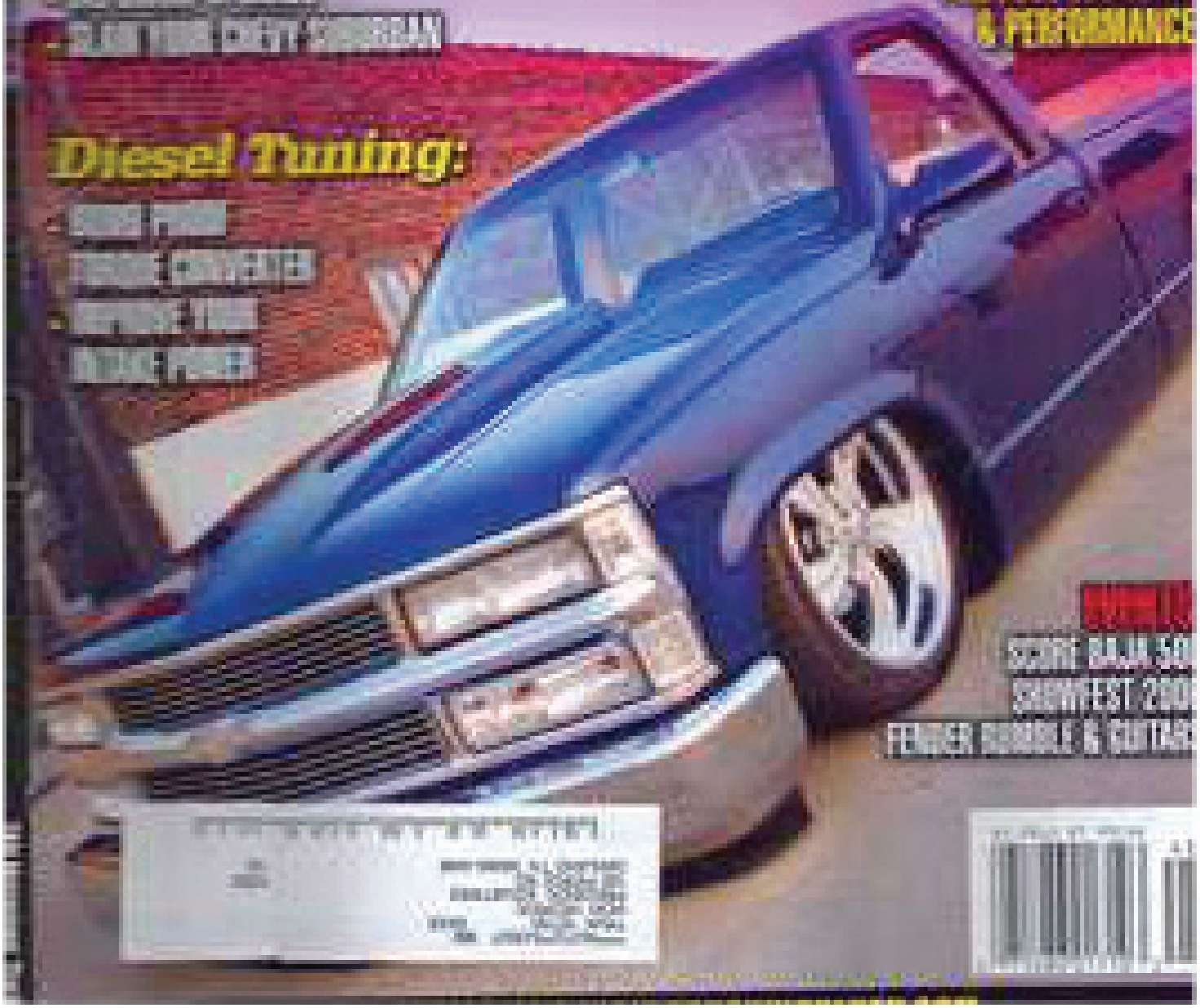
trucks

Powerful

Wind!

Tricks:

Diesel Tuning:



Beef Up Your Transmission's Weak Link

TEXT AND PHOTOS BY
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Adding a performance torque converter to improve acceleration, decrease heat and improve your diesel truck's towing and power capabilities.

We've all heard the horror stories of guys adding big power to their diesel trucks, only to end up with a box full of broken transmission parts, a terminated warranty and a $3,000 repair bill. But all of this doesn't need to happen simply because you want to add more horsepower and torque to your turbo-diesel pickup. In most situations, adding performance will put a strain on the vehicle's transmission. Nevertheless people like Mike Lovrich at Inglewood Transmission Service see this all the time. Lovrich's trans shop is a favorite amount local Southern California diesel truck owners who love to race their trucks at local drag-racing events.

Lovrich explained that the problem with adding big power to the late-model turbo diesel engines is that the factory torque converter clutch assemblies cannot handle the amount of horsepower and torque. In essence the torque converters are too loose, and slip, forcing the transmission to handle the extra power. The result is excessive heat build-up and eventually entire transmission failure. Lovrich also explained that in addition to installing a torque converter that can handle the abuse, it is also necessary to reprogram the vehicle's transmission ECU to compensate and operate within the new levels that a performance converter can deliver.

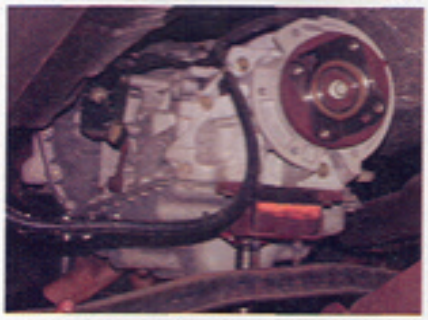
According to Terry Hedrick of Precision Industries, who manufactures high-performance torque converters for street, racing and diesel truck applications, understands why factory torque converters fail and has come up with some solutions which required building a converter made from scratch, and not just from combining internal components from factory and aftermarket parts. Hedrick told us they developed a solution to this problem, which led to the development of its Stallion Power Stroke converter.

Hedrick told us that this converter is uniquely designed to handle the extra stresses of a performance turbo diesel. In this case, the Power Stroke converter is for the Ford 6.0-liter engine, but the fact that the torque converter features a one-piece steel billet housing makes it almost indestructible and less prone to leaks, compared to two-piece converters that have the cover welded together and are prone to this problem. This was also necessary to include a multiple-clutch pack that would not fit into a standard factory converter housing.

Furthermore, we found out that the Stallion Power Stroke converter also has a larger clutch surface area that measures 130-sq.inches compared to standard torque converter clutch surface areas of 39-sq.inches. The larger surface area with a unique clutch assembly that Precision designed and that can survive the abuses of high-performance, late-model turbo-diesel vehicles. This combined with an impeller and turbine are fully furnace brazed, not stitch tacked, adds maximum vortex fluid flow and strength to the converter and the unique friction materials in the clutch can also handle higher temperatures.

So can a performance torque converter really add that much performance to your turbo-diesel? We wanted to find out and had one installed on a 2004 Ford F-350 that was equipped with a Granatelli Motorsports Inc. Big-G performance module and a B&B stain-

1 Our first step to installing the Precision torque converter was to take our truck to Inglewood Transmission Service where they began by unbolting the driveshaft from the transmission.

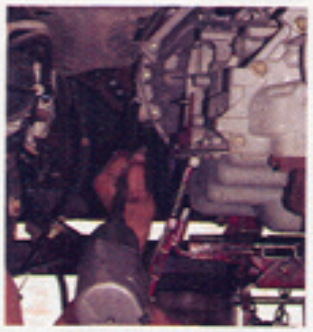


2 The transmission was supported with a trans-jack and the vehicle's crossmember was removed.

3 All of the transmission's linkage and harnesses were disconnected from the main body.

4 The access hole between the transmission bell housing and the oil pan allows the technicians to unbolt the torque converter, by rotating it as each bolt is removed.

5 Rotating the transmission end-shaft allows access to each of the torque converter's bolts to free the transmission from the engine.



6 Finally, the bell housing bolts are removed from the transmission allowing it to be separated from the engine block.

less steel exhaust system. Switching the Big-G into the performance mode allowed the F-350 to produce nearly 800-lbs.-ft. of torque and 400 horsepower. Although the acceleration is impressive, we did notice that the shifting was slow and there was too long of a time between shifts, indicating that the transmission is slipping and forcing the vehicle's torque-management system to take away power.

We obtained a Stallion Power Stroke converter from Precision Industries and took it and the truck over to Inglewood Transmission Service where the entire process of installing the torque converter took about 30-minutes. Since both Hedrick and Lovrich recommended upgrading the transmission ECU to a performance level, we also contacted Brian's Truck Shop in Leadhill, AR who was recommended by Precision and has been working on a program to improve the shifting parameters of the Ford Powerstroke transmission. After a discussion regarding the truck's components power output and average driving conditions, Brian's Truck Shop sent us a programmer that was simply downloaded via the diagnostic port on our truck. The programmer was custom tuned to improve the shift points and line pressure of the system to further handle the power and torque generated by our test truck.

Once both were in place, the results were impressive. First, we noticed that the vehicle would begin to accelerate right from idle, without any hesitation. When we stood on the throttle, the hesitation of the torque-management system still remained but after a few weeks of driving, it completely went away to provide smooth acceleration every time. We also noted a slight increase in fuel economy, as well as decrease in transmission temperature while towing vehicles in traffic or lugging a load up a steep grade.

Although these benefits were great results from a simple torque converter change, we can't help but admit that one of the best benefits is the piece of mind, knowing that the occasional fun of a big dually blowing the doors off of a Corvette or Mustang will not result with having to tow the truck home with the transmission in the bed. Considering that the cost of the Precision Stallion Power Stroke converter retails around $1,043 and the programmer can range from $200-$500 depending on the application, it's much better than the cost of installing a new transmission on your truck, knowing that it can blow at any time again if you're too hard on the throttle. TEN

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