

TOP TIPS FOR FUEL EFFICIENT DRIVING FOR CAR AND VAN DRIVERS

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These top tips are aimed providing independent and authoritative guidance for anyone who drives a car or a van. Applying these tips will help any driver to improve the fuel consumption of their vehicle and thereby reduce both their fuel bill and environmental impact.

These are all techniques that I have used for many years (since August 1992) and the fuel consumption of the vehicles that I have driven during this time whilst employing such techniques are shown below in Table 1.

Table 1 Vehicle fuel consumption

VEHICLE	DISTANCE (MILES)	LITRES	MPG
Audi A8 Diesel	3,063	400.13	34.8
Jaguar X Type 2.0 Diesel	4,182	397.22	47.86
Jaguar XF 3.0 Diesel	14,007	1,774.71	35.88
Peugeot 205 1.7 Diesel	137,437	11,209.94	55.74
Peugeot Expert 1.9 Diesel	27,293	3,066.50	40.46
Range Rover Diesel	11,665	2,060.35	25.7
Renault Prima 1.4 Petrol	38,914	3,865.72	45.76
VW Passat 1.9 Diesel	32,113	2,706.15	53.95

Having seen what can be achieved it is hoped that you will now enjoy reading and implementing my top tips.

1. The first tip is your attitude. If you have an argument or are upset and then drive a vehicle there is always a temptation to drive in aggressive manner. Harsh accelerations, heavy braking and taking increasingly risky manoeuvres are indicative of this. The net result is not only worse fuel consumption, increased wear and tear on the vehicle and a greater probability of an accident along with court appearances, fines, penalty points, loss of licence and possibly jail. The solution is to calm down and to do the opposite of what your temper is telling you to do. For example, in congested traffic don't prevent vehicles from entering your lane, let them in. Taking control will help you to calm down.
2. Eyeball the vehicle as you walk towards it. Is the vehicle sitting square and do the tyres look OK? Walk around the vehicle look for fluids on the floor and observe the tyres – do any of them look soft.
3. Starting your vehicle. Dip the clutch prior to starting the engine, because this will reduce the drag on the flywheel and may make the difference between an engine starting or not starting, especially in the winter months.

4. Avoid reversing with a cold engine. When you park the vehicle reverse into a 'drive away' position whilst the engine is warm. A cold engine consumes more fuel and reverse gear normally has the most fuel inefficient gear ratio.
5. Accelerate smoothly, because harsh acceleration results in a lot of unburnt fuel being ejected through the exhaust system. This is normally noticed as black smoke.
6. Brake smoothly, because when you use the footbrake the energy that has been produced by the burning of the fuel is now being turned into heat energy at the brakes and not being fully used to move the vehicle. Harsh braking wastes more energy and is usually followed by using more fuel to get the vehicle road speed up to a safe and acceptable level.
7. Use engine braking to conserve energy and save fuel. When you take your foot of the accelerator pedal, fuel is no longer entering the combustion chamber and the engine acts as a compression brake. If you have a display in the vehicle that shows the instantaneous miles per gallon (MPG) it will show its maximum figure, which in some displays is 999.99 MPG. Leave plenty of space and observe what the traffic is doing (not just the vehicle in front) and you can use engine braking effectively.
8. Use the vehicles momentum. When you go over the crest of a hill - if it is safe to do so - take your foot of the accelerator pedal and let the vehicle's own momentum propel the vehicle forward. As with the previous tip the instantaneous MPG will rise to its maximum.
9. Use a 'block changing' technique. It is not always necessary to use every gear in the gearbox in sequence. This is also referred to as 'skip changing' and as the name implies gears can be skipped or missed. For example, near to where I live is a crossroad with a set of traffic lights. When going downhill from the lights I can do 1 - 3 - 5 which saves me two gear changes and thereby saves fuel. The key to implementing this technique is to understand your vehicle, the road and traffic conditions. This sort of technique can also be employed when changing down, but requires a fair amount of concentration and practice.
10. Try to gear high and rev low; the lower the gear that you use the worse your fuel consumption. Use the highest possible gear for any given road speed as soon as possible.
11. Get into top gear as soon as it is possible to do so, bearing in mind any road speed restrictions.
12. Cruise control can be a great aid to improving fuel efficiency. Some drivers believe that it can only be used on the motorway, but it can be used on any road, providing that it is safe to do so. I use it on single carriageways, dual carriageways and motorways and at speeds as low as 40 MPH. *Extra tip* – cancel cruise control as you crest a hill or it will accelerate up to the preset

road speed, whilst if you cancel you can use the vehicle's own momentum (tip 8).

13. Air conditioning should not be used unless absolutely necessary. In slow moving traffic put the window down; if you need a draft put the opposite window down also.
14. Keep the vehicle moving to save fuel. If you can avoid coming to a halt do so. How many times have you joined a queue at traffic lights when another vehicle has come down the right-hand side lane and as the lights change to green, passed all of the stationary vehicles, then moved to the left to get in front of all of the stationary vehicles. Whilst you and they have wasted fuel with the engine idling and then using low gears to get the vehicle moving the other vehicle has saved time and fuel by reading the road and traffic conditions correctly.
15. An engine idling is wasting fuel. Some drivers' think that an engine needs to be warmed up before it is driven. This is not correct, because modern, well maintained, engines will push the lubricating oil around the engine in less than a minute. The quickest way to warm an engine is to drive it gently. If the windscreen requires demisting then obviously the engine has to be warmed up to produce the warm air, unless you have an electric demister. If you require the engine to warm up for demisting purposes switch off the fan booster and close the air vents to speed up the heating process. Then once the engine is warm open the vents and switch the booster back on.
16. If you are stuck in traffic due to an accident or road works and there are periods when the vehicle is not moving then switch the engine off. Idling wastes fuel and causes long term damage to the engine.
17. Read the drivers handbook or manual to ensure that you know what the tyre pressures should be and at what engine speed maximum power is achieved because there is no point in exceeding the engine speed that produces maximum power; you will only be putting more fuel into the engine to get less power. Indeed, reading the driver's handbook completely, is highly recommended.
18. Remove unnecessary weight and roof racks whenever possible. The energy to move the additional weight and overcome the increased aerodynamic resistance from a roof rack system can only be provided by the fuel. Reduce these two and reduce the need for fuel.
19. Check the tyre pressures once a week. This should be done when the tyres are cold. If the pressure is too low the vehicle will consume more fuel than is necessary, the vehicle may not handle correctly and tyre wear can increase. Over inflation can also have the same effect, with respect to the front tyres whilst fuel consumption might improve slightly at first, the steering geometry will be altered and fuel is wasted overcoming the now misaligned tyres.

20. Monitor your fuel consumption continuously and measure how you improve. If you would like a spreadsheet that does this for you then contact the author whose contact details are at the end of this document.

ABOUT THE AUTHOR

Dr Michael Coyle started his career as an apprentice heavy goods vehicle (HGV) engineer and has held many posts in the transport industry including HGV Driver (driving up to 2,000 miles per week), Owner Driver, HGV Advanced Driver Training Manager, Depot Manager, Project Manager, Logistics Analyst.

He has a BSc (Hons) in Transport and Distribution, an MSc in Operational Research and a PhD in improving fuel efficiency. He also led the safe and fuel-efficient driving (SAFED) research project, which resulted in a several major government funded projects to improve the driving skills of professional drivers, in both the UK and New Zealand. He was also a contributor to and appeared in the UK Governments 'Save It' videos and has worked and in and delivered presentations on various fleet and fuel efficiency topics in North America, India, Europe, UK, New Zealand and the Far East.

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