

CONTAINER CRANE P168L(WS)-SUPER

IR1763-64 PORT OF KOPER, SLOVENIA

ELECTRICAL CONNECTION DRAWING

Drawing No: 4009-2627

CABLE COLOUR CODES		3 CORES	4 CORES	5 CORES	PROXIMITY LIMIT SWITCH
BROWN	BN	X	X	X	PIN 1
BLUE	BU	X		X	PIN 3
BLACK	BK		X	X	PIN 4
GREY	GR		X	X	
GREEN-YELLOW	G/Y	X	X	X	
WHITE	WH				PIN 2

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	TITLE	Drawing No. 4009-2627		=	CD
2			Checked						Project/ Work No. IR1763-4		+	A
1	Modification	Date	Name	Date	Name				Copyright (c)		Sheet	1+

\*\*\*\*\*  
 \* Page List - Brief Listing Date: 18.02.09 Page: 1 \*  
 \*\*\*\*\*  
 \* Project : IR1763-4 \* LIEBHERR CONTAINER CRANES LTD. \*  
 \* Drawing No. : 4009-2627 \* KILLARNEY, CO.KERRY, IRELAND. \*  
 \* Material No. : \* TEL. +353 64 70200 / 31511 \*  
 \* Type/Location: PORT OF KOPER, SLOVENIA \*  
 \*\*\*\*\*

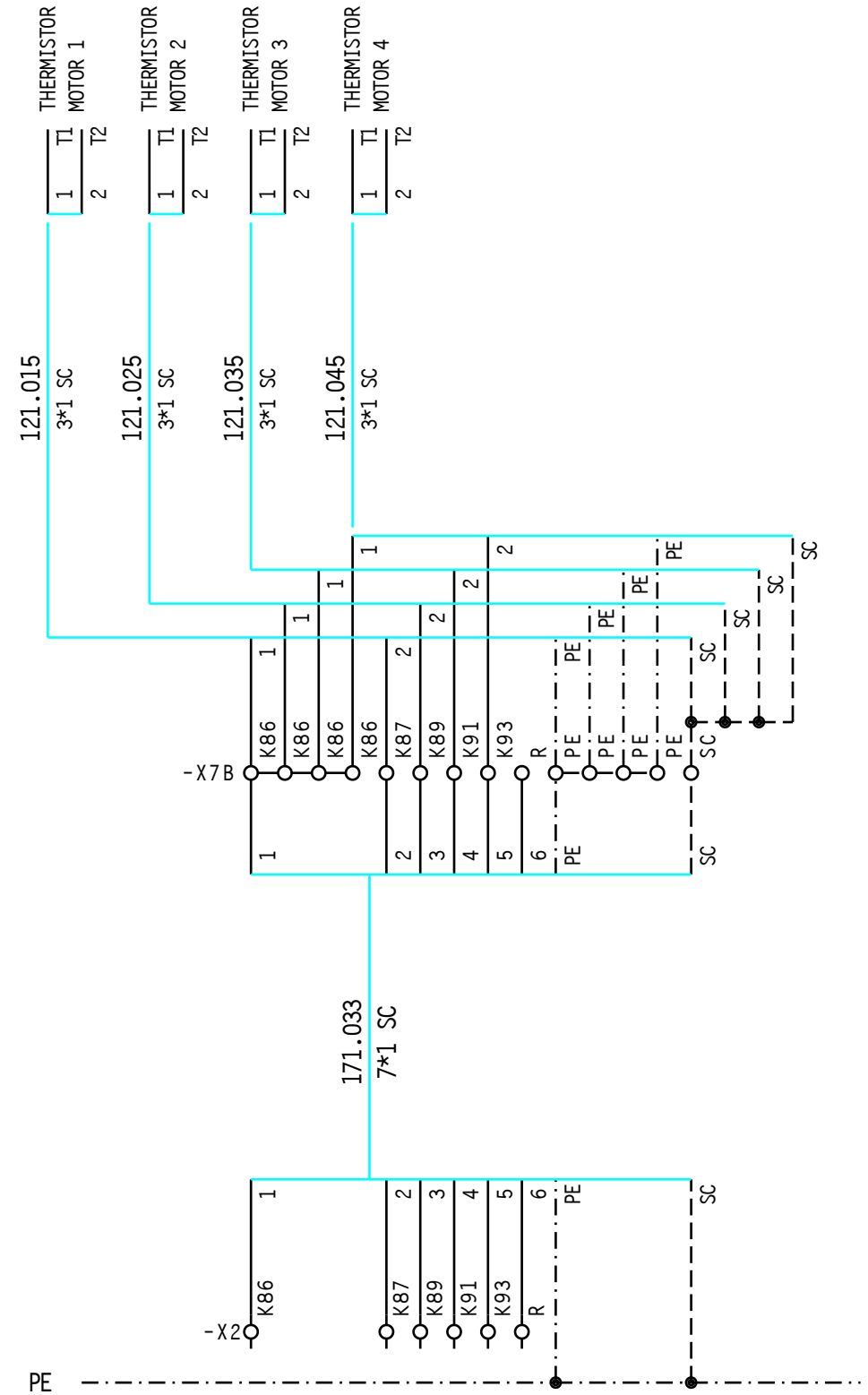
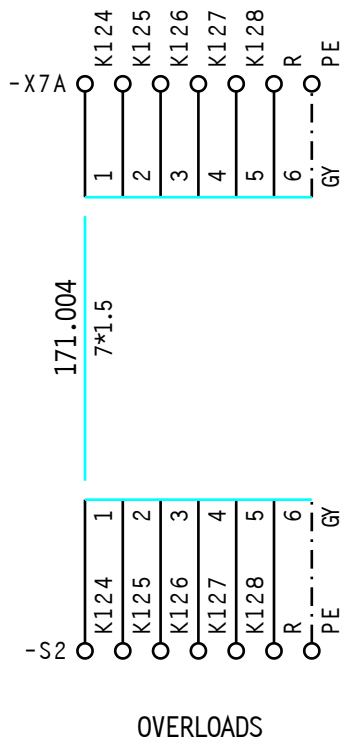
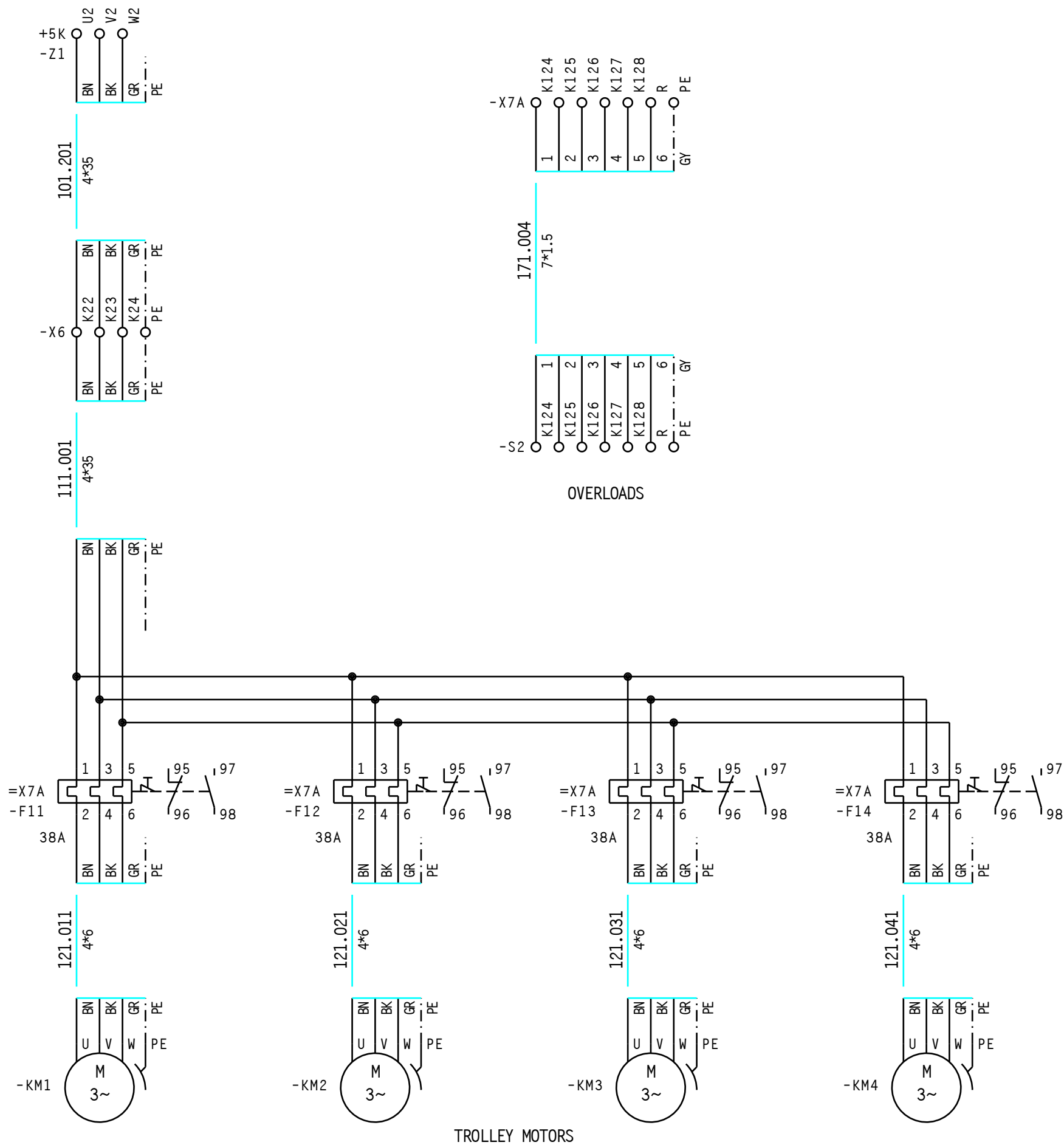
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Installation: CD

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27	TRAVEL CONSOLE P20 + CHECKERS		13.02.09	MC

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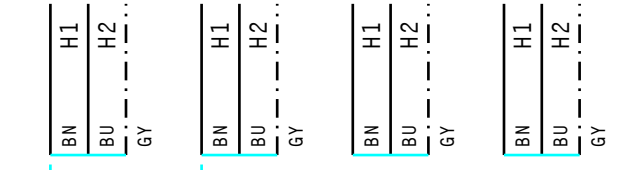
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				Date	Name		Copyright (c)					



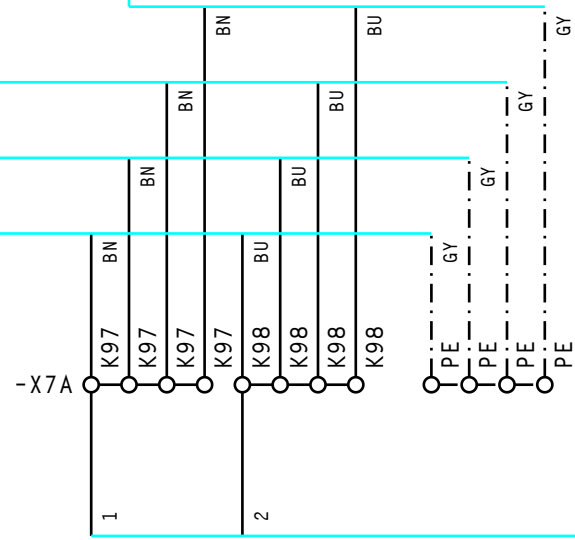
TROLLEY MOTORS

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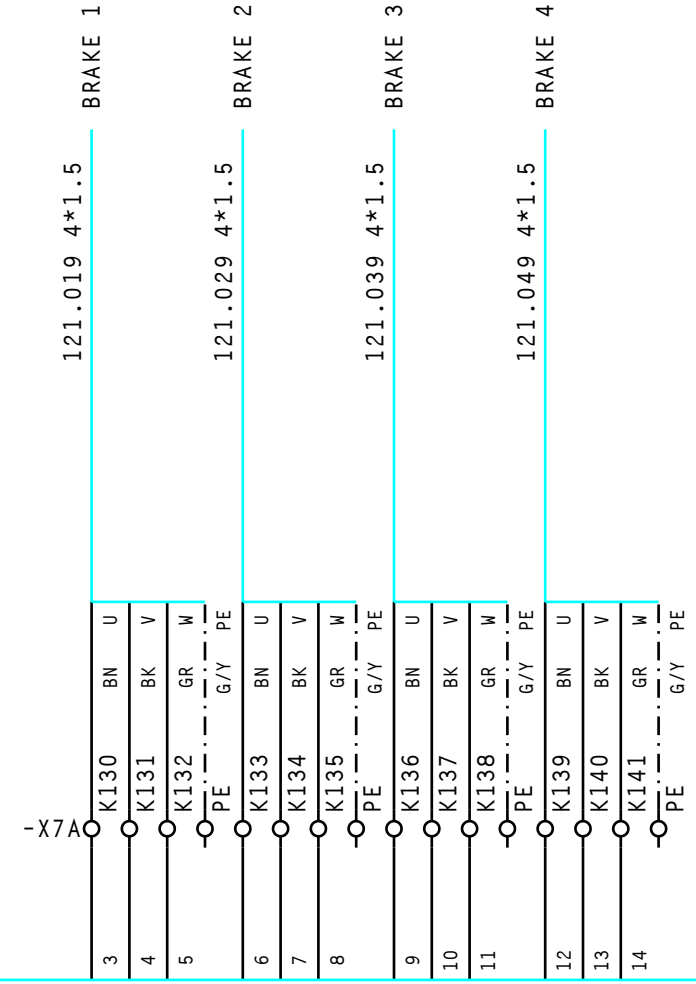
HEATER MOTOR 1  
HEATER MOTOR 2  
HEATER MOTOR 3  
HEATER MOTOR 4



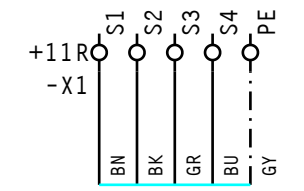
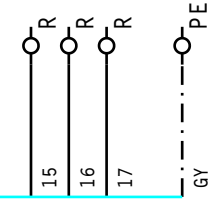
121.014 3\*1.5  
121.024 3\*1.5  
121.034 3\*1.5  
121.044 3\*1.5



171.002 18\*1.5  
TROLLEY MOTOR HEATERS



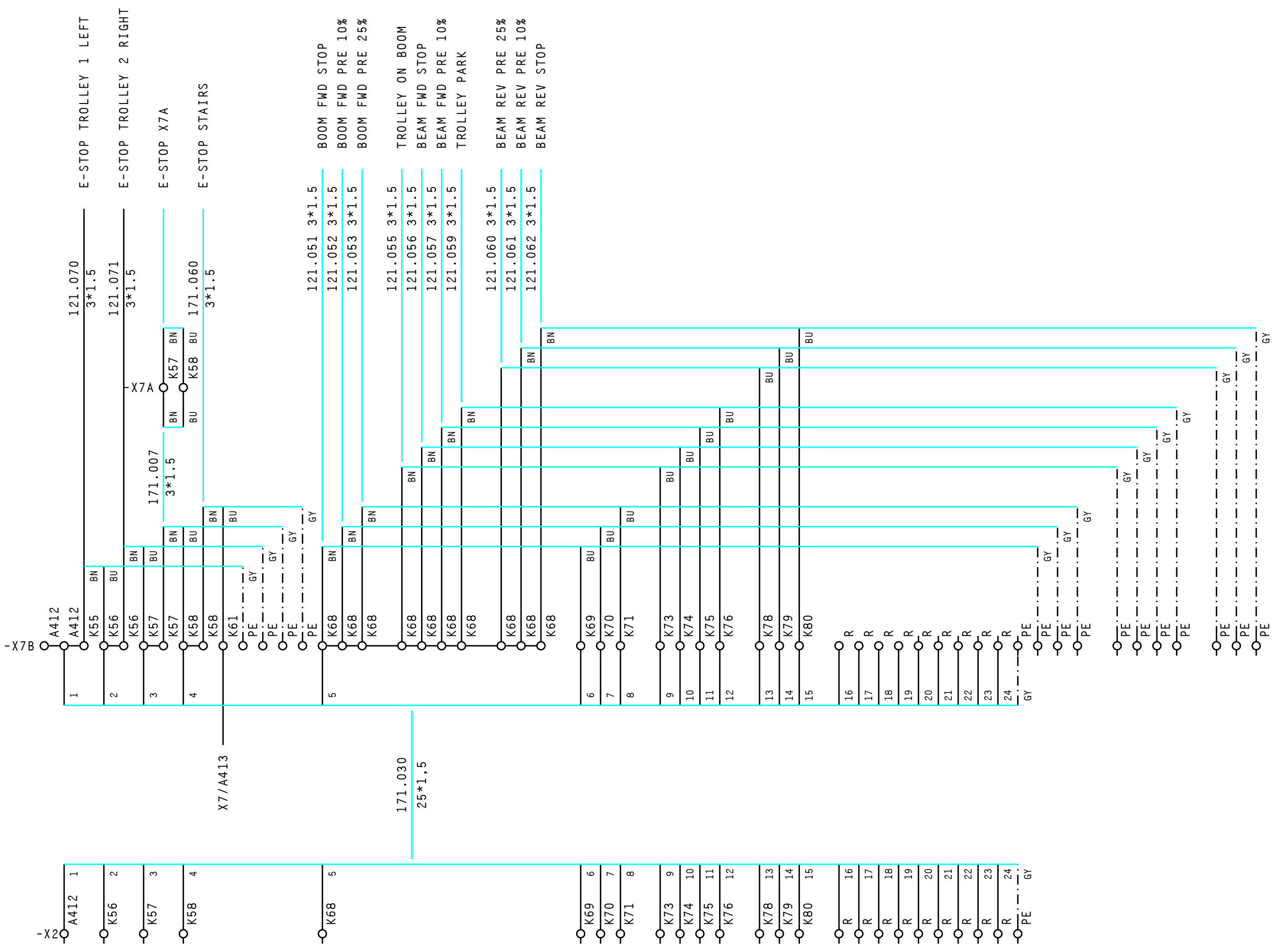
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121.029 4\*1.5 BRAKE 2  
121.039 4\*1.5 BRAKE 3  
121.049 4\*1.5 BRAKE 4  
TROLLEY BRAKES



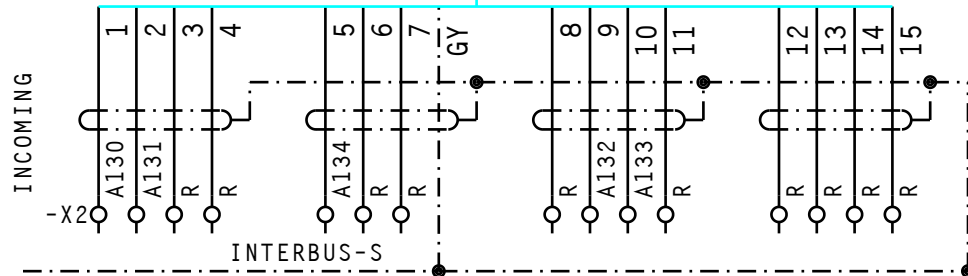
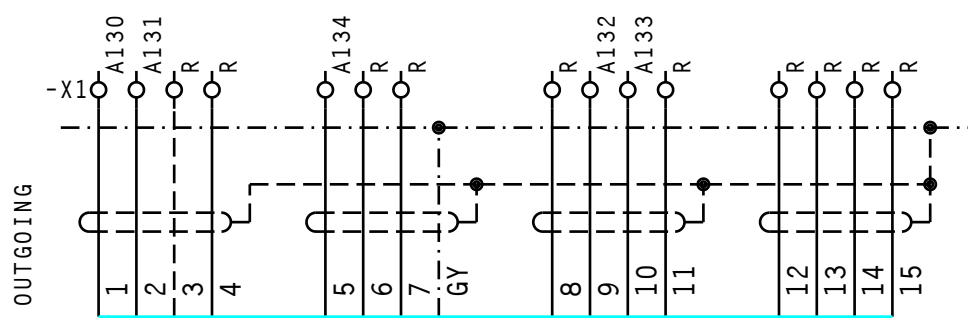
101.202 5\*10  
111.002 5\*10  
171.001 5\*10  
S2 SUPPLY

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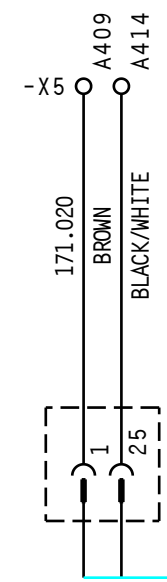


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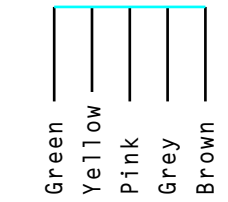
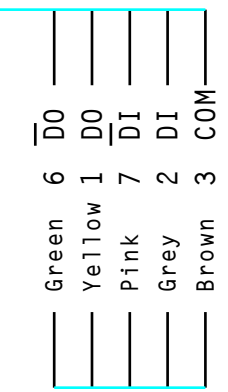
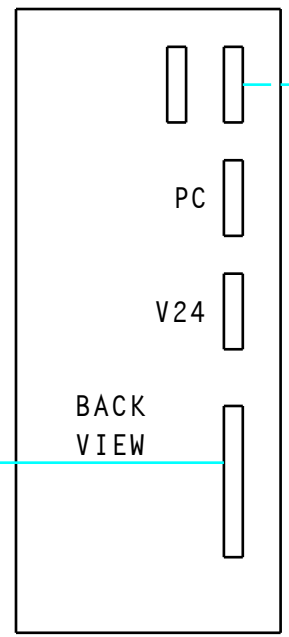


111.005  
16\*1

NOTE: INDIVIDUAL SCREENS ON WIRE GROUPS AND OVERALL SCREENS ON CABLE TO BE TERMINATED AS SHOWN.  
NOTE: CABLE INSULATION ETC. TO BE STRIPPED CLOSE TO TERMINALS KEEPING EXPOSED WIRE TAILS AS SHORT AS POSSIBLE.  
NOTE: EXPOSED SCREEN TAILS BEING CONNECTED THROUGH SCREEN TERMINALS TO BE INSULATED TO PREVENT EARTHING.

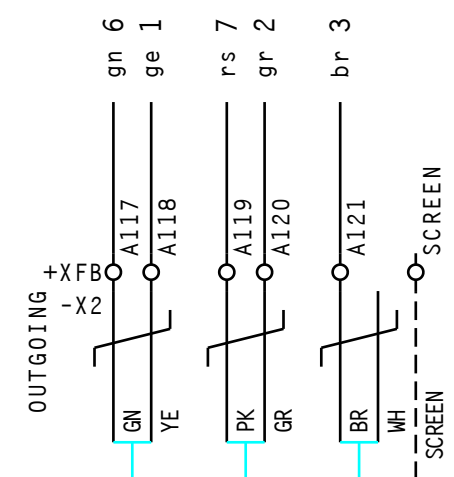


EMS-2



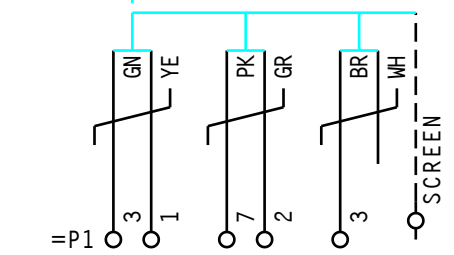
=P1  
-A7\_PLUG2

171.021



OUTGOING  
+XFB  
-X2

171.010  
3\*2\*0.25 TP SC



=P1  
-A6\_PLUG1

INTERBUS-S

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	INTERBUS	Drawing No.	4009-2627	=	CD		
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1	Modification	Date	Name	Date	Name				Copyright (c)					

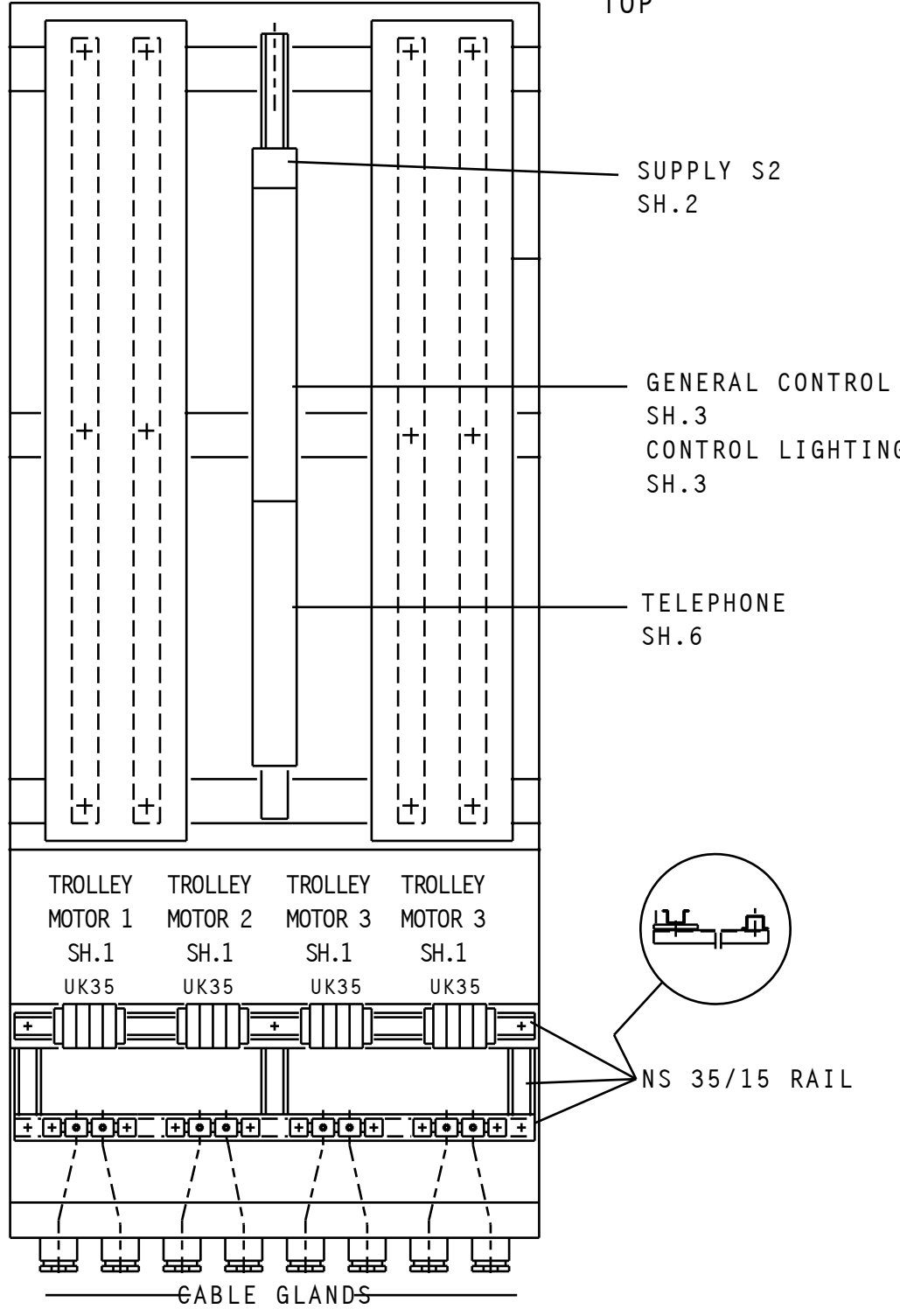




2 NO. FL.20 X 5 RAISED

BOTTOM

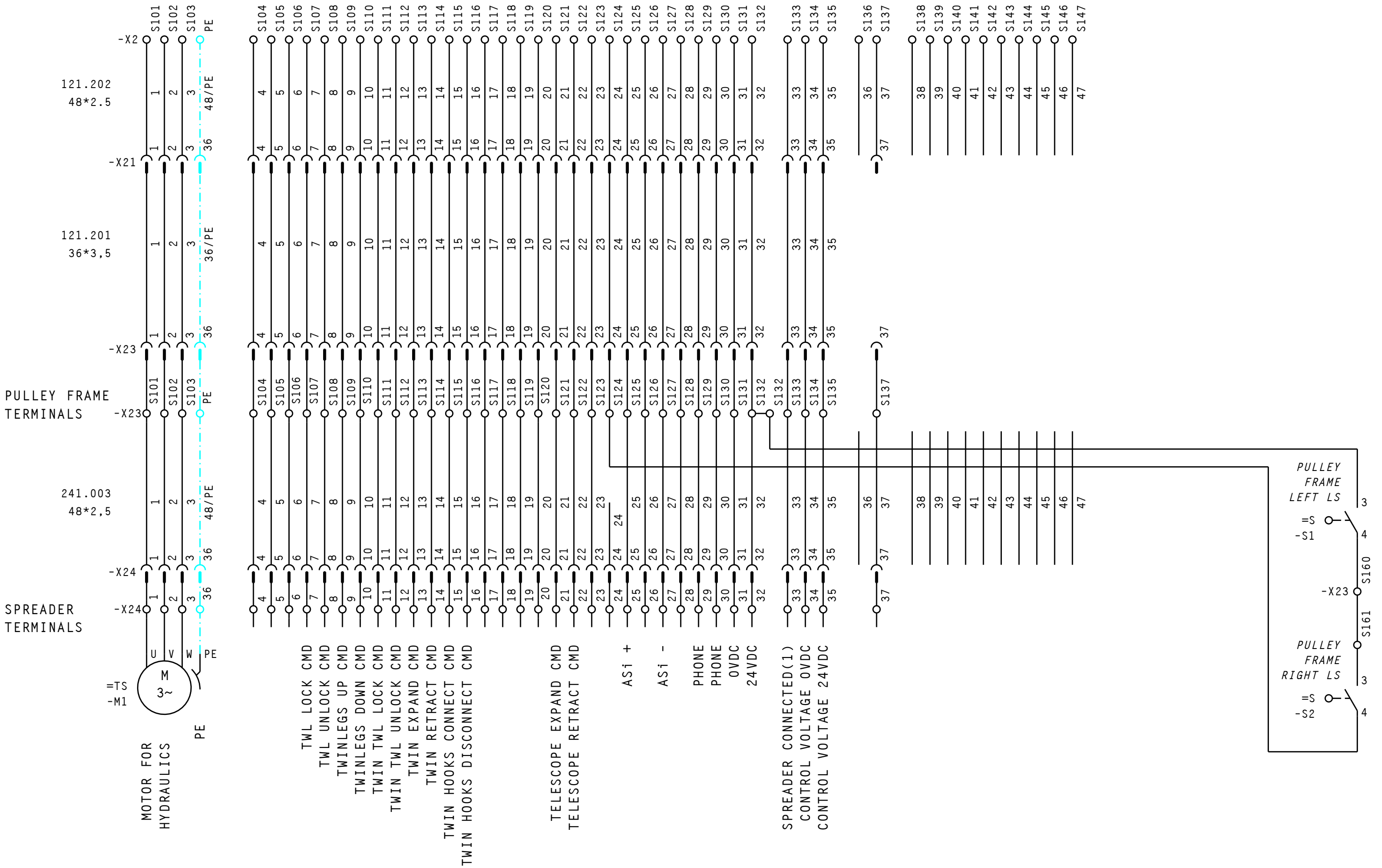
TOP



TO FESTOON (X7)      TO MAINBEAM (S1)

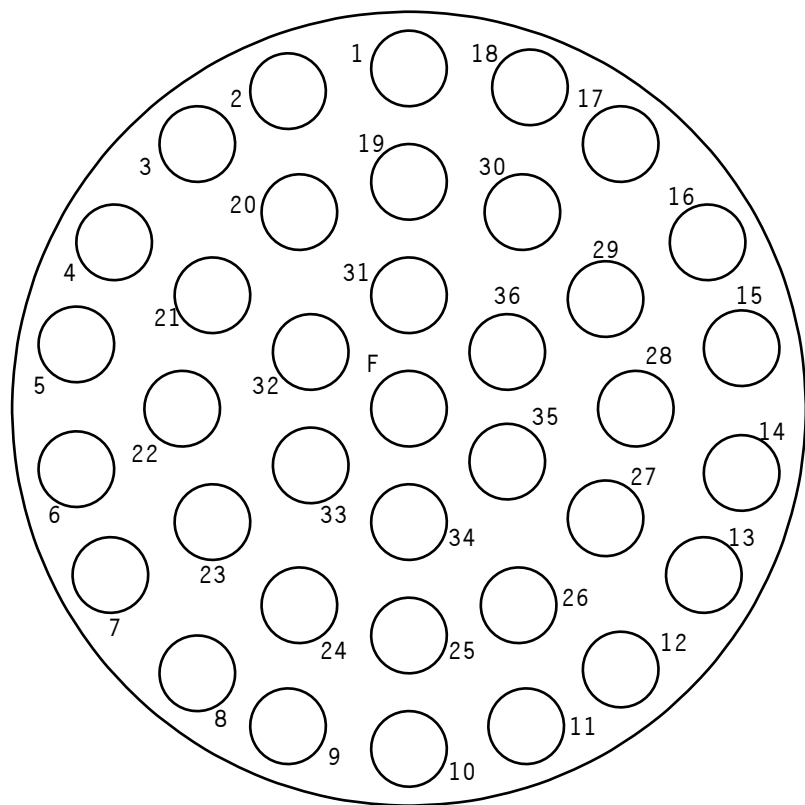
**X6**

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1	Modification	Date	Name	Date	Name				Work No.	IR1763-4	Sheet	9+

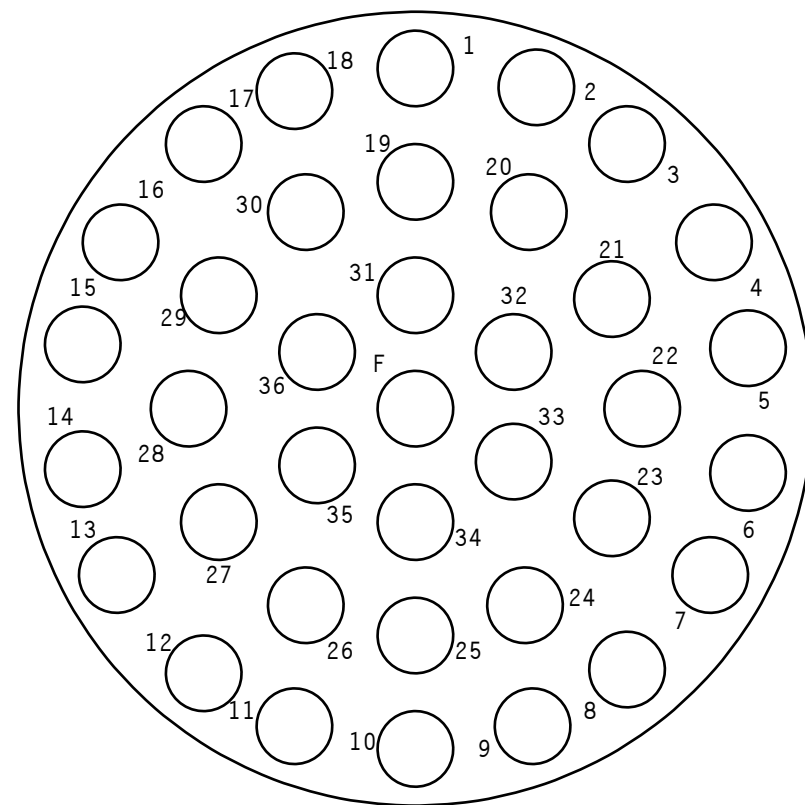


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1	Modification	Date	Name	Date	Name						

FEMALE (CAVOTEC)

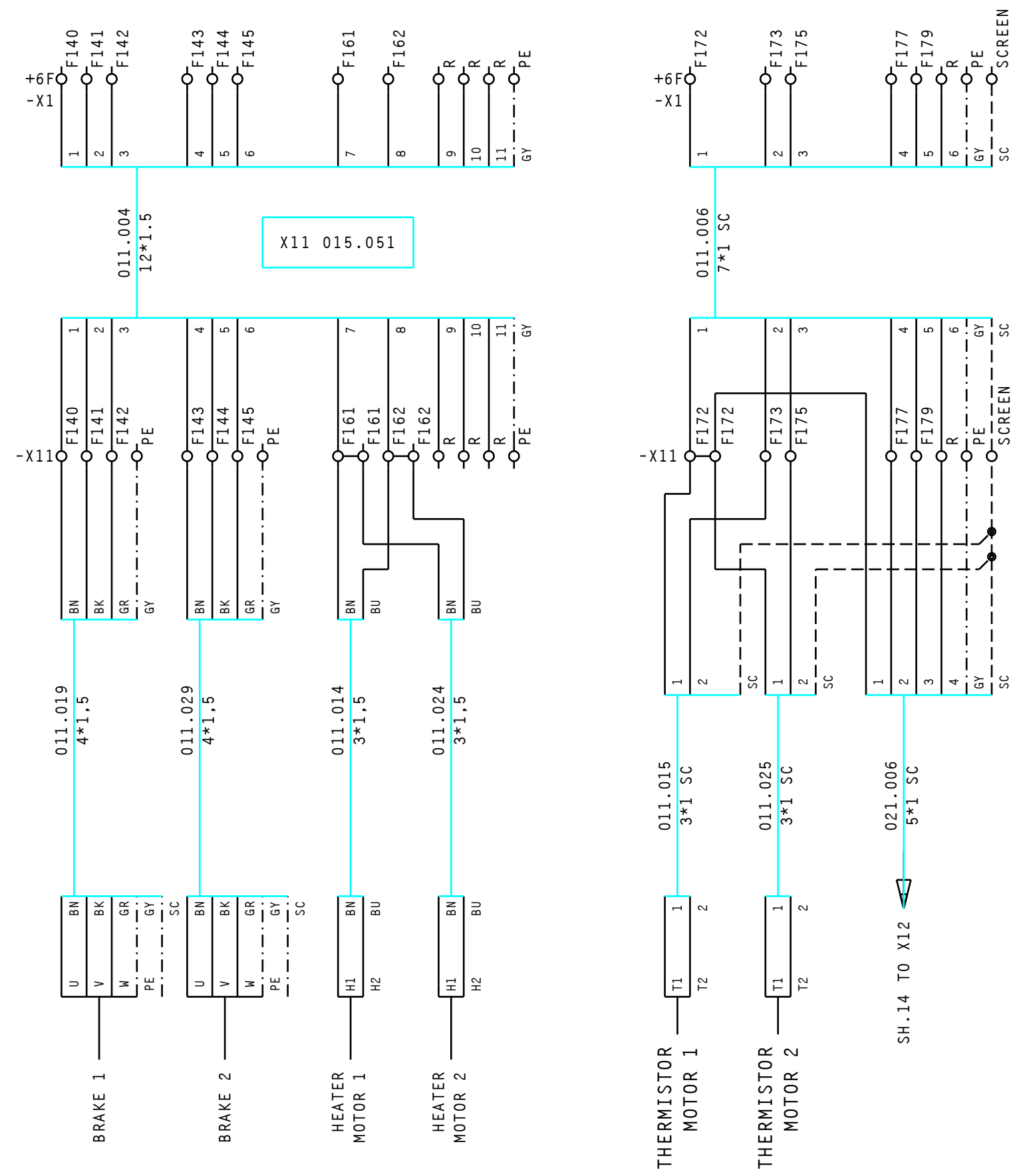
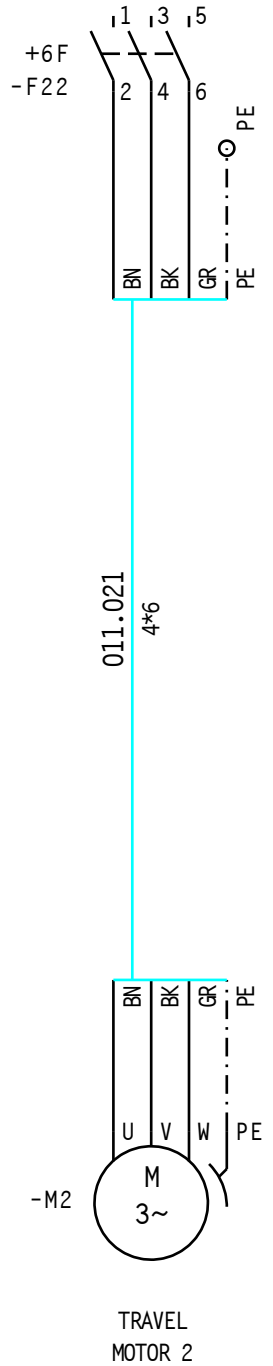
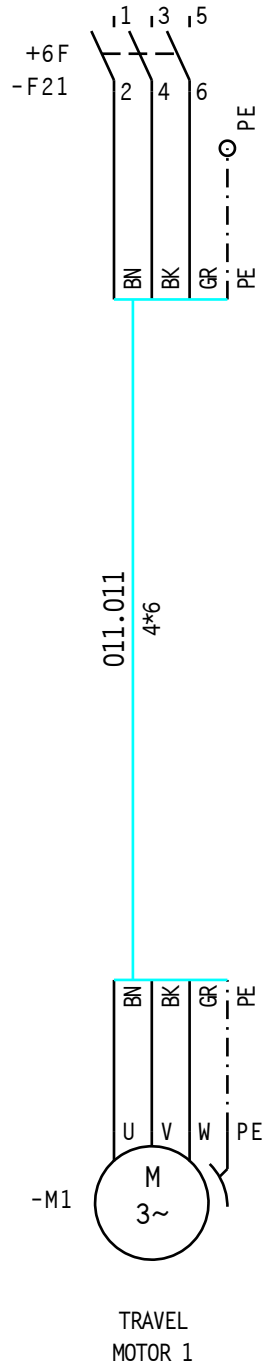


MALE (CAVOTEC)



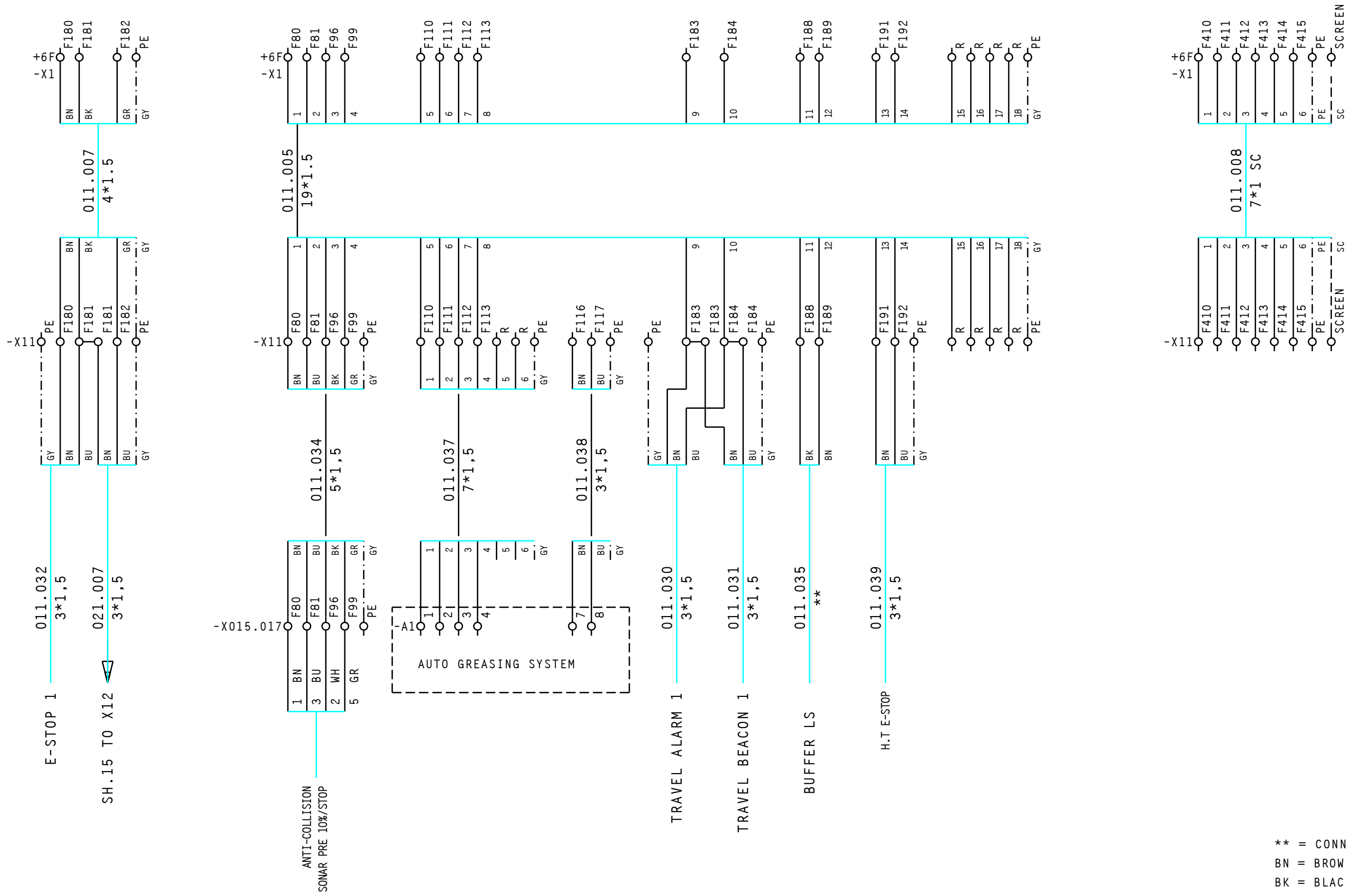
A  
B  
C  
D  
E

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES Copyright (c)	CAVOTEC CONNECTOR PIN LAYOUTS	Drawing No. 4009-2627	=	CD
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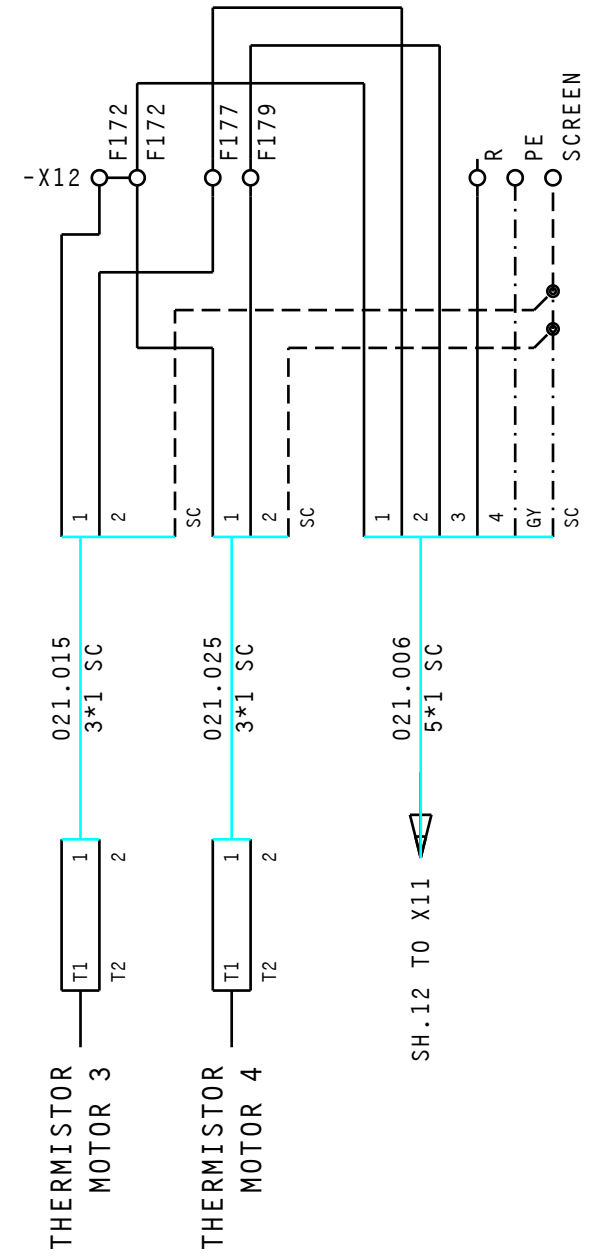
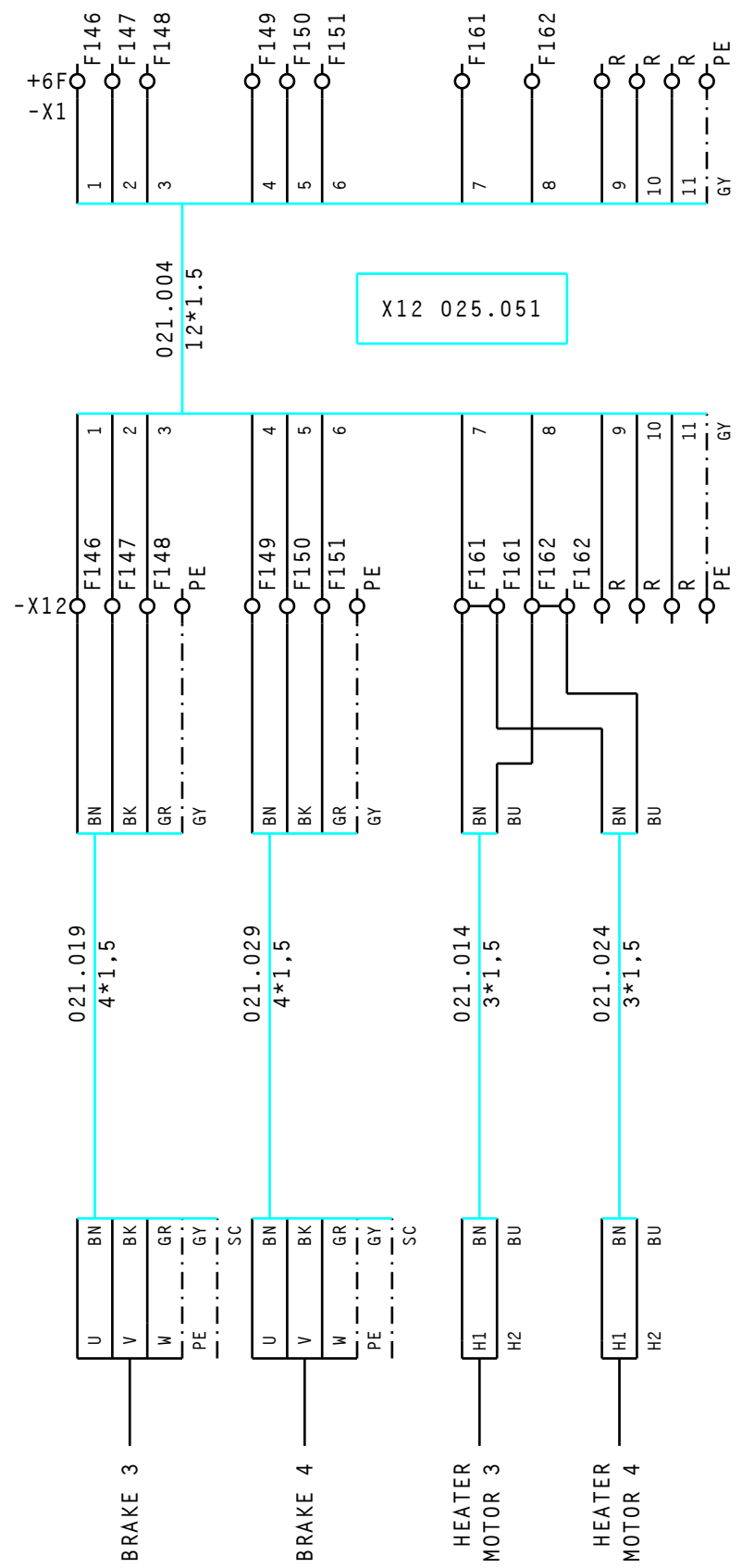
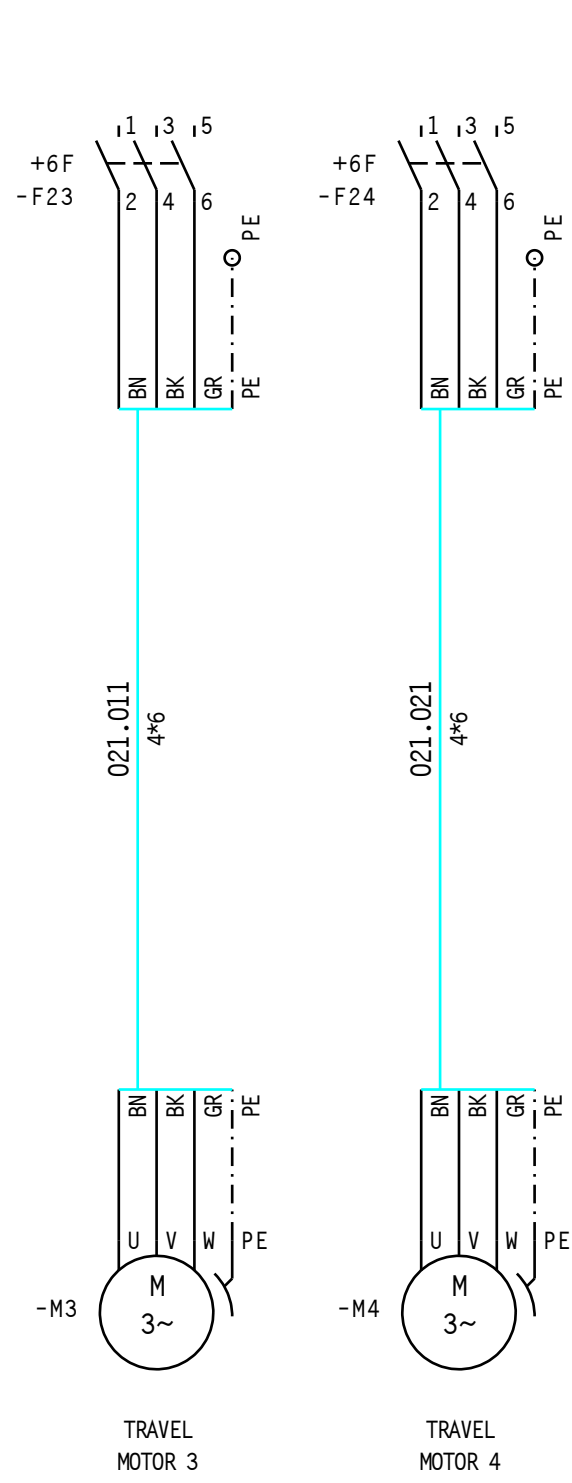
\*\* = CONNECTOR + CABLE  
 BN = BROWN  
 BK = BLACK  
 GR = GREY  
 BU = BLUE  
 G/Y= GREEN/YELLOW  
 R = RESERVE TERMINAL

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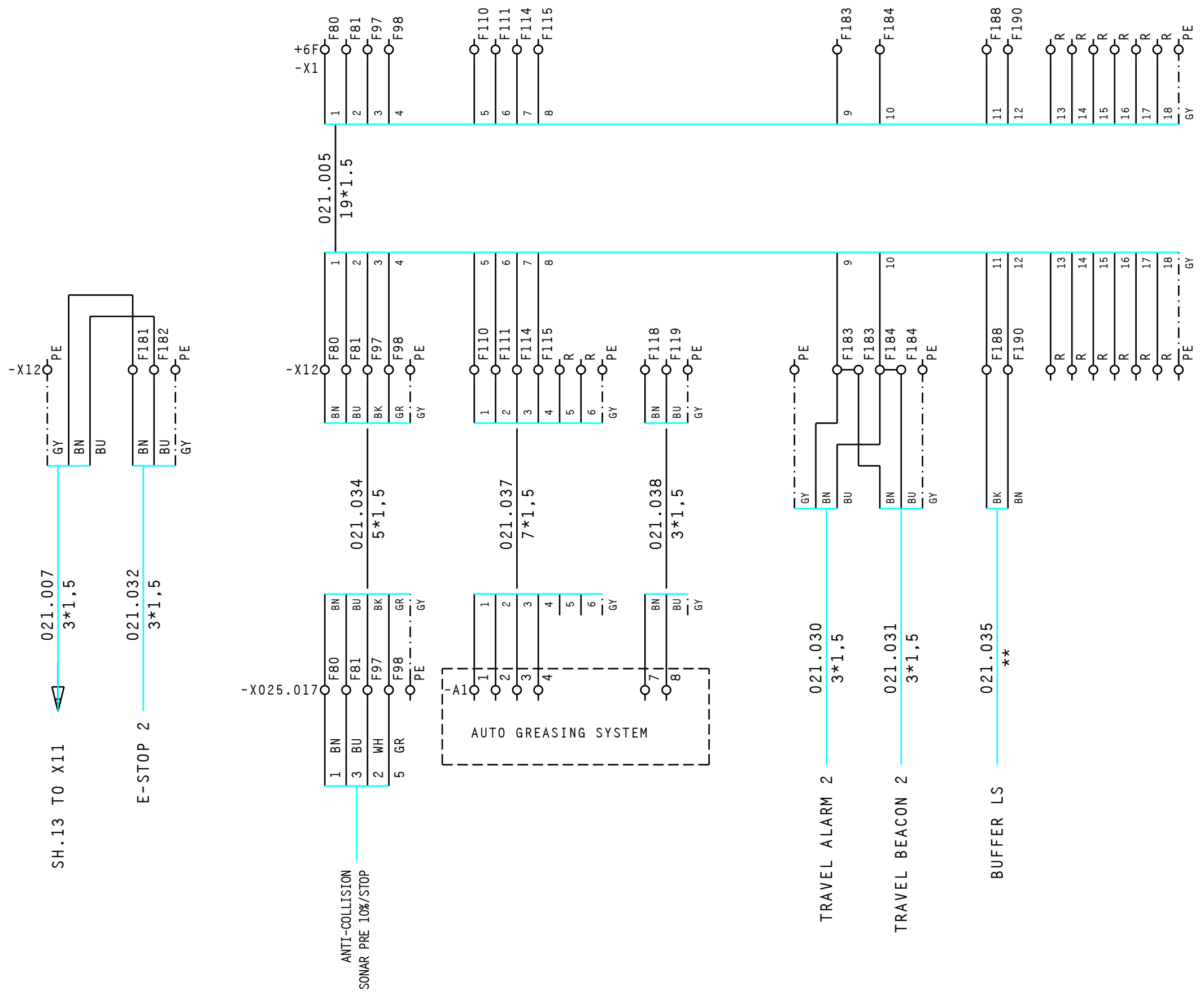
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 BK = BLACK  
 GR = GREY  
 BU = BLUE  
 G/Y = GREEN/YELLOW  
 R = RESERVE TERMINAL

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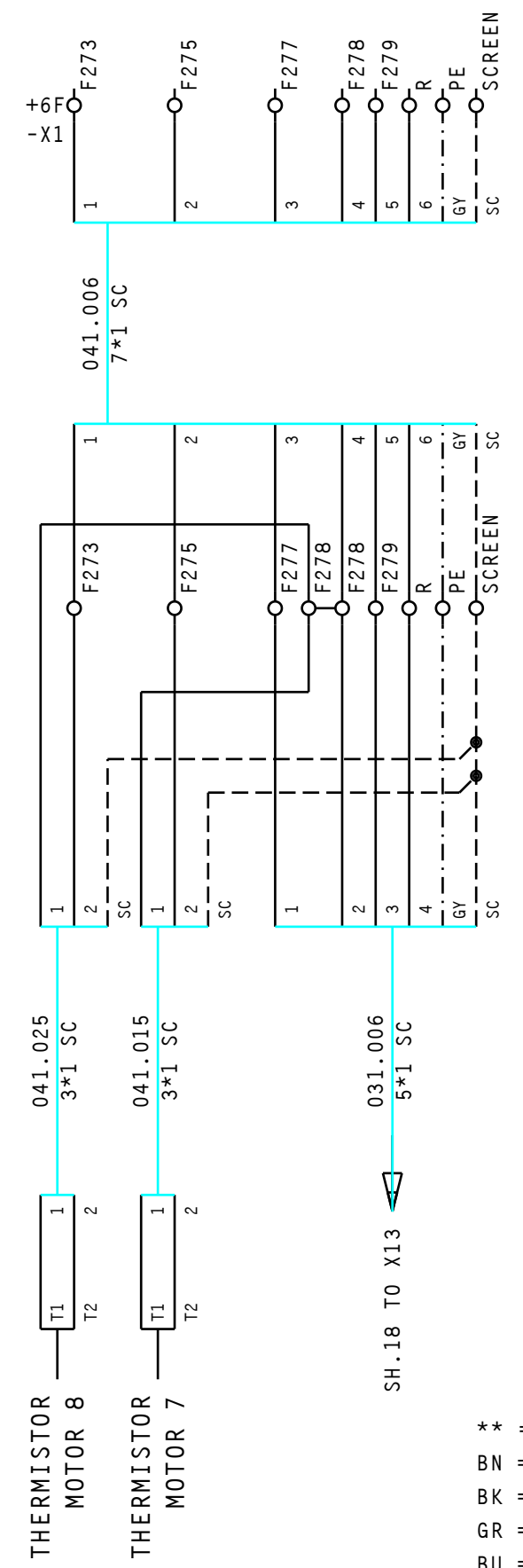
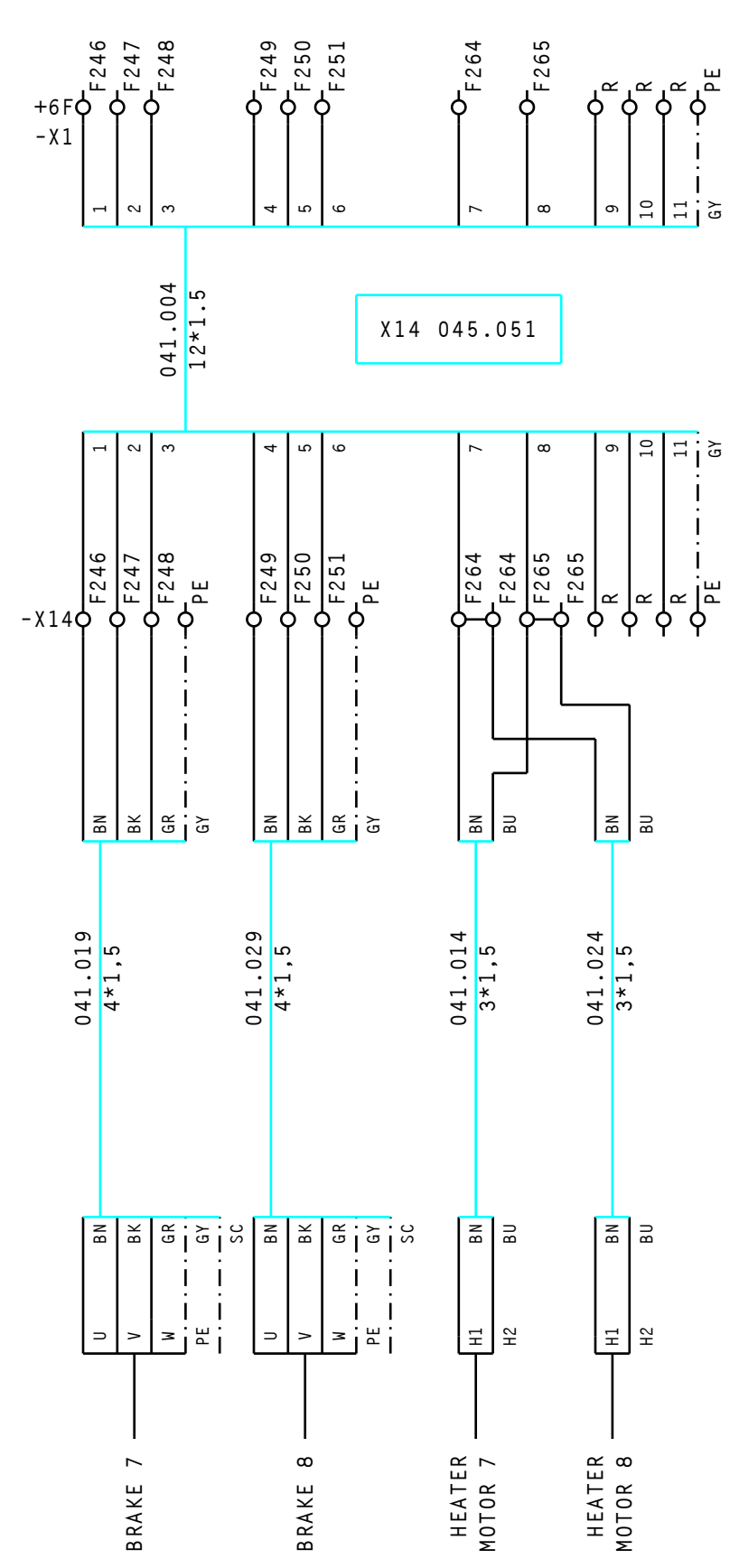
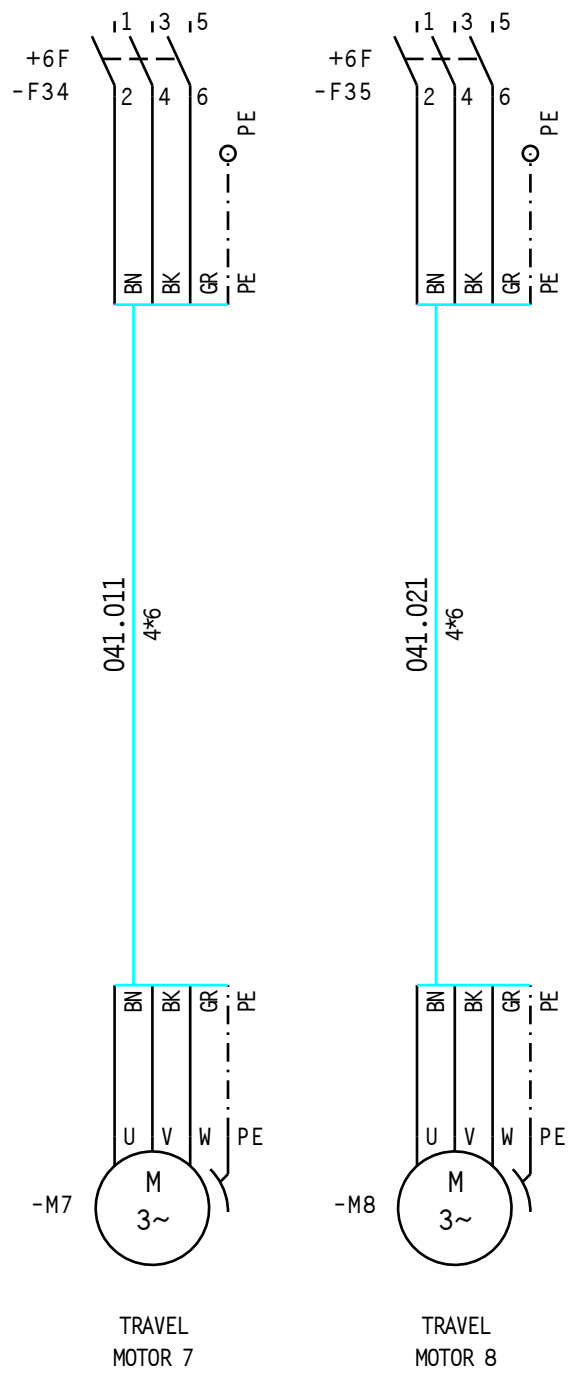
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 GR = GREY  
 BU = BLUE  
 G/Y = GREEN/YELLOW  
 R = RESERVE TERMINAL

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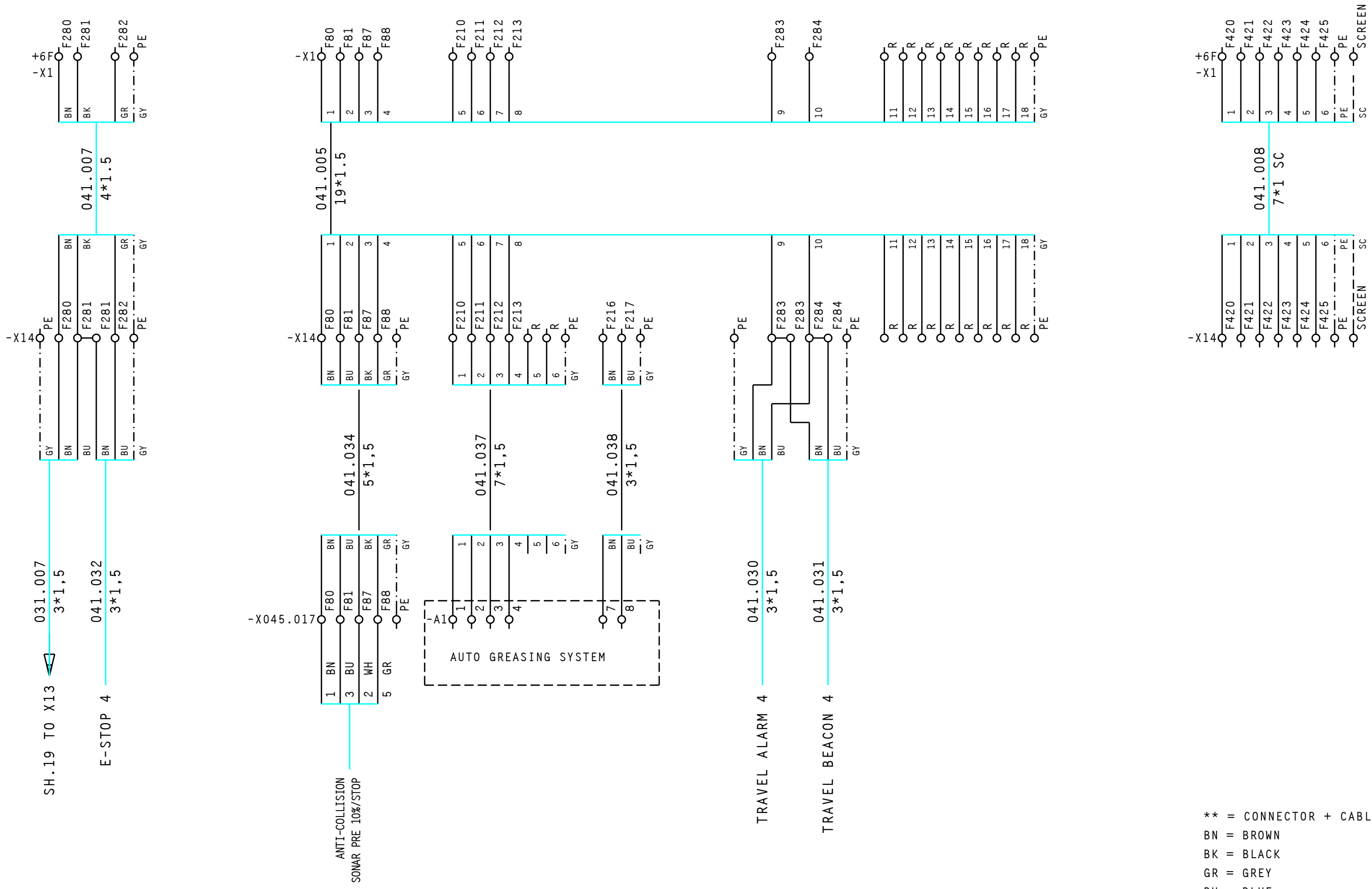
TRAVEL 2 TERMINAL BOX X12



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 G/Y = GREEN/YELLOW  
 R = RESERVE TERMINAL

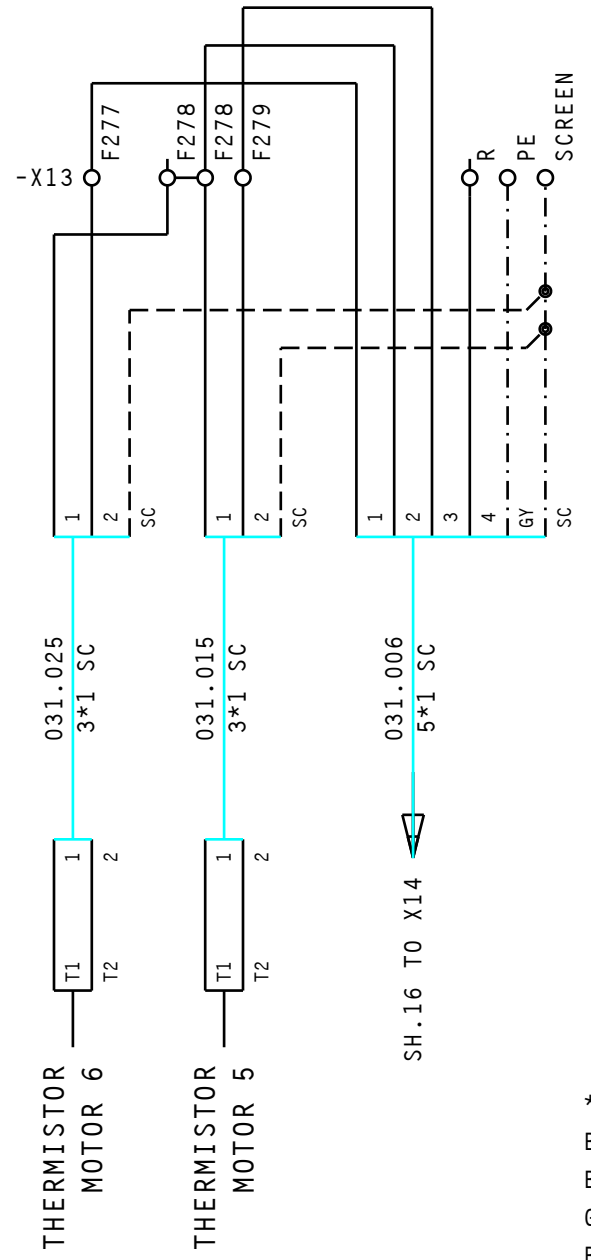
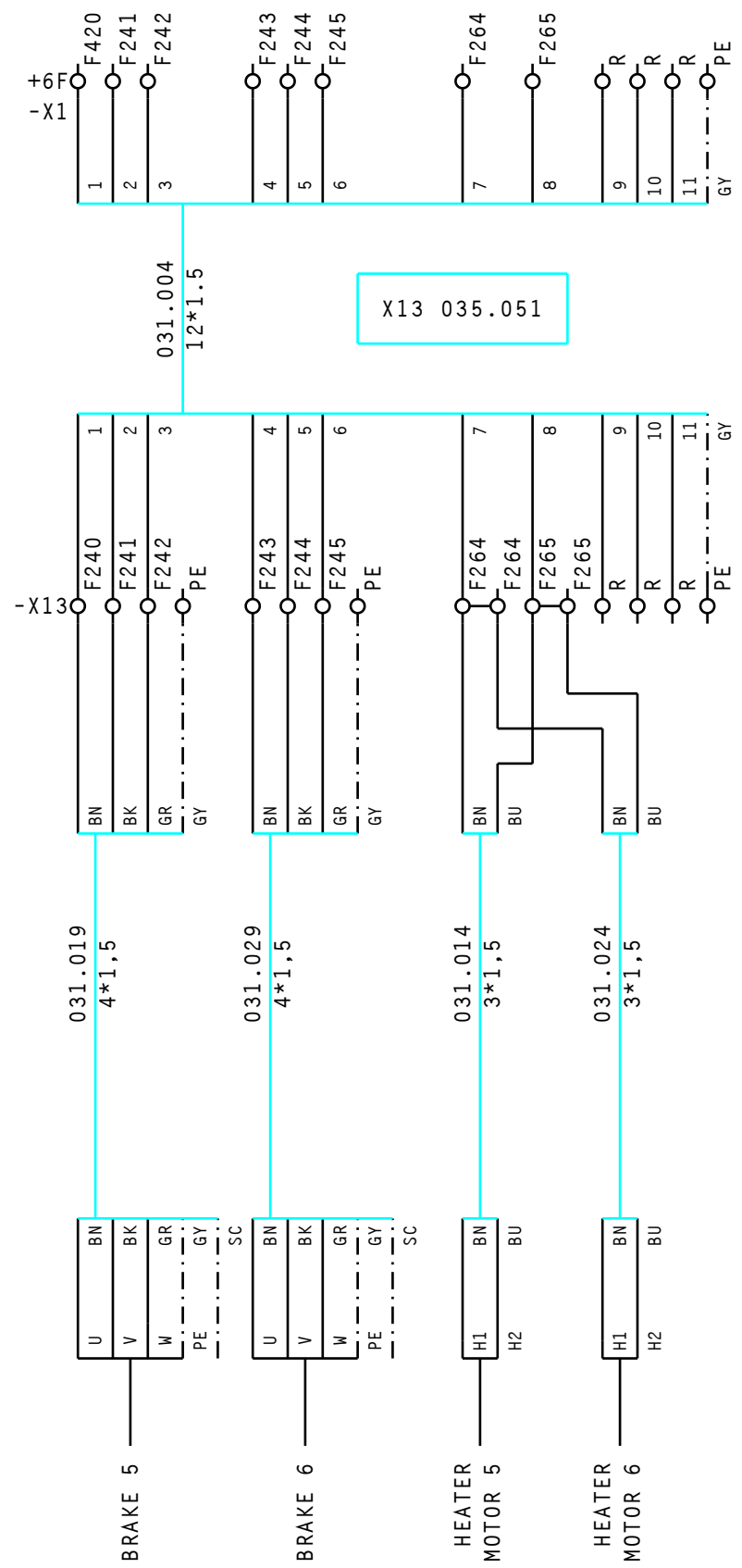
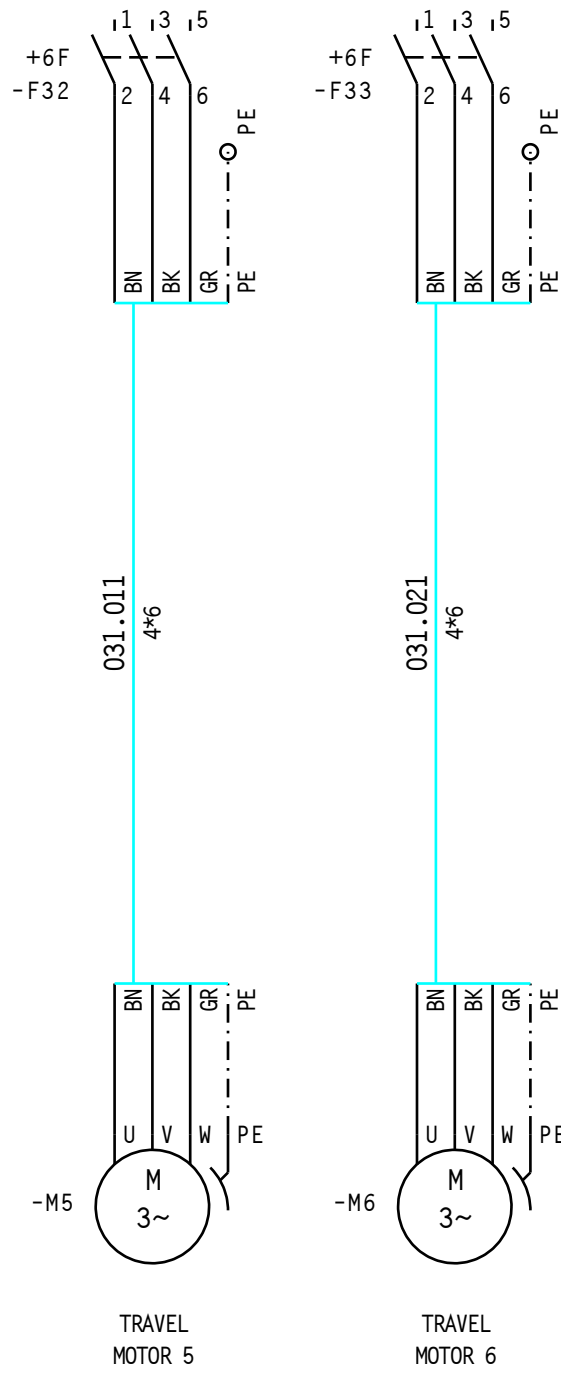
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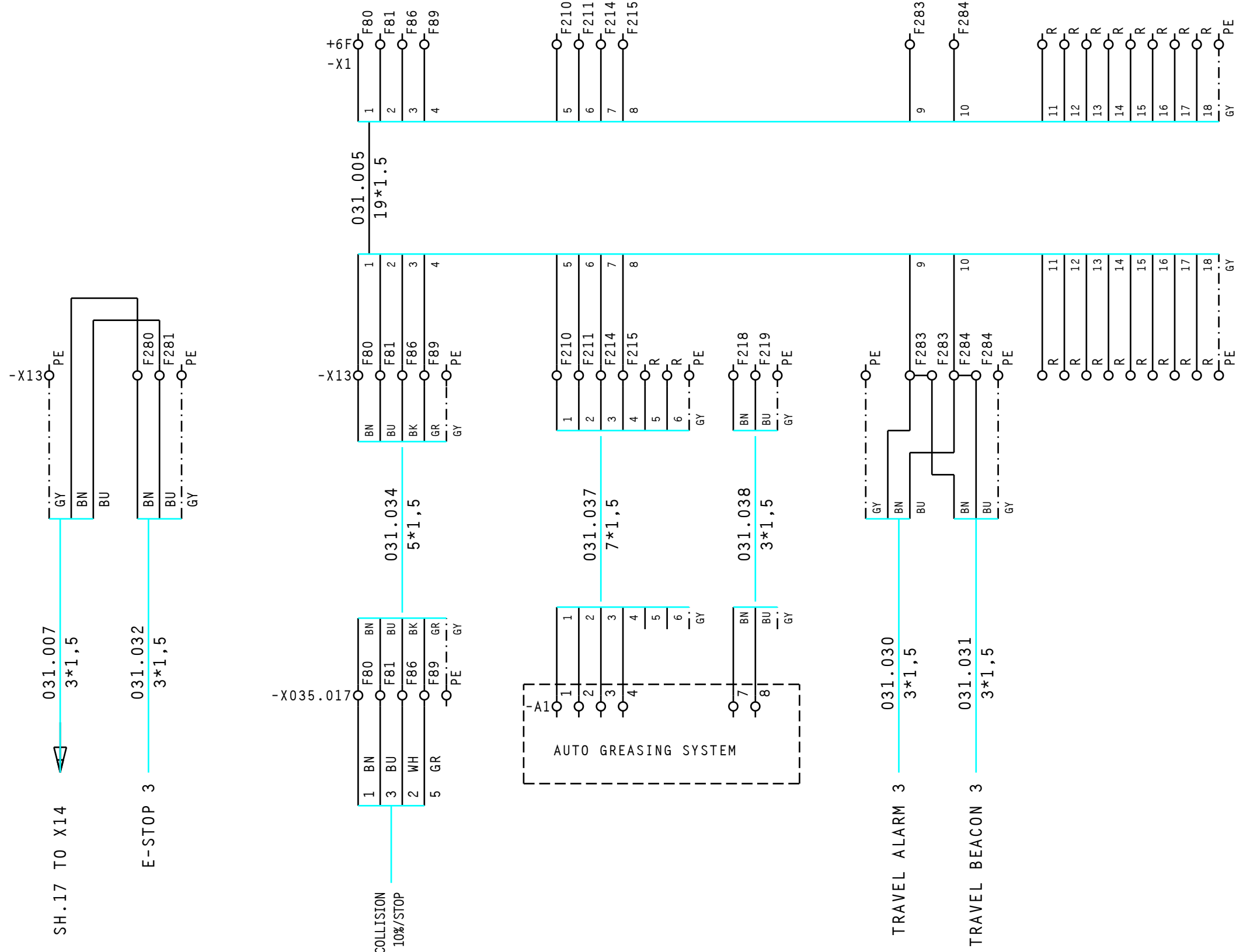
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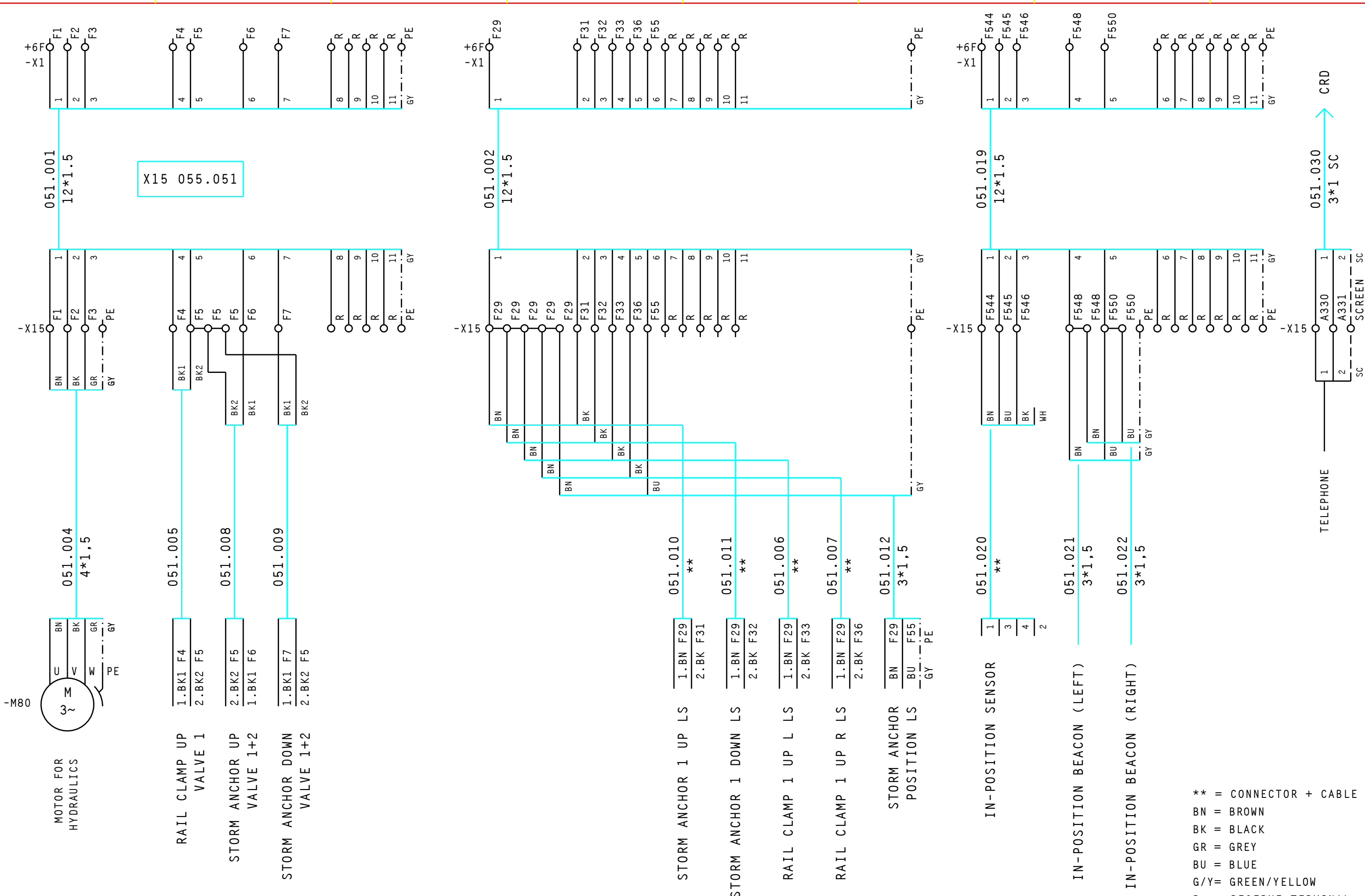
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 G/Y = GREEN/YELLOW  
 R = RESERVE TERMINAL

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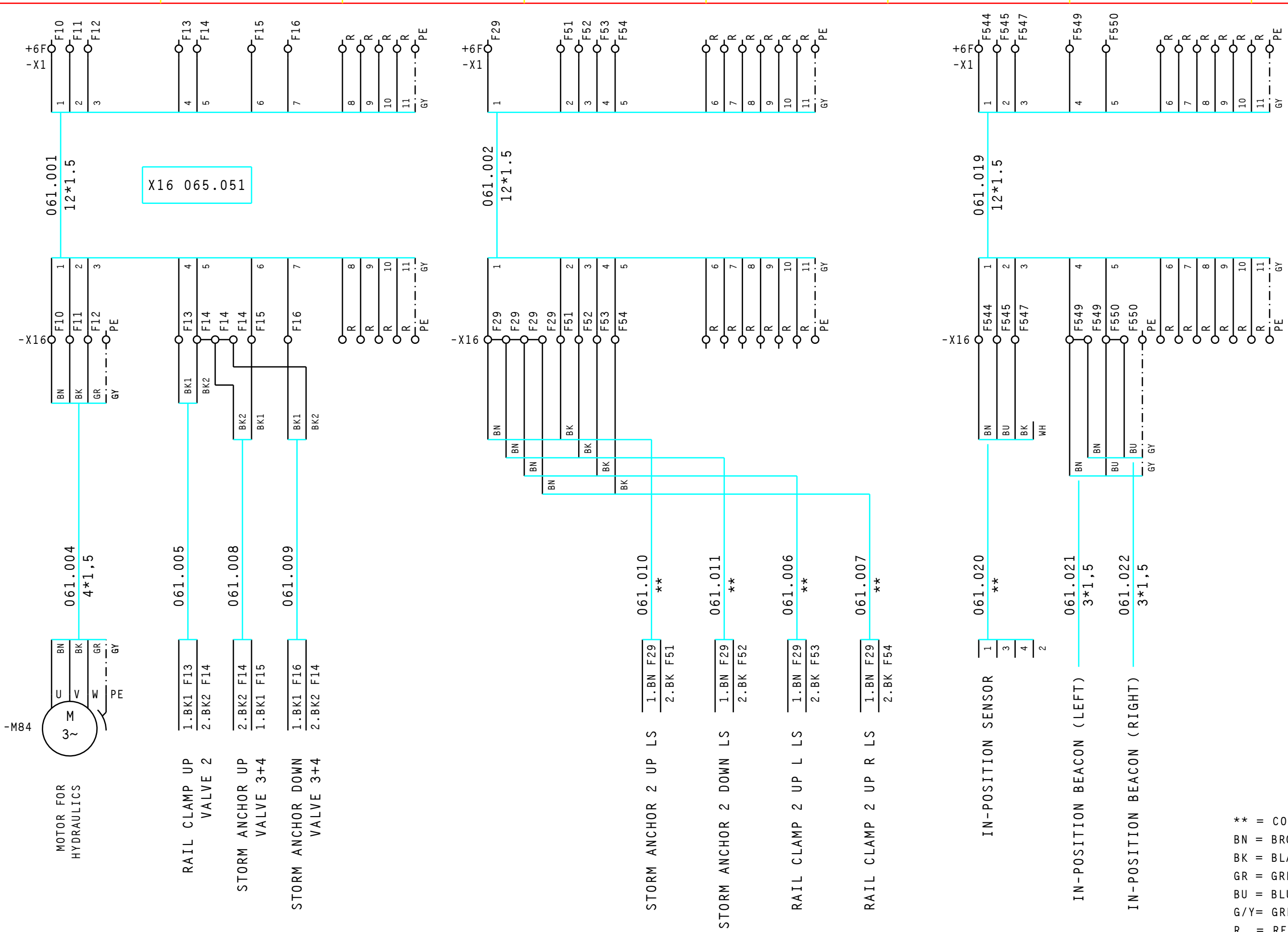


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 GR = GREY  
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 R = RESERVE TERMINAL

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-M84

MOTOR FOR HYDRAULICS

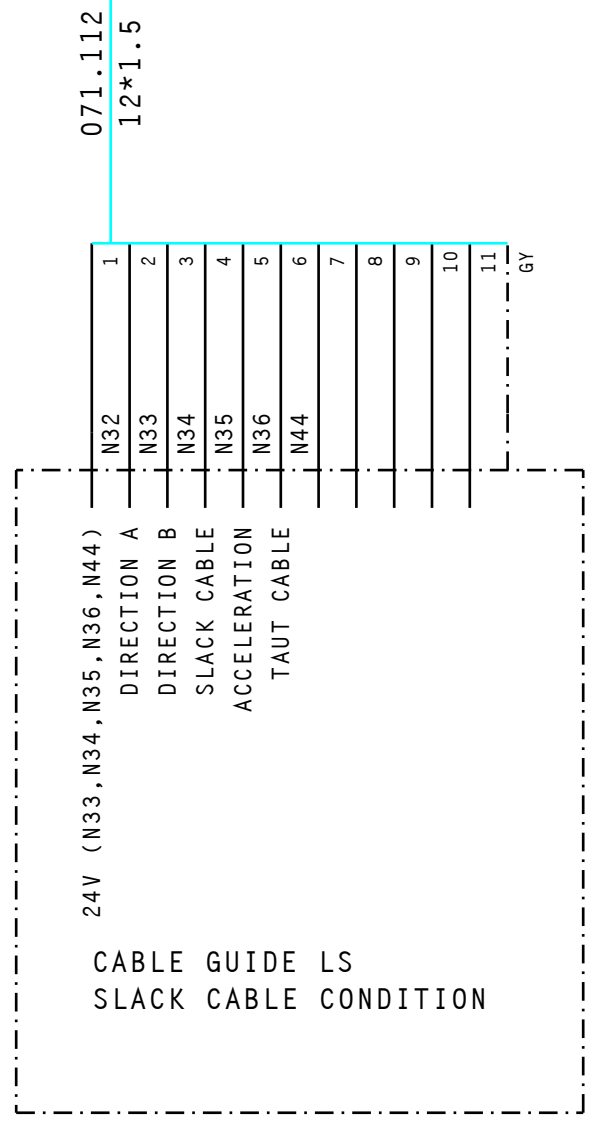
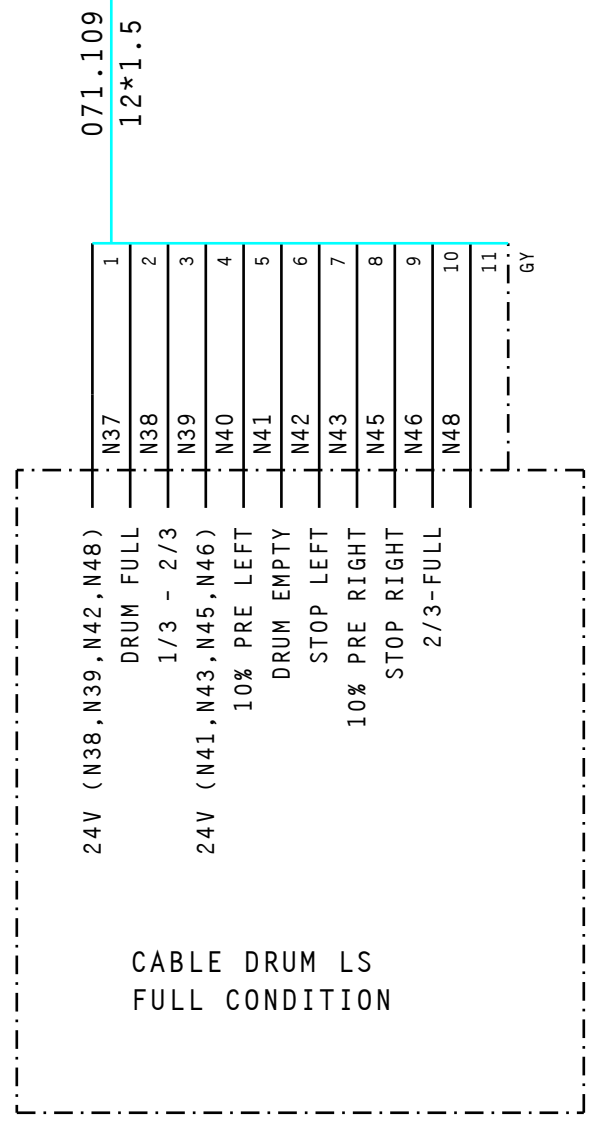
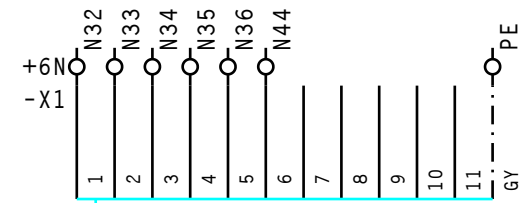
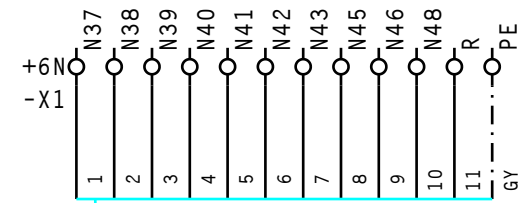
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 STORM ANCHOR UP VALVE 3+4  
 STORM ANCHOR DOWN VALVE 3+4

STORM ANCHOR 2 UP LS  
 STORM ANCHOR 2 DOWN LS  
 RAIL CLAMP 2 UP L LS  
 RAIL CLAMP 2 UP R LS

IN-POSITION SENSOR  
 IN-POSITION BEACON (LEFT)  
 IN-POSITION BEACON (RIGHT)

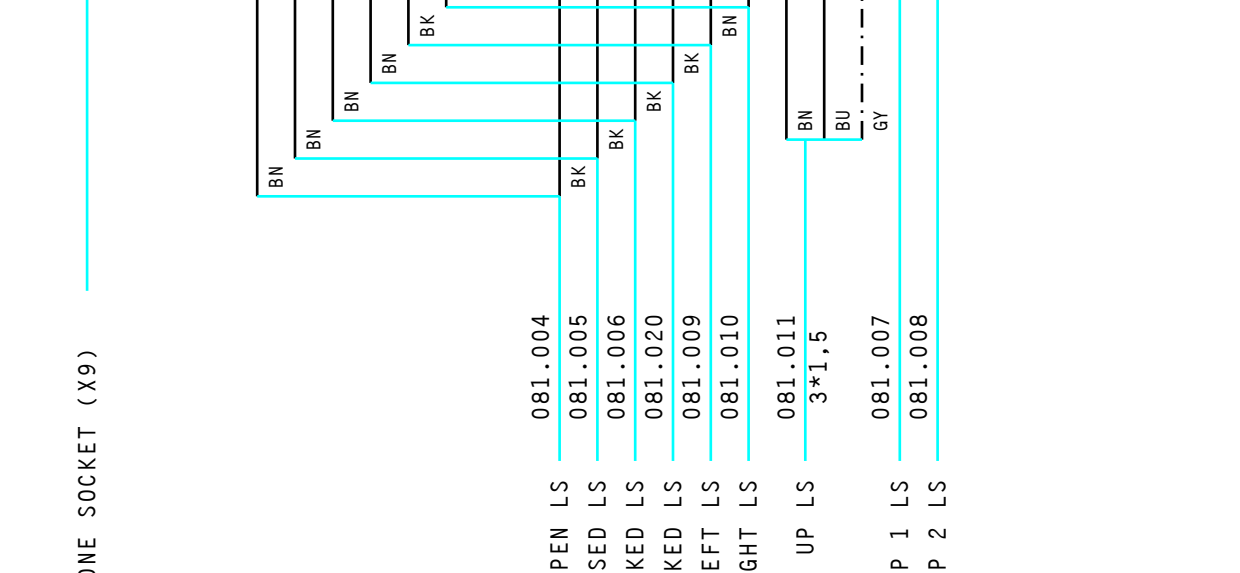
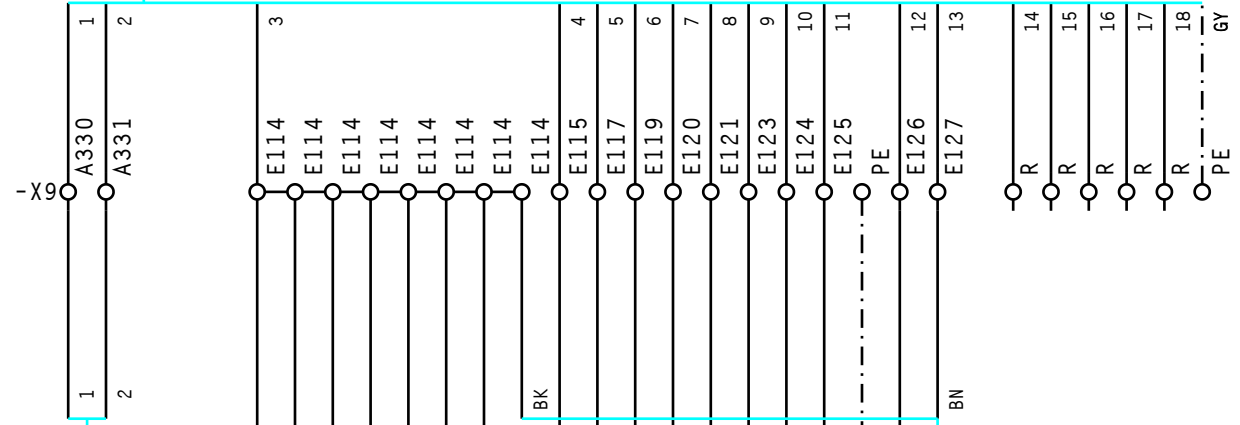
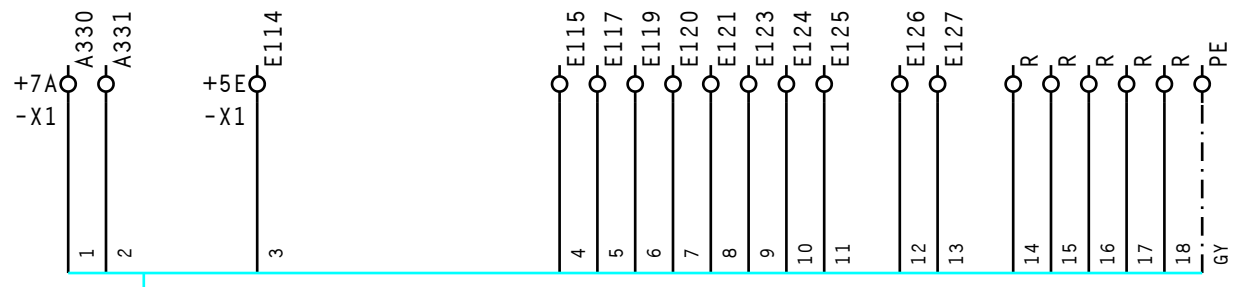
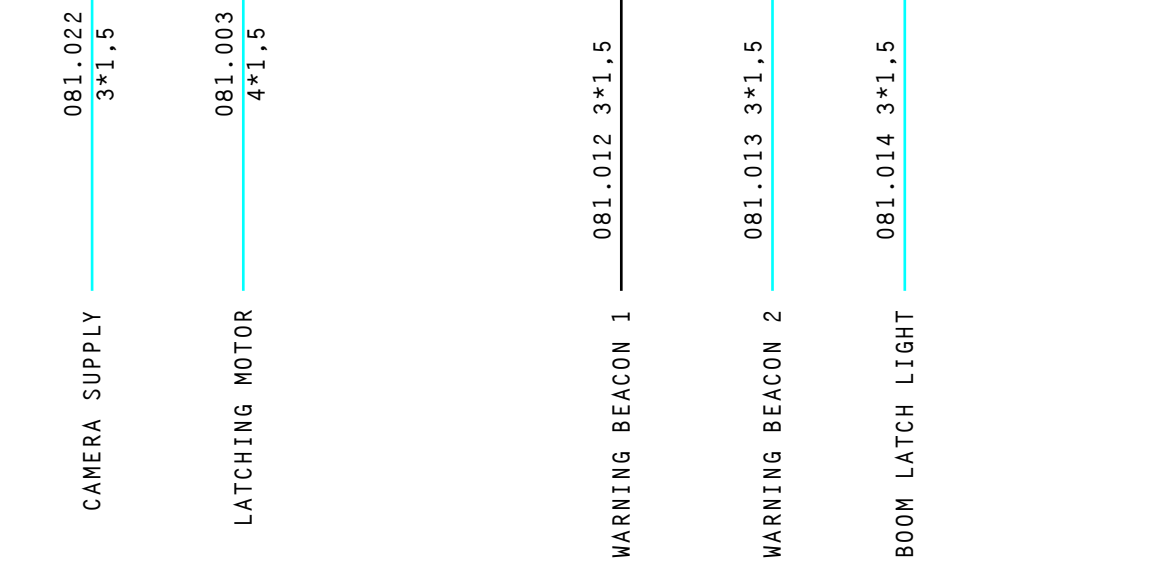
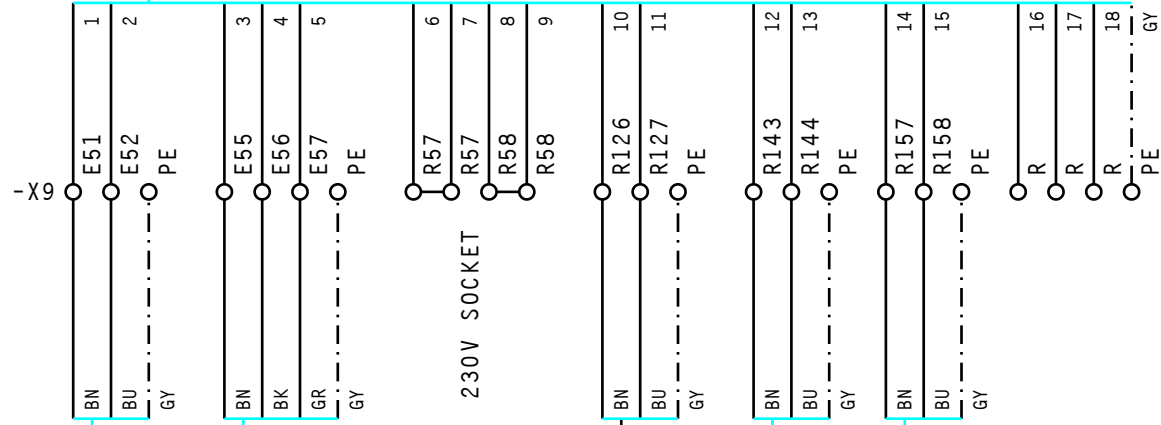
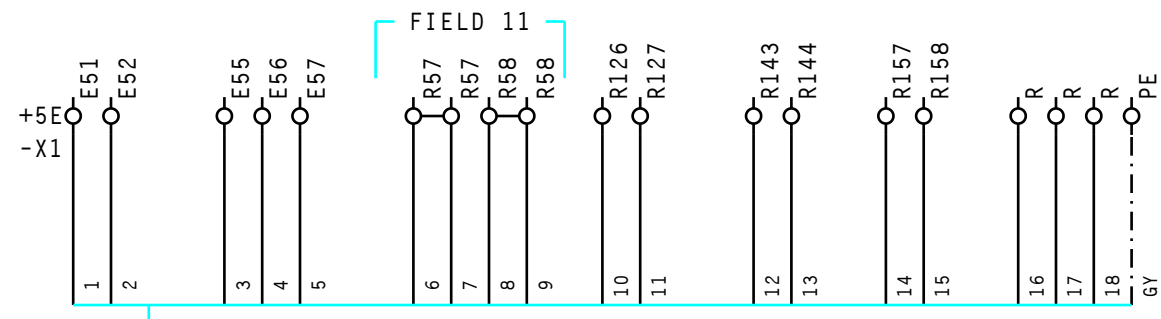
\*\* = CONNECTOR + CABLE  
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 GR = GREY  
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A  
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3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES Copyright (c)	CABLE DRUM/GUIDE LIMITSWITCH	Drawing No. 4009-2627	=	CD
2			Checked						Project/ Work No. IR1763-4	+	
1	Modification	Date	Name	Date	Name				Sheet 22+		

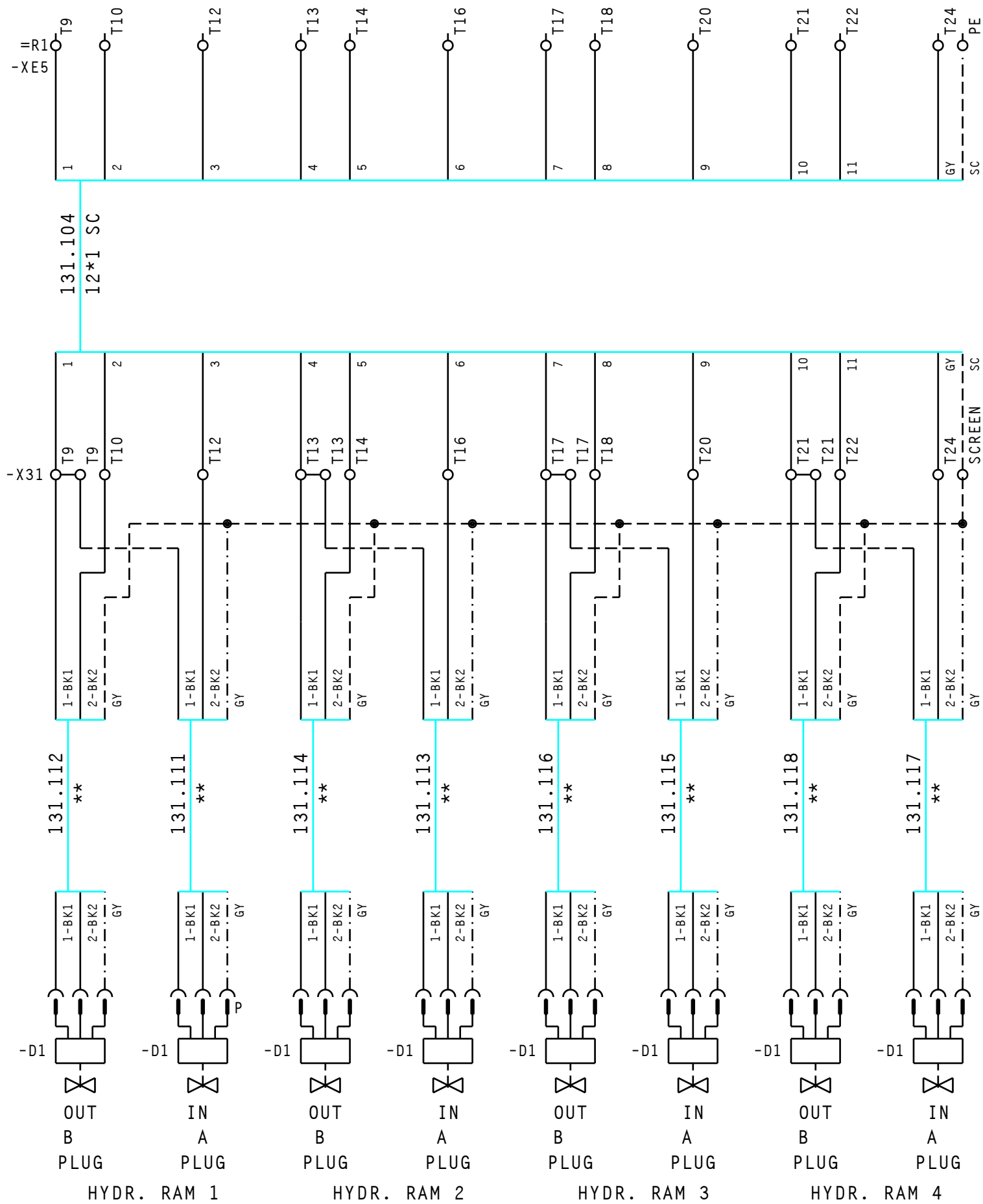
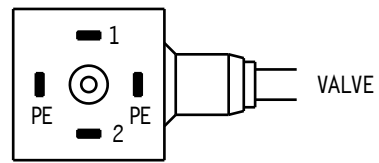


\*\* = CONNECTOR + CABLE  
 BN = BROWN  
 BK = BLACK  
 GR = GREY  
 BU = BLUE  
 G/Y = GREEN/YELLOW  
 R = RESERVE TERMINAL

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES Copyright (c)	A-FRAME TERMINAL BOX X9	Drawing No.	4009-2627	=	CD
2			Checked						Project/	IR1763-4	+	
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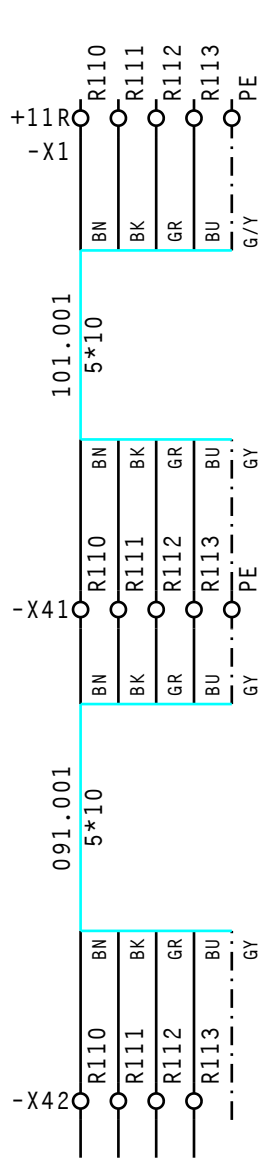




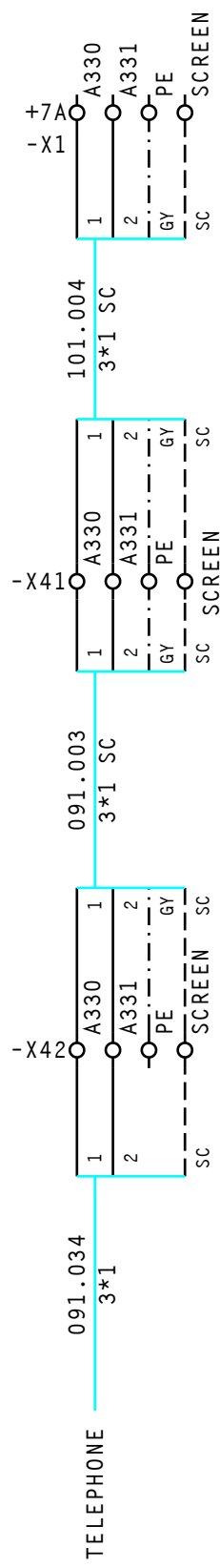


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 G/Y = GREEN/YELLOW  
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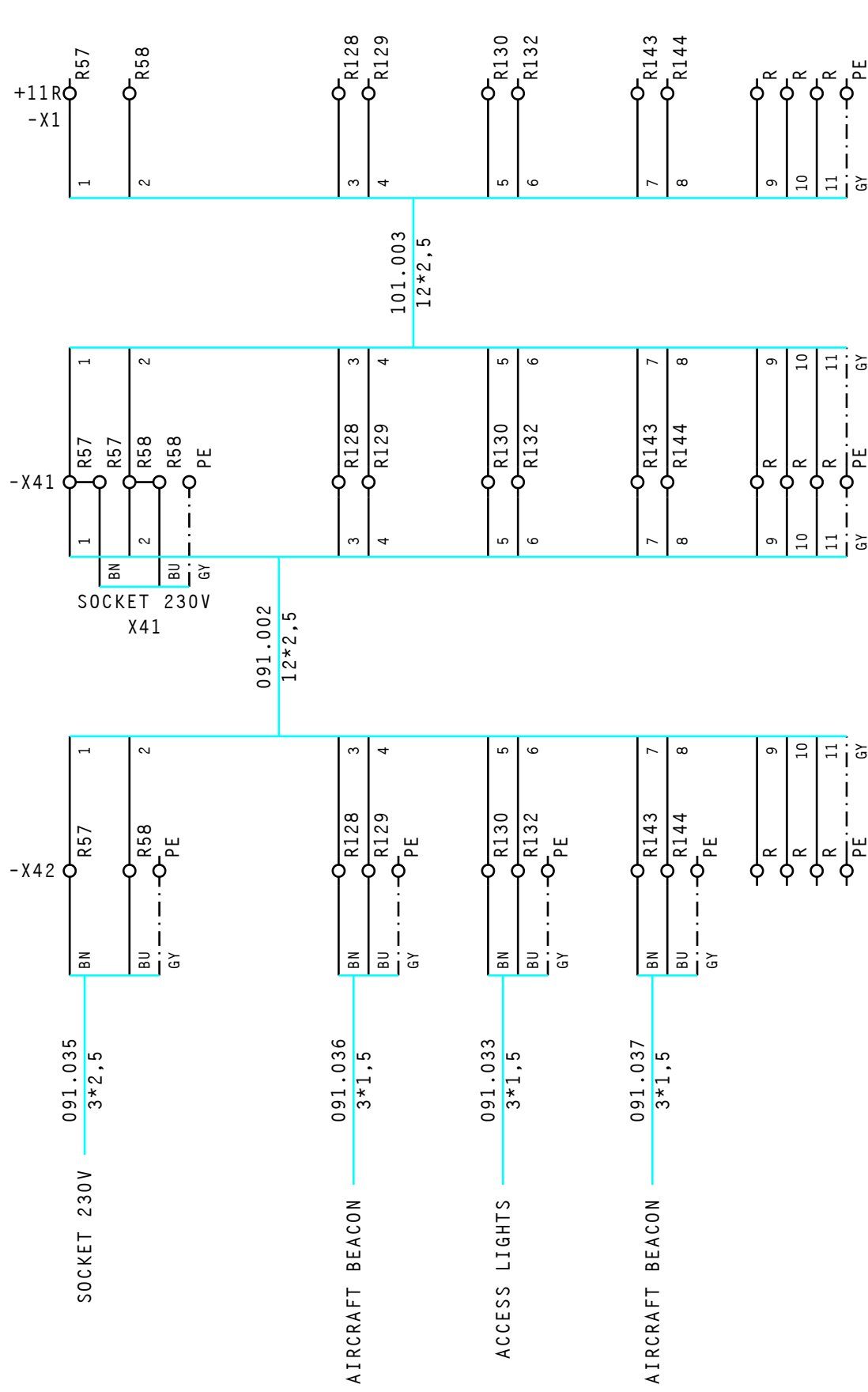
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1	Modification	Date	Name	Date	Name		Work No.		Sheet	25+



FLOODLIGHTS



TELEPHONE



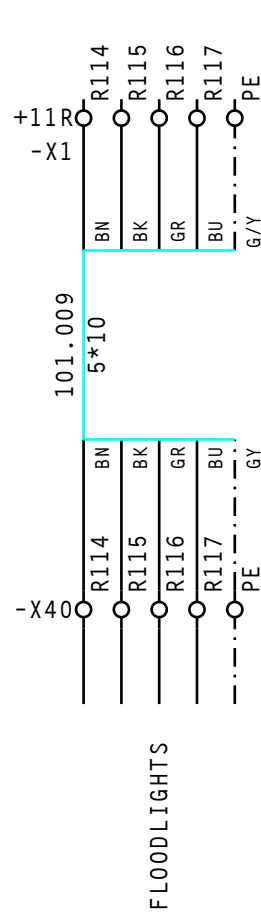
SOCKET 230V

AIRCRAFT BEACON

ACCESS LIGHTS

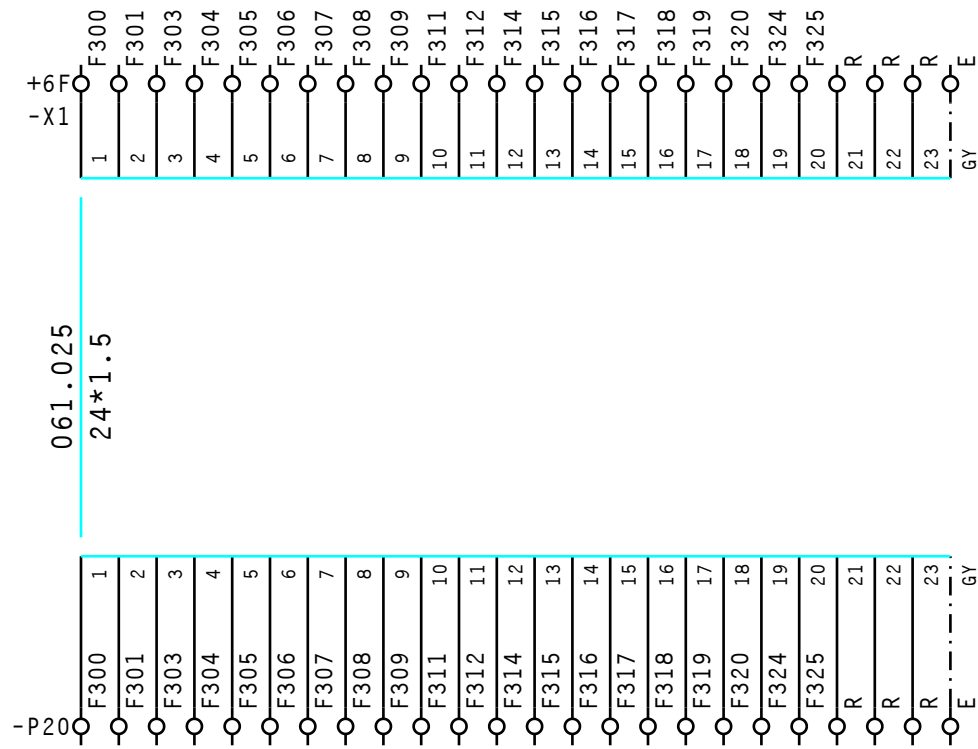
AIRCRAFT BEACON

\*\* = CONNECTOR + CABLE  
 BN = BROWN  
 BK = BLACK  
 GR = GREY  
 BU = BLUE  
 G/Y = GREEN/YELLOW  
 R = RESERVE TERMINAL

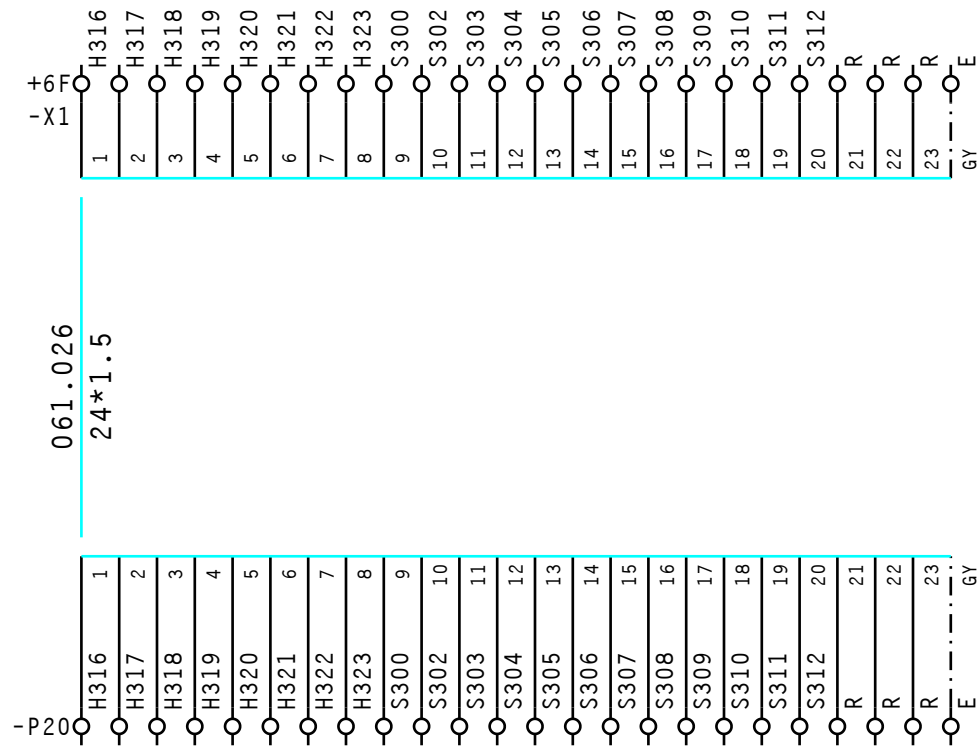


FLOODLIGHTS

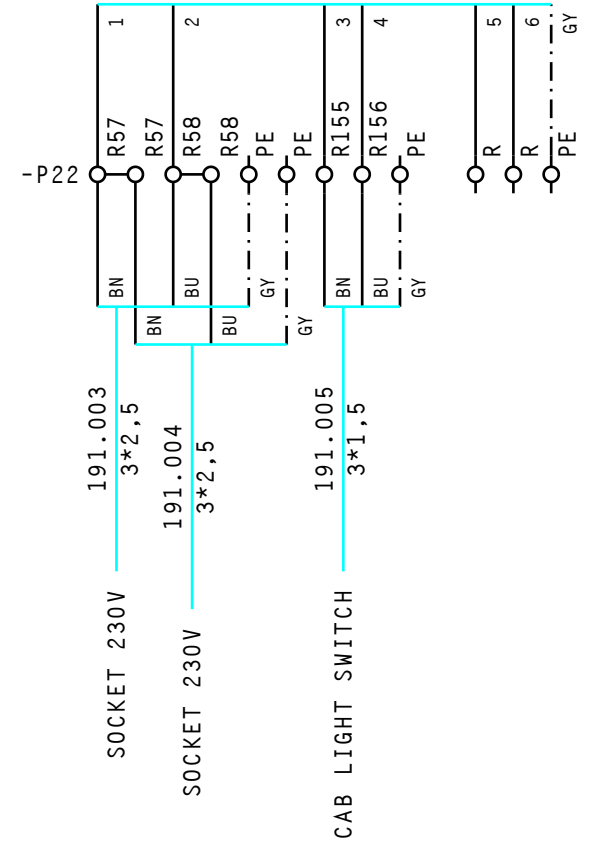
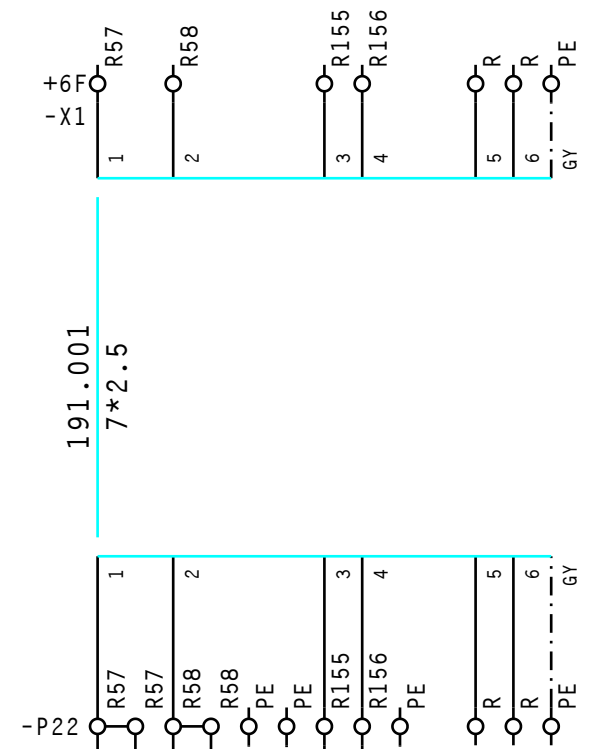
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2			Checked								
1	Modification	Date	Name	Date	Name						



TRAVEL CONTROL CONSOLE  
P20



TRAVEL CONTROL CONSOLE  
P20



\*\* = CONNECTOR + CABLE  
 BN = BROWN  
 BK = BLACK  
 GR = GREY  
 BU = BLUE  
 G/Y= GREEN/YELLOW  
 R = RESERVE TERMINAL

3			Drawn	22.04.09	MC
2			Checked		
1	Modification	Date	Name	Date	Name



LIEBHERR  
CONTAINER  
CRANES

Copyright (c)

TRAVEL CONSOLE P20 + CHECKERS

Drawing No. 4009-2627

Project/  
Work No. IR1763-4

= CD

+  
Sheet 27 -



1	2	3	4	5	6	7	8
1	(HOIST) LOWER	JOYSTICK (Spring to Neutral)	3	(TWISTLOCKS) OPEN	JOYSTICK (Spring Return)		
2	(HOIST) HOIST	JOYSTICK (Spring to Neutral)	4	(TWISTLOCKS) CLOSE	JOYSTICK (Spring Return)		
5			6	HORN	PUSHBUTTON Type		
1A			6A	CRANE OFF	PUSHBUTTON - Red		
1B	EMERGENCY STOP	PUSHBUTTON - Red (Mushroom)	6B	STORM ANCHORS DOWN	LAMP - Red		
1C	E-STOP ACTIVATED	LAMP - Red	6C	STORM ANCHORS POSITION	LAMP - Yellow		
1D			6D	WIND WARNING	LAMP - Yellow		
2A			7A	RESERVE	Blanking Plug		
2B			7B	STORM ANCHOR UP/DOWN	SELECTOR - 2 Pos.(MW type)		
2C			7C	RESERVE	Blanking Plug		
2D			7D	RESERVE	Blanking Plug		
3A			8A	AUDIO CANCEL	PUSHBUTTON - Black		
3B	OVERLOAD	LAMP - Red	8B	AUDIO ALARM	ACOUSTIC BUZZER		
3C	OVERLOAD WARNING	LAMP - Yellow	8C	ELECTRICAL FAULT	LAMP - Red		
3D			8D	DRIVER BYPASS	PUSHBUTTON - Black		
4A			9A				
4B			9B				
4C			9C				
4D	MICROPHONE	Microphone	9D				
5A	CRANE ON	PUSHBUTTON/LAMP - Green	10A	BOOM ON	PUSHBUTTON/LAMP - Green		
5B	STORM ANCHORS UP	LAMP - Green	10B	BOOM STOP	PUSHBUTTON - Red		
5C	RAIL CLAMPS UP	LAMP - Green	10C	BOOM UP	PUSHBUTTON/LAMP - Yellow		
5D	HIGH WIND	LAMP - Red	10D	BOOM DOWN	PUSHBUTTON/LAMP - Yellow		

3			Gez.	22.04.09	JC		Maßstab	LIEBHERR-WERK	IR1763,4 - P1 RIGHT CONSOLE	TYPE	4009-2627	=	CL
2							:	BIBERACH GmbH				+	
1			Bearb.							Zeich-Nr.	IR1763-4	Blatt	2+
	Änderung	Datum	Name	Datum	Name			Copyright (c)				Ident. Nr.	

1	2	3	4	5	6	7	8
7	(TROLLEY) FORWARD	JOYSTICK (Spring Return)	9	(TRAVEL) LEFT	JOYSTICK (Spring to Neutral)		
8	(TROLLEY) REVERSE	JOYSTICK (Spring Return)	10	(TRAVEL) RIGHT	JOYSTICK (Spring to Neutral)		
11			12	(FLIPPERS) UP/DOWN	PUSHBUTTON Type		
1E			6E				
1F	FLIPPER 1 (Select)	LATCH BUTTON/LAMP - Green	6F	RETRACT IN	PUSHBUTTON - Black		
1G	FLIPPER 2 (Select)	LATCH BUTTON/LAMP - Green	6G	EXPAND OUT	PUSHBUTTON - Black		
1H			6H	RESERVE	Blanking Plug		
2E			7E				
2F	FLIPPER 4 (Select)	LATCH BUTTON/LAMP - Green	7F	SET POSITION SEASIDE	PUSHBUTTON/LAMP - Yellow		
2G	FLIPPER 3 (Select)	LATCH BUTTON/LAMP - Green	7G	SET POSITION LANDSIDE	PUSHBUTTON/LAMP - Yellow		
2H			7H	RESERVE	Blanking Plug		
3G	BOOM READY	LAMP - Yellow	8E				
3H	GATE OPEN	LAMP - Red	8F				
13	LIST FORWARD	JOYSTICK (Spring to Neutral)	8G				
14	LIST REVERSE	JOYSTICK (Spring to Neutral)	8H				
15	TRIM LEFT	JOYSTICK (Spring to Neutral)	9E				
16	TRIM RIGHT	JOYSTICK (Spring to Neutral)	9F				
17	SKEW LEFT / RIGHT	JOYSTICK KNOB (Rotate)	9G				
18	ZERO TRIM / LIST / SKEW	PUSHBUTTON	9H				
4G	AUTO-PARK	PUSHBUTTON/LAMP - Yellow	10E				
4H	TROLLEY PARKED	LAMP - Yellow	10F	WASHER	PUSHBUTTON - Black		
5E			10G	WIPER OFF/ON (Symbol)	SELECTOR - 2 Pos.(MW type)		
5F	20' / 40' / 2x20' / 45'	SELECTOR - 4 Pos.(TO type)	10H	DEMISTOR (Symbol)	SELECTOR - 3 Pos.(MW type)		
5G	SPREADER OFF	PUSHBUTTON - Red					
5H	OFF/MAN/AUTO	SELECTOR 3 Pos (MW type)					

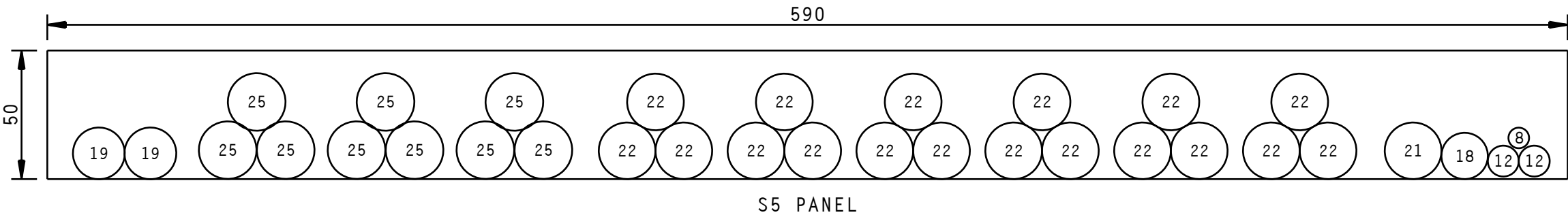
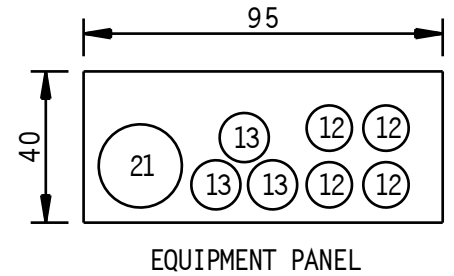
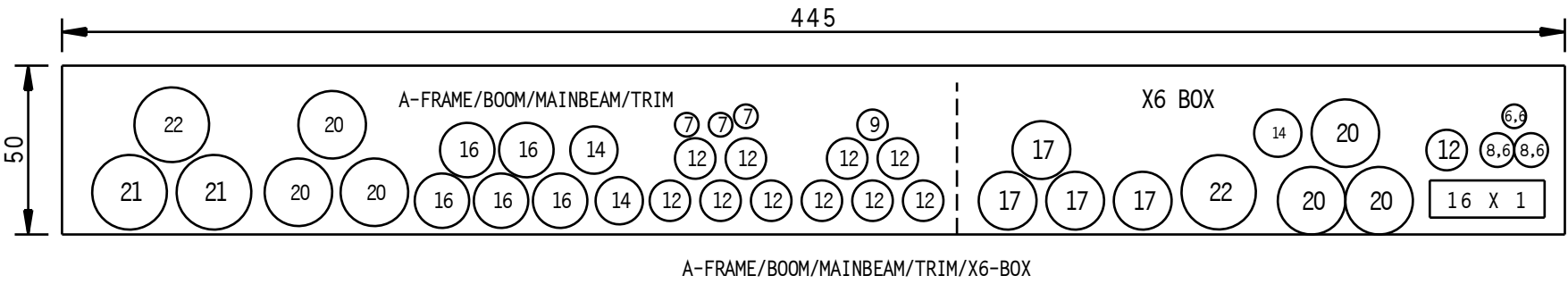
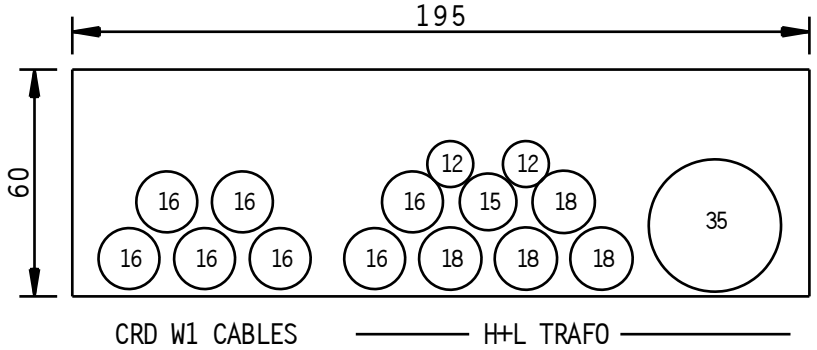
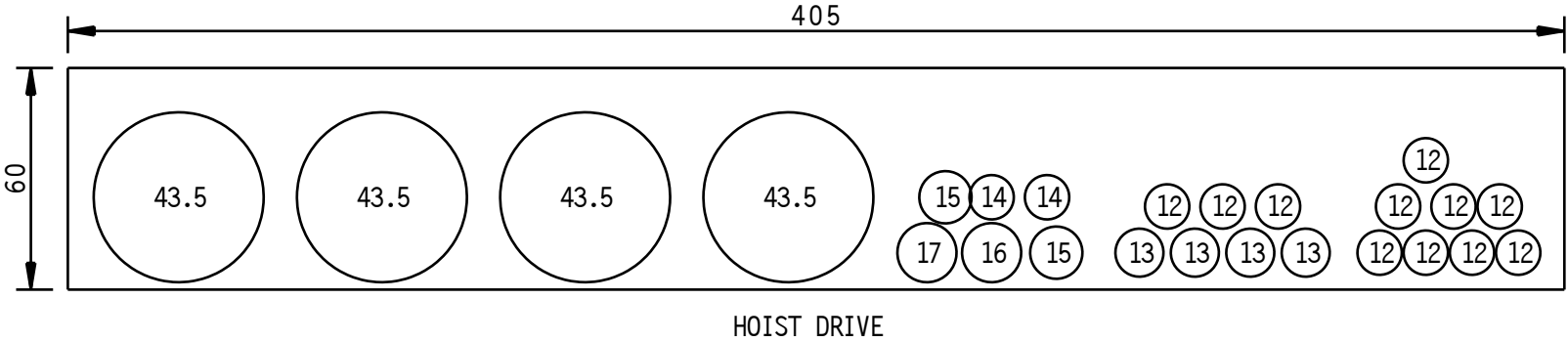
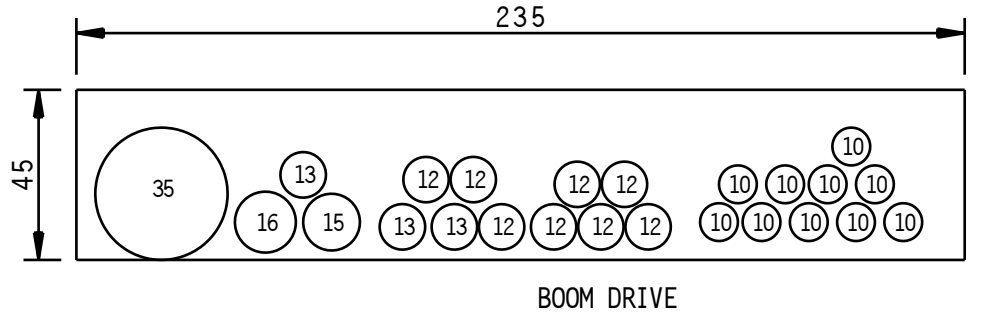
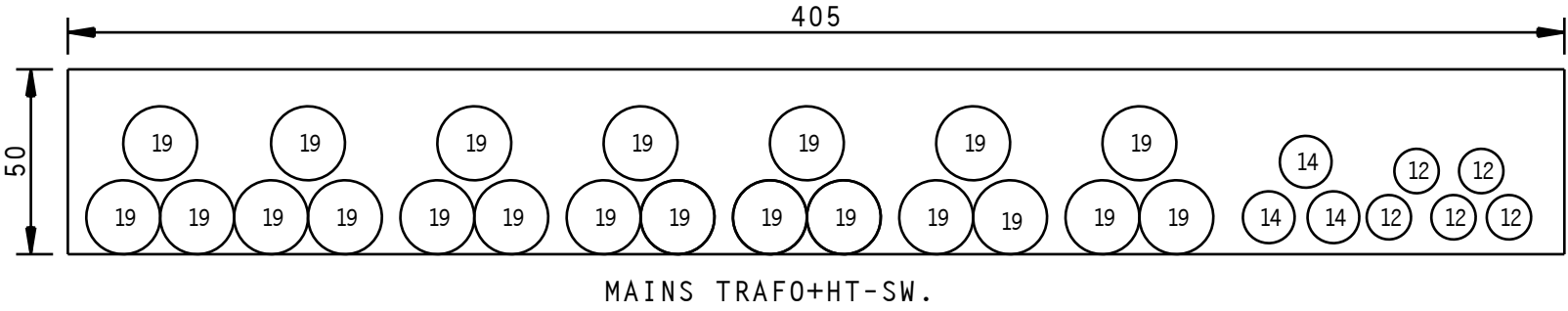
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2							:	BIBERACH GmbH				+	
1			Bearb.							Zeich-Nr.	IR1763-4	Blatt	3+
	Änderung	Datum	Name	Datum	Name		Copyright (c)					Ident. Nr.	



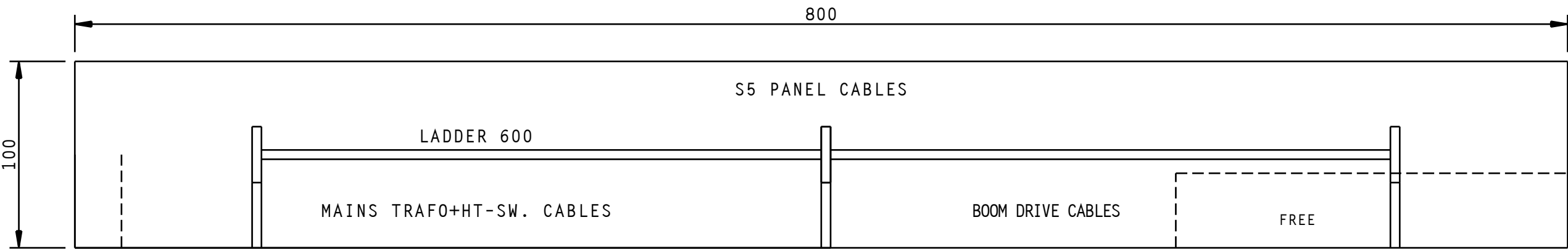




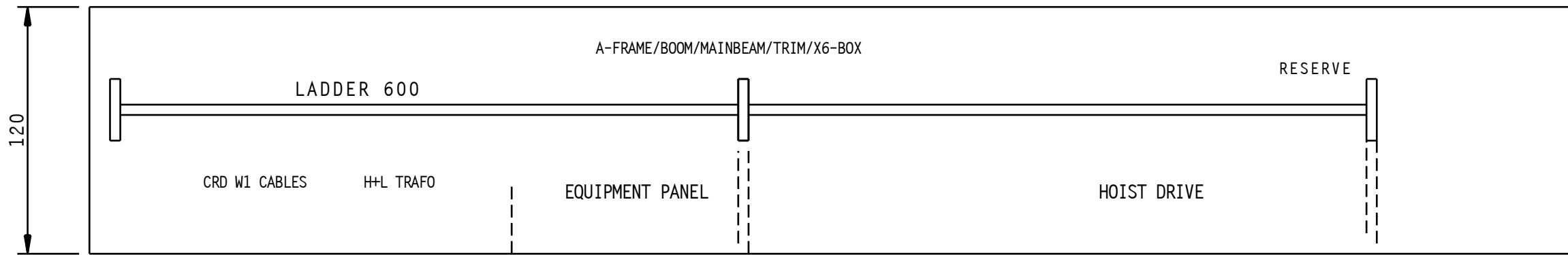




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2			Checked						Project/ Work No. IR1763-4	+	
1	Modification	Date	Name	Date	Name				Sheet 1+		



HOLE UNDER S5 BOX



HOLE UNDER PARTITION DOOR

3			Drawn	22.04.09	MB		LIEBHERR CONTAINER CRANES Copyright (c)	Drawing No. 4009-2627 Project/ Work No. IR1763-4	=	CTRAYS
2		Checked			+					
1		Modification	Date	Name	Sheet				2 -	

1 2 3 4 5 6 7 8

CONTAINER CRANE P168L(WS)-SUPER

IR1763-64 PORT OF KOPER, SLOVENIA

ELECTRICAL INSTALLATION DRAWING - IR1763-64 EI-000000

Drawing No: 4009-2627

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	TITLE BLOCK IR1763-64EI-000000	Drawing No. 4009-2627	Project/ Work No. IR1763-4	=	EI
2			Checked								+	
1	Modification	Date		Name	Date						Name	Sheet
							Copyright (c)					

\*\*\*\*\*  
\* Page List - Brief Listing Date: 17.02.09 Page: 1 \*  
\*\*\*\*\*  
\* Project : IR1763-4 \* LIEBHERR CONTAINER CRANES LTD. \*  
\* Drawing No. : 4009-2627 \* KILLARNEY, CO.KERRY, IRELAND. \*  
\* Material No. : \* TEL. +353 64 70200 / 31511 \*  
\* Type/Location: PORT OF KOPER, SLOVENIA \*  
\*\*\*\*\*

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Page |Page Description |Location |Date |Name  
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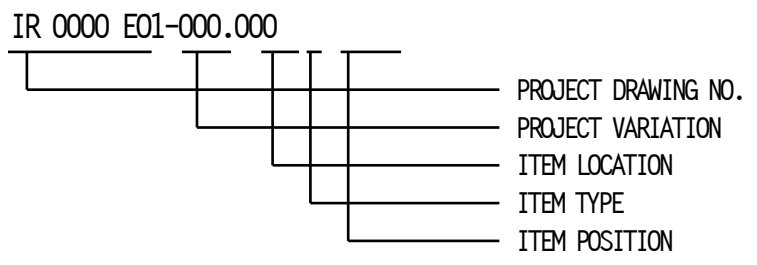
Installation: EI

1	TITLE BLOCK		23.05.08	MC
2	CONTENTS		17.02.09	MC
3	DRAWING CODES/ABBREVIATIONS		23.05.08	MC
4	TRAVEL GEAR 1 + 2 SEASIDE		23.05.08	MC
5	TRAVEL GEAR 3 + 4 LANDSIDE		23.05.08	MC
6	ENDCARRIAGE - SEASIDE		11.09.08	MC
7	ENDCARRIAGE - LANDSIDE		29.10.08	MC
8	PORTAL, CRD + LIFT		23.05.08	MC
9	PORTAL, LIGHTING		23.05.08	MC
10	A-FRAME		23.05.08	MC
11	BOOM - MAINBEAM		23.05.08	MC
12	TRIM, LIST, SKEW SYSTEM		23.05.08	MC
13	FESTOON SYSTEM		20.01.09	MC
14	FESTOON SYSTEM LAYOUT		06.02.09	MC
15	TROLLEY GEAR		17.02.09	MC
16	SPREADER		23.05.08	MC
17	MACHINERY HOUSE - TRAFO		05.09.08	MC
18	MACHINERY HOUSE		17.02.09	MC
19	M-HOUSE AUXILIARIES		04.12.08	MC
20	ELECTRICAL HOUSE S5 FILTER		05.12.08	MC
21	ELECTRICAL HOUSE		23.05.08	MC
22	DRIVER'S CABIN		22.01.09	MC
23	ELECTRICAL INSTALLATION NOTES		23.05.08	MC

\*\*\*\*\*  
end of list

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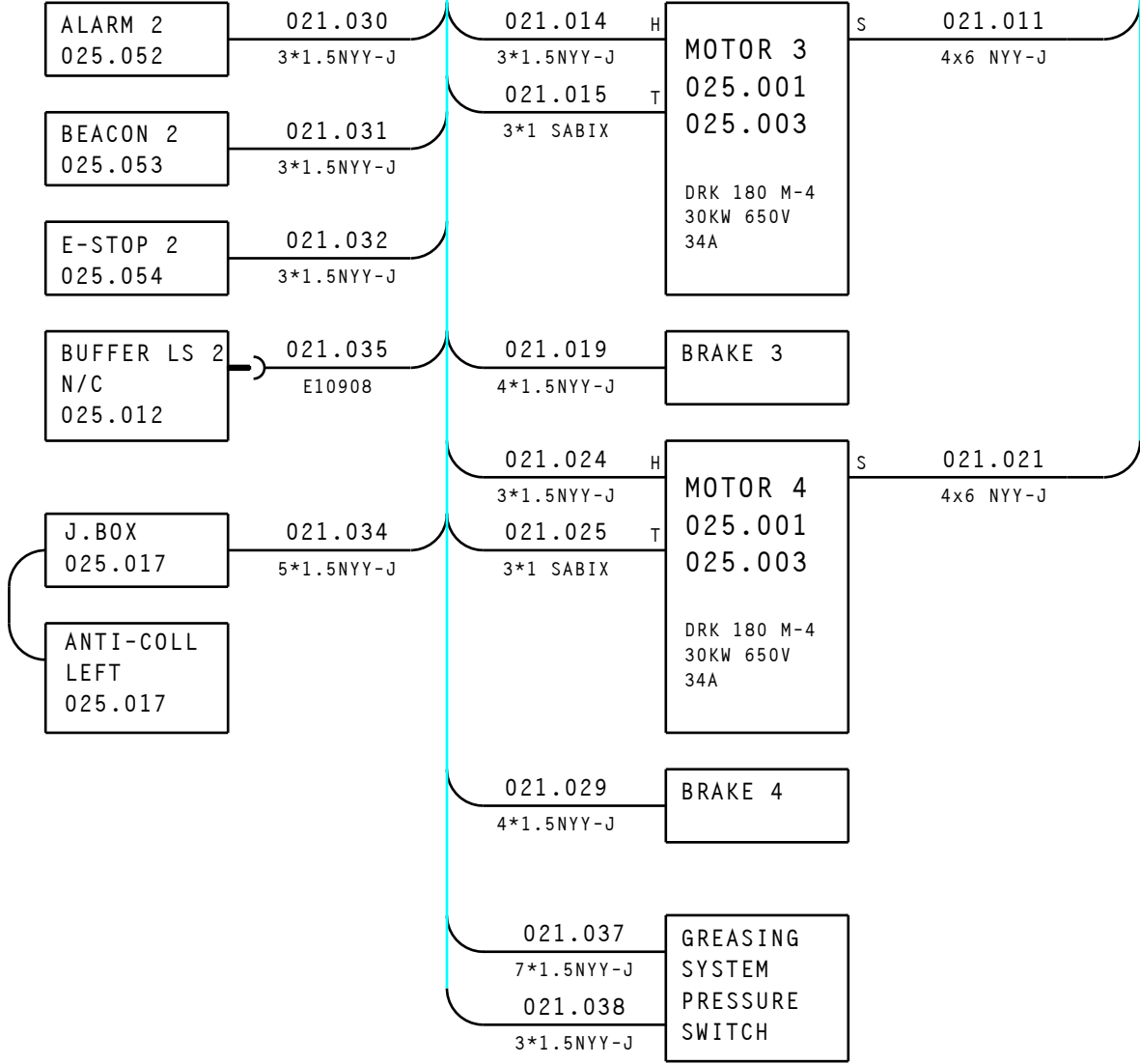
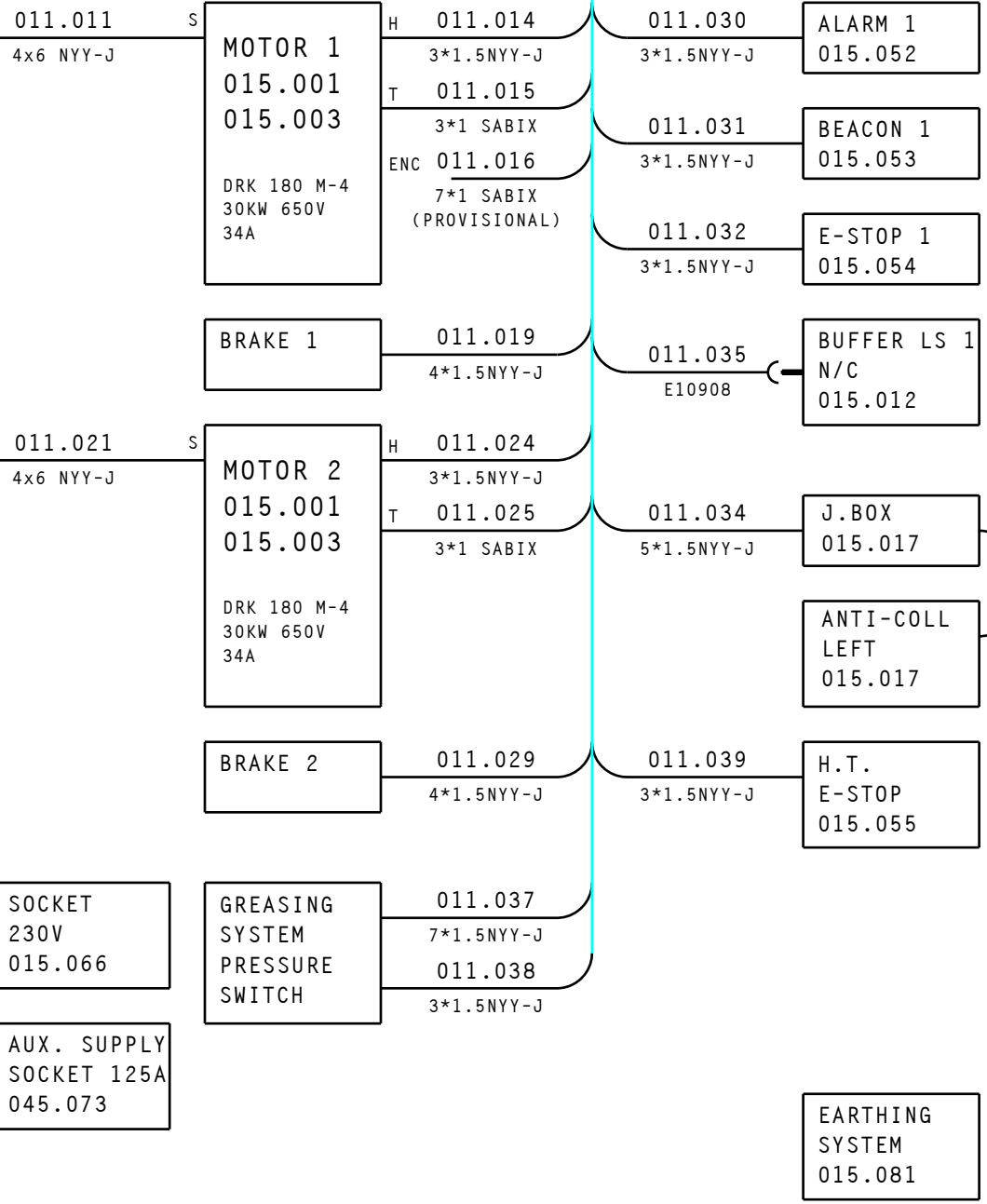
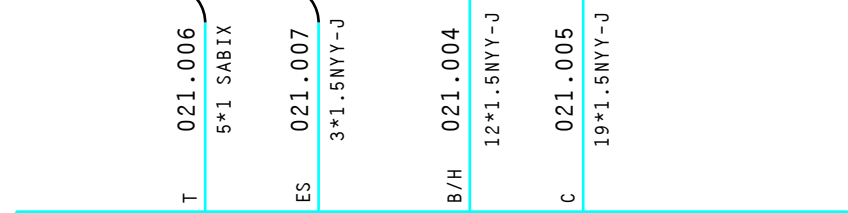
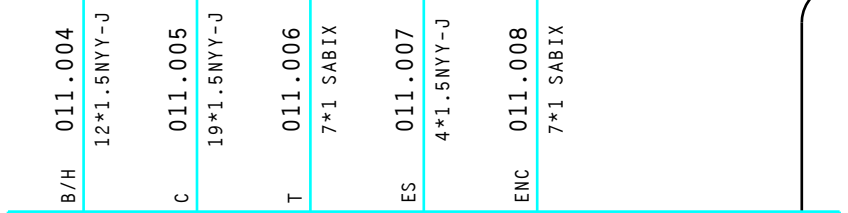
ITEM LOCATION	ITEM TYPE	ITEM NO.
01 - TRAVEL GEAR 1	1 - CABLES	001-010 DRIVE MOTORS
02 - TRAVEL GEAR 2	2 - CABLE CHANNELS	011-030 LIMIT SWITCHES
03 - TRAVEL GEAR 3	3 - CONDUITS	031-040 POWER EQUIPMENT
04 - TRAVEL GEAR 4	4 - RESERVE	041-050 CONTROL EQUIPMENT
05 - ENDCARRIAGE SEASIDE	5 - EQUIPMENT	051-099 AUXILIARY EQUIPMENT
06 - ENDCARRIAGE LANDSIDE		
07 - PORTAL		
08 - A-FRAME		
09 - BOOM / JIB		
10 - MAINBEAM		
11 - CABLE RAIL		
12 - TROLLEY		
13 - TRIM/LIST/SKEW		
14 - MACHINERY HOUSE - MAINBEAM		
15 - MACHINERY HOUSE - TROLLEY		
16 - ELECTRICAL HOUSE		
17 - DRIVER'S CABIN		
18 - BOOM CONTROL CABIN		
19 - CHECKER'S CABIN		
20 - LIFT PLATFORMS		
21 - LIFT MACHINERY HOUSE		
22 - LIFT CAR		
23 - SPREADER		
24 - PULLEY FRAME		
25 - SITE INSTALLATION		



ABBREVIATIONS
A - ARMATURE
E - EARTH
F - FIELD
C - CONTROL
B - BRAKE
ENC - ENCODER
VF - VENTILATOR FAN
H - HEATER
T - THERMISTOR
S - STATOR
R - ROTOR
LS - LIMIT SWITCH
M - MOTOR
HSL - HEATER SLIPRING
HM - HEATER MOTOR
HI - HEIGHT INDICATOR
PH - PHASE
Y - STAR POINT
TG - TACHO GENERATOR
TS - TELEPHONE SOCKET
V - VALVE
AL - ACCESS LIGHT
FL - FLOODLIGHT
WB - WARNING BEACON
A/C - AIR CONDITIONING

MAIN SWITCHGEAR S1

CABLE CHANNEL LEG 1



TRAVEL 1

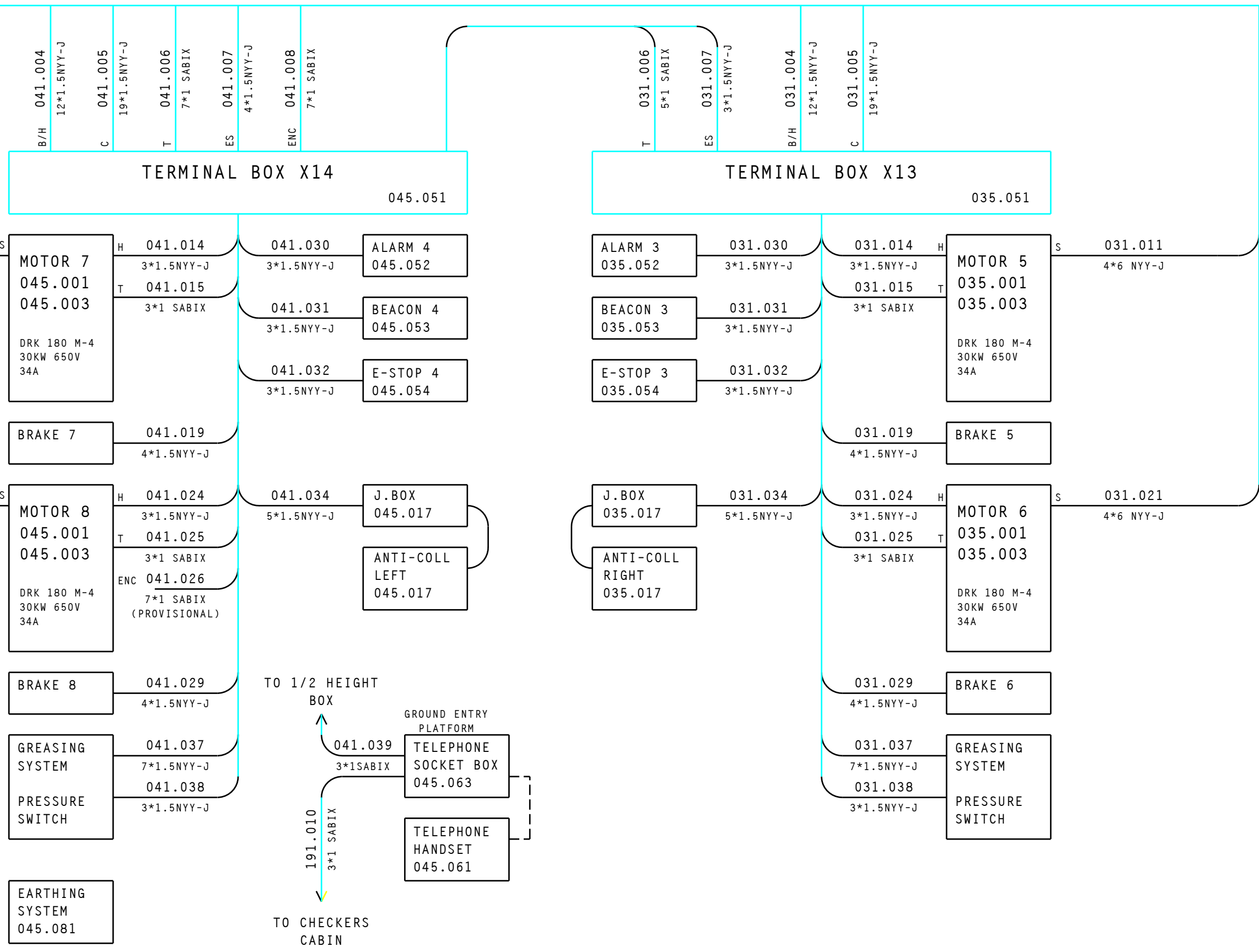
TRAVEL 2

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2			Checked						Project/ Work No. IR1763-4	+	
1			Modification	Date	Name				Sheet 4+		

MAIN SWITCHGEAR S1

CABLE CHANNEL LEG 4

CABLE CHANNEL LEG 4



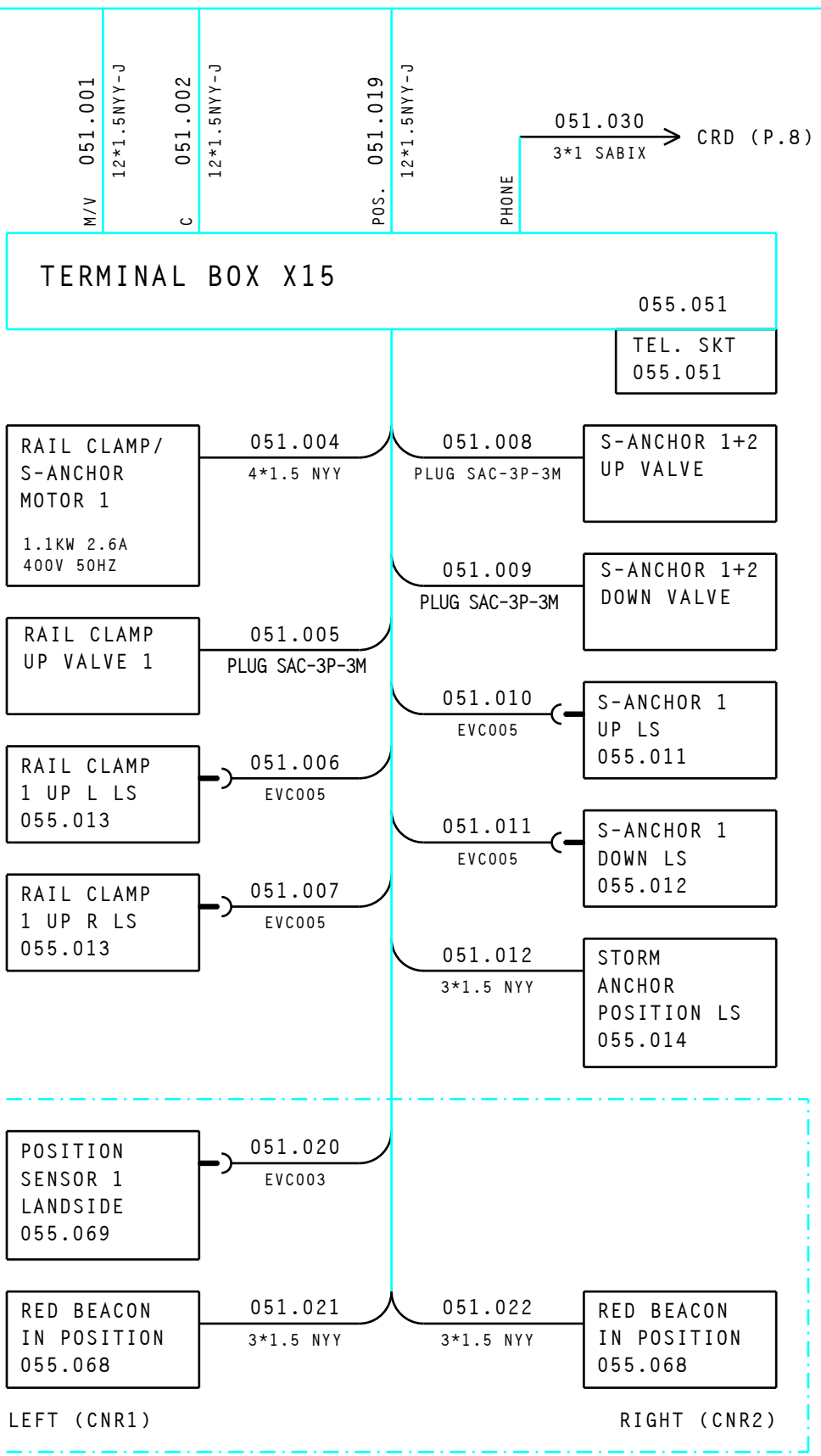
TRAVEL 4

TRAVEL 3

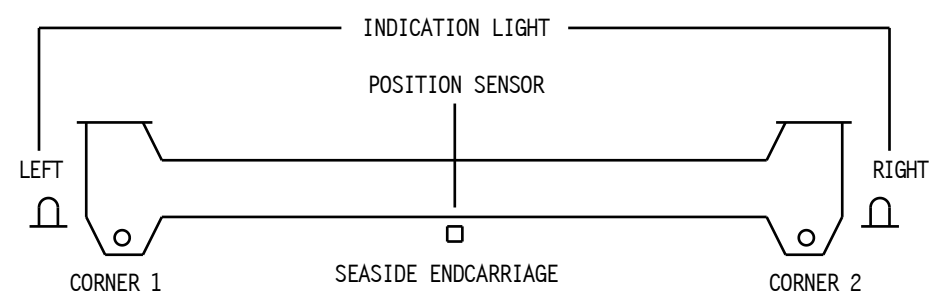
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1			Modification	Date	Name				Copyright (c)		



MAIN SWITCHGEAR S1



TRAILER POSITIONING SYSTEM (LOOKING LANDWARDS)



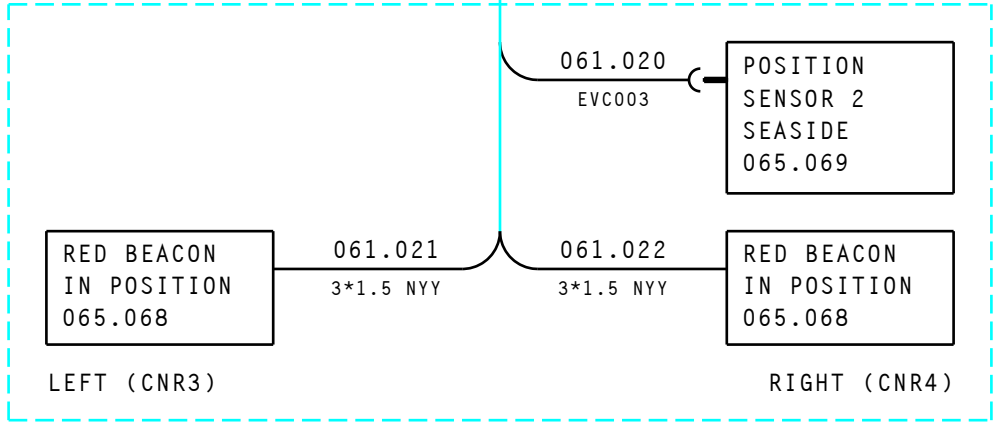
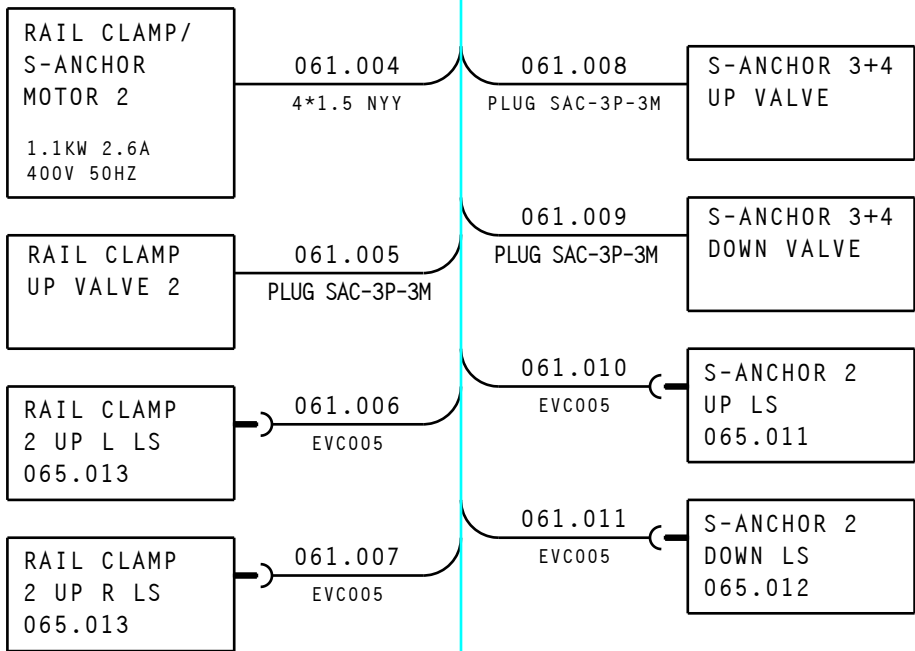
STORM ANCHOR/RAIL CLAMP - SEASIDE

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES Copyright (c)	ENDARRIAGE - SEASIDE	Drawing No. 4009-2627	=	EI
2			Checked						Project/ Work No. IR1763-4	+	
1			Modification	Date	Name				Sheet 6+		

MAIN SWITCHGEAR S1

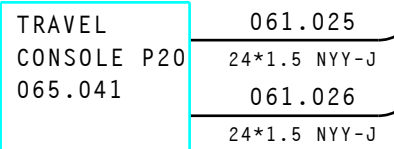
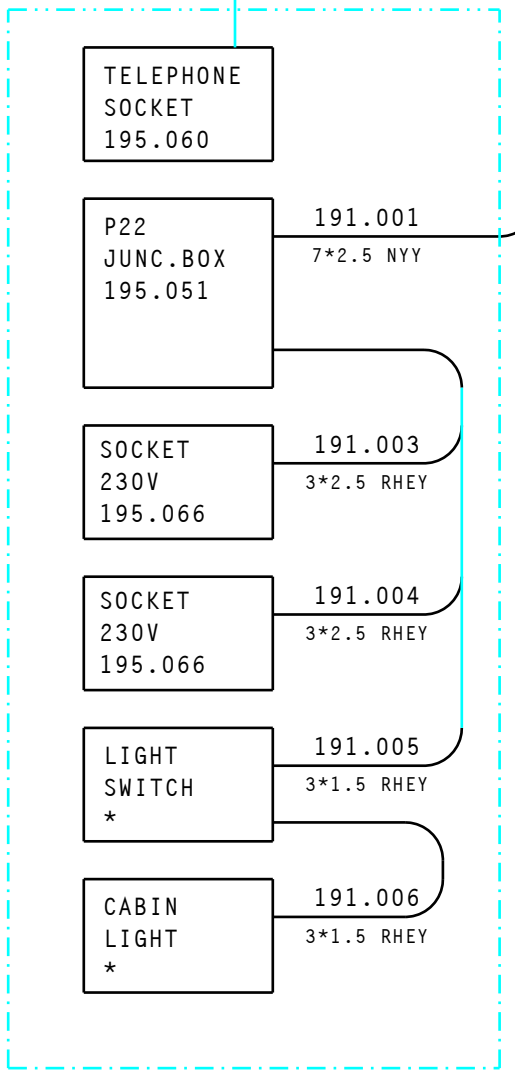
M/V 061.001  
12\*1.5 NYY-J  
C 061.002  
12\*1.5 NYY-J  
POS. 061.019  
12\*1.5 NYY-J

TERMINAL BOX X16 065.051



TRAILER POSITIONING SYSTEM (LOOKING SEAWARDS)

CNR.4 ← 191.010  
3\*1 SABIX



\* CABIN SUPPLIER

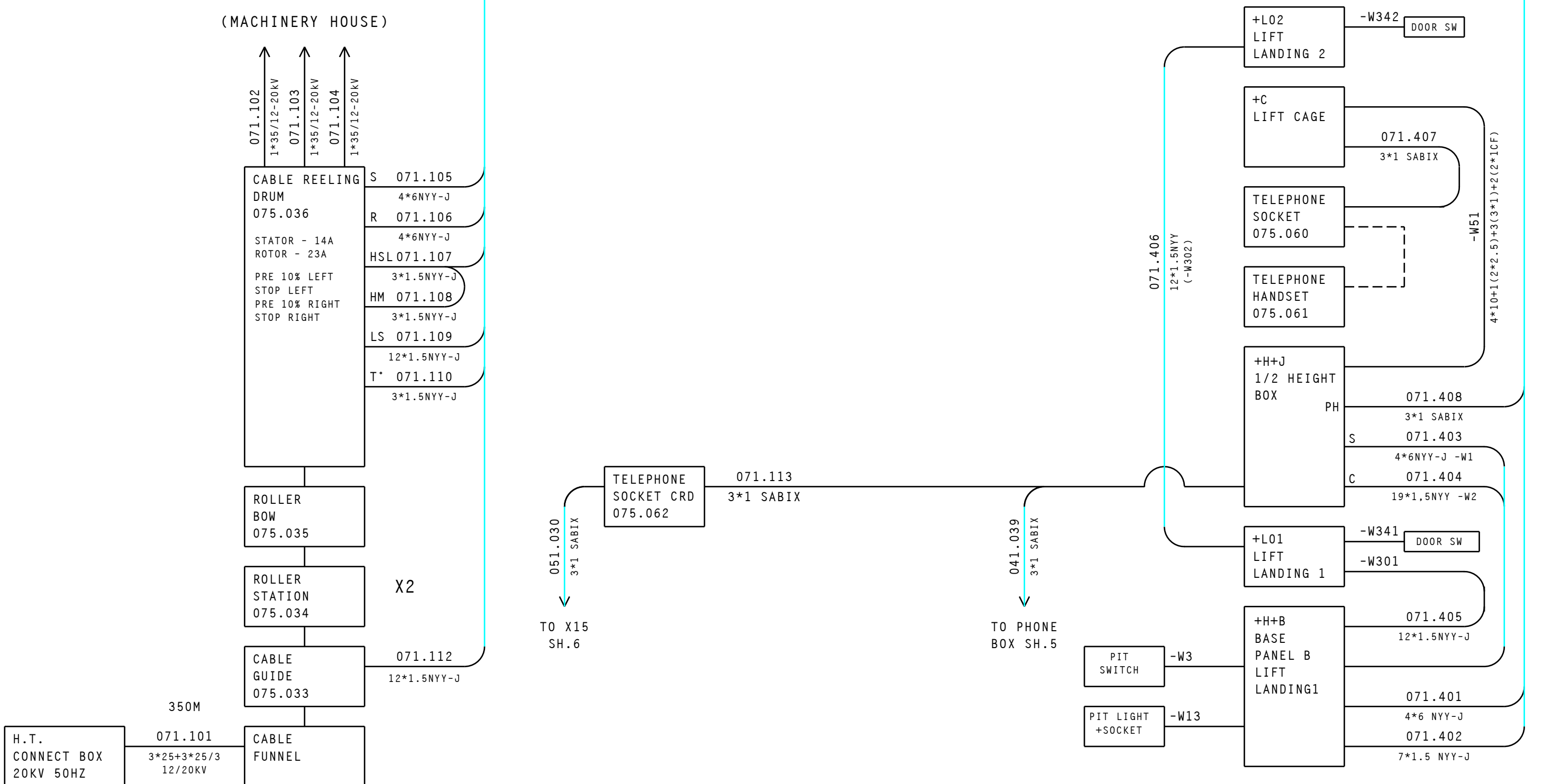
STORM ANCHOR/RAIL CLAMP - LANDSIDE

CHECKERS CABIN - LANDSIDE

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2			Checked						Project/	IR1763-4	+	Sheet	7+
1			Modification	Date	Name				Copyright (c)	Work No.			

MAIN SWITCHGEAR S1


(MACHINERY HOUSE)



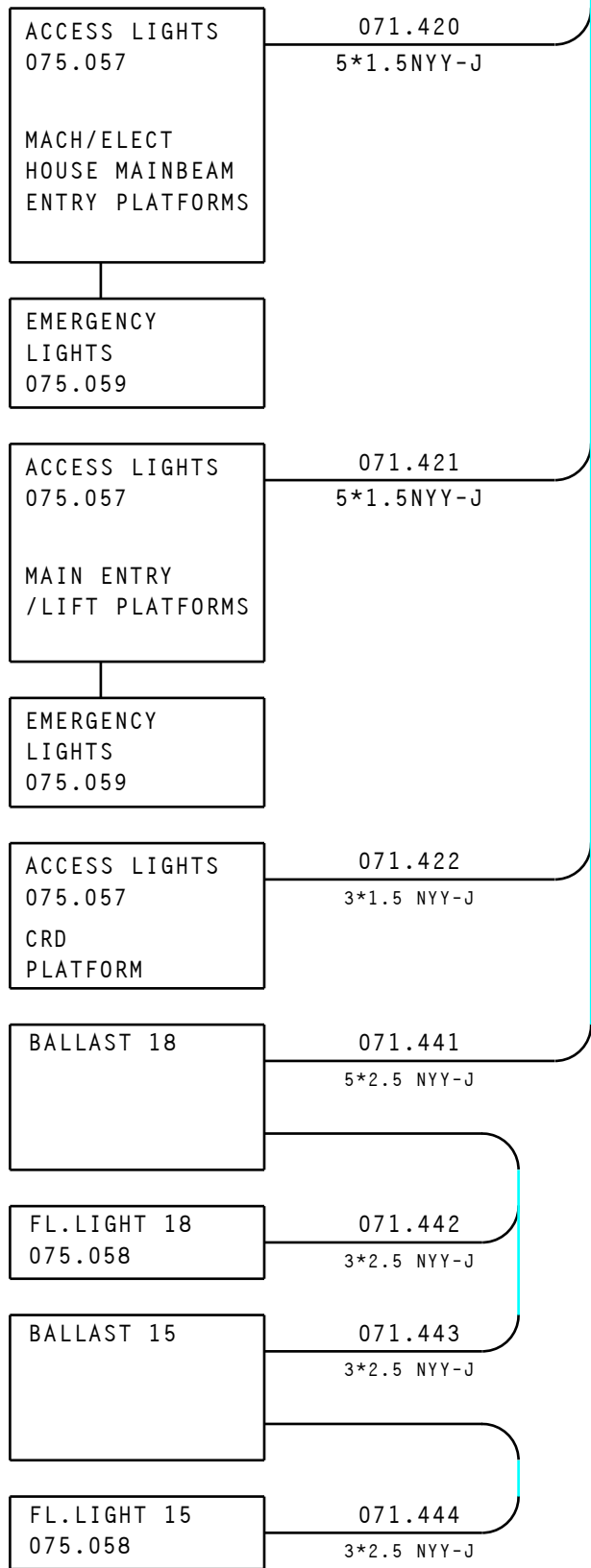
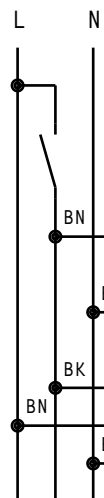
PREPARED + CONNECTED  
BY LIEBHERR

LEG 1/CILLBEAM 1-4

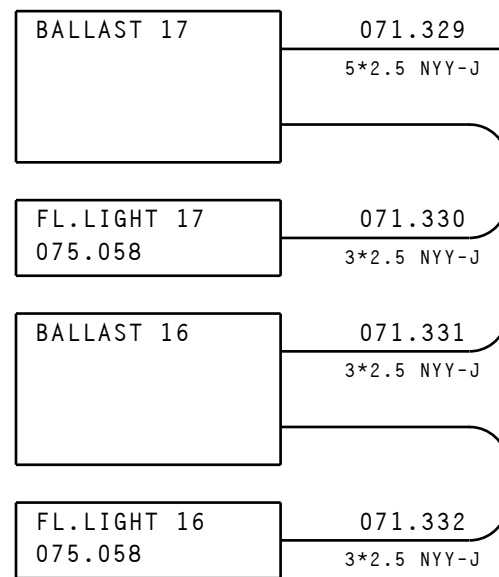
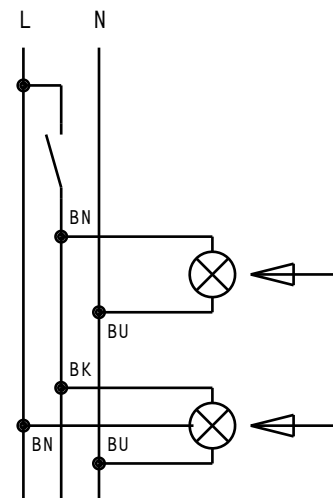
LEG 4

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2			Checked								Project/ Work No.	IR1763-4	+	
1			Modification	Date	Name				Date	Name	Copyright (c)			Sheet

MAIN SWITCHGEAR S1



LEG 4



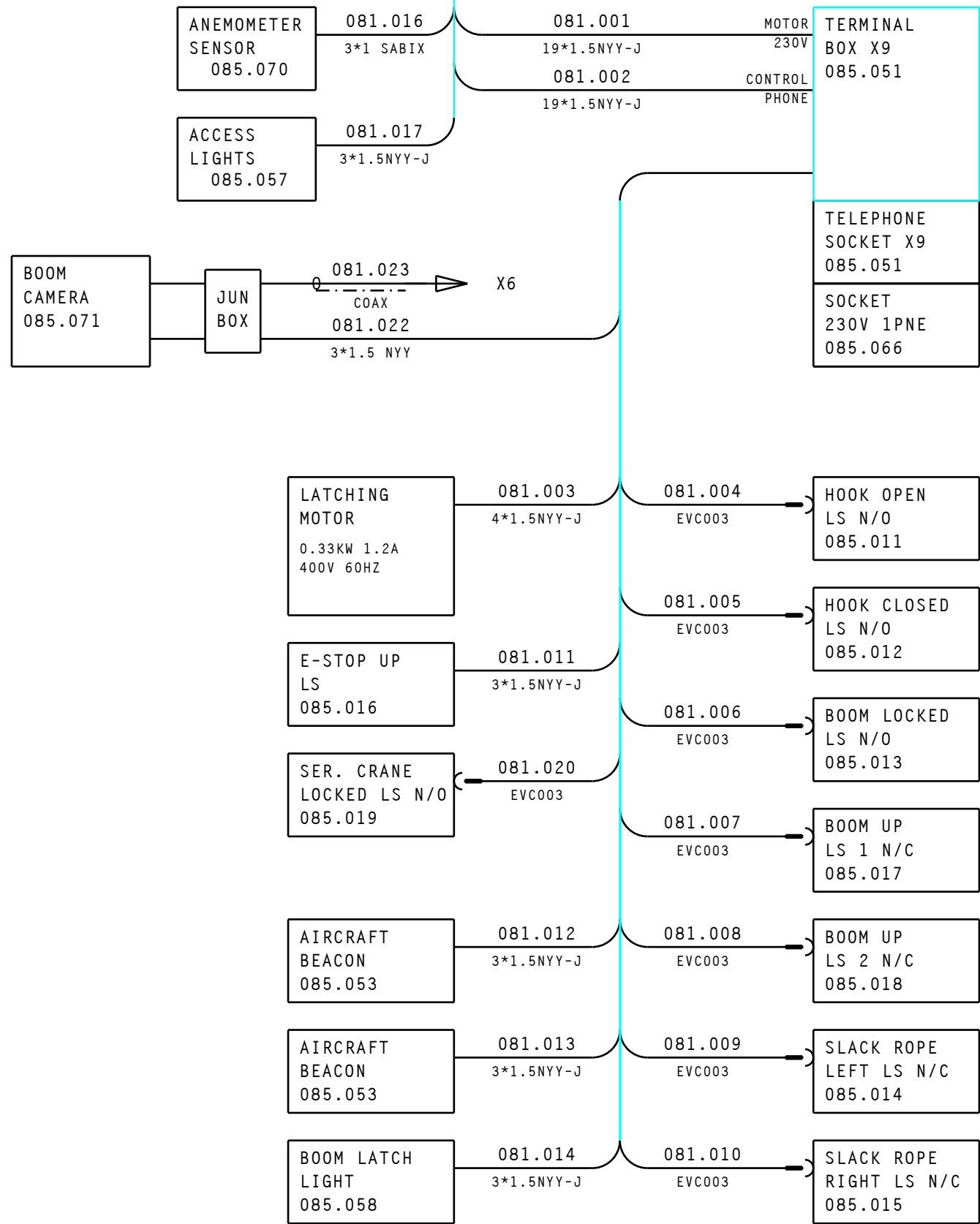
LEG 4

LEG 4/CILLBEAM 1-4

LEG 3/CILLBEAM 2-3

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2			Checked						Project/ Work No. IR1763-4	+	
1			Modification	Date	Name				Copyright (c)	Sheet 9+	

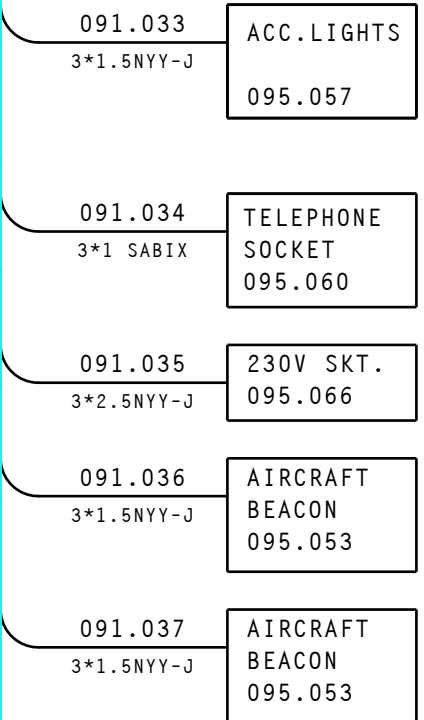
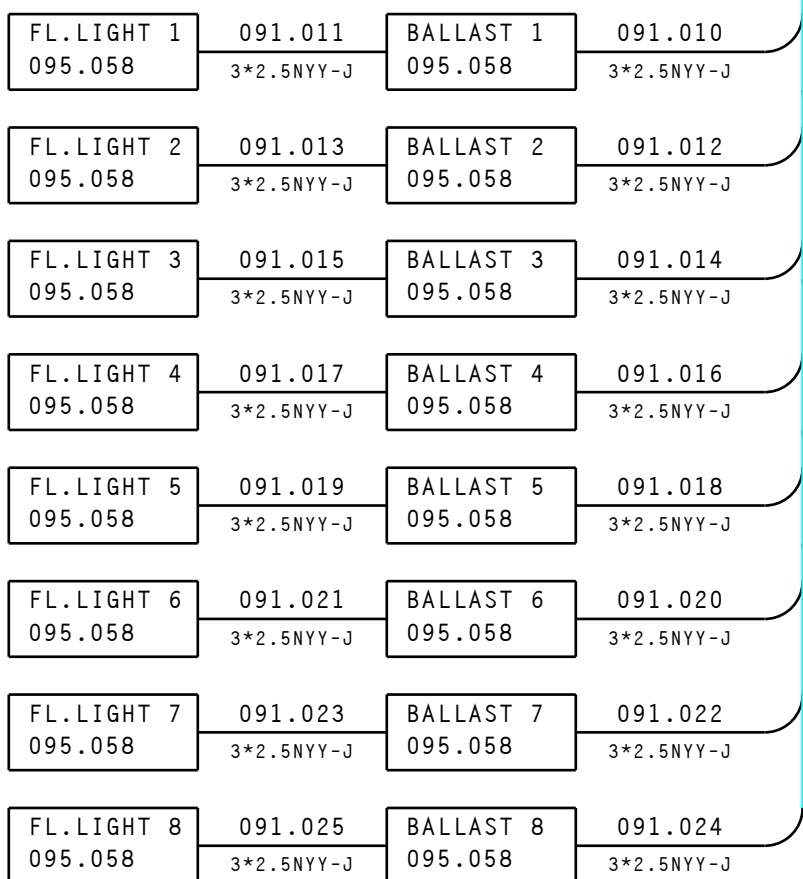
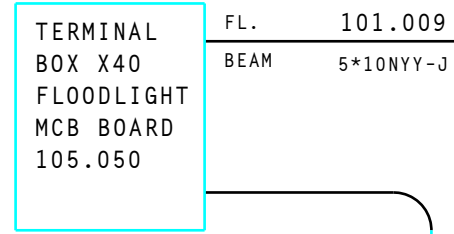
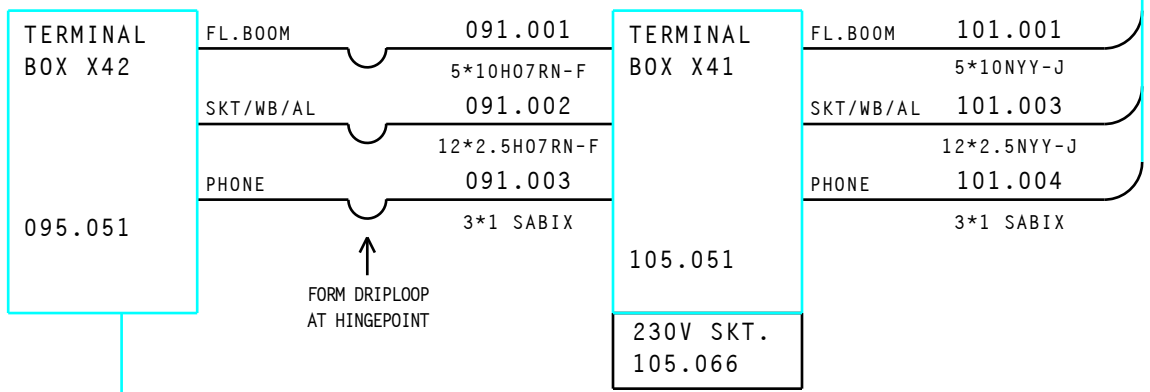
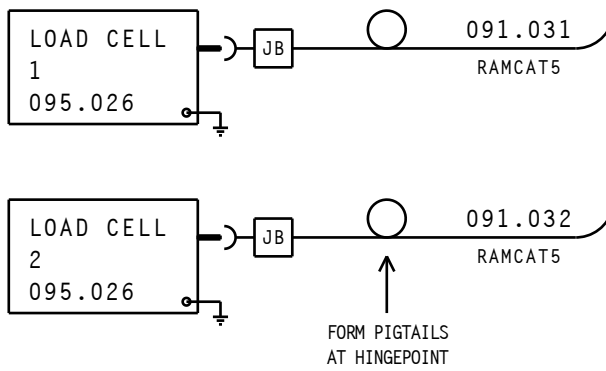
MAIN SWITCHGEAR S1



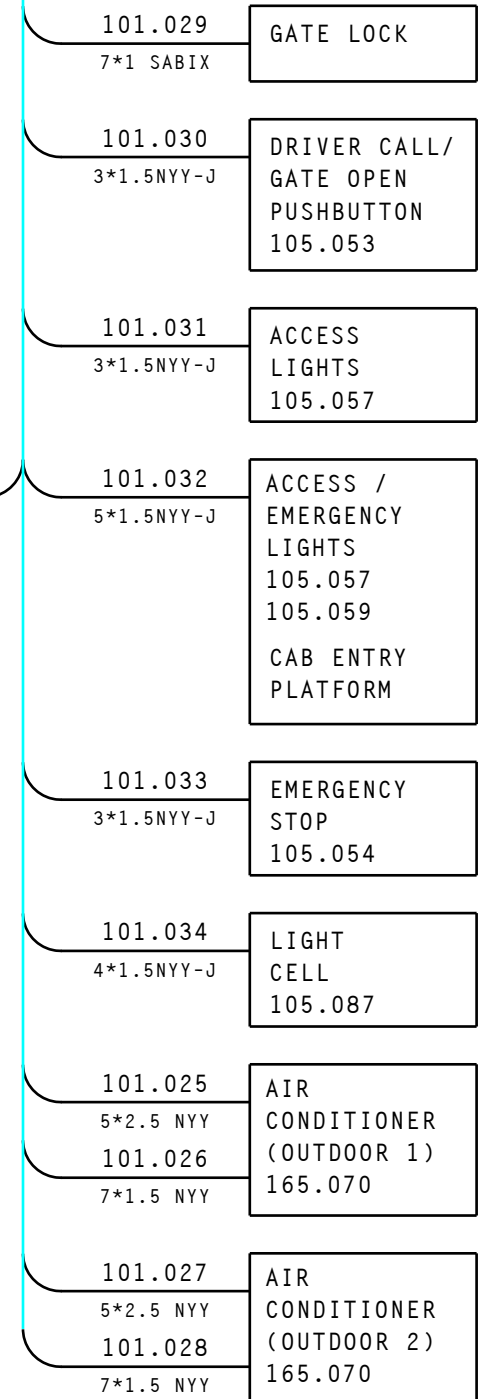
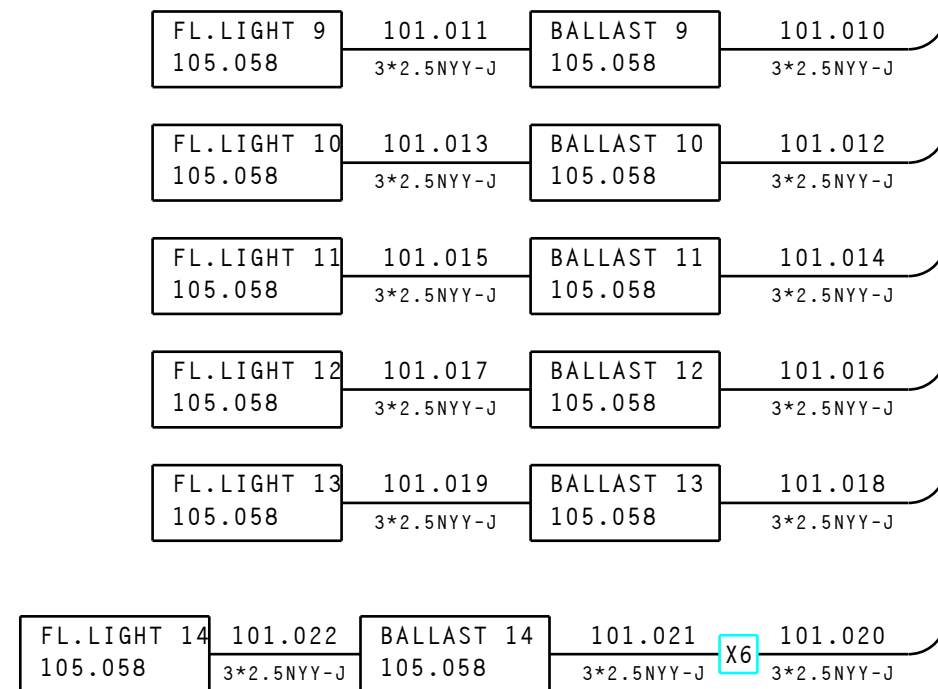
A-FRAME

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	A-FRAME	Drawing No. 4009-2627	=	EI
2			Checked						Project/ Work No. IR1763-4	+	10+
1	Modification	Date	Name	Date	Name				Copyright (c)		

# MAIN SWITCHGEAR S1



BOOM END



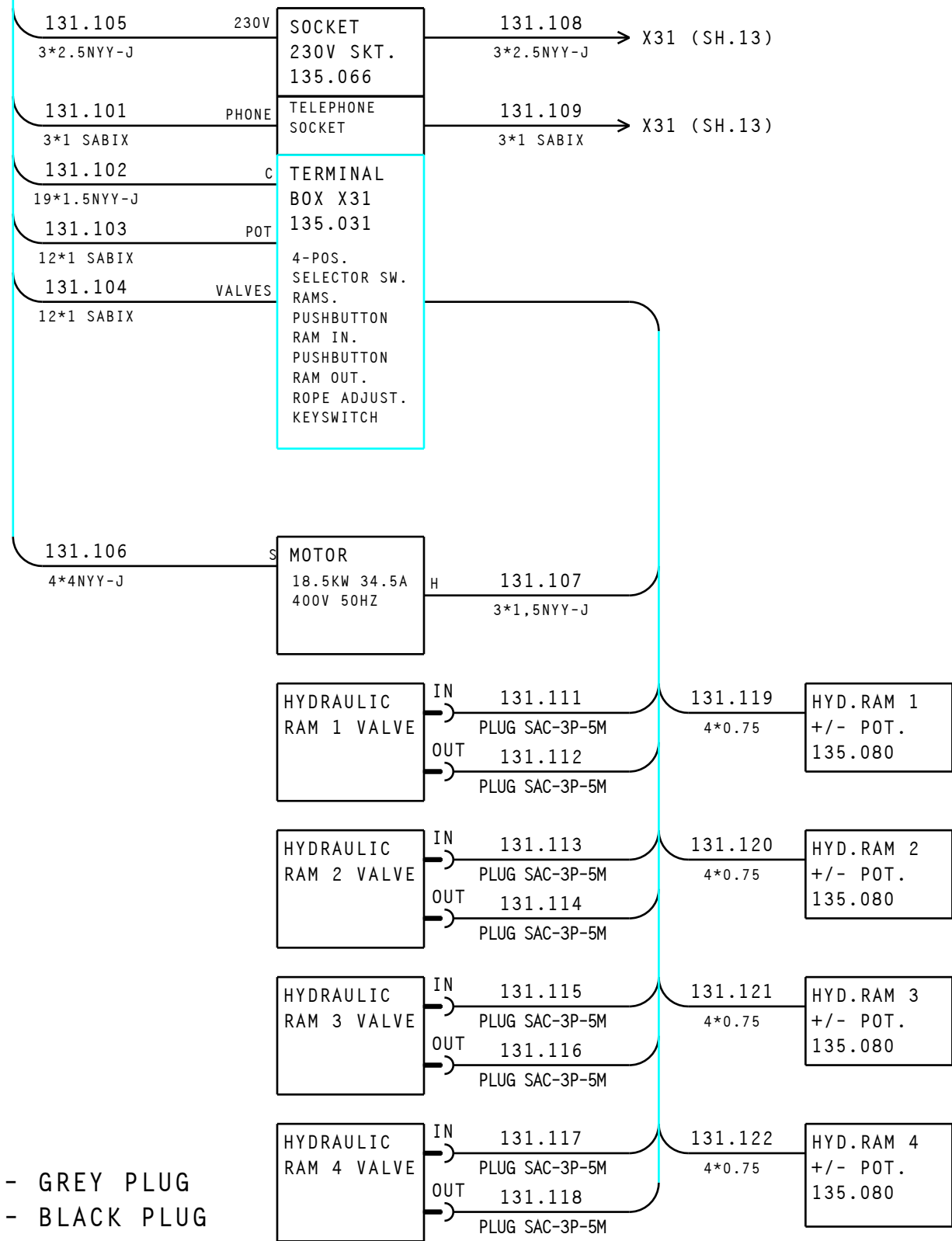
## CABLE RAIL EXTENSION

### BOOM

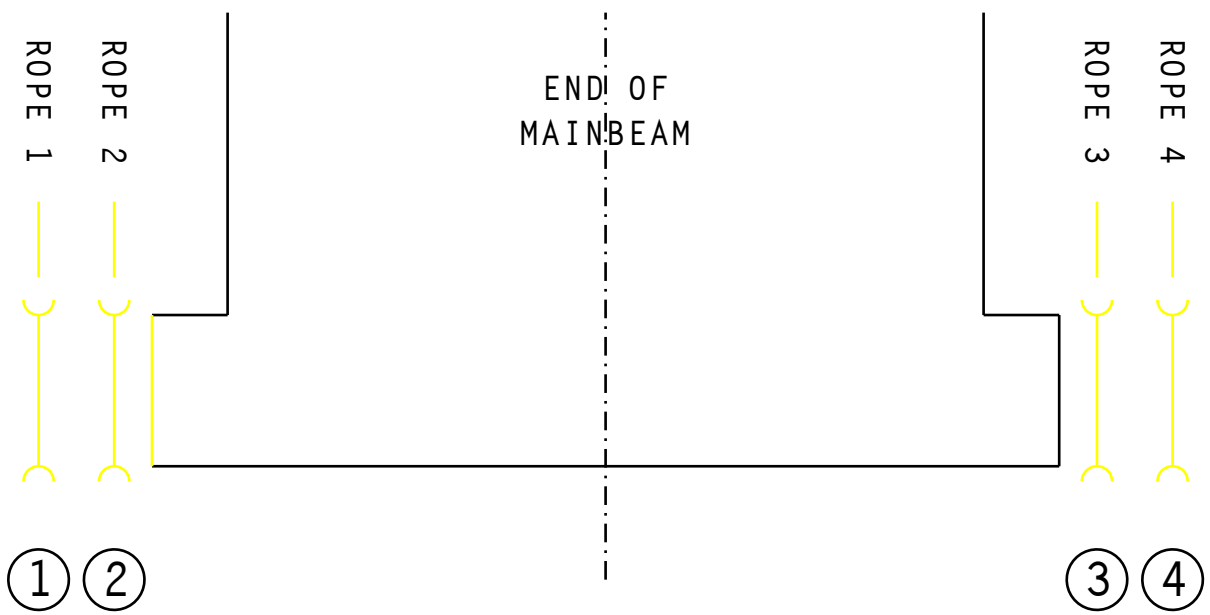
### MAINBEAM

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	BOOM - MAINBEAM	Drawing No. 4009-2627	=	EI		
2			Checked						+		Project/ Work No. IR1763-4	Sheet	11+
1									Copyright (c)				
	Modification	Date	Name	Date	Name								

MAIN SWITCHGEAR S1

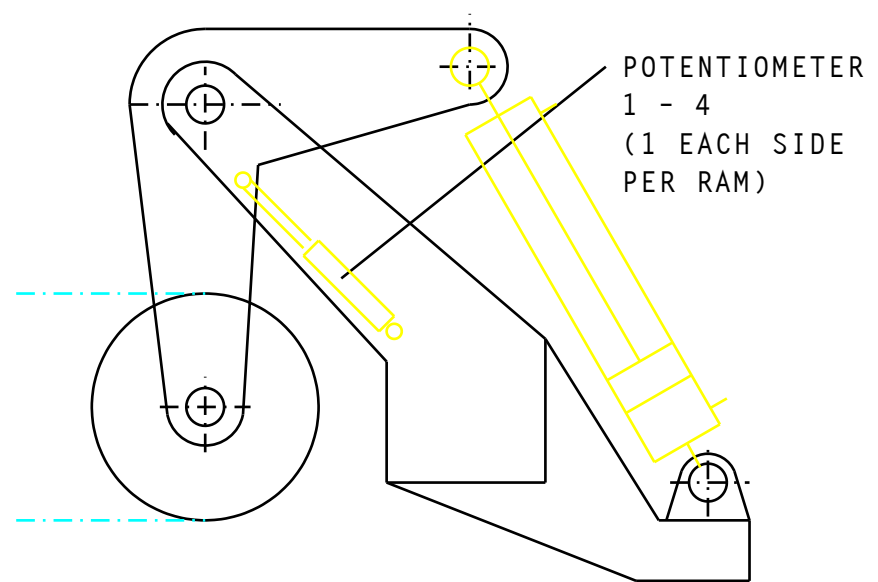


NOTE:  
RAM IN - GREY PLUG  
RAM OUT - BLACK PLUG



NOTE: RAMS MOVE IN PAIRS AS FOLLOWS.

- TRIM PAIR (1 + 2) +/- AND (3 + 4) +/-
- LIST PAIR (1 + 4) +/- AND (2 + 3) +/-
- SKEW PAIR (1 + 3) +/- AND (2 + 4) +/-

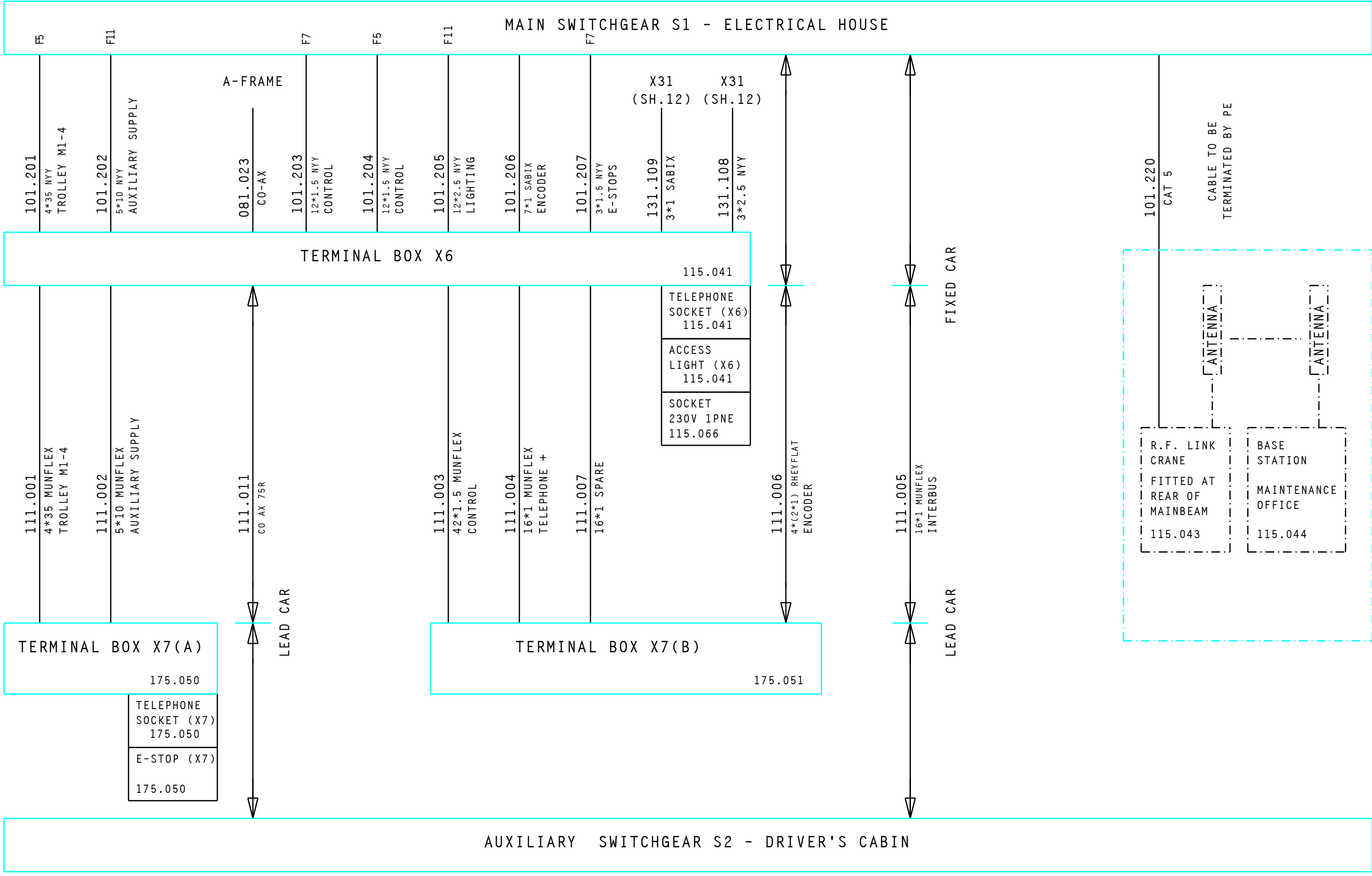


RAM OUT SHORTENS ROPES  
RAM IN LENGTHENS ROPES

SIDE VIEW  
TRIM, LIST AND SKEW

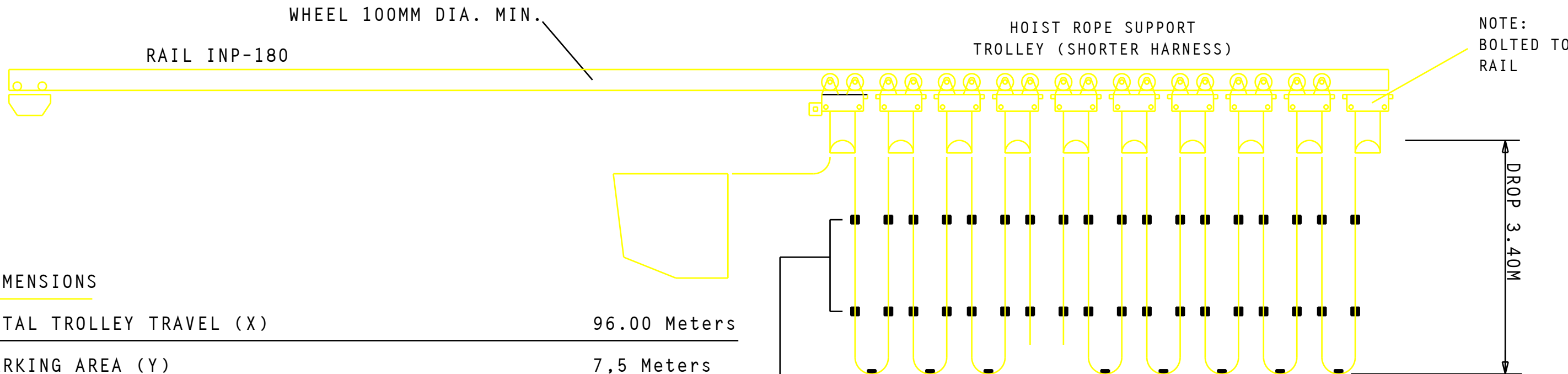
\* FITTED BY SUPPLIER

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	TRIM, LIST, SKEW SYSTEM	Drawing No.	4009-2627	=	EI		
2			Checked						+		Project/	IR1763-4	Sheet	12+
1	Modification	Date	Name	Date	Name				Copyright (c)		Work No.			



3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	FESTOON SYSTEM	Drawing No.	4009-2627	=	EI
2			Checked						+			
1	Modification	Date	Name	Date	Name				Project/ Work No.	IR1763-4	Sheet	13+





WHEEL 100MM DIA. MIN.

RAIL INP-180

HOIST ROPE SUPPORT  
TROLLEY (SHORTER HARNESS)

NOTE:  
BOLTED TO  
RAIL

DROP 3.40M

DIMENSIONS

TOTAL TROLLEY TRAVEL (X)	96.00 Meters
PARKING AREA (Y)	7,5 Meters
NO. OF LOOPS $(X + Y) * 1.25 / L$ (ROPE SUPPORT = ODD)	= 19
LENGTH OF CABLE LOOP (L)	6.80 Meters
TOTAL CABLE LENGTH ON CARRIERS $[>(X + Y) * 1.25]$	129.4 Meters
CABLE LENGTH FROM MAINBEAM X6 TO END CLAMP	10.0 Meters
CABLE LENGTH FROM LEAD CAR TO TROLLEY	5.00 Meters
TOTAL CABLE LENGTH	144 Meters

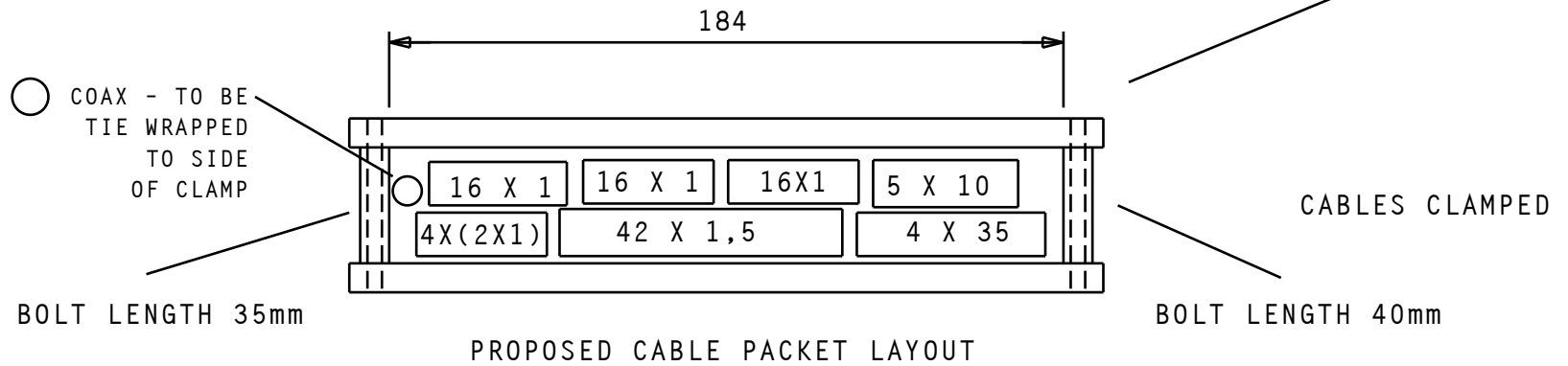
\* LENGTH OF TOW ROPE DETERMINED BY SUPPLIER  
TO BE APPROX. 10% LESS THAN CABLE LOOP

CARRIERS

END CLAMP (RAIL)	1
TOWING CARRIER	2
REGULAR CARRIER	17
CABLE LOAD PER CARRIER	200KG. APPROX.
CARRIER CLAMPING SPACE	1 OFF

NOTE:

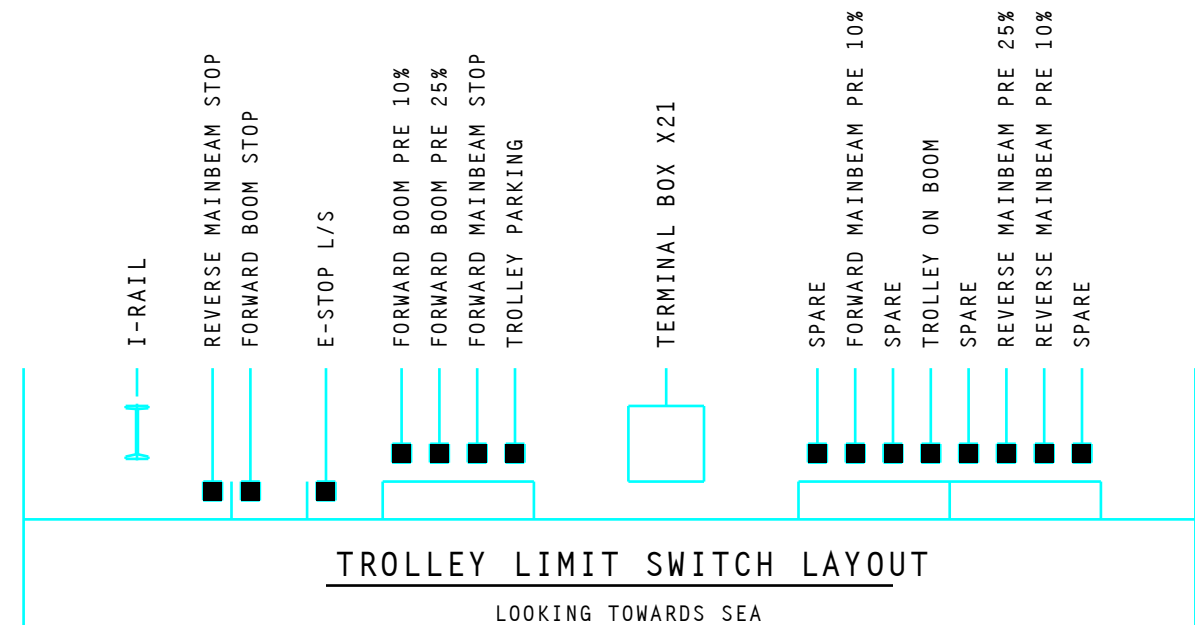
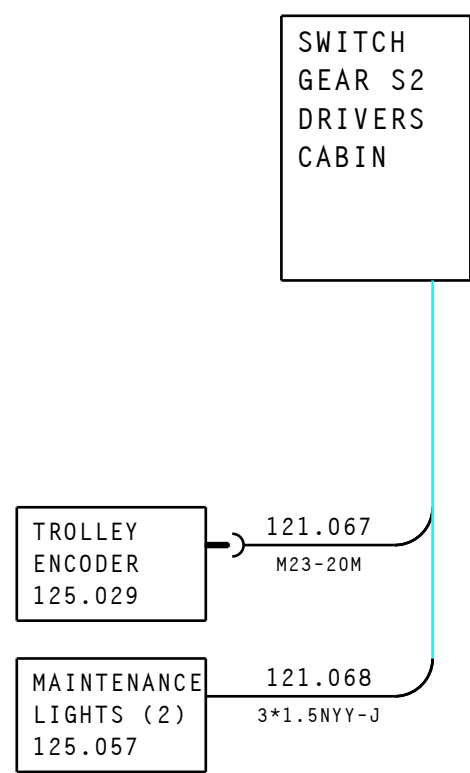
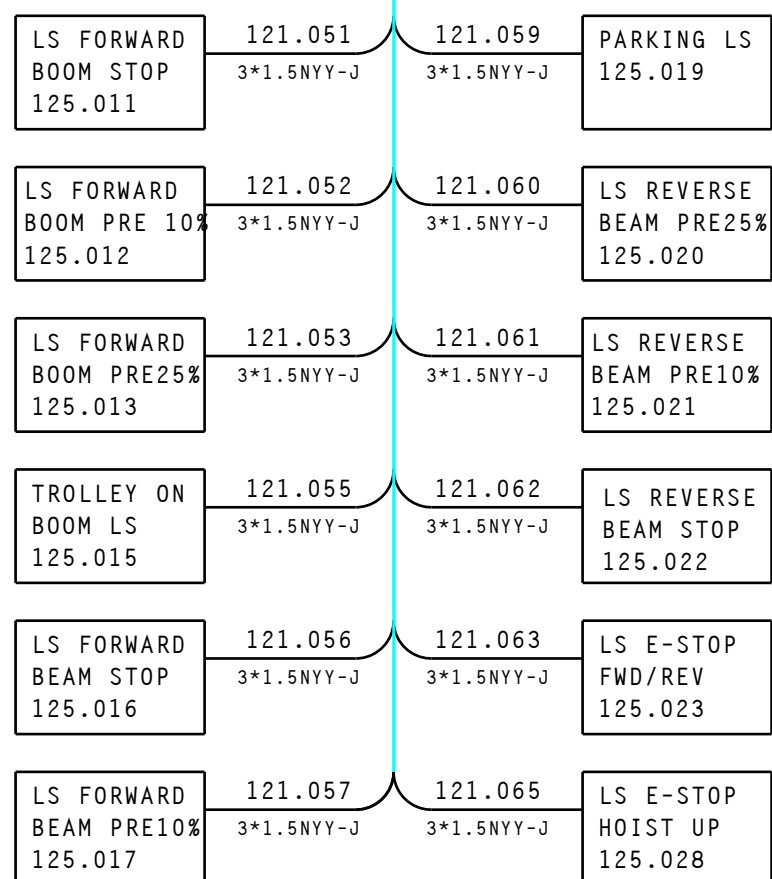
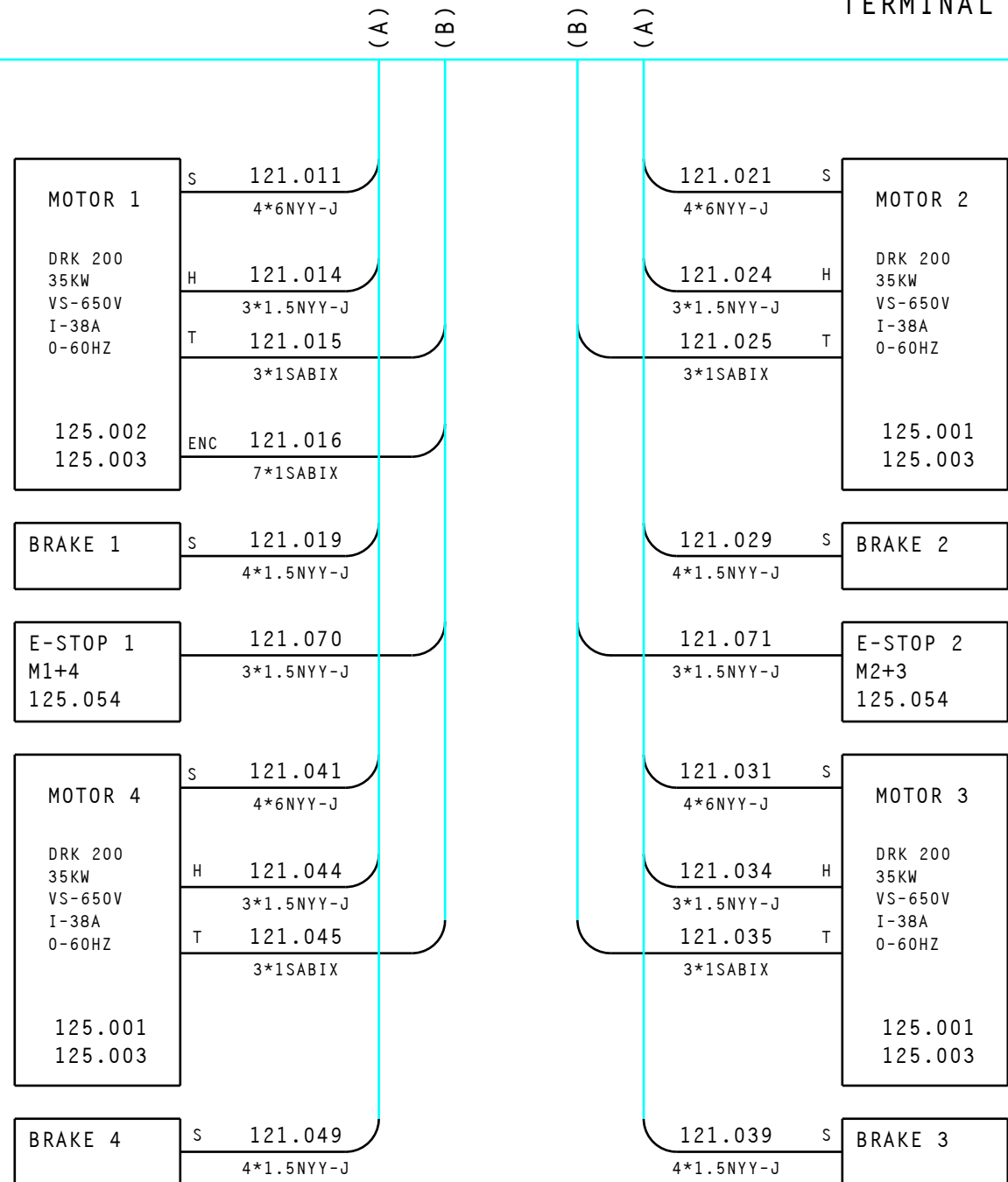
ELASTIC DAMPING DEVICE IN EVERY LOOP.  
BUNGEE ROPE BETWEEN CABLE CLEAT AND  
TOWING ROPE LENGTH 1.75M



PROPOSED CABLE PACKET LAYOUT

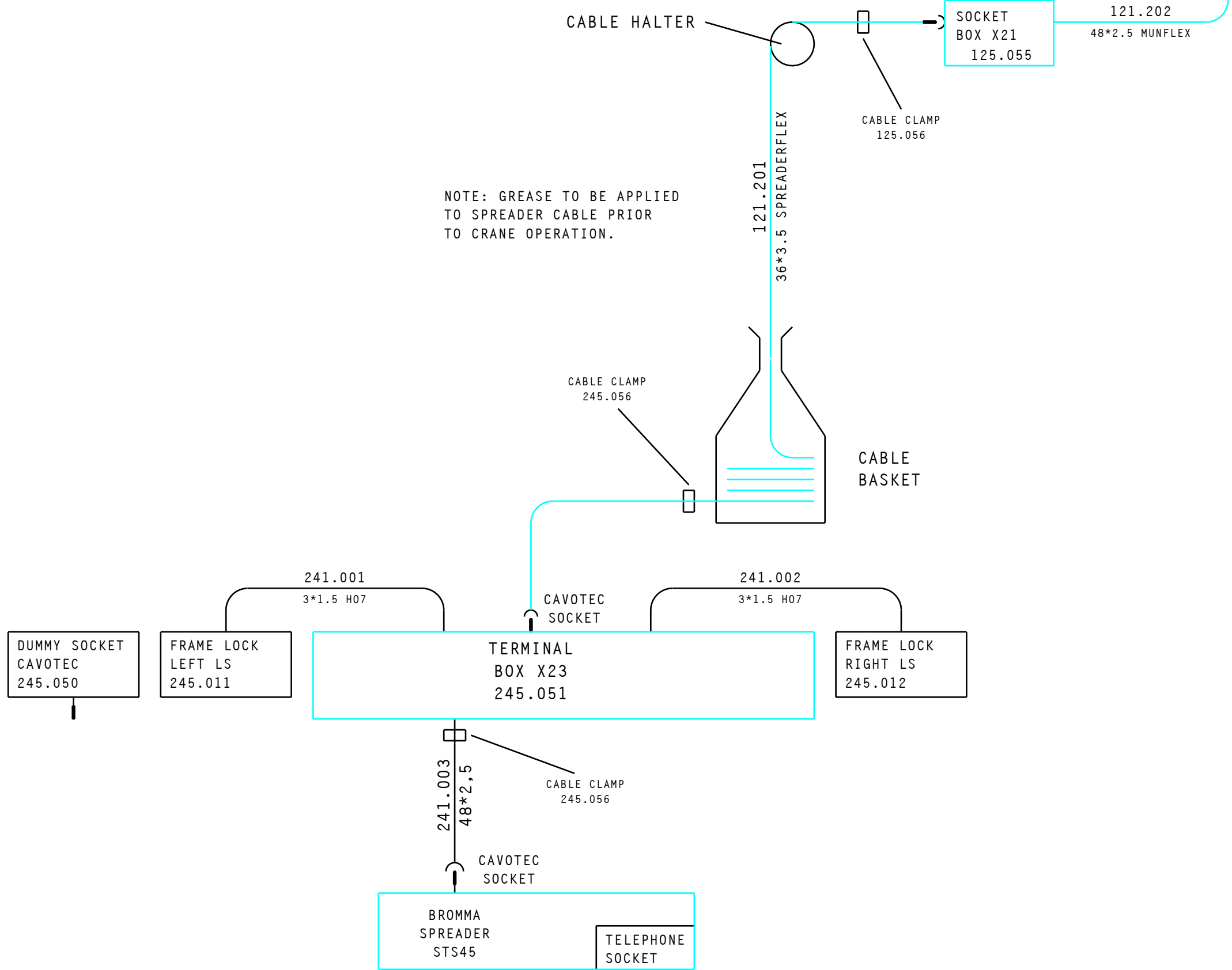
TERMINAL BOX X7 - DRIVERS CABIN

175.050 (A)  
175.051 (B)



3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	TROLLEY GEAR	Drawing No.	4009-2627	=	EI	
2			Checked						Project/	IR1763-4	+		
1			Modification	Date	Name				Copyright (c)	Work No.	IR1763-4	Sheet	15+

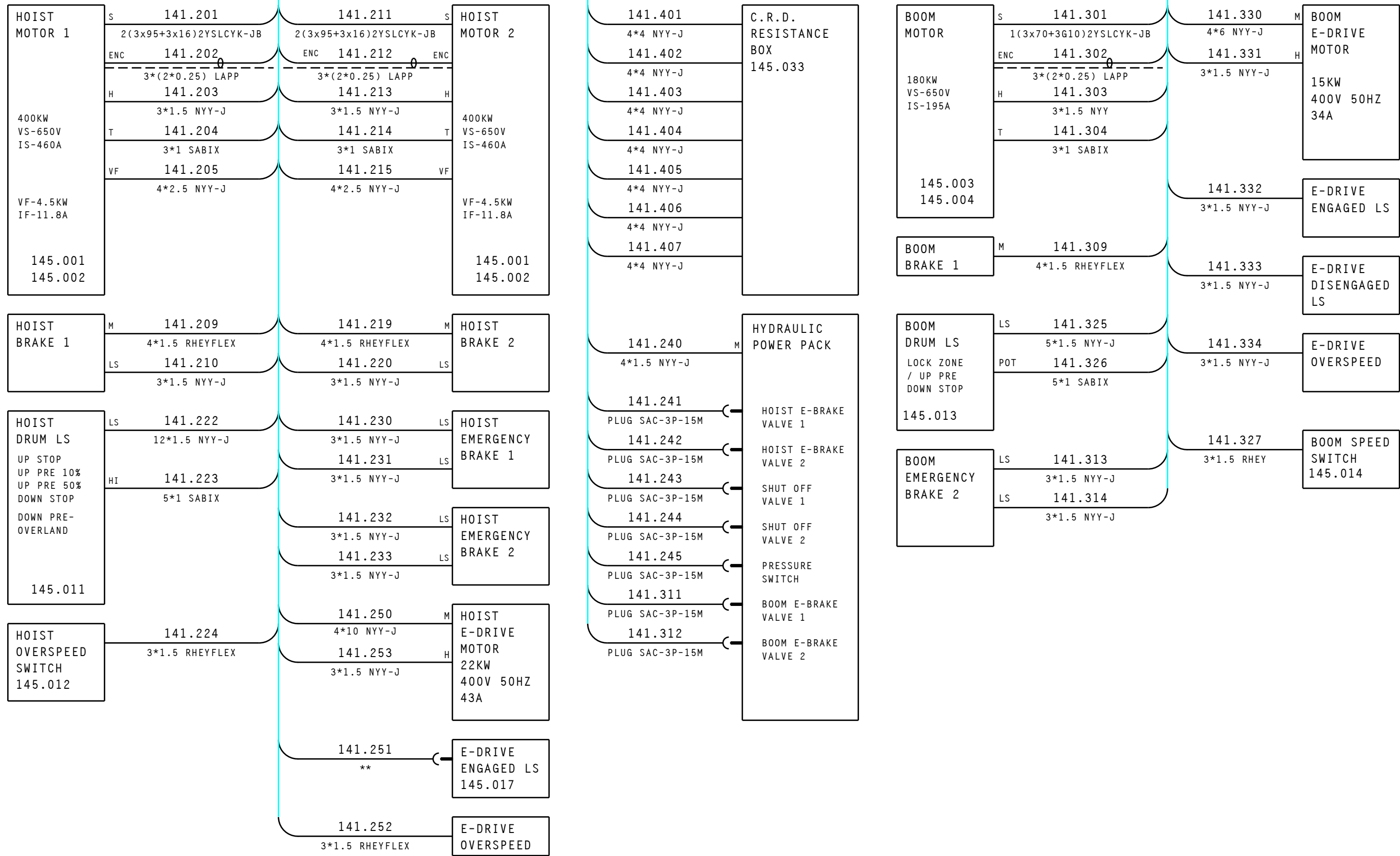
AUXILLARY SWITCHGEAR S2



3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES Copyright (c)	SPREADER	Drawing No. 4009-2627	=	EI
2			Checked						Project/ Work No. IR1763-4	+	
1	Modification	Date	Name	Date	Name				Sheet 16+		



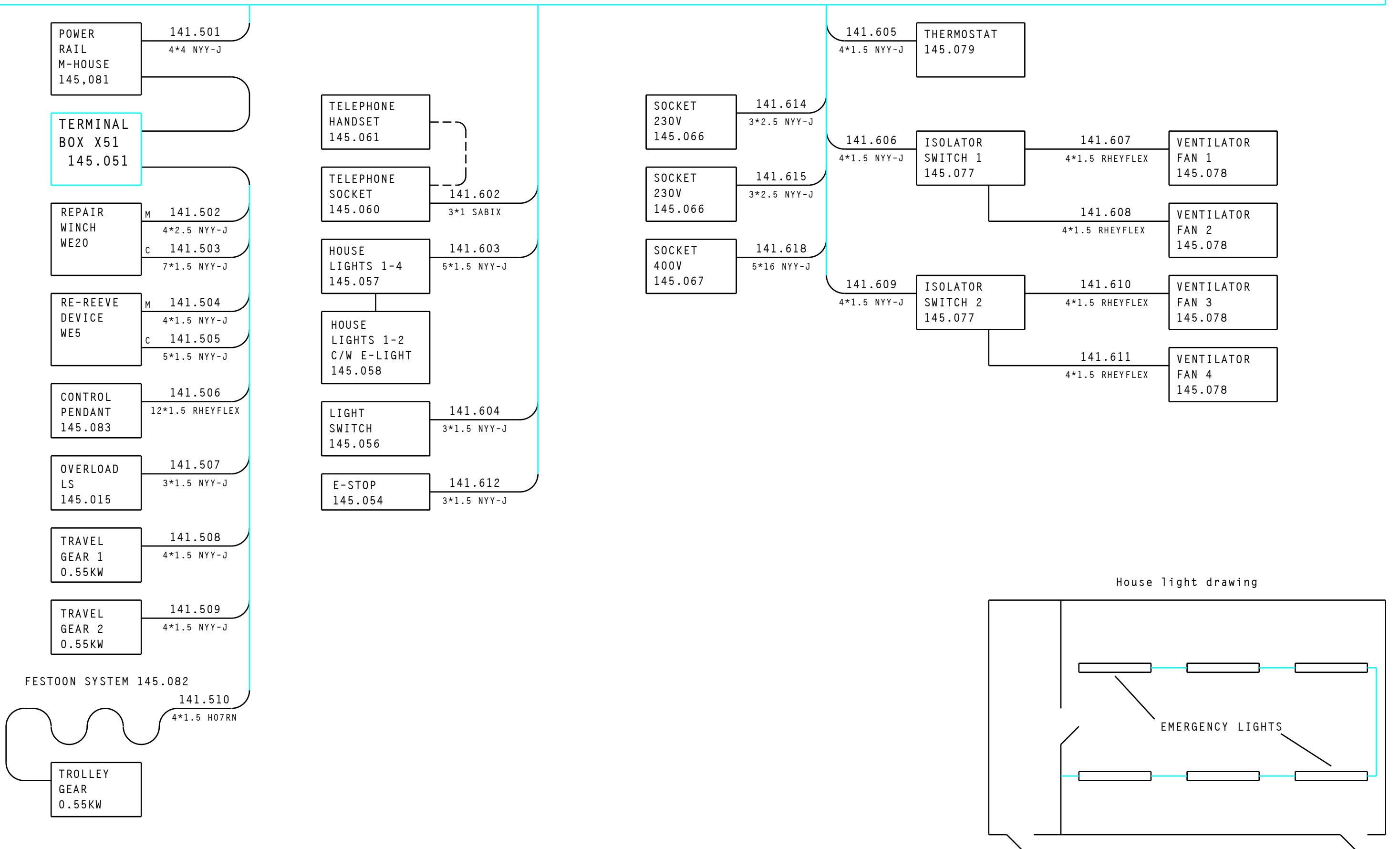
MAIN SWITCHGEAR S1



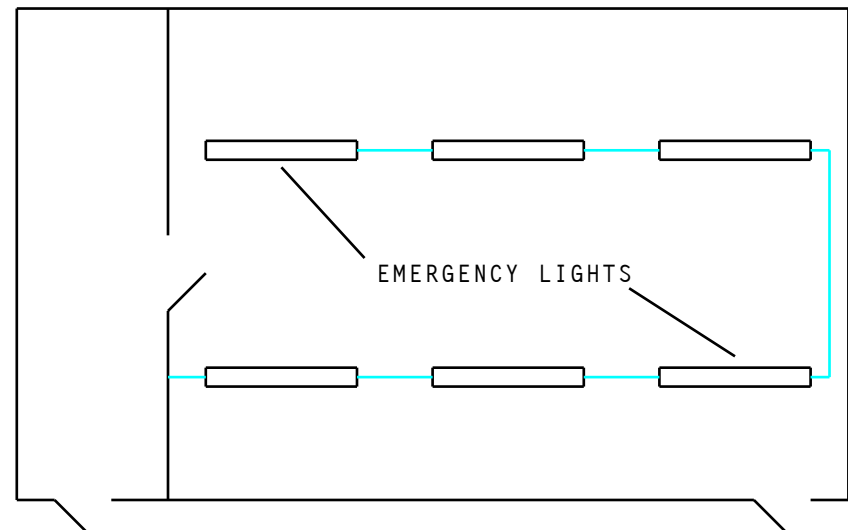
HOIST + BOOM GEAR

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES Copyright (c)	MACHINERY HOUSE	Drawing No.	4009-2627	=	EI
2			Checked						Project/	IR1763-4	+	
1			Modification	Date	Name				Work No.	IR1763-4	Sheet	18+

MAIN SWITCHGEAR S1



House light drawing



3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	M-HOUSE AUXILIARIES	Drawing No.	4009-2627	=	EI	
2			Checked						Project/ Work No.	IR1763-4	+		
1	Modification	Date	Name	Date	Name				Copyright (c)			Sheet	19+

MAIN SWITCHGEAR S1

A10-120	141.701	3(LAPP 1*120 FD 90 CY)	16-22	A10-120	+9A-Lm/UI
A10-120	141.702	3(LAPP 1*120 FD 90 CY)	16-22	A10-120	+9A-Lm/V1
A10-120	141.703	3(LAPP 1*120 FD 90 CY)	16-22	A10-120	+9A-Lm/W1
A10-95	141.705	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U1/L1
A10-95	141.706	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U1/L2
A10-95	141.707	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U1/L3
A10-95	141.708	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U2/L1
A10-95	141.709	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U2/L2
A10-95	141.710	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U2/L3
A10-95	141.711	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U3/L1
A10-95	141.712	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U3/L2
A10-95	141.713	2(LAPP 1*95 FD 90 CY)	16-22	A10-95	+3A-U3/L3
24V CONTROL	141.714	19*1.5 NYN	16-22		+9A
230V CONTROL	141.715	12*1.5 NYN	16-22		+7A
ANTI CONDENSATION HEATING	141.716	3*1.5 NYN	8-12		+11A
E-STOP	141.717	3*1.5 NYN	8-12		+7A
PHONE	141.718	3*1 SABIX	8-12		+7A
FAN	141.719	3*1.5 NYN	8-12		+9A

MAIN SUPPLY FILTER S5

E-STOP (1bc) 145.045

141.601	TELEPHONE SOCKET(DOOR)
3*1 SABIX	145.060

MAIN SWITCHGEAR S1

230V SCHUKO SKT  
LIGHT SWITCHES FIELD 1

H.T. E-STOP

165.041

ANEMOMETER  
DISPLAY  
165.072

TELEPHONE  
HANDSET  
165.061

TELEPHONE  
SOCKET 1  
165.060

EXTENSION  
LEAD  
165.063

TELEPHONE  
SOCKET 2  
165.060

HOUSE  
LIGHTS 1-4  
165.057  
165.058  
NORMAL-3  
EMERGENCY-1

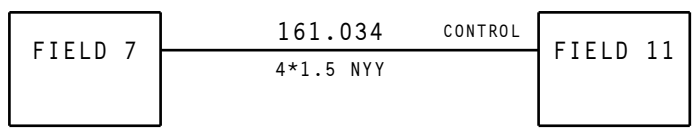
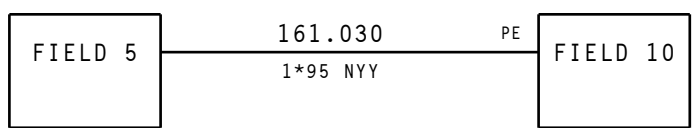
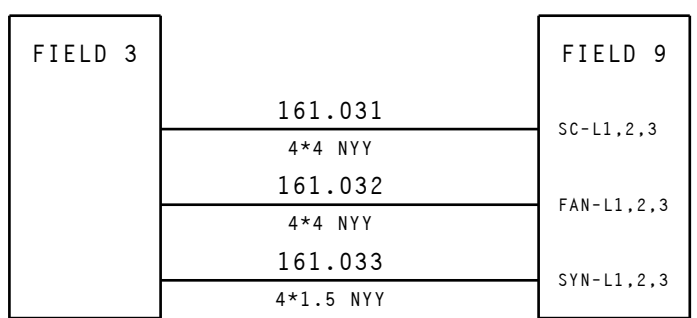
SOCKET  
230V  
165.066

SOCKET  
230V  
165.066

LIGHT SWITCHES FIELD 1

AIR  
CONDITIONER  
(INDOOR 1)  
165.070

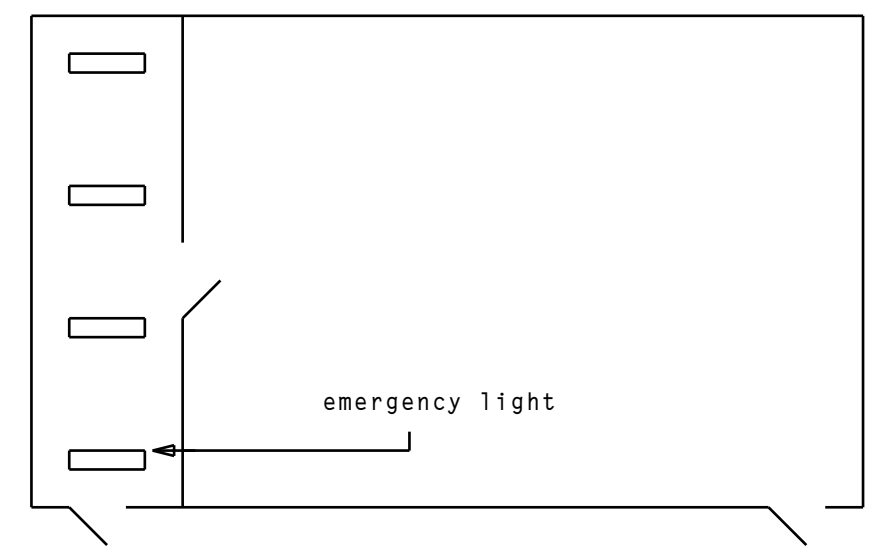
AIR  
CONDITIONER  
(INDOOR 2)  
165.070



COMPUTER  
ACCESSORIES  
165.044

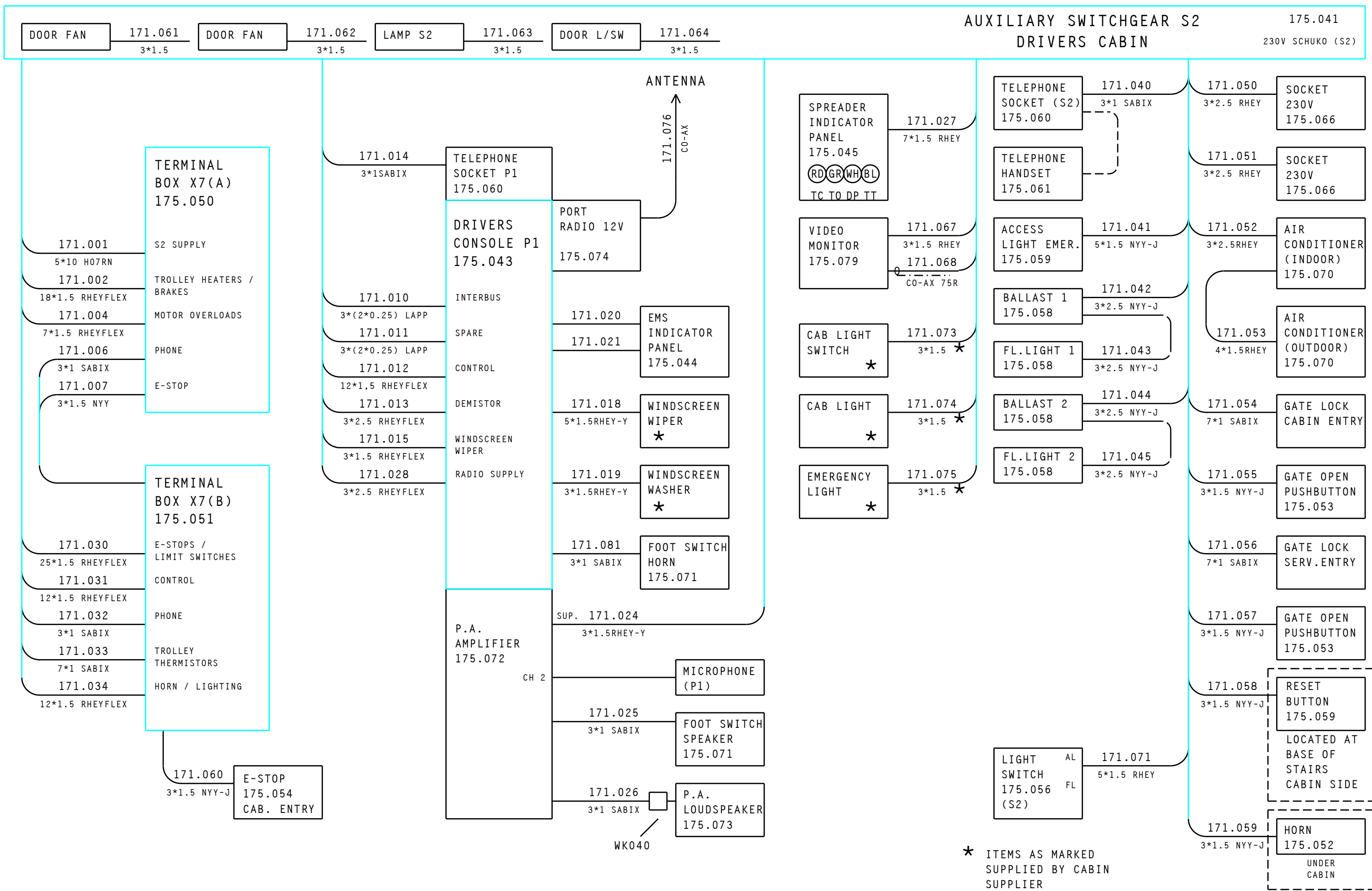
KEY  
CABINET  
165.090

House light positions



3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES Copyright (c)	ELECTRICAL HOUSE	Drawing No. 4009-2627	=	EI
2			Checked						Project/ Work No. IR1763-4	+	
1	Modification	Date	Name	Date	Name				Sheet	21+	





\* ITEMS AS MARKED SUPPLIED BY CABIN SUPPLIER

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	DRIVER'S CABIN	Drawing No.	4009-2627	=	EI
2			Checked						Project/	IR1763-4	+	
1									Work No.		Sheet	22+
	Modification	Date	Name	Date	Name		Copyright (c)					

CABLING

L.V. CABLES FROM H.T. TRANSFORMER TO MAIN SUPPLY PANEL TO BE LAYED IN TREFOIL FORMATION.  
 L.V. POWER SUPPLY TO BE NEUTRALISED AT ONE PLACE ONLY i.e. N - E BUSBAR LINK IN MAIN SUPPLY PANEL.  
 GENERAL SCREENED-CABLE BRAID TO BE GROUNDED AT ONE END OF CABLE ONLY (SWITCHGEAR),  
 BRAID TO BE CUT BACK AND TAPED OVER AT NON-GROUNDED END (EQUIPMENT).  
 CABLES TO OUTDOOR EQUIPMENT WITH HORIZONTAL GLANDS TO HAVE FORMED DIP PREVENTING WATER INGRESS BY GLAND.  
 INTERBUS-S COMMUNICATIONS CABLING - NOTE SPECIAL CONSIDERATIONS.  
 5-CORE CABLE TO M/E-HOUSE LIGHTING - WIRE BROWN+BLUE TO LIVE+NEUTRAL, BLACK SWITCH WIRE, GREY NOT USED. G/Y TO E.  
 5-CORE CABLE TO MOTOR HEATERS/FIELDS - WIRE BROWN/BLUE CORES TO HEATERS, BLACK=F1/GREY=F2 TO FIELDS.  
 5-CORE CABLE TO EQUIPMENT REQUIRING 3P+N+E - WIRE BROWN/BLACK/GREY TO R,S,T RESPECTIVELY, BLUE TO N, G/Y TO E  
 HEAT-SHRINK SLEEVING RED (A1) OR BLACK (A2) TO BE USED ON FESTOON MULTI-CORE CABLES TO D.C. MOTOR ARMATURES.  
 YELLOW FLYING LEADS ON STEGMAN ENCODERS SHOULD BE FITTED WITH HEAT SHRINK SLEEVING TO PROTECT CABLE AGAINST UV,  
 AND ENVIROMENTAL EXPOSURE WHICH MAY CORRODE AND DISINTEGRATE THE INSULATION ON THESE CABLES.

COLOUR CODE FOR CABLES

<u>3-CORE</u>	<u>4-CORE</u>	<u>5-CORE</u>
BROWN	BROWN	BROWN
BLUE	BLACK	BLUE
GREEN/YELLOW	GREY	BLACK
	GREEN/YELLOW	GREY
		GREEN/YELLOW

SPREADER CABLE - CORRECT HANDLING

CORRECT HANDLING OF SPREADER CABLE IS NECESSARY FOR RELIABLE COILING OPERATION IN SPREADER BASKET/TUB.  
 TO ELIMINATE THE NEED FOR UNREELING AND RE-REELING AND TO FACILITATE PRE FITTING PLUGS/TERMINATIONS  
 IS ORDERED "JOY WOUND" ON TO A SPECIAL SHIPPING REEL WHERE BOTH ENDS ARE ACCESSIBLE.  
 DIRECTLY FEED THE CABLE INTO THE SPREADER BASKET IN A COUNTER-CLOCKWISE DIRECTION FROM THE TOP  
 OF THE TRANSPORT REEL. NO TWISTING OF THE CABLE SHOULD BE INDUCED WHILE IT IS FED INTO THE BASKET/TUB.  
 SILICONE GREASE TO BE APPLIED TO SPREADER CABLE (SPREADERFLEX OR CORDAFLEX) ON SITE PRIOR TO CRANE USAGE.  
 SCREENED CABLES (PHONES, JOYSTICKS ETC.) TO BE LOCATED AWAY FROM MAINS/MOTOR DC CABLES AT INSTALLATION.

EQUIPMENT

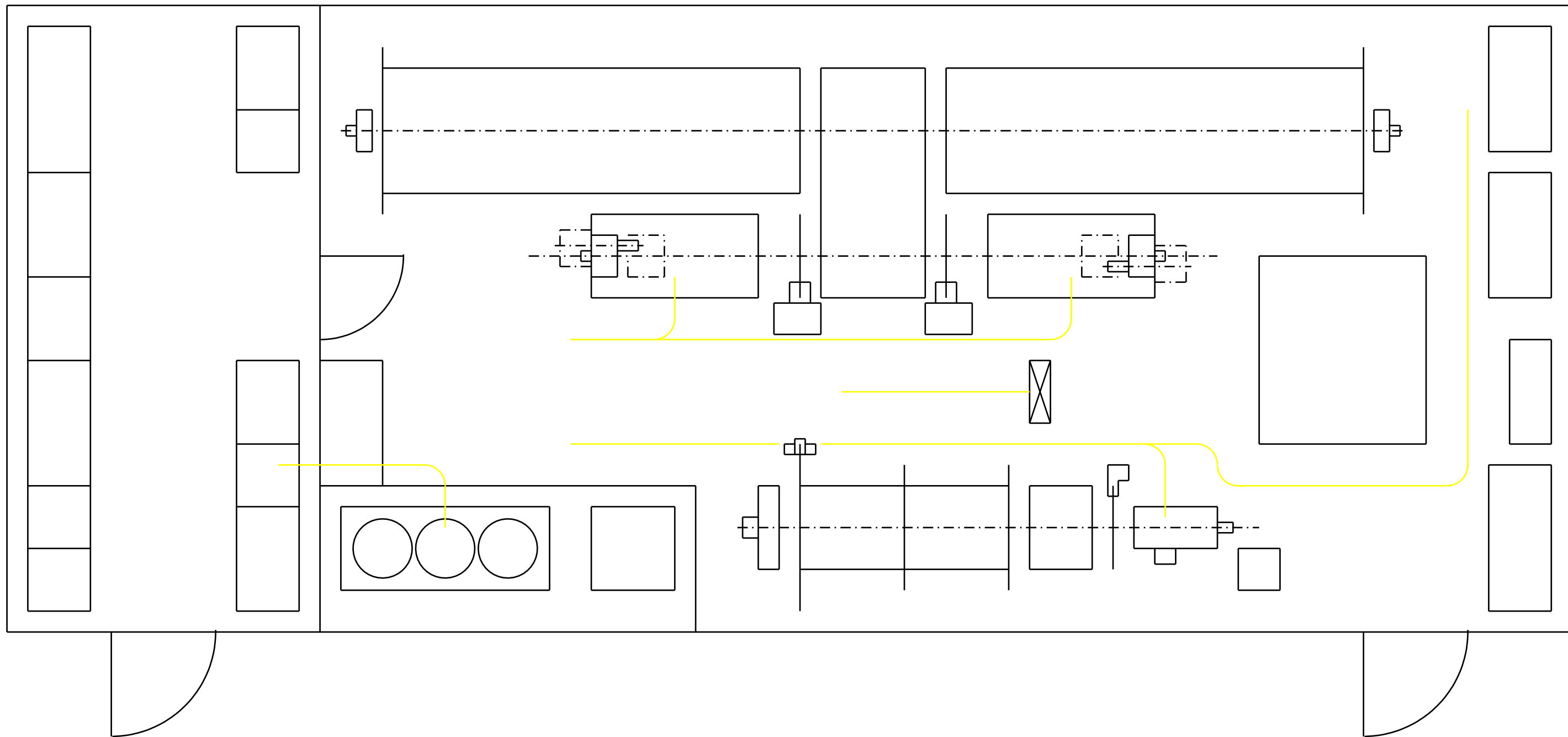
WATER DRAIN/ANTI-CONDENSATION PLUG TO BE REMOVED ON ALL DRIVE MOTORS PRIOR TO MOUNTING,  
 EXCEPT MOTORS WITH AIR/AIR HEAT EXCHANGERS WHERE PLUG AT NON DRIVE-END ONLY SHOULD BE REMOVED.  
 WATER DRAIN/ANTI-CONDENSATION PLUG TO BE REMOVED ON CABLE REELING DRUM AND GUIDE LIMIT SWITCHES.  
 BREATHERS TO BE FITTED TO MAIN SUPPLY AND SPREADER CABLE REELING DRUM GEARBOXES.  
 WATER DRAIN/ANTI-CONDENSATION HOLE TO BE DRILLED IN BASE OF ALL OUTDOOR ACCESS LIGHTS, BEACONS, ALARMS ETC.  
 RUST PREVENTION GREASE TO BE APPLIED TO COVER SECURING SCREWS ON CABLE AND EQUIPMENT TERMINAL BOXES,  
 CAPACITOR (6,8uF) TO BE FITTED ACROSS POWER SUPPLY TERMINALS OF 24VDC YODALARMS.  
 SPOT OF SILICONE OR GLUE TO BE PLACED AT REAR OF LEGEND PLATES.  
 ALL ELECTRICAL PANEL DOORS AND RAILS TO HAVE EARTH STRAP - SIZE 2.5 QMM.  
 SPEAKER OUTPUT FROM AMP TO BE WIRED THROUGH FOOT-SWITCH ON P.A. SYSTEM.  
 POTENTIOMETERS AND ENCODERS TO REMAIN DICONNECTED FOR FACTORY/SITE TESTING.  
 ALL ELECTRICAL CONNECTIONS IN, SWITCHBOXES, TERMINAL BOXES AND ITEMS OF EQUIPMENT SHOULD BE FULLY TIGHTENED.

DRAIN HOLES :-

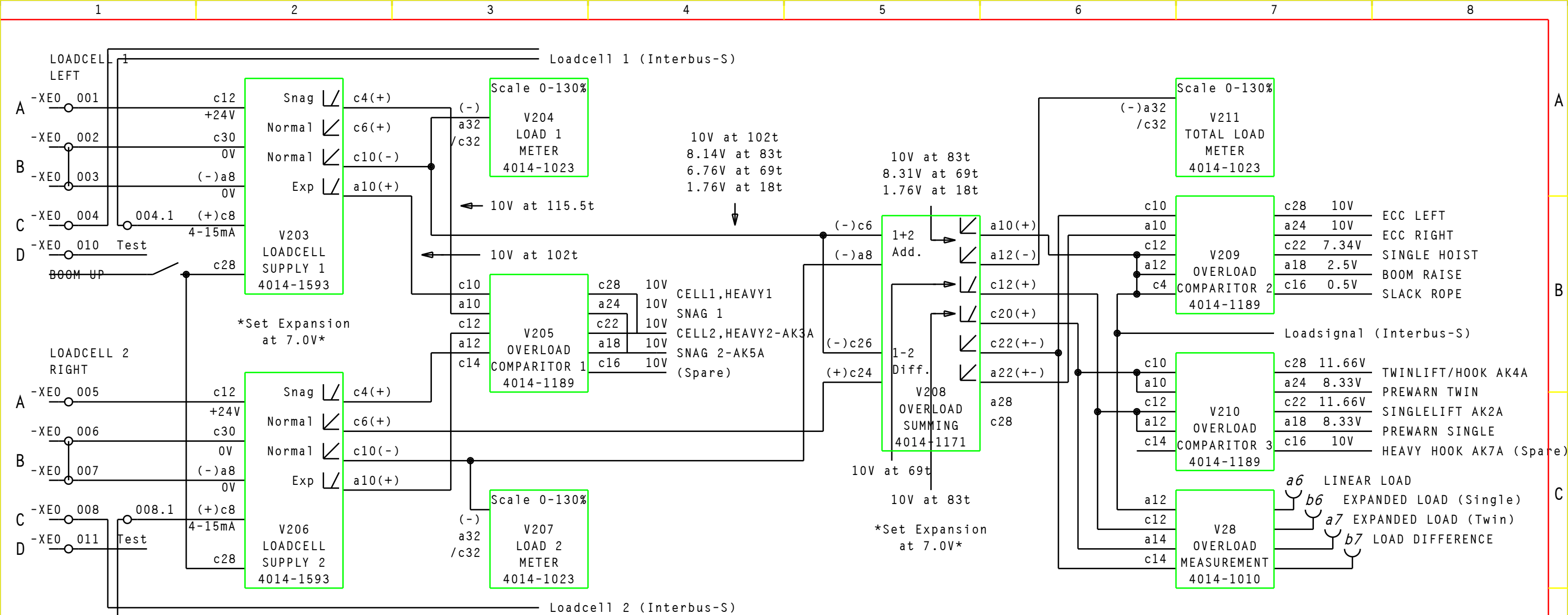
EXTERNAL TERMINAL BOXES AND EQUIPMENT ITEMS TO HAVE WATER DRAIN HOLES DRILLED IN BASES.

COLOUR ABBREVIATIONS	
BLACK	= BK
BROWN	= BN
RED	= RD
ORANGE	= OG
YELLOW	= YL
GREEN	= GN
BLUE	= BU
VIOLET	= VT
GREY	= GY
WHITE	= WH
PINK	= PK
TURQUOISE	= TQ
LILAC	= LC
EARTH	= GN/YL (GREEN/YELLOW)

3			Drawn	22.04.09	MC		LIEBHERR CONTAINER CRANES	ELECTRICAL INSTALLATION NOTES	Drawing No. 4009-2627	= EI		
2			Checked								Project/ Work No. IR1763-4	Sheet 23 -
1	Modification	Date	Name	Date	Name							



3			Drawn	22.04.09	MB		LIEBHERR CONTAINER CRANES Copyright (c)	Drawing No. 4009-2627	Project/ Work No. IR1763-4	=
2			Checked							+
1	Modification	Date	Name	Date	Name					Sheet 2 -



Loadcell Test => 4-15mA + 18mA test

- SnagLoad - 115.5t =>  $115.5/102 \cdot 11 + 4 = 16.46\text{mA}$
- MaxLoad - 102t =>  $11 + 4 = 15\text{mA}$
- TwinLoad - 83t =>  $83/102 \cdot 11 + 4 = 12.95\text{mA}$
- SingleLoad - 69t =>  $69/102 \cdot 11 + 4 = 11.44\text{mA}$
- Spreader - 18t =>  $18/102 \cdot 11 + 4 = 5.94\text{mA}$

- V203/V206:c4 - Snag Load - 115.5t = 10V (expanded)
- V203/V206:c6/c10 - Max Load - 102t = +/-10V (linear)
- V203/V206:c6/c10 - Twin Load - 83t = +/-8.14V (linear)
- V203/V206:c6/c10 - Single Load - 69t = +/-6.76V (linear)
- V203/V206:c6/c10 - Spreader Load - 18t = +/-1.76V (linear)
- V203/V206:a10 - Max Load/Heavy Lift - 102t = 10V (expanded)
- V208:a10/a12 - Twin Load (1+2) - 83t = 10V (linear)
- V208:a10/a12 - Single Load (1+2) - 69t = 8.31V (linear)
- V208:a10/a12 - Spreader Load (1+2) - 18t = 2.17V (linear)
- V208:c12 - Single Load (1+2) - 69t = 10V (expanded)
- V208:c20 - Twin Load (1+2) - 83t = 10V (expanded)
- V208:c22/a22 - Ecc. (diff.1/2) - 100% = +/-10V (linear)

- Eccentric Left = 10V
- Eccentric Right = 10V
- Single Hoist =  $40\text{t} + 18\text{t} = 58\text{t} + 5\% = 60.9\text{t} / 83\text{t} = 7.34\text{V}$
- Boom Raise =  $18\text{t} / 83\text{t} = 2.17\text{V} \Rightarrow \text{Set } 2.5\text{V}$
- Slack Rope = 0.5V

- TwinLift/Hookbeam =  $65\text{t} + 18\text{t} = 83\text{t} + 5\% = 87.15\text{t} \Rightarrow 11.66\text{V}$
- PreWarn TwinLift =  $83\text{t} \cdot 95\% = 78.85\text{t} \Rightarrow 8.33\text{V}$
- SingleLift =  $51\text{t} + 18\text{t} = 69\text{t} + 5\% = 72.45\text{t} \Rightarrow 11.66\text{V}$
- PreWarn Single =  $69\text{t} \cdot 95\% = 65.55\text{t} \Rightarrow 8.33\text{V}$
- HeavyHook = N/A

Loads:

- Heavy Lift : N/A
- Twin Lift : 65t + 18t = 83t
- Single Lift : 51t + 18t = 69t
- Hook Beam : 75t + 8t = 83t

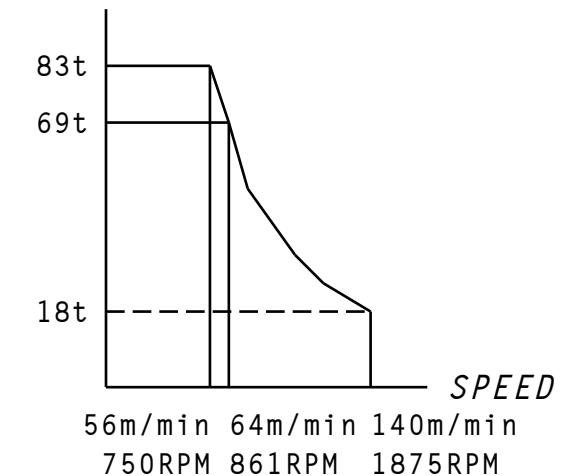
Speeds:

- 83t - 56m/min - 750rpm
- 69t - 64m/min - 861rpm
- 18t - 140m/min - 1875rpm

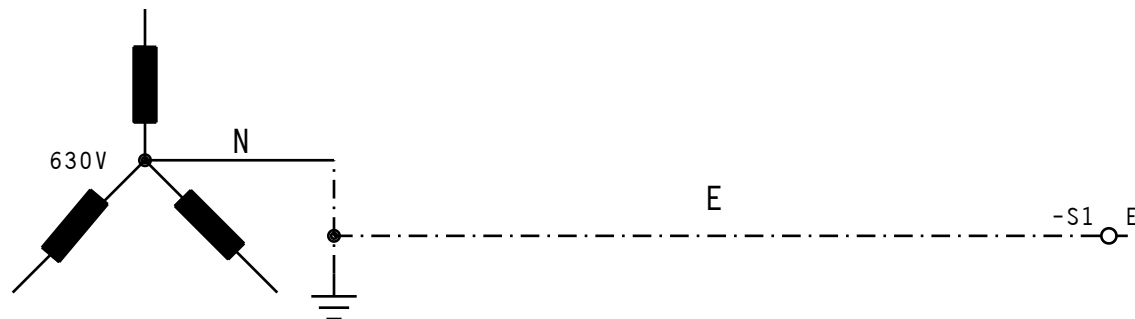
Hyperbola:

$18\text{t} / 83\text{t} \cdot 10 = 2.17\text{V}$

LOAD

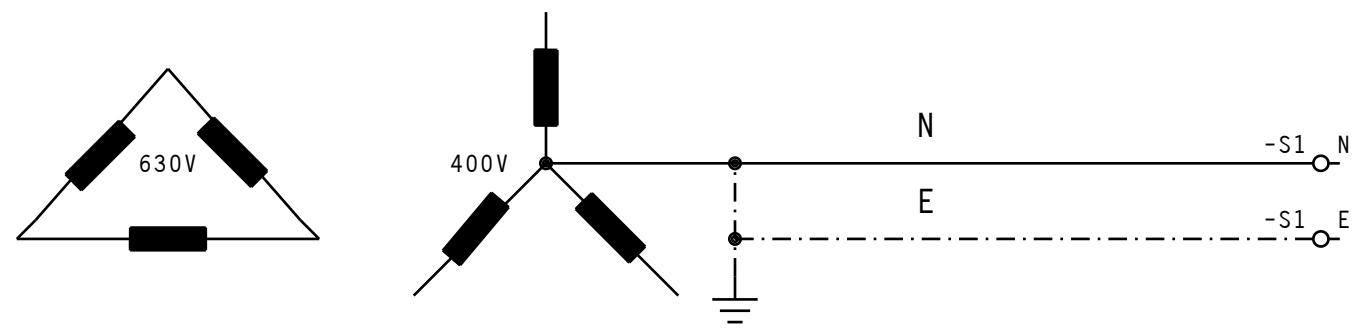


3			Gez.	22.04.09	JC		MaBstab	LIEBHERR-WERK	OVERLOAD SYSTEM DIAGRAM	TYPE	4009-2627	=	OVERLOAD
2							:	BIBERACH GmbH		Zeich-Nr.	IR1763-4	+	
1			Bearb.									Blatt	1-
	Änderung	Datum	Name	Datum	Name			Copyright (c)				Ident Nr.	



Star-PE bond only at Transformer

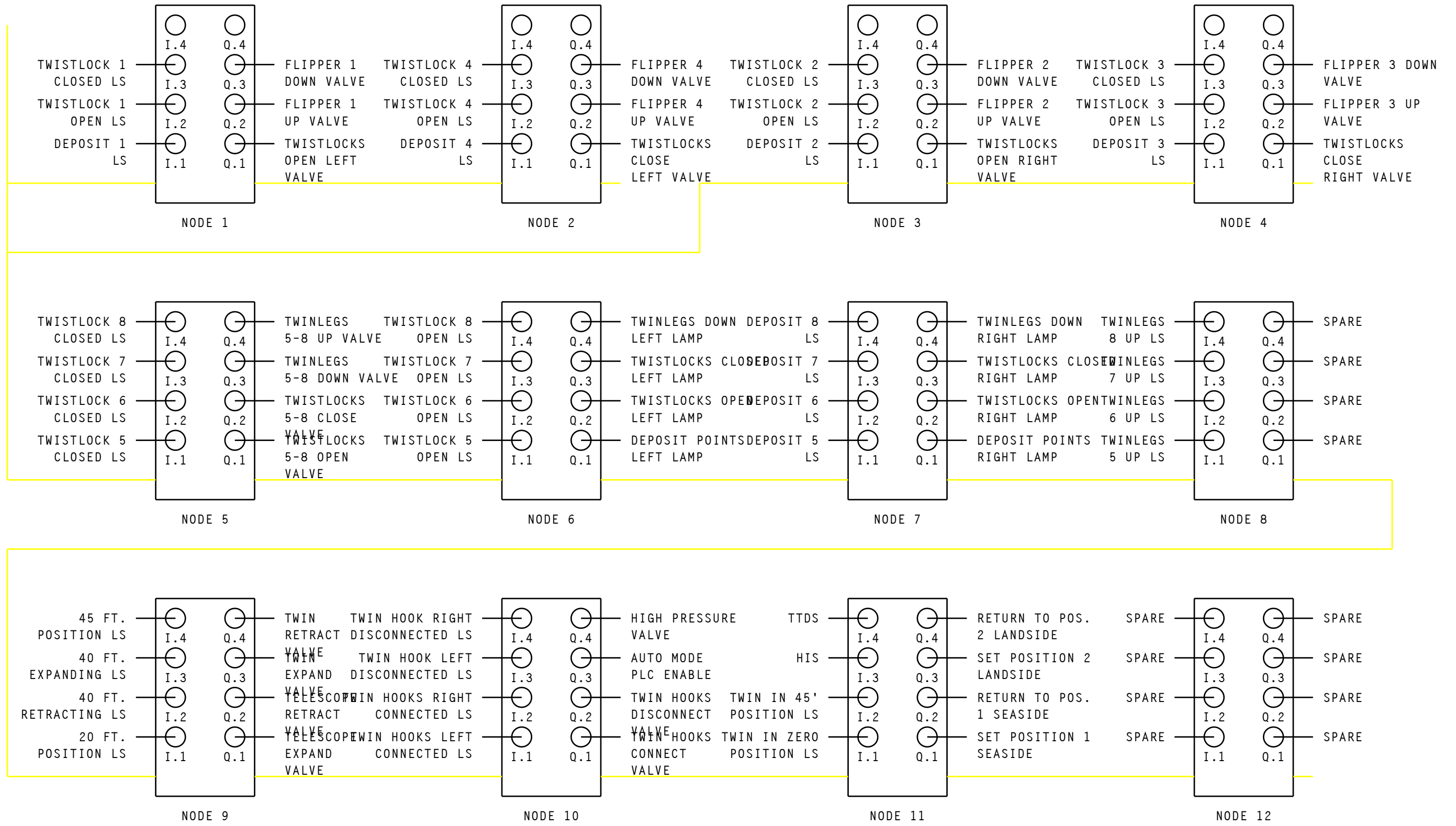
MAIN TRANSFORMER



Star-PE bond only at Transformer  
N-E bond only at Transformer

H+L TRANSFORMER

3			Drawn	22.04.09	JC		LIEBHERR CONTAINER CRANES Copyright (c)	630V/400V N-E SCHEMATIC	Drawing No. 4009-2627	= PE
2			Checked						Project/ Work No. IR1763-4	+ Sheet 1-
1	Modification	Date	Name	Date	Name					



3			Drawn	22.04.09	JC		LIEBHERR CONTAINER CRANES	SPREADER ASI MODULE LAYOUT	Drawing No.	4009-2627	=	S
2			Checked						Project/	IR1763-4	+	S
1			Modification	Date	Name				Work No.	IR1763-4	Sheet	1-