	<u> </u>						CTION FO				Pa	ige	1 of 2		
· ·	Winnipèg		MOLDED CASE CIRCUIT BREAKER, < 1000V												
Project	Facility:				P	roject	Name:								
Pro	Area:				Ві	id Opp	portunity:								
	Location:					Pane	elboard/MCC:				С	ell #	<u> </u>		
Data	Manufactu	rer:				Туре	e:			Serial #:					
Breaker Data	Rated Volt		V	Fran	ne Size:	- 7	A			Trip Unit	:				
Bre	Interrupting			kA	(Comm	nents:			<u>'</u>					
	Breaker Id	entification	Tag In:		☐ Ye		☐ No	Visual Signs						Yes	No
tion /	Cleanlines	s (As Foun	d):	☐ Go	ood 🗌 Ad	ccepta	able Poor				ately:			Yes 🗆 N	No
Visual Inspection / Cleaning	Connections: Good Acceptable Poor Electro/Mechanical N/A Good Acceptable Poor Interlock:														
ual In Clea	Ground Connection: Good Acceptable Poor Exercise Circuit Breaker: Yes														
Visi	Door Mechanical: Good Acceptable Poor Other:														
	Comments	::													
	Trip Unit Rating: A Trip Unit Type: None Thermal Magnetic Electronic LI LSI LSIG														
"															
tting		ong Time	Leit)	□ Eivo	d □ Adj.		Range	X	Seth	A =	Α		sec	□ On □	1 Off
er Se		nort Time			d \square Adj.			X		A =	A			□ On □	
Breaker Settings		antaneous			d \square Adj.					A =	A				J OII
		ound Fault			d \square Adj.	- 				A = A N/A A sec				□ On □	l Off
	Perform in	sulation res						A, or as specif		اد ماما					
Test	Temperatu	ıre:	°C —	ource:		onnec		nnected (Sou					required, pr nected durin		ng
tance	Test							on Resistan							
esist	Voltage (VDC)	Phase	To GN	ID (Brea	ker Close	d)	Phase To	Phase (Brea	ker Cl	osed)	Lin	e to	Load (Brea	ker Open))
on R	(VDC)	Α		В	С		A – B	B – C	Α	C	Α		В	С	
Insulation Resistance	T			-1.5		T		To continue of					1 = =		
lus	Test Sumi		<u> </u>	st Passe	d L	l est Ir	nconclusive. I	Further Invest	igation	Required	d.	L	Test Failed	<u> </u>	
	Comments	·-													
Φ	Perform co	ontact meas	sureme	nts for br	eakers >=	= 250A	l, or as speci								
Contact Resistance	Res	sistance (µ	ιΩ)		Α	\perp	В	С		Test Su ☐ Test	ummary Passed				
Cor Resis		(1	•								Inconcl		_		
	Comments												o jation Requi	red.	

@	
Winnipeg	

Checked By

INSPECTION FORM MOLDED CASE CIRCUIT BREAKER, < 1000V

Page	2 of 2	
ID:		

Perfo	rmed By						
		Company	Name			Signature	Date (yyyy/mm/dd)
◀	Repair / R	eplacement Required:	☐ Yes	□ No			
Final nalys	Monitoring	g / Further Inspection Requir	ed: Yes	□No			
al rsis	Returned	to Service:	☐ Yes	□No	Comme	nts:	

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					ION FO		10			Page	e 1	1 of 1	
	T -	EMERGE				iG			ID:					
Project	Facility:				Project Name:									
Ą	Area :				Bid Opportunity:									
	Location:				ı	Fed From:						Circuit #:		
, Unit	Manufact	urer:			Model: Sei					Serial No):			
Battery Unit Data	Input Voltage: V AC Input Current:					A Output Voltage:			V DC	Wa	attage:	W		
	Qty of Int	ernal	Lamps:	Internal Lamp Wa	atta	ge:	W		Type of I	nternal	Lamps:			
o o	Quantity:			Manufacturer:					Model:					
Remote Fixtures	Input Vol	tage:	V DC	Input Current:		Α		Qty of I	Lamps per	r Fixture	e:			
ΑŒ	Lamp Wa	attage	: W	Type of Lamps:				Wire Si	ize:		AWO	AWG		
	Identification Tag Installed:													
_ \ _ u	D Viewel													
Visual Inspection /	Visual		of Moisture:	Ye		□ No		nnection					ptable Poo	
\ Ins			(As Found):	Good	abie	e ∐ Poor	Gro	ouna Cor	nnection:		000 L A	cce	ptable Poo	OF .
	Comm	ents:												
	Equipment	Tem	perature:	°C						Test S	Summary	y		
Battery Testing	Test Resu	lts										t Passed		
ry Te	Stated Des	ign T	ime (From Drawing	s): M	in					Fu	st Inconclusive rther Investigation Required. st Failed			d.
Satte		-	s Turn Off:	M	in						St r alleu			
	Comments	:												
	Returned to Service: Yes No Comments:													
Final Analysis	Wonitoring / Inspection Required:													
Fir	Monitoring / Inspection Required: Yes Repair / Replacement Required: Yes					□ No								
	Repair / R	eplac	ement Required:	☐ Yes [<u> </u>	No								
		Con	ıpany	Name				Signat	ure		Date (yyyy/mm/dd)			
Perfo	rmed By													
Checl	ked 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.



INSTRUMENTATION SWITCH CHECKLIST

Page 1 of 1

			P	Project						
Facility:			Project Name:							
Area:			Bid Opportunity:							
			lne	4						
		·		strument						
Tag:		Descripti	ion:			1				
Manufacturer:		Model:				Serial Numb	er:			
			Inspect	ion Checkli	ist					
No. Item to b	pe Inspected						Comm	nents		Pass (P/F)
1. Instrumer	nt type and class per P&ID a	and specif	fication							
2. Instrumer	nt tag(s) installed and correc	ot								
3. Installatio	on of sensor complete and c	orrect								
4. Block and	d drain valves									
5. Pneumati	ic / hydraulic tubing leak tes	ted								
6. Heat traci	sing / insulation / instrument	housing								
7. Wiring co	orrect									
8. Drawings	s marked up as-built									
9. HMI Grap	phic symbol and tag correct									
			State	Checklist						
Ciris State F						22454		Ala		Pass
State State D	Desc ————————————————————————————————————		PLC Input	Local HM	" -	SCADA		Ala		(P/F)
0								On Off	—— □ N/A	
1								On Off	f 	
	_		Ca ^l	libration						
Transition	Setpoint Trip Point (incl. units)		Actual Trip Po (incl. units)			Setpoint Time Delay			Actual me Delay	Pass (P/F)
0 → 1										
1 → 0										
Comments:										
	Company	Name			Signat	ure			Date (yyyy/mm/d	ld)
Tested By										
Witnessed By										



10. HMI Graphic symbol, tag and units correct

INSTRUMENTATION TRANSMITTER LOOP CHECKLIST

Page 1 of 2

			Project								
Faci	lity:		Project Name:								
Area			Bid Opportunity:								
			Instrument (Sensor /	'Element)						
Tag:		Descrip	otion:								
Man	ufacturer:	Model:			Serial Number:						
			Transmitter	ſ							
Tag:		Descrip	otion:								
Manufacturer: Model:					Serial Number:						
Units	s:	Design Range:									
Outp	out 4-20 mA Modb		Other:								
			Inspection Chec	cklist							
No.	Item to be Inspected				Comments		iss /F)				
1.	Instrument type and class per P&ID	and spec	cification								
2.	Instrument tag(s) installed and corre	ct									
3.	Installation of sensor complete and o	orrect									
4.	Block and drain valves										
5.	Pneumatic / hydraulic tubing leak tes	ted									
6.	Heat tracing / insulation / instrument	housing									
7.	Impulse lines pressure tested										
8.	Wiring correct										
9.	Drawings marked up as-built										



INSTRUMENTATION TRANSMITTER LOOP CHECKLIST

Page 2 of 2

		Signal Validation			
Input Signal	Location	Design Value	Actual Value	Error (%)	Pass (P/F)
	Transmitter Display				
	Transmitter Output				
	Process Display				
	PLC				
Ī	НМІ				
	Transmitter Display				
	Transmitter Output				
	Process Display				
Ī	PLC				
	НМІ				
	Transmitter Display				
Ī	Transmitter Output				
	Process Display				
Ī	PLC				
Ī	НМІ				

Notes:	
1.	
2.	

Comments:

Witnessed By

- Attach factory calbration forms for all instruments where provided and/or specified. Provide instrument parameters for each parameter changed from the factory default.

		N	0:	Data (annulas as (dd))
	Company	Name	Signature	Date (yyyy/mm/dd)
Tested By				

**	<u> </u>			INS	PECTION	• • • • • • • • • • • • • • • • • • • •				Page	1 of 6	
V	Vinnipèg				MCC, 600	V				ID:		
Project	Facility:				Project Name:							
Pro	Area :				Bid Opportunity:							
Œ	Location:									# of Cells:		
MCC Data	Manufacturer:		Т		Model:		Γ	Serial	#:			
MC	Rated Voltage: V Main Bus Rating:					Α	Main Bu	s Neutral	Rating:		Α	
	Bus Conductor	r: Copper C	Aluminum	Cu	irrent Withstan	d Rating:	Α					
	Identification T	ag Installed:		☐ Yes	□ No	Visual Signs	of Overh	eating:			☐ Yes	□No
	Visual Signs of			 ☐ Yes	 □ No	Visual Signs					 ☐ Yes	
	_	Sizes Match Dra	☐ Yes		_	PT and CT ratios match drawings:					□ No	
5	Elevation Draw	vings Correct:	☐ Yes	 □ No	Cables Supp	orted Apr	oropriatel			☐ Yes	No	
anin	Cleanliness (As Found): Good Accep				table Poor			· ·	-	ood 🗆	Acceptable	e 🗌 Poor
Visual Inspection / Cleaning	Connections:	, , , , , , , , , , , , , , , , , , ,			table Poor	Electro/Mech Interlock Sys			☐ Go	ood 🔲	Acceptable	Poor
pecti	Ground Conne	ection:	☐ Good ☐	Accept	able Poor				☐ Go	ood 🔲	Acceptable	e 🗌 Poor
al Ins	Doors Mechan	ical:	☐ Good ☐	Accept	table Poor Exercise Active Components:						☐ Yes	□No
Visua	Cell Fit and Ali	gnment:	☐ Good ☐	Accept	able Poor							
	Required Clea Met:	rances are	☐ Good ☐	Accept	able 🗌 Poor							
	Indicating mec	hanisms:	☐ Good ☐	Accept	able ☐ Poor	Unit Cleaned	l: 🗆 Y	es Pho	otograph	n Taken	: DY	⁄es
	Comments:			<u> </u>								
	I											
	Туре:	Inspectio	on									
ī	☐ Main Break	er Complete	appropriate	breaker	inspection forr	n.						
Powe	Disconnect Complete appropriate disconnect Visual Inspection: G Connections Torqued:					form.						
ming		Visual Ins	pection:	☐ G	ood 🗌 Accep	table Poor						
Incol	☐ Main Lugs	Connection	ons Torqued:	:	es							
	Ш iviaiii Lugs	Connection			Α	В			С		N	
		Resistand As Left	e (µ12)									



Page	2 of 6
ID:	

	Test Preparatio	Source: Disconnecte Connecte Isolated	cted d with Source	Cable Dest. / Lo. Disconnected Connected w			proval of City's Representative is prior to leaving cables connected during				
est	Temperatu	ıre: °	С								
ance T	Test Voltage	Insu	lation Resistand Phase To Phas		Test Summar	Test Summary					
sista	(dc)	A - B	B - C	C - A	☐ Test Passe						
n Resistar (Buswork)	1000 V				☐ Test Incond Further Inv	clusive /estigation F	Required.				
Insulation Resistance Test (Buswork)	Test	Insu	lation Resistanc Phase To GND		☐ Test Failed						
<u>=</u>	Voltage	A - GND	B - GND	C - GND							
	1000 V										
	Comments	L S:									
ance Test)		Point A	Poin	nt B	Resistand (μΩ)	e	Test Summary ☐ Test Passed ☐ Test Inconclusive				
sista	МС	C GND Bus	Facility Groun	nd Electrode			Further Investigation Required.				
Ground Resistance Checks (Ductor Test)	МС	C GND Bus	MCC En	closure			restrailed				
Grou	МС	C GND Bus	System	Neutral							
	Comments	3:									
	Visual Insp	ect Requirements:	G=Good,	A=Acceptable, F	P=Poor Comments	are required	d for all items identified in Poor condition.				
			1. Confirm id	dentification tag	/ lamacoid is installe	ed.					
		:		visual signs of ov							
		;	3. Inspect a	nd torque conne	ctions.						
ers		4	4. Inspect ar	nd test any elect	ro/mechanical interlo	ocks.					
Feeder Breakers		!	5. Confirm d	disconnect opera	tion.						
ler B		(6. Check do	or mechanical c	ondition.						
Feec		-	7. Exercise	circuit breaker.							
		8	8. Confirm c	ables are suppo	rted and routed app	ropriately.					
			9. Visually a	ssess the gener	al condition of the in	stallation.					
	Note:				Inspection Form for ttings, or > 250A fra		s with separate adjustable Long and				

Continued on next page



Page	3 of 6
ID:	

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



Page	4 of 6	
ID:		

	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.
S.	1.	Confirm identification tag / lamacoid is installed.
acto	2.	Look for visual signs of overheating.
Cont	3.	Inspect and torque connections.
Starters / Contactors	4.	Inspect and test any electro/mechanical interlocks.
tarte	5.	Confirm disconnect operation.
tor S	6.	Check door mechanical condition.
Motor	7.	Exercise circuit breaker.
	8.	Confirm cables are supported and routed appropriately.
	9.	Visually assess the general condition of the installation.
	Note: Comp Starte	elete a Motor Starter Inspection Form for all Motor Starters Size 4 or larger, with VFDs, or with Soft ers.

				Overcu	ırrent Pro	tection	Contactor		Overload			
	ID	Loc./ Cell	Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model	Visual Insp.	Cleaned	Comments
Motor Starters / Contactors												
ntac												
3												
rters												
Sta												
lotor												
2												
	General Comments:											



Page	5 of 6
ID:	

				Overcu	rrent Pro	tection	Contactor		Overload			
	ID	Loc./ Cell	Type	Rating (A)	Manuf.	Model	Size / Rating	Type	Model	Visual Insp.	Cleaned	Comments
sıs												
Motor Starters												
tor S												
Mo												
	General Comments:											

	<u> </u>		INSPEC	ION FO	RM	Page 6 of 6	
·	Winnipeg		MCC	c, 600V		ID:	
<u>.s</u>	Returned t	o Service:	☐ Yes ☐ No	Comme	nts:		
Final Analysis	Monitoring	/ Inspection Required:	☐ Yes ☐ No				
₹		eplacement Required:	☐ Yes ☐ No				
		Company	Name		Signature	Date (yyyy/mm/dd)	
Perf	ormed By						
Chec	ked 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.



MODULATING CONTROL DEVICE CHECKLIST

Page 1 of 1

L					<u> </u>		
			Project				
Facility:		F	Project Name:				
Area :		E	Bid Opportunity:				
			Control Devi	ce			
Tag:		Description	on:		1		
Manufacturer:		Model:			Serial Number:		
			Inspection Ched	klist			
No. Item to be	Inspected				Comments	3	Pass (P/F)
Actuator ty	pe and class per P&ID an	nd specifica	ation				
2. Instrument	tag(s) installed and corre	ct					
3. Installation	of actuator complete and	correct					
4. Wiring cor	rect						
5. Drawings i	marked up as-built						
6. HMI graph	ic symbol, tag and units c	orrect					
			Control Valida	tion			
Control Output	Location		Design Valu	e	Actual Value	Error (%)	Pass (P/F)
	PLC Output	t					(1717)
0%	Field Device	е					
500/	PLC Output	t					
50%	Field Device	9					
4000/	PLC Output	t					
100%	Field Device	9					
Notes: 1. A 2. P Comments:	ttach factory calbration for rovide instrument parame	ms for all ii ters for eac	nstruments where provi	ded and/o	or specified. actory default.		
	Company	Name		Signa	turo	Date (yyyy/mm	v/dd)
Tested By	Сопірапу	ivallie		Signa	uic	Date (yyyy/IIIII	i,uu)
Witnessed By							

7.	<u> </u>						PECT								Page 1 of	2	
V	Vinnipèg		МОТ	TAR	ΓER,	, FV	NR, 6	00V				ID:					
Project	Facility:	· · · · · · · · · · · · · · · · · · ·								Project Name:							
Pro	Area :						Bid	Bid Opportunity:									
	Load:	Starter I	tarter Location:							Cell #:							
	Manufacturer: Type:												Serial #:				
	Size: Rated Voltage: V						Current Rating: A						Control Voltage: V			V	
	☐ Fused Disc. Rating: A				A	Fus	se Siz	7 0 .	Α	Fuse	Mfg.						
ià.	Circuit Protection:		eu Dis	О.	ixating.			ı us	36 012			Mod					
r Dat	Frotection.	☐ Brea			Rating:		Α	Ins ³ Set	t. tting:	A Manufacturer: Model:							
Starter Data		□ The	rmal			<u> </u>							ufacturer:				
	Overload Protection:	Overload					ol:										
	Control Power					known											
	Transformer: Size: VA S					Sec. Vo	ec. Voltage: V Primary			y Fus	e:	Α	Secondary	Fuse:	A		
	Current				□в] None	e l	Ratio	:		_	round ault CT:		Present Not Present	Ratio:	
<u> </u>	, ID:					Size:		k	W /		Н	 P	V	oltage:		V	
Motor Data	Full Load Am	ıps:		A S	ervice Fac	tor:		Oth	her:								
	Starter Identi	fication ⁷	Tag In:	stalle	ed:	☐ Ye	es No Visual Signs of Overheating				rheating:			☐ Yes	□No		
ing	Cleanliness (As Foun	nd):		Good [Acce	eptable Poor Support Insulators:					☐ Good ☐ Acceptable ☐ Poor					
Clean	Connections				Good [Acce	ptable	□Р	$\cap \cap r$	Electro Interloc	/Mecha ck:	anical	□N	/A [Good D	Acceptable	Poor
ion /	Ground Conr	nection:			Good [Acce	ptable	□Р	oor	Contac	tor Cor	nditior	1:		Good 🗆	Acceptable	Poor
spect	Door Mechar	nical			☐ Good [Acce	ptable	□Р	oor	Contac	t Alignr	ment:			☐ Good ☐ /	Acceptable	Poor
Visual Inspection / Cleaning	Verify O/L element is correctly sized for the load:						☐ Ye	es 🗌	No	Exercis	se Circu	uit Bre	aker/MCP	/Disc	connect		☐ Yes
Vis	Cables Supported Appropriately:					☐ Ye	s 🗌	No	Unit Cl	eaned:] Yes Pi	hotog	graph Taken:		⁄es	
	Comments:								•				•				
	Test A							В			С		Test Sum	mar	y		
Pole	Contact R	Resistanc	ce (μΩ)									☐ Test Pa				
Contact/Pole Measurements	Disconnect Resis			P										er Inv	estigation R	equired.	
Co	Resistance (μΩ) Fuse Resistance (μΩ)																

Comments:



INSPECTION FORM MOTOR STARTER, FVNR, 600V

Page	2 of 2	
ID:		

Test	Test Prepa	Source: Source: Source: Disolated Contactor: Open Cable Dest. / Load: Note: Approval of City's Representative is required prior to leaving cables connected during the test								
nce T	Test					Insu	lation Resistanc	Ground all phases not		
sista		1000		oltage		Α	В	С	under test!	
n Re	Contacto	r Line To GND	100	00 VDC					Test Summary ☐ Test Passed	
Insulation Resistance	Contacto	r Load To GND	100	00 VDC					Test Inconclusive Further Investigation	
lns	Contacto	or Line to Load	100	00 VDC					Required. Test Failed	
	Comments	s:					•	•		
		d to Service:		☐ Yes	☐ No	Comme	nts:			
Final	Monitorir Required	ng / Further Inspe	ection	☐ Yes	□No					
٩	•	Replacement Re	quired:	☐ Yes	☐ No					
		Company		Name			Signature		Date (yyyy/mm/dd)	
Perfo	rmed By									
Checl	ked By	1								

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.



INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page:	1 of 2		
ID:			

Project	Facility:			Р	Project Name:					
Pro	Area :			В	Bid Opportunit	<i>y</i> :				
	Size:	kW /	HP	Volta	tage: V R.P.M:					
ata	Manufacturer:			Mod		-	Serial Nu	mber:		
Motor Data	Frame Type:		FLA:	<u> </u>	A Service	Factor:	Other:			
M	Cooling:	☐ Air ☐ Fan	# Cooling Fans:		Wii	nding terial:				
<u> </u>	1					toria.				
	Motor Identification Tag Installed: ☐ Yes				☐ No	Visual Signs of Overhe	eating:		Yes No	
guir	Connections:		☐ Good ☐ Ad	cepta	able 🗌 Poor	Air Baffles:		☐ Good ☐ Acc	ceptable Poor	
Clear	Paint:		☐ Good ☐ Ad	cepta	otable Poor Filter Media: N/A Good Acceptable Poor					
Visual Inspection / Cleaning	Cooling Fans:	N/.	'A ☐ Good ☐ Ad	cepta	able Poor	Fan Controls:	□ N/A	Good Acc	ceptable Poor	
pecti	Anchorage/Alignment: Good Acceptable									
al Ins	Ground Connection	n:	☐ Good ☐ Ad	cepta	able 🗌 Poor					
Visu	Mechanical/Electric	Mechanical/Electrical Noise During Operation:				Lubrication Required:		☐ Ye	es 🗌 No	
	Cleanliness (As Found):				able 🗌 Poor	Unit Cleaned: Y	es Photo	ograph Taken:	☐ Yes	
	Test Winding									
			Winding			Resistance (MΩ)		Dielectric	Polarization	
	Stator Winding	Test Voltage (Vdc)	Winding Temperature (°0	2)	30 Sec		min. (a)	Dielectric Absorption Ratio	Polarization Index (a)	
ınce	Stator Winding	Voltage (Vdc)		2)) min. (a)	Absorption		
sistance	Stator Winding	Voltage		C)			min. (a)	Absorption		
on Resistance	Stator Winding	Voltage (Vdc)	Temperature (°C	(c)) min. (a)	Absorption		
ulation Resistance	Stator Winding	Voltage (Vdc)	Temperature (°C	C)) min. (a)	Absorption		
g Insulation Resistance	Stator Winding	Voltage (Vdc) 500	Temperature (°C	C)) min. (a)	Absorption		
inding Insulation Resistance	Stator Winding	Voltage (Vdc)	Temperature (°C	C)) min. (a)	Absorption Ratio - -	Index (a)	
Winding Insulation Resistance	Notes:	Voltage (Vdc) 500 500	40 40 40		30 Sec	1 min. 10		Absorption Ratio	Index (a)	
Winding Insulation Resistance	Notes: (a) Testing to	Voltage (Vdc) 500 500 500 10 minutes	40 40 40 and calculation of	f Polar	30 Sec	1 min. 10	ors > 150 k	Absorption Ratio - - - - W (200 HP)	Index (a)	
Winding Insulation Resistance	Notes:	Voltage (Vdc) 500 500 500 10 minutes	40 40 40 and calculation of	f Polar	30 Sec	1 min. 10	ors > 150 k	Absorption Ratio	Index (a)	
Win	Notes: (a) Testing to	Voltage (Vdc) 500 500 500 10 minutes	40 40 40 and calculation of	f Polar	30 Sec	is only required for mote. Further Investigation	ors > 150 k	Absorption Ratio - - - - W (200 HP)		
Winding Winding Insulation Resistance	Notes: (a) Testing to	Voltage (Vdc) 500 500 500 10 minutes Res	40 40 40 and calculation of	f Polar	30 Sec	1 min. 10	ors > 150 k Required.	Absorption Ratio - - - W (200 HP) Test Fail	Index (a)	



INSPECTION FORM AC MOTOR, LOW VOLTAGE

Page:	2 of 2	
ID:		

	☐ Not Ap	plicable								
tion			Test Vol	tage	Bearing	Re	esistance (MΩ)			
sula		Bearing	(Vdc		Temperature (°C)	1 min.	Coi	Corrected to 40°C		
Bearing Insulation Resistance			500							
Beari R			500							
	Test Sum	mary [Test Pass	sed	☐ Test Inconclusive	e. Further Investigation Red	quired.	Test Failed		
	☐ Not Ap	nliaahla								
		/inding Temperatu	ıro.		°C	Actual Bearing Temperatur	ro.	°C		
	RT	Ι.	re: Resistance (Ω)		Calculated Temperature	RTD	Resistan (Ω)	ce Calculated Temperature		
nce					(°C)		()	(°C)		
RTD Resistance										
TD F										
~										
	Test Sum	mary [Test Pass	sed	☐ Test Inconclusiv	e. Further Investigation Red	quired.	Test Failed		
Note:	Test co	nnection resistant	ce of bolted	connec	ctions. Report on ca	ble inspection sheet.				
ø	Returned	to Service:			Yes 🗌 No	Comments:	Comments:			
Final Analysis	Monitorin Required	g / Further Inspec	tion		Yes					
•	Repair / I	Replacement Req	uired:		Yes					
		Company		Name		Signature		Date (yyyy/mm/dd)		
Perfo	rmed By									
Check	ked 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.



INSPECTION FORM NON-FUSIBLE DISCONNECT SWITCH, 600V

Page	1 of 2	
ID:		

ect	Facility:		Project Name):				
Project	Area:		Bid Opportun	ity:				
Disconnect Data	Manufacturer:		Model:					
Disco Da	Rated Voltage: V	Current Rating	: А		Interrupting Rat	ing:	А	
	Identification Tag Installe	d: 🔲 '	Yes	☐ No Visual Signs of Overheating:			☐ Yes ☐ No	
aning	Cleanliness (As Found):	☐ Good ☐ Ad	cceptable Poor	Support Insul	ators:	☐ Goo	d	
/ Cle	Connections:	cceptable Poor	Blade Conditi	on:	☐ Goo	d		
Visual Inspection / Cleaning	Ground Connection:	☐ Good ☐ Ac	ceptable Poor	Verify Blade N Operation:	Mechanical	☐ Goo	d	
l Insp	Door Mechanical:	Ooor Mechanical: Good Accep			☐ Poor Unit Cleaned: ☐ Yes			
/isua	Fit Plumb & Square:		☐ Yes ☐ No	Unit Lubricate	ed:	☐ Yes		
	Cables Supported Appropriate Cables Supported Cables	oriately:	☐ Yes ☐ No	Other:				
		Resistance (μΩ)		Test Summ	narv			
ade nce	Α Ι	(As Left)		C Test Passed				
Switchblade Resistance		В			Investigation Re	equired.		
S. S.	Comments:			☐ Test Fail	ed			
	Comments.							
est	Test Preparation: Source Disco	ole Dest. / Load: Disconnected Connected with Lo	Note: Approval of City's Representative is required					
ce Test		□'		Insulation Resistance (MΩ)			Ground all phonon and	
nce Te	T = 1	_		Insulation Re	sistance (MΩ)		Ground all phases not	
_ ⊆	Test	Voltage		Insulation Re		С	Ground all phases not under test!	
_ ⊆	Test Disconnect Line To GND	_				-		
⊆		Voltage				-	under test! Fest Summary Test Passed Test Inconclusive Further Investigation	
Insulation Resistance To	Disconnect Line To GND	Voltage				-	under test! Test Summary Test Passed Test Inconclusive	

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Winnipeg
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INSPECTION FORM NON-FUSIBLE DISCONNECT SWITCH, 600V

Page	2 of 2
ID	

sis	Returned	to Service:	☐ Yes	☐ Yes ☐ No		
Final	Monitoring	g / Further Inspection Requir	ed: Yes	☐ Yes ☐ No		
₽Г	Repair / R	eplacement Required:	☐ Yes	□ No		
			-			
		Company	Name	Signature		Date (yyyy/mm/dd)
Perfo	rmed By					
Checked By						

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PLC DISCRETE INPUT CHECKLIST

Page 1 of 2

					Project						
Facilit	y:			Projec	t Name:						
Area :				Bid Op	pportunity:						
					PLC						
PLC II	D:		Description	on:							
Rack:			Slot:								
						PLC	Land				Dana
Pt	Tag	Descr	iption	State	State Desc.	Input	Local HMI	SCADA	Alarm		Pass (P/F)
				0					☐ On ☐ Off	□ N/A	
				1					☐ On ☐ Off		
				0					☐ On ☐ Off	□ N/A	
				1					☐ On ☐ Off	LI N/A	
				0					☐ On ☐ Off	□ N/A	
				1					☐ On ☐ Off	L N/A	
				0					☐ On ☐ Off	□ N/A	
				1					□ On □ Off	— □ N/A	
				0					☐ On ☐ Off	□ N/A	
				1					☐ On ☐ Off	□ N/A	
				0					☐ On ☐ Off	□ N/A	
				1					☐ On ☐ Off	□ N/A	
				0					☐ On ☐ Off		
				1					☐ On ☐ Off	□ N/A	
				0					☐ On ☐ Off		
				1					☐ On ☐ Off	□ N/A	
				0					☐ On ☐ Off		
				1					☐ On ☐ Off	□ N/A	
				0					☐ On ☐ Off	□ N//A	
				1					□ On □ Off	□ N/A	
				0					☐ On ☐ Off	□ N1/A	
				1					☐ On ☐ Off	□ N/A	
				0					□ On □ Off		
				1					☐ On ☐ Off	□ N/A	

Winnipeg	PLC DISCRETE INPUT CHECKLIST					Page 2 of 2		
	0					☐ On ☐ Off		
	1					☐ On ☐ Off	- □ N/A	
	0					☐ On ☐ Off		
	1					☐ On ☐ Off	- 🗌 N/A	
	0					☐ On ☐ Off	- 🗆 N/A	
	1					☐ On ☐ Off	- LIN/A	
	0					☐ On ☐ Off	- 🗆 N/A	
	1					☐ On ☐ Off		
Comments:								

	Company	Name	Signature	Date (yyyy/mm/dd)
Tested By				
Witnessed By				



PLC DISCRETE OUTPUT CHECKLIST

Page 1 of 2

					Project			
Facility:				Project				
Area :				Bid Opp	ortunity:			
					PLC			
PLC ID:			Description	:	123			
Rack:			Slot:	-				
			10.0	1		T	1	1
Pt	Tag	Descr	iption	State	State Desc.	PLC Output	Field Device	Pass (P/F)
				0				
				1				
				0				
				1				
				0				
				1				
				0				
				1				
				0				
				1				
				0				
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				1				
				0				
				1				<u> </u>
				0				
				1				
				0				

Winnipeg	PLC DISCF	RETE OUTPUT CHECKLIST	Page 2	of 2	
		0]		
		1]		
		0]		
		1]		
		0]		
		1]		
		0]		
		1]		
Comments:					

	Company	Name	Signature	Date (yyyy/mm/dd)
Tested By				
Witnessed By				

	Winni	_			D/	_		_	ON FOR		AGE				e 1 of	2	
-											AGL			ID:			
Project	Fac						-		ect Name								
4	Area	a:						Bid (Opportuni	ty:							
	Loca	ation:						Fed	d From:						No. of	Circuits:	
a	Mar	nufacti	urer:					Model: Seria					Serial	No:			
d Dat	Rate	ed Vol	ltage:	V	Curre	nt Rating:	:			Α		Withsta	nd Rating:		į	A	
boar		Single	Phase	☐ 3 Pł	nase, 3 W	Vire	□ 3	Phas	se, 4 Wire	Э	Neuti	ral Bonded	d to Ground	d	☐ Yes	□ No	
Panelboard Data		☐ Main Lugs															
"		☐ Main Breaker: Rating: A Manufacturer: Model:									Inst.	Setting:					
	Con	Complete separate inspection form (F-BKR-MC-LV) for main breaker if >= 250A, or has long, s							long, shor	t, or gi	ound fa	ault settings	S.				
	Ider	ntificat	ion Tag In	stalled:			☐ Ye	S	□ No	Visua	al Sign:	s of Overh	eating:			☐ Yes	☐ No
tion /		ual sig	ns of Mois	sture:			☐ Ye	s	□ No	Visua	al Sign:	s of Coron	ıa:			☐ Yes	☐ No
Visual Inspection /	Fus Clea						☐ Ye	s No Cables Supported Appropriate					propriately	:		☐ Yes	☐ No
lal la	Clea	Cleanliness (As Found):					cepta	able Poor Connections:						Good [] Acceptab	le 🗌 Poor	
Visu	Doo	r Mec	hanical:		Goo	od 🗌 Ac	cepta	able Poor Ground Connection:						Good [] Acceptab	le 🗌 Poor	
	Exe	rcise /	All Circuit	Breakers:] Ye	s									
			Soi	urce:									F in	T			00
	Test Prepa	ration		Disconne Connecte		require	d, pri	or to	of City's F leaving c				Equipme				°C
Test	Торо		·	Source I		during	the te	st.					Tempera Factor to			on	
esistance Test	Te	st				ulation F			e (MΩ) ınder tes	t!			Test Sur	nmary	/		
esist	Volta		A-G	ND	B-G	SND		C-G	SND		N-G	ND	☐ Test F				
ion R			RDG	20°C	RDG	20°C	RE	OG	20°C	R	DG	20°C	Furth		estigati	on Require	d.
Insulation																	
<u>ء</u>	Test \	/oltag	es: 120	0-300V →	500 VD0	C Test Vo	oltage			301-	600V -	→ 1000 VE	OC Test Vo	ltage			
	Comn	nents:															
_	1																
												st. Setting	l				
ဖွ			lel of breal						acity may nterruptii	- 1							
Load/Feeder Breakers	Туре		Manufact	urer	Мос	del Series	s	R	Rating (k	A)	Ро	sitions/Ci	rcuits	Note	s		
r Bre	Α																
ede	В																
Id/Fe	С																
Loa	D																

С D Е F



INSPECTION FORM PANELBOARD, LOW VOLTAGE

Page	2 of 2	
ID:		

				Breaker	s >= 100 <i>F</i>	or with Ir	ıst. Setting	3		
	List each b fault setting		ividually. Comple	te separate inspe	ection form	ı (F-BKR-N	1C-LV) for k	oreaker if >=	250A, or I	has long, short, or ground
Load/Feeder Breakers	ID	Pos.	Manufacturer	Model	Trip Rating (A)	Int. Rating (kA)	Inst. Setting	Separate Form	Notes	
r Bre										
eede										
ad/F										
Ľ										
	T									
<u>.s.</u>	Returned	to Service:		☐ Yes ☐	No Co	mments:				
Final Analysis	Monitoring	g / Inspecti	on Required:	☐ Yes ☐	No					
⋖	Repair / R	eplacemer	nt Required:	☐ Yes ☐	No					
		I		T						
		Company	у	Name		Sig	nature			Date (yyyy/mm/dd)
Performed By										
Chec	ked By									

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	<u> </u>						CTION F					Page 1	of 3	
	Vinnipèg		VAF	RIABLE	FRE	QUE	NCY DE	RIVE,	600V,	<37 kW		ID:		
Project	Facility:					Р	roject Nar	ne:						
Pro	Area:					В	id Opport	unity:						
	<u> </u>				ı									
	Load:	1				VFD L	ocation:				,		Cell #:	
		Manufactu	ırer:			I	Model:				Serial #:			
	VFD:	Size:			Rate Volta			V	Curre Rating		Α	Control Voltage		V
	Circuit	☐ Fused	Disc.	Rating:		Α	Fuse	Size:	Α	Fuse Mfg Model:	ļ.			
	Protection:	□ Danales	_	Datin		^	Inst.		^	Manufact	urer:			
		☐ Breake	? Г	Rating:		A	Settin	g:	А	Model:				
	Line	Preser	nt	Rating	q:					Manufact	urer:			
VFD Data	Reactor:	□ N/A								Model:				
VFD	Load Reactor:	☐ Preser☐ N/A	nt	Rating	g:					Manufact Model:	urer.			
	_] NEMA	Manu	facture	er:				Model:				
	Bypass Contactor:	Type:] IEC] N/A		A Size:			IEC Ra	ating:	1	A □ A	C-3	 C-4	
	Bypass	☐ Therma	al		10					Manufact	urer:			
	Overload Protection:	☐ Electro	nic	Class:	20 30 Ui		Settin Ratino		Α	Model:				
	Control Pov		Size:		VA	Sec. \	/oltage:	V	Prima	ry Fuse:	A	Secondary	/ Fuse:	А
	Current Tra	nsformer:	Ratio:					Ту	pe:					
						•					1			
io is	ID:					Size:		kW/		HP		Voltage:		V
Motor Data	Full Load A	mps:	Α 5	Service Fa	actor:	1. 1.	.00 .15 Inve	rter Dut	y [☐ Yes ☐ No	Ot	ther:		
	Starter Iden	tification Ta	g Install	ed:		Yes	□No	Visu	al Signs	of Overhea	ating:		☐ Yes	s 🗌 No
_g	Cleanliness	(As Found)	:	☐ Good	☐ Ac	ceptal	ole 🗌 Pod	or Sup	ort Insu	lators:		☐ Good [Accepta	able 🗌 Poor
Cleanir	Connections	S		☐ Good	☐ Ac	ceptal	ole 🗌 Pod		tro/Mech	nanical		☐ Good ☐	Acceptal	ble 🗌 Poor
) / uo	Ground Cor	nection		Good	☐ Acc	ceptab	le 🗌 Po	or Con	actor Co	ondition:		☐ Good ☐	Acceptal	ble 🗌 Poor
pecti	Door Mecha	anical		Good	☐ Acc	ceptab	le 🗌 Poo	or Con	act Aligr	nment:		☐ Good [Accepta	able 🗌 Poor
Visual Inspection / Cleaning	Verify Bypas		ent is co	orrectly	□ Y	es 🗆	No 🗌 N/	A Exe	cise Circ	cuit Breake	r/MCP/Di	sconnect		☐ Yes
Vis	Cables Sup	ported Appi	opriately	/ :			Yes 🗌 N	o Unit	Cleaned	l: 🗌 Ye	es Phot	ograph Take	en:] Yes

Comments:



INSPECTION FORM VARIABLE FREQUENCY DRIVE, 600V, <37 kW

Page	2 of 3	
ID:		

	Test	А	В	С	Test Summary				
Pole nents	Bypass Contactor Contact Resistance (μΩ)				☐ Test Passed ☐ Test Inconclusive _ Further Investigation Required.				
Contact / Pole Measurements	Breaker/Disconnect Resista (μΩ)	nce							
Se	Main Fuse Resistance (μΩ	2)							
	Comments:								
	Test Preparation: Source: Sou								
	WARNING: DISCONNECT ALL POWER CABLES FROM VFD MODULE AND ALL CONTROL POWER FUSES PRIOR TO TEST.								
	Insulation Resistance (MΩ)								
#	Toot	Veltage	In	sulation Resista	nce (MΩ)	Ground all phases not			
e Test	Test	Voltage	In A	sulation Resistar	nce (MΩ)	Ground all phases not under test!			
istance Test	Test Disconnect Line to GND	Voltage 1000 VDC							
on Resistance Test	Disconnect	_							
sulation Resistance Test	Disconnect Line to GND Disconnect	1000 VDC				under test!			
Insulation Resistance Test	Disconnect Line to GND Disconnect Load to GND Disconnect	1000 VDC 1000 VDC				under test! Test Summary Test Passed			
Insulation Resistance Test	Disconnect Line to GND Disconnect Load to GND Disconnect Line to Load Bypass Contactor	1000 VDC 1000 VDC 1000 VDC				under test! Test Summary Test Passed Test Inconclusive Further Investigation Required.			
Insulation Resistance Test	Disconnect Line to GND Disconnect Load to GND Disconnect Line to Load Bypass Contactor Line To GND Bypass Contactor	1000 VDC 1000 VDC 1000 VDC 1000 VDC				under test! Test Summary Test Passed Test Inconclusive Further Investigation			



INSPECTION FORM VARIABLE FREQUENCY DRIVE, 600V, <37 kW

Page	3 of 3	
ID:		

	Test Prepa	aration: Run moto	r at full loa	ad.						
ction	Ramp Up	Time	Specified	d:	sec	Actual:			sec	Comments:
Inspe	Measured	easured Motor Current ØA A ØB A ØC A					А			
onal	VFD Moto	Motor Current ØA A ØB A ØC A]				
Operati	Ramp Up Time Specified: sec Actual: sec Measured Motor Current ØA A ØB A ØC A VFD Motor Current ØA A ØB A ØC A Remote (RTU/PLC/DCS) Displayed Motor Current: A									
	Ramp Down Time Specified: sec Actual: sec							sec		
	1									
Record Parameters and Settings on Separate Sheet.										
Settings	Complete	ed:		☐ Yes	□No					
	Datumas	l to Comicos				Commer	nts:			
.00		d to Service:		☐ Yes	☐ No	0011111101				
Final	Monitorir Required	ng / Further Inspec l:	tion	☐ Yes	☐ No					
Repair / Replacement Required:										
		Campany		Name			C: ~	n of		Date (vana/mm/dd)
		Company		Name			Sigi	nature		Date (yyyy/mm/dd)
Perfo	rmed By									
Chec	ked By									

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	©					NEDE	CTI	ON FO	DM.					Page	1	of 2
V	Vinnipeg		TI	RANSF						v vo	LTA	GE		ID:		
- to	Facility:						Project Name:									
Project	Area:					Bi	Bid Opportunity:									
Data	KVA: Phase:					Primary Voltag						Seconda Voltage:				
	Manufacturer:					Т	Type:			!			Serial Number:			
Transformer Data	Primary ☐ Δ ☐ YG Winding: ☐ Y ☐ Other:						Secondary ☐ ∆ ☐ YG Winding: ☐ Y ☐ Other:									
insfo	Winding Material: ☐ Copper ☐ Aluminum					1	Impedance: %Z Temp Rise:			c	°C	K Factor:				
<u> </u>	No Load Tap	Тар		1	2		3	4		5						Tap Setting
	Changer	Voltage	:												(As	s Found):
	Transformer Identification Tag Installed: Yes No Visual Signs of Overheating: Yes No															
ing	Bushings: Good Ac											-				
Visual Inspection / Cleaning	Paint: Good Accep						ntable D Boor			No Load Tap						
tion /							Changer.				/A ☐ Good ☐ Acceptable ☐ Poor					
Jedec	Temp. Gauge: □ N/A □ Good □ Accep															
sual II	Cround						ptable ☐ Poor Neutral Bonded to Ground:				□ N/A □ Yes □ No					
Š	Connection.					Acceptable Poor Unit Cleaned: Yes Pho				otograph Ta	tograph Taken:					
	Operational C	onditions	/ Note	es:												
Inspection	Primary Voltage: H1:H2		:: V H2:H		H2:H3:	H3:		V H3:H1:			V Measured at:					
nspe	Secondary Vo	Voltage: X1::			V	V X2::			V X3::			V Measured at:				
nal I	Current:	Ph A:				A Ph B:			A Ph C: A Mea			A Meas	asured at:			
Operational	Tap Setting:	g: Appears Satisfactory G: Further Monitoring Recommended. Recommend Changing Tap. Tap Setting (As Left):														
	Thermographic Inspection Performed:				Attach report separately Result			s: No Issues Found Potential Issue Identified.								
ø						oot \/ = \	/oltogs		Resistance (MΩ)				(MΩ)		Dielectric Absorption Ratio	
istan						est Voltage (Vdc)			30 sec				60 sec.			60s/30s
n Res	Primary to Ground, Secondary Guarded				ed											
Insulation Resistance	Secondary to Ground, Primary Guarded				ed											
	Primary to Secondary, Ground Guarded				ed											

Primary to Secondary, Ground Guarded



INSPECTION FORM TRANSFORMER, DRY TYPE, LOW VOLTAGE

Page	2 of 2		
ID:			

S	Returned	d to Service:	☐ Yes	□No	Comments:	
Final	Monitorir Required	ng / Further Inspection d:	☐ Yes	☐ No		
⋖	Repair /	Replacement Required:	☐ Yes	☐ No		
	rtopan /	.,	_			
	rtopan 7					_
	rtopa /	Company	Name		Signature	Date (yyyy/mm/dd)
Perfor	med By	· · · · · · · · · · · · · · · · · · ·	Name		Signature	Date (yyyy/mm/dd)

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