

15. APTA PR-IM-S-015-00

Standard for the Inspection and Testing of Roller Bearings on Passenger Equipment After a Derailment

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Abstract: This standard provides a procedure for the inspection and testing of roller bearings on rail passenger equipment subsequent to a derailment.

Key words: inspection and testing, minor derailment, roller bearings, wheel set, major derailment

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Introduction

(This introduction is not a part of APTA PR-IM-S-015-00, Standard for the Inspection and Maintenance of Roller Bearing Inspection and Testing on Passenger Rail Equipment After a Derailment.)

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

This standard describes the requirements for inspection and testing of roller bearings on passenger coaches after a derailment. It is intended for the following:

- a) Individuals or organizations who maintain roller bearings on passenger rail equipment;
- b) Individuals or organizations who contract with others for the maintenance of roller bearings on passenger rail equipment;
- c) Individuals or organizations who influence how roller bearings are maintained on passenger rail equipment.

Participants

The American Public Transportation Association (APTA) greatly appreciates the contributions of the following individual(s), who provided the primary effort in the drafting of *the Standard for the Inspection and Maintenance of Roller Bearing Inspection and Testing on Passenger Rail Equipment After a Derailment*:

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1. Overview

This safety standard is divided into 4 sections. Section 1 provides the scope and purpose of this safety standard. Section 2 lists references to other standards that are useful in applying this standard. Section 3 provides definitions that are either not found in other safety standards, or have been modified for use with this standard. Section 4 describes the inspection and testing tasks to be performed and the circumstances requiring the performance of these tasks.

1.1 Scope

This is a safety standard for performing the inspection and testing of roller bearings on rail passenger equipment following a derailment and prior to the derailed equipment being returned to service. It provides a set of inspection and testing tasks that shall be performed in such a situation.

1.2 Purpose

This safety standard is meant to provide organizations with basic requirements to be performed as part of the inspection and testing process.

2. References

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

Applicable State and Local Regulations

Operating authority standard maintenance practices

Original equipment manufacturer (OEM) manuals and specifications

49 CFR Part 215 – Railroad Freight Car Safety Standards, October 2000.

49 CFR Part 229 – Railroad Locomotive Safety Standards, October 2000.

49 CFR Part 238 – Passenger Equipment Safety Standards, October 2000.

3. Definitions, abbreviations and acronyms

3.1 Definitions

For the purposes of this safety standard, the following terms and definitions apply:

3.1.1 OEM: Original equipment manufacturer

3.1.2 major derailment: Any derailment occurring at a speed in excess of 10 miles per hour and/or the derailed truck(s) were dragged on the ground a distance of 100 or more feet or more.

3.1.3 minor derailment: Any derailment occurring at a speed of less than 10 miles per hour and/or the derailed truck(s) travel on the ground a distance less than 100 feet.

3.1.4 roller bearing: The general term applied to a group of journal bearings that depend upon the rolling action of a set of rollers, in order to reduce rotational friction. The different types are distinguished by the shapes of the rollers and by their arrangement in the bearing. Three types of rollers are in common use at present for car journals-cylindrical, tapered, and spherical.

3.1.5 wheel set: The term used to describe a pair of wheels mounted on an axle.

4. Inspection and testing procedures

4.1 Major derailment

Wheel set(s) involved in a major derailment must be replaced before the passenger equipment is returned to service. Roller bearings on removed wheel set(s) shall be disassembled from the axle and inspected internally according to the railroads' standard maintenance practices.

If speed or distance cannot be ascertained, it must be assumed that the wheel set(s) in question were involved in a major derailment and must be removed from service.

After changing wheel set(s):

Perform an inspection in accordance with the requirements of *49 CFR 229.23*¹, which mandates that the derailed equipment be positioned so that a person may safely inspect the underneath portion of the equipment.

4.2 Minor derailment

After re-railing is completed:

- a) Visually inspect for any external sign of damage.
- b) Perform a “roll by” inspection to detect any unusual noise indicating internal damage, roughness or “catches” in rotation of the wheel sets.
- c) Perform an inspection in accordance with the requirements of *49 CFR 229.23*, which mandates that the derailed equipment be positioned so that a person may safely inspect the underneath portion of the equipment.

Once these steps are successfully completed and no defects are found the passenger equipment may be returned to service.

¹ For references in Italics, see Section 2.