

9 January 2013

Mr. Gordon Fawcett
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V8L-4B2

Re: Our Job No. E-13105, Test DSP Ground Fault System on the Sir Wilfid Laurier.

We have completed the above mentioned services. The system components, Main Frame, Extender Frame, DDR, Artificial Neutral, Neutral Grounding Resistor, and Zero Sequence Current Transformer were examined and tested. The Extender Frame Feeder Modules were examined and tested by using a Feeder Slot in the Main Frame due to lack of connection cables between the Main and Extender Module.

Findings:

- All components are in place except the connector cable between the Main Frame and Extender Frame.
- Wiring is mostly in place except wiring from terminal blocks in the console and Extender Frame.
- Feeder Modules for G1, G2, G3, P1, P2, E1, and E2 have been modified with additional components.
- Zero Sequence Current Transformer for 52-2 is not from Original Equipment Manufacturer and has a different rating than the OEM models. Nameplate for this ZSCT: Manufacturer – CEB Limited, Model GZ1000, for use with GFR-112 Ground Fault Relay.
- Neutral Grounding Resistor is connected correctly and measures 72.4 ohms
- During visual inspection of the main switchboard a support barrier was found to have a second bus bar notch cut adjacent to the notch used by the bus bar on each phase. The second, unused notch, would decrease the support strength during fault conditions. This switchboard has had bus bars, supports and bracing replaced after a fault and during modifications; we recommend performing a detailed review of all supports and bracing to ensure standards are maintained.

Primary current injection results are attached in the following tables.

If you require any further information or assistance please contact us at 604-514-9472

Yours truly,

Neil McKerricher

Current Injection Test Results for Main Frame Feeder Modules:

Circuit	Injected Current at 50% Level	Injected Current for Inst. Trip	Notes
52-G1	3.3A	110A	Modified module
52-G2	3.3A	100A	Modified module
52-G3	3.3A	98A	Modified module
52-P1	3.3A	126A	Modified module
52-P2	3.3A	108A	Modified module
52-E1	3.3A	98A	Modified module
52-E2	3.3A	110A	Modified module
52-DB	3.3A	105A	

Current Injection Test Result for Zero Sequence Current Transformers on Extender Frame (wiring not connected from terminal block to feeder modules)

Circuit	Current Injected in primary of ZSCT	Current measured at terminal block in console	Expected current value at terminal block	Notes
52-1	10A	9.9mA	10mA	
52-2	10A	12.7mA	10mA	ZSCT is from non OEM
52-3	10A	9.9mA	10mA	
52-4	10A	9.9mA	10mA	
52-5	10A	9.9mA	10mA	
52-6	10A	9.9mA	10mA	
52-7	10A	9.9mA	10mA	