



APTA STANDARDS DEVELOPMENT PROGRAM

## STANDARD

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APTA Passenger Rail Equipment  
Safety Standards (PRESS) Inspection  
& Maintenance Working Group

# Passenger Car Handbrake Periodic Inspection and Maintenance

**Abstract:** This standard establishes the basic procedure for handbrake inspection and maintenance. The standard covers vertical wheel, horizontal wheel and lever type handbrakes.

**Keywords:** handbrakes, handbrake periodic inspection and maintenance

**Summary:** Passenger car handbrakes provide safety and security in the storage/layover of passenger equipment at terminals, maintenance facilities, passenger stations (where applicable), outlying layover/storage points, and during emergency situations. These systems (if applicable) are essential in the safe operation of passenger cars. This standard establishes a procedure for handbrake inspection and maintenance. It covers vertical wheel, horizontal wheel, and lever type handbrakes.

**Scope and purpose:** This standard for handbrake inspection, lubrication, and maintenance applies to all passenger cars. It is intended to be applied by individual railroads for cyclic inspection, lubrication, and maintenance of passenger car handbrakes. It is intended for railroads in order to apply basic procedures for periodic inspection, servicing, lubrication, testing, and repair of handbrakes for passenger cars with emphasis on maintenance of safety-critical systems.

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) Inspection and Maintenance Work Group**, which provided the primary effort in the drafting of the latest revision of this document.

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## Introduction

*This introduction is not part of APTA PR-IM-S-004-98, Rev. 2, "Passenger Car Handbrake Periodic Inspection and Maintenance."*

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

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

- individuals or organizations that maintain handbrakes on passenger cars;
- individuals or organizations that contract with others for the maintenance of handbrakes on passenger cars; and
- individuals or organizations that influence how handbrakes are maintained on passenger cars.

This standard is designed to help individuals and organizations incorporate safety considerations during the maintenance process. It is intended to satisfy the following objectives:

- Identify those maintenance standards and inspection criteria that provide a high level of passenger safety.
- Identify those maintenance standards and inspection criteria that provide a high level of crew safety.
- Identify the skills and training requirements necessary for maintenance personnel to apply these standards.

# Passenger Car Handbrake Periodic Inspection and Maintenance

## 1. Materials

The lubricating materials used on passenger car handbrakes shall meet or exceed the latest specifications of the Association of American Railroads (AAR) and/or the original equipment manufacturer (OEM) instructions.

## 2. Handbrake maintenance and lubrication points

### 2.1 Lubrication points

For all types of handbrakes, refer to the OEM maintenance procedures for lubrication instructions specific to the railroad's application.

### 2.2 Tools/materials

Standard tools carried by maintenance personnel are sufficient for this maintenance task.

### 2.3 Safety/personal protective equipment

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

### 2.4 Training requirement

Maintenance personnel shall be adequately trained to perform all aspects of handbrake maintenance.

## 3. Inspection and testing of handbrakes

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

The inspection and testing of handbrakes consists of the following steps:

- a) Visually inspect the handbrake for worn pins, pawls, and gears. Inspect to confirm proper hand clearance.
- b) Fully apply the handbrake.
- c) Visually inspect to ensure that all shoes/pads applied by the handbrake are firmly set against the wheel/disc.

**NOTE:** This is achieved by tapping the wheel/disc with a hammer and listening for a dull sound rather than ringing.

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- d) With the handbrake in the applied position inspect to ensure that all associated linkage and cables do not bind or foul. If the rail vehicle is equipped with a hand brake applied indicator, ensure that the indicator displays that the handbrakes are applied.
- e) Fully release the handbrake while inspecting the mechanism for proper operation. If the rail vehicle is equipped with a hand brake applied indicator, ensure that the indicator displays that the handbrakes are released.
- f) Inspect to ensure that all shoes/pads applied by the handbrake are fully released.
- g) With the handbrake released inspect to ensure that associated linkage and cables do not bind or foul and do not have any damage or excessive wear. Linkage includes all chains, levers, clevises, pulleys, pins, cotter pins, bushings, and rods.
- h) Utilizing appropriate marking device apply test date to handbrake apparatus in a conspicuous place approved by the railroad.

## References

In addition to OEM instructions, this standard shall be used with the following publications. If the publications are superseded by an approved revision, the revision shall apply.

Association of American Railroad Technical Services Division-Mechanical Section Manual of Standards and Recommended Practices, Rule 13 -Handbrakes, Geared and Non-Geared, and Rule 8-Inspection and Lubrication of Handbrakes

## 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 (e.g., days, weeks or months) or of utilization (e.g., mileage, 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

<b>AAR</b>	Association of American Railroads
<b>APTA</b>	American Public Transportation Association
<b>NATSA</b>	North American Transportation Services Association
<b>OEM</b>	original equipment manufacturer
<b>PRESS</b>	Passenger Rail Equipment Safety Standards

## 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.
- Sections of 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.
- Removal of all figures and tables.

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- Addition of the reference for OEM compliance in Section 2.1.
- Addition of blue flag protection to note at the beginning of Section 3.
- Addition of handbrake indicator test for cars so equipped to Sections 3 d) and e).
- Slight wording changes to periodic maintenance definition to bring in line with standard PRESS definition for periodic maintenance.
- Removal of the word “instructions” from OEM under “Abbreviations and acronyms”.
- Addition of NATSA to “Abbreviations and acronyms”.
- Removal of the contents of the section formerly known as Annex B (informative) “Figures and charts for lubrication points”, which contained subsections “B.1 Vertical wheel handbrakes”, “B.2 Lever type handbrakes”, “B.3 Horizontal wheel type handbrakes”, and “B.4 Arrow and comet equipment.”
- References updated to reflect current (as of May 1st, 2017) information.
- Participants list updated.

**Document history**

<b>Document Version</b>	<b>Working Group Vote</b>	<b>Public Comment/ Technical Oversight</b>	<b>CEO Approval</b>	<b>Policy &amp; Planning Approval</b>	<b>Publish Date</b>
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