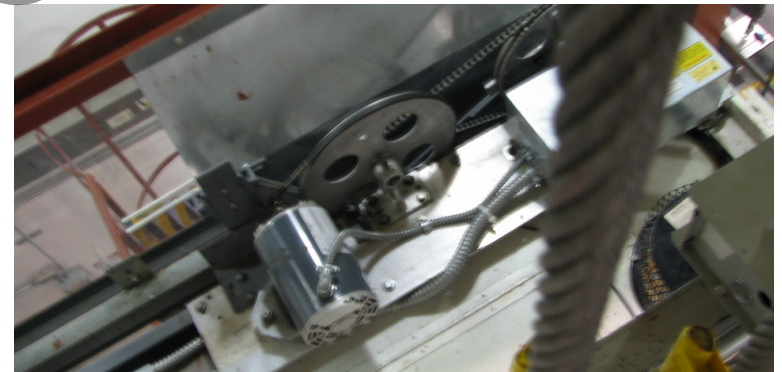
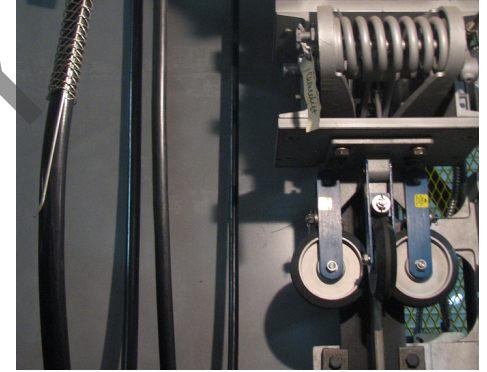
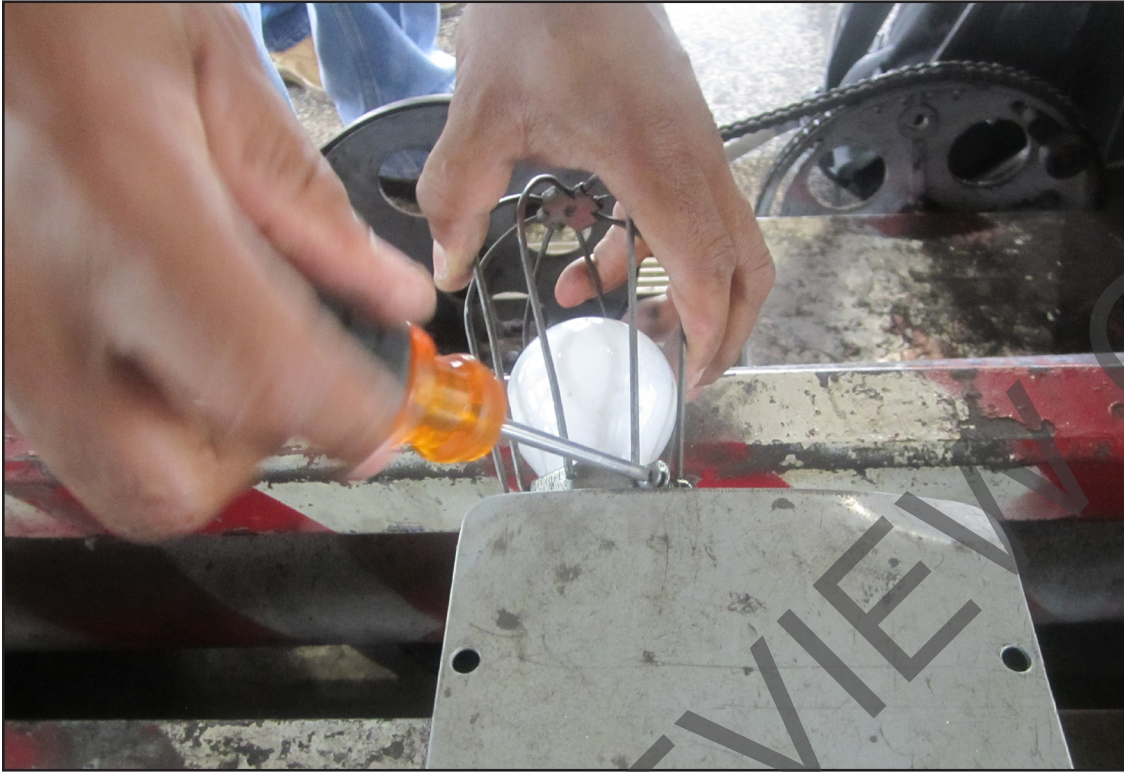


# Instructor Guide



## 219: Elevator: Inspection and Basic Maintenance Module 7A: Hydraulic Hoistway



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Operational Inspection and Maintenance.....18

Lighting.....77

Summary.....79

# Elevator – Hydraulic Hoistway

*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	30 Minutes
2	Sensory Inspection	30 Minutes
3	Field Trip	60 Minutes
4	Inspection and Maintenance	120 Minutes
5	Field Trip	120 Minutes
6	Lighting	20 Minutes
7	Field Trip	60 Minutes
8	Summary	40 Minutes
	<b>Total Time:</b>	480 Minutes

# Elevator – Hydraulic Hoistway

## *Instructor's Guide*



### Overview

**Purpose** The purpose of this module is to:

Provide the participant with an overview of how to inspect and maintain components in the hoistway of a hydraulic elevator system within a public transit environment.

**Objectives**

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

- Identify hoistway areas and associated components, which require inspection
- Identify hoistway areas and associated components, which require cleaning
- Identify hoistway areas and associated components, which require lubrication
- Perform a sensory inspection of the hoistway
- Perform an inspection of components in a hydraulic elevator hoistway
- Perform an operational test on all safety devices in the hoistway
- Perform an operational test on all auxiliary lights
- List all hoistway auxiliary lighting which require inspection

### **Materials**

- Mandatory** Make sure you have the following
- PowerPoint Presentation
  - Coursebook
  - Quizzes
  - Pencils
  - Paper

- 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
  - Elevator Maintenance
  - ASME A17.1
  - ASME A17.2
  - ASME A17.3

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 480 min      This section: 30 min (8 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="154 499 618 542" data-label="Text"> <p><b>REVIEW</b> introduction slides</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 608 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 478 1400 571" data-label="Text"> <p>Welcome to the course on the maintenance and inspection of hydraulic hoistways.</p> </div> <div data-bbox="676 571 840 614" data-label="Section-Header"> <h4>Advance</h4> </div> <div data-bbox="676 656 1362 749" data-label="Text"> <p>Hoistways encompass a number of areas and components.</p> </div> <div data-bbox="676 749 840 792" data-label="Section-Header"> <h4>Advance</h4> </div>	<div data-bbox="1497 464 1787 506" data-label="Text"> <p>✓PPT slides 1, 2</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div> <div data-bbox="1535 778 1854 1006" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 480 min      This section: 30 min (8 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="154 499 618 549" data-label="Text"> <p><b>REVIEW</b> module objectives</p> </div> <div data-bbox="28 792 444 842" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 608 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h3>In your own words:</h3> </div> <div data-bbox="676 485 898 528" data-label="Text"> <p>Today we will</p> </div> <div data-bbox="676 535 1381 878" data-label="List-Group"> <ul style="list-style-type: none"> <li>• Identify hoistway areas and associated components, which require inspection</li> <li>• Identify hoistway areas and associated components, which require cleaning</li> <li>• Identify hoistway areas and associated components, which require lubrication</li> <li>• List all hoistway auxiliary lighting which require inspection</li> </ul> </div> <div data-bbox="676 885 840 928" data-label="Section-Header"> <h3>Advance</h3> </div> <div data-bbox="676 935 1362 1285" data-label="List-Group"> <ul style="list-style-type: none"> <li>• Perform a sensory inspection of the hoistway</li> <li>• Perform an inspection of components in a hydraulic elevator hoistway</li> <li>• Perform an operational test on all safety devices in the hoistway</li> <li>• Perform an operational test on all auxiliary lights</li> </ul> </div> <div data-bbox="676 1292 840 1328" data-label="Section-Header"> <h3>Advance</h3> </div>	<div data-bbox="1497 471 1787 514" data-label="Text"> <p>✓PPT slides 3, 4</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div> <div data-bbox="1535 778 1854 1013" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 480 min      This section: 30 min (8 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_


DO	SAY	Materials Needed
<div> <b>REVIEW</b> key terms</div> <div><h3>Instructor's Notes</h3><div><hr/><hr/><hr/><hr/><hr/><hr/></div></div>	<div><h3>In your own words:</h3><p>Lets take a look at some of the key words we will be defining as move through this module:</p><div><div><ul style="list-style-type: none"><li>• Cable Support Grips</li><li>• Car Fan</li><li>• Cylinder</li><li>• Door Hangers</li><li>• Door Track(S)</li><li>• Dust Covers</li><li>• Fascia Plate</li><li>• Final Limit Switches</li><li>• Float Rod</li><li>• Guide Rails Brackets</li></ul></div><div><ul style="list-style-type: none"><li>• Guide Shoes</li><li>• Guide Shoes</li><li>• Heat And Smoke Detectors</li><li>• Hoistway</li><li>• Hoistway Vent</li><li>• Jack</li><li>• Normal Limit Switches</li><li>• Oil Buffers</li><li>• Pistons</li></ul></div></div><div><div><b>Advance</b></div><div><b>Advance</b></div></div></div>	<div>✓PPT slide 5</div> <div></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 480 min      This section: 30 min (8 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div> <b>REVIEW</b> key terms</div> <div><h3>Instructor's Notes</h3><div><hr/><hr/><hr/><hr/><hr/><hr/></div></div>	<div><p><b>In your own words:</b></p><p>Lets take a look at some of the key words we will be defining as move through this module:</p><div><div><ul style="list-style-type: none"><li>• Pit</li><li>• Pit Ladder</li><li>• Pit Valve</li><li>• Refuge Space</li><li>• Roller Guides</li><li>• Roller Guides</li><li>• Rupture Value</li><li>• Scavenger Pump</li><li>• Seals</li><li>• Selector Tape</li></ul></div><div><ul style="list-style-type: none"><li>• Sensory Inspection</li><li>• Spring Buffers</li><li>• Stop Switch</li><li>• Traveling Cable</li></ul></div></div><p><b>Advance</b></p></div>	<div><p>✓PPT slide 6</p><div><div>Elevator Inspection and Maintenance: Hydraulic Hoistway</div><div><h3>Key Terms</h3><div><ul style="list-style-type: none"><li>• Pit</li><li>• Pit Ladder</li><li>• Pit Valve</li><li>• Refuge Space</li><li>• Roller Guides</li><li>• Roller Guides</li><li>• Rupture Value</li><li>• Scavenger Pump</li><li>• Seals</li><li>• Selector Tape</li></ul></div><div><ul style="list-style-type: none"><li>• Sensory Inspection</li><li>• Spring Buffers</li><li>• Stop Switch</li><li>• Traveling Cable</li></ul></div></div><div><div>Transit Elevator/ Escalator Consortium</div><div>6</div></div></div></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 480 min      This section: 30 min (8 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 432 141 532"></div> <p><b>ASK</b> participants what they remember about safety and elevators</p> <div data-bbox="34 556 141 656"></div> <p><b>SMALL GROUP ACTIVITY</b></p> <div data-bbox="34 681 141 781"></div> <p><b>WRITE</b></p> <p><b>Instructor's Notes</b></p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<p><b>In your own words:</b></p> <p>Thinking back to other courses or just in general, what do we already know about hydraulic hoistways?</p> <p>Possible inspection and maintenance requirements for hydraulic hoistways?</p> <p><i>Allow participants to think for a minute and perhaps discuss with a partner ideas as well as write down any ideas. Discuss participant responses and if possible list them on a chalk board or similar.</i></p> <p><b>Advance</b></p>	<p>✓PPT slide 7</p> <div data-bbox="1541 529 1854 762"> </div> <p>✓ <u>Chalk board or large paper</u></p> <p>✓ <u>Blank Paper</u></p> <p>✓ <u>Writing instruments</u></p>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 480 min      This section: 30 min (8 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1235" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1449 1106" data-label="Text"> <p>The elevator apprentice can expect to spend a considerable amount of time on the job in the elevator <b>hoistway</b>. A hoistway is a shaft or space typically enclosed by fireproof walls to permit passage of an elevator, dumbwaiter, or material lift between the floors of a building. The hoistway extends from the bottom pit to the top of the shaft, which is generally the underside of the overhead machine room floor or the underside of the roof. Hoistway doors on each floor provide access to the elevator. Many hoistways are constructed with strategic access points along the shaft in the event of a mechanical failure.</p> </div> <div data-bbox="676 1113 1449 1235" data-label="Text"> <p><b>Advance</b> There are three major areas of the hoistway: overhead, hoistway length, and pit <b>as</b> shown here.</p> </div> <div data-bbox="676 1242 975 1285" data-label="Text"> <p><b>Do Not Advance</b></p> </div>	<div data-bbox="1497 471 1729 506" data-label="Text"> <p>✓PPT slide 8</p> </div> <div data-bbox="1516 535 1835 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 450 min      This section: 30 min (6 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1439 749" data-label="Text"> <p>Inspection and maintenance of the machine room is covered separately in Module 8A of this course. Within each area are many components that require the technician to inspect, clean, lubricate, test, and perform the appropriate corrective maintenance.</p> </div> <div data-bbox="676 749 840 792" data-label="Section-Header"> <h4>Advance</h4> </div> <div data-bbox="676 842 1429 928" data-label="Text"> <p>Lets begin by discussing sensory inspections of a hydraulic hoistway.</p> </div> <div data-bbox="676 928 840 971" data-label="Section-Header"> <h4>Advance</h4> </div>	<div data-bbox="1497 471 1787 514" data-label="Text"> <p>✓PPT slides 8, 9</p> </div> <div data-bbox="1535 535 1854 763" data-label="Image"> </div> <div data-bbox="1535 778 1854 1006" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 450 min      This section: 30 min (6 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <div data-bbox="177 504 417 539">REVIEW slide</div> <div data-bbox="34 588 144 688"></div> <div data-bbox="177 615 258 651">ASK</div> <div data-bbox="30 792 444 835"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p>During a <b>sensory inspection</b> a good elevator technician relies on the <b>physical senses</b> of sight, smell, hearing, and touch while inspecting and maintaining the elevator.</p> <p><b>Ask</b></p> <p>What may indicate a problem within the hydraulic hoistway as indicated by sight?</p> <p><b>Discuss possible answers</b></p> <p><b>Advance for sample answers</b></p> <p>Loose hardware, worn rollers, frayed cables, slack in cables, rust on the cable (rouging), dim lights, wear on selector tape, elongated holes in selector tape, excessive oil in the pit and/or dripping down the cylinders, water in the pit, debris in the pit and twists in the cables</p> <p><b>Advance</b></p>	<p>✓PPT slide 10</p> <div data-bbox="1541 529 1854 762"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 450 min      This section: 30 min (6 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <div data-bbox="177 502 436 539">REVIEW slides</div> <div data-bbox="34 588 144 688"></div> <div data-bbox="177 614 260 651">ASK</div> <div data-bbox="28 792 444 835"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p>What may indicate a problem within the hydraulic hoistway as indicated by smell?</p> <p><b>Discuss possible answers</b></p> <p><b>Advance for sample answers</b></p> <p>Smell of burnt electrical wires, strong smell of oil, human bodily fluid, sewer gas</p> <p><b>Advance</b></p> <p><b>Ask</b></p> <p>What may indicate a problem within the hydraulic hoistway as indicated by hearing?</p> <p><b>Discuss answers</b></p> <p><b>Advance for sample answers</b></p> <p>Rattling or clicking of loose components such as rollers, hardware. Clicking near hoistway door.</p> <p><b>Advance</b></p>	<p>✓PPT slides 10, 11</p> <div data-bbox="1541 528 1854 759"> </div> <div data-bbox="1541 778 1854 1009"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 450 min      This section: 30 min (6 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <div data-bbox="177 504 417 539">REVIEW slide</div> <div data-bbox="34 588 144 688"></div> <div data-bbox="177 614 260 649">ASK</div> <div data-bbox="28 792 444 835"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b> What may indicate a problem within the hydraulic hoistway as indicated by touch?</p> <p><b>Discuss possible answers</b></p> <p><b>Advance for sample answers</b> Excessive heat. Rough spots on release rollers. Rough spots/scratches on the piston. Loose hardware</p> <p>With more experience, you will become more familiar with the normal sights, smells, sounds and feel of the system. During a sensory inspection, check for deviations from this norm.</p> <p><b>Advance</b></p>	<p>✓PPT slide 11</p> <div data-bbox="1541 531 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 450 min      This section: 30 min (6 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1433 773"> <p><b>In your own words:</b>            Lets see what we have learned so far:            Excessive oil or water in the pit would be detected by a _____ sensory inspection.</p> <ul style="list-style-type: none"> <li>a. sight</li> <li>b. smell</li> <li>c. hear</li> <li>d. touch</li> </ul> </div> <div data-bbox="676 825 1391 1045"> <p><i>Call on participants for answer</i>  <i>Advance once given the correct answer</i>  <b>Answer: a</b></p> <p><b>Advance.</b></p> </div>	<div data-bbox="1497 471 1748 511">✓PPT slide 12</div> <div data-bbox="1541 528 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 450 min      This section: 30 min (6 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_



DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1445 778"> <p><b>In your own words:</b>            Burnt wires, sewer gas, strong oil odors would be detected by a _____ sensory inspection.</p> <ul style="list-style-type: none"> <li>a. sight</li> <li>b. smell</li> <li>c. hear</li> <li>d. touch</li> </ul> </div> <div data-bbox="676 825 1387 953"> <p><i>Call on participants for answer</i>  <i>Advance once given the correct answer</i>  <b>Answer: b.</b></p> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1742 511">✓PPT slide 13</div> <div data-bbox="1541 528 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 450 min      This section: 30 min (6 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div> <b>ASK</b></div> <div><b>Instructor's Notes</b> <hr/><hr/><hr/><hr/><hr/><hr/></div>	<p><b>In your own words:</b> Describe a possible hoistway problem which would be indicated by touch.</p> <p><b><i>Call on participants for answer</i></b> <b><i>Advance once given the correct answer</i></b></p> <p><b>Answer:</b> <b>Possible Answers:</b> Excessive heat. Rough spots on release rollers. Rough spots/scratches on the piston. Loose hardware.</p> <p><b>Advance</b></p>	<p>✓PPT slide 14</p> <div></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 420 min      This section: 60 min      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="54 464 158 564"></div> <div data-bbox="179 489 260 525">ASK</div> <div data-bbox="54 588 158 696"></div> <div data-bbox="179 618 421 696">CLASSROOM ACTIVITY</div> <div data-bbox="30 792 444 839">Instructor's Notes</div> <div data-bbox="30 896 610 1239"> <hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:</p> <p><i>Take time to visit the field to provide an example demonstration and opportunities for participants to perform the following tests:</i></p> <ul style="list-style-type: none"> <li>• Perform a sensory inspection of the hoistway</li> </ul> <p><b>Advance</b></p>	<p>✓PPT slide 15</p> <div data-bbox="1541 535 1854 768"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <div data-bbox="177 504 436 539">REVIEW slides</div> <div data-bbox="34 588 144 688"></div> <div data-bbox="177 615 260 651">ASK</div> <div data-bbox="28 792 444 835"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p>Within the hydraulic elevator system there are four main areas: machine room, overhead, length of hoistway, and pit.</p> <p><b>Advance</b></p> <p><b>Ask</b></p> <p>What types of specific equipment found in a hoistway may need inspection and maintenance?</p> <p><b>Allow participants to discuss possible answers.</b></p> <p><b>Review the list of sample hydraulic hoistway equipment.</b></p> <p><b>Advance</b></p> <p>In a hydraulic hoistway you will typically find the following equipment and components: ventilation, sliding hoistway doors, pit access ladder, pit stop switch, pit drain or sump pump, pit and/or hoistway lighting, buffers,</p> <p><b>Advance</b></p>	<p>✓ PPT slides 16, 17</p> <div data-bbox="1541 516 1854 749"> </div> <div data-bbox="1541 778 1854 1011"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <div data-bbox="177 502 417 539">REVIEW slide</div> <div data-bbox="34 588 144 688"></div> <div data-bbox="177 614 260 651">ASK</div> <div data-bbox="28 792 444 835"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p>As well as guide rails, sensors mounted in the shaft to relay information to the controller concerning the position of the car within the hoistway, and a fire detection system which may include sprinkler heads and smoke and heat detectors.</p> <p>All transit authorities have strict guidelines for working in an elevator hoistway.</p> <p><b>Advance</b></p> <p>These guidelines are detailed within ASME A17.1, <i>Safety Code for Elevators and Escalators</i>, and all applicable local jurisdiction codes that govern the operation of passenger elevators.</p> <p><b>Advance</b></p>	<p>✓PPT slide 17</p> <div data-bbox="1541 531 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_



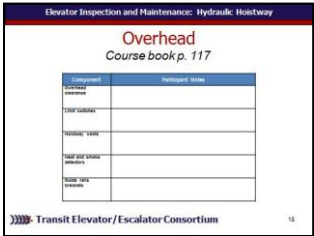
DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1323 614" data-label="Text"> <p>Lets start by looking at inspection and maintenance of the overhead area of a hydraulic hoistway.</p> </div> <div data-bbox="676 621 1439 706" data-label="Text"> <p><b><i>Review locations of overhead components as indicated on diagram:</i></b></p> </div> <div data-bbox="676 714 946 921" data-label="List-Group"> <ul style="list-style-type: none"> <li>Refuge space</li> <li>Sprinkler head</li> <li>Smoke detector</li> <li>Heat detector</li> <li>Limit switches</li> </ul> </div> <div data-bbox="676 928 840 971" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 18</p> </div> <div data-bbox="1535 542 1854 778" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div>  <b>REVIEW</b> slide </div> <div>  <b>REFER</b> participants to <u>Course book</u> </div> <div> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b>  <i>Refer participants to</i></p> <p><b><u>Participant Course book</u></b>  p. 117</p> <p><i>for chart to write additional notes.</i></p> <p><b>Advance</b></p>	<p>✓ PPT slide 19</p> <div>  </div> <p>✓ <u>Course book</u>  p. 116</p>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 542"></div> <div data-bbox="177 482 415 521">REVIEW slide</div> <div data-bbox="34 571 144 674"></div> <div data-bbox="177 592 260 631">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p>Many hydraulic elevators have very limited overhead clearance.</p> <p><b>Ask</b></p> <p>What is refuge space?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance</b></p> <p>The <b>refuge space</b> when the car is at its maximum upward position with the plunger against the stop ring and the vertical clearance is also very limited. Remember that overhead clearance in the hoistway of a hydraulic elevator varies. The space may be very spacious but depending on conditions the available space can be very limited. Before getting on top of and operating the car verify the space available and take the steps necessary to insure your safety.</p> <p><b>Advance</b></p>	<p>✓PPT slide 20</p> <div data-bbox="1541 549 1854 778"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 545"></div> <p><b>REVIEW</b> slide</p> <div data-bbox="34 556 144 662"></div> <p><b>REFER</b> participants to  <u>ASME A17.1</u>  <u>ASME A17.2</u>  <u>ASME A17.3</u></p> <p><b>Instructor's Notes</b></p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<p><b>In your own words:</b>  Always be aware of the top car emergency stop switch and be careful to avoid placing yourself in a hazardous position.  <b>Advance</b> Make sure that this area is free of any debris or hazards.  <b>Advance</b> Make sure that necessary warning signs are in place.  <b>Advance</b></p> <p><i>Refer participants to</i></p> <p><b>A17.1 Sections 1 and 2.4.7.1, A17.2 Section 3.4.1 and A17.3 Sections 1 and 2.4, for a detailed review of code requirements for overhead clearance</b></p> <p><b>Advance</b></p>	<p>✓ PPT slide 20</p> <div data-bbox="1541 546 1854 779"></div> <p>✓ <u>ASME A17.1</u>  ✓ <u>ASME A17.2</u>  ✓ <u>ASME A17.3</u></p>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 542"></div> <div data-bbox="177 482 415 521">REVIEW slide</div> <div data-bbox="34 571 144 674"></div> <div data-bbox="177 592 260 631">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b> What is a limit switch?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance and share photo.</b></p> <p><b>Advance</b></p> <p>There are three types of limit switches in the hoistway of transit elevators. One set is located in the overhead and the other set is located in the pit.</p> <p><b>Advance</b> If limit switches appear sticky, clean the arm or activator.</p> <p><b>Advance</b> Check that the switches and cams are aligned correctly and are securely fastened and adjust accordingly.</p> <p><b>Advance</b> The switch roller should strike the bevel of the cam and should be adjusted accordingly.</p> <p><b>Advance</b></p>	<p>✓PPT slide 21, 22</p> <div data-bbox="1541 528 1854 763"> </div> <div data-bbox="1541 778 1854 1006"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"></div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1425 792" data-label="Text"> <p>Replace worn rollers and lubricate pivot pins.  <b>Advance</b> Examine the switch contacts and assembly for proper movement (contacts should wipe) and reaction and, where required, repair or replace.  <b>Note:</b> you may need a ladder to reach some of the switches in order to test them.</p> </div> <div data-bbox="676 799 840 835" data-label="Section-Header"> <p><b>Advance</b></p> </div> <div data-bbox="676 885 1425 1278" data-label="Text"> <p>For <b>Normal Limit Switches</b>, operate the car on inspection mode to a point where the bottom normal limit device can be reached.  <b>Advance</b> Activate the normal limit device.  <b>Advance</b> The car should run up, but not down.  <b>Advance</b> If not functioning as designed, correct the defect as required.  <b>Advance</b></p> </div>	<div data-bbox="1497 471 1806 506" data-label="Text"> <p>✓PPT slide 22, 23</p> </div> <div data-bbox="1541 528 1854 763" data-label="Image"></div> <div data-bbox="1541 778 1854 1013" data-label="Image"></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)    Section start time: \_\_\_\_\_    Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1429 621" data-label="Text"> <p>For <b>Final Limit Switches</b>, operate the car on inspection speed to a point where the final stopping device can be reached.</p> </div> <div data-bbox="676 621 1371 664" data-label="Text"> <p><b>Advance</b> Activate the bottom final device</p> </div> <div data-bbox="676 664 1246 706" data-label="Text"> <p><b>Advance</b> and try to move the car.</p> </div> <div data-bbox="676 706 1410 792" data-label="Text"> <p><b>Advance</b> The car should not move in either direction.</p> </div> <div data-bbox="676 792 1410 835" data-label="Text"> <p><b>Advance</b> If the car moves repair the defect.</p> </div> <div data-bbox="676 835 840 878" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 24</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 542"></div> <div data-bbox="177 482 434 521">REVIEW slides</div> <div data-bbox="34 571 144 674"></div> <div data-bbox="177 592 260 631">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b> What is a hoistway vent?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance and share photo.</b></p> <p><b>Advance</b> The hoistway vents located at the top of the overhead allows heat to dissipate from the hoistway.</p> <p><b>Advance</b> Make sure the <b>hoistway vent</b> is intact and secure. If louvers are present, make sure they are operational. Check for debris stuck to the vent, obstructing the flow of air. One item that is commonly found here is newspaper.</p> <p><b>Advance</b></p>	<p>✓PPT slides 25, 26</p> <div data-bbox="1541 521 1854 753"> </div> <div data-bbox="1541 778 1854 1011"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



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

DO	SAY	Materials Needed
<div data-bbox="34 439 144 542"></div> <div data-bbox="177 482 415 521">REVIEW slide</div> <div data-bbox="34 571 144 674"></div> <div data-bbox="177 592 260 631">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b>            Lets talk about heat and smoke detectors.            Who maintains these items?  <b>Allow participants to discuss answer.</b>  <b>Advance and share diagram.</b></p> <p><b>Advance</b>            While the job to check the operation of <b>heat and smoke detectors</b> is performed by fire inspectors, elevator technicians should perform a visual inspection. Make sure the unit is intact and not separated from its base. Also check that there is no damage such as cracks. Visually note anything out of the ordinary.</p> <p><b>Advance</b></p>	<p>✓ PPT slide 27</p> <div data-bbox="1541 545 1854 778"> <p><b>Overhead Heat/Smoke Detectors</b></p> <ul style="list-style-type: none"> <li>Visual inspection               <ul style="list-style-type: none"> <li>Unit is intact</li> <li>No damage</li> <li>Nothing out of ordinary</li> </ul> </li> </ul> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 542"></div> <div data-bbox="177 482 415 521">REVIEW slide</div> <div data-bbox="34 571 144 674"></div> <div data-bbox="177 592 260 631">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b>            Lets talk about guide rail brackets. What are guide rail brackets?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance</b>            Inspect the <b>guide rails brackets</b> for loose fastenings and proper fit at the joints.</p> <p><b>Advance</b> Because rail brackets have a protruding ledge that runs horizontally, dirt and dust can collect on top. Make sure to clean these surfaces.</p> <p><b>Advance</b> Check rails for nicks, gouges and burs and repair if necessary.</p> <p><b>Advance</b> Make sure to check alignment visually or with a laser, especially in areas prone to earthquakes. Report any defects or damage to supervision.</p> <p><b>Advance</b></p>	<p>✓PPT slide 28</p> <div data-bbox="1541 531 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h3>In your own words:</h3> </div> <div data-bbox="676 485 1429 706" data-label="Text"> <p>Guide rails that are lubricated must be cleaned to prevent accumulation of lubricant, dirt and lint. Such accumulation creates a fire hazard as well as the possibility of preventing proper operation of the safety.</p> </div> <div data-bbox="676 706 840 749" data-label="Section-Header"> <h3>Advance</h3> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 28</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 835">Instructor's Notes</div> <div data-bbox="28 892 614 1242"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b>            Lets see what we have learned so far:            Before overhead maintenance, what steps should Julie always take?</p> <p><b>Call on participants for answer</b>  <b>Advance once given the correct answer</b>  <b>Answer:</b></p> <ul style="list-style-type: none"> <li>➤ Be aware of top car emergency stop switch</li> <li>➤ Verify available refuge space</li> <li>➤ Ensure area is free of debris and hazards</li> <li>➤ Ensure any needed warning signs are in place</li> </ul> <p><b>Advance</b></p>	<p>✓PPT slide 29</p> <div data-bbox="1541 528 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)    Section start time: \_\_\_\_\_    Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 835"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b> Mike is inspecting the normal limit switch. What steps should Mike take?</p> <p><b><i>Call on participants for answer</i></b> <b><i>Advance once given the correct answer</i></b></p> <p><b>Answer:</b></p> <ul style="list-style-type: none"> <li>➤ Operate car on inspection mode to where bottom normal limit device can be reached</li> <li>➤ Activate normal limit device</li> <li>➤ Run car, should run up but not down</li> <li>➤ Repair as needed</li> </ul> <p><b>Advance</b></p>	<p>✓PPT slide 30</p> <div data-bbox="1541 531 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_



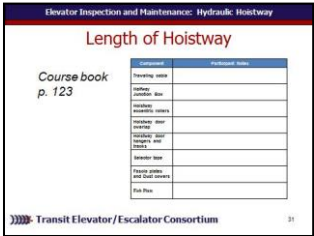
DO	SAY	Materials Needed
<div data-bbox="34 462 142 565"></div> <div data-bbox="170 491 409 525"><b>REVIEW</b> slide</div> <div data-bbox="28 793 444 836"><b>Instructor's Notes</b></div> <div data-bbox="28 896 612 1239"> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<div data-bbox="678 425 1022 462"><b>In your own words:</b></div> <div data-bbox="678 488 1352 616"> <p>Lets move on and look at inspection and maintenance of the overhead area of a hydraulic hoistway.</p> <p><b><i>Review locations of length of hoistway components as indicated on diagram:</i></b></p> <p>Guide rails  Cable support grip  Halfway box  Traveling cable  Rail brackets  Selector tape  Dust cover  Door frame  Fish plate  Fascia plates</p> </div> <div data-bbox="678 1199 838 1236"><b>Advance</b></div>	<div data-bbox="1499 471 1740 508">✓PPT slide 31</div> <div data-bbox="1541 528 1854 762"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div>  <b>REVIEW</b> slide         </div> <div>  <b>REFER</b> participants to <u>Course book</u> </div> <div> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b>  <i>Refer participants to</i></p> <p><b><u>Participant Course book</u></b>  p. 123</p> <p><i>for chart to write additional notes.</i></p> <p><b>Advance</b></p>	<p>✓ PPT slide 32</p> <div>  </div> <p>✓ <u>Course book</u>  p.122</p>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 545" data-label="Image"></div> <div data-bbox="177 482 415 521" data-label="Text"><p><b>REVIEW</b> slide</p></div> <div data-bbox="34 571 144 676" data-label="Image"></div> <div data-bbox="177 592 260 631" data-label="Text"><p><b>ASK</b></p></div> <div data-bbox="34 792 444 839" data-label="Section-Header"><h3>Instructor's Notes</h3></div> <div data-bbox="34 896 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b></p> <p>What is a traveling cable?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance and share</b></p> <ul style="list-style-type: none"> <li>✓ <i>photo</i></li> <li>✓ <i>labeled parts</i></li> <li>✓ <i>locations on diagram</i></li> </ul> <p><b>Advance</b></p>	<p>✓ PPT slide 33</p> <div data-bbox="1541 531 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 568" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1445 1106" data-label="Text"> <p>Examine the <b>traveling cables</b> for wear, chafing, kinking and alignment.  <b>Advance</b> Make sure that there is no fraying on the outer insulation sheave.  <b>Advance</b> Examine attachment points for secure fastening and looseness.  <b>Advance</b> Examine for chafing points, i.e. beams, bolts, rough wall etc. If found, protect as necessary.  <b>Advance</b> Check that the <b>cable support grips or Kellum grips</b>, like in the photo, are present and in good shape at both terminating points of the traveling cable.  <b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 511" data-label="Text"> <p>✓PPT slide 34</p> </div> <div data-bbox="1541 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 545" data-label="Image"></div> <div data-bbox="177 482 415 521" data-label="Text"><p>REVIEW slide</p></div> <div data-bbox="34 571 144 676" data-label="Image"></div> <div data-bbox="177 592 260 631" data-label="Text"><p>ASK</p></div> <div data-bbox="34 792 444 839" data-label="Section-Header"><h3>Instructor's Notes</h3></div> <div data-bbox="34 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="680 425 1023 464" data-label="Text"><p>In your own words:</p></div> <div data-bbox="680 488 753 525" data-label="Text"><p><b>Ask</b></p></div> <div data-bbox="680 535 1207 574" data-label="Text"><p>What is a halfway junction box?</p></div> <div data-bbox="680 578 1342 616" data-label="Text"><p><b>Allow participants to discuss answer.</b></p></div> <div data-bbox="680 621 1023 659" data-label="Text"><p><b>Advance and share</b></p></div> <div data-bbox="680 664 1120 796" data-label="List-Group"> <ul style="list-style-type: none"> <li>✓ <b>photo</b></li> <li>✓ <b>labeled parts</b></li> <li>✓ <b>locations on diagram</b></li> </ul> </div> <div data-bbox="680 799 840 839" data-label="Text"><p><b>Advance</b></p></div> <div data-bbox="680 888 1449 1016" data-label="Text"><p>At the junction box , ensure that the terminating end of the traveling cable is securely fastened to hoistway box.</p></div> <div data-bbox="680 1021 1449 1102" data-label="Text"><p><b>Advance</b> Make sure it is securely fastened to the bulkhead.</p></div> <div data-bbox="680 1106 1381 1196" data-label="Text"><p><b>Advance</b> Make sure cable support grip is present and in good condition.</p></div> <div data-bbox="680 1199 1323 1239" data-label="Text"><p><b>Advance</b> Make sure cover is in place.</p></div> <div data-bbox="680 1242 840 1282" data-label="Text"><p><b>Advance</b></p></div>	<div data-bbox="1497 471 1825 511" data-label="Text"><p>✓ PPT slides 35, 36</p></div> <div data-bbox="1541 528 1854 763" data-label="Image"></div> <div data-bbox="1541 778 1854 1011" data-label="Image"></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 568" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Text"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1159 528" data-label="Section-Header"> <h4>Hoistway Eccentric Rollers</h4> </div> <div data-bbox="676 535 1391 664" data-label="Text"> <p>Verify that the gap between the upthrust rollers and the track is 1/64 inch (0.39mm). Adjust as required.</p> </div> <div data-bbox="676 664 840 706" data-label="Text"> <p><b>Advance</b></p> </div> <div data-bbox="676 706 1091 749" data-label="Section-Header"> <h4>Hoistway Door Overlap</h4> </div> <div data-bbox="676 756 1429 971" data-label="Text"> <p>Verify that at all landings, with the hoistway door panels closed, there is an overlap at the top and sides of the opening and other (two-speed) doors by a minimum of 1/2 inch. Adjust as required.</p> </div> <div data-bbox="676 971 840 1013" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 511" data-label="Text"> <p>✓PPT slide 37</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 568" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p>REVIEW slide</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Hoistway Door Hangers and Tracks</b> Verify the car <b>door track(s)</b> is secured and clean.</p> <p><b>Advance</b> Tighten all loose hardware as required.</p> <p><b>Advance</b> Examine car <b>door hangers</b>, rollers, felt wicks and relating cables for defects and damage.</p> <p><b>Advance</b> Repair or replace as required. Report defects to supervision.</p> <p><b>Advance</b> Where a secondary interconnecting means is used, check that it is engaging properly. Repair or replace as required.</p> <p><b>Advance</b></p>	<p>✓PPT slide 38</p> <div data-bbox="1541 531 1854 763" data-label="Image"></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 544"> </div> <div data-bbox="175 482 415 518"> <p>REVIEW slide</p> </div> <div data-bbox="34 572 144 676"> </div> <div data-bbox="175 594 260 629"> <p>ASK</p> </div> <div data-bbox="28 793 444 836"> <p>Instructor's Notes</p> </div> <div data-bbox="28 896 612 1239"> <hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:</p> <p><b>Ask</b></p> <p>What is a selector tape?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance and share</b></p> <ul style="list-style-type: none"> <li>✓ <i>photo</i></li> <li>✓ <i>labeled parts</i></li> <li>✓ <i>locations on diagram</i></li> </ul> <p><b>Advance</b></p>	<p>✓ PPT slide 39</p> <div data-bbox="1541 529 1856 762"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1449 614" data-label="Text"> <p>Examine the stationary <b>selector tape</b> by shining a flashlight beam parallel with the tape and check for any bends or cracks.</p> </div> <div data-bbox="676 621 1449 792" data-label="Text"> <p><b>Advance</b> Examine the sensor guides on the stationary tape for wear. If the guide groove is twice the width of the tape thickness, it should be replaced.</p> </div> <div data-bbox="676 799 1449 878" data-label="Text"> <p><b>Advance</b> Make sure that the selector tape is securely fastened at each end.</p> </div> <div data-bbox="676 885 1449 1056" data-label="Text"> <p><b>Advance</b> For magnetic selector tapes, examine the magnets on tape for grime build up or materials that may interfere with their operation.</p> </div> <div data-bbox="676 1063 1449 1149" data-label="Text"> <p><b>Advance</b> For ones with holes, make sure that the holes are not elongated.</p> </div> <div data-bbox="676 1156 840 1192" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 40</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_





DO	SAY	Materials Needed
<div data-bbox="34 439 144 545" data-label="Image"></div> <div data-bbox="177 482 415 521" data-label="Text"><p>REVIEW slide</p></div> <div data-bbox="34 571 144 676" data-label="Image"></div> <div data-bbox="177 592 260 631" data-label="Text"><p>ASK</p></div> <div data-bbox="34 792 444 839" data-label="Section-Header"><h3>Instructor's Notes</h3></div> <div data-bbox="34 896 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b> What is a fish plate?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance and share</b> ✓ <i>photo</i></p> <p><b>Advance</b> Inspect the fish plates aka known as <i>rail connectors</i> , checking for corrosion and loose hardware. Repair defects as required.</p> <p><b>Advance</b></p>	<p>✓ PPT slide 41</p> <div data-bbox="1541 549 1854 782" data-label="Image"></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div> <b>REVIEW</b> slides</div> <div> <b>ASK</b></div> <div><h3>Instructor's Notes</h3><div></div><div></div><div></div><div></div><div></div><div></div></div>	<p><b>In your own words:</b></p> <p><b>Ask</b></p> <p>What is a fascia plate? A dust cover?</p> <p><b>Allow participants to discuss answer.</b></p> <p><b>Advance and share</b></p> <p>✓ <b>Photo</b></p> <p>✓ <b>Locations on diagram</b></p> <p><b>Advance</b></p> <p>Inspect the fish plates aka known as <i>rail connectors</i> , checking for corrosion and loose hardware. Repair defects as required.</p> <p><b>Advance</b></p> <p>Examine the entire shaft and ensure that all fascia plates and dust covers are in place, aligned correctly, and securely fastened.</p> <p><b>Advance</b> Examine the <b>fascia plate</b> for presence of scrapes.</p> <p><b>Advance</b> Check and secure loose <b>dust covers</b>.</p> <p><b>Advance</b></p>	<p>✓ PPT slides 42, 43</p> <div></div> <div></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 545"></div> <div data-bbox="164 471 405 511">REVIEW slide</div> <div data-bbox="34 554 144 659"></div> <div data-bbox="164 564 537 649">REFER participants to <u>Elevator Maintenance</u></div> <div data-bbox="28 792 444 839">Instructor's Notes</div> <div data-bbox="28 892 614 1242"> <hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words: <i>Refer participants to</i></p> <p><u><i>Elevator Maintenance</i></u> <i>p. 220 – 221 and p. 195 – 196</i></p> <p><i>for more information on guides, guide rails, selectors, and traveling cables.</i></p> <p><i>Advance</i></p>	<p>✓ PPT slide 44</p> <div data-bbox="1541 528 1854 763"> </div> <p>✓ <u>Elevator Maintenance</u> <u>p.220 – 221,</u> <u>p.195 – 196</u></p>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 835">Instructor's Notes</div> <div data-bbox="28 892 614 1239"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464"><b>In your own words:</b></div> <div data-bbox="676 471 1400 642"> <p>Lets see what we have learned so far: When inspecting the hoistway eccentric rollers, the gap between the upthrust rollers and track should be _____ inch.</p> </div> <div data-bbox="734 649 888 821"> <ul style="list-style-type: none"> <li>a. 1/64</li> <li>b. 1/8</li> <li>c. 1/4</li> <li>d. 1</li> </ul> </div> <div data-bbox="676 871 1391 1042"> <p><b>Call on participants for answer</b> <b>Advance once given the correct answer</b> <b>Answer: a.</b> <b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506">✓PPT slide 45</div> <div data-bbox="1535 528 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<div data-bbox="676 425 1391 778"> <p><b>In your own words:</b>  Also known as rail connectors, the _____ should be inspected for corrosion and loose hardware.</p> <ol style="list-style-type: none"> <li>Selector tape</li> <li>Fascia plate</li> <li>Fish plate</li> <li>Traveling cable</li> </ol> </div> <div data-bbox="676 828 1391 999"> <p><b>Call on participants for answer</b>  <b>Advance once given the correct answer</b>  <b>Answer: c.</b>  <b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506">✓PPT slide 46</div> <div data-bbox="1541 528 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide

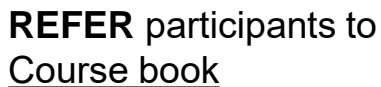


Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 428 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 492 1352 614" data-label="Text"> <p>Lets move on and look at inspection and maintenance of the overhead area of a hydraulic hoistway.</p> </div> <div data-bbox="676 621 1371 706" data-label="Text"> <p><b><i>Review locations of pit components as indicated on diagram:</i></b></p> </div> <div data-bbox="676 714 1120 1149" data-label="List-Group"> <ul style="list-style-type: none"> <li>Jack</li> <li>Pit Light</li> <li>Stop Switch, Outlet, &amp; GFI</li> <li>Pit Light</li> <li>Lit Valve</li> <li>Rupture Valve</li> <li>Scavenger</li> <li>Sump Pump</li> <li>Spring Buffer</li> <li>Pit Ladder</li> </ul> </div> <div data-bbox="676 1156 840 1192" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 47</p> </div> <div data-bbox="1535 528 1854 763" data-label="Diagram"> </div>

This section: 120 min (65 slides) Section start time: \_\_\_\_\_ Section End Time: \_\_\_\_\_

## Materials Needed



**Participant Course book**  
p. 128

## Advance

## Elevator Inspection and Maintenance: Hydraulic Hoistway

✓ Course book  
p.127

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# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Section-Header"> <h3>In your own words:</h3> </div> <div data-bbox="676 485 1429 664" data-label="Text"> <p>Three common components found in all hydraulic elevator pits includes an overspeed valve, a manual shot off valve, and a scavenger.</p> </div> <div data-bbox="676 664 840 699" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 49</p> </div> <div data-bbox="1541 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1429 664" data-label="Text"> <p>The <b>pit</b> floor should be cleaned using a dustpan and broom. Never pick up trash with your bare hand. Clean the pit floor of any oil, grease, dirt and debris.</p> </div> <div data-bbox="676 664 1429 749" data-label="Text"> <p><b>Advance</b> Examine the bottom level landing sills and clean as required.</p> </div> <div data-bbox="676 749 1429 885" data-label="Text"> <p><b>Advance</b> Examine the fascia below the lower landing for secure fastening. Make necessary repairs as required.</p> </div> <div data-bbox="676 885 1429 1106" data-label="Text"> <p><b>Advance</b> Any valuable items found in the pit, such as keys, jewelry or other items, must be turned in to appropriate person or department as per your local transit agency policy. Check for water infiltration.</p> </div> <div data-bbox="676 1106 840 1149" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 50</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

Module Length: 480 min

Time remaining: 360 min

This section: 120 min (65 slides) *Section start time:* \_\_\_\_\_

Section End Time: \_\_\_\_\_

## Materials Needed



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## Ask

Answer: Ground Fault Circuit Interrupter (GFI Receptacle)

### Ground Fault Circuit Interrupter (GFI Receptacle)

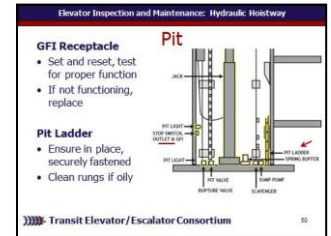
Set and reset the GFI to make sure it is functioning properly. If it is not, replace it.

## Advance

## Pit Ladder

Make sure the **pit ladder** is in place and securely fastened. Check to make sure the rungs are not oily. If they are, clean them.

## Advance



# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Text"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 830 528" data-label="Section-Header"> <h4>Pit Light</h4> </div> <div data-bbox="676 535 1371 664" data-label="Text"> <p>Check the operation of the pit lighting and receptacles. Verify that the pit light has required safety guard installed.</p> </div> <div data-bbox="676 664 840 706" data-label="Section-Header"> <h4>Advance</h4> </div> <div data-bbox="676 714 956 756" data-label="Section-Header"> <h4>Pit Sump Pump</h4> </div> <div data-bbox="676 756 1429 1021" data-label="Text"> <p>Verify that the <b>sump pump</b> is operational by lifting the <b>float rod</b>. If it is not functioning as designed, correct the defect. Note that sump pumps in pits, where provided, must be covered. Check that the cover is secured and level with the pit floor.</p> </div> <div data-bbox="676 1063 840 1106" data-label="Section-Header"> <h4>Advance</h4> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 52</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO

SAY

Materials Needed



REVIEW slides

### Instructor's Notes

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In your own words:

#### Pit Stop Switch

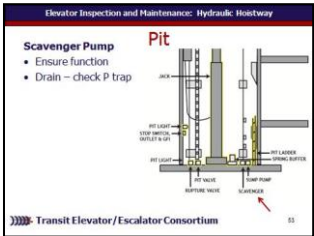
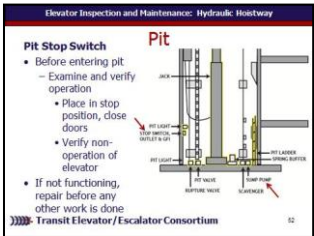
Examine the condition and verify operation of the **stop switch** before entering the pit. Verify that the pit stop switch is operational and prevents the car from moving when activated. Place the pit stop switch in the stop position and close the doors to verify that it will prevent operation of the elevator. If the pit stop switch does not function properly, it must be repaired before any other work is done. Make necessary repairs as required.

**Advance**

#### Scavenger Pump

Make sure the **scavenger pump** is functioning. When a drain is used instead, check the P trap (like under a sink), making sure it has the right amount of water to prevent build up of sewage gases in the hoistway. **Advance**

✓PPT slides 53, 54



# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO

SAY

Materials Needed



**REVIEW** slides

### Instructor's Notes

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**In your own words:**

#### Jack - Cylinder and Piston

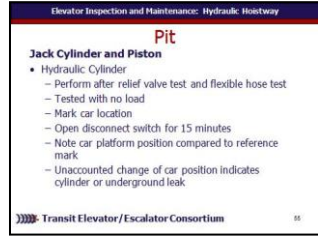
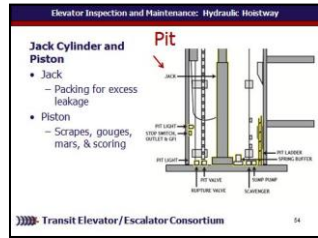
Check the **jack** packing for excessive leakage. Examine **pistons** for scrapes, gouges, mars, and scoring.

**Advance**

A test of the hydraulic cylinder should be performed after a relief valve test and the flexible hose test have been conducted. Cylinders that cannot be inspected visually should be tested in the following manner with no load in the car. Mark the location of the car at any convenient position. Open the disconnect switch for 15 min. Note the position of the car platform with respect to the reference mark.

**Do Not Advance**

✓ PPT slides 55, 56



# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)    Section start time: \_\_\_\_\_    Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 568" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1375 749" data-label="Text"> <p>A change in car position that cannot be accounted for by visible oil leakage, valve leakage, or temperature change of the oil indicates a leak of the cylinder or in the underground piping and a need for further inspection, tests, or repairs.</p> </div> <div data-bbox="676 756 840 792" data-label="Section-Header"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 511" data-label="Text"> <p>✓PPT slide 56</p> </div> <div data-bbox="1541 531 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p>REVIEW slide</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Overflow Container</b> Empty the overflow container for hydraulic oil that leaked from the plunger seal/packing and properly discard it. <b>Advance</b> Never pour this oil back into the tank, since it is likely to have dirt in it. <b>Advance</b> Record the quantity of oil discarded on the machine room log or in accordance with your agency's requirements. <b>Advance</b> Examine the drain from the top of the cylinder and clean dirt and other obstructions in the channel that may cause the oil to overflow on the floor. <b>Advance</b> If the unit is equipped with a recovery system (scavenger pump) to return the oil to the tank, examine it for proper operation and means to prevent contamination of the oil. <b>Advance</b></p>	<p>✓PPT slide 57</p> <div data-bbox="1541 531 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1410 749" data-label="Text"> <p>For Drip pans, seals, and pit valves –  <b>Drip Pans</b>  <i><b>Advance</b></i> Where rail oilers are used, use empty drip pans to catch the oil beneath the rails. Disposable aluminum pie plates are often used for this.</p> </div> <div data-bbox="676 756 1439 1106" data-label="Text"> <p><b>Seals</b>  <i><b>Advance</b></i> Be sure to check <b>seals</b> for oil leak.</p> <p><b>Pit Valve</b>  <i><b>Advance</b></i> Check the operation of the <b>pit valve</b> and be sure it is not stuck in an open or closed position. Also, examine it for leaks. Make sure it is fully opened position for normal operations.</p> <p><i><b>Advance</b></i></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 58</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"></div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1255 571" data-label="Text"> <p>For rupture valves and couplings – Rupture Value</p> </div> <div data-bbox="676 585 1439 806" data-label="Text"> <p><b>Advance</b> Examine the <b>rupture value</b>, making sure that the tag is securely affixed. Check to make sure that the settings on the tag match how the valve is operating. Be sure to check for leaks.</p> </div> <div data-bbox="676 813 830 849" data-label="Text"> <p>Coupling</p> </div> <div data-bbox="676 863 1342 949" data-label="Text"> <p><b>Advance</b> Check coupling for leaks and tighten nuts and bolts as needed.</p> </div> <div data-bbox="676 956 840 992" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 59</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 568" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Text"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 975 528" data-label="Section-Header"> <h4>Traveling Cables</h4> </div> <div data-bbox="676 535 1410 664" data-label="Text"> <p>Verify that the traveling cable is not touching the pit floor or rubbing against any other equipment.</p> </div> <div data-bbox="676 664 1410 792" data-label="Text"> <p><b>Advance</b> Examine the cables for wear, twists or damage (may need to inspect from top of car).</p> </div> <div data-bbox="676 792 1410 921" data-label="Text"> <p><b>Advance</b> Check that the traveling cable is securely fastened to all junction boxes (may need to inspect from on top of the car).</p> </div> <div data-bbox="676 921 1439 1106" data-label="Text"> <p><b>Advance</b> The cable should maintain a “U” shape, parallel to the hoistway wall. It will make a double bend if it is not attached at the correct distance under the car.</p> </div> <div data-bbox="676 1106 1362 1192" data-label="Text"> <p><b>Advance</b> This will result in unnecessary bending and premature failure.</p> </div> <div data-bbox="676 1192 840 1235" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 511" data-label="Text"> <p>✓PPT slide 60</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 542"></div> <div data-bbox="177 482 415 521">REVIEW slide</div> <div data-bbox="34 571 144 674"></div> <div data-bbox="177 592 260 628">ASK</div> <div data-bbox="34 792 444 839"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b> Again, what do we know about limit switches?</p> <p><b>Discuss participant ideas.</b> There are three types of limit switches in the hoistway of transit elevators. One set is located in the overhead and the other set is located in the pit.</p> <p><b>Advance</b> If limit switches appear sticky, clean the arm or activator.</p> <p><b>Advance</b> Check that the switches and cams are aligned correctly and are securely fastened and adjust accordingly.</p> <p><b>Advance</b> The switch roller should strike the bevel of the cam and should be adjusted accordingly.</p> <p><b>Advance</b> Replace worn rollers and lubricate pivot pins.</p> <p><b>Advance</b></p>	<p>✓PPT slide 61</p> <div data-bbox="1541 528 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



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DO	SAY	Materials Needed
<div data-bbox="34 464 144 568" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1410 664" data-label="Text"> <p>Examine the switch contacts and assembly for proper movement (contacts should wipe) and reaction and, where required, repair or replace.</p> </div> <div data-bbox="676 664 1420 749" data-label="Text"> <p><b>Note:</b> you may need a ladder to reach some of the switches in order to test them.</p> </div> <div data-bbox="676 749 840 792" data-label="Section-Header"> <h4>Advance</h4> </div> <div data-bbox="676 842 1439 1106" data-label="Text"> <p>For <b>Normal Limit Switches</b>, operate the car on inspection mode to a point where the bottom normal limit device can be reached. Activate the normal limit device. The car should run up, but not down. If not functioning as designed, correct the defect as required.</p> </div> <div data-bbox="676 1106 840 1149" data-label="Section-Header"> <h4>Advance</h4> </div>	<div data-bbox="1497 471 1816 511" data-label="Text"> <p>✓PPT slides 61 62</p> </div> <div data-bbox="1541 528 1854 763" data-label="Image"> </div> <div data-bbox="1541 778 1854 1011" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO

SAY

Materials Needed



**REVIEW** slides

### Instructor's Notes

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**In your own words:**

For **Final Limit Switches**, operate the car on inspection speed to a point where the final stopping device can be reached. Activate the bottom final device and try to move the car. The car should not move in either direction. If the car moves repair the defect.

**Advance**

**Buffers**

**Oil Buffers:** The operating speed in the down direction for most hydraulic elevators is less the 220 feet per minute. Therefore, they usually do not have oil buffers. Where oil buffers are used, check the oil level. Add oil as required.

**Advance**

Lets look at Spring Buffers.

**Advance**

✓PPT slides 63, 64

**Elevator Inspection and Maintenance: Hydraulic Hoistway**

**Pit**

**Final Limit Switches**

- Operate car on inspection mode to where final stopping device can be reached
- Activate bottom final device
- Try to move car
- Car should not move in either direction
- Repair as needed

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**Elevator Inspection and Maintenance: Hydraulic Hoistway**

**Pit**

**Buffers**

- Oil Buffers
  - Typically not present
  - When used, add oil as needed
- Spring Buffers

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# Elevator – Hydraulic Hoistway

## Instructor's Guide

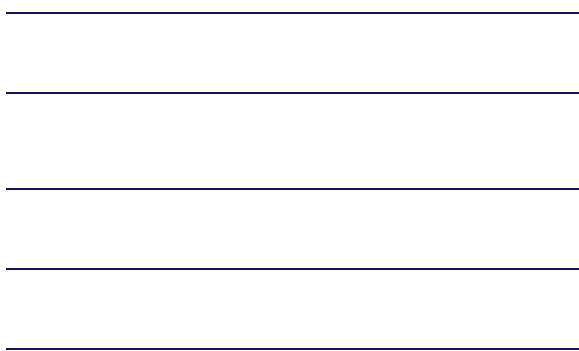


Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"></div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1235" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1429 614" data-label="Text"> <p>Check to be sure they are attached and mounted for tightness and alignment with the strike plate on the bottom of the car.</p> </div> <div data-bbox="676 621 1429 749" data-label="Text"> <p><b>Advance</b> If a counterweight (used in roped hydraulic elevators) is used, it must not be allowed to land.</p> </div> <div data-bbox="676 756 1429 885" data-label="Text"> <p><b>Advance</b> There should be at least a six-inch clearance at the bottom of the counterweight when the car plunger is against the stop ring.</p> </div> <div data-bbox="676 892 1429 1021" data-label="Text"> <p><b>Advance</b> Examine the spring buffers for dirt or materials inside that may prevent compression.</p> </div> <div data-bbox="676 1028 1429 1106" data-label="Text"> <p><b>Advance</b> Also check for severe corrosion that may weaken them.</p> </div> <div data-bbox="676 1113 840 1149" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 65</p> </div> <div data-bbox="1535 535 1854 763" data-label="Image"> </div>

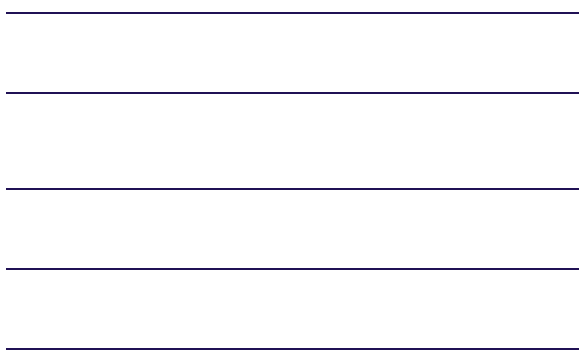
This section: 120 min (65 slides) Section start time: \_\_\_\_\_ Section End Time: \_\_\_\_\_

## Materials Needed



This section: 120 min (65 slides) Section start time: \_\_\_\_\_ Section End Time: \_\_\_\_\_

## Materials Needed



# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 462 142 565"></div> <div data-bbox="170 491 428 528"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 793 444 836"> <p><b>Instructor's Notes</b></p> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<div data-bbox="676 425 1022 465"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 488 1439 791"> <p>On hydraulic elevators, the only component attached to the car is either a roller guide or a guide shoe. The elevator car travels the length of the hoistway by rolling along the guide rails. This is done by either <b>roller guides</b> or <b>guide shoes</b> which are attached to the elevator car.</p> </div> <div data-bbox="676 799 838 833"> <p><b>Advance</b></p> </div>	<div data-bbox="1499 471 1744 508"> <p>✓PPT slide 68</p> </div> <div data-bbox="1541 528 1854 762"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

### DO



**REVIEW** slide



**REFER** participants to  
Course book

### Instructor's Notes

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### SAY

In your own words:  
*Refer participants to*

Participant Course book  
p. 131

*for chart to write additional notes.*

*Advance*

### Materials Needed

✓ PPT slide 69

Elevator Inspection and Maintenance: Hydraulic Hoistway

Attached to Car

Course book p. 131

Component	Clear	Lock	Test	Participant notes
Stop switch			✓	
Top of car guide rollers			✓	
Top of car guide rollers	✓		✓	
Bottom car guide rollers	✓		✓	
Car guide rollers	✓		✓	
Car top	✓		✓	

Transit Elevator/ Escalator Consortium

✓ Course book  
p.130

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 439 144 545" data-label="Image"></div> <div data-bbox="177 482 415 521" data-label="Text"><p>REVIEW slide</p></div> <div data-bbox="34 571 144 676" data-label="Image"></div> <div data-bbox="177 592 260 631" data-label="Text"><p>ASK</p></div> <div data-bbox="34 792 444 839" data-label="Section-Header"><h3>Instructor's Notes</h3></div> <div data-bbox="34 896 614 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b></p> <p><b>Ask</b> What do we see here?</p> <p><b>Discuss participant ideas.</b> We have the top of the car operator and light. The stop switch is also located here as well.</p> <p><b>Advance</b></p>	<p>✓ PPT slide 70</p> <div data-bbox="1541 531 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 568" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1387 616" data-label="Text"> <p>For the stop switch and top of car operator and light – Stop Switch</p> </div> <div data-bbox="676 635 1414 806" data-label="Text"> <p><b>Advance</b> Before entering the top-of-car, place the <b>stop switch</b> in the stop position. Then allow the doors to close and verify that the car will not run.</p> </div> <div data-bbox="676 811 1178 853" data-label="Text"> <p>Top of Car Operator and Light</p> </div> <div data-bbox="676 871 1425 1220" data-label="Text"> <p><b>Advance</b> Examine the top of car operator, stop switch and light by testing for proper operation. Any needed repairs must be made to the top-of-car operator, stop switch and light before proceeding with any other maintenance. Always maintain the guard on the top car light. If the guard is missing, it must be replaced. Make all needed repairs.</p> </div> <div data-bbox="676 1225 840 1263" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1742 511" data-label="Text"> <p>✓PPT slide 71</p> </div> <div data-bbox="1541 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1400 664" data-label="Text"> <p>For top guide rollers Examine the <b>guide rollers</b> atop the car to determine the condition of the rollers and fit on the rail.</p> </div> <div data-bbox="676 678 1381 849" data-label="Text"> <p><b>Advance</b> If required, adjust for a firm fit against the guide rail whereby the roller guides are just barely able to be turned by hand.</p> </div> <div data-bbox="676 863 1333 956" data-label="Text"> <p><b>Advance</b> Check for proper roller guide alignment with the guide rail.</p> </div> <div data-bbox="676 971 1429 1106" data-label="Text"> <p><b>Advance</b> Check the support pivots for evidence of wear. Lubricate the pivot bushing per manufacturer and authority guidelines</p> </div> <div data-bbox="676 1120 840 1163" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 72</p> </div> <div data-bbox="1535 542 1854 778" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1429 621" data-label="Text"> <p>For bottom guide rollers Examine the lower guide rollers to determine the condition of the tires and fit on the rail.</p> </div> <div data-bbox="676 635 1449 763" data-label="Text"> <p><b>Advance</b> If required, adjust for firm fit against the rail whereby the roller guides are just barely able to be turned by hand.</p> </div> <div data-bbox="676 778 1352 863" data-label="Text"> <p><b>Advance</b> Check for proper guide rollers alignment with the guide rail.</p> </div> <div data-bbox="676 878 1429 1056" data-label="Text"> <p><b>Advance</b> Check the support pivots for evidence of wear. Lubricate the pivot bushing with a couple of drops of 3-in-1 machine oil through the hole in the housing.</p> </div> <div data-bbox="676 1071 1304 1156" data-label="Text"> <p><b>Advance</b> Make necessary repairs or adjustments as required.</p> </div> <div data-bbox="676 1163 840 1199" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 73</p> </div> <div data-bbox="1535 535 1854 771" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464" data-label="Section-Header"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1429 664" data-label="Text"> <p>In cases where <b>guide shoes</b> are used instead of guide rollers, check pad thickness, tightness of hardware, and that the shoes move freely and smoothly.</p> </div> <div data-bbox="676 664 840 702" data-label="Section-Header"> <p><b>Advance</b></p> </div> <div data-bbox="676 749 1439 882" data-label="Text"> <p>When an elevator car is misaligned on the guide rail, it is often because of faulty roller guides and/or guide shoes.</p> </div> <div data-bbox="676 885 1439 1282" data-label="Text"> <p>To replace a guide roller start by marking its position on the crosshead by putting a box around the outside of its mounting bracket. This will make it easy to know exactly where the new roller guide/shoe assembly should be placed. Next, loosen spring tension so that you can pull the rollers back. Lastly, remove the four bolts at the bottom and lift the assembly off.</p> </div> <div data-bbox="676 1282 840 1325" data-label="Section-Header"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1825 511" data-label="Text"> <p>✓PPT slides 74, 75</p> </div> <div data-bbox="1541 521 1854 749" data-label="Image"> </div> <div data-bbox="1541 792 1854 1021" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 428 528" data-label="Text"> <p><b>REVIEW</b> slides</p> </div> <div data-bbox="28 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Text"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1371 614" data-label="Text"> <p><i>Review photo and indicated steps with participants.</i> <b>Advance</b></p> </div> <div data-bbox="676 664 1429 878" data-label="Text"> <p>Place a new a roller guide assembly inside the box you marked previously. Tighten into place by tightening the four bolts at the bottom and then tighten the spring tension so that the rollers are secure on the guide rail.</p> </div> <div data-bbox="676 885 840 925" data-label="Text"> <p><b>Advance</b></p> </div> <div data-bbox="676 978 1429 1149" data-label="Text"> <p>For a car fan - Clean car ventilation and fan opening. If necessary, remove the <b>car fan</b> and clean the blades or squirrel cage.</p> </div> <div data-bbox="676 1156 850 1196" data-label="Text"> <p><b>Advance</b></p> </div>	<div data-bbox="1497 471 1893 511" data-label="Text"> <p>✓ PPT slides 76, 77, 78</p> </div> <div data-bbox="1535 521 1854 749" data-label="Image"> </div> <div data-bbox="1535 771 1854 1006" data-label="Image"> </div> <div data-bbox="1535 1021 1854 1256" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 835"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b>          Lets see what we have learned so far:          Yes or No. Repairs on the test operator, stop switch and light for operation must be made before other maintenance.  <i><b>Call on participants for answer</b></i>  <i><b>Advance once given the correct answer</b></i>  <b>Answer: Yes</b></p> <p><b>Advance</b></p>	<p>✓PPT slide 79</p> <div data-bbox="1541 528 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 360 min      This section: 120 min (65 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 468 139 571"></div> <div data-bbox="177 502 260 539">ASK</div> <div data-bbox="28 792 444 839"> <h3>Instructor's Notes</h3> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b>  Describe the difference between inspection and maintenance of the top and bottom roller guides.</p> <p><b><i>Call on participants for answer</i></b>  <b><i>Advance once given the correct answer</i></b></p> <p><b>Answer:</b>  Lubrication – top as per manufacturer and bottom uses few drops of 3-in-1 machine oil through housing hole.</p> <p><b><i>Advance</i></b></p>	<p>✓PPT slide 80</p> <div data-bbox="1541 531 1854 762"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 240 min      This section: 120 min      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="54 464 158 564"></div> <div data-bbox="179 489 260 525">ASK</div> <div data-bbox="54 588 158 696"></div> <div data-bbox="179 618 423 696">CLASSROOM ACTIVITY</div> <div data-bbox="30 792 444 839">Instructor's Notes</div> <div data-bbox="30 896 612 1239"> <hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:</p> <p><i>Take time to visit the field to provide an example demonstration and opportunities for participants to perform the following tests:</i></p> <ul style="list-style-type: none"> <li>• Perform an inspection of components in a hydraulic elevator hoistway</li> <li>• Perform an operational test on all safety devices in the hoistway</li> </ul> <p><b>Advance</b></p>	<p>✓PPT slide 81</p> <div data-bbox="1541 535 1854 768"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 120 min      This section: 20 min (1 slide)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"> </div> <div data-bbox="170 492 409 528" data-label="Text"> <p><b>REVIEW</b> slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 614 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1023 464" data-label="Text"> <p><b>In your own words:</b></p> </div> <div data-bbox="676 485 1410 571" data-label="Text"> <p><b><i>Review locations of lighting as indicated on diagram:</i></b></p> </div> <div data-bbox="676 578 1429 1056" data-label="Text"> <p>Always in on car top and pit, sometimes in hoistway and on bottom of car.          The presence of lights along the hoistway is much more likely in traction elevators as they generally have longer hoistways than hydraulic elevators. Make sure to check the condition of all lighting components including lenses, covers and bulbs.          For more information on inspection and maintenance of lighting in transit elevators refer to Module 2 in this course.</p> </div> <div data-bbox="676 1106 840 1149" data-label="Text"> <p><b><i>Advance</i></b></p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓PPT slide 82</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 100 min      This section: 60 min      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="54 464 158 564"></div> <div data-bbox="179 489 260 525">ASK</div> <div data-bbox="54 588 158 696"></div> <div data-bbox="179 618 421 696">CLASSROOM ACTIVITY</div> <div data-bbox="30 792 444 839">Instructor's Notes</div> <div data-bbox="30 896 610 1239"> <hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:</p> <p><i>Take time to visit the field to provide an example demonstration and opportunities for participants to perform the following tests:</i></p> <ul style="list-style-type: none"> <li>Perform an operational test on all auxiliary lights</li> </ul> <p><b>Advance</b></p>	<p>✓PPT slide 83</p> <div data-bbox="1541 531 1854 763"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 40 min      This section: 40 min (5 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 459 144 568" data-label="Image"> </div> <div data-bbox="177 488 423 568" data-label="Section-Header"> <h3>CLASSROOM ACTIVITY</h3> </div> <div data-bbox="34 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="34 896 612 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:  <i>Read slide.</i>  <i>For each objective, briefly review what was learned in this module or ask participants to share what they have learned for each learning objective and briefly discuss as a class.</i>  <b>Advance</b></p> <p><i>Read slide.</i>  <i>For each objective, briefly review what was learned in this module or ask participants to share what they have learned for each learning objective and briefly discuss as a class.</i>  <b>Advance</b></p>	<p>✓PPT slides 84, 85</p> <div data-bbox="1541 531 1854 759" data-label="Image"> </div> <div data-bbox="1541 778 1854 1006" data-label="Image"> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 40 min      This section: 40 min (5 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 458 144 568" data-label="Image"> </div> <div data-bbox="177 486 423 568" data-label="Section-Header"> <h3>CLASSROOM ACTIVITY</h3> </div> <div data-bbox="34 792 444 839" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="34 896 612 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p><b>In your own words:</b>          Lets take a look at some of the key words we have defined as moved through this module.  <i><b>Read slide. Discuss definitions as a group.</b></i>  <b>Advance.</b></p> <p><i><b>Read slide. Discuss definitions as a group.</b></i>  <b>Advance.</b></p> <p><i><b>Read slide. Discuss definitions as a group.</b></i>  <b>Advance.</b></p> <p><i><b>Read slide. Discuss definitions as a group.</b></i>  <b>Advance.</b></p>	<p>✓PPT slides 86, 87</p> <div data-bbox="1541 529 1854 761" data-label="Complex-Block"> <p><small>Elevator Inspection and Maintenance: Hydraulic Hoistway</small></p> <p><b>Conclusion</b></p> <ul style="list-style-type: none"> <li>• Cable Support Grips</li> <li>• Car Fan</li> <li>• Cylinder</li> <li>• Door Hangers</li> <li>• Door Track(S)</li> <li>• Dust Covers</li> <li>• Fascia Plate</li> <li>• Final Limit Switches</li> <li>• Float Rod</li> <li>• Guide Rails Brackets</li> <li>• Guide Shoes</li> <li>• Guide Shoes</li> <li>• Heat And Smoke Detectors</li> <li>• Hoistway</li> <li>• Hoistway Vent</li> <li>• Jack</li> <li>• Normal Limit Switches</li> <li>• Oil Buffers</li> <li>• Pistons</li> </ul> <p><small>Transit Elevator/ Escalator Consortium 86</small></p> </div> <div data-bbox="1541 779 1854 1011" data-label="Complex-Block"> <p><small>Elevator Inspection and Maintenance: Hydraulic Hoistway</small></p> <p><b>Conclusion</b></p> <ul style="list-style-type: none"> <li>• Pit</li> <li>• Pit Ladder</li> <li>• Pit Valve</li> <li>• Refuge Space</li> <li>• Roller Guides</li> <li>• Rupture Valve</li> <li>• Scavenger Pump</li> <li>• Seals</li> <li>• Selector Tape</li> <li>• Sensory Inspection</li> <li>• Spring Buffers</li> <li>• Stop Switch</li> <li>• Traveling Cable</li> </ul> <p><small>Transit Elevator/ Escalator Consortium 87</small></p> </div>

# Elevator – Hydraulic Hoistway

## Instructor's Guide



Module Length: 480 min      Time remaining: 40 min      This section: 40 min (5 slides)      Section start time: \_\_\_\_\_      Section End Time: \_\_\_\_\_

DO	SAY	Materials Needed
<div data-bbox="34 459 144 568"></div> <div data-bbox="177 488 425 568"> <p><b>CLASSROOM ACTIVITY</b></p> </div> <div data-bbox="34 602 144 711"></div> <div data-bbox="170 631 564 668"> <p><b>INDIVIDUAL ACTIVITY</b></p> </div> <div data-bbox="34 792 444 839"> <p><b>Instructor's Notes</b></p> <hr/> <hr/> <hr/> <hr/> <hr/> </div>	<p><b>In your own words:</b></p> <p><i>Administer quizzes.</i></p>	<ul style="list-style-type: none"> <li>✓PPT slide 88</li> <li>✓Quizzes</li> <li>✓ Pencils</li> </ul> <div data-bbox="1541 625 1854 856"> </div>