INSTALLATION INSTRUCTIONS
FOR PART #20001, 20002
WATER / METHANOL INJECTION
SYSTEMS

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CAUTION
You must completely read though these instructions before installing and operating this product. Failure to due so can result in damage to this product and the vehicle.
Kit Contents

**Parts**
- Pump - 150psi with two 3/8” elbow adaptors
- 2qt Reservoir
- 8ft of Red High Pressure Tubing
- 4ft of Black Wire Loom

**Installation Instructions**

**Electrical Packet**
- In small bag:
  - 1 Fuse Holder
  - 1 Green LED w/resistor
  - 1 Fuse
  - 1 Allen Wrench
  - 4 Blue Butt Connectors
  - 1 Large Eyehook
- 3 Small Eyehooks
- 1 Male Connector
- 1 Relay w/ Harness
- 3 Female Connectors
- 10 Tie Wraps
- 1 Pressure Switch (vacuum switch in #20002 kit)
- 1 Vacuum “T”

**Mechanical Packet**
- In small bag:
  - 1 nozzle holder
  - 7 #8x1&1/2in. Screws
  - 7 #8 washers
  - 1 #6x1/2in. Screws
  - 2 Stickers
  - 18” 1/8” tygon tubing
  - 2-nozzles

**Required tools**
- Electric drill w/ drill bits
- Methanol Resistant Sealant (Household GOOP® Recommended)
- Adjustable wrench
- Utility knife
- Screw driver – Phillips
- 5/16” open end wrench (for nozzle)

Introduction

- Please refer to system diagram during install.

**Installation – Mechanical**

**Step 1 Tank Install**

Mount tank as high in engine compartment as possible using #8x1½” sheet metal screws and washers provided.

Optional: The factory windshield washer reservoir can be used for the water/methanol reservoir.
The following procedure will allow the use of a nut on both sides of bulkhead fitting for windshield washer reservoir:

After drilling 9/16” hole in bottom of reservoir:
1. Attach tubing to threaded end of fitting.
2. Pull tubing through the reservoir fill opening.
3. Slide the nut on the tubing.
4. While pulling on the tube, thread the nut on the fitting after applying sealant.

You can mount the tank in the rear of the vehicle. The pump is a push pump by design so it needs to be mounted as close to the reservoir as possible. Because the pump is oversized, injection pressure will not be affected.

Step 2  Pump Install

Mount pump so it is positioned at the same level or lower than tank. Pump can be mounted horizontally or vertically using (4) supplied #8x1½” screws and washers.

In cramped engine bays, inside the fender is often a good alternative.

-Measure from reservoir-to- pump inlet (the pump has an arrow indicating flow direction between inlet and outlet ports) and cut ¼”OD red nylon tube to length allowing 1” extra for fittings. Insure no kinks are in the nylon tube. Push tubing into quick-connect fittings 1/4-1/2”.

Step 3  Nozzle(s) Selection

Nozzle sizing is a function of horsepower, which approximates the engines airflow, and boost, which approximates intake charge heat.

Recommended starting points:

<table>
<thead>
<tr>
<th>Horsepower Range</th>
<th>nozzle Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 - 350 RWHP</td>
<td>175ml/min nozzle.</td>
</tr>
<tr>
<td>350 - 475 RWHP</td>
<td>375ml/min nozzle</td>
</tr>
<tr>
<td>475 - 600 RWHP</td>
<td>625ml/min nozzle</td>
</tr>
</tbody>
</table>

Step 4  Nozzle Mounting

The nozzle assembly should be installed at 90 degrees to the direction of airflow. This will ensure maximum cooling as the nozzle sprays in a 180 degree cone pattern. Choose and mark location on air intake for nozzle install.

Drill and tap (11/32” pre-drill, 1/8 -27 NPT tap), metal air inlet tube as close as possible to Throttle Body.

When mounting nozzles, we recommend before the throttle body/ throttle plate. If you mount the nozzle after the throttle body/plate, a solenoid upgrade must be used to prevent siphoning at Idle.

- Assemble desired nozzle into nozzle holder using pipe sealant. The end of the nozzle with the fine mesh screen is to be inserted into the nozzle holder. Torque at least 1/2 turn past hand tight.

- Nozzle size may have to be adjusted up or down depending on the air fuel ratio (smaller nozzle if starting at richer than 12.5:1) and the concentration of methanol (smaller if less than 50% methanol is used).

- The amount injected can be adjusted by pump pressure which can be changed by turning the allen head in the pump regulator. The pump is set at the factory at 150 psi. (At highest setting all the way clockwise).

<table>
<thead>
<tr>
<th>Turns Clockwise</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>approx 100psi.</td>
</tr>
<tr>
<td>4</td>
<td>approx 60psi.</td>
</tr>
</tbody>
</table>

When mounting the nozzles, until you are tuned, do not thread lock the nozzle(s) to the nozzle holder. This will allow changing of the nozzles if necessary without damage to the nozzle or holder. Once you are tuned, we recommend thread locking the nozzle to the holder.
You can mount the nozzle in the plastic or rubber air inlet tubes. Be sure to seal the nozzle using methanol resistant sealant.

**Step 5  Nozzle Connection**

Measure from pump outlet to nozzle and cut red ¼” OD nylon tubing to desired length and install by pushing tube completely (approx. 1/4-1/2”) into quick connect of pump outlet. Connect to nozzle assembly compression fitting by plugging tube into compression fitting (approx ¼”) and tightening compression nut approx ½ turn past hand tight. Check for leaks after initial testing.

The nozzle holder has threads on the outside of it, but we do not recommend mounting the nozzle holder (1/4” npt thread). To eliminate the possibility of the nozzle coming loose and causing possible engine damage, we recommend mounting the 1/8” npt nozzle using the supplied tap.

Use tie wraps to help route tubing and to ensure it doesn’t contact moving or hot parts in the engine compartment.

**Installation - Electrical**

**Required tools**
- Drill
- Screw driver-phillips
- Wire cutter/stripper/ crimper
- Please refer to electrical diagram.

**Step 1  Pressure Switch**
Mount Pressure Switch (Vacuum Switch in #20002) to firewall using tie wrap. Hard mounting using screws is not recommended as diaphragm distortion could cause the switch to malfunction.

Attach 1/8” hose (supplied) to hose barb on switch. Other end attaches to manifold boost source.

**Step 2  LED Install**
Select location of LED (green-on when pump activated) in dashboard of vehicle. Run red and black wires to LED and make required connections (refer to wiring diagram).

**Step 3  Relay Install**
Mount the relay on fire wall close to the pressure switch. Mount “armed switch” in dash (Stage-1 NA only). Wire Relay according to diagram using supplied connectors.

**CAUTION:** Do not route wires near hot or moving parts. Use corrugated wire loom and tie wraps (supplied) to protect and route wires.

**Testing the system**

**Step 1 Test pump and mechanical system**
Turn key to “on” position. Bypass the pressure switch by touching a wire between the two poles on the switch. Pump should activate, Green LED should go on, and fluid level in tank should go down. It is recommended to also check the nozzle spray pattern while following this procedure. Also check for leaks.

- If pump goes on and fluid level doesn’t go down, there is an obstruction in the tube or nozzle.
- Activation of pump for short periods (2 - 5 sec.) will not cause engine damage.

**Step 2 Test LED vs. pump "on"**
- Apply a 12v source to pole #87 of relay. Pump should activate and LED should go on. Check LED ground and wiring if no activation. If wiring and ground OK, check LED with 12v source.

**Step 3 Part #20001 Set boost switch activation point**
- Begin with turning the allen screw on pressure switch counterclockwise with end of allen screw even with the housing. This will activate water/methanol at low 1-2 psi boost. At this point, the pressure switch
should “click” while blowing into tube. Adjust set screw clockwise until desired activation point is reached.

Note: 2mm Allen wrench supplied with kit.

Continue turning at 1/2 turn (clockwise) intervals until no hesitation/misfiring occurs at injection onset and a steady flow of power is felt (usually about 3000-4000 RPM).

**Step 3 Part #20002 Set vacuum switch activation point**

Always start with “armed” switch off. Begin with turning the allen screw on vacuum switch turned counterclockwise with end of allen screw even with the housing. This will activate water/methanol at approx 0.5 inches of vacuum (corresponds to close to full throttle/ engine high load state). Turning the allen clockwise will cause injection to occur at higher vacuum (less throttle/ lower load state).

**Step 4 Timing Adjustment**

Increase base timing in 2 degree increments until the first hint of detonation - then back off 2 degrees (use 3rd gear pulls from 2000 RPM).

The kit enables the use of increased timing which provides for over 50% of the potential power increase (denser intake charge the remainder). All other factors being the same, if base timing is not increased over the non-Boost Cooler® settings, power increase will be less.

After tuning, ensure that reservoir has adequate fluid at all times. It is recommended that reservoir always be at least 1/4 full.

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**Tuning Quick Reference**

If you install the kit and do not tune the engine, you will see minimal results. The kit is for detonation control and will allow more power yielding boost and/or timing to be utilized.

The Boost Cooler® adds an alternate fuel source as well as significantly cools combustion. With the Boost Cooler®, one does not need to cool combustion with overly rich air/fuel ratios. To minimize combustion quench, you should start with an air to fuel ratio no richer than 12.5:1 with conservative timing.

Injecting water/methanol lower than 3300-3500 RPM could result in combustion quench. All vehicles are different. If the engine bogs or loses power, then it is coming on too early, the quantity is too much, or there is not enough methanol in the mixture (50/50 water/methanol recommended).

If you have to increase the onset too high in the rpm range (detonation control is needed sooner), decrease pump pressure, go to a smaller nozzle.

In the black head of the pump, there is a 2mm Allen head screw that will regulate the pressure. On the 150 psi pump, for every full turn counter clockwise you will decrease the pump pressure by 18-20 psi. On the 220 psi pump it will decrease the pump pressure 20-22 psi for every turn counter clockwise.

When increasing the pump pressure, the allen screw will become tight. This is full pressure. BE CAREFUL NOT TO OVERTIGHTEN. If you go too far on the screw clockwise, then you can strip out the plastic threads.

**Maintenance** — Remove nozzle(s) and clean screen filters at least once per year using carb cleaner.

The Boost Cooler® has been designed to operate with high concentrations of methanol. Oil or other additives are not required for system lubrication.

For best performance, cooling and system life it is recommend that Snow Performance Boost Juice™, part #40008, be the exclusive fluid used in the system.
Fluid Level Switch (optional)

Instructions
- After mounting reservoir, mount red LED in dash next to the green “injection” LED is usually easiest.
- Wire LED per diagram with Red wire to a 12v key-on source, and the White wire to one of the White wires of the level switch.
- Connect other White wire of the level switch to vehicle ground.
- With key-on source enabled, the red LED should be “on” with no fluid in the reservoir. Upon filling the reservoir, the red LED should be “off”.

**TECH TIP** The level switch is designed to indicate when there is less than 1” of fluid in the reservoir.

Solenoid Upgrade (optional)

The optional solenoid upgrade from Snow Performance, part #40060, is required if the nozzle is to be installed after the intake throttle plate, or the fluid reservoir is mounted higher then the nozzle.

Hand thread the two 1/8” NPT quick connect fittings into ports labeled 1 and 2 on the solenoid. Tighten an additional half turn.

Cut high pressure line at location solenoid is to be installed. Insert ends of cut line into quick connect fittings of solenoid. The port labeled #2 is the inlet, port #1 is the outlet. Firmly pull on line to check secure connection. If line pulls out, re-insert farther into fitting to engage locking clips. If high pressure line removal is required, firmly press in plastic fitting ring to disengage locking clips while pulling hose from fitting.

Connect one of the Black wires from solenoid to the Red positive pump wire. Note that connecting the wire to any other power source other then the pump wire will result in improper operation of solenoid. Connect the second Black wire to a secure chassis ground location.
Install Notes:

Pump Setting ____________(psi)

Nozzle Size ____________(ml/min)

Boost / Vacuum setting ____________

Misc:

Disclaimer

Do not use this product until you have carefully read the following agreement. This sets forth the terms and conditions for the use of this product. The installation of this product indicates that the BUYER has read and understands this agreement and accepts its terms and conditions. Performance products by their nature are designed to increase horsepower and performance not engineered in the original vehicle and the increased stress could result in damage to related systems. This is a high performance product – use at your own risk. Snow Performance Inc., its agents, employees or owners shall not be under any liability whether in contract or otherwise whether or not resulting from our negligence or contents of information supplied for any damage or loss resulting from such information. The BUYER is responsible to fully understand the capability and limitations of his/her vehicle according to manufacturer specifications and agrees to hold the SELLER harmless from any damage resulting from failure to adhere to such specifications. The SELLER disclaims any warranty and expressly disclaims any liability for personal injury or damages. The BUYER acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this agreement and the BUYER agrees to indemnify the SELLER and to hold the SELLER harmless from any claim related to the item of the equipment purchased. Under no circumstances will the SELLER be liable for any damages or expenses by reason of use or sale of any such equipment. The BUYER is responsible to obey all applicable federal, state, and local laws, statutes, and ordinances when operating his/her vehicle, and the BUYER agrees to hold SELLER harmless from any violation thereof. The SELLER assumes no liability regarding the improper installation or misapplication of its products. It is the installer’s responsibility to check for proper installation and if in doubt, contact the manufacturer.
LIFETIME WARRANTY

Snow Performance’s commitment to providing the best water/methanol system is reflected in the Lifetime Warranty that is standard on all Snow Performance Boost Coolers™. We are able to offer this warranty due to our control of manufacturing quality and the historically high reliability of our products in the field.

Warranty Policy

Snow Performance, Inc. (hereafter “Snow”) warrants that the Product shall conform to and perform in accordance with published technical specifications and shall be free of defects in materials and workmanship as long as:

The exclusive fluid used in the kit has been Snow performance’s Boost Juice™ water methanol product as evidenced by sales receipts confirming purchases.

In the event that Boost Juice has not exclusively been used, A One Year Warranty applies.

In the event of failure, Snow will repair or replace the part at Snow’s sole discretion. Failures resulting from misapplication or misuse of the Product, failure to adhere to any specifications or instructions, or failure resulting from neglect, abuse, accidents, or acts of nature are not covered under this warranty.

Warranty service may be obtained by delivering the part to Snow and providing proof of purchase. Customer agrees to insure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to Snow, and to use the original shipping container or equivalent. Warranty is valid only for original purchaser and is not transferable. This Warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

This warranty applies to Snow manufactured Boost Cooler™ kits.

Non-Warranty Repair/Retest

Products returned due to damage or misuse and Products retested with no problem found are subject to repair/retest charges. A purchase order or credit card number and authorization must be provided in order to obtain an RMA (Return Merchandise Authorization) number prior to returning Product.

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Notes

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The names, addresses and telephone numbers mentioned are current as of October 25, 2006. Note that this information is subject to change. Please refer to www.snowperformance.net for current information.