



**INSTRUCTIONS**

**Installation Instructions  
Safe Shot Nitrous System Part #82357**

Thank you for choosing ZEX™ products; we are proud to be your manufacturer of choice. Please read this instruction sheet and review the included limited warranty information carefully before beginning installation, failure to do so may result in damage to your engine or vehicle and/or physical harm to yourself. ZEX™ is not responsible for damage or injuries caused by improper use of this nitrous kit.



## Kit Parts List

<u>DESCRIPTION</u>	<u>QTY.</u>		<u>DESCRIPTION</u>	<u>QTY.</u>
Nitrous Solenoid	1		.025 Nitrous Jet	1
Solenoid Bracket	1		.028 Nitrous Jet	1
-4ANto ¼ NPT Filter Fitting	1		.030 Nitrous Jet	1
1/8 to ¼ NPT fem. fitting	1		Arming Switch	1
11" Hose, -3AN	1		Pushbutton Activation Switch	1
18' Hose, -4AN	1		Red 18 GA. Wire	15 ft.
Nitrous Nozzle	1		Solenoid Screws	2
5lb. Nitrous Bottle w/Valve	1		#14 Bracket Screws	2
Tall Bottle Bracket	1		5/16-18 X 1" Bolt for Bottle Brackets	4
Short Bottle Bracket	1		5/16 - 18 Nut for Bottle Brackets	4
1/16 NPT Bulkhead Fitting w/ Nut	1		5/16 Flat Washer	4
.017 Nitrous Jet	1		15 Amp Fuse	1
.021 Nitrous Jet	1		15 Amp Fuse Holder	1

### Read This Pre-installation Guide Before Installing Kit !!!!!!!

**How the ZEX™ Safe Shot Nitrous System works:** The ZEX™ Part #82357 nitrous oxide injection system begins with a connection to the nitrous bottle containing pressurized liquid nitrous oxide. This connection goes to the nitrous solenoid and while this solenoid is normally closed, it opens when the nitrous system is armed and the activation push-button is depressed. Once this solenoid opens, the nitrous is delivered to the nitrous nozzle via a flexible delivery line. The amount of nitrous that is injected into the engine is adjustable by means of a metering jet installed in the nozzle. This changeable metering jet allows for easy adjustments in horsepower settings. While the nitrous is being injected, additional fuel must be added by an aftermarket power programmer, by increasing the fuel pressure or through a custom computer tune designed for nitrous use.

**Work safely:** Always wear eye protection and gloves when working with lines or hoses that contain pressurized nitrous oxide or fuel. Never transport nitrous cylinders loose behind a seat or in the back of a pick-up truck. Always disconnect the GROUND side of the battery when working on any electrical components.

**Nitrous oxide won't 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 operation of the safety relief disc in the nitrous cylinder's valve:** It's required by law and is there for your safety. Never drill, machine, weld, deform, scratch, drop, or modify a nitrous oxide tank in ANY way whatsoever!

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**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.

**Avoid detonation at all times:** Nitrous enhanced detonation is much more damaging than detonation that occurs when naturally-aspirated due to the increased amount of fuel available for releasing energy and the fact that more oxygen is present.

**Activate the nitrous system only at wide-open-throttle:** For maximum engine safety, it is important to only activate the nitrous system while you are at wide open throttle.

**When system is activated, if something doesn't feel or sound right, BACK OFF:** If you hear any detonation or feel anything unusual, release the activation button and get off the throttle. It's a lot easier to check everything over than it is to just try to ride through it and damage expensive parts. Don't activate or have the system activated when you hit the stock rev limiter. The stock rev limiter is normally a fuel cutoff. If you cut fuel while you're injecting nitrous, you're instantly very lean. This momentary lean condition has the potential of causing engine damage.

**Spark plugs and nitrous performance:** Sometimes, factory type projected nose spark plugs will produce a detonation condition during nitrous use. The solution to the problem is to install spark plugs that have a colder heat range and proper ground strap design for nitrous use. Consult your preferred spark plug manufacturer to ensure you install the correct plugs for the nitrous level you choose to run. Also, due to the cooler and denser inlet air charge that nitrous creates, it may be necessary to close-up your spark plug gaps to eliminate any misfiring. In our experience, tightening up your plug gap .003 to .005 in. will help to ensure proper ignition.

**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 threads.

**Do not attempt to start your engine if nitrous has been accidentally injected into the engine while it was not running:** If this occurs, disable the ignition, open the throttle to wide-open, then with the throttle wide open, engage the starter and turn over the engine for several seconds to clear the nitrous from the engine. Failure to do this before attempting to restart the engine can lead to a dangerous intake system backfire.

**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 system while the nitrous system is not being used.

**Do not run excessive bottle pressures:** Excessive bottle pressures, over 1100 psi, are dangerous to your engine. Your ZEX™ nitrous system is calibrated and optimized to operate from 900-1000 psi. Exceeding this will not improve performance. Over 1100 psi 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 again.

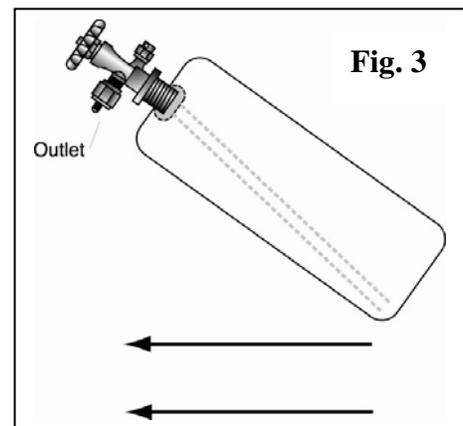
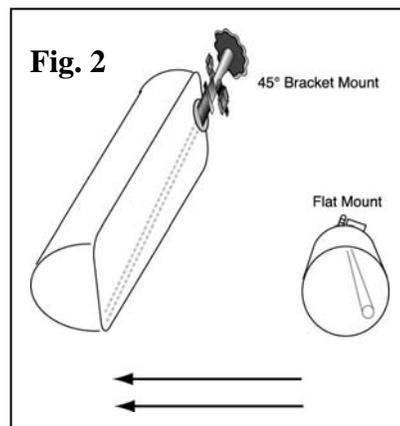
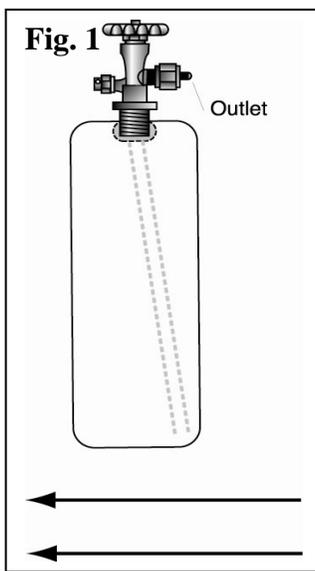
**Start with the lowest horsepower setting and work your way up:** This ensures if you have any tuning issues to work out on your vehicle, they will get sorted out with a smaller shot of nitrous that will be less likely to damage your engine. Once you have the vehicle working well on the smaller shot, you can then safely start to step up your nitrous kit horsepower.

**How to adjust power levels:** The ZEX™ Safe Shot Nitrous System is designed for multiple power levels. Metering jets installed in the nitrous nozzle control these power levels. To change the power output, all you need to do is install the appropriate jet and add additional fuel with your power programmer or custom nitrous tune.

## Installation Instructions

### Step 1: Decide where to put everything

Before you start to install the various components of this kit, you'll have to find 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 line that connects the nitrous solenoid to the nitrous nozzle is 11 inches long. Observe and mark the location on the air inlet tube where you would like to put the nitrous nozzle. The arming switch and activation push-button should be installed in a position convenient to the driver, but not in an area where it could be accidentally armed or activated. Next, 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 before you begin. Do not overfill the nitrous bottle.



## Step 2: Mount Nitrous Supply Bottle

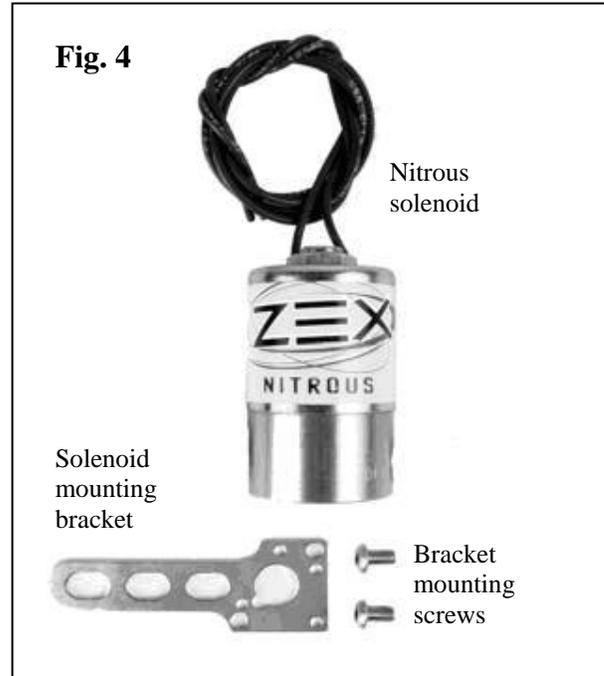
Mount the nitrous supply bottle with the outlet facing down. ZEX™ nitrous bottles are designed with a siphon tube that draws the nitrous from the bottom of the bottle. Refer to fig. 1, 2, and 3 for proper positioning. Always mount the bottle so that as your vehicle accelerates, the liquid flows toward the pickup tube.

## Step 3: Run the Nitrous Delivery Line

When routing the nitrous delivery line under the vehicle, try to use the sub-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 under-body so that it's safe from road level obstacles.

## Step 4: Mount Nitrous Solenoid:

Install the -4AN filter fitting into the 1/8 NPT male to 1/4 NPT female adapter, then install the 1/8 NPT end of the fitting into the inlet of the nitrous solenoid. Install the 11" long nitrous nozzle line into the outlet port of the nitrous solenoid. Keeping in mind the length restrictions of the nitrous nozzle line, attach the mounting bracket (Fig. 4) to the solenoid and mount in a convenient location. Connect the -4AN bottle feed line to the solenoid inlet fitting.

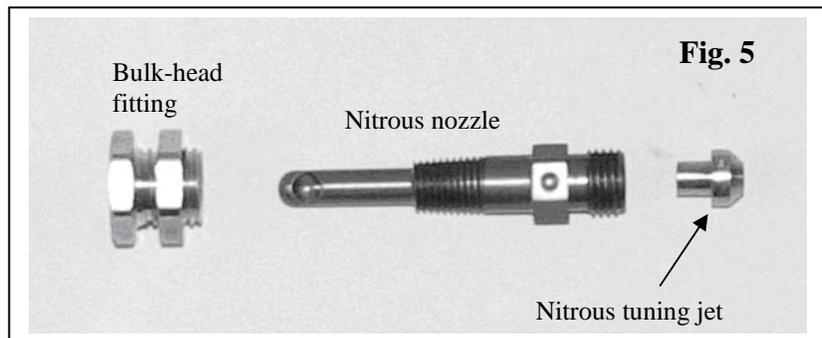


## Step 5: Install Nitrous Nozzle

Optimum nozzle placement is 6" to 18" from the throttle body. This range of distance gives the nitrous and air proper time to mix before entering the intake manifold plenum. Remember, nitrous nozzles must always be mounted after the mass airflow sensor, never before them. After you have determined where to mount the nitrous nozzle (Fig. 5) in the air inlet tube, make sure this location won't interfere with other components. After you've found the spot, mark it and remove the air inlet duct from your engine. Drill a 7/16-inch (.4375) mounting hole and install the bulk head fitting. Be sure to remove any drill shavings since they can severely damage your engine if ingested. Finally, install the nitrous nozzle so that the spray is in the direction of airflow, insert your desired nitrous jet in the end of the nozzle and connect the 11" long, -3 AN nozzle line.

## Step 6: Wire It

Once you have mounted the components, you are ready to wire the nitrous system. Refer to the wiring diagram at the end of this instruction manual for guidance (Fig. 6).



### Step 7: Adjust Fuel Delivery

Using a commonly available hand-held programmer (SCT, Diablosport, Superchips, etc.) or custom tuning, add additional fuel in the RPM ranges where you plan on spraying your nitrous system. A good rule of thumb is to add the same percentage of fuel as you are adding nitrous power. For example, if you have a 250hp engine and you want to run the 25 hp shot of nitrous, since you are adding 10% more power to the engine, you need to add an additional 10% of fuel with your programmer or custom tune. It is critical that this fuel be added, because spraying nitrous into an engine without adding additional fuel will cause a severe lean condition. A lean condition can lead to detonation and engine damage. It is best to tune your engine to achieve a 12.0 - 12.5 to 1 air/fuel ratio when using nitrous. An ideal tool for measuring your air/fuel ratio is the FAST™ wide-band air-fuel gauge kit (part #170634). This kit will accurately measure your air/fuel ratio and give you, or your tuner, the information needed to make the correct fuel adjustments. Visit [www.fuelairspark.com](http://www.fuelairspark.com) or call their tech line at 800-999-0853 for more information.

### Step 8: Final Inspection

- Perform a final inspection of all plumbing and electrical connections; ensure they are correct.
- Open the nitrous bottle valve and listen carefully for any leaks up to the solenoid. Leaks in the nitrous supply line will be obvious because they will be covered in frost.
- If everything checks out, close the nitrous bottle valve and relieve the line pressure.

### Step 9: Check Fuel Quality & Ignition Timing

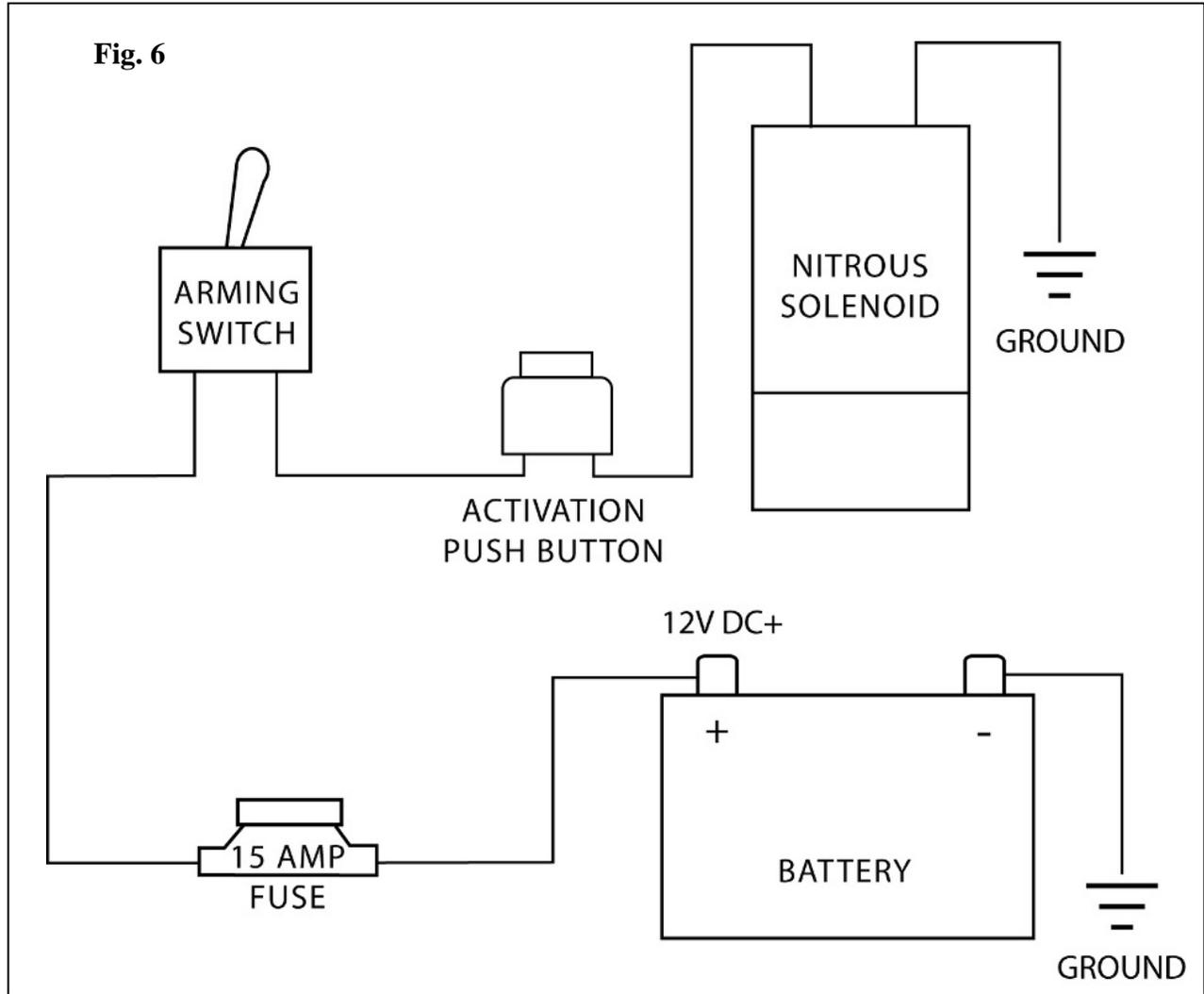
The last thing to do before enjoying your new nitrous system is to ensure that premium fuel (92 R/M octane or better) is in the fuel tank and that your additional enrichment fuel has been properly programmed into your engine's computer. It is recommended that you use the stock ignition timing and not advance it when using nitrous. If the correct ignition timing is not used, engine damage may occur from detonation.

### Step 10: Enjoy!

After everything has been checked over and properly set-up, turn on the nitrous bottle and enjoy your ZEX™ Safe Shot Nitrous System.

## ZEX™ #82357 Nitrous System Horsepower Selection Chart

	15hp	20hp	25hp	30hp	35hp
<b>Nitrous Jet (950psi)</b>	17	21	25	28	30



## 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.