

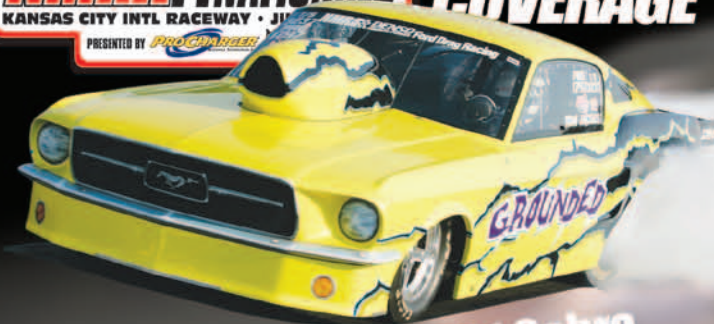


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COMPLETE COVERAGE



DECEMBER 2005 VOL. 07 ISSUE 12

Shawn Johnson has taken K&N Factory Stock to school with his 4-Valve Powered 2001 Cobra **FACTORY REVOLUTION**



**Comp Cams
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Latest Rumors & News
Kenne Bell's Boost-A-Pump Tech





BOOST-THAT-PUMP

The Kenne-Bell Boost-A-Pump Will Boost Your Fuel Output, Give you a Massage, and Cook You Breakfast in the Morning

By Tim Stockwell
Photos by Author

How many times have you heard the phrase: 'you need a bigger fuel pump?' It seems that over the years that phrase has become the answer for everything, especially with drag racers discussing fuel delivery. While adding a larger pump may work in some cases, many people overlook other critical areas of concern—voltage and power supply. Without the proper voltage to your fuel pump, even the best fuel pumps can have a hard time doing their jobs efficiently. We all know that our cars run off of a 12-volt system, but

The Boost-a-Bump is a do-it-all device which is reasonably priced, and will feed your fuel pump with a steady diet of high voltage.

how much of that actually makes it to the fuel pump?

The people at Kenne-Bell have created a product that could be the cure for your fuel pressure woes, and it's called the Boost-a-pump. This voltage increasing device is easily installed, and has virtually no downsides. The Boost-a-Bump is a do-it-all device which is reasonably priced, and will feed your fuel pump with a steady diet of 'high voltage' letting it do things you never thought possible.

INSIDE WORKINGS

"Back about seven years ago, we thought we'd try to figure out a better way of increasing fuel delivery without having to drop the gas tanks," said Kenne's Bell Jim Bell. "I thought if we could somehow up the voltage to the fuel pump, we wouldn't have to change the pump at all." That's when Bell developed the idea for the Boost-a-Pump. The basic principal of the Boost-a-Pump is that by using a step-up transformer, we can reliably increase and maintain a voltage increase to your fuel pump. That means no batteries or other components to wear out!

The Kenne Bell Boost-a-pump not only provides additional voltage to feed your

pump, but it also acts as a voltage regulator that compensates for voltage fluctuations, keeping the voltage steady and consistent. During the initial testing and development stages of the Boost-a-pump, Kenne Bell found that even electrical devices such as the head lights and or the stereo system would take away from the voltage that the fuel pump would ultimately receive.

"We found out that one volt is equal to about 10% in pump flow," explained Bell. "By increasing the 12 volts getting to the



Here is the Kenne Bell Boost a Pump test stand. Bell stands behind all of their products with lots of actual testing, and this test stand helped prove Kenne Bell's theories about the Boost-a-Pump increasing flow without decreasing pump life. It's nice to know that there is actual engineering behind this technology.



Installation in our 1999 Ford Mustang GT begins with removing the drivers side interior trunk panel to access the fuel pump wiring. Each vehicle model has a specific wire that you'll need to cut, and use for your installation. Ours just happened to be the pink/black wire coming out of the inertia switch and leading to the fuel pump driver. All you do is cut it, and attach the red wire with the fuse from the Boost-a-pump to the side that comes from the inertia switch, and

the other red wire from the Boost-a-pump to the side going to the fuel pump driver. If you aren't sure which wire to cut, please call the experts at Kenne Bell and they'll help you out.

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BOOST-THAT-PUMP

pump to 17 volts, we found a proven 50% increase in pump flow could be achieved. This works both ways, so if your head lights are sucking up a volt or so your fuel supply can drop 10% or more." Another important note is that the pumps duty cycle is lowered as the pump voltage is increased when pushing the same amount of fuel, meaning that at higher voltage, not only does the pump put out more fuel, but it can actually work less while doing it!

PUMP EXAMPLES

If you have a fuel pump struggling to keep up with only 11.5-12.5 volts, the injectors can quickly reach 100% duty cycle

there is absolutely not according to Kenne Bell. Many years of testing by companies such as Walbro have shown that 17 volts of power have absolutely no ill effects on the lifespan of an electric fuel pump. In fact, some tests have shown the increase in voltage to actually increase the longevity of a fuel pump because it isn't straining under the load created by a low voltage situation.

So for those of you out there that think running 17 volts to your fuel pump might be a bad thing, there is plenty of data to disprove that theory (check the Kenne Bell website for more). To give you one example of the possibilities while using the Boost-a-pump, look back a couple issues of Race

Pump @ 12V	Boost-a-Pump @ 17V
88 LPH	132 LPH
110 LPH	165 LPH
190 LPH	285 LPH
220 LPH	330 LPH
255 LPH	382 LPH

without that much total output. By increasing the voltage to the pump, the duty cycle of the injectors is lowered and the pump runs more efficiently without killing itself to keep up. Below is a chart showing just how much difference voltage can effect the output of some different fuel pumps in a stock 5.0L application when voltage is increased by 50%.

You can clearly see the dramatic difference when more voltage is applied. Alright, we know what you're thinking.....won't all of that voltage kill my pump? The answer

Pages at the car used in the "10's for 10K" story. This particular car, a 1992 Mustang LX has a single 255L in tank pump and a Kenne Bell Boost-a-pump, stock fuel lines and stock fuel rails, 42# injectors, running 20+ psi boost and makes enough power to run 10.60's, all with a single "little" in tank pump. So the next time you scout out a killer fuel system with billet fuel rails, big braided lines, and a couple fuel pumps hanging out from under the bumper on a 12-second car, you can rest assured that this is overkill and not needed at that level.



The Boost-a-pump unit has a large black ground wire that needs to be connected to a good ground source. We chose the factory 8mm bolt for the trunk latch assembly. The other wire you see there in our car is the ground for the subwoofer amplifier. Make sure you scrape away any paint where you will be bolting it to.



There are plenty of places to mount the unit itself, but we chose to mount it out of sight and in the rear section of the spare tire well. Either use a few self tapping screws, or drill pilot holes and use a good sheet metal screw. Make sure to check the underside of where you plan to make hole before hand, there is a gas tank under there after all. When the interior panels of the trunk are reinstalled, it is all out of sight.



Running the wires for the activation switch and the dash mounted variable selector was easy in our car. We just pulled loose the interior trim and tucked it all out of sight. No screws or hardware needed to be removed. Wearing sandals is optional though.



After getting the wiring to the front of the car, we ran the RCA type connector for the dash mounted variable controller through a hole we drilled in the rear of the empty pocket underneath the radio. At this point, just plug it in to the back of the variable controller and mount it. We used some really sticky 3M two sided tape and stuck it to the inside of the pocket.



The activation switch (boost or vacuum) gets a pair of wires hooked to it. In our application, we used the boost pressure switch and tee'd it off a vacuum fitting. There is no polarity on the two wires that you hook to the switch, just plug them in and tuck it all out of sight. While it is possible to simply twist these two wires together and have the Boost-a-pump activated at all times without any harmful recourse, Mr. Bell sees no

reason why anyone would want to do that other than the fact that they just don't want to hook a switch up. He highly suggests taking the time to properly install an activation switch of some kind.



We thought an actual voltage test was in order, so after the installation was complete we started the engine and checked voltage at the fuel pump wire with the variable dash controller all the way at the "0%" position and saw a steady 13.03 volts. This is actually better than most stock wiring, as most we've tested are in the 11.8-12.8 volt range in stock configuration. After turning our dash mounted variable controller all the way up to the "50%" setting on the knob, we immediately saw our volt

meter jump up to right at 17 volts. If you listen carefully when you turn the knob, you can hear the fuel pump get slightly higher pitch and smooth out. It actually sounded like it was letting out a sigh of relief with it's new found voltage.



We mounted our BAP knob right under our stereo—that way we can make quick adjustments if we need to at the dyno or on the track.



Here's the completed installation. Clean, huh. The Kenne Bell Boost-A-Pump is hidden nicely under the trunk mat. Nobody knows the little secret we have under hood!

BOOST-A-PUMP LOVE

Benefits of the Boost-a-Pump are numerous, and we'll cover a few of the most important ones. First, since the Boost-a-Pump uses either a boost switch (on at 3 psi) for boosted applications, or a vacuum switch (on at 0 inches vacuum) for naturally aspirated engines to activate it—you don't heat the fuel supply up with large pumps running all the time. Gasoline begins to boil at only 95-degrees, and your effective octane rating drops dramatically at this point, so heat in your fuel system is a huge factor to think about. Since the Boost-a-Pump only runs when you need it to, and your fuel pump runs off of stock voltage at all other times, your fuel stays nice and cool, just like a stocker.

Next, would be the ease of installation. With this device, you do not have to drop your fuel tank, change your fuel lines or rails, re-wire the entire fuel system, or even get dirty on the installation. All that's required is to find a suitable location to mount the unit itself, cut your fuel pump feed wire, and connect to the two red wire leads from the Boost-a-Pump, attach a ground wire, and the difficult portion of this install is already complete. To finish up, you simply run two already connected wires from the Boost-a-pump unit to the front of the vehicle, where one connects to the dash-mounted dial via an RCA type push-on connector, and the other to your boost/vacuum switch. It's as easy as that, and should take no more than 30 minutes to install in most cases. As stated earlier, there are no downsides to this device whatsoever that we

know of. Unless you need a huge fuel system to support mega horsepower, the Boost-a-pump might be the solution to most any fuel delivery inadequacies.

"The fuel system is the most misunderstood component of an automobile," Bell explained. Bell believes the majority of people out there think that a bigger fuel pump is absolutely needed once you start modifying a vehicle with an OEM fuel pump. In reality, that just isn't the case. It doesn't matter what pump you run, if they aren't supplied with enough voltage to make them run correctly, you'll never achieve good results. We would think of the Boost-a-pump as one of the first modifications you should do to your car. This way, you know ahead of time that voltage is no longer a concern and that when you do max out your existing fuel pump then it is time to replace it with a larger unit. We've had nothing but positive experiences using the Kenne Bell Boost-a-pump in different vehicles over the years, and one will be on every car that this author builds.

rp

SOURCE

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Drag Racing's most honored crew chief and an integral part of the success enjoyed by John Force Racing.

April 15, 2005

Michael Holzappel, President
Automotive Racing Products, Inc.
1863 Eastman Ave.
Ventura, CA 93003

FORGE 13

Dear Mike:

I just wanted to thank you for the "ARP Performance Partner" award recently presented to John Force Racing. We very much appreciate the relationship we have with ARP and put a tremendous value on the fasteners you manufacture.

As you know, I've been using ARP fasteners throughout most of my racing career and can point to 15 NHRA Funny Car Championships, the last 13 with John, that ARP has been an integral part of.

I'm especially appreciative of the R&D and testing that ARP performs to make sure the fasteners perform reliably under the demanding conditions we compete under. It seems that every time we push the envelope, you're right there to seal it.

We owe a great deal of our success to the caliber of components used in our race cars. We've demonstrated to ourselves time and again that you need the best possible parts to win. That's why we rely on ARP. Thanks again.

Sincerely

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