

Incident Summary #II-1174543-2021 (#21555) (FINAL)

SUPPORTING INFORMATION	Incident Date		April 5, 2021	
	Location		Whistler	
	Regulated industry sector		Passenger ropeways - Above surface ropeway	
	Impact	Injury	Qty injuries	0
			Injury description	NA
			Injury rating	None
		Damage	Damage description	<ul style="list-style-type: none">• Damaged grip fixed and mobile jaws• Damaged work carrier upper basket• Haul rope scuffing and a few deformed wires• Station entrance minimal cosmetic damage
			Damage rating	Moderate
	Incident rating		Moderate	
Incident overview		Maintenance crew ran work carrier into a return station with the basket up. The carrier jammed in the entrance, causing damage to the carrier grip and minor scuffing and abrasions on the haul rope.		
INVESTIGATION CONCLUSIONS	Site, system and components		<p>Incident occurred at the bottom return station of a 4-passenger carrier, detachable grip ropeway.</p> <p>Ropeway is designed and capable of operating in reverse.</p> <p>Grips detach from the haul rope as they enter the stations (either in forward or in the reverse direction). The grip/carrier is then transported through the station by a configuration of belt driven tires and guided by a set of rails.</p> <p>Maintenance carrier consists of 2 decks (one deck at a lower level and one deck at a higher level). Both decks have a surrounding handrail. The upper deck handrail is configured to be pivoted off a set of hinges effectively reducing the height of the handrail and allows for the necessary clearance for the maintenance carrier to enter the stations (See Photo).</p> <p>For maintenance carrier operation, the ropeway is operated by a maintenance staff member located at the top drive station. Communications between the operator and the maintenance carrier crew is conducted by use of VHF radios.</p>	
	Failure scenario(s)		With the upper deck handrail in the pivoted up position the maintenance carrier became entangled with the front of the station equipment.	
	Facts and evidence		Based on reports, photos and diagrams provided by the operating contractor, the following narrative was established:	

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- Electrical maintenance crew was utilizing a maintenance carrier in performing tests on the rope position monitoring system at the uphill side sheave assembly of the tower 1.
- After completing the test, one of the two carrier maintenance crew members climbed down off tower 1 with the intent of instructing the top operator that the ropeway be run in reverse so as to bring the maintenance carrier into the return station (the maintenance carrier crew member was wanting to retrieve a drinking water bottle that was located on the maintenance carrier).
- Report provided by the operating contractor indicates that the carrier maintenance crew member failed to tell the top operator of their intention to reverse the work carrier back into the bottom return station. Report also indicates that the carrier maintenance crew member failed to lower the upper deck handrail of the maintenance carrier.
- Based on the request of the maintenance carrier crew member, the top operator initiated a reverse move of the ropeway.
- With the ropeway running in reverse, the maintenance carrier upper deck handrail (still in the up position) became entangled with the station equipment.

Maintenance carrier work crew written procedures indicate that:

- Prior to the work carrier entering the station, the work carrier will be stopped so that maintenance carrier crew and ropeway operator can visually (bottom operator) and verbally (top operator) confirm that the upper deck is stowed in the correct position
- And that maintenance carrier crew are in a safe position in the lower deck (it should be noted that no crew were on the work carrier at the time this incident occurred).

Operating contractor's report indicate that:

- Employees had reviewed work carrier operations procedures that morning.
- The full refresher training was completed in September of 2020.

Causes and contributing factors

It is certain that the cause of the damage to ropeway equipment was due to the maintenance carrier being moved into the station with the upper deck handrail in the up position.

Contributing factors relate to:

- The top operator was possibly not aware of the actual maintenance carrier position.
- Although written procedures had been established by the operating contractor It is likely that maintenance carrier crew failed to inform the top operator of the intention of moving the maintenance carrier into the station

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and that the top operator failed to ask for the intended destination of the maintenance carrier (i.e., Work carrier procedures were likely not being followed).



Photo of Entangled/Jammed Maintenance
Carrier