

“EGR Valve is used as Turbo Wastegate Myth”

Hi customers,

Thanks for informing your concern about EGR system.

I had that kind of inquires so many times that I am getting tired of responding every letter when someone writes a comment about the EGR system that you shouldn't fully block EGR but just a blanking plate with a hole will do.

That made many people confused and concerned. It is all caused by some people who are in the car industries making all kinds of non-intelligent opinion. It is a shame for all of our decent people in our car industry.

First to remind you that I also sell our device to many Kenworth and Mack heavy truck for fuel trimming too.

Our device has been developed with the thorough knowledge of the diesel engine and sound planning.

I am not trying to say I am a great man, but I do have my professional background as an automotive engine design, and engineering so I do know few things about the diesel engines.

I have done so many car computer design before I retired so I do know about how the EGR system works in detail.

The Toyota common rail system is not unique in design, especially 1KD-FTV engine system which is identical to Ford Ranger, Mazda BT-50, VW Amarok and Isuzu engines, etc. It is the same design because they use the same car computer system from Bosch. Toyota uses the Denso car computer which is same as Bosch (Licenced) in every detail including most of control softwares. They use Motorola MPC555 CPU chip in their car computer.

The only difference is the Toyota 1KD-FTV engine do not support cold temperature EGR shut down like many other engines do. That is EGR system just shut down when the ambient temperature drops below +10c.

A suggestion given from one of my friends in Toyota engineering dept Japan is when ambient temperature drops to below +10c the EGR shuts down due to there is not enough exhaust gas will come into intake so they just shut down EGR. Then you may ask why not, then increase the exhaust gas volume? If they do then there will be too much EGR gas will be entering above +10c like 30-40c then the EGR valve can't handle the gas volume to control.

So the Toyota 1KD-FTV engine does have a vacuum controlled flap after the EGR gas cooler to control extra EGR gas flow on lower temperature so the engine can manage the EGR system right through the whole engine operating temperature.

I have spent two weeks in 2015 trying to confirm a myth that EGR valve is used as the Turbo waste gate before I designed our Manual Mapper and it turned out to be absolutely not true.

During the experiment, I have never seen any pressurized air is vented to exhaust through EGR valve, instead every time without fail when the EGR valve is opened highly charged exhaust gas was flooding into the intake manifold.

With this knowledge of experiment, I added EGR delete option in Manual Mapper.

The whole problem is many people are thinking diesel engine like petrol engine which in their head can't get rid of.

Diesel engines are essentially a straight pipe intake without butterfly like petrol engines that turbo pressure can hang around.

Diesel engine works on air to fuel mix ratio from 115:1 to 8.6:1. More fuel means more power and speed with fixed air intake pipe.

In idle, the computer will inject 100:1 fuel ratio to maintain the idle and this can go up all the way to maximum Stoichiometric ratio which is around 8.6:1 in fuel density. In that fuel mix yes, it will give maximum power and speed. The Turbo in diesel will only bring up the ambient air pressure so they can throw more fuel to burn with increased oxygen due to air compression. To do that, they need to control turbo pressure same in every engine RPM range and the variable vane was introduced to control turbo compression precisely.

Many diesel engine's turbo chargers don't have a waste gate like petrol engines instead, they use cylinders as waste gate. All it needs to turn crank shaft to half turn to release any pressure if they have any.

Of course, some do have waste gate for Maximum RPM limiter otherwise just natural cylinders are waste gate and hardly any pressurized air can hang around because of nature of diesel engine design.

To cut a long story short, I have seen many dirty MAF sensor before installing our mapper, but after install it seems remain clean.

Our Manual Mapper is essentially simulating the EGR system so car computer doesn't know that you blocked off the EGR system.

I have seen some D4D engine go into some kind of limp mode when they just only blocked EGR system with check engine light came on. In this mode, yes, they feel like driving into a strong head wind. But even then many people will still use it as because they want to save their engine life. Our Manual Mapper will not cause this problem.

I have discovered some EGR soot cake will break off in the intake manifold and jamming the valves and causing catastrophic mechanical engine failure.

In view of this if you want to save your engine many years to come please block off your EGR no matter what you do. Those stupid EGR systems don't even work after 30,000km due to too high blow by gas and NOx emission is not a great concern.

Our Manual Mapper has been designed and tested with those concerns in mind.

Besides, I already sold over 500 1KD-FTV mappers all over the world and not one person complained, I get all the appreciation letters. No customer ever complained about losing the power and the most cases, they feel car runs better and smoother. There was no increase in actual power on acceleration, but in normal cruise yes, it was a significant increase in power around 10-18kw more on the engine Dyno. Not only that I have noticed the turbo lag was significantly reduced. There was almost no turbo lag, acceleration was instant.

Of course, there were some problems with our mapper, but it was always the case of the hidden problems in the engine which it revealed with our mapper installation such as P1253 error message which is turbo stepper motor control system due to blocked up MAP sensor filters. Many people saved a lot of money by finding the problems early because our mapper will test those hidden problems.

Also, another problem we came across was our manual mapper will not work properly when there was too much soot cake blockage in the EGR valve then the car computer will keep throwing the error code or produce a massive flat spot on acceleration.

All in all, we have sold over 500 units all over the world including South Africa, US, Asia, Europe, Hong Kong and even in Japan without any problem so far.

There is a person on Prado Point who is extremely jealous about my product and often releasing bad remarks about our product and his friends will also do that too.

I don't want any confrontation with them that is my main reason why I am not coming to Prado Point anymore.

Thank you for reading so far.

Please contact me if you still have any questions.

Regards

Ozbush Electronics

Please note: Above article is my personal opinion only. I am not in any way encouraging people to disable EGR system to become illegal. You can do that in off-road, in racing or in your farm land, but not in the public road.

I will leave up to you to decide.