

# Nitrous Instructions for Assassin Plate System

## 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**

READ...UNDERSTAND...AND...FOLLOW...these instructions. If there is something you don't understand, STOP! Call the NX tech department for help. 9:00 AM to 5:00 PM CST 940767-7694. The installation procedures are divided into 5 sections. Please pay particular attention to each one:

1. Mounting the bottle.
2. Mounting the nitrous plate 3.  
Plumbing the fuel system.
4. Wiring the system
5. Testing the system

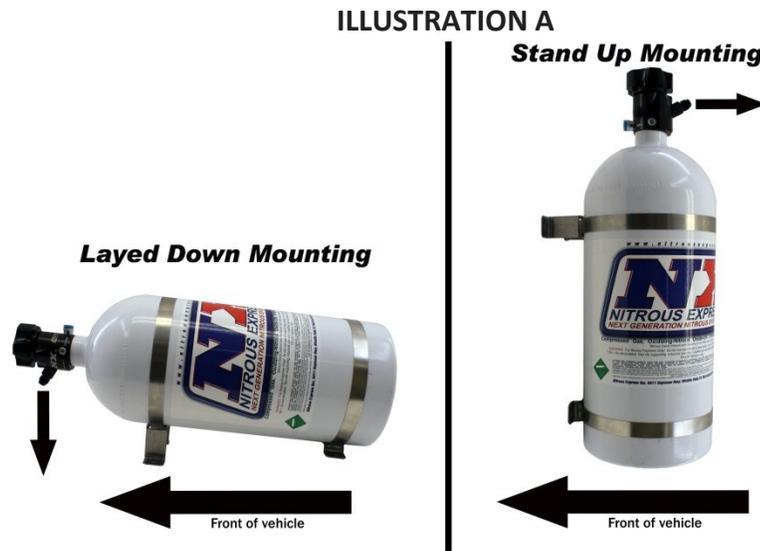
Before starting any installation steps:

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** "Nytrosus+" 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. 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, on 10 lb. bottles

the long bracket should be placed approx. 7" above the lower one, on 15lb bottles the upper bracket should be approximately 12" above the lower bracket. **Note: Before drilling holes, be sure to check for clearance beneath the mounting surface i.e.: fuel tank, fuel lines, brake lines, etc.**

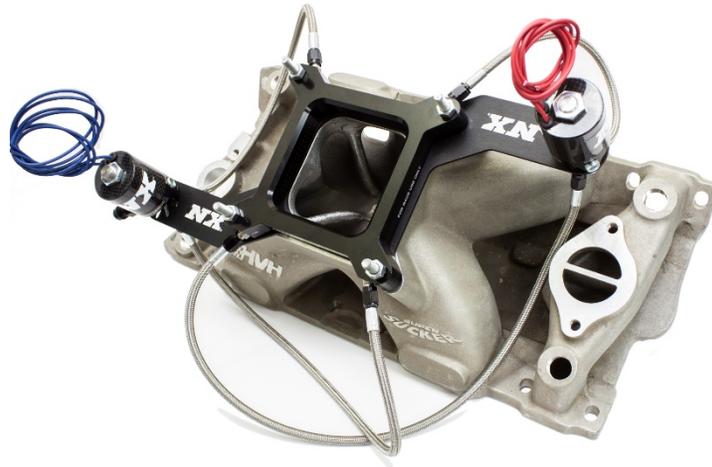


### MOUNTING THE NITROUS PLATE

Before any modifications are made under the hood, we suggest that you make a diagram of all hoses, wiring, and linkages.

1. Pre-assemble the nitrous plate before you begin. (See Illustration B) The nitrous solenoid should be mounted towards the rear of the vehicle, while the fuel solenoid should be mounted towards the front. Select the horsepower setting (jetting chart is listed on the last page of these instructions) that you want to start with, insert the proper nitrous jets in the plate jet fitting marked "N2O" (**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!!!!**) Connect the nitrous solenoid to the plate jet fittings with the 3/16 stainless steel hardline connector. The nitrous solenoid can be identified by the "N2O" marked on the base. The Lightning solenoids are unique and special attention must be paid to the "inlet-outlet port arrangement. The 1/8" NPT side inlet port is the location for the N2O filter fitting, the *1/8" NPT purge port is for the optional purge valve. If no purge valve is used a 1/8" NPT plug is provided to block this port. The 1/8" NPT bottom exit port connects to the plate via Stainless hard-lines.* Repeat this procedure for the fuel solenoid **NOTE: Always check each jet for obstructions before using. BE SURE ALL NUTS ON SOLENOID MAGNETS ARE TIGHT!**

### ILLUSTRATION B



NOTE: As you can see in the (Illustration B), the fuel and nitrous ports on the plate are on opposite corners of each other. Please advise when installing the lines on the plate and make sure they are installed on the right ports for you solenoids.

2. Remove the air cleaner.
3. Disconnect the throttle linkage, noting its position.
4. Carefully remove the fuel line, being careful to avoid spilling any raw fuel on hot engine parts.
5. Remove the carburetor; noting all vacuum connections before disconnecting any hoses.
6. Remove the old carburetor studs and install the longer ones furnished with the NX system. Install the new gasket provided. Install the N2O plate, and place the remaining new carb gasket on top of the plate. **Do not re-install the carb yet.**
7. It is now time to route the nitrous supply line.

**NOTE: Place a piece of tape over the end of the hose to prevent debris from entering the feed line during the routing process.** The nitrous feed line may be routed to the engine compartment either through the passenger compartment or under the vehicle. If the passenger compartment is chosen, route the line carefully to prevent the possibility of restricting nitrous flow. If routed under vehicle, locate and drill a 3/4 inch diameter hole in a suitable area near the bottle valve for the feed line. Starting at the bottle nipple (Do not attach line to the bottle yet) route the line to the engine compartment. Following the factory fuel lines is usually the best path ("Zip-Ties work well here). Note: Keep maximum clearance between all moving parts, suspension components and hot engine components, securing the supply line where possible. Be especially careful of the feed line being near any "HOT" electrical leads, even a small spark will cause a leak in the steel braided line. Before you attach the nitrous supply line to the nitrous solenoid, purge the line of any foreign matter that may have accidentally entered the line during installation. Do so by removing the tape used during installation and blowing compressed air through the feed line. (Have an assistant hold the end of the hose aimed away from the car and any people. Wearing a glove is recommended).

Immediately after the purging operation, connect the main feed line to the N2O solenoid and the nitrous bottle, tighten securely.

## PLUMBING THE FUEL SYSTEM

Connect the fuel line from the NX fuel solenoid to an aftermarket high performance pump and regulator. Remember, the fuel pump is an integral part of your NX system, for reliable, trouble free service, your pump must match your cars performance.

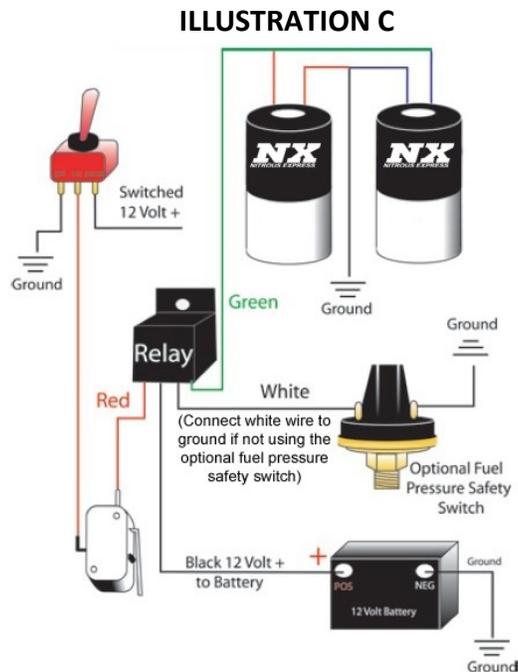
1. All carbureted style NX systems are designed to use the NX fuel pressure regulator (PN 15951). Other high quality regulators can be used with our system. However, some larger regulators do not respond as fast as the NX part # 15951.
2. Your NX system requires a dedicated fuel pressure regulator. If you use a multi stage system a regulator must be used for each stage. Mount the regulator as close to the fuel solenoid as practical.
3. The N2O system fuel regulator must be fed by direct pump pressure. Do not connect the N2O system regulator through the carb regulator.
4. All NX systems are designed to be tuned by flowing fuel pressures. This information can be found on the jetting chart. Using the NX Flo-Check (PN 15519) or Master Flo- Check Pro (PN 15529) this pressure can easily be calibrated. These flowing pressures are only a base line tune up and will generally be rich. Fine-tune your combination by reading your spark plugs after a full throttle pass. When the tune up for your combination is correct, the spark plug should look nearly new, with little or no color on the porcelain. For the ultimate in safety, an NX fuel pressure safety switch (PN 15708) should be used.
5. **Note: A higher fuel pressure will not result in a “safer” system. Too much fuel can cause the same type of engine damage as too little fuel.**
6. It is not necessary for you to use a dedicated fuel pump for your nitrous system if the pump flows enough to support your engine and nitrous power. However, if you feel it is necessary to run a dedicated pump you should run a bypass line with a maximum .020 orifice from the fuel pressure regulator, or fuel solenoid bypass port back to the fuel tank.
7. All NX systems are calibrated at 1000-PSI bottle pressure. The safe operating range is 900 PSI to 1050 PSI.

## WIRING THE NITROUS SYSTEM

1. Mount the master arming switch within easy reach, and plain sight of the driver.
2. The system is furnished with a universal wide-open throttle switch. This WOT micro switch is designed to work with the universal mounting bracket. Its maximum capacity is 10 AMPS and should only be used to activate low amp draw accessories or in conjunction with a relay.
3. Assemble the micro-switch on the mounting bracket using the supplied bolts and nuts. The switch can be mounted in several different configurations, select the position your application requires and tighten the bolts. Do not over-tighten; the plastic micro switch can be damaged.

4. The mounting bracket is made of easily bendable material and may be formed to any configuration that will allow it to place the WOT switch in the proper location.
5. The activation arm on the micro-switch is extra-long. This allows you to twist, bend, or cut it to aid in the ease of installation.
6. Follow illustration "C" when wiring the system, the relay must be used in all applications.
7. The best power source for the nitrous system is the terminal on the back of the alternator labeled "BAT", or directly to the "Positive" post on the battery. Do not try to "Splice" into the factory wiring harness for a power supply, this will not have adequate amperage to operate the solenoids. If desired a 40 amp fuse may be installed in this circuit.
8. Solder all connections for a permanent trouble free installation.

**Note: The nitrous and fuel solenoids are rated only for intermittent duty. Do not engage either solenoid for more than 20 continuous seconds. Solenoids that have "burned or scorched" electro-magnets will not be replaced under warranty.**



### COMPLETING AND TESTING THE SYSTEM

1. Reinstall the carburetor; hook up all vacuum lines, and linkages using the diagram prepared before disassembly.
2. Reconnect the fuel line and tighten securely.
3. 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.
4. 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.
5. Reconnect the negative battery cable.

6. Using the master arming switch “Arm” the nitrous system.
7. Test the solenoid operation by “Engaging” the WOT 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.
8. Open the nitrous bottle and check all connections for leaks. Retighten any fitting or connection that leaks and recheck.
9. Start the engine and check for fuel leaks, correct any fuel leak problems before proceeding.
10. 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
11. All NX systems are intended for off road use only and should only be used in that context.
12. Choose a suitable testing area, such as your local race track is best. Drive the vehicle to verify all operations are normal and the throttle linkage is operating properly.
13. 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 15603). 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.
14. 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.

## **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 1 to 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 (PN15600-15601) 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 prestage 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 device on the solenoid tower, instant nonwarranty, 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 Offenhouser, the side bulges must be removed, either by machining or grinding before you use the nitrous system.

## Assassin Plate System Jetting

Select the desired horsepower level and fuel type to determine the nitrous and fuel jet requirements i.e. if you have an Assassin Pro-Power plate system and you are running 8-10psi FFP (Flowing Fuel Pressure) with gasoline and want a 100 HP boost you would use two .041 N2O and two .031 Fuel jets.

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.

**Check all jets for obstructions upon installation!!**

Assassin Stage 6 Plate @8-10psi				
HP	N2O	GASOLINE	e85	FFP
50	26	22	24	8-10 psi
100	38	30	33	8-10 psi
150	46	34	38	8-10 psi
200	54	38	43	8-10 psi
250	62	40	50	8-10 psi
300	99	46	57	8-10 psi

Assassin Pro Power Plate @8-10psi				
HP	N2O	GASOLINE	e85	FFP
100	41	31	34	8-10 psi
200	52	37	42	8-10 psi
300	62	42	52	8-10 psi
400	78	52	73	8-10 psi
500	99	73	82	8-10 psi

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