Methanol Horsepower

Testing the Cooling Effects of Snow Performance’s Mass-Air-Controlled Methanol Injection on a Super-Hot SVT Cobra

In our November ’04 issue (“Cool Your Jets!”, p. 100), we first introduced you to Matt Snow and his amazing methanol injection system from his company—Snow Performance. The Snow Performance kit showed an amazing ability to stave off detonation even with our high boost, low-fuel-octane application. In the end, we were impressed with the quality and abilities of the methanol injection kit from Snow Performance. At the close of that technical article, we promised you more testing with the Snow Performance setup because, well, we like messing around with parts that really deliver the goods. With hopes of testing the kit on a high-horsepower 5.0 street car falling by the wayside, we turned to the next.

Need to cool down a hot Ford? Try the Snow Performance methanol injection kit for a breath of fresh air that can add as much as 70 hp to your combination.

Horse Sense: According to Snow Performance, “Methanol is a high-octane fuel that is extremely resistant to detonation with an excellent cost/benefit ratio. Its high latent heat of vaporization also makes it an excellent air-charge cooler, which means a denser mixture and more horsepower. Because of these facts, it is a better anti-detonant than ethanol or isopropanol, although they will work in a pinch. It has, however, only about 60 percent of the energy content of gasoline by volume, so about twice as much is used to make similar power if used as a straight fuel.”

Text and Photos by Dr. Jamie Meyer
Snow Performance owner, Matt Snow, was on hand to help with the install. Here, Big Matt takes a final look at the MAF Variable Controller to make sure the system is functioning properly. The controller typically comes on at 3.32 volts and ramps the power (by increasing voltage) to the Snow Performance methanol injection pump. This is a trick way to fine-tune your system so that there aren’t any flat spots in the powerband.

Paul Riccio of Razor’s Edge gets to work on our installation by pulling both front rims and inner wheel well liners. This gave us great access to where the bulk of the Snow Performance kit was going to be installed.

best car in the Ford arsenal—an ’04 SVT Cobra. Before we get into the nitty gritty of the installation, let’s take a look at what you get from Snow Performance.

The Snow Performance methanol injection kit is based around a high-flow pump that is mounted in the engine compartment and a distribution nozzle that goes in the intake. This high-pressure, high-volume pump will flow 500 ml/min at the nozzle. The other items in the kit are of high quality while still being affordable to the end user. The Snow Performance kit has grown dramatically in popularity since our initial technical story, and we expect the company to only get stronger.

We enlisted Paul Ricco and the crew at Razor’s Edge to give us a hand with the installation. Being based in South Florida (think hot and humid) has certainly given Paul an appreciation of the benefits of methanol injection as a way to keep his customers’ cars running cool and fast.

“We install 4-5 Snow Performance kits a week,” Paul tells us. “Of all the kits we’ve done, we haven’t had a single failure.”
The power for the pump must come from a 12-volt switched circuit. Razor’s Edge typically uses the intercooler relay or the ABS controller. For this installation, Paul decides to pull power for the system from the ABS controller. Here, he indicates which terminal to use. The circuit wire color is blue with red tracer or “BL/R.”

The Snow Performance pump is mounted on the framerail, out of the engine compartment, and out of the way of road debris.

Once all the lines and wires are run, the stock washer fluid reservoir should look like this. It would be a good idea to check your reservoir for leaks with water before reinstalling it in the car. Of course, you can use the Snow Performance reservoir mounted in another location if you wish to retain the use of your windshield washer fluid.

The crafty guys at Razor’s Edge decide to use the stock washer fluid reservoir for a totally stealthy install. In addition to not eating up any more space in the already crowded Cobra engine compartment, the washer fluid reservoir will hold almost a gallon of methanol/water mix. Here, the reservoir is drilled for the pickup.

Once you have the pump and reservoir mounted, you can install the supply line. Nice push locks keep the system safe when activated.
Everything about the Snow Performance kit is high quality, especially that pump. It's an over-built kit. In addition to testing the base kit, we also wanted to take a look at Matt's latest addition to his line of performance parts—the Snow Performance MAF Variable Controller. According to Snow Performance, "This device is designed to increase injection pressure over a user-adjustable range and quickly shut off when airflow drops to prevent misfiring. The Variable Controller is designed to work with the stock mass airflow meter, and the output signal easily connects to the input of the controller. The user then sets two dials that are located under the lid of the controller to determine what voltage the system is activated. The second dial chooses the voltage where maximum injection is required. Once the two dials are set, the controller will linearly increase/decrease the injection pressure over the set range."

Razor's Edge typically activates the system at approximately 50 percent max mass-air voltage, or around 3.0 volts, with the max voltage at 4.2 volts. As such, the Snow Performance MAF Variable Controller linearly ramps the voltage through that range. So, the pump sees a seamless increase in voltage to gradually bring on the flow rate to max as the engine demands.

Our test car was a gorgeous, Competition Orange '04 SVT Cobra owned by Bret Stabler. Bret had already installed a Ford Racing Performance Parts Whipple supercharger with a 3.25-inch blower pulley and a full exhaust. In addition, the car was outfitted with IRS bushings, a Steeda differential brace, and subframe connectors. Even with the extremely efficient factory intercooler, with the added boost of the FRPP Whipple, this car was the prime candidate for a Snow Performance methanol kit.

With a lot of experience and a well-equipped shop, Razor's Edge had the Snow Performance kit installed and tuned in less than a day even while Paul tripped over former Technical Editor Mark "Crazy Legs" Houlanhan.

Once again, the Snow Performance methanol-injection kit has delivered the goods with big horsepower and torque increases with only a modest cash outlay. Honestly, the only thing that you can add to your Mustang that will reward you with this much power is a blower, nitrous, or an entire engine rebuild. And, those will cost you at least twice or as much as 10 times the cost of what we installed here. Safe, clean, fun—Snow Performance has done it again.
These two photos give you an idea of what happens once you activate the system. The Snow Performance nozzle does a nice job of evenly distributing the methanol/water mix into the induction pathway of the Cobra. This also gives you an indication of how effective this system is at cooling this intake charge for big power gains.

The finished installation should look something like this. As with our first test with the Snow Performance system, one of the reasons we like this system so much is that the bulk of it is out of sight. Not only does that keep the installation clean, but it acts as a stealthy addition to a car that is already a serious player.

Once we are sure the nozzle is in place, we reinstall the inlet pipe and install the system filter. This will make sure that there isn’t any large debris getting shot down the throat of your Cobra.

Willie Figueroa not only knows his way around a laptop, but as the lead tuner at DiabloSport, he comes in handy with this many companies involved in a tech story. Paul handles the tuning while Willie watches. Remember, you will pick up some power by just bolting on the Snow Performance kit, but the real rewards will come from a custom tune-up specifically designed to enhance the air/fuel ratio on your particular application. This will be made easier with Snow Performance and Razor’s Edge collaborating on an entire library of tune-ups for cars. Basically, if you buy a Snow Performance kit, Matt will be able to get you a tune for your car with the help of Razor’s Edge.

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