



2.0L Ford Focus Dry Nitrous Kit

Kit Number 05186NOS



OWNER'S MANUAL

P/N 199R10285

CONGRATULATIONS on purchasing your NOS Nitrous Oxide Injection System! Your system is assembled with 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.

NOTICE: Installation of Nitrous Oxide Systems Inc. products signifies that you have read this document and 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.

Kit Number 05186NOS has received an Executive Order Exemption from the California Air Resources Board (EO #D-266). This exemption means your vehicle will be "Smog Legal" in all 50 states.

NOTICE: The NOS Kit Number 05186NOS is not intended for use on hatchback type vehicles without the use of NOS P/N 16160NOS (External Aluminum Blow-Down Tube) and 16166NOS (Racer Safety Pressure Relief Cap).

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 the 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

IT IS NOT LEGAL TO ENGAGE NITROUS OXIDE INJECTION SYSTEMS ON PUBLIC ROADS OR HIGHWAYS. NITROUS OXIDE INJECTION SYSTEMS ARE ONLY TO BE ENGAGED DURING SANCTIONED COMPETITIONS OR RACING EVENTS.

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.

Some Focus ECUs are programmed with a rev limiter and a MPH speed limiter. If the vehicle reaches top speed with the nitrous oxide injection system engaged, severe engine damage may result.

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 used for content identification.

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.

Never use an open flame to warm up nitrous bottles, as an explosion may result.

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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

- Allow nitrous oxide to come in contact with skin. Severe frostbite can occur.
- 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.
- 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

Kit Number 05186NOS is intended for use on the 2.0L 2 valve "split-port" & 4 valve "Zetec" Ford Focus.

Jetting information is included for increases of 35 and 50 HP at the flywheel.

This kit is designed for vehicles that are completely stock or have minor changes such as an air filter, headers, exhaust, and a throttle body change. It is not designed for engines with major changes, such as heavily-ported cylinder heads and camshafts. It is designed for vehicles with stock injector and fuel pump combinations. The stock spark plugs need to be changed to a colder plug. See Chapter 3 for spark plug information.

Kit Number 05186NOS flows all fuel through the stock Ford injectors. Proper fuel flow is accomplished by altering fuel injector timing and pressure. Do not use with larger than stock injectors.

Driveability, fuel economy, and exhaust emission should not be affected under normal (part throttle) vehicle operation.

1.2 System Requirements

When used correctly, Kit Number 05186NOS is designed to work with stock Ford internal engine and driveline components. If the transmission or clutch is worn, the added power may make the situation worse.

1.3 Kit Components

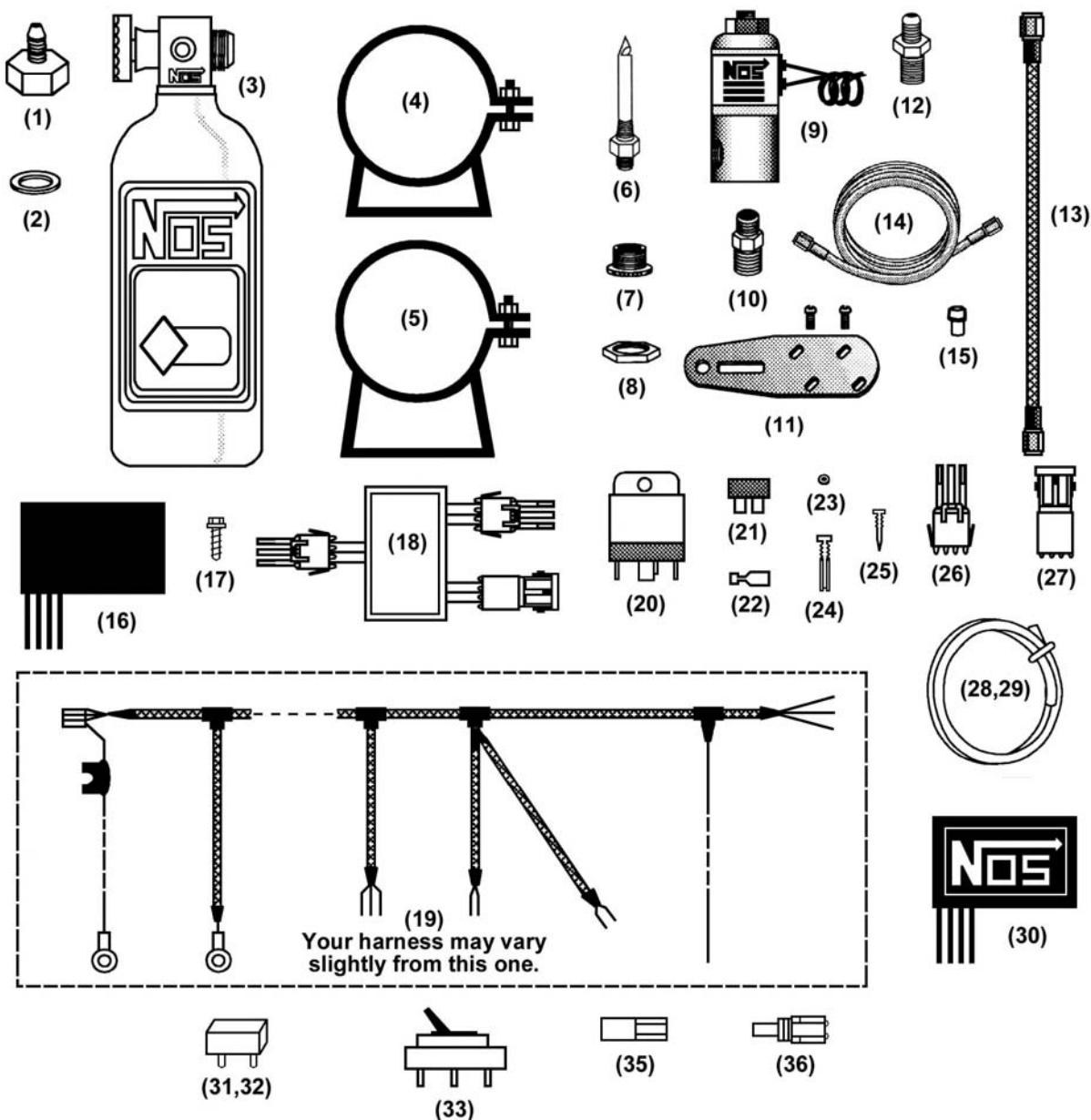
Before beginning the installation of your NOS kit, compare the components in your kit with those shown in Figure 1, and listed in Table 2. If any components are missing, please contact NOS Technical Support at 1-866-GOHOLLEY.

Table 1 Kit Number 05186NOS Parts List

Item	Description	Qty	NOS P/N
(1)	Bottle Nut Adapter	1	16220NOS
(2)	Bottle Valve Washer	1	16210NOS
(3)	#10 Nitrous Bottle	1	14745NOS
(4)	Bottle Mounting Bracket, Short	1	14126-SNOS
(5)	Bottle Mounting Bracket, Long	1	14127-SNOS
(6)	Spray Nozzle	1	13500NOS
(7)	Spray Nozzle Adapter	1	13715-SNOS
(8)	Spray Nozzle Adapter Nut	1	13713-SNOS
(9)	Nitrous Solenoid Assembly	1	283R514A
(10)	Nitrous Filter Fitting	1	15570NOS
(11)	Solenoid Mounting Bracket w/ screws	1	16505NOS
(12)	4AN-1/8 NPT Adapter	1	17960NOS
(13)	12" 3AN Hose (Blue)	1	15340NOS
(14)	14 ft. 4AN Nitrous Supply Hose (Blue)	1	15295NOS
(15)	#28 & #32 Flare Jets	1	13750-28 & -32NOS
(16)	Enrichment Controller	1	200R525A
(17)	Sheet metal Screws	5	-----
(18)	WOT Switch	1	15629-SNOS
(19)	Main Wiring Harness	1	271R925A
(20)	30 Amp Relay	1	15618NOS
(21)	20 Amp Fuse	1	15893-20-SNOS
(22)	Male Spade Connector	1	15886B-SNOS
(23)	Packard Seal	8	27R785
(24)	Packard Pin (Female)	4	204R239
(25)	Packard Pin (Male)	4	204R355
(26)	3-Pin Packard Connector (Male)	1	204R358
(27)	3-Pin Packard Connector (Female)	1	204R359
(28)	22 Ga. Yellow Wire	1	1822-Y-RNOS
(29)	22 Ga. Red Wire	1	1822-R-RNOS
(30)	1 Cylinder Window Switch	1	200R527A
(31)	5000 RPM Chip	1	15800-50NOS
(33)	11200 RPM Chip	1	15800-112NOS
(32)	Arming Switch	1	15602NOS
(34)	Misc. Terminals and Connectors	---	-----
(35)	1 Pin Packard Connector (Male)	1	204R535
(36)	1 Pin Packard Connector (Female)	1	204R536

For bottle refill information: 1-800-99-REFILL

Figure 1 Kit Number 05186NOS Component Identification



NOTE: Some parts may slightly differ in appearance than those in your NOS kit.

Chapter 2 Kit Installation

2.1 Bottle Mounting Instructions

Accurate calibration of your NOS nitrous system depends on the bottle remaining at a stable temperature. Mount the bottle away from heat sources, such as the engine compartment or exhaust system, and away from windows, where the bottle is exposed to direct sunlight.

2.2 Bottle Orientation

Bottle placement is critical to the performance of your NOS nitrous system. It is important to understand how the bottle valve and siphon tube are assembled to properly orient the bottle in your vehicle and ensure that it picks up liquid nitrous while undergoing acceleration. All nitrous bottles are assembled so that the bottom of the siphon tube is at the bottom of the bottle and opposite the bottle label (Figure 2).

Whenever the bottle is mounted in a lay-down position, the valve handle must be towards the front of the vehicle with the label facing up (Figure 3A).

If the bottle is mounted vertically, the valve handle and label must face toward the front of the vehicle (Figure 3B). This orientation will position the siphon tube at the back of the bottle where the liquid N₂O will be during acceleration.

WARNING! DO NOT attempt to remove the siphon tube without completely emptying the bottle of all nitrous and pressure.

A bottle mounted upside-down must have the siphon tube removed before use (Figure 3C). Non-siphon bottles can be specially ordered from NOS.

If the bottle must be mounted parallel to the axles of the vehicle (sideways), the valve handle and label must be angled at approximately 45° toward the front of the vehicle (Figure 3D). This orientation will position the siphon tube toward the rear of the bottle.

NOTE: When using a bottle with a siphon tube, the tall bracket should be at the valve end of the bottle and the short bracket at the bottom (Figure 3E).

The most efficient mounting is the lay-down position (Figure 3A) with the valve handle toward the front of the vehicle. This position allows the greatest amount of liquid to be used before the siphon tube begins to pick up gaseous nitrous oxide.

Find a position in the trunk of your Focus that meets your personal preference. Make sure that it meets one of the guidelines shown in Figure 3.

Figure 2 Nitrous Bottle Siphon Tube Orientation

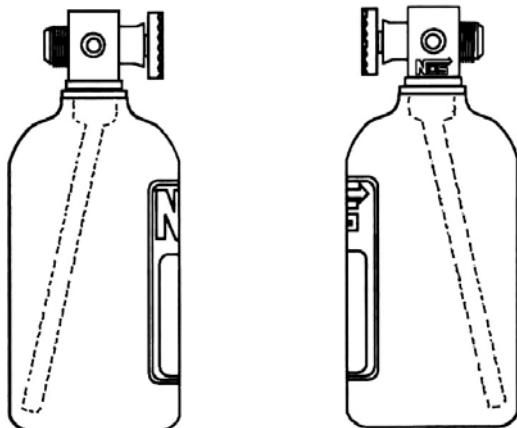
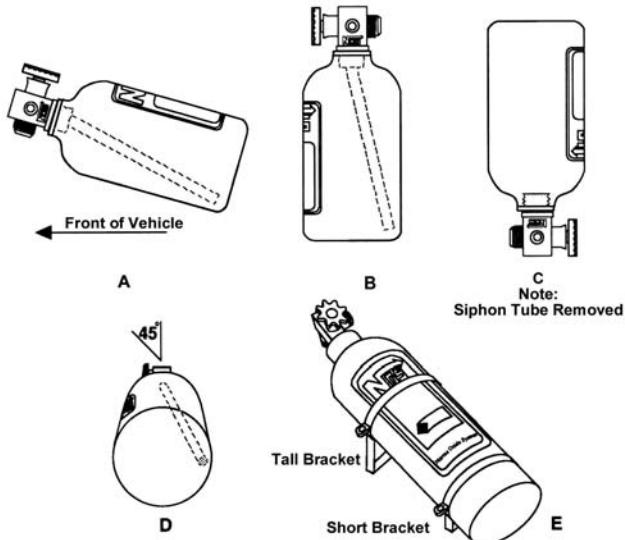


Figure 3 Nitrous Bottle Mounting Orientations



2.3 Bottle Installation

- After you have determined the location and orientation of the nitrous bottle, use the following procedure to install the bottle:

NOTE: Numbers in parentheses () refer to the parts list (Table 1) and component identification drawing (Figure 1).

- Install the bottle nut adapter (1) and washer (2) on the nitrous bottle (3), and tighten securely.
- Slip the bottle mounting brackets (4 & 5) onto the nitrous bottle, as shown in Figure 3E.

CAUTION! Select a bottle mounting location that will locate the holes to be drilled away from the fuel tank, fuel lines, electrical wires, etc. Failure to do so may result in expensive component damage.

- Use the assembled bottle/bracket unit as a pattern to mark for hole drilling. Drill four 11/32" holes in the mounting surface for the bottle bracket bolts.
- Mount the brackets securely to the surface (recommended minimum of 5/16" bolts).
- Secure the nitrous bottle in the mounting brackets and tighten the bracket clamps.

2.4 Nitrous Nozzle Installation

1. Figure 4 shows the recommended placement of the nitrous nozzle.



Figure 4 Typical Nozzle Location

2. Remove the air duct.
3. Drill a 7/16" diameter hole as shown in the photo above.
4. Insert the spray nozzle adapter (7) into the 7/16" hole with the head on the inside of the duct. There are two 7/16" washers included in the kit. Install them between the spray nozzle adapter and the spray nozzle adapter nut. If they aren't used, the spray nozzle may pull out of the air duct.
5. Use Loctite or a similar compound on the spray nozzle adapter threads and securely tighten the spray nozzle adapter nut (8) to the spray nozzle adapter.
6. Insert the spray nozzle (6) into the spray nozzle adapter (7). Make sure it is pointed in the proper direction of air flow to the throttle body! This is important for best operation.
7. Remove all debris from the air duct, using compressed air or a similar means.
8. Reinstall the air duct.

2.5 Solenoid Mounting

CAUTION! Do not overtighten the vise in the following procedure, or the solenoid will be damaged.

1. Clamp the nitrous solenoid (9) in a bench vise.
2. Thread the straight 1/8" NPT nitrous filter fitting (10) into the solenoid inlet port. (This fitting has a filter screen in it). Use a liquid Teflon thread sealer. Be very careful not to get any Teflon sealer in the solenoid.
3. Install the straight 1/8" NPT fitting (12) in the outlet of the nitrous solenoid. Use a liquid Teflon thread sealer.
4. Attach the solenoid mounting bracket (11) to the solenoid (9) with the screws provided. A bolt on the engine can be used to mount the bracket (Figure 5).



Figure 5—Use an existing bolt on the engine for the solenoid bracket.

2.6 Main Nitrous Feed Line Mounting

CAUTION! Ensure that the nitrous supply line does not interfere with the exhaust system, suspension, steering, wheels and tires, electrical lines, and components.

1. Examine the underbody of the vehicle to determine the nitrous supply line route.
2. Route the nitrous supply line (14) along the proposed route. Keep the line away from the exhaust and moving components. Make sure the line is securely fastened. Rubber coated clamps or nylon tie wraps are a good method for this.
3. Connect the main nitrous supply line (14) to the solenoid inlet port.

2.7 Solenoid / Spray Nozzle Nitrous Line Connection

1. Attach the 12 inch braided hose (13) to the solenoid outlet. Tighten securely.
2. Place the appropriate flare jet (15) in the spray nozzle inlet. See Chapter 3 for jetting.

WARNING! Failure to install the nitrous jet will result in catastrophic engine damage!

3. Connect the open end of the 12" 3AN hose (13) to the spray nozzle (6) and tighten securely. Make sure that the direction of the nitrous nozzle is not changed when the line is tightened.

2.8 Fuel Enrichment Module Installation

1. Disconnect the negative terminal of the battery.
2. Select the mounting location for the Enrichment Controller (16). The firewall is a good location. It can be mounted with a sheet metal screw or a tie-wrap can be used to attach it to an existing mount. See Figure 4.
3. Route the yellow and green wires from the Enrichment Controller to the fuel pressure sensor. Figure 6 shows its location. Remove the electrical connector from the sensor. The color code of the wiring harness maybe different from model to model. Refer to Fig. 6B to identify the correct wire to complete installation.



Fig 6A Ford Focus Fuel Pressure Sensor Location

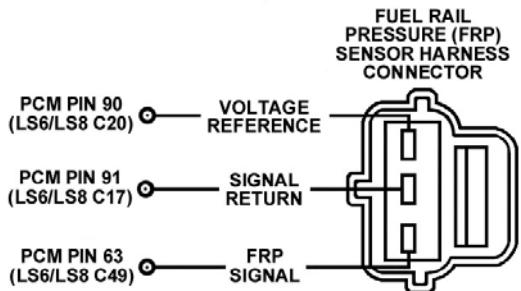


Figure 6B—Fuel Pressure Sensor Connector Electric Terminal Layout

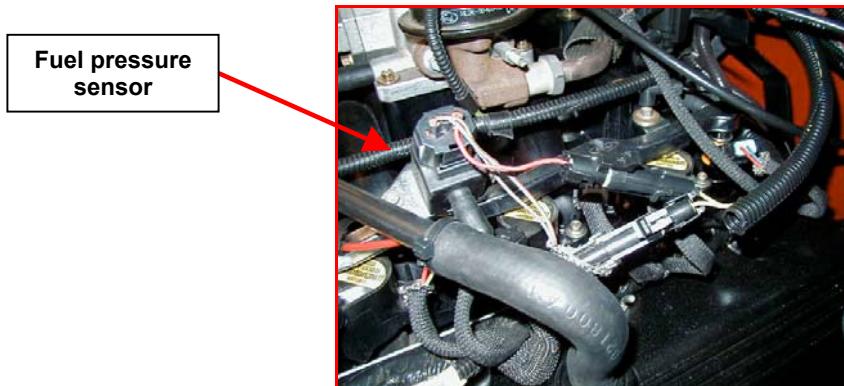


Figure 6C—Single-Pin Weatherpack Connector Installation (4.6L V8 shown, all vehicles similar)

4. Cut the **FRP Signal** wire (reference to PCM Pin 63) for the fuel pressure sensor about halfway between the sensor and where the wire goes into the harness. Make sure there is enough wire length to properly terminate connectors.
5. Install a male single-pin weatherpack connector on the FRP Signal wire on the side that connects to the fuel pressure sensor connector. Install a female single-pin Weatherpack connector on the FRP Signal wire on the side that connects to the main harness. It is recommended to use Packard Connector Tool (P/N 12814254) to crimp the connectors. If this tool is not available, it is recommended to carefully crimp the connector pins on with universal crimping pliers, and then solder the wire to the pin.

NOTE: Refer to Figure 6C for a demonstration of how to perform this installation.

6. After the wires are terminated, plug the mating ends from the fuel enrichment switch into the fuel pressure sensor harness wires.

WARNING! If the fuel enrichment switch wires are not properly attached, severe engine damage may result.

2.9 Electrical System

Use the following procedures for the electrical system installation. See Figure 7 for the electrical wiring schematic.

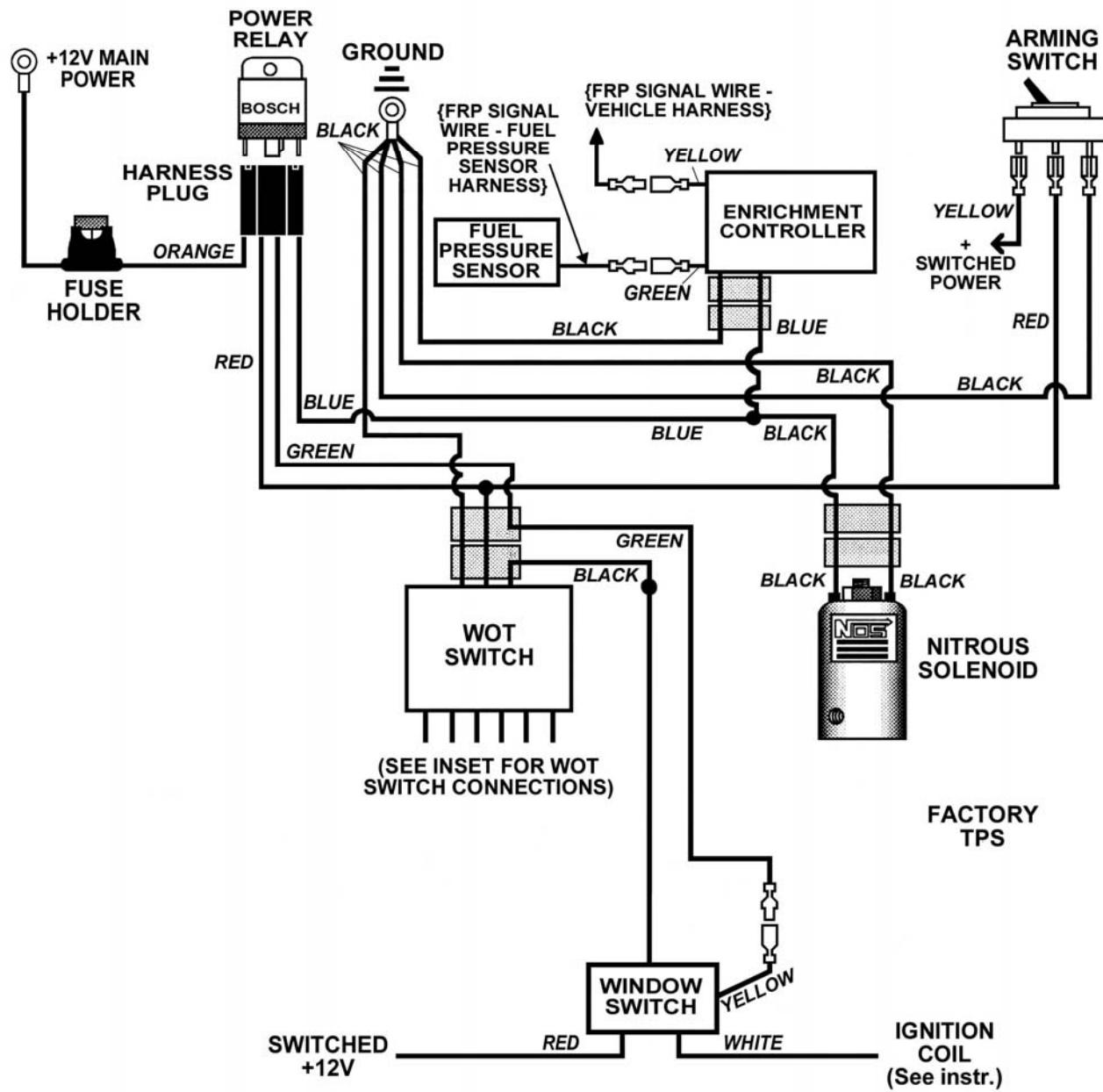


Figure 7 Wiring Schematic

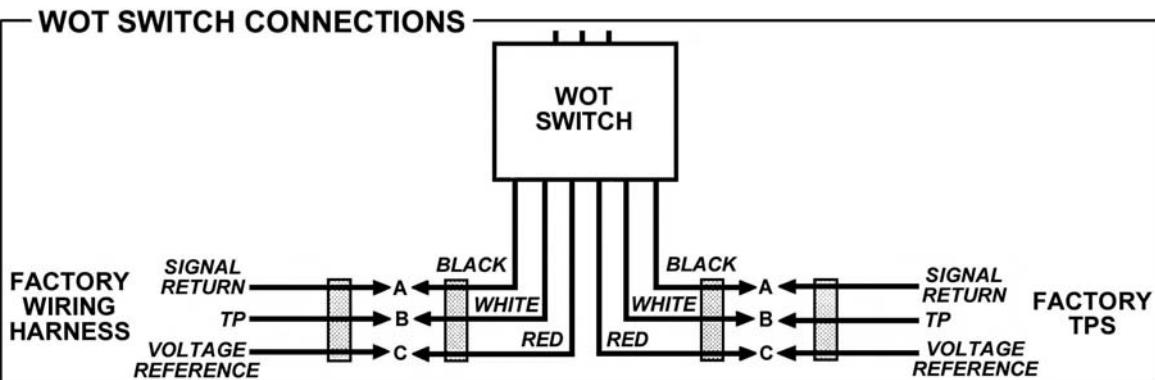


Fig 7A Wide-Open Throttle Switch Wiring Harness Layout

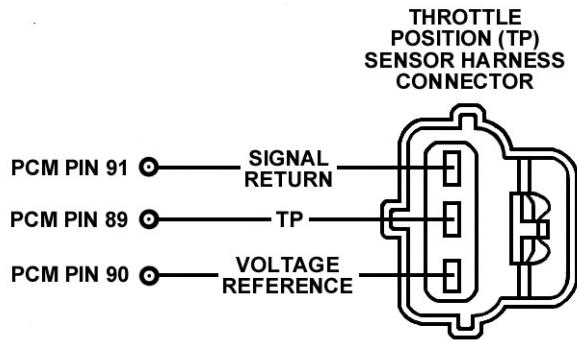


Figure 7B Throttle Position Electric Connector Terminal Layout

2.9.1 Wide-Open Throttle (WOT) Switch Installation

1. Mount the WOT Switch (18) in a convenient location. The inner fenderwell is a good location. Use the supplied sheet metal screws to mount it, if desired.
2. Cut the three wires going to the TPS plug half way between the TPS and where the wires go into the harness. The factory insulation will have to be trimmed on both sides of the cut before new connectors can be terminated. The color code of the wiring harness maybe different from model to model. Refer to Fig. 7B to identify the correct wire to complete installation.
3. Install the 3-pin Female Connector (27) with the Female Packard Pins (24) and the Packard Seals (23) on the TPS lead from the factory wiring harness. See Figure 7A for wiring definition and Figure 8 for Packard Connection Exploded View. It is recommended to use Packard Connector tool (PN 12814254) to crimp the connectors. If this tool is not available, it is recommended to carefully crimp the connector pins on with pliers, and then solder the wire to the pin.

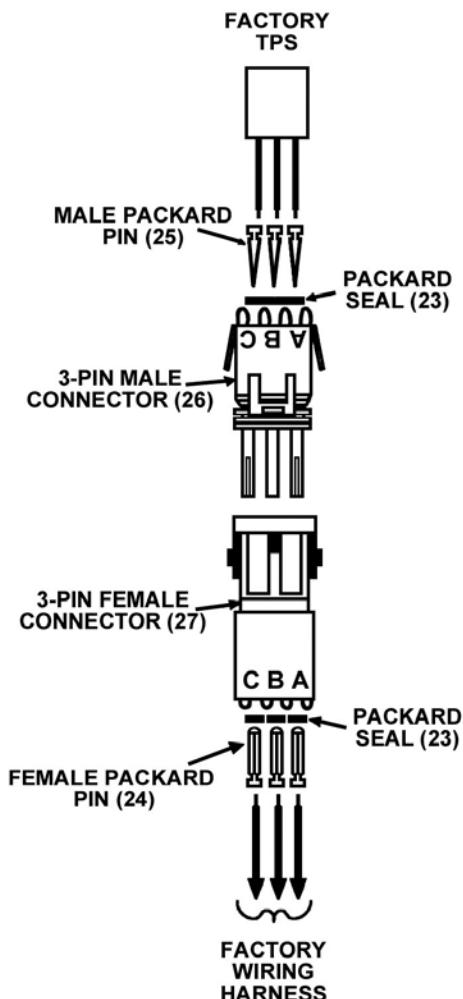


Figure 8 Packard Connection Exploded View

4. Install the 3-pin Male Connector (26), Male Packard Pins (25), and the Packard Seals (23) on the open end of the factory TPS plug lead. See Figure 7 for wiring codes and Figure 8 for Packard Connection Exploded View.
5. Connect the male plug from the WOT switch (18) to the female plug on the factory wiring harness.
6. Connect the female plug from the WOT switch (18) to the male plug on the factory TPS.

2.9.2 Arming Switch Installation

The arming switch (33) needs to be mounted in the interior. Determine a position that is desirable. Drill a hole and mount the switch.

2.9.3 Harness Routing



Figure 9 Typical Location of Power Relay



Figure 10 Typical Power Wire Connection to Battery

1. Uncoil the main wiring harness (19) and lay the unit out in the vehicle engine bay.
2. Mount the 30 amp relay socket securely to the vehicle. Figure 9 shows the place where it is designed to mount. Drill a 1/8" pilot hole and use the supplied sheet metal screws to mount the relay.
3. Attach the relay (20) to the socket.
4. Install the 20 amp fuse (21) in the fuse holder.
5. Terminate the orange main power wire with a round ring terminal. Connect to fuse box (12+) main power supply terminal or battery Fig. 10.
6. Terminate and connect the black main ground wire with a round ring terminal. Use one of the existing vehicle grounds.
7. Route the nitrous solenoid and fuel enrichment connectors to the passenger side of the engine compartment. They are designed to be routed to the across the back of the firewall.
8. Connect the TPS switch wires to the TPS module harness.
9. Part of the harness has a red and black wire that is for the arming switch. It needs to be routed inside the vehicle. The best place to route this through is the rubber boot for the main vehicle harness located near the master cylinder on the firewall. Be careful not to damage the stock harness.

HINT: A little extra time spent laying out the wiring loom at this stage will help ensure an attractive finished product. Carefully lay out the wiring harness in your car along the path you intend it to run. Ensure that all leads from the loom reach the components that they are intended to connect to. Ensure that the loom cannot contact engine exhaust, accessory drives, vehicle suspension, or braking components.

10. Secure the wiring harness to the factory harness, brackets, etc; using nylon tie wraps.

2.9.4 Solenoid Connection

1. Route the solenoid lead wires on the main wiring harness (2-pin female weather pack connector) to the nitrous solenoid (9).
2. Connect the solenoid plug to the main wiring harness.

2.9.5 Enrichment Control Module Connection

1. Route the Enrichment Controller leads on the main wiring harness (2-pin male weather pack) to the Enrichment Controller (16). They have black and blue wires. Connect them.

2.9.6 Arming Switch - Switched 12V Connection

1. Find the red and black wires that were routed into the interior. Cut them to the length they need to be to route neatly to the arming switch that was installed. Terminate them with female spade connectors. Connect the red wire to the pole marked "on accessory" on the switch. Connect the black wire to the pole marked "earth ground" on the switch. To check for 12V, reconnect the battery. Make sure there are no open fuel lines because when the ignition key is turned on, the fuel pump will come on. When done, disconnect it.
2. A length of yellow wire (28) is included in the kit. This wire should be terminated with a female spade connector and run to the arming switch. Connect it to the pole marked "supply volts". The other end runs to a 12 volt switched ignition power source.

2.9.7 Window Switch Installation

1. A window switch (30) is included with this system. A window switch allows for nitrous to only be activated in a particular RPM range. This provides two very important safety features. It allows for the nitrous to only be activated at a safe RPM level. If nitrous is activated at a very low rpm, possible engine damage can result. If the rev limiter is hit at high RPM, the nitrous will have been shut off. Hitting a rev limiter with nitrous activated can cause severe engine damage.
2. The window switch needs to be wired properly. Follow the schematic and directions in Figures 7 & 11.

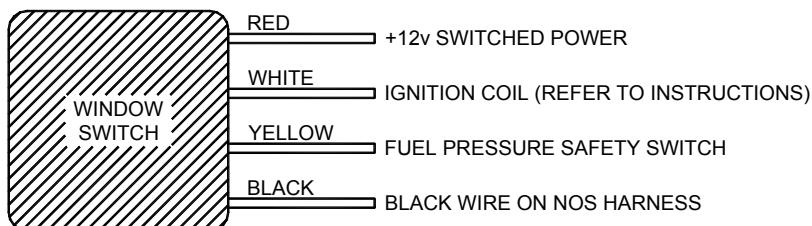


Figure 11 RPM Window Switch Wiring Harness Layout

3. Connect the red wire to a switched +12 volt ignition power source. The same source used for the arming switch can be used.
4. The white wire of the RPM window switch needs to be connected to the coil driver wire of the ignition coil pack. The ignition coil pack is supplied with a three-wire harness. Select one of the coil driver wires. This will be one of the outer wires of each harness. The positive ignition coil wire will be the middle wire on the coil pack. **Do not use this wire.** Use one of the T-tap terminals included and connect it to a coil driver wire. See Figure 12.

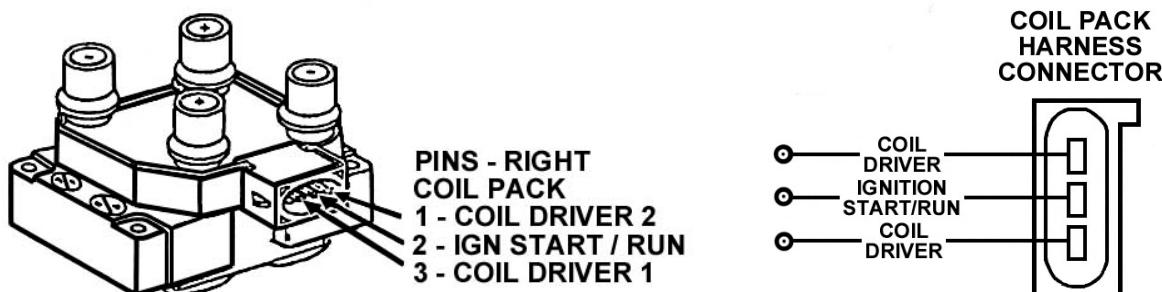


Figure 12—(Coil Pack Harness) Identification of the coil driver wire for the RPM Window switch

5. Connect the yellow wire of the RPM window switch to the green wire of the main wiring harness.

6. Connect the black wire from the RPM window switch to the black wire on the main NOS harness. This black wire is loomed with a green wire on the NOS harness.
7. Use the 5000 RPM Module Chip (31) in the “ON” socket and the 11200 RPM Module Chip (32) in the “OFF” socket.

CAUTION! This unit is supplied with the required ON and OFF RPM modules for a safe and reliable operation of the engine in your vehicle. Installation of RPM modules of different values may result in engine failure.

NOTE: To select different RPM ON & OFF values use a module that is double the selected RPM. For example, 5200 module chip = 2600 RPM or 12,000 module chip = 6000 RPM, etc.

CAUTION! The RPM window switch only protects the engine from excess RPM conditions. Do not exceed the vehicle's top speed limit. Engine failure might occur if you exceed the top speed limit. Check the vehicle manual, vehicle maintenance manual, or your car dealer on the top speed limit of your specific vehicle.

2.10 Testing for Proper Operation without Nitrous Bottle Hooked Up

1. After the installation is complete, the system should be checked for proper operation without the nitrous bottle hooked up or opened. Proper operation includes nitrous solenoid activation, window switch operation, and added fuel enrichment.
2. To test, drive the vehicle to an area that is free from traffic. Turn the nitrous enable switch on. From a stop, floor the throttle. Test for the following:
 - A. The nitrous solenoid “clicks” on at 2600 rpm and at wide-open throttle only.
 - B. At 2600 rpm and wide-open throttle the engine should add extra fuel. The engine should bog down and emit black smoke out of the exhaust when this occurs (because there is no nitrous being added).

If the steps above do not occur properly, do NOT hook up or open the nitrous bottle. See the troubleshooting section or call the NOS tech line.

2.11 Preparing for Operation

1. Turn on the vehicle’s ignition.
2. Start the engine.
3. Open the nitrous bottle valve.

NOTE: There should be no change in the engine idle speed or exhaust tone. If either changes, refer to Appendix A, Troubleshooting Guide.

4. Inspect the nitrous lines and fittings for leaks.
5. When you want to activate the nitrous, turn on the arming switch and it should light up. When the throttle is pressed wide open, the nitrous will automatically activate. The nitrous pressure should always be between 900 and 1000 PSI. If it is lower than this, lesser performance will result.

NOTE: The traction control MUST be turned OFF when using the nitrous or engine damage may result.

6. ENJOY!

Chapter 3 Tuning

Your NOS Kit Number 05186NOS is factory set to work with stock Ford 2.0L engine settings with the spark plug changes below. For maximum performance, follow the settings listed in Table 2.

“Stock” indicates a vehicle that is completely stock with the exception of small bolt-ons such as an air filter.

This kit is not for use with vehicles with substantial modifications such as engines with ported cylinder heads and performance camshafts. The kit is designed for vehicles with stock injectors and fuel pump.

For vehicles that will only see occasional nitrous use and 35 HP nitrous settings, use a spark plug one step colder. For vehicles that will see a lot of nitrous use, or 50 HP settings, use a spark plug that is two steps colder.

DO NOT use fuel with an octane of less than 92. If 92+ octane fuel is not available, use an octane booster.

Table 2 Tuning Information for NOS Kit Number 05186NOS

Configuration	N ₂ O Jetting	Fuel Quality	Ignition Timing	Plugs
35 HP Stock	#28	92+ Octane	Stock	1-2 steps colder than stock
50 HP Stock	#32	92+ Octane	Stock	2 steps colder than stock

Spark Plug Information: It is highly recommended NOT TO USE platinum spark plugs. If copper-core colder range spark plugs are not available for your engine application, try 1-2 steps colder iridium plugs.

<u>Autolite PN</u>	<u>Engine Application</u>	<u>Steps Colder than Stock</u>
5143	2.0L Split Port	1

NOTE: NOS is unaware of any alternate spark plugs for the 4 valve "Zetec" engine at this time. Factory spark plugs are acceptable for use with this kit.

Appendix A Troubleshooting Guide

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

PROBLEM	POSSIBLE CAUSES	DIAGNOSTIC PROCEDURE	CORRECTIVE ACTION
Engine runs rich when system is activated.	Bottle valve not fully opened.	Check bottle valve.	Open valve fully.
	Plugged nitrous filter.	Inspect filter.	Clean/replace filter.
	Low bottle pressure.	Check bottle temperature.	Set bottle temperature to 75° to 85°F.
	Inadequate nitrous supply.	Weigh bottle.	Fill bottle. 1-800-99-REFILL
	Loose nitrous solenoid wiring.	Inspect the solenoid wiring.	Repair wiring.
	Malfunctioning nitrous solenoid.	Disconnect solenoid / injector plug. Connect 12V test light to battery (-) terminal. Turn arming switch ON. Manually set microswitch ON. Use test light probe to check for continuity at blue wire on power relay.	Replace solenoid. <i>* Below 70°F ambient, NOS Bottle Heater P/N 14164 is recommended to maximize performance.</i>
No change in performance when system is activated.	System wired incorrectly.	Compare nitrous wiring to schematic (Fig. 7).	Wire system per instructions.
	Loose ground wire(s).	Connect 12V test light to battery (+) terminal. Check for continuity at grounds noted in wiring schematic (Fig. 7).	Tighten/repair loose ground(s).
	Malfunctioning arming switch.	With vehicle ignition ON, connect 12V test light to battery (-) terminal. Check for power at red wire on power relay switch.	Check fuse. Check wiring harness and ground connections. Replace arming switch.
	Malfunctioning power relay.	To test the power relay: close nitrous bottle and disconnect nitrous solenoid. Connect the green wire of the main harness to ground. Connect 12V test light to battery (-) terminal. Switch on ignition key. Turn arming switch ON. Use test light probe to check for continuity at blue wire on power relay. Light should illuminate.	Check fuse. Check wiring harness and ground connections. Replace power relay.
	Malfunctioning WOT electronic switch.	In this kit, the WOT switch, and RPM window switch are connected in series. The WOT electronic switch will have to be isolated for troubleshooting. To isolate the WOT switch: close nitrous bottle and disconnect nitrous solenoid. Connect the black wire (of the main wiring harness side) of the WOT switch box with the green wire of the main wiring harness. Connect a 12V test light to +12V source. Switch on ignition key. Arm the system. With nitrous system armed and at WOT, probe the green wire connector in the 30 amp power relay plug (wiring harness plug). Light should illuminate.	Check fuse. Check wiring harness and ground connections. Replace WOT electronic switch.
	Malfunctioning RPM Window Switch	In this kit, the WOT switch, and RPM window switch are all connected in series. The RPM window switch will have to be isolated for troubleshooting. To isolate the RPM window switch: close nitrous bottle and disconnect nitrous solenoid. Connect the black wire of the RPM window switch to ground. Connect a 12V test light to +12V source. Connect the test light probe to the yellow wire of the RPM window switch. Start and rev-up the engine. The test light: should be OFF below 2500 RPM, should be ON between 2500 RPM and 5600 RPM and should be OFF above 5600 RPM.	Check fuse. Check wiring harness and ground connections. Replace RPM window switch.

	Malfunctioning Fuel Enrichment Module	Close nitrous bottle. Disconnect nitrous solenoid. Find an open area where the car can be accelerated. Arm the system. Accelerate at WOT. At 2600 rpm and wide-open throttle the engine should add extra fuel. The engine should bog down and emit black smoke out of the exhaust.	Check fuse. Check wiring harness and ground connections. Replace Fuel Enrichment Module.
	In-line fuse blown.	Check fuse.	Replace fuse.
Engine detonates mildly when system is activated.	Excessive ignition timing.	Check ignition timing.	Set timing to factory settings.
	Inadequate octane fuel.		Use higher octane fuel.
	Spark plug heat range too high.		Reduce spark plug heat range (maximum two steps).
	Too much nitrous flow.	Check bottle weight. Check nitrous bottle pressure.	Reduce nitrous jetting.
Engine detonates heavily when system is activated.	Malfunctioning enrichment module	Close nitrous bottle. Disconnect solenoid. Arm the system. Test the engine at WOT. Engine should sense rich condition.	Replace enrichment module.
	Inadequate fuel delivery due to: Plugged fuel filter	Inspect fuel filter.	Clean or replace filter.
	Crimped fuel line.	Inspect fuel line.	Replace crimped line.
	Weak fuel pump.	Install fuel pressure gauge, such as NOS P/N 15931NOS. Compare fuel pressure with factory-specified values.	Repair/replace fuel pump.
High RPM misfire when system is activated.	Excessive spark plug gap.	Inspect spark plugs.	Set spark plug gap at 0.030 to 0.035 inches.
	Weak ignition/ignition component failure.	Inspect components (plug wires, distributor cap, etc.)	Replace worn components.
Surges under acceleration when system is activated.	Inadequate supply of nitrous.	Check bottle weight. Check nitrous bottle pressure.	Replace with full bottle.
	Bottle mounted incorrectly.	Compare bottle position and orientation to instructions.	Mount or orient bottle correctly.

Nitrous Oxide Accessories

NOS systems are calibrated for optimum performance with a bottle pressure of 900-950 psi. The pressure will change with temperature. Heater kits are thermostatically controlled to keep the bottle near 85° F to provide correct pressure. **Bottle Heater (P/N 14164NOS)** is available for 10 & 15 lb. bottles.

Insulating the bottle helps maintain pressure by keeping heat in the bottle when it's cold, or heat out when it's hot outside. The blankets are made of a rugged, easily cleaned Nylon outer shell with insulation. It's also an excellent "dress up" accessory and perfect for "covering" battle-scarred bottles. **Bottle Blanket (P/N 14165NOS)** is a 7" diameter blanket for the 10 lb. bottle.



P/N 14164NOS



P/N 14165NOS



P/N 16058NOS

The **Remote Bottle Valve (P/N 16058NOS)** is the perfect convenience accessory—it electronically turns the nitrous bottle on and off with the flick of a switch—no more trips to the trunk. It is also great as a safety shut-off valve. It operates on 12V DC. The complete kit includes hardware and installation instructions.

The primary purpose of a **Purge Valve (P/N 16030NOS)** is to release trapped air or gaseous nitrous from the feed line(s). This helps to ensure consistent performances. And, purging looks cool too!

Nitrous Pressure Gauges (P/N 15910NOS) measure from 0-1500 psi (although recommended level is 900-950 psi) and are essential in monitoring the bottle.

The **Quick Release Hinged Aluminum Bracket (P/N 14140NOS)** is available for 10 lb. and 15 lb. bottles. **P/N 14147NOS** is available for the carbon fiber bottle.



P/N 16030NOS



P/N 15910NOS



P/N 14140NOS

For those who want the ultimate in appearance, NOS offers many popular bottles that are fully polished. **P/N 14745-PNOS** is our 10 lb. fully polished bottle.

For optimum weight reduction and distinctive high-tech looks, these DOT-approved NOS carbon fiber-wrapped bottles are it! Weighs about half of the standard bottle (empty). **P/N 14747NOS** has 12.5 lb. capacity.



P/N 14745-PNOS



P/N 14747NOS

NOS Technical Service

Phone: 1-866-GOHOLLEY

Fax: 1-270-781-9772

**For online help, please check the Tech Service section of
our website: www.holley.com**

For bottle refill information: 1-800-99-REFILL

199R-10285

Date: 9-6-02