Winnipeg	**INSPECTION FORM** **ANALOG METER**	Page 1 of 1
		ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Meter Data			
	Location:	Cell #:	
	Manufacturer:	Type:	Range

Visual Inspection / Cleaning				
	Cover Gasket:	☐ Good ☐ Acceptable ☐ Poor	Cover Glass:	☐ Good ☐ Acceptable ☐ Poor
	Spiral Spring:	☐ Good ☐ Acceptable ☐ Poor	Disc Clearance:	☐ Good ☐ Acceptable ☐ Poor
	Contacts:	☐ Good ☐ Acceptable ☐ Poor	Case Shorting Contacts:	☐ N/A ☐ Good ☐ Acceptable ☐ Poor
	Rotating Disc Movement:	☐ Good ☐ Acceptable ☐ Poor	General Condition:	☐ Good ☐ Acceptable ☐ Poor
	Cleanliness (as found)	☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned:	☐ Yes
	Connections (as found)	☐ Good ☐ Acceptable ☐ Poor	Connections Torqued:	☐ Yes

Accuracy	**Test Value**	**Reading As Found**	**Reading As Left**	**Units**
	0			
	Unit Calibrated: ☐ Yes ☐ No			

Final Analysis				
	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **AIR CIRCUIT BREAKER, 4160V**	Page 1 of 2 Breaker ID

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Breaker Data				
	Location:	Switchgear:		Cell #:
	Manufacturer:	Type:	Serial #:	
	Rated Voltage: V	Current Rating: A	Interrupting Rating: kA	
	Momentary Fault Closing Amps: A	Trip Unit Type:	Control Voltage: V	BIL Rating:

Visual Inspection / Cleaning		
	Breaker Identification Tag Installed: ☐ Yes ☐ No	Visual Signs of Overheating: ☐ Yes ☐ No
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Support Insulators: ☐ Good ☐ Acceptable ☐ Poor
	Connections: ☐ Good ☐ Acceptable ☐ Poor	Electro/Mechanical Interlock: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor	Arc Chutes: ☐ Good ☐ Acceptable ☐ Poor
	Door Mechanical: ☐ Good ☐ Acceptable ☐ Poor	Contact Alignment and Condition: ☐ Good ☐ Acceptable ☐ Poor
	Cell Fit and Alignment: ☐ Good ☐ Acceptable ☐ Poor	Operating Mechanism: ☐ Good ☐ Acceptable ☐ Poor
	Racking Mechanism: ☐ Good ☐ Acceptable ☐ Poor	Contact Fingers: ☐ Good ☐ Acceptable ☐ Poor
	Shutter: ☐ Good ☐ Acceptable ☐ Poor	Arcing Contacts: ☐ Good ☐ Acceptable ☐ Poor
	Cables Supported Appropriately: ☐ Yes ☐ No	Auxiliary Devices: ☐ Good ☐ Acceptable ☐ Poor
		Unit Cleaned: ☐ Yes Photograph Taken: ☐ Yes
	Comments:	

Insulation Resistance Test

Test Preparation :
Source:
☐ Disconnected
☐ Connected with Source Isolated
Cable Dest. / Load:
☐ Disconnected
☐ Connected with Load Isolated
Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	**Insulation Resistance (MΩ) Phase To GND (Breaker Closed)**		
	A	**B**	**C**
2500 V			

Test Voltage	**Insulation Resistance (MΩ) Phase To Phase (Breaker Closed)**		
	A – B	**B – C**	**A - C**
2500 V			

Test Voltage	**Insulation Resistance (MΩ) Line to Load (Breaker Open)**		
	A	**B**	**C**
2500 V			

Temperature: °C

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

Winnipeg	**INSPECTION FORM** **AIR CIRCUIT BREAKER, 4160V**	Page 2 of 2 Breaker ID

Insulation Resistance (Control Wiring)

Wire Tag	Insulation Resistance (MΩ)	Wire Tag	Insulation Resistance (MΩ)	**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Contact/Pole Measurements

	A	B	C	**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Resistance (μΩ)				
Arcing Contact Gap (mm)				
Arcing Contact Wipe (mm)				
Main Contact Gap (mm)				
Main Contact Wipe (mm)				

Comments:

High Potential Test

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Peak DC Test Voltage (1 minute duration)	Test Summary (μA)			**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	A	B	C	
12 kV				

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **AIR CIRCUIT BREAKER, 600V**	Page 1 of 3 Breaker ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Breaker Data						
	Location:		Switchgear:		Cell #:	
	Manufacturer:		Type:		Serial #:	
	Rated Voltage: V		Frame Size: A		Interrupting Rating: kA	
	Momentary Fault Closing Amps: A		Trip Unit Type:		Control Voltage: V	

Visual Inspection / Cleaning				
	Breaker Identification Tag Installed: ☐ Yes ☐ No		Visual Signs of Overheating: ☐ Yes ☐ No	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor		Support Insulators: ☐ Good ☐ Acceptable ☐ Poor	
	Connections: ☐ Good ☐ Acceptable ☐ Poor		Electro/Mechanical Interlock: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor	
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor		Arc Chutes: ☐ Good ☐ Acceptable ☐ Poor	
	Door Mechanical: ☐ Good ☐ Acceptable ☐ Poor		Contact Alignment and Condition: ☐ Good ☐ Acceptable ☐ Poor	
	Cell Fit and Alignment: ☐ Good ☐ Acceptable ☐ Poor		Operating Mechanism: ☐ Good ☐ Acceptable ☐ Poor	
	Racking Mechanism: ☐ Good ☐ Acceptable ☐ Poor		Contact Fingers: ☐ Good ☐ Acceptable ☐ Poor	
	Shutter: ☐ Good ☐ Acceptable ☐ Poor		Arcing Contacts: ☐ Good ☐ Acceptable ☐ Poor	
	Cables Supported Appropriately: ☐ Yes ☐ No		Auxiliary Devices: ☐ Good ☐ Acceptable ☐ Poor	
			Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes
	Comments:			

Insulation Resistance Test					
	Test Preparation:	Source: ☐ Disconnected ☐ Connected with Source Isolated	Cable Dest. / Load: ☐ Disconnected ☐ Connected with Load Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	Test Voltage	**Insulation Resistance (MΩ) Phase To GND (Breaker Closed)**			Temperature: °C
		A	**B**	**C**	
	1000 V				
	Test Voltage	**Insulation Resistance (MΩ) Phase To Phase (Breaker Closed)**			
		A – B	**B – C**	**A - C**	
	1000 V				
	Test Voltage	**Insulation Resistance (MΩ) Line to Load (Breaker Open)**			**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
		A	**B**	**C**	
	1000 V				
	Comments:				

Insulation Resistance (Control Wiring)

Wire Tag	Insulation Resistance (MΩ)	Wire Tag	Insulation Resistance (MΩ)

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

Contact/Pole Measurements

	A	B	C
Resistance (μΩ)			
Arcing Contact Gap (mm)			
Arcing Contact Wipe (mm)			
Main Contact Gap (mm)			
Main Contact Wipe (mm)			

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

Breaker Settings

Plug Rating: A Sensor Tap Ground Fault ☐ 3W ☐ 4W

Relay Setting (As Left)	Setpoint	Delay	Enabled	I^2T
Long Time	X A = A	sec	☐ Yes ☐ No	☐ On ☐ Off
Short Time	X A = A	sec	☐ Yes ☐ No	☐ On ☐ Off
Instantaneous	X A = A	N/A	☐ Yes ☐ No	
Ground Fault	A	sec	☐ Yes ☐ No	☐ On ☐ Off

Breaker Test

TCC NO:

Test	Test Current	Time Band		A		B		C	
		Min. (sec)	Max. (sec)	As-Found (sec)	As-Left (sec)	As-Found (sec)	As-Left (sec)	As-Found (sec)	As-Left (sec)
Long Time	A								
Short Time	A								
Instantaneous	A								
Ground Fault	A								

Final Analysis	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **MOLDED CASE CIRCUIT BREAKER, 600V**	Page 1 of 1 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Breaker Data			
	Location:	Panelboard/MCC:	Cell #:
	Manufacturer:	Type:	Serial #:
	Rated Voltage: V	Frame Size: A	Trip Unit:
	Interrupting Rating: kA	Comments:	

Visual Inspection / Cleaning		
	Breaker Identification Tag Installed: ☐ Yes ☐ No	Visual Signs of Overheating: ☐ Yes ☐ No
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Cables Supported Appropriately: ☐ Yes ☐ No
	Connections: ☐ Good ☐ Acceptable ☐ Poor	Electro/Mechanical Interlock: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor	Exercise Circuit Breaker: ☐ Yes
	Door Mechanical: ☐ Good ☐ Acceptable ☐ Poor	Other:
	Comments:	

Contact Measurements		**A**	**B**	**C**	**Test Summary**
	Resistance (mΩ)				☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	Comments:				

Breaker Settings	Trip Unit Rating: A	Trip Unit Type: ☐ None ☐ Thermal Magnetic ☐ Electronic ☐ LI ☐ LSI ☐ LSIG				
	Breaker Setting (As Left)		**Range**	**Setpoint**	**Delay**	**I^2T**
	Long Time	☐ Fixed ☐ Adj.	-	X A = A	sec	☐ On ☐ Off
	Short Time	☐ Fixed ☐ Adj.	-	X A = A	sec	☐ On ☐ Off
	Instantaneous	☐ Fixed ☐ Adj.	-	X A = A	N/A	
	Ground Fault	☐ Fixed ☐ Adj.	-	A	sec	☐ On ☐ Off

Final Analysis				
	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **VACUUM CIRCUIT BREAKER, 4160V**	Page 1 of 2 Breaker ID

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Breaker Data								
	Location:		Switchgear:			Cell #:		
	Manufacturer:		Type:		Serial #:			
	Rated Voltage: V		Current Rating: A		Interrupting Rating: A			
	Momentary Fault Closing Amps: A		Trip Unit Type:		Control Voltage: V		BIL Rating:	

Visual Inspection / Cleaning						
	Breaker Identification Tag Installed: ☐ Yes ☐ No			Visual Signs of Overheating: ☐ Yes ☐ No		
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor			Support Insulators: ☐ Good ☐ Acceptable ☐ Poor		
	Connections: ☐ Good ☐ Acceptable ☐ Poor			Electro/Mechanical Interlock: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor		
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor			Contact Fingers: ☐ Good ☐ Acceptable ☐ Poor		
	Door Mechanical: ☐ Good ☐ Acceptable ☐ Poor			Vacuum Bottle ☐ Good ☐ Acceptable ☐ Poor		
	Cell Fit and Alignment: ☐ Good ☐ Acceptable ☐ Poor			Contact Erosion Indicator ☐ Good ☐ Acceptable ☐ Poor		
	Racking Mechanism: ☐ Good ☐ Acceptable ☐ Poor			Operating Mechanism: ☐ Good ☐ Acceptable ☐ Poor		
	Shutter: ☐ Good ☐ Acceptable ☐ Poor			Arcing Contacts: ☐ Good ☐ Acceptable ☐ Poor		
	Auxiliary Devices: ☐ Good ☐ Acceptable ☐ Poor					
	Cables Supported Appropriately: ☐ Yes ☐ No			Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes	
	Counter Reading: As-Found	As-Left				
	Comments:					

Insulation Resistance Test					
	Test Preparation:	Source: ☐ Disconnected ☐ Connected with Source Isolated	Cable Dest. / Load: ☐ Disconnected ☐ Connected with Load Isolated	Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
	Test Voltage	**Insulation Resistance (MΩ) Phase To GND (Breaker Closed)**			Temperature: °C
		A	**B**	**C**	
	2500 V				
	Test Voltage	**Insulation Resistance (MΩ) Phase To Phase (Breaker Closed)**			
		A – B	**B – C**	**A - C**	
	2500 V				
	Test Voltage	**Insulation Resistance (MΩ) Line to Load (Breaker Open)**			**Test Summary**
		A	**B**	**C**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	2500 V				
	Comments:				

Winnipeg	**INSPECTION FORM** **VACUUM CIRCUIT BREAKER, 4160V**	Page 2 of 2 Breaker ID

Insulation Resistance (Control Wiring)

Wire Tag	Insulation Resistance (MΩ)	Wire Tag	Insulation Resistance (MΩ)	**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Contact/Pole Measurements

	A	B	C	**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Pole Resistance (μΩ)				
Contact Resistance (μΩ)				
Contact Travel (mm)				

Comments:

High Potential Test

Test Preparation: Source: ☐ Disconnected ☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Peak DC Test Voltage (1 min. duration)	**Test Summary (μA)**			**Test Summary**
	A	**B**	**C**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
12 kV				

Comments:

Final Analysis

			Comments:
Returned to Service:	☐ Yes	☐ No	
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **CAPACITOR BANK, 600V**	Page 1 of 1 ID:

Project	Facility:	Project Name:
	Area :	Bid Opportunity:

Capacitor Bank Data	Location:		Switchgear/MCC:	Cell #:
	Manufacturer:		Model:	Serial #:
	Size: VAR	Rated Voltage: V	Capacitance: µF	
	Configuration: ☐ Delta ☐ Wye-Ungrounded ☐ Wye-Grounded			

Visual Inspection/ Cleaning	Capacitor Identification Tag Installed: ☐ Yes ☐ No	Cables Supported Appropriately: ☐ Yes ☐ No
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Anchorage, alignment: ☐ Good ☐ Acceptable ☐ Poor
	Connections: ☐ Good ☐ Acceptable ☐ Poor	Required Clearances: ☐ Good ☐ Acceptable ☐ Poor
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned: ☐ Yes Photograph Taken: ☐ Yes

Insulation Resistance Test

Test Preparation:
Source Cables:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	Insulation Resistance (MΩ) Phase To GND			Test Summary
	A (A-B)	B (B-C)	C (C-A)	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
1000 V				

Comments:

Capacitance

Capacitance (µF)			Test Summary
A (A-B)	B (B-C)	C (C-A)	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Discharge Resistance

Resistance (Ω)			Test Summary
A (A-B)	B (B-C)	C (C-A)	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **CAPACITOR BANK, MEDIUM VOLTAGE**	Page 1 of 1 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Capacitor Bank Data				
	Location:			Cell #:
	Manufacturer:	Model:		Serial #:
	Size: VAR	Rated Voltage: V	Capacitance: µF	
	Configuration: ☐ Delta ☐ Wye-Ungrounded ☐ Wye-Grounded			

Visual Inspection/ Cleaning		
	Capacitor Identification Tag Installed: ☐ Yes ☐ No	Cables Supported Appropriately: ☐ Yes ☐ No
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Anchorage, alignment: ☐ Good ☐ Acceptable ☐ Poor
	Connections: ☐ Good ☐ Acceptable ☐ Poor	Required Clearances: ☐ Good ☐ Acceptable ☐ Poor
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned: ☐ Yes / Photograph Taken: ☐ Yes

Insulation Resistance Test

Test Preparation:
Source Cables:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	**Insulation Resistance (MΩ) Phase To GND**			**Test Summary**
	A (A-B)	**B (B-C)**	**C (C-A)**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
2500 V				

Comments:

Capacitance

Capacitance (µF)			**Test Summary**
A (A-B)	**B (B-C)**	**C (C-A)**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Discharge Resistance

Resistance (Ω)			**Test Summary**
A (A-B)	**B (B-C)**	**C (C-A)**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **POWER CABLE, 4160V**	Page 1 of 3 Cable ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Cable Data				
	Source:		Dest. / Load:	
	Manufacturer:	Type:	Conductor: ☐ Copper ☐ Aluminum	
	No. of Conductors:	Size: ☐ AWG ☐ MCM	Length: m ☐ Measured ☐ Previous Data ☐ Jacket Markings ☐ TDR	
	Rated Voltage: V	Operating Voltage: V	Date Installed:	
	Installation: ☐ Cable Tray ☐ Strapped	☐ EMT ☐ Steel Conduit	☐ Alum. Conduit ☐ PVC Conduit	☐ Direct Buried ☐ Underground Duct Other:

Visual Inspection				
	Physical Damage on Exposed Ends:	☐ Yes ☐ No	Cable Identification Tag Installed:	☐ Yes ☐ No
	Visual Signs of Overheating/Corona:	☐ Yes ☐ No	Cable Supported Appropriately:	☐ Yes ☐ No
	Damage to Splices/Terminations:	☐ Yes ☐ No	Shield Grounded:	☐ Yes ☐ No
	Bend Radius Acceptable:	☐ Yes ☐ No	Comments:	

Insulation Resistance Test

Test Preparation:
Source: ☐ Disconnected ☐ Connected with Source Isolated
Cable Dest. / Load: ☐ Disconnected ☐ Connected with Load Isolated
Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Cable Temperature: °C Temperature Correction Factor for 20°C:
Ground all conductors not under test for each reading.

Test Voltage		**Insulation Resistance (MΩ)**			**Test Summary**
		A-GND	**B-GND**	**C-GND**	
2500V	Reading				☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	Corrected to 20°C				

Comments:

High Potential Very Low Frequency (VLF) Test

Test Preparation:

Source:
☐ Disconnected
☐ Connected with Source Isolated

Cable Dest. / Load:
☐ Disconnected
☐ Connected with Load Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Frequency: 0.1 Hz **Waveform:** sinusoidal

Ground all conductors not under test for each reading.

Test Voltage (RMS)	Elapsed Time (min)	Peak Leakage Current (uA)			Test Summary
		A-GND	B-GND	C-GND	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
7000V	0				
7000V	1				
7000V	2				
7000V	3				
7000V	4				
7000V	5				
7000V	6				
7000V	7				
7000V	8				
7000V	9				
7000V	10				
7000V	11				
7000V	12				
7000V	13				
7000V	14				
7000V	15				

Comments:

Dissipation Factor (Tangent Delta) Test

Frequency: 0.1 Hz **Waveform:** sinusoidal

Test Voltage (RMS)	A			B			C		
	Tan Delta	Capacitance (nF)	Current (µA)	Tan Delta	Capacitance (nF)	Current (µA)	Tan Delta	Capacitance (nF)	Current (µA)
2400V									
4800V									
Difference									

Test Summary

☐ Test Passed
☐ Test Inconclusive Further Investigation Required.
☐ Test Failed

Comments:

Connection Resistance

Termination	Connection Resistance (µΩ) - As Left			Torque Check
	A	B	C	
Source				☐ OK
Dest. / Load				☐ OK

Comments:

Final Analysis

Cable Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **POWER CABLE < 1000V**	Page 1 of 1 Cable ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Cable Data				
	Source:		Dest. / Load:	
	Manufacturer:	Type:	Conductor: ☐ Copper ☐ Aluminum	
	No. of Conductors:	Size: ☐ AWG ☐ MCM	Length: m ☐ Measured ☐ Previous Data ☐ Jacket Markings ☐ TDR	
	Rated Voltage: V	Operating Voltage: V	Date Installed:	
	Installation: ☐ Cable Tray ☐ Strapped ☐ EMT ☐ Steel Conduit ☐ Alum. Conduit ☐ PVC Conduit ☐ Direct Buried ☐ Underground Duct		Other:	

Visual Inspection				
	Physical Damage on Exposed Ends:	☐ Yes ☐ No	Cable Identification Tag Installed:	☐ Yes ☐ No
	Visual Signs of Overheating:	☐ Yes ☐ No	Cable Supported Appropriately:	☐ Yes ☐ No
	Bend Radius Acceptable:	☐ Yes ☐ No	Comments:	

Insulation Resistance Test

Test Preparation:
Source: ☐ Disconnected ☐ Connected with Source Isolated
Cable Dest. / Load: ☐ Disconnected ☐ Connected with Load Isolated
Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Cable Temperature: °C Temperature Correction Factor for 20°C:
Ground all conductors not under test for each reading.

Test Voltage		**Insulation Resistance (MΩ)**				**Test Summary**
		A-GND	**B-GND**	**C-GND**	**N-GND**	
1000V	Reading					☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	Corrected to 20°C					

Comments:

Connection Resistance

Note: Torque check required for all cables. Connection Resistance Test required for cables 4/0 AWG or larger.

Termination	**Connection Resistance (μΩ) - As Left**				**Torque Check**
	A	**B**	**C**	**N**	
Source					☐ OK
Dest. / Load					☐ OK

Comments:

Final Analysis				
	Cable Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Winnipeg	**INSPECTION FORM** **CONTROL POWER TRANSFORMER, 4160V**	Page 1 of 1 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

PT Data			
	Location:	Pri. Voltage Rating:	Sec. Voltage Rating:
	Manufacturer:	Pri. Fuse Size:	Sec. Fuse Size:
	Size:	Type:	Other:

Visual Inspection				
	Physical Damage:	☐ Yes ☐ No	Defective Connections/Wiring:	☐ Yes ☐ No
	Visual Signs of Overheating:	☐ Yes ☐ No	Grounding and Shorting Connections Provide Contact:	☐ Yes ☐ No
	Verify Ground Connection:	☐ Yes ☐ No	Verify Withdrawal Mechanism Function:	☐ Yes ☐ No
	Fuse Sizes Match Drawings:	☐ Yes ☐ No	Comments:	

Insulation Resistance Test

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	Voltage	Insulation Resistance (MΩ)	Test Summary
Primary To GND	2500 VDC		☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Secondary To GND	500 VDC		
Primary To Secondary	2500 VDC		

Comments:

Final Analysis				
	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **CONTROL POWER TRANSFORMER, 600V**	Page 1 of 1 ID:

Project		
Facility:		Project Name:
Area :		Bid Opportunity:

PT Data			
Location:		Pri. Voltage Rating:	Sec. Voltage Rating:
Manufacturer:		Pri. Fuse Size:	Sec. Fuse Size:
Size:	Type:	Other:	

Visual Inspection				
Physical Damage:	☐ Yes	☐ No	Defective Connections/Wiring:	☐ Yes ☐ No
Visual Signs of Overheating:	☐ Yes	☐ No	Grounding and Shorting Connections Provide Contact:	☐ Yes ☐ No
Verify Ground Connection:	☐ Yes	☐ No	Verify Withdrawal Mechanism Function:	☐ Yes ☐ No
Fuse Sizes Match Drawings:	☐ Yes	☐ No	Comments:	

Insulation Resistance Test

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	**Voltage**	**Insulation Resistance (MΩ)**
Primary To GND	1000 VDC	
Secondary To GND	500 VDC	
Primary To Secondary	1000 VDC	

Test Summary
☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

Final Analysis			
Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **CURRENT TRANSFORMER**	Page 1 of 1 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

CT Data			
	Location:	Current Ratio: : A	Voltage Class: V
	Manufacturer:	Model No.:	Type: ☐ Bar ☐ Window (Solid) ☐ Split Core
	Burden Rating:	BIL: kV	Accuracy Class:

Visual Inspection				
	Physical Damage:	☐ Yes ☐ No	Clean and Inspect Insulators:	☐ Yes ☐ No
	Visual Signs of Overheating:	☐ Yes ☐ No	Verify Connections are Correct:	☐ Yes ☐ No
	Adequate Mounting Support:	☐ Yes ☐ No	Comments:	

Insulation Resistance Test

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Cable Dest. / Load:
☐ Disconnected
☐ Connected with Load Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	**Voltage**	**Insulation Resistance (MΩ)**			Temperature: °C
		A	**B**	**C**	**Test Summary**
Primary To GND	1000 V				☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Secondary To GND	500 V				
Primary To Secondary	1000 V				

Comments:

Turns Ratio, Excitation, Saturation and Polarity Tests

Note: Attach supporting data and saturation curve.

	Phase				**Test Summary**
	A	**B**	**C**	**N**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Calculated Ratio					
Measured Ratio					
Exciting Current (mA)					
Polarity Correct	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
CT Saturation Test Performed:	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	

Final Analysis			
	CT Returned to Service:	☐ Yes ☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes ☐ No	
	Repair / Replacement Required:	☐ Yes ☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **DIGITAL METER**	Page 1 of 1 ID:

Project	Facility:	Project Name:
	Area :	Bid Opportunity:

Meter Data	Location:	Cell #:
	Manufacturer:	Model:

Visual Inspection / Cleaning	Cover Gasket:	☐ Good ☐ Acceptable ☐ Poor	Cover Glass:	☐ Good ☐ Acceptable ☐ Poor
	General Condition:	☐ Good ☐ Acceptable ☐ Poor		
	Cleanliness (as found)	☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned:	☐ Yes
	Connections (as found)	☐ Good ☐ Acceptable ☐ Poor	Connections Torqued:	☐ Yes

Accuracy Accuracy	**Voltage**	**Test Value (V)**	**Phase A**		**Phase B**		**Phase C**	
			Reading As Found (V)	**Reading As Left (V)**	**Reading As Found (V)**	**Reading As Left (V)**	**Reading As Found (V)**	**Reading As Left (V)**
		0						
	Current	**Test Value (A)**	**Phase A**		**Phase B**		**Phase C**	
			Reading As Found (A)	**Reading As Left (A)**	**Reading As Found (A)**	**Reading As Left (A)**	**Reading As Found (A)**	**Reading As Left (A)**
		0						
	Unit Calibrated:		☐ Yes ☐ No					

Final Analysis	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM GROUNDING SYSTEM**	Page 1 of 3 ID:

Project	Facility:	Project Name:
	Area :	Bid Opportunity:

Visual Inspection	Connection to Ground Electrode is Visible:	☐ Yes ☐ No	Facility Contains a Main Ground Bus:	☐ Yes	☐ No
	Connecting Conductor: Size:	Qty:	Torque Ground Connections:	☐ Yes	☐ No
	Visual signs of Corrosion:	☐ Yes ☐ No			
	Soil Type:		Soil Condition: ☐ Dry ☐ Damp ☐ Wet		
	Comments:				

Fall Of Potential Test #1	Date of Test:		Time of Test:			
	Weather and Temperature:		Terrain:			
	Grounding System Connection Point:	UTM GPS Coordinate:	E	N		
	Current Probe Injection Point:	UTM GPS Coordinate:	E	N		
	Test Conditions:		Test Layout:			

Voltage Probe Distance (meters)	**UTM GPS Coordinate:**	**Test Current (mA)**	**Test Voltage (mV)**	**Resistance @ Hz (Ω)**	**Resistance @ Hz (Ω)**
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				
	E N				

Comments:

Fall Of Potential Test #2

Date of Test:				Time of Test:		
Weather and Temperature:				Terrain:		
Grounding System Connection Point:		UTM GPS Coordinate:	E	N		
Current Probe Injection Point:		UTM GPS Coordinate:	E	N		
Test Conditions:				Test Layout:		

Voltage Probe Distance (meters)	UTM GPS Coordinate:		Test Current (mA)	Test Voltage (mV)	Resistance @ Hz (Ω)	Resistance @ Hz (Ω)
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
	E	N				
Comments:						

Resistance Checks (Ductor Test)

Point A	Point B	Resistance (mΩ)	Test Summary
Facility Ground Electrode	Main Ground Bus		☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Facility Ground Electrode	4160V Switchgear GND Bus		
Facility Ground Electrode	System Neutral		
Facility Ground Electrode	600V Switchgear GND Bus		
Facility Ground Electrode	MCC : GND Bus		
Facility Ground Electrode	MCC : GND Bus		
Facility Ground Electrode	Other :		
Facility Ground Electrode	Other :		
Facility Ground Electrode	Other :		

Comments:

Final Analysis

Monitoring / Inspection Required: ☐ Yes ☐ No	Comments:	
Repair / Replacement Required: ☐ Yes ☐ No		

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **MCC/CDP, 600V**	Page 1 of 6 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

MCC/CDP Data				
	Location:			# of Cells:
	Manufacturer:	Model:	Serial #:	
	Rated Voltage: V	Main Bus Rating: A	Main Bus Neutral Rating: A	
	Bus Conductor: ☐ Copper ☐ Aluminum	Current Withstand Rating: A		

Visual Inspection / Cleaning				
	Identification Tag Installed: ☐ Yes ☐ No		Visual Signs of Overheating: ☐ Yes ☐ No	
	Visual Signs of Moisture: ☐ Yes ☐ No		Visual Signs of Corona: ☐ Yes ☐ No	
	Fuse/Breaker Sizes Match Drawings: ☐ Yes ☐ No		PT and CT ratios match drawings: ☐ Yes ☐ No	
	Elevation Drawings Correct: ☐ Yes ☐ No		Cables Supported Appropriately: ☐ Yes ☐ No	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor		Insulators Condition: ☐ Good ☐ Acceptable ☐ Poor	
	Connections: ☐ Good ☐ Acceptable ☐ Poor		Electro/Mechanical Interlock System: ☐ Good ☐ Acceptable ☐ Poor	
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor		Vents/Filters: ☐ Good ☐ Acceptable ☐ Poor	
	Doors Mechanical: ☐ Good ☐ Acceptable ☐ Poor		Exercise Active Components: ☐ Yes ☐ No	
	Cell Fit and Alignment: ☐ Good ☐ Acceptable ☐ Poor			
	Required Clearances are Met: ☐ Good ☐ Acceptable ☐ Poor			
	Indicating mechanisms: ☐ Good ☐ Acceptable ☐ Poor		Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes

Incoming Power	**Type:**	**Inspection**				
	☐ Main Breaker	Complete appropriate breaker inspection form.				
	☐ Disconnect	Complete appropriate disconnect inspection form.				
	☐ Main Lugs	Visual Inspection: ☐ Good ☐ Acceptable ☐ Poor				
		Connections Torqued: ☐ Yes				
		Connection Resistance (μΩ) As Left	**A**	**B**	**C**	**N**

Insulation Resistance Test (Buswork)

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Cable Dest. / Load:
☐ Disconnected
☐ Connected with Load Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage (dc)	Insulation Resistance (MΩ) Phase To Phase		
	A - B	B - C	C - A
1000 V			
Test Voltage	**Insulation Resistance (MΩ) Phase To GND**		
	A - GND	B - GND	C - GND
1000 V			

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

Ground Resistance Checks (Ductor Test)

Point A	Point B	Resistance (μΩ)
MCC/CDP GND Bus	Facility Ground Electrode	
MCC/CDP GND Bus	MCC/CDP Enclosure	
MCC/CDP GND Bus	System Neutral	

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

Feeder Breakers

Visual Inspect Requirements: G=Good, A=Acceptable, P=Poor Comments are required for all items identified in Poor condition.

1. Confirm identification tag / lamacoid is installed.
2. Look for visual signs of overheating.
3. Inspect and torque connections.
4. Inspect and test any electro/mechanical interlocks.
5. Confirm disconnect operation.
6. Check door mechanical condition.
7. Exercise circuit breaker.
8. Confirm cables are supported and routed appropriately.
9. Visually assess the general condition of the installation.

Note: Complete an appropriate Breaker Inspection Form for all breakers with separate adjustable Long and Short trip settings, Ground trip settings, or > 400A frame size.

Continued on next page

	Continued from previous page										
	ID	**Loc./ Cell**	**Frame Rating (A)**	**Trip Rating (A)**	**Manuf.**	**Model**	**Trip Unit Type**	**Inst Setting**	**Visual Inspection**	**Cleaned**	**Comments**
Feeder Breakers										☐	
										☐	
										☐	
										☐	
										☐	
										☐	
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	General Comments:										

Motor Starters		
	Overcurrent Protection Type:	B=Breaker (Thermal Magnetic), M=breaker(Motor Circuit Protector), F=Fuse
	Overload Protection Type:	T=Thermal, SS=Solid State
	Visual Inspect Requirements:	G=Good, A=Acceptable, P=Poor Comments are required for all items identified in Poor condition.
	1.	Confirm identification tag / lamacoid is installed.
	2.	Look for visual signs of overheating.
	3.	Inspect and torque connections.
	4.	Inspect and test any electro/mechanical interlocks.
	5.	Confirm disconnect operation.
	6.	Check door mechanical condition.
	7.	Exercise circuit breaker.
	8.	Confirm cables are supported and routed appropriately.
	9.	Visually assess the general condition of the installation.
	Note:	Complete a Motor Starter Inspection Form for all Motor Starters Size 4 or larger, with VFDs, or with Soft Starters.

Motor Starters	ID	Loc./ Cell	Overcurrent Protection				Contactor	Overload		Visual Insp.	Cleaned	Comments
			Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model			
											☐	
											☐	
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											☐	
											☐	
	General Comments:											

	ID	Loc./ Cell	Overcurrent Protection				Contactor	Overload		Visual Insp.	Cleaned	Comments
			Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model			
Motor Starters											☐	
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	General Comments:											

Final Analysis			Comments:
	Returned to Service:	☐ Yes ☐ No	
	Monitoring / Inspection Required:	☐ Yes ☐ No	
	Repair / Replacement Required:	☐ Yes ☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **MOTOR STARTER, FVNR, 4160V**	Page 1 of 4 ID

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Starter Data						
	Load:			Starter Location:		Cell #:
	Manufacturer:		Model:		Serial #:	
	Size:	Rated Voltage: V		Current Rating: A		Control Voltage: V
	Interrupting Rating:	kA @ kV				
	Isolation:	☐ Fused Disc.	Rating: A	Fuse Size: A	Fuse Mfg.	Cat. #:
	Control Power Transformer:	kVA:	Voltage: V	Manufacturer:	Cat. #:	
		Primary Fuse: A	Secondary Fuse: A			
	Current Transformer:	Ratio:	Type:	Manufacturer:	Cat. #:	

Visual Inspection / Cleaning				
	Starter Identification Tag Installed: ☐ Yes ☐ No		Visual Signs of Overheating: ☐ Yes ☐ No	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor		Support Insulators: ☐ Good ☐ Acceptable ☐ Poor	
	Connections ☐ Good ☐ Acceptable ☐ Poor		Electro/Mechanical Interlock: ☐ Good ☐ Acceptable ☐ Poor	
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor		Contactor Condition: ☐ Good ☐ Acceptable ☐ Poor	
	Door Mechanical ☐ Good ☐ Acceptable ☐ Poor		Contact Alignment: ☐ Good ☐ Acceptable ☐ Poor	
	Shutter ☐ N/A ☐ Good ☐ Acceptable ☐ Poor		Racking Devices ☐ N/A ☐ Good ☐ Acceptable ☐ Poor	
	Cables Supported Appropriately: ☐ Yes ☐ No		Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes
	Comments:			

Contact/Pole Measurements

Test	A	B	C
Contact Resistance (μΩ)			
Disconnect / Breaker/MCP Resistance (μΩ)			
Fuse Resistance (μΩ)			
Air Contactor:			
Arcing Contact Gap (mm)			
Arcing Contact Wipe (mm)			
Main Contact Gap (mm)			
Main Contact Wipe (mm)			
Vacuum Contactor:			
Contact Travel (mm)			

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

Insulation Resistance Test

Test Preparation: Source: ☐ Isolated Contactor: ☐ Open
Cable Dest. / Load: ☐ Disconnected ☐ Connected with Load Isolated
Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	Voltage	Insulation Resistance (MΩ)			Ground all phases not under test!
		A	B	C	
Disc. To Contactor Stabs	2500 VDC				**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Contactor Line To GND	2500 VDC				
Contactor Load To GND	2500 VDC				
Contactor Line to Load	2500 VDC				
Load Buswork	2500 VDC				

Comments:

Insulation Resistance (Control Wiring)

Wire Tag	Insulation Resistance (MΩ)	Wire Tag	Insulation Resistance (MΩ)

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Comments:

High Potential Test

Test Preparation: Source: ☐ Isolated Load Cables: ☐ Disconnected ☐ Connected Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	Voltage (kV DC)	Time (Minutes)	Test Summary (µA)			Ground all phases not under test!
			A	B	C	
Disconnect – Contactor Stabs	12	1				**Test Summary**
Contactor - Line	12	1				☐ Test Passed ☐ Test Inconclusive Further Investigation Required.
Contactor - Load	12	1				
Load Buswork	12	1				☐ Test Failed

Comments:

Motor Protection Relay

Manufacturer:	Model
Verify Relay Set Points Configured Correctly:	☐ Yes ☐ No
Verify Input Current Readings Match Test Current:	☐ Yes ☐ No

Verify the following relay settings:

Relay Setting	Setpoint	Secondary Amps	Test Result
FLA – Full Load Amps			
UTC – Ultimate Trip Current			
JMA – Jam Alarm Level			
JMT – Jam Trip Level			
JAMS – Jam Start Delay			
JAMR – Jam Run Delay			
LRC – Locked Rotor Current			
LRT – L.R. Stall Time			
IOC – Inst. Overcurrent			
GFT – Ground Fault Trip			
PUA – Phase Unbalance Alarm			
PURD – P.U. Run Delay			
Phase Unbalance Trip			
ST/T – Starts per Time Allowed			
ULT – Under-load Trip			

Final Analysis				Comments:
	Returned to Service:	☐ Yes	☐ No	
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **MOTOR STARTER, FVNR, 600V**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Starter Data						
	Load:		Starter Location:			Cell #:
	Manufacturer:	Type:			Serial #:	
	Size:	Rated Voltage: V		Current Rating: A		Control Voltage: V
	Circuit Protection:	☐ Fused Disc.	Rating: A	Fuse Size: A	Fuse Mfg.	Cat. #:
		☐ Breaker ☐ MCP	Rating: A	Inst. Setting A	Manufacturer:	Cat. #:
	Overload Protection:	☐ Thermal ☐ Electronic	Class: ☐ 10 ☐ 20 ☐ 30 ☐ Not displ.	Rating: A	Manufacturer:	Cat. #:
	Control Power Transformer:		VA:	Sec. Voltage: V		
			Primary Fuse: A	Secondary Fuse: A		
	Current Transformer:	Ratio:	Type:			

Visual Inspection / Cleaning				
	Starter Identification Tag Installed: ☐ Yes ☐ No		Visual Signs of Overheating: ☐ Yes ☐ No	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor		Support Insulators: ☐ Good ☐ Acceptable ☐ Poor	
	Connections ☐ Good ☐ Acceptable ☐ Poor		Electro/Mechanical Interlock: ☐ Good ☐ Acceptable ☐ Poor	
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor		Contactor Condition: ☐ Good ☐ Acceptable ☐ Poor	
	Door Mechanical ☐ Good ☐ Acceptable ☐ Poor		Contact Alignment: ☐ Good ☐ Acceptable ☐ Poor	
	Verify O/L element is correctly sized for the load: ☐ Yes ☐ No		Exercise Circuit Breaker/MCP/Disconnect ☐ Yes	
	Cables Supported Appropriately: ☐ Yes ☐ No		Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes
	Comments:			

Contact/Pole Measurements	**Test**	**A**	**B**	**C**	**Test Summary**
	Contact Resistance (μΩ)				☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	Disconnect / Breaker / MCP Resistance (μΩ)				
	Fuse Resistance (μΩ)				
	Comments:				

Insulation Resistance Test

Test Preparation: Source: ☐ Isolated Contactor: ☐ Open Cable Dest. / Load: ☐ Disconnected ☐ Connected with Load Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	Voltage	Insulation Resistance (MΩ)			Ground all phases not under test!
		A	B	C	
Contactor Line To GND	1000 VDC				**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Contactor Load To GND	1000 VDC				
Contactor Line to Load	1000 VDC				

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **AC MOTOR, 4160V**	Page: 1 of 2 ID:

Project	Facility:	Project Name:
	Area :	Bid Opportunity:

Motor Data	Size: kW /	HP	Voltage: V	R.P.M:
	Manufacturer:		Model:	Serial Number:
	Frame Type:		Service Factor:	Other:
	Cooling: ☐ Air ☐ Fan	# Cooling Fans:	Winding Material:	

Visual Inspection / Cleaning	Motor Identification Tag Installed: ☐ Yes ☐ No	Visual Signs of Overheating: ☐ Yes ☐ No
	Connections: ☐ Good ☐ Acceptable ☐ Poor	Air Baffles: ☐ Good ☐ Acceptable ☐ Poor
	Paint: ☐ Good ☐ Acceptable ☐ Poor	Filter Media: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor
	Cooling Fans: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor	Fan Controls: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor
	Anchorage/Alignment: ☐ Good ☐ Acceptable ☐ Poor	Brushes: ☐ Good ☐ Acceptable ☐ Poor
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor	Slip Ring Wear Within Tolerances: ☐ Yes ☐ No
	Mechanical/Electrical Noise During Operation: ☐ Yes ☐ No	Lubrication Required: ☐ Yes ☐ No
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned: ☐ Yes / Photograph Taken: ☐ Yes

	Stator Winding	**Test Voltage (Vdc)**	**Resistance (MΩ)**			**Polarization Index**
			30 Sec	**1 min.**	**10 min.**	
Insulation Resistance	Phase A – GND	2500				
	Phase B – GND	2500				
	Phase C – GND	2500				

	Resistance (μΩ)			**Test Summary**
Stator Resistance	**A - B**	**B – C**	**A - C**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	Comments:			

High Potential Test

Test Preparation: Source: ☐ Disconnected ☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Max Test DC Voltage (kV)	Elapsed Time (min)	Test Summary A	Test Summary B	Test Summary C
7	0			
7	1			
7	2			
7	3			
7	4			
7	5			
7	6			
7	7			
7	8			
7	9			
7	10			

☐ Test Passed
☐ Test Inconclusive Further Investigation Required.
☐ Test Failed

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **PANELBOARD, LOW VOLTAGE**	Page 1 of 1 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Panelboard Data					
	Location:		Fed From:		No. of Circuits:
	Manufacturer:		Model:		Serial No:
	Rated Voltage: V	Current Rating: A		Withstand Rating: A	
	☐ Single Phase ☐ 3 Phase, 3 Wire ☐ 3 Phase, 4 Wire			Neutral Bonded to Ground ☐ Yes ☐ No	
	☐ Main Lugs ☐ Main Breaker: Rating: A			Manufacturer: Model:	

Visual Inspection / Cleaning		
	Identification Tag Installed: ☐ Yes ☐ No	Visual Signs of Overheating: ☐ Yes ☐ No
	Visual signs of Moisture: ☐ Yes ☐ No	Visual Signs of Corona: ☐ Yes ☐ No
	Fuse/Breaker Sizes Match Drawings: ☐ Yes ☐ No	Cables Supported Appropriately: ☐ Yes ☐ No
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Connections: ☐ Good ☐ Acceptable ☐ Poor
	Door Mechanical: ☐ Good ☐ Acceptable ☐ Poor	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor
	Exercise Circuit Breakers: ☐ Yes ☐ No	Comments:

Insulation Resistance Test

Test Preparation: Source: ☐ Disconnected ☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Equipment Temperature: °C

Temperature Correction Factor to 20°C:

Test Voltage	**Insulation Resistance (MΩ) Ground all Phases not under test!**							
	A-GND		**B-GND**		**C-GND**		**N-GND**	
	RDG	20°C	RDG	20°C	RDG	20°C	RDG	20°C

Test Summary

☐ Test Passed
☐ Test Inconclusive
Further Investigation Required.
☐ Test Failed

Test Voltages: 120-300V → 500 VDC Test Voltage 301-600V → 1000 VDC Test Voltage

Comments:

Final Analysis		
	Returned to Service: ☐ Yes ☐ No	Comments:
	Monitoring / Inspection Required: ☐ Yes ☐ No	
	Repair / Replacement Required: ☐ Yes ☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **POTENTIAL TRANSFORMER, 4160V**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

PT Data						
	PT Location or Designation:			Pri. Voltage Rating:		Sec. Voltage Rating:
	Manufacturer:	Catalogue #:		Pri. Fuse Size:		Sec. Fuse Size:
	Size: VA	Type:		Other:		

Visual Inspection				
	Physical Damage:	☐ Yes ☐ No	Verify Connections are Correct:	☐ Yes ☐ No
	Visual Signs of Overheating:	☐ Yes ☐ No	Grounding and Shorting Connections Provide Contact:	☐ Yes ☐ No
	Verify Ground Connection:	☐ Yes ☐ No	Verify Withdrawal Mechanism Function:	☐ Yes ☐ No
	Fuse Sizes Match Drawings:	☐ Yes ☐ No	Comments:	

Insulation Resistance Test

Test Preparation: Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	**Voltage**	**Insulation Resistance (MΩ)**			Temperature: °C
		PT 1	**PT 2**	**PT 3**	**Test Summary**
Primary To GND	2500 V				☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Secondary To GND	500 V				
Primary To Secondary	2500 V				

Comments:

Turns Ratio and Polarity Tests

Test Preparation: Source:
☐ Disconnected
☐ Connected with Source Isolated

	Phase						**Test Summary**
	PT 1		**PT 2**		**PT 3**		☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Calculated Ratio							
Measured Ratio							
Polarity Correct	☐ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No	

Comments:

Final Analysis			
	PT Returned to Service:	☐ Yes ☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes ☐ No	
	Repair / Replacement Required:	☐ Yes ☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)

Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **POTENTIAL TRANSFORMER, 600V**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

PT Data					
	PT Location or Designation:		Pri. Voltage Rating:		Sec. Voltage Rating:
	Manufacturer:	Catalogue #:	Pri. Fuse Size:		Sec. Fuse Size:
	Size: VA	Type:	Other:		

Visual Inspection				
	Physical Damage:	☐ Yes ☐ No	Verify Connections are Correct:	☐ Yes ☐ No
	Visual Signs of Overheating:	☐ Yes ☐ No	Grounding and Shorting Connections Provide Contact:	☐ Yes ☐ No
	Verify Ground Connection:	☐ Yes ☐ No	Verify Withdrawal Mechanism Function:	☐ Yes ☐ No
	Fuse Sizes Match Drawings:	☐ Yes ☐ No	Comments:	

Insulation Resistance Test

Test Preparation: Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	**Voltage**	**Insulation Resistance (MΩ)**			Temperature: °C
		PT 1	**PT 2**	**PT 3**	**Test Summary**
Primary To GND	1000 V				☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Secondary To GND	500 V				
Primary To Secondary	1000 V				

Comments:

Turns Ratio and Polarity Tests

Test Preparation: Source:
☐ Disconnected
☐ Connected with Source Isolated

	Phase						**Test Summary**
	PT 1		**PT 2**		**PT 3**		☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Calculated Ratio							
Measured Ratio							
Polarity Correct	☐ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No	

Comments:

Final Analysis			
	PT Returned to Service:	☐ Yes ☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes ☐ No	
	Repair / Replacement Required:	☐ Yes ☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)

Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **TIME OVERCURRENT PROTECTION RELAY**	Page 1 of 3 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Relay Data				
	Location:	Cell #:	☐ Electro-mechanical ☐ Electronic	
	Manufacturer:	Model:	Type:	
	Style:	Serial No:		
	Comments:			

CT Data	
	Current Ratio: : A

Visual Inspection		**A**	**B**	**C**	**N**		**A**	**B**	**C**	**N**
	Moisture/Rust:					Relay Cleaned:				
	Spiral Spring:					Screws Tightened:				
	Disk Clearance:					Trip Indicator & Reset				
	Over-heating:					Zero Adjustment Check:				
	Cover/Case:					Magnet:				
	Paddle:					Jewel Bearing:				
	Trip Function Test:									
	Legend: A-Acceptable C-Corrected N-Needs Repair NA-Not Applicable									
	Comments:									

Relay Settings	**Phase**			**Neutral**		
	Parameter	**Setting (As Found)**	**Setting (As Left)**	**Parameter**	**Setting (As Found)**	**Setting (As Left)**
	Curve			Curve		
	TOC Tap			TOC Tap		
	TOC Multiplier			TOC Multiplier		
	Time Dial/Delay			Time Dial/Delay		
	Inst. Tap			Inst. Tap		
	Seal-in			Seal-in		

Relay Pick-up Tests

Parameter	Calculated Value	Measured Pick-Up (Amps)		
Phase		**A**	**B**	**C**
TOC Pick-up				
Seal-in Pick-up				
IOC Pick-up				
Neutral		**N**		
TOC Pick-up				
Seal-in Pick-up				
IOC Pick-up				
Comments:				

Relay Timing Tests

Parameter	x PU	Test Value (Amps)	Calculated Value (sec.)	Measured Timing (sec.)		
Phase				**A**	**B**	**C**
TOC						
TOC						
IOC						
Neutral				**N**		
TOC						
TOC						
IOC						
Comments:						

Insulation Resistance Test

Test Preparation: Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	**Insulation Resistance (MΩ)**				**Test Summary**
	A-GND	**B-GND**	**C-GND**	**N-GND**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
500V					

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **UNDER-VOLTAGE PROTECTION RELAY**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Relay Data				
	Location:	Cell #:	☐ Electro-mechanical ☐ Electronic	
	Manufacturer:	Model:	Type:	
	Style:	Serial No:		
	Comments:			

PT Data	
	Voltage Ratio: : V

Visual Inspection		**A**	**B**	**C**		**A**	**B**	**C**
	Moisture/Rust:				Relay Cleaned:			
	Spiral Spring:				Screws Tightened:			
	Disk Clearance:				Trip Indicator & Reset			
	Over-heating:				Zero Adjustment Check:			
	Cover/Case:				Magnet:			
	Paddle:				Jewel Bearing:			
	Trip Function Test:							
	Legend: A-Acceptable C-Corrected N-Needs Repair NA-Not Applicable							
	Comments:							

Relay Settings	**Phase**		
	Parameter	**Setting (As Found)**	**Setting (As Left)**
	U.V. Pick-up		
	U.V. Delay		

Relay Pick-up Tests	**Parameter**	**Calculated Value**	**Measured Pick-Up (Volts)**		
	Phase		**A**	**B**	**C**
	U.V. Pick-up				
	Comments:				

Relay Timing Tests	**Parameter**	**Injected Value (Voltage)**	**Calculated Value (sec.)**	**Measured Timing (sec.)**		
	Phase			**A**	**B**	**C**
	U.V. Delay					

Insulation Resistance Test

Test Preparation: Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	Insulation Resistance (MΩ)			Test Summary
	A-GND	B-GND	C-GND	
500V				☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **SURGE ARRESTOR, MEDIUM VOLTAGE**	Page 1 of 1 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Arrestor Data				
	Switchgear:	Location:		Cell:
	Manufacturer:	Catalogue #:	Type:	Serial #:
	Housing:	Rated Voltage: V	Rated MCOV: V	
	RMS Current Rating: A	Arrestor Class: ☐ Station ☐ Distribution ☐ Intermediate		
	Material: ☐ Porcelain ☐ Polymer ☐ Other:			

Visual Inspection / Cleaning			
	Identification Tag Installed: ☐ Yes ☐ No	General Condition: ☐ Good ☐ Acceptable ☐ Poor	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Anchorage, alignment: ☐ Good ☐ Acceptable ☐ Poor	
	Connections: ☐ Good ☐ Acceptable ☐ Poor	Required Clearances: ☐ Good ☐ Acceptable ☐ Poor	
	Ground Connections: ☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes

Insulation Resistance Test

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	**Insulation Resistance (MΩ) Phase To GND**			**Test Summary**
	A	**B**	**C**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
1000 V				

Comments:

Resistance Check

Point A	**Point B**	**Resistance (μΩ)**	**Test Summary**
Ground Terminal	Facility Ground Electrode		☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Final Analysis				
	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **SWITCHGEAR, 4160V**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Switchgear Data			
	ID:	Location:	# of Cells:
	Manufacturer:	Type:	Serial #:
	Rated Voltage: V	Current Rating: A	Withstand Rating: A

Visual Inspection / Cleaning				
	Identification Tag Installed: ☐ Yes ☐ No		Visual Signs of Overheating: ☐ Yes ☐ No	
	Visual signs of Moisture: ☐ Yes ☐ No		Visual Signs of Corona: ☐ Yes ☐ No	
	Fuse/Breaker Sizes Match Drawings: ☐ Yes ☐ No		PT and CT ratios match drawings: ☐ Yes ☐ No	
	Elevation Drawings Correct: ☐ Yes ☐ No		Cables Supported Appropriately: ☐ Yes ☐ No	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor		Insulators Condition: ☐ Good ☐ Acceptable ☐ Poor	
	Connections: ☐ Good ☐ Acceptable ☐ Poor		Electro/Mechanical Interlock Systems: ☐ Good ☐ Acceptable ☐ Poor	
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor		Vents/Filters: ☐ Good ☐ Acceptable ☐ Poor	
	Doors Mechanical: ☐ Good ☐ Acceptable ☐ Poor			
	Cell Fit and Alignment: ☐ Good ☐ Acceptable ☐ Poor			
	Required Clearances are Met: ☐ Good ☐ Acceptable ☐ Poor			
	Indicating mechanisms: ☐ Good ☐ Acceptable ☐ Poor		Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes

Insulation Resistance Test (Buswork)

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Cable Dest. / Load:
☐ Disconnected
☐ Connected with Load Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	**Insulation Resistance (MΩ) Phase To GND**		
	A	**B**	**C**
2500 V			

Test Voltage	**Insulation Resistance (MΩ) Phase To Phase**		
	A – B	**B – C**	**A - C**
2500 V			

Temperature: °C

Comments:

Ground Resistance

Point A	Point B	Resistance (μΩ)	Test Summary
Switchgear GND Bus	Facility Ground Electrode		☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Switchgear GND Bus	Switchgear Enclosure		
Switchgear GND Bus	System Neutral		

Comments:

Connection Resistance

To	From	Resistance (mΩ)			Test Summary
		A	B	C	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

High Potential Test

Test Preparation: Source: ☐ Disconnected ☐ Connected with Source Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Peak DC Test Voltage (1 minute duration)	Test Summary (mA)			Test Summary
	A	B	C	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
12 kV				

Comments:

Final Analysis

			Comments:
Returned to Service:	☐ Yes	☐ No	
Monitoring / Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM SWITCHGEAR, 600V**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Switchgear Data			
	Location:	No. of Cells:	
	Manufacturer:	Type:	Serial #:
	Rated Voltage: V	Current Rating: A	Interrupting Rating: A

Visual Inspection / Cleaning				
	Identification Tag Installed: ☐ Yes ☐ No	Visual Signs of Overheating: ☐ Yes ☐ No		
	Visual signs of Moisture: ☐ Yes ☐ No	Visual Signs of Corona: ☐ Yes ☐ No		
	Fuse/Breaker Sizes Match Drawings: ☐ Yes ☐ No	PT and CT ratios match drawings: ☐ Yes ☐ No		
	Elevation Drawings Correct: ☐ Yes ☐ No	Cables Supported Appropriately: ☐ Yes ☐ No		
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Insulators Condition: ☐ Good ☐ Acceptable ☐ Poor		
	Connections: ☐ Good ☐ Acceptable ☐ Poor	Electro/Mechanical Interlock System: ☐ Good ☐ Acceptable ☐ Poor		
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor	Vents/Filters: ☐ Good ☐ Acceptable ☐ Poor		
	Doors Mechanical: ☐ Good ☐ Acceptable ☐ Poor	Exercise Active Components: ☐ Yes ☐ No		
	Cell Fit and Alignment: ☐ Good ☐ Acceptable ☐ Poor			
	Required Clearances are Met: ☐ Good ☐ Acceptable ☐ Poor			
	Indicating mechanisms: ☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes	

Insulation Resistance Test

Test Preparation:
Source:
☐ Disconnected
☐ Connected with Source Isolated

Cable Dest. / Load:
☐ Disconnected
☐ Connected with Load Isolated

Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test Voltage	**Insulation Resistance (MΩ) Phase To GND**			Temperature: °C
	A	**B**	**C**	
1000 V				
Test Voltage	**Insulation Resistance (MΩ) Phase To Phase**			
	A – B	**B – C**	**A - C**	
1000 V				

Comments:

Ground Resistance

Point A	Point B	Resistance (μΩ)	Test Summary
Switchgear GND Bus	Facility Ground Electrode		☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Switchgear GND Bus	Switchgear Enclosure		
Switchgear GND Bus	System Neutral		

Comments:

Connection Resistance

To	From	Resistance (μΩ)			Test Summary
		A	B	C	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	Name	Signature	Date (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **SWITCH, AIR, METAL-ENCLOSED, 4160V**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Disconnect Data						
	Location:		Switchgear:		Cell #:	
	Manufacturer:		Model:		Serial #:	
	Rated Voltage: V	Current Rating: A		Interrupting Rating: A		
	Momentary Fault Closing Amps: A	Type of Operating Mechanism:			BIL Rating:	

Fuse Data				
	Manufacturer:	Type:	Cat. #:	
	Rated Voltage: V	Current Rating: A	Holder:	

Visual Inspection / Cleaning				
	Disconnect Identification Tag Installed: ☐ Yes ☐ No		Visual Signs of Overheating: ☐ Yes ☐ No	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor		Support Insulators: ☐ Good ☐ Acceptable ☐ Poor	
	Connections ☐ Good ☐ Acceptable ☐ Poor		Electro/Mechanical Interlock ☐ Good ☐ Acceptable ☐ Poor	
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor		Blade Condition: ☐ Good ☐ Acceptable ☐ Poor	
	Door Mechanical ☐ Good ☐ Acceptable ☐ Poor		Blade Alignment: ☐ Good ☐ Acceptable ☐ Poor	
	Fit Plumb & Square: ☐ Yes ☐ No		Verify Blade Mechanical Operation ☐ Good ☐ Acceptable ☐ Poor	
	Cables Supported Appropriately: ☐ Yes ☐ No		Fuse Holder Support and Contact Integrity ☐ Good ☐ Acceptable ☐ Poor	
	Phase Barrier Intact: ☐ Yes ☐ No		Unit Cleaned: ☐ Yes	Unit Lubricated: ☐ Yes
	Indicating and Control Devices are Working Correctly ☐ Yes ☐ No		Other:	

Switchblade Resistance	**Resistance (μΩ) (As Left)**			**Test Summary**
	A	**B**	**C**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	Comments:			

Fuse Resistance	**Resistance (μΩ) (As Left)**			**Test Summary**
	A	**B**	**C**	☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
	Comments:			

Winnipeg	**INSPECTION FORM** **SWITCH, AIR, METAL-ENCLOSED, 4160V**	Page 2 of 2 ID

Insulation Resistance Test

Test Preparation: Source: ☐ Isolated Disconnect: ☐ Open
Cable Dest. / Load: ☐ Disconnected ☐ Connected with Load Isolated
Note: Approval of City's Representative is required, prior to leaving cables connected during the test.

Test	**Voltage**	**Insulation Resistance (MΩ)**			Ground all phases not under test!
		A	**B**	**C**	
Disconnect Line To GND	2500 VDC				**Test Summary** ☐ Test Passed ☐ Test Inconclusive Further Investigation Required. ☐ Test Failed
Disconnect Load To GND	2500 VDC				
Disconnect Line to Load	2500 VDC				

Comments:

Final Analysis

Returned to Service:	☐ Yes	☐ No	Comments:
Monitoring / Further Inspection Required:	☐ Yes	☐ No	
Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.

Winnipeg	**INSPECTION FORM** **TRANSFORMER, DRY TYPE, MEDIUM VOLTAGE**	Page: 1 of 3 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Transformer Data											
KVA:	Phase:	Primary Voltage: V					Secondary Voltage: V				
Manufacturer:			Model:				Serial Number:				
Primary Winding: ☐ Δ ☐ Y		Secondary Winding: ☐ Δ ☐ Y		Impedance: %Z			Temp Rise: °C		K Factor:		
Cooling: ☐ ANN ☐ ANF		# Cooling Fans:		Winding Material:							
No Load Tap Changer	Tap	1	2	3	4	5				Tap Setting (As Found):	
	Voltage										

Visual Inspection / Cleaning											
Transformer Identification Tag Installed: ☐ Yes ☐ No							Visual Signs of Overheating: ☐ Yes ☐ No				
Bushings: ☐ Good ☐ Acceptable ☐ Poor							Support Insulators: ☐ Good ☐ Acceptable ☐ Poor				
Paint: ☐ Good ☐ Acceptable ☐ Poor							No Load Tap Changer: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor				
Fans: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor							Fan Controls: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor				
Temp. Gauge: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor							Connections: ☐ Good ☐ Acceptable ☐ Poor				
Ground Connection: ☐ Good ☐ Acceptable ☐ Poor							Ground Conductor Size:				
Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor							Unit Cleaned: ☐ Yes		Photograph Taken: ☐ Yes		

Operational Inspection					
Operational Conditions / Notes:					
Primary Voltage:	H1:H2: V	H2:H3: V	H3:H1: V	Measured at:	
Secondary Voltage:	X1:X2: V	X2:X3: V	X3:X1: V	Measured at:	
Current:	Ph A: A	Ph B: A	Ph C: A	Measured at:	
Tap Setting:	☐ Appears Satisfactory ☐ Further Monitoring Recommended. ☐ Recommend Changing Tap.		Tap Setting (As Left):		
Thermographic Inspection Performed:	☐ Yes	Attach report separately	Results:	☐ No Issues Found ☐ Potential Issue Identified.	

Insulation Resistance

Winding Temperature: °C Temperature Correction Factor (20°C):

Time	Resistance (MΩ)					
	PRI-GND		SEC-GND		PRI-SEC	
	Test Voltage:		Test Voltage:		Test Voltage:	
	Reading	Corrected to 20°C	Reading	Corrected to 20°C	Reading	Corrected to 20°C
1 min.						
2 min.						
3 min.						
4 min.						
5 min.						
6 min.						
7 min.						
8 min.						
9 min.						
10 min.						
Polarization Index						

Winding Resistance

Winding Temperature: °C

Winding	Winding Resistance (mΩ)	Winding	Winding Resistance (mΩ)
H2 – H1		X0 – X1	
H3 – H2		X0 – X2	
H3 – H1		X0 – X3	

Turns Ratio Test

Tap (Designated)	Primary Voltage (V)	Secondary Voltage (V)	Calculated Ratio	Measured Ratios		
				H3 H1 / X0 X1	H1 H2 / X0 X2	H2 H3 / X0 X3

Connection Resistance

Note: Torque check required for all cables. Connection Resistance Test required for cables 250MCM or larger.

Termination	Connection Resistance (μΩ) - As Left				Torque Check
	A	B	C	N	
Source					☐ OK
Dest. / Load					☐ OK

Final Analysis	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

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Winnipeg	**INSPECTION FORM** **TRANSFORMER, LIQUID-FILLED, MEDIUM VOLTAGE**	Page: 1 of 3 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Transformer Data										
KVA: / /		Phase:		Primary Voltage: V		Secondary Voltage: V				
Manufacturer:			Model:			Serial Number:				
Primary Winding: ☐ Δ ☐ Y		Secondary Winding: ☐ Δ ☐ Y		Impedance: %Z		Temp Rise: °C		K Factor:		
Cooling: ☐ ONAN ☐ ONAF		# Cooling Fans:		Winding Material:		Oil Type:				
BIL Rating Primary:			BIL Rating Secondary:			Oil Capacity:				
No Load Tap Changer	Tap	1	2	3	4	5				Tap Setting (As Found):
	Voltage									

Visual Inspection / Cleaning			
Transformer Identification Tag Installed: ☐ Yes ☐ No		Visual Signs of Overheating: ☐ Yes ☐ No	
Bushings: ☐ Good ☐ Acceptable ☐ Poor		Support Insulators: ☐ Good ☐ Acceptable ☐ Poor	
Paint: ☐ Good ☐ Acceptable ☐ Poor		No Load Tap Changer: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor	
Fans: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor		Fan Controls: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor	
Temp. Gauge: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor		Connections: ☐ Good ☐ Acceptable ☐ Poor	
Ground Connection: ☐ Good ☐ Acceptable ☐ Poor		Liquid Level Correct: ☐ Yes ☐ No	
Ground Conductor Size:		Radiators: ☐ Good ☐ Acceptable ☐ Poor	
Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor		Unit Cleaned: ☐ Yes	Photograph Taken: ☐ Yes

Operational Inspection					
Operational Conditions / Notes:					
Primary Voltage:	H1:H2: V	H2:H3: V	H3:H1: V	Measured at:	
Secondary Voltage:	X1:X2: V	X2:X3: V	X3:X1: V	Measured at:	
Current:	Ph A: A	Ph B: A	Ph C: A	Measured at:	
Tap Setting:	☐ Appears Satisfactory ☐ Further Monitoring Recommended. ☐ Recommend Changing Tap.		Tap Setting (As Left):		
Gauges:	Cooling Temperature: Current °C Maximum: °C		Coolant Level:		
	Pressure/Vacuum:		Other:		
Thermographic Inspection Performed:	☐ Yes	Attach report separately	Results: ☐ No Issues Found ☐ Potential Issue Identified.		

Insulation Resistance

Winding Temperature: °C Temperature Correction Factor (20°C):

Time	Resistance (MΩ)					
	PRI-GND		SEC-GND		PRI-SEC	
	Test Voltage:		Test Voltage:		Test Voltage:	
	Reading	Corrected to 20°C	Reading	Corrected to 20°C	Reading	Corrected to 20°C
1 min.						
2 min.						
3 min.						
4 min.						
5 min.						
6 min.						
7 min.						
8 min.						
9 min.						
10 min.						
Polarization Index						

Winding Resistance

Winding Temperature: °C

Winding	Winding Resistance (mΩ)	Winding	Winding Resistance (mΩ)
H2 – H1		X0 – X1	
H3 – H2		X0 – X2	
H3 – H1		X0 – X3	

Turns Ratio Test

Tap (Designated)	Primary Voltage (V)	Secondary Voltage (V)	Calculated Ratio	Measured Ratios		
				H3 H1 / X0 X1	H1 H2 / X0 X2	H2 H3 / X0 X3

Connection Resistance

Note: Torque check required for all cables. Connection Resistance Test required for cables 250MCM or larger.

Termination	Connection Resistance (μΩ) - As Left				Torque Check
	A	B	C	N	
Source					☐ OK
Dest. / Load					☐ OK

Insulating Liquid Tests	Dielectric Breakdown Voltage:	Colour:
	Acid Neutralization Number:	Visual Condition:
	Specific Gravity:	Power Factor or Dissipation Factor:
	Dissolved Gas Analysis:	Other:

Final Analysis	Returned to Service:	☐ Yes	☐ No	Comments:
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

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Winnipeg	**INSPECTION FORM** **TRANSFORMER, DRY TYPE, LOW VOLTAGE**	Page 1 of 2 ID:

Project		
	Facility:	Project Name:
	Area :	Bid Opportunity:

Transformer Data											
	KVA:	Phase:		Primary Voltage: V		Secondary Voltage: V					
	Manufacturer:			Type:		Serial Number:					
	Primary Winding: ☐ Δ ☐ Y	Secondary Winding: ☐ Δ ☐ Y		Impedance: %Z		Temp Rise: °C		K Factor:			
	Winding Material: ☐ Copper ☐ Aluminum										
	No Load Tap Changer	Tap	1	2	3	4	5				Tap Setting (As Found):
		Voltage									

Visual Inspection / Cleaning		
	Transformer Identification Tag Installed: ☐ Yes ☐ No	Visual Signs of Overheating: ☐ Yes ☐ No
	Bushings: ☐ Good ☐ Acceptable ☐ Poor	Support Insulators: ☐ Good ☐ Acceptable ☐ Poor
	Paint: ☐ Good ☐ Acceptable ☐ Poor	No Load Tap Changer: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor
	Fans: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor	Fan Controls: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor
	Temp. Gauge: ☐ N/A ☐ Good ☐ Acceptable ☐ Poor	Connections: ☐ Good ☐ Acceptable ☐ Poor
	Ground Connection: ☐ Good ☐ Acceptable ☐ Poor	
	Cleanliness (As Found): ☐ Good ☐ Acceptable ☐ Poor	Unit Cleaned: ☐ Yes — Photograph Taken: ☐ Yes

Operational Inspection					
	Operational Conditions / Notes:				
	Primary Voltage:	H1:H2: V	H2:H3: V	H3:H1: V	Measured at:
	Secondary Voltage:	X1:X2: V	X2:X3: V	X3:X1: V	Measured at:
	Current:	Ph A: A	Ph B: A	Ph C: A	Measured at:
	Tap Setting:	☐ Appears Satisfactory ☐ Further Monitoring Recommended. ☐ Recommend Changing Tap.		Tap Setting (As Left):	
	Thermographic Inspection Performed:	☐ Yes — Attach report separately	Results:	☐ No Issues Found ☐ Potential Issue Identified.	

Insulation Resistance	**Winding**	**Test Voltage (Vdc)**	**Resistance (MΩ)**		**Dielectric Absorption Ratio 60s/30s**
			30 sec	**60 sec.**	
	Primary to Ground, Secondary Guarded				
	Secondary to Ground, Primary Guarded				
	Primary to Secondary, Ground Guarded				

Final Analysis				Comments:
	Returned to Service:	☐ Yes	☐ No	
	Monitoring / Further Inspection Required:	☐ Yes	☐ No	
	Repair / Replacement Required:	☐ Yes	☐ No	

	Company	**Name**	**Signature**	**Date** (yyyy/mm/dd)
Performed By				
Checked By				

Note: The person(s) performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and that the analysis results are correct.