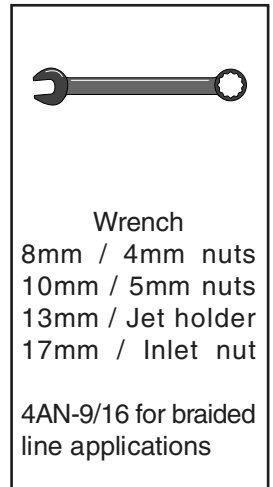
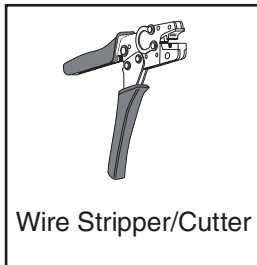
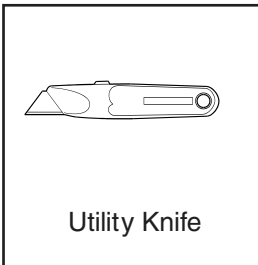
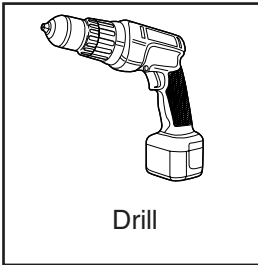




# Table of Contents

List of products.....	1
Nitrous Do's & Dont's.....	2
Nitrous Cylinder Installation.....	3
Nitrous Supply Pipe Installation.....	4
Pulsoid Installation / Jetting.....	5
Line Fitting.....	6
Injector Installation and Plumbing Instructions.....	7
Micro Switch and TPS Installation.....	8-9
Test Procedure.....	Back Cover

## Tools Required



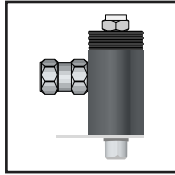
TDI w/ bottle



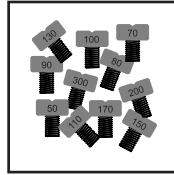
- 10lb bottle
- 15lb bottle



- Bottle bracket



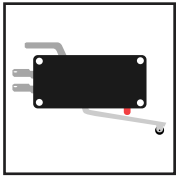
- N2O Solenoid  
Blue - Polished



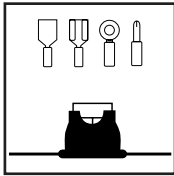
- Jets
- N2O\_\_\_\_\_



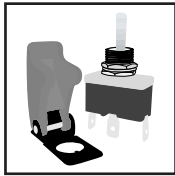
- Venom  
injector
- 6mm tap



- Micro Switch  
w/ bracket



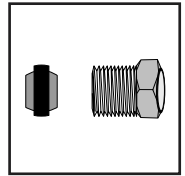
- Wiring 10ft-5ft
- Connectors
- Fuse holder
- 20 amp fuse



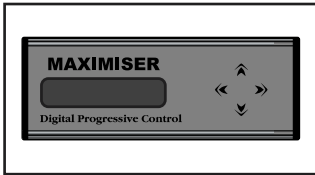
- Arming switch  
w/ flip cover



- 4mm(blue)1m
- 5mm(blue)7m
- Braided\_\_\_\_\_ft.



- 4 x 4mm  
nuts/olives
- 4 x 5mm  
nuts/olives



- Maximiser

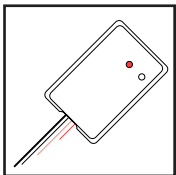


- Minimax

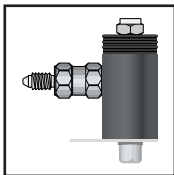


- Sticker

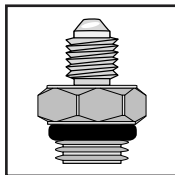
Optional Accessories



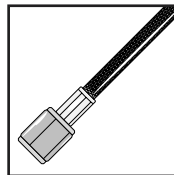
- TP1 Unit



- Purge kit  
Blue - Polished



- 7/16 UNF  
(4AN) male  
adapter



- SS line
- Fuel\_\_\_\_\_ft.
- Nitrous\_\_\_\_\_ft.



- N2O gauge
- w/ manifold

Misc. \_\_\_\_\_

# ***NITROUS DO'S & DONT'S***

**Do** have your vehicle serviced for optimum performance.

**Do** fit a high capacity fuel supply.

**Do** have your engine compression checked with a leakage tester (not a compression gauge). 6% is just acceptable, but no cylinder should exceed a 10% leakage.

**Do** check torque settings of head bolts.

**Do** use only top quality oil.

**Do** purge the nitrous system at night or when the vehicle is left unattended.

**Do not** operate the nitrous system without the engine running at a proper gear and rpm.

**Do not** start the engine if you suspect the nitrous system has been activated while the engine was not running. Purge the nitrous from the engine by removing the plug caps and cranking the engine over.

**Do not** use the nitrous system when the engine is off load other than for brief testing during a static test.

**Do not** leave the nitrous bottle valve open while the engine is not running.

**Do not** use any components other than those supplied with the system. Each component is an integral part of the system and incorrectly matched or unsuitable components may cause engine failure at worst, or may not produce the best results at least.

**NOTE:** Remember that any weakness in the original design of the engine and transmission will be brought nearer to it's limit when large amounts of nitrous are used. Therefore it is advisable to strengthen any such known weak components before to much power is added.

## **WARNING**

Failure to follow advice can result in poor results/performance, or engine damage.

# Nitrous Cylinder Installation and Mounting

The nitrous cylinder must be mounted exactly as shown (Fig.1). In this position **liquid** nitrous oxide will be delivered, which is essential for the system to work properly. If you can't mount the cylinder exactly as shown, phone for advice. The brackets supplied will provide secure mounting with quick release for ease of refilling.

Position the bottle brackets to ensure that the valve end of the bottle is **higher** than the base end, with the outlet pipe connection pointing towards the floor (no other way). Please contact us if you are unable to mount the cylinder as shown for vehicle specific advice.



**Fig. 1**

**Your Max Flow bottle valve comes equipped with a SPRV:** The "SPRV" replaces the "blow off disc" that is common on other valves. Factory set at 1,000 psi and can be adjusted up to 1,700 psi. Pressure control ensures no lean conditions for set jet ratios and no more burst disc that loses all the bottle contents. The "SPRV" works by opening and bleeding off excess "gaseous" pressure when the set pressure is reached and then closing again. Wasted gaseous nitrous is very minimal. **Please contact if needing adjusting.**

## **WARNING**

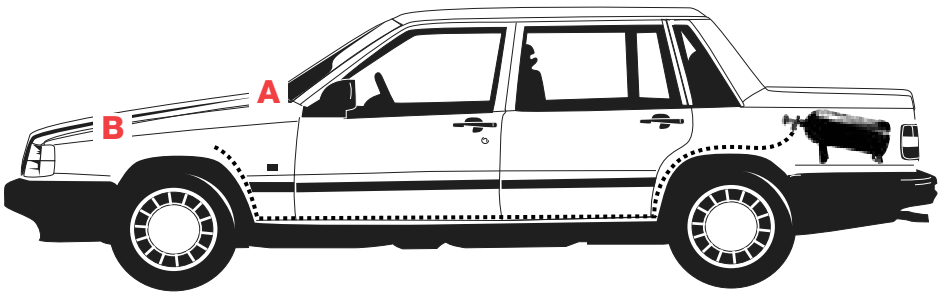
**The cylinder valve should not be opened unless the outlet is aimed into open space, or connected to the system.** When the valve is opened nitrous is discharged at a high pressure (approximately 800-1,200 psi@ - 129 degrees), at which this temperature can cause a painful freeze burn if it makes contact with the skin.

# Supply Line Routing

**5mm Nylon Line:** The vital route of the nylon nitrous supply line for **best** performance is shown in (Fig. 3), where the pipe runs through the inside of the car with the wiring loom and into the skuttle, between the windshield (screen) and engine bay (**A**), or the front inner fender (wing) or similarly cool area (**B**).

**SS Braided Line:** If you have chosen the optional braided line then be sure to route in as cool as possible exterior location. You will most likely have to drill a hole in your boot(trunk), truck bed, or hatchback area floor to pull the line through to underneath the vehicle and run up to the engine bay.

If you are unable for any reason to route the pipe as shown and explained, **please contact us for advice.**



**Fig. 3**

## **WARNING**

**Do not** kink the nylon pipe by bending it too tightly, as this will weaken the pipe and result in a burst when the pipe is filled with high pressure gas. **Do not** allow the nylon nitrous supply line to make contact with **hot** objects, as this will weaken the pipe and result in it bursting when under pressure. **Always** protect the nylon supply line from heat in the engine bay or other areas of extreme heat.

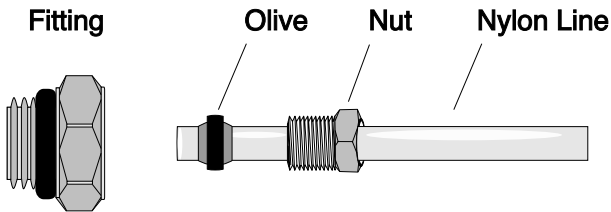
**VERY IMPORTANT!** Never run a supply pipe where it is subjected to excessive heat as this will only boil the nitrous sooner, which results in poor performance or loss of overall performance from overfueling. The 5mm (blue) nitrous supply line is rated at 1500 psi and can burst if pressures near or exceed this. We don't advise pressurizing the line or keeping the line pressurized if your gauge reads levels above 1200psi. Take measures to cool the bottle down to normal usable pressures (1100psi or less) as this will only aid in your safety, reliability of nitrous supply line, and performance as you now have dense liquid nitrous again and not just gaseous nitrous that has little to no performance benefit.

# Nylon & Braided Line Fitting's

Run the enclosed 5mm blue nylon pipe from the Nitrous cylinder to the Nitrous (blue) Pulsoid inlet (Fig. 4). Cut the pipe to length using a sharp utility knife (DO NOT use wire snips, pliers etc. as these will deform the pipe end and make it almost impossible to fit the nut and olive). Slide the nut and olive into the pipe ends as shown below (Fig. 5). Insert the pipe ends into the fittings (bottle, pulsoid etc.), then slide the nut and olive into the fitting. Tighten the nut to retain and seal the pipe (but without excessive force) as this will crush (neck) the pipe and restrict the flow. Make sure to hold the nylon pipe securely, so it doesn't back out while tightening the nut.

To check that the pipe is totally sealed, briefly turn on the Nitrous cylinder valve and inspect for leaks with soapy water at the connections. If a leak is detected, tighten up the nut (whilst avoiding contact with any escaping gas particles) until the leak is stopped. When you are satisfied that the system is leak proof, release the pressure in the system by using an optional purge if installed or loosening the fitting at the bottle nut.

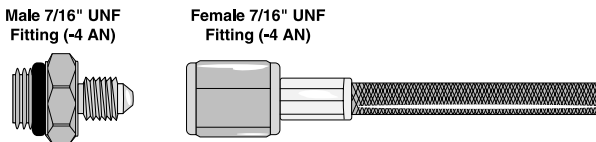
**IMPORTANT: When tightening the fittings to secure pipes, we strongly advise the use of the correct size spanners otherwise damage may occur and the fittings fail to do their job.**



**Fig. 5**

## Braided Line Applications

**NOTE: This fitting does not require sealant on threads. Use an -AN wrench or equivalent wrench of proper size, so fitting end does not get damaged.**



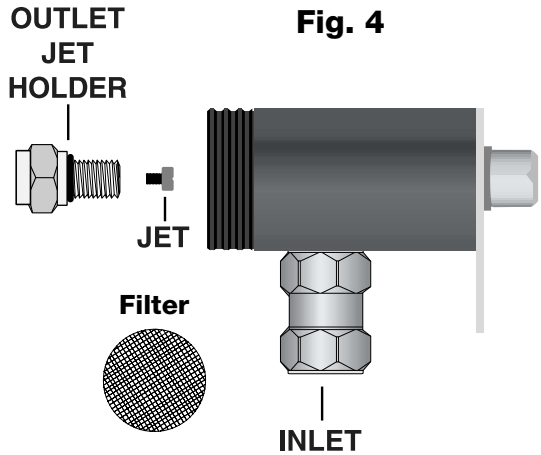
**Fig. 6**

# Pulsoid Installation

The pulsoids must be mounted in as cool a location possible, and close to the injector (**if possible the pipe between the pulsoid and the injector should be kept under 12" for optimum performance**). The pulsoids must also be easily accessible for jet changing, as the metering jets are located in the outlet (Fig.4). If possible **never** mount the Pulsoids at the back of the engine, on the fire-wall (bulk head), or rear inner fender (wings) as these are the hottest parts of the engine bay and can start or increase the vaporization process of nitrous much earlier. Examples of suitable pulsoid locations in the order of preference; **1)** Skuttle between windshield (screen) and engine bay, **2)** Front grille, **3)** Front inner fender (wing). **Never remove bottom stud of pulsoid or use loctite on stud.**

**- N O T E -**  
The nitrous filter is a white element located inside the Nitrous solenoid inlet nut. Use two 17mm spanners to separate the nut in two pieces and access. If dirty, replace for constant and optimal flow.

The fuel solenoid requires no filter as the factory fuel filter is adequate.



## Jetting (TDI vehicles ONLY)

- 1) The 'theoretical' power rating is half the nitrous jet number (e.g. 200 = 100bhp).
- 2) Extra fuel needs to be added via suitable means per application.

# Venom Injector Installation

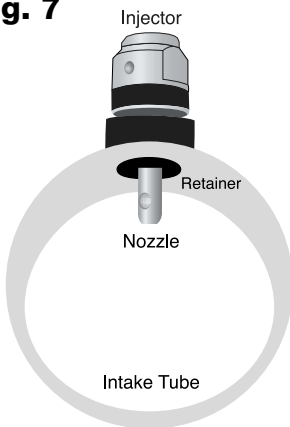
The Venom injector is usually fitted into the rubber or plastic inlet hose by punching an 4mm hole into the intake pipr after the intercooler and before the intake manifold. For proper inejctor installation see (Fig. 7)

**Ensure the outlet ports protrude beyond the retainer** (Fig. 7). It is "essential" that the "whole" of the outlet ports are unobstructed. Two spacers are provided for this purpose, if neither allows the right protrusion you **MUST** reduce the length of the most suitable one to allow the injector outlets to protrude clear of the retainer. When fitting to the rubber or plastic inlet hoses the Venom injector should be pushed through a tight hole punched in the hose and the retainer screwed on to the injector from the inside (Fig. 7). **(A 6mmx1mm tap is needed for tap applications)**

## Plumbing Diagram

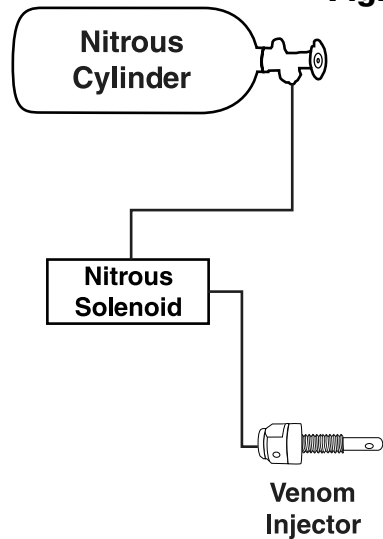
Please see below (Fig.8) for plumbing the nitrous system.

**Fig. 7**



**NOTE:** Have injector angled about 10-15 degrees off center for vortex effect. Don't point straight down intake tube.

**Fig. 8**



# WARNING

**Disregarding these instructions could result in engine damage.**

# Throttle Switch Installation

The throttle activated micro switch should be mounted to the throttle body after modifying the universal mounting bracket as required to suit your car. Once fitted it is **essential** to check the operation in the following manner.

1. Have the "driver" sit in the drivers seat as **normal**.
2. Have the "driver" slowly press down "fully" on the throttle pedal. Whilst an assistant watches the movement of the throttle mechanism in the engine bay.
3. Check that the throttle mechanism **fully** operates the micro switch.

**IMPORTANT:** Never rely on setting up the switch by hand operating the throttle mechanism, as this may not duplicate actual pedal movement.

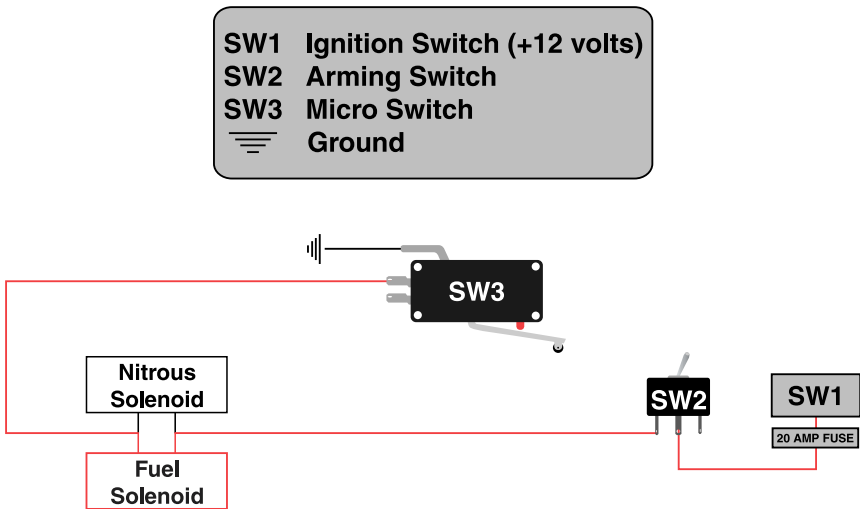


Fig. 9

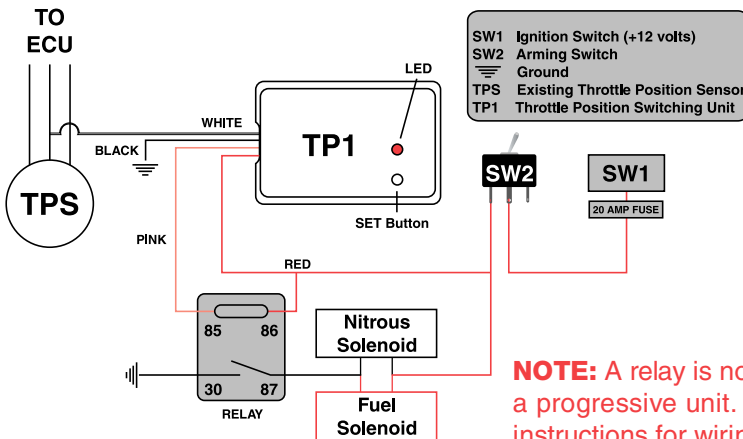
## WARNING

Never use a low amp micro switch if replaced unless adding a relay. A 12-15 amp switch must be used for reliable use. Also use a 15-20 amp activation switch.

**NOTE:** If using multiple solenoids, connect in parallel the same way as shown above for a single pair of solenoids. Example: A wire from each solenoid will connect together to a power and then the other wire from each solenoid will connect together to a ground. A relay must be added for multiple sets of solenoids when not using a progressive controller.

## - OPTIONAL - TPS Switch Installation

1. Using a "digital" volt meter and with the ignition switched "on", determine which wire on the throttle position sensor gives either a 0 to 5 volt reading (or the reverse on some applications) as the throttle is activated. When you have determined the right wire on your TPS sensor, connect the **white** wire from the TP1 unit to it.
2. For direct feed from battery: Wire the remaining wires as shown (Fig.10), but leave the pink (pink wire will activate the solenoids) and red wires disconnected. **a)** Turn the ignition on. **b)** Press and hold the TPS set button and connect the red TPS wire to power (12 V). Release the set button and the led should illuminate for 2 seconds. **c)** Open the throttle using the pedal to the position that you want the Nitrous System to activate (between 80 and 90% of full throttle) and then briefly press the set button again. The LED should illuminate for 2 seconds again and then switch off, which indicates that the unit is ready for use. Opening the throttle to WOT should now cause the LED to illuminate. **d)** Now wire remaining wires with power switched off.
3. For connection to 12V ignition: Wire the remaining wires as shown (Fig.10), but leave the pink (pink wire will activate the solenoids) disconnected. **a)** Press and hold down the set button with the ignition turned off. **b)** Turn on the ignition switch to IGN only (**not Start**) and release the set button. The LED should illuminate for 2 seconds after you release the set button. **c)** Open the throttle using the pedal to the position that you want the Nitrous System to activate (between 80 and 90% of full throttle) and then briefly press the set button again. The LED should illuminate for 2 seconds again and then switch off, which indicates that the unit is ready for use. Opening the throttle to WOT should now cause the LED to illuminate. **d)** Now connect the **"pink"** wire as shown (Fig. 10) after the unit has been set.
4. Operating the pedal/throttle past the **"set"** position should activate the relay and Pulsoids, at this time the LED lights up.



**Fig. 10**

**NOTE:** A relay is not needed if using a progressive unit. Use progressive instructions for wiring diagram.

# Test Procedure

- 1.** Disconnect the outlet pipe from the injector and aim the N2O to atmosphere. Hold the pipe securely and activate the system briefly, monitoring the results at the open pipe ends. N2O liquid should be seen flowing from the pipe as the system is activated, and should stop flowing when the system is switched off.
- 2.** Connect the nylon pipe back as they were in the injector.
- 3.** Start the engine and run up to normal temperature, hold the revs at approx. 1/3 of max. rpm (e.g. max. rpm limit 6,000 test rpm 2,000) and briefly activate the system whilst monitoring the engines response, and the exhaust gases.
- 4.** Engine rpm should rise (as if you had operated the throttle) and then fall back to normal as you release the switch, whilst the exhaust should become less black than normal smoke which indicates a leaner mixture. If the engine sounds in any way different to the way it sounds when you rev. up the engine normally, cease testing and report to our technicians.
- 5.** If all goes as it should, then you can take the vehicle on the road and carry out the next test. Accelerate hard from say 30 mph up to 70 mph. You should feel a stronger acceleration and less black smoke. If you hear any noises other than a louder exhaust note, or you feel anything other than a smooth surge of power, cease the test and contact our tech number.

## Lifetime Warranty

Highpower products are covered by a Lifetime warranty against any defects for the lifetime of the original purchaser. This warranty does not cover any damage done by modifying or tampering of the original product outside of a Highpower representative. If any part becomes faulty, please contact a Highpower office with proof of purchase for an exchange or warranty coverage.

Headquarters:

### **Highpower Systems International Ltd.**

Rands Lane, Armthorpe Doncaster

South Yorkshire, England

DN3 3DZ, U.K.

44 (0) 01302 834343

[www.noswizard.com](http://www.noswizard.com)