



APTA STANDARDS DEVELOPMENT PROGRAM

STANDARD

American Public Transportation Association
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PRESS Inspection & Maintenance
Working Group

Passenger Car Tread Brake Shoe and Disc Brake Pad Periodic Inspection and Maintenance

Abstract: This standard covers the basic procedures for the periodic inspection and maintenance of the tread brake shoes and disc brake pads of passenger cars, with an emphasis on the maintenance of safety appliances and other safety-critical systems.

Keywords: brake system, brake system maintenance, brake system periodic inspection and maintenance, disc brake pads, disc brake pad maintenance, tread brake shoe and disc brake pad periodic inspection and maintenance, tread brake shoes, tread brake shoe maintenance

Summary: This document establishes a standard for the tread brake shoe and disc brake pad inspection and maintenance of passenger cars. It is intended to assist railroads in applying basic procedures for periodic inspection and maintenance of tread brake shoes and disc brake pads of passenger cars, with an emphasis on maintenance of safety-critical systems. These systems (if applicable) are essential in the safe operation of passenger cars.

Scope and purpose: This standard for tread brake shoe and disc brake pad inspection and maintenance applies to all passenger cars. Periodic inspection and maintenance of passenger locomotive brake systems remains governed by 49 CFR Part 229, Railroad Locomotive Safety Standards. However, railroads may wish to use some of the procedures in this standard to supplement the federal requirements.

“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 system’s operations. In cases where this is a conflict or contradiction between an applicable law or regulation and this document, consult with a legal advisor to determine which document takes precedence.”

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Introduction

This introduction is not part of APTA PR-IM-S-009-98, Rev. 2, “Passenger Car Tread Brake Shoe and Disc Brake Pad Periodic Inspection and Maintenance.”

This standard describes the basic maintenance and inspection functions for friction brake material on passenger cars. It applies to all:

1. Railroads that operate intercity or commuter passenger train service on the general railroad system of transportation; and
2. 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 does not apply to:

1. Rapid transit operations in an urban area that are not connected to the general railroad system of transportation;
2. Tourist, scenic, historic or excursion operations, whether on or off the general railroad system of transportation;
3. Operation of private cars, including business/office cars and circus trains; or
4. Railroads that operate only on track inside an installation that is not part of the general railroad system of transportation.

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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-013-99, Latest Revision, "Passenger Car Periodic Inspection and Maintenance."

2. Inspection and maintenance requirements

2.1 Tools/materials

Standard tools carried by maintenance personnel are sufficient for this inspection task. Brake disc pad and shoe thickness measuring gages should be used in accordance with the railroad's inspection and maintenance procedures. No specific materials are required.

2.2 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.

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.

3.1 Tread brake shoes

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

- a) Visually inspect the thickness of the brake shoes. Renew the brake shoe in accordance with the railroad's inspection and maintenance procedures if the remaining wear material is less than the operating property practice requires. Make sure that the brake shoe key is fully inserted through the brake shoe key slot.

NOTE: Because of the taper of the wheel tread, care must be taken to ensure that the inspection is performed at the thinnest point of the brake shoe. Use the thickness gage in accordance with the railroad's inspection and maintenance procedures.

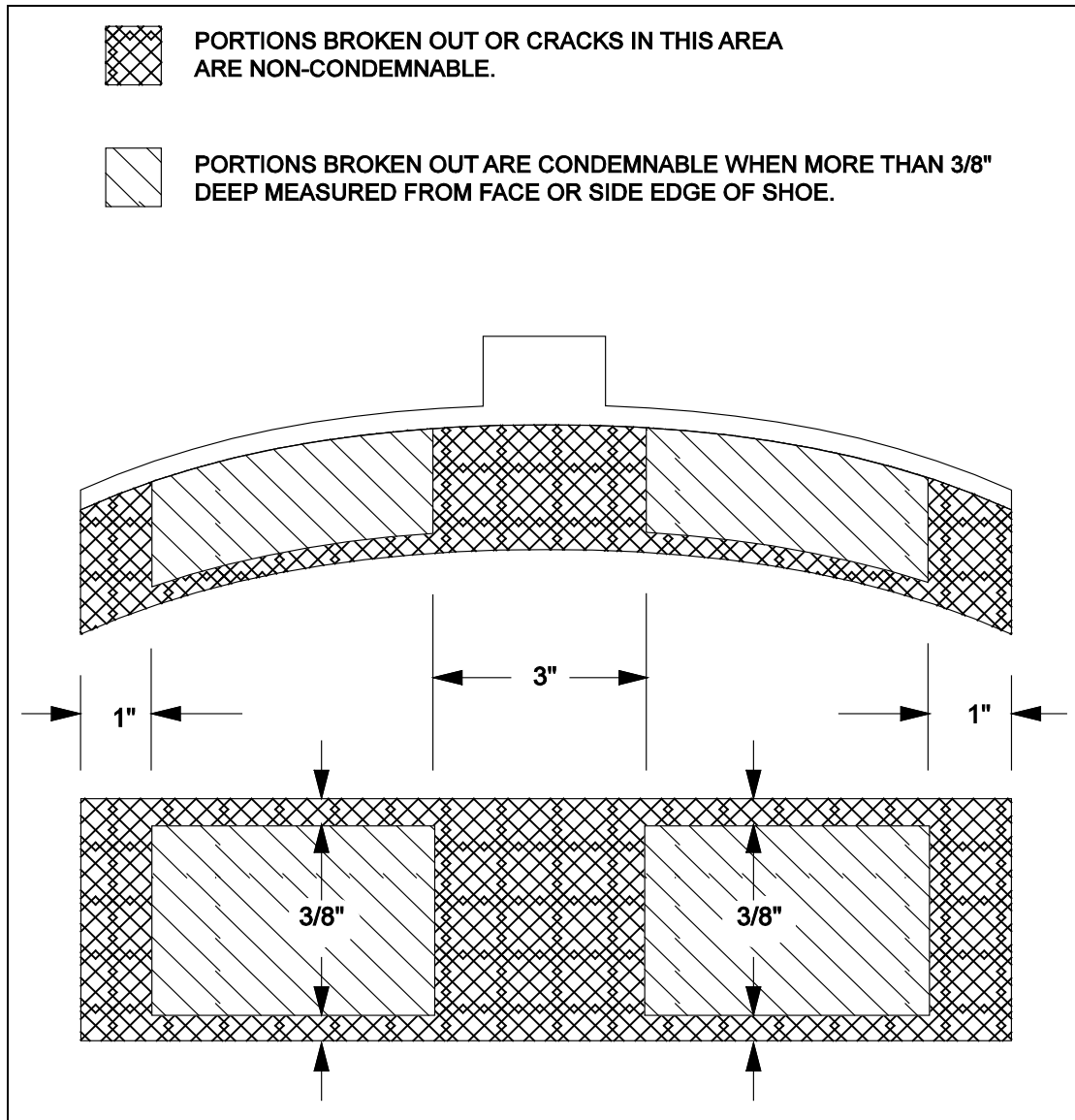
- b) Visually inspect the brake shoes for broken or missing parts per **Figure 1**. Replace the brake shoe in accordance with the railroad's inspection and maintenance procedures if it is found condemnable.

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- c) Visually inspect for missing brake shoes. Replace missing brake shoes in accordance with the railroad's inspection and maintenance procedures.
- d) During brake shoe replacement, the brake shoe key is to be visually inspected and replaced in accordance with the railroad's inspection and maintenance procedures if it is found broken, worn, or damaged. Ensure that the brake shoe key replacements are secure and in place.

FIGURE 1

Tread Brake Shoe Condemning Limits



3.2 Disc brake pads

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

- a) Visually inspect the thickness of the brake pads. Replace the brake pad in accordance with the railroad's inspection and maintenance procedures if the remaining wear material is less than the operating property practice requires. Ensure that the brake pad is properly latched and secured.

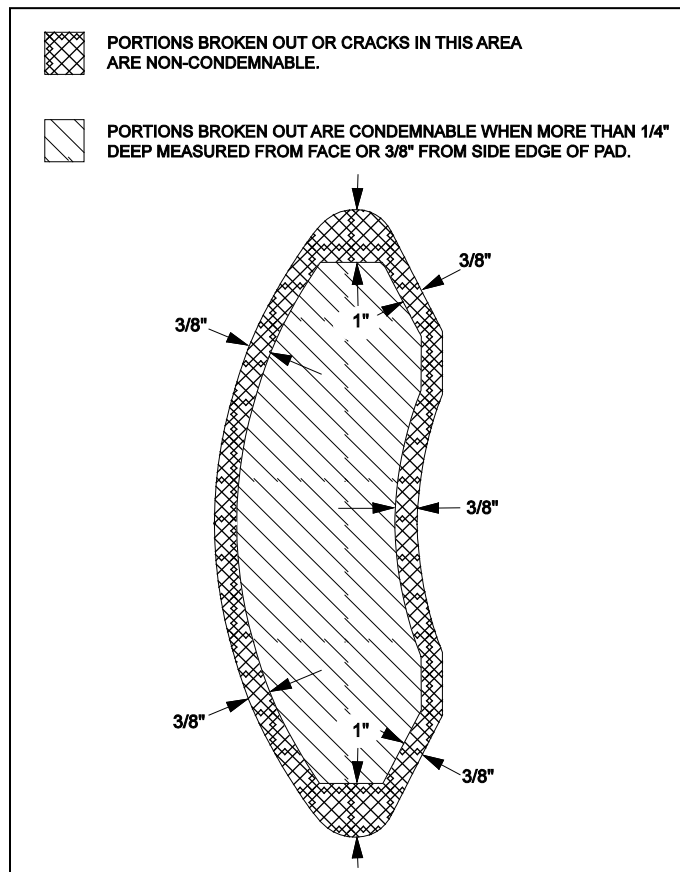
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NOTE: Because of uneven wear, care must be taken to ensure that the inspection is performed at the thinnest point of the brake pad. Use the thickness gage in accordance with the railroad's inspection and maintenance procedures.

- b) Visually inspect the brake pad for broken or parts missing per **Figure 2**. If the brake pad is found to be condemnable, then replace the brake pad in accordance with the railroad's inspection and maintenance procedures, making sure it is properly secured.
- c) Visually inspect for missing brake pads. Replace missing brake pads in accordance with the railroad's inspection and maintenance procedures.
- d) During brake pad replacement, the brake pad securing mechanism is to be visually inspected and replaced in accordance with the railroad's inspection and maintenance procedures if it is broken, worn or damaged.

FIGURE 2

Disc Brake Pad Condemning Limits



Related APTA standards

APTA-PR-IM-S-013-99, “Passenger Car Periodic Inspection and Maintenance”

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.

49 CFR, Part 229, Railroad Locomotive Safety Standards.

Bibliography

Field Manual of the Association of American Railroads Interchange Rules, Rule 12 (informative only).

Definition

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 (e.g., days, weeks, or months) or of utilization (e.g., mileage or cycles). The scope of these inspection and maintenance actions must be in full compliance with all applicable federal, state, and local regulations.

Abbreviations and acronyms

CFR Code of Federal Regulations
NATSA North American Transportation Services Association
PRESS Passenger Rail Equipment Safety Standards

Summary of document changes

- Document formatted to the new APTA standard format.
- Scope and summary moved to the front page.
- Sections of definitions, abbreviations and acronyms moved to the rear of the document.
- Three new sections added: “Summary of document changes,” “Note on alternate practices” 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.
- APTA document references updated to reflect current (as of October 4, 2018) information.
- List of participants updated.
- “Annex A (informative): Bibliography” merged into “References” section.
- Figures formerly in appendix integrated into main body of document.

Document history

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First published	Oct. 14, 1998	—	—	March 17, 1999	March 17, 1999
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