



Powersports System Instructions EFI & Carbureted Applications

PART NUMBER 50-1XXXX-XX

INSTALLATION INSTRUCTIONS

Thank you for purchasing the highest quality nitrous system on the market. Nitrous Outlet strives to offer the best product with the best price and customer service available. Nitrous Outlet has trained professionals on staff to help with any questions you may have before, during or after your installation. You can contact Nitrous Outlet at techsupport@nitrousoutlet.com.

Most Nitrous Outlet systems are designed to work on specific applications. We suggest you contact the tech dept to learn what modifications, if any, are needed for this system to operate properly on your application.

It is the purchaser's responsibility to follow all installation instructions guidelines and safety procedures supplied with the product. It is up to the customer to determine the compatibility of the product with the application the purchaser intends to install the product on.

Nitrous Outlet assumes no responsibility or liability for damages incurred by these products manufactured and sold by Nitrous Outlet.

Nitrous Outlet neither recommends nor condones the use of products manufactured or sold by Nitrous Outlet on vehicles which may be driven on public roads or highways and assumes no liability for damages incurred by such use.

These instructions will guide you through the installation of your Nitrous Outlet nitrous system. For the best results please follow the directions in order, step by step. This way you can ensure you have a safe and properly installed system.

Use blue Loctite on all pipe thread connections **DO NOT** use **ANY KIND** of sealer on the AN connections. **DO NOT USE TEFLON TAPE**. If you use blue Loctite you will need to warm the connection to loosen the seal.

Before starting your installation, disconnect the negative battery connection. See your owner's manual for further information, if needed.

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SECTION 1: NOZZLE INSTALLATION

The system layout of your Nitrous Outlet Powersports system begins at the nozzle(s)

You will need to create a mockup of a nozzle and the hoses that attach to it, First step is to install the correct jets in the nozzle based on the enclosed jet chart. Then attach the appropriate -3 AN stainless-steel hoses to the nozzle. The hose with the black ends go on the Nitrous jet holder on the nozzle and the hose with the red nuts and 90-degree end goes on the fuel jet holder. The 90-degree end of the fuel hose goes on the nozzle.

When you find a good location, (refer to photo below for correct placement suggestions) indicate the center of the hole to be drilled with a center punch. Using a 1/8" bit drill, slowly begin drilling the hole; aim the drill to end at the best location inside the port, again refer to photo or call the tech line. If the hole does not end up exactly where you wanted it to, use a 3/16" drill to redirect the hole to a be closer to where you wanted it to be. Then using a 1/4" drill you can finalize the hole.



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The next step will be tapping the hole. If your system uses the #00-40001 or #00-40006 use a 1/16 pipe tap. Refer to the instructions below titled "1/16NPT" If your system uses the #00-40004 nozzle you will use a 5/16-24 tap, refer to the instructions below titled "5/16 -24" .

1/16NPT TAPPING INSTRUCTIONS:

Using pipe threads provide for a good seal and correct nozzle depth without the use of a jam nut. Because of this, the depth you tap will determine how far the nozzle is inside the port. This means you will need to verify the nozzle depth by only tapping until the tap is just barely inside the port.

Remove the tap, thread the nozzle in BY HAND until it stops, this will show you how far the nozzle will go inside the port. Remove the nozzle and continue tapping the hole until the correct depth is achieved, remember to check the depth several times during the tapping process. When checking the depth by threading in the nozzle BY HAND, note your final depth will be one more turn in with a wrench. After cleaning the hole to remove the cutting fluid used during tapping, install the nozzle using a thread locking agent to prevent the nozzle from loosening. The discharge of the nozzle needs to be aimed toward the piston.

For multiple cylinder installations, repeat this procedure on the remaining cylinders.

5/16 -24 TAPPING INSTRUCTIONS:

Using a straight thread on the nozzle provides for easier control over the final installed depth of nozzle, but does require a FLAT surface on the outside of the hole used for nozzle location for the jam nut to work correctly. The use of blue Loctite thread sealer is also a requirement. Before tapping the hole be sure you are square to the hole, the threads must be square to the flat surface the jam nut will go against. Be sure to use a cutting fluid during the taping process and remember to clean it out before installing the nozzle. Use blue Loctite thread sealant (NOT TEFLON TAPE) on the nozzle threads prior to final installation. The discharge of the nozzle needs to be aimed toward the piston. For multiple cylinder installations, repeat this procedure on the remaining cylinders.

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SECTION 2: SOLENOID INSTALLATION

With the nozzle(s) installed and the -3AN hoses connected from the nozzle(s) to the showerheads or distribution blocks included in your system Refer to the illustrations below for correct assembly order. Remember to use liquid blue Loctite on all pipe thread connections. With the hoses loosely attached to the outlet ports of the solenoids you will have a good idea where the solenoids need to be located. Leaving the hoses slightly loose at this point will allow for more flexibility and location options. Install the inlet fittings into the inlet ports on the solenoids, A 1/8" NPT male to rubber hose barb is for the fuel solenoid inlet fitting and the supplied 1/8" NPT to -4AN male. Again blue Loctite goes on the pipe thread section of the fittings. Use the solenoid brackets that are included in your system to secure the solenoids, or as a pattern for a bracket that fits better where you want to secure the solenoids. Remember to tighten both ends of all the hoses. **NOTE:** The solenoids do not have to be mounted at any specific angle. Also, rubber mounting the solenoid bracket to the vehicle is not a bad idea.

SECTION 3: FUEL PUMP INSTALLTION

The fuel pump supplied in your system is designed to have fuel gravity fed from tank to the pump and the pump needs to be located below and behind your fuel tank. The supplied fuel filter needs to be installed between the fuel tank and the inlet to the fuel pump. The inlet is the end of the pump WITHOUT the terminals. The end of the pump with the terminals is the outlet. The fuel pump needs to be securely mounted to the vehicle. Do not mount the fuel pump on a suspension component or on any other location that is not solid. See fuel pump mounting examples below.

CARBURETED INSTALLATIONS:

If your system is for carbureted installations, use the enclosed "T" fitting. To reduce fuel spillage, make sure your fuel petcock is in the OFF position. Carefully cut your fuel line in a location that will allow you to install the "T" fitting in your stock fuel line. **NOTE;** there will be a small amount of fuel in the line when you cut it, so it is a good idea to be prepared with a small container to catch the fuel in.

NOTE: If your vehicle has a vacuum controlled fuel petcock or you have any doubts on its ability to supply the required fuel needed, i.e. high horsepower applications, you should look into a high volume petcock for your vehicle, or use the fuel tank feed bung included in your system (See instructions below). If you have any questions call the tech-line 254-848-4300.



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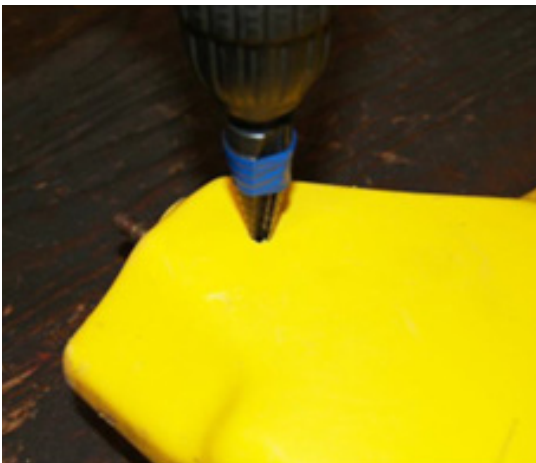
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With the “T” fitting installed, use the rubber fuel line and clamps that are included in your system to connect to “T” fitting to the inlet nipple of the enclosed fuel filter, use the rubber hose and clamps to connect the outlet of the fuel filter to the inlet of the fuel pump. Now, use the enclosed rubber hose and clamps to connect the outlet nipple of the fuel pump to the fuel solenoid inlet nipple. Double check all your fuel line connections and clamps.

ELECTRONIC FUEL INJECTION INSTALLATIONS:



If your vehicle is equipped with electronic fuel injection you will need to find the best location to install the fuel tank outlet assembly supplied with your system. To find the best location for the outlet fitting you need to remove the seat and any body panels that are not allowing easy access to the rear and underside of your fuel tank. Using the supplied rubber fuel hose look for a flat area about 2 inches in diameter on the bottom or up inside the hump at the lowest part, near the rear of the tank that, so if there was an outlet nipple there you could connect the rubber fuel line to it. Once you find the best spot, and mark it clearly, drain your fuel tank and remove the tank. Using a 9/16” unibit or hole saw. DO NOT use a standard 2 flute drill as it will make a butterfly shaped hole. The hole needs to be perfectly round. After drilling the hole, be sure to debur the inside and outside edge of the hole, and clean the shavings out of the inside of the tank. Removing the stock fuel pump will make this easier. On the fuel tank outlet assembly verify the o-ring is under the head of the fitting with the screen on it. The fitting goes through the hole from the inside out.



Next, place the enclosed white Teflon washer on the threaded portion of the fitting protruding out of the tank, thread the nut on. Do not over tighten the nut. Install the barbed fitting into the of the outlet assembly using thread sealant on the pipe threads. It might be necessary to hold the fitting on the inside of the tank in order to properly tighten the outlet nipple. Reinstall the stock fuel pump, reinstall the tank on the vehicle, fill with fuel and check for leaks. Use the rubber fuel line supplied in your system to connect the outlet nipple to the inlet nipple on the fuel pump. Using the supplied rubber fuel line and clamps connect the outlet nipple on the fuel pump to the inlet nipple on the fuel solenoid. Double check all your connections and clamps.

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SECTION 4: BOTTLE PLACEMENT AND MOUNTING

Correct bottle orientation is critical for proper system performance. The bottle must be mounted so that the siphon tube (located inside the bottle) is in the liquid nitrous during system use. See illustrations below. If the bottle will be lying flat front to rear the valve must face toward the front of the vehicle and the outlet nipple where the main nitrous feed line attaches to the bottle must be aimed straight down. If the bottle is being mounted vertically the valve must be at the top with the outlet nipple facing toward the rear. If the bottle is being placed flat side to side the outlet nipple must be at a 45° aimed down and to the rear. Once placement and orientation is determined use the bottle bracket(s) included in the system to secure the bottle to the vehicle. The bottle should not be mounted to any movable suspension component, non-metallic location or near a heat source. Clamps are available to mount the bottle directly to a frame tube, call the tech line for more info. Before connecting the main nitrous feed line to the bottle and nitrous solenoid, it is recommended that the hose be cleaned of any contamination that can occur during manufacturing and shipping by using a compressed air source to blow through the hose. After clearing out the feed line attach one end to the nitrous solenoid inlet fitting and the other end to the outlet nipple on the nitrous bottle.

Safely route any excess hose away from moving parts. Secure the hose with zip ties or rubber hose mounting clamps to prevent any possible damage to the hose or vehicle parts.



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SECTION 5: SYSTEM WIRING

Using the wiring diagram on the next page as a guide, begin with finding a good location for the main arming toggle switch that the operator can easily reach during vehicle use. Mount the switch, and then find a good location for the relay that will be away from any heat source. Assemble the WOT switch to the supplied bracket using the 4-40 screws and nuts. Be careful not to over tighten as you can crack the WOT switch. Mount the WOT switch and bracket so that it is triggered by throttle linkage to indicate when the throttle is wide open. The mounting bracket can be bent or modified to place the switch in the proper location. The activation arm is long enough to twist, bend, or cut to aid in installation.

Using the supplied wire and terminals, make the connection from the positive terminal on the vehicle battery to the #30 terminal of the relay, it is the black wire. Next make the connection from the #87 terminal on the relay, it is the green wire, to one wire from each solenoid, (it does not matter which wire you use for power or which wire you use for ground) connect the other wire from each solenoid to a GOOD chassis ground. The wire from the #85 terminal on the relay also needs to be connected to a GOOD chassis ground. Make the connection from terminal #86 on the relay to one of the terminals on the WOT switch. To properly wire the fuel pump make a connection from same terminal on the arming switch that goes to the WOT switch to the positive wire on the fuel pump. Connect the ground wire on the fuel pump to a good chassis ground. The fuel pump terminals are marked + and - on the outlet end of the pump. Connect the other terminal on the WOT switch to one of the terminals on the arming switch and the final connection is from the other terminal on the arming switch to a keyed power source.

Testing the wiring begins with reconnecting the ground wire on the battery, turning on the vehicles ignition. When the nitrous arming switch is turned on you should be able to hear the fuel pump come on. After verifying correct fuel pump operation temporarily disconnect the fuel pump by taking the ground connection of the chassis. This will prevent fuel from being sprayed in to the intake during the rest of testing. Correct solenoid operation is verified by again turning on the vehicle ignition, turn on the nitrous system arming switch, when the throttle is opened fully you should hear the solenoids click. If you do not hear BOTH solenoids click when you opened fully double check ALL connections. If you have questions call the Nitrous Outlet tech line at 254-848-4300. When you are done, do not forget to reconnect the fuel pump ground wire.

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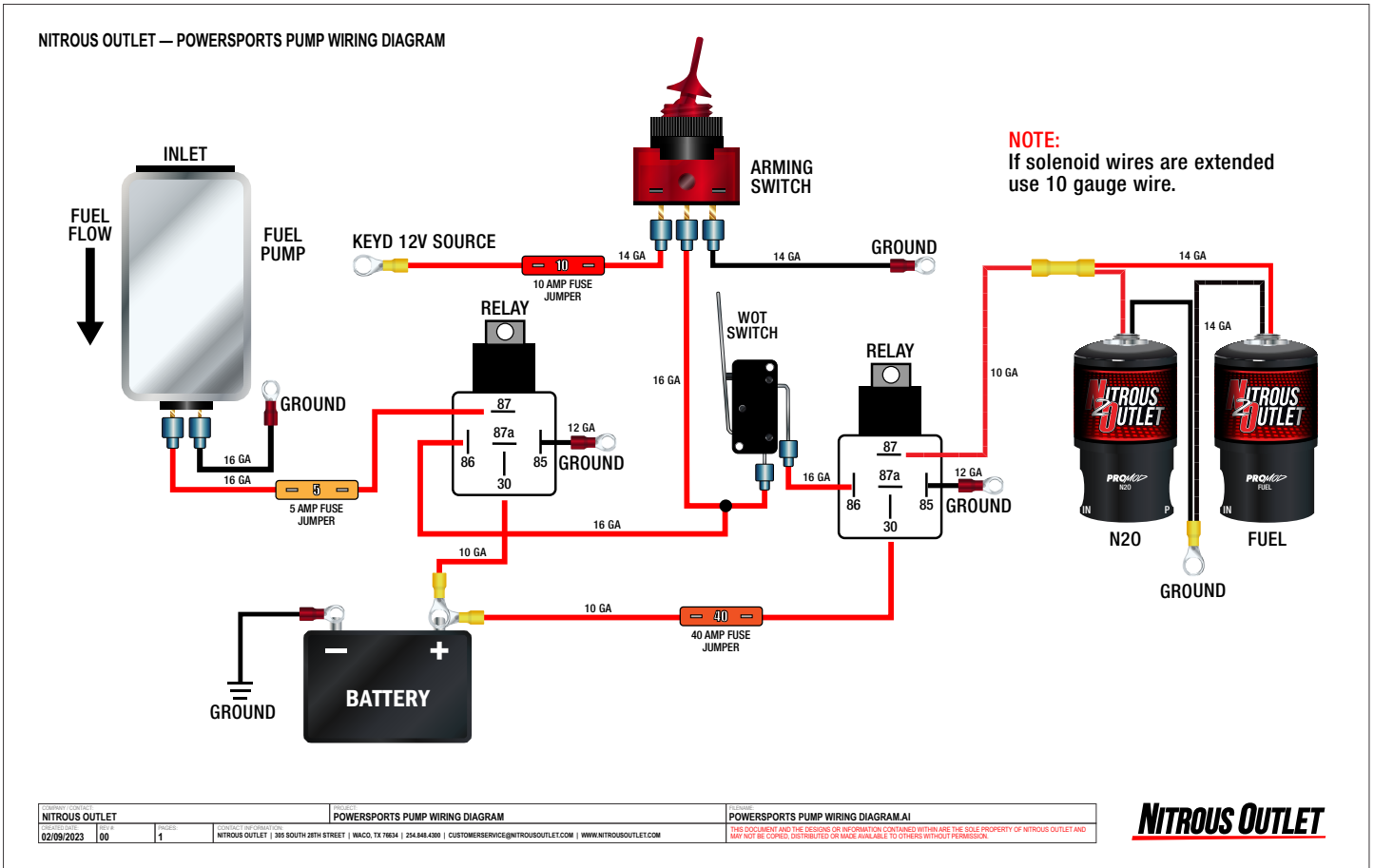


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WIRING DIAGRAM



COMPANY CONTACT: NITROUS OUTLET 02/09/2023 00		PROJECT: POWERSPORTS PUMP WIRING DIAGRAM		REVISION: POWERSPORTS PUMP WIRING DIAGRAM I <small>THIS DOCUMENT AND THE DESIGN OR WORKMANSHIP CONTAINED THEREIN ARE THE SOLE PROPERTY OF NITROUS OUTLET AND MAY NOT BE COPIED, DISTRIBUTED OR MADE AVAILABLE TO OTHERS WITHOUT PERMISSION.</small>	
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SECTION 6: SYSTEM TUNING BOTTLE PRESSURE

For the best system performance and consistency nitrous bottle pressure is best kept between 950 to 1000psi. Bottle pressure is not an indication of the amount of nitrous in the bottle. It is a function of the bottle temperature. Ideal bottle pressure (950) is obtained at 87 degrees Fahrenheit. A bottle pressure gauge is the best method of monitoring bottle pressure. Using an automatic bottle heater will maintain the correct pressure, and the addition of a bottle jacket makes it even easier to maintain the correct pressure.

IGNITION TIMING

The ignition timing may need to be retarded from the base naturally aspirated timing, based on how much nitrous horse power you are adding.

The general rule is to retard the ignition timing 2 degrees from the best base naturally aspirated timing for each 50 horsepower added.

SPARK PLUGS

The addition of nitrous will require a colder spark plug. If your are adding less than 20 hp per cylinder usually one step colder is suggested, if you are adding more than 20 hp per cylinder two steps colder is suggested. Do not go any colder than NGK heat range 9. This is the stock heat range in a lot of late model vehicles, Just avoid spark plugs with multiple ground straps, iridium, or platinum coatings.

FUEL

The use of nitrous will also require higher octane fuel, if you are using less than 20 hp per cylinder use a fuel with at least 95 (r+m/2) octane rating. If you are using more than 20 and less than 40 hp per cylinder use a fuel with at least 110 (r+m/2) octane rating. When using more than 40 hp per cylinder a fuel with a minimum octane rating of 115 (r+m/2). The fuel you use **MUST NOT HAVE ANY OXYGEN ADDED!**

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