

Incident Summary #II-748985-2018 (#8737) (FINAL)

SUPPORTING INFORMATION	Incident Date	September 24, 2018	
	Location	Vancouver	
	Regulated industry sector	Elevating devices - Elevator	
	Impact	Qty injuries	0
		Injury description	NA
		Injury rating	None
	Damage	Damage description	NA
		Damage rating	None
	Incident rating	Insignificant	
Incident overview	Elevator #17 at the Harbour Centre stopped in the express zone, the express zone is an area in the elevator shaft which has no landing doors for those floors. After stopping, the elevator was approximately 200 ft above the ground floor and the car door opened with several passengers inside.		
INVESTIGATION CONCLUSIONS	Site, system and components	<ul style="list-style-type: none"> - An elevator controller (Photos 1 and 7) is where all the electronic components that control the operation of the elevator are housed. The controller has an inner compartment (Photo 1) for components that are more sensitive to heat/electrical noise. The inner compartment has a cooling fan at the top (Photo 2) which draws cool air from the bottom through all the components. The inner compartment cabinet door must be closed in order for the cooling process to function properly. - Under normal conditions, an elevator would not stop in the express zone because no landings are present in that section of shaft. In sections of shaft without landings, the controller requires landings to be programmed into the control system to have the system function properly. These programmed landings in the express zone, that have no landing doors, are called “false floors.” - A device called “Car door interlock” (Photo 5) which is attached to the car door, prevents the car door from opening unless it’s within the unlocking zone (zone not more than 18” above or below each landing) for that entrance. When the elevator is stopping at a landing, the interlock is given a signal from the controller to unlock the interlock allowing the car door to open. When the elevator system is functioning properly, the interlock is only given a signal to unlock on landings with hall doors. 	
	Failure scenario(s)	<ul style="list-style-type: none"> - A mechanic was working on the elevator controller and left the controller inner cabinet door open when he left for his break. - Elevator stopped in the express zone on a false floor with no landing doors when the controller faulted out and gave a signal to open the door. 	
	Facts and evidence	<ul style="list-style-type: none"> - The mechanic stated they left the elevator operational with the inner cabinet open while leaving for a break. - While no one was present in the machine room and with the inner cabinet left open. The “Field Module” (Photo 3) component in the inner cabinet 	

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	<p>overheated causing the elevator to stop running on a “field module over temperature fault” (Photo 4).</p> <ul style="list-style-type: none"> - Photo 4 shows the controller fault log and time that coincides with the location where elevator stopped operating - A parameter in the controller labelled “Front Opening” (Photo 6) on that particular false floor was ticked off, which enabled the car door to open on that particular false floor (under normal running condition this parameter should never be ticked off and enabled). - The controller sent a signal to unlock the “car door interlock” and opened the car door with no landing doors at that particular floor because the parameter explained above was enabled. - The controller was given a signal that a car door had opened but no signal was given to the controller that a hall door had open, which resulted in the controller faulting out until a technician remedied the issue.
<p>Causes and contributing factors</p>	<p>It is likely that the mechanic leaving the elevator in operation with the inner cabinet door open caused a temperature fault in the control equipment located within the inner control cabinet. The fault occurred while the elevator was in the “express zone” of the shaft causing the elevator to stop within a false landing zone. It is likely that an erroneous parameter in the operating system caused the door to open at that false landing.</p>

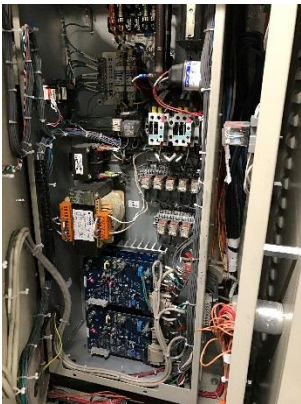


Photo 1: Inner cabinet layout of elevator controller (cooling fan located at top)

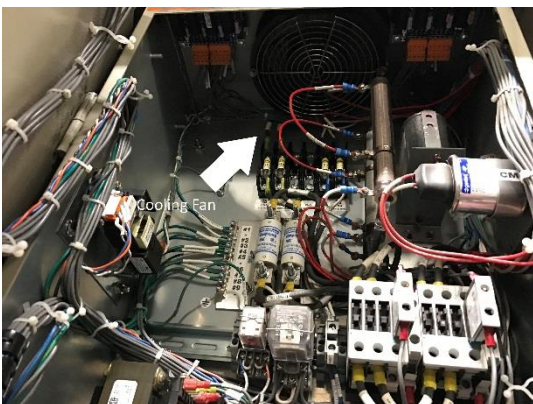


Photo 2: Cooling Fan located at the top of the inner cabinet

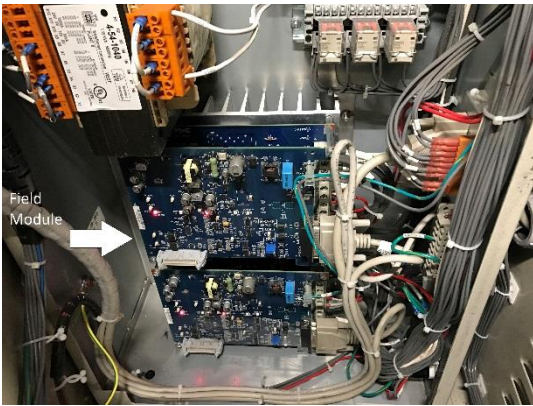


Photo 3: Field Module located inside the inner cabinet of controller

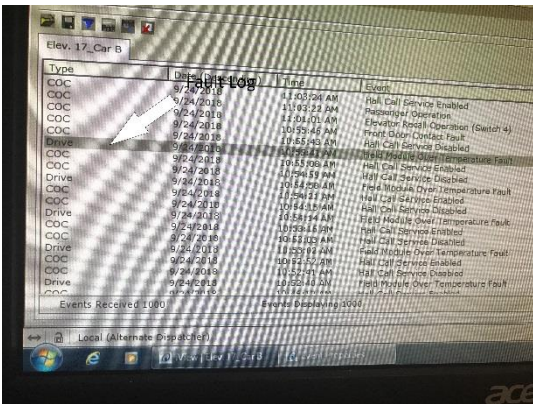


Photo 4: Fault log displaying the type of fault, time and date the fault occurred

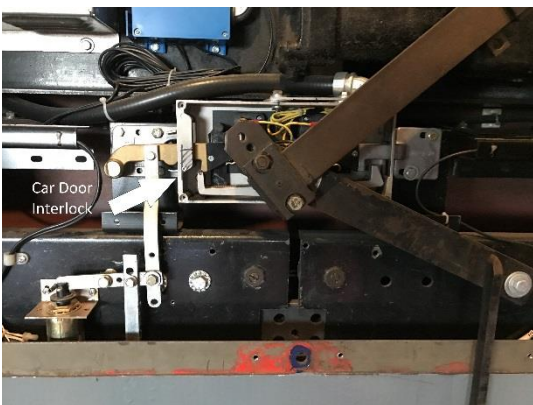


Photo 5: Car door interlock which is mounted on top of the car door

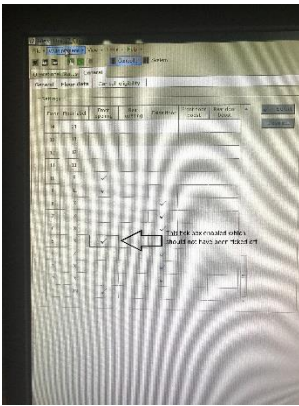


Photo 6: The controller parameter “Front opening” tick box enabled on the false floor where the location of the elevator stopped



Photo 7: The elevator controller layout with the inner cabinet door closed