



**TECHNICIAN TRAINING**

**DORMAN**

Training Seminar Series  
*Presents:*  
Commercial Motor Vehicles  
“Reducing Roadside Violations”

The image shows two technicians in a workshop setting. One technician is holding a tablet and pointing at the screen while the other looks on. The background is a blurred industrial environment. The text is overlaid on the right side of the image, with a diagonal orange and blue graphic element.

1



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Aftermarket **Innovators**

The image shows a close-up of a vehicle's engine compartment and a tire. The engine components are on the left, and the tire is on the right. The text is overlaid on the left side of the image, with a diagonal orange and blue graphic element. Four orange arrows point from the right towards the tire.

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## *Your Instructor For This Webinar*

### Sulev "Swede" Oun

- Owner, O&K Truck and Auto Repairs Ltd.
- **ATTP Master Instructor, New York State**
- Author, "Medium/Heavy Duty Truck Electricity and Electronics"
- **Training provider for various Associations, industry and various NY State agencies**
- Developed trainings that range from four hours to multiple days, specializing in brakes, electrical, regulations and many other subjects relating to our industry.
- **Member of various organizations such as SAE, CVSA, TANY**

[okswede1@aol.com](mailto:okswede1@aol.com)

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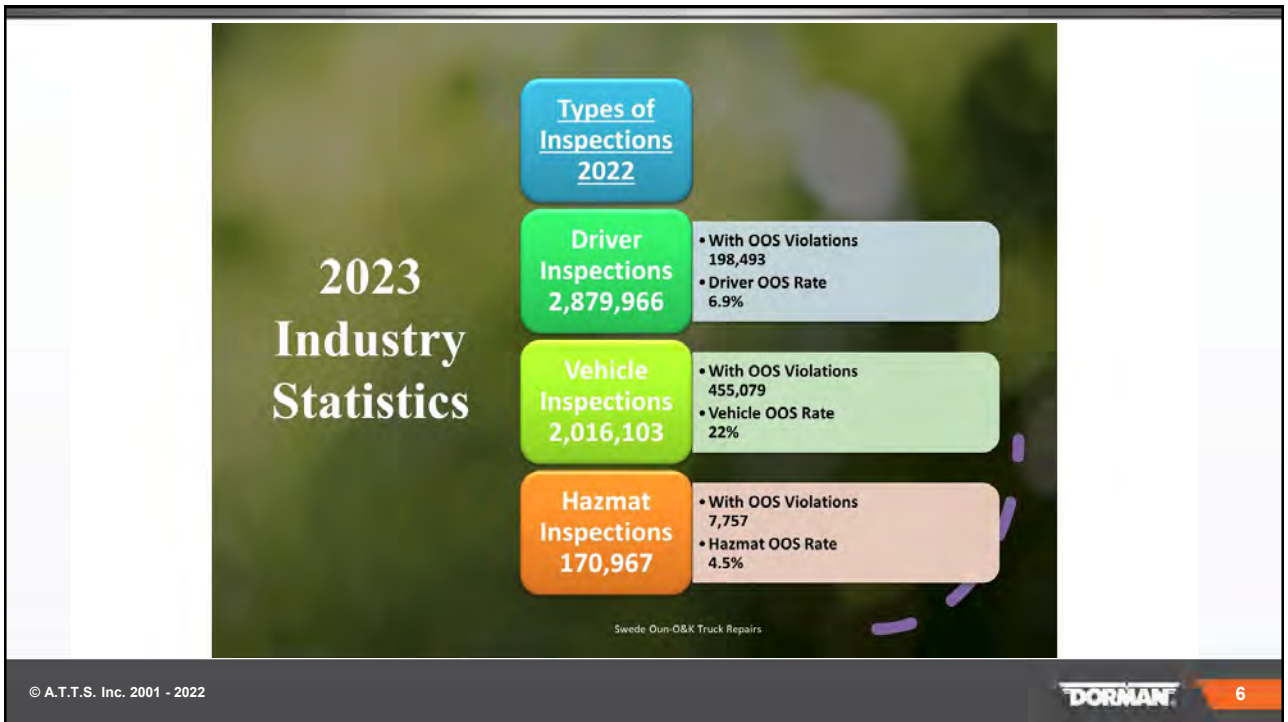
## What will be covered

- Discuss issues and possible reasons related to continuous roadside violations.
- **Real world solutions for some top violations.**
- CVSA's International Road Check for May 14 - 16 will place emphasis on "tractor-protection systems"
- **To get prepared a live demo on how and "why" to check that system.**

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## PART 396- INSPECTION, REPAIR, AND MAINTENANCE

### 396.1 Scope.

**General- Every motor carrier, its officers, drivers, agents, representatives, and employees directly concerned with the inspection or maintenance of motor vehicles shall comply and be conversant with the rules of this part.**

Sec.

396.1 Scope.

396.3 Inspection, repair, and maintenance.

396.5 Lubrication.

396.7 Unsafe operation forbidden.

396.9 Inspection of motor vehicles in operation.

396.11 Driver vehicle inspection report(s). Etc.

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### Most Frequent Vehicle Violations in Inspections, 2021 (same for every year)

<u>Violation</u>		
<u>Code</u>	<u>Category</u>	<u>Violation Description</u>
393.9	Lighting	Inoperable Required Lamp.
396.17(c)	Periodic Inspection	Operating CMV without proof of periodic inspection.
393.47(e)	Brakes, Out Of Adjustment	Clamp or Roto type brake out-of-adjustment.
393.95(a)	Emergency Equipment	No/discharged/unsecured fire extinguisher.
393.9TS	Lighting	Inoperative turn signal
396.3(a)(1)	All other Vehicle Defects	Inspection, repair and maintenance of parts and accessories.
393.75(a)(3)	Tires	Tire-flat and/or audible air leak.

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### Most Frequent Vehicle Violations in Inspections, 2021 (same for every year)

<u>Violation Code</u>	<u>Category</u>	<u>Violation Description</u>
393.11	Lighting	No or defective lighting devices or reflective material as required.
393.53(b)	Brakes, all others	CMV manufactured after 10/19/94 has an automatic airbrake adjustment system that fails to compensate for wear.
393.78	Windshield	Windshield wipers inoperative/ defective.
393.75(c)	Tires	Tire-other tread depth less than 2/32 as measured in a major tread groove.
396.5(b)	All other Vehicle Defects	Oil and/or grease leak.
393.95(f)	Emergency Equipment	No/insufficient warning devices.

### Most Frequent Vehicle Violations in Inspections, 2021 (same for every year)

<u>Violation Code</u>	<u>Category</u>	<u>Violation Description</u>
393.9H	Lighting	Inoperable head lamps.
393.45(b)(2)	Brakes, All Others	Brake hoses or tubing chafing and/or kinking.
396.3(a)1BOS	Brakes, Out Of Adjustment	Brakes OOS: the number of defective brakes is equal to or greater than 20% of the service brakes on the vehicle or combination.
393.48(a)	Brakes, All Others	Inoperative/defective brakes.
393.55(e)	Brakes, All Others	No or defective ABS Malfunction indicator lamp for trailer manufactured after 03/01/1998.

## Why do we keep on having roadside violations and issues?

### Possible answers.

- **Pre-Trip trainings suck.**
  - They are incomplete and not realistic.
  - Inadequate.
- **Drivers are at a disadvantage.**
  - They don't go underneath vehicles.
  - Think about where a good portion of violations derive from?



Look at your violations and don't be surprised that a good majority of violations discovered under the vehicle are areas that drivers don't think about or see.

## Why do we keep on having roadside violations and issues?

### Possible answers.

- Appendix A in the Federal Motor Carrier Safety Regulations (FMCSR's) are inadequate.
- State Inspection Programs are inadequate.
- **No available trainings on "Annual Inspections" (and updates).**

Ask yourself, where do many of the violations derive from? Only on a "Walk-Around"?

**More time and effort is needed to emphasize "Annual Inspections" and incorporating inspection concepts and criteria as part of any PM program or even as a stand alone more often than once a year before the actual "Annual Inspection" comes due.**

## Commercial Vehicle Safety Alliance (CVSA)

- Great source for roadside inspection info and materials.
  - Annual OOS Criteria is a good book to have.
- The general site and info is free.
- There is also a member link.

[CVSA.org](http://CVSA.org)

## Dorman Products

- Great source for trainings related to maintenance and diagnostics of all vehicles, including Heavy Duty.
- They provide webinar style and live trainings all over the country on the automotive side.

**“G” Truglia took helm of their training’s.**

**gt@attstraining is how to find more info. He will also put together trainings for your needs.**

**Reminder: All these lunch and learns get posted on “You-Tube”. Search Dorman Products Lunch and Learns.**

## Federal Annual Periodic Inspection

### • Windshields

**NOTE: Windshields are a hard read.**

- **NY: Reject if there is a crack more than 11” long, any part of which extends into the path of windshield wipers. (Verify your own state criteria). This is just an example**
- **Appendix A: Any crack not over 1/4” wide, if not intersected by any other crack.**
- **NY: “Star” larger than 3” diameter.**
- **Appendix A: Any damaged area not more than 3/4” in diameter, if not closer than 3” to any other such damaged area.**

**This company wanted a NY State Heavy Duty Inspection “and” a Federal Annual Inspection.**

**This truck passed the NY State inspection, but not the Federal Inspection.**



The Feds have an advisory committee on regulations. If you're a big company or association, chances are good, those people with name recognition and titles get on it. You most certainly can read into this.



**Is there anything wrong in this picture?**

- If you are the one doing safety/driver training, you should know.
- If you deal with regulations, you should know.
- If you do annual inspections, you should know.
- If you do roadside inspections, you should know.
- If you are a driver you should know.
- If you have “*anything*” to do with inspections and maintenance, you should know.

**❖ Suggestion: Collaborate with your maintenance people. Safety is a team effort.**



***Having a thorough understanding of all the systems and components is one of the first steps in reducing roadside violation. This does not mean that all the above mentioned must be a technician. However, if you have responsibilities related to vehicles and safety, you need the full picture. Having a title doesn't make you proficient at your job.***



CVE people start their careers with training, and it doesn't stop until they are retired.



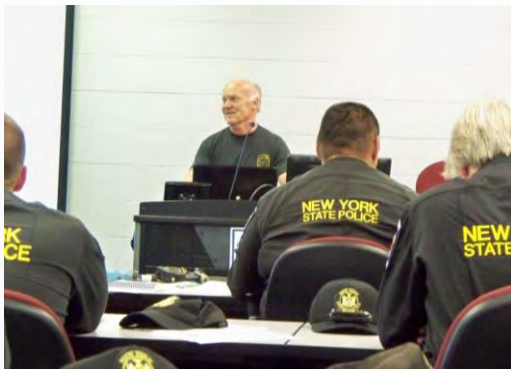
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**Yes, I am biased towards Training.**  
**It benefits everyone.**  
**Knowledge prevents shooting off the hip.**  
**It's a win, win for everyone in the Industry.**



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Industry and enforcement in the same level playing field.

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**There is no limit to the types of trainings and entities that require it. This is an example of using specific vehicles to put specific training together. In this case it was for SWAT and EMS people.**

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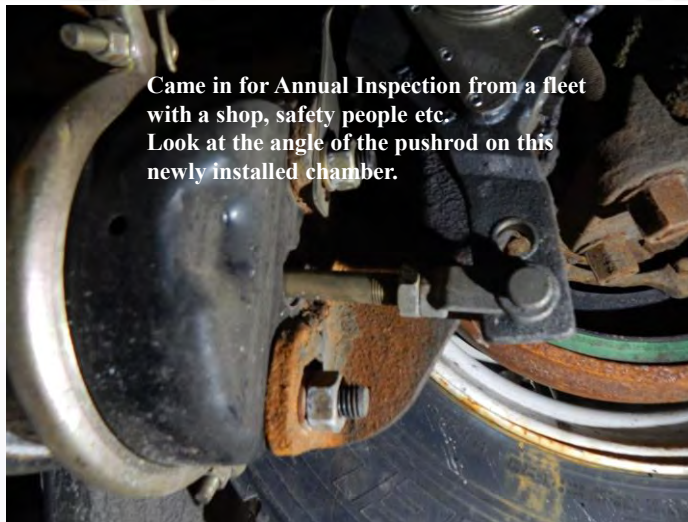
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**It is so important that these people know their vehicles inside and out. In this case lives depend upon it. Time is precious during an emergency. Everyone needs to be on the same page. Start the vehicle, drive it and make sure the vehicle is safe.**

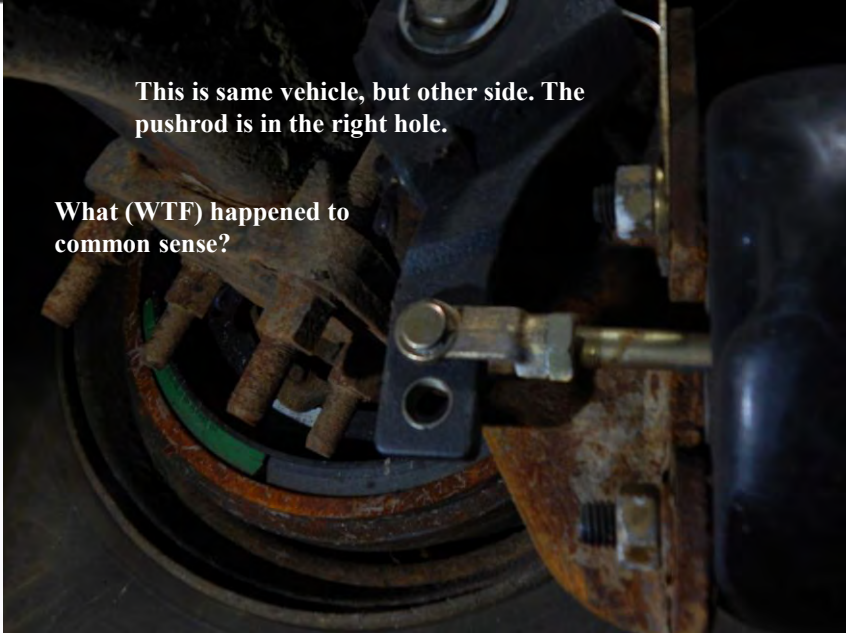
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**Came in for Annual Inspection from a fleet with a shop, safety people etc. Look at the angle of the pushrod on this newly installed chamber.**

**Question: If you are the safety person, owner, manager etc. Would you be able to find this yourself, explain this and train your people how to find this for a pre-trip training? More important, who needs to take responsibility for this?**

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This is same vehicle, but other side. The pushrod is in the right hole.

What (WTF) happened to common sense?

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Another inspection.  
What do you see?  
But more important, WHY?????

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- **FOOD FOR THOUGHT**
- **80 Percent of Issues we Encounter are Man Made.**
- **WHY???????**
- **Can we do better with more and proper training?**



## Periodic Inspection 396.17- 396.23

- **The regulations require that commercial vehicles operated in interstate or foreign commerce pass an inspection at least annually.**
- **The inspection requirements may be met through periodic inspection programs administered by the state, or by self-inspection, a roadside inspection, or an inspection performed by a commercial garage or similar commercial business, so long as the inspection complies with federal standards or compatible state standards.**
- **The Motor carrier that has possession of the vehicle is responsible for the inspection. If the vehicle has not been inspected according to the federal standard or if there is no proof of inspection, the carrier may not place it in service.**

## Federal Annual Periodic Inspection

- **Parts 396.17 and 396.19 of the Federal Motor Carrier Safety Regulations require CMVs to be inspected at least once every 12 months.**
- **Appendix A to Subchapter B – Minimum Periodic Inspection Standards lists the specific items required to be inspected.**
- **The 14 inspection areas listed establish the conditions a vehicle must meet to pass the “annual” inspection.**
- **Some of the areas such as lighting are referenced in other areas of the regulation. For example: Lighting Devices; All lighting devices and reflectors required by Part 393 shall be operable.**

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## 396.17 Periodic Inspection

- a) **Every commercial motor vehicle must be inspected as required by this section. The inspection must include, at a minimum, the parts and accessories set forth in appendix A of this subchapter.**

**Very Important concept:**

**Get comfortable with the regulations in Part 393 (PARTS AND ACCESSORIES NECESSARY FOR SAFE OPERATION)**

- **The regulation in Part 393 and Appendix A provide the conditions the vehicle must meet in order to be operated on the roadways.**

O&K Truck and Auto Repairs/Technician Training

## Federal Annual Periodic Inspection

### Inspector Qualifications

#### Found in Part 396.19

Motor carriers are responsible for ensuring that individual(s) performing an annual inspection under **396.19** are qualified as follows:

- Understands the inspection criteria set forth in Part 393 and Appendix G and can identify defective components.
- Is knowledgeable of and has mastered the methods, procedures, tools and equipment used when performing an inspection.
- Is capable of performing an inspection by reason of experience in one of the following categories:
  - I. Successfully completed a State or Federal training program or has certificate from a State or Canadian Province which qualifies the person to perform commercial vehicle inspections. Specify:  
( training, experience etc.)

## Federal Annual Periodic Inspection

**Side Note:** 396.25 provides the qualification requirements for anyone inspecting, repairing, servicing, or maintaining the brakes on a CMV.

**This “Brake Inspector” is an employee of a motor carrier that is responsible that all tasks related to brakes meet applicable safety standards.**

**Qualifications to be a brake inspector are similar to qualifications required to perform Annual inspections.**

**“However, the qualifications are specific to brake service and inspection”.**

**Federal Motor  
Carrier Safety  
Administration  
Guidance**

**396.17 Periodic Inspection**

**Question?** May an inspector certify a CMV as meeting the periodic inspection standards of 396.17 if he/she cannot see all the components required to be inspected under appendix A?

**Guidance:** **“NO”**. The affixing of a decal or sticker or preparation of a report as proof of inspection indicates compliance with ALL the requirements of appendix A to part 396.

Is anything wrong?  
If not sure, where  
would you find this?

**Go there now.**

Part 393.11 “Table 1”  
Required lamps and  
reflectors on  
commercial motor  
vehicles.







**Brand new truck. You are  
doing an Annual Inspection.  
Is there anything wrong?**



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**Amber reflector**

**Red reflector**



**Now it can pass,  
because you installed  
reflectors that should  
have been there from  
the factory.**

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If the marker light would have had a “A” on it, I would have let it go. “A” signifies a reflective light.

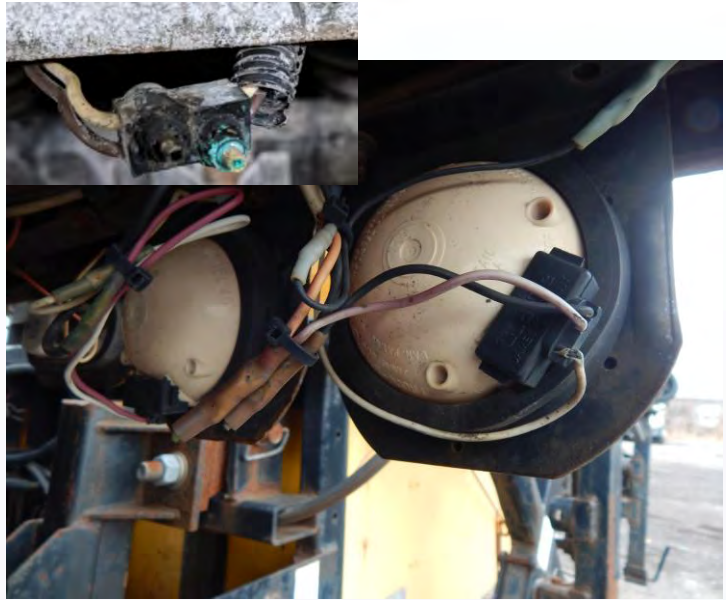
### What are you seeing here?

- Would this pass an “Annual Inspection”?
- Would this pass a pre-trip inspection?
- Would this be a violation on the roadside?
- Could you get a ticket for this?



**WHY???**

*“But the lights were working when I did a pre-trip”.*  
*“But the lights were working when I did a PM”.*



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**All of these are a problem, or they will be a future issue.**  
**“Or do you just look to see that the lights works”?**  
**A good inspection needs to be the catalyst to prevent problems.**



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### Very Important Concept.

- Maintenance people play a crucial role in reducing and/or eliminating violations. How??
  - **They need to be included in any driver pre-trip training.**
  - They need to have a thorough knowledge of the inspection criteria even though they might not be the inspector.
  - **The annual inspections criteria should be incorporated into any PM program.**

*Repetition forces you to become efficient.*

*It's a journey of learning.*

Side Note: When I do drivers training, I find there is a huge disconnect between drivers, technicians and management.

## PRETRIP INSPECTIONS

**NOTE:** The pre-trip is not required to be in writing. **However, the following parts and accessories have to be pre-determined to be in good working order before driving.**

1. Service brakes, including trailer brake connections.
2. Parking (hand) brakes.
3. Steering mechanism.
4. Lighting devices and reflectors.
5. Tires.
6. Horn.
7. Windshield wiper or wipers.
8. Rear-vision mirror or mirrors.
9. Coupling devices.
10. Wheels and rims
11. Emergency equipment

**There is more to a pre-trip than this list found in 392.7.**

## PRETRIP INSPECTIONS

Pre- trip requirements are found in in the following sections: **Part 392**, **Part 396** and **Part 393**. The primary requirements for inspections are found in Part 396. Part 393 sets the requirements for parts and accessories necessary for safe operation of a commercial motor vehicle.

**However, Part 392.7 “charges” the driver to be satisfied that certain parts and accessories are in “good working order” PRIOR to driving a vehicle.**

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County: ERIE, NY      Destination: TONAWANDA, NY      Cargo: FOOD SERVICE

VEHICLE IDENTIFICATION											
Unit	Type	Make	Year	State	Plate #	Equipment ID	VIN	GVWR	CVSA #	CVSA Issued #	OOS Sticker
1	TT	VOLV	2012	IN				52,350			
2	ST	GDAN	2012	NY	E			68,000			88882

BRAKE ADJUSTMENTS						
Axle #	1	2	3	4	5	
Right	1 1/2	1 1/2	1 1/2	1 1/2	1 7/8	
Left	1 3/8	1 3/8	1 3/4	1 5/8	1 1/2	
Chamber	L-24	L-30	L-30	C-30	C-30	

VIOLATIONS							
Vio Code	Section	Unit	OOS	Citation #	Verify	Crash	Violations Discovered
393.75C	393.75(c)	1	N		N	N	Axle #3 right side outer tire tread depth less than 2/32 of inch in inner two major tread grooves.
393.45PC	393.45	1	N		N	N	Brake Tubing and Hose Adequacy - Connections to Power Unit; air leak at service side glad hand (proper connection).
390.21E	390.21(e)	1	N		N	N	Improper marking for a rented CMV under a rental agreement not exceeding 30 days; not markings and did not possess rental agreement.
393.75A3	393.75(a)(3)	2	Y	TT542FDZ5B	U	N	Axle #5 right side outer tire has a noticeable audible air leak from metal debris stuck in tread area.
393.45B2UV	393.45(b)(2)	2	N		N	N	Cluster of multiple brake hoses to sliding rear axle are chafing in multiple locations, have signs of wear, and are not protected from further damage.

HazMat: No HM Transported.      Placard: No      Cargo Tank:

Special Checks: No Data for Special Checks.

What is the criteria for OOS?

Is the violation with hoses preventable?  
Who would be responsible for this?

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## ROAD SIDE INSPECTION

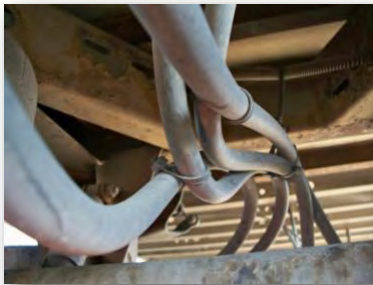
Preventable?  
**YES!!!!**

- Pre-Trip
- Maintenance and
- Better training



Air leak when the driver applied service brake. NOTE: Air leak was very audible, even with truck running. Also, the kink and hole did not happen just then.

## VEHICLE OUT-OF-SERVICE CRITERIA



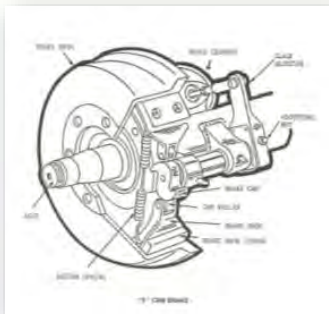
**Are these OK?**



## VEHICLE OUT-OF-SERVICE CRITERIA



## VEHICLE OUT-OF-SERVICE CRITERIA



**To be fair.** A driver might not find this unless someone shows the driver what bad look like.

Vehicle came in for inspection. Driver did not see this, or even look?



## Tires

- How knowledgeable are you regarding tires?
- Where would you find information about tires?
  - Part 393?
  - Appendix A?
  - 571.119?
  - 571.120?
  - NY State (or your state) annual inspection requirements?
  - Manufacturers?
  - Tire manufacturers associations?
  - OSHA?
- Are there differences between Appendix A and your state inspection criteria's?

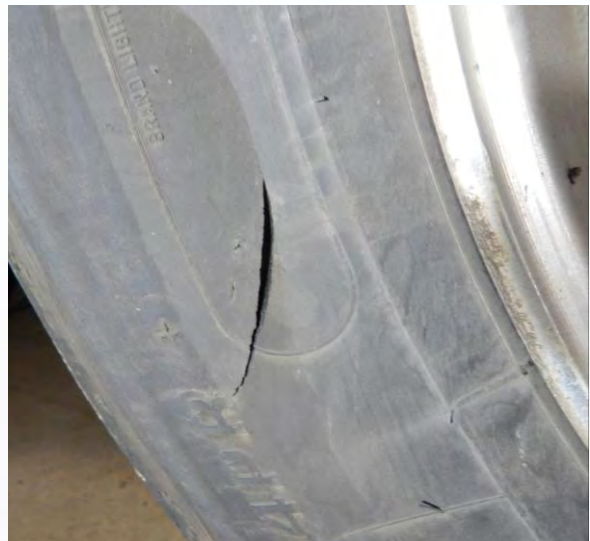
*These questions are meant for everyone whether driver, technician, safety person, owner, manager, enforcement and people writing the regulations.*

Swede Oun-O&K Truck Repairs

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**Do you look at the sidewalls?  
Do you look between duals?  
Why Not?**



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## HEAVY VEHICLE TIRES

Is there anything with these tires?  
What type of inspections include tires?



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**How many pre-trips have been performed on this vehicle?**  
**Has this vehicle been in a shop for any reason?**  
**When would you decide to change this tire?**  
**Do you need a tire tread depth gauge to decide?**



Swede O



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## VEHICLE OUT-OF-SERVICE CRITERIA

### Inspection Item



**Note: Severity Weight: 4  
Driver Responsibility: Y**

**Note: This might change to assigning point values to drivers for items seen on a visual pre-trip (walk-around) only.**

### Out-Of-Service Condition

2. Missing or broken mechanical components including: shoes, linings, pads, springs, anchor pins, spiders, cam rollers, push-rods and air chamber mounting bolts. (393.48(a))
3. Loose brake components, including air chambers, spiders, and cam shaft support brackets. (393.48(a))



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## Emergency and Breakaway Brakes

### Basic Requirement

- **A motor vehicle used to tow a trailer equipped with brakes must be able to use its service brakes to stop the vehicle if the trailer breaks away.**
- To accomplish this, the towing vehicle utilizes a tractor protection valve or similar device.
  - **Motor vehicle is the towing vehicle.**
  - **Trailer is the towed unit.**



**FMVSS 571.121 requires towing vehicles to be protected from the effects of a loss of air pressure in the “towed” vehicle.**

### 5.1.3 – Towing Vehicle Protection System

- If the vehicle is intended to tow another vehicle equipped with air brakes, a system to protect the air pressure in the towing vehicle from the effects of a loss of air pressure in the towed vehicle.

**Basically, a tractor protection valve protects the tractor service air in the event of a trailer breakaway.**

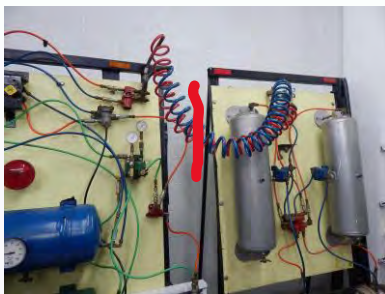
- There are two parts to this system:
  - **Protect the towing units service brakes in the event of a breakaway and**
  - **Provide a means of activating the emergency trailer brakes.**

**Part 393.43 requirements for tractor protection systems:**

- (a) Towing vehicle protection system.** Every motor vehicle, if used to tow a trailer equipped with air brakes, shall be equipped with a means for providing that in the case of a breakaway of the trailer, the service brakes on the towing vehicle will be capable of stopping the towing vehicle. For air braked towing units, the tractor protection valve or similar device shall operate automatically when the air pressure on the towing vehicle is between 138 kPa and 310 kPa (20 psi and 45 psi).
- (b) Every truck or truck tractor equipped with air brakes, when used for towing other vehicles with air brakes, shall be equipped with two means of activating the emergency feature of the trailer brakes. One of these means shall operate automatically in the event of reduction of the towing vehicle air supply to a fixed pressure which shall not be lower than 20 psi nor higher than 45 psi. The other shall be a manually controlled device readily operable by a person seated in the driving seat.**

**(d) Breakaway breaking requirements for trailers.**

Every trailer required to be equipped with brakes shall have brakes which apply automatically and immediately upon breakaway from the towing vehicle. With the exception of trailers having three or more axles, all brakes with which the trailer is required to be equipped must be applied upon breakaway from the towing vehicle. The brakes must remain in the applied position for at least 15 minutes.



## Summary:

- **Yellow Button:** There is no regulation specifying the pressure at which this supply button must automatically trip to apply the vehicle parking brake.
- **However, FMVSS 121 does require a single control for the park valves on a combination unit. That would be the function of the yellow button.**
- Parking control valves will typically trip between 20 and 40 psi.
- **The RED Button (trailer supply valve) controls the tractor protection control valve. It is intended to activate the tractor protection when both primary and secondary reservoirs on the towing vehicle is depleted to between 20 and 40 psi.**
- **However, the red button will usually trip instantaneously at 100-130 psi.**
- The CVSA “tractor protection system check” includes both the pop off of the trailer supply valve (shutting off the trailer supply coupling flow) and the function of the tractor protection valve (shutting off trailer control flow)
- **If the valve fails to close before 20 psi, it’s an OOS violation.**

## Emergency and Breakaway Brakes

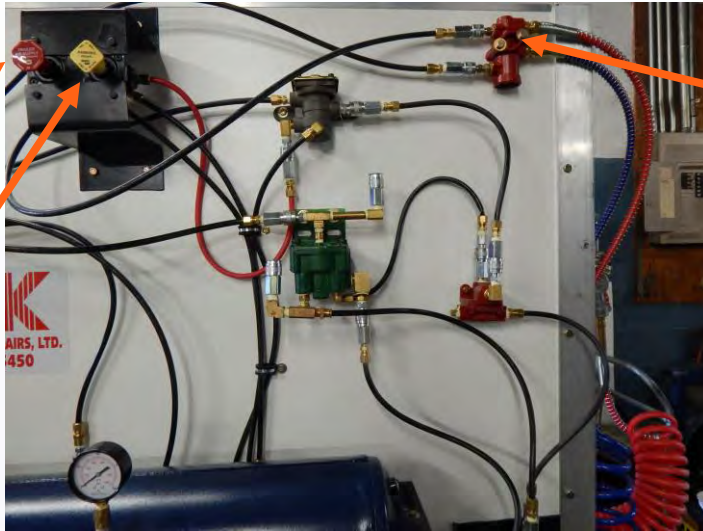


**Two means of activating the emergency features of the trailer brakes**

**Manual Means**

**Automatically**

**Note: Yellow button is the system park.**



**Supply passage is always open**

**SUPPLY**

**Service**



The CVSA "Tractor Protection System Check" includes the following:

- Function of the tractor protection valve.
- Pop-off of the trailer supply valve.

**Note: It is the tractor protection system that is tested during roadside inspections and requires the compliance. The valve must close before 20 psi.**

- Most systems close almost immediately upon a break-away.

## Live Demo Time

### AIR DISC BRAKES

**Air disc brakes are a perfect example of complacency.**

*After all, there is no pushrod stroke to measure.*



## Quick Inspection Guidelines



- The following quick check should apply to anyone involved in inspection and maintenance, including “drivers”.

**Important: Treat the system the same as you have for all the years with drum brakes.**

## Quick Inspection Routine

- Check for leaks (air)
  - Hoses
  - Diaphragms (chamber)
  - Fittings
- Check hoses
  - Condition
  - Placement
- Check for leaks (oil/grease)
  - Seals
  - Hubs





## Quick Inspection Routine

### ➤ Damaged components

- Chambers
- Brackets
- Calipers
- Mounting bolts
- Rotors (cracks, severe rust)

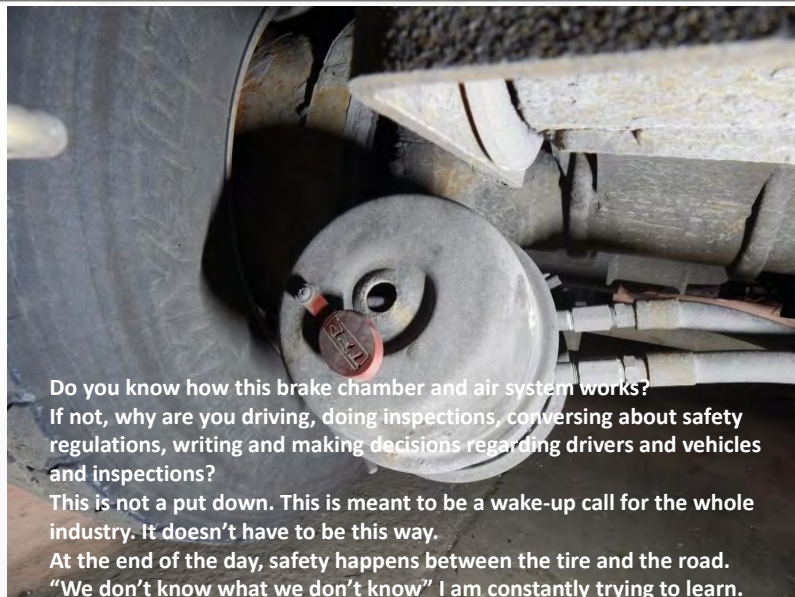
### ➤ Pad wear

- Wear indicators (visual at calipers)
- Wear indicators (electric)

**Note:** Get comfortable with each manufacturer's wear indicators.



**What do you see here, and can you explain this? Does a driver know how this chamber works?**

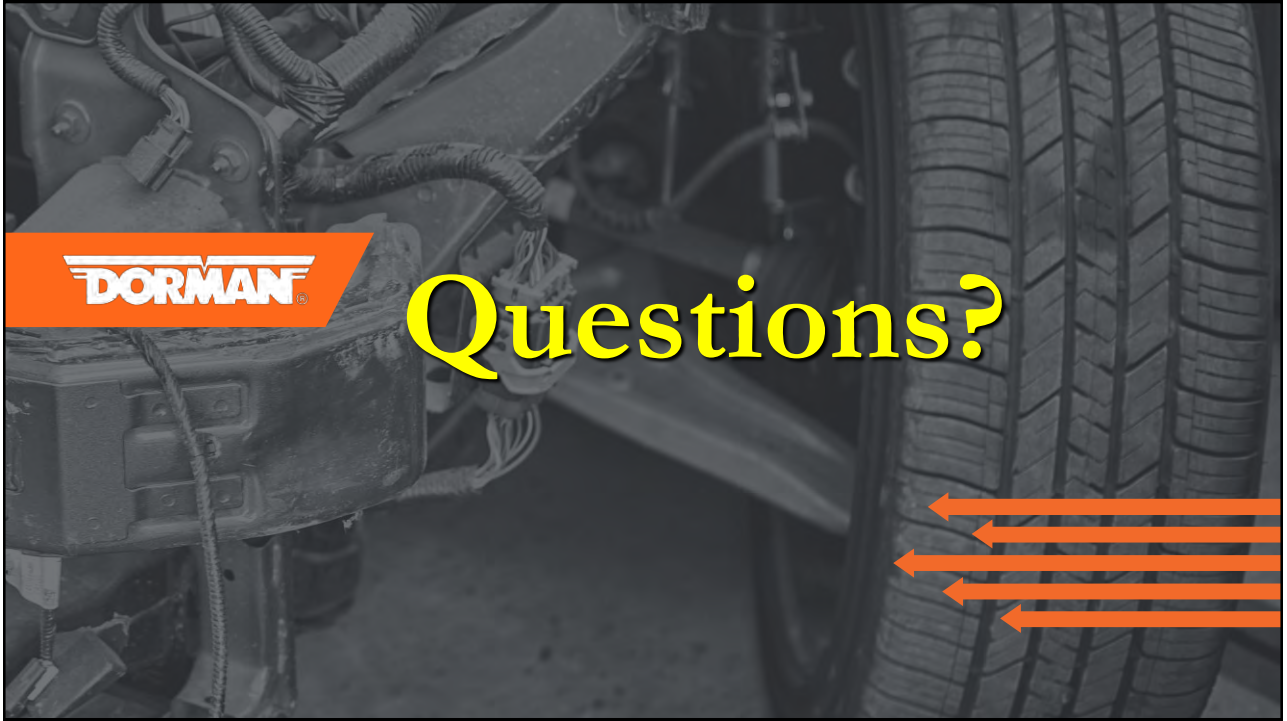


Do you know how this brake chamber and air system works? If not, why are you driving, doing inspections, conversing about safety regulations, writing and making decisions regarding drivers and vehicles and inspections?

This is not a put down. This is meant to be a wake-up call for the whole industry. It doesn't have to be this way.

At the end of the day, safety happens between the tire and the road. "We don't know what we don't know" I am constantly trying to learn.

Swede Oun-O&K Truck Repairs



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**We offer greater freedom to fix cars and trucks by engineering exclusive, labor-saving and cost-effective repair solutions.**

Please use this QR Code to fill out a quick Survey



***Thank You !***

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