



APTA PR-IM-S-006-98, Rev. 2

First Published: Oct. 14, 1998

First Revision: Feb. 13, 2004

Second Revision: Jan. 17, 2020

PRESS Inspection & Maintenance
Working Group

Passenger Car Draft Gear Periodic Inspection and Maintenance

Abstract: This standard covers the basic procedures for the periodic inspection and maintenance of passenger car draft gear, with an emphasis on the maintenance of safety appliances and other safety-critical systems.

Keywords: draft gear, periodic inspection and maintenance, pushback coupler (PBC), yoke

Summary: This document establishes a standard for draft gear inspection and maintenance.

Scope and purpose: This standard applies to all passenger cars. It is intended to be used by railroads for cyclic inspection and maintenance of passenger draft gear. This standard is intended to assist railroads in applying basic procedures for the periodic inspection and maintenance of draft gear of passenger cars, with an emphasis on maintenance of safety appliances and other safety-critical systems.

“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.”

© 2020 The American Public Transportation Association (APTA). No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of APTA.

Table of Contents

Participants.....	iii
Introduction.....	iii
1. Frequency of conduct	1
2. Draft gear periodic inspection and maintenance requirements	1
2.1 Tools/materials	1
2.2 Safety/personal protective equipment.....	1
3. Training requirement.....	1
4. Inspection and maintenance procedures	1
4.1 Yoke.....	1
4.2 Draft gear	2
4.3 Pushback coupler draft gear and energy absorber	2
Related APTA standards.....	3
References.....	3
Definitions	3
Abbreviations and acronyms.....	3
Summary of document changes	3
Document history	4



Participants

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

At the time this standard was completed, the working group included the following members:

Jeff Thompson, SEPTA, *Chair*

Dave Elliott, LTK Engineering Services, *Vice Chair*

Enrique Arroyo-Rico, *ALSTOM Transport*

Danny Bailey, *Denton County Transp. Authority*

Stephen Bonina, *WSP USA*

Gordon Campbell, *Crosslinx Transit Solutions*

David Carter, *New Jersey Transit Corp.*

John Condrasky, *Wabtec Corp.*

Joshua Coran, *Talgo Inc.*

Richard Curtis, *Curtis Engrg. Consulting Services*

Ever Diaz, *Keolis Commuter Services*

Adam Eby, *Amtrak*

Marc Gagné, *TDG Transit Design Group*

Paul Jamieson, *SNC Lavalin Rail & Transit Inc.*

Tony Jones, *retired*

Paul Kovacs, *Lea+Elliott, Inc.*

Robert Lee, *Metra*

Lloyd Mack, *LTK Engineering Services*

Ted Mavronicolas, *Saft America*

Gerard McIntyre, *Knorr Brake Corp.*

Karl Mullinix, *Knorr Brake Corp.*

Joe Patterson, *Amsted Rail*

Mike Porter, *Community Transit*

Alan Rao, *Federal Transit Administration*

Gerhard Schmidt, *Siemens AG Industry Sector*

Martin Schroeder, *Jacobs*

Richard Seaton, *TDG Transit Design Group*

Patrick Sheeran, *LTK Engineering Services*

Nick Sorensen, *Utah Transit Authority*

Richard Spencer, *Knorr Brake Corp.*

Walt Stringer, *Walt Stringer & Associates*

Mark Sullivan, *STV Inc.*

Matthew Todt, *Amsted Rail*

Charles Turner, *STV Inc.*

Michael Wetherell, *McKissack & McKissack*

Dan Wilson, *Miami-Dade Transit*

Timothy Wineke, *Knorr Brake Corp.*

Cliff Woodbury, *LTK Engineering Services*

Gregory Yovich, *NICTD*

Steve Zuiderveen, *Federal Railroad Administration*

Project team

Nathan Leventon, *American Public Transportation Association*

Narayana Sundaram, *American Public Transportation Association*

Introduction

This introduction is not part of APTA PR-IM-S-006-98, Rev. 2, "Passenger Car Draft Gear Periodic Inspection and Maintenance."

This standard describes the basic inspection and maintenance functions for draft gear on passenger cars. This standard 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.

Passenger Car Draft Gear Periodic Inspection and Maintenance

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” (see “Related APTA standards”).

2. Draft gear periodic 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 operating property shall be worn at all times in the performance of this inspection task.

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.

4. Inspection and maintenance procedures

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

NOTE: These procedures are intended to be a visual inspection. No disassembly is required unless defects are found.

4.1 Yoke

4.1.1 Wear limits, cause for renewal

- a) Bent, broken or cracked yokes are cause for replacement.
- b) A yoke strap shall be replaced if it is worn over more than 25 percent of its cross-sectional area.

4.1.2 Inspection

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

- a) Yoke pin and bushings shall be inspected for excessive wear, as defined by original equipment manufacturer (OEM) instructions and/or standard maintenance procedures (SMPs).
- b) Yoke components that are excessively worn, cracked, broken and/or with portions missing must be replaced.
- c) Carriers and pin retainer plates must be inspected for wear and proper securement. Loose plates should be tightly secured.
- d) Carriers and/or pin retainer plates that are cracked, broken, or worn over more than 50 percent of their original thickness must be replaced.

4.2 Draft gear

4.2.1 Wear limits, cause for renewal

- a) Outer rubber rings completely broken or pulled away from the center plate must be replaced.
- b) Draft gears removed from the car for any reason should be inspected in accordance with the OEM and renewed or replaced as needed prior to reinstallation.
- c) Draft gear followers that are bent, broken, or excessively worn shall be replaced.

4.2.2 Inspection

The inspection and maintenance procedure for draft gears consists of the following step:

- a) Inspect pin and bushing for any visible defects.

4.3 Pushback coupler draft gear and energy absorber

4.3.1 Wear limits, cause for renewal

- a) The pushback coupler draft gear is completely enclosed by its housing. There should be no longitudinal free movement of the coupler. If movement exists, this can be identified as either draft gear elastomer failure or energy absorption element activation. The responsible component must be replaced.

4.3.2 Inspection and maintenance

The inspection and maintenance procedure for pushback coupler draft gear consists of the following steps:

- a) Lubricate and condition in accordance with OEM instructions.
- b) Inspect draft gear pivot bolt and spherical bearing for any visible defects.
- c) Inspect draft gear pivot bolt retention ring and secondary retention bar for secure fit.
- d) Inspect energy absorption feature for activation. If activated, inspect vehicle for structural damage and replace coupler and energy absorption feature.

Related APTA standards

APTA-PR-CS-RP-019-11, Latest Revision, “Pushback Couplers in Passenger Rail Equipment”
APTA-PR-IM-S-013-99, Latest Revision, “Passenger Car Periodic Inspection and Maintenance”

References

This standard shall be used in conjunction with OEM instructions and SMP, as well as the following publications. When the following standards are superseded by an approved revision, the revision shall apply.

Code of Federal Regulations:

- 49 CFR Part 215, Railroad Freight Car Safety Standards, Subpart B—Freight Car Components, Subsection 215.127, Defective Draft Arrangement
- 49 CFR Part 215, Subpart B, Subsection 215.129, Defective Cushioning Device

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

pushback coupler (PBC): A coupler that meets all requirements and functions of traditional couplers during operation and service, but additionally includes a retractable feature that activates at a given load and absorbs energy during pushback as defined in APTA-PR-CS-RP-019-11 or superseding document.

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
NATSA	North American Transportation Services Association
OEM	original equipment manufacturer
PBC	pushback coupler
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.
- The scope and summary have been moved to the front page.
- Definitions, abbreviations, and acronyms have been moved to the rear of the document.
- Two new sections have been 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.

APTA PR-IM-S-006-98, Rev. 2
Passenger Car Draft Gear Periodic Inspection and Maintenance

- APTA document references updated to reflect current (as of April 15, 2019) information.
- Participants list updated.
- Added “pushback coupler (PBC)” to the “Definitions” section and “PBC” to the “Abbreviations and acronyms” section.
- Wording changes to Section 4.1, “Yoke,” Section 4.1.1, “Wear limits, cause for renewal,” part b), and Section 4.1.2, “Inspection,” part d).
- Addition of Section 4.3, “Pushback coupler draft gear and energy absorber.”

Document history

Document Version	Working Group Vote	Public Comment/ Technical Oversight	Rail CEO Approval	Policy & Planning Approval	Publish Date
First published	Oct. 14, 1998	—	—	March 17, 1999	March 17, 1999
First revision	—	—	—	—	Feb. 13, 2004
Second revision	July 16, 2019	Sept. 13, 2019	Nov. 4, 2019	Jan. 10, 2020	Jan. 17, 2020