Incident Summary #II-986603-2020 (#16765) (FINAL)

SUPPORTING INFORMATION	Incident Date		February 29, 2020
	Location		Vancouver
	Regulated industry sector		Elevating devices – B44 passenger (electric)
	Impact – Injury	Qty injuries	1
		Injury description	One passenger in the elevator reported to have sustained back injuries and minor cuts.
		Injury rating	Minor
	Impact – Damage	Damage description	No damage to the regulated system.
		Damage rating	None
	Incident rating		Minor
	Incident overview		An elevator travelling in the up direction came to an abrupt stop. The lone passenger was entrapped in the elevator for 1-2 minutes before the elevator leveled in to the nearest landing and the passenger was able to exit the elevator.
INVESTIGATION CONCLUSIONS	Site, system and components		• Elevator controllers are designed to control the normal operation of the elevator. Elevator controllers control speed, braking, acceleration, detect faults in the system along with multiple other functions. • This elevator operates at 150 ft/min • The opening and closing of the car and hall doors are controlled by the door-operator, car door clutch, hall door pick up rollers and the controller. • The door operator is mounted on top of the car, it powers the doors opening and closing using a motor. • The car door clutch is mounted on the car door, facing the hall doors. When the elevator stops at a landing, the door operator causes the car door clutch to engage the pick-up roller mounted on the adjacent hall door, unlocking the hall door. The door operator then opens the car door and the clutch, being engaged with the pick-up roller mounted on the hall door, opens the adjacent hall door. • The opening and closing of the hall doors is electrically monitored by the controller through a set of electrical contacts installed on each hall door lock. When a hall door unlocks the electrical contact opens and when the hall door is closed and the lock engages, the electrical contact closes. • Unlocking of any of the hall doors will signal to the controller that a door is open and the elevator will engage its brakes. • Elevator safety features allow it to run only when all the hall door contacts are closed. • This elevator is equipped with mechanical over-speed devices known as the safeties. The safeties are mounted underneath the car and deploy automatically by clamping down on the guide rails to stop the elevator from plummeting. • Guide rails are the components that create the path along which the elevators ride. Under normal operation when the elevator stops at a floor level, the car door clutch engages with the pick-up roller installed on the hall doors. When the pick-up roller is engaged by the car door clutch it opens the lock on the hall door, allowing the motor on the door-operator to slide the car and hall doors open. Monitored electrical contacts located on the hall door lock are also opened, signalling to the elevator that a door has opened.

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	Under normal conditions, if an electrical contact on a door lock opens while the elevator is in motion, the controller detects this as a safety fault and stops the car by deploying the brakes. Under this safety fault condition, the controller disables car call commands and door open commands for the safety of the passengers. The car will remain stopped until the safety fault has been resolved and is no longer registered in the controller. Once the safety fault condition is no longer present the controller takes some time to reset and clear the safety fault. Once the controller is free of faults, the elevator will automatically proceed to relevel to the nearest floor and/or continue to travel to its designated floor.
Failure scenario(s)	• Elevator was ascending with a passenger inside. • A dog leash had fallen into the hoistway and was resting on a set of pick-up rollers on the third floor. • The elevator caught the dog leash as the elevator drove past the third floor. • The pull on the dog leash compressed the pick-up rollers causing the hall door electrical contacts to open momentarily. • The controller detected an open door in the system and immediately applied the brakes. • The elevator came to stop and the controller disabled car calls and door open commands. • As the dog leash released from the elevator, the pick-up roller decompressed allowing the electrical monitoring contacts to close up again. • With door electrical contacts closed up again, the controller reset and cleared the safety fault. • The controller restarted the elevator and drove the elevator to landing 6. • The door open buttons and car calls were enabled by the controller again. • Passenger got out by pressing the door open button once the car reached level 6.
Facts and evidence	Onsite Observations, photos and Mechanic statements: • Mechanic arrived on site and tested the unit prior to calling it in as an incident. • Mechanic indicated unit ran fine and no issues were found upon initial testing. • Mechanic searched in the hoistway and upon inspection found dog leash wrapped around the third floor pick-up roller. (See Picture #1 taken by mechanic during call) • Passenger stated they experienced the elevator dropping 7-10 feet before abruptly stopping. • During the investigation, the building manager stated a dog leash was reported to have fallen into the hoistway a few days prior to incident. • No record found in log book of visit prior to the incident to investigate the dog leash. • Log book - A record indicating that a similar incident occurred a few weeks prior to this one. (photo filed in records) • Injured passenger could not be reached by Safety Officer after multiple attempts by phone. • Passenger email confirming delayed injury symptoms. • Passenger did not declare extent of injuries or write a statement about the events that lead to injuries.

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	• On-site inspection of hoistway doors, car door, gate switch, car door restrictor, pick-up rollers, hall door contacts, hall door clearances, and door closing and opening forces performed. • Ran the elevator multiple times to ensure no shutdowns or abrupt stops occurred. • Inspected hoistway for other debris or objects that could interfere with the operation of the elevator. • No faults or abrupt stops were witnessed after the dog leash was removed. Elevator put back into service.
Causes and contributing factors	It is possible that a dog leash that was wrapped around the pick-up roller of a hall door contributed to the entrapment. It is possible that the dog leash was snagged by the passing elevator, briefly opening the door electrical contacts and stopping the elevator abruptly. It is not likely that the elevator dropped 7-10 feet as there is no indication of the mechanical over-speed device (safeties) activating.

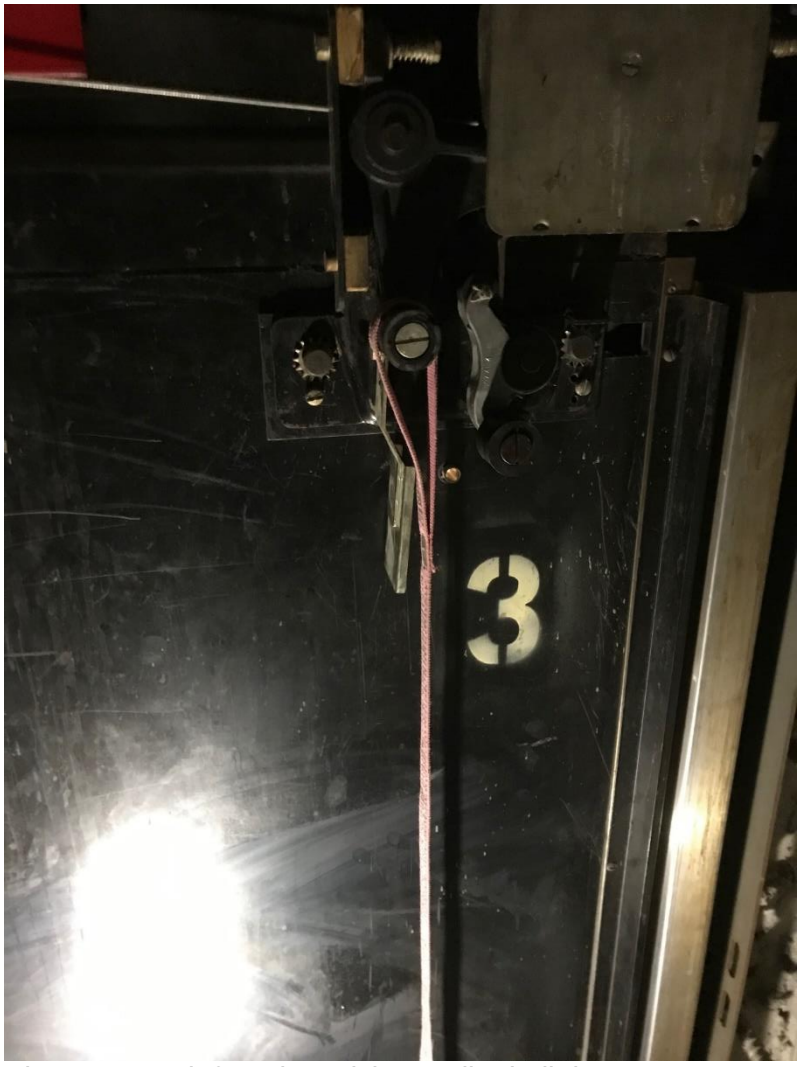

Photo 1- Leash found on pick up roller hall door.