



Universal Base Instructions

<u>Description</u>	<u>Qty.</u>	<u>Description</u>	<u>Qty.</u>
Pressure Switch	1	Nozzle	1
150psi Pump	1	Wire Loom	6ft
Straight 1/8" M Npt Fitting	1	Misc. Electrical connector's bag	4
Straight 3/8" M Npt Fitting	1	30 Amp Relay	2
90 Deg 3/8" M Npt Fitting	1	Relay Socket	1
Straight 1/8" F Npt Fitting	1	Red 16 GA. Fuse Holder	1
Black Nylon Hose	15ft	Red 16 GA. Wire	10ft
Brass Check Valve	1	Black 16 GA. Wire	10ft
90 Deg Nozzle Holder	1	Pump Mounting Screws	4
1/8" Metal bonded washer	2	Zip Tie's	4

Why our Alcohol Injection system is better

- Everything is included in this kit for a safe, easy installation.
- Fully adjustable for any horsepower level. Safe enough for stock engines, powerful enough for racing use.
- Easily adjusted turn-on point
- Heavy duty pump that will run anything from straight water to straight inexpensive methanol alcohol.

Read This Pre-installation Guide Before Installing Kit!!!!!!

How the DevilsOwn™ Universal Base Alcohol System works: The DevilsOwn™ Alcohol injection system begins with a connection to a supply tank containing liquid methanol alcohol/water mixture. A 50/50 mix is recommended, but the system is designed to be compatible with 100% methanol. This mixture is pumped at high pressure thru the tubing to the nozzle holder. The amount of Alcohol and water that is injected through the nozzle is adjustable by means of metering nozzles installed in the nozzle holder itself. These metering nozzles allow for easy changes in horsepower settings. The pumps speed is controlled by the progressive controller which is used to fine tune your flow curve to match you engines needs.

Work safely: Always wear eye protection and gloves when working with lines or hoses that contain pressurized alcohol or fuel. Never transport alcohol tanks loose in a trunk, in the back of a pick-up truck, or especially NOT within a vehicle's interior whether the tank is full OR empty. Always disconnect the GROUND side of the battery when working on any electrical components.

Alcohol Injection won't fix problems you already have: Before you install your alcohol system, be sure your engine is in good mechanical condition. Intermittent wiring problems, etc., can lead to erratic system performance and possible engine damage.

Never defeat operation of the pumps pressure switch: It's required for proper pump pressure output. Never bypass, drill, machine, shim, deform, scratch, drop, or modify a pumps pressure switch in ANY way whatsoever!

Avoid detonation at all times: Although alcohol reduces the possibility of detonation. The act of adding more boost and timing on top of adding an alcohol injection kit makes detonation a factor again. This has a lot to do depending on your tune.

When system is activated, if something doesn't feel or sound right, BACK OFF: If you hear any detonation or feel anything unusual; get off the throttle. It's a lot easier to check everything over, than it is to just try to drive through it and damage expensive parts. Don't activate or have the system activated when you hit the stock rev limiter. The stock rev limiter is a fuel cutoff. If you cut fuel while you're injecting alcohol, you're instantly very lean. This momentary lean condition has the potential of causing engine damage.

Spark plugs and alcohol performance: The factory spark plugs that come in the new vehicles are not suitable for use with any alcohol setting above 5gph. The factory spark plugs have a particularly hot heat range and tend to overheat at higher horsepower levels. The solution to the problem is to install spark plugs that have a colder heat range and proper ground strap design for alcohol use. Consult your preferred spark plug manufacturer to ensure you install the correct spark plugs for the alcohol level you choose to run. Also, due to the cooler and denser inlet air charge that alcohol creates, it may be necessary to close-up your spark plug gaps to eliminate any misfiring. In our

experience, closing the gap .005 to .015 in. typically will ensure proper ignition. You may be able to run a wider gap, or you may have to close them up, just be aware of this if you start to experience an ignition misfire when you are using your alcohol system.

Engine modifications: The DevilsOwn™ Alcohol System, out of the box, is designed to work as a bolt-on kit for stock or mildly modified vehicles. Mildly modified vehicles would include header upgrades, exhaust upgrades, air filter kits, etc. If major engine modifications have been performed a dual nozzle upgrade may be required for safe alcohol system operation. Major engine modifications would include larger turbochargers, superchargers, aftermarket cylinder heads, head porting, camshafts, intake manifolds, etc. Failure to upgrade highly modified applications may cause serious lean conditions that can result in severe engine damage.

Do not use Teflon sealing tape on any fittings in a DevilsOwn™ Alcohol Injection System: It is easy for Teflon tape to get pulled into the system causing blockages that can ultimately lead to incorrect Alcohol system performance and potentially, engine damage. Only use liquid thread sealer for all NPT type fittings.

Install the Check valve: This eliminates the possibility that alcohol could inadvertently accumulate in the intake manifold while the alcohol system is not being used. It's a one-way check valve that blocks engine vacuum from siphoning your methanol mixture.

Do not attempt to start your engine if alcohol has been accidentally injected into the engine while it was not running: If this occurs, disable all of the ignition coils by unplugging the leads going to them. Push the accelerator pedal to widely open throttle and hold it there. While engaging the starter, turn over the engine for several seconds to clear the alcohol from the engine. Failure to do this before attempting to restart the engine can lead to a dangerous intake system backfire.

Start with the lowest nozzle setting and work your way up: This ensures if you have any tuning issues to work out on your vehicle, they will get sorted out with a smaller shot of alcohol that will be less likely to damage your engine. Once you have the car working well on the smaller shot, you can then safely start to step up your alcohol kit horsepower.

How to adjust spray levels: The DevilsOwn™ Universal Progressive Alcohol System is designed for multiple power levels. Metering nozzles installed in the alcohol nozzle control these power levels. To change the spray output, all you need to do is install the appropriate nozzle size. There is also a hex adjusting screw on the top of the pump that may be adjusted down clockwise or up counter clockwise to raise and lower the line pressure for fine tuning.

Do not run excessive line pressures: Excessive line pressures, over 200 psi, are dangerous to your alcohol/water system. Your DevilsOwn™ Alcohol/Water Injection system is calibrated and optimized to operate from 40-160 psi. Exceeding this will not improve performance. Over 250 psi also runs the danger of parts failing.

Installing Kit

1. Tools Needed

- 1.1. Drill with 1/8" and 11/32" bits
- 1.2. 18mm, 7/16", and 9/16" wrench
- 1.3. 1/4" socket with ratchet or 1/4" nut driver
- 1.4. Marker
- 1.5. Wire cutters
- 1.6. Electrical tape (Recommended)
- 1.7. Multi-meter (Optional)

2. Washer Bottle

- 2.1. Locate the bottom of your washer bottle and determine whether you need to remove it in order to gain access to the bottom with a drill. Remove it, if necessary.
- 2.2. At the bottom of the bottle, locate a placement for the tank tap that is free of obstruction, preferably near the rear of your washer tank. This placement is for the hose that you will install later.
- 2.3. Using a 11/32 " drill bit, drill a hole at this location.
- 2.4. Take the supplied washer and place it over the tank tap. The rubber portion should face the tank, leaving the metal side facing the tank tap.
- 2.5. Place a dab of silicon on the washer. (Optional)
- 2.6. Screw in the tank tap fitting (clockwise) until it is flush with your washer bottle.

3. Alky/Water Pump Installation

- 3.1. Tighten the pump connectors, 1/4 tube x 3/8" NPT fittings, with an 18mm wrench. Fittings either have sealant pre-applied or an O-ring already installed.
- 3.2. Locate a placement for the alky/water pump. We suggest placing it below the washer bottle tank, to aid in priming the pump later. Note: Flow goes in the direction of the arrows. Tank→Pump→Nozzle. It's noted on the top of the pump.
- 3.3. Mark the 4 mounting holes with the marker at the desired location
- 3.4. Using a 1/8" drill bit, drill a hole at these locations.
- 3.5. Attach the pump securely, using a 1/4" socket/nut driver and the 4 supplied silver screws.

4. Alky/Water Nozzle Installation

- 4.1. Locate a placement for the alky/water nozzle. We strongly suggest placing it behind the mass air sensor. Most people place it 3" to 4" away from the throttle body blades, but try to keep it within a foot. Mark this spot with a marker.
 - 4.2. Remove your intake duct from the throttle body. This can usually be done by loosening a screw or by simply pulling on the duct. Every car is different. Be careful not to damage your car.
 - 4.3. Using an 11/32" drill bit, drill a hole at this location.
 - 4.4. Use a 1/8" NPT tap, if you are going through thicker metal like a throttle body or an intake manifold.
 - 4.5. Make sure the filter is tight on the nozzle.
 - 4.6. Take the other supplied washer and place it over the nozzle, with the rubber portion facing the intake, leaving the metal side facing the nozzle.
 - 4.7. Place a dab of silicon on the washer. (Optional)
 - 4.8. Push the nozzle through the hole and screw it (clockwise) to the nozzle holder.
 - 4.9. Secure them together with a 7/16" wrench and a 9/16" wrench. Be sure not to over-tighten them: *Just tighten the parts enough to keep them together securely.*
- CAUTION: If you fail to tighten the nozzle properly, it could be sucked into your motor.

5. Running the Alky/Water Hose from the Tank to the Pump

- 5.1. Run the hose from the tank to the pump. Leaving the excess at the tank, be sure to keep the hose clear of hot areas and moving parts.
- 5.2. Mark the hose at the desired length.
- 5.4. Cut the hose - be sure the ends are cut squarely; if the ends are burred you can clean them up with a file.
- 5.5. Our fittings are all "push-to-connect," so they take less than a second to connect. Simply insert the hose and apply a small amount of pressure on both the hose and the fitting. They should slide together.

6. Running the Alky/Water Hose from the Pump to the Check Valve

- 6.1. Run the hose from the nozzle holder to the pump. Leaving the excess at the nozzle holder, be sure to keep the hose clear of hot areas and moving parts.
- 6.2. Mark the hose at the desired length.
- 6.3. Cut the hose - be sure the ends are cut squarely, and remember: If the ends are burred, you can clean them up with a file.
- 6.4. Attach the hose to the pump fitting just as before, by applying pressure to the hose and supporting the fitting at the pump. Do not attach the nozzle side yet.
- 6.6. Cut the hose approximately 2" past from the nozzle end.

7. Getting Power to the Pump

- 7.1. Look for a good place to attach the ground wire for the pump. An ideal location would be any other chassis ground location, or you can screw the connector to any metal place that is free from paint or coatings.
 - 7.2. Extend the wire as necessary to reach this location.
 - 7.3. Firmly crimp the ring terminal to the black wire.
 - 7.4. Fasten the ring terminal to the location you have chosen.
 - 7.5. Take the inline fuse holder and snip the wire in the middle.
 - 7.6. Connect the pump's loose red wire to one end of the supplied Inline fuse with butt connectors. Wrap the connection with electrical tape.
- CAUTION: We recommend disconnecting the negative battery cable from the vehicle's battery prior to priming the pump, and reconnecting it with the pump already installed, as noted below.
- CAUTION Be sure the loose hose is pointed away from your face or any electrical item.
- 7.7. Apply +12 to the fused wire with another length of wire straight from the positive side of the battery. This side is usually red, and it is marked with a "+" You should hear the pump start, and within a few seconds you should see alcohol/methanol coming out of the hose.
 - 7.8. The other end of the fuse holder's wire should be crimped to either the blue wire of our controller, if it's being used, or to the wire coming from the Pin 87 of the relay.

8. Running the Alky/Water Hose from the Check Valve to the Nozzle

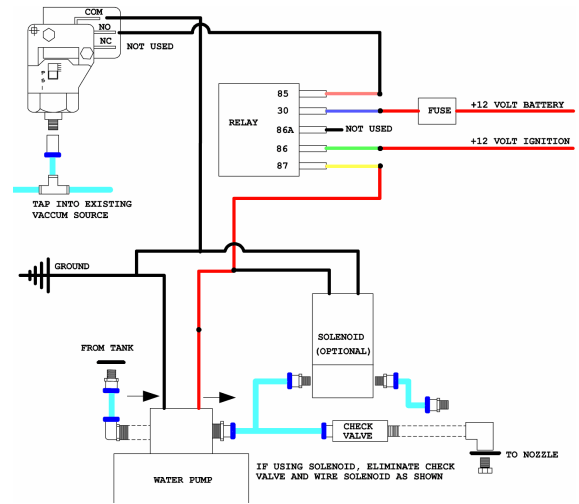
- 8.1. Note the direction of the arrow on the check valve Pump→Valve→Nozzle. Press it firmly into both ends of the hose that you cut in step 6.

8.2. Now attach the hose into the nozzle holder fitting as before, applying a small amount of pressure on the hose and on the fitting.

Hooking the Pressure Switch up

2. Connection to Pressure Switch

- 2.1. Black wire goes from chassis ground (*Be sure to get a metal on metal connection*) To the *top pin* labeled COM on the pressure switch.
- 2.2. Pin 1 *middle pin* labeled NO of the pressure switch goes to pin 85 on the relay the brown wire.
- 2.3. Pin 2 *bottom pin* labeled NC is not used.
- 2.4. Find an accessible vacuum line that and cut it in 1/2. We supplied a Tee for 1/4" hose, your vacuum lines maybe another size and you will need to supply your own Tee. These can be purchases at any local hardware store.



3. Electrical connection to Relay

- 3.1. Pin 85 This white wire connects to the top pin *NO* on the pressure switch.
- 3.2. Pin 86 This black wire connects to Ignition 12v source in your vehicle
- 3.3. Pin 87 This yellow wire connects to the Pumps Red wire.
- 3.4. Pin 30 This blue wire connects to the fuse and then connect the other end of the fuse to +12v source of the battery.
- 3.5. Pin 87a This red wire connects to nothing.

4. Adjusting Pressure Switch

- 4.1. Take your finger and turn the adjuster to adjust the turn on psi higher left to right or to lower the turn on turn it right to left.
- 4.2. As a general starting point start off with the top of the wheel adjusted 1/2 of your max boost. And lower to raise as necessary.

Getting Help with your Install

If you have any questions, concerns or comments on the Devils Own Alky/Water Injection Kit and/or the installation instructions, please visit the DevilsOwn Web site at www.alcohol-injection.com and click on forum link. Please browse the FAQs (Frequently Asked Questions) section for additional information that may be helpful prior to contacting us. Otherwise, you can always contact us at: Support@alcohol-injection.com