Why EGR?

WHAT IS THE EXHAUST GAS RECIRCULATION SYSTEM or "EGR"

The EGR valve, or Exhaust Gas Recirculation valve, is a vacuum controlled valve which allows a specific amount of your exhaust back into the intake manifold. The exhaust your EGR valve re-circulates reduces the formation of Nitrogen related gases referred to as NOx emissions. These recycled exhaust fumes also displace some of the clean air that would otherwise be drawn into the engine. Because the combustion chamber is cooler due in part to the added exhaust fumes and because there's less oxygen, less NOx is produced and this is a good thing.

However on the bad side, because the EGR's recycled exhaust gas displaces some of the clean air within the combustion chamber, the engine's efficiency is reduced. For this reason, the EGR system doesn't operate during times of heavy acceleration. It also doesn't operate during idle, because the presence of exhaust gases at idle tends to cause uncontrollable rough running.

EGR systems operate primarily when the vehicle is cruising under light load. Because there is less demand on the engine at these times, the engine can afford to temporarily lose some capacity.

In the real world however, EGR systems often don't work very well.

The exhaust gases from the vehicle's engine contain much more than just carbon dioxide: they also contain dozens of chemical by-products, left behind after the fuel was burnt inside the engine. One of these by-products is a fine dust, known as carbon particulates. This dust is mostly un burnt carbon fuel and over time, the carbon dust inside the exhaust gases begins to clog up the EGR system and worse deposits the carbon dust into the clean air intake system on the vehicle.

Pictures Showing Carbon Buildup

When hot gasses from the EGR mix with the oil ladened air, oil vapour that comes from the engine's crankcase, the hot air cooks the oil and causes carbon build up on the inside of the intake manifold.
In the pics below you can see the excessive buildup of carbon.

Blocking the EGR system gives us many benefits

1) Blocking the EGR will certainly stop the carbon particulates from the exhaust clogging up the inlet manifold. See picture of a clogged intake manifold.

2) When blocking the EGR port you are redirecting 100% of the exhaust gases back out the exhaust via the turbo. The turbo now has total exhaust pressure turning the blades which means the turbo will spool up quicker.

3) No carbon partials entering the vehicle in intake which keeps vacuum and boost lines cleaner

4) Less engine oil contamination. Many carbon partials that enter the air intake through the EGR system find their way into the oil system. This has a tendency to clog the oil galleries and greatly increase premature engine wear.

Things to know before undertaking this Mod

1) It is not a legal modification to change the way the vehicle's emission control system functions. This modification is recommended for off road and race vehicles. There is however no road side diesel emissions testing of vehicles in Australia. All Diesel emission tests are carried out at the time of original engine certification.

2) In some cases fitting an EGR blanking plate will cause a fault code to appear or the "check engine light" to come on. This is because the ECU will read an incorrect flow on the EGR system. For these type vehicles we have an EGR blanking plate with a 10mm hole in the centre to allow enough EGR flow to satisfy the ECU whilst restricting the majority of exhaust gas to the intake. Unfortunately however this is not an exact science and we have seen the very rare example of a code being thrown on a vehicle that hundreds of the same vehicle had previously not had any issues with. In these cases we are reluctant to offer for sale a plate with a 10mm hole and instead suggest that you remove the plate and drill your own 10mm hole which should fix your individual issue.

In all cases we leave it up to the individual customer to decide if they wish to do this modification.