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# Clean Diesel Power

Banks shows us the path to more power without choking the environment

## Sources:

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**W**e have seen plenty of diesel engine power adders that make large power numbers and provide truck owners with the ability to easily destroy drivetrain parts. With black soot pumping from an open 5-inch sewer pipe and a set of beefy tires up in smoke, the scene certainly lends itself to some manly entertainment. Unfortunately, that much available power usually causes an assortment of problems, including over fueling the engine and damaging the injectors, torching the turbo with absurd EGTs, and breaking transmission internals incapable of handling the added stress of larger tires and nearly double factory power output. Towing becomes difficult too, since the torque becomes less linear as the tune ramps up towards redline. Add in the mandated emissions testing some states are adopting, and you have yourself a laundry list of unnecessary headaches.

Recently, Banks Power opened its doors to us,

allowing a peek behind the scenes into the future of diesel technology. To say we were impressed would be a huge understatement. Gale Banks sat down with us to explain his views on why he has chosen to position his company on the cleaner side of all things diesel. As a leader in the industry with years worth of experience, Gale knows he walks around with a large bull's-eye on his back. With Banks being responsible for many of the fastest turbo diesel trucks ever released, it's easy to understand why. Gale started in with, "I want everyone to understand, all that black soot means the engine is inefficient and wasting power." Further on in the conversation, he mentioned, "I don't claim to make the most horsepower and torque for every application. Instead, I lay claim to the most efficient, cleanest, and safest systems on the market hands down." Thanks to Gale and his team of talented engineers, we believe the future of clean diesels with serious power is well within reach.

To see what could be done without all the smoke, we grabbed a 2008 GMC HD with a 6.6L LMM Duramax and headed to Banks Power's R&D facility in Azusa, California. Awaiting our arrival was a complete Big Hoss bundle consisting of a Six-Gun Diesel Tuner and new iQ 2.0 Man-Machine Interface, Techni-Cooler Intercooler System with Boost Tube upgrade, Ram-Air Intake System with Super-Scoop, and Monster Diesel Dual Exhaust. Since the truck would be seeing plenty of towing duty, we also opted for the Banks SpeedBrake. Most of the parts are fairly self-explanatory. More air in and out of the engine with the least amount of restrictions allows better breathing and therefore, the ability to make more power. As for the rest of the parts, let's dive in and check them out. The Super-Scoop forces cooler outside air into the airbox for higher oxygen density and efficiency. The Six-Gun tuner allows the driver to change power levels from zero to nearly 130 hp on the fly through the

touch screen iQ or a dash-mounted knob depending on options chosen. That new iQ 2.0 has the largest screen on the market at five full inches, and features more than 30 different gauges to choose from, along with a multitude of color and layout options. There's even GPS navigation, a back-up camera option, Bluetooth, music and video playback, the ability to read and erase OBD-II trouble codes, and fuel economy and fuel cost monitors. By far, it is the industry leading in-cab controller available for your turbodiesel truck. Finally, the SpeedBrake is a speed controller that utilizes all factory components to monitor and control your truck's speed, especially when towing on a descent. Fully programmable through the Banks iQ, the unit adds towing safety by controlling the transmission's shifting, torque converter, and variable vanes of the factory turbo to hold your set speed, leaving you to comfortably handle the vehicle and load. **Trucking**



**1.**



1. With 37-inch tires on the truck, it was decided to run all the tests based on factory wheels and tires to more closely relate to the majority of end users. Just for kicks, we ran the 37-inch tires on the dyno before the factory tire baseline to see what we were losing from tire diameter and wheel/tire package weight. Astonishingly, there was a peak-to-peak difference of 44 hp. The numbers came out to 249 hp with the 37-inch rubber and 293 hp on the factory wheels and tires.

2. The Banks Big Hoss Bundle is legit and includes everything you need to make safe, reliable power. Seen here are the Bank's Ram Air intake, Tecnhi-Cooler, Monster exhaust, Six-Gun tuner, IQ 2.0, and SpeedBrake.

**2.**



**3.**



3. Anxious to gain back what we lost and more, the stock exhaust was removed from the muffler back and set in the scrap steel bin. Banks' intermediate pipe with its Cool Cuff was slipped into position after the original DPF.

**4.**



4. Since we opted for the Monster Duals, the Y-pipe was next, allowing piping to head towards both rear bedsides.

**5.**



5. On the passenger side, the exhaust system only needed one pipe to get over the axle.

**6.**



6. The driver side required two pipe pieces to span the distance.





**7.** Since the driver side does not normally have an exhaust outlet, Banks designed this ingenious hanger to support the tubing. It bolted into the frame with the stock hardware holding the trailer hitch into position.



**9.** New satin black Banks tips were welded on and were much more suited to our GMC's overall look. By the time you read this, Banks will have already made black tips an option for its kits.



**11.** All that room allowed the Ram Air base to be dropped in and bolted down.

**8.** Out of the box, the Monster Duals came with polished stainless tips already welded onto the exhaust ends. Since we wanted black tips to better match our black BMF wheels, we were forced to cut the welds holding the stainless tips in place.



**10.** After popping the original air intake from the truck, it was apparent that it was in need of some attention. Be sure to check your filter more often than we did.



**12.** The mandrel-bent intake pipe and flex coupler were next. It was mounted onto the turbo's original intake tube and does not do away with the air silencer, as testing showed no need for modifications there.







**13.** After mounting the reusable filter to the base of the huge lid, the assembly was set into place over the lower filter housing.

**14.** Looking down onto the system, it's easy to see how the airflow runs unrestricted through the engine compartment to the turbo.



**15.** To allow room for the Super Scoop to reach the airbox, one of the factory GM braces needs to be modified a bit. Banks supplies fullsize templates in the instructions to ensure installers don't have to figure it out on their own. The cuts still allow the brace to properly function with minimal degradation to its strength.

**16.** Supporting the lower end of the Super Scoop is an adjustable support that allows for variations in alignment so the intake can be perfectly set.



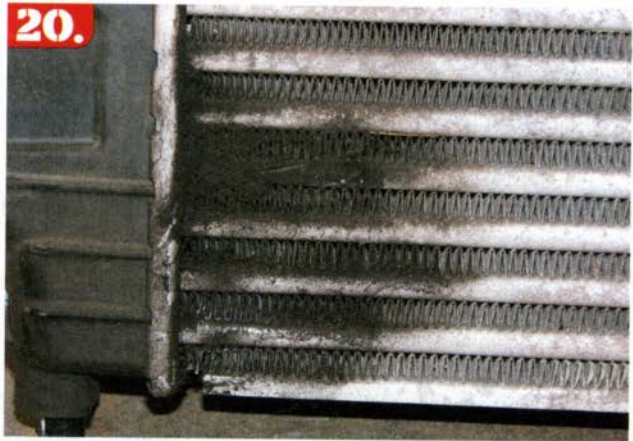
**17.** Our truck's large lift and tall tires made slipping the Super Scoop up the narrow passage between the inner fender and core support a breeze.

**18.** In final position and bolted on tightly, the Super Scoop is barely noticeable yet delivers a plentiful supply of oxygen-rich, dense air up into the Ram Air box.





**19.** During the original inspection of the GMC, the eagle eye of Ross, an R&D technician and our installer, noticed the factory intercooler was leaking. Without missing a beat, the stock intercooler was yanked from the engine compartment.



**20.** Here is what he saw. That black gunk is boost pressure with EGR vapor escaping from between the aluminum core and the crimped-on plastic end tank. It's a common occurrence in this design and ails more trucks than anyone is aware.

**21.** Banks' Techni-Cooler replaced our wimpy factory counterpart, resulting in less boost drop across the core and much better cooling of the incoming pressure charge. With its welded aluminum end tanks, we will never have to worry about boost leaks again.



**22.** From the turbo, the stock pipe steps up in size, but all at once and without smooth bends. With the Banks Boost Tube upgrade, you can see how the bends are rounder and the piping is a uniform diameter from one end to the other. All of this combines to allow the boost pressures to stay high and flow more efficiently along its path.





**23.** Monitoring Exhaust Gas Temperature (EGT) is imperative in a performance diesel application. We had to drill and tap a hole in the GMC's passenger-side exhaust manifold to allow a probe to be mounted.



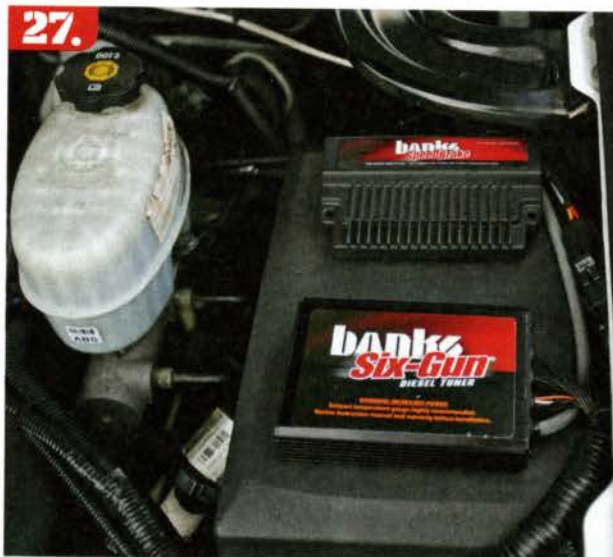
**24.** After threading a tubular insert into the new hole, the EGT probe was coupled to the insert. The probe's harness was then added to the Six-Gun tuner.



**25.** To gather all the Duramax's information, the Six-Gun tuner simply plugs in inline with the original ECM cabling and MAP sensor. The SpeedBrake harness was routed down to the transmission harness underneath the truck.



**26.** As you can tell, the Six-Gun harness is quite extensive, pulling information from all the factory senders including the, IAT, MAF, TPS, coolant temperature, oil pressure, fuel level, transmission temperature, and many more. All this is required to create plenty of power in a safe manner.



**27. & 28.** The brains for the Six-Gun and SpeedBrake were stuck to the truck's fuse and relay center under the hood. We made sure all the added wiring was routed in a clean manner away from anything that might damage it. Inside the cab, the IQ 2.0 Man-Machine interface was mounted to the windshield. From here, we will be able to listen to music while setting the SpeedBrake for towing, choosing a power level for blasting down the road, and monitoring the backup camera when reversing.

**Final Results**

- STOCK WITH STOCK TIRES
- 293 HP
- 514 LB-FT TORQUE
- STOCK WITH 37-INCH TIRES
- 249 HP
- 464 LB-FT TORQUE

**Banks With Stock Tires**

