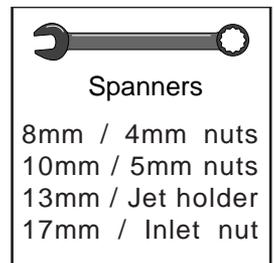
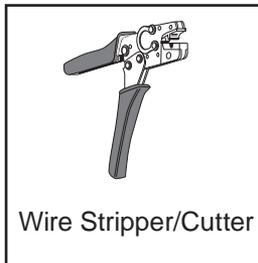
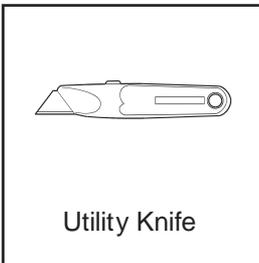
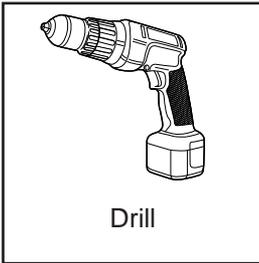


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Tools Required

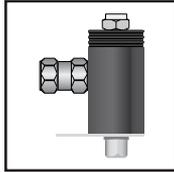




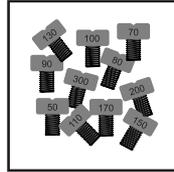
- 5lb bottle
- 11lb bottle



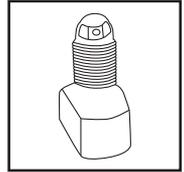
- Bottle bracket



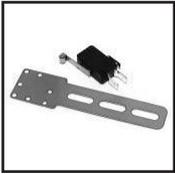
- Nitrous Pulsoid
- Fuel Pulsoid



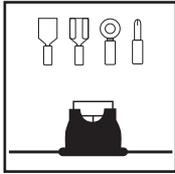
- Jets



- Crossfire injector



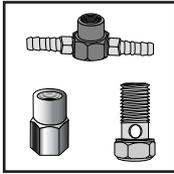
- Micro Switch & bracket



- Wiring 3m
- Connectors
- Fuse holder
- 20 amp fuse



- 4mm (red)
- 4mm (blue)
- 5mm (red)
- 5mm (black)



- Fuel Fittings
- Fuel barb
- Schrader
- Banjo bolt



- Arming switch & flip cover



- 5mm nuts/olives



- 4mm nuts/olives

Nitrous Bottle Installation

The nitrous bottle 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. The brackets supplied will provide a secure mounting with quick release for ease of refilling.

Position the bottle bracket 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.**

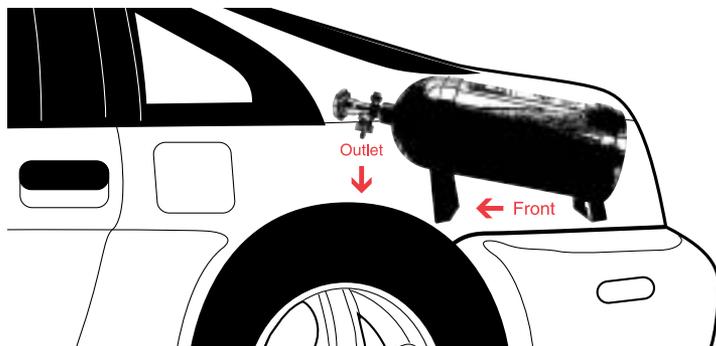


Fig. 1

WARNING

The bottle 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 (approx. 800 psi to 1,200 psi @ -129 degrees) and at this temperature it will cause a painful freeze burn if it makes contact with the skin.

The MaxFlow valve is equipped with an Safety Pressure Relief Valve (SPRV) The SPRV replaces the common **blow off disc** on other valves and works by opening and bleeding off excess **gaseous** pressure. When the safe pressure is reached the valve will close again. This cycle will always be repeated automatically.

Note: Wasted gaseous nitrous is very minimal. Please contact WON if adjustment is required from the 1,500 psi (approx.) factory setting.

Supply Pipe Routing

5mm Nylon Line: The vital route of the nylon nitrous supply line for **best** performance is shown in (Fig. 2), where the pipe runs through the inside of the car with the wiring loom and into the skuttle, between the windscreen and engine bay

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.**

Pulsoid Installation

The Pulsoids must be mounted in the coolest possible location 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.5). If possible **avoid** mounting the Pulsoids at the back of the engine, on the firewall (bulk head), or rear inner wings as these are usually the hottest parts of the engine bay, which increases the vaporisation process of the liquid nitrous to gas. Examples of suitable Pulsoid locations in the order of preference are;

1) Skuttle (between windscreen and engine bay), **2)** Front inner wing, (see Fig. 2).

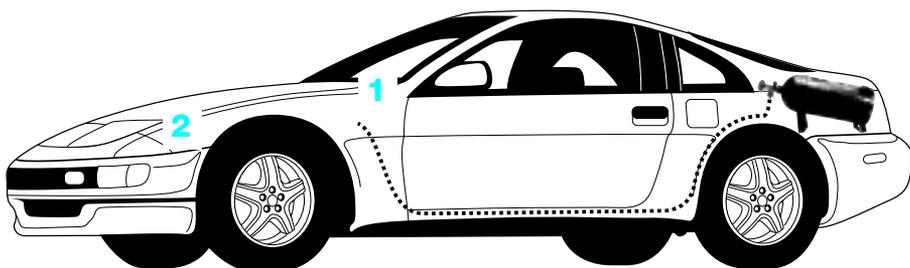


Fig. 2

WARNING

Always run the supply pipe in the coolest possible areas, as heating causes the liquid nitrous to turn to gas, which causes overfueling due to inadequate nitrous flow resulting in poor performance.

Nylon & Braided Pipe Fittings

Run the enclosed 5mm black nylon pipe from the nitrous bottle to the nitrous (blue) Pulsoid inlet. Cut the pipe to length using a sharp utility knife or nylon pipe cutter. **Do not** use wire snips, pliers, etc. as these will squash and deform the pipe end making it almost impossible to fit the nut and olive. Slide the nut and olive onto the pipe ends as shown below (Fig. 3). Insert the pipe ends into the fittings (bottle, Pulsoid, etc.). Tighten the nuts adequately to retain & seal the pipe but not excessively as this will crush (neck) the pipe and restrict the flow. Make sure to push the nylon pipe securely in to the fittings, so it doesn't slide back out while tightening the nuts.

To check that the pipe is totally sealed, briefly turn on the nitrous bottle 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 may fail to do their job.

Nylon Pipe Fittings

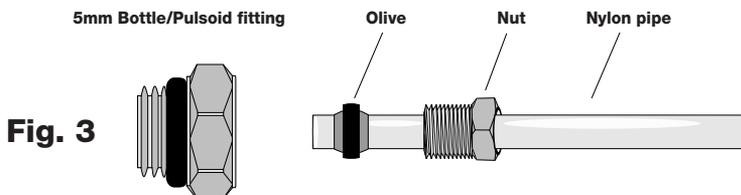


Fig. 3

Braided Hose Fittings

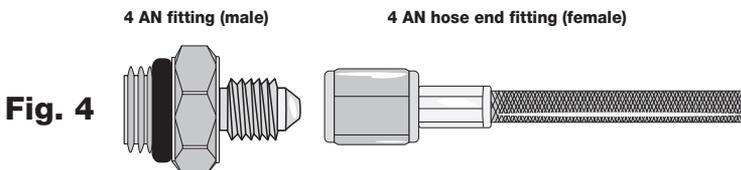


Fig. 4

NOTE: None of the above pipe fittings require sealant on the threads.

Fuel Supply (Take Off) Plumbing Instructions

Using one of the following methods take a fuel feed from your existing fuel system.

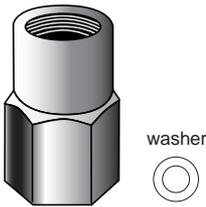
Method 1) Our **pressure port adaptor** provides a simple connection for some cars. Remove the blanking cap and then carefully depress the valve stem to depressurise the system, (catch the leaking fuel with a rag then dispose of it carefully). Remove the valve core using the tool provided - this is VITAL as failure to do so will result in engine damage. Ensuring the sealing washer is positioned correctly to sit on the end of the fuel test point, screw the adaptor in to place using a suitable liquid sealer.

Method 2) Our **banjo bolt** replaces the original bolt fitted to the fuel filter or rail. Loosen the original banjo bolt to release the fuel pressure, (catch leaking fuel with a rag, then dispose of it rag carefully), then fit the new bolt ensuring that both the sealing washers are correctly position either side of the banjo.

Method 3) Our **barbed T piece** is designed to fit a wide range of fuel pipe sizes. Cut the original pipe at a suitable point, insert the 'T' and secure the pipes with the clips provided.

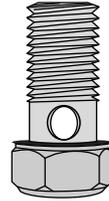
Once the fuel adapter is fitted run the red nylon pipe between the fuel supply and fuel (red) Pulsoid inlet and then cut to length using the method described earlier.

Fig. 5a



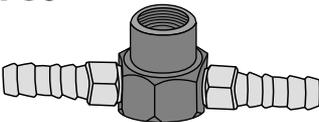
Method 1) Schrader adapter

Fig. 5b



Method 2) Banjo Bolt

Fig. 5c



Method 3) T Barb

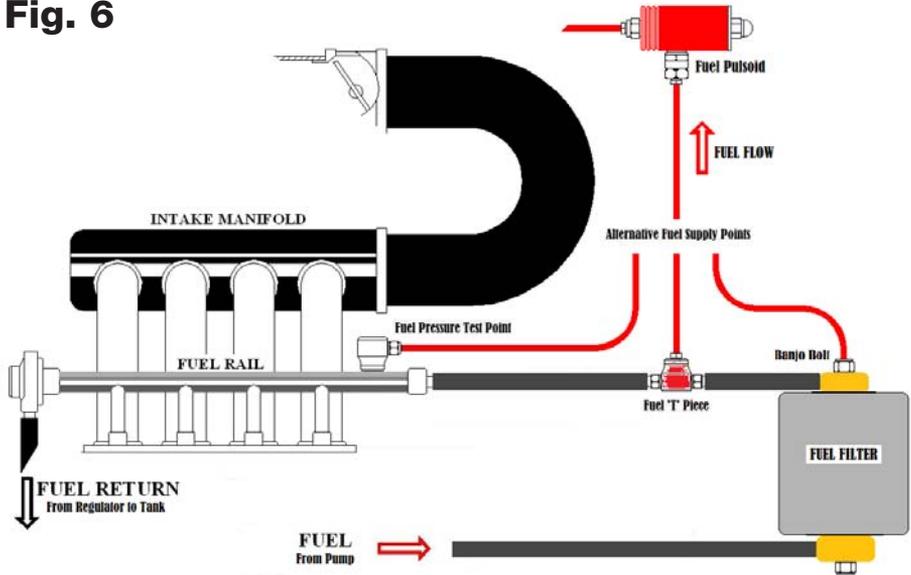
WARNING

Be sure to check and secure all fuel fittings. Any amount of fuel leakage could cause a fire and possible damage to vehicle and person.

See next page (Fig. 6) for fuel fitting locations and installation.

Fuel Adapters & Plumbing

Fig. 6



Please find the fuel source that applies to your application and follow directions from previous page. **Please contact WON if you are unsure of correct location.**

WARNING

It's vital that the fuel adapter (take off) supplied with the kit is connected on the **high pressure** side of the fuel regulator. **Do not** connect to the low pressure **return** side of the regulator as this can result in engine damage.

Crossfire Injector Installation

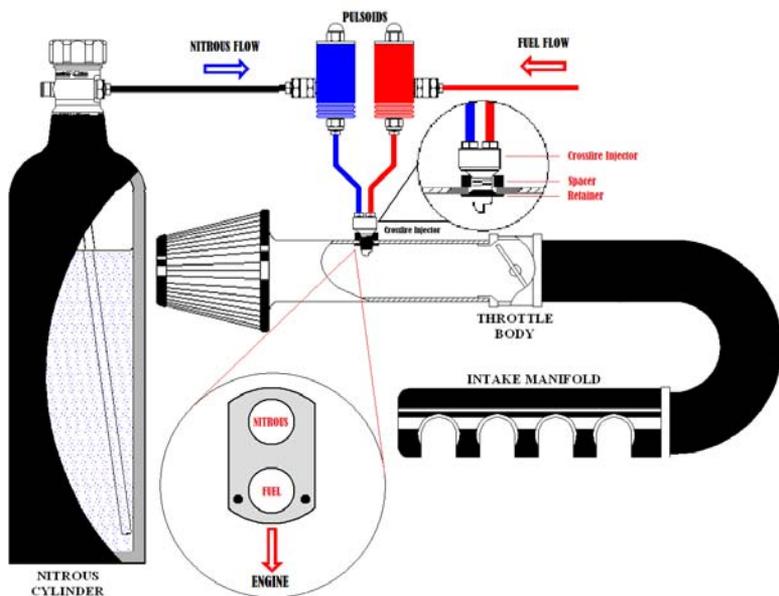
Single Crossfire injectors should be fitted to injected cars near to the throttle body in the intake tube, etc. from where the flow is all downwards towards the engine, which will deliver the most even distribution while minimising fuel drop out.

To fit the injector into a rubber hose just punch an 8mm hole in a suitable location. Secure the injector by screwing on the retainer from the inside the hose (Fig. 7.)

The Crossfire can be fitted into a plastic or metal section of the intake, by either drilling an 11mm hole and using the retainer as described above or by drilling a 9mm hole and tapping to 10x1mm at a suitable location as near as possible to the throttle body. To correctly position the injector in various applications, the most suitable length spacer should be fitted and then a small amount of liquid sealer applied to the external thread before being screwed (lightly) in to place.

Ensure the outlet ports protrude beyond the retainer and/or any part of the induction system, also avoid getting any sealer on the tip to ensure optimum flow (Fig. 7).

Fig. 7



NOTE: To achieve optimum results it is sometimes beneficial to rotate the Crossfire left or right by a few degrees (up to 15 either way), as this can help achieve optimum distribution, because it creates a vortex 'effect' - performing the static test (as described on the last page of these instructions), a number of times at different angles.

⚠ WARNING

Disregarding these instructions could result in poor performance and/or engine damage.

Metering jet size verification

Before connecting the outlet pipes to the Pulsoids, it is **essential** to check that the metering jet/s are fitted to jet holder/outlet adapter/s and that they are the right size/s to suit your application. The jet holder / outlet adaptor is located at the opposite end to the mounting stud (see Fig. 8) and should be unscrewed using a 13mm spanner/wrench.

Once removed the head of the metering jet should be visible, protruding slightly from the end of the male thread and it should be possible to see a size/number on the side. If you can't see a number you'll need to remove the jet for closer inspection, possibly with the aid of a magnifying glass.

To remove the jet put the jet holder in a 13mm ring spanner or 'clean' socket and unscrew the jet using a suitable flat blade screwdriver.

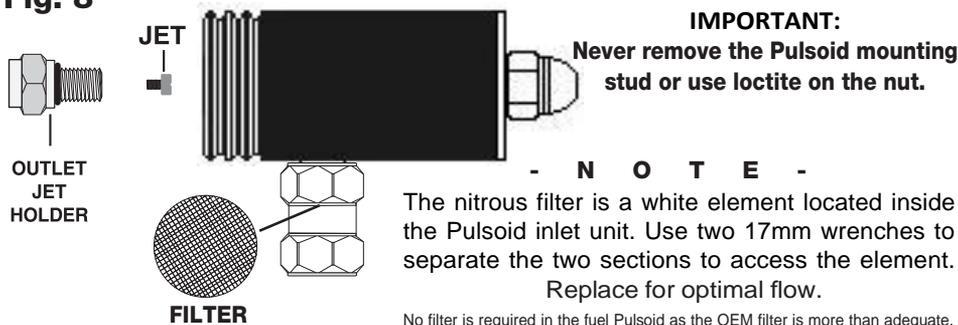
IMPORTANT: Remove and replace only one jet at a time, as it is very easy to mix up the jets and that could lead to poor performance.

Check the jet/s sizes against the parts list supplied with the system or the jet specification chart on our web site.

Assuming you have the correct jet/s, screw the jet in to the jet holder using your fingers and then 'lightly' nip it up with the screwdriver to make a seal, then reassemble in the reverse order of the above instructions.

CAUTION; The metering jets are made from brass and are easily damaged beyond use if a badly fitting screwdriver or excessive force is used on them.

Fig. 8



Jet sizes (fuel injected vehicles ONLY)

- 1) The 'theoretical' power rating is half the nitrous jet number (e.g. 200 = 100bhp).
- 2) The fuel jet is initially matched to the nitrous jet at a ratio of 2:1 to produce a very safe, rich A/F ratio. Example: a nitrous jet marked 200 would need a fuel jet of 100 and would have a theoretical power rating of 100 bhp (on n/a engine this 'may' result in a gain of less than 100hp whilst a t/c or s/c motor may see more than 100hp).
- 3) After initial tests have been carried out and reported back to us, any adjustments to the nitrous:fuel mixture ratio can be made by appropriate fuel jet changes.
- 4) Once the 'optimum' mixture ratio has been determined, this ratio of jet sizes should be maintained as you move up the power ladder.

For vehicles other than fuel injected, the initial ratio is 1:1

The ratios listed are approximations and fine tuning for individual vehicles may be required

Throttle Micro Switch Installation & Wiring

The micro switch should be mounted to the throttle body or foot pedal, etc. using the the mounting bracket supplied, in such a way that it will be activated at full throttle **ONLY**. 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 at full throttle.

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

When all the electrical components are fitted, wire the system as shown below. For simplicity the systems are supplied without a relay but for greater reliability on an old vehicle or one with limited wiring, a relay can be added as shown in Fig. 9b

Fig. 9a

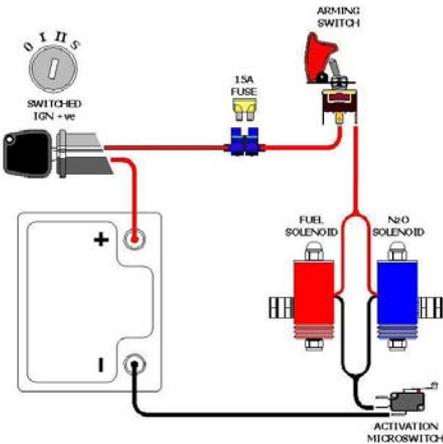
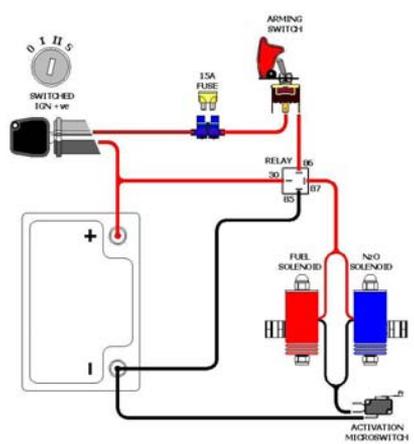


Fig. 9b



WARNING

If the switches supplied with the system are replaced, it must be with suitable high Amps alternatives with a minimum rating of 15 Amps, unless a suitable relay of at least 15 Amps is added.

NOTE: If using multiple Pulsoids, connect in parallel as shown above for a single pair of Pulsoids. That means a wire from each Pulsoid should be connected together to a power and the remaining wires should be connected to a ground. A 30-40 amp relay must be added when multiple sets of Pulsoids are used without a progressive controller.

Fitting in Brief

1. Mount the nitrous bottle as shown in (Fig.1).
2. Run the supply pipe and connect using the nuts and olives supplied (Fig. 2).
3. Mount the Pulsoids in as cool a location as possible and close to the injector.
4. Connect into the existing fuel supply line (**only** on the **delivery, not return** side of the system), using the appropriate adapter for your application (Fig. 6).
5. Install the Crossfire injector in the induction system near to the TB (Fig. 9).
6. Run the red (fuel) and blue (nitrous) nylon pipes from the Pulsoid outlets to the injector and connect using the nuts and olives supplied (Fig. 3).
7. Mount and then connect the appropriate activation switches and connect all the electrical hardware as shown (Fig. 11)..

Static Test Procedure

1. Disconnect the outlet pipes from the injector/s and aim the N2O to atmosphere and the fuel pipe into a bottle. Hold both pipes securely and activate the system briefly, monitoring the results at the open pipe ends. Fuel and N2O liquid should be seen flowing from the pipes as the system is activated, and should stop flowing when the system is switched off.

Important: Do not use the system if fuel doesn't flow when the system is activated.

Phone for assistance.

2. Re-connect the nylon pipes to the injector/s.
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), then activate the nitrous. Hold the system activated whilst monitoring the engines response and exhaust emissions, as long as the engine rpm doesn't exceed the red line, bog badly or make any unusual noises - in which case the system should be de-activated.
4. Engine rpm should rise (as if you had operated the throttle) and then fall back to normal as you release the switch.

The nearer the engine rises to the redline the closer the mixture is to optimum but it should also be kept in mind, that it also means the mixture is leaner than a lower rpm response so you need to be confident about the strength & tune of your engine to run at those settings, **b)** Revving past the redline indicates an overly lean mixture and the fuel jet size should be increased, **c)** Low rpm rise indicates the mixture is too rich and a smaller fuel jet will be needed to correct this

The response that delivers the best and safest result is one that rises to within 500 - 1000 rpm of the red line

5. If all goes as it should, then you can take the vehicle on the road and carry out the next tests; **a)** Accelerate hard from say 30 mph up to 70 mph. Slow to a stop and then shut off the engine, stop the vehicle and remove the spark plugs for inspection. **b)** Repeat the test using nitrous this time and compare the plug colour with the colour without nitrous. You should feel a stronger acceleration and the plugs should be the same or slightly darker colour. If you hear any noises other than a louder exhaust or you feel anything other than a smooth surge of power, cease testing.