also runs the danger of locking the nitrous solenoid closed due to excessive pressure working against the valve's plunger. If this happens, you must cool the nitrous bottle down to lower the pressure. This will allow the valve to operate properly.

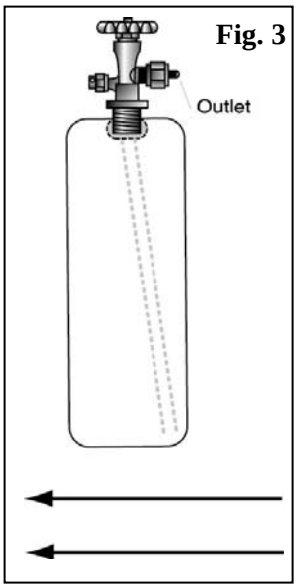
- **How to adjust power levels**. The ZEX™ Diesel Nitrous System is designed for multiple power levels. To change the power output, all you need to do is install the appropriate jet. The correct jet for a given power level is listed on the jet chart at the end of this instruction manual.

Installation Instructions:

1. **Decide where to put everything -** Before you start to install the various components of this kit, you'll have to locate the best locations of each component by trial fitment and careful measurement. First, decide where you want to mount the nitrous solenoid. Remember, the stainless steel braided lines that connect this to the nozzle are 24 inches long. Observe and mark the location on the air inlet tube where you will drill and tap for the nitrous nozzle or bulkhead fitting. You'll also have to decide where to install the arming switch and the nitrous bottle. The arming switch should be installed in a position convenient to the driver, but not in an area where it could be accidentally armed. To help you decide where and how you'll mount the nitrous supply bottle, check Fig. 1, 2 and 3 for technical restrictions on bottle mounting locations and positions. Finally, have a reputable performance shop fill your nitrous bottle with automotive grade nitrous oxide before you begin. Do not overfill the nitrous bottle.







2. **Mount nitrous supply bottle**.
   - **A.** Mount the nitrous supply bottle. If it is located inside the passenger cabin, it is recommended that a safety blowdown tube (ZEX™ Part #82099) be installed. Route the tube from the safety pressure relief cap to the exterior of the vehicle, preferably underneath. Doing so will prevent your car from filling with a cloud of nitrous oxide should the safety pressure relief cap rupture.

   - **B.** Index the pick-up tube with bottle position (Refer to Fig. 1, 2 and 3). ZEX™ nitrous bottles are designed with the bottom of the siphon tube at the bottom of the bottle towards the outlet. Always mount the bottle so that as your vehicle accelerates, the liquid flows toward the pick-up tube.

3. **Mount nitrous delivery line under the vehicle.** When routing the nitrous delivery line under the vehicle, try to use the frame as a conduit. This protects the line and eliminates the need to use clamps. The supplied cable ties work if you can run the line higher in the underbody so that

it's safe from the road level obstacles. For the pro-race look, you can use steel loom clamps with rubber sheathing to fasten the line to the body.

4. **Mount nitrous solenoid.** Keeping in mind the length restrictions of the nitrous nozzle feed line and nitrous delivery line, mount the nitrous solenoid in the engine bay using the supplied bracket and screws.

5. **Install Nitrous Nozzle**
   - **A.** Optimum nozzle placement on diesel engines is 12-24 inches away from the entry to the engine's intake manifold, but anywhere in the inlet track of the engine has been proven safe and effective. After you have determined where to install the nitrous nozzle in the air-charge pipe, mark it, then remove the pipe. Make sure this location won't interfere with other components in the engine bay.

   - **B.** If the charge pipe is metal, you can drill the pipe with a 1/4 in. drill bit, then tap the hole with the included 1/16 NPT thread tap. If the charge pipe is rubber, you can drill a 7/16 in. hole and install the bulkhead fitting instead. If using the tap, take special care to not tap the hole too deep. It is recommended to tap a few turns at a time, back the tap out, clean out the shavings, and test fit the nozzle to the NPT threaded hole. When you are finished threading or drilling the charge pipe, thoroughly clean and blow out all shavings from the inside of the pipe before reinstalling it back on the engine.

   - **C.** Install the nozzle in the threaded hole. Make sure the nozzle is pointing in the correct direction. The outlet should face toward the intake manifold. The nozzle has a dimple machined into one of the flats on the hex of the nozzle that indicates what direction it is facing. Use this dimple as a guide to ensure the correct orientation of the nozzle.

   - **D.** Install the 1/8 NPT end of the 2ft. -4 nozzle feed line into the nitrous solenoid outlet. Install the nitrous jet in the nozzle for the desired power level and attach the -3 AN swivel nut side of the nozzle feed line to it.

   - **E.** Attach the –4AN nitrous delivery line, from the bottle, to the nitrous solenoid inlet.

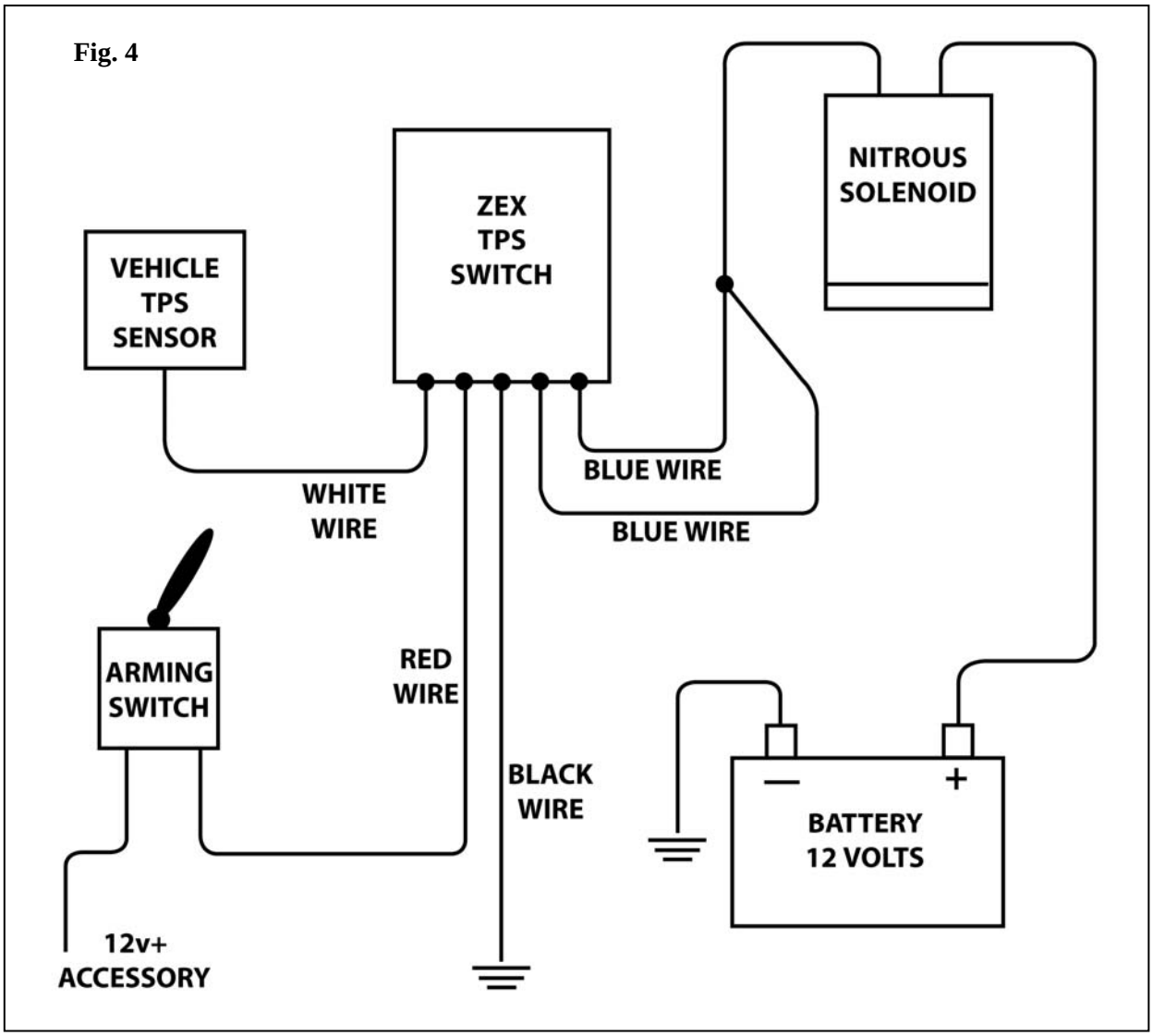
6. **Wiring**
   - **A.** Mount the arming switch in an easily accessible area for the driver.

   - **B.** Tap the fused wire lead, from the arming switch wire harness, to a 12 volt accessory power source.

   - **C.** The ZEX™ Diesel Nitrous System uses an advanced TPS switch that activates the nitrous system at wide open throttle based on the voltage it reads from the vehicle's TPS sensor. This Throttle Position Sensor (usually located by the accelerator pedal) provides information to the engine computer on how far down the accelerator pedal has been depressed. This sensor will have several wires coming off of it, but at least one of these wires varies it's voltage as the accelerator pedal is moved through it's normal range of operation. Typical values are .5 volt at idle, gradually increasing to 4.5 volts as the pedal is

moved to wide-open-throttle. Your vehicle's voltage range may be significantly different than this, but not to worry, the ZEX TPS Switch will program itself to any voltage sweep it measures. The important thing to remember is to locate the TPS wire that outputs a voltage that varies with accelerator pedal position. Once this wire has been identified, attach to it the white wire from the ZEX TPS Switch. The provided red t-tap connector makes tapping into this wire very easy. Refer to Fig. 4 below for the additional wiring connection points and locations.

Fig. 4



7. **Program TPS Switch.** To program the switch, turn the vehicle's ignition on, but do not start the engine. Turn the nitrous arming switch to the "ON" position. Go to the ZEX™ TPS switch and locate the programming button on the top of the housing. Depress, then release, the push-button switch. Observe the unit's Operation Light. At this point, it should be RED. This RED

light informs you that the unit is in learn mode. Return to the driver's seat and depress the accelerator pedal to the floor, holding it there for ten seconds. Release the accelerator pedal and go back to the TPS switch and observe the Operation Light. At this point, the light should be flashing continuously from RED to GREEN to OFF. This is the TPS switch's way of telling you that it has successfully learned the voltage curve of your vehicle's throttle position sensor. Go back to the driver's compartment and turn off the nitrous system's arming switch, then turn it back on. Go back to the TPS switch and observe the Operation Light. It should be solid GREEN at this point. This informs you that the system is armed and ready to activate at wide-open throttle. Return to the driver's seat and depress and release the accelerator pedal several times. You should hear the solenoid click each time you reach wide-open throttle. At this point, the TPS switch is fully programmed and ready for use. If you ever transfer your nitrous system to another vehicle, perform this same procedure on the new vehicle to "relearn" the TPS switch.

8. Nitrous Pressure Line

A. Perform a final inspection of all plumbing and electrical connections to ensure that they are correct.

B. Turn the ignition key to the ON position, engine OFF (not running).

C. Turn the nitrous arming switch to the ON position.

D. With the nitrous bottle valve **CLOSED**, depress the throttle switch and listen for the solenoid to click. If it does not click, locate the electrical problem and correct it before proceeding.

E. Open then nitrous bottle valve. Listen carefully for any leaks as the valve is opened. Leaks in the nitrous supply line will be obvious because they will be covered in frost.

9. You are finished with the installation, enjoy your extra horsepower!

ZEX #82028 Diesel Nitrous System Jet Chart

	35 hp	50 hp	75 hp	100 hp	125 hp	150 hp	175 hp	200 hp
Nitrous Jet (950psi)	26	32	40	46	54	72	88	105

Limited Warranty

ZEX™ warrants that all of its products are free from defects in material and workmanship, and against excessive wear for a period of (1) one year from the date of purchase. This **limited warranty** shall cover the original purchaser.

ZEX's obligation under this warranty is limited to the repair or replacement of its product. To make a warranty claim, the part must be returned within (1) one year of purchase to the address listed below, freight prepaid. Items covered under warranty will be returned to you freight collect.

It is the responsibility of the installer to ensure that all of the components are correct before installation. We assume no liability for any errors made in tolerances, component selection, or installation.

There is absolutely no warranty on the following:

A) Any parts used in racing applications;

B) Any product that has been physically altered, improperly installed or maintained;

C) Any product used in improper applications, abused, or not used in conjunction with the proper parts.

There are no implied warranties of merchantability or fitness for a particular purpose. There are no warranties, which extend beyond the description of the face hereof. ZEX™ will not be responsible for incidental and consequential damages, property damage or personal injury damages to the extent permitted by law. Where required by law, implied warranties or merchantability and fitness are limited for a term of (1) one year from the date of original purchase.

This warranty gives you specific legal rights and you may also have other legal rights, which vary from state to state.