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APTA Rail Transit Standards Vehicle Inspection and Maintenance Working Group

Rail Transit Vehicle Pre-Departure Inspection

Abstract: This *Recommended Practice* provides guidance for the pre-departure inspection of systems and components on rail transit vehicles. It covers exterior inspection, interior inspection and brake system tests.

Keywords: pre-departure inspection, rail transit system, rail transit vehicle, vehicle inspection and maintenance

Summary: This *Recommended Practice* provides guidance for the development of pre-departure inspections of rail transit vehicles. Individual rail transit systems should tailor these practices to accommodate their specific equipment and mode of operation.

Scope and purpose: This *Recommended Practice* applies to rail transit systems that operate light rail, heavy rail or rail subway systems. This document does not apply to rail transit systems regulated by the Federal Railroad Administration. This document should be used by rail transit systems that operate under Federal Transit Administration state safety oversight jurisdiction. This *Recommended Practice* provides recommendations for pre-departure inspections of rail transit vehicles to confirm the fitness for service of these vehicles. It includes a pre-departure operator's cab check, vehicle exterior inspection, vehicle interior inspection and brake system functional check. As resources and operating tempo permit, some rail transit systems may be able to perform an expanded pre-departure inspection that incorporates inspection of items and systems related to comfort, quality and reliability.

This *Recommended Practice* 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 standards, 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. APTA recognizes that for certain applications, the standards or practices, as implemented by individual transit agencies, may be either more or less restrictive than those given in this document.

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Contents

Introduction	iii
1. Background	1
2. Requirements	1
2.1 Safety	1
2.2 General requirements.....	1
3. Vehicle inspections	2
3.1 Operating cab inspection	2
3.2 Vehicle pre-departure exterior inspection.....	3
3.3 Vehicle pre-departure interior inspection	4
3.4 Brake system functional check	4
4. Correction of deficiencies	4
5. Supervisory oversight	4
References.....	5
Definitions	5
Abbreviations ad acronyms	6
Summary of changes	6
Document history	6

Introduction

This Introduction is not part of RT-VIM-RP-008-02 First Revision June 28, 2013, *Recommended Practice for Rail Transit Vehicle Pre-Departure Inspection*.

This Recommended Practice for Pre-Departure Inspection and Maintenance for rail transit vehicles 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 standards, practices or guidelines contained herein is purely voluntary. In some cases, federal and/or state regulations govern portions of a rail transit system's operations. In those cases, the government regulations take precedence over these recommended practices. APTA recognizes that for certain applications, the standards or practices, as implemented by individual rail transit systems, may be either more or less restrictive than those given in this document.

This Recommended Practice is intended to assist RTS personnel in performing basic maintenance and inspection procedures. Since each rail transit rail cars may be different, the procedures and steps described in this document will not necessarily be applied to, nor required for, every RTS maintenance and inspection procedure.

Rail Transit Vehicle Pre-Departure Inspection

1. Background

Due to the many differences in vehicle design, system size and operating tempo among rail transit systems, a standard set of inspection criteria to be used across the industry is not workable. Specifically what to and how to inspect needs to be determined individually by each rail transit system (RTS) based on its specific equipment design and operating environment.

The following guiding principles are recommended to develop the pre-departure inspection:

- The inspection should not require the vehicle to be placed over a pit.
- The inspection should not require coupling or uncoupling of vehicles.
- The inspection could be performed by either operating or maintenance personnel, but anyone doing the inspection must be adequately trained to do so.
- The inspection should be a walk-around and walk-through visual examination looking for obvious defects.
- The *Recommended Practice* should provide flexibility for rail transit systems to inspect some items on a less frequent than pre-departure basis based on past safe operating history.

Rail transit systems should develop local policies and procedures that implement this *Recommended Practice*. The local policies and procedures should be based on manufacturers' recommendations and operating experience with the equipment covered. Since the purpose of the pre-departure inspection is to ensure safety, local policies and procedures must provide clear guidance and criteria for removing vehicles from or not placing vehicles in revenue service when safety critical defects are identified.

2. Requirements

2.1 Safety

Established RTS safety practices, rules and procedures must be followed at all times in the performance of these inspections.

2.2 General requirements

Each RTS should determine which vehicle systems or components must be inspected on a pre-departure basis.

Each RTS should identify those vehicle systems or components that, based on extensive past operating experience, do not require a pre-departure inspection but can be inspected at greater intervals. Each RTS shall develop and conduct a periodic inspection and maintenance program with required inspection frequencies for these systems or components.

Each RTS should perform a pre-departure inspection of the systems or components, identified in accordance with Section 3 of this *Recommended Practice*, on each rail transit vehicle prior to placing that vehicle in revenue service. That pre-departure inspection should consist of:

- An operator's cab check;
- An external vehicle inspection;
- An internal vehicle inspection; and
- A brake system functional check.

Each RTS should develop specific written policies and procedures that take into account specific equipment designs and local operating conditions to implement the vehicle pre-departure inspections recommended by this *Recommended Practice*. These policies and procedures should give inspectors clear guidance and criteria for reporting equipment that should be removed from or not placed into revenue service.

Each RTS should ensure that employees and/or contractors responsible for the performance of vehicle inspections have the skills and knowledge required to effectively perform the inspections assigned to them. Refer to APTA RT-RP-VIM-011, "Rail Transit Vehicle Inspection Training and Qualifications," for guidance on training for inspecting rail transit vehicles.

3. Vehicle inspections

The vehicle inspections and tests recommended by Sections 3.1 through 3.4 should be conducted prior to placing the vehicle into revenue service or operations (work train service, testing, plowing, etc.).

NOTE: Light rail and heavy rail vehicle designs differ. Light rail vehicles are often designed for street running and are equipped with additional street running safety features. If a vehicle is not equipped with a listed component or system, then the corresponding pre-departure inspection of the component/system may be omitted. Also, all repairs and adjustments are to be made in accordance with RTS policies and procedures.

3.1 Operating cab inspection

Inspect and/or test all the cab components or systems identified by the RTS. Rail transit systems should consider including the following in the operator's cab pre-departure inspection:

- presence of restrictive operating tags or devices;
- train configuration settings;
- train control settings;
- cab signal equipment;
- electrical circuit breakers;
- windshield wipers and washers;
- windshield and side glazing;
- horns, gongs buzzers and bells;
- radio, public address and intercom systems;
- side-view cameras;
- interior/exterior mirrors;
- closed-circuit television (CCTV) interior surveillance;
- security of equipment panel covers and guards;
- cab lights, gauges and indicators;
- emergency equipment/tools;
- verify that all bypass and cut-out switches are in the normal position and properly sealed

- annunciator panel indicators (normally equipped with a test feature to ensure that indicator lights are functional);
- all cabs' doors closed (and locked, if applicable) indication;
- all cars' doors closed and locked per RTS policy with all corresponding indications; and
- train operator display (TOD).

3.2 Vehicle pre-departure exterior inspection

When possible, and in accordance with RTS yard and track safety rules and procedures, conduct a full walk-around visual inspection of the vehicle for obvious defects. If the rail yard configuration does not allow full-walk around inspections to be safely done, only one side of the vehicle may be inspected. As much as possible without uncoupling or going under the vehicle, inspect all systems or components identified by the RTS for visual defects, presence and function. Rail transit systems should consider including the following components or systems as part of the pre-departure inspection:

- train makeup;
- presence of restrictive operating tags;
- coupler assembly and draft gear (as can be inspected without uncoupling);
- pilot/snow plow;
- track brake;
- parking brake/handbrake;
- headlights;
- taillights;
- brake lights;
- marker lights;
- equipment provided for the disadvantaged;
- directional turn signals;
- sander;
- trucks/bogies and equipment;
- wheels and wheel bearings, where visible;
- friction brake components, where visible;
- steps, stairs, threshold plates and anti-climbers;
- handholds;
- windows and window gaskets and seals;
- exterior emergency signage;
- status of exterior emergency indicators;
- electrical cables, jumpers and connectors (as can be inspected without disconnecting or uncoupling);
- pantographs, current collectors or fuel level;
- buffers, springs, chains, and/or diaphragms between cars;
- automatic train control, automatic train operation and automatic train protection components;
- transponders;
- trip switches or trip cocks;
- air suspension system levelers;
- brake cutouts;
- hanging equipment/components; and
- carbody damage, dragging equipment or fouling debris that would interfere with safe train movement.

3.3 Vehicle pre-departure interior inspection

While performing an interior walk-through, inspect all components or systems identified by the RTS for obvious visual defects, presence and function. Rail transit systems should consider including the following as part of the vehicle interior pre-departure inspection:

- floors, passages and aisle ways;
- interior lighting;
- emergency lighting;
- emergency tools and equipment;
- emergency signs/decals;
- emergency window exits;
- emergency brake handles;
- seats;
- luggage racks;
- ADA equipment;
- heating, ventilation and air conditioning;
- side passenger and emergency doors;
- circuit breakers; and
- all doors locked per RTS policy.

3.4 Brake system functional check

A functional check of the friction brake system shall be made in accordance with the rail transit system's policies and procedures. Rail transit systems should consider checking the following:

- deadman or alerter feature;
- train operator's emergency brake application actuation device;
- friction brake apply and release, normal function and indications; and
- a low-speed brake application.

4. Correction of deficiencies

Any deficiencies uncovered during the inspections in Sections 3.1, 3.2, 3.3 or 3.4 should be corrected in accordance with established RTS policies and original equipment manufacturer (OEM) recommendations.

5. Supervisory oversight

Supervisors of RTS employees or contractors assigned vehicle inspection and maintenance tasks should conduct spot checks or use other techniques to ensure that the assigned tasks, including pre-departure inspections, are performed in accordance with the rail transit system's policies and procedures.

References

American Public Transportation Association, *Recommended Practice* APTA RT-VIM-RP-011-03, “Rail Transit Vehicle Inspection Training and Qualifications.” (Document was previously numbered as APTA RT-RP-VIM-011-03)

Bay Area Rapid Transit (BART) procedures:
Procedure 405, Train Dispatch
Procedure 503, Friction Brake Test
Procedure 504, Movement on Yard Tracks
Procedure 507, Revenue Ready Train

Chicago Transit Authority, Duties and Responsibilities of the Rapid Transit Operator, Publication Number 8149, March 1999.

Chicago Transit Authority, Yard Inspection of Rail Revenue Vehicle (exterior) Daily, Bulletin 1-003A, July 2001.

Chicago Transit Authority, Yard Inspection of Rail Revenue Vehicle (interior) Daily, Bulletin 1-002A, July 2001.

Chicago Transit Authority, Rail System Rule Book, August 2000.

GO Transit, Trip Inspection Coach, Inspection Item, C.2.2.

GO Transit, Trip Inspection Locomotive, Inspection Item, C.2.1

Niagara Frontier Transit Metro System Inc., Standard Operating Procedure for Pre-Trip Vehicle Inspection, Publication Number 105.7, June 1998

Southeastern Pennsylvania Transportation Authority, Train Make-Up Procedures Training Bulletin, March 2000.

Definitions

contractor: A person under contract with the RTS or an employee of a person under contract with the RTS to perform inspection and/or maintenance of rail transit vehicles.

deadman control: A pressure- or activity-actuated device that detects inattention or disability of a train operator.

heavy rail system: A railway with the capacity for a heavy volume of traffic and characterized by exclusive rights-of-way, multicar trains, high speed and rapid acceleration, sophisticated signaling and high platform passenger loading. Also known as “rapid rail,” “subway” or “elevated railway.”

light rail system: A railway that may use shared or exclusive rights-of-way. Light rail systems may run trains intermingled with street traffic. Light rail systems frequently operate with low-platform loading and single-car trains. Also known as “street car,” “trolley car” or “tram.”

pre-departure inspection: A visual and/or functional check of rail transit vehicle components or systems, performed prior to placing a vehicle or train into revenue service, conducted in accordance with local RTS procedures by a person trained to have the necessary skills and knowledge to effectively perform these tasks.

Abbreviations and acronyms

ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
BART	Bay Area Rapid Transit
CCTV	closed-circuit television
OEM	original equipment manufacturer
RTS	rail transit system
TOD	train operator display

Summary of document changes

1. Document formatted to the new APTA standard format.
2. Sections have been renumbered and moved around
3. Two new sections added, *Summary of Document changes* and *Document history*
4. Some global changes to section headings and numberings resulted when sections dealing with references and acronyms were moved to the end of the document and other cosmetic changes, such as capitalization, punctuation, spelling, grammar and general flow of text.
5. Changes in the following sections:
 - a) 1. Background – removed references to “the committee”
 - b) 3.1 Operating cab inspection – added buzzers, bypass and cut-out switches, and reference to cab doors
 - c) 3.2 Vehicle exterior inspection – added trucks/bogies and equipment and hanging equipment.
 - d) Included additional abbreviations such as – APTA, BART as transit properties and TOD for train operator display

Document history

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