



APTA STANDARDS DEVELOPMENT PROGRAM

STANDARD

American Public Transportation Association
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PRESS Inspection & Maintenance
Working Group

Passenger Car Tread Brake Unit and Brake Cylinder Periodic Inspection and Maintenance

Abstract: This document establishes a standard for the tread brake unit and brake cylinder inspection and maintenance of passenger cars.

Keywords: brake cylinder, brake cylinder maintenance, brake system, brake system periodic inspection and maintenance, tread brake unit, tread brake unit maintenance

Summary: This standard covers the basic procedures for the periodic inspection and maintenance of the tread brake unit and brake cylinder of passenger railcars, with emphasis on the maintenance of safety appliances and other safety-critical systems.

Scope and purpose: This standard applies to all passenger rail cars. The periodic inspection and maintenance of passenger locomotives (including cab cars and multiple unit equipment) remain governed by 49 CFR, Part 229, "Railroad Locomotive Safety Standards." This standard adds onto but does not replace existing federal regulations. It is intended to provide railroads the basic procedures for periodic inspection and maintenance of tread brake unit and brake cylinders of passenger cars, with emphasis on the maintenance of safety-critical systems. These systems (if applicable) are essential in the safe operation of passenger cars.

This document represents a common viewpoint of those parties concerned with its provisions, namely operating/planning agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, recommended practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a transit system's operations. In those cases, the government regulations take precedence over this standard. The North American Transit Service Association and its parent organization APTA recognize that for certain applications, the standards or practices, as implemented by individual agencies, may be either more or less restrictive than those given in this document.

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Participants

The American Public Transportation Association greatly appreciates the contributions of the **Passenger Rail Equipment Safety Standards (PRESS) Vehicle Inspection & Maintenance Working Group**, who provided the primary effort in the drafting of the revision of this document.

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Introduction

This introduction is not part of APTA PR-IM-S-011-98, Rev. 2, "Passenger Car Tread Brake Unit and Brake Cylinder Periodic Inspection and Maintenance."

This introduction provides some background on the rationale used to develop this document and is meant to aid in its understanding and application. This standard describes the requirements for inspection and testing of passenger car tread brake unit and brake cylinder periodic inspection and maintenance. It is intended for the following:

- individuals or organizations who inspect and maintain car tread brakes and brake cylinders on passenger rail equipment
- individuals or organizations who contract with others for the inspection and maintenance of car tread brakes and brake cylinders on passenger rail equipment
- individuals or organizations who influence how car tread brakes and brake cylinders are inspected and maintained on passenger rail equipment

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1. Frequency of conduct

The frequency of conduct of this task shall be as specified in and in compliance with the requirements of Clause 4 of APTA PR-IM-S-013-98, Rev. 1, “Passenger Car Periodic Inspection and Maintenance” (previously numbered as APTA SS-I&M-013-99, Rev. 1) or the superseding standard.

2. Tread brake unit and brake cylinder inspection and maintenance requirements

2.1 Tools/materials

Standard tools carried by maintenance personnel are sufficient for this inspection task. No specific materials are required.

2.2 Safety/personal protective equipment

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

2.3 Training requirement

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.

3. Inspection and maintenance procedures

CAUTION: Ensure that equipment is secured against uncontrolled movement before commencing inspection and maintenance procedures. Follow proper blue flag protection of worker procedures as required by the Railroad and in accordance with applicable regulations.

3.1 Tread brake units

The inspection and maintenance procedure for tread brake units consists of the following steps:

- a) Visually inspect the tread brake units for damaged or loose components. Correct any damage found, and secure loose components. Inspect mounting brackets and bolts for cracks and looseness.
- b) Visually and audibly inspect brake cylinder for leaks. Repair as necessary. Inspect the condition of hoses and fittings.

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- c) Apply and release the tread brake and verify:
 - proper piston travel per original equipment manufacturer (OEM) instructions and the railroad standard maintenance procedure (SMP);
 - no indication of binding or fouling of the tread brake unit's levers and/or pins;
 - proper alignment and shoe making contact with the wheel; and
 - correct operation of the automatic slack adjuster.
- d) Lubricate the tread brake unit as required by the OEM or SMP.

3.2 Brake cylinders

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

- a) Visually inspect the brake cylinder for damaged or loose components. Correct any damage found, and secure loose components.
- b) Visually and audibly inspect the brake cylinder and listen for leaks. Repair as necessary.
- c) Apply and release the brake cylinder and visually verify:
 - proper piston travel per OEM and the railroad SMP;
 - no indication of binding or fouling of the brake cylinder levers and/or pins; and
 - correct operation of the automatic slack adjuster.

Related APTA standards

APTA PR-IM-S-009-98, “Passenger Car Tread Brake Shoe and Disc Brake Pad Periodic Inspection and Maintenance”

APTA PR-IM-S-010-98, Rev. 2, “Passenger Car Brake Disc Periodic Inspection and Maintenance”

APTA PR-IM-S-013-98, Rev. 1, “Passenger Car Periodic Inspection and Maintenance” (previously numbered as APTA SS-I&M-013-99 Rev. 1)

References

Code of Federal Regulations:

49 CFR, Part 229, “Railroad Locomotive Safety Standards”

49 CFR, Part 238, “Passenger Safety Standards”

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

- OEM instructions
- railroad SMP (see Definitions)

Definitions

original equipment manufacturer (OEM) instructions: 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.

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 (mileage, cycles, etc.). The scope of these inspection and maintenance actions must be in full compliance with all applicable federal, state and local regulations.

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

Abbreviations and acronyms

APTA	American Public Transportation Association
CFR	Code of Federal Regulations
NATSA	North American Transportation Services Association
OEM	original equipment manufacturer
PRESS	Passenger Rail Equipment Safety Standards
SMP	standard maintenance procedure

Summary of document changes

- Document formatted to the new APTA standard format.
- Sections have been moved and renumbered.
- Scope and summary moved to the front page.
- Definitions, abbreviations and acronyms moved to the rear of the document.
- Two new sections added: “Summary of document changes” and “Document history.”
- Some global changes to section headings and numberings resulted when sections dealing with references and acronyms were moved to the end of the document, along with other cosmetic changes, such as capitalization, punctuation, spelling, grammar and general flow of text.

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- Addition of blue flag protection to note at the beginning of Section 3.
- Addition of SMP to the first bullet in Sections 3.1 c) and 3.2 c).
- Addition of APTA PR-IM-S-009-98, “Passenger Car Tread Brake Shoe and Disc Brake Pad Periodic Inspection and Maintenance” and APTA PR-IM-S-010-98, Rev. 2, “Passenger Car Brake Disc Periodic Inspection and Maintenance” to “Related APTA standards.”
- References updated to reflect current (as of May 1st, 2017) information.
- Addition of APTA to “Abbreviations and acronyms.”
- Participants list updated.

Document history

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