Victor Jr. Plate Upgrade Kits for Square Flange and Dominator Carburetors Kit #70024 and #70025 INSTALLATION INSTRUCTIONS

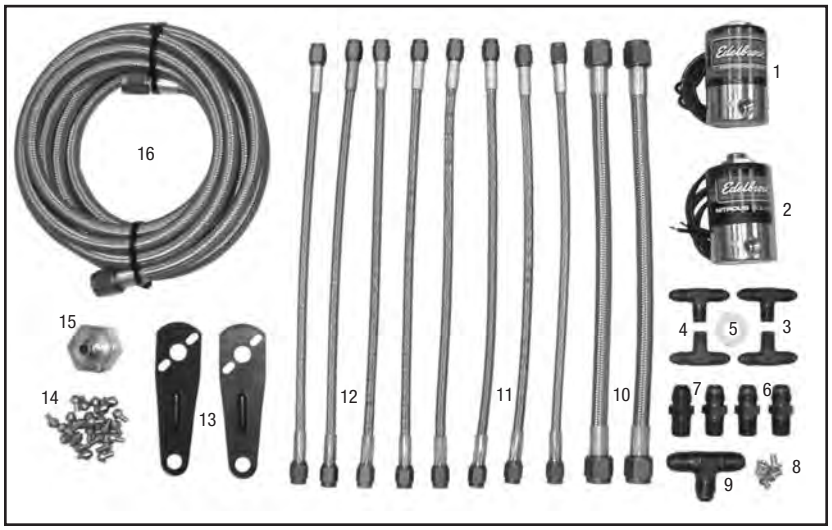
Please study these instructions carefully before installing your new Edelbrock Nitrous Kit. Failure to follow instructions will void the warranty and may cause damage to parts and/or personal injury. If you have any questions, please call our **Technical Hotline at: 1-800-416-8628**, 7:00 am - 5:00 pm, Monday through Friday, Pacific Standard Time or e-mail us at: **Edelbrock@Edelbrock.com.**

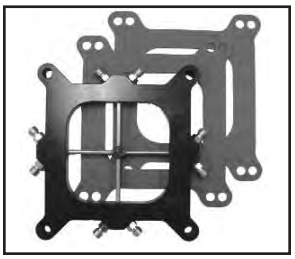
IMPORTANT NOTE:
Proper installation is the responsibility of the installer. Improper installation will void warranty and may result in poor performance and engine or vehicle damage.

Thank You....
...for purchasing an Edelbrock Nitrous Oxide Injection System.

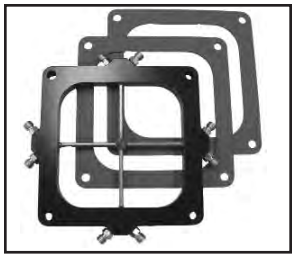
Nitrous Oxide injection is one of the most exciting performance enhancements, for the dollar invested, on the market today. With the use of nitrous oxide come some important safety considerations. This manual has been written to help you during the installation and use of your Edelbrock Nitrous System. Please read it completely before you install and use your system. Please pay close attention to the safety information at the beginning of each section. The information contained there specifically pertains to each of the components and installation methodologies within the section.

The Victor Jr. Plate Upgrade Kit is a kit designed to be used as an upgrade from an existing Performer RPM Nitrous System to the Victor Jr. Nitrous System using both new and existing components. This kit comes complete with everything needed for a finished installation if you still have all of your Performer RPM components.





70024



70025

Item #	Qty.	Description
1	1	Performer RPM Fuel Solenoid
2	1	Performer RPM Nitrous Solenoid
3	2	4AN to 1/8"NPT Blue Nitrous Tee
4	2	4AN to 1/8"NPT Red Fuel Tee
5	1	Teflon Bottle Nut Washer
6	2	6AN to ¼"NPT Blue Fitting
7	2	6AN to ¼"NPT Red Fitting
8	4	Solenoid Bracket Screws

Item#	Qty.	Description
9	1	6AN Blue Y Fitting
10	2	6AN Blue Steel Braided Hose
11	4	4AN x 3AN Blue Steel Braided Hose
12	4	4AN x 3AN Red Steel Braided Hose
13	2	Solenoid Brackets
14	Misc.	Jets
15	1	6AN Bottle Nut
16	1	6AN Feed Line

DISASSEMBLY

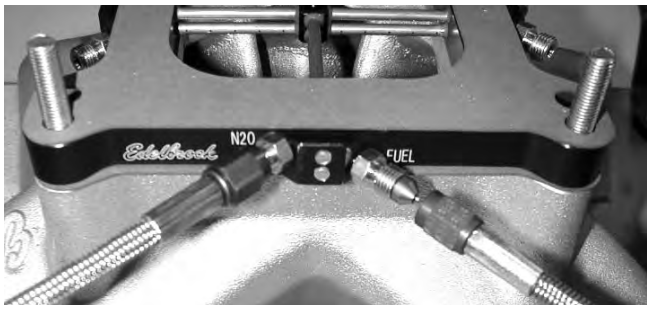
NOTE: Be sure that the engine is cool, the fuel pressure has been relieved in the fuel system, and the battery has been disconnected.

1. Remove the carburetor.
2. Remove both lines from the plate to the solenoids.
3. Remove the nitrous and fuel jet from the inlet fittings to the plate.
4. Remove the Performer RPM Plate and gaskets from the carburetor pad of the intake manifold. Make sure that all of the gasket material is removed from the carburetor pad of the intake manifold and the pad is clean and smooth.

INSTALLATION

1. Install your new Victor Jr. Nitrous Plate using the supplied gaskets on the carburetor pad of your intake manifold. Be sure that one gasket is placed on the pad under the Victor Jr. Nitrous Plate and one is placed on top of the plate under the carburetor. Be sure that the plate is installed with the text on the plate facing the correct direction as pictured to the right. **Failure to mount the plate facing the correct way could result in catastrophic engine damage.**
2. Re-Install the carburetor.
3. Remove your current Performer RPM Nitrous Solenoid.
4. Remove the 4AN x ¼" NPT inlet fitting from the solenoid. Install one of the supplied 6AN x ¼" NPT Blue Filter Fittings into the inlet port of the Performer RPM Nitrous Solenoid using only Teflon Paste.
5. Remove the 4AN x 1/8" NPT Blue outlet fitting from the Performer RPM Nitrous Solenoid. Install one of the supplied 4AN x 4AN x 1/8" NPT Blue Tee fittings into the outlet fitting of the solenoid using only Teflon Paste.
6. Re-install the Performer RPM Nitrous Solenoid onto the bracket in the engine compartment.
7. Remove your current Performer RPM Fuel Solenoid.
8. Remove the 4AN x 1/8" NPT Red outlet fitting from the Performer RPM Fuel Solenoid. Install one of the supplied 4AN x 4AN x 1/8" NPT Red Tee fittings into the outlet fitting of the solenoid using only Teflon Paste.
9. Re-install the Performer RPM Fuel Solenoid onto the bracket in the engine compartment. Pictured to the right is a properly assembled Performer RPM Nitrous Solenoid. Both your nitrous and fuel solenoids should look like the one pictured above.
10. Install the 6AN x ¼" NPT Blue Filter fitting into the inlet port of the new Performer RPM Nitrous Solenoid using Teflon Paste only. Install the 4AN x 4AN x 1/8" NPT Blue Tee fitting into the outlet port of the Performer RPM Nitrous Solenoid using Teflon Paste only.
11. Install the assembled Performer RPM Nitrous Solenoid onto one of the supplied solenoid brackets using the supplied solenoid bracket mounting screws. Mount this solenoid and bracket as close to the Victor Jr. Nitrous Plate as possible on the opposite corner of the other Performer RPM Nitrous Solenoid on the intake manifold. You may not want to solidly mount the bracket yet until you have installed the nitrous hoses from the solenoid tee to the plate fittings. This may help to decide in the mounting location of the solenoids due to line lengths.
12. Install the 6AN x ¼" NPT Red fitting into the inlet port of the new Performer RPM Fuel Solenoid using Teflon Paste only. Install the remaining 4AN x 4AN x 1/8" NPT Red Tee fitting into the outlet port of the Performer RPM Fuel Solenoid using Teflon Paste only.
13. Install the assembled Performer RPM Fuel Solenoid onto the remaining solenoid bracket using the remaining 2 solenoid mounting screws. Mount this solenoid and bracket as close to the Victor Jr. Nitrous Plate as possible on the opposite corner of the other Performer RPM Fuel Solenoid on the intake manifold. You may not want to solidly mount the bracket yet until you have installed the nitrous hoses from the solenoid tee to the plate fittings.

14. Using the jet chart below, select the appropriate jets for the corresponding horsepower setting that you wish to use. It is always wise to start with a lower horsepower selection and progressively step up to your intended power setting to be sure that the engine can handle the extreme increase in horsepower. **Be sure that you install the fuel jets in the fuel jet holders and the nitrous is the nitrous jet holders. Failure to install the jets correctly may cause serious engine damage.** Both the fuel and the nitrous inlets to the plate are etched next to their correct fitting. Be sure not to mix the two up. At right is a picture of a jet being properly installed.



15. Install the 4 red 4AN x 3AN Steel Braided hoses from the 4AN tee outlet fittings of the Performer RPM Fuel Solenoids to the Fuel Jet Holders on your Victor Jr. Nitrous Plate.
16. Install the 4 blue 4AN x 3AN Steel Braided hoses from the 4AN tee outlet fittings of the Performer RPM Nitrous Solenoids to the Nitrous Jet Holders on your Victor Jr. Nitrous Plate.
17. Install the 2 blue 6AN 15 inch Steel Braided hoses from the inlet fittings of the Performer RPM Nitrous Solenoids to the supplied blue 6AN Tee fitting.
18. Route the 6AN feed line through the same route as your previous 4AN feed line, if possible. Connect one end of this line to the bottle nut and the other to the blue 6AN Tee Fitting.

JET MAP INFORMATION

Edelbrock engineering has conducted dyno testing with the Victor Jr. system to provide jetting maps for two separate plates at different jetting levels. These jet combinations are supplied with this system to enable you to vary your engine's power output.

DOMINATOR-FLANGE JET MAP

Approximate HP Gain	Nitrous Jet	Fuel Jet	Timing Adjustment
200	35	35	7°-9° retard
300	50	50	11°-13° retard
400	59	59	15°-17° retard

SQUARE-FLANGE JET MAP

Approximate HP Gain	Nitrous Jet	Fuel Jet	Timing Adjustment
200	35	35	7°-9° retard
300	48	48	11°-13° retard
400	57	57	15°-17° retard

NOTES: All of the jet maps shown on this page were developed using a steady fuel pressure of 6.5 psi. Variations in fuel pressure can create a rich or lean condition which could potentially damage the engine. All jet maps shown on this page require 110 Octane or better race gas to prevent detonation. The provided timing adjustments represent a suggested guideline only, various engine components will affect the ideal ignition point. Edelbrock recommends an NGK spark plug 2 heat ranges colder than what the engine would run naturally aspirated for use with all power levels shown on this page. When in doubt, always go to the next cooler heat range plug.

The dyno tests were conducted at Edelbrock using a highly modified Big Block Chevrolet. Modifications included Edelbrock intake manifold, cylinder heads dyno headers, pistons, rods, crankshaft, and improved ignition. These tests were conducted with 950 psi nitrous and 6.5 psi fuel pressure. All stated timing adjustments listed in the jet map is where the motor being tested worked best. Final timing should be adjusted to achieve best power and/or MPH per application. *See section "5.0 Ignition Timing and Nitrous" for more information on timing selection.*

Any variations in jetting patterns other than what is listed above and engine damage could occur. Please contact Edelbrock Technical Department with any questions you have concerning jetting patterns and their effects on engine performance.

The Victor Jr. Series Nitrous Systems are intended for single-plane manifolds only. ***Do not use a dual-plane manifold*** with the Victor Jr. Series Nitrous Systems. In testing, we found that dual-plane manifolds have some distribution problems at these super high flow rates that could cause serious engine damage.

Engine Operation Considerations

When used correctly, nitrous oxide safely elevates cylinder pressures and temperatures while increasing combustion rate. These characteristics make the engine more sensitive to detonation. To ensure proper performance, engine and drive line life, the following tips are suggested:

• Adequate Fuel Pressure and Delivery

When designing your fuel system, plan on your pumps and lines flowing at least 0.10 gallons per hour per horsepower. The testing at Edelbrock was conducted with a fuel pressure of 6.5 psi. Any variations from this fuel pressure will cause your final air/fuel ratio to change. Consult our Technical Department for any questions on fuel pressure and its effects on final air/fuel ratios when using nitrous oxide.

• Victor Jr. Fuel System Requirements

When using the Victor Jr. Series Kits, the potential horsepower gains are extremely high. The critical area for continued success with your nitrous system lies in the fuel system. In the case of the Victor Jr. Series Nitrous Systems, an auxiliary fuel supply system is a required addition to your nitrous system. A high flow electric fuel pump and high capacity adjustable fuel pressure regulator are both recommended to ensure the fuel flow rate is enough to ensure proper system operation. The minimum size we recommend for the fuel inlet feed line is a -6 (3/8" inch), with a size of -8 (1/2" inch) recommended for the higher horsepower settings.

• Victor Jr. System Monitoring Requirements

Fuel pressure and nitrous pressure gauges are very important. Your fuel pressure must be set properly and a gauge is the only sure way to monitor system performance. The same is true of the nitrous bottle pressure. A nitrous pressure gauge is the only way to be ensure that your system calibrations are within the parameters required of your horsepower settings.

• Fuel Quality

Because Nitrous oxide is an oxidizer, fuel selection is critical. Both octane and fuel consistency affect fuel burn rate. The oxidizer quality of nitrous oxide will accelerate the burn rate, so we recommend a high quality of gasoline. We also recommend you use the same grade of gasoline every time you use your nitrous oxide system. This will help maintain the same fuel burn rate every time.

• Cast/Hypereutectic Pistons

With all nitrous oxide applications, forged pistons are highly recommended. Because of heightened potential for detonation, cast pistons are more prone to failure and cannot handle horsepower increases over 125hp. *Due to this fact,* ***the Victor Jr. Nitrous Systems require that the engine has forged pistons.*** Never initiate your nitrous system before you are at full-load, wide open throttle conditions. Cast pistons will not be able to survive this kind of stress.

• Engine System Upgrades

With all performance modifications, complementary system upgrades will always serve to elevate the consistency and longevity of an engine, especially when using nitrous oxide as a power adder. Modifications such as ignition upgrades, free-flowing exhaust, camshafts, cylinder heads, and manifolds can all add to the performance of a nitrous oxide-injected engine.

Baseline Tuning Suggestions

Utilizing nitrous oxide as a power adder is similar to a supercharger or a turbocharger in that it increases the amount of air an engine can get from atmospheric conditions. There are some significant differences though:

1. The “air” in nitrous oxide is very oxygen rich. This oxygen is of a much higher density, so the opportunity to extract very high quotients of power is very high.
2. Nitrous oxide injection does not have a parasitic load factor associated with its use like a turbocharger or supercharger does. Meaning, it does not cost as much horsepower as a crank-driven supercharger or an exhaust-driven turbocharger.

The most important thing to remember when looking at baseline tuning issues associated with nitrous oxide is that a nitrous “rich” condition is bad. Two parameters that will keep you from catastrophically affecting your engine are:

Nitrous Bottle Pressure... Always keep your bottle pressure between 900 and 950 psi. Yes, there are racers that use different pressures, but the testing we did here at Edelbrock to ensure the jetting maps within this manual are correct, was done in this pressure range. Use any higher pressure than 950 psi and you will be nitrous “rich”. Use any pressures below 900 psi and you will be nitrous “lean”.

Fuel Pressure... Always ensure you have between 6 and 6.5 psi of fuel pressure every time you enable your nitrous system. We used 6 to 6.5 psi of fuel pressure to perform our jet map testing on this system. If you do not have at least 6 psi of fuel pressure going to the fuel solenoid, when it is activated, you will be nitrous “rich”. If you were to have more than 6.5 psi of fuel pressure, when it is activated, to the fuel solenoid, you would be nitrous “lean”.

There are many different ways to jet to a specific power level. However, for the continued safe operation of your nitrous system, we suggest you do not move too far away from the jet map listed within this manual. Catastrophic engine failure could result.

Your Performer RPM nitrous system comes with matched sets of nitrous and fuel jets. These are conservative jetting combinations, based upon 900 to 950 psi nitrous oxide bottle pressure, and 6 to 6.5 psi flowing fuel pressure. Operating with these pressure levels should yield safe and reliable power increases.

Spark Plug Facts... The most important aspects to be considered when selecting a Spark Plug for your nitrous combination are, but not limited to: heat range, firing end design, material construction type, reach, thread size, and gap. We advise lowering the heat range of your spark plugs 1 to 2 steps for every 100 hp added with nitrous. We do not recommend the use of Precious metal type plugs i.e.: Platinum, Iridium, Gold Palladium, or Yttrium. The tips on these types of plugs can get very hot and cause detonation. It is best to use a non projected tip plug without a fine wire center electrode designed for a gap between .025" and .035" with a shorter preferably thicker ground strap. Never try to gap a plug designed for a .060" gap down to. 035".

Edelbrock suggests an NGK spark plug with a heat range of -9 to -11 depending on the nitrous power level being tuned. When in doubt, always go to the next cooler heat range plug.

How to Read Spark Plugs From a Nitrous Oxide Injected Engine...

Spark plugs are a window into the combustion chamber. They will tell many things about the operation of the vehicle. Here are some tips on looking at spark plugs to “read” what is happening with your engine:

1. **Correct timing, mixture and spark heat range**
   Ground strap retains “like new” appearance. Edges are crisp, with no signs of discoloration. Porcelain retains clear white appearance with no “peppering” or spotting.

2. **Excessively rich mixture**
   Porcelain may be fuel stained, appearing brown or black. In extreme cases, ground strap, electrode and porcelain may be damp with gasoline, or smell of fuel.

3. **Detonation**
   Edges of ground strap may be rounded. Porcelain has the appearance of being sprinkled with pepper, or may have aluminum speckles. During heavy detonation, the ground strap tip may burn off. This phenomena can result from excessive ignition timing, too high a heat range spark plug or inadequate fuel octane.

4. **Excessive lean mixture**
   Edges of ground strap may become rounded. Under moderate overheating the tip of the ground strap can discolor, usually turning purple, or the entire ground strap can become discolored.

Ignition Timing and Nitrous

Because we are oxidizing the air/fuel mix going into the engine when nitrous oxide is used, we must pay close attention to the ignition timing profile. Remember, "nitrous" oxygen is more dense than "atmospheric" oxygen and results in an accelerated burn rate of your fuel.

In anticipation of the quicker burn time, you must retard the timing of the ignition system when using nitrous oxide. The more power we try to make, the more timing in degrees we must remove from the timing profile. This is not only in total advance but the time in which we bring timing in (the advance curve).

This is why all nitrous users are so concerned with evidence of detonation. The accelerated burn rate of the air/fuel charge can cause severe detonation without a "nitrous" ignition strategy. A timing profile that is accelerated and a total timing number retarded will keep you from experiencing catastrophic engine damage.

The general rule of nitrous ignition timing should be to retard the "Total" advance number approximately 2 degrees for every 50 HP increase when using nitrous oxide. It is always best to start with your engines best total timing (without nitrous) and reduce total timing from there. Use an initial timing retard setting that is at least 2-4 degrees more retarded than you expect to be the best setting for your application. All stated timing adjustments listed in jet maps is where the motor being tested worked best.

Every aspect of the vehicle and engine affects your nitrous systems performance-- vehicle weight, converter, gearing, engine displacement, cylinder head type, camshaft, compression, manifold and induction type ect.. The exact amount of timing to pull out varies for every combination. Start conservatively, and put timing back in gradually. On a Nitrous system, even 1 degree change in advance can make a big difference.

When using aftermarket ignition components and/or systems, it would be advisable to contact the manufacturer for information on using their components with a nitrous system. It is always better to be very conservative in your timing approach and tune towards an optimum timing setting.

Example:

Ignition timing without Nitrous Oxide	38 degrees "total"
100 HP increase from Nitrous Oxide	4 degrees "retard"
Initial safety margin	2 degrees "retard"
Initial timing with Nitrous Oxide	32 degrees "total"

The following test plan, for determining ignition timing, will give you a guide to determine the best timing profile for your vehicle, hopefully avoiding engine damage during the tuning phase:

1. Install the nitrous jetting for a selected horsepower increase. Use the 100 horsepower setting to learn the finer points of working with nitrous oxide. This will keep your margin for error as large as possible.
2. Estimate the reduced ignition timing that you think will produce best power, based upon the 2° retard per 50 HP increase rule.
3. Set ignition timing 2°-3° retarded from your best power estimate setting. This is your cushion for error.
4. Stabilize nitrous bottle pressure at 900 to 950 psi. It is best to select a pressure and keep the pressure to ±¼ psi.
5. Run your vehicle in a controlled manner (like a ¼ mile drag strip) without the use of nitrous. This is called "on motor". Note vehicle mph as a baseline to measure nitrous assisted increases.
6. Adjust your ignition timing to a nitrous timing setting.
7. Run your vehicle in the same controlled manner (like a ¼ mile drag strip) with the use of nitrous. Note vehicle mph increase and compare it to your baseline.

Note: Listen for any knocking sounds when running the vehicle. Watch your temperature gauges. Continued nitrous use will elevate coolant temperatures. See Testing Checklist for more testing methodology helpful hints.

Edelbrock Corporation, 2700 California St., Torrance, CA 90503
Tech Line: 1-800-416-8628
E-Mail: Edelbrock@Edelbrock.com