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**Inspection and 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 rail cars, with emphasis on the maintenance of safety appliances and other safety-critical systems.



Foreword

The American Public Transportation Association is a standards development organization in North America. The process of developing standards is managed by the APTA Standards Program's Standards Development Oversight Council (SDOC). These activities are carried out through several standards policy and planning committees that have been established to address specific transportation modes, safety and security requirements, interoperability, and other topics.

APTA used a consensus-based process to develop this document and its continued maintenance, which is detailed in the [manual for the APTA Standards Program](#). This document was drafted in accordance with the approval criteria and editorial policy as described. Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

This document was prepared by the Inspection and Maintenance Working Group as directed by the Passenger Rail Equipment Safety Standards Policy and Planning Committee.

This document represents a common viewpoint of those parties concerned with its provisions, namely transit operating/planning agencies, manufacturers, consultants, engineers and general interest groups. APTA standards are mandatory to the extent incorporated by an applicable statute or regulation. In some cases, federal and/or state regulations govern portions of a transit agency's operations. In cases where there is a conflict or contradiction between an applicable law or regulation and this document, consult with a legal adviser to determine which document takes precedence.

This document supersedes APTA PR-IM-S-011-98, Rev. 2, which has been revised. Below is a summary of changes from the previous document version:

- Document formatted to the new APTA standard format.
- Participants list updated.
- Addition of blue signal protection to note at the beginning of Section 3.
- Addition of SMP to the first bullet in Section 3.1, paragraph 3, and Section 3.2, paragraph 3.
- Frequency of conduct: Removed "Clause 4 of APTA PR-IM-S-013-98, Rev. 1" and "previously numbered as APTA SS-I&M-013-99, Rev. 1."
- 3.1: added "park brake" to section heading.
- 3.1 b): added "portion" to brake cylinder description.
- 3.1 b): added "If equipped with a park brake feature, verify that parking brake operates as intended."
- Related APTA standards: removed "previously numbered as APTA SS-I&M-013-99 Rev. 1."



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Introduction

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

This standard describes the requirements for inspection and testing of passenger car tread brake unit and brake cylinder periodic inspection and maintenance.

This standard applies to all:

- Railroads that operate intercity or commuter passenger train service on the general railroad system of transportation; and
- Railroads that provide commuter or other short-haul rail passenger train service in a metropolitan or suburban area, including public authorities operating passenger train service.

This standard may apply to:

- The operation of private cars, including business/office cars and circus trains as required by the operating authority.

This standard does not apply to:

- Rapid transit operations in an urban area that are not connected to the general railroad system of transportation; and
- Tourist, scenic, historic or excursion operations, whether on or off the general railroad system of transportation.
- Railroads that operate only on track inside an installation that is not part of the general railroad system of transportation.

This standard does not provide a comprehensive Standard Maintenance Procedure (SMP) for passenger car tread brake unit and brake cylinder periodic inspection and maintenance. This standard serves as a framework for railroads to use to create a comprehensive SMP utilizing Original Equipment Manufacturer (OEM) instructions and railroad-specific maintenance practices to ensure the safe and reliable completion of passenger car tread brake unit and brake cylinder periodic inspection and maintenance.

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 §229, “Railroad Locomotive Safety Standards.” This standard adds to 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.

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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 APTA PR-IM-S-013-98, “Passenger Car Periodic Inspection and Maintenance.”

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 signal protection of worker procedures as required by the railroad and in accordance with applicable regulations.

3.1 Tread brake units/park brake

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

- 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.
- Visually and audibly inspect brake cylinder portion for leaks. Repair as necessary. Inspect the condition of hoses and fittings.
- 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;

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- correct operation of the automatic slack adjuster; and
- parking brake operating as indicated, if equipped.
- 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:

- Visually inspect the brake cylinder for damaged or loose components. Correct any damage found, and secure loose components.
- Visually and audibly inspect the brake cylinder and listen for leaks. Repair as necessary.
- 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-013-98, “Passenger Car Periodic Inspection and Maintenance”

References

In addition to OEM instructions, this standard shall be used in conjunction with the latest revision of the following publications:

Code of Federal Regulations:

49 CFR §229, “Railroad Locomotive Safety Standards”

49 CFR §238, “Passenger Safety Standards”

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 subsystems. 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

CFR Code of Federal Regulations

OEM original equipment manufacturer

SMP standard maintenance procedure

Document history

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