

Incident Summary #II-784543-2018 (#9424) (FINAL)

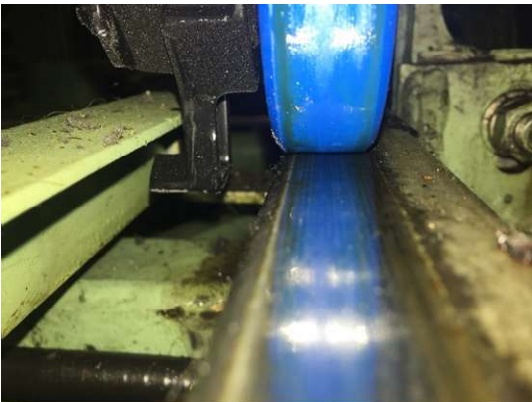
SUPPORTING INFORMATION	Incident Date	October 28, 2018	
	Location	Burnaby	
	Regulated industry sector	Elevating devices - Escalator or moving walkway	
	Impact	Qty injuries	0
		Injury description	No injuries reported
		Injury rating	None
	Damage	Damage description	Two broken steps and two broken combplates at the top end were discovered.
		Damage rating	Moderate
Incident rating	Moderate		
Incident overview	Combplate sections and landing plate assembly came into contact with the step treads.		
INVESTIGATION CONCLUSIONS	Site, system and components	During normal operation, the escalator step treads mesh through the combplate section and pass under the landing plate assembly. This assembly is attached to chains and rollers which is driven through the trusses. This step chain assembly is kept in alignment with guides and tracks. These guides and tracks have maximum allowable clearances which must be maintained to manufacture specifications.	
	Failure scenario(s)	<p>Upthrust retainer track gap to step retainer may exceed manufacture specifications. Step chain retainer track gap to step chain rollers may exceed manufacture specifications.</p> <p>It is also speculated that an external force may have been applied to the combplate section which allowed the combplate to make contact with the step tread. Combplate sections are required to perform when a maximum allowable force of 160 kg (350 lb) is applied to any area on the plate 300mm (12 in.) dimension parallel to the direction of travel. If this force is exceeded, then the combplate would flex and make contact with the step tread.</p>	
	Facts and evidence	<p>Up thrust track clearance was adjusted to meet manufacture specification. Step chain track clearance was within manufacture specification.</p> <p>The combplate sections may not meet code requirements for forces applied parallel to the direction of travel. Maintenance provider is now using a new manufacture for combplate sections.</p> <p>For the step tread to contact the combplate assembly, the upthrust track and the step chain track clearance would both have had to exceed the manufacture specifications. If the upthrust track and the step chain track failed, the step tread would have contacted the entire combplate assembly.</p> <p>It had been previously witnessed that freight operators were using the escalator to transport freight from one level to the next using the escalator</p>	
	Causes and contributing factors	The damage shows that the external force likely exceeded the maximum allowable forces permissible to the combplate section.	



Damage to steps and combplate section.



Damaged combplate sections.



Upthrust track retainer before adjustment.



Upthrust track after adjustment.



Step chain retainer track.



Freight being transported on escalator.