Instructions

Read all Instructions before beginning!!!!

Caution – EXTREME DANGER – Caution

Do not use or mix any other manufacturer's products with any Nitrous Express products.

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THESE INSTRUCTIONS APPLY TO NITROUS EXPRESS PRODUCTS ONLY!

FOR SANCTIONED RACE USE ONLY - NOT FOR SALE OR USE IN CALIFORNIA

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. - 5:00P.M. CST.

NOTE: In the interest of keeping costs low some commonly available shop supplies are not included with MainLine Nitrous Systems. This list of items is necessary to complete the installation:

- 14 & 18 gauge automotive type multi-strand wire
- 40 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)

These instructions are divided into 6 sections:

1. **Mounting the Bottle & Routing the Supply Line**
2. **Mounting the Plate**
3. **Plumbing the Fuel System**
4. **Wiring**
5. **Testing the System**

6. **Power Tuning Tips**

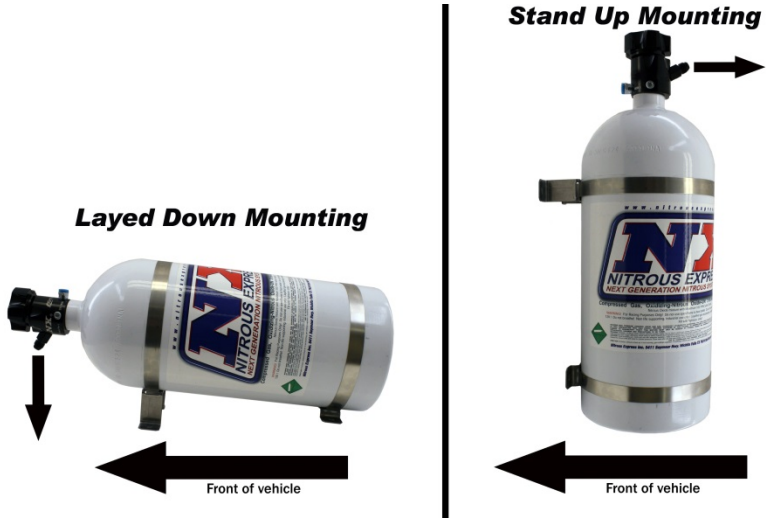
Before starting any installation steps:

1. Disconnect the negative battery terminal.
2. Never use Teflon tape on any system fittings. Tape debris will cause numerous problems ranging from clogged solenoids to blocked jets. Use the liquid thread sealer furnished with your NX system. A drop is all it takes.
3. Have your nitrous bottle filled by a reliable source, being sure it is filled to the correct capacity with **FILTERED** "Nytrous+" nitrous oxide.

MOUNTING THE BOTTLE

The nitrous bottle should be mounted in the trunk area or outside of the passenger compartment. If this is not possible or practical a NHRA approved blow down tube and vent fitting (PN's 11708, 11709) must be installed; on some systems it is required to replace the bottle valve with an NX lightning bottle valve (part # 11700L when using the NHRA Safety fittings). The positioning of the bottle should be as shown in illustration "A". This will allow the siphon tube to be covered at all times. The mounting brackets should be assembled on the bottle with the short bracket approx. 2" from the bottom and the long bracket should be place approx. 7" above the lower bracket. **Note: Before drilling holes to mount the bottle, be sure to check for clearance beneath the mounting surface i.e.: fuel tank, fuel lines, brake lines, etc.**

ILLUSTRATION 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

1. Using the horsepower jetting chart included on the last page of these instructions, 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 Illustration "B") Pre-assemble the nitrous plate, attaching the fuel solenoid to the fuel fitting on the plate using the 3/16" stainless tubing. Repeat this step on the

nitrous solenoid side. **(CAUTION: You must always use a back-up wrench when tightening the lines to the plate fittings, failure to do so could break the fittings and will void the system warranty!!!!!)**

3. Referring to a shop manual for your vehicle, follow the instructions for removing the carburetor.
4. Remove the original carb studs and install the longer 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)
6. Referring to the shop manual reinstall the carburetor.

Plumbing the Fuel

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. Locate the line connecting the fuel pump to the carburetor. This line must be cut and a tee installed.

1. 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 jetting chart. This pressure may need to be adjusted higher or lower to tune the nitrous system to its highest potential. (The tee, hose, clamps, and regulator must be ordered separately from NX or sourced from your local parts store.)
2. Recommended NX part numbers are: Regulator PN 15951, and 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**.

ILLUSTRATION B

Wiring the System

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

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.

ILLUSTRATION C

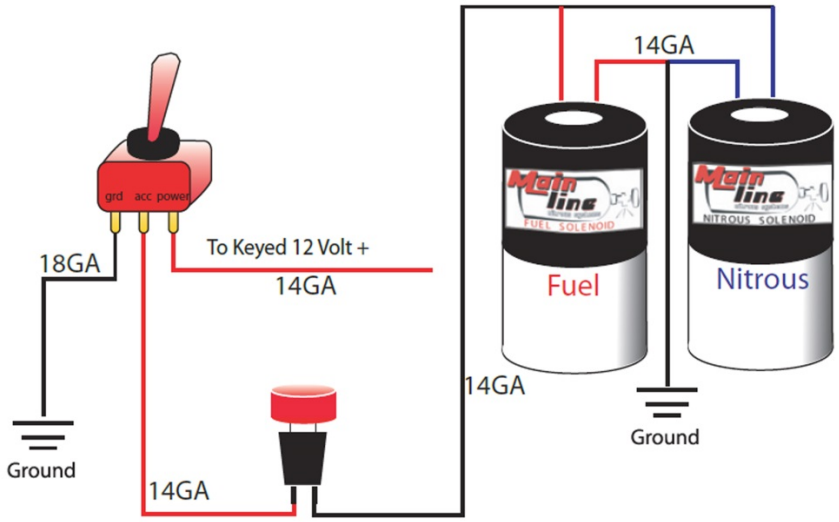
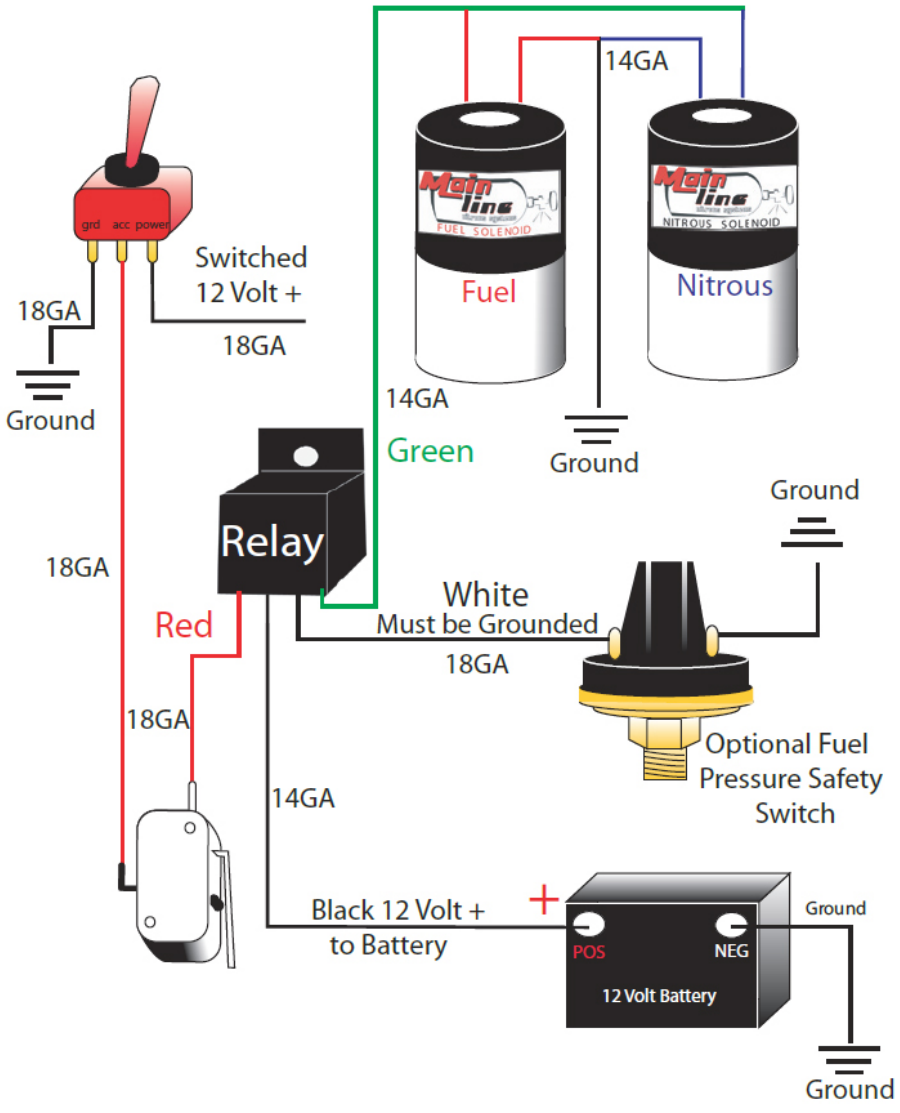


ILLUSTRATION D



COMPLETING AND TESTING THE SYSTEM

1. Reconnect the fuel line and tighten securely.
2. After all components have been assembled on the vehicle and each piece has been verified for correct installation and the wiring has been rechecked and verified to be correct, it is time to test the system.
3. After installing the nitrous bottle in the brackets previously mounted in section 1, connect the bottle to the supply line and tighten firmly, do not over tighten (use no Teflon tape on any component of this system). **Do NOT open the bottle valve at this time!**
4. Reconnect the negative battery cable.
5. Using the master arming switch "Arm" the nitrous system.
6. Test the solenoid operation by "Engaging" the activation switch. Both solenoids should "Click" (The nitrous solenoid should click loud, and the fuel solenoid will click soft). If they do not, re-verify all electrical connections and wiring diagrams.
7. Open the nitrous bottle and check all connections for leaks. With the lines disconnected from the solenoids, crack your nitrous bottle open to allow Nitrous pressure into the system. Check for any leaks that may be present, and tend to any that may exist. If the solenoid itself is not sealing, activate the nitrous solenoids a few times in rapid bursts to seat the plunger in the solenoids.
8. Start the engine and check for fuel leaks, correct any fuel leak problems before proceeding.
9. Adjust the fuel pressure regulator at this time. A Master Flo-Check (PN #15519) or Master Flo-Check Pro (PN # 15529) should be used for accurate fuel pressure settings
10. All NX systems are intended for off road use only and should only be used in that context.
11. Choose a suitable testing area; your local race track is best. Drive the vehicle to verify all operations are normal and the throttle linkage is operating properly.
12. Pre-stage the vehicle, arm the system, and purge the air from the supply line using 3 one-second bursts from the purge valve (PN ML15600) Stage and launch the vehicle, shutting off at the 60ft mark. Check all system components to verify proper operation, correct any noted problems before proceeding.
13. Repeat the staging procedure, the system should be crisp and responsive, make a full throttle pass and shut the engine off for a spark plug check. Verify each cylinder is getting equal amounts of N2O and fuel. The plugs should have look nearly new, if they are sooty or black the fuel pressure must be reduced for optimum performance.

Additional parts recommended for operating your MainLine nitrous system satisfactorily:

- Nitrous Pressure gauge (PN 15509)
- Purge Valve (PN ML15600)
- Wide Open Throttle Switch & Bracket (PN 15516 & 15517)
- Bottle Jacket (PN 15945)
- Fuel pressure Safety Switch (PN 15708)
- Relay and wiring harness (PN 15515)
- Bottle heater (PN 15940)
- NHRA legal blow down vent fitting (PN 11709) –May require upgrade to Lightning Bottle Valve (PN 11700L)
- NHRA legal blow down vent tube (PN 11708)

SAFETY TIPS

Do not attempt to start engine if nitrous has been accidentally injected while the engine was not running. Disconnect coil wire and turn motor with throttle wide open for several revolutions before attempting to

restart. If it is not possible to disable the ignition then the spark plugs must be removed and the engine cleared of all nitrous before attempting to start engine.

1. Never permit oil, grease, or any other readily combustible substances to come into contact with nitrous cylinders, valves, solenoids, hoses and fittings. Oil and certain gases (such as oxygen and nitrous oxide) may combine to produce a flammable condition.
2. Never interchange solenoids or other appliances used for one compressed gas with those used for another.
3. Identify the gas content by the label on the bottle before using. If the bottle is not identified to show the gas contained, return the bottle to the supplier.
4. Do not deface or remove any markings, which are used for content identification.
5. Cylinder valves should be closed except when nitrous is actually being used.
6. Notify supplier of any condition, which might have permitted any foreign matter to enter the valve or bottle.
7. Never drop or violently strike the bottle
8. Keep valves closed on all empty bottles to prevent accidental contamination.

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, adding 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 hotter 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. In competition engines always use the coldest plug available. Never use an extended tip plug in a racing engine.
4. The NX nitrous system is so advanced, (technology, engineering, and workmanship) that huge amounts of timing retard is not required. We recommend 2 degrees timing retard for each 50 horsepower boost as a starting point. Your engine may need more or less depending on your combination.
5. Your fuel system is also an integral part of the nitrous system, be sure it is in top shape and all filters are clean.
6. Engine operating temperature should be between 160 and 200 degrees prior to nitrous usage.
7. Never "lug" your engine and hit the nitrous system, use the system at wide-open throttle only, nitrous should not be used below 3000 rpm's. If you do any of the above a serious "Back Fire" could result in engine damage.
8. The better the exhaust system the better the nitrous system will work.
9. Do not attempt to drill or alter the jets, solenoids, or the tubes in the nitrous plate. These items are engineered to their maximum capability. Any modification you can make will decrease power and destroy engine parts.
10. Do not mix or attempt to match any other brand solenoids, plate, or nozzles with this system. Any attempt at this could lead to serious engine damage.
11. All of our systems are designed to operate at 1000 PSI bottle pressure. This is extremely important and cannot be stressed enough. If your bottle pressure is below 1000 PSI the system will run rich and will not produce the advertised horsepower. If the bottle pressure is above 1000 PSI the system will run lean, possibly damaging engine parts. This pressure is easily monitored by using a NX liquid filled pressure gauge

(PN 15509). Note: When the ambient temperature is below 97 degrees a bottle warmer is required (PN 15940 or 15941). An NX bottle jacket (PN15945 or 15946) 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!!!!!!!!!!!

12. A purge valve (PN ML15600) is recommended on all NX systems. When the weather begins to get hot a purge valve is worth up to a tenth of a second on a 1⁄4 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.
13. If there is a question about the purity of your nitrous supply, a filter (PN15610 or 15607) 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.
14. If you have questions about the suitability of your torque converter or gear ratios, call the factory tech line for the inside scoop.
15. Your nitrous bottle should be turned off when not in use (even between runs). An NX remote bottle opener (PN 11107) will make this task much easier.
16. Start with the lowest power setting in your system. Don't try to be the track "Hero" on your first pass. Remember start out small and work your way up, NX systems produce more real horsepower than any other brand on the market today.
17. If the solenoids must be disassembled for cleaning or rebuilding always use the proper wrench (PN 15921). Do not use any clamping devise on the solenoid tower, instant non-warranty, damage will result.
18. If you run an NX system of 150+ horsepower you must use a high octane racing type fuel. These are some tips to help you choose and maintain the correct fuel for your application:
    A. The most important statistic you should look for in the fuel specifications is the "MON" or motor octane number. In most cases the higher the number the more timing you can run and detonation will not be a problem
    B. Most V-8 or V-12 engines with stock compression will run on "93" unleaded pump gas with up to 150 horsepower boost, most 4 or 6 cylinders with stock compression can use up to 75 horsepower.
    C. Racing engines with high compression or higher must run racing fuel. The higher the compression, and the higher the boost, the higher the "MON" must be.
    D. With nitrous usage usually the highest "MON" available is the one that should be used.
    E. All NX systems are calibrated to use fuel with .730 specific gravity or "SG". If you use a fuel with a lower "SG" you must use a larger fuel jet to compensate for the lighter fuel. If you use a fuel with a higher "SG", a smaller fuel jet will be required. Most unleaded pump gas is .730 SG or above.
    F. Racing fuel should be stored in an airtight, dark container. Exposure to atmosphere allows very important elements to evaporate, lowering the octane of the fuel. Sunlight oxidizes the lead contained in racing fuel, since this is the most important ingredient used to raise octane it must be protected.
    G. Never leave the fuel in your car between race days. This allows evaporation of the very important "High end" hydrocarbons and lowers the octane of the fuel.
    H. Never buy racing fuel from an underground or vented storage tank. Always demand to see where and how the fuel is stored; a sealed drum is the only correct way.
    I. AV gas or aviation fuel is not compatible with nitrous usage, don't be tempted by the cheap price, instant engine damage will result!
    J. For a fuel recommendation, contact your NX dealer.
19. All vehicles, including full competition race cars, 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!
20. If you have trouble with your NX system or any related parts, call your dealer first. If you still need help call the factory tech line 940-767-7694 9:00AM-5:00PM CST 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 NX 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 NX "Next Generation" technology.

DO NOT LISTEN TO:

A. YOUR BUDDY!

B. YOUR BUDDY'S FRIEND!

C. THE LOCAL NITROUS GURU!

D. ANY ARTICLE IN ANY MAGAZINE

If you follow the foregoing suggestions, your NX system will operate trouble free and provide years of thrills.

ABOVE ALL REMEMBER TO RACE SAFE AND HAVE FUN!

NOTE: If your intake manifold has a "CLOVER LEAF" design plenum, such as a Brodix or Offen-houser, the side bulges must be removed, either by machining or grinding before you use the nitrous system.

Carbureted Mainline Jetting

Select the desired horsepower level and fuel type to determine the nitrous and fuel jet requirements i.e. if you have a Mainline Carbureted Plate System, and want a 150 HP boost you would use a 67 Nitrous and a 48 Fuel jet with 8psi flowing fuel pressure. Spark plugs should be at least 2 steps colder than stock gapped no larger than .035. 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. Ignition timing should be retarded 2 degrees per 50 hp of nitrous being sprayed.

If you are not using the Mainline nitrous and fuel solenoids this jetting WILL NOT BE CORRECT!!!

CHECK ALL JETS FOR OBSTRUCTIONS UPON INSTALLATION!!!!!!!!

	Carbureted Mainline				
	HP	N20	Gasoline	E85	Flowing fuel pressure
	25	24	22		8
	50	35	30	31@10psi	8
	75	41	34		8
Highlighted jetting is included with system	100	52	41	43@10.5psi	8
	125	62	44		8
	150	67	48	52@10.5psi	8
	175	70	52		8
	200	78	57	57@11psi	10
	250	136	67	67@12psi	10

This jetting chart is for informational purposes only, NX is not responsible for misuse or misapplication.