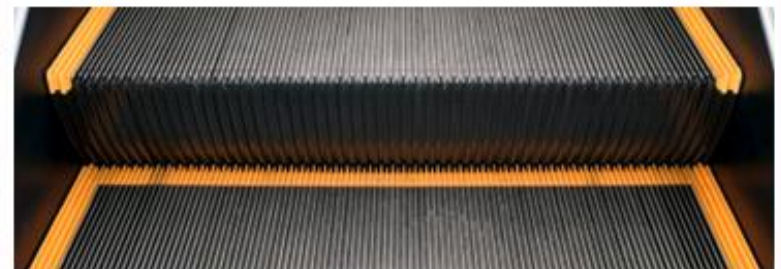


Instructor/Participant Guide



211: Escalator-Specific: Handrail Installation and Maintenance

Module 3: Handrail and Handrail Drive Removal and Replacement

Handrail and Handrail Drive Removal and Replacement



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PREVIEW ONLY



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	TBD minutes
2	Abrasion and Sharp Edges	TBD minutes
3	Pinch Points	TBD minutes
4	Measuring on an Incline	TBD minutes
5	Splicing	TBD minutes
6	Vucanizing	TBD minutes
7	Adjusting Handrail Drive Tension <ul style="list-style-type: none"> Fujitec Westinghouse 	TBD minutes
8	Transit Authority Specific Procedures (Check-List)	TBD minutes
9	Handrail Drive	TBD minutes
10	Summary	TBD minutes
Total Time:		TBD hours

Handrail and Handrail Drive Removal and Replacement



Overview

Purpose

The purpose of this module is to:

- Introduce participants to procedures covering handrail components, replacement, maintenance, drive train tension, etc.

Objectives

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

- Identify specific safety concerns as related to handrail replacement for transit escalators.
- Identify the measurement procedures for a transit handrail system.
- Identify installation procedures for a transit handrail system for transit escalators.
- Adjust handrail drive tension for various transit escalators.
- Determine handrail drive tension for transit escalators.

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

Materials

- 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

Splicing

Splicing

-

)))) Transit Elevator/Escalator Consortium

- 
- handrail on a spool

Transit Elevator/Escalator Consortium

Slide 8



REVIEW slides 7 and 8 and describe the safety precautions and basics of splicing handrail.



Class Activity: If available, have the participants inspect, clean, and use the handrail splicer.

List all of the precautions when splicing a handrail.

Handrail and Handrail Drive Removal and Replacement



Instructor's Notes

Tension

Handrail and Handrail Drive Removal and Replacement

Adjust Handrail Drive Tension

- Fujitec Handrail Drive Chain Slack
 - $L = (L1+L2)/2$
 - $E(\%) = ((L-S)/S) \times 100$

Transit Elevator/Escalator Consortium 10

Handrail and Handrail Drive Removal and Replacement

Adjust Handrail Drive Tension

- Fujitec Handrail Return Guide

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Slide 10

Slide 13



REVIEW slides 10 to 13 and describe the importance of proper handrail chain tension.



ASK: If a handrail chain is too slack, what can happen?

Standard Length and 1.5% Elongation

1mm (inch)

CHAIN SIZE (No.)		RS25	RS35	RS41	RS40	RS50	RS60	RS80
6 link measure	Original	38.10 (1½)	57.15 (2¼)	76.20 (3)	76.20 (3)	95.25 (3¾)	114.30 (4½)	152.40 (6)
	1.5% elongation	38.67 (1.52)	58.01 (2.28)	77.34 (3.05)	77.34 (3.05)	96.68 (3.81)	116.01 (4.57)	154.69 (6.09)
10 link measure	Original	63.50 (2½)	95.25 (3¾)	127.00 (5)	127.00 (5)	158.75 (6¼)	190.50 (7½)	254.00 (10)
	1.5% elongation	64.45 (2.54)	96.68 (3.81)	128.91 (5.08)	128.91 (5.08)	161.13 (6.34)	193.36 (7.61)	257.81 (10.15)
CHAIN SIZE (No.)		RS100	RS120	RS140	RS160	RS180	RS200	RS240
6 link measure	Original	190.50 (7½)	228.60 (9)	266.70 (10½)	304.80 (12)	342.90 (13½)	381.00 (15)	457.20 (18)
	1.5% elongation	193.36 (7.61)	232.03 (9.14)	270.70 (10.66)	309.37 (12.18)	348.04 (13.70)	386.72 (15.23)	464.06 (18.27)
10 link measure	Original	317.50 (12½)	381.00 (15)	444.50 (17½)	508.00 (20)	571.50 (22½)	635.00 (25)	762.00 (30)
	1.5% elongation	322.26 (12.69)	386.72 (15.23)	451.17 (17.76)	515.62 (20.30)	580.07 (22.84)	644.53 (25.38)	773.43 (30.45)

Figure 2: Chain Slack

If a handrail chain is too slack, what can happen?



Instructor's Notes


Summary


Handrail and Handrail Drive Removal and Replacement

Summary

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Slide 20

 **REVIEW** slide 20 and summarize the module.

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

PREVIEW ONLY