

J. J. Keller®

# Tractor-Trailer Driver Training Manual

**3rd Edition**

**Based on the FHWA Model Curriculum  
Follows PTDI's curriculum standards**



**J. J. Keller**  
& Associates, Inc.®  
Since 1953

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# INTRODUCTION

A safe driver is aware of what is going on all around his/her vehicle. The purpose of this chapter is to introduce you to the skills required to conduct an effective visual search.



## ■ Seeing ahead and to the sides

A tractor-trailer covers more distance than your personal vehicle when stopping, changing lanes, or reacting to problems on the road. Because of this, it is important that you continually scan your entire sight area. This includes focusing on:

- The road, vehicles, and other problems ahead;
- Vehicles and other problems to the left and right; and
- Vehicles behind.

### Distance scanning

Looking ahead can help you travel safely. Always look far enough ahead to:

- Give yourself time to spot a problem;
- Give yourself time to decide on the best way to avoid a problem;
- Check for adverse traffic conditions; and
- Give yourself enough time to maneuver away from a potential problem situation.



As a general rule, look about 12-15 seconds ahead of your vehicle. In the city, 12-15 seconds is equal to about two to three blocks. On the highway, 12-15 seconds is equal to just over one quarter of a mile. If you can't see that far ahead, you should slow down.

As well as looking ahead, you should be scanning to the sides and behind your vehicle. Watch road signs and check your vehicle's instruments. Your eyes should be continually moving from far to near. When scanning ahead, pay special attention to anything that could affect your path of travel including:

- Other vehicles;
- Road signs;
- Traffic signals;
- Debris;
- Animals;
- Weather-related hazards (ice, rain, snow);
- Intersections;



## CHAPTER 9

- Work/construction zones;
- Stopped vehicles;
- Emergency vehicles; and
- Accidents.

There are several benefits to distance scanning including being able to identify hazards early, and having additional time to react/respond to situations including finding ways to avoid the situation. Distance scanning helps you avoid abrupt stops and radical speed changes. Also, effective scanning can help reduce fatigue. Your eyes are continually moving and are not fixed on a single object.

### Scanning to the sides

When on the road, you should be periodically scanning to the sides, but there are certain situations where scanning to the sides is critical including crosswalks, intersections, and school zones.

At crosswalks you should use extra caution. As well as watching the entire area, you should pay additional attention to what is happening to your right. Pedestrians, bicycles, etc. are often hidden from your line of sight when closest to your vehicle. Also, remember to yield the right of way to pedestrians when turning on green.

At intersections, move your vehicle forward slowly. Look left, right, and left again. Start to pull into the intersection, continuing to scan as you pull through the intersection.

School zones are another place where you need to be especially careful. Watch for children, bikes, balls, etc. darting into traffic.

In cities, scanning to the sides is crucial to your safety and the safety of others. Cars parked along the shoulder create increased hazards that may not be seen if you are not constantly scanning. Often, people will walk between cars or will open their door into traffic without even looking. By scanning you can avoid a possible accident or injury caused by the inattentiveness of others.



### ■ Use of mirrors

Mirrors provide your only view of the rear of your vehicle. You must check your mirrors before changing speed or position in traffic. You should check your mirrors about every four seconds. Also, use mirrors to assist in checking your vehicle's blind spots.

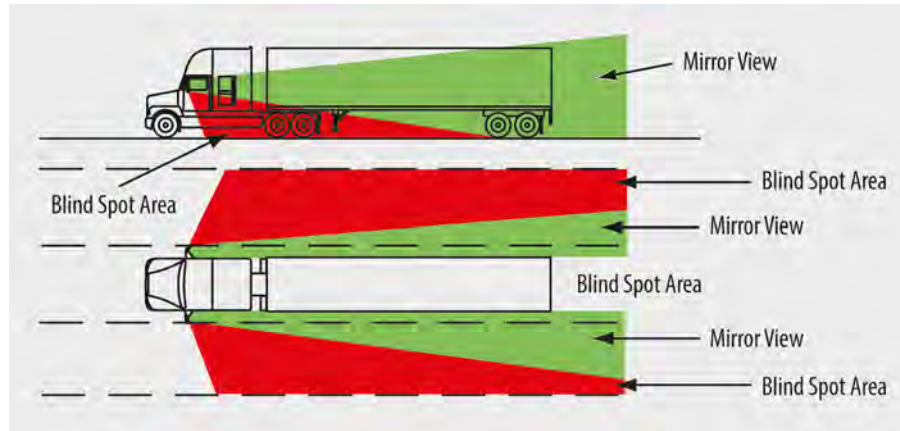
Most tractors are equipped with two types of mirrors:

- Plane or west coast; and
- Convex.

#### Plane/west coast

A plane or west coast mirror assists you in seeing down the sides and toward the rear of your trailer and the roadway behind. It doesn't give as wide a view as the convex mirror does, but it does allow for

better visibility down the length of the trailer. The left mirror is closer and reflects a larger image which means you have a greater field of view from that mirror.

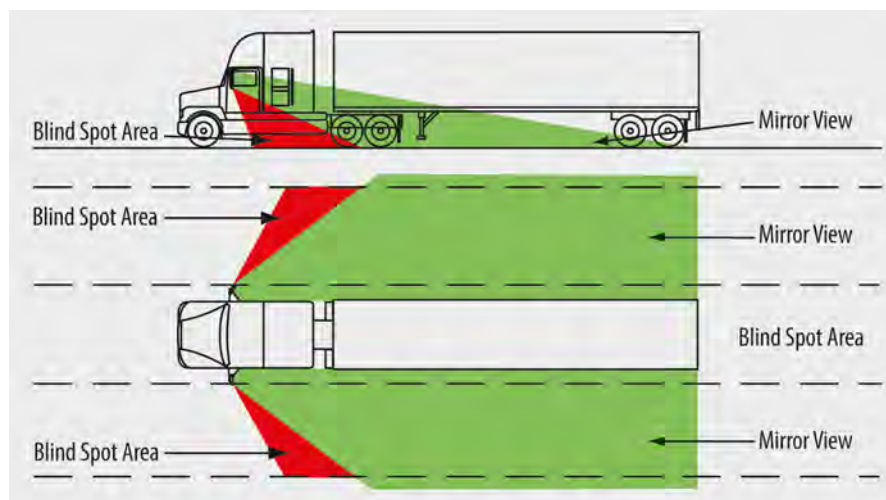


Remember that mirrors do not allow you to see everything. There are blind spots on both sides of your vehicle. This makes lane changes, passing, and other maneuvers risky. Tight turns can also pose a problem. You can't see smaller vehicles or pedestrians that are next to the vehicle. Along with using your mirrors, signal and wait a moment before changing direction or lanes.

Images in your side mirror will appear to be similar to those when you are driving your personal vehicle. When using your plane mirror in this situation, you should be able to judge the speed and distance of overtaking vehicles.

## Convex

Convex mirrors are designed with an outward curvature to provide a wide-angle view. They give a broader view than plane mirrors and, if adjusted correctly, eliminate much of the blind area. Convex mirrors provide the best close-up view of the sides of your vehicle.



One negative aspect of convex mirrors is that they show a distorted image. Overtaking vehicles appear smaller and farther away than they really are. When using this mirror, you need to gain a solid understanding of what you are looking at. This will take practice as this view is not something you are used to in your personal vehicle.

A combination of plane and convex mirrors work best. They provide maximum side and rear vision. The drawback is that the combination can be a bit confusing at first. Frequently making sure the mirrors are clean and properly adjusted can be a great aid in reducing any confusion.

## ■ Adjusting mirrors

Proper adjustment is important. It ensures that you have the best view possible to the sides and rear of your vehicle.

*Mirror adjustment should be checked on a regular basis. Make sure your vehicle is straight before making any adjustments.*

### Left side plane/west coast

You should see the trailer body on the inside vertical edge of the mirror. The rest of the mirror should show what is next to and behind the trailer. You should be able to see a point on the ground about 30 feet away on the bottom, horizontal edge of the mirror.

### Left side convex

You should see part of the trailer on the inside vertical edge of the mirror. The top, horizontal edge of the mirror should show a point on the ground that is about 35 feet away. The bottom, horizontal edge should show a point on the ground that is about 7 feet away.

### Right side plane/west coast

You should see the trailer body on the inside vertical edge of the mirror. The rest of the mirror should show what is next to and behind the trailer. You should be able to see a point on the ground about 60 feet away on the bottom, horizontal edge of the mirror.

### Right side convex

You should see part of the trailer on the inside vertical edge of the mirror. The top, horizontal edge of the mirror should show a point on the ground that is about 65 feet away. The bottom, horizontal edge of the mirror should show a point on the ground that is about 8 feet away.

Some vehicles also make use of fender mirrors, which are mounted on the right and left corners of the front fenders. Companies have also started exploring the use of certain types of collision avoidance systems. Although these two types of visual aids are not on every commercial motor vehicle, they do provide an additional level of sight around the vehicle which adds to safer driving operations in many instances.

## ■ Seeing to the rear

Continually use your mirrors to monitor the rear of your vehicle.

Check load and cargo security. Watch for loose or falling cargo. If operating a flatbed, watch for loose straps, ropes, chains, or tarps.

Keep an eye on your tires. Look for potential problems including flat or damaged tires or tire fires.

Use your mirrors to check for vehicles beside your tractor and trailer. Be alert. Know what is going on at all times.





Use your mirrors when changing lanes. Check your mirrors:

- Before you change lanes (making sure there's room to change lanes);
- After you signal (making sure no one/nothing moved into your blind spot);
- Right after you begin the lane change (making sure your path is still clear); and
- After you complete the lane change.

*Use of your mirrors is just one part of the scanning process. Check your mirrors quickly, and don't focus on them for too long. The more time spent focusing on a mirror is more time away from focusing on the road ahead.*

Also check your mirrors when you slow down, merge, or turn.

Use of mirrors is also important when approaching alleys and intersections. Mirrors must be used more frequently when in traffic tie-ups and when approaching or driving alongside parked or stopped vehicles.

## ■ Summary

In this chapter, you have learned about the skills required to conduct an effective visual search. This includes seeing ahead, to the sides, and behind your vehicle as well as proper use and adjustment of mirrors.