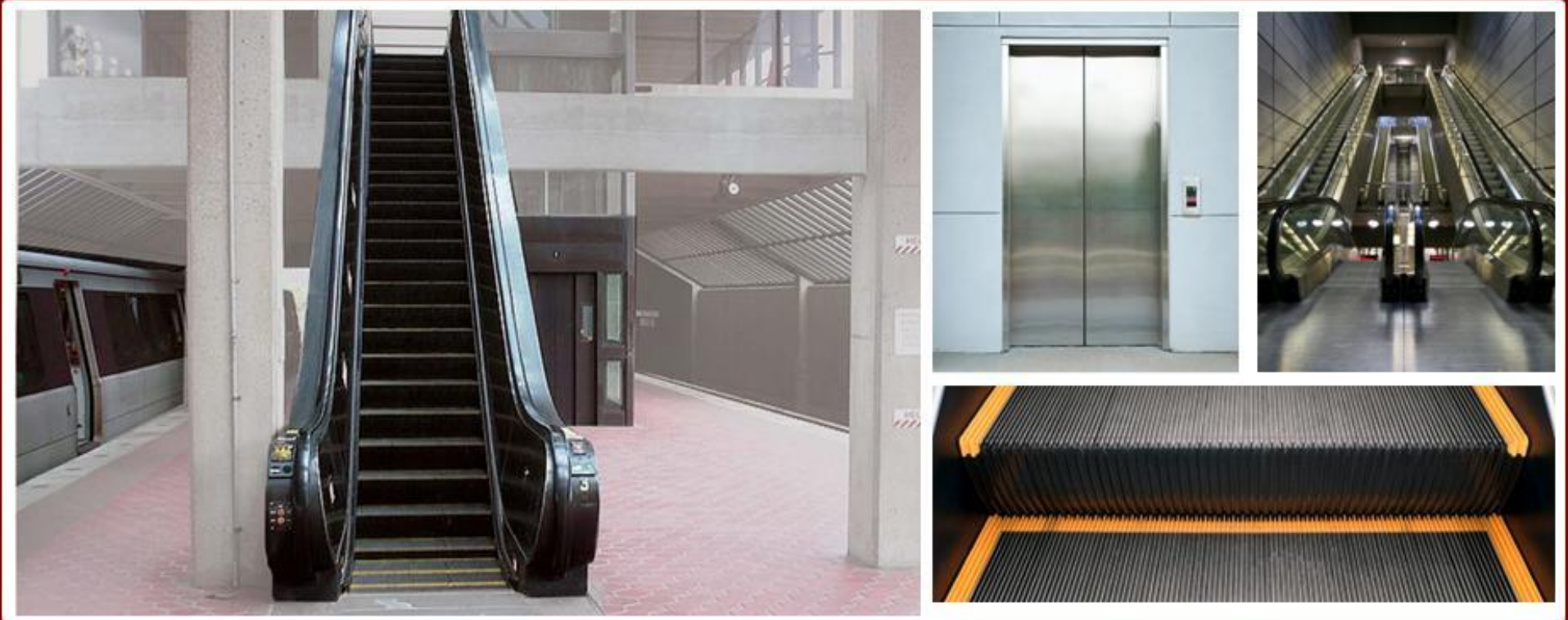


Instructor/Participant Guide



212: Escalator-Inspection & Basic Maintenance

Module 10: Operational Test



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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	System Start Up and Shut Down <ul style="list-style-type: none"> • Mainline Disconnect • Key Switches • Emergency Stop Button 	20 minutes
3	Speed Check <ul style="list-style-type: none"> • Handrail • Steps 	20 minutes
4	System Check <ul style="list-style-type: none"> • Controller 	15 minutes
5	Summary	5 minutes
Total Time:		1 hour



Overview

Purpose

The purpose of this module is to:

- Review operational tests on escalator drive systems

Objectives

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

- Perform a system start up
- Perform a system shut down
- Perform an emergency stop test
- Verify handrail speed as compared to step speed
- Verify the emergency stop is functioning properly
- Verify the key switch is functioning properly

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)

Preparation

- Field Employees' Safety Handbook
 - Transit Agency Handbook
- PREPARE** flip charts with the following titles:
- Class Expectations



Instructor's Notes

Introduction

Welcome to the operational test module.

What does it mean to Ops Check an escalator?

Slide 1

GAIN audience attention by introducing yourself.



WELCOME the participants to the operational test module.



ASK what does it mean to Ops Check an escalator?

DIRECT participants to the objectives on slide 2.



REVIEW the objectives on Slide 2.

Slide 2

Outline

- Perform a system start up.
- Perform a system shut down.
- Perform an emergency stop test.
- Verify handrail speed as compared to step speed.
- Verify the emergency stop is functioning properly.
- Verify the key switch is functioning properly.

Operational Test

Transit Elevator/Escalator Consortium

Operational Test

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Instructor's Notes


Operational Test


Introduction

- In transit escalator systems it is important to do periodic inspections as per your authorities requirements on the different ways of starting and stopping an escalator to make sure that it can be placed into and out of service when needed.
- Before performing the operational test, walk the machine and make sure the machine is in a safe condition for maintenance personnel.
- Make sure that the unit is barricaded from the public.

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Slide 3

 **REVIEW** general overview of the operational test procedure.

 **ASK** what should be completed first, prior to performing the operational test?

General Overview

What should be completed first, prior to performing the operational test?



Instructor's Notes

Operational Test

System Start Up and Shut Down

Key Switches:

- If the key operated switch does not turn the escalator OFF or ON, the escalator should be taken out of service until repairs can be made.
- Some escalators require that the key switch be held in the start position for several seconds until the unit gets up to full speed.
- All key switches should be returned to the center position and removed once the escalator is running.



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Slide 6



REVIEW slide 6 and discuss how to start/stop the escalator using the key switch.



ASK once the escalator is running, in what position should the key switch be placed?

Key Switches

Once the escalator is running, in what position should the key switch be placed?



Figure 1 Fujitec Escalator Showing Key Switch




Instructor's Notes

Operational Test

System Start Up and Shut Down


Emergency Stop Button:

- Inspect the emergency stop test button to make sure that lettering identifying the stop button is legible and bright so that it can be easily identified by the public in case of emergency.
- If the button is not legible, clean or replace components as necessary.
- While the escalator is running, lift the door that covers the **emergency stop button** and makes sure a buzzer sounds.



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Slide 7



REVIEW slide 7 and discuss how to test the emergency stop button.

CONTENT: Direct participants to describe in their own words how to properly stop an escalator using the mainline disconnect and emergency stop button.

APPLICATION FEEDBACK: now that we have discussed a little about system startup and shut down, have the participants answer the following question.



ASK: *What should be done if the graphic and writing on the button are not legible?*

Emergency Stop Button

What should be done if the graphic and writing on the button are not legible?



Instructor's Notes

Handrails

Operational Test

Speed Check

Handrails:

- Escalator handrails should move smoothly at or near the same speed as the steps and should not jerk.
- The need to change grip on the handrail more than once during a single rise would indicate a need for adjustment.
- A handrail speed monitoring device shall be provided that will cause the activation of the alarm required.
- If the handrail speed does not fall within specifications or is not close to the speed of the step, the system should be put out of service for repair.

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8

Slide 8



REVIEW slide 8 and review the protocol for checking the operation of handrails.



ASK: what code mandates that handrails should move smoothly at or near the same speed as steps?

What code mandates that handrails should move smoothly at or near the same speed as steps?



Instructor's Notes

Steps

Operational Test

Speed Check

Steps:

- Never attempt to start or stop an escalator when anyone is on or about to step on the unit.
- "The rated speed shall be not more than 100 ft./min, measured along the centerline of the steps in the direction of travel. The speed attained by an escalator after start-up shall not be intentionally varied." (A17.1-2007)
- If the step speed does not fall within specifications, the system should be put out of service for repair.

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Slide 9



REVIEW slide 9 and discuss how to properly test the operation of steps.

CONTENT: Direct participants to describe in their own words the how to check handrail and step speed.

APPLICATION FEEDBACK: now that we have discussed a little about speed check, have the participants answer the following question.



ASK what is the rated speed that escalator steps shall not exceed?

What is the rated speed that escalator steps shall not exceed?



Instructor's Notes


Controller

Operational Test

System Check


Controller:

- Uses a system of relays, printed circuit boards, transformers, fuses and AC controls.
- The controller components should be kept clean so that you do not get short circuits to ground.
- Cleaning should take place after the power has been disconnected from the unit and locked out.



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Slide 10



REVIEW slides 10 and discuss how to check the controller system.

CONTENT: Direct participants to describe in their own words the how to check the controller for proper operation.

APPLICATION FEEDBACK: now that we have discussed a little about system checks, have the participants answer the following question.



ASK *How many magnetically operated switches must fail in order for the escalator not to start?*

How many magnetically operated switches must fail in order for the escalator not to start?



Figure 2 Fujitec Controller



Instructor's Notes


Summary

Operational Test


Summary

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Slide 11

 **REVIEW** slide 11 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.