

# Truck and Bus Handbook

## A Guide to Safe Driving

LICENSING AGENCY





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## Introduction

### What This Handbook is About and How to Use It

The aim of this handbook is to help you to become a safe and responsible heavy vehicle driver. You need to keep in mind that getting your licence, even after all the training, does not make you an experienced and safe heavy vehicle driver. It takes years of practice to learn all the skills and correct driving techniques. You need to keep this in mind when driving.

### Why You Should Read This Handbook

This handbook tells you about some of the legal requirements for drivers of heavy vehicles in Dubai along with important road safety information. Before you read this handbook you need a general knowledge of road rules. Road rule information is contained in the Light Motor Vehicle Handbook. You should have a copy of this book to refer to.

The knowledge test that you must pass to get a heavy vehicle licence is based on the material in this handbook. You need to understand the information in this handbook to pass your test.

### How to Use This Handbook

This handbook is divided into 13 parts. At the end of some parts there is a section called Test Yourself Questions, to help you check if you have understood important issues.

## Special Needs of Heavy Vehicle Drivers

Heavy vehicle drivers are professionals, who spend most of their working hours on the road. Driving any vehicle is a challenge, but even more so for drivers of heavy vehicles, because their vehicles are heavier, bigger and longer and are more difficult to control.

Professional drivers are likely to be on the road more often, for longer hours and at times when driving situations are most dangerous, particularly at night. It is at those times when crashes tend to occur. You need to take extra care. Remember, driving is your profession. Other drivers expect you to display safe driving practices at all times. Your reputation will be affected if you do not.

Heavy vehicles accelerate more slowly than light motor vehicles and take longer to stop, so more judgement and driving skill is required to drive them. Crashes involving heavy vehicles are more likely to cause severe injury and greater damage than crashes involving only light motor vehicles.

Light motor vehicle drivers can make heavy vehicle driving more difficult when they do not know about the slower acceleration, braking and space needed by heavy vehicles. However, heavy vehicle drivers need to drive in a way which allows them to safely take action if car drivers do unexpected things. It is important that drivers are aware of the braking distances needed to stop if unexpected things occur. This is particularly important if the vehicle is loaded or if the road surface is slippery. Braking techniques must be fully understood.

## Some Technical Terms You Should Know

### Articulated Truck

A vehicle consisting of a prime mover and a semi-trailer.

### Gates and Bulkheads

Vertical frames used at the front, sides and rear of load carrying platform to contain the load. The front gate is also known as a loading rack or headboard. The front rack must be strong enough to stop the load shifting, such as in a crash or when you brake very hard.

### Gross Train Mass or Gross Combination Mass (GCM)

The maximum of the sum, as specified by the manufacturer, of the loaded mass of the vehicle plus the axle loads of any vehicle being towed as a semi-trailer or trailer. It can also mean the measured weighbridge mass or the road regulation limit.

### Gross Vehicle Mass (GVM)

The maximum loaded mass specified by the manufacturer and given on the vehicle's registration certificate. The total mass must never exceed the GVM.

### Height Detection Gantry

Height Detection Gantries are early warning devices for high vehicles and are located on the approach to bridges or tunnels. If the highest point of your vehicle comes into contact with the gantry, it is too high and you should not proceed.

### Prime Mover

A motor vehicle which is constructed, designed or adapted for connecting to a semi-trailer.

### Semi-trailer

An unpowered vehicle which is attached to a prime mover by a turntable, forward of the prime mover's rear axle, for the purpose of being towed by that vehicle.

### Trailer Combinations

A trailer with a moveable front axle or a trailer with a fixed front axle.



## *Part 2: Driver Health and Safety*

This section will help to ensure that you are fit to drive and give you tips about keeping alert while you are driving.

### **Alertness**

Driving a heavy vehicle is hard work. Professional drivers are often required to be on the road for long periods, which is very tiring. You will become less alert. There are many things that good drivers do to prevent becoming tired. If you are drowsy and are not alert, the consequences may be severe. You may fall asleep and drive into the path of other vehicles, causing serious injury or even death, to both yourself and others. Remember that you are driving a very heavy vehicle that can cause a lot of damage.

### **Preventing Tiredness**

The best way to be alert and avoid dozing at the wheel is to not get tired in the first place. Here are some suggestions.

#### **1. Get Plenty of Sleep**

If you have a long trip to make, be sure that you get a good night's sleep before you go. Never start a long trip if you are already tired.

#### **2. Timing Your Trip**

Your body gets used to sleeping during certain hours. If you drive during these hours, you will be tired. If possible, try to make long trips during the hours when you would normally be awake. This will not always be possible because of traffic restrictions that limit heavy vehicles to driving at night in some parts of Dubai. If you need to drive at night you need to be extra careful.



### 3. Avoid Medicines

Some medicines may cause drowsiness. Always ask your doctor or pharmacist about possible effects on driving while on medication, whether the medication is prescribed by your doctor or bought over the counter.

Common medicines that may cause drowsiness are cold tablets, hay-fever and allergy medicines. If you have to drive while you have a cold, hay fever or allergy, it is much safer to drive with these symptoms than to take medicines which will cause drowsiness at the wheel.

### 4. Do Not Use Drugs

There are no known drugs that can overcome your feeling of tiredness. Some substances may keep you awake for a while, but will not make you alert. Later on, you may be even more tired than if you had not taken them at all! Sleep is the only thing that can overcome tiredness, so if you have started driving and begin to feel tired, stop and sleep. You will know when you are getting tired. You may start to yawn or find that you are blinking more often, finding it difficult to keep your eyes open.

### 5. Do Not Drink Alcohol and Drive

Alcohol affects your judgement and makes it more difficult to judge risks, such as speed of your own vehicle as well as the speed of others. It makes it difficult to assess distance. Alcohol also gives you a false sense of confidence, which may encourage you to take risks that you would not otherwise take. It makes it difficult to concentrate and do more than one thing at a time, slows your reaction time and makes you more likely to crash.

Some drivers actually think that they are better drivers when intoxicated. This is absolutely wrong. Alcohol is a major cause of fatal road crashes.

### 6. Take Breaks

Short breaks keep you alert. Take them before you become tired. Never drive for more than 10 hours in any 24 hour period.

Walk around and inspect the vehicle. It also helps to do some simple physical exercises, such as running on the spot, touching your toes or knee-bends.

### 7. Keep Your Mind on the Road

You can also do many things to keep your mind alert, like counting cars with different number plates or noting landmarks as you approach them. Invent your own ways of keeping your mind on the road and on the job. Long, straight roads can become very boring, especially at night.

### 8. Watch Your Food

Fresh fruit and vegetables are much better for you at any time. Eating these foods on a trip will stop you from being tired after a meal. Do not eat foods such as bread, pasta, potatoes, pies, and french fries while you are on a long trip. Do not eat a heavy meal before you begin driving because big meals will make you tired. Eating smaller quantities of food more frequently will help you to stay alert.

### 9. Keep Comfortable

Adjusting the driving seat is very important for drivers. If you are uncomfortable, you get tired more quickly and you spend less time looking at the road.

If you can adjust your seat, this is what you should do:

1. Sit in the seat with your back and shoulders against the back rest.
2. Put your feet flat on the floor in front of the seat.
3. Sit comfortably so your feet can reach the pedals.
4. Adjust your seat forward and back so that your foot can push the clutch pedal completely to the floor while your leg still has a small bend at the knee (about 15 to 20 degrees).

### 10. Keep Cool

Try to keep as cool as possible. Depending on the weather, keep the windows and vents open to get fresh air into the cabin. Use the air conditioner if the vehicle is fitted with one.





## Personal Safety

Make sure you follow these basic safety steps.

Before driving, always make sure that there are no loose objects in the cabin like drink cans or clip-boards. Be careful about loose things on the floor of the cab that could get in the way of your foot connecting with the brake, clutch and accelerator pedal. Make sure you can push the clutch, brake and accelerator pedals all the way to the floor.

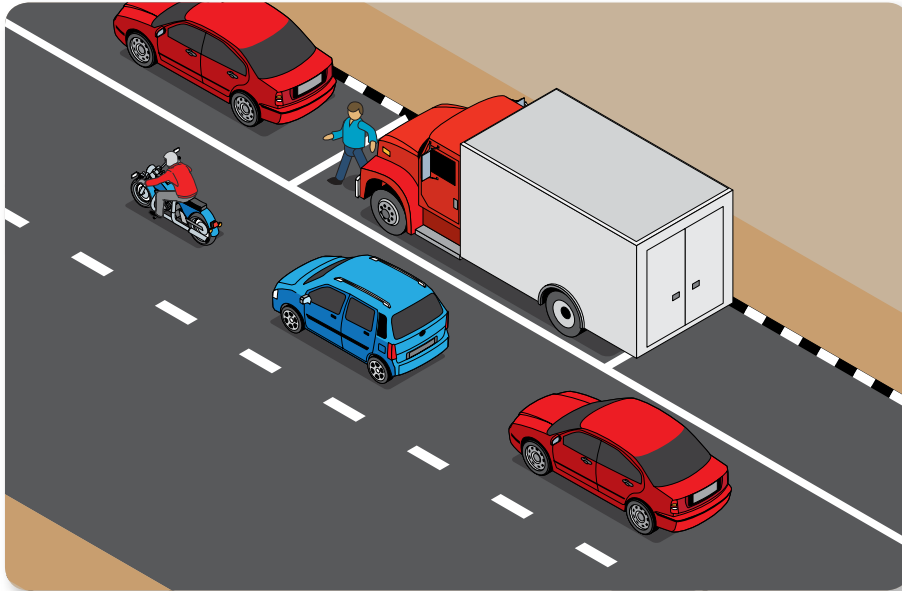
If your vehicle is parked on the road, approach the vehicle from the front so that you are facing the oncoming traffic.

As you leave the cab, climb out facing it, but watch for oncoming traffic.

Be careful when you are climbing into or leaving the cab. It is easy to injure yourself. Always use the vehicle steps, foot-holds and grab handles. When you climb down from or up into the cab, make sure that you face towards the vehicle.

### Never Jump Out of a Vehicle

If you have to step on a tyre to get into or out of the cab, be careful if the tyre is wet. Tyres can get very slippery. You might fall and hurt yourself or fall into the path of moving vehicles.



## Changing Wheels

If you have to change wheels, move as far off the road as possible. Be very careful changing a wheel on the left side of the vehicle if you are near to traffic on the road. Use hazard warning lights and warning triangles if there is any risk to you or to other road users.

## Lifting any Heavy Object

Learn how to lift properly. When you start to lift heavy objects, have your back straight and your knees bent.



Incorrect



Correct

## Part 3: Vehicle Checks

### Keeping Your Vehicle in Good Condition

As a heavy vehicle driver, you should carry out daily inspections of your vehicle before you drive it. The time you spend checking your vehicle is an investment in your own safety as well as that of other drivers.

Remember that as the driver you have final responsibility for your vehicle and what it does on the road.

### Pre-trip Inspection

You should carry out these checks every day before you drive.

#### 1. Around the Vehicle

Walk around the vehicle and look for any of the following problems:

**A. Vehicle tilt.** If the vehicle sags to one side, look for a flat tyre. The problem could be overloading or incorrect loading. There could also be something wrong with the suspension.

**B. Load.** Check that the trailer doors or load doors are closed and locked. Check that all lashings are secure.

**C. Load security.** Check to see that the load is well packed and evenly distributed. A shifting load is dangerous. Check all lashings. Make sure all area load doors are locked. Check that tailgate, liftgate, sliding ramp and other equipment are put away ready for travel. On an open trailer, the load may be covered. Make sure the cover is fastened down. Unsecured tarpaulins and loads can fall off and cause crashes.

**D. Load height.** Make sure you know what the highest point of your vehicle is from road level. You need to know your height when you plan your route so you can avoid low bridges.

**E. Vehicle damage.** Check for cracks, and missing or loose parts.

**F. Leaks.** Check under the vehicle for signs of any leaks of oil, coolant, grease or fuel.

**G. Wheels and rims.** Check for rim damage on each wheel. A bent or damaged rim might let a tyre lose pressure or come off the rim.

**H. Check wheel nuts.** If some are missing, the others have to take extra strain and may fail. Check for rust streaks around the wheel nuts. This is a possible sign that the wheel nuts are loose. Also check the wheels for signs of leaks from wheel bearings and seals. Spilled or leaking grease can cause a fire or a wheel to lock. If any nut is missing or if they break off while being tightened, do not drive the vehicle.

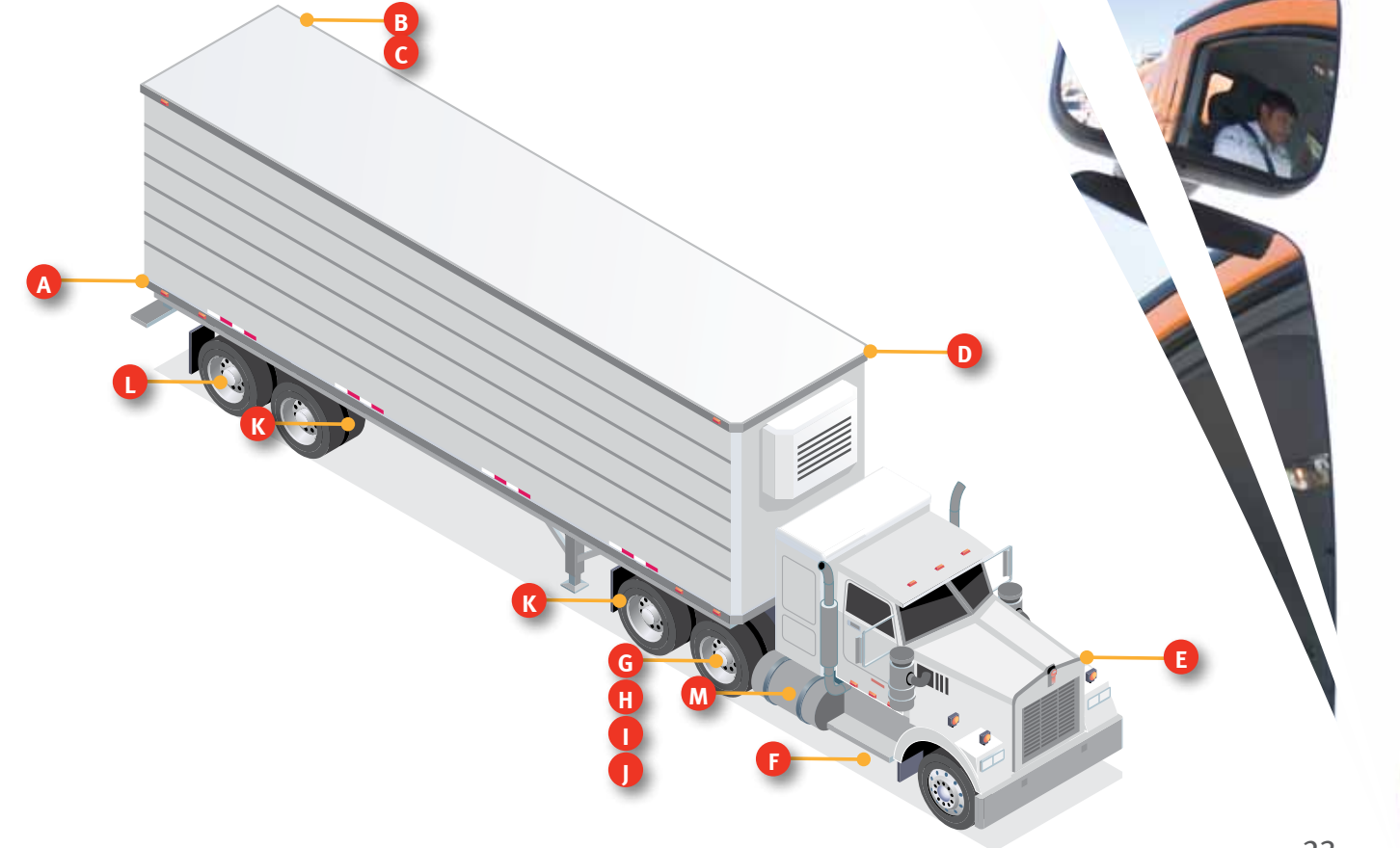
**I. Tyres.** Check all tyres for tread wear, damage and proper fit. Worn tyres can cause loss of steering control. Never drive the vehicle if there are any signs of damage or excessive wear, such as bulges or bald spots. These might cause the tyre to blow out. This applies to all tyres. Just because heavy vehicles have more wheels and more tyres than smaller vehicles, does not mean that problems with one or two tyres can be ignored. A blow out of any tyre can create a dangerous situation. All tyres must be roadworthy.

**J. Tyre pressure.** Check the tyre pressure with a gauge. Low pressure in tyres on steering axles makes steering harder and causes heat build-up in tyres. Low pressure in dual tyres can cause them to rub together at the bottom and start a tyre fire or cause a blow-out. The vehicle also will not brake or corner as safely as it should. If the pressure is too high the tyre will wear more quickly than it should.

**K. Spacing between dual wheels.** Check the space between dual wheels. Rocks or mud caught between the wheels can unbalance a wheel and damage the tyre side walls and wheel bearings.

**L. Spacing between brake drum and wheel.** Check the space between the brake drum and the wheel. Things caught in there may damage the brakes and the tyre.

**M. Fuel system.** Check that fuel tanks are firmly attached. Test fuel caps by hand to make sure they are properly closed. Check for leaking fuel.



## 2. Engine Checks

Visually check the engine area for any signs of damage, particularly to the steering mechanism or suspension. Then go through the following checklist:

- **Fluid levels.** Check crank case oil, radiator coolant, battery fluid and windscreen washer fluid. Check automatic transmission and the oil make-up tank, if fitted. Check the power steering fluid reservoir. Top up all fluids.
- **Leaks.** Look for signs of oil leaks, water or brake fluid. If there are leaks, have them checked before you leave.
- **Electrical system.** Check for loose electrical wires and get them fixed before you leave.
- **Belts and pulleys.** Check the belts on the generator, alternator, water pump, air conditioner and air compressor. Make sure they are intact and are not frayed or cracked. If you need to adjust them, look at the vehicle manufacturer's handbook.
- **Finally.** Securely close the bonnet or lower the cab, locking it in position. Failure to undertake these checks may result in fluid levels becoming so low that steering, brakes or transmission fail.



## 3. Checking Driver's Controls

Vehicle entry. Check that everything is safe. For trucks, check the ladder, grab handles and door handles. For buses, check hand rails and operation of door(s).

**A. Emergency and safety equipment.** Make sure you have all the proper equipment. This should include:

- fully charged fire extinguisher
- first-aid kit
- at least three, two-faced reflective triangles
- spare fuses
- seat belts.

**B. Mirrors and glass.** Clean all windows and mirrors and make sure they are not cracked. Check that the windscreen wipers and washers work. Replace worn wiper blades and clear blocked washer jets. Check that mirrors are adjusted properly.

**C. Engine start-up.** Before starting up the engine, check that the parking brake is on. Start the engine and let it idle until full oil pressure shows on the dashboard gauge. Increase the engine revs slightly until the water temperature gauge starts to rise.

**D. Instruments and gauges.** With the engine running, check that all instruments and gauges are working.





In the case of oil levels, the dipstick will tell you the level. Always make sure that the oil level as shown on the dipstick is just under 'MAX'. As far as other levels are concerned, make sure that the levels are maintained at the required level as shown on the reservoir.

If these levels are not maintained, serious damage can be done to the operating systems of the vehicle – transmission, steering, and electrical equipment – resulting in loss of control and increased risk of serious crash.

#### E. Primary controls

With the engine still running, check the following:

- steering wheel for any slackness
- press the clutch until you feel a slight resistance (some free play is normal)
- that the accelerator and brake are operating properly.

#### F. Secondary controls

Check the following:

- switches and signal lamps
- interior and dashboard lights
- horn
- indicator lights for left and right turn signals
- that the cabin is clear of rubbish and loose equipment is stowed away
- that all lights are working including, low and high beam, hazard warning lights, number plate and running lights
- the brake lights
- reflectors.

You will need to get out of the vehicle to check external lights. Wipe any dust and grease from all lights and reflectors.

## Final Checks

These are the checks you need to make for different vehicle types.

### 1. Air Brake Vehicles

Check the following:

**Air intake filter** is not clogged. Open the air tank taps and if there is oil in the air that comes out, there may be a problem with the compressor. This must be checked by a mechanic. Do not forget to close the taps afterwards.

**Low air pressure** warning gauge works. The gauge should show a steady increase after the engine has been turned on. This should take less than 3 minutes. If it takes longer, adjustments are needed. Note the air pressure loss since the last stop. If the loss is more than 70kpa, there may be a problem. Seek help from a mechanic.

**Low pressure emergency systems.** Stop the engine and reduce air pressure by pressing the brake pedal.

**Trailer brake check.** Apply trailer brakes only and try to move forward gently. The vehicle should not move. Check that air hoses are not damaged or leaking and are properly connected to the towing vehicle.

### 2. Hydraulic Brake Vehicles

Pump the brake pedal 3 times. Push the pedal firmly and hold it down for 5 seconds. If, after 5 seconds, you feel the brake pedal sinking, there is a leak in the system. You must have these leaks fixed before driving.

### 3. All vehicles

For all vehicles you must check the following:

- **Parking brake check.** Try to drive forward in low gear while the parking brake is on. The vehicle should not move.
- **Full brake check.** In first gear move forward at no more than 5 km/h. Apply the brakes firmly. If the brakes feel slow to respond or if the vehicle pulls to one side, the brakes need attention from a mechanic.
- **Final steering check.** Pay close attention to steering performance as you move off.

### 4. Prime Movers and Semi-trailers

Check for slack in the coupling by moving gently forward and back. For all prime movers and trailers it is important to check that there is no turntable slack. With the trailer brake on, gently pull forward and reverse to make sure there is no slack in the turntable connection.

Make sure that the trailer legs are wound up and that the winding handle is put away.

Check that all electrical leads are connected properly and that trailer lights and indicators are working.

### After Departure Checks

Visually check that your load is secure, using all your mirrors. At your next stop do a quick check around the vehicle. With your hand, check the temperatures of tyres and brake drums. Look for smoke or feel for excessive heat radiating from brake drums. Be careful not to burn yourself. You will be able to feel heat coming from the brake drums without touching them. Look for under-inflated tyres and over-heated brakes. Look for any liquid leaks which may have become visible. Each time you stop, repeat these checks.

#### **IMPORTANT REMINDER!**

Before driving always ask yourself, “Have I carried out my:

- pre-trip inspection
- engine checks
- driver’s control checks
- brake checks?”

After you have departed make sure that you regularly check that your load is secure.



## *Part 6: Vehicle Control*

Safe operation of a heavy vehicle requires special skills in the following areas:

- **accelerating**
- **steering**
- **reversing**
- **gear shifting**
- **braking**

Most of these skills are required in virtually every driving situation, whether it be turning, approaching an intersection, driving down a hill or along a freeway. Master these skills and you are on your way to becoming a good driver.

Remember, whatever vehicle you drive, all its handling characteristics are affected by the load you carry, including passengers.

## Accelerating

Accelerate smoothly and gradually so that the vehicle does not jerk too much. Rough or rapid acceleration may cause the load to shift on your truck and damage the vehicle. When pulling a trailer, the king pin or its coupling could be damaged by rough acceleration.

### Sand or Gravel

You should accelerate more slowly whenever you drive on sand or gravel. If you over accelerate, the wheels will spin, and if you are pulling a trailer, it could slide sideways.

### Rain

Rain makes road surfaces slippery, especially as the first drops fall and particularly after a long period of dry weather. Oil and dirt accumulate on the road and when mixed with water create a very slippery surface.

If there is too much water, or if you are going too fast, your tyres may ride on the top of the water like water skis. This is called aquaplaning. When this happens, control of the vehicle becomes very difficult. Make sure you have good tyres with deep tread and slow down when the road is wet.

## Steering

Steering a large vehicle requires more knowledge and skill than driving a light vehicle such as a car, so follow these tips.

### Holding the Wheel

Hold the steering wheel firmly with both hands. When you hit a curb or pot hole, you could lose control of the steering wheel unless you are holding it with two hands.

### Cut-in

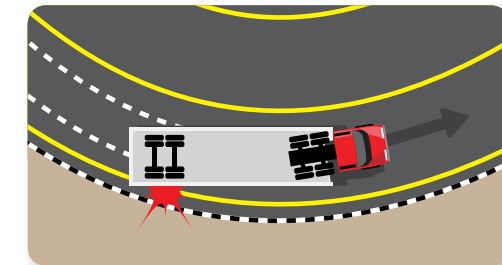
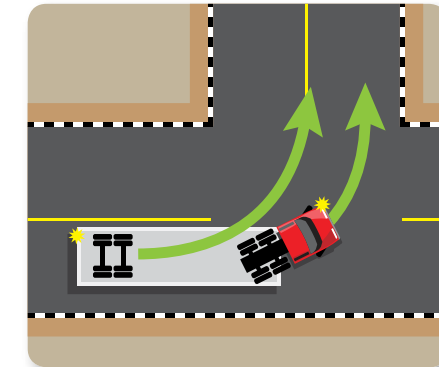
When any vehicle goes around a curve or turn, the rear wheels usually follow a shorter path than the front ones. This is called cut-in. The greater the length of the vehicle and the sharper the turn, the greater the cut-in will be. On your approach to a left bend, steer close to the right side of the lane to reduce interference with oncoming traffic.

On your approach to a right bend, steer close to the left side of your lane to make sure that your right wheels stay on the road surface.

### Cut-out

The tracking of rear wheels of semi-trailers will vary with the vehicle's speed:

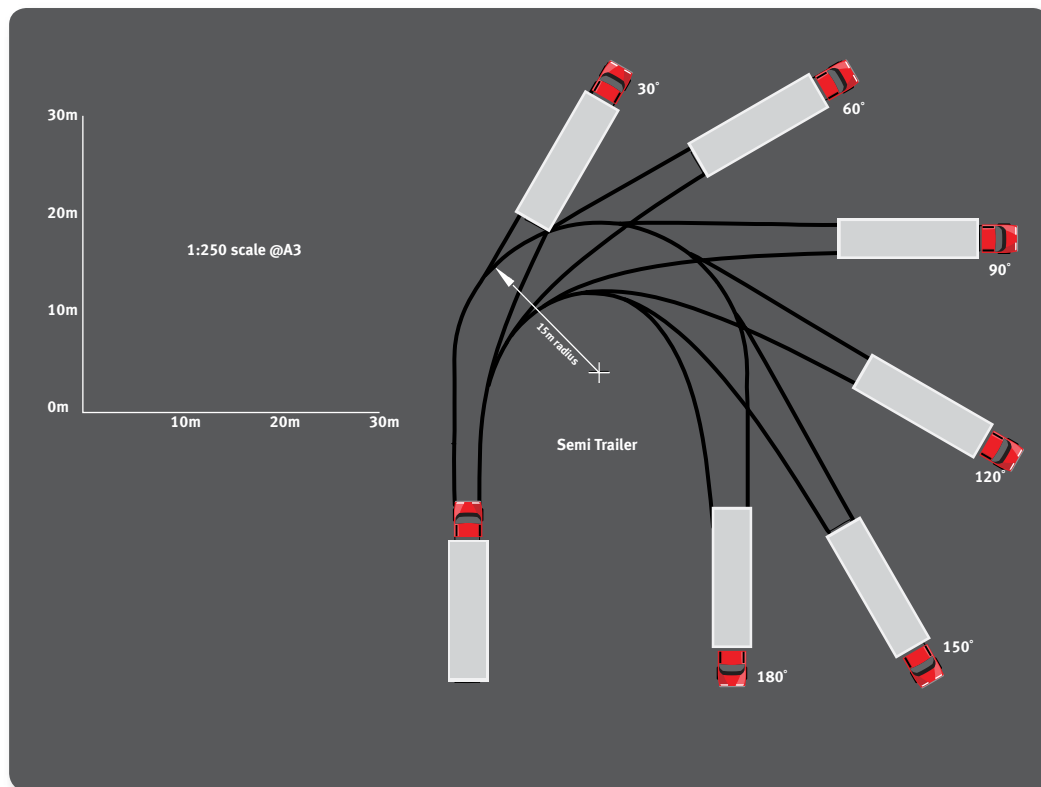
- at low speeds, the rear wheels track inside those of the prime mover
- at high speeds, the rear wheels can track outwards.





Where the bend has a curb, the rear wheels may strike the curb, causing the vehicle to roll over.

The turning radius of all heavy vehicles will be different. Make sure you understand the space required to make the sharpest turn for the vehicle that you are driving and make your turns accordingly.



## Reversing

When reversing an articulated vehicle you must use the correct technique. Remember that the trailer moves contrary to the direction of the steering. Your driving instructor will advise you of the correct driving technique for the type of vehicle you are driving. Reversing into tight spaces, such as at a depot, at a construction site or into a loading bay, may require repositioning the vehicle several times. Do not be concerned about this. You are driving a large vehicle which has more limited turning capabilities than a small vehicle.

### Tips for Reversing with a Trailer

1. Set up your vehicle so that the trailer is directly behind it, with all wheels pointing straight ahead.
2. Avoid sharp turns.
3. Reverse slowly. This allows you to make small corrections as you go, so that you stay on course.
4. Use all your mirrors which help you to see that the trailer is correctly positioned.
5. Correct any drifting off-course immediately by turning the steering wheel into the direction of the drift.
6. If necessary pull up, move forward and try again.

## Changing Gears

Changing gears smoothly and at the right time will help you to keep a steady speed and keep your vehicle as close as possible to the speed of surrounding traffic. If you make gear changes at the wrong engine speeds, you will waste fuel and you could damage the engine by causing it to “labour” or over-rev. Gear changes made at the wrong engine speeds are bad for the clutch. Changing gears without using the clutch properly (“crunching” them) will also damage the transmission.

### Double-clutching

Some vehicles with gear boxes need to be double-clutched to change gears. With most manual transmissions gear shifts are quicker and smoother if you double-clutch. To double-clutch, check that you do what the vehicle manufacturer’s handbook suggests on gear changes, and/or go through the following sequences:

- press the clutch
- shift to neutral
- release the clutch
- adjust engine RPM (Revolutions Per Minute or revs) to vehicle speed needed for the change to next gear.

After a little while you will be able to hear what the correct revs are for each gear change. Either let the revs die down or press the accelerator pedal to get the revs correct, then:

- press the clutch again
- shift to the gear you want
- release clutch
- accelerate to required speed.

Double-clutching requires practice. If you have trouble engaging your new gear, do not force it. Return to neutral, re-adjust your revs with the clutch pedal out, press the clutch pedal and try again.

## Knowing When to Shift Gears

There are two ways of knowing when to shift gear. You could use either or both.

**Engine speed (RPM).** The vehicle manufacturer’s handbook will specify maximum and minimum revs and road speed for each gear. Your vehicle may have a tachometer, which measures engine revs. If so use it.

**Engine sound.** After a while you will recognise, from the sound of the engine, when to change gear.

### Changing down gears

There are special times when you should change down gears:

- going up hills
- slowing or stopping
- before entering a bend
- before turning
- before starting down a hill.

## Braking

You must be familiar with all braking devices and how they work for your vehicle. You should know what sort of braking system your vehicle has; whether it has hydraulic brakes or air brakes. You should also know the height, weight and width of your vehicle. Your instructor will give you further training as part of the vehicle training you have to undertake.

### How Brakes Work

Most heavy vehicle brakes are designed to operate most effectively when the vehicle is loaded. When the vehicle is unloaded or only partially loaded, the braking performance is very different. So, take care and be sure you know how to control the different behaviours of the vehicle, whether it is loaded or unloaded.

Most heavy vehicles use air brakes rather than the hydraulic type brakes fitted to passenger cars. But some rigid vehicles do use hydraulic brakes.

### All Brakes

Brakes should be applied with steady pressure at the beginning of a stop, and then eased off as the vehicle slows. Just before the vehicle comes to a complete stop, brakes should be released enough to avoid a jerk and rebound, then applied again to hold the vehicle.

**Effect of load.** The heavier your load, the harder it is to stop and the more distance you need to stop. With a heavy load, you must brake earlier and harder.

### Air Brakes

Air brakes are often used in heavier and multi-axle vehicles, and will feel different from hydraulic brakes. There is a delay of up to one second for air to reach the brakes after you push the pedal, and then it will take a further time for the vehicle to stop. This means that you need to think well ahead and brake much earlier than you would in a light vehicle.

## Braking on Hills

Continuous heavy braking on a long hill will cause brake linings to heat up. After a while the brakes will no longer slow the vehicle. This is called “brake fade”. To help reduce brake fade, shift into a lower gear before starting down a hill. This will slow the vehicle down so that the brakes do not have to be used as much. However, it will not reduce the need to use the brakes altogether, so you need to be careful. When you reach the bottom of the hill you should shift back into a higher gear.

Brakes should not be fanned (alternately applied and released) except on slippery pavement where this type of braking gives better control, reduces danger of skidding and gives a shorter stop. Fanning reduces air pressure and serves no useful purpose on dry pavement and fanning on a long downhill grade may reduce air pressure below the minimum pressure needed for proper brake operation.

## Braking With an Empty Vehicle

An empty vehicle, or one with a light load, is very different to handle. You notice this most when braking, steering and going up hills. You may need to adjust your braking if your vehicle is empty.



## *Part 7: Planning and Observing While Driving*

### Looking to the Right Place at the Right Time

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Because you share the road with other drivers, you need to be looking around you all the time to know what other traffic is doing. You need to know the size of your vehicle and how it handles, so you can always have enough space between your vehicle and other vehicles that can accelerate and brake more quickly than you can.

You need to be observant and to look ahead.

Check in all directions around your lane. Failure to do so is a major cause of crashes. We all look ahead on the road as we drive. Heavy vehicle drivers need to look further ahead because stopping, changing lanes and turning takes more time in a heavy vehicle. You need more time to get ready to stop or move left or right.

### What to Look For On the Road

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#### **How Far Ahead You Should Look**

Because large vehicles take a longer time to slow down and stop, you should know what is on the road ahead, where you will be in the next 12 to 15 seconds. If you are not planning that far ahead, you may have to stop quickly or change lanes suddenly.

You also have to notice things closer to you, on each side and behind you. Check both sides, in your side mirrors and near and far ahead of your vehicle all the time.



## What to Look For

In heavy vehicles you have the advantage of being higher, so you can see further down the road than the driver of a smaller vehicle. However, the height of your vehicle can also be a problem. Know how high your vehicle is and watch for low bridges, telephone and electricity wires, or any low over-hanging objects.

## Traffic

Watch for cars entering the road in front, changing lanes or turning. Look for the indicators and brakes lights of other vehicles or their unexpected movements. Keep a special watch for pedestrians crossing the road ahead. Be prepared to adjust your speed to avoid unexpected hazards.

## Road Conditions

Watch for curves, merging lanes, potholes, slippery surfaces and loose sand. Always try to be aware of the road surface conditions and adjust your driving technique according to the conditions.

## Workers on the Road

Be extra careful when driving through construction zones and areas where people are working on or near roads. When approaching a construction zone, slow down and obey all warning signs and people who are directing traffic through the area.

Whilst in the construction zone, drive carefully and adjust your speed and driving to suit the conditions. Obey posted speed limits, be ready for sudden stops and watch for workers and construction vehicles on the road. Give them more room to ensure everyone's safety.

Traffic control people are used at work zones to control traffic and prevent conflicts between construction activity and traffic. Whether you are driving at night or during the day, watch for traffic control people and follow their instructions.

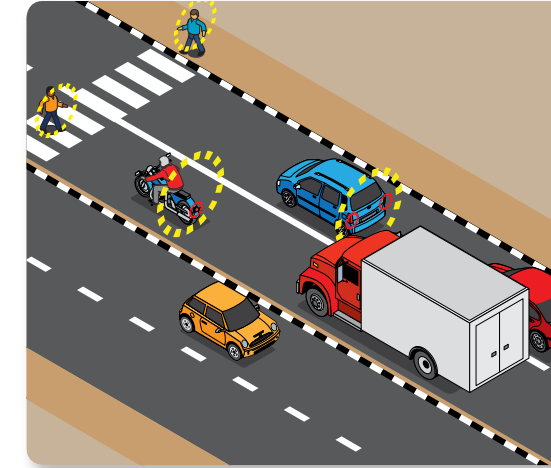
Treat people working on roads with respect and be patient if traffic is delayed. Sometimes traffic in one direction must wait while vehicles from the other lanes pass through a detour. When the way is clear, move slowly and carefully around the obstacle.

## Check for Road Signs and Traffic Signals

If a traffic light has been green for a long time, slow down and prepare to stop in case it changes to amber, then red before you get to it. At some intersections in Dubai the green light will start flashing to warn you that it is about to change to amber. Prepare to stop as soon as you see this happening.

Where there are parked vehicles, keep a special lookout for:

- vehicles leaving the curb
- vehicles leaving driveways
- pedestrians crossing from between parked vehicles.



Other road users do not know how long it takes you to stop. They misjudge your speed, so you have to make allowances for other drivers' mistakes. Good professional drivers see hazards and understand how to act in time to prevent a crash. You are on the road for much longer periods than other drivers and so should be much more aware of what is going on around you. Keep scanning the road for anything unusual ahead of you. You should be able to identify hazards early and understand the need to adjust your driving.

Remember that you are driving a large, heavy vehicle and you must take responsibility for driving in a way that protects both your safety and the safety of those around you.

## Regular Mirror Checks

### Using Your Mirrors

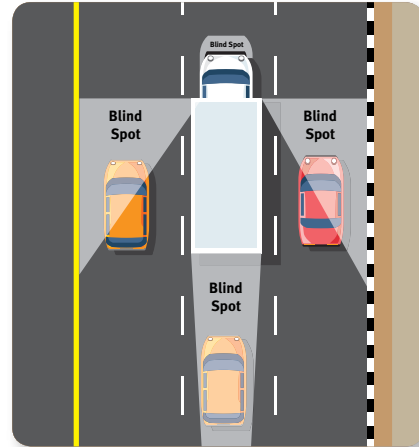
Use all mirrors to check traffic beside and behind you. Glance in your mirrors often. When you are looking in a mirror, you are not looking ahead. Do not glance in mirrors for more than one second at a time. When you are travelling at 60 km/h, you will have travelled nearly 17 metres in one second. At 90 km/h, you will travel 25 metres in one second. So glance quickly at all mirrors and back at the road ahead. Make sure that you understand what you see in your mirrors.

Use your mirrors to keep a check on your tyres. Especially watch out for tyre fires. You can use mirrors to check on your trailer. Also use the mirrors to check that your trailer is straight behind you, not drifting to one side.

### Blind Spots

You need to check your mirrors often for overtaking vehicles, but there are some blind spots where the mirrors cannot help you. There are also other areas beyond the range of your mirrors. Smaller vehicles right behind you and level with the cab beside you are hard to see.

If you use your mirrors all the time, you may see them before they move into the blind spots. You will know that they are there.



### When Changing Lanes, Turning or Merging

There are also mirror checks you must make when you change lanes, turn, merge into traffic and go through tight spaces.

**Changing lanes.** Before you change lanes, check your mirrors to make sure no-one is beside you or is about to overtake you. Check to be sure that:

- there is enough space
- your path is clear.

**Turns.** As you make a left turn, check your mirrors to make sure you will not hit any stationary vehicles parked or stopped close to the intersection of the street into which you are turning. Remember to allow space for the cutting-in of the rear end of your vehicle!

As you make a right turn, use your right mirror. Check that your rear wheels do not mount the curb, strike a post or hit a parked vehicle. Also be very careful to check that a car is not trying to overtake you on the right side.

**Merge.** When you are about to merge, use your mirrors to check that there is enough room for you to enter your new lane safely. Traffic behind may have sped up or changed lanes so that there is less room for your move.

**Tight spaces.** When driving through a crowded intersection or narrow road, keep checking your mirrors. Make sure you can get the full length of your vehicle through without hitting anything.

## What to Watch Out For When Reversing

Because you cannot see what is directly behind you, reversing is risky. If you reverse, make sure you do the following:

**Inspect your path.** Check your line of travel before you begin. Make sure the road or surface will support the vehicle.

**Check your clearance.** Check for low, over-hanging objects.

**Reverse slowly.** This way you can easily correct steering errors and stop quickly.

**Reverse and turn to driver’s side.** Because you see more in the left mirror than the right mirror, it is safer to reverse in by reversing to the left (driver’s) side, where you can see more. Reverse and turn to the driver’s side wherever you can. When turning towards the driver’s side, you can watch the rear of your vehicle out the side window and in the left mirror. You cannot see as much in the right mirror. With a box trailer you will see nothing but the front right corner of the trailer in the right mirror.

**Use a person to help guide you.** You cannot see directly behind your vehicle. There are other blind spots. So use a person to guide you wherever you can. The guiding person should stand where they get the clearest view of your vehicle and can signal to you. You probably will not be able to hear your guide properly, so work out some hand signals for communication before you start.

*A guide can see your blind spots and guide you through them.*



## How to Make Space Around Your Vehicle

To drive safely you need space all around your vehicle. Space gives you time to stop. Space gives you time to check your mirror and make a lane change. Manage your space all the time.

### Space in Front

It is important that drivers remember to keep a safe distance between themselves and the vehicle in front of them. Heavy vehicles require much more space to stop than small vehicles. It is necessary to leave a space of at least three seconds in front of your vehicle when you are travelling at a low speed and over five seconds if you are travelling at 80km/h. Check the table above to see how much space you need to leave while travelling at different speeds.

Counting time to create space in front of your vehicle	Speed km/h – Seconds behind vehicle in front
	25 km/h →→→→→→→→→→3.0 secs
	40 km/h →→→→→→→→→→3.5 secs
	60 km/h →→→→→→→→→→4.5 secs
	75 km/h →→→→→→→→→→5.0 secs
	90 km/h →→→→→→→→→→5.5 secs
	100 km/h →→→→→→→→→→6.0 – 7.0 secs

It is important to remember that the table gives space for vehicles:

- with good tyres and brakes
- driving on good quality, sealed roads
- driving on dry roads.

To count the seconds between you and the vehicle in front, count off the seconds from when they have passed a fixed object. Stop counting when the front of your vehicle reaches the same object. If you are not enough seconds behind the vehicle in front, ease off the accelerator.



Count the seconds required by saying these words slowly to yourself:

- one thousand and one
- one thousand and two
- one thousand and three and so on.

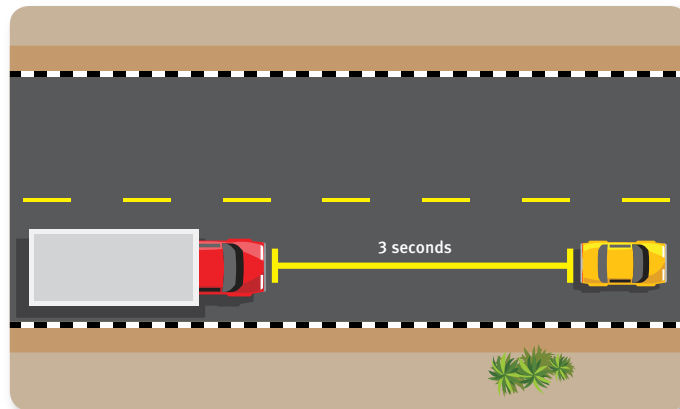
### Space Behind Your Vehicle

You cannot force other vehicles to stay a safe distance behind you. But you can make sure that you do the best you can in managing space around your vehicle. Heavy vehicles are often “tailgated” when they cannot move as fast as other traffic, for example when going up a hill with a heavy load. Tailgating is when another vehicle drives too closely behind you.

### Handle Tailgaters Safely

When being tailgated, follow these tips:

- Slow down gradually if safe to do so. This will encourage other drivers to overtake.
- When turning, merging or changing lanes avoid quick changes of speed, slow down gradually and signal early.
- Increase your following distance – the distance between yourself and the vehicle you are following. Opening up more room in front of you reduces the risk of having to make sudden changes to speed and direction.
- Do not speed up. Tailgaters will tend to stay behind you and a slow speed is safer.



### Changing Lanes

If you want to return to your lane after overtaking another vehicle, the extra length of your heavy vehicle makes it hard to judge whether you can change lanes safely. You should follow these tips:

- when in doubt leave plenty of space and time
- use your mirrors to check that you can see the vehicle behind you before moving back into your original lane.

### Drive in the Centre of Your Lane

To keep a margin of safety on both sides of your vehicle, drive in the centre of your lane.

### Space Above Your Vehicle

Know the height of your vehicle and your load. Be cautious when going under trees, bridges, overhead signs, traffic lights, power lines and other wires.

### Space for Turns

Space around a heavy vehicle is very important for turns. Because of cutting-in, heavy vehicles often sideswipe other vehicles and objects during turns.



## Right Turns

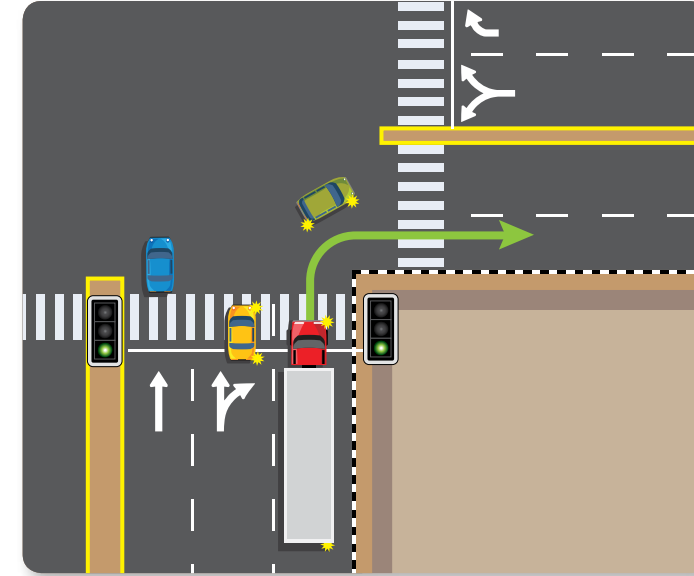
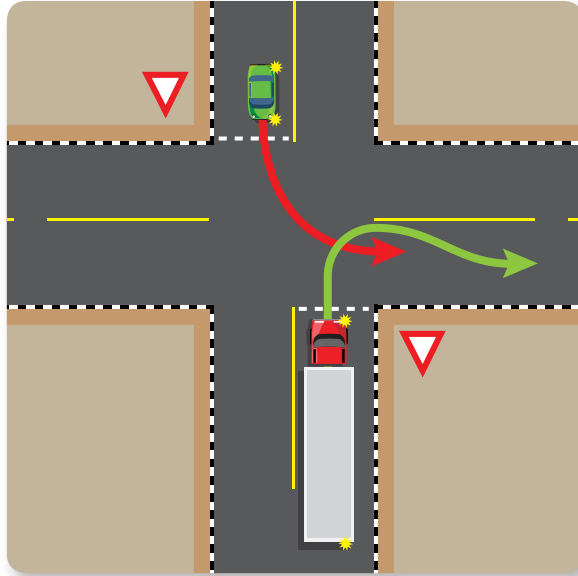
Intersection markings are often too tight for large vehicles. It is likely that you will have to approach the turn wide to make a right turn. Try to place your vehicle so that others behind cannot overtake on your right. Make sure you have the best view possible of the road into which you are turning. If you are towing a trailer or are driving a semi-trailer, turn as wide as you need so that your trailer safely enters the right lane of the road into which you are turning.

Heavy vehicle drivers need to start a right turn further into an intersection than a car. This way, the back wheels do not run over the curb. The longer your vehicle, the further into the intersection you have to drive before you start turning.

If you are driving a vehicle that does not have power steering, you will need to start turning earlier and give yourself more room than if you are driving a vehicle with power steering. Make sure that you make the appropriate adjustments.

### Remember Your Vehicle's Length

Be careful of oncoming traffic in the street into which you are turning. Watch the cut-in of the back of your vehicle. Use your right mirror to check that you will clear poles and parked cars on your right.



### Two Right Turning Lanes

When there are two right turning lanes, always start your turn so you are mostly in the turning lane that is furthest to the right. If you only use the right turning lane that is closer to the centre of the road, a car may try to move into the lane on your right. The car driver will not expect your vehicle's rear to move into their lane as the back of your vehicle cuts in. Remember, vehicles on your right side are always harder to see in your mirrors.

## Left Turns

Make sure your vehicle is close enough to the middle of the intersection before you start to turn to allow for the rear of your vehicle's cut-in. The back of your vehicle could hit cars waiting at the intersection. The longer your vehicle, the more you have to allow for cut-in.

### Two Left Turning Lanes

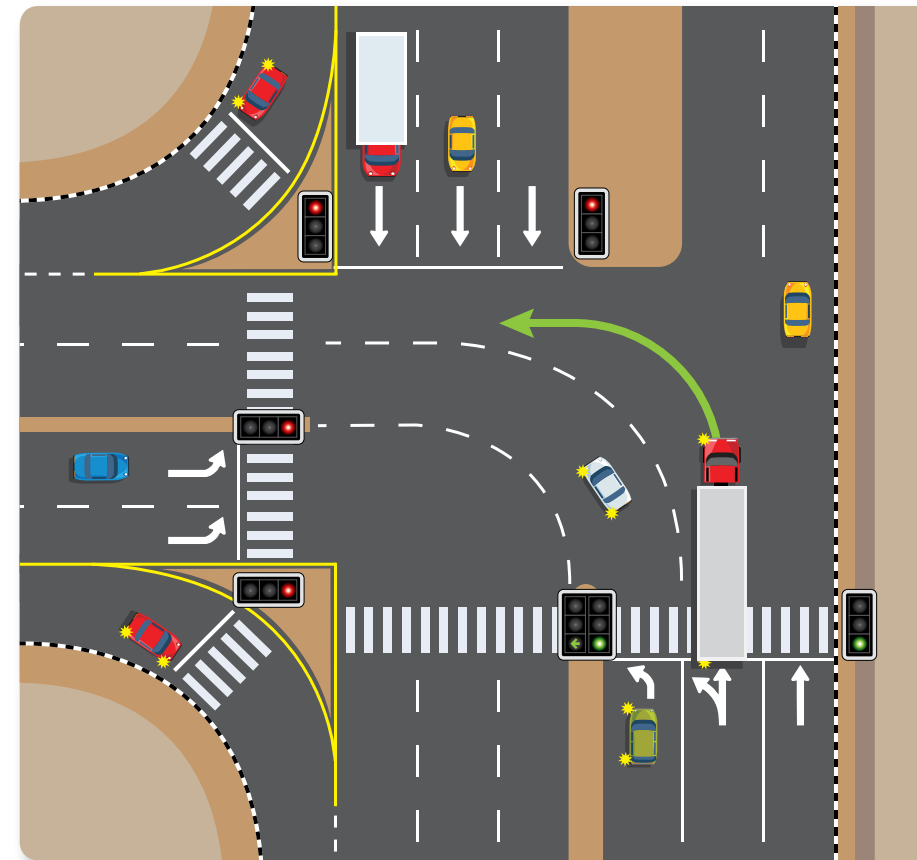
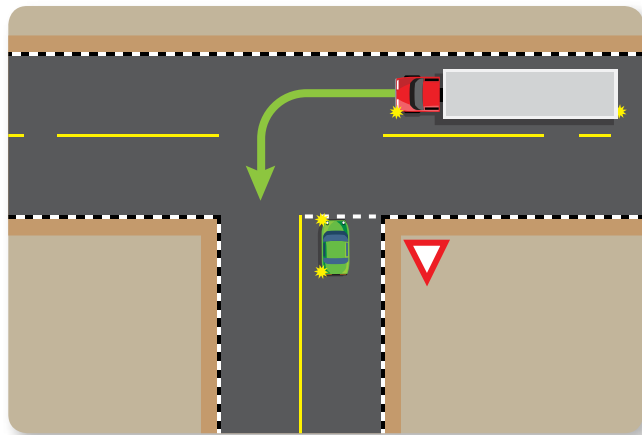
If there are two left turning lanes, always start your turn so you are in the left turning lane nearest to the right of the road. Check your right mirror for cars overtaking on your right side, which may turn to the left in front of you.

Use your left mirror to check for traffic that might overtake on your left.

### Leaving Space When Turning Across Intersections

You need to allow for the size and weight of your vehicle when you turn. Remember:

- Your acceleration is slower and you need a large amount of space. You must have a large gap in traffic to turn into a new street.
- If your vehicle is loaded, it will be slower than when it is empty.
- You need to judge a gap in the traffic that is big enough for you. You need to get all of your vehicle safely through the intersection.



## Test Yourself Questions

*(Answers to Test Yourself Questions are upside down at the bottom of this page)*

**Q1 Cut-in means that:**

- A the rear wheels follow a longer path than the front wheels.
- B both sets of wheels follow the same path.
- C the rear wheels follow a shorter path than the front wheels.

**Q2 The best way to use your mirrors is to:**

- A look in each mirror for 1 second.
- B glance in your right mirror and then look over your shoulder.
- C glance quickly in all mirrors and then back at the road ahead.

**Q3 You should handle tailgaters by:**

- A gradually slowing to encourage them to overtake.
- B flashing on your brake lights to warn them they are too close.
- C getting off the road onto the shoulder to let them overtake.





## **Part 8: Sharing the Road With Others and Speed Management**

When you are driving, you know what you are about to do, for example change lanes or make a turn. Other drivers do not know, unless you show them. If you make sure that other drivers know that you are there and what your plans are, you can help to prevent crashes.

### **Driving Courtesy**

The road is there for all road users. You should always show courtesy and patience to other road users. Your vehicle will obscure the view of drivers behind you. They may not see a red traffic light ahead. Give drivers behind you as much warning as possible of your intentions to slow down or stop.

You should never travel closely behind another vehicle, particularly a car, as it can be intimidating and viewed as aggressive behaviour.

Maintaining a positive attitude whilst driving will help to reduce stress and enable you to remain focused on the road.

### **Driving When Angry**

Drivers do not always do the right thing and often make mistakes on the road. Some people get angry because of a mistake or action of another driver and become violent.

You can avoid becoming a victim of another driver's anger easily by:

- showing that you know you have made a mistake, if you have made one
- keeping calm and keeping your distance from other vehicles – do not tailgate
- driving cooperatively and considering other people on the road.



Remember, if you drive aggressively it is likely that you will intimidate other drivers simply because of the size of your vehicle. Most importantly, it is likely that you will get into a situation that you will not be able to get out of. You will not have time to stop or take evasive action, which might result in a major crash causing serious injury or even death.

## Communicating Your Presence to Other Drivers

Make sure other road users know where you are when things such as these happen:

- **Overtaking.** If you are overtaking another vehicle, a cyclist or a pedestrian, assume that they do not realise where you are. If necessary, a light tap on the horn will warn them of your presence without scaring them. People who are suddenly scared may swerve out into your path.
- **Another driver unexpectedly signals a turn or turns without signalling.** Although this is bad driving practice, it does happen. So be prepared to react quickly. If necessary, sound your horn.
- **It is hard to see.** At sunset or sunrise, in sand storms or rain, a heavy vehicle can be just as hard to see as any other vehicle. Also, keep a careful look-out for motorcyclists and cyclists at times when it is hard to see.
- **Parking at the side of the road.** You should only park where your vehicle will not obstruct other traffic and where local regulations allow.
- **Parking requirements during the day.** Use hazard warning lights if you are stopped and there may be a danger to traffic.
- **Parking requirements during the night.** Use all required parking lights and use hazard warning lights if there may be danger to traffic.

If your vehicle is disabled, there are guidelines to follow:

- At all times. If possible, you should park your vehicle on the side of the road or a part of the road not used by the main body of traffic.
- During the day. Use reflective triangles and hazard warning lights if your vehicle could be a danger to other traffic.
- At night. You should have all lights switched on and, if your vehicle could be a danger to other traffic, use your hazard warning lights.

### Reflective Triangles

You must display reflective triangles if your vehicle, or any part of your load that has fallen onto the road, is not clearly visible for 200 metres in any direction. You should put one triangle between 50 metres and 150 metres in front of the vehicle or fallen load, one at least 50 metres to the rear of the vehicle and one on the side of the vehicle or fallen load in a position that gives sufficient warning to other road users.

### Clearance Lights

If your vehicle is over 2.2 metres wide, all clearance and side-marker lights must always be on at night when stopped or parked on a road, unless there is sufficient street lighting for you to be easily seen. If your vehicle is less than 2.2 metres wide, it must have its parking lights on. If any of the lights are not working, you must use reflective triangles.

### Yellow Load Lights

Trucks are required to have revolving yellow lights on the roof of the cabin, which must be switched on when the truck is loaded and moving. They must be switched off when the truck is not loaded.



## Signalling Your Intentions

You are legally required to show other road users what you are going to do when making turns or lane changes:

- **Signal early.** Make sure that it is safe to turn and then signal early to give sufficient warning to other road users before starting a turn or lane change.
- **Keep the signal going.** Do not cancel the turn signal until you have completed your turn or lane change.

## Managing Speed

Managing speed is one of the important parts of safe driving.

In Dubai, overspeeding or excessive speed contributes to up to 80% of all injury crashes. There is a clear link between speed and crashes.

Good drivers can reduce this risk by choosing to:

- drive more slowly
- scan the road ahead for possible hazards
- increase the space between them and the car in front
- stay behind rather than overtaking
- always travel at a speed that will allow enough time for them to brake.

The faster you are going, the more distance you will cover between seeing a situation where you need to use the brake and actually getting your foot on the pedal to start braking.

Also, the faster you are going, the more distance you will cover while braking before you actually stop. The following table gives some figures for a typical heavy vehicle on dry roads.

Stopping distances for different speeds assuming – dry road, roadworthy tyres, fit and alert driver

Speed Kilometres per hour – kmh)	Distance travelled (Metres per second – m/s)	Metres (m) travelled when you see you have to stop until vehicle begins to slow down	Metres travelled while braking	Total stopping distance in metres (m)
20 kmh	5.6 m/s	14	9	23
40 kmh	11.1 m/s	26	27	56
60 kmh	16.7 m/s	42	56	97
80 kmh	22.2 m/s	56	102	156
100 kmh	27.8 m/s	69	145	214

These figures are based on research into the capabilities of an average driver. The distance travelled while braking and the total stopping distance will vary according to conditions. What this means for you is that the faster you are travelling, the more time and distance you have to allow before you can stop.

## Adjusting Speed

There is no single safe speed. You must adjust your speed for the road surface. Be careful with slippery surfaces. It takes much longer to stop or turn on slippery roads. If the road is sandy or wet, reduce your speed by 15-30 km/h.

## Bends

The faster you are travelling, the harder it is to turn and the more distance it takes to turn. If you turn too fast, you may end up in a skid.

Adjusting your speed before taking a bend is important in a heavy vehicle because of its high centre of gravity. If you take a bend too fast your wheels could skid, the vehicle could roll over or the load could move or even roll off the vehicle. Ease off the accelerator and change down your gears before entering the bend.

### How Far Can You See?

Adjust your speed according to how far you can see. Look at the table on the previous page to see the difference between seeing distance and stopping distance. You should drive at the speed that will let you stop within the distance you can see ahead of you.



### Test Yourself Questions

*(Answers to Test Yourself Questions are upside down at the bottom of this page)*

**Q1 When stopped in a dangerous position on a road, you should:**

- A sound your horn.
- B switch on your hazard warning lights.
- C stand well clear of the vehicle.

**Q2 When the road is slippery, you should:**

- A drive slowly and carefully.
- B watch out for road speed sign warnings.
- C change up your gears.

**Q3 Reflective triangles should be used:**

- A at night when it rains.
- B if your vehicle cannot be seen from a distance of 200 metres in any direction.
- C if your vehicle is parked more than 100 metres from a corner.





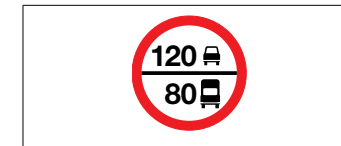
## Part 11: The Law

This part tells you about laws for owners and drivers of all categories of heavy vehicles. In addition to these laws, drivers of heavy vehicles must comply with all road laws. A summary of these road laws can be found in the Light Motor Vehicle Handbook. You should have a copy of it to read together with this handbook.

### Speed Limits

All heavy vehicles must travel at speeds no greater than the speed displayed on a speed limit sign. Some signs have two speeds listed, one for light motor vehicles and one for heavy trucks.

Drivers of heavy trucks must take note of the lower speed limit that applies on these roads. You will find these signs on major highways and freeways. They are intended to make sure that heavy vehicles are travelling at a safe maximum speed, given their larger size.







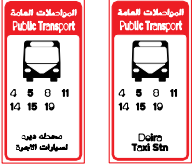



Remember, the speed limit may not always be the safe speed for a heavy vehicle because of the vehicle's different handling, higher centre of gravity and performance. Drivers should always travel at a speed which is safe for the conditions.



Signs

There are a number of signs that are specially for drivers of heavy vehicles. These include the ones shown below.

	Drivers of goods vehicles must not proceed beyond this point. These signs are often placed in residential or narrow streets, where it is not appropriate for trucks or large vans to be travelling.
	Drivers of vehicles above 4.2 metres are warned there are low structures ahead that their vehicle will not fit under. You will come to this sign before you come to the one below.
	Vehicles above 4.2 metres must not proceed beyond this point. This sign indicates that there is a low bridge or other structure ahead and that you must not proceed if your vehicle is higher than the limit shown. Vehicles will not fit under these structures if they proceed.
	Only designated delivery vehicles may park here. These signs are placed outside buildings where frequent deliveries are made.

	This area of road is reserved for the stopping of Public Transport buses only.
	The loading and unloading of vehicles is allowed for 1 hour only. These signs are placed in areas such as shopping or commercial business areas where short deliveries are required.
	Goods vehicles are prohibited from using these lanes. These signs are intended to regulate the movements of heavy vehicles including buses, making sure that they stay in the slow lanes and do not impede the flow of faster moving traffic.
	Vehicles wider than 2.4 metres must not proceed beyond this sign. These signs will be found at the entrance to narrow streets.

	Heavy trucks must not use roads displaying this sign during the times shown.
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## Seat Belts

In Dubai it is a legal requirement that drivers of vehicles must wear a properly adjusted seat belt. Passengers in trucks are also required to wear seat belts. Passengers in buses should also wear seat belts if they are fitted.

Seat belts hold you securely in place. If you are the driver, this helps you to control the vehicle in a crash. They protect **everyone** in the vehicle. If a seat belt is not worn, people inside the vehicle continue to move around at the speed of travel before the crash. Serious injuries often result when people are thrown into each other or parts of the vehicle such as the steering wheel, gear lever, windscreen or, in the case of a bus, the seats in front of passengers. Seat belts give you a greater chance of escaping serious injury. If you are not wearing one you could be thrown from your vehicle which will increase your chance of being killed or more seriously injured.

## Parking

As a professional driver you will need to park your vehicle in a range of different places. When parking a heavy vehicle for any length of time, park away from houses, shops and schools, and as far away from moving traffic as possible. Always park your vehicle in a safe position where it can be seen by other vehicles and traffic is not forced to divert around the vehicle.

Be aware of where you can and cannot park, and how long you can park. There are a number of places where you must not stop or park your vehicle. You must comply with all parking signs that apply to the area. If you do park in these areas, you could be a hazard to other road users and you will be fined. See details of parking signs earlier in this section.

## Part 13: Safe Driving Tips

The aim of this handbook is to help you become a safe and responsible heavy vehicle driver. Driving a heavy vehicle is not easy and it takes a lot of time and practice to become a good driver.

The list below identifies some important driving tips for you to remember:

- Know your vehicle - height, weight, and load limit.
- Do not exceed vehicle load limits. Ensure that the vehicle you are driving is suitable for the load.
- Restrain the load so that it can not move, or fall, whilst driving.
- Keep your vehicle in good mechanical condition. Conduct a daily vehicle inspection.
- Plan your trip in advance. Allow sufficient time to reach your destination - do not rush.
- Fasten your seatbelt (every trip).
- Alter driving to suit weather conditions.
- Do not be under the influence of drugs and alcohol.
- Learn to recognise driving situations that can be hazardous. Utilise the height of your vehicle to see further ahead. Take note of improper driving actions of others and do not repeat them.
- Allow sufficient space between you and the vehicle in front – do not tailgate.
- Do not exceed the speed limit for heavy vehicles. This is displayed as the lower speed limit on a speed sign.
- The faster you go the more likely you are to have a crash. Speed is a contributing factor in 80% of all crashes in Dubai.
- Obey all traffic signs and markings. Never try to beat traffic lights.
- Watch for cars entering the road ahead, changing lanes or turning.

- Plan and signal well ahead when you want to change lanes or overtake.
- If you are not sure that you have enough time to turn safely or change lanes, just wait. A few seconds or minutes could save your life.
- Concentrate, keep your mind on the road.
- Stay alert. Take rest breaks whenever possible.
- Expect the unexpected from drivers.
- Watch for pedestrians. In 2007, pedestrians accounted for 43.7% of fatalities and 26.3% of all injuries that occurred on Dubai roads.
- Whenever practical, pull over and check the load remains securely stacked.
- If possible avoid driving at night. During 2006, 45% of crashes occurred during the night.

