

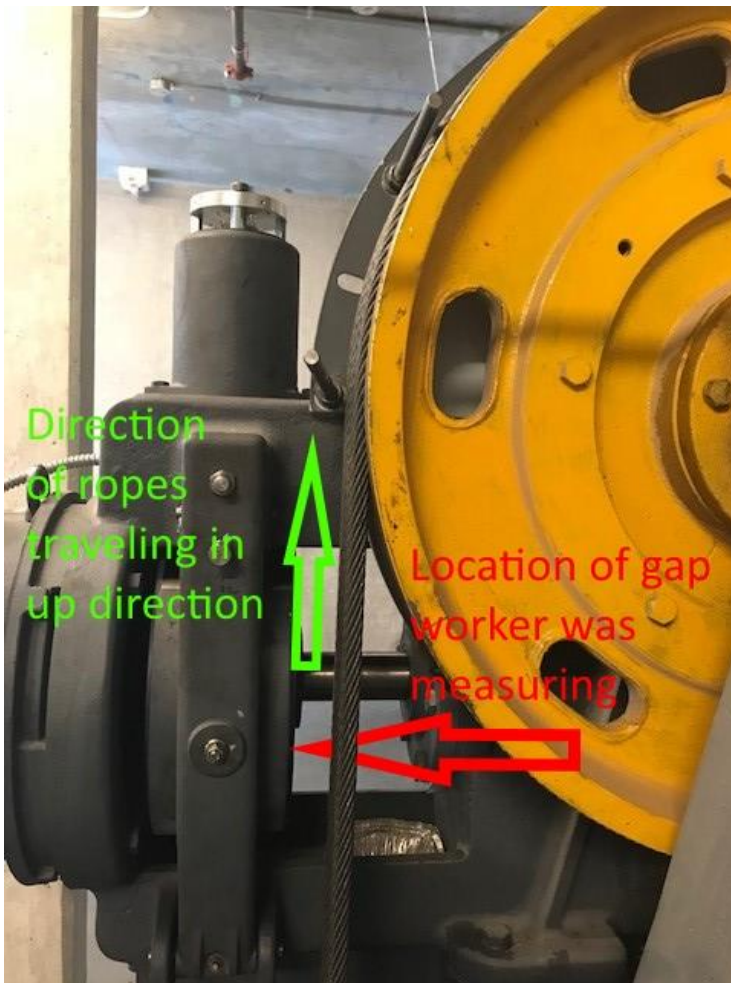
Incident Summary #II-705415-2018 (#7630) (FINAL)

SUPPORTING INFORMATION	Incident Date	June 18, 2018	
	Location	Burnaby	
	Regulated industry sector	Elevating devices – Elevator	
	Impact	Qty injuries	1
		Injury description	Workers right forearm, wrist and hand were crushed between the main sheave and ropes.
		Injury rating	Moderate
	Damage	Damage description	NA
		Damage rating	None
Incident rating	Moderate		
Incident overview	Worker was working alone measuring the brakes air gaps with a feeler gauge while the elevator was in operation. Measuring the brake with a feeler gauge required reaching between the sheave and hoisting ropes. Workers right arm got caught by the ropes and pulled into the sheave as the elevator drove in the up direction.		
INVESTIGATION CONCLUSIONS	Site, system and components	<p>Traction elevators are driven by a steel wire rope that is propelled by a drive sheave (wheel). The wheel is driven by a drive motor and gear box assembly that is directly coupled to the drive sheave. Traction elevators have a machine brake that is located between the motor and drive sheave. When the elevator is in motion, the machine brakes are open (not applied). When the elevator comes to a stop, the machine brakes apply to ensure no motion of the elevator.</p> <p>After performing work on the brakes the air gaps (clearance between the brake pads and brake surface) need to be verified to ensure the brakes will work correctly.</p>	
	Failure scenario(s)	The worker was working alone. The worker put the elevator into automatic operation to measure brakes. The worker placed two commands, one for the elevator to go up a floor and another to come down a floor. The workers hand and wrist got caught on the ropes and pulled into the Sheave while the elevator was driving in the up direction. When the elevator drove in the down direction the workers hand and wrist were released.	
	Facts and evidence	The employer provided their documented procedures for measuring brakes along with their incident summary report that outlines the order of events. As-per the elevator contractors training material; If working alone, the air gaps should be verified visually without using measuring tool (feeler gauge). If working with a helper, the helper should be at the controller with the elevator put into maintenance mode. The helper would send the elevator in the up direction, until the counterweight is resting on its buffers, the helper would then set the elevators speed to Zero so the brakes could be lifted and the elevator would not move. While the elevator brakes are lifted, with the elevator stationary, the mechanic would measure the brake air gaps safely.	

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	<p>While investigating the scene of the incident, the workers glove was observed stuck to the sheave with dried blood along with a trail of dried blood that followed the workers route out of the machine room as reported in the employers incident summary.</p> <p>Interviewing the workers employer and speaking with the WorkSafe BC Safety Officer assigned to this incident corroborated what was seen in the machine room along with their summary report.</p> <p>Employer informed that the mechanics helper had called in sick that day and the mechanic was working alone.</p> <p>When speaking to the employer they stated that the job had been taking longer than normal.</p>
Causes and contributing factors	It is highly likely that the worker was not following the safe work procedures they had been provided by their employer. It is possible the worker was rushing to complete the job.

Photos or diagrams (if necessary)



Picture of the machine where the incident occurred.



Components involved in the incident.