APTA STANDARDS PROGRAM

RECOMMENDED PRACTICE

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Signals and Communications Working Group

Signal Equipment Room Inspection

Abstract: This document establishes recommended guidelines for inspecting rail transit signal equipment rooms.

Keywords: bungalow, central instrument house, hut, inspection, relay room, signal, signal equipment room, train control room, wayside

Summary: This recommended practice is designed to aid rail transit agencies in identifying visual defects or other potentially hazardous conditions related to rail transit signal equipment rooms through preventative periodic inspection, thereby increasing reliability and reducing the risk of hazards and failures.

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 Signals and Communication Working Group as directed by the Rail 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 agency'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 RT-SC-RP-017-03, which has been revised. Below is a summary of changes from the previous document version:

- Migration to the new 2025 APTA document template which standardizes and reorganizes the document's content; a document summary and foreword were added; the scope and purpose have been combined and updated to be more specific.
- Updated list of participants.
- Updated definitions, abbreviations and acronyms to be consistent with standard definitions; specifically, RTS has been replaced with rail transit system throughout the document.
- Document sections renumbered to simplify the referencing of content
- Additional steps were added to the inspection procedure
- The term "hazard" was added to the definitions section
- Abbreviations and acronyms section was added to the document.

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Introduction

This introduction is not part of APTA RT-SC-RP-017-03, "Signal Equipment Room Inspection."

APTA recommends the use of this document by:

- individuals or organizations that operate rail transit systems;
- individuals or organizations that contract with others for the operation of rail transit systems; and

- individuals or organizations that influence how rail transit systems are operated (including but not limited to consultants, designers and contractors).

Scope and purpose

The procedure in this document encompasses the inspection of rail transit signal equipment rooms of rail transit agencies. It is intended to ensure that life/safety signal system equipment is operational and free from excessive wear, defects and conditions that put the signal system at risk, and to identify those inspection criteria that provide a high level of passenger and personnel safety.

Signal Equipment Room Inspection

1. Inspection provisions

1.1 Inspection frequency

The inspection procedures in this recommended practice should be performed as deemed necessary by the rail transit agency.

The rail transit agency should determine the need for additional inspection and testing frequencies for wayside signal equipment rooms. A review of the following factors may be useful in making this assessment:

- OEM-recommended intervals
- industry experience
- operating environment/conditions
- historical data
- reliability-centered maintenance program development
- failure analysis
- rail transit agency testing and experience
- regulatory requirements

The frequency of tasks should comply with applicable federal, state and local regulations.

1.2 Training

The rail transit agency and/or its maintenance contractors should develop and execute training programs that provide employees with the knowledge and skills necessary to safely and effectively perform the tasks outlined in this recommended practice.

1.3 Materials

The following materials are recommended for inspecting signal equipment rooms:

- dust cloths and/or other rail transit agency–approved dusting utensils
- rail transit agency–approved cleaning utensils
- rail transit agency–approved cleaning solutions
- additional materials as required by the OEM and/or rail transit agency

1.4 Tools

The following tools are recommended for inspecting signal equipment rooms:

- rail transit agency–approved portable radio
- standard tools carried by maintenance personnel*
- additional tools as recommended by the OEM and/or rail transit agency*

NOTE: Items marked with an asterisk (*) should be calibrated in accordance with OEM and/or rail transit agency requirements.

1.5 Personal protective equipment

Personal protective equipment, as required by the rail transit agency, should be worn at all times during inspection.

1.6 Safety

Rail transit agency safety rules, procedures and practices should be followed at all times during inspection.

1.7 Inspection procedure

The signal equipment room inspection procedures in this recommended practice may be modified for each rail transit agency's requirements but should contain the steps listed below as a minimum.

The signal equipment room inspection should ensure that the room is presentable, environmental controls are functioning properly, reference materials for corrective maintenance and troubleshooting are available, and conditions with the potential to adversely impact operations are identified and corrected.

Inspection procedure:

1. Notify the operations control center (OCC) and/or other authorities of the inspection activities to be performed.
2. Check the condition and/or operation of:
    a. door locks and other security features
    b. fire alarm/suppression indication
    c. fire extinguisher
    d. exterior room emergency lights
    e. interior room lights
    f. phones
    g. HVAC control equipment
    h. ac and dc ground fault detectors
    i. power supplies and associated meters
    j. failure indicator lamps
3. Check the room logbook for entries made concerning problems and conditions.
4. Inspect room for signs of water leaks or standing water.
5. Inspect room for conditions that may jeopardize the safe and reliable operation of train control equipment or pose a safety hazard for signal maintenance personnel.
6. Ensure that the room is clean and that containers with trash, rags and other forms of debris are emptied and/or placed in approved containers.
7. Ensure that flammable and/or combustible materials are properly stored.
8. Ensure that equipment room drawings and other reference materials are complete and in good condition.

9. Ensure that both the room normal and reserve ac incoming power breakers (if so equipped) are in the ON position.
10. Ensure that the room automatic transfer switch (if so equipped) normal and reserve ac power breakers are in the ON position and the bypass breaker is in the OFF position.
11. Ensure that the ac line incoming voltage meter voltage levels are in accordance with rail transit agency specifications.
12. Inspect the room for blown fuses or the blown fuse indicator (if so equipped) for active alarms.
13. If present, check the local control panel indication lamps for proper illumination when test button is operated.
14. Inspect printed circuit board modules for correct LED indications, active alarms or faults.
15. Clean and inspect any code system units and/or communication modules for proper operation.
16. Inspect equipment covers and doors to ensure that they are in good condition and are secured.
17. Check and exercise any power transfer switches.
18. Clean (dust) exterior of all relays.
19. As applicable, open/close vents per weather, check/repair fans, and clean vent screens as necessary.
20. Cut back brush overgrowth from around structure.
21. Inspect walkways, steps, etc. for slippery or hazardous conditions. Report any discovered.
22. Clean batteries and make sure battery terminals are properly torqued.
23. Verify that all termination points are properly tightened.
24. Document actions taken and/or problems and conditions identified in the room logbook.
25. Notify OCC and/or other authorities when inspection is complete.

1.8 Correction of deficiencies

Deficiencies identified during signal equipment room inspection should be corrected and documented in accordance with OEM and/or rail transit agency requirements.

1.9 Documentation

Inspection activities should be documented, reviewed and filed in accordance with rail transit agency procedures.

References

This recommended practice should be used in conjunction with OEM specifications and rail transit agency procedures for signal equipment room inspection.

Definitions

alternating current (ac) ground detector: A device used to monitor ac power supplies for grounded conditions and to display an alarm when ground conditions are detected. Also called *ac ground fault detector*.

automatic transfer switch: An electrical switching device that automatically switches over to the alternate source of power without interruption of ac power if the normal source of power drops off or drops under prescribed voltage levels. The transfer switch will automatically switch to its normal source of power after a predetermined amount of time and a prescribed voltage level is restored to the normal side of the transfer switch.

direct current (dc) ground fault detector: A device used to monitor dc power supplies for grounded conditions and to display an alarm when ground conditions are detected.

hazard: Any real or potential condition that can cause injury, death, or damage or loss of equipment or property.

local control panel: A panel displaying a line diagram of the trackage in and near a particular interlocking or group of interlockings, and equipped with various buttons, electric switches, indicator lights and audible alarms to allow control and monitoring of that section of trackage. Also called *interlocking control panel*.

operations control center (OCC): A location or locations designed, equipped and staffed for the purposes of monitoring and controlling rail transit agency activities from a central location or locations. Also called *Rail Control Center*, *Rail Operations Center*, *Rail Service Control Center*.

original equipment manufacturer (OEM): The enterprise that initially designs and builds a piece of equipment.

personal protective equipment: All clothing and other work accessories designed to create a barrier against workplace hazards. Examples include safety goggles, blast shields, hard hats, hearing protectors, gloves, respirators, aprons and work boots.

rail transit agency: The organization or portion of an organization that operates rail transit service and related activities. Also called *operating agency*, *operating authority*, *transit agency*, *transit authority*, *transit system*.

signal equipment room drawing: A combination of drawings that includes signal schematics, plant layout, equipment location, track plans and information for other signal equipment controlled from the signal equipment room.

signal equipment room: A train control room, relay room, bungalow or hut located in a passenger station or yard or at some other strategic point to house signal equipment. Also called *train control room, central instrument house*.

Abbreviations and acronyms

ac alternating current
dc direct current
HVAC heating, ventilating and air conditioning
LED light-emitting diode
OCC operations control center
OEM original equipment manufacturer

Document history

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