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Heavy Breathing

Two easy bolt-ons up the power output of our '10 SS.

by **Steven Rupp** photographs by the author

• **Here at Camaro Performers magazine** we love bolt-on performance parts. Maybe it's the nearly instant gratification they provide, or it could be that they're easy enough for a caveman or magazine editor to install. In any event, they are the backbone of our hobby. Up until this point we've been careful to keep our '10 SS California smog legal. But in reality, our ride lives back East and, as such, we can get a bit more creative in the bolt-on horsepower department.

As it is, our SS project car isn't a performance slouch. With its Magnuson supercharged LS3, it put nearly 480 hp to the rear wheels but, at over 4,000 pounds, every one of those ponies are needed to get this hunk of modern muscle in motion.

What we really needed was more air in our engine. After all, more air means more fuel

and that equates to more power. Given the 91-octane swill that passes for "high octane" here in the Golden State, more boost was out of the question, so we decided to bolt on a couple parts to help move atmosphere through our mill more efficiently and in greater volume. We figured a set of high-flow headers, combined with the right intake, would help our blown LS3 breathe easier and hence make more power.

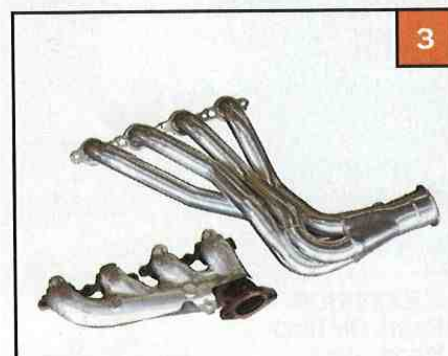


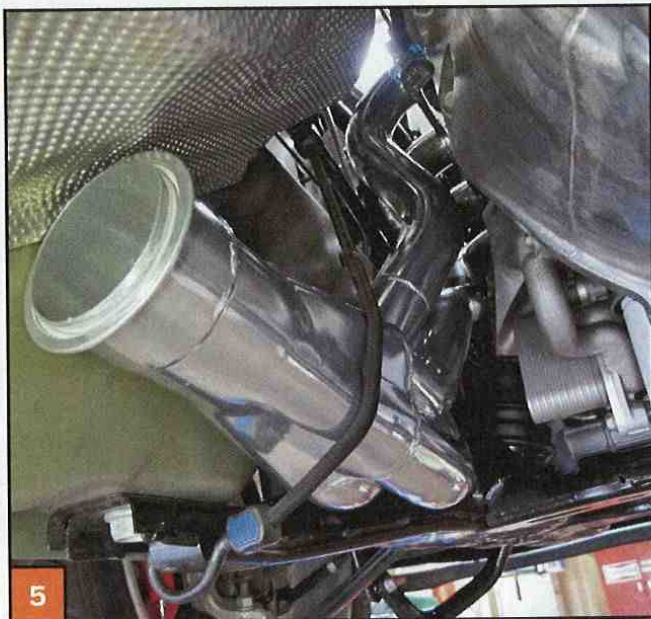
◀ **1.** Before the new go-fast parts could go on, the old OEM stuff needed to come off. We knew a lift would make this easier so we headed over to Don Lee Auto in Rancho Cucamonga, California. From the engine bay side, we unbolted the exhaust manifolds from the section containing the cats.

◀ **2.** We then unbolted the exhaust manifolds and dropped them out from the bottom. Forget the idea of taking them out through the top—that's just crazy talk.

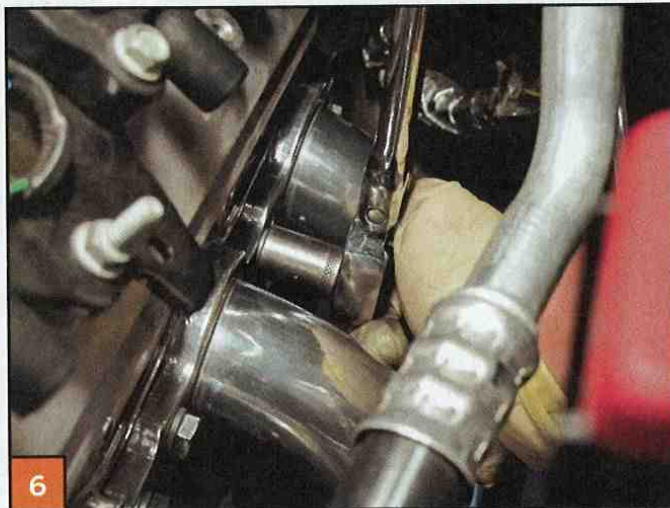
◀ **3.** As far as cast-iron exhaust manifolds go, the factory GM units flow pretty darn good, but they have nothing on the stainless 1⁷/₈-inch JBA long tubes (PN 6813SJS). They feature 3³/₈-inch, laser-cut flanges, mandrel-bent stainless primary tubes, and JBA's patented Firecone merge collectors. Ours also came with the optional ceramic thermal barrier.

◀ **4.** The new JBA headers easily slid up and into place. It was almost too easy. The passenger side was a bit tighter, but still pretty simple.





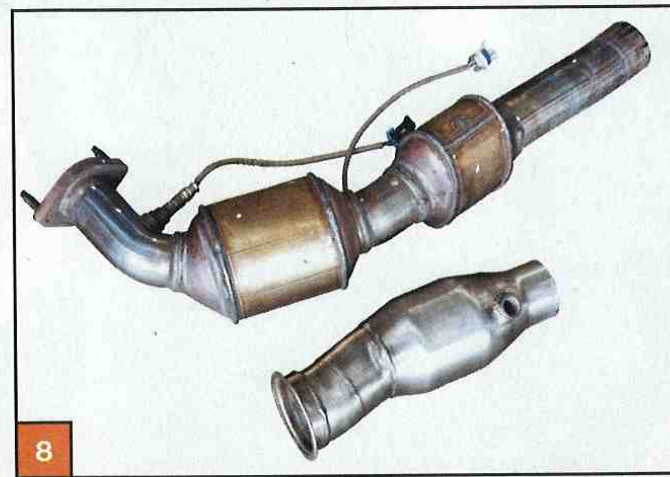
▲ We used a bungee cord to hold the header in place while we dropped the lift.



▲ We then installed the exhaust gaskets supplied by JBA and secured the headers using the new 8mm bolts. JBA uses sealing beads on all of their headers. They've found that, when installed correctly, the raised bead around each port increases the pressure exerted on the gasket directly adjacent to the port, stopping leaks. Working from the middle outward, we first snugged each bolt, then went back and tightened them further to 13 lb-ft.



▲ Included with the JBA headers and cats are all the parts needed to mate the long tubes to either a stock exhaust system or, as in our case, their aftermarket cat-back system. Also in the box are extension harnesses for the forward two O2 sensors along with bolts and gaskets.



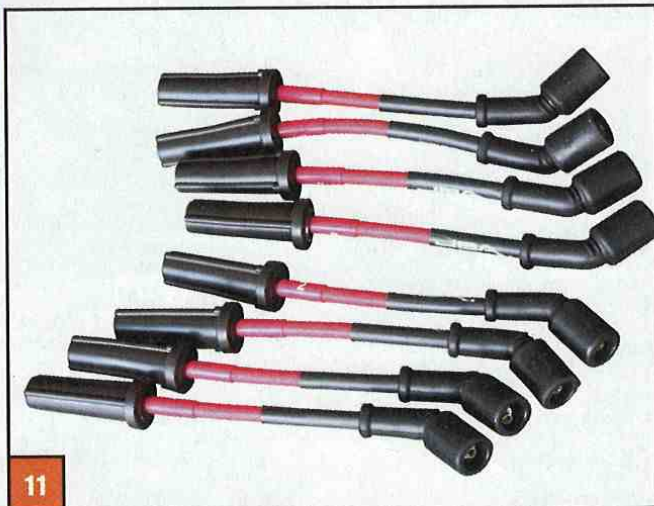
▲ The huge factory cat assembly was replaced by JBA's stainless high-flow single cat (PN 6813SDC, 3 inches to 3 inches). The weight savings just might get our SS under 4,000 pounds, but we doubt it.



▲ Using the stainless band clamps, we attached the new JBA high-flow cats to the long tube headers.

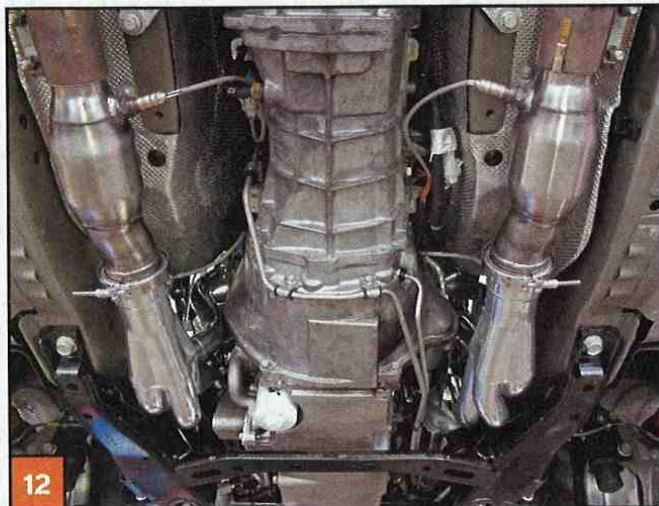


▲ The rears of the JBA cats were then secured to the rest of the exhaust system using the factory band clamps. We then re-



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▲ Since we had pulled the spark plug wires to make it easier to gain access to the header bolts, we decided it was the perfect time to install the new 8mm PowerCables (PN W0812) sent to us by JBA. In the interest of function, we transferred the metal factory heat shields from the stockers to the JBA wires.



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▲ Total time for the complete install was a leisurely two hours, and everything we needed to get it done came in the JBA boxes.

FEEDING THE BEAST

• Since engines, especially supercharged, are just big air pumps, it seemed logical to address the intake side of the equation, since we freed up the other end so much. We wanted a system that looked good, was easy to install, flowed tons of atmosphere, and would mate to our blower. After looking around, we kept finding systems that met three out of our four requirements. Eventually, we came across Andy Mages at ADM Performance. Turns out they have a sweet-looking, high-flowing air intake system that would accommodate our supercharged LS3.



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▲ It's not that the stock airbox is all that bad, it's just that there is room for improvement. Of course, the blower means that many of the aftermarket solutions out there won't quite fit.



2

▲ Here are all the main players included in ADM Performance's air-box system. In addition to what's shown here, there's a plethora of bolts, nuts, clamps, and various installation widgets. The best part is that it fits cars with factory intakes as well as those with Magna Chargers affixed. ADM also offers a full race version that allows for even greater airflow, but is a bit more work to install.



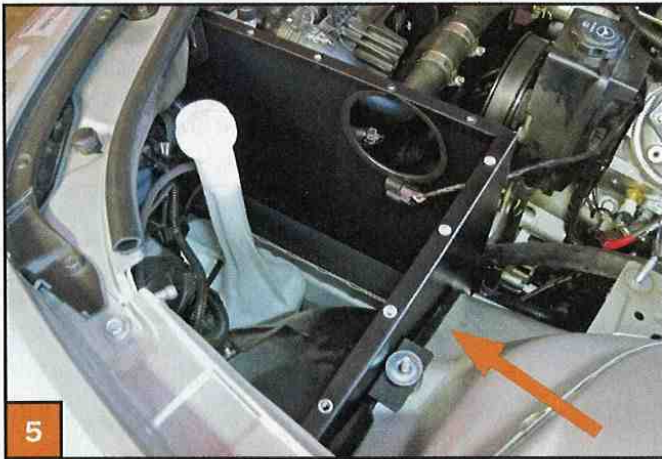
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◀ The first step was to remove all the factory intake parts including the GM airbox and our MagnaCharger intake tube. We didn't toss anything, since a few of the connectors and grom-



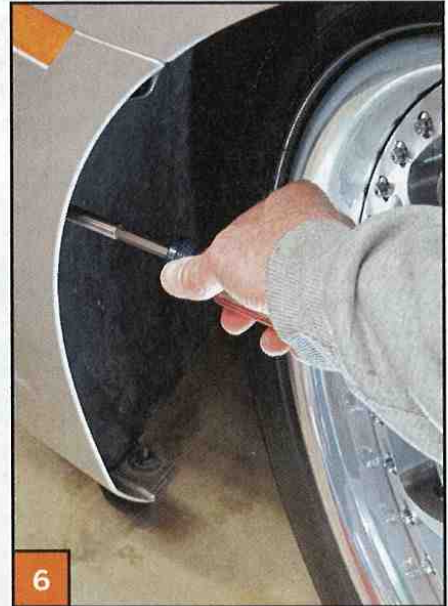
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◀ The ADM Performance kit came with very detailed installation instructions, so we're not going to give you a bolt-by-bolt description of how it goes in, just the highlights. Per the instructions, we installed the MAF into the 6061 4-inch intake section.



▲ After installing some protective rubber strips (red arrow) we installed and bolted together the two sides of the airbox. Also note the wire to the MAF sensor was relocated to the inside of the airbox. This gets the MAF out of the hot engine bay and lets the ECM read cooler temps, which translates into slightly increased timing.

► We needed to loosen up the windshield washer fluid bottle to gain some wiggle room. To get at it we removed three Torx screws inside the wheelwell, pulled back the plastic, and loosened the washer bottle bolts using a long extension. The instructions said to remove the wheels, but we were able to get it done by just turning them.



▲ Next, we installed the ADM conical filter and reconnected the MAF sensor. The larger filter and sealed airbox are keys to making more power. After all, the last place you want hot engine bay air is around your filter.



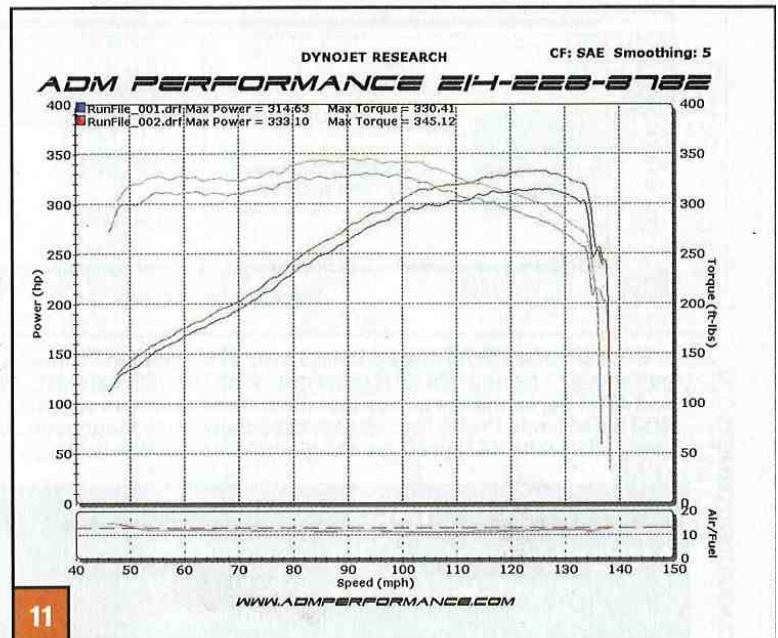
▲ We then assembled the air intake tubing, starting with the silicone hose off of the throttle body.



▲ And here's the fully assembled intake tube. The system utilizes 4-inch (100mm) ID tubing from the filter to the throttle body.

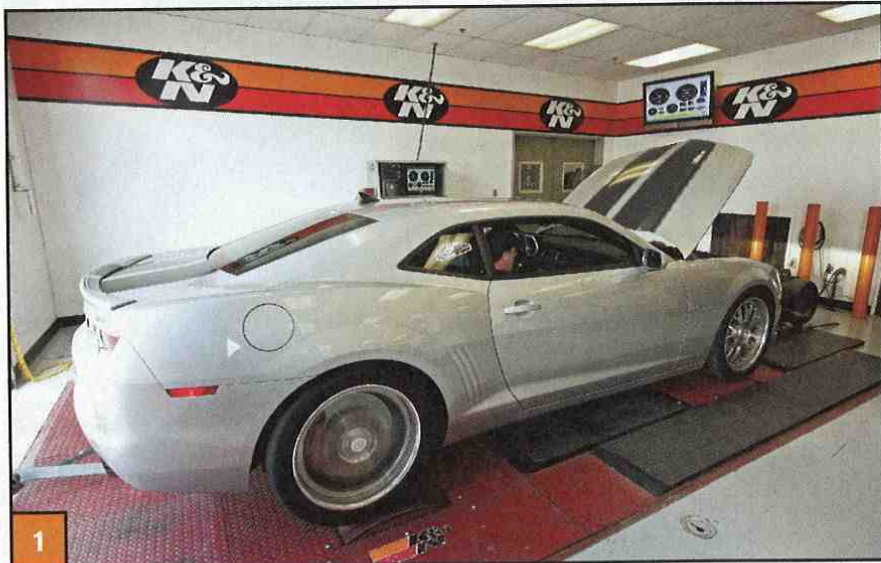


▲ Lastly, we installed the airbox lid. As you can see, the inlet for the washer bottle comes through the lid, which is why we needed to loosen it up first. Once the lid was in place, we snugged up the washer bottle bolts and refastened the inner fender. It looks



► Since we didn't dyno test the car between the headers and the airbox installation, we asked Andy over at ADM what sort of gains they had been seeing from doing just the airbox. The answer was around 19 peak horsepower and 14 pounds of torque—good gains from such

Sure, the new parts look killer, but the real goal here is more power. So after the install, we hit the dyno. Also, big changes like the long tube headers require the computer's programming be massaged a bit to get the full benefit. Our friend and LS tuning guru Mike Norris, of Norris Motorsports, was in town, so we shanghaied him into working his magic on our modified SS. Mike's shop is located in Indianapolis, so if you're in the area and have an EFI car in need of some work, especially tuning, then do yourself a favor and check him out.



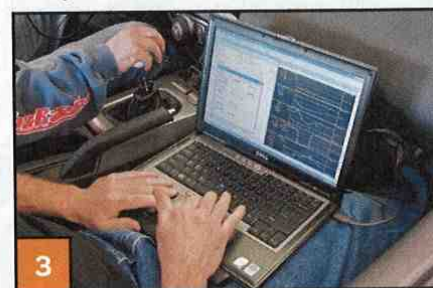
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▲ Bert Heck and the guys over at K&N Performance were cool enough to let us borrow one of their chassis dynos to see how much power our free-flowing Camaro would put to the rear wheels.



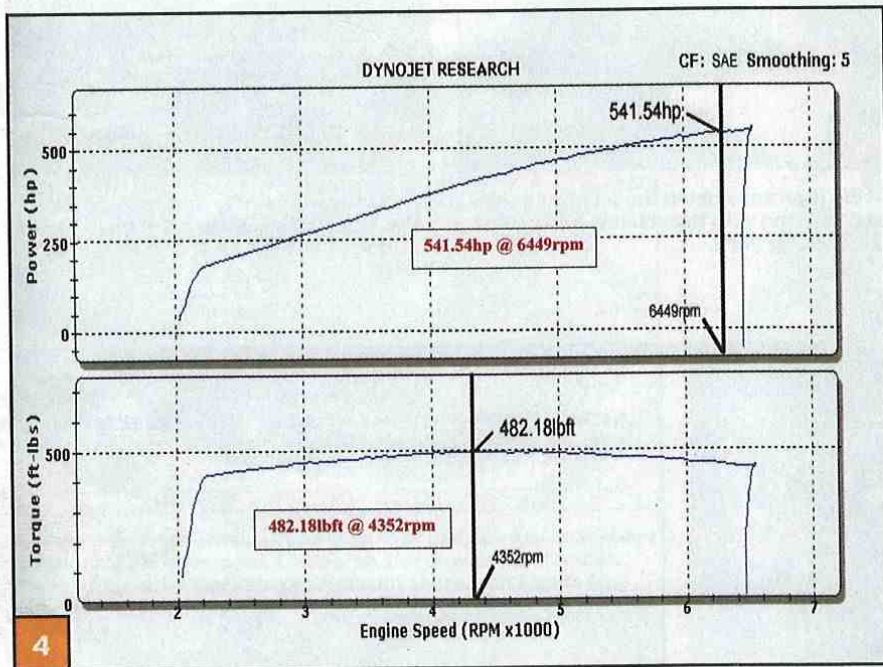
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▲ In order to interface with our Camaro's computer, HP Tuners sent us over one of their MPVI Pro tuning systems. This included all the hardware and software we needed to tune and scan anywhere from two to four vehicles. That means you can split the cost with a buddy who has an OBDII-equipped ride. Visit HP Tuners' website (www.hptuners.com) to see all the cool stuff this little box lets you do with your Camaro.



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▲ Utilizing the HP Tuners software, Mike Norris, or at least his hands, danced over his keyboard, adjusting the Camaro to its newfound airflow. He first dialed in the cruise tune before starting the wide-open pulls.



4

▲ Back when we dyno-tested the SS over at Magnuson Products, our best 91-octane pull was 473 hp and 451 lb-ft of torque. With the JBA exhaust, JBA long tube headers, and ADM Performance airbox installed, those numbers skyrocketed to 542 hp and 482 lbs of twist. Pretty impressive, especially since Magnuson corrected the numbers using STP while K&N used the stingier SAE correction factor.

CAUTIONARY TALE

Adding more power to your ride is the quickest way to find out what other areas are lacking. In our case, putting nearly 550 hp to the rear wheels was overtaxing our GM fuel pump. It's nothing you would notice cruising around, but after tracking the car, we found the pump was overheating and dropping fuel pressure down to as low as 45 psi. In short, it's just not capable of delivering the fuel needed to support this much power. The drop in fuel pressure was causing a lean condition, and as everyone knows, that's a bad thing, especially in a boosted engine. We're busy researching ways to fix our Camaro's fuel



PLAYING CATCH

● Since Mike Norris was here helping us install the ADM Performance air induction system, we also figured it was a good time to install his baffled PCV catch can. LS engines are notorious for allowing oil vapors into the intake tract. Over time this tends to muck up engines and cause power loss. Typically they mount on the engine, but our ADM airbox left us a prime spot on the driver-side strut tower. We simply used some hose to plumb it from the valve cover back to the engine. If you have an LS-equipped ride, check out his website for more details.