



**A Holley Performance Brand**

P/N A5063-SNOS

## **SNEEKY PETE SERIES**

**Kit Number 05029NOS**



### **OWNER'S MANUAL**

**NOTICE: Installation of Nitrous Oxide Systems Inc. products signifies that you have read this document and have agreed to the terms stated within.**

It is the purchaser's responsibility to follow all installation instruction guidelines and safety procedures supplied with the product as it is received by the purchaser to determine the compatibility of the product with the vehicle or the device the purchaser intends to install the product on.

Nitrous Oxide Systems Inc. assumes no responsibility for damages occurring from accident, misuse, abuse, improper installation, improper operation, lack of reasonable care, or all previously stated reasons resulting from incompatibility with other manufacturers' products.

Nitrous Oxide Systems Inc. assumes no responsibility or liability for damages incurred by the use of products manufactured or sold by Nitrous Oxide Systems Inc. on vehicles used for competition or racing.

Nitrous Oxide Systems Inc. neither recommends nor condones the use of products manufactured or sold by Nitrous Oxide Systems Inc. on vehicles, which may be driven on public roads or highways, and assumes no responsibility for damages incurred by such use.

NOS nitrous oxide is legal for use in most states when used in accordance with state and local traffic laws. NOS does not recommend or condone the use of its products in illegal racing activities.

NOS has not pursued California Air Research Board (CARB) exemptions for these kits, hence, they are not legal for use on pollution-controlled vehicles in California. A correctly installed NOS nitrous system should not alter the emission control performance of your vehicle under standard EPA test cycle conditions.

## HAZARDS DEFINED

This manual presents step-by-step instructions that describe the process of installing your NOS Nitrous Oxide Injection System. These procedures provide a framework for installation and operation of this kit. Parts are referenced by name and number to avoid confusion. Within the instructions, you are advised of potential hazards, pitfalls, and problems to avoid. The following examples explain the various hazard levels:

**WARNING!** Failure to comply with instructions may result in injury or death.

**CAUTION!** Failure to comply with instructions may result in damage to equipment.

**NOTE:** This information is important, needs to be emphasized, and is set apart from the rest of the text.

**HINT:** These special instructions provide a handy work tip.

## NITROUS OXIDE INJECTION SYSTEM SAFETY TIPS

### WARNINGS

Do not attempt to start the engine if the nitrous has been injected while the engine was not running. Disconnect the coil wire and turn the engine over with the throttle wide open for several revolutions before attempting to start. Failure to do so can result in extreme engine damage.

Never permit oil, grease, or any other readily combustible substances to come in contact with cylinders, valves, solenoids, hoses, and fittings. Oil and certain gases (such as oxygen and nitrous oxide) may combine to produce a highly flammable condition.

Never interchange nitrous and fuel solenoids. Failure to follow these simple instructions can result in extreme engine damage and/or personal injury.

Never drop or violently strike the bottle. Doing so may result in an explosive bottle failure.

Never change pressure settings of safety relief valve on the nitrous bottle valve. Increasing the safety relief valve pressure settings may create an explosive bottle hazard.

Identify the gas content by the NOS label on the bottle before using. If the bottle is not identified to show the gas contained, return the bottle to the supplier.

Do not deface or remove any markings, which are on the nitrous bottle.

Nitrous bottle valves should always be closed when the system is not being used.

Notify the supplier of any condition, which might have permitted any foreign matter to enter the valve or bottle.

Keep the valves closed on all empty bottles to prevent accidental contamination.

After storage, open the nitrous bottle valve for an instant to clear the opening of any possible dust or dirt.

It is important that all threads on the valves and solenoids are properly mated. Never force connections that do not fit properly.

**CONGRATULATIONS** on purchasing your NOS Nitrous Oxide Injection System. Your system is composed of the highest quality components available. It should provide many miles of trouble-free performance when used correctly. If you have any questions regarding the performance of your system, call NOS Technical Service at 1-866-GOHOLLEY.

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## WHAT IS NITROUS OXIDE?

### NITROUS OXIDE...

...Is a cryogenic gas composed of nitrogen and oxygen molecules

...Is 36% oxygen by weight

...Is non-flammable by itself

...Is stored as a compressed liquid

...Exists in two grades—U.S.P. and Nitrous Plus:

- U.S.P. is medical grade nitrous oxide; its common use is dental and veterinary anesthesia. It is also commonly used as a propellant in canned whipped cream. U.S.P. is not available to the public.
- Nitrous Plus differs from U.S.P. in that it contains trace amounts of sulphur dioxide added to prevent substance abuse. Nitrous Plus is intended for automotive applications and is available for sale to the public

In automotive applications, Nitrous Plus and fuel are injected into the engine's intake manifold, which produces the following results:

- Lowers engine intake air temperature, producing a dense inlet charge.
- Increases the oxygen content of the inlet charge (air is only 22 percent oxygen by weight).
- Increases the rate at which combustion occurs in the engine's cylinders.

## Do's and Don'ts of Nitrous Oxide

### Do's

- Read all instructions before attempting to install your NOS nitrous system.
- Make sure your fuel delivery system is adequate for the nitrous jetting you have chosen. Inadequate fuel pressure or flow will result in engine damage.
- Use 14 gauge (minimum) wire when installing electrical system components.
- Use high-quality connections at all electrical joints.
- Use Teflon-based paste on pipe style fittings.
- Make sure your engine and related components (ignition, carburetor, and driveline) are in proper working condition.
- If nitrous is accidentally injected into the engine when it is not running, remove the engine coil wire, open the throttle, and crank the engine 10 to 15 seconds before starting. Failure to do so can result in an explosive engine failure.**
- Use your NOS nitrous system only at wide-open throttle and at engine speeds above 3000 RPM.**
- Install a proper engine to chassis ground. Failure to do so may result in an explosive failure of the main nitrous supply line.**
- Use a high-quality fuel, as suggested in Chapter 3, Baseline Tuning Suggestions.

### Don'ts

- Engage your nitrous system with the engine off. Severe engine damage can occur.
- Modify NOS nitrous systems (if you need a non-stock item, call NOS Technical Service for assistance)
- Overtighten AN type fittings.
- Use Teflon Tape on any pipe threads. Pieces of Teflon tape can break loose and become lodged in nitrous or fuel solenoids or solenoid filters. Debris lodged in a nitrous or fuel solenoid can cause catastrophic engine failure.



- Use sealant of any kind on AN type fittings.
- Allow nitrous pressure to exceed 1100 psi. Excessive pressure can cause swelling or in extreme cases failure of the nitrous solenoid plunger. Solenoid plungers are designed so that pressure-induced failures will prevent the valve from operating. No leakage should occur with this type of failure.
- Inhale nitrous oxide. Death due to suffocation can occur.**
- Allow nitrous oxide to come in contact with skin. Severe frostbite can occur.**
- Use octane boosters that contain methanol. Fuel solenoid failure may occur, producing severe engine damage.

## Chapter 1 Introduction to your NOS Nitrous Oxide Kit

### 1.1 General Information

The NOS Sneaky Pete Kit P/N 05029NOS is intended for use on vehicles where short bursts of an extra 25 HP or less are desired. The user/installer must provide the means for supplying the extra fuel during periods when nitrous oxide is injected.

In carbureted applications, this is usually accomplished by jetting the carburetor to run slightly rich when the engine is running normally aspirated. When the nitrous oxide is injected into the engine, the mixture ratio is then leaned out.

Three levels of jets are supplied with this system to allow you to vary your engine's power output. On a typical engine, you can expect the following approximate power gains for each of the three jetting combinations:

Nitrous Jet	Approximate Power Gain	Approximate N <sub>2</sub> O Consumption Rate
22	20 HP	0.2 lbs./10 sec.
24	25 HP	0.3 lbs./10 sec.
26	30 HP	0.35 lbs./10 sec.

## 1.2 Sneaky Pete System Requirements

When used correctly, NOS nitrous oxide injection elevates cylinder pressures and temperatures while increasing the combustion rate. These characteristics make the engine more sensitive to detonation. **To ensure proper performance and engine life, the following is an absolute must:**

### □ Fuel Delivery

Approximately 0.5 lb./hr. of fuel (gasoline) is required for each additional HP you add with nitrous oxide injection. Fuel jetting changes, required to add the extra fuel, required by this kit (10-15 lb./hr.) will be small in most automotive applications.

If attempting to use this kit in applications where an increase of more than 10% of the engines normally aspirated power is required, a supplemental fuel system (other than merely jetting the carburetor richly) is required.

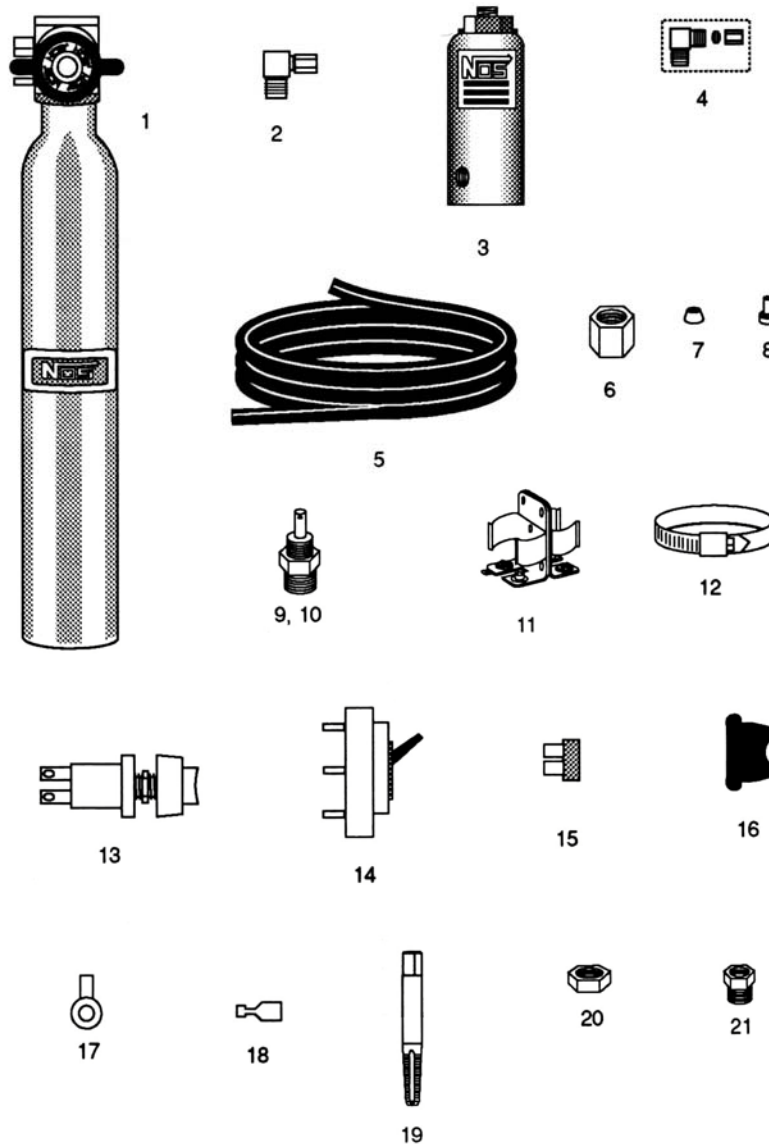
## 1.3 Kit Components

Before beginning the installation of your NOS kit, compare the components in your kit with those shown in Figure 1, and listed in Table 2. If any components are missing, please contact NOS Technical Support at 1-866-GOHOLLEY.

**Table 1 Sneaky Pete System Parts List**

Item	Description	Quantity	NOS P/N
(1)	10-ounce Nitrous Bottle	1	14700NOS
(2)	4AN Female X 1/8" NPT Male 90° Swivel Filter	1	17984NOS
(3)	Nitrous Powershot Solenoid	1	16020NOS
(4)	1/8" NPT x 1/8" 90° Compression Fitting	1	16434NOS
(5)	1/8" Poly Line 10 feet	1	16255NOS
(6)	3AN x 1/8" B-Nut (Blue)	1	17540NOS
(7)	1/8" Cone Ferrule	2	16404NOS
(8)	Funnel Jet	1	13755-20NOS
		1	13755-22NOS
		1	13755-24NOS
(9)	Adjustable Spray Nozzle	1	13655-SNOS
(10)	Adjustable Nozzle 90°	1	13656-SNOS
(11)	Battery Bracket	1	15607NOS
(12)	Bottle Bracket (Hose) Clamp	2	16240L-SNOS
(13)	Activation Pushbutton	1	15610NOS
(14)	Arming Switch	1	15602NOS
(15)	10 AMP Fuse	1	15893-10-S
(16)	Fuse Holder	1	208R1
(17)	3/16" Ring Terminal	3	15881-SNOS
(18)	Spade Connector	5	15885B-SNOS
(19)	1/16" NPT Tap	1	15990NOS
(20)	Nozzle Mounting Nut	1	13713-SNOS
(21)	Nozzle Mounting Collar	1	13715-SNOS

Figure 1 Sneaky Pete System Components



## Chapter 2 Kit Installation

### 2.1 Bottle Orientation

The 10 ounce bottle included with this kit does not use a siphon tube. For proper operation, the bottle should be mounted inverted, with the valve at the bottom and placed in a location that provides easy access to the nitrous bottle valve.

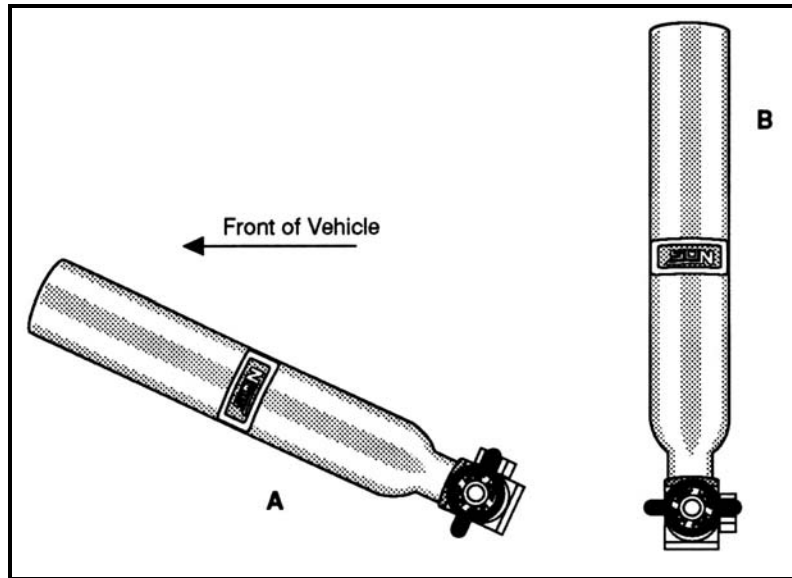
**NOTE:** The nitrous solenoid is mounted directly to the outlet port of the nitrous bottle valve. When selecting a mounting location, leave clearance for the nitrous solenoid.

### 2.2 Solenoid Mounting

**NOTE:** Numbers in parentheses ( ) refer to the parts list/ assembly drawing number for the component. Figure 3 shows the installation assembly for the Sneaky Pete System Kit.

1. Apply Teflon past to the male pipe threads on the 1/8 NPT x 4AN 90° Swivel Filter Fitting (2). Install the fitting in the inlet port of the nitrous solenoid (3).
2. Install the 1/8 NPT x 1/8" 90° Compression Fitting (4) in the outlet port of the nitrous solenoid.
3. Install the solenoid assembly on the outlet port of the nitrous bottle valve (1).

**Figure 2 Nitrous Bottle Mounting Orientation**



### **2.3 Bottle Mounting Instructions**

The majority of Sneaky Pete kits are used in applications where the installer/user desires the nitrous oxide cylinder to be mounted out of sight. As such, no formal mounting bracket(s) are included with this kit. Two large hose clamps (12) are provided and can be used to secure the nitrous oxide cylinder. Regardless of mounting apparatus, the installer must securely mount the bottle in a location where it cannot come loose in an accident.

The mounting location should be such that it allows easy access to the nitrous bottle valve and nitrous solenoid.

### **2.4 Discharge Nozzle Mounting**

1. Select a mounting location for the Adjustable Jet Spray Nozzle (9, 10). The nozzle may shoot directly into the intake manifold, air cleaner, or into the intake air path.

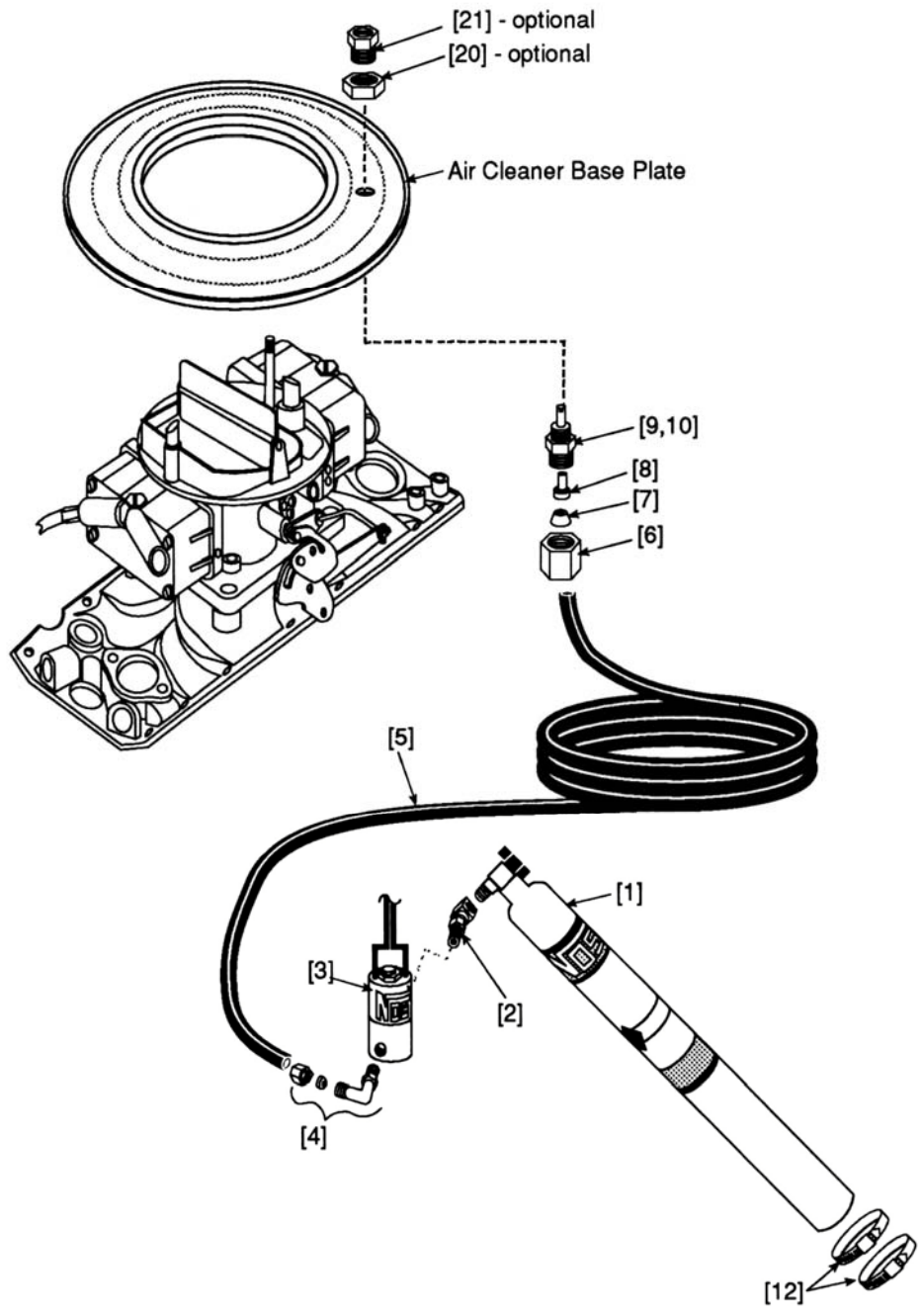
**NOTE:** Two nozzles are included in this kit: one axial flow and one 90°. Use the unit that is best suited to your desired mounting location.

2. A. Mounting surfaces 1/8" to 3/8" thick: Drill and tap the mounting surface with 1/4" drill and 1/16" NPT Tap (19).  
B. Mounting surfaces less than 1/8" thick: Drill a 7/16" hole through the mounting surface.  
C. Install the Nozzle Mounting Nut (20) and Nozzle Mounting Collar (21), as shown in Figure 3.
2. Apply Teflon past to the threads of the Adjustable Spray Nozzle (9, 10). Install the nozzle into the tapped hole, or nozzle-mounting collar.

**IMPORTANT!** If the nozzle is placed directly in the intake manifold, be careful in selecting a mounting location that will provide equal distribution of nitrous oxide to all cylinders.

**CAUTION:** Two methods of installing the Adjustable Jet Spray Nozzle are available. Using either method, the mounting surface (air cleaner, intake, etc. ;) must be removed from the vehicle prior to drilling to prevent contaminating the engine.

Figure 3 Sneaky Pete Assembly Drawing

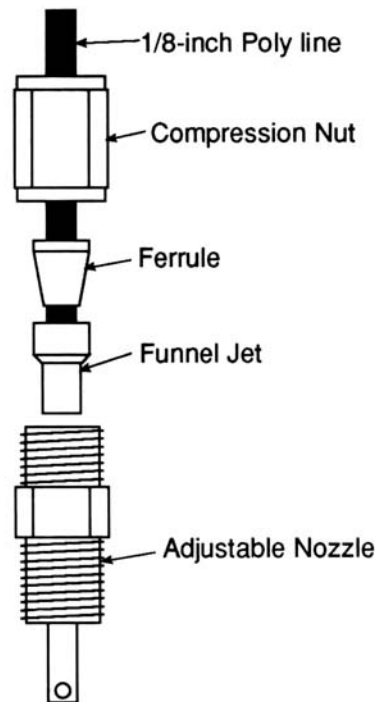


### 2.5 Nitrous Feed Line Mounting

1. Rout the 1/8" Poly line (5) along the desired route. Ensure that the path is clear of exhaust system, suspension, steering, wheels, electrical lines, and components.
2. Remove the compression nut and ferrule from the solenoid outlet port fitting.
3. Install the compression nut and ferrule on the 1/8" Poly line.
4. Install the Poly line in the outlet port of the nitrous solenoid fitting. Tighten the compression nut. **Do not overtighten the compression nut. Doing so will collapse the Poly line.**
5. Cut the Poly line to the desired length.
6. Install the 3AN x 1/8" Blue B-Nut (6) and the 1/8" Cone Ferrule (7) on the 1/8" Poly line. See Figure 4—Jet and Nozzle Configuration.



Figure 4 Jet and Nozzle Configuration



### 2.6 Electrical System Installation

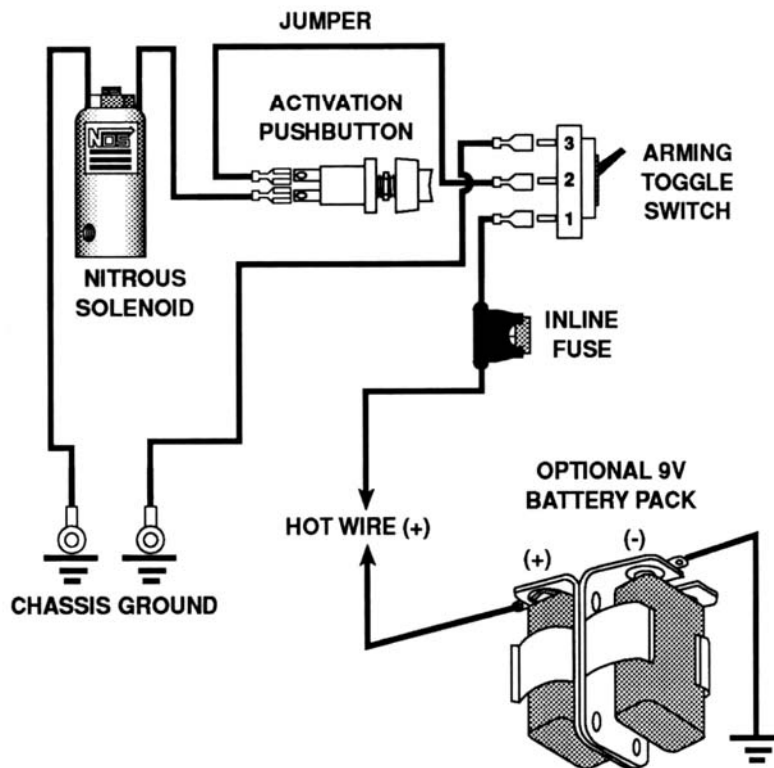
In many applications where NOS Kit P/N 5029 is used, the operator/installer chooses to hide the entire installation, or make it quickly/easily removable. To facilitate this, a 9V Battery Pack (11) is supplied with the kit.

The nitrous system can be triggered using either the vehicle's standard electrical system or the NOS supplied 9V battery pack.

**NOTE:** The life of 9V batteries will be greatly reduced as opposed to standard usage (flashlights, etc.).

Follow the diagram in Figure 5 for electrical system installation.

Figure 5 Wiring Schematic



## Chapter 3 Preparing for Operation

**NOTE:** Steps 1 and 3 are required only if the discharge nozzle is plumbed directly into the intake manifold or intake ducting.

1. Start the engine.
2. Open the nitrous bottle valve. Examine the fittings for leaks (engine speed should not increase if engine is running).
3. Set the engine speed to approximately 2500 RPM.
4. Briefly trigger the nitrous solenoid. Nitrous should discharge from the spray nozzle (engine speed should increase if the engine is running). If not refer to Appendix A, Troubleshooting Guide.
5. ENJOY!

## Chapter 4 Routine Maintenance

### 4.1 Nitrous Solenoid Plunger

#### 4.1.1 General Information

The seals used in NOS nitrous solenoid plungers are constructed from materials that are designed to be used with nitrous oxide. When kept free from fuel contaminants or from overpressurization, they should provide trouble free performance. You should periodically (after every 20-30 pounds of nitrous usage) examine the seal in the nitrous solenoid plunger.

Due to the Sneaky Pete System being a wet manifold style nitrous kit, the nitrous solenoid plunger will get exposed to fuel vapors. This is unavoidable. Fluctuations in the intake manifold pressure due to opening and closing of the throttle induce flow into and out of the NOS nozzle when the NOS system is not in use. Long term exposure of the nitrous solenoid plunger seal to the fuel vapors will result in swelling of the plunger seal. This will reduce the nitrous flow (causing an excessively rich nitrous/fuel condition and a loss of power).

The seals used in NOS nitrous solenoid plungers are designed to work at pressures up to 1100 psi. Exposing the plunger to excessive pressure (whether the vehicle is sitting or in-use) can result in the seal in the plunger swelling or in extreme cases disintegrating.

**NOTE:** The seals are designed so that if they fail due to overpressurization, they will not leak, the valve will just fail to flow nitrous oxide.

Swelling of the nitrous solenoid plunger seal will reduce nitrous flow (causing an excessively rich nitrous/fuel condition and a loss of power).

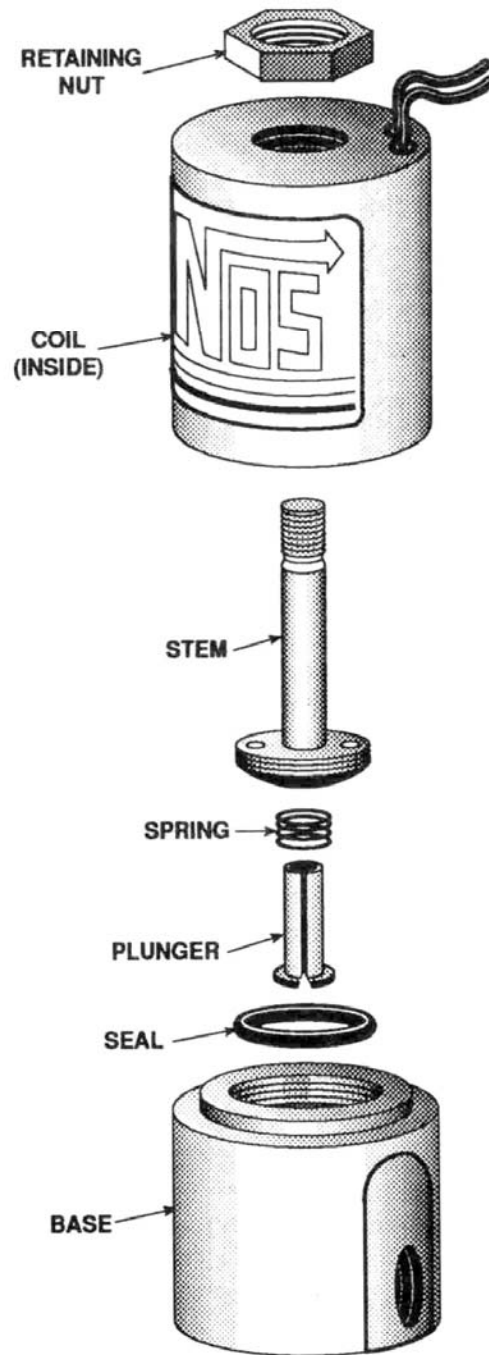
#### 4.1.2 Nitrous Solenoid Plunger Disassembly and Inspection

1. Close the valve on the nitrous bottle.
2. Empty the main nitrous supply line.
3. Remove the retaining nut from the nitrous solenoid.
4. Remove the coil and housing from the nitrous solenoid base.
5. Unscrew the stem from the nitrous solenoid base. Do this by double nutting the stem, or by using a solenoid stem removal tool (NOS P/N 16665-SNOS). **Do not use pliers on the solenoid stem. Damage to the stem will result.**
6. Remove the stem, spring, and plunger from the solenoid base.
7. Examine the plunger seal for swelling. The seal surface should be flat, except for a small circular indentation in the center of the seal;

A fuel-contaminated seal will protrude from the plunger and be dome-shaped. A fuel-contaminated seal may return to its original shape if left out in the fresh air for several days. It may then be returned to service.

A seal, which has been overpressurized, may be dome-shaped, or the sealing surface may be flat with the seal protruding out of the plunger. A dome-shaped seal may return to its original shape if left out in the fresh air for several days. It may then be returned to service. A seal, which is flat, but protrudes from the plunger body has probably failed internally and should be replaced.

Figure 6 Exploded View of a Typical Solenoid



## Appendix A Troubleshooting Guide

The troubleshooting chart on the following pages should help determine and rectify most problems with your installed NOS system. If you still need assistance determining or fixing problems, call the NOS Technical Support at 1-866-GOHOLLEY.

PROBLEM	POSSIBLE CAUSES	DIAGNOSTIC PROCEDURE	CORRECTIVE ACTION
No change in performance when system is activated.	In-line fuse blown.	Check fuse.	Replace fuse.
	System wired incorrectly.	Compare nitrous wiring to schematic (Figure 5).	Wire system per instructions.
	Loose ground wire(s).	Connect 12V test light to battery (+) terminal. Check for continuity at grounds noted in schematic.	Tighten/repair loose ground(s).
	No power to arming switch.	With vehicle ignition ON, connect 12 V test light battery (-) terminal. Check for power at pole #1 on the arming switch.	Repair wiring.
	Malfunctioning pushbutton.	Trigger pushbutton. Check for continuity across terminals.	Replace pushbutton.

## NOS Technical Support

**Phone: 1-866-GOHOLLEY**

**Fax: 1-270-781-9772**

**For online help, please refer to the Tech Service section of our website: [www.holley.com](http://www.holley.com)**