

8. Recommended Practice for Rail Transit Vehicle Pre-Departure Inspection

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Abstract: This recommended practice provides guidance for the pre-departure inspection of systems and components on rail transit vehicles. The recommended practice covers a pre-departure vehicle exterior inspection, interior inspection and brake system tests.

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

Introduction

(This introduction is not a part of APTA RT-RP-VIM-008-03, *Recommended Practice for Rail Transit Vehicle Pre-Departure Inspection*.)

This Recommended Practice for Rail Transit Vehicle Pre-Departure Inspection 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 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 document describes the basic pre-departure inspection requirements for rail transit vehicles. APTA recommends the use of this standard by:

- Individuals or organizations who perform rail transit vehicle pre-departure inspections;
- Individuals or organizations that contract with others for the performance of the pre-departure inspection of rail transit vehicles; and
- Individuals or organizations who influence how pre-departure inspections of rail transit vehicles are performed.

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Recommend Practice for Rail Transit Vehicle Pre-Departure Inspection

1. Overview

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

1.1 Scope

This recommended practice applies to rail transit systems that operate light rail, heavy rail or rail subway systems. This recommended practice 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.

1.2 Purpose

This recommended practice provides recommendations for pre-departure inspections of rail transit vehicles to confirm the fitness for service of these vehicles. This recommended practice 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.

2. References

Specific rail transit system's (RTS) standard operating procedures and/or policies for conducting vehicle pre-departure inspections.

3. Definitions, abbreviations, and acronyms

3.1 Definitions

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

3.1.1 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.

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

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

3.1.4 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”.

3.1.5 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.

3.2 Abbreviations and acronyms

ADA	Americans with Disabilities Act
CCTV	Closed Circuit Television
OEM	Original Equipment Manufacturer
RTS	Rail Transit System\

4. Background

Due to the many differences in vehicle design, system size and operating tempo among rail transit systems, the committee determined that 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 RTS based on their specific equipment design(s) and operating environment.

The committee set the following guiding principles 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; and
- 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 the 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.

5. Requirements

5.1 Safety

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

5.2 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, which (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 6 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, Recommended Practice for Rail Transit Vehicle Inspection Training and Qualifications, for guidance on training for inspecting rail transit vehicles.

6. Vehicle inspections

The vehicle inspections and tests recommended by sections 6.1 through 6.4 should be conducted prior to placing the vehicle into revenue service or operations (i.e. 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, the corresponding pre-departure inspection of the component/system may be omitted. Also, all repairs and adjustments are to be made in accordance with the RTS policies and procedures.

6.1 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:

- a) Presence of restrictive operating tags or devices;
- b) Train configuration settings;
- c) Train control settings;
- d) Cab signal equipment;
- e) Electrical circuit breakers;
- f) Windshield Wipers and Washers;
- g) Windshield and side glazing;
- h) Horns, Gongs and Bells;
- i) Radio, Public Address and Intercom Systems;
- j) Side View Cameras;
- k) Interior/Exterior Mirrors;
- l) Closed Circuit Television (CCTV) Interior Surveillance;
- m) Equipment Panel's Covers and Guards: secured;
- n) Cab Lights, Gauges, and Indicators;
- o) Emergency Equipment/Tools;
- p) Annunciator Panel Indicators (normally equipped with a test feature to ensure indicator lights are functional);
- q) All Doors Closed (and locked if applicable) indication;

- r) All doors locked per RTS Policy; and
- s) Train Operator Display (TOD).

6.2 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:

- a) Train make-up;
- b) Presence of restrictive operating tags;
- c) Coupler assembly and draft gear (as can be inspected without uncoupling);
- d) Pilot/Snow Plow;
- e) Track brake;
- f) Parking brake/handbrake;
- g) Headlights;
- h) Tail lights;
- i) Brake lights;
- j) Marker Lights;
- k) Equipment provided for the disadvantaged;
- l) Directional Turn Signals;
- m) Sander;
- n) Wheels and Wheel Bearings where visible
- o) Friction Brake Components where visible
- p) Steps, Stairs, threshold plates and anti-climbers;
- q) Handholds;
- r) Windows and Window Gaskets and Seals;

- s) Exterior Emergency Signage
- t) Status of Exterior Emergency Indicators;
- u) Electrical cables, jumpers and connectors (as can be inspected without disconnecting or uncoupling);
- v) Pantographs, Current Collectors or Fuel Level;
- w) Buffers, Springs, Chains, and/or diaphragms between cars;
- x) Automatic Train Control (ATC), Automatic Train Operation (ATO), and Automatic Train Protection (ATP) components;
- y) Transponders;
- z) Trip Switches or Trip Cocks;
- aa) Air Suspension System Levelers;
- bb) Brake Cutouts; and
- cc) Carbody damage, dragging equipment or fouling debris that would interfere with safe train movement.

6.3 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:

- a) Floors, Passages and Aisle Ways;
- b) Interior Lighting;
- c) Emergency Lighting;
- d) Emergency Tools and Equipment;
- e) Emergency Signs/Decals;
- f) Emergency Window Exits;
- g) Emergency Brake Handles;
- h) Seats;
- i) Luggage Racks;

- j) ADA Equipment;
- k) Heating, Ventilating and Air Conditioning;
- l) Side Passenger and Emergency Doors;
- m) Circuit Breakers; and
- n) All doors locked per RTS Policy.

6.4 Brake system functional check

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

- a) Deadman or alerter feature;
- b) Train operator's emergency brake application actuation device;
- c) Friction brake apply and release, normal function and indications; and
- d) A low speed brake application.

7. Correction of deficiencies

Any deficiencies uncovered during the inspections in Sections 6.1, 6.2, 6.3 or 6.4 should be corrected in accordance with established RTS policies and Original Equipment Manufacturer (OEM) recommendations.

8. 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 RTS's policies and procedures.

Annex A (informative)

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