345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel.: 416.734.3300
Fax: 416.231.1626
Toll Free: 1.877.682.8772

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NOTICE OF REGISTRATION OF DESIGN SUBMISSION WITH CONDITION

Service Request No.:
3007538

Submitter:
RIDEAU ELEVATOR SERVICES INC
7429 CARTER RD
OTTAWA, ON K0A 2E0
CA

Submission Type:
ED-Major Alteration

Submitter Spec No.:
Major Alteration 1950 Montreal Car 4

Owner:
NAV CANADA

Contact:

ELEVATING AND AMUSEMENT DEVICES SAFETY PROGRAM
REGISTERED
Feb 03 2021
Matthew Chan, P.Eng.

Building Address:
1950 MONTREAL RD , CORNWALL ON K6H 1G2
CA

Engineer: Vincent Gagnon
Contractor: RIDEAU ELEVATOR SERVICES INC
Applicant:
Signed on:

Technical Standards and Safety Authority (TSSA) has reviewed and registered your design submission under the following Installation Number and is subject to the condition(s) described below. When contacting TSSA regarding this file, please refer to the Installation number provided below.

Device Inst No.:
30816
Owner Designation:
4
Device Type:
Passenger Elevator
Device Class:
Elevators

Condition(s):
This alteration is for the controller, interlocks, door operator, elevator cab, FEO, pump, overspeed valve and control valve.
A revision shall be submitted for the final car weight and the weight added.

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3300 Bloor Street West
Toronto, ON M8X 2X4
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Fax: 416.231.5435

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Form Revision: 28-Oct-2013

TSSA Received Jan 29, 2021

Application

for Registration of a Design Submission
Under Ontario's ***Technical Standards and Safety Act***
Elevating Devices Regulation

email completed forms to: eddesignsubmittal@tssa.org

Design Submission

100	Submitter (Company name and address)	Rideau Elevator Services Inc. Reg. No.: 000263639			Tel: email:	613-406-6415 bcullain@rideauelevator.ca	
110	Type of Submission & Installation No. ☐ Revision to Registered Submission	Major Alteration to Installation No(s).:			30816		
120	Submitter's Specification No. / P.O. Number	1950 Montreal Car 4		130	Elevating Device Class Elevating Device Type	Elevators Passenger Elevator	
140	Owners Elevating Device Designation (identified in Bldg & Dwgs)	1: 4	3:	5:	7:	9:	
		2:	4:	6:	8:	10:	
160	Any variance request to Code or Regulation?	No Variances Proposed		270	Client's Account No. for Invoicing		

Owner

170	Owner's name and address		Tel:	
			email:	
Required for new installations only. The license and license invoice will be sent to the above address.			Contact Name:	

Building and Premises

180	Building Address	1950 Montreal Rd Cornwall, Ontario			Postal Code K6H 1G2
190	Building Function ☐ Federal Building, Non Regulated, etc	Assemblies	200	Common Reference to building	N/A
If this is a "New Installation" indicate if the building is classified as a High Building under the OBC.		○ High Building	○ Not High Building	◉	

P.Eng.

210	Name of Submitting Engineer	Vincent Gagnon	220	Engineer's Employer (submitters or specify)	Vincent Gagnon
230	Engineer's Address	Reg.No.: 000243927		Tel: email:	613-831-1013 vincentgagnonpeng@gmail.com

Contractor, Fees & Remarks

240	Installing Contractor (Name)	Rideau Elevator Services Inc.		250	Installing Contractor Registration No.	000263639		
260	Prioritization	265 Car Numbers(1-10)		280	No. of Elevating Devices	290	300 Fee Per Unit (See Guidelines)	Sub Total
	NORMAL process					x	=	
	(5 day) PRIORITY SERVICE Fee Premium	1		1		x	$684 =	$684
	(2 day) PRIORITY SERVICE Fee Premium					x	=	
						Total Fee		$684

Installation Statement

The undersigned attests on behalf of the Installer that he/she will ensure that the elevating device(s) will be assembled and erected according with the design submission.

310	Official Capacity in Company	Vice President	320.00	Name	Barry Cullain
330	Date	28-Jan-21	340.00	Signature	

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Form Revision: 24-Jun-2011

Document Transmittal and Engineers Statement

email completed forms to: **eddesignsubmittal@tssa.org**

Spec No.	*1950 Montreal Car 4*	Transmittal Page	*1*	of	*2*

All submissions to TSSA must include a Document Transmittal. List all documents included as part of this submission

Supporting Documents

	400 Document Name (Include Drawing # where applicable) Indicate if page(s) is a replacement		410 Date	420 Document Revision	430 Total Pages
1	*Application*	☐	*2021-01-28*		*1*
2	*Document Transmittal and Engineers Statement (This sheet)*	☐	*2021-01-28*		*2*
3	*Specification Sheet for Elevators*	☐	*2021-01-28*		*7*
4	*Scope of Alteration Summary + Code Data Plate*	☐	*2021-01-28*		*1*
5	*Scope of Alteration List DO 251-11-r2*	☐	*2021-01-28*		*5*
6	*Machine Room Layout Dwg.: MR 1950 Montreal Car 4*	☐	*2021-01-28*		*1*
7	*Hydraulic schematic: HS 1950 Montreal Car 4*	☐	*2021-01-28*		*2*
8	*Smartrise electrical prints: 200610-003*	☐	*2020-07-08*	*A*	*15*
9	*Smartrise SRH Testing Procedure*	☐	*2021-01-28*	*5.04*	*32*
10	*Maxton OSV*	☐	*2021-01-28*		*4*
11	*Annex #114/94*	☐	*1994-07-20*		*3*

440 Notes: (Please indicate what data has changed on any replacement pages if not identified by a revision note on the document)

Professional Engineer's Statement

450 The whole design of this Elevating Device, including the above listed controlled documents, and the parts and features not specifically identified in the design submission are in compliance with the Technical Standards & Safety Act and Ontario's Elevating Devices Regulation, except for variances set out in the Proposed Variance(s) attached to this submission. If the design submission covers an alteration, this statement is limited to parts and features that are subject of or may be affected by the alteration.

Qualifying Amendment:

Date	*28-Jan-21*	Signature	

460 Professional Engineer's Stamp

2021-01-28

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Form Revision: 24-Jun-2011

Document Transmittal and Engineers Statement

email completed forms to: **eddesignsubmittal@tssa.org**

Spec No.	*1950 Montreal Car 4*	Transmittal Page	*2*	of	*2*

All submissions to TSSA must include a Document Transmittal. List all documents included as part of this submission

Supporting Documents

	400 Document Name (Include Drawing # where applicable) Indicate if page(s) is a replacement		410 Date	420 Document Revision	430 Total Pages
1	*Specification Sheets (Excel file)*	☐			
2		☐			
3		☐			
4		☐			
5		☐			
6		☐			
7		☐			
8		☐			
9		☐			
10		☐			
11		☐			

440 Notes: (Please indicate what data has changed on any replacement pages if not identified by a revision note on the document)

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Date	*28-Jan-21*	Signature	

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2021-01-28

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Form Revision: 31-May-2013
B44-2010

Specification Sheet for Elevators

Spec No.	1950 Montreal Car 4	Date	26-Jan-21	Revision	

email complete forms to:
eddesignsubmittal@tssa.org

1	4	3		5		7		9	
2		4		6		8		10	

PART A - Provide the following General Information about the Elevating Device and the building it is being installed in. This form can be used for up to 10 devices in the same building provided the devices are of the same class, capacity, speed, operation, utilized a common machine room and are to be installed simultaneously.

General

110	Type of Submission	*Major Alteration to Installation No(s).:*						*30816*			
120	Submitter's Specification No.	*1950 Montreal Car 4*			130	Elevating Device Class and Type		*Elevators* / *Passenger Elevator*			
500	Elevating Device Make	*Montgomery Elevator*			510	Elevating Device Model		*Unknown*			
520	Capacity [2.16.1, 2.16.2]	1 *1134* kg	3 kg		5 kg		7 kg		9 kg		
		2 kg	4 kg		6 kg		8 kg		10 kg		
530	Capacity [B44-Appendix D] [persons]	1 *15* per.	3 per.		5 per.		7 per.		9 per.		
		2 per.	4 per.		6 per.		8 per.		10 per.		
540	Rated Speed	*0.635* m/s			550	Rated Down Speed (Hydraulic Only)		*0.635* m/s			
560	Class of Loading (if freight) [2.16.2.2]	*N/A*			570	License Location (if in a remote location) [O.Reg. 209/01, s30(1)]		*Machine Room*			

Building

180	Address	*1950 Montreal Rd* / *Cornwall, Ontario*									
580	No. of Levels Served	1 *5*	3		5		7		9		
		2	4		6		8		10		
590	Travel	1 *N/C* mm	3 mm		5 mm		7 mm		9 mm		
		2 mm	4 mm		6 mm		8 mm		10 mm		

Mech. Drawings

PART B1 - Provide drawings that include layout, plan and elevation views of the elevating device and/or parts thereof, showing all pertinent information necessary to demonstrate conformance with the Regulation and applied codes. The drawings must include the information required by clauses 2.28.1 or 3.28.1 as applicable and the information required by the submission guidelines. If the elevating device is hydraulic, a hydraulic schematic is also required that clearly indicates all of the components required by 3.18, 3.19 and 3.24.

PART B2 - Provide the following details and dimensions as applicable for this installation

Vertical Clearances

600	Maximum Bottom CWT Runby [2.4.4(b), 2.4.5]	1 *N/A* mm	3 mm		5 mm		7 mm		9 mm		
		2 mm	4 mm		6 mm		8 mm		10 mm		
610	Min. Clr. above/outside Railing [2.14.1.7.2(a), 2.4.7.1(c)(2)]	1 *N/A* mm	3 mm		5 mm		7 mm		9 mm		
		2 mm	4 mm		6 mm		8 mm		10 mm		
620	Min. Clearance above Crosshead [2.4.7.1(a) & (b)]	1 *N/C* mm	3 mm		5 mm		7 mm		9 mm		
		2 mm	4 mm		6 mm		8 mm		10 mm		
630	Min. Clearance above Car Top [2.4.7.1]	1 *N/C* mm	3 mm		5 mm		7 mm		9 mm		
		2 mm	4 mm		6 mm		8 mm		10 mm		
640	Car Jump Prevention [2.4.6.1.1(d), 2.21.4.2]	*N/A*									

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Specification Sheet for Elevators

Spec No.	1950 Montreal Car 4	Date	26-Jan-21	Revision	

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		1	4	3		5		7		9	
		2		4		6		8		10	
H/W	650	Space Below CWT Accessible [2.6]	1	N/A	3		5		7		9	
			2		4		6		8		10	

Entrances	660	Entrance Mfg	N/C	680	Front Entrance Type [2.11.2]	HSCO-Horizontally Sliding, Centre Opening
		Model	N/C			
	670	Fire Rating of Entrances (Table 3.5.3.1 - OBC)	N/C hr	690	Rear/Side Entrance Type [2.11.2]	N/A
	700	Retainers: Provide identification criteria for inspector's use to verify proper part & installation, or supply drawing, or detail on Layout Drawings. [2.11.11.8]	Top	N/C		
			Btm	N/C		
Interlocks	710	Door Locking Device Type [2.12]	Interlock			
	720	Interlock (or Lock & Contact) Mfg	G.A.L.	730	Interlock / Lock & Contact: Lab & File # if not CSA Listed	
		Model	MOCP			
Power Door Operator	740	Front Door Operator Mfg	G.A.L.	750	Rear/Side Door Operator Mfg	N/A
		Model	MOVFE-2500-HH		Model	N/A
	760	Door Reopening Device Type Front	Electronic - Smoke Sensitive	770	Door Reopening Device Type Rear/Side	N/A
	780	Front Door Total Mass [2.13.4.2]	200 kg	790	Rear/Side Door Total Mass [2.13.4.2]	N/A kg
	800	Front Door Normal Close Time [2.13.4.2.4(b)]	1.6 s	810	Rear/Side Door Normal Close Time [2.13.4.2.4(b)]	N/A s
	820	Front Door Reduced Close Time [2.13.4.2.4(c)]	3 s	830	Rear/Side Door Reduced Close Time [2.13.4.2.4(c)]	N/A s
Car Doors and Enclosure	840	Front Car Door Width	914 mm	850	Rear/Side Car Door Width	N/A mm
	860	Front Car Door Type [2.14.4.3 & 2.14.4.4]	HSCO-Horizontally Sliding, Centre Opening	870	Rear/Side Car Door Type [2.14.4.3 & 2.14.4.4]	N/A
	880	Wall/Door Enclosure Lining Material [CAD 2.14.2.12 & 2.14.3.1]	Metal + Plastic Laminate	890	Wall/Door Flame Spread Rating [CAD 2.14.2.1.2 & 2.14.3.1]	Flame=<75 Smoke=<450
	900	Ceiling Enclosure Lining Material [CAD 2.14.2.1.2 & 2.14.3.1]	Metal	910	Ceiling Flame Spread Rating [CAD 2.14.2.1.2 & 2.14.3.1]	Flame=<75 Smoke=<450
	920	Floor Enclosure Lining Material [CAD 2.14.2.1.2 & 2.14.3.1]	Rubber	930	Floor Flame Spread Rating [CAD 2.14.2.1 & 2.14.3.1]	Flame=<300 Smoke=<450

	940	Firefighter's Elevator? (Y/N)	1	N/C	3		5		7		9	
			2		4		6		8		10	
Weight	945	ORIGINAL Weight of Complete Car [2.16.3.2.2(a)]	1	1515 kg	3	kg	5	kg	7	kg	9	kg
			2	kg	4	kg	6	kg	8	kg	10	kg
	950	Weight of Complete Car AFTER this Alteration [2.16.3.2.2(a)]	1	Max(1630) kg	3	kg	5	kg	7	kg	9	kg
			2	kg	4	kg	6	kg	8	kg	10	kg
	960	Weight Added to Car Resulting from this Alteration	1	TBD kg	3	kg	5	kg	7	kg	9	kg
			2	kg	4	kg	6	kg	8	kg	10	kg

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Spec No.	*1950 Montreal Car 4*	Date	*26-Jan-21*	Revision	

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Safeties	970	Car Safety [2.17] Mfg / Model	*N/A* / *N/A*	980	CWT Safety [2.17] Mfg / Model	*N/A* / *N/A*	
	990	Car Safety - Type [2.17.5]	*N/A*	1000	CWT Safety - Type [2.17.5]	*N/A*	
	1010	Car Safety - Activation Force [2.17.14(d)]	*N/A* N	1020	CWT Safety - Activation Force [2.17.14(d)]	*N/A* N	
Governor	1030	Car Governor Mfg / Model	*N/A* / *N/A*	1040	CWT Governor Mfg / Model	*N/A* / *N/A*	
	1050	Car Governor - Pull Thru [2.18.9(c)]	*N/A* N	1060	CWT Governor - Pull Thru [2.18.9(c)]	*N/A* N	
E.Brake	1070	ACO Protection Emergency Brake [2.19.3] Mfg/Type / Model	*N/A* / *N/A*	1080	UCM Protection Emergency Brake [2.19.3] Mfg/Type / Model	*N/A* / *N/A*	
Suspension	1090	Number of Suspension Members [2.20.4]	*N/A*	1100	Rope Grade [A17.6 - 1.3.2.3, 2.5.3, 3.3.1.4]	*N/A*	
	1110	Suspension Rope Diameter [2.20.4]	*N/A* mm	1120	Factor of Safety [2.20.3]	*N/A*	
	1130	Rope Assembly Construction [A17.6 - 1.3.2.2.2]	*N/A*	1140	Rope Strand Construction [A17.6 - 1.3.1.3.4]	*N/A*	
	1150	Roping Ratio	*N/A*				

Counter Weight & Compensation	1160	Counterweight Overbalance Minimum	1	*N/A* kg	3	kg	5	kg	7	kg	9	kg
			2	kg	4	kg	6	kg	8	kg	10	kg
	1170	Counterweight Overbalance Maximum	1	*N/A* kg	3	kg	5	kg	7	kg	9	kg
			2	kg	4	kg	6	kg	8	kg	10	kg
	1180	Compensating Ropes Quantity		*N/A*			1190	Compensating Chains Quantity		*N/A*		
	1200	Compensating Ropes Diameter		*N/A* mm			1210	Unit Mass of Compensating Means		*N/A* kg/m		
Buffers	1220	Car Buffers (Type) [2.22.1.1]		*N/C*			1230	CWT Buffers (Type) [2.22.1.1]		*N/A*		
	1240	Car Oil Buffer Mfg / Model [2.22.4, 8.3(a)(1)]		*N/A* / *N/A*			1250	CWT Oil Buffer Mfg / Model [2.22.4, 8.3(a)(1)]		*N/A* / *N/A*		
	1260	Car Buffer Stroke [2.22.3.1, 2.22.4.1]		*N/C* mm			1270	CWT Buffer Stroke [2.22.3.1, 2.22.4.1]		*N/A* mm		
	1280	Car Buffer Total Load Rating [2.22.3.2, 2.22.4.10]		*N/C* kg			1290	CWT Buffer Total Load Rating [2.23.3.2, 2.22.4.10]		*N/A* kg		
Guides	1300	Car rail nominal mass/m [Table 2.23.3]		*N/C* kg/m			1310	Max. Bracket Spacing Car [2.23.4, Fig 2.23.4.1-1]		*N/C* mm		
	1320	CWT rail nominal mass/m [Table 2.23.4.3.1]		*N/A* kg/m			1330	Max. Bracket Spacing CWT [Table 2.23.4.3.1]		*N/A* mm		

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Specification Sheet for Elevators

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Machine	1340	Type of Drive	Hydraulic	1350	Machine (Pump if Hydraulic) Mfg	Settima
					Model	GR55 SMU 380L
	1370	Drive Machine Location	Basement			
Control	1380	Type of Operation	Automatic	1390	Type of Motor Control	AC Single Speed
	1400	Controller Mfg	Smartrise	1410	TSSA File # for Controller	
		Model	SRH			
	1411	Scope of Alteration includes Installation of New Controller	Y			
Emergency Operation	1420	Emergency Power Provided? (Y/N) [2.27.2]	Yes			
	1430	No. of Cars that can run at once on Emergency Power	1	1435	Scope of Alteration Includes Upgrading Fire Service	Y
	1440	FEO provided? (Y/N) [2.27.3]	Yes	1450	Method of Phase I Recall - Automatic of Manual [2.27.3.1, 2.27.3.2]	Automatic
	1470	Machine Room Sensors Provided? (Y/N) [CAD 2.27.3.2.2]	Yes	Note: Alternate Floor Recall is not required if the floor area containing the recall level is sprinklered and there are no fire detectors in the hoistway below the recall level.		
Seismic	1480	Design for Seismic Risk Zone 2 or Greater? (Y/N) [8.4]	N/C	1490	Seismic Risk Zone [8.4.13.2]	N/A
Safeties	1500	Plunger Gripper? (Y/N) [3.13.3]	N/A	1510	Plunger Gripper Actuation Means [3.17.3.2]	N/A
Hydraulic Cylinder	1520	Number of Cylinders	N/C	1530	Number of Stages	N/C
	1540	Cylinder Orientation	N/C	1550	Cylinder Connection (direct or 1:2 roped) [3.18.1]	N/C
	1570	Plunger O/D [8.2.8.1]	D1= N/C mm	D3= mm		
			D2= mm			
	1580	Plunger Free Length [8.2.8.1.1]	L1= N/C mm	L3= mm	1590 Plunger Wall [8.2.8.1]	t1= N/C mm t3= mm
			L2= mm			t2= mm
	1600	Safety Bulkhead or Double Cylinder [3.18.3.4]	N/C	1610	Plunger Weight [3.16.3(b)]	N/C kg
	1620	Cylinder Corrosion Protection [3.18.3.8]	N/C			
Valve	1630	Control Valve Mfg	Maxton	1640	Control Valve Lab & File # if not CSA Listed [3.19.4.6]	
		Model	UC2A			
	1650	Overspeed Valve Mfg [3.19.4.7]	Maxton	1660	Overspeed Valve TSSA File No.	
		Model	OSV			
	1670	Max. (Rated) System Pressure [3.19.1.2]	4137 kPa			

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Specification Sheet for Elevators

Spec No.	*1950 Montreal Car 4*	Date	*26-Jan-21*	Revision	

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1	*4*	3		5		7		9	
2		4		6		8		10	

Schematics

PART C1 - Provide an electrical schematic drawing indicating conformance with 2.19, 2.25, 2.26 & 2.27 for electric elevators or indicating conformance with 3.25, 3.26 & 3.27 for hydraulic elevators. Schematics must also meet the requirements of 8.6.1.6.3(a). Contactors and relays used in critical operating circuits shall be clearly identified (see 2.26.3)

Schematic and Electrical Conformance

PART C2 - In addition to the schematic, provide a written conformance document to explain how compliance with the following requirements are met (where applicable) if it is not possible to demonstrate compliance in the schematic.

		XX				XX	
20xx	2.12.7.3.2	01	Independent Speed Control on Access	20xx	2.26.7	08	Installation of Capacitors or Other Devices
	2.19.1.2	02	Ascending Car Overspeed Protection		2.26.8.2	09	Release and Application of Driving Machine Brakes
	2.19.2.2	03	Unintended Car Movement Protection		2.26.9.3	10	Single Ground / Single Failure
	2.25.4.1	04	ETSL is independent of NTS		2.26.9.4	11	Redundancy and Checking
	2.25.4.2	05	ETSD is independent of NTS		2.26.9.5 / 2.26.9.6	12	Two Means to Remove Power
	2.26.1.4.1(d)(1)	06	Independent Speed Control on Inspection		3.26.6.3 / 3.26.6.4	13	Two Means to Remove Power
	2.26.4.3.2	07	SIL Certification (Incl. Conformance Documents of Certification)			14	

2100	☑ Conformance Documents Attached ☐ N/A for this Alteration ☐ Conformance Documents on file with TSSA	2110	TSSA File Number for Conformance Documents	

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1	4	3		5		7		9	
2		4		6		8		10	

Electrical and Control Features

PART D1 - Indicate which Operating, Safety Devices and/or Electrical Protective Devices have been PROVIDED. 2.26.2.(*X), 3.26.(#X) or as Referenced.

		XX					XX		
22xx	N/A	01	*3	Compensating-Rope Sheave	22xx	Provided	22	2.12.7	Hoistway Access Switch
	N/A	02	*4	Motor Field Sensing		N/A	23	2.18.7.2	Governor Rope Tension
	N/A	03	*5	Emergency Stop Switch		Provided	24	2.25.2or3.25.1	Normal Terminal
	N/A	04	*6	Broken Rope, Tape or Chain		Provided	25	2.26.1.5	Car Door Bypass Switch
	Provided	05	*7	Pit Stop Switch		Provided	26	2.26.1.5	Landing Door Bypass Switch
	Provided	06	*8	Car Top Stop		N/A	27	2.26.1.6.6	Independent Speed Control
	N/A	07	*9	Car Safety Switch		N/A	28	2.26.1.6.7	Inner Zone Speed Control
	N/A	08	*10	Governor Overspeed Switch		Provided	29	2.26.5	Door Monitoring
	N/A	09	*11	Final Terminal Limit			30		
	N/A	10	*12	Emergency Speed Limit		N/A	31	3.18.1.2.7	Slack Rope Device
	Provided	11	*14	Ldg Door Interlock/Lock & Contact		N/A	32	3.18.2.7.1	Plunger Follower Guide
	Provided	12	*15	Car Door Contacts		Provided	33	3.25.2	Terminal Speed Reducing
	N/A	13	*16	Emergency Terminal Stopping			34		
	Provided	14	*18	Emergency Exit		Provided	35	#3	Anti-Creep Speed Control
	Provided	15	*21	In-Car Stop		Provided	36	#5	Motor Phase Protection
	N/A	16	*25	Blind Hoistway Access door		N/A	37	#7	Recycling Operation
	N/A	17	*26	Pit Door		Provided	38	#8	Pressure Switch
	N/A	18	*28	Car Door Interlock		Provided	39	#9	Low Oil Protection
	N/A	19	*29	Ascending Car Overspeed		N/A	40	#10, 38-091(5)	Auxilary Contact
	N/A	20	*30	Unintended Movement			41		
	N/A	21	*32	Hoistway Access Opening		N/A	42	5.2.1.4.4	Car Top Prop

Acceptances Tests

PART D2 - Provide a written test procedure for the items listed below. Provide a written procedure for the tests of 8.10.2/3 that cannot be easily demonstrated in the field or for those tests which require specific test instructions to demonstrate compliance. The procedure should follow the same sequence of the tests in 8.10.

In addition written test procedures are required for the following (circled) items from Part C2 and Part D1:
2010, 2011, 2012, 2202, 2210, 2213, 2219, 2220, 2224, 2227, 2228, 2232, 2233, 2236, 2237, 2238, 2240, 2242 where applicable.

		XX				XX	
23xx	2.27.2	01	Emergency Power	23xx	3.19.4.7.6	06	Field Adjustment Procedure for Overspeed Valve
	2.27.3.1.6(m)	02	Phase I and Load Weighing Device		3.17.3.2.2(a)	07	Plunger Gripper Operational During Power Failure
	2.27.3.3.1(l)	03	Phase II and Load Weight Device		3.27.1, 2 & 3	08	Phase I under Special Conditions
	2.27.3.3.6	04	Phase II and Ground		3.27.4	09	Phase II under Special Conditions
	2.27.3.4	05	Phase I and II Power Off			10	

2400	☑ Acceptance Tests Attached ☐ N/A for this Alteration ☐ Acceptance Tests on file with TSSA	2410	TSSA File Number for Acceptance Tests	

14th Floor, Centre Tower
3300 Bloor Street West
Toronto, ON M8X 2X4
Tel.: 416.734.3300
Fax: 416.231.5435

Form Revision: 31-May-2013
B44-2010

Specification Sheet for Elevators

Spec No.	1950 Montreal Car 4	Date	26-Jan-21	Revision	

email complete forms to:
eddesignsubmittal@tssa.org

1	4	3		5		7		9	
2		4		6		8		10	

PART E - Enter the applied Standard Number, Title and Revision where applicable

Codes and Standards

3000	Applicable Safety Code	*Safety Code for Elevators*	3010 Safety Code Edition	*B44-10*
3020	Ontario Building Code	*2012*		
3030	Ontario Electrical Safety Code	*2018*		
3040	Other			
3050	Applicable Safety Code for Controller (See box 1411)	*B44-10*		
3060	Applicable Safety Code for FEO (See box 1435)	*B44-10*		
3070	Welded Steel Construction (Metal Arc Welding)	*CSA W-59*		
3080	FACTORY WELDS Cert. of Companies for Fusion Welding of Steel	*N/A*	3090 FACTORY WELDS Name of Certified Company	*N/A*
3100	FIELD WELDS Cert. of Companies for Fusion Welding of Steel	*N/A*	3110 FIELD WELDS Name of Certified Company	*N/A*

Orders/Bulletins

3120	Director's Order Applicable to this Submission	*DO 277-19 DO 251-11-r2*
3130	Manufacturer's Bulletins Applicable to this Submission	

PART F - Special Features - Remarks - Additional Tests - Scope of Alteration (Attached additional pages as required)

Additional

4000

1. Additional tests: At the initial inspection carry out additional tests as outlined in Annex #114/94 enclosed.
*2. Box 950 and 960 to be confirm once the alteration is completed. (TBD = To be determined) The weight alteration rule that apply is CAD 8.7.3.21*1. Allowance for an addition of 115Kg for each car from the original car weight. Final car weight will be measured at the end of the alteration and tag will be posted on crosshead to report final weight change before inspection.*
3. Change in empty car weight is >5% of the original gross Load. A review of all affected components has confirmed that their strength meets the relevant B44-10 code requirements.

Submitter's Spec No.: 1950 Montreal Rd Car 4

Scope of Alteration Summary:

1.	*8.7.2.2*	*Replacement of Pit Illumination and Pit Stop Switches*
2.	*8.7.2.7.6*	*Replacement of M/R Lighting*
3.	*8.7.3.8*	*Replacement of Electrical Equipment, Wiring, in H/W & M/R*
4.	*8.7.2.11.1*	*Replacement of Interlocks*
5.	*8.7.2.11.4*	*Addition of access switches and/or unlocking devices*
6.	*8.7.2.11.5*	*Addition of a car door restrictor*
7.	*CAD 8.7.2.12*1*	*Replacement of door operator*
8.	*8.7.2.13*	*Replacement of door re-opening device*
9.	*CAD 8.7.2.14*1*	*Replacement of car operating station*
10.	*8.7.2.14.2(f)&(g)*	*Replacement of car Ventilation and Illumination*
11.	*8.7.2.14.4*	*Replacement of part of the car interior lining and door*
12.	*O.Reg.209/01s30*	*Relocation of elevator licence to machine room*
13.	*CAD 8.7.3.21*1*	*Increase Deadweight of Car by less than 5% (< 115 Kg)*
14.	*8.7.3.24(a)*	*Replacement of Control Valves*
15.	*8.7.3.24(b)*	*Replacement of Relief Valves & Check Valves & Pressure Piping & Fittings*
16.	*8.7.3.24(b)*	*Addition of Rupture valve*
17.	*8.7.3.29*	*Replacement of Hydraulic Machines and Tanks*
18.	*CAD 8.7.3.29*1*	*Addition of Oil Cooler*
19.	*8.7.3.30*	*Replacement of Terminal Stopping device*
20.	*8.7.3.31.1*	*Replacement of Top-of-Car Operating Devices*
21.	*8.7.3.31.5(a)*	*Replacement of elevator controller*
22.	*8.7.3.31.8(a)*	*Replacement of Car Emergency Signaling devices*
23.	*8.7.3.31.10*	*Removal of the Emerg. Stop Sw. (When present)*

CODE DATA PLATE- 28 JANUARY 2021
TSSA INSTALLATION #30816
ALTERATION TO CSA B44-10

8.7.2.2	*CAD 8.7.3.21*1*
8.7.2.7.6	*8.7.3.24(a)*
8.7.3.8	*8.7.3.24(b)*
8.7.2.11.1	*8.7.3.24(b)*
8.7.2.11.4	*8.7.3.29*
8.7.2.11.5	*CAD 8.7.3.29*1*
*CAD 8.7.2.12*1*	*8.7.3.30*
8.7.2.13	*8.7.3.31.1*
*CAD 8.7.2.14*1*	*8.7.3.31.5(a)*
8.7.2.14.2(f)&(g)	*8.7.3.31.8(a)*
8.7.2.14.4	*8.7.3.31.10*
O.Reg.209/01s30	

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.1.2	Alterations not specifically covered in 8.7						
		1.2		Level of safety shall not be diminished				
	8.7.1.4	Welding						
		8.8		Welding				
		8.7.1.5		Design / Weld Engineer				
	8.7.1.7	Repairs and Replacements						
		8.6.2		for repairs				
		8.6.3		for replacements				
	8.7.3.★	**Alteration - Hydraulic to Electric Elevator**						
	8.7.1.2	Alterations not specifically covered in 8.7						
		1.2		Level of safety shall not be diminished				
	8.7.1.4	Welding						
		8.8		Welding				
		8.7.1.5		Design / Weld Engineer				
	8.7.1.7	Repairs and Replacements						
		8.6.2		for repairs				
		8.6.3		for replacements				
	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
	8.7.2.2	Pit Guards			Minor B	Minor A		
	8.7.2.2	Pit Access			Minor B	Minor A		
X	8.7.2.2	Pit Illumination			Minor B	Minor B		
x		2.2.5		Illumination of Pits				
X	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
x		2.2.6		Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major		
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
	8.7.2.7.2	Means of Access			Minor B	-		
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
X	**8.7.2.7.6**	Lighting (no reduction)			Minor B	Minor A		
x		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
X	**8.7.3.8**	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B	mrr	Minor B
x		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts)			-	Minor B		
x		also installation of Monitoring Equipment, HVAC						
x		2.8.		Equipment in Hoistways and Machine Rooms				
x				CSA Labeling (or equivalent)				
x				OESC, CSA C22.1 as required				
x		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
x		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major		
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		

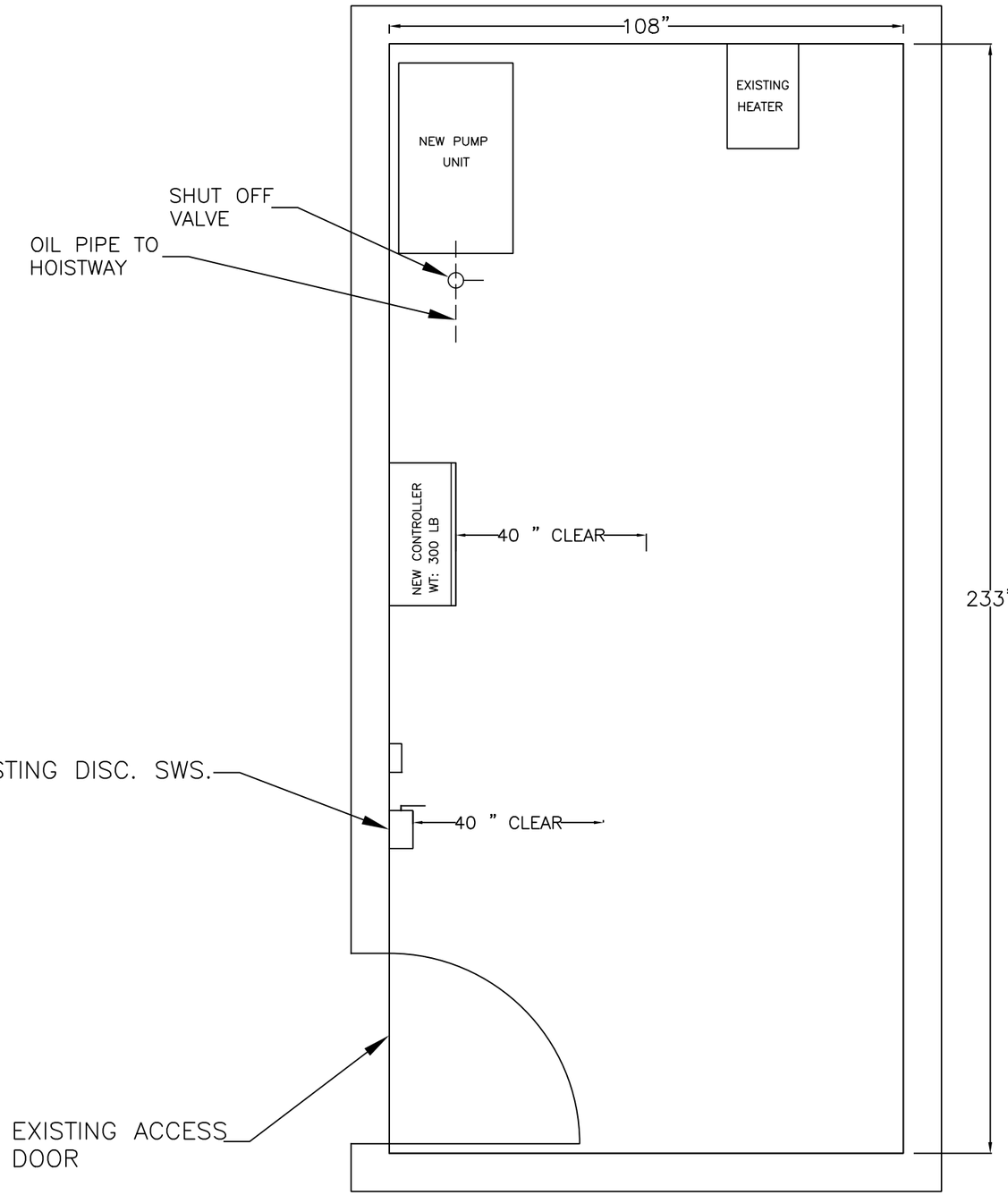
0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.11	Hoistway Door-Locking Devices			See 8.7.2.11			
X	**8.7.2.11.1**	Interlocks			-	Major	mrr	Minor B
x			2.12.1	General				
x			2.12.2	Interlocks				
x			2.12.4	Listing/Certification Locking Devices				
x			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
x			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
x			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
			8.7.2.11.3	requirements specified				
	8.7.2.11.4	Access switches and Unlocking Devices						
X	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
x			2.12.6	Hoistway Door Unlocking Devices				
X	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
x			2.12.7	Hoistway Access Switches				
x			2.24.8	Braking Systems & Driving Machine Brakes				
x			2.26.1.4	Inspection Operation				
X	**8.7.2.11.5**	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
x			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
X	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
x			2.13.	Power Operation of Hoistway Doors and Car Doors				
x			8.7.2.15★1,★2					
	CAD 8.7.2.12★2	★ Replacement of Door Reopening Device			See 8.7.2.13			
X	**8.7.2.13**	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
x			2.13.4	Closing Limitations for Power Operated HS Doors & Gates			see	
x			2.13.5	Reopening Device for Power Operated Car Doors or Gates			8.6.3.8	
x				if FEO provided, door opening & closing to PHI &II at time of install				
x			8.7.2.15★1,★2					
	8.7.3.13	Car Enclosures			See 8.7.2.14			
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
			8.7.2.15★1,★2					
X	CAD 8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
x				verify inspection operation 'if provided'				
x				verify stop sw				
x				verify switches operate as before (eg. FS, FEO, Access)				
x			8.7.2.15★1,★2					
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
			8.7.2.15★1,★2					
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
X	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
x			2.14.2.3	Ventilation				
X	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
x			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
			2.14.4	Passenger and Freight Car Doors/Gates, General Requirements				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
X	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials						
x			2.14.	Car: Enclosure, Doors, Gates, Illumination				
x				enclosure material flame ratings shall not be diminished				
x				2.14.1.7 car top railing - see CAD 8.7.2.14★4		Minor A		
x				2.14.7.1.3 auxiliary lighting		Minor B		
x				2.14.7.1.4 car top light & outlet		Minor B		
x			★	CAD 8.7.2.15★1	Minor B		Minor B	
				or				
			★	CAD 8.7.2.15★2	Minor A		Minor A	
X	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
x			2.14.	Car: Enclosure, Doors, Gates, Illumination				
x				2.14.1.7 car top railing				
x				2.14.7.1.3 auxiliary lighting				
x				2.14.7.1.4 car top light & outlet				
X	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD	8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)				
			or					
		CAD	8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)				
				car top run buttons not enabled until extended				
				normal operation not enabled until stowed				
				electrical limits to ensure car top clearance in overhead				
				minor A submission template				
			8.7.2.15★1,★2	car weighed prior to alteration				
	8.7.3.14	Car Frames and Platforms			Major	-		Major
	8.7.3.15	Safeties		Car or Cwt (plunger gripper see 8.7.3.23.7)	⇩ See Below ⇩			
	8.7.3.16	Governors and Governor Ropes			See 8.7.2.19			
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
			3.16.4	2.16.4 except 2.16.4.3				
	8.7.3.20	Increase in Rated Load			Major	-		
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
			3.14.	Car: Enclosure, Doors, Gates, Illumination	n/a			
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	car top guard rail to 8.7.2.14★4				
			3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			3.16.	Capacity & Loading				
			3.17.	Car and Counterweight Safeties				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			3.22.	Buffers and Bumpers				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.24.5	Counterweight Sheaves				
			8.7.3.23.4	Increase in Working Pressure				
			CAD 8.7.2.15★1					
X	CAD 8.7.3.21★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
x		CAD	8.7.2.15★1					
	CAD 8.7.3.21★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD	8.7.2.15★2					
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.23	Hydraulic Equipment			⇩ See Below ⇩			
	8.7.3.23.1	Alter / Install / Replace Hydraulic Jacks			Major	-		Major

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.23.2	Alter / Install / Replace		Plungers	Major	-	Minor A	
	8.7.3.23.3	Alter / Install / Replace		Cylinders	Major	-	Minor A	
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
	8.7.3.23.5	Change in Location of Hydraulic Jack			Major	-		
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
X	8.7.3.24 (a)	Alter / Replace		Control Valves	Minor A	-	Minor B	
x			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
X	8.7.3.24 (b)	Alter / Replace		Relief Valves	Minor A	Minor A	Minor B	
x			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
X	8.7.3.24 (b)	Alter / Replace		Check Valves	Minor A	Minor A	Minor B	
x			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
X	8.7.3.24 (b)	Alter / Replace		Pressure Piping or Fittings	Minor A	Minor A	Minor B	
x			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.3.26	Counterweights - Addition of			-	Major		
	8.7.3.27	Car Buffers and Bumpers			Major	-	mrr	Minor B
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
X	8.7.3.29	Alteration to		Tanks	Minor B	-	Minor B	
x			3.24.	Hydraulic Machines and Tanks			see 8.6.3.10.4	
X	CAD 8.7.3.29★1	★ Addition of Oil Cooler			Minor B		Minor B	
x			8.7.3.8	Electrical Wiring, Pipes, and Ducts in H/W and M/C rooms				
x			2.7.2	Maintenance Path and Clearance				
x			3.10.	Guarding of Exposed Auxiliary Equipment				
X	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
x			3.25.	Terminal-Stopping Devices				
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
X	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
x			3.26.2	Inspection Operation				
	CAD 8.7.3.31★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
			2.26.1.4	Inspection Operation				
	CAD 8.7.3.31★2	Addition of Top-of-Car Operating Device (see CAD 3.8.3)			-	Minor A		
			2.26.1.4	Inspection Operation				
			8.7.2.15★1,★2					
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
	8.7.3.31.3	Alter / Replace		Anti-Creep Leveling Device	Minor B	-	Minor B	
	CAD 8.7.3.31★3	★ Door By-Pass Switches			Minor A	Minor A		
	CAD 8.7.3.31★4	★ Door Monitoring System			Minor A	Minor A		
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
	CAD 8.7.3.31★5	★ Addition of Soft Start				Minor A		
	CAD 8.7.3.31★6	★ Addition of Power Efficiency Increasing Device				Minor B		
	8.7.3.31.5	Controllers						
X	8.7.3.31.5(a)	Install / Replace		Elevator Controller	Major	-	Major	
x			3.25.	Terminal-Stopping Devices				
x			3.26.	Operating Devices and Control Equipment				
x			3.26.1	Operating Devices and Control Equipment				
x			3.26.2	Inspection Operation				
x			3.26.3	Anti-Creep and Leveling Operation				
x			3.26.4	Electrical Protective Devices				

New=New Installation †=No Inspection Req'd (*)=w/Exemptions ★=TSSA Designated Alteration or Requirement mrr=maint/repair/replace no submission req'd

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r2 Scope of Alteration - B44 - 2010 as amended by CAD 261/13-r1 Part, Section or Requirement Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
x			3.26.5	Phase-Reversal and Failure Protection				
x			3.26.6	Control and Operating Circuits				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
x			3.26.8	Pressure Switch				
x			3.26.9	Low Oil Protection				
			3.26.10	Auxiliary Power Lowering Operation				
x		★	2.7.9.2	Temperature and Humidity				
x			2.27.2	when E.P. Is provided				
x			3.27.1	Phase 1 Emergency Recall Operation after Device Actuation				
x			3.27.2	Phase 1 Emergency Recall Operation prior to Device Actuation				
x			3.27.3	Device Acutation at Recall Level				
x			3.27.4	Device Acutation with Phase II Emergency In-Car in Effect				
x				If FEO previously present or required by OBC;				
x			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
x				2.27.3.1 Phase 1 Recall Operation				
x				2.27.3.2 Phase 1 Recall Operation by FAID's				
x				CAD 2.27.3.2.2				
x				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
			2.27.4	FEO: Non Automatic Elevators				
			2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation				
x			2.27.6	FEO: Inspection Operation				
x			2.27.7	FEO: Operating Procedures				
x			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				
	CAD 8.7.3.31★7	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
	8.7.3.31.5(b)	Install / Replace		Door Controller	Minor A	-	Minor B	
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
	8.7.3.31.7	Change in Type of Operation Control - CPPB, Automatic			Major	-		
	CAD 8.7.3.31★8	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
	CAD 8.7.3.31★9	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
	8.7.3.31.8	Emergency Operation and Signaling Devices						
X	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
x			2.27.1	Car Emergency Signaling Devices				
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B		
X	**8.7.3.31.10**	Removal of emergency stop switch on passenger elevators			Minor B	Minor B		
x				remove all related markings / engravings & provide an in-car stop switch to:				
x			2.26.2.21	In-car stop switch				
x			2.26.4.3	Positively Opened Contacts				
x			2.26.9.3.1(a)	single failure does not render In-Car Stop Switch ineffective				
x			3.26.4.2	deceleration rate <1g, anticreep must still function				
	8.7.3.31.11	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device		if device meets 2.26.4.3.2 (PES)	Major	Major	mrr	Major
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device		if device meets 2.26.4.3.1	-	Minor A	mrr	



PLAN VIEW – EXISTING MACHINE ROOM

REVISIONS			
	DESCRIPTION	DATE	APPROVED

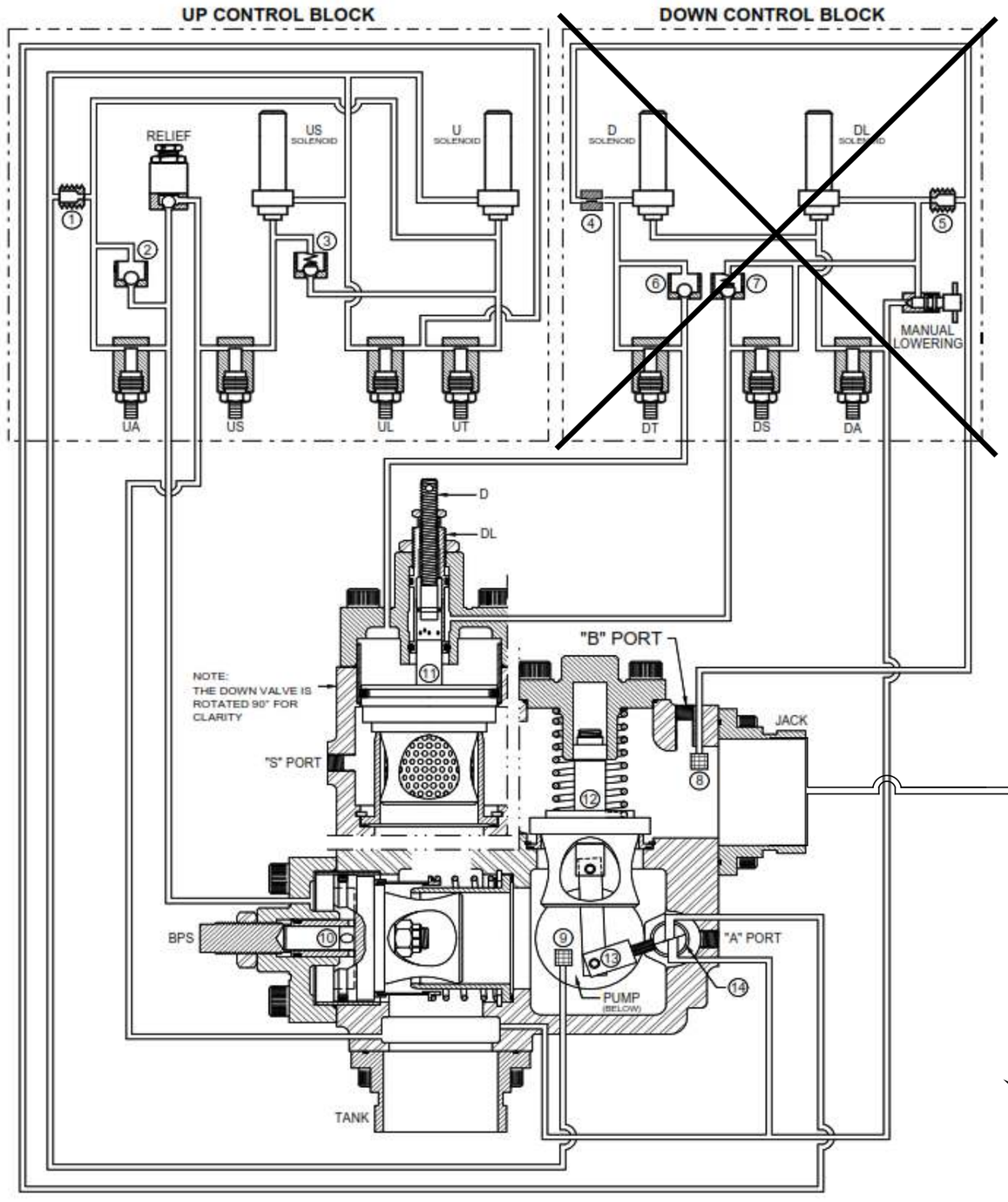
TECHNICAL DATA ELEVATOR:

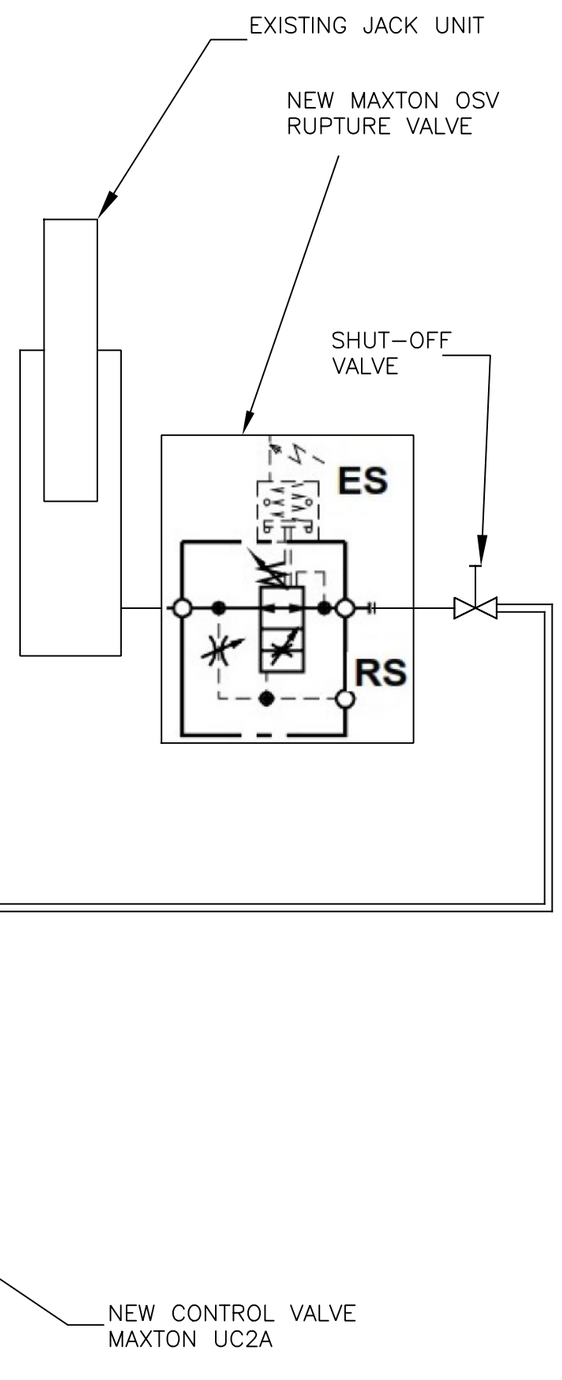
RATED LOAD: 2500LB 1134kg 15P
RATED SPEED: 125 FPM 0.635 m/s
TRAVEL: N/C
LANDINGS: 5
OPENINGS: 5 FRONT
DOOR OPERATOR : GAL MOVFE 2500–HH
OPERATION: AUTOMATIC
CONTROLLER: SMARTRISE SRH
CONTROL: MAXTON VALVE UC2A STD
OVERSPEED VALVE: MAXTON OSV
PUMP: SETTIMA GR55 SMU 380L
MAINS SUPPLY AT DISC. SW.: 575V–3PH
MOTOR POWER: 25HP 26.9 FLA @575V
PLUNGER OD: N/C
CYLINDER: N/C
CORROSION PROTECTION: N/C
MAX FINAL EMPTY CAR WT.: 3594 LB 1630 KG
TSSA INSTALLATION No.: 030816

RIDEAU ELEVATOR SERVICES INC.

MAJOR ALTERATION – (1) PASSENGER ELEVATORS
1950 MONTREAL RD, CORNWALL, ON K6H 1G2

SIZE	FSCM NO.	DWG NO.	REV
		MR 1950 MONTREAL CAR 4	0
SCALE NTS	DATE 28–JAN–21	SHEET 1 OF 1	





NEW CONTROL VALVE
MAXTON UC2A

TECHNICAL DATA:

RATED LOAD: 2500 LB 1134 kg 15P
RATED SPEED: 125 FPM 0.635 m/s

TSSA INSTALLATION No.: 30816

1. MAXIMUM UA ORIFICE
2. UT BALL CHECK
3. US BALL CHECK
4. ~~MAXIMUM DT ORIFICE~~
5. ~~MAXIMUM DS ORIFICE~~
6. ~~DT BALL CHECK~~
7. ~~DS BALL CHECK~~
8. ~~DOWN STRAINER ASS'Y~~
9. UP STRAINER ASS'Y
10. BPS PISTON & GUIDE ASS'Y
11. ~~DOWN PISTON & GUIDE ASS'Y~~
12. CHECK PISTON & GUIDE ASS'Y
13. CHECK LINKAGE
14. LS ADJUSTER (ABOVE)

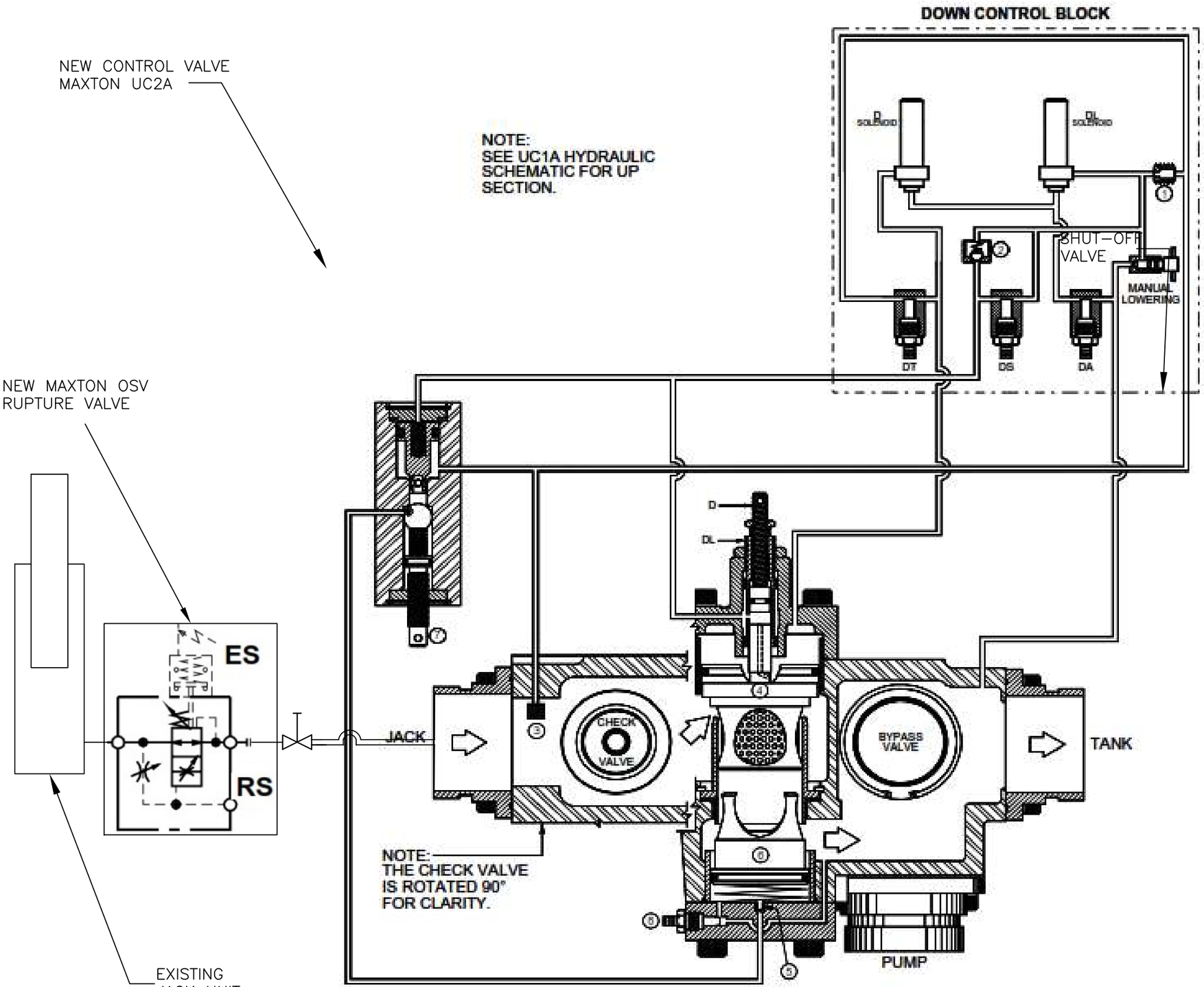
RIDEAU ELEVATOR SERVICES INC.

MAJOR ALTERATION – 1 PASSENGER ELEVATOR

1950 MONTREAL RD, CORNWALL, ON K6H 1G2

SIZE	FSCM NO.	DWG NO.	REV
		HS 1950 MONTREAL CAR 4	0

SCALE	DATE	SHEET
NTS	28–JAN–21	1 OF 2



1. MAXIMUM DS ORIFICE
2. DS BALL CHECK
3. DOWN STRAINER ASS'Y
4. DOWN PISTON & GUIDE ASS'Y
5. RESTRICTOR ORIFICE
6. RESTRICTOR PISTON ASS'Y
7. DOWN SPEED REGULATOR ADJUSTER (DSR)
8. BALANCE ADJUSTER (BA)

RIDEAU ELEVATOR SERVICES INC.

MAJOR ALTERATION – 1 PASSENGER ELEVATOR
1950 MONTREAL RD, CORNWALL, ON K6H 1G2

SIZE	FSCM NO.	DWG NO.	REV
		HS 1950 MONTREAL CAR 4	0

SCALE	DATE	SHEET
NTS	28–JAN–21	2 OF 2

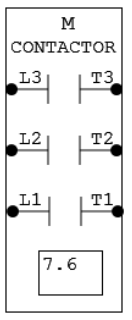
Smartrise Engineering Index

200610-003, NAV CANADA CAR 4, 07-08-2020

Device Lookup	
Device:	Location in drawings:
Battery Power	[2.15], [3.6]
Buffer Switch	[7.3]
Cabinet Light	[3.11]
Car Arrival Lantern	[9.90]
Car Call Buttons	[9.5]
Car Call Lamps	[9.4]
Car Call Security	[9.6]
Car Door Controls	[9.9]
Car Safeties	[7.4]
Car Top Inspection	[8.1], [10.4]
CN Network	[2.2], [7.1], [7.2], [8.5]
DC Power Supply	[3.2]
Enclosure Cooling	[3.9]
Final Limits	[7.3]
Fire Service (COP)	[9.7]
Fire Smoke Detectors	[2.7]
Front Door Operator	[8.3], [11.1]
Hall Network (Car)	[2.2], [13.91], [12.1]
Hoistway/Access Inspection	[9.10], [2.1], [6.5]
Hydro Contacts	[2.11]
In Car Inspection	[9.10], [9.80]
In Car Stop	[9.10]
Interlocks	[6.2], [6.1], [2.1]
Landing System	[8.2], [10.5]
Light/Fan Circuit	[10.3]
Machine Room Inspection	[2.4]
Main Line Connections	[3.3]
Pit Switch	[7.3]
Position Indicator (Car)	[10.1]
Position Indicator (Hall)	[6.4]
Safety Relays	[2.3], [7.6]
Safety String	[7.4], [7.2], [7.1], [7.3], [7.5],
Soft Starter and Motor	[2.9], [4.1]
Telephone	[3.3], [7.1], [7.2], [10.2]
Transformer	[3.1]
Valves	[2.9], [4.2]

Sheet #	Description
0	Overview Page
1	Getting Started/ Construction
2	Machine Room I/O and Direct Connections
3	Machine Room Power
4	Motor and Drive
5	Brakes / Hydro Options
6	Hall and Hoistway Connections
7	Traveler and Safety String
8	CT Board IO and Direct Connections
9	COP Board IO and Direct Connections
10	Car Device Connections
11	Door Operator(s)
12	Hall Network Addressing and Configuration
13	Group Connections w/ Hall

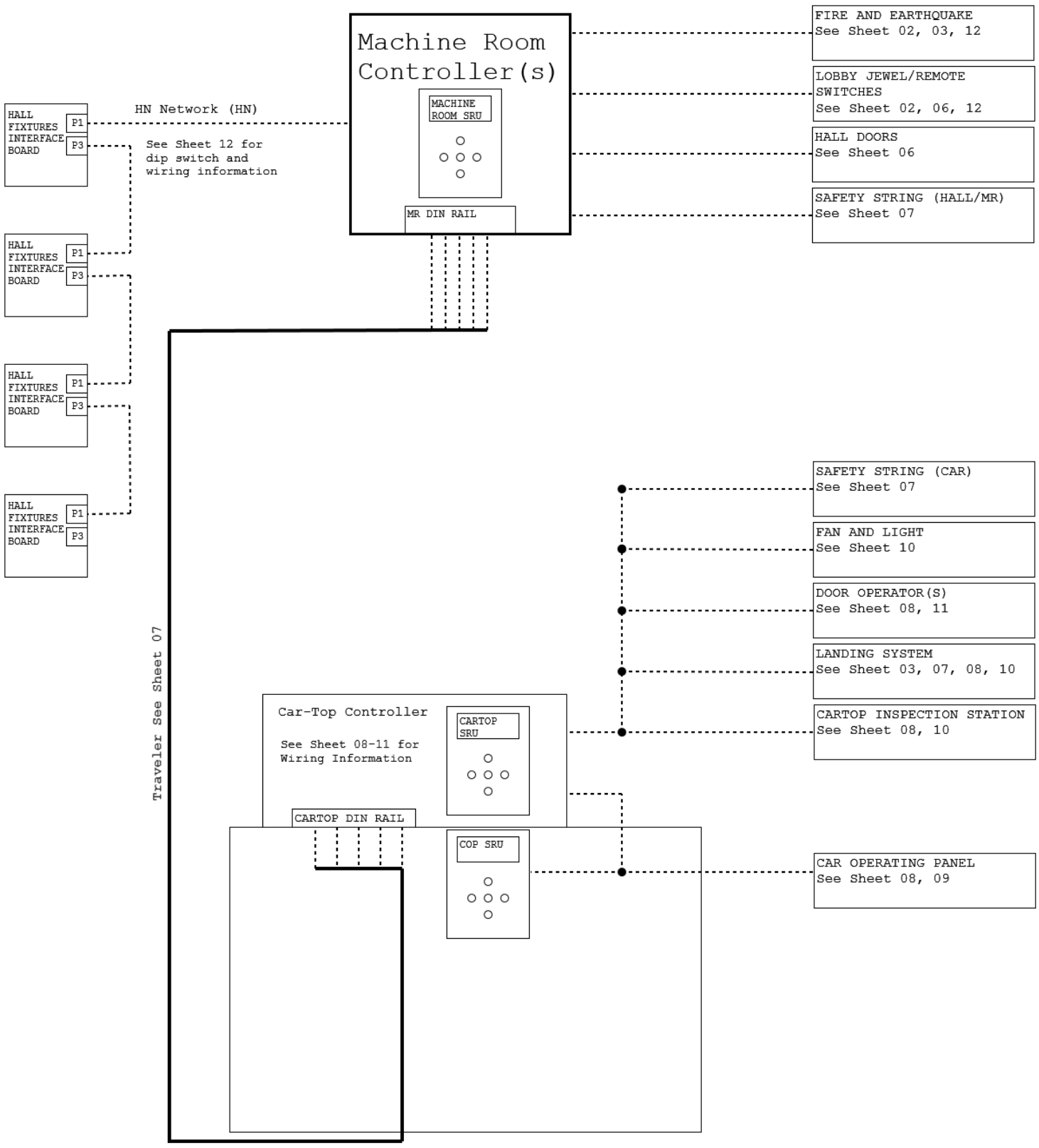
Symbol:	Description:
	Coil
	Lamp
	Audible Device: (e.g. Buzzer/Chime)
	Toggle Switch
	Normally Open Push Button
	Contact: Normally Open (N.O.)
	Contact: Normally Closed (N.C.)
	Factory Connected Wire
	Field Connected Wire
	Terminal Block
	Recommended Terminal Block
	Off Page Connection
14	Hoistway Bundle Connection (wire 14 shown)
MR [5xx] or [6xx]	Machine Room Board (MR Board)
CT [5xx] or [6xx]	Car Board 1 (Car-Top Board)
COP [5xx] or [6xx]	Car Board 2 (COP Board)
EXP [5xx] or [6xx]	Expansion SRU (EXP)
(device name)	Device Connection (e.g. "drive")
(r.coil) or (r.cont) (c.coil) or (c.cont)	Relay or Contactor Coil or Contact
Building	Building Connection

Notes:	Examples:
Distant connections are reference made to a connection that is shown on another page. The distant connection reference the sheet and section where the connection is made.	EQRST → 3.4 EQRST is a switch where the connections are continued on Sheet 3, section 4, shown as: 3.4 DCL-R → 8.3 DCL-R is a field connection that's continued on sheet 8, section 3, shown as: 8.3
Contactors or Relay coils/contacts that are shown in a different section that the corresponding coil/ contacts have a reference to the sheet and section where the coil/contacts are located.	The M Contactor has more connections that are shown on sheet 7, section 6, Shown as: 7.6 

Traveler Cable Details: Minimum conductor counts (no Spares)	
Traveler, 14 awg	3
Traveler, 18 awg	14
Traveler, Shielded Pairs	2

Hoistway Cable Details: Minimum conductor counts (no Spares)	
Hoistway, 18 awg	17
Hoistway, Cat-5 Package	1

Smartrise Engineering more time for everything else	DRAWN BY: Jeff Larson	COMPANY NAME: Rideau Elevator - Ontario, CA	ALL WIRES ARE 18 AWG UNLESS OTHERWISE NOTED	JOB:NAV CANADA CAR 4	NUMBER:200610-003
	CHECKED BY: Jeff Larson			SHEET:00-INDEX	REVISION:A



Smartrise Engineering more time for everything else	DRAWN BY: Jeff Larson	COMPANY NAME: Rideau Elevator - Ontario, CA	ALL WIRES ARE 18 AWG UNLESS OTHERWISE NOTED	JOB:NAV CANADA CAR 4	NUMBER:200610-003
	CHECKED BY: Jeff Larson			SHEET:00-OVERVIEW	REVISION:A

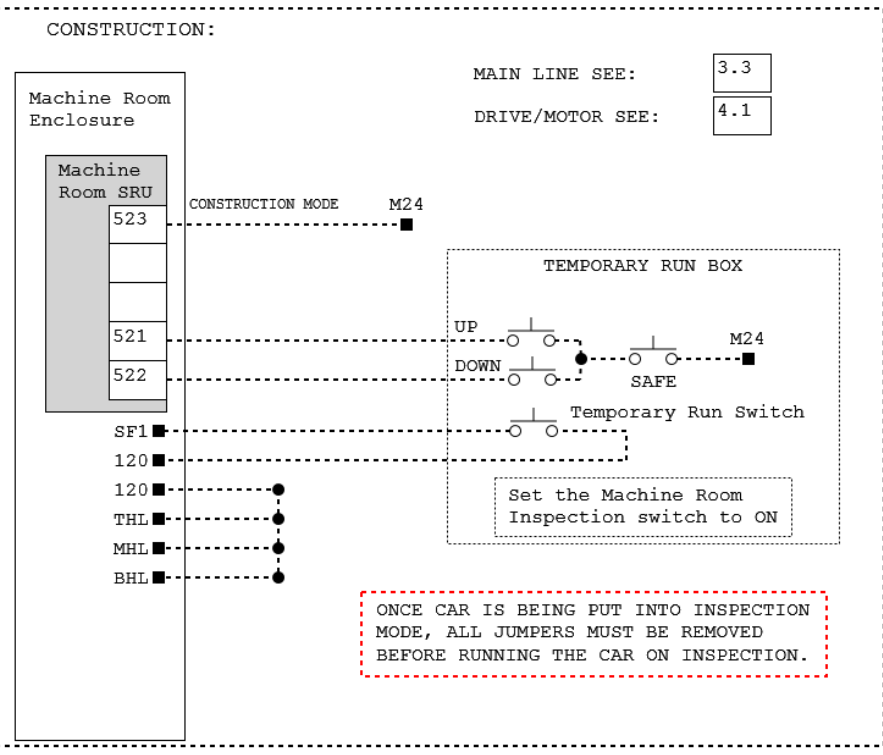
VERSION:	3	GROUP/ SIMPLEX:	Simplex	MACHINE ROOM:	X	CARTOP:	X	COP:	X	FIRE CODE:	ASME A17.1: 2010	ADDITIONAL:	ONTARIO

Job Specifications:

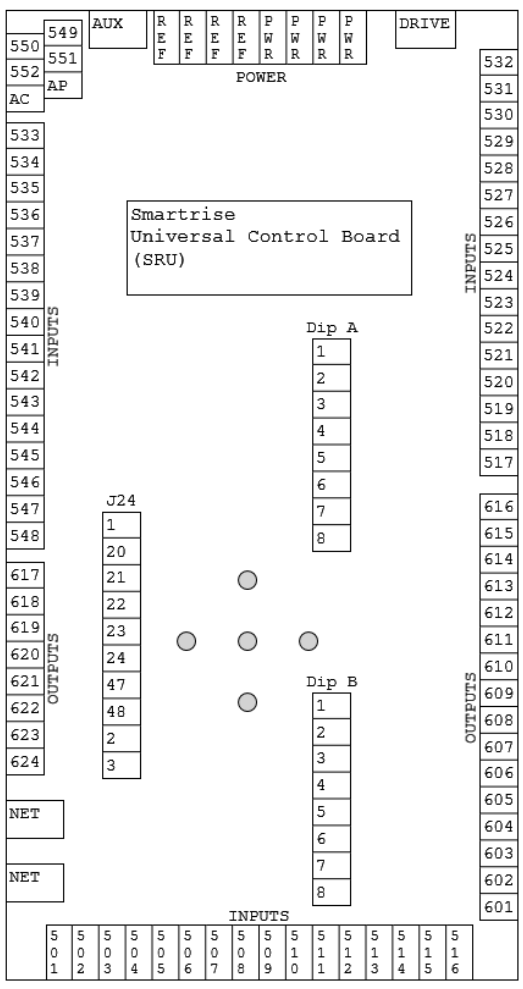
Car	Group #	Group Car ID	Contract Speed	Floors	Capacity	Main Line Voltage	Motor Volts	Motor HP	Motor FLA	Minimum Drive AWG	Minimum Motor AWG	Disc. Size	Starter:
4	N/A	N/A	125	5	2500	600	600	25	27	10	14	35	PCEC-074-600V-120V

Car	Doors	DR Breaker Voltage	Valve Volts
4	1	220	120vac

CONSTRUCTION:



SRU OVERVIEW:



SMARTRISE CONTROLLERS WIRE COLORING SCHEME.	
WIRE COLOR:	DESCRIPTION OF USE IN CONTROLLER:
BLACK	MAIN LINE VOLTAGE
RED	CONTROL CONDUCTORS (50-600Volts)
WHITE	RETURN (50-600Volts)
BLUE	POWER (0-50Volts)
BLUE AND WHITE	RETURN (0-50Volts)
GREEN AND YELLOW	EQUIPMENT GROUNDING CONDUCTOR

NOTE: Below wires noted <1> are 14 AWG and wires noted <2> are 20-24 AWG shielded pairs

Traveling Wires:		
Wire:	Recommended:	
CN+ <2>	Pair: 1	
CN- <2>		
TP1 <2>	Pair: 2	
TP2 <2>		
BLK <1>	BLACK	
WHT <1>	WHITE	
PE <1>	GREEN	
QS	1	
SLOW	2	
REF	3	
C24	4	
SA2	5	
S22	6	
PN1	7	
PN2	8	
PN3	9	
E24	10	
DR	11	
120	12	
N	13	
TSF	14	

Hoistway Wires:		
Wire:	Recommended:	
PIT	1	
BUF	2	
BFL	3	
TFL	4	
HSF	5	
120	6	
THL	7	
MHL	8	
BHL	9	
H24	10	
REF	11	
E24	12	
CE3	13	
ATU	14	
ATD	15	
ABU	16	
ABD	17	

Smartrise Engineering
more time for everything else

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CHECKED BY: Jeff Larson			SHEET:01-GETTING STARTED	REVISION:A

MR SRU (LOCATED IN MACHINE ROOM)

MACHINE ROOM POWER 2.0

PWR	■ M24	
REF	■ REF	

HOISTWAY 2.1

544	TOP LOCKS 2	→ 6.1
503	TOP LOCKS 1	→ 6.1
543	INTERMEDIATE LOCKS 2	→ 6.1
502	INTERMEDIATE LOCKS 1	→ 6.1
542	BOTTOM LOCKS 2	→ 6.1
501	BOTTOM LOCKS 1	→ 6.1
534		
533	TOP ACCESS UP	■ ATU
536		
535	TOP ACCESS DOWN	■ ATD
538		
537	BOTTOM ACCESS UP	■ ABU
540		
539	BOTTOM ACCESS DOWN	■ ABD

COMMUNICATION 2.2

NET	Green/White	■ HN+
	Green	■ HN-
	Orange/White	■ CN+
	Orange	■ CN-
548		■ PN1
623		■ PN2
624		■ PN3

SAFETY RELAYS AND CONTACTORS 2.3

547	MECO	→ 7.6
602	ECO	→ 7.6
517	MSFH	→ 7.6
622	CSFH	→ 7.6
604	CSF1	→ 7.6
514	MSF1	→ 7.6
531	SAFETY STRING (SS)	→ 7.6

MACHINE ROOM INSPECTION 2.4

E24 ■

SR-2001

551	HALL DOOR BYPASS 1	+24	
552	HALL DOOR BYPASS 2	H1	Hall Door Bypass 1
549	CAR DOOR BYPASS 1	H2	Hall Door Bypass 2
550	CAR DOOR BYPASS 2	C1	Car Door Bypass 1
520	MR INSP ENABLE 1	C2	Car Door Bypass 2
541	MR INSP ENABLE 2	I1	MR Insp Enable 1
522	MR INSP DOWN	I2	MR Insp Enable 2
521	MR INSP UP	DN	MR Insp DOWN
		UP	MR Insp UP
		EN	Enable

PI DRIVER BOARD 2.6

AUX	Orange	V2 C4 SR CE PI DRIVER	
	Orange/White	NET-	
		NET+	DATA OUT → ■ CE3
REF ■		REF	
H24 ■		24v	

MR SRU (LOCATED IN MACHINE ROOM)

SMOKE SENSORS 2.7

SINGLE HOISTWAY SMOKE SENSOR. SEE MANUAL FOR WIRING SMOKES 3 AND 4 WHEN MORE THAN ONE HOISTWAY SENSOR IS TO BE USED

MACHINE ROOM SMOKE SENSOR EXCEPT WHEN MORE THAN ONE HOISTWAY SENSOR IS PRESENT ON THE JOB. SEE MANUAL.

H24 ■		"SMOKE 4" 507
		"SMOKE 3" 506
	SMOKE SENSOR AT MAIN LOBBY	"SMOKE 2" 505
	UPPER FLOORS SMOKE SENSORS	"SMOKE 1" 504

DISCRETE DRIVE CONNECTIONS 2.9

4.1	DRIVE FAULT (N.C.)	524
4.2	CSM	608
	CUPH	609
	CDNH	611
	CUPL	610
	CDNL	612
	CNUH	621
	CNUL	603
	CNDH	620
	CNDL	601

HYDRO CONTACTS 2.11

M24 ■	MOTOR OVERHEAT	546
	LOW OIL	545
	LOW PRESSURE	519

BACKUP POWER 2.15

H24 ■	UP TO SPEED (see note)	515
	ON EMERGENCY POWER	526
	PRE-TRANSFER	528
3.6	BATTERY POWER	516
H24 ■	ON BATTERY POWER	618

Emergency power signals need to be connected as shown for the car to operate.

LANDING SYSTEM 2.18

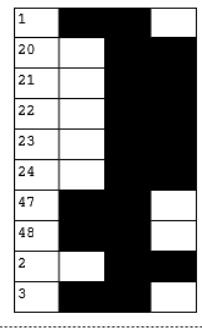
QS ■	QUICK STOP IN	511
SLOW ■	SLOW DOWN	527

CALL SECURITY 2.25

H24 ■	ENABLE ALL HALL CALLS	532

JUMPERS AND DIP SWITCHES MACHINE ROOM BOARD 2.99

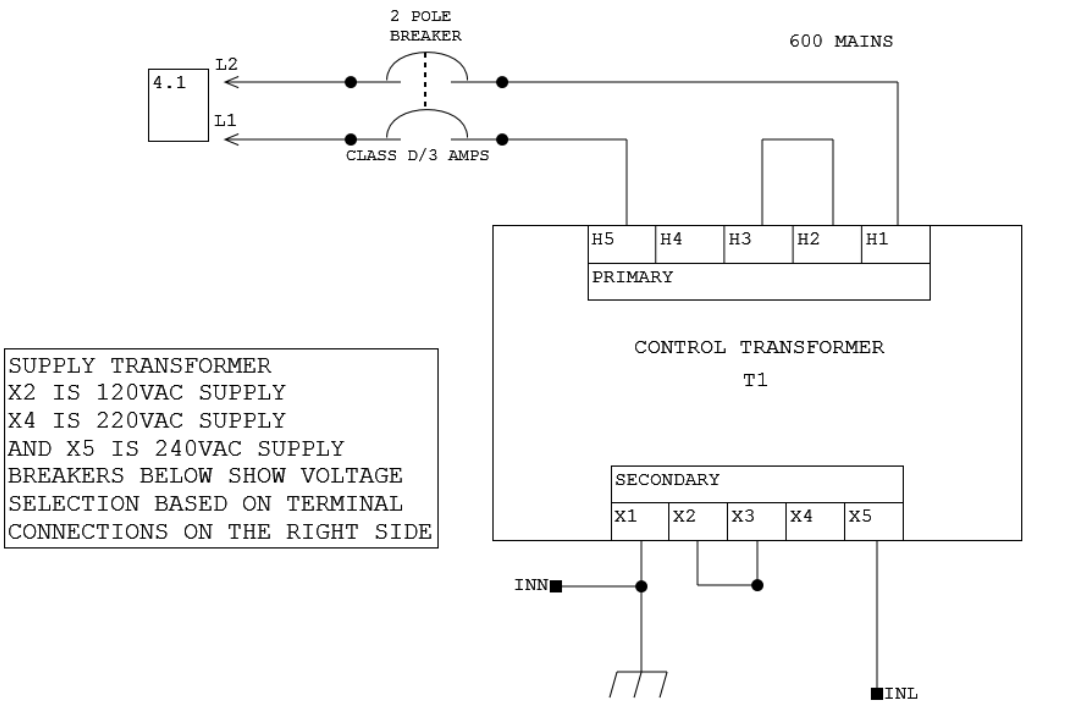
#	DIP A SWITCH USE:
1	CPU STOP SWITCH
2	LEARN MODE
3	DISABLE DOORS
4	
5	
6	POP UP BLOCKER
7	
8	TEST 8 (LEAVE OFF)



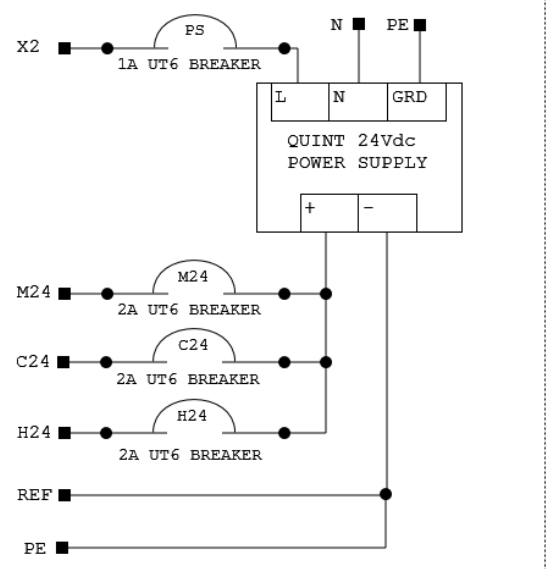
#	DIP B SWITCH STATE:
1	OFF
2	OFF
3	OFF
4	ON
5	OFF
6	OFF
7	ON
8	OFF

Smartrise Engineering more time for everything else	DRAWN BY: Jeff Larson	COMPANY NAME: Rideau Elevator - Ontario, CA	ALL WIRES ARE 18 AWG UNLESS OTHERWISE NOTED	JOB:NAV CANADA CAR 4	NUMBER:200610-003
	CHECKED BY: Jeff Larson			SHEET:02-MACHINE ROOM I/O	REVISION:A

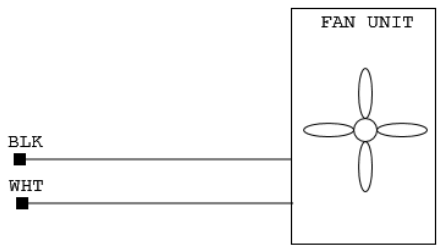
3.1 CONTROLLER POWER



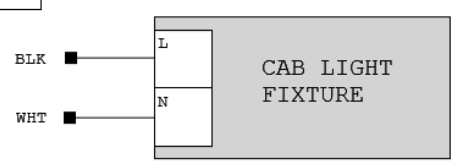
3.2 24VDC POWER SUPPLY



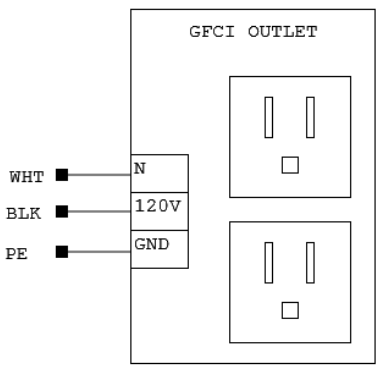
3.9 ENCLOSURE COOLING



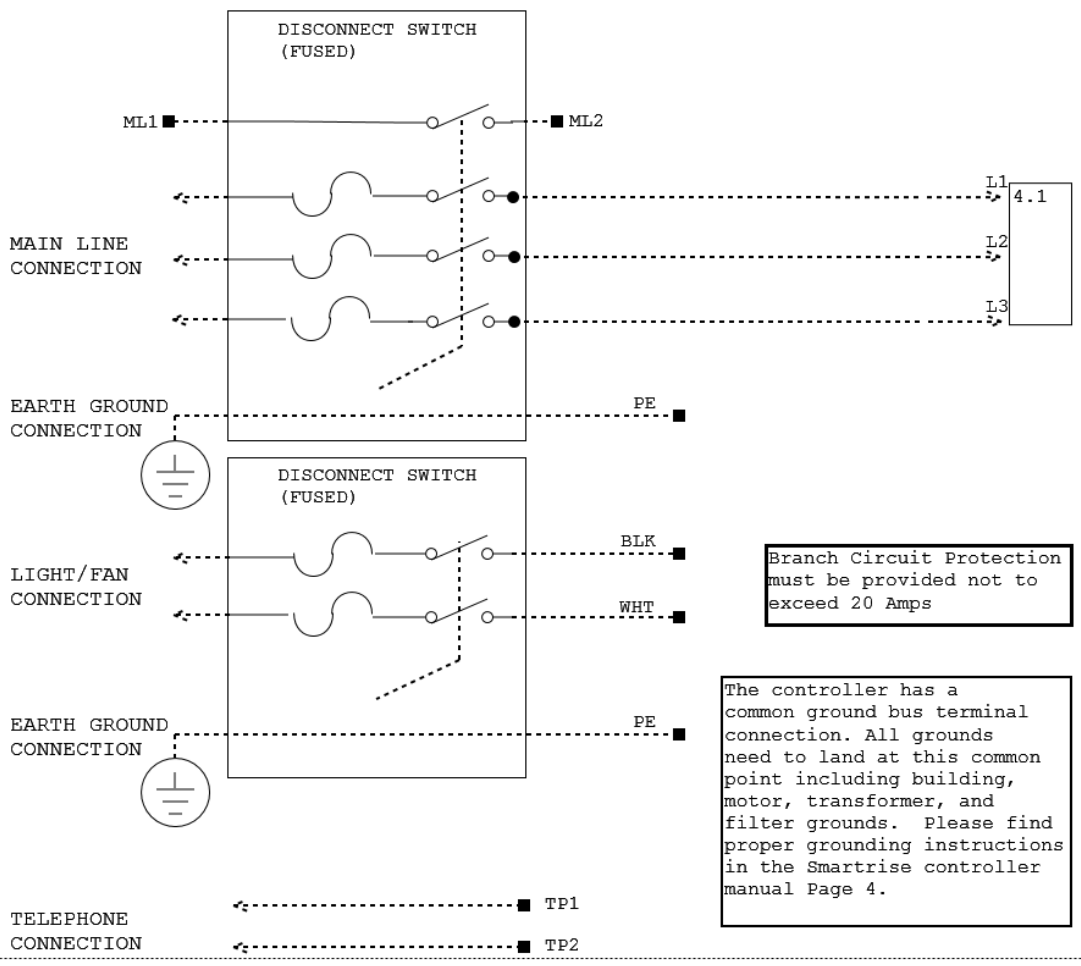
3.11 CABINET LIGHT



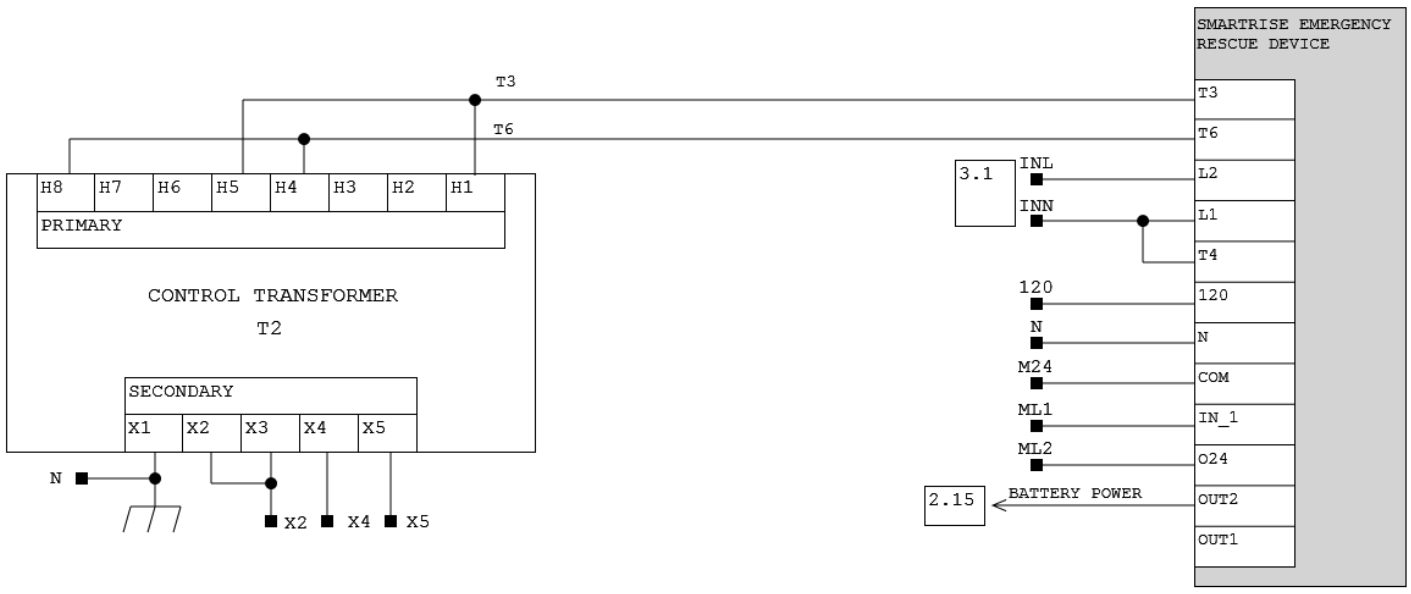
3.14 CABINET OUTLET



3.3 EXTERNAL CONNECTIONS



3.6 BACKUP POWER



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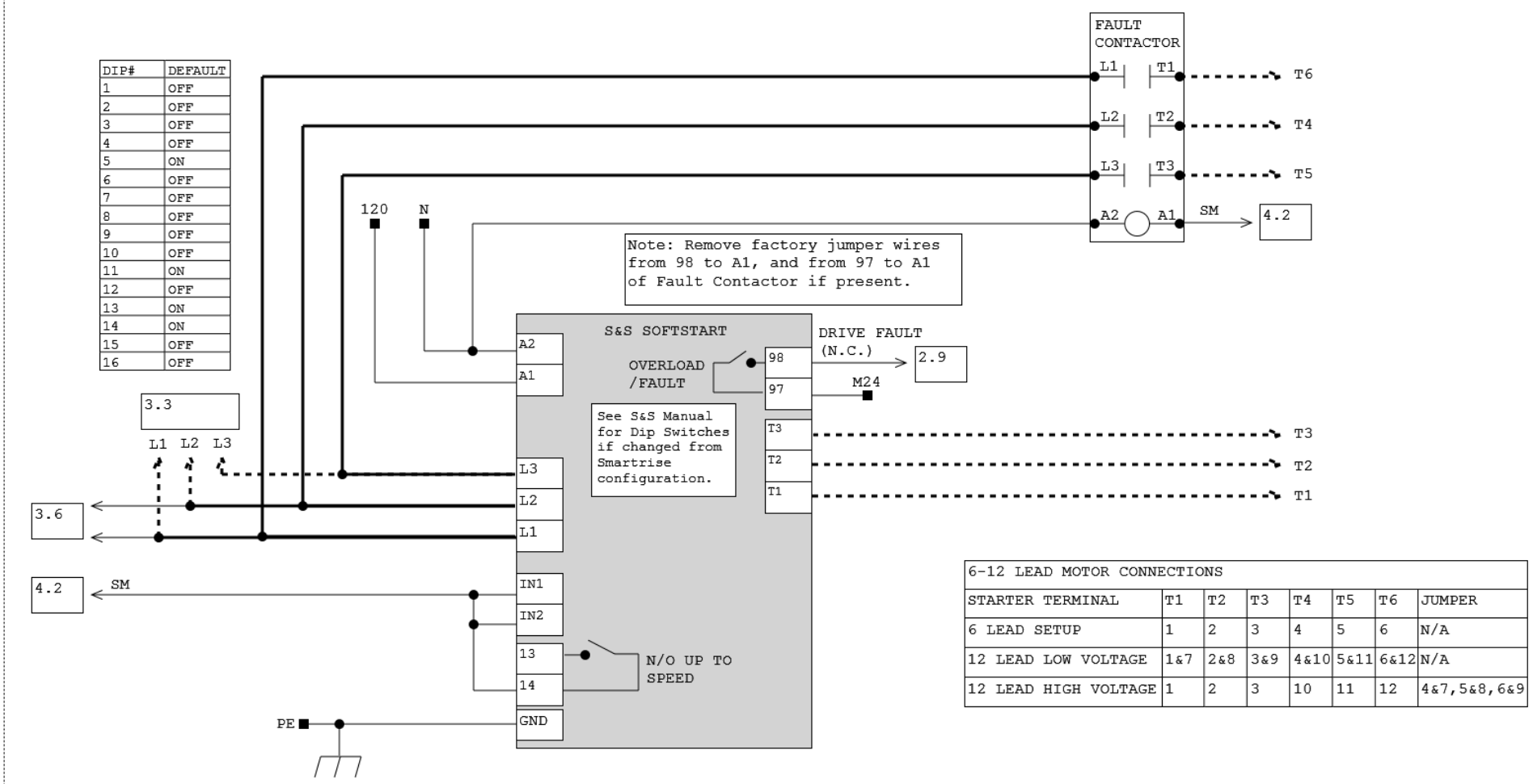
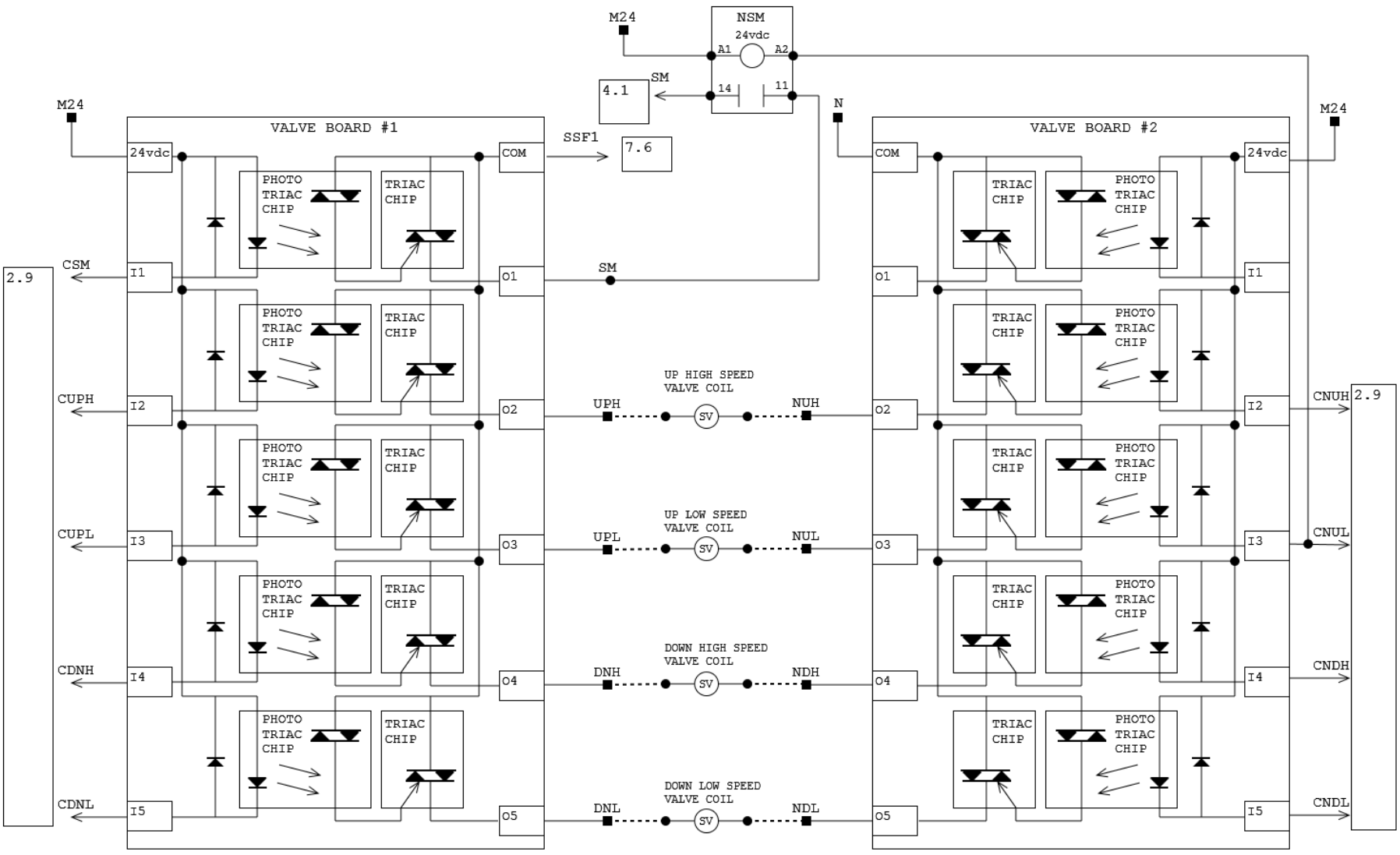
	CHECKED BY: Jeff Larson			SHEET:03-MACHINE ROOM CONNECTIONS	REVISION:A

4.1 DRIVE AND MOTOR



6-12 LEAD MOTOR CONNECTIONS							
STARTER TERMINAL	T1	T2	T3	T4	T5	T6	JUMPER
6 LEAD SETUP	1	2	3	4	5	6	N/A
12 LEAD LOW VOLTAGE	1&7	2&8	3&9	4&10	5&11	6&12	N/A
12 LEAD HIGH VOLTAGE	1	2	3	10	11	12	4&7,5&8,6&9

4.2 Valve Relays



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HYDRO NO OPTIONS

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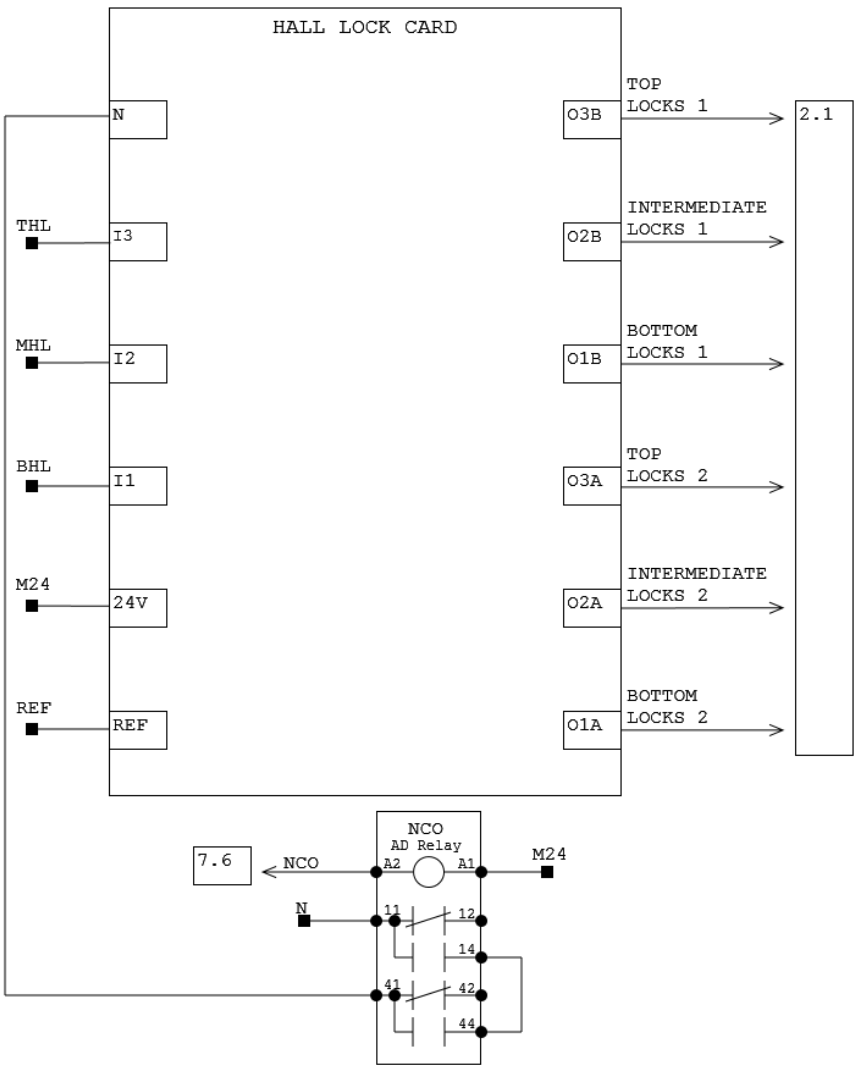
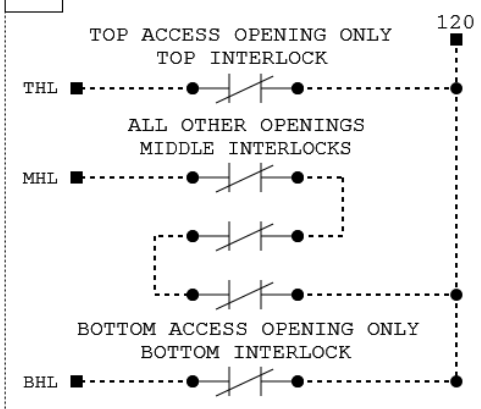
	CHECKED BY: Jeff Larson			SHEET:05-HYDRO OPTIONS	REVISION:A

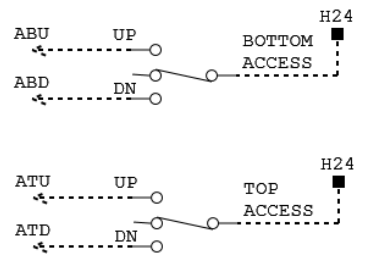
6.1 INTERLOCK RELAYS



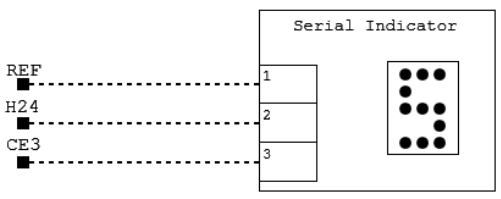
6.2 INTERLOCKS



6.5 ACCESS SWITCHES



6.4 SERIAL INDICATORS (I.E. LANTERNS, PI)



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	CHECKED BY: Jeff Larson			SHEET:06-HALL AND HOISTWAY	REVISION:A

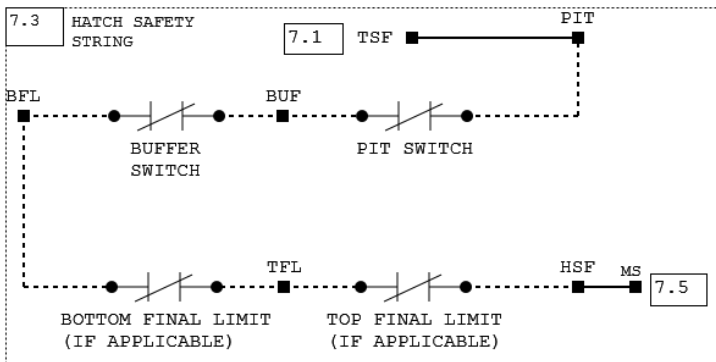
7.1 TRAVELING WIRES (MR)

TRAVELER

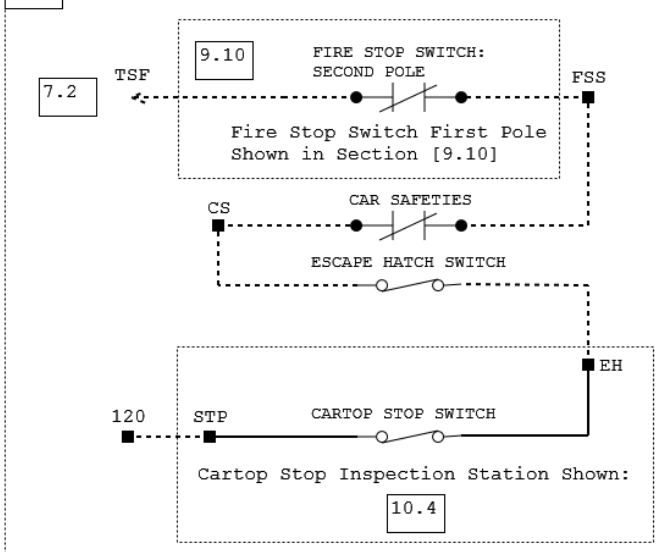
7.2 TRAVELING WIRES (CAR)

2.2	CN+	CN+	8.5	CN+ AND CN- SHIELD IS CONNECTED TO REF AT BOTH SIDES.
	CN-	CN-		
	REF	REF		
3.3	TP1	TP1	10.2	
	TP2	TP2		
	PE			
3.3	BLK	BLK		
	WHT	WHT		
	PE	PE		
2.18	QS	QS	8.2	
	SLOW	SLOW		
3.2	REF	REF		
	C24	C24		
7.6	SA2	SA2	8.5	
	S22	S22		
2.2	PN1	PN1		
	PN2	PN2		
	PN3	PN3		
7.6	E24	E24		
3.1	DR	DR		
	120	120		
	N	N		
7.3	TSF	TSF		

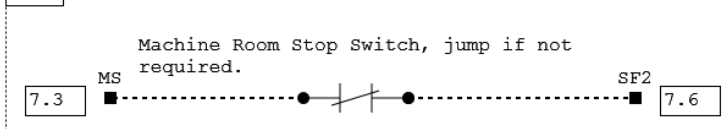
7.3 HATCH SAFETY STRING



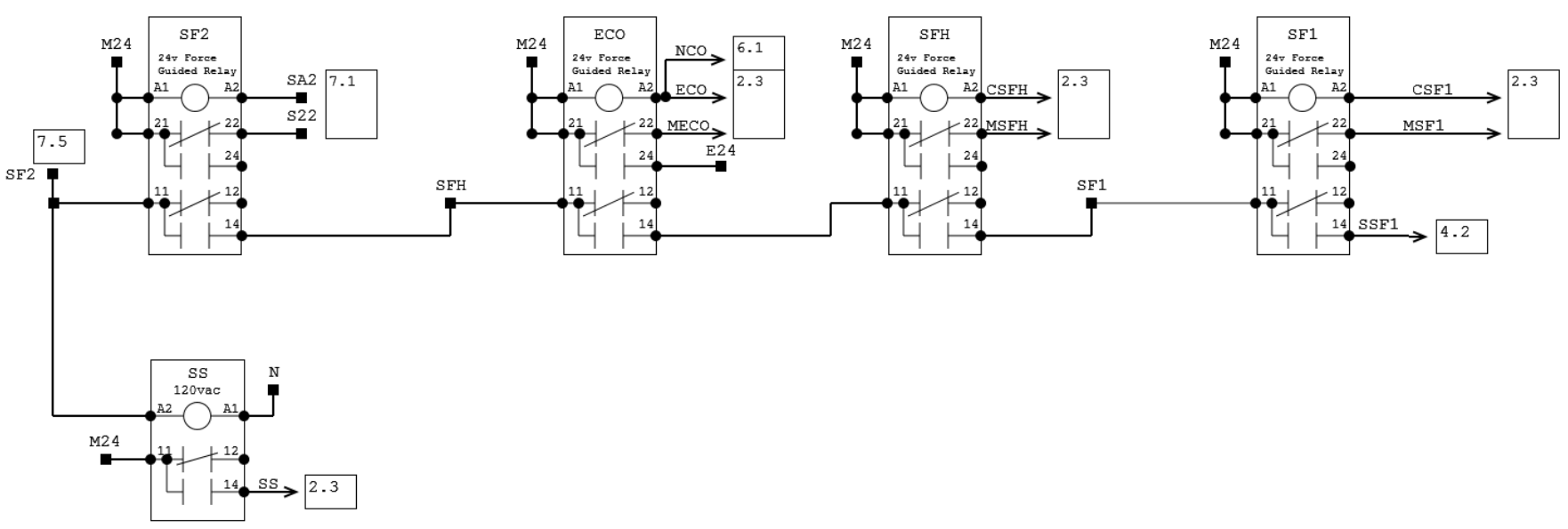
7.4 CAR SAFETY STRING



7.5 MACHINE ROOM SAFETY



7.6 SAFETY RELAYS AND CONTACTORS



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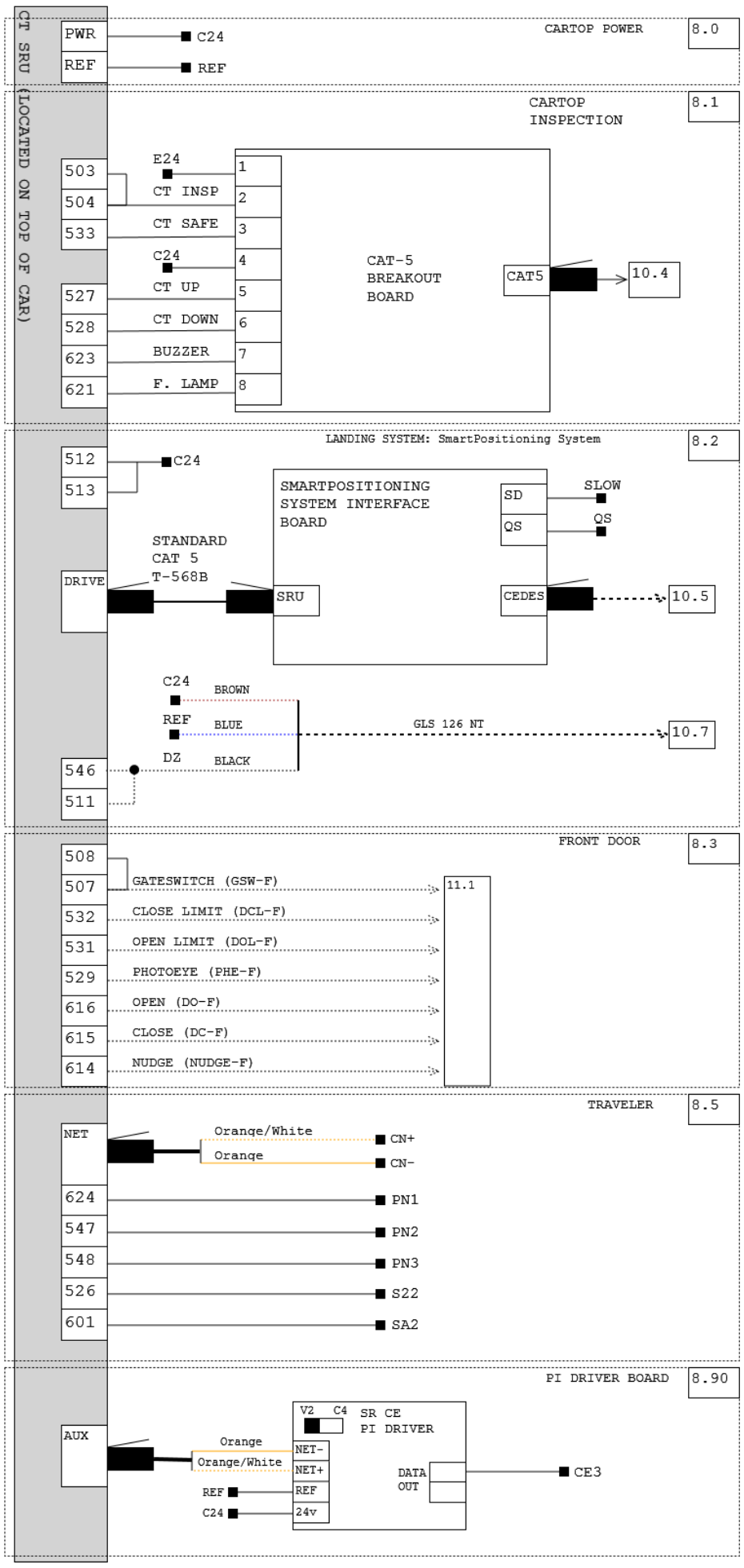
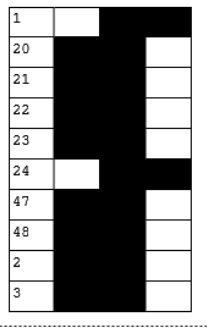
	CHECKED BY: Jeff Larson			SHEET:07-TRAVELER/ SAFETY STRING	REVISION:A



JUMPERS AND DIP SWITCHES CAR-TOP BOARD 8.99

#	DIP A SWITCH USE:
1	CPU STOP SWITCH
2	
3	
4	
5	
6	POP UP BLOCKER
7	
8	



#	DIP B SWITCH STATE:
1	OFF
2	OFF
3	OFF
4	ON
5	OFF
6	OFF
7	ON
8	ON

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MODIFIED BY FACTORY ORANGE PAIR REMOVED STANDARD CAT-5 T-568B

CT SRU (LOCATED ON TOP OF CAR)

NET
PWR

IN CAR INSPECTION 9.80

535 IC INSPECTION DOWN
534 IC INSPECTION UP
536 IC SAFE
SAFE
E24

SAFETY DEVICES 9.10

510 IN-CAR STOP 1
509
521 IC INSPECTION ENABLE
520
506 ACCESS INSPECTION
505
537 FIRE STOP SWITCH
E24

Note:
Jump Access Insp. to E24 if not req. Fire Stop switch second pole located in section [7.4]

COP SRU (LOCATED BEHIND COP)

NET
PWR

9.4 CAR CALL LAMPS
- CAR CALL LAMP FRONT 1 — 601
- CAR CALL LAMP FRONT 2 — 602
- CAR CALL LAMP FRONT 3 — 603
- CAR CALL LAMP FRONT 4 — 604
- CAR CALL LAMP FRONT 5 — 605

9.5 CAR CALL BUTTONS
- CAR CALL FRONT 1 — 501
- CAR CALL FRONT 2 — 502
- CAR CALL FRONT 3 — 503
- CAR CALL FRONT 4 — 504
- CAR CALL FRONT 5 — 505

9.6 CAR CALL SECURITY
- CC ENABLE FRONT 1 — 517
- CC ENABLE FRONT 2 — 518
- CC ENABLE FRONT 3 — 519
- CC ENABLE FRONT 4 — 520
- CC ENABLE FRONT 5 — 521

9.7 GENERAL COP
- CHIME (COP) — 624
- FIRE LAMP (COP) — 623
- BUZZER (COP) — 622
- INDEPENDENT SERVICE — 544
- FIRE PHASE II CANCEL CALL — 548
- FIRE PHASE II HOLD — 546
- FIRE PHASE II OFF — 545
- FIRE PHASE II ON — 547
- ON EMERGENCY POWER — 621

9.9 DOOR CONTROL
- DOOR OPEN BUTTON FRONT — 542
- DOOR CLOSE BUTTON FRONT — 543

JUMPERS AND DIP SWITCHES COP BOARD 9.99

	DIP A
#	SWITCH USE:
1	
2	
3	
4	
5	
6	POP UP BLOCKER
7	
8	

1 20 21 22 23 24 47 48 2 3

	DIP B
#	SWITCH STATE:
1	OFF
2	OFF
3	OFF
4	ON
5	OFF
6	OFF
7	OFF
8	ON

Smartrise Engineering
more time for everything else

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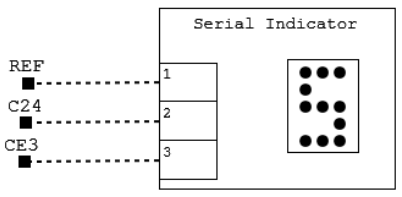
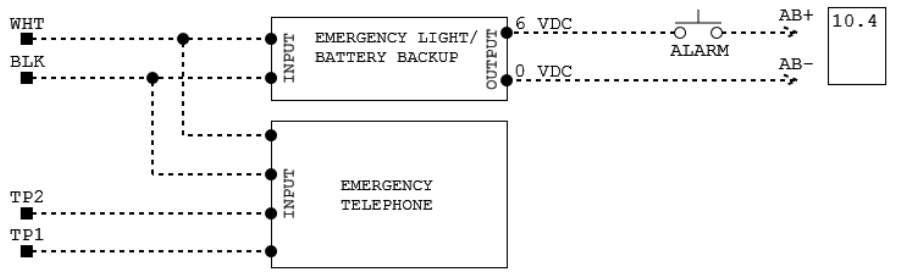
CHECKED BY: Jeff Larson			SHEET:09-COP CONNECTIONS	REVISION:A

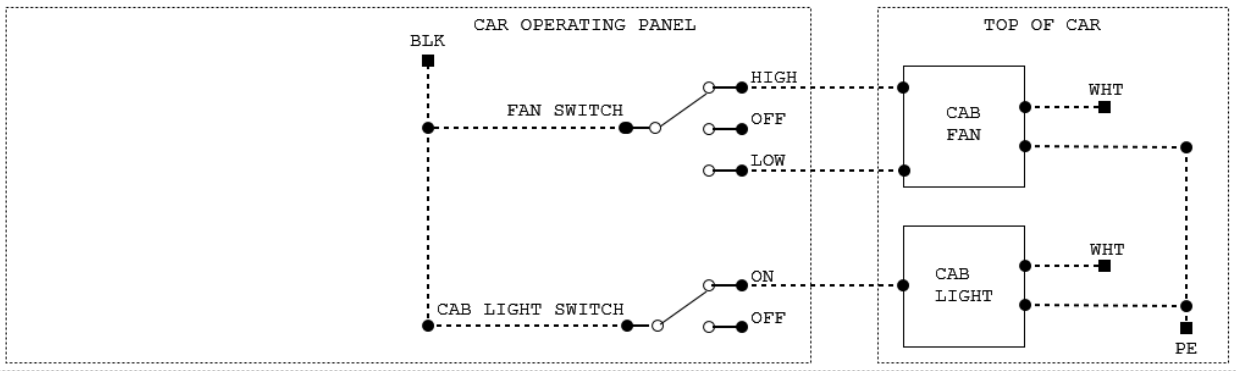
10.1 SERIAL INDICATORS (I.E. CHIME, LANTERNS, PI, VOICE ANNUNCIATOR)



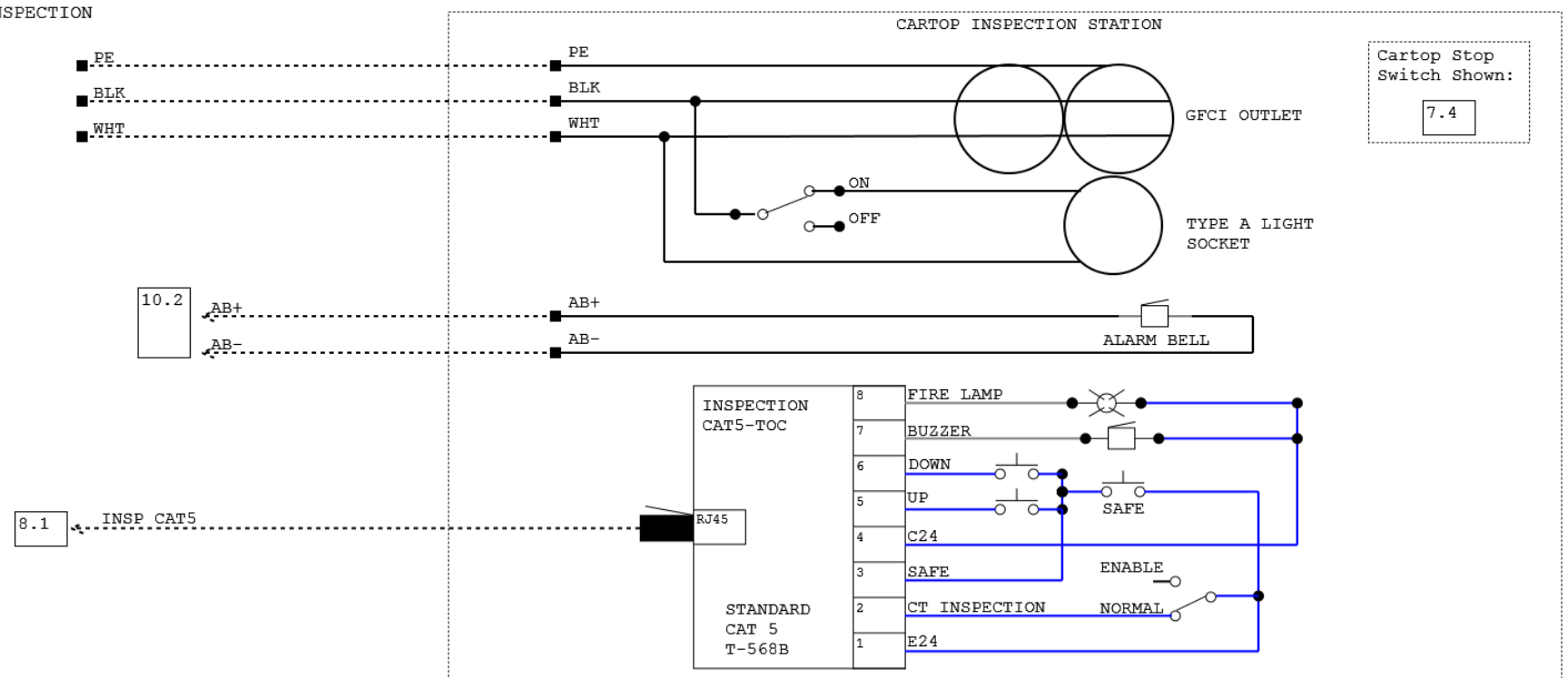
10.2 EMERGENCY COMMUNICATION



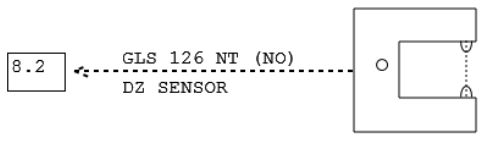
10.3 LIGHT AND FAN SWITCHES



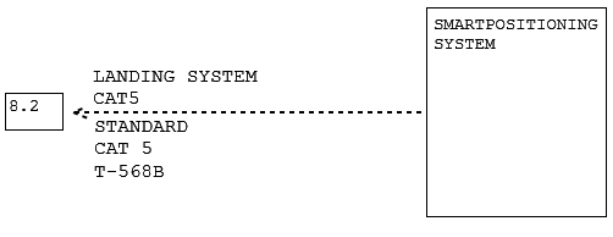
10.4 CARTOP INSPECTION



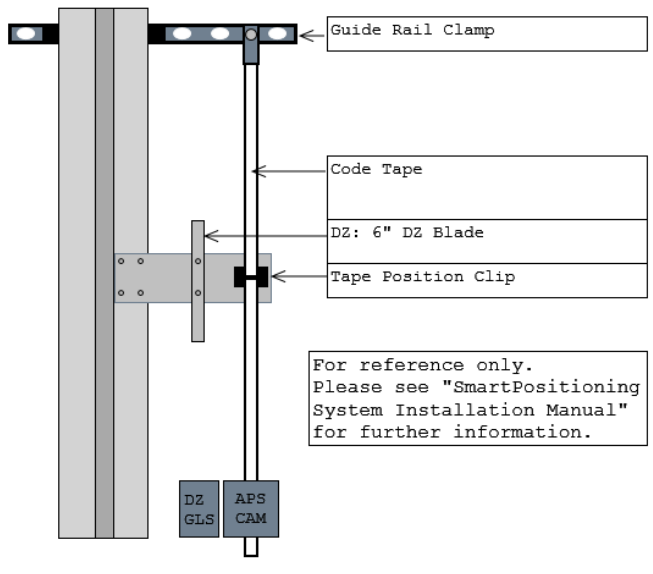
10.7 ADDITIONAL RAIL SETUP



10.5 LANDING SYSTEM



10.8 MAGNET PLACEMENT



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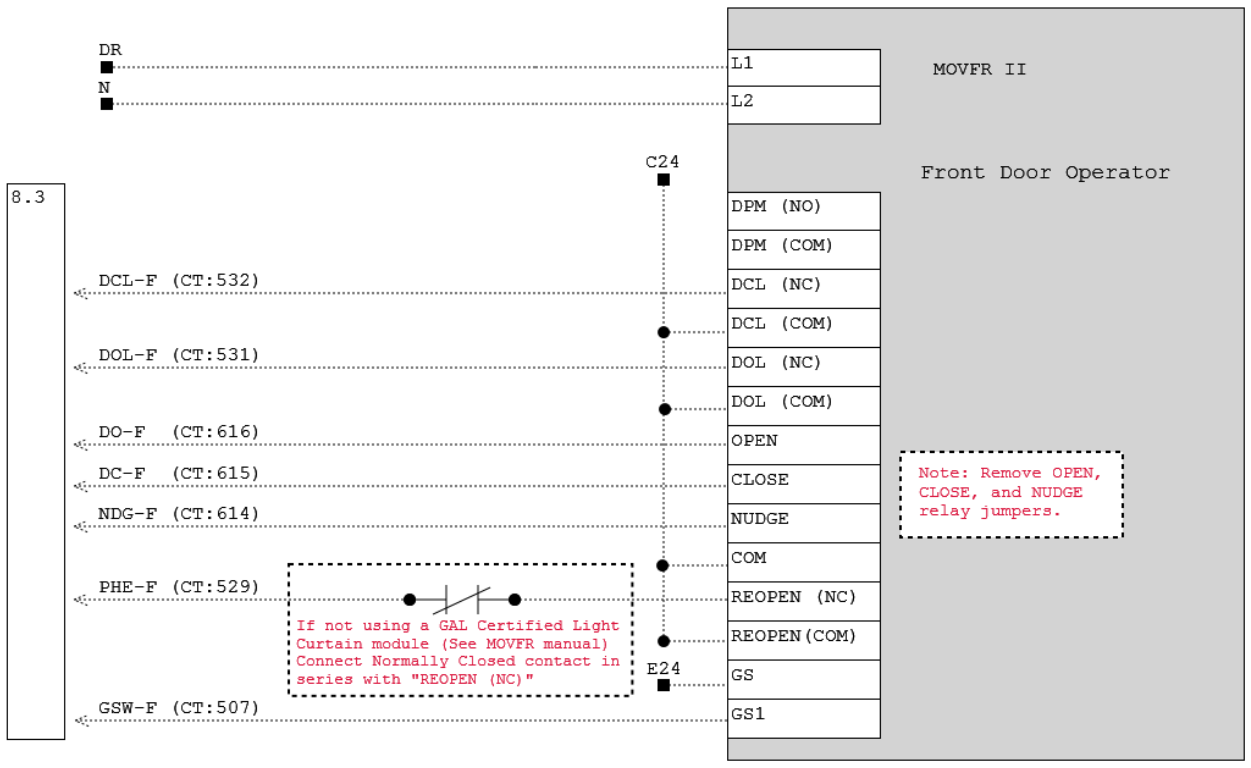
	CHECKED BY: Jeff Larson			SHEET:10-CAR DEVICES	REVISION:A

11.1 Front Door
(See Section [3.1] for DR Voltage selection)



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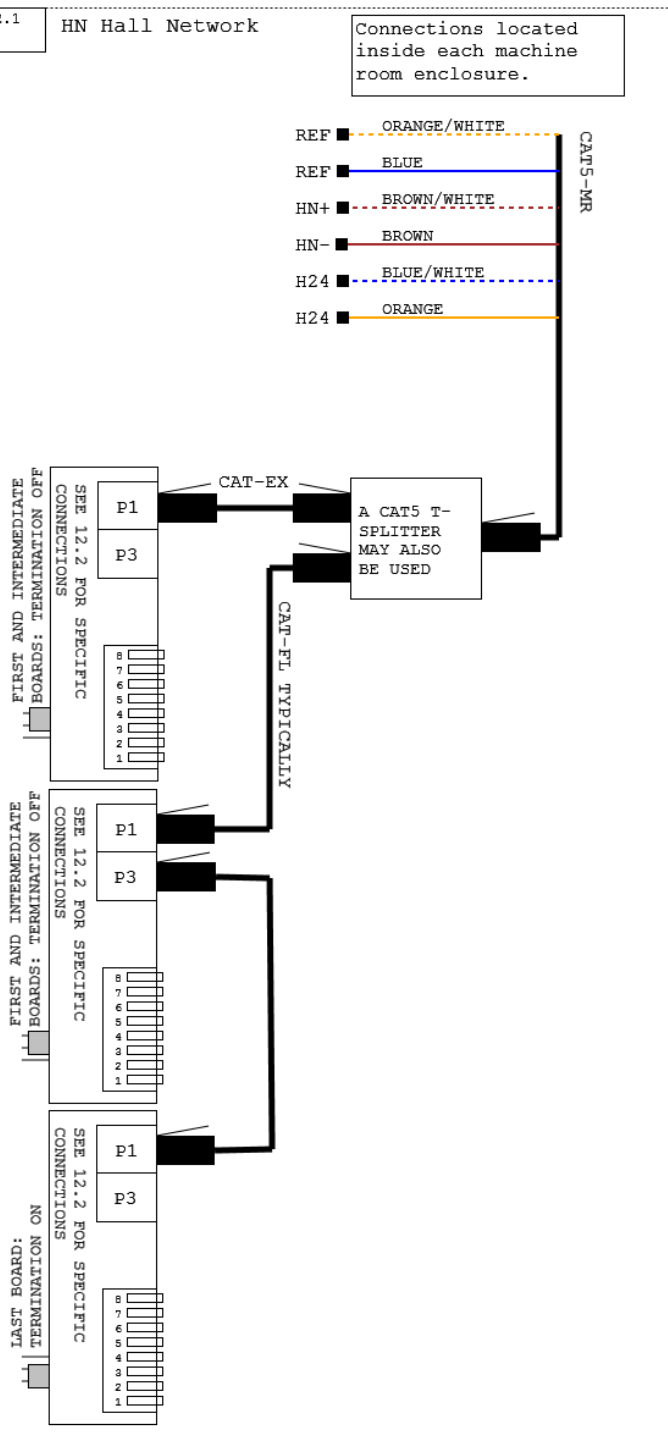
	CHECKED BY: Jeff Larson			SHEET:11-DOOR OPERATOR	REVISION:A

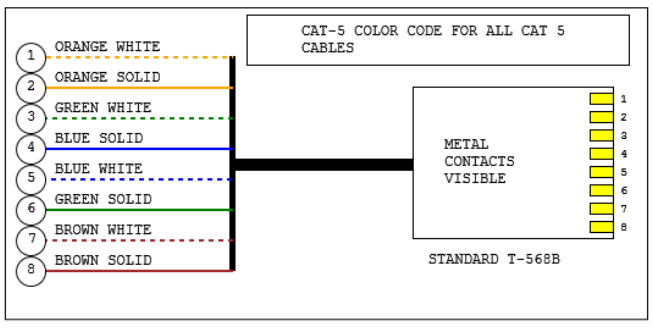
12.1 HN Hall Network



NOTES

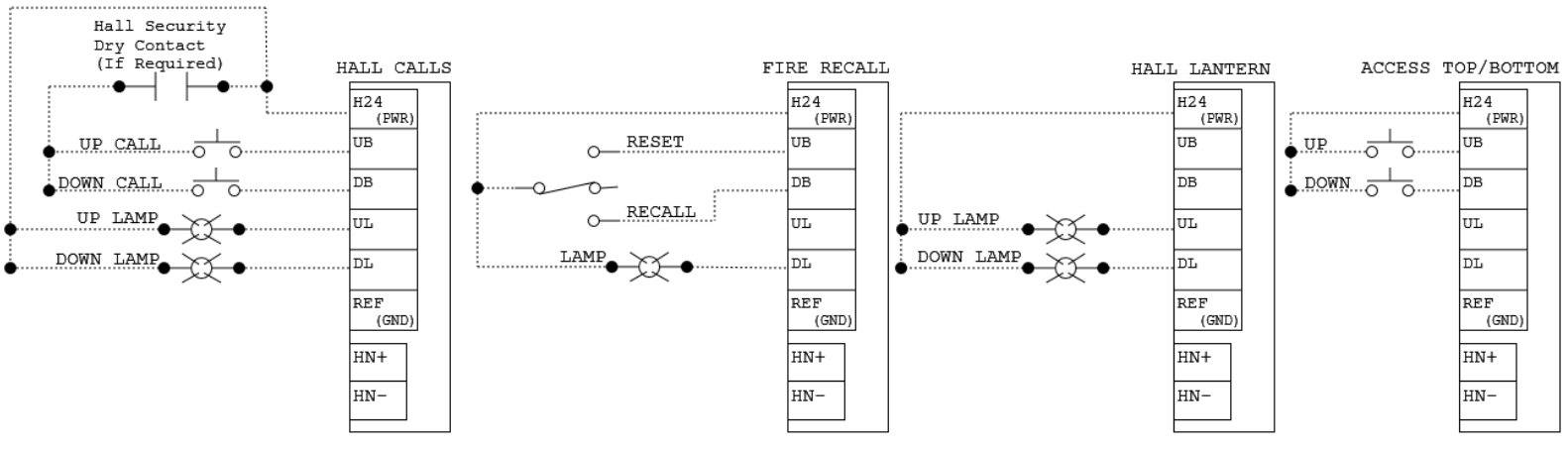
THE ORDER THAT THE BOARDS ARE CONNECTED IS NOT IMPORTANT. P1 AND P3 ALLOW DAISY-CHAINING. SEE 12.2 FOR HALL BOARD CONFIGURATIONS

SMARTRISE-SUPPLIED CAT5 CABLES		
PART	LENGTH(FT	TYPICAL USE
CAT-MR	25	MACHINE ROOM TO HOISTWAY, FRONT TO REAR RISER
CAT-FL	15	FLOOR TO FLOOR, HALL CALL TO HALL LANTERN
CAT-EX	5	SPLITTER TO HALL CALL
CAT-BX	1	HALL CALL TO FIRE RECALL BOARD OR ACCESS BOARD



HN Hall Network DIP Switch Settings										
Landing	Front	Rear	PI	Type	Hall Board DIP Switch (X denotes switch is on)							
					1	2	3	4	5	6	7	8
1	x		S	Hall Calls								
2	x		1	Hall Calls	x							
3	x		2	Hall Calls		x						
4	x		3	Hall Calls	x	x						
5	x		4	Hall Calls			x					
1	x		S	Hall Lantern						x		
2	x		1	Hall Lantern	x					x		
3	x		2	Hall Lantern		x				x		
4	x		3	Hall Lantern	x	x				x		
5	x		4	Hall Lantern			x			x		
				Fire Recall							x	

13.91 HALL BOARD CONFIGURATIONS



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	CHECKED BY: Jeff Larson			SHEET:12-HALL BOARD CONNECTIONS	REVISION:A

SRH TESTING PROCEDURES

Revision 5.04

This manual contains information for software version 3

www.smartrise.us | 1235 N Union Bower Road Irving, TX 75061 | 916.457.5129

SRH-xxxx Testing Procedures

ASME A17.1-2010/CSA B44-10

Table of Contents

Note: Some section numbers have been skipped to maintain the same numbering scheme between SRH and SRA controller testing procedures

Testing Procedures Introduction

♦ 1.1 Safety

! WARNING !
• These tests are to be performed by a qualified elevator mechanic only • Be certain that there are no passengers inside the elevator car when performing these tests • When performing a test that requires open doors be sure to have proper personnel guarding the doors • When making hardware changes be certain that all power has been disconnected from the elevator controller FAILURE TO FOLLOW PROPER PRECAUTIONS CAN RESULT IN SERIOUS INJURY, DEATH OR DAMAGE TO THE ELEVATOR AND/OR BUILDING!

IF ANY PROCEDURES ARE UNCLEAR CONTACT SMARTRISE BEFORE PERFORMING THE TEST!!

♦ 1.2 Test Procedures Format

Each test procedure in this document will be formatted in the style shown below

Name of Test

Applicable Codes: *Sections of ASME A17.1-2010/CSA B44-10 that the test applies to*

Schematic Location: *Location(s) in the job schematics that pertain to the test. These are the drawings that shipped inside the job binder.*

Testing Notes: *Notes to be aware of when performing the test*

Testing Requirements: *Requirements that must be satisfied prior to running the test.*

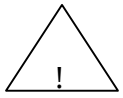
SETUP	Hardware: • *Necessary hardware changes to perform test*
	Software: • *Necessary software changes to perform test*
	Drive: • *Necessary drive changes to perform test*
	Car: • *Necessary car changes to perform test*
PROCEDURE	• *Instructions on how to perform the test*
EXPECTED RESULTS	• *The desired results of the test*
REVERT	Hardware: • *Hardware changes to get back to normal operation*
	Software: • *Software changes to get back to normal operation*
	Drive: • *Drive changes to get back to normal operation*
	Car: • *Car changes to get back to normal operation*

Troubleshooting

Description of how the test failed	*How to correct the failure*

♦ 1.4 Holding the Car Doors Open

Some tests require the car doors to be held open and the dwell timers to be bypassed. The easiest way to do this is to enable parameter 'No Demand Door Open'. This parameter is found at: `Main Menu | Setup | Door Setup`.



ALWAYS TAKE EXTREME PRECAUTIONS WHEN PERFORMING TESTS WITH THE DOORS OPEN!!

Software/Hardware Monitored Electronic Protective

♦ 2.1 Interlocks

Interlock not in bypass mode

Applicable Codes: (A17.1/B44 - 2.11), (A17.1/B44 – 2.26.2.14)

Schematic Location: (Interlock Relays – **6.1**), (Interlock Contacts – **6.2**)

Testing Notes:

a) This test needs to be performed (3) times: Bottom Interlock, Middle Interlock(s), and Top Interlock.

Testing Requirements: This test can be performed on any mode of operation and at any time.

SETUP	Hardware: • If it is possible to open interlock from outside the landing door then no hardware changes are needed. • If interlock cannot be opened, locate the appropriate interlock terminals. Be prepared to remove the wire during test.
PROCEDURE	• While the car is running, open an interlock or remove the wire going to the interlock's. This can be done on any mode of operation
EXPECTED RESULTS	• After the 'Lock Clip Delay' (adjustable parameter, max 255ms) has expired relays SF1 and SFH should drop. Safety string will open and car will stop.
REVERT	Hardware: • If any wires were removed, replace them.

Interlock in bypass mode

Applicable Codes: (A17.1/B44 - 2.11), (A17.1/B44 – 2.26.2.14)

Schematic Location: (Interlock's – **6.1**), (Interlock Contacts – **6.2**)

Testing Notes:

a) This test requires turning the Hoistway Door Bypass switch to 'Bypass' and verifying that the car does not run on automatic, machine room inspection or hoistway access.

Testing Requirements: none

SETUP	Hardware: • Place the hoistway door bypass switch in the 'Off' position.
	Car: • Place the car on automatic, machine room inspection or hoistway access operation.
PROCEDURE	• Place the Hoistway Door Bypass switch in the 'Bypass' position.
EXPECTED RESULTS	• The car should immediately come to a stop and should not run until the Hoistway Door Bypass switch is placed back in the 'Off' position.
REVERT	Hardware: • Place the hoistway door bypass switch in the 'Off' position.

Troubleshooting

Car failed to stop	• Verify that corresponding interlock SRU input LEDs drop out: Bottom Interlock – Machine Room 501 + 542 Middle Interlock(s) - Machine Room 502 + 543 Top Interlock - Machine Room 503 + 544
Car failed to relevel	• Verify that relevelling is enabled: `Main Menu | Setup | Door Setup | RELEVELING = "YES"`

♦ 2.2 Gate Switch

Gateswitch not in bypass mode

Applicable Codes: (A17.1/B44 - 2.14), (A17.1/B44 – 2.26.2.15)

Schematic Location: (Front Gateswitch Contact – **11.1**), (Rear Gateswitch Contact – **11.2**)

Testing Notes:

a) This test needs to be performed for both the front and rear gateswitch (if present).

Testing Requirements: This test can be performed on inspection or normal operation.

SETUP	Hardware: • Locate appropriate gateswitch wire coming into the Car SRU board input terminal. Be prepared to remove it during the test.
PROCEDURE	• While the car is running remove the gateswitch wire coming into the Car SRU board input terminal. This can be done on any mode of operation when the gateswitch is not being bypassed.
EXPECTED RESULTS	• Relays SF1 and SFH should immediately drop. Safety string will open and car will stop.
REVERT	Hardware: • Replace the wire into the terminal.

Gateswitch in bypass mode

Applicable Codes: (A17.1/B44 - 2.14), (A17.1/B44 – 2.26.2.15)
Schematic Location: (Front Gateswitch Contact – **11.1**), (Rear Gateswitch Contact – **11.2**)
Testing Notes:

a) This test requires turning the Car Door Bypass switch to 'Bypass' and verifying that the car does not run on automatic, machine room inspection or hoistway access.

Testing Requirements: none.

SETUP	Hardware: • Place the car door bypass switch in the 'Off' position.
	Car: • Place the car on automatic, machine room inspection or hoistway access operation.
PROCEDURE	• Place the Car Door Bypass switch in the 'Bypass' position.
EXPECTED RESULTS	• The car should immediately come to a stop and should not run until the Car Door Bypass switch is placed back in the 'Off' position.
REVERT	Hardware: • Place the hoistway door bypass switch in the 'Off' position.

Gateswitch open outside of door zone

Applicable Codes: (A17.1/B44 - 2.26.1.6.7)

Schematic Location: (DZ1 and DZ2 sensors – **8.2**), (Front Gateswitch Contact – **11.1**), (Rear Gateswitch Contact – **11.2**)

Testing Notes:

a) This test is performed by moving the car outside of door zone on inspection, opening the doors and then reverting to normal.

Testing Requirements: This test requires the car to be on automatic operation.

SETUP	• *none*
PROCEDURE	• Place the car on Inspection Operation and move away from a door zone. • Manually open the doors. This can be done from the Door Setup menu. • Place the car back on Normal Operation.
EXPECTED RESULTS	• The doors should close. • The car should correct to a door zone.
REVERT	• *none*

♦ 2.3 In Car Stop Switch

In Car Stop Switch not in bypass mode

Applicable Codes: (A17.1/B44 - 2.26.2.21)

Schematic Location: (In-Car Stop Switch Contact – **8.6**)

Testing Notes: *none*

Testing Requirements: This test can be performed on any mode of operation, other than FEO Recall.

SETUP	Car: • Be prepared to activate the In-Car Stop Switch.
PROCEDURE	• While the car is running activate the In-Car Stop Switch.
EXPECTED RESULTS	• Relays SF1 and SFH should immediately drop. Safety string will open and car will stop.
REVERT	Car: • De-Activate the In-Car Stop Switch.

In Car Stop Switch in Fire Operation

Applicable Codes: (A17.1/B44 - 2.26.2.21), (A17.1/B44 - 2.27.3.1.6(c))
Schematic Location: (In-Car Stop Switch Contact – **8.6**)
Testing Notes:

a) The In-Car Stop Switch is only bypassed during initial FEO recall after the doors have closed and the car has begun to move.
b) FEO Phase II recall is not included in this test.

Testing Requirements: This test must be performed during FEO recall after the car has already started to recall.

SETUP	Car: • Be prepared to activate the In-Car Stop Switch. • Put the car away from the FEO main recall landing and be prepared to place the car on FEO recall.
PROCEDURE	• Place the car on FEO recall. • After the car has started to recall activate the In-Car Stop Switch.
EXPECTED RESULTS	• Car should run.
REVERT	Car: • De-Activate the In-Car Stop Switch. • Reset FEO.

Troubleshooting

Car failed to stop	• Verify that In-Car Stop Switch SRU inputs drop out: Car Board 509 + 510
Car did not bypass the stop switch on FEO recall	• Verify that FEO stop switch did not drop out with the In-Car Stop Switch.

Electronic Protective Devices in Safety String

♦ 3.1 All EPD's in Safety String

Any Positively Broken Contact in the Safety String

Applicable Codes: (A17.1/B44 - 2.26.2)

Schematic Location: (Safety String – **7.1 through 7.6**)

Testing Notes:

a) These contacts immediately remove power from the driving machine motor and brake. Typical fault stops use a combination of drive and brake power. These stops will only use the brake to stop and may require a longer distance to stop from high speed.

Testing Requirements: This test works on any mode of operation.

SETUP	Hardware: • Be prepared to activate the EPD.
PROCEDURE	• With the car running, activate the EPD.
EXPECTED RESULTS	• Pump motor should immediately stop and valves should close
REVERT	Car: • De-Activate the EPD. If the car needs to be moved before the EPD can be deactivated, temporarily place a jumper across the EPD contact to bypass the EPD.

Troubleshooting

Car did not stop	• Verify that the EPD is correctly wired. • Verify that there are no jumpers in the safety string. Most common location is 120 to SF1.

Inspection/Access/Speed Limiting

♦ 5.1 Speed Control

Inspection/Access Independent Speed Limiting

Applicable Codes: (A17.1/B44 - 2.12.7.3.2), (A17.1/B44 - 2.26.1.4)

Schematic Location: n/a

Testing Notes: *none*

SETUP	*none*
PROCEDURE	• Set inspection speed parameter greater than 150fpm. Parameter can be found at: **Main Menu | Setup | Speeds & Slowdowns | Inspection**
EXPECTED RESULTS	• Controller should display an 'Invalid Param' fault and not allow the car to run.
REVERT	Software: • Set parameter 'Inspection Speed' back to original value.

Leveling Zone Speed Control

Applicable Codes: (A17.1/B44 - 2.26.1.6.6)

Schematic Location: n/a

Testing Notes: *none*

SETUP	*none*
PROCEDURE	• Set leveling speed parameter greater than 25fpm Parameter can be found at: **Main Menu | Setup | Speeds & Slowdowns | Leveling**
EXPECTED RESULTS	• Controller should display an 'Overspeed I/L' fault and not allow the car to run.
REVERT	Software: • Set parameter 'Leveling Speed' back to original value.

♦ 5.2 Hoistway Door Bypass

See 2.1 Interlocks

♦ 5.3 Car Door Bypass

See 2.2 Gateswitch

♦ 5.4 Access Distance Limits

Access Distance Limits

Applicable Codes: (A17.1/B44 - 2.12.7.3.6), (A17.1/B44 - 2.12.7.3.7)

Schematic Location: n/a

Testing Notes: *none*

SETUP	• Place the car at a landing that has a hoistway access switch • Use the in-car key switch to put the car on hoistway access mode of operation
PROCEDURE	• Using the hoistway access key switch, run the car away from the terminal until it stops
EXPECTED RESULTS	• Car should stop at the appropriate distance away from the hoistway access opening
REVERT	• Using the hoistway access key switch, return the car the hoistway access landing.

Troubleshooting

Car did not stop at the correct location from the bottom access opening	• Adjust the bottom access distance parameter. Parameter can be found at: **Main Menu | Setup | Access Dist Bottom**
Car did not stop at the correct location from the top access opening	• Adjust the top access distance parameter. Parameter can be found at: **Main Menu | Setup | Access Dist Top**

Terminal and Emergency Stopping

♦ 6.1 NTSD

Normal Terminal Stopping Device

Applicable Codes: (A17.1/B44 – 3.25.1)

Schematic Location: (Valves - 4**.2**)

Testing Requirements: This test requires the hoistway to be learned and the car running on full automatic

SETUP (DOWN):

1. Move the car to the top landing. Turn on DIP SWITCH 3 on DIP A.
2. Go to your Top Speed Profile speed (S#) in **MAIN MENU | SETUP | SPEEDS & SLOWDOWNS | S1 | S1 DOWN __,** record the existing values and temporarily set the new values to 00001.
   a. S1 DOWN Normal – Value:_____
   b. S1 DOWN Normal – Set to 00001. Save this parameter.
3. Enter a call DOWN to a couple of intermediate floors to obtain top speed. Manual car calls will only work from the MR or CT SRU boards.
4. Observe that car achieves top speed, blows through the called floor and logs an "*A64:STOP NO DZ*" alarm message. This will confirm that the normal means of slowdown is disabled.

PROCEDURE/RESULTS:

5. Send the car to the BOTTOM floor and observe that the car stops at the bottom terminal level. The controller should log a "*A72:NTS Overspeed"* alarm. This is normal and will confirm the DOWN NTS setting is functioning properly.

REVERT:

6. Restore the previous recorded S1 DOWN Normal parameter from (Step 2a).

SETUP (UP):

7. Go to your Top Speed Profile speed (S#) in **MAIN MENU | SETUP | SPEEDS & SLOWDOWNS | S1 | S1 UP __,** record the existing values and temporarily set the new values to 00001.
   a. S1 UP Normal – Value:_____
   b. S1 UP Normal – Set to 00001. Save this parameter.
8. With the car at the bottom landing, enter a call UP to a couple of intermediate floors to obtain top speed. Manual car calls will only work from the MR or CT SRU boards.
9. Observe that car achieves top speed, blows through the called floor and logs an "*A64:STOP NO DZ*" alarm message. This will confirm that the normal means of slowdown is disabled.

PROCEDURE/RESULTS:

10. Send the car to the TOP floor and observe that the car stops at the top terminal level. The controller should log a "*A72:NTS Overspeed"* alarm. This is normal and will confirm the UP NTS setting is functioning properly.

REVERT:

11. When testing is complete for the bottom landing restore the previous recorded S1 UP Normal parameter from (Step 7a).

♦ 6.2 TSRD

Terminal Speed Reducing Device

Applicable Codes: (A17.1/B44 – 3.25.2)

Verify that the Terminal Speed Reducing Device works at the top terminal by disabling the Normal Stopping Means (NSM) and the Normal Terminal Stopping Device (NTSD).

1) Disable car door operation by turning on DIP switch A3.
2) Bring the car to the bottom door zone.
3) Verify that TSRD has a valid value by checking (and setting if needed) its virtual switch position:
    a) SETUP | TSRD SETUP
    b) The value should be an absolute position just below the top floor door zone. You can find the learned positions of the door zone magnets under STATUS | MAGNETS. If the car passes this point at more than 80% of contract speed, power will be cut to the valves and pump motor to prevent hitting the stop ring at contract speed.
4) Disable the Normal Slowdown in the up direction:
    a) Navigate to SETUP | SPEEDS AND SLOWDOWNS | S1 | S1 SLOWDOWNS | S1 ALL
    b) Write down the current value _____ . You'll need to restore this value after the test is complete.
    c) Set the value to 0001.
5) From the DEBUG menu, enter a car call to the top floor.
6) The car should trip with an "F237:TSRD Overspeed" fault upon passing the TSRD position.
7) Restore the slowdown distance for S1 ALL.

♦ 6.3 Final Limits

Final Limits

Applicable Codes: (A17.1/B44 - 2.25.3)

Schematic Location: (Final Limits – **7.3**)

Testing Notes:

a) The final limits immediately remove power from the pump motor and valves

Testing Requirements: This test can be performed on any mode of operation

SETUP	Software: • Set parameter 'Bypass Term Limits' to yes. This parameter is found at: **`Main Menu | Setup | Misc`**
	Car: • Put the car at a terminal landing.
PROCEDURE	• On inspection, run the car into the final limit.
EXPECTED RESULTS	• Car should come to a stop.
REVERT	Software: • Set parameter 'Bypass Term Limits' to no. This parameter is found at: **`Main Menu | Setup | Misc`**
	Car: • Place jumper from BUF to TFL. • Move the car off of the final limit. • Remove jumper from BUF to TFL.

Troubleshooting

Car did not stop on the final limit	• Verify that the final limit switch is wired in series with the safety string. • Verify that no jumpers are on the safety string.

♦ 6.4 Buffer

Car Buffer Test (Only required if buffer switch exists)

Applicable Codes: (A17.1/B44 - 2.25.3)

Schematic Location: (Buffer Switch – **7.3**)

Testing Notes: *None*

Testing Requirements: This test can be performed on any mode of operation

SETUP	Hardware: • Place jumper from BFL to TFL.
	Software: • Record values down for the slowdowns all. • Decrease high speed slowdown ALL to 00001. This parameter is found at: **Main Menu | Setup | Speeds & Slowdown | S1 | S1 Slowdown | S1 All.**
	Car: • Put the car far enough away from the terminal landing being tested to do a full speed run.
PROCEDURE	• Enter a car call to the bottom landing.
EXPECTED RESULTS	• Car should hit the buffer at full speed.
REVERT	Hardware: • Remove jumper from BFL to TFL.
	Software: • Set high speed slowdown ALL to original value. This parameter is found at: **Main Menu | Setup | Speeds & Slowdown | S1 | S1 Slowdown | S1 All.**
	Car: • On inspection take the car off of the buffer. To bypass the final limit/buffer switch, place jumper from 120 to SF1. • Remove jumper from 120 to SF1.

Troubleshooting

Car slowed down before hitting the buffer	• Verify that DNTS value in NTS Setup has been changed to the top position of the bottom terminal DZ.

Redundancy

♦ 7.1 Safety Inputs

Redundant Inputs

Applicable Codes: (A17.1/B44 - 2.26.9.3)

Schematic Location: (Machine Room Board I/O – **2.x**), **(**Car Board I/O – **8.x**)

Testing Notes:

a) Software/Hardware Electronic Protective Devices are monitored by redundant board inputs.
b) The redundant inputs are constantly compared with one another to verify proper operation of the input circuitry. If the inputs are not in the same state a "Redundancy" fault is latched and the car goes out of service.
c) Electronic protective devices that are redundantly monitored by the Software/Hardware system:

Machine Room Board	**Input Locations**
Bottom Interlock	501,542
Middle Interlock(s)	502,543
Top Interlock	503,544
Machine Room Inspection Enable	520,541
Hoistway Access Top Up	533,534
Hoistway Access Top Down	535,536
Hoistway Access Bottom Up	537,538
Hoistway Access Bottom Down	539,540
Car Board	**Input Locations**
Cartop Inspection Enable	503,504
Hoistway Access Enable	505,506
Front Gateswitch	507,508
In-Car Stop Switch	509,510
Rear Gateswitch	514,515
CXN Board	**Terminals**
Car Door Bypass	C1, C2
Hoistway Door Bypass	H1, H2

Testing Requirements: This test can be performed on any mode of operation.

SETUP	Hardware: • Locate a pair of redundant safety inputs.
PROCEDURE	• If the pair of inputs are jumped together, remove the jumper. • With the EPD activated (contact open), jumper one of the input terminals to M24 (if input is on machine room board) or C24 (if input is on car board), ***or*** with the EPD not activated (contact closed), remove a wire from one of the inputs.
EXPECTED RESULTS	• Controller should latch a 'Redundancy' fault and go out of service.
REVERT	Hardware: • Remove all jumpers
	Car: • Reset controller.

Troubleshooting

Car did not detect redundancy fault	• Verify that during the test one EPD input is high, and the other is low.

♦ 7.2 Safety Outputs

Note: To test redundancy perform test "Safety Relay SF1" and then "Safety Relay SFH".

Safety Relay SF1

Applicable Codes: (A17.1/B44 - 2.26.9.3)

Schematic Location: (Safety String Relays – **7.6**)

Testing Notes:

a) When a Software/Hardware monitored EPD is activated, safety system SF1 opens the safety string by de-energizing relay SF1.
b) By jumping the coil of relay SF1 to always be energized, it can be verified that another independent safety system still removes power from the driving machine motor and brake when an EPD is activated.
c) The relay cannot be jumped prior to the car starting a run as it will cause a relay failure fault.
d) Electronic protective devices that are redundantly monitored by the Software/Hardware system:

Machine Room Board	Input Locations
Bottom Interlock	501,542
Middle Interlock(s)	502,543
Top Interlock	503,544
Machine Room Inspection Enable	520,541
Hoistway Access Top Up	533,534
Hoistway Access Top Down	535,536
Hoistway Access Bottom Up	537,538
Hoistway Access Bottom Down	539,540
Car Board	**Input Locations**
Cartop Inspection Enable	503,504
Hoistway Access Enable	505,506
Front Gateswitch	507,508
In-Car Stop Switch	509,510
Rear Gateswitch	514,515
CXN Board	**Terminals**
Car Door Bypass	C1, C2
Hoistway Door Bypass	H1, H2

Testing Requirements: This test can be performed on any mode of operation.

SETUP	Hardware: • Locate the SF1 relay. Place a jumper in the A2 terminal. Leave the other end free until the procedure.
	Car: • Prepare the car to run.
PROCEDURE	• While the car is running place the jumper from A2 to REF. • Activate a Software/Hardware monitored EPD in the table above.
EXPECTED RESULTS	• Safety String should open. • Power should be removed from the pump motor and valves • Car should come to a stop and go out of service.
REVERT	Hardware: • Remove all jumpers.
	Car: • Reset controller.

Safety Relay SFH

Applicable Codes: (A17.1/B44 - 2.26.9.3)
Schematic Location: (Safety String Relays – **7.6**)

Testing Notes:

a) When a Software/Hardware monitored EPD is activated, safety system SFH opens the safety string by de-energizing relay SFH.

b) By jumping the coil of relay SFH to always be energized, it can be verified that another independent safety system still removes power from the pump motor and valves

c) Electronic protective devices that are redundantly monitored by the Software/Hardware system:

Machine Room Board	**Input Locations**
Bottom Interlock	501,542
Middle Interlock(s)	502,543
Top Interlock	503,544
Machine Room Inspection Enable	520,541
Hoistway Access Top Up	533,534
Hoistway Access Top Down	535,536
Hoistway Access Bottom Up	537,538
Hoistway Access Bottom Down	539,540
Car Board	**Input Locations**
Cartop Inspection Enable	503,504
Hoistway Access Enable	505,506
Front Gateswitch	507,508
In-Car Stop Switch	509,510
Rear Gateswitch	514,515
CXN Board	**Terminals**
Car Door Bypass	C1, C2
Hoistway Door Bypass	H1, H2

Testing Requirements: This test can be performed on any mode of operation as long as the activated EPD is not currently being bypassed. e.g. Interlocks in while car is in Door Zone, gateswitch while car is in Door Zone, Bypass Switch Activated.

SETUP	Hardware: • Locate the SFH relay. Place a jumper in the A2 terminal. Leave the other end free until the procedure.
	Car: • Prepare the car to run.
PROCEDURE	• While the car is running place the jumper from A2 to REF. • Activate a Software/Hardware monitored EPD.
EXPECTED RESULTS	• Safety String should open. • Power should be removed from pump motor and valves • Car should come to a stop and go out of service.
REVERT	Hardware: • Remove all jumpers.
	Car: • Reset controller.

Troubleshooting

Safety String did not open	• Verify that no jumpers are on the safety string. • Verify that the EPD was not in a bypass mode.

♦ 7.3 Preflight Check

E24 Bus

Applicable Codes: (A17.1/B44 - 2.26.9.4)

Schematic Location: (Machine Room Board I/O – **2.x**), **(**Car Board I/O – **8.x**)
Testing Notes:

a) E24 bus is a signal that allows the controller to monitor 24VDC Electronic Protective Devices.
b) At the end of each run on normal operation, a preflight check is performed for the next run.
c) The first step in the preflight check is to manually transition every Software/Hardware monitored EPD input to the unsafe state. This is performed by removing power from the E24 bus.
d) With every EPD input in the unsafe state, the checking system verifies that the Software and Hardware system detects every EPD in an unsafe state. If the checking system detects a problem with a “Preflight” fault is generated and the car is taken out of service.
e) To test this system, an EPD input is jumped to a constant power bus.
f) Electronic Protective Device Inputs:

Machine Room Board	Input Locations
Machine Room Inspection Enable	520,541
Hoistway Access Top Up	533,534
Hoistway Access Top Down	535,536
Hoistway Access Bottom Up	537,538
Hoistway Access Bottom Down	539,540
Car Board	**Input Locations**
Cartop Inspection Enable	503,504
Hoistway Access Enable	505,506
Front Gateswitch	507,508
In-Car Stop Switch	509,510
Rear Gateswitch	514,515

Testing Requirements: This test must be performed on normal operation.

SETUP	Hardware: • Locate an EPD device in the table above. • Jumper the terminals to a constant 24VDC source (M24 or C24).
	Car: • Prepare the car to run.
PROCEDURE	• Enter a car call through the debug screen.
EXPECTED RESULTS	• At the end of the run the controller should do a preflight check. • Controller should fail the preflight check with an 'E24 Input High' fault. • Car should go out of service.
REVERT	Hardware: • Remove all jumpers.
	Car: • Reset controller.

Troubleshooting

Controller did not fault.	• Verify that car is not on inspection. • Verify that the EPD inputs being tested stayed on during the preflight check.

Interlock Bus

Applicable Codes: (A17.1/B44 - 2.26.9.4)

Testing Notes:

a) Interlock bus is a signal that allows interlock relays to activate when the interlock is closed.
b) At the end of each run on normal operation, a preflight check is performed for the next run.
c) The interlock relay coils are energized by 120VAC through an interlock contact through the Interlock bus.
d) During the preflight check the Interlock bus is opened, which de-energizes the interlock relays. Should an interlock relay fail to open, the checking system will generate a "Preflight" fault and the car is taken out of service.

Testing Requirements: This test must be performed on normal operation.

SETUP	Hardware: • Place a jumper from terminal 41 of the NCO relay to N.
	Car: • Prepare the car to run.
PROCEDURE	• Enter a car call through the debug screen.
EXPECTED RESULTS	• At the end of the run the controller should do a preflight check. • Controller should fail the preflight check with an 'E24 Input High' fault. • Car should go out of service.
REVERT	Hardware: • Remove all jumpers.
	Car: • Reset controller.

TROUBLESHOOTING

Controller did not fault	Verify the car is not on Inspection

Ground Faults

♦ 8.1 EPD Input to REF

E24 To REF

Applicable Codes: (A17.1/B44 - 2.26.9.3)

Schematic Location: (24VDC Supply – **3.2**)

Testing Notes:

a) This test requires intentionally shorting E24 to REF.

Testing Requirements: This test can be performed any time the controller has power.

SETUP	• *None*
PROCEDURE	• Using a jumper wire connect E24 to REF.
EXPECTED RESULTS	• Power is removed from E24 Bus, Measure E24 to REF for DC voltage should read 0VDC.
REVERT	• Remove jumper from E24 and REF. • Reset M24 Breaker

♦ 8.2 Safety String to Ground

Safety String To Ground

Applicable Codes: (A17.1/B44 - 2.26.9.3)

Schematic Location: (Safety String – **7.1 through 7.6**) , (Control Transformer – **3.1**)

Testing Notes:

a) This test requires intentionally shorting 120VAC to Ground.

Testing Requirements: This test can be performed any time the controller has power.

SETUP	• Verify that all safety string contacts are closed.
PROCEDURE	• Using a jumper wire connect HSF to Ground.
EXPECTED RESULTS	• Circuit Breaker “120” should open.
REVERT	• Remove jumper from HSF and Ground. • Close circuit breaker “120”

♦ 8.3 Hoistway Landing Side Power to REF

H24 To REF

Applicable Codes: (A17.1/B44 - 2.27.3.3.6)

Schematic Location: (24VDC Supply – **3.2**)

Testing Notes:

a) This test requires intentionally shorting H24 to REF.

Testing Requirements: This test can be performed any time the controller has power.

SETUP	• *none*
PROCEDURE	• Using a jumper wire connect H24 to REF.
EXPECTED RESULTS	• Power is removed from H24 Bus, Measure H24 to REF for DC voltage should read 0VDC.
REVERT	• Remove jumper from H24 and REF. • Reset H24 Breaker

Emergency Operation

♦ 9.1 FEO

Interruption of Power

Applicable Codes: (A17.1/B44 - 2.27.3.4)

Schematic Location: (Smoke Sensors – **2.7**), (Hall Board Configurations – **12.2**)

Testing Notes:

a) This test requires placing the car on FEO and cycling power.

Testing Requirements: This test must be performed on any mode FEO.

SETUP	• *None*
PROCEDURE	• Recall the car using Phase I and run the car using Phase II operation to verify. • Reset main line power.
EXPECTED RESULTS	• Car should remain on FEO in the correct Phase and with the correct position.
REVERT	• Reset FEO using lobby key switch.

♦ 9.2 FEO Phase I

Phase I and Load Weighing Device

Applicable Codes: (A17.1/B44 - 2.27.3.1.6(m))

Schematic Location: (Smoke Sensors – **2.7**), (Hall Board Configurations – **12.2**), (Load Weight Device – **8.10**)

Testing Notes:

a) SRH Controller allows the car to recall on FEO Phase I in the down direction even with the overload input active.

Testing Requirements: This test must be performed on FEO Phase I recall.

SETUP	Car: • Place the car away from the Main Recall landing
	Hardware: • Jumper car board input 'Over Load' to C24.
PROCEDURE	• Place the car on FEO Phase I
EXPECTED RESULTS	• Verify that car recalls as expected.
REVERT	• Remove jumper between C24 and 'Over Load' • Reset FEO service using lobby key switch.

Phase I After Device Actuation

Applicable Codes: (A17.1/B44 - 3.27.1)

Schematic Location: (Smoke Sensors – **2.7**), (Hall Board Configurations – **12.2**), (Hydro Device Contacts – **2.11**)

Testing Notes:

a) SRH Controller allows the car to recall on FEO Phase I in the down direction with an open device contact.
b) Not all devices listed in 3.27.1(a),(b),(c),(d) will be present on every job.

Testing Requirements: This test must be performed on FEO Phase I recall.

SETUP	Car: • Place the car away from the Main Recall landing
	Hardware: • Hydro contact MOTOR OVERHEAT • Hydro contact LOW OIL • Hydro contact BATTERY LOWERING
PROCEDURE	• Remove wire from one of the hydro contacts listed above to simulate activation of that device (this test must be repeated once for each device present) • As car is descending, place the car on FEO Phase I
EXPECTED RESULTS	• If Phase 1 activates when car is above the recall floor, verify car recalls to that floor. • If Phase 1 occurs when car is below the recall floor, verify car descends to an available floor. • Verify car opens and recloses the doors within 15 second and extinguishes the visual indicator in the car. • Verify the door open button remains operational.
REVERT	• Reconnect the wire removed to simulate device activation. • Reset FEO service using lobby key switch.

Phase I Prior to Device Actuation

Applicable Codes: (A17.1/B44 - 3.27.2)

Schematic Location: (Smoke Sensors – **2.7**), (Hall Board Configurations – **12.2**), (Hydro Device Contacts – **2.11**)

Testing Notes:

a) SRH Controller allows the car to recall on FEO Phase I in the down direction with an open device contact.
b) Not all devices listed in 3.27.1(a),(b),(c),(d) will be present on every job.

Testing Requirements: This test must be performed on FEO Phase I recall.

SETUP	Car: • Place the car away from the Main Recall landing
	Hardware: • Hydro contact MOTOR OVERHEAT • Hydro contact LOW OIL • Hydro contact BATTERY LOWERING
PROCEDURE	• Place the car on FEO Phase I • Before car reaches recall floor, remove wire from one of the hydro contacts listed above to simulate activation of that device (this test must be repeated once of each device present)
EXPECTED RESULTS	• If device is activation occurs when car is above the recall floor, verify car recalls to that floor. • If device is activation occurs when car is below the recall floor, verify car descends to an available floor. • Verify car opens and recloses the doors within 15 second and extinguishes the visual indicator in the car. • Verify the door open button remains operational.
REVERT	• Reconnect the wire removed to simulate device activation. • Reset FEO service using lobby key switch.

Device Actuation at Recall Level

Applicable Codes: (A17.1/B44 - 3.27.3)

Schematic Location: (Smoke Sensors – **2.7**), (Hall Board Configurations – **12.2**), (Hydro Device Contacts – **2.11**)

Testing Notes:

a) Not all devices listed in 3.27.1(a),(b),(c),(d) will be present on every job.

Testing Requirements: This test must be performed on FEO Phase I recall.

SETUP	Car: • Place car at Main Recall landing
	Hardware: • Hydro contact MOTOR OVERHEAT • Hydro contact LOW OIL • Hydro contact BATTERY LOWERING
PROCEDURE	• Place the car on FEO Phase I • Wait for doors to fully open • With car recalled, remove wire from one of the hydro contacts listed above to simulate activation of that device (this test must be repeated once for each device present)
EXPECTED RESULTS	• Verify doors close within 15 seconds and visual indicator in the car flashes. • Verify the door open button remains operational.
REVERT	• Reconnect the wire removed to simulate device activation. • Reset FEO service using lobby key switch.

♦ 9.3 FEO Phase II

FEO Phase II and Load Weighing Device

Applicable Codes: (A17.1/B44 - 2.27.3.31(l))

Schematic Location: (Smoke Sensors – **2.7**), (Hall Board Configurations – **12.2**), (Load Weight Device – **8.10**)

Testing Notes:

a) SRH Controller allows the car to move on FEO Phase II in the down direction even with the overload input active.

Testing Requirements: This test must be performed on FEO Phase II.

SETUP	Car: • Place the car on FEO Phase II
	Hardware: • Jumper car board input 'Over Load' to C24.
PROCEDURE	• Enter car call below current floor.
EXPECTED RESULTS	• Verify that the car answers car calls.
REVERT	• Remove jumper between C24 and 'Over Load' • Reset FEO using lobby key switch.

Device Actuation with Phase II in Effect

Applicable Codes: (A17.1/B44 - 3.27.4)

Schematic Location: (Smoke Sensors – **2.7**), (Hall Board Configurations – **12.2**), (Hydro Device Contacts – **2.11**)

Testing Notes:

a) SRH Controller allows the car to run on FEO Phase II in the down direction with an open device contact.

b) Not all devices listed in 3.27.1(a),(b),(c),(d) will be present on every job.

Testing Requirements: This test must be performed on FEO Phase II.

SETUP	Car: • Place the car on FEO Phase II
	Hardware: • Hydro contact MOTOR OVERHEAT • Hydro contact LOW OIL • Hydro contact BATTERY LOWERING
PROCEDURE	• Remove wire from one of the hydro contacts listed above to simulate activation of that device (this test must be repeated once for each device present)
EXPECTED RESULTS	• Verify the visual indicator in the car flashes. • Verify the car only responds to calls in the down direction.

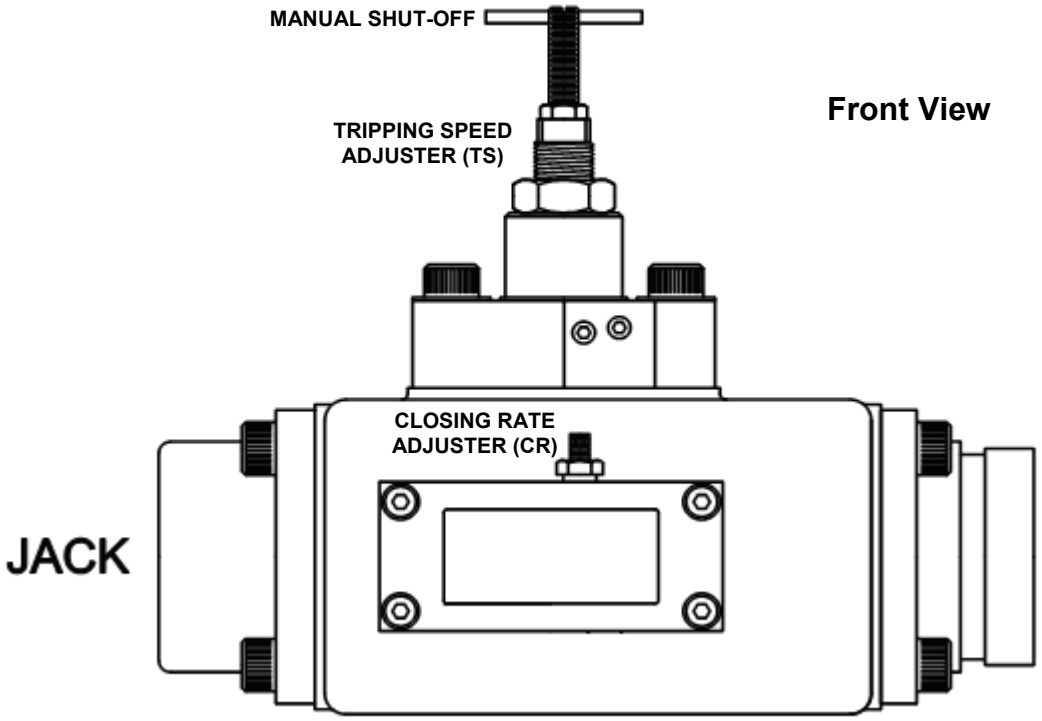
REVERT	• Reconnect the wire removed to simulate device activation.

--END OF TEST PROCEDURES--

OVERSPEED VALVE (PIPE RUPTURE / SHUT OFF VALVE)

Introduction

The Maxton Overspeed Valve (Pipe Rupture / Shut Off Valve) is designed to provide protection against supply line failure or over speed in the down direction. The OSV can be adjusted to stop the elevator in the event of an over speed condition caused by a broken supply line or an abnormally high rate of flow between the OSV and the power unit. The OSV should be mounted as close the Jack as possible. The OSV complies with UFGS 14 24 00 - 2.4.2.2 and ASME A17.1 / CSA B44.



Specifications

Standard Rated Contract Flow

OSV E1	30 - 100 gpm (114 - 379 l/min)
OSV STD	100 - 300 gpm (379 - 1136 l/min)
Operating Pressure	
Minimum	50 psi (3.4 bar)
Maximum	800 psi (55 bar)
Line Connections	
Jack Port (Flange)	2, 2½" NPT or Grooved
Tank Port (Flange)	2, 2½" NPT or Grooved
Operating Temperature	80°-150° F (26° - 65° C)
Oil Type	Hyd. ISO VG 32
	150 SUS @ 100° F (38° C)

Overall Dimensions

Width	11 1/4 inches (286mm)	Height	10 1/8 inches (257mm)
Depth	6 9/16 inches (167mm)	Weight	28 lbs. (12.7kg)

Standard Features

- Works on pressure drop, no electricity is required.
- Incorporates a manual shut off for use as a pit shut off valve.
- Adjustable closing rate.
- Unit body construction.
- Steel sleeve inserts in valve body.
- Grooved or threaded line connections.
- Individualized adjustments.
- Factory tested prior to shipping.
- 2 year limited warranty.

Optional Features

- 3" Grooved flanges

OVERSPEED VALVE (PIPE RUPTURE / SHUT OFF VALVE)

THE INFORMATION CONTAINED HEREIN IS FOR USE BY SKILLED HYDRAULIC ELEVATOR PROFESSIONALS

CAUTION
Never adjust the OSV while the car is in motion. (Stay out of the pit when the car is running.)

Manual shut off (MS) must be fully open (CCW) during normal operation.

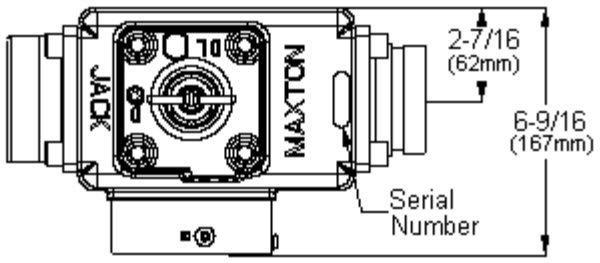
When utilizing the OSV as a pit valve, turn Manual Shut Off in (CW) to stop.

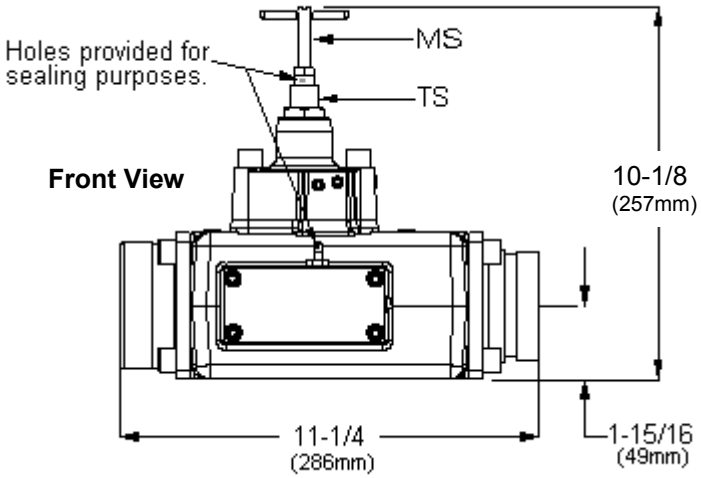
Once tripped or after opening the Manual Shut Off, the OSV must be reset to a normal open position by making an up run.

Maxton recommends the OSV have a threaded connection to the jack.

INITIAL SETTINGS			
TS	TRIPPING SPEED	OUT	(CCW) to stop.
CR	CLOSING RATE	OUT	(CCW) to stop.
MS	MANUAL SHUT OFF	OUT	(CCW) to stop.

Top View





NOTE: To achieve accurate settings, OSV adjustments should be conducted with a fully loaded car. Whenever possible, run car to an intermediate floor during adjustments and tests. **It may be advisable to adjust for a slightly faster down transition to insure floor stop.**

ADJUSTMENT PROCEDURES

1. Set car speed by opening the Down Valve (main control valve) or increase the load to achieve contract down speed +25% (contract speed = full down speed with rated load).
2. Return car to the upper floor; Verify tripping flow on the PRECALCULATED TRIPPING FLOW TABLE. Turn **TS** in (CW) the number of turns indicated on the TRIPPING SPEED PRESET GRAPH. Exit the pit and register a down call. Minor Adjustment may be needed for final tripping speed. Lock jam nut.

   If piston diameter is unknown, turn **TS** in (CW) one turn. Exit the pit and register a down call. Repeat this procedure until the valve actuates. Lock jam nut.
3. Return the car to the upper floor, turn **CR** in (CW) three turns initially. Exit the pit and register a down call. Repeat this procedure using one-turn increments to obtain a comfortable, firm stop.
4. Seal adjustments **TS** and **CR** as required by local code.
5. Adjust the down valve and down transition back to normal settings (contract speed = full down speed with rated load).

(SEE NOTE ABOVE) **FULL LOAD TEST PROCEDURE**

1. Load car to rated capacity.
2. Increase down speed in accordance with Main Control Valve's manufactures instructions until rupture valve sets.
3. Verify rupture valve set within range permitted by local code.
4. Verify adjustments are sealed on rupture valve.
5. Return Main control valve to operational settings.

PRECALCULATED OSV TRIPPING FLOW TABLE

DIRECT ACTING APPLICATIONS

JACK PISTON DIAMETER (INCHES)

LOADED CAR SPEED FPM	2	2 1/2	2 3/4	3	3 1/2	4	4 3/8	4 1/2	5	5 7/16	5 1/2	6	6 1/2	7	7 1/2	8	8 1/2	9 1/2	10 5/8	12 5/8
1	0.20	0.33	0.39	0.46	0.63	0.81	0.98	1.04	1.28	1.51	1.54	1.84	2.15	2.50	2.88	3.26	3.69	4.60	5.76	8.13
5	1.03	1.60	1.93	2.30	3.13	4.08	4.88	5.16	6.38	7.54	7.71	9.18	11	13	14	16	19	23	29	41
10	2.04	3.19	3.86	4.59	6.25	8.16	10	10	13	15	15	19	21	25	29	33	36	46	58	81
20	4.08	6.38	7.71	9.18	13	16	20	21	25	30	31	36	43	50	58	65	74	93	115	163
30	6.13	10	12	14	19	25	29	31	39	45	46	55	65	75	86	98	110	138	173	244
40	8.16	13	15	19	25	33	39	41	51	60	61	74	86	100	115	130	148	184	230	325
50	10	16	19	23	31	41	49	51	64	75	78	91	108	125	144	164	184	230	288	406
60	12	19	24	28	38	49	59	63	76	90	93	110	129	150	173	196	221	276	345	488
70	14	23	28	33	44	58	69	73	89	105	108	129	151	175	201	229	258	323	403	569
80	16	25	31	36	50	65	78	83	103	121	124	148	173	200	230	261	295	369	460	650
90	19	29	35	41	56	74	88	93	115	136	139	165	194	225	259	294	331	414	519	731
100	20	33	39	46	63	81	98	104	128	151	154	184	215	250	288	326	369	460	576	813
110	23	35	43	50	69	90	108	114	140	166	170	203	238	275	315	359	405	506	634	894
120	25	39	46	55	75	98	118	124	153	181	185	220	259	300	344	391	443	553	691	975
125	25	40	49	58	78	103	123	129	160	189	193	230	269	313	359	408	460	575	720	1016
130	26	41	50	60	81	106	128	134	166	196	200	239	280	325	373	424	479	599	749	1056
140	29	45	54	64	88	114	136	145	179	211	216	258	301	350	401	458	516	645	806	1138
150	30	48	58	69	94	123	146	155	191	226	231	275	324	375	430	490	553	690	864	1219
160	33	51	61	74	100	130	156	165	204	241	246	294	345	400	459	523	590	736	921	1300
170	35	54	65	78	106	139	166	175	216	256	263	313	366	425	488	555	626	783	979	1383
180	36	58	70	83	113	148	176	186	230	271	278	330	388	450	516	588	664	829	1036	1464
190	39	60	74	88	119	155	185	196	243	286	293	349	410	475	545	620	700	875	1094	1545
200	41	64	78	91	125	164	195	206	255	301	309	368	431	500	574	653	738	920	1151	1626

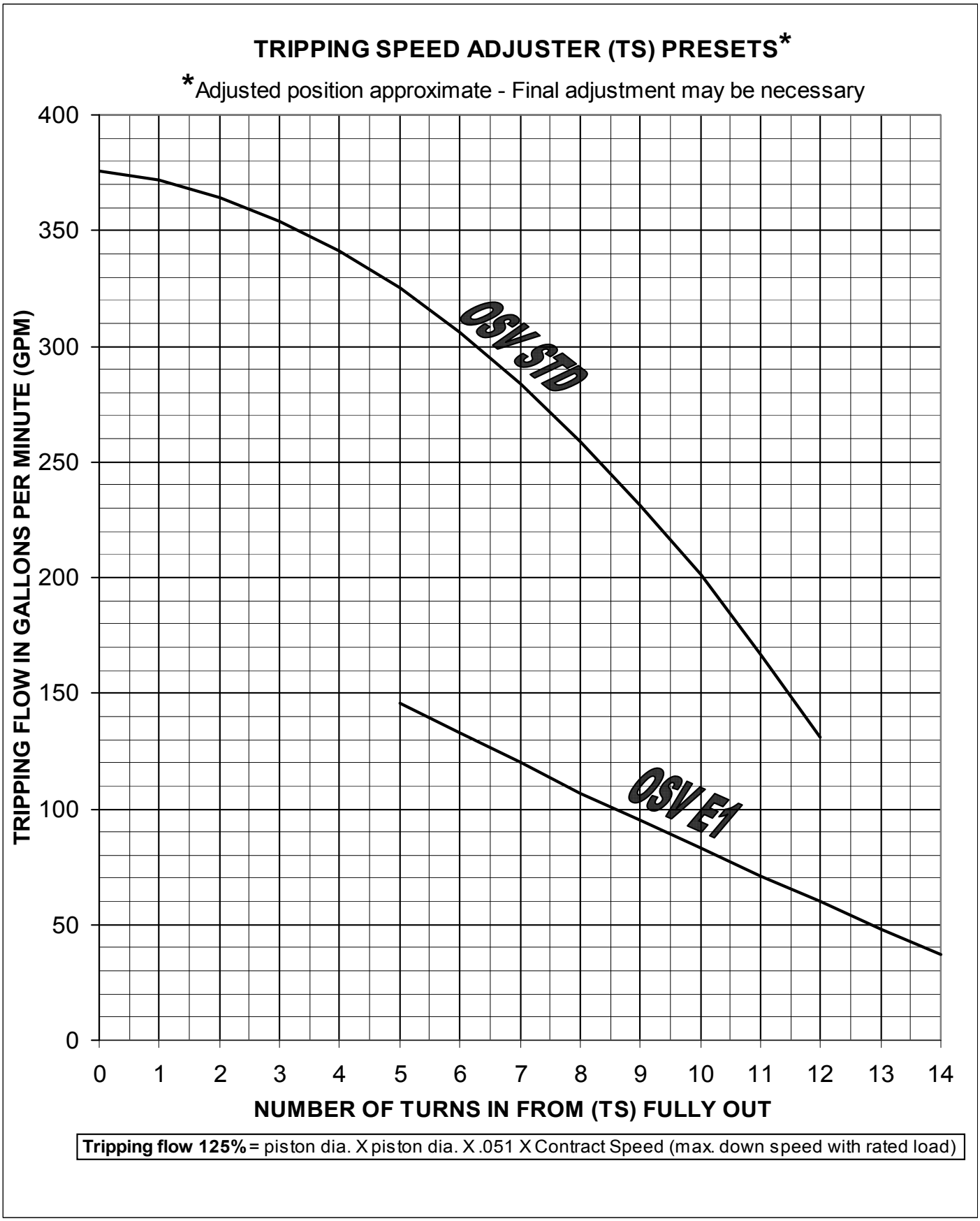
Tripping Flow (GPM)

NOTICE: DO NOT USE THIS TABLE FOR CALCULATING PUMP OUTPUT.
TABLE REPRESENTS OSV TRIPPING FLOW ONLY. RATED FLOW X 125%

Table Instructions:

1. Intersect loaded down speed with the piston diameter.
2. Intersection = Tripping Flow.
3. Apply tripping flow to the chart on the following page to determine the number turns needed in on the TS adjuster.

OVERSPEED VALVE (TRIPPING SPEED PRESETS)



Tripping flow 125% = piston dia. X piston dia. X .051 X Contract Speed (max. down speed with rated load)

Annex to Director's Ruling #114/94 of July 20, 1994

INITIAL INSPECTION PROCEDURE FOR:

- Door Bypass Switches (per clause 3.12.1.4)
- Door Monitoring System (per clause 3.12.1.5 in B44 - General instruction No. 3-1992 and, as of November 1, 1994 per Director's Ruling #114/94)

1. INSPECTION PRE-REQUIREMENTS

1.1 Effective means of 2-way voice communication shall be provided between the machine room and the car (top-of-car, inside car or landing door, as the case may be) for the purpose of carrying out the following tests and inspections. The means shall be provided by the contractor.

1.2 The normal operating and control devices must be tested to verify conformance with applicable code rules; specifically:

a) top-of-car transfer switch (no operation from car-top with this switch in "off" position),
b) car door contacts and landing door interlocks or contacts.

2. DOOR BYPASS SWITCHES (clause 3.12.1.4)

2.1 SWITCHES AND CIRCUITS

Check that:

a) At least one switch marked "CAR DOOR BYPASS" and at least one switch marked "LANDING DOOR BYPASS" is provided in the controller;
b) Each switch has two positions, marked "bypass" and "off";
c) If more than two bypass switches are provided, each is identified by referring to the doors it bypasses;
d) Contacts of the switches are positively open in both positions;
e) Circuits incorporating the switches meet "redundancy" requirements in clause 3.12.9c.

Note re 1.1e): Every critical component in the circuits, such as a relay, solid state, etc., if any, will be identified in Supplement 'A' to the specification sheet along with instructions for testing.

2.2 SWITCHES TO DISCONNECT ALL MODES OF OPERATION

Turn one switch at a time to "BYPASS" position and verify that car does not respond to:

a) any car or landing call and any of the following, if provided;
b) SES recall,
c) hoistway access switch, (consideration for this switch to remain operative)
d) levelling operation, and
e) truck-zone operation.

2.3 SWITCHES TO ENABLE TOP-OF-CAR INSPECTION OPERATION

Turn the top-of-car transfer switch to "maintenance" position and follow this procedure:

2.3.1. Car Door Bypass

a) turn "CAR DOOR BYPASS" switch to "BYPASS" position,
b) force* the car door open with all landing doors closed,
c) verify that car moves on the inspection operation,
d) close the door and return the bypass switch to "OFF",
e) if there are two car doors, repeat the procedure for each door.

2.3.2. Landing Door Bypass
a) turn "landing door bypass" switches to "BYPASS" position,
b) force* any landing door open with all car doors closed,
c) verify that car moves on inspection operation,
d) close the door and return the bypass switch to "OFF".

2.3.3. Car and Landing Door Bypass
a) turn both "landing" and "car door" bypass switches to "BYPASS",
b) force* a car door and corresponding landing door open,
c) verify that car moves on inspection operation,
d) close all doors and return both switches to "OFF",
e) if there are two car doors, repeat the procedure for each door.

*Note: Instead of forcing the door open, the opening of the door contact or interlock may be simulated by disconnecting the wiring leading to the contact or interlock.

2.4 IN-CAR INSPECTION OPERATION

If this feature is provided, follow procedures in 2.3, after the in-car transfer switch is turned to the "maintenance" position.

2.5 MACHINE ROOM INSPECTION OPERATION WITH BYPASSED DOORS

If this feature is provided, first verify that:
a) elevator is equipped with power operated horizontally sliding car and landing doors that are mechanically coupled while the car is in a landing zone;
b) a sign, conforming to clause 3.12.1.4.4(d) is placed near the machine room transfer switch;
c) communication with the car is possible from the machine room in accordance with clause 3.12.1.4.4.d(ii).

Turn the machine room transfer switch to "maintenance" position and follow this procedure:

2.5.1. Car Door Bypass
Same as in 2.3.1.

2.5.2. Landing Door Bypass
Same as in 2.3.2.

2.5.3. Landing Door Bypass with Faulty Car Door Circuits
a) Turn "landing door bypass" switch to "bypass" position.
b) Place a jumper over the car door contact.
c) Force* a landing and corresponding car door partially open.
d) Verify that the car cannot be moved by using the machine room inspection operation.
e) Close all doors, remove the jumper and return the switch to "OFF".
*Note: see note following 2.3.3.

2.5.4. Car and Landing Door Bypass
a) Same as 2.3.3(a).
b) Same as 2.3.3(b).
c) Verify that the car cannot be moved by using machine room inspection operation.
d) Close all doors and return both switches to "OFF".
e) Same as 2.3.3(e).

3. DOOR MONITORING SYSTEM (clause 3.12.1.5)

All of the following tests are carried out while the elevator is on automatic operation.

Caution: All tests should be carried on from inside the car, having good voice communication between the car and the person in the machine room and always assuming that the car may move unexpectedly if the monitoring system is faulty.

3.1 CAR DOOR NEITHER CLOSED NOR FULLY OPEN (CLAUSE 3.12.1.5A)

a) Obstruct the closing of the car door and maintain stalled car and landing door condition (neither closed or fully open); if there are two car doors, repeat this procedure with each car door, while the other car door is closed.
b) After each of the following conditions is created, complete steps (c) to (e):

i) **TEST A** - A jumper is placed across the car door contact* or the car door contact closed manually;
ii) **TEST B** - A jumper is placed across the related landing door interlock contact* or the interlock contact made manually;
iii) **TEST C** - One jumper placed across the car door contact* and another jumper across the related landing door interlock contact* (combination of Test A and B).

*Note: The jumpers may be placed directly across the contacts or at the controller across the terminals if a separate set of terminals lead to a car door contact and another set to the related landing door interlock contacts.

iv) **TEST D** - One jumper placed across two terminals of the controller between which the car door contact and all corresponding landing door interlock contacts are connected in a series. This test would not be possible to carry out on so called "split" circuits, where a single jumper wire cannot bypass the car and landing door contacts.

c) Place a car call to another landing.
d) Observe that the car remains inoperative until the car door blocking is removed and doors close fully.

ANALYSIS OF TEST RESULTS:
(i) It is expected that each test will show results as in 3.1d).
(ii) For the reasons explained in Director's Ruling #113/94, and until the date set in that Ruling, it is acceptable that a monitoring system successfully passes at least tests "A", "B" and "C" or alternatively only "D" where this test can be performed.

3.2 CAR DOOR FULLY OPEN (CLAUSE 3.12.1.5B)

a) Open the car and related landing door and maintain the car door in fully open position. If there are two car doors, repeat this procedure with each car door, while the other door is closed.
b) Same as 3.1(b).
c) Same as 3.1(c).
d) Observe that the power door closing is inoperative even when the "door close" button is activated.
e) Remove all jumper wires or reinstate door contacts and observe that the car returns to normal operation, including the power closing.

ANALYSIS OF TEST RESULTS:
Same as analysis following tests in 3.1.