

Instructor Guide



202: Switches/Derails Inspection & Maintenance Module 2: Switch and Derail Specific Print Reading



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I &M of Switches/Derails – – Print Reading

Instructor's Guide



Icons Used In This Guide

- 

REVIEW slides
- 

INDIVIDUAL ACTIVITY
- 

ASK
- 

WRITE
- 

CLASSROOM ACTIVITY
- 

Multimedia
- 

SMALL GROUP ACTIVITY
- 

REFER participants to

Agenda

Topic #	Topic Title	Duration
1	Overview	15 minutes
2	Switch/Derail Specific Nomenclature	20 minutes
3	Switch/Derail Specific Symbols	35 minutes
4	Switch/Derail Specific Relays	10 Minutes
5	Switch Sequence of Operation	45 Minutes
6	Field Trip	45 Minutes
7	Summary	15 Minutes
Total Time:		185 Minutes

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Overview

Purpose The purpose of this module is to:

is to provide an overview of the specific nomenclature and relays used in railroad switch and derail systems and how they form the operation of railroad switches and derails.

Objectives

At the end of this lesson, the signal maintainer trainee will be able to:

- List switch and derail specific nomenclature
- List switch and derail specific relays and describe their functions
- Using a print, describe the sequence of operation for an M3 single ended switch
- Demonstrate ability to outline the sequence of operation of a single-ended switch

Materials

Mandatory Make sure you have the following

- PowerPoint Presentation
- Coursebook
- Quizzes
- Pencils
- Schematics from your location
- Colored pencils

Optional

You may also want the following for optional activities:

- Chalk board with chalk, large paper with marker, etc.
- Internet connection

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Module Length: 185 min Time remaining: 185min This section: 15 min (6 slides) Section start time: _____ Section End Time: _____

DO



REVIEW introduction slides



ASK participants

Instructor's Notes

SAY

In your own words:

Welcome to the course on Switch and Derail Specific Print reading.

Advance

Riders depend on us.

Ask participants:

Take a look at the screen. Who can tell me what these are? How are they different from each other?

Randomly call on participants to share possible answers. Do not provide answers as they will be provided later in the course.

Advance Slide

Materials Needed

✓ PPT slides 1, 2



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Module Length: 185 min Time remaining: 170 min This section: 20 min (3 slides) Section start time: _____ Section End Time: _____

DO



REVIEW slide



ASK participants



CLASSROOM ACTIVITY

Instructor's Notes

SAY

In your own words:

As explained in course 100, railroad nomenclature can vary greatly from generic electrical nomenclature. Additionally, there are subsets of railroad nomenclature that are specific to switches and derails. Next, we will review switch/derail specific nomenclature. While trying to remember these acronyms the letter assignments on the screen will be useful to remember.

Review list. Advance Slide.

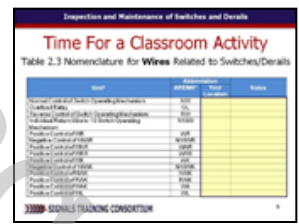
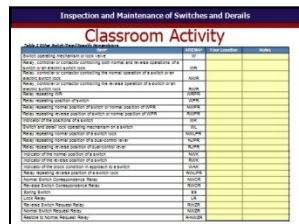
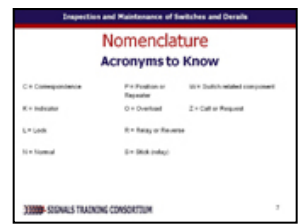
These letters are paired together to form a list of switch/derail specific acronyms assigned by AREMA. These are shown on the screen and in table 3 in your coursebook.

Review list of switch/derail specific nomenclature and lead a discussion. Have participants fill in table 3 with these differences. Advance Slide.

There are also acronyms specific to wires for switches/derails, see table 4 in the coursebook. **Lead the same sort of activity. Advance Slide**

Materials Needed

✓ PPT slides 7, 8, 9



✓ Coursebook

I &M of Switches/Derails – Print Reading

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Module Length: 185 min Time remaining: 150 min This section: 35 min (5 slides) Section start time: _____ Section End Time: _____

DO



REVIEW slide



ASK participants



CLASSROOM ACTIVITY

Instructor's Notes

SAY

In your own words:

By now, you should all be familiar with the standard symbols used on Railroad. Let's take a minute to see what you remember. Pair up with a partner and sketch out TWO different ways to represent each of the following. Extra points for those that can also draw the motor symbol used for H&K switches. You'll have 10 minutes for this task, then we'll go over these as a group.

After 10 minutes, reconvene. Have volunteers come up and draw the symbols. Discuss. Advance Slide

Well done team! This summary chart is also in your coursebook, see Table 5.

If there are any differences at your property, review these and have participants record them in table 5 in the coursebook. Advance Slide

Materials Needed

✓ PPT slide 10, 11



Symbol	Example 1	Example 2	Notes
Front Contact (not making with a heel), Energized Coil, Relay is up			
Front Contact (not making with a heel), De-Energized Coil, Relay is down			
Back Contact (making with a heel), De-Energized Coil, Relay is down			
Back Contact (not making with a heel), Energized Coil, Relay is up			
Motor			

- ✓ Coursebook
- ✓ Flipchart or white board and markers