Incident Summary #II-911227-2019 (#15344) (FINAL)

SUPPORTING INFORMATION	Incident Date		September 23, 2019
	Location		Black Creek
	Regulated industry sector		Electrical - Low voltage electrical system (30V to 750V)
	Impact – Injury	Qty injuries	0
		Injury description	NA
		Injury rating	None
	Impact – Damage	Damage description	200A main breaker destroyed.
		Damage rating	Moderate
	Incident rating		Moderate
	Incident overview		The occupant of a house noticed a burnt smell in the evening around 10:30pm. He went to the electrical panel where the smell was coming from and heard a buzzing sound. He contacted a neighbour who is an electrical contractor who turned the main breaker off. The panel was replaced the next day.
INVESTIGATION CONCLUSIONS	Site, system and components		When properly installed this 200Amp 240Volt residential service panel is rated to carry a continuous load of 80% (160Amp). To prevent overheating, the main breaker will trip if the continuous load of 80% is continuously exceeded or under short circuit conditions.
	Failure scenario(s)		The electrical load on at the time was within normal of a dwelling. A poor conductor termination at the main breaker got worse over time causing overheating, arcing and eventually melted the plastic parts of the breaker.
	Facts and evidence		Occupant interview: • Occupant noticed a burnt smell and heard buzzing at the panel • There have been no changes to the loads or electrical system • Approximately 30 year old house and electrical service Electrical FSR interview: • Smelled burning and heard buzzing at panel • Largest loads were the electric furnace supplied by a 50A breaker, a 40A range, and a 30A dryer • Removed panel cover and saw arcing at the breaker termination lug, and burnt plastic around the same termination lug • When disassembling the panel he noticed the service conductor termination set screw on the breaker didn't seem tight • The service conductors were 3/0 copper

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	SO observation of the panel after removal: • White powder was built up where the service conductor had terminated to the breaker (See Photo #4) • The plastic that holds the service conductor termination lug was burnt and broken (See Photo #5) • Electrical loads listed on the panel cover were within the normal of a residential 200A service
Causes and contributing factors	The cause of this incident was likely due to a poor electrical connection where the service conductor terminates at the breaker. During the field installation it is probable that factory torque specifications for the service conductors may not have been met and over time got worse as did overheating until failure.

Photo 1: FPE 200A breaker panel removed

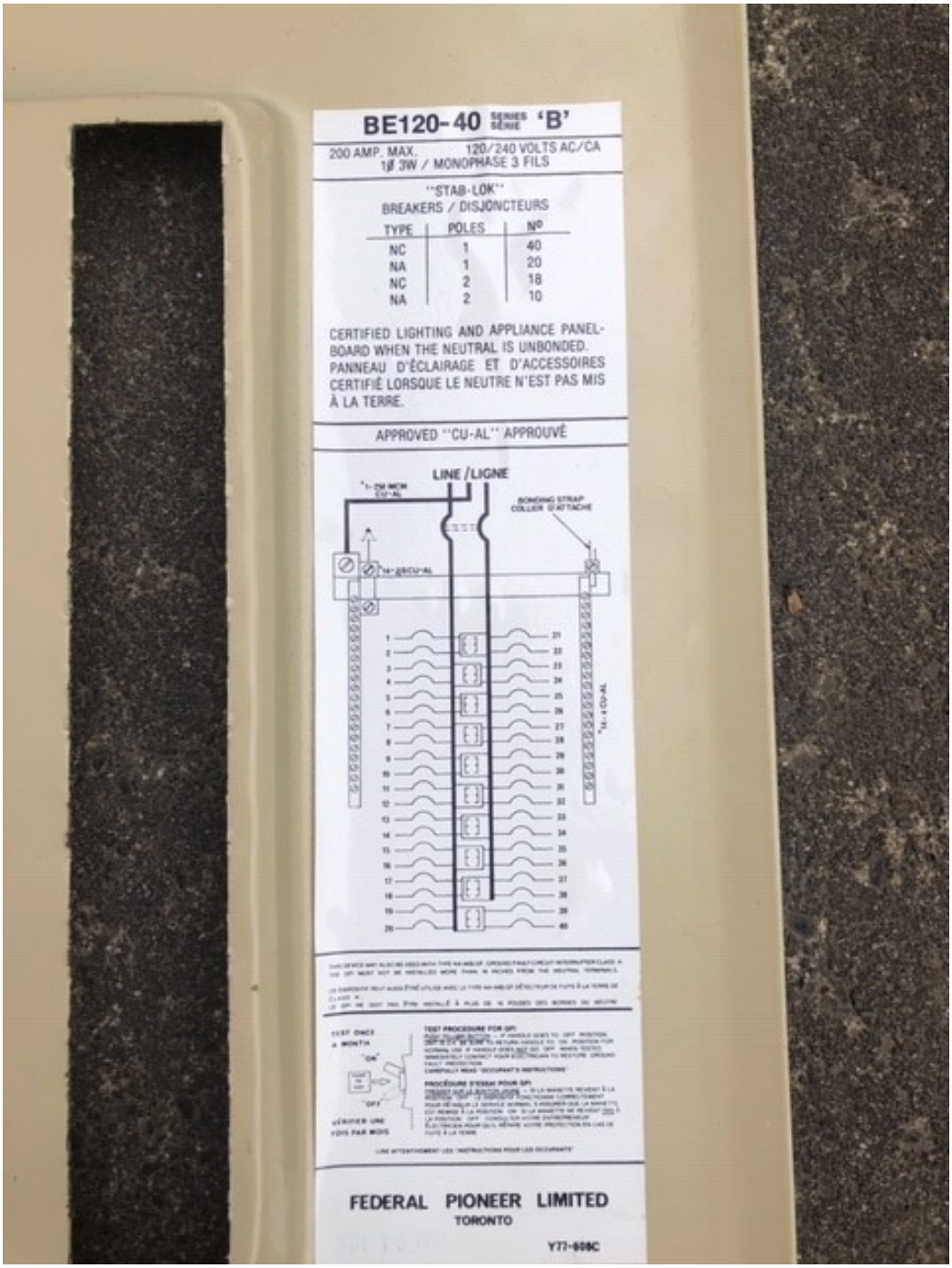

Photo 2: Panel cover

Photo 3: 200A breaker with slight discoloration on the left buss screw

Photo 4: Breaker cable termination shows white powder

Photo 5: Breaker to buss contact melted apart