

3

Basic Driving Skills



This chapter includes information on basic skills, driving in traffic and vehicle and personal safety.

Fast Fact

More than 27 per cent of all greenhouse gas emissions in Canada are produced by the road transportation sector. Heavy-duty vehicles account for 19 per cent of this total.

Good safe driving habits can reduce fuel consumption by as much as 30 per cent, save thousands of dollars a year in fuel and maintenance costs, and reduce emissions.

For more smart ways to be fuel-efficient, visit Natural Resources Canada's Office of Energy Efficiency Web site at www.oeenrncan.gc.ca or call 1-800-387-2000.

What You'll Learn

After studying this chapter you will be able to:

- ☐ describe various techniques for driving safely in traffic
- ☐ define the term danger zone and describe how to reduce the size of your danger zone
- ☐ describe the factors that affect your vehicle's turning characteristics and techniques to help you turn safely
- ☐ describe how to back up safely
- ☐ describe when and how to shift gears
- ☐ describe how to handle each of the following special situations: passing and being passed, parking, intersections, crossing railway lines, various weather conditions and night driving
- ☐ identify potential vehicle and personal safety issues and describe how to reduce risks for yourself and other road users

Sharing the Road

When you are driving with other vehicles on the road, it is important that you know how to follow safely, deal with tailgaters and identify your danger zone. The following sections provide information that can help you drive safely when there are pedestrians, cyclists and other vehicles on the road. This chapter will also further develop the road safety topics introduced in Chapter 2.

Following distance

You can establish a safe following distance using different rules. The rule you should use depends on the type of vehicle you are driving.

In all cases, rules for determining how closely you can safely follow another vehicle apply to ideal driving conditions. If one or more of the conditions listed below is less than ideal, you **should increase your following distance**. Driving conditions are affected by:

- road conditions
- vehicle conditions
- your physical and mental condition
- traffic conditions
- lighting conditions
- weather conditions

Taxi, limousine, ambulance or van

Drivers of passenger cars and light trucks should use the two-second rule for keeping a safe following distance. To use this rule:

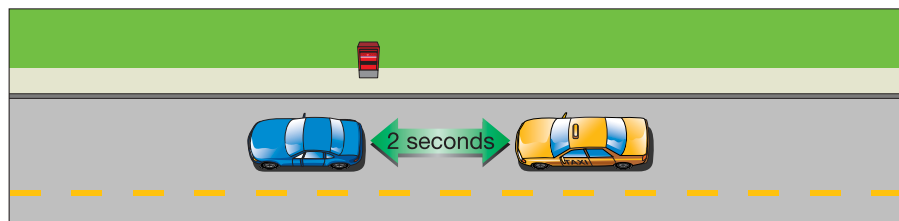
1. Watch the vehicle ahead pass some checkpoint on the roadway, such as an overpass or sign post.
2. Start to count: “One thousand and one, one thousand and two.” That’s two seconds.

If the checkpoint is reached before the count is finished, your following distance is not enough – drop back, pick a new check point and count again.

If you are following a motorcycle, you will need to leave even more space because motorcycles can stop quickly.

Lengthen your following distance on the highway and when road or weather conditions are poor.

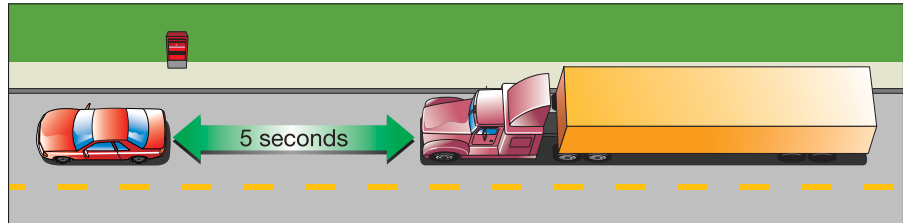
Remember to leave at least two seconds between your vehicle and the vehicle in front when driving a taxi, limousine, ambulance or van. Note that a mailbox has been used as a checkpoint in this illustration.



Bus, truck or other heavy vehicle

You need more time and distance to stop if you are driving one of these vehicles. Keep at least a five-second following distance behind the vehicle you are following.

Keep at least a five second following distance when driving a bus, truck or heavy vehicle.



When conditions are anything less than ideal, increase the number of seconds and adjust your following distance.

Traffic flow

Your travelling speed depends on driving conditions. One of the conditions you need to consider is traffic flow. You must try to match your travelling speed with the traffic flow while staying within the speed limit.

Definition

Traffic flow refers to the movement of a group of vehicles travelling on one road. The actions of any one vehicle within this group may affect several or all of the other vehicles.

Driving faster than the flow

If you drive faster than the traffic flow, you increase your chance of crashing into vehicles in front of you. When you drive faster than the traffic around you, several things happen:

- You won't be able to maintain a safe following distance, which means you will be unable to stop quickly and safely.
- You increase your chance of making a wrong decision. Driving faster than the traffic around you requires more lane changes. Each lane change represents a problem that requires quick decision making. The more decisions you make, the greater the chance you will make a wrong one.
- You will tire more quickly. Driving faster than the traffic flow creates tension and causes mental and physical fatigue.

Maintaining a steady speed, within legal limits, at a safe following distance will help give you the time needed to react in an emergency situation. Driving at a steady speed will also save money and help the environment by reducing the amount of fuel your vehicle burns.

Driving slower than the flow

If you travel more slowly than the traffic flow, you increase your chance of a collision with vehicles travelling behind or beside you. Other drivers will become impatient and follow too closely or try to overtake your vehicle. After passing, they may cut in leaving you with little or no room for a quick stop.

Large vehicles tend to accelerate and travel at speeds that are slower than those used by small vehicles. When you are unable to keep up with the traffic flow you must travel in the right lane.

As a driver of a large vehicle, such as a bus, truck or tractor trailer, you must rely on outside mirrors for your rear vision. Tailgaters often sit in the blind spot directly behind large vehicles so you may not be able to see them.

It may not always be possible for you to prevent a rear-end collision caused by these drivers, but if stops are gradual, the impact may be much less.

Tailgaters

Tailgaters are easiest to deal with when they are in front of you. It is a good safety practice to allow tailgaters to pass. Watch for these drivers by checking your rear view mirror frequently.

When you drive a large commercial vehicle on a highway, you must leave at least 60 metres (200 feet) between your vehicle and other large commercial vehicles.

You should always use the right lane when you are travelling more slowly than other traffic and are going up or down a hill where a passing lane is provided. In some cases, signs require slower drivers to keep to the right lanes.

Vehicles may build behind you when you are driving on a one-lane road and travelling more slowly than other traffic, such as when going up a hill. Allow them to pass as soon as it is safe.

It is a good safety practice to use your four-way flashers when you are driving slowly up or down a hill. Some companies have a policy that requires their drivers to do this.



A Slow Moving Vehicle warning device

Vehicles, machinery or combinations of vehicles that travel at less than 40 kilometres per hour should display a red triangle Slow Moving Vehicle sign. You should not put this sign on any stationary object or on any vehicle that is travelling faster than 40 kilometres per hour.

Danger zones

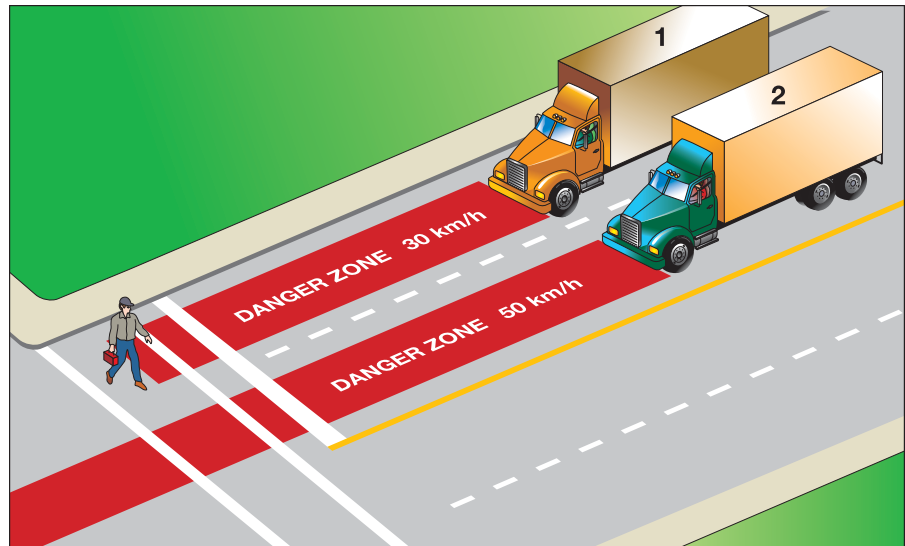
The section of road through which a vehicle must travel before it can stop is called the vehicle's danger zone. It is physically impossible for you to stop in time to avoid a collision with any object or person that may enter your danger zone.

As your speed increases, the length of your danger zone increases. Less than ideal road conditions, such as rain, snow, ice or gravel, increase the length of your danger zone. Driving your vehicle at a fast speed in these road conditions increases your danger zone even more.

Truck number 1 is approximately two and one-half vehicle lengths from the crosswalk when the driver sees the pedestrian. Under ideal conditions, the driver may be able to stop just in time.

The driver of truck number 2 cannot stop in time, even under ideal conditions.

See **Speed and weight facts** in **Chapter 2**.

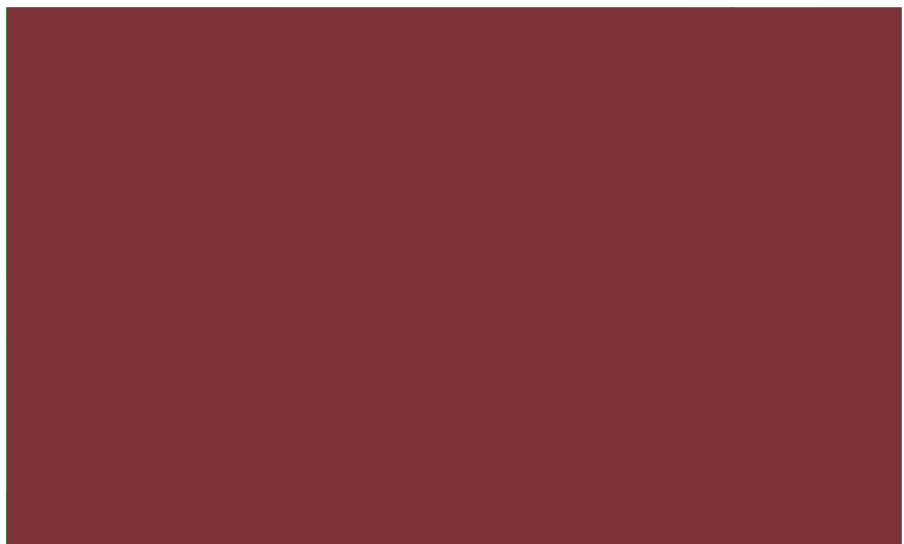


Reduce your danger zone by slowing down.

You need more room and time to stop if your vehicle is heavy, if your brakes are in less than perfect condition or if the road surface is less than ideal.

Remember, it is easier to keep out of trouble than it is to get out of trouble.

Your danger zone is reduced when your vehicle's speed is reduced. You also reduce your danger zone when you cover the brake pedal with your foot any time you see a potential hazard developing (e.g., whenever you approach an intersection).



By removing your foot from the accelerator and putting it lightly on the brake pedal when you first see a potential hazard in your danger zone, the time you need to react is reduced. With your foot off the accelerator, your speed is slowing so you have a better chance of stopping before the crosswalk rather than in the intersection.

Maneuvering

There are many different types of commercial vehicles and each type has its own driving characteristics. In most cases, commercial drivers operate vehicles that are larger, heavier and longer than those driven by other drivers on the road. The extra size, weight and length affect the way these vehicles move, especially around turns and while backing up.

Steering into turns

Steering and handling characteristics are different for conventional, cab-over and forward-control vehicles.

In a conventional design the driver's seat and steering wheel are positioned behind the steering axle. In a cab-over design the driver's seat is above the steering axle, and in a forward-control design the driver's seat is in front of the steering axle. The position of the driver's seat is different in each of these configurations, which affects your viewpoint when turning. You will start your turn at a slightly different point on the turning path depending on the type of vehicle you are driving (conventional, cab-over or forward-control).

These steering differences are apparent even in small vehicles. In large and long vehicles the differences are magnified. The length of your vehicle and the number of articulation points it has will also affect where you start your turn. You will notice these differences and must account for them when you switch from one type of vehicle to another.

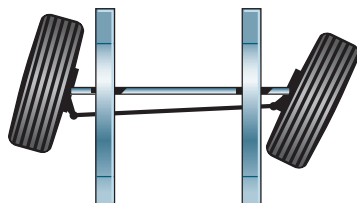
Wheel positions during turns

The basic principles for steering a large vehicle are the same as those for steering a passenger vehicle. However, actually steering a large or combination vehicle can be much more complicated.

As the operator of a large vehicle, you will need to consider two factors which determine the sharpness of your vehicle's turn: the turning radius of the front wheels and the amount of off track of the rear wheels.

Turning radius

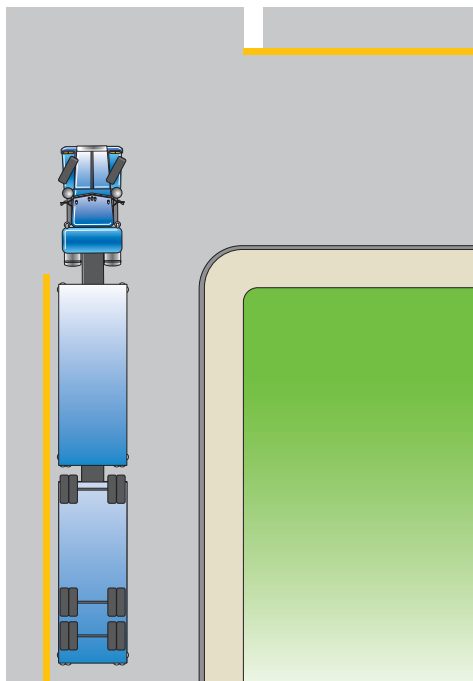
How sharply you can turn the front wheels of your vehicle depends on the make and model of the vehicle you are driving. In all cases, the wheel on the inside of the curve (closest to the direction you are turning) will turn more sharply than the wheel on the outside of the turn. The inside wheel will have a shorter turning radius than the outside wheel.



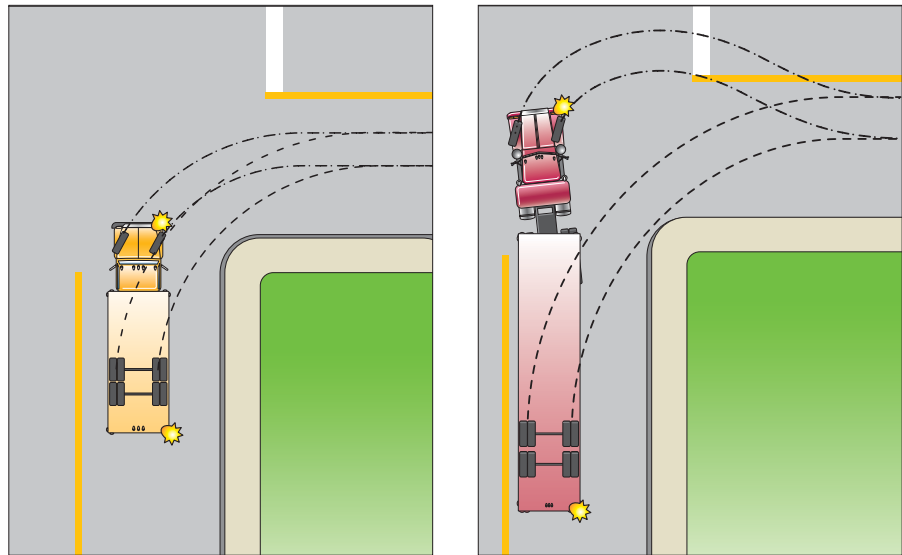
The wheel on the inside of the turn must pivot more sharply to travel on the shorter radius than the wheel on the outside of the turn.

The radius is the distance from the centre of a circle to the edge of the circle. When a vehicle turns a corner, it is travelling on a curve. If that vehicle were to continue on the same path, it would eventually drive in a complete circle. The distance from the centre of that imaginary circle to the vehicle's wheel is the turning radius.

A vehicle's rear tires have a different turning radius than its front tires. It is important to know how to judge the turning radius of your front tires to prevent your vehicle's rear tires from cutting the corner.

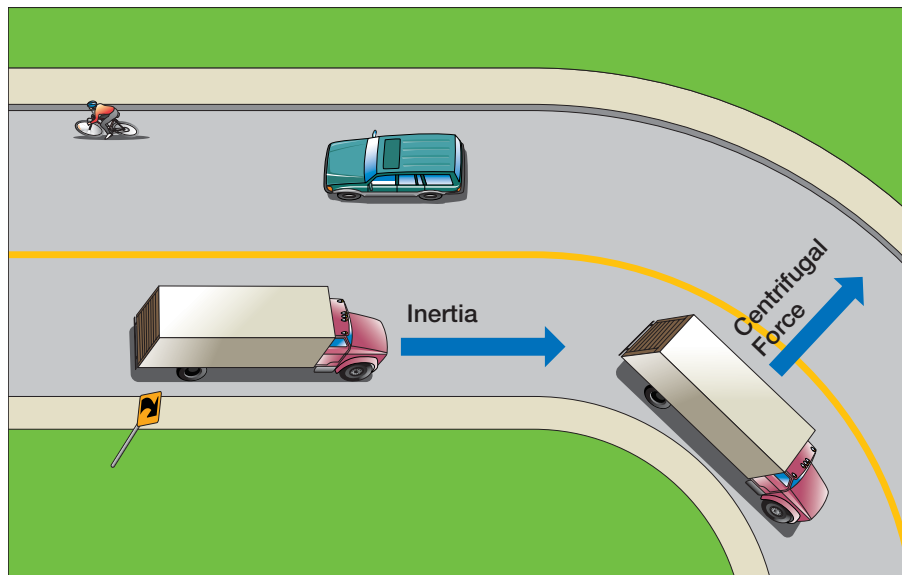


A single-unit vehicle and a truck-tractor and semi-trailer demonstrate different turning characteristics.



A single-unit vehicle has different turning characteristics than a truck-tractor and a semi-trailer. Each unit that has more than one set of wheels will have a turning radius and an off-track pattern within itself. The amount of off track is dependent upon a number of factors including the wheel base of the units and the location of the pivot points between the truck and trailers (e.g., draw bar connection point or location of the fifth wheel). The longer the wheel base, and the longer the draw bar length or the farther back the fifth wheel is mounted, the greater the amount of off track.

Centrifugal force and inertia affect a moving vehicle when it is entering a curve.



Curves and turns

There are several forces that work against you while you move your vehicle around a curve or through a turn. You need to be aware of these and approach each curve at a speed that allows you to safely control your vehicle.

Definition

Traction is the grip created between a vehicle's tires and the road.

Fast Fact

Tires that are in poor condition provide poor traction.

Inertia is the tendency for moving objects – in this case you and your vehicle – to continue to move forward in a straight line. When you brake, inertia tries to keep your vehicle moving. When you go around a curve, inertia tries to keep you going in a straight line. The faster you are going and the heavier your vehicle, the more inertia will make it difficult for you to move your vehicle off a straight path.

Centrifugal force, affected by inertia, will also be acting on your vehicle as you turn. This force pushes your vehicle away from the path of the curve. The faster you are travelling, the more difficult it will be to keep your vehicle on the path of the curve.

Traction is the grip your tires have on the road. The amount of traction your tires have with the road's surface determines the amount of control you can maintain over your vehicle. If you enter a curve too quickly and try to slow down by applying your brakes, you may lose traction, causing your vehicle to skid, roll over or jackknife.

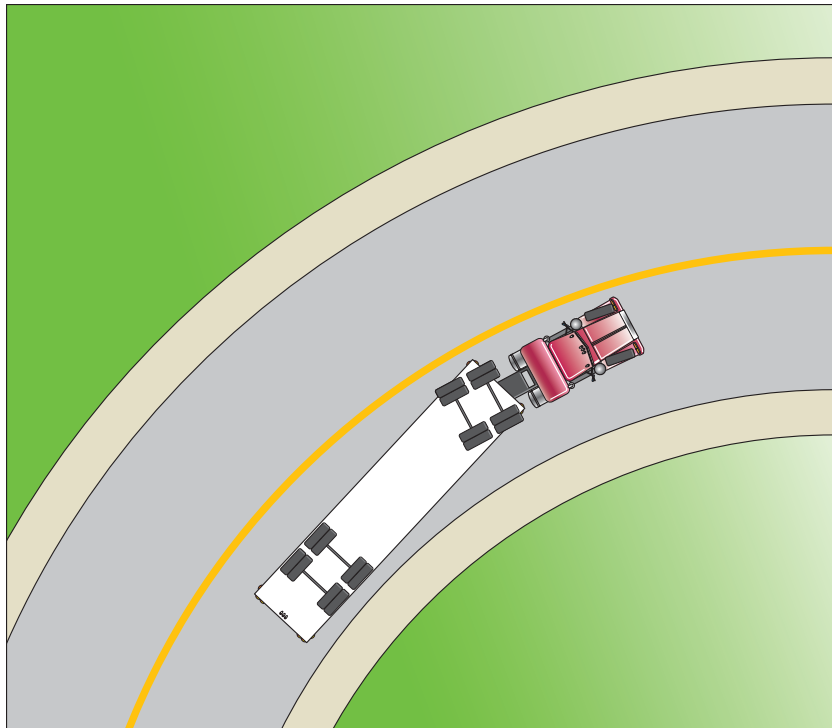
Reduce your speed before you enter a curve. Enter each curve at a speed that does not require you to brake and does allow you to apply gradual power while you are in the curve. Some curves have suggested speed signs – obey these signs to avoid tipping over.

Curves

When you curve to the right, take care to keep the front wheels close to the centre line so that your rear wheels do not drop off the pavement or go onto the pavement shoulder.



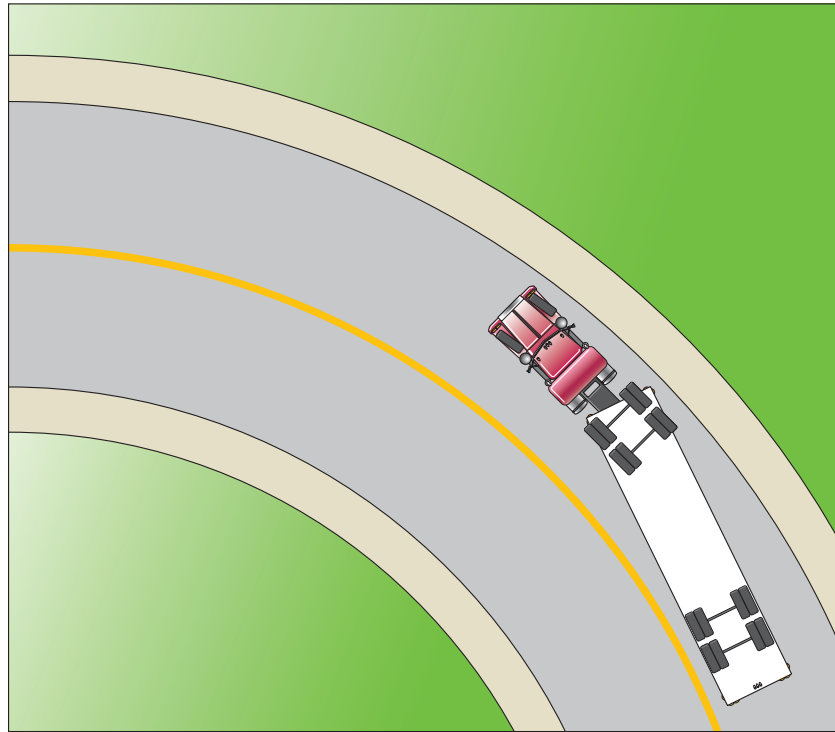
Position of a tractor and semi-trailer's wheels when turning to the right.



When you curve to the left, keep the front wheels close to the right edge of the lane to keep your driver's side rear wheels out of the next lane of traffic.



Position of a tractor and semi-trailer's wheels when turning to the left.



Always watch for signs warning of curves and turns, and adjust your speed and approach so that you can safely drive through them.

Negotiating narrow bridges

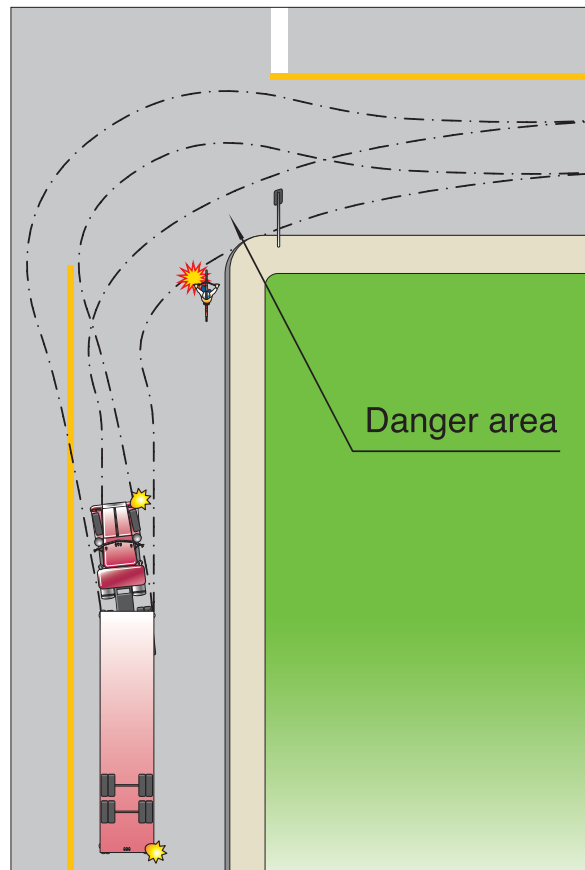
Entering a narrow bridge with a curved approach requires the driver of a large unit to exercise caution and skill. You must be familiar with the amount of off track your vehicle displays and you must use this information to adjust your speed and approach to the curve so that you can enter the bridge safely.

Turning right

When you are operating a vehicle with a lot of off track and about to turn right at an intersection, be certain you make your turning arc large enough to give your trailer room to follow.

If the turning arc of your front wheels is too small, off tracking may cause the back wheels of your trailer to scrape the curb or even leave the road. You will almost certainly crowd anyone, such as a cyclist, who is travelling on your right side. Running your rear wheels over curbs and sidewalks will damage your tires and could seriously injure pedestrians and cyclists. You may hit a power pole, sign post or lamp standard if your vehicle does not have enough room to turn. This type of collision can damage your vehicle, as well as the object it hits.

Combination vehicles take more room to turn than single vehicles. Be aware that cyclists and small vehicles can unknowingly enter the danger zone along the right side of your vehicle. Also allow yourself enough room to make the turn so you don't accidentally drive up onto the curb and hit an object such as a lamppost as the vehicle shown in this illustration is about to do.



If the streets are narrow, you will need to move well into the intersection before beginning your turn. You may need to travel over the centre line of the street you are entering. Another option may be to move into the lane of traffic on the left of your vehicle. When a street's narrow width forces you to cross the centre line or block an additional traffic lane, use extreme caution and ensure the movement can be made safely.

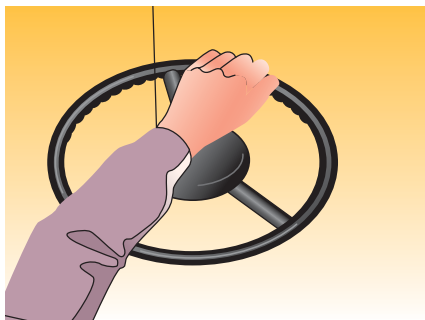
Check whether smaller vehicles, motorcycles or cyclists are on the right side of your vehicle whenever you make a right turn. The most dangerous point in a turn is when the tractor has made the turn but the trailer has not. At this point the right rear-view mirror is turned so that it is almost useless.

Make your turns from the proper lanes wherever possible. When it is necessary to move your vehicle outside your lane to negotiate a sharp turn, it is your responsibility to be certain you can move safely without holding up traffic.

Sharp right turns

To make a sharp right turn (particularly with a forward control vehicle such as a bus):

1. Position the vehicle one to two metres from the curb on the approach to the intersection.



Turning left

Turning left from a one-way street into a one-way street is similar to making a right turn. In both cases, you must ensure your vehicle's turning arc is large enough to keep the rear wheels of your vehicle from running over or scuffing the curb. In this case, the concern is with the left rear wheels. As with right turns, it is important to check for pedestrians and cyclists before initiating your turn.

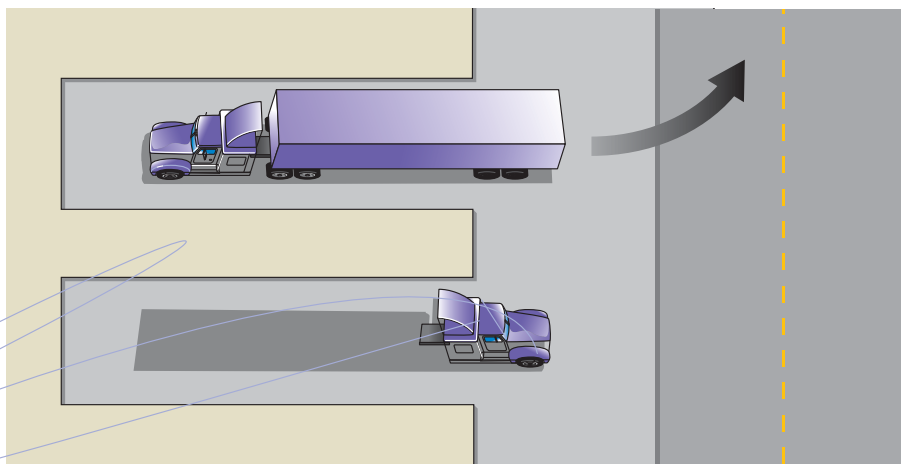
Backing up

Backing up is a maneuver that must always be done with extreme caution. With few exceptions, you will be responsible for any crash that happens when you are backing up. This maneuver becomes dangerous any time you don't make certain the way is clear. You may have to check several times to be sure the way remains clear during the entire maneuver.

Investigations of crashes that involved a backing-up vehicle show that these crashes are usually caused by drivers who did not see something they should have seen.

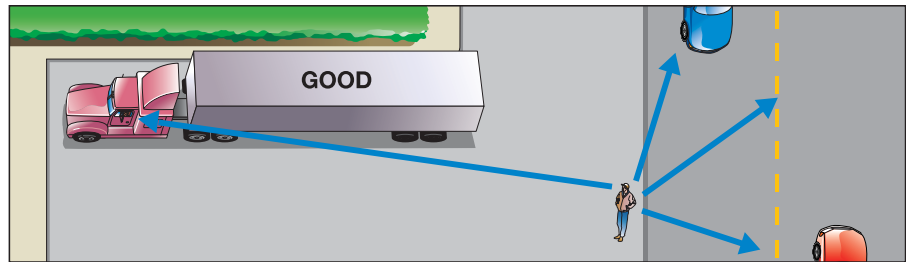
You can reduce the risk of causing a backing-up crash if you follow these tips:

- Avoid backing up whenever possible.
- If you must back up, plan ahead to minimize the distance.
- Be certain that the area you are backing into is clear.
- Use a person to guide your vehicle whenever possible. If you cannot use a guide, get out of your vehicle and walk completely around it before you start to back up. Repeat this every vehicle length.
- Sound your horn at least once every vehicle length to warn other road users that you are about to move.
- Back your vehicle out of traffic rather than into traffic.





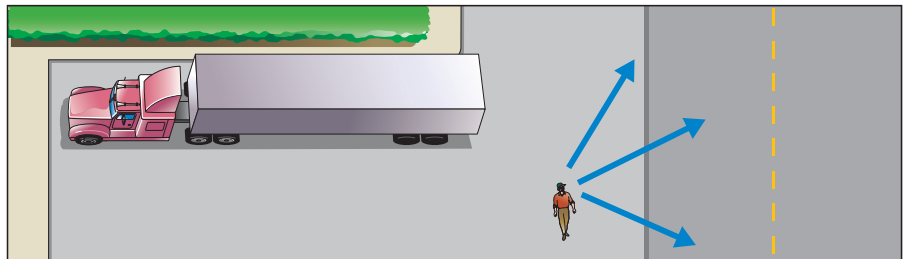
In this illustration, the driver can see the guide and the guide can see in all directions.



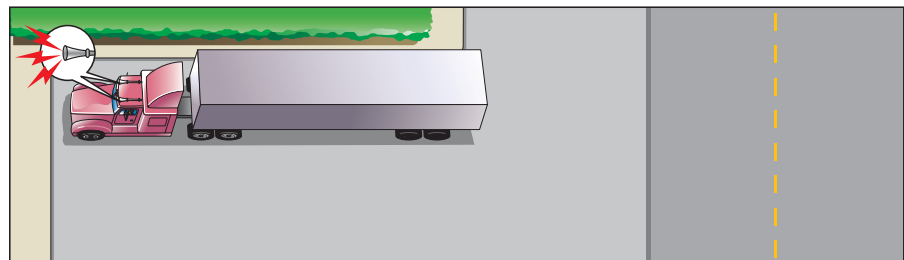
Backing up without a guide

Use the following safety practices whenever you back up a vehicle without help from a guide:

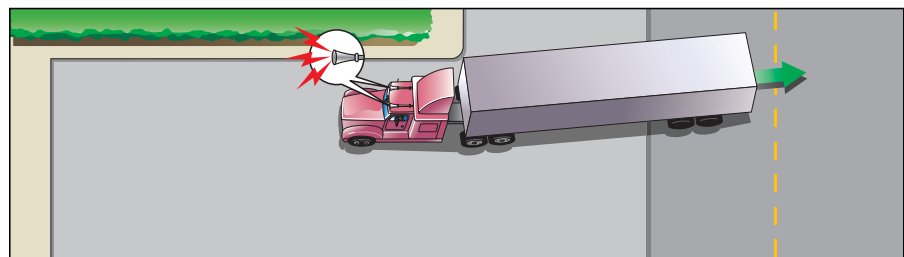
1. Step out of the vehicle and check the backing-up area for hazards. Look for clearances and obstacles above, below, to the sides, to the rear and to the front of your vehicle.



2. Enter the cab, sound your horn and watch both mirrors as you back up very slowly. A good practice is to sound the horn for each vehicle length you travel.



3. Stop, exit the cab and recheck behind, above, below, to the sides and ahead if you are backing up a long way. A series of short backing up maneuvers is safer than one long one.



If a guide is unavailable to assist you, be sure to follow all of the steps described in this section to ensure you back up your vehicle in a safe manner.

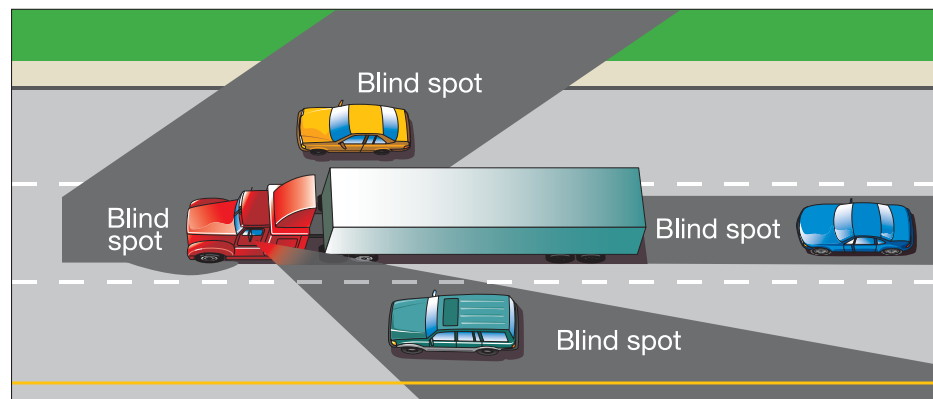
Seeing and Being Seen

Large vehicles usually offer a better view of the road ahead and to the sides than passenger cars, but large vehicles also have dangerous blind spots.

Big windshields and a high seat position give you a good view down the road but immediately in front of your vehicle is an area where you cannot see anything. The longer the hood on your vehicle the longer the blind spot.

The higher seat position can also hide a car or pedestrian alongside of your vehicle, particularly on the passenger side. Large side mirrors provide a clear view of the road behind you except for the blind spot immediately behind every vehicle.

Check carefully for vehicles and bicycles that may be travelling in your blind spots. Pay particular attention in slow urban areas where cyclists often share the road.



Watch for other drivers who travel in any of your vehicle's blind spots.

Always stay far enough behind the vehicle you are following to allow you to make your stops in a smooth, gradual way, even if the vehicle ahead makes a panic stop. Giving yourself enough room to make gradual stops will reduce the likelihood of you hitting another vehicle. It will also allow you to give the drivers behind lots of notice that you are reducing your speed. This will reduce your chance of being hit by a tailgater.

Finally, never assume that the other driver has seen you. Many collisions have occurred because drivers did not see something the other driver expected them to see.

Using your mirrors

To drive defensively, it is important to know where your vehicle is in relation to other vehicles on the road. Scan the traffic ahead, behind and to your sides constantly. Look ahead for clues that will tell you whether other vehicles are about to change speed or stop. Frequent checks in your rear and side view mirrors will alert you to drivers who are passing or getting ready to pass you. These checks will also help you know whether there are vehicles behind you. Give all drivers plenty of warning whenever you are about to stop, change directions or change lanes.

Fast Fact

Convex or spot mirrors make things look smaller and farther away than they actually are.

Looking ahead

To become a defensive driver, you should develop the habit of watching the traffic well ahead of your vehicle. Look for traffic lights, turn signals, pedestrians and vehicles pulling into your lane or making other lane changes. Approach every intersection considering whether the lights are likely to change. When a light has been the same colour for some time it is said to be stale. When you approach a stale green light expect it to change before you reach the intersection. Be prepared to stop. Traffic lights are synchronized on some streets, so by driving at the posted speed you will make every green light. Adjust your driving speed to take advantage of this.

Lane use

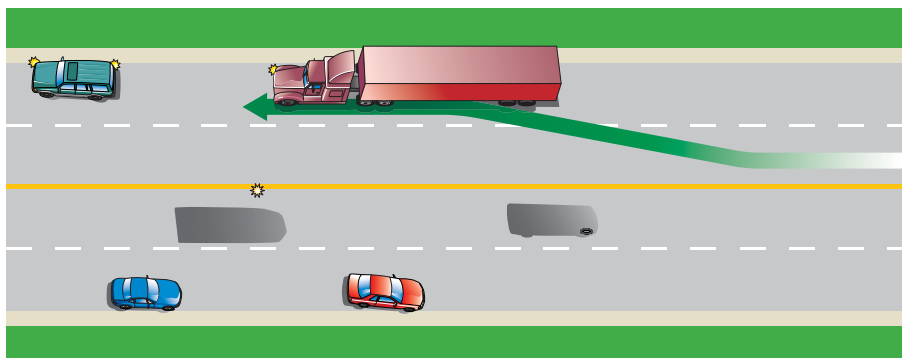
Look ahead for lane-use changes. By watching, you will be prepared if the lane you are travelling in comes to an end or becomes a turning lane. Be certain that you are in the lane that allows you to go where you want to go.

Emergency vehicles

Emergency vehicles, such as police cars, ambulances and fire engines, are equipped with flashing lights and or sirens. You must yield the right-of-way to vehicles that are using flashing red or blue lights and sirens (or other audible warning signals such as buzzers or horns). When you see or hear one of these vehicles, you must quickly:

- drive to a position parallel to and as close as possible to the nearest edge or curb of the roadway
- stop your vehicle clear of any intersection
- remain stopped until the emergency vehicle has passed

Do not assume that there is only one emergency vehicle on the road. Listen and look for others. When you resume driving, stay well back from the emergency vehicle(s).



Shifting Gears

You are probably familiar with operating automatic transmissions. However, as a commercial driver you may operate vehicles with manual transmissions that have 10 or more gears. Heavy vehicles are usually powered by diesel engines equipped with engine fuel governors.

You need the knowledge, instruction and practice to operate large vehicle transmissions smoothly. Before you start out on any trip, you also need to be familiar with the shift pattern and shift points of your vehicle.

There are many different manual transmissions used in commercial vehicles, so only general information is given in this guide. Consult your manufacturer's manual for more information.

Knowing how to shift gears

Most heavy vehicles with manual transmissions do not have synchromesh gears and so it is essential that you become skilled at double-clutching.

Double-clutching

Double-clutching means depressing the clutch pedal twice in the process of moving from one gear to another. Shifting gears by double-clutching requires practice. Shifting to a higher gear is called upshifting, and is done when you want to go faster. Shifting to a lower gear is called downshifting, and is done as you slow down. Upshifting and downshifting with double-clutching are performed slightly differently.

To upshift, follow these steps:

1. Release the accelerator pedal. Depress the clutch and shift to neutral at the same time.
2. Release the clutch.
3. Let the engine and gears slow to the r.p.m. needed for the next higher gear.
4. Depress the clutch and shift to a higher gear at the same time.
5. Release the clutch and depress the accelerator at the same time.

To downshift, follow these steps:

1. Release the accelerator pedal. Depress the clutch and shift to neutral at the same time.
2. Release the clutch.
3. Depress the accelerator to increase the engine speed to the r.p.m. needed in the lower gear.
4. Depress the clutch and shift to a lower gear at the same time.
5. Release the clutch while maintaining constant pressure on the accelerator.

Fast Fact

It may be difficult to shift to the next gear when the transmission is left in neutral too long. If this happens, do not try to force the shift. Instead, shift back to neutral, release the clutch and increase engine speed to match road speed. Then, try again.

Knowing when to shift gears

At any given speed the engine is developing both torque and horsepower. Torque is the ability of the engine to move the vehicle. Horsepower is used to develop speed. Peak torque is found at a lower engine speed than peak horsepower. The vehicle should be operated between the engine's peak torque and peak horsepower. This range is referred to as the normal operating r.p.m. range of the engine. To keep within the normal operating r.p.m. range, the transmission should be shifted according to the engine's peak torque and peak horsepower.

Shift the transmission progressively. To do this, use only enough torque to get the vehicle moving and then shift to the next higher gear.

Sometimes drivers can skip gears to achieve maximum speed more quickly.

Fast Fact

Lugging occurs when the engine is operated below peak torque for any length of time.

To shift gears smoothly, you must find the transmission's shifting range. A tachometer, which indicates engine speed, can help you decide when to shift.

Progressive shifting is recommended for many new vehicles with high-torque engines. The r.p.m. you need to shift at becomes higher as you select higher gears. For example, a manufacturer may recommend shifting from first gear to second gear at 1,200 r.p.m. and from fifth gear to sixth gear at 1,350 r.p.m.

Another shifting method is to use a standard r.p.m. split. For example, if the peak engine torque is at 1,500 r.p.m. and the peak horsepower is at 2,000 r.p.m., upshifting would be done by accelerating to 2,000 r.p.m., then double-clutching to enable the engine speed to decrease to 1,500 r.p.m., and then upshifting. This method may not be cost-effective and may be hard on modern engines. Refer to your vehicle manufacturer's guide book to decide which shifting method is best for you.

Shifting skills

This section will give you details about how to shift the gears of some common engines and how to shift gears on hills and curves. Large vehicles powered by gas or diesel have governors (speed controllers) which regulate the amount of fuel burned and engine r.p.m. Small vehicles do not have governors. The way you shift depends on whether your vehicle has a governor.

Fast Fact

If you need to apply the throttle with a diesel engine to move off with a loaded vehicle, you should be using a lower gear.

Shifting gasoline-powered (not governed) engines

To upshift a vehicle with a gasoline-powered engine, use the following steps:

1. Start in low gear. Use only enough throttle to start the vehicle moving.

Fast Fact

Shift patterns and characteristics vary depending upon the engine and transmission. Check your vehicle operator's manual for information related to your vehicle.



RoadSense Tip

Good safe driving techniques, such as progressive shifting, choosing the best driving speed, and proper braking techniques help to save fuel.

2. When the engine begins to accelerate, quickly shift to the next gear. Shift to higher gears as soon you have the power to do so.
3. As your vehicle's speed increases and you begin shifting into the higher gears, allow the engine to develop more power before each shift so the rate of acceleration increases.
4. As each shift is completed, engage the clutch smoothly, and at the same time engage the throttle. This allows for a smooth engagement and no shock on drive train components.

Shifting gasoline- or diesel-powered governed engines

An engine governor controls the amount of fuel going to the engine. In this way, it regulates the speed of the engine. A governor allows you to start a vehicle on level ground and on grades without using the throttle.

The secret to smooth operation is throttle control. Always squeeze the throttle, rather than stabbing or jabbing at it. This will result in smooth acceleration or deceleration through the gears, just like smooth braking is achieved by squeezing the brake pedal.

Use only enough power to shift the vehicle into the next gear. Depending upon your vehicle's weight and transmission gear ratios, you may be able to skip gears on down grades or level grades. Your engine's torque characteristics will indicate when you should shift to the next gear (usually this point is when the engine begins to accelerate quickly). As you complete each shift, engage the clutch smoothly to avoid shocking the drive train, load or passengers.

Multi-speed rear axles and auxiliary transmissions

Many large vehicles have multi-speed rear axles and auxiliary transmission features to provide extra gears. There are a wide variety of shift patterns and control locations. The vehicle operator's manual will provide you with more detailed information.

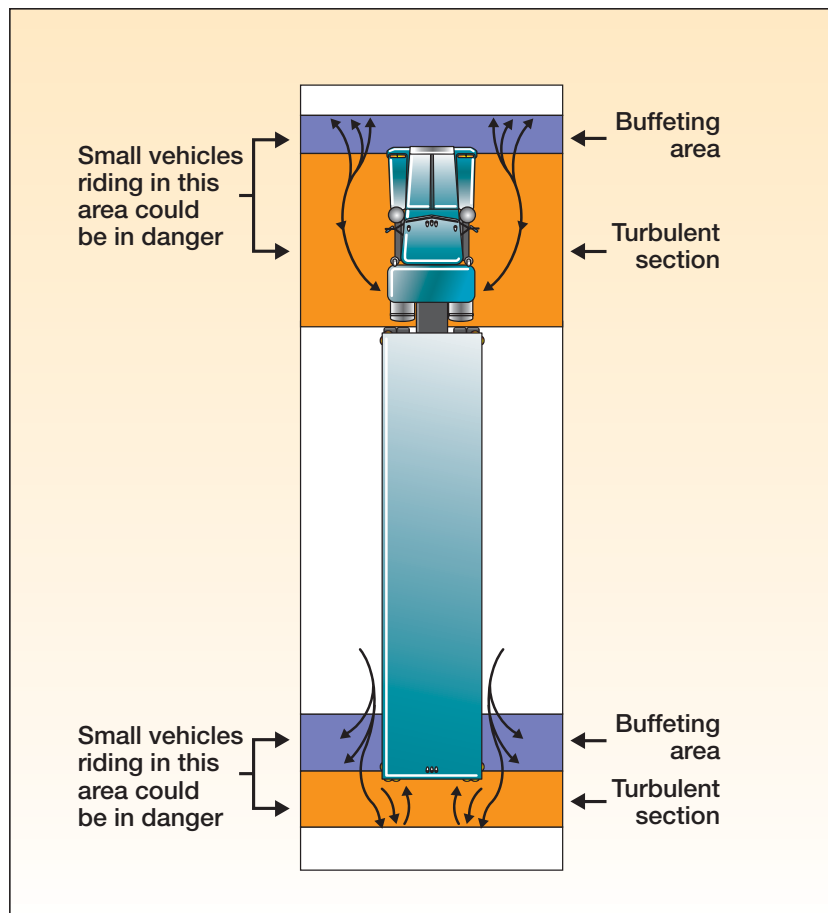
Entering curves

Before entering a curve, slow to a safe speed and downshift to an appropriate gear. An appropriate gear is one that allows you to use engine power all through the curve. This will keep your vehicle stable and provide good acceleration as you leave the curve.

Passing and Being Passed

Passing or being passed by a heavy vehicle is a very different experience than passing or being passed by a passenger car.

Large vehicles travelling at high speeds create varying degrees of air turbulence that can be hazardous to smaller vehicles. A car, bicycle or other road user travelling directly in front of a truck, alongside the cab, by the back area of the trailer or at the immediate rear of the trailer is in an area of air turbulence. Air turbulence is particularly dangerous to cyclists who are much smaller and are likely to be travelling more slowly than large vehicles. Take extra care to be aware of cyclists and give them enough room. The air turbulence from your vehicle can cause them to lose control. The larger your vehicle, the more wind turbulence it will create.



The areas of turbulence around a truck

Be alert for unsuspecting road users who ride in these areas. They may be forced off a narrow roadway or drawn into the side of your vehicle. If a smaller vehicle continues to ride in your area of turbulence, slow down until the vehicle moves and is out of your area of turbulence.

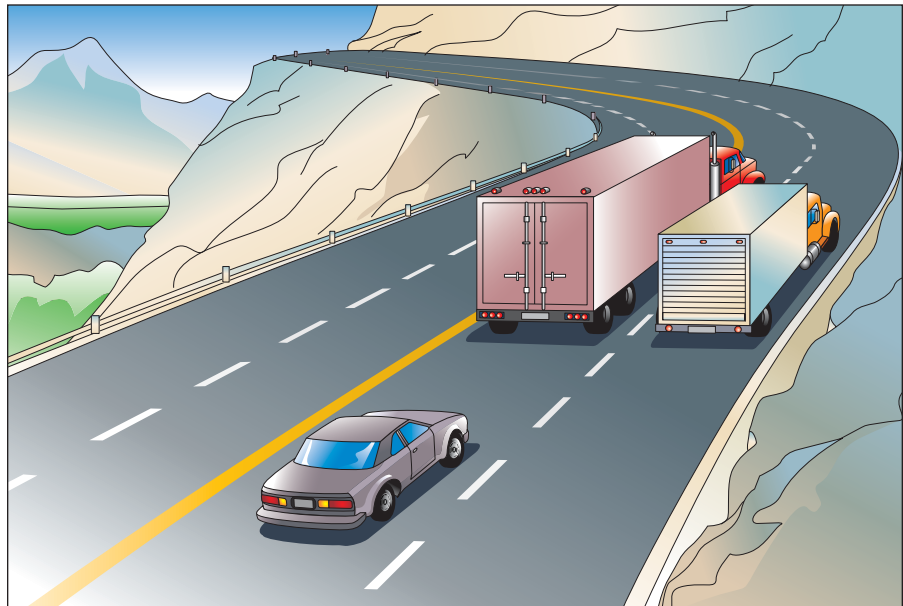
Passing

Large vehicles are noisier than passenger vehicles. Their bigger size and louder noise often make other drivers think these big vehicles are travelling faster than they actually are. When you overtake or pass passenger vehicles, observe the speed limit carefully and guard against startling inexperienced or nervous drivers.

You should use your four-way flashers to warn other drivers if you are unable to keep up with traffic. In some areas, road signs such as the one shown in this illustration are posted as a reminder.



Other drivers often become frustrated when a commercial vehicle holds them up as it passes another commercial vehicle that is driving at almost the same speed. If the passing truck occupies the fast lane when it is not absolutely necessary, the traffic behind may be forced to reduce speed. The result may be traffic congestion, which is a hazard on freeways and fast highways.



The truck in the fast lane is blocking a faster-moving passenger vehicle.

Being passed

Do not direct other drivers to pass. If you do so, you may be encouraging them to risk a pass they are not skilled enough to safely complete. However, when other drivers indicate they want to overtake your vehicle, help them to pass safely. Reduce your speed and give them room.

Fast Fact

Never use a trailer hand valve to hold a unit that will be left unattended. Over time the air may drain away and the brakes may then release.



RoadSense Tip

You may need to leave the engine idling for three to five minutes to let it cool down after driving on the highway. Leaving it idling for any longer than that wastes fuel and increases emissions.

This will also reduce maintenance costs, as fuel injectors can become clogged when an engine is idling for too long.

For the first hour, the engine will actually stay warmer if it is turned off.

Fast Fact

Spring brakes are effective only when brakes are correctly adjusted.

Parking

It is important to ensure your vehicle stays in place when parked. Use the following precautions to prevent a runaway vehicle:

- Set the parking brake in the tractor.
- Place the transmission in the lowest forward or reverse gear or park. If the vehicle is equipped with main and auxiliary transmissions, place both in gear.
- If the vehicle is equipped with a two-speed axle, the axle must be in low range.
- Apply the parking brakes on both the tractor and trailer.
- Most trailers equipped with air brakes also have spring brakes. If your trailer does not have spring brakes, apply the trailer brakes and block the wheels – over time, the air pressure may bleed down and may cause the trailer brakes to release.
- If you are parking a single-unit vehicle on an upgrade with a curb, turn the wheels towards the centre of the road.
- If you are parking a single-unit vehicle on an upgrade with no curb, turn the wheels towards the edge of the roadway.
- If you are parking a tractor-trailer unit on an upgrade with or without a curb, always turn the wheels towards the centre of the road.
- If you are parking any vehicle on a downgrade, always turn the wheels towards the edge of the roadway.
- Stop the engine. Lock the ignition and remove the ignition key.
- You should block the wheels of any large vehicle parked on even a slight grade.

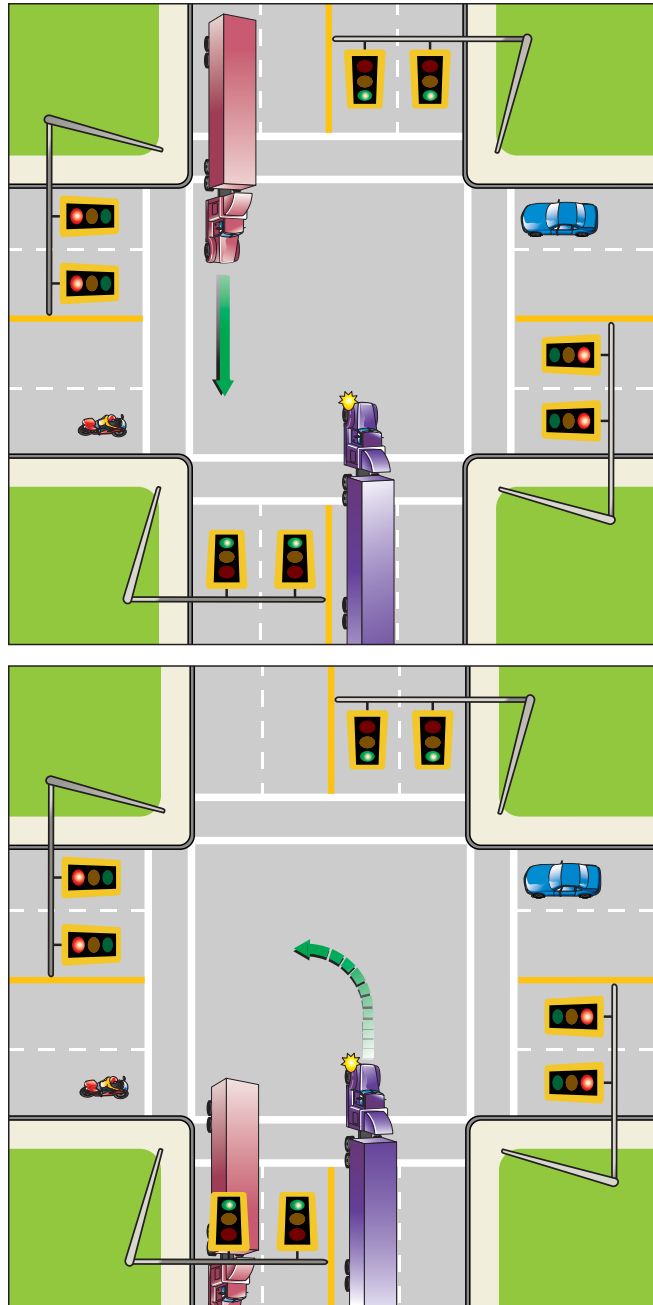
Crossings

Drivers must be constantly aware of the vehicles ahead, behind and beside them. You must pay particular attention to the vehicles, cyclists and pedestrians you meet at the various crossings you drive through. The following sections offer information about the best driving practices at intersections, alleys, lanes and railway crossings.

Intersections

The area where two or more streets meet is the place where drivers are most likely to be confused. Knowledge of the right-of-way rules (found in *RoadSense for Drivers*) is essential for all drivers. But do not depend on other drivers to obey these rules. Reduce your risk of a collision in an intersection by following these common sense practices:

The red truck has the right-of-way in these two illustrations. In this case, the driver of the purple truck waits for the red truck to proceed through the intersection before making the turn.



- Do not assume you have the right-of-way, even when your right-of-way is controlled by traffic signs or traffic lights.

- When you are planning to turn, position your vehicle in the proper lane well before the intersection. Signal other drivers well in advance to show them you intend to turn. Reduce your speed gradually before entering the intersection. Turn only when it can be done safely, and your path is clear of other traffic, including pedestrians.
- Look left and right before entering any intersection. Look for and expect someone to run the sign or lights.
- Enter a limited-view intersection at a speed that allows you to stop your vehicle safely if you need to.
- Look well ahead for stale green lights. Expect them to change. Decide in advance whether you will have to stop to avoid running through the light.
- When the light you are waiting for turns green, check left, right and ahead for any latecomers before you enter the intersection.
- Do not depend on other drivers to signal or make their turns correctly. Do not depend on other drivers for your safety: they may forget to signal; they may signal and not turn; they may turn into a wrong lane; or they may fail to yield.
- Don't change lanes, pass or overtake other vehicles as you are approaching or going through an intersection.
- Give full attention to each and every intersection, lane and driveway. Keep your vehicle under full control.
- Do not use the your vehicle's size to force other road users into giving you the right-of-way. Give the right-of-way; don't try to take it. You must move only when you are certain other road users have given you the right-of-way.

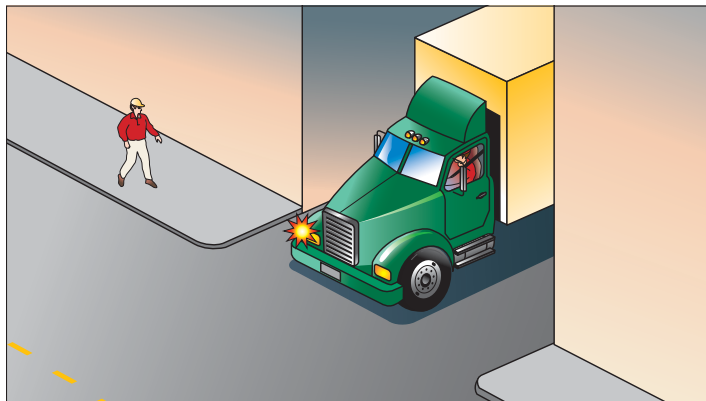
Fast Fact

The maximum speed in a lane or alley is 20 km/h unless otherwise posted.

You must stop and yield the right-of-way when pulling out of an alley.

Alleys, lanes and side roads

If you drive from an alley, lane or side road onto a highway, you must:



- Stop your vehicle immediately before you drive across the sidewalk or sidewalk area.
- Yield the right-of-way to pedestrians in the sidewalk area and to motor vehicles on the highway.

Railway crossings

Railway crossings require extra caution. Large commercial vehicles need more space and more time to respond to conditions, so drivers of these vehicles must be particularly careful to check whether a train is in the area. You must also note the condition of the track and whether your vehicle will have any difficulty making a crossing.

Controlled and uncontrolled crossings

All vehicles are required to stop at all controlled railway crossings if signalled to do so. A controlled crossing is one that has a flagperson, stop sign, crossing gate or an electric or mechanical signaling device.

Fast Fact

Uncontrolled main railway crossings do not include industrial tracks in a business or residential district or railway spur lines.

Crossing in a large vehicle

Crossing railway tracks can be especially hazardous when you are driving a large vehicle because:

- Longer trucks need to travel further and will use more time to clear a crossing.
- Heavier trucks take more time and need more room to stop before railway crossings.
- Bigger vehicles are more likely to cause a train to derail if there is a collision.
- Larger vehicles often have low clearances which may cause trailers to hang up or to displace tracks.

Minimize your crossing time – Before you cross a railway line, check to ensure you can see the track is clear far enough to give yourself at least 10 seconds to cross – more if your vehicle requires it or if you are crossing more than one track at a time.

Many things can increase the time it takes you to cross railway tracks. They include:

- the weight and length of your truck
- dragging brakes
- laws and rules against shifting gears
- rough crossing surfaces
- approach grades
- the angle of crossing

Before you begin to cross, be certain there is room for your vehicle on the other side of the tracks. Stopping on the tracks is extremely dangerous. You must not shift gears while crossing railroad tracks.

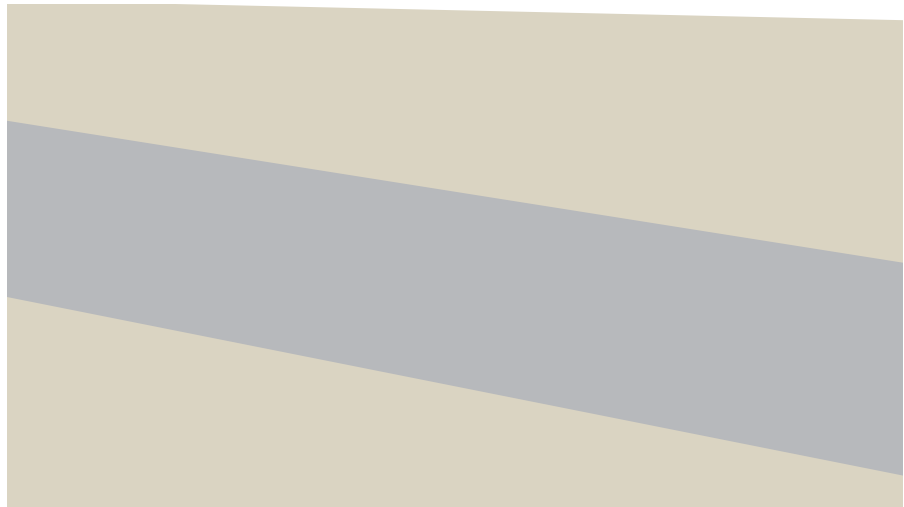
Watch for humpback crossings – Over time, humps often form at railway crossings. They present a danger to many low-clearance vehicles because:

- low bed trailers may hang up on the crossing surface or the rails
- low hanging trailer appliances (e.g., dolly wheels and tool boxes) may catch on the rail

Crossing more than one track – Take extra caution when crossing more than one track. If there is more than one track, there may be more than one train. Don't assume that the train you can see is the only one in the area.

Railway crossings at rural roads – Pay extra attention when you cross railway tracks in rural areas because:

- approach grades may be steeper
- snow banks may be higher
- brush seems to be more prevalent
- there tend to be fewer automated warning systems
- there may be more “humpback” crossings





RoadSense Tip

Make sure you know how to use your vehicle's heater and defroster controls. Some heater defrosters have a position to allow for recirculating the air in the vehicle's interior. This position should not be used in cold weather, as it can cause windows to fog up.

- Keep your windows and windshields clear, inside and out. Maintain wiper blades and lights in good working order. Use the heater/defroster controls to avoid windows fogging. Be certain you can see and be seen.
- Maintain adequate ventilation in the cab. Be certain your exhaust system has no leaks.
- Stay alert for hazards that may be well ahead of your vehicle, including pedestrians, cyclists, ice patches, bridge surfaces, blind intersections, snow plows and graders.

Night driving

You cannot see as far in the dark. You need to travel at a speed that allows you to stop within the distance you can see. When light levels are low, you may need to drive below the posted speed limit.

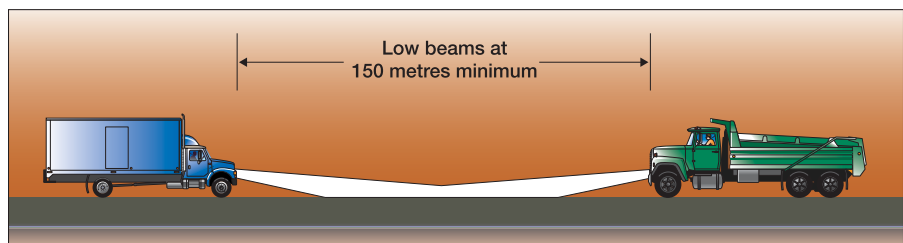
Most headlights illuminate the highway for only 100 metres on high beam and even less on low beam. Poor weather, glare and fatigue will reduce how far you can see. Adjust your speed for the conditions.

Even when you travel at the legal speed you can overrun your lights. For example, a large, loaded truck travelling on a highway at 80 kilometres per hour may need more than 100 metres to stop – which is further than your high beams will allow you to see under good conditions. Slow down to ensure you can see problems developing in time to stop for them.

Some tips for driving at night:

- Reduce your speed after sunset. Remember, your vision isn't as efficient as it is in daylight.
- Ensure your lights are clean and working – see and be seen.
- Use parking lights only for parking. It is illegal to drive at night using only parking lights.
- Switch your lights from high beam to low beam at least 150 metres away from any vehicle you are approaching or following. This will reduce the glare from your headlights on the eyes of other drivers.
- Don't flash your lights at drivers who forget to switch their lights from high beam to low beam. Instead, slow down and focus your eyes on the right edge of the road to watch for pedestrians and obstacles.

These two vehicles are approaching each other at night in opposite directions with their lights on low beam.



Fast Fact

Driving on a flat tire may cause more damage and could mean you will have to replace the tire rather than have it repaired. Driving on a flat tire may also cause a tire fire. Too much heat can cause tires to catch fire, which could spread to your truck or trailer.

Fast Fact

If you reduce a tire's air pressure when it is warm, you may upset the cooling balance and cause the tire to generate more heat.

Fast Fact

When the amount of contact between the tire and the road surface is reduced, steering control is also reduced.



RoadSense Tip

Driving at 110 km/h can reduce tread life by 20 per cent compared to driving at 90 km/h.

For every 10 km/h over 90 km/h, fuel consumption increases by about 10 per cent.

Vehicle Safety

You are expected to keep your vehicle in top condition at all times. A fundamental part of keeping your vehicle in top condition is ensuring that your tires, wheels and lights are in good working order.

Tires and wheels

Do not drive a vehicle that has tires, wheels or rims that are in poor condition – to do so can be extremely dangerous and illegal. Inspect your tires, wheels and rims before every trip.

Tire pressure

The rolling of your wheels as you drive will cause your tires to flex. This flexing creates friction, which generates heat. Usually, tires release this heat to the air around them.

If you are using the correct size of tires, if your tires are correctly inflated and if your vehicle is not overloaded, the heat generated by your tires should not cause any problems.

Ensure your tires are not overinflated or underinflated. If your tires are not properly pressurized at the start of a trip you risk tire damage or even a blow out because of excessive heat build up. A major cause of failure in recapped (retread) tires is underinflation.

If your tires are underinflated, your load is too heavy or you are driving too fast, your tires will flex more. More flexing means more heat. Too much flexing can cause your tires to overheat. As heat builds up in your tires, the air pressure within your tires rises. If this pressure rises too high, your tires could burst.

Manufacturers put a load rating on their tires. Check what these ratings are for your tires. Do not allow the weight of your vehicle and load to exceed the rating for any individual tire or any group of tires on a single axle.

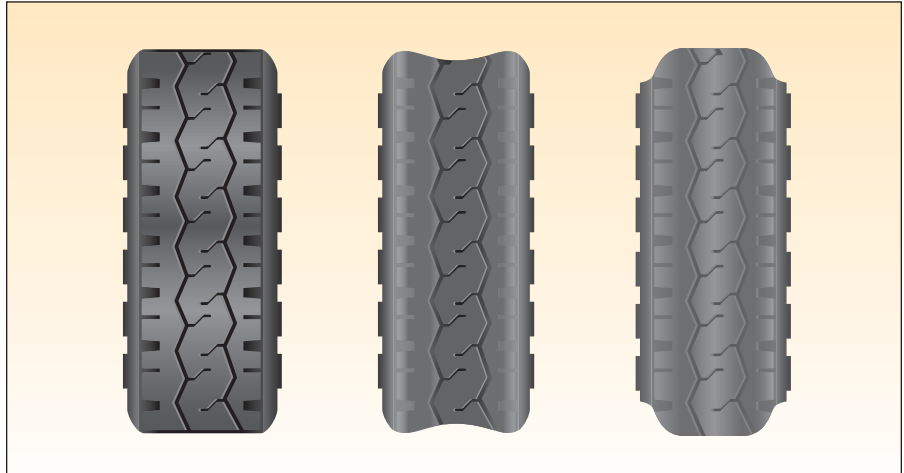
Check and adjust tire pressure when tires are cool. Use a tire pressure gauge. If a tire has the correct pressure when it is cool, it will generate a normal amount of heat during use. As this heat builds up it will cause the pressure within the tire to increase a desired amount, which will reduce the amount of wall flexing. When wall flexing is kept under control, heat build up will also be kept under control.

Tire wear

Operating your vehicle with improperly inflated tires will cause your tires to wear out more quickly. It may also reduce the amount of steering control you have.

Overinflating a tire causes excess wear in the centre part of its tread. An overinflated tire has less tread surface in contact with the road surface. Less contact between your tire and the road means less traction.

Underinflating a tire causes excess wear on the outer edges of its tread. In wet conditions, an underinflated tire will not squeeze the water out from between the tire and the road as well as a properly inflated tire. A tire that is underinflated has a greater chance of riding on a film of water (hydroplaning).



Various types of tire wear patterns.

Tire condition

You must not operate a vehicle that has bald or damaged tires. Tires are defective if they:

- have any tread damage, including cuts, cracks or snags, that are longer than 2.5 centimetres and deep enough to expose the ply cords
- have less than 3 millimetres of tread on a front tire or 1.6 millimetres of tread on a rear tire and are being used on a vehicle with a GVW of 5,500 kilograms or more



Ensure the tread depth on your tires conforms to the standards set out in the Motor Vehicle Act Regulations.

- have less than 1.6 millimetres of tread and are being used on a trailer
- have less than 3.5 millimetres of tread in the case of a winter tire

For more details on tire requirements consult the *Motor Vehicle Act Regulations*.

Tire problems

Here are some problems to look for on most tires:

- too much or too little air pressure – use a gauge to ensure correct pressure
- tire wear – check for tread depth and tread recap separation
- cuts, abrasions, exploding cord, sidewall separation or bulges
- tires in contact with each other or tires in contact with any part of the vehicle
- cracked or leaking valve stems
- a mixture of different sizes or radial and bias-ply tires being used on the same axle – these can be mixed on the same vehicle but not on the same axle (not a recommended practice)

Note: If you change a tire, stop after a short while and check to be certain the wheel nuts are tight. Always use a torque wrench to tighten and check wheel nuts.

Fast Fact

Wheel separations are usually caused by loose wheel fasteners or broken wheels/rims, or by wheel bearing failure.

Disk wheel problems

Check your wheels before every trip. If you have disk wheels, you must not drive your vehicle if you find:

- loose or missing lug nuts
- stripped studs
- cracks in the rim

If you find any of the following, investigate and decide whether there is a problem that needs immediate attention:

- metal or paint flakes around the nuts – may indicate wheel movement
- oil or grease leaks from the hub – if oil or grease is visible, check the brake drum area to see if there is oil or grease on the brake pad

Fast Fact

Rust streaks on the rim may indicate a loose lug nut or cracks in the rim.

Cast spoke wheel problems

Check your wheels before every trip. If you have cast spoke wheels, you must not drive your vehicle if you find:

- missing or loose nuts or rim clamps
- cracks on the rims or hubs



RoadSense Tip

It's a good idea to carry the following safety equipment:

- Flags or flares
- Fire extinguisher
- First aid kit

You never know when you might need them.

Fast Fact

All warning devices used to mark the location of disabled vehicles must be approved.

Disabled vehicles

Any vehicle presents a hazard when it is parked on the side of a road. Because of their size, large vehicles present more significant hazards. In most instances, drivers are required to put out approved warning devices when they park their commercial vehicles at the side of the road in an area not designated for parking.

The following commercial vehicles are required to carry approved warning devices:

- all vehicles with a seating capacity of more than 10 passengers
- all commercial vehicles with an overall width of more than 2.3 metres
- all commercial vehicles with a load width of more than 2.3 metres

When parked in the dark, the above commercial vehicles must have a minimum of two warning devices.

During daylight hours, the minimum for approved warning devices is:

- two red flags that measure at least 30 centimetres by 30 centimetres, *or*
- two warning devices that have been approved for daylight use – including flares, fuses and reflectors

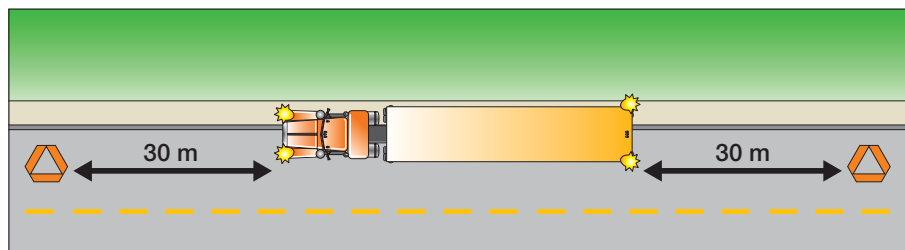
At night, the approved devices you may use include flares, fuses, reflectors *and* red lanterns.

If your vehicle becomes disabled:

- move it as far off the travelled portion of the highway as possible
- place warning devices approximately 30 metres ahead and 30 metres behind the disabled vehicle

Note: It is a good safety practice to place additional warning devices further than 30 metres from your vehicle.

If your vehicle becomes disabled, park as far off the road as possible. Place warning devices 30 metres ahead and 30 metres behind the vehicle.



Personal Safety

Commercial vehicle drivers must be concerned with their personal safety to protect themselves and others on the road. This section covers information on carbon monoxide poisoning, seat belts, vehicle and load fires.

Carbon monoxide poisoning

Carbon monoxide poisoning is an ever-present danger when you operate a motor vehicle. Carbon monoxide is a gas that can seep into a driving compartment and make you dizzy or drowsy. Too much of it will make you pass out, which will almost inevitably result in a crash if you are driving. Carbon monoxide can kill you if you continue to breathe it in after you pass out.

Carbon monoxide is especially dangerous because it is odourless, colourless, tasteless and difficult to detect. It is in the exhaust of every motor vehicle. Because it is so difficult to tell when carbon monoxide is present, it is essential that you frequently check your exhaust system for leaks to ensure that no exhaust fumes are entering the driver's compartment of your vehicle.

Never run your engine in a closed garage. Don't follow any vehicle too closely, and maintain a safe distance between your vehicle and the one in front of you when you are stopped at traffic lights or stop signs.

If you feel dizzy or drowsy while driving, pull over to the side of the road. Stop. Get out and get plenty of fresh air.

Seat belts

There's no question – seat belts do save lives. Transport Canada estimates that wearing seat belts has saved an estimated 2,400 lives and prevented 55,000 injuries in the past 10 years.

Fast Fact

It is estimated that the correct use of a lap and shoulder belt system reduces the likelihood of death in a motor vehicle crash by 50 per cent.

Drivers who get in and out of their vehicles frequently as part of their work may be exempt from wearing seat belts while they are driving at 40 kilometres per hour or less. Individuals who may use this exemption include inner-city delivery, bus and emergency vehicle drivers. However, from a safety perspective, making a habit of wearing a seat belt always makes sense.

During a crash, seat belt systems reduce the risk of occupants striking the interior of the vehicle, colliding with other passengers or being ejected. If you are belted in, you are much less likely to become injured or knocked out in a collision. Staying conscious gives you a better chance of getting out of your vehicle quickly if it catches fire or lands in water. Even during normal driving conditions, a seat belt can prevent you from bouncing around the interior of your vehicle which will help you maintain better control on rough roads or during collision-avoidance maneuvers.

Many people think they can protect themselves in a collision. You cannot hold yourself back during a collision, no matter how strong you are.

Wear your seat belt correctly to provide maximum protection.



Thousands of kilograms of force work against unbelted persons during the rapid deceleration that takes place during a crash.

Use the following rules to ensure your seat belt fits correctly:

- place the lap belt low over the pelvis, not over the soft stomach area – make certain it is snug
- ensure the shoulder strap is snug across the chest
- never place the shoulder strap under the arm or behind the back
- remove all slack

Air bags and head restraints

Most large trucks are not equipped with air bags and head restraints, but some commercial vehicles do have them and manufacturers may include them in more models in coming years.

Even if your vehicle is equipped with air bags, you must wear your seat belt. Air bags can seriously injure unbelted occupants. You must allow at least 25 centimetres (or 10 inches) between your breast bone and the air bag unit in the steering wheel. This distance will minimize the risk of injury if the bag deploys.

If your vehicle has head restraints, it is important to adjust them to fit correctly. This will reduce the risk of soft tissue neck and back injuries during a rear-end crash. Raise the head restraint so the top is at least level with the top of your ears; higher is even better.

Impairment

As a commercial driver, your life and the lives of others depend on your ability to remain alert and fully functioning when you are behind the wheel.



Alcohol, illicit drugs (for example, marijuana and cocaine), and even some prescribed drugs or stay awake tablets can reduce (impair) your ability to function safely.

If you are convicted of driving while impaired, the Superintendent of Motor Vehicles will review your driving record and may increase any length of time the courts have prohibited you from driving.

If you drive while prohibited and are stopped by the police, the vehicle you are driving may be impounded for a minimum of 30 days. On a second offence the vehicle may be impounded for a minimum of 60 days.

Prescribed and over-the-counter drugs

Caution is always needed when you use certain prescribed or over-the-counter medications, but using medication when you drive is particularly risky. Antihistamines, sedatives, tranquilizers and even some cold remedies can cause drowsiness and decreased alertness. Read the warning on the label to determine whether there are any side effects that may impair your ability to drive safely. If in doubt, check with your pharmacist or physician. Certain combinations of seemingly harmless medications can markedly decrease your ability to function safely.

Penalties for impaired driving

You risk a lot by driving impaired. There are offences under British Columbia's *Motor Vehicle Act* and under the *Criminal Code of Canada*. The penalties are significant and can affect you for a long time.

Fast Fact

If you are convicted of impaired driving and you caused a crash, the cost of your vehicle insurance will increase. In addition, ICBC will not pay to repair or replace the vehicle. ICBC can also recover from you all costs associated with the crash, including any victim's claim.

Offence	Possible Penalty
Driving while impaired	<ul style="list-style-type: none"> • Immediate 24-hour prohibition from driving. Your vehicle may also be impounded for 24 hours. You pay the cost of towing and storage of your vehicle. <p>Note: You may be prohibited if a police officer considers your ability to drive to be affected by alcohol or drugs. You do not have to have a Blood Alcohol Content (BAC) level of over .08.</p> <p>If you receive two or more roadside prohibitions within a two-year period, you may face a much longer driving prohibition.</p>
BAC reading over .08 Refusing to give a breath or blood sample Driving while impaired	<ul style="list-style-type: none"> • 90-day administrative driving prohibition (ADP) • If charged and found guilty under the <i>Criminal Code of Canada</i>, you will: <ul style="list-style-type: none"> - lose your licence for a year (first conviction) - be fined (\$600 minimum) - be prohibited from driving (one year minimum) <p>You could also be jailed.</p> <p>Note: Drivers with three or more vehicle-related <i>Criminal Code of Canada</i> convictions will have their licences suspended indefinitely.</p>
Impaired driving causing injury or death	<ul style="list-style-type: none"> • Loss of licence for up to 10 years • Unlimited fine • Jail sentence of up to 14 years

As well, you will be assessed driver penalty points. If you have repeat convictions, you will face harsher penalties. You may even lose your driving privileges for life.

There are still other costs if you are caught driving while impaired:

Money – If you are convicted of impaired driving and you cause a crash, ICBC will not pay the cost of repairing your vehicle, and can require you

to pay back all costs, including any victims' claims. Your insurance rates will increase. In order to be re-licensed, you may be required to undergo alcohol assessment, education or treatment at your cost.

Job – An impaired driving conviction could affect your ability to earn a living. It will show on your driving record which you are required to provide to your employer under the National Safety Code.

Travel – An impaired conviction could prevent you from being bonded or from traveling to certain countries, including the U.S. and Mexico.

Fatigue

Long road trips and driving day after day can easily cause you to become fatigued. Over an extended period, this can lead to chronic fatigue. Stay-awake tablets may keep you physically awake but they do not necessarily reduce the effects of mental fatigue that can be caused by long hours behind the wheel. Mental fatigue affects your ability to make good decisions.

There is no safe substitute for proper rest or sleep. Check yourself frequently to see whether the effects of fatigue are starting to show when you are driving for long periods. If you are relying on stimulants, such as coffee, to help you stay awake or if you are having trouble sleeping, you are likely suffering from fatigue. Pull over in a safe location and get some sleep. To help yourself get enough rest and stay alert, follow the hours of service regulations set by the National Safety Code (see **Chapter 6, Hours of Service Requirements**) and be sure to get enough sleep every 24 hours.

Emotions

Your emotions can also impair your ability to drive safely. Investigators have found that the causes of some crashes are directly linked to emotional disturbances that distracted drivers and prevented them from focusing on the task of driving.

Safe driving demands your full attention at all times. Arguments at home or at the terminal, annoyance with other drivers, illness or financial problems are some of the things that can pre-occupy your mind and distract attention from the important job of driving.

Increasingly, we hear about incidents of road rage. As a commercial driver, you will be on the road more than most other drivers, and you will be exposed to drivers of all kinds – from the most skilled to those who surprise other drivers with unexpected maneuvers.

Your safety and your livelihood depend on your ability to give your complete and constant attention to your driving while you are behind the wheel. There is no room in the cab for road rage or any other distracting emotion.

Fire

Preventing fires in and around a vehicle is easier and cheaper than fighting a vehicle fire.

The following are some common sense rules for preventing fires:

Fast Fact

If your vehicle has a fuel leak, a peace officer may order your vehicle out of service until the leak is repaired.

Fast Fact

Diesel fuel is toxic and should never be touched with your hands or cleaned up with a cloth.

- Never start a vehicle with a fuel leak. Repair the leak and use an appropriate absorbing material to soak up the spilled fuel. Dispose of your cleaning material in an appropriate container.
- Shut off engines when refueling vehicles.
- Ground the fuel hose nozzle against the filler pipe of the truck tank before filling the tank.
- Don't smoke in garages or near fueling areas.
- Never throw cigarette butts out of cab windows – they could blow back into tarps or loads.
- Check your tire pressure often. Soft tires build heat and can cause a fire. If your vehicle had a tire that was soft or flat when you last moved it, make sure the tire is cool and the pressure is checked before the vehicle is moved again. If you must move the vehicle, the tire should be removed and replaced.
- Ensure all your vehicle's brakes, including the parking brake, are fully released when your vehicle is moving. Dragging brakes generate heat which can ignite grease in the hubs when the vehicle stops. Frequently check your hubs and brake drums for overheating.

It is always a good idea to keep a fire extinguisher in your vehicle. Some commercial drivers are required to carry fire fighting equipment.

Fire fighting

Fighting a fire requires quick thinking, fast action and some understanding of fire fighting. If your vehicle carries fire fighting equipment, check it daily. Make sure you know how to use any fire extinguishers you carry and that you know what types of fires they can extinguish. Learn whether there are fire hazards associated with your vehicle or with the loads you carry.

To prevent loss of life or personal injury and reduce property damage, follow these general guidelines:

Fast Fact

You must be properly trained before you carry any dangerous goods.

- Don't risk your own life. Fuel fires can spread quickly or explode.
- Tell the first spectator to call the fire department. Warn others if there is any danger of an explosion of gasoline or flammable goods, or of exposure to toxic substances. Tell them to keep back a safe distance.

Assess the situation and decide whether it is safe to take any further action:

- If a fire occurs on a combination unit, disconnect the tractor from the trailer and separate the units to a safe distance apart. Do this only if you are certain it can be done without putting yourself in danger.
- Fight fires with the wind at your back whenever possible. This reduces the chances of you being asphyxiated.
- If the fire is in your electrical system, disconnect the battery cables. When a vehicle is in a crash, shutting off switches and disconnecting battery cables can prevent fires that may be caused by leaking fuel.
- If a fire starts under the hood, direct the extinguisher from underneath the vehicle or through the radiator. Do not open the hood to fight the fire.
- Use your extinguisher to put out the flames, but try to keep some extinguishing fuel in reserve to fight possible flare-ups.
- Do not use water on gasoline or oil fires. Water will spread these fires. Use an appropriately rated extinguisher, sand or dirt to smother them.

Fire extinguishers

There are two main categories of fire extinguishers: multi-purpose dry chemical extinguishers and carbon dioxide (CO₂) extinguishers. The multi-purpose dry chemical extinguishers are easier and safer to use, while the CO₂ extinguishers are more effective.

Multi-purpose dry chemical extinguishers are available in two classes. A multi-purpose dry chemical extinguisher, which has a cylinder marked BC, can be used to put out grease, oil, gasoline and electrical fires. If the multi-purpose dry chemical extinguisher cylinder is marked ABC, it will also put out Class A fires such as paper, cloth, etc.

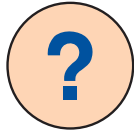
CO₂ extinguishers are extremely effective but should never be used in an enclosed space. There is a risk that you could smother yourself if you use these in too confined a space. There is also a risk that you could blister your skin.

Vehicles required to carry fire extinguishers

One fire extinguisher must be carried on:

- limited passenger vehicles that have an authorized seating capacity of more than ten
- all public passenger vehicles
- all school buses – the fire extinguishers must meet Canadian Standard Association (CSA) Standard D250

Two fire extinguishers must be carried on vehicles transporting explosives.



Review Questions

1. What rule should you follow to maintain a safe following distance when operating a taxi, ambulance or a van?
2. What rule should you follow to maintain a safe following distance when operating a bus, truck or truck-tractor and semi-trailer?
3. Why should a commercial vehicle travel in the right (slower) lane of traffic?
4. As your speed increases, the length of your danger zone increases. What other conditions increase the length of your danger zone?
5. What determines the amount of off-track a vehicle will have?
6. What is dangerous about allowing the rear wheels of your vehicle to cross the centre line of the roadway when you negotiate a left turn or curve?
7. What are the risks of running rear wheels over curbs when making sharp turns to the right?
8. What precautions must you take before and while you are making a turn?
9. What special precautions must the driver take when it becomes necessary to “block off” more than one lane of traffic to negotiate a sharp turn?
10. What preventative measures should a driver take before entering a narrow bridge from a curved approach?
11. What are some of the steps you can take to help avoid crashes when backing up?
12. Describe how and when you upshift and downshift.
13. How can the area of air turbulence around your vehicle endanger other users on the road?
14. As a professional driver, what can you do to help other drivers safely pass your vehicle?
15. Which vehicles must stop at all uncontrolled railroad crossings?
16. What are the dangers of driving a vehicle with under-inflated tires?
17. How does the *Motor Vehicle Act Regulations* define a defective tire?
18. What actions do you take if your commercial vehicle becomes disabled?
19. Which types of commercial vehicles are required to carry fire extinguishers?