

Incident Summary #II-965949-2020 (#16335) (FINAL)

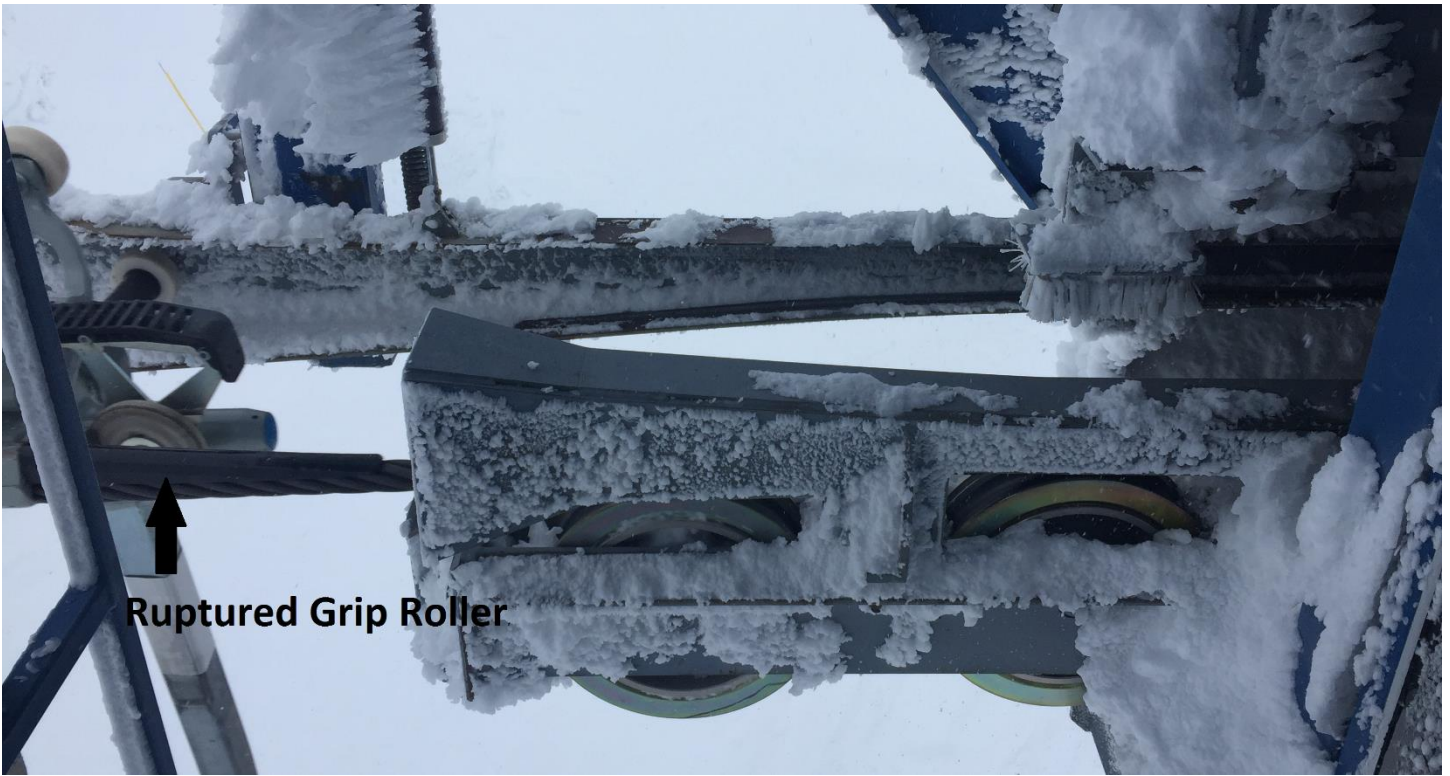
SUPPORTING INFORMATION	Incident Date	January 7, 2020	
	Location	Interior	
	Regulated industry sector	Passenger ropeways - Above surface ropeway	
	Impact	Qty injuries	0
		Injury description	N/A
		Injury rating	None
	Damage	Damage description	Broken plastic detachable grip rollers.
		Damage rating	Insignificant
Incident rating	Insignificant		
Incident overview	A carrier of a detachable chairlift abruptly stopped after entry into the top terminal. The terminal safety monitoring system stopped ropeway operation. Terminal conveyance system was unable to achieve carrier transport.		
INVESTIGATION CONCLUSIONS	Site, system and components	High speed chairlifts detach each carrier from the haul rope when they are at drive and return terminals. This allows for easier, safe and efficient loading and unloading of passengers. The grip is the device on the carrier (chair) that attaches to the haul rope. A detachable grip is designed to be opened (detached) and closed (attached) upon entry/exit of a terminal. Since grips are subject to dynamic stress, according to regulations and manufacture requirements, grips need to be completely stripped down and inspected on a pre-determined cycle. Grip inspections may outcome replacement of components. The grip is equipped with plastic rollers to allow carrier transport, since it is not attached to the haul rope while in terminal. These rollers must align within terminal guides for each roller, through a terminal conveyance system. It is conveyed through the station by a series of rubber tires that are connected to each other by V belts and synchronized to the speed of the haul rope. A safety monitoring system safeguards the operation of detaching/attaching of grips and carrier transport through stations.	
	Failure scenario(s)	Plastic rolling components enabling transport of the grip and chair through terminal broke upon entry. The carrier would not continue transport by means of the terminal conveyance system after grip opening (detaching).	
	Facts and evidence	As reported by the Contractor: <ul style="list-style-type: none"> • Original rolling elements on grip 20+ years of operation • Grip was rebuilt and non-destructive tested August 2018 • Grip roller had new bearings installed in August 2018 • Roller broke around midday of daily operation • High winds and freezing rain at time of incident • Ropeway was operating at a speed of 3.6 m/s • Terminal safety monitoring system stopped ropeway • Carrier was empty – no passengers 	

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	<ul style="list-style-type: none"> • Grip was observed by lift mechanic with two broken rollers at terminal incoming conveyance system • Carrier was removed from ropeway • Daily operation was terminated for the day • All grips and terminal detachable mechanism inspected • Grip was rebuilt and non-destructive tested • Haul rope was non-destructive tested (magnetic rope tested) • Observed ropeway operation - carrier entry of terminal in a variety of conditions • Replaced leading rubber tires with well-worn tread of terminal conveyance system <p>Safety officer on-site observations:</p> <ul style="list-style-type: none"> • Ropeway wind meter was inoperable • Contractor wind operation policy requires the use of a wind meter <p>As reported by manufacturer:</p> <ul style="list-style-type: none"> • Undetermined on the root cause of failure • Discussed with representatives across North America • Have not recognized a similar type of failure
<p>Causes and contributing factors</p>	<p>It is possible that inclement weather, strong wind and freezing rain may have caused a grip rolling element to rupture upon entry into the top terminal. As the wind gauge was inoperable, the ropeway attendant was unable to adhere to operational procedures; this may have contributed to the incident. Replacement of the rolling element bearings may have created stressors to the roller.</p>



Carrier approaching Terminal entrance



Ruptured grip roller



Ruptured grip rolling element



Replaced conveyance rubber tires