Incident Summary #II-1002604-2020 (#16989) (FINAL)

SUPPORTING INFORMATION	Incident Date		July 23, 2019
	Location		Vancouver
	Regulated industry sector		Elevating devices - Elevator
	Impact – Injury	Qty injuries	0
		Injury description	No reported injuries
		Injury rating	None
	Impact – Damage	Damage description	Brake Failure
		Damage rating	Minor
	Incident rating		Minor
	Incident overview		A loaded passenger elevator with material and 3 passengers on board dropped from the top floor. The elevator dropped 12 feet from the top floor before being stopped and held in place by its safeties.
INVESTIGATION CONCLUSIONS	Site, system and components		• An electric traction passenger elevator with a max capacity load of 1500lbs • Elevator Brakes • Elevator Safeties This electric passenger elevator is of the geared traction type. It serves 8 landings in a warehouse location. The elevator is driven by a machine that consists of an electric motor, gearbox, sheave, brakes and a controller, all installed above the elevator shaft. Its electric motor is connected to a gearbox which drives a sheave that raises or lowers the car by steel ropes. This machine is equipped with a drum brake that is coupled between the motor and gearbox and under normal operation the brakes work to hold the elevator in place. Under normal conditions, the brakes are electrically lifted by a solenoid when the controller issues the command. A set of brake pads, one located on each side of the drum, are lifted and upon their release the elevator is set to travel to its destination. Upon arriving at the landing, the brake pads will drop on the drum again and the elevator is held in place thus allowing passengers to enter or exit. This elevator also comes equipped with a mechanical overspeed safety device. The overspeed safety device is automatically deployed by a governor located on the side of the motor which monitors the speed of the car. While travelling in the down direction, if the car ever exceeds the governors maximum speed rating, it will deploy the overspeed safety device. Once the overspeed safety device is activated, it will clamp down on the guide rails that the car travels on to stop the car and hold it in place. Examination and testing of brakes for electric elevators is a mandatory Safety Order that must be performed every 12 months. A brake declaration is also to be filled out and submitted by the elevator contractor after examining and testing the brakes.
	Failure scenario(s)		The main brakes on the elevator failed to hold the load once the elevator arrived at the top floor.

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Facts and evidence	**Emails submitted by the mechanic who attended to the incident call to Maintenance Contractor- July 23, 2019.** • Mechanic states that upon arriving the passengers were already out and found a few "hundred plastic type tiles of movie equipment were loaded into the car". • Mechanic was told by a passenger that the car went to the top floor and started to drift once it arrived. • Mechanic stated that they suspect the car was over loaded. • Mechanic states that the car dropped 12 feet below the top floor before the safeties engaged. • Unit was left shut off. **Email from a second mechanic that assisted sent to Maintenance Contractor- July 23, 2019.** • Mechanic claims to have found the elevator 12 feet and 3 inches below the top floor. • Mechanic suspects that car was overloaded and is waiting to hear confirmation from the Operations Manager on the amount of weight loaded into the car. (Operations Manager has not confirmed the weight in the car as of July 24,2020) • Mechanic states that repairs to the brakes should be performed and that a Safety Inspector should be notified of the incident. **Email from Elevator Contractor to Safety Officer–Feb 26,2020** • Elevator Contractor stated in email that they were looking for guidance on an elevator previously on the safeties, which had now been fixed and they were wondering if they needed approval from the Technical Safety BC to get it back in service. • Safety Officer responded requesting more information on the situation and incident as it was the first time they had heard about the unit being on safeties. Safety Officer left a message for them to return their call and also indicated that if this was an incident to report it to Technical Safety BC through reporting line. **Notes from Telephone Conversation with Elevator Contractor Rep-June 05,2020** • Safety Officer questioned why the incident that occurred in July 2019 was not officially reported to Technical Safety BC until March of 2020. Elevator Contractor states that the car remained shut down since it went on safeties until the Operations Manager inquired about the elevator being shut down. At this time the unit was repaired. • Elevator contractor stated that there was confusion as to whether to call the incident in or not. • Contractor indicated a safety officer had been consulted with shortly after the unit had gone on safeties for direction but the incident was never called in. • Safety Officer Requested a copy of the electronic annual brake maintenance records for the years 2018 and 2019. **Email to Elevator Contractor Requesting Electronic copy of Annual Brake Tests-June 09, 2020.**

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	• Second request made for electronic records of Annual Brake Testing for the years 2018 and 2019. • Elevator Contractor responded to the request by email and stated they could not provide the requested records at this time. (An electronic declaration of the brake test was submitted by the elevator contractor on Oct of 2018 but no record of the declaration found during an audit performed on December of 2019.) **Notes form Telephone conversation with a Passenger in the elevator at the time of the incident-July 08, 2020.** • Passenger stated that the elevator had been loaded up at the basement level with plastic tiles designed for a movie set. • Passenger stated that there were 3 passengers including themselves in the elevator plus the plastic tiles. • The elevator traveled from basement to the top floor. When they went to open the door at the top floor the elevator slipped. No injuries to anyone on board. **Annual Brake Test Data Log Books found on site from 2018-2020.** • Annual Brake Test Data Log Books from 2018 to 2020 shows no written statement of any type of examination or testing performed on the brakes since 2018. • At the time of the investigation, based on Technical Safety BC's records the last Brake Test Declaration submitted to Technical Safety BC was for 2018.
Causes and contributing factors	It is likely that the reason the elevator dropped on to its safeties was because the main brake failed to hold the load. Based on the fact that no records or declaration of Annual Brake Inspections since 2018 were found during the investigation, it is probable that the brake failure could have been caused by worn out brake pads and/or improper tensioned brake pads. It is not known if the elevator was over loaded at the time of the incident since the evidence was removed and the incident not reported until March of 2020. Brakes were also readjusted before a safety officer could visit the incident and as a result the damage or fault on the brakes could not be documented. A test with Full Load capacity was performed on April of 2020 and no issues with the brakes holding the load were found at this time.

Photos or diagrams (if necessary)

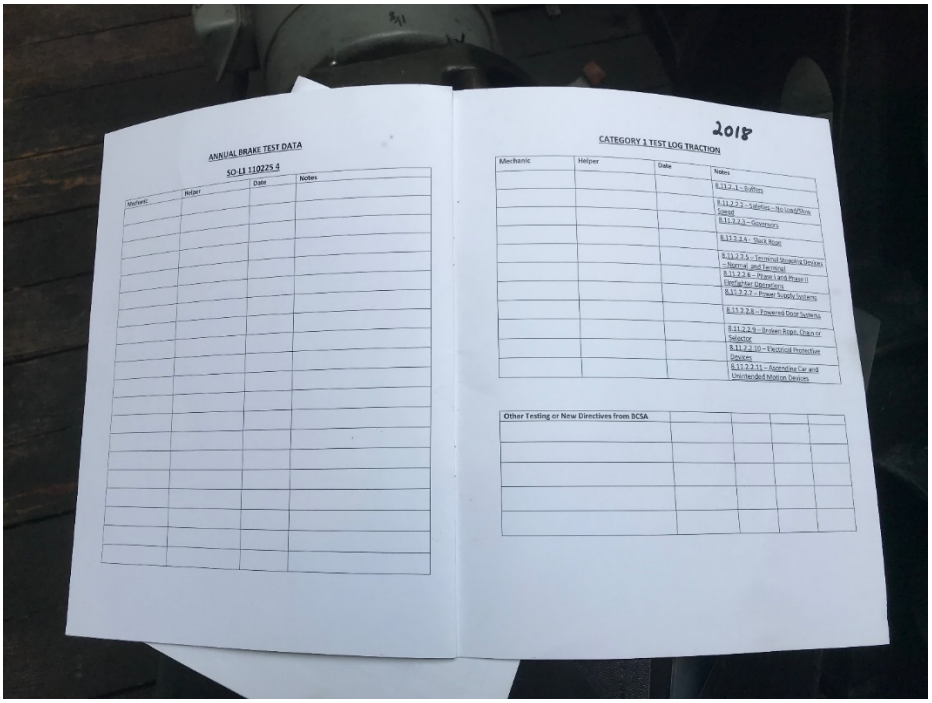

Photo #1- This picture shows the Annual Brake Test Data Log for 2018. No entries recorded on the log book of any type of brakes test performed for the year 2018.

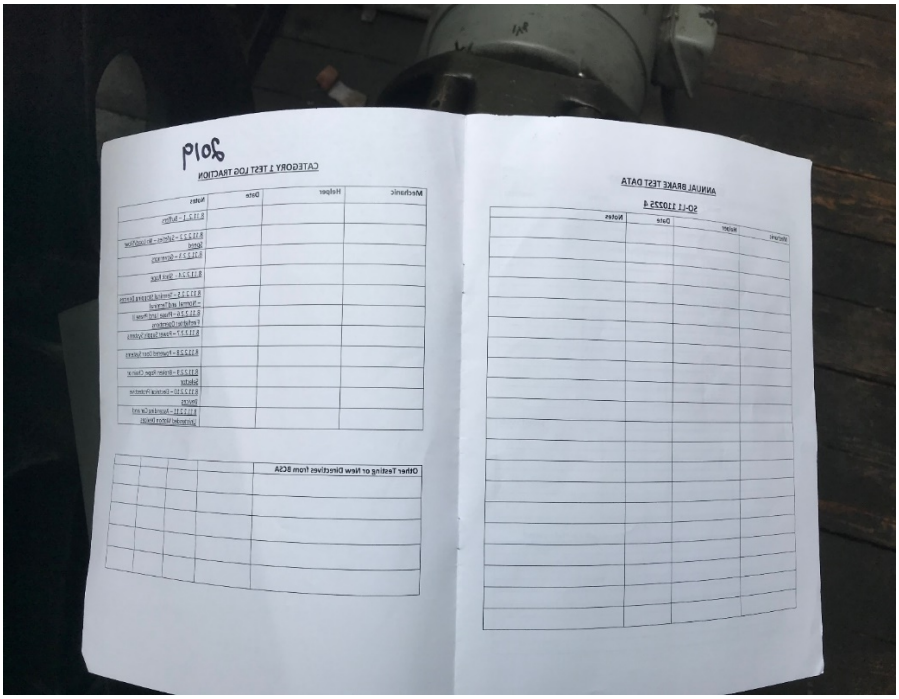

Photo #2- This picture shows the Annual Brake Test Data Log for 2019. No entries recorded on the log book of any type of brake examination or testing done prior to the incident.

Picture #3 – Max Capacity sign posted in the Car.