



SSR Week at Arizona TPI

At Arizona TPI we've been working on a lot of SSR's lately. You know, the cool-looking retro pickup from Chevrolet. A company call Simple Engineering (www.simple-engineering.com) has created some nice products for these vehicles and we've been doing installations for them.

Some of the products from Simple Engineering that we're impressed with are their upgraded radiator, polished stainless steel exhaust, vastly improved radiator support and their auxiliary radiator fan kits. All of these products are nice additions to any SSR and the fans and radiator solve an overheating problem that's inherent to these vehicles.

Through Simple Engineering, we became known to a group of SSR enthusiasts. This group had a big get together in Laughlin a few weeks ago and during the week prior to this, we had a number of Laughlin-bound SSR's in the shop for installation of Simple Engineering products, among other things. We had an SSR from Northern California, near Yosemite, one from Boulder City, Nevada and one that was shipped all the way from Virginia. There were some local SSR's in the shop too, one of which received a supercharger installation, custom programming and an extra 130HP at the rear wheels!



SSR with a new Supercharger

It made for a hectic but fun week and everyone left with improved vehicles and we made some new friends. And, from what we hear, everyone had a great time in Laughlin.

Programming For More Than Performance

We talk a lot about the programming of Engine Control Modules (ECM) or, as they're more often referred to: "the computer." This has become a big issue with modern drive trains because, as they have become more sophisticated, they have also become more sensitive to modifications that might be made to the vehicle. Many of our discussions have revolved around performance enhancements but that's not the only reason for reprogramming a vehicle's ECM.

As we mentioned in the previous article, we have been doing a lot of work with Chevy SSR's. A common modification to these vehicles is to change the differential gears. This is done because these vehicles are supplied with fairly large wheels and tires and, with a fairly high gear ratio and an overdrive transmission, they can barely make use of high gear. Also, switching to a lower gear ratio increases the performance quite a bit.

It wasn't that long ago (at least it doesn't seem that long ago to me) that changing differential gears or tire size would require a corresponding change in the speedometer drive gears in the transmission to make the speedometer read correctly. To make the same correction with today's vehicles it's a matter of using special software to change parameters in the vehicle's ECM to tell it that the gear ratio and/or tire size has changed. Once the parameters have been changed, the speedometer will read correctly and we don't even have to get our hands dirty!

Correcting for differential gear or tire size changes is just an example of why we might reprogram an ECM. In modern vehicles, a huge array of vehicle functionality is computer controlled. For example, the radiator cooling fans are turned on and off by the ECM. This is an interesting example because in many vehicles, the fans are not even programmed to come on until almost 230° F. This seems awfully high because the vehicle is getting

dangerously close to overheating by the time the fans finally begin to move air through the car's radiator. Why they're set like this, we can only speculate but the good news is these settings can be easily changed. With a little reprogramming, we can set the on and off temperatures for the fans to more reasonable values.

Most of today's vehicles also have the ECM set to limit the speed of the vehicle. This prevents an overly exuberant driver from exceeding the speed rating of the tires, potentially causing a catastrophic tire failure.

Again, it wasn't long ago that the driver had to take responsibility for not exceeding the capabilities of the vehicle. Today, however, the automakers are making these decisions for us and, in there infinite wisdom or fear of litigation, they've decided to make sure that we don't exceed the speed that our tires were designed for. But what if the vehicle's tires have been upgraded so that it can safely travel at higher speeds (on the race track, of course)? For race and "off-road use only" vehicles, these speed restrictions can be removed as well.

As you can see, a variety of modifications can be made to a vehicle's ECM to modify its behavior to better suit the driver's needs. Of course, the most common requests we get are to modify the ECM to work with various performance parts such as performance camshafts and to squeeze every last bit of performance out of the engine. For example we recently installed a supercharger on an SSR and were able to get an extra 30 HP over the program that was installed in the ECM by the supercharger manufacturer. Ultimately, the supercharger plus our custom programming netted this SSR an extra 130HP!

If there's an enhancement you've thought about making to your vehicle, give us a call. There may be some parameters that we can modify to accomplish exactly what you want!