



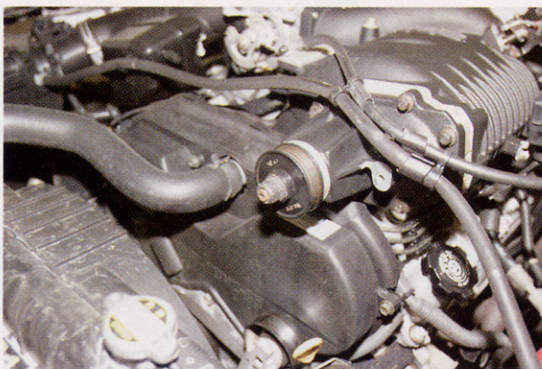
PONY HUNTING

BY LANCE MARTZ ■ PHOTOGRAPHY: LANCE MARTZ

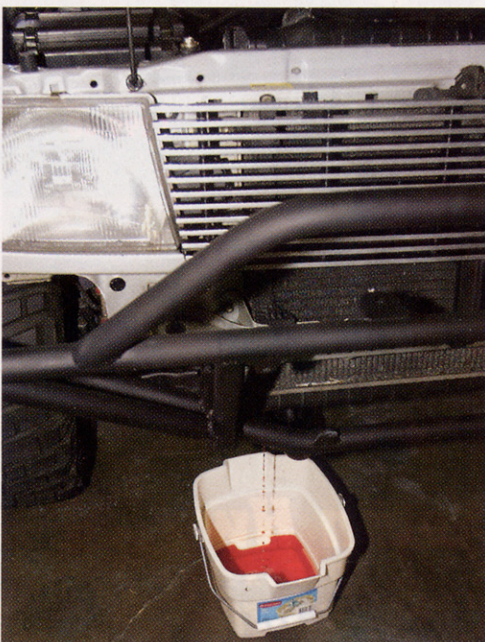
For Peak Tacoma Performance

A few months ago, we worked with Split Second to install one of its FTC1 fuel-calibration boxes in the TRD-supercharged Toyota Tacoma V-6 we have here at MT headquarters. We saw improvements in horsepower and torque with the installation of Split Second's control box, but the truck was still lacking what we felt it should be capable of. We were looking for at least 20 more horsepower, even with the gains we finally had achieved. The lost horsepower had eluded us since we first installed the supercharger a few years ago. This time, we went through multiple areas of the truck to track down what was robbing the Tacoma of power. Starting with the thermostat, fuel injectors, fuel pump, and supercharger pulley, we were on a mission to find out just what was causing the truck to run below its full potential.

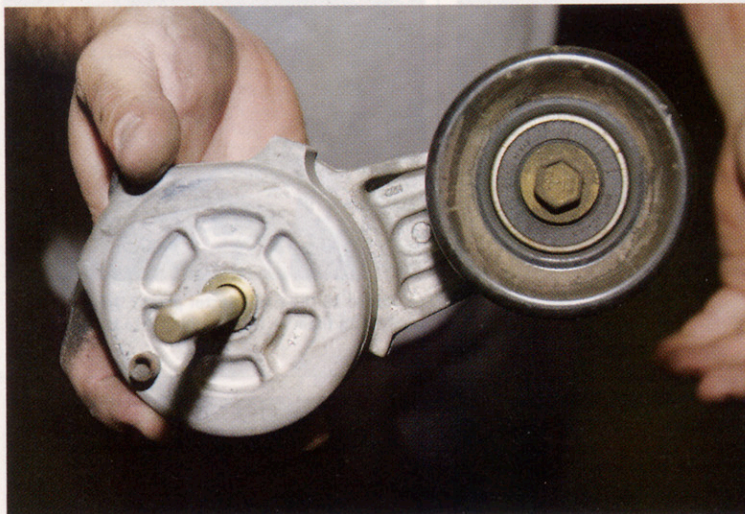
At the end of our last article, we claimed that there was a good 220 hp we figured we should be able to get out of the truck if it was running right and well tuned. Well, guess what? We found it. Follow along as we show you all the tune-up tips and items involved with making more horsepower than Toyota or TRD ever imagined with its simple supercharger. Still, we wonder — is this all there is? We plan at least one more article to push the envelope even further, involving water injection and the addition of an electric fan to decrease drag on the Toyota V-6 engine. Of course, we'll give you all the 411 along the way so you can duplicate the results for yourself. For more information, please contact the companies that assisted us with the installation and tuning listed in the source section of this article. 🐾



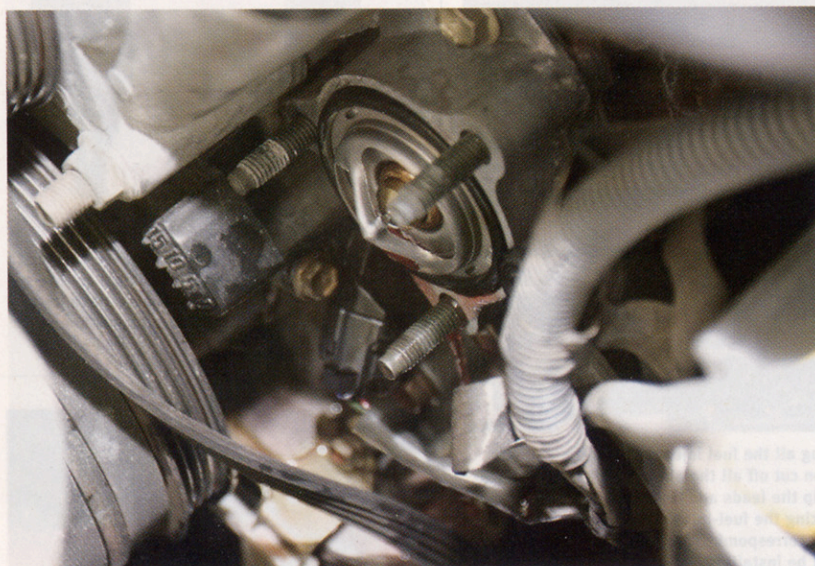
1. What we started with was an internally stock 3.4L V-6 TRD-supercharged engine, which had been pinging since the day the supercharger was installed.



2. First, the coolant was drained from the radiator so we could get to the lower radiator hose to replace the truck's thermostat.



3. and 4. To get at the thermostat housing, the truck's dynamic tensioner pulley assembly had to be removed.

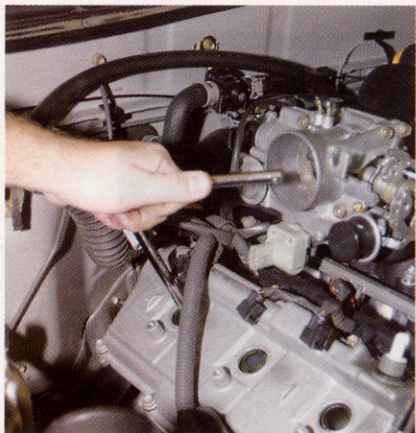


5. Three nuts hold the thermostat housing in place. Once removed, you can see that the factory thermostat will come out with a simple tug. Be careful if the engine is still hot.



6. The thermostat on the left is the factory part. The one on the right is the one supplied by URDUSA. Make sure to swap over the rubber seal to the new thermostat before installing.

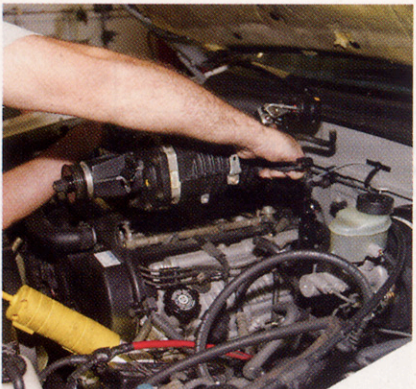
Pony Hunting



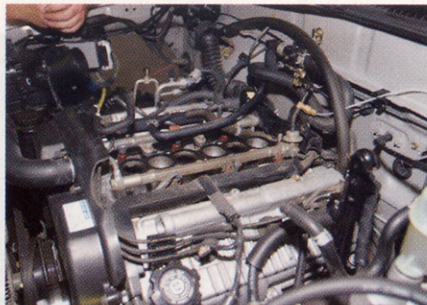
7. All six spark plugs were then replaced with IK22 Denso Iridium Power spark plugs, which had been pregapped courtesy of URDUSA. Use antiseize compound and torque to specifications (typically 14-16 lb-ft). It's a good thing we replaced these. Check out the next image.



8. Hopefully, the nastiness of the used spark plugs compared with the new ones is as visible in print as it was in reality. Some of the spark plugs had worn electrodes, while others had burnt-away contacts. None had really been doing their job efficiently, and we suspected poorly functioning injectors as part of the problem.



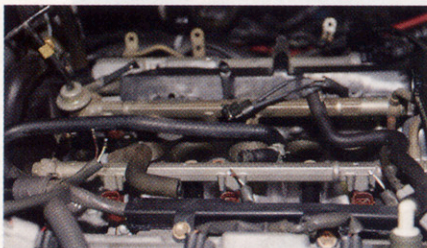
9. We decided to spare you the blow-by-blow removal of the TRD supercharger. Suffice to say, you must remove it to reach the fuel injectors and fuel rails. There's no other way around it, but it's not that big of a job anyway. Stop lolling around, and get to work.



10. Notice all the fuel-injector plugs? Don't get too comfy with them — they're going into the trash.



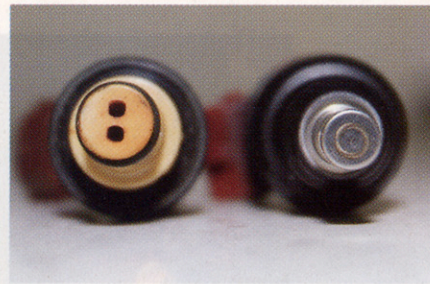
11. These are the new fuel-injector connectors we'll be using to replace the factory connectors. This is the only way we can use the far-superior-to-stock Bosch fuel injectors.



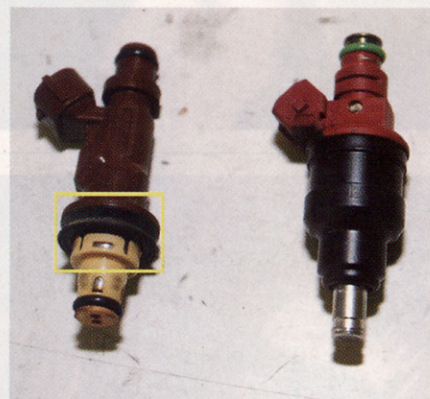
12. Unplug all the fuel injectors from the EFI harness, then cut off all the plugs with a pair of dikes. Next, strip the leads and tin the ends in preparation for replacing the fuel-injector connectors with new ones that correspond to the new Bosch fuel injectors we'll be installing.



13. It's recommended that each connection be soldered for the best connection possible. We also used heat-shrink tubing on each connection to make sure that there would never be any future electrical problems with the connectors.



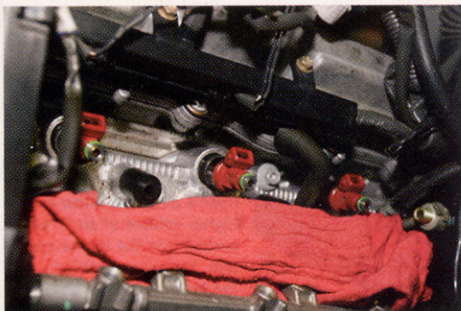
14. Remember when we called the new Bosch fuel injectors *superior*? Well, we wouldn't make this assumption without looking carefully at, and comparing the Bosch injector to, the factory injector. The Bosch unit (right) is made of more heavy-duty material, as well as having a finer four-point spray pattern than the dual-outlet openings in the Toyota injector.



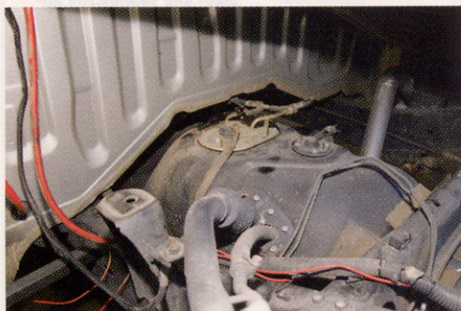
15. Be sure to reuse this rubber seal on the new Bosch fuel injector by seating it in the same area as it was on the stock fuel injector. This will allow the injector to be seated properly and seal to the lower fuel rail.



16. With the new fuel injectors in place, replace the upper fuel rail exactly as it was when you first began to disassemble the fuel system. Make sure that you use all washers. Tighten the banjo bolts, which hold the ends and crossover in place, to factory spec.



17. Put each rail carefully in place, ensuring that each fuel injector seats properly in the upper fuel rail. The O-rings can be damaged easily if you don't align the injectors properly before use, which can lead to a fuel leak and a possible engine fire.



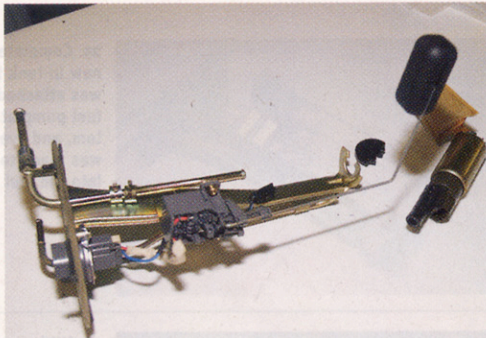
18. We then moved to the back. Since the truck has nearly 100,000 miles on it, we decided that this would be a good time to install a newer high-capacity fuel pump, as well as a new in-tank fuel filter supplied by URDUSA.



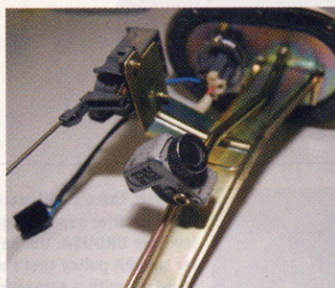
19. Disconnect both the supply and breather hoses going into the fuel tank using the correct handtools.



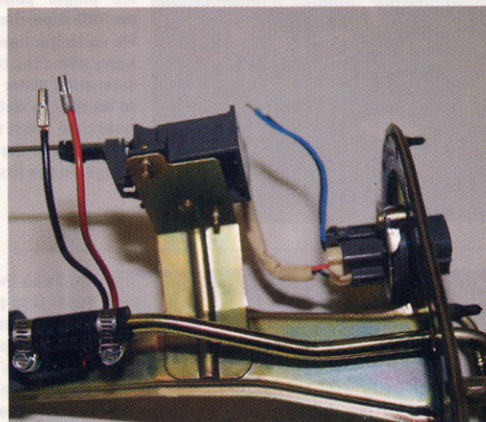
20. There are eight 8mm bolts that must be removed to separate the fuel-pump assembly from the tank. Remove the bolts, and guard them with your life. Unplug the electrical connection from the assembly, and remove it from the tank.



21. Begin to replace the fuel pump by separating it from the fuel-pump assembly. You shouldn't reuse the isolator that comes off with the stock fuel pump. Instead, use the new one provided.

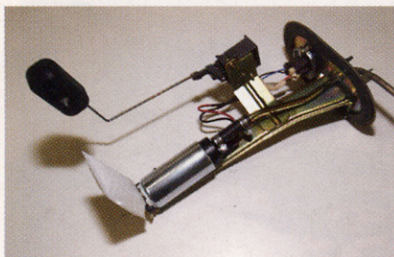


22. and 23. Use a small tubing cutter to remove about 1/4 inch of the tubing on the fuel-pump delivery side. The new fuel pump is a bit longer than the factory-model fuel pump, and this added clearance is necessary.



24. The electrical connection between the new fuel pump and the factory fuel pump was also different, so the factory plug was cut off and the pigtail supplied with the new fuel pump was added to make everything plug together easily.

Pony Hunting



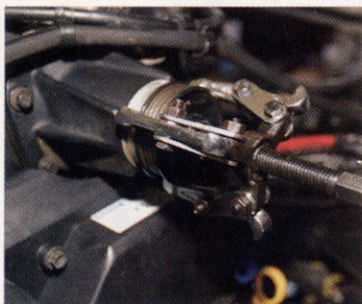
25. Completed, the new in-tank fuel filter was attached to the fuel pump at the bottom, and everything was ready to go back into the fuel tank.



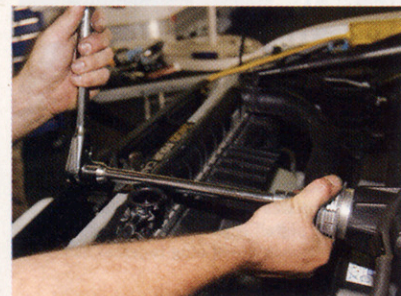
26. With everything in the tank, all that's left are the two fuel line connections to be made for cleaner, faster fuel delivery for the fuel-famished Toyota V-6.



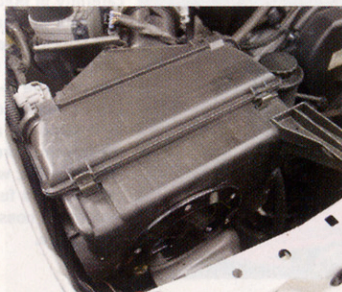
27. Wait, there's still more. Check out this killer supercharger pulley from URDUSA. Unlike a regular smooth pulley that's meant to be run with a serpentine belt, the URDUSA Super Grip pulley has holes drilled through it to keep it lighter and cooler. Made of aluminum, it has been slotted to grab the belt, preventing slippage even under added supercharger boost.



28. To swap in the new added boost pulley, a puller was used to get the "pinger" pulley off the TRD supercharger. We no longer have to worry about the truck detonating under boost, so we may as well increase the boost we're getting out of the supercharger in the first place.



29. Swap the new Super Grip pulley into place and torque to specifications before reseating the serpentine supercharger belt.



30. and 31. A few days later, the truck's owner visited a boat supply store, where he purchased a simple deck plate. Using the deck plate, a 4-inch hole was cut into the truck's airbox to allow a higher volume of air to be sucked into the intake system. For poor conditions, the hole can easily be plugged up by screwing the plug into the deck plate and sealing the airbox once again.



Dyno Results

Tested on the same dyno after each upgrade, at the same time of day and under similar conditions, our Tacoma has picked up some impressive performance numbers since we first began upgrading the supercharger months ago. We've picked up nearly 80 hp from what we had when Toyota first installed its supercharger in the V-6 Taco'. Now, if Toyota had been able to give us this kind of performance at the beginning, it'd really have people jumping for joy.

Before Split Second computer upgrade:
140.06 hp and 202.68 lb-ft of torque

After Split Second computer upgrade:
205.94 hp and 243.15 lb-ft of torque

After URDUSA supercharger performance kit/parts:
219.64 hp and 246.71 lb-ft of torque

Sources

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