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What Is ECU Remapping and Should You Remap Your Vehicle Engine?

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I am interested in cars and do my own repairs where I can. I like to share any knowledge I have to help other people here possible.

Are my eyes going funny or are we going really fast?

Having your car or van engine remapped, also known as chipping, is a way to get more power out of your car or van engine. This article will explain exactly what it is and will help you to make up your mind as to whether it's something that could benefit you!

Remapping/Tuning/Chipping—What Is It?

All of these terms are used to describe the same thing. Modern car and van engines have an electronic management system that controls fuelling. This system is run by the brain of the engine, the ECU (Engine Control Unit). When you put your foot down, the ECU decides how much fuel and air to mix, that goes into the cylinder and ignite. Diesel and petrol engines work a bit differently, but that isn't really important right now. The ECU also controls the boost of the turbo (if you have one).

If you have your engine remapped/chipped/chip tuned, then the ECU parameters can be changed, giving more performance only in certain cases only more economy from your engine.

How Do You Remap Your Engine?

This is done in several different ways. The most common is to connect to the vehicle diagnostic port and reflash the software on the ECU, with a standard map for the vehicle in question. This does need special equipment. Since it's all done with software, a new map can be uploaded to your vehicle ECU / ECM pretty quickly and can often be completed in less than an hour.

The second way, which will get you better results but costs more, is to have a custom remap for your vehicle. The car or van is connected to a laptop, but instead of uploading a one-size-fits-all remap, the parameters for your individual vehicle can be altered. This is usually combined with runs on a dynamometer, so your vehicle's performance and fuelling is checked and tweaked all the way through the rev range.

It is also possible a piggyback device that attaches to the ECU with some vehicles. There are lots of devices on the market. A lot of them are very cheap and you can often fit them yourself, but usually, they just make the vehicle run richer and aren't really any use. Getting your car or van remapped with someone who knows what they're doing and will do it properly is generally a better option, even if it costs more.

If It's That Easy, Why Don't the Manufacturers Do It?

This is a common question. There are several reasons that manufacturers don't supply the car or van already maximized as far as performance and economy go.

The first is that manufacturers focus mainly on reliability. Some people look after their cars, regularly servicing them and taking good care of them. Some don't do anything other than put fuel in. There are also different grades of fuel, depending on where you are.

In an ideal world, everybody would look after their car and fuel would be good quality everywhere you go. Since this isn't the world we live in, then if manufacturers err on the side of safety and supply their vehicle at a less than optimal tune, then there's a higher chance of it lasting longer. This means that the manufacturer gets a reputation for reliability as their cars are less likely to break down. If you are prepared to service your car, look after it a bit, and also use good fuel, then having the engine remapped won't be an issue.

The other issue is that manufacturers often have a range of vehicles, and the most powerful vehicles in the range are usually the most expensive. Manufacturers often stifle the performance of engines to make sure there is a clear difference in power as you step up the range. In some cases, you can buy a cheaper version of the car or van and then remap it to equal or beat the next model in the range.

Extra Performance? But I'm Not a Speed Racer

While there is extra performance available from the engine, this isn't the only benefit. As long as you're willing to drive normally, then you can also get an increase in fuel economy. It depends on the vehicle, but some people report up to small % of fuel efficiency more after remapping, so if you do enough miles then you can recoup the money that the remap costs. You have to remember that a heavy right foot will still use fuel, whether it's remapped or not!

The other thing is that if you have a van and carry heavy loads, then sometimes a remap can really help the driveability of the vehicle, giving you more oomph so you can zoom rather than crawl up hills.

Should I Get My Car/Van Remapped?

There are several things you need to bear in mind when thinking about getting your vehicle remapped.

The first thing is to think about what sort of an engine you have in there. The best gains can usually be had from turbocharged vehicles, both petrol or diesel. Remapping these can lead to big performance gains as the boost from the turbo can be increased. Naturally aspirated (NA) engines will not give you the same performance gains. If you are running a small Naturally aspirated (NA) engine, then remapping may increase the drivability and give you a small performance boost, but you'll have to weigh up the high cost of remap and think about whether a small increase in performance will be worth the money. The larger and more powerful the engine is in the first place, the more gains you'll get from remapping.

Extra performance is not the only thing you can get from a remap. The economy of the car can often be increased as well, but this depends on how the car is driven. In an ideal world, you won't drive any faster than before and you'll see better fuel economy. Of course what tends to happen is that you have more performance from the remap, so you use the extra performance and end up using more fuel than before. Once you get used to the power and start driving normally again, you'll see better economy. It is also possible to get a remap that is specifically

designed to increase economy. Performance is compromised at the cost of economy with these sorts of maps, but this is something some people, cab drivers, for example, are happy since they don't care about performance and just want more fuel efficiency. Just remember remaps will void powertrain/engine warranty. It is illegal, against manufacture law and motor vehicle law. The oem's offered you a warranty with the car. If the car has been remapped or tuned, you run a greater risk of breaking down.

Making the Most of Your Remapped Engine

If you have a petrol car remapped, then you might find that you need to run the car on premium fuel that costs more, high-octane fuel to stop engine pre-detonation, which can damage the engine. In my opinion, the increased cost of premium fuel is not a problem if the engine is providing more performance, but this may matter to some people so this is something else to bear in mind. Not all remaps necessitate the use of premium fuel, so you should ask the person that is remapping your vehicle just to ensure that you don't cause any damage.

If your vehicle is remapped, then you can sometimes find that the increased power can hasten the demise or damage of your clutch. If your clutch is healthy, then you should be fine, but if it's near the end of its life, then a remap can help speed it on its way.

Do Your Research Before Remapping!

There isn't much point having a remap unless everything else is in good condition, so it's a good idea to get your vehicle checked over first before you go ahead with the remap. You also need to bear in mind that your insurance company should be told about the remap, which might lead to an increase in your premium.

In certain states it is a violation of motor vehicle act / law and oem manufacturers laws. If you do not care about a warranty and you have lots of money in your bank, then go ahead and modify or re-tune your ecm / ecu. Just understand you will not be able to avail the dealer warranty anymore.

So there you go, a brief explanation of remapping. Many people feel it is a worthwhile procedure, but you'll have to weigh the pros and cons for yourself. Hopefully, you understand it a little better now.

If you have any questions or comments, please leave them below. Thanks for reading!