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Heavy Breathing

Bolt-On Power Upgrades For The LB7

BY CHRIS TOBIN

PHOTOGRAPHY: CHRIS TOBIN

Most of us know that internal combustion engines are fancy air pumps and that the trick to getting more power from them is to get more air in and out of them. Just as with old-school hot-rodders, installing a free-flow exhaust system and intake will go a long way toward helping airflow in and out of the engine.

However, we wanted to do more than just a typical intake and exhaust article, so we decided to improve the entire airflow path all at once on our 350,000-plus-mile 2001 Chevy LB7 Duramax truck.

We opted to install the Banks Power Big Hoss Bundle that includes a Ram-Air intake system, Techni-Cooler intercooler and boost tubes, Monster exhaust system, BigHead wastegate actuator and Six-Gun tuner with Banks iQ display/controller to replace the well worn, but still functional stock components. Additionally, we contacted our friends at Fleece Performance Engineering to get one of their drop-in LB7 Cheetah turbochargers with a custom 63mm billet compressor wheel and high-flow inconel turbine wheel. Then, to finish things off, we ordered an LB7 downpipe from Pro Fab Performance to replace the restrictive factory down-



Fleece Performance Engineering's LB7 turbo may look stock, but it's not. It boasts a 63mm billet compressor wheel and high-flow inconel turbine wheel that can deliver up to 600 hp.

pipe and hand the exhaust gasses off to the new, 4-inch-diameter exhaust system.

After our new parts were delivered, we loaded up the bed of our '01 Chevy and pointed it toward Advance Injection, a

new shop near Knoxville, Tennessee, that is co-owned by Cody Hale and Mark Newton (formerly of Anarchy Diesel and MCN Diesel Performance). Hale and Newton joined forces in 2012 to offer their customers full-service diesel repair, performance upgrades and tuning for all makes of diesel pickups.

Despite the laundry list of performance parts we installed, they were all basically bolt-on items that the average DIY enthusiast would be able to install in his garage or driveway. We installed everything at once, but if your schedule or budget does not allow, you could easily purchase and install



The Big Hoss Bundle from Banks Power is a proven power package that can add more than 100 hp and nearly 400 lb/ft of torque to a stock LB7 Duramax.



Whenever you are going to be working on the exhaust system, it is a good idea to soak the bolts and rubber grommets with penetrating oil to make it easier to remove.



After routing the cable into the cab and connecting to the OBD II port, the Banks iQ display is mounted to the windshield with the supplied suction cup mount.

the components one step at a time.

We don't have the space available for detailed, step-by-step coverage; however, we are highlighting the main aspects of the installation process. The supplied installation instructions with the Banks Power products are excellent, and the installation of the downpipe and turbo is very straightforward.

The entire installation took about 14 hours over a two-day period, including the typical slowdowns involved with shooting photos for a tech article. If you are planning the installation at home, we suggest you set aside an entire weekend and plan for some long hours and maybe even invite a couple of friends over to lend a hand. As



Under the hood, Cody Hale connects the Six-Gun tuner to the truck by plugging the harness into the factory 24-pin and 38-pin engine harness connectors on the driver's side of the engine bay.



To mount the thermocouple, Mark Newton drills and taps the Pro Fab Performance passenger-side exhaust manifold.

always, practice safe shop techniques, and if the work seems to be beyond your skill level, have your local diesel performance shop perform the installation for you.

Due to our editorial deadlines, we did not have time to get the truck on a chassis dyno, but we can definitely feel a big improvement in our seat-of-the pants dyno. Throttle response is great, and having the iQ easily in view to monitor the Duramax adds peace of mind when putting the power down. The truck also sounds much better; it now has a meaner exhaust note and a pleasant turbo sound when you mash the "loud" pedal.

The Banks Big Hoss Bundle is rated to deliver up to 155 additional horsepower and 385 lb/ft of torque on a stock LB7 truck. We're sure it delivers; with the addition of the Pro Fab downpipe



5 Then, to make sure that no metal particles get blown into the new turbo, he removes the up pipe and uses a magnet to clean out any metal shavings from the manifold.



6 Zach Bruner removes the front section of the original 3.5-inch exhaust after removing the V-band clamp at the downpipe and mounting nuts at the four-bolt exhaust flange.

upgrade and Fleece Performance Engineering turbo, we are confident that the truck is making somewhere around 450 horsepower and 900 lb/ft of torque.

Since our truck already had Fleece Performance Engineering custom EFI Live tunes with a DSP-5 switch, we chose not to operate both the Banks Six-Gun tuner and EFI Live tunes at the same time. We drove the truck with one of the two in the "stock" mode at all times to avoid any potential problems. It feels strong with either tune turned up, but the custom Fleece tune seems to have an edge in overall power by its seat-of-the-pants feel.

We can also tell that the factory fuel system, with nearly 360,000 miles on it, is preventing the truck from reaching its full potential. To fix the fuel issues, we're planning a trip up to Fleece Performance Engineering, where we'll install the truck's new CP3 high-pressure fuel pump, an AirDog lift pump and new injector tips.

So, stay tuned. We'll bring you the details of the installation, along with the performance on the chassis dyno next month. **DW**



7 To remove the rear section of the exhaust system, Bruner uses a large set of pliers to pop the hangers out of the rubber grommets. He then works the old pipes out from under the truck. On a truck with less ground clearance, you may need to cut the old system to make it easier to get it out from under the truck.



8 Before the old intercooler can be removed, the grille, lights, mounts and upper part of the core support need to be removed from the truck.



9&10. Then the intercooler can be removed, but it may take an extra set of hands. You may need a friend or two to lend a helping hand.



11 After marking the airbox support bracket with the supplied template, Newton trims away the lower part of the bracket to make room for the larger boost tube.



12 The new larger Banks Power Techni-Cooler is installed next.

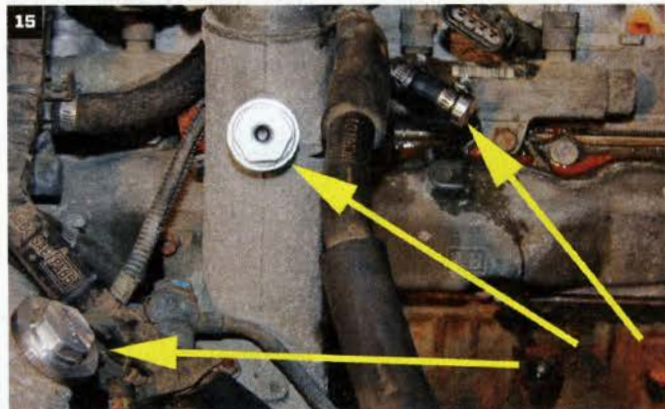


13 After removing the factory downpipe and unbolting the up pipes, Newton unbolts the turbo and its water and oil lines and then removes the turbo from the Duramax.



With the two turbos side by side on the workbench, it is easy to see the larger and more aggressive compressor wheel on the Fleece Performance Engineering 63mm LB7 Cheetah turbo. The Banks BigHead wastegate actuator is already installed on the new turbo to

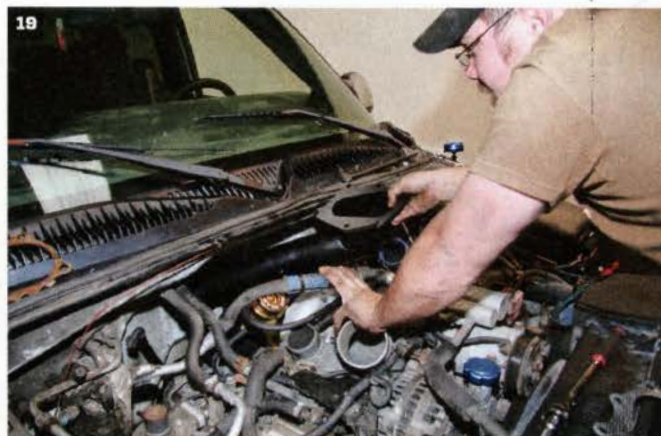
prevent the integrated wastegate from opening early and losing boost.



15 While the turbo is off the engine, Newton installs the custom-machined billet aluminum water coolant block-offs, as well as Fleece's new intake heater delete plug (see arrows).



Don't forget to install the oil feed plug (see arrow) before you put the turbo back in—or you could have a real mess on your hands and also add a lot of extra work and time to your installation. Fleece supplies a new feedline that is fed from the oil galley on the front passenger's side of the engine block to be sure the turbo has plenty of lubrication.



Bruner installs the downpipe from the top side of the engine and uses 1/2-inch spacers on the transmission dipstick mounting studs to provide the needed clearance.



Hale drops the new turbo into position and bolts up the oil drain and turbo mounts before installing the up pipes. Be sure to use anti-seize compound on the nuts and bolts to make it easier to remove them in the future, if necessary.



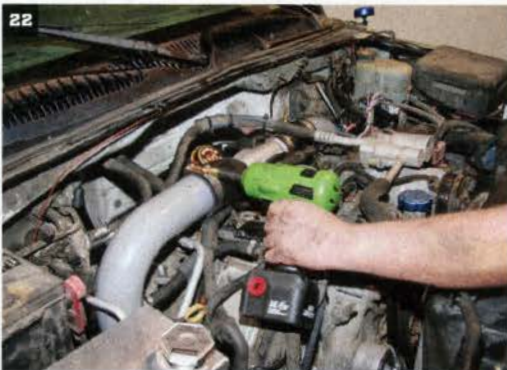
After the downpipe is installed, Bruner is able to install the rest of the stainless steel, 4-inch-diameter exhaust system. Using the supplied clamps and hangers, everything lined up perfectly under the truck.



A side-by-side comparison of the original downpipe and the Pro Fab Performance downpipe shows the serious restriction that is eliminated with the new fabricated downpipe.



Newton and Bruner set the tailpipe angle and then install the 5-inch-diameter, polished stainless steel tip. We opted for the single side exit exhaust system, since it would be easiest to modify to clear the custom long-travel rear suspension we plan to install in the near future.



22 Hale installs the new, large-diameter boost tubes with the supplied silicon hoses. Not only are the tubes mandrel bent for better flow; they are also routed better than the factory tubes to avoid contact points that commonly cause wear-through on the those tubes.



23 The Ram-Air intake features a smooth transition to the turbo inlet. Be sure to use the supplied O-ring, in addition to the factory O-ring, when installing the MAF sensor.



24 Bruner mounts the filter housing to the airbox support bracket after removing the airbox mounting tray. The air filter is now able to draw in outside air from the underside of the fender well.



25 The large, reusable filter is mounted directly to the lid, with its integrated air inlet, to feed the engine plenty of filtered air.



26 Even in an engine bay that has seen nearly 360,000 miles of driving, the new Banks Power and Fleece Performance Engineering components look great—and they work as good as they look!



27 With the iQ's selectable gauge functionality, we can monitor several of the Duramax's vital signs while on the road, as well as all the additional functions and features built into the iQ.

Sources

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