

31. Recommended Practice for Signal Maintenance Personnel Hiring Qualifications, Training and Competencies

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Abstract: This recommended practice provides recommended hiring qualifications, training, and competencies for rail transit signal maintenance personnel.

Keywords: competency, hiring, HR, human resources, maintenance, maintenance personnel, signal, signals personnel, training, qualifications

Introduction

(This introduction is not a part of APTA RT-SC-RP-031-03, *Recommended Practice for Signal Maintenance Personnel Hiring, Qualifications, Training and Competencies*.)

APTA rail transit safety standards and recommended practices represent an industry consensus on practices for rail transit systems to help achieve a high level of safety for passengers, employees, and the general public. This document was created by and for those parties concerned with its provisions; namely, rail transit systems (operating agencies), manufacturers, consultants, engineers, and general interest groups. This recommended practice provides recommended hiring qualifications, training, and competencies for rail transit signal maintenance personnel.

APTA recommends this practice for:

- Individuals or organizations that inspect, maintain, and/or operate rail transit systems
- Individuals or organizations that contract with others for the inspection, maintenance, and/or operation of rail transit systems
- Individuals or organizations that influence how rail transit systems are inspected, maintained, and/or operated (including but not limited to consultants, designers, and contractors)

The application of any practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of how a rail transit system operates. In such cases, the government regulations override any conflicting practices this document recommends.

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Recommended Practice for Signal Maintenance Personnel Hiring Qualifications Training, and Competencies

1. Overview

1.1 Scope

This document establishes recommended hiring qualifications, training, and competencies of rail transit system (RTS) signal maintenance personnel.

1.2 Purpose

The purpose of this recommended practice is to assist rail transit systems in establishing training and qualification criteria for signal maintenance personnel.

2. Definitions and acronyms

For the purposes of this recommended practice, the following definitions and acronyms apply:

2.1 Definitions

2.1.1 rail transit system (RTS): The organization or portion of an organization that operates rail transit service and related activities. *Syn:* **operating agency, operating authority, transit agency, transit authority, transit system.**

2.2 Acronyms

RTS rail transit system

3. Hiring qualifications

3.1 Education and experience criteria for signal maintainer's helper

It is recommended that newly hired signal maintainer helpers meet at least one of the education and experience criteria listed below:

3.1.1 Three or more years of full time satisfactory experience as a helper in the electrical, electronic, or electromechanical fields in the maintenance, repair, testing, construction, or installation of electrical equipment.

- 3.1.2** Graduation from an approved trade, technical, or vocational high school with a specialization in electrical, electronic, or electromechanical technology plus one year experience as described in 3.1.1.
- 3.1.3** Graduation from a community college with an Associate Degree in electrical technology or electronics, or completion of at least 60 credits with a specialization in electrical technology or electronics.
- 3.1.4** A combination of field experience and/or education deemed suitable for employment by the RTS.

3.2 Education and experience criteria for signal maintainers

It is recommended that newly hired signal maintainers meet at least one of the education and experience criteria listed below:

- 3.2.1** Four years of full time satisfactory experience at the journeyman or technician level; installing, maintaining, or repairing electrical/electronic systems.
- 3.2.2** Completion of a four year full time apprentice program in the electrical, electronic or electromechanical trade recognized by the U.S. Department of Labor or any state apprenticeship council which is recognized by the U.S. Department of Labor.
- 3.2.3** Three years of full time satisfactory experience as described in 3.2.1 above, plus graduation from an approved trade school or vocational high school with a major course of study in electronics, electrical or electromechanical technology, or a closely related field.
- 3.2.4** Two years of full time satisfactory experience as described in Section 3.2.1, plus graduation from an accredited college with an Associate of Science (AS) degree in electronics, electrical or electromechanical technology, or a closely related field.
- 3.2.5** One or more years of full time satisfactory experience as described in 3.2.1, plus a baccalaureate degree from an accredited college in electronics, electrical or electromechanical technology, or a closely related field.
- 3.2.6** A combination of field experience and/or education deemed suitable for employment by the RTS.

3.3 Additional hiring considerations for signal maintainers and signal maintainer helpers

The RTS should consider the following when hiring signal maintainers and signal maintainer helpers:

- Valid motor vehicle driver's license
- Electrical/electronics aptitude test

- Medical exam
- Drug and alcohol screening per FTA requirements
- Fluency in English as determined by the RTS
- Background check
- Any other specific requirement deemed necessary for employment by the RTS

4. Orientation training components

The RTS should develop and execute training programs that provide employees with the knowledge and skills necessary to safely and effectively maintain, inspect, test, and troubleshoot all types of signal and associated equipment. The orientation training for a signal maintainer or helper should include the areas listed in sections 4.1-4.5.

4.1 Probation

The RTS should establish and document a defined probationary period as well as clear guidelines for monitoring the employee's performance during the probationary period. Prior to successful completion of probation, the employee must demonstrate as defined by the RTS a proficiency in the knowledge and skills on which the employee has been trained.

4.2 Safety

The RTS should provide each employee training on general safe work procedures regarding electrical safety, flagging, track safety, and any other safety critical areas as deemed necessary by the RTS. Each employee should have readily available for reference all RTS policy instructions, safety rules and procedures and memorandums regarding safety related items.

4.3 Rules and regulations

The RTS should make readily available to each employee a copy of the RTS book of rules and regulations. Employees must be familiar and conversant with the rules and regulations.

4.4 Duties and responsibilities

The RTS should train signal employees to be familiar and conversant with their general duties and responsibilities.

4.5 Additional orientation training areas for signal maintainers

Signal maintainers should be trained in, but not limited to the areas listed in Sections 4.5.1-4.5.5.

4.5.1 Signaling equipment

The RTS should train signal maintainers in the theory, circuitry, adjustments, preventive maintenance, corrective maintenance, and operating characteristics of each type of signal equipment the signal maintainer will be responsible to maintain. In addition, the RTS should have readily available maintenance manuals and procedures for each type of equipment the signal maintainer is required to maintain.

4.5.2 Technical documentation

The RTS should train signal maintainers on the procedures for the documentation of all aspects of the signal maintainer's duties. Examples of documentation include: daily log book entry, documentation of the testing, inspection, maintenance and repair of signal equipment, reports of train delays or unusual occurrences, interlocking inspections, joint switch inspections, etc.

4.5.3 Safe work procedures

The RTS should train signal maintainers on general safe work procedures as prescribed by the RTS under normal operating conditions. In addition, the RTS should train signal maintainers on safe and effective train movement in the event of a signal malfunction. The RTS should also train maintainers on procedures that must be followed during a malfunction of signal equipment. Examples of such procedures are: flagging of trains past a red signal, blocking and clamping of switches, switch operation and the RTS lock out/tag out procedure for electrical devices. The RTS should make these procedures readily available to each signal maintainer.

4.5.4 Corrective maintenance

The RTS should train signal maintainers on the corrective maintenance procedures for each type of equipment the signal maintainer is responsible to maintain as well as test and inspections that must be performed prior to placing equipment back in service.

4.5.5 Inspection and testing

The RTS should train signal maintainers on the proper inspection and testing procedures for each type of equipment the signal maintainer is responsible to maintain. In addition signal maintainers should be trained on related documentation procedures.

5. Qualification

The RTS should develop a qualification program to ensure signal maintainers are competent to perform the tasks on the equipment assigned. This program should contain the elements in Sections 5.1-5.4.

5.1 Demonstration of competency

The RTS should establish procedures to determine signal maintainers are qualified by written, practical, or any combination of testing deemed necessary by the RTS. Signal maintainers should be qualified in areas of theory, circuitry, adjustments, preventive maintenance, corrective

maintenance and operating characteristics of each type of signal equipment the signal maintainer will be responsible to maintain. A signal maintainer should only work independently on systems for which they have been trained and are qualified.

5.2 Documentation

The RTS should document the various types of training the employee receives as well as the employee performance at training courses and test results.

5.3 Refresher training

The RTS should provide refresher and supplemental training.

5.4 New technology training

The RTS should train signal personnel on new technologies/equipment that are introduced to the RTS.

Annex A

(informative)

Bibliography

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