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## ***Go With the Flow***

### ***Bolt-In 7.3L Power Stroke PowerMax Turbo Upgrade***

BY KEVIN WILSON

PHOTOGRAPHY: KEVIN WILSON

On later-model diesel power plants, turbochargers have become an exact science. The units work in harmony with the stock configurations to deliver the best efficiency and power available, under the circumstances. So what happens to that power combo when you add an intake, exhaust, tuner and even larger injectors? Suddenly, that stock turbo becomes a tad too small, in terms of air volume and pressures, to work in harmony with your newfound power parts. The end result is stock levels of boost, which are now too low for the job and, more than likely, higher EGTs.

So what's the fix? Diesel owners have myriad options for their rigs when it comes to selecting a new turbocharger. It can be downright confusing when looking at all the available options. What size compressor wheel should I have? Do I

want stock or reverse rotation? There can be more questions than answers. So you have to turn to the turbo experts on what to use with what, and everyone will have their own opinions as to what works best. Typically, when you hear the same story from several different sources, you know you might have a winner.

On the other hand, for 7.3L Power Stroke owners, several companies offer complete bolt-in replacements for the stock Garrett turbo; one of them is Garrett itself. The company recognized the need for a simple, upgraded turbo that is a direct bolt-in replacement for the stock unit when it realized that very few 7.3L Power Stroke owners leave their trucks stock for long. To get the maximum benefits from power-adders like a tuner, exhaust and intake, as well as for customers who do a

*There comes a point on modified diesels when you'll need a turbo upgrade to continue to make power and lower EGTs. The Garrett GTP38R is a bolt-in replacement for 7.3L Power Strokes.*





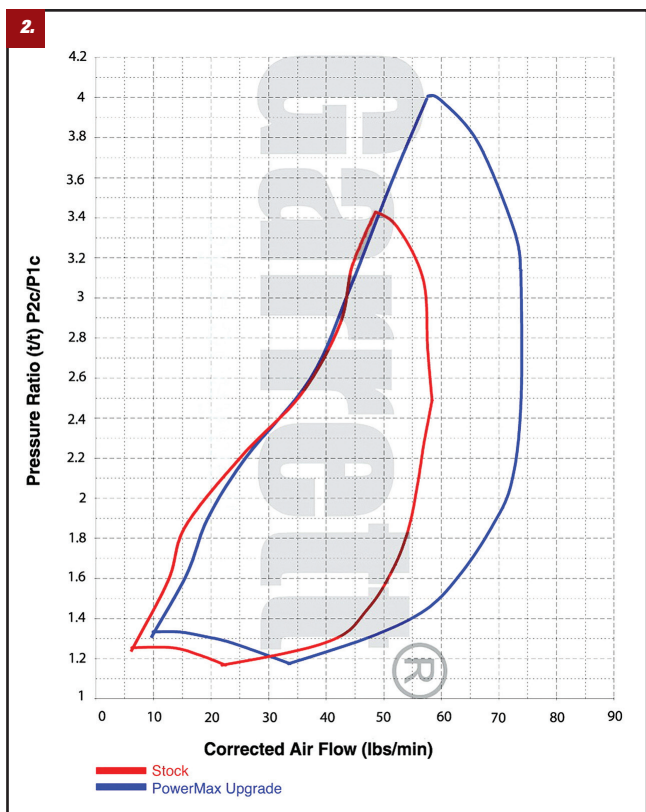
lot of heavy-duty towing with their Fords and are seeing scary levels of EGTs, the company developed its PowerMax line of direct replacement turbos.

The Garrett PowerMax for the 95.5-2003 7.3L Power Stroke is the company's GTP38R, which is a direct bolt-in to replace the factory turbo. According to Garrett, the new turbo provides 33 percent more air flow than the stock turbo, thanks to an 88 mm compressor wheel versus the stock 80mm wheel. A ported shroud on the intake side also improves the airflow range for better surge control.

The heart of the GTP38R is a Garrett exclusive ball bearing cartridge which, according to Garrett, "provides greater response, higher efficiencies and thrust load capacity for longer



**1.** The GTP38R is designed as a direct replacement that utilizes the stock pedestal, oil drain back channel and oil feed. It pumps out 33 percent more flow than stock and is rated up to 40 psi.

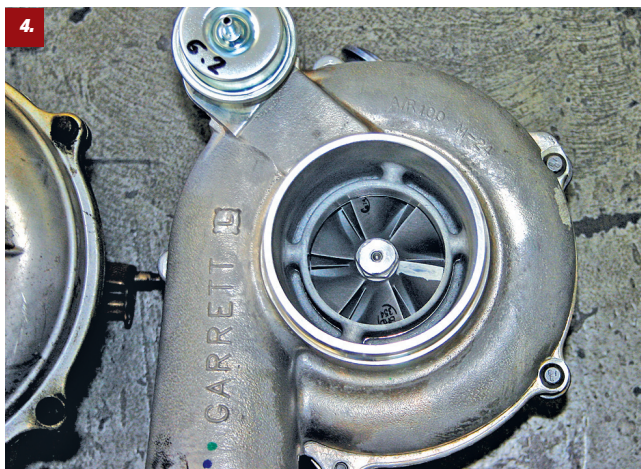
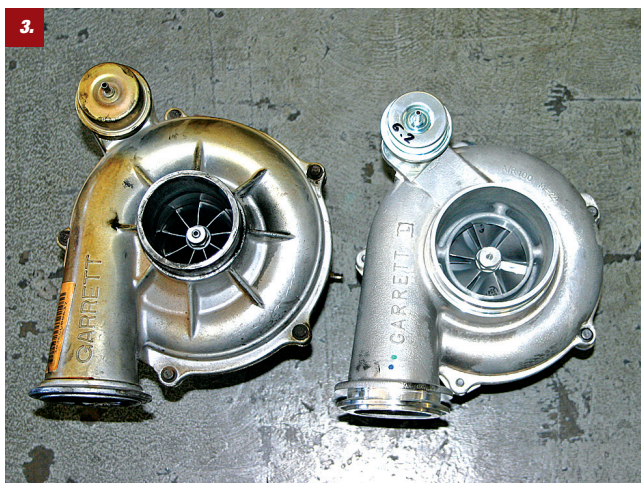


**2.** The turbo map from Garrett tells the story in its comparison between the stock turbo and the GTP38R.

life." The stock turbo is a journal-bearing unit. Garrett also says the turbine housing has been enlarged to an A/R of 1.00, which the company claims provides for freer-flowing exhaust gases for reduce backpressure and an EGT drop of around 200 degrees. The added maximum boost level is 40 psi. The GTP38R turbo kit comes complete with a 4-inch inlet hose, oil seal rings and band clamp, as well as complete instructions.

Installation is about as easy as it gets, since the GTP38R is designed as a direct replacement that utilizes the stock pedestal, oil drain back channel and oil feed. A 4-inch downpipe is recommended for the install. If you can do a turbo R&R, you can install this kit in about a day if you take your time.

We followed an installation in progress by the Ford experts at BulletProof Diesel, in Mesa, Arizona. The guinea pig for the install was the 2001 Ford Super Duty that was featured in the March 2010 issue of *Diesel World*. Turbos Direct, of Glendale, Arizona, was the source for the GTP38R kit. This company also does custom turbos and modifications, but the Garrett we got was unmolested. The biggest challenge was getting the monster truck wannabe low enough in the front to actually work under the hood. The rest of the install was straightforward.



**3 & 4.** Here's a side-by-side comparison of the stock turbo at left and the new Garrett unit on the right. Besides having a larger, 4-inch inlet, you'll also notice the compressor blades are much different. The 4-inch inlet moves a lot more air, and the kit comes with an upsized intake tube to accommodate it.



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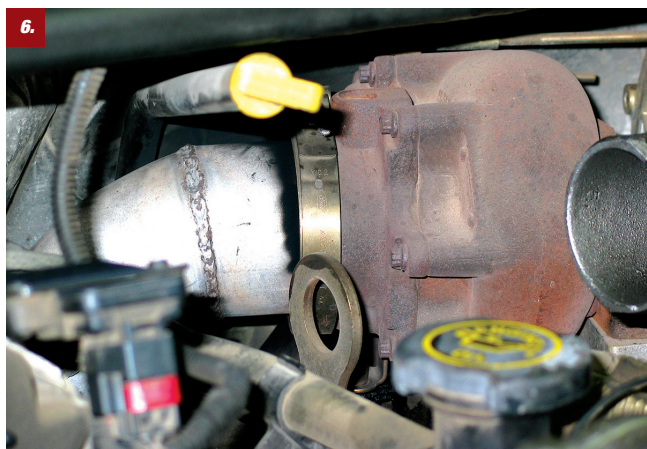
Getting before and after dyno numbers on the truck was even more of a challenge, because the truck is fitted with 49-inch tires that were almost round and 5.38 gears. The baseline test indicated approximately 196 horsepower to the rear wheels and just over 600 lb/ft of torque, thanks to an air intake, exhaust and tuner. With the turbo installed, we got 234 horsepower and 780

lb/ft of torque—a gain of approximately 38 horsepower and 168 lb/ft of torque. Garrett claims that its testing on a similarly modified truck yielded approximately 80 horsepower and 130 lb/ft of torque. It's hard to gauge, since everyone's tuners are different, but power gains are a given.

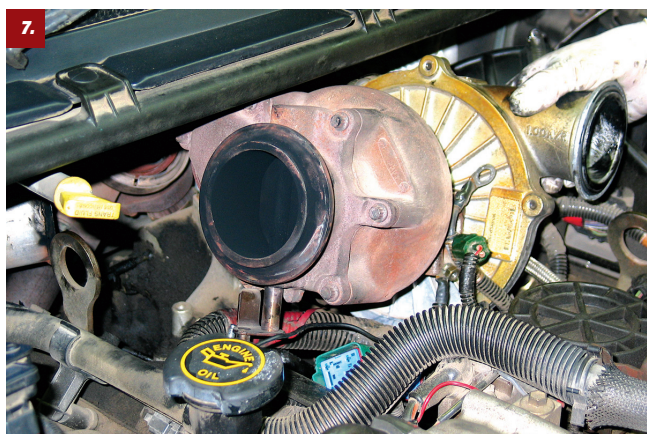
If your tired 7.3L has a lot of miles on it, along with the usual slate of modifications (such as a tuner, intake and exhaust), or you tow heavy loads and need to drop those EGTs, check into Garrett's GTP38R direct replacement turbo. **DW**



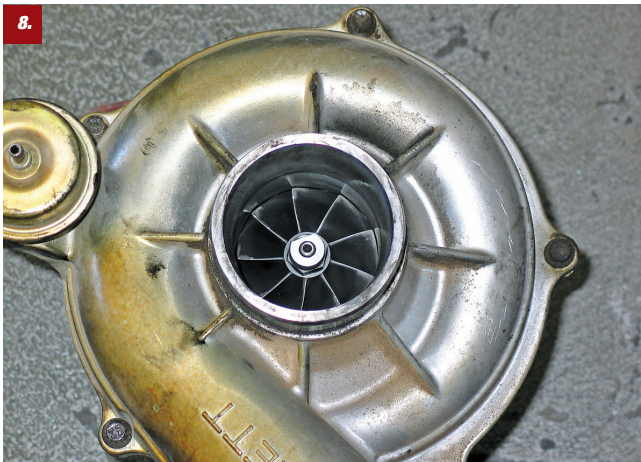
**5.** The install is a basic 7.3L turbo R&R. You start by removing the boost tubes from the intake manifold and all the clamps. On this truck, the Airaid intake was also unbolted for more room to get at the boost tubes.



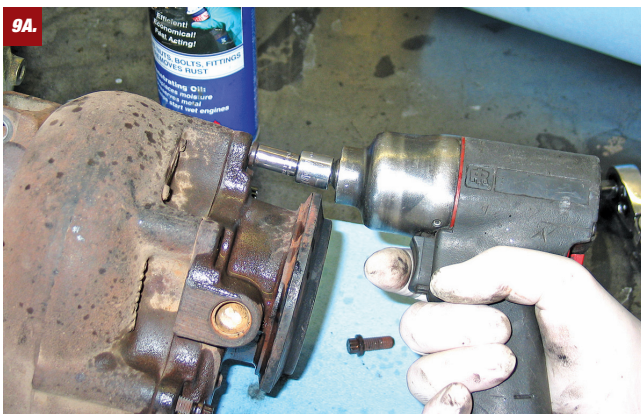
**6.** The soot marks on this downpipe indicate an exhaust leak, which can rob power.



**7.** With all the connections and mounting bolts removed, the old turbo is lifted off the top of the engine. It's not as easy as it looks.



**8.** Inspection of the stock turbo reveals typical wear and nicks on the turbo blades. Now you know why clean, well-filtered air to the turbo is the key to long life.



**9A & B.** The exhaust housing connected to the up pipes is re-used on the new turbo. You can also see that the turbine wheel blades are more aggressive than the stock turbo. The wastegate is a tad larger than stock, too.



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10.



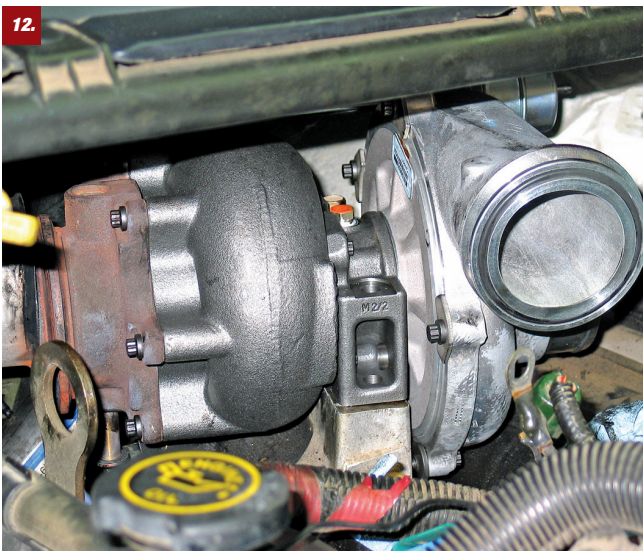
**10.** Another common source of exhaust leaks on 7.3L Power Strokes are the up pipes, which feed the turbo. Exhaust leaks can rob you of boost, so now is a good time to address the problem.

11.



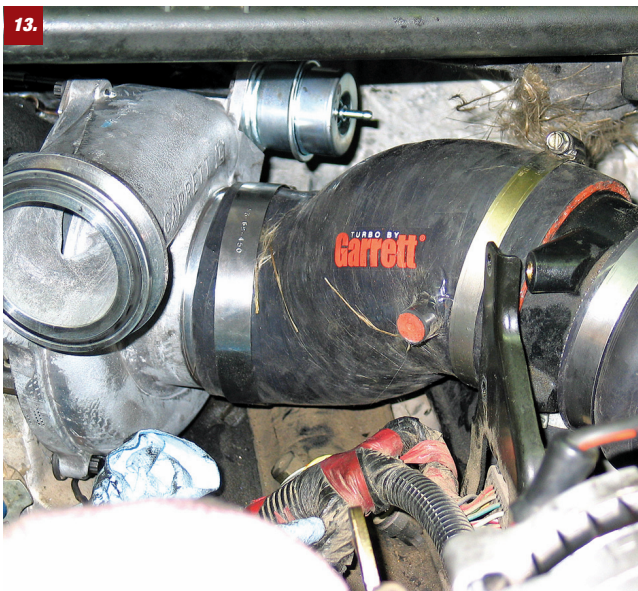
**11.** The turbo kit supplies these new oil seals, which are installed before the new turbo is set in place.

12.



**12.** The new turbo simply sits in the stock location. It takes a little wrangling to get it in under the lip of the cowl.

13.



**13.** One of the benefits of the GTP38R is the new 4-inch inlet tube.

14A.

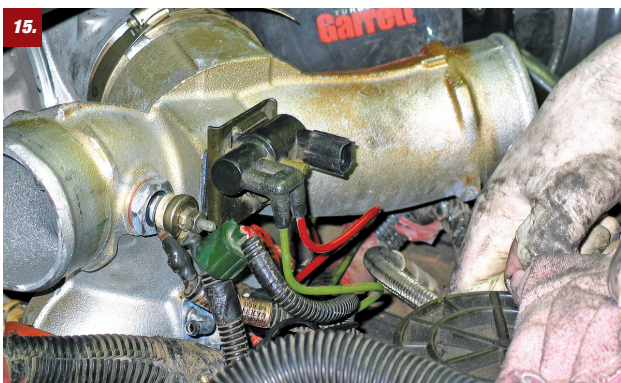


14B.



**14A & B.** This truck already had an Airaid intake system to take full advantage of the increase in airflow. It was removed for added room for the swap and then put back. The final step is the addition of the huge Airaid filter.





15.

15. With the intake manifold back in place, all that's left is to hook up the sensors. With the intake removed, it's also a good time to check or replace the boost couplers that attach to the cylinder heads.



16.

16. The final step of the install is to re-install the boost tube and fire the truck up to check for leaks.



17.

17. Glancing at the 7.3L, you'd never know an upgraded turbo was installed, because it fits so well.



18.

18. On the dyno, despite huge, semi-round 49-inch tires, the truck picked up approximately 40 horsepower and more than 160 lb/ft of torque.

## SOURCES:

**BulletProof Diesel**  
A Division of Neal Technologies  
888.967.6653  
[www.BulletProofDiesel.com](http://www.BulletProofDiesel.com)

**Turbos Direct**  
623.376.2562  
[www.turbosdirect.com](http://www.turbosdirect.com)

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