

Elevator – Hydraulic Hoistway

Instructor's Guide



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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
	Total Time:	480 Minutes

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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

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Module Length: 480 min

Time remaining: 480 min

This section: 30 min (8 slides) Section start time: _____

Section End Time: _____

DO



REVIEW introduction slides

Instructor's Notes

SAY

In your own words:

Welcome to the course on the maintenance and inspection of hydraulic hoistways.

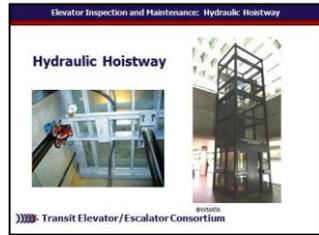
Advance

Hoistways encompass a number of areas and components.

Advance

Materials Needed

✓ PPT slides 1, 2



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Module Length: 480 min

Time remaining: 480 min

This section: 30 min (8 slides) Section start time: _____

Section End Time: _____

DO



REVIEW module objectives

Instructor's Notes

SAY

In your own words:

Today we will

- 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
- List all hoistway auxiliary lighting which require inspection

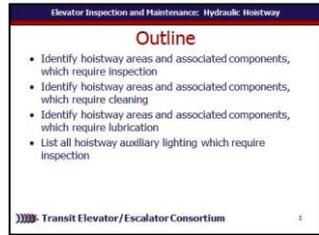
Advance

- 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

Advance

Materials Needed

✓ PPT slides 3, 4



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Module Length: 480 min

Time remaining: 480 min

This section: 30 min (8 slides)

Section start time: _____

Section End Time: _____

DO



REVIEW key terms

Instructor's Notes

SAY

In your own words:

Lets take a look at some of the key words we will be defining as move through this module:

- Cable Support Grips
- Car Fan
- Cylinder
- Door Hangers
- Door Track(S)
- Dust Covers
- Fascia Plate
- Final Limit Switches
- Float Rod
- Guide Rails Brackets
- Guide Shoes
- Guide Shoes
- Heat And Smoke Detectors
- Hoistway
- Hoistway Vent
- Jack
- Normal Limit Switches
- Oil Buffers
- Pistons

Advance

Advance

Materials Needed

✓ PPT slide 5



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 480 min

This section: 30 min (8 slides)

Section start time: _____

Section End Time: _____

DO



REVIEW key terms

Instructor's Notes

SAY

In your own words:

Lets take a look at some of the key words we will be defining as move through this module:

- Pit
- Pit Ladder
- Pit Valve
- Refuge Space
- Roller Guides
- Roller Guides
- Rupture Value
- Scavenger Pump
- Seals
- Selector Tape
- Sensory Inspection
- Spring Buffers
- Stop Switch
- Traveling Cable

Advance

Materials Needed

✓ PPT slide 6



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 480 min

This section: 30 min (8 slides)

Section start time: _____

Section End Time: _____

DO



ASK participants what they remember about safety and elevators



SMALL GROUP ACTIVITY



WRITE

Instructor's Notes

SAY

In your own words:

Thinking back to other courses or just in general, what do we already know about hydraulic hoistways?

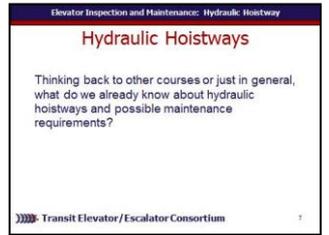
Possible inspection and maintenance requirements for hydraulic hoistways?

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.

Advance

Materials Needed

✓ PPT slide 7



- ✓ Chalk board or large paper
- ✓ Blank Paper
- ✓ Writing instruments

Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 480 min

This section: 30 min (8 slides) Section start time: _____ Section End Time: _____

DO



REVIEW slides

Instructor's Notes

SAY

In your own words:

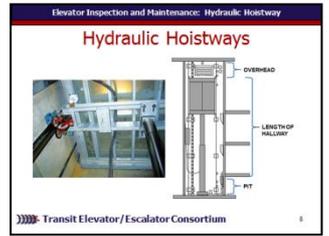
The elevator apprentice can expect to spend a considerable amount of time on the job in the elevator **hoistway**. A hoistway is a shaft or space typically enclosed by fireproof walls to permit passage of an elevator, dumbwaiter, or material lift between the floors of a building. The hoistway extends 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.

Advance There are three major areas of the hoistway: overhead, hoistway length, and pit as shown here.

Do Not Advance

Materials Needed

✓ PPT slide 8



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 450 min

This section: 30 min (6 slides) Section start time: _____

Section End Time: _____

DO



REVIEW slides

Instructor's Notes

SAY

In your own words:

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.

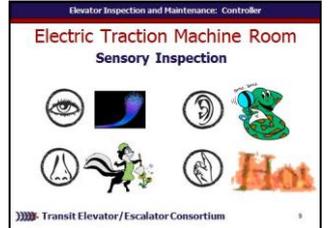
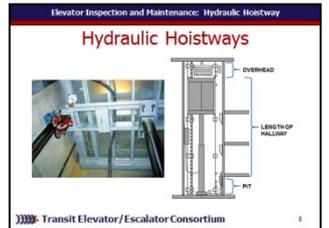
Advance

Lets begin by discussing sensory inspections of a hydraulic hoistway.

Advance

Materials Needed

✓ PPT slides 8, 9



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 450 min

This section: 30 min (6 slides)

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



REVIEW slide



ASK

Instructor's Notes

In your own words:

During a **sensory inspection** a good elevator technician relies on the **physical senses** of sight, smell, hearing, and touch while inspecting and maintaining the elevator.

Ask

What may indicate a problem within the hydraulic hoistway as indicated by sight?

Discuss possible answers

Advance for sample answers

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

Advance

✓ PPT slide 10



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 450 min

This section: 30 min (6 slides)

Section start time: _____

Section End Time: _____

DO



REVIEW slides



ASK

Instructor's Notes

SAY

In your own words:

What may indicate a problem within the hydraulic hoistway as indicated by smell?

Discuss possible answers

Advance for sample answers

Smell of burnt electrical wires, strong smell of oil, human bodily fluid, sewer gas

Advance

Ask

What may indicate a problem within the hydraulic hoistway as indicated by hearing?

Discuss answers

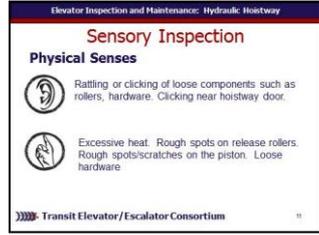
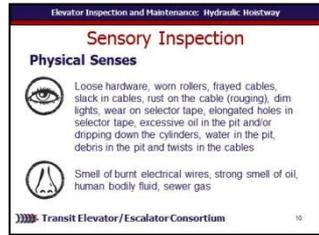
Advance for sample answers

Rattling or clicking of loose components such as rollers, hardware. Clicking near hoistway door.

Advance

Materials Needed

✓ PPT slides 10, 11



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Module Length: 480 min

Time remaining: 450 min

This section: 30 min (6 slides)

Section start time: _____

Section End Time: _____

DO



REVIEW slide



ASK

Instructor's Notes

SAY

In your own words:

Ask

What may indicate a problem within the hydraulic hoistway as indicated by touch?

Discuss possible answers

Advance for sample answers

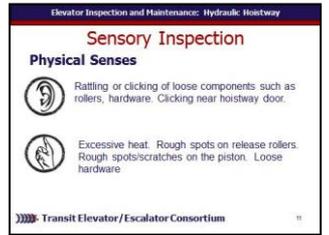
Excessive heat. Rough spots on release rollers. Rough spots/scratches on the piston. Loose hardware

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.

Advance

Materials Needed

✓ PPT slide 11



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Module Length: 480 min

Time remaining: 450 min

This section: 30 min (6 slides)

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



ASK

Instructor's Notes

In your own words:

Lets see what we have learned so far:
Excessive oil or water in the pit would be detected by a _____ sensory inspection.

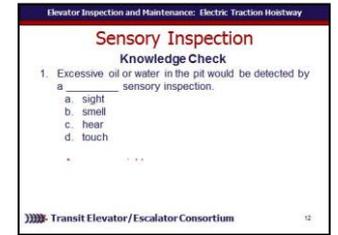
- a. sight
- b. smell
- c. hear
- d. touch

Call on participants for answer
Advance once given the correct answer

Answer: a

Advance.

✓PPT slide 12



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 450 min

This section: 30 min (6 slides)

Section start time: _____

Section End Time: _____

DO



ASK

Instructor's Notes

SAY

In your own words:

Burnt wires, sewer gas, strong oil odors would be detected by a _____ sensory inspection.

- a. sight
- b. smell
- c. hear
- d. touch

Call on participants for answer

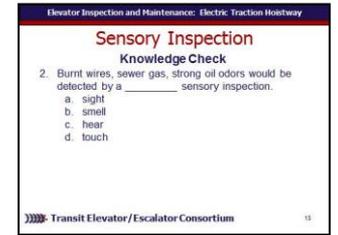
Advance once given the correct answer

Answer: b.

Advance

Materials Needed

✓PPT slide 13



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 450 min

This section: 30 min (6 slides)

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



ASK

In your own words:

Describe a possible hoistway problem which would be indicated by touch.

Call on participants for answer

Advance once given the correct answer

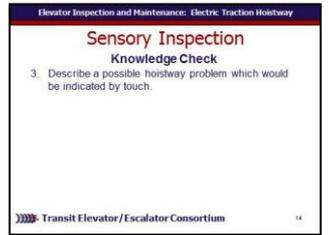
Answer:

Possible Answers:

Excessive heat. Rough spots on release rollers. Rough spots/scratches on the piston. Loose hardware.

Advance

✓ PPT slide 14



Instructor's Notes

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Module Length: 480 min

Time remaining: 420 min

This section: 60 min

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



ASK



CLASSROOM
ACTIVITY

Instructor's Notes

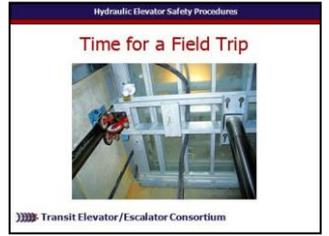
In your own words:

Take time to visit the field to provide an example demonstration and opportunities for participants to perform the following tests:

- Perform a sensory inspection of the hoistway

Advance

✓ PPT slide 15



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 360 min

This section: 120 min (65 slides) Section start time: _____

Section End Time: _____

DO



REVIEW slides



ASK

Instructor's Notes

SAY

In your own words:

Within the hydraulic elevator system there are four main areas: machine room, overhead, length of hoistway, and pit.

Advance

Ask

What types of specific equipment found in a hoistway may need inspection and maintenance?

Allow participants to discuss possible answers.

Review the list of sample hydraulic hoistway equipment.

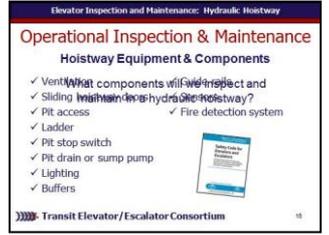
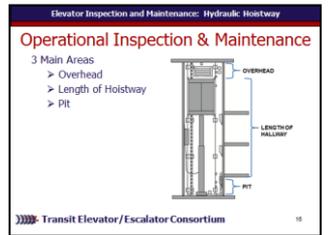
Advance

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,

Advance

Materials Needed

✓ PPT slides 16, 17



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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 slide



ASK

Instructor's Notes

In your own words:

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.

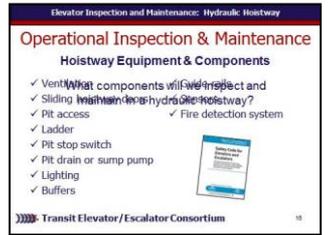
All transit authorities have strict guidelines for working in an elevator hoistway.

Advance

These guidelines are detailed within ASME A17.1, *Safety Code for Elevators and Escalators*, and all applicable local jurisdiction codes that govern the operation of passenger elevators.

Advance

✓ PPT slide 17



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 360 min

This section: 120 min (65 slides) Section start time: _____

Section End Time: _____

DO



REVIEW slides

Instructor's Notes

SAY

In your own words:

Lets start by looking at inspection and maintenance of the overhead area of a hydraulic hoistway.

Review locations of overhead components as indicated on diagram:

- Refuge space
- Sprinkler head
- Smoke detector
- Heat detector
- Limit switches

Advance

Materials Needed

✓ PPT slide 18



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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

SAY

In your own words:
Refer participants to

Participant Course book
p. 117

for chart to write additional notes.

Advance

Materials Needed

✓ PPT slide 19



✓ Course book
p. 116

Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 360 min

This section: 120 min (65 slides) Section start time: _____

Section End Time: _____

DO



REVIEW slide



ASK

Instructor's Notes

SAY

In your own words:

Many hydraulic elevators have very limited overhead clearance.

Ask

What is refuge space?

Allow participants to discuss answer.

Advance

The **refuge space** 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.

Advance

Materials Needed

✓ PPT slide 20



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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
ASME A17.1
ASME A17.2
ASME A17.3

Instructor's Notes

SAY

In your own words:

Always be aware of the top car emergency stop switch and be careful to avoid placing yourself in a hazardous position.

Advance Make sure that this area is free of any debris or hazards.

Advance Make sure that necessary warning signs are in place.

Advance

Refer participants to

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

Advance

Materials Needed

✓ PPT slide 20



- ✓ ASME A17.1
- ✓ ASME A17.2
- ✓ ASME A17.3

Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 360 min

This section: 120 min (65 slides) Section start time: _____

Section End Time: _____

DO



REVIEW slide



ASK

Instructor's Notes

SAY

In your own words:

Ask

What is a limit switch?

Allow participants to discuss answer.

Advance and share photo.

Advance

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.

Advance If limit switches appear sticky, clean the arm or activator.

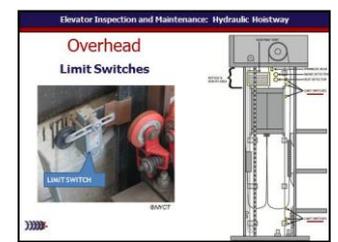
Advance Check that the switches and cams are aligned correctly and are securely fastened and adjust accordingly.

Advance The switch roller should strike the bevel of the cam and should be adjusted accordingly.

Advance

Materials Needed

✓ PPT slide 21, 22



Elevator – Hydraulic Hoistway

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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

In your own words:

Replace worn rollers and lubricate pivot pins.
Advance Examine the switch contacts and assembly for proper movement (contacts should wipe) and reaction and, where required, repair or replace.

Note: you may need a ladder to reach some of the switches in order to test them.

Advance

For **Normal Limit Switches**, operate the car on inspection mode to a point where the bottom normal limit device can be reached.

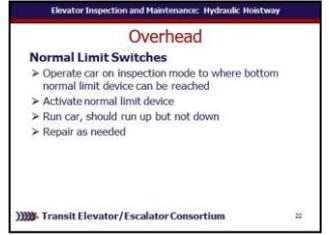
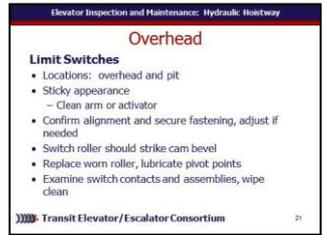
Advance Activate the normal limit device.

Advance The car should run up, but not down.

Advance If not functioning as designed, correct the defect as required.

Advance

✓ PPT slide 22, 23



Elevator – Hydraulic Hoistway

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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

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.

Advance Activate the bottom final device

Advance and try to move the car.

Advance The car should not move in either direction.

Advance If the car moves repair the defect.

Advance

✓ PPT slide 24



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Module Length: 480 min

Time remaining: 360 min

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

DO



REVIEW slides



ASK

Instructor's Notes

SAY

In your own words:

Ask
What is a hoistway vent?
Allow participants to discuss answer.
Advance and share photo.

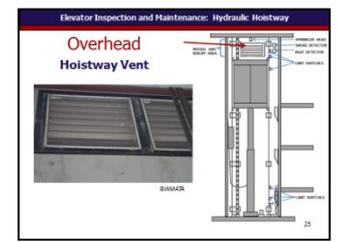
Advance
The hoistway vents located at the top of the overhead allows heat to dissipate from the hoistway.

Advance
Make sure the **hoistway vent** 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.

Advance

Materials Needed

✓ PPT slides 25, 26



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Module Length: min

Time remaining: min

This section: min (slides)

Section start time: _____

Section End Time: _____

DO



REVIEW slide



ASK

Instructor's Notes

SAY

In your own words:

Ask

Lets talk about heat and smoke detectors.
Who maintains these items?

Allow participants to discuss answer.

Advance and share diagram.

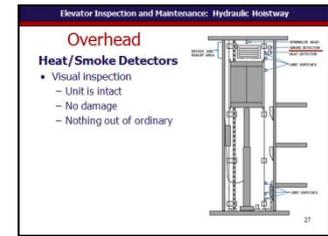
Advance

While the job to check the operation of **heat and smoke detectors** 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.

Advance

Materials Needed

✓ PPT slide 27



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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 slide



ASK

Instructor's Notes

In your own words:

Ask

Lets talk about guide rail brackets. What are guide rail brackets?

Allow participants to discuss answer.

Advance

Inspect the **guide rails brackets** for loose fastenings and proper fit at the joints.

Advance Because rail brackets have a protruding ledge that runs horizontally, dirt and dust can collect on top. Make sure to clean these surfaces.

Advance Check rails for nicks, gouges and burs and repair if necessary.

Advance Make sure to check alignment visually or with a laser, especially in areas prone to earthquakes. Report any defects or damage to supervision.

Advance

✓ PPT slide 28



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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

In your own words:

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.

Advance

✓ PPT slide 28



Instructor's Notes

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Module Length: 480 min

Time remaining: 360 min

This section: 120 min (65 slides) Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



ASK

Instructor's Notes

In your own words:

Lets see what we have learned so far:
Before overhead maintenance, what steps should Julie always take?

Call on participants for answer

Advance once given the correct answer

Answer:

- Be aware of top car emergency stop switch
- Verify available refuge space
- Ensure area is free of debris and hazards
- Ensure any needed warning signs are in place

Advance

✓ PPT slide 29



Elevator – Hydraulic Hoistway

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Module Length: 480 min

Time remaining: 360 min

This section: 120 min (65 slides) Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



ASK

In your own words:

Mike is inspecting the normal limit switch. What steps should Mike take?

Call on participants for answer

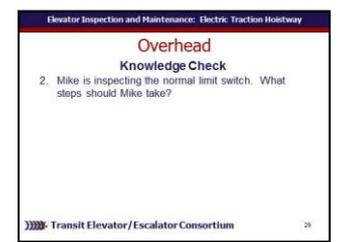
Advance once given the correct answer

Answer:

- Operate car on inspection mode to where bottom normal limit device can be reached
- Activate normal limit device
- Run car, should run up but not down
- Repair as needed

Advance

✓ PPT slide 30



Instructor's Notes

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

Instructor's Notes

SAY

In your own words:

Lets move on and look at inspection and maintenance of the overhead area of a hydraulic hoistway.

Review locations of length of hoistway components as indicated on diagram:

- Guide rails
- Cable support grip
- Halfway box
- Traveling cable
- Rail brackets
- Selector tape
- Dust cover
- Door frame
- Fish plate
- Fascia plates

Advance

Materials Needed

✓ PPT slide 31



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

SAY

In your own words:
Refer participants to

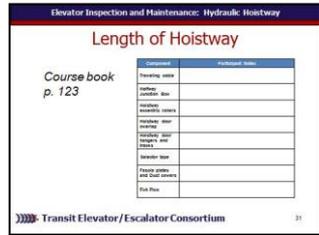
Participant Course book
p. 123

for chart to write additional notes.

Advance

Materials Needed

✓ PPT slide 32



✓ Course book
p.122

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



ASK

Instructor's Notes

SAY

In your own words:

Ask

What is a traveling cable?

Allow participants to discuss answer.

Advance and share

- ✓ **photo**
- ✓ **labeled parts**
- ✓ **locations on diagram**

Advance

Materials Needed

✓ PPT slide 33



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 slide

Instructor's Notes

In your own words:

Examine the **traveling cables** for wear, chafing, kinking and alignment.

Advance Make sure that there is no fraying on the outer insulation sheave.

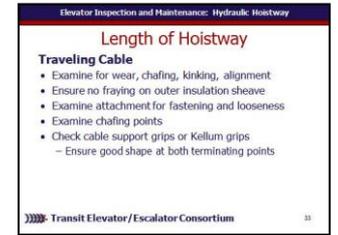
Advance Examine attachment points for secure fastening and looseness.

Advance Examine for chafing points, i.e. beams, bolts, rough wall etc. If found, protect as necessary.

Advance Check that the **cable support grips or Kellum grips**, like in the photo, are present and in good shape at both terminating points of the traveling cable.

Advance

✓ PPT slide 34



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



ASK

Instructor's Notes

SAY

In your own words:

- Ask**
 What is a halfway junction box?
Allow participants to discuss answer.
Advance and share
- ✓ **photo**
 - ✓ **labeled parts**
 - ✓ **locations on diagram**

Advance

At the junction box , ensure that the terminating end of the traveling cable is securely fastened to hoistway box.

Advance Make sure it is securely fastened to the bulkhead.

Advance Make sure cable support grip is present and in good condition.

Advance Make sure cover is in place.

Advance

Materials Needed

✓ PPT slides 35, 36



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 slide

In your own words:

Hoistway Eccentric Rollers

Verify that the gap between the upthrust rollers and the track is 1/64 inch (0.39mm). Adjust as required.

Advance

Hoistway Door Overlap

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.

Advance

✓ PPT slide 37



Instructor's Notes

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 slide

Instructor's Notes

In your own words:

Hoistway Door Hangers and Tracks

Verify the car **door track(s)** is secured and clean.

Advance Tighten all loose hardware as required.

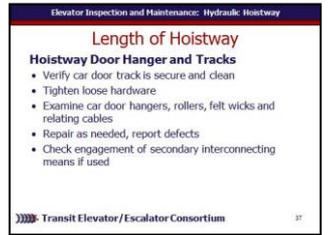
Advance Examine car **door hangers**, rollers, felt wicks and relating cables for defects and damage.

Advance Repair or replace as required. Report defects to supervision.

Advance Where a secondary interconnecting means is used, check that it is engaging properly. Repair or replace as required.

Advance

✓ PPT slide 38



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 slide



ASK

In your own words:

Ask

What is a selector tape?

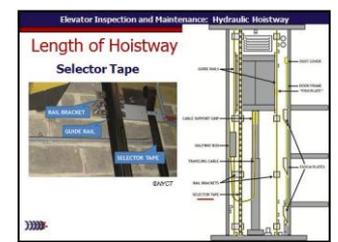
Allow participants to discuss answer.

Advance and share

- ✓ **photo**
- ✓ **labeled parts**
- ✓ **locations on diagram**

Advance

✓ PPT slide 39



Instructor's Notes

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 slide

Instructor's Notes

In your own words:

Examine the stationary **selector tape** by shining a flashlight beam parallel with the tape and check for any bends or cracks.

Advance 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.

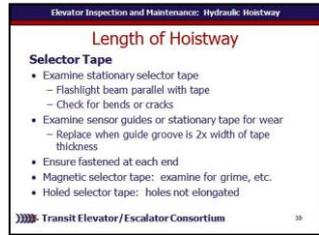
Advance Make sure that the selector tape is securely fastened at each end.

Advance For magnetic selector tapes, examine the magnets on tape for grime build up or materials that may interfere with their operation.

Advance For ones with holes, make sure that the holes are not elongated.

Advance

✓ PPT slide 40



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



ASK

Instructor's Notes

SAY

In your own words:

Ask

What is a fish plate?

Allow participants to discuss answer.

Advance and share

✓ **photo**

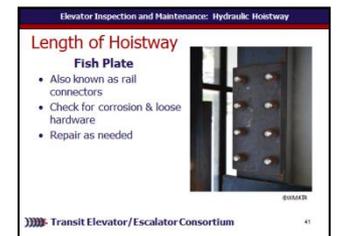
Advance

Inspect the fish plates aka known as *rail connectors* , checking for corrosion and loose hardware. Repair defects as required.

Advance

Materials Needed

✓ PPT slide 41



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 slides



ASK

Instructor's Notes

SAY

In your own words:

Ask

What is a fascia plate? A dust cover?

Allow participants to discuss answer.

Advance and share

✓ **Photo**

✓ **Locations on diagram**

Advance

Inspect the fish plates aka known as *rail connectors* , checking for corrosion and loose hardware. Repair defects as required.

Advance

Examine the entire shaft and ensure that all fascia plates and dust covers are in place, aligned correctly, and securely fastened.

Advance Examine the **fascia plate** for presence of scrapes.

Advance Check and secure loose **dust covers**.

Advance

Materials Needed

✓ PPT slides 42, 43



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 Elevator Maintenance

Instructor's Notes

SAY

In your own words:
Refer participants to

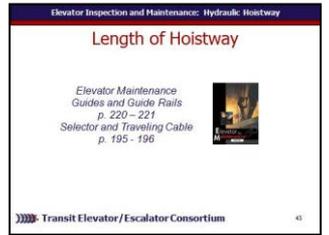
Elevator Maintenance
p. 220 – 221 and p. 195 – 196

for more information on guides, guide rails, selectors, and traveling cables.

Advance

Materials Needed

✓ PPT slide 44



✓ Elevator Maintenance
p.220 – 221,
p.195 – 196

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



ASK

Instructor's Notes

In your own words:

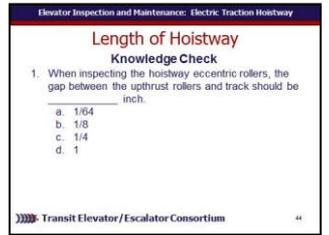
Lets see what we have learned so far:
When inspecting the hoistway eccentric rollers, the gap between the upthrust rollers and track should be _____ inch.

- a. 1/64
- b. 1/8
- c. 1/4
- d. 1

Call on participants for answer
Advance once given the correct answer

Answer: a.
Advance

✓PPT slide 45



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



ASK

Instructor's Notes

In your own words:

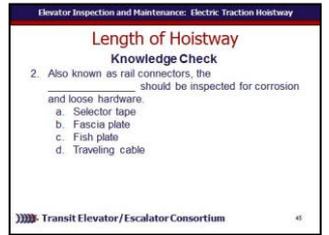
Also known as rail connectors, the _____ should be inspected for corrosion and loose hardware.

- a. Selector tape
- b. Fascia plate
- c. Fish plate
- d. Traveling cable

Call on participants for answer
Advance once given the correct answer

Answer: c.
Advance

✓PPT slide 46



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

Instructor's Notes

SAY

In your own words:

Lets move on and look at inspection and maintenance of the overhead area of a hydraulic hoistway.

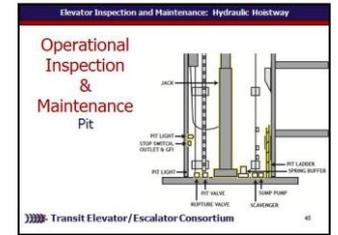
Review locations of pit components as indicated on diagram:

- Jack
- Pit Light
- Stop Switch, Outlet, & GFI
- Pit Light
- Lit Valve
- Rupture Valve
- Scavenger
- Sump Pump
- Spring Buffer
- Pit Ladder

Advance

Materials Needed

✓ PPT slide 47



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

SAY

In your own words:
Refer participants to

Participant Course book
p. 128

for chart to write additional notes.

Advance

Materials Needed

✓ PPT slide 48

Elevator Inspection and Maintenance: Hydraulic Hoistway			
		Pit	
		Course book p. 128	
Component	Participant Notes	Component	Participant Notes
Control Panel (Control room, pit, Hoistway)		PT valve	
PT sensor		Overhaul Condition	
PT light		Reserve valve	
PT stop switch		Hoisting device	
PT stop pump		Limit switches	
Reserve pump		Others	
Stop (control room)			

✓ Course book
p.127

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

Instructor's Notes

SAY

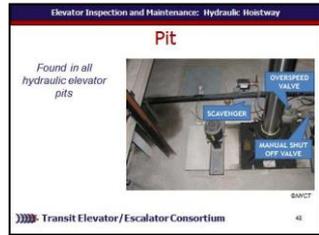
In your own words:

Three common components found in all hydraulic elevator pits includes an overspeed valve, a manual shot off valve, and a scavenger.

Advance

Materials Needed

✓ PPT slide 49



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 slide

Instructor's Notes

In your own words:

The **pit** 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.

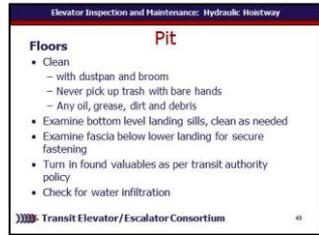
Advance Examine the bottom level landing sills and clean as required.

Advance Examine the fascia below the lower landing for secure fastening. Make necessary repairs as required.

Advance 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.

Advance

✓ PPT slide 50



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 slide

In your own words:

Pit Light

Check the operation of the pit lighting and receptacles. Verify that the pit light has required safety guard installed.

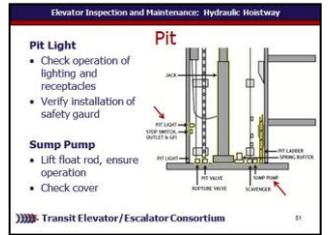
Advance

Pit Sump Pump

Verify that the **sump pump** is operational by lifting the **float rod**. 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.

Advance

✓ PPT slide 52



Instructor's Notes

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 slides

Instructor's Notes

SAY

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.

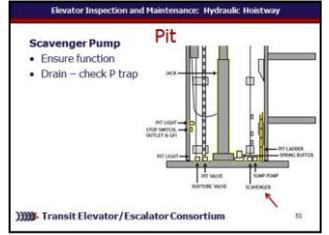
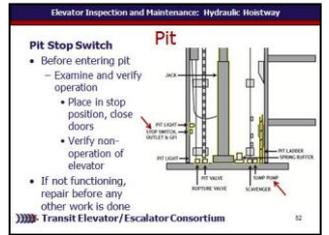
Advance

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**

Materials Needed

✓ 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



REVIEW slides

Instructor's Notes

SAY

In your own words:

Jack - Cylinder and Piston

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

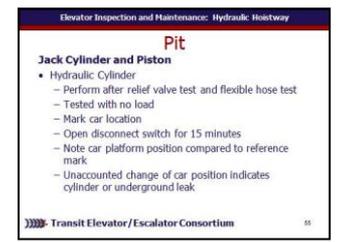
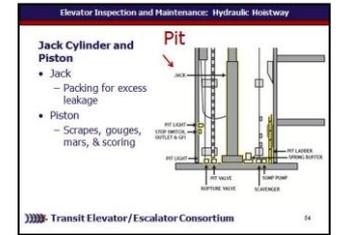
Advance

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

Materials Needed

✓ 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



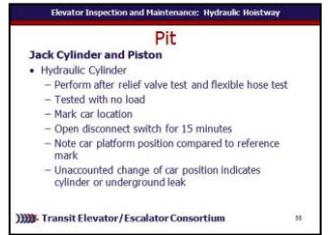
REVIEW slide

In your own words:

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.

Advance

✓ PPT slide 56



Instructor's Notes

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 slide

Instructor's Notes

In your own words:

Overflow Container

Empty the overflow container for hydraulic oil that leaked from the plunger seal/packing and properly discard it.

Advance Never pour this oil back into the tank, since it is likely to have dirt in it.

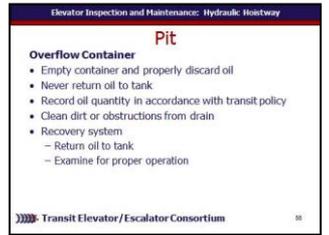
Advance Record the quantity of oil discarded on the machine room log or in accordance with your agency's requirements.

Advance 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.

Advance 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.

Advance

✓ PPT slide 57



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 slide

In your own words:

For Drip pans, seals, and pit valves –
Drip Pans

Advance 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.

Seals

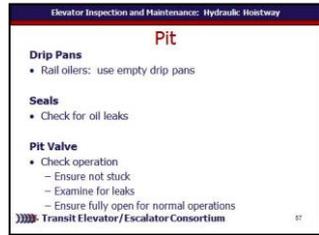
Advance Be sure to check **seals** for oil leak.

Pit Valve

Advance Check the operation of the **pit valve** 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.

Advance

✓ PPT slide 58



Instructor's Notes

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 slide

In your own words:

For rupture valves and couplings –
Rupture Value

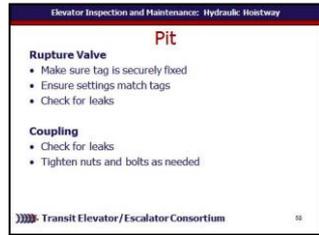
Advance Examine the **rupture value**, making sure that the tag is securely affixed. Check to make sure that the settings on the tag match how the valve is operating. Be sure to check for leaks.

Coupling

Advance Check coupling for leaks and tighten nuts and bolts as needed.

Advance

✓ PPT slide 59



Instructor's Notes

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 slide

Instructor's Notes

In your own words:

Traveling Cables

Verify that the traveling cable is not touching the pit floor or rubbing against any other equipment.

Advance Examine the cables for wear, twists or damage (may need to inspect from top of car).

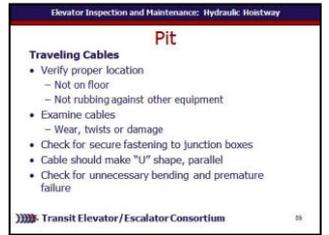
Advance Check that the traveling cable is securely fastened to all junction boxes (may need to inspect from on top of the car).

Advance 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.

Advance This will result in unnecessary bending and premature failure.

Advance

✓ PPT slide 60



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



ASK

Instructor's Notes

SAY

In your own words:

Ask

Again, what do we know about limit switches?

Discuss participant ideas.

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.

Advance If limit switches appear sticky, clean the arm or activator.

Advance Check that the switches and cams are aligned correctly and are securely fastened and adjust accordingly.

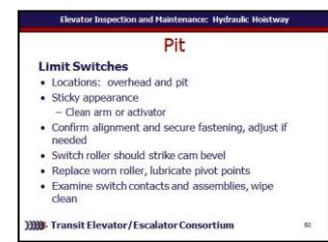
Advance The switch roller should strike the bevel of the cam and should be adjusted accordingly.

Advance Replace worn rollers and lubricate pivot pins.

Advance

Materials Needed

✓ PPT slide 61



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 slides

Instructor's Notes

SAY

In your own words:

Examine the switch contacts and assembly for proper movement (contacts should wipe) and reaction and, where required, repair or replace.

Note: you may need a ladder to reach some of the switches in order to test them.

Advance

For **Normal Limit Switches**, 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.

Advance

Materials Needed

✓ PPT slides 61 62



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 slides

Instructor's Notes

SAY

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.

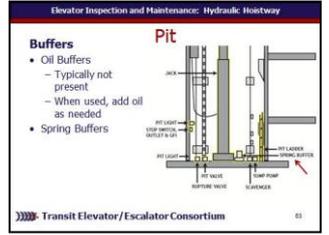
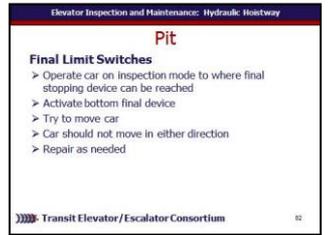
Advance

Lets look at Spring Buffers.

Advance

Materials Needed

✓ PPT slides 63, 64



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 slide

In your own words:

Check to be sure they are attached and mounted for tightness and alignment with the strike plate on the bottom of the car.

Advance If a counterweight (used in roped hydraulic elevators) is used, it must not be allowed to land.

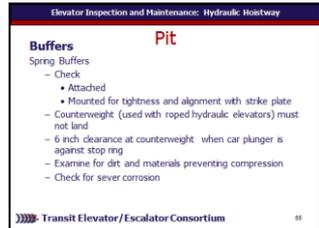
Advance There should be at least a six-inch clearance at the bottom of the counterweight when the car plunger is against the stop ring.

Advance Examine the spring buffers for dirt or materials inside that may prevent compression.

Advance Also check for severe corrosion that may weaken them.

Advance

✓ PPT slide 65



Instructor's Notes

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



ASK

In your own words:

Lets see what we have learned so far:
What should Danny do before entering the pit with regard to the pit stop switch?

Call on participants for answer

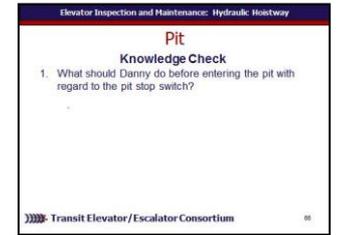
Advance once given the correct answer

Answer:

- Examine and verify operation
- Place in stop position, close doors
- Verify non-operation of elevator

Advance

✓ PPT slide 66



Instructor's Notes

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



ASK

In your own words:

Alex needs to inspect the hydraulic cylinder. What should Alex do to complete this process?

Call on participants for answer

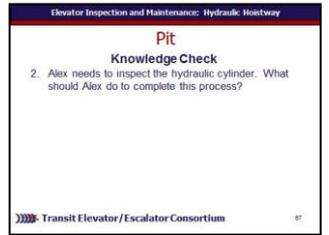
Advance once given the correct answer

Answer:

- Perform after relief valve test and flexible hose test
- Tested with no load
- Mark car location
- Open disconnect switch for 15 minutes
- Note car platform position compared to reference mark
- Unaccounted change of car position indicates cylinder or underground leak

Advance

✓ PPT slide 67



Instructor's Notes

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 slides

Instructor's Notes

SAY

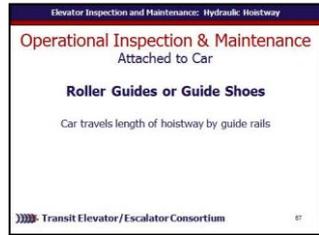
In your own words:

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 **roller guides** or **guide shoes** which are attached to the elevator car.

Advance

Materials Needed

✓ PPT slide 68



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

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

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

✓ 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



REVIEW slide



ASK

Instructor's Notes

SAY

In your own words:

Ask

What do we see here?

Discuss participant ideas.

We have the top of the car operator and light. The stop switch is also located here as well.

Advance

Materials Needed

✓ PPT slide 70



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 slide

Instructor's Notes

In your own words:

For the stop switch and top of car operator and light –
 Stop Switch

Advance Before entering the top-of-car, place the **stop switch** in the stop position. Then allow the doors to close and verify that the car will not run.

Top of Car Operator and Light

Advance 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.

Advance

✓ PPT slide 71



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 slide

Instructor's Notes

In your own words:

For top guide rollers
 Examine the **guide rollers** atop the car to determine the condition of the rollers and fit on the rail.

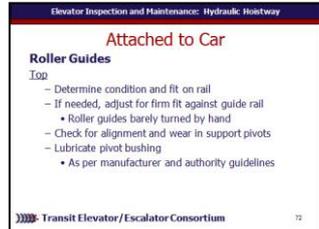
Advance If required, adjust for a firm fit against the guide rail whereby the roller guides are just barely able to be turned by hand.

Advance Check for proper roller guide alignment with the guide rail.

Advance Check the support pivots for evidence of wear. Lubricate the pivot bushing per manufacturer and authority guidelines

Advance

✓ PPT slide 72



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 slide

Instructor's Notes

In your own words:

For bottom guide rollers
 Examine the lower guide rollers to determine the condition of the tires and fit on the rail.

Advance If required, adjust for firm fit against the rail whereby the roller guides are just barely able to be turned by hand.

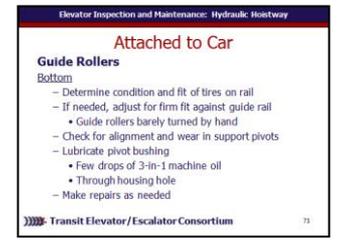
Advance Check for proper guide rollers alignment with the guide rail.

Advance 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.

Advance Make necessary repairs or adjustments as required.

Advance

✓ PPT slide 73



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

In your own words:

In cases where **guide shoes** are used instead of guide rollers, check pad thickness, tightness of hardware, and that the shoes move freely and smoothly.

Advance

When an elevator car is misaligned on the guide rail, it is often because of faulty roller guides and/or guide shoes.

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.

Advance

✓ PPT slides 74, 75



Instructor's Notes

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 slides

Instructor's Notes

SAY

In your own words:

Review photo and indicated steps with participants.
Advance

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.

Advance

For a car fan -
Clean car ventilation and fan opening. If necessary, remove the **car fan** and clean the blades or squirrel cage.

Advance

Materials Needed

✓ PPT slides 76, 77, 78



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



ASK

In your own words:

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.

Call on participants for answer

Advance once given the correct answer

Answer: Yes

Advance

✓PPT slide 79



Instructor's Notes

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



ASK

In your own words:

Describe the difference between inspection and maintenance of the top and bottom roller guides.

Call on participants for answer

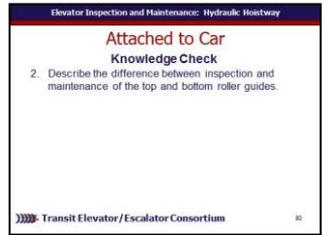
Advance once given the correct answer

Answer:

Lubrication – top as per manufacturer and bottom uses few drops of 3-in-1 machine oil through housing hole.

Advance

✓ PPT slide 80



Instructor's Notes

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



ASK



CLASSROOM
ACTIVITY

Instructor's Notes

In your own words:

Take time to visit the field to provide an example demonstration and opportunities for participants to perform the following tests:

- Perform an inspection of components in a hydraulic elevator hoistway
- Perform an operational test on all safety devices in the hoistway

Advance

✓PPT slide 81



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



REVIEW slide

Instructor's Notes

SAY

In your own words:

Review locations of lighting as indicated on diagram:

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.

Advance

Materials Needed

✓ PPT slide 82



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



ASK



CLASSROOM
ACTIVITY

Instructor's Notes

In your own words:

Take time to visit the field to provide an example demonstration and opportunities for participants to perform the following tests:

- Perform an operational test on all auxiliary lights

Advance

✓PPT slide 83



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



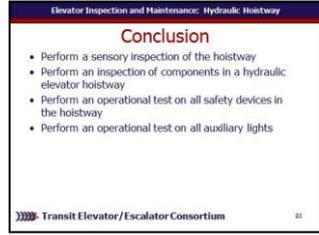
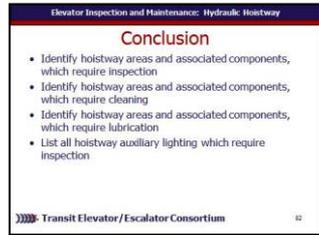
CLASSROOM ACTIVITY

Instructor's Notes

In your own words:
Read slide.
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.
Advance

Read slide.
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.
Advance

✓ PPT slides 84, 85



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

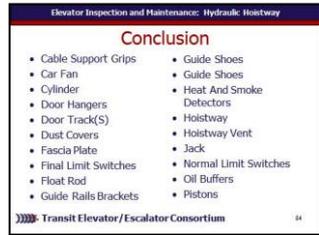


CLASSROOM ACTIVITY

Instructor's Notes

In your own words:
 Lets take a look at some of the key words we have defined as moved through this module.
Read slide. Discuss definitions as a group.
Advance.

✓ PPT slides 86, 87



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



**CLASSROOM
ACTIVITY**



INDIVIDUAL ACTIVITY

Instructor's Notes

In your own words:

Administer quizzes.

- ✓ PPT slide 88
- ✓ Quizzes
- ✓ Pencils

