

GETTING THE BEST FROM YOUR ROVER 75 / MGZT / FREELANDER TD4 (2L)

Do not fit a Synergy or DGM2 to 'cure' any problems such as clouds of smoke, bad starting, bad idling, very poor mpg or cutting out since the cause of these needs to be investigated. In many cases a combination of the items listed below will be responsible but also visit my website's Rover 75 servicing pages at [Tuning-diesels.com](http://tuning-diesels.com).

The TD4 suffers from two additional issues which affect the performance and which neither a DGM2 nor a Synergy 2 will cure: - water ingress into the wiring loom to the fuel rail sensor * and problems with the vnt turbo mechanism, actuator or solenoid. *see LR tech bulletin LR0052 as well as my website.

If you find there is quite a lot of smoke being produced, then use a lower DGM2 setting. Smoke is not normally a problem with a Synergy 2 and if present can be highlighting issues with the air supply to the engine which are covered in the next section. But it may also indicate the maf sensor needs changing due to it over fuelling or you are using a setting above 5 with a Bosch maf or heaven forbid, have fitted a cheap clone/pattern/counterfeit maf. (A *genuine Bosch branded* maf is £135 + vat trade so £200+ retail or £250+ at a LR dealer)

The following items are not on the service schedule so even if you have purchased a vehicle with a full service history, they are unlikely to have been done. Attend to them and the car will drive better, not smoke, use less fuel and perform extremely well. Full details are on my website: <http://tuning-diesels.com> in the 75 Servicing pages. Apply also to the TD4 except 4 & 5.

1. Frequent feedback from owners has confirmed that replacing the pcv valve with the latest filterless design from a BMW dealer (ask for one from a 318D 1951cc M47 engine ~ £35) often cures smokey exhausts. This is what it looks like and is easy to change - its on top of the engine just behind the injector wiring.
2. The next step is to remove and either clean or replace the EGR valve with a bypass. The photo is from my 90k mile 3year old R75 - again easy to remove but a dirty job. Disabling it by removing and plugging the small vacuum supply pipe is usually beneficial to low down torque and throttle response.
3. If smoke is still a problem, replace the maf sensor with a Pierburgh one (£68 from my website) as the existing one is most likely over fuelling. (also needs to be changed if there are flat spots and hesitation as well)
4. Finally, my intake mod mk 3 has been proven to give an easily detectable improvement by allowing the engine to breath more easily (75/ZT only). It also all but eliminates any possibility of the engine ingesting spray which will affect & usually damage the maf sensor. All of the intake duct from the start of the corrugated section is removed.
5. Lastly, replace the intercooler sealing 'O' rings with Viton ones from jma-cars.co.uk (75/ZT only)



Please remember that these vehicles are now 'getting on a bit'^ and all of the items listed above affect both the performance and fuel efficiency and if you are tuning the engine, please investigate the above items if the results are not as expected (or what others have experienced).



^Mileage is no guarantee of condition because the lifetime of the components is measured in thousands of hours (MTBF) rather than miles. (MTBF = Mean Time Before Failure) So, for example, the engine could have run for the same hours on a car that's done 30k slow urban miles or 100k motorway miles. In my view engines that have been driven gently and mainly at low speeds will suffer from clogging up of the intake, exhaust and fuel systems and the injectors.

THRASH YOUR ENGINE ONCE A WEEK AND IT WILL GIVE LESS TROUBLE. (let it warm up fully first!)

OTHER TIPS:

- You should of course change the oil and all filters regularly and ideally, more often on a tuned engine. Even an oil change can improve the economy because black sludge-like sooty oil is a poor lubricant and harder to pump round the engine so the oil pump uses more power.
- Make sure the air and fuel filters have been changed - if the air filter is dirty - the oil and fuel ones will need changing too.
- Use Shell Extra or V Power fuel, avoid supermarket fuel, especially Morrison's. I would be surprised if the extra cost of the Shell fuels is not recovered in better mpg...
- Add Millers Eco-max Diesel additive. It will boost the lubrication of the components, keep them clean and the cetane booster promotes fuller combustion to improve smooth running, performance and economy. Visit Millersoils.net for a stockist. The cost of about £1 per tank of fuel will more than pay for itself.
- Check the tyres pressures, and tracking, brake binding, open the throttle progressively at low rpm (below 1500) to give the turbo time to spool up.

WHY DOESN'T MY SYNERGY SEEM TO BE WORKING...?

A few customers every year seem not to get the same result as everyone else so here are some factors to consider. (I am assuming you have connected it up correctly!)

1) It is working but the performance is so smooth and free of turbo lag that it doesn't seem to be working. Measure the 40-60 in 4th and 50-70 in top gear times (& any other increments to wish) with the Synergy switched off and then on. (same direction on the same stretch of road).

2) You are using too many revs and changing up at too high an rpm. Max torque is around 2000 and the Synergy has most effect from about 1600 to 3000rpm, so by revving it to 4000 before changing up, you will miss out on the biggest torque improvement.

3) If the maf sensor is very bad -ie way out of spec even a Synergy 2 cannot correct it and the performance will therefore be lower than expected.

4) There are other issues with the engine (& you may have fitted the Synergy to try to overcome these instead of fixing them - tut tut!) such as:

- Clogged pcv valve - causes smoke as the engine breathes crankcase fumes instead of fresh air.
- Clogged or sticking egr valve - obstructs the air flow &/or lets air bypass the engine into the exhaust manifold.
- Clogged or leaking injectors - obstructs fuel flow or lets it bypass the injector so less fuel is injected or atomisation is poor causing poor mpg, knocking, poor performance.
- Clogged map sensor - boost pressure reading incorrect so fuelling is affected
- Dirty air / or fuel filter - obvious!
- Faulty fuel rail sensor - on the Freelander TD4 particularly, water gets into the wiring harness from sensor to ecu and damages the sensor, corrodes the connection and causes various symptoms.
- Faulty fuel pressure regulator. Prevents the pressure from rising with rpm, underfuelling the engine.
- Defective/blocked catalyst - obstructs the exhaust flow causing low turbo boost (rare)
- Leaking intercooler hoses or seals - air leaks out causing exhaust smoke and low boost can result in underfuelling.
- VNT turbo control mechanism (Freelander TD4 only). The mechanism seizes up, the actuator fails, the small vacuum pipes leak or the solenoid fails. Any one of the above will affect the boost pressure causing intermittent power loss and warning light illumination.
- Poor maintenance. Ignore service history if you have recently purchased the vehicle.

The reason for lack of Synergy results may well be a combination of the above but it isn't always easy to pinpoint the cause. So here is what I would do..

A) Ignore any service history and personally give the engine a full service, flushing it with Forte engine flush if the mileage is over 100k. (this also frees sticking piston rings and removes gum to restore any loss of compression. Replace the pcv valve, clean and disable the egr valve, change all filters - air, oil & fuel. Also checking for telltale oily deposits around the intercooler inlet/outlet pointing to air leaks due to failed seals.

B) Try disconnecting the car's maf plug from the Synergy male connector. If the performance improves, the maf needs to be changed.

C) If the mileage is well over 100k, have the injectors serviced by Lynxdiesels.com. Its not cheap but they won't need doing again and the engine will run more smoothly and use less fuel.

D) Check the VNT mechanism if its a TD4. (NB LR dealers often misdiagnose and tell you turbo needs replacing)

E) Replace the pressure regulator (~£100)

F) Replace the pressure sensor ~(£70)

E & F are something of a last resort unless there are other symptoms such as cutting out.