



safe driving

## Low risk driving

As a heavy vehicle driver you should at all times display 'low risk' driving. Only drive when you are alert, know how to control your vehicle and remember to respect other road users.

Driving is never risk free, but you should aim to drive 'low risk'. A low risk driver has good observation, speed management and road positioning skills. This is explained in detail in the Road Users' Handbook.

### Observation

The key to good observation is scanning. Scanning is keeping your eyes moving, and checking for hazards in one area for a couple of seconds and then moving your eyes to another area.

### Speed management

Drive at a speed that is within the speed limit and that will allow you to react and completely stop within the distance you can see is clear. When you see potential hazards, slow down and prepare to stop. If you cannot see at least five seconds ahead you must slow down. Slow down on wet, icy, dirt or gravel roads where it will take longer for your vehicle to stop.

### Use of mobile phones and visual display units

A mobile phone may be used to make or receive an audio phone call or as a drivers navigational aid and is only permitted if the phone:

- is secured in a commercially designed mount fixed to the vehicle, or

- can be operated by the driver without touching any part of the phone.

A mobile phone does not include a CB radio or any other two way radio.

You must not drive a vehicle that has a television or visual display Unit (VDU) operating and visible to you or drivers of other vehicles.

This does not apply to a driver's aid in a secure mounting to the vehicle, such as:

- closed-circuit television security cameras
- dispatch systems
- navigational (eg GPS) or intelligent highway and vehicle system equipment
- rear-view screens
- ticket-issuing machines
- vehicle monitoring devices.

### Road positioning

Position your vehicle to maximise the distance from hazards (this is also referred to as buffering). For example, moving left at the crest of a hill to create space between your vehicle and oncoming vehicles, or moving away from a parked car to avoid doors opening and pedestrian movement.

### Crash avoidance space

A low risk driver maintains a crash avoidance space completely around the vehicle. The crash avoidance space is managed by adjusting the vehicle's speed and road position.

To determine the crash avoidance space to the front of the vehicle you need to take into account two key factors – reaction time and response time.

**Reaction time** is the time the driver needs to:

- see the information
- perceive what it means
- decide on a response
- instigate that response.

A driver who is fit, concentrating, and alert, and not affected by alcohol, drugs, fatigue or a distraction, will still require about 1.5 seconds to react.

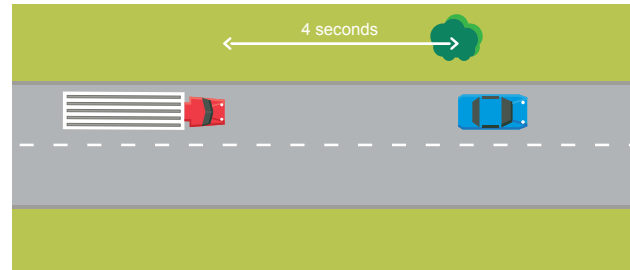
**Response time** is the time required to take action. Generally a minimum of two to three seconds is needed to respond. In many situations braking may be the only possible response. Swerving is rarely appropriate and can result in a more severe crash, for example a head-on collision.

A total of at least four seconds crash avoidance space is needed for heavy vehicle drivers to react and respond to a situation in front of you. You may need even longer in poor conditions such as rain or darkness.

The four second gap can be used when following another vehicle or if there is potential for something to move into your crash avoidance space.

## Following another vehicle

**Four second crash avoidance space.** To calculate a four second crash avoidance space when following another vehicle use this basic technique: as the rear of the vehicle in front of you passes an object at the side of the road such as a power pole, tree or sign, start a four-second count ‘one thousand and one, one thousand and two, one thousand and three, one thousand and four’.



If your vehicle passes the object you picked before you finish the four second count, you are following too closely. Your crash avoidance space is not large enough. Slow down, and repeat the count again until the four second crash avoidance space is achieved.

In poor driving conditions, such as rain, night or gravel roads, it may be necessary to increase your crash avoidance space to six or more seconds.

### Potential for something to move into the crash avoidance space

The four second gap can also be used for situations where there is potential for something to move into the crash avoidance space, for example, a car in an adjacent street could fail to give way and pull out. Low risk drivers experienced in maintaining a four second following distance are able to mentally judge a four second crash avoidance space in front of their vehicle. If there is potential for a hazard to enter this crash avoidance space, reduce your speed and create a buffer. It is necessary to maintain the crash avoidance space for all potentially hazardous situations, including blind corners and crests.

Many of the crashes that occur each day in the NT could be avoided if drivers actively maintained their crash avoidance space.

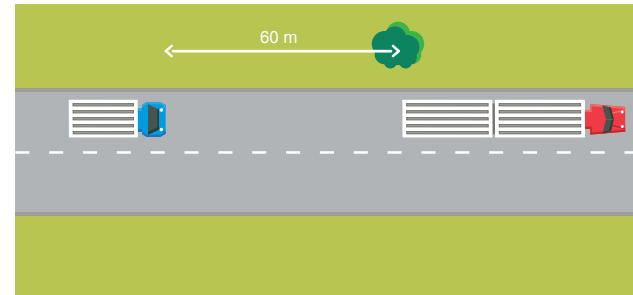
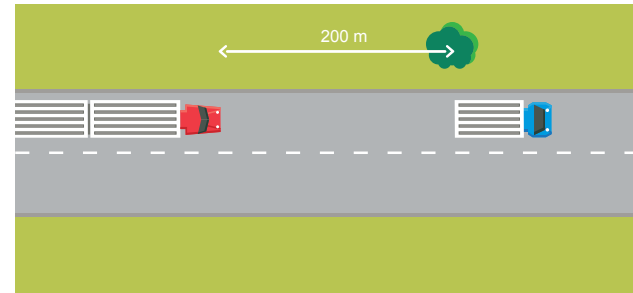
### Legal minimum distances between large vehicles

The driver of a long vehicle must drive at least the required minimum distance behind another long vehicle that is travelling in front.

A long vehicle is a vehicle that is 7.5 metres long or over. This includes any trailers attached to the vehicle and a vehicles load.

- A road train that is behind a long vehicle, the required minimum following distance is 200 metres
- A long vehicle other than a road train that is behind a long vehicle, the required minimum following distance is 60 metres.

This rule does not apply on multi-lane roads, in built-up areas or when overtaking.



## Sharing the road with cyclists

Bicycles are classed as vehicles and cyclists have the same rights and responsibilities as all other road users. They deserve the same respect and courtesy.

Cyclists are more difficult to see than other road users and are more vulnerable to injury in the event of a collision, particularly with heavy vehicles. Be alert for cyclists on the road and drive carefully when near them. Don't drive too close behind cyclists and allow them plenty of room.

Heavy vehicle drivers should be particularly aware of cyclists when turning at intersections where the tracking (cut in) of rear wheels can be a danger to cyclists.

Drivers should also be aware of the wind effect generated by their vehicle and potential impacts when passing cyclists, particularly at speeds greater than 60 km/h.

- Cycles are small and can be difficult to see, especially at night. Don't just look for car-sized vehicles.
- Stay wider of the rider when passing a cyclist. When travelling at 60 km/h or less, the minimum distance between you and the cyclist must be at least one metre. When traveling greater than 60 km/h the distance between you and the cyclist should be increased to a minimum of one and a half metres. **As a heavy vehicle driver you should provide more space where permissible when passing a cyclist.**
- Cyclists are allowed to ride side by side (up to two abreast) on the road, so please be patient and only overtake only when safe to do so.
- It is an offence to cut in front of cyclists at intersections. Do not overtake a cyclist if you are planning to turn left at a nearby intersection.
- Be aware of young cyclists, who can be unpredictable and lack road sense. Be especially careful around schools in the early mornings and afternoons.
- Cyclists need extra room at intersections and roundabouts.
- Cyclists are allowed to ride slowly across pedestrian crossings.
- Cyclists may ride away from the kerb or occupy a lane – not because they want to annoy drivers, but to:
  - avoid drains, potholes or roadside rubbish
  - be seen as they come up to intersections with side roads
  - avoid parked vehicles.
- Cyclists turning right are exposed. They need extra consideration from drivers, especially on multi-laned roads with fast-moving traffic.
- Cyclists are dazzled by headlights on full beam, just like other road users – remember to dip your lights for cyclists as well as other motor vehicles.
- Cyclists can be fast movers, capable of travelling at speeds of 40 km/h or more.
- Cyclists have a right to use the roads and to travel safely.

## Sharing the road with motorcyclists

Unlike drivers of motor vehicles motorcyclists are highly mobile and less visible. Remember:

- to check your mirrors and blind spots before turning;
- to look behind you before reversing, opening your door or changing lanes;
- motorcyclists have the right to use a whole lane;
- motorcyclists that hold an unrestricted, full or open licence are permitted to safely lane-filter between stationary or slow moving traffic travelling at 30 km/h or less in the same direction; and
- motorcyclists may suddenly swerve or slow down to avoid road hazards.

## Sharing the road with pedestrians

Please look out for pedestrians whenever you're behind the wheel.

- Always be ready to stop near schools, bus stops and pedestrian crossings.
- Be careful when driving past parked vehicles. Pedestrians may walk out without warning.
- You should slow down to 20 km/h when passing or coming towards a school bus that has stopped to let children on or off, no matter which side of the road you are on.
- Watch out for elderly people or people with disabilities.
- Take special care near roadside stalls and parked vendors. Pedestrians visiting these may forget to watch for traffic when crossing the road.

People who are blind or vision-impaired often use aids such as a white cane or a guide dog. When drivers see people with these aids trying to cross the road, they should take extra care and let them cross in their own time.

## Vehicle controls

### Spring brakes or 'Maxi-brakes'

Most fully air-braked vehicles on the road are equipped with spring-loaded parking brakes. These brakes rely on air pressure to hold them in the OFF position. See this section on Brake failure.

### Trailer brake

Some vehicles are fitted with a hand operated trailer brake. This is a separate valve operated by hand which applies the trailer brake independently of the footbrake. The trailer brakes must not be used for normal braking as they will wear, overheat or burn out, and lose their effectiveness completely. A trailer with ineffective brakes attached to a towing vehicle with effective brakes can cause it to jack-knife or rollover under heavy braking.

**A trailer hand brake may be applied if necessary to prevent the vehicle from rolling backwards and to avoid transmission shock load when moving off on a hill. Trailer brakes are not parking brakes and should not be used as such.**

### Controlling speed

- Brake early and gradually.
- Where possible, brake when your vehicle is driving in a straight line.
- Allow for the weight of the load – a loaded vehicle takes far more braking effort to slow down than an unloaded one.
- Brake according to the road surface – allow more braking distance if the road is gravel, steep or slippery.
- Ease off the brakes as the vehicle slows down.
- Always test the brakes immediately after driving through deep water as wet brakes do not perform well.

The service brake should be used under all normal conditions.

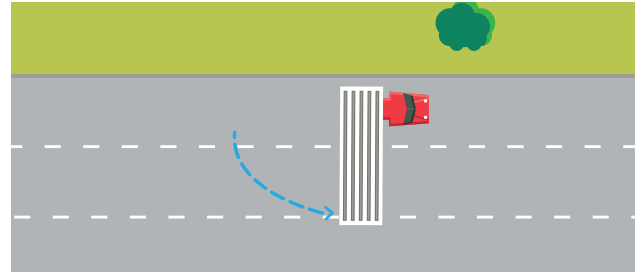
### Brake failure

Brakes kept in good condition rarely fail. Most brake failures occur because of:

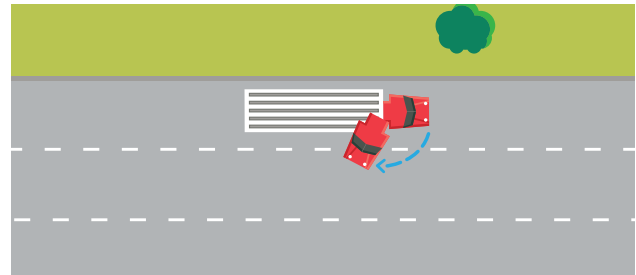
- loss of air pressure
- loss of hydraulic pressure
- brake fade (boiling of hydraulic fluid) on long hills
- bad driving practices
- poorly maintained brakes.

### Jack-knife and trailer swing

You can reduce the chances of jack-knife or trailer swing by making sure that all brakes and tyres are in good condition and that the load is evenly distributed between axle groups. You should be especially careful in wet weather.



Trailer swing is where the trailer slides dangerously.



A jack-knife is where the trailer and prime mover lock against each other.

### Loss of pressure in air brakes

Whenever you drive, make sure there is enough air pressure for at least five brake applications. Air brakes can fail because of a leak in the air lines or over-use. Stop immediately if the low air pressure warning device comes on. You should stop by gearing down until the vehicle is slow enough to apply the brakes.

Most vehicles fitted with full air system brakes are usually fitted with spring parking brakes, also known as maxi-brakes, where air pressure is required to keep them off.

On some older vehicles the spring brakes may come on when the air pressure is very low. You should monitor the air pressure gauges often as low air pressure can happen anytime. When the gauge shows low air pressure, release the brakes at least twice, so you can move the vehicle to a safe area.

### Loss of hydraulic brakes

What to do if your hydraulic brakes fail:

- change down gears
- pump the brakes – sometimes pumping them can partially restore hydraulic brakes
- use the emergency parking brake.

## Basic driving techniques

### Hills

If you lose control of your heavy vehicle on a steep road the result could be deadly, you could kill or cause serious injuries to yourself or others.

Throughout parts of Australia the gradient and length of some descents, truck and bus drivers must limit their speed to avoid brake fade/loss and to maintain control of their vehicle. These descents may incorporate a safety ramp to provide drivers who have lost control of their heavy vehicle an opportunity to slow or stop their vehicle safely away from other vehicles on the road.

When you are driving a truck or a bus on a road with the sign 'trucks and buses must use low gear', you must drive in a gear that is low enough to limit the speed of your vehicle without using the primary (foot) brake. Look out for the warning signs that alert you to steep descents.





As soon as you see the 'trucks & buses must use low gear' sign, you must start slowing down and switching to a low gear. This means you will be using the right gear before starting to descend, and will not need to use the primary brake when driving down the hill.

You should always drive down hills at a safe speed appropriate for your vehicle and load. This may be below the signed speed limit for the descent.

#### Before going down a hill

Reduce speed and select the correct gear before beginning the descent. It is very important to select a gear low enough to slow down the vehicle.

**If you try to gear down but you miss the gear, stop the vehicle with the brakes immediately, then select the correct gear. Attempting to coast while you struggle with the gears is very dangerous. Do not try to change gears while going downhill as you can lose control of the vehicle.**

#### Braking going down hills

Brake failure can be prevented by good driving technique.

If you use the brakes to slow a vehicle travelling downhill it can cause overheating. This leads to brake fade, or brake burn-out in which the brake linings completely lose their grip and are no longer effective.

#### Going down hills

- Select a gear low enough to slow down the vehicle without the constant use of brakes.
- If you miss the gear when trying to gear down, stop the vehicle with the brakes immediately, then select the correct gear. It is very dangerous to coast while you struggle with the gears.
- Use auxiliary brakes to help control the vehicle speed.
- Reserve your service brakes for coping with emergencies, traffic conditions or sharp corners.
- Try to brake on straight sections of road where possible as this reduces the chance of skidding.
- Avoid fanning (repeatedly applying and releasing) the brakes as this leads to an increase in brake temperature and failure due to brake burn out. In air brake systems, fanning wastes compressed air, reducing the reserve available for an emergency.

#### Going up hills

- Shift down early to prevent engine 'lugging'. Lugging is shuddering or excessive vibration in the engine.
- Use engine torque (the turning force available at the crankshaft) efficiently. Do not let engine revs fall below the maximum torque speed.
- Shifting down two or more gears at once may be necessary when going up a steep hill.

### Before entering a sharp curve

Reduce speed and select the appropriate gear before you enter the curve. The gear you select should have the engine revs near the maximum torque level as specified by the engine manufacturer, allowing you to accelerate smoothly out of the turn.

### Slowing and stopping

When slowing or stopping a heavy vehicle it is best to use your brakes only. However, when driving down a steep hill it may be necessary to remain in a low gear to control the vehicle's speed.

Never drive out of gear (coasting). This is extremely dangerous and can lead to loss of vehicle control and overheated brakes.

**You must select a low gear before commencing steep descents.**

### Animals and vehicles

A driver or passenger must not lead an animal including by tethering while the vehicle is moving.

Animals that are being transported must be housed in appropriate areas.

Domestic animals travelling in the cab of a heavy vehicle must be seated or secured in an appropriate area. Drivers must not drive with an animal in the driver's lap

### Road conditions

The edges on some sealed roads may be soft, so take care if you leave the bitumen. Reduce speed before nearing the road edge and be cautious of edge drop offs, 'washaways' and loose stones.

Unsealed road surfaces can vary from gravel roads to graded natural surface (dirt) roads. Take extra care when driving on unsealed roads with loose or shifting surfaces, which is more hazardous than driving on bitumen roads because controlling the vehicle and braking is more difficult.

Unsealed roads and dirt tracks can often have corrugations a series of regular bumps or ripples with shorts spacings in the road surface.

Always be cautious when driving on corrugations and slow down when rounding curves as speed may cause loss of traction and control of your vehicle or trailer, and significantly increase your braking distance.

Dust on unsealed roads could obscure your vision and conceal ruts and potholes; slow down or pull off the road and stop until the dust settles. Leaving your headlights on will help other vehicles see you through the dust.

Slow down on corrugated surfaces as they can cause the wheels to bounce and lose traction. Watch for approaching vehicles throwing up stones that could break your windscreen.

## Driving in wet conditions

Wet roads reduce tyre grip and can result in loss of control.

You should drive at a speed that allows you to brake gradually and stop within the distance you can see. The safe speed for your vehicle and its load may be much lower than the posted speed limit.

To avoid skidding, slow down when approaching corners and select an appropriate gear to maintain vehicle control without the need for braking.

Some roads in the Northern Territory are prone to flooding. If you come across a flooded road:

- check the depth
- do not drive through water at speed- fast flowing water can be like hitting wet concrete
- be aware that if you cannot see the road surface, obstructions may be present or wash outs may have occurred. If in doubt do not cross
- fast flowing water can make your vehicle or trailer float. If in doubt do not cross
- be alert for crocodiles as they inhabit many waterways in the north
- wait until the water level drops.

Never attempt to cross a flooded road where there are 'road closed' signs or other traffic controls in place indicating that the road is impassable.

If attempting to cross and you cannot see the line markings or the road, use roadside markers and guide posts to help you stay on track.

## Reversing

When reversing a heavy vehicle, you must:

- activate hazard warning lights before starting to reverse
- avoid unnecessary reversing. Plan ahead to use the shortest possible reversing distance
- use another person to guide you whenever possible. You should be able to see the guide who should have a clear view of where your vehicle is going
- get out and have a look if you are not sure what is behind you.

Reverse your vehicle into position in a driveway or loading dock wherever possible. Although you may need to hold up traffic while you reverse, it is much safer to drive forward into traffic as you leave.

## Fires

To minimise the risk of fire:

- make regular checks of the vehicle during your trip
- follow recommended vehicle operating rules
- check the instruments and mirrors as part of your regular scanning routine.

If there is a fire in your vehicle:

- keep vehicle well away from anything else which may burn
- notify emergency services (dial 000)
- use the correct fire extinguisher
- if the trailer is on fire, and it is safe to do so, uncouple the prime mover and move it away
- if the engine is on fire, try not to open the engine bay any more than necessary. Spray the fire extinguisher through grilles, or from the underside of the vehicle
- where the load is on fire in an enclosed load space or trailer, open the doors slowly and only far enough to let you use the extinguisher properly.

