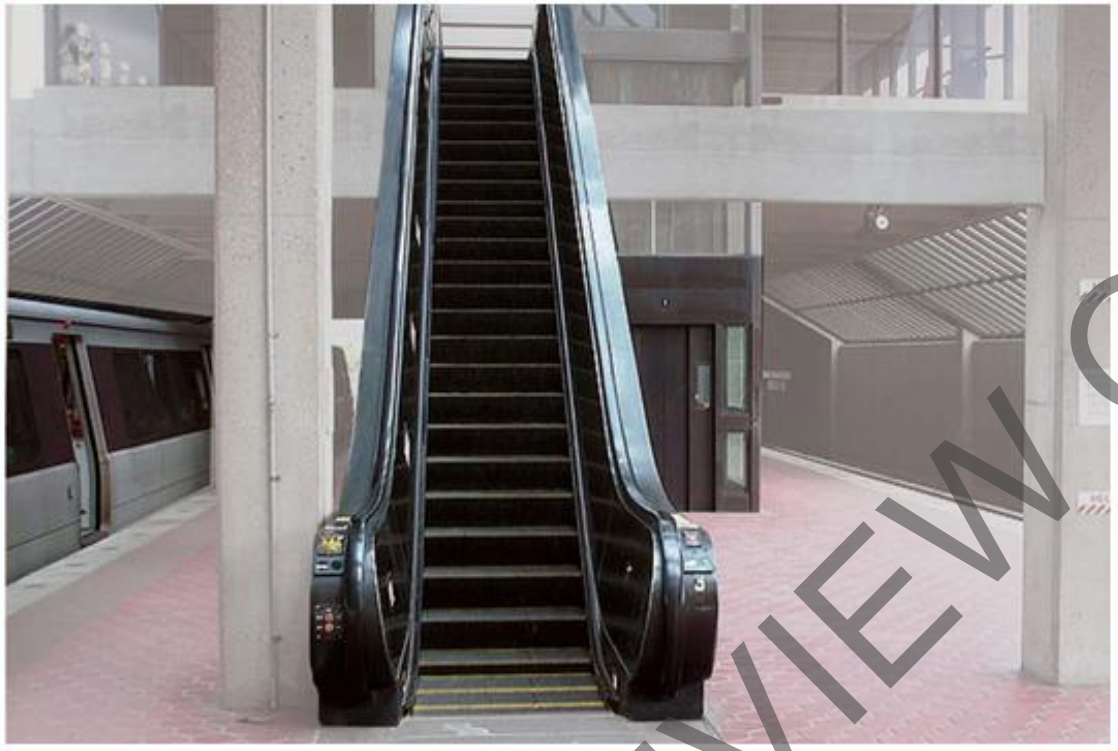
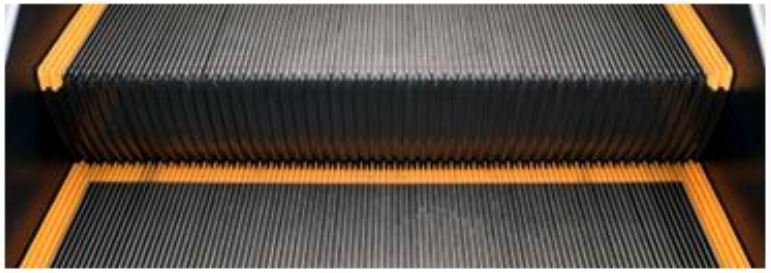
Instructor/Participant Guide





209: Escalator-Specific: Electrical Systems

Module 6: Description of Operation

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 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	Schematic Diagrams	15 minutes
3	Line and Ladder Diagrams	15 minutes
4	Flow Charts	15 minutes
5	Block Diagrams	15 minutes
6	Pictorial Layout	15 minutes
7	Start-Up Sequence	30 minutes
8	Stop Sequence	20 minutes
9	Summary	5 minutes
	Total Time:	**2.25 hours**

Overview

Purpose

The purpose of this module is to:

- Provide the participants with a basic knowledge of the startup sequence of a transit escalator.

Objectives

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

- Describe what a Schematic Diagram is and its usage
- Describe what a Line or Ladder Diagram is and its usage
- Describe what a Block Diagram is and its usage
- Describe what a Pictorial Layout is and its usage
- Describe the Start up Sequence of an escalator using a Schematic Diagram

Materials

Make sure you have the following:

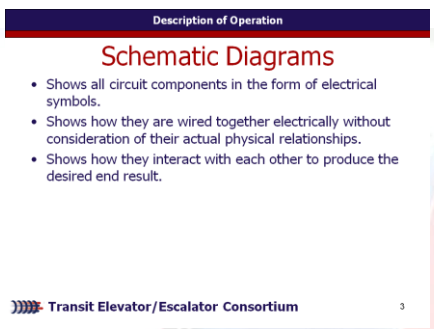
- Laptop (one for leader)
- Participant Guides
- PowerPoint slide deck
- LCD projector
- A17.1 Safety Code for Elevators and Escalators
- A17.2 Guide for Inspection of Elevators, Escalators and Moving Sidewalks
- A17.3 Safety Code for Existing Elevators and Escalators
- Heavy Duty Transportation System Elevator Design Guidelines (APTA RT-RP-FS 008-03)
- Heavy Duty Transportation System Escalator Design Guidelines (APTA RT-RP-FS 007-02)
- Field Employees' Safety Handbook
- Transit Agency Handbook

Preparation

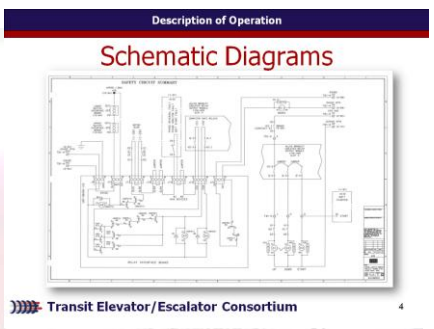
PREPARE flip charts with the following title:

- Class Expectations

Instructor's Notes



Slide 3



Slide 4

REVIEW the details of schematic diagrams.

CONTENT: Direct participants to describe in their own words a few details on schematic diagrams.

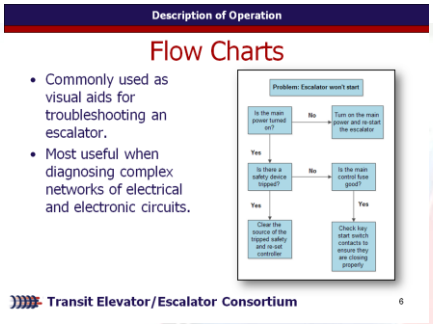
APPLICATION FEEDBACK: Now that we have discussed a little about schematic diagrams, have the participants answer the following questions.

ASK participants to describe the main benefit to using a schematic diagram.

Schematic Diagrams

What is the main benefit to using a schematic diagram?

Instructor's Notes



Slide 6

REVIEW slide 6 and discuss the purpose and details of flow charts.

CONTENT: Direct participants to describe in their own words the details of flow charts.

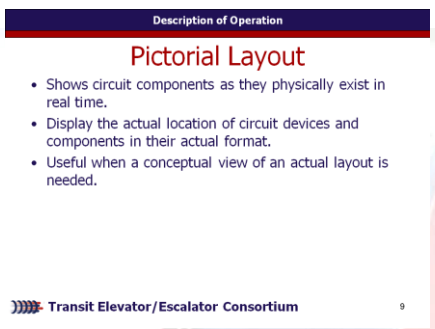
APPLICATION FEEDBACK: Now that we have discussed a little about flow charts, have the participants answer the following questions.

ASK: In what situations are flow charts most useful?

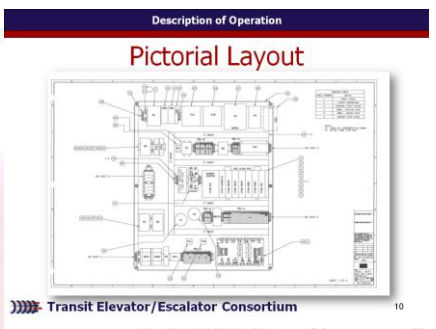
Flow Charts

In what situations are flow charts most useful?

Instructor's Notes



Slide 9



Slide 10

REVIEW slides 9 and 10 and discuss pictorial layout.

CONTENT: Direct participants to describe in their own words the uses of pictorial layouts.

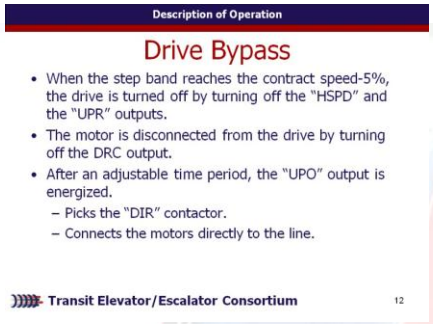
APPLICATION FEEDBACK: Now that we have discussed a little about pictorial layout, have the participants answer the following questions.

ASK participants to describe when a pictorial layout is particularly useful.

Pictorial Layout

When are these views particularly useful?

Instructor's Notes



Slide 12

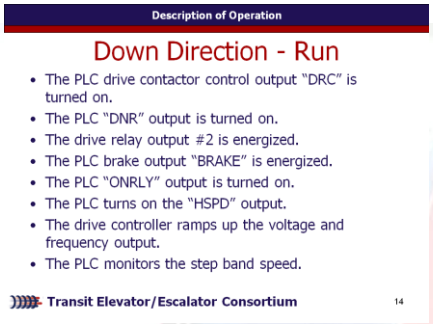
REVIEW slide 12 and discuss drive bypass during normal operation.

ASK how the motor is disconnected from the drive.

Drive Bypass

How is the motor disconnected from the drive?

Instructor's Notes



Slide 14

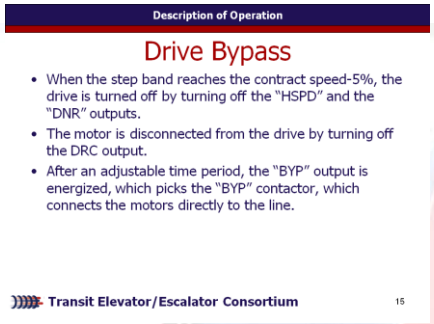
REVIEW slide 14.

ASK: What controller ramps up the voltage and frequency output to the motor(s)?

Down Direction - Run

What controller ramps up the voltage and frequency output to the motor(s)?

Instructor's Notes



Slide 15

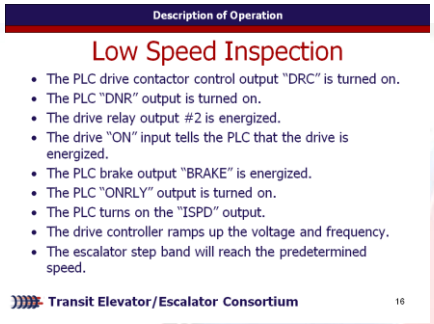
REVIEW slide 15 and discuss drive bypass during down operation.

ASK the participants to describe how the motor is disconnected from the drive.

Drive Bypass

Describe how the motor is disconnected from the drive.

Instructor's Notes



Slide 16

REVIEW slide 16 and discuss the low speed inspection process.

CONTENT: Direct participants to describe in their own words the low speed inspection process.

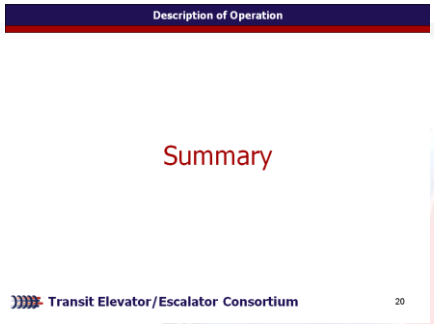
APPLICATION FEEDBACK: Now that we have discussed a little about start-up sequence, have the participants answer the following questions.

ASK the participants to describe what questions must be answered before the low speed inspection sequence begins.

Low Speed Inspection

What questions must be answered before the PLC start sequence begins?

Instructor's Notes



Slide 20

REVIEW slide 20 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