



INSTALLATION INSTRUCTIONS FOR:
MainLine Nitrous Systems

CAUTION: An experienced technician familiar with the use and handling of high-pressure cryogenic gases should install this system. If you have any doubt about your skills this system should be taken to a qualified shop for installation. If you have decided to attempt the install yourself please read and understand all of these instructions before you start. Some of these instructions may or may not apply to your vehicle, if you have any questions please call our tech department 940-767-7694 9:00A.M. -4:00P.M. CST.

NOTE: In the interest of keeping costs low some commonly available pieces have been omitted from MainLine Nitrous Systems. This list of items is necessary to complete the installation:

- 14 & 18 gauge automotive type multi-strand wire
- 30 amp relay (optional)
- 4- 5/16 X 1 bolts, washers, and nuts (to mount nitrous bottle)
- Misc wire ends and connectors

- 3/8 fuel Tee, clamps, and rubber hose (carbureted only)

Before starting, disconnect the negative terminal on the battery. If you have any questions about your particular car consult a shop manual.

These instructions are divided into 6 sections:

1. **Mounting the Bottle & Routing the Supply Line**
2. **Mounting the Plate/Nozzle & Solenoids**
3. **Plumbing the Fuel System**
4. **Wiring**
5. **Testing the System**
6. **Power Tuning Tips**

Mounting the Bottle & Routing the Supply Line

1. Assemble the nut and nipple on the bottle as shown in Figure "A". The nitrous bottle should be mounted outside the passenger compartment; if this is not possible an external venting blow down tube is a necessity (NX PN 11708 & 11709). A minimum of 4-5/16, grade 5, bolts with washers must be used for a safe installation. The bottle should be mounted as shown in Figure "A". Check beneath floor for obstructions such as fuel tank, fuel lines, electrical wiring, etc before drilling holes.

2. Have the nitrous bottle filled with "NY-TROUS +" nitrous oxide. A local speed shop or a welding supply shop can usually handle this.

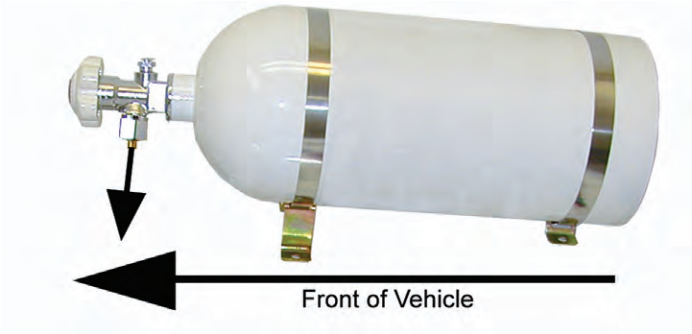


Figure A

To route the supply line drill a ¾ hole beneath the valve discharge port. Before beginning the routing procedure place tape over both ends of the line. Now route the line beneath the car being sure to avoid all exhaust, suspension and other moving parts. Following the factory fuel line is usually the safest. Be careful to avoid any positive 12-volt sources. One small spark to the outer braid of the line will destroy it. Secure the line carefully, zip ties work best here. Before connecting the line to the bottle, purge the line of all possible debris by carefully blowing compressed air through the line for several seconds. Connect the line to the bottle nipple and tighten securely.

Mounting the Plate/Nozzle & Solenoids

If your car has a carburetor skip to section "B", if your car is EFI use section "A":

Section "A" EFI:

1. The nitrous/fuel discharge nozzle should be mounted in the air duct that connects the air cleaner to the throttle body.
2. Drill a ¼ inch hole between the MASS Air Meter and the throttle body in the plastic ducting.
3. Thread the nozzle into this hole until all threads are covered. Be sure the nozzle discharges toward the

engine.

4. Using the horsepower jetting chart select the desired jets. Insert the jets into the nozzle fittings being sure to insert the correct nitrous and fuel jets into the correct fittings.
5. After installing the fittings into the solenoids (see Figure "B") connect the Fuel and Nitrous solenoids to the nozzle with the D-3 braided lines, paying attention to connect the nitrous solenoid to the fitting labeled Nitrous on the nozzle and the fuel solenoid to the fitting labeled Fuel

Connect the previously cleaned supply line to the Nitrous Solenoid and tighten securely

Section "B" Carbureted:

1. Using the horsepower jetting chart select the desired jets. Insert the jets into the nitrous plate fittings being sure to insert the correct nitrous and fuel jets into the correct fittings
2. After installing the solenoid fittings (see Figure "B") Pre-assemble the nitrous plate, attaching the fuel solenoid to the fuel fitting on the plate using the 3/16 stainless jumper line. Repeat this step on the nitrous solenoid side. Do not over-tighten these fittings
3. Referring to a shop manual for your vehicle, follow the instructions for removing the carburetor.
4. Referring to the shop manual remove the original carb studs and install the extra long studs furnished with the system.
5. Install the pre-assembled nitrous plate using the new gasket between the intake and the plate and existing gasket between the plate and the carb. (Note: Always install the plate with the fuel solenoid facing forward and the text on top of the plate up.)
6. Referring to the shop manual reinstall the carburetor.

Plumbing the Fuel

If your car has a carburetor skip to section "B", if your car is EFI use section "A":

Section "A"

1. Locate the supply line connecting the fuel filter to the EFI fuel rail. This line must be cut and a Tee inserted to supply fuel to the nitrous system. Use extreme caution; this line contains flammable fuel under high pressure. Carefully cut this line and insert the Tee fitting. Use the supplied clamps to secure a leak free installation. **Note: If your vehicle has a rigid plastic fuel line, an alternate method to tap this line must be used. Do not attempt to cut this type of line.**
2. Route the supplied rubber fuel hose from the Tee fitting to the fuel solenoid. Secure this line with the supplied clamps. **Caution: When cutting any fuel lines be sure to prevent any debris from entering the fuel system. Debris can cause a catastrophic engine failure due to clogged fuel jets or injectors.**

Section "B"

Note: The MainLine carbureted nitrous system requires up to 10 PSI on the fuel enrichment circuit and must be fed by a high volume fuel pump. A minimum 110-gallon per hour pump is recommended to feed the engine and nitrous system. A dedicated fuel system for the nitrous system only is neither necessary nor recommended.

1. Locate the line connecting the fuel pump to the carburetor. This line must be cut and a tee installed. Connect this line to a dedicated fuel pressure regulator feeding the nitrous system fuel solenoid. This regulator should be set according to the recommended pressures listed on the card located in the system jet pack. This pressure may need to be adjusted higher or lower to tune the nitrous system to it's highest potential. The tee, hose, clamps, and regulator must be ordered separately from NX or sourced from your local parts store. Recommended NX part numbers are: Regulator PN 15951, 3/8 barbed hose "T" PN 16137. **Caution: When cutting any fuel lines be sure to prevent any debris from entering the fuel system. Debris can cause a catastrophic engine failure due to clogged fuel jets or fouled needle and seats**.

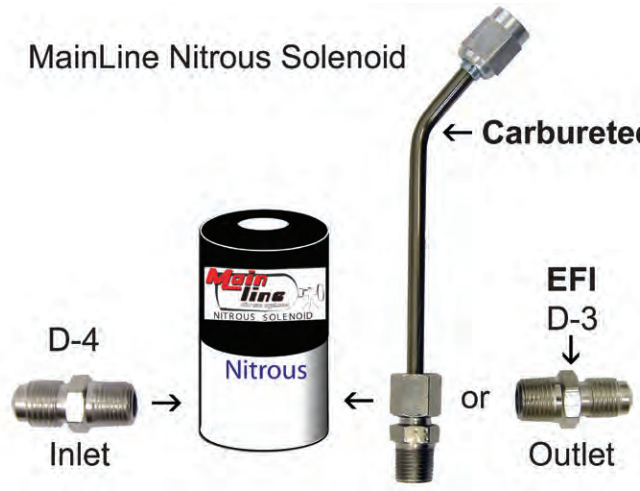
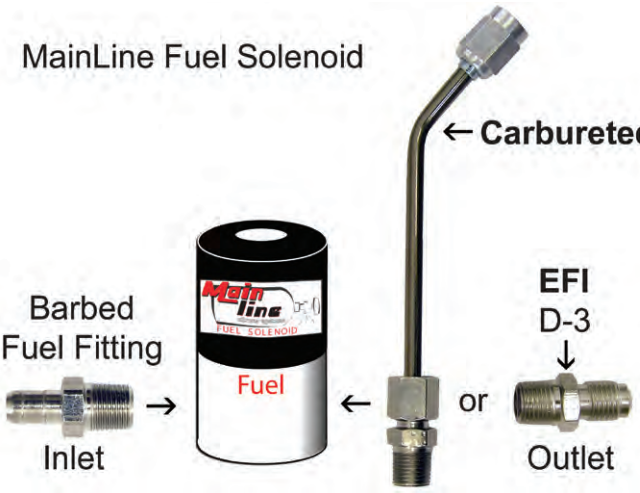


Figure B



Wiring the System

1. Follow the wiring diagram in Figure "C" if no relay is being used, follow the diagram in Figure "D" if a relay and wide open throttle is being used (recommended). For proper operation do not vary from this diagram. Solder and seal all connections with tape or heat shrink tubing (recommended)

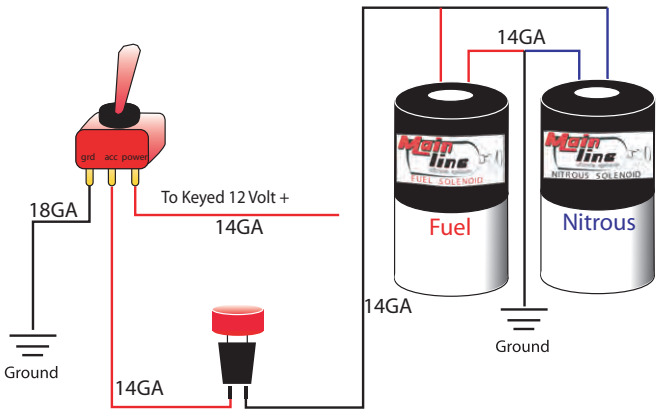


Figure C

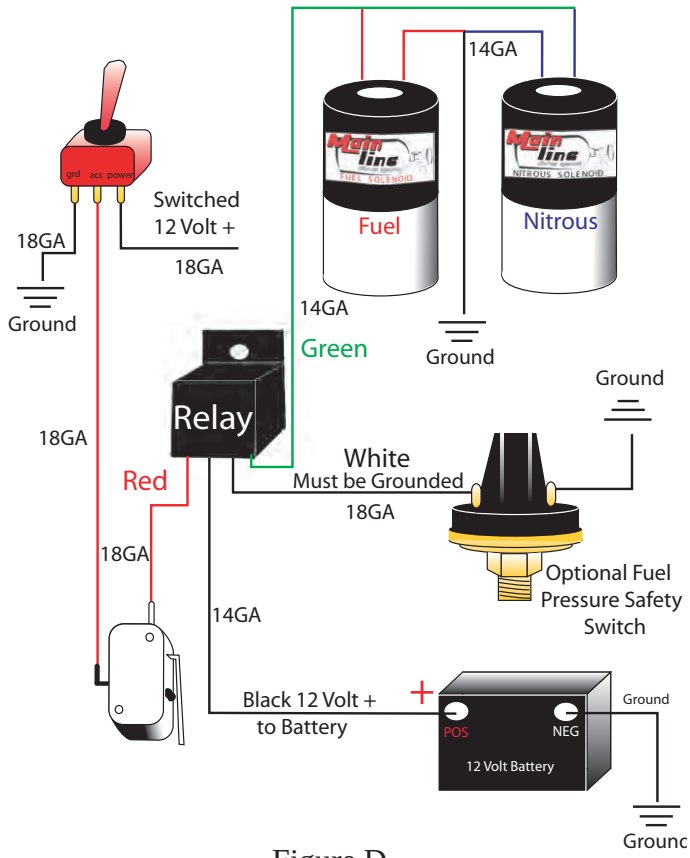


Figure D

Note: The nitrous and fuel solenoids are rated only for intermittent duty. Do not engage either solenoid for more than 15 continuous seconds. Solenoids that have "burned or scorched" electro-magnets will not be replaced under warranty.

Testing the System

1. Recheck all installation procedures to be sure nothing has been omitted.
2. Be sure the nitrous bottle has not been opened and the supply line is empty!
3. Reconnect the Negative battery cable.
4. Using the toggle switch "ARM" the system.
5. Test solenoid operation by using the system activation switch. You should hear both solenoids "CLICK". If they do not, re-verify all wiring and retest the system.
6. Carefully open the nitrous bottle and verify that no fittings or hoses are leaking. Correct any leaks before proceeding.
7. Do not start the engine if nitrous has been accidentally injected while the motor was not running! All nitrous must be cleared from the engine before starting! A violent intake manifold explosion could occur!
8. Start engine and check for any fuel leaks. Correct any leaks before proceeding.
9. The MainLine Nitrous System is now ready for normal usage.

Additional parts recommended to operate your MainLine nitrous system satisfactorily:

- Nitrous Pressure gauge (NX PN 15509)
- Purge Valve (NX PN 15600)
- Wide Open Throttle Switch & Bracket (NX PN 15516 & 15517)
- Bottle Jacket (NX PN 15945)
- Fuel pressure Safety Switch (NX PN 15708 carb or 15718 EFI)
- 30 Amp Relay (NX PN 15515)
- Bottle heater (NX PN 15940)
- NHRA legal blow down vent fitting (NX PN 11709)
- NHRA legal blow down vent tube (NX PN 11708)
- Chemical X Octane booster (NX PN 16003)
- Ford EFI fuel rail fitting eases installation on Ford products (NX PN 16179)

These or any other MainLine parts can be ordered by calling 1-888-289-6261 9:00 A.M. – 4:00 P.M. EST

Power Tuning Tips

Nitrous oxide works well with all applications; 4 cycle, 2 cycle, diesel, and rotary engines. Each one has individual tuning characteristics, and these tips apply generally to each one. Nitrous oxide is referred to as "Liquid Supercharging" because it, in effect, does the same thing as a mechanical supercharger, forcing more fuel and oxygen into each cylinder, thus producing more power. The biggest enemy of all supercharged, turbo charged and nitrous injected engines is "DETONATION". The use of higher-octane fuel, and or a combination of better fuel and timing retard can control this. Remember detonation is a spark plug, head gasket and engine "KILLER".

1. Your engine should be tuned to its maximum power prior to nitrous usage.
2. The ignition is an integral part of the nitrous system and must be able to ignite the mixture under very high cylinder pressures. The stronger the spark the better!
3. In stock engine applications and street usage the spark plugs should be at least 2 steps colder than stock. Do not use platinum tip, extended tip or any plug with multiple ground straps or split ground straps. When in doubt about heat range always go one step colder. A spark plug that is to "Hot" will cause detonation, burned plugs, poor performance, and engine damage.
4. Most MainLine EFI applications will require no timing retard. You may run as much timing as you normally would, if you have adequate octane to prevent detonation. MainLine recommends Chemical X (NX PN16003) octane booster to insure trouble free nitrous usage.
5. Carbureted vehicles using stock compression ratios may not need any timing retard when using the smallest horsepower settings, however for higher compression engines timing retard is a necessity. A base line setting of 1-2 degrees of retard for every 50 horsepower of nitrous boost is a safe starting point. More or less timing may be required, reading the spark plugs is the only safe way to determine if you have the right amount of timing for your particular engine combination.
6. Your fuel system is also an integral part of the nitrous system, be sure it is in top shape and all filters are clean.
7. Engine operating temperature should be at or above 160 degrees prior to nitrous usage.
8. Never "lug" your engine and engage the nitrous system, use the system at wide-open throttle only, nitrous should not be used below 2000 rpm's. If you do any of the above a serious "Back Fire" could result in engine damage.
9. The better the exhaust system the better the nitrous system will work.
10. Do not attempt to drill or alter the jets, solenoids, or the nitrous plate (carb only). These items are engineered to their maximum capability. Any modification you can make will decrease power and destroy engine parts.
11. Do not mix or attempt to match any other brand solenoids with this system. Do not attempt to mix or match any other brand plate or nozzle with this system. Do not attempt to use any other brand kit as a second stage with this system. Our nitrous technology is far superior to any of our competitors. Any attempt at this could lead to serious engine damage.
12. All of our systems are designed to operate at 1050-PSI bottle pressure. This is extremely important and cannot be stressed enough. If your bottle pressure is below 1,050 PSI the system will run rich and will not produce the advertised horsepower. If the bottle pressure is above 1,050 PSI the system will run lean, possibly damaging engine parts. This pressure is easily monitored by using a liquid filled pressure gauge (NX PN 15509). Note: When the ambient temperature is below 97 degrees a bottle warmer is required (NX PN 15940). A bottle jacket (NX PN15945) will help stabilize bottle pressure in the winter and summer. CAUTION: NEVER USE AN OPEN FLAME TO HEAT A NITROUS BOTTLE. THIS IS A VERY DANGEROUS AND POTENTIALLY FATAL PRACTICE!!!!!!!!!!
13. A purge valve (NX PN15600) is recommended on all MainLine systems. When the weather begins to get hot a purge valve is worth up to a tenth of a second on a ¼ mile pass. Note: The correct purging procedure for drag racing is: 1. Complete the burnout. 2. Light the pre-stage bulb. 3. Push the purge button three times, one second each. 4. Stage immediately, GO FAST.
14. If there is a question about the purity of your nitrous supply, a filter (NX PN15607) should be used when refilling your bottle. Just attach the filter to your bottle when you take it to be refilled. Contaminated nitrous will cause serious damage to the nitrous solenoids and possibly to your engine. This is a lifetime renewable filter.
15. If you have questions about the suitability of your torque converter or gear ratios, call the factory tech line for the inside scoop.
16. Your nitrous bottle should be turned off when not in use (even between runs). An remote bottle opener (NX PN11107) will make this task much easier.
17. Start with the lowest power setting in your system. Remember start out small and work your way up, MainLine systems produce more real horsepower than any other brand on the market today.
18. If the solenoids must be disassembled for cleaning or rebuilding always use the proper wrench (NX PN 15921). Do not use any clamping devise on the solenoid tower, instant non-warranty, damage will result.
19. Premium grade unleaded or leaded fuel is required on all Mainline nitrous applications. If your engine has been modified or has higher than stock compression racing fuel may be required. MainLine recommends Chemical X (NX PN16003) octane booster to insure trouble free nitrous usage.
20. All vehicles, including full competition racecars, must have an alternator to provide adequate amperage required by today's racing accessories. Add up all the amps required by your car, you'll be surprised!
21. If you notice some of the N2O-fuel orifices are not perfectly aligned in your MaiLine plate system, do not be concerned. This misalignment has been engineered into the system to direct fuel to specific cylinders.
22. If you have trouble with your MainLine system or any related parts, call your dealer first. If you still need help call the factory tech line 940-767-7694 9:00 AM - 4:00 PM Mon-Fri. We are the nitrous experts and will give straight answers to your questions.

In conclusion…….

This instruction sheet and power tuning tips are valid only for a MainLine system. If you have a kit from another manufacturer this information will not help you! A tune up from any other brand of nitrous kit will not work with the MainLine System.

DO NOT LISTEN TO:

A. YOUR BUDDY!
B. YOUR BUDDY'S FRIEND!
C. THE LOCAL NITROUS GURU!
D. ANY ARTICLE IN ANY MAGZINE

If you follow the foregoing suggestions, your MainLine system will operate trouble free and provide years of thrills. ABOVE ALL REMEMBER TO RACE SAFE AND HAVE FUN!!!!!!!!! !!!!!!!!!!!!!!!!!!!!!