Instructor Guide











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

SIGNALS TRAINING CONSORTIUM

I &M of Switches/Derails — Print Reading Instructor's Guide



Table of Contents

Overview	4
Switch and Derail Specific Nomenclature	
Switch and Derail Specific Symbols	
Switch and Derail Specific Relays	12
Switch Sequence of Operation	
Summary	



I &M of Switches/Derails - - Print Reading

Instructor's Guide



Icons Used In This Guide



REVIEW slides



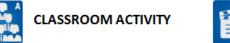
INDIVIDUAL ACTIVITY



ASK



NRITE





Multimedia





REFER participants to

Agenda

Agenu	a	
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
V 6	Total Time:	185 Minutes

I &M of Switches/Derails — Print Reading Instructor's Guide



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

I &M of Switches/Derails – Print Reading Instructor's Guide



Module Length: 185 min

Time remaining:

185min

This section: 15 min (6 slides)

Section start time:

Section End Time: _

DO

SAY

Materials Needed



REVIEW introduction slides



ASK participants

Instructor's Notes

In your own words:

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

Advance

Riders depend on us.

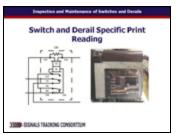
Ask participants:

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

✓ PPT slides 1, 2





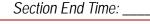
I &M of Switches/Derails - Print Reading

Instructor's Guide

Module Length: 185 min

Time remaining: 170 min

This section: 20 min (3 slides) Section start time:



SAY

Materials Needed



REVIEW slide



ASK participants



CLASSROOM ACTIVITY

Instructor's Notes

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 table3 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

✓ PPT slides 7, 8, 9



Inspection and Maintenance of Switches and Derails			
Classroom Activity			
Substitute mentalism to local sales	AREMAN NO	or Lossition	Robs
Rear continue or contactor continuing both normal and revege operations of a		_	
	100		
Reau, controller or contactor controlling the normal operation of a switch or an electric system lock	NUS		
Reay, continue or contactor contacting the exister operation of a soution or an	mom		
Reay exeeing VIII	West		
Mean makeling position of switch	VOR N		
Rea, epecing name position of switch or name position of APR	NIPR		
Refer exceeding excess position of switch or name) position of APR	RUPE		
VIDUALD OF THE SOUTHONE OF EARLY	TEX.		
Switch and dared lock operating mechanism on a switch	70,		
Rea; ejecting name position of a surtain tack	NULLPR	_	
Residence from a control of a sup-control level	N/PR		
New eyesting evene position of qual-control level	K/FK	_	
indicator of the name location of a switch	NIK		
Indicator of the ex-sist coartion of a switch	MAK.		
INDICATOR OF THE STOCK CONSTITUTION OF ADDRESS TO A SWITCH	WAK		
Agray repeating reverse position of a switch lock	RIGHT		
Nomal Switch Corespondence Relay	MINOR		
Revene Switch Corespondence Relay	MUSK		
Ranny Berton	99		
Lock Rainy	LR		
Revenue Davich Rennent Reier	RAZR		
Nomel Switch Resigns Relay	NAZR		
Restor to Nome Request Relay	R4002R		

Time For a Classroom Activity able 2.3 Nomenclature for Wires Related to Switches/Der			
to a	AND NO.	Tour	Name
Same Control Sellar Speeding Recharders	100	-	
Continue Fields	- 2		
Favorer orbital (South Speeding Section) Individual Return Starts 11 Section Speeding Sections	3190		
Froit or Control of FIRE	100		
Negative Coveral of 1999A	WINNE		
Freihor Contrated 1864	YMAR		
Freiha Continue FIET	1998		
Figure Contract VIII.	- 100		
Pout o Torne o PANA	200		
Profit of Control PANS	PAR.		
Produce Continued Visit	758		
Freiker Continue File.			

Coursebook

I &M of Switches/Derails - Print Reading Instructor's Guide

Module Length: 185 min

Time remaining:

150 min

In your own words:

Advance Slide

This section: 35 min (5 slides) Section start time:

Section End Time:

SAY

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

task, then we'll go over these as a group.

come up and draw the symbols. Discuss.

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

After 10 minutes, reconvene. Have volunteers

Materials Needed



REVIEW slide



ASK participants



CLASSROOM ACTIVITY

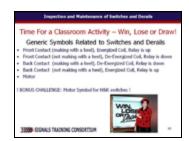
Instructor's Notes

	-	М	0	
1	4	9	ľ	
		Ħ	ľ	
			_	

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

✓ PPT slide 10, 11



eric Symbols Re	elated	to Switc	hes/
Rem	Example 1	Example 2	Notes
Front Contact (making with a heet) Energised Coll Relay is up	•		
Front Contact (not making with a hast) Co-Energland Coll. Ralay is down	∇		
Back Contact (making with a heal) De-Energlood Coll Ralay is down	_	_5_	
Back Contact (not making with a heat) Energized Coll Relay is up	$\overline{\triangle}$,	
Motor	6	t(M)	

- ✓ Coursebook
- ✓ Flipchart or white board and markers