To ensure an inspection is performed properly and promptly, the inspection should be performed in the following order:

- Brake Test
- Inside the Vehicle
- Outside the Vehicle
- Underneath the Vehicle
- Under the Hood
Commercial Certification – Five Step Sequence

Students will identify the key elements and pass/fail criteria of Vehicle Commercial Inspections in order to be endorsed for Commercial Inspections in the state of Texas.
OBJECTIVES

- Identify the five-step Vehicle Commercial Inspection sequence

- Demonstrate mastery of content by scoring 80% or better on multiple choice examination in order to become endorsed for commercial inspections
Commercial Vehicles

- 26,001 pounds or more gross weight, registered weight or gross weight rating
- Farm vehicle with 48,001 pounds or more
- Passenger vehicle of 15 passengers or more
- Hazardous material requiring placards.
- In Interstate commerce over 10,000 pounds
Verify financial responsibility before proceeding with any inspection.

Check for the following:

- Insured’s name
- Policy Number
- Make of vehicle
- Model of vehicle
- Effective date
- Expiration date

The policy must **meet minimum liability requirements**

VIN/Make & Model (should be taken from vehicle)
TX DOT Cab Card or Rail Road Commission Card are acceptable

Rev. 04/2022
After verifying vehicle insurance, CNG tank should be inspected, if equipped. (Customer only need be present if tank is located in the trunk.)

A CNG equipped vehicle:
- Must Comply with the requirements of 49 CFR 571.304
- The fuel container tank has not exceeded the expiration date

The inspector can complete this inspection requirement through observation and/or documentation.
BRAKE TEST
An Inspector should inspect the following items

Service Brake
Parking Brake
SERVICE BRAKE

At a speed of 20 mph, apply service brake firmly to determine if the vehicle comes to a smooth stop within the distance prescribed by the "Required Brake Performance."

### Required Vehicle Brake Performance

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>25 Ft</td>
</tr>
<tr>
<td>Small Truck</td>
<td>30 Ft</td>
</tr>
<tr>
<td>Medium Truck</td>
<td>40 Ft</td>
</tr>
<tr>
<td>Over 10,000 GVWR</td>
<td>50 Ft</td>
</tr>
</tbody>
</table>

- Check equalization and any metal to metal sounds during test
- Check for leaks
An Inspector should inspect the following items:

- Windshield Wiper Controls (On/Off Switch)
- Horn
- Turn Signals Indicator Lamps
- Mirror
- Seat Belts
- Windshield
- Parking Brake
- Brake System
- Steering
- High Beam Indicator Lamp (1948 & up)
Every motor vehicle with a windshield must be equipped with a windshield wiper or wipers in good working order and constructed so as to permit operation and control by the driver of the vehicle.

- Operation—should be operational
Every motor vehicle shall be equipped with a horn in good working order and capable of emitting a sound audible for a distance of 200 feet or more.

- Switch within driver’s reach
- Mounting should be secure
- Inspect wiring
TURN SIGNALS

• Inspect switch, lock, and indicator lamps

*Remember:* Selector switch must lock in proper turn position when applied but need not cancel automatically.
MIRROR

• Check for proper number of mirrors/location; two required

• Should not be cracked, peeled, tarnished or obstruct driver’s forward vision

• Should provide view to rear of at least 200 ft.

• Should not interfere with driver’s forward vision
Vehicles required to be inspected for seat belts when anchorages were part of the manufacturer’s original equipment.
Windshield damage should not be assessed in the 2 inch border at the top of the windshield, a 1 inch border at each side of the windshield, or in the area below the topmost portion of the steering wheel.

- No cracks over \( \frac{1}{4} \) inch wide
- No damages over \( \frac{3}{4} \) inch diameter (stars/rock chips)
- Damages cannot be closer than 3 inches from each other
- No intersecting cracks
The parking brake should be so designed that once applied, it shall remain applied - despite exhaustion of any source of energy or leakage of any kind.

- Operation - should hold vehicle
- Should not have parts missing, broken, badly worn or not operating properly
- Should not have pull cables that are badly stretched, frayed or not operating properly
BRAKE SYSTEM

- Low Air Warning device or light should activate @ approximately 55 psi
- The low air pressure warning device notifies the driver of air pressure loss
- Inspect Tractor protection valve; it protects the brake system on the tractor in case the trailer breaks away
- The foot valve is the control point of the vehicle’s service brakes
- The relay emergency valve applies the trailer brakes without activating the tractor’s service brakes
The steering system of the vehicle must be inspected to determine if excessive wear and/or maladjustment of the steering linkage and/or steering gear exists.

- Inspect lash & free movement
- Inspect wheel size and steering column
HIGH BEAM INDICATOR

Shall be equipped with a beam indicator which shall be lighted whenever the uppermost distribution of light from the head lamp is in use, and shall not be otherwise lighted.

- Required on 1948 and newer
- Should work properly
- Can be any color
**OUTSIDE THE VEHICLE**

An Inspector should inspect the following items:

- Tires
- Wheels
- Mud Flaps
- Wipers
- Lighting Equipment
- Glass Coating/Tint
- Fuel System
TIRES

All tires on a vehicle will have proper tread depth; Front 4/32 and Rear of at least 2/32 of an inch and be in safe operating condition.

**Inspection Procedure:**

- Check tread depth & condition; tread depth taken from any two adjacent major grooves in the center of the middle of the tire
- Recaps, ok on front axle (except buses) providing the tread depth on the recap is at least 4/32 and is in good condition
- NO re-grooved/recapped on front axle of buses
- No mixing bias and radial tires on the steering axle
- Should not have tread or sidewall separation

Rev. 04/2022
MUD FLAPS

Required on Trucks/Light Trucks behind the rearmost axle or (combination) if it has 4 or more tires (always required on dual wheel pickups)

**Inspection Procedure:**

- Height/Width required (as wide as tires they are protecting; no more than 12” above roadway)
- Truck-Tractors not pulling a trailer “bobtailing” do not require mud flaps to pass state inspection

*Exceptions:* Truck tractors, motor homes, buses, pole trailers.
**WHEELS**

**Inspection Procedure:**
- Lugs, bolts & nuts/Condition – nothing missing
- No loose, missing, broken, cracked, stripped, damaged or otherwise ineffective wheel studs, bolts, nuts, or lugs
- Any part is bent, cracked, or damaged so as to affect safe operation of the vehicle is a fail
WIPERS

REJECT IF:

- Tears (no more than 1” or a combination of 1” on both sides)
- Number required (as many as originally equipped)
Every motor vehicle shall be equipped with at least two head lamps (2; clear/white), at least one on each side of the front of the motor vehicle. Glass or composite lens with condensation will not fail; a sealed beam lamp will fail for having condensation; height requirement: 25” – 54”

- Stop Lamps (1959/older, 1 stop lamp; 1960/newer, 2; red or amber in color) height requirement: 15”-72”
- Tail lamps (1959/older, 1 tail lamp; 1960/newer, 2; red in color) height requirement: 15” – 72”
- LED tail lamps may have no more than 50% of diodes malfunctioning
Turn signal lamps: required on all vehicles beginning 1960 or newer (2 in front, white or amber; 2 in rear, red or amber); turn signal lamps on the front of the truck-tractor that are two-faced and visible to the rear will not be rejected or failed for not having no rear turn signals.

White or **AMBER** to the Front

Red or **AMBER** to the Rear

Rev. 04/2022
• 1 Backup Lamps; Clear/White
• 1 License Plate Lamp; Clear/White
• Hazard Warning Lamps of Proper Color (Front – Amber; Rear – Amber or Red)
• Side Marker Lamps: Amber to the front and middle; Red to the rear
• Clearance Lamp (Amber to the front and middle, red to the rear)
• Identification Lamp (80” or more in width. Not closer than 6”, or more than 12”)

Rev. 04/2022
• 2 Reflectors (Red); Height requirement: 15”-60”
• Use of reflex tape: at least 50% of trailer; all of rear as much as practicable
• Mounting/Physical damage; wiring should not be shoddy; lamp lenses should not be broken and should fit properly; all lamps should be securely mounted, not loos.
• No use of repair tape or repair kit
GLASS COATING/TINT

- Min. Percentage (70%) – below minimum fails (side windows immediately to right and left of driver)
- Windshield; no lower than 2” from top, no more than 1” from the sides, and no more than the top most portion of steering wheel.

![Diagram of glass coating/tint regulations]
FUEL SYSTEM

- NO leaks; must have filler cap present; fuel tank must be securely mounted
UNDER THE VEHICLE

An Inspector should inspect the following items:

- Steering
- Air Compressor
- Exhaust System
- Brake System
- Coupling Devices
- Suspension
- Frame

Rev. 04/2022
Column: no absence or looseness of U-bolts; reject if tilt steering wheel fails to lock into position
● Inspect Front Axle Beam

● Gear Box: no loose or missing mounting bolts; any crack(s) in box or mounting brackets fails

● Pitman Arm: no looseness of the arm on the steering gear output shaft
- Tire rods and drag links: no loose clamp(s) or clamp bolt(s); any looseness in any threaded joint fails

- Ball and socket joints: any movement under steering load of a stud nut; any motion, other than rotational, between any linkage member and its attachment point of more than ¼ inch, fails
• Inspect belts, loose bolts, pulley
• Main purpose of air compressor; source of energy for the air brake system
• The governor regulates system air pressure by cycling the compressor
EXHAUST SYSTEM

- Inspect manifold, gaskets, exhaust pipe, muffler, resonator, supporting hangers
- Leaks, holes & patches: fail
- Has to have proper hangers
- Catalytic converter (required on ‘84 & up)

- Location of discharge: should discharge exhaust from rear, sides or top of the passenger compartment of vehicle.

**Exceptions:** Holes in the exhaust system made by the manufacturer for drainage are not cause for rejection.
BRAKE SYSTEM

- NO damaged, frayed, leaking hoses or cables.
- NO Visible/Audible leaks
- NO missing or broken components (shoes, pads, drums, lining, anchor pins)
- The brake drum can become very hot – never touch it during and inspection
BRAKE SYSTEM

- The anchor pin secures the nonexpanding end of the brake shoes to the axle
- The brake lining can wear thin with use
- Readjustment limits—any brake beyond the readjustment limit shall be rejected
- Slack adjusters link the push rod to the “S” cam brake shaft and serve as a means of taking up the slack in the brake system.
BRAKE SYSTEM

- Brake adjustment is the most common cause of loss of braking efficiency in an air brake system.
- Inspect brake chambers; these are used to convert the energy of compressed air into mechanical energy. (When brakes are applied, the push rod is forced out of the brake chamber. When brakes are released, the push rod is pulled back into the chamber).
- No improper repairs
- Inspect breakaway devices
- Inspect vacuum reserve
COUPLING DEVICES

- Inspect mounting
- Inspect movement between parts
- Inspect fasteners, welds, cracks
- Inspect if pivot bracket pin missing
- Inspect if there is movement between pivot and bracket pin
COUPLING DEVICES

- Check movement between upper & lower 5th wheel halves
- When the horizontal movement between the upper and lower fifth wheel halves exceed ½ of an inch on the lower coupler, the vehicle will be rejected or failed
- Inspect King Pin, locking mechanism; should not have any locking pins missing
- Inspect safety chains or cables
- A fifth wheel allows free rotation between the tractor and semitrailer
SUSPENSION

- No deflated or cracked air bags, broken or missing parts; deflated air suspension
- Cannot have crack(s) on any leaf springs
- Inspect U-bolts. U-bolts attach leaf springs to the axle
• Cannot be cracked, broken, loose, sagging
• Check fasteners, locking pins, adjustable axle assemblies
• Check to make sure frame does not contact tire/wheel
UNDER THE HOOD
An Inspector should inspect the following items

- Exhaust Emissions System
- Master Cylinder
- Power Steering
EXHAUST EMISSIONS SYSTEM

- Inspect items required & condition; no leaks
MASTER CYLINDER

- Leaks: fail
- Fluid level (no more than 1” below top or reservoir or recommended level)
POWER STEERING

- Inspect belt/lines (condition)
- Leaks: Fail
- Fluid level (no more then 1” below top or reservoir.)
## Violations and Penalty Schedule

<table>
<thead>
<tr>
<th>Category</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Violation</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Violation</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; Violation</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; Violation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Advisory</td>
<td>$250</td>
<td>$500</td>
<td>6 month suspension</td>
</tr>
<tr>
<td>B</td>
<td>$500.00</td>
<td>12 month suspension</td>
<td>Revocation</td>
<td>Lifetime Revocation</td>
</tr>
<tr>
<td>C</td>
<td>12 month suspension</td>
<td>Revocation</td>
<td>Lifetime Revocation</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Suspension until bar removed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Failing to possess a valid driver’s license]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>$500</td>
<td>12 month suspension</td>
<td>Revocation</td>
<td>Lifetime Revocation</td>
</tr>
<tr>
<td>Administrative action [Failure to pay]</td>
<td></td>
<td></td>
<td></td>
<td>Suspension, until penalty is paid in full</td>
</tr>
</tbody>
</table>
Remember, you have a responsibility to the motorist and to the citizens of Texas to ensure that their vehicles are SAFE!
➢ DO NOT WRITE IN BOOKLETS
➢ MUST SCORE AN 80 TO PASS
➢ CAN NOT USE NOTES