City of Winnipeg Chlorine Ventilation Upgrades At Regional Pumping Stations Tender Opportunity 415-2025

APPENDIX D

Test Forms

Ĩ	INSPECTION FORM	Page
Winnipèg	MOLDED CASE CIRCUIT BREAKER, < 1000V	ID:

Page 1 of 2

ject	Facility:	Project Name:						
Pro	Area :	Bid Opportunity:						
	Location:	Panelboard/MCC:	Cell #:					

a							
er Dat	Manufacturer:			Туре:		Serial #:	
reake	Rated Voltage:	V	Frame Size:		А	Trip Unit:	
В	Interrupting Rating:	k	A	Comments:			

/ uo	Breaker Identification Tag Insta	lled:	☐ Yes	🗌 No	Visual Signs of Overhea	ating:	🗌 Yes	🗌 No
	Cleanliness (As Found):	Good 🗌	Acceptable	Poor	Cables Supported Appr	opriately:	🗌 Yes	🗌 No
specti aning	Connections:	Good 🗌	Acceptable	Poor	Electro/Mechanical Interlock:	□ N/A □ Good □	Acceptable	Poor
ual In Clea	Ground Connection:	Good 🗌	Acceptable	Poor	Exercise Circuit Breake	er:	🗌 Yes	
Visu	Door Mechanical:	Good	Acceptable	Poor	Other:			
	Comments:							

	Trip Unit Rating: A	Trip Unit Ty	/pe: 🗌 None 🗌	e: None Thermal Magnetic Electronic LI LSI LSIG								
sɓu	Breaker Setting (As Left)		Range	Setpoint		Delay	I ² T					
Settin	Long Time	🗌 Fixed 🔲 Adj.	-	X A =	А	sec	🗌 On 🔲 Off					
aker	Short Time	☐ Fixed ☐ Adj.	-	X A =	А	sec	🗌 On 🔲 Off					
Bre	Instantaneous	☐ Fixed ☐ Adj.	-	X A =	А	N/A						
	Ground Fault	☐ Fixed ☐ Adj.	-	А		sec	🗌 On 🔲 Off					

	Perform in:	sulation res	istanc	ce measure	ements for brea	kers >= 250A	l, or as specif	fied.			
est	Temperature: °(°C 5	Source:	Disconnec	ted 🗌 Co	Approval is	required, prior	to leaving		
e Te	remperatu	ire.	L	Load:	Disconnec	ted 🗌 Co	cables connected during the test.				
tanc	Test Voltage (VDC)					ce (MΩ)					
sist		Phase	To G	ND (Break	er Closed)	Phase To	Phase (Brea	ker Closed)	Line to Load (Breaker Open)		
۱Re		Α		В	С	A – B	B – C	A - C	Α	В	С
atio											
Insul	Test Summary Test Passed Test Inconclusive. Further Investigation Required.										
_	Comments:										

Contact sistance	Perform contact measurements	Perform contact measurements for breakers >= 250A, or as specified.											
		А	В	С	Test Summary								
Conta	Resistance (µΩ)				Test Passed Test Inconclusive								
Re C	Comments:		Test Failed										

INSPECTION FORM MOLDED CASE CIRCUIT BREAKER, < 1000V

Page 2 of 2

ID:

<u>s</u>	Returned to Service:	🗌 Yes	🗌 No	Comments:
Final nalys	Monitoring / Further Inspection Required:	🗌 Yes	🗌 No	
A	Repair / Replacement Required:	☐ Yes	□ No	

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

v	Vinnipeg			INSP POWEF		FORM 5 < 1000	V			Page	1 of 1	
#	Eacility:				Project	Jama:				Cable ID		
rojec					Bid Opp	ortunity:						
<u> </u>	Alea .				ый Орр							
	Source:				Dest. / Load:							
ø	Manufact	urer:		Туре):				Conductor: Copper Aluminum			
ole Dat	No. of Conducto	rs:	Size:		AWG MCM	Lengt	ו:		m ☐ Mea □ Jack	sured et Markings	Previous Data	
Cat	Rated Vo	ltage: V	Operatino Voltage:	g	V	Date I	nstalle	ed:				
	Installatio	n: Cable Tra	iy [] EMT] Steel Conc	luit 🗌] Alum. C] PVC Co	onduit nduit		Direct Burie	d C d Duct)ther:	
	Physical I	Damage on Expose	ed Ends:	☐ Yes	🗌 No	Cable lo	dentific	cation T	ag Installed:		🗌 Yes 🗌 No	
sual	Visual Sig	ns of Overheating	:	🗌 Yes	🗌 No	Cable S	uppor	ted App	propriately:		🗌 Yes 🔲 No	
N V	Bend Radius Acceptable:					Comme	nts:					
	Test Preparatio	Source:	urce Isolated	Cable D	est. / Loa onnected lected wit	/ Load: Note: Approval of City's Representa cted is required, prior to leaving cables ed with Load Isolated connected during the test.						
Test	Cable Te	mperature:	mperature C	orrection F	actor for 2	20°C:		Ground a reading.	all conducto	rs not under test for each		
tance	Test			Ins	ulation Re	sistance	(MΩ)		Test	Summarv		
Resis	Voltage		A-G	ND B	-GND	C-GI	ID	N-C		est Passed		
ation	V	Reading							T	est Inconclu Further Inve	isive stigation Required.	
Insula	v	Corrected to 20°	С						ТПт	est Failed		
_	Utilize 10	00VDC Test Voltag	ge for 600	V rated cabl	es, 500VD	C for cab	es rate	ed <= 3	300V.			
	Comment	S:										
6)	Note: Tor	que check required	l for all ca	ables. Conn	ection Res	stance Te	est req	uired fo	or cables 4/0 A	WG or larg	er.	
stance	Те	ermination		Connectio	on Resista	ince (μΩ)	- As	Left		То	rque Check	
Resis			A		В	С		I	N			
ction		Source									ОК	
onne	D	est. / Load									ОК	
ပ	Comment	s:										
	Cable Re	turned to Service:		🗌 Ye	s 🗌 No	Comm	ents:					
inal Ilysis	Monitorin	g / Further Inspecti	on Requi	red: TYe	 s □ No							
Ana	Repair / F	s 🗌 No										
		Company		Name			Sign	aturo			Date (\\\\\\mm/dd)	
Perfor	med By	Sompany		Naille			Sign	ature				
Check	ed By											

Form CBL-LV Rev 00, Created by SNC-Lavalin Inc. M:\113099\4ENG\47ELE\RA - Misc Reports & Forms\Forms\F-CBL-LV.doc

			INS	PECTION	FORM			Page 1 of 1
V	Vinnipeg	CO	NTROL POV		NSFORM	ER, 600V		ID:
ject	Facility:			Project N	Name:			
Pro	Area :			Bid Opp	ortunity:			
ta	Location:				Pri. V Ratin	′oltage g:		Sec. Voltage Rating:
T Da	Manufacture	r:			Pri. F	use Size:		Sec. Fuse Size:
<u>م</u>	Size:		Т	ype:			Other:	
	Physical Da	nage:	☐ Yes	🗌 No	Defective	Connections/Wiring	:	🗌 Yes 🗌 No
sual ection	Visual Signs	of Overheating:	🗌 Yes	🗌 No	Grounding Contact:	and Shorting Conn	ections	Provide 🗌 Yes 🗌 No
Vis Inspe	Verify Groun	d Connection:	🗌 Yes	🗌 No	Verify With	drawal Mechanism	Functio	on: 🗌 Yes 🗌 No
	Fuse Sizes I	Match Drawings:	☐ Yes	🗌 No	Comments			
istance Test	Test Preparat	Source: ion: Disconne Connect	ected ed with Source Voltage	Isolated Insulation (M	Resistance IΩ)	Note: Approv prior to leaving Temperature:	al of Cit g cables °C	y's Representative is required, s connected during the test.
ר Res	Prima	ry To GND	1000 VDC			Test Summary		
latio	Second	lary To GND	500 VDC			Test Inconclusi	ive tigation	Required.
lnsu	Primary	To Secondary	1000 VDC			Test Failed		
	Comments:							
	Returned to	Service:	☐ Yes	🗌 No	Comments	::		
Final nalysi	Monitoring / Required:	Further Inspection	🗌 Yes	🗌 No				
A	Repair / Rep	lacement Required:	🗌 Yes	🗌 No]			
	Co	ompany	Name		S	ignature		Date (yyyy/mm/dd)
Perfor	med By							
Check	ed By							
Note: The person performing the check is responsible for ensuring that the data is transcribed from the handwritten form correctly, and the the analysis results are correct.								

	Winnipeg CURR								M				Page	1 of 1	
v	vinnipeg				C	URRE		ANSFUI	KINEP	K			ID:		
oject	Facility:						Project Name:								
Pro	Area :						Bid Opp	Bid Opportunity:							
	Location:					Curre	ent Ratio:		:	А	Volt	age Clas	s:	V	
r Dati	Manufact	urer:			Model	Model No.: Type: 🗌 Bar 🗌 Windo				Window	(Solid)	Split	Core		
о С	Burden R	ating:			BIL:		kV		Ac	curacy Clas	s:				
5	Physical	Damage	:			Yes	🗌 No	Clean and Inspect Insulators:					☐ Yes	🗌 No	
/isual pecti	Visual Sig	gns of O	verheat	ing:		Yes	🗌 No	Vo Verify Connections are Correct:					🗌 No		
/ Ins	Adequate	e Mountir	ng Supp	oort:		Yes	🗌 No	□ No Comments:							
ce Test	Test Preparation: Source: Disconnected Connected with Source Isolated Voltage						Cable Dest. / Load: Note: Approv Disconnected is required, pr Connected with Load Isolated				val of Cit rior to le uring the	ty's Repre aving cab test.	esentative les		
stanc	-	Test		Voltag	je _		Insul A	ation Res	Istanc		Ω) Tempera		rature: °C		
Resi	Primar	Primary To GND 1000			V		~			Ŭ			Passed		
ation	Second	condary To GND 500 V		/							Test	Inconclu her Inve	usive stigation I	Required.	
Insul	Primary T	o Secor	ndary	1000 '	V							Lllest	Falled		
	Comments	:													
	Note: Atta	ch suppo	ortina da	ata and satu	uration	curve.									
ation							Ph	ase					Test Summary		
Satur ts				Α		В	C N				Test Passed				
tion, v Tes	Calculated	d Ratio											Furt	her Invest	tigation
xcita	Measured	d Ratio											□ Test	Failed	
itio, E and Pe	Exciting C (mA	Current													
ns Ra	Polarity C	Correct	🗆 Ye	s 🗌 No		Yes	🗌 No	🗌 Yes	□ N	lo 🗌 Ye	s 🗆] No			
Tur	CT Satur Test Perfo	ration ormed:	□ Ye	s 🗌 No		Yes	🗌 No	□ Yes	□ N	lo 🗌 Ye	s [] No			
ω	CT Returned to Service:						□ No	Commer	nts:						
⁼ inal	Monitoring / Further Inspection				Yes	🗌 No									
A	Repair / Replacement Required:						🗌 No								
<u> </u>		Compa	iny		Nam	e			Signa	ture			Dat	e (yvvv/m	ım/dd)
Perfor	med By		,											()))),,,,,	··· •· /
Check	ed By														
	-			de a ste a ste 1					dete la	to a second second	(

	U ⁱ				INSPE	CTION	FORM				Page 1 of 2		
	Vinni	peg			DIGI	TAL M	ETER				ID:		
oject	Fac	ility:			F	Project N	lame:						
Pro	Area	a :			E	Bid Oppo	ortunity:						
a e	Loca	ation:				Cell #:							
Mete	Mar	ufacturer:				Model:							
2	Cover Gasket: Good Accepta						or Cove	er Gl	ass:		Good	Acceptable Deor	
sual ectior	Ge	eneral Conc	dition:	Go	ood 🗌 Acceptable		or						
iv vi		eanliness (a	as found	d) 🗌 Go	ood 🗌 Acceptable	e 🗌 Poo	or Unit	Clea	aned:	/es			
	Co	onnections	ns (as found) Good Acceptable Poor Connections Yes										
it er	Hanufacturer: Model:												
Tes Mete	Cali	bration Date	ate: Meter calibration must be within one year, unless otherwise specified.							rwise specified.			
		Nominal	Test		Calibrated Mete	er					_		
		Value Pha (V)		Phase	Measurement (V)	Mete	(V)	est	Utterence (V)		Error (%)	(See Specs)	
												□ Yes □ No	
	age	0										🗌 Yes 🗌 No	
	Voltã											🗌 Yes 🔲 No	
												🗌 Yes 🔲 No	
												🗌 Yes 🗌 No	
												🗌 Yes 🗌 No	
ccuracy		Nominal Valu (V)	Test e	Phase	Calibrated Mete Measurement (A)	er Mete	er Under To (A)	est	Difference (A)		Error (%)	Acceptable (See Specs)	
Ă				А								🗌 Yes 🗌 No	
	ent	0		В								🗌 Yes 🔲 No	
	Curr			С								□ Yes □ No	
				А								□ Yes □ No	
				В								🗌 Yes 🗌 No	
				С								🗌 Yes 🗌 No	
	Mea	surements	Applica	ble To:	As-Found	As-Left	I	May	check both boxes	if appl	icable.		
	Unit	Calibration	Adjuste	ed: C]Yes □ No If Ie	calibration ft after c	on was adj alibration.	uste	d, complete two fo	rms, o	ne for as-fou	und, the other for as-	

INSPECTION FORM DIGITAL METER

ID:

s	Returned to Service:	🗌 Yes	🗌 No	Comments:
Final nalysi	Monitoring / Further Inspection Required:	🗌 Yes	🗌 No	
٩	Repair / Replacement Required:	🗌 Yes	🗌 No	

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

	Winnipeg			INSPE	CTION	FOF	RM				Page	1 of 1	
	winnipe	g		EMERGE	NCY L	IGH	TIN	G			ID:		
ject	Facilit	y:			Project N	Name	:						
Pro	Area				Bid Opp	ortuni	ity:						
					E. I.F.							O'marrit II	
Jnit	Locat	on:									Circuit #:		
ery L Data	Manu	acturer	:		Model: Se				Seria	al No:			
Batt	Input	/oltage	: V AC	Input Current:		A	C	Output V	oltage:	V D	C W	attage:	W
	Qty of	Interna	I Lamps:	Internal Lamp Wa	Vattage: W Type of Intern				nternal Lam	ps:			
ω v	Quant	ity:		Manufacturer:	acturer: Model:								
emote xture	Input	/oltage	V DC	Input Current:	Δ	Ą		Qty of	Lamps per	Fixture:			
Ϋ́Ε	Lamp	Wattag	e: W	Type of Lamps:	Wire Size:			AWG					
			—										
) 'u	n Ide	ntificatio	on Tag Installed:	∐ Ye	s ∐ľ	No	Lan	nps Prop	perly Aime	d:			
isual ectio	Vis					No	Cor	nection	IS:	Good 🗌		eptable 🗌 Poo	r
iv Vi	ပ ီ Cle	able 🗌 F	Poor	Gro	und Co	nnection:	Good 🗌		eptable 🗌 Poo	r			
	Co	nments	:										
	Equipm	ent Ten	nperature:	Ĉ						Test Sum	mmary		
sting	Test Re	sults								Test Pa	assed		
y Tes	Stated I)esian '	Time (From Drawing	s): Mi	in					Further	r Investi	gation Required	d.
atter	Time U	ntil Lam	ps Turn Off:	Mi	in					L Test Fa	ailed		
•	Comme	nts:											
	D.:					Com	mer	nts:					
al /sis	Return	ed to Se	ervice:			0011	mei						
Fin Analy	Monito	ring / In	spection Required:		_ No								
	Repair / Replacement Required: Yes [] No								
		Со	mpany	Name				Signat	ture			Date (yyyy/m	ım/dd)
Perfo	rmed B	y											
Checl	ked By												

INSPECTION FORM FUSED DISCONNECT SWITCH, 600V

ject	Facility:				Project Name):					
Pro	Area :				Bid Opportun	ity:					
nnect ata	Manufacturer:				Model:	Model:					
Disco Di	Rated Voltage:	V	Current R	ating:	А		Interrupting Rating: A				
					1						
ise ita	Manufacturer:				Туре:			Cat. #:			
Fu Da	Rated Voltage: V Current Ratir			rrent Rating	g: A Holder:						
	I										
5	Identification Tag Installed:					Visual Signs	of Overhea	ating:		Yes 🗌 N	D
aninç	Cleanliness (As Fo	able 🗌 Poor	Support Insul	ators:		Good Acc	eptable 🗌 P	oor			
/ Clea	Connections:	able 🗌 Poor	Poor Blade Condition: Good Acceptab					oor			
ection	Ground Connectior	ו:	Good [Accepta	able 🗌 Poor	Verify Blade I Operation:	Mechanica	l	Good Acc	eptable 🗌 P	oor
al Inspe	Door Mechanical:	Accepta	able 🗌 Poor	Fuse Holder Contact Integ	Support an Irity:	d		eptable 🗌 P	oor		
Visua	Fit Plumb & Square	9:] Yes 🗌 No	Unit Cleaned	: 🗌 Ye	s	Unit Lubricated:	🗌 Yes	
-	Cables Supported	Appropriatel	y:] Yes 🗌 No	Other:					
0		Resist (As	ance (μΩ) s Left)			Test Sumn	nary				
blade	Α	I	В		С						
Switch Resist						Further	Investigati led	on Requ	ired.		
	Comments:					1					
e		Resist (As	ance (μΩ) s Left)			Test Sumn	nary				
sistar	Α		В		C	Test Passed					
se Re						Further	Investigati led	on Requ	iired.		
Fui	Comments:					1					

INSPECTION FORM FUSED DISCONNECT SWITCH, 600V

ID

est	Test Prepa	aration: Source Discor	e: 🗌 Isolat nnect: 🔲 C	ced Cable Des Den Discon	st. / Load: nected cted with Load Is	Note: Ap olated prior to le	pproval of City's Re eaving cables conn	presentative is required, ected during the test.
nce T		Test	V	- 11	Insu	lation Resistanc	:e (MΩ)	Ground all phases not
sistar		lest	voltage		Α	В	С	under test!
n Re	Disconneo	Disconnect Line To GND 10		00 VDC				Test Summary
ulatio	Disconnect Load To GND 100			00 VDC				Test Inconclusive
lns	Disconnect Line to Load 100			00 VDC				Required.
	Comments	8:						
s.	Returned	Returned to Service:] No	Comments:	
Final	Monitoring	g / Further Inspec	tion Requir	ed: 🗌 Yes	Ľ] No		
- Ar	Repair / R	eplacement Req	uired:	🗌 Yes	Ľ] No		
		Company		Nama		Cignoture		
Perfo	rmed By	Company		name		Signature		
Chec	ked By							

Q
TITE I
Winnipeg

INSPECTION FORM GROUNDING/BONDING CONNECTION RESISTANCE

Page 1 of 2

Area:

Project Facility:

Area :

Project Name:

Bid Opportunity:

	Point A	Point B	Resistance (mΩ)		Acceptable
				□ Yes □	No Inconclusive
				🗌 Yes 🔲	No
				□ Yes □	No 🗌 Inconclusive
				Yes	No 🗌 Inconclusive
				Yes	No 🗌 Inconclusive
				Yes	No 🗌 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				🗌 Yes 🛛	No 🗌 Inconclusive
ks				□ Yes □	No 🗌 Inconclusive
Chec 「est)				□ Yes □	No 🗌 Inconclusive
ance ctor T				□ Yes □	No 🗌 Inconclusive
esista (Du				🗌 Yes 🛛	No 🗌 Inconclusive
Ř				🗌 Yes 🛛	No 🔲 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				🗌 Yes 🛛	No 🗌 Inconclusive
				🗌 Yes 🛛	No 🔲 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				🗌 Yes 🔲	No 🗌 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				□ Yes □	No 🗌 Inconclusive
				Yes	No Inconclusive
	Comments:				

INSPECTION FORM GROUNDING/BONDING CONNECTION RESISTANCE

Page 2 of 2

ID:

	Point A	Point B	Resistance (mΩ)	Acce	eptable
				🗌 Yes 🗌 No	Inconclusive
				🗌 Yes 🗌 No	Inconclusive
				🗌 Yes 🗌 No	Inconclusive
				🗌 Yes 🗌 No	Inconclusive
ks				🗌 Yes 🗌 No	Inconclusive
Chec est)				🗌 Yes 🗌 No	Inconclusive
ance (🗌 Yes 🗌 No	Inconclusive
esista (Duo				🗌 Yes 🗌 No	Inconclusive
Ř				🗌 Yes 🗌 No	Inconclusive
				🗌 Yes 🗌 No	Inconclusive
				🗌 Yes 🗌 No	Inconclusive
				🗌 Yes 🗌 No	Inconclusive
				🗌 Yes 🗌 No	Inconclusive
	Comments:			·	

is.	Monitoring / Inspection Required:	🗌 Yes	🗌 No	Comments:
Final nalys	Repair / Replacement Required:	🗌 Yes	🗌 No	
Ā				

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

TA INC.				INSPE		OF	RM		Page 1 of 2		
v	vinnipeg				SENT OVE	R	LOAD		ID:		
ject	Facility:				Project Nam	ne:					
Pro	Area :				Bid Opportu	d Opportunity:					
_	Location: Ce				Cell #:	sll #-					
0/L Data	Manufacturer:			Model:							
- ion	General Co	ndition:	Good Good	d 🗌 Acceptabl	e 🗌 Poor						
Visua	Cleanliness	Good Good	d 🗌 Acceptabl	e 🗌 Poor		Unit Cleaned:					
sul >	Connection	s (as found)	Good Good	d 🗌 Acceptabl	e 🗌 Poor		Connections Torqued:	☐ Yes			
]		
tion	Static IP Add	ress:			Subne	Subnet Mask					
munica	Gateway:				Protoc	Protocol:					
Com	MAC Address	s:			·						
lest leter	Manufacturer:			Mode	el:						
	Calibration Date:					Meter calibration must be within one year, unless otherwise specified.					
y Type: ☐ Internal to O/L ☐ I			External	Exterr	External CT Ratio:						
CT	External G	Fround CT:	🗌 Yes 🛛] No	Grour	Ground CT Ratio:					

INSPECTION FORM INTELLIGENT OVERLOAD

Page 2 of 2

ID:

	Verify accu	racy of Intell	igent O/L Measu	rements wi	th the use	of software via th	ne communic	ation network.	
	Nominal Test Value (A)	Phase	Calibrated Mete Measurement (A)	er Intellig Measu (/	ent O/L rement A)	Difference (A)	Error (%)	Acceptable (See Specs)	
		А						🗌 Yes 🗌 No	
ent	0	В						🗌 Yes 🗌 No	
Curre		С						Yes No	
		A						□ Yes □ No	
		В						🗌 Yes 🗌 No	
		С						🗌 Yes 🗌 No	
Meas	surements Applica	check both boxes	if applicable.						
Unit Calibration Adjusted: Yes No If calibration was adjusted, complete two forms, one for as-found, the other left after calibration.									
Returned to Service:									
Mon Requ	itoring / Further In uired:	spection	□ Yes [] No					
Repa	air / Replacement	Required:	🗌 Yes 🛛 [] No					
	Company		Name		Sign	ature		Date (yyyy/mm/dd)	
	Meas Unit Retu Rep	Verify accu Value (A) 0 Measurements Applica Unit Calibration Adjust Returned to Service: Monitoring / Further In Required: Repair / Replacement	Verify accuracy of Intell Nominal Test Value (A) Phase 0 A 0 B C A B C A B C A B C Measurements Applicable To: Image: Company Returned to Service: Monitoring / Further Inspection Required: Repair / Replacement Required: Image: Company	Verify accuracy of Intelligent O/L Measure Nominal Test Value (A) Phase Calibrated Meter Measurement (A) 0 A	Verify accuracy of Intelligent O/L Measurements with Value (A) Phase Calibrated Meter Measurement (A) Intellig Measurement (A) 0 A	Verify accuracy of Intelligent O/L Measurements with the use Nominal Test Value (A) Phase Calibrated Meter Measurement (A) Intelligent O/L Measurement (A) 0 A	Verify accuracy of Intelligent O/L Measurements with the use of software via the value (A) Nominal Test Value (A) Phase Calibrated Meter Measurement (A) Intelligent O/L Measurement (A) Difference (A) 0 A	Verify accuracy of Intelligent O/L Measurements with the use of software via the communic Value (A) Phase Calibrated Meter Measurement (A) Intelligent O/L Measurement (A) Difference (A) Error (%) 0 B	

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

	Ĩ				IN	SPE		FORM			Page	1 of 6		
V	Vinnipeg					Ν	ICC, 600	V			ID:			
ject	Facility:					Pr	Project Name:							
Pro	Area :					Bi	Bid Opportunity:							
	Logation:										# of C			
ta											# 01 C	5115.		
C Da	Manufacturer:						Model:			Serial #:				
MCC	Rated Voltage	oltage: V Main Bus Rating:						А	Main Bus I	Neutral Ratin	g:	А		
	Bus Conducto	or: 🗌 Copp	er 🗌	Aluminun	n C	Curre	nt Withstan	d Rating:	А					
r	Identification	Tag Installes	1.						of Overboo	ting				
	Identification	rag installed	1:		L Ye	s L		visual Signs	or Overnea	ung:				
	Visual Signs of	of Moisture:			🗌 Ye	s [□ No	Visual Signs	of Corona:			🗌 Yes	🗌 No	
	Fuse/Breaker	Sizes Match	n Drav	vings:	🗌 Ye	s [] No	PT and CT ra	atios match	drawings:	□ N/A	🗌 Yes	🗌 No	
bu	Elevation Dra	wings Corre	ct:		🗌 Ye	s [No	Cables Supp	orted Appro	opriately:		🗌 Yes	🗌 No	
leani	Cleanliness (A	As Found):		Good 🗌		eptab	le 🗌 Poor	Insulators Co	ndition:		Good 🗌	Acceptable	e 🗌 Poor	
tion / C	Connections:			Good 🗌		eptab	le 🗌 Poor	Electro/Mech Interlock Sys	anical tem:		Good 🗌	Acceptable	Poor	
spect	Ground Conn	ection:	[Good	Acce	ptabl	e 🗌 Poor	Vents/Filters:			Good 🗌	Acceptable	Poor	
al Ins	Doors Mecha	nical:	[Good		ptabl	e 🗌 Poor	Exercise Acti	ve Compon	ients:		🗌 Yes	□ No	
Visu	Cell Fit and A	lignment:	[Good		ptabl	e 🗌 Poor							
	Required Clea Met:	arances are	[Good	Acce	ptabl	e 🗌 Poor			·				
	Indicating me	chanisms:	[Good	🗌 Acce	ptabl	e 🗌 Poor	Unit Cleaned	: 🗌 Yes	s Photogra	ph Takei	n: 🗆 N	′es	
	Comments:													
]	
	Туре:	Inspe	ection	l										

	Туре:	Inspection	ispection											
er	🗌 Main Breaker	Complete appropriate	Complete appropriate breaker inspection form.											
Pow	Disconnect	Complete appropriate	omplete appropriate disconnect inspection form.											
ming		Visual Inspection: Good Acceptable Poor												
Inco	🗆 Main Lugs	Connections Torqued:	☐ Yes											
		Connection	Α	В	С	N								
		Resistance (μΩ) As Left												

INSPECTION FORM MCC, 600V

	Test Preparation	Sourc Dia n: Co Is	ce: sconnected onnected wi solated	ith Source	Cable Dest. / Load: Disconnected Connected with L	Cable Dest. / Load: Note: Approval of City's Representation Disconnected required, prior to leaving cab Connected with Load Isolated the test.					
est	Temperatu	ire:	°C								
ance T ()	Test Voltage		Insulatio Ph	on Resistanc ase To Phas	e (MΩ) e	Test Summary	1				
sista vork	(dc)	A - B	3	B - C	C - A	Test Passed	d				
n Re: Busv	1000 V					Further Inv	lusive estigation Required.				
sulatio (Test		Insulatio Ph	on Resistanc nase To GND	e (MΩ)						
lns	voltage	A - GI	ND	B - GND	C - GND						
	1000 V										
	Comments	:	·								

ance Test)	Point A	Point B	Resistance (μΩ)	Test Summary □ Test Passed □ Test Inconclusive
esista uctor	MCC GND Bus	Facility Ground Electrode		Further Investigation Required.
ind R (Di	MCC GND Bus	MCC Enclosure		
Grou	MCC GND Bus	System Neutral		
	Comments:			

	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.
ers	4.	Inspect and test any electro/mechanical interlocks.
reak	5.	Confirm disconnect operation.
er B	6.	Check door mechanical condition.
Feed	7.	Exercise circuit breaker.
	8.	Confirm cables are supported and routed appropriately.
	9.	Visually assess the general condition of the installation.
	Note: Comp Short	lete an appropriate Breaker Inspection Form for all breakers with separate adjustable Long and trip settings, or > 250A frame size.
		Continued on next page

INSPECTION FORM MCC, 600V

Page 3 of 6

	ID	Loc./ Cell	Frame Rating (A)	Trip Rating (A)	Manuf.	Model	Trip Unit Type	Inst Setting	Visual Inspection	Cleaned	Comments
0											
Ier Dreak											

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

				Overcu	Irrent Pro	tection	Contactor		Overload			
	ID	Loc./ Cell	Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model	Visual Insp.	Cleaned	Comments
tors												
ontac												
1 00												
rters												
r Sta												
loto												
2												
	General Comments:											

INSPECTION FORM MCC, 600V

Page 5 of 6

				Overcurrent Protection C		Contactor		Overload				
	ID	Loc./ Cell	Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model	Visual Insp.	Cleaned	Comments
ers												
Start												
otor (
ĕ												
	General Comments:											



INSPECTION FORM MCC, 600V

ID:

<u>s</u>	Returned to Service:	🗌 Yes	🗌 No	Comments:
Final	Monitoring / Inspection Required:	🗌 Yes	🗌 No	
Ā	Repair / Replacement Required:	☐ Yes	□ No	

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

Q
Winnipeg

Area :

INSPECTION FORM MOTOR STARTER, FVNR, 600V

ID:

ject	Facility:
Pro	Area :

Project Name:

Bid Opportunity:

	Load:						Starter Lo	ca	tion:							Cell #:		
	Manufacturer	r:		Ту	/pe:			Se					Serial #	:				
	Size: Rated			ted V	/oltage:		V	urrent	t Rating:		A	\ \	Control Volta	age:		V		
			sed D	isc	Rating:		Δ	Fi	use Si	Fuse		e Mfg.						
	Circuit		JCU D	100.	itating.				100 01	NZC. A		Mod	Model:					
Data	Protection:	Br	eaker		Rating:		А	In	st.		А	Mar	ufacturer:					
ter			CP		i tating.		~	Se	etting:			Mod	lel:					
Star	Overload		ermal	ia	Closer	□ 1 □ 2	0 20	Sr	etting	/	^	Mar	ufacturer:					
	Protection:		nt	Class.	□3 □l	30 Jnknown	Rating:		A	Мос	lel:							
	Control Power Transformer: Size:					VA	Sec. Volt	age	e:	V	Prima	y Fu	se:	A Second	dary	Fuse:	Д	١.
	Current Transformers: Phases:			es:	□ A □ B □ C		□ None		Ratio	D:		Ģ	Fround ault CT:	Present Not Pres	ent	Ratio:		
1								_										_
tor Ita	ID:						Size:		ł	kW /		F	IP	Voltage:				V
Mo Da	Full Load Am	ips:		A	Service Fa	ctor:		0	ther:									
								_										
	Starter Identif	ficatior	n Tag I	nstal	led:	<u>ا</u> ا	∕es □N	٩		Visual	Signs o	of Ove	erheating:			🗌 Yes		С
bu	Cleanliness (As Fou	und):		Good		ceptable] [Poor	Suppor	t Insula	ators:		🗌 Good		Acceptable	D P	oor
Cleani	Connections				Good Acceptable] [Poor Electro/Mechanical Interlock:				I/A □ Good		Acceptable	D P	oor	
tion /	Ground Conn	nection	:		Good Acceptable] F	Poor Contactor Condition:			n:	🗌 Good		Acceptable	D P	oor	
spect	Door Mechan	nical			Good		ceptable		Poor	Contac	t Aligni	ment:		Good Good		Acceptable	D P	oor
al In:	Verify O/L ele	ement i	s corr	ectly	sized for		☐ Yes] No	Exercis	e Circu	uit Br	eaker/MCF	P/Disconnect				/es

Visual the load: Cables Supported Appropriately: ☐ Yes ☐ No Unit Cleaned: 🗌 Yes Photograph Taken: 🗌 Yes Comments:

	Test	Α	В	С	Test Summary
^o ole ients	Contact Resistance ($\mu\Omega$)				Test Passed
ntact/l ssuren	Disconnect / Breaker / MCP Resistance (μΩ)				Further Investigation Required.
Mea	Fuse Resistance ($\mu\Omega$)				
	Comments:				

INSPECTION FORM MOTOR STARTER, FVNR, 600V

Page 2 of 2

est	Test Preparation: Source Conta	presentative is required, ected during the test.					
nce T	Test	Valtara		Insula	tion Resistance	Ground all phases not	
sistaı	Test	voltage		Α	В	с	under test!
n Re	Contactor Line To GND	1000 VDC					Test Summary
ulatic	Contactor Load To GND	1000 VDC					Test Inconclusive Further Investigation
lns	Contactor Line to Load	1000 VDC					Required.
	Comments:		•				
	-			-			
ø	Returned to Service:	☐ Yes	🗌 No	Comment	s:		
Final nalysi:	Monitoring / Further Inspe Required:	ction 🗌 Yes	🗌 No				
A	Repair / Replacement Rec	quired: 🗌 Yes	□ No]			

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

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Winnipeg

INSPECTION FORM MOTOR SOFT STARTER, 600V

Page 1 of 3

ID:

ject	Facility:
Pro	Area :

Project Name:

Bid Opportunity:

	Load:						Start	er Lo	ocation	:						Cell #:	
	Soft	Manufactu	urer:					Мо	del:				Serial #	:			
	Starter: Size:				Rate Volta	d age:			V	Curre Rating	nt g:	Α		Control Voltage:		V	
	Fused Disc.			Ra	ating:		А		Fuse S	Size:	А	Fuse Mfg] .				
	Circuit Protection:	□ Breake	er	_			•		Inst.			Model: Manufac	turer:				
			-	Ra	Rating:		A		Setting	g:	A	Model:					
Data	Bypass	Type:] NEMA] IEC		Manuf	acture	er:				Model:						
arter	Contactor:	ntactor: N/A NEMA Size:				IEC Rat	ting:		A 🗆 A	AC-3	□ AC	-4					
Ś	Bypass		Thermal			Setting	a /		Manufac	turer:							
	Protection:	rotection:				ss: 30 Unknow			Rating:		A Mode		Model:				
	Capacitor	pacitor				acture	er:					Model:					
	Contactor:	L)po. [] N/A		NEMA Size:				IEC Rat	EC Rating: A AC-3			3 🗌 A (C-4			
	Control Power Transformer: Size: VA					VA	Sec. Voltage:			V	V Primary Fuse:			A Se	econdary	Fuse:	А
	Current Tra	nsformer:	Ratio:							Тур	e:						
-	ID:						Size) :		kW /		HP		Volt	age:		V
Moto Data	Full Load An	nps:	AS	Serv	rice Fa	ctor:		1.00 1.15	Othe	r:							
								_									
	Starter Ident	tification 1a	ag Installe	ed:	<u> </u>	<u>, П</u>	Yes	<u> </u>	No	Visua	Il Signs	of Overhe	ating:		<u> </u>		
ning	Cleanliness	(As Found)):		Good		cepta	able		r Supp	ort Insu	lators:			Good L	Accepta	ble 📋 Poor
Clea	Connections	3			Good	🗌 Ac	cepta	able	Poo	r Interle	ock:	lanicai			Good 🗌	Acceptab	le 🗌 Poor
tion /	Ground Con	nection	[Good		cepta	ble	🗌 Poo	r Conta	actor Co	ondition:			Good 🗌	Acceptab	le 🗌 Poor
spec	Door Mecha	nical	[Good		cepta	ble	🗌 Poo	r Conta	act Aligi	nment:			Good 🗌	Accepta	ble 🗌 Poor
sual In	Verify O/L element is correctly sized for Yes Not the load:					D Exerc	ise Ciro	cuit Breake	er/MCP/D	iscor	nect		☐ Yes				
</th <th>Cables Supp</th> <td>ported App</td> <td>ropriately</td> <td>y:</td> <td></td> <td></td> <td></td> <td>Yes</td> <td>s 🗌 No</td> <td>o Unit (</td> <td>Cleaned</td> <td>l: 🗌 Ye</td> <td>es Pho</td> <td>togra</td> <td>ph Taker</td> <td>n: 🗆</td> <td>Yes</td>	Cables Supp	ported App	ropriately	y:				Yes	s 🗌 No	o Unit (Cleaned	l: 🗌 Ye	es Pho	togra	ph Taker	n: 🗆	Yes
	Comments:																

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INSPECTION FORM MOTOR SOFT STARTER, 600V

Page 2 of 3

ŝ	Test	А	В	с	Test Summary	
rement	Bypass Contactor Contact Resistance (μΩ)				Test Passed Test Inconclusiv	e
Measul	Capacitor Contactor Contact Resistance (μΩ)				Further Investig	pation Required.
ole I	Disconnect Resistance (μΩ	!)				
act / F	Main Fuse Resistance ($\mu\Omega$)				
Conta	Capacitor Fuse Resistance (ιΩ)				
-	Comments:					
	Test Preparation: Source: Contact	☐ Isolated or: ☐ Open ☐ Disc ☐ Con	Dest. / Load: connected inected with Load	Note: A Isolated	Approval of City's Re leaving cables conn	presentative is required, ected during the test.
	WARNING: DISCONNECT A TO TEST.	ALL POWER CABLES	FROM SOFT ST	ARTER MODULE	AND ALL CONTRO	DL POWER FUSES PRIOR
	Test	Voltage	In	sulation Resistar	nce (MΩ)	Ground all phases not under test!
		U U	Α	В	С	under test!
Fest	Disconnect Line to GND	1000 VDC				
ance 7	Disconnect Load to GND	1000 VDC				
Resist	Disconnect Line to Load	1000 VDC				
ation	Bypass Contactor Line To GND	1000 VDC				Test Summary Test Passed Test Inconclusive
Insul	Bypass Contactor Load To GND	1000 VDC				Further Investigation Required.
	Bypass Contactor Line to Load	1000 VDC				I est Failed
	Capacitor Contactor Line To GND	1000 VDC				
	Capacitor Contactor Load To GND	1000 VDC				
	Capacitor Contactor Line to Load	1000 VDC				
	Comments:			-		



INSPECTION FORM MOTOR SOFT STARTER, 600V

ID:

	Test Preparation: Run moto							
uo	Ramp Up Time		sec	Actual:	Actual:		Comments:	
specti	Measured Motor Current	ØA	А	ØB	А	ØC	А	
al Ins	Soft Start Motor Current	ØA	А	ØB	А	ØC	А	
ration	Ammeter Displayed Motor Current:	1	А	1				
Ope	Remote (RTU/PLC/DCS) Displayed Motor Current:		А					
	Ramp Down Time	Specified:		sec	Actual:		sec	
s	Returned to Service:		🗌 Yes	🗆 No	Comments:			
Final nalysi:	Monitoring / Further Inspec Required:	Monitoring / Further Inspection Required:						
▲	Repair / Replacement Req	uired:	☐ Yes	🗌 No				

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

INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page: 1 of 2

jec	Facility:			Pr	roject Name	:				
Pro	Area :			Bi	id Opportuni	ty:				
		. ,								
, D	Size: kV	V /	HP	Voltag	ge:	V	R.P.M:			
r Dat	Manufacturer:			Mode	el:		Serial Number:			
Moto	Frame Type:			Facto	ce or:		Other:			
	Cooling:	☐ Air ☐ Fan	# Cooling Fans:	1	W M	inding aterial:				
	Motor Identification	n Tag Instal	led:	Yes	🗌 No	Yes 🗌 No				
ŋg	Connections:		Good A	cceptab	ole 🗌 Poor	Air Baffles:		Good Acc	ceptable 🗌 Poor	
clean	Paint:		Good A	cceptab	ole 🗌 Poor	Filter Media:	🗌 N/A	Good Acc	ceptable 🗌 Poor	
on / C	Cooling Fans:	□ N	/A 🗌 Good 🗌 A	cceptab	ole 🗌 Poor	Fan Controls:	🗌 N/A	Good Acc	ceptable 🗌 Poor	
pecti	Anchorage/Alignm	ient:	Good A	cceptab	ble 🗌 Poor					
al Ins	Ground Connectio	n:	Good A	cceptab	able 🗌 Poor					
Visua	Mechanical/Electri Operation:	ical Noise D	uring	Yes	🗌 No	Lubrication Required:		□ Ye	es 🗌 No	
	Cleanliness (As Found):				ble 🗌 Poor	Unit Cleaned: 🛛 Y	es Photo	graph Taken:	☐ Yes	
	Test									
		Test	Winding			Resistance (MΩ)		Dielectric	Polarization	
	Stator Winding	Test Voltage (Vdc)	Winding Temperature (°	C)	30 Sec	Resistance (MΩ)) min. (a)	Dielectric Absorption Ratio	Polarization Index (a)	
Ince	Stator Winding	Test Voltage (Vdc)	Winding Temperature (°	C)	30 Sec	Resistance (MΩ) 1 min.) min. (a)	Dielectric Absorption Ratio	Polarization Index (a)	
sistance	Stator Winding	Test Voltage (Vdc) 500	Winding Temperature (°	c)	30 Sec	Resistance (MΩ) 1 min. 1) min. (a)	Dielectric Absorption Ratio	Polarization Index (a) -	
on Resistance	Stator Winding	Test Voltage (Vdc) 500	Winding Temperature (° 40	C)	30 Sec	Resistance (MΩ) 1 min. 1) min. (a)	Dielectric Absorption Ratio	Polarization Index (a) -	
ulation Resistance	Stator Winding	Test Voltage (Vdc) 500	Winding Temperature (° 40 40	C)	30 Sec	Resistance (MΩ) 1 min.) min. (a)	Dielectric Absorption Ratio -	Polarization Index (a) - -	
ig Insulation Resistance	Stator Winding	Test Voltage (Vdc) 500	Winding Temperature (° 40 40	C)	30 Sec	Resistance (MΩ) 1 min. 1) min. (a)	Dielectric Absorption Ratio -	Polarization Index (a) - -	
inding Insulation Resistance	Stator Winding	Test Voltage (Vdc) 500 500	Winding Temperature (° 40 40 40 40		30 Sec	Resistance (MΩ) 1 min. 10 1 <t< td=""><td>) min. (a)</td><td>Dielectric Absorption Ratio -</td><td>Polarization Index (a) - - -</td></t<>) min. (a)	Dielectric Absorption Ratio -	Polarization Index (a) - - -	
Winding Insulation Resistance	Stator Winding	Test Voltage (Vdc) 500 500 500	Winding Temperature (° 40 40 40 40		30 Sec	Resistance (MΩ) 1 min. 1) min. (a)	Dielectric Absorption Ratio - -	Polarization Index (a) - - -	
Winding Insulation Resistance	Stator Winding Stator Winding Notes: (a) Testing to	Test Voltage (Vdc) 500 500 500	Winding Temperature (° 40 40 40 40 s and calculation or Test Passed	f Polariz	30 Sec	Resistance (MΩ) 1 min. 1 min. 1) min. (a) ors > 150 k Required	Dielectric Absorption Ratio - - - W (200 HP) Test Fail	Polarization Index (a) - -	
Winding Insulation Resistance	Stator Winding Stator Winding Notes: (a) Testing to Test Summary	Test Voltage (Vdc) 500 500 500	Winding Temperature (° 40 40 40 5 and calculation o Test Passed	f Polariz	30 Sec	Resistance (MΩ) 1 min. 1 min. 1) min. (a) 0 min. (a) 0 min. (a) 0 min. (a)	Dielectric Absorption Ratio - - - W (200 HP) Test Fail	Polarization Index (a) - -	
e Winding Insulation Resistance	Stator Winding Stator Winding Notes: (a) Testing to Test Summary	Test Voltage (Vdc) 500 500 500 0 10 minutes Cartering Res	Winding Temperature (° 40 40 40 5 and calculation o Test Passed [5istance (μΩ)	f Polariz	30 Sec	Resistance (MΩ) 1 min. 1 min. 1 .) min. (a)) min. (a) ors > 150 k Required.	Dielectric Absorption Ratio	Polarization Index (a) - -	
/inding Winding Insulation Resistance	Stator Winding Notes: (a) Testing to Test Summary A - B	Test Voltage (Vdc) 500 500 500 0 10 minutes Res	Winding Temperature (° 40 40 40 40 40 5 and calculation or Test Passed 5 sistance (μΩ) B – C	f Polariz Test	30 Sec	Resistance (MΩ) 1 min. 1 min. 1 is only required for mode. Further Investigation Test Summary Test Inconclusion Further Investig Test Nummary Further Investig) min. (a)) min. (a) ors > 150 k Required. // // // // // // // // // // // // //	Dielectric Absorption Ratio - - - W (200 HP) Test Fail	Polarization Index (a) - - -	

INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page: 2 of 2

ID:

sulation ance	Not Applicable												
	Bearing	Test Voltage	Bearing	Resistance (MΩ)									
	Dearing	(Vdc)	Temperature (°C)	1 min.	Corrected to 40°C								
ng In esista		500											
3earin Re		500											
	Test Summary	Test Passed	Test Inconclusiv	e. Further Investigation Require	red. 🗌 Test Failed								

	Not Applicable						
	Actual Winding Ter	nperature:	°C	Actual Bearing Temperature		°C	
	RTD	Resistance (Ω)	Calculated Temperature (°C)	RTD	Resistance (Ω)	Calculated Temperature (°C)	
ince							
esistan							
TD R							
<u>بح</u>							
	Test Summary	Test Passed	Test Inconclusiv	e. Further Investigation Requi	red. 🗌 Test	Failed	

Note: Test connection resistance of bolted connections. Report on cable inspection sheet.

s	Returned to Service:	☐ Yes	□ No	Comments:
Final nalysi	Monitoring / Further Inspection Required:	☐ Yes	□ No	
A	Repair / Replacement Required:	☐ Yes	🗌 No	

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

O
Winnipeg

INSPECTION FORM NON-FUSIBLE DISCONNECT SWITCH, 600V

ject	Facility:	Facility:											
Pro	Area :			I	Bid Opportun	ity:							
nnect Ita	Manufacturer:				Model:								
Disco Da	Rated Voltage: V		Current Rating:		A		Interrupting Rating				A		
	Identification Tag In		□ Yes	□ No	Visu	ual Signs	of Overhe	ating:		☐ Yes	□ No		
ning	Cleanliness (As Fou	Good [Accepta	able 🗌 Poor	Sup	oport Insul	ators:	5	Good	Acceptab	le 🗌 Poor		
Clea	Connections:			Accepta	able 🗌 Poor	Blad	de Condit	ion:			I Acceptab	le 🗌 Poor	
ection /	Ground Connection	:	Good] Accepta	ble 🗌 Poor	Veri Ope	ify Blade eration:	Mechanic	al	Good	I 🗌 Acceptab	le 🗌 Poor	
Inspe	Door Mechanical:		Good	Accepta	ble 🗌 Poor	le 🗌 Poor Unit Cleaned:							
Visual	Fit Plumb & Square	:			Yes 🗌 No	Unit	t Lubricate	ed:		🗌 Yes			
-	Cables Supported A	Appropriate	ely:] Yes 🔲 No Other:								
e e		Resi: (/	stance (μΩ) As Left)			Te	est Sumn	nary					
hblade stance	A	Resis (/	stance (μΩ) As Left) B		C	Te	est Sumn] Test Pas] Test Inc	nary ssed onclusive					
Switchblade Resistance	A	Resis (/	stance (μΩ) As Left) B		C	Te	est Sumn] Test Pas] Test Inc Further] Test Fai	nary ssed onclusive Investiga led	tion Requi	red.			
Switchblade Resistance	A Comments:	Resi: (/	stance (μΩ) As Left) B		c	Te	est Sumn] Test Pa:] Test Inc Further] Test Fai	nary ssed onclusive Investiga led	tion Requi	red.			
Switchblade Resistance	A Comments:	Resis (/	stance (μΩ) As Left) B		C		est Sumn] Test Pa:] Test Inc Further] Test Fai	nary ssed onclusive Investiga led	tion Requi	red.			
est Switchblade Resistance	A Comments: Test Preparation:	Resis (/ Source: [Disconnec	stance (μΩ) As Left) B	Cable De Disco	C est. / Load: nnected ected with Lo	ad Is	est Sumn] Test Pa:] Test Inc Further] Test Fai [] Test Fai	hary ssed onclusive Investiga led lote: App rior to lea	tion Requi	red. ty's Repr s connec	esentative is reted during the	equired, test.	
nce Test Switchblade Resistance	A Comments: Test Preparation:	Resis (/ Source: [Disconnec	stance (μΩ) As Left) B	Cable De	C est. / Load: nnected ected with Loa	ad Is	est Sumn] Test Pa:] Test Inc Further] Test Fai [] Test Fai Nolated	hary ssed onclusive Investiga led lote: App rior to lea	tion Requi	red. ty's Repr s connec	esentative is re ted during the Ground all ph	equired, test.	
sistance Test Switchblade Resistance	A Comments: Test Preparation: Test	Resis (/ Source: [Disconnec	stance (μΩ) As Left) B Isolated tt: □ Open	Cable De Disco Conne	C est. / Load: nnected ected with Loa	ad Is	est Sumn] Test Pa:] Test Inc Further] Test Fai United Number Indiation Re	hary ssed onclusive Investiga led lote: App rior to lea sistance	tion Requi roval of Cir ving cable (MΩ) C	red. ty's Repr s connec	esentative is re ted during the Ground all ph under te	equired, test. ases not est!	
on Resistance Test Switchblade Resistance	A Comments: Test Preparation: Test Disconnect Line To (Resis (/ Source: [Disconnec	stance (μΩ) As Left) B Isolated t: □ Open Voltage	Cable De Disco C	C est. / Load: nnected ected with Loa	ad Is	est Sumn] Test Pa:] Test Inc Further] Test Fai I test Fai	hary ssed onclusive Investiga led lote: App rior to lea sistance	tion Requi roval of Cir ving cable (ΜΩ) C	red. ty's Repr s connec	esentative is re ted during the Ground all ph under te -est Summary Test Passed	equired, test. ases not est!	
sulation Resistance Test Switchblade Resistance	A Comments: Test Preparation: Test Disconnect Line To C	Resis (/ Source: [Disconnec GND GND	stance (μΩ) As Left) B Isolated t: □ Open Voltage	Cable De Disco Conne C	C est. / Load: nnected ected with Loa	ad Is	est Sumn] Test Pa:] Test Inc Further] Test Fai I tes	hary ssed onclusive Investiga led lote: App rior to lea sistance	tion Requi	red. ty's Repr s connec	esentative is re ted during the Ground all ph under te -est Summary Test Passed Test Inconcl Further Invo	equired, test. ases not est! d usive estigation	
Insulation Resistance Test Resistance	A Comments: Test Preparation: Test Disconnect Line To C Disconnect Load To C Disconnect Line to L	Resis (/ Source: [Disconnec GND GND _oad	stance (μΩ) As Left) B Isolated tt: □ Open Voltage 1000 VD 1000 VD	Cable De Disco Conne C	C est. / Load: nnected ected with Load A	ad Is	est Sumn] Test Pa:] Test Inc Further] Test Fai Note: Test Fai Ilation Re	hary ssed onclusive Investiga led lote: App rior to lea sistance	tion Requi	red. ty's Repr s connec	esentative is re ted during the Ground all ph under te Test Summary Test Passed Test Inconcl Further Invo Required. Test Failed	equired, test. ases not est! d usive estigation	
Insulation Resistance Test Switchblade Resistance	A Comments: Test Preparation: Test Disconnect Line To C Disconnect Load To C Disconnect Line to L Comments:	Resis (/ Source: [Disconnec GND GND _oad	stance (μΩ) As Left) B] Isolated tt:] Open Voltage 1000 VD 1000 VD	Cable De Disco Conne C	C est. / Load: nnected ected with Load A	ad Is	est Sumn] Test Pa:] Test Inc Further] Test Fai Notest Fai Ilation Re Ilati	hary ssed onclusive Investiga led lote: App rior to lea sistance	tion Requi	red. ty's Repr s connec	esentative is re ted during the Ground all ph under te Fest Summary Test Passec Test Inconcl Further Invo Required. Test Failed	equired, test. ases not est! d usive estigation	

INSPECTION FORM NON-FUSIBLE DISCONNECT SWITCH, 600V

ID

<u>.s</u>	Returned to Service:	☐ Yes	🗌 No	Comments:
Final nalys	Monitoring / Further Inspection Required:	☐ Yes	🗌 No	
Ā	Repair / Replacement Required:	☐ Yes	🗌 No	

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

	Winnipeg INS					PEC	СТІС	ON FOR	RM_				Page 1 of 2				
	Winni	peg			PA	NELB		D, L		OLT	AGE			ID:			
ject	Faci	lity:					I	Proje	ct Name:								
Pro	Area	ι:					I	Bid Opportunity:									
	Loca	ation:						Fed From:						No. of Circuits:			
	Man	ufacture	r:					Model: Ser					Serial	No:			
Data	Rate	d Voltad	ne:	V	Currer	nt Rating:				A		Withstar	nd Rating:	-	Α		
oard		ingle Ph	ase		nase, 3 W	/ire		Phas	e. 4 Wire	•	Neut	tral Bonded	to Ground	4	□ Yes		
anelb																	
ě.		lain Bre	aker:	Rating:	А	Manuf	actur	er:			N	Model:			Inst. S	Settina:	
	Com	plete se	parate	inspectio	n form (F-	-BKR-MC	C-LV)	for m	ain breal	ker if	>= 25	0A, or has	ong, shori	t, or g	round fau	ult settings.	
	1			-	,		,						= .	5			
_	Iden	tification	Tag In:	stalled:] Yes	s [□ No	Visua	al Sigr	ns of Overh	eating:			☐ Yes	□ No
tion /	Visu	al signs	of Mois	ture:		Γ] Yes	s [□ No	Visua	al Sigr	ns of Coron	a:			☐ Yes	□ No
spec	Fuse	e/Breake	er Sizes	Match D	rawings:	[] Yes	s [☐ No	Cabl	es Sup	pported App	propriately	:		🗌 Yes	🗌 No
ual In Clea	Clea	Cleanliness (As Found): Good Acceptable Poor Connections: Good Acceptable Poor															
Visi	Door Mechanical: Good Acceptable Poor Ground							nd Connection: Good Acceptable Poor									
	Exer	cise All	Circuit I	Breakers:		[] Yes	s [□ No	Com	ments	:					
		Source:								Fauinmo	eest Temperatura. °C						
	Test Prepa	ration:		Disconne Connecte	cted d with	Note: / require	Appro d, pric	oval of City's Representative is Equ ior to leaving cables connected				Tempera	-quipment Temperature: °C				
e Tes				Source	solated	uuning		lest.				Factor to 20°C:					
tance	Tes	st			Ins Groun	ulation F d all Pha	Resist ses r	tance not u	e (MΩ) nder test	test!							
Resis	Volta	ige	A-GI	ND B-GND				C-GND			N-GND		Test Passed				
tion F		I	RDG	20°C	RDG	20°C	R	G	20°C	RI	DG	20°C	Furth	er In ailed	vestigatio I	n Required.	
sula																	
ı	Test V	oltages:	120)-300∨ →	500 VD0	C Test Vo	ltage			301-6	600V -	→ 1000 VD	C Test Vo	ltage			
	Comm	ients:															
						Bre	akers	s < 10	00A and	With	out In	st. Setting					
	List by	model (of break	ker. Multi	ple break	ers of va	rying	ampa	acity may	' be li	sted p	er line.					
akers	Туре	Ма	nufacti	urer	Мос	lel Series	S	In R	terruptin ating (kA	ng A)	Po	ositions/Ci	rcuits	Not	es		
Brea	А																
eedei	В																
ad/F																	
Ĕ	E																
	F																

INSPECTION FORM PANELBOARD, LOW VOLTAGE

Page 2 of 2

ID:

				Breaker	s >= 100A	or with In	st. Setting	l				
	List each bre fault settings	.ist each breaker individually. Complete separate inspection form (F-BKR-MC-LV) for breaker if \geq 250A, or has long, short, or ground a fault settings.										
akers	ID	Pos.	Manufacturer	Model	Trip Rating (A)	Int. Rating (kA)	Inst. Setting	Separate Form	Notes			
· Bre												
eeder												
ad/F												
Ĕ												
	Returned to	Service			No Cor	nments:						
- is		OCIVICC.										
Fina	Monitoring /	Inspecti	on Required:	🗌 Yes 🗌	No							

Ā	Repair / Repla	acement Required:	☐ Yes	🗌 No		
	Co	mpany	Name		Signature	Date (yyyy/mm/dd)
Perfo	rmed By					
Checl	ked By					

INSPECTION FORM POTENTIAL TRANSFORMER, 600V

ect	Facility:			Project N	lame:									
Proj	Area :					Bid Oppo	ortunit	y:						
ta	PT Location or D	Designatio	n:					Pri. Volta Rating:	ige		Sec. Ratir	ec. Voltage ating:		
T Dat	Manufacturer:		Cat	talogue #	<i>t</i> :		Pri. Fuse Size:			Sec.	Sec. Fuse Size:			
₽.	Size:	V	A	Туре:			Other:							
	Physical Damag						Vorif	Connoo	tiono oro	Corrot				
ы		e.					Grou	Inding and	d Shorting	Correct.	ons Provi	de		
/isual pectio	Visual Signs of Overheating:			й Ц —	res L		Cont	act:						
V Ins	Verify Ground Co	onnection	1:	□ Y	res [] No	Verif	y Withdra	wal Mech	anism Fur	nction:		☐ Yes	🗌 No
	Fuse Sizes Mate	res [] No	Com	ments:									
Test	Test Preparation:	ce Isolat	ted			Note: A prior to	Approval of leaving ca	f City's Re bles conr	epreser nected	ntative is reduring the to	quired, est.			
ance	Test		Voltage			Insulation Resist		Resistan	tance (MΩ)		Temperature: °C			
esist					PT 1	1		PT 2	F	РТ 3	Test Su	mmary	/	
ion R	Primary To GND		1000 \	/							Test	Inconc	u lusive Astigation F	Pequired
sulat	Secondary To GND		500 V								Test	Failed	esugation	tequireu.
5	Primary To Seco	ondary 1000		/										
	Comments:													
Tests	Sou Test [][Preparation: [][irce: Disconnec Connected Isolated	cted d with Sou	rce										
larity						Ph	ase					Test	Summary	
d Po			PT 1			P	Т 2			PT 3			est Passed	usive
tio an	Calculated Ratio											F	Further Inve Required.	estigation
s Rat	Measured Ratio											ТП	est Failed	
Turn	Polarity Correct Yes No					Yes	[] No	□ Ye	es	🗌 No			
(Comments:													
s	PT Returned to S	Service:		∏ Y€	es [] No	Com	ments:						
Final	Monitoring / Furt Required:	her Inspe	ction	∏ Ye	es [] No								
٩	Repair / Replace	ement Red	quired:	∏ Y€	es [] No								
	Comp	any		Name				Sign	ature			Da	ate (yyyy/mi	m/dd)

INSPECTION FORM POTENTIAL TRANSFORMER, 600V

Page 2 of 2

ID:

Performed By		
Checked By		

	٢			INSPE		ORM			Page 1 of 2		
	Winnipeg			SWITC	CHGEAR, 0	600V			ID:		
ect	Facility:				Project Name	e:					
Proj	Area :				Bid Opportun	Bid Opportunity:					
ngear ta	Location:				No. of Cells	:					
witch Dat	Manufacturer:				Type:			Serial #:			
S	Rated Volt	age: V	Current R	lating:		A	Interrupting	g Rating:	A		
	Identification	on Tag Installed:		☐ Yes	□ No	Visual Sigr	ns of Overhea	ting:] Yes	□ No
	Visual sigr	s of Moisture:		🗌 Yes	🗌 No	Visual Sigr	ns of Corona:		Ľ] Yes	□ No
	Fuse/Breaker Sizes Match Drawings:				🗌 No	PT and CT	ratios match	drawings:] Yes	□ No
aning	Elevation Drawings Correct:				□ No Cables Supported Appropriately: □ Y] Yes	□ No		
/ Cle	Cleanlines	Cleanliness (As Found): Good Accep				Insulators	Condition:		Good 🗌 Ace	ceptabl	e 🗌 Poor
ection	Connectio	าร:	Good	Accept	able 🗌 Poor	Electro/Me Interlock S	chanical ystem:	C	Good 🗌 Acc	eptable	e 🗌 Poor
Inspe	Ground Co	onnection:	Good	Accepta	able 🗌 Poor	Vents/Filte	rs:	C	Good 🗌 Acc	eptable	e 🗌 Poor
isual	Doors Med	hanical:	Good	Accepta	able 🗌 Poor	Exercise A	ctive Compon	ents:] Yes	🗌 No
>	Cell Fit and	d Alignment:	Good	Accepta	able 🗌 Poor						
	Required (Met:	Clearances are	Good	Accepta	able 🗌 Poor						
	Indicating	mechanisms:	Good		able 🗌 Poor	Unit Clean	ed: 🗌 Yes	B Photog	graph Taken:		Yes
	Test Prepar	Source: Discor Conne Source	nnected ected with ce Isolated	Cable De	est. / Load: nnected ected with Loa	ad Isolated	Note: Appro prior to leavi	val of City	's Representativ	ve is rea	quired, est.
e Test	Test		Insulation Phas	Resistanc se To GNE	e (MΩ)		Temperature	: •	с		
stance	Voltage	А		В		С					
Resi	1000 V						Test Summa	ary			
lation	Test		nsulation Phase	Resistanc e To Phas	e (MΩ) e		Test Pase	sed nclusive nvestigatio	on Required		
Insu	Voltage	A – B		B – C	A	- C	Test Faile	ed			

1000 V Comments:

INSPECTION FORM SWITCHGEAR, 600V

Page 2 of 2

ID:

ance	Point A	Point B	Resistance (μΩ)	Test Summary □ Test Passed □ Test Inconclusive
esist	Switchgear GND Bus	Facility Ground Electrode		Further Investigation Required.
Ind R	Switchgear GND Bus	Switchgear Enclosure		
Grou	Switchgear GND Bus	System Neutral		

Comments:

	То	From		Resistance (μΩ)		Test Summary
			А	В	С	Test Passed Test Inconclusive
						Further Investigation Required.
ance						
esista						
on Re						
necti						
Con						-
						-
	Comments:			1	1	1

is	Returned to Service:	☐ Yes	🗌 No	Comments:
Final	Monitoring / Inspection Required:	🗌 Yes	🗌 No	
A	Repair / Replacement Required:	☐ Yes	🗌 No	

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

)©			INS	PECTION I	FORM			Page	1 of 4	
V	Winnipèg SWITCHBOAR					D, 600V			ID:		
ject	Facility:				Project Name):					
Pro	Area :	Area :				Bid Opportunity:					
	Location:	Location:							# of Cel	ls:	
Data	Manufacturer:				Model:			Serial #:			
WB D	Rated Voltage: V Main Bus Rating:				A	Main Bus	Neutral Rating	g:	А		
0)	Bus Conducto	r: 🗌 Copper 🛛	Aluminum	Cu	rrent Withstan	d Rating:	А				
	Identification 7	Fag Installed:		☐ Yes	□ No	Visual Signs	of Overhea	ting:		☐ Yes	□ No
	Visual Signs c	of Moisture:		🗌 Yes	□ No	Visual Signs	of Corona:			☐ Yes	□ No
	Fuse/Breaker Sizes Match Drawings:				🗌 No	PT and CT ra	atios match	drawings:		🗌 Yes	□ No
бu	Elevation Drawings Correct:			🗌 Yes	No Cables Supported Appropriately:				☐ Yes	□ No	
leani	Cleanliness (A	As Found):	Good G] Accept	able 🗌 Poor	Insulators Co	ndition:		Good 🗌	Acceptable	e 🗌 Poor
ion / C	Connections:		Good G] Accept	able 🗌 Poor	Electro/Mech Interlock Sys	anical tem:		Good 🗌 /	Acceptable	e 🗌 Poor
spect	Ground Conne	ection:	Good	Accepta	able 🗌 Poor	Vents/Filters:			Good 🗌 /	Acceptable	e 🗌 Poor
al In:	Doors Mechar	nical:	Good	Accepta	able 🗌 Poor	Exercise Acti	ve Compor	ents:		🗌 Yes	□ No
Visu	Cell Fit and Al	lignment:	Good	Accepta	able 🗌 Poor						
	Required Clea Met:	equired Clearances are Good Accep			able 🗌 Poor						
	Indicating med	chanisms:	Good	Accepta	able 🗌 Poor	Unit Cleaned	: 🗌 Ye	s Photograp	oh Taken:	<u>ا</u> ا	′es
	Comments:										

	Туре:	Inspection	Inspection								
Ŀ	🗌 Main Breaker	Complete appropriate	breaker inspection forr	n.							
Pow	Disconnect	Complete appropriate	Complete appropriate disconnect inspection form.								
ming		Visual Inspection:									
Inco	☐ Main Lugs	Connections Torqued:	Yes								
		Connection		В	С	N					
		Resistance ($\mu\Omega$) As Left									

INSPECTION FORM SWITCHBOARD, 600V

	Test Source: Disconn Preparation: Connect Isolate		ected ed with Source	Cable Dest. / Load:		Note: Approval of City's Representative is required, prior to leaving cables connected during the test.	
est	Temperature: °C						
ssistance T work)	Test Voltage (dc)	Insu	Ilation Resistar Phase To Pha	nce (MΩ) ase	Test Summary		
		A - B	B - C	C - A	Test Pass	ed	
n Re: Busv	1000 V				Further In	clusive vestigation Required.	
sulatio	Test Voltage	Insu	Ilation Resistar Phase To GN	nce (MΩ) ID		3	
lns	Voltage	A - GND	B - GND	C - GND			
	1000 V						
	Comments	:		-	•		

ance Test)	Point A	Point B	Resistance (μΩ)	Test Summary □ Test Passed □ Test Inconclusive
esista	SWB GND Bus	Facility Ground Electrode		Further Investigation Required.
ind R (Di	SWB GND Bus	SWB Enclosure		
Grou	SWB GND Bus	System Neutral		
	Comments:			

	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.						
ers	4.	Inspect and test any electro/mechanical interlocks.						
reak	5.	Confirm disconnect operation.						
ler B	6.	Check door mechanical condition.						
Feed	7.	Exercise circuit breaker.						
	8.	Confirm cables are supported and routed appropriately.						
	9.	Visually assess the general condition of the installation.						
	Note: Comp Short	lete an appropriate Breaker Inspection Form for all breakers with separate adjustable Long and trip settings, Ground trip settings, or > 250A frame size.						
		Continued on next page						

INSPECTION FORM SWITCHBOARD, 600V

Page 3 of 4

	Continued from previous page										
	ID	Loc./ Cell	Frame Rating (A)	Trip Rating (A)	Manuf.	Model	Trip Unit Type	Inst Setting	Visual Inspection	Cleaned	Comments
S											
eake											
er Br											
-eed											
	General Comments:										



INSPECTION FORM SWITCHBOARD, 600V

<u>s</u>	Returned to Service:	🗌 Yes	🗌 No	Comments:
Final Analys	Monitoring / Inspection Required:	🗌 Yes	🗌 No	
	Repair / Replacement Required:	☐ Yes	□ No	

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

		INSPECTION FO							DRM				Page	Page 1 of 2				
V						/IER,	DRY TYPE, LOW VOLTAGE							ID:	ID:			
ject	Facility:						Project Name:											
Pro	Area :						Bid Opportunity:											
														Second	arv			
	KVA:			Prim	nar	y Voltag	e:			V	Voltage:	,	V					
Data	Manufacturer:						Тур	e:						Serial N	umber:			
rmer	Primary Winding:	: D A Secondary : D Y Winding:					r In	npe	edance:			%Z	Tem	p Rise:	q	C ł	K Factor:	
ansfo	Winding Mater	aterial: Copper Alumir				m												
Ē	No Load Tap	Тар		1	2		3		4		5					Тар	p Setting	
	Changer	Voltage														(AS	s Found):	
	Transformer Identification Tag Installed:								No	Visu	al Sigr	ns of C	Dverh	eating:			□ Yes □	No
ning	Bushings: Good Acce						otable] Poor	Sup	oort In	ort Insulators: Good Acceptable Poor					Poor	
/ Clea	Paint:	Paint: Good Acce					otable	Poor No Load Tap N/A Good Acceptable Poor Changer:										
Inspection	Fans: N/A Good Acce						otable	table						Poor				
	Temp. Gauge:	mp. Gauge: 🛛 N/A 🗌 Good 🗌 Acce					otable	table Poor Connections: Good Acceptable Po					Poor					
Visual	Ground Connection:	und Good A					ceptable Poor Neutral Bonded to Ground:					N/A	A 🗌 Yes 🔲	No				
	Cleanliness (As Found): Good					Acceptable Poor Unit Cleaned: Yes Photograp				otograph Ta	aken	n: 🗌 Yes						
	Operational Conditions / Notes:																	
ion	Primary Voltag	ge:	H1:H	2:	V	H2:	H2:H3: V H3:H1: V Meas				ured at:							
spect	Secondary Vo	ltage:	X1:	_:	V	X2:_	:			v x	✓ X3::		V Measured at:					
nal In	Current:		Ph A	:	A	Ph I	B:			A P	n C:			A Meas	ured at:			
Operatio	Tap Setting:	Appears Satisfactory Further Monitoring Recon						mmended. Tap Setting (As Left):										
	Thermographi Performed:	c Inspect	tion	☐ Yes	s A	Attach separa	repoi ately	rt	Results	s: [] No Is] Potei	sues ntial Is	Found sue l	d dentified.				
۵											R	esista	ance	o (MO) Dielectric				
stanc		Windi	ng		1	Test Voltage (Vdc)		je	30 sec			60 sec.			Absorption Ra 60s/30s	atio		
n Resi	Primary to Gr	ound, Se	econd	lary Guar	ded											+		
llatio	Secondary to	Ground,	Prim	ary Guar	ded													
Insu	Primary to Secondary, Ground Guarded				ded											+		

INSPECTION FORM TRANSFORMER, DRY TYPE, LOW VOLTAGE

ID:

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				