



Trouble Passing State Emission Test?

Recently, we've had several large GM Throttle Body Injection trucks in the shop because they failed their emission test. These are the ¾ and 1-ton trucks typically with the 454 engine.

The problem that they encountered was that they exceeded the Carbon Monoxide (CO) limit at idle, in some cases by a lot. This often indicates that the vehicle's catalytic converter is no longer functioning properly.

The solution in a case like this would be to replace the catalytic converter with an expensive new one and which would very likely have allowed these vehicles to pass their emissions tests. Before spending the customer's money on expensive parts, we like to be pretty certain that it will solve the problem so we put the vehicle on the scanner to determine if any other problems might be causing the emissions failure.

What we found with these TBI trucks is that they are programmed from the factory to stay in "open loop" at idle and at slower speeds. Open loop means that the engine computer does not use feedback from the oxygen sensors to adjust the fuel mixture.

When the vehicle goes into "closed loop", the computer monitors the vehicles oxygen sensors to determine whether the vehicle is running rich, lean or just right. If it detects either a rich or lean condition, it adjusts the amount of fuel going through the injectors to correct the problem. In closed loop mode, the computer is constantly making corrections to keep the air-to-fuel ratio just right.

Because these trucks are programmed to stay in open loop at slower speeds and because, for reasons we don't understand, they're programmed to run particularly rich under these conditions, they will not pass emissions without a catalytic converter that is functioning at a high level. To make matters worse, one of the things that can drastically reduce the life of a catalytic converter is to have too much

un-burned fuel dumped through it.

This apparent reliance by GM on well-functioning catalytic converters for these trucks to meet emissions standards leads to a cycle of frequent catalytic converter replacement. So what's the solution?

We've been aware of this problem for a long time but didn't have a solution other than replacing the catalytic converter. However, now that we have the capability of modifying the programming in the PROM's that control these vehicles, we thought that maybe we could get the vehicles to pass emissions, with the added side-benefit of extending the lives of their catalytic converters, just by modifying their programming.

Leighton, our programming expert, did a little experimenting with this and found that he could modify the program to keep the engine running in closed-loop at idle and low speeds and also slightly lean out the fuel table for these conditions. The results were impressive!

We were able to get these vehicles to pass the emissions test even with questionable catalytic converters. In fact, some of these vehicles went from failing the CO test by a considerable amount to passing with a CO level that was only a tiny fraction of the limit. And they idle as well, and in most cases better, than they did before the programming modifications. And the best news of all? The programming modification is a cheaper solution than replacing the catalytic converter!

The other benefit that we expect from this is that these vehicles should get better around-town gas mileage. We don't have any data to confirm this yet but it makes sense that if these vehicles are running too rich at idle and at low speeds, they're wasting a lot of fuel.

If you've got one of these trucks, or any vehicle for that matter, that has a difficult time passing emissions or goes through catalytic converters more quickly than it should, call Joe for an appointment to get it checked out.

Fall Car Shows

The weather is finally getting nice here in the Phoenix area. That means an end to getting scorched when getting into a car that's been sitting outdoors and it also means we can spend all that money we'll be saving on air-conditioning bills on more car parts! It also means the beginning of the car show season!

Arizona TPI will be attending the "3rd Annual Roddin' for a Reason" at Firebird International Raceway on October 21st and 22nd. This event is in conjunction with the Truck & 4X4 Nationals and Aftermarket Expo and all proceeds (after expenses) will be donated to the UCLA Jonsson Cancer Center for Prostate Cancer Research.

We'll have a vendor booth so come out and see us and join in on the fun. This a great event and maybe you'll win something at the huge raffle. Regardless, it's for a good cause!

We're also excited about having a booth at the Good Guys show at West World in Scottsdale on November 17th, 18th, and 19th. As most of you know, this is a huge event. They're expecting 2,500 cars in the car show with about 50,000 attending. We've been attending this show as a spectator for a long time and we're looking forward to being more involved.

The great thing about the Good Guys show is the number and quality of cars that you'll find. Last year we noticed cars from all over Arizona as well as California, Nevada, Utah, New Mexico and more. And, of course, the weather at that time of the year just can't be beat!

For those of you who haven't been to an event like this, it's a great way to spend a day. The owners of these cars are generally happy to talk about their cars so if your thinking about building a car of your own you can get lots of valuable information. You can also get a lot of great ideas just walking around a looking at all the beautiful cars.

Come on out to "Roddin' for a Reason" and the Good Guys show and drop by our booth and say hi. We're looking forward to seeing you!