

# Instructor Guide



## 202: Switches/Derails Inspection & Maintenance Module 7: Electro-Hydraulic Switch and Derail Inspection & Maintenance

 SIGNALS TRAINING CONSORTIUM

# I &M of Electro-Hydraulic Switches/Derails

*Instructor's Guide*



## Table of Contents

Overview.....	4
Sensory Inspection.....	8
Lubrication.....	10
Testing.....	11
Summary.....	19

# I &M of Electro-Hydraulic Switches/Derails

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	Sensory Inspection	30 minutes
3	Lubrication	5 minutes
4	Testing	25 Minutes
5	Field Trip	60 Minutes
6	Summary	20 Minutes
	<b>Total Time:</b>	155 Minutes

# I &M of Electro-Hydraulic Switches/Derails

## Instructor's Guide



### Overview

**Purpose** The purpose of this module is to:  
provide an overview of the inspection and preventive maintenance to be performed on electro-hydraulic switches.

### **Objectives**

At the end of this lesson, the transit elevator/escalator trainee will be able to:

- Inspect and maintain hydraulic switches

### **Materials**

**Mandatory** Make sure you have the following

- PowerPoint Presentation
- Coursebook
- Quizzes
- Pencils
- Internet connection or downloaded videos

### **Optional**

You may also want the following for optional activities:

- Chalk board with chalk, large paper with marker, etc.
- Internet connection
- Lab, simulator or out of service elevator
- Lubrication information for hydraulic switches/derails at your property

# I &M of Electro-Hydraulic Switches/Derails

## Instructor's Guide



Module Length: 155 min    Time remaining: 155 min    This section: 15 min (7 slides)    Section start time: \_\_\_\_\_    Section End Time: \_\_\_\_\_

### DO



**ASK** participants what they already know



**SMALL GROUP ACTIVITY**



**WRITE**

### Instructor's Notes

---

---

---

---

---

---

### SAY

#### In your own words:

Thinking back to previous knowledge or course work, what do you already know about inspection and maintenance for hydraulic switches and derails?

*Allow participants to think for a minute and write down any ideas. Allow participants to share ideas with another participant.*

*Discuss participant responses and if possible list them on a chalk board or similar.*

*Advance Slide*

### Materials Needed

✓PPT slide 5



✓White board or flipchart and markers

# I &M of Electro-Hydraulic Switches/Derails

## Instructor's Guide



Module Length: 155 min    Time remaining: 140 min    This section: 30 min (3 slides)    Section start time: \_\_\_\_\_    Section End Time: \_\_\_\_\_

### DO

### SAY

### Materials Needed



**REVIEW** slide



**SMALL GROUP ACTIVITY**



**WRITE**

### Instructor's Notes

---

---

---

---

---

---

#### In your own words:

All of these items are covered in more detail in your coursebooks. Instead of me telling you all about them - Using your course book and working in pairs or small groups, develop a chart listing maintenance steps for each of the following items. Be prepared to share with the class. You will have 10 minutes.

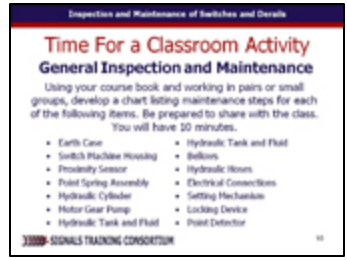
**Advance Slide**

**After 10 minutes, call on participants to explain inspection/maintenance for each item. Record these answers on a flip chart/white board.**

**When needed, refer to the coursebook for more detail.**

**Advance Slide**

✓ PPT slide 10



- ✓ Coursebook
- ✓ Flipcharts/Markers

# I &M of Electro-Hydraulic Switches/Derails

## Instructor's Guide



Module Length: 155 min    Time remaining: 105 min    This section: 25 min (8 slides)    Section start time: \_\_\_\_\_    Section End Time: \_\_\_\_\_

### DO



**REVIEW** slide



**ASK** participants what they already know



**Multimedia**

### Instructor's Notes

---

---

---

---

---

---

### SAY

**In your own words:**

Now let's look at a video of a motor overload test being done on an electro-pneumatic machine. Pay attention because at the end I'll ask you what is different between this test on an electro-pneumatic and on an electric switch/derail (as covered in module 5).

***Play video and then call on volunteers to answer. Advance Slide***

This was a trick question - The motor overload test is done the same on a hydro-electric switch/derail as it is on an electric switch/derail. Simply put an obstruction in the open point, throw the switch into reverse and ensure that the motor turns off within the appropriate time frame.

***Advance Slide***

### Materials Needed

✓ PPT slide 18



- ✓ Internet connection or downloaded video
- ✓ Coursebook

# I &M of Electro-Hydraulic Switches/Derails

## Instructor's Guide



Module Length: 155 min    Time remaining: 105 min    This section: 25 min (8 slides)    Section start time: \_\_\_\_\_    Section End Time: \_\_\_\_\_

### DO



**ASK** participants what they remember



**CLASSROOM ACTIVITY**

### Instructor's Notes

---

---

---

---

---

### SAY

**In your own words:**  
*Read each question and discuss participant responses and if possible list them on a chalk board or similar.*

1. What are some differences in maintaining electro-hydraulic switches?
2. What hardware should be inspected on a electro-hydraulic switch? How should these items be maintained?
3. What must be lubricated on an electro-hydraulic switch?
4. What tests should be completed for electro-hydraulic switches? How should they be completed?

**Advance Slide**

### Materials Needed

✓ PPT slide 19

