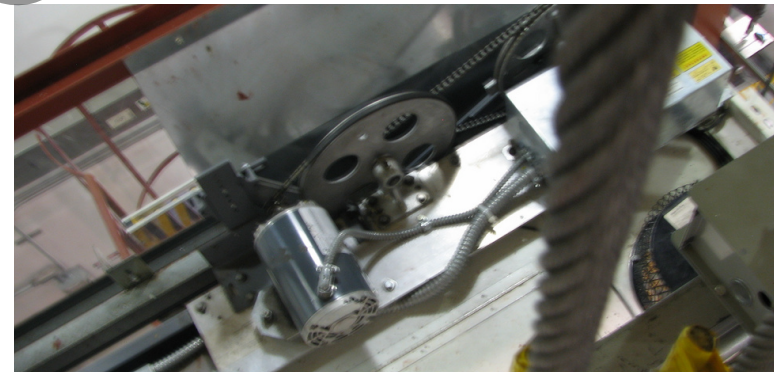
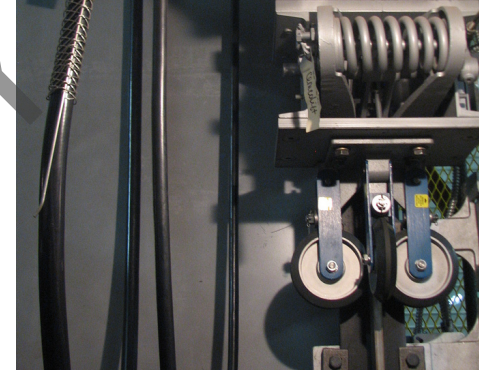
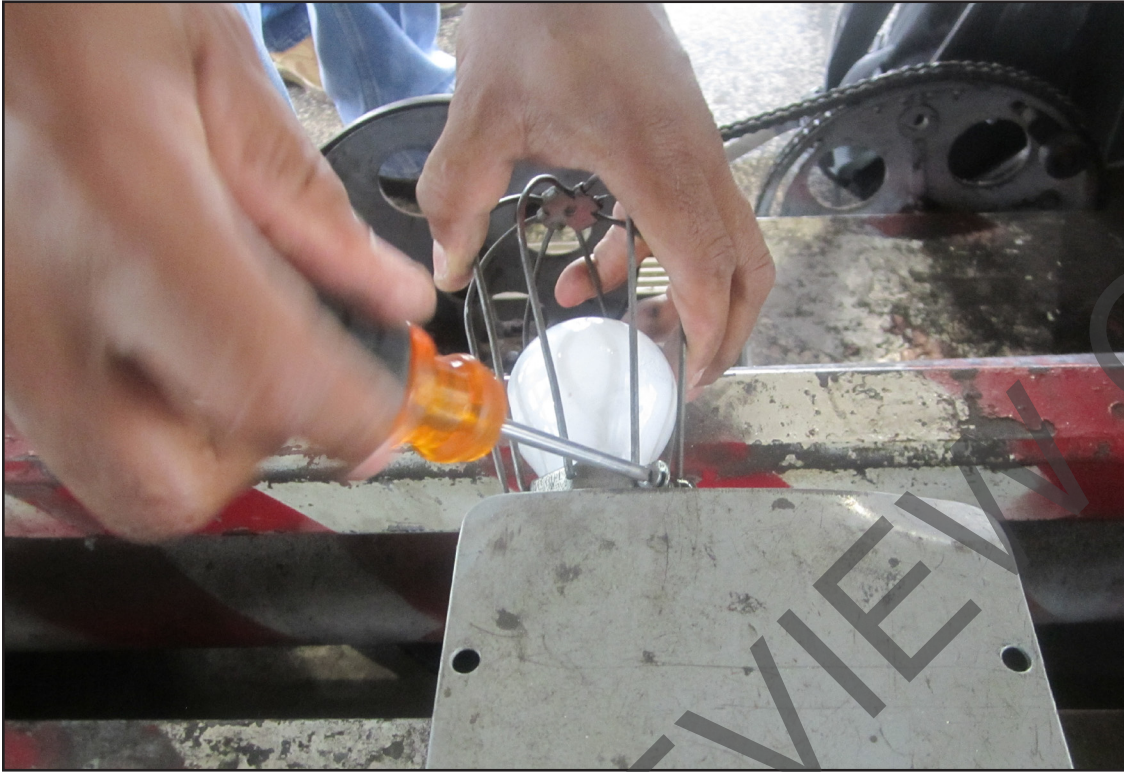


Instructor Guide



219: Elevator: Inspection and Basic Maintenance

Module 10: Brakes



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PREVIEW ONLY

Elevator – Brakes

Instructor's Guide



Icons Used In This Guide



REVIEW slides



ASK



CLASSROOM ACTIVITY



SMALL GROUP ACTIVITY



INDIVIDUAL ACTIVITY



WRITE



Multimedia



REFER participants to

Agenda

Topic #	Topic Title	Duration
1	Overview	40 Minutes
2	Sensory Inspection	30 Minutes
3	Basic Brake Maintenance	50 Minutes
4	Field Trip	90 Minutes
5	Summary	30 Minutes
	Total Time:	240 Minutes

Elevator – Brakes

Instructor's Guide



Overview

Purpose The purpose of this module is to:

Provide the participant with an overview on the inspection and basic maintenance of brakes in a transit elevator system.

Objectives

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

- Perform sensory inspection
- Perform operational inspection
- Identify proper brake pad clearance
- Check that proper brake pad clearances are present
- Lubricate pivot points

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
- Filed Employees' Elevator Testing Manual
- Hollister Whitney Elevator Corporation Disk Brake Adjustment

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 240 min This section: 40 min (14 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="150 501 618 544" data-label="Text"> <p>REVIEW module objectives</p> </div> <div data-bbox="19 791 444 836" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="19 896 610 1239" data-label="Form"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="672 425 1023 465" data-label="Section-Header"> <h3>In your own words:</h3> </div> <div data-bbox="672 486 902 526" data-label="Text"> <p>Today we will</p> </div> <div data-bbox="672 534 1331 793" data-label="List-Group"> <ul style="list-style-type: none"> • Perform sensory inspection • Perform operational inspection • Identify proper brake pad clearance • Check that proper brake pad clearances are present • Lubricate pivot points </div> <div data-bbox="672 801 838 836" data-label="Text"> <p>Advance</p> </div>	<div data-bbox="1493 472 1725 508" data-label="Text"> <p>✓ PPT slide 3</p> </div> <div data-bbox="1541 529 1854 762" data-label="Image"> </div>

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 240 min This section: 40 min (14 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div data-bbox="34 432 141 532"></div> <div data-bbox="160 439 537 568"> ASK participants what they remember about safety and elevators </div> <div data-bbox="34 554 141 661"></div> <div data-bbox="144 596 537 632"> SMALL GROUP ACTIVITY </div> <div data-bbox="34 682 141 789"></div> <div data-bbox="160 711 285 746"> WRITE </div> <div data-bbox="28 789 444 839"> Instructor's Notes </div> <div data-bbox="28 896 614 1246"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1020 468"> In your own words: </div> <div data-bbox="676 489 1352 618"> Thinking back to other courses or just in general, what do we already know about elevator brakes? </div> <div data-bbox="676 632 1078 675"> Maintenance of brakes? </div> <div data-bbox="676 689 1362 961"> <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> </div> <div data-bbox="676 1061 836 1103"> Advance </div>	<div data-bbox="1497 454 1719 496"> ✓PPT slide 5 </div> <div data-bbox="1541 532 1854 761"> </div> <div data-bbox="1512 803 1821 1011"> <ul style="list-style-type: none"> ✓ <u>Chalk board or large paper</u> ✓ <u>Blank Paper</u> ✓ <u>Writing instruments</u> </div>

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 240 min This section: 40 min (14 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div data-bbox="34 464 142 565"></div> <div data-bbox="179 504 417 542">REVIEW slide</div> <div data-bbox="34 589 142 691"></div> <div data-bbox="179 615 260 654">ASK</div> <div data-bbox="34 791 444 839"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="678 425 1020 464">In your own words:</div> <div data-bbox="678 486 894 525">Ask - Recall</div> <div data-bbox="678 532 1195 571">Again, how do brakes operate?</div> <div data-bbox="678 578 1360 658">Allow participants to discuss possible answers.</div> <div data-bbox="678 665 1043 704">Advance for answer.</div> <div data-bbox="678 711 1445 972"> <p>The brake is a spring loaded clamping device that prevents the elevator from moving when the car is at rest and no power is applied to the hoistway motor. Remember, brakes do not stop the elevator; they hold the elevator in place.</p> </div> <div data-bbox="678 1022 836 1061">Advance</div>	<div data-bbox="1499 472 1723 511">✓ PPT slide 8</div> <div data-bbox="1541 529 1854 762"> </div>

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 240 min This section: 40 min (14 slides) Section start time: _____ Section End Time: _____


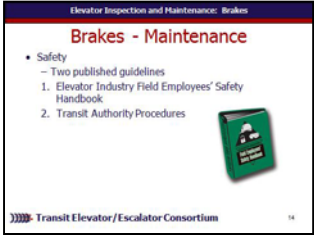
DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <div data-bbox="170 489 409 528"><p>REVIEW slide</p></div> <div data-bbox="28 792 444 835"><p>Instructor's Notes</p><hr/><hr/><hr/><hr/><hr/></div>	<p>In your own words:</p> <p>This module provides the participant with the basic procedures for proper maintenance of elevator brakes. ASME A17.1 code requires that all passenger elevator brakes be tested for compliance with applicable requirements. The participant should be familiar with the significance of this code as well as jurisdictional codes and regulations that govern the installation, maintenance and repair of elevator brakes.</p> <p>Advance</p>	<p>✓PPT slide 12</p> <div data-bbox="1541 529 1854 762"></div>

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 240 min This section: 40 min (14 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div> REVIEW slide</div> <div><h3>Instructor's Notes</h3><div></div><div></div><div></div><div></div><div></div><div></div></div>	<p>In your own words:</p> <p>Every technician working in a transit environment must follow two published guidelines for working safely around elevator equipment: the <i>Elevator Industry Field Employees' Safety Handbook</i> published by National Elevator Industry, Inc.; and the safety policy of the transit authority with which the technician works.</p> <p>Advance</p>	<p>✓ PPT slide 14</p> <div></div>

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 200 min This section: 30 min (7 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="34 792 444 835"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:</p> <p>Ask What may indicate a problem with a brake as indicated by touch?</p> <p>Discuss possible answers</p> <p>Advance for sample answers Heat, rough spots. The brake drum should be slightly cooler than the motor and gear.</p> <p>Advance Brake dragging/locking.</p> <p>Advance Elevator jerking and bouncing at the floor.</p> <p>Advance Elevator car does not level accurately at the floor.</p> <p>Advance Hard stop.</p> <p>Advance Car stopping in flight.</p> <p>Advance</p>	<p>✓ PPT slide 18</p> <div data-bbox="1541 528 1854 763"> <p>Sensory Inspection Physical Senses</p> <ul style="list-style-type: none"> What may indicate a problem with a brake system could be: <ul style="list-style-type: none"> Brake dragging/locking Elevator jerking and bouncing at the floor Elevator car does not level accurately at the floor Hard stop Car stopping in flight <p><small>Transit Elevator/ Escalator Consortium</small></p> </div>

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 170 min This section: 50 min (16 slides) Section start time: _____ Section End Time: _____



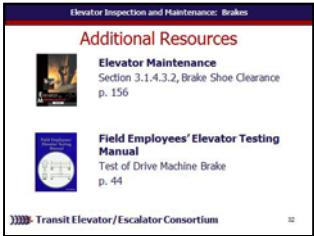
DO	SAY	Materials Needed
<div data-bbox="34 464 144 564" data-label="Image"></div> <div data-bbox="170 489 428 528" data-label="Text"> <p>REVIEW slides</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 608 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1020 464" data-label="Section-Header"> <p>In your own words:</p> </div> <div data-bbox="676 489 1381 571" data-label="Text"> <p>Remember, all adjustments must be made with power OFF.</p> </div> <div data-bbox="676 578 840 614" data-label="Section-Header"> <p>Advance</p> </div> <div data-bbox="676 664 1033 699" data-label="Text"> <p>Tests with Power Off:</p> </div> <div data-bbox="676 706 985 921" data-label="List-Group"> <ul style="list-style-type: none"> Fasteners Brake Lining Brake Pivot Points Brake Pins Brake coil </div> <div data-bbox="676 928 840 963" data-label="Section-Header"> <p>Advance</p> </div>	<div data-bbox="1497 471 1825 506" data-label="Text"> <p>✓ PPT slides 24, 25</p> </div> <div data-bbox="1535 528 1854 756" data-label="Image"> </div> <div data-bbox="1535 778 1854 1006" data-label="Image"> </div>

Elevator – Brakes

Instructor's Guide



Module Length: 240 min Time remaining: 170 min This section: 50 min (16 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div>  REVIEW slide </div> <div>  REFER participants to Additional Resources </div> <div> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words: <i>Have participants turn to</i></p> <ul style="list-style-type: none"> Elevator Maintenance Section 3.1.4.3.2, Brake Shoe Clearance p. 156 Field Employees' Elevator Testing Manual Test of Drive Machine Brake p. 44 <p><i>Review those pages together.</i></p> <p>Advance.</p>	<p>✓ PPT slide 32</p> <div>  </div> <p>✓ <u>Elevator Maintenance</u></p> <p>✓ <u>Field Employees' Elevator Testing Manual</u></p>

Elevator –

Instructor's Guide



Module Length: 240 min Time remaining: 170 min This section: 50 min (16 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div data-bbox="19 439 131 542"></div> <div data-bbox="154 456 390 499">REVIEW slide</div> <div data-bbox="19 559 131 668"></div> <div data-bbox="162 582 359 625">Multimedia</div> <div data-bbox="30 791 444 839"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:</p> <p><i>Click on the links and briefly share the short video.</i></p> <p>Reasons for removing and replacing brake pads. http://www.youtube.com/watch?v=VC-dLD3sKOE&feature=relmfu Video length = 3:33 minutes</p> <p>Video: Replacing worn brake shoe. http://www.youtube.com/watch?v=9uaGy6g2H-w&feature=relmfu Video length = 2:22 minutes</p> <p>Advance</p>	<p>✓ PPT slide 34</p> <div data-bbox="1541 531 1854 762"> </div> <p>✓ Internet connection</p>

Elevator –

Instructor's Guide



Module Length: 240 min Time remaining: 120 min This section: 90 min Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div data-bbox="54 464 156 565"></div> <div data-bbox="179 489 260 525">ASK</div> <div data-bbox="54 586 156 695"></div> <div data-bbox="179 618 421 696">CLASSROOM ACTIVITY</div> <div data-bbox="32 792 444 839">Instructor's Notes</div> <div data-bbox="32 896 610 1239"> <hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words: <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"> • Sensory Inspection • Perform operational inspection • Identify proper brake pad clearance • Check that proper brake pad clearances are present • Lubricate pivot points <p>Advance</p>	<p>✓PPT slide 38</p> <div data-bbox="1543 531 1854 763"> </div>