



Kelly Walsh High School

Contract 6029987 Network 9073067

System Description

Description of Operation - EcoSpace Elevator with KCM831 Control

UM-01.26.001-USK

Component Details

KRMS Emergency Phone, Owner's Manual: North America

OM-13.25.001-USK

Component Parts List

Parts Guide: Traction Elevators w/ KCM831

AR-01.01.003-USK

Parts Guide: KONE Signalization System (KSS)

AR-12.20.004-USK

Maintenance and Repair

KONE Maintenance Method

PSK8-601

Drawings

Layout

6029987-10

Electrical Diagrams for EcoSpace w/ KCM831 Control and KDM Drive

1364620-WD

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Traction Elevators with KCM831 Control System and KDM Drive

EcoSpace, MonoSpace and EcoSystem MR

ELECTRIFICATION & CIRCUIT DIAGRAMS

KONE Elevators			1364620		
NA LCE w/KDM ECO/MON/MINI DRAWINGS LIST					
Compiled by: URD / Steve Beasley		Date: 2011-07-01	Issue: B 2013-11-18		
Changed by: URD / Dennis Donner		© 2011 KONE Corporation	No of Pages: 5		
Checked by: USK / Ray Hund		Product Codes: LCE & KDM	Language: en		
Approved by: URD / Dennis Donner			SW: Excel 7.0		
LCE w/KDM DRIVE DRAWINGS					
Drawing Group Number and Title		Comments	Drawing Number	Issue	Page No.
	Drawing Title				
E00 Electrification Position Descriptions Table					
	Position Numbers 1 to 136		1364620E00	B	1
	Position Numbers 140 and Up	Added TWS & K446 Desc.	1364620E00	B	2
INSTALLATION WIRING DIAGRAMS					
E01 Machine and Control Space Connections					
	Main and Lighting Supply Connections		1364620E01	B	1
	Analog Telephone Connection		1364620E01	B	2
	Fire Emer. Power and Seismic Signal Connections		1364620E01	B	3
	Motor and Motor Feedback Connections - Direct	Eco/Mono NMX11 Details	1364620E01	B	4.1
	Motor and Motor Feedback Connections - Remote	Eco/Mono NMX11 Details	1364620E01	B	4.2
	Motor and Motor Feedback Connections - Direct	Mini Only	1364620E01	B	4.3
	Brake and Motor Fan Connections - Direct	Eco/Mono Brake Coil Cables	1364620E01	B	5.1
	Brake and Motor Fan Connections - Remote	Eco/Mono Brake Coil Cables	1364620E01	B	5.2
	Brake and Motor Fan Connections - Direct	Mini Only	1364620E01	B	5.3
	Load Sensor and Governor Connections - Direct	Eco/Mono Load Weigh Note	1364620E01	B	6.1
	Load Sensor and Governor Connections - Remote	Eco/Mono Load Weigh Note	1364620E01	B	6.2
	Car and Cwt. Governor Connections - Direct	Mono/Mini	1364620E01	B	6.3
	Car and Cwt. Governor Connections - Remote	Mono	1364620E01	B	6.4
	Pendant Unit Connections	Added TLR/TWS OPT Plug	1364620E01	B	7
	Fire Status Panel Connections		1364620E01	B	8
	Group Connections w/GTW Boards	Moved 10 conductor to 9.3	1364620E01	B	9.1
	Group Connections w/GTWO Boards	Moved 10 conductor to 9.3	1364620E01	B	9.2
	Group Connections w/TWR, FID, EPD and TLFM	Added New Page 9.3	1364620E01	B	9.3
	E-Link Connections		1364620E01	B	10
	Option Box Network Connections		1364620E01	B	11
	Emergency Battery Drive (EBD) Connections		1364620E01	B	12
	EBR UPS Connections	Eco/Mono	1364620E01	B	13
	Remote JB to Control Panel Connections (1-16)	Eco/Mono Load Weigh Note	1364620E01	B	14
	Remote JB to Control Panel Connections (17-30)	Eco/Mono Brake Coil Cables	1364620E01	B	15
	Remote JB to Control Panel Connections (31-37)	Eco/Mono	1364620E01	B	16

LCE w/KDM DRIVE DRAWINGS

Drawing Group Number and Title		Comments	Drawing Number	Issue	Page No.
	Drawing Title				
E02 Shaft Connections					
	Shaft Cable #1, Upper Landings w/HAC	Added Shaft Cable #1 Note	1364620E02	B	1.1
	Shaft Cable #1, Upper Landings w/o HAC	Added Shaft Cable #1 Note	1364620E02	B	1.2
	Shaft Cable #1, Lower Landing w/HAC	Ch'd. 123:1&2 Connections	1364620E02	B	2.1
	Shaft Cable #1, Lower Landing w/o HAC	Ch'd. 123:1&2 Connections	1364620E02	B	2.2
	Shaft Cable #2, Upper Landings ETS & NTS		1364620E02	B	3
	Shaft Cable #2, Lower Landings ETS & NTS		1364620E02	B	4
	Shaft Cable #3, Upper & Lower Landings ETSL		1364620E02	B	5
	Shaft Network A-Side w/CPU Connect at Top		1364620E02	B	6.1
	Shaft Network A-Side w/CPU Connect at Bot.		1364620E02	B	6.2
	Shaft Network A&B-Sides w/CPU Connect at Top		1364620E02	B	7.1
	Shaft Network A&B-Sides w/CPU Connect at Bot.		1364620E02	B	7.2
	Segmented Shaft Network	Mono/Mini	1364620E02	B	8
	Shaft Cable, EPD Switches and Lights		1364620E02	B	9
	Shaft Cable #1, Gov. Tension Weight Switches	Added New Page 10	1364620E02	B	10
E03 Car Connections					
	Lo Number Flat (KM899287)	Eco	1364620E03	A	1.1
	Lo Number Flat (KM946906)	Mono/Mini	1364620E03	A	1.2
	Lo Voltage Round (KM283032)	Mono/Mini	1364620E03	A	1.3
	Hi Number Flat (KM922942) w/o BP or w/Orig BP	Eco	1364620E03	A	2.1A
	Hi Number Flat (KM922942) w/New BP Wiring	Eco (New Page 2.1B)	1364620E03	A	2.1B
	Hi Number Flat (KM946805) w/o BP or w/Orig BP	Mono/Mini	1364620E03	A	2.2A
	Hi Number Flat (KM946805) w/New BP Wiring	Mono/Mini (New Page 2.2B)	1364620E03	A	2.2B
	Hi Voltage Round (KM283032)w/o BP or w/Orig BP	Mono/Mini	1364620E03	A	2.3A
	Hi Voltage Round (KM283032)w/ New BP Wiring	Mono/Mini (New Page 2.3B)	1364620E03	A	2.3B
	Twisted Pair w/Coax Flat (KM926156)	Eco/Mono/Mini	1364620E03	A	3.1
	Extra Twisted Pairs & Coax Round (KM283032)	Mono/Mini	1364620E03	A	3.2
	Inspection Drive and Accessories		1364620E03	A	4.1
	Inspection Drive w/Folding Car Top Handrail	Eco	1364620E03	A	4.2
	Safety, Door Zone and Leveling Sw's (Cigars)	Eco	1364620E03	A	5.1
	Safety, Door Zone and Leveling Sw's (Oscilators)	Mono/Mini	1364620E03	A	5.2
	Normal Terminal Slowdown Switches	Added Load Weigh Note	1364620E03	A	6
	AMD 1.0 & 1.5 Door Operator (A&B-Side)		1364620E03	A	7
	AMD 2.0 Door Operator (A&B-Side)		1364620E03	A	8
	Car Network w/KRM Phone		1364620E03	A	9
	Direct Car Top Box to COP Devices	Modified Enable Sw Wiring	1364620E03	A	10
	Car Lighting and Ventilation		1364620E03	A	11

LCE w/KDM DRIVE DRAWINGS

Drawing Group Number and Title		Comments	Drawing Number	Issue	Page No.
	Drawing Title				
CIRCUIT WIRING DIAGRAMS					
E04 KDM Drive Module					
	Power Circuits	Added NMX11 Thermistor	1364620E04	B	1
	Control and Brake Interface Circuits w/BCM25	Added 123:1&2 NC	1364620E04	B	2.1
	Control and Brake Interface Circuits w/BCX08	Added New Page 2.2	1364620E04	B	2.2
	Brake Control Circuits w/BCM25	Added K416:T Timer Notes	1364620E04	B	3.1
	Brake Control Circuits w/BCX08	Added New Page 3.2	1364620E04	B	3.2
	Feedback Circuits		1364620E04	B	4
	NTS, ETS and 120VAC Safety Chain Circuits	Added 123:1&2 NC	1364620E04	B	5
	EBR Low Voltage Circuits	Deleted MX10 Settings Chart	1364620E04	B	6
	EBR High Voltage Circuits w/MX10		1364620E04	B	7
	EBR High Voltage Circuits w/MX14,MX20&NMX11	Added NMX11	1364620E04	B	8
E05 Safety Chain					
	Mach, Shaft & Car Circuits w/o or w/Orig BP	Removed 123:1&2, add note	1364620E05	A	1.1
	Mach, Shaft & Car Circuits w/New BP Wiring	Added New Bypass Details	1364620E05	A	1.2
	Car and Shaft Door Circuits w/HAC & Bypass		1364620E05	A	2.1
	Car and Shaft Door Circuits w/o HAC & w/Bypass		1364620E05	A	2.2
	Car and Shaft Door Circuits w/HAC & w/o Bypass	Added New Page 2.3	1364620E05	A	2.3
	Car and Shaft Door Circuits w/o HAC & Bypass	Added New Page 2.4	1364620E05	A	2.4
	Special Option Circuit Mods		1364620E05	A	3
E06 Group Network Connections					
	Simplex or Group	Corrected Network ID's	1364620E06	A	1
	CPU, OPT:1, OPT:2 and FSC w/GTW & CAN	Corrected Network ID's	1364620E06	A	2
	CPU w/GTWO & CAN		1364620E06	A	3
E07 Control Module					
	Postion Devices Interface w/o Car DC Supply	Cigar Switches Shown	1364620E07	A	1.1
	Postion Devices Interface w/Car DC Supply	Oscilator Switches Shown	1364620E07	A	1.2
	Inspection w/Orig BP Sw Wiring w/o K446		1364620E07	A	2.1
	Inspection w/New BP Sw Wiring w/K446	Added New Page 2.2	1364620E07	A	2.2
	Inspection w/o BP Sw's	Added New Page 2.3	1364620E07	A	2.3
E10 Shaft Signalization Interface					
	Shaft Network		1364620E10	A	1
	FCB's		1364620E10	A	2
	HAS's	Corrected XFA3 & XFA7 I/O	1364620E10	A	3
	HAS Top Landing w/HAC		1364620E10	A	4
	HAS Bottom Landing w/HAC		1364620E10	A	5
	FOBG11's		1364620E10	A	6
	FOBG12's		1364620E10	A	7
E11 Door Module					
	AMD Drive 1.5, A-side		1364620E11	-	1
	AMD Drive 1.5, B-side		1364620E11	-	2
	AMD Drive 2, A-side		1364620E11	-	3
	AMD Drive 2, B-side		1364620E11	-	4
	AMD Drive 1.0, A-side		1364620E11	-	5
	AMD Drive 1.0, B-side		1364620E11	-	6

LCE w/KDM DRIVE DRAWINGS

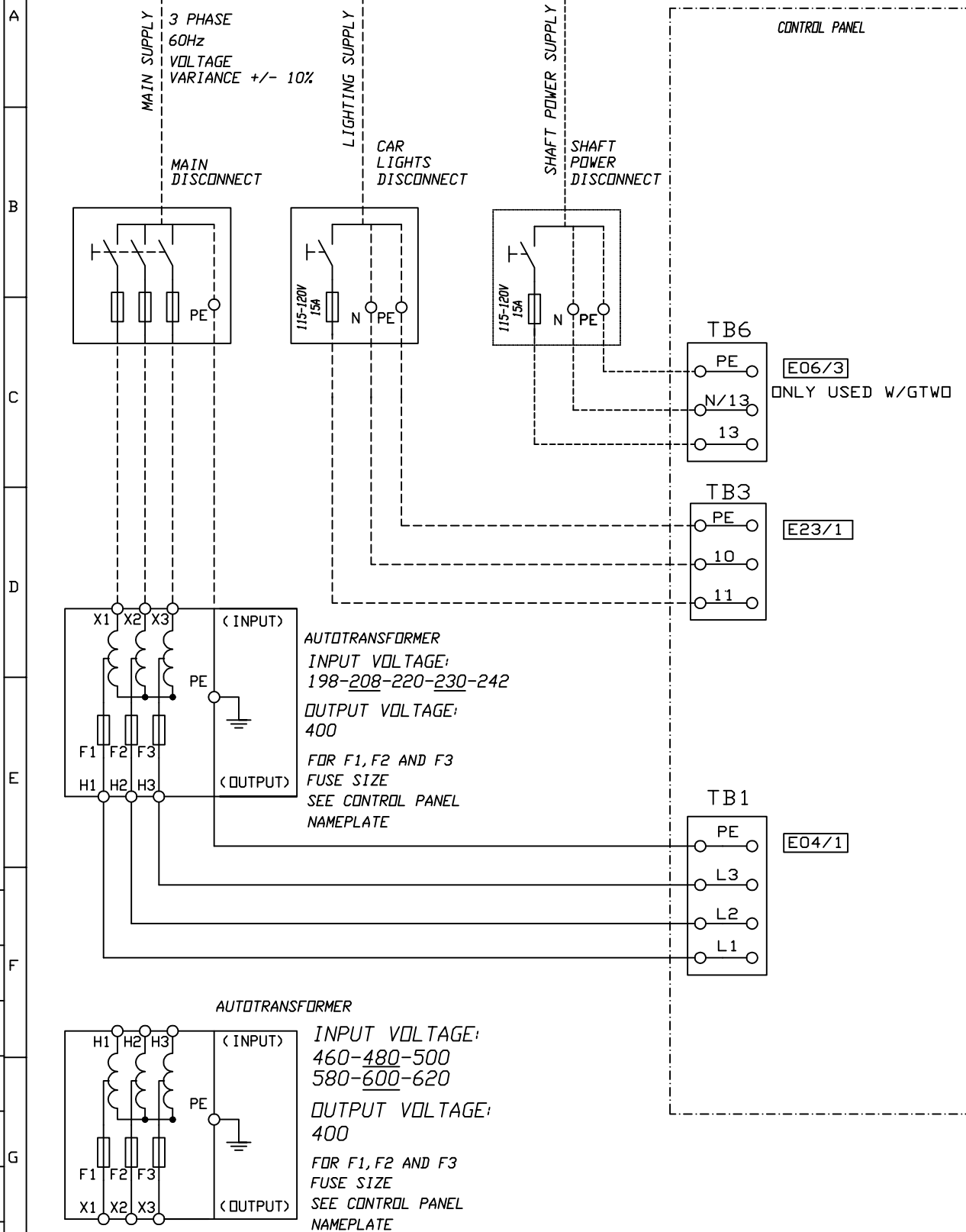
Drawing Group Number and Title		Comments	Drawing Number	Issue	Page No.
	Drawing Title				
E12 ETSL Safety Circuits					
	ETSL w/230VAC Safety Circuits	Added 123:1&2 NC Details	1364620E12	A	1
	ETSL w/120VAC Safety Circuits	Added 123:1&2 NC Details	1364620E12	A	2
E14 ADON Safety Circuits					
	ADO/ACL Circuit		1364620E14	A	1
	ETS Circuit	Added K446 Note	1364620E14	A	2
	ACUM Circuit		1364620E14	A	3
E15 Option Board Devices					
	FRD/EPD OPT Circuits		1364620E15	B	1
	EAQ/FPO OPT Circuits		1364620E15	B	2
	TLR/TWS OPT Circuits	Added TWS Input Detail	1364620E15	B	3
E17 Security Systems Interfaces					
	Locking of Car/Landing Calls w/Key Switches		1364620E17	-	1
	Locking of Car Calls w/Card Readers		1364620E17	-	2
	Locking of Landing Calls w/Card Readers		1364620E17	-	3
E18 Annunciator Control Unit (ACU)					
	Connections		1364620E18	-	1
	Preprogrammed Messages (1 - 60)		1364620E18	-	2
	Preprogrammed Messages (61 - 120)		1364620E18	-	3
E20 Fire Status Panel Control					
	FSC Board w/366:FSP Repeater	Corrected Network ID	1364620E20	A	1
E23 Lighting and Alarm					
	Connections		1364620E23	-	1
E24 Communication Devices					
	KONEXION M	Added Phone Line Monitor	1364620E24	A	1
E25 Phone Line Monitor (PLM)					
	Single Car and Group Connections	Added New E25 Drawing	1364620E25	-	1
E50 Grounding Details					
	Safety Ground Circuits		1364620E50	-	1

LCE w/KDM DRIVE DRAWINGS

Drawing Group Number and Title		Comments	Drawing Number	Issue	Page No.
	Drawing Title				
E60 Shaft Vane Diagrams					
	Lower Floors w/Cigars, w/NTS & w/o ETS (On Car)	Eco Ch'd. NTS Settings	1364620E60	A	1.1
	Lower Floors w/Cigars, w/NTS & w/ETS (In Shaft)	Eco Ch'd. NTS/ETS Settings	1364620E60	A	1.2
	Lower Floors w/Cigars, w/NTS & w/ETSL (In Shaft)	Eco Ch'd. NTS/ETSL Settings	1364620E60	A	1.3
	Lower Floors w/Oscillators, w/NTS & w/ETS	Mono/Mini Ch'd. NTS/ETS	1364620E60	A	1.4
	Lower Floors w/Oscillators, w/NTS & w/ETSL	Mono/Mini Ch'd. NTS/ETSL	1364620E60	A	1.5
	Intermediate Floors w/Cigars	Eco	1364620E60	A	2.1
	Intermediate Floors w/Oscillators	Mono/Mini	1364620E60	A	2.2
	Top Floors w/Cigars, w/NTS & w/o ETS (On Car)	Eco Ch'd. NTS Settings	1364620E60	A	3.1
	Top Floors w/Cigars, w/NTS & w/ETS (In Shaft)	Eco Ch'd. NTS/ETS Settings	1364620E60	A	3.2
	Top Floors w/Cigars, w/NTS & w/ETSL (In Shaft)	Eco Ch'd. NTS/ETSL Settings	1364620E60	A	3.3
	Top Floors w/Oscillators, w/NTS & w/ETS	Mono/Mini Ch'd. NTS/ETS	1364620E60	A	3.4
	Top Floors w/Oscillators, w/NTS & w/ETSL	Mono/Mini Ch'd. NTS/ETSL	1364620E60	A	3.5

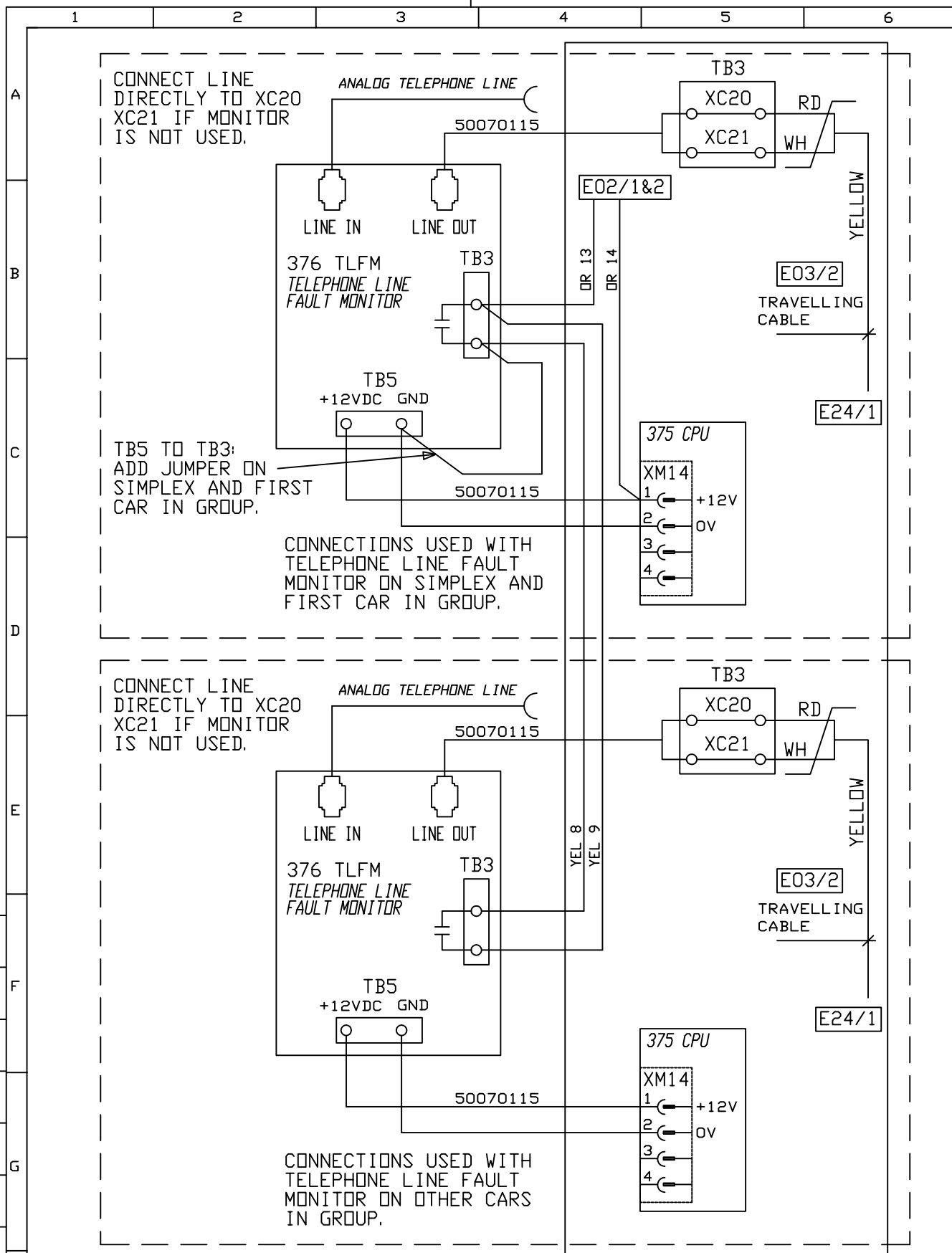
KONE Elevators		Drawing Number: 1364620E00	
ELECTRIFICATION POSITION DESCRIPTIONS TABLE			
Compiled By: URD/S. Beasley	Date: 2011.08.26	Issue: B	
Changed By:	Product Code: LCE w/KDM	Date of Version:	
Checked By: USK/R. Hund	Language: en	2013.11.18	
Approved By: URD/D. Donner	© 2010 KONE Corporation		
LCE w/KDM DRIVE POSITION DESCRIPTIONS			
Position	Description	Position	Description
Position Numbers 1 to 136			
1	Hoist Machine Motor	65	Car Top Alarm Buzzer
1:T	Hoist Motor Thermistos	66	Out Of Service Switch
6:2	Hoist Motor Encoder	66:1	Folding Handrail Left Side Dn. Sw.
6:3	Governor Encoder	66:2	Folding Handrail Right Side Dn. Sw.
10	Hoist Motor Cooling Fan	66:3	Folding Handrail Left Side Up Sw.
11:1	Hoist Machine Main Brake Solenoid	66:4	Folding Handrail Right Side Up Sw.
11:2	Hoist Machine Emer. Brake Solenoid	66:EAQ	EAQ Midpoint Switch
14:1	Stop Switch on Hoist Machine	77:U/N	Full Speed NTS Switches Up/Down
14:2	Stop Switch at Remote Access	77:U1-4	NTS Switch Up
22	Car Governor Contact	77:N1-4	NTS Switch Down
22:M	Car Governor Reset Motor	77:S	Synchronization Switch
26	Counterweight Governor Contact	84(B)	Car Door Operator (Rear)
26:M	Counterweight Governor Reset Motor	85(B)	Car Door Motor (Rear)
30	Door Zone Switch	87	Car Door Closed Contact
B30	Rear Door Zone Switch	B87	Rear Car Door Closed Contact
38:1-T	Call Locking Switches (LOC or LOL)	88(B)	Car Door Photocell Transmitter(Rear)
40:1	In Car Stop Switch	89(B)	Car Door Photocell Receiver(Rear)
40:2	In Car Fire Op. Panel Stop Switch	100	Control Panel Intercom Handset
41:1	Car Top Stop Switch	103:2-T	Landing Down Call Buttons
41:2	Car Top 2nd Stop Switch	104:1-(T-1)	Landing Up Call Buttons
42:DS	Car Top Inspect Drive Switch	105:2-T	FEB Landing Down Call Buttons
42:U/N	Car Top Inspect Up/Down PB's	106:1-(T-1)	FET Landing up Call Buttons
42:RB	Car Top Inspect Run PB	112:1	Pit Stop Switch
42:SL(Fix)	Car Top Service Light (Fixed)	113:1-T	PRL- H/HEL Calls
42:ST(Fix)	Car Top Service Light Sw. (Fixed)	115:1-T	PRL- L Calls
42:SL(Por)	Car Top Service Light (Hand Held)	116:1-T	Landing Out of Service Switches
42:ST(Por)	Car Top Service Light Sw. (Hand Held)	117:1-T	Landing LOL Switches and Lights
43	Car Ventilation Fan	118:1-T	Ldg. MES or HEL Call Sw's & Lt's
44	Car Interior Lights	121:1-T	Ldg. Door Closed/Locked Contacts
45 (Fix)	Car Top GFCI Receptacle (Fixed)	123:1	Car Gov. Tension Weight Switch
45 (Por)	Car Top Power Recept. (Hand Held)	123:2	Cwt. Gov. Tension Weight Switch
50	In Car Hoistway Access Enable Sw.	124	Compensator Rope Contact
51:1	Car Top Folding Handrail Limit Switch	125:1	Car Buffer Contact
52	Car Safety Gear Switch	125:2	Cwt. Buffer Contact
54:1	Toe Guard Retracted Switch (Front)	133:1-T	Firemen's Recall Switches & Lights
54:2	Toe Guard Zone Switch (Front)	136:U/N	ETS Switch Up/Down
54:3	Toe Guard Retracted Switch (Rear)	136:U1-U2	ETSL Switch Up
54:4	Toe Guard Zone Switch (Rear)	136:N1-N2	ETSL Switch Down
57	Car Top Emergency Exit Switch	140	Load Weigh Sensor
61:U/N	Impulse Up/Down Switches	142:1/T	Ldg. Hoistway Access Switches
63	Car Top Safety Locking Bar Switch	143	Retractable Pit Ladder Switch
64	Load Weigh VTC Board		

LCE w/KDM DRIVE POSITION DESCRIPTIONS			
Position	Description	Position	Description
Position Numbers 140 and Up			
151:U/N	Final Limit Switches Up/Down	728:1-2	ETSL Control Board
166:1-T	Ldg. Out of Service Sw's & Lt's	731	Group Gateway Board, GTW/GTWO
176:1-T	Ldg. Car Position Indicators	766	Voice Annunciator Board
177	Phone Line Monitor Alarm Indicator	806	Car Top Control Board, CCBN2
190	Building Seismic Switch		
190:1	Counterweight Derailment Detector	EB:S	Emer. Brake Suppressor Module
190:RB	CWT. Derailment Reset Button	MB:S	Main Brake Suppressor Module
191:1-T	Smoke Detector, Except Main Ldg.	TLR	Traction Loss Reset Switch
191:M(N)	Smoke Detector, Main Landing	TWS	OL35 Gov. Tension Wt. Sw. Input
192	Smoke Detector, Control Room	K446	Door Bypass Switch Relay
193:1-T(N)	Smoke Detector, Hoistway		
197:1-T	Floor Board, FCB		
198:1-T	Floor Board, HAS or FOB	K201	Main Contactor
227	Cartop Emergency Light Battery	K201:3-4	Main Control Relays
239	Control Circuits Transformer	K219	Hoist Motor Fan Control Relay
251	Power Supply for GTWO Board	K416:T	Emergency Brake Hold Timer
264	Car Door Bypass Switch	*J442	Inspection Drive Relay
267	Landing Door Bypass Switch	*J442:1	Hoistway Access Relay
269	Traction loss Reset Switch	*J443:1-2	Door Zone Relay
270	Control Room Inspect Drive Sw.	*J464:1-2	ACUM Supervisory Relays
270:U/N	Control Rm Inspect Up/Down PB	K464:3	Emergency Brake Control Relay
270:RB	Control Room Inspect Run PB	*J486	Speed Measurement Relay
278	Phone Line Monitor Alarm Reset Sw.	*J487	Supervisory Relay
279	Door Zone Indicator Light	K516:U/N	Terminal Landing Relay
330	Drive Module Cooling Fan	K524	Deceleration Start Relay
366	Fire Status Panel Signal Repeater		
367	Drive Module I/O Board	K553	Accurate Leveling Relay
370:TFLI	Phone Line Fault Indicator Board	K616:1-2	Speed Supervisory Relay
373	EAQ (CWT Derailment) Board	*J637	In Car Stop Sw. Override Relay
375	Main LCE CPU Board		
376:TLFM	Phone Line Monitor Board		
377:DCBG	Drive Control CPU Board	*) Indicates Safety Relay with Forced Guided Contacts.	
379	ADON (Safety Circuits) Board		
379A	120VAC Safety Circuit Module		
380:EBD	Emergency Battery Drive Unit	KRMRIF	KONEXION Communication Board
380:BU	Electric Brake Release UPS Unit	F2KMUL	Serial Signalization Board
380:EBR	Electric Brake Release Module		
385	KDM Drive Module	Manual EBR (Electric Brake Release) Devices	
388	BCM25 Brake Control Board	AC	UPS 230VAC Input Monitor Relay
388:K1	Main Brake Pick Relay	CE	Emergency Brake Contactor
388:K2	Emergency Brake Pick Relay	CM	Main Brake Contactor
388:K3	Main Brake Hold Relay	DC	UPS 12VDC Battery Monitor Relay
388:K4	Emergency Brake Hold Relay	MP	Meter 12VDC Power Monitor Relay
388:K7	Main Brake Hold Pilot Relay	PL	Main 230VAC Power Loss Relay
388:K8	Emergency Brake hold Pilot Relay	SMT	Speed Monitor Meter
389:M	Motor Circuit Output Filter (Reactor)	SWE	Emergency Brake Control Switch
392	Main Contactor Control Board	SWM	Main Brake Control Switch
395	KDA Control Module	EC1	Brake Hold Relay
571	2 Speed Car Fan Control Relay	ET1	Brake Hold Timer
722:1-2	Expansion Option Board, OPT		
723	Power Supply Board, REC		

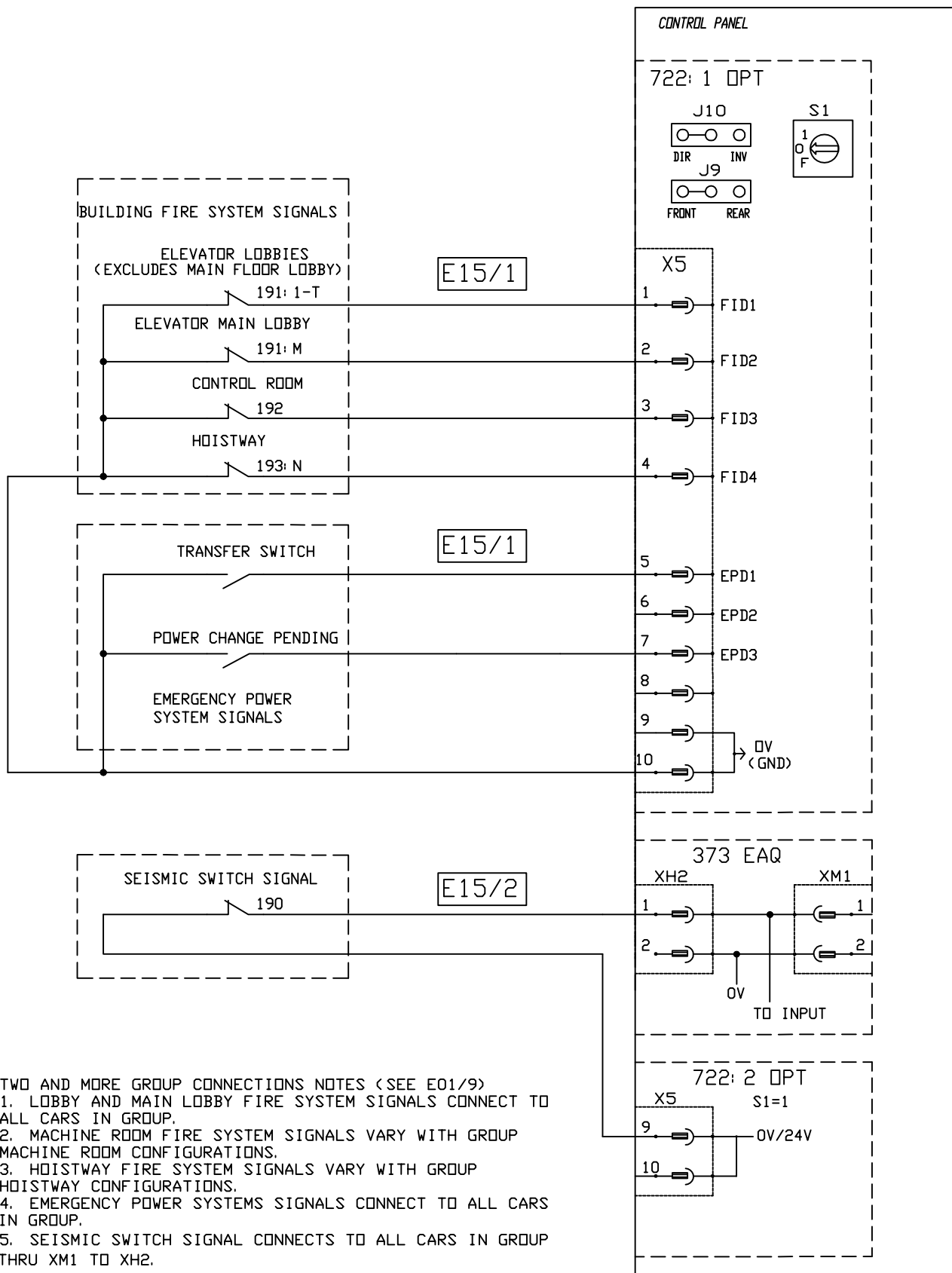


B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS		
					MAIN AND LIGHTING SUPPLY CONNECTIONS		
Sales ref. no.		Drawing no.		Issue		Page	
-		1364620E01		B		1 / 16	

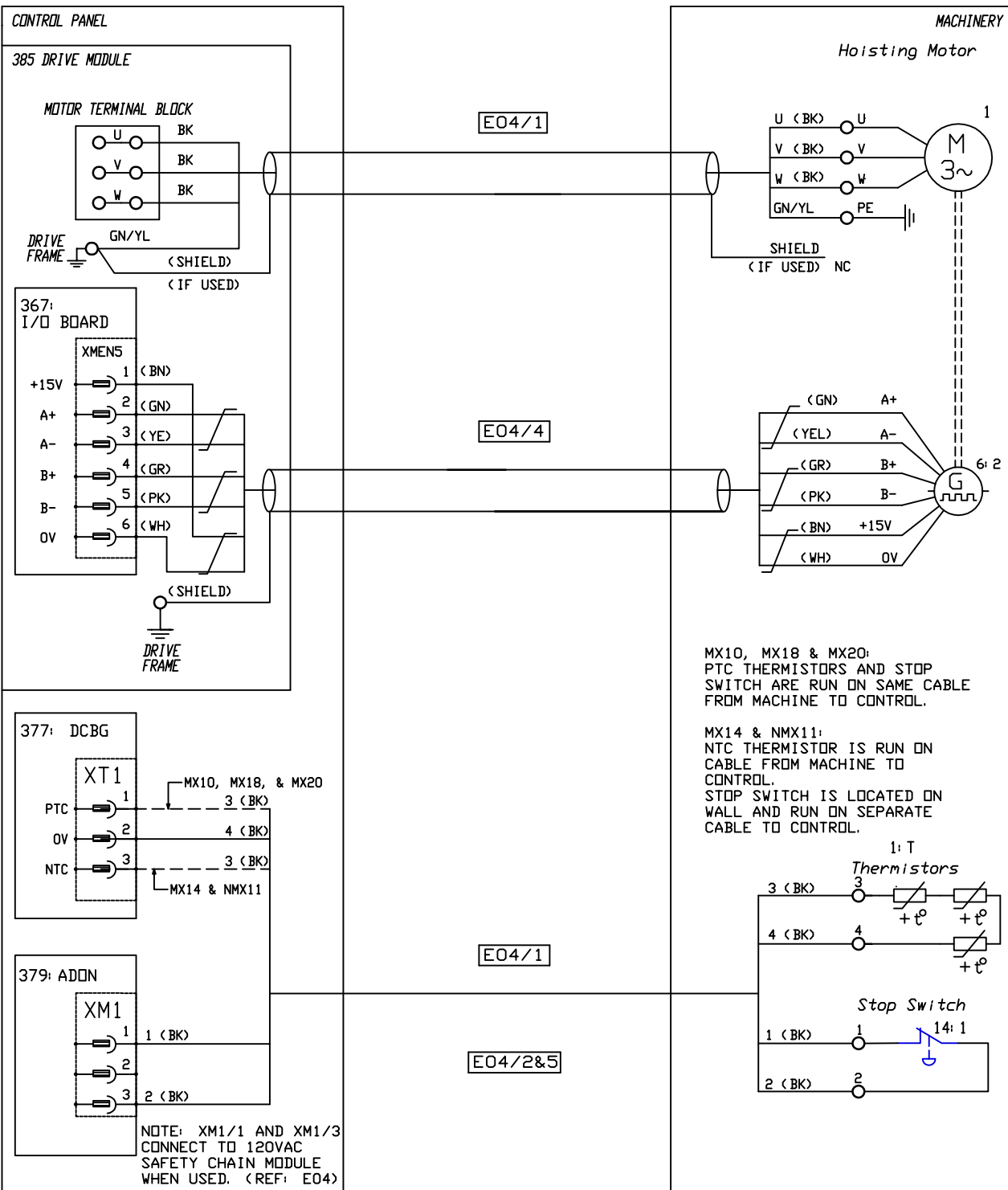




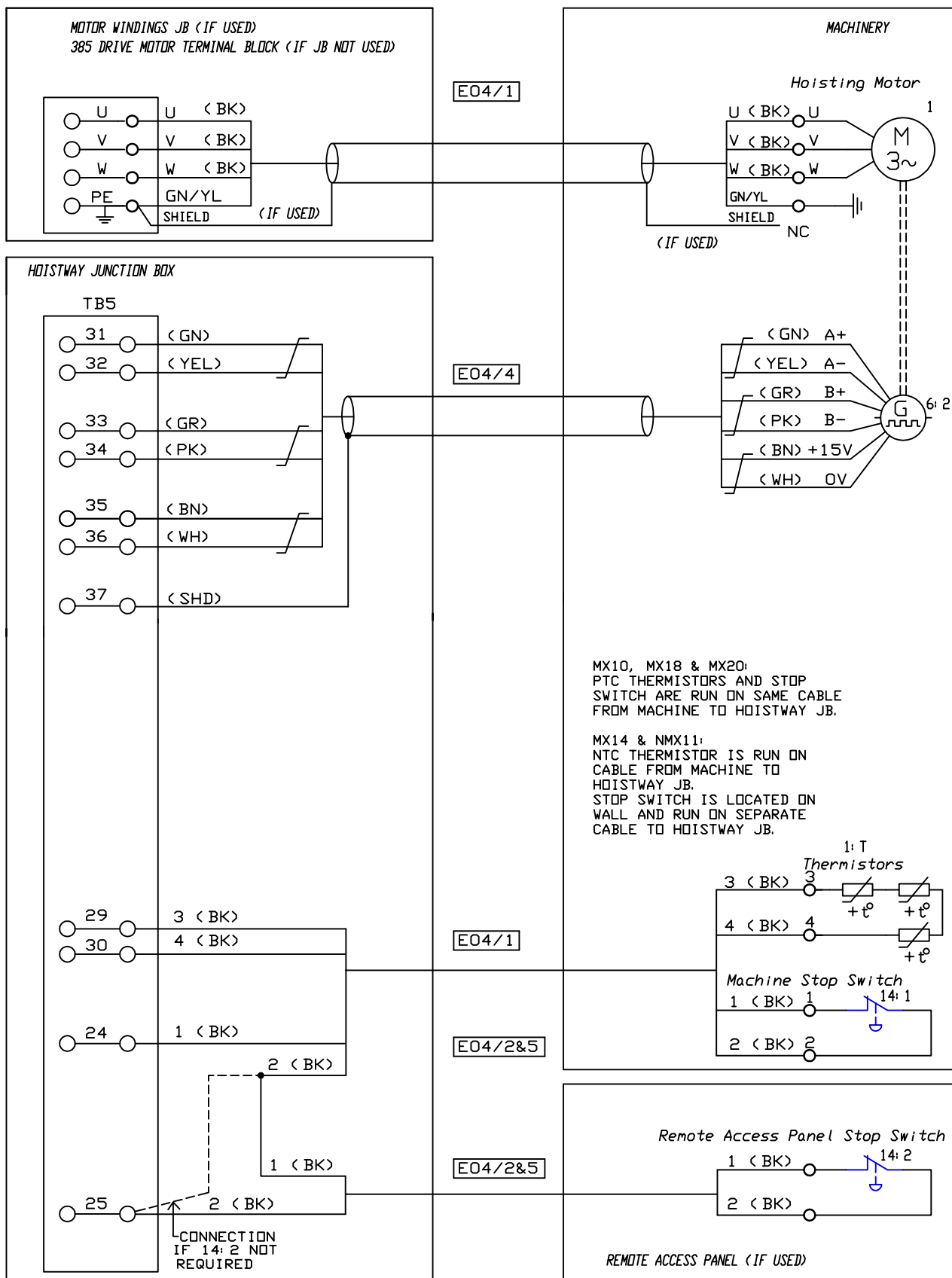
B	REVISION UPDATE	02. 07. 2013	MKS0B2	DD	Designed by S. BEASLEY		Checked by MKD/ RAY HUND	Language en
A	ADD TELEPHONE LINE MONITOR	03. 07. 2012	MKS0B2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by				
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONDSPACE 1364623E01 FOR MINISPACE 					MACHINE AND CONTROL SPACE CONNNECTIONS			
					ANALOG TELEPHONE CONNECTIONS			
					Sales ref. no. —	Drawing no. 1364620E01	Issue B	Page 2 / 16



B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
	Issue	Change description	Date	Des. by	Appr. by		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS FIRE, EMERGENCY POWER AND SEISMIC SIGNAL CONNECTIONS		
KONE					Sales ref. no. -	Drawing no. 1364620E01	Issue B
					Page 3/16		

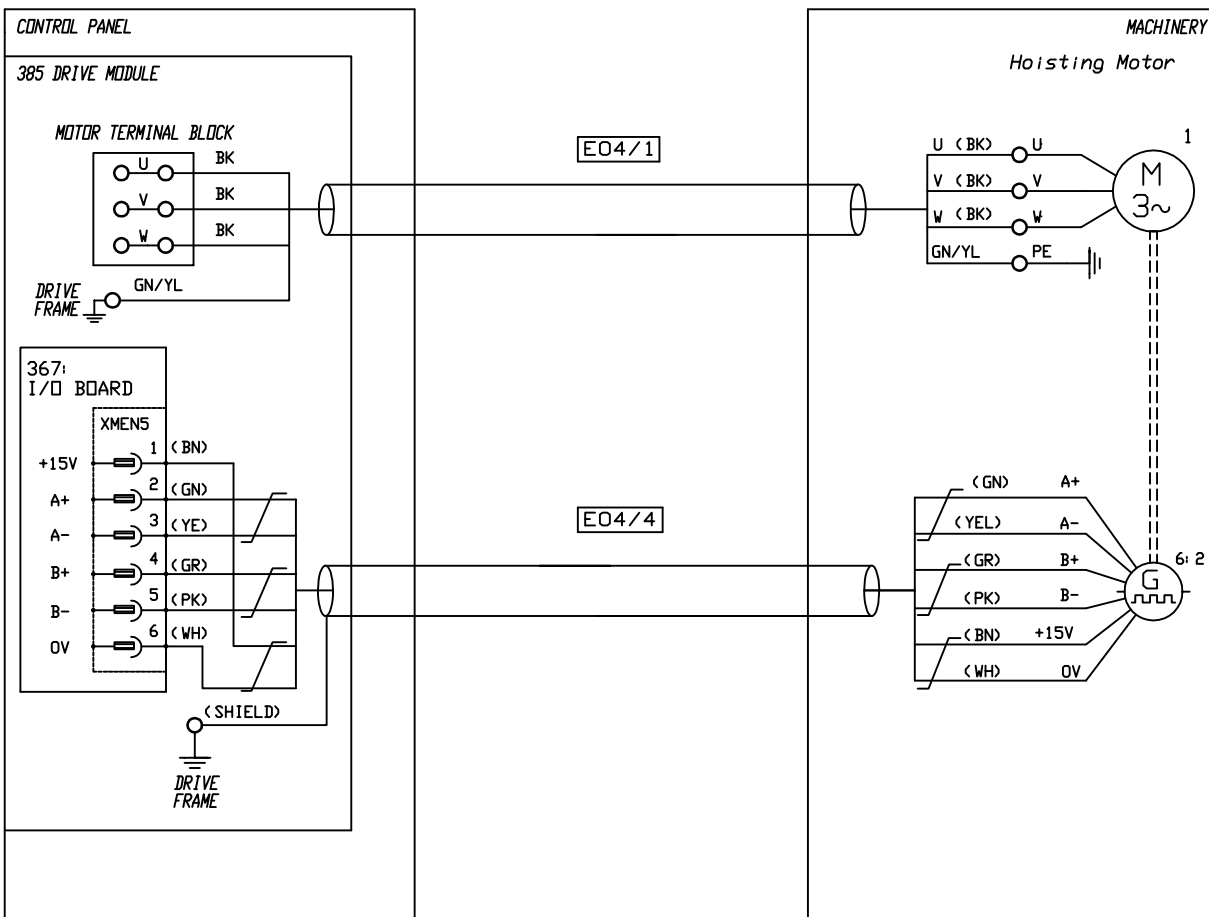


B	ADDED NMX11	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	MACHINE AND CONTROL SPACE CONNNECTIONS		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MOTOR AND MOTOR FEEDBACK CONNECTIONS- DIRECT ECO & MONO		
					Sales ref. no. -	Drawing no. 1364620E01	Issue B
					Page 4. 1 / 16		

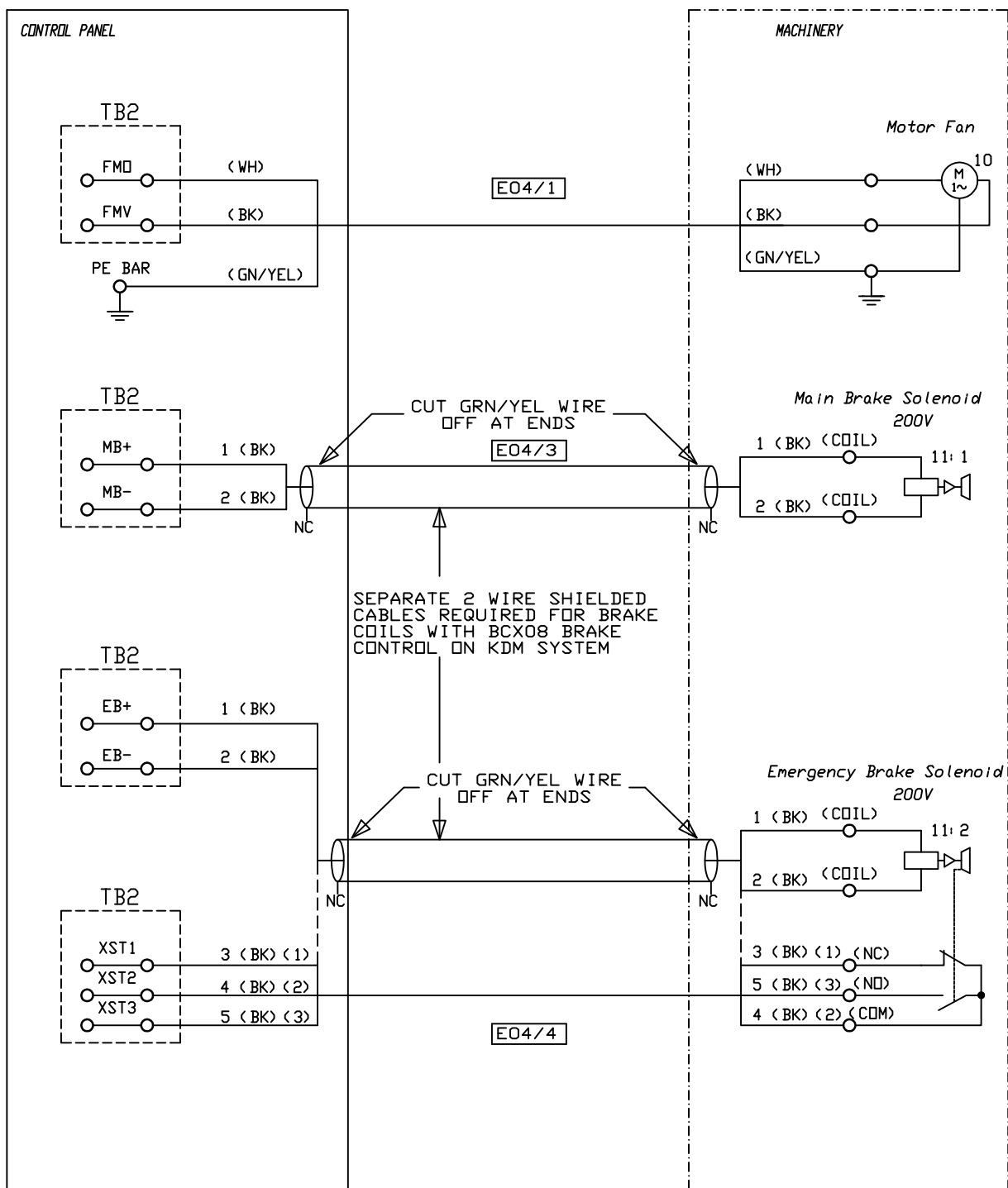


B	ADDED NMX11	02.07.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03.07.2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					MOTOR AND MOTOR FEEDBACK CONNECTIONS- REMOTE ECD & MOND		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
					Page 4. 2/16		





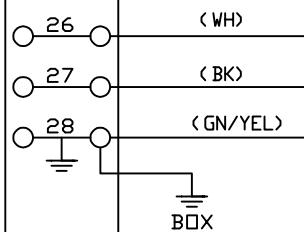
B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS		
KONE					MOTOR AND MOTOR FEEDBACK CONNECTIONS- DIRECT MINI		
Sales ref. no. -		Drawing no. 1364620E01		Issue B		Page 4. 3/16	



B	CHANGED BRAKE COIL CABLES.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS		
KONE					BRAKE AND MOTOR FAN CONNECTIONS- DIRECT ECO & MONO		
Sales ref. no. -		Drawing no. 1364620E01		Issue B		Page 5. 1 / 16	

HOISTWAY JUNCTION BOX

TB5



E04/1

CUT GRN/YEL WIRE
OFF AT ENDS

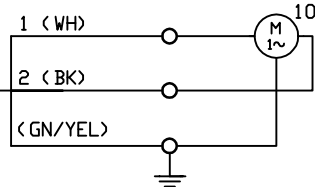
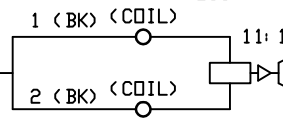
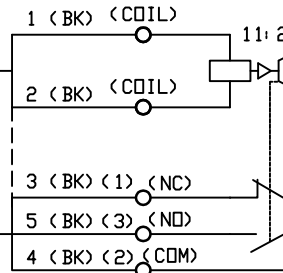
E04/3

SEPARATE 2 WIRE SHIELDED
CABLES REQUIRED FOR BRAKE
COILS WITH BCX08 BRAKE
CONTROL ON KDM SYSTEMCUT GRN/YEL WIRE
OFF AT ENDS

E04/3

MACHINERY

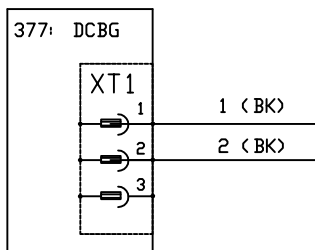
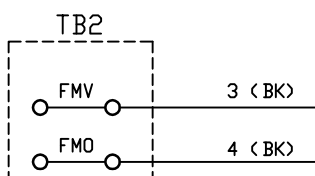
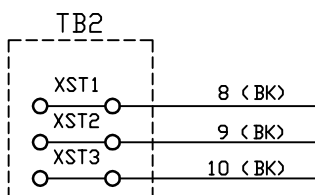
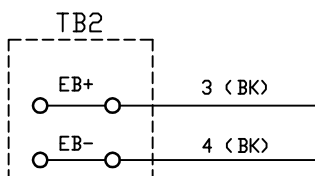
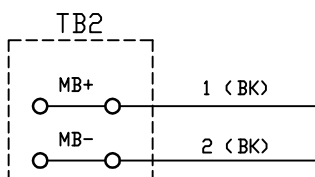
Motor Fan

Main Brake Solenoid
200VEmergency Brake Solenoid
200V

B	CHANGED BRAKE COIL CABLES	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					BRAKE AND MOTOR FAN CONNECTIONS- REMOTE ECO & MONO		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
					Page 5. 2/16		



CONTROL PANEL



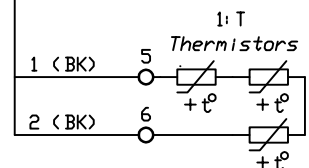
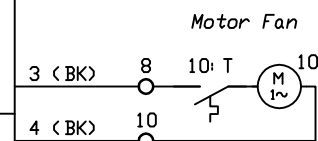
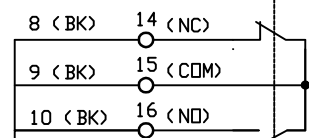
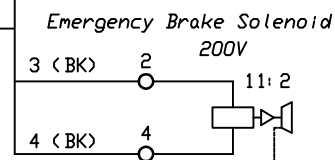
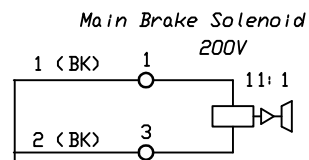
E04/3

E04/3

E04/1

E04/1

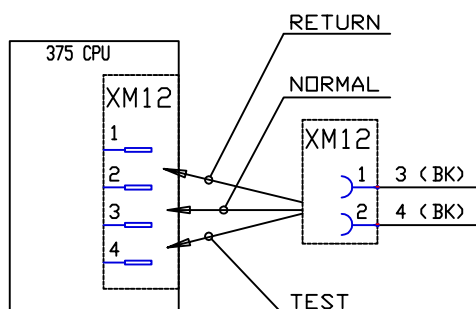
MACHINERY



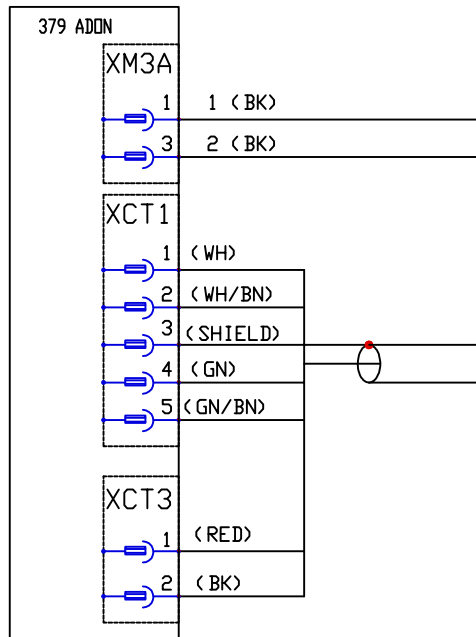
B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by	Product code LCE W/KDM		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS		
					BRAKE AND MOTOR FAN CONNECTIONS- DIRECT MINI		
					Sales ref. no. -	Drawing no. 1364620E01	Issue B
					Page 5. 3/16		

KONE

CONTROL PANEL

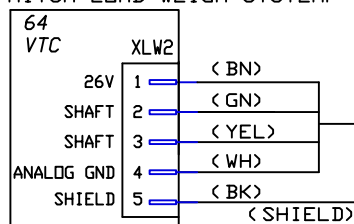


E05/2

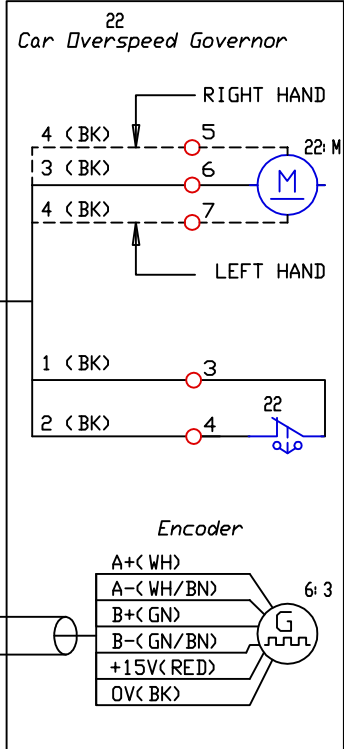
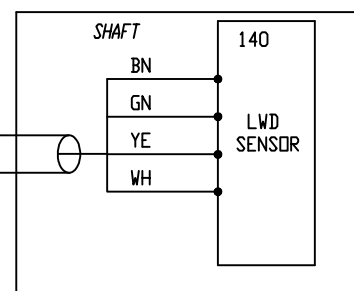


E05/2

E04/4

ONLY USED WITH DEAD END
HITCH LOAD WEIGH SYSTEM.

E04/4

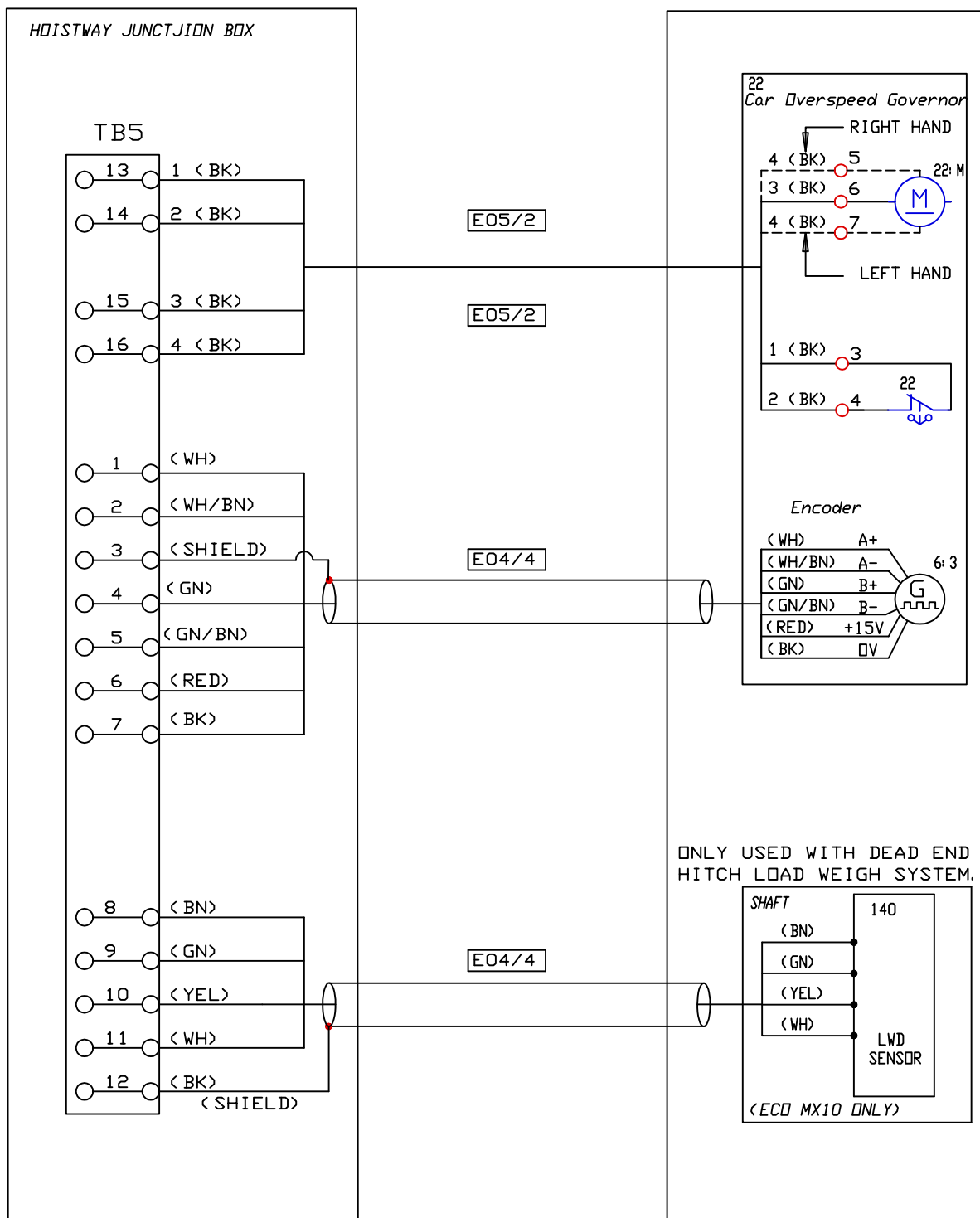
ONLY USED WITH DEAD END
HITCH LOAD WEIGH SYSTEM.

B	ADDED LV NOTES	02. 07. 2013	MKDSBE2	DD
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



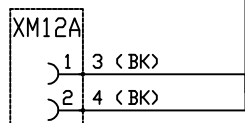
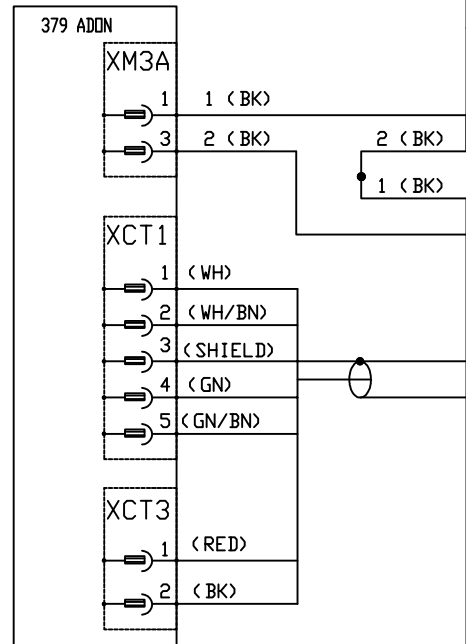
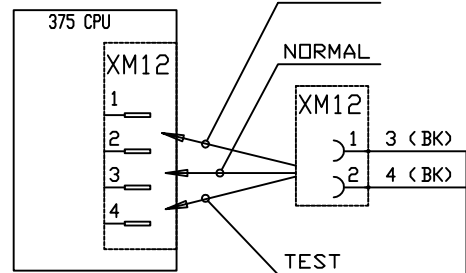
Designed by S. BEASLEY		Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM
MACHINE AND CONTROL SPACE CONNNECTIONS			
LOAD SENSOR AND GOVERNOR CONNECTIONS-DIRECT ECO & MOND			
Sales ref. no. -	Drawing no. 1364620E01	Issue B	Page 6. 1/16



B	ADDED LV NOTE	02.07.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03.07.2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					LOAD SENSOR AND GOVERNOR CONNECTIONS- REMOTE ECO & MONO		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
					Page 6. 2/16		



CONTROL PANEL



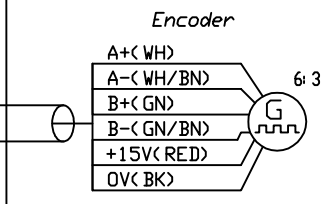
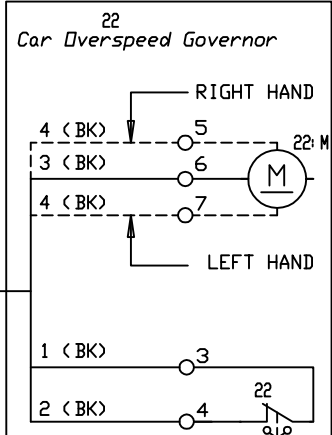
E05/2

E05/2

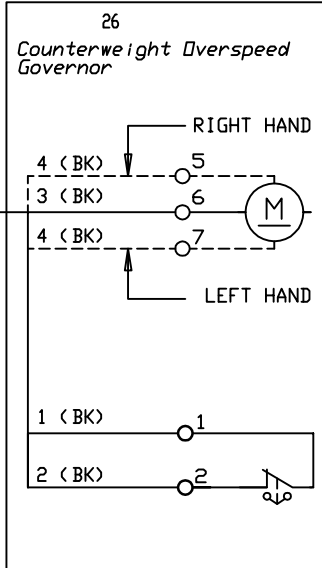
E04/4

E05/2

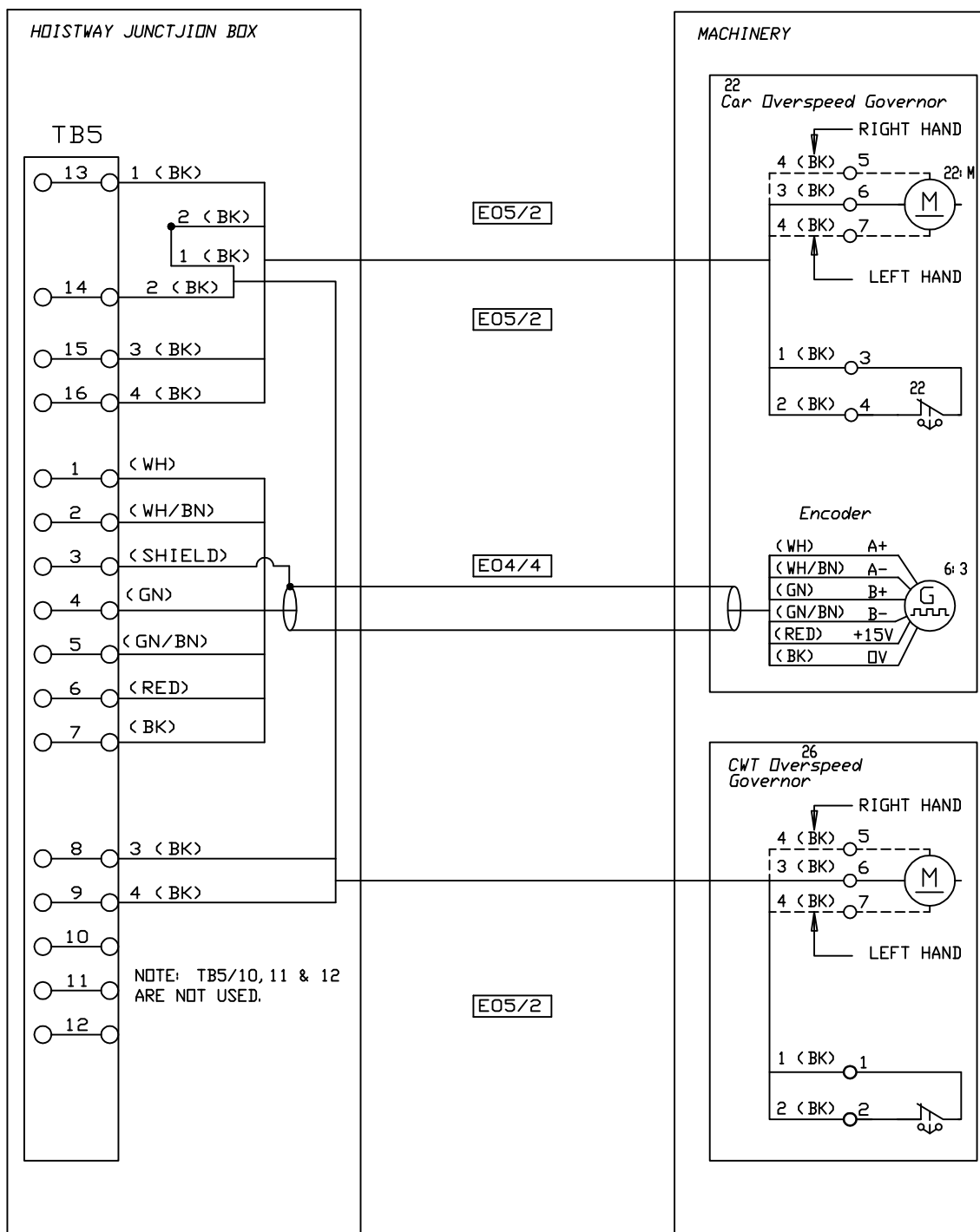
MACHINERY



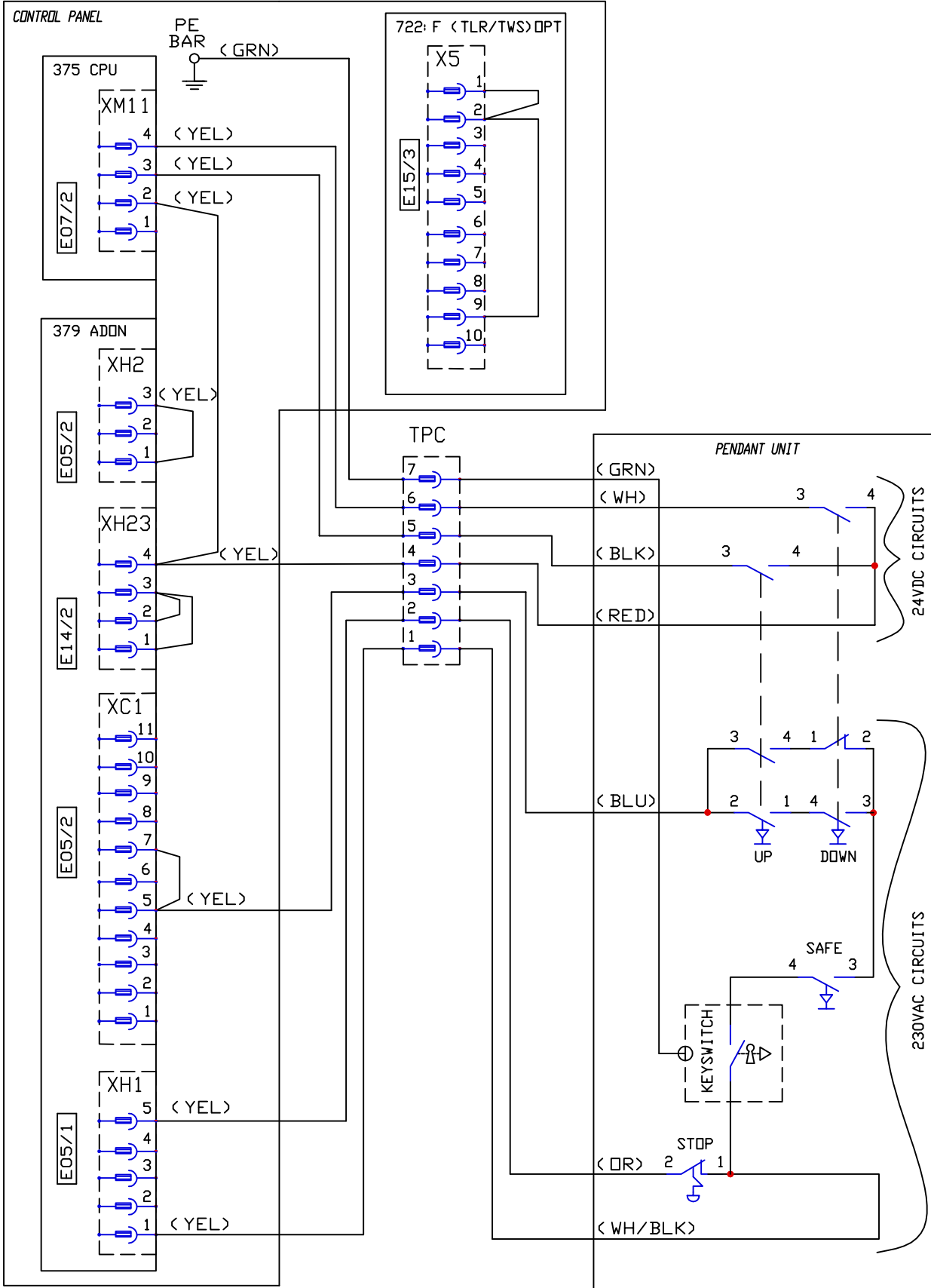
NOTE: GOVERNOR RESET MOTORS ARE NOT USED ON MX18 SYSTEMS.



B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by	Product code LCE W/KDM		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS		
KONE					CAR AND CWT GOVERNOR CONNECTIONS-DIRECT MOND & MINI		
					Sales ref. no. -	Drawing no. 1364620E01	Issue B
					Page 6. 3/16		

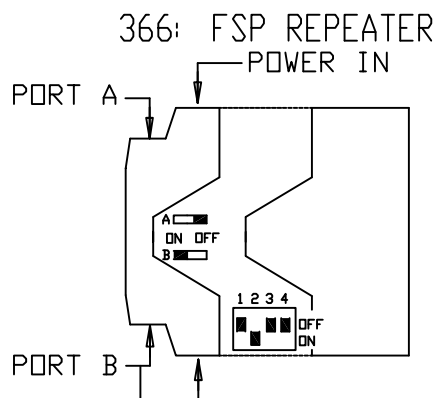
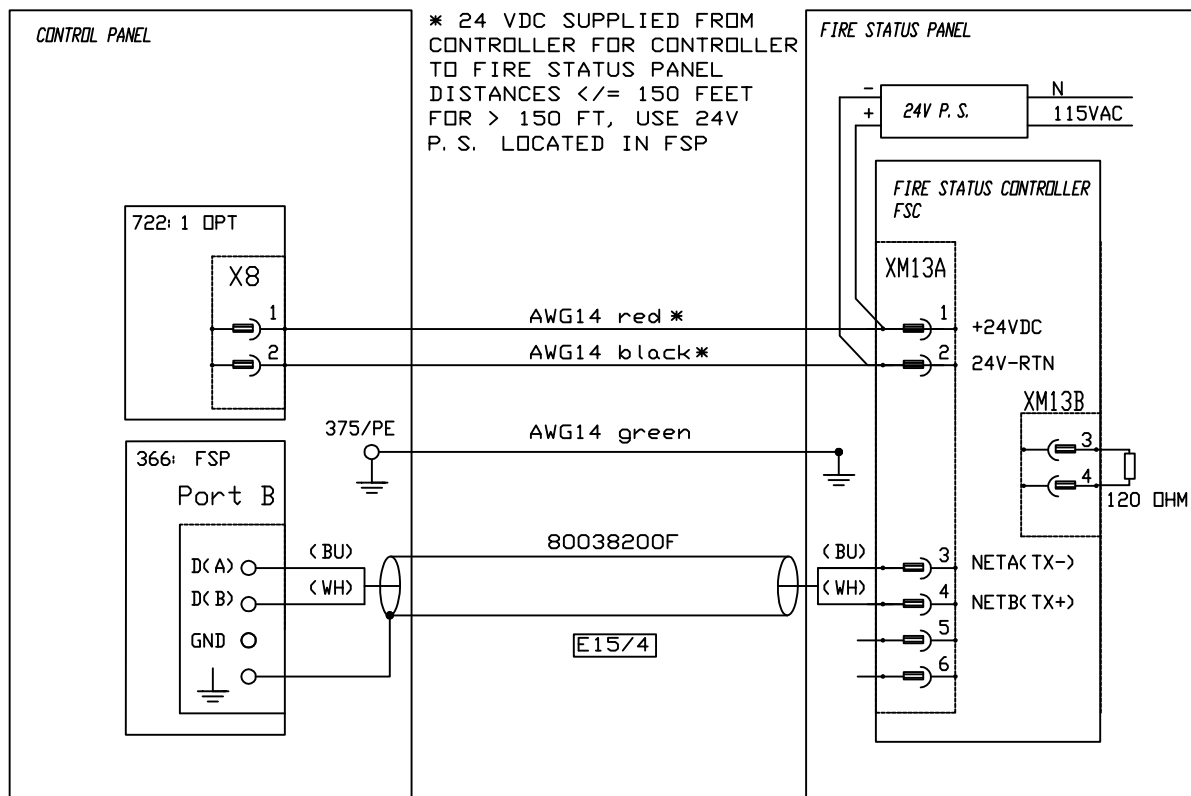


B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNEXIONS		
KONE					CAR AND CWT GOVERNOR CONNECTIONS- REMOTE MONO		
Sales ref. no. -		Drawing no. 1364620E01		Issue B		Page 6. 4/16	



B	ADDED TLR/TWS PLUG	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					PENDANT UNIT CONNECTIONS		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
					Page 7/16		



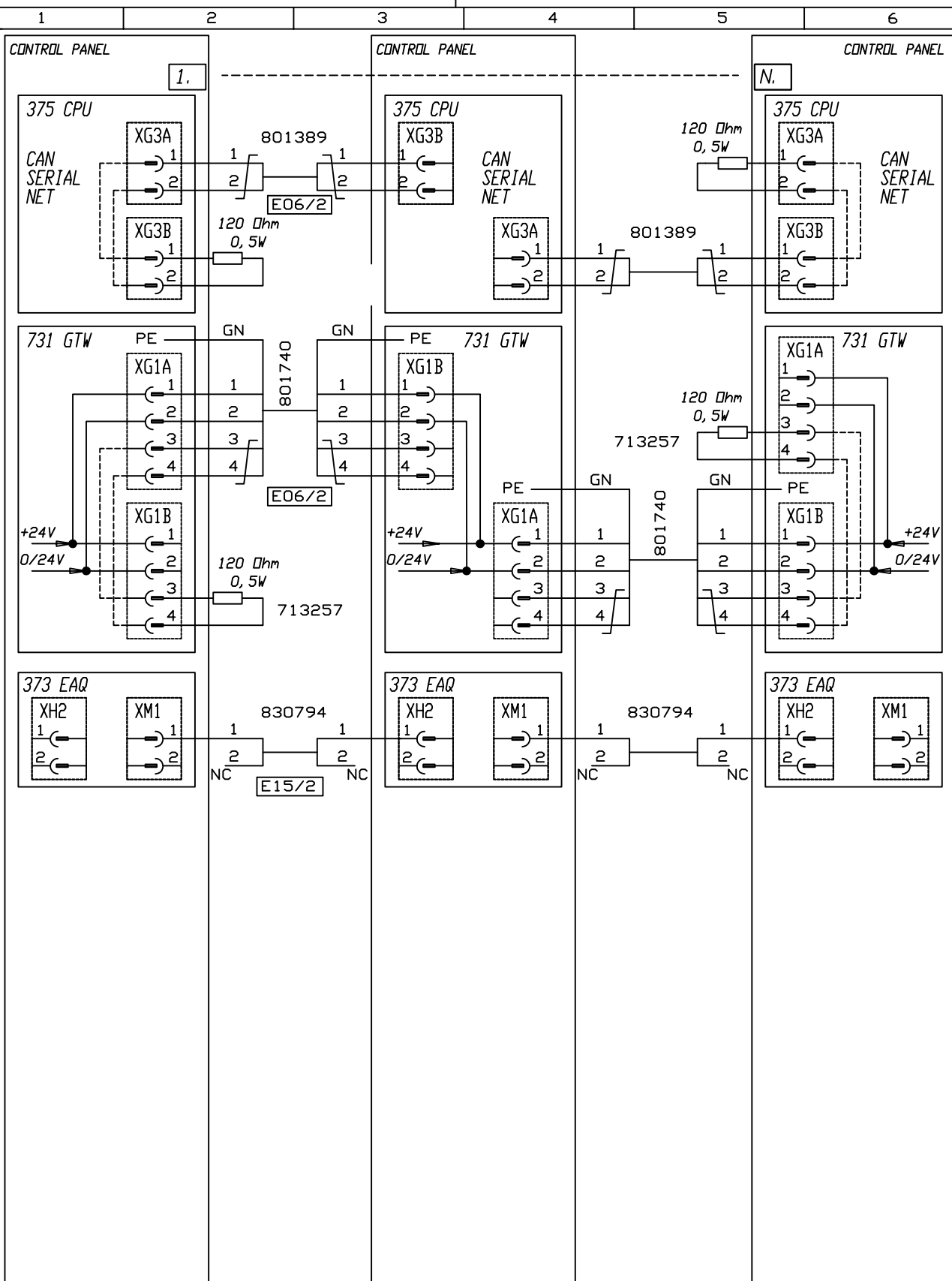
A
B
C
D
E
F
G
H

DIP SWITCHES TO BE SET FOR 78:1 Kbit/s
1,3 & 4 = OFF (UP), 2 = ON (DN)

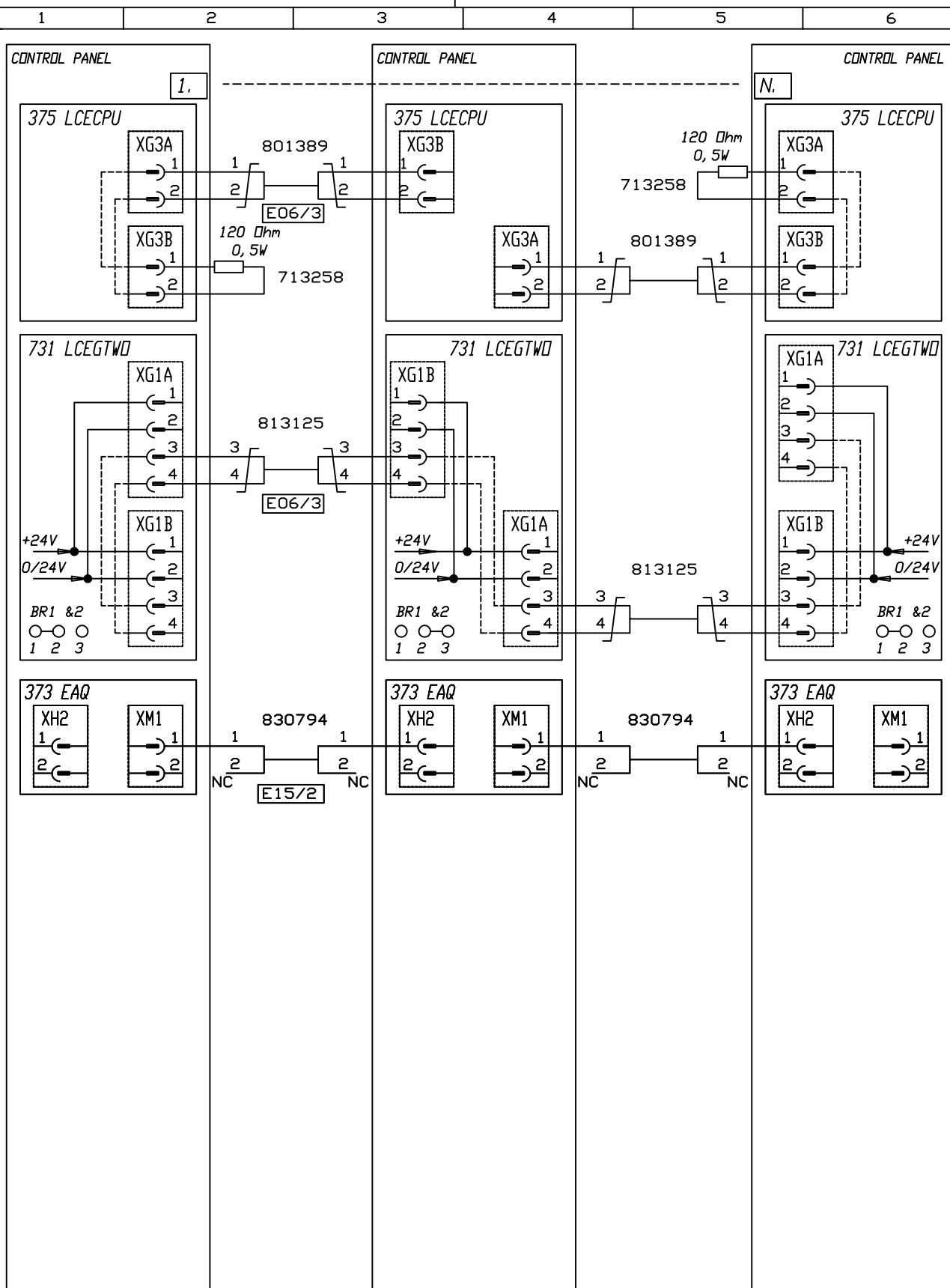
TERMINATE RESISTOR
A = OFF (RIGHT)
B = ON (LEFT)

B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					FIRE STATUS PANEL, CONNECTIONS		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
					Page 8/16		



A
B
C
D
E
F
G
H

B	MOVED 10 CONDUCTOR TO PAGE 9.3.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	ADD TELEPHONE LINE MONITOR	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS GROUP CONNECTIONS W/GTW BOARDS		
KONE					Sales ref. no. -	Drawing no. 1364620E01	Issue B
					Page 9. 1 / 16		

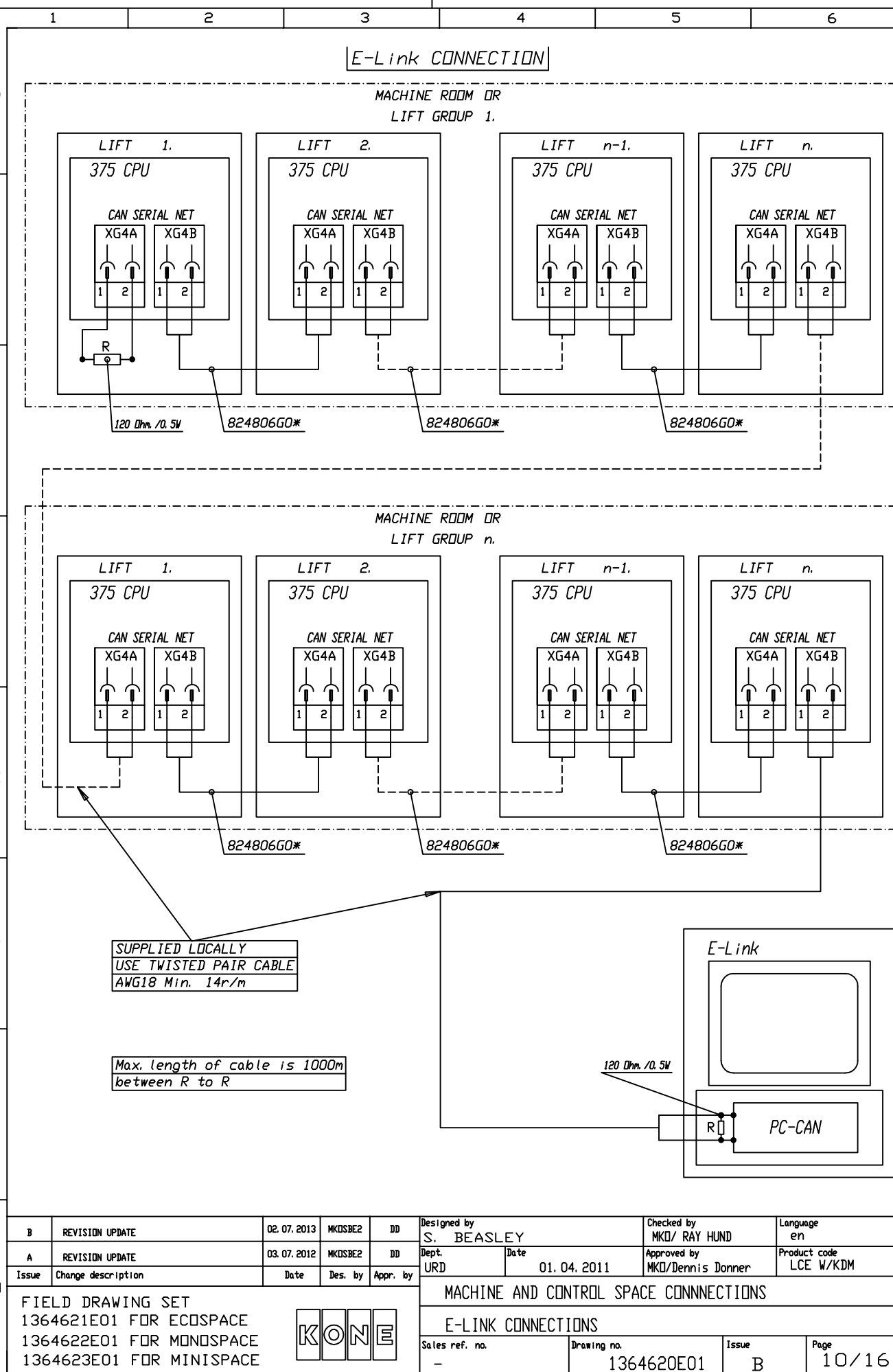
A
B
C
D
E
F
G
H

B	MOVED 10 CONDUCTOR TO PAGE 9.3.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	ADD TELEPHONE LINE MONITOR	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					GROUP CONNECTIONS W/GTWO BOARDS		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
					Page 9. 2 / 16		

KONE



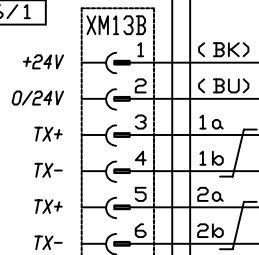
Designed by S. BEASLEY		Checked by MKD/ RAY HUND		Language en	
Dept. URD		Date 01. 04. 2011		Approved by MKD/Dennis Donner	
				Product code LCE W/KDM	
MACHINE AND CONTROL SPACE CONNNECTIONS					
GROUP CONNNECTIONS W/FID, EPD AND TLFM					
Sales ref. no. -		Drawing no. 1364620E01		Issue B	
				Page 9, 3/16	



CONTROL PANEL

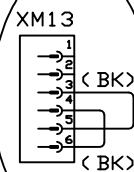
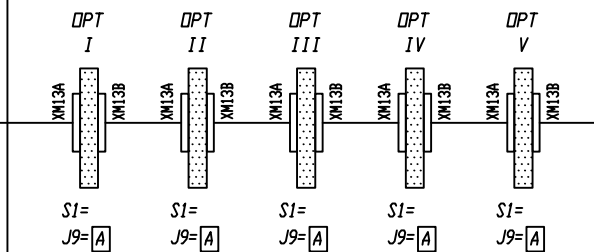
722: 1 DPT or
722: 2 DPT or
731 GTW or
366 REPEATER

E06/1



800569

EXTERNAL OPTION BOARD UNIT



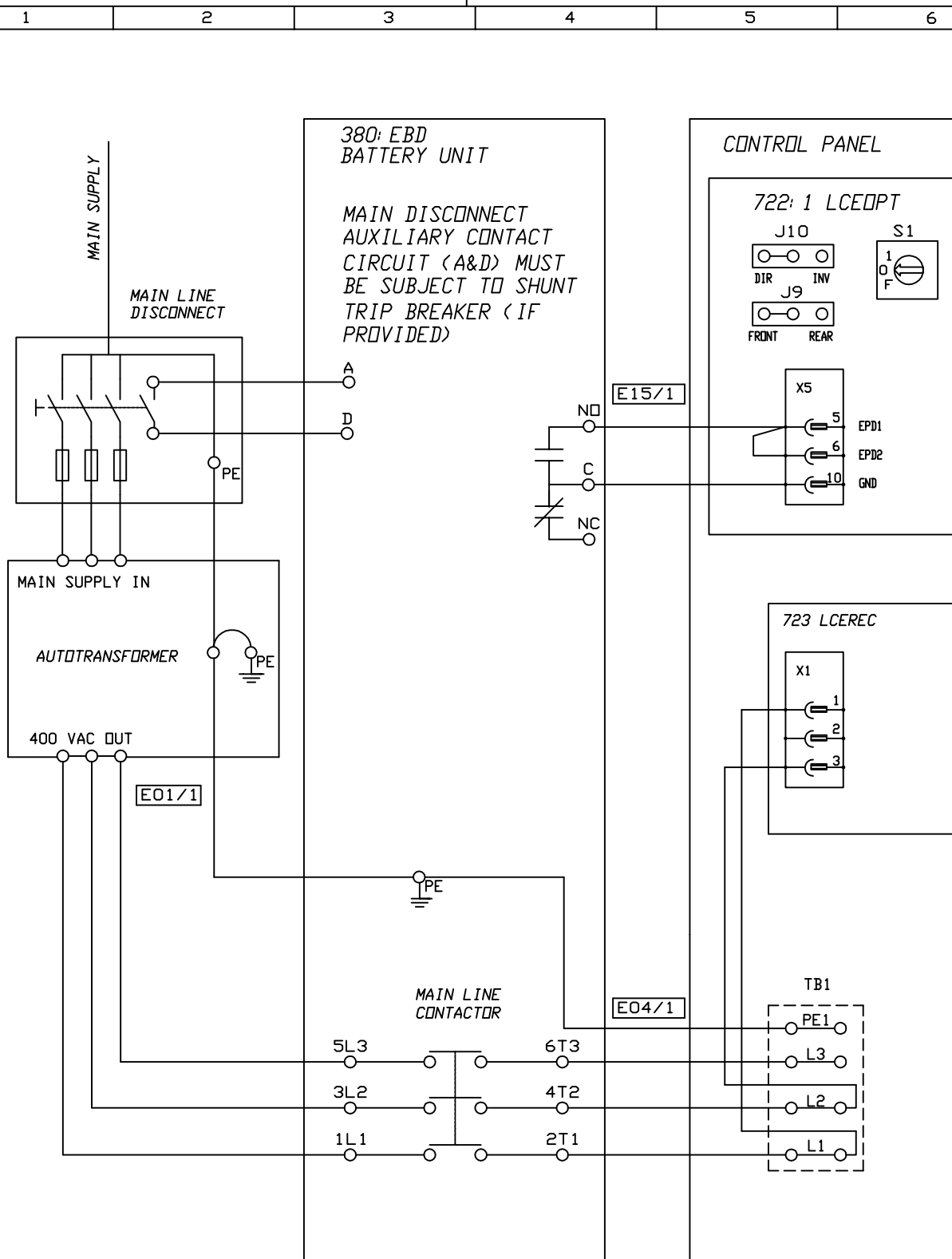
CONNECTION IN CONTROL PANEL
IS MADE TO LAST MODULE BOARD
IN XM13A-XM13B STRING. SEE E06/1.

B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



Designed by S. BEASLEY		Checked by MKD/ RAY HUND		Language en	
Dept. URD	Date 01.04.2011	Approved by MKD/Dennis Donner		Product code LCE W/KDM	
MACHINE AND CONTROL SPACE CONNECTIONS					
OPTION BOX NETWORK CONNECTIONS					
Sales ref. no. -		Drawing no. 1364620E01		Issue B	Page 11 / 16



R&R BATTERY UNITS USED WITH KONE KDM-40A & KDM-90A SYSTEMS ARE
 KDM-40A = KONE # KM872563G01 = R&R MODEL # TPVM-400INT-40(L)
 KDM-90A = KONE # KM872563G03 = R&R MODEL # TPVM-400INT-60(L)-KD9

B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS		
					EMERGENCY BATTERY DRIVE (EBD) CONNECTIONS		
KONE					Sales ref. no. -	Drawing no. 1364620E01	Issue B
					Page 12/16		

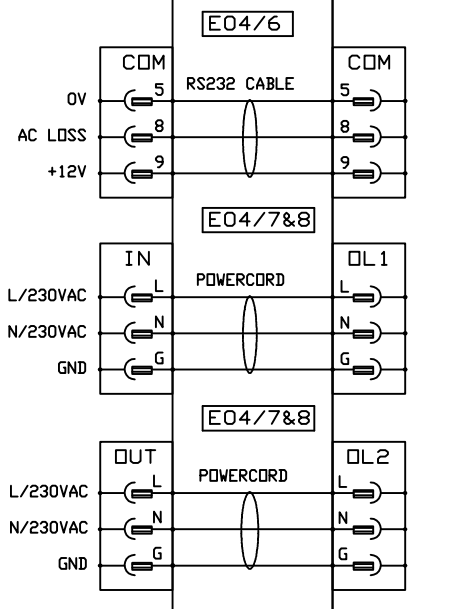
NOTE1:
UNPLUG CORD TO UPS
PRIOR TO SERVICING
EBR SWITCH MODULE

CONTROL PANEL

EBR 380: BU
UPS UNIT

REFER TO
UPS MANUAL
FOR DETAILS

EBR
CONNECTOR PLATE

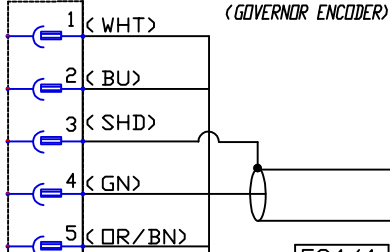


B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by	Product code LCE W/KDM		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					MACHINE AND CONTROL SPACE CONNECTIONS		
KONE					EBR UPS CONNECTIONS - ECO & MONO		
					Sales ref. no. -	Drawing no. 1364620E01	Issue B
					Page 13/16		

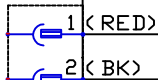
CONTROL PANEL

ADDN

XCT1

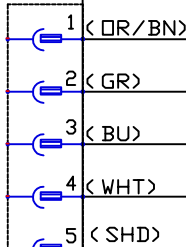


XCT3

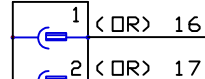


VTC

XLW2

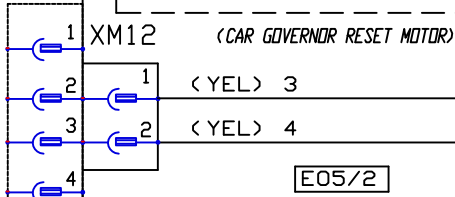


XM12A



CPU

XM12



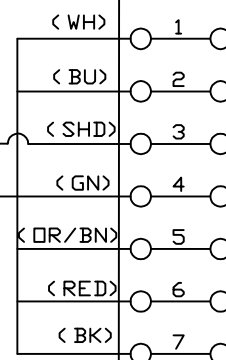
ADDN

XM3A

TO
E01/15

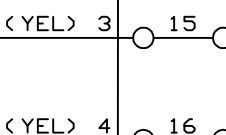
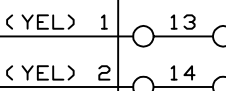
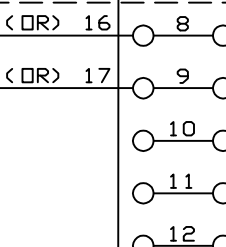
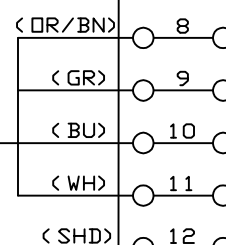
HOISTWAY JUNCTION BOX

TB5



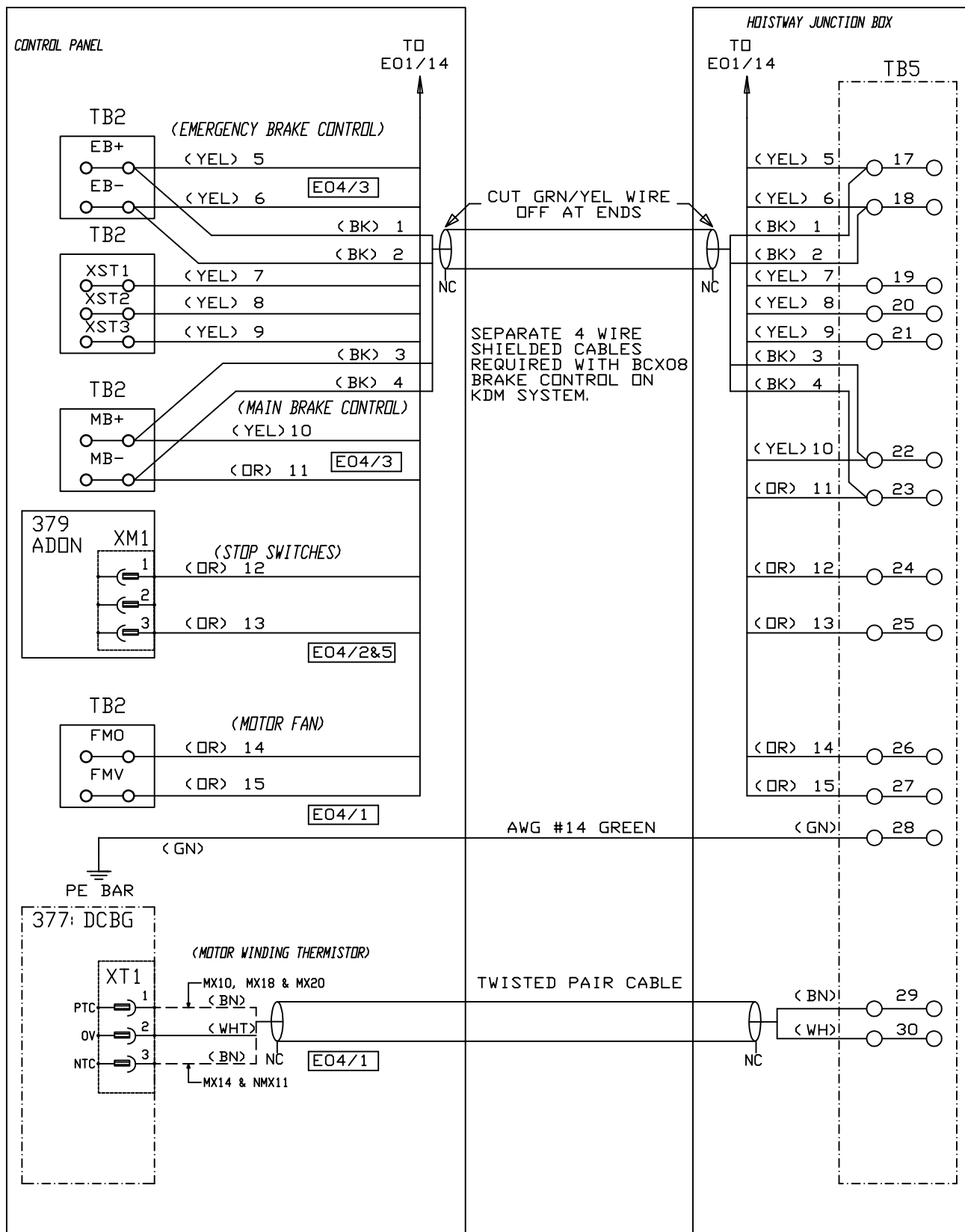
6 CONDUCTOR #1

6 CONDUCTOR #2

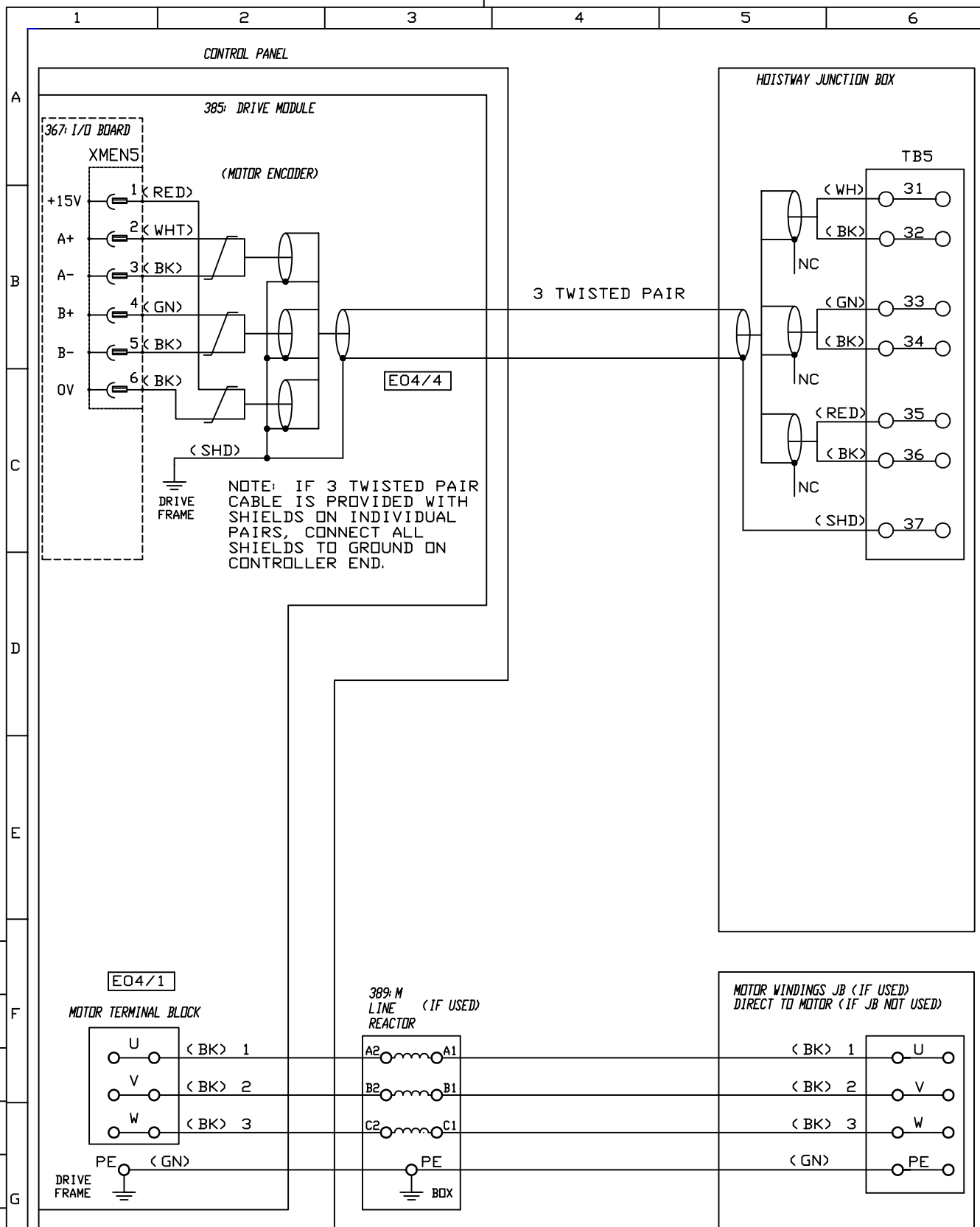
WIRING WITH ECO
MX10 & MX14 MACHINEWIRING WITH MONO
MX20 MACHINE19 COND.
LAY-IN-DUCT CABLETO
E01/15

B	ADDED LV NOTE	02.07.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03.07.2012	MKDSBE2	DD	Dept. URD	Date 01.04.2011	Approved by MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by			Product code LCE W/KDM
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					REMOTE JB TO CONTROL PANEL CONNECTIONS (1-16) ECO & MONO		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
					Page 14/16		

KONE

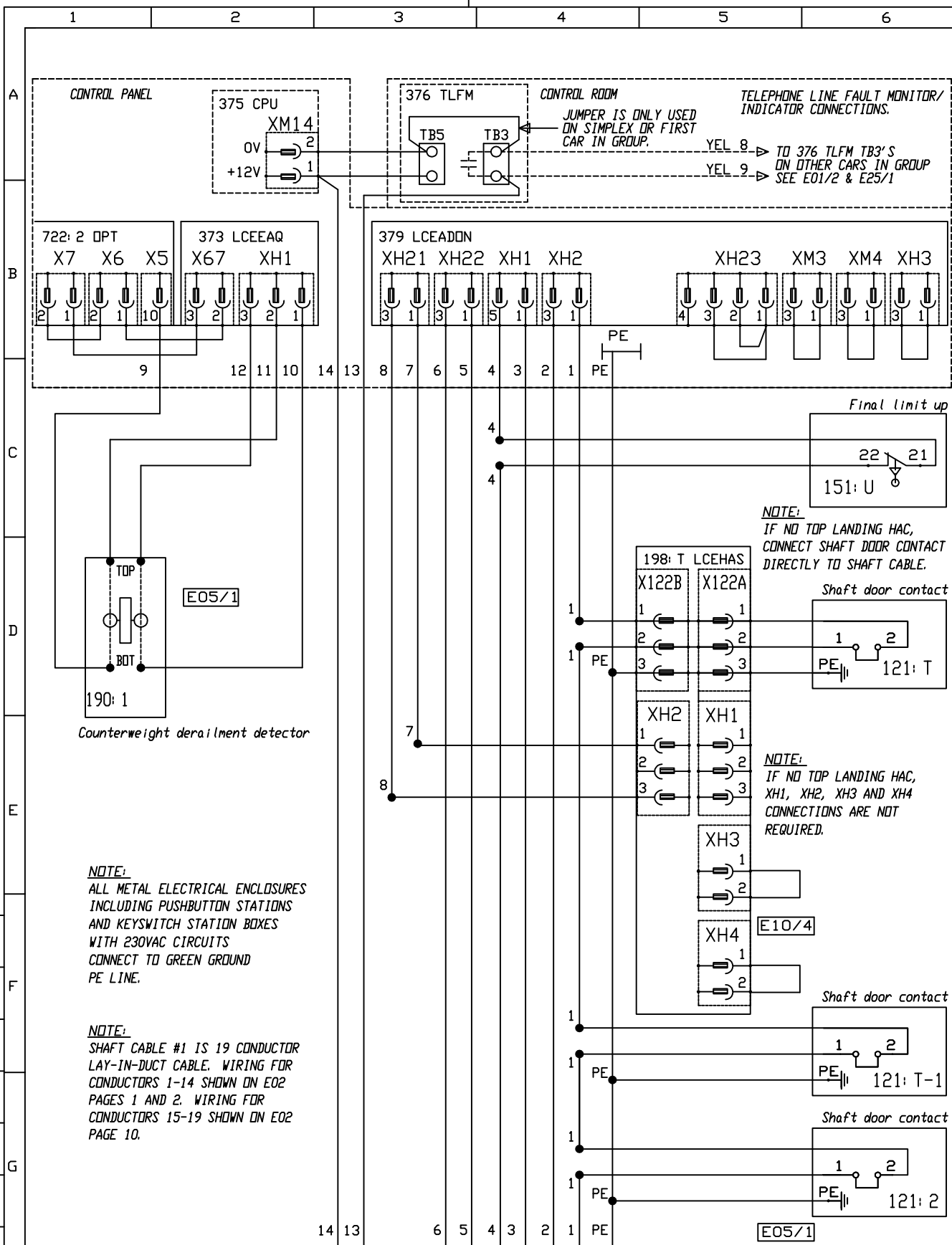


B	CHANGED BRAKE COIL CABLE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY		Checked by MKD/ RAY HUND	Language en			
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM			
Issue	Change description	Date	Des. by	Appr. by							
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONDSPACE 1364623E01 FOR MINISPACE 					MACHINE AND CONTROL SPACE CONNNECTIONS						
					REMOTE JB TO CONTROL PANEL CONNECTIONS (17-30) ECO & MOND						
					Sales ref. no. -		Drawing no. 1364620E01		Issue B		Page 15/16



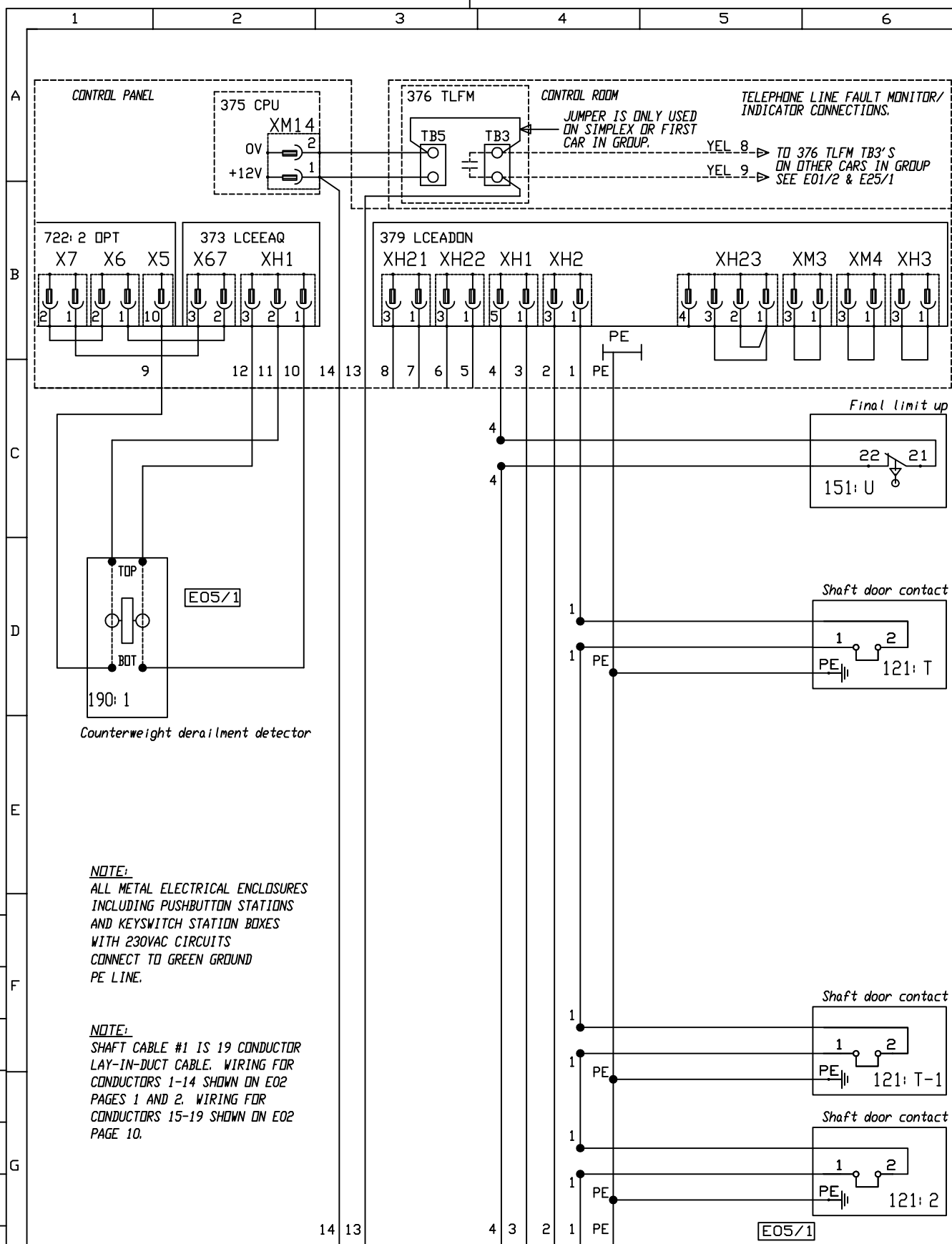
B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					MACHINE AND CONTROL SPACE CONNECTIONS		
1364621E01 FOR ECOSPACE					REMOTE JB TO CONTROL PANEL CONNECTIONS (31-37) ECO & MOND		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E01	B
							Page 16/16



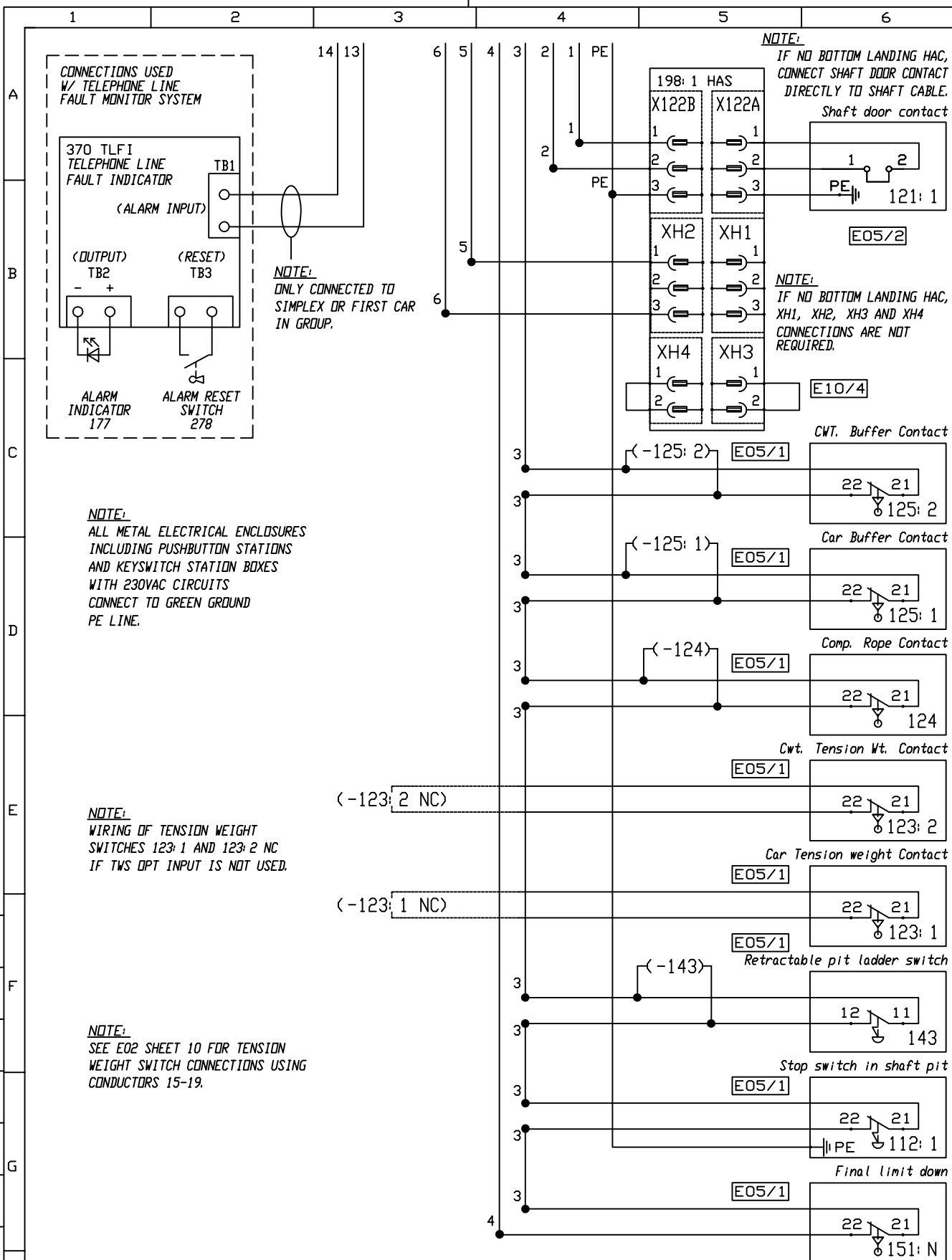


B	ADDED NOTE FOR SHEET 10 TWR CONNECTION.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	ADD TELEPHONE LINE MONITOR	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	Date 01. 04. 2011		
FIELD DRAWING SET					SHAFT CONNECTIONS		
1364621E01 FOR ECOSPACE					SHAFT CABLE #1, UPPER LDGS SAFETY CHAIN W/HAC		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E02	B
					Page 1. 1 / 10		





B	ADDED NOTE FOR SHEET 10 TWR CONNECTION.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	ADD TELEPHONE LINE MONITOR	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	Date 01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					SHAFT CONNECTIONS		
KONE					SHAFT CABLE #1, UPPER LDGS SAFETY CHAIN W/O HAC		
Sales ref. no. -		Drawing no. 1364620E02		Issue B		Page 1. 2/10	



B	REMOVED 123: 1 & 123: 2. ADDED NOTE.	02. 07. 2013	MKDSBE2	DD
A	ADD TELEPHONE LINE MONITOR	03. 07. 2012	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

Designed by	S. BEASLEY	Checked by	MKD/ RAY HUND	Language	en
Dept.	URD	Date	01. 04. 2011	Approved by	MKD/Dennis Donner
				Product code	LCE W/KDM

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



SHAFT CONNECTIONS

SHAFT CABLE #1, LOWER LDGS SAFETY CHAIN W/HAC

Sales ref. no.	Drawing no.	Issue	Page
-	1364620E02	B	2. 1/10

A

B

C

D

E

F

G

H

CONNECTIONS USED
W/ TELEPHONE LINE
FAULT MONITOR SYSTEM

370 TLF1
TELEPHONE LINE
FAULT INDICATOR

(ALARM INPUT)

(OUTPUT)

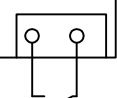
TB2



ALARM
INDICATOR
177

(RESET)

TB3



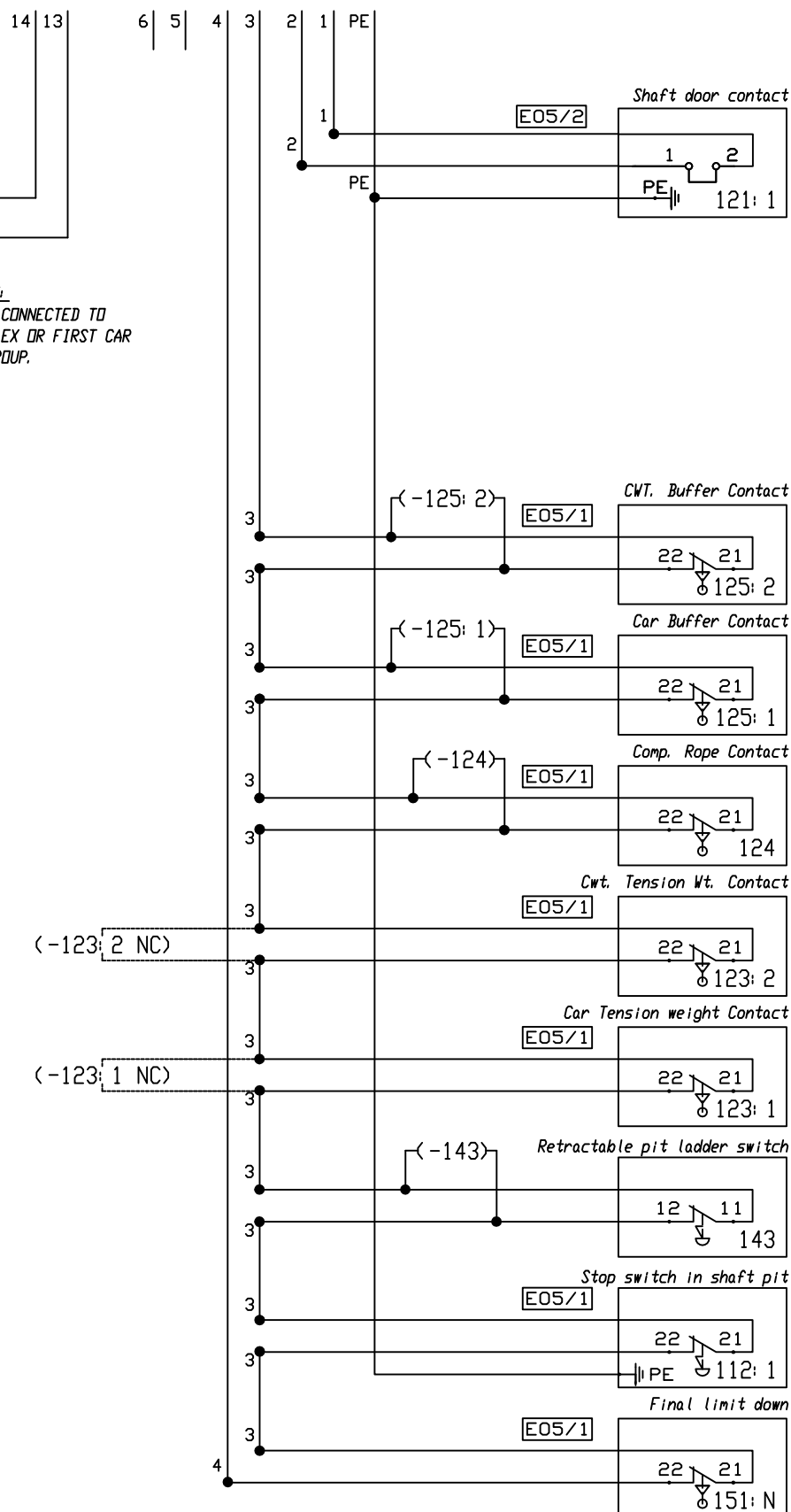
ALARM RESET
SWITCH
278

NOTE:
ONLY CONNECTED TO
SIMPLEX OR FIRST CAR
IN GROUP.

NOTE:
ALL METAL ELECTRICAL ENCLOSURES
INCLUDING PUSHBUTTON STATIONS
AND KEYSWITCH STATION BOXES
WITH 230VAC CIRCUITS
CONNECT TO GREEN GROUND
PE LINE.

NOTE:
WIRING OF TENSION WEIGHT
SWITCHES 123: 1 AND 123: 2 NC
IF TWS OPT INPUT IS NOT USED.

NOTE:
SEE E02 SHEET 10 FOR TENSION
WEIGHT SWITCH CONNECTIONS USING
CONDUCTORS 15-19.



B	REMOVED 123: 1 & 123: 2. ADDED NOTE.	02. 07. 2013	MKDSBE2	DD
A	ADD TELEPHONE LINE MONITOR	03. 07. 2012	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

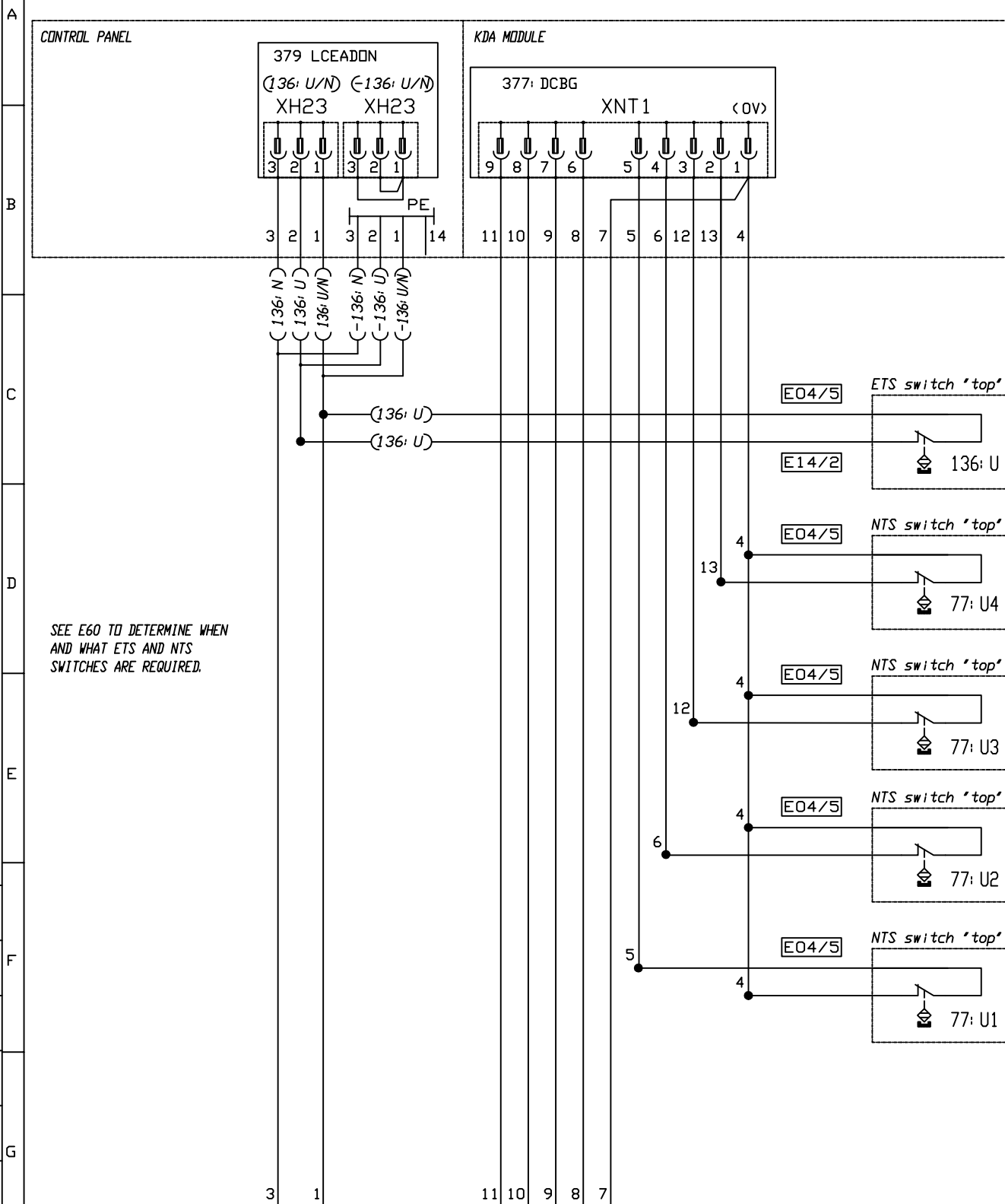
FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Sales ref. no. -	Drawing no. 1364620E02	Issue B
		Page 2. 2/10

SHAFT CONNECTIONS

SHAFT CABLE #1, LOWER LDGS SAFETY CHAIN W/O HAC



B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		

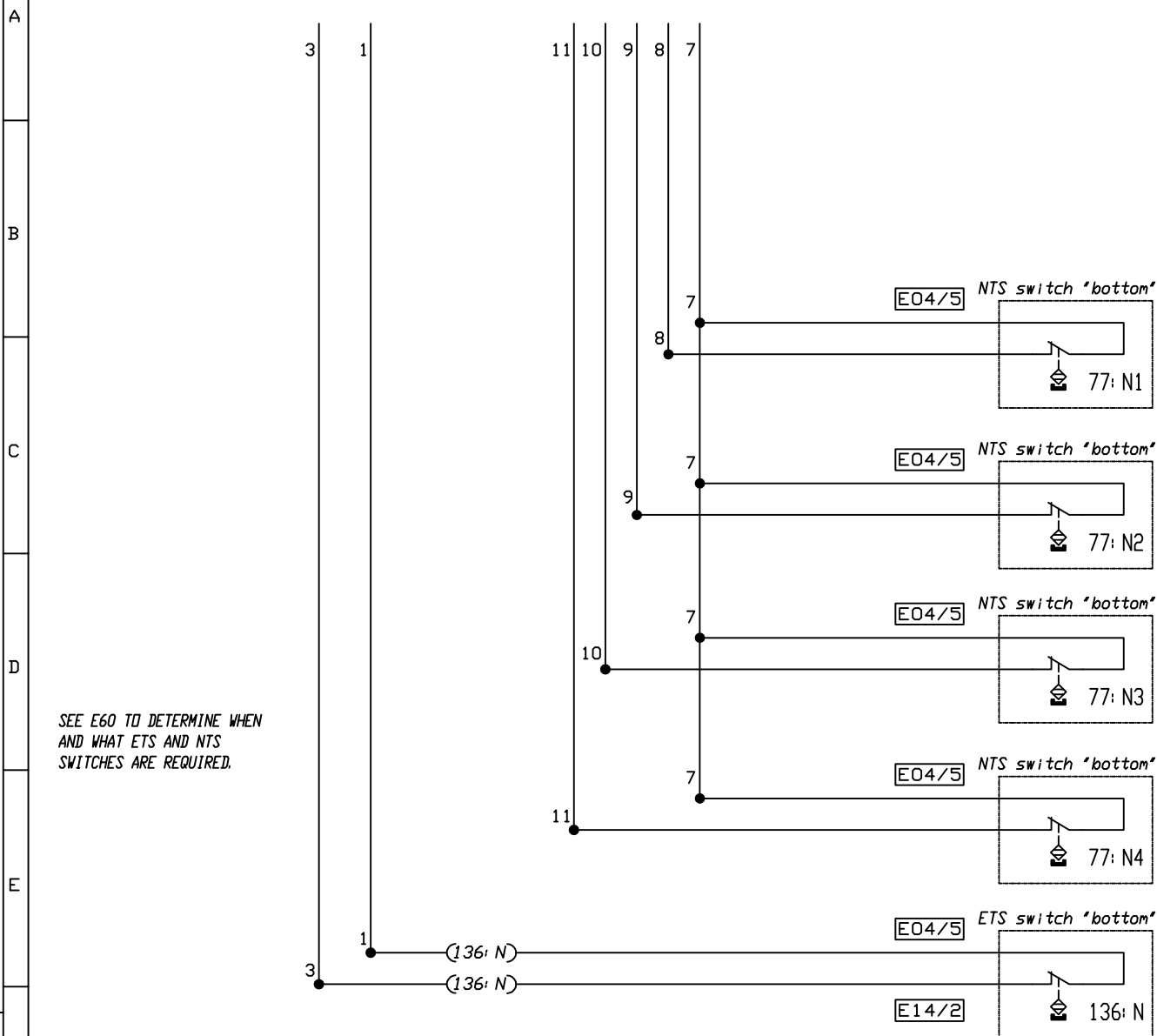
FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



SHAFT CONNECTIONS

SHAFT CABLE #2, ETS/NTS SWITCHES ON TOP

Sales ref. no. -	Drawing no. 1364620E02	Issue B	Page 3/10

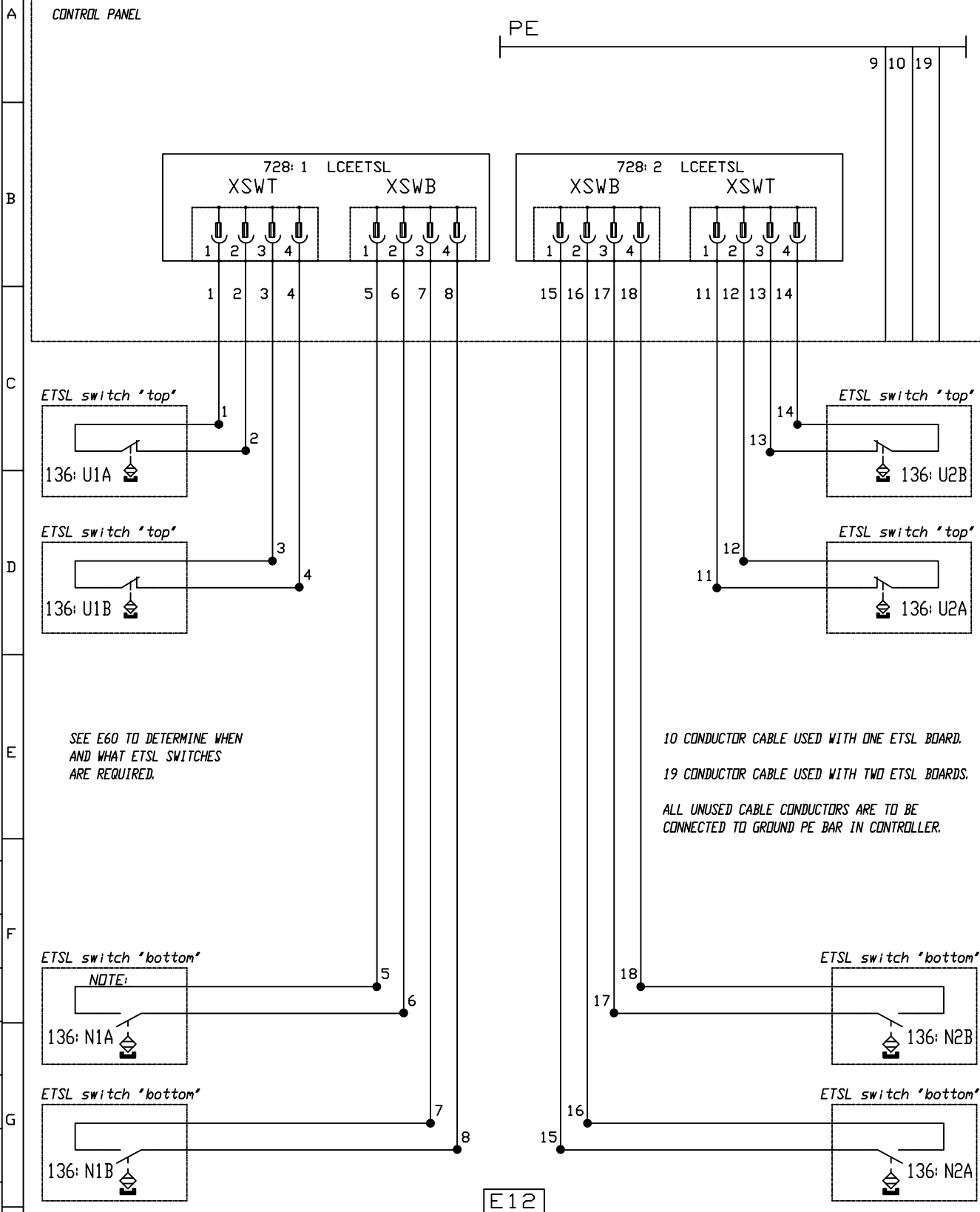


10 CONDUCTOR CABLE USED WITH TWO OR LESS NTS SWITCHES
AT TOP AND/OR BOTTOM.

14 CONDUCTOR CABLE USED WITH MORE THAN TWO NTS SWITCHES
AT TOP AND/OR BOTTOM.

ALL UNUSED CABLE CONDUCTORS ARE TO BE CONNECTED
TO GROUND PE BAR IN CONTROLLER.

B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					SHAFT CONNECTIONS		
KONE					SHAFT CABLE #2, ETS/NTS SWITCHES IN BOTTOM		
					Sales ref. no. -	Drawing no. 1364620E02	Issue B
					Page 4/10		



B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Sales ref. no. -	Drawing no. 1364620E02	Product code LCE W/KDM

SHAFT CONNECTIONS

SHAFT CABLE #3, ETSL SWITCHES

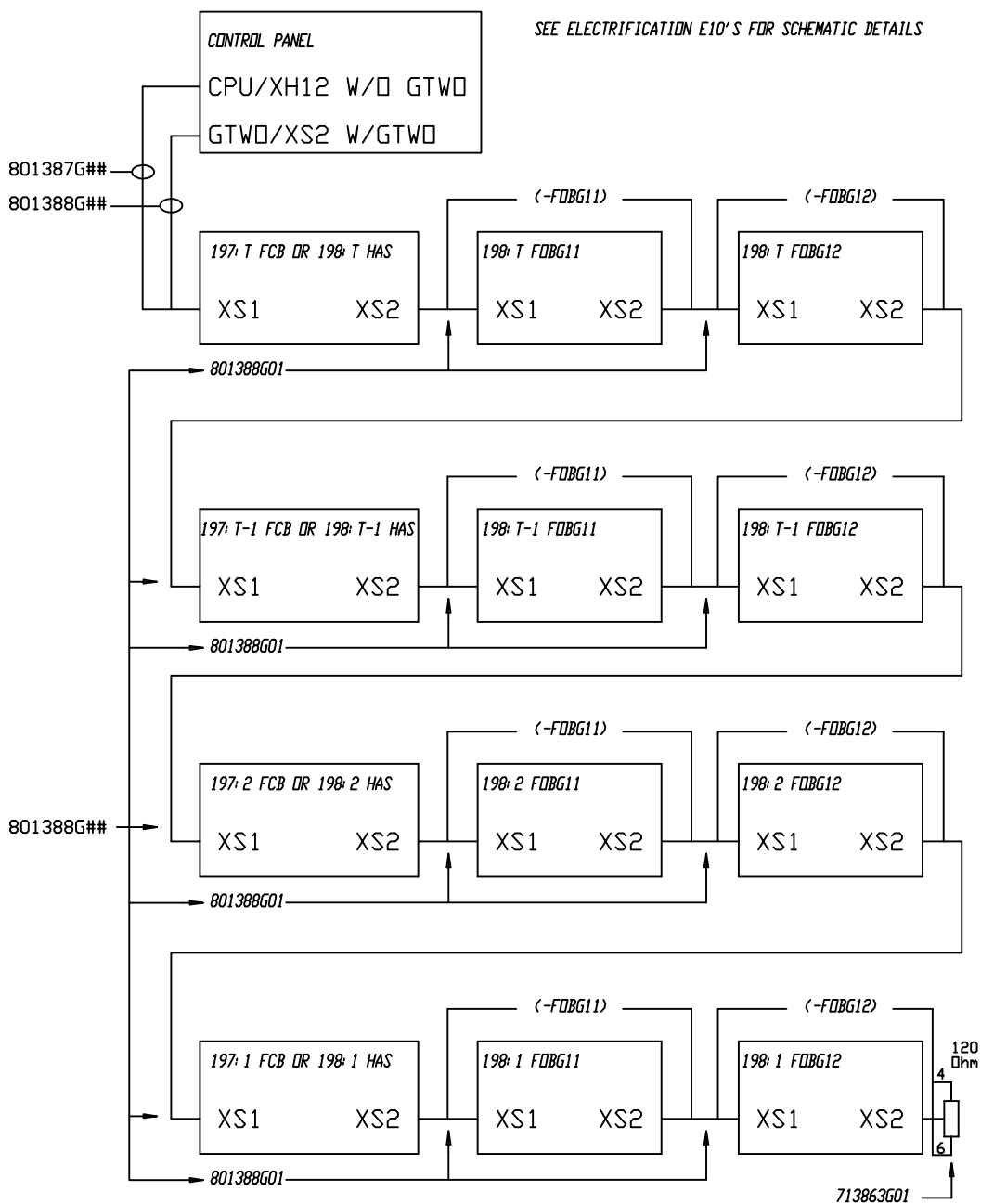
Sales ref. no. -	Drawing no. 1364620E02	Issue B	Page 5/10

A

SHAFT NETWORK CABLE DETAILS

SHAFT NETWORK CABLE ARRANGEMENTS FOR A-SIDE ONLY

SEE ELECTRIFICATION E10'S FOR SCHEMATIC DETAILS

**NOTE:**SEE SIGNALIZATION E02'S FOR SIGNALIZATION CABLE CONNECTIONS TO
SHAFT NETWORK FLOOR MODULES FCB, HAS, FDBG11 AND FDBG12.

G

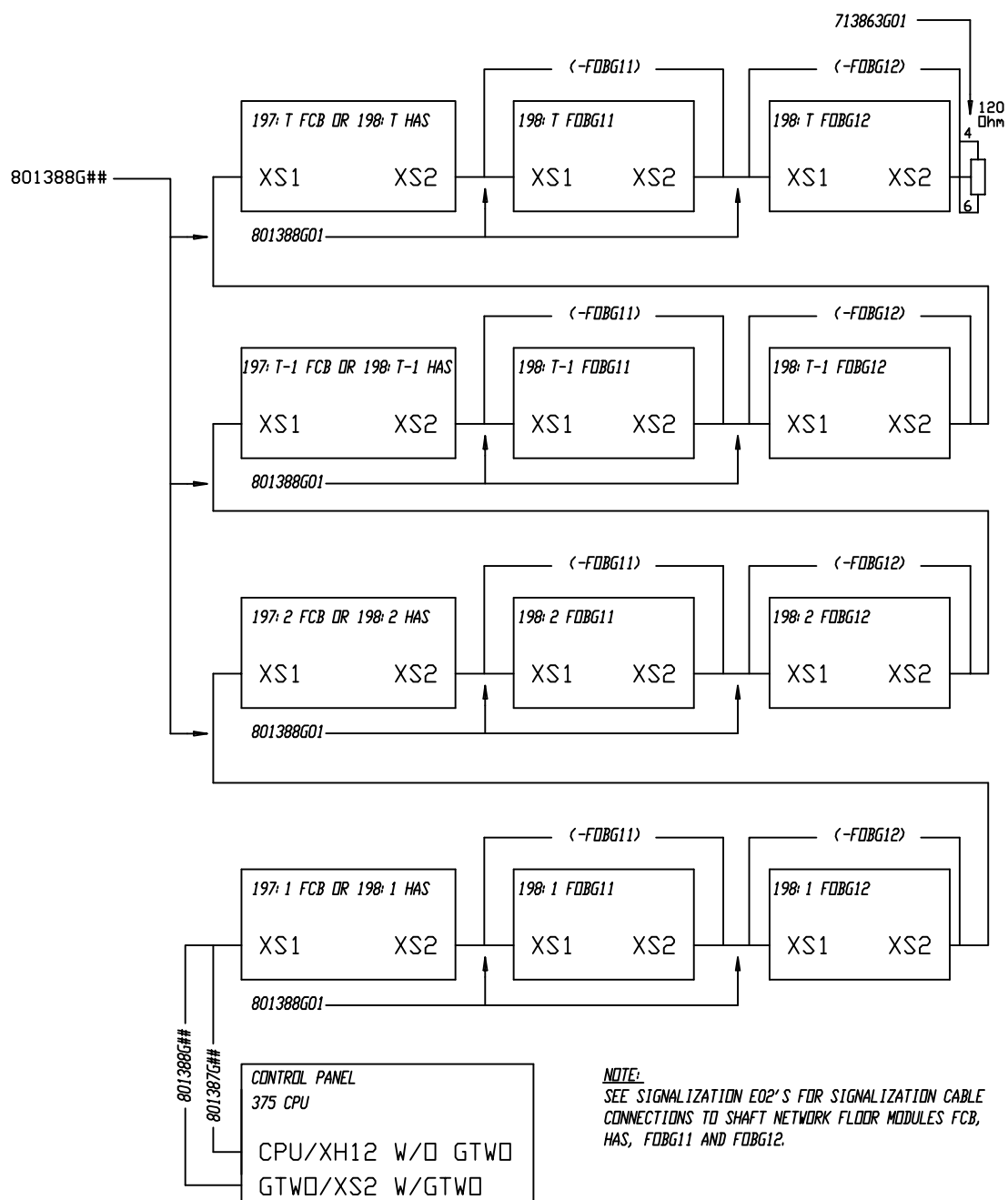
H

B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					SHAFT CONNECTIONS		
1364621E01 FOR ECOSPACE					SHAFT NETWORK A-SIDE W/CPU CONNECTION AT TOP LDG.		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E02	B
							Page 6. 1 / 10



SHAFT NETWORK CABLE ARRANGEMENTS FOR A-SIDE ONLY

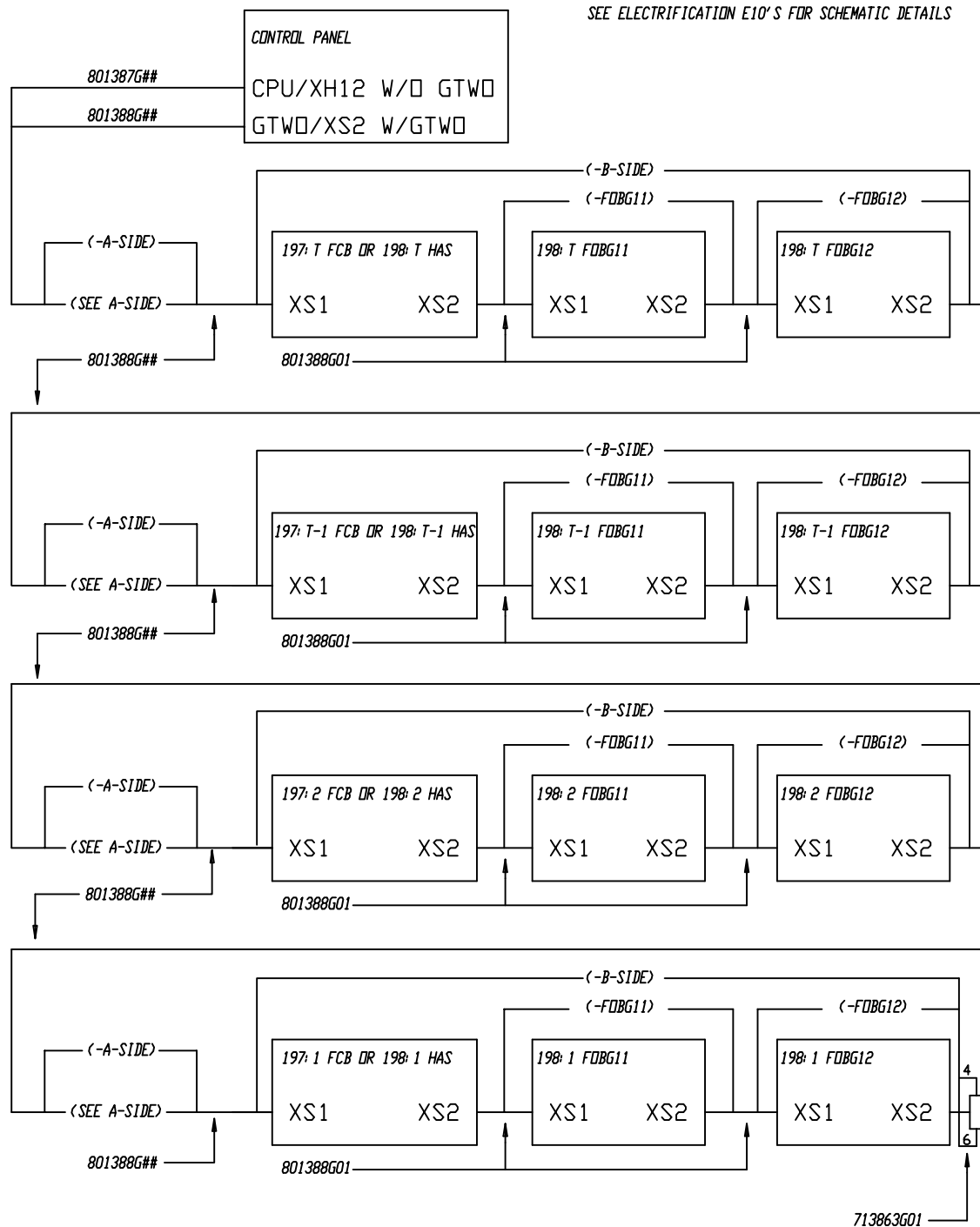
SEE ELECTRIFICATION E10'S FOR SCHEMATIC DETAILS



B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	Date 01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					SHAFT CONNECTIONS		
KONE					SHAFT NETWORK A-SIDE W/CPU CONNECTION AT BOT LDG		
					Sales ref. no. -	Drawing no. 1364620E02	Issue B
					Page 6. 2/10		

SHAFT NETWORK CABLE ARRANGEMENTS FOR COMBINATION A-SIDE AND B-SIDE

SEE ELECTRIFICATION E10'S FOR SCHEMATIC DETAILS

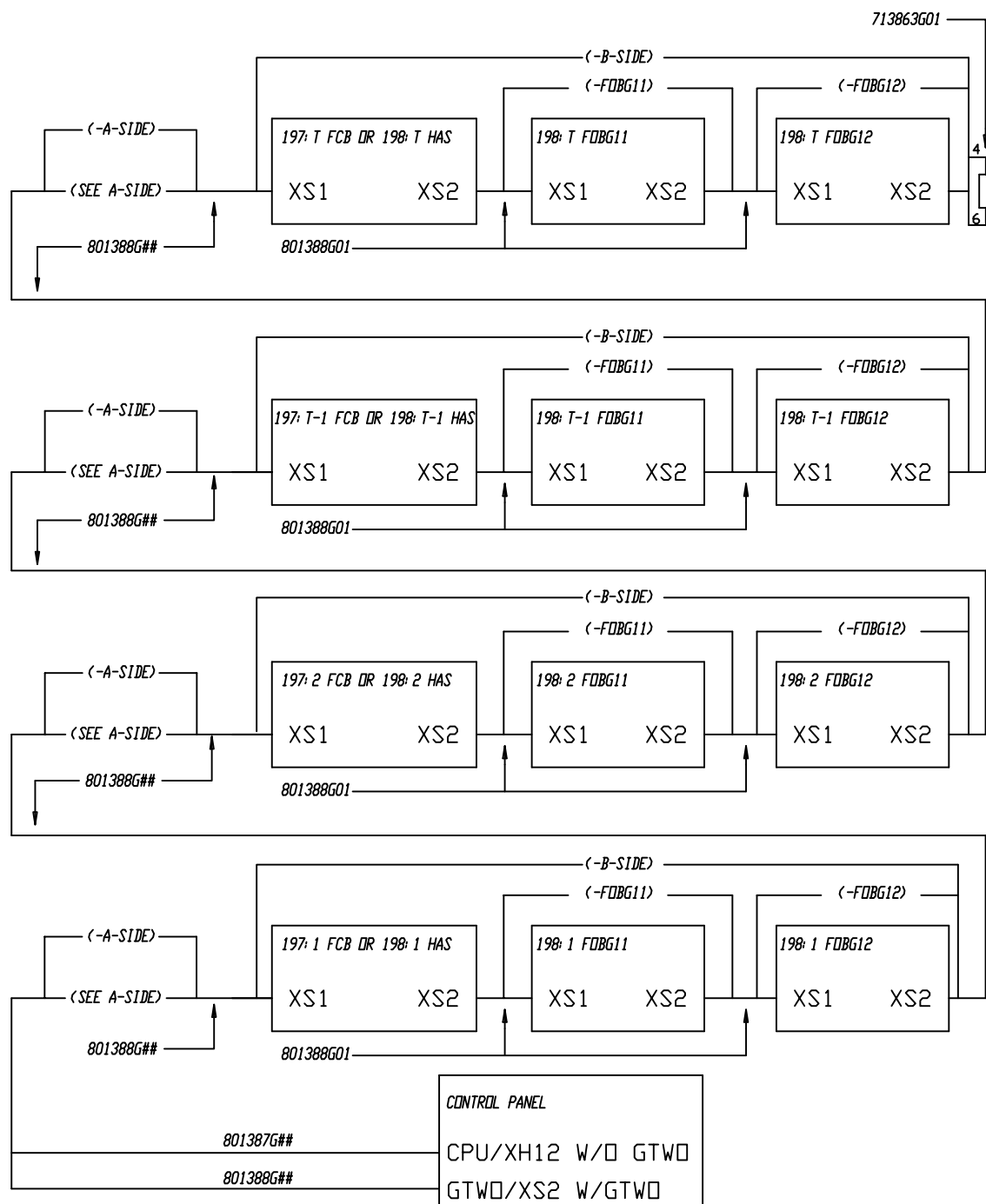


NOTE:
SEE SIGNALIZATION E02'S FOR SIGNALIZATION CABLE CONNECTIONS
TO SHAFT NETWORK FLOOR MODULES FCB, HAS, FDBG11 AND FDBG12.

B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					SHAFT CONNECTIONS		
KONE					SHAFT NETWORK A&B SIDES W/CPU CONNECTION AT TOP LDG		
					Sales ref. no. -	Drawing no. 1364620E02	Page 7. 1 / 10

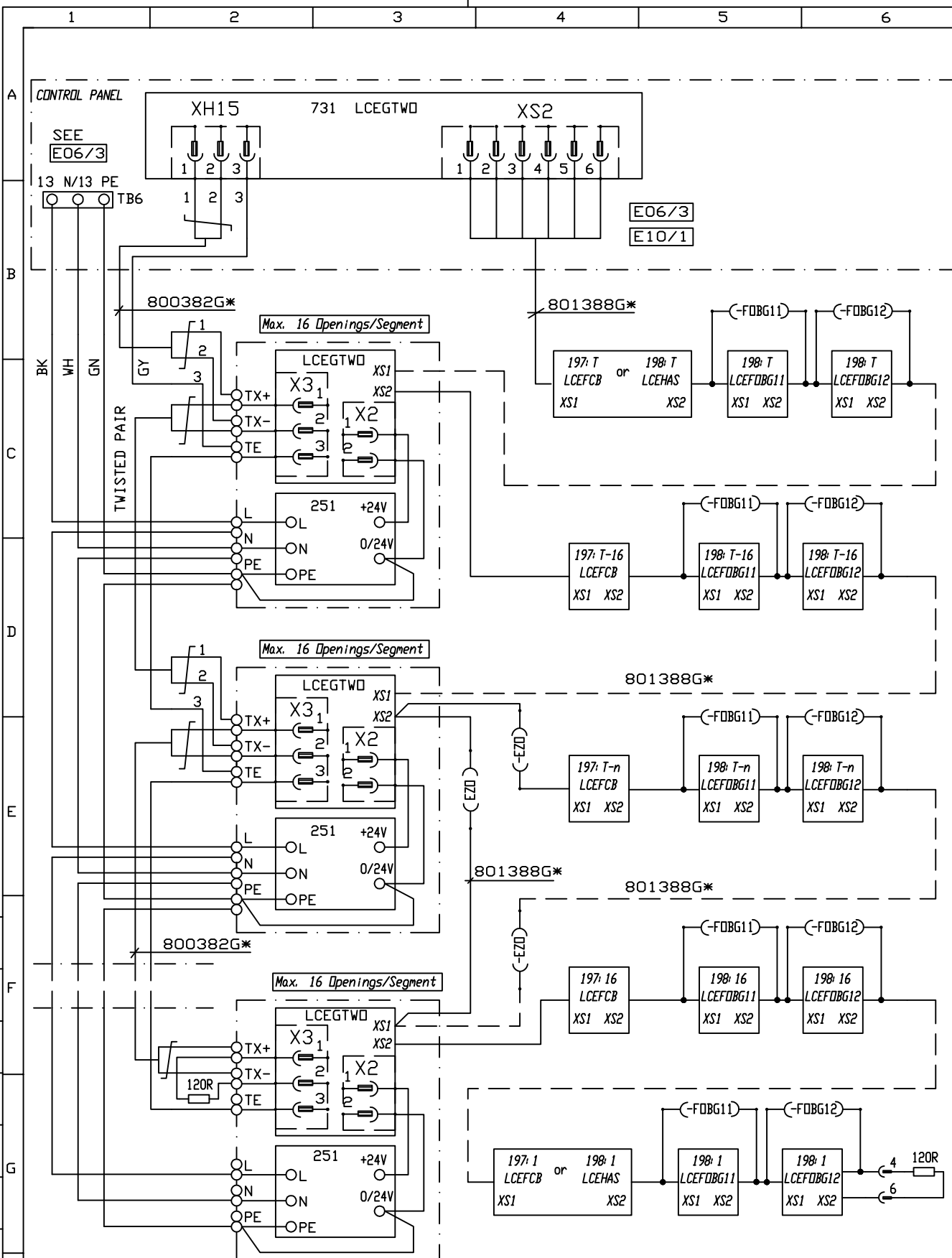
SHAFT NETWORK CABLE ARRANGEMENTS FOR COMBINATION A-SIDE AND B-SIDE

SEE ELECTRIFICATION E10'S FOR SCHEMATIC DETAILS



NOTE:
SEE SIGNALIZATION E02'S FOR SIGNALIZATION CABLE CONNECTIONS
TO SHAFT NETWORK FLOOR MODULES FCB, HAS, FDBG11 AND FDBG12.

B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
A	REVISION UPDATE	03. 07. 2012	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					SHAFT CONNECTIONS SHAFT NETWORK A&B SIDES W/CPU CONNECTIONS AT BOT LDG.		
KONE					Sales ref. no. -	Drawing no. 1364620E02	Issue B
							Page 7. 2/10



B	REVISION UPDATE.	02. 07. 2013	MKD/BE2	DD
A	REVISION UPDATE	03. 07. 2012	MKD/BE2	DD
Issue	Change description	Date	Des. by	Appr. by

FIELD DRAWING SET
 1364621E01 FOR ECSPACE
 1364622E01 FOR MONOSPACE
 1364623E01 FOR MINISPACE



Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
		Product code LCE W/KDM

SHAFT CONNECTIONS

SEGMENTED SHAFT NETWORK MONO & MINI

Sales ref. no. -	Drawing no. 1364620E02	Issue B	Page 8/10

CONTROL PANEL

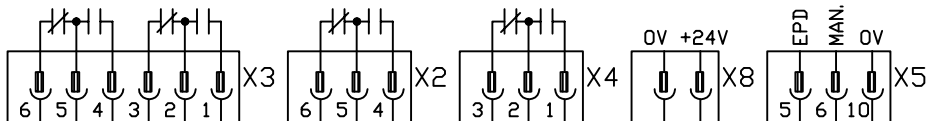
722: 1 OPT

EPD3

EPD2

EPD1

OSS

EPD INPUT
MAN. SELECTADD JUMPERS
AS NEEDEDMAIN LANDING
EP STATIONEP MANUAL
SELECT SW.(ON)
(OFF)EMERGENCY POWER
LIGHTONLY CONNECTED
TO SIMPLEX OR
FIRST CAR IN
GROUP.EPD SELECTED
(IF USED)EPD RUNNING
(IF USED)EPD RETURNED
(IF USED)

B	REVISION UPDATE.	02. 07. 2013	MKDSBE2	DD
A	ADDED LOBBY EPD	03. 07. 2012	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Sales ref. no. -	Drawing no. 1364620E02	Product code LCE W/KDM

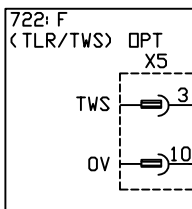
SHAFT CONNECTIONS

SHAFT CABLE#4, EPD SWITCHES AND LIGHTS

Sales ref. no. -	Drawing no. 1364620E02	Issue B	Page 9/10

A
B
C
D
E
F
G
H

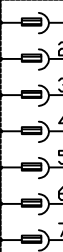
CONTROL PANEL



SEE E15 PAGE 3

379 LCEADON

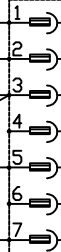
XD1



NOTE:

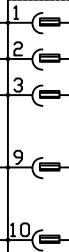
REMOVE XD1/3 TO XD1A/3
JUMPER.

XD1A/XD1

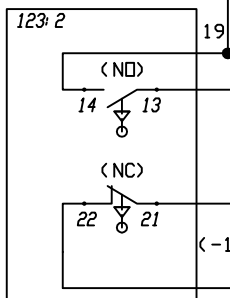
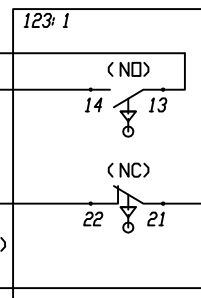


395 KDA MODULE

XD5

(397A/XD1
SAFETY CHAIN
MODULE WHEN
REQUIRED)

SEE E04/2&5

CWT. GOVERNOR
TENSION WEIGHT
SWITCHCAR GOVERNOR
TENSION WEIGHT
SWITCH

NOTE:

SHAFT CABLE #1 IS 19 CONDUCTOR
LAY-IN-DUCT CABLE. SEE E02 PAGES
1 & 2 FOR WIRING OF CONDUCTORS
1-14.

NOTE:

THIS IS WIRING FOR TENSION WEIGHT SWITCH
123: 1 IF TWS OPT INPUT IS USED TO STOP
CAR AT FIRST AVAILABLE LANDING.
SEE E02 PAGES 2. 1/10 AND 2. 2/10 IF TWS
INPUT IS NOT USED.

					Designed by S. BEASLEY		Checked by MKD/ RAY HUND		Language en	
B	ADDED SHEET 10 FOR TWS CONNECTION.		02. 07. 2013	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner		Product code LCE W/KDM
Issue	Change description		Date	Des. by	Appr. by	SHAFT CONNECTIONS				
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE										
					SHAFT CABLE #1, GOV. TENSION WEIGHT SWITCHES					
					Sales ref. no. -		Drawing no. 1364620E02		Issue B	Page 10/10



CONTROL PANEL

FLAT LO#

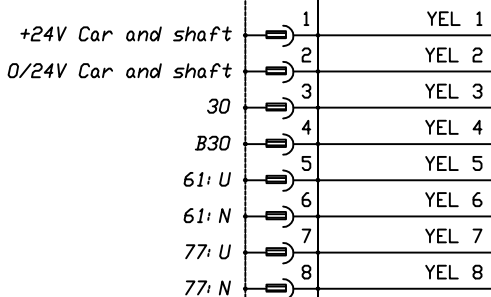
KONE P/N: KM899287 DRAKA P/N: 18-318-07

Car top connection box

CPU 375

E07/1

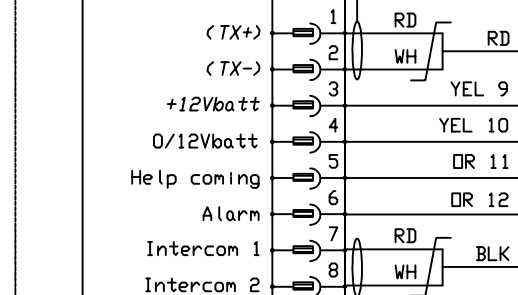
XC11



SHIELD

E23/1

XC12

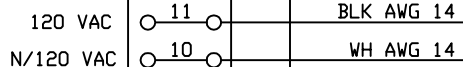


PE

SHIELD

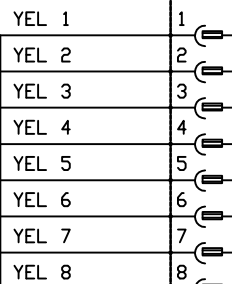
E01/1

TB1

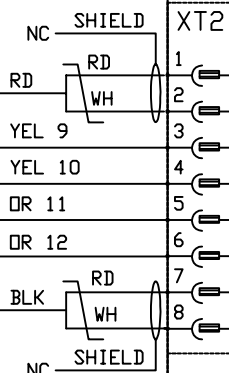


CCBN2 806

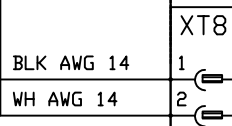
XT1



E07/1



E23/1



E23/1

Travelling cable

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by			Product code LCE W/KDM
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					CAR CONNECTIONS		
					LO NUMBER FLAT (KM899287) ECO		
					Sales ref. no. -	Drawing no. 1364620E03	Issue A
					Page 1. 1 / 11		

KONE

CONTROL PANEL

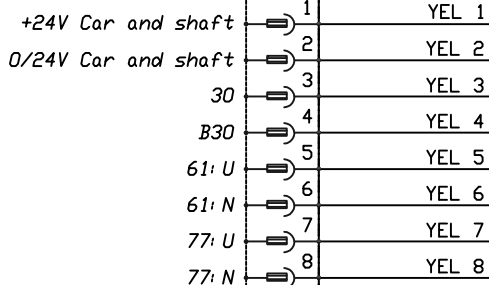
FLAT LO# (LOW VOLTAGE)

Car top connection box

KONE P/N: KM946806 DRAKA P/N: 18-426-07

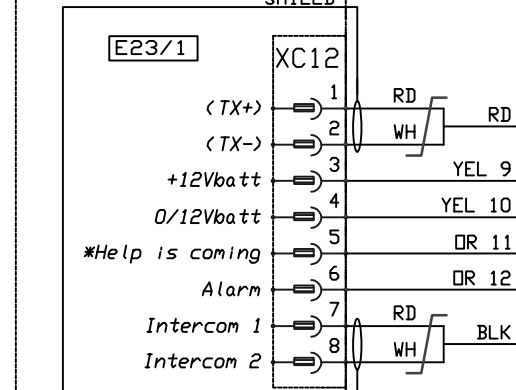
LCECPU 375

E07/1



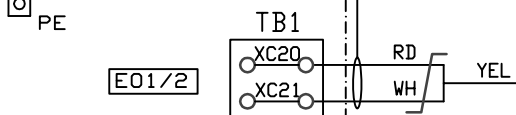
SHIELD

E23/1

SHIELD
SHIELD

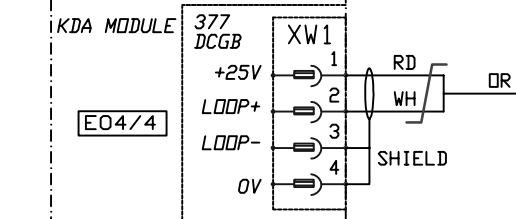
PE

E01/2

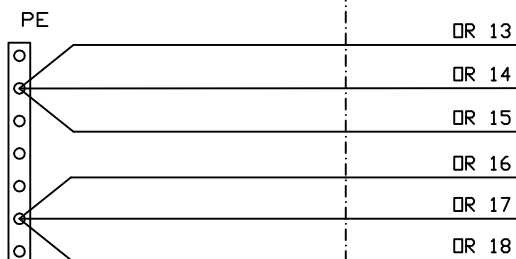


KDA MODULE

E04/4



PE



OR 13

OR 14

OR 15

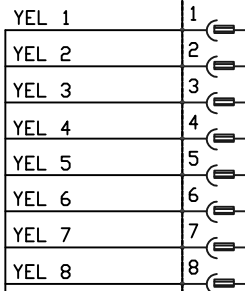
OR 16

OR 17

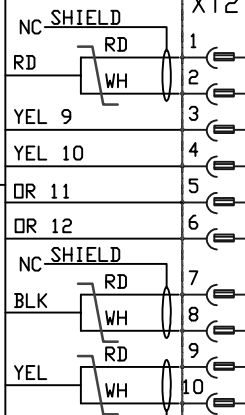
OR 18

LCECCBN 806

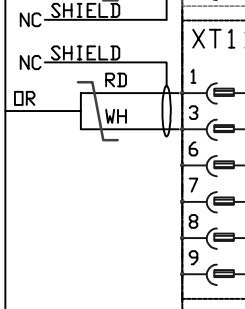
XT1



E07/1



E23/1



E04/4

OR 13

OR 14

OR 15

OR 16

OR 17

OR 18

PE

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
		Product code LCE W/KDM

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE

KONE

CAR CONNECTIONS

LD NUMBER FLAT (KM946806) MONO & MINI

Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 1. 2/11

CONTROL PANEL

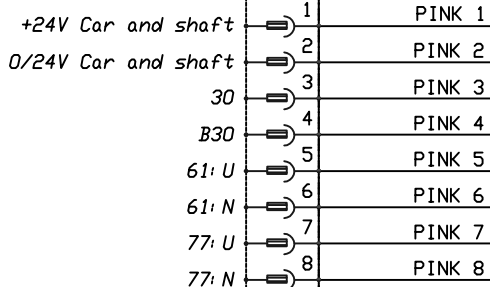
ROUND (LOW VOLTAGE CONNECTIONS)

Car top connection box

KONE P/N: KM283032 DRAKA P/N: 18-X62-13

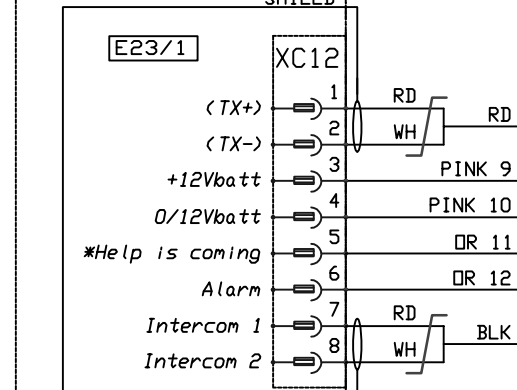
LCECPU 375

E07/1



SHIELD

E23/1



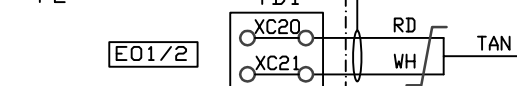
SHIELD

SHIELD

PE

TB1

E01/2

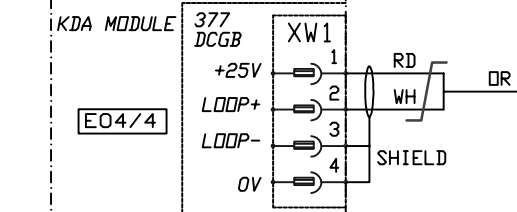


KDA MODULE

377

DCGB

E04/4



PE

OR 13

OR 14

OR 15

OR 16

OR 17

OR 18

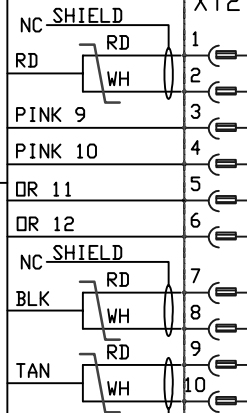
LCECCBN 806

XT1



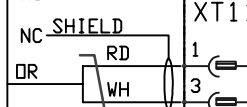
E07/1

XT2



E23/1

XT11



E04/4

OR 13

OR 14

OR 15

OR 16

OR 17

OR 18

PE

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

Designed by	S. BEASLEY	Checked by	MKD/ RAY HUND	Language	en
Dept.	URD	Date	01. 04. 2011	Approved by	MKD/Dennis Donner
Sales ref. no.	-	Drawing no.	1364620E03	Issue	A
Product code	LCE W/KDM	Page	1. 3/11		

FIELD DRAWING SET
 1364621E01 FOR ECOSPACE
 1364622E01 FOR MONOSPACE
 1364623E01 FOR MINISPACE

KONE

CAR CONNECTIONS

LOW VOLTAGE ROUND (KM283032) MONO & MINI

Sales ref. no.	-	Drawing no.	1364620E03	Issue	A	Page	1. 3/11

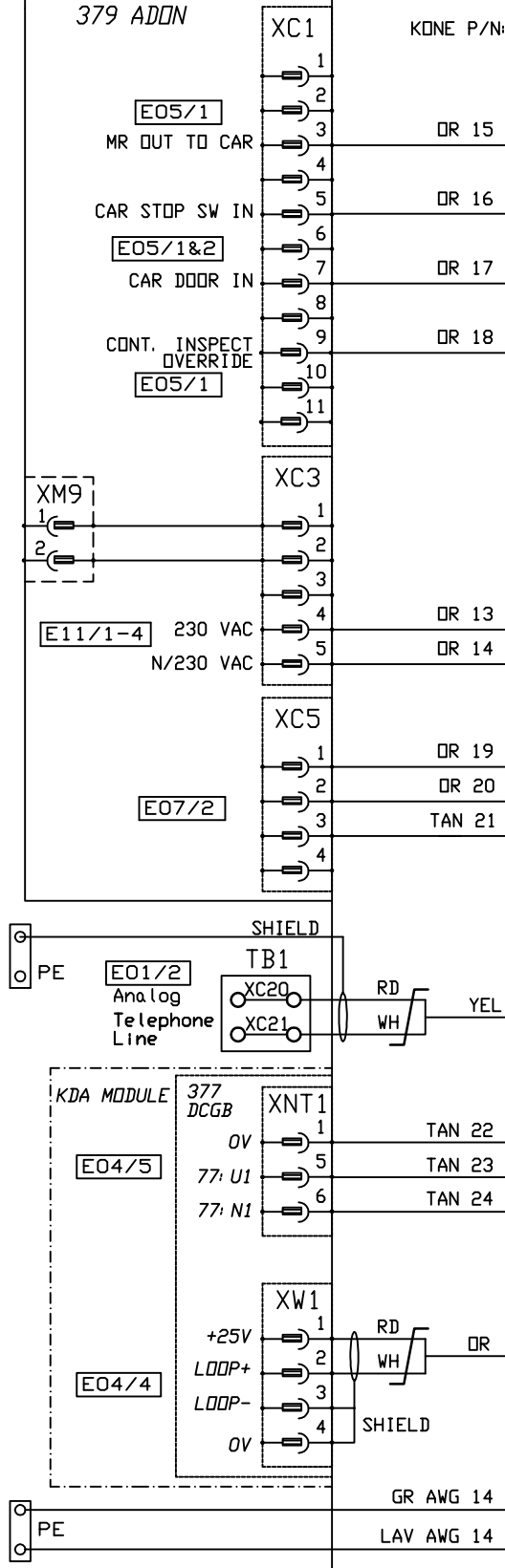
CONTROL PANEL

379 ADDN

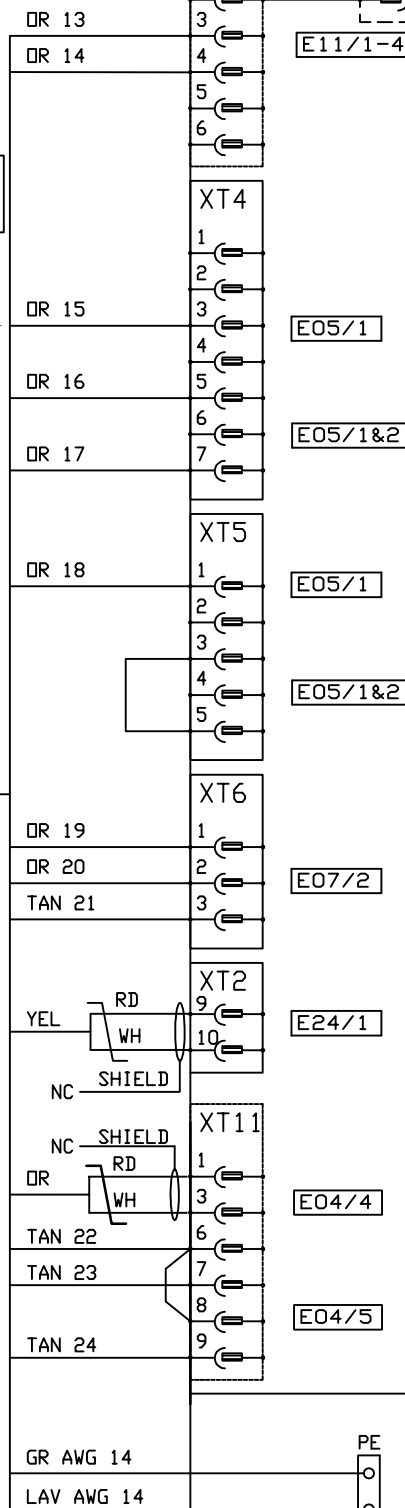
FLAT HI#

KONE P/N: KM922942 DRAKA P/N: 18-418-07

Car top connection box

806
CCBN2CONNECTIONS WITHOUT
BYPASS SWITCH'S OR
W/ ORIGINAL BYPASS
SWITCH WIRING

Travelling cable

ONLY USED
WITH CAR
PLATFORM
LOAD WEIGH
SYSTEM.NOTE:
INSULATE OR TAPE
END OF UNUSED
TWISTED PAIRS.

A	ADDED PLATFORM LOAD WEIGH	18.11.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Date 01.04.2011	Approved by MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by	Product code LCE W/KDM		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					CAR CONNECTIONS W/O BYPASS OR W/ ORIGINAL BYPASS		
KONE					HI NUMBER FLAT (KM922942) ECO		
Sales ref. no. -		Drawing no. 1364620E03		Issue A	Page 2. 1A/11		

A

B

C

D

E

F

G

H

CONTROL PANEL

379 ADDN

E05/1

MR OUT TO CAR

CAR STOP SW IN

E05/1&2

CAR DOOR IN

CONT. INSPECT

OVERRIDE

E05/1

XM9

1

2

E11/1-4 230 VAC

N/230 VAC

E07/2

PE

E01/2

Analog
Telephone
Line

KDA MODULE

377

DCGB

E04/8

DRIVE

MODULE

E04/7

PE

XC1

1

2

3

4

5

6

7

8

9

10

11

XC3

1

2

3

4

5

XC5

1

2

3

4

SHIELD

TB1

XC20

XC21

RD

WH

YEL

XNT1

1

5

6

OV

77: U1

77: N1

XW1

1

2

3

4

+25V

LOOP+

LOOP-

OV

RD

WH

OR

SHIELD

GR AWG 14

KONE P/N: KM922942 DRAKA P/N: 18-418-07

FLAT HI#

CONNECTIONS WITH
NEW BYPASS SWITCH
WIRING

Travelling cable

ONLY USED
WITH CAR
PLATFORM
LOAD WEIGH
SYSTEM.NOTE:
INSULATE OR TAPE
END OF UNUSED
TWISTED PAIRS.

Car top connection box

806

CCBN2

XT3

1

2

3

4

5

6

7

XT4

1

2

3

4

5

6

7

XT5

1

2

3

4

5

XT6

1

2

3

XT2

9

10

XT11

1

3

6

7

8

9

E11/1-4

E05/1

E05/1&2

E05/1

E05/1&2

E07/2

E24/1

E04/4

E04/5

PE

O

O

A ADDED NEW PAGE 2.1B

18.11.2013

MKDSBE2

DD

Designed by
S. BEASLEYChecked by
MKD/ RAY HUNDLanguage
en

- RELEASE OF NEW DRAWING

01.04.2011

MKDSBE2

DD

Dept. URD

Date 01.04.2011

Approved by
MKD/Dennis DonnerProduct code
LCE W/KDM

Issue Change description

Date

Des. by

Appr. by

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE

CAR CONNECTIONS W/ NEW BYPASS SWITCHES

HI NUMBER FLAT (KM922942) ECO

Sales ref. no.

Drawing no.

Issue

Page

-

1364620E03

A

2.1B/11

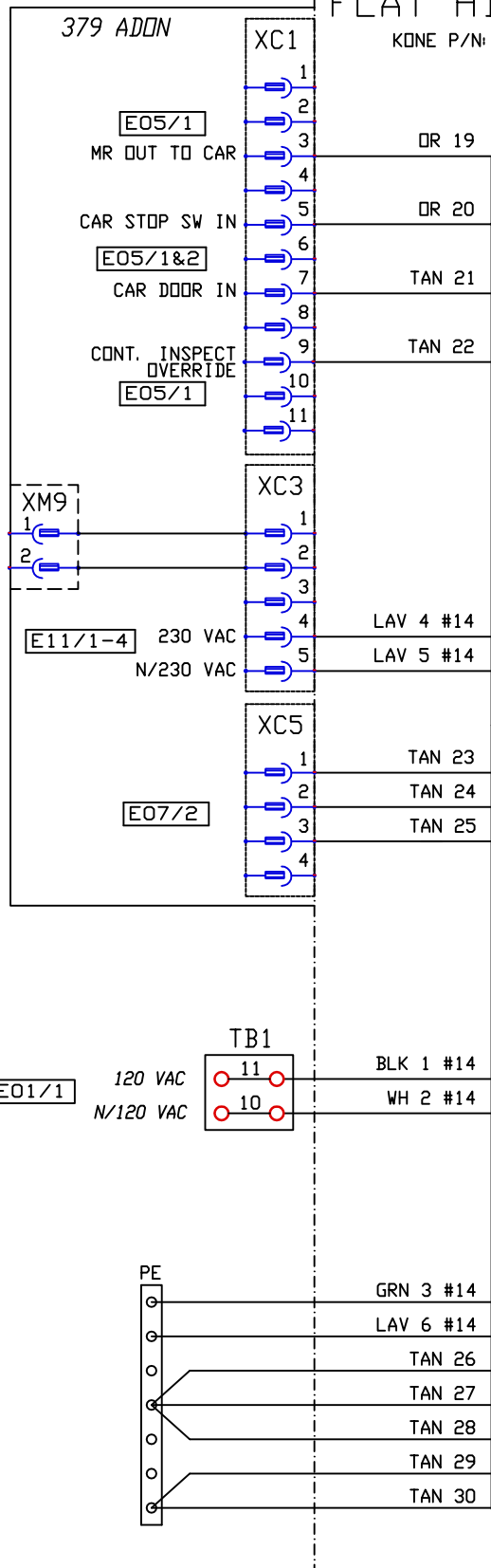
CONTROL PANEL

379 ADDN

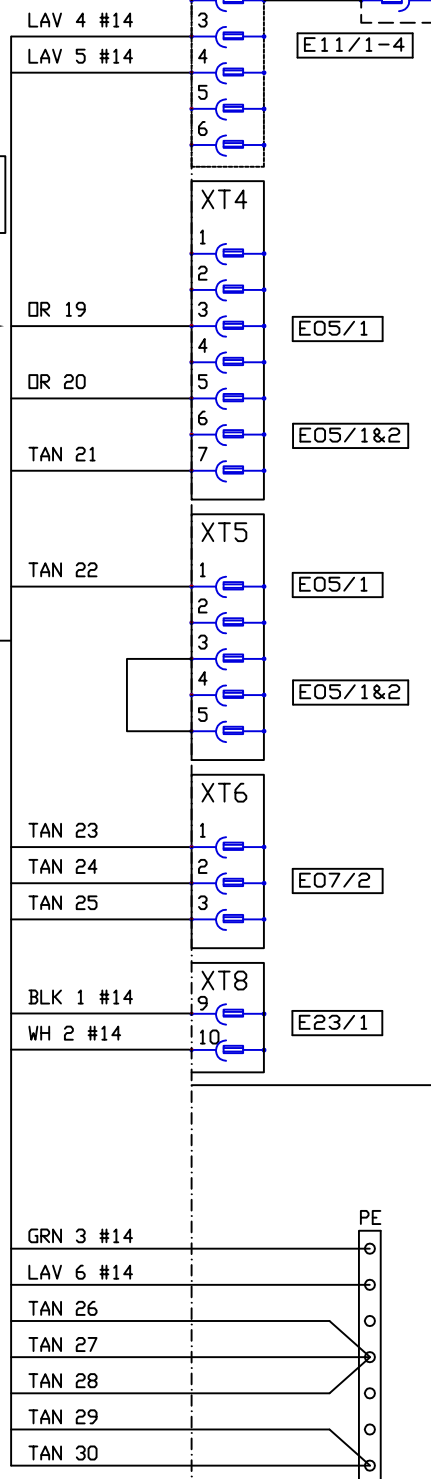
FLAT HI# (HIGH VOLTAGE)

KONE P/N: KM946805 DRAKA P/N: 18-618-07

Car top connection box

806
CCBN2CONNECTIONS WITHOUT
BYPASS SWITCH'S OR
W/ ORIGINAL BYPASS
SWITCH WIRING

Travelling cable



A	ADDED BYPASS SWITCH WIRING NOTE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					CAR CONNECTIONS W/O BYPASS SWITCHES OR W/ORIG BP SW's		
KONE					HI NUMBER FLAT CABLE (KM946805) MOND & MINI		
					Sales ref. no. -	Drawing no. 1364620E03	Issue A
					Page 2. 2A/11		

CONTROL PANEL

FLAT HI# (HIGH VOLTAGE)

Car top connection box

379 ADDN

KONE P/N: KM946805 DRAKA P/N: 18-618-07

806
CCBN2

E05/1
MR OUT TO CAR

E05/1&2
CAR STOP SW IN

E05/1
CAR DOOR IN

E05/1
CONT. INSPECT
OVERRIDE

XM9
1
2

E11/1-4 230 VAC
N/230 VAC

E07/2

E01/1

120 VAC
N/120 VAC

TB1
11
10

BLK 1 #14

WH 2 #14

PE

GRN 3 #14

LAV 6 #14

TAN 27

TAN 28

TAN 29

TAN 30

XC1
1
2
3
4
5
6
7
8
9
10
11

DR 19

TAN 26

DR 20

TAN 21

TAN 22

XC3
1
2
3
4
5

LAV 4 #14

LAV 5 #14

XC5
1
2
3
4

TAN 23

TAN 24

TAN 25

CONNECTIONS WITH
NEW BYPASS SWITCH
WIRING

Travelling cable

LAV 4 #14

LAV 5 #14

TAN 26

DR 19

DR 20

TAN 21

TAN 22

TAN 23

TAN 24

TAN 25

BLK 1 #14

WH 2 #14

GRN 3 #14

LAV 6 #14

TAN 27

TAN 28

TAN 29

TAN 30

XT3
1
2
3
4
5
6

XT4
1
2
3
4
5
6
7

XT5
1
2
3
4
5

XT6
1
2
3

XT8
9
10

E11/1-4

E05/1

E05/1&2

E05/1

E05/1&2

E07/2

E23/1

PE

A	ADDED PAGE 2.2B	18.11.2013	MKDSBE2	DD
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01.04.2011	Approved by MKD/Dennis Donner
Sales ref. no. -	Drawing no. 1364620E03	Issue A

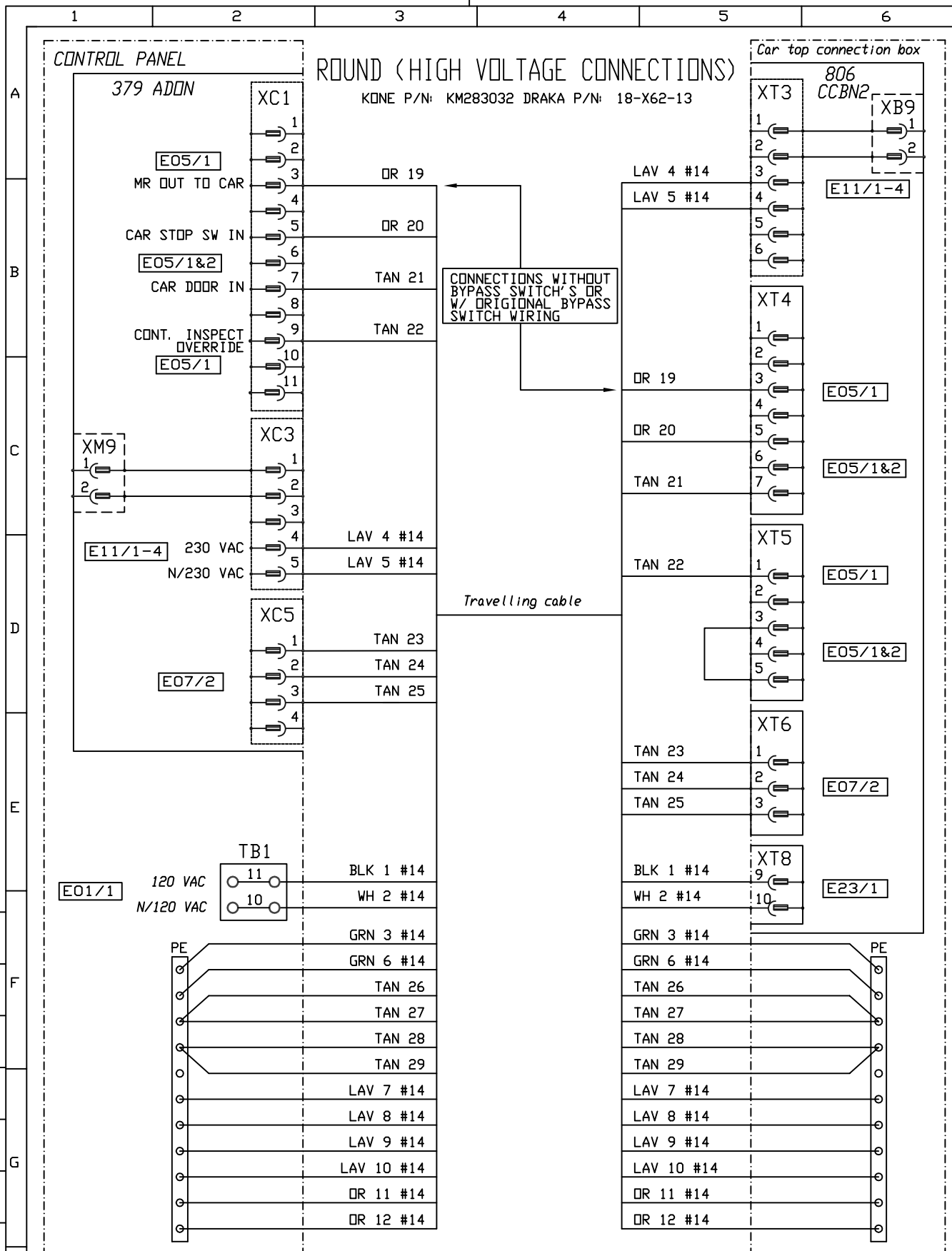
FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



CAR CONNECTIONS W/ NEW BYPASS SWITCH WIRING

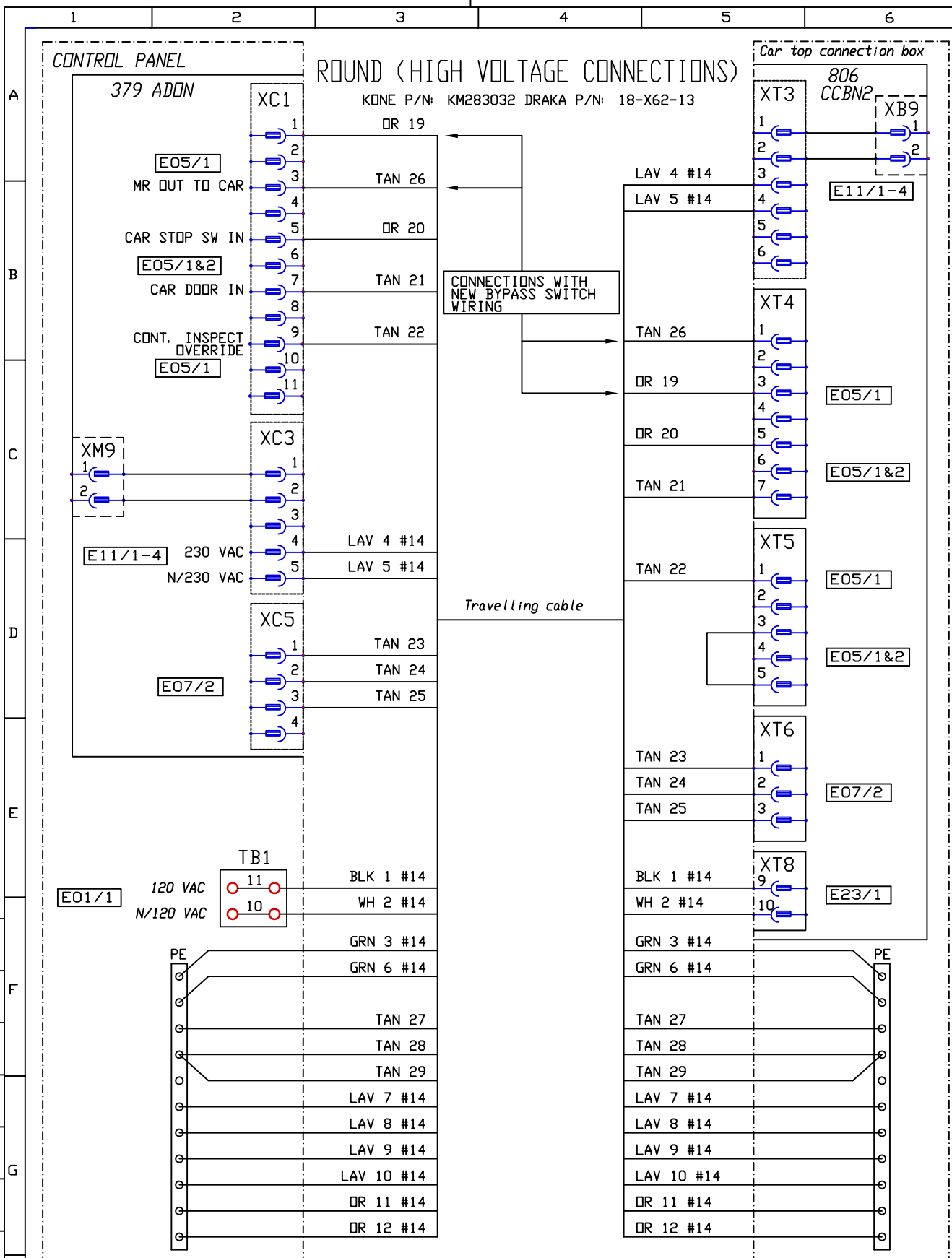
HI NUMBER FLAT (KM946805) MOND & MINI

Page
2. 2B/11



A	ADDED BP SWITCH WIRING NOTE.	18.11.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET					CAR CONNECTIONS W/O BYPASS SW's OR W/ORIG BP SW WIRING		
1364621E01 FOR ECOSPACE					HIGH VOLTAGE ROUND (KM283032) MONO & MINI		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E03	A
					Page 2. 3A/11		

KONE



A	ADDED NEW PAGE 2.3B	18.11.2013	MKOSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKOSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET					CAR CONNECTIONS W/ NEW BYPASS SWITCH WIRING		
1364621E01 FOR ECOSPACE					HIGH VOLTAGE ROUND (KM283032) MONO & MINI		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E03	A
					Page 2. 3B/11		

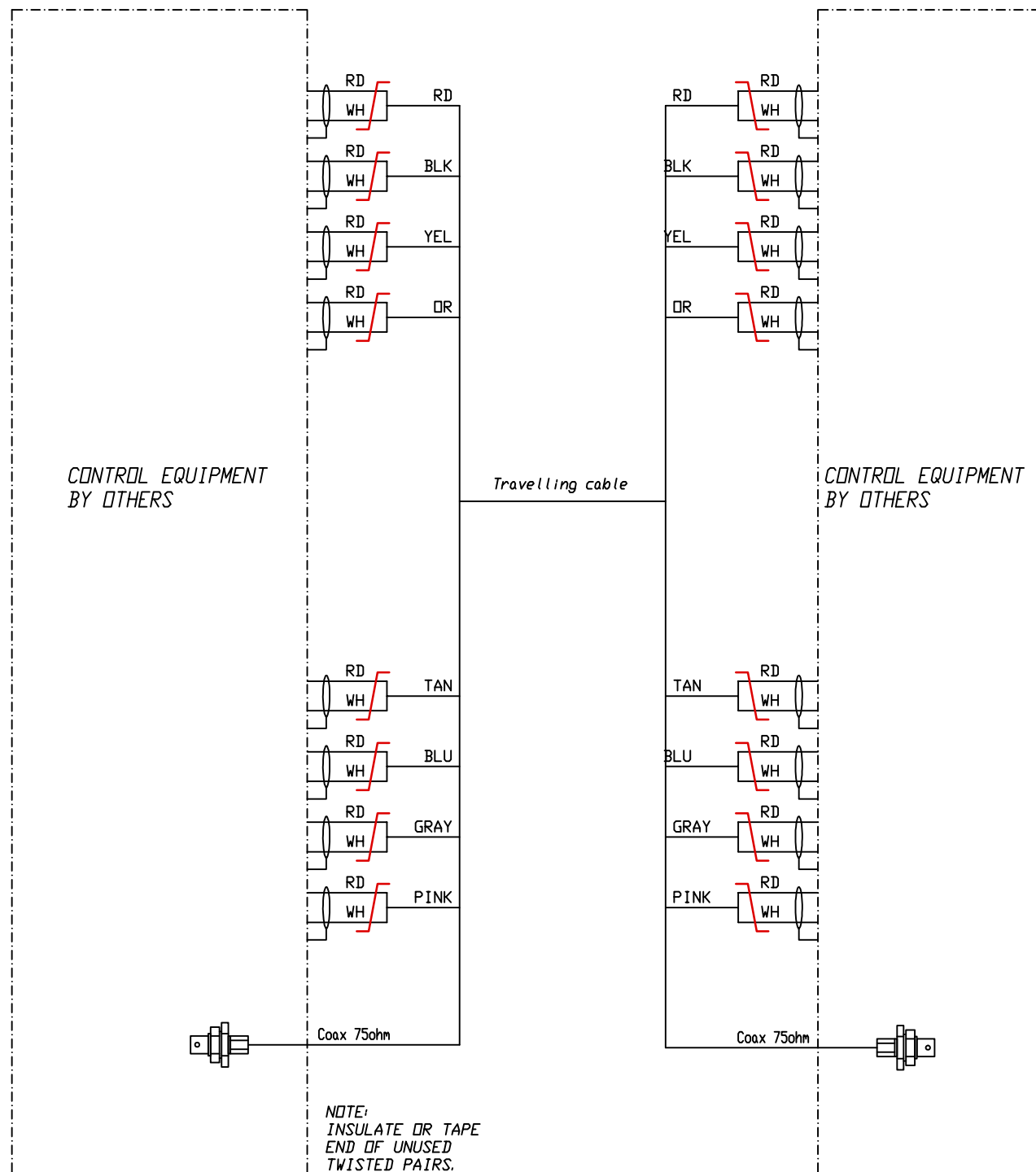
1 2 3 4 5 6

FLAT (OPTIONAL)

KONE P/N: KM926156 DRAKA P/N: 18-C17-07

MACHINE ROOM

CAR TOP



A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. Date URD 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by			

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



CAR CONNECTIONS

TWISTED PAIR W/COAX FLAT (KM926156)

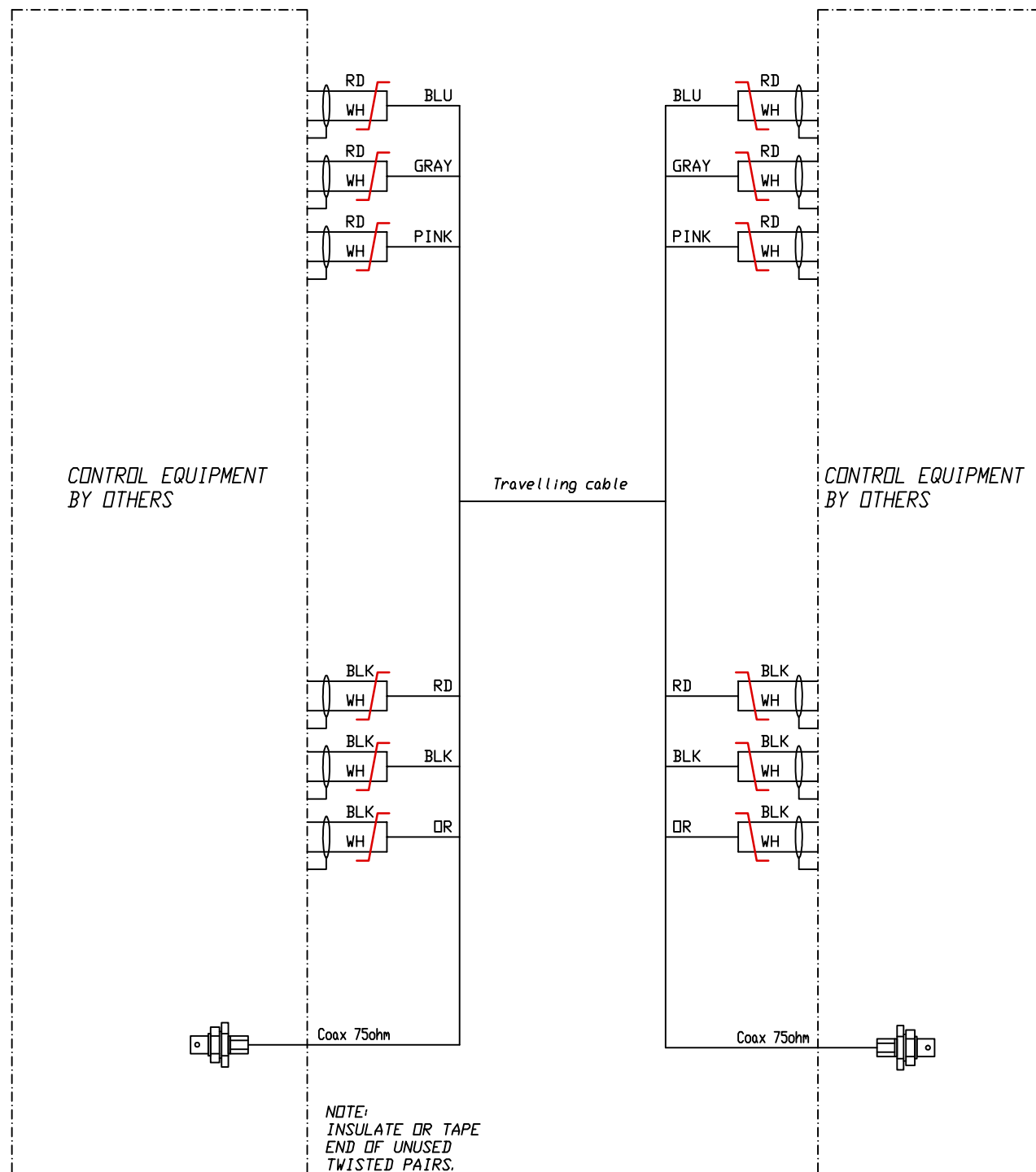
Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 3. 1 / 11

ROUND (EXTRA TWISTED PAIRS)

KONE P/N: KM283032 DRAKA P/N: 18-X62-13

MACHINE ROOM

CAR TOP



A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by			

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



CAR CONNECTIONS

EXTRA TWISTED PAIRS & COAX ROUND (KM283032) MONO & MINI

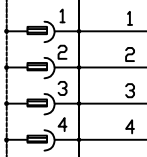
Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 3. 2/11

Car top connection box

CCBN2
806

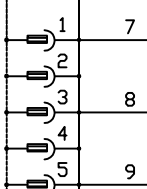
XB12

E07/2



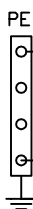
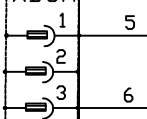
XB3

E05/1



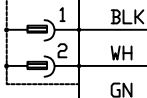
XB3A

E05/1



XB13

E23/1

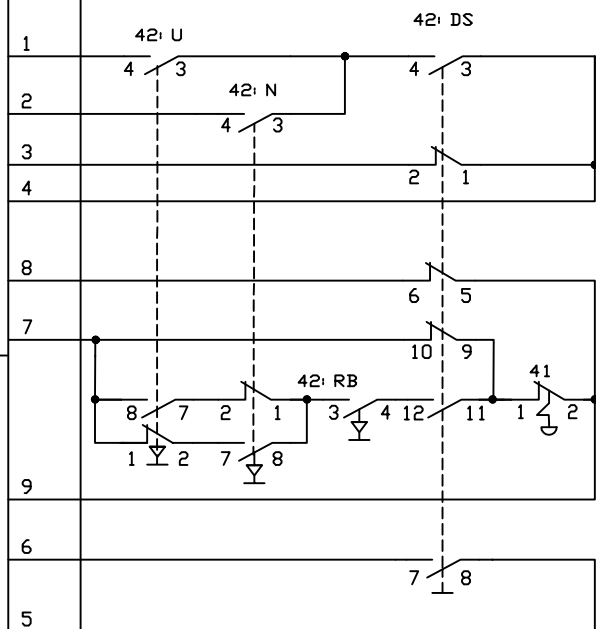
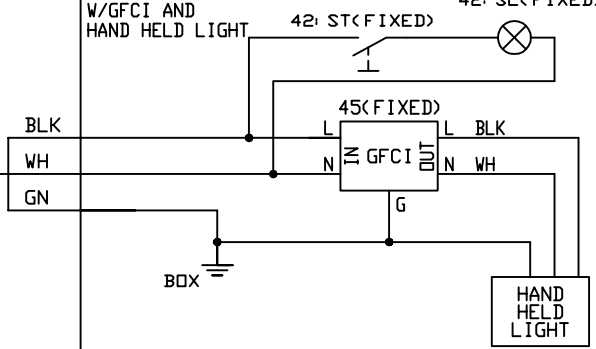


823857

801746

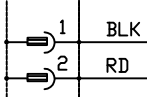
Inspection drive unit

10 PE Box PE Cover

SERVICE LIGHT FIXTURE
W/GFCI AND
HAND HELD LIGHT

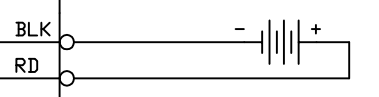
XB32

E23/1



782995

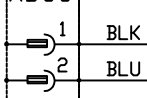
Emergency battery



227

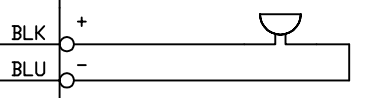
XB35

E23/1



713873

Alarm buzzer on car roof



65

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



CAR CONNECTIONS

INSPECTION DRIVE AND ACCESSORIES

Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 4. 1 / 11

Car top connection box

CCBN2
806

XB12

E07/2

XB3A

E05/3

986550

XB3X

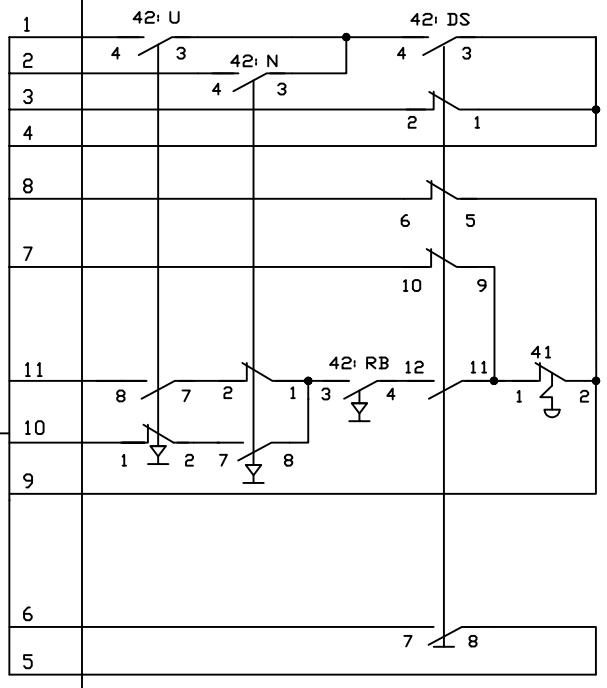
E05/3

XB3

E05/3

NOTE:
FOR SERVICE LIGHT, EMERGENCY
BATTERY AND ALARM BUZZER
SEE SHEET 4. 1/11

Inspection drive unit



Car top

LEFT FRT
SW 66: 1RIGHT FRT
SW 66: 2FOR UNIT WITH FRONT
OPENING ONLY.LEFT REAR
SW 66: 3LEFT REAR
SW 66: 3RIGHT REAR
SW 66: 4

FOR UNIT WITH FRONT AND REAR OPENING

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE

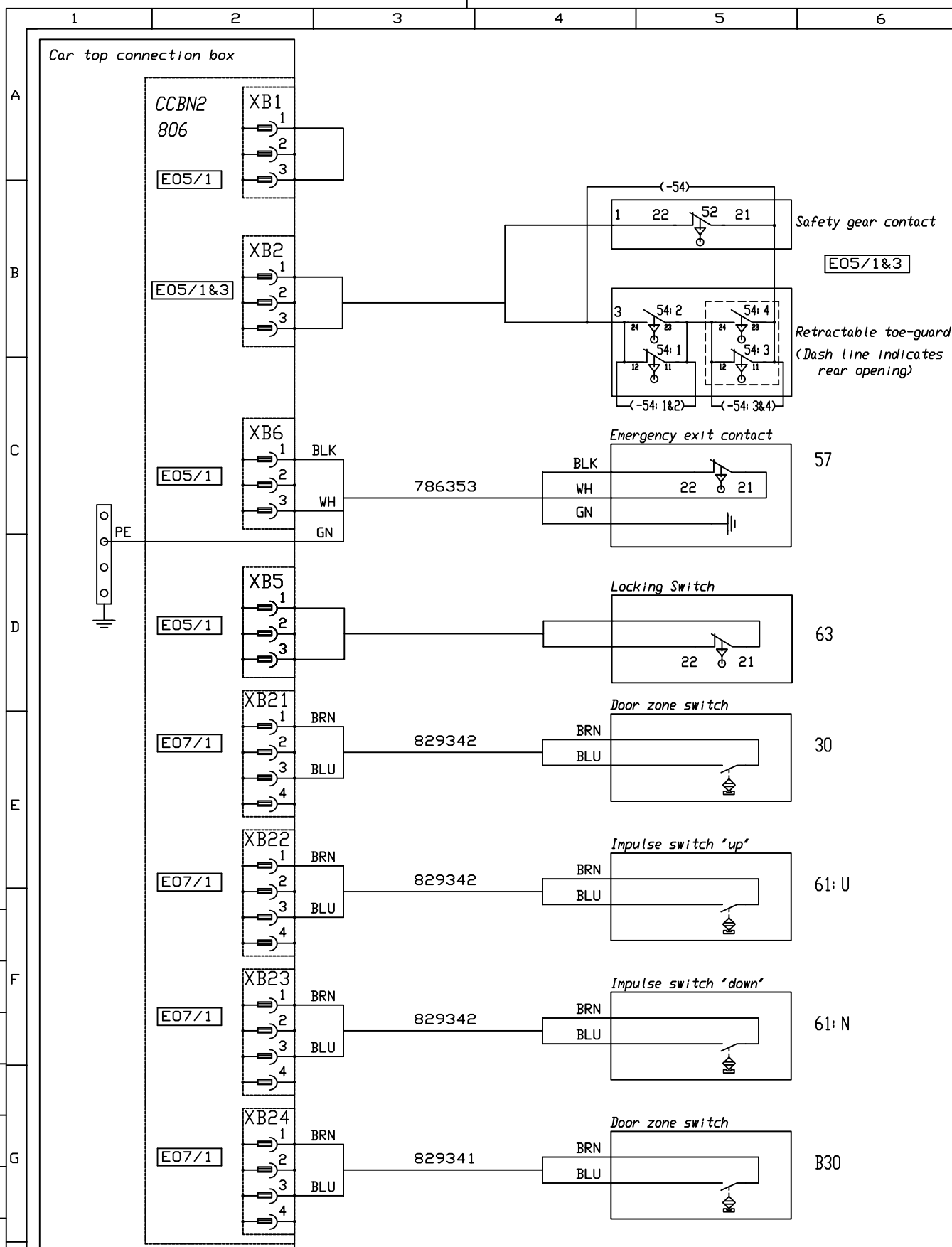


Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Sales ref. no. -	Drawing no. 1364620E03	Product code LCE W/KDM

CAR CONNECTIONS

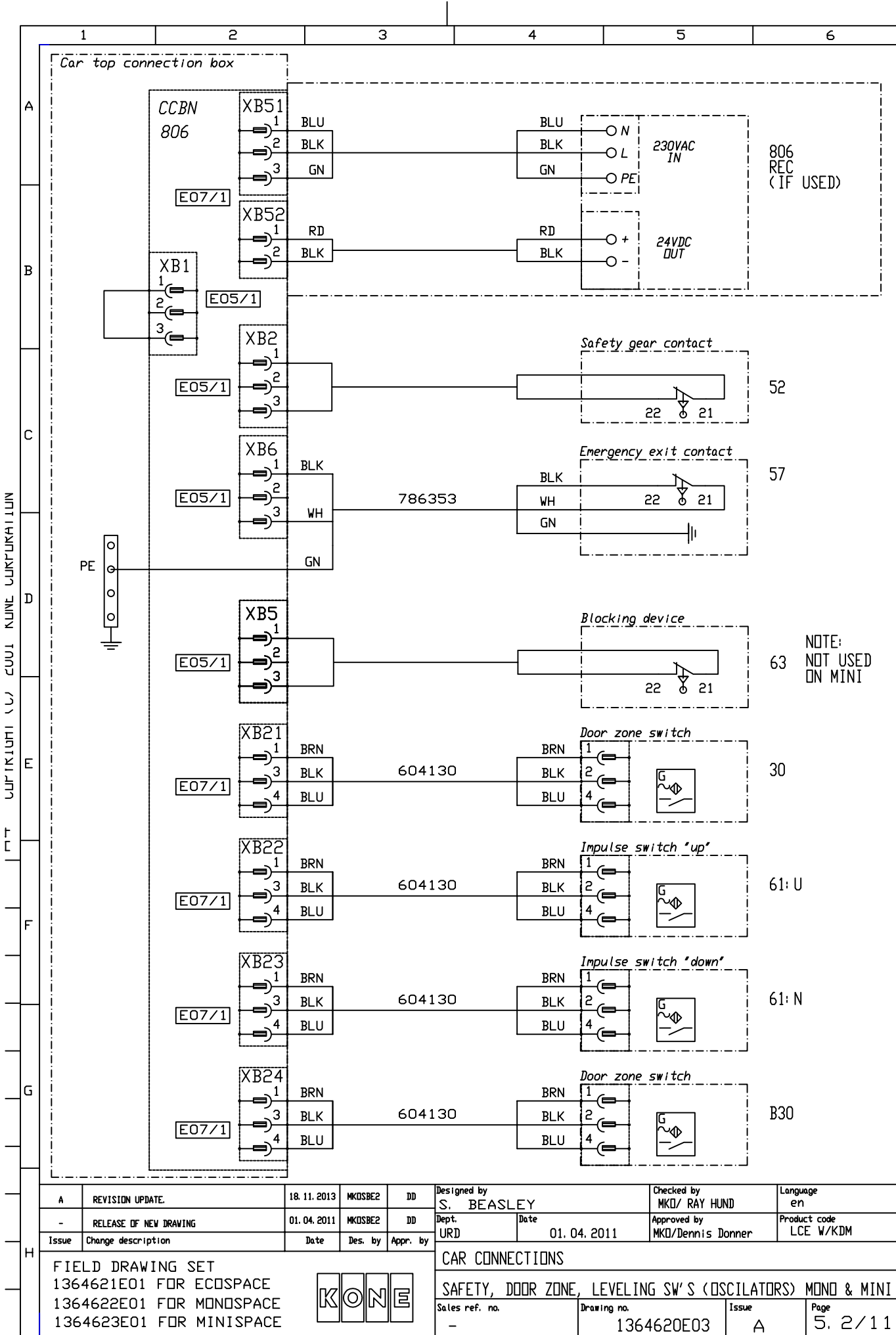
INSPECTION DRIVE WITH FOLDING CAR TOP HANDRAIL ECO

Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 4. 2/11

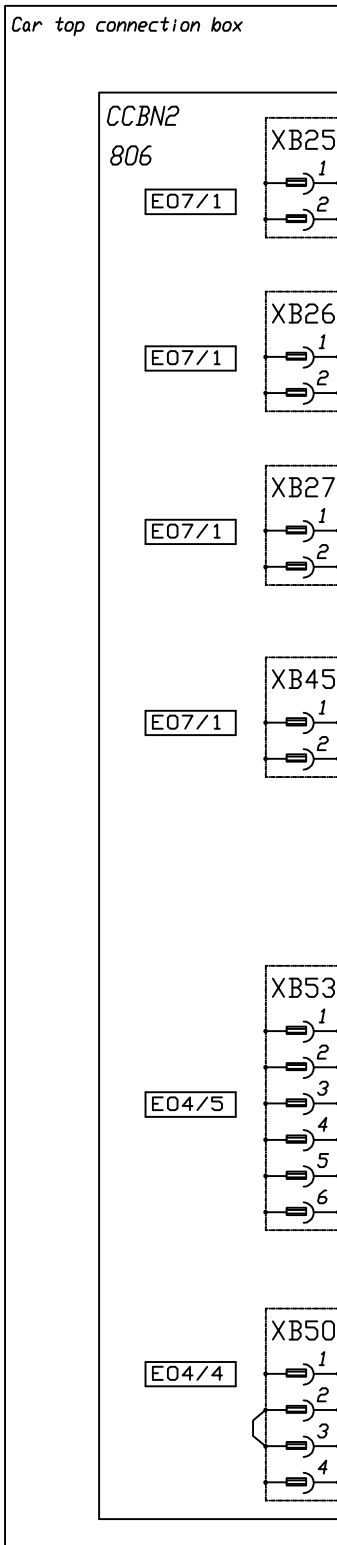


A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					CAR CONNECTIONS		
1364621E01 FOR ECOSPACE					SAFETY, DOOR ZONE AND LEVELING SW'S (CIGAR SW'S) ECO ONLY		
1364622E01 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E01 FOR MINISPACE					-	1364620E03	A
							Page 5. 1 / 11



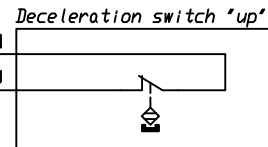


NOTE:
NOT USED
ON MINI

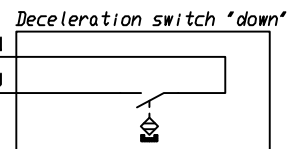


NOTE:

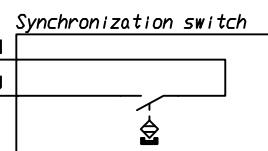
NTS 77: N1/U1 SWITCHES ARE ONLY
LOCATED ON THE CAR WHEN CAR SPEEDS
ARE ≤ 200 FPM AND CIGAR SWITCHES
ARE USED FOR 30, B30, 61: N AND 61: U.
SEE E60 FOR WHEN SWITCHES ARE REQUIRED.



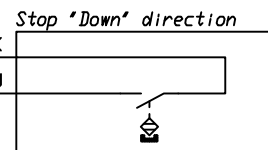
77: U



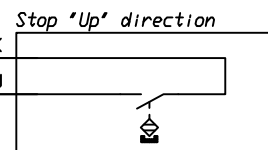
77: N



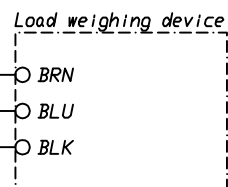
77: S



77: N1



77: U1

(SHORT TERMINAL
LANDING NTS.)

64

NOTE:

USED ONLY WITH CAR PLATFORM
LOAD WEIGH SYSTEM.

A	ADDED LOAD WEIGH NOTE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					CAR CONNECTIONS		
					NORMAL TERMINAL SLOW DOWN SWITCHES		
					Sales ref. no. -	Drawing no. 1364620E03	Page 6 / 11

KONE

Car top connection box

CCBN2
806
E11/1XB16
1 WH
2 BLK
GN

786351

WH
BLK
GND1
3
4
5
230VAC

Door module

84 AMD
Door operatorXB28
E11/11
2
3
4
5
6
7
9

801751

X1
1 (G)
2 (17)
3 (16)
4 (10)
5 (30)
6 (31)
7 (SD)
8 (41)
9 (9)
10 (+24)
11 (G)X12 DOOR PANEL
X13 POSITION
REFERENCE

X15 BLK Curtain of light

44 BRN
45 BLUX16 BRN
47 BLU

88 TX COL RX 89

XB29
E11/11 8
2 9
3
4XB7
E05/22 BLK
4 WH
GN

786352

D2 Car door contact
1 BLK
2 WH
5 GN

PE

XB17
E11/21 WH
2 BLK
GN

786351

WH
BLK
GND1
3
4
5
230VAC

Door module

84 AMD
Door operatorXB30
E11/21
2
3
4
5
6
7
9

801751

X1
1 (G)
2 (17)
3 (16)
4 (10)
5 (30)
6 (31)
7 (SD)
8 (41)
9 (9)
10 (+24)
11 (G)X12 DOOR PANEL
X13 POSITION
REFERENCE

X15 BLK Curtain of light

44 BRN
45 BLUX16 BRN
47 BLU

88 TX COL RX 89

XB31
E11/21 8
2 9
3
4XB8
E05/22 BLK
4 WH
GN

786352

D2 Car door contact
1 BLK
2 WH
5 GN

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
		Product code LCE W/KDM

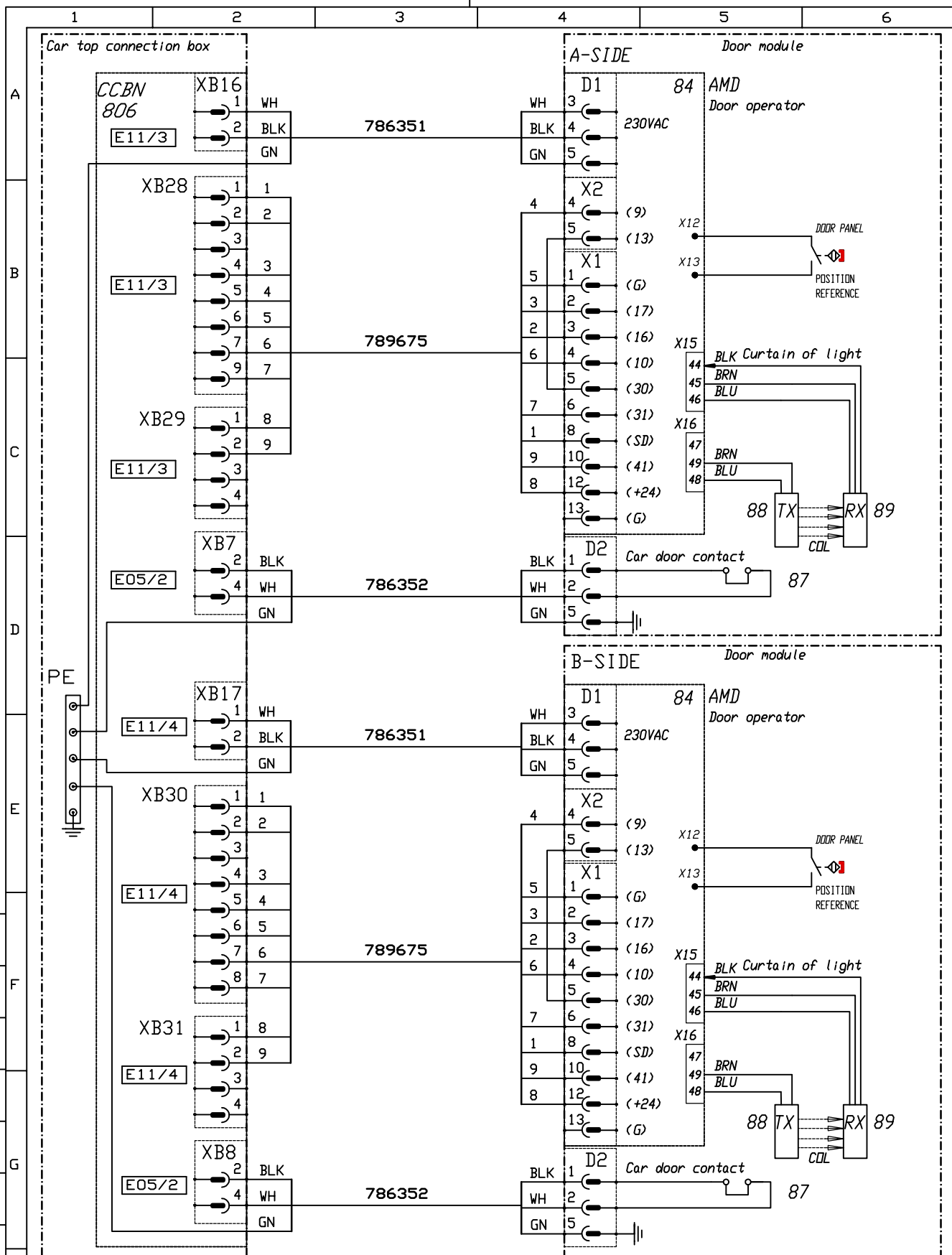
FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



CAR CONNECTIONS

AMD 1.0 & 1.5 DOOR OPERATOR CONNECTIONS (A & B-SIDE)

Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 7 / 11



A	REVISION UPDATE.	18. 11. 2013	MKOSBE2	DD	Designed by S. BEASLEY		Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKOSBE2	DD	Dept.	Date	Approved by	Product code
Issue	Change description	Date	Des. by	Appr. by	URD	01. 04. 2011	MKD/Dennis Donner	LCE W/KDM

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FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE
```



CAR CONNECTIONS

AMD 2.0 DOOR OPERATOR CONNECTIONS (A & B-SIDE)

Sales ref. no. —	Drawing no. 1364620E03	Issue A	Page 8/11

CAR NETWORK AND COMMUNICATION CABLE DETAILS WITH KRM PHONE

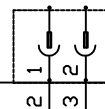
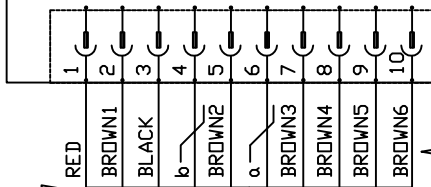
CAR TOP BOX

806 CCBN2

XB18

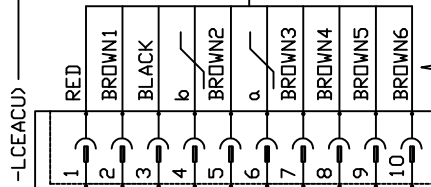
XB33

E24/1



783024G05 OR
786188D24

BROWN WIRES ARE
NOT NUMBERED

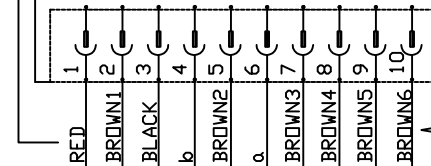


XS1

766 ACU

E18/1

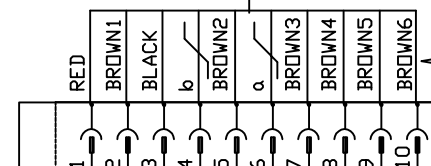
XS2



783024G05 OR
786188G24

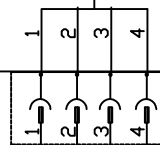
770161G01

COLORS CAN VARY ON THIS CABLE



XS1

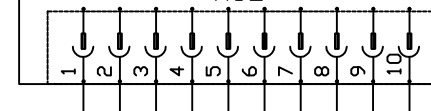
E24/1



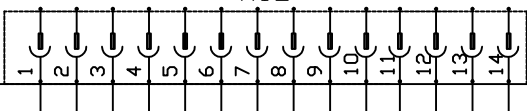
X7

KRM RIF

XS2



X12



TO J2 ON F2KMUL W/KSS (818920G##)

SEE SIGNALIZATION E03'S FOR CABLE DETAILS TO COP

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		

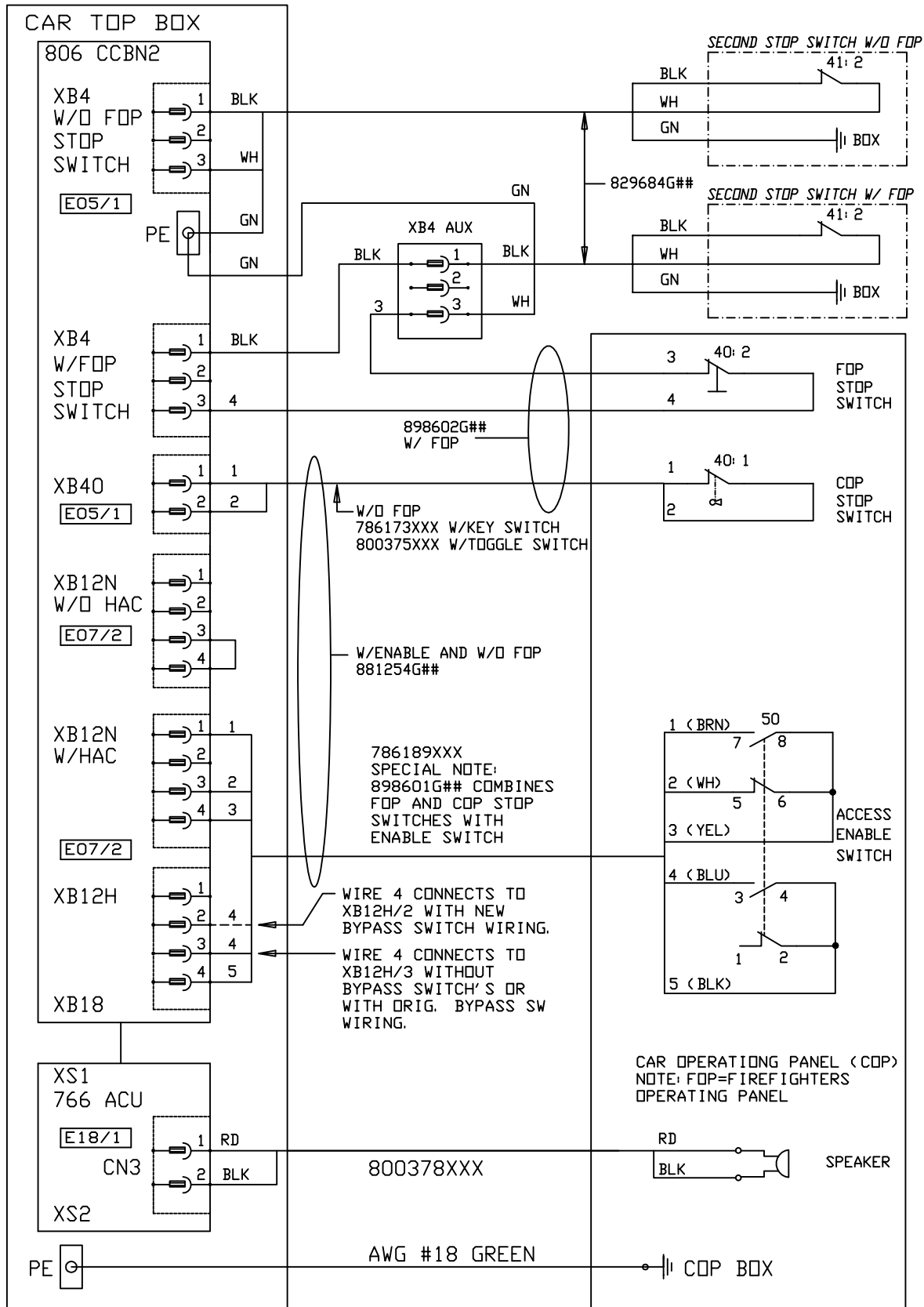
FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



CAR CONNECTIONS

CAR NETWORK W/KRM PHONE

Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 9/11



A	MODIFIED XB12H WIRING.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		

FIELD DRAWING SET
1364621E01 FOR ECOSPACE
1364622E01 FOR MONOSPACE
1364623E01 FOR MINISPACE



CAR CONNECTIONS

DIRECT CAR TOP BOX TO COP DEVICES

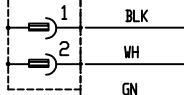
Sales ref. no. -	Drawing no. 1364620E03	Issue A	Page 10/11

Car Top Connection Box

CCBN2
806

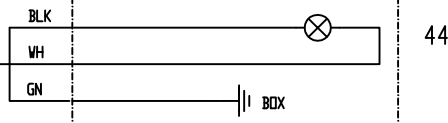
XB14

E23/1



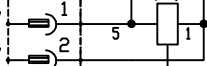
786354G##

Car lighting System

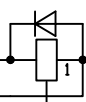


+24V

0V

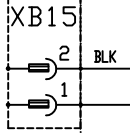


571



XB15

E23/1

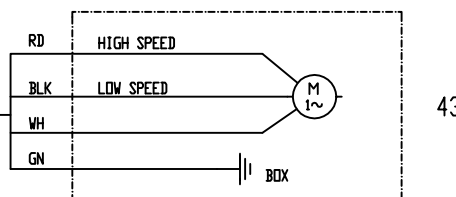


BLK LOW SPEED

RD HIGH SPEED

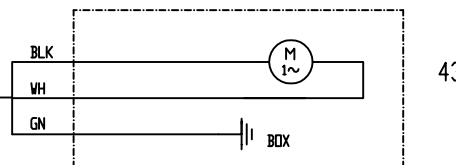
786355G##

Car fan

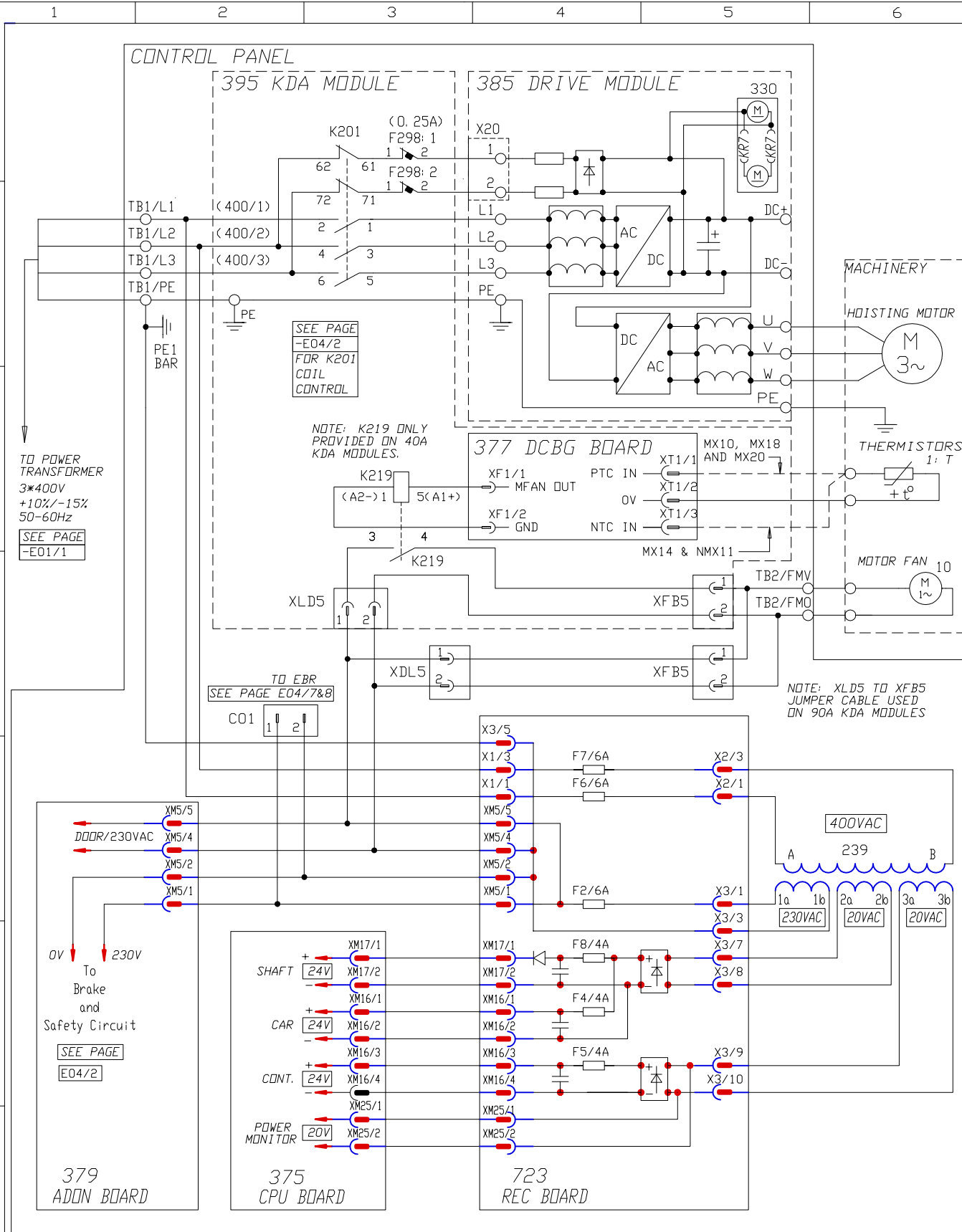


FAN WIRING W/SINGLE SPEED FAN

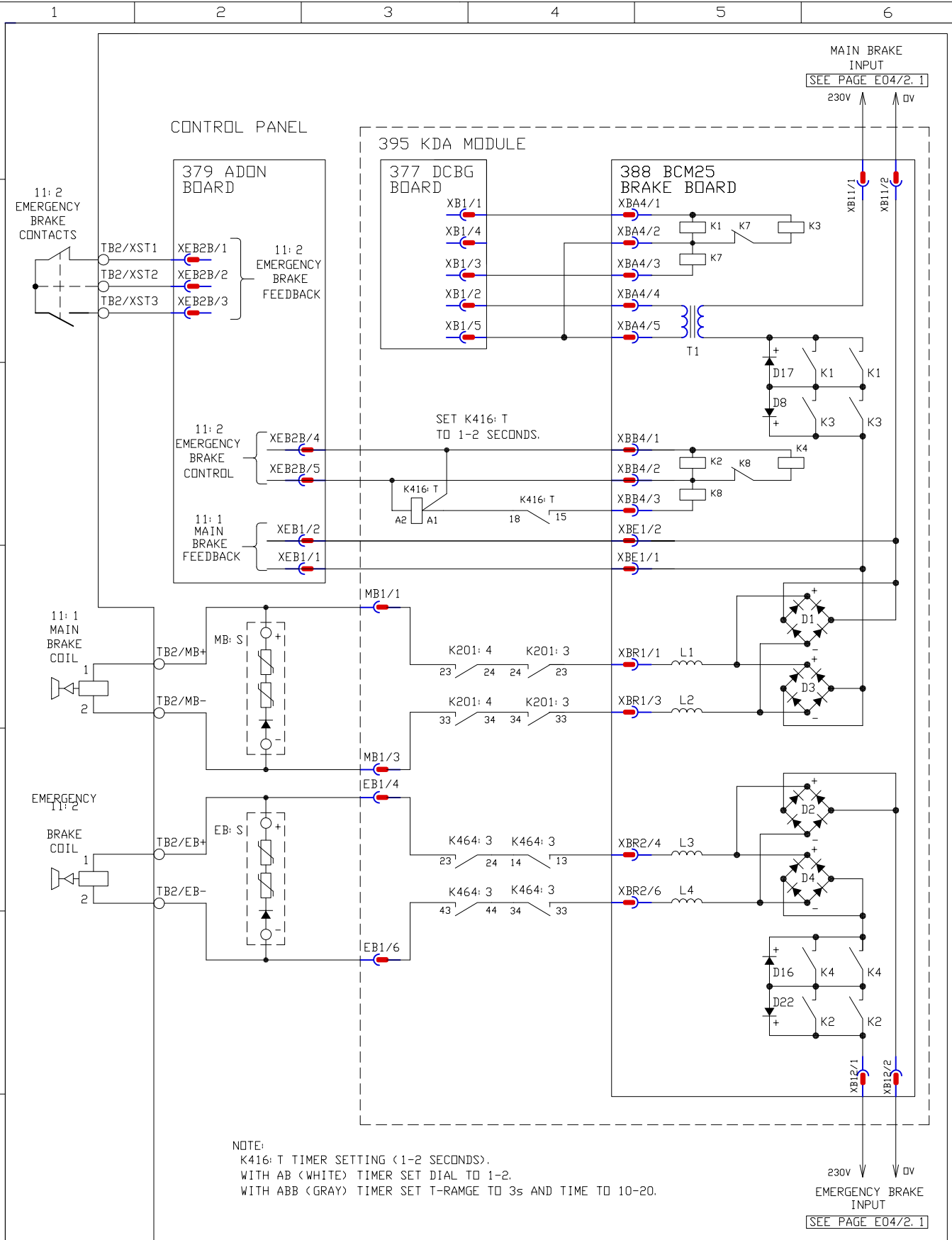
Car fan

NOTE: REFER TO CAB INSTALLATION
INSTRUCTIONS FOR CAR LIGHTING
SYSTEM CONNECTION DETAILS.

A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E01 FOR ECOSPACE 1364622E01 FOR MONOSPACE 1364623E01 FOR MINISPACE					KONE		
					CAR CONNECTIONS		
					CAR LIGHTING AND VENTILATION		
Sales ref. no.		Drawing no.		Issue		Page	
-		1364620E03		A		11 / 11	

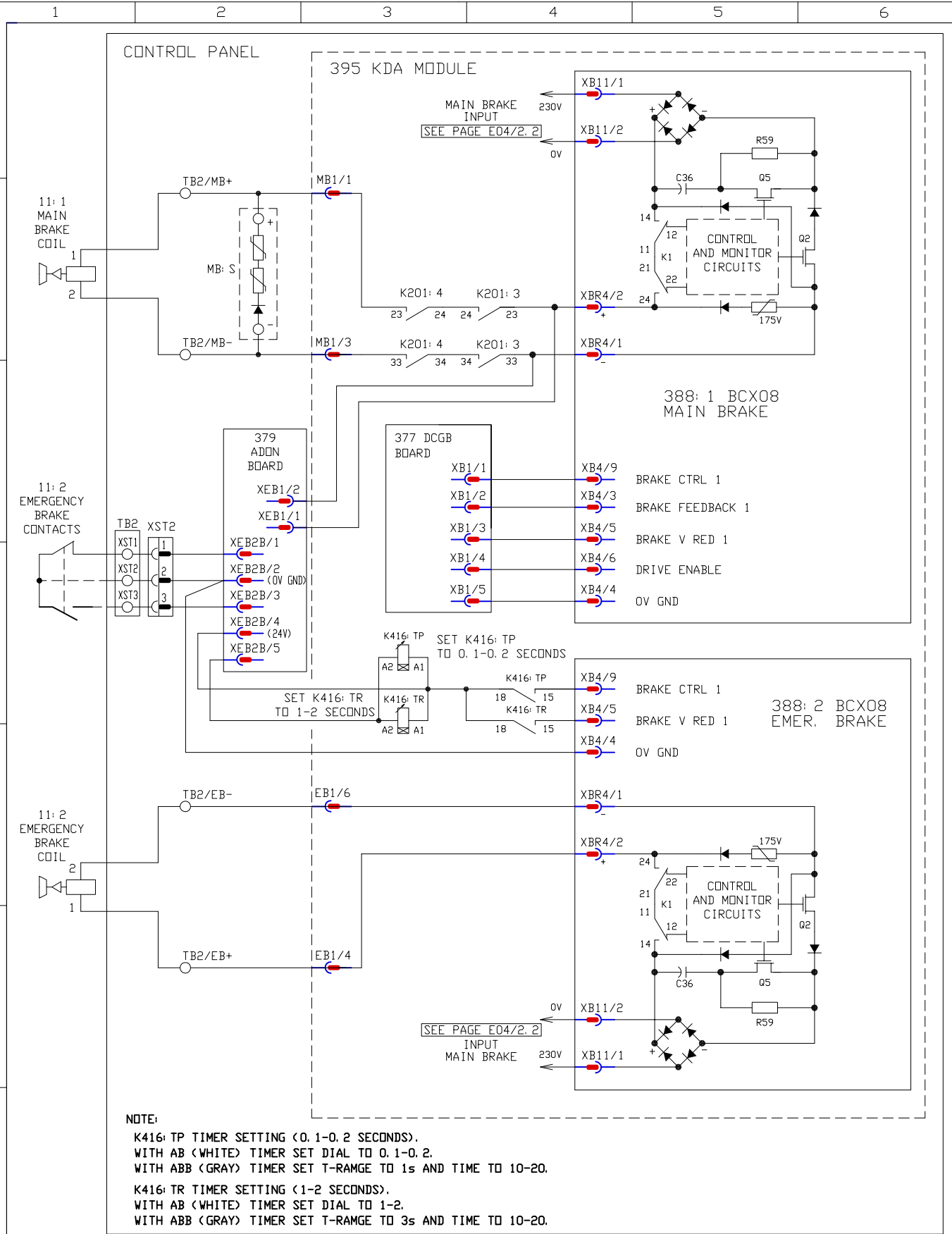


B	ADDED NMX11	02. 07. 2013	MKOSBE2	DD	Designer	S. BEASLEY	Checker	MKO/ RAY HUND	Language	en
A	ADD CONNECTION FOR MX14	01. 04. 2012	MKOSBE2	DD	Dept.	URD	Date	01. 04. 2011	Approver	MKO/DENNIS DONNER
Issue	Change description	Date	Des	Appr					Product c.	LCE W/KDM
FIELD DRAWING SET					KDM DRIVE MODULE					
1364621E04 FOR ECOSPACE					POWER CIRCUITS					
1364622E04 FOR MONOSPACE					-					
1364623E04 FOR MINISPACE										
					Sales ref. no.	Draw. no.	Issue	Page		
					-	1364620E04	B	1 / 8		



B	ADDED TIMER NOTES.	02. 07. 2013	MKOSBE2	DD	Designer	S. BEASLEY	Checker	MKO/ RAY HUND	Language	en
A	REVISION UPDATE	01. 04. 2012	MKOSBE2	DD	Dept.	URD	Date	01. 04. 2011	Approver	MKO/DENNIS DONNER
Issue	Change description	Date	Des	Appr	Product c.	LCE W/KDM				
FIELD DRAWING SET					KDM DRIVE MODULE w/BCM25 BRAKE CONTROL					
1364621E04 FOR ECOSPACE					BRAKE CONTROL CIRCUITS					
1364622E04 FOR MONOSPACE					Sales ref. no.	Draw. no.	Issue	Page		
1364623E04 FOR MINISPACE					—	1364620E04	B	3. 1/8		

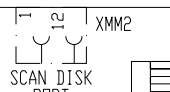




-		ADDED KDM w/BCX08	02.07.2013	MKOSBE2	DD	Designer S. BEASLEY	Checker MKO/ RAY HUND	Language en
Issue	Change description	Date	Des	Appr	Dept. URD	Date 02.07.2013	Approver MKO/DENNIS DONNER	Product c. LCE W/KDM
FIELD DRAWING SET 1364621E04 FOR ECOSPACE 1364622E04 FOR MONOSPACE 1364623E04 FOR MINISPACE						KONE		
						KDM DRIVE MODULE W/BCX08 BRAKE CONTROL		
						BRAKE CONTROL CIRCUITS		
Sales ref. no. -		Draw. no. 1364620E04		Issue B		Page 3. 2/8		

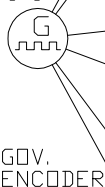
CONTROL PANEL

375 CPU BOARD



379 ADDN BOARD

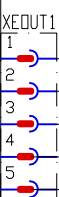
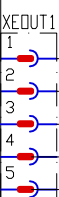
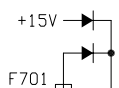
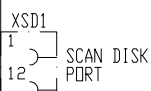
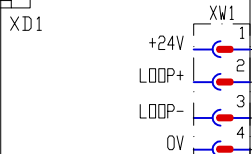
CAR OSG



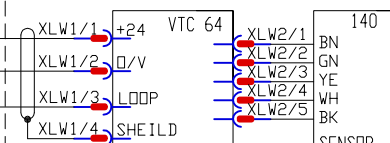
GOV. ENCODER

395 KDA MODULE

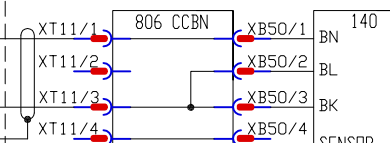
377 DCBG BOARD



LOAD WEIGHT W/SHAFT 2:1 HITCH SENSOR



LOAD WEIGHT W/CAR PLATFORM SENSOR



385 DRIVE MODULE

DRIVE FRAME

367 I/O BOARD

+15V

XMEN1 XMEN5

1 2 3 4 5 6

1 2 3 4 5 6

1 2 3 4 5 6

1 2 3 4 5 6

1 2 3 4 5 6

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1 2 3 4 5 6

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B	REVISION UPDATE	02. 07. 2013	MKOSBE2	DD
A	REVISION UPDATE	01. 04. 2012	MKOSBE2	DD
Issue	Change description	Date	Des	Appr

FIELD DRAWING SET
 1364621E04 FOR ECOSPACE
 1364622E04 FOR MONOSPACE
 1364623E04 FOR MINISPACE

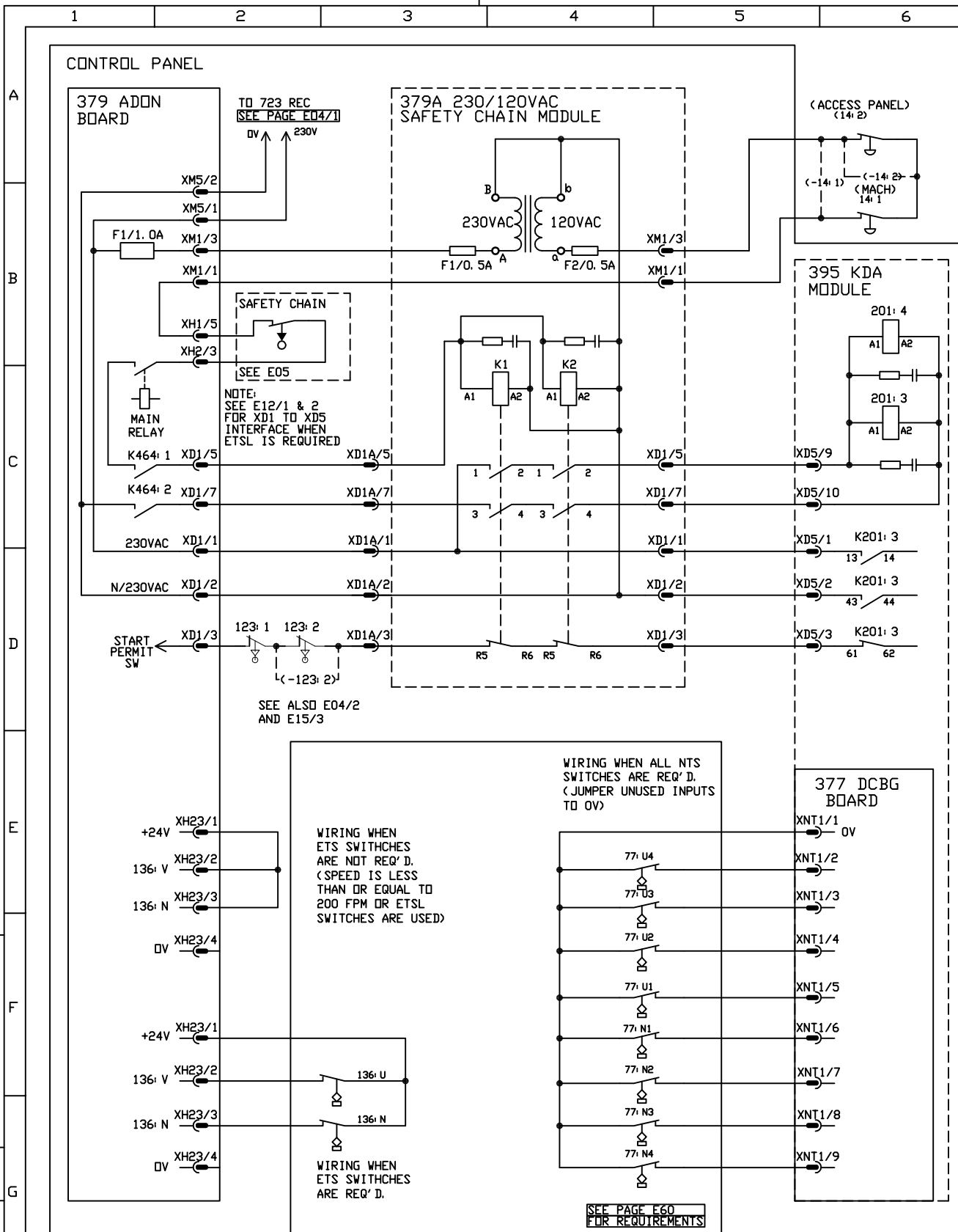


Designer S. BEASLEY	Checker MKD/ RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approver MKD/DENNIS DONNER
		Product c. LCE W/KDM

KDM DRIVE MODULE

FEEDBACK CIRCUITS

Sales ref. no. —	Draw. no. 1364620E04	Issue B	Page 4 / 8



B	ADDED GOVERNOR TW SWITCHES	02.07.2013	MKOSBE2	DD	Designer	S. BEASLEY	Checker	MKO/ RAY HUND	Language	en
	REVISION UPDATE	01.04.2012	MKOSBE2	DD	Dept.	URD	Date	01.04.2011	Approver	MKO/DENNIS DONNER
	Issue	Change description	Date	Des	Appr				Product c.	LCE W/KDM
H	FIELD DRAWING SET 1364621E04 FOR ECOSPACE 1364622E04 FOR MONOSPACE 1364623E04 FOR MINISPACE				KONE					
					KDM DRIVE MODULE					
					NTS, ETS, & 120VAC SAFETY CHAIN CIRCUITS					
Sales ref. no.		Draw. no.		Issue		Page				
-		1364620E04		B		5/8				

1

2

3

4

5

6

CONTROL PANEL

SMT POT SET-UP

LOW VOLTAGE
CIRCUIT DETAIL
(SEE E04/7&8 FOR
HIGH VOLTAGE DETAILS)

R3 POT FOR "ZERO" ADJUSTMENT ON DISPLAY. (SET FIRST)
R7 POT FOR "FULL SPEED" ADJUSTMENT ON DISPLAY. (SET SECOND)

DIP SETTINGS FOR ALL APPLICATIONS

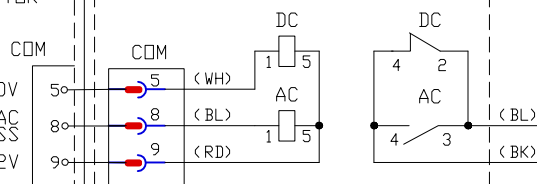
"DIP Settings 0=off & 1=on DIP Positions 1-2-3-4-5-6-7-8"	Speed Use in MPS (FPM)
0-1-0-0-0-0-1-0	2.54 (500)
0-0-1-0-0-0-1-0	1.78 (350)
0-1-1-0-0-0-1-0	1.00 (200)
0-0-1-1-0-0-1-0	0.76 (150)
0-1-1-1-0-0-1-0	0.50 (100)

380: BU
EBR
UPS
UNIT

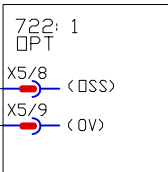
UPS
POWER
MONITOR

380: EBR
MODULE

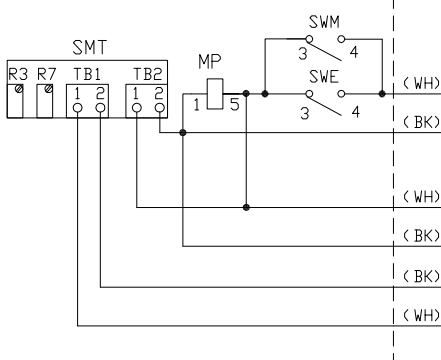
UPS MONITOR CIRCUIT
(ALL WIRING AWG #22)



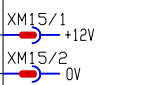
UPS POWER MONITOR CONNECTIONS



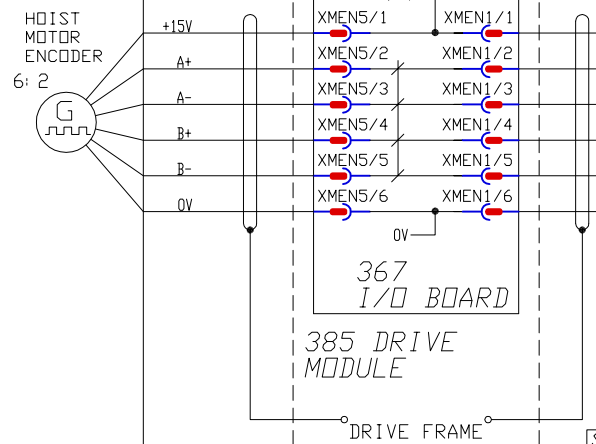
METER AND SWITCH CIRCUIT
(ALL WIRING AWG #22)



375 CPU
BOARD



HOIST
MOTOR
ENCODER
6: 2

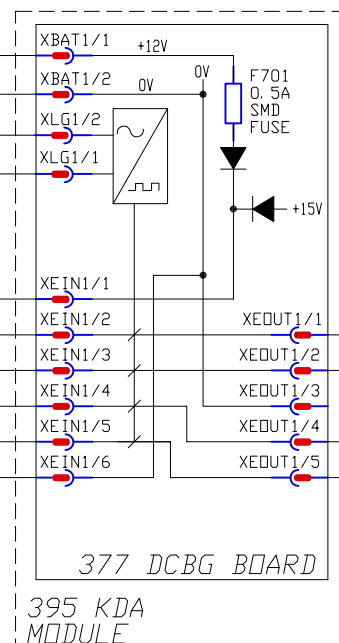


367
I/O BOARD

385 DRIVE
MODULE

DRIVE FRAME

SEE E04/4



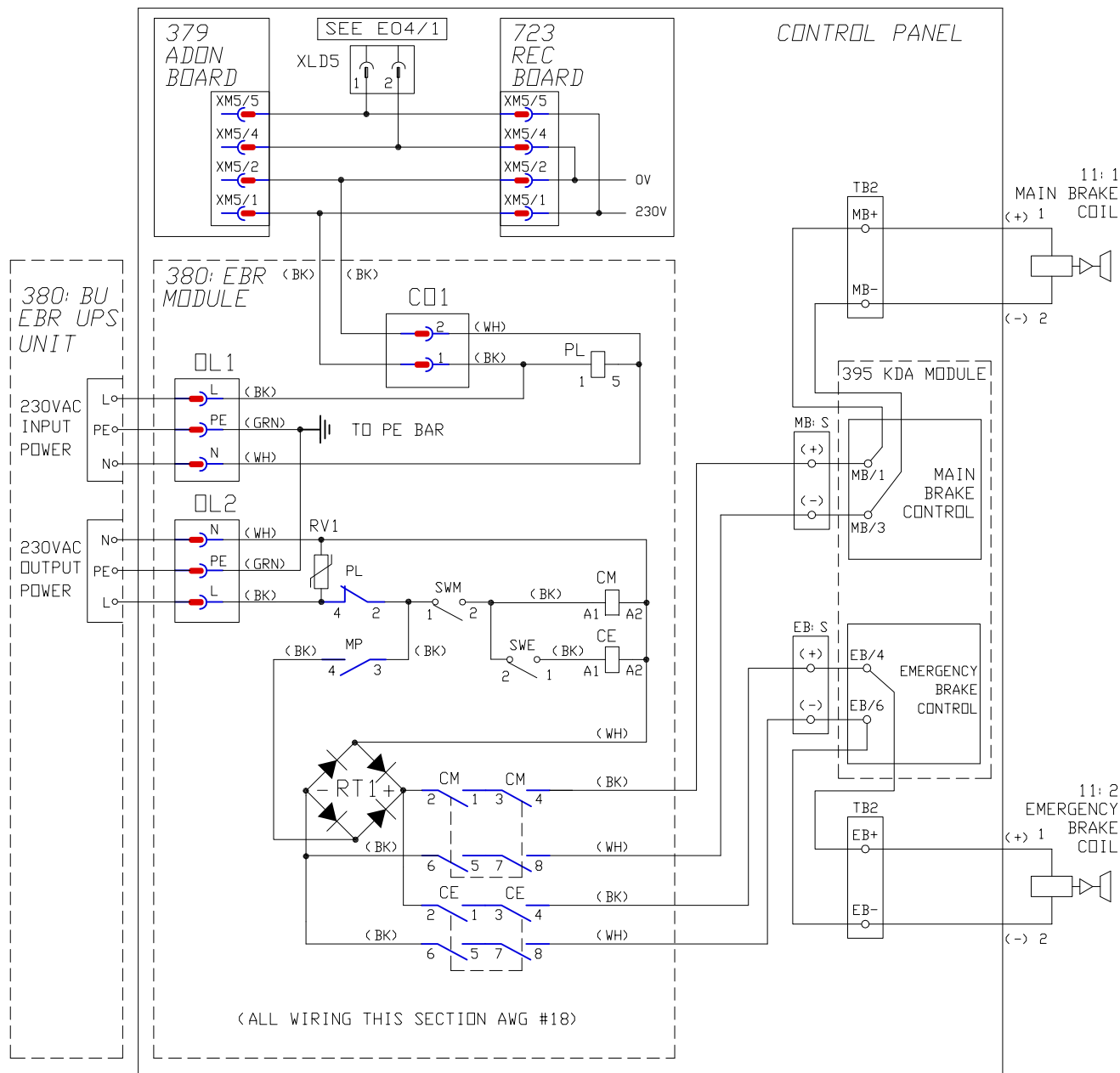
377 DCBG BOARD

395 KDA
MODULE

SEE E04/4

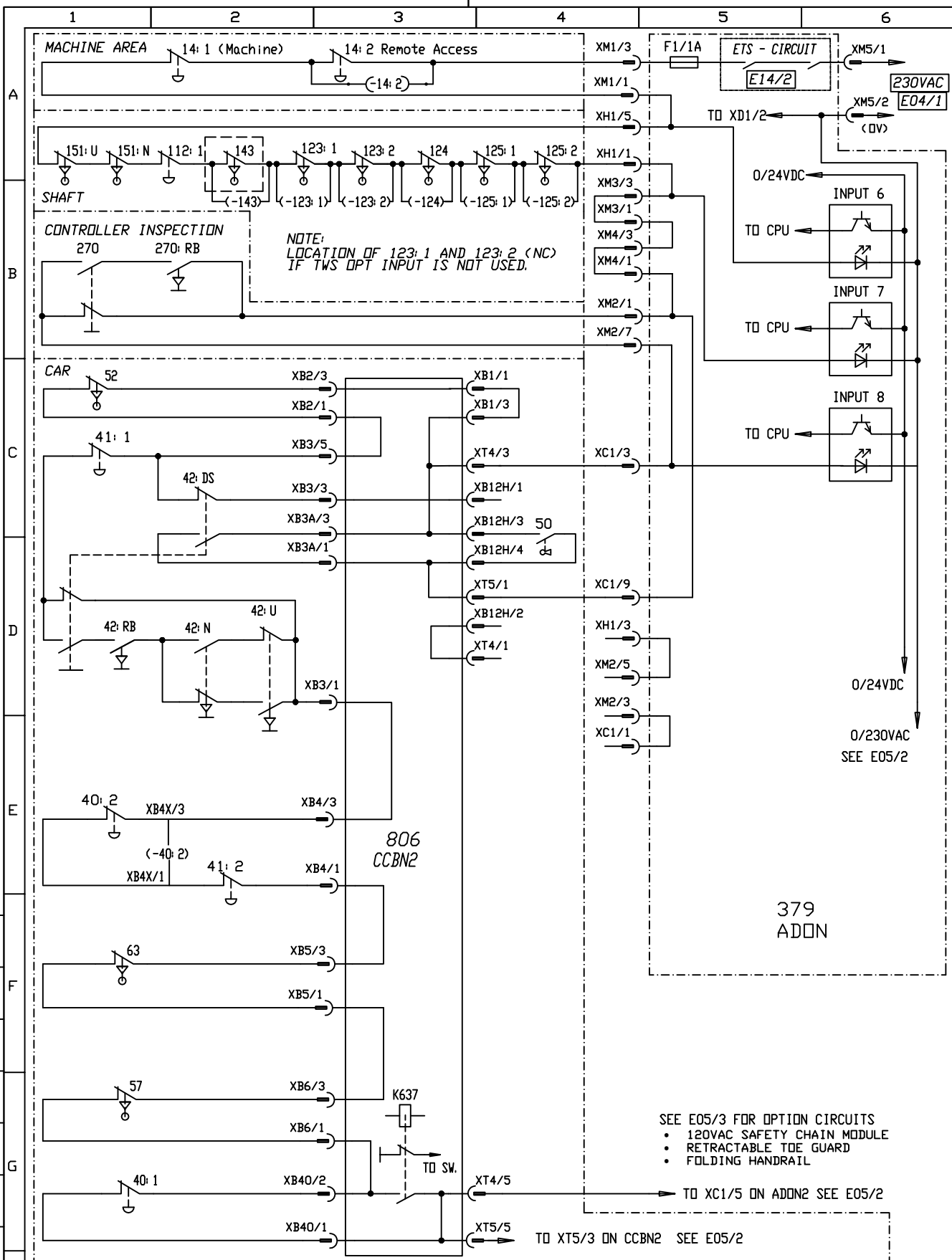
379
ADDN
BOARD

B	DELETED DIP SETTINGS CHART	02. 07. 2013	MKOSBE2	DD	Designer S. BEASLEY	Checker MKD/ RAY HUND	Language en
A	CHANGED UPS MONITOR	01. 04. 2012	MKOSBE2	DD	Dept. URD	Date 01. 04. 2011	Product c. LCE W/KDM
Issue	Change description	Date	Des	Appr	KDM DRIVE MODULE		
FIELD DRAWING SET 1364621E04 FOR ECOSPACE 1364622E04 FOR MONOSPACE 1364623E04 FOR MINISPACE					EBR LOW VOLTAGE CIRCUITS		
KONE					Sales ref. no. —	Draw. no. 1364620E04	Issue B
					Page 6/8		



HIGH VOLTAGE CIRCUIT DETAIL FOR MX10'S
(SEE E04/6 FOR LOW VOLTAGE CIRCUIT DETAILS)

B	REVISION UPDATE	02. 07. 2013	MKOSBE2	DD	Designer S. BEASLEY	Checker MKD/ RAY HUND	Language en
A	REVISION UPDATE	01. 04. 2012	MKOSBE2	DD	Dept. URD	Date 01. 04. 2011	Product c. LCE W/KDM
Issue	Change description	Date	Des	Appr	KDM DRIVE MODULE		
FIELD DRAWING SET 1364621E04 FOR ECOSPACE 1364622E04 FOR MONOSPACE 1364623E04 FOR MINISPACE					EBR HIGH VOLTAGE CIRCUITS W/ MX10		
KONE					Sales ref. no. —	Draw. no. 1364620E04	Issue B
					Page 7/8		



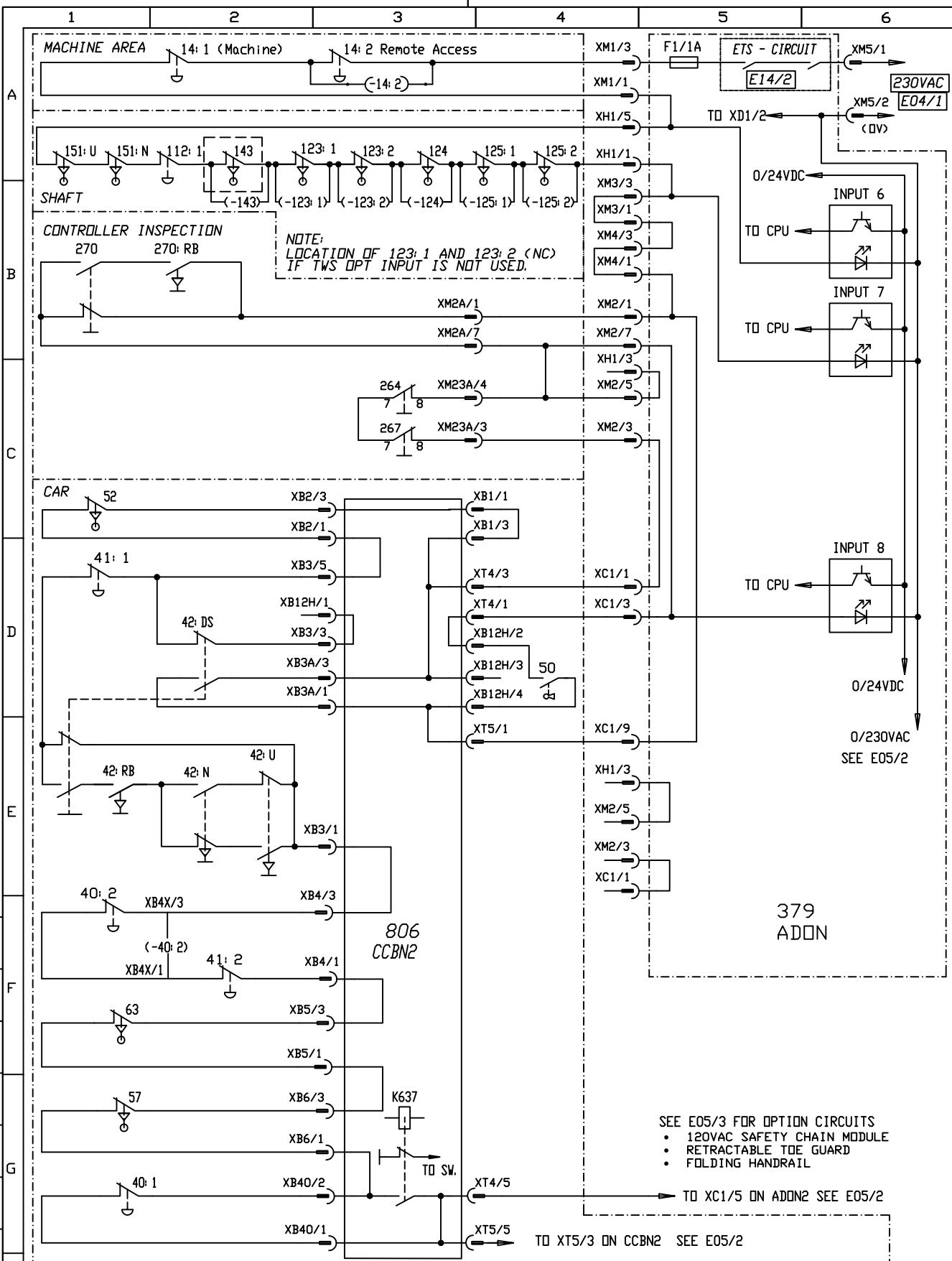
A	MOVED 123:1 AND 123:2, ADDED NOTE.	18.11.2013	MKDSBE2	DD
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

FIELD DRAWING SET
1364621E05 FOR ECOSPACE
1364622E05 FOR MONOSPACE
1364623E05 FOR MINISPACE



Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
Dept. URD	Date 01.04.2011	Approved by MKD/Dennis Donner
Sales ref. no. -	Drawing no. 1364620E05	Product code LCE W/KDM
	Issue A	Page 1. 1/3

SAFETY CHAIN W/O BYPASS SW'S OR W/ORIG. BYPASS SW WIRING
MACHINE AREA, SHAFT AND CAR SWITCH CIRCUITS



				Designed by S. BEASLEY		Checked by MKD/ RAY HUND		Language en	
A	ADDED NEW PAGE 1.2/3	18. 11. 2013	MKDSBE2	DD	Dept. URD	Date 18. 11. 2013	Approved by MKD/Dennis Donner		Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by					

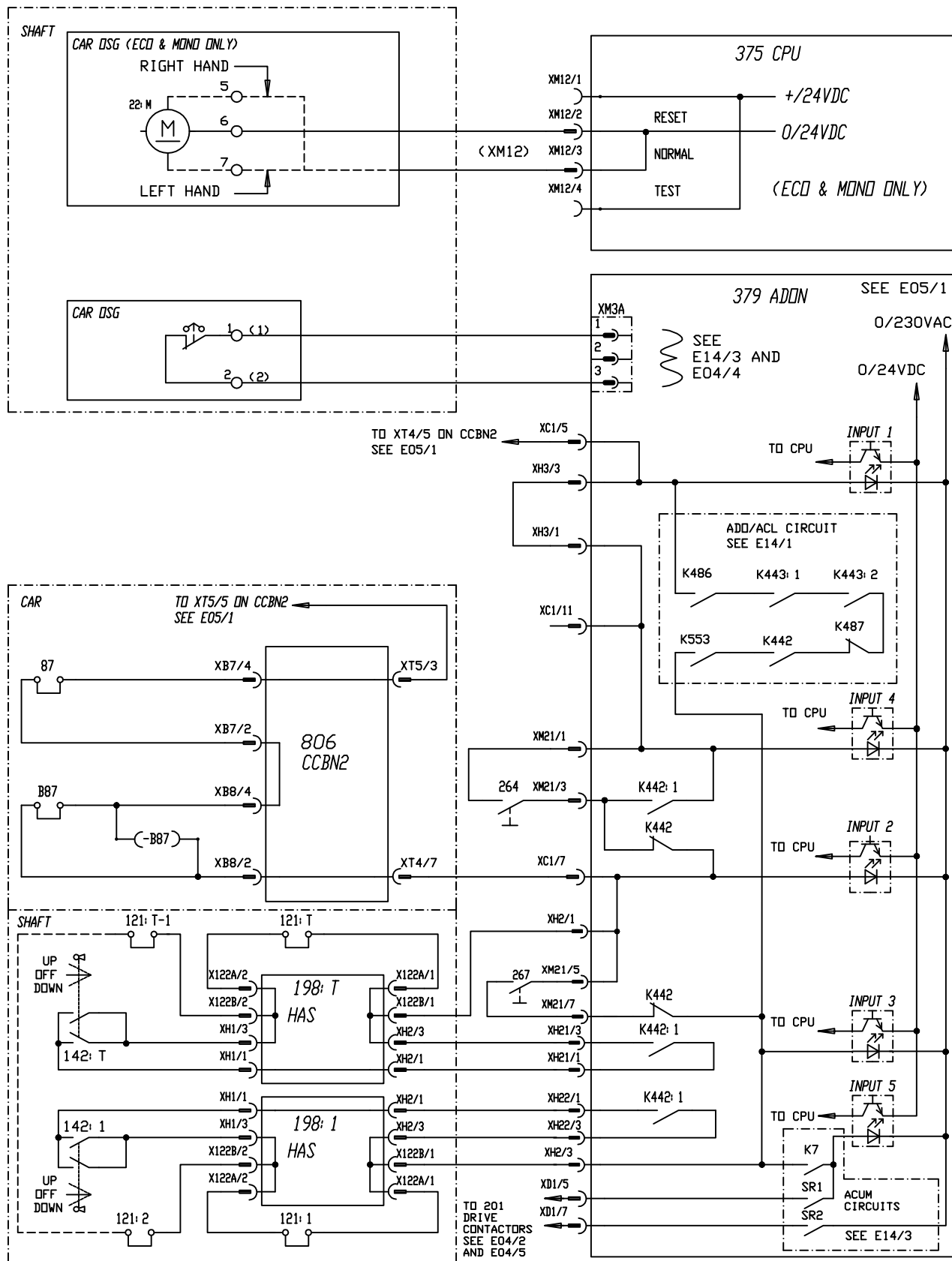
FIELD DRAWING SET
 1364621E05 FOR ECOSPACE
 1364622E05 FOR MONOSPACE
 1364623E05 FOR MINISPACE



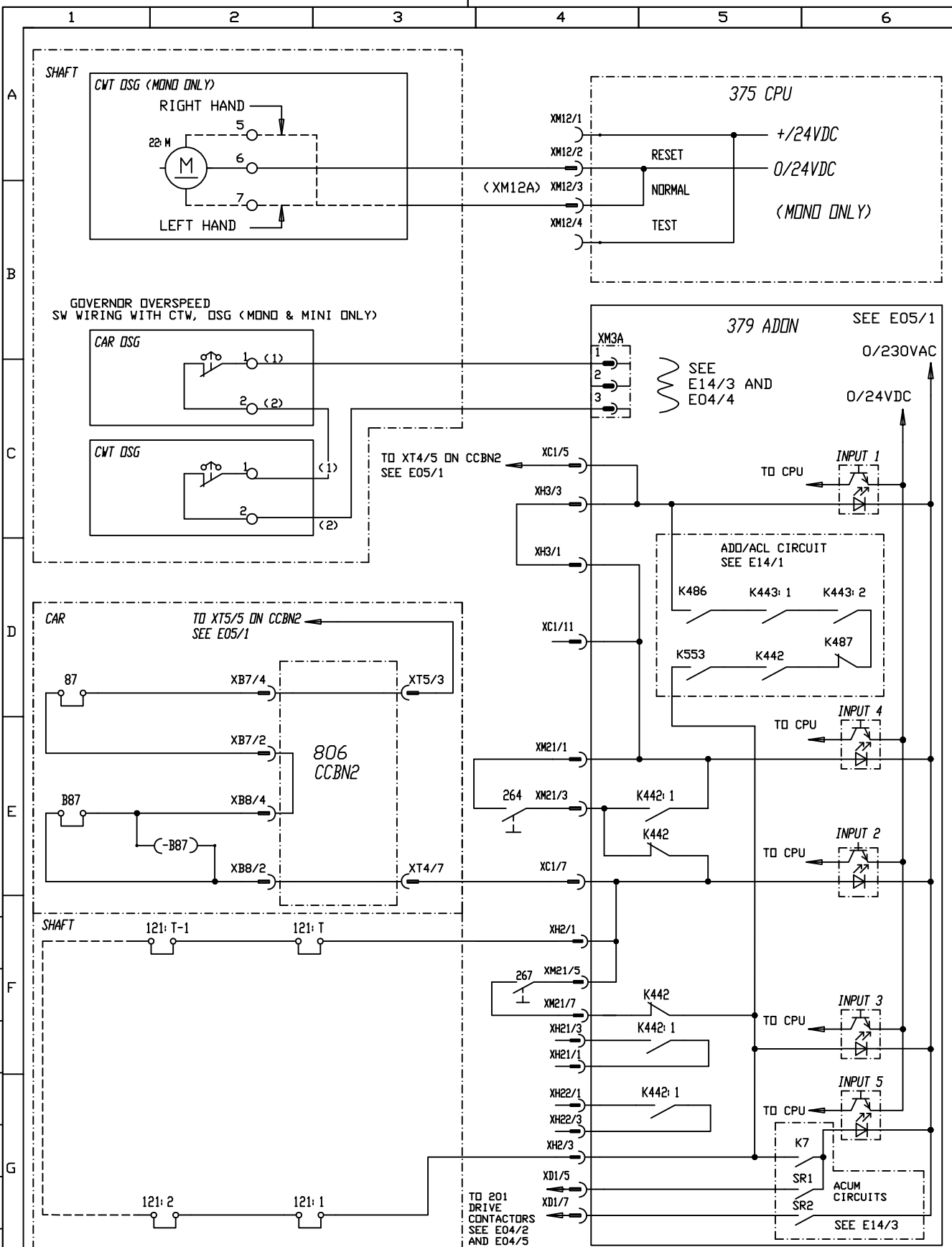
SAFETY CHAIN

MACHINE AREA, SHAFT AND CAR SWITCH CIRCUITS W/ NEW BYPASS SW'S

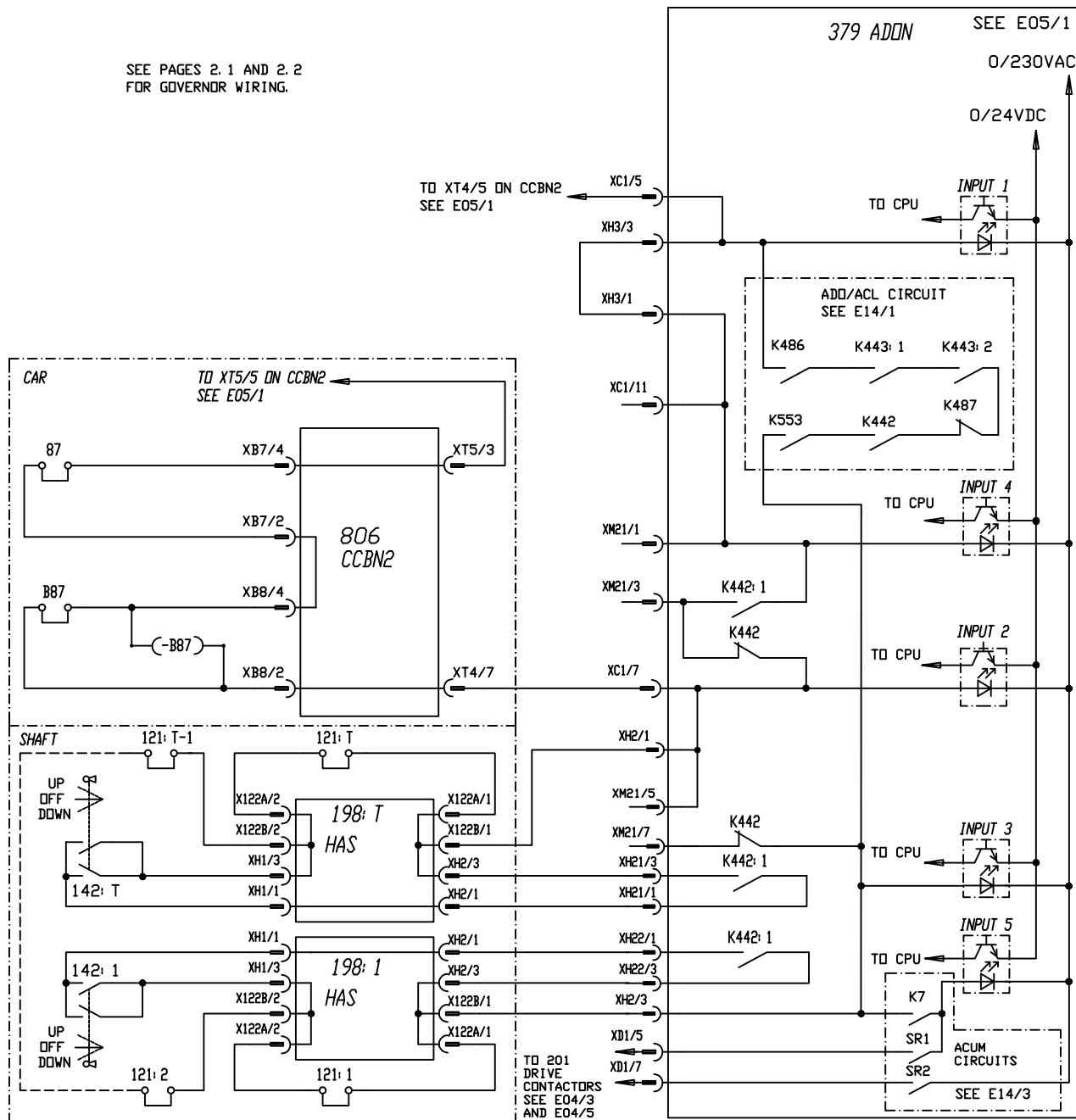
Sales ref. no.	Drawing no.	Issue	Page
-	1364620E05	A	1. 2/3



A	REVISION UPDATE.	18.11.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E05 FOR ECOSPACE 1364622E05 FOR MONOSPACE 1364623E05 FOR MINISPACE					SAFETY CHAIN CAR & SHAFT DOOR CIRCUITS W/HAC AND W/BYPASS SWITCHES		
Sales ref. no. -		Drawing no. 1364620E05		Issue A		Page 2. 1/3	

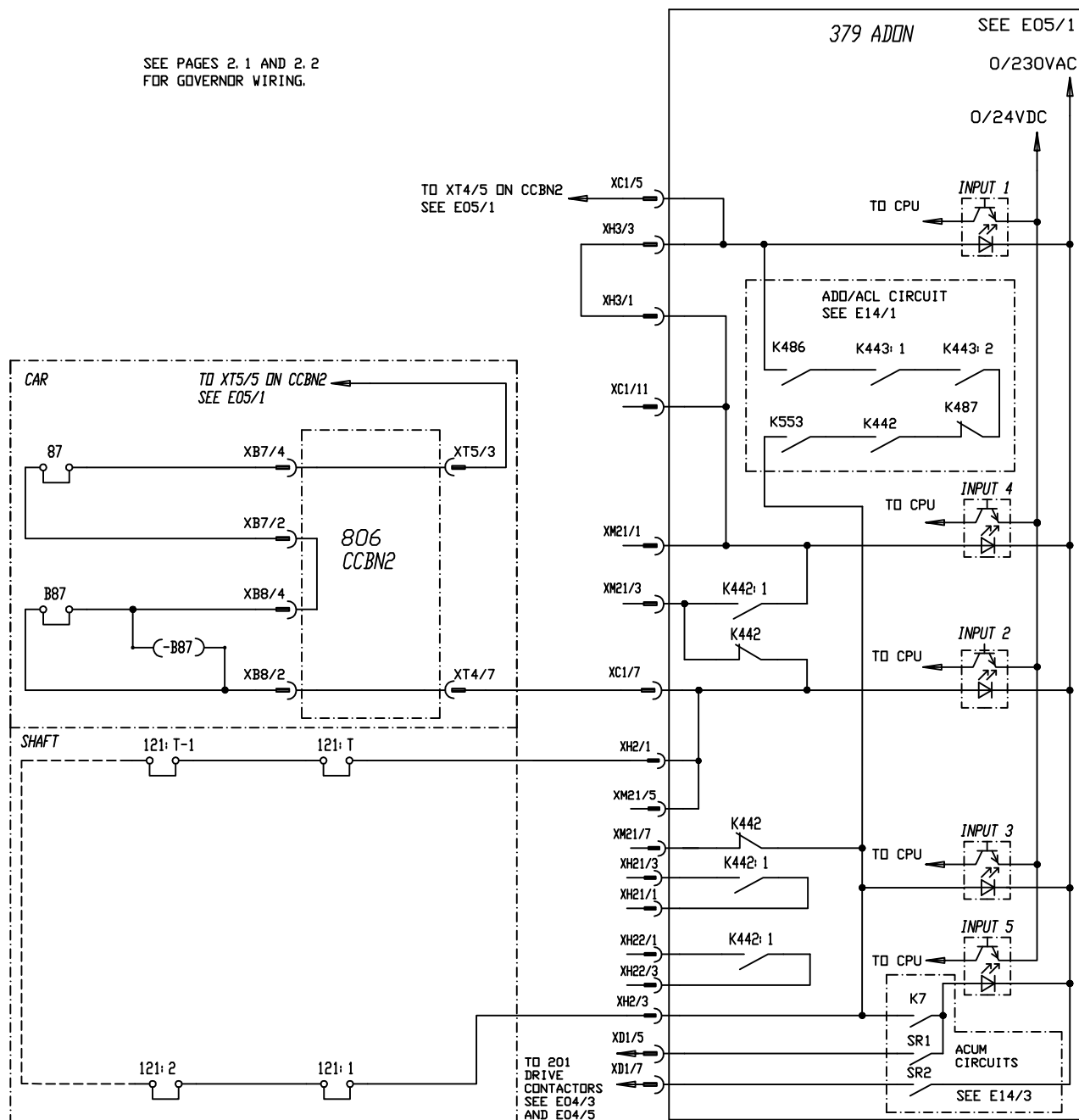


A	REVISION UPDATE.	18.11.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E05 FOR ECOSPACE 1364622E05 FOR MONOSPACE 1364623E05 FOR MINISPACE					SAFETY CHAIN CAR & SHAFT DOOR CIRCUITS W/O HAC AND W/BYPASS SWITCHES		
Sales ref. no. -		Drawing no. 1364620E05		Issue A		Page 2. 2/3	



					Designed by S. BEASLEY		Checked by MKD/ RAY HUND	Language en
A	ADDED PAGE 2.3/3	18. 11. 2013	MKDSBE2	DD	Dept. URD	Date 18. 11. 2013	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by				
FIELD DRAWING SET 1364621E05 FOR ECOSPACE 1364622E05 FOR MONOSPACE 1364623E05 FOR MINISPACE KONE					SAFETY CHAIN			
					CAR & SHAFT DOOR CIRCUITS W/HAC & W/O BYPASS SW'S			
					Sales ref. no. -	Drawing no. 1364620E05	Issue A	Page 2. 3/3

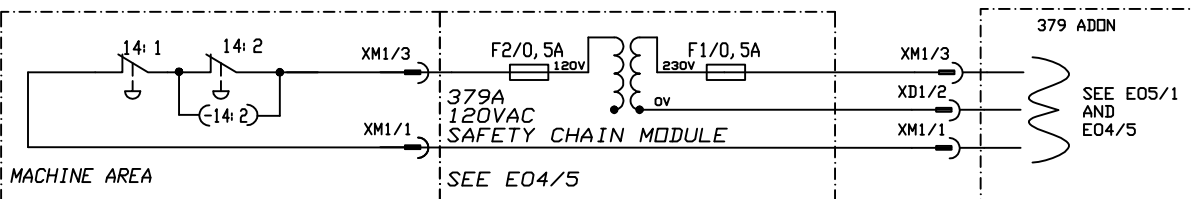
SEE PAGES 2.1 AND 2.2
FOR GOVERNOR WIRING.



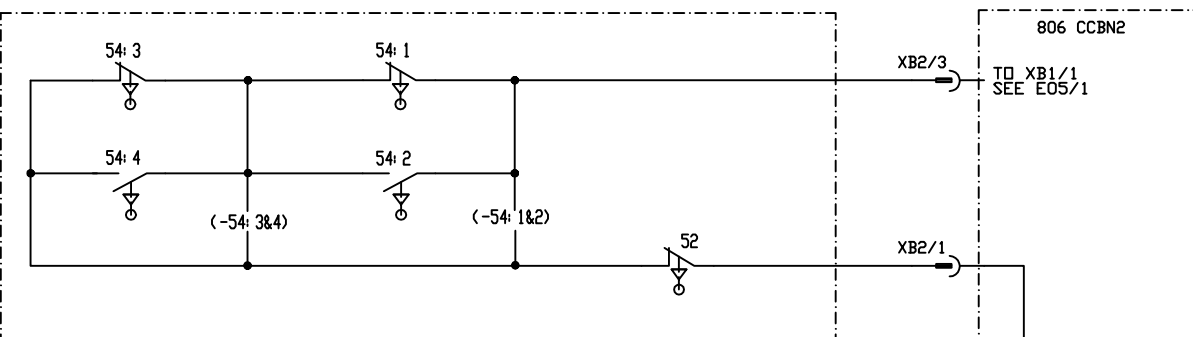
Designed by S. BEASLEY		Checked by MKD/ RAY HUND		Language en	
Dept. URD	Date 18. 11. 2013	Approved by MKD/Dennis Donner		Product code LCE W/KDM	
Issue	Change description	Date	Des. by	Appr. by	
A	ADDED PAGE 2.4/3	18. 11. 2013	MKDSBE2	DD	
FIELD DRAWING SET 1364621E05 FOR ECOSPACE 1364622E05 FOR MONOSPACE 1364623E05 FOR MINISPACE					
SAFETY CHAIN					
CAR & SHAFT DOOR CIRCUITS W/O HAC & W/O BYPASS SW'S					
Sales ref. no. -	Drawing no. 1364620E05	Issue A	Page 2. 4/3		



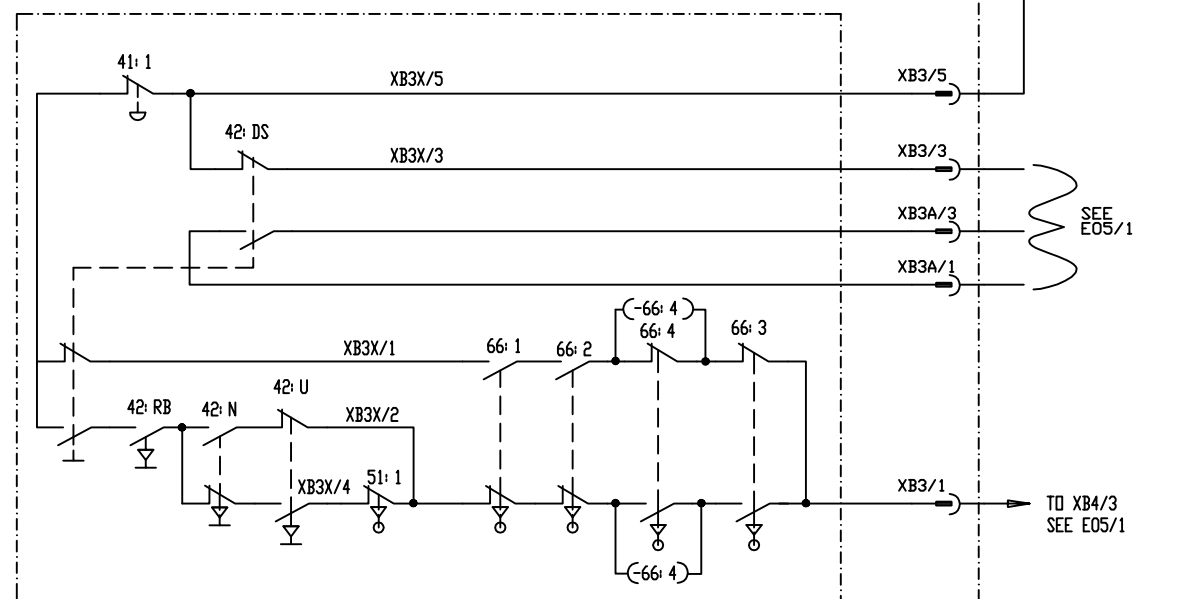
SAFETY CIRCUIT WITH 120VAC SAFETY CHAIN MODULE OPTION (CHICAGO)



SAFETY CIRCUIT WITH RETRACTABLE TOE GUARD OPTION (ECO ONLY)



SAFETY CIRCUIT WITH FOLDING HANDRAIL (ECO ONLY)



RETRACTABLE TOE GUARD SWITCHES-

54:1 & 54:3 Open when toe guards are retracted.

54:2 & 54:4 Closed when car is in retractable toe guard zone.

FOLDING HANDRAIL SWITCHES-

66:1 & 66:2 Are actuated when side handrails are in down stowed position.

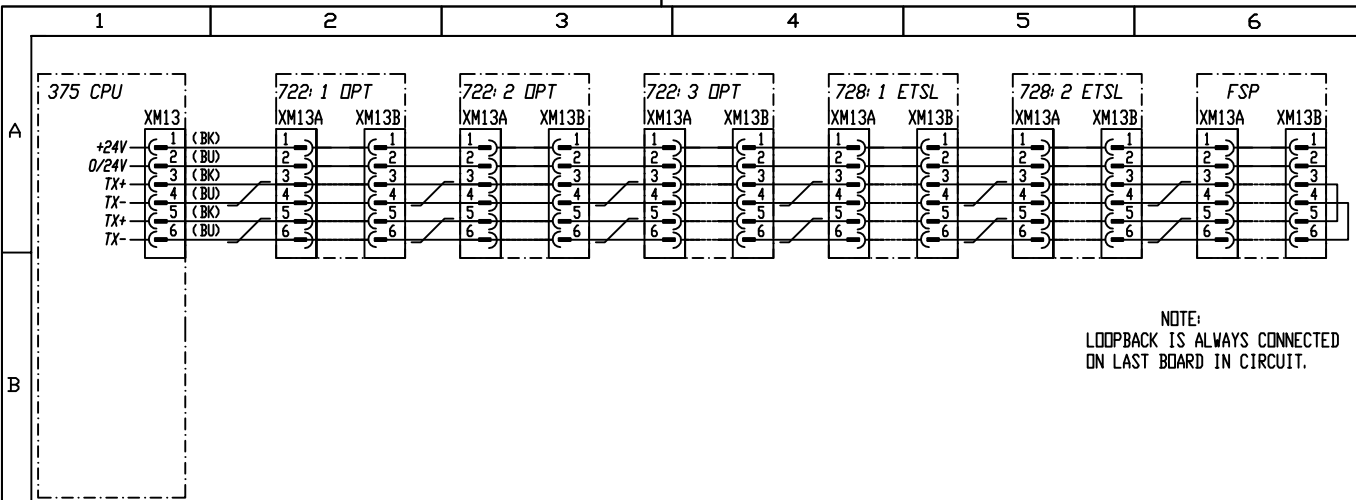
66:3 Is actuated when rear handrail is in up extended position (Front Only).

66:3 & 66:4 Are actuated when side handrails are in up extended position (Frt & Rear).

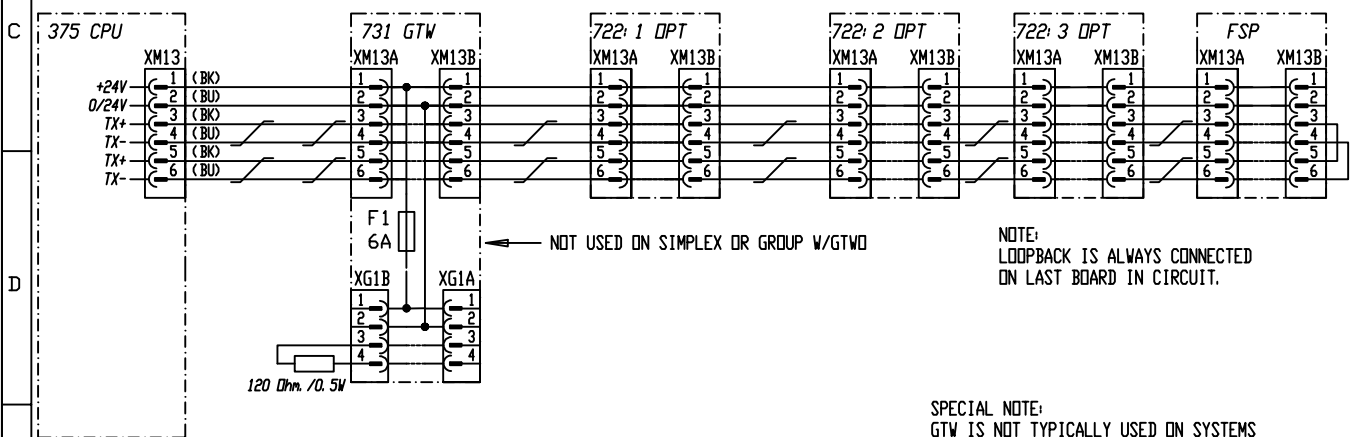
51:1 Opens when car is in top hoistway refuge area.

NOTE: ALL SWITCHES ARE SHOWN IN THE NON-ACTUATED POSITIONS.

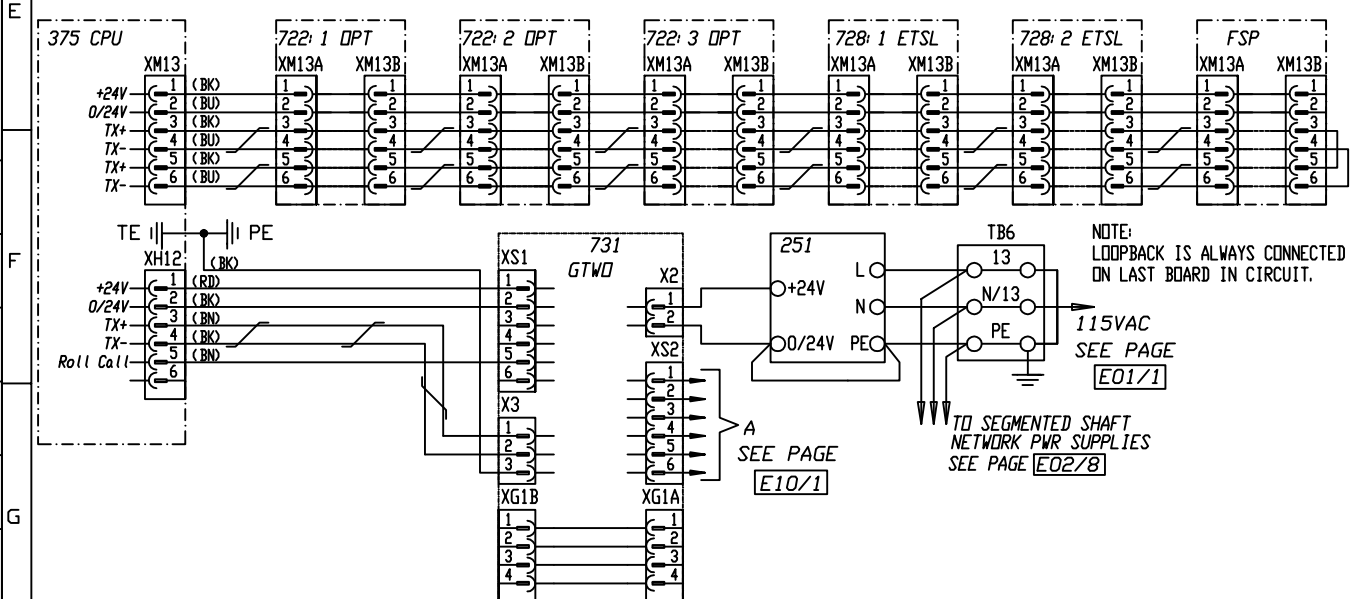
A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ Ray Hund	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E05 FOR ECOSPACE 1364622E05 FOR MONOSPACE 1364623E05 FOR MINISPACE					SAFETY CHAIN SPECIAL OPTIONS CIRCUIT MODS		
KONE					Sales ref. no. -	Drawing no. 1364620E05	Issue A
					Page 3/3		



XM13 LOOP WITH ETSL AND WITHOUT GTW OR GTWO



XM13 LOOP W/GTW AND NO ETSL'S



XM13 LOOP W/GTWO AND ETSL'S

A	CORRECTED NETWORK ID's	07.23.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. Date URD 01.04.2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by			

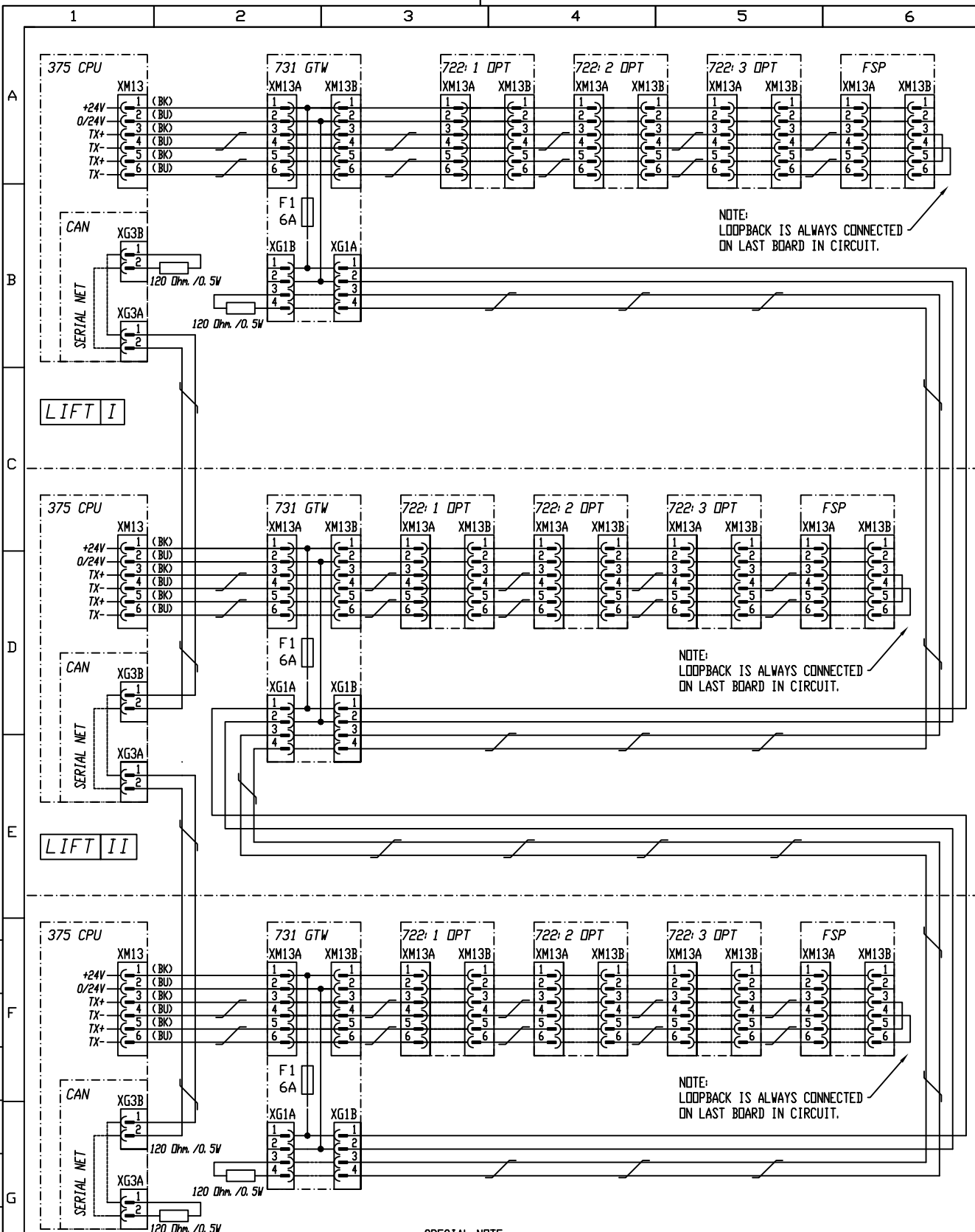
FIELD DRAWING SET
1364621E06 FOR ECOSPACE
1364622E06 FOR MONDSPEACE
1364623E06 FOR MINISPEACE



GROUP NETWORK CONNECTIONS

SIMPLEX OR GROUP

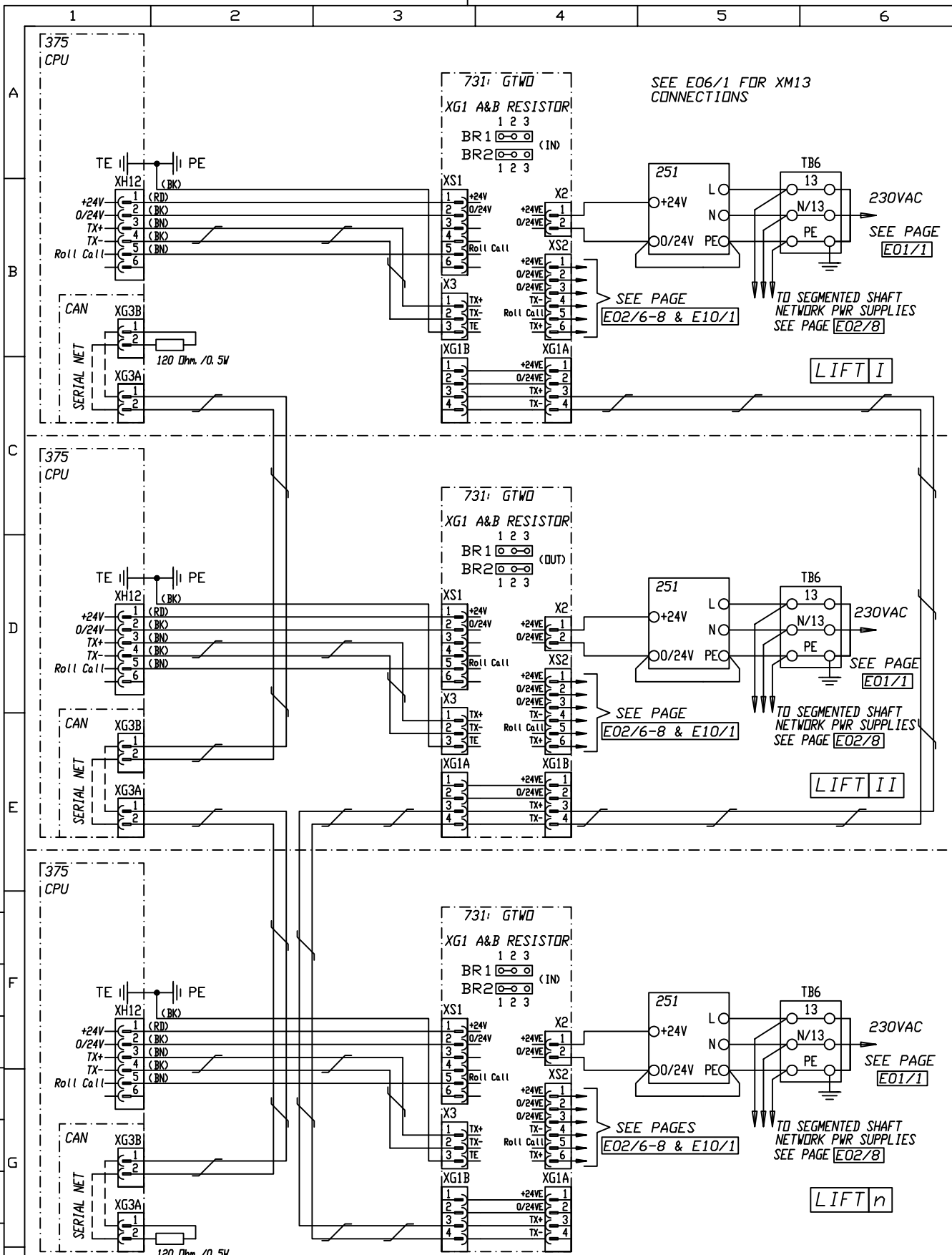
Sales ref. no.	Drawing no.	Issue	Page
-	1364620E06	A	1/3



SPECIAL NOTE:
GTW IS NOT TYPICALLY USED ON SYSTEMS THAT
THAT REQUIRE ETSL BOARDS.

A	CORRECTED NETWORK ID's	07.23.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E06 FOR ECOSPACE 1364622E06 FOR MONOSPACE 1364623E06 FOR MINISPACE					GROUP NETWORK INTERFACES CPU, OPT: 1, OPT: 2 & FSP W/GTW & CAN		
Sales ref. no.		Drawing no.		Issue		Page	
-		1364620E06		A		2/3	

KONE



A	REVISION UPDATE	07.23.2013	MKDSBE2	DD	Designed by	S. BEASLEY	Checked by	MKD/RAY HUND	Language	en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept.	URD	Date	01.04.2011	Approved by	MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by	Sales ref. no.	-	Drawing no.	1364620E06	Issue	A
FIELD DRAWING SET 1364621E06 FOR ECOSPACE 1364622E06 FOR MONOSPACE 1364623E06 FOR MINISPACE					GROUP NETWORK INTERFACES CPU W/GTWD AND CAN					Page
KONE					1364620E06					3/3

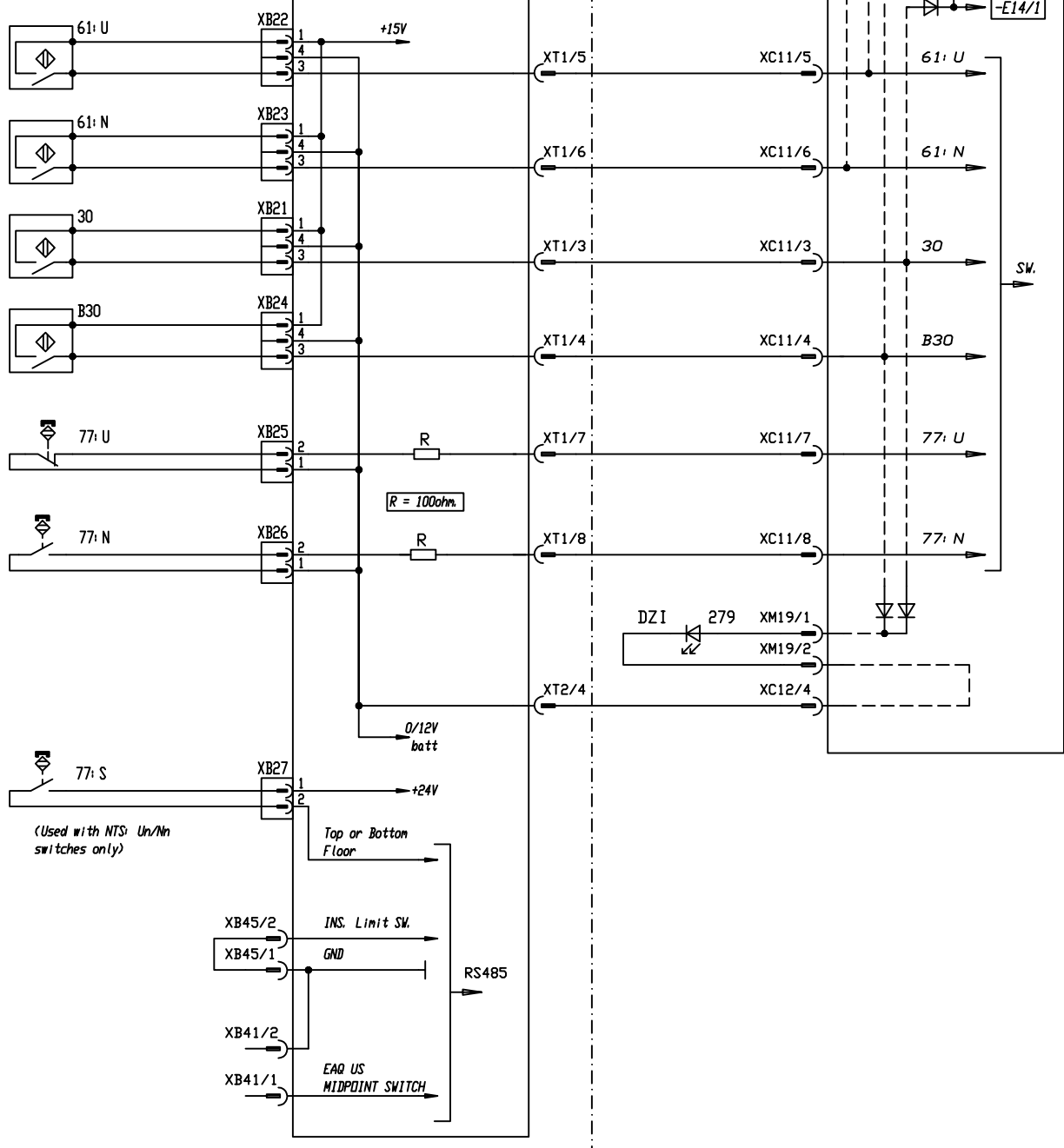
CAR

806 CCBN

375 CPU

NOTE:
0/12V CONNECTIONS TO
61: U/N, 30 & B30 IS
ONLY USED WITH
OSCILLATORS.

CIGAR SWITCHES SHOWN



A	DELETED EAQ (NOT USED ON KDM)	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	Date 01. 04. 2011		

FIELD DRAWING SET
1364621E07 FOR ECOSPACE
1364622E07 FOR MONOSPACE
1364623E07 FOR MINISPACE

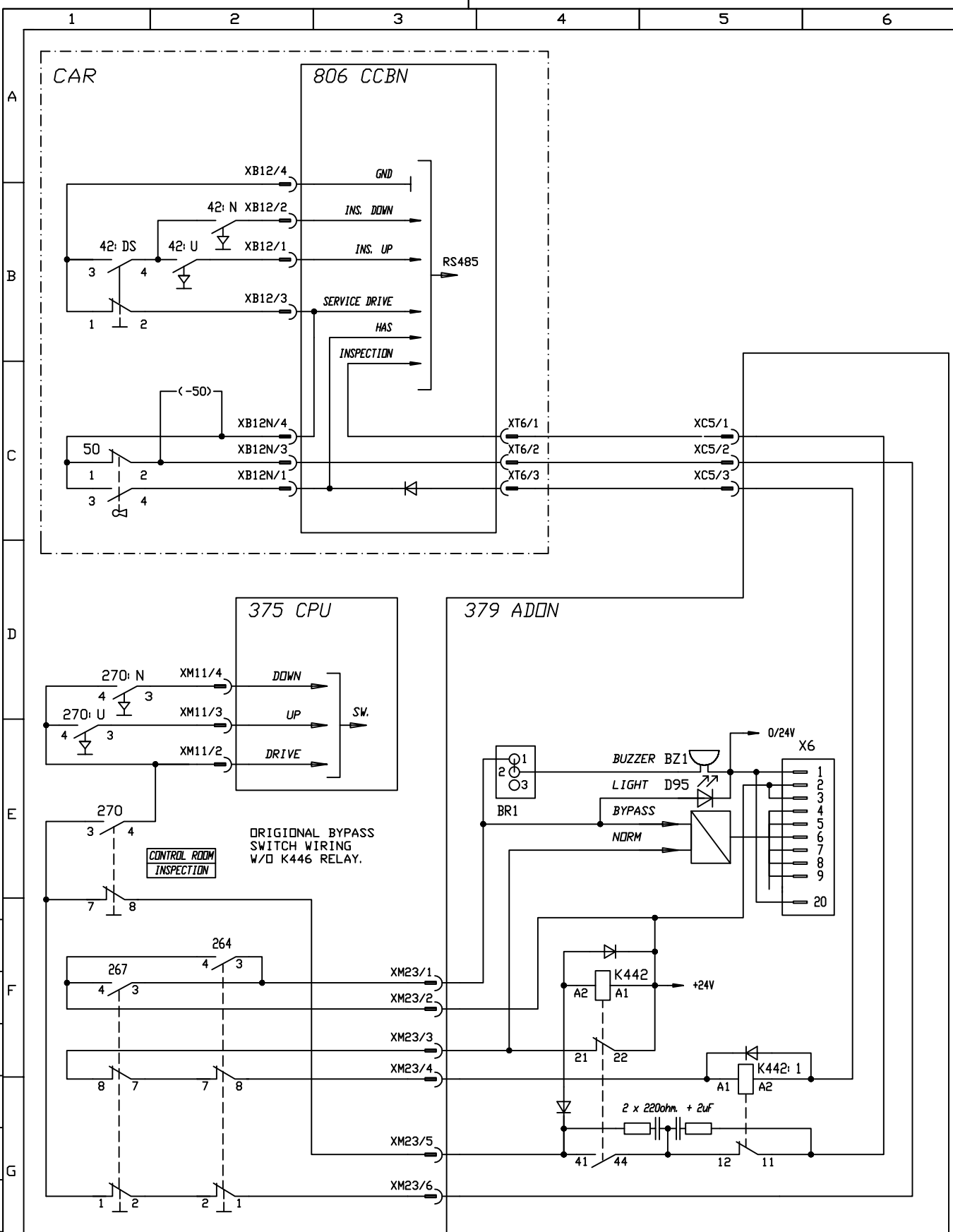


CONTROL MODULE

POSITION DEVICES INTERFACE W/O CAR DC SUPPLY

Sales ref. no. -	Drawing no. 1364620E07	Issue A	Page 1. 1/2

H



A	ADDED BYPASS SWITCH NOTE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		

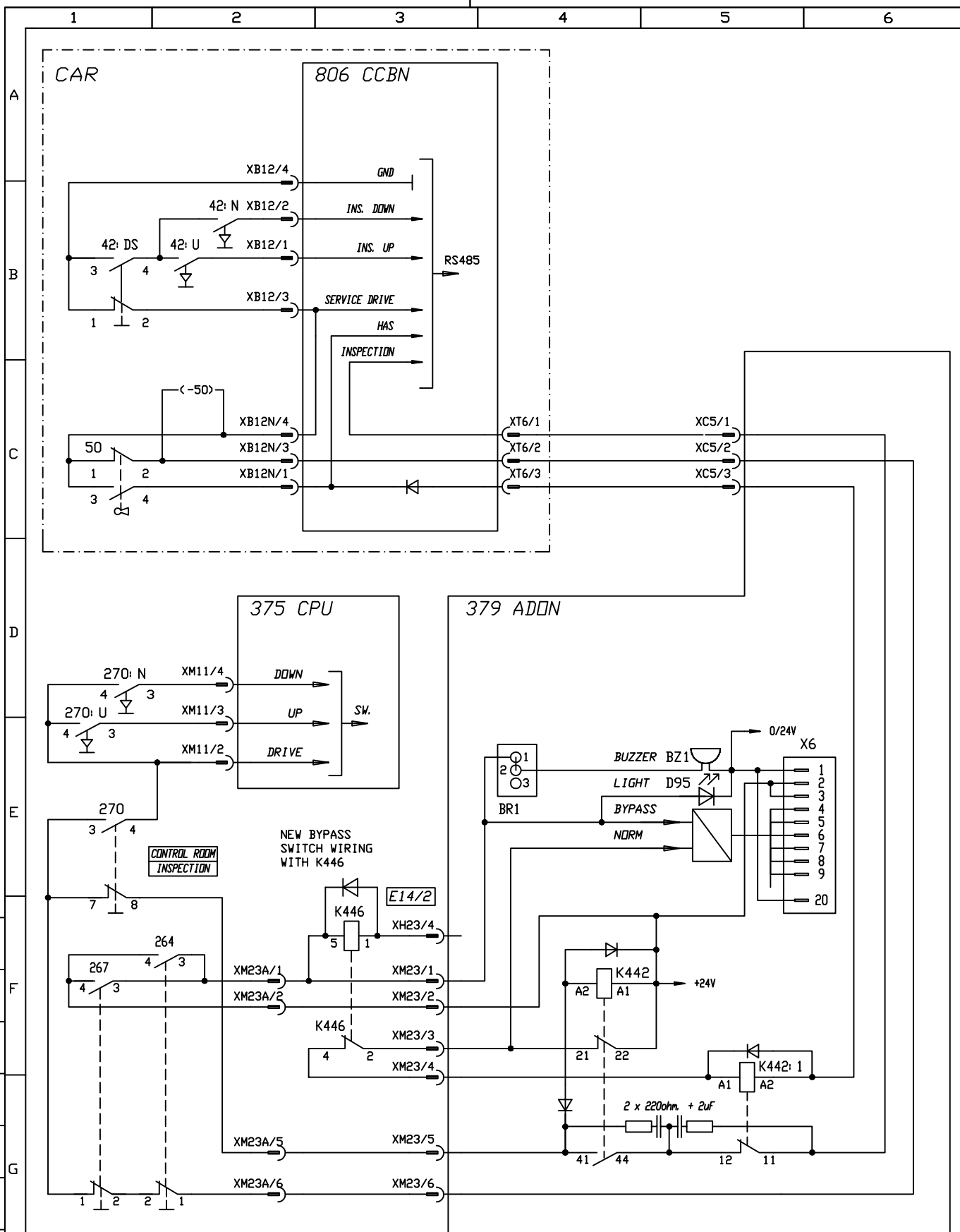
FIELD DRAWING SET
 1364621E07 FOR ECOSPACE
 1364622E07 FOR MONOSPACE
 1364623E07 FOR MINISPACE



CONTROL MODULE

INSPECTION AND DOOR BYPASS INTERFACE

Sales ref. no.	Drawing no.	Issue	Page
-	1364620E07	A	2. 1/2



Designed by S. BEASLEY		Checked by MKD/ RAY HUND		Language en	
Dept. URD	Date 18. 11. 2013	Approved by MKD/Dennis Donner		Product code LCE W/KDM	
Issue	Change description	Date	Des. by	Appr. by	

FIELD DRAWING SET
 1364621E07 FOR ECOSPACE
 1364622E07 FOR MONOSPACE
 1364623E07 FOR MINISPACE



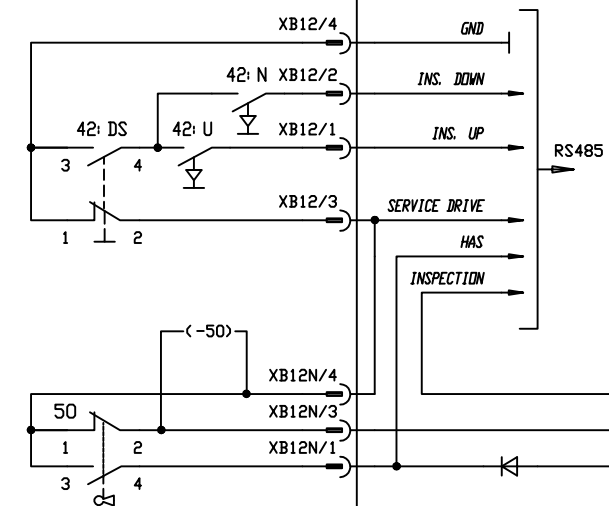
CONTROL MODULE

INSPECTION AND NEW DOOR BYPASS INTERFACE W/ K446

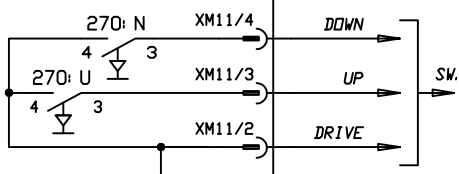
Sales ref. no. -	Drawing no. 1364620E07	Issue A	Page 2. 2/2

CAR

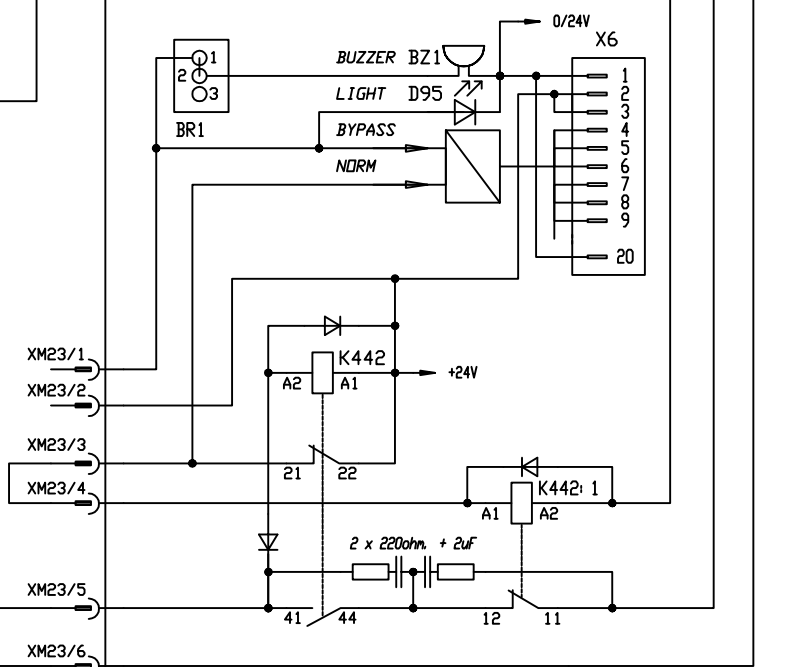
806 CCBN2



375 CPU



379 ADDN



					Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en	
A	ADDED PAGE 2. 3/2	18. 11. 2013	MKOSBE2	DD	Dept. URD	Date 18. 11. 2013	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by				
FIELD DRAWING SET 1364621E07 FOR ECOSPACE 1364622E07 FOR MONOSPACE 1364623E07 FOR MINISPACE					KONE			
					CONTROL MODULE			
					INSPECTION WITHOUT DOOR BYPASS SWITCHES			
					Sales ref. no. -	Drawing no. 1364620E07	Issue A	Page 2. 3/2

FIELD DRAWING SET
1364621E07 FOR ECOSPACE
1364622E07 FOR MONOSPACE
1364623E07 FOR MINISPACE

KONE

SHAFT NETWORK W/D GTWO

FIRST SHAFT NETWORK FLOOR BOARD
197: T FCB OR 198: T HAS

CONTROL PANEL

CPU/XH12

1 +/24
2 0/24
3 TX+
4 TX-
5 ROLL CALL
6 0/24LAST SHAFT NETWORK FLOOR BOARD
197: 1 FCB OR 198: 1 HAS
198: 1 FDB G11 OR 198: 1 FDB G12NOTE:
SHOWN WITH FIRST SHAFT NETWORK
BOARD AT TOP LANDING. SHAFT NETWORK
CAN ALSO BE ENTERED FROM BOTTOM
LANDING.120 Ohm
1/2 WattEND OF LINE TERMINATING
RESISTOR

SHAFT NETWORK W/GTWO

FIRST SHAFT NETWORK FLOOR BOARD
197: T FCB OR 198: T HAS

CONTROL PANEL

GTWO/XS2

1 +/24
2 0/24
3 0/24
4 TX-
5 ROLL CALL
6 TX+LAST SHAFT NETWORK FLOOR BOARD
197: 1 FCB OR 198: 1 HAS
198: 1 FDB G11 OR 198: 1 FDB G12NOTE:
SHOWN WITH FIRST SHAFT NETWORK
BOARD AT TOP LANDING. SHAFT NETWORK
CAN ALSO BE ENTERED FROM BOTTOM
LANDING.120 Ohm
1/2 WattEND OF LINE TERMINATING
RESISTOR

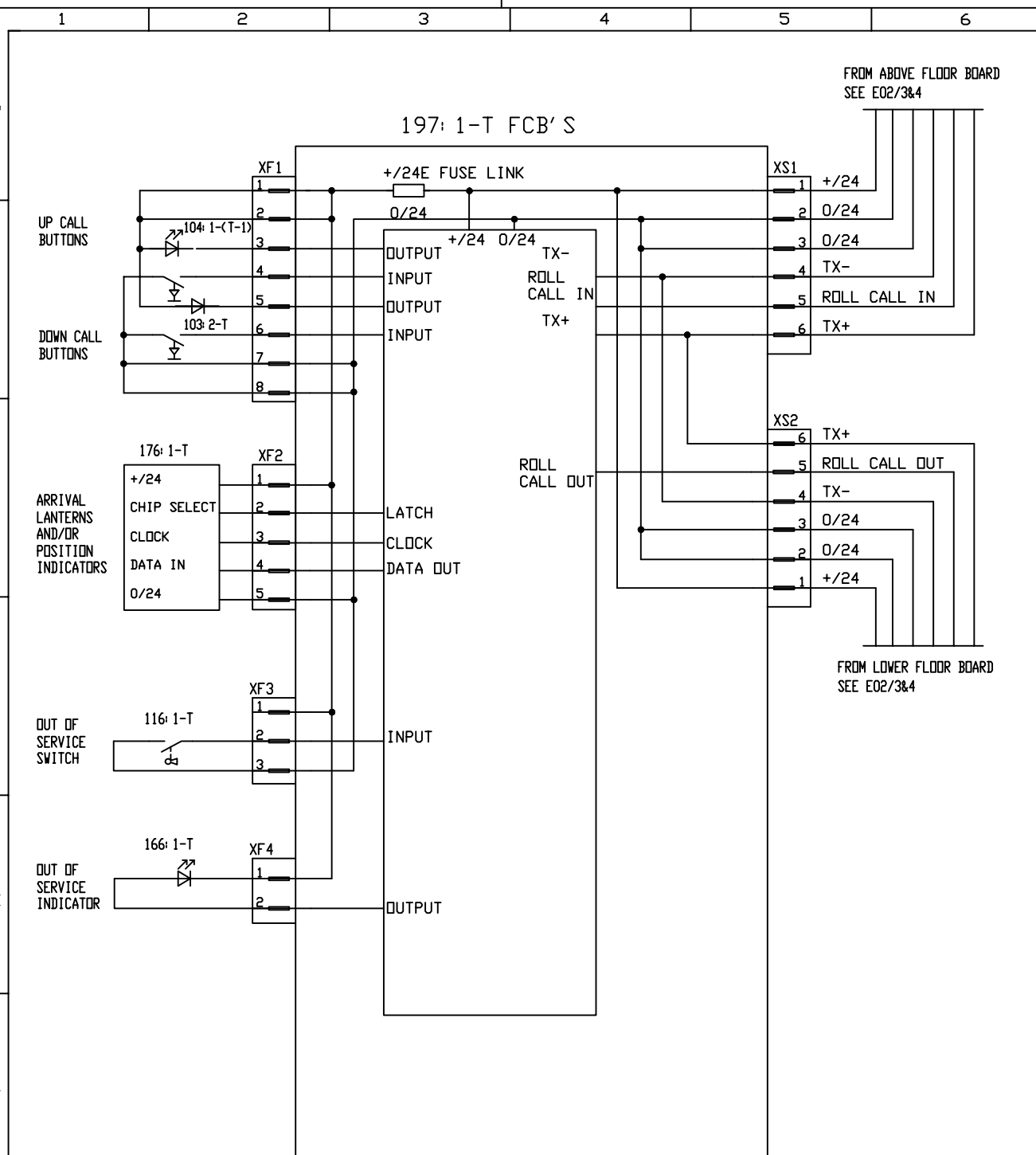
A	REVISION UPDATE	01.06.2012	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		

FIELD DRAWING SET
1364621E10 FOR ECOSPACE
1364622E10 FOR MONOSPACE
1364623E10 FOR MINISPACE

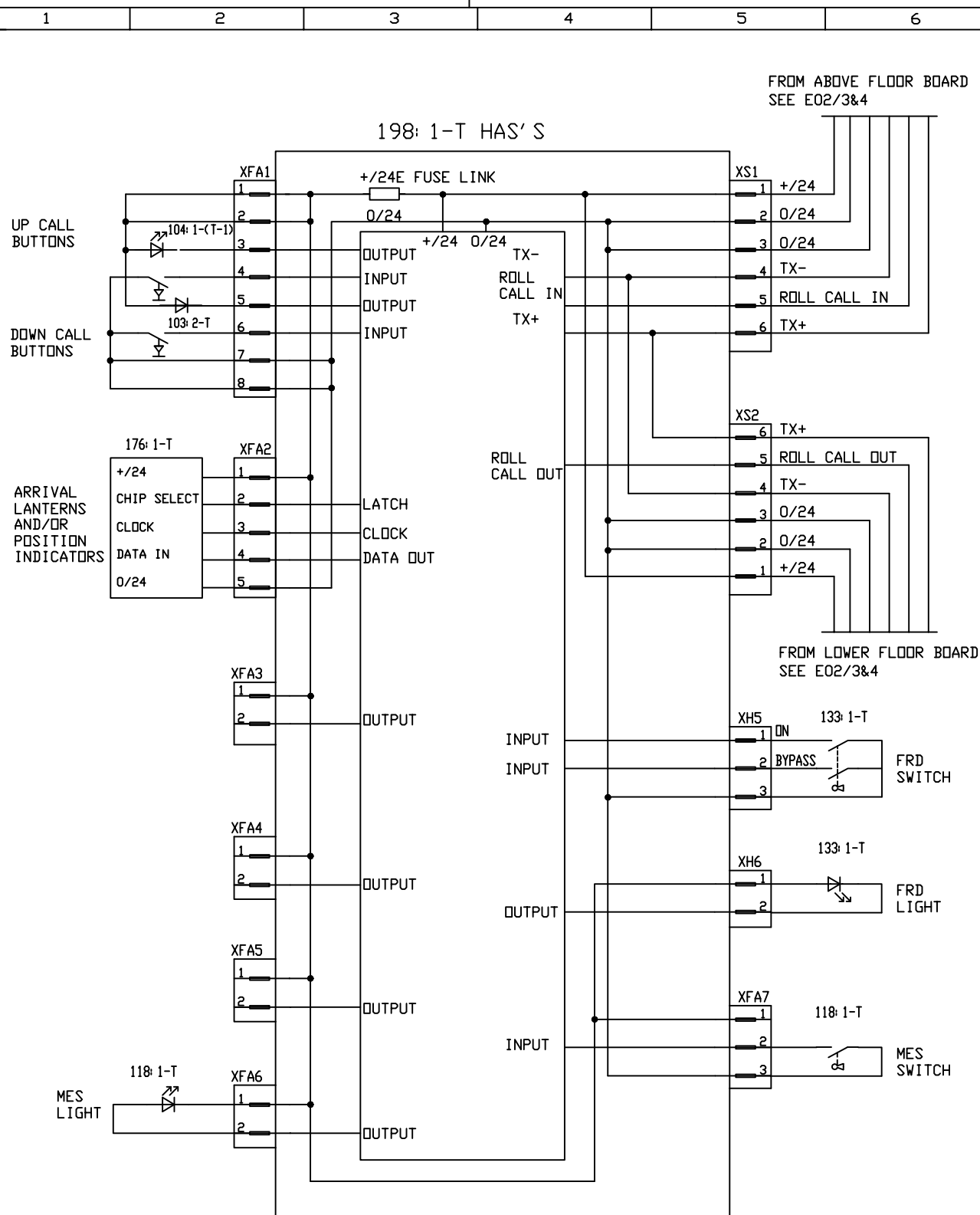
SHAFT SIGNALIZATION INTERFACE

SHAFT NETWORK

Sales ref. no. -	Drawing no. 1364620E10	Issue A	Page 1/7

A
B
C
D
E
F
G
H

A	REVISION UPDATE	01. 06. 2012	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E10 FOR ECOSPACE 1364622E10 FOR MONOSPACE 1364623E10 FOR MINISPACE					SHAFT SIGNALIZATION INTERFACE FCB'S		
KONE		Sales ref. no. -		Drawing no. 1364620E10		Issue A	Page 2/7



A	CORRECTED XFA3 & 7 DETAILS	01.06.2012	MKD/BE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKD/BE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		

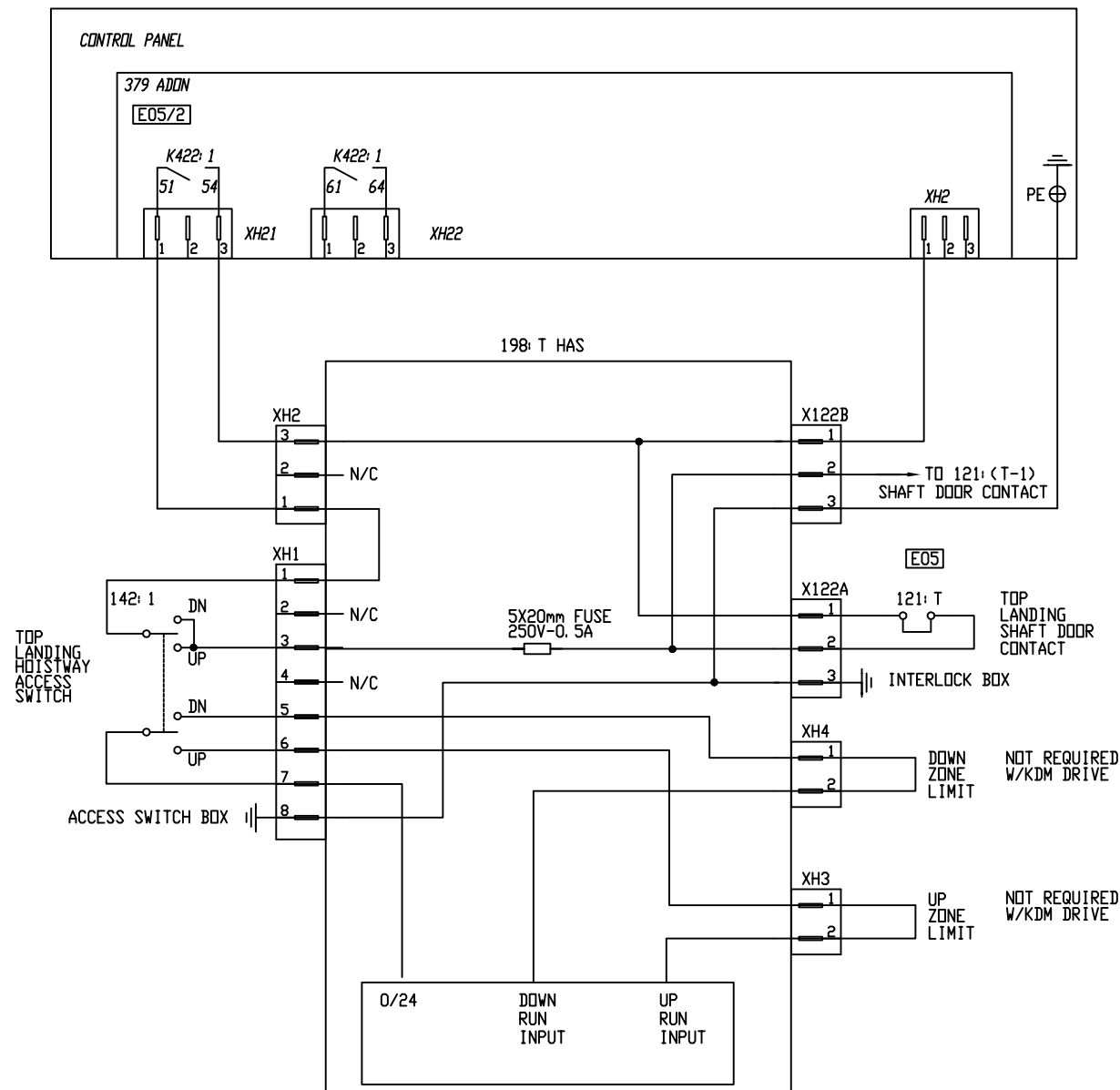
FIELD DRAWING SET
1364621E10 FOR ECOSPACE
1364622E10 FOR MONOSPACE
1364623E10 FOR MINISPACE



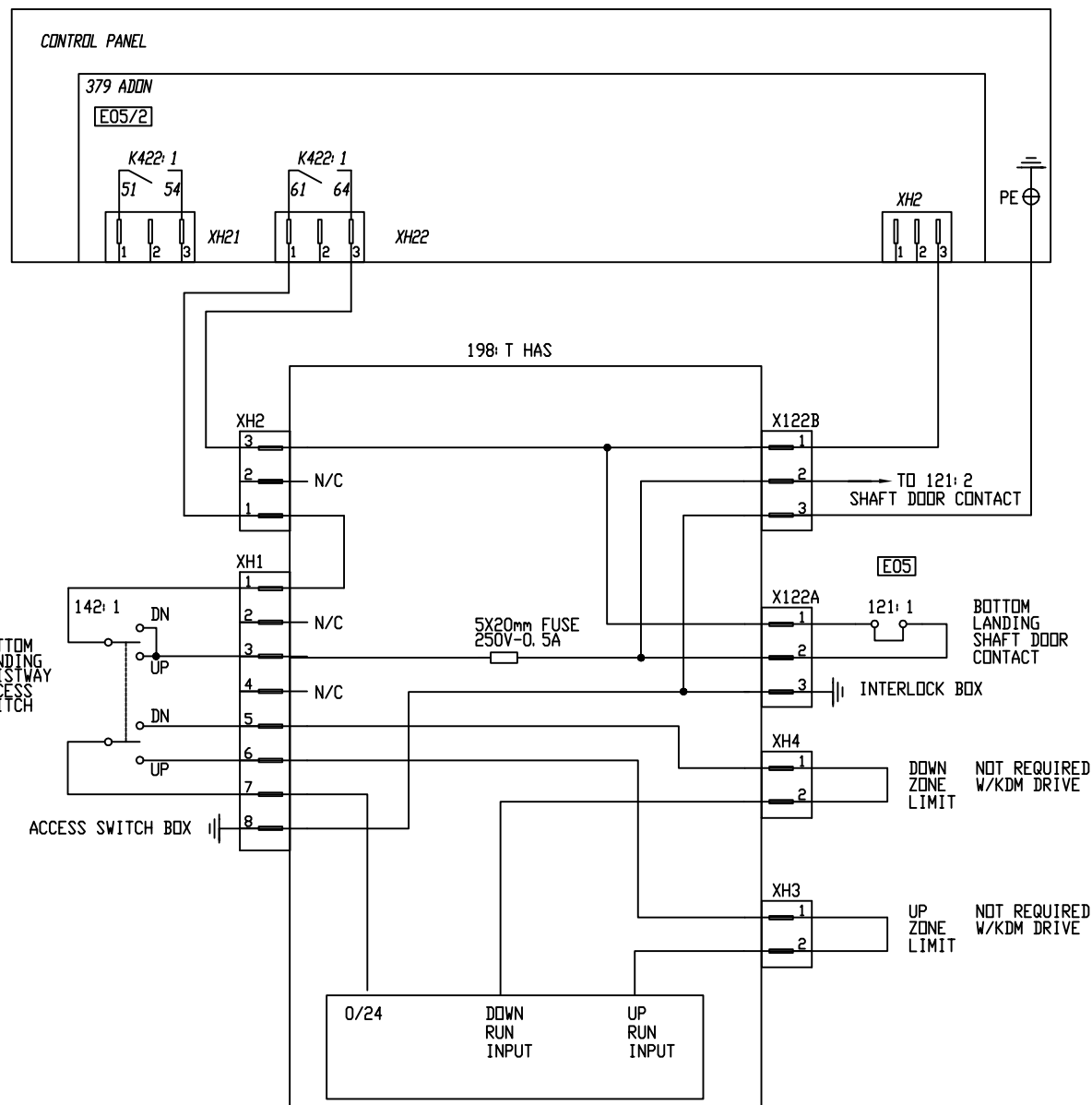
SHAFT SIGNALIZATION INTERFACE

HAS' S

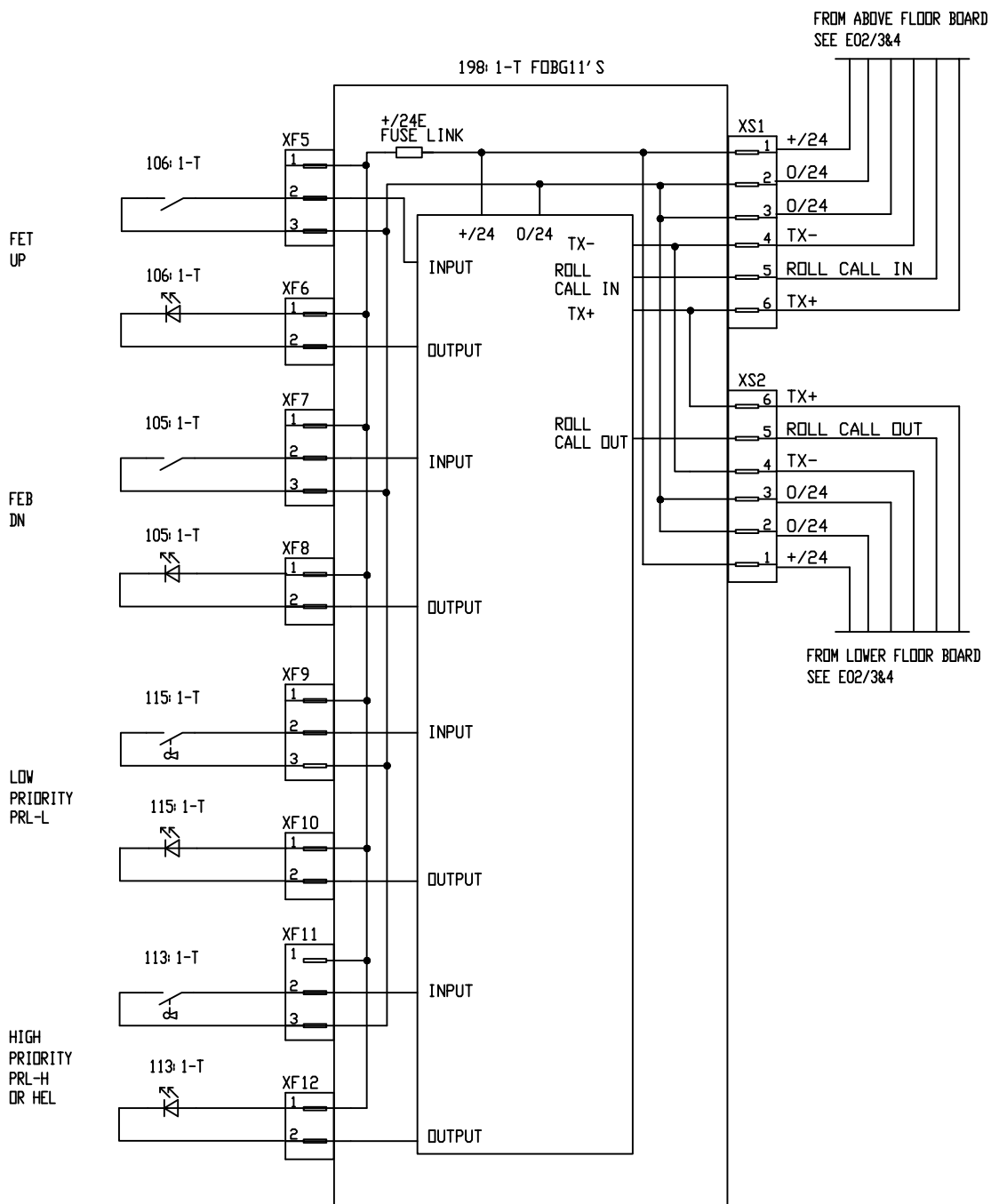
Sales ref. no.	Drawing no.	Issue	Page
-	1364620E10	A	3/7



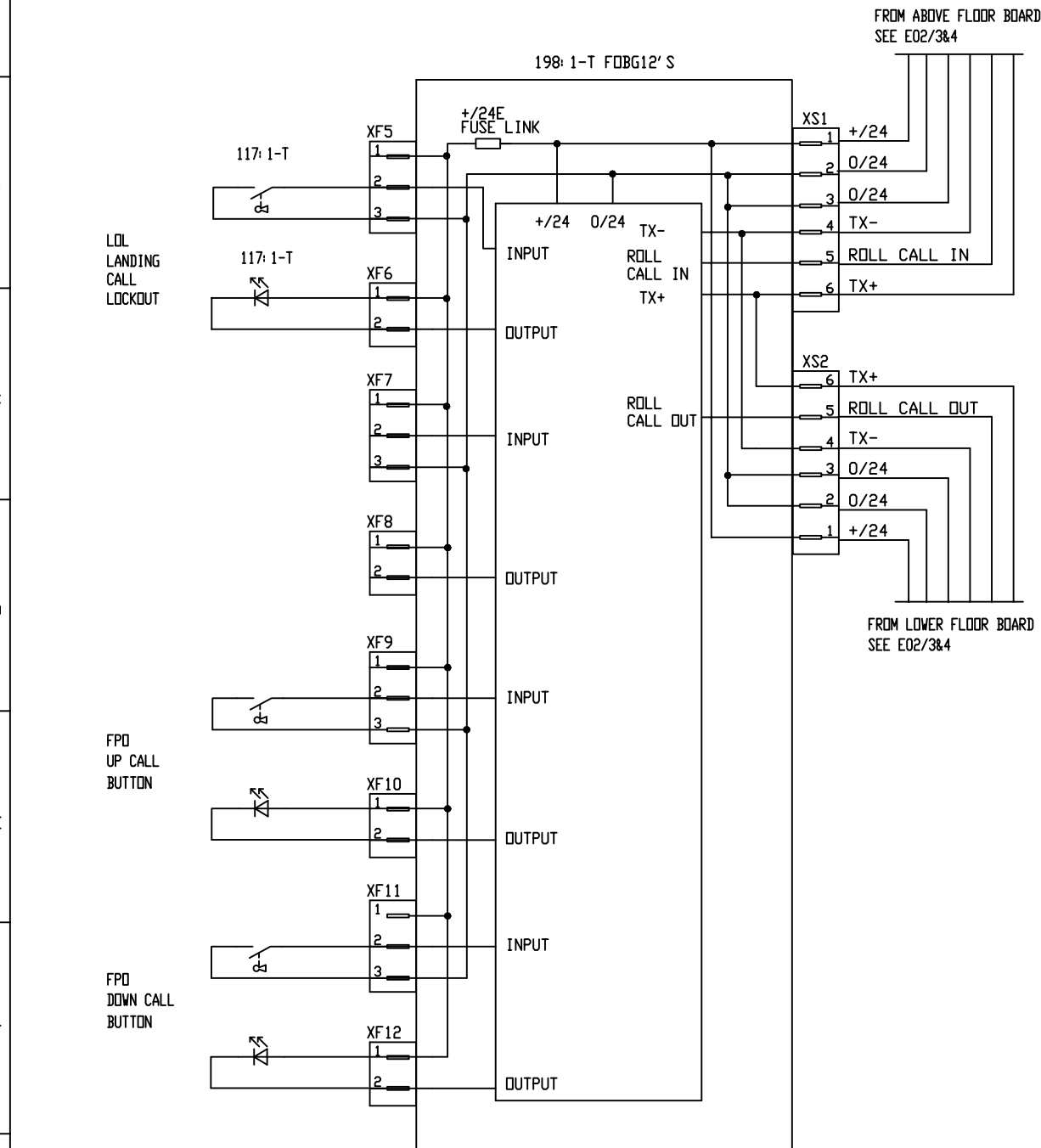
A	REVISION UPDATE	01.06.2012	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E10 FOR ECOSPACE 1364622E10 FOR MONOSPACE 1364623E10 FOR MINISPACE					SHAFT SIGNALIZATION INTERFACE HAS TOP LDG. W/HAC		
					Sales ref. no. -	Drawing no. 1364620E10	Issue A
					Page 4/7		



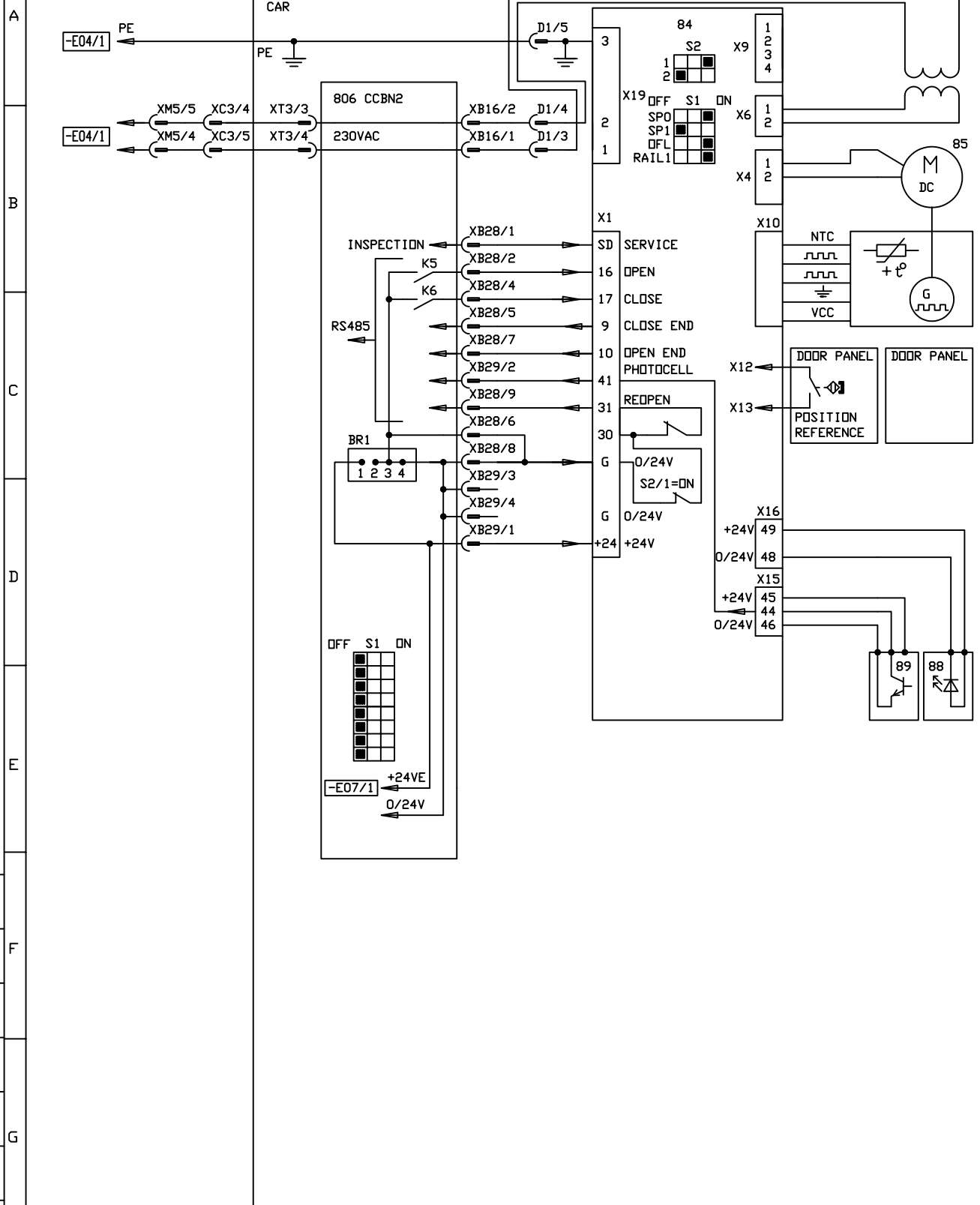
A	REVISION UPDATE	01.06.2012	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E10 FOR ECOSPACE 1364622E10 FOR MONOSPACE 1364623E10 FOR MINISPACE					SHAFT SIGNALIZATION INTERFACE		
					BOTTOM LGD. W/HAC		
Sales ref. no. -		Drawing no. 1364620E10		Issue A		Page 5/7	



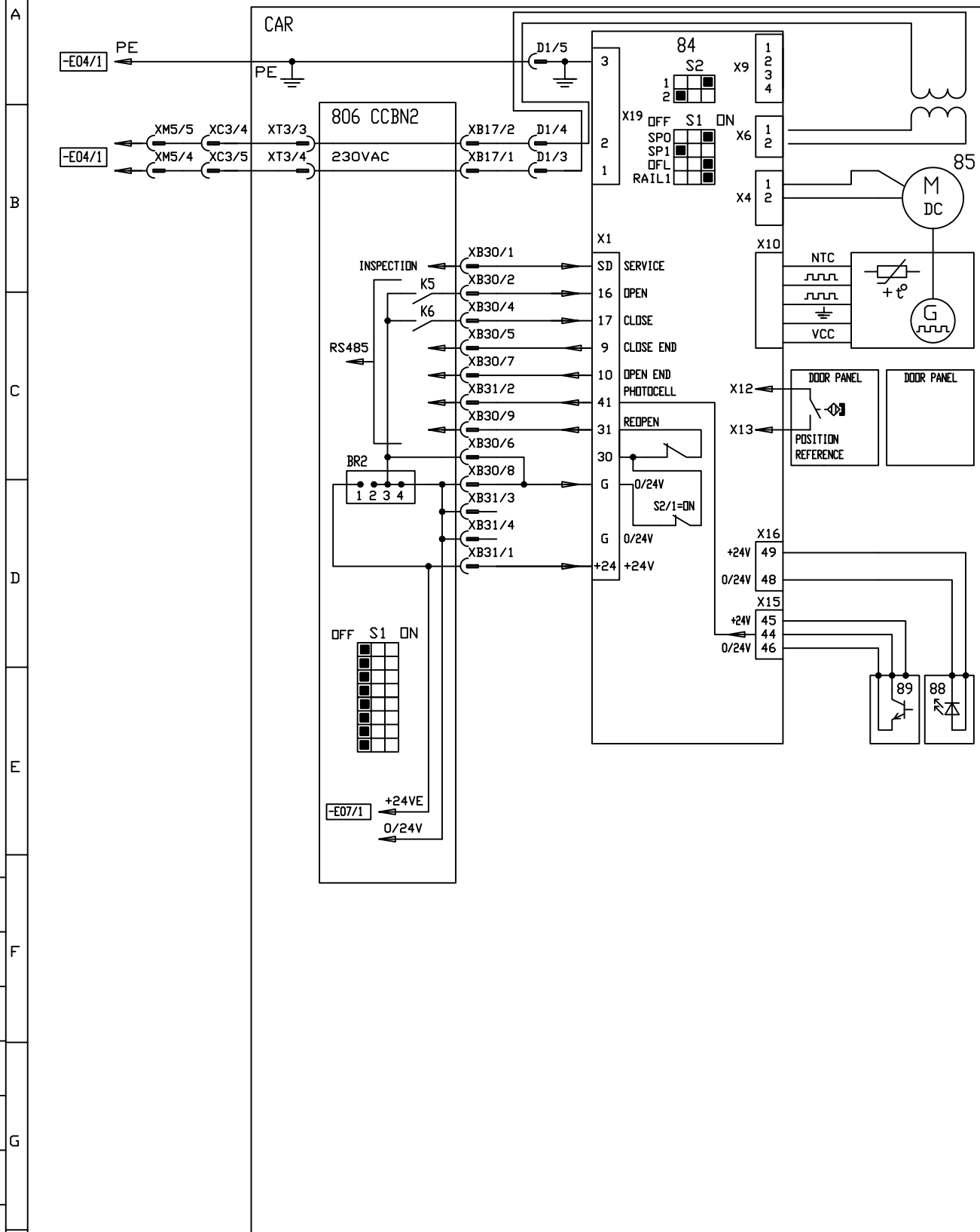
A	REVISION UPDATE	01.06.2012	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E10 FOR ECOSPACE 1364622E10 FOR MONOSPACE 1364623E10 FOR MINISPACE					SHAFT SIGNALIZATION INTERFACE LCEFOBG11'S		
KONE		Sales ref. no. -		Drawing no. 1364620E10		Issue A	Page 6/7

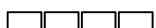


A	REVISION UPDATE	01. 06. 2012	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E10 FOR ECOSPACE 1364622E10 FOR MONOSPACE 1364623E10 FOR MINISPACE					SHAFT SIGNALIZATION INTERFACE LCEFOBG12' S		
KONE		Sales ref. no. -		Drawing no. 1364620E10		Issue A	Page 7 / 7



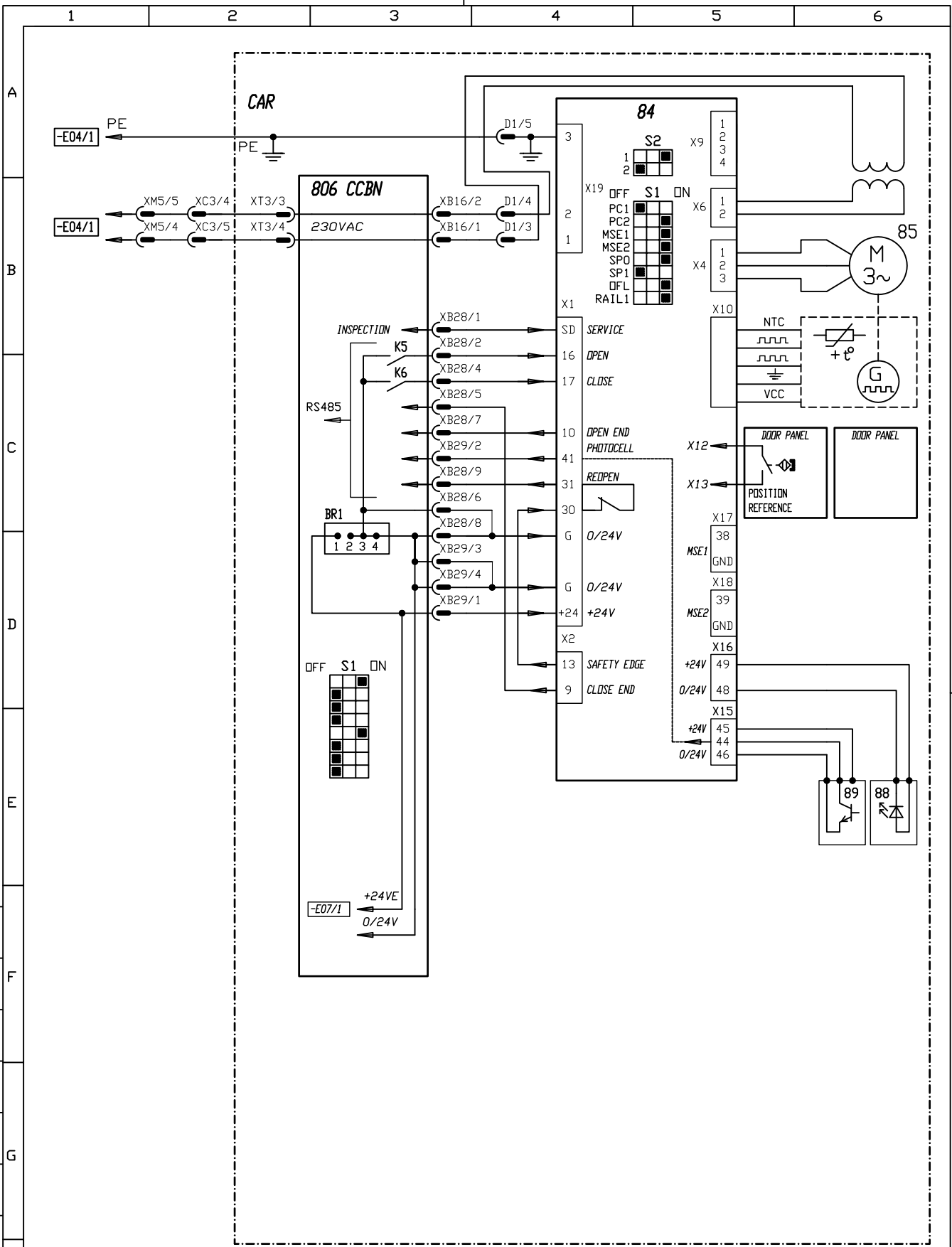
					Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en				
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM			
Issue	Change description	Date	Des. by	Appr. by							
FIELD DRAWING SET 1364621E11 FOR ECOSPACE 1364622E11 FOR MONOSPACE 1364623E11 FOR MINISPACE KONE					DOOR MODULE						
					AMD DRIVE 1.5 - A-SIDE						
					Sales ref. no. -		Drawing no. 1364620E11		Issue -		Page 1 / 6



					Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en	
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by				
FIELD DRAWING SET 1364621E11 FOR ECOSPACE 1364622E11 FOR MONOSPACE 1364623E11 FOR MINISPACE					DOOR MODULE			
					AMD DRIVE 1.5 - B-SIDE			
					Sales ref. no. -	Drawing no. 1364620E11	Issue -	Page 2/6

FIELD DRAWING SET
1364621E11 FOR ECOSPACE
1364622E11 FOR MONOSPACE
1364623E11 FOR MINISPACE

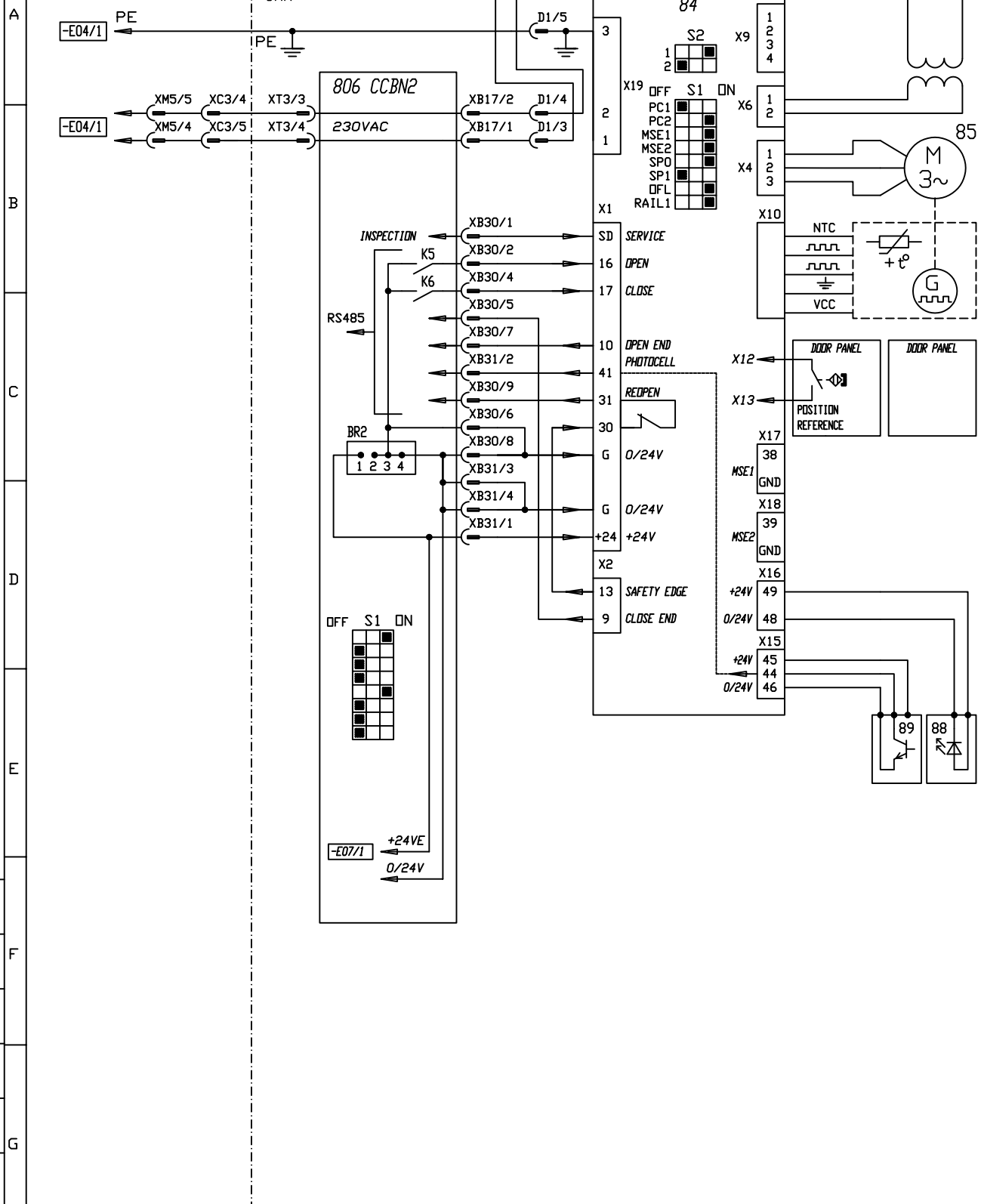




					Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en			
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Product code LCE W/KDM			
Issue	Change description	Date	Des. by	Appr. by						
FIELD DRAWING SET 1364621E11 FOR ECOSPACE 1364622E11 FOR MIDNSPACE 1364623E11 FOR MINISPACE								DOOR MODULE		
								AMD DRIVE 2 - A-SIDE		
					Sales ref. no.		Drawing no.		Issue	Page
					-		1364620E11		-	3/6

FIELD DRAWING SET
1364621E11 FOR ECOSPACE
1364622E11 FOR MONOSPACE
1364623E11 FOR MINISPACE

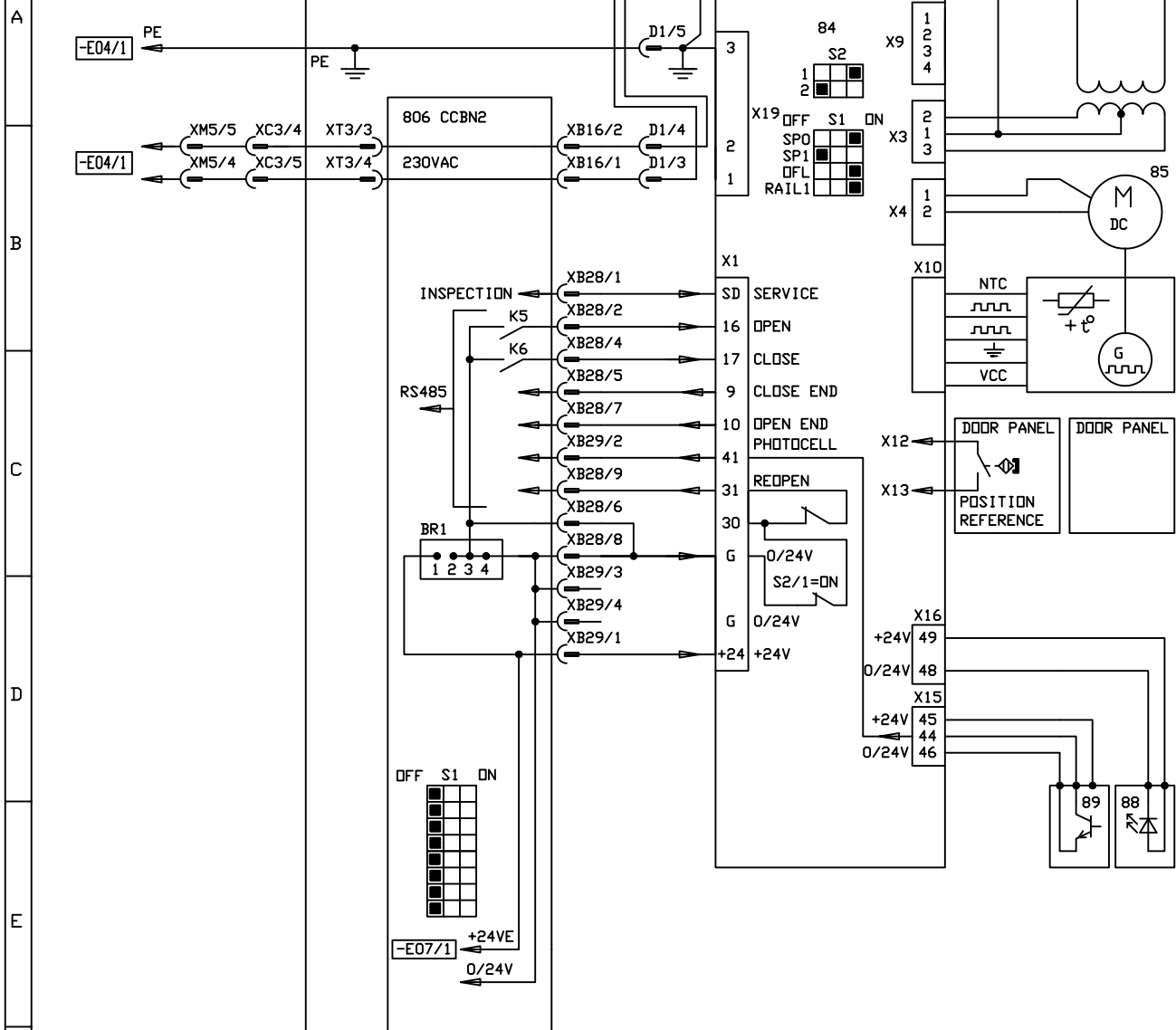




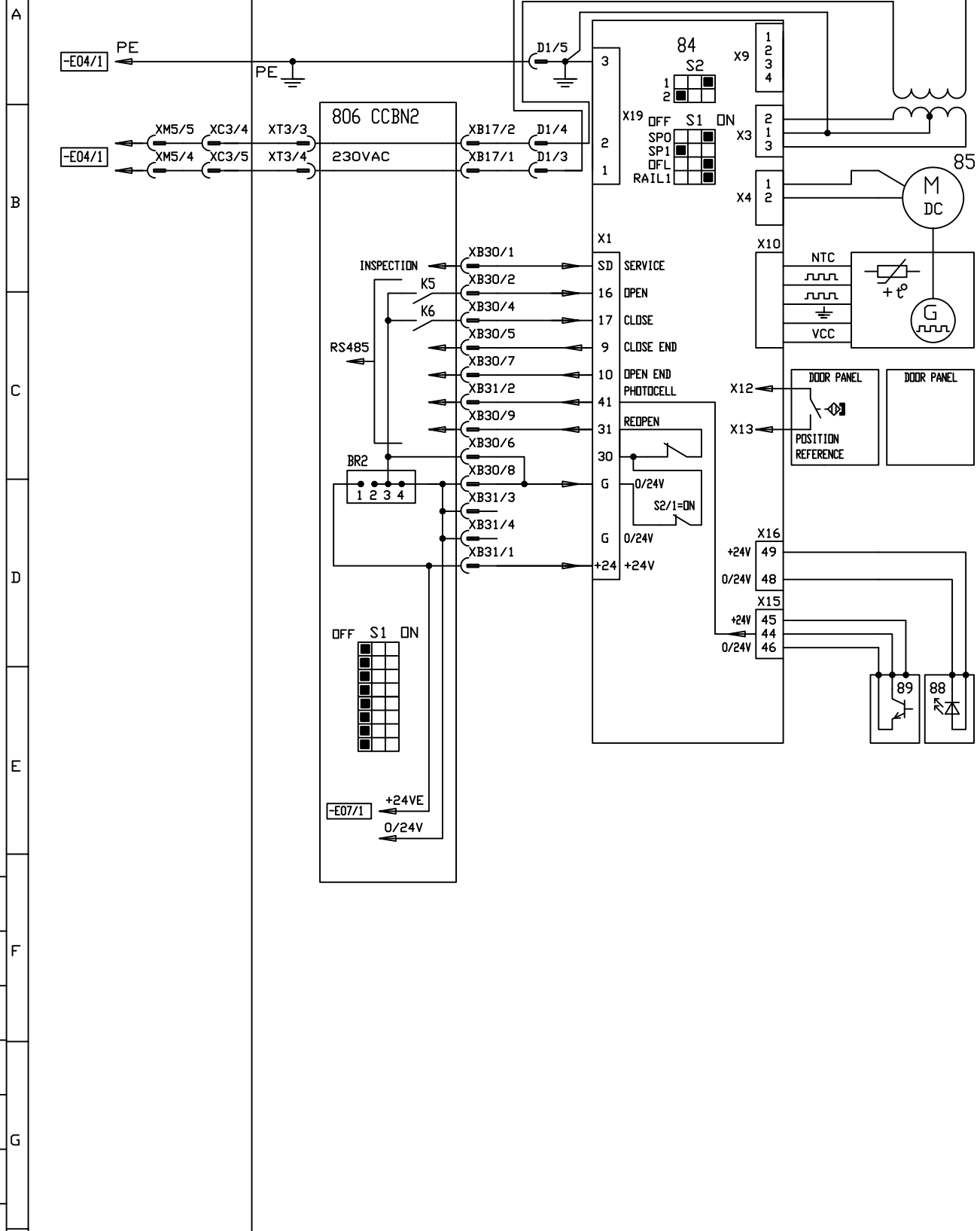
					Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en	
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by				
FIELD DRAWING SET 1364621E11 FOR ECOSPACE 1364622E11 FOR MONOSPACE 1364623E11 FOR MINISPACE					DOOR MODULE			
					AMD DRIVE 2 - B			
KONE					Sales ref. no. -	Drawing no. 1364620E11	Issue -	Page 4/6

FIELD DRAWING SET
1364621E11 FOR ECOSPACE
1364622E11 FOR MONOSPACE
1364623E11 FOR MINISPACE





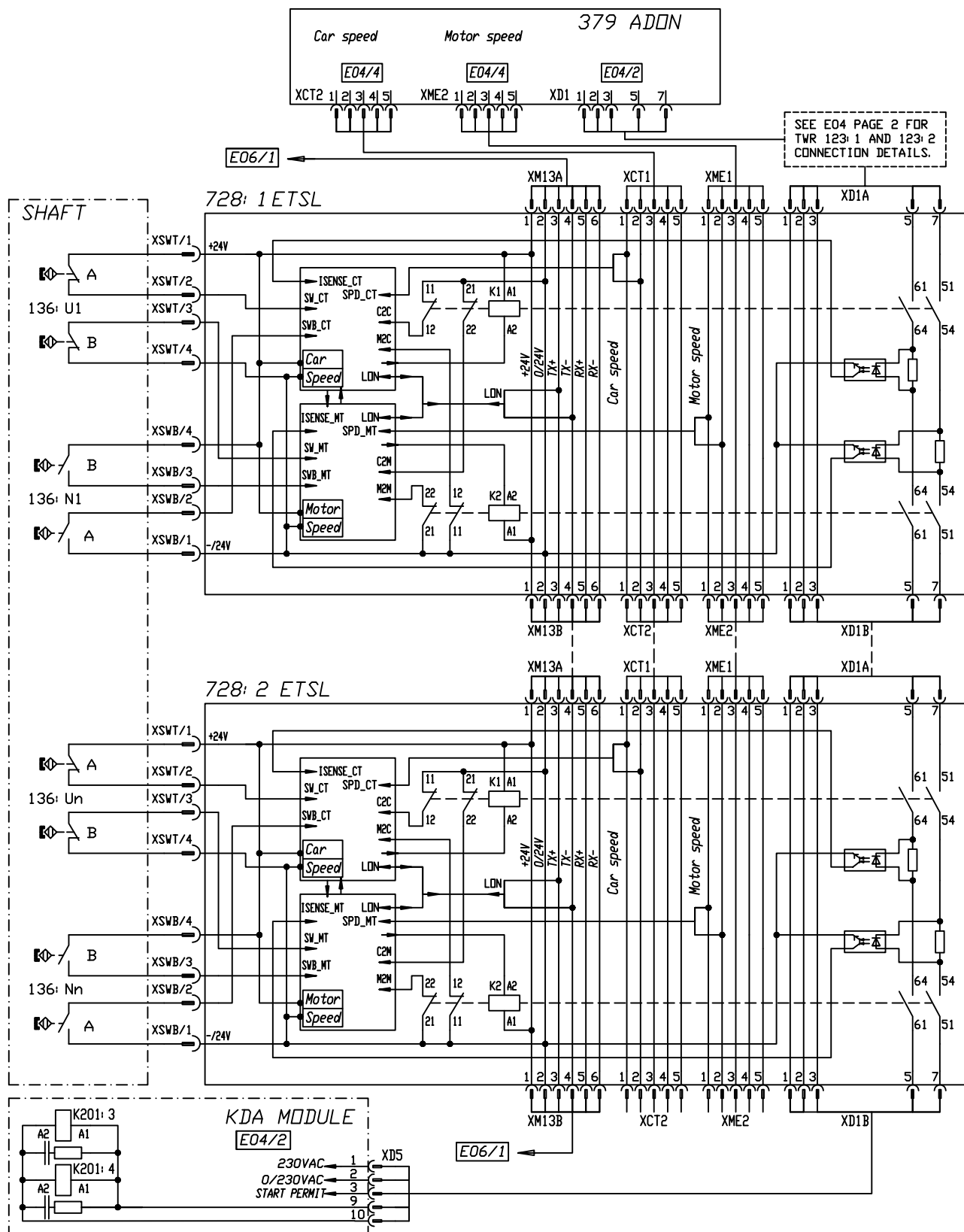
					Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en			
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDISB2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM		
Issue	Change description	Date	Des. by	Appr. by						
FIELD DRAWING SET 1364621E11 FOR ECOSPACE 1364622E11 FOR MONOSPACE 1364623E11 FOR MINISPACE KONE					DOOR MODULE					
					AMD DRIVE 1.0 - A-SIDE					
					Sales ref. no. -		Drawing no. 1364620E11		Issue -	
									Page 5/6	



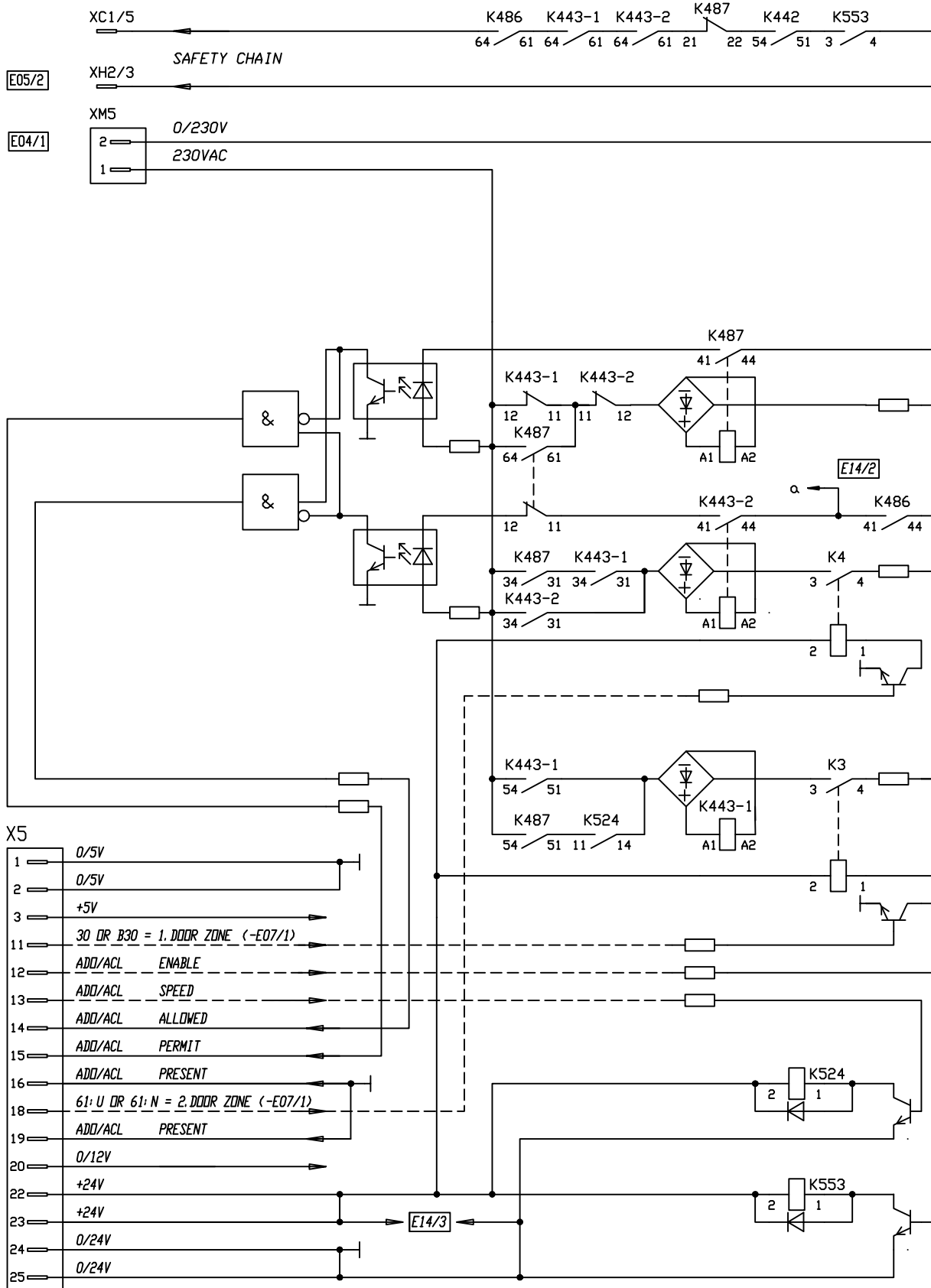
					Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en				
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM			
Issue	Change description	Date	Des. by	Appr. by							
FIELD DRAWING SET 1364621E11 FOR ECOSPACE 1364622E11 FOR MONOSPACE 1364623E11 FOR MINISPACE KONE					DOOR MODULE						
					AMD DRIVE 1.0 - B-SIDE						
					Sales ref. no. -		Drawing no. 1364620E11		Issue -		Page 6/6

FIELD DRAWING SET
1364621E11 FOR ECOSPACE
1364622E11 FOR MONOSPACE
1364623E11 FOR MINISPACE

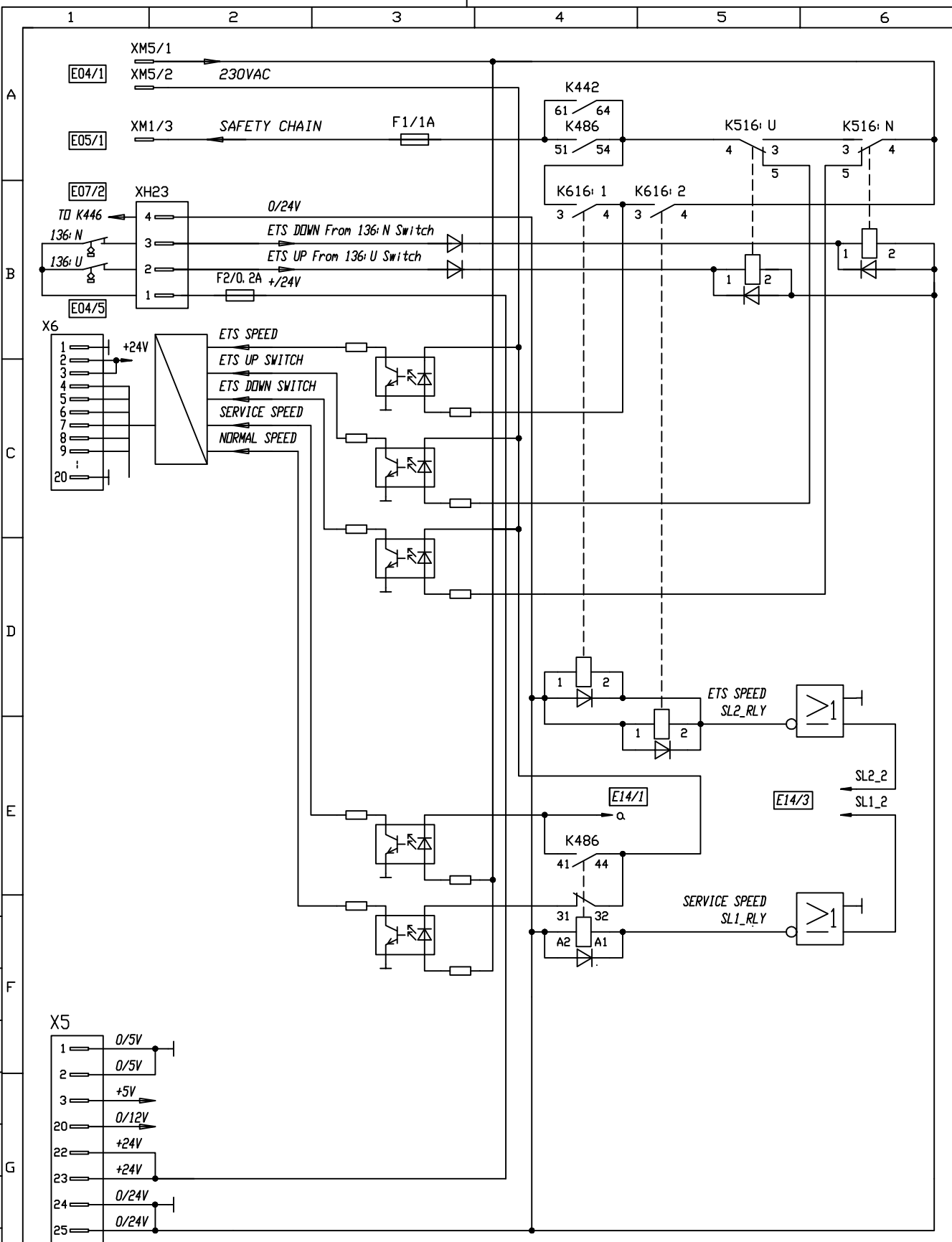




A	ADDED TWR NOTE.	02. 07. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	Date 01. 04. 2011		
FIELD DRAWING SET 1364621E12 FOR ECOSPACE 1364622E12 FOR MONOSPACE 1364623E12 FOR MINISPACE					ETSL SAFETY CIRCUITS ETSL W/230VAC SAFETY CHAIN CIRCUIT		
KONE		Sales ref. no. -		Drawing no. 1364620E12		Issue A	Page 1/2

A
B
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A	REVISION UPDATE.	18. 11. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET 1364621E14 FOR ECOSPACE 1364622E14 FOR MONOSPACE 1364623E14 FOR MINISPACE					ADDON SAFETY CIRCUITS		
					ADD/ACL CIRCUIT		
KONE					Sales ref. no. -	Drawing no. 1364620E14	Issue A
					Page 1 / 3		



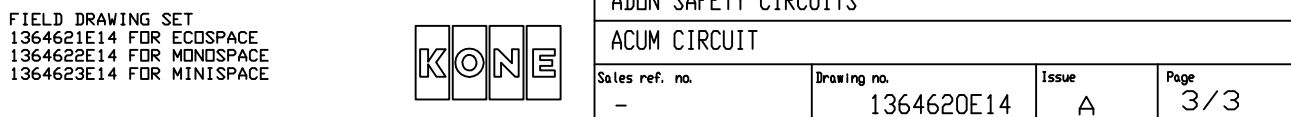
A	ADDED K446 NOTE.	18.11.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		

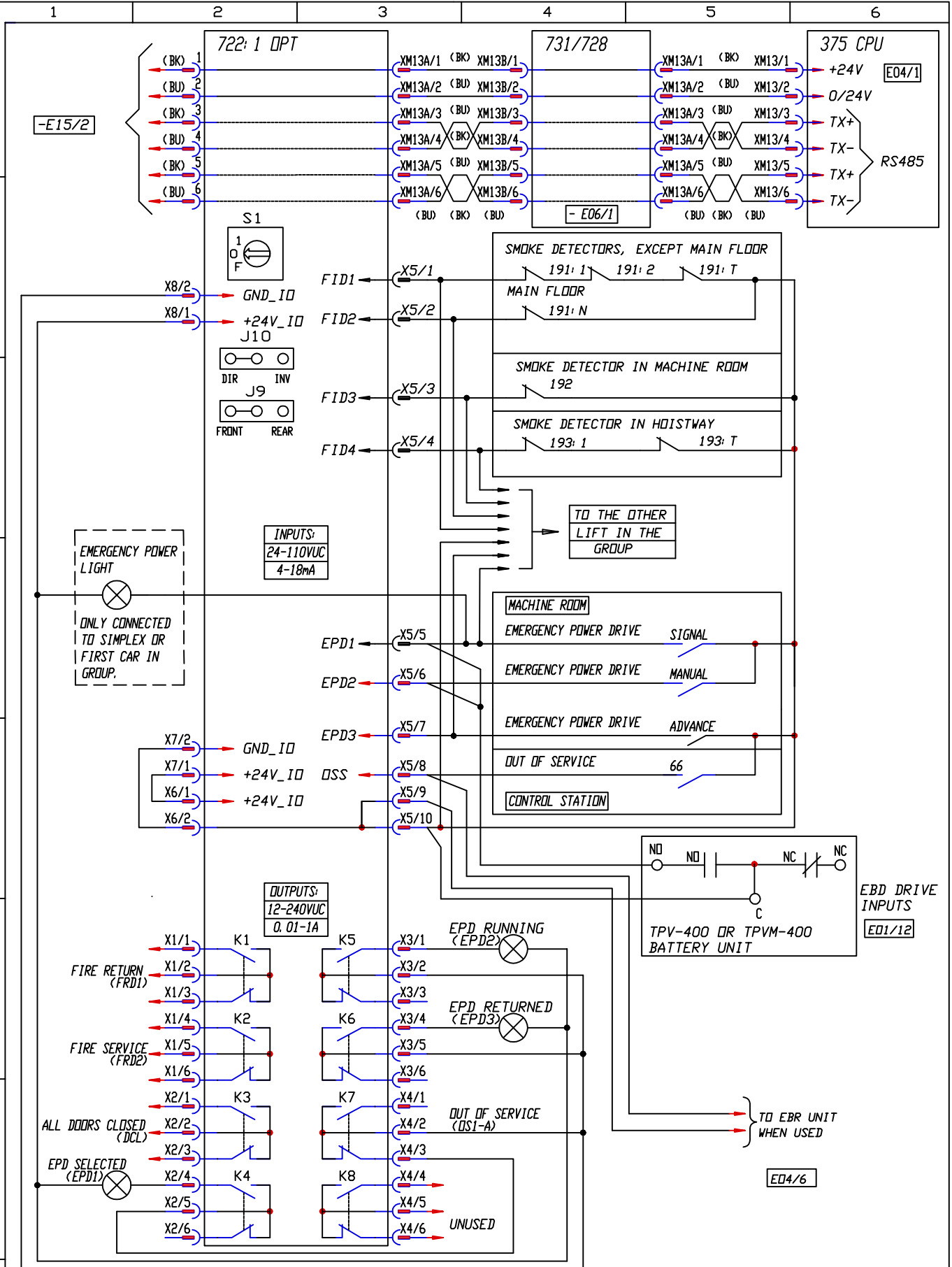
FIELD DRAWING SET
1364621E14 FOR ECOSPACE
1364622E14 FOR MONOSPACE
1364623E14 FOR MINISPACE



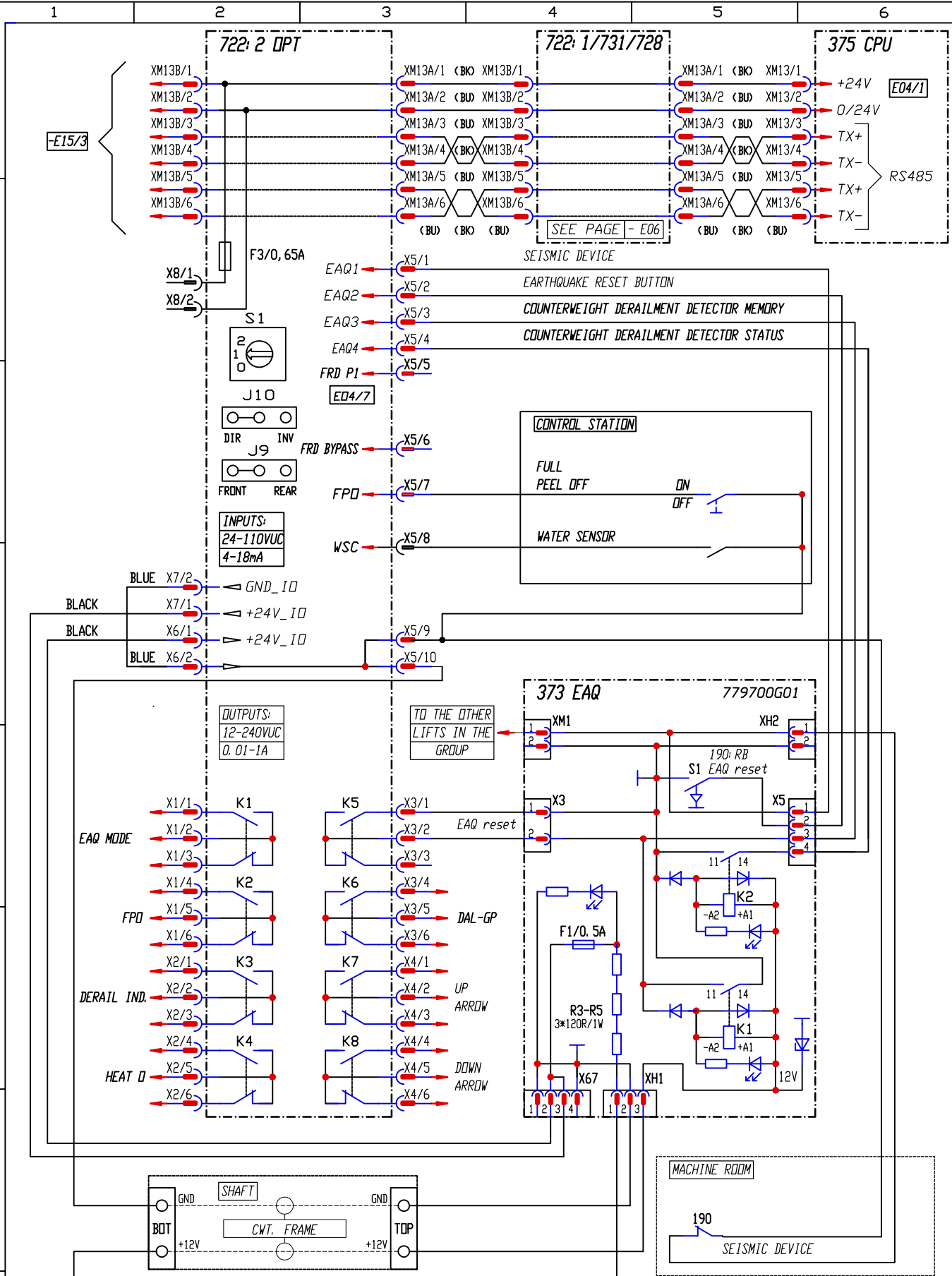
ADON SAFETY CIRCUITS ETS CIRCUIT

Sales ref. no.	Drawing no.	Issue	Page
-	1364620E14	A	2/3

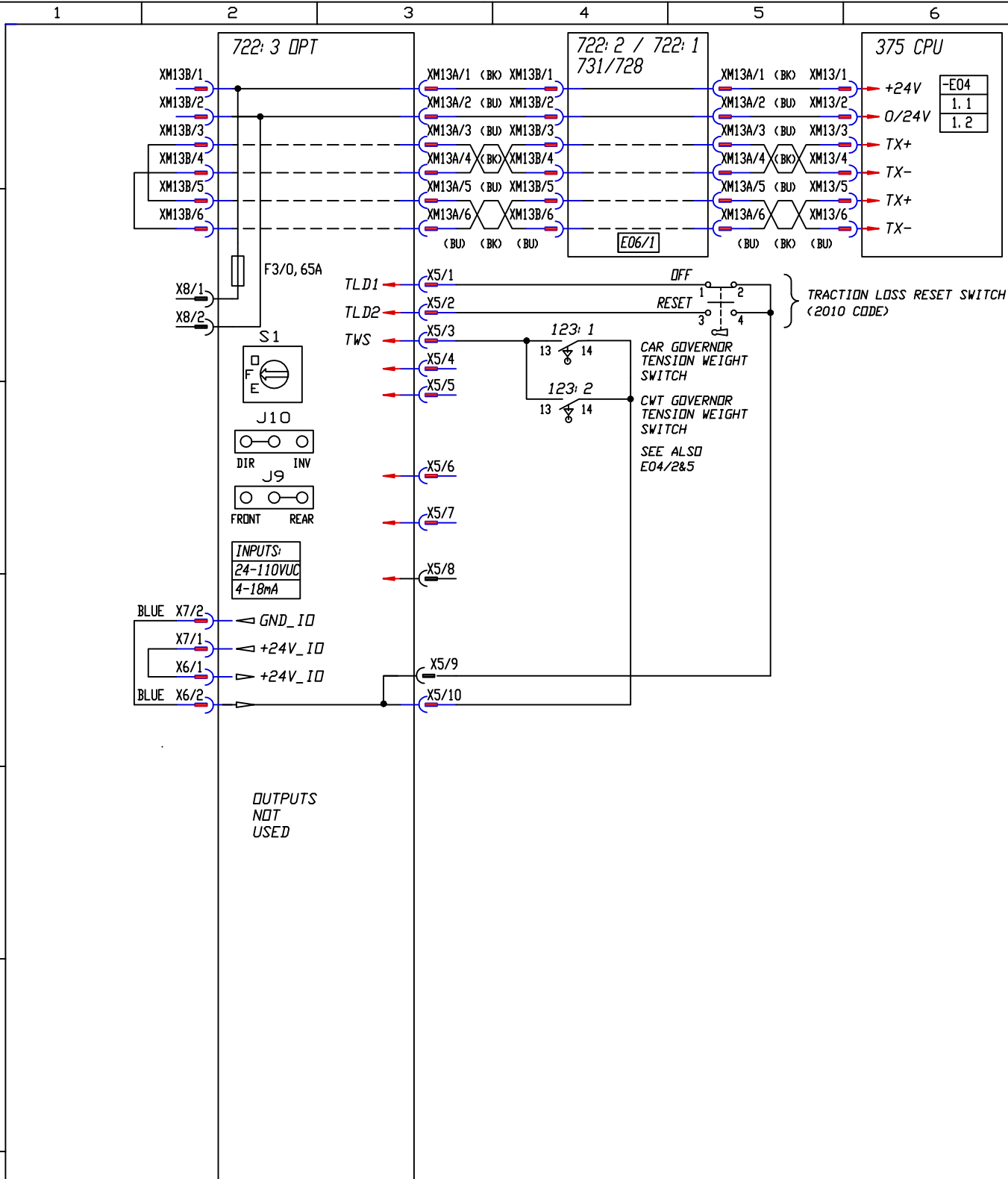




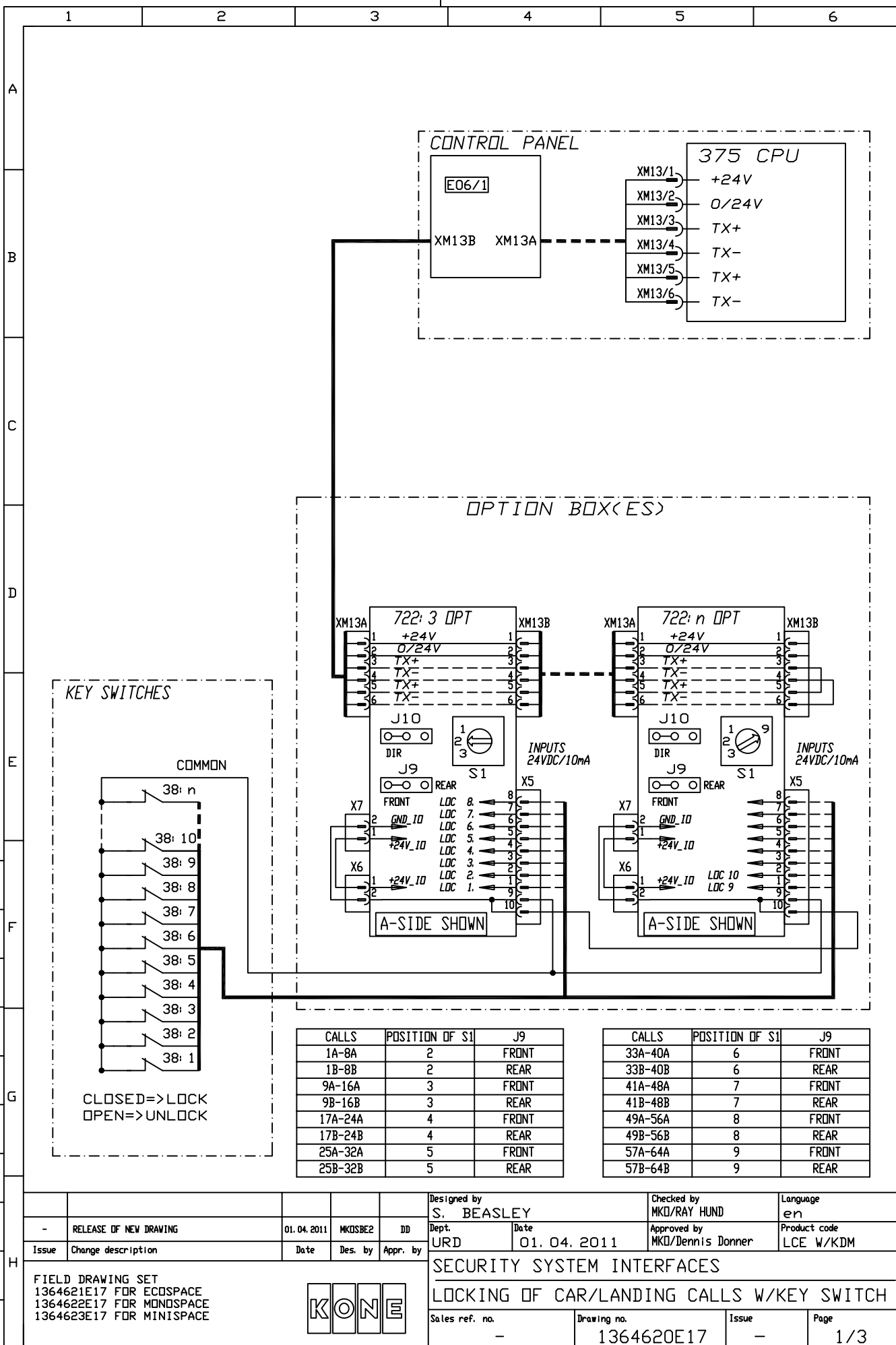
					Designed by S. BEASLEY	Checked by MKD/RAY HUND	Language en									
B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Dept. URD	Date 11. 10. 2010	Approved by MKD/Dennis Donner	Product code LCE W/KDM								
Issue	Change description	Date	Des. by	Appr. by	ADDITIONAL DEVICES EPD AND SMOKE DETECTOR CIRCUITS <table><tr><td>Sales ref. no.</td><td>Drawing no.</td><td>Issue</td><td>Page</td></tr><tr><td>-</td><td>1364620E15</td><td>B</td><td>1/3</td></tr></table>				Sales ref. no.	Drawing no.	Issue	Page	-	1364620E15	B	1/3
Sales ref. no.	Drawing no.	Issue	Page													
-	1364620E15	B	1/3													
FIELD DRAWING SET 1364621E15 FOR ECOSPACE 1364622E15 FOR MONOSPACE 1364623E15 FOR MINISPACE KONE																

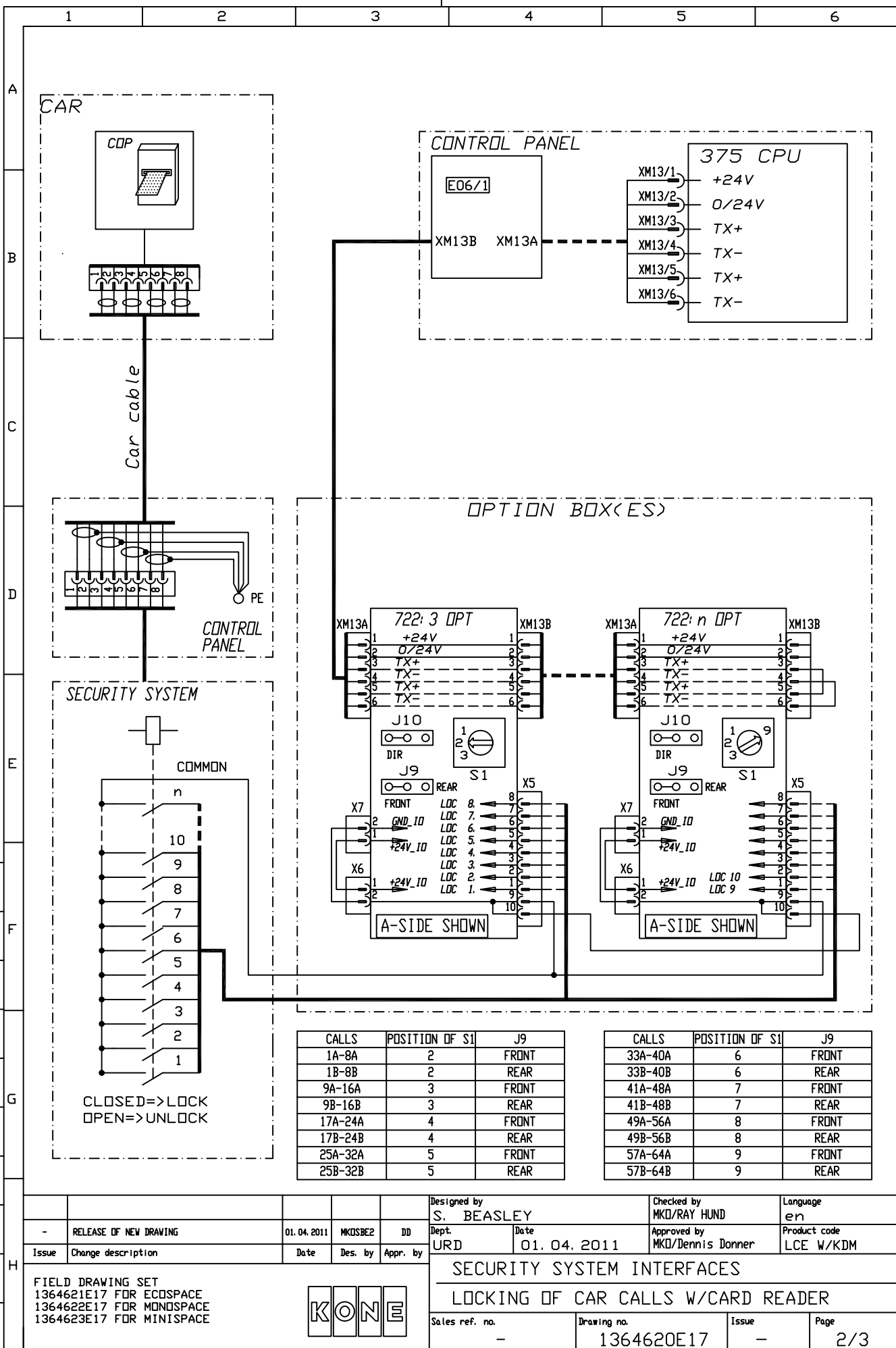


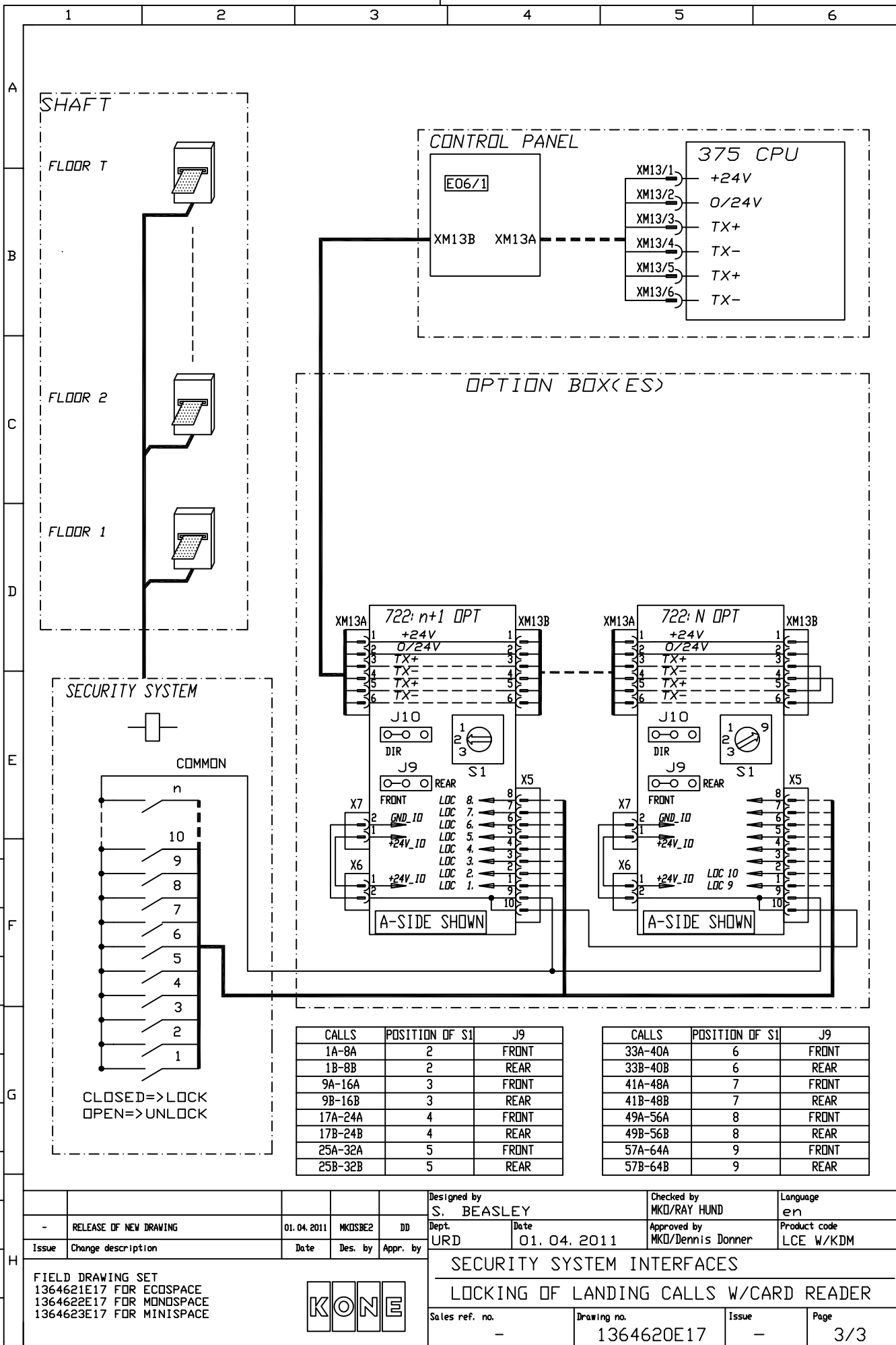
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B	REVISION UPDATE	02. 07. 2013	MKDSBE2	DD	Dept. URD	Date 11. 10. 2010	Approved by MKD/Dennis Donner		Product code LCE W/KDM	
Issue	Change description	Date	Des. by	Appr. by	ADDITIONAL DEVICES EAQ CIRCUITS					
FIELD DRAWING SET 1364621E15 FOR ECOSPACE 1364622E15 FOR MONOSPACE 1364623E15 FOR MINISPACE										
KONE					Sales ref. no. -		Drawing no. 1364620E15		Issue B	Page 2/3



					Designed by S. BEASLEY		Checked by MKD/Ray Hund		Language en	
B	ADDED TWS INPUT DETAILS	02. 07. 2013	MKDSBE2	DD	Dept. URD	Date 11. 10. 2010	Approved by MKD/Dennis Donner		Product code LCE W/KDM	
Issue	Change description	Date	Des. by	Appr. by	ADDITIONAL DEVICES TRACTION LOSS RESET					
FIELD DRAWING SET 1364621E15 FOR ECOSPACE 1364622E15 FOR MONOSPACE 1364623E15 FOR MINISPACE										
KONE					Sales ref. no. -		Drawing no. 1364620E15		Issue B	Page 3/3







-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD
Issue	Change description	Date	Des. by	Appr. by

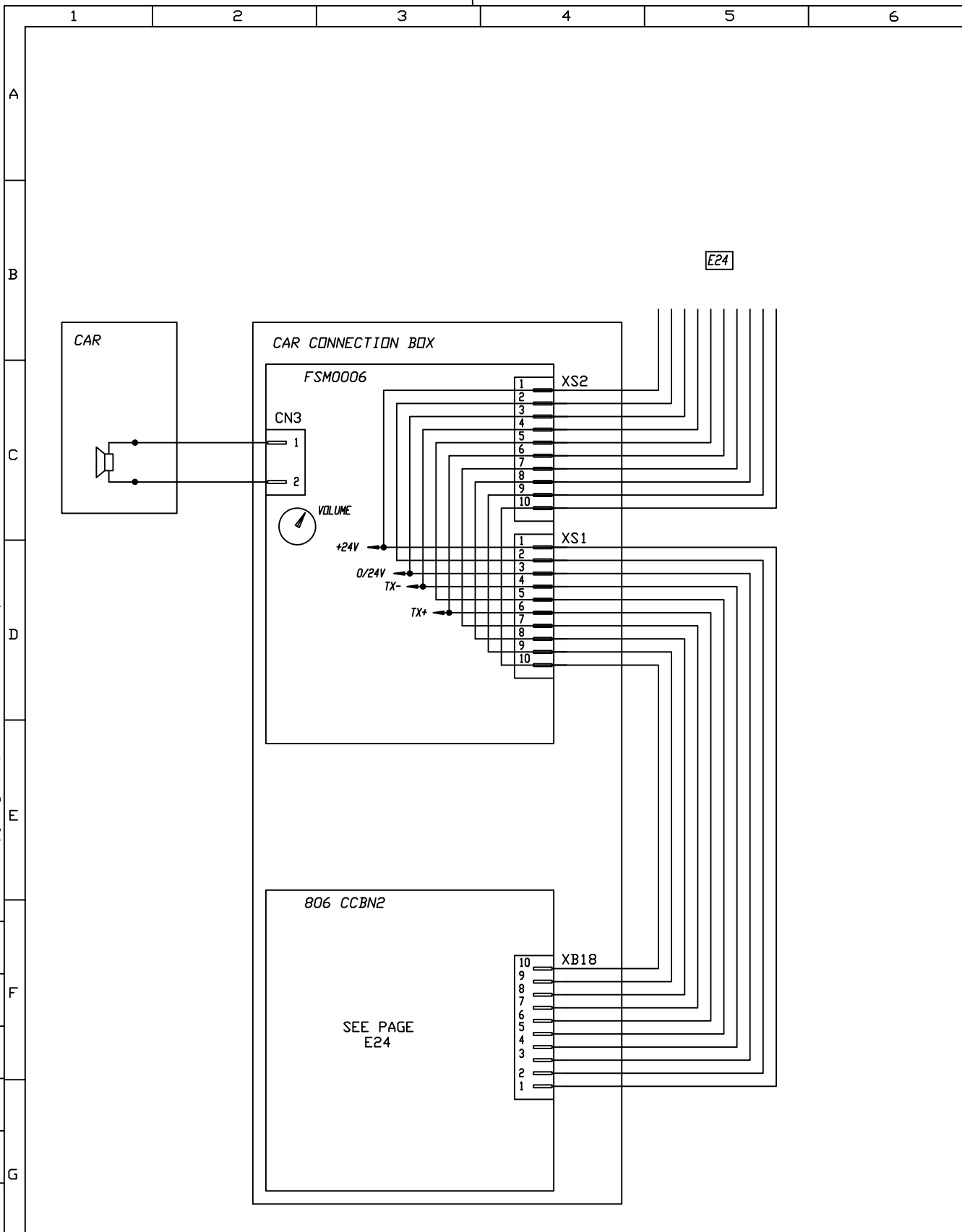
Designed by S. BEASLEY	Checked by MKD/RAY HUND	Language en
Dept. URD	Date 01.04.2011	Approved by MKD/Dennis Donner
		Product code LCE W/KDM

FIELD DRAWING SET
1364621E17 FOR ECOSPACE
1364622E17 FOR MONOSPACE
1364623E17 FOR MINISPACE



SECURITY SYSTEM INTERFACES
LOCKING OF LANDING CALLS W/CARD READER

Sales ref. no. -	Drawing no. 1364620E17	Issue -	Page 3/3



					Designed by S. BEASLEY		Checked by MKD/RAY HUND		Language en				
-	RELEASE OF NEW DRAWING		01. 04. 2011	MKDSBE2	DAD	Dept. URD	Date 01. 04. 2011		Approved by MKD/DENNIS DONNER		Product code LCE W/KDM		
Issue	Change description		Date	Des. by	Appr. by								
FIELD DRAWING SET 1364621E18 FOR ECOSPACE 1364622E18 FOR MONOSPACE 1364623E18 FOR MINISPACE KONE						ANNOUNCIATOR CONTROL UNIT (ACU)							
						CONNECTIONS							
						Sales ref. no. -		Drawing no. 1364620E18		Issue -		Page 1/3	

FIELD DRAWING SET
1364621E18 FOR ECOSPACE
1364622E18 FOR MONOSPACE
1364623E18 FOR MINISPACE



	1	2	3	4	5	6
A						
B						
C						
D						
E						
F						
G						
H						

LCE Control Code	Message
1	1st Floor
2	2nd Floor
3	3rd Floor
4	4th Floor
5	5th Floor
6	6th Floor
7	7th Floor
8	8th Floor
9	9th Floor
10	10th Floor
11	11th Floor
12	12th Floor
13	13th Floor
14	14th Floor
15	15th Floor
16	16th Floor
17	17th Floor
18	18th Floor
19	19th Floor
20	20th Floor
21	21st Floor
22	22nd Floor
23	23rd Floor
24	24th Floor
25	25th Floor
26	26th Floor
27	27th Floor
28	28th Floor
29	29th Floor
30	30th Floor

LCE Control Code	Message
30	30th Floor
31	31st Floor
32	32nd Floor
33	33rd Floor
34	34th Floor
35	35th Floor
36	36th Floor
37	37th Floor
38	38th Floor
39	39th Floor
40	40th Floor
41	41st Floor
42	42nd Floor
43	43rd Floor
44	44th Floor
45	45th Floor
46	46th Floor
47	47th Floor
48	48th Floor
49	49th Floor
50	50th Floor
51	(available for future recording)
52	(available for future recording)
53	(available for future recording)
54	(available for future recording)
55	(available for future recording)
56	(available for future recording)
57	(available for future recording)
58	(available for future recording)
59	Penthouse
60	Parking

					Designed by S. BEASLEY	Checked by MKD/RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DAD	Dept. URD	Date 01. 04. 2011	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by			
FIELD DRAWING SET 1364621E18 FOR ECOSPACE 1364622E18 FOR MONOSPACE 1364623E18 FOR MINISPACE							
				ANNOUNCIATOR CONTROL UNIT (ACU)			
				PREPROGRAMMED MESSAGES (1-60)			
Sales ref. no. -		Drawing no. 1364620E18		Issue -		Page 2/3	

	1	2	3	4	5	6
A						
B						
C						
D						
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G						
H						

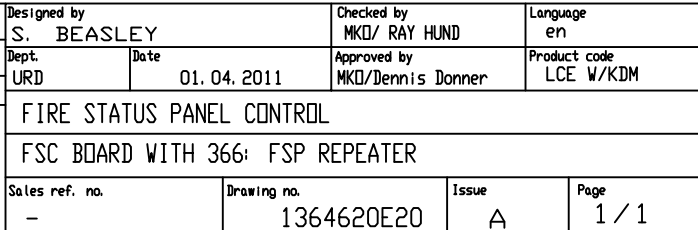
LCE Control Code	Message
61	Lobby
62	Pool
63	(available for future recording)
65	Elevator overloaded
66	Going up
67	Going down
68	Please remove obstruction from doors
70	Elevator required for an emergency, please leave when the elevator doors open
71	Earthquake, please leave when the elevator doors open
72	Power failure, please leave when the elevator doors open
73	Fire, please leave when the elevator doors open
77	Doors closing
78	Doors opening
79	Elevator required for special service, please leave when the elevator doors open *)
80	(available for future recording)
81	Rear entrance
82	Main entrance
83	Restaurant
84	Reception
85	Street level
86	Exit level
87	Mezzanine floor
88	Upper ground floor
89	Ground floor
90	Lower ground floor
91	Basement

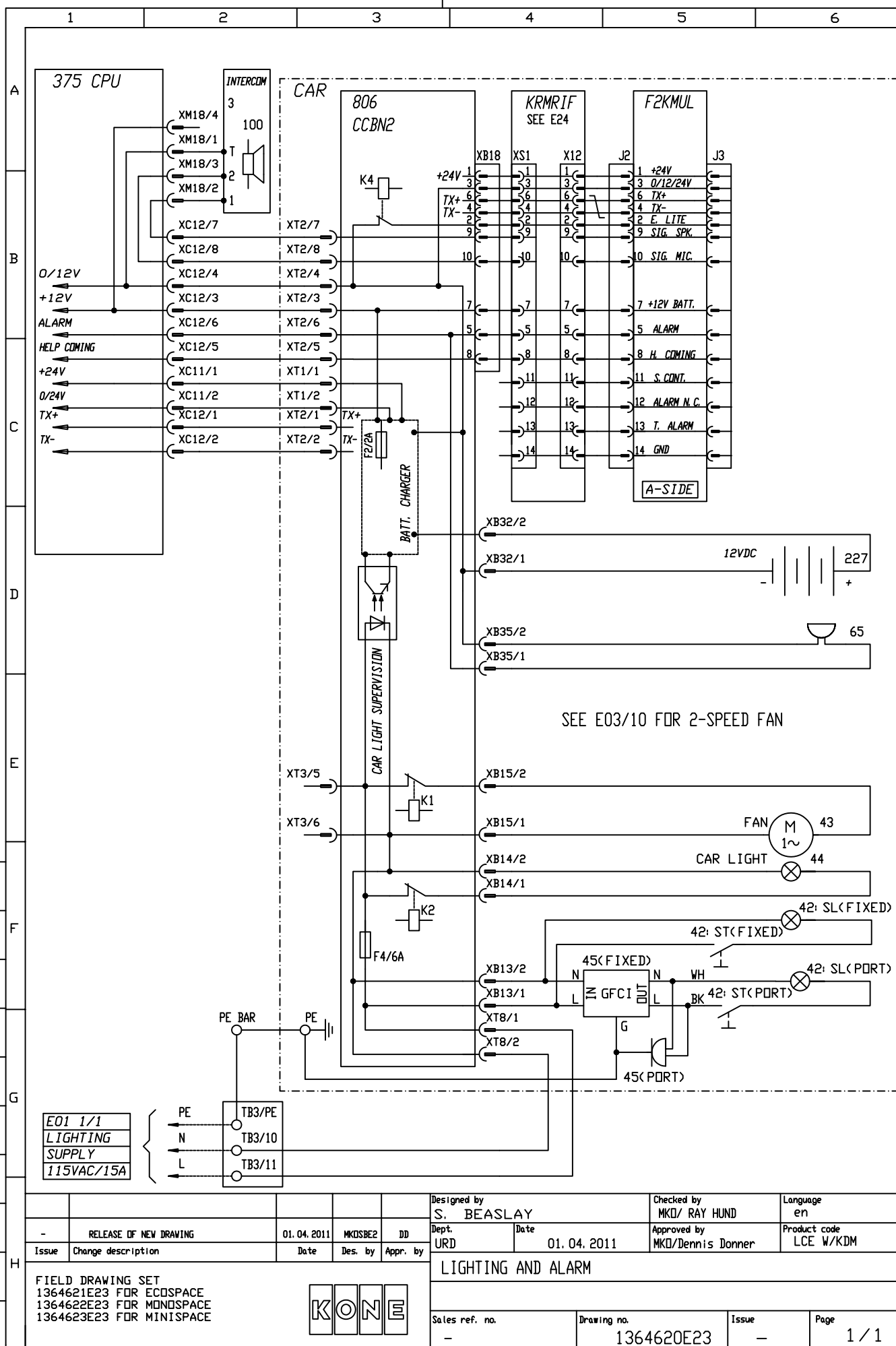
LCE Control Code	Message
92	Sub basement
93	Floor minus four
94	Floor minus three
95	Floor minus two
96	Floor minus one
97	Floor zero
98	Elevator A **)
99	Elevator B **)
100	Elevator C **)
101	Elevator D **)
102	Elevator E **)
103	Elevator F **)
104	Elevator G **)
105	Elevator H **)
106	Change elevator here **)
107	Lower level
108	Lower level 1
109	Lower level 2
110	P1
111	P2
112	P3
113	P4
114	P5
115	Roof
116	First basement
117	Second basement
118	Garage 1
119	Garage 2
120	Garage 3

Designed by S. BEASLEY	Checked by MKD/RAY HUND	Language en
Dept. URD	Date 01. 04. 2011	Approved by MKD/DENNIS DONNER
Product code LCE W/KDM		
ANNOUNCIATOR CONTROL UNIT (ACU)		
PREPROGRAMMED MESSAGES (61-120)		
Sales ref. no. -	Drawing no. 1364620E18	Issue -
		Page 3/3

Issue	Change description	Date	Des. by	Appr. by
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DAD

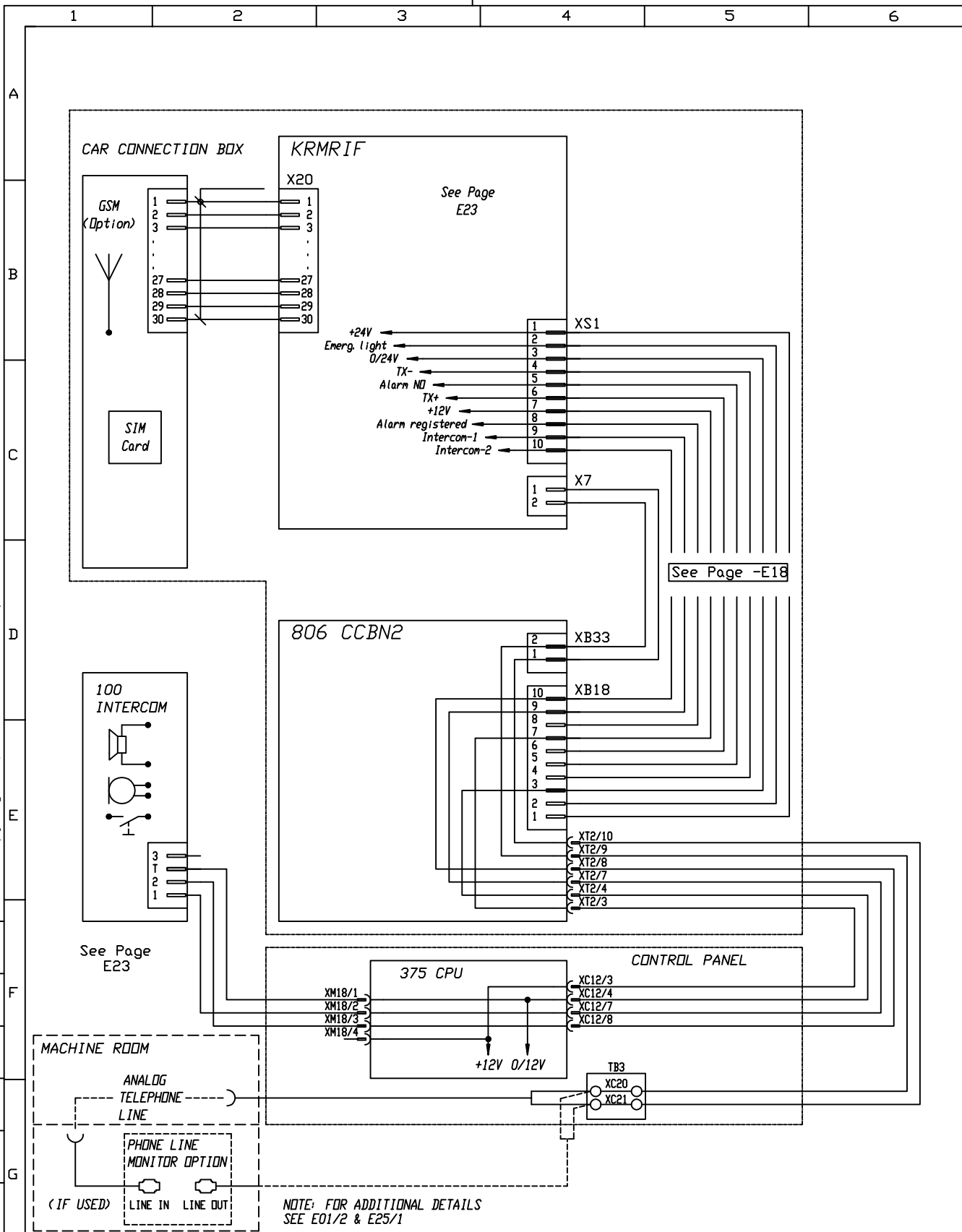
FIELD DRAWING SET 1364621E18 FOR ECOSPACE 1364622E18 FOR MONOSPACE 1364623E18 FOR MINISPACE	





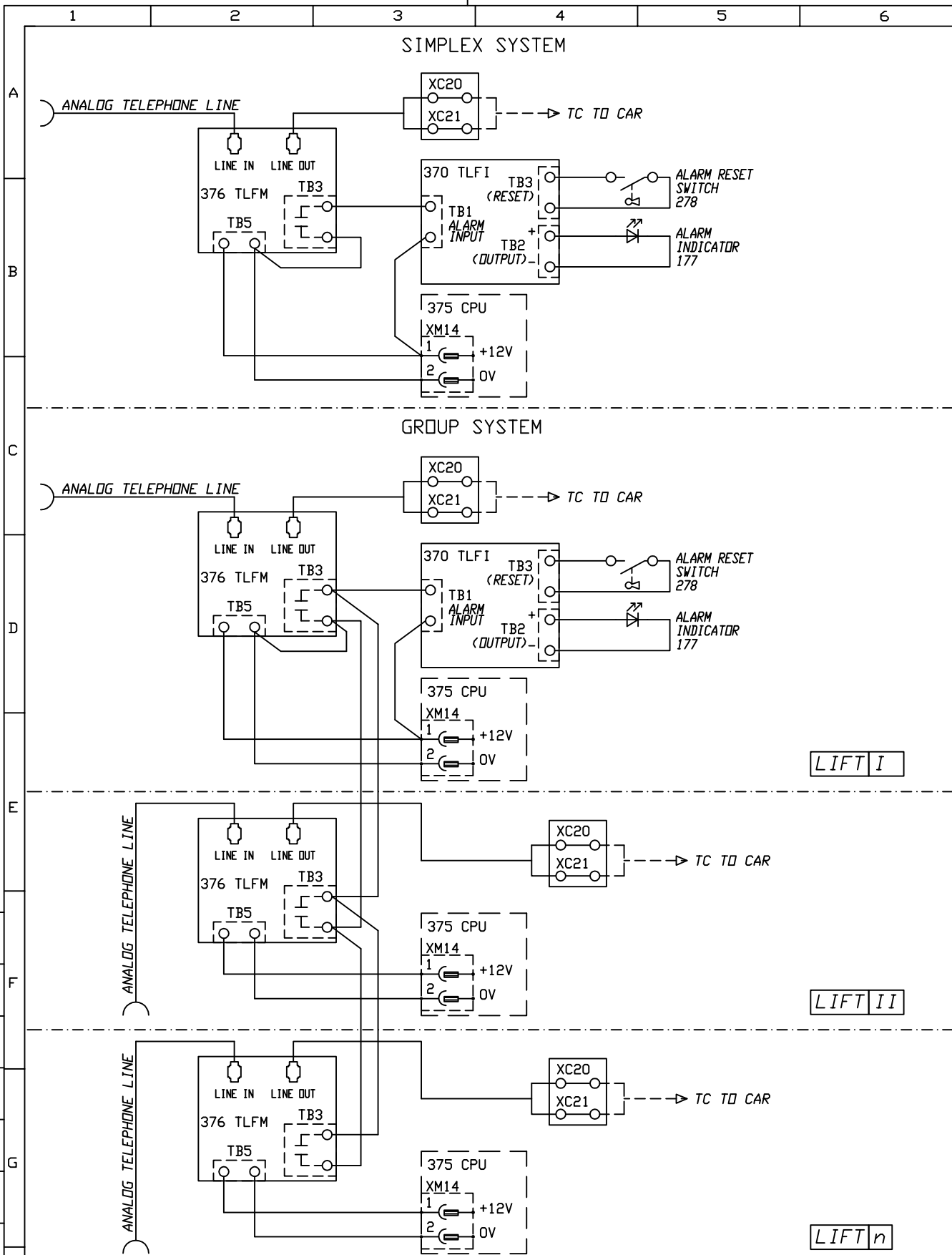
E01 1/1
LIGHTING
SUPPLY
115VAC/15A

					Designed by S. BEASLAY	Checked by MKD/ RAY HUND	Language en	
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by				
FIELD DRAWING SET 1364621E23 FOR ECOSPACE 1364622E23 FOR MONOSPACE 1364623E23 FOR MINISPACE KONE					LIGHTING AND ALARM			
					Sales ref. no. -		Drawing no. 1364620E23	



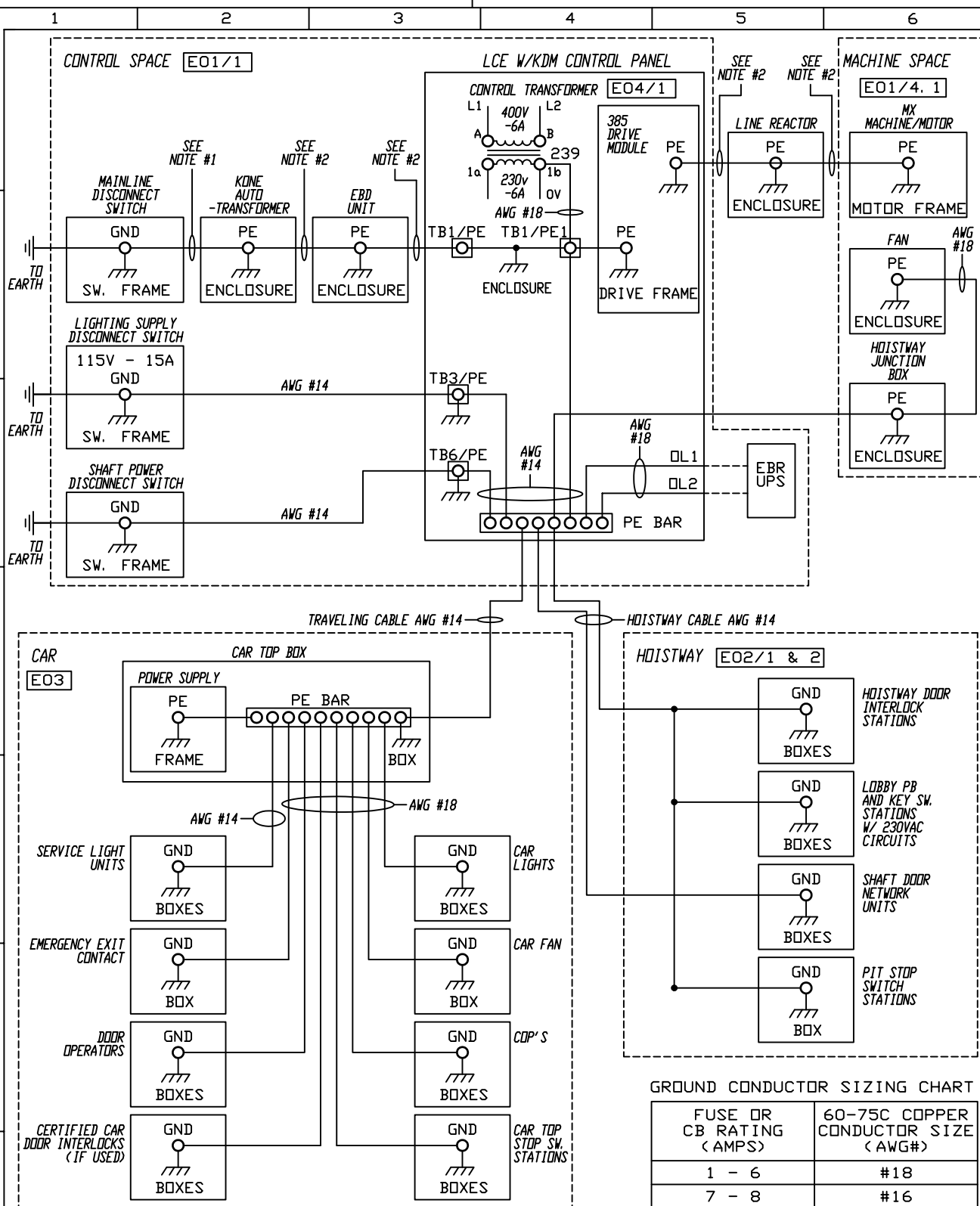
A	ADD TELEPHONE LINE MONITOR	03.07.2012	MKDSBE2	DD	Designed by S. BEASLEY		Checked by MKD/RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DAD	Dept.	Date 01.04.2011	Approved by MKD/DENNIS DONNER	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	COMMUNICATION DEVICES			
FIELD DRAWING SET 1364621E24 FOR ECOSPACE 1364622E24 FOR MONOSPACE 1364623E24 FOR MINISPACE					KONEXION M			
	Sales ref. no. -	Drawing no. 1364620E24	Issue A	Page 1/1				





					Designed by S. BEASLEY	Checked by MKD/RAY HUND	Language en	
—	RELEASE OF NEW DRAWING	03. 07. 2012	MKOSBE2	DD	Dept. URD	Date 03. 07. 2012	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	TELEPHONE LINE FAULT MONITOR / INDICATOR			
FIELD DRAWING SET 1364621E06 FOR ECOSPACE 1364622E06 FOR MONOSPACE 1364623E06 FOR MINISPACE KONE					GROUP CONNECTIONS			
					Sales ref. no. —	Drawing no. 1364620E25	Issue —	Page 1/1





NOTES:

#1. AWG SIZE BASED ON MAINLINE FUSE OR CB RATING (SIZE). SEE GND CONDUCTION SIZING CHART.

#2. AWG SIZE BASED ON AUTOTRANSFORMER OUTPUT RKI FUSE RATING (SIZE) SHOWN ON CONTROLLER NAMEPLATE. SEE GND CONDUCTOR SIZING CHART.

GROUND CONDUCTOR SIZING CHART

FUSE OR CB RATING (AMPS)	60-75C COPPER CONDUCTOR SIZE (AWG#)
1 - 6	#18
7 - 8	#16
9 - 15	#14
16 - 20	#12
21 - 60	#10
61 - 100	#8
101 - 200	#6

Designed by	S. BEASLEY	Checked by	MKD/ RAY HUND	Language	en
Dept.	URD	Date	01. 04. 2011	Approved by	MKD/Dennis Donner
Issue	Change description	Date		Product code	LCE W/KDM

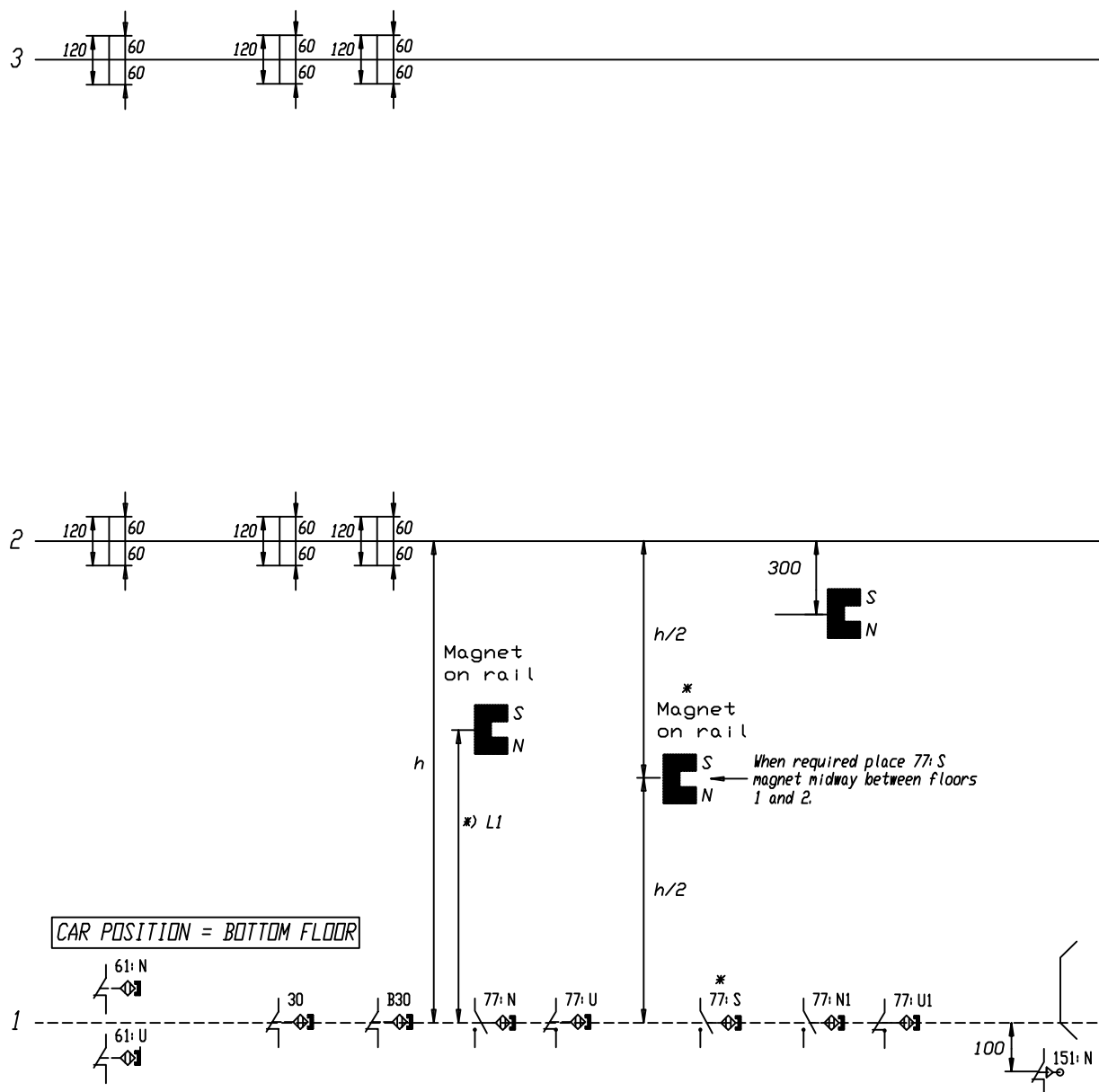
FIELD DRAWING SET
 1364621E01 FOR ECOSPACE
 1364622E01 FOR MONOSPACE
 1364623E01 FOR MINISPACE



GROUNDING DETAILS

SAFETY GROUND CIRCUIT

Sales ref. no.	Drawing no.	Issue	Page
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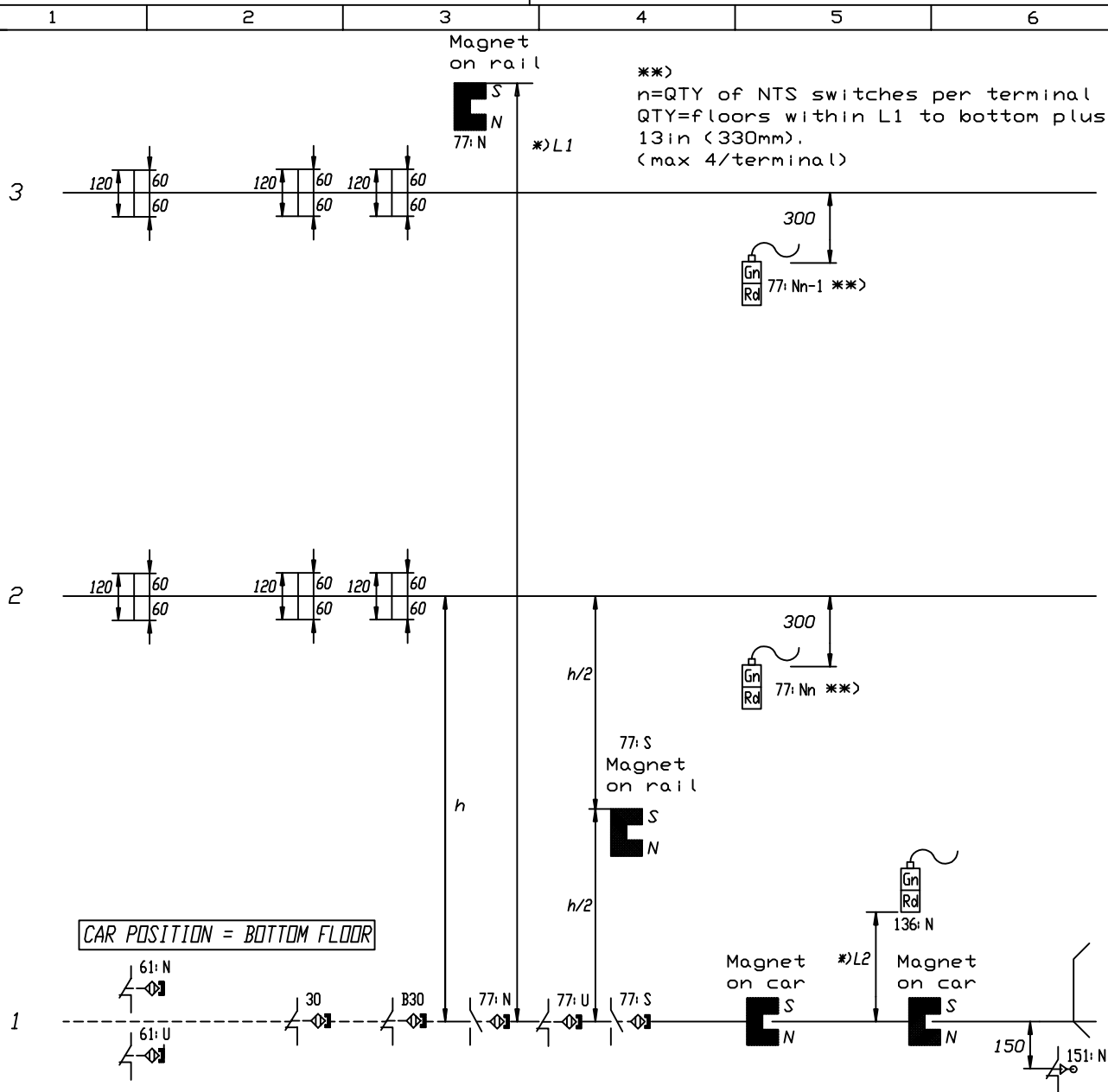
- 30 Door zone "A-side"
- B30 Door zone "B-side"
- 61: N Levelling switch "down"
- 61: U Levelling switch "up"
- 77: N Full speed NTS Switch "down"
- 77: N1 Short Floor NTS Switch "down"
- 77: U Full speed NTS Switch "up"
- 77: U1 Short Floor NTS Switch "up"
- 77: S Short Floor Synchronization switch
- 151: N Final limit switch "down direction"
- 151: U Final limit switch "up direction"

SPEED FPM (MPS)	ACCEL RATE MPS ²	L1=> In (mm)
100 (0.50)	0.4	31 (800)
150 (0.75)	0.4	51 (1300)
200 (1.00)	0.4	79 (2000)
200 (1.00)	0.6	63 (1600)

*) NOTES:

1. 77: N1 is only required when distance between floors 1 and 2 is less than L1 plus 13 in (330mm).
(See page 3/3 for requirements at top floors).

A	MODIFIED NTS SETTINGS.	04.25.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E60 FOR ECOSPACE 1364622E60 FOR MONOSPACE 1364623E60 FOR MINISPACE					SHAFT VANE DIAGRAM		
KONE					LOWERMOST FLRS W/ CIGAR SW W/NTS ON CAR & W/D ETS ECO		
Sales ref. no. -		Drawing no. 1364620E60		Issue A		Page 1. 1/3	



*) MAGNET AND SWITCH SETTING CHART

SPEED FPM(mps)	ACCEL RATE mps ²	(NTS) L1= in (mm)	(ETS) L2 in (mm)	ADDN ETS SPEED SET (mps)
100<0.50>	0.4	31<800>	Not Used	Not Used
150<0.75>	0.4	51<1300>	Not Used	Not Used
200<1.00>	0.4	79<2000>	Not Used	Not Used
200<1.00>	0.6	63<1600>	Not Used	Not Used
350<1.75>	0.4	197<5000>	31<800>	1.4
350<1.75>	0.6	154<3900>	31<800>	1.4

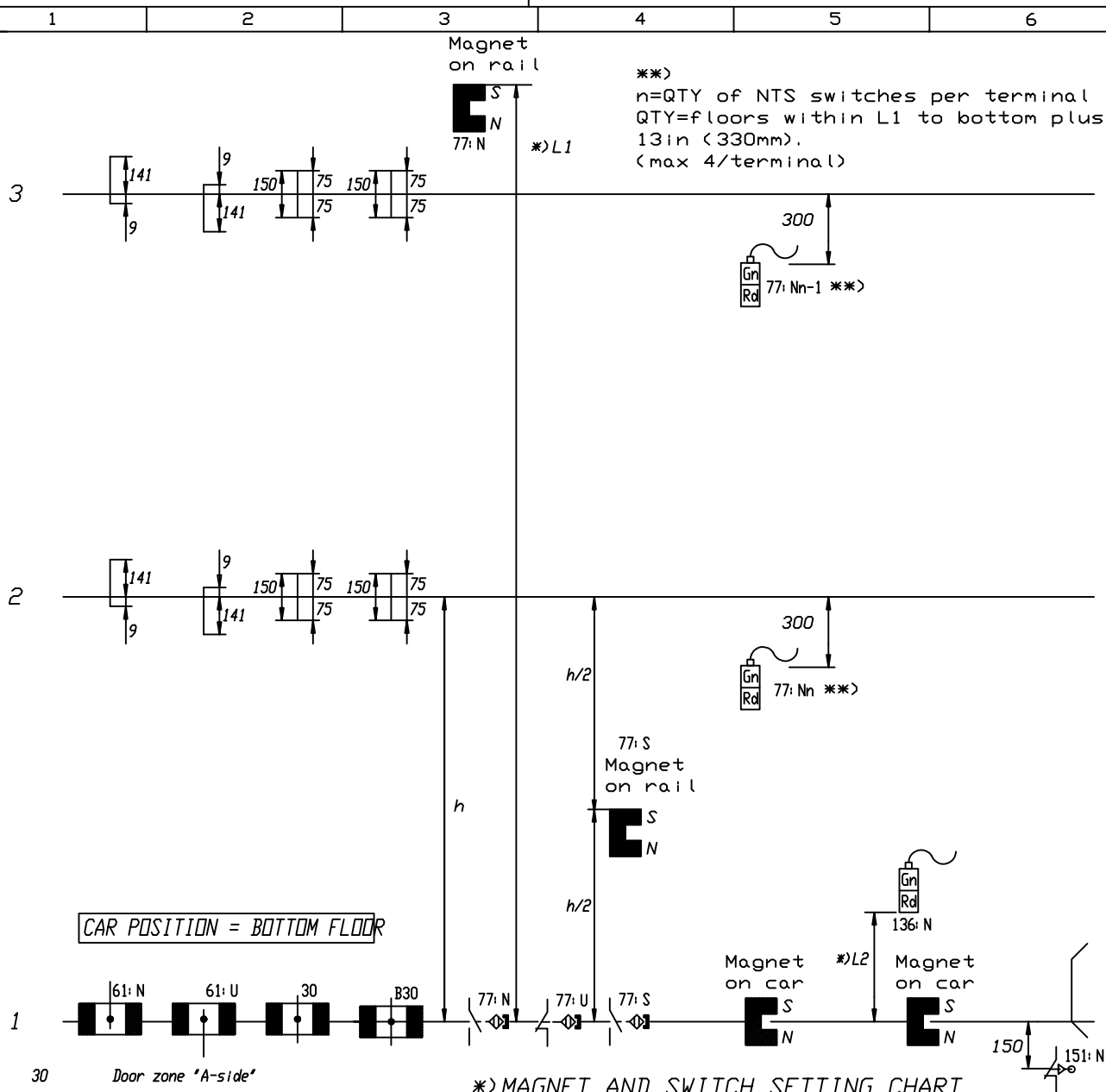
77: S is required if a 77: N1-n or 77: U1-n is required.

A	MODIFIED NTS, ETS SETTINGS.	04.25.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	SHAFT VANE DIAGRAM		
FIELD DRAWING SET 1364621E60 FOR ECOSPACE 1364622E60 FOR MONOSPACE 1364623E60 FOR MINISPACE					LOWERMOST FLRS W/CIGAR SW W/NTS & ETS IN SHAFT ECO		
KONE					Sales ref. no. -	Drawing no. 1364620E60	Issue A
					Page 1. 2/3		



77: S is required if a 77: N1-n or 77: U1-n is required.

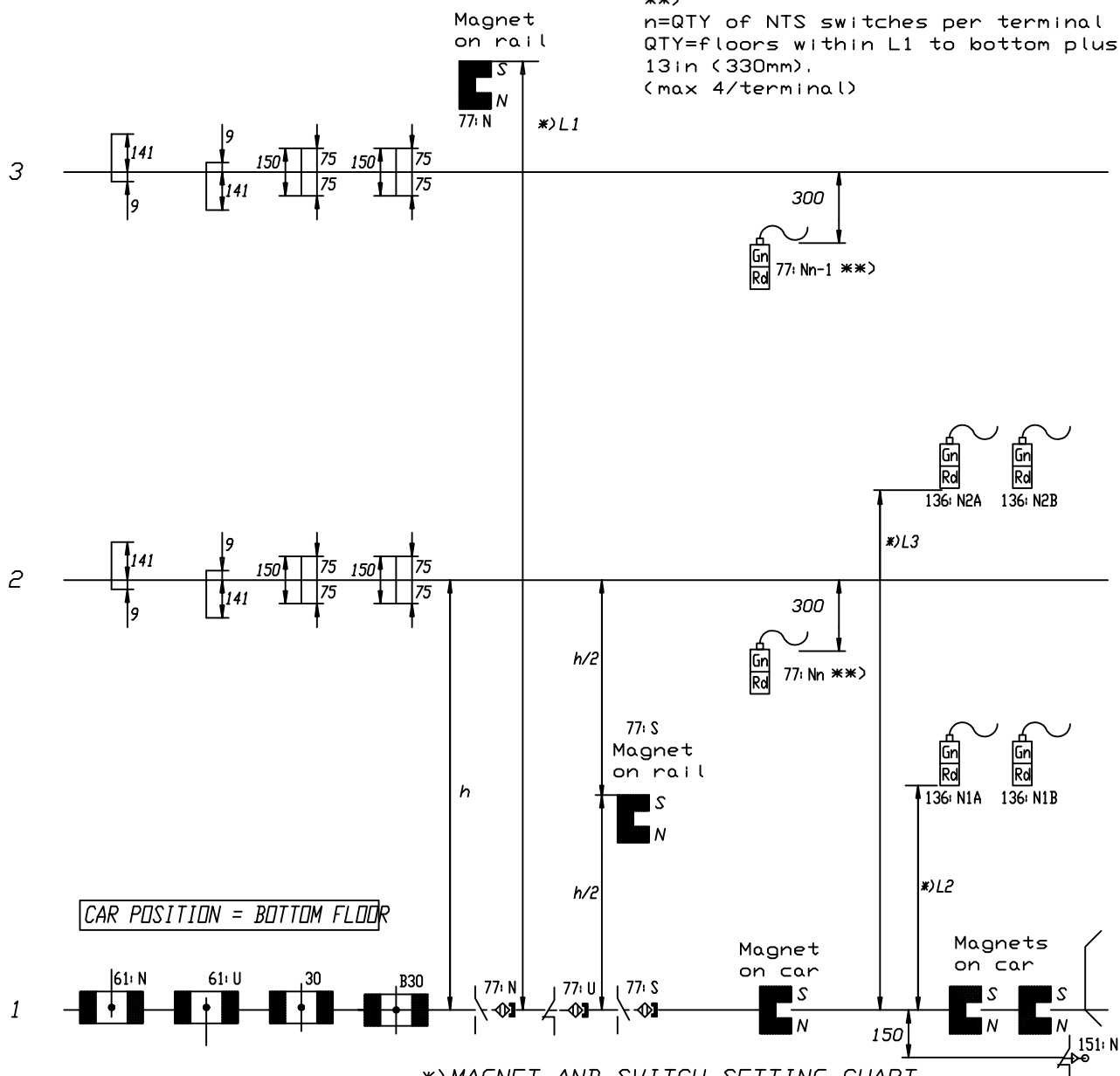
K	O	N	E



*) MAGNET AND SWITCH SETTING CHART

SPEED FPM(mps)	ACCEL RATE mps ²	(NTS)L1=> in (mm)	(ETS)L2 in (mm)	ADDN ETS SPEED SET mps
100<0.50>	0.4	31<800>	Not Used	Not Used
150<0.75>	0.4	51<1300>	Not Used	Not Used
200<1.00>	0.4	79<2000>	Not Used	Not Used
200<1.00>	0.6	63<1600>	Not Used	Not Used
250<1.25>	0.4	110<2800>	18<400>	1.0
250<1.25>	0.6	87<2200>	18<400>	1.0
350<1.75>	0.6	154<3900>	31<800>	1.4
350<1.75>	0.8	114<2900>	31<800>	1.4
400<2.00>	0.6	190<4800>	39<1000>	1.6
400<2.00>	0.8	141<3600>	39<1000>	1.6
450<2.25>	0.6	228<5800>	47<1200>	1.8
450<2.25>	0.8	170<4300>	47<1200>	1.8
500<2.50>	0.6	275<7000>	55<1400>	2.0
500<2.50>	0.8	208<5300>	55<1400>	2.0
600<3.00>	0.8	295<7500>	78<2000>	2.3

A	MODIFIED NTS, ETS SETTINGS.	04.25.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	SHAFT VANE DIAGRAM		
FIELD DRAWING SET 1364621E60 FOR ECOSPACE 1364622E60 FOR MONOSPACE 1364623E60 FOR MINISPACE					LOWERMOST FLRS W/O OSCILLATORS W/NTS & ETS MONO & MINI		
KONE					Sales ref. no. -	Drawing no. 1364620E60	Issue A
					Page 1. 4/3		

A
B
C
D
E
F
G
H

*) MAGNET AND SWITCH SETTING CHART

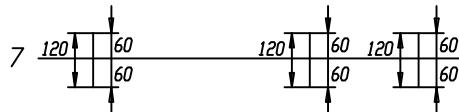
30 Door zone 'A-side'
B30 Door zone 'B-side'
61: N Levelling switch 'down'
61: U Levelling switch 'up'
77: N Full speed NTS Switch 'down'
77: U Full speed NTS Switch 'up'
77: S Synchronization switch
77: N1-n NTS Switch 'down'
77: U1-n NTS Switch 'up'
136: N1-N2 ETS L Switch 'down'
136: U1-U2 ETS L Switch 'up'
151: N Final limit switch 'down'
151: U Final limit switch 'up'

SPEED FPM(mps)	ACCEL RATE mps ²	<NTS> L1= in (mm)	ETSL1 BRD ETSL1 L2 in (mm)	ETSL1 BOARD SET mps	ETSL2 BRD ETSL2 L3 in (mm)	ETSL2 BOARD SET mps
350(1.75)	0.6	154(3900)	31(800)	1.4	Not Used	Not Used
350(1.75)	0.8	114(2900)	31(800)	1.4	Not Used	Not Used
400(2.00)	0.6	190(4800)	39(1000)	1.6	Not Used	Not Used
400(2.00)	0.8	141(3600)	39(1000)	1.6	Not Used	Not Used
450(2.25)	0.6	228(5800)	47(1200)	1.8	Not Used	Not Used
450(2.25)	0.8	170(4300)	47(1200)	1.8	Not Used	Not Used
500(2.50)	0.6	275(7000)	55(1400)	2.0	Not Used	Not Used
500(2.50)	0.8	208(5300)	55(1400)	2.0	Not Used	Not Used
600(3.00)	0.8	295(7500)	78(2000)	2.3	Not Used	Not Used
700(3.50)	0.8	393(10000)	78(2000)	2.3	157(4000)	3.0

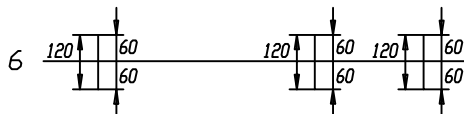
77: S is required if a 77: N1-n or 77: U1-n is required.

A	MODIFIED NTS, ETSL SETTINGS.	04.25.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	SHAFT VANE DIAGRAM		
FIELD DRAWING SET 1364621E60 FOR ECOSPACE 1364622E60 FOR MONOSPACE 1364623E60 FOR MINISPACE					LOWERMOST FLRS W/OSCILLATORS W/NTS & ETSL MOND & MINI		
KONE					Sales ref. no. -	Drawing no. 1364620E60	Issue A
					Page 1. 5/3		

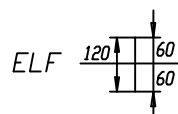
A



B

 $n \times h$ 

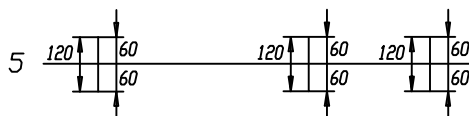
C

 $h/2 *$ 

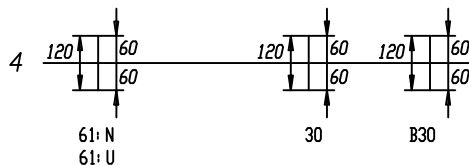
Example:

Dummy floor between 5 - 6 floors

D

 $h/2 *$ 

E

 h 

F

*) NOTE!

ELF = EXTRA LONG FLOOR TO FLOOR DISTANCE

If floor to floor distance exceeds 10M (=h) dummy floor is needed.

30 Door zone 'A-side'

B30 Door zone 'B-side'

61:N Levelling switch 'down'

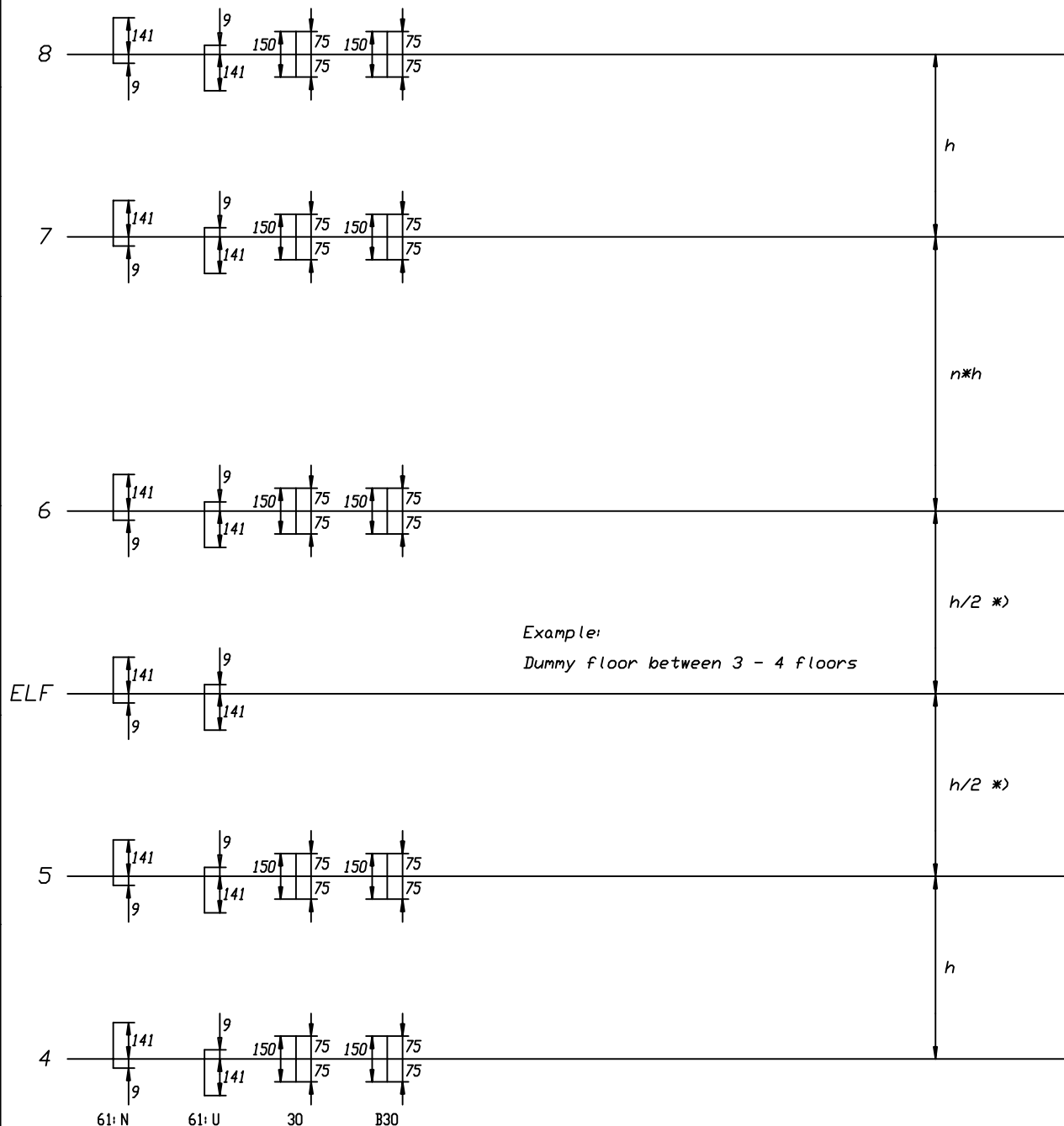
61:U Levelling switch 'up'

G

H

A	REVISION UPDATE.	04. 25. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Date 01. 04. 2011	Approved by MKD/Dennis Donner
Issue	Change description	Date	Des. by	Appr. by	Product code LCE W/KDM		
FIELD DRAWING SET					SHAFT VANE DIAGRAM		
1364621E60 FOR ECOSPACE					INTERMEDIATE FLOORS W/CIGAR SWITCHES ECO		
1364622E60 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E60 FOR MINISPACE					-	1364620E60	A
					Page 2. 1/3		





30 Door zone 'A-side'
 B30 Door zone 'B-side'
 61: N Levelling switch 'down'
 61: U Levelling switch 'up'

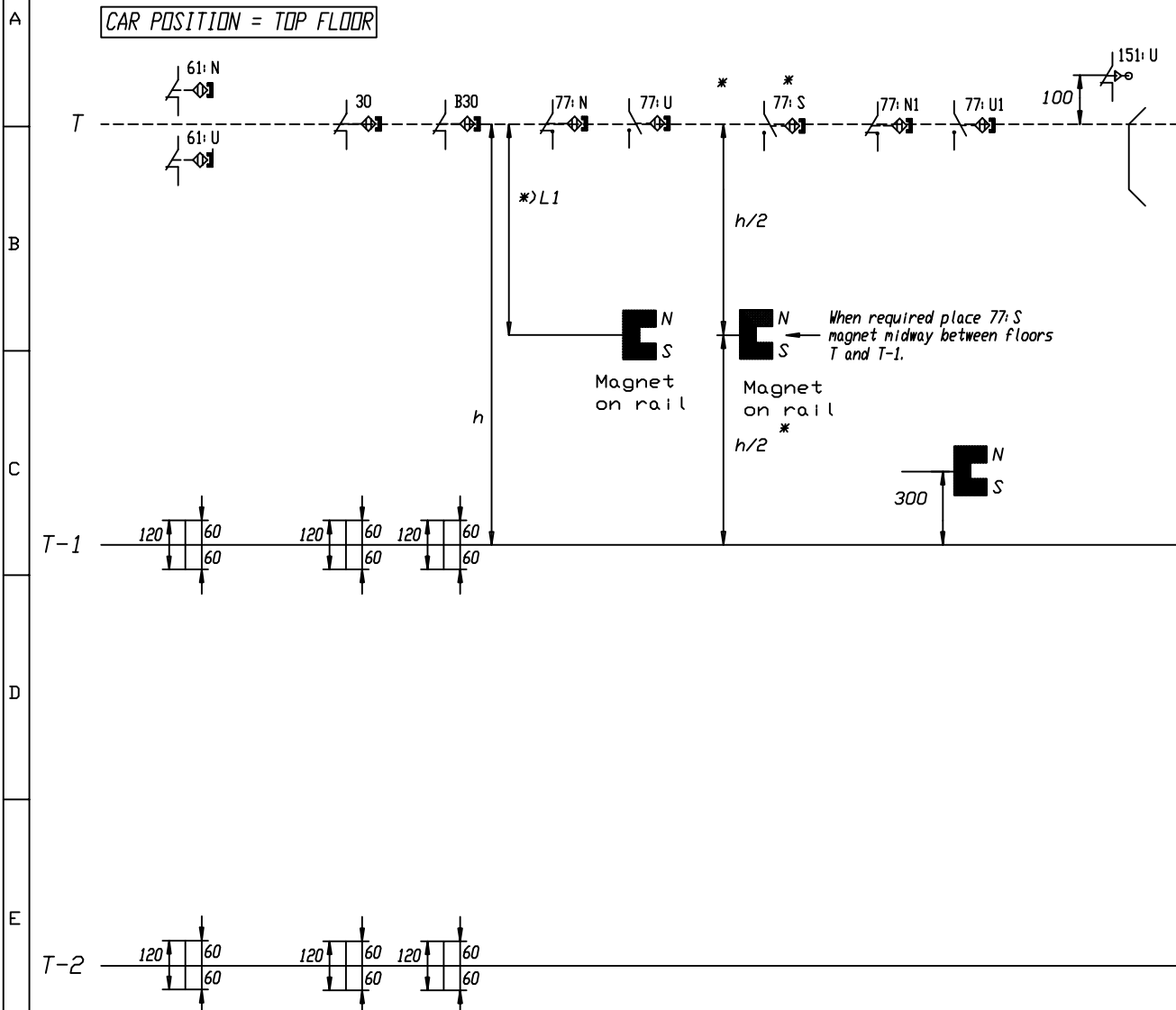
*) NOTE!

ELF = EXTRA LONG FLOOR TO FLOOR DISTANCE

If floor to floor
 distance exceeds 10m (=h)
 dummy floor is needed.
 See example!

A	REVISION UPDATE.	04. 25. 2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01. 04. 2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01. 04. 2011		
FIELD DRAWING SET					SHAFT VANE DIAGRAM		
1364621E60 FOR ECOSPACE					INTERMEDIATE FLOORS W/OSCILLATORS MONO & MINI		
1364622E60 FOR MONOSPACE					Sales ref. no.	Drawing no.	Issue
1364623E60 FOR MINISPACE					-	1364620E60	A
					Page 2. 2/3		





- 30 Door zone 'A-side'
 B30 Door zone 'B-side'
 61:N Levelling switch 'down'
 61:U Levelling switch 'up'
 77:N Full speed NTS Switch 'down'
 77:N1 Short Floor NTS Switch 'down'
 77:U Full speed NTS Switch 'up'
 77:U1 Short Floor NTS Switch 'up'
 77:S Short Floor Synchronization switch
 151:N Final limit switch 'down direction'
 151:U Final limit switch 'up direction'

SPEED FPM (mps)	ACCEL RATE mps ²	<NTS>L1=> in (mm)
100<0.50>	0.4	31<800>
150<0.75>	0.4	51<1300>
200<1.00>	0.4	79<2000>
200<1.00>	0.6	63<1600>

*) NOTES:

1. 77:U1 is only required when distance between floors T and T-1 is less than L1 plus 13in (330mm).
 (See page 1/3 for requirements at bottom floors).

77:S is required if a 77:N1 or 77:U1 is required.

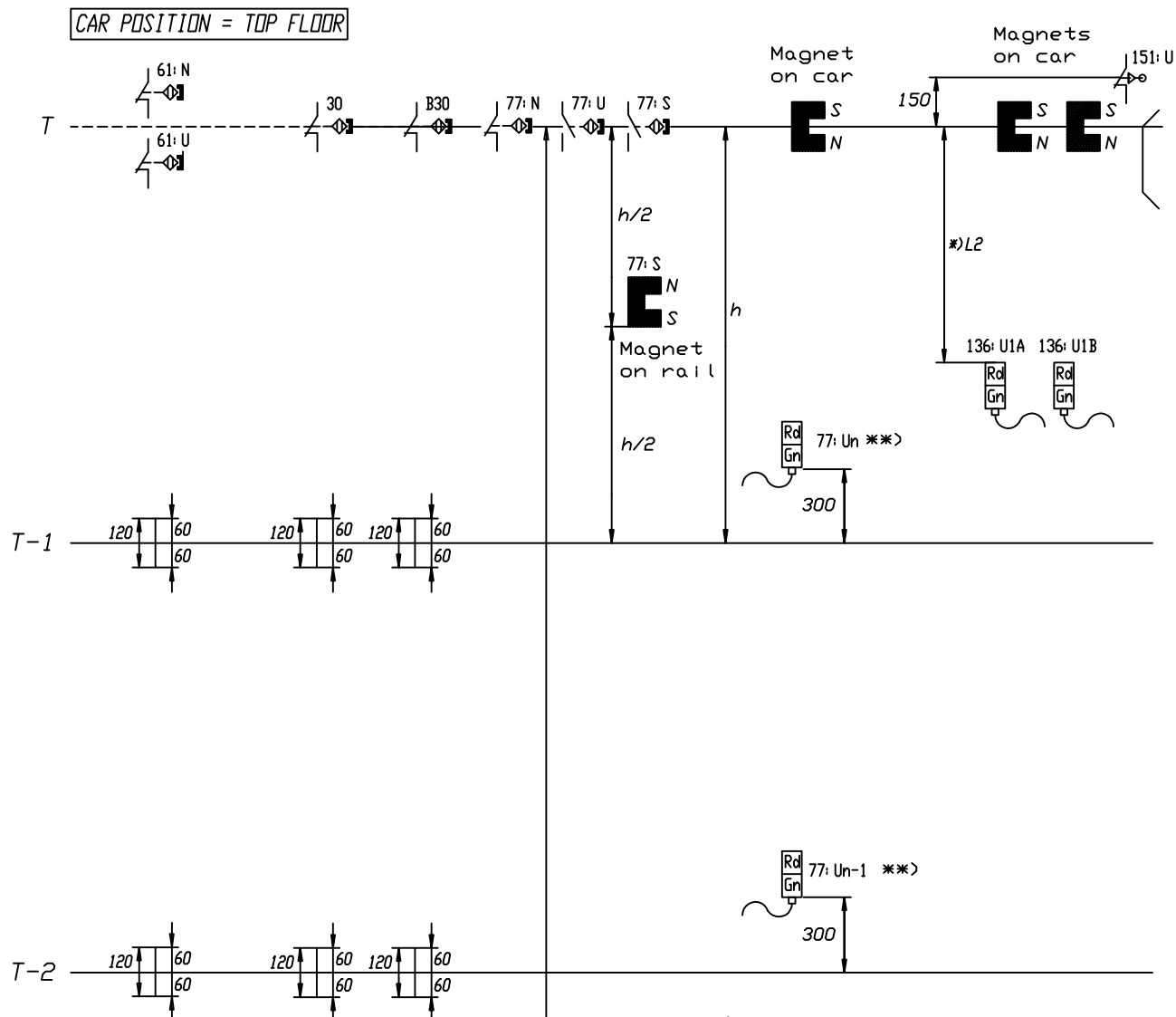
A	MODIFIED NTS SETTINGS.	04.25.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E60 FOR ECOSPACE 1364622E60 FOR MONOSPACE 1364623E60 FOR MINISPACE					SHAFT VANE DIAGRAM		
KONE					TOPMOST FLRS W/CIGAR SWITCH W/NTS ON CAR & W/D ETS ECO		
					Sales ref. no. -	Drawing no. 1364620E60	Issue A
					Page 3. 1/3		



I

77: S is required if a 77: N1-n or 77: U1-n is required.

K	O	N	E



*)L1

77:U
N
SMagnet
on rail

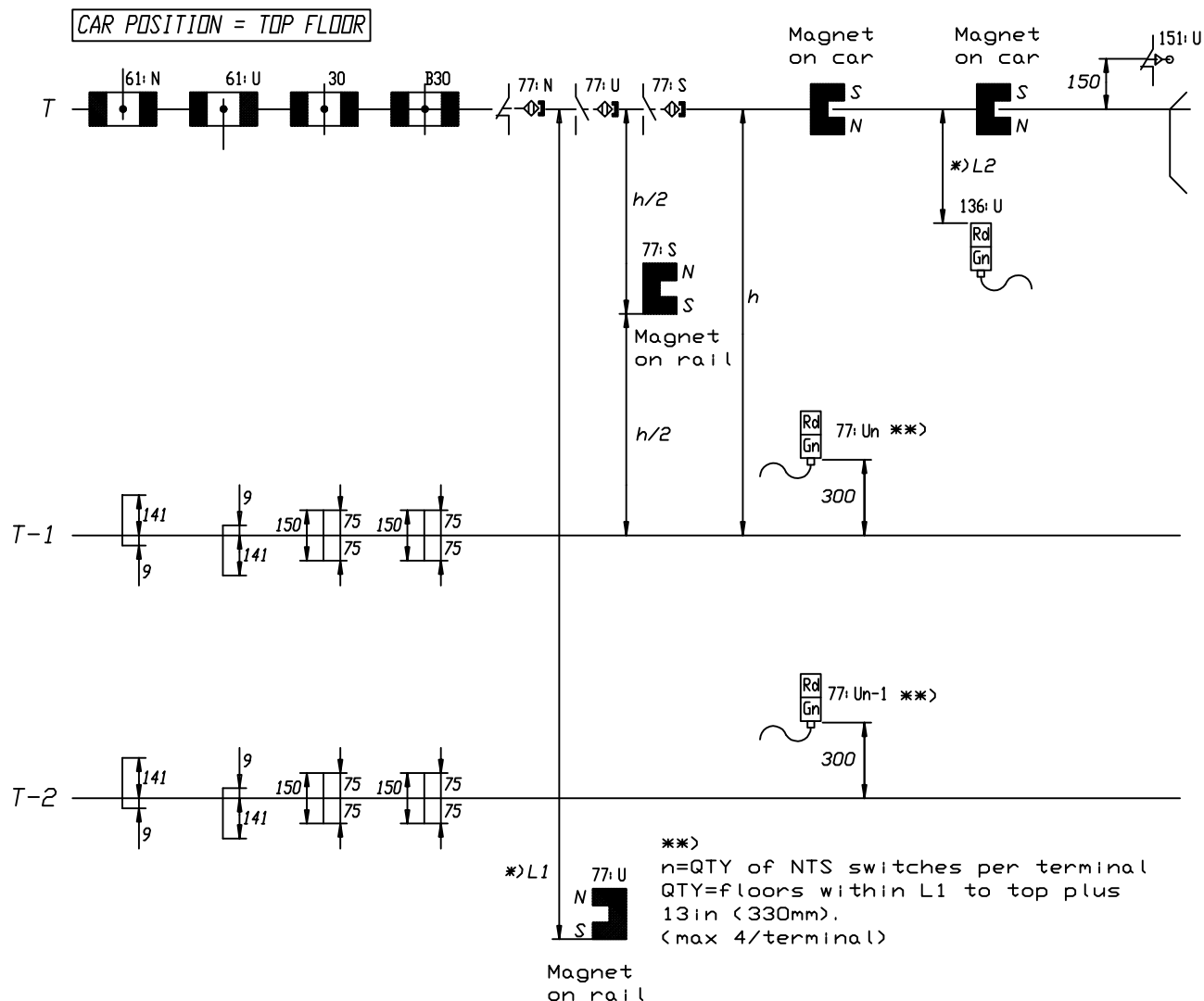
***)

n=QTY of NTS switches per terminal
 QTY=floors within L1 to top plus
 13in (330mm).
 (max 4/terminal)

*)MAGNET AND SWITCH SETTING CHART

SPEED FPM(mps)	ACCEL RATE mps ²	<NTS>L1= in (mm)	<ETSL>L2 in (mm)	ETSL BOARD ETSL SPEED SET mps
350<1.75>	0.4	197<5000>	31<800>	1.4
350<1.75>	0.6	154<3900>	31<800>	1.4

A	MODIFIED NTS, ETSL SETTINGS.	04.25.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Approved by MKD/Dennis Donner	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	01.04.2011		
FIELD DRAWING SET 1364621E60 FOR ECOSPACE 1364622E60 FOR MONOSPACE 1364623E60 FOR MINISPACE					SHAFT VANE DIAGRAM		
KONE					TOPMOST FLRS W/CIGAR SW W/NTS & ETSL ECO		
Sales ref. no. -		Drawing no. 1364620E60		Issue A		Page 3. 3/3	



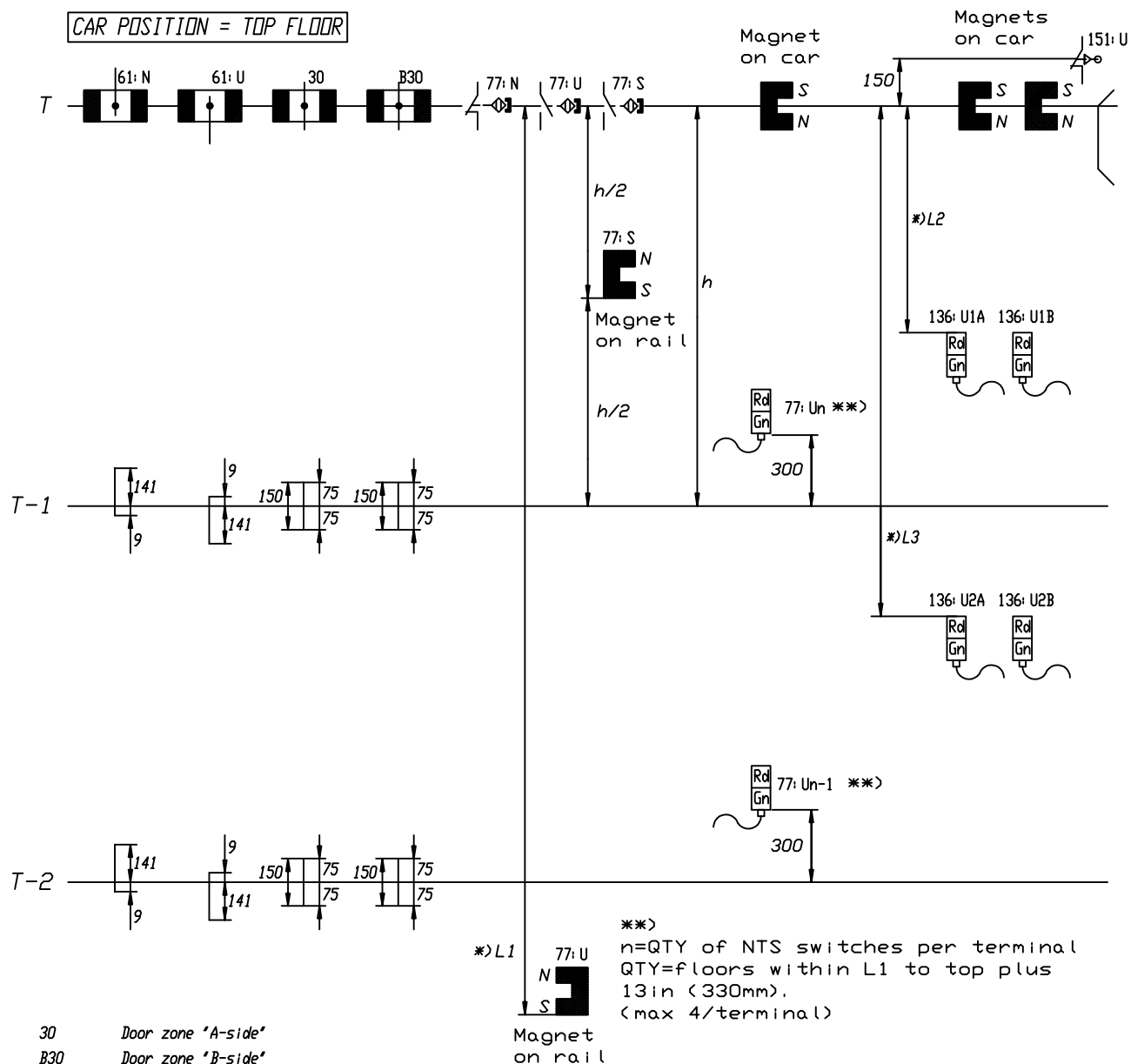
*)MAGNET AND SWITCH SETTING CHART

30 Door zone 'A-side'
 B30 Door zone 'B-side'
 61: N Levelling switch 'down'
 61: U Levelling switch 'up'
 77: N Full speed NTS Switch 'down'
 77: U Full speed NTS Switch 'up'
 77: S Synchronization switch
 77: N1-n NTS Switch 'down'
 77: U1-n NTS Switch 'up'
 136: N ETS Switch 'down'
 136: U ETS Switch 'up'
 151: N Final limit switch 'down'
 151: U Final limit switch 'up'

77: S is required if a 77: N1-n or 77: U1-n is required.

SPEED FPM(mps)	ACCEL RATE mps ²	<NTS>L1=> in (mm)	<ETS>L2 in (mm)	ADDN ETS SPEED SET mps
100<0.50>	0.4	31<800>	Not Used	Not Used
150<0.75>	0.4	51<1300>	Not Used	Not Used
200<1.00>	0.4	79<2000>	Not Used	Not Used
200<1.00>	0.6	63<1600>	Not Used	Not Used
250<1.25>	0.4	110<2800>	18<400>	1.0
250<1.25>	0.6	87<2200>	18<400>	1.0
350<1.75>	0.6	154<3900>	31<800>	1.4
350<1.75>	0.8	114<2900>	31<800>	1.4
400<2.00>	0.6	190<4800>	39<1000>	1.6
400<2.00>	0.8	141<3600>	39<1000>	1.6
450<2.25>	0.6	228<5800>	47<1200>	1.8
450<2.25>	0.8	170<4300>	47<1200>	1.8
500<2.50>	0.6	275<7000>	55<1400>	2.0
500<2.50>	0.8	208<5300>	55<1400>	2.0
600<3.00>	0.8	295<7500>	78<2000>	2.3

A	MODIFIED NTS, ETS SETTINGS.	03.25.2013	MKDSBE2	DD	Designed by S. BEASLEY	Checked by MKD/ RAY HUND	Language en
-	RELEASE OF NEW DRAWING	01.04.2011	MKDSBE2	DD	Dept. URD	Date 01.04.2011	Product code LCE W/KDM
Issue	Change description	Date	Des. by	Appr. by	Approved by MKD/Dennis Donner		
FIELD DRAWING SET 1364621E60 FOR ECOSPACE 1364622E60 FOR MONOSPACE 1364623E60 FOR MINISPACE					SHAFT VANE DIAGRAM		
KONE					TOPMOST FLRS W/OSCILLATORS & W/NTS & ETS MONO & MINI		
Sales ref. no. -		Drawing no. 1364620E60		Issue A		Page 3. 4/3	



SPEED FPM(mps)	ACCEL RATE mps²	(NTS) L1 => in (mm)	ETSL1 BRD ETSL1 L2 in (mm)	ETSL1 BOARD ETSL1 SPEED SET mps	ETSL2 BRD ETSL2 L3 in (mm)	ETSL2 BOARD ETSL2 SPEED SET mps
350(1.75)	0.6	154(3900)	31(800)	1.4	Not Used	Not Used
350(1.75)	0.8	114(2900)	31(800)	1.4	Not Used	Not Used
400(2.00)	0.6	190(4800)	39(1000)	1.6	Not Used	Not Used
400(2.00)	0.8	141(3600)	39(1000)	1.6	Not Used	Not Used
450(2.25)	0.6	228(5800)	47(1200)	1.8	Not Used	Not Used
450(2.25)	0.8	170(4300)	47(1200)	1.8	Not Used	Not Used
500(2.50)	0.6	275(7000)	55(1400)	2.0	Not Used	Not Used
500(2.50)	0.8	208(5300)	55(1400)	2.0	Not Used	Not Used
600(3.00)	0.8	295(7500)	78(2000)	2.3	Not Used	Not Used
700(3.50)	0.8	393(10000)	78(2000)	2.3	157(4000)	3.0

77: S is required if a 77: N1-n or 77: U1-n is required.

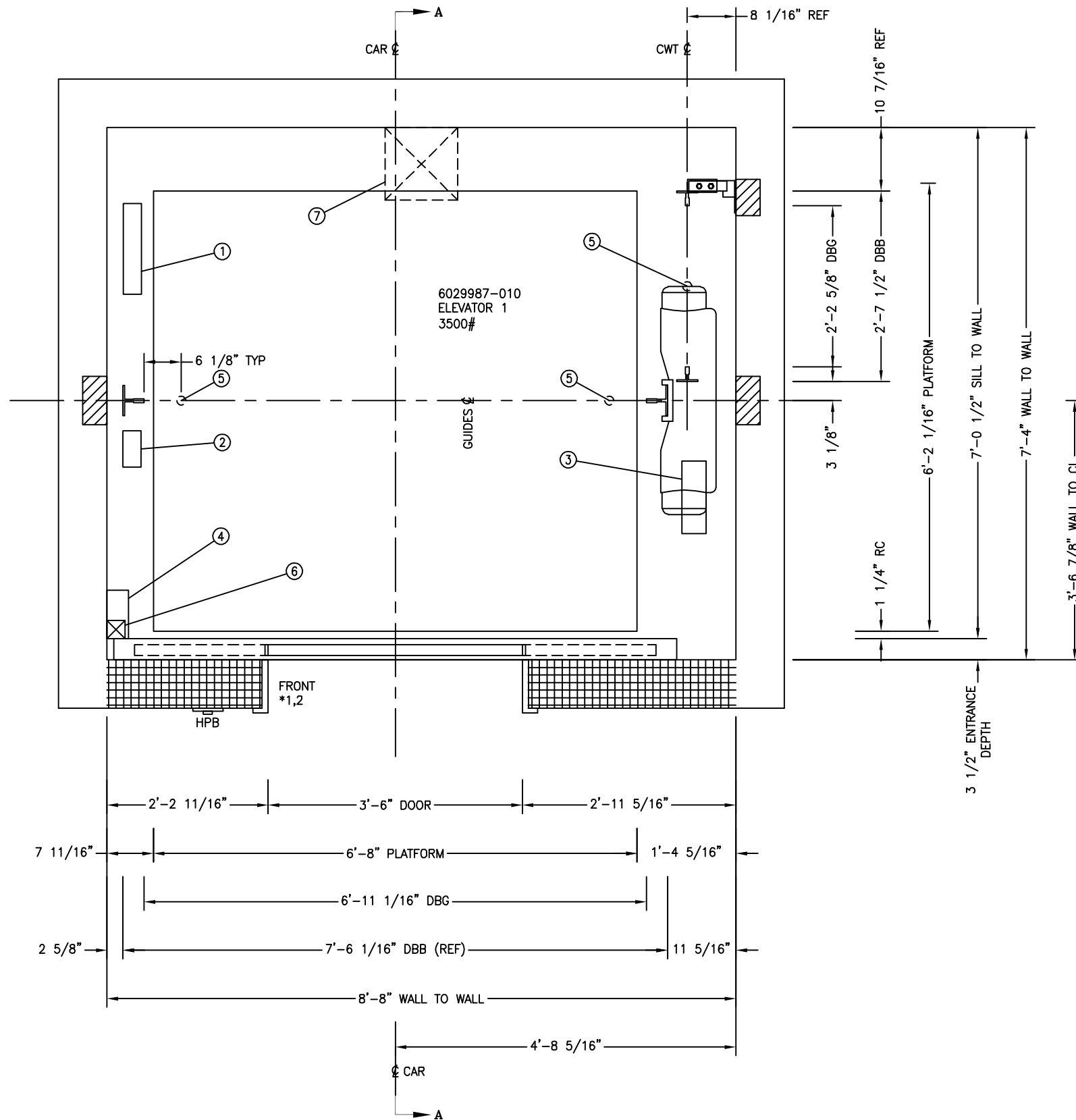
Designed by S. BEASLEY		Checked by MKD/ RAY HUND		Language en	
Dept. URD		Date 01.04.2011		Approved by MKD/Dennis Donner	
Product code LCE W/KDM					
SHAFT VANE DIAGRAM					
TOPMOST FLRS W/OSCILLATORS & W/NTS & ETSL MOND & MINI					
Sales ref. no. -		Drawing no. 1364620E60		Issue -	
				Page 3. 5/3	

FIELD DRAWING SET
 1364621E60 FOR ECOSPACE
 1364622E60 FOR MONOSPACE
 1364623E60 FOR MINISPACE



Approvals & Version History

Issue	Date	Description of Change	Ref. CR	Approved by
-	2011-09-01	First release	CR-016844	Ray Hund
A	2012-11-27	Added Information to WD's for Phone Line Monitor, TLR and the MX14 machine.	CR-020659	Dennis Donner
B	2013-11-18	Revisions for the following: Shielded Brake Coil Wiring w/BCX OL35 Tension Wt. Sw. Input (TWS) Door Bypass Sw. w/K446 Relay NMX11 Applications for Fenix NTS/ETS/ETSL Sw. & Speed Settings	CR-025711	Dennis Donner



- ① TRAVELING CABLE

② DEAD-END HITCH

③ GOVERNOR / TENSION WT ASSEMBLY (SEE NOTE B)

④ PIT LADDER
- ⑤ TYP BUFFER LOCATION / SEE DATA SHEET FOR REACTIONS

⑥ WIRE DUCT (SEE NOTE C)

⑦ RECOMMENDED SUMP PUMP LOCATION (IF REQUIRED)

NOTES:

- A. ENTIRE FRONT AND/OR REAR HOISTWAY WALL TO BE LEFT FULLY OPEN AT EACH LANDING - COORDINATE WITH KONE.
- B. GOVERNOR TO BE POSITIONED WITH ELECTRICAL BOXES TOWARDS CAR SIDE AND ENCODER TOWARDS FRONT SIDE.
- C. TERMINATE WIRE DUCT 48" [1220] ABOVE LOWEST LANDING. PIT LADDER TO BE POSITIONED DIRECTLY BELOW DUCT.
- D. REFER TO THE DATA SHEET FOR FURTHER DETAILS CONCERNING ALLOWABLE CLEAR HOISTWAY TOLERANCES.
- E. MINIMUM CLEAR HOISTWAY WIDTH SHOWN. CONTACT KONE FOR MAXIMUM ALLOWABLE CLEAR HOISTWAY.
- F. ALL CAR AND CWT RAIL BRACKETS ATTACH TO SIDE HOISTWAY WALLS.
- G. FILLER BIT HEIGHTS ARE BASED ON A COMPLETE CAB INSTALLATION FIELD NOTES:

1. E DIM FOR ELEV 1 = 95.032"

ELEVATOR: 1
FULL FILLER BIT HT (STEEL)THIN: 4 1/4"
FULL FILLER BIT HT (STEEL)THK: 5'-6 1/2"

APPROVED BY

RB+B
2014-07-15

APPROVAL SPACE

PROJECT:

KELLY WALSH HIGH SCHOOL

LOCATION:

ECOSPACE - 1

ENG/ARCH:

<engineer>

CONTRACTOR:

SAMPSON CONSTRUCTION CO INC

UNIT NO.				
	010	6029987	20373685	
	ITEM NO.	UNIT NO.	EQUIPMENT NO.	
REVISIONS				
	2014-10-08	A	ANT	FINAL
	2014-04-24	-	JAY	PRELIMINARY
DATE	NO	BY	CK	DESCRIPTION

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GENERATED ON: 11/14/14

BY: DMA

REV

UNITS: 010

A

DRAWING

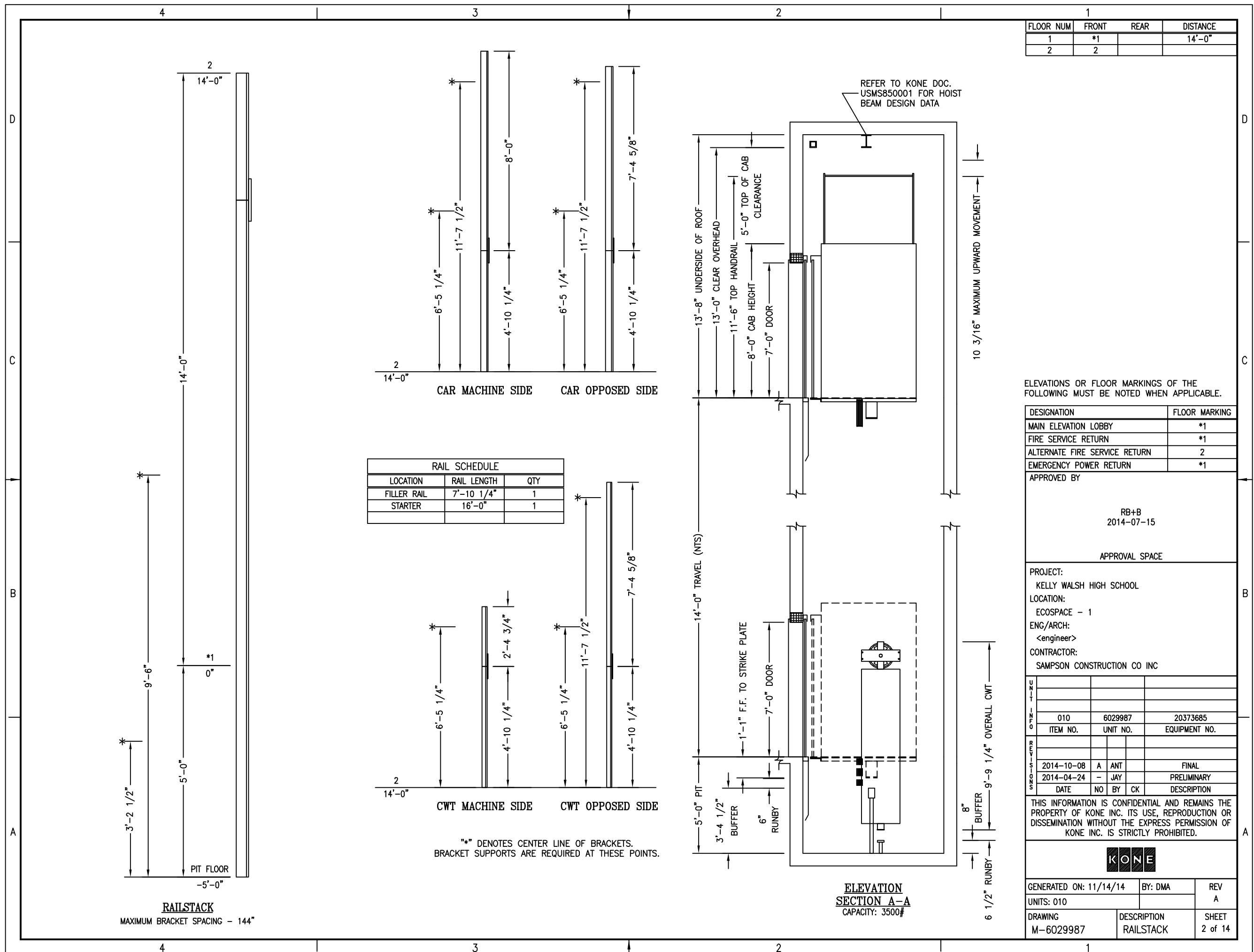
M-6029987

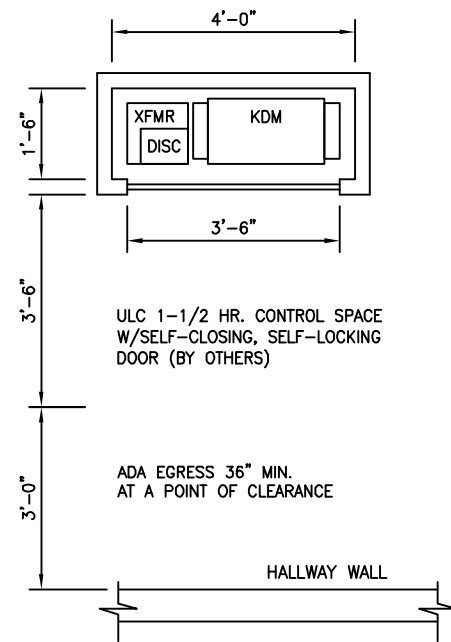
DESCRIPTION

HOISTWAY

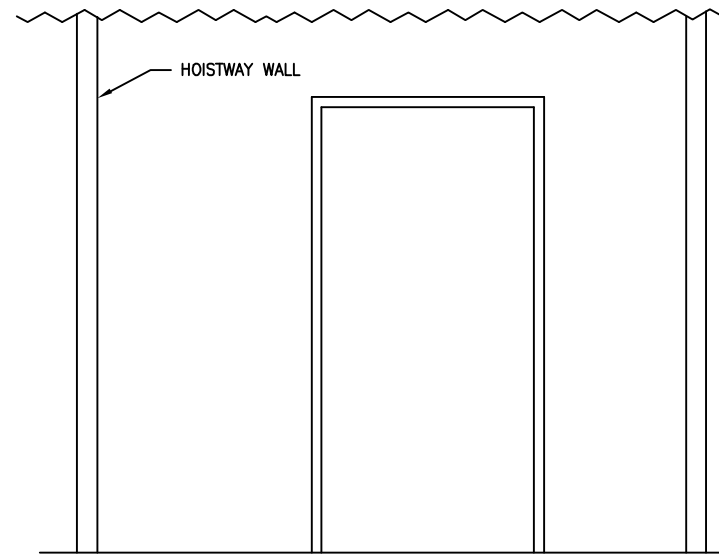
SHEET

1 of 14

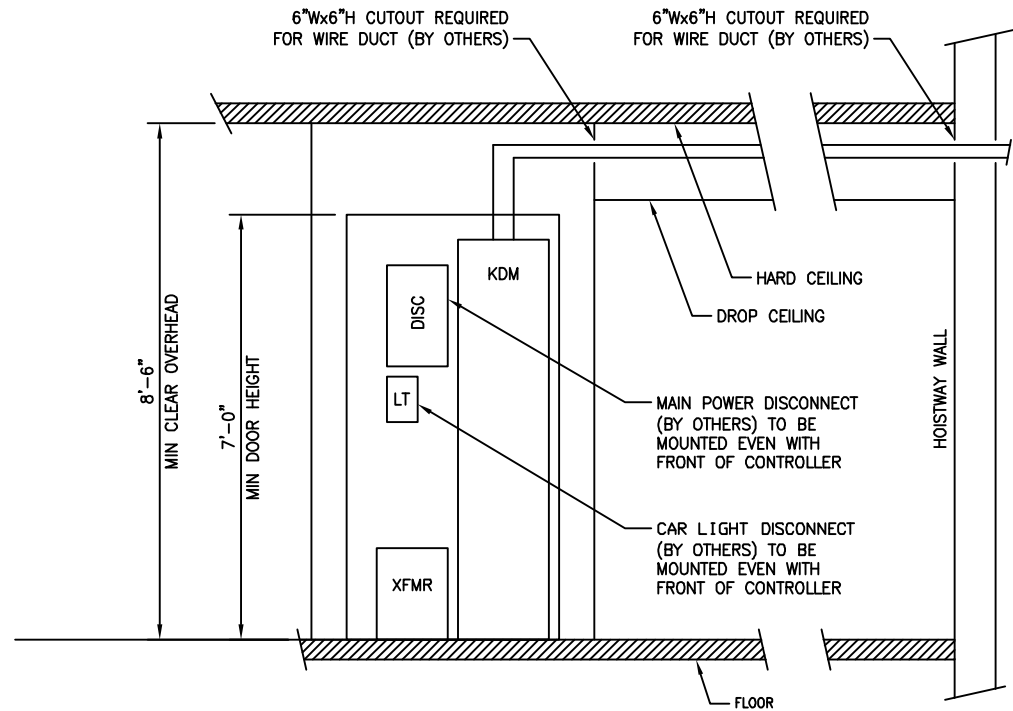




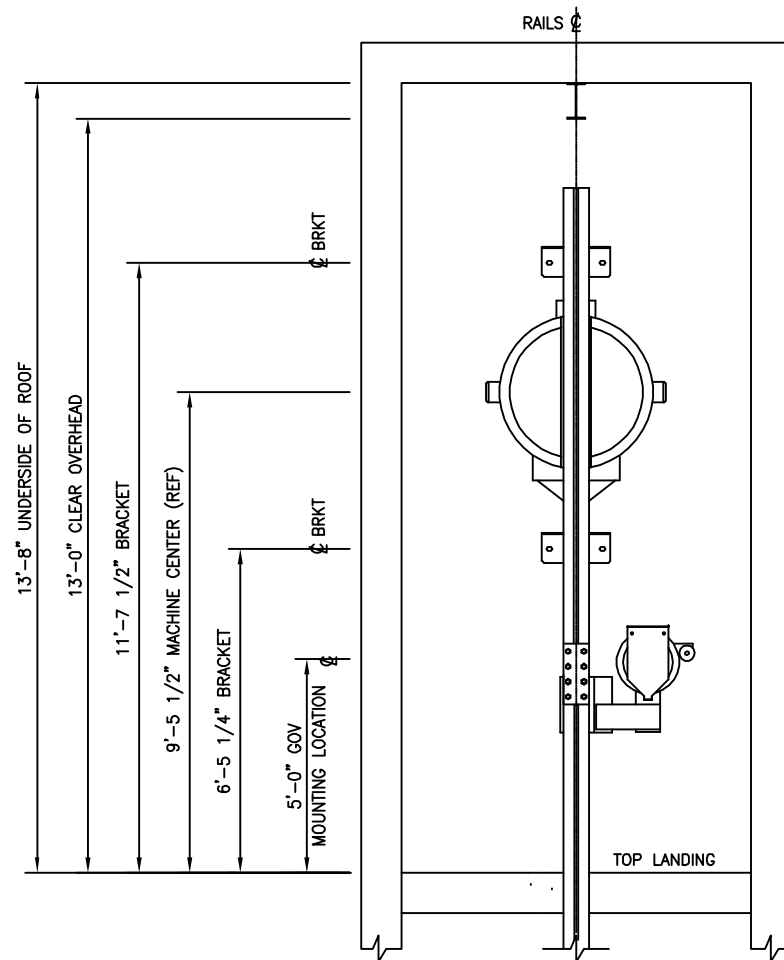
REMOTE CONTROLLER CLOSET PLAN VIEW
CLOSET SIZE MUST BE AS SHOWN
LOCATED AT FLOOR *1



ELEVATION AT TOP LANDING

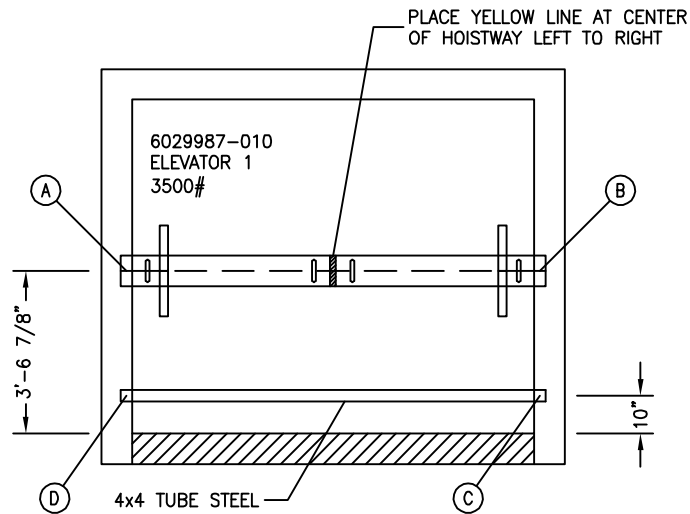


ELEVATION AT CONTROLLER



**ELEVATION VIEW
SECTION A-A**

APPROVED BY			
RB+B 2014-07-15			
APPROVAL SPACE			
PROJECT: KELLY WALSH HIGH SCHOOL			
LOCATION: ECOSPACE - 1			
ENG/ARCH: <engineer>			
CONTRACTOR: SAMPSON CONSTRUCTION CO INC			
UNIT NO.	ITEM NO.	UNIT NO.	EQUIPMENT NO.
010	6029987	20373685	
2014-10-08	A	ANT	FINAL
2014-04-24	-	JAY	PRELIMINARY
DATE	NO	BY	CK
DESCRIPTION			
THIS INFORMATION IS CONFIDENTIAL AND REMAINS THE PROPERTY OF KONE INC. ITS USE, REPRODUCTION OR DISSEMINATION WITHOUT THE EXPRESS PERMISSION OF KONE INC. IS STRICTLY PROHIBITED.			
KONE			
GENERATED ON: 11/14/14		BY: DMA	REV A
UNITS: 010			
DRAWING M-6029987		DESCRIPTION CONTROLLER	SHEET 3 of 14



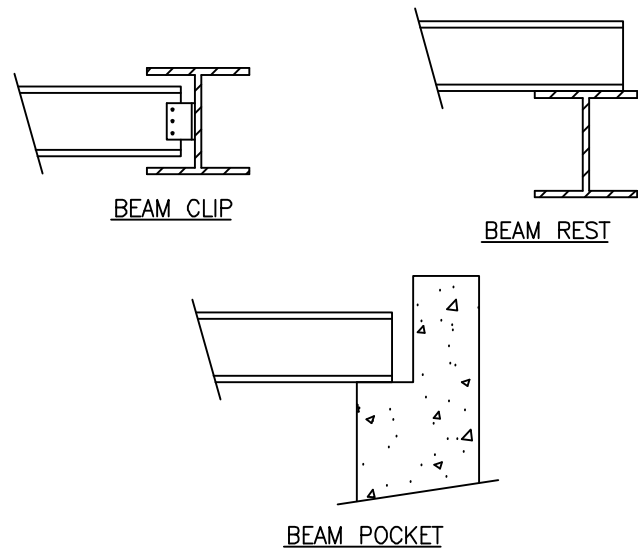
BUILDING LOADS FOR HOISTING BEAM & TUBE STEEL SUPPORT

FOR ADJACENT HOISTWAYS COMBINED LOADS ON A COMMON STRUCTURAL SUPPORT SHOULD BE TAKEN INTO CONSIDERATION.
REACTIONS SHOWN BELOW ARE FOR THIS ELEVATOR ONLY.

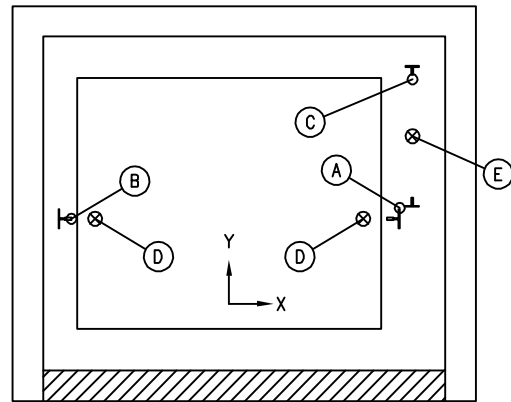
PLANVIEW IS AT TOP OF OVERHEAD LOOKING DOWN ON THE BEAMS
ALL U-BOLTS HANG DOWN TOWARDS THE PIT FLOOR
SEE BRACKET SHEET FOR THE ELEVATION OF SUPPORTS

VERTICAL FORCES* (lbf)				
REACTION LOCATION	A	B	C	D
Z DIRECTION	5610	4840	5000	5000

*REACTIONS A AND B ARE SIZED TO SUPPORT THE MAXIMUM WORKING LOAD OF THE INSTALLATION HOIST. REACTIONS D AND C SUPPORT FALL ARREST LIFELINES PER OSHA MINIMUM SUPPORT LOADS. REACTIONS A & B MAY BE CONSIDERED TO OCCUR SEPARATELY FROM C & D.



ATTACHMENT DETAILS



GUIDE RAIL REACTIONS*

FOR ADJACENT HOISTWAYS COMBINED LOADS ON A COMMON STRUCTURAL SUPPORT SHOULD BE TAKEN INTO CONSIDERATION.
REACTIONS SHOWN BELOW ARE FOR THIS ELEVATOR ONLY.

NON-SEISMIC REACTIONS

BRKTS ABOVE TOPMOST LANDING - IMPACT LOADING REACTIONS (lbf)			
REACTION LOCATION	A	B	C
X DIRECTION	1310	290	50
Y DIRECTION	480	1270	100
MAX DEFLECTION NOT TO EXCEED 0.125" DUE TO APPLIED LOADS			

BRKTS BELOW TOPMOST LANDING - RUNNING REACTIONS (lbf)			
REACTION LOCATION	A	B	C
X DIRECTION	340	290	50
Y DIRECTION	220	120	100
MAX DEFLECTION NOT TO EXCEED 0.125" DUE TO APPLIED LOADS			

*ORTHOGONAL REACTIONS DO NOT OCCUR SIMULTANEOUSLY.

PIT FLOOR REACTIONS**

VERTICAL FORCES ONTO PIT FLOOR (lbf)					
REACTION LOCATION	A	B	C	D	E
Z DIRECTION	13900	6800	3500	12000	17100

**VERTICAL REACTIONS A B & C OCCUR SIMULTANEOUSLY. VERTICAL REACTIONS D & E OCCUR INDIVIDUALLY AND SEPARATELY FROM A B & C.

APPROVED BY

RB+B
2014-07-15

APPROVAL SPACE

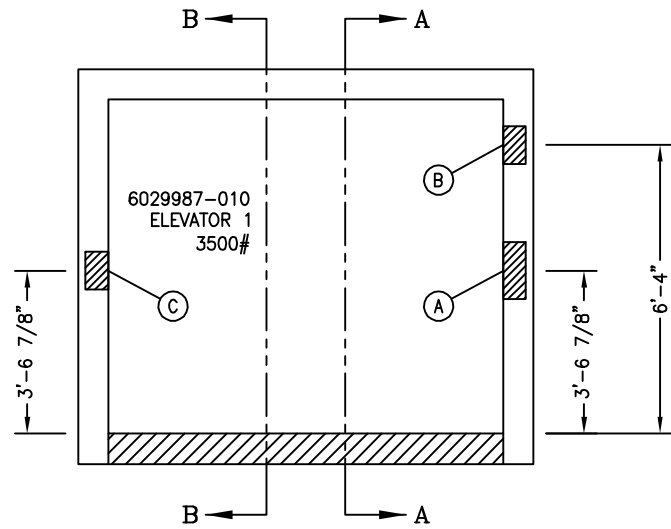
PROJECT:
KELLY WALSH HIGH SCHOOL
LOCATION:
ECOSPACE - 1
ENG/ARCH:
<engineer>
CONTRACTOR:
SAMPSON CONSTRUCTION CO INC

UNIT INFO				
	010	6029987	20373685	
	ITEM NO.	UNIT NO.	EQUIPMENT NO.	
REVISIONS				
	2014-10-08	A	ANT	FINAL
	2014-04-24	-	JAY	PRELIMINARY
	DATE	NO	BY	CK

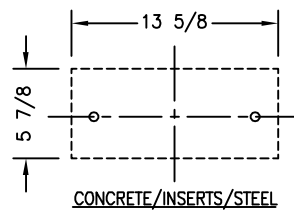
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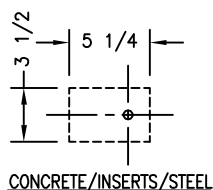
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UNITS: 010		
DRAWING M-6029987	DESCRIPTION REACTION	SHEET 4 of 14



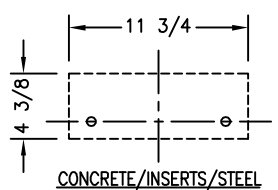
BRACKET ATTACHMENT LOCATIONS



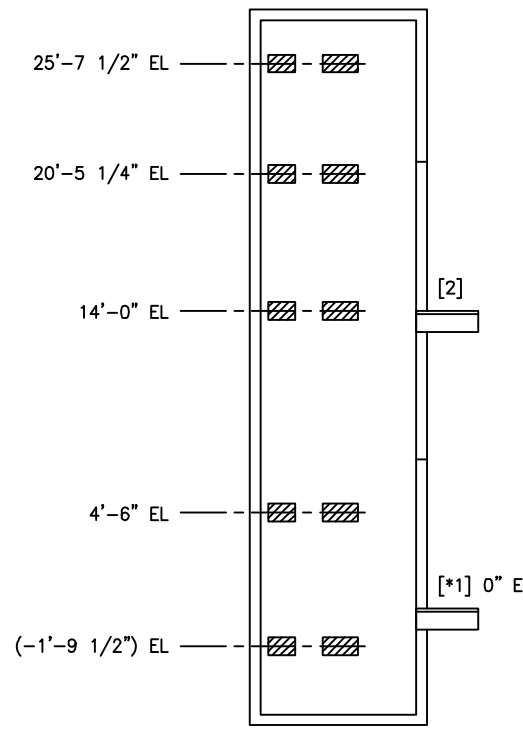
KONE SUPPLIED BRACKET FOOTPRINT AT POINT A (COMBO BRACKETS)



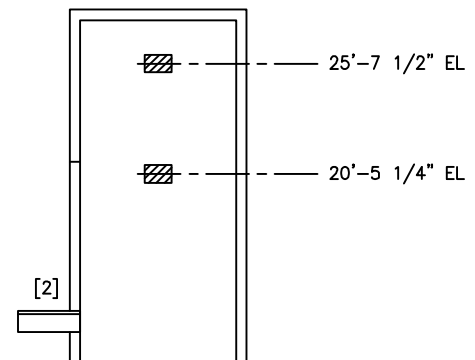
KONE SUPPLIED BRACKET FOOTPRINT AT POINT B (CWT BRACKETS)



KONE SUPPLIED BRACKET FOOTPRINT AT POINT C (CAR BRACKETS)



SECTION A-A
BRACKET ELEVATIONS ARE AT THE CENTERLINE OF BEARING AREA OF WALL FASTENERS



SECTION B-B
BRACKET ELEVATIONS ARE AT THE CENTERLINE OF BEARING AREA OF WALL FASTENERS

APPROVED BY

RB+B
2014-07-15

APPROVAL SPACE

PROJECT:
KELLY WALSH HIGH SCHOOL
LOCATION:
ECOSPACE - 1
ENG/ARCH:
<engineer>
CONTRACTOR:
SAMPSON CONSTRUCTION CO INC

UNIT NO.			
	010	6029987	20373685
	ITEM NO.	UNIT NO.	EQUIPMENT NO.
REVISIONS			
	2014-10-08	A	ANT
	2014-04-24	-	JAY
	DATE	NO	BY
		CK	DESCRIPTION

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KONE

GENERATED ON: 11/14/14	BY: DMA	REV A
UNITS: 010		
DRAWING M-6029987	DESCRIPTION BRACKET	SHEET 5 of 14

	4	3	2	1
D	ELEVATOR: 1 RATED CAPACITY: 3500LB(1588KG) RATED SPEED: 150FPM(0.75MPS) PLATFORM SHAPE: PASSENGER CLASS OF LOADING: PASSENGER CODE: A17.1 2008 NO OF LANDINGS: 2 NO OF OPENINGS: 2 OPERATION: SIMPLEX MECH. POWER REQUIRED: 6.8KW(9.1HP) CONTROLLER/DRIVE TYPE: KCM831 W/KDM-40A MACHINE/MOTOR TYPE: MX14/12G81-3 EST WT MACHINE W/MOTOR: 1170 LBS RATED MOTOR OUTPUT: 6.8KW(9.1HP) - 56RPM RATED CONTROLLER OUTPUT: 9.0KW(12.0HP) SLING: SFC-NA EST. CAR WT.: 2612 LBS CWT GUIDE TYPE: SLG7 CAR GUIDE TYPE: SLG10A CAR SAFETY: AQ11C-TYPE B CAR GOVERNOR TYPE: OL35 EST WT INCL. 50% OV'BAL.: 4362 LBS CWT SAFETY: NONE CWT FRAME TYPE: CWF10 MIDDLE WEIGHT WIDTH: 9 1/2" FRONT DOORS: SINGLE SPD - CENTER REAR DOORS: N/A INTERLOCKS: AMD HOIST ROPES: (6)10mm ROPING TYPE <roping_type> CAR GOVERNOR ROPE: 9.5mm COMPENSATION: 2 @ 1.5 LB/FT CAR BUFFER TYPE: POLYURETHANE CAR BUFFER STROKE 2.5" CAR BUFFER QTY: 2 CWT BUFFER TYPE: POLYURETHANE CWT BUFFER STROKE: 2.5" CWT BUFFER QTY: 1 CAR GUIDE RAILS: 12 LB/FT CWT GUIDE RAILS: 8 LB/FT			D
C				C
B	<u>ELECTRICAL</u> MAXIMUM ALLOWABLE VOLTAGE VARIATION IS +/- 10% KONE CALC THE FOLLOWING FOR THIS ELEVATOR DUTY NAMEPLATE AMPS: 18 MAX ACCEL AMPS: 22 PROTECTION DEVICE REQUIRED PRIOR TO INSTALLATION MAX MOTOR BRANCH SHORT-CIRCUIT PROTECTION IS UL CLASS RK1 FUSE (AMP): 25 TRANS RATED VOLTAGE: 480, 3 PH, 60 HZ SUPPLIED VOLTAGE: 480 HEAT OUTPUTS ARE CONTROL/TRANS: 1.5KBTU/HR(0.44KW) MACHINE/MOTOR: 1.5KBTU/HR(0.44KW)			B
A	<u>FLOOR, CAB & DOOR WEIGHTS</u> EST WT. IS BASED ON A FINISH FLOOR THK OF 1/2"(13mm) IF THE ACTUAL CAB & FLOOR WEIGHT DEVIATES, THE EQUIPMENT MAY NEED TO BE REVISED EST CAB WEIGHT: 2502.0 LBS EST FINISH FLOOR WEIGHT: 3.0 LBS/FT^2 EST FLOOR TOTAL WEIGHT: 110.0 LBS CAB & FLOOR WEIGHT: 2612.0 LBS MOVING MASS OF DOORS: 234 LBS			A
	4	3	2	1
				Ø HOISTWAY PLUMB LINE +1" -0" +1" -0" HOISTWAY TOLERANCES A 1" MIN A 3"MIN 4"MAX 1/2"MIN 8"MIN 4"MIN SECTION A-A APPROVED BY RB+B 2014-07-15 APPROVAL SPACE PROJECT: KELLY WALSH HIGH SCHOOL LOCATION: ECOSPACE - 1 ENG/ARCH: <engineer> CONTRACTOR: SAMPSON CONSTRUCTION CO INC UNIT NO. ITEM NO. UNIT NO. EQUIPMENT NO. 2014-10-08 A ANT FINAL 2014-04-24 - JAY PRELIMINARY DATE NO BY CK DESCRIPTION THIS INFORMATION IS CONFIDENTIAL AND REMAINS THE PROPERTY OF KONE INC. ITS USE, REPRODUCTION OR DISSEMINATION WITHOUT THE EXPRESS PERMISSION OF KONE INC. IS STRICTLY PROHIBITED. KONE GENERATED ON: 11/14/14 BY: DMA REV A UNITS: 010 DRAWING M-6029987 DESCRIPTION DATA SHEET 6 of 14

4

3

2

1

CONTROL SPACE/ MACHINE ROOM

50. PROVIDE A LEGAL CONTROL SPACE/ MACHINE ROOM WITH ACCESS AS INDICATED ON THE KONE FINAL LAYOUT DRAWINGS. TO INCLUDE A TEMPORARY OR PERMANENT DOOR THAT CAN BE LOCKED FROM OUTSIDE. PERMANENT DOOR MUST BE SELF-CLOSING, SELF-LOCKING, AND REQUIRE A KEY TO OPEN FROM OUTSIDE. MUST HAVE ADEQUATE TEMPORARY OR PERMANENT LIGHTING FOR INSTALLATION PURPOSES. FOR PROPER EQUIPMENT OPERATION, THE TEMPERATURE IN THE CONTROL SPACE MUST MAINTAIN BETWEEN 41° F [5° C] AND 104° F [40° C]. MAXIMUM ALLOWED HUMIDITY IS 95% NON-CONDENSING.

51. PROVIDE SAFE AND CONVENIENT ACCESS TO MACHINE ROOM (ASME A17.1/CSA B44 SEC 2.8.1, ASME A17.1/CSA B44 SEC 2.7.3)

52. IF CONTROL SPACE IS ADJACENT TO THE HOISTWAY, PROVIDE ALL APPLICABLE SLEEVES, OR PENETRATIONS, LOCATED PER CONTROL SPACE PLAN VIEW ON THE KONE FINAL LAYOUT DRAWINGS.

53. PROVIDE A CLEAN AND DRY ELEVATOR MACHINE ROOM.

54. IF APPLICABLE, PROVIDE A GOVERNOR ACCESS DOOR OF SIZE AND LOCATION SHOWN ON THE KONE FINAL LAYOUT DRAWINGS. THE ACCESS DOOR SHALL BE SECURED AGAINST UNAUTHORIZED ACCESS. IT SHALL BE SELF-CLOSING, SELF-LOCKING AND OPERABLE FROM THE INSIDE WITHOUT A KEY.

55. PROVIDE SUITABLE LIGHTING FOR CONTROL SPACE WITH LIGHT SWITCH LOCATED WITHIN 18" [457 MM] OF STRIKE JAMB SIDE OF CONTROL SPACE DOOR WHERE PRACTICAL. WHEN PERMITTED BY STATE AND LOCAL CODE THE LIGHT SWITCH SHOULD ALSO CONTROL THE MACHINE SPACE LIGHTING IF CONTROL SPACE IS ADJACENT TO THE HOISTWAY AT THE TOP LANDING.

56. PROVIDE DEDICATED GFCI-PROTECTED 120VAC 20-AMP DUPLEX (15 AMP IN CANADA) OUTLET NEXT TO EACH SIGNAL CONTROL CABINET.

57. PROVIDE A SINGLE MEANS OF DISCONNECTING ALL UNGROUNDED MAIN POWER CONDUCTORS FOR EACH ELEVATOR BY AN ENCLOSED, EXTERNALLY OPERABLE, FUSED MOTOR CIRCUIT SWITCH OR CIRCUIT BREAKER. MUST BE LOCKABLE IN THE OPEN POSITION. THIS DISCONNECTING MEANS SHALL DISCONNECT THE NORMAL POWER SERVICE AS WELL AS EMERGENCY POWER SERVICE, WHEN PROVIDED. NOTE 1: IF A CIRCUIT BREAKER IS TO BE PROVIDED IN LIEU OF FUSETRONS, AN ADJUSTABLE TIME-DELAY STYLE IS RECOMMENDED. NOTE 2: IF A BATTERY-POWERED RESCUE DEVICE IS REQUIRED, THE ABOVE-MENTIONED DISCONNECT MUST HAVE AN AUXILIARY CONTACT MONITORED BY ELEVATOR CONTROLLER THAT IS POSITIVELY OPENED MECHANICALLY AND IS NORMALLY CLOSED (NC) WHEN THE MAIN POWER IS IN THE ON POSITION, AND IS NORMALLY OPEN (NO) WHEN POWER IS IN THE OFF POSITION. NOTE 3: IF A BATTERY-POWERED RESCUE DEVICE IS REQUIRED AND A SEPARATE SHUNT TRIP BREAKER WHICH IS SUBJECT TO EITHER THE HOISTWAY OR CONTROL SPACE SPRINKLER SYSTEM IS PROVIDED, THE SHUNT TRIP BREAKER MUST HAVE AN AUXILIARY CONTACT THAT IS POSITIVELY OPENED MECHANICALLY AND IS NC WHEN THE MAIN POWER IS IN THE ON POSITION.

58. PROVIDE A DIRECT-IN-DIAL (DID) ANALOG PHONE LINE, ACTIVATED AT LEAST ONE WEEK PRIOR TO INSPECTION, TERMINATED AT THE APPROPRIATE PHONE JACKS IN THE ELEVATOR MACHINE ROOM. GC/ OWNER MAY ELECT TO HAVE A SEPARATE ANALOG LINE INSTALLED (ONE PER ELEVATOR), OR GC/ OWNER MAY ELECT TO PROVIDE DID LINES FROM AN ANALOG STATION CARD IN THE BUILDING'S PBX SYSTEM. IF GC/OWNER PROVIDES A DIRECT-IN-DIAL ANALOG PHONE LINE OR LINES OFF AN EXISTING PBX PHONE SYSTEM, A BACKUP POWER SOURCE MUST ALSO BE PROVIDED. ALL PHONE AND ASSOCIATED EQUIPMENT PROVIDED BY GC/ OWNER SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF ASME A17.1/ CSA B44, LOCAL CODES AND APPLICABLE LAW, AS AMENDED.

59. PROVIDE ALL FIRE ALARM INITIATING SIGNALS AS REQUIRED BY ALL NATIONAL, STATE AND LOCAL CODES FOR TERMINATION AT THE PRIMARY ELEVATOR SIGNAL CONTROL CABINET IN EACH GROUP.

60. PROVIDE EMERGENCY POWER TRANSFER SWITCH AND POWER CHANGE PENDING SIGNALS AS REQUIRED- 2 NORMALLY OPEN DRY CONTACTS FROM TRANSFER SWITCH TO CONTROLLER (2 PAIRS PLUS GROUND WIRE). 1 CONTACT CLOSURES TO SIGNAL EMERGENCY POWER IS PRESENT, 1 CONTACT CLOSURES TO GIVE 30 SECOND PRE-SIGNAL PRIOR TO TRANSFER SWITCH CHANGE. TERMINATION OF THESE WIRES IS AT THE PRIMARY ELEVATOR SIGNAL CONTROL CABINET IN EACH GROUP (2 PAIRS PLUS GROUND WIRE.)

61. FURNISH AND INSTALL SMOKE DETECTORS AND FIRE OPERATION PER ASME A17.1/CSA B44 SEC 2.27.3.2, NFPA 72; ONE FOR LOBBY DETECTOR, MACHINE ROOM DETECTOR, HOISTWAY DETECTOR, AND ONE FOR ALL GROUPED NON-LOBBY DETECTORS ARE REQUIRED. PROVIDE NORMALLY-CLOSED DRY CONTACTS, WITH WIRING, TO CONTROLLER FOR EACH GROUP LISTED ABOVE.

62. PROVIDE AND INSTALL SMOKE DETECTOR IN HOISTWAY AS REQUIRED PER LOCAL CODES, AND IN ALL ELEVATOR LOBBIES, MACHINE ROOM AND CONTROLLER SPACE.

63. PROVIDE HEAT DETECTORS AND "SHUNT-TRIP OPERATION" WHEN SPRINKLERS ARE TO BE PROVIDED IN MACHINE ROOM OR HOISTWAY, (ASME A17.1 SEC 2.8.2.1.2, NFPA 13 SEC 4-13.5, ASME A17.1 SEC 2.8.2.3.1, ASME A17.1 SEC 2.8.2.3.2, NFPA 72).

64. NON-ELEVATOR RELATED PIPING AND EQUIPMENT IS PROHIBITED IN MACHINE ROOM OR HOISTWAY (ASME A17.1/CSA B44 SEC 2.8.1, ASME A17.1/CSA B44 SEC 2.8.2).

65. PROVIDE AND MOUNT AT MINIMUM A 10-POUND, ABC-TYPE FIRE EXTINGUISHER IN CONTROL SPACE (ASME A17.1 SEC 8.6.1.6.5). (NOT REQUIRED IN CANADA)

INTEGRATED CONTROL SOLUTION (ICS)

66. PROVIDE A COMPLETELY OPEN FRONT WALL AT TOP LANDING WITH ACCESS AS INDICATED ON THE KONE FINAL LAYOUT DRAWINGS. MUST HAVE ADEQUATE TEMPORARY OR PERMANENT LIGHTING FOR INSTALLATION PURPOSES.

67. PROVIDE ENVIRONMENT FOR PROPER EQUIPMENT OPERATION DURING INSTALLATION AND AFTER ACCEPTANCE, THE TEMPERATURE AT THE TOP FLOOR ELEVATOR LOBBY MUST MAINTAIN BETWEEN 41° F [5° C] AND 104° F [40° C]. MAXIMUM ALLOWED HUMIDITY IS 95% NON-CONDENSING.

68. PROVIDE SAFE AND CONVENIENT ROLLABLE ACCESS TO TOP FLOOR ELEVATOR LOBBY AREA. (ASME A17.1/CSA B44 SEC 2.8.1, ASME A17.1/CSA B44 SEC 2.7.3)

69. PROVIDE ALL APPLICABLE SLEEVES, OR PENETRATIONS, LOCATED PER ICS PANEL PLAN VIEW ON THE KONE FINAL APPROVED LAYOUT DRAWINGS.

70. PROVIDE A CLEAN AND DRY ELEVATOR LOBBY AT TOP LANDING.

71. IF APPLICABLE, PROVIDE AN ACCESS DOOR OF SIZE AND LOCATION SHOWN ON THE KONE FINAL LAYOUT DRAWINGS. THE ACCESS DOOR SHALL BE SECURED AGAINST UNAUTHORIZED ACCESS. IT SHALL BE SELF-CLOSING, SELF-LOCKING AND OPERABLE FROM THE INSIDE WITHOUT A KEY (IF SEISMIC CONDITIONS EXIST)

72. PROVIDE SUITABLE LIGHTING FOR ICS PANEL AREA WITH LIGHT SWITCH LOCATED WITHIN 18" [457 MM] OF ELEVATOR ENTRANCE DOOR WHERE PRACTICAL. WHEN PERMITTED BY STATE AND LOCAL CODE THE LIGHT SWITCH SHOULD ALSO CONTROL THE MACHINE SPACE LIGHTING.

73. PROVIDE DEDICATED GFCI-PROTECTED 120VAC 20-AMP DUPLEX (15 AMP IN CANADA) OUTLET NEXT TO EACH ICS PANEL CONTROL CABINET LOCATED AS SHOWN ON LAYOUTS.

74. PROVIDE 480/208 VAC (USA) OR 575/208 VAC (CANADA) THREE-PHASE PERMANENT POWER, INCLUDING PIPING, WIRING AND FUSED DISCONNECT, TO NON-FUSED DISCONNECT LOCATED IN HOISTWAY AT TOP LANDING TO FACILITATE ELEVATOR INSTALLATION PRIOR TO START OF PROJECT.

75. PROVIDE, IN HOISTWAY AT TOP LANDING, 480/208 VAC (USA) OR 575/208 VAC (CANADA) THREE-PHASE PERMANENT POWER, INCLUDING PIPING, WIRING AND NON-FUSED DISCONNECT WITH 1¼" KNOCK-OUTS (EATON DH362UGK OR SIMILAR). COORDINATE INSTALLATION WITH KONE SUPERVISOR. NOTE: IF A BATTERY-POWERED RESCUE DEVICE IS REQUIRED, THE ABOVE-MENTIONED DISCONNECT MUST HAVE AN AUXILIARY CONTACT MONITORED BY ELEVATOR CONTROLLER THAT IS POSITIVELY OPENED MECHANICALLY AND IS NORMALLY CLOSED (NC) WHEN THE MAIN POWER IS IN THE ON POSITION, AND IS NORMALLY OPEN (NO) WHEN POWER IS IN THE OFF POSITION.

76. PROVIDE A SINGLE MEANS OF DISCONNECTING ALL UNGROUNDED MAIN POWER CONDUCTORS FOR EACH ELEVATOR BY AN ENCLOSED, EXTERNALLY OPERABLE, FUSED MOTOR CIRCUIT SWITCH OR CIRCUIT BREAKER. MUST BE LOCKABLE IN THE OPEN POSITION. THIS DISCONNECTING MEANS SHALL DISCONNECT THE NORMAL POWER SERVICE AS WELL AS EMERGENCY POWER SERVICE, WHEN PROVIDED. NOTE 1: IF A CIRCUIT BREAKER IS TO BE PROVIDED IN LIEU OF FUSETRONS, AN ADJUSTABLE TIME-DELAY STYLE IS RECOMMENDED. NOTE 2: IF A BATTERY-POWERED RESCUE DEVICE IS REQUIRED, THE ABOVE-MENTIONED DISCONNECT MUST HAVE AN AUXILIARY CONTACT MONITORED BY ELEVATOR CONTROLLER THAT IS POSITIVELY OPENED MECHANICALLY AND IS NORMALLY CLOSED (NC) WHEN THE MAIN POWER IS IN THE ON POSITION, AND IS NORMALLY OPEN (NO) WHEN POWER IS IN THE OFF POSITION. NOTE 3: IF A BATTERY-POWERED RESCUE DEVICE IS REQUIRED AND A SEPARATE SHUNT TRIP BREAKER WHICH IS SUBJECT TO EITHER THE HOISTWAY OR CONTROL SPACE SPRINKLER SYSTEM IS PROVIDED, THE SHUNT TRIP BREAKER MUST HAVE AN AUXILIARY CONTACT THAT IS POSITIVELY OPENED MECHANICALLY AND IS NC WHEN THE MAIN POWER IS IN THE ON POSITION.

77. PROVIDE A DIRECT-IN-DIAL (DID) ANALOG PHONE LINE, ACTIVATED AT LEAST ONE WEEK PRIOR TO INSPECTION, TERMINATED AT THE TOP LANDING ICS LOCATION. GC/ OWNER MAY ELECT TO HAVE A SEPARATE ANALOG LINE INSTALLED (ONE PER ELEVATOR), OR GC/ OWNER MAY ELECT TO PROVIDE DID LINES FROM AN ANALOG STATION CARD IN THE BUILDING'S PBX SYSTEM. IF GC/OWNER PROVIDES A

DIRECT DIAL ANALOG PHONE LINE OR LINES OFF AN EXISTING PBX PHONE SYSTEM, A BACKUP POWER SOURCE MUST ALSO BE PROVIDED. ALL PHONE AND ASSOCIATED EQUIPMENT PROVIDED BY GC/ OWNER SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF ASME A17.1/ CSA B44, LOCAL CODES AND APPLICABLE LAW, AS AMENDED.

78. PROVIDE ALL FIRE ALARM INITIATING SIGNALS AS REQUIRED BY ALL NATIONAL, STATE AND LOCAL CODES FOR TERMINATION AT THE PRIMARY ELEVATOR ICS PANEL IN EACH GROUP.

79. PROVIDE EMERGENCY POWER TRANSFER SWITCH AND POWER CHANGE PENDING SIGNALS AS REQUIRED- 2 NORMALLY OPEN DRY CONTACTS FROM TRANSFER SWITCH TO PRIMARY ELEVATOR ICS PANEL (2 PAIRS PLUS GROUND WIRE). 1 CONTACT CLOSURES TO SIGNAL EMERGENCY POWER IS PRESENT, 1 CONTACT CLOSURES TO GIVE 30 SECOND PRE-SIGNAL PRIOR TO TRANSFER SWITCH CHANGE.

80. FURNISH AND INSTALL SMOKE DETECTORS AND FIRE OPERATION PER ASME A17.1/CSA B44 SEC 2.27.3.2, NFPA 72; ONE FOR LOBBY DETECTOR, MACHINE ROOM DETECTOR, HOISTWAY DETECTOR, AND ONE FOR ALL GROUPED NON-LOBBY DETECTORS ARE REQUIRED. PROVIDE NORMALLY-CLOSED DRY CONTACTS, WITH WIRING, TO PRIMARY ELEVATOR ICS PANEL FOR EACH GROUP LISTED ABOVE.

81. PROVIDE AND INSTALL SMOKE DETECTOR IN HOISTWAY AS REQUIRED PER LOCAL CODES, AND IN ALL ELEVATOR LOBBIES.

82. PROVIDE HEAT DETECTORS AND "SHUNT-TRIP OPERATION" WHEN SPRINKLERS ARE TO BE PROVIDED IN TOP FLOOR ELEVATOR LOBBY OR HOISTWAY, (ASME A17.1 SEC 2.8.2.1.2, NFPA 13 SEC 4-13.5, ASME A17.1 SEC 2.8.2.3.1, ASME A17.1 SEC 2.8.2.3.2, NFPA 72).

83. NON-ELEVATOR RELATED PIPING AND EQUIPMENT IS PROHIBITED IN HOISTWAY (ASME A17.1/CSA B44 SEC 2.8.1, ASME A17.1/CSA B44 SEC 2.8.2).

APPROVED BY

RB+B
2014-07-15

APPROVAL SPACE

PROJECT:
KELLY WALSH HIGH SCHOOL

LOCATION:
ECOSPACE - 1

ENG/ARCH:
<engineer>

CONTRACTOR:
SAMPSON CONSTRUCTION CO INC

UNIT NO.

010

6029987

20373685

ITEM NO.

UNIT NO.

EQUIPMENT NO.

REVISION

2014-10-08

A

ANT

FINAL

2014-04-24

-

JAY

PRELIMINARY

DATE

NO

BY

CK

DESCRIPTION

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KONE

GENERATED ON: 11/14/14

BY: DMA

REV
A

UNITS: 010

DRAWING
M-6029987

DESCRIPTION
CONTRACT

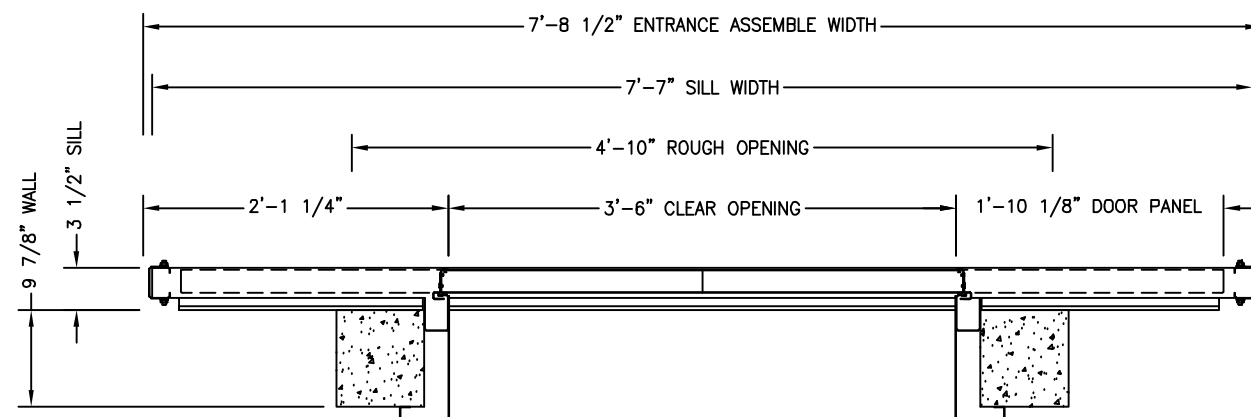
SHEET
8 of 14

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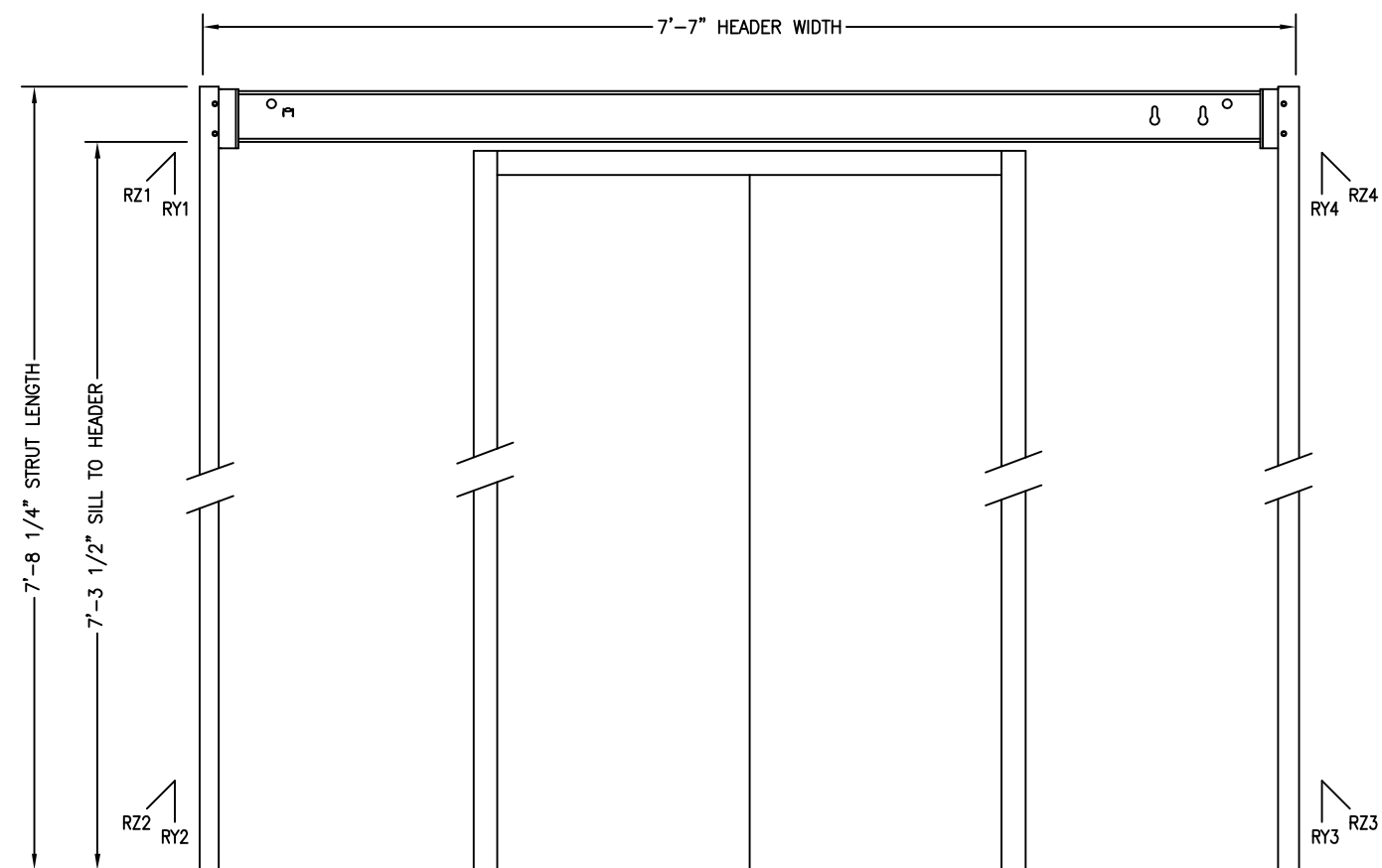
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2

1

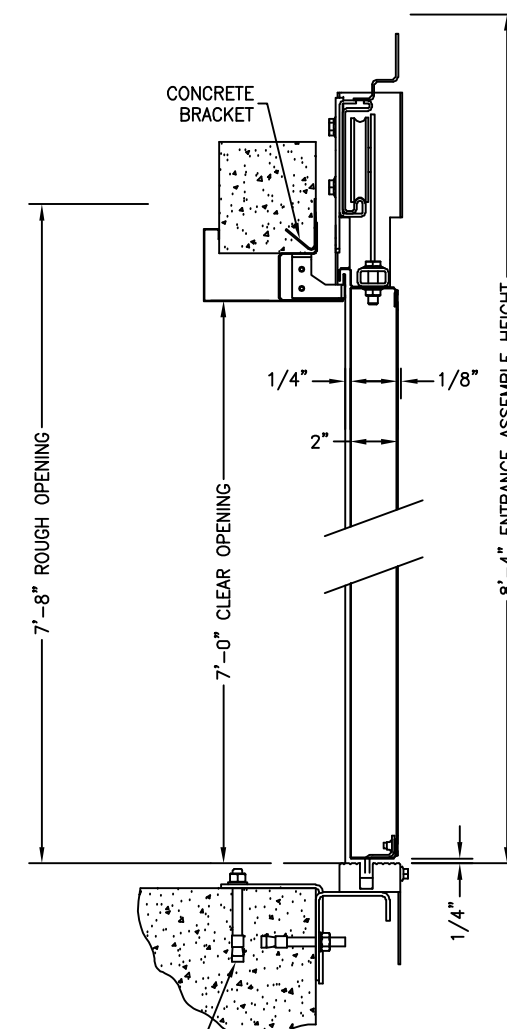


PLAN VIEW



ELEVATION VIEW

REACT. PT.	RZ (LBF)	RY (LBF)
1	305	55
2	260	55
3	260	55
4	305	55



DOOR SECTION

ANCHOR BOLT IS NOT VISIBLE
AFTER WALL IS CONSTRUCTED

ITEM	TYPE	DESCRIPTION
ELEVATOR NUM	1	CUSTOMER ELEVATOR NUM – 1
ENTRANCE DESIGN NUM	1	AMDY / SINGLE SPEED / CENTER OPENING
ENTRANCE LANDINGS	–	*1
FIXTURES	KSS140	–
KEYWAY CUTOUT	–	REQUIRED
ACCESS SWITCH	–	REQUIRED
FIRE RECALL	–	NONE
STAR OF LIFE	–	NONE
FRAME	16 GA	#4 STAINLESS STEEL
SOUND DEADENING	–	NONE
DOOR PANEL	16 GA	#4 STAINLESS STEEL
SILL	NARROW	EXTRUDED ALUMINUM
FASCIA / TOE-GUARD	16 GA	GALVANIZED STEEL 48" WIDE
JAMB BRAILLE	TS1	SURFACE MOUNTED, ADHESIVE, SS
LABELS	–	2 HOUR U.L. – CLASS B

NOTES:

A. DO NOT CONSTRUCT WALLS UNTIL DOOR FRAMES ARE SET.

APPROVED BY

RB+B
2014-07-15

APPROVAL SPACE

PROJECT:

KELLY WALSH HIGH SCHOOL

LOCATION:

ECOSPACE – 1

ENG/ARCH:

<engineer>

CONTRACTOR:

SAMPSON CONSTRUCTION CO INC

UNIT INFO				
	010	6029987	20373685	
	ITEM NO.	UNIT NO.	EQUIPMENT NO.	
REVISIONS				
	2014-10-08	A	ANT	FINAL
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GENERATED ON: 11/14/14

BY: DMA

REV

UNITS: 010

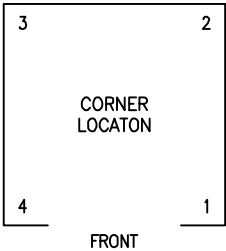
A

DRAWING

DESCRIPTION

SHEET

	GENERAL INFORMATION
	ELEVATOR CODE YEAR 2008
	CORNER LOCATION 4
A	POSITION INDICATOR
	DOT MATRIX
	DIRECTION OF TRAVEL ARROW
	AMBER ILLUMINATION
B	EMERGENCY COMMUNICATION MICROPHONE AND SPEAKER
C	LOAD PLATE
	3500 LB
	1588kg
	21 PERSONS
D	EMERGENCY COMMUNICATION INFORMATION TEXT
E	ELEVATOR ID
	1
F	FIRE FIGHTERS OPERATION PANEL
	CALL CANCEL
	ASME EMERGENCY KEYSWITCH
	STOP SWITCH
	DOOR OPEN BUTTON
	PHASE II FIRE INDICATOR
	DOOR CLOSE BUTTON
G	CALL BUTTONS
	STANDARD FLUSH
	AMBER ILLUMINATION
H	CONTROL BUTTONS
	DOOR OPEN BUTTON
	DOOR CLOSE BUTTON
	STOP KEYSWITCH
I	EMERGENCY PHONE HELP BUTTON
J	OPTIONAL DEVICES
	ACCESS ENABLE
K	OUTLOOK
	BRUSHED STAINLESS STEEL



A.F.F.
1220mm [48in]

A.F.F.
890mm [35in]

Info_J0_Instpt

Info_L_Instpt

A.F.F.
0mm [0in]

A
C
E
B
D

F

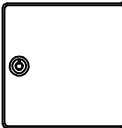
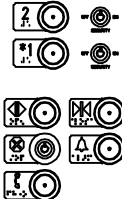
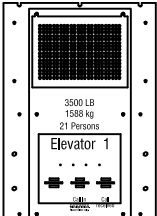
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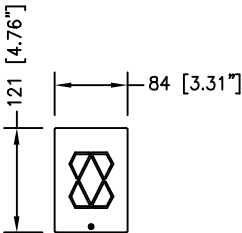
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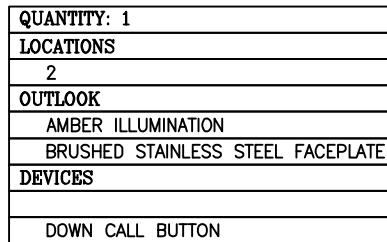
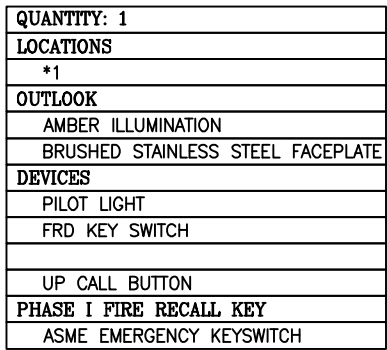
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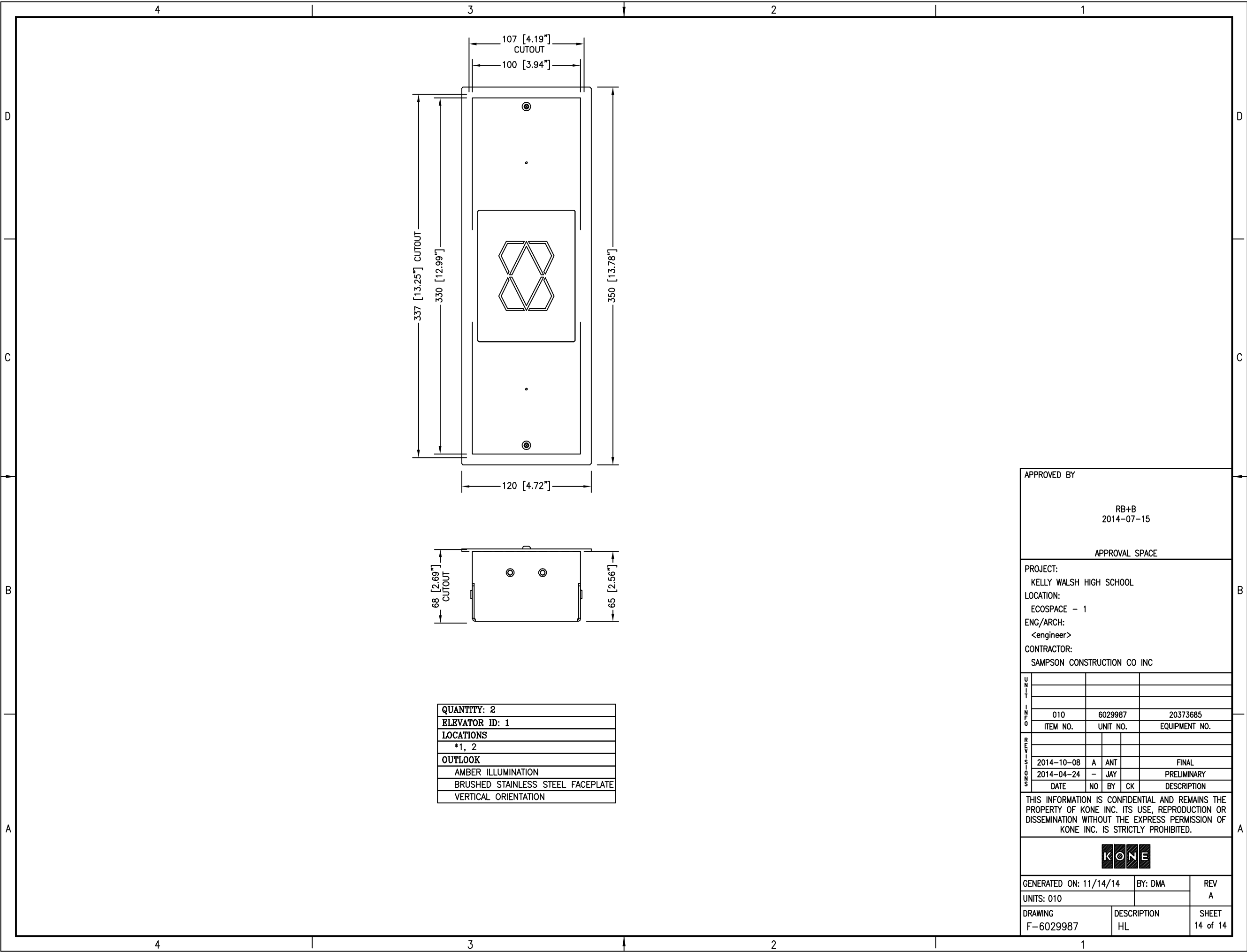


CAR DIRECTION LANTERN
QUANTITY: 1

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RB+B 2014-07-15		
APPROVAL SPACE		
PROJECT: KELLY WALSH HIGH SCHOOL		
LOCATION: ECOSPACE - 1		
ENG/ARCH: <engineer>		
CONTRACTOR: SAMPSON CONSTRUCTION CO INC		
UNIT NO.		
ITEM NO.	010	6029987
		20373685
DATE	2014-10-08	2014-04-24
	A	-
	ANT	JAY
NO		
BY		
CK		
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UNIT									
ITEM NO.	010			6029987			20373685		
	ITEM NO.			UNIT NO.			EQUIPMENT NO.		
SUB-SYSTEM									
	2014-10-08			A	ANT	FINAL			
	2014-04-24			-	JAY	PRELIMINARY			
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Traction Elevator:

with KCM831 Control

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TRACTION ELEVATOR

with KCM831 control

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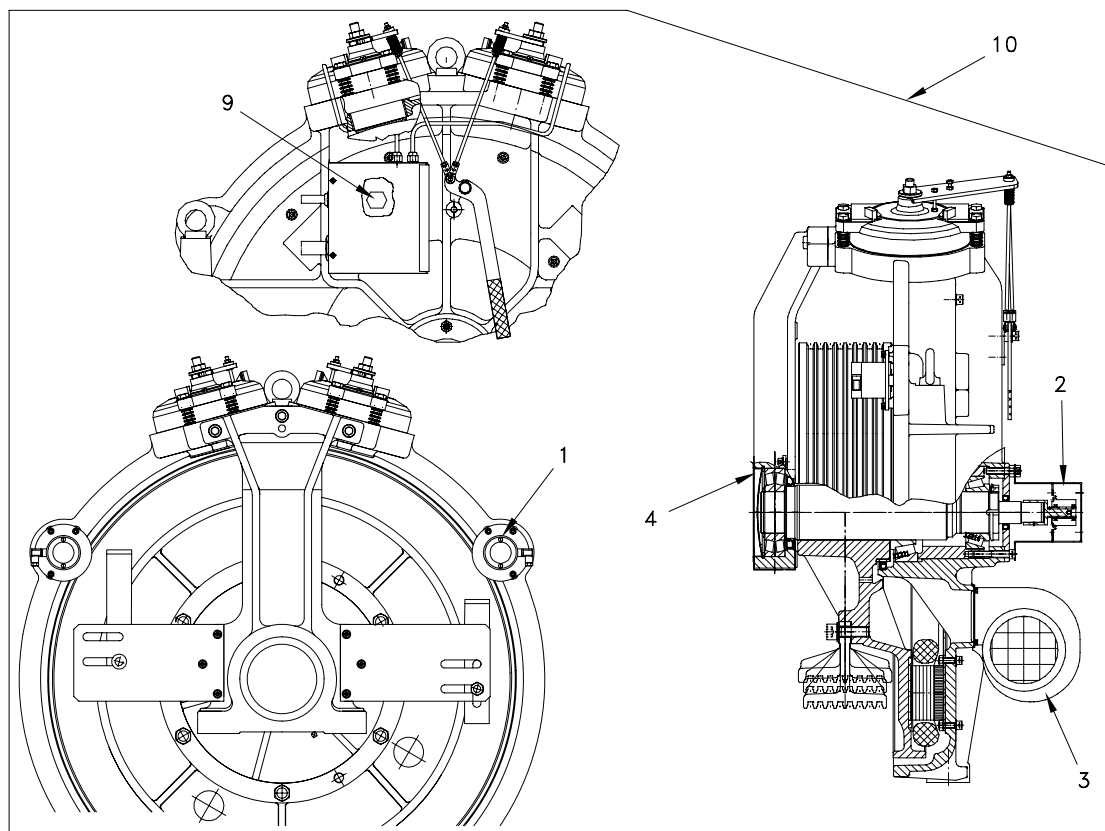
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Model names, where noted on parts pages, are associated with the following specifications.

Model	Capacity	Speed	Logic control	Drive control
EcoSpace	2000-2500 lb car	150 fpm	KCM831	V3F16L
EcoSpace	3000-5000 lb car	150 fpm	KCM831	V3F25
MonoSpace	2000-4000 lb car	200 or 350 fpm	KCM831	V3F25
EcoSystem MR	2500-4000 lb car	200-500 fpm	KCM831	V3F25
EcoSystem MR	2000-3500 lb car	700 fpm	KCM831	V3F25MLB

1 TRACTION SYSTEM COMPONENTS

1.1 MX18 machine components



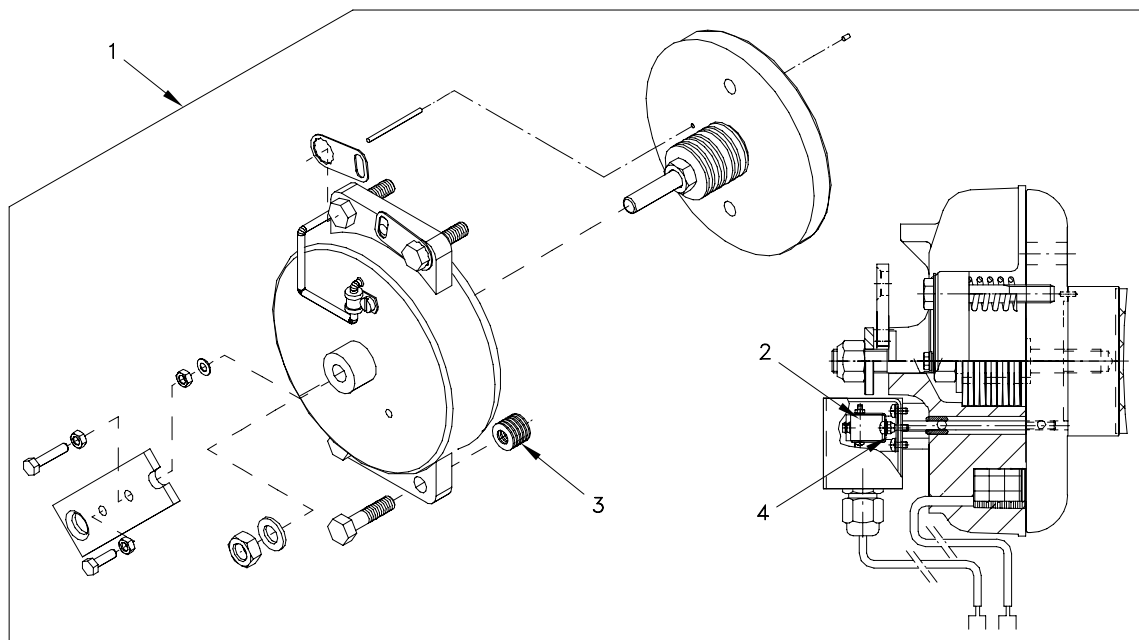
P502-077(2006-05)
P502-028(8/01)

Table 1: MX18 traction machine components

KEY	PART NO.	PARTNAME	REMARK
1	KM277931	Tachometer	RE.0444L 1B 60V CA11x30 CSA
	US95878001	Wheel, friction	75 mm
	US95879001	Wheel, friction	37.3 mm
	KM754339G02	Tachometer cable	Wire KJMS-2*0.5 (L=11000mm)
2	KM776927G01	Resolver assembly	Litton (not interchangeable with Tamagawa)
	KM617914G05	Resolver assembly	Tamagawa (not interchangeable with Litton)
3	KM255063	Fan	MX18
4	KM583933H01	Bearing cover	
9	US520282	Thermo switch	ELMWOOD 2455R-995-2 (KM222400)
10	KM781300G08	MX18 machine, complete	1600 KG, 1.7 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G86)
	KM781300G10	MX18 machine, complete	1600 KG, 2.5 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G56)
	KM781300G05	MX18 machine, complete	1600 KG, 2.5 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G26)
	KM781300G09	MX18 machine, complete	1600 KG, 2.5 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G46)
NS	KM662188G01	Pulley, diverter	D410, 7xd8
NS	KM662188G02	Pulley, diverter	D410, 8xd8
NS	KM662189G01	Pulley, diverter	D410, 7xd10
NS	KM662189G02	Pulley, diverter	D410, 8xd10
NS	KM662190G01	Pulley, diverter	D534, 7xd13
NS	KM662190G02	Pulley, diverter	D534, 8xd13

NS = Not shown

1.2 MX18 traction machine - brake components

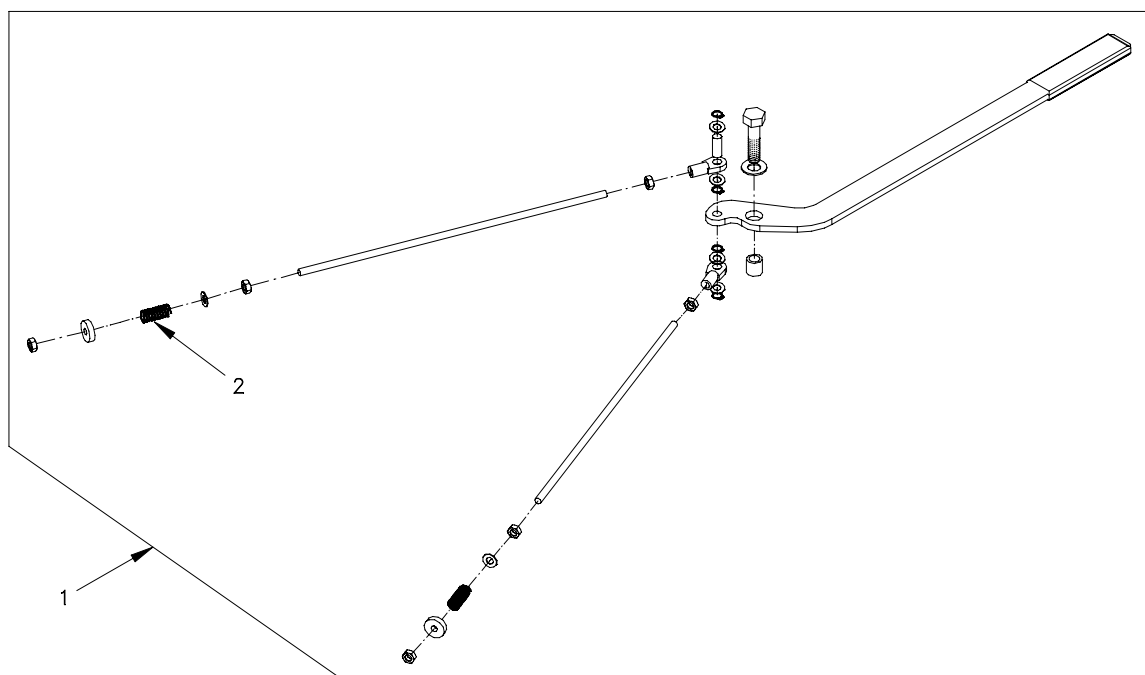


P502-040(2005-10)

Table 2: Brake components MX18 traction machine

KEY	PART NO.	PARTNAME	REMARK
1	KM710216G02	Brake unit	MX18, with control switch (complete assembly)
2	KM710216H29	Switch	Omron Z-15 GD-B, used with Brake Unit Assembly 710216G02
3	KM710220H01	Spring	4.5*14.5*D: ZO OTEVA 70
4	KM277458	Spring, brake contact	

1.3 MX18 traction machine brake manual release assembly



P502-047(4/00)

Table 3: Manual brake release assembly

KEY	PART NO.	PARTNAME	REMARK
1	KM710190	Manual brake release	Assembly
2	See remarks	Spring	SF-TFK 2.0*6*25 lo=25mm

1.4 MX18 traction machine - electric cables

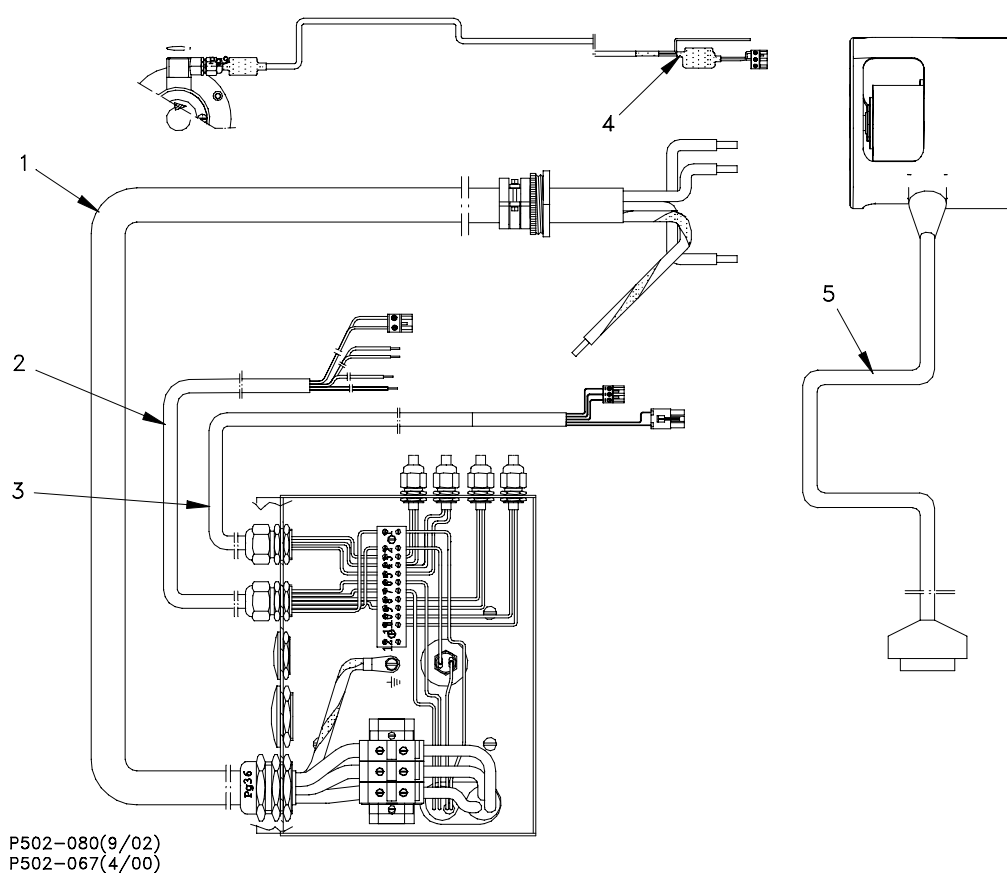
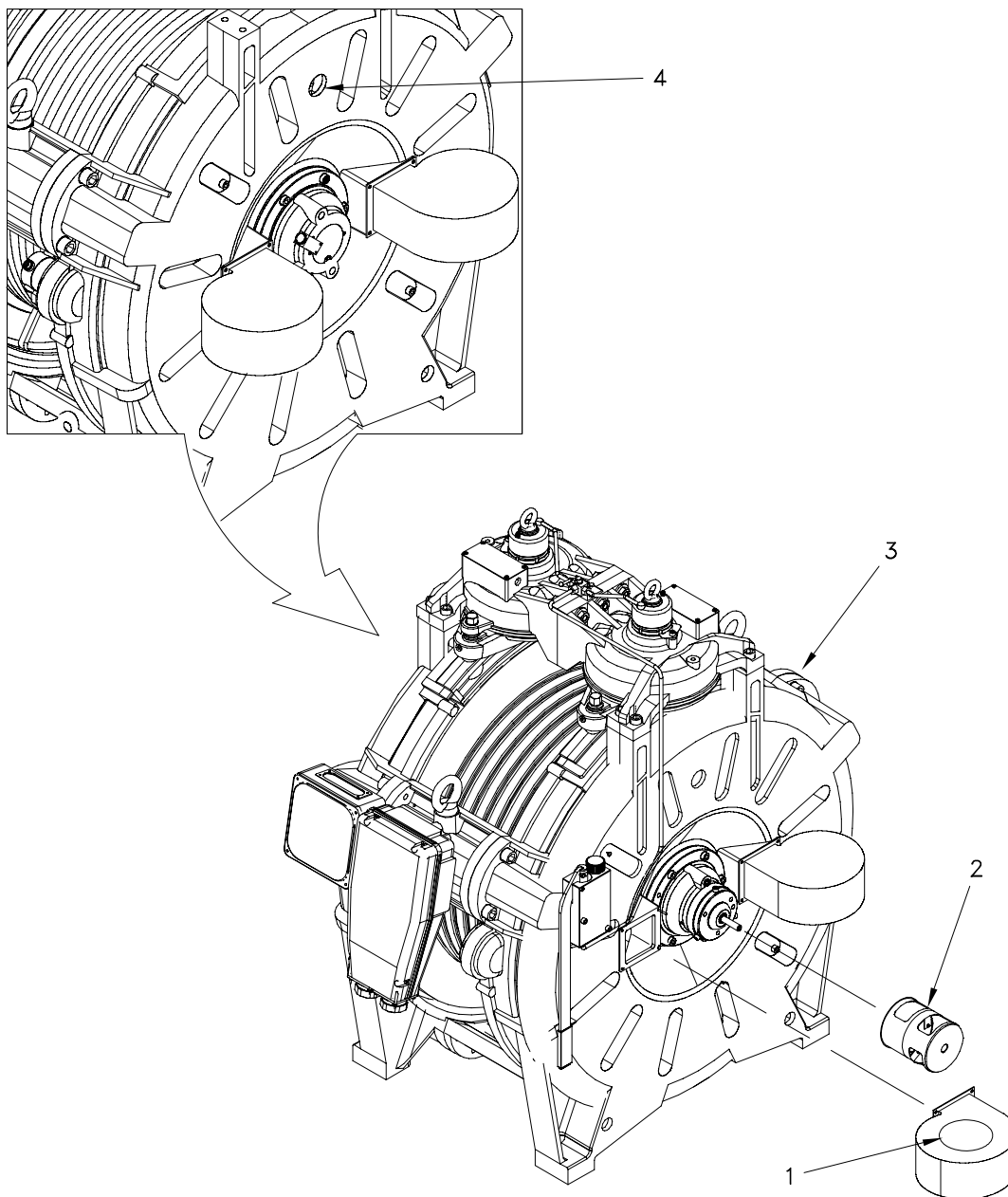


Table 4: MX18 traction machine electric cables

KEY	PART NO.	PARTNAME	REMARK
1	KM710246H01	Motor cable	Wire without plug, RKFK 450/750V 4*4 (std L=11.0m)
	KM710246H02	Motor cable	Wire without plug, RKFK 450/750V 4*6 (std L=11.0m)
	KM710246H03	Motor cable	Wire without plug, RKFK 450/750V 4*10 (std L=11.0m)
	KM710246H04	Motor cable	Wire without plug, RKFK 450/750V 4*16 (std L=11.0m)
	KM710246H05	Motor cable	Wire without plug, RKFK 450/750V 4*25 (std L=11.0m)
2	KM710248G01	Cable	Wire 710233H01 MKMO 6*1.5 450V L=7750mm
3	KM802519G02	Cable, brake	2 Req'd.
4	KM754339G02	Tachometer cable	Wire KJMS-2*0.5 (L=11000mm)
5	KM612114G01	Resolver cable	Wire LiYCY-CY 3*2*0.25 (L=7000mm)

1.5 MX32 traction machine components



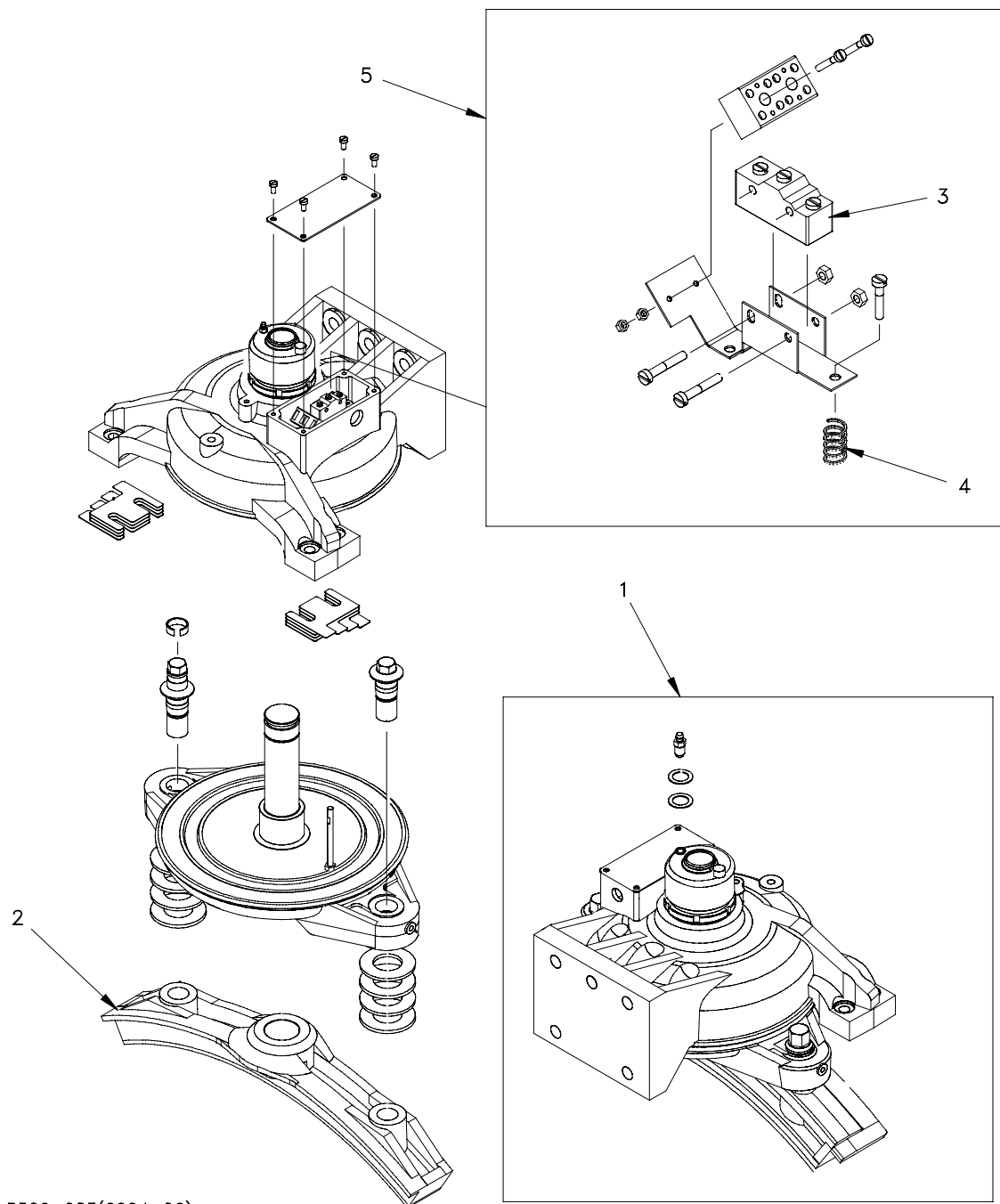
P502-082(2006-02)

Table 5: MX32 traction machine components

KEY	PART NO.	PARTNAME	REMARK
1	KM277786	Fan	G2E140-PI51-20 CE, UL/CSA, 50/60Hz), (Fan assembly is KM803081G03)
	KM277785	Fan	G3E140-PI51-19 (CE,UL/CSA,50/60Hz, (Fan assembly is KM803081G04)
	KM277788	Fan	G2E160-AY47-74 (CE,UL/CSA,50/60Hz),(Fan assembly is KM803081G09)
	KM277787	Fan	G2E160-BY47-22 (CE,UL/CSA,50/60Hz), (Fan assembly is KM803081G10)
2	KM766500G01	Resolver assembly	Litton, 1-spd, incl. fixing screws M6x12 (V3F25 drive)
	KM773549G01	Resolver and encoder assembly	Tamagawa, 2-spd, incl. fixing screws M6x12 (V3F100 drive)
3	KM277931	Tachometer	RE.0444L1B 60V CA11x30CSA
4	US520282	Thermo switch	Elmwood 2455R-955-2
NS	US95878001	Wheel, friction	75 mm
NS	US95879001	Wheel, friction	37.3 mm

NS = Not shown

1.6 MX32 traction machine - brake parts

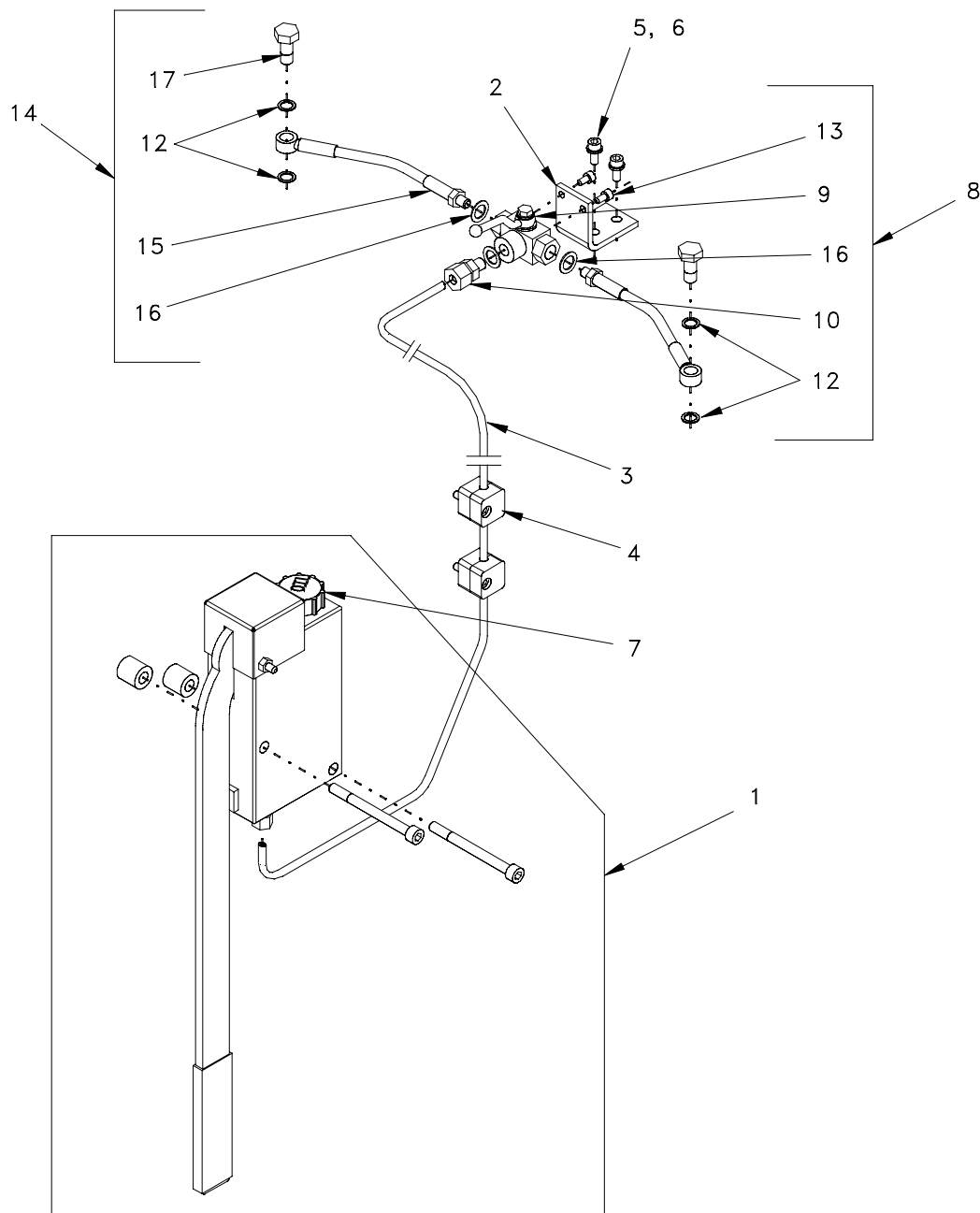


P502-083(2004-06)

Table 6: MX32/MX40 traction machine - brake parts

KEY	PART NO.	PARTNAME	REMARK
1	KM722740G01	Brake	MX-32 drive, (Assembly of two is KM803101G01)
2	KM722731G01	Shoe, brake	Kit is KM803101G04
3	KM276213	Switch	Z-15GD-B Omron
4	KM277458	Spring, brake contact	SF-TF1x5x15 SS1774-04
5	KM803100G05	Kit, brake contact	Complete replacement set

1.7 MX32 traction machine - brake release system

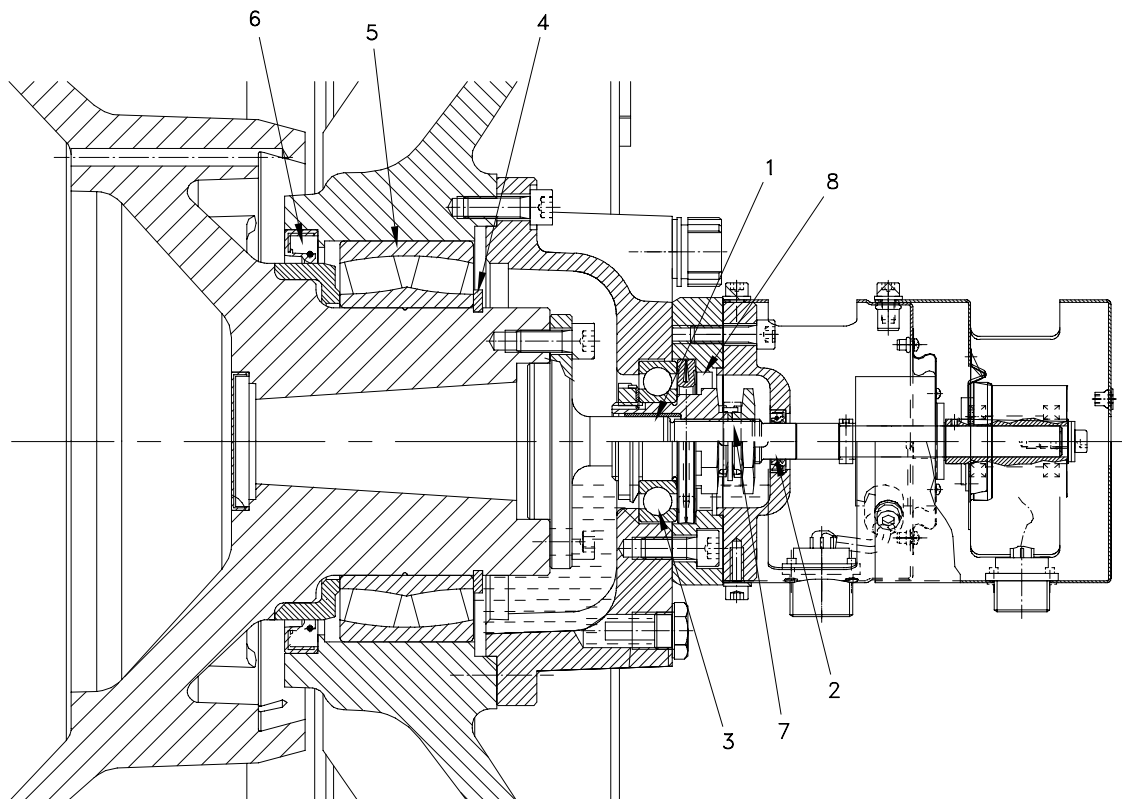


P502-084(2004-06)

Table 7: MX32/MX40 traction machine - brake release system

KEY	PART NO.	PARTNAME	REMARK
1	KM722756G01	Pump unit	Includes pipe adapter
2	KM773729H01	Angle	Iron
3	KM277361	Pipe	D6x1.5 DIN1630/DIN2445 (L=1400 mm)
4	KM277359	Fastening	30-N006
5	KM277356	Screw	M6x16 DIN912-8.8A3F
6	KM277288	Washer	6.4 DIN125-A3F
7	KM277371	Plug	SFP.40-1
8	KM803083G01	Valve, 3-way	Replacement set
9	722810H01	Faucet	Valve
10	KM277358	Adapter	GE06LR1/4AC
12	277357	Washer	10x14 DIN7603 (4 in KM803083G01; 2 in KM803083G02)
13	277355	Screws	M5x10 DIN912-8.8A3F (2)
14	KM803083G02	Hose	Replacement set
15	277360	Hose	14946-10-4/441-4/1D96-4-4 (L=300 mm)
16	280867	Sealing ring	14x18 DIN7603-CU (3 in KM803083G01, 1 in KM803083G02)
17	277354	Screw	AM4/M10x1

1.8 MX32 traction machine bearing assembly - resolver end

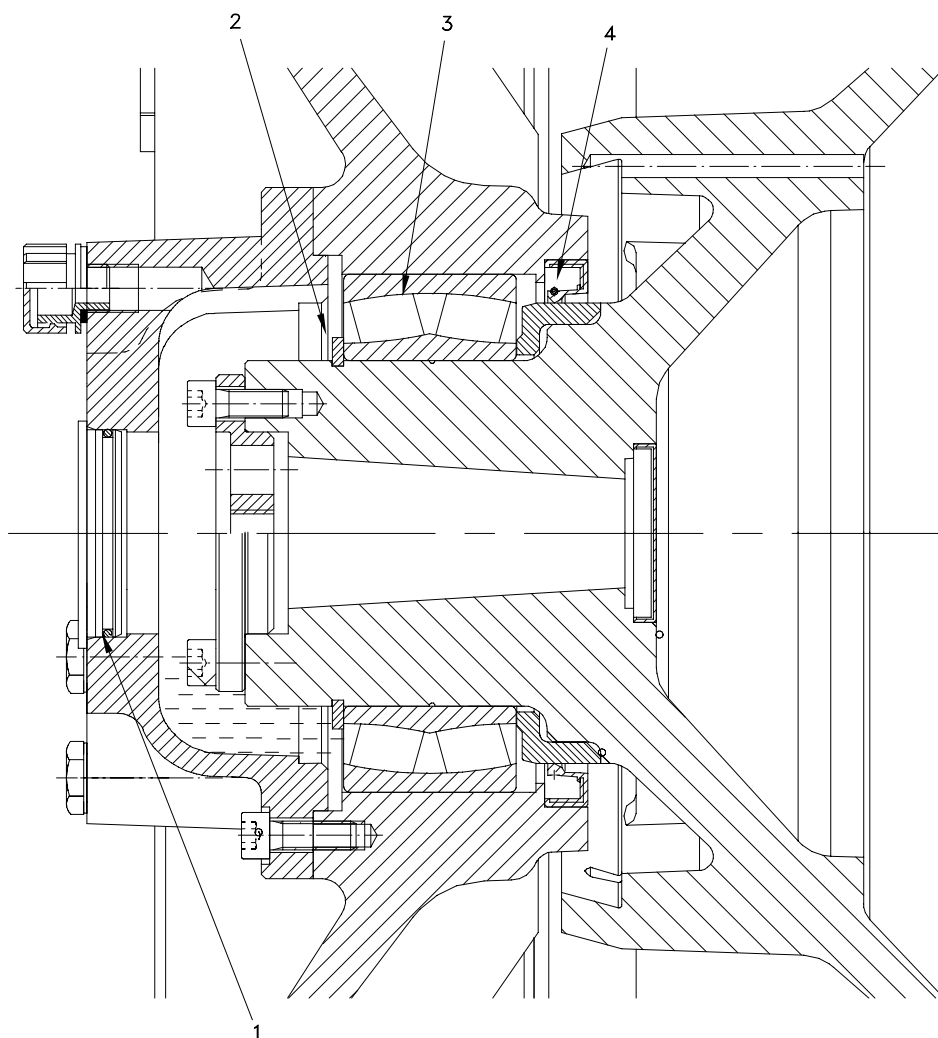


P502-085(2005-04)

Table 8: MX32 traction machine bearing assembly - resolver end

KEY	PART NO.	PARTNAME	REMARK
1	KM277476	Slide bearing	PCM222525B
2	KM277499	Seal, shaft	16/28x7 BAFUDSLX7
3	KM277473	Bearing	QJ207N2MA/C2L
4	KM139329	Ring, retaining	120x4.0, DIN471
5	KM277472	Bearing	24024ES.TVPB
6	KM277502	Seal, shaft	160-190-15 B2U
7	KM722748H01	Ring, snap	
8	KM769944H01	Ring, adjustment	

1.9 MX32 traction machine bearing assembly - hand wheel end



P502-086(2005-04)

Table 9: MX32 traction machine bearing assembly - hand wheel end

KEY	PART NO.	PARTNAME	REMARK
1	KM277431	O-ring	OR 3x66 NBR70
2	KM139329	Ring, retaining	120x4.0, DIN471
3	KM277472	Bearing	24024ES.TVPB3
4	KM277502	Seal, shaft	160-190-15 B2U

1.10 MX32 traction machine - electric cables

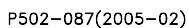
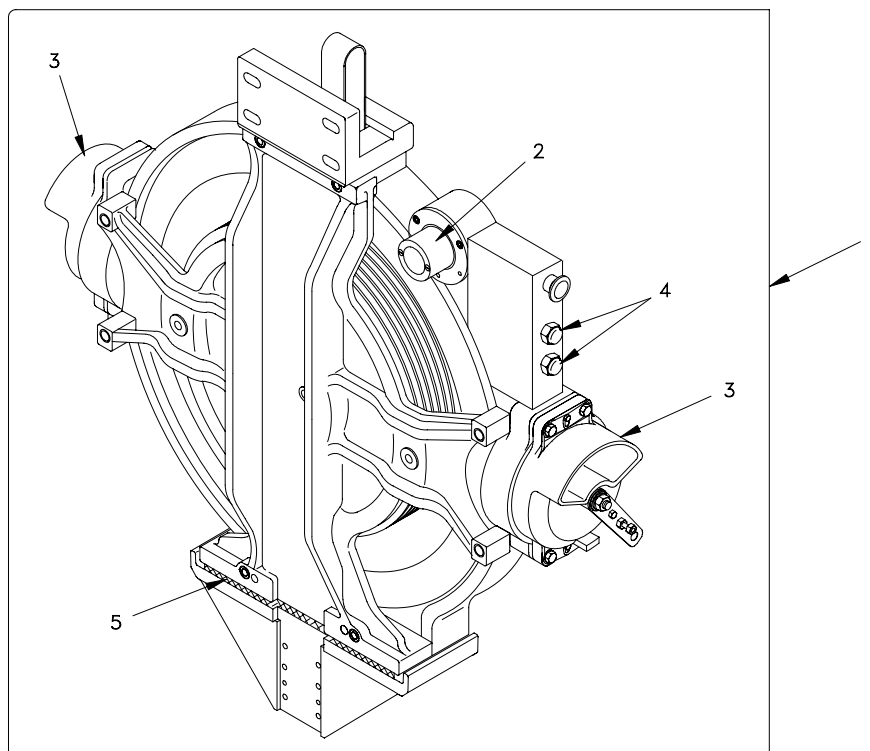


Table 10: MX32 traction machine - electric cables

KEY	PART NO.	PARTNAME	REMARK
1	KM781464G01	Cable, motor	25 sq. mm
	KM781464G02	Cable, motor	35 sq. mm
	KM781464G03	Cable, motor	50 sq. mm
	KM781464G04	Cable, motor	75 sq. mm
2	KM802519G02	Cable, brake	
3	KM781463G02	Cable, control	
4	KM762074G02	Cable, tachometer	
5	KM767059G02	Cable, resolver	
6	KM781458G05	Cable, brake	in machinery (L= 1350 mm)
7	KM781458G04	Cable, brake	in machinery (L= 2100 mm)
8	KM781459G05	Cable, fan	in machinery (L= 2550 mm)
9	KM781459G07	Cable, fan	in machinery (L= 1500 mm)
10	KM781459G03	Cable, fan	in machinery (L= 1950 mm)
11	KM781457G08	Cable, fan	in machinery (L= 2150 mm)
12	KM781457G02	Cable, handwheel	in machinery (L= 2100 mm)

1.11 MX10A traction machine components (KCM831)



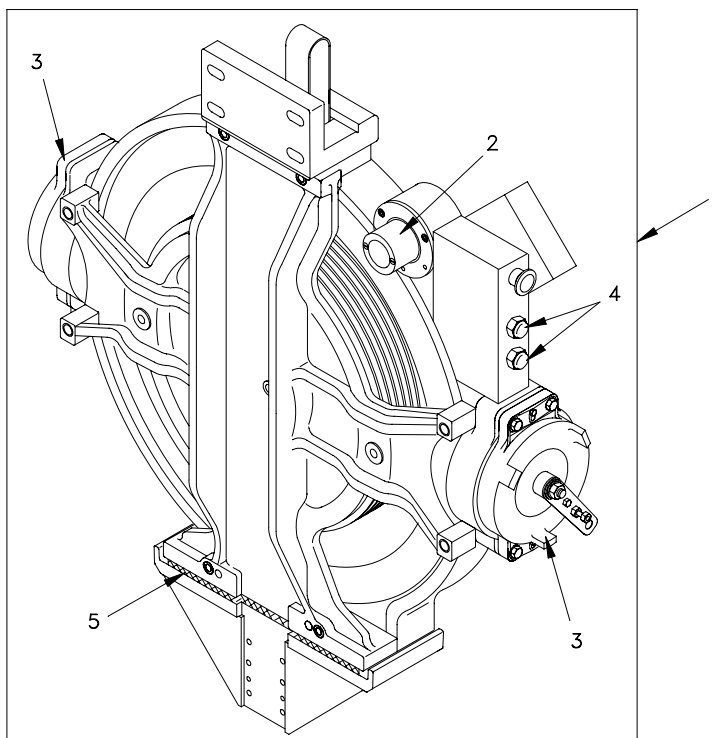
F613-611(2002-10)

Table 11: MX10 traction machine components

KEY	PART NO.	PARTNAME	REMARK
1	US53842001	Machine, MX10A	Complete, with resolver, 2000 and 2500, 95 degree undercut grooves (KM781831G06)
2	KM277931	Tachometer	RE.0444L1B 60V CA11x30CSA
	US95879001	Wheel, friction	37.3 mm
3	US64655015	Brake	Complete, releasing arm is reversible
4	KM650827G01	Cable, brake opening	
5	KM650819H01	Damper	Lower isolation
NS	KM725442G01	Guard, rope	
NS	KM617609G01	Brake release handle	MX10A

NS = Not shown

1.12 MX10/08, MX10/15 traction machine components: EcoSpace

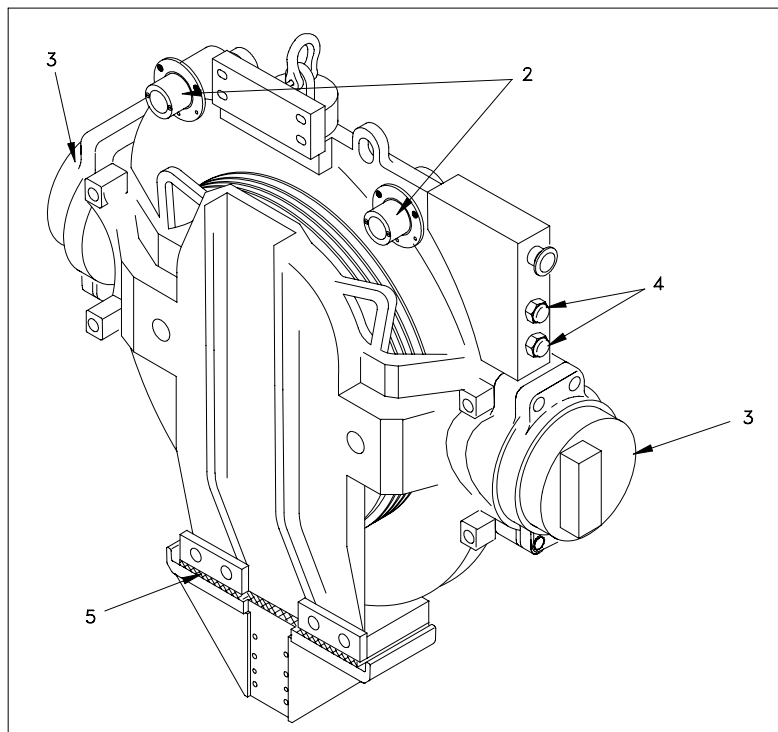


F613-614(2003-23)

Table 12: MX10 traction machine components

KEY	PART NO.	PARTNAME	REMARK
1	KM811510G05	Machine, MX10/08	Complete without resolver (KM827618H01)
	KM827618H02	Machine, MX10/15	Complete without resolver 3000 - 3500 lb
	KM827618H03	Machine, MX10/15	Complete with resolver 4000 - 5000 lb
2	KM277931	Tachometer	RE.0444L1B 60V CA11x30CSA
	US95879001	Wheel, friction	37.3 mm
	KM811490G01	Cable, tachometer	
3	US64655015	Brake	Complete LH/RH, arm reversible for LH/RH
4	KM650827G01	Cable, brake opening	
5	KM650819H01	Damper	Lower isolation

1.13 MX20 traction machine components



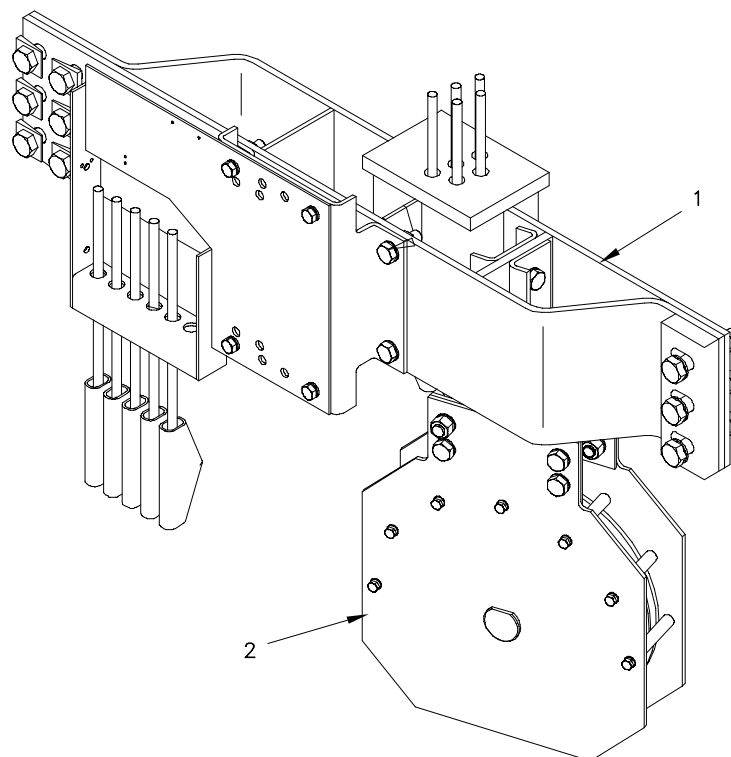
F613-610(9/02)

Table 13: MX20 traction machine components

KEY	PART NO.	PARTNAME	REMARK
1	US53486002	Machine, MX20	Complete, 200 FPM, 2500, 3000, 3500, 4000, 4500, 95 degree undercut grooves
	US53486004	Machine, MX20	Complete, 350 FPM, 2500, 3000, 3500, 4000, 4500, 95 degree undercut grooves
2	KM277931	Tachometer	RE.0444L1B 60V CA11x30CSA
	US95878001	Wheel, friction	75 mm
	KM754339G02	Tachometer cable	
3	KM710216G04	Brake	Complete
4	KM784780G01	Cable, brake opening	
5	KM756001H01	Damper	Lower isolation
NS	KM779777G02	Guard, rope	
NS	KM785054G01	Brake release handle	MX20

NS = Not shown

1.14 Fixing beam assembly: EcoSpace, 3000-4000 lb passenger car

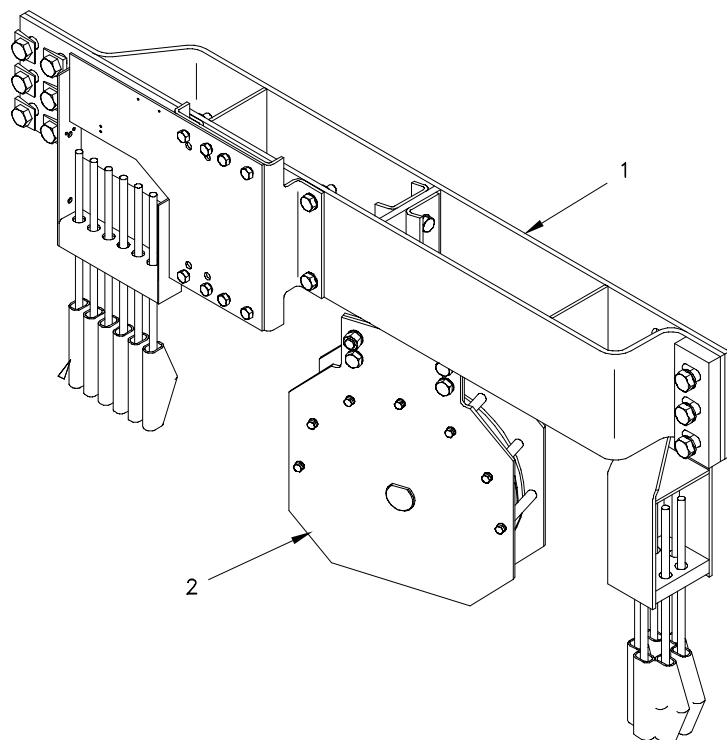


5011323(2006-05)

Table 14: Dead end hitch, 3000-5000 lb.

KEY	PART NO.	PARTNAME	REMARK
1	KM827848	Rope fixing beam assembly	Passenger car
2	KM827863G01	Rope fixing pulley	Left, non seismic
	KM827863G02	Rope fixing pulley	Left, seismic
	KM827863G03	Rope fixing pulley	Right, non seismic
	KM827863G04	Rope fixing pulley	Left, seismic

1.15 Fixing beam assembly: EcoSpace, 4000-5000 lb service car



5011324(2006-06)

Table 15: Dead end hitch, 4000-5000 lb.

KEY	PART NO.	PARTNAME	REMARK
1	KM827849	Rope fixing beam assembly	Service car
2	KM827863G01	Rope fixing pulley	Left, non seismic
	KM827863G02	Rope fixing pulley	Left, seismic
	KM827863G03	Rope fixing pulley	Right, non seismic
	KM827863G04	Rope fixing pulley	Right, seismic

2 HOISTWAY COMPONENTS

2.1 Floor Option Board (LCEFOB)

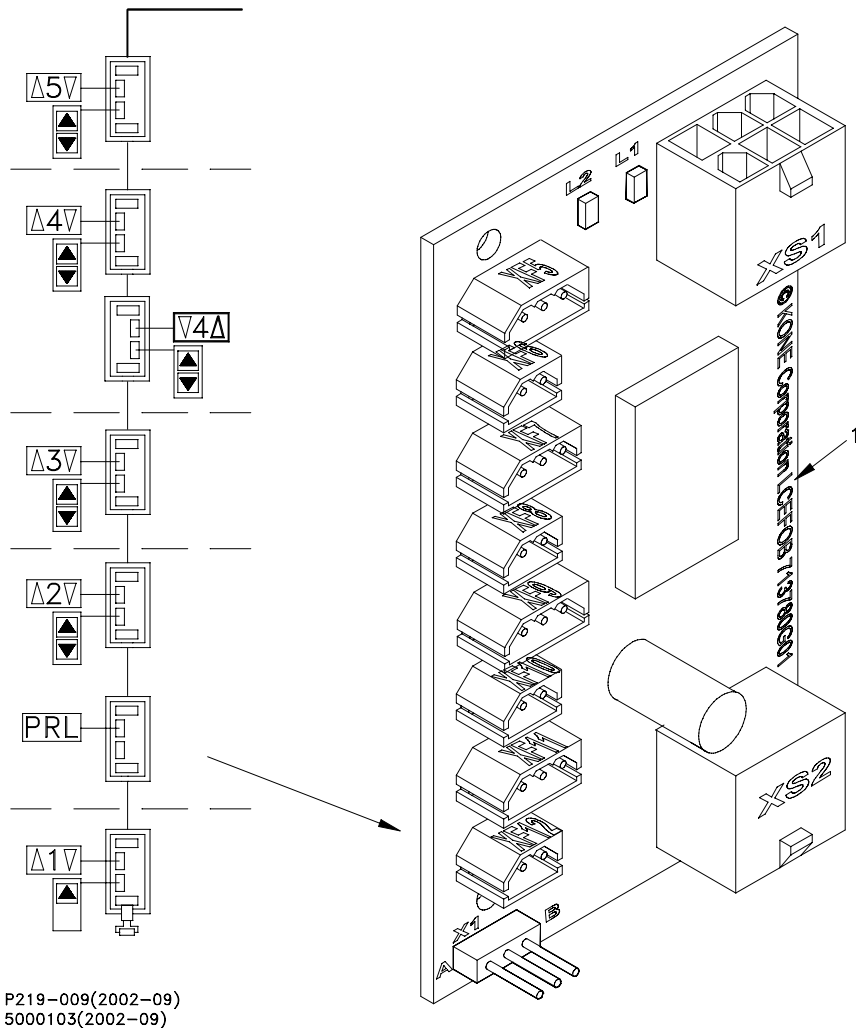
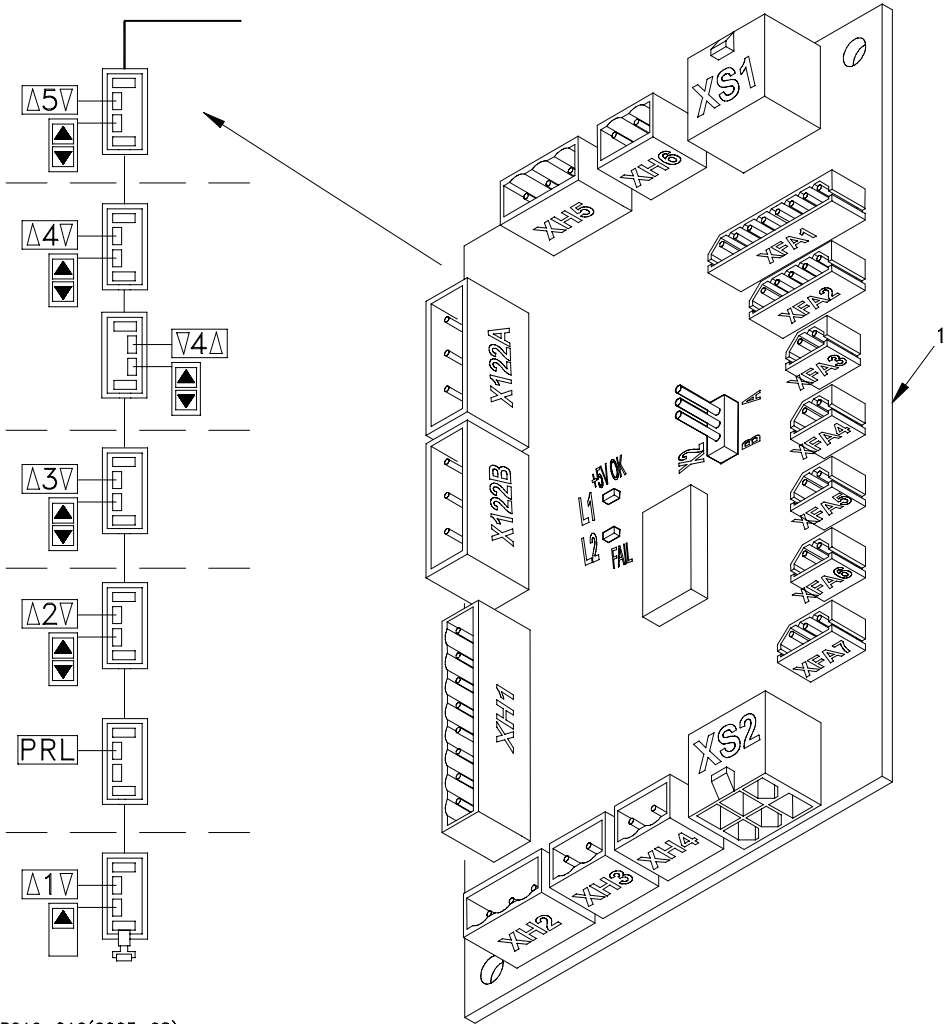


Table 16: Floor option board (LCEFOB)

KEY	PART NO.	PARTNAME	REMARK
1	KM713780G11	PC board, LCEFOB	Floor Option Board, KM713780G11 boards cannot replace KM713780G01 boards
	KM713780G12	PC board, LCEFOB	Floor Option Board
	KM713780G01	PC board, LCEFOB	Floor Option Board. Order this board for Service work. See note below.

NOTE! KM713780G01 boards can be used in KCM 831/ReSolve system. An I/O board software download (5-7-1) converts the KCM7;1;3780G01 board to a KCM 713780G11 board.

2.2 Hoistway Access interface board (LCEHAS)



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 5000105(2003-08)

Table 17: Hoistway access interface board (LCEHAS)

KEY	PART NO.	PARTNAME	REMARK
1	KM762710G01	PC board, LCEHAS	Hoistway access interface board
NS	KM275632	Fuse, F2	250 VAC-500 MA-F-5x20-CSA

NS = Not shown

2.3 Floor Control Board (LCEFCB)

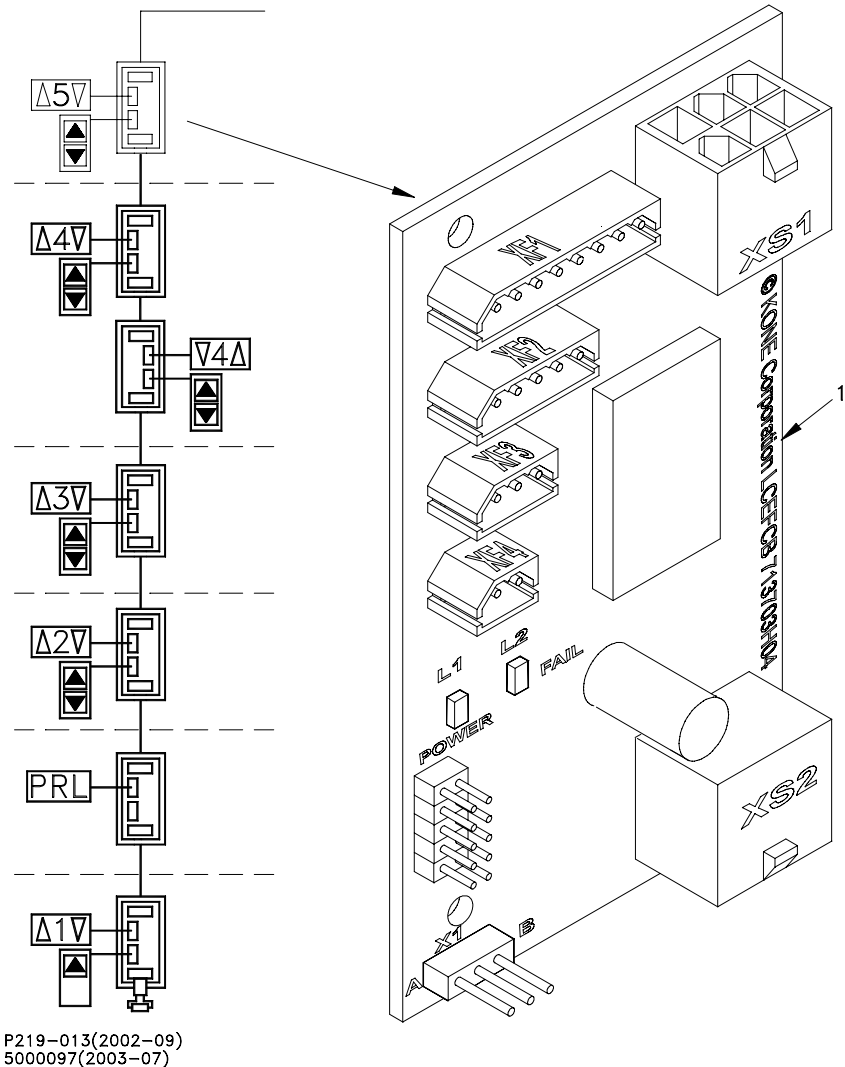
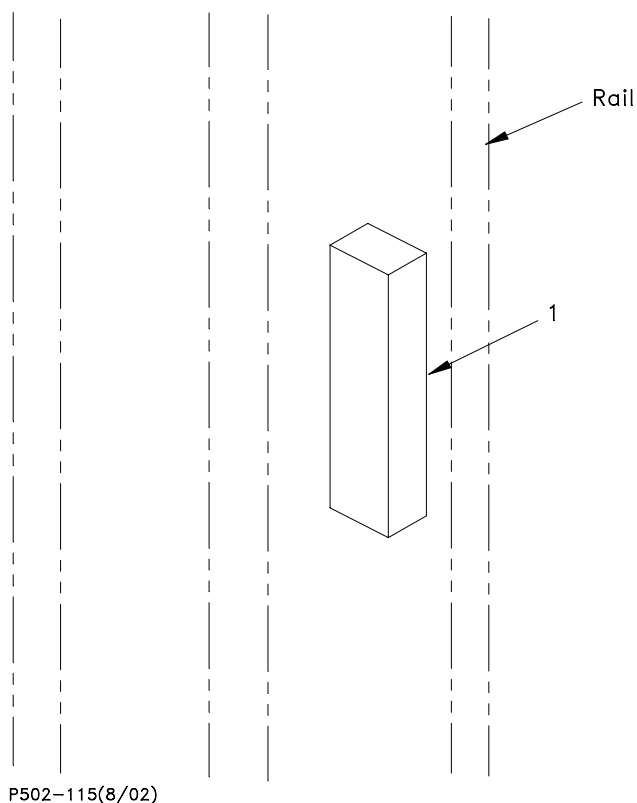


Table 18: Floor control board (LCEFCB)

KEY	PART NO.	PARTNAME	REMARK
1	KM713700G13	PC board, LCEFCB	Floor Control Board, KM713700G13 boards cannot replace KM713700G03 boards

KM713700G03 boards can be used. An I/O board software download (5-7-1) converts the KM713700G03 board to a KM713700G13 board.

2.4 Hoistway magnet - 77:S, 77:U, 77:N, 66:EAQ

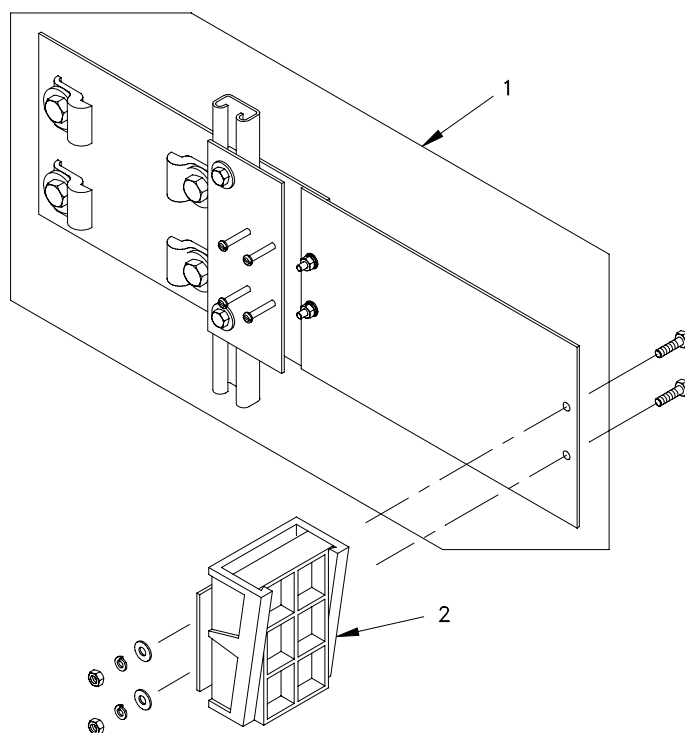


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Table 19: Hoistway magnets

KEY	PART NO.	PARTNAME	REMARK
1	KM713228G03	Magnet	Plastoferrite strip, used with 77:S, 77:U, 77:N, 66:EAQ 80x20x12mm
	KM713228G01	Magnet	Plastoferrite strip, used with 61:U, 61:N, 30, B30 (EcoSpace only)

2.5 Hoistway traveling cable hanger: EcoSpace



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Table 20: Hanger assembly, cable hanger, traveling cable

KEY	PART NO.	PARTNAME	REMARK
1	KM829704G01	Hanger assembly, traveling cable	
2	KM784564G01	Cable hanger assembly	Complete assembly for securing flat cable wedge/clamp to wiring duct

2.6 Switch assembly: 136:U, 77:U1, 134:TN, 134:TU,77:N1, 134:1N, 134:1U, 136:N

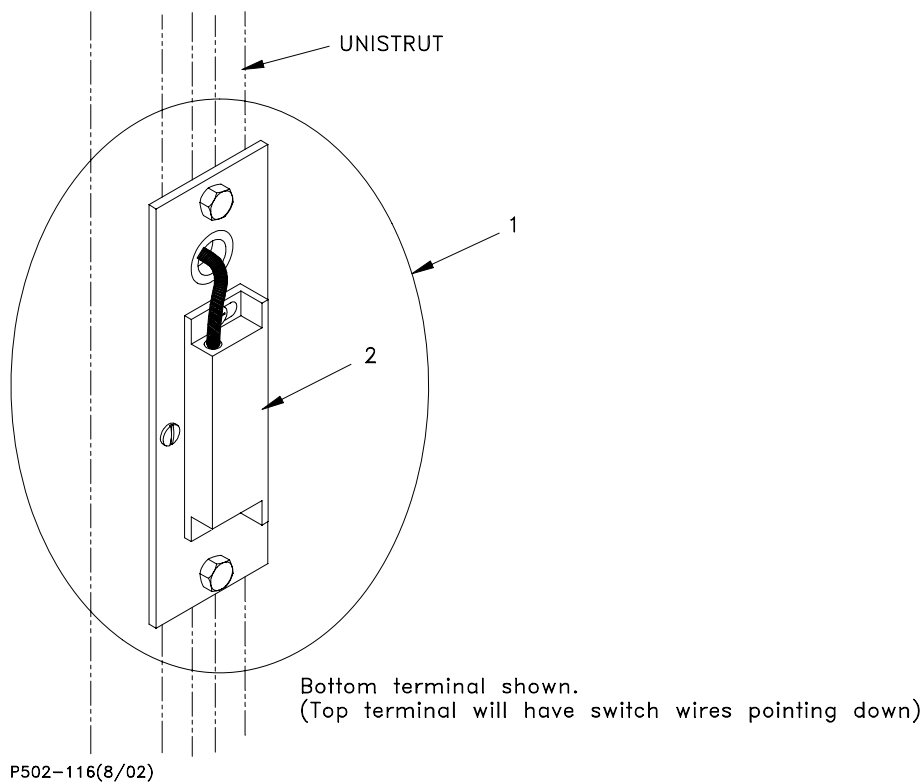
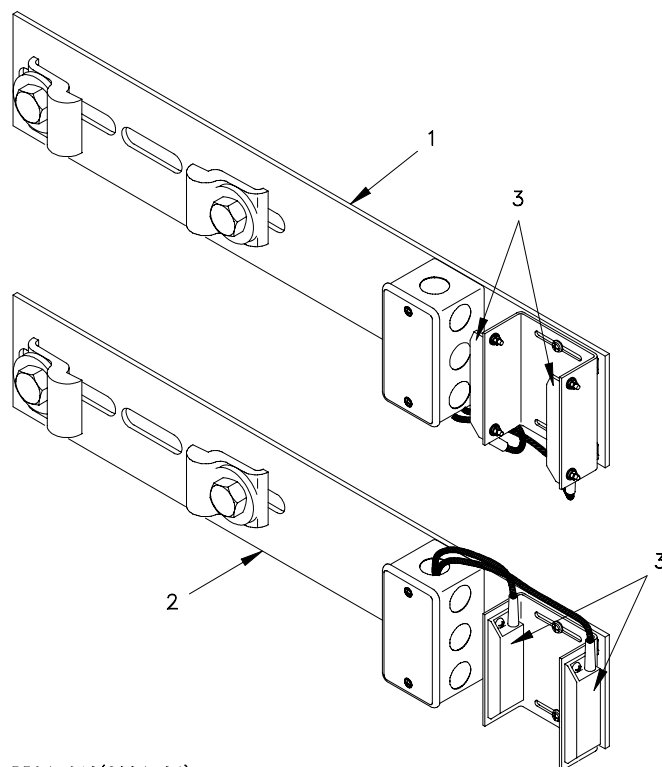


Table 21: Switch assembly: 136:U, 77:U1, 134:TN, 134:TU, 77:N1, 134:1N, 134:1U, 136:N

KEY	PART NO.	PARTNAME	REMARK
1	USP37062002	Switch assembly, bistable	Assembly, used with top switches 136:U, 77:U1, 134:TN, 134:TU and bottom switches 77:N1, 134:1N, 134:1U, 136:N
2	KM280876	Switch, bistable	Service replacement part

2.7 Switch assembly, ETSL: 136:U1A, 136:U1B, 136:U2A,136:U2B, 136:N1A, 136:N1B, 136:N2A, 136:N2B

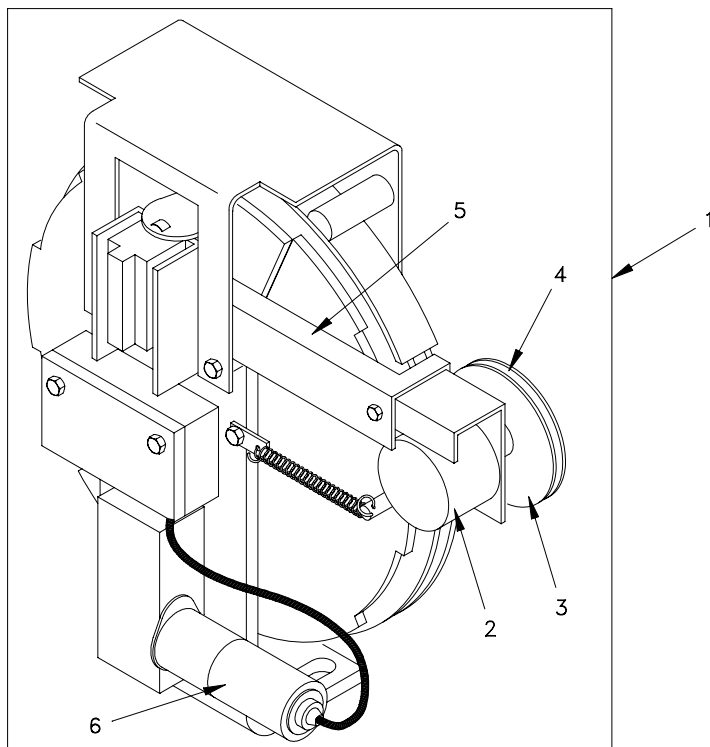


P504-010(2004-04)

Table 22: Switch assembly, ETSL

KEY	PART NO.	PARTNAME	REMARK
1	KM824101G01	Switch assembly, ETSL	Top
2	KM824101G02	Switch assembly, ETSL	Bottom
3	KM280876	Switch, bistable	Service replacement part

2.8 Overspeed governor (car): KONE OL35, EcoSpace

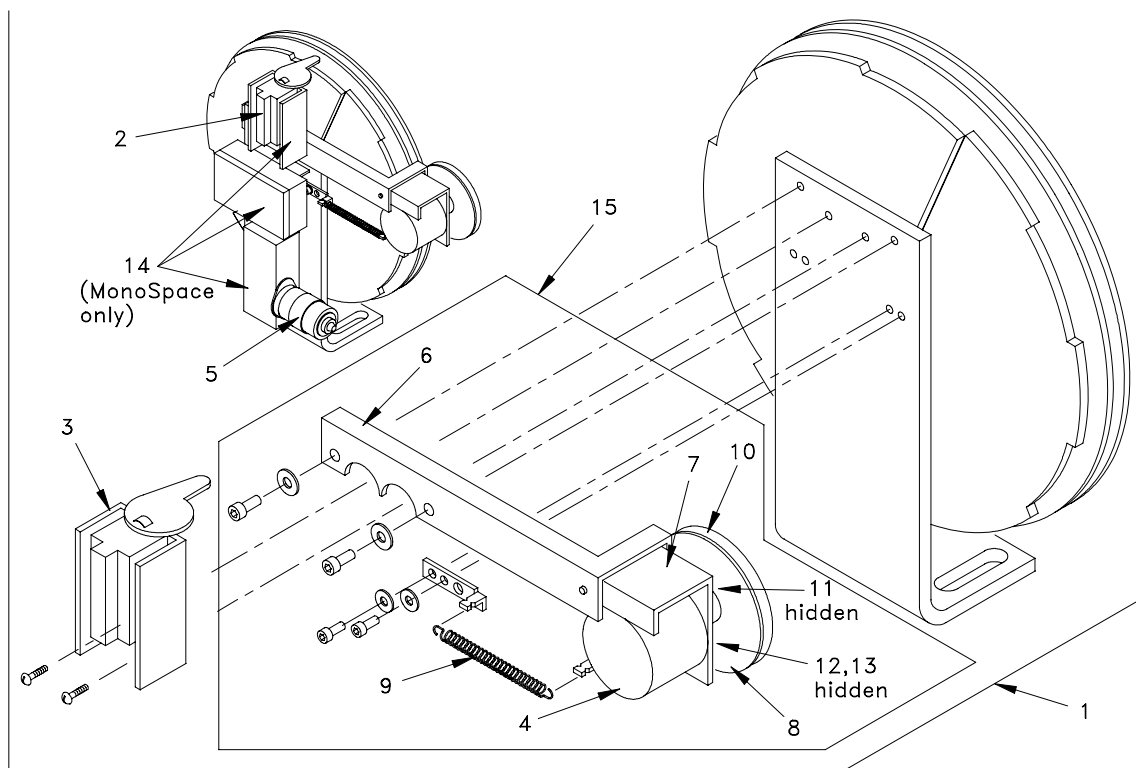


P502-126(2003-06)

Table 23: OL35 governor with remote

KEY	PART NO.	PARTNAME	REMARK
1	KM601950G11	Governor, OL35	With remote
2	KM277938	Encoder	Hengstler, RI 58
3	KM602253G01	Measuring wheel	
4	KM280260	O-ring	Service replacement part
5	KM602258G01	Bracket, encoder	Tripping direction: right, complete assembly
	KM602258G02	Bracket, encoder	Tripping direction: left, complete assembly
6	KM89144G01	Motor unit	Remote reset

2.9 Overspeed governor (car): KONE OL35



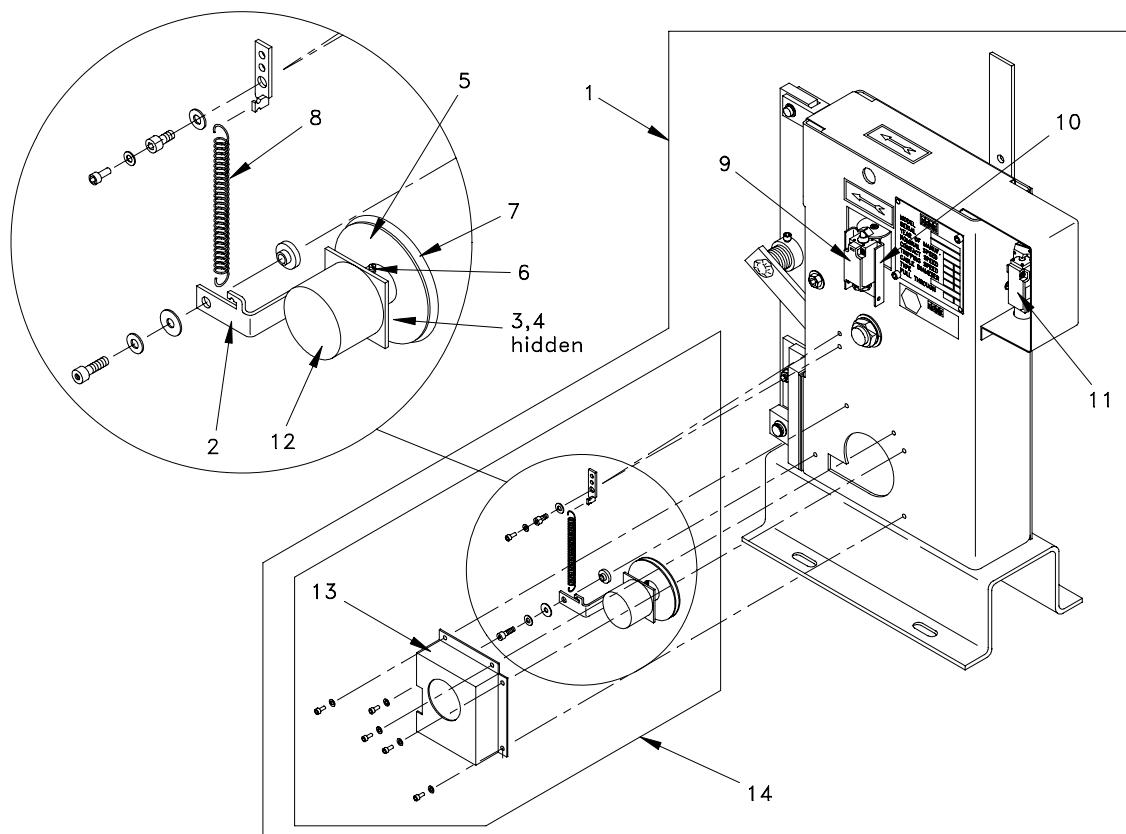
P502-101(2002-10)

Table 24: Overspeed governor (CAR): KONE OL35

KEY	PART NO.	PARTNAME	REMARK
1	US53752002	Governor, OL35	Used with Monospace, 200 FPM, side 1-2 (includes encoder and remote control motor)
1	US53752004	Governor, OL35	Used with Monospace, 350 FPM, side 1-2 (includes encoder and remote control motor)
1	US53749007	Governor, OL35	Used with EcoSystem MR, 500 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
1	US53749008	Governor, OL35	Used with EcoSystem MR, 500 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)
1	US53752001	Governor, OL35	Used with Monospace, 200 FPM, side 3-4 (includes encoder and remote control motor)
1	US53752003	Governor, OL35	Used with Monospace, 350 FPM, side 3-4 (includes encoder and remote control motor)
1	US53749001	Governor, OL35	Used with EcoSystem MR, 200 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
1	US53749002	Governor, OL35	Used with EcoSystem MR, 200 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)

KEY	PART NO.	PARTNAME	REMARK
1	US53749003	Governor, OL35	Used with EcoSystem MR, 350 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
1	US53749004	Governor, OL35	Used with EcoSystem MR, 350 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)
1	US53749005	Governor, OL35	Used with EcoSystem MR, 400 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
1	US53749006	Governor, OL35	Used with EcoSystem MR, 400 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)
2	US519975	Switch, limit	Limit switch ONLY
3	KM80380G02	Switch assembly and bracket	Tripping direction: right, complete assembly
	KM80380G04	Switch assembly and bracket	Tripping direction: left, complete assembly
4	KM277938	Encoder	Hengstler, RI 58
5	KM89144G01	Motor unit	Remote reset
6	KM602259H01	Bracket , encoder	Governor tripping direction: right
	KM602259H02	Bracket , encoder	Governor tripping direction: left
7	KM602254H01	Bracket , encoder	Governor tripping direction: right
	KM602254H02	Bracket , encoder	Governor tripping direction: left
8	KM602253G01	Measuring wheel	
9	KM600016H01	Spring	
10	KM280260	O-ring	80x5
11	KM156869	Screw, set	M6x12
12	KM258590	Screw	M3x8-808-A3G, used to mount encoder to item 5
13	KM260961	Washer	Used to mount encoder to item 5
14	KM88970G07	Remote control assembly	Used only with Monospace, for remote reset, tripping direction: right (clockwise)
	KM88970G09	Remote control assembly	Used only with Monospace, for remote reset, tripping direction: right (clockwise)
	KM88970G08	Remote control assembly	Used only with Monospace, for remote reset, tripping direction: left (counter-clockwise)
	KM88970G10	Remote control assembly	Used only with Monospace, for remote reset, tripping direction: left (counter-clockwise)
15	KM602258G02	Bracket, encoder	Governor tripping direction: right
	KM602258G03	Encoder assembly	Governor tripping direction: left

2.10 Overspeed governor (car): KONE OL100 - EcoSystem MR

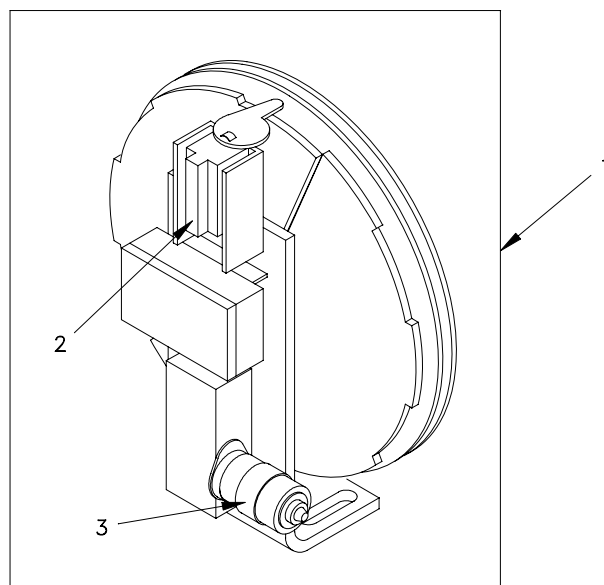


P502-102(2002-10)

Table 25: Overspeed governor (car): KONE OL100

KEY	PART NO.	PARTNAME	REMARK
1	KM80340G45	Governor, OL100	80340G45-1-E-R-MKO, 200 fpm corners 1,3, RH, (US53750003), 80340G45-1-E-L-MKO, 200 fpm corners 2,4, LH, (US53751003)
	KM80340G51	Governor, OL100	80340G51-1-E-R-MKO, 350 fpm corners 1,3, RH, (US53750006), 80340G51-1-E-L-MKO, 350 fpm corners 2,4, LH, (US53751006)
	KM80340G53	Governor, OL100	80340G53-1-E-R-MKO, 400 fpm corners 1,3, RH, (US53750007), 80340G53-1-E-L-MKO, 400 fpm corners 2,4, LH, (US53751007)
	KM80340G57	Governor, OL100	80340G57-1-E-R-MKO, 500 fpm corners 1,3, RH, (US53750009), 80340G57-1-E-L-MKO, 500 fpm corners 2,4, LH, (US53751009)
	KM80340G61	Governor, OL100	80340G61-1-E-R-MKO, 700 fpm corners 1,3, RH, (US53750011), 80340G61-1-E-L-MKO, 700 fpm corners 2,4, LH, (US53751011)
2	KM602260H02	Bracket, encoder	Governor tripping direction: right
	KM602260H01	Bracket, encoder	Governor tripping direction: left
3	KM258590	Screw	M3x8-808-A3G, used to mount encoder to item 2
4	KM260961	Washer	Used to mount encoder to item 2
5	KM602253G01	Measuring wheel	
6	KM156869	Screw, set	M6x12
7	KM280260	O-ring	80x5
8	KM600016H01	Spring	
9	US519975	Switch, limit	Limit switch ONLY
10	KM80380G02	Switch assembly and bracket	Tripping direction: right, complete assembly
	KM80380G04	Switch assembly and bracket	Tripping direction: left, complete assembly
11	KM255190	Switch, limit	
12	KM277938	Encoder	Hengstler, RI 58
13	KM602261H02	Cover, encoder	Governor tripping direction: right
	KM602261H01	Cover, encoder	Governor tripping direction: left
14	KM602262G02	Encoder assembly	Governor tripping direction: right
	KM602262G03	Encoder assembly	Governor tripping direction: left

2.11 Overspeed governor (CWT): KONE OL35 - MonoSpace

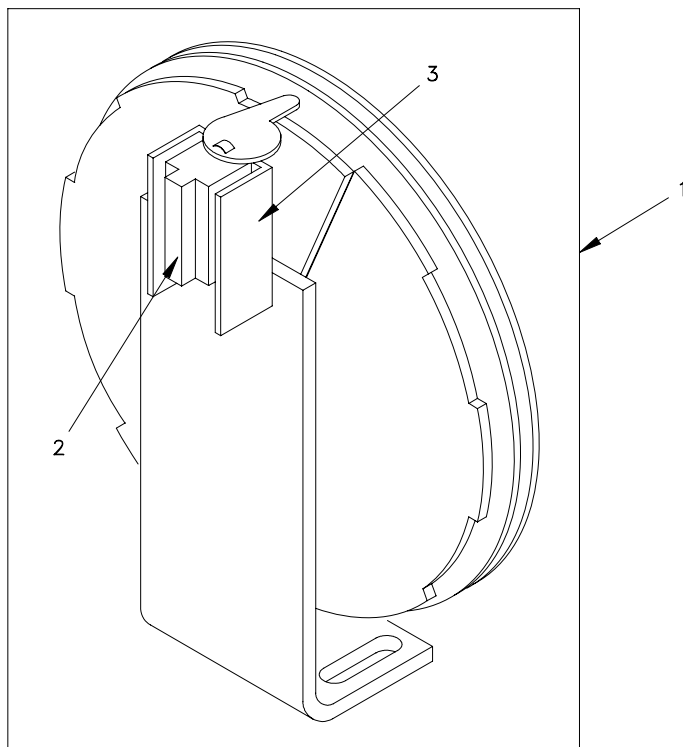


P504-008(2002-10)

Table 26: OL35 governor for cwt

KEY	PART NO.	PARTNAME	REMARK
1	US53440001	Governor, OL35	RH, 200 FPM, side 1 and 2
	US53440003	Governor, OL35	RH, 350 FPM, side 1 and 2
	US53440004	Governor, OL35	LH, 350 FPM, side 3 and 4
	US53440002	Governor, OL35	LH, 200 FPM, side 3 and 4
2	US519975	Switch, limit	Limit switch ONLY
3	KM89144G01	Motor unit	Remote reset

2.12 Overspeed governor (CWT): KONE OL35 - EcoSystem MR

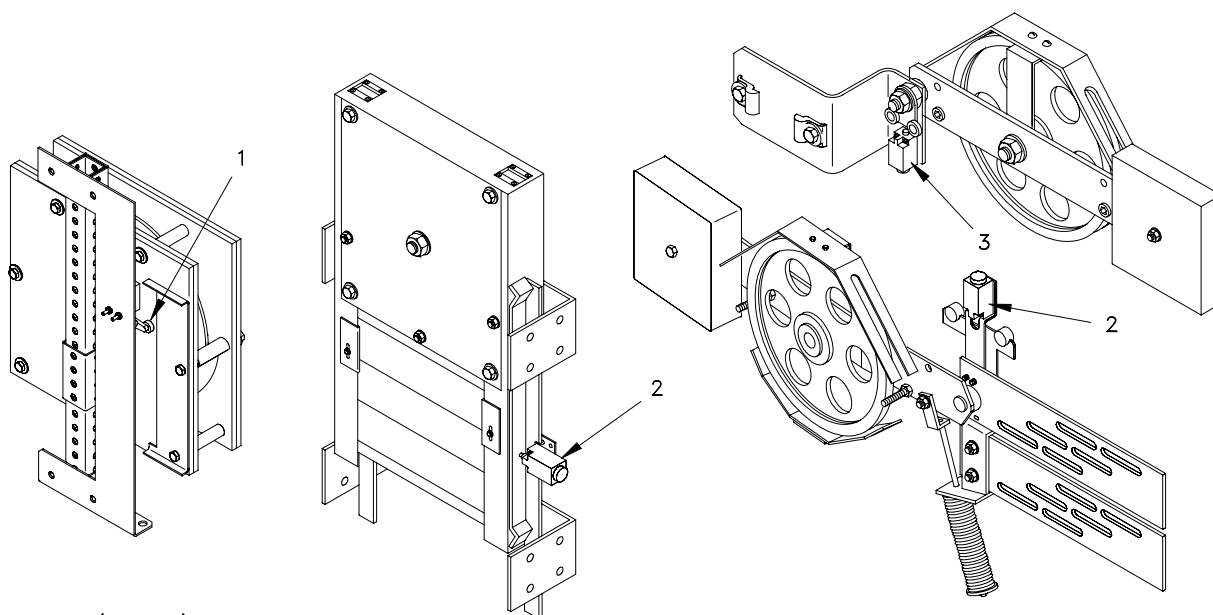


P503-001(2002-10)

Table 27: Overspeed governor - KONE OL35

KEY	PART NO.	PARTNAME	REMARK
1	US53441001	Governor, OL35	RH, 200 FPM
	US53441002	Governor, OL35	LH, 200 FPM
	US53441003	Governor, OL35	RH, 350 FPM
	US53441004	Governor, OL35	LH, 350 FPM
	US53441005	Governor, OL35	RH, 400 FPM
	US53441006	Governor, OL35	LH, 400 FPM
	US53441007	Governor, OL35	RH, 500 FPM
	US53441008	Governor, OL35	LH, 500 FPM
2	US519975	Switch, limit	Limit switch ONLY
3	KM80380G02	Switch assembly and bracket	Tripping direction: right, complete assembly
	KM80380G04	Switch assembly and bracket	Tripping direction: left, complete assembly

2.14 Governor tension sheave

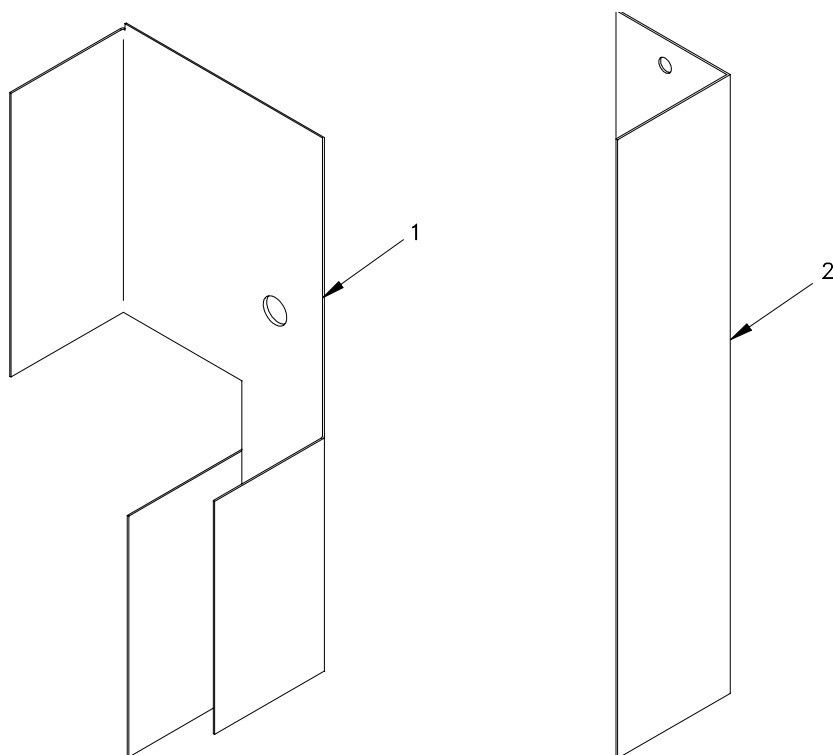


P502-099(2004-05)

Table 29: Governor tension sheave

KEY	PART NO.	PARTNAME	REMARK
1	US52874002	Switch, limit	Manual reset, governor tension sheave
2	KM254372	Switch, limit	Manual reset, governor tension sheave
3	KM283208	Switch, limit	Manual reset, governor tension sheave

2.15 Floor vanes and rear door vane

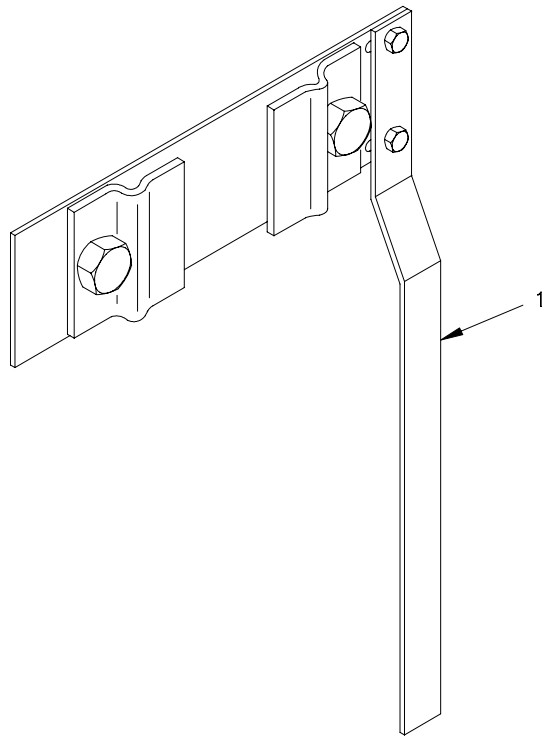


P502-114(8/02)

Table 30: Floor vanes and rear door vane

KEY	PART NO.	PARTNAME	REMARK
1	US53817001	Vane, floor	Shipped as flat piece of metal
2	US53810001	Vane, floor	Rear door, shipped as flat piece of metal

2.16 Magnet bracket: 77:S or B:30 magnets: EcoSpace

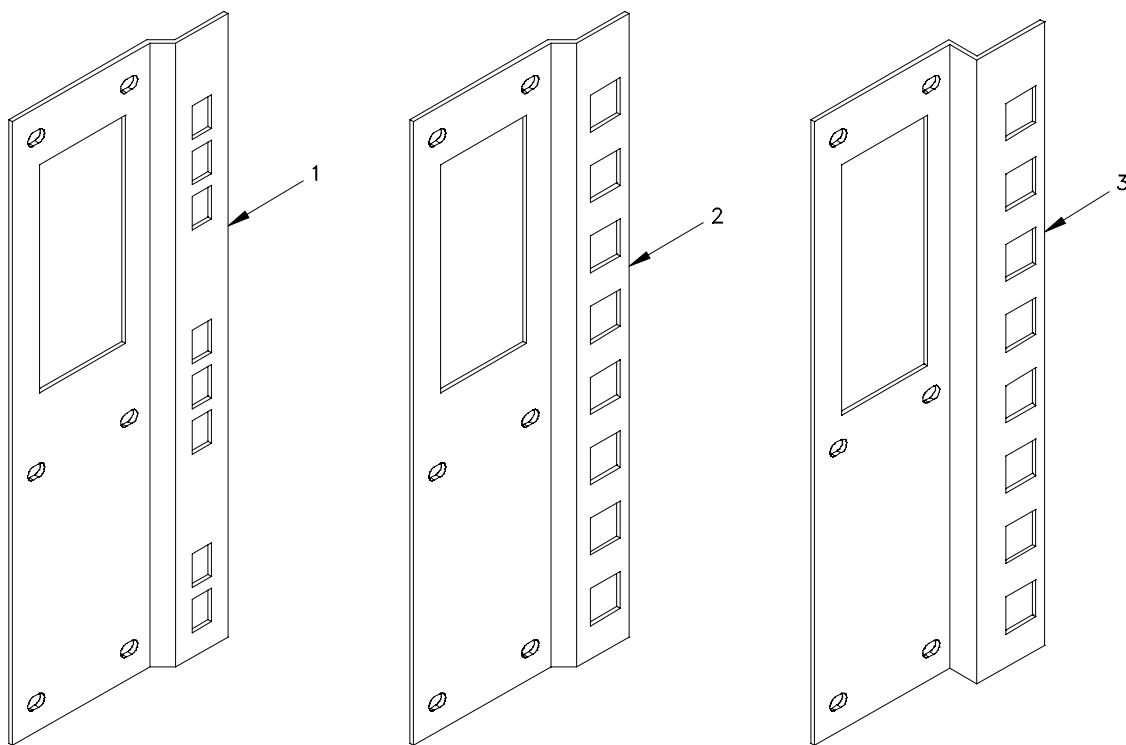


P504-016(2003-04)

Table 31: Bracket assembly, magnet

KEY	PART NO.	PARTNAME	REMARK
1	KM827760H01	Bracket assembly, magnet	Used for the 77:S magnet and B30 magnet

2.17 Locking plates - Monospace

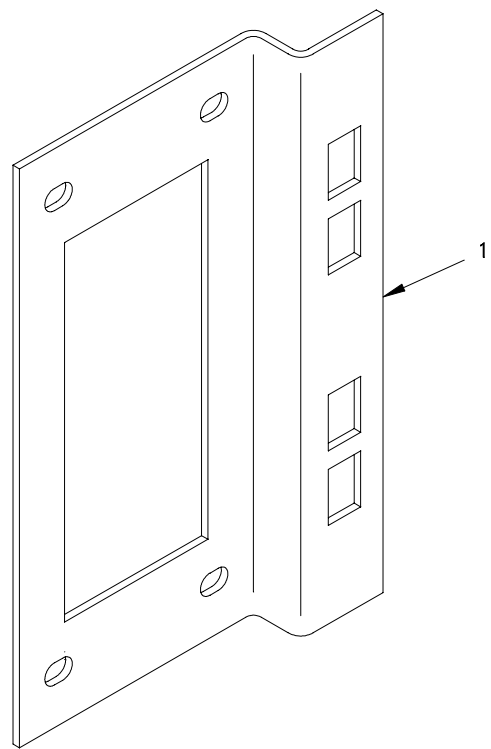


P504-003(9/02)

Table 32: Locking plates - MonoSpace

KEY	PART NO.	PARTNAME	REMARK
1	KM89899H03	Locking plate	RH, CF10USM car frame
	KM89899H02	Locking plate	LH, CF10USM car frame
2	KM763057H01	Locking plate	RH, (T127) CF16USM car frame
	KM763057H02	Locking plate	LH, (T127) CF16USM car frame
3	KM763069H01	Locking plate	RH, (T140) CF16USM car frame
	KM763069H02	Locking plate	LH, (T140) CF16USM car frame

2.18 Locking plate - EcoSpace

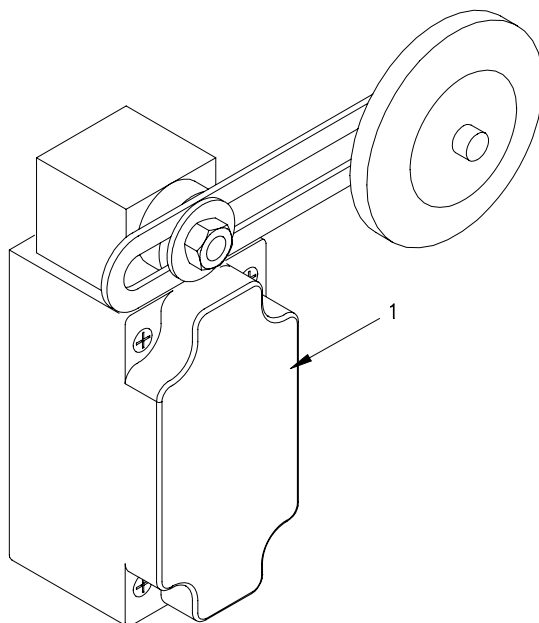


P504-017(2003-04)

Table 33: Locking plate

KEY	PART NO.	PARTNAME	REMARK
1	KM604278G01	Locking plate	

2.19 Switch, final limit - 151:U, 151:N

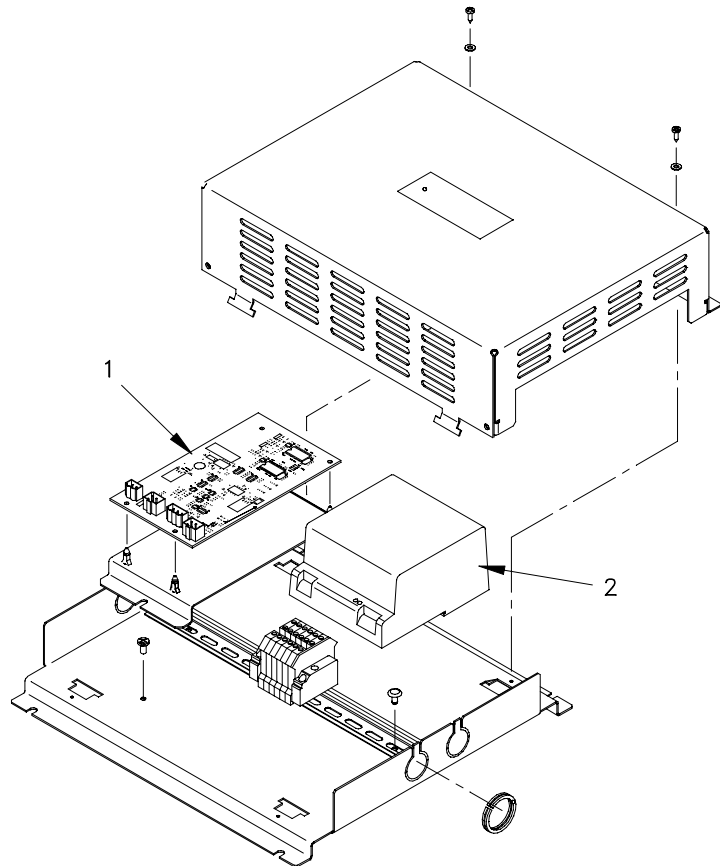


P502-104(2003-07)

Table 34: Switch, final limit 151:U,151:N

KEY	PART NO.	PARTNAME	REMARK
1	KM280478	Switch, lever	Final limit 151:U (upper), 151:N (lower)

2.20 Shaft network module

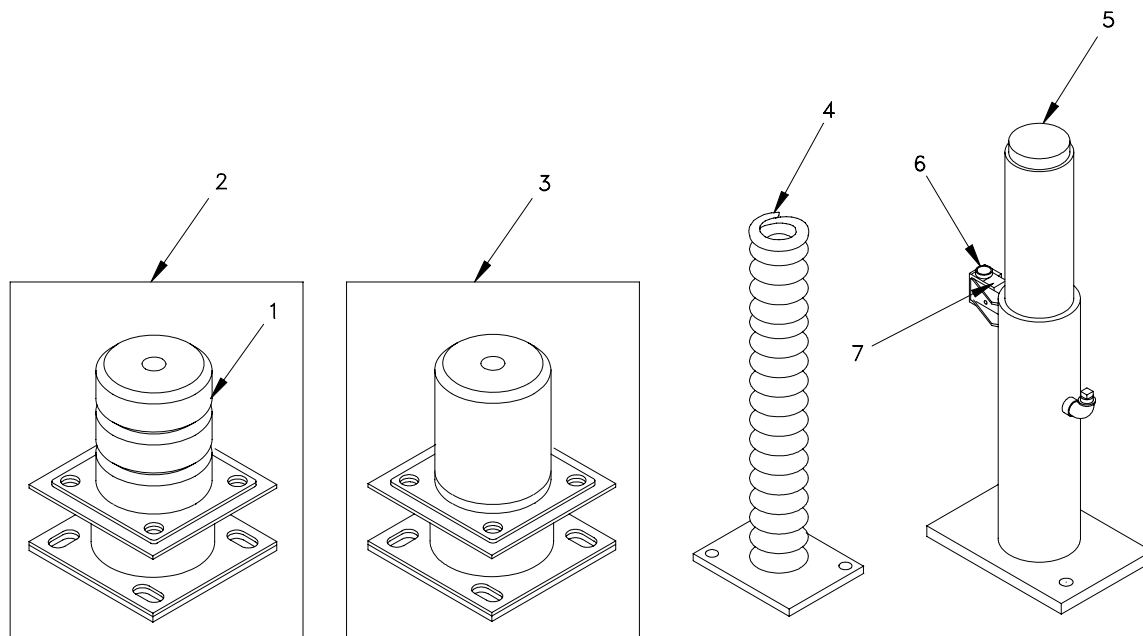


P504-011(2004-02)

Table 35: Shaft network module

KEY	PART NO.	PARTNAME	REMARK
1	KM802870G02	LCEGTWO board	
2	KM280783	Power supply unit	

2.21 Buffers



P504-001(2004-04)

Table 36: Buffers

KEY	PART NO.	PARTNAME	REMARK
1	US64250001	Buffer, polyurethane	4 inch stroke
2	USP33513001	Buffer, polyurethane	Assembly, 4 inch stroke
3	USP33513002	Buffer, polyurethane	Assembly, 5.67 inch stroke
4	US2881242	Buffer spring	6.5 inch stroke
	US2881243	Buffer spring	6 inch stroke
5	See remarks	Buffer, oil	Refer to table titled: OIL BUFFER DIMENSIONS for part number and application
6	KM807132G01	Kit, buffer switch	Check local code to determine if switch is required.
7	US63577	Buffer, switch only	Telemechanique XCK-T510

Table 37: Oil buffer dimensions

OIL BUFFER DIMENSIONS					
Rated speed (fpm)	Load (lbs)	Stroke (in)	Height (in)	Part number	
350	1 - 11700	9.06	30	US53472002	
400	1 - 11700	11.42	36	US53472003	
500	1 - 11700	17.13	51	US53472005	
700	1 - 11700	33.86	93	US53472008	
350	1 - 23400	9.06	30	US53472002 (Qty = 2)	
400	1 - 23400	11.42	36	US53472003 (Qty = 2)	
500	1 - 23400	17.13	51	US53472005 (Qty = 2)	
700	1 - 23400	33.86	93	US53472008 (Qty = 2)	
For car buffers: buffer load = (car weight) + (rated load) For counterweight buffers: buffer load = counterweight (lbs)					

P504T001 (2005-12)

2.22 Buffers: EcoSpace

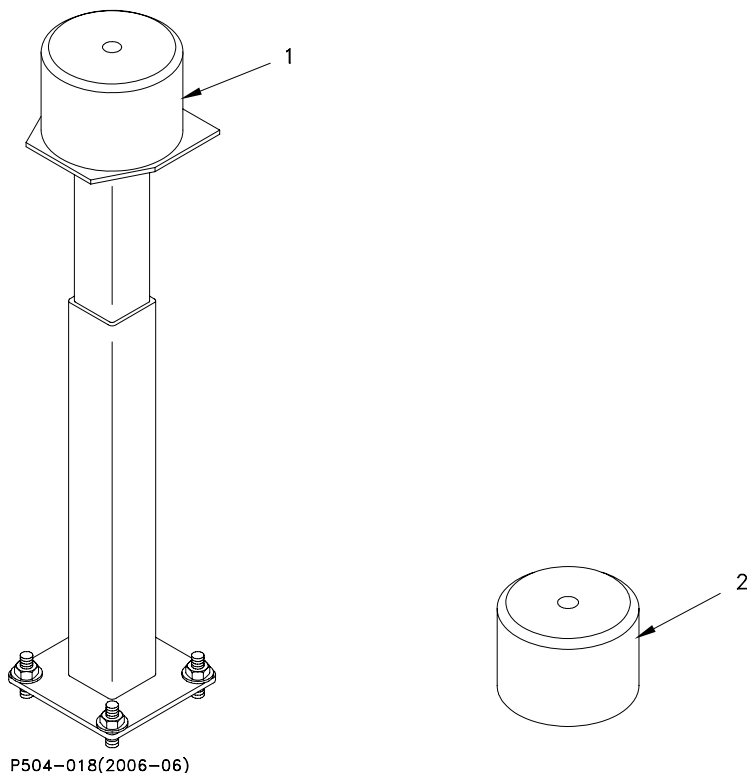
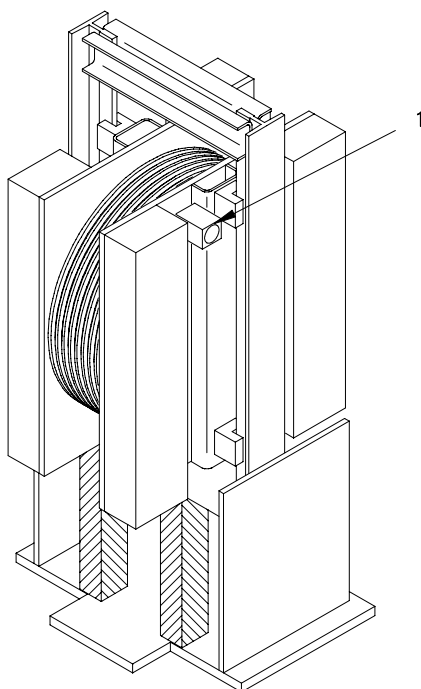


Table 38: Buffers

KEY	PART NO.	PARTNAME	REMARK
1	KM827647G01	Buffers	Car with 4 ft. pit, G02 = car with 5 ft. pit
2	KM883890G01	Buffers	Counterweight (2000 - 4000 lb. passenger, 4000 lb service)
	KM883890G02	Buffers	Counterweight (4500 - 5000 lb. service cars only)

2.23 Rope compensator

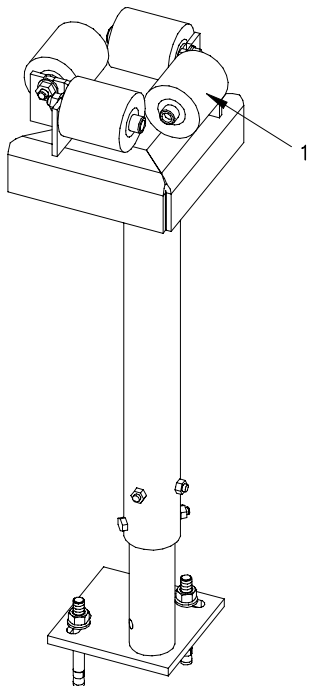


P504-015(2003-07)

Table 39: Rope compensator

KEY	PART NO.	PARTNAME	REMARK
1	KM102798	Switch, limit	Manual reset, rope compensator

2.24 Compensation chain guide roller



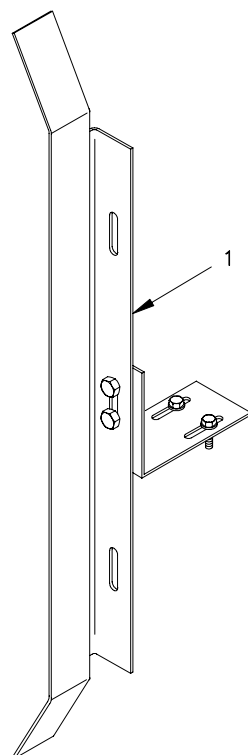
P504-014(2003-07)

Table 40: Compensation chain guide

KEY	PART NO.	PARTNAME	REMARK
1	KM653664H01	Roller	Roller only, no hardware

3 CAR FRAME AND CARTOP COMPONENTS

3.1 Cam assembly - EcoSpace™

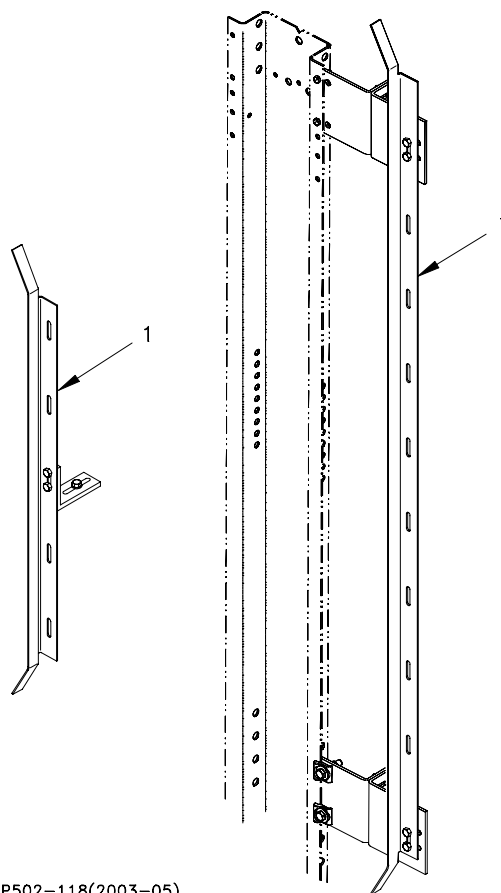


P502-127(2003-04)

Table 41: Cam assembly - car top

KEY	PART NO.	PARTNAME	REMARK
1	KM827174G02	Cam assembly	Car top

3.2 Cam assembly

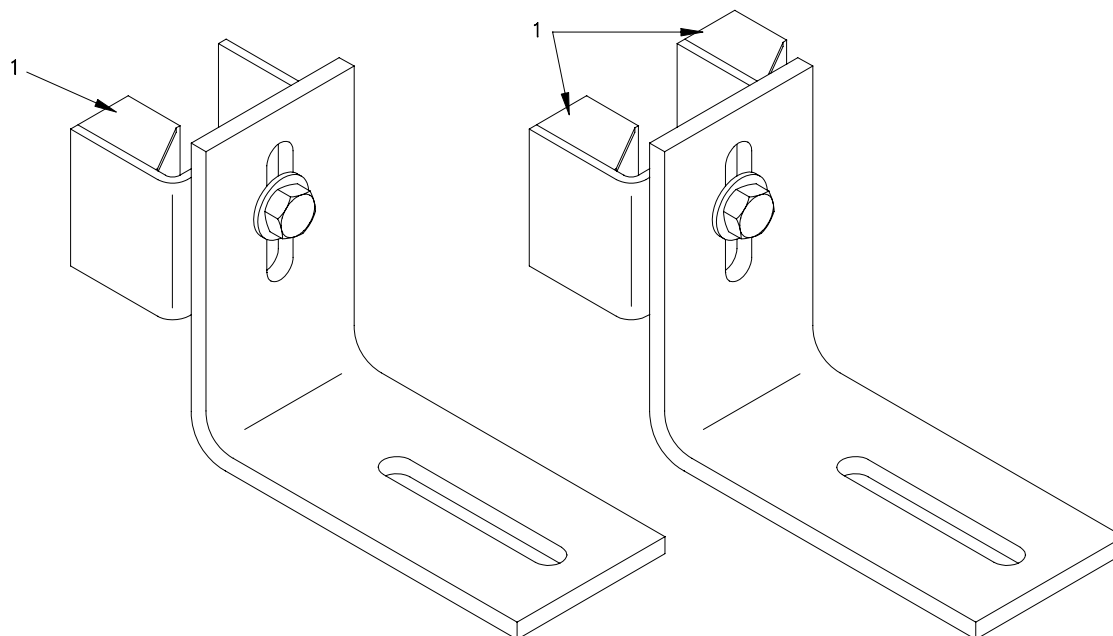


P502-118(2003-05)

Table 42: Cam assembly

KEY	PART NO.	PARTNAME	REMARK
1	KM827172G01	Cam assembly	Includes mounting brackets, used with RG150HD or RG200 roller guides, 400-500 FPM
	KM827172G02	Cam assembly	Includes mounting brackets, used with RG150 or RG200 roller guides, 600-1200 FPM
	KM827172G03	Cam assembly	Includes mounting brackets, used with RG 300 roller guides, 400-500 FPM
	KM827172G04	Cam assembly	Includes mounting brackets, used with RG 300 roller guides, 600-1200 FPM

3.3 Magnetic actuator assembly

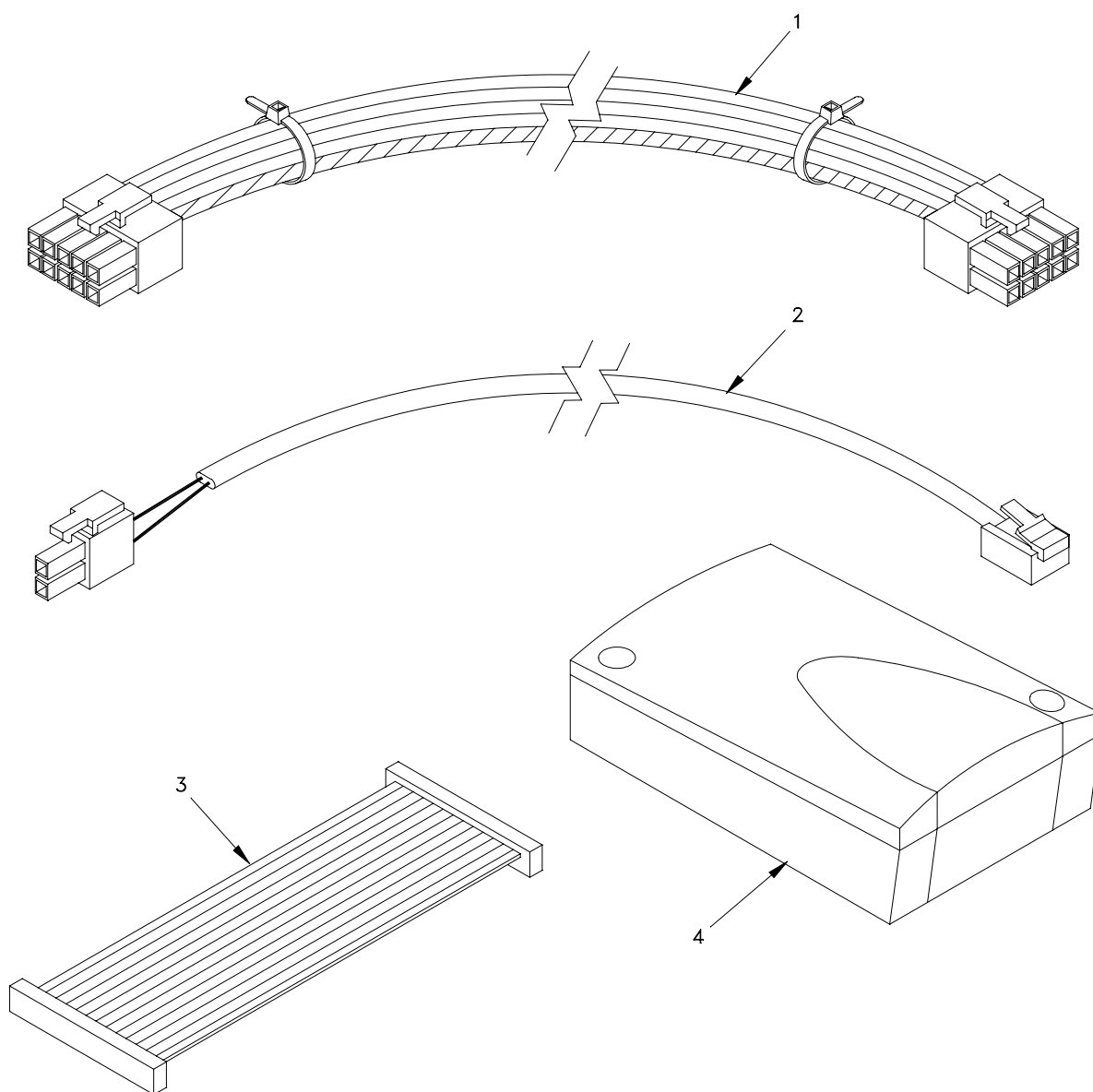


P502-105(2003-05)

Table 43: Magnetic actuator assembly

KEY	PART NO.	PARTNAME	REMARK
1	US64807001	Actuator, magnetic	Schmersal

3.4 KRM related parts

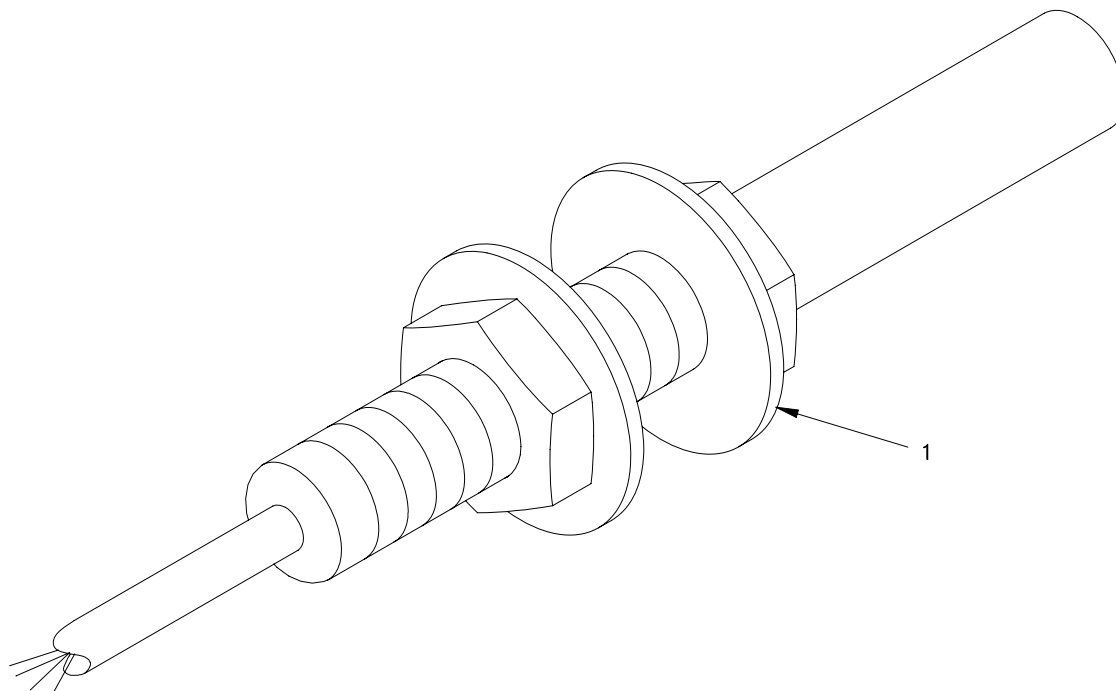


P502-123(2003-08)

Table 44: KRM related parts

KEY	PART NO.	PARTNAME	REMARK
1	KM783024G05	LON cable	Connects LCECCBN to KNXRIF board, L = 500mm (19-11/16 inches)
2	KM770161G01	PSTN cable	Connects LCECCBN to KNXRIF board, L = 300 mm (11-13/16 inches)
3	KM770268G01	Ribbon cable, GSM module	L = 150 mm (6 inches)
4	KM770350G02	GSM terminal module	Nokia 31, includes metric mounting screws

3.5 Car top switches: EcoSpace™, B30, 77:U, 77:N, 77:S

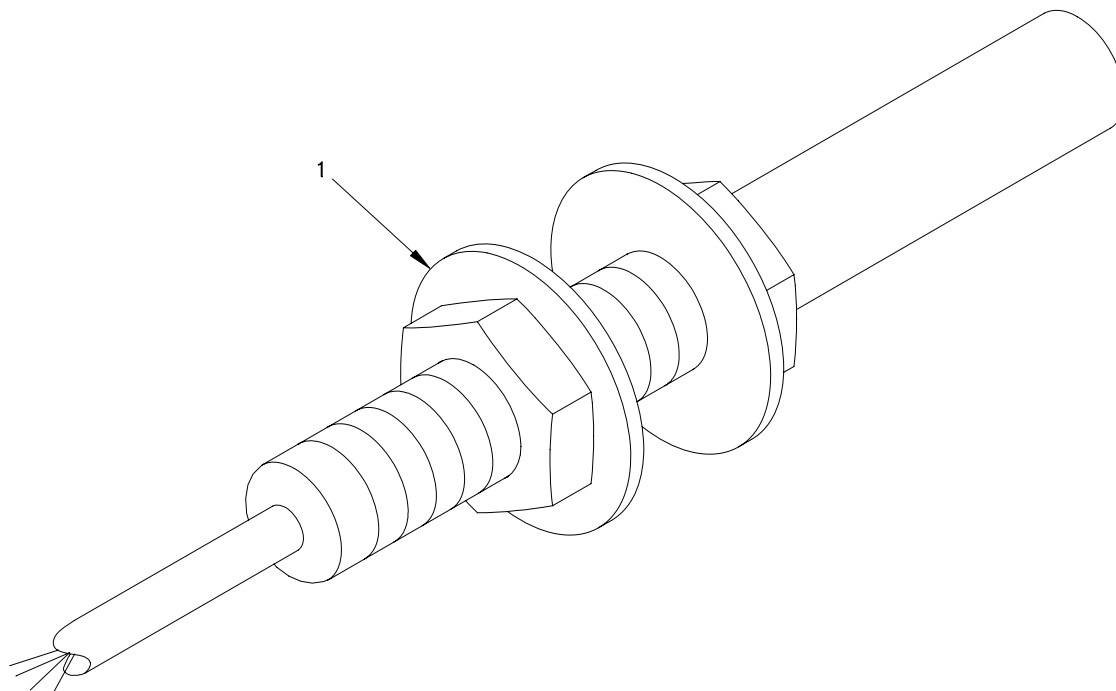


P502-128(2003-04)

Table 45: Cartop switches

KEY	PART NO.	PARTNAME	REMARK
1	KM713227G01	Switches, cigar, bistable	77:U/N
	KM713227G03	Switch, cigar, bistable	Includes wiring, 77:S, Length of wiring=4M (13ft.-1-1/2 inches)
	KM829341G03	Switch, cigar, monostable	61:U/N
	KM829341G04	Switch, cigar, monostable	Four switches with wiring, 61:U/N, 30, B30

3.6 Car top switches: 77:U, 77:N, 77:S, 66:EAQ



P502-107(8/02)

Table 46: Cartop switches : 77:U, 77:N, 77:S, 66:EAQ

KEY	PART NO.	PARTNAME	REMARK
1	KM713227G01	Switches, cigar, bistable	Two switches with wiring, 77:U/N, rated load 2000, 2500, 3000, 3500, Length of wiring = 3 M (9 ft - 10 inches)
	KM713227G04	Switches, cigar, bistable	Two switches with wiring, 77:U/N, rated load 4000, 4500, 5000, Length of wiring = 5 M (16 ft - 5 inches)
	KM713227G03	Switch, cigar, bistable	Includes wiring, 77:S/66EAQ, Length of wiring = 4M (13 ft - 1-1/2 inches)

3.7 Oscillators

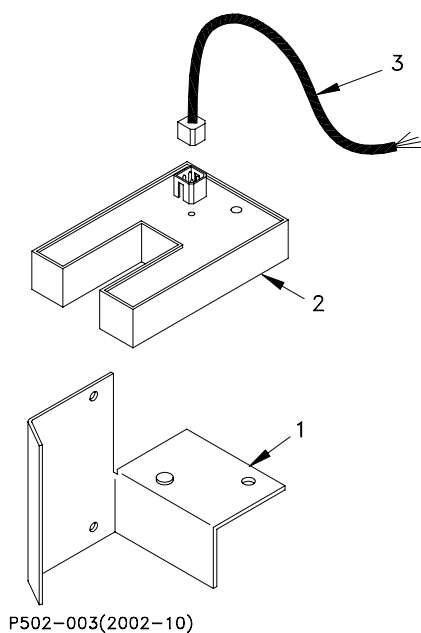
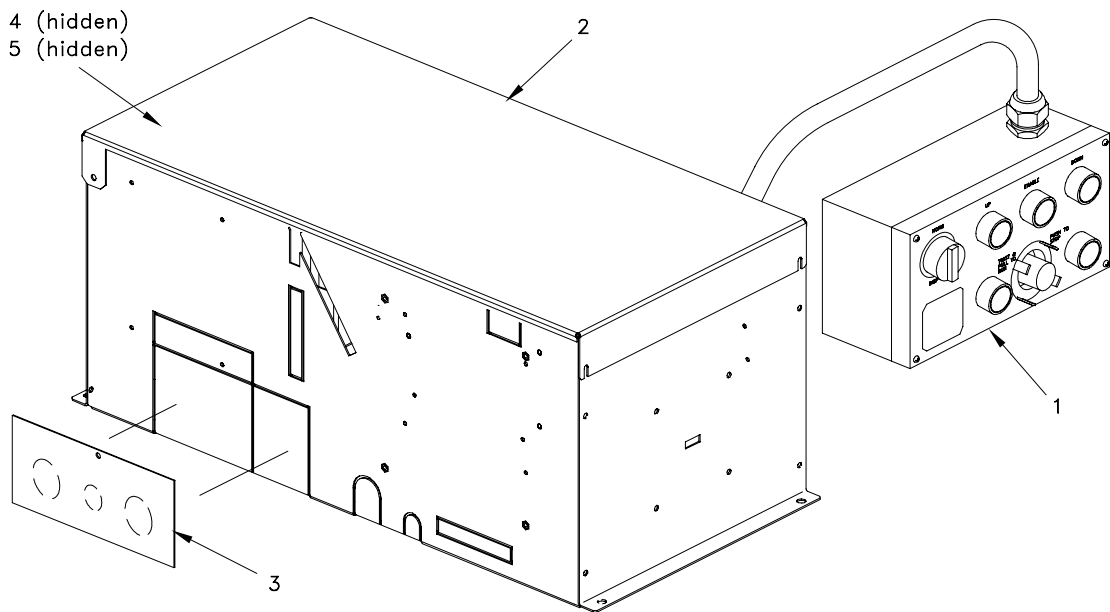


Table 47: Oscillators

KEY	PART NO.	PARTNAME	REMARK
1	US64595001	Plate, oscillator protection	
2	US64594002	Switch, oscillator	10-30VDC, marked 86420G03
3	KM604130G05	Cable, switch	Modify cable marking label as required. (All cables identical except for label markings.)

3.8 Car top box and inspect station



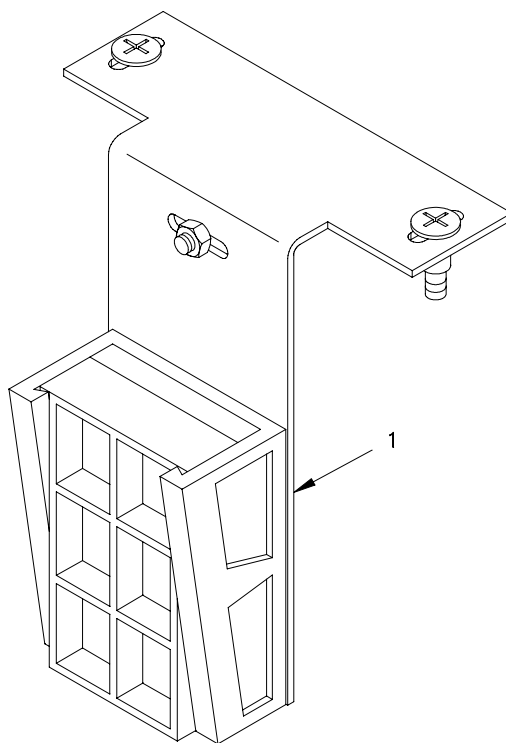
P502-100(2006-07)

Table 48: Car top box and inspection station

KEY	PART NO.	PARTNAME	REMARK
1	KM823857G01	Inspect station	Car top
2	KM845403G01	LCEGM car top box	North American, with alarm bell, 2-speed fan relay, CCBN2 & bottom cover
	KM845403G02	LCEGM car top box	North American, with alarm bell, 2-speed fan relay, CCBN2, bottom cover, & 24 VDC power supply package
	KM845403G03	LCEGM car top box	North American, with alarm bell, 2-speed fan relay, CCBN2, bottom cover, & KNXM PSTN
	KM845403G04	LCEGM car top box	North American, with alarm bell, 2-speed fan relay, CCBN2, bottom cover, 24 VDC power supply package, & KNXM PSTN
	KM845403G05	LCEGM car top box	North American, CCBN2, (no options)
	KM845403G06	LCEGM car top box	North American, CCBN2, & KNXM PSTN
3	KM829696H01	Plate, adapter	For car top box
4	KM802850G11	PC board, LCECCBN	Car top Cross Connection Board (LCECCBN), North American, KM802850G11 boards cannot replace KM802850G01 boards
	KM802890G11	PC board, LCECCBN2	Car top Cross Connection Board II (LCECCBN2), North American
5	KM770300G01	PC board, KRMRIIF	RIF board for KNXM (LCERIF)
NS	KM280783	Power supply unit	
NS	US52947001	Relay, plug-in	Two speed fan, (KM258634)
NS	KM275358	Fuse, F4	125/250 V-6, 3A-T-5x20
NS	KM263860	Battery	
NS	KM713873G01	Alarm bell	

NS = Not shown

3.9 Traveling cable hangers: EcoSpace™

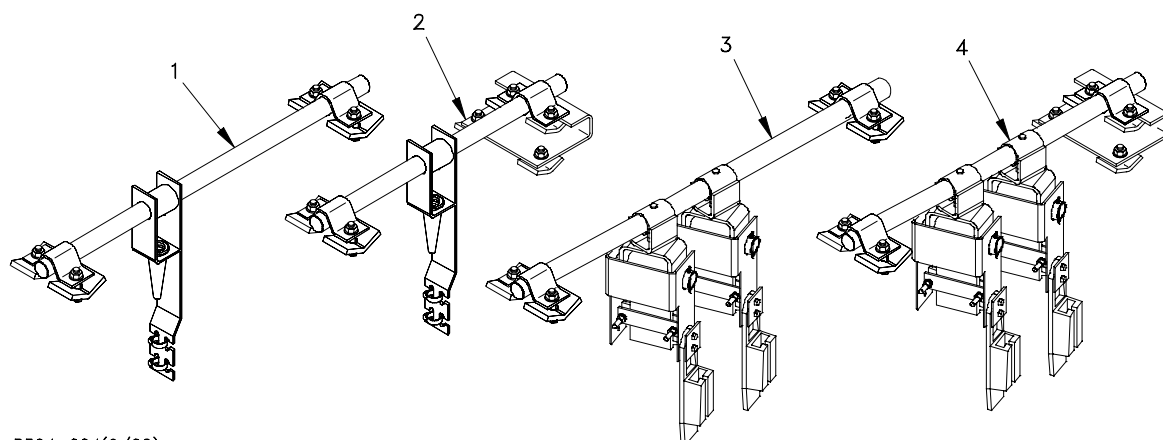


P502-129(2003-04)

Table 49: Bracket assembly, car, travel cable hanger

KEY	PART NO.	PARTNAME	REMARK
1	KM827741G01	Bracket, assembly	Car, travel cable hanger

3.10 Traveling cable hangers

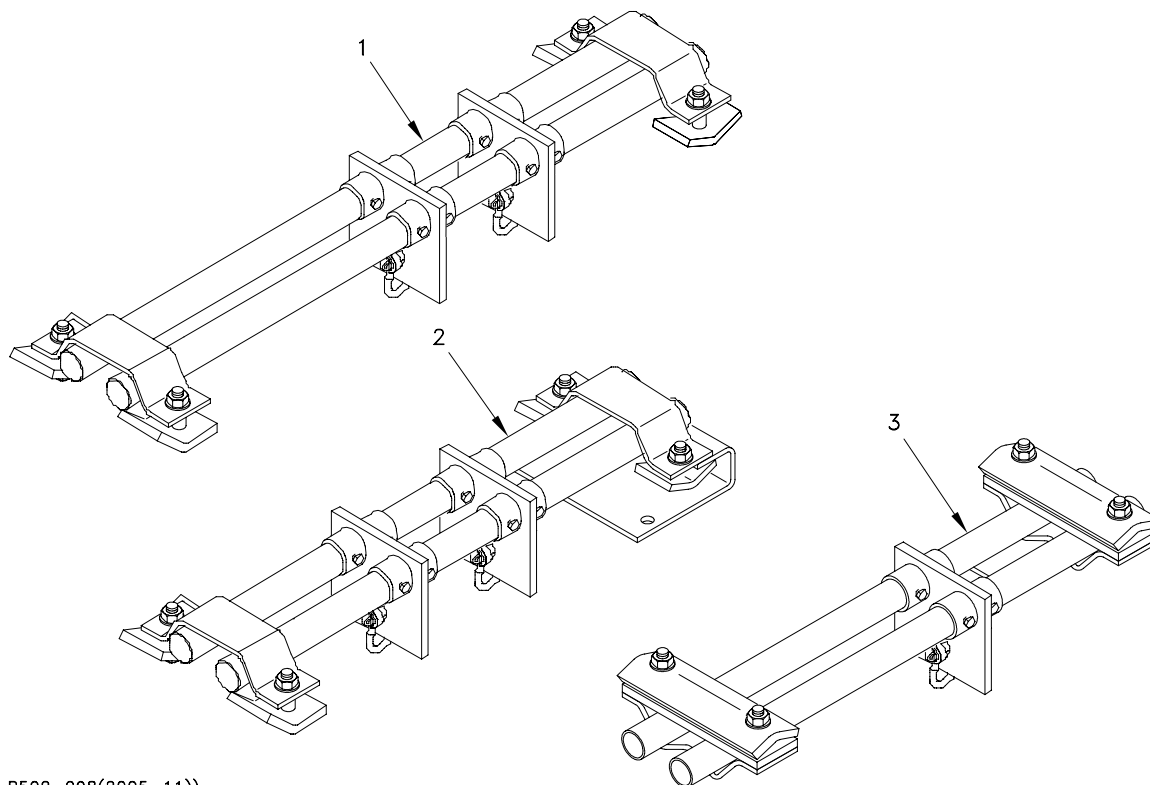


P504-004(9/02)

Table 50: Traveling cable hangers

KEY	PART NO.	PARTNAME	REMARK
1	KM600672G01	Hanger, traveling cable	For round traveling cable
2	KM600672G04	Hanger, traveling cable	For round traveling cable and a high platform
3	KM600670G01	Hanger, traveling cable	For flat traveling cable
4	KM600670G07	Hanger, traveling cable	For flat traveling cable and a high platform

3.11 Compensation chain hanger

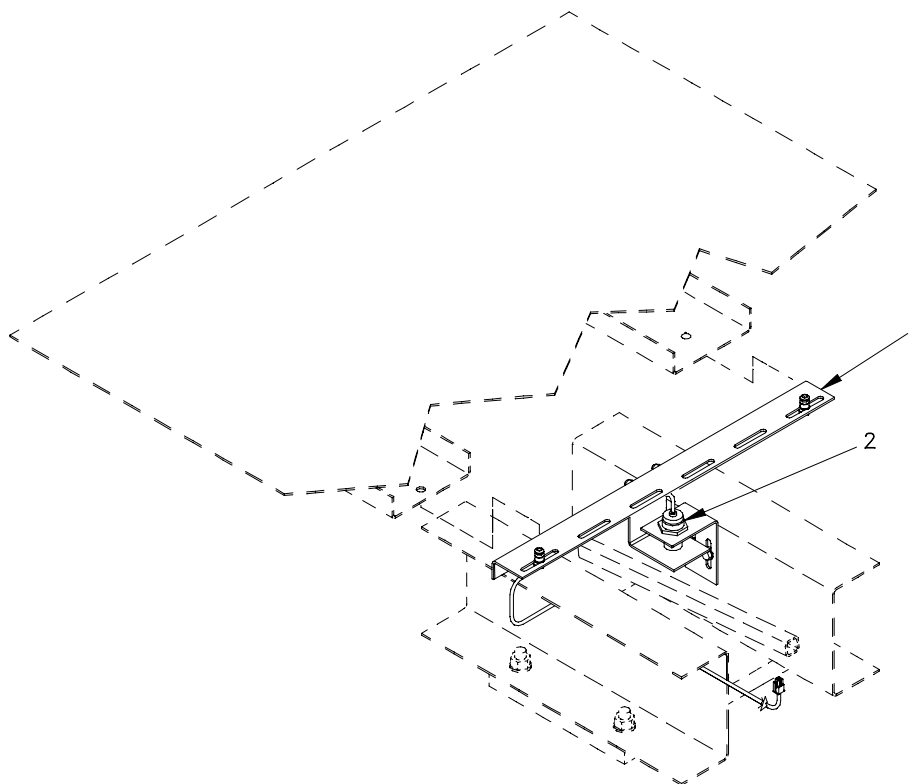


P502-098(2005-11))

Table 51: Compensation chain hanger

KEY	PART NO.	PARTNAME	REMARK
1	KM600674G02	Hanger	Compensation chain, EcoSystem MR
2	KM600674G04	Hanger	Compensation chain, EcoSystem MR used with high platforms
3	KM862871G01	Hanger	Compensation chain, EcoSpace, 4000 lb. passenger car, qty = 1, 5000 lb. service car, qty = 2

3.12 Loadweigh device

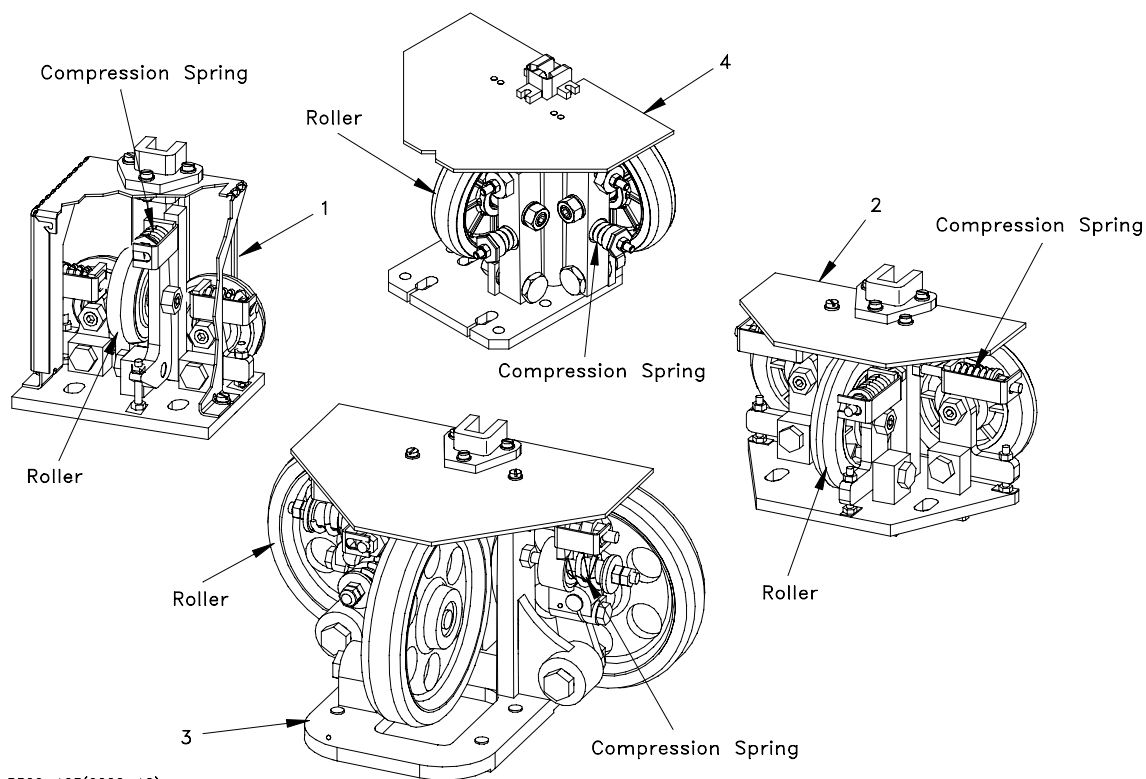


P502-096(2002-09)

Table 52: Loadweigh device

KEY	PART NO.	PARTNAME	REMARK
1	KM712537G01	Loadweigh device	Complete system including sensor KM712542G01
2	KM712542G01	Sensor, loadweigh	

3.13 Roller guides



P502-103(2002-10)

Table 53: Roller guides

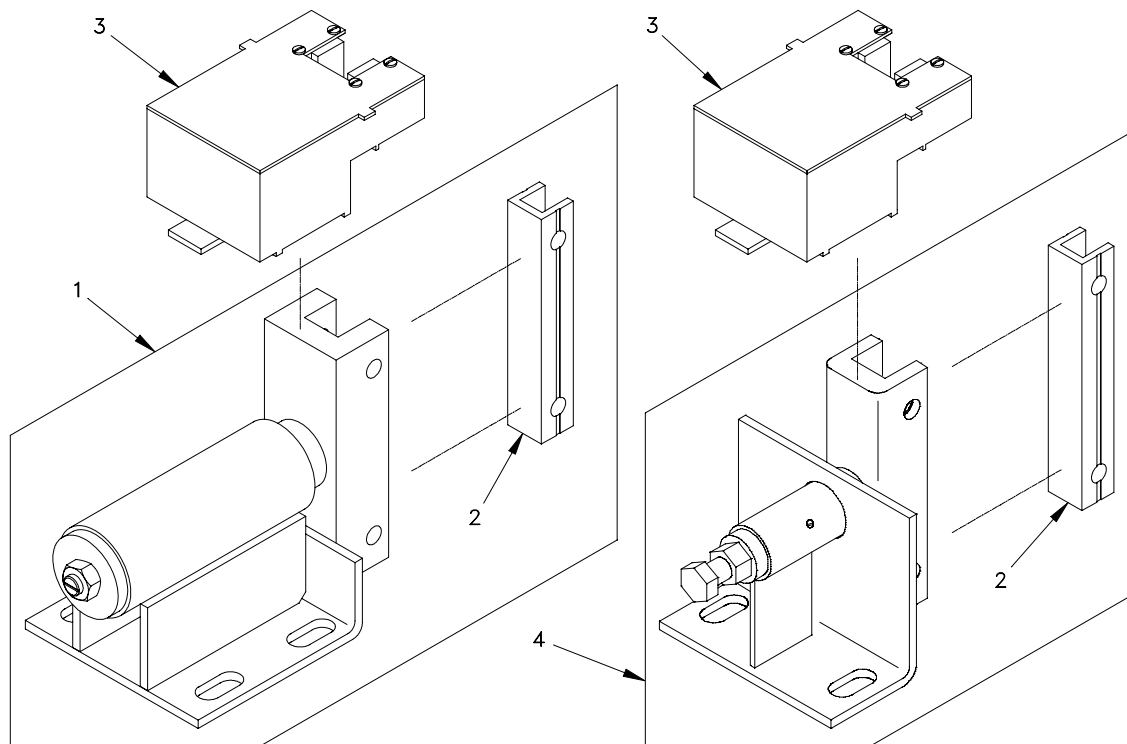
KEY	PART NO.	PARTNAME	REMARK
1	KM86800G16	Roller guide assembly	RG80, for counterweight frame
2	KM604124G16	Roller guide assembly	RG100
	KM375861G16	Roller guide assembly	RG125
3	KM394539G16L	Roller guide assembly	RG200, T127, for counterweight frame
	KM394539G19	Roller guide assembly	RG200, T140, for counterweight frame
	KM169850G16L	Roller guide assembly	RG200, T127, for cars
	KM169850G19	Roller guide assembly	RG200, T140, for cars
4	KM581271G16L	Roller guide assembly	RG150, T127
	KM581271G19	Roller guide assembly	RG150, T140
	KM600653G16L	Roller guide assembly	RG150HD, T127
	KM600653G19	Roller guide assembly	RG150HD, T140

Table 54: Roller guides and components

Roller guides and components		
Key	Part number	Part name
3 rollers and 3 compression springs per roller guide assembly		
1	KM86800G16	RG80 roller guide assembly
	KM86789G02	Roller
	KM86792H01	Compression spring
2	KM604124G16	RG100 roller guide assembly
	KM604112G03	Roller
	KM375868H01	Compression spring
2	KM375861G16	RG125 roller guide assembly
	KM652535G03	Roller
	KM375868H01	Compression spring
3	KM394539G16L	RG200, CWT roller guide assembly
	US515606	Roller
	KM431237H01	Compression spring
3	KM394539G19	RG200, CWT roller guide assembly
	US515606	Roller
	KM431237H01	Compression spring
3	KM169850G16L	RG200, Car roller guide assembly
	US515606	Roller
	KM169851H01	Compression spring
3	KM169850G19	RG200, Car roller guide assembly
	US515606	Roller
	KM169851H01	Compression spring
4	KM581271G16L	RG150 roller guide assembly
	KM581274G02	Roller
	KM581281H01	Compression spring
4	KM581271G19	RG150 roller guide assembly
	KM581274G02	Roller
	KM581281H01	Compression spring

P504T002 (2005-12)

3.14 Slide guides

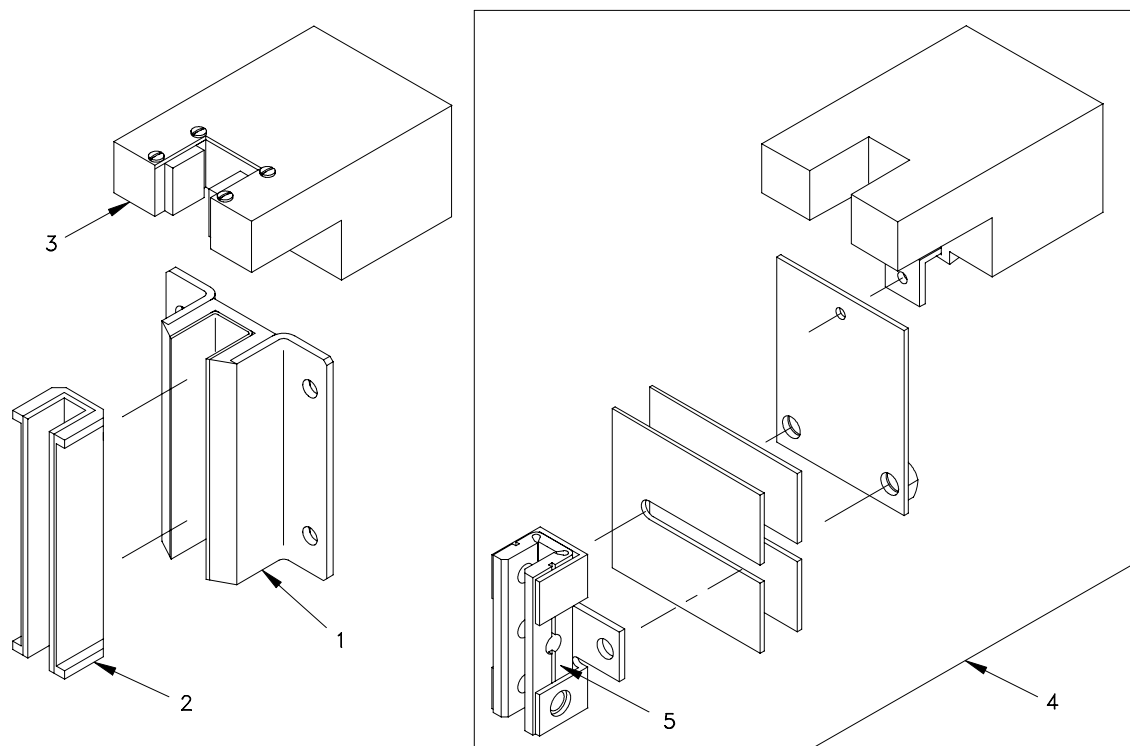


P502-095(9/02)

Table 55: Slide guides

KEY	PART NO.	PARTNAME	REMARK
1	KM92510G16A	Slide guide	16 mm thick rail: SLG2A (T127) T127 1/B: 12# rail: T127 2/B: 15# rail
	KM92510G19A	Slide guide	19 mm thick rail: SLG2A (T140) T140 1/B: 18# rail: T140 2/B: 22# rail: T140 3/B: 30# rail
2	KM85119H16	Slide insert	16 mm, with pins and lock wire
	KM85119H19	Slide insert	19 mm, with pins and lock wire
3	KM86375G16	Lubricator	Guide rail, 16 mm
	KM86375G19	Lubricator	Guide rail, 19 mm
4	KM92410G16A	Slide guide	SLG1A, for counterweight frames CWT4PSM or CWF10PW; T-89/B: 8# rail - Fits all applications w/16 mm thick rail nose 8, 11, 12, 15 lb. rails

3.15 Slide guides: EcoSpace™



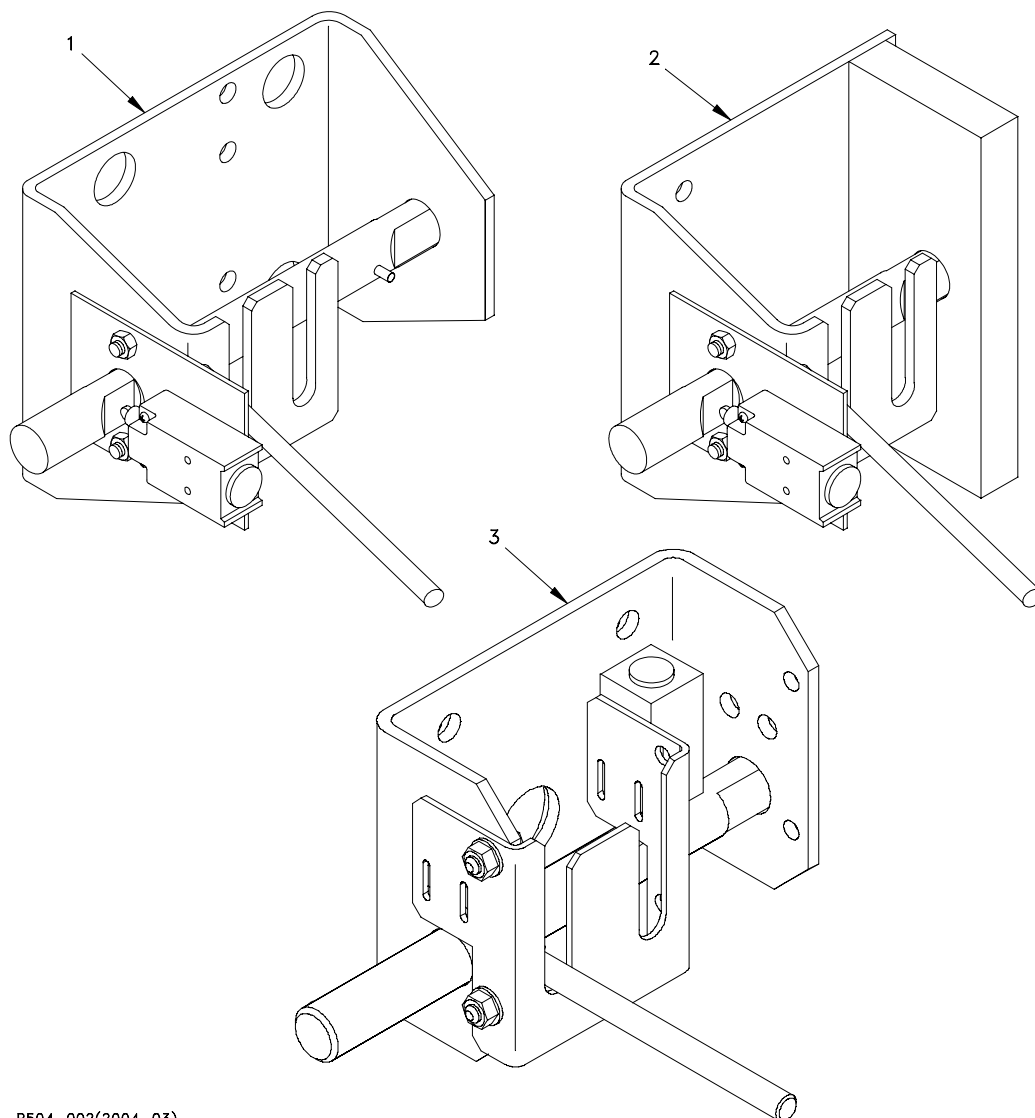
P502-131(2004-04)

Table 56: Slide guide - EcoSpace™

KEY	PART NO.	PARTNAME	REMARK
1	KM787740G16	Slide guide	
2	KM718341H16	Slide insert	
3	KM86375G16	Lubricator	Guide rail, 16 mm
4	KM652431G16	Slide guide	SLG7 used on CWF10PW cwt frame
5	KM600641H16	Slide insert	Used with KM652431G16
NS	KM92410G16A	Slide guide	Used on CWT3PS
NS	KM85119H16	Slide insert	Used with KM92410G16A

NS = Not shown

3.16 Car top locking bar

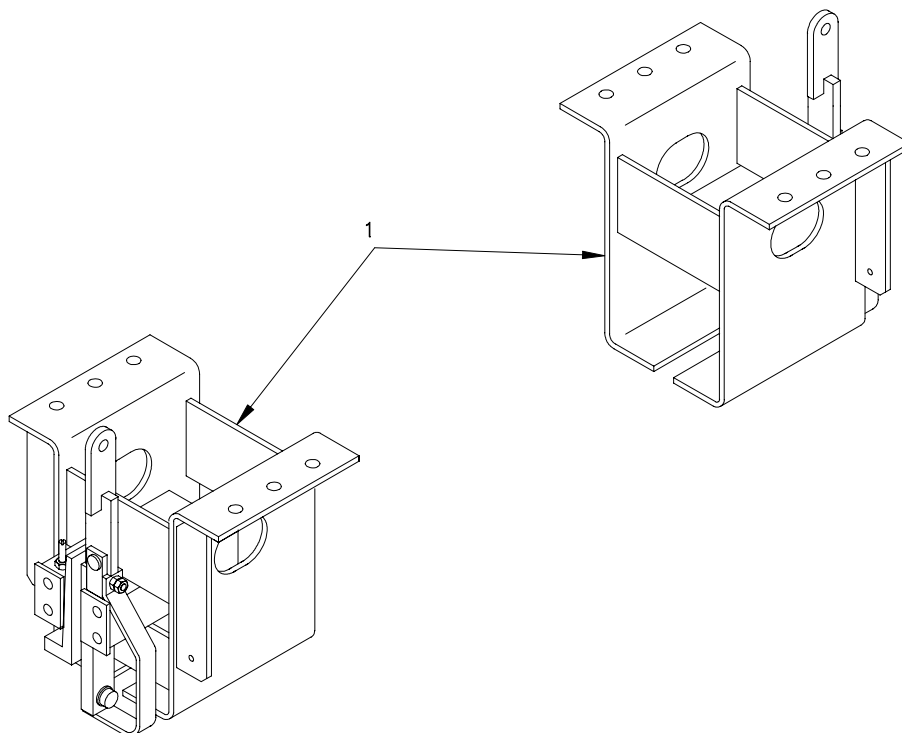


P504-002(2004-03)

Table 57: Car top locking bar

KEY	PART NO.	PARTNAME	REMARK
1	KM89890G01	Cartop locking bar	LH, used with CF10USM car frame with KM713202G05 switch
	KM89890G02	Cartop locking bar	RH, used with CF10USM car frame with KM713202G05 switch
2	KM763050G01	Cartop locking bar	RH, used with CF16USM car frame with KM713202G05 switch
	KM763050G02	Cartop locking bar	LH, used with CF16USM car frame with KM713202G05 switch
3	KM787725G03	Cartop locking bar	RH, for EcoSpace car frame
	KM787725G04	Cartop locking bar	LH, for EcoSpace car frame

3.17 Safety gear

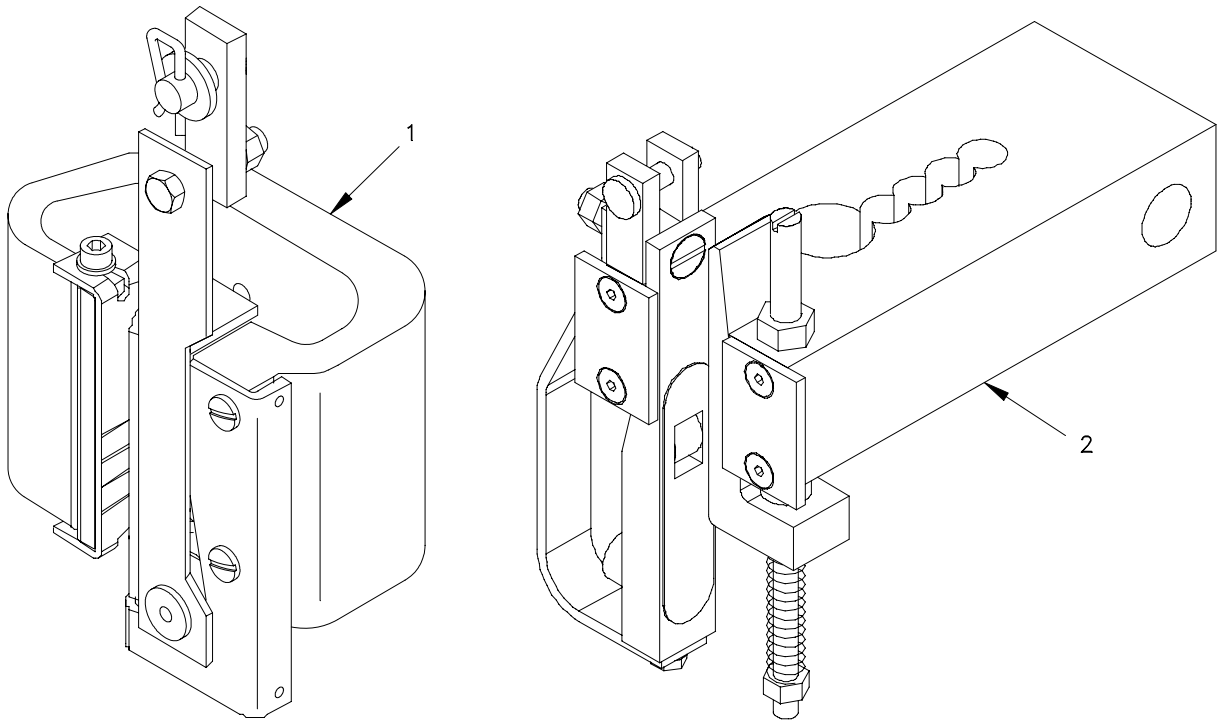


P502-094(8/02)

Table 58: Safety gear

KEY	PART NO.	PARTNAME	REMARK
1	KM611155G04	Safety block assembly	SGB01 safety, for 12 lb. and 15 lb. guide rails, includes one LH and one RH safety
	KM611155G05	Safety block assembly	SGB02 safety, for 12 lb. and 15 lb. guide rails, includes one LH and one RH safety
	KM611155G06	Safety block assembly	SGB02 safety, for 18 lb. guide rails, includes one LH and one RH safety
	KM611155G07	Safety block assembly	SGB03 safety, for 12 lb. and 15 lb. guide rails, includes one LH and one RH safety
	KM611155G08	Safety block assembly	SGB03 safety, for 18 lb. guide rails, includes one LH and one RH safety

3.18 Safety gear: EcoSpace™



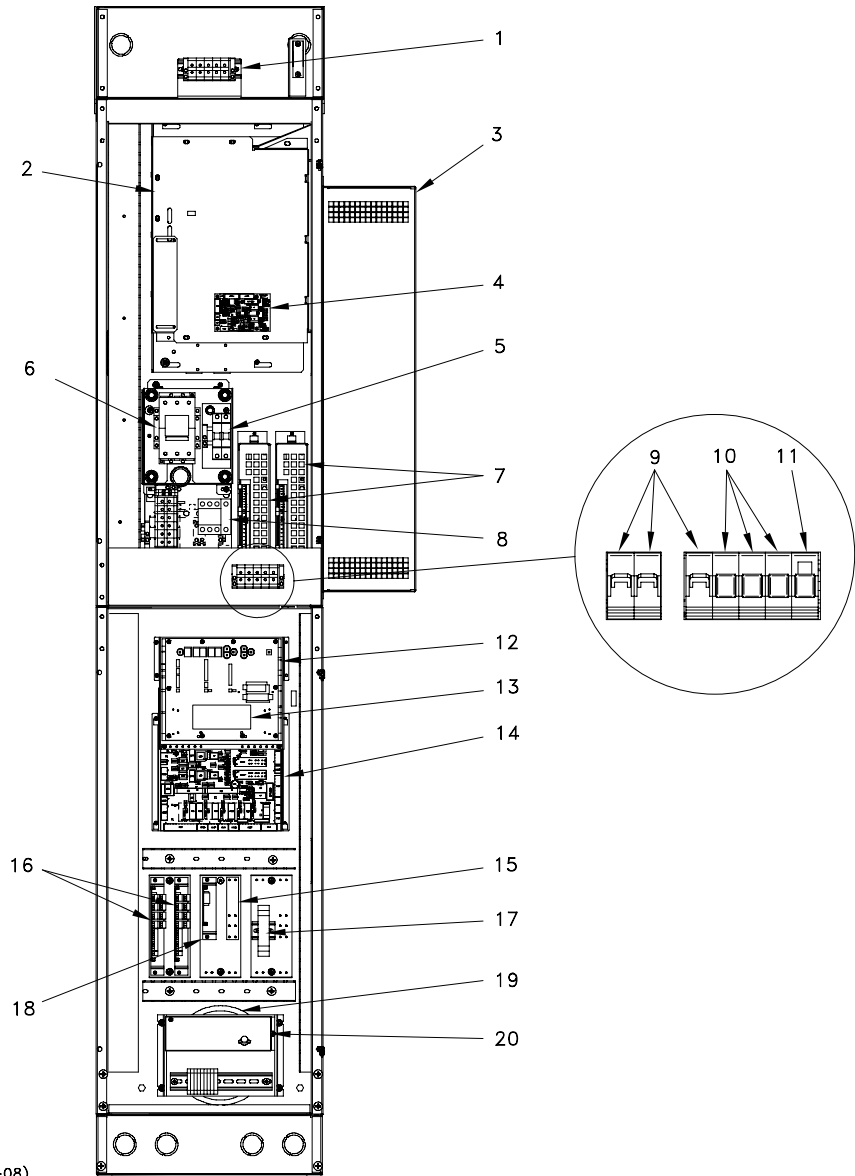
P502-130(2004-03)

Table 59: Safety gear

KEY	PART NO.	PARTNAME	REMARK
1	KM718203G06	Safety gear	SGB08, includes one RH and one LH safety
2	KM787733G01	Safety gear	SGB01, includes one RH and one LH safety
	KM857381G01	Safety gear	SGB02, includes one RH and one LH safety

4 CONTROL SYSTEM COMPONENTS

4.1 Controller: KCM831 control system



P504-007(2006-08)
 C503-109(2005-08)

Table 60: Controller: KCM831 control system

KEY	PART NO.	PARTNAME	REMARK
1	KM780187G01	Terminal block, dynamic braking	Used for MX10 and MX20 MonoSpace applications ONLY
	KM713780G01	PC board, LCEFOB	Floor Option Board. Order this board for Service work.

KEY	PART NO.	PARTNAME	REMARK
2	KM782999G01	Drive module	V3F25, 40 amps
	KM782999G02	Drive module	V3F25, 80 amps
3	KM782998***	Brake resistor module	Replacement brake resistors are KM765722G01. Refer to table titled: Brake Resistors for *** extension, and quantity of brake resistors.
4	KM779710G01	Module, NTS	Includes cover, cable and PC board
5	KM274690	Circuit breaker	(298), Siemens, 5SX2201-7
6	KM280151	Contactor	(201:1), Siemens, 22KW-AC3, 3RT1036-1AP60, MX10 Applications
	KM280152	Contactor	(201:1), Siemens, 37KW-AC3, 3RT1045-1AP60, MX20, MX18 and MX32 Applications
7	KM803942G01	Brake control module	(388:1 or 388:2)
8	KM275171	Contactor	Siemens SRT1526-1B
NS	KM276387	Aux. contactor	Siemens SRH1921-1HA22
9	US64560001	Switch, toggle	Part of switch module assembly KM780229G**
10	KM204248	Switch, pushbutton	Siemens push button, part of switch module assembly KM780229G**(ABB switch is US52944001)
11	KM263584	Indicator light, green	Replacement bulb is KM273863
12	KM773380G02	PC board, LCECPU40	Main controller board
13	KM713110G02	Module, LCECAN	Controller Area Network Interface Board, part of KM713019G01 assembly
14	KM773360G01	PC board, LCEADON	Safety circuit interface with ADO/ACL, North American
	KM773360G02	PC board, LCEADON	City of Chicago only, 120-240VAC
NS	KM275371	Fuse, radio	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)
15	KM779700G01	PC board, LCEEAQ	Earthquake/seismic zones 2-4 North America
NS	KM210567	Fuse	Fuse F1 on LCEEAQ (315A350V-5x20)
16	KM713150G11	PC board, LCEOPT	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
NS	KM210567	Fuse	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)
17	KM800629G01	Repeater, RS485	Phoenix RS485 repeater for FSP and shaft network modules
18	KM713180G11	PC board, LCEGTW	Gateway board
NS	KM247418	Fuse	Fuse F1 on LCEGTW board (T6, 3A250V-5x20)
19	KM713383G01	Transformer	
20	KM713140G08	PC board, LCEREC	Rectifier board with 6.3 amp fuse
NS	US47621060	Fuse	Fuse F2 on LCEREC board (250V-6A-6, 3x32 mm-T-CSA)
NS	US51575006	Fuse	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/20MSCSA)

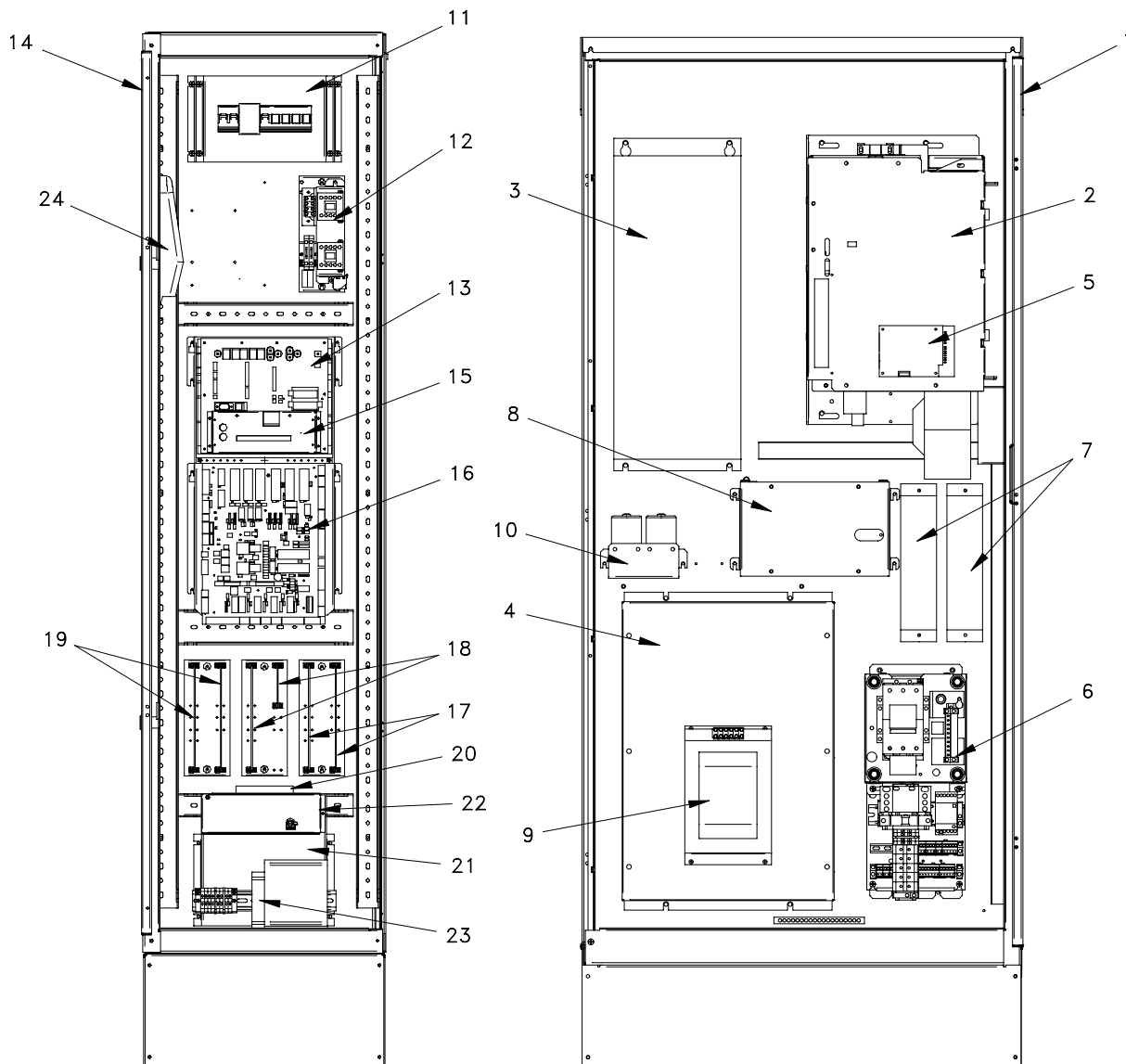
NS = Not shown

Table 61: Brake resistors

Brake resistors		
***	Description	Quantity (60 ohm brake resistors)
G02	40 amps, <=200 fpm	2
G04	40 amps, 201 - 350 fpm	4
G04	80 amps, <=200 fpm	4
G06	80 amps, 201 - 350 fpm	6
G08	80 amps, 351 - 500 fpm	8

P504T003 (2002-10)

4.2 Controller: KCM831 control system with V3F25MLB drive



P504-012(2004-05)

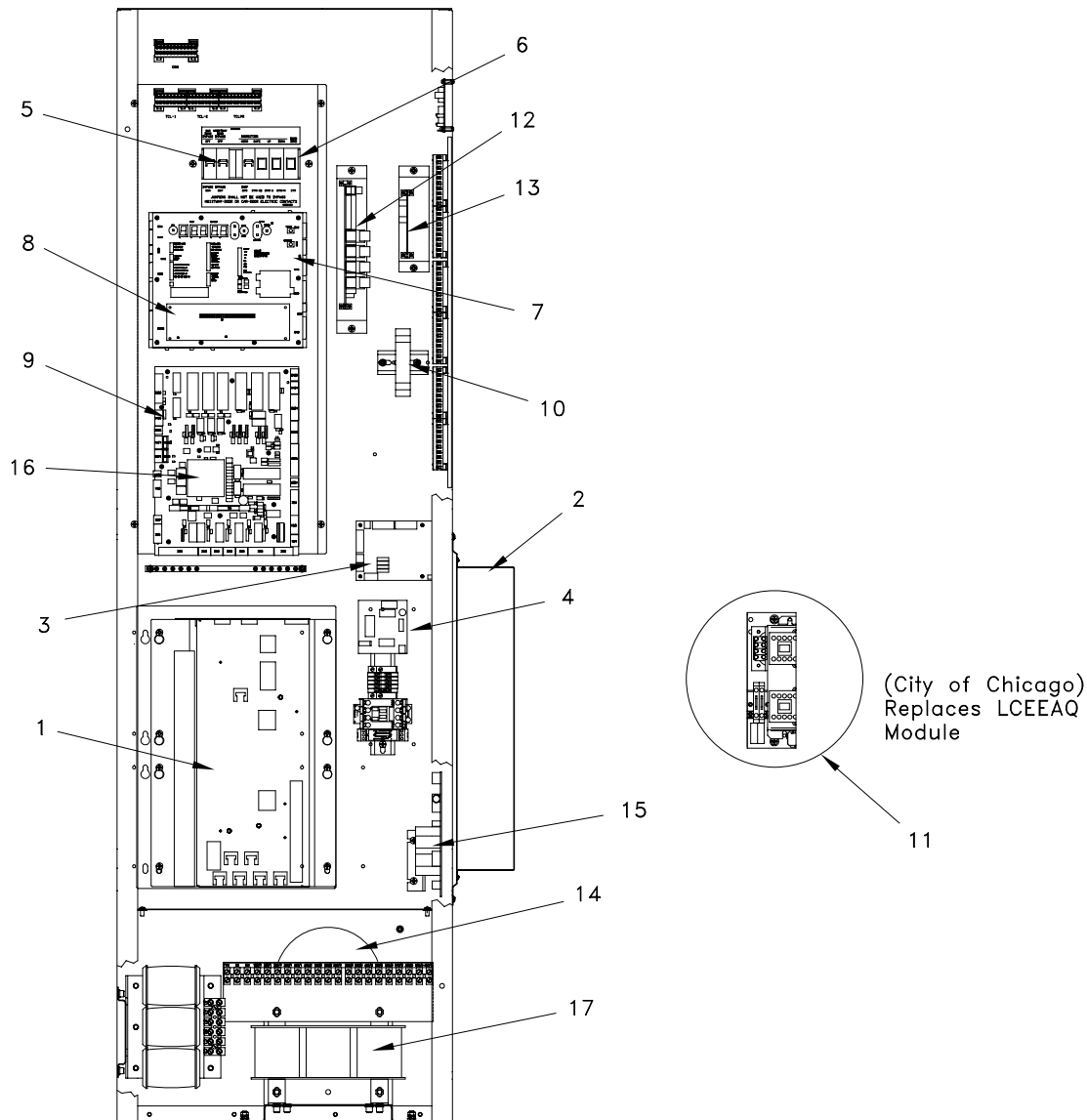
Table 62: GMP1.5 controller and drive cabinets

KEY	PART NO.	PARTNAME	REMARK
1	KM805550G02	Drive cabinet	V3F25MLB drive cabinet
2	KM782999G04	Drive module	V3F25MLB, includes HCB board KM781380G01
3	KM805560G01	Line bridge	With cables
	KM277746	Line bridge	Without cables
4	KM777320G02	Module, LCL filter	
5	KM779710G01	Module, NTS	Includes cover, cable and PC board

KEY	PART NO.	PARTNAME	REMARK
6	780180G12	Module, filter	For replacement parts see part listing in section titled: FILTER MODULE 780180G12
7	KM803942G01	Brake control module	(388:1 or 388:2)
8	805545G01	Resistor box	
NS	KM281773	Resistor	Service replacement part
NS	KM280305	Contactora	Service replacement part
NS	KM277247	Circuit breaker	Service replacement part
9	KM777330G01	Transformer	
10	780831G03	Back up power	KM277109 capacitor is service replacement part
11	US64560001	Switch, toggle	Part of switch module assembly KM780229G**
NS	KM204248	Switch, pushbutton	Siemens push button, part of switch module assembly KM780229G** (ABB switch is US52944001)
NS	KM263584	Indicator light, green	
NS	KM273863	Bulb	Replacement
12	KM800598G01	Module, safety circuit	120 VAC
13	KM773380G02	PC board, LCECPU40	Main controller board
14	KM782992G09	Cover plate	English
15	KM713110G02	Module, LCECAN	Controller Area Network Interface Board, part of KM713019G01 assembly
16	KM773360G01	PC board, LCEADON	Safety circuit interface with ADO/ACL, North American
	KM773360G02	PC board, LCEADON	City of Chicago only, 120-240VAC
NS	KM275371	Fuse, radio	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)
17	KM800570G01	PC board, ETSL	
18	KM779700G01	PC board, LCEEAQ	Earthquake/seismic zones 2-4 North America
NS	KM210567	Fuse	Fuse F1 on LCEEAQ (315A350V-5x20)
	KM802870G01	PC board, LCEGTWO	
19	KM713150G11	PC board, LCEOPT	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
	KM713150G12	PC board, LCEOPT	Option interface board, KM713150G12 boards cannot replace KM713150G02 boards
NS	KM210567	Fuse	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)
20	KM813136G01	Transformer	Located behind power module
21	KM280783	Power supply unit	
22	KM713140G08	PC board, LCEREC	Rectifier board with 6.3 amp fuse
NS	US47621060	Fuse	Fuse F2 on LCEREC board (250V-6A-6, 3x32 mm-T-CSA)
NS	US51575006	Fuse	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/20MSCSA)
23	KM800629G01	Repeater, RS485	Phoenix RS485 repeater for FSP
24	KM783020G02	Module, intercom	

NS = Not shown

4.3 Controller: KCM831 control system with V3F16L drive



P504-019(2005-11)
5003950(2005-10)

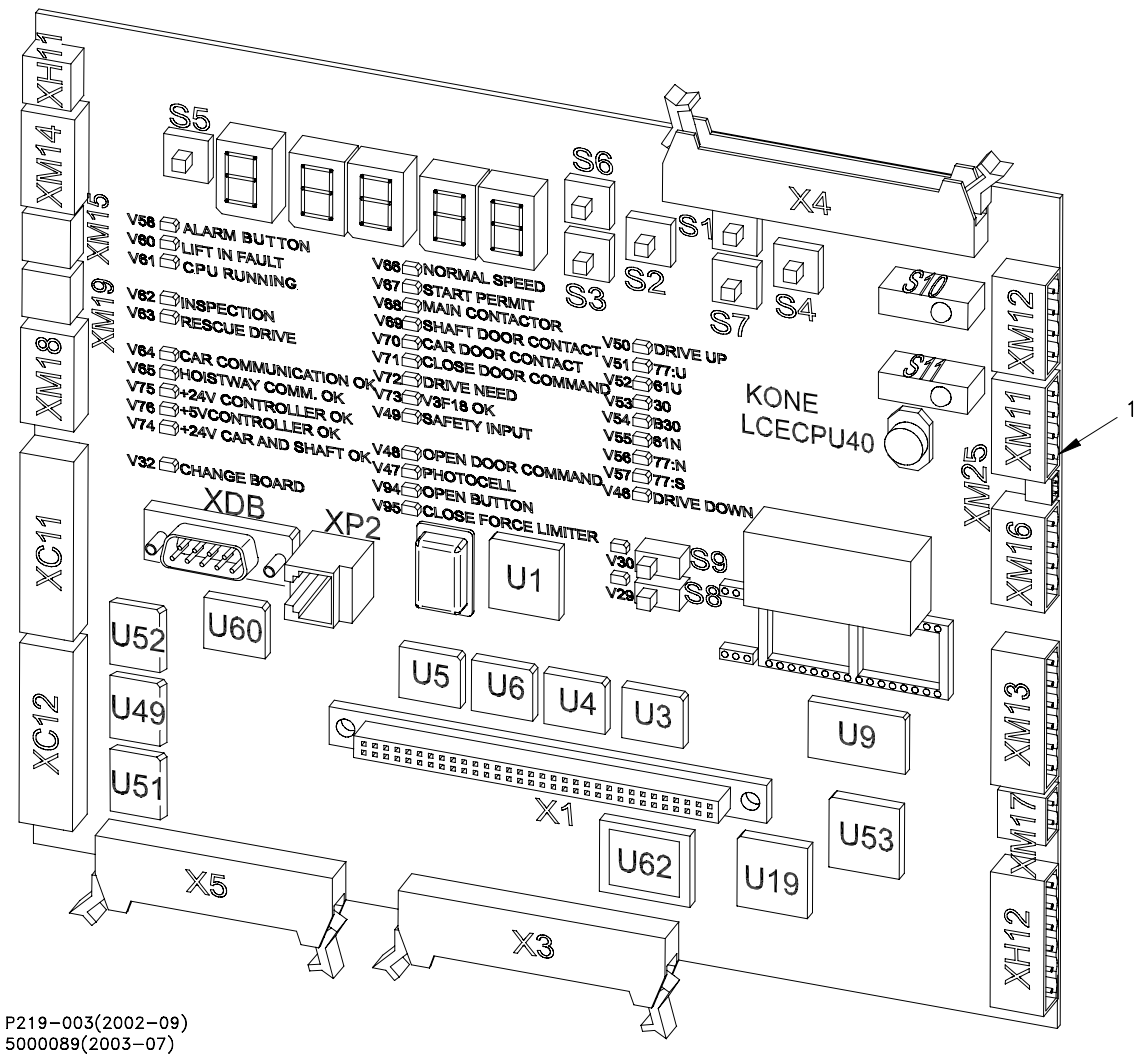
Table 63: EcoSpace controller with V3F16L drive: interior view

KEY	PART NO.	PARTNAME	REMARK
1	KM769900G13	Drive module	V3F16L20A
	KM769900G14	Drive module	V3F16L25A
2	KM830065G01	Brake resistor module	
	KM830065G02	Brake resistor module	Three (3) resistors req'd for 3000 - 3500 lb. Ecospace
NS	KM830687	Resistor	Service replacement part
3	KM779710G02	PC board, V3FNTS	Board only

KEY	PART NO.	PARTNAME	REMARK
4	KM826181G01	Emergency brake control module	(388:2)
5	US64560001	Switch, toggle	Part of switch module assembly KM780229G**
NS	KM204248	Switch, pushbutton	Siemens push button, part of switch module assembly KM780229G**(ABB switch is US52944001)
6	KM263584	Indicator light, green	Replacement bulb is KM273863
7	KM773380G02	PC board, LCECPU40	Main controller board
8	KM713110G02	Module, LCECAN	Controller Area Network Interface Board, part of KM713019G01 assembly
9	KM773360G01	PC board, LCEADON	Safety circuit interface with ADO/ACL, North American
	KM773360G02	PC board, LCEADON	Safety circuit interface with ADO/ACL, North American; Chicago or when safety chain voltage is 120 VAC
NS	KM275371	Fuse, radio	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)
10	KM779700G01	PC board, LCEEAQ	Earthquake/seismic zones 2-4 North America
NS	KM210567	Fuse	Fuse F1 on LCEEAQ (315A350V-5x20)
11	KM800598G01	Module, safety circuit	Chicago only, 120V
12	KM713150G11	PC board, LCEOPT	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
NS	KM210567	Fuse	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)
13	KM713180G11	PC board, LCEGTW	Gateway board
NS	KM247418	Fuse	Fuse F1 on LCEGTW board (T6, 3A250V-5x20)
14	713386G01	Transformer, control	KM713383G01 is replacement transformer
	KM713383G01	Transformer	Replacement transformer
15	KM713140G09	PC board, LCEREC	Rectifier board with 2.5 amp fuse
NS	US47621025	Fuse	Fuse F2 on LCEREC board (250V-2.5A-6.3x32 mm-T-CSA)
NS	US51575006	Fuse	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/20MSCSA)
16	KM800700G01	Speedometer board, ADON SPO	For MonoSpace controllers, if specified by inspection requirement
17	KM826153G01	Autotransformer	198 - 230V; For remote control room application, use KM857996G01 (Also direct replacement)
	KM826153G02	Autotransformer	456 - 480V; For remote control room application, use KM857996G02 (Also direct replacement)
	KM826153G03	Autotransformer	575 - 600V; For remote control room application, use KM857996G03 (Also direct replacement)
NS	KM800629G01	Repeater, RS485	Phoenix RS485 repeater for FSP
NS	KM857998	Reactor, line load	For remote applications

NS = Not shown

4.4 Main Controller Board (LCECPU40)

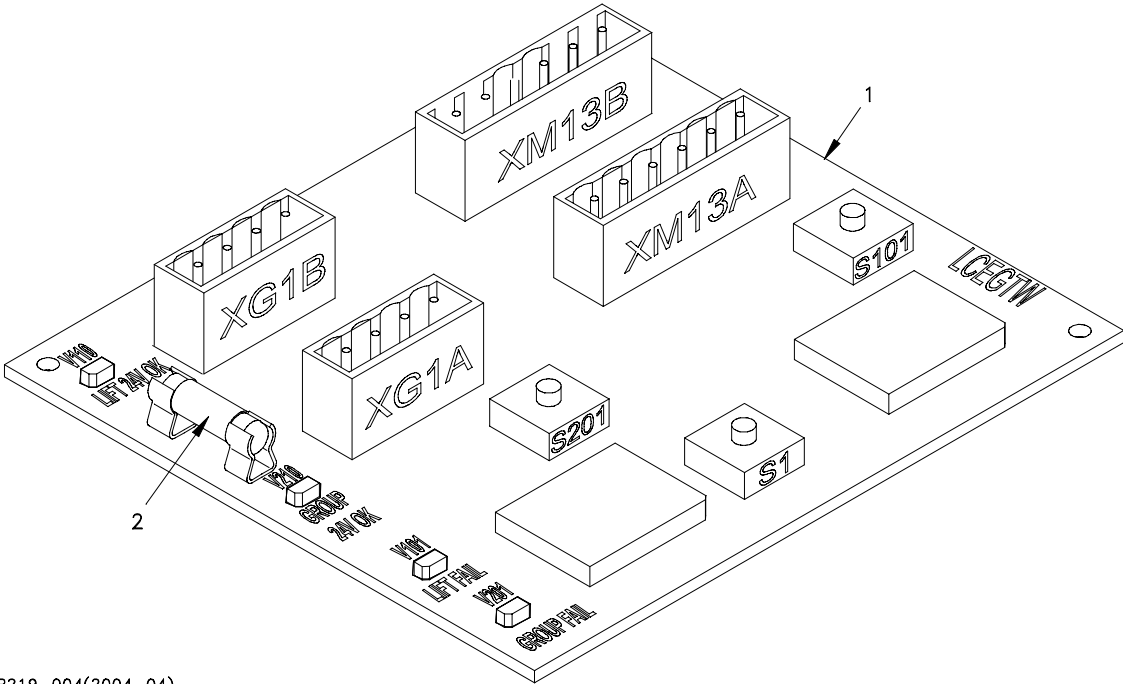


P219-003(2002-09)
5000089(2003-07)

Table 64: Main controller board (LCECPU40)

KEY	PART NO.	PARTNAME	REMARK
1	KM773380G02	PC board, LCECPU40	Main controller board

4.5 Gateway Board (LCEGTW)



P219-004(2004-04)
 5000107(2003-07)

Table 65: Gateway board (LCEGTW)

KEY	PART NO.	PARTNAME	REMARK
1	KM713180G11	PC board, LCEGTW	Gateway board
2	KM247418	Fuse	Fuse F1 on LCEGTW board (T6, 3A250V-5x20)

4.6 Option Interface Board (LCEOPT)

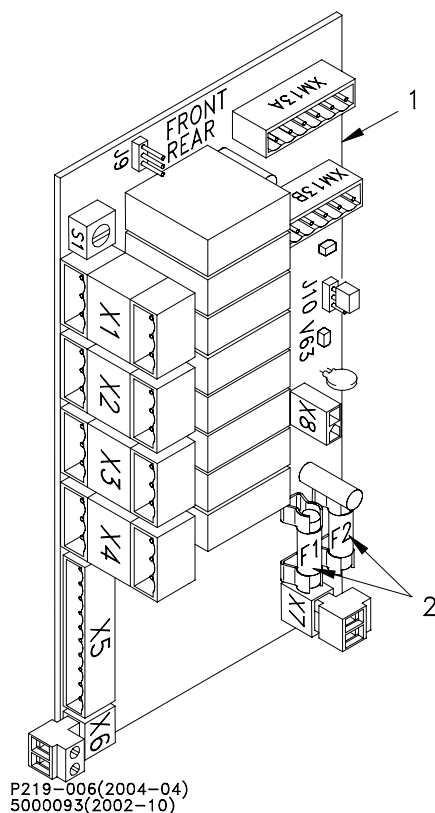
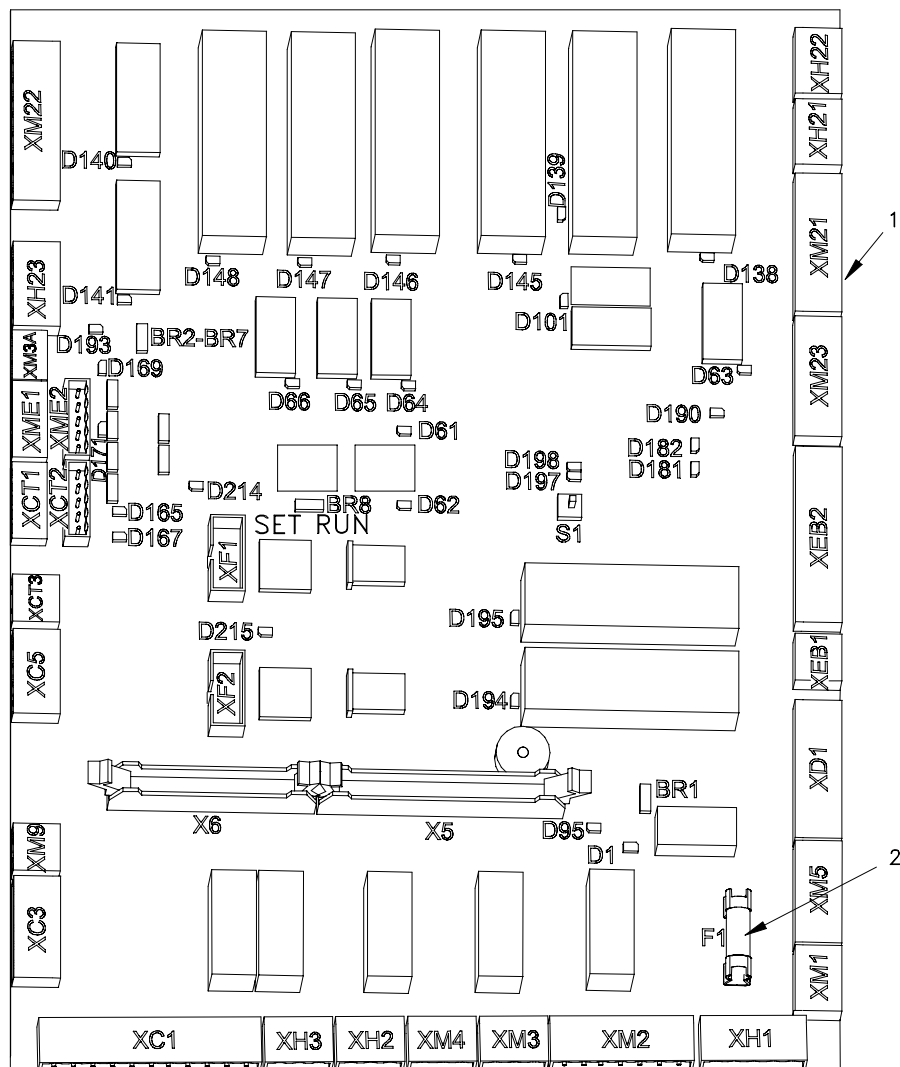


Table 66: Option interface board (LCEOPT)

KEY	PART NO.	PARTNAME	REMARK
1	KM713150G11	PC board, LCEOPT	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
	KM713150G01	PC board, LCEOPT	Option interface board. Order this board for service work.
	KM713150G12	PC board, LCEOPT	Option interface board, KM713150G12 boards cannot replace KM713150G02 boards, for cross-connect in Resolve only.
2	KM210567	Fuse	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)

KM713150G01 boards can be used in KCM831/KCP931 and ReSolve systems. An I/O board software download (5-7-1) converts the KM713150G01 board to a KM713150G11 board.

4.7 Safety Circuit Interface Board with ADO/ACL (LCEADON)

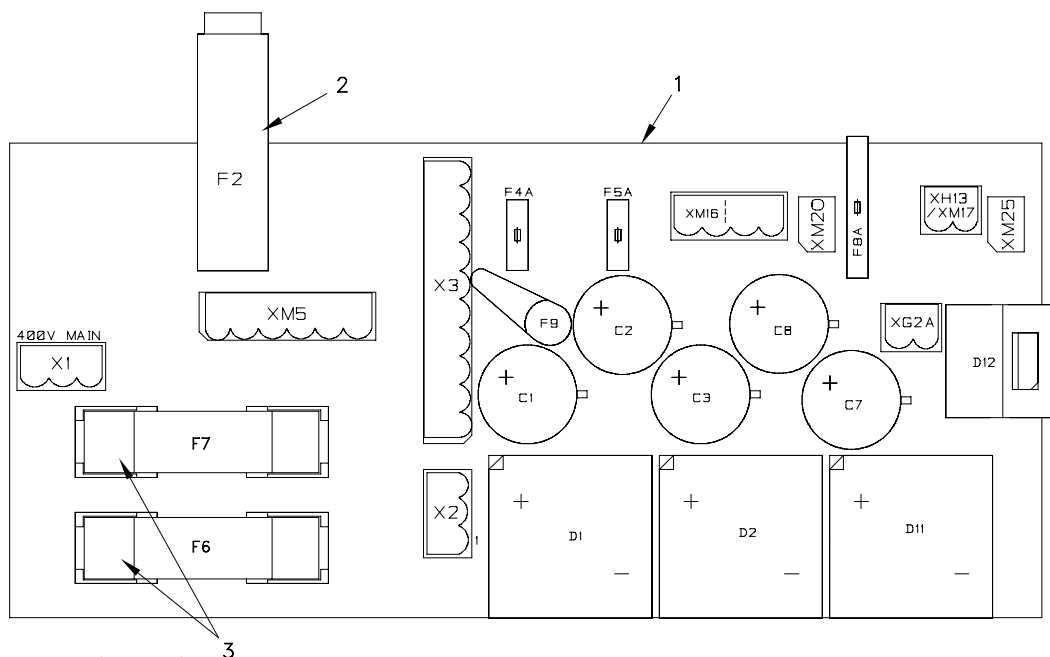


P219-007(2004-04)
5000091(2002-09)

Table 67: Safety circuit interface board with ADO/ACL (LCEADON)

KEY	PART NO.	PARTNAME	REMARK
1	KM773360G01	PC board, LCEADON	Safety circuit interface with ADO/ACL, North American
	KM773360G02	PC board, LCEADON	Safety circuit interface with ADO/ACL, North American; Chicago or when safety chain voltage is 120 VAC
2	KM275371	Fuse, radio	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)

4.8 Rectifier Board (LCEREC)

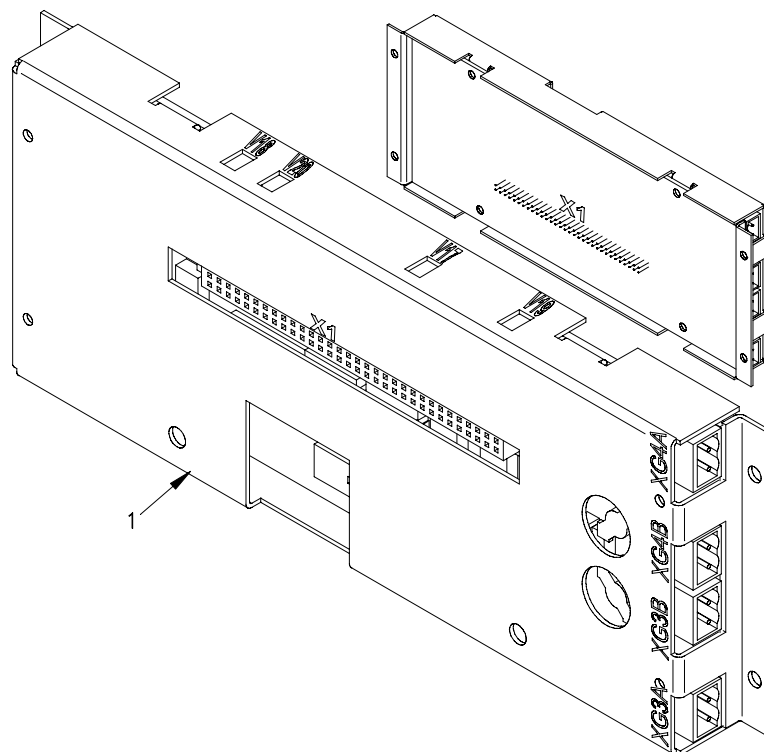


P504-009(2006-07)
 5000101(2002-10)

Table 68: Rectifier board for traction controller

KEY	PART NO.	PARTNAME	REMARK
1	KM713140G08	PC board, LCEREC	Rectifier board with 6.3 amp fuse
	KM713140G09	PC board, LCEREC	Rectifier board with 2.5 amp fuse for V3F16 applications
2	US47621060	Fuse	Fuse F2 is (250V-6A-6.3x32 mm-T-CSA)
	US47621025	Fuse	Fuse F2 is (250V-2.5A-6.3x32 mm-T-CSA); for V3F16L application
3	US51575006	Fuse	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/20MSCSA)

4.9 Controller Area Network Interface Board (LCECAN)



P219-014(2002-09)
 5000109(2002-09)

Table 69: Controller area network interface board (LCECAN)

KEY	PART NO.	PARTNAME	REMARK
1	KM713110G02	Module, LCECAN	Controller Area Network Interface Board, for use on R20, R100, KCM831/256K 5.x software only
	KM713110G04	PC board, LCECAN	Controller Area Network Interface Board, for use on R20, R100, KCM831/512K and KCM831 w/ emergency power 6.x software only

4.10 Car Top Cross Connection Board (LCECCBN)

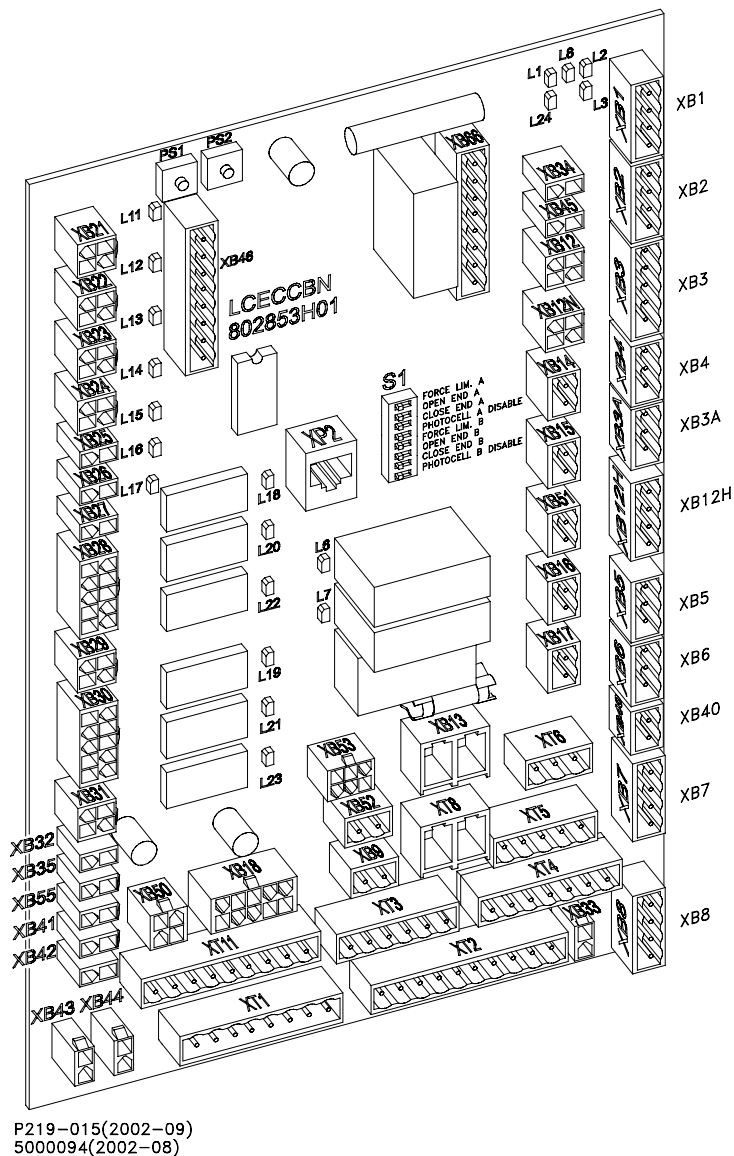


Table 70: Car top cross connection board (LCECCBN)

KEY	PART NO.	PARTNAME	REMARK
1	KM802850G11	PC board, LCECCBN	Car top Cross Connection Board (LCECCBN), North American, KM802850G11 boards cannot replace KM802850G01 boards

4.12 V3F25 drive assembly

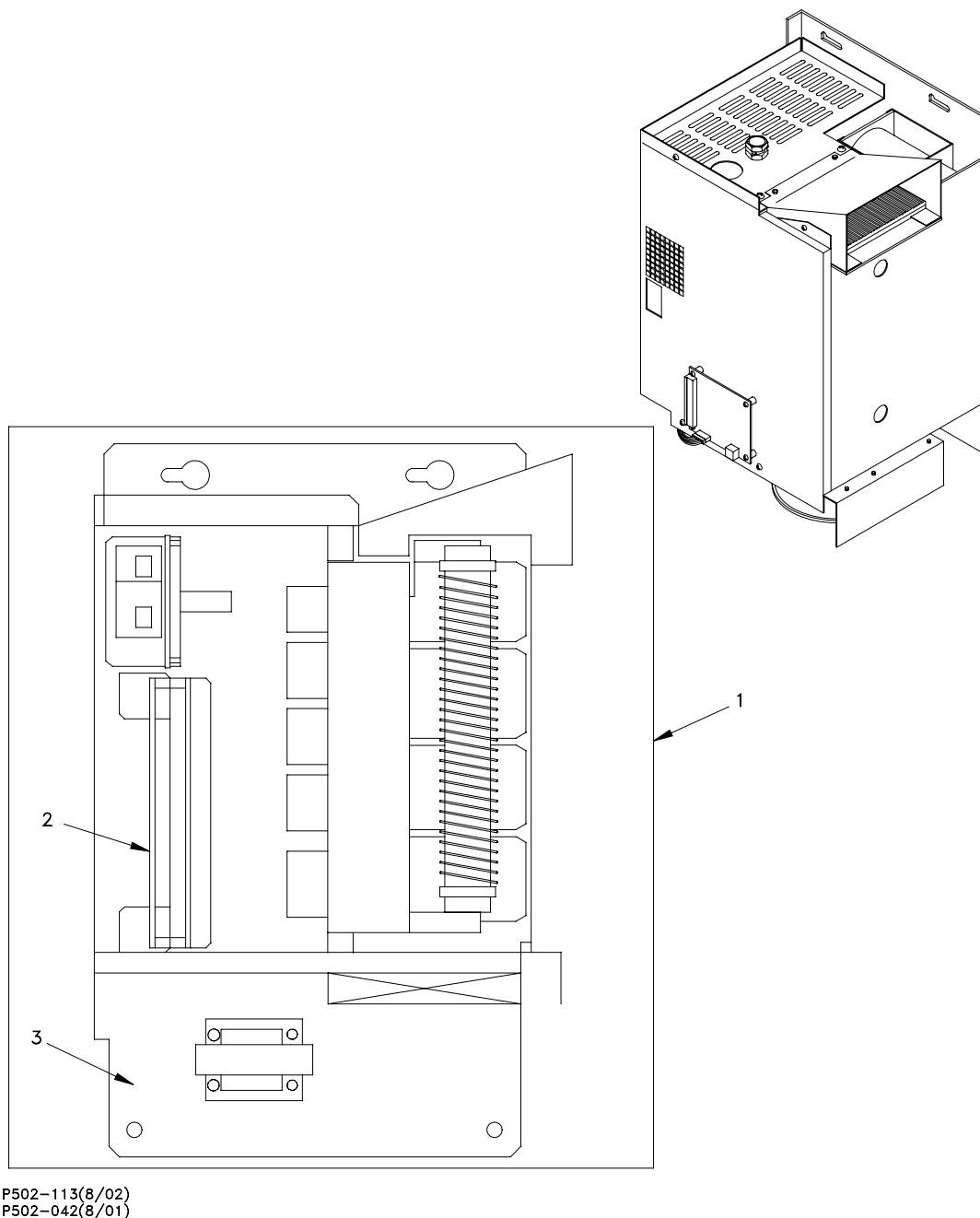
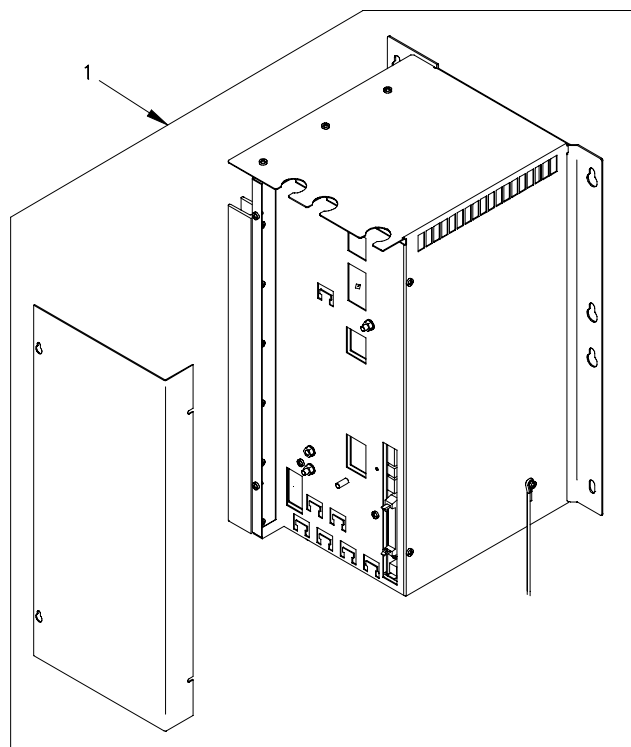


Table 72: KCM831: V3F25 drive assembly

KEY	PART NO.	PARTNAME	REMARK
1	KM782999G01	Drive module	V3F25, 40 amps, Complete module for MonoSpace with MX10A machine. Requires version 3.5.8 software, or higher
	KM782999G02	Drive module	V3F25, 80 amps, Complete module for MonoSpace with MX20 machine, or EcoSystem MR with MX18 or MX32 machine. Requires version 3.5.8 software, or higher
	KM782999G04	Drive module	V3F25MLB, 100 A for EcoSystem MR with MX18 or MX32 machine
2	KM781380G01	PC board, HCB	Motion control board
3	KM783027G01	Transformer, auxiliary	400V/40VA primary, 20Vx2 secondary

IMPORTANT! The HCB PC board (2) and auxiliary transformer (3) are the only recommended replacement parts. Otherwise, replace the entire V3F25 drive module (1).

4.13 V3F16L drive assembly

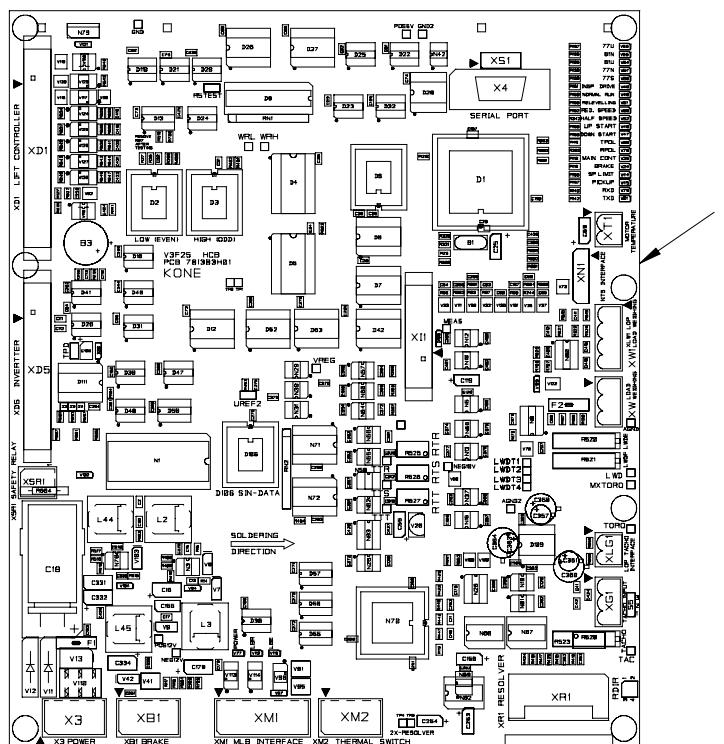


P504-020(2004-03)

Table 73: V3F16L drive assembly

KEY	PART NO.	PARTNAME	REMARK
1	KM769900G13	Drive module	V3F16L20A
	KM769900G14	Drive module	V3F16L25A

4.14 V3F25 Motion Control Board (HCB)

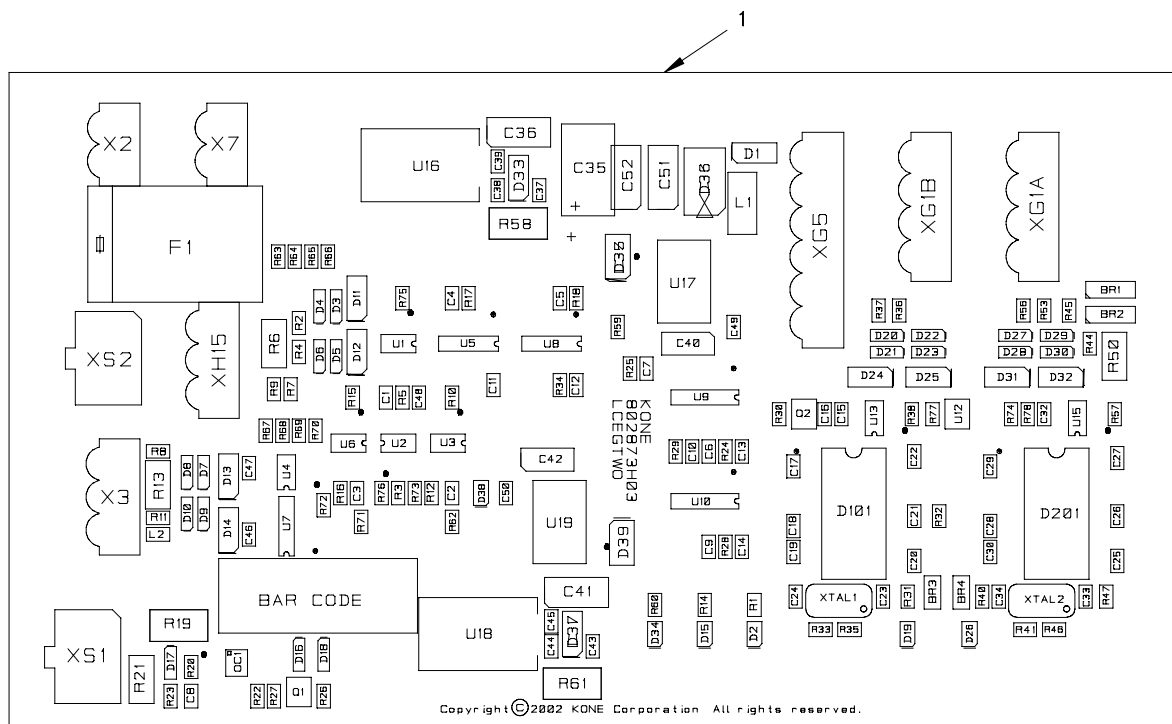


P504-005(9/02)

Table 74: V3F25 motion control board, HCB

KEY	PART NO.	PARTNAME	REMARK
1	KM781380G01	PC board, HCB	Motion control board

4.15 LCEGTWO board

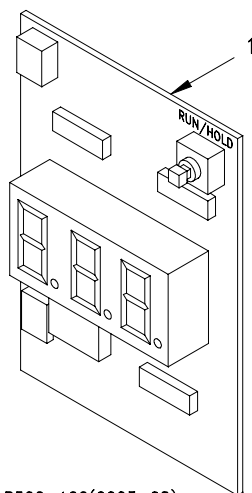


P504-013(2003-05)

Table 75: LCEGTWO2 board

KEY	PART NO.	PARTNAME	REMARK
1	KM802870G01	PC board, LCEGTWO	Optoisolated LCE landing call interconnection and RS485 repeater board

4.16 ADON SPO speedometer board

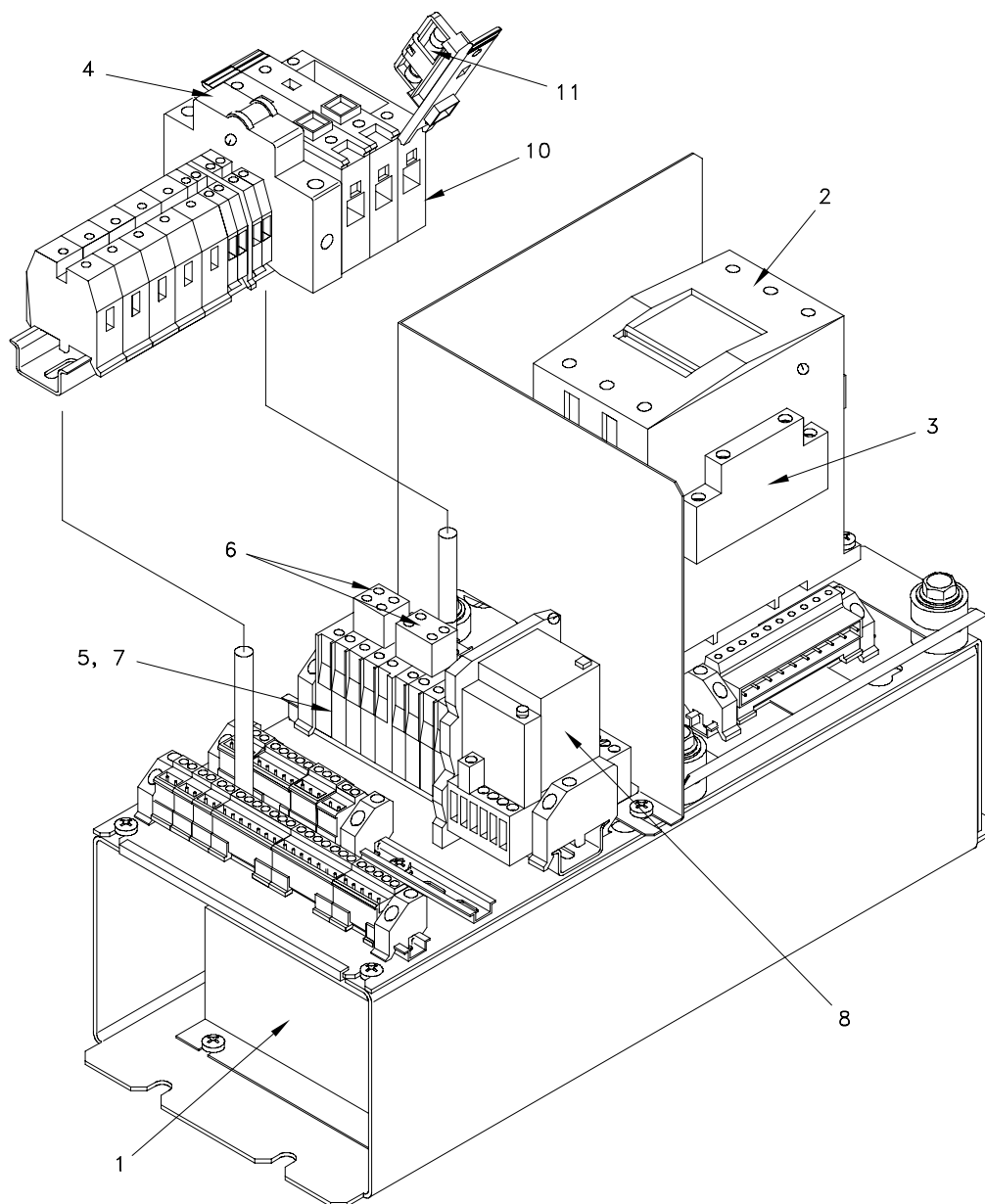


P502-122(2003-08)

Table 76: ADON SPO speedometer board

KEY	PART NO.	PARTNAME	REMARK
1	KM800700G01	Speedometer board, ADON SPO	For MonoSpace and EcoSpace controllers, if specified by inspection requirement

4.17 Filter module (KCM831 control with V3F25MLB drive)



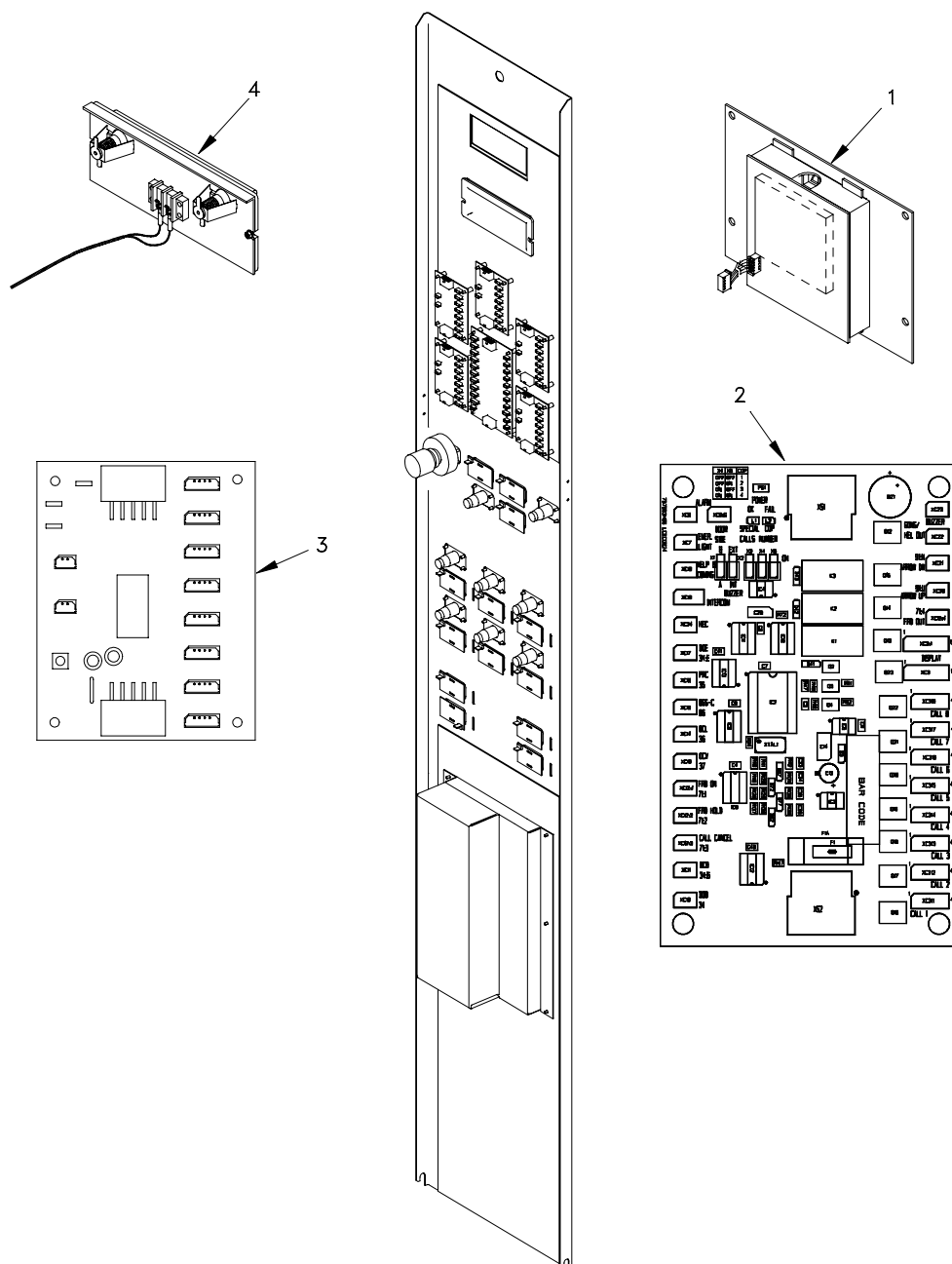
5006592(2006-02)

Table 77: Filter module 780180G12 (KCM831 control w/V3F25MLB drive)

KEY	PART NO.	PARTNAME	REMARK
1	KM277949	Filter	389:1, 80A (max. 94A), KE.277.80 (G09, G19)
2	KM280152	Contactor	201:1, Siemens, 37KW-AC3, 3RT1045-1AP60, (G07, G17)
3	KM280154	Auxiliary contact block	201:1, Siemens, 3RH1921-1DA11
4	KM273269	Circuit breaker	284, 1-pole, 4A, curve C
5	US52951001	Relay control	201:3-4, 12A-230V-AC1 (257489)
6	US95322002	Auxiliary contact block	12A-230-AC1
7	KM251070	RC-circuit	XEB2202-200
8	KM276222	Relay (210)	Finder, 60.13.8.230.0040
	KM284177	Time relay (210)	
	KM284178	Relay socket (210)	
10	KM281656	Fuse block	286:1-3
11	US51816006	Fuse, ceramic	500V-6A-10x38mm CSA

5 FIXTURES

5.1 Car station



P219-001(2002-09)
F211-121(2002-09)

Table 78: Car station

KEY	PART NO.	PARTNAME	REMARK
1	USP37009003	PI, Sigmatic, car mnt, assembly	With arrows and dot matrix display
2	KM757650G11	PC board, LCECOB24	Car operating interface board 24V (LCECOB24)
3	KM713730G11	PC board, LCECEB	Car operating panel extension board, KM713730G11 boards cannot replace KM713730G01 boards
4	KM786195	Light assembly, emergency	2-bulbs, 12V, 0.2A
NS	US520909	Bulb	

5.2 Car operating panel extension board (LCECEB)

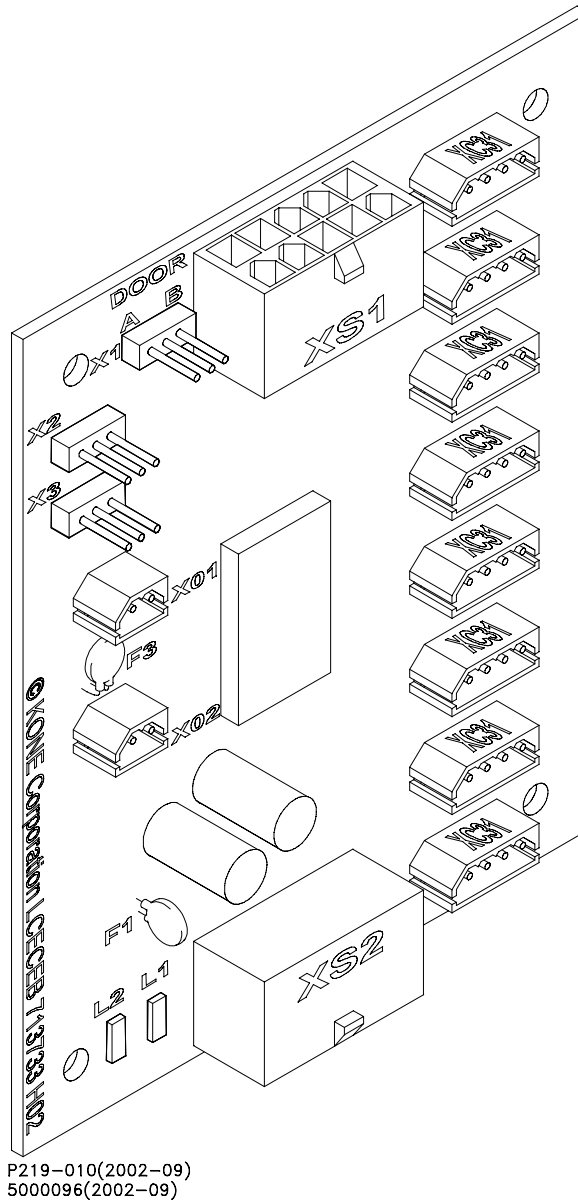
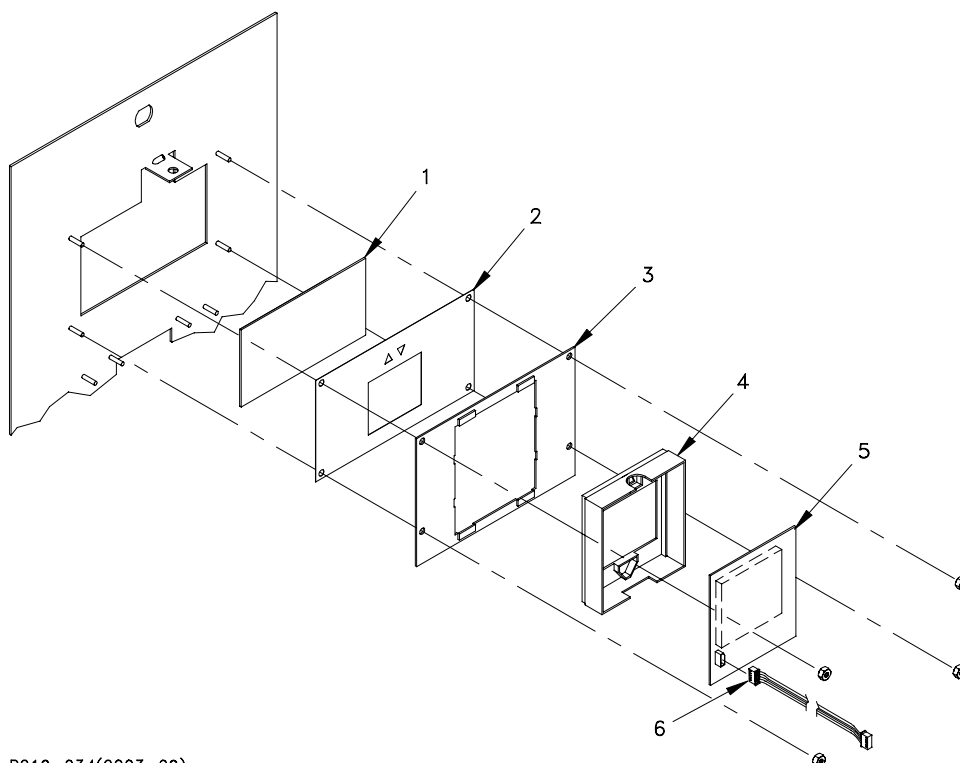


Table 79: Car operating panel extension board (LCECEB)

KEY	PART NO.	PARTNAME	REMARK
1	KM713730G11	PC board, LCECEB	Car operating panel extension board, KM713730G11 boards cannot replace KM713730G01 boards, G11 is for car calls 9 - 40
	KM713730G12	PC board, LCECEB	Car operating panel extension board. Used for car calls 41 - 63.
	KM713730G13	PC board, LCECEB	Car operating panel extension board. Used for car call lockouts 1 - 32.
	KM713730G14	PC board, LCECEB	Car operating panel extension board. Used for car call lockouts 33 - 63.

KM713730G01 boards can be used in KCM831/ReSolve systems. An I/O board software download (5-7-1) converts the KM713730G01 board to a KM713730G11 board.

5.3 Car fixtures: position indicators, serial

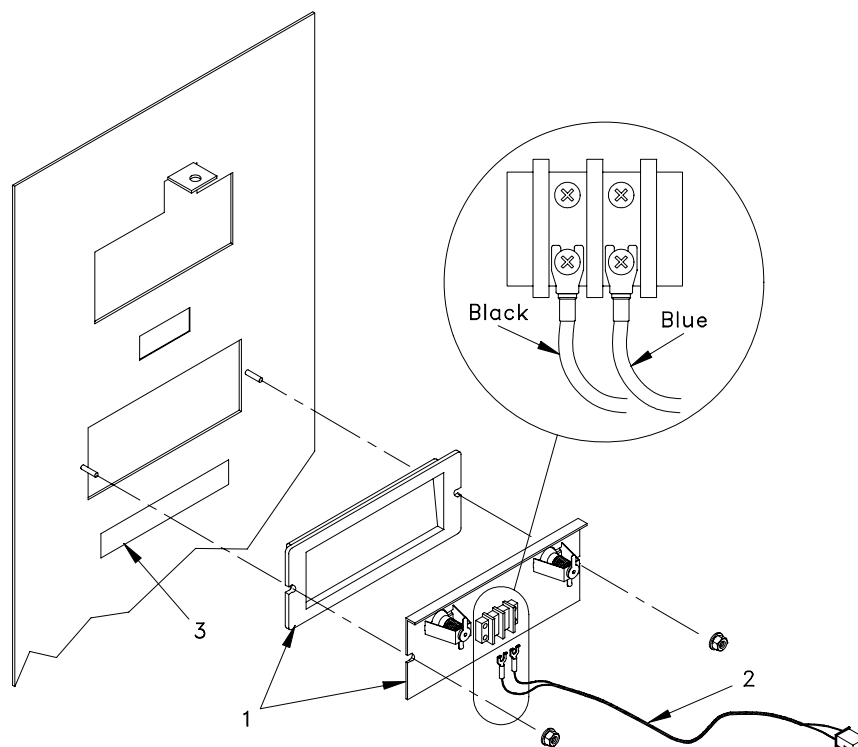


P219-034(2003-09)

Table 80: Car fixtures: position indicators, serial

KEY	PART NO.	PARTNAME	REMARK
1	KM800122001	Lens, filter, digital PI	
2	KM800370	Mask, w/arrows	Sigmatic PI
3	KM800371	Plate, mounting, digital PI	
4	KM720295	Box, display, PC board	
5	US95474001	PC board	Sigmatic PI, KONE
6	US95413030	Cable	5x#22AWG, SPOX, length = 30 inches [762 mm]

5.4 Emergency light assembly

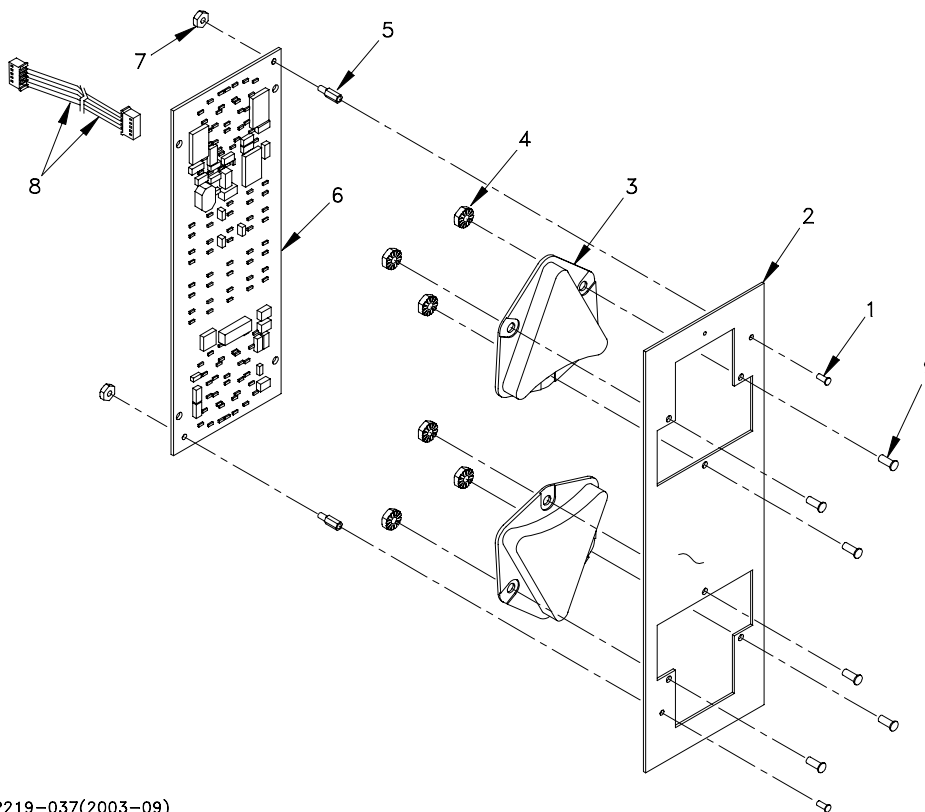


P219-035(2003-09)

Table 81: Emergency light assembly

KEY	PART NO.	PARTNAME	REMARK
1	KM786195	Light assembly, emergency	2-bulbs, 12V, 0.2A
	US520909	Bulb	
2	US53638036	Cable	2X#22AWG, SPOX, length = 36 inches [914 mm]
3	KM809809	Label	Emergency light battery location

5.5 Car direction lantern assembly: DELLANV

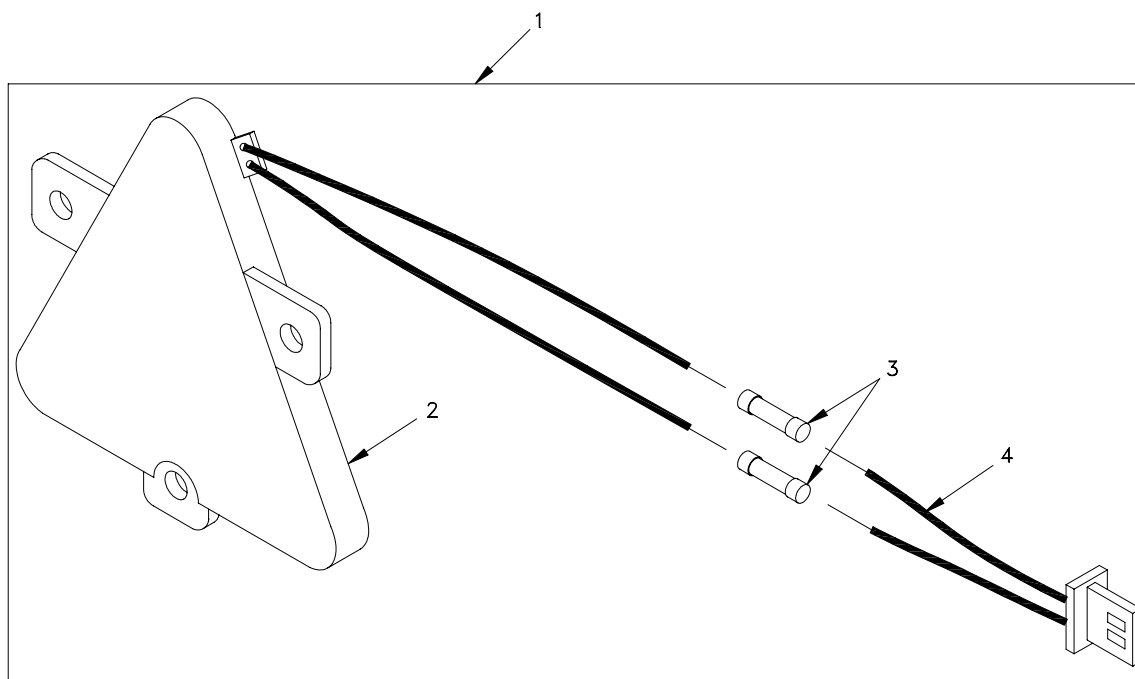


P219-037(2003-09)

Table 82: Car direction lantern assembly, DELLANV

KEY	PART NO.	PARTNAME	REMARK
1	KM800376006	Stud, drive	#4-40, length = 0.375 inches [9.5 mm]
2	KM800380	Subplate	CDL, P220, and Delta
3	US79030001	Lens, arrow	2-1/2 inches [64 mm] wide and high, 3 mounting holes
4	US46662003	Nut	6-32, Kepnut, zinc plated
5	US95633005	Standoff	#4-40 thread, M-F, length = 1/2 inch [13 mm]
6	KM769110G07	PC board, DELLANV	LCEGM
7	US47154	Nut, hex	Nylon, #4-40 UNC thread
8	US95413072	Cable	5X#22AWG, SPOX, length = 72 inches [1829 mm]
9	US77123004	Threadstud	6-32 thread, length = 3/8 inch [9.5 mm]

5.6 Hall fixtures: direction arrows

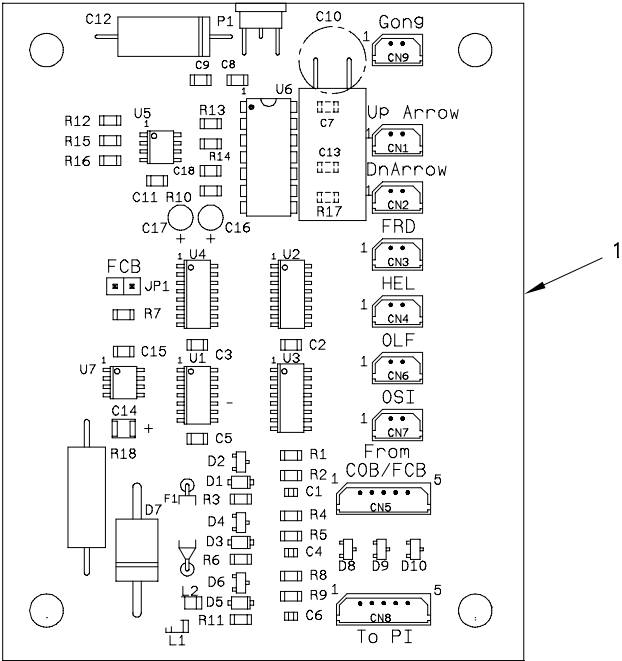


F211-237(2003-08)

Table 83: Hall and car fixtures: direction arrows

KEY	PART NO.	PARTNAME	REMARK
1	USP31927144	Lantern assembly, arrow	Green, length = 144 inches (3658 mm), (assembly not available; order component parts)
	USP31928144	Lantern assembly, arrow	Red, length = 144 inches (3658 mm), (assembly not available; order component parts)
2	US63686002	Lantern, direction	UP arrow, green LED, 24 volts
	US63686001	Lantern, direction	DOWN arrow, red LED, 24 volts
3	US46427181	Wire splice	AWG#22-18
4	US95398144	Cable	2X#22AWG, SPOX, length = 144 inches (3658 mm)

5.7 Hall fixtures: arrival lantern / gong PC board

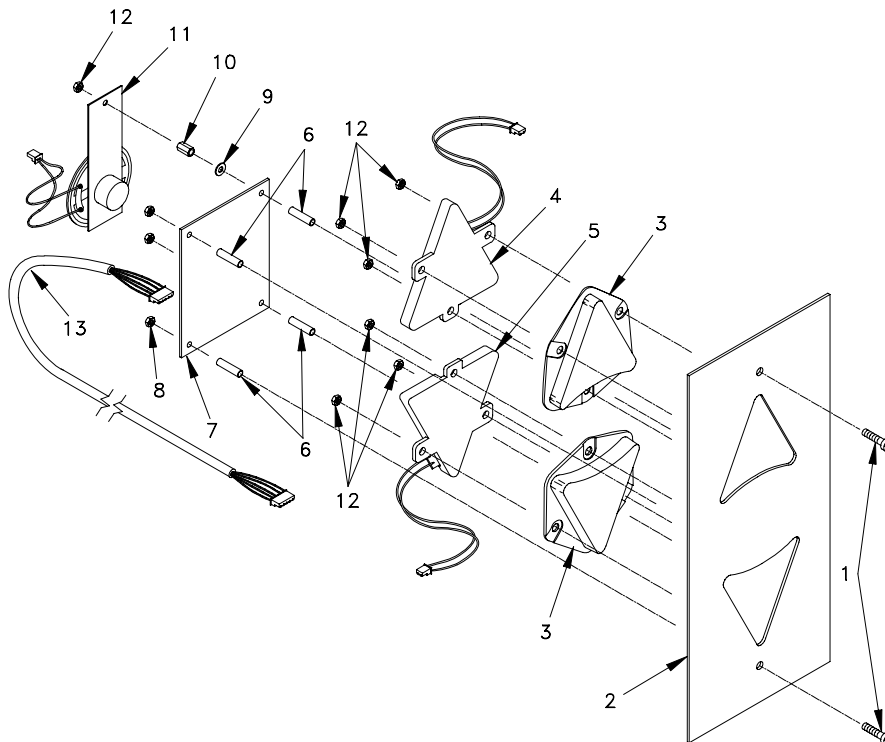


F211-114(2006-01)

Table 84: Hall & car fixtures: arrival lantern / gong PC board

KEY	PART NO.	PARTNAME	REMARK
1	USP31892002	PC Board, lantern, arrival	Lantern gong without speech synthesizer

5.8 Hall fixtures: Intermediate hall lantern assembly



P219-036(2003-09)

Table 85: Intermediate hall lantern assembly

KEY	PART NO.	PARTNAME	REMARK
1	US63363002	Screw	Button head, 10-24 x 1, stainless steel
2	USP30022001	Cover, lantern	Intermediate, Vertical, #4 stainless steel
3	US79030001	Lens, arrow	2-1/2 inches [64 mm] wide and high, 3 mounting holes
4	USP31927012	Lantern assembly	Arrow, green, with cable, length = 36 inches [914 mm]
5	USP31928012	Lantern assembly	Arrow, red, with cable, length = 36 inches [914 mm]
6	US47589012	Spacer	Nylon, #6 screw, length = 3/4 inch [19 mm]
7	USP31892002	PC Board, lantern, arrival	Lantern gong without speech synthesizer
8	US75560003	Nut, hex	Nylon, 6-32 thread
9	US75130001	Washer, flat	Nylon, #6
10	US47704003	Standoff	M-F, 6-32 thread, length = 3/8 inch [9.5 mm]
11	USP31919001	Speaker, gong	With cable
12	US46662003	Nut	6-32, Kepnut, zinc plated
13	KM786174216	Cable	5X#22AWG, SPOX, length = 216 inches [5486 mm]

6 ALPHABETICAL PARTS INDEX

PARTNAME	PART NO.	PAGE	KEY	REMARK
Actuator, magnetic	US64807001	55	1	Schmersal
Adapter	KM277358	15	10	GE06LR1/4AC
Alarm bell	KM713873G01	61	NS	
Angle	KM773729H01	15	2	Iron
Autotransformer	KM826153G01	78	17	198 - 230V; For remote control room application, use KM857996G01 (Also direct replacement)
Autotransformer	KM826153G02	78	17	456 - 480V; For remote control room application, use KM857996G02 (Also direct replacement)
Autotransformer	KM826153G03	78	17	575 - 600V; For remote control room application, use KM857996G03 (Also direct replacement)
Aux. contactor	KM276387	73	NS	Siemens SRH1921-1HA22
Auxiliary contact block	KM280154	95	3	201:1, Siemens, 3RH1921-1DA11
Auxiliary contact block	US95322002	95	6	12A-230-AC1
Back up power	780831G03	76	10	KM277109 capacitor is service replacement part
Battery	KM263860	61	NS	
Bearing	KM277473	16	3	QJ207N2MA/C2L
Bearing	KM277472	16	5	24024ES.TVPB
Bearing	KM277472	17	3	24024ES.TVPB3
Bearing cover	KM583933H01	5	4	
Box, display, PC board	KM720295	100	4	
Bracket , encoder	KM602259H01	34	6	Governor tripping direction: right
Bracket , encoder	KM602259H02	34	6	Governor tripping direction: left
Bracket , encoder	KM602254H01	34	7	Governor tripping direction: right
Bracket , encoder	KM602254H02	34	7	Governor tripping direction: left
Bracket assembly, magnet	KM827760H01	43	1	Used for the 77:S magnet and B30 magnet
Bracket, assembly	KM827741G01	62	1	Car, travel cable hanger

PARTNAME	PART NO.	PAGE	KEY	REMARK
Bracket, encoder	KM602258G02	34	15	Governor tripping direction: right
Bracket, encoder	KM602260H02	37	2	Governor tripping direction: right
Bracket, encoder	KM602260H01	37	2	Governor tripping direction: left
Bracket, encoder	KM602258G01	33	5	Tripping direction: right, complete assembly
Bracket, encoder	KM602258G02	33	5	Tripping direction: left, complete assembly
Brake	KM722740G01	13	1	MX-32 drive, (Assembly of two is KM803101G01)
Brake	US64655015	20	3	Complete, releasing arm is reversible
Brake	US64655015	21	3	Complete LH/RH, arm reversible for LH/RH
Brake	KM710216G04	22	3	Complete
Brake control module	KM803942G01	76	7	(388:1 or 388:2)
Brake control module	KM803942G01	73	7	(388:1 or 388:2)
Brake release handle	KM617609G01	20	NS	MX10A
Brake release handle	KM785054G01	22	NS	MX20
Brake resistor module	KM782998***	73	3	Replacement brake resistors are KM765722G01. Refer to table titled: Brake Resistors for *** extension, and quantity of brake resistors.
Brake resistor module	KM830065G01	78	2	
Brake unit	KM710216G02	6	1	MX18, with control switch (complete assembly)
Buffer spring	US2881242	48	4	6.5 inch stroke
Buffer spring	US2881243	48		6 inch stroke
Buffer, oil	See remarks	48	5	Refer to table titled: Buffer Dimensions Chart for part number and application
Buffer, polyurethane	US64250001	48	1	4 inch stroke
Buffer, polyurethane	USP33513001	48	2	Assembly, 4 inch stroke
Buffer, polyurethane	USP33513002	48	3	Assembly, 5.67 inch stroke
Buffer, switch only	US63577	48	7	Telemechanique XCK-T510
Buffers	KM827647G01	50	1	Car with 4 ft. pit, G02 = car with 5 ft. pit

PARTNAME	PART NO.	PAGE	KEY	REMARK
Buffers	KM827642G01	50	2	Counterweight (2000 - 4000 lb. passenger cars only)
Buffers	KM585356H28	50	2	Counterweight (4000 - 5000 lb. service cars only)
Bulb	US520909	97	NS	
Bulb	KM273863	76	NS	Replacement
Bulb	US520909	101		
Cable	KM710248G01	9	2	Wire 710233H01 MKMO 6*1.5 450V L=7750mm
Cable	US95413030	100	6	5x#22AWG, SPOX, length = 30 inches [762 mm]
Cable	US53638036	101	2	2X#22AWG, SPOX, length = 36 inches [914 mm]
Cable	US95413072	102	8	5X#22AWG, SPOX, length = 72 inches [1829 mm]
Cable	US95398144	103	4	2X#22AWG, SPOX, length = 144 inches (3658 mm)
Cable	KM786174216	105	13	5X#22AWG, SPOX, length = 216 inches [5486 mm]
Cable hanger assembly	KM784564G01	29	2	Complete assembly for securing flat cable wedge/clamp to wiring duct
Cable, brake	KM802519G02	9	3	2 Req'd.
Cable, brake	KM802519G02	19	2	
Cable, brake	KM781458G05	19	6	in machinery (L= 1350 mm)
Cable, brake	KM781458G04	19	7	in machinery (L= 2100 mm)
Cable, brake opening	KM650827G01	20	4	
Cable, brake opening	KM650827G01	21	4	
Cable, brake opening	KM784780G01	22	4	
Cable, control	KM781463G02	19	3	
Cable, fan	KM781459G05	19	8	in machinery (L= 2550 mm)
Cable, fan	KM781459G07	19	9	in machinery (L= 1500 mm)
Cable, fan	KM781459G03	19	10	in machinery (L= 1950 mm)
Cable, fan	KM781457G08	19	11	in machinery (L= 2150 mm)
Cable, hand wheel	KM781457G02	19	12	in machinery (L= 2100 mm)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Cable, motor	KM781464G01	19	1	25 sq. mm
Cable, motor	KM781464G02	19	1	35 sq. mm
Cable, motor	KM781464G03	19	1	50 sq. mm
Cable, motor	KM781464G04	19	1	75 sq. mm
Cable, resolver	KM767059G02	19	5	
Cable, switch	KM604130G05	60	3	Modify cable marking label as required. (All cables identical except for label markings.)
Cable, tachometer	KM762074G02	19	4	
Cable, tachometer	KM811490G01	21	2	
Cam assembly	KM827174G02	C53	1	Car top
Cam assembly	KM827172G01	54	1	Includes mounting brackets, used with RG150HD or RG200 roller guides, 400-500 FPM
Cam assembly	KM827172G02	54	1	Includes mounting brackets, used with RG150 or RG200 roller guides, 600-1200 FPM
Cam assembly	KM827172G03	54	1	Includes mounting brackets, used with RG 300 roller guides, 400-500 FPM
Cam assembly	KM827172G04	54	1	Includes mounting brackets, used with RG 300 roller guides, 600-1200 FPM
Car top box, LCEGM	KM845403G01	61	2	North American, with alarm bell, 2-speed fan relay, CCBN2 & bottom cover
Car top box, LCEGM	KM845403G02	61	2	North American, with alarm bell, 2-speed fan relay, CCBN2, bottom cover, & 24 VDC power supply package
Car top box, LCEGM	KM845403G03	61	2	North American, with alarm bell, 2-speed fan relay, CCBN2, bottom cover, & KNXM PSTN
Car top box, LCEGM	KM845403G04	61	2	North American, with alarm bell, 2-speed fan relay, CCBN2, bottom cover, 24 VDC power supply package, & KNXM PSTN
Car top box, LCEGM	KM845403G05	61	2	North American, CCBN2, (no options)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Car top box, LCEGM	KM845403G06	61	2	North American, CCBN2, & KNXM PSTN
Cartop locking bar	KM89890G01	70	1	LH, used with CF10USM car frame with KM713202G05 switch
Cartop locking bar	KM89890G02	70	1	RH, used with CF10USM car frame with KM713202G05 switch
Cartop locking bar	KM763050G01	70	2	RH, used with CF16USM car frame with KM713202G05 switch
Cartop locking bar	KM763050G02	70	2	LH, used with CF16USM car frame with KM713202G05 switch
Cartop locking bar	KM787725G03	70	3	RH, for EcoSpace car frame
Cartop locking bar	KM787725G04	70	3	LH, for EcoSpace car frame
Circuit breaker	KM274690	73	5	(298), Siemens, 5SX2201-7
Circuit breaker	KM273269	95	4	284, 1-pole, 4A, curve C
Circuit breaker	KM277247	76	NS	Service replacement part
Contactor	KM280151	73	6	(201:1), Siemens, 22KW-AC3, 3RT1036-1AP60, MX10 Applications
Contactor	KM280152	73	6	(201:1), Siemens, 37KW-AC3, 3RT1045-1AP60, MX20, MX18 and MX32 Applications
Contactor	KM275171	73	8	Siemens SRT1526-1B
Contactor	KM280305	76	NS	Service replacement part
Contactor	KM280152	95	2	201:1, Siemens, 37KW-AC3, 3RT1045-1AP60, (G07, G17)
Cover plate	KM782992G09	76	14	English
Cover, encoder	KM602261H02	37	13	Governor tripping direction: right
Cover, encoder	KM602261H01	37	13	Governor tripping direction: left
Cover, lantern	USP30022001	105	2	Intermediate, Vertical, #4 stainless steel
Damper	KM650819H01	20	5	Lower isolation
Damper	KM650819H01	21	5	Lower isolation
Damper	KM756001H01	22	5	Lower isolation
Drive cabinet	KM805550G02	76	1	V3F25MLB drive cabinet
Drive module	KM782999G01	73	2	V3F25, 40 amps

PARTNAME	PART NO.	PAGE	KEY	REMARK
Drive module	KM782999G02	73	2	V3F25, 80 amps
Drive module	KM782999G04	76	2	V3F25MLB, includes HCB board KM781380G01
Drive module	KM769900G13	78	1	V3F16L20A
Drive module	KM782999G01	89	1	V3F25, 40 amps, Complete module for MonoSpace with MX10A machine. Requires version 3.5.8 software, or higher
Drive module	KM782999G02	89	1	V3F25, 80 amps, Complete module for MonoSpace with MX20 machine, or EcoSystem MR with MX18 or MX32 machine. Requires version 3.5.8 software, or higher
Drive module	KM769900G13	90	1	V3F16L20A
Drive module	KM782999G04	89	1	V3F25MLB, 100 A for EcoSystem MR with MX18 or MX32 machine
Drive module	KM769900G14	78	1	V3F16L25A
Drive module	KM769900G14	90	1	V3F16L25A
Emergency brake control module	KM826181G01	78	4	(388:2)
Encoder	KM277938	33	2	Hengstler, RI 58
Encoder	KM277938	34	4	Hengstler, RI 58
Encoder	KM277938	37	12	Hengstler, RI 58
Encoder assembly	KM602258G03	34	15	Governor tripping direction: left
Encoder assembly	KM602262G02	37	14	Governor tripping direction: right
Encoder assembly	KM602262G03	37	14	Governor tripping direction: left
Fan	KM255063	5	3	MX18
Fan	KM277786	11	1	G2E140-PI51-20 CE, UL/CSA, 50/ 60Hz), (Fan assembly is KM803081G03)
Fan	KM277785	11	1	G3E140-PI51-19 (CE,UL/CSA,50/ 60Hz), (Fan assembly is KM803081G04)
Fan	KM277788	11	1	G2E160-AY47-74 (CE,UL/CSA,50/ 60Hz),(Fan assembly is KM803081G09)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Fan	KM277787	11	1	G2E160-BY47-22 (CE,UL/CSA,50/60Hz), (Fan assembly is KM803081G10)
Fastening	KM277359	15	4	30-N006
Faucet	722810H01	15	9	Valve
Filter	KM277949	95	1	389:1, 80A (max. 94A), KE.277.80 (G09, G19)
Fuse	KM210567	73	NS	Fuse F1 on LCEEAQ (315A350V-5x20)
Fuse	KM210567	73	NS	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)
Fuse	KM247418	73	NS	Fuse F1 on LCEGTW board (T6, 3A250V-5x20)
Fuse	US47621060	73	NS	Fuse F2 on LCEREC board (250V-6A-6, 3x32 mm-T-CSA)
Fuse	US51575006	73	NS	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/20MSCSA)
Fuse	KM210567	76	NS	Fuse F1 on LCEEAQ (315A350V-5x20)
Fuse	KM210567	76	NS	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)
Fuse	US47621060	76	NS	Fuse F2 on LCEREC board (250V-6A-6, 3x32 mm-T-CSA)
Fuse	US51575006	76	NS	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/20MSCSA)
Fuse	KM210567	78	NS	Fuse F1 on LCEEAQ (315A350V-5x20)
Fuse	KM210567	78	NS	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)
Fuse	KM247418	78	NS	Fuse F1 on LCEGTW board (T6, 3A250V-5x20)
Fuse	US47621025	78	NS	Fuse F2 on LCEREC board (250V-2.5A-6.3x32 mm-T-CSA)
Fuse	KM247418	81	2	Fuse F1 on LCEGTW board (T6, 3A250V-5x20)
Fuse	KM210567	82	2	Fuse F1 and F2 on LCEOPT board (315A250V-5x20)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Fuse	US51575006	84	3	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/ 20MSCSA)
Fuse	US47621060	84	2	Fuse F2 is (250V-6A-6.3x32 mm-T-CSA)
Fuse	US51575006	78	NS	Fuses F6 and F7 on LCEREC board (10x38 mm-6A-500V-50A/ 20MSCSA)
Fuse	US47621025	84	2	Fuse F2 is (250V-2.5A-6.3x32 mm-T-CSA); for V3F16L application
Fuse	US47621060	84	2	Fuse F2 is (250V-6A-6.3x32 mm-T-CSA)
Fuse	US47621025	84	2	Fuse F2 is (250V-2.5A-6.3x32 mm-T-CSA); for V3F16L application
Fuse block	KM281656	95	10	286.1-3
Fuse, ceramic	US51816006	95	11	500V-6A-10x38mm CSA
Fuse, F2	KM275632	26	NS	250 VAC-500 MA-F-5x20-CSA
Fuse, F4	KM275358	61	NS	125/250 V-6, 3A-T-5x20
Fuse, radio	KM275371	73	NS	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)
Fuse, radio	KM275371	76	NS	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)
Fuse, radio	KM275371	78	NS	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)
Fuse, radio	KM275371	83	2	Fuse F1 on LCEADON board (250VAC-1A-T-5x20-CSA)
Governor, OL100	KM80340G45	37	1	80340G45-1-E-R-MKO, 200 fpm corners 1,3, RH, (US53750003), 80340G45-1-E-L-MKO, 200 fpm corners 2,4, LH, (US53751003)
Governor, OL100	KM80340G51	37	1	80340G51-1-E-R-MKO, 350 fpm corners 1,3, RH, (US53750006), 80340G51-1-E-L-MKO, 350 fpm corners 2,4, LH, (US53751006)
Governor, OL100	KM80340G57	37	1	80340G57-1-E-R-MKO, 500 fpm corners 1,3, RH, (US53750009), 80340G57-1-E-L-MKO, 500 fpm corners 2,4, LH, (US53751009)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Governor, OL100	KM80340G53	37	1	80340G53-1-E-R-MKO, 400 fpm corners 1,3, RH, (US53750007), 80340G53-1-E-L-MKO, 400 fpm corners 2,4, LH, (US53751007)
Governor, OL100	KM80340G61	37	1	80340G61-1-E-R-MKO, 700 fpm corners 1,3, RH, (US53750011), 80340G61-1-E-L-MKO, 700 fpm corners 2,4, LH, (US53751011)
Governor, OL100	KM80340G46	40	1	80340G46-1-E-L-MKO, 200 fpm corners 1,3, LH, (US64029003), 80340G46-1-E-R-MKO, 200 fpm corners 2,4, RH, (US64028003)
Governor, OL100	KM80340G52	40	1	80340G52-1-E-L-MKO, 350 fpm corners 1,3, LH, (US64029006), 80340G52-1-E-R-MKO, 350 fpm corners 2,4, RH, (US64028006)
Governor, OL100	KM80340G54	40	1	80340G54-1-E-L-MKO, 400 fpm corners 1,3, LH, (US64029007), 80340G54-1-E-R-MKO, 400 fpm corners 2,4, RH, (US64028007)
Governor, OL100	KM80340G58	40	1	80340G58-1-E-L-MKO, 500 fpm corners 1,3, LH, (US64029009), 80340G58-1-E-R-MKO, 500 fpm corners 2,4, RH, (US64028009)
Governor, OL100	KM80340G62	40	1	80340G62-1-E-L-MKO, 700 fpm corners 1,3, LH, (US64029011), 80340G62-1-E-R-MKO, 700 fpm corners 2,4, RH, (US64028011)
Governor, OL35	KM601950G11	33	1	With remote
Governor, OL35	US53752002	34	1	Used with Monospace, 200 FPM, side 1-2 (includes encoder and remote control motor)
Governor, OL35	US53752004	34	1	Used with Monospace, 350 FPM, side 1-2 (includes encoder and remote control motor)
Governor, OL35	US53752001	34	1	Used with Monospace, 200 FPM, side 3-4 (includes encoder and remote control motor)
Governor, OL35	US53752003	34	1	Used with Monospace, 350 FPM, side 3-4 (includes encoder and remote control motor)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Governor, OL35	US53749001	34	1	Used with EcoSystem MR, 200 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
Governor, OL35	US53749002	34	1	Used with EcoSystem MR, 200 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)
Governor, OL35	US53749003	34	1	Used with EcoSystem MR, 350 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
Governor, OL35	US53749004	34	1	Used with EcoSystem MR, 350 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)
Governor, OL35	US53749005	34	1	Used with EcoSystem MR, 400 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
Governor, OL35	US53749006	34	1	Used with EcoSystem MR, 400 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)
Governor, OL35	US53749007	34	1	Used with EcoSystem MR, 500 FPM, corner: 1, 3 (includes encoder but NOT remote control motor)
Governor, OL35	US53749008	34	1	Used with EcoSystem MR, 500 FPM, corner: 2, 4 (includes encoder but NOT remote control motor)
Governor, OL35	US53440001	38	1	RH, 200 FPM, side 1 and 2
Governor, OL35	US53440003	38	1	RH, 350 FPM, side 1 and 2
Governor, OL35	US53440004	38	1	LH, 350 FPM, side 3 and 4
Governor, OL35	US53440002	38	1	LH, 200 FPM, side 3 and 4
Governor, OL35	US53441001	39	1	RH, 200 FPM
Governor, OL35	US53441002	39	1	LH, 200 FPM
Governor, OL35	US53441003	39	1	RH, 350 FPM
Governor, OL35	US53441004	39	1	LH, 350 FPM
Governor, OL35	US53441005	39	1	RH, 400 FPM
Governor, OL35	US53441006	39	1	LH, 400 FPM
Governor, OL35	US53441007	39	1	RH, 500 FPM
Governor, OL35	US53441008	39	1	LH, 500 FPM
GSM terminal module	KM770350G02	57	4	Nokia 31, includes metric mounting screws

PARTNAME	PART NO.	PAGE	KEY	REMARK
Guard, rope	KM725442G01	20	NS	
Guard, rope	KM779777G02	22	NS	
Hanger	KM600674G02	64	1	Compensation chain, EcoSystem MR
Hanger	KM600674G04	64	2	Compensation chain, EcoSystem MR used with high platforms
Hanger	KM862871G01	64	3	Compensation chain, EcoSpace, 4000 lb. passenger car, qty = 1, 4000-5000 lb. service car, qty = 2
Hanger assembly, traveling cable	KM829704G01	29	1	
Hanger, traveling cable	KM600672G01	63	1	For round traveling cable
Hanger, traveling cable	KM600672G04	63	2	For round traveling cable and a high platform
Hanger, traveling cable	KM600670G01	63	3	For flat traveling cable
Hanger, traveling cable	KM600670G07	63	4	For flat traveling cable and a high platform
Hose	KM803083G02	15	14	Replacement set
Hose	277360	15	15	14946-10-4/441-4/1D96-4-4 (L=300 mm)
Indicator light, green	KM263584	76	NS	Replacement bulb is KM273863
Indicator light, green	KM263584	78	6	Replacement bulb is KM273863
Indicator light, green	KM263584	73	11	Replacement bulb is KM273863
Inspect station	KM823857G01	61	1	Car top
Kit, brake contact	KM803100G05	13	5	Complete replacement set
Kit, buffer switch	KM807132G01	48	6	Check local code to determine if switch is required.
Label	KM809809	101	3	Emergency light battery location
Lantern assembly	USP31927012	105	4	Arrow, green, with cable, length = 36 inches [914 mm]
Lantern assembly	USP31928012	105	5	Arrow, red, with cable, length = 36 inches [914 mm]
Lantern assembly, arrow	USP31927144	103	1	Green, length = 144 inches (3658 mm), (assembly not available; order component parts)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Lantern assembly, arrow	USP31928144	103	1	Red, length = 144 inches (3658 mm), (assembly not available; order component parts)
Lantern, direction	US63686002	103	2	UP arrow, green LED, 24 volts
Lantern, direction	US63686001	103	2	DOWN arrow, red LED, 24 volts
LCEGTWO board	KM802870G02	47	1	
Lens, arrow	US79030001	102	3	2-1/2 inches [64 mm] wide and high, 3 mounting holes
Lens, arrow	US79030001	105	3	2-1/2 inches [64 mm] wide and high, 3 mounting holes
Lens, filter, digital PI	KM800122001	100	1	
Light assembly, emergency	KM786195	97	4	2-bulbs, 12V, 0.2A
Light assembly, emergency	KM786195	101	1	2-bulbs, 12V, 0.2A
Line bridge	KM805560G01	76	3	With cables
Line bridge	KM277746	76	3	Without cables
Loadweigh device	KM712537G01	65	1	Complete system including sensor KM712542G01
Locking plate	KM89899H03	44	1	RH, CF10USM car frame
Locking plate	KM89899H02	44	1	LH, CF10USM car frame
Locking plate	KM763057H01	44	2	RH, (T127) CF16USM car frame
Locking plate	KM763057H02	44	2	LH, (T127) CF16USM car frame
Locking plate	KM763069H01	44	3	RH, (T140) CF16USM car frame
Locking plate	KM763069H02	44	3	LH, (T140) CF16USM car frame
Locking plate	KM604278G01	45	1	
LON cable	KM783024G05	57	1	Connects LCECCBN to KNXRIF board, L = 500mm (19-11/16 inches)
Lubricator	KM86375G16	68	3	Guide rail, 16 mm
Lubricator	KM86375G19	68		Guide rail, 19 mm
Lubricator	KM86375G16	69	3	Guide rail, 16 mm
Machine, MX10/08	KM811510G05	21	1	Complete without resolver (KM827618H01)
Machine, MX10/15	KM827618H02	21	1	Complete without resolver (3000-3500 lb.)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Machine, MX10/15	KM827618H03	21	1	Complete with resolver (4000-5000 lb.)
Machine, MX10A	US53842001	20	1	Complete, with resolver, 2000 and 2500, 95 degree undercut grooves (KM781831G06)
Machine, MX20	US53486002	22	1	Complete, 200 FPM, 2500, 3000, 3500, 4000, 4500, 95 degree undercut grooves
Machine, MX20	US53486004	22	1	Complete, 350 FPM, 2500, 3000, 3500, 4000, 4500, 95 degree undercut grooves
Magnet	KM713228G03	28	1	Plastoferrite strip, used with 77:S, 77:U, 77:N, 66:EAQ 80x20x12mm
Magnet	KM713228G01	28	1	Plastoferrite strip, used with 61:U, 61:N, 30, B30 (EcoSpace only)
Manual brake release	KM710190	7	1	Assembly
Mask, w/arrows	KM800370	100	2	Sigmatic PI
Measuring wheel	KM602253G01	33	3	
Measuring wheel	KM602253G01	34	8	
Measuring wheel	KM602253G01	37	5	
Module, filter	780180G12	76	6	For replacement parts see part listing in section titled: FILTER MODULE 780180G12
Module, intercom	KM783020G02	76	24	
Module, LCECAN	KM713110G02	73	13	Controller Area Network Interface Board, part of KM713019G01 assembly
Module, LCECAN	KM713110G02	76	15	Controller Area Network Interface Board, part of KM713019G01 assembly
Module, LCECAN	KM713110G02	78	8	Controller Area Network Interface Board, part of KM713019G01 assembly
Module, LCECAN	KM713110G02	85	1	Controller Area Network Interface Board, for use on R20, R100, KCM831/256K 5.x software only
Module, LCL filter	KM777320G02	76	4	
Module, NTS	KM779710G01	73	4	Includes cover, cable and PC board

PARTNAME	PART NO.	PAGE	KEY	REMARK
Module, NTS	KM779710G01	76	5	Includes cover, cable and PC board
Module, safety circuit	KM800598G01	76	12	120 VAC
Module, safety circuit	KM800598G01	78	11	Chicago only, 120V
Motor cable	KM710246H01	9	1	Wire without plug, RKFK 450/750V 4*4 (std L=11.0m)
Motor cable	KM710246H02	9	1	Wire without plug, RKFK 450/750V 4*6 (std L=11.0m)
Motor cable	KM710246H03	9	1	Wire without plug, RKFK 450/750V 4*10 (std L=11.0m)
Motor cable	KM710246H04	9	1	Wire without plug, RKFK 450/750V 4*16 (std L=11.0m)
Motor cable	KM710246H05	9	1	Wire without plug, RKFK 450/750V 4*25 (std L=11.0m)
Motor unit	KM89144G01	34	5	Remote reset
Motor unit	KM89144G01	38	3	Remote reset
Motor unit	KM89144G01	33	6	Remote reset
MX18 machine, complete	KM781300G08	5	10	1600 KG, 1.7 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G86)
MX18 machine, complete	KM781300G10	5	10	1600 KG, 2.5 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G56)
MX18 machine, complete	KM781300G05	5	10	1600 KG, 2.5 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G26)
MX18 machine, complete	KM781300G09	5	10	1600 KG, 2.5 m/s; rope grooves and sheave sizes vary by application (Formerly KM710185G46)
O-ring	KM277431	17	1	OR 3x66 NBR70
O-ring	KM280260	34	10	80x5
O-ring	KM280260	37	7	80x5
O-ring	KM280260	33	4	Service replacement part
PC board	US95474001	100	5	Sigmatic PI, KONE
PC board, lantern, arrival	USP31892002	104	1	Lantern gong without speech synthesizer
PC board, lantern, arrival	USP31892002	105	7	Lantern gong without speech synthesizer

PARTNAME	PART NO.	PAGE	KEY	REMARK
PC board, DELLANV	KM769110G07	102	6	LCEGM
PC board, ETSL	KM800570G01	76	17	
PC board, HCB	KM781380G01	89	2	Motion control board
PC board, HCB	KM781380G01	91	1	Motion control board
PC board, KRM RIF	KM770300G01	61	5	RIF board for KNXM (LCERIF)
PC board, KRM RIF assembly	KM770210G01	87	1	KRM Interface Board, located in car roof box
PC board, LCEADON	KM773360G01	73	14	Safety circuit interface with ADO/ACL, North American
PC board, LCEADON	KM773360G01	76	16	Safety circuit interface with ADO/ACL, North American
PC board, LCEADON	KM773360G02	76	16	City of Chicago only, 120-240VAC
PC board, LCEADON	KM773360G01	78	9	Safety circuit interface with ADO/ACL, North American
PC board, LCEADON	KM773360G02	78	9	Safety circuit interface with ADO/ACL, North American; Chicago or when safety chain voltage is 120 VAC
PC board, LCEADON	KM773360G01	83	1	Safety circuit interface with ADO/ACL, North American
PC board, LCEADON	KM773360G02	83	1	Safety circuit interface with ADO/ACL, North American; Chicago or when safety chain voltage is 120 VAC
PC board, LCEADON	KM773360G02	73	14	City of Chicago only, 120-240VAC
PC board, LCECAN	KM713110G04	85	1	Controller Area Network Interface Board, for use on R20, R100 KCM831/512K and KCM831 w/ emergency power 6.x software only
PC board, LCECCBN	KM802850G11	86	1	Car top Cross Connection Board (LCECCBN), North American, KM802850G11 boards cannot replace KM802850G01 boards
PC board, LCECCBN	KM802850G11	61	4	Car top Cross Connection Board (LCECCBN), North American, KM802850G11 boards cannot replace KM802850G01 boards
PC board, LCECCBN2	KM802890G11	61	4	Car top Cross Connection Board II (LCECCBN2), North American

PARTNAME	PART NO.	PAGE	KEY	REMARK
PC board, LCECEB	KM713730G11	97	3	Car operating panel extension board, KM713730G11 boards cannot replace KM713730G01 boards
PC board, LCECEB	KM713730G11	99	1	Car operating panel extension board, KM713730G11 boards cannot replace KM713730G01 boards, G11 is for car calls 9 - 40
PC board, LCECEB	KM713730G12	99	1	Car operating panel extension board. Used for car calls 41 - 63.
PC board, LCECEB	KM713730G13	99	1	Car operating panel extension board. Used for car call lockouts 1 - 32.
PC board, LCECEB	KM713730G14	99	1	Car operating panel extension board. Used for car call lockouts 33 - 63.
PC board, LCECOB24	KM757650G11	97	2	Car operating interface board 24V (LCECOB24)
PC board, LCECPU40	KM773380G02	73	12	Main controller board
PC board, LCECPU40	KM773380G02	76	13	Main controller board
PC board, LCECPU40	KM773380G02	78	7	Main controller board
PC board, LCECPU40	KM773380G02	80	1	Main controller board
PC board, LCEEAQ	KM779700G01	73	15	Earthquake/seismic zones 2-4 North America
PC board, LCEEAQ	KM779700G01	78	10	Earthquake/seismic zones 2-4 North America
PC board, LCEEAQ	KM779700G01	76	18	Earthquake/seismic zones 2-4 North America
PC board, LCEFCB	KM713700G13	27	1	Floor Control Board, KM713700G13 boards cannot replace KM713700G03 boards
PC board, LCEFOB	KM713780G11	25	1	Floor Option Board, KM713780G11 boards cannot replace KM713780G01 boards
PC board, LCEFOB	KM713780G12	25	1	Floor Option Board
PC board, LCEFOB	KM713780G01	25	1	Floor Option Board. Order this board for Service work.
PC board, LCEFOB	KM713780G01	73	1	Floor Option Board. Order this board for Service work.

PARTNAME	PART NO.	PAGE	KEY	REMARK
PC board, LCEGTW	KM713180G11	73	18	Gateway board
PC board, LCEGTW	KM713180G11	78	13	Gateway board
PC board, LCEGTW	KM713180G11	81	1	Gateway board
PC board, LCEGTWO	KM802870G01	92	1	Optoisolated LCE landing call interconnection and RS485 repeater board
PC board, LCEGTWO	KM802870G01	76		
PC board, LCEHAS	KM762710G01	26	1	Hoistway access interface board
PC board, LCEOPT	KM713150G11	73	16	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
PC board, LCEOPT	KM713150G11	76	19	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
PC board, LCEOPT	KM713150G12	76	19	Option interface board, KM713150G12 boards cannot replace KM713150G02 boards
PC board, LCEOPT	KM713150G11	78	12	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
PC board, LCEOPT	KM713150G11	82	1	Option interface board, KM713150G11 boards cannot replace KM713150G01 boards
PC board, LCEOPT	KM713150G12	82	1	Option interface board, KM713150G12 boards cannot replace KM713150G02 boards, for cross-connect in Resolve only.
PC board, LCEOPT	KM713150G01	82	1	Option interface board. Order this board for Service work.
PC board, LCEREC	KM713140G08	73	20	Rectifier board with 6.3 amp fuse
PC board, LCEREC	KM713140G09	78	15	Rectifier board with 2.5 amp fuse
PC board, LCEREC	KM713140G08	84	1	Rectifier board with 6.3 amp fuse
PC board, LCEREC	KM713140G09	84	1	Rectifier board with 2.5 amp fuse for V3F16 applications
PC board, LCEREC	KM713140G08	76	22	Rectifier board with 6.3 amp fuse
PC board, V3FNTS	KM779710G02	78	3	Board only
PI, Sigmatic, car mnt, assembly	USP37009003	97	1	With arrows and dot matrix display

PARTNAME	PART NO.	PAGE	KEY	REMARK
Pipe	KM277361	15	3	D6x1.5 DIN1630/DIN2445 (L=1400 mm)
Plate, adapter	KM829696H01	61	3	For car top box
Plate, mounting, digital PI	KM800371	100	3	
Plate, oscillator protection	US64595001	60	1	
Plug	KM277371	15	7	SFP.40-1
Power supply unit	KM280783	47	2	
Power supply unit	KM280783	76	21	
Power supply unit	KM280783	61	NS	
PSTN cable	KM770161G01	57	2	Connects LCECCBN to KNXRIF board, L = 300 mm (11-13/16 inches)
Pulley, diverter	KM662188G01	5	NS	D410, 7xd8
Pulley, diverter	KM662188G02	5	NS	D410, 8xd8
Pulley, diverter	KM662189G01	5	NS	D410, 7xd10
Pulley, diverter	KM662189G02	5	NS	D410, 8xd10
Pulley, diverter	KM662190G01	5	NS	D534, 7xd13
Pulley, diverter	KM662190G02	5	NS	D534, 8xd13
Pump unit	KM722756G01	15	1	Includes pipe adapter
RC-circuit	KM251070	95	7	XEB2202-200
Reactor, line load	KM857998	78	NS	For remote applications
Relay (210)	KM276222	95	8	Finder, 60.13.8.230.0040
Relay control	US52951001	95	5	201:3-4, 12A-230V-AC1 (257489)
Relay socket (210)	KM284178	95	8	
Relay, plug-in	US52947001	61	NS	Two speed fan, (KM258634)
Remote control assembly	KM88970G07	34	14	Used only with Monospace, for remote reset, tripping direction: right (clockwise)
Remote control assembly	KM88970G09	34	14	Used only with Monospace, for remote reset, tripping direction: right (clockwise)

PARTNAME	PART NO.	PAGE	KEY	REMARK
Remote control assembly	KM88970G08	34	14	Used only with Monospace, for remote reset, tripping direction: left (counter-clockwise)
Remote control assembly	KM88970G10	34	14	Used only with Monospace, for remote reset, tripping direction: left (counter-clockwise)
Repeater, RS485	KM800629G01	78	NS	Phoenix RS485 repeater for FSP
Repeater, RS485	KM800629G01	73	17	Phoenix RS485 repeater for FSP & shaft network modules
Repeater, RS485	KM800629G01	76	23	Phoenix RS485 repeater for FSP
Resistor	KM281773	76	NS	Service replacement part
Resistor	KM830687	78	NS	Service replacement part
Resistor box	805545G01	76	8	
Resolver and encoder assembly	KM773549G01	11	2	Tamagawa, 2-spd, incl. fixing screws M6x12 (V3F100 drive)
Resolver assembly	KM776927G01	5	2	Litton (not interchangeable with Tamagawa)
Resolver assembly	KM617914G05	5	2	Tamagawa (not interchangeable with Litton)
Resolver assembly	KM766500G01	11	2	Litton, 1-spd, incl. fixing screws M6x12 (V3F25 drive)
Resolver cable	KM612114G01	9	5	Wire LiYCY-CY 3*2*0.25 (L=7000mm)
Ribbon cable, GSM module	KM770268G01	57	3	L = 150 mm (6 inches)
Ring, adjustment	KM769944H01	16	8	
Ring, retaining	KM139329	16	4	120x4.0, DIN471
Ring, retaining	KM139329	17	2	120x4.0, DIN471
Ring, snap	KM722748H01	16	7	
Roller	KM653664H01	52	1	Roller only, no hardware
Roller guide assembly	KM86800G16	66	1	RG80, for counterweight frame
Roller guide assembly	KM604124G16	66	2	RG100
Roller guide assembly	KM375861G16	66	2	RG125
Roller guide assembly	KM394539G16L	66	3	RG200, T127, for counterweight frame

PARTNAME	PART NO.	PAGE	KEY	REMARK
Roller guide assembly	KM394539G19	66	3	RG200, T140, for counterweight frame
Roller guide assembly	KM169850G16L	66	3	RG200, T127, for cars
Roller guide assembly	KM169850G19	66	3	RG200, T140, for cars
Roller guide assembly	KM581271G16L	66	4	RG150, T127
Roller guide assembly	KM581271G19	66	4	RG150, T140
Roller guide assembly	KM600653G16L	66	4	RG150HD, T127
Roller guide assembly	KM600653G19	66	4	RG150HD, T140
Rope fixing beam assembly	KM827848	23	1	Passenger car
Rope fixing beam assembly	KM827849	24	1	Service car
Rope fixing pulley	KM827863G01	23	2	Left, non-seismic
Rope fixing pulley	KM827863G02	23	2	Left, seismic
Rope fixing pulley	KM827863G03	23	2	Right, non-seismic
Rope fixing pulley	KM827863G04	23	2	Right, seismic
Rope fixing pulley	KM827863G01	24	2	Left, non-seismic
Rope fixing pulley	KM827863G02	24	2	Left, seismic
Rope fixing pulley	KM827863G03	24	2	Right, non-seismic
Rope fixing pulley	KM827863G04	24	2	Right, seismic
Safety block assembly	KM611155G04	71	1	SGB01 safety, for 12 lb. and 15 lb. guide rails, includes one LH and one RH safety
Safety block assembly	KM611155G05	71	1	SGB02 safety, for 12 lb. and 15 lb. guide rails, includes one LH and one RH safety
Safety block assembly	KM611155G06	71	1	SGB02 safety, for 18 lb. guide rails, includes one LH and one RH safety
Safety block assembly	KM611155G07	71	1	SGB03 safety, for 12 lb. and 15 lb. guide rails, includes one LH and one RH safety
Safety block assembly	KM611155G08	71	1	SGB03 safety, for 18 lb. guide rails, includes one LH and one RH safety
Safety gear	KM718203G06	72	1	SGB08, includes one RH and one LH safety

PARTNAME	PART NO.	PAGE	KEY	REMARK
Safety gear	KM787733G01	72	2	SGB01, includes one RH and one LH safety
Safety gear	KM857381G01	72		SGB02, includes one RH and one LH safety
Seal, shaft	KM277499	16	2	16/28x7 BAFUDSLX7
Seal, shaft	KM277502	16	6	160-190-15 B2U
Seal, shaft	KM277502	17	4	160-190-15 B2U
Sealing ring	280867	15	16	14x18 DIN7603-CU (3 in KM803083G01, 1 in KM803083G02)
Sensor, loadweigh	KM712542G01	65	2	
Shoe, brake	KM722731G01	13	2	Kit is KM803101G04
Slide bearing	KM277476	16	1	PCM222525B
Slide guide	KM92510G16A	68	1	16 mm thick rail: SLG2A (T127) T127 1/B: 12# rail: T127 2/B: 15# rail
Slide guide	KM92510G19A	68		19 mm thick rail: SLG2A (T140) T140 1/B: 18# rail: T140 2/B: 22# rail: T140 3/B: 30# rail
Slide guide	KM92410G16A	68	4	SLG1A, for counterweight frames CWT4PSM or CWF10PW; T-89/B: 8# rail - Fits all applications w/16 mm thick rail nose 8, 11, 12, 15 lb. rails
Slide guide	KM787740G16	69	1	
Slide guide	KM652431G16	69	4	SLG7 used on CWF10PW cwt frame
Slide guide	KM92410G16A	69	NS	Used on CWT3PS
Slide insert	KM85119H16	68	2	16 mm, with pins and lock wire
Slide insert	KM85119H19	68		19 mm, with pins and lock wire
Slide insert	KM718341H16	69	2	
Slide insert	KM600641H16	69	5	Used with KM652431G16
Slide insert	KM85119H16	69	NS	Used with KM92410G16A
Spacer	US47589012	105	6	Nylon, #6 screw, length = 3/4 inch [19 mm]
Speaker, gong	USP31919001	105	11	With cable

PARTNAME	PART NO.	PAGE	KEY	REMARK
Speedometer board, ADON SPO	KM800700G01	78	16	For MonoSpace controllers, if specified by inspection requirement
Speedometer board, ADON SPO	KM800700G01	93	1	For MonoSpace and EcoSpace controllers, if specified by inspection requirement
Spring	KM710220H01	6	3	4.5*14.5*D: ZO OTEVA 70
Spring	See remarks	7	2	SF-TFK 2.0*6*25 lo=25mm
Spring	KM600016H01	34	9	
Spring	KM600016H01	37	8	
Spring, brake contact	KM277458	13	4	SF-TF1x5x15 SS1774-04
Spring, brake contact	KM277458	6	4	
Standoff	US95633005	102	5	#4-40 thread, M-F, length = 1/2 inch [13 mm]
Standoff	US47704003	105	10	M-F, 6-32 thread, length = 3/8 inch [9.5 mm]
Stud, drive	KM800376006	102	1	#4-40, length = 0.375 inches [9.5 mm]
Subplate	KM800380	102	2	CDL, P220, and Delta
Switch	KM710216H29	6	2	Omron Z-15 GD-B, used with Brake Unit Assembly 710216G02
Switch	KM276213	13	3	Z-15GD-B Omron
Switch assembly and bracket	KM80380G02	34	3	Tripping direction: right, complete assembly
Switch assembly and bracket	KM80380G04	34	3	Tripping direction: left, complete assembly
Switch assembly and bracket	KM80380G02	37	10	Tripping direction: right, complete assembly
Switch assembly and bracket	KM80380G04	37	10	Tripping direction: left, complete assembly
Switch assembly and bracket	KM80380G02	39	3	Tripping direction: right, complete assembly
Switch assembly and bracket	KM80380G04	39	3	Tripping direction: left, complete assembly
Switch assembly and bracket	KM80380G02	40	4	Tripping direction: right, complete assembly
Switch assembly and bracket	KM80380G04	40	4	Tripping direction: left, complete assembly

PARTNAME	PART NO.	PAGE	KEY	REMARK
Switch assembly, bistable	USP37062002	30	1	Assembly, used with top switches 136:U, 77:U1, 134:TN, 134:TU and bottom switches 77:N1, 134:1N, 134:1U, 136:N
Switch assembly, ETSL	KM824101G01	31	1	Top
Switch assembly, ETSL	KM824101G02	31	2	Bottom
Switch, bistable	KM280876	30	2	Service replacement part
Switch, bistable	KM280876	31	3	Service replacement part
Switch, cigar, bistable	KM713227G03	58	1	Includes wiring, 77:S, Length of wiring=4M (13ft.-1-1/2 inches)
Switch, cigar, bistable	KM713227G03	59	1	Includes wiring, 77:S/66EAQ, Length of wiring = 4M (13 ft - 1-1/2 inches)
Switch, cigar, monostable	KM829341G04	58	1	Four switches with wiring, 61:U/N, 30, B30
Switch, cigar, monostable	KM829341G03	58	1	61:U/N
Switch, lever	KM280478	46	1	Final limit 151:U (upper), 151:N (lower)
Switch, limit	US519975	34	2	Limit switch ONLY
Switch, limit	US519975	37	9	Limit switch ONLY
Switch, limit	KM255190	37	11	
Switch, limit	US519975	38	2	Limit switch ONLY
Switch, limit	US519975	39	2	Limit switch ONLY
Switch, limit	US519975	40	2	Limit switch ONLY
Switch, limit	US518154	40	3	for KONE OL100/OL120 overspeed governor
Switch, limit	US52874002	41	1	Manual reset, governor tension sheave
Switch, limit	KM254372	41	2	Manual reset, governor tension sheave
Switch, limit	KM102798	51	1	Manual reset, Rope compensator
Switch, limit	KM283208	41	3	Manual reset, governor tension sheave
Switch, oscillator	US64594002	60	2	10-30VDC, marked 86420G03

PARTNAME	PART NO.	PAGE	KEY	REMARK
Switch, pushbutton	KM204248	73	10	Siemens push button, part of switch module assembly KM780229G**(ABB switch is US52944001)
Switch, pushbutton	KM204248	76	NS	Siemens push button, part of switch module assembly KM780229G**(ABB switch is US52944001)
Switch, pushbutton	KM204248	78	NS	Siemens push button, part of switch module assembly KM780229G**(ABB switch is US52944001)
Switch, toggle	US64560001	73	9	Part of switch module assembly KM780229G**
Switch, toggle	US64560001	76	11	Part of switch module assembly KM780229G**
Switch, toggle	US64560001	78	5	Part of switch module assembly KM780229G**
Switches, cigar, bistable	KM713227G01	59	1	Two switches with wiring, 77:U/N, rated load 2000, 2500, 3000, 3500, Length of wiring = 3 M (9 ft - 10 inches)
Switches, cigar, bistable	KM713227G04	59	1	Two switches with wiring, 77:U/N, rated load 4000, 4500, 5000, Length of wiring = 5 M (16 ft - 5 inches)
Switches, cigar, bistable	KM713227G01	58	1	77:U/N
Tachometer	KM277931	11	3	RE.0444L1B 60V CA11x30CSA
Tachometer	KM277931	20	2	RE.0444L1B 60V CA11x30CSA
Tachometer	KM277931	21	2	RE.0444L1B 60V CA11x30CSA
Tachometer	KM277931	22	2	RE.0444L1B 60V CA11x30CSA
Tachometer	KM277931	5	1	RE.0444L 1B 60V CA11x30 CSA
Tachometer cable	KM754339G02	9	4	Wire KJMS-2*0.5 (L=11000mm)
Tachometer cable	KM754339G02	5	1	Wire KJMS-2*0.5 (L=11000mm)
Tachometer cable	KM754339G02	22	2	
Terminal block, dynamic braking	KM780187G01	73	1	Used for MX10 and MX20 MonoSpace applications ONLY
Thermo switch	US520282	11	4	Elmwood 2455R-955-2

PARTNAME	PART NO.	PAGE	KEY	REMARK
Thermo switch	US520282	5	9	ELMWOOD 2455R-995-2 (KM222400)
Threadstud	US77123004	102	9	6-32 thread, length = 3/8 inch [9.5 mm]
Time relay (210)	KM284177	95	8	
Transformer	KM713383G01	73	19	
Transformer	KM777330G01	76	9	
Transformer	KM813136G01	76	20	Located behind power module
Transformer	KM713383G01	78	14	Replacement transformer
Transformer, auxiliary	KM783027G01	89	3	400V/40VA primary, 20Vx2 secondary
Transformer, control	713386G01	78	14	KM713383G01 is replacement transformer
Valve, 3-way	KM803083G01	15	8	Replacement set
Vane, floor	US53817001	42	1	Shipped as flat piece of metal
Vane, floor	US53810001	42	2	Rear door, shipped as flat piece of metal
Wheel, friction	US95878001	5	1	75 mm
Wheel, friction	US95879001	5	1	37.3 mm
Wheel, friction	US95878001	11	NS	75 mm
Wheel, friction	US95879001	11	NS	37.3 mm
Wheel, friction	US95879001	20	2	37.3 mm
Wheel, friction	US95879001	21	2	37.3 mm
Wheel, friction	US95878001	22	2	75 mm
Wire splice	US46427181	103	3	AWG#22-18

7 VERSION HISTORY

Compiled by:

ITS Moline

Checked by:

Mark Witkowski

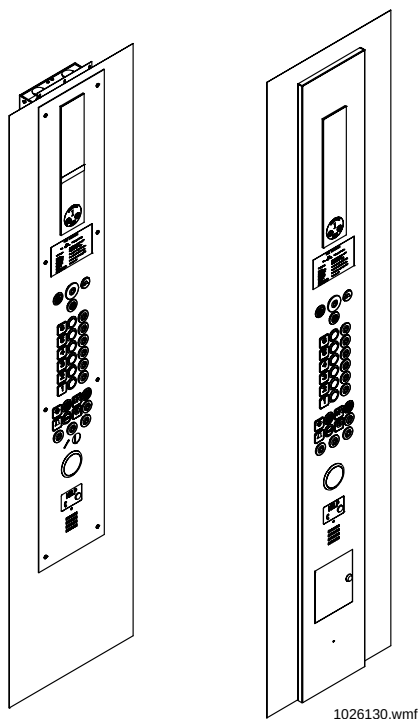
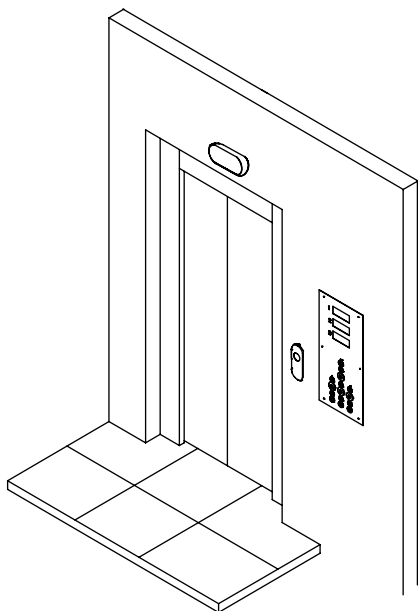
Jennifer Jones

Approved by:

Mary Lewis

Issue	Date	Description o f change	Ref CR	Approved by
-	2002-09-09	First publication		
A	2002-09-20	Minor changes to first publication from mark-up by Dennis Kalgren and Scott Boucher		Dennis Kalgren and Scott Boucher
B	2002-10-25	Minor changes to issue A from mark-up by Mark Witkowski		Mark Witkowski
C	2004-05-31	Added parts for EcoSpace and 500-700 fpm EcoSystem MR elevators		Mark Witkowski
D	2006-08-09	Added parts for EcoSpace 3000-5000 lb capacities		Mary Lewis

SPARE PARTS FOR KSS / KSS REVIVE SERIES SIGNALIZATION



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1 GENERAL

This spare part manual describes spare parts for the KONE signalisation System (KSS) equipment. This product covers low, mid and high range elevator deliveries. Product range is split in three base sets according to the following sections.

Global KSS signalisation also includes signalisation products for North America. Some assemblies already include some North America specified parts.

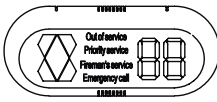
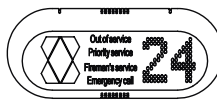
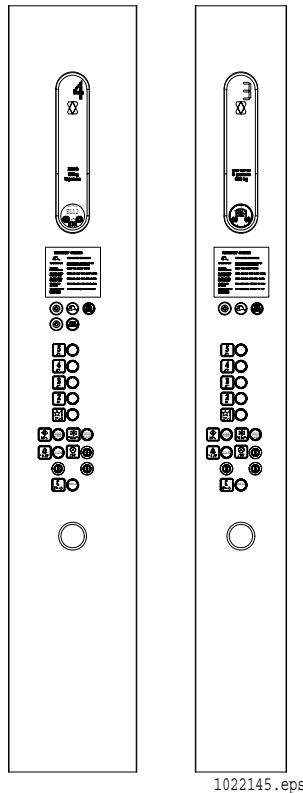
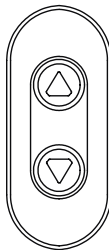
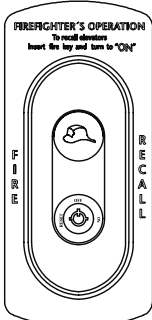
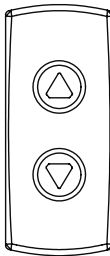
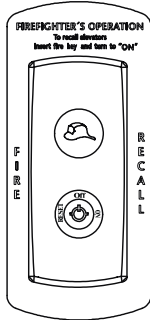
NOTE! For Modernization applications: KSS ReVive product offering only includes KSS 500 and 600 Series components.

NOTE! Order number for “configuration switch” is 804250G10

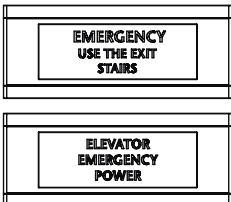
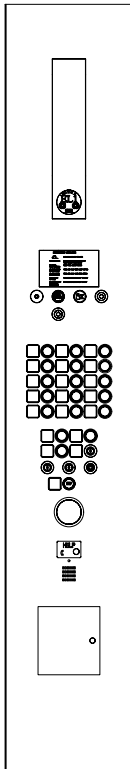
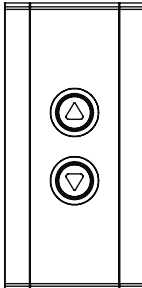
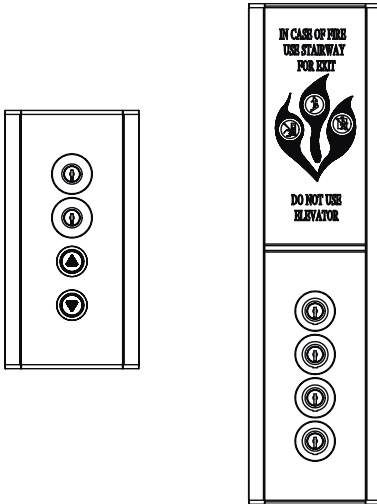
1.1 Abbreviations used to name and identify the equipment

KSH	H= Hall lantern I= Hall indicator L= Landing call station C= Car operating panel J= Car direction lantern D= Emergency display F= Fire recall unit E = Emergency power unit KONE Signalization	471	Display type: 0= 7-segment 1= DOT-matrix 2= LCD Series number: 3= Low duty segment 4= Low duty segment 5= Mid duty segment 6= High duty segment

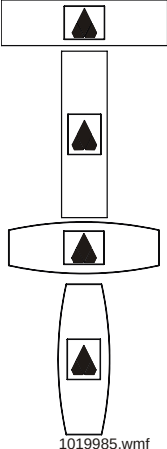
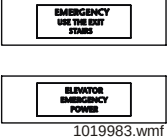
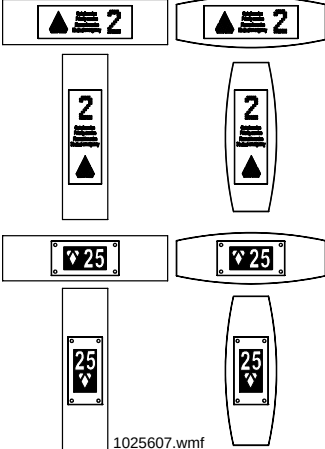
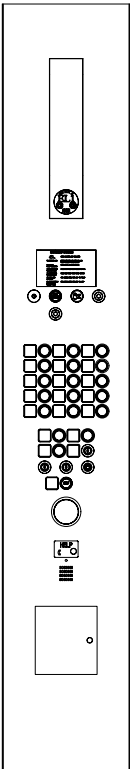
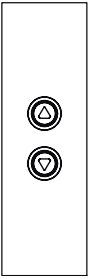
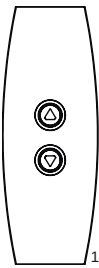
1.2 KSS 300, 370 series signalization (surface mounted)

Hall indicators			Car operating panels		
Hall lantern	Hall displays				
 1012138.wmf	 1012139.wmf	 1012140.wmf	 1022145.eps		
KSH 370 KSH 470	KSI 370	KSI 471			
Landing call stations					
 1012143.wmf	 1019941.wmf	 1012144.wmf			 1019942.wmf
KSL 420	KSF 420	KSL 470	KSF 470	KSC 370	KSC 300

1.3 KSS 500 series signalization (thinline)

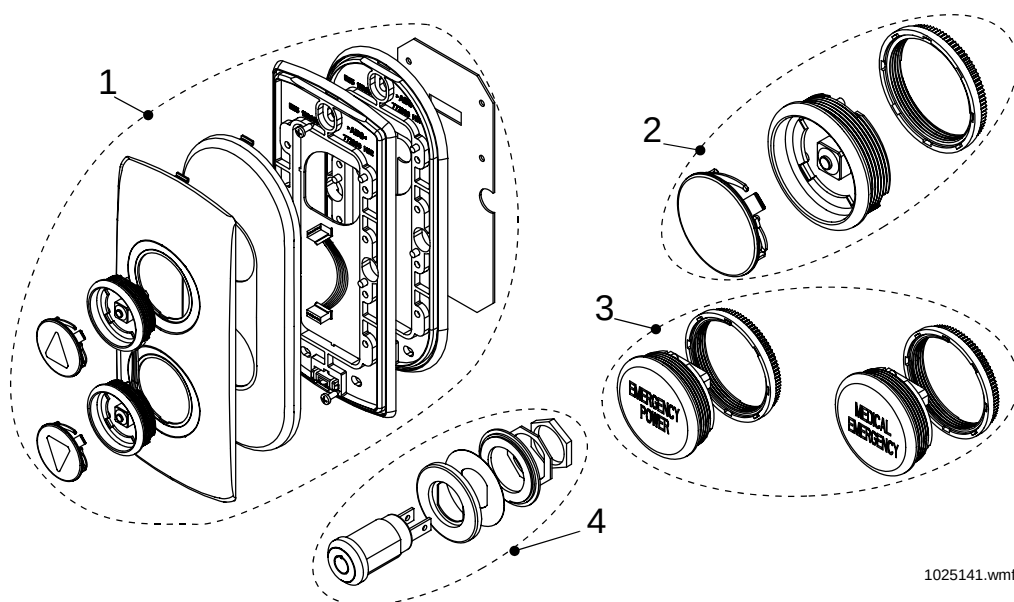
Hall indicators				Car operating panel
Hall lantern	Emergency display	Hall display	Car direction lantern	
 1012145.wmf	 1013922.wmf	 1025605.wmf	 1013924.wmf	 1022154.eps
KSH 520	KSD	KSI 521	KSJ	
Landing call stations				
 1012148.wmf	 1013926.wmf			
KSL 520	KSL 522			KSC 500

1.4 KSS 600 series signalization (flush mounted)

Hall indicators				Car operating panels
Hall lantern	Emergency display	Hall displays	Car direction lantern	
 1019985.wmf	 1019983.wmf	 1025607.wmf	 1013924.wmf	 1022154.eps
KSH 620	KSD	KSI 621 KSI 622	KSJ	
Landing call stations				
 1012153.wmf	 1012154.wmf	 1019953.wmf		
KSL 620 rectangular	KSL 620 barrel	KSL 620 rectangular with fire plate		KSC 600

2 KSS LANDING CALL STATIONS

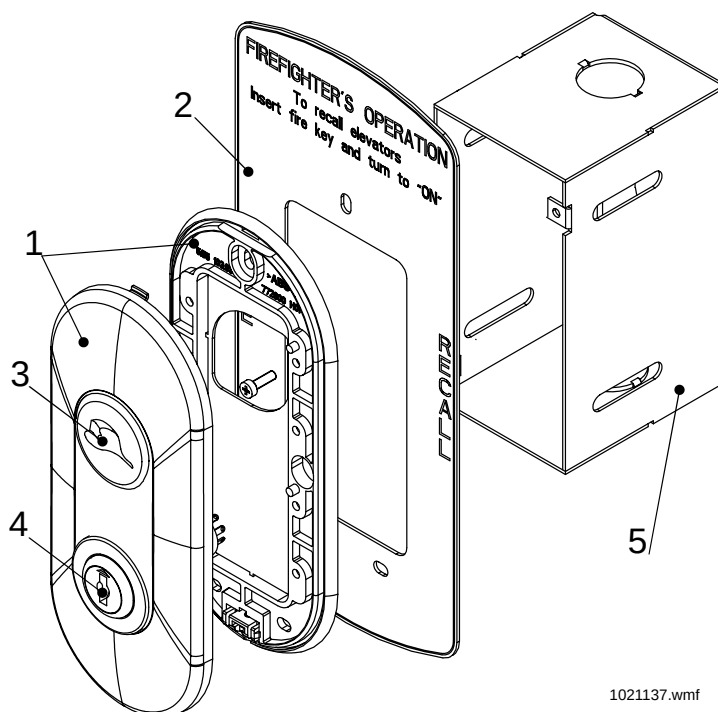
2.1 KSL 420 and 470, surface mounted landing call station, 801067



Pos	Part number	Number of parts in one assembly	
		Description	Remarks
1	KM824714G01	KSL 420 terminal up	Amber, stainless steel
	KM824714G02	KSL 420 terminal down	Amber, stainless steel
	KM824714G03	KSL 420 intermediate	Amber, stainless steel
	KM824714G05	KSL 470 terminal up	Amber, stainless steel
	KM824714G06	KSL 470 terminal down	Amber, stainless steel
	KM824714G07	KSL 470 intermediate	Amber, stainless steel
	KM824714G09	KSL 420 down collective	Amber, stainless steel
	KM824714G10	KSL 470 down collective	Amber, stainless steel

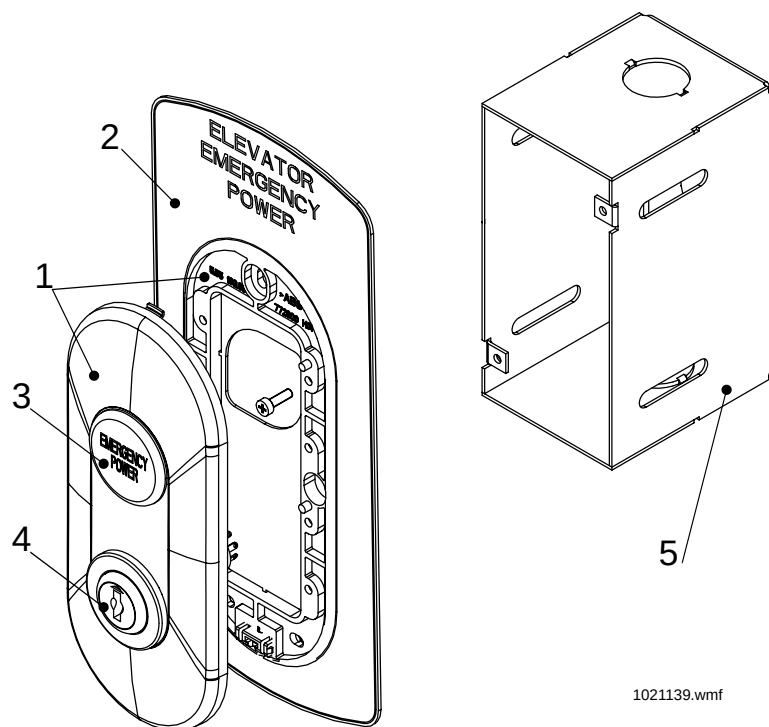
Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
2	KM804162G06	KSL button 420/470 terminal up	Amber	1
	KM804153G06	KSL button 420/470 terminal up	Amber, California	
	KM804162G07	KSL button 420/470 terminal down	Amber	
	KM804153G07	KSL button 420/470 terminal down	Amber, California	
	KM804162G08	KSL button 420/470 primary up	Amber	
	KM804153G08	KSL button 420/470 primary up	Amber, California	
	KM804162G11	KSL button 420/470 secondary	Amber	
	KM804153G11	KSL button 420/470 secondary	Amber, California	
3	KM804133G01	Fire hat	Pilot light, English	0-2
	KM804133G02	Out of service	Pilot light, English	
	KM804133G04	Emergency power	Pilot light, English	
	KM804133G05	Medical Emergency	Pilot light, English	
	KM804133G06	Security	Pilot light, English	
	KM804133G07	Car to lobby	Pilot light, English	
	KM804133G12	Out of service	Pilot light, French	
	KM804133G14	Emergency power	Pilot light, French	
	KM804133G15	Medical Emergency	Pilot light, French	
	KM804133G16	Security	Pilot light, French	
	KM804133G17	Car to lobby	Pilot light, French	
4		Key switches for North America	See Appendix 6.	

2.2 KSF 420, 470, Fire recall unit, 804178



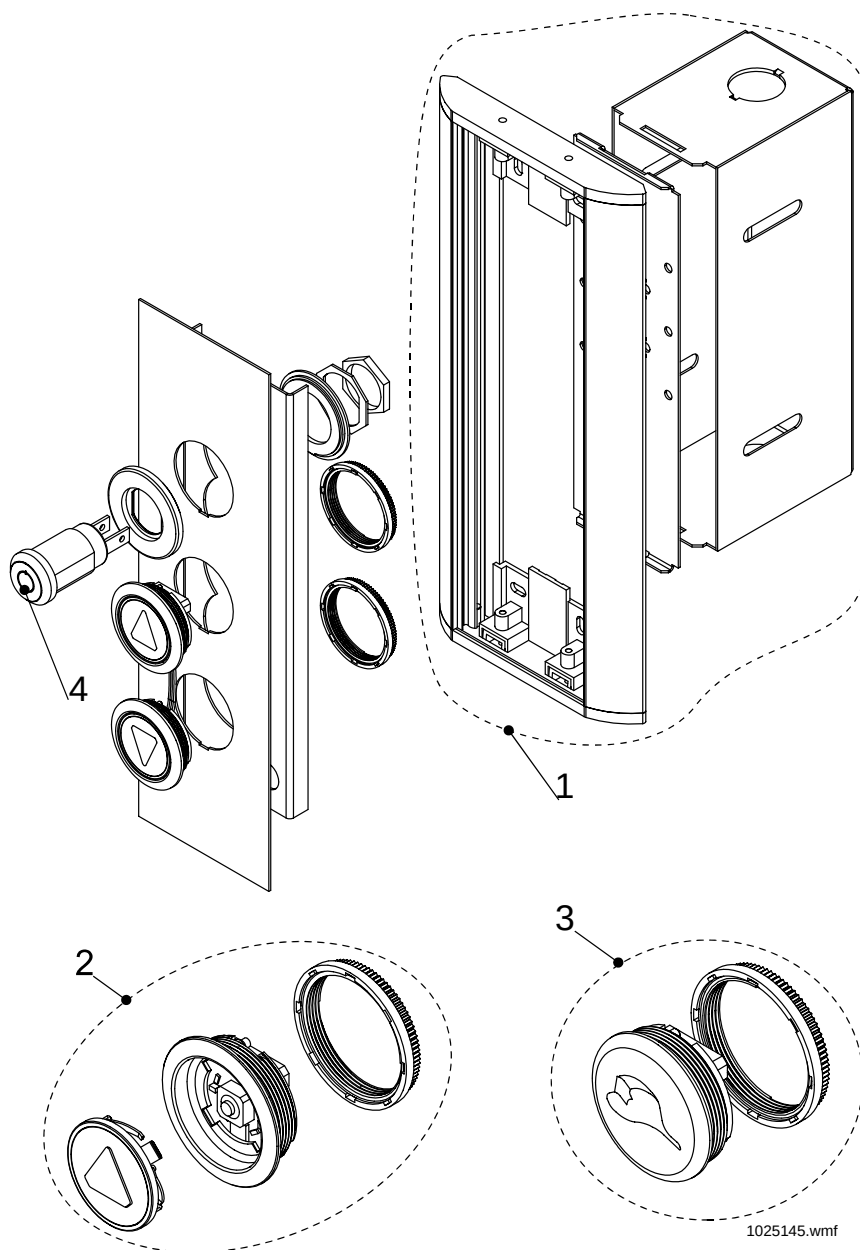
Pos	Part number	Number of parts in one assembly	
		Description	Remarks
1	KM801072G02	Base package, KSL420 round, 2 holes	Stainless steel
	KM801072G06	Base package, KSL470 square, 2 holes	Stainless steel
2	KM804180H02	FRD text plate, NY	English
	KM804180H01	FRD text plate, std.	English
	KM804180H04	FRD text plate, std	French
3	KM804133G01	Pilot Light, Fire Hat	
4		Phase 1 key switch	See Appendix 6.
5	KM804179H01	Back box KSL/KSF/KSE 420/470	

2.3 KSE 420, 470, Emergency power unit, 804182



Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM801072G02	Base package, KSL420 round, 2 holes	Stainless steel	1
	KM801072G06	Base package, KSL470 square, 2 holes	Stainless steel	
2	KM804180H03	EPD, text plate	English	1
	KM804180H05	EPD, text plate	French	
3	KM804133G04	Pilot light, emergency power	English	1
	KM804133G14	Pilot light, emergency power	French	
4		Phase 1 key switch	See Appendix 6.	1
5	KM804179H01	Back box KSL/KSF/KSE 420/470		1

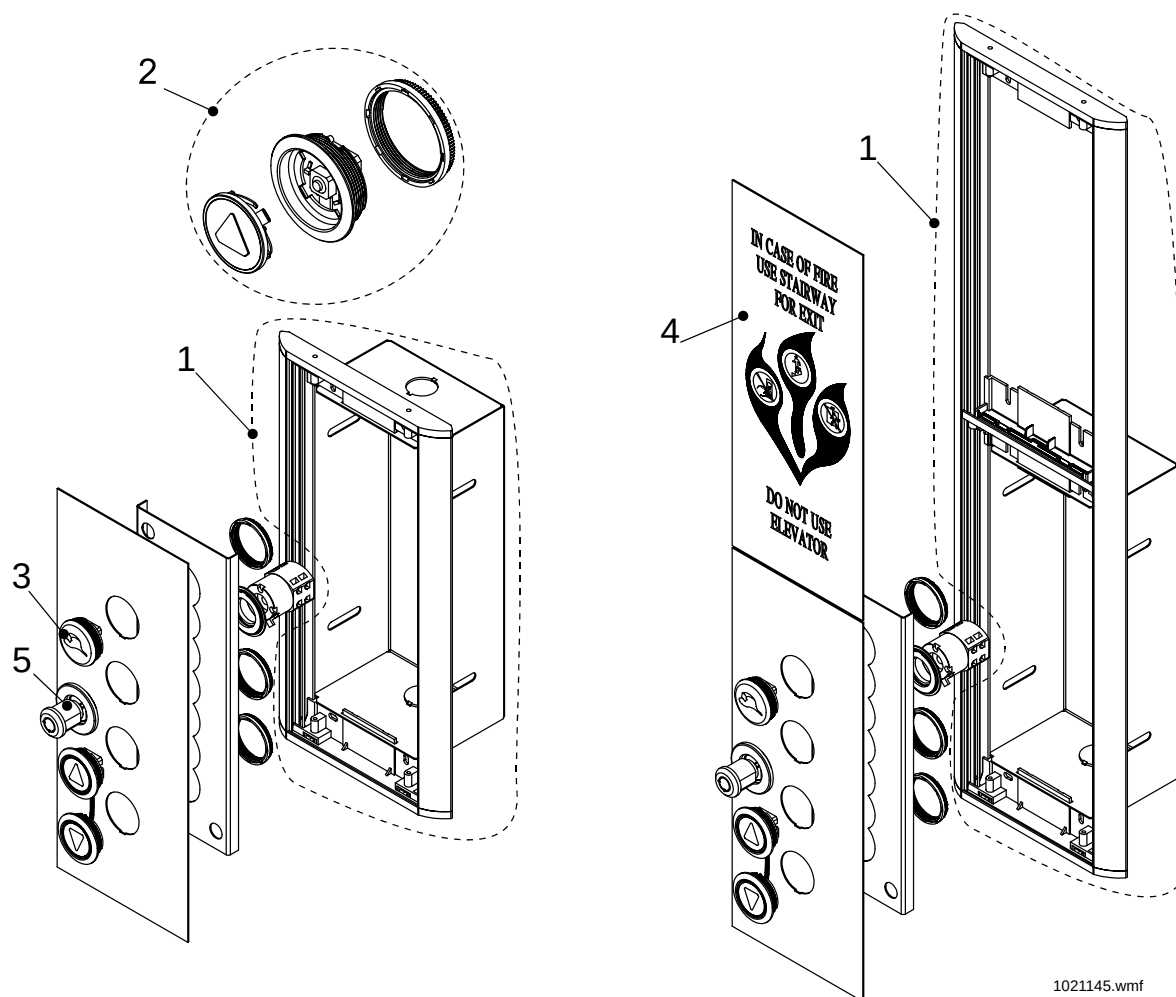
2.4 KSL 520, thinline landing call station, 804390



Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804395G0x	Base package	See Appendix 2.	1
2	KM804163G06	KSL 500/600 button terminal up	Amber, stainless steel	1
	KM804164G06	KSL 500/600 button terminal up	White, stainless steel	
	KM804155G06	KSL 500/600 button terminal up	Amber, stainless steel, California	
	KM804157G06	KSL 500/600 button terminal up	White, stainless steel, California	
	KM804165G06	KSL 500/600 button terminal up	White, Muntz	
	KM804166G06	KSL 500/600 button terminal up	White, Muntz, California	
	KM804163G07	KSL 500/600 button terminal down	Amber, stainless steel	
	KM804164G07	KSL 500/600 button terminal down	White, stainless steel	
	KM804155G07	KSL 500/600 button terminal down	Amber, stainless steel, California	
	KM804157G07	KSL 500/600 button terminal down	White, stainless steel, California	
	KM804165G07	KSL 500/600 button terminal down	White, Muntz	
	KM804166G07	KSL 500/600 button terminal down	White, Muntz, California	
	KM804163G08	KSL 500/600 button primary up	Amber, stainless steel	
	KM804164G08	KSL 500/600 button primary up	White, stainless steel	
	KM804155G08	KSL 500/600 button primary up	Amber, stainless steel, California	
	KM804157G08	KSL 500/600 button primary up	White, stainless steel, California	
	KM804165G08	KSL 500/600 button primary up	White, Muntz	
	KM804166G08	KSL 500/600 button primary up	White, Muntz, California	
	KM804163G11	KSL 500/600 button secondary down	Amber, stainless steel	
	KM804164G11	KSL 500/600 button secondary down	White, stainless steel	
	KM804155G11	KSL 500/600 button secondary down	Amber, stainless steel, California	
	KM804157G11	KSL 500/600 button secondary down	White, stainless steel, California	
	KM804165G11	KSL 500/600 button secondary down	White, Muntz	
	KM804166G11	KSL 500/600 button secondary down	White, Muntz, California	

Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
3	KM804133G01	Fire hat	Pilot light, English	0-2
	KM804133G02	Out of service		
	KM804133G04	Emergency power		
	KM804133G05	Medical Emergency		
	KM804133G06	Security		
	KM804133G07	Car to lobby		
	KM804133G12	Out of service	Pilot light, French	
	KM804133G14	Emergency power		
	KM804133G15	Medical Emergency		
	KM804133G16	Security		
	KM804133G17	Car to lobby		
4		Key switches for North America	See Appendix 6.	

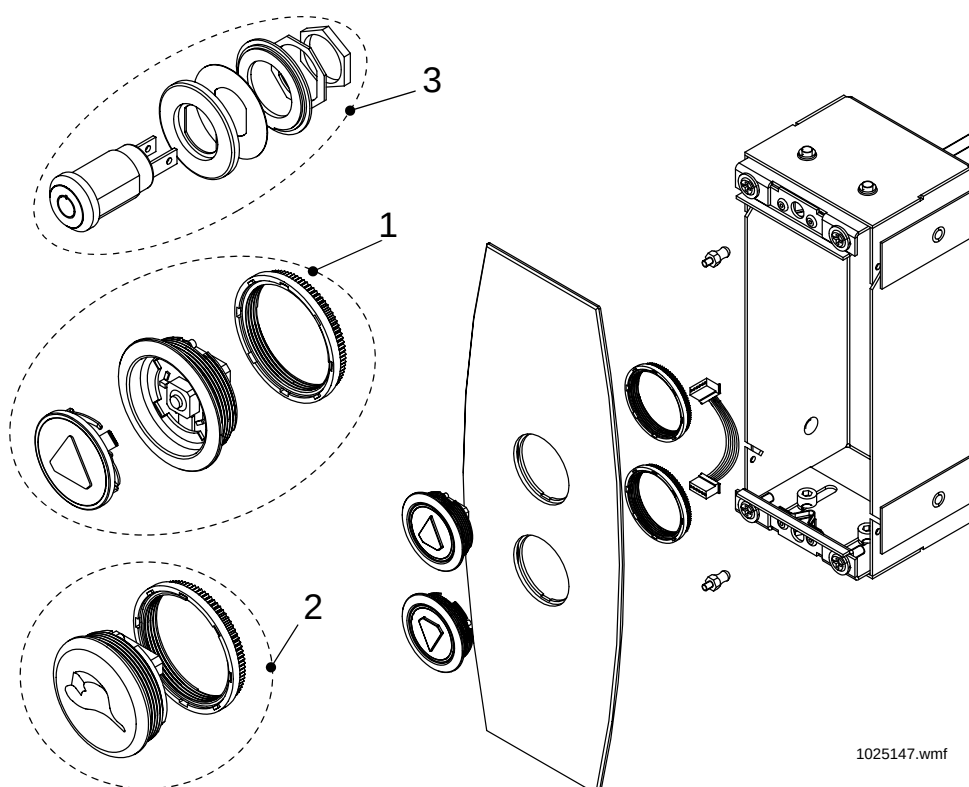
2.5 KSL 522, W/Without Fire Signage, 804270



Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804279G0x	Base package	See appendix 3.	
2	KM804163G06	KSL 500/600 button terminal up	Amber, stainless steel	1
	KM804164G06	KSL 500/600 button terminal up	White, stainless steel	
	KM804155G06	KSL 500/600 button terminal up	Amber, stainless steel, California	
	KM804157G06	KSL 500/600 button terminal up	White, stainless steel, California	
	KM804165G06	KSL 500/600 button terminal up	White, Muntz	
	KM804166G06	KSL 500/600 button terminal up	White, Muntz, California	
	KM804163G07	KSL 500/600 button terminal down	Amber, stainless steel	
	KM804164G07	KSL 500/600 button terminal down	White, stainless steel	
	KM804155G07	KSL 500/600 button terminal down	Amber, stainless steel, California	
	KM804157G07	KSL 500/600 button terminal down	White, stainless steel, California	
	KM804165G07	KSL 500/600 button terminal down	White, Muntz	
	KM804166G07	KSL 500/600 button terminal down	White, Muntz, California	
	KM804163G08	KSL 500/600 button primary up	Amber, stainless steel	
	KM804164G08	KSL 500/600 button primary up	White, stainless steel	
	KM804155G08	KSL 500/600 button primary up	Amber, stainless steel, California	
	KM804157G08	KSL 500/600 button primary up	White, stainless steel, California	
	KM804165G08	KSL 500/600 button primary up	White, Muntz	
	KM804166G08	KSL 500/600 button primary up	White, Muntz, California	
	KM804163G11	KSL 500/600 button secondary down	Amber, stainless steel	
	KM804164G11	KSL 500/600 button secondary down	White, stainless steel	
	KM804155G11	KSL 500/600 button secondary down	Amber, stainless steel, California	
	KM804157G11	KSL 500/600 button secondary down	White, stainless steel, California	
	KM804165G11	KSL 500/600 button secondary down	White, Muntz	
	KM804166G11	KSL 500/600 button secondary down	White, Muntz, California	

Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
3	KM804133G01	Fire hat	Pilot light, English	0-2
	KM804133G02	Out of service		
	KM804133G04	Emergency power		
	KM804133G05	Medical Emergency		
	KM804133G06	Security		
	KM804133G07	Car to lobby		
	KM804133G12	Out of service	Pilot light, French	
	KM804133G14	Emergency power		
	KM804133G15	Medical Emergency		
	KM804133G16	Security		
	KM804133G17	Car to lobby		
4	KM821136H0x	ASME A17.1, warning	Fire sign plate H01 Asturias Satin Stainless Steel H02 Murano Mirror Stainless Steel H03 Muntz #4 H04 Muntz #8	0-1
	KM821139H0x	Maryland, warning		
	KM821140H0x	Florida Building Code, warning		
	KM821141H0x	Massachusetts Code, warning		
	KM821142H0x	CSA B44-00, warning French		
	KM821143H0x	ASME A17.1, instruction+warning		
	KM821146H0x	Maryland, instruction+warning		
	KM821147H0x	Florida Code, instruction+warning		
	KM821148H0x	Massachusetts, instruction+warning		
	KM821149H0x	NYC instruction + ASME A17.1		
	KM821152H0x	CSA B44-00 French, instruction+warning		
5	US Keys witch	US Emergency operation key function selection for Thinline and flushline landing call stations	Includes cable, See Appendix 6.	0-2
		US Key function selection		

2.6 KSL 620, flushline landing call station, 804315

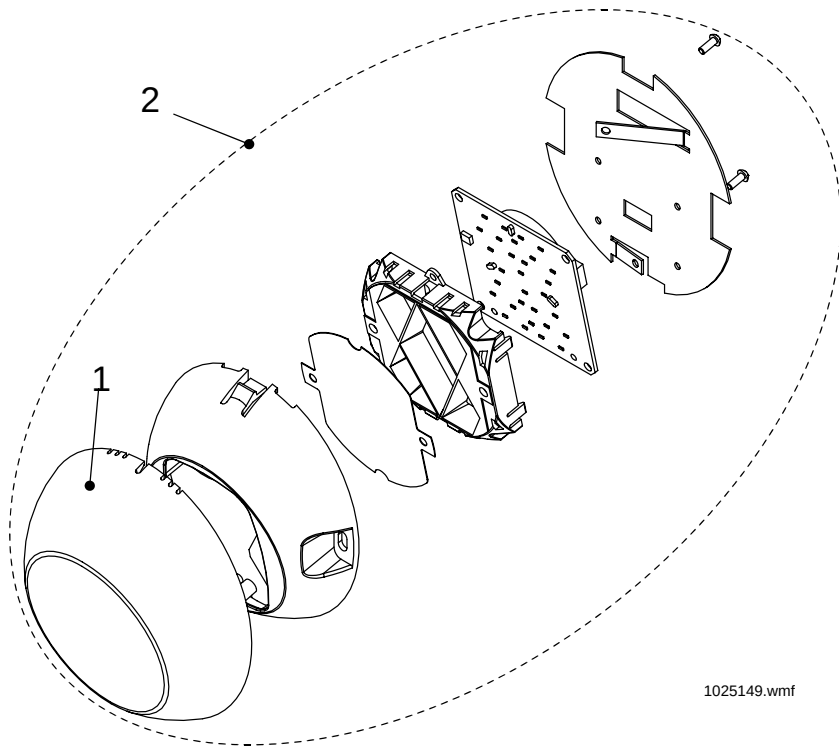


Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804163G06	KSL 500/600 button terminal up	Amber, stainless steel	1
	KM804164G06	KSL 500/600 button terminal up	White, stainless steel	
	KM804155G06	KSL 500/600 button terminal up	Amber, stainless steel, California	
	KM804157G06	KSL 500/600 button terminal up	White, stainless steel, California	
	KM804165G06	KSL 500/600 button terminal up	White, Muntz	
	KM804166G06	KSL 500/600 button terminal up	White, Muntz, California	
	KM804163G07	KSL 500/600 button terminal down	Amber, stainless steel	

Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804164G07	KSL 500/600 button terminal down	White, stainless steel	1
	KM804155G07	KSL 500/600 button terminal down	Amber, stainless steel, California	
	KM804157G07	KSL 500/600 button terminal down	White, stainless steel, California	
	KM804165G07	KSL 500/600 button terminal down	White, Muntz	
	KM804166G07	KSL 500/600 button terminal down	White, Muntz, California	
	KM804163G08	KSL 500/600 button primary up	Amber, stainless steel	
	KM804164G08	KSL 500/600 button primary up	White, stainless steel	
	KM804155G08	KSL 500/600 button primary up	Amber, stainless steel, California	
	KM804157G08	KSL 500/600 button primary up	White, stainless steel, California	
	KM804165G08	KSL 500/600 button primary up	White, Muntz	
	KM804166G08	KSL 500/600 button primary up	White, Muntz, California	
	KM804163G11	KSL 500/600 button secondary down	Amber, stainless steel	
	KM804164G11	KSL 500/600 button secondary down	White, stainless steel	
	KM804155G11	KSL 500/600 button secondary down	Amber, stainless steel, California	
	KM804157G11	KSL 500/600 button secondary down	White, stainless steel, California	
	KM804165G11	KSL 500/600 button secondary down	White, Muntz	
	KM804166G11	KSL 500/600 button secondary down	White, Muntz, California	
2	KM804133G01	Fire hat	Pilot light, English	0-2
	KM804133G02	Out of service		
	KM804133G04	Emergency power		
	KM804133G05	Medical Emergency		
	KM804133G06	Security		
	KM804133G07	Car to lobby		
	KM804133G12	Out of service	Pilot light, French	
	KM804133G14	Emergency power		
	KM804133G15	Medical Emergency		
	KM804133G16	Security		
	KM804133G17	Car to lobby		
3		Key switches for North America	See Appendix 6.	

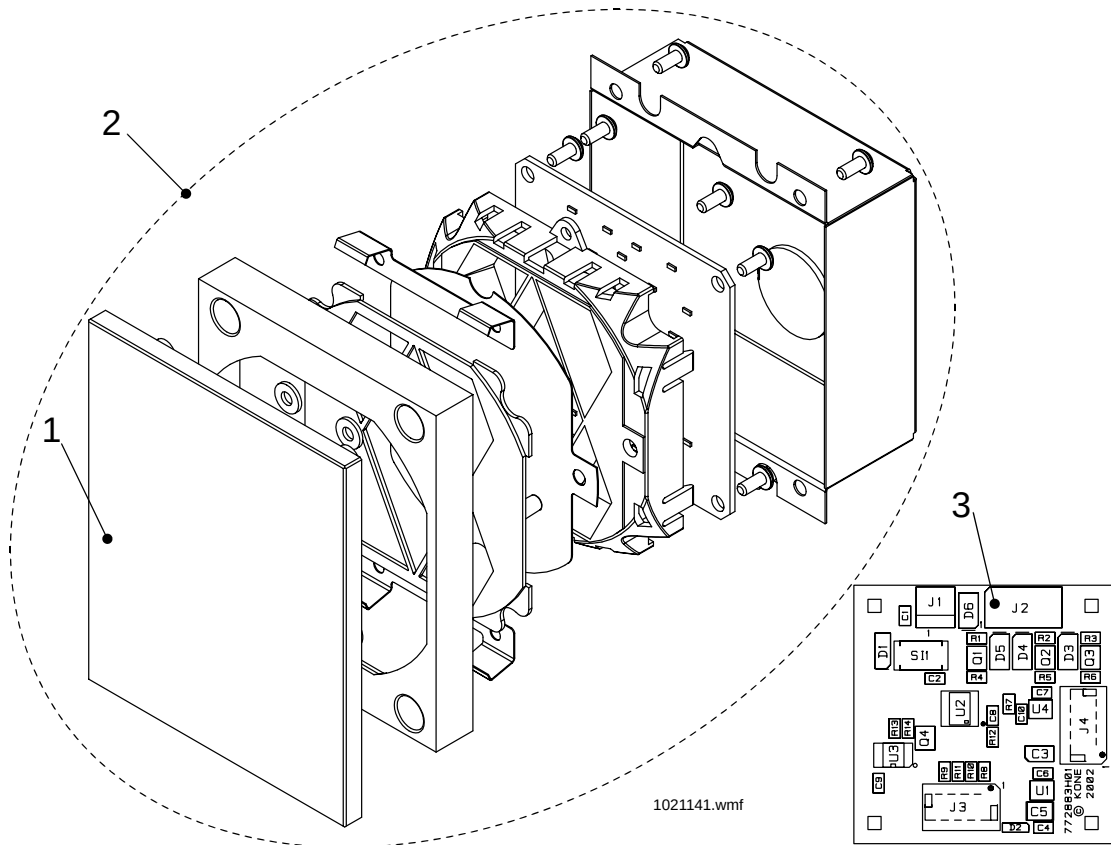
3 KSS LANDING LANTERNS

3.1 KSH 370 and 470, surface mounted lantern, 801066



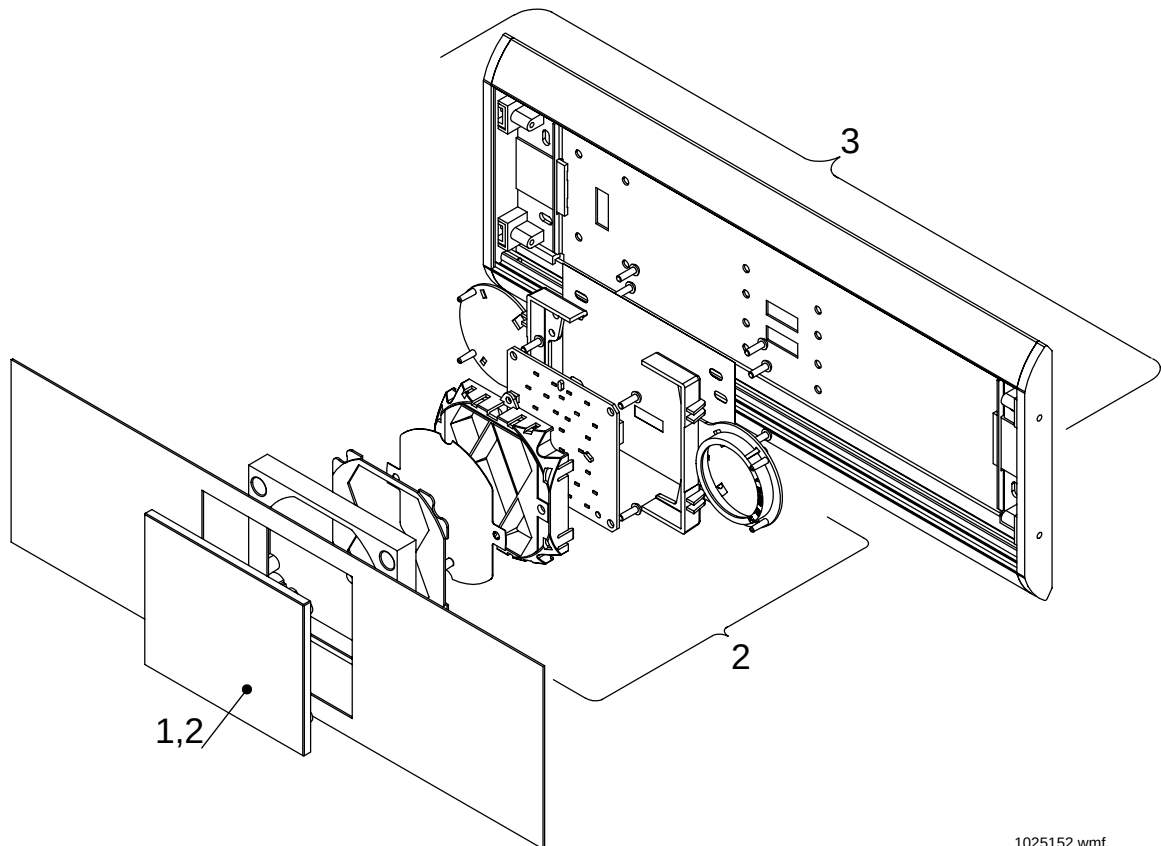
Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM772792H01	Hall lantern cover	Polycarbonate	1
	KM801068G01	Hall lantern cover	Velvet stainless steel	
2	KM824690G01	KSH 370 lantern assembly	Amber	
	KM824690G02	KSH 470 lantern assembly	Amber	

3.2 KSJ car direction lantern 804127



Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804251H01	Lens		1
2	KM804122G01	Car direction lantern assembly	Amber	1
	KM804122G02	Car direction lantern assembly	White	1
3	KM722880G01	Car direction lantern interface PCB		1

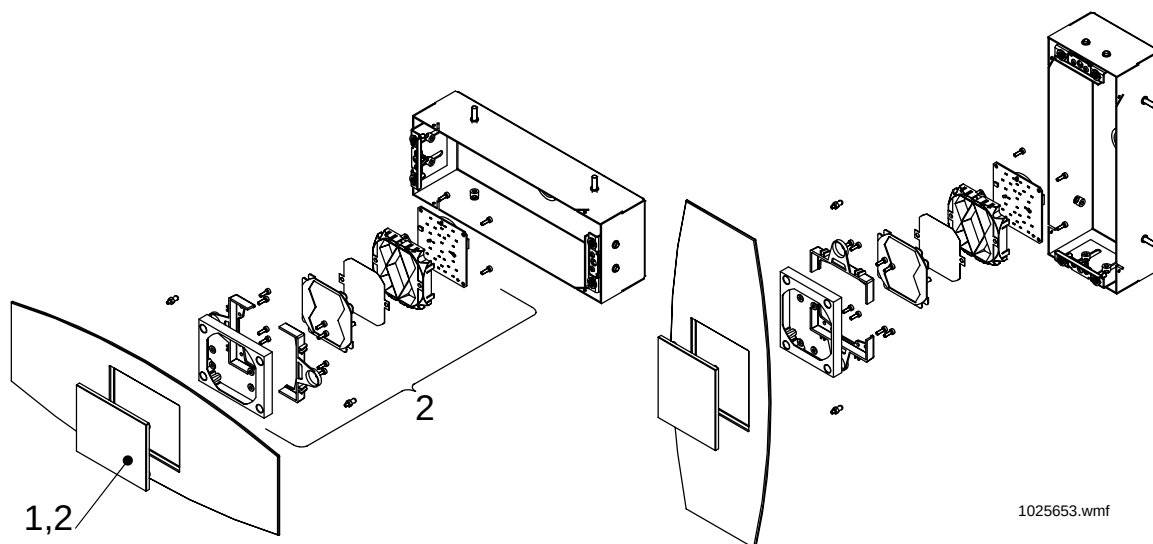
3.3 KSH 520, thinline lantern, 804380



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Pos	Part number	Number of parts in one assembly	
		Description	Remarks
1	KM804251H01	HL Lens	1
2	KM804334G01	Lantern PC assembly	Amber, horizontal
	KM804334G02	Lantern PC assembly	White, horizontal
	KM804334G03	Lantern PC assembly	Amber, vertical
	KM804334G04	Lantern PC assembly	White, vertical
3	KM804387G0x	Base package	See Appendix 4. 1

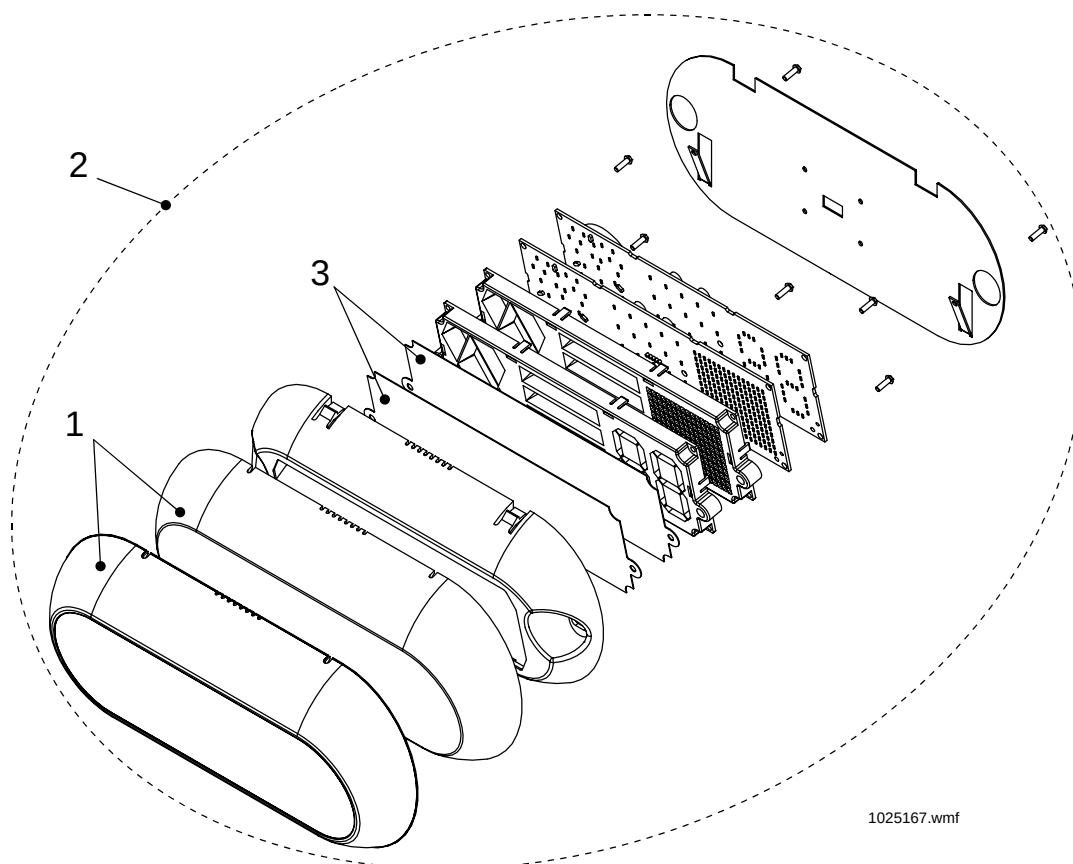
3.4 KSH 620, flushline lantern, 804335



Pos	Part number	Number of parts in one assembly	
		Description	Remarks
1	KM804251H01	HL Lens	1
2	KM804334G01	Lantern PC assembly	Amber, horizontal
	KM804334G02	Lantern PC assembly	White, horizontal
	KM804334G03	Lantern PC assembly	Amber, vertical
	KM804334G04	Lantern PC assembly	White, vertical

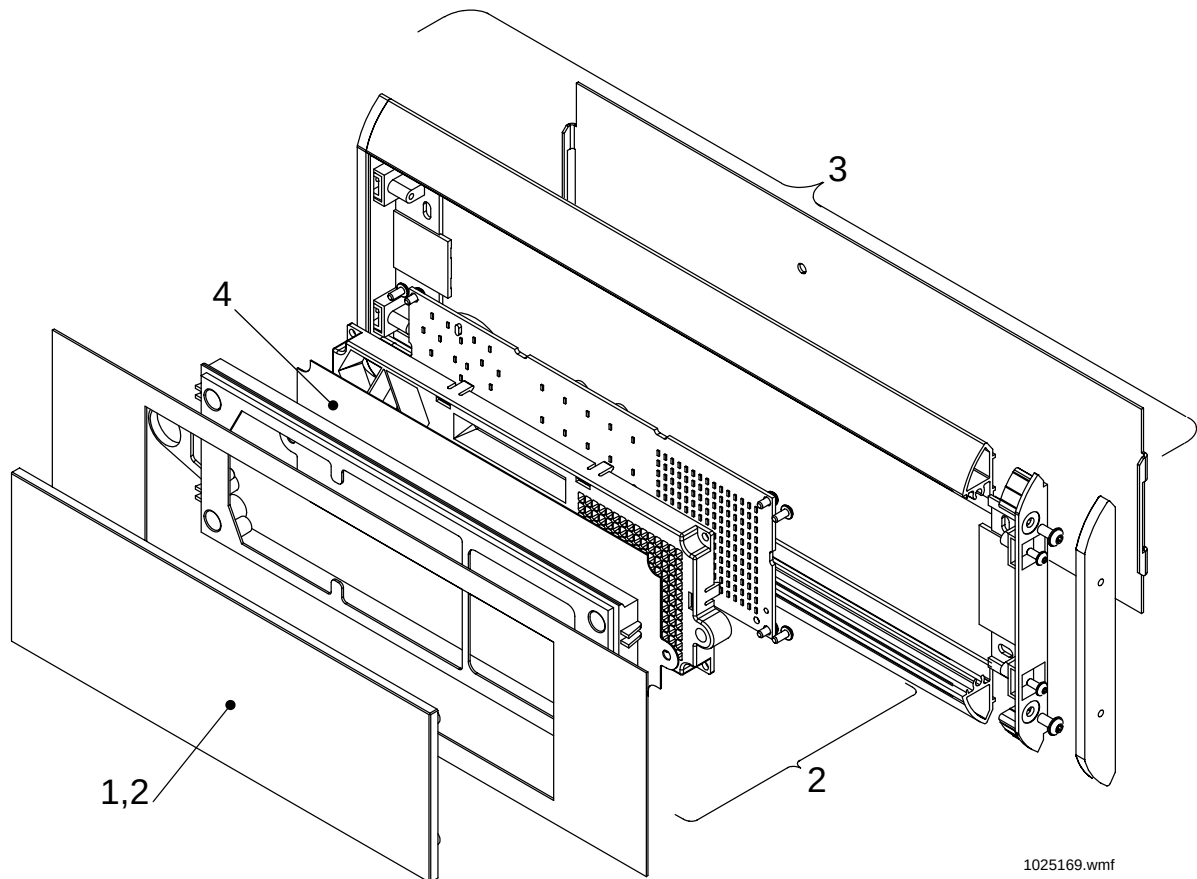
4 KSS LANDING DISPLAYS

4.1 KSI 370, 371, 471, surface mounted display, 801065



Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM772793H01	Hall display cover	Polycarbonate	1
	KM801069G01	Hall display cover	Velvet stainless steel	
2	KM824602G01	KSI 370, 7-segment, assembly	Amber	1
	KM824602G02	KSI 371, DOT-matrix, assembly	Amber	
	KM824602G03	KSI 471, DOT-matrix, assembly	Amber	
3	KM772812H51	7-segment display film	French	1
	KM801111H51	DOT-matrix display film	French	

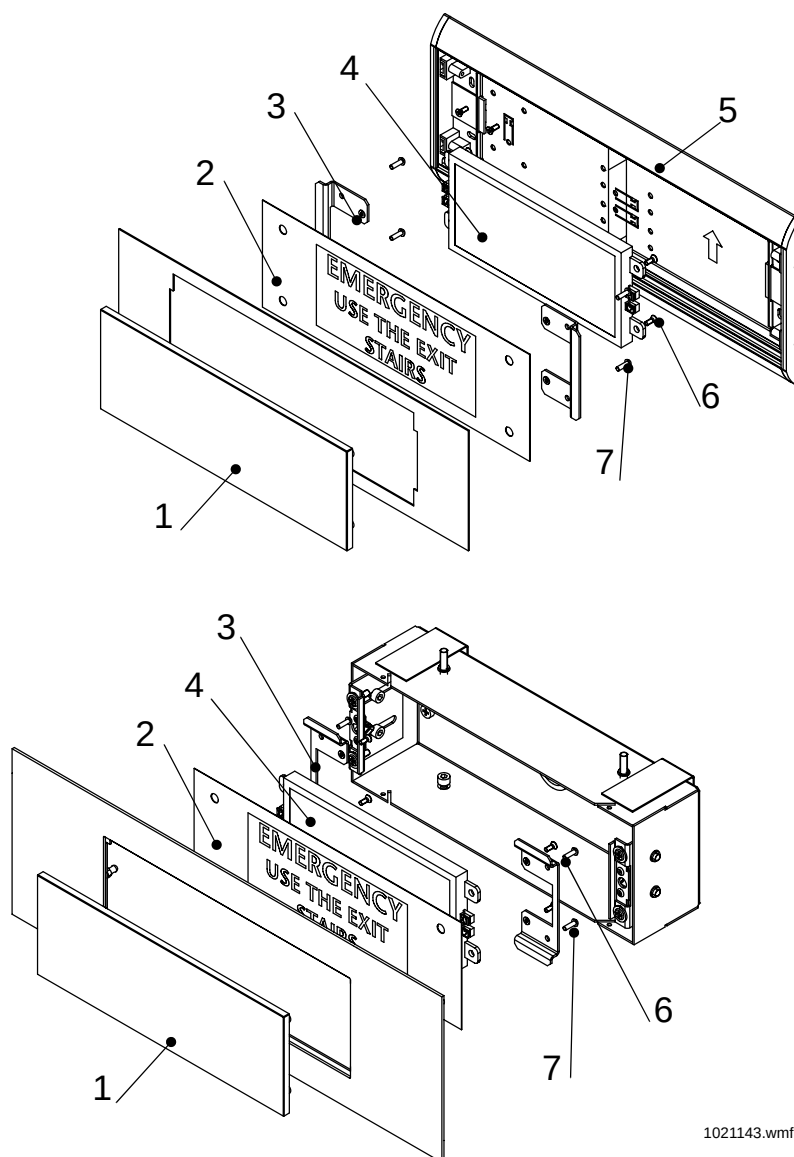
4.2 KSI 521, thinline display, 804385



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Pos	Part number	Number of parts in one assembly	
		Description	Remarks
1	KM804258H01	Display lens	1
2	KM804366G01	Display PC assembly	Amber, horizontal
	KM804366G02	Display PC assembly	White, horizontal
	KM804366G03	Display PC assembly	Amber, vertical
	KM804366G04	Display PC assembly	White, vertical
3	KM804387G0x	Base package	See Appendix 4. 1
4	KM801111H50	Horizontal display film	Dot Matrix, English
	KM801111H51	Horizontal display film	Dot Matrix, French
	KM804234H50	Vertical display film	Dot Matrix, English
	KM804234H51	Vertical display film	Dot Matrix, French

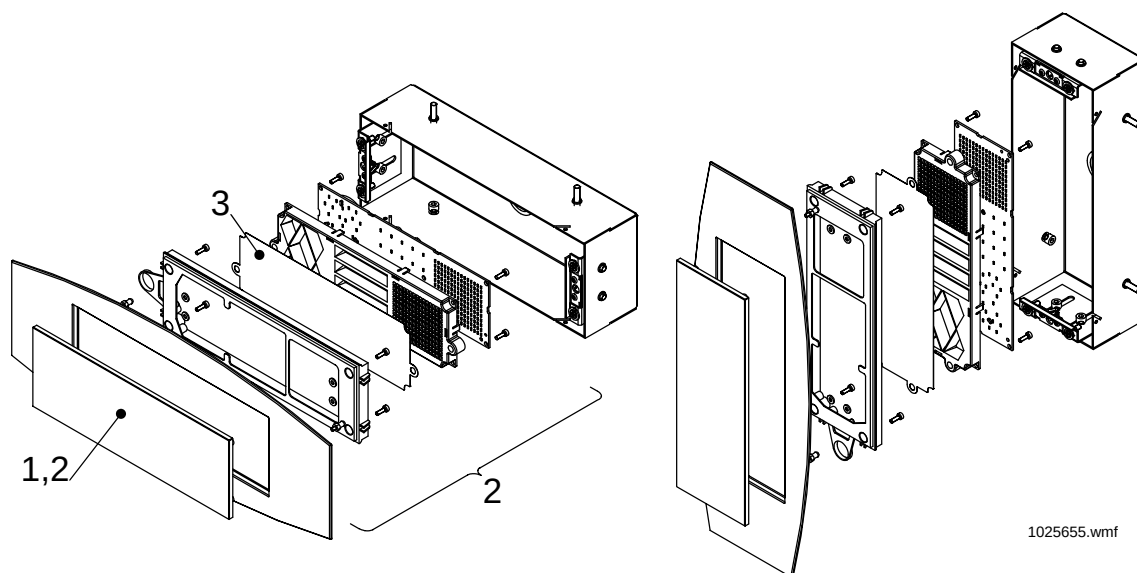
4.3 KSD, emergency display, 804186



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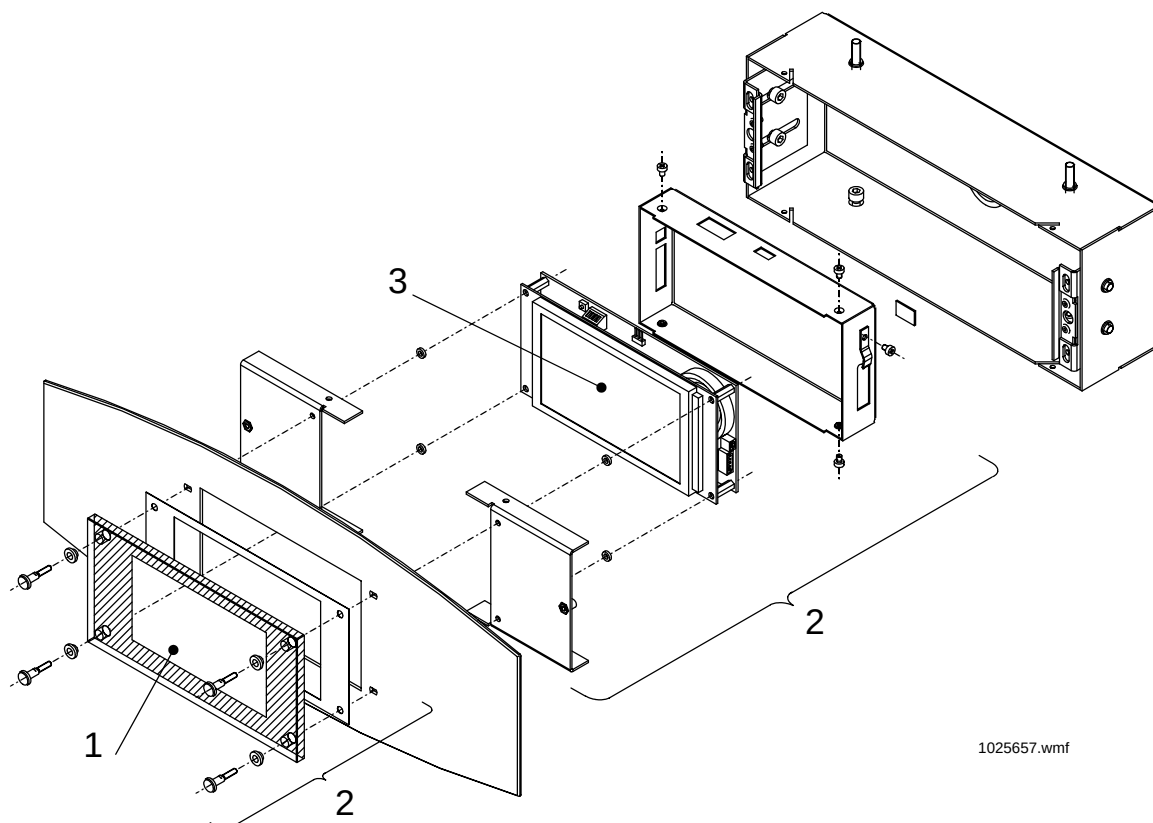
Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804258H01	Lens		1
2	KM804189H01	Film, Flashing fire sign	English	1
	KM804189H02	Film, Emergency power display	English	
	KM804189H03	Film, Emergency power display	French	
3	KM804188H01	Fixing piece	Surface	
	KM829130H01	Fixing piece	Flush	
4	KM813183	Backlight, Red, w/Connectors, Emergency Sign		
5	KM804387G01	HL/HLI Base package	Satin nickel, see appendix 4.	1
	KM804387G03	HL/HLI Base package	Satin cold, see appendix 4.	1
6	KM246534	Screw, DIN965 M3x8		4-6
7	KM281808	Screw, Plastofast 3x10		4

4.4 KSI 621, flushline display, 804360



Pos	Part number	Number of parts in one assembly	
		Description	Remarks
1	KM804258H01	Display lens	1
2	KM804366G01	Display PC assembly	Amber, horizontal
	KM804366G02	Display PC assembly	White, horizontal
	KM804366G03	Display PC assembly	Amber, vertical
	KM804366G04	Display PC assembly	White, vertical
3	KM801111H50	Horizontal display film	Dot Matrix, English
	KM801111H51	Horizontal display film	Dot Matrix, French
	KM804234H50	Vertical display film	Dot Matrix, English
	KM804234H51	Vertical display film	Dot Matrix, French

4.5 KSI 622, flushline display (LCD), 804365

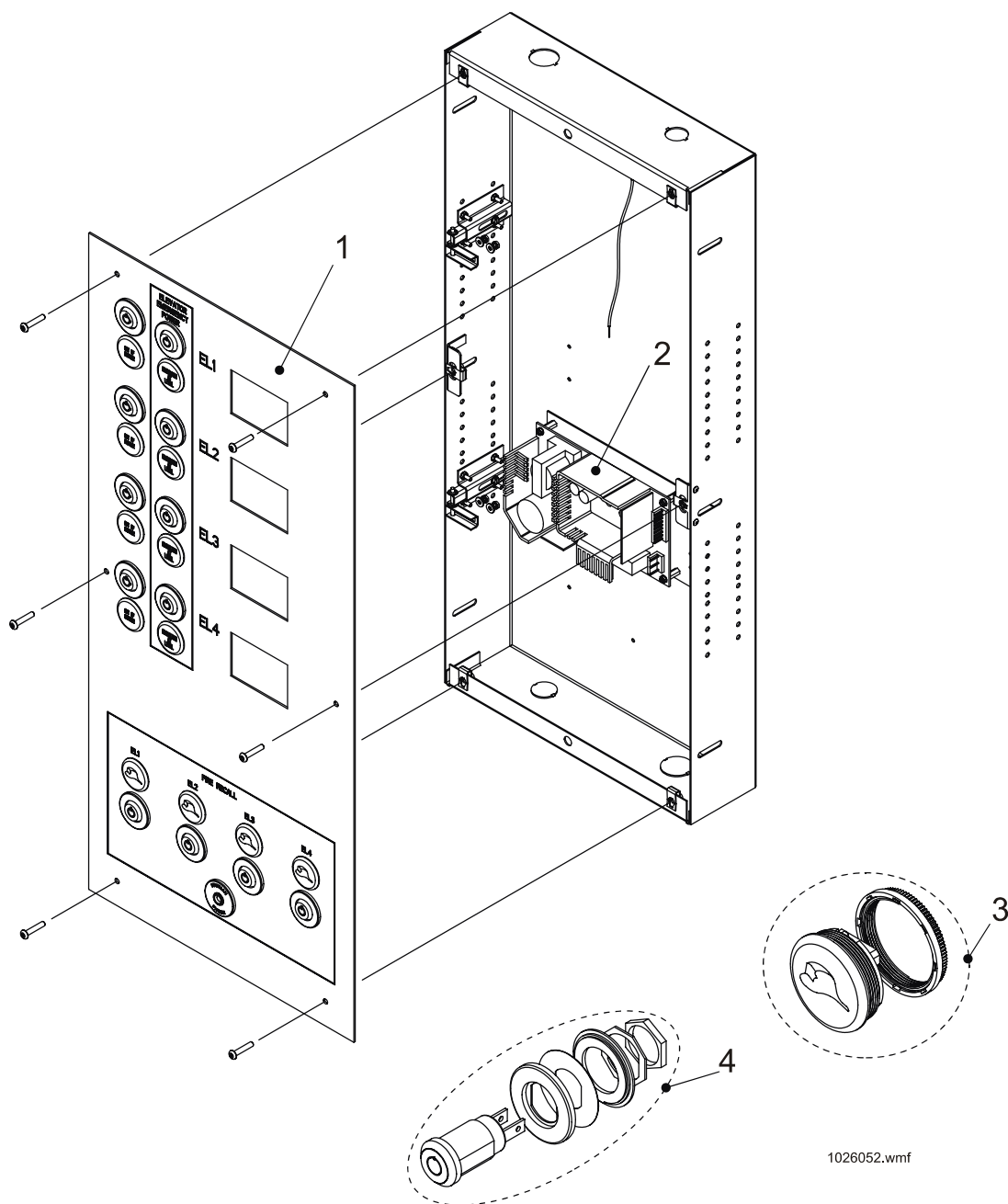


Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804359H01	HLI lens	Snow white	1
	KM804359H02	HLI lens	Detroit gray	1
2	KM828385G01	Display PC assembly	White lens	1
	KM828385G02	Display PC assembly	Gray lens	1
3	KM806980G01	F2KFUL board		1

Pos	Part number	Number of parts in one assembly		
		Description	Remarks	
1	KM804330G02	Car display assembly	Rectangular, Dot-matrix, amber	1
	KM804330G03	Car display assembly	Rectangular, Dot-matrix, white	
	KM804331G01	Car display assembly	7-segment	
	KM804331G02	Car display assembly	DOT-matrix	
2	KM772790H01	Lens, COP Display	KSC 320, 370, polycarbonate black	1
	KM804263H01	Lens, COP display	KSC 500, polycarbonate black	1
	KM804311H01	Lens, LCD display	LCD white	1
	KM804311H02	Lens, LCD display	LCD Gray	1
3	KM772860G01	F2KC7S display	7-Segment, amber leds	1
	KM806830G01	F2KCDMW display	Dot-matrix, white leds	
	KM806830G02	F2KCDMW display	Dot-matrix, amber leds	
4	KM804181G01	ACU unit speaker assembly	Loudspeaker, assembly incl. cable to ACU unit	1
5	KM772850G01	F2KMUL	A & C side calls	1
	KM772850G02	F2KMUL	Only A-side calls	
6	KM801047G01	F2KMUL termination and jumper	Only main COP	0-1
7	KM804132G03	KoneXion cover plate with holes	Blank, stainless steel	1
	KM804132G05	KoneXion cover plate with holes	Blank, Muntz	
	KM804132G06	Emergency light cover	Blank, stainless steel	
	KM804132G07	Emergency light cover	Blank, Muntz	
8	KM772791H01	Emergency light lens	For LCD	1
9	KM804138G01	Emergency light assembly		1
10	KM804374H01	Display back frame	For LCD	
11	KM804135G01	Fireman pilot light		
12	US Key switch	Phase II key switch asm	See Appendix 6.	
13	US Key switch	Medical emergency switch	See Appendix 6.	
14	KM804193G01	Fireman's jack, English		
	KM804193G02	Fireman's jack, French		
15	US Key switch	Stop key switch asm.	See Appendix 6.	
16	KM 830932Gxxx US63672Gxxx US63673Gxxx US63674Gxxx	Braille markings	See Appendix 12.	
17	KM804136Hxx	7-Segment display film	See Appendix 1.	
	KM804137Hxx	Dot Matrix display film	See Appendix 1.	

Pos	Part number	Number of parts in one assembly	
		Description	Remarks
18	KM801057Gxxx	300/370 series	Amber, stainless steel, std. See Appendix 5.
	KM804152Gxxx	300/370 series	Amber, stainless steel, California, See Appendix 5.
	KM804345Gxxx	500/600 series	Amber, stainless steel, std. See Appendix 5.
	KM804347Gxxx	500/600 series	White, stainless steel, std. See Appendix 5.
	KM804154Gxxx	500/600 series	Amber, stainless steel, California, See Appendix 5.
	KM804156Gxxx	500/600 series	White, stainless steel, California, See Appendix 5.
	KM804170Gxxx	500/600 series	White, Muntz, std. See Appendix 5.
	KM804171Gxxx	500/600 series	White, Muntz, California, See Appendix 5.
	KM804344G06	Alarm, 300/370 series	Stainless steel, std.
	KM804344G07	Alarm, 300/370 series	Stainless steel, California
	KM804344G13	Alarm, 300/370 series	Stainless steel, French
	KM804344G08	Alarm, 500/600 series	Stainless steel, std.
	KM804344G09	Alarm, 500/600 series	Stainless steel, California
	KM804344G15	Alarm, 500/600 series	Stainless steel, French
	KM804344G10	Alarm, 500/600 series	Muntz
	KM804344G11	Alarm, 500/600 series	Muntz, California
	KM804344G17	Alarm, 500/600 series	Muntz, French
	KM804146G01	Help 300/370 series	Stainless steel, std.
	KM804146G02	Help 300/370 series	Stainless steel, California
	KM804146G07	Help 300/370 series	Stainless steel, French
	KM804146G03	Help 500/600 series	Stainless steel, std.
	KM804146G04	Help 500/600 series	Stainless steel, California
	KM804146G09	Help 500/600 series	Stainless steel, French
	KM804146G05	Help 500/600 series	Muntz
	KM804146G06	Help 500/600 series	Muntz, California
	KM804146G11	Help 500/600 series	Muntz, French
NS	KM772840G01	KS2 PC board	Key switch interface PC, 1 ID
	KM772840G05	KS2 PC board	Key switch interface PC, 2 ID
	KM804250G10	Configuration key switch	COP programming key switch

6 FIRE STATUS PANEL / LOBBY PANEL



Pos	Part number	Number of parts in one assembly	
		Description	Remarks
1	USP33590001	FSP PI kit	
2	KM837860G01	Power supply assembly	FSP
3	KM804133G01	Fire hat	Pilot light, English
	KM804133G02	Out of service	Pilot light, English
	KM804133G03	Elevator at level	Pilot light, English
	KM804133G04	Emergency power	Pilot light, English
	KM804133G12	Out of service	Pilot light, French
	KM804133G13	Elevator at level	Pilot light, French
	KM804133G14	Emergency power	Pilot light, French
	KM804133G15	Medical emergency	Pilot light, French
	KM804133G16	Security	Pilot light, French
	KM804133G17	Car to lobby	Pilot light, French
4	KM818837G25	Key switch assembly	Phase 1 Fire recall,SS,A17.1 2000,EN, FSP
	KM818837G26	Key switch assembly	Phase 1 Fire recall,Mz,A17.1 2000,EN, FSP
	KM818837G27	Key switch assembly	Phase 1 Fire recall,SS,CSA-B4400,FR, FSP
	KM818837G28	Key switch assembly	Phase 1 Fire recall,Mz,CSA-B4400,FR, FSP
	KM818837G29	Key switch assembly	Phase 1 Fire recall,SS,A17.1 1999,EN,L/P
	KM818837G30	Key switch assembly	Phase 1 Fire recall,Mz,A17.1 1999,EN,L/P
	KM818837G31	Key switch assembly	Phase 1 Fire recall,SS,A17.1 2000,EN,L/P
	KM818837G32	Key switch assembly	Phase 1 Fire recall,Mz,A17.1 2000,EN,L/P
	KM818837G33	Key switch assembly	Phase 1 Fire recall,SS,CSA-B4400,FR,L/ P
	KM818837G34	Key switch assembly	Phase 1 Fire recall,Mz,CSA-B4400,FR,L/ P
	KM818838G09	Key switch assembly	Emergency power,SS,EN,FSP
	KM818838G10	Key switch assembly	Emergency power,Mz,EN,FSP
	KM818838G11	Key switch assembly	Emergency power,SS,FR,FSP
	KM818838G12	Key switch assembly	Emergency power,Mz,FR,FSP
	KM818839G21	Key switch assembly	Out of service,SS,EN,FSP
	KM818839G22	Key switch assembly	Out of service,Mz,EN,FSP
	KM818839G23	Key switch assembly	Out of service,SS,FR,FSP
	KM818839G24	Key switch assembly	Out of service,Mz,FR,FSP
	KM818848G07	Key switch assembly	Phase 1 Fire recall,SS,Yale 3502,EN,FSP
	KM818848G08	Key switch assembly	Phase 1 Fire recall,Mz,Yale 3502,EN,FSP
	KM818848G13	Key switch assembly	Emergency power,SS,Yale 3502,EN,FSP

Pos	Part number	Number of parts in one assembly	
		Description	Remarks
4	KM818848G14	Key switch assembly	Emergency power, Mz, Yale 3502,EN,FSP
	KM818848G21	Key switch assembly	Phase 1 Fire recall,SS,Yale 255,EN,FSP
	KM818848G22	Key switch assembly	Phase 1 Fire recall,Mz,Yale 255,EN,FSP
	KM818848G27	Key switch assembly	Emergency power,SS,Yale 255,EN,FSP
	KM818848G28	Key switch assembly	Emergency power, Mz, Yale 255,EN,FSP
	KM818848G35	Key switch assembly	Phase 1 Fire recall,SS,Yale 2642,EN,FSP
	KM818848G36	Key switch assembly	Phase 1 Fire recall,Mz,Yale 2642,EN,FSP
	KM818848G41	Key switch assembly	Emergency power,SS,Yale 2642,EN,FSP
	KM818848G42	Key switch assembly	Emergency power,Mz,Yale 2642,EN,FSP
	KM818848G43	Key switch assembly	Phase 1 Fire recall,SS,Yale 3502,EN,L/P
	KM818848G44	Key switch assembly	Phase 1 Fire recall, Mz, Yale 3502,EN,L/P
	KM818848G45	Key switch assembly	Phase 1 Fire recall,SS,Yale 255,EN,L/P
	KM818848G46	Key switch assembly	Phase 1 Fire recall,Mz,Yale 255,EN,L/P

7 APPENDIX 1: COP DISPLAY FILM

Table 1: 7-segment display film KM804136Hxx and DOT matrix display film KM804137Hxx

Hxx	7-segment display film	Hxx	DOT matrix display film
KM804136H02	English - 2000 lbs.	KM804137H02	English - 2000 lbs.
KM804136H03	English - 2500 lbs.	KM804137H03	English - 2500 lbs.
KM804136H04	English - 3000 lbs.	KM804137H04	English - 3000 lbs.
KM804136H05	English - 3500 lbs.	KM804137H05	English - 3500 lbs.
KM804136H06	English - 4000 lbs.	KM804137H06	English - 4000 lbs.
KM804136H07	English - 4500 lbs.	KM804137H07	English - 4500 lbs.
KM804136H08	English - 5000 lbs.	KM804137H08	English - 5000 lbs.
KM804136H09	French - 2000 lbs.	KM804137H09	French - 2000 lbs.
KM804136H10	French - 2500 lbs.	KM804137H10	French - 2500 lbs.
KM804136H11	French - 3000 lbs.	KM804137H11	French - 3000 lbs.
KM804136H12	French - 3500 lbs.	KM804137H12	French - 3500 lbs.
KM804136H13	French - 4000 lbs.	KM804137H13	French - 4000 lbs.
KM804136H14	French - 4500 lbs.	KM804137H14	French - 4500 lbs.
KM804136H15	French - 5000 lbs.	KM804137H15	French - 5000 lbs.

8 APPENDIX 2: KSL 520 BASE PACKAGE 804395G02 - G05

Table 2: 804395G02 - G05 for North America

Part number	Number of parts in one assembly					
	Description	G02	G03	G04	G05	
KM804257H02	Aluminium profile, satin nickel	x	x			2
KM804257H06	Aluminium profile, satin gold			x	x	2
KM804260H01	End cap terminal	x	x	x	x	2
KM804261H01	End cap cover, satin nickel	x	x			2
KM804261H02	End cap cover, satin gold			x	x	2
KM804394H01	KSL backplate	x		x		1
KM804275H01	KSL backbox		x		x	1
KM281808	Screw plastofast 3*10	x	x	x	x	4
KM281807	Screw plastofast 4*10	x	x	x	x	4
KM804389G02	Fixing bag	x	x	x	x	1

9 APPENDIX 3: KSL 522 BASE PACKAGE 804279G02 - G09

Table 3: 804279G02 - G09 KSL 522

Part number	Number of parts in one assembly									
	Description	G02	G03	G04	G05	G06	G07	G08	G09	
KM804257H03	Aluminium profile, satin nickel			x	x					2
KM804257H04	Aluminium profile, satin nickel	x	x							2
KM804257H07	Aluminium profile, satin gold							x	x	
KM804257H08	Aluminium profile, satin gold					x	x			2
KM804264H01	End cap terminal	x	x	x	x	x	x	x	x	2
KM804265H01	End cap cover, satin nickel	x	x	x	x					2
KM804265H02	End cap cover, satin gold					x	x	x	x	2
KM804394H02	KSL backplate	x		x		x		x		1
KM804275H02	KSL backbox		x		x		x		x	1
KM281808	Screw plastofast 3*10	x	x	x	x	x	x	x	x	4
KM281807	Screw plastofast 4*10	x	x	x	x	x	x	x	x	4
KM804266G01	KSL middle fix, satin nickel	x	x							1
KM804266G02	KSL middle fix, satin gold					x	x			1
KM804389G02	Fixing bag			x	x			x	x	1
KM804389G02	Fixing bag	x	x			x	x			2

10 APPENDIX 4: KSH 520 AND KSI 521 BASE PACKAGE 804387G01 - G04

Table 4: 804387G01 - G04 KSH 520 and KSI 521

Part number	Number of parts in one assembly					
	Description	G01	G02	G03	G04	
KM804257H02	Aluminium profile, satin nickel	x	x			2
KM804257H06	Aluminium profile, satin gold			x	x	2
KM804255H01	End cap terminal	x	x	x	x	2
KM804256H01	End cap cover, satin nickel	x	x			2
KM804256H02	End cap cover, satin gold			x	x	2
KM804382H01	Backplate, horizontal	x		x		1
KM804382H02	Backplate, vertical		x		x	1
KM281808	Screw plastofast 3*10	x	x	x	x	4
KM281807	Screw plastofast 4*10	x	x	x	x	4
KM804389G02	Fixing bag	x	x	x	x	1

11 APPENDIX 5: PRESSEL MARKINGS

Gxx	Marking symbol	Gxx	Marking symbol	Gxx	Marking symbol
G090	BLANK	G102	"Front open"	G107	"Front hold"
G091	ARROW UP	G103	"Front close"	G108	"Rear hold"
G092	ARROW DOWN	G104	"Rear open"	G111	"Call cancel"
G100	"Door open"	G105	"Rear close"		
G101	"Door close"	G106	"Door hold"		

Gxx	Marking symbol, French	Remarks	Gxx	Marking symbol, French	Remarks
G180	"Ouvrir porte"	"Door open"	G185	"Fermer arriere"	"Rear close"
G181	"Fermer porte"	"Door close"	G186	"Retenir porte"	"Door hold"
G182	"Ouvrir avant"	"Front open"	G187	"Retenir avant"	"Front hold"
G183	"Fermer avant"	"Front close"	G188	"Retenir arriere"	"Rear hold"
G184	"Ouvrir arriere"	"Rear open"	G191	"Annuler appel"	"Call cancel"

12 APPENDIX 6: KEY SWITCHES

Part Number	Description	Remarks
KSF 420, 470		
KM818837G09	Key switch Asm, Phase I Fire Recall	FRD, STD3, 1999, Chrome face, English text
KM818837G13	Key switch Asm, Phase I Fire Recall	FRD, STD3, 2000/CAN, Chrome face, English text
KM818837G17	Key switch Asm, Phase I Fire Recall	FRD, STD3, CAN, Chrome face, French text
KM818837G21	Key switch Asm, Phase I Fire Recall	FRD, STD2, Chrome face, English text
KM818847G03	Key switch Asm, Phase I Fire Recall	FRD, BFD-1, Chrome face, English text
KM818847G17	Key switch Asm, Phase I Fire Recall	FRD, SC1000, Chrome face, English text
KM818848G17	Key switch Asm, Phase I Fire Recall	FRD, YALE_255, Chrome face, English text
KM818848G31	Key switch Asm, Phase I Fire Recall	FRD, YALE_2642, Chrome face, English text
KM818848G03	Key switch Asm, Phase I Fire Recall	FRD, YALE_3502, Chrome face, English text
KSE 420, 470		
KM818838G01	Key switch Asm, Emergency Power	EPD, STD, Chrome face, English text
KM818838G03	Key switch Asm, Emergency Power	EPD, STD, Chrome face, French text
KM818847G09	Key switch Asm, Emergency Power	EPD, BFD-1, Chrome face English text
KM818847G23	Key switch Asm, Emergency Power	EPD, SC1000, Chrome face, English text
KM818848G23	Key switch Asm, Emergency Power	EPD, YALE_255, Chrome face, English text
KM818848G37	Key switch Asm, Emergency Power	EPD, YALE_2642, Chrome face, English text
KM818848G09	Key switch Asm, Emergency Power	EPD, YALE_3502, Chrome face, English text

Part Number	Description	Remarks
KSL 470		
KM818839G01	Key switch Asm, Car to Lobby	PRL, Chrome face, English text
KM818839G03	Key switch Asm, Car to Lobby	PRL, Chrome face, French text
KM818839G09	Key switch Asm, Medical Emergency	HEL, Chrome face, English text
KM818839G11	Key switch Asm, Medical Emergency	HEL, Chrome face, French text
KM818846G02	Key switch Asm, Medical Emergency	MES, Medeco
KM818839G17	Key switch Asm, Out of Service	OSS, Chrome face, English text
KM818839G19	Key switch Asm, Out of Service	OSS, Chrome face, French text
KM818839G25	Key switch Asm, Simplex Service	FPO, Chrome face, English text
KM818839G27	Key switch Asm, Simplex Service	FPO, Chrome face, French text
KM818839G29	Key switch Asm, Parking	PAD, Chrome face, English text
KM818839G31	Key switch Asm, Parking	PAD, Chrome face, French text
KM818840G05	Key switch Asm, Security	LOL, Maintained key, Chrome face, English text
KM818840G07	Key switch Asm, Security	LOL, Maintained key, Chrome face, French text
KM818840G13	Key switch Asm, Security	LOL, Momentary key, Chrome face, English text
KM818840G15	Key switch Asm, Security	LOL, Momentary key, Chrome face, French text
KSL 520, 522, 620		
KM818837G11	Key switch Asm, Phase I Fire Recall	FRD, STD3, 1999, Chrome face, English text
KM818837G12	Key switch Asm, Phase I Fire Recall	FRD, STD3, 1999, Brass face, English text
KM818837G15	Key switch Asm, Phase I Fire Recall	FRD, STD3, 2000/CAN, Chrome face, English text
KM818837G16	Key switch Asm, Phase I Fire Recall	FRD, STD3, 2000/CAN, Brass face, English text
KM818837G19	Key switch Asm, Phase I Fire Recall	FRD, STD3, CAN, Chrome face, French text
KM818837G20	Key switch Asm, Phase I Fire Recall	FRD, STD3, CAN, Brass face, French text
KM818837G21	Key switch Asm, Phase I Fire Recall	FRD, STD2, Chrome face, English text
KM818837G22	Key switch Asm, Phase I Fire Recall	FRD, STD2, Brass face, English text
KM818847G05	Key switch Asm, Phase I Fire Recall	FRD, BFD-1, Chrome face, English text
KM818847G06	Key switch Asm, Phase I Fire Recall	FRD, BFD-1, Brass face, English text
KM818847G19	Key switch Asm, Phase I Fire Recall	FRD, SC1000, Chrome face, English text
KM818847G20	Key switch Asm, Phase I Fire Recall	FRD, SC1000, Brass face, English text
KM818848G19	Key switch Asm, Phase I Fire Recall	FRD, YALE_255, Chrome face, English text
KM818848G20	Key switch Asm, Phase I Fire Recall	FRD, YALE_255, Brass face, English text
KM818848G33	Key switch Asm, Phase I Fire Recall	FRD, YALE_2642, Chrome face, English text
KM818848G34	Key switch Asm, Phase I Fire Recall	FRD, YALE_2642, Brass face, English text
KM818848G05	Key switch Asm, Phase I Fire Recall	FRD, YALE_3502, Chrome face, English text
KM818848G06	Key switch Asm, Phase I Fire Recall	FRD, YALE_3502, Brass face, English text
KM818838G05	Key switch Asm, Emergency Power	EPD, STD, Chrome face, English text
KM818838G06	Key switch Asm, Emergency Power	EPD, STD, Brass face, English text
KM818838G07	Key switch Asm, Emergency Power	EPD, STD, Chrome face, French text
KM818838G08	Key switch Asm, Emergency Power	EPD, STD, Brass face, French text
KM818847G11	Key switch Asm, Emergency Power	EPD, BFD-1, Chrome face English text
KM818847G12	Key switch Asm, Emergency Power	EPD, BFD-1, Brass face English text

Part Number	Description	Remarks
KM818847G25	Key switch Asm, Emergency Power	EPD, SC1000, Chrome face, English text
KM818847G26	Key switch Asm, Emergency Power	EPD, SC1000, Brass face, English text
KM818848G25	Key switch Asm, Emergency Power	EPD, YALE_255, Chrome face, English text
KM818848G26	Key switch Asm, Emergency Power	EPD, YALE_255, Brass face, English text
KM818848G39	Key switch Asm, Emergency Power	EPD, YALE_2642, Chrome face, English text
KM818848G40	Key switch Asm, Emergency Power	EPD, YALE_2642, Brass face, English text
KM818848G11	Key switch Asm, Emergency Power	EPD, YALE_3502, Chrome face, English text
KM818848G12	Key switch Asm, Emergency Power	EPD, YALE_3502, Brass face, English text
KM818835G05	Key switch Asm, Hatch Access	HAC, Chrome face, English text
KM818835G06	Key switch Asm, Hatch Access	HAC, Brass face, English text
KM818835G07	Key switch Asm, Hatch Access	HAC, Chrome face, French text
KM818835G08	Key switch Asm, Hatch Access	HAC, Brass face, French text
KM818839G01	Key switch Asm, Car to Lobby	PRL, Chrome face, English text
KM818839G02	Key switch Asm, Car to Lobby	PRL, Brass face, English text
KM818839G03	Key switch Asm, Car to Lobby	PRL, Chrome face, French text
KM818839G04	Key switch Asm, Car to Lobby	PRL, Brass face, French text
KM818839G09	Key switch Asm, Medical Emergency	HEL, Chrome face, English text
KM818839G10	Key switch Asm, Medical Emergency	HEL, Brass face, English text
KM818839G11	Key switch Asm, Medical Emergency	HEL, Chrome face, French text
KM818839G12	Key switch Asm, Medical Emergency	HEL, Brass face, French text
KM818846G02	Key switch Asm, Medical Emergency	MES, Medeco
KM818839G17	Key switch Asm, Out of Service	OSS, Chrome face, English text
KM818839G18	Key switch Asm, Out of Service	OSS, Brass face, English text
KM818839G19	Key switch Asm, Out of Service	OSS, Chrome face, French text
KM818839G20	Key switch Asm, Out of Service	OSS, Brass face, French text
KM818839G25	Key switch Asm, Simplex Service	FPO, Chrome face, English text
KM818839G26	Key switch Asm, Simplex Service	FPO, Brass face, English text
KM818839G27	Key switch Asm, Simplex Service	FPO, Chrome face, French text
KM818839G28	Key switch Asm, Simplex Service	FPO, Brass face, French text
KM818839G29	Key switch Asm, Parking	PAD, Chrome face, English text
KM818839G30	Key switch Asm, Parking	PAD, Brass face, English text
KM818839G31	Key switch Asm, Parking	PAD, Chrome face, French text
KM818839G32	Key switch Asm, Parking	PAD, Brass face, French text
KM818840G05	Key switch Asm, Security	LOL, Maintained key, Chrome face, English text
KM818840G06	Key switch Asm, Security	LOL, Maintained key, Brass face, English text
KM818840G07	Key switch Asm, Security	LOL, Maintained key, Chrome face, French text
KM818840G08	Key switch Asm, Security	LOL, Maintained key, Brass face, French text
KM818840G13	Key switch Asm, Security	LOL, Momentary key, Chrome face, English text
KM818840G14	Key switch Asm, Security	LOL, Momentary key, Brass face, English text
KM818840G15	Key switch Asm, Security	LOL, Momentary key, Chrome face, French text
KM818840G16	Key switch Asm, Security	LOL, Momentary key, Brass face, French text

Part Number	Description	Remarks
Entrance Frame Mounted		
KM818837G21	Key switch Asm, Phase I Fire Recall	FRD, STD2, Chrome face, English text
KM818837G22	Key switch Asm, Phase I Fire Recall	FRD, STD2, Brass face, English text
KM818835G05	Key switch Asm, Hatch Access	HAC, Chrome face, English text
KM818835G06	Key switch Asm, Hatch Access	HAC, Brass face, English text
KM818835G07	Key switch Asm, Hatch Access	HAC, Chrome face, French text
KM818835G08	Key switch Asm, Hatch Access	HAC, Brass face, French text
KSC		
KM818837G01	Key switch Asm, Phase II Fire Operation	FRD, STD3, 1999, Chrome face, English text
KM818837G02	Key switch Asm, Phase II Fire Operation	FRD, STD3, 1999, Brass face, English text
KM818837G03	Key switch Asm, Phase II Fire Operation	FRD, STD3, 2000/CAN, Chrome face, English text
KM818837G04	Key switch Asm, Phase II Fire Operation	FRD, STD3, 2000/CAN, Brass face, English text
KM818837G05	Key switch Asm, Phase II Fire Operation	FRD, STD3, CAN, Chrome face, French text
KM818837G06	Key switch Asm, Phase II Fire Operation	FRD, STD3, CAN, Brass face, French text
KM818837G07	Key switch Asm, Phase II Fire Operation	FRD, STD2, Chrome face, English text
KM818837G08	Key switch Asm, Phase II Fire Operation	FRD, STD2, Brass face, English text
KM818847G01	Key switch Asm, Phase II Fire Operation	FRD, BFD-1, Chrome face, English text
KM818847G02	Key switch Asm, Phase II Fire Operation	FRD, BFD-1, Brass face, English text
KM818847G15	Key switch Asm, Phase II Fire Operation	FRD, SC1000, Chrome face, English text
KM818847G16	Key switch Asm, Phase II Fire Operation	FRD, SC1000, Brass face, English text
KM818848G15	Key switch Asm, Phase II Fire Operation	FRD, YALE_255, Chrome face, English text
KM818848G16	Key switch Asm, Phase II Fire Operation	FRD, YALE_255, Brass face, English text
KM818848G29	Key switch Asm, Phase II Fire Operation	FRD, YALE_2642, Chrome face, English text
KM818848G30	Key switch Asm, Phase II Fire Operation	FRD, YALE_2642, Brass face, English text
KM818848G01	Key switch Asm, Phase II Fire Operation	FRD, YALE_3502, Chrome face, English text
KM818848G02	Key switch Asm, Phase II Fire Operation	FRD, YALE_3502, Brass face, English text

Part Number	Description	Remarks
KM818839G05	Key switch Asm, Medical Emergency	HEC, Chrome face, English text
KM818839G06	Key switch Asm, Medical Emergency	HEC, Brass face, English text
KM818839G07	Key switch Asm, Medical Emergency	HEC, Chrome face, French text
KM818839G08	Key switch Asm, Medical Emergency	HEC, Brass face, French text
KM818846G01	Key switch Asm, Medical Emergency	MES, Medeco
KM818840G01	Key switch Asm, Security	LOC, KONE 5, Maintained key, Chrome face, English text
KM818840G02	Key switch Asm, Security	LOC, KONE 5, Maintained key, Brass face, English text
KM818840G03	Key switch Asm, Security	LOC, KONE 5, Maintained key, Chrome face, French text
KM818840G04	Key switch Asm, Security	LOC, KONE 5, Maintained key, Brass face, French text
KM818840G09	Key switch Asm, Security	LOC, KONE 5, Momentary key, Chrome face, English text
KM818840G10	Key switch Asm, Security	LOC, KONE 5, Momentary key, Brass face, English text
KM818840G11	Key switch Asm, Security	LOC, KONE 5, Momentary key, Chrome face, French text
KM818840G12	Key switch Asm, Security	LOC, KONE 5, Momentary key, Brass face, French text
KM818841G01	Key switch Asm, Security	LOC, KONE 6, Maintained key, Chrome face, English text
KM818841G02	Key switch Asm, Security	LOC, KONE 6, Maintained key, Brass face, English text
KM818841G03	Key switch Asm, Security	LOC, KONE 6, Maintained key, Chrome face, French text
KM818841G04	Key switch Asm, Security	LOC, KONE 6, Maintained key, Brass face, French text
KM818841G09	Key switch Asm, Security	LOC, KONE 6, Momentary key, Chrome face, English text
KM818841G10	Key switch Asm, Security	LOC, KONE 6, Momentary key, Brass face, English text
KM818841G11	Key switch Asm, Security	LOC, KONE 6, Momentary key, Chrome face, French text
KM818841G12	Key switch Asm, Security	LOC, KONE 6, Momentary key, Brass face, French text
KM818842G01	Key switch Asm, Security	LOC, KONE 7, Maintained key, Chrome face, English text
KM818842G02	Key switch Asm, Security	LOC, KONE 7, Maintained key, Brass face, English text
KM818842G03	Key switch Asm, Security	LOC, KONE 7, Maintained key, Chrome face, French text

Part Number	Description	Remarks
KM818842G04	Key switch Asm, Security	LOC, KONE 7, Maintained key, Brass face, French text
KM818842G09	Key switch Asm, Security	LOC, KONE 7, Momentary key, Chrome face, English text
KM818842G10	Key switch Asm, Security	LOC, KONE 7, Momentary key, Brass face, English text
KM818842G11	Key switch Asm, Security	LOC, KONE 7, Momentary key, Chrome face, French text
KM818842G12	Key switch Asm, Security	LOC, KONE 7, Momentary key, Brass face, French text
KM818843G01	Key switch Asm, Security	LOC, KONE 8, Maintained key, Chrome face, English text
KM818843G02	Key switch Asm, Security	LOC, KONE 8, Maintained key, Brass face, English text
KM818843G03	Key switch Asm, Security	LOC, KONE 8, Maintained key, Chrome face, French text
KM818843G04	Key switch Asm, Security	LOC, KONE 8, Maintained key, Brass face, French text
KM818843G09	Key switch Asm, Security	LOC, KONE 8, Momentary key, Chrome face, English text
KM818843G10	Key switch Asm, Security	LOC, KONE 8, Momentary key, Brass face, English text
KM818843G11	Key switch Asm, Security	LOC, KONE 8, Momentary key, Chrome face, French text
KM818843G12	Key switch Asm, Security	LOC, KONE 8, Momentary key, Brass face, French text
KM818844G01	Key switch Asm, Security	LOC, KONE 9, Maintained key, Chrome face, English text
KM818844G02	Key switch Asm, Security	LOC, KONE 9, Maintained key, Brass face, English text
KM818844G03	Key switch Asm, Security	LOC, KONE 9, Maintained key, Chrome face, French text
KM818844G04	Key switch Asm, Security	LOC, KONE 9, Maintained key, Brass face, French text
KM818844G09	Key switch Asm, Security	LOC, KONE 9, Momentary key, Chrome face, English text
KM818844G10	Key switch Asm, Security	LOC, KONE 9, Momentary key, Brass face, English text
KM818844G11	Key switch Asm, Security	LOC, KONE 9, Momentary key, Chrome face, French text
KM818844G12	Key switch Asm, Security	LOC, KONE 9, Momentary key, Brass face, French text
KM818835G09	Key switch Asm, Stop	EMC, Chrome face, English text
KM818835G10	Key switch Asm, Stop	EMC, Brass face, English text

Part Number	Description	Remarks
KM818835G11	Key switch Asm, Stop	EMC, Chrome face, French text
KM818835G12	Key switch Asm, Stop	EMC, Brass face, French text
KM818849G01	Toggle Switch Asm, Stop	EMC
KM818835G01	Key switch Asm, Access Enable	HAC, Chrome face, English text
KM818835G02	Key switch Asm, Access Enable	HAC, Brass face, English text
KM818835G03	Key switch Asm, Access Enable	HAC, Chrome face, French text
KM818835G04	Key switch Asm, Access Enable	HAC, Brass face, French text
KM818845G01	Key switch Asm, Security Override	LOR, Chrome face, English text
KM818845G02	Key switch Asm, Security Override	LOR, Brass face, English text
KM818845G03	Key switch Asm, Security Override	LOR, Chrome face, French text
KM818845G04	Key switch Asm, Security Override	LOR, Brass face, French text
KM818836G01	Key switch Asm, Car Light	OCL, Chrome face, English text
KM818836G02	Key switch Asm, Car Light	OCL, Brass face, English text
KM818836G03	Key switch Asm, Car Light	OCL, Chrome face, French text
KM818836G04	Key switch Asm, Car Light	OCL, Brass face, French text
KM818836G05	Key switch Asm, Light/Fan combination	OLV, Chrome face, English text
KM818836G06	Key switch Asm, Light/Fan combination	OLV, Brass face, English text
KM818836G07	Key switch Asm, Light/Fan combination	OLV, Chrome face, French text
KM818836G08	Key switch Asm, Light/Fan combination	OLV, Brass face, French text
KM818836G09	Key switch Asm, 2 Speed Fan	OCV, Chrome face, English text
KM818836G10	Key switch Asm, 2 Speed Fan	OCV, Brass face, English text
KM818836G11	Key switch Asm, 2 Speed Fan	OCV, Chrome face, French text
KM818836G12	Key switch Asm, 2 Speed Fan	OCV, Brass face, French text
KM818849G06	Toggle Switch Asm, 2 Speed Fan	OCV, English text
KM818849G07	Toggle Switch Asm, 2 Speed Fan	OCV, French text
KM818839G13	Key switch Asm, Independent Service	PRC, Chrome face, English text
KM818839G14	Key switch Asm, Independent Service	PRC, Brass face, English text
KM818839G15	Key switch Asm, Independent Service	PRC, Chrome face, French text
KM818839G16	Key switch Asm, Independent Service	PRC, Brass face, French text
KM818849G08	Toggle Switch Asm, Independent Service	PRC, English text
KM818849G09	Toggle Switch Asm, Independent Service	PRC, French text

13 APPENDIX 7: BRAILLE MARKINGS 830932, US63672, US63673 AND US63674

KM830932Gxxx Plate, tactile, 1.25 square, white

US63672Gxxx Plate, tactile, 1.25 square, stainless steel

US63673Gxxx Plate, tactile, 1.25 square, Muntz

US63672Gxxx Plate, tactile, 1.25 square, white

Gxxx	Marking symbol	Gxxx	Marking symbol	Gxxx	Marking symbol
G001	1	G067	M	G124	6R
G002	2	G082	B1	G125	7R
G003	3	G083	B2	G126	8R
G004	4	G084	B3	G127	9R
G005	5	G089	DH	G128	10R
G006	6	G095	LL	G131	*1
G007	7	G098	L1	G132	*2
G008	8	G099	L2	G134	*G
G009	9	G100	"Phone"	G135	*L
G010	10	G107	P1	G148	FH
G050	"Stop"	G108	P2	G149	RH
G051	"Door open"	G109	P3	G155	"Rear open"
G052	"Door close"	G119	1R	G156	"Rear close"
G054	"Alarm"	G120	2R	G157	TP
G055	A	G121	3R	G158	TA
G056	B	G122	4R	G159	TD
G061	G	G123	5R		

14 APPROVALS AND VERSION HISTORY

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Approved by:	SEB LCM Director	John Bril

Issue	Date	Description of change	Ref CR	Approved by
-	2004-10-11	Piloting issue		J. Bril
A	2004-11-15	Note added in General section		J. Bril
B	2004-12-08	Title changed. Chapter 1 updated.		J. Bril



KRMS™ Emergency Phone

Owner's Manual: North America





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1. INTRODUCTION

KONE Remote Monitoring System (KRMS) is an elevator monitoring system, which is used worldwide to provide voice connection to KONE Customer Care Center. This service aims at improved passenger safety.

The elevator is equipped with a KRMS Emergency Phone. The KRMS Emergency Phone is a code-required safety device that provides a two-way voice connection between the elevator car and KONE Customer Care Center or some other authorized personnel that can take appropriate action. The KRMS Emergency Phone fulfills the requirements of the applicable elevator safety code (ASME A17.1 paragraph 2.27.1.1 and B44, etc.)

2. PURPOSE

This document describes how to use and configure the KRMS Emergency Phone. Once the system has been installed and put into use, no additional adjustments are necessary. With a KONE Service Contract and KRMS agreement, contact the KONE Customer Care Center for any changes to the system configuration.

3. RESPONSIBILITIES

The KRMS Emergency Phone is an elevator safety device and code-required feature. It must operate in all situations. The responsibilities must be clearly defined between the owner, the elevator emergency answering service responding to the call and the emergency personnel.

3.1. Owner's responsibilities

- **An active and dedicated telephone line** must be connected to the elevator 24/7/365.
- **Ensure that the elevator is constantly connected to an Elevator Emergency Answering service** that is available 24/7 and capable of handling passenger entrapments according to the requirements of A17.1 or local elevator code.
- **Inform the Elevator Emergency Answering service about automatic testing:** The KRMS system regularly tests the battery capacity of the Emergency Phone. When the battery capacity is too low, the system makes an automatic call to the Elevator Emergency Answering service.
- **Inform the Elevator Emergency Answering service about test calls:** The KRMS system regularly makes automatic test calls to the Elevator Emergency Answering service to test the operation of the system and the telephone connection. The test call period can be adjusted.

3.2. Elevator Emergency Answering Service responsibilities

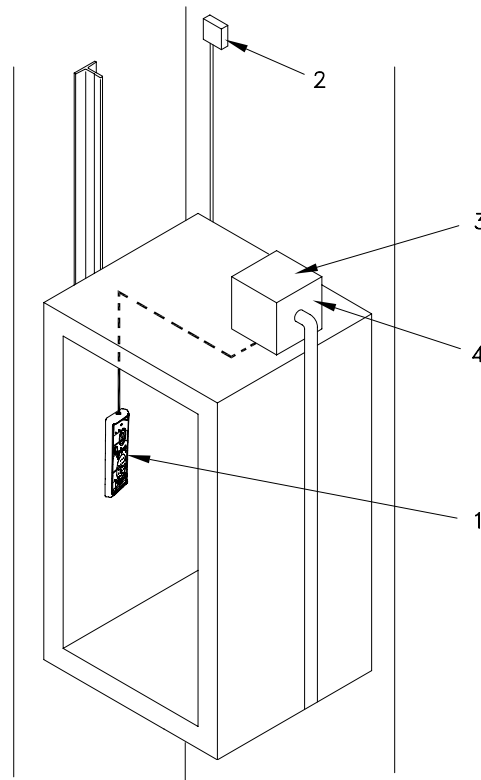
- An offsite Elevator Emergency Answering Service must fulfill the requirements of ASME A17.1 paragraph 2.27.1.1.2.
- The Service must be staffed by Authorized Personnel. Authorized Personnel are persons who have been instructed in the operation of elevator equipment and designated by the owner to use the equipment (A17.1, section 1.3)
- The Authorized Personnel at the Service must be capable of dispatching Emergency Personnel.
- The Answering Service must be available 24/7 to answer every emergency call with a live voice, not an answering machine.

3.3. Emergency personnel responsibilities

- It is preferable to have Elevator Personnel, trained in elevator equipment operation, present and/or supervising entrapment release operations.
- Emergency personnel should be trained in the proper procedures for releasing trapped passengers from elevators. See ASME A17.4 (Guide for Emergency Personnel) for an example of this procedure.

4. PHONE HARDWARE AND SETTINGS

4.1. Components



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1. **Passenger interface**, which is integrated to the car operating panel. The passenger interface contains a HELP button, a microphone, a loudspeaker and two indicator lights.
2. **A connection to PSTN (Public Switched Telephone Network) line** with a modular connector in the machine room. The telephone connection to the Elevator Emergency Answering service is made through the PSTN network.
3. **Remote Interface (Phone) board**, which is a printed circuit board installed inside the car top connection box. Controls the emergency telephone and handles the telephone line. All the phone numbers that the KRMS Emergency Phone uses are stored in the Phone board.
4. **Battery**, which powers the system during a power failure. The battery is installed inside the car top connection box.

4.2. Parameter settings

The phone numbers that the system uses are stored as parameter values in the Phone board. Initially, KONE configures the parameters according to the **information supplied by the owner**.

The parameter values can be changed. By default, only KONE Customer Care Center personnel can change the parameter values.

The owner of the KRMS Emergency Phone is allowed to change some of the parameter values. The parameter values can be changed with either a wireless or PSTN phone, if KONE Customer Care Center has enabled this feature.

When owners need to change the parameters, KONE Customer Care Center will:

- Enable the touchtone configuration mode
- Provide the password

5. OPERATION OF THE KRMS EMERGENCY PHONE

- In an entrapment situation, the passenger pushes the HELP button on the car operating panel. The HELP button is marked with a telephone symbol and the word "HELP".
- The passenger interface gives audible and visual signals to indicate that the KRMS system has registered the alarm. The phone device starts dialing the Elevator Emergency Answering Service. The flashing yellow indicator light or "Help is Coming" sign in the car operating panel indicates that the dialing is in progress.
- A green indicator light on the car operating panel indicates that the Elevator Emergency Answering Service has received the alarm and that the voice link is open.
- The Elevator Emergency Answering Service authorized personnel answer the call and take appropriate action. To terminate the call, the authorized personnel resets the alarm by pressing '3#' on the telephone keypad.

NOTE - Simply hanging up the telephone at the Elevator Emergency Answering Service forces the Emergency Phone to call again. This safety precaution ensures that every emergency call is answered and is only terminated by deliberate action on the part of the Elevator Emergency Answering Service.

6. MAINTAINING PARAMETER VALUES

6.1. KONE Service Contract customers

When a KONE Service contract is in force, KONE personnel maintain operation of the KRMS emergency phone. For answers to any questions about the operation and setup of the emergency phone, please contact KONE service personnel.

6.2. Non-KONE contract service customers

When a KONE Service contract is not in force, it is the owner's responsibility to maintain the parameters in the KRMS phone and ensure that the emergency phone operates properly

Use this procedure to change parameter values via a normal telephone.

NOTE - Step 1 is only necessary before performing this type of configuration the first time.

1. Contact the KONE Customer Care Center:
 - Ensure that the KONE Customer Care Center has enabled touchtone (DTMF) configuration.
 - Ask for the touchtone configuration password. Write down the password and save it for future use.
 - Ask for the phone ID. The phone ID refers to the position of the rotary switch (1...4) on the phone board.
2. Call the elevator phone number and wait for a beep tone. This may take a few seconds.
3. Enter the phone ID by pressing the correct button (1...4) on the telephone keypad. After entering the phone ID, static noise is heard. Wait until the noise stops before entering the next touchtone commands. The selected phone will wait for approximately one minute for the user to enter the first touchtone commands.
4. To ensure that the right phone has been called, press button 4. The system plays a recorded voice file that speaks the equipment ID of the selected elevator.
5. Press ## to enter the touchtone configuration mode system. The system beeps once, and is ready for parameter changes.
6. Enter the touchtone configuration password and press "#". Wait for one audible beep. Now the system is in the touchtone configuration mode, and the configurable parameter values can be changed. If the wrong password is given, the elevator terminates the call (hang up). There is approximately 1-minute to press each button in the touchtone command sequence, or the phone will terminate the call.

7. For each parameter, press # <parameter_number>*<parameter value># to change the parameter value. See the details in the table titled: **Actions and audible signals with a PSTN phone.**
8. Press *# or wait to exit from the configuration and hang up. Press *# or wait 1 minute for automatic hang up by phone.

Actions and audible signals with a PSTN phone			
Sequence	Action	Audible signal	Note
##	Enter the touchtone configuration mode.	1 beep = OK 2 beeps = error	Touchtone configuration mode can only be entered when the touchtone configuration mode has been enabled.
*#	Exit the touchtone configuration mode.		RIF will hang up.
#n*v#	Set parameter n to value v.	1 beep = OK 2 beeps = error	Example: *12*3456# 12 = parameter name 3456 = parameter value
#n*#	Setting the parameter n to a default value.	1 beep = OK 2 beeps = error	Example: *12*# Gives the parameter 12 its default value.
#n*v*v#	Give the parameter value twice if you want the system to verify the parameter setting.	1 beep = OK 2 beeps = error	This is a mandatory parameter when changing the password.
	Not allowed character on current string feed and acknowledged by user.	2 beeps	Attempting to give an unacceptable parameter name or value.
	Timeout (60 sec.) for touchtone command in touchtone configuration mode.	2 beeps	If new parameter is not given in 60 seconds., system will hang up
	To cancel the last touchtone string/command		There is no method for this. Set the parameter again.

Example: Set the parameter value for test call period to five days.

In this example, the phone ID is 2 and the password is 1122.

- First, call the elevator phone number and wait for a beep tone.
- Then enter the phone ID by pressing button 2 and then ##. The system will beep.
- Now enter the touchtone configuration password by pressing 1122. The system will beep.
- Finally, give the parameter and its new value by pressing #6*5#.

This means the following: 6 = parameter name and 5 = parameter value.

The system will beep.

To exit the touchtone configuration mode, press *#.

6.3. Configurable parameters

The configurable parameters are listed in the table below.

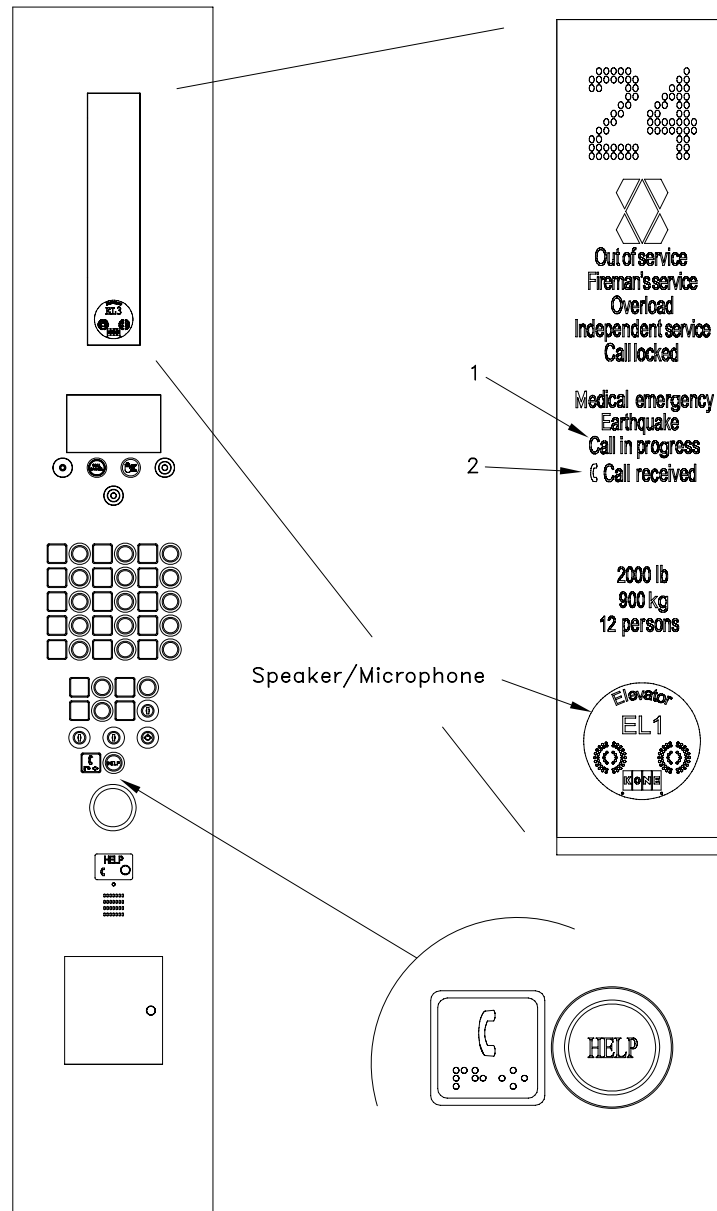
Parameter name	Number	Description	Default Value
Alarm call phone number	1	The primary alarm number to which the phone calls.	No Number
Secondary Alarm call phone number	2	The secondary alarm number to which the phone calls.	No Number
Test call number	3	The number to which the phone calls when the system makes a test call.	No Number
Battery failure call number	4	The number to which the phone calls when the battery's voltage level is low.	No Number
Alarm button filter time	5	The time in seconds between pressing the alarm button and the system registering the alarm.	1 second
Normal Routine call period	6	Test call period in days.	No test call
Alarm button monitoring	7	Alarm filtering enabling. This parameter defines whether the Phone board requests an alarm filtering from the analyser or not. You can give this parameter one of the following values: 1 = Alarm button monitoring enabled with alarm filtering. 2 = Alarm button monitoring enabled but without alarm filtering.	Disabled (No button monitoring)
Password to enter DTMF configuration mode	8	The password you need to be able to change the parameter values. Note! If you want to change the password, you must give the parameter value twice.	

7. GLOSSARY

Term	Definition
HELP button	button for activating CALL FOR HELP
car operating panel	user interface for passengers inside the elevator car A car operating panel includes car call buttons, alarm button, door open button and so on.
dual tone multi-frequency (DTMF)	technical term for touchtone signal that a telephone sends to the network When you press a button on your telephone, it generates a DTMF signal. Based on the signal the network can interpret which button you have pressed.
DTMF configuration mode	Operation mode of the phone board When the board is in this mode, the parameter values can be changed by using another phone to call the Emergency Phone.
KONE Remote Monitoring (KRMS)	Remote monitoring system provided by KONE
Phone board	Printed circuit board that takes care of the KRMS functions
public switched telephone network (PSTN)	International telephone system based on copper wires carrying analog voice data
remote monitoring	System which is used to monitor the operation and event history of elevators and escalators

8. APPENDIX

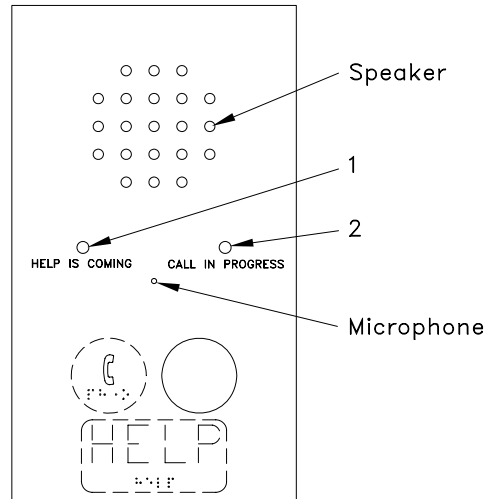
Indicator lights on the passenger interface: Style 1



5011971(2006-03)

Indicator	Name	Status	Indication
1 (Amber)	Call in progress	ON	Voice contact is ON or alarm active is active (accepted but not reset)
		OFF	No alarms.
		Blinking	Alarm has been registered, but there is no voice contact yet.
2 (Green)	Call received	ON	Voice contact is ON.
		OFF	Voice contact is OFF.

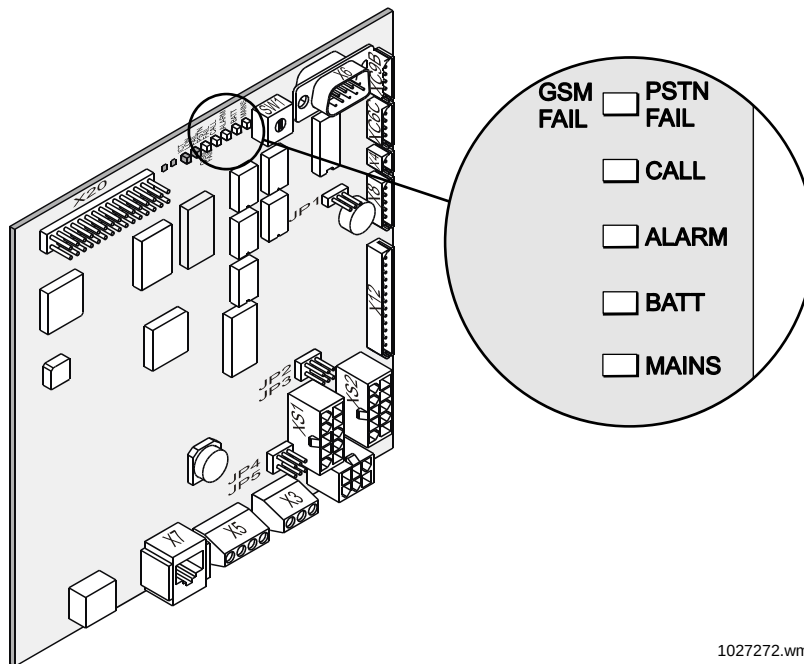
Indicator lights on the passenger interface: Style 2



5011970(2006-03)

Indicator	Name	Status	Indication
1 (Amber)	Help is coming	ON	Voice contact is ON or alarm active is active (accepted but not reset)
		OFF	No alarms.
		Blinking	Alarm has been registered, but there is no voice contact yet.
2 (Green)	Call in progress	ON	Voice contact is ON.
		OFF	Voice contact is OFF.

Indicator lights on the phone board



1027272.wmf

Indicator	Colour	Status	Indication
PSTN FAIL	Red	ON (PSTN)	The telephone line is missing, line voltage is less than 33 VDC or there is no dial tone.
		OFF (PSTN)	The telephone line status is normal.
CALL	Yellow	ON	Telephone call in progress.
		OFF	
ALARM	Yellow	0.5 s ON, 0.5 s OFF	The alarm has been registered but not served.
		ON	The alarm is active and served.
		2 s ON, 1 s OFF	Configuration download is ongoing.
		0.3 s ON, 0.3 s OFF, 0.3 s ON, 2 s OFF	No configuration, wrong configuration.
		OFF	No alarms activated.
BATT	Red	ON	Battery failure. - The battery needs to be replaced - The battery fuse has blown
		OFF	The battery is OK.
MAINS	Green	ON	Main power is on.
		Blinking	Main power is not connected, the battery is used as the power supply.
		OFF	No power at the phone board. The system is not in use.



Elevators Escalators

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KONE Maintenance Method

KONE

- * Safe
- * Functionally correct
- * Properly lubricated
- * Clean, neat, organized
- * Customer acceptable

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The information contained in this guide refers to procedures developed for use by KONE Technicians during the performance of Preventive Maintenance activities on equipment covered by a KONE Maintenance Contract. For Oil and Grease and other Partial Maintenance contracts the work is restricted to tasks contained in the Basic Module, unless otherwise specified in the contract document.

KONE Maintenance Method

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ASME A17.1-2010 / CSA B44-10 Code

Maintenance, Repair & Replacement Code Compliance

Special attention should be paid to the following excerpts taken from Section 8.6 of the ASME A17.1-2010 / CSA B44-10 Safety Code for Elevators and Escalators. Section 8.6 outlines requirements for Maintenance, Repair and Replacement. Field employees performing Maintenance, Repair and Replacement should be familiar with this section of the code.

Note: Previous editions of the code do not include all of the following requirements. Check the edition of the Code in effect in your area for information regarding local requirements.

8.6.1.6: General Maintenance Methods and Procedures

8.6.1.6.1: Making Safety Devices Inoperative

No person shall at any time make inoperative or ineffective any device on which the safety of users is dependent including any electrical protective device, except where necessary during tests, inspections, maintenance, repair, and replacement, provided the installation is first removed from normal operation.

Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service.

8.6.1.6.3: Controllers, Wiring, and Wiring Diagrams

8.6.1.6.3 (a): Up-to-date wiring diagrams detailing circuits of all electrical protective devices and critical operating circuits shall be available in the machinery space, machine room, control space, or control room as appropriate to the installation.

8.6.1.6.3(b): Temporary wiring and insulators or blocks in the armatures or poles of magnetically operate switches, contactors, or relays on equipment in service are prohibited.

8.6.1.6.3(d): When jumpers are used during maintenance, repair, or testing, all jumpers shall be removed and the equipment tested prior to returning it to service. Jumpers shall not be stored in the machine space, hoistway, or pit.

8.6.11: Special Provisions

8.6.11.10: Examination after Shutdown Due to Traction Loss

Where the traction-loss detection means has been actuated, the elevator shall not be returned to service until a physical examination of the drive sheave and suspension means has been conducted. The elevator shall not be moved until all passengers are out of the elevator and the elevator is posted out-of-service. In addition to the suspension-means evaluation criteria in 8.11.2.1.3(cc), any suspension-means or drive-sheave condition that would adversely affect the traction capability of the system shall be corrected before returning the elevator to service.

8.6.11.11: Examination after Safety Application:

After any safety application on a traction elevator has occurred, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary.

8.6.11.12: Examination after Shutdown Due to Broken-Suspension-Member Detection Means:

After any application of the broken-suspension-member detection means, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and

retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary. Where a single suspension member has been damaged or broken, the entire suspension means shall be replaced in accordance with 8.6.3.2.

8.6.1.5: Code Date Plate (reference to 8.9)

8.9.1: Required Information

An individual data plate shall be provided and maintained for each unit. The data plate shall indicate the Code to be used for inspections and tests. The data plate shall indicate the Code and edition in effect at the time of installation. The data plate shall also indicate the Code in effect at the time of alteration and indicate the applicable requirements of 8.7.

8.9.2: Location

The data plate shall be in plain view, securely attached to each main line disconnect or controller. It shall also be permitted to locate the data plate in the controller as long as it is in plain view with the controller door open. An additional data plate shall be installed in the vicinity of one of the starting switches on the exterior of escalators and moving walks.

Note: Identification of A17.1-2010/CSA B44-10 Maintenance and Periodic Test Tasks:

Tasks for Maintenance and Periodic Tests required by A17.1-2010/CSA B44-10 are identified in this book by their Code requirement numbers.

Notes

KONE Maintenance Method

Understanding KONE Maintenance Method (KMM)

The following sections describe the KONE Maintenance Method (KMM):

- Purpose of KONE Maintenance Method (KMM)
- Equipment maintenance profiles
- Service visit scheduling
- Service task reporting

NOTE! The following symbol is used in this document.



When used within the general body of this document it serves as a general hazard warning.

When used within the KMM modules it identifies maintenance tasks which directly impact End-user safety.

PURPOSE OF KONE MAINTENANCE METHOD (KMM)

KONE Maintenance Method (KMM) provides a focus on performing the required maintenance at the frequency necessary to maintain equipment to KONE Standards.

These standards are:

- Safe
- Functionally correct
- Properly lubricated
- Clean, neat, organized
- Customer acceptable

There are significant advantages to KMM when compared to calendar based maintenance. One of the most beneficial is to provide the maintenance technician with more productive time-on-site. This is achieved by simply reducing non-productive time.

Field time is split into several major areas:

- Traveling time to the job site
 - Arrival at job site
 - Locating parking
 - Getting keys for equipment/mechanical rooms
 - Tagging the equipment with Out-of-Service stickers
- Maintenance time
- Departure from job site
 - Removing Out-of-Service stickers
 - Posting time and completing Repair Recommendation and Material Request forms
 - Returning keys
 - Getting time tickets signed, where required

Clearly, there is a lot of non-productive field activity in the process of a normal maintenance visit. The traditional calendar-based maintenance structure repeats these activities every month.

Matching the frequency of maintenance visits with equipment characteristics, use and operating environment will increase the productive time spent working on the equipment. By initiating a planned approach to maintenance through Modules based on equipment characteristics, usage and operating environment, we can ensure that the required maintenance tasks are performed. Coupling more time maintaining the equipment with a more regimented approach to maintenance will improve the quality of maintenance and, thereby, reduce unnecessary equipment downtime, callouts and repairs.

EQUIPMENT MAINTENANCE PROFILES

KONE Maintenance Method (KMM) is designed to evaluate each piece of equipment and create a unit-based maintenance plan based on criteria such as usage, operating environment, control and drive types, number of openings, door type, etc. This information is stored in each equipment record and is used to create individualized maintenance profiles.

SERVICE VISIT SCHEDULING

Because they contain basic safety related tasks, the Elevator Basic Module (B) or Standards Module (ST) is the basis of every preventive maintenance visit for each elevator. Similarly, the Escalator Basic Module (B) or Escalator Basic Check Module (Y) is the basis of every preventive maintenance visit for each escalator and walk. Maintenance plans for equipment covered by Complete Maintenance Contracts also include additional technical modules that are scheduled throughout the year. These schedules are determined by the Equipment Maintenance Profiles noted in the prior section.

KMM currently uses the following Maintenance Modules:

EQUIPMENT MAINTENANCE MODULES	
Elevator Modules	Escalator/Autowalk Modules
B = Elevator Basic	B = Basic
ST = Standards	Y = Check
C = Control Panel	R = Brake
M = Machinery	O = Combplate
MX = MX Brake Check	V = Drive
S = Shaft	G = Guide
L = Landing Doors	H = Handrail
D = Door Operator	F = Step
Z = Signals	P = Partial Clean
FS = Fire Service	AN = Annual
	CD = Cleandown

Example schedule:

A BCM entry on the route sheet, or displayed on the KFM device, would indicate that the Basic (B), Controller (C) and Machinery (M) modules were to be completed that service visit.

Different Maintenance Modules are scheduled for completion on different visits in order to ensure that all maintenance tasks are performed when needed.

SERVICE TASK REPORTING

The normal method for Service Task reporting is with the KONE Field Mobility (KFM) device.

All back reporting shall be accurate, in real time and at the unit level. If you cannot determine an appropriate KFM selection, contact your supervisor. If the customer requires a paper field service ticket, the description of work shall correspond to KFM reporting, and the paper time ticket bar code shall be entered into the KFM device.

For callouts, the description of work shall be entered through the KFM device upon completion of work on each unit. This description shall accurately represent the state and condition of the equipment on arrival, the reason or cause of the callout, components affected, actions taken and state of the equipment at departure.

Refer to KONE Field Mobility (KFM) training materials for more information.

Contractual obligations or local code authority requirements may require on-site documentation. In these cases, work must be recorded using the specific KONE document that meets the requirement. Contact your supervisor for instructions on the proper form to use, as well as the method for entering the service visit information on the form.

Notes

Customer Relations

Every KONE Service Technician is a Customer Relations Representative for KONE Inc. People in the KONE Service Department make regular calls on Customers to take care of the elevator



equipment, year after year. Our Customer may be the Building Owner, or they may be the Building Representative responsible for the maintenance of the physical plant. These Customers will develop an opinion about KONE based on their encounters with the KONE employees they see most often...KONE Service Technicians.

The personalized service KONE provides will affect the customer's experience. What may seem like trivial details can influence how the Customer rates the quality of their KONE Service. Therefore, Customer Satisfaction must be a priority for each person in the KONE Service Department. A commitment to continuous service improvement will build strong Customer Relationships, and will turn good service into great service.

Use the following customer relations tools to build strong relationships with your customers.

ACTIVE LISTENING

Active listening can enhance your ability to respond appropriately to various situations as they arise with your customers. Active listening is not just hearing...it is understanding exactly what is being said. This requires your full attention while communicating with your customers. Let your customers know you are listening. Respond to customers with affirmative, reinforcing statements such as, Yes, I understand or Let me make sure I understand what you are saying. If you are not sure you understand completely, ask questions. Do not pretend to understand.

PROFESSIONAL PROBLEM RESOLUTION

What does it mean to resolve a problem professionally?

The answer depends on whether an equipment problem needs to be solved, or a customer issue needs to be resolved. Proficiency at both is required to build strong customer relations. As a talented, qualified KONE Service Technician you keep the elevator equipment well maintained and you are able to solve various problems with the equipment. Equally important, however, is the ability to deal effectively with a variety of customer issues. Before dealing with any of these issues, take time to gather information about the issue so you can make an informed decision. Then, after you have taken corrective action, follow-up with the customer to ensure that the issue has been resolved to their satisfaction.

PROFESSIONAL CONDUCT

Customers will develop confidence in you based on their perception of how well you perform your job and how you conduct yourself.

- Be approachable. Make it easy for your customers to communicate with you.
- Think like a customer.
- Be thoughtful and considerate...let your customers know we appreciate their business. You cannot say Thank You enough.
- Make sure all work areas are clean, neat and safe.
- Maintain a professional appearance. You only make a first impression once...make it a good one.

CUSTOMER SITE RELATED RISK

Site related customer created risk arises due to improper site management by the customer.

During the process of the KONE Service Technician performing maintenance, he/she may notice site related risks caused by the customer's improper use of the equipment, inadequate supervision of the equipment's use by the riding public or an unacceptable operating environment.

Some examples of customer site related risk:

- Equipment usage needs to be better supervised
- Misuse and/or abuse of the equipment is occurring
- Vandalism is a recurring problem
- The equipment is being worked on by the customer or their employees
- The equipment is being worked on by another elevator company

- The equipment is being re-started improperly by the customer's employees
- Merchandise displays are located too close to the equipment's entrance (elevator) or walk-on plates (escalators)

Building management responsibilities include, but are not limited to, the following:

- Machine room temperature
- Machine room humidity
- Ventilation
- Standing water or water intrusion
- Sump pumps
- Equipment power supply
- Phones (line or equipment)
- Self-closing and locking machine room doors
- Safe access to equipment spaces
- Storage of non-elevator related material in machine room
- Missing/expired fire extinguisher
- Inadequate machine room/pit lighting
- Machine spaces, hoistway or pits do not comply with code

Upon identifying a risk(s), the Service Technician should complete the Customer Site Related Risk Notice, (WF-SEB-0748) and distribute copies as indicated at the bottom of the form. Any questions should be directed to their Supervisor immediately.

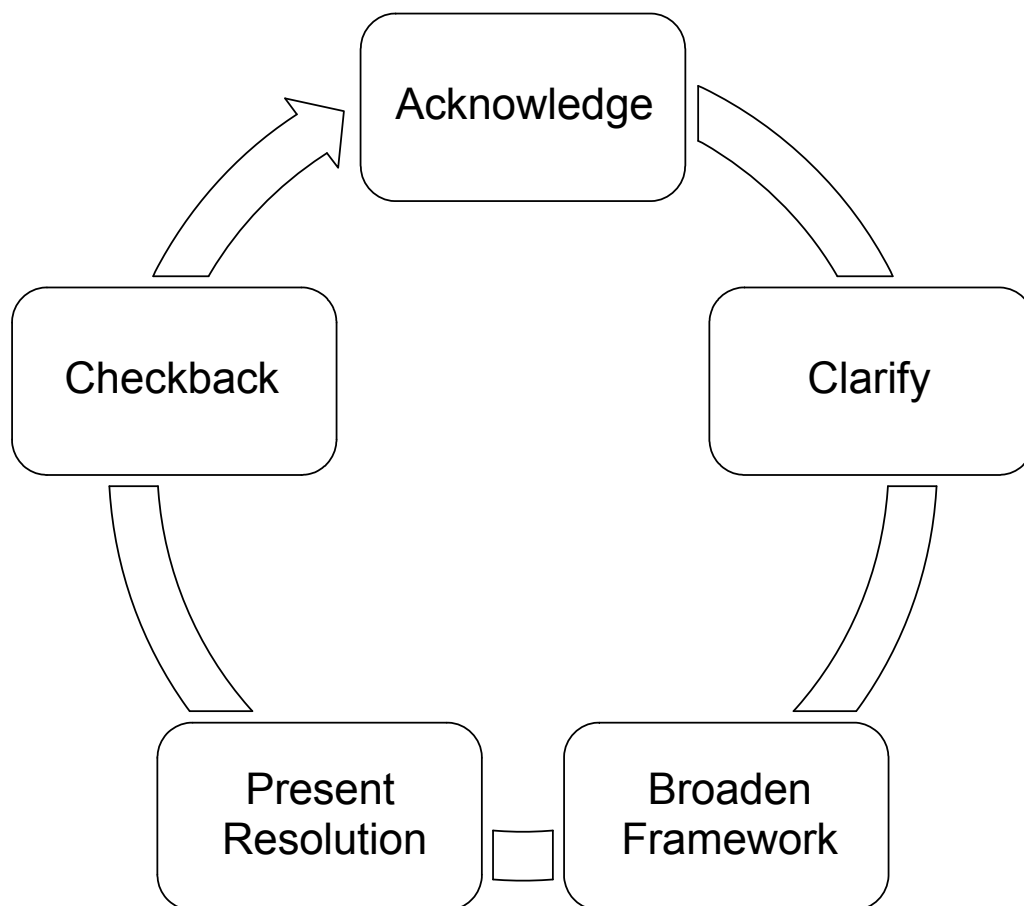
KONE Ambassador Checklist

Do I. . .

- Believe in KONE and the service I provide?
- Know my customer's business and respect his or her priorities?
- Focus on building and maintaining the relationship?
- Actively listen to my customer?
- Provide consistent and regular communication?
- Address my customer's concerns and own his or her issue?
- Seek to be pro-active to avoid future issues and problems?
- Maintain a professional and calm style at all times?
- Confirm customer satisfaction?

Ambassador Program Customer Focus

Six Step Process for Conflict Resolution



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Contract Information

COMPLETE MAINTENANCE (CM) CONTRACT EXCLUSIONS

The following items are excluded from the CM Agreement:

Hydraulic elevator

Refinishing, repairing or replacement of car enclosure, gates and/or door panels, door pull straps, hoistway enclosure, rail alignment, hoistway doors, door frames, sills, hoistway gates, finished flooring, power feeders, switches, their wiring and fusing, car light diffusers, ceiling assemblies and attachments, telephones, fans, emergency lights, smoke or heat sensors, intercoms, light tubes and bulbs, hydraulic cylinder, or unexposed piping.

Traction elevator

Refinishing, repairing or replacement of car enclosure, gates and/or door panels, door pull straps, hoistway enclosure, rail alignment, hoistway doors, door frames, sills, hoistway gates, finished flooring, power feeders, switches, their wiring and fusing, car light diffusers, ceiling assemblies and attachments, telephones, fans, emergency lights, smoke or heat sensors, intercoms, light tubes and bulbs.

Escalator

- Refinishing, repairing or replacement of balustrades, decks, skirt panels, anti-slide devices, brushes and guards. Damage or deterioration to escalator skirt deflector brushes caused by UV rays.
- We are not obligated to make equipment adjustments to achieve Code required Escalator Step/Skirt Performance Index or loaded gap values.

General

- We exclude safety tests.
- We exclude the replacement of any batteries.

- We are not obligated to make changes or adjustments required by new or retroactive code changes enacted after the effective date of the contract.
- We are not required to make renewals or repairs due to fluctuations in the building AC power systems, extreme variations in the machine room temperature or humidity.
- We are not required to make renewals or repairs required due to water intrusion.
- We are not required to make renewals or repairs due to the tampering with the elevator equipment by unauthorized personnel.
- We are not required to make renewals or repairs necessitated by negligence or misuse of the equipment.
- We are not required to clean unusual amounts of dirt or debris from the machine room, hoistway or pit.
- We are not required to make renewals or repairs due to any other cause beyond our control except ordinary wear and tear e.g. escalator comb impact trip, escalator handrail inlet switch trip, etc.
- In the event that any part of the equipment becomes obsolete, or is no longer manufactured by the original equipment manufacturer, the cost to replace the obsolete part shall be at the Owner's expense.
- For contacts that include overtime time callbacks, our time on site is limited to two hours on site. If time on site exceeds two hours, it requires billable authorization from the customer (signed time ticket or form 744).
- We do not include overtime repair. All overtime repair work must be authorized by the customer and requires a signed time ticket or signed 744 form.
- Fixture re-lamping is included during scheduled PM visits only.

- Additional exclusions may apply as a result of specific site conditions or contract language.

OIL AND GREASE (OG) CONTRACT INCLUSIONS

We will provide the labor to systematically examine and lubricate the equipment, as outlined below:

- All lubricants, greases, and wiping clothes will be provided.
- If our examination uncovers items that require replacement, adjustment and/or repair, a separate proposal will be prepared for the customer's authorization.
- At the customer's option, we will proceed with work not covered by this agreement, but only after receiving billable authorization (signed quoted repair proposal, signed time ticket or signed form 744).

OIL AND GREASE (OG) CONTRACT EXCLUSIONS

All other work, parts, or supplies (except those outlined in the Inclusion section above) are excluded.

- This contract type excludes hydraulic fluids. We only provide hydraulic fluids after receiving billable authorization (signed time ticket, or signed form 744).
- This contract type excludes callback service. We only perform callbacks after receiving billable authorization (signed time ticket, or signed form 744).
- This contract type excludes performance of safety tests and equipment adjustments. We only perform safety tests and equipment adjustments after receiving billable authorization (signed time ticket, or signed form 744).
- KONE does not perform any repairs on equipment covered by OG contracts. We only perform repairs after receiving billable authorization (signed quoted repair proposal, signed time ticket, or signed form 744).

Notes

Safety

End User and Worker Safety is Your Responsibility



In the area of safety, everybody has an important role. Most, if not all, of our activities affect not only our personal safety, but also the safety of our customers and their end users. We will deliver safe products and services to our elevator and escalator customers and their end users. It is your responsibility to fully understand and adhere to the safety requirements of our installation, modernization, repair and maintenance methods, and local code requirements.

Because elevator and escalator components vary from company to company, and because unique or unusual jobsite conditions may exist, it is not possible for a general message on safety methods and practices to deal with every possible hazard that may be present at every jobsite. For that reason, each user of this Technician's Guide must carefully observe the safety conditions at each jobsite to make certain there are no conditions that would require safety precautions beyond those described in this document.

The following Safety section of this guide contains excerpts taken from the Elevator Industry Field Employees' Safety Handbook. This information is included as a reference for you to use regarding safety issues you may encounter while performing maintenance on elevator and escalator equipment.

Refer to the current version of the Elevator Industry Employees' Safety handbook for additional details on working safely.

Contact your supervisor in the event unsafe conditions or other hazards exist.

KONE JUMPER POLICY

Purpose and Scope

The purpose of this Document is to communicate the KONE Inc. Policy related to the use of jumpers.

Responsibility

KONE shall equip field employees with approved jumper kits, appropriate to their job responsibilities.

Supervisors/Managers are responsible for:

- Assignment of jumper kits based on employee job responsibilities.
- Printing the employee's name and employee number (with a permanent marker) on the instruction card attached to each jumper prior to assigning jumper kit(s).
- Logging the assignment of jumpers on the Jumper Kit Branch Inventory (Attachment A).
- Annually inspect and inventory each field employee's jumper kit in conjunction with their safety bag inspection during safety training.
- Recording the results of the inspection in the employee's file.
- Issuing replacement jumpers only after damaged jumpers are returned.

Employees are responsible for:

- Understanding what affect using or removing a jumper will have on the entire elevator, escalator, or moving walk prior to use;
- Carrying a limited number of jumpers so that they can be accounted for at all times;
- Placing the jumper kit on the machine room door handle when jumpers are in use;

- Never leaving jumpers on equipment or in the machine room;
- Removing and accounting for jumpers when returning equipment to service;
- Immediately notifying their supervisor/manager of any equipment found in service with the jumpers left on;
- Only using approved jumper kits (per section 4.6);
- Inspecting jumpers for damage prior to each use; and
- Returning damaged jumpers to supervisor/manager for issuance of replacement jumpers.

Requirements

Overview

Sometimes, the only way to locate and solve a problem is to temporarily bypass electrical circuits. Take special care to protect yourself, co-workers and the end-user while jumpers are in place. Remove the jumpers at the earliest possible opportunity.

Proper use of jumpers

The Elevator Industry Field Employees' Safety Handbook provides guidelines to be followed by KONE field employees in the proper use of jumpers. It is recognized that temporary circuit jumpers or clips (jumpers) may be required for conducting some service work on elevators, escalators or moving walks. All field employees shall be trained in the proper use of jumpers for defeating electrical and safety circuits. When jumpers are used they shall have the following characteristics:

- The wires are extra long, tied in knots and are brightly colored;
- Jumpers shall be numbered in sequence
- The ends of jumper wires shall be affixed with insulated alligator clips or connectors. Clip or pin adaptors (if designed for use with the jumpers and included with the jumper kit) may

also be used; and

- The employee's immediate supervisor/manager will mark each jumper tag with the employee's name/employee number with permanent marker prior to issuing the jumper set.

KONE shall equip field personnel with approved jumper kits, appropriate to their job responsibilities.

Make sure you understand what effect using or removing a jumper will have on the entire elevator or escalator system prior to use. Jumpers shall never be placed or configured to resemble permanent wiring.

The number of jumpers carried shall be limited so that all jumpers can be accounted for at all times (numbering jumpers in sequence will help). Jumpers shall be removed and accounted for when returning equipment to service.

Equipment shall never be returned to service with jumpers left on. Equipment found in this condition shall be removed from service immediately and reported to your supervisor/manager immediately.

Maintenance and Troubleshooting

Jumpers shall not be used as a diagnostic tool. Always use a multi-meter to troubleshoot circuits. Temporary bridging devices (e.g. tomahawk) shall not be used to short out hall door contacts. Do not jump out the door and the gate at same time.

NOTE! You may deviate from jumping out the door and gate at the same time only when a second qualified person is on site and in direct communication.

USE EXTREME CAUTION WHEN THESE CIRCUITS ARE JUMPED OUT.

The following guidelines shall be followed in attaching and removing jumpers:

- Remove elevator from public use and ensure no passengers are in elevator.
- Place the jumper kit on the machine room door handle.
- Ensure that elevator is on inspection operation before placing jumpers on door, gate or safety circuits:
 - Make a visual inspection that all hoistway doors are mechanically closed.
 - Where inspection operation is not available, disable car calls, hall calls and door operation.
- Verbally communicate to all other KONE employees on the job site when jumper(s) are to be used. This communication provides needed information on circuits bypassed and equipment affected.
- Never leave jumpers on equipment or in the machine room.
- When the work is complete, all jumpers shall be removed, counted and returned to the jumper kit. Ensure all jumpers are removed before placing equipment back in service.

Modernization and New Construction Work

On modernization and construction, many jumpers are used to operate elevators.

- Jumpers shall be brightly colored, easily identifiable, long, conspicuous and tied in knots.
- A Jumper Log (See Attachment A) shall be utilized to ensure that effected employees are aware of the safety circuits that are not functioning. It is the responsibility of the mechanic/mechanic-in-charge to ensure the Jumper Log is complete. The Jumper Log shall be kept with the controller and shall not be removed until all jumpers are removed.
- Door, gate or other safety circuits shall never be jumped out unless car is on inspection in the controller.

- Jumpers shall be removed as soon as they are no longer needed.
- Maintenance and trouble shooting procedures outlined above shall be followed.
- Before moving car with open doors, verify car is on inspection.

Door bypass procedures

Inspection operation with open door circuits (ASME A17.1, Requirement 2.26.1.5) shall only be utilized when it is necessary to move an elevator when the car gate and/or landing door lock circuit is electrically open. Before utilizing this, steps shall be taken to identify the problem circuit (car gate or door lock) and bypass only that circuit. Once a decision is made to utilize door bypass circuitry, the elevator shall be placed on inspection operation. Once on inspection operation, the pertinent switch(es) can be switched to “bypass” position. Then, whenever possible, the elevator shall always be operated from the top of the car.

Extreme caution shall be taken prior to and while moving the elevator to ensure the safety of the public and elevator personnel (i.e., unprotected openings, body parts clear of moving equipment, equipment unobstructed, etc.)

Once the purpose for using the door bypass circuitry has been met, the switch(es) are to be switched to the “open” position. A thorough check of the car gate/door lock circuitry shall then be performed to ensure proper operation. Once this is confirmed, the elevator shall be placed back on automatic operation and returned to service.

KONE approved jumper kits

KONE approved jumper kits have been developed for compliance with “Section 6 - Proper Use of Jumpers” in the Elevator Industry Field Employees' Safety Handbook. The appropriate jumper kit(s) shall be assigned to each field employee based on their job

responsibilities. There are three approved jumper kits:

- US520719001 is a five-jumper kit that has been developed for general service use.
- US520719002 is a jumper kit (harness) developed for safety testing on LCE equipment (both traction and hydraulic).
- US520719003 is a two-harness kit that has been developed for modernization and installation work, and some service work. One of these harnesses is specific to current production LCE traction equipment, and one harness is specific to current LCE hydraulic equipment.

The assignment of these jumper kits (no more than one of each type per employee) shall be made by each field employee's supervisor, and shall allow each field employee to perform his job responsibilities.

Prior to assigning the jumper kit(s), the responsible supervisor will print (with a permanent marker) the employee's name and employee number on the instruction card that is attached to each jumper. The assignment of jumpers shall be logged on Jumper Kit Branch Inventory (Attachment B). KONE field employees shall not use any other jumpers or jumper kits, except in those special cases noted below.

The approved jumper kits have characteristics that enable the KONE field employee to comply with specific requirements, including:

- Permanently marked, sequentially numbered tags are affixed to each jumper.
- Laminated instruction cards are attached to each jumper with a specific place for the employee name/number to be printed on the card (use a permanent marker)
- The jumpers come in a kit with Velcro straps. These straps

enable field employees to attach the case to an area (e.g. machine room door handle) that will make it difficult to leave the machine room without removing jumpers.

- The wire ends are affixed with insulated banana connectors for attachment of alligator clips and other approved attachments. Clip and pin adaptors designed for use with the jumpers are included with the kit (US520719001) developed for general service use.
- The wires are extra long and are brightly colored.
- Damaged jumpers shall be returned to the supervisor/manager before replacement jumpers are issued.

Notes:

- On multi-crew jobs, and at the supervisor's/manager's discretion, the mechanic-in-charge may be assigned more than one US520719013. this assignment of additional kits shall comply with all other provisions of this policy.
- During the installation of vendor controls (e.g. MCE) additional jumpers will be required. These jumpers can be obtained locally, but must have the same characteristics as those listed above for the KONE jumper kits. A durable tag (with no metal components) with the employee's name/number, printed with a permanent marker, must be attached to the jumper prior to use. All other provisions of this policy remain in effect.

Storage and Inventory of Jumper Kits

Jumper kits shall be stored in the field employee's safety bag when not in use. Each time jumpers are used the field employee shall inspect them for damage. Supervisory staff shall annual inspect and inventory each field employee's jumper kit in conjunction with their safety bag inspection during safety training. Results of the inspection shall be recorded in the employee's personnel file.

Enforcement

The employee and End User Safety Violation & Discipline Policy (Safety-01-010) outline the procedures to implement following a violation of the Jumper Policy including management enforcement of the policy.

End User Safety is Your Responsibility

In the area of safety, you have an important role. Most if not all of our activities affect not only our personal safety, but also the safety of our customer and their end users. We will deliver safe products and services to our elevator, escalator and moving walk customers and their end users. We shall fully understand and adhere to the safety requirements of our installation, modernization, repair and maintenance methods and local code requirements.

Training

All field employees shall be trained on the KONE Inc. Jumper Policy and Section 6 - Proper Use of Jumpers in the Elevator Industry Field Employee's Safety Handbook. Supervisory staff shall conduct the training for new field employees upon hire. A record of new hires trained shall be completed for each training session and a copy retained in the employee's personnel file and the original mailed to HQ Human Resources/Training Department.

Electrical Safety

General Precautions

- When power is not required to perform the task, lockout/tagout procedures must be followed. Testing and troubleshooting may be done live, but repairs can only be done when system has been properly de-energized or circuits isolated.
- THE FOLLOWING PERSONAL PROTECTIVE EQUIPMENT SHALL BE WORN WHEN TROUBLESHOOTING LIVE ELECTRICAL CIRCUITS:
 - For arc-flash protection long-sleeved natural-fiber or FR-rated shirts and pants, long-sleeved FR-rated coveralls or other company-approved arc-flash-hazard protection
 - For arc-flash protection clean leather gloves when working with 240 volts or more
 - Nonconductive safety glasses
 - EH-rated footwear or rubber mats
 - For electric shock protection, rubber insulated gloves with leather protectors rated for the voltage present. When the danger from electric shock extend to arms as well, rather rubber insulating sleeves in addition to the gloves.
- Always use a circuit test on each circuit before troubleshooting on it because all voltages can be dangerous. Contact with even low voltages can result in serious injury.
- All circuits shall always be treated as LIVE unless proven otherwise.
- Before troubleshooting any electrical circuits or apparatus, remove all jewelry, keyrings, cell phones, radios, pagers and other metal objects, etc.
- Never troubleshoot circuits when standing or kneeling on metal, wet surfaces or in water.

- When troubleshooting live circuits, take care to be safely isolated (i.e., rubber mats, isolated tools, EH rather shoes, etc.)

To prevent shocks, take precautions to:

- Keep metal objects from touching or being exposed to any LIVE parts, moving machine parts or connections.
- Do not wear tool belts and do not carry tools in your pockets.
- Use only double-insulated rated tools when troubleshooting on circuits that may not be de-energized.
- While troubleshooting on MG Sets, elevator motors and solid-state motor drives, take extreme precaution, because the armature voltage present may be as high as 600 volts.
- Exercise caution (Be cognizant and prepared to test other circuits that may be "LIVE") when troubleshooting, on multi-car operations especially in group systems, which may have circuits that are LIVE. Even when the mainline disconnect switch is OFF, other circuits may be powered from other sources (group controls, cab lights, etc.)
- **Always** use fuse pullers to remove and install fuses. Fuses and fuse holders should be marked for proper size and type. Never use a higher amperage fuse, a fuse of a different type or bridge a fuse.
- Use nonconductive flashlights.
- Temporary wiring can be hazardous. All temporary wiring shall comply with the National Electrical Code, Article 305. But when temporary wiring is used, locate wiring in such a manner that no one can trip over it. Do not run temporary wiring through floors, doors or wall openings. Take precautions to protect it from sharp edges and mechanical damage and do not support it with nails or wires.
- All 110-volt, 15- or 20-amp circuits shall be grounded, except

temporary lighting circuits. Do not wire outlet receptacles into lighting circuits unless they are grounded.

- Never troubleshoot on live circuits unless necessary to perform task. See Section 7 lock-out/Tag-out.
- Always replace covers on electrical equipment after troubleshooting is completed.
- **DO NOT OPEN THE MAINLINE DISCONNECT SWITCH COVER.** If power is not being supplied to the elevator controller (e.g. open mainline fuses, etc.), advise the building owner to correct the condition. This is not the elevator company's responsibility.
- Keep electric cabinet doors closed when system is energized, whenever possible.
- A ground fault circuit interrupter (GFCI) is required when using portable power tools and drop lights. GFCIs should be tested prior to each use.

Meter Usage Safety Checklist

- Use Category III multimeters.
- Follow the manufacturer's safety procedures for the meter used.
- Be certain the meter is in good operating condition. Notify your supervisor immediately if the meter is damaged.
- The meter used must meet accepted safety standards for the environment it will be used in.
- Use a meter with fused current inputs and be sure to check the fuses before taking measurements.
- Inspect test leads for physical damage before making measurements. If damage, replace them before proceeding.
- Use the meter to check continuity of the test leads.
- Use only test leads that have shrouded connectors and finger

guards.

- Use only meters with recessed input jacks.
- Select the proper function and range for your measurement and double check before proceeding.
- Be aware of high-current and high-voltage situations and use the appropriate equipment, such as high-voltage probes and high current clamps.
- Always disconnect the “hot” (red) test lead first.
- Use a meter that has overload protection on the ohm function.
- When measuring current without a current clamp, turn the power off before connecting into the circuit.

Energized Circuit Troubleshooting Checklist

Work on de-energized circuits and use lockout/tagout procedures whenever possible.

- On live circuits, use personal protective equipment (PPE).
 - Use insulated tools.
 - Wear nonconductive safety glasses or a face shield.
 - Wear rubber insulated gloves with leather protectors rated for the voltage present. Danger from electric shock extends to arms. Wear rated rubber sleeves in addition to gloves.
 - Remove watches, jewelry or other metal objects.
 - Stand on an insulated mat or use safety shoes with electrically rated soles.
 - Wear long-sleeved natural-fiber or FR-rated shirts and pants, long-sleeved FR-rated coveralls or other company-approved arc-flash-hazard protection. (Check with your company procedures for specific uniform requirements.)
- When taking measurements on live circuits:

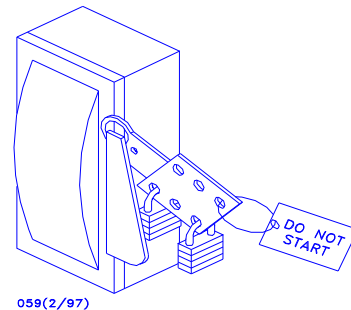
Safety

- Hook on the ground clip first, and then make contact with the hot lead. Remove the hot lead first and the ground lead last.
- Hang or rest the meter if possible. Try to avoid holding it in your hands to minimize personal exposure to the effects of transients.
- Use the three-point test method, especially when checking to see if a circuit is dead. First, test a known live circuit.
- Second, test the target circuit. Third, test the live circuit again. This verifies that your meter worked properly before and after the measurement.
- Use the old electrician's trick of keeping one hand in your pocket. This lessens the chance of a closed circuit across your chest and through your heart.

Lockout and Tagout

General requirements

The procedures outlined below are intended to prevent injury or death to employees by requiring certain procedures be taken before working on equipment. Unless it is not feasible (i.e., inspecting, troubleshooting, observing, etc.), employees shall not perform any work on equipment where there is a potential to be exposed to contact with energized mechanical or electrical hazards until all sources of energy have been de-energized, grounded or guarded.



Safety

Equipment variations require the mechanic to know what car controls are available and operating; the mechanic must know what safety methods will be employed to gain control of the car. Never access the hoistway unless you have control of the car.

All forms of potential energy including electrical, mechanical, hydraulic, pneumatic, kinetic, gravity, etc. shall be controlled to prevent inadvertent movement of a unit or piece of equipment being worked on.

Procedures

- Understand the equipment; be aware of its potential hazards. If it is not understood, or if you have a question, contact your Superintendent/Manager immediately before proceeding.
- Where the accidental starting of the equipment would create a hazard - deactivate mainline disconnect switch to shut off the power.



CAUTION: Do not stand directly in front of the mainline disconnect when operating (stand off to the side of the disconnect). Each employee shall apply to the disconnect switch a personal lock and a Do Not Start tag with the employee's name and date to the disconnect switch.

- Some components (capacitors, MG sets, etc.) often store residual energy, even though power is shut off. The stored energy can result in electrical shock or unintended movement of equipment. Before working on equipment with these components, discharge the stored energy to ground.
- When it is impossible to lock the switch, assurances shall be made that the circuit is deactivated and tagged out.



CAUTION: It is possible to have electrical energy on a controller that has had the mainline-disconnect switch deactivated. After initiating lockout and tagout, the lighting circuit may still be energized.

- Once the system has been locked out, verify with the appropriate test equipment that the system has been de-energized.
- Before working on mechanical systems, make sure the system is understood. If there are any questions, get answers before proceeding. Such systems often store energy, even though the electrical power is shut off. The stored energy can result in violent movement of a machine part, such as a plunger or piston rod, when work is done on another portion of the equipment. If the portion of the system to be worked on can be isolated and the pressure in that portion of the system released by bleeding, it is not necessary to shut down the entire system. However, the valves and controls that could readmit pressure to the system being worked on shall be identified with Do Not Start tags and locked out. If a lockout is not possible, other positive action shall be taken to ensure that the equipment will not be energized. Check flanged connections, cylinder heads or plate-mounted components. The sticking of a gasket can hold the parts together, while bolts are removed, and then can come apart violently due to stored pressure.
- When working under a hydraulic elevator, devices such as jacks, pipe stands, etc. shall be installed to prevent the elevator from injuring workers in the pit.
- Each employee who performs duties described above will be provided with an individually keyed or combination lockout device and tags. If more than one employee is assigned to a task, each employee shall be responsible for placing their own lock and Do Not Start tag, so the controls cannot be operated.
- If controls are so located that only one lock can be accommodated, a multiple lockout device shall be used.

- Lockout devices shall be made available for locking out additional equipment. Combination locks may also be used.
- Where special devices are required to lockout circuit breakers, they shall be available and used.
- Lockout devices shall be returned to the Company when an employee transfers to other assignments or terminates.
- When switches are deactivated for service, repairs or alterations, they shall be locked out and tagged out.
- Before starting work on any equipment that is out of service, make a thorough check of all electrical control and starting devices. When any part of such equipment is remotely controlled, lockout and tagout the mainline disconnect and confirm that the system is de-energized.

Restoring equipment and machines to normal service

- All tools shall be removed, all guards and covers shall be reinstalled and the area shall be checked to insure that no personnel are exposed to the equipment or machine.
- The mechanic, after checking to make sure that no one is exposed to the equipment or machine, shall restore energy to it.
- After each portion of the work is completed, the individual who places the lockout mechanism shall be responsible for its removal. If more than one operation is performed on a piece of equipment, machine or system, it will be necessary for each individual to remove their lockout mechanism immediately after their work task has ended. The last individual to remove their lockout mechanism shall notify the customer that all work has ended.
- The unit shall be operated in the normal mode before returning it to service.
- Remove out of service tags.
- Notify the customer that the unit is back in service.

Lockout/tagout procedures for escalators and moving walks

- The following procedure applies to all employees who work on escalators and moving walks. Any time work is to be performed within the interior plane of the steps/pallets, it shall be locked out and tagged out to prevent the unit from starting unexpectedly.
- When it is necessary to perform work on escalators or moving walks with a limited power supply, contact your Superintendent/Manager for the safe operating procedures and review Escalator and Moving Walk Safety.
- Whenever removal of 10% of escalator steps is done, a blocking device shall be activated to prevent the escalator from moving. If the unit is not equipped with a mechanical dog, the drive chain must be secured to the truss braces to prevent movement in either direction.

NOTE! More than 10% of the steps may be removed without the use of a mechanical blocking device when company procedures document that a weight imbalance is not created.

- Whenever steps are removed and the unit is going to be left out-of-service, the steps/pallets should be moved to cover the openings (whenever possible).

MRL Car Movement Locking Devices

Some machine-room-less elevators are equipped with special car movement locking devices that provide an independent method of securing the car. The cartop can then safely be used for performing maintenance, inspection, adjustments, or repairs to overhead equipment.

- Elevator suspension must be in place.
- The device is typically located on the crosshead.

HOISTWAYS AND MACHINE ROOMS

Hoistway access safety

Prior to gaining access to the hoistway, determine whether power is needed to perform the required task. If not, the appropriate lockout/tagout procedure shall be used. Do not open the hoistway door more than 6 in. (152 mm) until you determine the car or car top is located in a safe position to access.

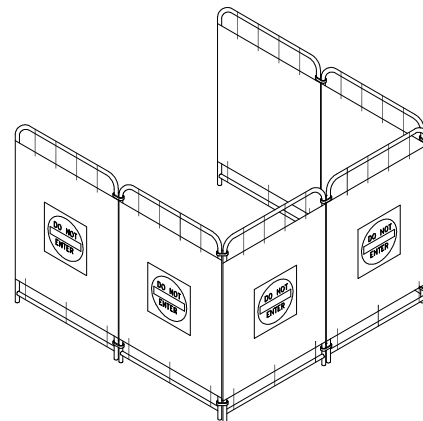
Top-of-car access/egress procedure



CAUTION: Besides examination, inspection, maintenance and adjustment work that must be done on the car top, there is a considerable amount of work in the hoistway which must be done from the top of the car and, at times with the car in motion. A few simple precautions will reduce the possible hazards.

Accessing top-of-car

- When a hoistway access switch is provided, capture the elevator, take it to the top access landing and activate the means to disable operating devices, located at the car-operating panel. Turn the “access enable” to ENABLE or ON position. Verify that elevator is not on automatic operation by registering multiple car calls. With the hoistway door(s) held in the open position, activate hoistway access switch to run the car down. Stay clear of moving car.



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CAUTION: If the car has front and rear openings, access the car top only on the side where the car top stop switch is located.



CAUTION: Do not open the hoistway door more than 6 in. (152 mm) until you determine the car top is located in a safe position to access.



CAUTION: When using hoistway door unlocking device keys be aware of pinch hazards when the hoistway door opens under power.

1. Run elevator down in increments to where the door operator is accessible. Remove key from access switch.
2. Car door needs to be closed before elevator operation from the car top maintenance station. Insert key and continue lowering until top of the car is floor level.
3. Before getting on top of the car from the landing, insert door wedge to block the hoistway doors in the open position. Be sure car is in position and accessible. Remove key from access switch. The reach in and:

- Place the top-of-car stop switch in the “STOP” position.
- Turn the car top work light on if you can safely reach it from the landing.
- Insert key. Try to move elevator in both directions. It should not move. Remove key.
- Place the inspection switch in the “INSPECT” position and “STOP” to “RUN.” Insert key and try to move elevator in both directions it should not move. Remove key.



CAUTION: Be sure you have a surface to stand on that will support your weight. Don't stand on the car top emergency exit or fan unit, and use special care where the car tops are curved or domed.

- Place the top of car **stop switch** in the “RUN” position and verify that up, down and enable (where provided) buttons function correctly.
- Proceed with necessary tasks in hoistway.

Exiting top-of-car

1. Position top-of-car level with the egress landing. When a hoistway access switch is provided, position the top-of-car at the landing where the top access switch is located.
2. Place the top-of-car stop switch in the STOP position.
3. Check for tools, keys, rags or any other equipment.
4. Slowly open hoistway door and place door wedge tool into sill.
5. Step off top-of-car onto landing.
6. Place the inspection switch in the NORMAL position.
7. Place the top-of-car stop switch in the RUN position and turn

- off the car top work light.
8. When a hoistway access switch is provided, with the hoistway door(s) in the open position activate hoistway access switch to run the car up. Stay clear of moving car. Deactivate the means to disable operating devices.
 9. Remove door wedge tool and close hoistway door to engage pickup rollers with door clutch.
 10. Inside cab return "Access-Enable" to NORMAL or OFF position disabling access switch.
 11. Verify elevator is operational by placing a hall call.

Safety precautions when working on car tops

- Familiarize yourself with the position of the car and counterweights of the car being accessed as well as any other cars/counterweights in the vicinity and take appropriate measures to keep yourself and others away from hazards.
- If movement of the car is needed while on top of the car, be sure to have a firm hold on the crosshead, or other part of the car structure.
- Never stand or sit on the crosshead when the car is moving.
- Never hold onto the ropes, sheaves or sheave guard.
- If the car top is not clean (i.e., oil, grease), clean it prior to performing any activities.
- Verify proper operation of top-of-car inspection operating buttons.
- Where outlets are provided, use a grounded portable light with a suitable, non-conductive or grounded lamp guard and reflector.
- Electrical cords are not to be hung on car or counterweight ropes.

- When a top-of-car operating device is available and operational, use it to operate the car instead of depending on an operator in the car.
- If top-of-car operating device is not available and you must ride on top of the car ensure:
 - The person on the car top shall identify and be positioned in a safe refuge space. Do not enter areas marked with Red and White strips.
 - The operator in the car is briefed on the signals to be used.
 - The operator in the car repeats instructions each time before moving the car.
 - That hall buttons cannot control the car.
 - The operator shall only run the car on the slowest possible speed and only in the specified direction.
 - In the case of single and collective-operation elevators or any elevator with reversal at the terminals is automatically controlled, instruct the operator to reverse the direction of the car before the terminals by means of the reversal switch in the car.
- When a fall hazard exists, fall protection shall be used.
- Wire ropes shall only be inspected or lubricated when the car is stopped. Avoid pinch points.
- When opening hoistway doors from the car top, do so slowly so that no one steps in from the landing thinking a car has arrived.
- Observe overhead clearances.
- Use extra care when working on car tops that are curved, domed, or located in unenclosed hoistways.
- Do not leave parts, lubricants, etc. on the top of elevator cars.

- This is a violation of the A17.1 / CSA B44 Code.
- The car top emergency exit shall remain in the closed position except when passing through it.
 - Before performing repairs from top-of-car, with the car at or above the top landing, place a ladder in car under top emergency exit to provide means of exiting from car top.

PIT SAFETY

General

Many serious injuries occur every year, entering and exiting pits. Every employee must be aware of the hazards before entering a pit. Some of the more common hazards are:

- Inadequate refuge space
- Inadequate lighting
- Improper access
- Tripping hazards
- Unsafe or lack of pit ladders
- Moving equipment

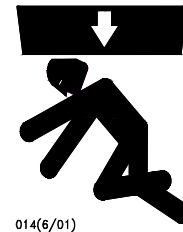
Take appropriate steps to minimize these hazards and any others that are identified.

- Before entering a pit, familiarize yourself with the position of the car and counterweights for the car being worked on as well as any other cars/counterweights in the vicinity.
- Control of the car shall be obtained prior to entry into the pit.
- If notified by the building owner or representative that the pit and/or hoistway have been classified as a permit required confined space (this notification could be verbal or the pit/hoistway may be labelled), immediately notify your Superintendent/Manager for further instructions. In either case, DO NOT enter the pit/hoistway until consulting your Superintendent/Manager and receiving authorization.

Accessing pits (except walk-in pits)

When the movement of the elevator is required, the following

procedure shall be followed in lieu of the Lockout/Tagout procedure.



Safety

- Lockout/Tagout procedures are required if movement of the elevator is not needed to complete the work being performed.
- Before entering the pit, notify the building manager/owner that you will be servicing the elevator. Tag the elevator out of service by placing a sign on the controller stating “ELEVATOR IS UNDER THE CONTROL OF A SERVICE PERSON - DO NOT OPERATE”.
- Install barricades if the hoistway door is going to be open more than 5 in. (125 mm) while performing your work.
- When a hoistway access switch is provided capture the elevator at the lower access landing and activate the “Access-Enable” to disable operating devices located at the car-opening panel. Verify elevator is not on automatic by registering multiple car walls. With the hoistway door(s) held in the half-open position, activate hoistway access switch to run the car up until toe guard clearings opening. Stay clear of moving car.
- When a hoistway access switch is not provided, capture the elevator and place two car calls to upper floors to establish an up demand. As the elevator moves away from the landing, open the hoistway door with a hoistway door unlocking device key to insure interlock stops the elevator.



CAUTION: When using hoistway door unlocking device keys be aware of pinch hazard when the hoistway door opens under power.

- If hoistway access switches or hoistway door unlocking devices are not provided follow your company safety procedures for accessing the hoistway.
- Before accessing the elevator pit, place a door wedge tool in the sill to ensure that the hoistway door(s) will not shut, turn the pit light on and place the pit stop switch in the “STOP” position.
- Insert access key. Try to move elevator in both directions. It should not move. Remove key from switch.
- Where an access ladder exposes a person to a fall hazard of 6 ft. (1.8 m) or greater; and
 1. The ladder is further than 29.5 in. (750 mm) from the interior edge of the door frame; or
 2. The ladder extends less than 42 in. (1067 mm) above the access landing,
 3. The clearance between the ladder rungs and side wall is less than 4.5 in., a hazard assessment shall be conducted to identify the necessary safety precautions.
- If the pit does not have a pit stop switch, the lockout/tagout procedure is to be implemented before entering the elevator pit.
- Standing outside the hoistway, remove door wedge tool and close the hoistway door. Enter a hall call and wait 10 seconds to verify the elevator will not run and to verify that the pit stop switch is working. When working on a multiple bank of

- elevators wait for a minimum of 20 seconds to verify the elevator you are working on will not run.
- Once verification of the pit stop switch operation is complete, open the hoistway door, place a door wedge tool back into the sill, do a mental job hazard assessment and locate a safe refuge space. Do not enter areas marked with Red and White strips. Carefully enter the pit. Close door sot about 6" and use door wedge to block.
 - In deep pits a second stop switch is typically installed 4 ft above the pit floor. After descending the pit ladder place the lower pit stop switch in the STOP position. The second stop switch must be tested and verified b two independent means. Methods may vary across organizations.
 - If operation of the elevator is necessary:
 1. The car is only to be operated on inspection operation from either the car top with top-of-car inspection operation or inside the car with in-car inspection operation, if provided, by a qualified elevator person. The person operating the car and the person in the pit shall establish and maintain two-way communications.
 2. Install pipe stands.
 3. Remove door wedge tool and allow hoistway door to close.
 4. Place upper pit stop switch in the RUN position.
 5. Stand on the pit floor and be prepared to stop the movement of the elevator with the pit stop switch.



CAUTION: Never stand on the pit ladder when the pit stop switch at the access landing is in the RUN position, unless two pit stop switches are provided and the lower switch is in the STOP position.



CAUTION: When work is to be done on the hydraulic system, the car shall be landed on pipe stands, hydraulic pressure relieved and appropriate lockout/tagout procedures implemented.



CAUTION: When in multiple hoistways, **never place any part of your body in the runway of an adjacent operational elevator.**

Exiting pits

1. Verify lower pit stop switch, where provided, is in the STOP position.
2. Verify pit stop switch at access door is in the STOP position.
3. Place lower pit stop switch in the RUN position.
4. Remove pipe stands.
5. Slowly open hoistway door and place a door wedge tool into the sill. Exit the pit.
6. Turn the pit light off.
7. Place the pit stop switch at access door in the RUN position.
8. When a hoistway access switch is provided, with the hoistway door(s) in the open position, activate hoistway access switch to

- run the car down. Stay clear of moving car. Deactivate the means to disable operating devices.
9. Remove door wedge tool and close hoistway door.
 10. Place the car back into service.

Accessing walk-in pits

General guidance

Every walk-in pit is different. Therefore it is difficult to make one set of requirements that applies to all situations. For each situation that may be encountered, site-specific requirements and procedures shall be established. Formulated requirements and procedures will depends on the height of the pit (7 ft. [2.1 m] or more of overhead clearance) and the guarding or location of related components such as; tapes, governors, counterweights, travelling cables, etc.

Always wear a hard hat in walk-in pits where cars are operating.

General rules that apply to the majority of walk-in pits

For walk-in pits where there is no risk of being stuck by the car or related equipment:

- With elevators operating, it is generally safe to enter the pit to perform brief visual inspections, to walk from one pit to another to make observations, or to retrieve dropped items at the front side of the hoistway (e.g. keys, money, jewelry, small tools, etc.).
- For brief work activities such as minor adjustments or adding oil to buffers, the unit to be serviced must have two circuits tested and verified that the elevator will not run to ensure sufficient safe control.
- For repair work, the unit shall be locked and tagged out.
- When working on elevated buffer stands (more than 6 ft. [1.8m] off the pit floor) fall protection (guardrails or Personal Fall Protection) is required.

Safety precautions when working in pits

- Locate a safe refuge area and be prepared to enter it at a moments notice.
- Ensure that all portable lights and tools are connected through a Ground Fault (GFCI).
- Take care to protect all lighting from damage.
- Do not work in a pit with standing water.
- Never jump into a pit. Always use the access ladder or a portable ladder.
- Always check your shoes for oil/grease prior to climbing.
- Use both hands when using ladders entering or exiting the pit.
- Be aware of moving equipment (i.e., counterweights, pumps, motors, belts, and sheaves) and ensure that clothing and hands can't get caught in them.
- Avoid smoking or open flames while in the pit.
- Use proper hand protection while cleaning pit.
- Never place your body under the car and have the car lowered to or below the bottom landing. This does not apply to walk-in pits.
- Never stand in counterweight runway, under compensating chains or straddle over the traveling cable(s) loop.
- Never use wooden timbers to support car or counterweights.
- Do not leave parts, lubricants, cleaning equipment, etc. in the pit. This is a violation of the A17.1 / CSA B44 Code.

Additional safety precautions to be taken when working under hydraulic units:

- DO NOT stand on the hydraulic piping.
- DO NOT work on the hydraulic system (i.e., repacking a jack, work on oil supply lines, pipe fittings or any portion of system that may be under pressure) unless the elevator is landed on pipe supports.
- Avoid pinch points that a plunger or piston may present. The plunger or piston may not react normally, especially after repacking.

Machine room safety

Access to machine rooms, as well as working in the machine room itself, can be hazardous if proper precautions are not taken. It is very important that you have the ability to recognize potential hazards and is aware of the proper precautions to take when they exist. Machine rooms shall be secured from unauthorized access.

Access to the machine room

Just getting to a machine room can be hazardous, so recognizing potential hazards and taking steps to correct or avoid them is very important. Some of the more common hazards are:

- Lighting:
 - If the stairwell or hallway are adequately lit, use a flashlight or other temporary lighting until the situation can be corrected. Don't just feel your way in the dark.
- Unsafe ladders:
 - Many machine rooms can only be accessed through the use of fixed ladders. Always check the condition of the ladder before climbing.
 - Never climb a ladder with tools in your hands. Use a rope

to pull tools up.

- Machine room doors are typically self-closing and/or self-locking. A SME A 17.1 / CSA B 44 requires the door to be operable from inside the machine room without the need to use a key.

Escalator and moving walk safety

You shall familiarize yourself with the safety procedures outlined throughout this safety handbook. In addition, the following safety rules shall receive special attention when working on escalators or moving walks:

- Mechanics arriving at a location shall alert the owner or superintendent and place company-approved Out of Service signs and sufficient and proper barricades at both ends of escalators and walks to restrict all non-authorized persons from entering the work area or stairways.
 - When step, step-treads, pallets, combplates, combplate teeth, floor plates or trap doors have been removed, and power is not required for the equipment it shall be locked out, tagged out and secured from movement with barricades in place at both ends.
 - Unattended equipment shall always be locked and tagged out. When steps/pallets are removed always attach a note to the lockout and tagout indicating the steps/pallets has been removed.
- Before work begins, the mechanic shall instruct all employees inexperienced with escalator or moving walk service on the location of the emergency STOP button and safety switches.
- Communicate with all employees before moving an escalator or walk. Repeat commands or direction signals. Make sure their actions show they understand your message.
- NEVER start, or attempt to start, a unit while anyone is on, or

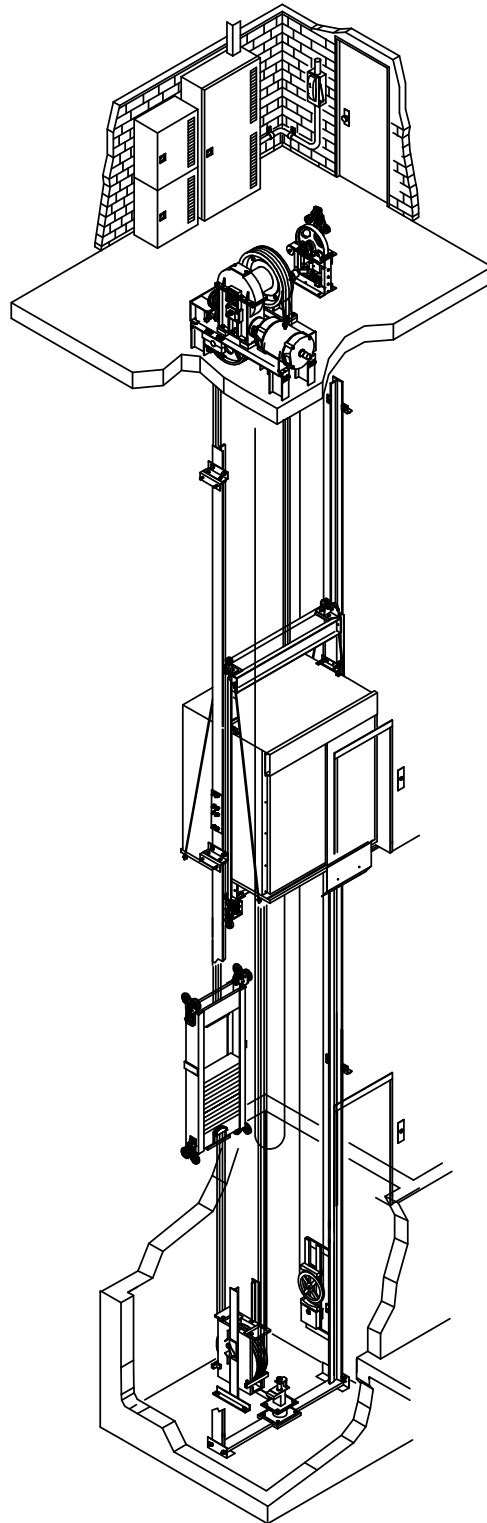
in, or about to step onto the unit.

- Whenever work must be performed within the interior plane of the steps/pallets (truss) or machinery space that does not require movement of the unit, lockout and tagout the mainline power disconnect in the OFF position. See Lockout and Tagout.
- Before you enter the unit or the pit, personally verify that the unit will not start by testing all locations and possible combinations of the run and speed key-start switches.
- Be aware that the power may still be live at the junction box, even after the mainline power has been deactivated. Use a circuit tester to test all circuits before working on them.
- While working on escalators or moving walks, the holding or maintaining circuit shall be opened so that the person in attendance has complete control of the equipment. This is normally done by a switch being turned to an INSPECT position, which changes the start switch to a deadman control switch. To move the unit in the INSPECT mode, someone will have to hold the key switch in the ON or START position. While working on escalators or moving walks, the person in attendance shall have complete control of the equipment.
- Separate your escalator- or moving-walk-start keys from your key ring. The weight of a full ring of keys can hold a key switch over in the ON or START position, which overrides the safety circuit. If you try to stop the unit, the key would re-start the unit immediately.
- When running a unit in an INSPECT mode, only one key switch is operable while the opposite end is locked out.
- Always remove the start key from the switch when you do not need it, especially when you are leaving the area.
- When removing steps or pallets, use proper lifting techniques.

Safety

- When working on or around moving equipment, take precautions to avoid getting yourself, or a tool, caught or pulled into the equipment. Be aware of all pinch points. Never attempt to remove a foreign object from an escalator or moving walk with the unit in operation.
- When walking on a partially disassembled unit, avoid walking on the step axles as much as possible. Always hold the handrail. The unit shall be electrically locked out and blocked.
- Where possible, do not inch equipment unless the holding circuit has been opened.
- When any steps or pallets are removed, always work, or if necessary, ride facing the opening.
- It is recognized that temporary circuit jumpers or clips may be the only means available for conducting some service work on escalators or moving walks. These devices shall only be used as a last resort.
- Before leaving the building, if the unit is to be returned to service, remove all Out of Service signs and barricades. Checkout with the Building Superintendent/Manager.

KMM Elevator Modules



KMM Elevator Modules

KMM Elevator Modules

KMM Elevator Modules

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General KMM Guidelines

KMM Profiles

Equipment manufacturer, model, age, condition, usage, operating environment and contract specifications may warrant variances in the task schedule. Contact your supervisor regarding any job or equipment information that might impact the KMM maintenance profile.

Customer check-in and check-out procedure

- When you arrive at a location, visit the Customer or Building Representative. Investigate and take corrective action to alleviate the cause of any complaints.
- Before you leave a location, visit the Customer or Building Representative and discuss the results of your visit. If required, have them sign a Time Ticket.
- Always thank the customer for their business.

Basic Module (B)

MAINTENANCE STANDARDS - BASIC MODULE

Ride quality

- Elevator should move smoothly in both directions, without excessive side-to-side movement, vibration or noise.
- Acceleration and deceleration should be smooth.
- Car landing accuracy should meet ANSI 17.1 / CSA B44 code requirements.

Doors & door operation

- Elevator must not run with the hoistway interlock open.
- Doors should open and close according to the specific speed requirements of each job. Open and close sequences should be smooth and quiet. Hoistway doors should be adjusted to properly engage clutch, so both car and hoistway doors move together.
- Car door operators should be kept clean and free of oil and dirt accumulation.
- Car doors should operate with no marked speed changes. Acceleration and deceleration should be gradual, with no detectable banging or jerking of the doors.
- All door operators in the same group (bank) should be set to open and close at similar speed.
- Side-opening doors should be no more than 1/8 inch from strike jamb bumpers when door is in fully closed position.
- Center-opening doors should be no more than 1/16 inch apart when doors are in fully closed position.
- Car door should be open enough to allow hoistway doors to be flush with hoistway entrance frames (buck).

- All installed door re-opening devices should be functional. Reversal should occur smoothly.
- Rubber edge should be free of breaks or obvious damage.
- Sills should be free of accumulated dust and debris.
- Running clearance margins should be maintained with door panels plumb. Margins between panels, under panels, and adjacent sections (header, door jamb, cab entrance column) should be a nominal 1/4-inch.
- Door sheaves should not be noisy.
- Hoistway door closers should ensure full door closure of the stopped door from any position.

Car

- Cab side exit panels should be secure and handrails should be tight.
- COP cover should be in place and mounted square and plumb.
- Fastening screws should be of the proper type. Missing screws should be replaced.
- Buttons and key switches should have correct legible markings.
- Emergency stop switch should operate.
- Alarm bell should operate.
- Buttons and key switches should not stick or be plugged.
- Damaged buttons should be replaced.
- Indicator lamps should illuminate as required.
- Broken lenses should be replaced.
- Audible devices should function.

Car top & shaft

- Car tops should be kept clean and clear of maintenance materials such as parts, rags, or tools.

- Hoistways and hoistway equipment should be free of excessive dirt, lint, oil and grease.
- Fascia panels should be in place, fastened, and secure.
- Hoistway duct should be secure with covers in place.
- Travel cables should be in good condition, hang and track properly. Attachments should be secure.

Pit

- Pits should be dry and free from rubbish or lubricants, and shall not be used for material storage.
- Pit equipment should be clean and protected from rust.
- Pit lights should operate and should be guarded.
- Pit ladders should be fixed vertically and made of noncombustible material.
- Stop switch should operate.
- A suitable container (5 gal (20 lit) or less capacity) should be provided to collect any leakage from the plunger packing or seal.
- Fluid should be filtered prior to re-use.

Machine room

- No temporary jumpers should be left in the controller or machine room.
- Storage area should be neat clean and organized. Parts should be in storage cabinets. Worn parts should be removed and disposed of properly.
- Machine rooms should be well lit and ventilated.
- Machine room doors shall be self-closing and locked.
- Machine room floors should be broom clean.

BASIC MODULE (B)

ELEVATOR BASIC MODULE		
Task		Procedure
Place Out-of-Service stickers		If required, place maintenance stickers at each floor.
Car		
	Check normal car lighting	Check to ensure car interior is adequately illuminated.
	Check ride quality	Ride the elevator. Listen, look and feel for any unusual noises, vibrations or abnormal operation.
	8.6.4.16 - Check stopping accuracy	Check stopping accuracy in both directions at an intermediate floor. Stopping accuracy must meet applicable code requirements.
	8.6.4.15 - Check elevator communication system	Place call on communication device to ensure call is responded to correctly.
	8.6.4.15 - Check alarm bell	Activate alarm device to ensure alarm bell rings.
	Check emergency stop switches	Check to ensure elevator cannot move when stop button/switch is activated.
	Check door operation	Open and close doors. Operation should be smooth and quiet.

ELEVATOR BASIC MODULE		
Task		Procedure
	Test door open button in COP	Press door open button during door close cycle. Door should open and close after reopening time has elapsed.
	8.6.4.13.1(c) - Test door edge protection	Activate curtain-of-light, photocell or safety edge and door should re-open. (Test at two different heights.)
	Test nudging	Prevent doors from closing by holding door open button. Nudging should close doors in slow speed.
Pit		
	Examine pit	• Make visual examination of pit, looking for worn, damaged or loose equipment and/or hazardous conditions. • 8.6.5.5.2 - If equipment is hydraulic, check pit can. Empty, if necessary. • If equipped, check operation of oil return pump. • 8.6.4.7.3 - Check to ensure pit access door is closed and locked, if applicable.
	Check pit stop switch	Check to ensure elevator cannot move when pit stop switch is activated.

ELEVATOR BASIC MODULE		
Task		Procedure
Car Top and Hoistway		
	Examine car top and hoistway	CAUTION: If car has front and rear openings access car top only on side where car top stop switch is located. Make visual examination of car top and hoistway, looking for worn, damaged or loose equipment and/or hazardous conditions.
	Check door interlock circuit integrity	With unit on inspection, attempt to run elevator in each direction with interlock open. If elevator fails this check, a supervisor must be notified and elevator must be taken out of service until problem is corrected.
Machine Room		
	Examine machine room / machine space	• Make a visual examination of machine room, looking for worn, damaged or loose equipment and/or hazardous conditions. • Check to ensure that any temporary jumpers have been removed. • Check all system event logs and reports.

ELEVATOR BASIC MODULE		
Task		Procedure
	KONE MonoSpace: 8.6.4.6 - Check washer under brake center nut	Check to ensure washer under brake center nut is loose and moveable by hand. This ensures brake is properly closed. Maximum clearance is 0.5 mm. Warning! If center nut is too tight it will prevent braking effect or cause stopping problems.
	8.6.5.4 - If hydraulic, check oil reservoir	Check level of hydraulic fluid in reservoir. Record new fluid added (in gallons) in Oil Use Log. Report new fluid added to a supervisor. NOTE! Elevator must be removed from service if any unexplained oil loss is encountered.
	8.6.1.6.5 - Check fire extinguisher, if present	Check expiration date on fire extinguisher, if present. Notify a supervisor if out of date.
	8.6.4.8.3 - Check for flammable liquids	Check to ensure there are no flammable liquids in machine room. If present, remove.
	8.6.4.8.4 - Check machine room door	Check to ensure machine room door is closed and locked.

ELEVATOR BASIC MODULE	
Task	Procedure
Oil & Grease Contracts	
Oil and Grease contracts	If equipment is covered by an Oil and Grease contract, lubricate components, as required.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Standards Module (ST)

MAINTENANCE STANDARDS - STANDARDS MODULE

Ride quality

- Elevator should move smoothly in both directions, without excessive side-to-side movement, vibration or noise.
- Acceleration and deceleration should be smooth.
- Car landing accuracy should meet ANSI 17.1 / CSA B44 code requirements.

Doors & door operation

- Elevator must not run with the hoistway interlock open.
- Doors should open and close according to the specific speed requirements of each job. Open and close sequences should be smooth and quiet. Hoistway doors should be adjusted to properly engage clutch, so both car and hoistway doors move together.
- Car door operators should be kept clean and free of oil and dirt accumulation.
- Car door operator is to be adjusted so that the force necessary to prevent door closing (from a rest position) is not more than 30 lbf,
- Car doors should operate with no marked speed changes. Acceleration and deceleration should be gradual, with no detectable banging or jerking of the doors.
- All door operators in the same group (bank) should be set to open and close at similar speed.
- Side-opening doors should be no more than 1/8 inch from strike jamb bumpers when door is in fully closed position.
- Center-opening doors should be no more than 1/16 inch apart when doors are in fully closed position.
- Car door should be open enough to allow hoistway doors to be flush with hoistway entrance frames (buck).
- All installed door re-opening devices should be functional.

Reversal should occur smoothly.

- Rubber edge should be free of breaks or obvious damage.
- Electrical cables should be properly routed and in good condition. They should not be frayed, spliced, or hardened and cracked.
- If equipped with restrictive clutch, doors should not operate manually outside the landing zone.
- Sills should be free of accumulated dust and debris.
- Running clearance margins should be maintained with door panels plumb. Margins between panels, under panels, and adjacent sections (header, door jamb, cab entrance column) should be a nominal 1/4-inch.
- Door sheaves should not be noisy.
- Door gibs and sills, on both car and hall doors should be securely fastened, have minimum wear and equipped with safety tabs.
- Hoistway door closers should ensure full door closure of the stopped door from any position.

Car

- Cab side exit panels should be secure and handrails should be tight.
- COP cover should be in place and mounted square and plumb.
- Fastening screws should be of the proper type. Missing screws should be replaced.
- Buttons and key switches should have correct legible markings.
- Emergency stop switch should operate.
- Alarm bell should operate.
- Buttons and key switches should not stick or be plugged.
- Damaged buttons should be replaced.
- Indicator lamps should illuminate as required.

- Broken lenses should be replaced.
- Audible devices should function.
- Car emergency light should be operational

Car top & shaft

- Car tops should be kept clean and clear of maintenance materials such as parts, rags, or tools.
- Hoistways and hoistway equipment should be free of excessive dirt, lint, oil and grease.
- Fascia panels should be in place, fastened, and secure.
- Hoistway duct should be secure with covers in place.
- Travel cables should be in good condition, hang and track properly. Attachments should be secure.

Pit

- Pits should be dry and free from rubbish or lubricants, and shall not be used for material storage.
- Pit equipment should be clean and protected from rust.
- Pit lights should operate and should be guarded.
- Pit ladders should be fixed vertically and made of noncombustible material.
- Stop switch should operate and should be checked each visit.
- A suitable container (5 gal (20 lit) or less capacity) should be provided to collect any leakage from the plunger packing or seal.
- Fluid should be filtered prior to re-use.

Machine room

- No temporary jumpers should be left in the controller or machine room.
- Metal tags for all periodic tests, with applicable code requirements, dates performed and person or firm performing tests, should be readily visible and securely attached to the controller of each unit.

- Storage area should be neat clean and organized. Parts should be in storage cabinets. Worn parts should be removed and disposed of properly.
- Machine rooms should be well lit and ventilated.
- Machine room doors shall be self-closing and locked.
- Machine room floors should be broom clean.

STANDARDS MODULE (ST)

KMM Elevator Modules

STANDARDS MODULE		
Task		Procedure
Place Out-of-Service stickers		If required, place maintenance stickers at each floor.
Car		
	Check all components in car operating panel	Check to ensure buttons, switches and displays function properly and panel is securely fastened.
	Check normal car lighting	• Check for defective bulbs or fluorescent tubes. Clean, if dirty. Replace, if required. • Check bulb/tube cover for proper fastening.
	8.6.4.15 - Check emergency car lighting and alarm	Disconnect power to normal lighting circuit and check to ensure emergency light and alarm bell work.
	8.6.4.15 - Check emergency stop switches	Check to ensure elevator cannot move when stop button/switch is activated.
	Check car interior	• Ensure mirror is intact and there are no sharp objects. • Check that handrails and car panels are securely fastened.

STANDARDS MODULE		
Task		Procedure
	8.6.11.2 - Check operation of remote / local alarm system e.g. KRMS (if applicable)	Push voice connection button in car and wait for connection. Perform test connection to call center. Verify disconnection following call.
	8.6.11.2 - Check elevator communication system	Place call on communication device and ensure call is responded to correctly.
	Check signs in car	Check elevator identification and information signs for correct positioning and secure fastening.
Car Door		
	8.6.4.13.1(c) - Test door open button in COP	Press door open button during door close cycle. Door should open and close after re-opening time has elapsed.
	8.6.4.13.2 - Check closing force limiter	Stall car door by placing tension-testing tool (part # 45371) against leading edge of door during closing cycle. Closing force must not exceed 30 lbf.
	Check door operation	Open and close doors. Operation should be smooth and quiet.
	8.6.4.13.1(c) - Test door edge protection	Activate curtain of light, photocell or safety edge and door should re-open. (Test at two different heights.)

STANDARDS MODULE		
Task		Procedure
	Test nudging	Prevent doors from closing by holding door open button. Nudging should close doors in slow speed.
	8.6.4.13.1(h) - Check door panels, guide shoes and sill	• Shake each car door panel and identify loose fixings. Ensure that the panels are not scratching each other or the frames. • Clean sill groove and check for excessive wear.

STANDARDS MODULE		
Task		Procedure
Operations at Each Floor		
	8.6.4.16 - Check stopping accuracy	Check stopping accuracy at each floor in both directions. Accuracy must meet applicable code requirements.
	8.6.4.13(h) - Check landing door sill	Check clearance between car door sill and landing door sill. Clean as required.
	8.6.4.13(d) - Check landing door frontage	• Check to ensure landing door frontage is properly secured. No sharp edges or dents should exist. • On swing doors check door handle and glass window for proper fixing and condition.
	Check ride quality	• Operate elevator length of hoistway in both directions. • Listen, look and feel for any unusual noises, vibrations or abnormal operation.

STANDARDS MODULE		
Task		Procedure
Control Panel		
	Check fault codes and/or service log	Check fault codes and reset memory, if applicable.
	Test function of ground fault circuit breaker, if applicable	Press test button and ensure ground fault circuit breaker operates correctly.
	8.6.11.2 - Check operation of intercom system, if applicable	Perform an audible check of intercom system.
	Check operation of control panel stop switch (if applicable)	Activate stop switch. Try to drive elevator from control panel; elevator must not move.
	8.6.1.6.3(d) - Check for temporary jumpers	Check to ensure that any temporary jumpers have been removed.
	8.6.1.6.3(a) Check for availability of up-to-date wiring diagrams	Check to ensure legible up-to-date wiring diagrams are available on-site. Notify your supervisor if up-to-date wiring diagrams are not available on-site.

STANDARDS MODULE		
Task		Procedure
	Check Periodic Test tags	Ensure that metal tags for all periodic tests, with applicable code requirements, dates performed and person or firm performing tests, shall be readily visible and securely attached to the controller of each unit.
Traction Machine Space		
	Check machine room lighting	Check lighting in machine room. Contact building management if bulbs need to be replaced.
	Check visually machine and sheaves	Visually check machine and sheaves for excessive dust, intact wire routing, damage and external hazards.
	KONE MX 8.6.4.6 - Test operation of manual brake release system, if applicable	Test operation: - Position car one floor below top floor. Switch OFF power, open brake slightly and check that elevator moves upwards. MX32, MX40 and MX100: If brake does not open after pumping manual brake release lever repeatedly, refer to ASG-04.05.043 for bleed procedure. - Check to ensure elevator re-levels following test of manual brake release system. - Switch ON power.

STANDARDS MODULE		
Task		Procedure
	Test re-leveling function	Check to ensure elevator re-levels following test of manual brake release system.
	8.6.4.6 - Check brake audibly and visibly	Drive elevator to another floor. Listen for abnormal sounds and look for abnormal operation.
	KONE MonoSpace: 8.6.4.6 - Check washer under brake center nut.	Check to ensure washer under brake center nut is loose and moveable by hand. This ensures brake is properly closed. Maximum clearance is 0.5 mm. Warning! If center nut is too tight it will prevent braking effect or cause stopping problems.
	Check machine stop switches, if applicable	Activate machine stop switch. Attempt to drive elevator from control panel. Elevator should not move.
	8.6.4.12.1 - Check overspeed governor	- Manually check springs and operation of flyweights. - Lubricate as required.
	Check mechanical selector	Visually check fixings and general condition of mechanical selector.
	8.6.4.8.1 - Clean machine room	Machine room should be broom clean.

STANDARDS MODULE		
Task		Procedure
Hydraulic MR		
	Check function of manual lowering valve	• Open manual lowering valve slightly and listen for oil flow. • Ensure manual lowering valve functions properly.
	8.6.5.12 - Perform re-leveling function test	Check to ensure elevator re-levels following test of manual-lowering valve.
	8.6.5.4 - Check oil level in reservoir	Check level of hydraulic oil in machine oil reservoir. Record new fluid added (in gallons) in the Oil Use Log. Report new fluid added to a supervisor
Shaft		
	Enter car top	CAUTION: If car has front and rear openings, access car top only on side where car top stop switch is located.
	Check car top	• Check car top light. • Clean car top.
	8.6.4.13.1(d) - Check door panels	At each floor: • Check door panels for damage. Vision panels must be intact. • Check for proper operating clearances at header, strike jamb, cab column, between panels, and sill. Clearances must meet code requirements.

STANDARDS MODULE		
Task		Procedure
	8.6.4.13(h) - Check landing door guide shoes	At each floor: Check landing door guide shoes by shaking door near bottom. Door retainers should be securely fastened. Fire tabs should be bent down.
	8.6.4.13(a)(i)(k) - Check electrical and mechanical function of landing door lock, clutch, closer and door synchronization.	At each floor: • Check to ensure locked door and door contact do not open when pushed / pulled by hand. • Check for proper door lock / hook clearance. • Open each landing door and attempt to drive elevator downwards. (Block door open, if necessary.) Elevator should not move. • Open door fully and check self-closing function. • Visually check operating clearance of clutch and release rollers.

STANDARDS MODULE		
Task		Procedure
	8.6.4.1 - Check hoist ropes	Check hoist rope tension 1/3 of distance from top of shaft. • Check rope tension with a tension-measuring tool or by pushing each rope by hand. • Check ropes for wear, breaks, rouge and proper diameter. NOTE! If 6mm or 8mm ropes are installed refer to the following document for additional inspection information: INSPECTOR'S GUIDE TO 6 MM DIAMETER GOVERNOR AND 8 MM DIAMETER SUSPENSION ROPES FOR KONE ELEVATORS.
	8.6.4.3 - Check rail lubrication	Check oil level in rail lubricators, if installed. Add oil, if necessary. If rail lubricators are not installed, ensure rails are lubricated properly when slide guides are used.

STANDARDS MODULE		
Task		Procedure
Pit		
	8.6.4.7.1 - Check pit lighting and cleanliness	• Replace bulb, if required. • Clean pit if needed.
	Check pit stop switch	Check to ensure elevator cannot move when stop switch is activated.
Additional for Hydraulic Pit		
	8.6.5.5.1 - Check cylinder, piston and piping	• Check for excessive leaking around cylinder. • Check piston joints for tightness. Immediately report any gaps observed to a supervisor. • Check for leakage around pipe fittings and where pipe penetrates pit wall or floor.
	8.6.5.5.2 - Check pit can	Check pit can; empty if needed.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.		

Control Panel Module (C)

MAINTENANCE GUIDELINES - CONTROL PANEL

Control panel

- All controllers should have proper decals which identify the unit number, the power unit, and the disconnect switches.
- The controller should be kept free of lint and debris.
- Controllers should be grounded to the building ground.
- Controller components should be clearly identified as shown on wiring diagrams.
- Ventilation systems on controllers should be functioning.
- The cabinet door should swing freely with the latch and lock working properly.
- Controller voltage should be maintained to provide proper operation of all electrical devices.
- Switches or contacts should not be blocked. Residual guards and shading coils should not be damaged. Pivot points or pins should be clean and lubricated. Kickoff spring should be in place, and not stretched.
- Static control systems have additional protection requirements that require power removal on hoist motor by two independent devices. Make sure they exist, and test accordingly. (Not required with MG.)
- Fuses should be of the proper rating as listed on the controller or as listed on the wiring diagram.
- Safety circuits should be fully operational.
- Relay contacts should not be burned or worn, and relay fingers should not be spread.
- Contacts should have minimum wear and have adequate contact pressure.

- Coil armature should not make a humming noise.
- Shunts should be flexible. Insulation on conductors and end attachments should be in good condition.
- Switchgear should operate quietly and smoothly.
- Electrical connections should be tight.
- Electrical components should not have any visible damage.
- All replacement contacts should be of proper design and material.
- Discolored encapsulated relays or switches should be examined for mechanical or electrical damage.
- Overload relays should be tagged indicating test dates and operation parameters. Oil dashpot should be filled to the specified levels. Ensure that the pistons are free to move.

Printed circuit boards

Printed circuit boards require special attention. Keep in mind the following points when handling circuit boards.

- Power must be turned off when inserting or removing boards.
- Protective anti-static bags should be used when storing boards.
- Static charges should be removed from your body before servicing boards. Remove by first touching the grounded cabinet.
- Boards should not be touched on the edge connector fingers. Handle boards on back edges.
- Boards should not be forced into card rack slots. Check the edge connectors for key slots before placing cards into card rack slots.
- All connections should be examined for tightness and indications of heating.

- All terminal connections should be kept free of conductive debris. Debris should be removed.

Mechanical selectors

- Selector should be clean.
- Selector should be maintained mechanically and electrically, to relate the exact position of the elevator while in motion or at rest.
- Switches and activating devices should be in good mechanical working order.
- Optical readers and vanes should be properly positioned.
- Cables used to drive the selector should be in good condition.
- Moveable shunts and travel cables should be pliable, and free of cracks in the insulation.
- Selector brushes and contacts should be examined for wear or pitting and be replaced as necessary.
- Examine mechanical condition of selectors for bearing wear or failure. Keys and setscrew should be tight. Examine for looseness and fretting.
- Gears, guides and chains should be lubricated, free from rust and evidence of cutting (scoring). Pans should be provided where necessary.
- External gears should be examined for proper lubrication.
- Oil rings and chains should turn and carry oil.

CONTROL PANEL MODULE (C)

KMM Elevator Modules

MONOSPACE CONTROL PANEL MODULE	
Task	Procedure
Secure Car	• Ensure elevator is empty. • Switch OFF landing calls and door operation.
8.6.1.6.3 - Check control panel light and overall tidiness of controller	• Replace the bulb, if necessary. • Clean control panel.
Check for proper function of door zone indicator	When car is on landing level, door zone indicator should illuminate, even when main switch is OFF.
Check operation of emergency battery drive (if applicable)	• Position car between two floors. • Switch OFF main power. • Drive car to lower floor by using EBD.
Check fixings of motor supply cables	Check that all cables are in good condition, properly connected and tightly fixed. WARNING! Main power must be OFF.
Check condition of main line entries and fixings	• Main line entries must be properly fixed and intact. • Verify proper condition and fixings of controller's main switch cable on control panel (cables that feed main power from main switch to controller.) • Switch ON main power.

MONOSPACE CONTROL PANEL MODULE	
Task	Procedure
Check load weighing device	Verify that user interface 5-1 displays 0 +/- 10 reading with empty car. If load weighing device is drifting, check tension and terminations of ropes. Springs should not be fully compressed; maximum deviation in spring length is 3 mm.
Note reading of start counter	Enter reading of start counter in the service log book or service report.
Check operation of remote/local alarm system (if separate battery used for alarm system).	Switch OFF remote alarm power supply. Push a voice connection button in car and wait for connection. Perform test connection to call center and verify disconnection.
Check date of last EBD battery replacement (if applicable)	Replace batter according to instructed replacement date. Mark replacement date, as well as the next scheduled replacement date on batter or jobsite record.
Return car to service	• Switch ON landing calls and door operation.
Check tape, cable or chains	• Check condition of selector tape, cable or chains. • Apply a light film of oil as required.

MINISPACE CONTROL PANEL MODULE	
Task	Procedure
Secure car	• Ensure elevator is empty • Inhibit landing calls and door operation (LCECPU switches 261 and 263).
Check the setting of load weighing device (LWD/LWI).	• Check that load display with empty car is 0 +/- 3%: Menu 5_1 for all drive models. • If LWD needs adjustment, check first the adjustment of the LWD device below the car. Test weights in car are required if adjustment is needed Refer to: • AS-11.65.020 for V3F25 & V3F25S drives • AM-11.65.023 for KDH drives
8.6.1.6.3 - Check the condition of control panel and drive panel.	Clean if dirty. Check the contactors and terminals for burn marks and discoloration.
Check proper function of the door zone indicator.	When car is on landing level, the door zone indicator should illuminate (even when main switch is OFF).
Check fixings of motor supply cables	Check that all cable are in good condition, properly connected and tightly fixed. WARNING! Ensure the main switch and EBD are switch OFF! If separate light supply exists, it should be OFF.

MINISPACE CONTROL PANEL MODULE	
Task	Procedure
Check entries and fixings of cables between main switch unit and drive/control cabinet.	When this step is completed, switch main power ON again.
Check drive specific maintenance instructions for detailed actions for different drive types	Check to ensure: • Fans and contactors operate smoothly. • All cable connections are in good condition and terminals have no discoloration. • Filters are in good condition. Refer to: • ASG-11.65.008 for V3F25 & V3F25S drives • ASG-11.65.013 for KDH drives
Check start counter	Note reading of start counter (start counter Menu 4_2 in LCE) and enter in service log book or service report.
Check condition of group controller and UPS, if applicable.	• Group controller and UPS should be clean and operative. • Check the battery replacement date of the UPS. If commercial UPS, refer to manufacturer's instructions.

MINISPACE CONTROL PANEL MODULE	
Task	Procedure
Check function of EBD module. NOTE! Test EBD module only if unit is equipped with EBD test switch or separate main switch in machine room. Otherwise follow contract and site specific testing method and intervals.	• Run the elevator on normal mode. • Switch from Normal to RDF. • Switch OFF the EBD test switch / separate main switch in machine room. • Switch from RDF to Normal within 10 seconds. NOTE! After 10 seconds, EBD module should start supplying power to control panel. The car should drive to nearest floor level and doors should start opening. NOTE! After additional 4 seconds, doors should be completely open and EBD switch OFF.
Check the date of the last replacement of EBD-battery.	Replace battery according to instructions. Enter current replacement and next replacement dates on sticker, service log book or to battery itself by using felt pen.
Return car to service	Switch on landing calls and door operation (LCECPU switches 261 and 263).

UNIVERSAL CONTROL PANEL MODULE	
Task	Procedure
Control Panel	
8.6.1.6.3 - Check controller (General)	• Clean controller; remove trash. • Check for signs of overheating. • Check peak and system clocks; reset if necessary. • Clean ventilation filters: replace as required.
Check features	Check the operation of all control system features.
Check voltages	• Check power supply voltage; adjust as required. • Check calibration voltage; adjust as required. • Check brake voltage; adjust as required.
Check printed circuit boards	Check tightness of terminal connections. Remove any conductive debris. NOTE! On MiProm HS controllers, check to ensure there is no continuity between terminals 5 & 6 on connector X4.
Check fuses	• Check to ensure fuses are secure and are sized properly. • Remove fuses. Clean fuses and fuse holders of corrosion. When replacing fuses ensure rating information is visible and legible.

UNIVERSAL CONTROL PANEL MODULE	
Task	Procedure
Check relays. Clean, lubricate, adjust or replace components as required.	• Check contact surfaces for excessive burning and wear. • Check contacts for proper wipe and alignment. • Check relay armatures and Christmas tree stems for free movement and proper seating. • Check operation of reverse phase relay; relay must drop with loss of power. • Check coils for signs of overheating • Check to ensure contact arc shield blowouts are in place and are in good condition. • Check wire connections for tightness. • Check relay shunts for wear • Check to ensure proper relay mounting
Check contactors. Clean, adjust, repair or replace components as required.	Check for: • Binding • Obstructions • Carbon buildup • Proper air gaps • Contact pressure • Contact pressure • Contact wipe • Excessive burning and wear • Proper mounting

UNIVERSAL CONTROL PANEL MODULE	
Task	Procedure
Check resistor tubes, grids and connections	• Check for discoloration, cracks and loss of insulation. • Check wire connections for tightness.
Check rectifiers	• Check selenium rectifiers for burned or loose plates.
Check overloads	• Check for signs of overheating. • Check wire connections for tightness. • Check dashpot oil level.
8.6.1.2.1(e) - Check documentation for SIL rated E/E/PES electrical protective devices, if applicable	If SIL rated E/E/PES electrical protective devices are installed, ensure maintenance, repair and testing documentation is available on-site.
Traction Only	
Check NTS and ETS	Check to ensure that NTS and ETS functionality is fully operational.
Check damping motor and speed regulator	• Check, clean and lubricate damping motor and speed regulator Check brushes. Clean, adjust or replace as required. • Check commutator.

UNIVERSAL CONTROL PANEL MODULE	
Task	Procedure
Mechanical Selector	
Check sheaves, gearing and advancing mechanism	• Check selector sheaves, gearing and advancing mechanism for wear and alignment. Adjust as required. • Lubricate mechanism as required. • Check oil pan reservoir. Clean as required.
Check tape, cable or chains	• Check condition of selector tape, cable or chains. • Apply a light film of oil as required.
Check switches, floor bar contacts, brushes and holders	Check condition and alignment of selector switches, floor bar contacts, brushes and holders. Adjust or replace as required.
Check springs, shunts and fastenings	Check condition of selector springs, shunts and fastenings.
Check traveling cable wire	• Check condition of selector traveling cable wire. • Check wire connections for tightness.
Check selsyn motor brushes	Check condition of brushes and ensure they move freely in the holders.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required	

Machinery Module (M)

MAINTENANCE GUIDELINES - MACHINERY MODULE

Gearless & geared hoist machines

- All machines should be numbered with a minimum of 3-inch high numerals of a contrasting color. All corresponding equipment should have the same numbers.
- Drive sheave should show no signs of excessive or unequal wear.
- Bearings should run quietly; bearings or gears that run at a high temperature should be investigated.
- Grooves should be equal with no rope scoring.
- Rope grippers, if installed, should meet ANSI / CSA B44 code requirements.
- Machine roller and ball bearings should be lubricated.
- Gear case oil should be at the proper level.
- Gears should run quietly and smoothly, with the proper amount of gear backlash.
- Worm gears should carry oil.
- Worm shaft packing gland should not leak excessively. Leakage is not to enter the brake drum.
- Bearing housing should not have excess oil or grease on its surface, and should not leak.
- Keys and or shrink fits should not show fretting.
- Ring gear bolts should be tight.
- Tachometer/encoder coupling should not be worn or damaged, and should be in proper alignment.
- Tachometer brush length should be checked for length and cleaned. (Return brush to original position in holder.)
- Isolation pads should be pliable. Check for disintegration,

splitting, or cracking. Kick angles and tie downs should be properly in place.

Motors and motor generators

- All motors should be clean and free of excess dust, carbon dust, oil and grease.
- Motors and generators should be grounded to an external mechanical building ground.
- Motor covers should be in place at all times.
- Motors should have adequate ventilation.
- Motors should operate smoothly and quietly.
- Bearings should be lubricated and run quietly.
- All electrical connections should be tight.
- Armature or rotor clearances should be approximately equal throughout their circumference.
- Commutators should run true. Undercutting should provide clean slots without feathered edge mica. Scoring or grooving, if any, should be at a minimum.
- Commutators should be cleaned with an untreated canvas cloth.
- Commutators working properly will acquire a deep brown or chocolate-colored glaze. For proper commutation, this glaze should not be broken. Do not use sandpaper, emery cloth, or resurfacing stones to clean commutators.
- Commutators should not have high bars, high mica, or become plugged with oil and carbon.
- Brushes should be free in holders. Inspect brushes for damage, copper embedment and short brushes.
- Brush rigging should be clean and tight.
- Brush length should be adequate to maintain commutation.

- Brushes should be replaced when they are worn, or if they become chipped at the corners or edges of the brush
- Brush pigtails should be secured to the terminals. Brushes should also move freely in the holders, but should not be loose enough to vibrate.
- Brush holders and brush rigging should be mounted so the edges nearest the commutator are the same distance from the commutator (not more than 1/8 inch, or less than 1/16 inch).
- Brush spring tension should be correctly set, and equal for all brushes.
- Brush grades should be the same and not mixed in the same motor or generator. Only the proper grade brush should be used according to the motor or generator manufacturer's specifications.
- All new brushes should be sanded-in and seated.
- DC motor commutators and end bells should be clean and free of oil and grease.
- DC motors should be vacuumed and blown out and free of excess carbon and copper dust. Service Technicians should wear a dust mask when blowing out equipment.
- Internal electrical resistance to ground should be 1 megohm or more.
- All shaft bearings should be lubricated.
- Isolation pads should be pliable. Check for disintegration, splitting or cracking. Kick angles and tie downs should be properly in place.

Brakes



CAUTION: Any major disassembly, painting and/or other repair of the brake system will require a thorough check and retest to ensure proper functionality prior to returning to normal operation.

KMM Elevator Modules

- Brakes should be free of oil, dirt and any foreign material.
- Brake pins should be lubricated and not frozen, and all retainers should be in place.
- Brake pins and cores should be free of paint and should be lubricated.
- Brake linings should not be excessively worn or contaminated with oil.
- Brake cores and pivots should be properly lubricated.
- Brake linings should not be glazed.
- Fits to shafts should be secure, no fretting (rust or corrosion) at the interface.
- Flexible couplings should be tight, all pins and bushings securely in place.
- Pulley surface should be smooth, no scoring.
- Brake switch, if furnished, should be adjusted to properly open and close the contacts.
- Brakes should work quietly and smoothly.
- Brakes should not chatter.
- Brakes should be adjusted for minimum lift and equal clearance.
- Brakes to be adjusted to hold code-compliant rated load.

Governors



CAUTION: Any major disassembly, painting and/or other repair of the safety system will require a thorough check and retest to ensure proper functionality prior to returning to normal operation.

- The governor rope should run free and clear of the jaws, rope guards, and other stationary parts.
- Governor wire ropes should NOT be lubricated. Lubrication will interfere with the governor jaws' ability to stop the governor rope and apply the safety.
- All surfaces should be clean and free of corrosion.
- All governor pivot points, gears, bushings, and bearings should be lightly lubricated.
- The governor trip should operate freely and within ASME standards.
- The governor overspeed switch should move freely. Actuation should prevent movement in both directions. This is normally a manual reset switch.
- Pins and bushings on vertical and/or horizontal governor shafts should not have excessive wear.
- After any adjustment or replacement of governor parts, test the electrical or mechanical (depending on the equipment adjusted or replaced) tripping of the governor to make certain it trips according to specified contract speed.

- If any changes are made to the governor jaws or spring, a dynamometer should be used to re-calibrate the pull-through. If other repairs are made to the governor (changing bearings or linkage) the governor's electrical and mechanical tripping speeds should be checked with a hand-held tachometer.

Hydraulic machines

- All hydraulic equipment should be clean and free of excessive oil.
- Oil return screens should be kept clean.
- Hydraulic packing head should be kept free of dirt and debris.
- All power unit guards and the reservoir lid should be in place and securely fastened.
- The drip pan under the tank should be clean and free of oil.
- Rags or floor absorbent should not be left on the floor or under the tank to catch oil leaks.
- Muffler bolts and fittings should be tight and free of leaks.
- Pressurized mufflers should be set to manufacture's specifications.
- Tank heaters and oil coolers should work as designed.
- Visible oil leakage in the hydraulic piping, pumps and valve system, beyond a small quantity, should be corrected. Soft or cracked hoses should be replaced. High-pressure hoses should be replaced by the listed date.
- Pump motor belts should have no more than 3/16-inch vertical deflection.
- Belts should not bottom out in the motor sheaves. Multiple belts should be replaced in complete sets.
- Belts should not be excessively oil saturated.
- Sheaves should not be excessively worn, and should be aligned with one another.

- Oil line wall and floor penetrations should be secure, with no oil leakage or corrosion visible.
- Flexible couplings should be tight, all pins and bushings securely in place.
- Bearings should be lubricated.
- Control valves should be adjusted for smooth acceleration, deceleration, leveling, and stopping at each floor. They should be within acceptable tolerances (usually within plus or minus 3/8 of an inch). Check job specifications.
- Internal float switch of the oil return system should not allow oil to overflow onto the floor.
- External float switch of the oil return system should not allow water to leak into the oil reservoir.
- Hydraulic pumps should not make any howling and grinding noises.
- Oil level should be 2 inches over baffle in oil reservoir when car is at the top floor. If the hydraulic system contains a submersible power unit, oil level should be visible within the sight glass.
- The tank fluid level should be kept at the indicated level with the car at the bottom landing.
- Only approved hydraulic fluid should be used. Check with your KONE Service Superintendent for the approved fluid.
- Any unusual change, unexplained loss of oil, or suspicion of an oil leak should be reported to management and competently attended to immediately.
- An oil loss log is to be maintained. The log should include amount of oil added, date and time.
- Leak-down and pressure tests should be conducted as specified in ASME A17.1 / CSA B44.

MACHINERY MODULE (M)

MX MACHINERY MODULE

Task	Procedure
MX Sheaves and Ropes	
Check rope guards	• Check to ensure rope guards are in position to prevent ropes from jumping out of grooves. • Check rope guard fastenings.
Check condition of traction sheave	• Check to ensure all ropes are sitting at same height in traction grooves. Deviation should be no greater than 0.2mm. • Check bottom of grooves for rope marks. No visible rope marks should exist. There should be a minimum of 2 mm between rope and bottom of undercut. • Check for metallic particles, indicating rope or sheave wear. Refer to AS-04.05.039 for additional information on rope groove geometry.
8.6.4.1.2- Check ropes for proper lubrication	Check ropes for dryness and signs of rust. Lubricate if necessary. Refer to AS-09.05.001 for additional information on rope lubrication.

MX MACHINERY MODULE	
Task	Procedure
MX Machine	
Check machine stop button (if applicable)	Activate stop switch. Try to drive elevator from control panel; elevator must not move.
Check fastenings of motor supply cables	• Open block, leave left screw partially tightened, and rotate cover plate. • Check that all cables are properly secured.
Check resolver cable	Check to ensure resolver cable is properly attached (if applicable).
Check tachometer and roller	• Tachometer roller should be clean and in good condition. • Check condition of tachometer brushes annually. • Check to ensure fixing is tight and wire routing is clear. Refer to AS-04.20.001 for additional information on tachometer PM.
Check machine fastenings	Check all machine fastening bolts. Tighten as necessary.
Clean machine exterior	Clean machine exterior. Identify the source of any lubricant leakage.

MX MACHINERY MODULE		
Task		Procedure
MX18/32/40/100	Check machine interior	Remove fan and check machine interior for cleanliness. NOTE! Report any contamination to a supervisor.
	Check fans	Check operation of cooling fans.
MX10/20	Check traction sheave bearing	Check traction sheave bearing for smooth and quiet operation.
MX18	Check lubrication in outboard traction sheave bearing	Remove cover plate from outboard traction sheave bearing and check for proper lubrication (bearing housing should be at least 50% filled with grease). If required, lubricate bearing per following procedure: Inject or hand pack grease into the space between the rollers so that the bearing is 100% filled with grease. Inject or hand pack additional grease onto the outside of the rollers so that the remainder of the bearing housing is at least 50% filled with grease.

MX MACHINERY MODULE		
Task		Procedure
MX32/40/100	Check oil level in bearings	Check oil level in both bearing cases. Add oil if level is below middle of control eye for oil level.
	MX Brake	
	KONE policy dictates that MX brake adjustments may be performed only by specially trained and certified KONE technicians. For more detailed information regarding MX brake maintenance and adjustment procedures, refer to the appropriate Maintenance Instruction document below: • ASG-04.05.014: MX10 • ASG-04.05.042: MX18 • ASG-04.05.045: MX20 • ASG-04.05.043: MX32/40 • ASG-04.05.047: MX100	
	8.6.4.6-1(f) - Check brake drum surface	Check to ensure brake drum surface is free of dirt and grease. Clean as required.
	8.6.4.6.1(b) - Check brake lining	Check thickness and condition of brake lining. NOTE! Notify a supervisor if brake lining is worn or contaminated with oil.

MX MACHINERY MODULE	
Task	Procedure
Perform MX one-sided Brake Test	Perform MX one-sided brake test according to the instructions in the appropriate MX Brake Check module described in section titled: <i>MX Brake Check Module (MX)</i>, in this document. There are four versions of the module: 1. MonoSpace: MX10 & MX20 2. MiniSpace: MX18 3. MiniSpace: MX32 & MX40 4. MiniSpace: MX 100
Governor	
8.6.4.12 - Check overspeed governor	• Check manually governor springs and operation / vertical movement of flyweights. • Activate governor switch by hand and verify safety circuit opens. • Check to ensure components, sheaves and cable are free of dirt, grease or other debris. clean if necessary.
MX Machine Room (if applicable)	
8.6.4.17 - Check ascending overspeed and unintended movement devices	Check to ensure devices are functioning according to manufacturer's specifications.

MX MACHINERY MODULE	
Task	Procedure
8.6.4.8 - Check machine room	• Check function of machine room door lock. • Check machine room lighting. Notify building management of any bulbs that need to be replaced. • The machine room floor should be broom-clean. • Parts should be neatly organized and stored in a cabinet. Used parts should be discarded. • Oily rags should be discarded according to hazardous material guidelines.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

UNIVERSAL TRACTION MACHINE

KMM Elevator Modules

UNIVERSAL TRACTION MACHINERY MODULE	
Task	Procedure
Traction Machine	
Check machine	Check entire machine for signs of oil leakage. Identify and correct cause of any leaks.
Check bearings	• Check machine bearings for noise or heating. Determine source of overheating and correct if possible. • Lubricate sheave bearings as required.
Check traction sheave grooves	Check hoist rope traction grooves for excessive or uneven wear by placing a straight edge across top of hoist ropes. Uneven hoist ropes are an indication of worn grooves.
8.6.4.1.2 - Check hoist rope lubrication	Check for proper hoist rope lubrication. Lubricate ropes, if dry.
Check ring gear bolts	• Check to ensure ring gear bolts are tight. • For Montgomery 200 series machine, torque ring gear bolts annually. Refer to DocID TECH-03-015-2005 for detailed instructions.

UNIVERSAL TRACTION MACHINERY MODULE	
Task	Procedure
Check gears and gear case oil level	• Check for excessive backlash. Worm and ring gears should run quietly, without any forward or backward movement when elevator starts and stops. • Check to ensure oil is at proper level, and that it is not thick or discolored. Drain, clean and refill gear case every two years.
Check isolation and fastenings	Check to ensure isolation pads have not deteriorated and fastenings are secure.
Check machine stop switch (if equipped)	Check to ensure elevator will not operate with machine stop switch open.
Traction Brake	
8.6.4.6(b) - Check friction surfaces	Check friction surfaces with power OFF, elevator above top floor and counterweights landed. • Check friction surfaces of brake for excessive wear, oil or foreign material contamination, glazing and scoring. • Check temperature of brake by carefully feeling drum. After elevator has been running the brake may be warm, but should not be too hot to touch.

UNIVERSAL TRACTION MACHINERY MODULE	
Task	Procedure
8.6.4.6.1(f) - Operate elevator and observe brake operation	• Disc brakes should not chatter or vibrate while elevator is in motion. • Drum brakes: Observe clearance between brake shoe and drum. Clearance should not be greater than necessary to ensure free running. Adjust as required.
8.6.4.6.1 - Check brake contact	Check electrical contact for proper mechanical action and contact continuity.
8.6.4.6.1 (c) - Check pins	Check to ensure brake pins are properly lubricated, are not frozen and that all retainers are in place. Lubricate with motor bearing oil.
8.6.4.6.1 - Check fastenings	Check brake fastenings to ensure brake is securely mounted.
8.6.4.6.1 - Check manual release	Check operation and adjustment of manual release mechanism. Lubricate pivot points as required.
8.6.4.6.1(g) - Check plunger	Check for free operation of plunger.
8.6.4.6.1 - Check emergency brake (if applicable)	Check operation of emergency brake. Operation must meet manufacturer's specifications and code requirements.
8.6.4.6.1(e)(g) - Annually, disassemble and examine plunger assembly	• Check sleeve, guide bushing and plunger for scoring, excessive wear or other damage. • Check coil for signs of overheating or other damage. • Clean and reassemble.

UNIVERSAL TRACTION MACHINERY MODULE	
Task	Procedure
Governor	
Check oil cups	Check fluid level. Fill if the level is low.
8.6.4.12.1 - Check pins, pivot points, bushings and bearings	- Manually operate all components to ensure proper operation. - Lubricate all pivot points, gears, bushings and bearings as required.
8.6.4.12.2 - Check rope jaws	Clean rope jaws and check for free movement.
Check fastenings	Check to ensure governor is securely mounted.
8.6.4.12.1 - Check electrical contacts	- Check condition of electrical contacts. - Check circuit integrity.
8.6.4.17 - Check ascending overspeed and unintended movement devices.	Check to ensure devices are functioning according to manufacturer's specifications.
Rotating Equipment	
Check hoist motor and generator brush rigging, insulators, fastenings and spring tension on brush holders.	- Clean brush rigging and check tightness of fastenings. - Remove carbon buildup from insulators. - Check to ensure that all brush holders are set same distance and angle from commutator. - Check to ensure that brush pigtails are securely fastened. Tighten, if required. - Adjust springs for equal tension on all brushes.

UNIVERSAL TRACTION MACHINERY MODULE	
Task	Procedure
Check hoist motor and generator commutators	• With unit running, check for excessive sparking, proper balance and roundness. • With power removed, check for excessive carbon buildup, high mica and discoloration. Discoloration is an indication of excessive heat. • If commutator requires cleaning use untreated canvas cloth. • Do not use sandpaper, emery cloth or resurfacing stones to clean commutators.
Check hoist motor and generator armatures	• With power removed, check that armature has proper 360 degree running clearance. • Check to see that banding wires are tight and undamaged. Tighten or replace, if required.
Check hoist motor and generator sleeve bearings	• Check if oil ring or chain is carrying oil. • Check oil level and add if low. • Check for signs of leakage.
Check hoist motor and generator ball bearings	• Lubricate all motor and generator bearings according to manufacturer's specifications.
Check motor cooling fan or blower	• Check to ensure fan filter is clean and has unobstructed airflow. Clean as required.

UNIVERSAL TRACTION MACHINERY MODULE	
Task	Procedure
Tachometer, Encoder, and Resolver	
Check tachometer wheel and running surface	• Check tachometer/encoder wheel and running surface for dirt or other obstructions. • Clean as required. Replace roller if damaged.
Check tachometer, encoder and resolver couplings	Check tachometer / encoder / external resolver couplings for tightness, alignment, cracks and vibration. Replace if cracked.
Check encoder connector plug	Check to ensure connector plug is secure.
Check tachometer brushes	• Check tachometer brush length. • Clean out carbon dust. • Return brush to original position and holder. NOTE! Do not turn brush over or place in opposite holder. Make certain new brushes are properly seated. Before returning unit to service, check operation of tachometer.

UNIVERSAL TRACTION MACHINERY MODULE	
Task	Procedure
Machine Room	
8.6.4.8 - Check machine room	• Check function of machine room door lock. • Check machine room lighting. Notify building management of any bulbs that need to be replaced. • The machine room floor should be broom-clean. • Parts should be neatly organized and stored in a cabinet. Used parts should be discarded. • Oily rags should be discarded according to hazardous material guidelines.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

HYDRAULIC MACHINE

HYDRAULIC MACHINERY MODULE	
Task	Procedure
Hydraulic Machine	
8.6.5.5.1 - Check for oil leakage	Check the pump, hydraulic valves, piping, flexible hoses and muffler for any signs of leakage.
Examine and clean machine	• Examine and clean machine (pump unit, hydraulic valves, hydraulic pipe, flexible hose and muffler.) • 8.6.5.9 - Check to ensure relief valve adjustment seal is intact. • 8.6.5.13 - Check to ensure overspeed valve adjustment seal is intact (if applicable) • 8.6.5.6 - Note: Flexible hoses and fittings installed between check valve or control valve and cylinder shall be replaced no more than 6 years after installation or replacement.
8.6.5.12 - Check re-levelling function	Ensure no passengers are in elevator. Disable door operation and hall calls with elevator at lowest landing. Open manual lowering adjustment slowly until elevator drifts down. Pump motor should energize and elevator should level up to floor.

HYDRAULIC MACHINERY MODULE	
Task	Procedure
8.6.5.12 - Check low oil protection	Disable door operation and hall calls with elevator at a floor above lowest landing. Disconnect electrical supply from motor starter and enter up car call. Low oil protection timer should trip at its preset timing, then elevator should return to lowest landing and shut down.
Check mounting bolts	Check pump, pump motor, valve and muffler mounting bolts for tightness.
Lubricate pump motor	Lubricate pump motor per manufacturer's specifications.
Check drive belts	Check pump drive belts for wear and proper tension.
8.6.5.5.1 - Check hoses and gaskets	Check hydraulic hoses and gaskets for signs of deterioration.
Check oil heating and cooling equipment	• Check oil heating and cooling equipment for proper operation. • Check for signs of excessive oil temperature. Report any possible issues to a supervisor.
Check test tag	Check to ensure test tag is in place and is current.
Check manual lowering valve	• Check that elevator re-levels after testing manual-lowering valve. • Check function of manual lowering valve.

HYDRAULIC MACHINERY MODULE	
Task	Procedure
Machine Room	
8.6.4.8 - Check machine room	• Check function of machine room door lock. • Check machine room lighting. Notify building management of any bulbs that need to be replaced. • Machine room floor should be broom-clean. • Parts should be neatly organized and stored in a cabinet. Used parts should be discarded. • Oily rags should be discarded according to hazardous material guidelines.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

MX Brake Check Module (MX)

MAINTENANCE GUIDELINES - MX BRAKE CHECK

MX brakes

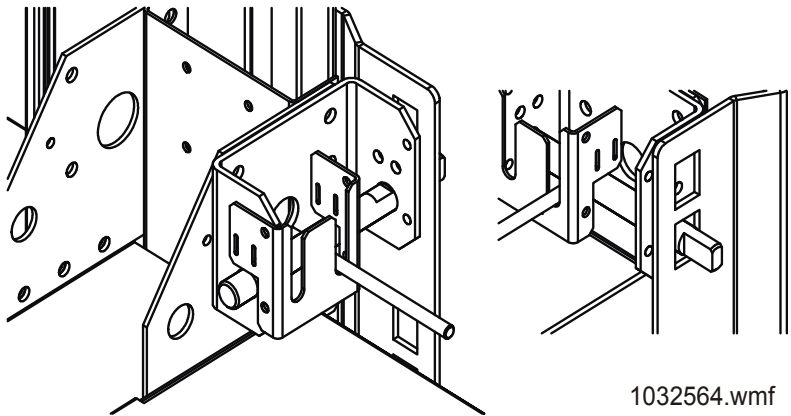


CAUTION: Any major disassembly, painting and/or other repair of the brake system will require a thorough check to ensure proper functionality prior to returning to normal operation.

KMM Elevator Modules

- Brakes should be free of oil, dirt and any foreign material.
- Brake pins should be lubricated and not frozen, and all retainers should be in place.
- Brake pins and cores should be free of paint and should be lubricated.
- Brake linings should not be excessively worn or contaminated with oil.
- Brake cores and pivots should be properly lubricated.
- Brake linings should not be glazed.
- Fits to shafts should be secure, no fretting (rust or corrosion) at the interface.
- Flexible couplings should be tight, all pins and bushings securely in place.
- Pulley surface should be smooth, no scoring.
- Brake switch, if furnished, should be adjusted to properly open and close the contacts.
- Brakes should work quietly and smoothly.
- Brakes should not chatter.
- Brakes should be adjusted for minimum lift and equal clearance.
- Brakes to be adjusted to hold code-compliant rated load.

MX BRAKE CHECK MODULE - MX10 & MX20

MX BRAKE CHECK MODULE - MX10 & MX20	
Task	Procedure
MX One-sided Brake Test	
Position car	Position empty car so blocking pin of car blocking device is at bottom of slot in blocking plate.
Engage blocking device	
Mark sheave position	Mark the position of the traction sheave (brake drum) on motor body.
Open brake	Open the brake fully by using MX Electrical brake opening tool. For detailed instructions on how to use the tool refer to AS-04.08.092.

MX BRAKE CHECK MODULE - MX10 & MX20	
Task	Procedure
Check for car movement	Wait one minute. Check for movement of traction sheave (brake wheel) and car. There must be no visible movement. If brake test fails (car moves), contact your supervisor. Leave unit out of service until brake is adjusted or repaired. Brake system must pass test before elevator is placed back in service.
Close the brake	Close the brake by switching of MX electrical brake opening tool.
Test other brake	Repeat test on other brake.
Disengage blocking device	If both brake tests are successful, disengage car blocking device.
Check manual brake release	Ensure manual brake release functions properly. Refer to section 5.5 of ASG-04.05.014 for additional information.

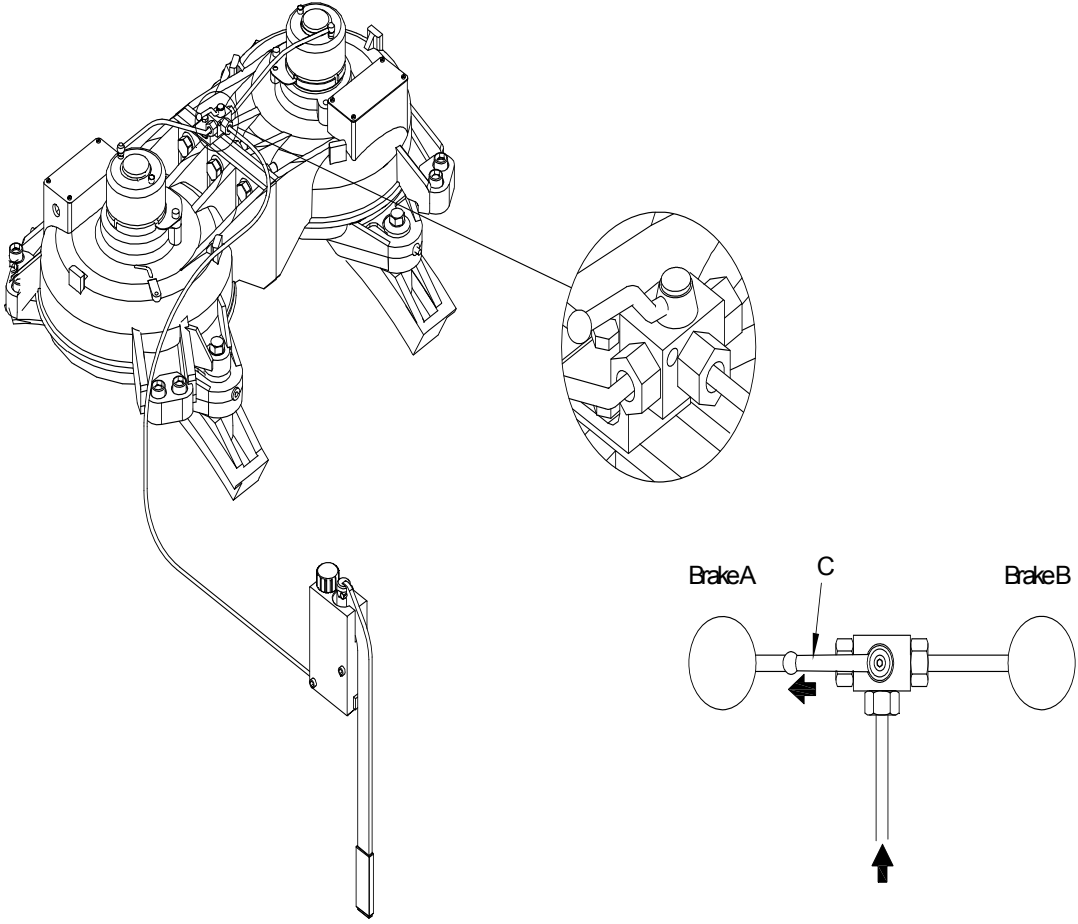
MX BRAKE CHECK MODULE - MX18

MX BRAKE CHECK MODULE - MX18	
Task	Procedure
MX One-sided Brake Test	
Position the car	Position car at top floor. Ensure car is empty and that no one can enter during test.
Open brake fully	Use MX Electrical brake opening tool. For detailed instructions on how to use the tool refer to AS-04.08.092. WARNING! Do not touch center nut. WARNING! Before removing electrical covers ensure that the power is OFF!
Check for movement of the car	Wait about one minute. Check for movement of traction sheave. If brake test fails (car moves more than 5 cm without stopping), contact your supervisor. Brake system must pass test before elevator is placed back in service.
Close the brake	Switch off MX Electrical brake opening tool.
Test other brake	Repeat test for other brake.
Check manual brake release	Ensure manual brake release functions properly. Refer to section 6.5 of ASG-04.05.052 for additional information.

MX BRAKE CHECK MODULE - MX32 & MX40

MX BRAKE CHECK MODULE - MX32 & MX40	
Task	Procedure
MX One-sided Brake Test	
Position car	Position car at top floor. Ensure car is empty and that no one can enter during test.
Mark traction sheave	Mark position of traction sheave (brake drum) on the motor body.
Open brake not being tested	Open brake not being tested, using MX Electrical brake opening tool. For detailed instructions on how to use tool refer to AS-04.08.092.
Check for movement of the car	If car moves, brake torque must be increased. Contact your supervisor. Brake system must pass test before elevator is placed back in service.
Test other brake	Repeat test for other brake.
Close the brake	Switch off electric brake opening tool.

MX BRAKE CHECK MODULE - MX 100

MX BRAKE CHECK MODULE - MX100	
Task	Procedure
Position Car	Position car at top floor. Ensure car is empty and that no one can enter during test. Turn main power OFF.
 5024834(2011-03)	
Select shut off valve	Turn the handle of the shut off valve (C) in opposite direction to the brake to be tested.

MX BRAKE CHECK MODULE - MX100	
Task	Procedure
Open brake	Open the brake using the hand pump. Be ready to close the brake immediately if the care starts moving.
Check for car movement	If car moves, brake torque must be increased. Contact your supervisor prior to making adjustments. Brake system must pass test before elevator is placed back in service.
Shut Valve OFF	At the end, turn the handle of the shut OFF valve in the middle position.

Shaft Module (S)

MAINTENANCE GUIDELINES FOR SHAFT MODULE

Car top equipment

- Car tops should be kept clean and clear of maintenance materials such as parts, rags, or tools. Car Tops should not be used as storage areas.
- All equipment covers and guards should be in place and securely fastened.
- Junction boxes and troughs should have the correct covers installed.
- All flexible conduit connectors should be secured and tight.
- Electrical equipment such as lights, fan or blower, and electrical receptacles should be grounded, operating properly, guarded, cleaned and lubricated.
- The safety operating switch on the crosshead, car top switches and cams, and inspection station should be operating.
- Roller or slide guides should be square to guide rail.
- Guide shoe pivots and stems should be free to move.
- Roller guides should turn freely against the guide rail.
- Roller guide bearings should not be noisy.
- Optical vane reader and encoder mounting should be clean and tight.

Shaft equipment

- Dirt, lint and excess oil in hoistway, particularly on the rails, should be removed. The counterweight, the rear of sills and headers should be clear of dirt accumulation. The bottom and sides of the car should be free of oil and lint.
- Rails should be free of oxidized lubricant in the area where the safety jaws apply. Rail blades should not be painted when Type B safeties are used.
- Counterweights and sheaves (2:1) should be free of lint and excess grease.
- Sleeve bearing 2:1 sheaves should be carefully examined for proper lubrication.
- Overhead sheave bearings should be quiet, properly lubricated, and show no evidence of overheating or leakage.
- Slowdown switches, directional limit switch, and final limit switches should be clean, quiet, and operational.
- Guide rails, guide rail brackets, and fishplates should be properly aligned and fastened.
- Rails with roller guides should be dry.
- Rails using slide guides should use a lubricant compatible with the safeties.
- Cab stabilizers should be snug against side stiles.
- Cab stiles should not be cracked or bent. Stiles and slant rod hardware should be secure.
- Cab side exit panels should be secure, handrails should be tight, and door gibs free of noise.
- Fascia panels should be in place, fastened, and secure.
- Hoistway duct should be secure with covers in place.
- Travel cables should be in good condition, hang and track properly. Attachments should be secure.

Safeties



CAUTION: Any major disassembly, painting, and/or repair of the governor/safety system will require a thorough check to ensure proper functionality prior to returning to normal operation.

- All surfaces should be clean and free of corrosion.
- The governor rope releasing carrier should have a currently dated test tag attached and should not have rusted or dirt-caked parts.
- All Safety pivot points, gears, bushings, and bearings should be lightly lubricated.
- Car safety linkage, governor tension frame and sheaves should be friction free.
- The governor tail sheave should operate freely.
- The car safety-operated switch should actuate smoothly, opening when the safety is tripped.
- Safety linkage arms should have adequate clearance to move freely.
- The governor rope releasing carrier safety dogs or clamps, intended to grip the guide rails, should be able to operate smoothly with equal pressure applied by both portions of the dogs or clamps.
- Safety plank guides should not have excessive wear that may prevent Safeties from engaging guide rails.

- Spring tension is to keep the governor rope from pulling out of the carrier during the elevator's normal starting and stopping, but not keep the governor rope from pulling out when the governor jaws clamp the governor rope. Spring tension should be adjusted so the release carrier will pull out at 60% of the governor pull-through.
- Car Safeties should be able to stop the elevator within the distance originally specified on the Safeties' design.
- Counterweight Safeties should be set to trip at a higher overspeed than the governor is set to trip, but not more than 10% higher.
- Car-riding buffers should have proper oil level.

Ropes

- Hoist and compensating ropes should be kept clean and lightly lubricated.
- Governor wire ropes should NOT be lubricated. Lubrication will interfere with the ability of the governor jaws to stop the governor rope and apply the safety.
- Rope shackles and springs should be clean, free of oil, and properly inserted into the hitch plate.
- Examine compensating sheave for freedom of movement and uneven grooves. The switch should trip if the sheave fails or is pulled out of its guides.
- Hoist and governor ropes should not exhibit excessive crown wear, breaks, or reduction in diameter.
- Springs should be the same length and unbroken.
- Shackle rods should have all nuts and cotter keys in place.
- The clamp fastenings of the governor and car safety rope at the governor-rope releasing carrier should be tight.

- Fastening should be of an approved type and ends made up as directed by applicable codes.
- Hoist and compensating ropes should be equalized.
- Hoist ropes must be restricted from turning as outlined in the ASME A17.1 / CSA B44.
- Compensation tie-down should be properly operating, if furnished.
- Compensating means should be examined for damage and for proper attachment.
- Rope data tags, including resocketing tags for drum machines, should be furnished. Ref. ASME A17.1 / CSA B44.
- Hoist ropes should be shortened as required to adjust for stretch.
- Examine ropes as specified by ASME A17.1 / CSA B44.
- All hoist ropes should be from the same reel of wire rope. Wire rope from different reels could have different stretching traits.

Pit equipment (all)

- Pits should be dry and free from rubbish or lubricants, and shall not be used for material storage.
- Pit equipment should be clean and protected from rust.
- Pit channels, guide rail fasteners, and spring buffers should be painted and free of corrosion.
- Pit lights should operate and should be guarded.
- Pit ladders should be fixed vertically and made of noncombustible material.
- Stop switch should operate.
- If oil is used as a guide rail lubricant, the run-off from the guide rails should be contained in drip pans under the guide rails.
- Drip pans should be emptied during each scheduled service visit.

Traction pit equipment

- Counterweights should not rattle or make noise.
- Counterweight guards should be mounted securely to the guide rails with the bottom 12 inches off the pit floor and the top at least 7 feet above the pit floor.
- The distance between the top of the buffer and nearest striking point on the counterweight should be a minimum of 6 inches.
- Safeties, if provided, should be clean and have free movement. The safety-operated switch should be working.
- Compensating ropes or chains should be properly fastened to the counterweight and car.
- Compensating hitch plate should be secure.
- Compensating chain should not touch the pit floor.
- Stainless steel Kellam's grip and S-hooks should be used to hold sheathed compensating chain to the car and counterweight, and should be made of hardened steel.
- Compensating sheave switch should be able to remove power in both the up and down direction.
- Governor tension weight sheave should have the proper tension to keep the governor tension weight level and to keep it from bottoming out on the sheave frame.
- Governor tension weight sheave, and its related shaft and bearings should not be worn, and should be lubricated.
- Oil buffers should have proper oil level, and the pistons should be blued with a bluing agent to prevent corrosion. Oil buffers should be filled to the indicated level. Ports should be covered. Travelling buffers should not be pre-compressed.
- Buffer plungers shall be kept clean and shall not be coated or painted with a substance which will interfere with their operation.

- Oil buffers should have proper fluid as indicated on buffer marking plate. Ref. ASME A17.1 / CSA B44.

Hydraulic pit equipment

- Hydraulic packing head should not leak excessively.
- Plungers should be regularly examined for rust, nicks or scores and loose joints. Damaged areas should be dressed or repaired.
- The packing or seal gland should be kept clear of foreign matter.
- Hydraulic oil lines should be repaired if leaking.
- Gate valves should not leak and must meet applicable code requirements.
- Exposed cylinders should be examined for rust, visible leakage or damage.
- Cylinders protected by PVC casings or other means should be tested for leakage.
- A suitable container (5 gal (20 lit) or less capacity) should be provided to collect any leakage from the plunger packing or seal. Fluid should be filtered prior to re-use.

SHAFT MODULE (S)

SHAFT MODULE	
Task	Procedure
Car Top Equipment	
Enter car top	CAUTION: If car has front and rear openings, access car top only on side where car top stop switch is located.
Check encoder drive wheel, coupling and rail running surface	• Check encoder drive wheel for wear. • Check encoder alignment to the guide rail. • Check encoder rail running surface. Clean as required.
Check leveling and positioning devices	• Check alignment of vanes / tapes and switches. • Check security of fastenings.
Check car mounted cams	• Check condition of cams. • Check tightness of all fastenings.
Check car mounted switches	• Check pivot arms for free movement. • Lubricate pivot points. • Check roller integrity. Replace if damaged. • Burnish contacts.
Check car-mounted reflectors / sensors	• Check alignment. • Check fastenings.
Check selector cable / tape and hitches	• Check condition of selector cable or tape. • Check tightness of fastenings.

SHAFT MODULE	
Task	Procedure
Check cab stabilizers	• Check condition of cab stabilizers. • Check tightness of fastenings.
8.6.4.3 - Check rail lubrication	• Check oil level in rail lubricators, if installed. Add oil, if necessary. If rail lubricators are not installed, ensure rails are lubricated properly when slide guides are used.
Check car fan or blower	• Check to ensure the fan is clean and has unobstructed airflow. • Lubricate and clean as required.
Check car top light	Car top light bulb must be functional and be protected by a proper bulb guard.
Check functionality of folding car top handrail (if applicable)	Check to ensure elevator will not run from car top inspection station with folding car top handrail in stored position.
8.6.4.9 - Clean car top	Wipe down car top. Remove debris.
Limit Switches	
Check limit switches	• Activate limit switches by hand to check for proper operation. • Check rollers for wear. Replace broken rollers. • Lubricate pivot points as required. • Check cam alignment. • Clean limit switch contacts and check for proper contact wipe.

SHAFT MODULE	
Task	Procedure
Check terminal slowdown cams	Check tightness of terminal slowdown cam fastenings.
Guide Rails	
Check guide rails	Annually, check the D.B.G at several locations in the hoistway.
Check guide rail fastenings	• Check guide rail clips, brackets and fastenings for tightness. • Lubricate slide type rail clips.
Guides	
Check car and counterweight guides (roller and/or slide)	• Check for excessive movement, wear or damage. • Check for proper tension of roller on the rail (roller guides). • Lubricate bearings as required (roller guides). • Adjust for proper running clearance (slide guides). • Lubricate guide shoe stems (slide guides). • Check retainer plates. • Check security of fastenings.
Shaft (General)	
8.6.4.14 - Check hoistway access switches (if applicable)	Check hoistway access switches for proper operation.
8.6.4.7 - Clean hoistway	Clean hoistway, rails, brackets, counterweights and car sides annually.

SHAFT MODULE	
Task	Procedure
Check traveling cables	• Check traveling cables for damage. • Check if cables are securely fastened.
Check stiles	• Check condition of stiles. • Check fastenings for tightness.
Check fascia	• Check condition of fascia. • Check fastenings for tightness.
Check hoistway duct	• Check hoistway duct for distortion, shrinkage or bowing. • Check fastenings for tightness. • Check for missing covers. Replace as required.
8.6.4.11 - Check run-by	Check car and CW run-by to ensure they meet code requirements.
Check earthquake safety devices, if applicable	Ensure earthquake safety devices function as designed.
Ropes & Sheaves	
NOTE! If 6mm or 8mm ropes are installed refer to the INSPECTORS GUIDE TO 6MM DIAMETER GOVERNOR AND 8MM DIAMETER SUSPENSION ROPES FOR KONE ELEVATORS for additional information. NOTE! Winding-drum machines with 1.1 roping are required to have fastenings redone or replaced at specific time intervals. See A17.1/CSA B44 (8.6.4.10) for detailed information regarding this requirement.	
8.6.4.1.1 - Clean hoist ropes	Clean hoist ropes annually

SHAFT MODULE	
Task	Procedure
8.6.4.1.3 - Check hoist and compensating ropes	• Check hoist and compensating ropes for wear, breaks, rouge and proper diameter. • Check for equal hoist rope tension and adjust as required.
Check hoist and compensating rope shackles	• Check hoist and compensating rope shackles and springs for damage. • Ensure load-carrying ropes remain in line with shackle rods • Clean shackles and springs of dirt and oil. • Make sure nuts and cotter pins are in place.
8.6.4.2.1 - Clean governor rope	Clean governor rope annually.
Check governor rope	• Check governor rope for wear, rouge and proper diameter. • Check governor rope cable clamps for tightness. • Check travel cable for damage.
Check slack hoist rope device	Check integrity of slack hoist rope device; open switch and attempt to operate the elevator on inspection. Elevator should not move.

SHAFT MODULE	
Task	Procedure
Check sheaves	• Check all hoist and counterweight rope sheave grooves for wear. • Check all hoist and counterweight sheaves for noise and/or vibration. • Lubricate bearings as required. • Check all sheave fastenings for tightness.
Check compensating chains	Check compensating chains for damage.
Safeties	
NOTE! If KONE safeties are installed, a product specific KONE SAFETY GEAR APPLICATIONS RECORD must be affixed to the controller, on which all safety gear applications that occur at rated speed or governor tripping speed must be entered. All safety components must be inspected after each application to monitor wear. The safety spring block and shoes/wedges must be replaced according to the information on the KONE SAFETY GEAR APPLICATIONS RECORD.	

SHAFT MODULE	
Task	Procedure
8.6.4.5 - Check car and counterweight safeties	• Check car and counterweight safeties for proper running clearance. Clearance on both sides of the rails should be approximately the same. Safety dogs must apply evenly. Adjust as required. • Check releasing carrier fastenings for tightness. • Remove any dirt or corrosion to ensure smooth operation. • Clean and lubricate pivots.
Check SOS (Safety Operated Switch)	Check SOS for smooth operation. Clean as required.
Check safety test tags	Test data tags must be present and secured with seal wire.
Pit Equipment	
Check emergency stop switch in pit	Check to ensure stop switch will prevent elevator from running.
Check pit light	Pit light bulb must be functional and must be protected by a proper guard.
Check pit ladder	Check security of ladder fastenings.
Check retracting pit ladder safety switch (if applicable)	Check to ensure elevator will not run with retracting pit ladder extended (switch open).
Check main and counterweight rail block-ups	Check main and counterweight rail block-ups, jack bolts.
Check counterweight guards	Check if guard fastenings are tight.

SHAFT MODULE	
Task	Procedure
Check spring buffers (car & counterweight)	• Check springs for signs of damage. • Check alignment of springs to strike plates. • Check security of all fastenings.
8.6.4.4 - Check oil buffers (car & counterweight)	• Check oil level in car and counterweight buffers. If low, add oil recommended by manufacturer. • Clean plungers • Check alignment of buffers to strike plates. • Check security of all fastenings.
Check retracting toe guard safety switches	Ensure elevator will not run with toe guard extended unless pit proximity switch is deactivated.
Check test tags	Test data tags must be present and secured with seal wire.
Check compensating sheave & hitch plate	• Check for proper clearance from the pit floor. • Lubricate guides in frame to ensure free movement. • Make sure cable guards are in place. • Check operation of compensating sheave switch.
Check governor tension weight sheave	• Check for excessive wear of the sheave, shaft or bearings. • Lubricate bearings as required. • Check to ensure sheave is not bottomed out on pit floor.

SHAFT MODULE	
Task	Procedure
8.6.4.7 - Clean pit	Remove debris from pit (pit should be broom clean).
Additional for Hydro Pit Equipment	
Check cylinder	• Check for excessive leakage around cylinder head. • Clean cylinder head and oil drainage channels. • Check for signs of excessive rust. • Check fastenings of above ground cylinders.
8.6.5.5.1 - Check piston NOTE! When cylinder packing/seal or pressure piping seal is replaced, entire hydraulic system must be tested at relief valve pressure prior to placing unit back in service.	• Check for nicks, scratches or pitting. • Check for excessive oil leakage from piston packing. • Check piston joints for tightness. Report any gaps observed to a supervisor. • Check tightness of piston and platen plate fastenings. • Check stabilizer rollers/slides, cable and sheaves. Lubricate as required.
8.6.5.11 - check cylinder protection monitor (if applicable)	Check condition of cylinder protection monitor.

SHAFT MODULE	
Task	Procedure
Check hydraulic pipe	• Check for leakage around fittings and where the pipe emerges from the pit wall or floor. • Check for excessive rust. • Check security of pipe supports.
Check gate valve	Check for signs of leakage. Valve must meet applicable code requirements.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Landing Doors Module (L)

MAINTENANCE GUIDELINES FOR LANDING DOORS

Passenger doors

Hoistway door interlocks

- Leaf contacts should be clean, have minimal wear, and be adjusted for correct wipe. Contracts should be free of cracks or other damage. Contact separation should be sufficient to prevent arching between the contacts.
- Contacts should be free from pitting or burning; wiring connections should be tight and in good condition.
- Shorting bars should engage contacts to provide a good wipe on the shorting bar.
- Interlock case, electrical connections, insulator, conduit fittings and bushings, and interlock-track bracket mounting screws should be tight.
- The mechanical pivots, engaging rollers and linkage should operate freely and be lubricated as required.
- Worn or damaged rollers and linkage should be repaired or replaced.

Door panels

- Side-opening doors should be no more than 1/8 inch from strike jamb bumpers when door is in fully closed position.
- Center-opening doors should be no more than 1/16 inch apart when doors are in fully closed position.
- Sills should be free of accumulated dust and debris.
- Running clearance margins should be maintained with door panels plumb. Margins between panels, under panels, and adjacent sections (header, door jamb, cab entrance column) should be a nominal -inch.

- Door gibs and sills, on both car and hall doors should be securely fastened, have minimum wear and equipped with safety tabs.

Door hangers

- Door rollers and tracks should be clean, rust free and lightly lubricated. Rollers with loose tires, flat spots, or bad bearings should be replaced.
- Up thrust roller to track clearance should not exceed 0.005 in. (0.127 mm). Fastenings should be locked and rollers should turn freely.
- Door relating cables should be taut enough to keep the doors operating smoothly, but not so taut they cut into the door relating cable sheave. Replace damaged cable sheaves.
- Hanger should be parallel with hanger track.
- Fasteners should be tight.
- Door sheaves should not be noisy.

Door closers

- Hoistway door closers should ensure full door closure of the stopped door from any position. Spirator or weight troughs should be tightly fastened and cords (cables) should have no abrasion or broken wires.
- Hydraulic door checks should be adjusted to avoid slamming. Checks should be filled to the proper level with the proper fluid. Excessive oil leakage should be corrected and leakage should be cleaned up.
- Pivot points should be lubricated.

Freight doors

- All freight hoistway door and car gate equipment should be clean and free of excess lubricant.
- Door pull strap should be attached and in good condition.
- Hoistway doors should operate smoothly and quietly. Door open and close slowdown switches and limit switches should be clean, functional, and adjusted to job specifications.
- Retiring cam should be clean and lubricated. Mounting bolts should be kept tightened. Belts should have proper tension.
- All safety devices should be operating.
- Reversing edge should reverse the door when it comes in contact with an object.
- Hoistway door astragals should not be torn or damaged.
- Freight doors should have no broken vision panels or damaged door panels.
- Trucking bars should be adjusted so the lower door remains level with the sill while the door is resting on the bars.
- Hoistway door and car gate tracks should be kept properly lubricated. Track bolts should be kept tightened.
- Hoistway door operator pulleys or sprockets should be aligned with each other.
- Hoistway power operator drive belts should have proper tension and be free of cracks.
- Freight door operator drive belts should not be slipping, glazed, or cracked.
- Hoistway door sheaves should have good bearings and belts. Sheave and shaft bearings should be kept clean and lubricated.
- Emergency door release devices should be accessible with a key.

LANDING DOORS MODULE (L)

LANDING DOOR MODULE	
Task	Procedure
Interlock assembly	
8.6.4.13.1(a) - Check interlocks	Check interlock circuit integrity • Open landing door and attempt to move elevator downward. (Block door open, if necessary.) Elevator should not move. Clean interlock contacts • Clean contacts. Check for pitting, burning or excessive wear. • Check for proper contact separation. • Clean shorting bar contact surface. • Check for signs of arcing, burning or excessive wear. Replace as required. Check mechanical function of interlock • Check to ensure hook moves freely. Lubricate pin as required. • Check hook-to-hook box clearance. Ensure locked door and door contact do not open when pushed/pulled by hand. Check for any misalignment of or damage to any landing door components.

LANDING DOOR MODULE	
Task	Procedure
8.6.4.13.1(i) - Check pick-up rollers and lift rod	• Check pick-up rollers for proper clearances, alignment and wear. Adjust or replace as required. • Check lift rod alignment and adjustment. Lift rod must lift hook sufficiently to clear box when the door opens. Lubricate all pivot points.
8.6.4.13.1(e) - Emergency opening device	Check operation of emergency door opening device.
Landing Doors	
8.6.4.13.1 - Check landing door components	Check Tracks • Check alignment of track and sill. • Remove any build-up of dirt and lubrication. • Check for worn rolling surface, especially at point interlock hook engages interlock box. Check hanger sheaves • Check hanger sheaves for noisy operation. • Check alignment of rollers relative to hanger track. The hanger should be mounted parallel to track. • Check to ensure rollers rotate freely. Check eccentrics • Check wear, clearance and alignment of eccentrics. Eccentrics should have .005 inch running clearance. Check fasteners • Check all fasteners for tightness.

LANDING DOOR MODULE	
Task	Procedure
Check door panels	• Check door panels for damage. • Check for proper operating clearances at header, strike jamb, cab column and sill. Clearances must meet code requirements. • Hoistways shall have floor numbers, not less than 4 in. (100 mm) in height, on hoistway side of enclosure or hoistway doors.
8.6.4.13.1(d) - Check vision panels and grills	• Check to ensure clear, wired glass is installed and is securely fastened. • If unit was installed under A17.1-1990 or later code, ensure a vision panel grill is in place.
8.6.4.13.1(h) - Check landing door gibs, brackets, fire tabs and sills	Check door gibs, brackets, fire tabs and sills. • Check door gibs and fire tabs for excessive wear and proper sill penetration. Adjust or replace as required. • Check fastenings. Tighten as required. Check sills. • Check for excessive wear. • Remove debris. • Check fastenings. Tighten as required.

LANDING DOOR MODULE	
Task	Procedure
8.6.4.13.1(g) - Check strike jamb bumpers and astragals	Check that strike jamb bumpers and astragals are in place.
8.6.4.13.1(k) - Check door closer	- Disengage landing door from car door and ensure landing door is self-closing. Door should close automatically when stopped at any point in its travel. - Clean and lubricate as required.
Check door for free operation	Check to ensure door panels do not jam in fully open position.
Additional for Freight Doors	
Clean and lubricate door motor(s)	Clean door motor(s) Check drive sprockets for tightness and excessive wear.
Check zone switches	- Remove zone switch covers and check contacts for wear. - Clean contacts or replace, if excessively worn.
Check speed control cams and switches	Examine all door operator switches and cams. Adjust as required.
Check door suspension system	- Check chains for signs of stretching. Doors must hang plumb and level. Adjust as required. - Clean sprockets and sheaves and check for proper alignment and excessive wear.

LANDING DOOR MODULE	
Task	Procedure
8.6.4.13.1(f) - Check door tracks	Clean tracks and check for excessive wear. Lubricate lightly.
Check trucking bars	Check to ensure lower door is level with sill when door is resting on the trucking bars. Adjust as required.
8.6.4.13.1(i) - Check retiring cam	• Clean and lubricate pivot points. • Clean and lubricate chain. • Check tension of drive belt. Replace as required. • Check fastenings. Tighten as necessary.
Check door pull strap (Manual doors)	Door pull strap must be attached and be in good condition. Replace as required.
Check door open restrictor	On bi-parting doors, attempt to separate doors at side opposite lock. Gap must meet A17.1 / CSA B44 code requirements.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Door Operator Module (D)

MAINTENANCE GUIDELINES FOR DOOR OPERATORS

Passenger car door operator

- Car door operators should be kept clean and free of oil and dirt accumulation.
- Electrical components should be free of lint and dirt.
- Circuit boards and their connectors should be clean and free of conductive debris.
- All door operator fasteners should be tight.
- Car door operator is to be adjusted so that the force necessary to prevent door closing (from a rest position) is not more than 30 lbf, ASME A17.1 / CSA B44 code requirement.
- Door open and close speeds should meet specific requirements of each job. Open and close sequences should be smooth and quiet.
- Car doors should operate with no marked speed changes. Acceleration and deceleration should be gradual, with no detectable banging or jerking of the doors.
- All door operators in the same group (bank) should be set to open and close at similar speed.
- Operators should be lubricated.
- Rattles and squeaks in the door operator linkage and hangers should be investigated and corrected. Fastenings of drive arms, clutch or vanes should be tight. Pivots and all bearings should be quiet, lubricant leaks should be kept at a minimum, and kept clean.
- Excessive gear backlash, loose or worn belts should be adjusted or should have worn parts replaced. All bearings should be quiet and fits should be tight. Loose setscrews, pins or keys should be corrected.

- Motor brushes should be free in the holders and of sufficient length to avoid commutator damage.
- Belt tension should not exceed 3/16-inch deflection on a single pulley, and 5/16-inch deflection on a double pulley.
- Belts should not be glazed or cracked.
- After replacing belts, door operator sheaves should be checked for alignment.
- Retiring cams should be clean and operate properly. Pivot points should be lubricated.
- All installed door re-opening devices should be functional. Reversal should occur smoothly.

Gate switch

- Gate switch should operate freely.
- Gate switch should be mounted securely.
- Electrical contact should be OPEN when car door opens 2 inches or less.
- Hoistway door interlocks
- Leaf contacts should be clean, have minimal wear, and be adjusted for correct wipe.
- Contacts should be free from pitting or burning; wiring connections should be tight and in good condition.
- Shorting bars should engage contacts to provide a good wipe on the shorting bar.
- Gate switch case, electrical connections, insulator, conduit fittings and bushings, and track bracket mounting screws should be tight.
- The mechanical pivots, engaging rollers and linkage should operate freely and be lubricated as required.

- Worn or damaged rollers and linkage should be repaired or replaced.

Safety edge

- Safety edges should be mounted to extend, retract, and initiate door reopen operation. Extension and retraction should be smooth and positive.
- Reversal should occur with minimum stroke of safety edge.
- Retraction devices should work properly or be replaced.
- Safety edges installed on multiple elevators or on elevators with center-opening doors, should extend and retract like amounts.
- Hand pressure on safety edge should prevent door from starting to close when doors are full open with safety edge retracted.
- Safety edge linkage should have a minimum of lateral movement. Linkages should be lubricated.
- Running clearance from bottom of safety edge to doorsill should be maintained when safety edge is fully extended.
- Clearances between safety edges and door panels should be maintained.
- Rubber edge should be free of breaks or obvious damage.
- All Electrical cables should be properly routed and in good condition. They should not be frayed, spliced, or hardened and cracked.
- Proximity or curtain edges should be clean.
- Sensitivity adjustment should be set to initiate re-open operation when the light ray is interrupted.
- Photoelectric units should be clean.

- Light source should be aligned with receiver or reflector to prevent false re-openings in any position while doors are closing.
- Sensitivity adjustment should be set to initiate re-open operation when the light ray is interrupted.
- Electronic devices should provide sufficient range to reverse door with minimum physical contact.
- All electrical cables should be properly routed and in good condition not be frayed, spliced, or hardened and cracked.

Clutches

- Clutch must be securely fastened.
- Clutch vanes must be plumb.
- Clutch should quietly and smoothly engage hoistway door pick-up rollers, hold engagement throughout door-open and door-close cycles, and smoothly disengage pick-up rollers at end of door-close cycle.
- If equipped with restrictive clutch, doors should not operate manually outside the landing zone.
- Pivot points should be lubricated.
- Worn or damaged parts should be replaced.

Freight car door operator

- All freight hoistway door and car gate equipment should be clean and free of excess lubricant.
- Door and gate controllers should be kept clean.
- Door and gate controller solenoids, relays, contacts, and timers should be in good operating condition.
- Hoistway doors should operate smoothly and quietly. Door open and close slowdown switches and limit switches should be clean, functional, and adjusted to job specifications.

- Retiring cam should be clean and lubricated. Mounting bolts should be kept tightened. Belts should have proper tension.
- All safety devices should be operating.
- All door operating push buttons, hall and car, should be unbroken, should initiate the call, and should work without sticking.
- Gate switch should be clean and adjusted for proper wipe and operation. Gate switch cam and rollers should not be excessively worn.
- The car gate should close before the hoistway doors.
- Reversing edge should reverse the door when it comes in contact with an object.
- Car gate drive chains should be cleaned and properly lubricated.
- Car gate chain sprockets should be aligned.
- Car gate to counterweight cable should not allow the counterweight to bottom out against the car floor.
- Car gate to counterweight cable fastenings should be secure and tight.
- Car gate and hoistway power operator drive belts should have proper tension and be free of cracks.

DOOR OPERATOR MODULE (D)

DOOR OPERATOR MODULE	
Task	Procedure
Door Operator	
Check door operator	• Observe operator in automatic operation and check for unusual noises or abnormal operation. • Lubricate motor per manufacturer's specifications. • Clean operator. • Lubricate bearings and pivot points as required.
Check cams and micro switches	• Operate doors and check for proper adjustment of all cams, levers and switches. Adjust as required. • Check tightness of cams and levers; tighten as required.
Check door close limit	Check operation and mounting of limit switch. Tighten as required.
Check belts / chains / cables	• Check for proper tension by testing deflection. Adjust as required. • Check for excessive wear. Replace as required.
Check drive sheaves / shafts	Check for proper alignment, wear and damage. Repair or replace as required.
8.6.4.13.1(i) - Check retiring cam	Clean and check operation of retiring cam. Adjust as required.

DOOR OPERATOR MODULE		
Task		Procedure
Check electrical contacts		Clean electrical contacts and check for proper wipe. Adjust as required.
Check wire connections		Check wire connections for tightness.
Car Door		
	8.6.4.13.1(c) - Check door edge protective device	• Ensure tightness of all fastenings. • Lubricate pivot points. • Check alignment of sending and receiving units. • On mechanical units, check retracting mechanism. Lubricate and adjust as required.
	8.6.4.13.1(b) - Check car door gate switch	• Disassemble switch and clean contacts. Check contact wipe. Adjust or replace contacts as required.
	8.6.4.13.1(i) - Check door clutch.	• Check condition, operation, alignment and adjustment of door clutch. Adjust as required. • Lubricate pivot points.

DOOR OPERATOR MODULE		
Task		Procedure
	8.6.4.13.1(i) - Check door opening restriction device (passenger elevators installed under A17.1b-1980 and later editions)	Check to ensure elevator doors can not be fully opened manually when elevator is more than 18 inches above or below a landing. Adjust device, if needed. Note: • On elevators installed under A17.1b-1980 and later editions, door can be opened manually a maximum of 4 inches. • On elevators installed under A17.1b-1989 and later editions door can be fully opened manually if elevator is within 3 inches of floor.
	8.6.4.13.1(j) - Check relating cable and sheaves	• Check condition and adjustment of relating cable and sheaves. • Clean, adjust or replace as required.

DOOR OPERATOR MODULE		
Task		Procedure
8.6.4.13.1(f) - Check car door components		Check tracks • Check alignment of track and sill • Remove any build-up of dirt and lubrication. • Check for worn rolling surface, especially at point interlock hook engages in interlock box. Check hanger sheaves • Check hanger sheaves for noisy operation. • Check alignment of rollers relative to hanger track. Hanger should be mounted parallel to track. • Check to ensure rollers rotate freely. Check eccentrics • Check wear, clearance and alignment of eccentrics. Eccentrics should have .005 inch running clearance. Check fasteners • Check all fasteners for tightness.
	Check door panels	• Check door panels for damage. • Check for proper operating clearances at header, strike jamb, cab column and sill. Clearances must meet code requirements.

DOOR OPERATOR MODULE		
Task		Procedure
	8.6.4.13.1(d) - Check vision panels and grills	Check to ensure clear, wired glass is installed and is securely fastened. If unit was installed under A17.1-1990 or later code, ensure a vision panel grill is in place.
	8.6.4.13.1(h) - Check car door gibs, brackets, fire tabs and sill	• Check door gibs and fire tabs for excessive wear and proper sill penetration. Adjust or replace as required. • Check gib and bracket fastenings. Tighten as required. • Check sill for excessive wear and remove debris.
Check strike jamb bumpers and astragals		Check to ensure strike jamb bumpers are in place.

DOOR OPERATOR MODULE		
Task		Procedure
Additional for Freight Gate		
	Check gate condition	Check overall condition of gate. Gate expanded metal should reject a 1 inch ball.
	Clean and lubricate gate motor(s)	• Clean door motor(s) • Check drive sprockets for tightness and excessive wear.
	Check gate suspension system	• Check chains/cables for signs of stretching. Gate must hang plumb and level. Adjust as required. • Clean sprockets and sheaves and check for proper alignment and excessive wear.
	Check gate tracks	Clean tracks and check for excessive wear. Lubricate lightly.
	8.6.4.13.1(g) - Check astragals	Check astragals for damage. Repair or replace as required.
	8.6.4.13.1(c) - Check door edge protection	Check all door edge protection devices for proper operation.
	Check door pull strap (Manual gate)	Door pull strap must be attached and in good condition. Replace as required.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.		

Signals Module (Z)

MAINTENANCE GUIDELINES FOR SIGNALS

- All hall fixtures should function, be legible, and be without cracks or damage.
- Face plates should be in place and mounted square and plumb.
- Fastening screws should be of the proper type. Missing screws should be replaced.
- Buttons and key switches should have the correct legible markings.
- Buttons and key switches should not stick or be plugged.
- Damaged buttons should be replaced.
- Indicator lamps should illuminate as required.
- Broken lenses should be replaced.
- Audible devices should function as designed.
- Car emergency light should be operational.

SIGNALS MODULE (Z)

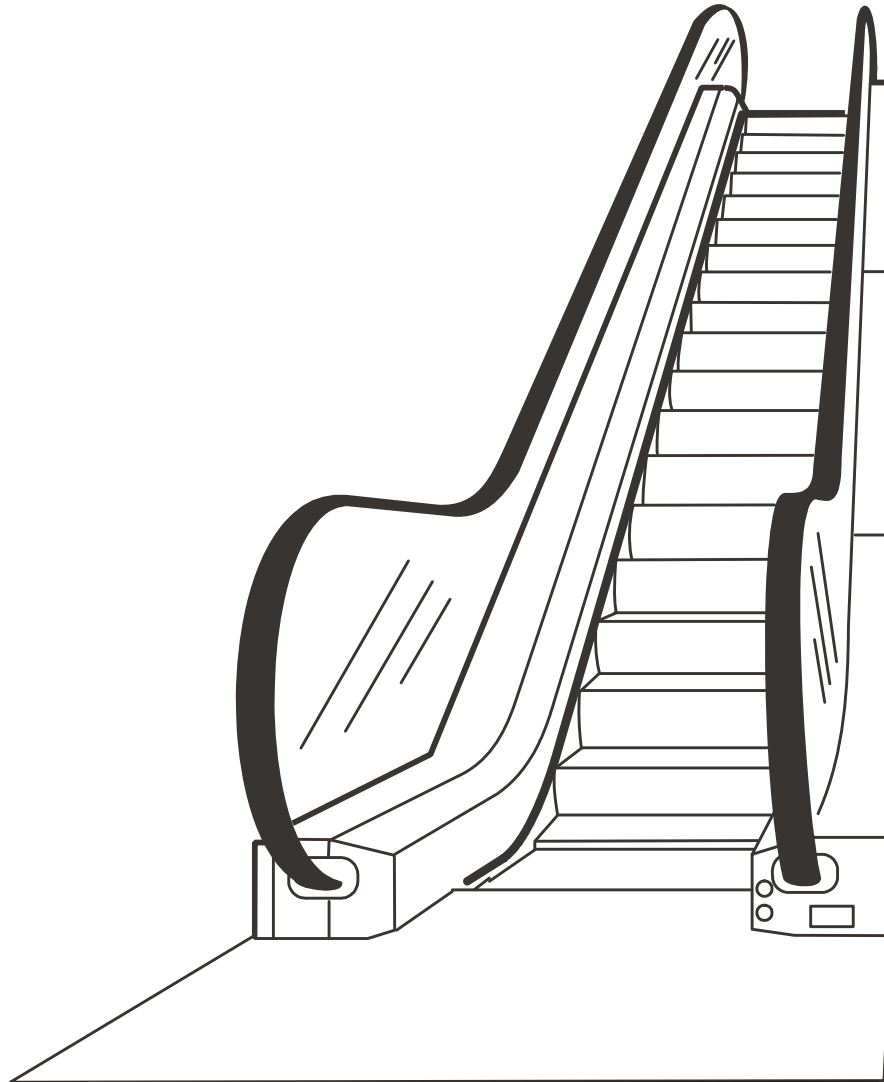
SIGNALS MODULE	
Task	Procedure
Check lamps and signals	• Check operation of all car buttons. • Check operation of all hall buttons. • Check operation of all signal lights, lanterns and gongs.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Fire Service Module (FS)

FIRE SERVICE MODULE	
Task	Procedure
Check Phase 1 Fire Service	Activate Fire Service recall key switch and ensure elevator(s) respond as required by applicable code.
Check Phase 2 Fire Service	Operate elevator and ensure Phase 2 Fire Service functions as required by applicable code.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Notes

KMM Escalator/Autowalk Modules



KMM Escalator/Autowalk Modules

KMM Escalator/Autowalk Modules

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General KMM Guidelines

KMM Profiles

Equipment manufacturer, model, age, condition, usage, operating environment and contract specifications may warrant variances in the task schedule. Contact your supervisor regarding any job or equipment information that might impact the KMM maintenance profile.

Customer check-in and check-out procedure

- When you arrive at a location, visit the Customer or Building Representative. Investigate and take corrective action to alleviate the cause of any complaints.
- Before you leave a location, visit the Customer or Building Representative and discuss the results of your visit. If required, have them sign a Time Ticket.
- Always thank the customer for their business.

Basic Check Module (Y)

MAINTENANCE GUIDELINES - BASIC CHECK

General

- Landing plates should provide a non-slip surface. Worn plates should be replaced.
- Caution signs should be in place at the top and bottom landings of each escalator.
- Step demarcation lights should be on whenever the unit is in operation.
- Operation should be smooth with no unusual noises.
- *Key start switches:* The key start switch should operate properly, and should return to CENTER position when the key is released. All screws should be tightened periodically.
- *Emergency stop buttons:* Emergency stop buttons should operate properly. Covers over the emergency stop buttons should be in place. The ALARM SWITCH (if present) should sound an alarm when the cover over the emergency stop button is lifted.
- *Handrail inlet switches:* The handrail inlet switch should operate properly when any foreign object enters the inlet. The inlet should be clean.

Comb segments

- Broken comb segments should be replaced, and screws should be tight. Comb segments should mesh properly into the step.

Steps/Pallets

- Broken step or pallet treads and risers should be replaced.
- Steps or pallets should track properly.

Balustrade and decks

- Trim, inner panel, and skirt fastenings should all be tight.
- Skirt panels, if not made from, should be treated with, a friction reducing material. Follow manufacturers recommendations. Ref. ASME A17.1 / CSA B44.
- Clearance between the skirts and steps should be maintained per applicable code at time of installation.
- Damaged balustrades should be replaced. Molding and fastenings should be flush and smooth.
- Damaged skirt panels should be replaced.
- Deck barricades should be in place on low deck designs.
- Suitable anti-slide devices should be installed on high deck equipment.
- Wedge guards at ceiling intersections should be in place and in good condition.

Handrails

- Handrails should not be excessively worn or damaged. Cracks or cuts should be repaired or the handrails replaced.
- Handrails should travel at approximately the same speed as the steps.
- Handrails should not slip under normal use.
- Handrails should not run hot.

BASIC CHECK MODULE (Y)

BASIC CHECK MODULE		
Task		Procedure
	Check ride comfort	Ride unit and check for roughness, vibration or unusual noises. Identify and correct cause of any problems.
Visual Inspection		
	Check balustrade and decks Note: <i>Notify a Supervisor when finding damage to any items in this section.</i> <i>Damage to items with an asterisk (*) is normally excluded from the contract.</i>	• Check skirts for scratches.* • Check inner decks for scratches and dents.* • Check solid inner panels (if equipped) for scratches and dents.* • Check glass inner panels (if equipped) for excessive scratching, chipping, cracks or movement. Verify gap between panels.* • Check frontplate for damages or cracking.* • Check for missing, loose, or damaged screws; tighten or replace screws. • Check handrail base for loose or misaligned sections.
	Check demarcation strips	Check step or pallet demarcation strips for damage and secure fastening.*

BASIC CHECK MODULE		
Task		Procedure
⚠	8.6.8.8 - Escalator 8.6.9.6 - Autowalk Check safety signs	Check to ensure safety signs are legible, undamaged and securely fastened.*
⚠	8.6.8.9 - Escalator 8.6.9.7 - Autowalk Check guards at ceiling intersections	Check to ensure guards at ceiling intersections are intact, undamaged and securely fastened.*
⚠	8.6.8.10 - Escalator 8.6.9.8 - Autowalk Check antislid devices	Check to ensure antislid devices are intact, undamaged and securely fastened.*
⚠	8.6.8.6 - Escalator 8.6.9.3 - Autowalk Check treads and risers	Check step or pallet treads and risers for any damage, misalignment or excessive wear.*
⚠	Check lighting (if applicable)	Check operation of step or pallet and balustrade lighting. Replace bulbs or lighting elements as required.
⚠	8.6.8.1 - Escalator 8.6.9.1 - Autowalk Check external condition of handrails	Check exterior of handrail for cracks, splits or deterioration. Pay special attention where handrails travel around newels.
	Check handrail speed	Check to ensure handrail speed is same as step band speed.

BASIC CHECK MODULE		
Task		Procedure
	8.6.8.4 - Escalator 8.6.9.2 - Autowalk Check comb segments	• Check for warping, broken teeth or loose bolts. Tighten bolts and replace comb segments as required. • Check to ensure comb teeth mesh with grooves in step or pallet treads so that points of comb teeth are always below upper tread surface.
	Check clearances between steps or pallets	Check clearances between consecutive steps or pallets. Clearances must meet applicable code.
	8.6.8.2 - Escalator 8.6.9.13 - Autowalk Check clearances between steps or pallets and skirts	Check clearances between steps or pallets and skirts. Clearances must meet applicable code.
	Check stop buttons	Check operation of emergency stop buttons.
	Check skirt brushes	Check skirt brushes for damage and secure fastening.
	8.6.9.5 - Check condition of treadway belt (if applicable)	Check to ensure treadway belt is not damaged or worn excessively.

BASIC CHECK MODULE		
Task		Procedure
Skirts		
	Lubricate skirts NOTE! Not required when skirt brushes are installed or skirt is made from low friction material.	Apply, as directed, USP18180 Skirt Lubrication. Use USP18181 funnel. Follow instructions on can.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.		

Basic Module (B)

MAINTENANCE GUIDELINES - BASIC MODULE

General

- Landing plates should provide a Non-Slip surface. Worn plates should be replaced.
- Caution signs should be in place at the top and bottom landings of each escalator.
- Step demarcation lights should be on whenever the unit is in operation.
- Operation should be smooth with no unusual noises.

Safety switches



CAUTION: Any major disassembly, painting, and/or repair of the safety system will require a thorough check to ensure proper functionality prior to returning to normal operation.

All safety switches should function as intended. Broken switches should be replaced immediately. Switches should not be fabricated or re-engineered in the field. Safety switches are intended to interrupt power to the machine, and cause the brake to bring the escalator to a stop.

NOTE! Depending upon ASME A17.1 / CSA B44 code, specific design, and/or vintage, not all escalators require all the safety devices listed below.

- *Key start switches.* The key start switch should operate properly, and should return to CENTER position when the key is released. All screws should be tightened periodically.

- *Inspection switches.* If provided, inspection switch when turned to ON, should prevent start up of the escalator from any key switch other than that key switch next to selected inspect switch.
- *Emergency stop buttons.* Emergency stop buttons should operate properly. Covers over the emergency stop buttons should be in place. The ALARM SWITCH (if present) should sound an alarm when the cover over the emergency stop button is lifted.
- *Pit/machine stop switch.* The escalator should not operate when switch is in off position.
- *Skirt switches.* Skirt switches should operate properly when a foreign object becomes wedged between a step and the skirt. They should not be so sensitive that unnecessary shutdowns occur.
- *Handrail inlet switches.* The handrail inlet switch should operate properly when any foreign object enters the inlet. The inlet should be clean.
- *Combplate impact device.* Combplate impact devices should operate properly. Movable portions of device should be free to move without restraint. Applied forces are based on applicable code requirements. Check your local governing authority for applied forces required in your area.
- *Access cover switches.* Access cover switches, if provided, should operate when access covers are opened, or removed from the frame.

Comb segments

- Broken comb segments should be replaced, and screws should be tight. Comb segments should mesh properly into the step or pallet.

Steps/Pallets

- Broken step or pallet treads and risers should be replaced.
- Steps or pallets should track properly.

Step/Pallet chains

- Step or pallet chains should be properly lubricated.
- Step or pallet flanges with grease fittings should be lubricated.
- Step or pallet rollers should operate smoothly and quietly and be without cracks or breaks.

Balustrade and decks

- Trim, inner panel, and skirt fastenings should all be tight.
- Skirt panels, if not made from, should be treated with, a friction reducing material. Follow manufacturers recommendations.
- Clearance between the skirts and steps should be maintained per applicable code requirements at time of installation.
- Damaged balustrades should be replaced. Molding and fastenings should be flush and smooth.
- Damaged skirt panels should be replaced.
- Deck barricades should be in place on low deck designs.
- Suitable anti-slide devices should be installed on high deck equipment.
- Wedge guards at ceiling intersections should be in place and in good condition.

Stopping distance

- Brake stopping distance must meet applicable code requirements.

Handrails

- Handrails should not be excessively worn or damaged. Cracks or cuts should be repaired or the handrails replaced.
- Handrails should travel at approximately the same speed as the steps.
- Handrails should not slip under normal use.
- Handrails should not run hot.

Controller

- Controller should be clean and all connections tight.
- Controllers and other devices connected through flexible cords should be inspected for loose or damaged clamps and wiring.
- Contacts should not be excessively burned, and should have proper wipe.
- Electrical connections should be tight.
- Fuses should have the correct rating and must be identifiable without removal.
- All terminal switch connections should be made with insulated ring, or spade, crimp-type connections.
- Be aware that the 110 volt supply may still be LIVE in junction boxes even AFTER the mainline disconnect is pulled.

BASIC MODULE (B)

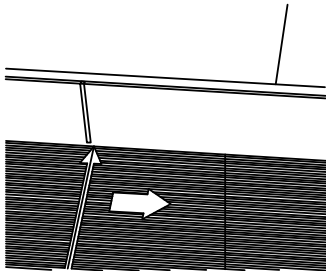
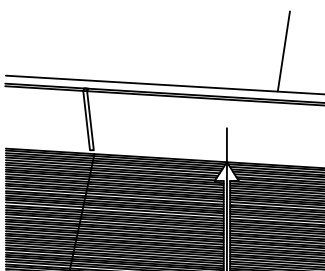
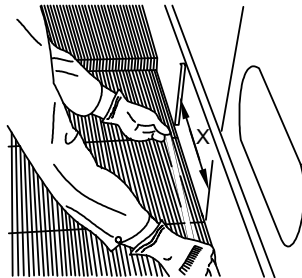
BASIC MODULE		
Task		Procedure
	Check ride comfort	Ride unit and check for roughness, vibration or unusual noises. Identify and correct cause of any problems.
Visual inspection		
	Check balustrade and decks Note: <i>Notify a Supervisor when finding damage to any items in this section.</i> <i>Damage to items with an asterisk (*) is normally excluded from the contract.</i>	• Check skirts for scratches.* • Check inner decks for scratches and dents.* • Check solid inner panels (if equipped) for scratches and dents.* • Check glass inner panels (if equipped) for excessive scratching, chipping, cracks or movement. Verify gap between panels.* • Check frontplate for damages or cracking.* • Check for missing, loose, or damaged screws; tighten or replace screws. • Check handrail base for loose or misaligned sections.
	Check demarcation strips	Check step or pallet demarcation strips for damage and secure fastening.*

BASIC MODULE		
Task		Procedure
⚠	8.6.8.8 - Escalator 8.6.9.6 - Autowalk Check safety signs	Check condition of treads and risers.*
⚠	8.6.8.9 - Escalator 8.6.9.7 - Autowalk Check guards at ceiling intersections	Check to ensure safety signs are legible, undamaged and securely fastened.*
⚠	8.6.8.10 - Escalator 8.6.9.8 - Autowalk Check antislid devices	Check to ensure antislid devices are intact, undamaged and securely fastened.*
⚠	8.6.8.6 - Escalator 8.6.9.3 - Autowalk Check treads and risers	Check step or pallet treads and risers for any damage, misalignment or excessive wear.*
⚠	Check lighting (if applicable)	Check operation of step or pallet and balustrade lighting. Replace bulbs or lighting elements as required.
⚠	8.6.8.1 - Escalator 8.6.9.1 - Autowalk Check external condition of handrails	Check exterior of handrail for cracks, splits, or deterioration. Pay special attention where handrails travel around newels.
⚠	Check handrail speed	Check to ensure handrail speed is same as step band speed.

BASIC MODULE		
Task		Procedure
⚠	8.6.8.4 - Escalator 8.6.9.2 - Autowalk Check comb segments	• Check for warping, broken teeth or loose bolts. Tighten bolts and replace comb segments as required. • Check to ensure comb teeth mesh with grooves in step or pallet tread so that points of comb teeth are always below upper tread surface.
⚠	Check clearances between steps or pallets	Check clearances between consecutive steps or pallets. Clearances must meet applicable code.
⚠	8.6.8.2 - Escalator 8.6.9.13 - Autowalk Check clearances between steps or pallets and skirts	Use gauge to measure gap between step or pallet and skirt at several locations. Clearances must meet applicable code.
⚠	8.6.9.5 - Check condition of treadway belt (if applicable)	Check to ensure treadway belt is not damaged or worn excessively.
⚠	8.6.8.7 - Escalator 8.6.9.4 - Autowalk Check entry and egress ends.	Check to ensure landing plates are securely fastened and are free of tripping hazards.

BASIC MODULE		
Task		Procedure
Check Safety Devices		
	Check emergency stop buttons	Check operation of emergency stop buttons. • With escalator running in DOWN direction, press stop button. Escalator must stop. • If emergency stop switch has a plastic cover with an alarm, make sure alarm sounds when plastic cover is lifted. • Repeat procedure with escalator running in UP direction.
	Check pit stop switches	Check pit stop switches for proper operation.
	Check inspection switches	Check inspection switches for proper operation.
	Check skirt brushes (if installed)	Check for worn or damaged skirt brushes and remove any foreign material.

BASIC MODULE		
Task		Procedure
	8.6.8.5 - Check skirt obstruction switches	Check operation of skirt obstruction switches (each side, top and bottom, if installed) while unit is running. • Manually trip each switch by placing a rubber spatula or similar device between step and skirt as step passes by switch. • Tripped switch must open safety circuit and stop unit.
	8.6.8.11 - Check handrail inlet guards	• Clean any foreign material from around handrail inlet. • Manually operate each handrail inlet device and check for proper mechanical functionality. • Activate switches (if installed) and verify they prevent unit from operating when activated.
	8.6.8.11 - Check access cover switches (if installed)	• Manually operate each access cover switch and check for proper mechanical functionality. • Activate switches and verify they prevent unit from operating.

BASIC MODULE		
Task		Procedure
Brake		
⚠ 8.6.8.12 - Escalator 8.6.9.10 - Autowalk Check stopping distance		• Mark skirt with tape (Fig. 1). • Use key switch to run escalator first up, then down. Stop escalator by pressing stop button when gap between steps passes marked point on skirt (Fig. 1 and Fig. 2). • Measure distance between skirt tape and next step gap (Fig. 3). NOTE! If brake slide does not meet manufacturer's specifications barricade unit and remove it from service until necessary adjustments and/or repairs are made. Notify a supervisor.
   Fig. 1: Marking of skirt Fig. 2: Brake distance Fig. 3: Measure distance		

BASIC MODULE		
Task		Procedure
Step Chains		
	8.6.8.7 - Escalator 8.6.9.4 - Autowalk Check step chains	Check step chains for signs of rust or excessive wear.
	• KONE Trans 180 (E3X) • EcoMaster 130 • EcoMod • TM140 Check step connector screws	Verify that locking tab washer used to secure screw that holds step connector to step is properly installed. Tab washer should be bent over a flat side of screw hex head. In addition, do not reuse tab washers. Reusing a tab washer may result in tab washer failure and subsequent loosening of screw securing step connector. Refer to Doc ID TECH-03-037-2011 for detailed information.
	Check step chain tension	Check length of compressed spring. Adjust to manufacturer's specifications.
	Lubricate step chains	Standard chain: Check and lubricate as necessary. Use USP23316 lubricant. Fill oil reservoirs. Lube-free chain: If required, moisten step chain lip track using DEE3670019 lubricant.

BASIC MODULE		
Task		Procedure
Lubrication		
	Check ring gear oil level	Check ring gear oil level. Add oil as required.
	8.6.8.5 - Lubricate skirts NOTE! Not required when skirt brushes are installed or skirt is made from low friction material.	Apply, as directed, USP18180 Skirt Lubrication. Use USP18181 funnel to prevent overspray onto the steps.
Controller		
	8.6.1.6.3(b)(c)(d) - Check and clean controller	• Check condition of starter contactors, mountings and contacts. • Check relay contactors for excessive burning and proper contact wipe. • Check wire connections: tighten any loose connections. • Check power supply and calibration voltages. • Check to ensure that any temporary jumpers have been removed. • Remove dust from controller.

BASIC MODULE		
Task		Procedure
	8.6.1.6.3(a) - Check for availability of up-to-date wiring diagrams	Check to ensure legible up-to-date wiring diagrams are available on-site. Notify your supervisor if up-to-date wiring diagrams are not available on site.
Pits		
	Clean pits	Clean upper and lower end pits as required.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.		

Brake Module (R)

MAINTENANCE GUIDELINES - BRAKE MODULE



CAUTION: Any major disassembly, painting and/or other repair or the brake system will require a thorough check to ensure proper functionality prior to returning to normal operation.

- Machine and emergency brakes should be properly lubricated and serviced.
- All brake designs to be kept clean. Linkages on AC shoe- or DC shoe-type brakes should be lubricated, but lubricant should not reach any of the friction or shoe surfaces.
- Fits to shafts should be secure, no fretting (rust or corrosion) at the interface.
- Flexible couplings should be tight, all pins and bushings securely in place.
- Pulley surface should be smooth, no scoring.
- Brake switches, if furnished, should be adjusted to properly open and close.
- Brake torque should be verified and adjusted, if need be, to meet maintenance guidelines for both the service and emergency brakes.

Brake shoes

- Brake shoes in open position should be clear of drum. Worn brake linings should be replaced. Rivets should not touch drum surface.
- Brake stopping distance for an AC shoe brake is 8 to 10 inches with the escalator empty and moving in the down direction.
- Brake stopping distance for a DC shoe brake is 4 to 6 inches with the escalator empty and moving in the down direction.

Permanent magnet brake

- Armature plates should not be worn to the degree that the brake can no longer demonstrate rated torque.
- Brake stopping distance for a permanent magnet brake with the escalator empty and moving in the down direction is:
 - 5 to 7 inches for 90 fpm unit
 - 8-1/2 to 10-1/2 inches for a 120 fpm unit
- Brake torque should be checked with an annually certified torque wrench. The torque should meet the value shown on the brake's nameplate.

BRAKE MODULE (R)

BRAKE MODULE	
Task	Procedure
Brake	
NOTE! Refer to document ASG-51.01.002 for detailed maintenance instructions for the KONE E3C/E3H brake. NOTE! Refer to Product Bulletin TECH-03-036-2003 for detailed maintenance instructions for Warner PM escalator brakes.	
Remove steps or pallets to form a hole in the step or pallet band.	• Remove three steps or pallets to form a hole in step or pallet band. • Move hole in step or pallet band above the brake. • Turn main power supply OFF. • Engage step or pallet band lock, if equipped.
8.6.8.12 - Escalator 8.6.9.10 - Autowalk Check brake operation	Brake must operate in accordance with manufacturer's specifications and applicable code.
Check friction surfaces	• Check brake friction surfaces for wear and contamination. Replace entire disc brake or lever brake shoes if: • Excessive wear of the friction surfaces has occurred, or • The friction surfaces have been contaminated with oil or any other friction reducing agent.

BRAKE MODULE	
Task	Procedure
Check brake gap	Check brake gap for proper clearance. If proper brake gap is not repeatable on a consistent basis, brake must be replaced.
8.6.8.12 - Escalator 8.6.9.10 - Autowalk Check brake torque	Check brake torque. Brake torque must be checked with an annually certified torque wrench. The torque must meet manufacturer's specifications. KONE E3C/E3H Warner brake torque: 125 lbf-ft (170 Nm). NOTE! If torque does not meet manufacturer's specifications, notify a supervisor, barricade unit and remove it from service until necessary adjustments and/or repairs are made. NOTE! Also notify a supervisor if brake torque can not be checked.
Check brake fastenings	Check brake fastenings to ensure brake is securely fastened.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Combplate Module (O)

MAINTENANCE GUIDELINES - COMBPLATE MODULE

- Comb segments must not be broken or damaged, and all screws must be tight.
- Comb segments must mesh 1/8 inch into the step tread when there is no weight on the combplate.
- Combplate impact devices should operate properly. Movable portions of device should be free to move without restraint. Applied forces are based on applicable code requirements. Check with your local AHJ for applied forces required in your area.

Combplate Module (O)

ESCALATOR COMBPLATE MODULE	
Task	Procedure
Combplate	
NOTE! Refer to ASG-51.01.002 for detailed instructions on checking and adjusting combplate impact device on KONE E3C/E3H equipment.	
8.6.8.4.3 - Check combplate impact device (if installed)	Check operation of combplate impact device according to design of device and version of escalator.
Check gap between combplate impact device switch and trip arm adjustment screw.	Gap should meet manufacturer's specifications and applicable code.

ESCALATOR COMBPLATE MODULE	
Task	Procedure
Check clearance between comb segments and steps.	Verify comb segments mesh properly with each step. Teeth must always extend below the top of the upper surface of step treads.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Drive Module (V)

MAINTENANCE GUIDELINES - DRIVE MODULE

Motor

- Motors should be clean and free of lint; air vents should be clean and open.
- Motors should be lubricated according to maintenance guidelines.

Gear box

- Gear reduction units should be checked for correct oil levels and that gears carry oil as required.
- External gears should be examined for proper lubrication.
- Machines should be free from excess lubricant and dirt. Minor oil leakage is normal, however leakage should not be allowed to accumulate.
- Bearings should be lubricated.
- Oil level should be at proper level.
- Internal screens should not be clogged.
- Gearbox should not have lint and dirt on top. Gearbox breather should be clean.
- Rubber grommets on coupling should be in place and not cracked or hardened. Coupling should have minimal play.
- Seals should not leak.
- Unusual noise, or vibration such as squeaks or scrapes should be investigated and the source of the problem corrected.
- Gears should not show abnormal wear, no ridging or scored teeth.
- Bearings should run quietly.

Chain drive

- Bull gear bearings should be greased per maintenance guidelines.
- Oil level in oil bucket should be at proper level. The ring and pinion gear should have constant but controlled lubrication. The lower reversing station assembly should be lubricated and able to move freely. Tension means (springs) should be properly adjusted and maintained.

Safety devices

All safety switches should function as they are intended. Broken switches should be removed and replaced immediately. Switches should not be fabricated or re-engineered in the field. Safety switches are intended to interrupt power to the machine, and cause the brake to bring the escalator or autowalk to a stop.

Depending upon ASME A17.1 / CSA B44 code, specific design, and/or vintage, not all escalators and autowalks require all safety devices as follows.

- *Governor over-speed switch.* Governor over-speed switches should operate properly - not more than 40% over rated speed.
- *Broken drive chain.* If required, broken drive chain device should operate if chain between drive machine and main drive shaft separates.
- *Non-reversing switch.* Non-reversing device should operate properly. Mechanical linkages should operate freely, and be lubricated.
- *Disconnected motor device.* If required, device should shut down escalator or autowalk if motor becomes disconnected from gearbox.

DRIVE MODULE (V)

ESCALATOR DRIVE MODULE	
Task	Procedure
Drive	
NOTE! Refer to document ASG-51.01.002 for detailed maintenance information for the KONE E3C/E3H gearbox. NOTE! Refer to ASG-52.02.001 for detailed maintenance information for the KONE Geared Outside Step Band Drive (GOSD).	
Prepare to perform Drive Module tasks	• Remove three steps or pallets to form a hole in step or pallet band. • Move hole in step or pallet band above gearbox. • Turn main power supply OFF. • Engage step or pallet band lock, if equipped.
Check the unit for quiet and smooth operation	Run unit and check for any unusual gearbox noise or vibration. If unit does not operate quietly and smoothly, investigate and identify cause. Notify supervisor if repairs are required or cause of noise or vibration cannot be determined.
Check speed of unit	Escalator or autowalk speed should meet manufacturer's specifications.
Check for oil leaks	Check gearbox for oil leaks. Report any leaks to a supervisor.

ESCALATOR DRIVE MODULE	
Task	Procedure
Check air breather	Check air breather for debris or other obstructions. Clean and adjust vent as required.
Check drive unit mounting bolts	Torque mounting bolts annually to manufacturer's specifications. • KONE E3C/E3H gearbox: 258 lbf-ft (350 Nm) • KONE Geared Outside Step Band Drive (GOSD) gearbox: 36.88 lbf-ft (50 Nm)
Check motor	Check motor couplings / grommets.
Check motor cover plate	Make sure motor cover plate is in place (if equipped).
Check reversing device	• Manually operate non-reversing device and check for proper mechanical functionality. • Actuate non-reversing device and verify it interrupts power to driving machine motor and brake, preventing escalator from reversing direction • For escalators installed under A17.1-1990 and later editions, verify device must be manually reset before being started with starting switch.

ESCALATOR DRIVE MODULE		
Task		Procedure
	Check governor over-speed switch, if equipped	Check to determine which type of governor is installed. • Flyball governor: Manually operate governor and check for proper mechanical functionality. Actuate governor switch and verify it interrupts power to the driving machine motor and brake. • Low voltage controller with tachometer-generator. Controller will stop unit when speed exceeds 135% of contract speed. Check tachometer for binding or damage. No other maintenance is required on these units. • Additional roller cam on non-reversing device: Verify connecting chains are present and operating properly. NOTE! For escalators or autowalks installed under A17.1-1990 and later editions, verify device must be manually reset before being started with starting switch.

ESCALATOR DRIVE MODULE		
Task		Procedure
	Check broken drive chain switch, if equipped	• Manually operate broken drive-chain device and check for proper mechanical functionality. • Actuate broken drive-chain device to verify it will cause main shaft brake to apply and stop drive machine if drive- chain separates. • For escalators installed under A17.1-1990 and later editions, verify device must be manually reset before being started with starting switch.
	Check disconnected motor switch, if equipped	• Manually operate disconnected motor device and check for proper mechanical functionality. • Actuate device to verify it will cause brake to apply and stop unit if drive motor becomes disconnected from gearbox. • For escalators installed under A17.1-1990 and later editions, verify device must be reset before being started with starting switch.
Lubrication		
Lubricate step or pallet chain sprocket bearings		Grease outboard bearings; must be lubricated with approved grease.
Lubricate gear box		Check oil level; fill if necessary with approved oil.

ESCALATOR DRIVE MODULE	
Task	Procedure
Lubricate ring gear	Check oil level; fill if necessary with approved oil.
Lubricate upper station main bearings	Lubricate per manufacturer's specifications.
Lubricate motor	Lubricate per manufacturer's specifications.
Lubricate handrail drive bearings	Lubricate handrail drive sheave bearings (if applicable).
Handrail Drive	
NOTE! Refer to document ASG-51.01.002 for detailed maintenance information for the KONE E3C/E3H handrail drive system. NOTE! Refer to document ASG-56-01.002 for detailed maintenance information for the KONE Differential handrail drive system.	
Check handrail drive components, if accessible	Check handrail drive components for proper adjustment and operation. Adjust to manufacturer's specifications, if required.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Guide Module (G)

MAINTENANCE GUIDELINES - GUIDE MODULE

Tracks

- All track brackets to be tight.
- Step or pallet track joints should be smooth with no gouges or dips.
- Step or pallet tracks should be clean.
- Hold-down tracks should allow rollers to pass freely and ride smoothly without excessive pressure from hold-down track. Clearance between step or pallet roller and hold-down track should be minimal.
- Novatex boards to be properly adjusted.
- Make-up tracks should be aligned, and not excessively worn. Check for excessive gap between track sections.
- Crab tracks should be aligned and adjusted.

Step or pallet chains & rollers

- Step or pallet chains should be properly lubricated.
- Step or pallet chains should be examined for wear. Chains should be replaced if wear permits excessive gaps between steps or pallets, or if steps or pallets can no longer comb properly at either end.
- Step or pallet and chain rollers should be lubricated.
- Step or pallet chains, main drive chains and step or pallet bushings should be clean and adequately lubricated.
- Step or pallet chains should be free of any accumulation of lubricant, lint and dirt.
- Step or pallet rollers should pass freely and smoothly without excessive pressure from the hold-down track. Clearance between step or pallet roller and hold-down track should be

minimal.

- Step or pallet chain sprockets should be examined for worn teeth and bearings.

Safety devices

All safety switches should function as they are intended. Broken switches should be removed and replaced immediately. Switches should not be fabricated or re-engineered in the field. Safety switches are intended to interrupt power to the machine, and cause the brake to bring the escalator or autowalk to a stop.

Depending upon ASME A17.1 / CSA B44 code, specific design, and/or vintage, not all escalators or autowalks require all safety devices as follows.

- *Broken step or pallet chain switches.* Broken step/pallet chain switches should operate when chain breaks or whenever lower station movement is greater than the backward/forward shift caused by normal operating conditions.
- *Step or pallet upthrust safety switches.* The step or pallet upthrust switch should operate properly when there is displacement of the hold-down track.
- *Missing step or pallet devices.* Should operate whenever a void, caused by a missing step or pallet, passes the device.
- *Out-of-level step or pallet devices.* The out-of-level step or pallet level device should operate properly when a step or pallet becomes displaced 1/8 inch downward or more, on either side of the step.
- *Step or pallet sag switches.* The step or pallet sag switch should operate in accordance with manufacturer's specifications.
- *Step or pallet lift switches.* The step or pallet lift switch should operate in accordance with manufacturer's specifications.

GUIDE MODULE (G)

GUIDE MODULE		
Task		Procedure
Safety Devices		
NOTE! Refer to document ASG-51.01.002 for detailed maintenance information for the KONE E3C/E3H guide system safety devices.		
	Check step or pallet sag switch (if equipped)	Check operation; trip levers must actuate limit switch if a step or pallet rises or drops by more than 3/16 inch (5 mm).
	Check step or pallet lift switch (if equipped)	Check operation; switch should trip and interrupt power to driving machine and brake after step or pallet lift track is lifted approximately 3/16 inch (5mm).
	Check step or pallet upthrust switch (if equipped)	Check operation; switch should trip and interrupt power to driving machine and brake after step or pallet upthrust track is lifted approximately 3/16 inch (5mm).
	Check step or pallet level devices	• Verify the step/pallet level devices are positioned properly and function as designed. The device should actuate when a 1/8 inch (3.2mm) shim is placed between step/pallet riser and switch actuator. • Verify tripped switch opens safety circuit and stops unit.

GUIDE MODULE		
Task		Procedure
	Check missing step or pallet devices	Remove a step or pallet on return side of band and operate unit. Verify unit stops before missing step/pallet gap emerges from combplate.
	Check broken step or pallet chain switches	Check operation; manually operate switches and verify each will interrupt power to driving machine and brake when tripped.
	Check skirt switches	Check operation; switch should actuate in accordance with manufacturer's specifications. Adjust, as required.
Step/Pallet Guidance System		
8.6.8.7 - Escalator 8.6.9.4 - Autowalk Check step or pallet chain rollers	Check step or pallet chain rollers for damage. Replace if required.	
8.6.8.7 - Escalator 8.6.9.4 - Autowalk Check tracks and cross members	• Check for any worn, damaged, or misaligned tracks. • Clean tracks and cross members. Remove oil, dirt, and debris.	
Check bridges and lower reversing station	• Check bridges for wear. Repair or replace bridges as required. • Check lower reversing station for movement. Grease sliding parts, if necessary.	

GUIDE MODULE	
Task	Procedure
Check lip track/step chain rollers	Check clearance between inside face of lip track and step or pallet chain rollers. Adjust as required.
Check step or pallet guidance buttons (If equipped)	Check condition of step or pallet guidance buttons. Replace if they are worn past wear indicator.
Check step or pallet chain tension	Check compressed spring length: If necessary, adjust to manufacturer's specifications.
Check Novatex boards (if equipped)	Check adjustment of Novatex boards. • With one or two steps removed, move step band so that opening created is positioned at upper end of unit. • Move step band until three step flanges are located above Novatex board. One step flange must be in middle of Novatex board, while other two are located approximately 1 inch inward from each end of board. • Disconnect power at controller • Verify that only middle step flange comes in contact with Novatex board and middle step flange roller is free to turn. • Adjust or replace Novatex boards if necessary.

GUIDE MODULE	
Task	Procedure
Check lower station	Check lower station movement, chain length, etc. Adjust according to manufacturer's specification, if required.
Lubricate step or pallet flanges	Lubricate step or pallet flanges, if applicable.
Lubricate lower station bearings	Lubricate lower station bearings, if applicable.
Pits	
Clean pits (light cleaning)	Remove oil and trash from upper and lower pits.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Handrail Module (H)

MAINTENANCE GUIDELINES FOR HANDRAIL MODULE

Safety devices

All installed safety devices should be functional and should operate as designed.

Handrail

- Handrails should not run hot.
- Handrails should not slip under normal use.
- Handrails should be grounded to discharge static electricity.
- Handrails should travel at approximately the same speed as the steps.
- Handrails should not be excessively worn or damaged. Cracks or cuts should be repaired or the handrails replaced

Handrail drive

- Handrail drive chains should be clean, adequately lubricated, and properly adjusted.
- Handrail roller clusters should be clean and move freely.
- The handrail newel rollers should have good bearings, be clean, and turn freely.
- Handrail slack take-up device adjustments should be maintained to prevent handrail damage.
- Handrail sheaves should not have V-groove wear, dirt or wax build-up. Handrail sheaves should not be warped.
- Handrail drives with multiple wheels should have equal diameter rubber capping, showing even wear.

HANDRAIL MODULE (H)

HANDRAIL MODULE	
Task	Procedure
Handrail	
Check for handrail damage	Remove handrails and check for signs of internal or external damage. Notify supervisor of any damage found.
Clean handrails	Clean inner and outer handrail surfaces.
Handrail Guide System	
Check and clean handrail guides	• Vacuum and clean all handrail guides and newel ends. • Check for excessive guide wear. • Adjust, repair or replace components, as required.
Check handrail guide joints	Check alignment of handrail guide joints. Adjust, repair or replace components, as required.
Check newel end rollers	Check and clean newel end rollers. Replace damaged rollers, if required.
Handrail Safety Devices	
8.6.8.1 - Escalator 8.6.9.1 - Autowalk Check handrail speed sensor (if equipped)	Check operation of handrail speed sensor. Device should interrupt power to driving machine motor and brake if speed of either handrail varies from step speed by 15% or more.
Check broken handrail monitor (if equipped)	Check operation of broken handrail monitor.

HANDRAIL MODULE	
Task	Procedure
Handrail Drive System	
NOTE! Refer to document ASG-51.01.002 for detailed maintenance information for the KONE E3C/E3H handrail drive system. NOTE! Refer to document ASG-56.01.002 for detailed maintenance information for the KONE Differential handrail drive system.	
Check handrail drive wheel friction surfaces	Clean any grease and oil from the friction surfaces. Check for cracks, splits and damaged or worn friction surfaces. Replace, if required.
Check handrail drive pressure rollers (if equipped)	Check the handrail drive pressure rollers. Adjust to manufacturer's specifications, if required.
Check handrail drive chain/belt (if accessible)	Check handrail drive chain or belt for proper adjustment and operation. Adjust to manufacturer's specifications, if required.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Step/Pallet Module (F)

MAINTENANCE GUIDELINES FOR ESCALATOR STEP/PALLET MODULE

Steps/Pallets

- Steps or pallets should be uniform and not warped.
- Steps or pallets should be free of stress cracks. Step inspection procedure to be performed annually on escalators with Novatex boards.
- Axle welds should not be cracked or broken.
- Step or pallet flanges with grease fittings should be lubricated.
- Step or pallet rollers and chain rollers should operate smoothly and quietly and be without cracks or breaks.
- Broken step or pallet treads and risers should be replaced.
- Steps or pallets should be free of accumulations of lubricants, lint and dirt.

NOTE! The Annual Step Inspection that follows is a requirement annually for all units containing Novatex boards and steel fabricated steps.

STEP/PALLET MODULE (F)

STEP/PALLET MODULE		
Task		Procedure
Preparation		Remove three adjacent steps or pallets and record their reference numbers. Remove different steps or pallets each time. If they are not numbered, number them as they are removed.
	Check steps or pallets	• Check steps or pallets for warping, cracks, loose or damaged rollers, loose or damaged step or pallet demarcation strips, and loose hardware. Repair or replace as required. • Check step or pallet treads and risers for damage or excessive wear. Replace as required. • Notify supervisor if steps or pallets are damaged.

STEP/PALLET MODULE	
Task	Procedure
• KONE Trans 180 (E3X) • EcoMaster 130 • TransitMaster 150 (E3000) • Eco Mod • TM140 Check step connector screws	Verify that locking tab washer used to secure screw that holds step connector to step is properly installed. Tab washer should be bent over a flat side of screw hex head. In addition, do not reuse tab washers. Reusing a tab washer may result in tab washer failure and subsequent loosening of screw securing step connector. Refer to Doc ID TECH-03-037-2011 for detailed information.
Clean steps or pallets	Remove any accumulations of lubricants, lint and dirt.

ANNUAL STEP INSPECTION	
Task	Procedure
	NOTE! The following instructions pertain to steel fabricated steps in units with Novatex boards. At least once annually, while performing a Step Module, remove an additional two steps (total of five). Examine a different set of five consecutive steps each year. Make sure each step is marked with a reference number. While examining the steps for cracks, fill out an Annual Escalator Step Review form (WF-SEB-4214). This form should be inserted in a protective sleeve and affixed to the door of the escalator controller.
Additional Check for Type A and Type B Cracks	
1. Clean each side plate to remove grease, dirt and grease. 2. Examine step body for Type A cracks in two corner locations. 3. With flange removed from step body, examine each sideplate for Type B cracks. In their earliest stage, fractures may look like paint cracks. 4. If step bodies are found with Type A cracks, check ALL steps in the complete band. With 5 steps removed, it is easy to move the unit and review the steps on the return band through the hole in the top band. Steps previously drilled to stop Type A cracks are not to be counted as cracked if the cracks have not progressed. 5. If steps are found with Type B cracks, then all the steps in the complete step band must be removed and checked. NOTE! If steps with Type A or Type B cracks are found, repair or replace them in accordance with the Step Replacement Policy. If OTHER stress indications are present that are not specifically covered by the Policy, contact Moline Branch Operations.	

ANNUAL STEP INSPECTION	
Task	Procedure
Step Replacement Policy	
(This policy is based on the understanding that novatex boards MUST be maintained.) Steps with Type A cracks do not necessarily require replacement. A 1/4 inch hole may be drilled at the end of the crack to provide smooth surfaces at the end of the crack. But, if the crack is longer than 1 3/4 inches, or has progressed over the bend in the step body wrapper sheet and turned toward the side of the step, the step must be replaced. Any step with Type B cracks requires step replacement. <i>No repairs other than those specified in Policy are to be done to a welded step body without authorization from KONE Operations.</i>	
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

KONE Maintenance Method Technician's Guide



annual escalator step review



Branch name & no. _____ Reviewed by _____ Review date _____

Job name _____ Contract # CE- _____

Job location/address _____ Maintenance # _____

Size of equipment _____ Style/Model _____

UP ☐ ☐ DOWN ☐ ☐

instructions for step review

Each year, examine a different set of five consecutive steps. Make sure each step is marked with a reference number.

Record on side 2 of this form, as you remove one step at a time and examine as follows. (Replace steps after entire review is complete.)

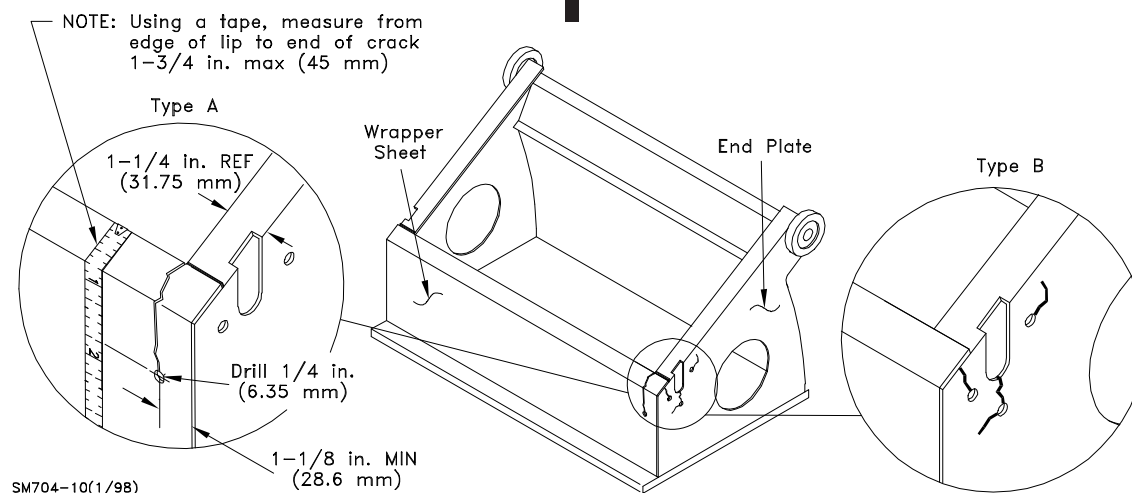
1. Clean each sideplate to remove grease, dirt, and lint.
2. Examine step bodies for Type A cracks in two corner locations. With flange removed from step body, examine each sideplate. Fractures may look like paint cracks in their earliest stage.
3. If step bodies are found with Type A cracks, check ALL steps in the complete band. With 5 steps removed, it is easy to move unit and review steps on return band through the hole in top band. Steps previously drilled to stop Type A cracks are not to be counted as cracked if crack has not progressed.
4. If step bodies are found with Type B cracks, then ALL steps in complete step band must be removed and checked.

5. If steps with Type A or Type B cracks are found, repair or replace in accordance with the Step Replacement Policy. If OTHER stress indications are present that are not specifically covered by the Policy, contact Moline Branch Operations.
6. File original copy of this Step Review Form in branch job file.

Step Replacement Policy (based on the understanding that novatex board adjustments **MUST** be maintained)

- **Steps with TYPE A cracks** do not necessarily require replacement. A 1/4 inch hole may be drilled at the end of the crack to provide smooth surfaces at the end of the crack. BUT, if the crack has progressed over the bend in the step body wrapper sheet and turned toward the side of the step, the step **must be replaced**
- **Any step with TYPE B cracks** require step replacement.

No repairs other than those specified in Policy are to be done to a welded step body without authorization from Moline Branch Operations.



novatex boards

UPPER NOVATEX SET: Adjusted properly? ☐ Yes ☐ No ☐ N/A Replaced? ☐ Yes ☐ No ☐ N/A

LOWER NOVATEX SET: Adjusted properly? ☐ Yes ☐ No ☐ N/A Replaced? ☐ Yes ☐ No ☐ N/A

WF-SEB-4214 (R4) (10/19/05)

Keep completed form in Branch job file.

KMM Escalator/Autowalk Modules

[REDACTED] page 2 [REDACTED]

KMM Escalator/Autowak Modules

annual escalator step review

Partial Clean Module (P)

MAINTENANCE GUIDELINES - ESCALATOR PARTIAL CLEAN Truss

- Truss should be cleaned as required by building conditions. Accumulations of lubricants, lint and dirt should be removed.
- Pits should be dry and free from rubbish and lubricants. All waste should be disposed of properly. Drip pans should be kept clean. Parts and lubricants for escalator maintenance should normally be stored in a separate storage room. Lubricants should be stored in closed containers, wiped clean to protect against contamination.

PARTIAL CLEAN MODULE (P)

ESCALATOR PARTIAL CLEAN MODULE	
Equipment manufacturer, model, age, condition, usage, operating environment and contract specifications may warrant variances in the task schedule.	
Task	Procedure
8.6.8.13 - Escalator 8.6.9.11 - Autowalk Clean pits & step or pallet band	Clean upper and lower end pits and anything that can be reached easily within the step or pallet band using the hole in the step or pallet band.
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Annual Module (AN)

ANNUAL MODULE	
Task	Procedure
Steps and Pallets	
Perform an Escalator/Autowalk Basic Module and each of the Escalator/Autowalk Technical Modules.	Perform all tasks from the following Escalator/Autowalk Modules as described elsewhere in this book. • Basic Module • Step Module • Combplate Module • Brake Module • Drive Module • Guide Module • Handrail Module

CLEANDOWN MODULE (CD)

CLEANDOWN MODULE	
Task	Procedure
Clean escalator or autowalk interior	Perform a Step/Pallet Module NOTE! Remove a sufficient number of steps/pallets to enable thorough cleaning of escalator or autowalk interior. Clean: • oil drip pans • upper and lower stations • steps/pallets and rollers • step/pallet frames, risers and treads • tracks • truss components
Correct any deficiencies as necessary. Complete a Repair Recommendation & Material Request form (WF-SEB-0755) if you did not complete the scheduled work, or if additional work is required.	

Test Procedures (ASME A17.1 - 2010)

Category 1 Traction Test	221
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Category 5 Hydraulic Test	261
Category 1 Escalator/Autowalk Test	262

This section contains the testing requirements from the A17.1-2010 edition of the Safety code for Elevators and Escalators. It includes the procedures to be performed to complete the tests on most equipment.

However, some units may require that a specific process be followed which is not fully documented here. Before performing any test, always review these procedures relative to the specific equipment being tested to ensure the tests are performed properly and safely.

NOTE! Refer to KONE document AM-11.65.037-USK for detailed information for performing safety tests on KCM831 units with KDL16L or KDM drives.

Contact your supervisor if you are unsure of the exact procedures to be used for the test you are performing, or if you have any questions regarding these procedures.

CATEGORY 1 TRACTION ELEVATOR TEST PROCEDURE

NOTE! Category 1 tests are performed with the elevator operation in slow speed, without a load and with the safeties hand tripped.

The Annual Inspection and Test of traction elevator equipment is performed in two parts -- first the Annual Inspections are conducted, and then the Annual Tests. The safety systems do not need to be actuated during the inspection phase -- but will be actuated during the test phase.

8.6.4.19.1: OIL BUFFERS

Category 1 inspection of oil buffers

- Check to ensure that the hardware holding buffers is in place and is tight.
- Check oil level in buffer to ensure it is within the minimum and maximum limits.

If the oil is too high or too low, correct to the proper level.

Check to ensure that the plunger is clean, rust-free, and does NOT have excessive side play.

Category 1 testing of oil buffers

Test spring return and gravity return type oil buffers by fully compressing the plunger. Release the plunger and make sure it returns to a fully extended position within 90 seconds.

To compress a buffer, place a suitable piece of 4x4 wood block beneath the car or counter weight and the buffer, then run the car or counterweight down at inspection speed.

Test Type C safety buffers with same procedure.

On spring return buffers, depress the plunger two inches with a 50

pound weight resting on the plunger. Then release the plunger so it can be observed returning to a fully extended position within 30 seconds.

The two inch buffer depression can be accomplished by using a small hydraulic jack between the car and buffer.

Check the operation of the buffer switch if the buffer is equipped with a switch. For gas spring buffers, make sure the switch removes power from the motor and brake after the plunger has been compressed 1/2 inch from its fully extended position. With the car running away from the buffer at inspection speed, activate the buffer switch. The elevator must stop.

On Type C buffers, compress buffer 10% and check the switch with an ohmmeter to ensure the switch opens. With buffers fully extended, remove on lead from the switch and make sure the car will not run.

Record the completion of the annual oil buffer test on a KONE annual test tag. This tag must be attached to the buffer with wire. Also record all work completed on a Safety Test Form.

8.6.4.19.2: SAFETIES

Category 1 inspection of safeties

Check the car and counterweight guide shoes and their fasteners to make certain they are properly secured, aligned, and adjusted. Check slide guides or rollers for excessive wear.

Check the clearance between the guide rail and each safety-gripping face.

- On elevators built after the 1955 ANSI code the clearance between the safety's rail-gripping faces must not be less than the thickness of the guide rail plus 9/64 inch there must be a minimum of 1/16 inch between either side of the rail and the rail-gripping face.

- On elevators built before the 1955 ANSI Code the clearance between the safety's rail-gripping faces must be less than the thickness of the guide rail plus 3/32 in.
- On elevators with wood guide rails the distance between the safety's rail-gripping faces must not be less than the thickness of the rail plus 1/4 inch.

Look for wear and corrosion on the safety rope on drum-operated Type B safeties. Make sure the rope sheaves are securely fastened and operating.

Before a test is made on drum safeties, pull the safety drum rope is pulled out until the safety jaws contact and exert pressure on the guide rail. There should be a sufficient number of turns of rope still on the safety drum to allow for additional pull-out of the safety drum rope. These turns are required to make certain the safety will operate properly if the governor actuates in an overspeed condition.

Reset the safety after this inspection. Keep tension on the safety drum rope to prevent kinking and to wind the rope evenly on the drum without slack.

Check the crosshead pivot points and linkage for lost motion, loose or missing set screws, and excessive friction. Also check the adjustment of the finger rods and rollers.

If there is any lost motion in the actuation lever, adjust to eliminate that lost motion. Lost motion and inertia of the governor-rope system may cause the safety to apply unnecessarily under normal starting conditions.

With the elevator car platform located at a convenient height, check the safety mechanism from the pit. The following conditions must be present.

- Rollers must be in place.
- Finger rods must be in a position to pick up the rollers.

- When the governor rope is pulled to move the finger rods, the roller must move upward freely into the highest wedged positions in the safety block.

Warning: A safety can fail if there is a jam between the roller and safety block. Check the roller operation several times to make sure that the rollers fall toward the guide rail. When the finger engages the roller, there should not be any tendency for the roller to fall away from the guide.

- Finger rods are adjusted so the rollers engage at the same time when wedged between the roller pocket and guide rail.

Check the safeties on elevators installed after 1955 to make certain the safety switch contacts will open before the safety jaws or rollers contact the guide rails. Then, when the safety switch is operated by hand, the car will not run when the safety switch is open.

Check to see if the self-releasing mechanism, on self-releasing Type A and Type B safeties, is clean, lubricated, and corrosion-free.

Category 1 testing of safeties

After the safety has been inspected, position the car or counterweight in the lower portion of the hoistway so that the car will be in a convenient location after the test. Place jumpers to disconnect the switches on the governor and safety (or that part of the safety circuit that would prevent a full setting of the safety).

Start the car or counterweight (whichever is being tested) down at the slowest operating speed and trip the governor by hand. On centrifugal governors that do not have a dropping jaw, engage the flyweight into the starting device before starting the car down. Run the car down until the machine stalls or drives through the hoisting ropes.

Note the governor rope travel distance. The governor rope travel distance must be less than shown when the safety jaws begin to

exert pressure against the guide rails. The maximum for governor rope travel distance depends on the car rated speed. This applies only to Type B safeties.

MAXIMUM GOVERNOR ROPE TRAVEL	
Car Safeties	
Car Speed, fpm	Governor Rope Travel, in.
200	42
201-375	36
Over 375	30
Counterweight Safeties	
All speeds	42
1 fpm = 5.08 E-03 m/s	
1 in. = 25.4 mm	

OPEN the mainline disconnect switch. **REMOVE** any jumpers and proceed to the safety being tested.

WARNING: Serious personal injury or death could result from intense arcing if a short should occur during this test. Do not stand directly in front of the mainline disconnect.

During testing of the safeties, the following conditions must be present.

- All ropes are properly seated on their sheave or drum.
- On Type A safeties, the travel of all safety rollers or dogs should be approximately the same, but not excessive. There should be additional travel, in case the safety is required for an overspeed situation.
- On self-releasing Type B safeties, all four gibs contact the

guide rails. On drum-operated Type B safeties, all four rail-gripping faces are in contact with the guide rails.

- On drum-operated safeties that require continual unwinding of the drum to fully apply the safety, more than three turns of rope remain on the drum. This is necessary to meet the requirement of three turns remaining on the drum after a rated-load, rated-speed test.

Flexible guide clamp safeties that are drum-operated do not require any turns of rope to remain on the drum after a test.

- Platform is level. Elevators installed after 1955 should not be out of level more than 3/8 inch per foot in any direction. Elevators installed before 1955 should not be out of level more than 1/2 inch per foot in any direction.

Set the counterweight safeties close to the pit or just above the car. In either case, make sure the final location of the car will make the safeties accessible after the test.

Reset the governors and safeties, keeping the following information in mind.

- The Type A safety, or self-releasing Type B safety, is released by moving the car or counterweight up with one short move. After one move, be sure that the governor has released the governor rope. If not, move the governor sheave or the jaw to release the rope.
- The drum-operated Type B safety is released with a safety wrench from inside the car, or at the counterweight. This is a two person operation. Station the first person on top of the car or in the pit to hold the governor rope so it does not overhaul, while a second person releases and resets the governor. The second person then proceeds to the car or counterweight and releases the safety, while the first person holds back on the

- rope until the mini-ball moves down to the releasing carrier. Finally, the first person inserts the mini-ball into the releasing carrier, as the second person completes the rope take-up.
- After resetting the governors and safeties, make certain all components of the safeties have returned to normal running positions. There must be no slack in the safety rope. Inspect guide rails for scoring and loose hardware. Dress any scored surfaces with a file. When finished, REMOVE all jumpers.
 - After completing the test, fill out an annual test tag and attach it to the safety with wire. Fill out a Safety Test Form and return it to your Service Supervisor.

Category 1 inspection of wood guide rail safeties

The effectiveness of safeties of this type depends on the initial engagement of the toothed safety jaw to the wood guide rail. Therefore, the condition of the guide rails is a prime consideration in inspecting the equipment. The guide rails must be of first quality hard maple with the width sized to fill the car guide shoe minus the normal running clearance. Replace guide rails that are more than 1/8 inch under-size in width or show evidence of combing (grooving) by the safety jaws.

An inspection of the following items should be made in addition to the governor-rope system and guide rails.

- From the top of the car, inspect all safety-operating parts, including levers and linkage. Make sure that all keys and set screws are in place and tight. Also, make sure there is not an excessive amount of play in the finger rods activating safety jaws.
- From the pit, with the elevator car platform at a convenient height, inspect and apply the safety jaws against the guide rails by pulling the governor rope. The safety jaws should contact both guide rails so that any downward motion of the

car would cause the jaw teeth to dig into the rails.

- When a safety-operating switch is provided the motion of bringing the safety jaws in contact with the rails should be sufficient to actuate the switch.

Category 1 testing of wood guide rail safeties

With governor-operated safeties, apply the governor and run the car down from the controller to determine if the governor will operate the safety. Running the car down from the controller consists of actuating contactors in the controller by using nonconductive materials such as wooden sticks.

Continue to running the car down until the hoist ropes slip on traction machines or slacken on drum machines.

For Type A safeties without governors, set blocking in the pit securely, and run the car down slowly. Make sure the jaws come into proper position when a slack rope is obtained.

8.6.4.19.3: GOVERNOR

Category 1 inspection of governor

OPEN the mainline switch.

Make a general inspection of the governor-rope system, including the condition of the governor, governor rope, governor-rope tension sheave assembly, and the releasing carrier. Make sure all mountings are secure.

Check the rope type to see if it is the type of rope identified on the governor marking plate.

Note: Governor ropes must not be lubricated.

With the governor weights extended (spread apart by hand) check to see if all governor components, including the rope-gripping jaws, operate freely. There must NOT be any restriction of motion.

Check all bearings, pins, governor-rope jaws, and rubbing surfaces to see if they are properly lubricated, free of paint, and are not worn excessively.

Category 1 testing of governor

CLOSE the mainline switch.

Open the governor overspeed (stopping) switch and make sure the elevator cannot be operated. Reset the governor overspeed switch and operate the car at normal speed in each direction. check to determine if the following possible PROBLEMS exist.

- Governor rope slides on the sheave groove when the car is started or stopped.
- Governor sheave has eccentric or lateral motion.
- Governor rope does NOT run free of the governor jaw at all times.

After testing the governor, the following tasks must be completed.

- Restore the governor release carrier.
- Reset and inspect the governor.
- Fill out a metal test tag and attach it to the governor with a wire.
- Record all work completed on a Safety Test Form, and return it to your KONE Service Superintendent.

8.6.4.19.4: SLACK-ROPE DEVICE on WINDING DRUM MACHINES

Category 1 inspection of slack-rope device (winding drum machines)

OPEN the mainline disconnect switch.

Check the slack-rope device to see if there is anything to keep it from moving freely.

Check the slack-rope device to see if it is set as close as possible to the machine drum, so the switch will open with a minimum of slack-rope.

Category 1 testing of slack-rope device (winding drum machines)

CLOSE the mainline switch.

Test the device by tripping it with a piece of wood, and attempting to move the elevator car. The car must not move.

If there is any question about the device operating, land the car onto suitable blocking in the pit, and make sure the resulting slack rope will trip the device and stop the car.

On double-belt winding drum machines, operate the slack-rope device by hand and see that it cause the driving belt to shift to the idler pulley.

8.6.4.19.5: NORMAL AND FINAL TERMINAL STOPPING DEVICES

Category 1 testing of normal & final terminal stopping devices.

The normal terminal stopping devices are required to slow down and stop the car at terminal floors independently of operating devices. They usually consist of one or more terminal slow down switches, plus a terminal stop (direction of limit switch).

Before making the annual test of the normal terminal stopping devices, make sure the terminal stop switches (direction limits) operate. Run the car on INSPECT beyond the terminal floors. The car must stop and only be able to move away from that terminal floor.

Check the electrical functioning of both top and bottom final terminal stop switches before continuing with the following annual normal terminal stop test.

1. Disable the normal stopping means and the emergency terminal stopping device (when used). Do not disable the emergency terminal speed limiting device (if used).
2. Run the (empty) car into both top and bottom terminals at contract speed. Car must slow down and stop near each terminal landing and should not trip the final limit.
3. Restore the normal stopping means and (if used) the emergency terminal stopping device.

Note: Before testing final terminal stopping device, see if the potential (safety) switch on the controller is manually or electrically restored. If it is the manual restored type, DO NOT TEST, the final terminal stopping device from the car UNLESS someone is in the machine room to reset the controller switch when instructed to do so by the inspector.

Warning: If the car moves, stop the test until the cause of the movement is corrected. Severe personal injury or death could result if the final terminal stopping device is not working properly.

Test the terminal stopping device (final limit) with the following procedure.

1. Disable the normal terminal stopping (direction limit) device. (It is not necessary to disable the terminal slow down switches.)
2. Run the car on INSPECT past each terminal floor until the car

stops on the final terminal switch. Make sure the car will not move in either direction.

3. Measure and confirm that the actuating cam and final terminal limit switch are properly positioned to be activated for additional travel where the car or counterweight would rest on a fully compressed buffer.
4. Restore the normal terminal stopping device (direction limit portion).

8.6.4.19.6: FIREFIGHTER'S EMERGENCY OPERATION

Category 1 testing of firefighter's service

Test the Firefighter's Service by starting the Phase 1 operation of the service. Turn the key at the firefighter's station "ON" or signal the system through the smoke detector. All cars serviced by that firefighter's control must return to the designated fire service floor and park with doors open until the firefighter's service is cancelled.

Test In-Car Emergency Operation Firefighter's service (Phase II). the following conditions must be true.

- The elevator responds only to the car buttons, and not to hall calls.
- Doors do not open automatically at any floor except the main floor or alternate level.
- Door-opening is controlled by a continuous pressure button, and the door will close automatically when the pressure button is released.
- Fully opened doors can only be closed by a car call or the use of an in-car close button.

Make sure the Phase II operation cannot be deactivated after it has been activated. Turn the main floor key to the ON position, and the in-car switch to ON. Take the car to any floor. Turn the main floor key to the OFF position, or if a smoke detector is activated to the

BYPASS position and make sure the Phase II operation is maintained until the car is returned to the main floor.

Turn the main floor switch to the OFF position, or BYPASS if a smoke detector is activated. Take the car to a floor above the main floor and turn the in-car switch to the ON position. Make sure the Phase II operation does not operate even if the main floor switch is in the ON position or a smoke detector is activated.

To test the alternate level, turn the main floor key operated switch to the OFF position, and activate the smoke detector. If the smoke detector at a designated level is activated, the elevator should return to an alternate level designated by an enforcing authority unless the Phase 1 switch is activated. Make sure the car returns to the alternate level.

8.6.4.19.7: STANDY BY EMERGENCY POWER

Category 1 testing of stand-by (emergency power)

NOTE: Annual testing of stand-by (emergency) power is done with NO LOAD in the car.

If a stand-by (emergency) power switch is installed, run the elevator to the floor where that switch is installed. Remove elevators (s) from normal service and transfer the system to stand-by power to operate the car(s) with no load. Test the switch which overrides sequence operation, if one is provided. To do this, make several trips and stops, and use a tachometer in the machine room to check the speed of the car(s). make sure the elevator is running at normal speed (particularly in the up direction). The speed must not exceed 125% of the rated speed.

If a separate power absorption means is used to absorb regenerative power, such as a resister bank, it must be connected on the load side of the elevator. If more than one elevator is operate from the same power source simultaneously, test their

simultaneous operation.

8.6.4.19.8: DOOR CLOSING FORCE

Category 1 testing of door closing force

1. Park the car at floor level and start the doors closing.
2. Allow the doors to close between one-third and two-thirds of their normal travel, and then stop them.
3. Place a test scale on the leading edge of the hoistway door. Gradually reduce force on the door until it just starts to close, then read the force indicated on the scale. The force must not exceed 30 lbs.

NOTE! *Do not allow the door to strike the scale with an impact. A false reading could result.*

If the elevator was installed under the A17.1-2000/B44 or later code, or has a door operator data plate containing this information, verify that the closing time in the code zone is not less than the minimum time shown on the data plate.

8.6.4.19.9: BROKEN ROPE, TAPE OR CHAIN SWITCH

Category 1 testing of broken rope, tape or chain switch

While in the inspection mode on the car top, operate the broken rope, tape or chain switch and attempt to move the car using the top-of-car operating device.

8.6.4.19.10: E/E/PES ELECTRICAL PROTECTIVE DEVICES

Check functionality of all E/E/PES electrical protective devices to ensure they operate as designed.

8.6.4.19.11: ASCENDING CAR OVERSPEED PROTECTION AND UNINTENDED CAR MOTION DEVICES.

Category 1 testing of ascending car overspeed device

Actuate the ascending car overspeed protection device and ensure

the safety circuit opens and causes the elevator to stop.

Once actuated, the switch must be manually reset for the elevator to operate.

Category 1 testing of unintended car motion device.

Actuate the unintended car motion device and ensure the emergency brake applies and prevents the elevator from moving.

8.6.4.19.12: TRACTION LOSS DETECTION MEANS

Where traction loss detection means are installed, land the car or counterweights on the buffers and operate the drive machine. One of the following should occur:

- The hoist ropes should slip in the drive sheave as it rotates, or
- The drive machine should stall **without raising the car or counterweights.**

8.6.4.19.13: BROKEN-SUSPENSION-MEMBER AND RESIDUAL-STRENGTH DETECTION MEANS

Category 1 testing of broken-suspension -member device

Where broken-suspension-member means are provided, simulate a broken suspension member and ensure the safety circuit opens and the elevator will not operate.

After testing each elevator, record the date of completed test activities on the One Year Test Tags.

Attach these test tags to the Safety or Crosshead, Governor, and Oil Buffer.

Additionally, complete an Annual Traction Safety Test form, and return to your Service Supervisor.

CATEGORY 5 TRACTION ELEVATOR TEST PROCEDURE

RULE 8.6.4.20.1: CAR AND COUNTERWEIGHT SAFETIES

Category 5 testing of car and counterweight safeties

Test Types A, B and C car safeties (except those on wood guide rails), and their governors, with a rated load in the car. The load should be centered in each quarter of the car, symmetrically as measure from the centerline. Test the counterweight safety without a load in the car. Jump out any governor switches or any part of the safety circuit that will prevent a full setting of the safety, but do NOT jump out the final limit switch.

For Type B safeties, the safety mechanism switch (plank switch) must NOT be jumped out. For the duration of the test, this switch must be temporarily adjusted to open as close as possible to where the car safety mechanism is fully applied. The opening of this switch has an effect on the safety slide, which must be taken into consideration.

To ensure that the safety will retard the car with the minimum assistance from the elevator driving machine and minimize the development of slack rope and fallback of the counterweight, the switch on the car operated by the car safety mechanism should, for the duration of the test, be temporarily adjusted to open as close as possible to the position at which the car safety mechanism is in the fully applied position.

Before setting the car safety, tie down the counterweight safety lift lever with four wraps of 16 gauge copper wire to prevent the counterweight safety from setting accidentally. Do not block the counterweight safety as it must remain operational. Reverse the procedure for testing counter weight safeties.

Shut down any adjacent cars. If you are testing a drum type safety, shut down any car adjacent to the releasing carrier, and keep in

shut down until all slack in the safety rope is under control. If a safety wrench is to be used, put it in the car and remove the release hole cover on the car floor. Do not insert the wrench into the release hole until after the safety is applied.

Perform the test by moving the car (or counterweight, if testing the counterweight) in the down direction and trip the governor by hand at the rated speed. Let the elevator run until the machine stops or the ropes slip. Type B safeties must stop the car with the rated load within the required range of stopping distances noted in the table below.

Type A safeties and Type A safety parts of Type C safeties must have sufficient travel of the safety rollers or dogs remaining after the test to bring the car and its rated load to rest should the safeties be applied at governor tripping speed.

See Table 5Y1

Following completion of the test:

- Remove any electrical jumpers installed for the test
- Remove safety tie down wires.
- Reset the governor and inspect for any damage.
- Release the safety, and for all units installed under A17.1-1955 and later editions, check to ensure the platform is within 3/8" of level.
- Check the rails for damage and dress any scored surfaces.
- Check the counterweight safety from the car top. Move the car to a convenient height above the pit floor and check the safety for damage. Check to ensure the safety has returned to the normal running position.
- Examine the driving-machine sheave and all other installed sheaves, retainers and suspension members throughout their entire length to ensure all suspension members are properly

seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any necessary repairs completed.

- Permanently attach a metal test tag to the safety with a wire. Record the date of the test on this tag.

NOTE! If KONE safeties are installed, a product specific KONE SAFETY GEAR APPLICATIONS RECORD must be affixed to the controller, on which all full load safety applications that occur at rated speed or governor tripping speed must be entered.

All safety components must be inspected after each application to monitor wear. The safety spring block and shoes/wedges must be replaced according to the information on the KONE SAFETY GEAR APPLICATIONS RECORD.

8.6.4.20.2: GOVERNORS

Category 5 testing of governor

Test the tripping speed of the governor and the governor overspeed switch (when provided) to make sure the governor trips at a speed which meets ANSI requirements. Perform this test by picking the governor rope sheave and spin the sheave manually or with a variable speed drill motor until the governor trips. Measure governor-tripping speed with a tachometer to determine it meets ANSI requirements (see Table below).

If the governor-tripping speed needs to be adjusted, reset the tension on the spring tension device by carefully adjusting the locknut. After resetting the tension, re-test the governor tripping speed and governor overspeed switch.

After the spring -tension device tensions is reset to meet ANSI

requirements, seal the locking nut. To complete this task, drill a #36 hole through the locking nut. Then insert a wire seal through the hole and crimp it in place. This seal helps to hold the tension setting and prevents readjustment of the governor-tripping speed without breaking the seal.

Where speed governors are provided for counterweight safeties, test governors for overspeed. They must trip at a speed greater than the car speed governor is set to trip, but not more than 10% higher.

See Table 5Y2

Test the pull-through of governor jaws by the following procedure.

1. Remove spring tension from the releasing carrier.
2. Trip the governor and prop up the governor tension sheave to allow approximately one foot of movement of the governor rope with lifting the tension sheave.
3. Attach the come-along and dynamometer to the governor rope. Pull at least six inches of the governor rope through the governor by operating the come-along.
4. Note the reading of the dynamometer and compare it with the pull-through force information provided on the Governor Data Tag.

NOTE! If a release carrier is used, it must release at no more that 60% of the governor pull-through force. Check by connecting the dynamometer and come-along between the governor rope at the releasing carrier and the existing connection on the governor rope.

8.6.4.20.3: OIL BUFFERS

Category 5 testing of oil buffers

Test the counterweight buffers by running the counterweight onto its

buffer at rated speed with no load in the car.

Test car buffers by striking the buffer at the rated speed. Where a reduced strike is used, test by striking the buffer at the speed it was designed for (usually shown on the buffer marking plate).

Note: Before striking oil buffers, jump out the terminal slowdown and direction switches. Leave the final terminal stopping devices operative. Final terminal stopping devices may need to be temporarily relocated, so the buffer can fully compress during the tests. If the switch is moved, it must be tested after it is relocated.

1. Where an emergency terminal speed-limiting device is provided, test for proper operation. With the normal stopping means and (if separate) the normal terminal stopping devices deactivated, run the car into each terminal with rated load and at rated speed. The stop should be no more severe than a stop produced by running the car into the buffers at the buffer's design speed. The car should stop at each terminal with power removed from the brake and driving machine motor.

After the car or counterweight has been removed from the buffer, check for any excessive oil leakage. Also ensure the buffer returns to the fully extended position within 90 seconds.

After completing this test, remove any jumpers installed for the test. Then record the test completion on a metal Category 5 Test Tag attached to the oil buffer.

8.6.4.20.4: BRAKING SYSTEM

Category 5 testing of braking system

1. Move the elevator to an upper landing from where the car can accelerate and reach rated speed.
2. Place 125% of the rated load in the car. If the elevator drops

- below floor level when the weight is loaded it should relevel.
3. Run the car to the lowest landing. Ensure the hoisting machine safely lowers, stops, and holds the car in this overloaded condition. Measure the brake spring settings.
 4. If, upon removing the weight, the empty car braking stop in the down direction is excessively harsh, the brake spring pressure may be relieved slightly, but not below that required in the above test.

8.6.4.20.5: EMERGENCY AND STANDBY POWER OPERATION

Note: The Category 5 testing of stand-by (emergency) power is performed with the rated load.

When one elevator operates on stand-by power: Remove the car from service with the car located at the floor where the stand-by power switch is located. Place the rated load in the elevator (125% of rated load for passenger elevators and freight elevators permitted to carry to carry passengers). The make certain the elevator operates normally and safely.

Check the speed of the elevator from the machine room with a tachometer. Ensure the overhauling load does not cause a speed increase in excess of 125% of the rated speed or the governor tripping speed.

When multiple elevators operate simultaneously on stand-by power: Remove the elevators from service and place on stand-by power operation. Load the elevators with the rated load (125% of rated load for passenger elevators and freight elevators permitted to carry passengers.) Then, operate all elevators simultaneously and make certain each elevator operates normally and safely.

Check the speed of each elevator from the machine room with a tachometer while they are operating simultaneously in the down direction. Make sure each elevator stops at or near the terminal landing before the final terminal stopping device operates. The

speed of each elevator must not exceed 125% of the rated speed or the governor tripping speed.

8.6.4.20.6: EMERGENCY TERMINAL STOPPING AND SPEED-LIMITING DEVICES

Category 5 testing of terminal stopping devices

Note: See procedure for testing the oil buffers.

Category 5 testing of speed -limiting device

Where an emergency terminal speed-limiting device is provided, test for proper operation using the following procedure:

1. With the normal stopping means and (if separate) the normal terminal stopping device deactivated, run the car into each terminal with rated load and at rated speed. The stop should be no more severe than a stop produced by running the car into the buffers at the buffer's design speed.
2. The car should stop at each terminal with power removed from the brake and driving machine motor.

8.6.4.20.7: POWER OPENING OF DOORS

Examine the power opening of the doors. Make sure power opening can occur only when the car is within 18" of the landing.

In the case of static control, installed under A17.1 - 1988 and later editions, the person or firm performing the test must demonstrate that power is not applied to open the door when the car is more than 12" from the landing.

Also, make sure the car is stopped or substantially level with the landing before the hoistway door is fully open.

8.6.4.20.8: LEVELING ZONE AND LEVELING SPEED

Check the levelling zone and levelling speed. The levelling device should move the car toward the landing and level within a 30 inch

zone for an automatic device, and a 10 inch zone for a manual device. The levelling speed must not exceed 150 fpm.

8.6.4.20.9: INNER LANDING ZONE

Make sure the zone in which the car can move, **with the doors open**, is no more than 3 inches above or below the landing.

8.6.4.20.10: EMERGENCY STOPPING DISTANCE

Category 5 testing of emergency stopping device.

Note: For elevators installed under A17.1-2000 and alter editions. On counterweighted traction elevators, test the emergency stopping distance and traction drive limits, as follows:

1. Move the elevator to an upper landing from where the car can accelerate and reach rated speed.
2. Place 125% of rated load in the car and run the car in the down direction at rated speed.
3. After the car reaches rated speed, open the safety circuit. Ensure the elevator stops and safely holds the load.
4. Land the car or counterweights on the buffers and operate the drive machine in the down direction. One of the following should occur:
 - The hoist ropes should slip in the drive sheave as it rotates, or
 - The drive machine should stall without raising the car or counterweights.

8.6.4.20.11: EMERGENCY BRAKE

Category 5 testing of emergency brake

Place 125% of rated load in the car and open the primary brake. The emergency brake should safely hold the load.

8.6.4.20.12: DRIVE SHEAVES WITH NONMETALLIC GROOVE SURFACES AND STEEL WIRE ROPES

Category 5 inspection of drive sheaves with nonmetallic groove surfaces and steel wire ropes

If the drive sheave contains a non-metallic drive surface, check to ensure the wire ropes have not worn through the non-metallic drive surface.

If the wire ropes have worn through the non-metallic drive surface, lockout and tagout the elevator and notify your supervisor.

MAXIMUM AND MINIMUM STOPPING DISTANCES TYPE B CAR SAFETIES WITH RATED LOAD & TYPE B COUNTERWEIGHT SAFETIES WITH NO LOAD		
Rated car speed, fpm	Stopping distances	
	Minimum, ft/in	Minimum, ft/in
0 - 125	0 - 1	1 - 0
150	0 - 1	1 - 1
175	0 - 2	1 - 3
200	0 - 2	1 - 4
225	0 - 3	1 - 6
250	0 - 3	1 - 7
300	0 - 5	1 - 11
350	0 - 7	2 - 4
400	0 - 9	2 - 10
450	0 - 11	3 - 4
500	1 - 1	3 - 11
600	1 - 7	5 - 3
700	2 - 2	6 - 10
800	2 - 9	8 - 9
900	3 - 6	10 - 10
1000	4 - 4	13 - 2
1100	5 - 2	15 - 9
1200	6 - 2	18 - 7
1300	7 - 3	21 - 8
1400	8 - 5	25 - 0
1500	9 - 8	28 - 7
1600	11 - 0	32 - 5
1700	12 - 5	36 - 5
1800	13 - 11	40 - 9
This table is for rated load, rated speed test only 1 fpm = 5.08 E-03 m/s 1 in . = 25.4 mm		

Table 5Y 1

MAXIMUM CAR SPEEDS AT WHICH GOVERNOR TRIPS & GOVERNOR OVERSPEED SWITCH OPERATES		
FPM	Max Car Governor Trip Speed (ft/min)	Max speed at which Gov Overspeed Switch Operates, Down (ft/min)
0 - 125	175	175*
150	210	210*
175	250	225
200	280	252
225	308	277
250	337	303
300	395	355
350	452	407
400	510	459
450	568	512
500	625	563
600	740	703
700	855	812
800	970	921
900	1085	1031
1000	1200	1140
1100	1320	1254
1200	1440	1368
1300	1560	1482
1400	1680	1596
1500	1800	1710
1600	1920	1824
1700	2040	1938
1800	2160	2052
*Gov overspeed switch not required on car speed governors 1 fpm = 5.08 E-03 m/s 1 in. = 25.4 mm		

Table 5Y 2

CATEGORY 1 HYDRAULIC ELEVATOR TEST PROCEDURE

8.6.5.14.1: RELIEF VALVE SETTING AND SYSTEM PRESSURE TEST

Category 1 testing of relief valve and system pressure

1. Install pressure gauge in the system.
2. Slowly inch the elevator up against the stop ring.
3. Run the car up at full speed and watch the pressure gauge.
The relief valve must open and bypass 100% of the oil at 150% or less of the system working pressure. Duration of this procedure should be 15 seconds

Note: Be ready to shut the pump down immediately if the system pressure excess 150% of the system working pressure.

4. Following the test:
 - Visually check the system for signs of oil leakage.
 - Run the elevator and ensure it is operating properly.
 - Seal the relief valve.
 - Record all work completed on a Safety Test Form, and return it to your KONE Service Superintendent.
 - Test flexible hoses and fittings, if installed. See **8.6.5.14.4 FLEXIBLE HOSE AND FITTING ASSEMBLIES** below.

8.6.5.14.1: HYDRAULIC CYLINDERS AND PRESSURE PIPING

Category 1 testing of hydraulic cylinders and pressure piping

Perform this test immediately following the system pressure test.

1. Move the care, with no load, to a convenient location in the hoistway.
2. Measure the location of the platform relative to a fixed

reference point.

3. Measure the oil level in the oil reservoir relative to a fixed reference point.
4. Open the main disconnect switch. Wait 15 minutes.
5. Check to ensure that any change in position of the car can be fully explained, e.g. increased oil level in the reservoir or visible leakage. If a change in car position cannot be explained, lockout and tagout the elevator until the source of the leakage is discovered and corrected.

8.6.5.14.3(a): NORMAL TERMINAL STOPPING DEVICES

Category 1 testing of normal terminal stopping devices

The normal terminal stopping devices are required to slow down and stop the car at terminal floors independently of operating devices. They usually consist of one or more terminal slowdown switches, plus a terminal stop (direction limit) switch.

Before making the annual test of the normal terminal stopping devices, make sure the terminal stop switches (direction limits) operate. Run the car on INSPECT beyond the terminal floors. The car must stop and only be able to move away from that terminal floor.

Check the electrical function of both top and bottom final terminal stop switches before continuing with the following annual normal terminal stop test.

1. Disable the normal stopping means and the emergency terminal stopping device (when used).
2. Do not disable the emergency terminal speed limiting device (if used).
3. Run the (empty) car into both top and bottom terminals at rated speed. The car must slow down and stop near each terminal landing and should not trip the final limit.
4. Restore the normal stopping means and check for proper

operation.

8.6.5.14.3(b): GOVERNORS

Category 1 inspection of governor

OPEN the mainline switch.

Make a general inspection of the governor-rope system, including the condition of the governor, governor rope tension sheave assembly, and the releasing carrier. Make sure all mountings are secure.

Check the rope type to see if it is the type of rope identified on the governor marking plate.

NOTE! Governor ropes must not be lubricated.

With the governor weights extended (spread apart by hand), check to see if all governor components, including the rope-gripping jaws, operate freely. There must NOT be any restriction of motion.

Check all bearings, pins, governor-rope jaws, and rubbing surfaces to see if they are lubricated, free of paint, and are not worn excessively.

Category 1 testing of governor

Close the mainline switch.

Open the governor overspeed (stopping) switch and make sure the elevator cannot be operated. Reset the governor overspeed switch and operate the car at normal speed in each direction. Check to determine if the following possible PROBLEMS exist.

- Governor rope slides on the sheave groove when the car is started or stopped.
- Governor sheave has eccentric or lateral motion.
- Governor rope does NOT run free of the governor jaw at all times.

After testing the governor, the following tasks must be completed.

- Inspect the governor rope at the point of connection for any damage.
- Restore the governor release carrier.
- Reset and inspect the governor.
- Fill out a metal test tag and attach it to the governor with wire.
- Record all work completed on a Safety Test Form, and return it to you KONE Service Superintendent.

8.6.5.14.3(c): SAFETIES

Category 1 inspection of safeties

Check the car and counterweight guide shoes and their fasteners to make certain they are properly secured, aligned, and adjusted. Check slide guides or rollers for excessive wear.

Check the clearance between the guide rail and each safety-gripping face, on elevators built after the 1955 ANSI Code. the clearance between the safety's rail-gripping faces on elevators built after 1955 must not be less than the thickness of the guide rail plus 9/64 inch. There must be a minimum of 1/16 inch between either side of the rail and the rail-gripping face.

Check the clearance between guide rail and each safety-gripping face, on elevators built before the 1955 ANSI Code. Clearance between the rail-gripping faces must not be less than the thickness of the guide rail plus 3/32 inch.

Check the distance between the rail-gripping faces on elevators with wood guide rails. The distance must not be less than the thickness of the rail plus 1/4 inch.

Look for wear and corrosion on the safety rope on drum-operated Type B safeties. Make sure the rope sheaves are securely fastened and operating.

Before a test is made on drum safeties, the safety drum rope is pulled out until the safety jaws contact and exert pressure on the guide rail. There should be a sufficient number of turns of rope still on the safety drum, to allow for additional pull-out of the safety drum rope. These turns are required to make certain the safety will operate properly if the governor actuates in an overspeed condition.

Reset the safety after this inspection. Keep tension on the safety drum rope to prevent kinking and to wind the rope evenly on the drum without slack

Check the crosshead pivot points and linkage for lost motion, loose or missing set screws, and excessive friction. The adjustments of the finger rods and rollers are also checked. Remove any lost motion in the actuation lever.

If there is any lost motion in the actuation lever, adjust to eliminate that lost motion. Lost motion and inertia of the governor-rope system may cause the safety to apply unnecessarily under normal starting conditions.

With the elevator car located at a convenient height, check the safety mechanism from the pit. The following conditions must be true.

- Rollers must be in place.
- Finger rods must be in a position to pick up the rollers.
- When the governor rope is pulled to move the finger rods, the roller must move upward freely into the highest wedged positions in the safety block.

Warning: A safety can fail if there is a jam between the roller and safety block. Check the roller operation several times to make sure that the rollers fall toward the guide rail. When the finger engages the roller, there should not be any tendency for the roller to fall away from the guide

rail.

- Finger rods are adjusted so the rollers engage at the same time when wedged between the roller pocket and guide rail.

Check the safeties on elevators installed after 1955 to make certain the safety switch contacts will open before the safety jaws or rollers contact the guide rails. Then, when the safety switch is operated by hand, the car will not run when the safety switch is open.

Category 1 testing of safeties

For counterweight safeties actuated by slack or broken suspension ropes:

1. Place an extended jack and blocking under the counterweight.
2. Slowly move the car in the up direction until the counterweight contacts the block on the jack.
3. Jump the slack rope device.
4. Lower the jack to create a slack rope condition, then verify that the safety operated, and that it will safely stop and hold the counterweight. Following this procedure the elevator should not be able to operate until the slack rope device and safety operated switch are reset.
5. Reset the slack rope and safety operated switches.
6. Check operation of the elevator.

For car safeties actuated by slack or broken suspension means, follow the procedures above, but place the jack under the car instead of the counterweight.

8.6.5.14.3(d): OIL BUFFERS

Category 1 inspection of oil buffers

Check to see if the hardware holding buffers is in place and is tight.

Check oil level in buffer to ensure it is within the minimum and maximum limits.

If the oil is too high or too low, correct to the proper level.

Check to see if the plunger is clean, rust-free, and does NOT have excessive side play.

Category 1 testing of oil buffers

Test spring return and gravity return type oil buffers by fully compressing the plunger. Release the plunger and make sure it returns to a fully extended position within 90 seconds.

To compress a buffer, place a suitable piece of 4x4 wood block beneath the car or counterweight and the buffer, then run the car or counterweight down at inspection speed.

Test Type C safety buffers with same procedure.

On spring return buffers, depress the plunger two inches with a 50 pound weight resting on the plunger. Then release the plunger, so it can be observed returning to a fully extended position within 30 seconds.

The two inch buffer depression can be accomplished by using a small hydraulic jack between the car and buffer.

Check the operation of the buffer switch if the buffer is equipped with a switch. For gas spring buffers, make sure the switch removes power from the motor and brake after the plunger has been compressed 1/2 inch from its fully extended position. With the car running away from the buffer at inspection speed, activate the buffer switch. The elevator must stop.

On Type C buffers, compress buffer 10% and check the switch with an ohmmeter to ensure the switch opens. With buffers fully extended, remove one lead from the switch and make sure the car will not run.

Record the completion of the annual oil buffer test on a KONE

annual test tag. This tag must be attached to the buffer with wire. Also record all work completed on a Safety Test Form.

8.6.5.14.3(e): FIREFIGHTERS' EMERGENCY OPERATION

Category 1 testing of firefighter's service

Test the Firefighter's Service by starting the Phase I operation of the service. Turn the key at the firefighter's station "ON" or signal the system through the smoke detector. All cars service by that firefighter's control must return to the designated fire service floor and park with doors open until the firefighter's service is cancelled.

Test In-Car Emergency Operation Firefighter's (Phase II).

The following conditions must be present:

- The elevator responds only to the car buttons, and not to hall calls.
- Doors to not open automatically at any floor except the main floor or alternate level.
- Door-opening is controlled by a continuous pressure button, and the door will close automatically when the pressure button is released.
- Fully opened doors can only be closed by a car call or the use of an in-car close button.

Make sure the Phase II operation cannot be deactivated after it has been activated. Turn the main floor key to the ON position, and the in-car switch to ON. Take the car to any floor. turn the main floor key to the OFF position, or if a smoke detector is activated to the BYPASS position and make sure the Phase II operation is maintained until the car is return to the main floor.

Turn the main floor switch to the OFF position, or BYPASS if a smoke detector is activated. Take the car to a floor above the main floor and turn the in-car switch to the ON position. Make sure the

Phase II operation does not operate even if the main floor switch is in the ON position or a smoke detector is activated.

To test the alternate level, turn the main floor key operated switch to the OFF position, and activate the smoke detector. If the smoke detector at a designated level is activated, the elevator should return to an alternate level designated by an enforcing authority unless the Phase 1 switch is activated. Make sure the car returns to the alternate level.

8.6.5.14.3(f): STANDBY/EMERGENCY POWER OPERATION

Category 1 testing of stand-by (emergency) power

Note: Annual testing of stand-by (emergency) power is done with NO LOAD in the CAR.

If a stand-by (emergency) power switch is installed, run the elevator to the floor where that switch is installed. Remove elevator(s) from normal service and transfer the system to stand-by power to operate the car(s) with no load. Test the switch which overrides sequence operation, if one is provided. To do this, make several trips and stops, and use a tachometer in the machine room to check the speed (particularly in the up direction). The speed must not exceed 125% of the rated speed.

If a separate power absorption means is used to absorb regenerative power, such as a resistor bank, it must be connected on the load side of the elevator. If more than one elevator is operated from the same power source simultaneously, test their simultaneous operation.

8.6.5.14.3(g): POWER OPERATIONS of DOOR SYSTEM

Examine the power opening of the doors. Make sure power opening can occur only when the car is within 18" of the landing.

In the case of status control, installed under A17.1-1988

and later editions, the person or firm performing the test must demonstrate that power is not applied to open the doors when the car is more than 12" from the landing.

Also, make sure the car is stopped or substantially level with the landing before the hoistway door is fully open.

8.6.5.14.3(h): EMERGENCY TERMINAL STOPPING AND SPEED-LIMITING DEVICE

Category 1 testing of emergency terminal speed limiting device:

1. Actuate the device and move the elevator in the down direction.
2. Attempt to move the car at rated speed in the up direction. The speed should be limited to 100 fpm or less.

Category 1 testing of emergency terminal stopping device:

Actuate the device and ensure that power is removed from the drive motor.

8.6.5.14.3(i): LOW OIL PROTECTION OPERATION

Category 1 testing of low oil protection device

1. Place the elevator at any floor above the lowest landing with the doors closed.
2. Disconnect the hall calls.
3. Actuate the low oil protection device.
4. The elevator should return to the bottom floor and the doors should remain closed, with the hall calls inoperative.

8.6.5.14.4: FLEXIBLE HOSE AND FITTING ASSEMBLIES

Category 1 testing of flexible hose and fitting assemblies

1. Slowly inch the elevator up against the stop ring.
2. Operate the system at rated speed with the relief valve in

- bypass mode for a period of 30 seconds.
3. Observe the hoses and fittings and look for any bulging, distortion or leaking. If any of the aforementioned are observed, the affected component(s) must be replaced.
 4. Following the test secure a test tag to the hose.

8.6.5.14.5: PRESSURE SWITCH

Category 1 testing of pressure switch

1. Place the elevator at any floor above the lowest landing.
2. Open the circuit to the pressure switch.
3. Attempt to run the car in the down direction. The car should not move.
4. Place an ohmmeter across the pressure switch leads. Open the main line disconnect switch and lower the car by opening the manual lowering valve. When the car lands on the buffer the ohmmeter should indicate an open circuit.

8.6.5.14.6: POWER OPERATION OF DOOR SYSTEM

Category 1 testing of door closing force

1. Park the car at floor level and start the doors closing.
2. Allow the doors to close between one-third and two-thirds of their normal travel, and then stop them.
3. Place a test scale on the leading edge of the hoistway door. Gradually reduce force on the door until it just starts to close, then read the force indicated on the scale. The force must not exceed 30 lbf.

NOTE! Do not allow the door to strike the scale with an impact. A false reading could result.

If the elevator was installed under the A17.1-2000/B44 or late code, or has a door operator data plate containing this information, verify that the closing time in the code zone is not less than the minimum time shown on the data plate.

8.6.5.14.7: SLACK-ROPE DEVICE

Category 1 testing of slack rope device

Activate the slack rope device and ensure that it removes power from the pump motor and lower valve.

CATEGORY 3 HYDRAULIC ELEVATOR TEST PROCEDURE

8.6.5.15.1: UNEXPOSED PORTIONS of PISTONS

Category 3 inspection of unexposed portions of pistons

On roped water-hydraulic elevators, clean the piston and examine it for signs of any damage which may cause excessive leakage.

Check all piston fastenings to ensure the piston is securely fastened to the frame of the car.

Check to ensure a proper oil recover container is present. Empty the container, if necessary.

8.6.5.15.2: PRESSURE VESSELS

Category 3 testing of pressure vessels

Thoroughly clean the tank and inspect for any damage.

1. Install a pressure gauge with a maximum reading at least twice that of working pressure of the tank.
2. Fill the tank with water, taking care to ensure all air is removed from the tank.
3. Using a hand pump, apply pressure of 150% or the working pressure to the tank.
4. Hold the pressure at that level for one minute and check for leaks or damage.
5. If a rapid loss of pressure is observed, lockout and tagout the unit until necessary repairs are completed.

CATEGORY 5 HYDRAULIC ELEVATOR TEST PROCEDURE

8.6.5.16.1: GOVERNORS, SAFETIES AND OIL BUFFERS

See items **8 6.4.20.1**, **8.6.4.20.2**, and **8.6.4.20.3** earlier in the Testing section.

8.6.5.16.2: COATED ROPES

Category 5 testing of coated ropes.

Coated ropes shall be required to have a magnetic flux test capable of testing broken wires, in addition to a visual examination.

8.6.5.16.3: SUSPENSION ROPES

Category 5 inspection of suspension ropes.

Examine hoist rope fastenings at both ends of the ropes to ensure that they have been made up properly.

8.5.16.4: PLUNGER GRIPPER

Category 5 testing of plunger gripper

1. Run the car with rated load at operating speed in the down direction.
2. Verify that the means for actuating the gripper functions properly and stops the elevator.
3. Permanently mark the date of the test on the marking plate.

8.6.5.16.5: OVERSPEED VALVES

Category 5 testing of overspeed valves

Run the car with rated load in the down direction and verify that the valve stops the car in an overspeed condition.

8.6.5.16.6: FREIGHT ELEVATORS with CLASS 2 LOADING

Place a load equal to the maximum load shown on the freight elevator loading sign. The elevator must be able to safely hold and level this load.

CATEGORY 1 ESCALATOR & AUTOWALK TEST PROCEDURE

8.6.8.15.1: MACHINE SPACE

1. Check machine space access, lighting, receptacle, operation, and conditions.
2. Perform a cleandown.

8.6.8.15.2: STOP SWITCH

1. Place the machine stop switch/es, individually, in the “OFF” position.
2. Attempt to start the unit with the ken switch. It should not run.

8.6.8.15.3: CONTROLLER AND WIRING

Perform the Controller section tasks from the Basic Module.

8.6.8.15.4: DRIVE MACHINE AND BRAKE

Perform the task from the Drive and Brake Modules.

8.6.8.15.5: SPEED GOVERNOR

Actuate the governor switch and verify that it opens the safety circuit and stops the unit.

8.6.8.15.6: BROKEN DRIVE-CHAIN DEVICE

Actuate the broken drive-chain device and verify that it will cause the main shaft brake to apply and stop the unit in the event the drive chain separates.

8.6.8.15.7: REVERSAL STOP SWITCH

Actuate the reversal stop switch and verify ensure that it opens the circuits to the driving machine motor and brake, preventing the escalator from reversing direction.

8.6.8.15.8: BROKEN STEP-CHAIN OR TREADWAY DEVICE

Actuate the broken step-chain or treadway device and verify that

the switch opens the safety circuit and stops the unit.

8.6.8.15.9: STEP UPTHrust DEVICE

1. With steps removed, manually check the device to verify that the components are operating freely and functioning as designed.
2. Manually actuate the device. The switch should trip and interrupt power to the driving machine and brake after the step/pallet upthrust track is lifted approximately 3/16 inch (5mm).

8.6.8.15.10: MISSING STEP OR PALLET DEVICE

Remove a step or pallet on the return side of the bad and verify the unit stops before the missing step/pallet gap emerges from the combplate.

8.6.8.15.11: STEP OR PALLET LEVEL DEVICE

1. Verify the step/pallet level devices are positioned properly and function as designed. The switches should actuate when a 1/8 inch (3.2mm) shim is placed between step/pallet riser and switch actuator.
2. Manually activate each switch and verify it opens the safety circuit and stops the unit.

CHAIN & TRUSSES

1. Remove at least half the steps/pallets.
2. Perform the tasks from the Step/Pallet Module.

8.6.8.15.13: HANDRAIL SAFETY SYSTEMS

Perform the tasks from the Handrail Module.

8.6.8.15.14: HEATERS ON OUTDOOR ESCALATORS

For outdoor escalators and autowalks, check the operation of heaters, if installed.

8.6.8.15.15: PERMISSIBLE STRETCH IN ESCALATOR CHAINS

Check adjacent steps for excessive clearance. The clearance between steps shall not exceed 6 mm (0.25 in.). Clearances in excess of 6 mm (0.25 in.) indicate worn step chains.

8.6.8.15.16: DISCONNECTED MOTOR SAFETY DEVICE

Actuate the disconnected motor device and verify it will cause the main shaft brake to apply and stop the unit in the event the motor becomes disconnected from the gear reduction unit.

8.6.8.15.17: RESPONSE TO SMOKE DETECTORS

If smoke detectors are installed check to verify they activate the alarm and interrupt power to the driving motor and brake when tripped.

8.6.8.15.18: COMB STEP/PALLET IMPACT DEVICE

Perform a Combplate Module.

8.6.8.15.19: STEP/SKIRT PERFORMANCE INDEX

Perform a Step/Skirt Performance Index test.

8.6.8.15.20: Clearance between step and skirt (LOADED GAP)

Check the loaded gap clearance between the step and skirt at intervals not exceeding 300 mm (12 in.) in the transition region, before the steps are fully extended. Check on both sides of the unit.

The load should be applied between 25 mm (1 in.) and 100 mm (4 in.) below the top edge of the step.

8.6.8.15.21: INSPECTION CONTROL DEVICES.

Check operation of the inspection station and verify it meets the requirements of the code in effect at the time of the test.

8.6.8.15.22: STEP LATERAL DISPLACEMENT DEVICE

If testing a curved escalator, actuate the step lateral displacement device and verify it disconnects power to the driving motor and

brake. The device must be manually reset.

8.6.8.15.23: SEISMIC RISK ZONES 2 OR GREATER

Actuate the seismic device and verify that it operates as designed.

Notes

Approvals and version history

Compiled by: Technical Documentation and Training Support

Checked by: Dick Morrical

Approved by: Jay Dietz

Issue	Date	Description of change	Ref CR	Approved by
E	2008-11-25	Scheduled revision		Jay Dietz
F	2012-04-30	Scheduled revision		Jay Dietz

DESCRIPTION OF OPERATION

EcoSpace™ elevator with KCM831 control

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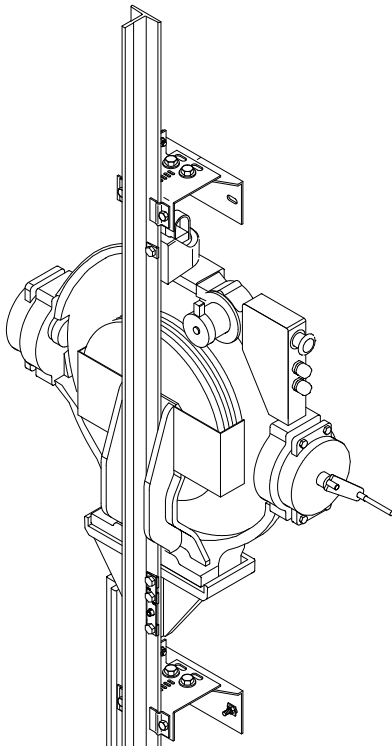
1 INTRODUCTION

KONE EcoSpace traction elevator is powered by an EcoDisc MX10 machine, an AC gearless machine with a permanent magnet synchronous motor. The EcoDisc machine is less than half the weight of a traditional geared machine. It is three times more efficient than a hydraulic machine and uses 60% less energy.

EcoSpace is known as a machine-room-less (MRL) elevator, since there is no overhead machine room. Instead, the machine is mounted to the back of the guide rail in the top of the hoistway.

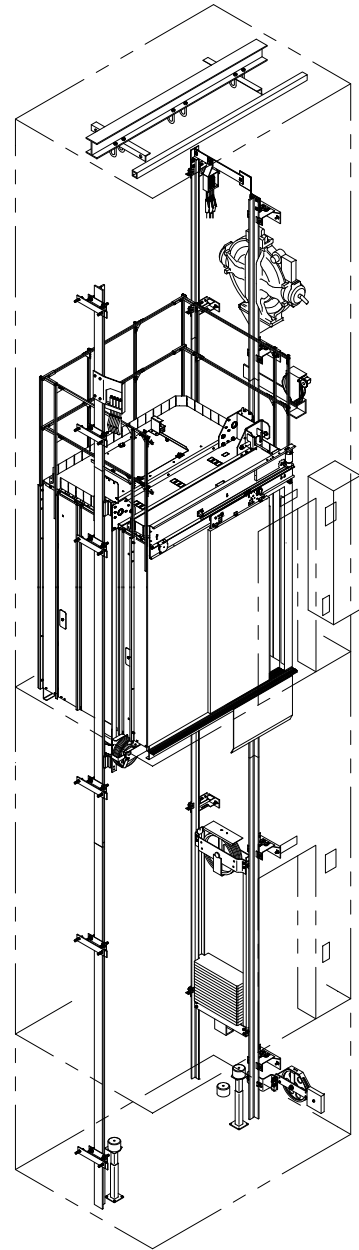
The operation of the EcoSpace elevator is controlled by the KCM831 LCE control system. The controller for the elevator can be located near the hoistway or in a remote control room.

6-003506 (2011-03)



5016277(2008-01)

EcoDisc machine



5024620(2011-02)

2 ELEVATOR SAFETY

2.1 Periodic inspections, tests and maintenance

Make sure periodic safety inspections and tests required by ASME A17.1/CSA B44 and any other governing codes are performed. It is recommended to have all elevator maintenance done by qualified elevator personnel.

KONE Maintenance Method (KMM) focuses on performing the required maintenance at the frequency needed to maintain equipment so it is safe, functioning properly, well-lubricated and clean. Each elevator is evaluated and an individualized maintenance plan is created based on criteria including usage, operating environment, control and drive systems, number of landings and door equipment.

Periodic inspections and tests for elevators are done in addition to routine examinations and tests. Routine examinations and tests should be part of each elevator's preventive maintenance schedule - while periodic inspections and tests are done less frequently, and may be witnessed by an Elevator Inspector.

Annual and five-year inspections and tests are required by ASME A17.1/CSA B44 coded to be performed on all traction elevators. The Elevator Inspector, who is responsible for inspecting the elevator equipment, may request certain tests be performed by a qualified Service Technician.

For specific information on Periodic Inspections & Tests, and recommended Routine Examinations & Tests, refer to the most recent version of ASME A17.1/CSA B44 codes.

Standards set by the ASME A17.1/CSA B44 codes for annual and periodic inspections and tests for elevators are considered minimum requirements. Local codes may have additional standards for periodic inspections and tests. Check with the local governing authority for complete details of inspections and tests required in your area.

6-003507 (2011-03)

GUIDELINES FOR ANNUAL TRACTION CHECKPOINTS	
Equipment	Condition to be met
Safeties	Must have proper clearance between safety wedges and guide rails.
	Safety wedges must exert pressure on rail within allowable governor rope travel limits.
	Must actuate properly and freely and have no loose or missing set screws, or excess friction on pivot points and linkage.
Governors	All parts must operate freely.
	Overspeed switch must operate.
Normal terminal stopping devices	Must slow down and stop car at terminal floors independent of operating device.
Final terminal stopping devices	Must prevent car from moving up or down.

GUIDELINES FOR ANNUAL TRACTION CHECKPOINTS	
Equipment	Condition to be met
Firefighters' service	Must return car to designated floor and park with doors open (Phase I).
	If Phase II is present, it must allow firefighters to operate car from inside the car.
	Smoke and heat detectors must operate.
	Car must return to alternate level if smoke detector is activated at main floor.
Door closing force	Amount of force required to prevent hoistway and power doors from closing must not exceed 30 lbf. (133.4 N)
Standby (emergency) power	Must be tested with no load. Speed must not exceed 125% of rated speed.

This guideline is not intended as a conclusive or complete summary of current requirements for safety inspections and tests. Get periodic professional consultation to be certain that all issues are considered. National safety codes may change and local codes may vary.

6T-000668 (2011-03)

GUIDELINES FOR 5-YEAR TRACTION CHECKPOINTS	
Equipment	Condition to be met
Safety and governor systems	Equipment must operate at rated load and rated speed.
Governors	Must trip at a speed meeting ASME requirements.
Brake	Must lower, stop and hold car with 125% overload.
Standby (emergency) power	Test must be made with a rated load. When one elevator is operating on standby power, the speed must not exceed 125% of rated speed or the governor tripping speed.
	When more than one elevator is operating simultaneously, the elevators must operate normally; speed must not exceed 125% of the rated speed or the governor tripping speed.
Power opening of door	Power opening must only occur when car is within 18 inches (457 mm) of landing.
Leveling zone and leveling speed	Leveling device must move the car toward the landing and level within 30 inch (762 mm) zone for an automatic device and 10 inch (254 mm) zone for a manual device. Speed must not exceed 150 fpm (0.8 m/s).
Inner landing zone	Car must only move within a 3 inch (76 mm) zone above or below the landing with the doors open.

This guideline is not intended as a conclusive or complete summary of current requirements for safety inspections and tests. Get periodic professional consultation to be certain that all issues are considered. National safety codes may change and local codes may vary.

6T-000669 (2011-03)

2.2 What you can do if passengers are trapped

If passengers get trapped in an elevator it is considered an emergency. BUT, in most cases there is no need for alarm.

Contact qualified elevator personnel

Contact qualified elevator service personnel at the earliest time possible. Evacuation of passengers from an elevator should be done by qualified elevator personnel. They have the expertise, experience and training to handle the complex situations which an elevator rescue may involve.

Reassure the passengers

Good communication between the passengers and responsible building personnel is extremely important. Inform the passengers of the following.

- They are safe and should remain calm.
- Help is on the way to safely remove them from the elevator car.
- Passengers should stay away from the elevator door, so the doors can be opened safely.

Inform passengers of progress

Keep passengers informed of the progress throughout the rescue procedure. Let them know when qualified help has arrived, and explain what is being done. Reassure them that they are safe.

For more information about procedures for removing passengers from an elevator car refer to the most recent version of ANSI/ASME GUIDE FOR EMERGENCY EVACUATION OF PASSENGERS FROM ELEVATORS, publication A17.4; or contact THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS, United Engineering Center, 345 East 47th street, New York, NY 10017.

6-003508 (2011-03)

3 SPECIFICATIONS

3.1 Type and capacity

Passenger car - 2000-4000 lb (907-1814 kg)

Service car - 4000-5000 lb (1814-2268 kg)

3.2 Speed

150 fpm (.75m/s)

3.3 Travel

Maximum 83 ft (25 m)

3.4 Landings

2-10 landings

3.5 Openings

Front

Front/rear

3.6 Group

2, 3 or 4 car groups

3.7 Controller location

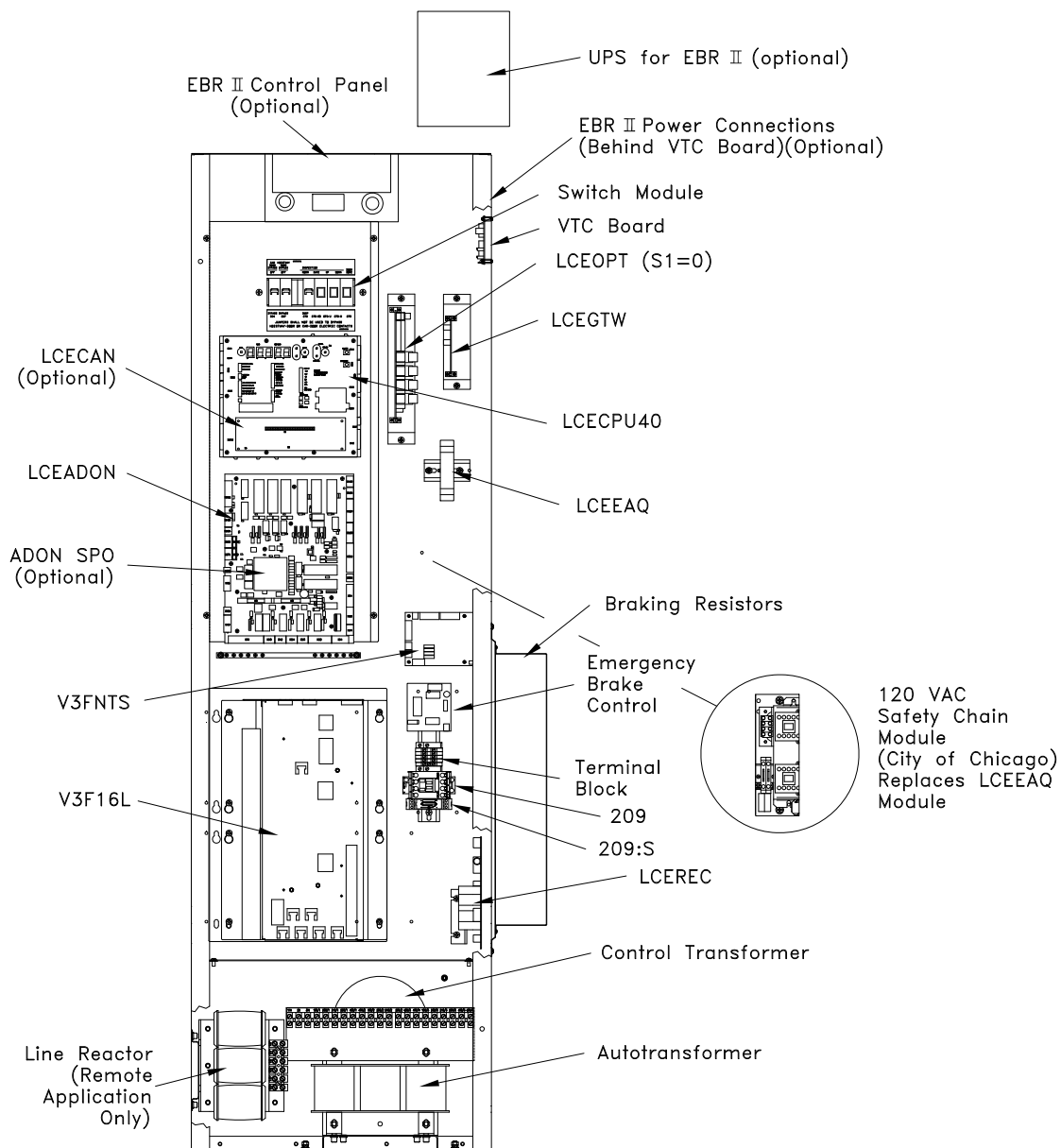
Standard - top floor integral or adjacent

Option - remote control room

4 KCM831 LCE CONTROL SYSTEM

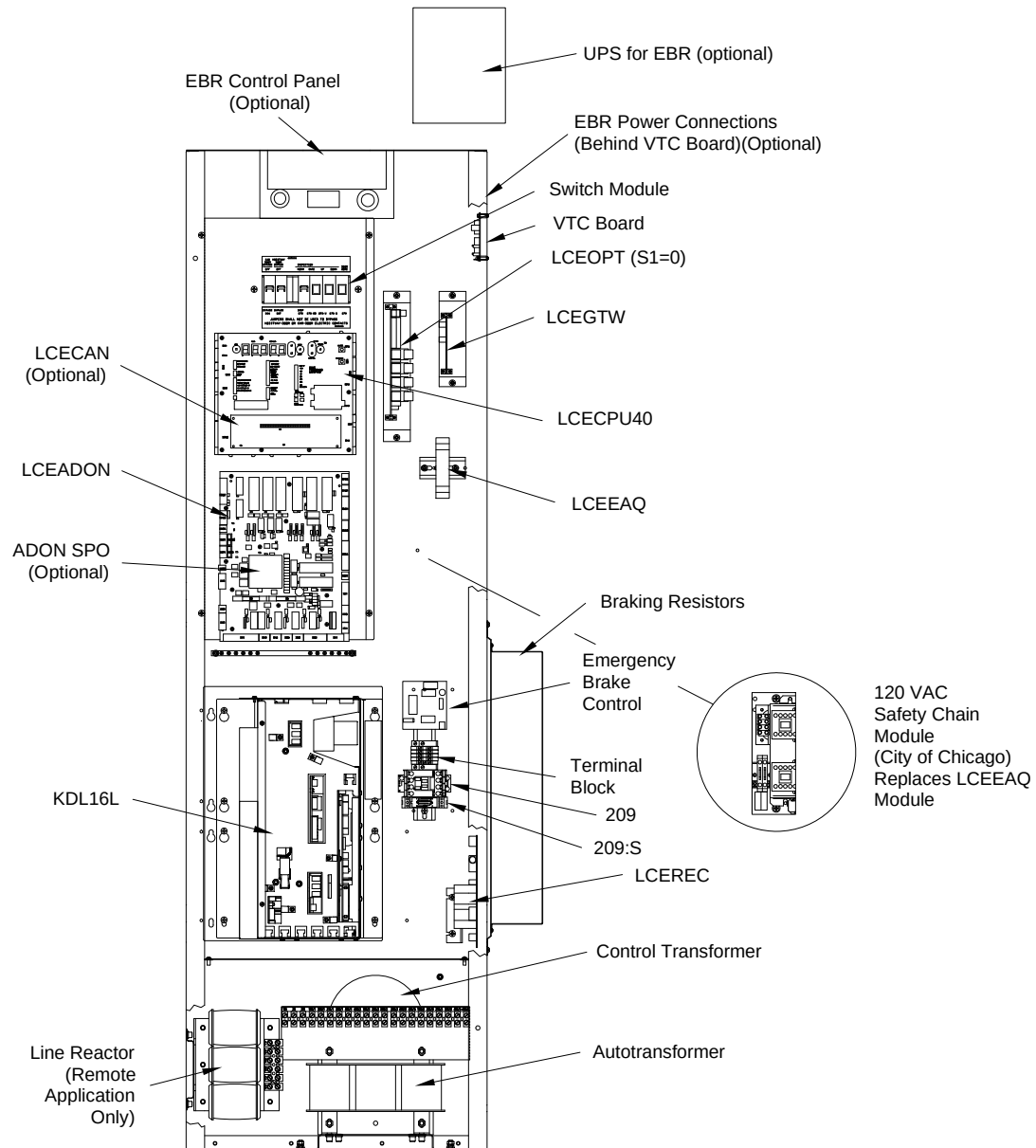
The KCM831 control system optimizes elevator performance by monitoring and controlling speed, direction, safety status and other key operating parameters.

4.1 KCM831 traction elevator controller with V3F16L drive



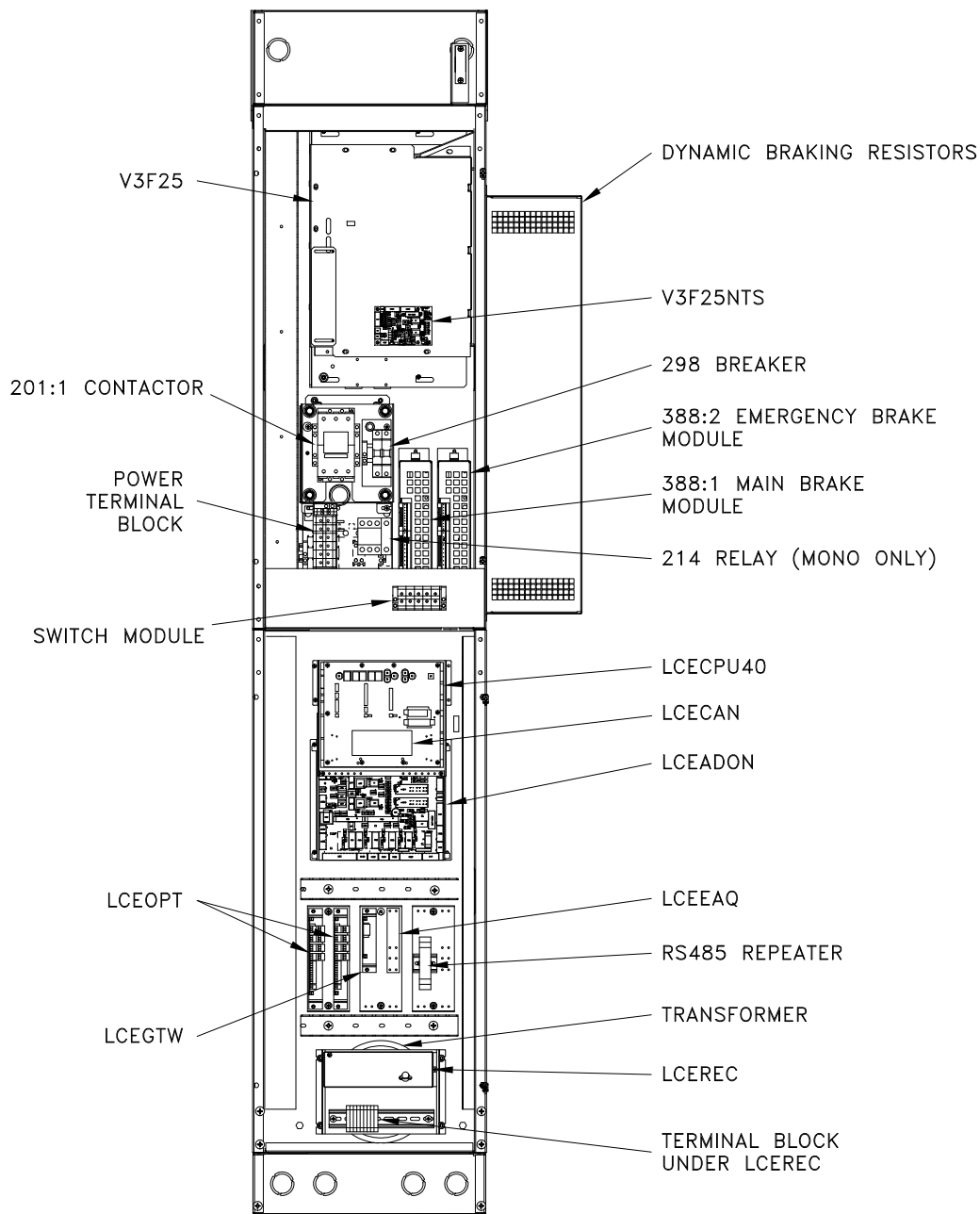
5003950(2009-06)

4.2 KCM831 traction elevator controller with KDL16L drive



5022989(2010-10)

4.3 KCM831 traction elevator controller with V3F25S drive

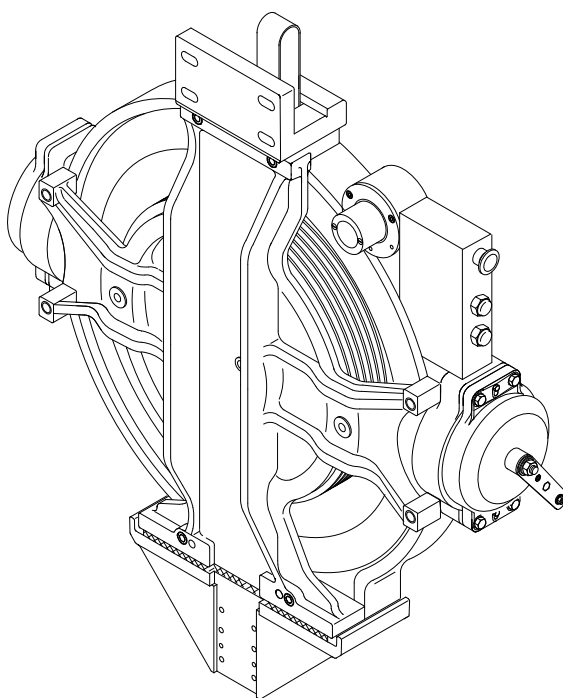


C503-109(2011-03)

5 MACHINE

KONE EcoSpace traction elevators are powered by an EcoDisc hoisting machine. The motor is integrated with the drive sheave, giving the machine a compact disc shape. The EcoDisc hoisting machine uses a permanent magnet synchronous motor. Inside the EcoDisc machine, permanent magnets are arranged in pole pairs attached to the rotor and the stator within the traction sheave. During operation, the drive output creates a rotating magnetic field in the stator. This rotating magnetic field interacts with the permanent magnets in the rotor to create a pulling force that turns the rotor.

6-003509 (2011-03)



5024624(2011-02)

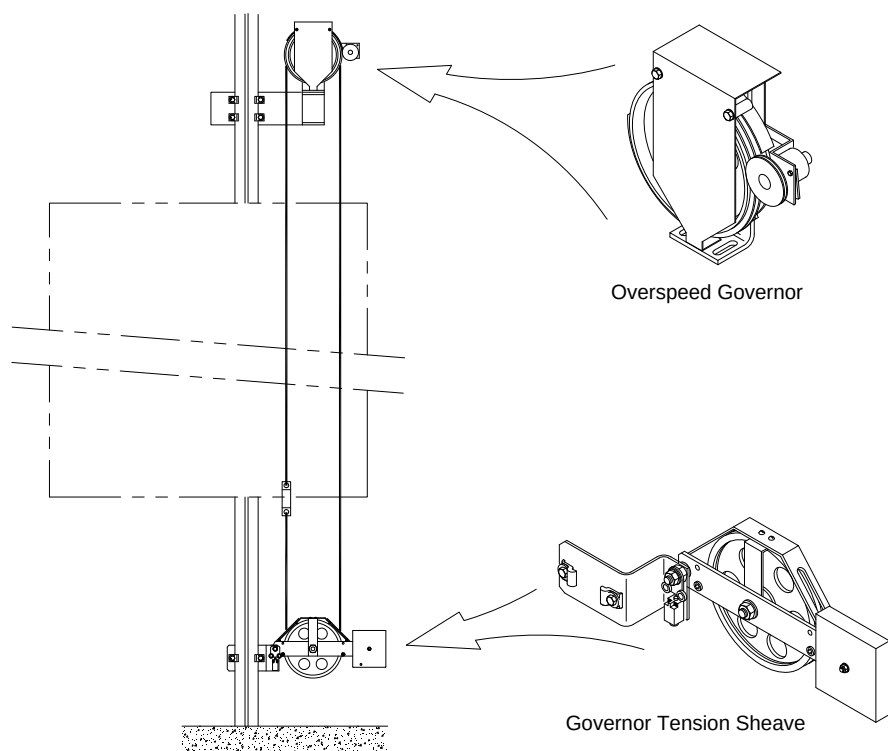
6 SAFETY EQUIPMENT

6.1 Overspeed governor

If the car speed exceeds contract speed, the overspeed governor senses the overspeed condition and locks the governor sheave and sets the car safety device.

The governor tension sheave is located in the pit and keeps the governor rope properly tensioned from the top to the bottom of the hoistway.

6-003510 (2011-03)

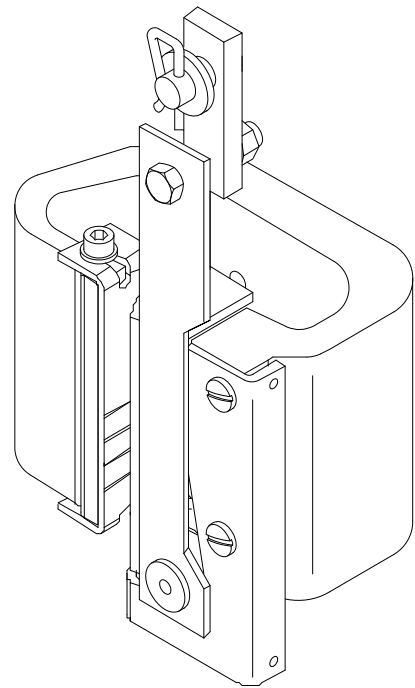
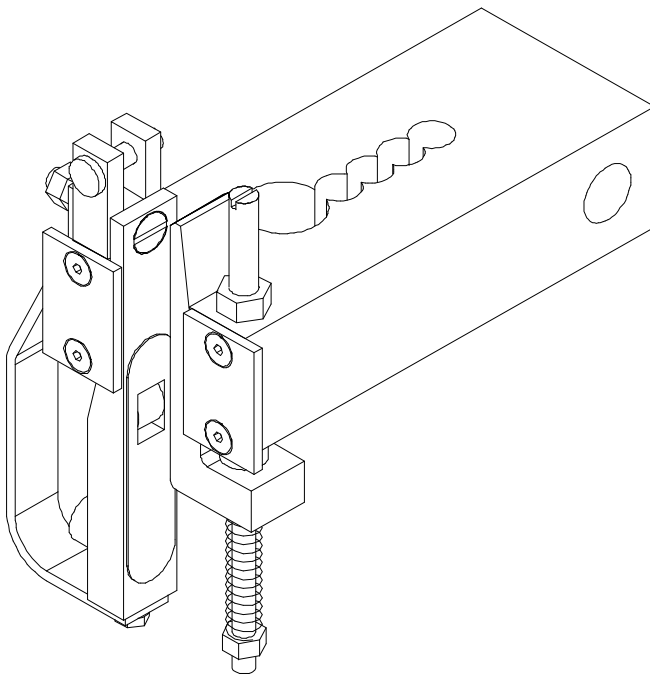


5024642(2011-02)

6.2 Car safety

The car safety is mounted to the bottom of the car. If the safety is tripped by the overspeed governor, wedges within the safety clamp together to grip the rail and stop the car.

6-003511 (2011-03)



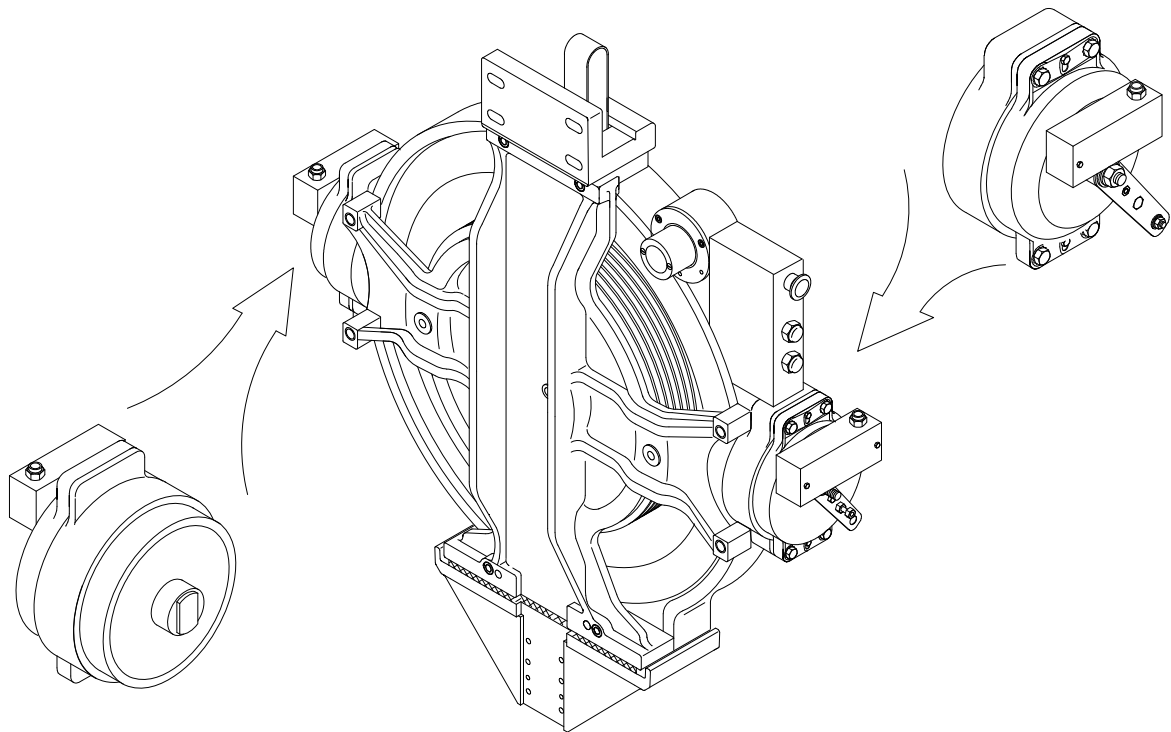
5024614(2011-02)

EcoSpace car safeties

6.3 Brakes

The elevator is equipped with two machine brakes that operate independently. One brake is for normal operation and the other is an emergency brake that will set if there is uncontrolled movement of the car in either the up or down direction.

6-003512 (2011-03)



5024606(2011-02)

7 POSITIONING DEVICES AND LIMIT SWITCHES

7.1 Overview

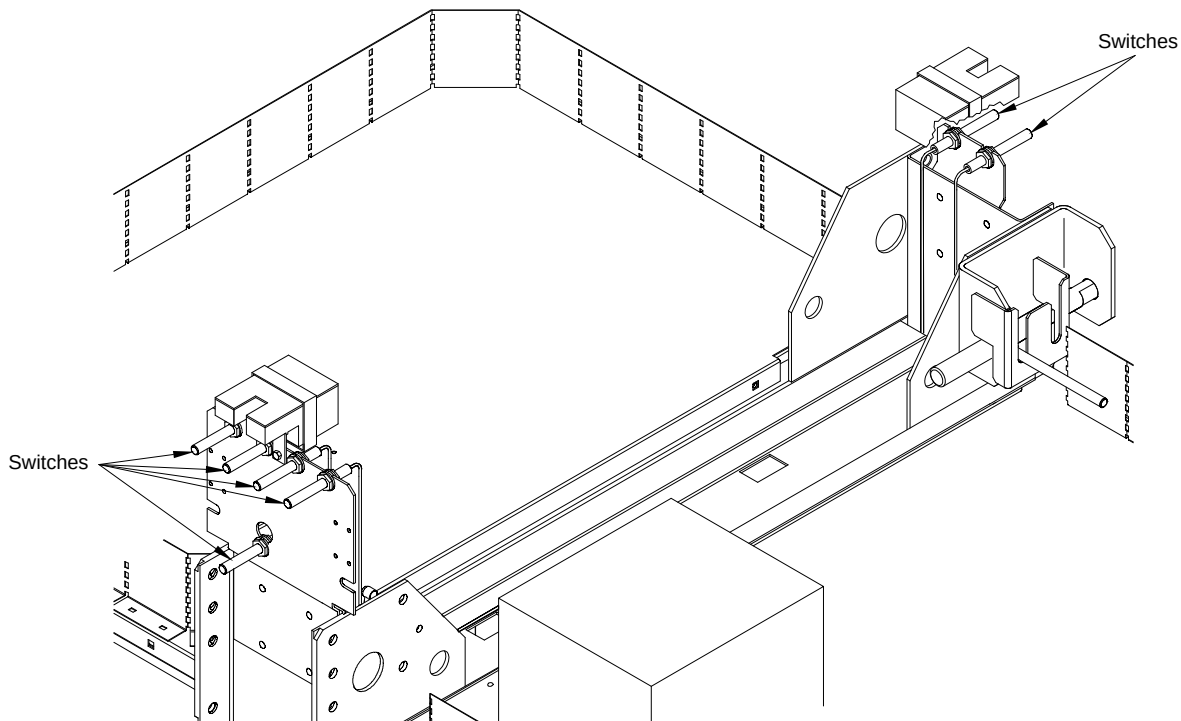
EcoSpace elevators use magnets and switches to position the elevator car in the hoistway. Some positioning devices are present at each floor to make sure the car levels correctly to line up with the landing. Other devices slow down and stop the elevator at top terminal and bottom terminal floors.

6-003513 (2011-03)

7.2 Car switches

Positioning switches on the top of the car transmit information that allows the control system to slow a car when nearing a floor, level the car so it lines up evenly at the landing and permit doors to open.

6-003514 (2011-03)

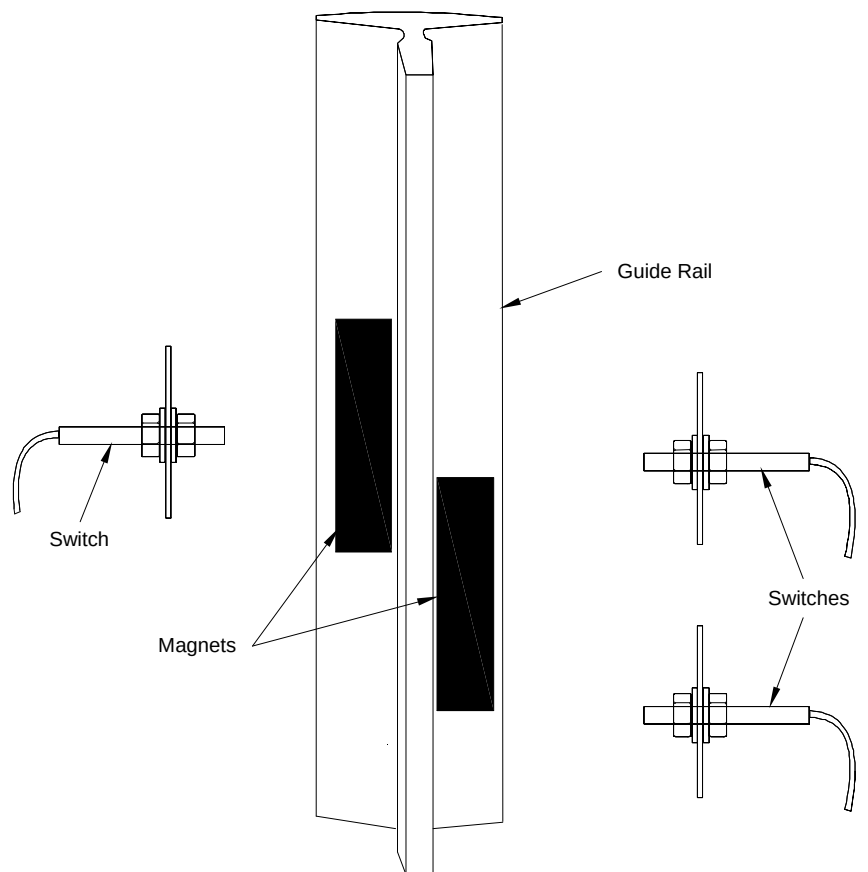


5024632(2011-02)
5024604(2011-02)

7.3 Hoistway magnets

Hoistway magnets are mounted on the guide rails in the hoistway in the proper locations to activate the positioning switches on the car as the switches pass by the magnets.

6-003515 (2011-03)

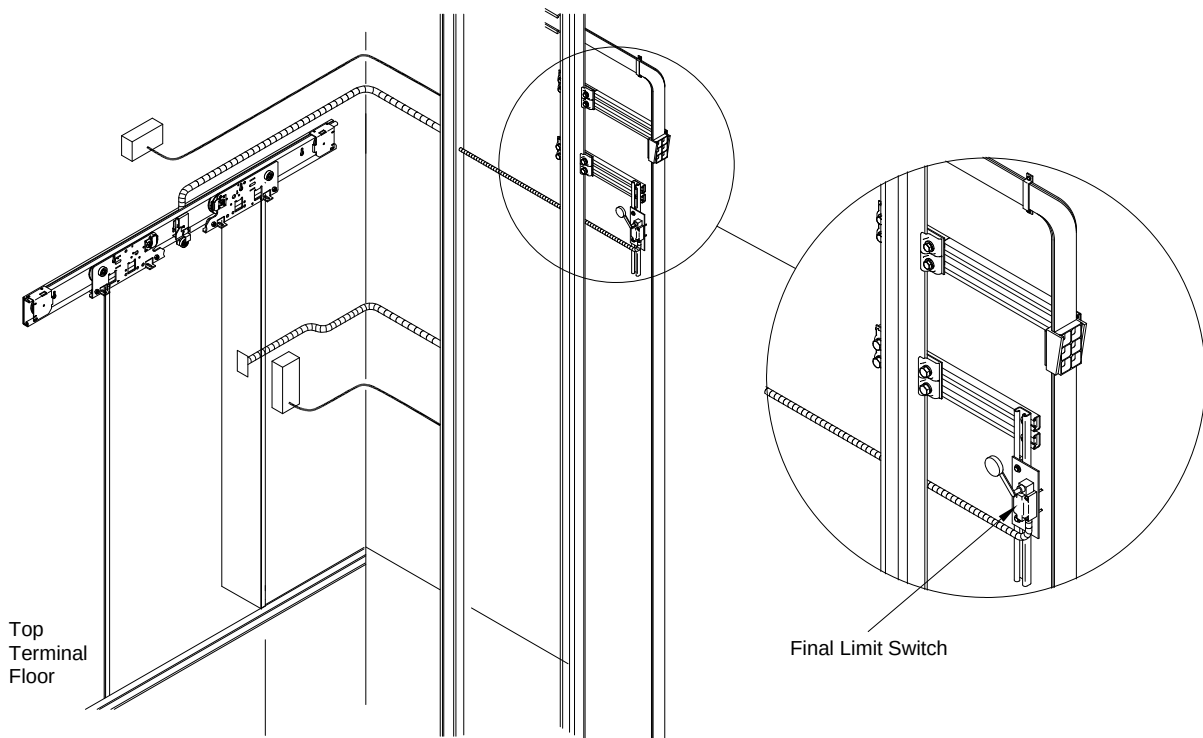


5024653(2011-03)

7.4 Limit switches

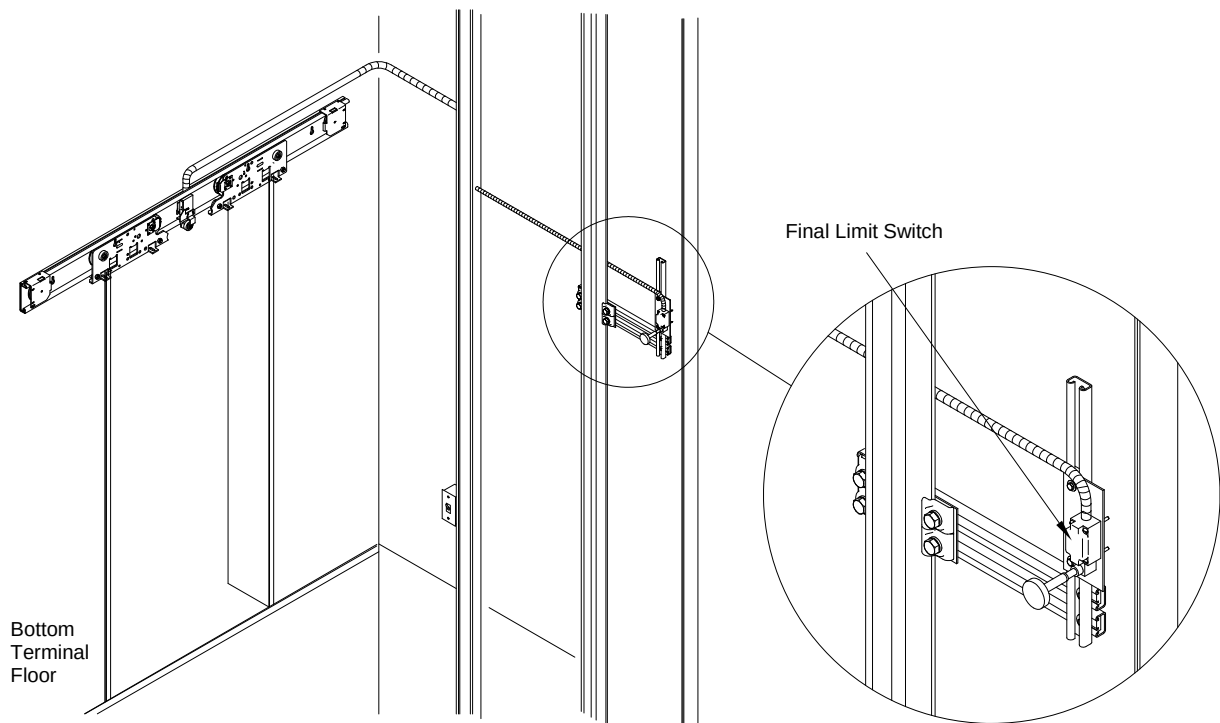
Final limit switches are installed in the top and bottom of the hoistway to set the outside limits of the elevator travel. The switches respond to contact with a final limit switch cam mounted to the side of the car top.

6-003516 (2011-03)



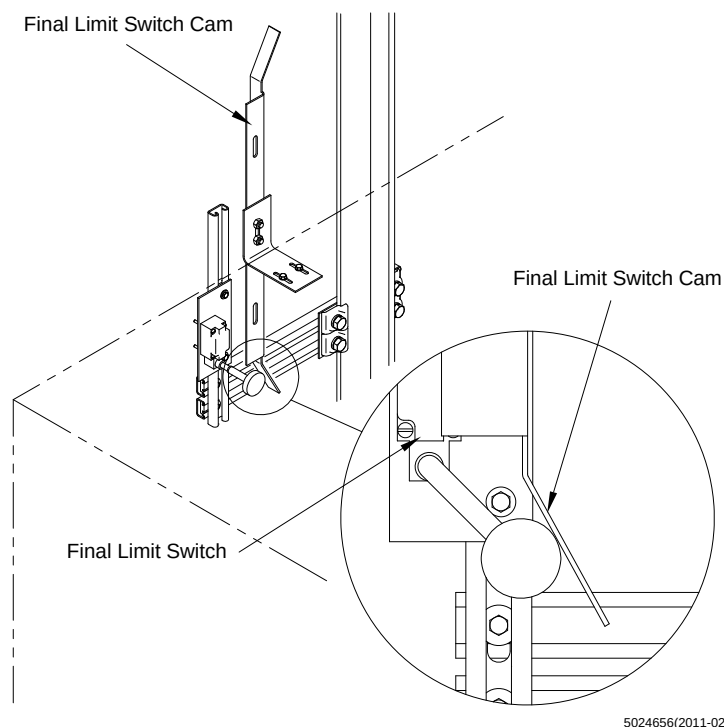
5024644(2011-02)

Top terminal floor



5024643(2011-02)

Bottom terminal floor



5024656(2011-02)

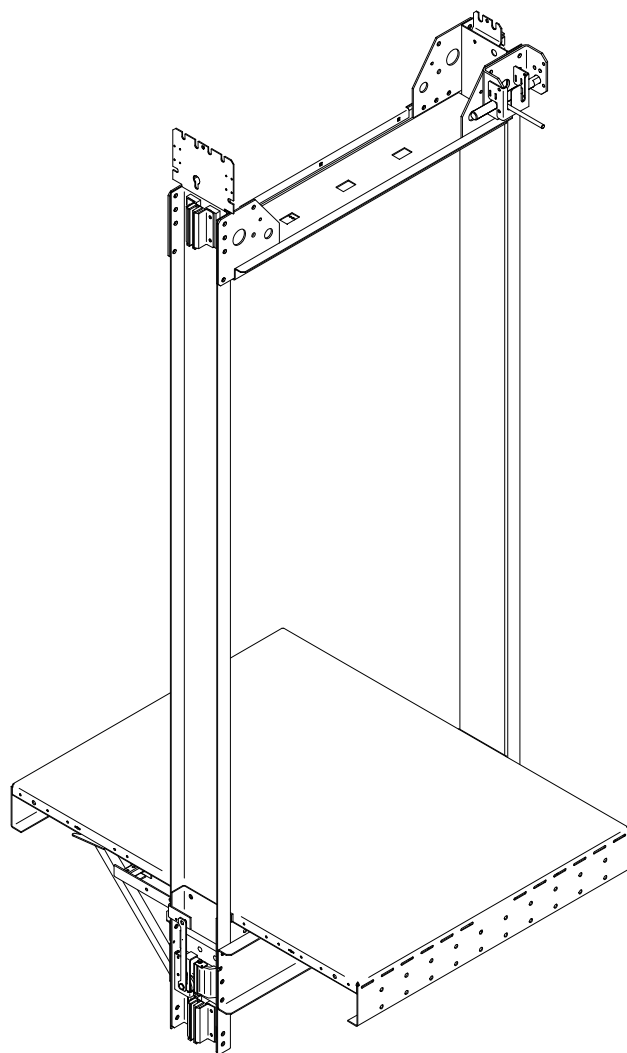
Bottom final limit switch roller contacting cam on car top

8 ECOSPACE CAR

8.1 Car frame

The EcoSpace car frame is the structure on which the passenger or service car is built.

6-003517 (2011-03)

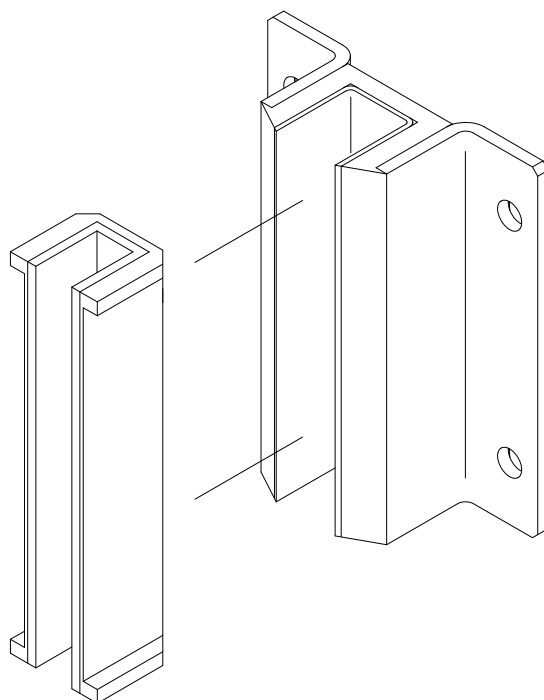


5024611(2011-02)

8.2 Slide guides

Slide guides on the car frame guide the car along the car guide rails up and down the hoistway.

6-003518 (2011-03)



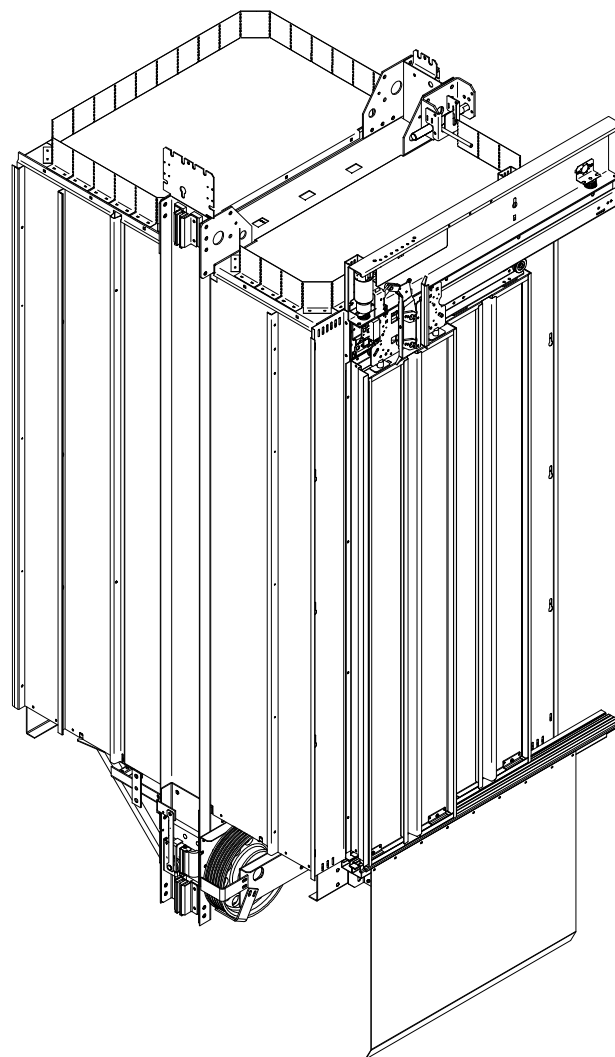
5024616(2011-02)

8.3 Car

The EcoSpace car is constructed of stainless steel panels. Rear and side walls are also available in a variety of color laminates. The rear wall can even be made of clear or colored glass.

The interior dimensions of the car are designed to meet the ADA/ABA wheelchair accessibility requirements for all capacities.

6-003519 (2011-03)



5024610(2011-02)

9 ROPING SYSTEMS

9.1 Overview

The car moves up and down the hoistway on hoist ropes that run through the hoist machine, under the car, around a counterweight sheave and are anchored at both ends in the top of the hoistway.

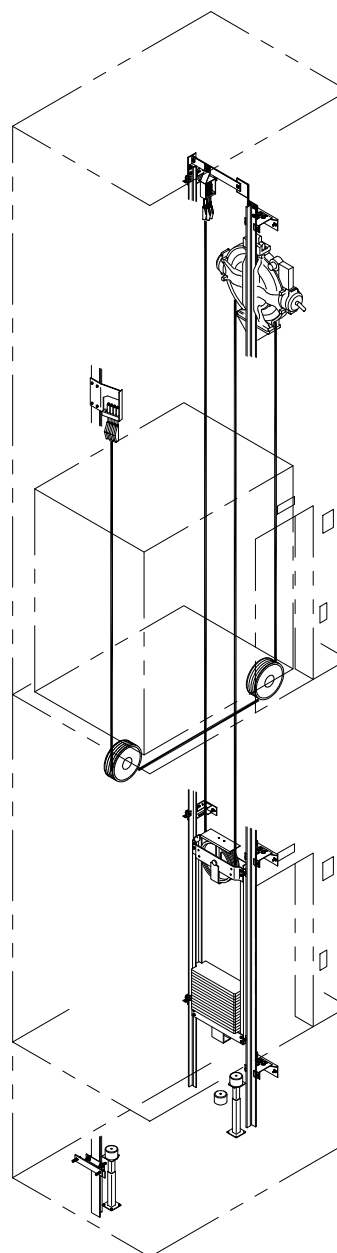
6-003520 (2011-03)

Additional ropes and some components omitted for clarity

9.2 Counterweight

The counterweight is the part of the roping system that moves up and down the hoistway to counterbalance the car as the elevator moves.

6-003521 (2011-03)



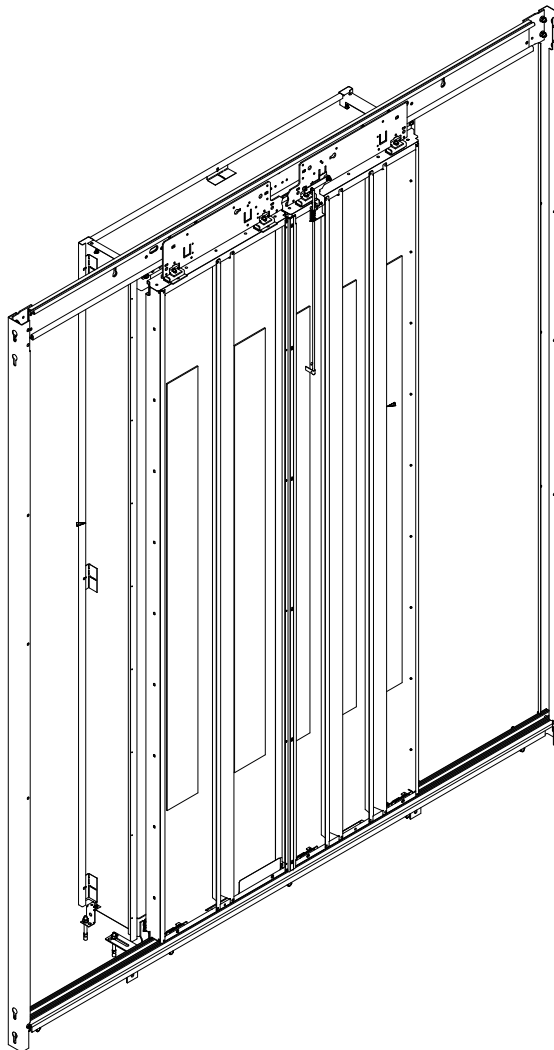
5024692(2011-03)

10 DOORS AND ENTRANCES

10.1 Hoistway doors

A door operator opens and closes the hoistway and car doors. The hoistway doors are mechanically locked until the car is at the correct location and the door clutch on the car engages to open the hoistway doors.

6-003522 (2011-03)



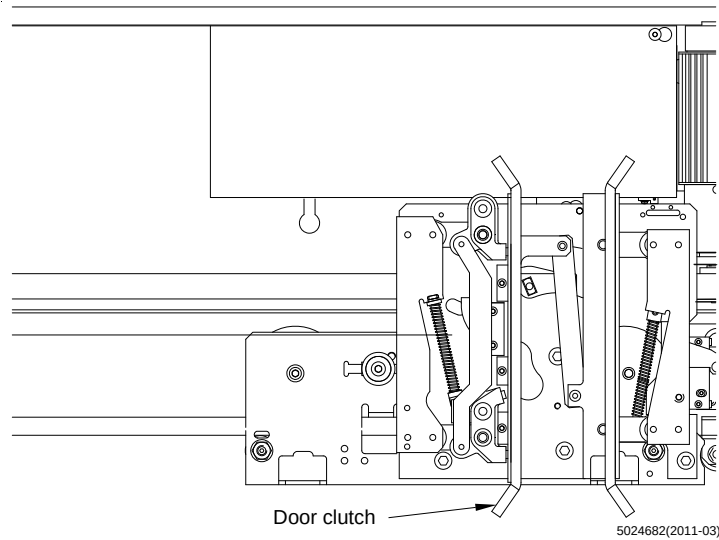
5009801(2005-04)

Hoistway doors

10.2 Door operator and clutch

The clutch on the car door operator engages the hoistway doors to open them only at a landing.

6-003523 (2011-03)

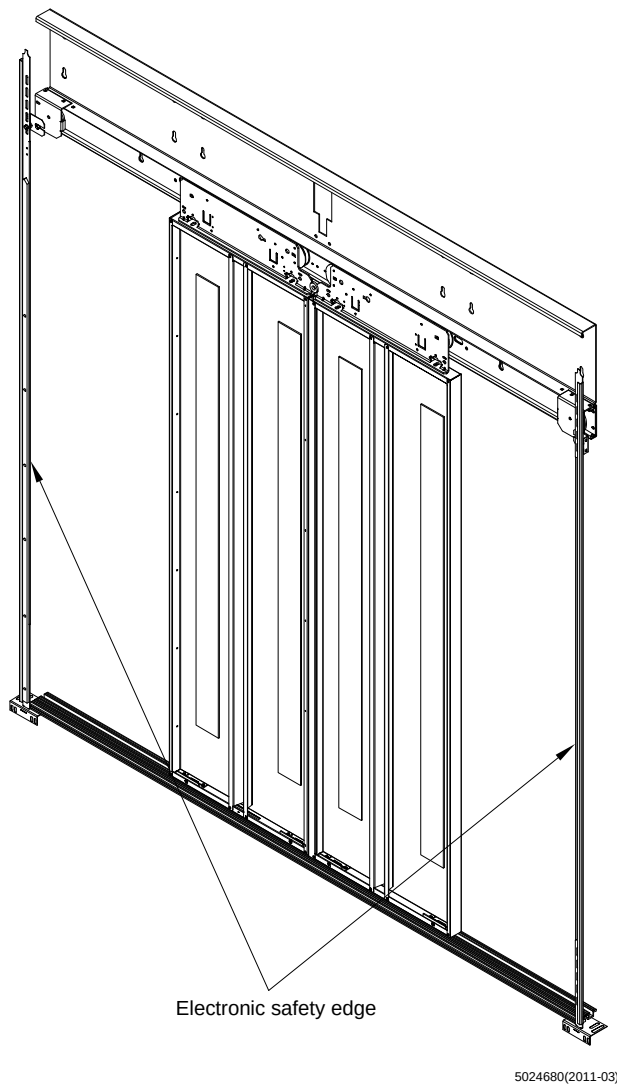


Door operator and clutch

10.3 Car doors and electronic safety edge

The electronic safety edge on the car doors senses if there is an obstruction in the path of the doors and automatically keeps the doors from closing.

6-003524 (2011-03)



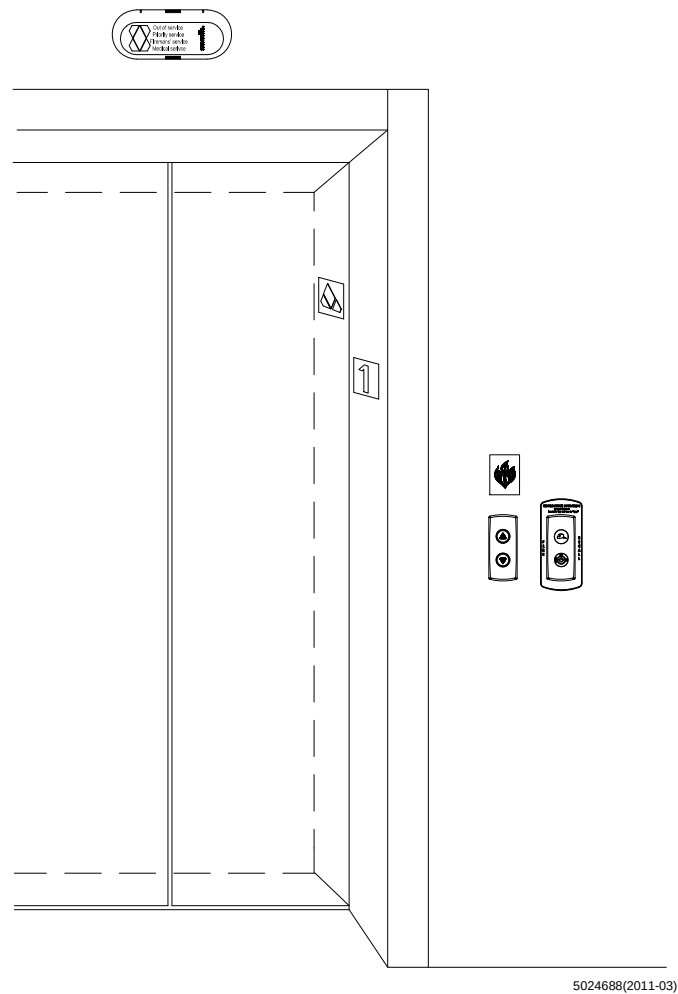
Car doors and electronic safety edge

11 FIXTURES AND REMOTE MONITORING

11.1 Hall fixtures

Hall fixtures include the pushbuttons a user presses in the hallway to call the elevator and the lantern displays that show movement of the car.

6-003525 (2011-03)

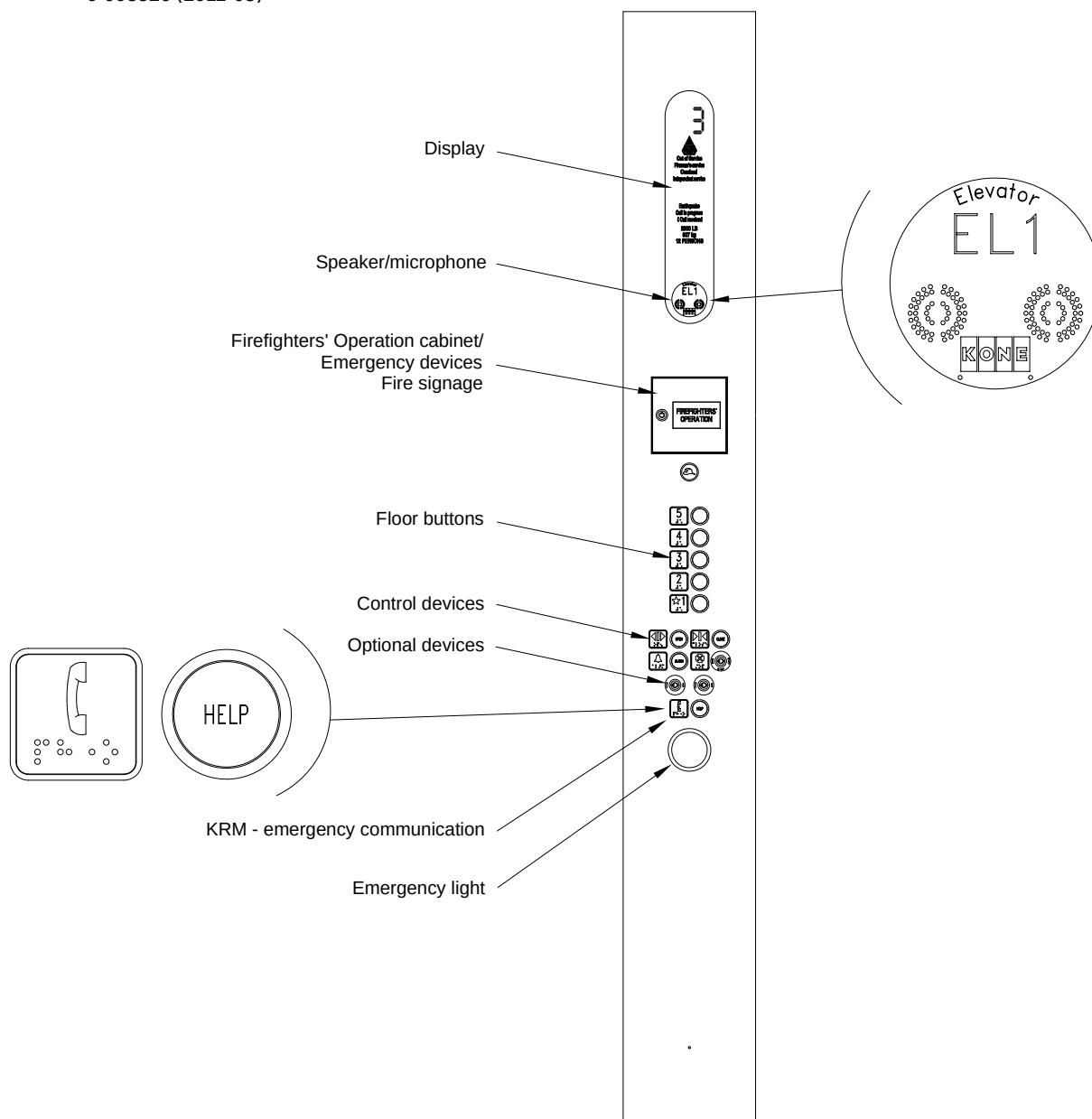


11.2 Car operating panel (COP)

The car operating panel inside the car contains the pushbutton controls used by the elevator passengers. Buttons control which floor the car goes to, car door opening and closing and emergency functions. There may also be optional keyswitches.

The Help pushbutton opens communication with the KONE Remote Monitoring System (KRMS). Passengers can communicate using a speaker and microphone inside the panel.

6-003526 (2011-03)



5024667(2011-02)

KSS 370 COP (components and pushbuttons may vary from example shown)

11.3 KRMS

The KONE Remote Monitoring System (KRMS) fulfills the emergency communications function required by code. KRMS provides twenty-four hour communications between a passenger in the car and an outside resource in the event of an emergency. The system also monitors elevator operation and can send a call for service in response to an elevator shutdown.

6-003527 (2011-03)

12 APPROVALS AND VERSION HISTORY

Compiled by: Global Documentation / Technical Writer / Katherine Snyder
Checked by: Technology - R & D / EcoSpace Platform Manager / Brian Schleeter
Approved by: Technical Documentation & Training / Manager / Mario Jones

Issue	Date	Description of change	Ref CR	Approved by
-	2011-03-02	First release		Mario Jones
A	2011-03-16	Code references and inspection guidelines updated		Mario Jones