skills for driving trucks and trailers

This chapter is particularly useful for people working towards a Class 1 or Class 3 licence. You’ll find information about driving with a trailer, loading, transporting dangerous goods and reporting to weigh scales.

What you’ll learn

After studying this chapter you’ll be able to:

- describe the safety considerations and basic techniques for driving with a trailer
- list the steps for coupling and uncoupling a tractor and trailer
- identify the various devices for securing loads and describe how to use them to safely secure a load
- describe how to safely handle special cargo such as livestock, liquid tank loads, etc.
- list the nine classes of dangerous goods; describe the legal responsibilities of transporting dangerous goods; and describe what to do in an emergency situation involving dangerous goods
- list the allowable vehicle and load dimensions and describe the requirements for oversized and overloaded vehicles
- describe the two different types of weigh scales and when a driver is required to report to a weigh scale.

Driving with a trailer

Manoeuvring a vehicle that has one or more trailers is a difficult skill to learn, but most Class 1 drivers do it every day.

Backing up

Back up is always dangerous because you can’t see everything behind your vehicle. For some general guidelines on backing up with or without a guide see chapter 3, basic driving skills, backing up.

A tractor with a semi-trailer has an articulation point (where it pivots). This makes backing up more complex.
Then turn the steering wheel the other way as soon as your trailer begins to turn. At this point, you should be turning your steering wheel in the same direction as your trailer is travelling. As your trailer begins to turn, your tractor must begin to follow a path that matches the trailer’s path. If it isn’t you risk jackknifing your vehicle. A tractor-trailer combination backing into a normal right-angle turn would follow an S-shaped curve.

**Towing trailers**

Towing trailers requires more skill and practice than operating a single-unit truck. When you’re towing, you must steer carefully. A sudden movement could cause your trailer to roll over and your tractor may follow, a major cause of death among truck drivers.

A loaded vehicle is more likely to roll over than an empty vehicle. Drive slowly around curves and make your turns gradually. Rollovers can happen when you turn too quickly.

You can help prevent rollovers by loading your cargo correctly. This is important on any type of vehicle. The higher your vehicle, the longer your trailer or the more trailers you’re towing, the more important correct loading is.

Keep your cargo as close to the centre of your rig as possible so it doesn’t cause your trailer to lean. It’s also critical to spread out your cargo and keep it as close to the trailer deck as possible. As the height of a load increases, the midpoint of the weight (the centre of gravity) moves higher. A vehicle with a higher centre of gravity is more likely to rolling over.

**Towing doubles**

When towing two trailers, there’s more chance of a trailer jackknife or trailer rollover, and the last trailer in a combination is the most likely to rollover. Here are some safety tips:

- Drive even more smoothly and consistently — accelerate smoothly, brake smoothly, and steer smoothly.
- Allow extra following distance and allow even more time when accelerating, passing or overtaking.
- Remember that a safe speed for a straight truck or a single trailer combination vehicle may be too fast when towing multiple trailers.
- Check your mirrors often so that you’re aware of traffic behind you and traffic that may be passing you. Stay centred in your lane. There will be more offtrack when towing two trailers than with one trailer. Remember that in turns and curves, the extra length and extra articulation points mean you may encroach onto the lane beside you.
• Be careful when entering and exiting highways. Smoothly accelerate and steer onto highways, and make sure you have plenty of space to merge. When exiting, slow down well in advance. Deceleration lanes often are curved and some have a stop sign or traffic light at the end, so make sure you have slowed enough to drive through the curve and to safely stop at the end if necessary.

• Different trailer weights can affect the handling characteristics of the combination. Couple the more heavily loaded trailer to the tractor with the lighter trailer behind.

• Take care when coupling and uncoupling multiple trailers. If the trailers have spring brakes, make sure they’re applied before coupling. If the trailer doesn’t have spring brakes, make sure the trailer is blocked to hold it in position for coupling.

• Since it’s difficult to back up with two trailers, you may first want to disconnect the rear trailer.

• Never unlock the pintle hook with the dolly still under the rear trailer. The dolly tow bar may fly up, possibly causing injury, and make it very difficult to re-couple.

Swerving and whipping

Whenever you tow a trailer, there’s a danger that the trailer will begin to swerve or whip (that is, move quickly and independently of the tractor, back and forth across the roadway). This is extremely dangerous and must be dealt with immediately.

Whipping and swerving may be caused by:

• driving too fast for the conditions

• sudden steering changes

• improper trailer connections

• shifting loads

• dragging brakes

• a flat tire.

If your trailer whips or swerves, slow down and stop as soon as it’s safe. A small problem can quickly turn into a serious hazard.

Some type of adjustment will be needed to fix whatever has caused your trailer to whip. You may need to fix a mechanical problem, adjust your load or change your driving. The only way to discover whether your trailer was swerving because of a serious mechanical problem is to stop and check your vehicle. Even if the swerving stops when you slow down, it’s still important to stop and check your vehicle and load. The whipping and swerving may have shifted your cargo or loosened a trailer connection.
Parking
Block the wheels of a parked trailer so it can’t roll.

The air pressure in the trailer air tank will bleed down over time when the trailer is parked. How fast it bleeds down will depend on how much the trailer system leaks. If the trailer is not equipped with spring brakes and the trailer air tank(s) drains, the trailer brakes will release as air pressure drops. If the trailer is equipped with spring brakes and the trailer air tank(s) drains, the trailer brakes will remain in the applied position.

Preparing to tow
Almost all Class 1 drivers, and many drivers with a different class of licence, will need to become experts on coupling and uncoupling a tractor and trailer. It’s critical that any trailer you tow is securely fastened to your towing vehicle.

Coupling and uncoupling
Most coupling is done with a fifth wheel or pintle hitch. This section gives you information about parking trailers and coupling and uncoupling units.

Coupling with a fifth wheel
Always use great care when coupling a tractor and trailer, or it can put your safety, as well as the safety of your load and others on the road, at risk.

To couple a tractor and trailer using a fifth wheel follow these steps:

1. Inspect fifth wheel
   Set tractor parking brakes.
   Exit cab.
   Check the following:

   - Fifth wheel
     • inspect for damage, lubrication, security
     • if the fifth wheel slides, check that it’s locked in place to the tractor frame
     • make sure that the fifth wheel is tilted downward toward the rear of the tractor, and that the coupler jaws are open

   - Air lines
     • ensure air lines and electrical cable are supported and routed so that they don’t get in the way when backing under the trailer

Fast fact
Brakes must be properly adjusted for the spring brakes to remain applied and effective.

Fast fact
Some trailers don’t have spring brakes. With these, connect the lines and charge the trailer system. Then apply the trailer brakes before connecting to the trailer.
### 2. Inspect the trailer

| Trailer | • if the trailer is equipped with spring brakes, make sure they have applied  
|         | • check that any cargo is secure  
|         | • check trailer kingpin and trailer apron  
|         | • ensure that the kingpin isn’t bent or broken and that the apron is flat  
|         | • check the location of the trailer kingpin — if it’s set far back from the front of the trailer, the fifth wheel may need to be repositioned to allow turning clearance between the front of the trailer and rear of the tractor |

| Area around trailer | • ensure the area’s clear |

### driving tip

Check the location of the trailer kingpin — if it’s too far back from the front of the trailer, the rear of the tractor cab or tractor frame may strike the trailer while coupling.

To prevent this, adjust the location of the fifth wheel.

### driving tip

You may need to block the trailer tires if the trailer moves backwards when attempting to couple.

### 3. Position the tractor

*Re-enter tractor.*

*Release tractor brakes.*

*Drive the tractor to a position directly in front of and in line with the trailer.*

| Tractor position | • make sure the tractor is in line with the trailer  
|                  | • fifth wheel should be in line with trailer kingpin  
|                  | • check your position using outside mirrors — if the tractor and trailer are lined up, you should be able to see an equal portion of each side of the trailer in each mirror |
4. Back up to the trailer

Turn on four-way flashers and sound horn.

Back up slowly toward the trailer to a position directly in front of and in line with the trailer.

- Tractor position
  - stop when the fifth wheel just touches the trailer apron — don’t back up too far
  - make sure you’re backing in a straight line, not at an angle (if you’re on an angle, this could push the trailer sideways and damage the landing gear)

5. Check height and alignment

Set the tractor parking brakes and exit the cab.

- Tractor and trailer alignment
  - the centre of the trailer apron should line up with the centre of the fifth wheel
  - the trailer apron should be touching the fifth wheel directly above the fifth wheel pivot points — if it’s touching behind or ahead of the pivot point, the trailer height needs to be adjusted

driving tip

If you need to adjust the trailer height:
- adjust the trailer height by cranking the landing gear up or down, or
- raise or lower the air suspension.

Make sure you’re aligned with the trailer before coupling to it.

When you’re backing up, stop when the fifth wheel touches the trailer apron.
6. Connect to the trailer

Re-enter cab.

Turn on four-way flashers and sound horn.

Slowly back the rest of the way to connect the fifth wheel to the trailer kingpin.

- **Trailer connection**
  - use the lowest reverse gear to back up very slowly
  - stop when you feel or hear the trailer kingpin lock into the fifth wheel jaws

- **Trailer connection check**
  - fifth wheel jaws have engaged the kingpin
  - no space or daylight between the fifth wheel and the trailer apron
  - fifth wheel release handle is in the locked position

7. Secure the trailer

Set the tractor parking brakes and exit cab.

Connect the air lines and electrical cable to the trailer.

Re-enter cab.

Turn on lights.

Shut off engine.

Exit cab.

Go under the trailer to check the connection.

- **Trailer connection check**
  - fifth wheel jaws have engaged the kingpin
  - no space or daylight between the fifth wheel and the trailer apron
  - fifth wheel release handle is in the locked position

- **Trailer lights**
  - check that trailer electrical connection is secure by checking trailer lights including tail lights, brake lights, licence plate light, clearance lights and ABS light

- **Air brake leakage**
  - listen for any air leaks from air brake system

---

**driving tip**

If the trailer doesn’t have spring brakes, before backing under the trailer:

- connect the air lines to the trailer
- charge the trailer
- apply the trailer brakes.

**driving tip**

Use the differential lockup for additional traction if it is slippery.

**driving tip**

Use a flashlight to check that the locking jaws on the fifth wheel are securely closed around the trailer kingpin.

Also remove the keys from the ignition so that nobody tries to move the tractor while you are underneath the trailer.
8. Tug test the connection

Raise landing gear until the legs are slightly off the ground (don’t raise the landing gear all the way).

Re-enter cab.

Release the tractor brakes (the trailer brakes should still be applied).

Gently tug against the trailer parking brakes to check the connection.

- Trailer connection
  - trailer kingpin should be securely held by fifth wheel jaws
  - the trailer brakes should prevent the trailer from moving when trying to move the tractor forward
  - re-charge the air suspension if it’s been lowered
  - check for air leakage in the air brake system

9. Prepare to pull away

Set the parking brakes.

Exit cab.

Raise landing gear completely and ensure crank handle is locked in gear and secured.

Remove and store the wheel blocks if they were used.

- Trailer turning clearance check
  - clearance between the rear of the tractor and trailer landing gear
  - clearance between the rear of the tractor cab and front of the trailer (for example, clearance between trailer refrigerator unit and rear of tractor cab, or between front of trailer load and rear of tractor cab)
  - air lines and electrical cable are properly supported and routed so that they don’t get in the way when turning

10. Pull away

Re-enter cab.

Release parking brakes.

Slowly pull away, checking that trailer connection is secure.

At slow speed, apply the trailer hand valve to check trailer service brake operation.

When you turn, the fifth wheel acts as a pivot point. Check to make sure there’s clearance between the tractor and trailer for turning.