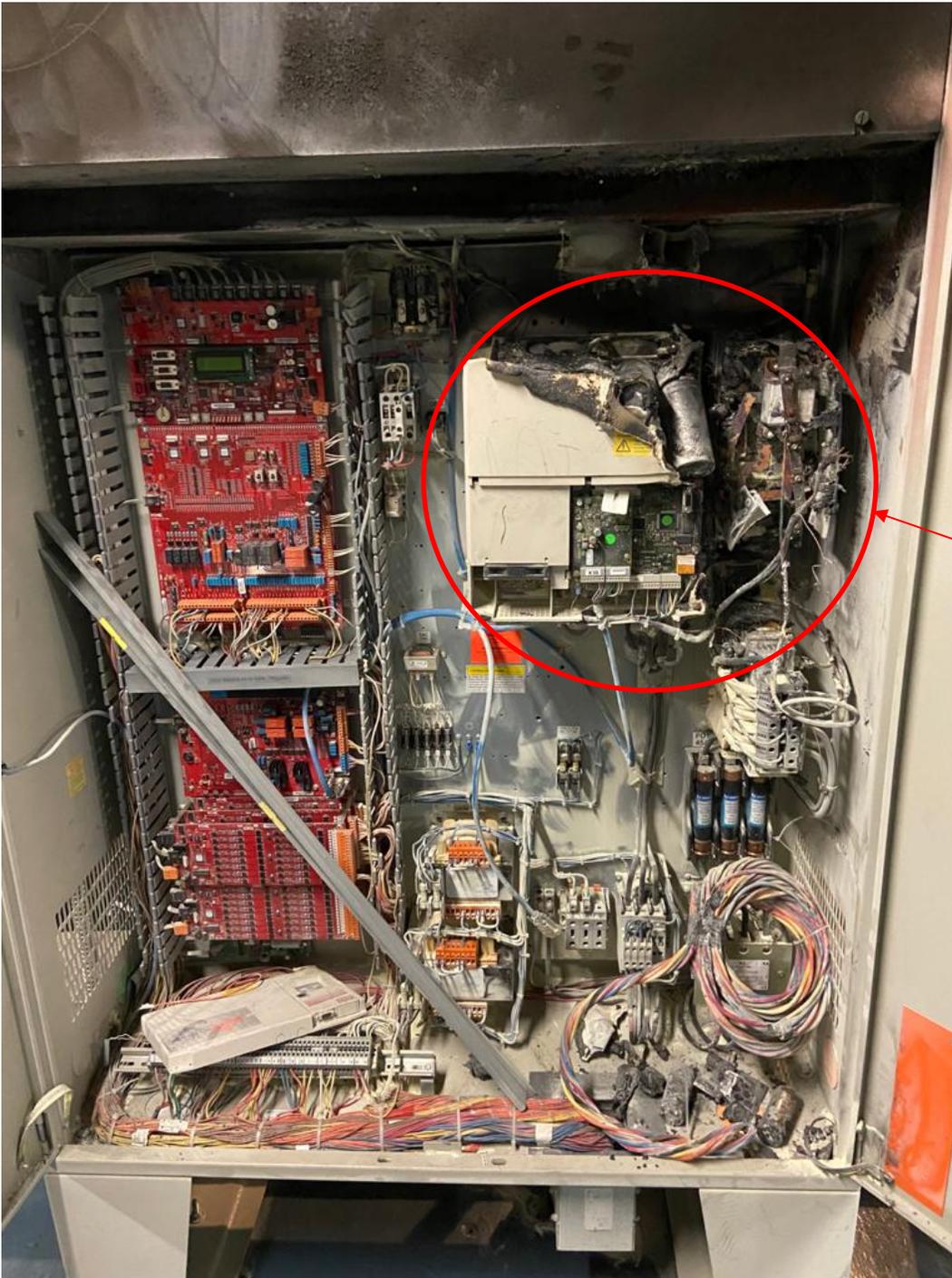


Incident Summary #II-1074170-2020 (#19295) (FINAL)

SUPPORTING INFORMATION	Incident Date	September 21, 2020	
	Location	Vancouver	
	Regulated industry sector	Elevating devices - Elevator	
	Impact	Qty injuries	0
		Injury description	None
		Injury rating	None
	Damage	Damage description	Damage to variable frequency drive (VFD) unit and regenerative drive unit
		Damage rating	Moderate
	Incident rating	Moderate	
Incident overview	A fire started at the variable frequency drive (VFD) unit and spread to the regenerative drive unit, in a multi-residence/commercial building. No one was using the elevator at the time of fire. The incident occurred at around 2AM, when a worker smelled smoke. The fire department was called and extinguished the fire.		
INVESTIGATION CONCLUSIONS	Site, system and components	The variable frequency drive unit receives commands from the controller, which provides power to accelerate, run and decelerate the elevator as the elevator travels up and down the elevator shaft. The controller is a self-contained metal unit located in the elevator machine room, and provides commands to a single elevator unit. VFDs are periodically replaced due to component failure.	
	Failure scenario(s)	A fire started on the VFD which spread to the adjacent regenerative drive unit. Both the VFD and the regenerative drive unit sustained catastrophic failure. All other components did not sustain any damage. Damage confined to inside the controller (see figure 4 & 5).	
	Facts and evidence	<ul style="list-style-type: none"> - Elevator controller is a self-contained metal unit within the machine room (Figure 1) - VFD and regenerative drive unit are contained within the controller (Figure 2/3) - Incident occurred in a multi-residence building with housekeeping workers - Fire department called when a worker smelled smoke around 2AM - Elevating maintenance contractor arrived to site later that morning. Safety officer attended site the following day - Maintenance contractor shut down unit and sourced the components that failed - Safety officer confirmed routine maintenance was being done by maintenance contractor - Unit had undergone a modernization in 2010 	
	Causes and contributing factors	Unable to determine the cause of the fire. Based on the amount of heat damage contained in the vicinity of the VFD and regenerative drive unit, plus the paint damage on the door, it is plausible that these units were the original source of the fire. It is possible that the failure of the VFD unit was due to age or manufacture defect.	

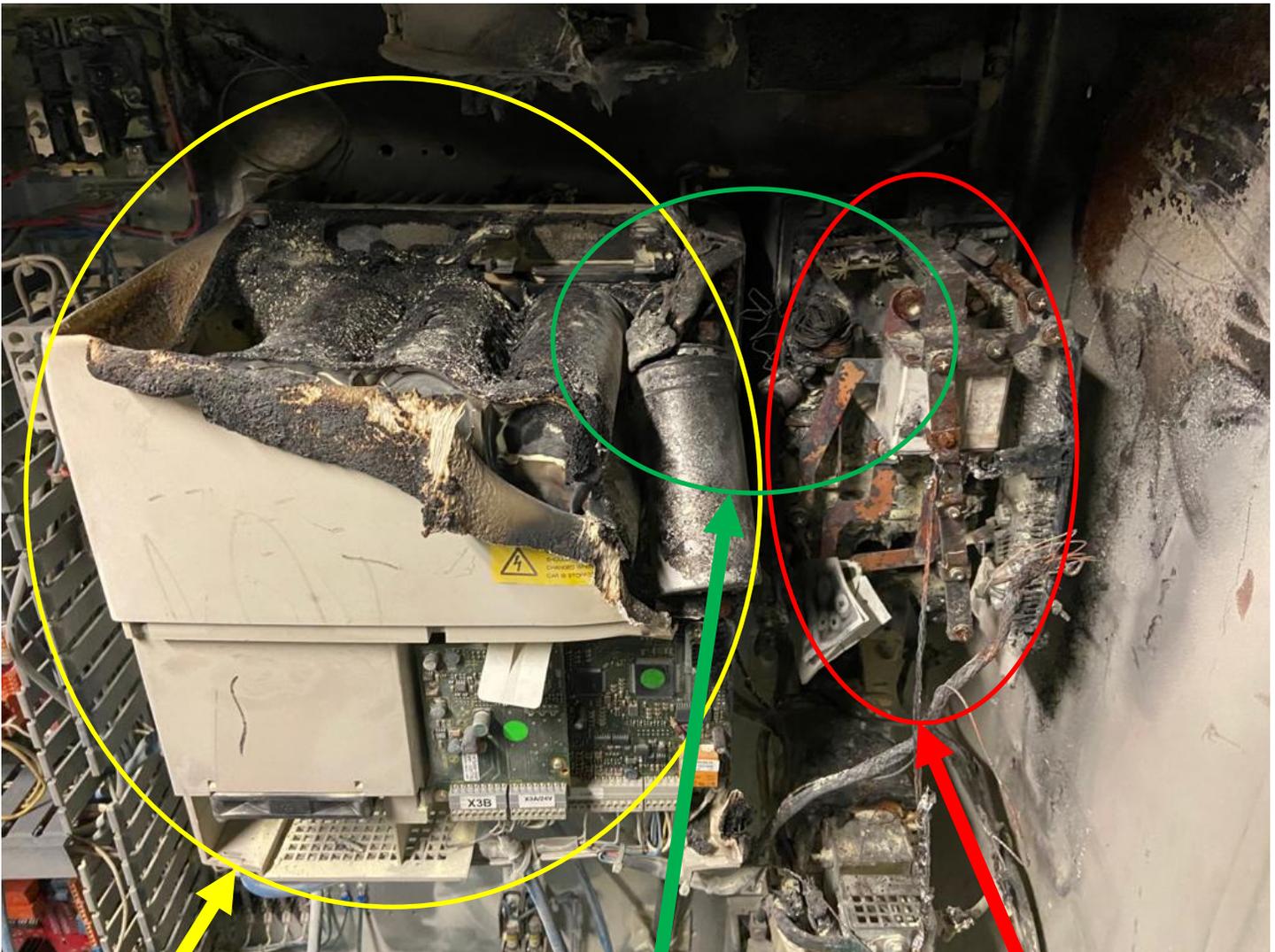


Figure 1 - Controller



See Figure 3
for close-up

Figure 2 – Controller



Variable Frequency Drive

High Probability Source of Fire

Regenerative Drive

Figure 3 – Drive



Figure 4 – Damage around VFD and Regenerative Drive Units



Figure 5 – Damage to the exterior of controller.



Figure 6 – Repaired Controller (Exterior)



Figure 7 – Repaired Controller (Interior)