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RECOMMENDED PRACTICE

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Signals and Communications Working Group

Yard and Shop Intercom System Inspection, Testing and Maintenance

Abstract: This recommended practice provides guidelines for inspecting, testing and maintaining rail transit yard and shop intercom systems.

Keywords: communication, inspection, intercom system, maintenance, PA, public address system, test, testing, yard and shop page, yard and shop public address system

Summary: This document establishes recommended guidelines for inspecting, testing and maintaining rail transit yard and shop intercom systems.

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 Communications Working Group as directed by the APTA Rail Transit Standards Policy 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 RT-SC-RP-039-03, which has been revised. Below is a summary of changes from the previous document version:

- Document title updated to be more specific.
- 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.

Table of Contents

List of Figures and Tables

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Introduction

This introduction is not part of APTA RT-SC-RP-039-03, "Yard and Shop Intercom System Inspection, Testing and Maintenance."

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

This document establishes recommended guidelines for inspecting, testing and maintaining rail transit yard and shop intercom systems. The purpose of this recommended practice is to verify that yard and shop intercom systems and equipment are operating safely and as designed through periodic inspection, testing and maintenance, thereby increasing reliability and reducing the risk of hazards and failures.

Yard and Shop Intercom System Inspection, Testing and Maintenance

1. Inspection, testing and maintenance provisions

1.1 Inspection, testing and maintenance frequency

The inspection, testing and maintenance procedures in this recommended practice should be performed when yard and shop intercom systems are placed in service; when they are modified, repaired or disarranged; or as otherwise deemed necessary by the rail transit system.

The rail transit system should determine the need for additional inspection, testing and maintenance frequencies for yard and shop intercom systems. 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 system testing and experience
- regulatory requirements

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

1.2 Training

The rail transit system 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, testing and maintaining yard and shop intercom systems:

- rail transit system–approved cleaning materials
- additional materials as required by the OEM and/or rail transit system

1.4 Tools

The following tools are recommended for inspecting, testing and maintaining yard and shop intercom systems:

- multimeter*
- telephone test set
- tone generator*
- sound level meter*
- rail transit system–approved portable radio
- standard tools carried by maintenance personnel
- additional tools as recommended by the OEM and/or rail transit system

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

1.5 Personal protective equipment

Personal protective equipment, as required by the rail transit system, should be worn at all times during inspection, testing and maintenance.

1.6 Safety

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

1.7 Inspection, testing and maintenance procedures

Yard and shop intercom system inspection, testing and maintenance may be modified for each rail transit system's requirements but should contain the steps listed in sections 1.7.1 and 1.7.2 as a minimum.

1.7.1 Inspection and testing

1.7.1.1 General

1. Notify the Operations Control Center and/or other authorities of the inspection activities to be performed.
2. Inspect yard and shop intercom system equipment for proper condition and operation of both local and remote.
3. Check the quality of the audio messages at speaker locations, using **Table 1** delivered audio quality (DAQ) below. An acceptable rating in **Table 1** must be 3 or 4. Test the yard and shop intercom system to evaluate real-time messaging, in all zones and in specific zone messaging modes.

TABLE 1
DAQ Ratings

Rating	Criteria
1	No audio.
2	Audio present but unusable.
3	Speech understandable with repetition rarely required. Some noise/distortion may exist.
4	Speech easily understood.

4. Test handset receiver and if required adjust to dBA level specified by rail transit system and/or OEM.
5. Compare the ambient noise level with the yard and shop intercom audio level, using a sound level meter, to ensure that the ratio prescribed by the rail transit system and/or OEM is still being met. Test outside speaker, and if required adjust to dBA level at the distance specified by the rail transit system and/or OEM. Do not exceed maximum level specified by rail transit system and/or OEM. Ambient noise levels may increase due to a number of factors, including new construction or increased traffic levels in the area.
6. Notify the OCC and/or other authorities when inspection is complete.

1.7.1.2 Mechanical

1. Notify the OCC and/or other authorities of the inspection activities to be performed.
2. Ensure that connections are tight and that there are no missing or damaged support brackets, fasteners or mounting hardware.
3. Inspect yard and shop intercom system equipment for damage, loose cabling, loose brackets, unprotected electrical connections or other defects.
4. Notify the OCC and/or other authorities when inspection is completed.

1.7.1.3 Electrical

1. Notify the OCC and/or other authorities of the inspection activities to be performed.
2. Inspect cabling and wiring to ensure that it is not frayed, burned, broken, cut or otherwise defective.
3. Inspect cables to ensure that they do not exceed their normal bending radius and are positioned to prevent chafing or cutting.
4. Inspect electrical connections for signs of corrosion, broken wires, broken connections, missing hardware, loose connections, frayed or burned wires, defective insulation, and moisture.
5. Inspect ribbon or cartridge type fuses and other electrical protection equipment for burned, separated or otherwise damaged elements, and replace as required.
6. Notify the OCC and/or other authorities when inspection is completed.

1.7.2 Maintenance

1. Notify the OCC and/or other authorities of the maintenance activities to be performed.
2. Perform cleaning procedures as required by the OEM and/or rail transit system.
3. Recoat mounting hardware as required by the OEM and/or rail transit system.
4. Lubricate moving parts as required by the OEM and/or rail transit system.
5. Notify the OCC and/or other authorities when maintenance activities are completed.

1.8 Correction of deficiencies

Deficiencies identified during yard and shop intercom system inspection, testing and maintenance should be corrected and documented in accordance with OEM and/or rail transit system requirements.

1.9 Documentation

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

References

This document should be used in conjunction with OEM specifications and rail transit system procedures for yard and shop intercom system inspection, testing and maintenance.

Definitions

delivered audio quality (DAQ): The quality of an audio message as heard by the human ear when delivered to a speaker or other audio device.

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

Operations Control Center (OCC): A location or locations designed, equipped and staffed for the purposes of monitoring and controlling rail transit systems 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 system: 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*.

yard and shop intercom system: A system for communicating audio information to employees within designated yard and shop zones/groups. Also called *yard and shop page system*, *yard and shop public address system*.

Abbreviations and acronyms

DAQ delivered audio quality
dBA A-weighted decibel
OCC Operations Control Center
OEM original equipment manufacturer

Document history

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