Pre- and Post-Trip Inspections

3

OBJECTIVES

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

- Conduct an accurate and efficient pre-trip inspection
- Explain when an on-the-road inspection is required and how to complete one
- Complete a proper post-trip inspection
- Explain when a Driver Vehicle Inspection Report (DVIR) is required, and how to complete one

Introduction

As well as being a regulatory requirement, proper vehicle inspections can go a long way in ensuring your vehicle's safe and efficient operation. Vehicle inspections can help in finding mechanical problems before they cause a breakdown or accident. This can help in avoiding costly on the road repairs as well as delays in deliveries.

The Importance of Inspections

Vehicle maintenance violations are frequently cited during roadside inspections.

In addition to finding mechanical problems before they cause a breakdown or accident, a thorough vehicle inspection program can also play a role in avoiding citations and/or out-of-service orders during a roadside inspection.

Vehicle maintenance is so important that it is one of seven categories that a motor carrier is rated on under the Federal Motor Carrier Safety Administration's (FMCSA) Compliance, Safety, Accountability (CSA) program. This initiative aims to improve large truck and bus safety and reduce commercial vehicle-related crashes, injuries, and fatalities.

For additional information on CSA, see **chapter 32**.

Inspection Locations

No matter the type of inspection you are conducting, your safety is the first priority. Inspections should never be conducted along the side of a road or any other high-traffic area.

All inspections should be conducted in low-traffic areas, including:

- The yard of a motor carrier, shipper, or receiver
- The parking lot of a truck stop, restaurant, hotel
- A rest area

Also, make it a habit to wear a reflective vest when inspecting your vehicle. The vest increases your visibility to other drivers.

Types of Required Inspections

Three types of inspections are required by the Federal Motor Carrier Safety Regulations (FMCSRs): pre-trip, on-the-road (en-route), and post-trip inspections.

1. **Pre-trip inspection (§392.7, §392.8, §396.13).** A pre-trip inspection is performed before taking your vehicle on the road. Doing a pre-trip inspection allows you to identify problems that could cause a breakdown or accident before you start your route.

2. **On-the-road (en-route) inspection (§392.9).** On-the-road inspections help you spot problems while there's still time to manage them, before they result in a breakdown or accident.

3. **Post-trip inspection (§396.11).** A post-trip inspection is conducted at the end of your day's work on the vehicle you are operating. This inspection includes filling out a **driver vehicle inspection report (DVIR)** if defects or deficiencies are discovered. This report helps a motor carrier make necessary repairs before the vehicle returns to the road.

Though not required when no defects or deficiencies are found, many motor carriers are requiring drivers to complete a DVIR at the end of every day.

DVIR
A Driver Vehicle Inspection Report is a form that CMV drivers fill out to indicate if any defects or deficiencies were discovered during their post-trip inspection that would affect the vehicle's safe operation.

Pre-Trip Inspection (§392.7, §392.8, §396.13)

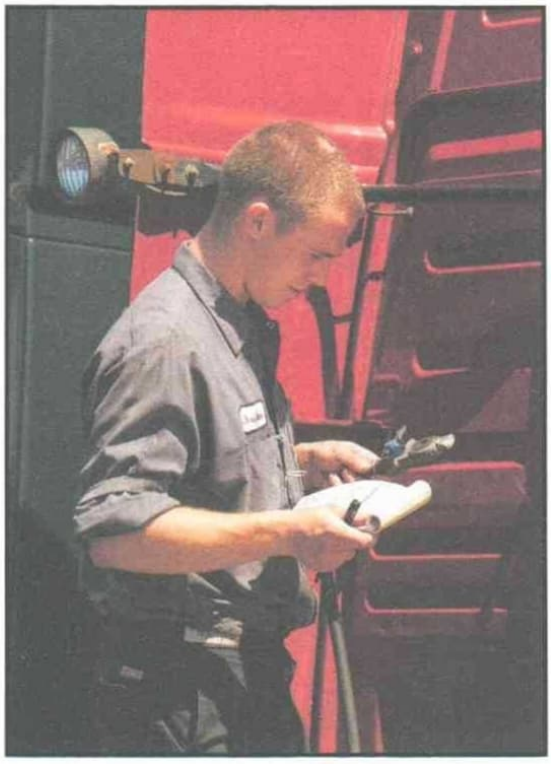
The FMCSRs require a pre-trip inspection before each trip to identify problems that could cause a breakdown or accident.

You must inspect the following parts and accessories and be sure they are in good working order prior to driving a commercial motor vehicle:

- Service brakes, including trailer brake connections
- Parking (hand) brakes
- Steering mechanism
- Lighting devices and reflectors
- Tires
- Horn
- Windshield wiper or wipers

The regulatory requirements are the minimum when it comes to pre-trip inspections. The professional driver includes these components as part of a thorough and complete five-step inspection.

- Rear-vision mirror or mirrors
- Coupling devices
- Wheels and rims
- Emergency equipment



You must ensure the required emergency equipment, including fire extinguishers, spare fuses, and warning devices, is in place and ready for use.

Before driving the vehicle, you must:

- Be satisfied that the vehicle is in safe operating condition
- Review the last vehicle inspection report (see post-trip inspection)
- Sign the report, only if defects or deficiencies were noted by the driver who prepared the report, to acknowledge that the report has been reviewed and that there is certification that the repairs have been performed

The Five-Step Pre-Trip Inspection

By doing a pre-trip inspection the same way every time, you are less likely to forget to check an important vehicle component. The following five-step routine is recommended.

> Once you have this process mastered, it should take you about 15 to 20 minutes to complete.

Step 1: Engine Compartment & Front Axle Components

Before you inspect the engine compartment and front axle components:

- Make sure the parking brakes have been set
- Put your vehicle's keys in your pocket
- Chock the wheels
- Open the hood

Verify that everything under the hood appears to be in good condition and has no obvious issues. Begin your inspection of the engine compartment on the passenger side. Ensure the:

- **Fluid levels** (including oil, washer fluid, coolant, transmission, and any other fluids on this side) are between the "add" and "full" lines
- **Auxiliary oiler** (if there is one) is in good condition
- **Hoses** are not leaking, worn, or loose
- **Belts** are not worn or loose
- **Alternator** is in good shape. Making sure:
  - ❑ The mounting bolts are tight
  - ❑ The wire connections are good
  - ❑ Nothing's cracked, frayed, or rubbing
  - ❑ There's no charring or other damage
- **Wiring** under the hood is in good condition, including making sure the insulation does not have cracks or wear
- **Air conditioning compressor** mounts are tight, and the belt is riding on the pulleys like it should

Generally speaking, you want less than an inch of play on a belt. Check the belt's slack by pushing on it mid-span; the smaller the belt, the less movement you should see.

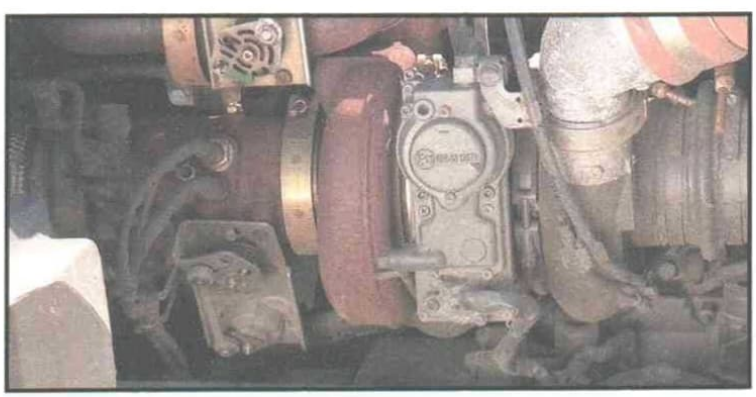
Alternator
The device responsible for recharging the battery by creating electricity when the vehicle's engine is running.

Note that the air conditioning compressor may be on the other side.

You'd have good reason to suspect the turbo charger was leaking if you saw black soot, marring, or any separation from the couplers.

- **Exhaust system** is secure, not leaking, has no signs of cracks or excessive soot build up, and is not touching wires, fuel, or air lines
- **Turbocharger** is not cracked, damaged, or leaking exhaust, gas, or oil

Turbocharger
A type of blower, powered by engine exhaust gases, that forces air into the intake manifold at higher than atmospheric pressure to increase engine power and performance.



Continue your inspection by examining the tractor's front axle on the passenger side. Make sure the:

Suspension
The system of springs, etc., supporting a vehicle upon its undercarriage or axles.

- **Suspension** is intact, tight, and in good working order. Specifically, check:
  - ❑ The front hanger is tight and not damaged
  - ❑ The U-bolts in the center are tight
  - ❑ The hanger and shackle set at the rear is tight and not damaged
  - ❑ The springs are not cracked or damaged

If airbags are present, check that the plates on top/bottom are not cracked and the air bag is not damaged.

Shock absorber
A device added to an axle that dampens axle momentum and tire bounce caused by rough road surface.

- **Shock absorber** is not loose, the shock tower is not cracked or damaged, bushings are good, and there's no leaking fluid
- **Tie rod end and steering arm** running to the right spindle is tight, castle pins are in place, and nothing is bent
- **Brake assembly** is in good condition. Specifically, make sure:
  - ❑ The air tank is firmly mounted and all lines coming to and from it are in good condition
  - ❑ The air brake lines are not cracked, frayed, or rubbing on anything
  - ❑ The brake chambers are firmly mounted and not cracked, damaged, or rusting through
  - ❑ The pushrod and adjuster are in good working order—the slack adjust attachment point functions and is in good condition, the clevis and clevis pins show no sign of wear or damage, and the jam nuts are tight
  - ❑ The slack adjusters have an appropriate amount of free play
  - ❑ Brake shoes have at least a quarter-inch lining
  - ❑ There is no grease, oil, or cracks present in the brake drum or pads

One inch is the maximum amount of free play you'll want to see on the push rod when the brakes are released. Check with your safety or maintenance department if you are unsure of how to check the free play on the slack adjusters.

If they're not visible, reach in and feel the lining.

Slack adjuster
An adjustable device located on the brake chamber pushrod that is used to compensate for brake shoe wear.

- **Inside of the rim** is free of oil, grease, or leakage, and that the outside of the rim isn't cracked or bent. Also, verify there are no illegal welds of the rim.

Look at the tread and overall condition of the **tire**. Tires are the number three expense for a trucking company, but probably a driver's number one cause of problems.

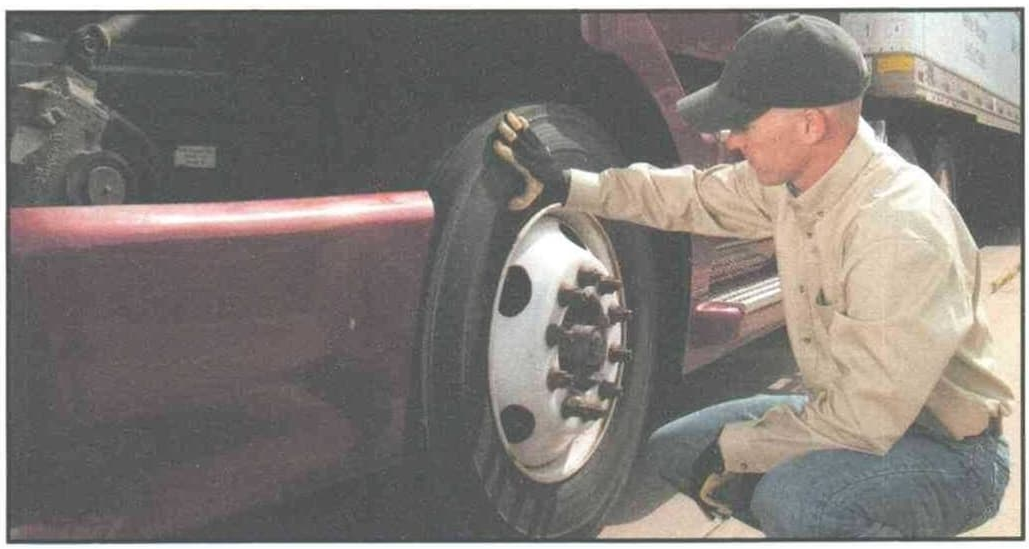
Your steer-tire tread needs to be more than 4/32 of an inch deep. Use a tread-depth gauge to verify the tread. When in doubt, have a mechanic check it, just to be safe.

Tread depth referenced in this chapter is the regulatory minimum. It is best to exceed these tread depths.

When you examine your tires, look for chunks of missing tread, damage, bruising, cuts, or gouges. Front tires take a lot of abuse, so watch for uneven wear or feathering, too. In addition, check that the **outside of the rim** isn't cracked or bent.

Use a tire pressure gauge during your pre-trip inspection to check inflation. Be sure you check your tire pressure when the tires are cold. Your reading will be off anywhere from 5 to 20 percent if you gauge them when they're hot from traveling down the road.

Next, verify your **lug nuts** are tight and in good shape. Signs they might be loose include shiny metal, new rust, or corrosion on the studs or the face of the rim.



If you see any signs of cracking between lug nuts, that's an indication they've been loose for a while. If a lug nut's loose enough to turn by hand, you're on the verge of losing a wheel.

Be sure the **oil level** inside the hub is above the bottom edge of the sight glass.

If a tractor trailer's hub leaks out all of its lubricant, or the lugs are allowed to loosen and fail, the wheels could fall off en route.

Continue your inspection by checking the driver's side of the engine compartment.

The **air compressor** is the core component for all air lines on your tractor trailer. If it's damaged, everything else from here on down will not function properly, if at all.

The air compressor on some vehicles is gear-driven, so there won't be a compressor belt. Whether it uses oil and coolant from the engine or has its own fluids, check it for leaks. Confirm that all connections are good, and that the air line running off the compressor isn't cracked, frayed, or rubbing.

The air compressor may be on the other side of the engine.

If it is belt-driven, make sure the belt slack is correct and that the belt itself is not cracked or frayed.

Check that your **power steering** components are in good condition Specifically, make sure:

- Power steering fluid is between the "add" and "full" lines and the cap is secure
- Steering column doesn't have excessive play
- U-joints and knuckles are in good shape
- Pitman arm coming off the gear box is tight
- Ball joints are tight and in good condition, and have tight castle nuts and castle pins are in place
- Drag link running back has a seated, tight, and well-greased ball joint, and the castle nut and pin are in place

To finish up step one, examine the tractor's front axle on the driver's side.

Check the **suspension** on this side same as you did on the other side—hangers (both front and rear,) bolts, shackles, U-bolts, and springs.

Also check out the **shock absorber, tie rod end, and steering arm** on this side, too.

Again, you'll inspect the **brake assembly** the same on this side as you did on the other—brake lines, chambers, pushrod and adjusters, brake shoes, and brake drums.

Check the **inside of the rim** for oil, grease, or leakage, be sure the **tire** is in good condition, and examine the **outside rim, lug nuts, and hub oil level.**

It's easy to get complacent with the under-the-hood check. Automatic slack adjusters, oilers, and greasers have eliminated a lot of the mechanical problems with newer vehicles.

But things still can and do go wrong, so you need to stay on your toes.

Step 2: In-Cab Inspection

The inspection of the interior of the cab may be the easiest part of a pre-trip inspection, but that doesn't mean it's not every bit as important as every other step. A clean and orderly cab can make an inspection go more smoothly and reduce hazards within the cab.

Open the driver's side door and ensure the:

- **Vehicle registration** is valid, and your vehicle contains all the needed paperwork
- **Annual inspection** sticker (or annual inspection report) is present and valid
- **Fire extinguisher** is mounted, accessible, fully charged, and appropriate for the cargo being hauled
- **Safety equipment** is accounted for (including three reflective triangles, spare fuses, and any personal protective equipment) and is adequately secured

The fire extinguisher must have an Underwriters' Laboratories (UL) rating of at least 5 B:C. If you are hauling hazmat, the fire extinguisher must have a UL rating of at least 10 B:C.

Climb into your cab using three points of contact and continue the inspection. Make sure the **windows** operate and that the glass all around the cab is clean and free of cracks. Also, get rid of any **visual obstructions.**

For information on three points of contact, see **chapter 24**.

Adjust your **seat** so you can reach the wheel and controls comfortably, and check to see your **seat belt** is functional. Be sure your **mirrors** are clean, tight, and in good condition. Get yourself into a comfortable seated position and adjust your mirrors as needed.

For more information on mirror adjustment, see **chapter 8**.

With the transmission in neutral, depress the clutch and start the engine. Check that the **gauges** are functioning properly. Specifically, make sure:

- The oil pressure comes up in a few seconds, starts out high and drops as the engine warms up
- The coolant temp is low after start up and comes up as the engine warms up
- The tachometer is working—around 600 revolutions per minute (RPMs) at idle speed is normal
- The speedometer reads zero (verify that it's working once you start moving)

- The fuel gauge shows that the truck has fuel (and remember how full it says the tank is, so you can verify it during the walk-around portion of your pre-trip)
- The primary and secondary air pressure gauges both read low, and charge appropriately
- The ammeter and voltmeter both register positive

Then, check that all the **switches** function properly. Flip the flashers, blower motor, heater, and defroster on and off to ensure they all work as they should.

ABS indicator/light
Alerts the driver that the ABS function is not operating.

Verify your **anti-lock brake system (ABS) indicator** is not on and give the **horns** a try—both the city horn and the air horn. Turn on your **wipers,** and test that your **washer fluid** works.

Check for play in the **steering wheel** to figure out how much you have to move it before your steer tires move. The free play should be no more than 10 percent of the wheel's diameter. That's two inches or less on a 20-inch steering wheel.

Losing steering control at highway speeds is incredibly dangerous. If there is excessive free play in the steering wheel, document it on a pre-trip report, if your company uses one, and report it to your company immediately.

If this is the case, try to determine what's causing the excessive free play so you are able to provide your company with as much detail as possible to assist with troubleshooting the problem.

Bottom line, you should never operate a vehicle you know you won't have total control of.

Finally, inspect your **clutch, accelerator and brake pedals, and transmission controls** for looseness, sticking, or damage. And, before you finish the in-cab portion of your inspection, take a few seconds to sit and listen for unusual noises which could signal a problem.

Step 3: Lights

Inoperative or defective lighting is a commonly cited violation during roadside inspections. It's also one that can be easy for officers to spot. Follow these steps to check each of your tractor trailer's lights.

1. Ensure the parking brake is set and turn on your **low beams headlights** and **emergency flashers**.
2. Get out and look to see that the lights are on and appropriately aimed, and that your four-ways are working.
3. Turn on the **high beam headlights** and get out to confirm they are working and appropriately aimed, as well.

4. Move around to the back of the trailer to ensure your **tail lights** and rear **emergency flashers** work properly.

5. Turn on your parking lights, and move around the truck to ensure **your parking, clearance, side-marker, and identification lights**, are all secure and functioning properly.

6. On your next lap around, check your front, side, and rear **turn signals** on both the left and the right sides.

7. Ensure your **brake lights** are functioning properly. This isn't always easy to do by yourself. It's best to have someone help you.

If your tail lights are loose or fall out, the trailer lights might stop working altogether. The traffic behind you will have no idea when you're turning, stopping, or changing lanes.

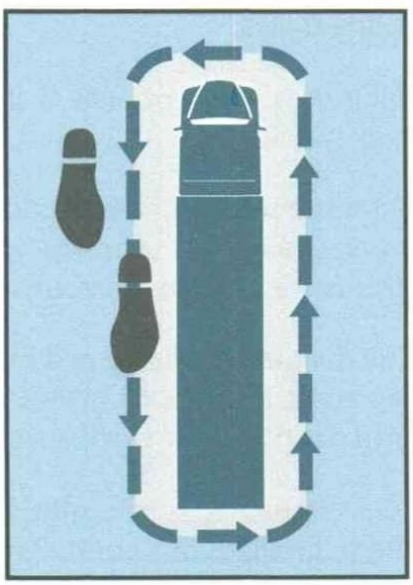
Check with your safety or maintenance department on what to do if another person isn't available to help you check your brake lights. They may suggest backing up against something reflective or offer an alternate solution.

While it's easy to spot and is a relatively easy fix, a damaged or defective light can be very dangerous. That's why this problem is considered more serious than many other areas in the eyes of roadside inspectors.

Step 4: Walk-Around

This part of your vehicle inspection includes a detailed assessment of the exterior of both your tractor and trailer.

Complete your walk-around by starting at the front of the tractor. Check to see the truck is not leaning to one side or the other. If you see that your truck is leaning, you'll want to figure out why. Leaning is normally caused by defects in the suspension, problems with the frame, flat tires, or a significant shift in cargo. Then, ensure the:



- **Windshield** isn't cracked or chipped
- **Wiper blades** fit snugly against the glass and the blades are in good condition
- **Bumper** is secure
- **License plate** is legible and properly attached
- **Body** is free of damage
- **Ground beneath your truck** is free of leaking fluid

For the rest of your exterior inspection, check the top, then down, then under, starting at the front of the tractor and trailer on the driver's side.

Make sure the **door** operates as it should, and the weather seal is in place—it's great protection from both weather and road noise, but unfortunately it tends to wear out quickly.

Check that your **company name** and the **vehicle's USDOT number** are visible on this side.

Look over your **access ports, steps, and side fairing** to be sure they're in good condition.

And, check the **batteries**. Be sure they are properly secured and not damaged or leaking.

Look inside the fuel tank to visually verify that the **fuel level** in the tank is consistent with what you saw on the gauge during your in-cab inspection.

Then, be sure the **fuel cap** closes tightly, and the gasket or seal is in good condition.

Inspect the **fuel tank** itself to see that the steps, mountings, and strapping are tight. These steel straps will easily cut through an aluminum fuel tank if they're not properly secured.

And, check underneath the truck for any fuel leaks.

Conspicuity marking
Reflective tape, reflex reflectors, or a combination of the two, intended to increase CMV visibility.

Verify there are **conspicuity markings** in place on the back of the cab.

And, **rear windows** are an advantage. If you've got one, it should be clean and in good condition.

Give the **air lines** from the tractor to the trailer a good once-over. Check the connections, the lines themselves, and the suspension spring.

If the air lines are rubbing or not connected correctly, you will lose air supply to the trailer.

If it is the emergency line that is loose or damaged, it could cause the trailer brakes to lock up.

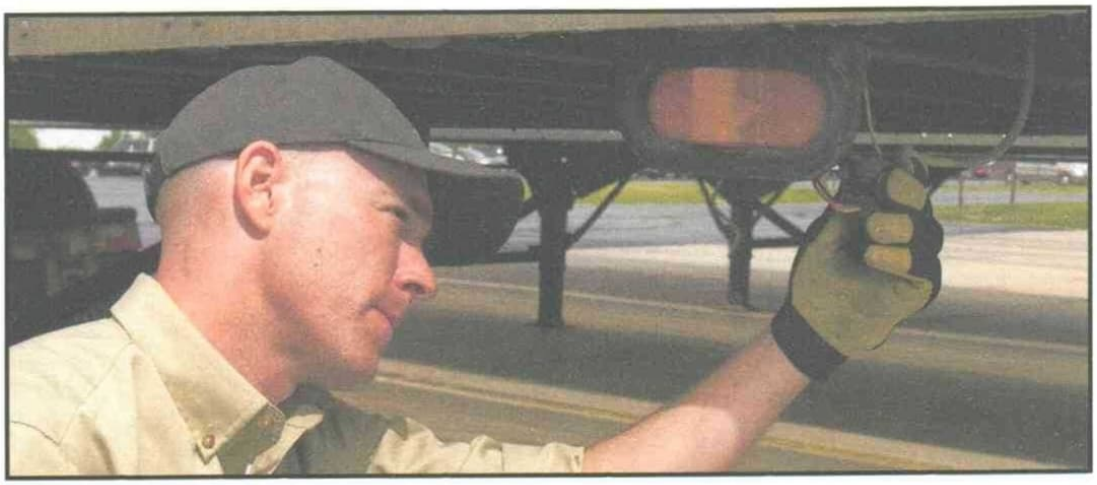
If it is the service line that is loose or damaged, you will suffer a serious leak when you apply the brakes, which will greatly increase your vehicle's stopping distance and drain out your air tanks.

Glad hands
Connectors mounted on the front of a trailer for connecting air lines from the tractor.

Pull the glad hands off and examine the **seals**. If a seal is kinked, cut, or torn, replace it. If you don't have an airtight seal, there's going to be a leak at the glad hand and the truck won't be able to maintain air pressure.

To avoid damaging the **glad hand** seals, only rotate them when you hook them up. Don't push or pull them.

Verify your **trailer light connection** is good and locked into place. Although you probably would have noticed a problem during your inspection of your lights if there was something wrong with these connections.



And, check the **exhaust bracket mounts and cab air ride suspension system** to make sure everything's in good condition.

Look over the **frame rails** and **cross members**. Confirm that nothing's cracked, bent, or damaged.

Check out the **header** at the front of the trailer. Make sure the rivets are tight, the seams are good, and nothing is damaged.

Inspect the **top rail and down the side to the bottom frame rail** to be sure they are free of damage.

Ensure the **apron** isn't cracked or damaged, and that all the **apron bolts** are accounted for and in good condition.

Next, examine the **fifth wheel** itself. If your vehicle has a sliding fifth wheel, make sure the pins are securely locking that fifth wheel into place.

Inspect the vertical and horizontal bolts to ensure they're all tight and check the angle irons and flat metal for cracks or damage. Then, crawl under the trailer and look at the fifth wheel from behind to verify the frame and pivots are good, there's nothing cracked or damaged, the jaws are closed around the shank of the **kingpin**, and, if the fifth wheel has a visible locking mechanism, it is in place.

The fifth wheel is an inspection point that you absolutely must get right. You need to know what you're looking at and what you're doing. If a mistake is made and you don't catch it in your pre-trip inspection, you will lose your trailer during your first hard turn or over your first big bump.

Talk to your safety or maintenance department to understand how to determine if your specific fifth wheel is fully locked.

Fifth wheel
The coupling device located on the tractor's rear frame that is used to join the front end of the trailer to the tractor. It is a flat, rounded plate with a V-shaped notch in the rear.

Kingpin
The "peg" or "pin" permanently attached to a trailer which is inserted and locked into the pulling frame of a fifth wheel or the power unit and serving as the attachment by which the trailer is pulled.

Continue the inspection, ensuring the:

- **Drive line, drive shaft, U-joints, and differentials** are in good condition
- **Suspension** is intact, tight, and in good working order. Specifically, check:
  - ❑ The front hanger is tight and not damaged
  - ❑ The U-bolts in the center are tight
  - ❑ The hanger at the rear is tight and not damaged
  - ❑ The springs are not cracked or damaged
- **Shock absorbers** are intact
- **Conspicuity markings** on the brackets of the **mudflaps** are present
- **Air ride suspension air bags** aren't leaking or damaged
- **Landing gear's** mounting iron and bracing are in good shape

Air ride suspension
Located between the axle and the frame of a truck, the suspension system uses air bags to cushion vibration and road shocks and dampen or cushion the ride.

Landing gear
The support legs that hold up the front end of a semi-trailer when it is disconnected from a tractor.

Continue your inspection by examining the tractor's drive tires on the driver's side.

Your drive tire tread needs to be more than 2/32 of an inch deep, (whereas, if you remember, your steer tires need to be 4/32 of an inch deep.)

You'll inspect the **brake assembly, rims, tires,** and **lug nuts**. Because you won't have an oil sight glass on your drive axles, **check for leaks** at the differentials and hubs instead.

Ensure your **landing gear** is all the way up and is in good condition. Check that the handle is working and stowed properly, and none of the welds, bolts, or bracings are damaged in any way.

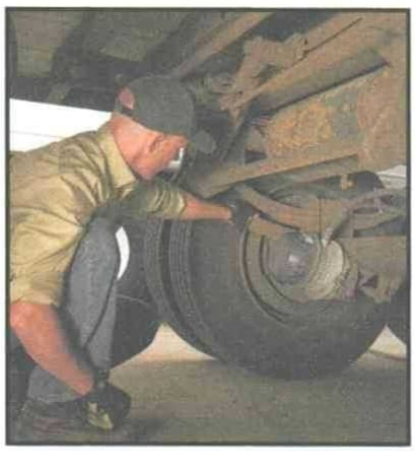
Continue down the driver's side of the trailer toward the back, checking top, down, then under.

Cross members
Connect the frame rails.

Ensure the **conspicuity markings** are in place and in good condition along this entire side, the **cross members** are in good shape, and the **air lines** and **electrical bundles** are protected.

Look to see the **trailer skirt** is secure and free of damage, and that the **ABS light** is correctly mounted and is not turned on.

Check that the **front and rear axles, slider linkage,** and **frame carriage** assembly are all in good shape and the locking pins are all in place. If the slide mechanism is unlocked for some reason, the trailer axles will come out from under the trailer the first time the brakes are applied with any amount of force.



Continue your inspection by climbing under the trailer and examining the trailer's front and rear axles. Here, you'll inspect the **brake assembly**—brake lines, chambers, pushrod and adjusters, brake shoes, and brake drums.

Check the **suspension**—hangers (both front and rear,) bolts, shackles, U-bolts, and springs.

Also check out the **shock absorbers** and look for oil or grease on the insides of the **rims**, too.

Then, return to the driver's side of the trailer and ensure the **tires** are in good condition. Also examine the **outside rims, lug nuts,** and **hub oil levels**.

If the trailer has dual tires, check between the tires to make sure the rims are tight together and nothing is wedged between the tires.

If necessary, based on the configuration of your trailer, crawl back under the trailer and check the rear axle components if you couldn't complete this from in front of the front axle.

Continue behind the back of the trailer, checking top, down, then under.

Look for the required **ID markers** and **conspicuity tape**.

Inspect the **door** frame. If the load isn't sealed, open the door to confirm it operates and that you have the right **cargo** inside.

Check out the **back bumper**, the **stop bar** for a sliding tandem, and the **step tread** to be sure they're all in good condition.

Confirm your rear **mud flaps** are properly attached and are not torn, damaged, or dragging on the road.

Continue the *top, down, then under* visual inspection on the passenger side. In addition to checking anything that couldn't be seen under the vehicle from the driver's side, you'll want to check everything as you did on the driver's side. This includes the:

- Side of the trailer
- Conspicuity markings
- Slider assembly
- Frame carriage
- Cross members
- Airlines
- Electrical bundles
- Tires
- Rims
- Hubs
- Trailer skirt
- Trailer header
- Coupling device area

If your truck has dual drive tires, check that the rims are tight together, the tires are evenly spaced, and that nothing is wedged between the duals.

Continue the *top, down, then under* visual inspection by examining the tractor's drive tires on the passenger side. Again, check the **brake assembly, tires, rims, lug nuts,** and **hubs**.

Inspect the **exhaust system**, this time as far forward as can be seen to ensure it is free of black soot.

Finish your walk-around inspection by examining the tractor on the passenger side. Check the **door**, verify the **company name** and **USDOT number** are visible, and confirm the **access ports, steps,** and **side fairing** are in good condition.

The walk-around portion of your pre-trip inspection probably feels like a lot to remember… because it is. But following the sequence as we've discussed will help you get in the habit of checking each item in the same order every time.

Step 5: Brake System Check

Avoid the potentially disastrous effects of failed brakes with a thorough review of the brake system. This inspection is often called the LAB-PS check, which stands for leaks, alarms, button pop-out, parking brakes, and service brakes.

Make sure the wheels are still chocked so the truck can't roll away, and then turn the engine on to build up air pressure. Once the vehicle has been idling for a minute or two and the air pressure is over 100 pounds per square inch (psi):

- Release the parking brake and charge the trailer brakes
- Apply the foot brake
- Turn off the engine

- Watch the gauges. The vehicle shouldn't leak more than 4 psi per minute (3 psi if you only have a tractor) for a full 60 seconds. Turn the key back on, pump the air pressure down, and notice where the low-pressure indicator comes on. It should activate before 60 psi.

- Continue pumping down. The brake buttons should pop out somewhere between 20-40 psi, switching over from the parking brake to the emergency brake.

With the clutch in and shifter in neutral:

- Start up the vehicle to see how long it takes to build air pressure back up
- Rev the vehicle up to about 1400 RPM and watch the air pressure build up. It should take less than 45 seconds to go from 85-100 psi.

Before moving on to the next step of the brake check, be sure to remove the wheel chocks. Then:

- Check to make sure the parking brakes will hold
- Put it in the lowest gear possible, release the tractor brake with the trailer brake still applied, and tug forward gently in the lowest forward gear to verify the trailer parking brakes will hold
- Engage the tractor brake, release the trailer brake and tug forward gently in the lowest forward gear to verify the tractor brakes will hold
- Release the parking brakes, roll ahead slowly, and then step on the foot brake to make sure the service brakes function—the vehicle should not pull to one side or have a delay stopping

On-the-Road Inspection (§392.9)

While a thorough pre-trip inspection gives you peace of mind about the safety and performance of your vehicle, equipment can easily deteriorate during the course of the day. Some damage and defects are out of your control but conducting on-the-road inspections help you spot problems while there's still time to manage them, before they result in a breakdown or accident. Make it a habit to stop every few hours to check your truck and trailer, even if you're not required to, so you can help avoid problems.

Complete a short walk-around inspection every time you stop. The first step in completing an on-the-road inspection is to get off the road and park in a location where it is safe to move around the vehicle. This inspection is done at a walking pace, pausing only for a few seconds at each axle/axle group, so the entire inspection should only take a minute or two. Also, do a quick scan of all your lights, mirrors, and tires.

The FMCSRs require that the vehicle's cargo and load-securing devices be checked within the first 50 miles of a trip. Any necessary adjustments must be made at this time.

After the first 50 miles of the trip, the vehicle's cargo and load-securing devices must also be reexamined when you make a change of duty status, after the vehicle has been driven for 3 hours, or after the vehicle has been driven 150 miles—whichever occurs first.

Gauges are there to help warn you of any potential problems you may not be aware of from your spot in the driver's seat. Pay close attention to them when driving and be in tune with what your truck is telling you.

Engage all of your senses and be aware of the sounds, smells, and feel of the vehicle. If anything seems out of the ordinary, stop to see what's going on.

Focus your on-the-road inspection on your lights, mirrors, and tires. It won't do you any good to use an actual pressure gauge to test your tires when they're hot, since the reading can be off anywhere from 5 to 20 percent.

Instead, use a hammer or tire thumper to check for firmness. Also, put your hand close to the hub and feel for excessive heat caused by a failing tire or bearing. Be careful not to touch anything, you don't want to burn your hand in the process.

For additional information on cargo securement, see **chapter 21**.

Inspection of the cargo and load securing devices is not required if your vehicle is sealed and you have been ordered not to open the vehicle. Also, you are not required to inspect the cargo and load securing devices if the vehicle is loaded in a way that makes inspection of the cargo impossible.

Though you may not be able to inspect the cargo and load securing devices, this does not give you a pass on reviewing your vehicle's condition while on the road.

Post-Trip Inspection (§396.11)

At the end of every work day, you'll need to conduct a post-trip inspection. Post-trip inspections help identify any potential safety issues that need to be addressed before the next driver of the vehicle takes over—even if that next driver is *you*.

During your post-trip inspection, you'll inspect the same items you did in your pre-trip. The only exception is you won't be able to check things that are affected by heat, like oil, tire pressure, brake shoes and drums, hub oil, and exhaust components.

If you discover any defect or deficiency with your brakes, steering, lighting, tires, or other items that you believe might compromise the vehicle's safe operation, document it on a DVIR and report it to your company. This also includes any minor defects you were told about during a roadside inspection that you were not able to get repaired during the day.

Then, before the vehicle can be operated again, your company has to certify that any defective items have been repaired, or that those items were inspected by a mechanic or company official and do not need to be corrected to safely operate the vehicle.

Section 396.11 of the FMCSRs requires that a DVIR be completed and signed by the driver of a property-carrying CMV whenever a defect or deficiency is discovered.

At minimum, drivers of property-carrying CMVs must prepare a DVIR whenever a defect is discovered. However, some companies require their drivers to submit a DVIR every day, even if no defects were discovered during the trip or found when conducting the post-trip inspection.

Check with your company to understand their expectations for completing DVIRs.

Whether your company chooses to use paper or electronic forms, your DVIR must contain a few important items.

- An identification of the vehicle, such as the truck and trailer vehicle or license plate number
- A list of any defects or deficiencies which could affect vehicle safety or result in a breakdown
- Spaces for the three required signatures:
  1. The driver who prepared it
  2. A mechanic or other company official (indicating the repairs were completed or were not necessary)
  3. The next driver of the vehicle (even if the next driver is you)

While post-trip inspections don't allow you to check everything, they at least provide you with a peace of mind knowing you're leaving the vehicle in good shape for the next driver.

Intermodal equipment. If you are hauling intermodal equipment and it has a defect or deficiency, you must complete a DVIR and turn it in to the intermodal equipment provider. The DVIR must include the name of the motor carrier responsible at the time the defect or deficiency was discovered, the motor carrier's and intermodal equipment provider's USDOT numbers, a unique identifying number for the intermodal equipment, the date and time the report was submitted, a list of defects or deficiencies, and your signature.

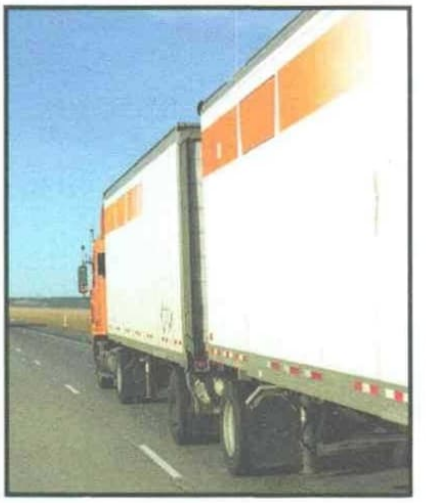
Before the intermodal equipment can be transported again, any defect or deficiency that affects the safety of operation of the equipment must be repaired. The intermodal equipment provider must certify on the DVIR that the defects or deficiencies were repaired or that repair is unnecessary.

Special Rigs

Special rigs require additional, and in some cases unique inspection procedures. A summary of the additional procedures for four types of vehicles (multiple trailers, tankers, refrigerated units, and intermodal chassis) follows.

For additional information addressing special rigs, see **chapter 33**.

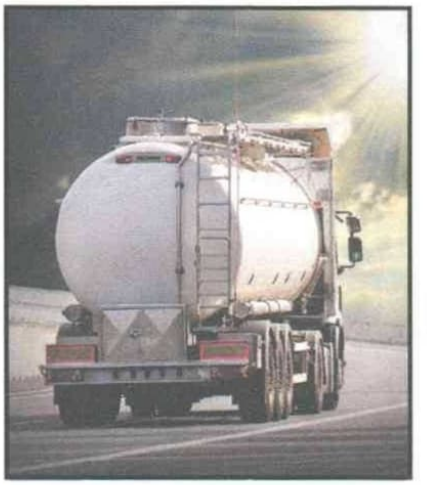
Multiple Trailers



Special attention should be given to:

- Air lines, valves, and glad hands between the two trailers
- Valve positions
- Brake operation
- Hook up of emergency lines and glad hands
- Pintle hook latches and safety chains

Tankers



Special attention should be given to:

- Dome covers to tank compartments
- Hoses and pumps (fastened and secured)
- Valve position and condition
- Cap securement
- Certification tag and test/inspection dates (if using the tanker to haul hazardous materials)
- Emergency shut off valves
- Condition of the tank
- Proper display of hazardous materials placards (if applicable)

Refrigerator Units (Reefers)

Special attention should be given to the condition of the trailer, including looking for:

- Holes in the walls, ceilings, or floor
- Cleanliness
- Air circulation ducts
- Locks and seals on the doors
- Securement of rails or racks on the ceiling
- Water, oil, and coolant levels in the refrigerator unit
- Thermostat on the refrigerator unit

Intermodal Chassis

Special attention should be given to:

- Tie down bolsters
- Locking pins, clevises, clamps, and hooks
- Secondary catches (or latches)
- Sliding frame
- Connections