LIVE WEBINAR

Motor Carrier Safety 101 Series

A Deep Dive into **Vehicle Safety Standards & Brake Maintenance**

TUESDAY JULY 15 1-2PM CST

Joshua Anderson
Safety Consultant, SMSC

Before We Begin

All attendees are in “LISTEN ONLY” mode.

You can type in questions using the question tab within the GoToWebinar panel.

Q&A at the end of the webinar.

Additional questions can be emailed to:
janderson@smscsafety.com

A recorded copy of the webinar and slides will be made available to all attendees.

Today's Agenda

1. FMCSA Data
2. Required Lamps
3. Periodic Inspection
4. Brake Out of Adjustment
5. Tire-Flat
6. Questions

FMCSA Data (Total VM Violations in North America for All Trucks in 2024)

	Violation Code	Violation Description	# of Inspections	# of Violations
1	393.9	Inoperable Required Lamp	129854	185856
2	396.17C	Operating a CMV without proof of a periodic inspection	86602	110791
3	393.47E	Brake Out of Adjustment - Roto, Clamp (Short & Long), DD-3, or Bolt	69275	102717
4	396.17CPI	Operating a CMV without documentation of a periodic inspection.	69979	89858
5	393.95A	No/discharged/unsecured fire extinguisher	66071	66361
6	393.9TS	Inoperative turn signal	55025	62025
7	393.75A3	Tire-flat and/or audible air leak	52335	59331
8	393.95F	Emergency Equipment - Stopped vehicle warning devices missing or improper.	58192	58225
9	393.75A3TAOL	Tires - All others, leaking or inflation less than 50% of the maximum inflation pressure.	50553	55793
10	396.3A1BOS	Brake - Defective brake(s) are equal to or greater than 20% of the service brakes on the vehicle/combination.	51526	51828

A&I online – Motor Carrier Analysis and Information Resources Online

Required Lamps (eCFR :: 49 CFR Part 393 Subpart B -- Lamps, Reflective Devices, and Electrical Wiring)

TABLE 1 OF § 393.11—REQUIRED LAMPS AND REFLECTORS ON COMMERCIAL MOTOR VEHICLES

Item on the vehicle	Quantity	Color	Location	Position	Height above the road surface in millimeters (mm) (with English units in parenthesis) measured from the center of the lamp at curb weight
Headlamps	2	White	Front	On the front at the same height, with an equal number at each side of the vertical center line as far apart as practicable	Not less than 559 mm (22 inches) nor more than 1,372 mm (54 inches)
Turn signal (front). See footnotes #2 and 12	2	Amber	At or near the front	One on each side of the vertical centerline at the same height and as far apart as practicable	Not less than 381 mm (15 inches) nor more than 2,108 mm (83 inches)
Identification lamps (front). See footnote #1	3	Amber	Front	As close as practicable to the top of the vehicle, at the same height, and as close as practicable to the vertical centerline of the vehicle (or the vertical centerline of the cab where different from the centerline of the vehicle) with lamp centers spaced not less than 152 mm (6 inches) or more than 305 mm (12 inches) apart. Alternatively, the front lamps may be located as close as practicable to the top of the cab	All three on the same level as close as practicable to the top of the motor vehicle
Tail lamps. See footnotes #5 and 11	2	Red	Rear	One lamp on each side of the vertical centerline at the same height and as far apart as practicable	Both on the same level between 381 mm (15 inches) and 1,829 mm (72 inches)
Stop lamps. See footnotes #5 and 13	2	Red	Rear	One lamp on each side of the vertical centerline at the same height and as far apart as practicable	Both on the same level between 381 mm (15 inches) and 1,829 mm (72 inches)
Clearance lamps. See footnotes #8, 9, 10, 15 & 17	2	Amber	One on each side of the front of the vehicle	One on each side of the vertical centerline to indicate overall width	Both on the same level as high as practicable
	2	Red	One on each side of the rear of the vehicle	One on each side of the vertical centerline to indicate overall width	Both on the same level as high as practicable
Reflex reflector, intermediate (side)	2	Amber	One on each side	At or near the midpoint between the front and rear side marker lamps, if the length of the vehicle is more than 9,144 mm (30 feet)	Between 381 mm (15inches) and 1,524 (60 inches)

Identifying Inoperable Lamps

- All required lamps should be turned on during a pre-trip inspection.
- The driver should start at the front of the tractor and work their way completely around the equipment, visually inspecting all lamps.
- The driver should identify the following:
    - Are the lights on?
    - Are they the correct color?
    - Are they properly mounted?

Avoiding Inoperable Lamp Violations

- All lamps should be inspected anytime a driver stops and gets out of the tractor
    - Shipper / Receiver
    - Fueling
    - Mandated 30-minute break

- If a driver identifies an inoperable lamp, the driver should not drive during daylight hours with the lights off.

- The driver should check the lights on the trailer while driving to identify any “flickering” that may indicate a loose electrical connection.

- The driver should carry extra fuses incase the issue can be fixed by replacing a fuse.

Periodic Inspection

- Every commercial vehicle, including each segment of a combination vehicle, must undergo periodic inspection at least once every 12 months. At a minimum, inspections must include all items listed in 49 CFR 396 Appendix A: Minimum Periodic Inspection Standards.

- **The periodic inspection report must be retained by the motor carrier for 14 months, while documentation of the most recent periodic inspection (sticker, report, or decal) must be kept on the vehicle.** Carriers in States without a Federal inspection program equivalent (see 49 CFR 396.23) may perform required annual inspections themselves or allow a third-party to conduct inspections, so long as the inspector meets the qualifications mandated in 49 CFR 396.19.

Identifying Periodic Inspection Violations

- A driver should identify and visually inspect the periodic inspection sticker during a pre-trip inspection on both the tractor and trailer.

- Not all periodic inspection stickers look the same, but they must have the following required information:
    - The date of inspection
    - Name and address of the motor carrier or other entity where the inspection report is maintained
    - Information uniquely identifying the vehicle inspected
    - A certification that the vehicle has passed an inspection in accordance with 396.17

Avoiding Periodic Inspection Violations

- An inspector may request a copy of the physical inspection report that was completed for the periodic inspection
    - Trailer inspection reports are typically located on the nose of the trailer
    - Tractor inspection reports are typically located in the document binder in the tractor
    - A driver should be able to request a copy of these from the carrier. These can be sent electronically to present to the officer

- A periodic inspection is valid for 12 months from the date of inspection. This is to the day and not the month.

- A best practice for a carrier is to begin working on completing these inspections one full month before expiration
    - Some things to consider are the location of the equipment and is the equipment on a dedicated account

Brake Out of Adjustment

- Automatic slack adjusters are required for any CMV that is manufactured after October 19, 1994.

- Slack adjusters serve three purposes
  - To convert the forward linear motion of the push rod into the rotary motion of the camshaft
  - To serve as a lever and help generate greater force
  - To provide a means of reducing the clearance between the brake shoe and the brake drum

Identifying Brake Out of Adjustment Violations

- During a pre-trip inspection, a driver should ensure that both slack adjusters on the same axle are of the same manufacture.
- With the brakes released, check for excessive free play (movement) in the slack adjuster arm. A free stroke exceeding 5/8 of an inch (or 1 inch in some cases) may indicate a violation.
- Inspect for loose or missing hardware (cotter pins, clevis pins, etc.), bent or damaged components (control arm, anchor brackets), and worn clevises.

Preventing Brake Out of Adjustment Violations

- The slack adjuster shown to the right has an indicator that is installed and can be visibly seen when doing a pre-trip inspection.
    - It is important for the driver to know that the indicator is less than the maximum standard in case the officer tries to use that as a violation

- There are a few “theories” on how to “correct” an automatic slack adjuster, but the reality is that if an automatic slack adjuster is out, then it must be replaced, as the internal parts are stripped.

Tire Flat

Tire inflation pressure should be measured by its cold inflation pressure. If tire inflation is measured on a pressure that has been increased by heat from recent operations of the vehicle, the cold inflation pressure will be estimated by subtracting the inflation buildup factor shown in the image below from the measured inflation pressure.

Average speed of vehicle in the previous hour	Minimum inflation pressure buildup	
	Tires with 1,814 kg (4,000 lbs.) maximum load rating or less	Tires with over 1,814 kg (4,000 lbs.) load rating
66-88.5 km/hr (41-55 mph)	34.5 kPa (5 psi)	103.4 kPa (15 psi).

Identifying Tire Flat Violations

- A flat tire on a CMV is not always a visible violation
  - Does the vehicle pull to one side, especially when braking?
  - Are there unusual vibrations in the steering wheel?
  - Is there any difficulty in steering?

- While driving, a driver can roll down the window to listen for any unusual noise, such as a flapping, thumping, or grinding noise

- A driver should check each tire for the recommended PSI for each tire brand

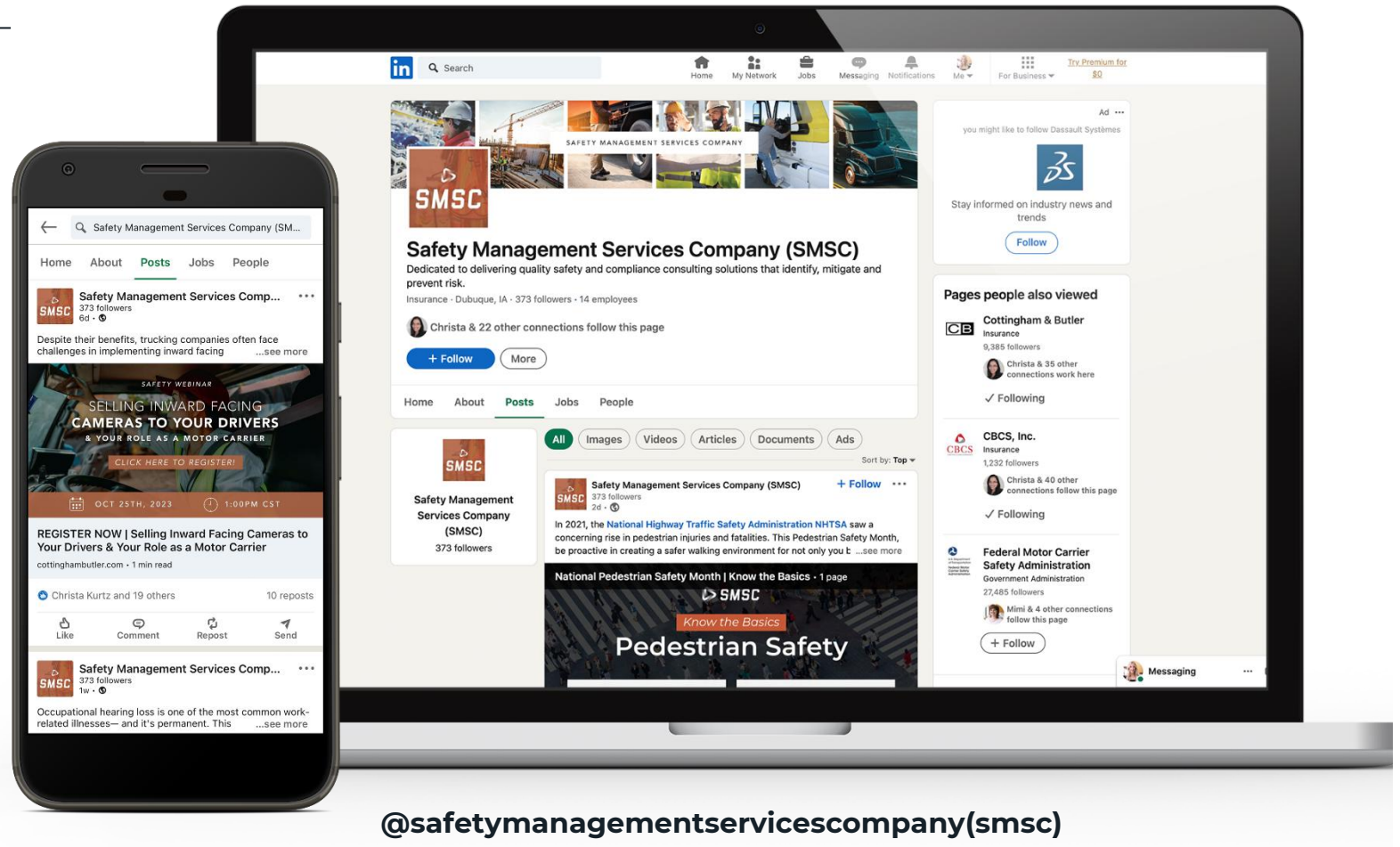
- If the CMV is equipped with an automatic tire inflation system (ATIS), then that should be inspected as well
  - Some models of ATIS automatically adjust tire pressure based on the load on the trailer. An ATIS that responds to the load will reduce the tire pressure when some of the load is removed or increase pressure as weight is added.

Preventing Tire Flat Violations

- Tires should be visually and manually inspected during a pre-trip inspection
- Tires should also be visually and manually inspected whenever a driver stops and gets out of the tractor
- Manually inspected means more than a driver kicking tires or using a tire-beater.
- Although it may be debatable on if it is safer to “limp” a tractor to the next repair shop, a violation still exists and would be issued in a roadside inspection if the driver received one on the way

Questions

Let’s Stay Connected



@safetymanagementservicescompany(smsc)