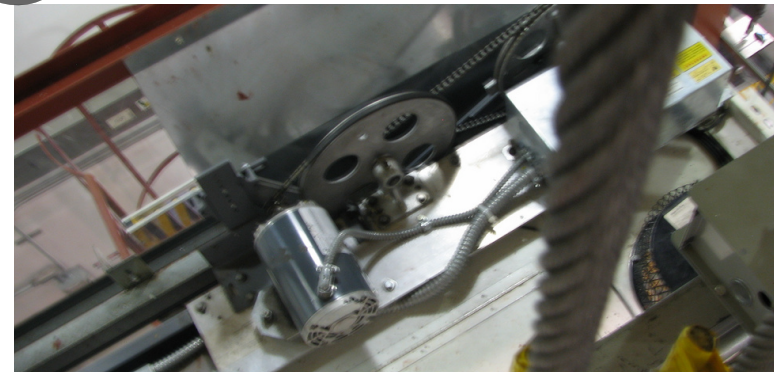
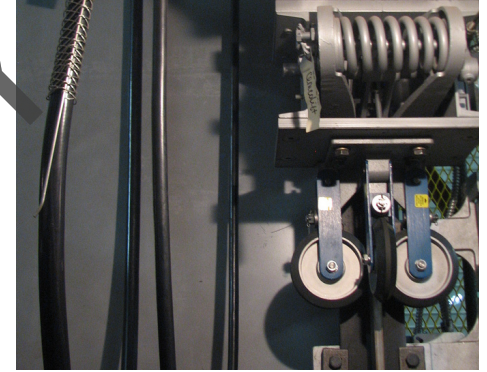
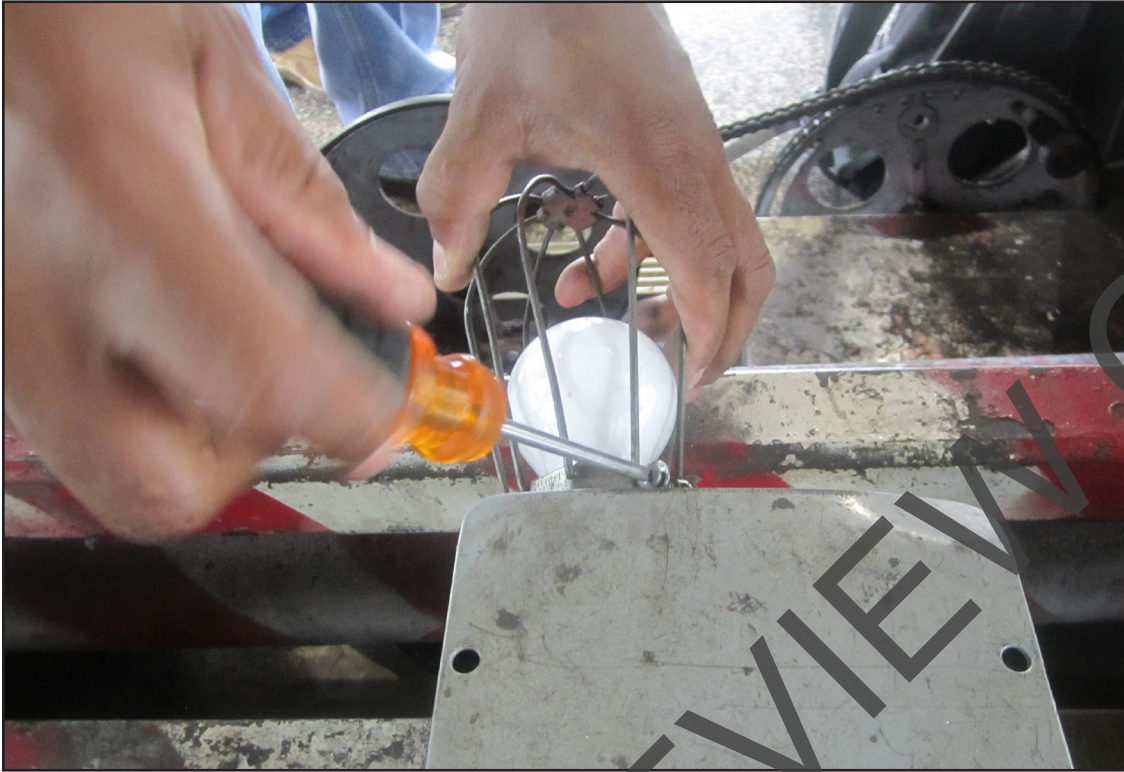


Instructor Guide



219: Elevator: Inspection and Basic Maintenance Module 1: General Safety and Maintenance



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PREVIEW ONLY

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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	20 Minutes
2	Types of Maintenance	30 Minutes
3	Barricades	30 Minutes
4	Fall Protection	10 Minutes
5	Landing the Car	30 Minutes
6	Documentation	20 Minutes
7	Field Trip	80 Minutes
8	Summary	30 Minutes
	Total Time:	240 Minutes

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Overview

Purpose The purpose of this module is to:

Provide the participant with a conceptual understanding of safety practices for elevator inspection and maintenance.

Objectives

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

- Identify general safety practices
- Relate safe work practice to elevator maintenance
- Explain safe practices related to the use of scaffolding
- Identify protocol for authority PM documentation

Materials **Mandatory**

Make sure you have the following

- PowerPoint Presentation
- Coursebook
- Quizzes
- Pencils

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
- Specific transit authority related procedures and guidelines
- Transit authority preventative maintenance checklist
- Elevator Industry Field Employees' Safety Handbook

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Module Length: 240 min Time remaining: 240 min This section: 20 min (9 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="28 792 444 835" 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="676 421 1023 464" data-label="Section-Header"> <h4>In your own words:</h4> </div> <div data-bbox="676 485 1371 621" data-label="Text"> <p>Follow your transit agency's procedures regarding proper Preventive Maintenance (PM) and regular inspections.</p> </div> <div data-bbox="676 621 1449 1149" data-label="List-Group"> <p>Advance Each agency will have its own rules regarding the period for preventive maintenance procedures that will be based on Advance original equipment manufacturers' (OEMs) recommendations, Advance weather conditions, Advance number of riders, and Advance amount of run time for each unit. Advance Preventive maintenance is Advance the minor adjustments and minor repairs due to wear and everyday usage. Preventive maintenance includes</p> </div>	<div data-bbox="1497 471 1729 506" data-label="Text"> <p>✓ PPT slide 7</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"></div>

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Module Length: 240 min Time remaining: 220 min This section: 30 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="170 492 428 528" 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="676 421 1023 464" data-label="Section-Header"> <p>In your own words:</p> </div> <div data-bbox="676 485 1439 835" data-label="Text"> <p>The disadvantages of reactive maintenance are decreased equipment life expectancy, increased labor costs for repairs because failures will most likely be more extensive, and increased capital cost for premature equipment replacement. Additionally, the lack of maintenance will increase the probability of accidents and lawsuits.</p> </div> <div data-bbox="676 842 840 878" data-label="Section-Header"> <p>Advance</p> </div> <div data-bbox="676 928 1429 1192" data-label="Text"> <p>Reactive maintenance could, unfortunately, lead to this. "The elevators just stopped working...we didn't do anything!" Michigan Central Station in Detroit, Michigan, U.S.A.</p> </div> <div data-bbox="676 1199 840 1235" data-label="Section-Header"> <p>Advance</p> </div>	<div data-bbox="1497 471 1825 506" data-label="Text"> <p>✓ PPT slides 11, 12</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div> <div data-bbox="1535 778 1854 1006" data-label="Image"> </div>

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Module Length: 240 min Time remaining: 220 min This section: 30 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="170 492 409 528" data-label="Text"> <p>REVIEW slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 608 1242" data-label="Form"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 428 1023 464" data-label="Section-Header"> <p>In your own words:</p> </div> <div data-bbox="676 492 1449 1192" data-label="Text"> <p>Testing is a basic part of the preventive maintenance plan which involves examination of the equipment to ensure that each device is functioning properly as designed. It is not unusual for testing of this type to be conducted at regular scheduled intervals such as monthly, quarterly or annually. In transit systems that operate around the clock, the testing may occur near the off-peak hours of operation, making it possible to have no more than minimal impact on transportation outcomes. Often, running these periodic tests helps to identify potential issues that could, over time cause the equipment to become inoperable, and provide the chance to address those issues now rather than later.</p> </div> <div data-bbox="676 1199 840 1235" data-label="Text"> <p>Advance</p> </div>	<div data-bbox="1497 471 1748 506" data-label="Text"> <p>✓ PPT slide 17</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

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Module Length: 240 min Time remaining: 220 min This section: 30 min (16 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div data-bbox="40 472 146 572"></div> <div data-bbox="175 496 258 532">ASK</div> <div data-bbox="40 596 146 696"></div> <div data-bbox="170 625 407 661">REVIEW slide</div> <div data-bbox="30 792 444 835"> <h3>Instructor's Notes</h3> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<p>In your own words:</p> <p>Ask Why is elevator preventive maintenance important?</p> <p>Allow participants to discuss possible answers. From the first day an elevator is put into service, everyday normal operation begins to deteriorate its components. Environmental issues like dirt, snow, rain/water, temperature extremes can accelerate this deterioration. Deterioration can also be accelerated by overloading, accidents and misuse Preventive maintenance is important because elevators not receiving regularly scheduled maintenance will have components that fail prematurely.</p> <p>Advance</p>	<p>✓PPT slide 19</p> <div data-bbox="1541 529 1854 762"> </div>

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Module Length: 240 min Time remaining: 220 min This section: 30 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="170 492 409 535" data-label="Text"> <p>REVIEW slide</p> </div> <div data-bbox="28 792 444 835" data-label="Section-Header"> <h3>Instructor's Notes</h3> </div> <div data-bbox="28 892 608 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 1439 1063" data-label="Text"> <p>The following are basic recommendations regarding inspections and maintenance. Use your five senses (sight, hearing, feel, smell and limited taste) when inspecting and performing maintenance. Look not only at the part you are working on but at the big picture (i.e., look around when in the pit to see anything that appears to be not right or abnormal). Finally, and most importantly, use your knowledge, past experience and basic physics (i.e., gravity, mechanics, and electricity, etc.). If you have any doubts, always ask. Everyone is learning every day.</p> </div> <div data-bbox="676 1063 1139 1106" data-label="Text"> <p>Advance Think safety first.</p> </div> <div data-bbox="676 1106 840 1149" data-label="Text"> <p>Advance</p> </div>	<div data-bbox="1497 471 1748 514" data-label="Text"> <p>✓ PPT slide 22</p> </div> <div data-bbox="1535 528 1854 763" data-label="Image"> </div>

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Instructor's Guide



Module Length: 240 min Time remaining: 190 min This section: 10 min (4 slides) Section start time: _____ Section End Time: _____


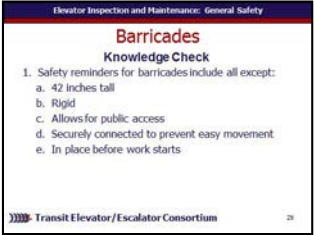
DO	SAY	Materials Needed
<div> REVIEW slide</div> <div><h3>Instructor's Notes</h3><div></div><div></div><div></div><div></div><div></div><div></div></div>	<p>In your own words:</p> <p>When maintenance is being performed on a machine, the area in which you are working may need to be secured. For instance, a portion of a floor plate or side panel may need to be removed to gain access in order to perform maintenance or inspection on the machine. In this case, a hazardous condition has been created. The area needs to be barricaded so that patrons and other employees are aware of the hazard and its location.</p> <p>Securing the area will help prevent people from entering the hazardous area. Securing an area can also prevent curious people from getting too close to you and the equipment. Your undivided attention is required when you are working on a machine or a piece of equipment.</p> <p>Do Not Advance</p>	<p>✓ PPT slide 26</p> <div></div>

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Module Length: 240 min Time remaining: 190 min This section: 10 min (4 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div> ASK</div> <div>Instructor's Notes <hr/><hr/><hr/><hr/><hr/><hr/></div>	<p>In your own words: Lets see what we have learned so far: Safety reminders for barricades include all except:</p> <ul style="list-style-type: none">42 inches tallRigidAllows for public accessSecurely connected to prevent easy movementIn place before work starts <p>Call on participants for answer Advance for correct answer Answer: c. Allows for public access</p> <p>Advance</p>	<p>✓PPT slide 29</p> <div></div>

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Module Length: 240 min Time remaining: 180 min This section: 20 min (7 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <p>REVIEW slides</p> <div data-bbox="34 592 144 692"></div> <p>REFER participants to <u>Elevator Industry Field Employees' Safety Handbook</u>,</p> <p>Instructor's Notes</p> <hr/> <hr/> <hr/> <hr/> <hr/>	<p>In your own words:</p> <p>Any distractions could prove to be dangerous and even fatal. Securing the work zone keeps these distractions at a safe distance, allowing you to focus on the task at hand.</p> <p>Advance</p> <p><i>Refer participants to the Elevator Industry Field Employees' Safety Handbook Sections 4 page 29 for additional information on fall protection guidelines.</i></p>	<p>✓ PPT slide 34</p> <div data-bbox="1541 528 1854 763"> </div> <p>✓ <u>Elevator Industry Field Employees' Safety Handbook</u></p>

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Module Length: 240 min Time remaining: 160 min This section: 30 min (15 slides) Section start time: _____ Section End Time: _____



DO	SAY	Materials Needed
<div data-bbox="34 464 144 564"></div> <div data-bbox="170 492 428 528">REVIEW slides</div> <div data-bbox="34 592 144 692"></div> <div data-bbox="177 621 262 656">ASK</div> <div data-bbox="28 792 444 835">Instructor's Notes</div> <div data-bbox="28 892 608 1242"> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 421 1020 464">In your own words:</div> <div data-bbox="676 485 1410 749"> <p>When landing a car, two maintenance personnel should be present at all time, equipped with the proper PPE. Be sure to use the appropriate pipes when supporting the car. The pipe must be strong enough to support the car.</p> <p>Advance</p> <p>ASK</p> <p>Who can recall the steps for landing the car?</p> <p>Allow participants to discuss possible answers</p> </div>	<div data-bbox="1497 471 1825 506">✓ PPT slides 37, 38</div> <div data-bbox="1535 528 1854 756"> </div> <div data-bbox="1535 778 1854 1006"> </div>

Elevator – General Safety and Maintenance

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Module Length: 240 min Time remaining: 160 min This section: 30 min (15 slides) Section start time: _____ Section End Time: _____



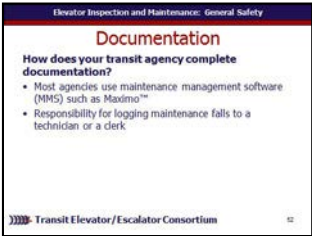
DO	SAY	Materials Needed
<div> REVIEW slide</div> <div><h3>Instructor's Notes</h3><div></div><div></div><div></div><div></div><div></div><div></div></div>	<p>In your own words:</p> <p>Given the relatively small space of a hoistway, construction of an adequate platform can be a tricky undertaking. Specific training on constructing a scaffold and putting in the proper safety features is outside the scope of this course and the work generally done by transit elevator maintainers.</p> <p>Advance</p> <p>OSHA regulations include specific requirements for planking, fall protection, ladders, and other important safety considerations. Personnel constructing must be fully trained and those working on scaffolding should be trained in scaffold procedures and hazards. Planking must be of the correct grade (if wood) or strength. Fall protection is required based on height, railing height, and other considerations.</p> <p>Do Not Advance</p>	<p>✓ PPT slide 48</p> <div></div>

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Module Length: 240 min Time remaining: 130 min This section: 20 min (6 slides) Section start time: _____ Section End Time: _____

DO	SAY	Materials Needed
<div> ASK</div> <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>Ask How does your transit agency complete documentation?</p> <p>Allow participants to discuss possible answers.</p> <p>Advance While documentation of all maintenance and replacement is required by code, how this is done varies by location. Most properties use some sort of maintenance management software (MMS) such as Maximo.</p> <p>Advance Responsibility for logging this maintenance could fall on either the technicians or a clerk. Some systems still use log books. In some instances both maintenance software and logbooks are used. Make sure to follow your local transit procedures.</p> <p>Advance</p>	<p>✓ PPT slide 52</p> <div></div>

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Module Length: 240 min Time remaining: 130 min This section: 20 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="28 792 444 835">Instructor's Notes</div> <div data-bbox="28 892 608 1242"> <hr/><hr/><hr/><hr/><hr/> </div>	<div data-bbox="676 425 1023 464">In your own words:</div> <div data-bbox="676 471 1429 556">Describe what type of information may be found on a preventive maintenance checklist,</div> <div data-bbox="676 559 1232 599"><i>Call on participants for answer</i></div> <div data-bbox="676 602 1178 642"><i>Advance for correct answer</i></div> <div data-bbox="676 649 815 685">Answer:</div> <div data-bbox="699 692 1159 868"> <ul style="list-style-type: none"> ✓ Unit location ✓ Frequency ✓ Date/Time ✓ Employee name or ID# </div> <div data-bbox="676 913 840 953">Advance</div>	<div data-bbox="1497 471 1748 511">✓PPT slide 57</div> <div data-bbox="1541 528 1854 763"> </div>