

Some tunnels have signs with specific advice about what to do if you break down or are involved in an incident inside them. Make sure you follow these instructions and inform the tunnel controller of your location as soon as you can.



Section seventeen

→ Ecosafe driving and the environment

This section covers

- What you can do
- Ecosafe driving
- Choosing a vehicle
- Vehicle maintenance
- Alternatives to driving

What you can do

Transport is an essential part of modern life, but we can't ignore its environmental consequences – local, regional and global. There's increasing public concern for the protection of our environment, with the result that many motor manufacturers are devoting more time, effort and resources to the development of environmentally friendly vehicles.

But you, as a driver, can also help. If you follow the principles of ecosafe driving set out in the following pages, you'll become a more environmentally friendly driver and

- your journeys will be more comfortable
- you could considerably reduce your fuel bills
- you could reduce those emissions that cause damage to the atmosphere.

In addition, you'll become a safer driver as you develop your planning, perception and anticipation skills to a high level.

Try to drive in an ecosafe manner at all times, whether you're driving for business or for pleasure. Fuel, like all forms of power, costs money as well as having an impact on the environment. Minimising the fuel or power you use is always important, both for the planet and for your pocket.

However, although it's good to save fuel, you mustn't compromise your own safety or that of other road users when attempting to do so.

Road safety is more important than saving fuel. At all times you should be prepared to adapt to changing conditions and it may be that you have to sacrifice fuel-saving for safety.



The effects of pollution

Air pollution contributes to health problems for many people. In densely populated areas, traffic is the biggest source of air pollution. Road transport accounts for a significant proportion of all emissions and how we drive can make a surprising difference to local air quality.

The particular problem with emissions from vehicles is that they're at ground level. People with conditions such as respiratory problems, heart disease or vascular disease are particularly exposed.

In addition, pollution from motor vehicles causes changes to communities and the landscape, including

- damage to vegetation
- deterioration and weakening of buildings and bridges
- the depletion of natural resources
- disruption of wildlife.

Fuel combustion produces

- carbon dioxide, a major greenhouse gas; transport accounts for about one-fifth of the carbon dioxide we produce in this country
- nitric oxides; these add nitrogen to the atmosphere, causing damage and disturbance to the ecosystem.

Catalytic converters in good working order reduce these emissions.

Information about air pollution is available online at <http://uk-air.defra.gov.uk> and www.gov.uk/defra. You can also phone the free air pollution recorded information helpline on 0800 556 677.



What you can do to help

The car has become a central feature in our lives, but it's still possible to drive in a manner that's less harmful to the environment by taking care and giving some thought to how, and when, we drive.

We give some suggestions on the following pages about what you can do to help.

➡ Ecosafe driving

Ecosafe driving is a recognised and proven style of driving that contributes to road safety while also reducing fuel consumption and emissions.

One of the main factors in increasing road safety is the emphasis on planning ahead so that you're prepared for potential hazards. By increasing your hazard perception and planning skills you can make maximum use of your vehicle's momentum and engine braking. By doing this, you can reduce damage to the environment.

Hazard awareness and planning

You should be constantly scanning all around as you drive. Look into the far distance, middle distance and foreground, and also check behind and to the sides with frequent use of your mirrors.



Early recognition of potential hazards is important, but just looking isn't enough; you need to act correctly on what you've seen.

If you anticipate problems and take appropriate action to deal with hazards in plenty of time, you'll avoid

- late braking
- harsh acceleration.

Both of these actions lead to higher fuel consumption.

Keep a safe distance from the vehicle in front, as this will help you to plan your driving. Don't always use the brake when the vehicle in front of you slows down. By just taking your foot off the accelerator, your vehicle will slow down and fuel consumption will then be reduced.

If you plan early for hazards

- you'll avoid the need for sudden, harsh braking
- traffic will flow more smoothly (see section 18)
- you'll use less fuel.

Starting up and driving away

Avoid over-revving your engine when you start your vehicle and pull away.

Don't leave your engine running unnecessarily. If you're stationary and are likely to be so for more than a few minutes, you should switch off your engine to reduce emissions and noise pollution.

If your vehicle is fitted with a stop-start system, make sure it's active. This will save you the effort of switching off and restarting your engine when waiting in traffic queues.

Choosing your speed

Keep within the speed limit

Exceeding a speed limit by only a few miles per hour will mean that you use more fuel but, more importantly, you're breaking the law and increasing the risk of a collision.

Slow down

Vehicles travelling at 70 mph (112 km/h) use up to 30% more fuel to cover the same distance as those travelling at 50 mph (80 km/h). However, don't travel so slowly that you inconvenience other road users.

Cruise control

When appropriate, use cruise control if it's fitted. Cruise control keeps the vehicle travelling at a constant speed. It uses sophisticated control systems and is very fuel-efficient. It can also help to maintain your speed within the speed limit.

Cruise control shouldn't be used in heavy traffic or when driving on wet or slippery roads. Remember, when cruise control is activated, your feet may not be in their usual position in relation to the foot controls.



The accelerator

Try to use the accelerator smoothly and progressively. When appropriate, take your foot off the accelerator and allow the momentum of the car to take you forward.

Taking your foot off the accelerator when going downhill can save a considerable amount of fuel without any loss of control over the vehicle.

Wherever possible, avoid rapid acceleration or heavy braking, as this leads to greater fuel consumption and more pollution.

Driving smoothly can reduce fuel consumption by about 15%, as well as reducing wear and tear on your vehicle.

Selecting gears

It's not always necessary to change up or down through each gear; it's possible to miss out intermediate gears. This is known as 'block' gear changing. It helps to reduce the amount of time you're accelerating and, as this is when fuel consumption is at its highest, it will help you to save fuel (see section 5).

As soon as conditions allow, use the highest gear possible without making the engine struggle.



Some modern cars have a display that suggests when to change gear and which gear to use. Following these suggestions can help you save fuel.

Check fuel consumption

Check your fuel consumption regularly. To make sure you're getting the most from your car, simply record the amount of fuel you put in your car against miles travelled. This will help you to check whether you're using fuel efficiently.

If you haven't changed your method of driving, or the conditions in which you're driving, an increase in average fuel consumption can mean you need to have your car serviced. Ecosafe car drivers are constantly aware of how much fuel their vehicles use.

If your car is fitted with a trip computer, it can help you check your fuel consumption.



Engine braking

With your foot fully off the accelerator, there will only be enough fuel reaching the engine for it to tick over. The momentum of the moving car will turn the engine but, without fuel, the engine's compression creates a resistance. It's this resistance that slows the car and is termed 'engine braking'.

Engine power

Modern cars are designed to deliver power even when engine revs are quite low. You'll find that you can make use of the higher gears at low speeds.

Route planning

Plan your route and avoid known hold-ups and roadworks. Always know where you're going – you'll use a lot of fuel by getting lost.

Plan your journey beforehand.

- Use a map.
- Check a route planner on the internet.
- Program your satellite navigation (sat-nav) system, if you have one.
- Consider using an alternative route suggested by the sat-nav. This may add a few extra miles to a journey but can work out more fuel-efficient and less stressful.

Try to use uncongested routes. Researchers have discovered new methods of helping the environment by easing traffic flow and congestion on certain routes. One example is the introduction of active traffic management (ATM) or 'smart motorways'. You can read about smart motorways in section 11, and more information about avoiding congestion can be found in section 18.



Minimise weight and drag

Save fuel by not carrying unnecessary weight in your car. Remove items from your boot if they're not required and avoid topping up your tank with fuel if it's not needed.

Remove cycle carriers and roof racks when they're not in use to reduce wind resistance.

FACTS The drag on a roof box can increase a vehicle's fuel consumption by more than 15%.

Opening windows or a sun roof will increase drag and, consequently, fuel consumption when you're driving at higher speeds.



Air conditioning and climate control

If air conditioning is fitted, use it only when you really need to – running air conditioning continuously may increase fuel consumption by about 15%.

Climate control is now an option on many cars. This monitors humidity, temperature (external and internal) and the quality of the air entering the vehicle. It adjusts the use of the air conditioning as required and reduces fuel waste. In hot, humid conditions, it can also help to reduce the driver stress that can contribute to 'road rage' situations.

Turn it off

Modern cars come with a variety of electrical devices, but using them will increase your fuel consumption, so make sure you switch them off when you don't need them. These devices include

- heated windscreens
- heated seats
- audio systems
- demisters.

If you have to make a prolonged stop at a level crossing or roadworks (say, two minutes), it may be better to stop the engine. Modern cars use very little extra fuel when they're restarted without pressing the accelerator, so you won't waste lots of fuel by turning the engine back on.

Stop-start technology

This technology automatically shuts down the engine when the vehicle is stationary and restarts it when required, thus reducing fuel consumption and emissions. Use it if it's fitted in your vehicle.

Parking

Always try to reverse into a parking space, so that you can drive out of it.

Manoeuvring while the engine is cold uses a lot of fuel. When you park in a garage or car park and intend to stay for a long time, reverse the car into the space or garage while the engine is warm, and drive out forwards when it's cold.

Choosing a vehicle



When choosing a vehicle, try to bear in mind economy and emissions.

Try to choose a vehicle with low fuel consumption and low emissions.

The Vehicle Certification Agency produces a guide to the fuel consumption of new vehicles.

Search for fuel consumption, carbon-dioxide emissions, and tax bands for new and used cars on the Vehicle Certification Agency (VCA) website.

dft.gov.uk/vca



Manual versus automatic

In the past, vehicles with automatic transmission were generally less fuel-efficient than those with manual transmission. However, recent improvements in technology have resulted in much more fuel-efficient automatic vehicles. Now, some automatic vehicles are more economical and have better emission statistics than their manual counterparts. As with manual vehicles, check the carbon-dioxide and fuel-economy statistics when choosing an automatic.

Petrol engines

There are advantages and disadvantages to all types of fuel. To help you make an informed choice and understand the effect each has on the environment, some of the differences are explained below.

The modern petrol engine has been designed to operate more efficiently to meet increasingly stringent emissions standards.

Key factors in this improvement in reducing exhaust pollution are

- fuel injection
- electronic engine management systems
- redesigned exhaust systems.

Ever stricter controls on exhaust emissions require catalytic converters to be fitted to the exhaust systems of all new petrol-engined vehicles.

Catalytic converters

These are exhaust-treatment systems that remove up to 75% of carbon monoxide, nitrogen oxide and hydrocarbons.

The converter is a honeycomb-shaped filter with a total surface area about equal to a football pitch. This surface is coated with precious metals such as platinum, palladium and rhodium. These speed up a chemical reaction in the exhaust gases as the engine heats up.

The oxygen content of the exhaust is monitored and a sensor triggers controls to adjust the air-fuel mixture.

The converter only deals with toxic and polluting gases. Carbon dioxide is still produced.

Leaded petrol can't be used in vehicles fitted with a catalytic converter. Even one tankful can permanently damage the system.

If you over-accelerate or exceed 3000 rpm, the catalytic converter can't clean up emissions completely and will release some that are contaminated. Make sure, therefore, that you don't drive in such a way that this will occur.

Diesel engines

These engines are very fuel-efficient and produce less carbon dioxide than any other road transport fuel.

Compared with petrol-engined cars, they also emit less carbon monoxide and fewer hydrocarbons. They do, however, produce more emissions of nitric oxides and particulates that are bad for local air quality.

Newer vehicles have to meet strict new emissions standards aimed at reducing these pollutants.

New fuels

All road fuels sold in the EU now have a very low sulphur content. They've been specially formulated to meet EU laws concerning the use of this chemical.

Sulphur is the main component of particulates in exhaust emissions, and it also produces acidic gases. The lower sulphur content in these fuels helps to reduce this source of pollution.

More advanced fuels are still becoming available, and motorists should always consider using the most up-to-date type of fuel for their vehicle.

Liquefied petroleum gas

Vehicles powered by liquefied petroleum gas (LPG) are now commercially available and the number of fuel stations supplying LPG is increasing steadily.

This fuel is cheaper to use than petrol or diesel and the emissions cause less air pollution. However, LPG does produce more carbon dioxide per mile travelled than diesel.



Electric and hybrid vehicles

Manufacturers are offering an increased choice of electric and hybrid vehicles, which offer reduced local pollution and lower running costs. Hybrid vehicles can also help overcome the worry about running out of power that's associated with driving an electric car for a long distance.

→ Vehicle maintenance

Keeping your vehicle well maintained is important to ensure maximum economy and the least damage to the environment.

You should make sure that your vehicle is serviced and maintained regularly.

Servicing

Have your vehicle serviced as recommended by the manufacturer.

The cost of a service may well be less than the cost of running a badly maintained vehicle. For example, even slight brake drag can increase a vehicle's fuel consumption.

Make sure your garage includes an emissions check in the service.

Tyres

Make sure that your tyres are properly inflated. Incorrect tyre pressure

- results in shorter tyre life
- may create a danger, as it can affect stability and stopping distance
- can increase fuel consumption and emissions.

When replacing tyres, consider buying energy-saving types that have reduced rolling resistance. These increase fuel efficiency while maintaining a good grip on the road.

Engines

Make sure the engine is tuned correctly. Badly tuned engines

- use more fuel
- emit more exhaust fumes.

MOT tests include a strict exhaust emission test to ensure that engines are properly tuned. This means they operate more efficiently and cause less air pollution.

Recycling

If you do your own maintenance, make sure that you send oil, old batteries and used tyres to a garage or local authority site for recycling or safe disposal.

Don't pour oil down the drain; it's

- illegal and could lead to prosecution
- harmful to the environment.



→ Alternatives to driving



Try to help lessen pollution by using your car only when it's really necessary. You should

- avoid using your car for very short journeys, especially when the engine is cold
- walk or cycle for short journeys
- use public transport when you can. Light rapid transit (LRT) systems ('metros') and trams are being introduced in many cities and large towns to provide more efficient public transport. These vehicles are more environmentally friendly because they use electricity, rather than fossil fuels
- consider car sharing if there's no suitable public transport. There may be a colleague or friend who's making the same journey (for example, to work or on the 'school run')
- if at all possible, avoid using your car when air pollution is high.

As well as the environmental effects of driving, consider also the relative costs, safety and travelling times of various forms of transport.

Costs

When considering the costs of driving, remember that it isn't just the cost of fuel that you need to take into account; you also need to consider insurance, depreciation, maintenance and road tax.

Safety

Statistics have proven that travelling by bus or coach is about as safe as travelling by air, rail or on water. All of these transport methods are less risky than driving a car or riding a motorcycle.

Travelling times

Remember that it's sometimes difficult to estimate the time for a journey by car because of delays that can be caused by congestion, incidents and roadworks. These factors should always be taken into account, especially if it's necessary to travel at busy times.



Section eighteen

→ Avoiding and dealing with congestion

This section covers

- Journey planning
- While driving
- Urban congestion