

## Incident Summary #II-1228132-2021 (#22910) (FINAL)

SUPPORTING INFORMATION	Incident Date		July 22, 2021	
	Location		Vancouver Island	
	Regulated industry sector		Amusement Devices - Zip line	
	Impact	Injury	Qty injuries	1
			Injury description	Index finger on the left hand was severed at the second knuckle
			Injury rating	Moderate
	Damage	Damage	Damage description	No damage
			Damage rating	None
	Incident rating		Moderate	
Incident overview		Zipline trolley braking system was not engaged as the patron approached the landing area. Patron approached the zipline braking system, located at the landing area, faster than anticipated. Patron reached up with the left hand to slow down, and in doing so, the patron's hand was run over by the trolley wheel, at the point where the wheel meets the zipline cable.		
INVESTIGATION CONCLUSIONS	Site, system and components		A zipline is a pulley or trolley suspended under a tensioned cable with an elevation change, allowing the user to travel down a predetermined finite path using gravity. In this configuration, there are two separate braking systems: the trolley is equipped with a user-applied/released brake, and a braking spring system mounted on the cable at the bottom terminal. These braking systems are separate and are both designed to bring the trolley and attached user to a controlled stop at the end of the ride, under all conditions.	
	Failure scenario(s)		Zipline patron self braked over a predetermined point on the zipline, as instructed by the zipline guide (this point is identified with a sign). The patron continued and came into the bottom terminal braking area faster than anticipated. The patron then made the decision to let go of the trolley brake handle and placed their left hand in the path of travel of the moving trolley.	
	Facts and evidence		<ul style="list-style-type: none"><li>Prior to ziplining, patron watched instructional video, and received training from qualified personnel.</li><li>Patron exhibited clear comprehension of expectations with self-braking and demonstrated required skills, accordingly, to the qualified personnel. Patron was deemed fit to proceed with the full zipline tour.</li><li>Patron successfully rode and self-braked on 2 zipline spans prior to incident.</li><li>Instructions on self-braking was provided, and emphasised a second time, prior to launching on the zipline system where the incident occurred.</li><li>Patron demonstrated necessary comprehension and demonstrated the required skills, just before entering the terminal braking system.</li><li>Patron was witnessed releasing the trolley brake handle and raising their hand to the cable prior to entering the terminal brake system.</li></ul>	

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### Causes and contributing factors

It is very likely the patron came into the bottom terminal faster than anticipated, and in reaction to that speed, attempted to slow themselves down using their hand, instead of following instructions and procedures for both braking systems.



Trolley entering lower terminal brake system.



Trolley braking - Pull down to increase speed.



Trolley braking - Push up to slow and stop trolley.



Example of improper hand placement.



Sign located at the point patron slowed prior to entering terminal brake system.