

12.APTA PR-IM-S-012-98

Standard for Passenger Car Truck and Suspension Periodic Inspection and Maintenance

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Abstract: This standard covers the basic procedures for the inspection, servicing, repair, and adjustment for trucks and suspension of passenger coaches; with emphasis on the maintenance of safety critical systems.

Keywords: suspension, suspension system, suspension system adjustment, suspension system maintenance, truck maintenance, truck and suspension periodic inspection and maintenance

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Introduction

(This introduction is not a part of APTA PR-IM-S-012-98, Standard for Passenger Car Truck and Suspension Periodic Inspection and Maintenance.)

This introduction provides some background on the rationale used to develop this standard. It is meant to aid in the understanding and application of this standard.

This standard describes the basic maintenance and inspection functions for trucks and suspension on passenger cars. It is intended for the following:

- a) Individuals or organizations that maintain trucks and suspension on passenger cars;
- b) Individuals or organizations that contract with others for the maintenance of trucks and suspension on passenger cars;
- c) Individuals or organizations that influence how trucks and suspension are maintained on passenger cars.

CAUTION--Trucks vary in design, shape, and use, and should be inspected to meet all original equipment manufacturer (OEM) recommendations and railroad specifications and requirements.

Participants

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APTA PR-IM-S-012-98

Standard for Passenger Car Truck and Suspension Periodic Inspection and Maintenance

1. Overview

This document establishes the standard for passenger car truck and suspension inspection and maintenance.

1.1 Scope

This standard for truck and suspension inspection and maintenance applies to all passenger cars. The periodic inspection and maintenance of passenger locomotive brake systems remains governed by *49 CFR, Part 229, Railroad Locomotive Safety Standards*¹. However, railroads may wish to use some of the procedures in this standard to supplement applicable federal regulations.

The passenger rail industry phased this standard into practice over the six-month period from July 1 to December 31, 1999. The standard took effect January 1, 2000.

1.2 Purpose

This standard is intended for railroads in order to apply basic procedures for periodic inspection, servicing, repair, and adjustment of trucks and suspension of passenger cars with emphasis on the maintenance of systems that are safety critical.

2. References

This standard shall be used in conjunction with the following publications. When the following standards are superseded by an approved revision, the revision shall apply.

Applicable federal regulations.

Association of American Railroads (AAR) Manual of Standards and Recommended Practices, Rule 47.

AAR Manual of Standards and Recommended Practices, Rule 48.

APTA PR-IM-S-013-99, Rev. 1, Standard for Passenger Car Periodic Inspection and Maintenance.

Original equipment manufacturer instructions (OEM).

Standard maintenance procedure (SMP). (See 3.1.3)

49 CFR, Part 229, Railroad Locomotive Safety Standards, October 2000.

¹ For references in Italics, see Section 2

49 CFR, Part 229, Railroad Locomotive Safety Standards, Subpart C—Safety Requirements, Subsection 229.67, Trucks, October 2000.

3. Definitions, abbreviations, and acronyms

3.1 Definitions

For the purpose of this standard, the following terms and definitions apply:

3.1.1 original equipment manufacturer (OEM): The technical documentation produced by the organization that built or manufactured a specific piece of passenger rail equipment describing maintenance procedures and frequencies for that piece of equipment.

3.1.2 periodic maintenance: The performance of selected inspection and maintenance actions on systems or sub-systems. Regulatory agencies or the operating authority may set the frequency of these actions. The frequency may be expressed as a function of time (i.e. days, weeks, or months) or of utilization (i.e., mileage, cycles, etc.).

3.1.3 standard maintenance procedure (SMP): The internal railroad document giving specific instruction on how to perform maintenance on a specific system or compound.

3.2 Abbreviations and acronyms

AAR	Association of American Railroads
APTA	American Public Transportation Association
CFR	Code of Federal Regulations
FRA	Federal Railroad Administration
OEM	original equipment manufacturer instructions
PRESS	Passenger Rail Equipment Safety Standards
SMP	standard maintenance procedure (unique to individual railroads)

4. Frequency of conduct

The frequency of conduct of this task shall be as specified in and in compliance with the requirements of Section 4 of *APTA PR-IM-S-013-99, Rev. 1, Standard for Passenger Car Periodic Inspection and Maintenance.*²

5. Inspection and maintenance requirements

5.1 Tools/materials

Air gauges, as applicable, in addition to the standard tools carried by maintenance personnel are required for this maintenance task. No specific materials are required.

² For references in Italics, see Section 2.

5.2 Safety/personal protective equipment

Personal protective equipment, as required by the operating property, shall be worn at all times in the performance of this maintenance task.

5.3 Training requirements

Railroads and their contractors shall develop and execute training programs that equip employees with the knowledge and skills necessary to safely and effectively perform the tasks outlined in this standard.

6. Inspection and maintenance procedures

CAUTION--Safety hazard

Ensure that the equipment is secured against uncontrolled movement before commencing inspection and maintenance procedures.

6.1 Air springs

6.1.1 Mechanical inspection and maintenance of air springs

The mechanical inspection and maintenance procedure for air springs consists of the following steps:

- a) Visually inspect the condition of all air springs.
- b) Replace air springs that are excessively worn or damaged per operating property inspection criteria.
- c) Use the applicable original equipment manufacturer instructions (OEM) for the replacement of air springs.

6.1.2 Pneumatic inspection and maintenance of air springs

The pneumatic inspection and maintenance procedure for air springs consists of the following steps:

- a) Ensure that air springs are inflated to the OEM.
- b) Inspect for air leaks to the air springs and fittings per operating property inspection criteria.
- c) Replace leaking air springs or O-rings. Repair fittings per OEM.
- d) Adjust the air spring pressure/height/car leveling by using OEM/railroad standard maintenance procedure (SMP).

6.2 Truck bolsters and anchor rods

The inspection and maintenance procedure for truck bolsters and anchor rods consists of the following steps:

- a) Inspect the condition of the truck bolster anchor brackets, anchor rods, and rubber cushions for cracks, damage, or excessive wear.
- b) Replace cracked or damaged truck anchor bolster brackets, anchor rods, and rubber cushions as necessary per OEM/SMP.
- c) Inspect bolster safety straps, and trucking (and spring plank, if applicable). Adjust as necessary.
- d) Use applicable OEM to replace and adjust the truck bolster anchor bracket, anchor rod, and rubber cushions. Shim anchor rod to the OEM recommended dimensions.

6.3 Shock absorbers

The inspection and maintenance procedure for shock absorbers consists of the following steps:

- a) Inspect the condition of all horizontal and vertical shocks absorbers.
- b) Replace shock absorbers that are leaking

NOTE - a slight amount of weepage is normal.

- c) Replace shock absorbers that are damaged or excessively worn.
- d) Replace shock bushings that are damaged or excessively worn.
- e) Ensure that shock absorbers are properly applied and secured.

6.4 Lateral bumpers

The inspection and maintenance procedure for lateral bumpers consists of the following steps:

- a) Inspect the condition of all lateral bumpers.
- b) Replace lateral bumpers that are missing, excessively worn, or damaged.
- c) Inspect for proper clearance as per OEM/SMP.

6.5 Trucks, wearplates, liners, and equalizers

CAUTION--Safety hazard

**When welding on truck frame with wheel assembly attached, take precautionary measures to prevent current flow to wheel bearings and axles!
Follow appropriate Association of American Railroads (AAR) standards and OEM.**

6.5.1 Trucks

The inspection and maintenance procedure for trucks consists of the following steps.

- a) Visually inspect trucks for defects (i.e. cracks, loose securement, clearances, electric arcing, and side bearing clearances.)
- b) If side-bearing clearances are not within tolerances, examine center wear pads and liner. Replace as needed.
- c) In the event of a cracked frame, follow OEM, AAR standards, and the procedures and recommendations in *49 CFR, Part 229.67, Trucks*.³

6.5.2 Wearplates, pedestal liners, and lug liners

The inspection and maintenance procedure for wearplates, pedestal liners, and lug liners consists of the following steps:

- a) Visually inspect wearplates, pedestal liners, and lug liners for cracks, broken welds, and mechanical damage.
- b) Repair or replace as required, following the OEM, *49 CFR, Part 229*, and *AAR Manual of Standards and Recommended Practices, Rules 47 and 48*.

6.5.3 Equalizers

The inspection and maintenance procedure for equalizers consists of the following steps:

- a) If applicable, visually inspect equalizer for proper alignment and proper seating in journal box.
- b) Visually inspect for stress cracks, metal fatigue, and electrical arcing. If any of the above defects are evident, refer to the OEM, *49 CFR, Part 229*, and *AAR Manual of Standards and Recommended Practices, Rules 47 and 48* for repair and/or replacement.
- c) Inspect equalizer for damaged, shifted, or broken springs. Repair/replace as necessary.

³ For references in Italics, see Section 2.

6.6 Car leveling

Inspect car body for proper height and leveling per railroad maintenance instructions. If adjustments are required, proceed as follows:

- a) The car must be moved onto tangent tracks with the car body centered over the trucks in accordance with railroad maintenance instructions.
- b) Ensure that all water tanks and sandboxes (if equipped) are full.
- c) Assure that the air springs are properly inflated to the requirements in the OEM.
- d) Inspect and adjust truck equalizer spring height and center bearing wear plates to the requirements in the OEM.
- e) Inspect and adjust to compensate for wheel wear to the requirements in the OEM instructions.
- f) Inspect and adjust clearances of bolster safety straps to the requirements in the OEM.
- g) Inspect and adjust the coupler height to the OEM and *Federal Railroad Administration (FRA) regulations*.