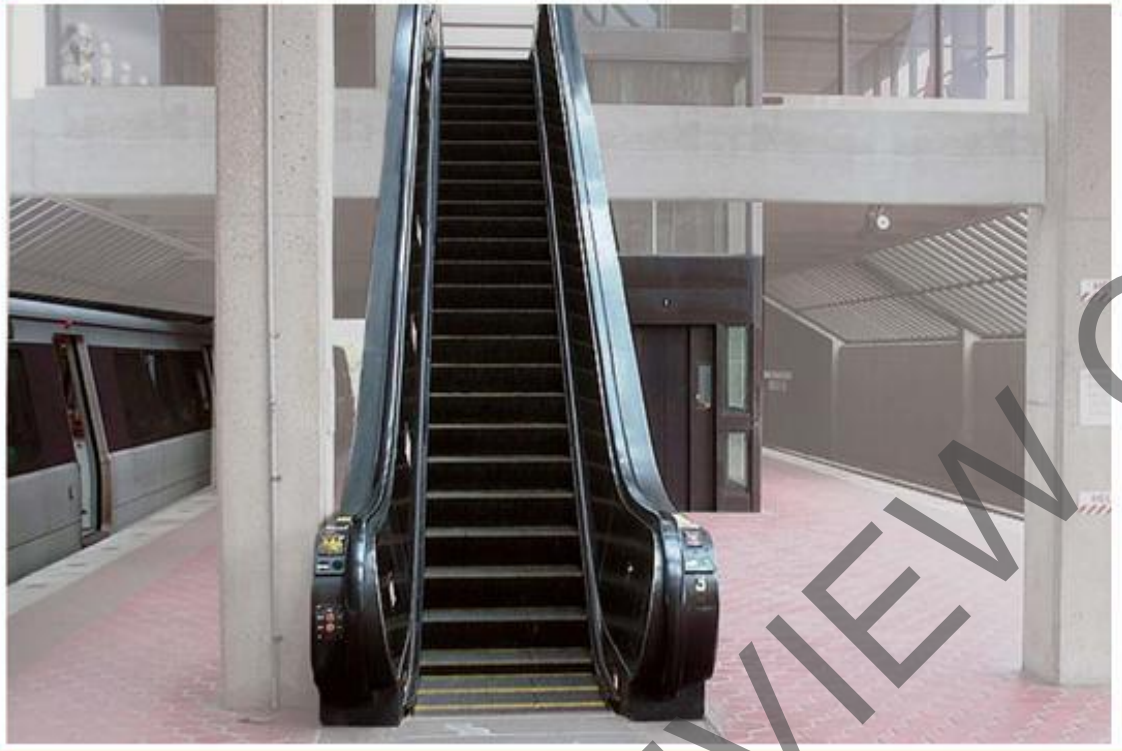
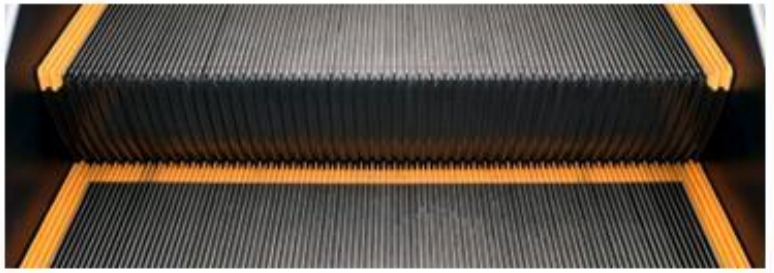
Instructor/Participant Guide





212: Escalator-Inspection & Basic Maintenance

Module 8: Brakes

Transit Elevator/Escalator Consortium

Table of Contents:

Table of Figures:

Icons Used in This Guide

Throughout the Instructor's Guide, the following icons indicate the type of content being presented.

- **Refer To**
- **PowerPoint**
- **Multimedia**
- **Web based Training**
- **Write**
- **Ask**
- **Individual Activity**
- **Small Group Activity**
- **Classroom Activity**
- **Duration**

Agenda

Topic No.	Topic Title	Duration
1	Introduction	5 minutes
2	Braking Distance • Safety Switches and Emergency Stops • Conditions of Braking System	20 minutes
3	Drive Machine Brakes • Brake Coils and Plungers • Levers, Sleeves, Bushings and Pins • Brake Pads and Lining • Spring • Discs and Drums • Brake Switch • Control Boards and Contacts	40 minutes
4	Main Drive Shaft Brakes • Mechanically Activated Brakes • Machine Safety Brake • Maintenance	20 minutes
5	Summary	5 minutes
	Total Time:	**1.5 hours**

Overview

Purpose

The purpose of this module is to:

- Introduce the participant to inspection and basic maintenance procedures involved in braking systems

Objectives

At the end of this chapter, the learner will be able to:

- Identify the areas of the braking system which require inspection
- List typical problems which would require repair or replacement
- Identify proper clearances and adjustments
- Perform visual inspection
- Perform needed adjustments and/or repairs

Materials

Make sure you have the following:

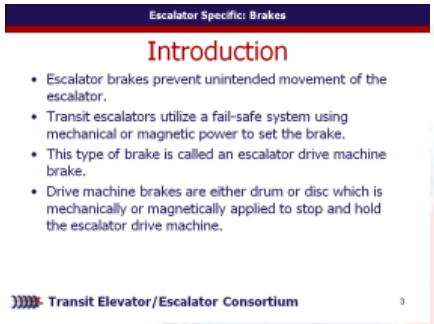
- Laptop (one for leader)
- Participant Guides
- PowerPoint slide deck
- LCD projector
- A17.1 Safety Code for Elevators and Escalators
- A17.2 Guide for Inspection of Elevators, Escalators and Moving Sidewalks
- A17.3 Safety Code for Existing Elevators and Escalators
- Heavy Duty Transportation System Escalator Design Guidelines (APTA RT-RP-FS 007-02)
- Field Employees' Safety Handbook
- Transit Agency Handbook

Preparation

PREPARE flip charts with the following titles:

- Class Expectations

Instructor's Notes



Slide 3

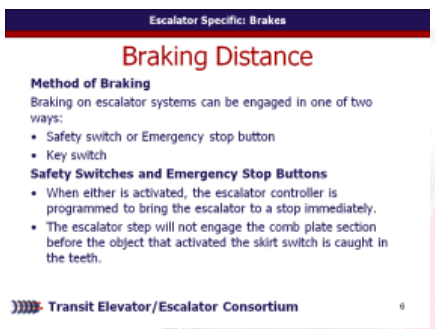
REVIEW a few details on the brake system.

ASK the participants to describe the purpose of brakes.

Brakes Introduction

What is the overarching purpose of the brakes?

Instructor's Notes



Slide 6

Slide 7

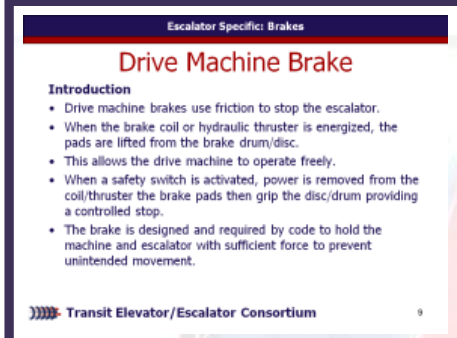
REVIEW slide 6 and 7 to discuss safety switches and emergency stops.

ASK what is the minimum stopping distance for an escalator?

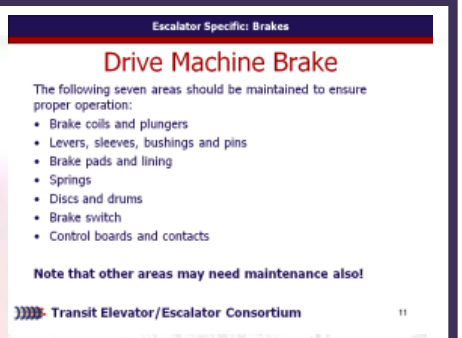
Safety Switches and Emergency Stops

What is the minimum stopping distance for an escalator?

Instructor's Notes



Slide 9



Slide 11

REVIEW slides 9 through 11 to describe briefly the functions of the brake system.

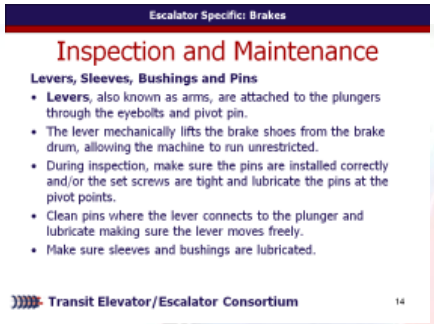
ASK: what areas should be maintained to ensure proper operation?

Drive Machine Brake

What areas should be maintained to ensure proper operation?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Instructor's Notes



Slide 14

REVIEW slide 14 and discuss how to correctly complete proper inspection of levers, sleeves, bushings and pins.

ASK where are the pins located?

Levers, Sleeves, Bushings, and Pins

Where are the pins located?

Instructor's Notes

Slide 16

REVIEW slide 16 and discuss the differences between lever springs and pressure plate springs. Also discuss the proper inspection of each.

ASK *What are the differences between the two springs listed?*

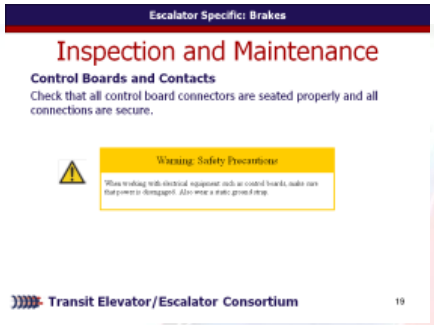
Springs

What are the differences between the two springs below?

Lever Spring

Pressure Plate Spring

Instructor's Notes



Slide 19

REVIEW slides 19 and review how to check all control boards and contacts.

CONTENT: Direct participants to describe in their own words how to properly inspect the main drive machine brake components.

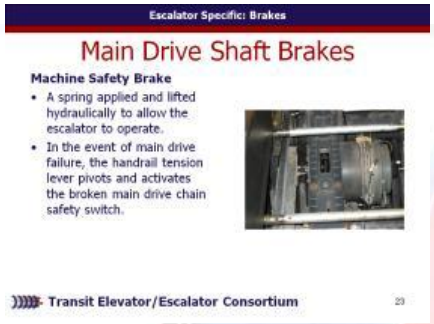
APPLICATION FEEDBACK: now that we have discussed a little about drive machine brakes, have the participants answer the following question.

ASK *how participants can ensure that all power has been disconnected from electrical equipment prior to starting their work?*

Control Boards and Contacts

How do you ensure that all power has been disconnected prior to starting your work?

Instructor's Notes



Slide 23

REVIEW slide 23 and discuss the purpose and functions of the machine safety brake.

ASK *what is the function of the machine safety brake?*

Machine Safety Brake

What is the function of the machine safety brake?

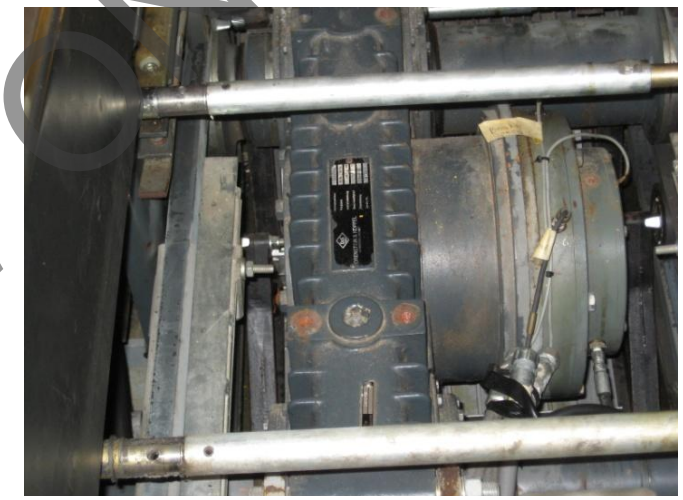
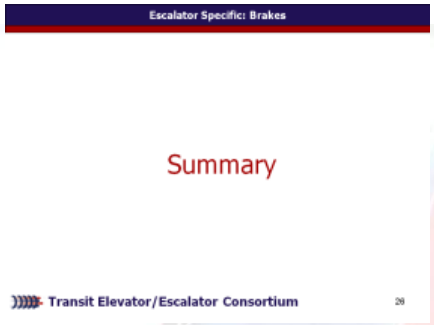


Figure 1 Kone Safety Brake

Instructor's Notes



Slide 26

REVIEW slide 26 and summarize the module.

EVALUATION and CLOSURE: Recap the main points of the module before moving on to the next topic within this course.

ASK the participants if they have any outstanding questions on what was presented.

Summary