



# 6

## OBJECTIVES

Upon completion of this chapter, you will be able to:

- Recognize the steering principles required for successfully backing your tractor-trailer
- Recall general guidelines to stay safe while backing your tractor-trailer
- Describe the appropriate backing maneuver to use based on the situation
- Explain additional precautions to take when backing in parking lots and loading dock areas

## Introduction

Backing is one of the most difficult maneuvers a professional driver performs. Successfully backing a tractor-trailer requires skill, practice, patience, and good judgment. Improper or inattentive backing can result in lost time, lost wages, additional paperwork, damage to trailers, buildings or other equipment, and even personal injury.

This chapter focuses on the basics of backing including safe backing and the types of backing maneuvers commonly used.



## Backing Dangers

In the future, when you park your vehicle at a truck stop, wayside, or other location, do it so you can drive forward whenever possible, even if it means parking a little farther away. **You should never back if you don't have to** for two reasons:

1. Backing gives you limited visibility. You will always have a blind spot and that blind spot will constantly shift as you back.
2. When backing, your tractor and trailer will each follow a different path.

## General Backing Guidelines

All backing maneuvers have the potential to become dangerous. In most backing situations, even a second or two is enough time for someone or something to get in the path of a vehicle. Backing safely requires that you take certain precautions every time you prepare to back your tractor-trailer.

### Eliminate Noise

Eliminate noise and other distractions so you can concentrate on backing without interruption. Shut off anything that makes sound such as your radio, CB, cab fans, and phone. Roll down your window. Your ears will help you back safely.

### Get Out And Look (GOAL)

Stop the truck. Secure your vehicle by setting the parking brakes and turning on the four-way flashers. If you shut off the engine, pocket the keys. Next, walk around and check all sides of your vehicle. Are there any people or equipment, parked vehicles, or debris? It is a good idea to walk all the way to the loading dock to ensure a clear path. While surveying the area around you, don't

forget to look up. Overhead obstructions can include wires, pipes, tree limbs, awnings, even window air conditioners. In addition, you will also want to be aware of underside “snags” such as steep dock approaches. Also, make sure you warn others that the truck is backing.

If you have any doubt about backing at all—either before or during—get out and look as many times as necessary to ensure you can back safely. There is no such thing as being too cautious.

Once the safety checks have been made, don’t delay in moving the vehicle. Any delay could allow time for another potential hazard. If there is a delay, conduct the safety checks a second time.

## Back Slowly

Keep an eye on your mirrors and always back as slowly as possible. Make sure you are in the lowest gear, and don’t **ride the clutch**. Use your four-way flashers and your backup alarm. If you don’t have a backup alarm, periodically tap your horn.

## Use a Spotter

If possible, use a spotter. Backing can be a lot easier with the help of a qualified and experienced spotter. You and your spotter should agree on the hand signals he or she will use—the most important signal being stop. Since docking areas can be noisy, you never want to depend on voice signals alone.

Ideally, the spotter should wear a reflective vest or other bright clothing to increase his or her visibility. If, at any time, you can’t see the spotter in your mirrors, stop immediately. The spotter needs to be positioned where you can see him or her, and where he or she has a clear view of your vehicle’s path.

It is important to note that you, the driver, are ultimately responsible if anything does go wrong during backing.

## Open Your Doors

If you’re backing up to a loading dock with a trailer that has cargo doors that open out, make sure they’re secured in the open position. This will prevent you from having to pull forward, open the doors, and back again. Securing the doors will ensure they will not swing open and cause damage or break off during your approach to the dock.

When you reach your target, chock your wheels.

### Riding the clutch

Failing to take your foot off the clutch pedal after changing gears, so the clutch isn’t fully reengaged.

Some motor carriers have a policy on the use of spotters. Know your motor carrier’s policy before using a spotter.

## Steering Principles

### Axle

The housing or beam that connects opposite wheels. There are two types of axles – 1) live axles, which transmit power from the drive shaft to the wheels; and 2) dead axles, which do not transmit power and are used only to help carry the load or to steer.

The techniques/procedures used for backing a tractor-trailer are very different from those used to back your personal vehicle. In most personal vehicles, the front **axle** serves as the steering axle. In the case of a tractor-trailer, the rear tractor axle steers the trailer.

The amount of turning or movement of the trailer is proportional to the angle between the tractor and trailer. The greater the angle, the more the trailer will pivot and the less rearward movement there will be.

Steering is a technique, and while it seems like a simple activity, some drivers may struggle with this. There are two basic principles you must understand in order to back correctly:

1. Always steer in the opposite direction you want the trailer to move. If you want the trailer to go to the right, turn the steering wheel to the left, and vice versa.
2. Changing the tractor's direction of travel changes the trailer's direction of travel.

Backing involves a combination of steering techniques — jacking, chasing, following and push-pull.

**Jacking** refers to the change in trailer direction that you want to create. The trailer will “jack,” or move in the opposite direction of the way you turn the steering wheel. If you want the trailer to jack to the right, turn the steering wheel to the left.

**Chasing** means steering just enough for the tractor to follow the path of the trailer. If the trailer drifts off path, just turn the steering wheel in the direction of the drift to correct the trailer's path.

**Following** involves turning the steering wheel toward the trailer until the tractor/trailer angle remains constant. If the trailer needs to turn more, the driver turns the wheel away from the trailer. If the trailer needs to turn less, the driver turns the wheel toward the trailer. When the trailer is back on course, the driver countersteers to follow the trailer.

Use the **push-pull** steering technique to stay on path. That is, when the trailer gets bigger in one mirror, you're off track. Just push the steering wheel toward that mirror to correct your drift.



# Sight Side & Blind Side Backing

## Sight Side Backing

Sight side backing means you are backing toward the left side of the vehicle. You can see along the intended path of the trailer. Sight side backing is preferred, as you have maximum visibility.



## Blind Side Backing

Blind side backing means you are backing toward the right side of the vehicle. You can only see where you are going in your rear-view mirrors. Blind side backing is more difficult and dangerous than sight side backing. You have limited visibility and have more of a chance of hitting something. Blind side backing should be avoided when possible. But, if you must, use a spotter and stop every few feet to check your clearance.

## Basic Backing Maneuvers

The following are the basic backing maneuvers you need to master in order to safely perform your job:

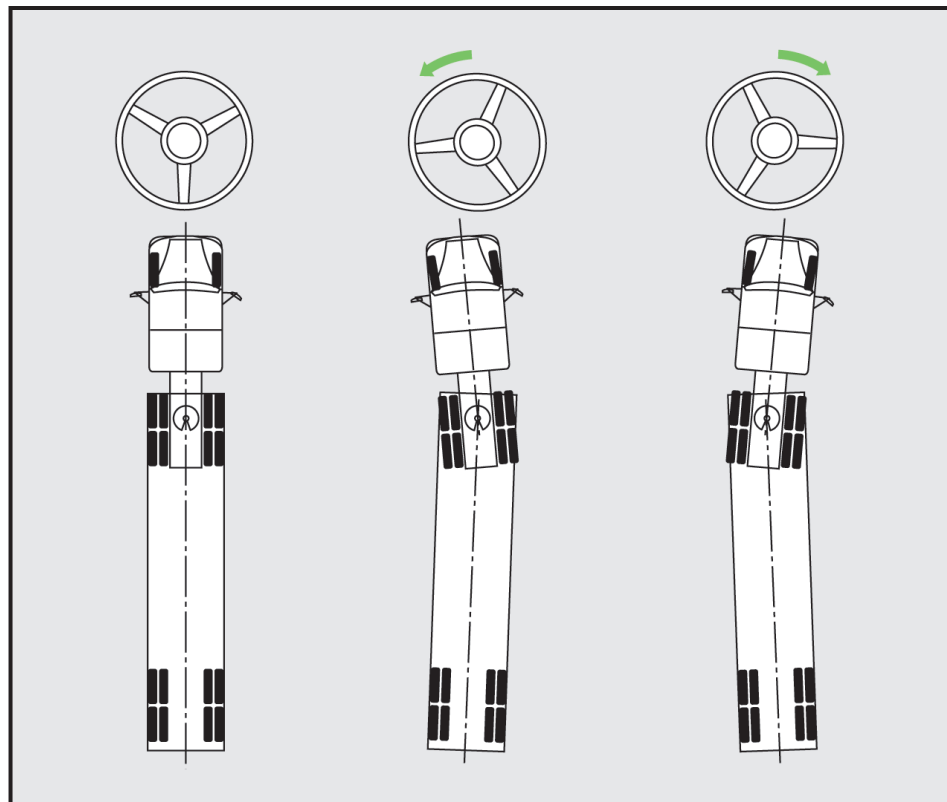
- Straight line backing
- Alley dock or curved backing
- Sight side jackknife backing
- Blind side jackknife backing
- Offset backing, sometimes referred to as parallel parking

## Straight Line Backing

Straight line backing is the simplest of the backing techniques and is fundamental in learning all other backing maneuvers. Straight line backing should be mastered before attempting other backing maneuvers.

To perform a straight line backing maneuver:

- Line up so you have as straight a shot as possible
- Back slowly
- Use both mirrors
- Stay on path by using push-pull steering
- Don't over steer
- If you drift too far, pull up, re-position the trailer, and start over



## Alley Dock or Curved Backing

Alley dock backing combines sight side backing and straight-line backing. The maneuver involves backing while turning into a space that is 90 degrees to the truck. This occurs most often at loading docks when you must back in from off the street or between two vehicles. Alley dock backing requires patience and extreme caution.

### Step 1

- Approach the alley at a right angle, with the dock area on your left
- Check your left mirror for clearance
- Turn left to get the rear of the trailer as close to the alley as possible

### Step 2

- Turn right to straighten out, getting as close to the alley as possible

### Step 3

- Check your right side for clearance
- Turn your wheel to the right when the nose of the trailer passes the center of the alley

### Step 4

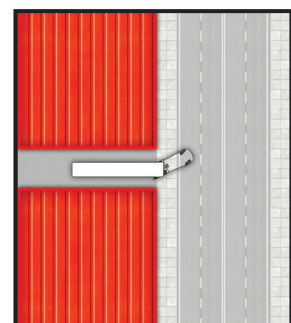
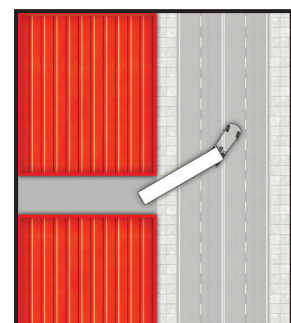
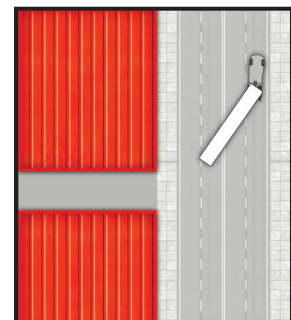
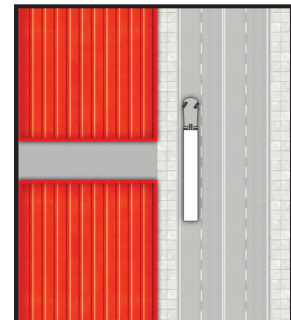
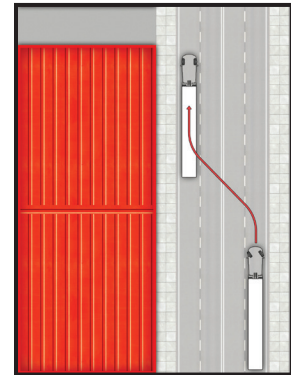
- Turn hard left when the tractor has used  $\frac{3}{4}$  of the forward space
- Stop your rig when tractor is parallel to the starting position (tractor-trailer will be in an arc)
- Get Out And Look (GOAL)

### Step 5

- Check to see the left rear corner of your trailer and your target
- Check your clearance behind and between trailers or other obstacles
- Map the path you want the trailer to run toward the dock
- Open and secure your trailer doors

### Step 6

- Return to the vehicle and start backing with straight steering
- Jack the steering if the trailer path is too wide



- Turn the wheels left to chase, if the trailer is turning too short
- Turn the wheels hard left just before the trailer is on the target line
- Straighten the tractor so the tractor and trailer finish in a straight line
- Stop about three or four feet from the dock

### Step 7

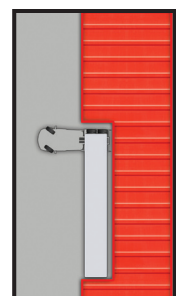
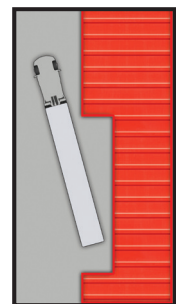
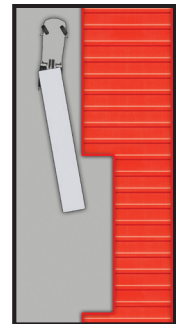
- Secure the vehicle
- Get out and check the remaining space
- Ease the trailer to the dock

## Sight Side Jackknife Backing

Sometimes, you won't have the luxury of ending your maneuver with a straight-line back. You may need to use jackknife backing to position your tractor as close as possible to the side of the dock, so it doesn't stick out into traffic.

When you need to back and turn toward the driver's side—the sight-side backing maneuver—you have the advantage of being able to see your trailer's path out of your left mirror. However, there's a large area you cannot see—that's the area to the right of your rig.

- Make sure air and electrical lines are long enough and won't be torn off or pinched
- Pull past the dock while parallel to it
- Check your clearance and think about the path
- Follow alley docking or offset backing steps until the rear wheels are four to eight feet from the turning point
- Turn your wheel to the right
- Give the wheel a sharp turn to the right when it's about to reach the dock
- Avoid **over jacking** and damaging the tractor
- Lower the landing gear for stability when loading or unloading (remember to raise the gear before driving away)



### Over jacking

Bending the tractor and trailer to greater than a 90° angle.



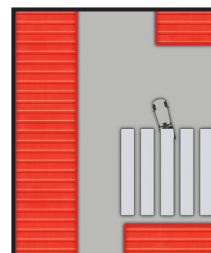
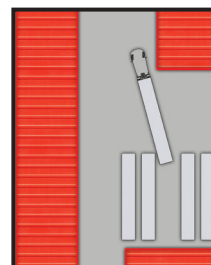
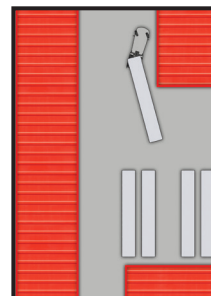
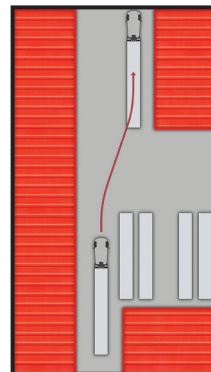
## Blind Side Jackknife Backing

- Use a qualified spotter (Keep the spotter in sight every second and stop every few feet to check clearances and ensure a clear path.)
- Position the vehicle
- Turn the wheel to the left when the rear wheels reach the midpoint of the alley
- Keep the spotter in sight
- Turn the wheel hard to the left when the trailer is almost to the dock
- Avoid jacking at more than a 90-degree angle

## Offset Backing

Offset backing, sometimes referred to as parallel parking, is the most difficult backing maneuver to accomplish. Look for other options and use offset backing only when you must. This technique may also help if the trailer did not wind up directly in front of the target.

- Drive past the spot, leaving three to eight feet from the end of your trailer to the opening
- Check for clearances and obstructions
- Turn the wheel slightly to the left when backing
- Increase the turn
- Verify the back right side of the trailer is heading to the back right side of the parking space
- Continue until the front of the trailer is even with the front of the space
- Turn the steering wheel hard to the right, so it jacks the tractor into position
- Turn the wheel sharply to the left and back up until you are in the space
- Pull forward to adjust your position and your clearance



## Backing Safely

Proper position is essential to successful backing. The easiest and safest position to start from is straight. However, keep in mind that most backing situations do not give the room needed to line up in a completely straight manner. When it comes to all backing maneuvers:

- Be patient
- Back as slowly as possible, using the lowest reverse gear
- Don't accelerate (use idle speed) or ride the clutch
- Don't over steer
- Back to the left side (sight side) whenever possible
- Use your vehicle's mirrors
- Use your vehicle's horn and flashers to alert others
- Eliminate noise and keep the windows open to listen
- Watch for fixed objects
- Restart the backing maneuver instead of backing poorly



## Loading Docks & Parking Lots

Loading docks and parking lots each present a different set of challenges for the professional driver. The following are a few tips for dealing with these situations.

### Loading Docks

Evaluate the receiving area before backing into position. When making your usual check around your vehicle (GOAL) before starting to back, pay extra attention to:

- Parked vehicles and stationary objects
- Alleyways or driveways where vehicles could enter or exit your path of travel
- Unusual clearances around the dock and any nearby barriers



Carefully open your trailer doors before backing in to the loading dock. Secure the doors in the open position and make sure the cargo is secure and didn't shift in transit. The last thing you want to have to deal with at a dock is an open trailer door swinging and being damaged or torn off, or cargo falling out of the trailer.

Slow and steady is key at the loading dock. It is acceptable to restart a backing maneuver. Your vehicle must be centered as you approach the dock. If your vehicle is not centered, you risk causing damage to both your vehicle and the dock.

Some shippers and receivers also require you to chock your tires. **Wheel chocks** are used (in addition to parking brakes) to ensure your vehicle will not roll forward during the loading or unloading process.

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#### Wheel chocks

Barriers (usually made of rubber or wood) placed in front of the tires to keep the vehicle from rolling.

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## Parking Lots

When driving through a parking lot, evaluate the:

- Direction of traffic flow through the lot
- Location of parking stalls
- Positions of entrances and exits

Carefully position your vehicle so you do not strike a parked vehicle. Get out of the vehicle and determine clearances before you back. Because most parking lots have open access to the public, you need to be even more aware of the possibility of cars and pedestrians moving into your path.

If you have to stop your backing maneuver for any reason, conduct another check around your vehicle before restarting your backing maneuver.



## Chapter 6: Backing and Docking Quiz

**Directions:** Read each statement carefully and mark the response that best answers the question.

**1. How does your trailer respond when you turn the wheel to the right while backing?**

- A. It drifts to the right
- B. It pushes
- C. It drifts to the left
- D. You should never turn your wheel while backing

**2. What is a key reason backing is so dangerous?**

- A. Sticking your head out the window can lead to chronic neck and back pain.
- B. Backing gives you limited visibility; you will always have a blind spot.
- C. Backing requires you get out of your tractor; you could be struck by another vehicle.
- D. Both B and C

**3. What is the acronym commonly used to remember the safety check you should perform before backing?**

- A. GOAL: Get Out And Look
- B. FIRE: First Inspect Relative Environment
- C. LAYER: Look Around Your Entire Rig
- D. SAFE: Stay Away From Emergencies

**4. If you can use a spotter when backing,:**

- A. responsibility for any incidents that occur transfers to the spotter.
- B. he/she should be behind your vehicle at all times.
- C. using a handheld cell phone to communicate with him/her is best.
- D. you must agree on all hand signals before beginning the maneuver.

**5. Which of the backing techniques is fundamental in learning all other backing maneuvers?**

- A. Sight-side jackknife backing
- B. Straight line backing
- C. Alley dock backing
- D. Parallel parking

**6. What is the key characteristic to alley dock backing maneuver?**

- A. Backing while turning into a space that is 90 degrees to the truck
- B. Backing into a space alongside a dock
- C. Backing straight down an alley
- D. None of the above

**7. Which of the following statements regarding blind-side jackknife backing are true?**

- A. It should never be done without the assistance of a spotter.
- B. It is best to stop every few feet to check your clearance.
- C. Ending up with a greater than 90-degree angle is preferred.
- D. Both A and B

**8. What backing maneuver should you use if the trailer did not wind up directly in front of the target?**

- A. Offset backing
- B. Sight side jackknife backing
- C. Blind side jackknife backing
- D. Alley dock or curved backing

**9. What is something typically unique to loading dock areas you must watch out for when backing?**

- A. Storage containers and dumpsters
- B. Clearly marked pedestrian paths
- C. Unusual clearances around the dock and any nearby barriers
- D. None of the above

**10. When backing in a parking lot, take note of the:**

- A. location of the sun in the sky relative to your mirrors.
- B. position of the entrances and exits.
- C. amount of fuel in your tank.
- D. reading on your tachometer.