CHAPTER 6

BASIC VEHICLE INSPECTION

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1. GENERAL. The basic vehicle inspection is a vital segment of the terminal inspection process. In this block of training, the Motor Carrier Safety Training Officer . (MCSTO) shall apprise. the trainees of proper in-depth vehicle inspection procedures and the out-of-service guidelines. In addition, the MCSTO shall ensure trainees have sufficient understanding of vehicle components and maintenance procedures to allow them to detect vehicle defects and improper maintenance practices. Each program has unique requirements beyond the basic vehicle inspection that are addressed within specific inspection category chapters.

2. REFERENCES.

a. Have the trainees review those portions of the following publications addressing vehicle equipment requirements and in-depth inspection procedures (including out-of-service criteria).

(1) HPM 82.6. Commercial Enforcement.

(a) Chapter 3, Inspection Policies.

(b) Chapter 3, Annex A, North American Uniform Vehicle Out-of-Service Criteria.

(c) Chapter 6, Equipment.

(2) HPG 83.2. Vehicle Equipment Inspection Guide.

(3) California Code of Regulations. Title 13. Division 2.

(a) Chapter 4, Special Equipment.

1 Article 12, Brake Equipment.

2 Article 14, Tires and Rims.

(b) Chapter 6.5, Motor Carrier Safety.

1 Article 1, Definitions and General Provisions.

2 Article 7.5, Commercial Vehicle Out-of-Service Criteria.

3 Article 8, General Equipment Requirements.

(4) California Vehicle Code.

(a) Division 12 - Equipment (pertinent sections).

(b) Division 13, Chapter 1 - Towing Equipment.

3. INSPECTION METHODOLOGY.

a. The MCSTO should explain to trainees that the following senses must be utilized when conducting vehicle inspections:

(1) Sight - You see broken glazing material or missing bolts.

(2) Sound - You hear an unusual noise or air escaping.

(3) Smell - You smell gasoline fumes or burnt electrical insulation.

(4) Feel - You feel the roughness in the action of a worn steering gear box.

b. Explain that the following considerations must be kept in mind when conducting inspections:

(1) Securement of component mounting.

(a) Example: Spring hanger mounting bolts in place and tight.

(2) Seating of detachable connections.

(a) Example: Air hose glad-hands installed in the proper position.

(3) Integrity of individual parts.

(a) Example: Air compressor mount not cracked or broken.

(4) Alignment.

(a) Example: Pulleys and drive belts in alignment.

(5) Component matching.

(a) Example: Dual tires reasonably matched in circumference.

(6) Design requirements.

(a) Example: Glazing material of an approved type.

(7) Legal wear limits and requirements.

(a) Example: Steering axle tire tread depth not less than 4/32 inch.

(8) Maintenance deficiencies.

(a) Example: Air hoses chafing.

NOTE: Some components are subject to more, than one of the above conditions.

4. CONDUCTING VEHICLE INSPECTIONS.

a. After reviewing the above material, the MCSTO shall provide "hands-on" vehicle inspection training. Emphasis on quality, not quantity, is important at this stage.

b. The MCSTO shall arrange with carrier representatives sufficient opportunities to conduct on-terminal vehicle inspection training.

c. Trainees must be familiarized with the inspection of trailers using the departmental light box and air test kit.

d. The MCSTO should utilize the "I do, we do, you do" training technique outlined in Chapter 7 during this training phase.

e. The MCSTO shall review all occupational safety issues pertaining to vehicle inspections prior to the trainee conducting "hands-on" vehicle inspections.

f. The MCSTO should explain to trainee that proper preparation prior to beginning the inspection of a vehicle will enhance safety and efficiency.

(1) Determine what constitutes a representative sample of the terminal's regulated vehicles (HPM 84.1, Chapter 2).

(2) Determine from a responsible carrier representative which vehicles are in service and capable of being started (not being repaired or low on oil or water).

(3) Determine if a carrier representative will be assisting in the inspection process (e.g., rock the steering wheel, operate lighting devices, and apply brakes when instructed to do so).

(4) Ensure the vehicles to be inspected are in a safe location (i.e., relatively

flat surface, away from traffic, no apparent ground contamination, and no potentially unsafe terminal activities are being conducted in the immediate area).

(5) Ensure that at least one tire (other than on a steering axle) is chocked front and rear, and that the chocked tire is not low on air pressure.

(6) Ensure appropriate personal safety equipment is utilized and is in useable condition.

(7) Have appropriate inspection forms on hand.

(8) Ensure trainees are familiar with engine starting procedures (e.g., compression release, air starter operation, transmission controls, etc.).

g. Uniformity. The MCSTO should explain that adherence to uniform inspection guidelines will ensure that efficient and consistent inspection techniques are developed.

(1) Conduct the cab inspection first, then the walk-around inspection, and finish with the underneath inspection. Some steps may have to be repeated in order to complete an inspection. For example, it may be necessary to go underneath the vehicle to drain different air reservoirs one at a time, or to re-enter the cab multiple times to operate controls or build up air pressure.

(2) The walk-around inspection should start at the front of the vehicle (or vehicle combination), proceed along the left side, across the rear, and then forward along the right side to the front.

(3) The left and right side of a vehicle are defined as viewed from the driver's seat looking forward. Vehicle axles are identified numerically in sequence from front to rear.

5. SCOPE.

a. In-depth inspections shall be conducted in accordance with the referenced publications. All vehicles are inspected for compliance with VC and 13 CCR requirements.

(1) Cab inspection.

(a) Indicator lamps.

(b) Defroster.

(c) Steering wheel lash and steering column.

(d) Horn.

(e) Clutch, brake, and throttle controls.

(f) Transmission and axle controls.

(g) Brake test of other than air power brakes, air/vacuum gauges, and warning devices.

(h) Seat belt, when applicable.

(i) Glazing and windshield wipers.

(j) Safety equipment (may be located inside a compartment).

1 Fire extinguisher.

2 Roadside warning devices for disabled vehicles.

3 First aid kit when applicable.

(2) Walk-around inspection items.

(a) Lamps and reflectors (mounting, color and operation).

(b) Windshield wipers and glazing.

(c) Engine, accessories, and compartment.

(d) Mirror.

(e) Tires, wheels, oil seals, and dust covers.

(f) Steering and suspension.

(g) Brake test of applicable items.

(h) Tubing, hoses and wiring.

(i) Frame and battery box cover.

(j) Fuel tanks, caps, and vents.

(k) Connecting devices.

(l) Detachable air/electrical connections.

(m) Fenders and mud flaps.

(n) Landing gear.

(o) Carrier identification.

(3) Chassis inspection items.

(a) Steering and suspension.

(b) Tires and wheels.

(c) Frame rails and cross members.

(d) Brake test of applicable items and related components.

(e) Engine and drive train.

(f) Hoses, tubing, and wiring.

(g) Fuel tanks, mounts, and straps.

(h) Connecting devices.

NOTE: When inspecting vehicle combinations (connected tractor/semi-trailer), for excessive movement between the upper and lower halves of 5th wheel connecting devices, a carrier representative should be requested to operate the vehicle. If a carrier representative is not available, properly licensed employees that are knowledgeable in the operation of vehicle combinations may operate the vehicle with the carrier's permission. Under no circumstances may departmental employees connect vehicles in order to check 5th wheel slack. Extreme caution shall be used to prevent personal injury or damage to equipment.

(i) Bed and body securement.

NOTE: When checking the mechanical integrity of auxiliary equipment such as a hydraulically operated dump bed, a carrier representative should operate the necessary controls. If a carrier representative is not available, employees that are knowledgeable in the operation of the equipment being inspected may, with the carrier's permission, operate the controls to the extent necessary to complete the inspection. Extreme caution shall be used to prevent personal injury or damage to equipment.

b. Air brake inspections shall be utilized in determining compliance with VC and CCR requirements, which includes determination of which air brake systems are subject to FMVSS 121 instead of older California requirements (HPM 82.6, Chapter 6, Table 6-1, FMVSS 121 Air Brake Enforcement Checklist). See also HPM 84.1, Annex F, Title 13 and FMVSS Enforcement Checklist.

c. Departmental air test kits shall be used whenever possible.

d. Air brake inspections shall include the following:

(1) Air gauge operation and accuracy.

(2) Low air warning device operation.

(3) Air compressor buildup time, mounting, discharge line, and drive mechanism.

(4) Air governor cut-in and cut-out pressures.

(5) Applied and unapplied air losses.

(6) Air reservoir capacity.

(7) Tractor protection valve control operation and marking.

(8) Check valve operation and placement.

(9) Safety valve installation (pre-FMVSS 121 systems).

(10) Air reservoir contaminants.

(11) Emergency stopping system operation and release (full understanding of differences between systems built to meet Section 26508 VC and those built under FMVSS 121 is essential to competence in this area).

(12) Parking brake.

(13) Emergency relay valve.

(14) Glad-hand mountings.

(15) Brake tubing and hose, maintenance (corrosion, crimping, and chafing).

(16) Brake tubing and hose, standards (approved type, fittings, and installation).

(17) Brake adjustment.

(18) Wheel brake assembly (operation, wear, and integrity).

6. ALTERNATIVE FUELS.

a. The MCSTO should ensure that this block of training includes alternative fuel vehicles. In some field Divisions this may require a supervisor's approval for special trips away from the area where the trainee and MCSTO usually work, to locate alternatively-fueled vehicles.

b. The MCSTO should ensure that the trainee is aware of the various types of alternative fuels utilized and explain that the regulations contain specific requirements for each fuel type.

c. Alternative fuel inspections shall be in-depth and systematic to better familiarize the trainee with specific component requirements.

d. Alternative fuel inspections shall include a review of the following:

(1) National Fire Protection Association (NFPA) 52 - Standard for Compressed Natural Gas (CNG) Vehicle Fuel Systems.

(a) Chapter 1 - Introduction.

(b) Chapter 2 - General CNG and Equipment Qualifications.

(c) Chapter 3 - Engine Fuel Systems.

(2) Title 13, California Code of Regulations, Division 2, Chapter 4, Article 2.

(a) Section 930 -Scope.

(b) Section 931 - Definitions.

(c) Section 932 - Reference Publications.

(d) Section 933 - Liquefied Petroleum Gas.

(e) Section 933.1 - Grandfathered Liquefied Petroleum Gas Requirements.

(f) Section 934 - Compressed Natural Gas.

(g) Section 934.1 - Compressed Natural Gas - NFPA Standard.

(h) Section 935 - Liquefied Natural Gas.

(i) Section 935.1 - Grandfathered Liquefied Natural Gas Requirements.

(j) Section 936.- Installation.

(k) Section 937 - Exemptions.

7. CONCLUSION.

a. After concluding all inspection activities, ensure that air test kits, chock blocks, tools, etc., are returned to the departmental van.

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