OWNER'S MANUAL
MOTORCYCLE

NOTICE: Installation of Cold Fusion Nitrous Systems, L.P. products signifies that you have read this document and have 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. Cold Fusion Nitrous Systems, L.P. 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. Cold Fusion Nitrous Systems, L.P. assumes no responsibility or liability for damages incurred by the use of products manufactured or sold by Cold Fusion Nitrous Systems, L.P. on vehicles used for competition or racing.

2 Cold Fusion Nitrous Systems, L.P. neither recommends nor condones the use of products manufactured or sold by Cold Fusion Nitrous Systems, L.P. on vehicles, which may be driven on public roads or highways, and assumes no responsibility for damages incurred by such use. CFNS nitrous oxide is legal for use in most states when used in accordance with state and local traffic laws. CFNS does not recommend or condone the use of its products in illegal racing activities. CFNS has not pursued California Air Research Board (CARB) exemptions for its kits, hence, they are not legal for use on pollution-controlled vehicles in California. A correctly installed CFNS nitrous system should not alter the emission control performance of your vehicle under standard EPA test cycle conditions.

HAZARDS DEFINED

This manual presents step-by-step instructions that describe the process of installing your CFNS Nitrous Oxide Injection System. These procedures provide a framework for 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

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. 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 the 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 CFNS 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 on the nitrous bottle. 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.

CONGRATULATIONS on purchasing your CFNS Nitrous Oxide Injection System. Your system is composed of the highest quality components available. Every part is made right here in the U.S.A. It should provide many miles of trouble-free performance when used correctly. If you have any questions regarding the performance of your system, call CFNS Technical Service at 1-713-849-4120.

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 is intended for automotive applications and is available for sale to the public In motorcycle applications, Nitrous 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 CFNS 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 CFNS nitrous system only at wide-open throttle and at engine speeds above 2500 RPM. Install a proper engine to chassis ground. Failure to do so may result in an explosive failure of the main nitrous supply line.**

Always Use a high-quality fuel

Don'ts

Engage your nitrous system with the engine off. Severe engine damage can occur.

Modify CFNS nitrous systems (if you need a non-stock item, call CFNS Technical Service for assistance; 1-714-546-0592) Never Over tighten AN type fittings.

Use liquid Teflon on any pipe threads. Never use Teflon Tape because 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.

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.

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

Use octane boosters that contain methanol. Fuel solenoid failure may occur, producing severe engine damage.

WARNING! This CFNS nitrous oxide injection kit can produce large increases in the torque and horsepower output of your motorcycle or ATV. CFNS strongly suggests that when installing your kit, you start with the smallest jets included in your kit. If you desire additional power, larger jets can then be installed. Operation of a high output system by an inexperienced rider can result in serious injury or death.

N_2O/FUEL (JETTING)	**APPROXIMATE POWER INCREASE PER NOZZLE (1 NOZZLE PER CYLINDER)**	**APPROXIMATE N_2O CONSUMPTION RATE (PER NOZZLE)**
16 / 16	9 BHP	.1 lb./ 10 sec.
18 / 18	12 BHP	.15 lb. / 10 sec.
20 / 20	15 BHP	.18 lb./ 10 sec.
22 / 22	17 BHP	.20 lb. / 10 sec.

When used correctly, CFNS nitrous oxide elevates cylinder pressures and makes temperatures while increasing combustion rate. These characteristics make the engine more sensitive to detonation. To ensure

proper performance and engine 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 fuel pump included in this kit is capable of handling the fuel flow requirements of all suggested jetting combinations. High output engines will require the addition of a larger or separate fuel petcock.

Fuel Quality—Most motorcycle engines will perform satisfactorily on 92 octane pump gasoline when using nitrous oxide injection. Higher output applications may require the use of 100+ octane racing fuel.

Forged Pistons—On high horsepower applications, forged pistons are recommended. Cast pistons may be prone to failure at elevated cylinder temperatures and pressures.

ATVs and dirt bikes If your motorcycle or ATV does not have a battery, a small 12 votl/12 amp battery is required.

Accurate calibration of your CFNS nitrous system depends on the bottle remaining at a stable temperature. Mount the bottle away from heat sources such as the engine or exhaust system.

Bottle Orientation

Bottle placement is critical to the performance of your CFNS 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 insure that it picks up liquid nitrous while undergoing acceleration. All 1 lb. and larger CFNS nitrous bottles are assembled, so that the bottom of the siphon tube is at the bottom of the bottle and opposite the bottle label . **WARNING! DO NOT** attempt to remove the siphon tube without completely emptying the bottle of nitrous **and** pressure. A bottle mounted upside-down must have the siphon tube removed before use. Non-siphon bottles can be ordered from CFNS **(10oz. bottles are non-siphon equipped).**

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 . This orientation will position the siphon tube toward the rear of the bottle. Whenever the bottle is mounted in a lay-down position, the valve handle must be toward the front of the vehicle with the label facing up

If the bottle is mounted vertically, the valve handle and label must face toward the front of the vehicle. This orientation will position the siphon tube at the back of the bottle, where the liquid N_2O will be during acceleration.

Figure 2 Nitrous Bottle Siphon Tube Orientation

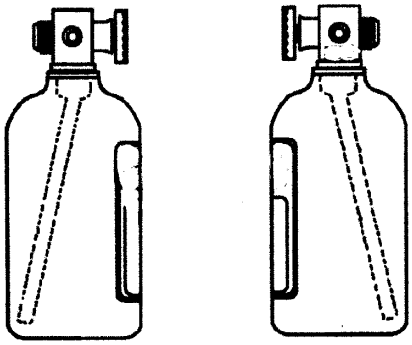
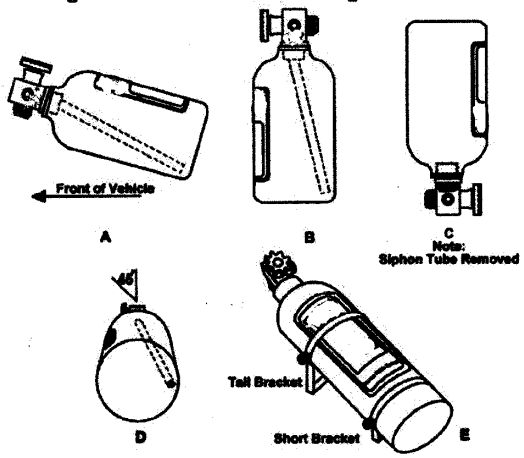


Figure 3 Nitrous Bottle Mounting Orientations



Solenoid Mounting

Use the following procedures to install the nitrous solenoid and the fuel solenoid.

NOTE: Remember to use only Teflon paste on the pipe threads.

HINT: Placement of the solenoid is often limited by the lack of possible mounting locations in the engine compartment.

However, if possible, observe the following suggestions:

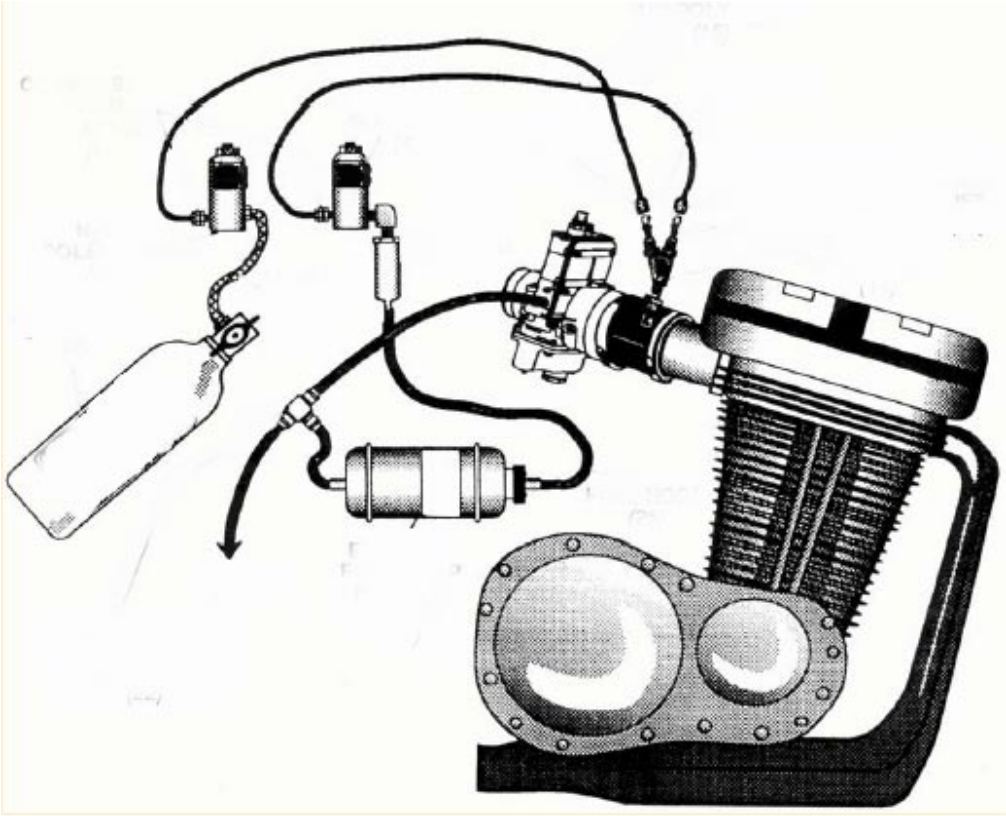
- Keep the solenoids and lines away from exhaust components.
- Keep the solenoids mounted above the Nozzles.
- Place the solenoids near the Fogger Nozzles so that the lines will be as short as possible.
- Trial fit the solenoids with all lines attached to ensure a proper fit.
- An additional solenoid bracket has been supplied so that the solenoids can be mounted separately.
- Solenoids may be mounted sideways or upside-down if necessary.

Attach the outlet of the 1/8” to 1/8” NPT adapter to the inlet port of distribution block.
Remove the nitrous solenoid assembly from the vise.
Attach the solenoid mounting bracket to the bottom of the nitrous solenoid.
Select desired mounting location for the nitrous solenoid.
Install the nitrous solenoid. If the solenoid mounting location is difficult to access, leave the solenoid loose so that the solenoid inlet and outlet ports can be easily accessed.

Nozzle Installation

1. Determine the location of the intake manifold or air cleaner inlet duct where the Nozzle(s) are to be mounted. is usually a good guide for most applications. For unique motorcycles such as Harley-Davidsons, nozzle placement will vary.
2. **HINT:** If possible, it is a good idea to mount the Fogger Nozzle with the discharge end of the nozzle facing downward.

Occasionally, when nozzles are mounted with the discharge end up, fuel will seep down the nitrous passageway and contaminate the seal in the nitrous solenoid causing damage. This is rare, but can occur.
2. Remove the following: air cleaner(s), inlet ducting, carburetor(s), and inlet manifold(s).
NOTE: The degree of disassembly necessary will vary depending upon where you decide to place the Nozzle(s). Drill a 1/4” hole at each location where the Nozzle is to be located.



Nitrous Feed Line Mounting

1. Determine the route for your main nitrous feed line to follow. Ensure that the path is clear of exhaust system, suspension, electrical lines and components, and tires.
2. Feed the nitrous line along the proposed route.
3. Secure the nitrous supply line using nylon tie-wraps.
NOTE: Stainless steel covering the main feed line is very abrasive. Shield paint components to prevent them from contacting the main feed line.
4. Attach the nitrous supply line to the bottle.
WARNING: Nitrous Oxide is dangerous to humans if inhaled or if it comes into contact with the skin. Always point the nitrous line opening away from people when purging the line.

Fuel Pump Installation

1. Pick a mounting location for the fuel pump. Locate the fuel pump away from heat. The pump should be as low as possible in relation to the fuel tank.
2. Install the fuel pump.
3. If you decide not to use a dual outlet petcock (Pingel type), choose a location where the primary fuel line is to be tapped.
4. Cut the primary fuel line.
5. Splice the fuel line TEE fitting in the primary fuel line. If the factory fuel line hose is smaller than the fitting, hose barb fittings may be used to adapt the TEE to your fuel line. Install hose clamps on all fuel line fittings and tighten.
6. Connect the TEE fitting to the inlet port of the fuel pump using the fuel hose and hose clamps.
7. Connect the outlet of the fuel pump to the fuel filter inlet port using the fuel hose and fuel clamps.

Electrical System Installation

IMPORTANT: The wiring instructions included with this kit are intended for motorcycles that activate their horn through a grounding circuit. Some Harley Davidsons activate their horn via a +12V circuit. Before attempting to wire your CFNS nitrous oxide kit, examine a wiring diagram of your motorcycle, or check the horn circuit with a volt-ohm meter.

Microswitch, Arming Switch, & Wiring Grounding Horn Circuit

This wiring scheme is designed to work in conjunction with the existing horn button on your motorcycle. When the system is installed, as described below, the horn will work normally with the CFNS system switch in the unarmed (off) position. Flipping the switch to the armed (on) position deactivates the horn, starts the electric fuel pump, and when the horn is pushed, with the ignition on, WOT activates the nitrous system. For a detailed view of the wiring diagram used for these kits.

NOTE: Due to a wide variety of carburetor and throttle linkage combinations in use, it is impossible to supply a microswitch bracket custom tailored to each application. The universal bracket supplied will need to be modified to fit your specific application

CAUTION: Ensure that the microswitch/mounting bracket does not interfere with the operation of throttle linkage. A binding or sticking throttle linkage can result in serious injury or death to operator or passengers.
Trace and cut out an outline of the microswitch from a piece of heavy construction paper or manila envelope paper. Modify the template (trim, cut bend, etc;) to fit your carburetor and throttle linkage.
Trace the modified template outline onto the microswitch bracket .
Trim and bend the microswitch bracket to fit.
Install the microswitch and microswitch bracket.
Connect the red wire from the relay to one post on the microswitch.
Connect the open post of the microswitch to the lower right terminal on the arming switch using the red wire.
Connect the fuel pump positive (+) pole to the lower right terminal on the arming switch.
Connect one wire from each solenoid together. Join the solenoid wires to the blue relay wire. See diagram.
NOTE: Solenoids are non-polarized, either wire will do.
Splice the remaining lead from each solenoid together. Then, connect to the good ground on the frame.
Connect the green relay wire to the lower left terminal on the arming switch.

4-Stroke Wiring .

Connect the fuel pump negative (-) pole to the good ground on the frame.
Locate the grounding wire between the horn and the button. Cut the wire at a convenient location. Connect the cut wire from the horn to the upper left terminal of the arming switch.
Connect the cut wire form the horn button to the center terminal on the left side of the arming switch.
Connect the middle right terminal on the arming switch to a switched 12V source, through a 15 amp fuse.
Reconnect the battery. Reinstall any items (air cleaner, inlet ducts, etc;) not yet replaced.

Microswitch, Arming Switch, and Wiring +12V Horn Circuit

This wiring scheme is designed to work in conjunction with the existing horn button on your motorcycle. When the system is installed, as described below, the horn will work normally with the CFNS system switch in the unarmed (off) position. Flipping the switch to the armed (on) position deactivates the horn, starts the electric fuel pump, and when the horn button is pushed with the ignition on, WOT activates the nitrous system. Disconnect the battery. Select the mounting location for the microswitch (31). The microswitch should be positioned, so that it does not interfere with the throttle linkage movement while allowing the switch to be triggered at WOT. mounting conditions

NOTE: Due to a wide variety of carburetor and throttle linkage combinations in use, it is impossible to supply a microswitch bracket custom tailored to each application. The universal bracket supplied will need to be modified to fit your specific application

CAUTION: Ensure that the microswitch/mounting bracket does not interfere with the operation of throttle linkage. A binding or sticking throttle linkage can result in serious injury or death to operator or passengers.
Trace and cut out an outline of the microswitch from a piece of heavy construction paper or manila envelope paper. Modify the template (trim, cut bend, etc;) to fit your carburetor and throttle linkage.
Trace the modified template outline onto the microswitch bracket.
Trim and bend the microswitch bracket to fit.
Install the microswitch and microswitch bracket.
Connect the green wire from the relay to one post on the microswitch.
Connect the open post of the microswitch to a good ground on the frame.
Connect the fuel pump positive (+) pole to the lower right terminal on the arming switch.
Connect one wire from each solenoid together. Join the solenoid wires to the blue relay wire. See diagram.
NOTE: Solenoids are non-polarized, either wire will do.
Splice the remaining lead from each solenoid together. Then, connect to the good ground on the frame.
Connect the red relay wire to the lower left terminal on the arming switch.
Connect the fuel pump negative (-) pole to the good ground on the frame.
Locate the power wire between the horn and the button. Cut the wire at a convenient location. Connect the cut wire from the horn to the upper left terminal of the arming switch.
Connect the cut wire form the horn button to the center terminal on the left side of the arming switch.
Connect the middle right terminal on the arming switch to a switched 12V source, through a 15 amp fuse.
Reconnect the battery.
Reinstall any items (air cleaner, inlet ducts, etc;) not yet replaced.

Microswitch Arming Switch and Wiring

REMEMBER: On vehicles with minimal or non-existent charging systems, it will be necessary to add a small 12 volt battery capable of producing at least 12 amps.

Mount the battery.
Install the activation button and the arming switch within easy reach of the driver.
Select the mounting location for the microswitch . The microswitch should be positioned so that it does not interfere with the throttle linkage movement, while allowing the switch to be triggered at WOT.
NOTE: Due to the wide variety of carburetor and throttle linkage combinations in use, it is impossible to supply a microswitch bracket custom tailored to each vehicle. The universal bracket supplied will need to be modified to fit your specific application.
CAUTION! Ensure that the microswitch/mounting bracket does not interfere with the operation of the throttle linkage. A binding or sticking throttle linkage can result in serious injury or death to the operator and passengers. Trace and cut out an outline of the microswitch from a piece of heavy construction paper or manila envelope paper.
Modify the template (trim, cut, bend, etc;) to fit your carburetor and throttle linkage.
Trace the modified template outline onto the microswitch bracket
Trim and bend the microswitch bracket to fit.
Install the microswitch and microswitch bracket.
Connect the red wire from the relay to one post on the microswitch.
Connect the open post of the microswitch to one wire on the pushbutton.
Connect one wire from each solenoid together.
NOTE: Solenoids are non-polarized, either wire will do.
Splice the remaining leads from the solenoids together. Then connect to a good ground connection on the frame.

BASELINE TUNING SUGGESTIONS

The jetting combinations listed below are conservative, based upon 900 psi nitrous oxide bottle pressure and 4 to 5 psi flowing fuel pressure. Operating with these pressure levels should yield safe and reliable power increases.

Recommended Tuning Combinations for CFNS nitrous injection kits

JetPack
N_2O/FuelJetting
Fuel Quality
16/16* 92+ octane pump gas All**
18/18* 92+ octane pump
20/20 92+ octane pump gas
22/22 92+ octane pump gas
*On smaller displacement engines, these jetting combinations may be too rich.

Call the CFNS technical department for jetting suggestions.
**Not recommended for engines smaller than 100cc. Call CFNS for jetting combinations for special applications.

PREPARING FOR OPERATION

After you have completed the installation of your CFNS kit, perform the following checkout procedure before operating yourvehicle.

NOTE: Before performing steps 1-4, make sure that the nitrous bottle valve is closed and the main nitrous supply line is empty.

1. Turn on the fuel pump.
2. Check all the fuel lines and fittings for leaks.
3. Start the engine.
4. Turn the arming toggle switch on. Set the engine speed at 2000 RPM. Briefly depress the activation arm on the microswitch. The engine speed should decrease, if the fuel delivery system is performing properly. A, Troubleshooting Guide.
5. Open the nitrous bottle valve.

NOTE: There should be no change in the engine idle speed.

6. Inspect the nitrous lines and fittings for leaks.
7. ENJOY!!

ADVANCED TUNING FOR MAXIMUM POWER

After performing the Baseline Tuning Suggestions— if you desire to maximize the performance of your system, perform the following:

NOTE: Always perform the nitrous/fuel jetting modifications provided. before attempting to optimize the ignition timing Improper nitrous/fuel jetting combinations can mislead you when attempting to optimize the ignition timing.

Determining Optimum Nitrous/Fuel Jetting

The jetting combinations included in your kit are compromises, intended to provide you with a safe starting point. They are intended to be used with 900 psi nitrous bottle pressure and 4-5 psi flowing fuel pressure. In many instances, installing slightly smaller fuel jets than the units provided in your kit will provide a more optimum nitrous/fuel ratio and increase power.

Always run the baseline jetting included in your kit before attempting to decrease the fuel jet size. Optimum jetting can be determined using the following scheme.

1. Stabilize the nitrous bottle pressure at 900 psi.
2. Perform a dynamometer pull or full throttle pass down the racetrack. Note the power reading or vehicle mph (not e.t.).

Examine the spark plugs for the indication of lean or rich nitrous/fuel conditions (refer to Figure 14 for tips on reading spark plugs).

2A. If the spark plugs appear to be excessively rich, decrease the fuel jet size 2 steps (ex. 28 to 26, 26 to 24, etc;).

2B. If spark plugs appear to be excessively lean, increase the fuel jet size 2 steps.

2C. If spark plugs have a “like new” appearance on the porcelain and electrode, do not make a fuel jetting change.

3. Repeat steps 1 and 2, until the desired mixture is obtained.

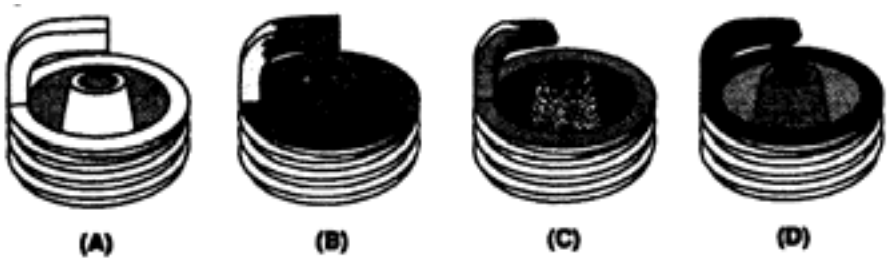
Spark Plug Condition

How to Read Spark Plugs form a Nitrous Oxide Injected Engine

A. Correct Timing, Mixture, and Spark Plug Heat Range

Ground strap retains a “like new” appearance. Edges are crisp, with no signs of discoloration. Porcelain retains clear white to a light tan color appearance with no “peppering” or spotting.

B. 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.

C. Detonation

Edges of the ground strap may become 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.

D. Excessively Lean Mixture

Edges of the 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.

5.1.B Determining Optimum Ignition Timing

IMPORTANT! Ignition timing should be retarded approximately 2 degrees per 50 HP increase due to nitrous oxide injection. Start with the engine's best total timing and reduce from there. Use the initial settings, which are 2-3 degrees more retarded than you expect to be optimum.

Example: Ignition Timing with Nitrous---------- 38°
100 HP Increase from Nitrous---------- 4° Retard
Initial Safety Margin---------- 2° Retard
Initial Timing with Nitrous---------- 32°

The following scheme for determining ignition timing should allow you to determine the optimum setting for your vehicle, without incurring engine damage during the tuning phase.

1. Estimate the reduced ignition timing that you think will produce the best power, based upon the 2 degree retard per 25 horsepower increase rule.
2. Set the ignition timing 2 to 3 degrees retarded from your best power estimate setting.
3. Stabilize the nitrous bottle pressure at 900 psi.
4. Perform a dynamometer pull or a full throttle pass down the racetrack. Note the power reading or vehicle mph.
5. Increase the ignition timing 2 degrees.
6. Perform a dynamometer pull or a full throttle pass down the racetrack. Note the power reading or vehicle mph. Examine the spark plugs for signs of detonation (refer to Figure 13 for tips on reading spark plugs).

6A. If power increase or vehicle mph increase **and** spark plugs show no sign of overheating or detonation, increase the ignition timing 2 degrees.

6B. If power increase or vehicle mph increase **and** spark plugs begin to show slight signs of detonation—STOP. Do not advance the timing further. You may choose to reduce the timing 2 degrees at this point for an extra margin of safety.

6C. If power decreases or vehicle mph decreases, reduce the ignition timing 2 degrees.

7. Repeat step 6 until optimum ignition timing is obtained.

The troubleshooting chart on the following pages should help determine and rectify most problems with your installed CFNS system. If you still need assistance determining or fixing problems, call the CFNS Technical Support at 1-713-849-4120

PROBLEM	POSSIBLE CAUSES	DIAGNOSTIC PROCEDURE	CORRECTIVE ACTION
No change in engine speed when the fuel solenoid is activated (Preparing for Operation—Chapter 4).	System wired incorrectly.	Compare wiring to schematic in Fig. 9.	Wire per instructions.
	Restricted fuel line.	Inspect fuel line for restrictions (crimped or plugged).	Remove restrictions.
	Malfunctioning fuel solenoid.	Turn arming switch ON. Cycle the microswitch. Solenoid should make "clicking" noise.	Repair/replace solenoid.
Change in engine speed when nitrous bottle valve is opened (Preparing for Operation—Chapter 4).	Malfunctioning nitrous solenoid.	Remove and inspect solenoid.	Repair/replace solenoid.
Engine runs rich when system is activated.	Bottle valve not fully opened.	Check bottle valve.	Open valve fully.
	Bottle mounted improperly.	Check bottle orientation.	Mount bottle properly.
	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.
	Mismatched N_2O/fuel jetting.	Compare jetting to recommended values.	Install correct jets.
	Excessive fuel pressure.	Install fuel pressure gauge	Regulate pressure down, or install smaller fuel jetting.
	Loose nitrous solenoid wiring.	Inspect the solenoid wiring.	Repair wiring.
	Malfunctioning nitrous solenoid.	WARNING: *Solenoid discharges nitrous at a high rate. Don't inhale nitrous; death may occur. Skin contact may cause frostbite.* Close bottle valve. Disconnect the nitrous solenoid outlet port. Disconnect the solenoid (+) lead. Open the nitrous bottle valve. Connect the +12V to the solenoid. Solenoid should discharge N_2O at a high rate.	Rebuild solenoid.
No change in performance when system is activated.	System wired incorrectly.	Compare nitrous wiring to schematic (Fig. 9).	Wire system per instructions.
	Loose ground wire(s).	Connect 12V test light to battery (+) terminal. Check for continuity at grounds noted in Fig. 9.	Tighten/repair loose grounds.
	Malfunctioning arming switch.	Turn arming switch on. Connect 12V test light to battery (-) terminal. Check for power at pole #2.	Replace pushbutton
	No power to arming switch.	Connect 12V test light to battery (-) terminal. Check for power at pole #1 on arming switch.	Repair wiring.
	Malfunctioning throttle microswitch.	Temporarily disconnect power relay red wire from microswitch. Connect 12V test light to battery (-) terminal. Manually set microswitch ON. Check for continuity at microswitch positive terminal (Fig. 9).	Replace throttle microswitch.
	Overly rich fuel condition.	Check for black smoke or backfiring through exhaust with system activated.	Install smaller fuel jet or decrease fuel pressure.
Engine detonates mildly when system is activated.	Excessive ignition timing.	Check ignition timing.	Reduce timing in 2° increments.
	Inadequate octane fuel.		Use higher octane fuel.
	Spark plug heat range too high.		Reduce spark plug heat range (maximum 2 steps).
	Too much nitrous flow.		Reduce nitrous jetting.

CFNS Technical Support
Phone: 1-713-849-4120
For online help, please refer to the Technical Info. Section of our website:
www.coldfusionn2o.com