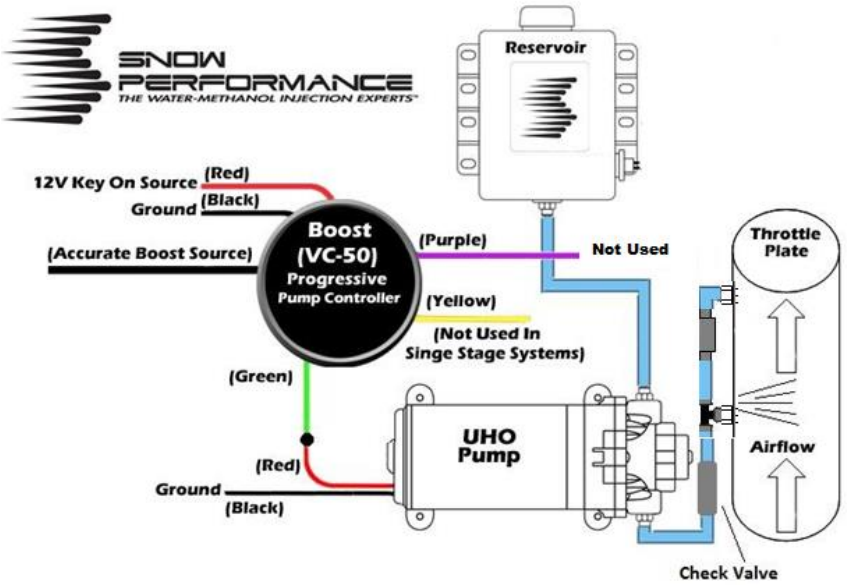
INSTALLATION INSTRUCTIONS
Diesel Stage 2 Boost Cooler™ WATER-METHANOL INJECTION SYSTEM

⚠CAUTION

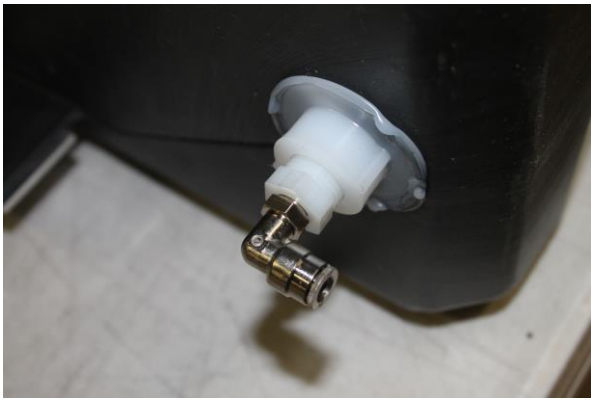
You must completely read through these instructions before installing and operating this product. Failure to do so can result in damage to this product and the vehicle.

Wiring Diagram



Reservoir Installation

- Install plastic reducer bushing and 90° quick connect fitting or 90° 4AN fitting into reservoir outlet. Use E6000® sealant on threads.



- Test fit reservoir in desired mounting location. Typical placement is tucked up along the side of a pickup bed or in a bed mounted tool box.
- Check the area under the bed near the desired mounting location. Note the location of fuel tanks, fuel lines, and wiring.
- Mark the location of the four aluminum mounting strap tab bolt holes.
- Drill through bed with appropriately sized drill bit. USE CAUTION WHILE DRILLING.
- Mount reservoir with aluminum mounting straps using supplied hardware.

Pump Installation

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. Typical locations are next to the tank in the bed or underneath the bed on frame rail.
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 1' stainless braided line section supplied in the kit connect the tank outlet to solenoid 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

Nozzle Installation

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

Recommended starting points:

HP	Nozzle 1	Nozzle 2
350 > WHP	175 ml/min	375 ml/min
400 - 500 WHP	175 ml/min	625 m/min
500 < WHP	375 ml/min	625 ml/min

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.

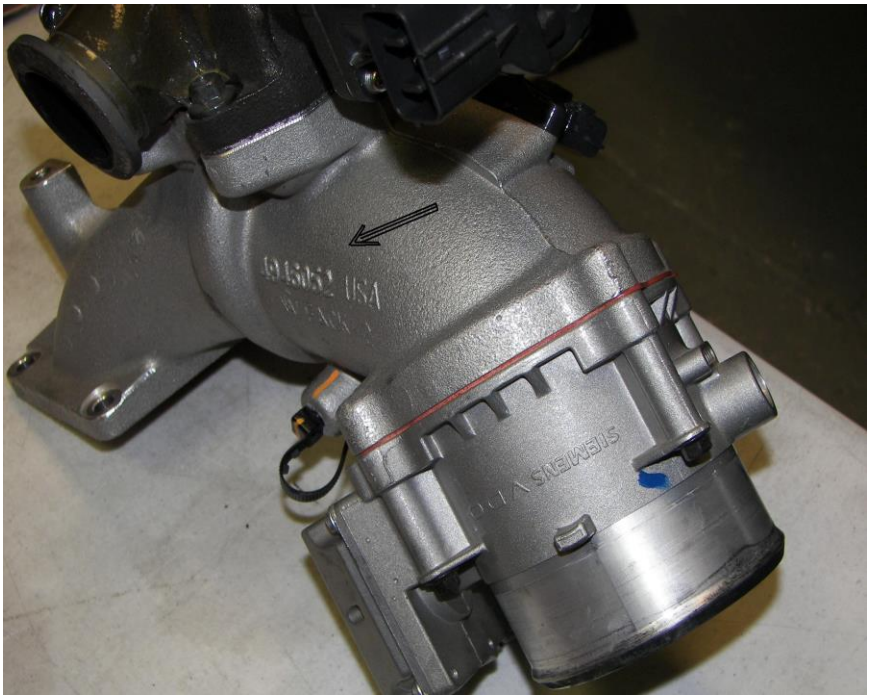
Correct

Correct

The nozzle is mounted using its external 1/8 NPT threads. Tighten the nozzle and nozzle holder assembly one half turn past finger tight using E6000® sealant to seal the threads. Note that the nozzles can be mounted almost anywhere at or before the inlet to the intake. They must be located after the turbo and intercooler however. Ideal locations are usually immediately before the intake itself on the tube coming from the intercooler outlet. Ensure that the nozzle has a clear spray pattern into the airflow, and that the tip of the nozzle is flush with the inner wall of the pipe or protruding slightly into the airflow.

Dodge Applications:

5.9L Cummins:



6.7L Cummins:

Nozzles are mounted in the cast intake elbow located on the driver's side of the engine. This elbow houses the EGR valve, EGR throttle plate, and the MAP sensor. Recommended location is after the EGR throttle plate – indicated by arrow in photo.

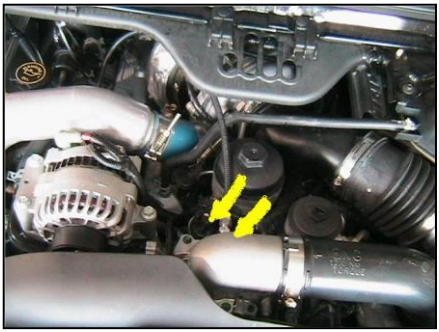
Tip: It is recommended that the cast elbow be removed before drilling and tapping.

Tip: Mount nozzles in the middle of the elbow on the front side approx 3" apart so spray is 90º to airflow.

Tip: To make sure there is no pooling of fluid while injecting, make sure nozzle tip is at least flush with the inside of the elbow when tightened.

Ford Applications:

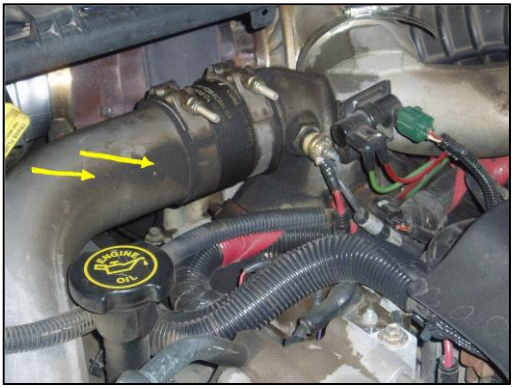
6.0L Powerstroke:



6.4L Powerstroke:

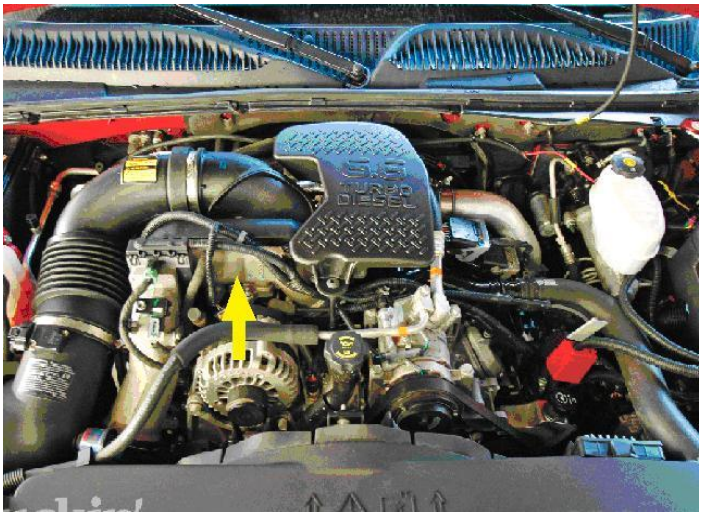
6.7L Powerstroke:

7.3L Powerstroke



GM Applications:

2004-2007 LB7, LLY, LBZ



2007-10 LMM

2011-Up LML

Nozzle/Solenoid/Check Valve (Quick Connect Kits)

Solenoids are flow directional. Be sure to note which port is the INLET/PRESSURE port (2 or IN) and which is the OUTLET port (1 or OUT).

The main outlet line coming from the Reservoir connects to the solenoids inlet. The outlet of this solenoid connects to the inlet of the pump. The outlet of the pump connects to the Check Valve Inlet. The Check Valve Outlet connects to the Union "T" and then both nozzles.

Measure the distance from the pump outlet to the injection location. Cut the ¼" red tubing using utility knife. Make cuts as square as possible. Ensure there are no kinks in the tubing and insert tubing into quick disconnects until fully seated. Gently pull on tubing to ensure a good connection. Use tie wraps to help route tubing and to ensure it doesn't contact moving or hot parts in the engine compartment.

The check valve assembly 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 will be installed between the pump outlet and T fitting. Install check valve as close to T fitting as possible.

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.

Nozzle and Solenoid Connection (Braided Line Kits)

Solenoid is flow directional. The solenoid is designed to be installed between the 7 gallon and pump inlet. Before installing on vehicle remove all NPT threaded fittings and install E6000 sealant on threads / re install. Use supplied self-tapping screws/washers to install in desired location.

The solenoid outlet connects to the pump inlet via a 1' section. The pump outlet connects to the 20' section of braided line and then to the check valve inlet. The rest of the system will be plumbed using the 1' sections.

Installation- Electrical

Step 1 Variable Controller Installation

- Mount controller in desired location using a 52mm gauge pod.
- Connect vacuum/boost hose (black silicon hose included in kit) to tubing coming from the controller to an accurate boost source using included brass hose barb fitting and supplied 1/8" boost line. Secure connections with tie wraps.

⚠CAUTION: Disconnect the negative battery terminal while connecting wires to prevent electrical fire or damage to controller.

- Connect BLACK wire to good ground location.
- Connect GREEN wire to Pump RED power wire.
- Connect RED wire to 12Volt key on source.
- YELLOW wire is not used.
- Purple wire is not used

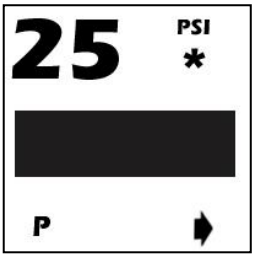
Caution

Do not route wires near hot or moving parts. Use corrugated wire loom and tie wraps to protect and route wires.

TECH TIP **Always have a good electrical ground connection. Poor ground will result in erratic operation of controller.**

Variable Controller Settings/Screens/Functions

Main Screen



- Main Screen (see right) is used to monitor boost pressure, injection, second stage activation, and to prime the system.
  - To prime the system press the red button underneath “P”. This will command 100% injection briefly to fully prime the system. ONLY ENGAGE PRIME WHEN ENGINE IS RUNNING!
  - Boost pressure is displayed in PSI on the upper left of the screen
  - Percentage of Injection is displayed using the graph in the middle of the screen. When injection is turned “Off” the graph will display the text “Off”.
  - (Dual Stage Systems Only) When a second stage of water-methanol is activated a asterisk will appear where “PSI” is located alerting the user or both stages injecting.
  - To enter the setting screens press the red button directly under the arrow on the bottom right.

CAUTION: Do not operate the prime button when the engine is not running. Only engage priming of the system when the engine is on.

Injection Start

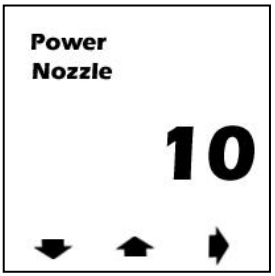
- Setting screen 1 (see right) is used to select what boost pressure will start injection. **This should be set 3psi above your vehicle’s unloaded flat land cruising boost** using the red buttons below the up and down arrows to adjust the PSI to desired setting. Press the red button underneath the arrow pointing right to move to setting screen 2.

Max Injection

- Setting screen 2 (see right) is used to select what boost pressure will correlate to max injection. This should be set the vehicles maximum boost level using the red buttons below the up and down arrows to adjust the psi to desired setting. Press the red button underneath the arrow pointing right to move to setting screen 3.

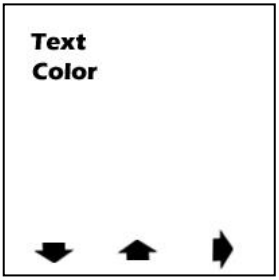
Power Nozzle

- Setting screen 3 (see right) is used to select what boost pressure a second stage of injection will be triggered. **If a dual stage system is not being used this must be set above 50 psi to the "off" setting to avoid fault code**. Press the red button underneath the arrow pointing right to move to setting screen 4.



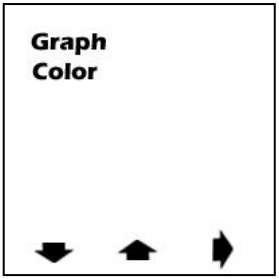
Text Color

- Setting screen 4 (see right) is used to select what text color will be displayed on screen. Using the red buttons below the up and down arrows adjust the color to the desired setting (Red, Blue, Green, Yellow, Orange, Purple, White) available. Press the red button underneath the arrow pointing right to move to setting screen 5.



Graph Color

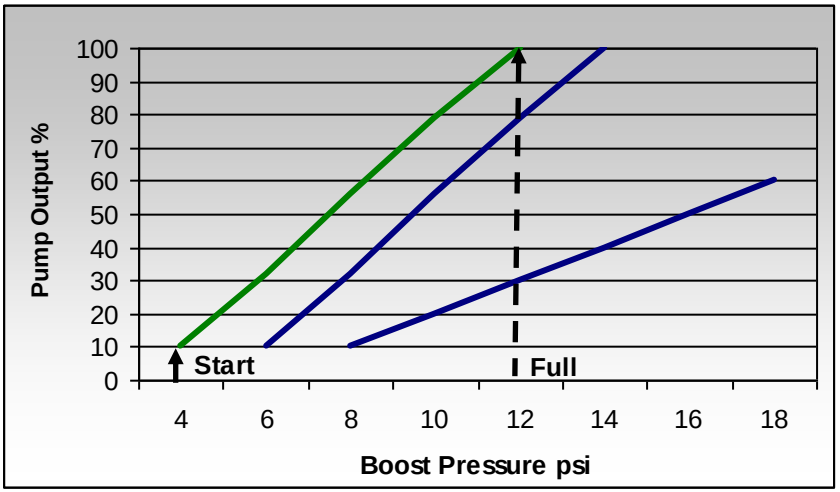
- Setting screen 5 (see right) is used to select what Graph color will be displayed on screen. Using the red buttons below the up and down arrows adjust the color to the desired setting (Red, Blue, Green, Yellow, Orange, Purple, White) available. Press the red button underneath the arrow pointing right to move to setting screen 6.



Injection On/Off

- Setting screen 6 (see right) is used to toggle between on/off mode. In on mode injection will take place based off the boost settings in the unit. In off mode no injection will take place and the “off” icon will be shown on the main screen. In this mode the controller will only function as a boost gauge.

Controller Operation Example



For the middle line, the chart shows the Start dial at 6 psi and the Full dial at 13 psi. At 6 psig of boost pressure the pump will operate at 10%. At 13 psig of boost pressure, the pump will deliver 100% of injection pressure. For boost pressure readings between the Start and Full settings, the controller will linearly adjust the pump pressure as shown on the graph.

Other Controller Functions

Fail Safe Alerts

Clogged Line

- In the event of a clogged line the psi reading on the main screen will turn to stars and begin flashing. If this occurs, fix the problem and press the middle red button to clear the code.

Broken Line

- In the event of a broken line the psi reading on the main screen will turn to stars and begin flashing. If this occurs, fix the problem and press the middle red button to clear the code.

Solenoid Not Engaging (Dual Stage Systems Only)

- In the event of a solenoid not opening to engage a second stage of water-methanol the psi reading on the main screen will turn to stars and begin flashing. If this occurs, fix the problem and press the middle red button to clear the code.

Testing the System

Step 1 Priming The System

****Before operating the system, it is recommended that the lines are first primed with fluid and the spray pattern checked****

- Fill reservoir with water
- Remove the nozzle from the intake tube.
- With the nozzle temporarily placed inside an empty container, purge the system by pushing the “prime” button (left hand button) on the controller until fluid flows consistently through the nozzle.

****If pump goes on and fluid level doesn't go down, there is an obstruction in the tube or nozzle.****

**** Spray pattern should be 120º and a fine mist. See photo.**

****If the pump fails to activate, check power and ground wiring****

Maintenance

Remove nozzle(s) and clean screen filters once per year using a calcium removing formula such as CLR®

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

Contaminants in the fluid such as dirt can damage the system. Ensure that dirt and debris do not fall into the tank.

Do not use Teflon tape or paste to seal connections. These sealers are not as effective as the Goop sealant provided and can break down over time, clogging components.

Learn more about performance fuel system parts we have.