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## Five Components of a Pre-Trip Inspection

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<http://gsfschools.com/preTripVideo>

**The five (5) components of a comprehensive commercial vehicle pre-trip inspection are:**

1. Engine compartment
2. Cab check and engine start
3. Brake check
4. External cab
5. Trailer

**The following skills will be tested during your DMV drive test:**

1. Inspection: air brakes, in-cab inspection, walk-around.
2. Yard backing skills: straight backing, alley docking, parallel parking.
3. Road skills: starting and stopping, gear selection, turns, lane changes, commercial vehicle sign observance, hill parking and starting, freeway merging and exiting, defensive driving, and speed control.



## Engine Compartment (Engine Off)

### Check for Leaks, Condition of Hoses

- Look for puddles on the ground that would indicate a leak.
- Look for dripping fluids on the underside of the engine and transmission.
- Inspect hoses for “good” condition and leaks.

### Oil Level

- Indicate the location of dipstick.
- Make sure the oil level is within safe operating range and above the refill mark.

### Coolant Level

- Inspect the coolant level by either:
  - a. Checking the reservoir sight glass, or
  - b. Removing the radiator cap if the engine is not hot and visually checking the coolant level.

### Power Steering Fluid

- Indicate the location of the power steering fluid dipstick.
- Confirm that there is an adequate power steering fluid level that is above the refill mark.

### Engine Compartment Belts

- Check these belts for cracks, frays and snugness (at most  $\frac{3}{4}$  inch play at center of belt):
  - power steering belt
  - water pump belt
  - alternator belt
  - air compressor belt

If any of the components mentioned above are not belt driven, you must make sure that the component(s) are operating properly, are not damaged or leaking and are mounted securely.

## Cab Check and Engine Start

### Clutch and Gearshift Check, Engine Start

- Manual Transmissions:
  1. Depress the clutch.
  2. Place the gearshift lever in neutral.
  3. Start the engine and then slowly release the clutch.
- Automatic Transmissions:
  1. Confirm the vehicle is in “park” and start the engine.

### Oil Pressure Gauge

- Confirm that the oil pressure gauge is functioning.
- Make sure that the pressure gauge shows increasing or normal oil pressure, otherwise that the warning light goes off.
- If equipped with an oil temperature gauge, it should begin to gradually rise to a normal operating range.



## Temperature Gauge

- Confirm that the temperature gauge is working.
- The temperature gauge should begin to climb to the normal operating range.

## Ammeter, Voltmeter

- The gauges should show the alternator and/or generator charging; otherwise the warning light should be set off.

## Air and Vacuum Gauge

- Check for proper operation and acceptable readings on the air and vacuum gauges.

## Speedometer

- The speedometer should not be obscured or obviously broken.

## Mirrors and Windshield

- Mirrors should be clean and adjusted properly from the inside.
- Windshield should be clean with no illegal stickers, obstructions, or damage to the glass.

## Emergency Equipment

- The vehicle should have at least:
  1. Three red reflective triangles.
  2. One properly charged and rated fire extinguisher.
  3. Spare electrical fuses.

## Steering Play

- Power steering equipped vehicles: With the engine running, play should not exceed 10 degrees (or about two inches on a 20-inch wheel) before the front left wheel barely moves when you turn the steering wheel back and forth.
- Non-power steering vehicles: Play should not exceed 10 degrees (or about two inches on a 20-inch wheel) when you turn the steering wheel back and forth.

## Wipers and Washers

- Check that the wiper arms and blades are not damaged and operate smoothly.
- Windshield washers must operate correctly if the vehicle is equipped.

## Lighting Indicators

- Test that dash indicators work when the corresponding lights are turned on:
  1. Left turn signal
  2. Right turn signal
  3. 4-way emergency flashers
  4. High beam headlight

## Horn

- Check that air horn and/or electric horn are operational.

## Heater and Defroster

- Test that the heater and defroster works.



## Safety Belt

- Check that the safety belt is securely mounted, adjusts, and latches properly.

## Lights and Reflectors

- Check that all external lights and reflective equipment are clean and functional, including:
  1. Clearance lights (red on rear, amber elsewhere)
  2. Headlights (high and low beams)
  3. Taillights
  4. Turn signals
  5. 4-way flashers
  6. Brake lights
  7. Red reflectors (on rear) and amber reflectors (elsewhere)

## Brake Check

### Parking Brake Check

- Apply parking brake only and shift into a lower gear. Gently pull against the brake by releasing the clutch, and it should hold the vehicle.

### Hydraulic Brake Check

- With the engine running, apply the foot brake and hold for five seconds. The pedal should not move (lose pressure) during those five seconds.
- If equipped with a hydraulic brake reserve system, with the key in the off position, depress the brake pedal and listen for the sound of the reserve system electric motor turning on.
- Check that the warning buzzer and light is off.
- Check the proper operation of the foot brake by moving the vehicle forward slowly at about 5 mph and applying the brake firmly.

### Air Brake Check (air brake equipped vehicles only)

The proper procedures for inspecting the air brake system are as follows:

- **Test Air Leakage Rate (Static check)**  
With a fully-charged air system, typically at 120 psi, turn the engine off, chock the wheels, release (push in) the parking brake button and trailer air supply button (for combination vehicles) and time the air pressure drop. After the initial drop, the rate of pressure loss should not be more than 2 psi per minute for single vehicles and no more than 3 psi per minute for combination vehicles.
- **Test Air Brake System for Leaks**  
Release (push in) the parking brake and trailer air supply button (for combination vehicles), and apply pressure to the foot brake. After the initial drop in pressure, the rate of pressure loss should be no more than 3 psi per minute for single vehicles and no more than 4 psi per minute for combination vehicles.
- **Test Low Pressure Warning Alarm and/or Signal**  
Turn the key to the on position. Rapidly depress and release the foot brake to reduce air tank pressure. The low air pressure warning signal must come on before the pressure drops below 60 psi.



- **Check that the Spring Brakes Activate Automatically**  
Continue to rapidly apply and release the service brake pedal further reducing air pressure. The trailer air supply button (for combination vehicles) and parking brake button should pop out when the pressure falls to usually between 20 to 40 psi. This should activate the spring brakes.
- **Check Rate of Air Pressure Buildup**  
While the engine is operating at 1800 RPM, the pressure should rise from 85 to 100 psi within 45 seconds in dual air systems.
- **Test Foot (Service) Brakes**  
With normal air pressure, release the parking brake and trailer air supply button (for combination vehicles), move the vehicle forward slowly at about 5 mph and apply the brakes firmly using the brake pedal. Test for any pulling to any one side or delayed stopping action.

## **External Cab**

### **Steering**

#### Steering Box and Hoses

- Check that the steering box is mounted securely and is not leaking.
- Check for damage to power steering hoses and power steering fluid leaks.

#### Steering Linkage

- Check that connecting links, arms, and rods from the steering box to the wheels are not worn and cracked.
- Check that the joints and sockets are not loose or worn and that there are no missing nuts, bolts, or cotter keys.

### **Suspension**

#### Springs, Air

- Check for shifted, cracked, broken, or even missing leaf springs.
- Check for broken and distorted coil springs.
- If equipped, check the air ride suspension for damage and leaks.

#### Mounts

- Look for cracked or broken spring hangers, missing or damaged bushings, and broken, loose, or missing bolts, U-bolts or other axle mounting parts.

#### Shock Absorbers

- Confirm that the shock absorbers are secure and that there are no leaks.

### **Brakes**

#### Slack Adjusters

- Look for missing, loose or broken parts.



- The angle between the adjuster arm and push rod should be not less than 90 degrees when the brakes are applied and when the brakes are released a little over 90 degrees.
- When pulled by hand, the brake rod should not move more than one inch with the brakes released.

#### Brake Chambers

- Check that brake chambers are not dented, cracked, or leaking and that they are mounted securely.

#### Brake Hoses and Lines

- Check for worn, cracked or leaking hoses, lines, and couplings.

#### Drum Brake or Rotor

- Check for dents, cracks or holes, and loose or missing bolts.
- Brake linings and pads should not be worn thin.

#### Brake Linings

- Where visible, check that a reasonable amount of brake lining is showing.

## Wheels

#### Rims

- Check for damaged or bent rims. Rims cannot have welding repairs.

#### Tires

For every tire, check:

- Tread depth: need a minimum tread depth of 4/32 on steering axle tires, 2/32 on all other tires.
- Tire condition: Check that tread is evenly worn and without cuts or damage to tread or sidewalls. Valve caps and stems should not be missing, broken, or damaged.
- Tire inflation: Check for proper inflation with a tire gauge or by striking tires with a mallet.

#### Hub Oil Seals, Axle Seals

- Check that hub oil/grease seals and axle seals are not leaking.

#### Lug Nuts

- Check for any missing lug nuts, cracks, distortions, and for signs of looseness such as rust trails or shiny threads.
- Check for cracked or distorted bolt holes.

#### Spacers

- Spacers should not be bent, damaged, or rusted through.
- Spacers should be centered evenly.

## Side of Vehicle

#### Doors and Mirrors

- Check doors for any damage and that they open and close properly.
- Hinges should be secure with seals intact.
- Mirrors and mirror brackets should be mounted securely.



## Fuel Tank

- Check for secure tanks, tight caps, and that the tanks or lines don't leak.

## Battery and Battery Box

- Check to see that batteries are secure, for tight cable connections, and that cell caps are present.
- Check for signs of excessive corrosion.
- Battery box and cover/door must be secure.

## Drive Shaft

- The drive shaft should not be bent or cracked.
- Couplings should be secure.

## Exhaust System

- Check system for rust or carbon soot as they are signs of damage or leaks.
- System should be secure and connected tightly.

## Frame

- Check the longitudinal frame members, cross members, box, and floor for cracks, broken welds, holes or other damage.

## Rear of Vehicle

### Splash Guards

- If equipped with mud flaps or splash guards, check that they are mounted securely and not damaged.

### Doors, Ties and Lifts

- Doors and hinges must open, close, and latch properly from the outside, and should not be damaged.
- Check that any ties, straps, chains, and binders are secure.
- If equipped with a cargo lift, it must be fully retracted and latched securely, and should not be leaking, damaged or missing any parts.

## Tractor, Coupling

### Air and Electric Lines

- Check that electrical lines and air hoses are not cut, chafed, spliced, or worn, the steel braid should not show through its outer lining.
- Make sure the lines and hoses are not tangled or dragging against tractor parts.

### Catwalk

- Make sure the catwalk is securely bolted to tractor frame.

### Mounting Bolts

- Check for loose or missing mounting brackets, clamps, bolts, or nuts. The fifth wheel and the slide mounting must be solidly attached.
- Other types of coupling systems should be inspected for missing or broken components.

### Locking Jaws

- Check that the locking jaws fully close around the kingpin.



- On other types of coupling systems the locking mechanism should not have missing or broken parts and should lock securely.

#### Platform (fifth wheel)

- The platform structure supporting the fifth wheel skid plate should be free of cracks or breaks.

#### Release Arm (fifth wheel)

- If equipped with a release arm, check that it engaged and that the safety latch is in place.

#### Kingpin, Apron and Gap

- The kingpin should not be bent.
- The visible part of the apron should not be bent, cracked, or broken.
- The trailer should be laying flat on the fifth wheel skid plate without any gap.

#### Locking Pins (fifth wheel)

- Locking pins should be fully engaged.
- The fifth wheel should be positioned so the tractor frame will not strike the landing gear or the tractor.

## Trailer

#### Air and Electrical Connections

- The trailer air connectors should be sealed and in good condition.
- Glad hands should be locked in place and free of damage or air leaks.
- The trailer electrical plug should be firmly seated and locked in place.

#### Header Board

- If equipped with a header board, check to see that it is secure, damage-free and strong enough to contain cargo.
- If equipped with a canvas or tarp carrier, it should be mounted and fastened securely.
- Check the front area of enclosed trailers for cracks, bulges or holes.

## Side of Trailer

#### Landing Gear

- The landing gear must be fully raised. Check that it has no missing parts with a non-damaged support frame and that the crank handle is secure.
- Check for air or hydraulic leaks if power operated.

#### Doors, Ties and Lifts

- Check that doors are not damaged and that they open, close, and latch properly from the outside.
- Ties, straps, chains, and binders should be secure.
- Any cargo lifts should be checked for leaking, damaged or missing parts, and should be fully retracted and latched securely.

#### Frame

- The frame, cross members, box, and floor should be checked for holes, cracks, broken welds or other damage.





## Tandem Release Arm and Locking Pins

- If equipped, make sure that the release arm is secured and that the locking pins are locked in place.

## Remainder of Trailer

Inspect the following components according to the sections mentioned previously in this guide:

- Wheels
- Suspension System
- Brakes
- Doors, Ties and Lift
- Splash Guards



## IMPORTANT NOTES

The following documents must be in your possession before you are allowed admission to the driver test at the DMV:

1. If you fail your driving test, the DMV will charge a retest fee of \$30 before you are allowed to take the test again.
2. Social Security Card
3. "Green" Medical Card
4. Instruction permit

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### About GSF Driving & Truck Training School

GSF offers professional driver training, including free training online at <http://gsfschools.com>.

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