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PRESS Mechanical Working Group

Passenger and Crew Emergency Brake Device in New Passenger Equipment

Abstract: This document provides standards for the application and functionality of the passenger and crew emergency brake device for new passenger equipment in the passenger railroad industry.

Keywords: conductor's valve, emergency brake device, emergency brake valves

Summary: This document provides standards for the application and functionality of the passenger and crew emergency brake device for new passenger equipment in the passenger railroad industry, including the design, activation and reset.

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 PRESS Mechanical 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. [The application of any recommended practices or guidelines contained herein is voluntary.] 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 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-M-S-007-98, Rev. 2*, which has been revised. Below is a summary of changes from the previous document version:

- Reference added.
- Nomenclature changes for consistency and readability.
- Format changes to align with current formatting requirements.
- Renaming of document from "Conductor's Valve in New Passenger Cars/MU Locomotives" to "Passenger and Crew Emergency Brake Device in New Passenger Cars/MU Locomotives."
- Added pneumatic piping requirement.

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Introduction

This introduction is not part of APTA PR-M-S-007-98, Rev. 3, "Passenger and Crew Emergency Brake Device in New Passenger Equipment."

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 does not apply to:

- rapid transit operations in an urban area that are not connected to the general railroad system of transportation;
- tourist, scenic, historic, host railroads or excursion operations, whether on or off the general railroad system of transportation;
- operation of private cars, including business/office cars and circus trains unless otherwise required by other standards or regulations; or
- railroads that operate only on track inside an installation that is not part of the general railroad system of transportation.

Scope and purpose

The passenger rail industry phased the conductor's valve standard into practice over the six-month period from July 1 to Dec. 31, 1999. The standard took effect Jan. 1, 2000.

The purpose of this standard is to provide for common configuration and operation of the passenger and crew emergency brake device on passenger rail equipment, as it promotes safe and reliable initiation of an

emergency brake application. It was renamed to “Passenger and Crew Emergency Brake Device” in the second revision.

Passenger and Crew Emergency Brake Device in New Passenger Equipment

1. Technical information

The emergency brake device shall be located no more than 45 ft (13.7 m) from a seated passenger and preferably near an exterior door on each passenger car/MU locomotive. Emergency brake devices shall be accessible to passengers in the passenger compartment.

Single-actuated emergency brake devices shall be directly attached to a slip-resistant operating handle.

Dual-actuated emergency brake devices shall be connected to slip-resistant operating handles by cables or linkage designed to preclude the possibility of jamming, loosening or other malfunctions that could impede the device's operation. Cords of any type are not permissible.

With a properly charged system, each valve shall be capable of reducing brake pipe (BP)/emergency pipe (EP) pressure at a sufficient rate to initiate an emergency brake application under all operating conditions, including when brake systems employ a brake pipe pressure maintaining feature.

For brake schedules employing an EP function (BP manipulation does not create a service brake application or release), testing shall be performed with the EP pressure close to the air compressor cut-in point.

The distance from the floor to the top of the device operating handle shall not exceed 73 in. (1850 mm). Device actuation shall not require more than 30 lbf (133 N) of force applied to its operating handle.

The means to reset the device after actuation shall be performed manually from the point of actuation.

The words "Emergency Brake" shall be legibly marked in close proximity to each device's handle or shall be shown on an adjacent badge plate per APTA PR-PS-006-22.

Device installation shall be protected to prevent actuation from accidental contact.

Annunciation of the emergency brake device should be considered during the passenger car/MU locomotive design. Annunciation may be local and/or in the operating cab.

Pneumatic piping shall comply with the applicable requirements in the latest revision of APTA PR-M-S-029-20, "Pneumatic Piping for Vehicles," and equipment supplier's requirements.

MU locomotives and control cab cars shall comply with 49 CFR §229.47.

Related APTA standards

APTA PR-M-S-029-20, "Pneumatic Piping for Vehicles"
APTA PR-PS-S-006-23, "Emergency Egress/Access Signage and Low-Level Exit Path Markings for Passenger Rail Equipment"

References

49 CFR §229.47, Locomotive Safety Standards – Emergency Brake Valve

49 CFR §238, Passenger Equipment Safety Standards

Definitions

brake pipe pressure: Air pressure that exists in a system of piping including trainline connections used for connecting locomotives and all cars for the passage of air to control the locomotive and car air brakes.

emergency brake (49 CFR §238.5 definition): Emergency brake application means an irretrievable brake application resulting in the maximum retarding force available from the train brake system.

emergency brake device: A manually actuated device that can initiate an emergency brake application.

emergency pipe: A system of piping including trainline connections used for connecting locomotives and all cars for the passage of air to control only the locomotive and car emergency air brakes.

Abbreviations and acronyms

BP brake pipe
EP emergency pipe
FRA Federal Railroad Administration
in inches
lbf pound-force
mm millimeters
MU multiple unit
N Newtons

Document history

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