

# **BOOST COOLER™**

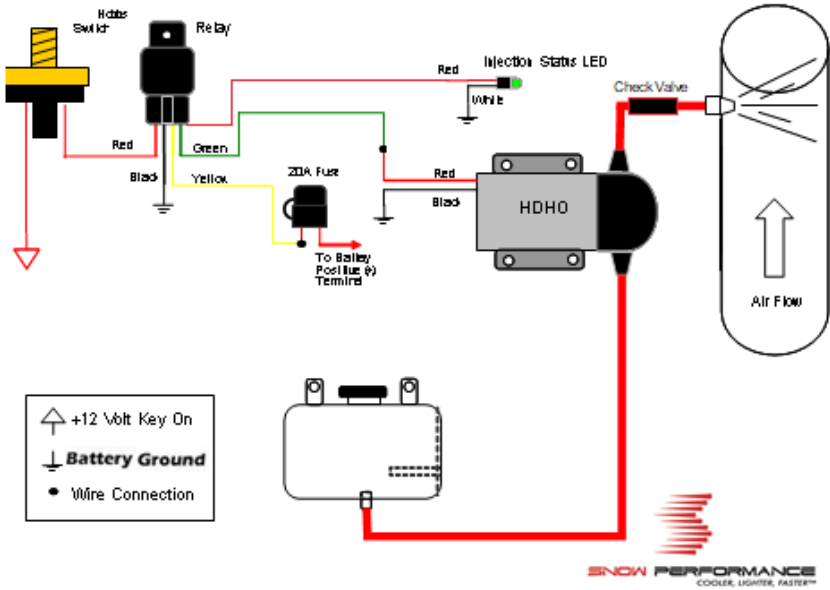
**INSTALLATION INSTRUCTIONS  
FOR PART #301 & 301-BRD  
WATER / METHANOL INJECTION  
SYSTEM  
DIESEL STAGE 1**



**⚠ CAUTION**

You must completely read through these instructions before installing and operating this product. Failure to do so can result in damage to this product and the vehicle.

## Wiring Diagram



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## Step 1 Tank Install

**OPTIONAL:** If desired you can use the stock windshield washer fluid tank as the tank for your water-meth system. Simply drill and tap a 3/8" NPT hole in desired feed spot for system and install the 3/8" NPT fitting into the tank using E-6000 sealant on threads/around area.

Step 1: Install 3/8" NPT to 1/4" Quick Connect fitting or 3/8" NPT to 4AN Elbow fitting into the bottom of the reservoir using E6000® sealant on the threads.



Step 2: After allowing the thread sealant to dry, fill reservoir with water and check for leaks around tank fitting and level sensor. If leak occurs use E6000® sealant.

Step 3: Install the 3qt. tank with four (4) #8x1&1/2" self-tapping screws and four (4) #8 washers (supplied) in desired mounting location. Typical placement is any void area inside the engine bay.

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## Caution\*\*\*\*\*

To avoid gravity feeding of fluid with rear mount reservoirs, or when the nozzle is below the fluid reservoir, it is essential to use a solenoid in-line between the reservoir and pump. **Do not operate** your rear mount reservoir equipped vehicle without a solenoid installed.

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## Step 2 Pump Install

**Braided Line Kits Only-** Install (2) 3/8" NPT to 4AN Straight fittings into the pump inlet and outlet using E6000® sealant on the threads.

**Do not overtighten as damage to the pump housing can occur.**

**Quick Connect Kits Only-**

Remove the blue rubber plugs from the quick-connect fittings by first pushing the plug toward the pump, hold the grey collar against the pump, and gently pull the blue plug from the fitting. Warning: Pulling against the quick connects with excessive force may cause fitting damage.

Step 1: Position the fluid pump so that the inlet is positioned at or

below the lowest point of the reservoir, and within two feet of the reservoir. (Pump can be installed in any orientation). This will ensure the pump is primed with fluid for optimal flow and pressure to the nozzles.

**\*\*Arrows on the pump inlet and outlet indicate the direction of fluid flow\*\***

Step 2: Install the fluid pump with four (4) #8x1&1/2" screws and four (4) #8 washers (supplied) in desired mounting location.

Step 3: Fit the high temp nylon tubing or braided line between the tank outlet fitting and the pump inlet, ensuring there are no kinks in the line and there is no stress on the fittings. Sharp kinks/bends can cause a leak in the system.

**Braided Line Kits Only-** Using the 2' or 1' stainless braided line section supplied in the kit connect the tank outlet to pump inlet.

**Quick Connect Kits Only-** Once high temp nylon is measured from tank outlet to pump inlet cut tubing using razor blade. Remove any burrs so that the fluid line properly seals against the internal o-rings inside the quick connect fittings. Insert tubing into the quick connects until fully seated, and pull lightly against quick connects to ensure proper installation between tank outlet to pump inlet



**CAUTION:** Pump must be shielded from road debris and direct tire wash. Failure to do so will result in pump failure.

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### **Step 3 Nozzle Selection**

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

Recommended starting points:

|                |                 |
|----------------|-----------------|
| 200 - 350 WHP: | 625 nozzle      |
| 450 - 650 WHP: | 2 - 625 nozzles |

Assemble desired nozzle into nozzle holder using E6000® sealant. **The end of the nozzle with the fine mesh screen is to be inserted into the nozzle holder.** Torque 1/2 turn past finger tight. Do not use Teflon sealants on Snow Performance fittings.

**\*\*The end of the nozzle with the fine mesh screen should be inserted into the nozzle holder\*\***



Correct



Correct

**\*\*Teflon sealants are not compatible with methanol, and should not be used with the install of your Snow Performance Boost Cooler®\*\***

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## **Step 4 Nozzle Mounting**

The nozzle assembly should be installed 90° to the direction of airflow. On round intake tubes, this is 360° around the tube meaning the nozzle can be mounted in any direction. This will ensure maximum cooling as the nozzle sprays in a cone pattern. Choose and mark mounting location for nozzle placement. Nozzles can be placed virtually anywhere between the intercooler outlet and the intake inlet. Do not place nozzles pre-turbo or pre-intercooler. Nozzles must have a clear spray pattern into the airflow. Also be sure that the tip of the nozzle is flush with the inner wall of the tube.

Remove the piece before the intake and drill and tap (1 1/32" pre-drill, 1/8"-27 NPT tap) for the appropriate number of nozzles. Also, drill and tap a hole for the Hobbs switch.

The nozzle is mounted using its external 1/8 NPT threads. Tighten the nozzle and nozzle holder assembly one half turn past hand tight using E6000® to seal the threads.

## **Step 5 Nozzle Connection/High Flow Check Valve Install**

Measure the distance from the pump outlet to the nozzle holder. Cut the 1/4" tubing using utility knife. Make cuts are as square as possible.

The check valve assembly (35 PSI Crack Pressure) will ensure that boost pressure does not back-feed air into the system or siphon due to engine vacuum. Ensure the check valve is installed with the arrow pointing in the direction of flow. The Check valve may be installed anywhere between the pump and nozzles. In a dual nozzle application the check valve will be placed between the pump and T fitting.

### **Quick Connect Kits**

**Only-** Fit the NPT thread to push connect adapters in both sides of the check valve using E-6000 sealant on the threads. Press the high pressure tubing in each fitting, ensuring the check valve is oriented properly in the direction of flow.



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**Braided line kits** - Fit the NPT thread to 4AN

adapters in each side of the check valve using E-6000 sealant on the NPT threads **only**. Connect the 5 foot section of braided line from the pump outlet



to check valve inlet and the 1' or 2' section of braided line from the check valve outlet to the nozzle holder inlet.

When running the high pressure tubing or braided line from the in line check valve to the nozzle holder location, care should be taken to avoid extreme heat such as exhaust manifolds as well as any area that may abrade the line due to engine vibration and torque over. Also, ensure the lines are clear of the serpentine belt system.

**NOTE:** Continual insertion and removal from quick connect fittings will mar the end of the tubing. Over time the internal gripping teeth may lose their hold of the tubing which may create a leak. If this occurs simply remove the tubing and make a fresh cut using a razor blade.

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## Installation - Electrical

### Step 1 Hobbs Switch

Drill and tap (11/32" pre-drill, 1/8"-27 NPT tap) air intake tract. Apply E6000® sealant to the Hobbs switch threads and screw into intake tract until finger tight. Torque 1/2 turn past finger tight.



### 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. Wire relay according to diagram using supplied connectors. Be sure to use a 20 AMP capable circuit to power the system.



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# Testing the System

Note: for best results, prime pump before use

To clear air from the pump and insure that the system is primed:

- Fill reservoir with water approx  $\frac{1}{4}$  full.
- Remove tubing from nozzle and run tube into separate container.
- Apply 12 VDC to red pump wire for approximately 5 seconds or until fluid flow is consistent.
- Pump is now primed. Reconnect tubing from pump outlet to nozzle.

## 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 the pump in 1-2 second intervals will purge air bubbles after installation. This can be accomplished during initial use.

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## 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.

## Tuning Quick Reference

If combustion quench occurs as evidenced by engine "bucking", reduce the injection quantity or raise the onset boost level. This can be done by:

1. Using a smaller nozzle(s).
2. Introducing injection later at a higher start setting.

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## Caution\*\*\*\*\*

**Prolonged quench may cause lower engine damage over a period of time.**

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Also, fresh methanol – less than 1 month old when exposed to atmosphere – and using a greater methanol concentration – up to 50% - will reduce combustion quench.

100% water will cool combustion and EGTs and will increase power approximately 20-30 HP.

75/25% water/methanol will cool EGTs and power will increase approximately 40-60 HP.

50/50% water/methanol will cool EGTs and increase power approx 70+ HP.

**Caution:** To avoid "pooling" in the intake and possible engine damage upon start-up, it is recommended that:

1. The engine be run without water/methanol for at least 5 minutes after injection before turning the engine off.
2. The "armed switch" is turned to the off position when the engine is off.

**Caution:** Do not attempt to inject water/methanol until the engine has reach operating temperature. A cold engine is more susceptible to quench and poor performance.

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## 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™ (#40008) be the exclusive fluid used in the system.

## Install Notes

Nozzle Size \_\_\_\_\_(ml/min)

Boost / Vacuum setting \_\_\_\_\_

Misc:

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## 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.

### Snow Performance 1-Year Warranty Policy:

Snow Performance, Inc. 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 for 1-year providing:

1. You are the original purchaser and provide proof of purchase.
2. The system was purchased from a Snow Performance Authorized Dealer at MRP pricing set by Snow Performance.\*

**\*No warranty will be offered for any Snow Performance products if purchased below MRP. For MRP pricing of your product check [www.snowperformance.net](http://www.snowperformance.net).**

3. An RMA # has been attained and is displayed on package containing returned part.
4. Parts Warranty ~ 90 day warranty on parts purchased separately if used in conjunction with a Snow System. No warranty implied if used with a non-Snow part/system. Subject to Snow's inspection of the product, Snow will remedy defects in materials and/or workmanship by repairing or replacing, at Snow's option, the defective product without charge for parts or labor, subject to the limitations and exclusions described in this warranty.

This warranty does not cover problems caused by normal wear and tear including aesthetic oxidation of surfaces, accidents, unlawful vehicle operation, or modifications or repairs to product not performed or authorized by Snow. This includes any product that is disassembled or taken apart for any reason.

In addition, this warranty does not cover problems resulting from conditions beyond Snow's control including, but not limited to, theft, misuse, overloading, or failure to assemble,

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mount or use the product in accordance with Snow's written instructions or guidelines included with the product or made available to the original retail purchaser. 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 act of nature are not covered under this warranty.

Warranty service may be obtained by emailing [tech@snowperformance.net](mailto:tech@snowperformance.net) with a copy of your purchase invoice for the product, getting an RMA (Return Merchandise Authorization) number, and delivering the part to Snow. 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. Shipping for Warranty replacement parts shipped outside the continental US will be charged to customer.

**Non-Warranty Repair/Retest**

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

**Distributor/Dealer Warranty:**

All customers/dealers must deal directly with Snow Performance to receive warranty. No warranty will be issued through a distributor for any reason.

**Return Policy:**

All returns must be called in for RMA #. Snow Performance will not take used kits or parts for refund. If you are returning an unused kit there is a 15% restocking fee minus shipping/handling. All returns must be made within 30 days of purchase date. No exceptions.

**LIMITATION OF LIABILITY:** REPAIR OR REPLACEMENT OF A DEFECTIVE PRODUCT IS THE ORIGINAL RETAIL PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY. DAMAGE OR INJURY TO THE ORIGINAL RETAIL PURCHASER, TO HIS OR HER VEHICLE, CARGO, OR PROPERTY, AND/OR TO ANY OTHER PERSON OR PROPERTY IS NOT COVERED BY THIS WARRANTY. THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER EXPRESS WARRANTIES, WHETHER ORAL OR WRITTEN. SNOW'S SOLE LIABILITY IS LIMITED TO THE REMEDY SET FORTH ABOVE. IN NO EVENT WILL SNOW BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY, OR PUNITIVE DAMAGES OR FOR ANY OTHER DAMAGES OF ANY KIND OR NATURE (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS OR LOST SALES). SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

Shipping for Warranty replacement parts shipped outside the continental US will be charged to customer.

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