

EXPRESS-AS380 전기도면

(MRL표준)

기 종 : EXPRESS-AS380(V11)표준도면

발 주 처 :

EXPRESS LIFT Co.,LTD

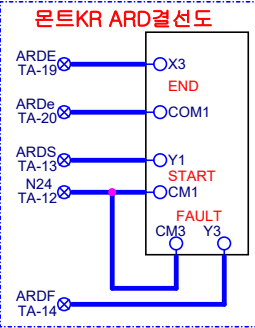
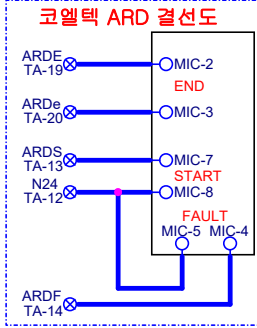
13	NAME	부품 약어 및 적용표	
12	LOCATION	SIGNAL & CONTACT LOCATION	
11	SYMBOL	SYMBOL SPECIFIC	
10	COL.J	카주위 및 운전반 결선도	CARTOP-V10
9	COL.I	기계실 및 승강로 결선도	
8	COL.H	회로 결선도 (전체 계통도)	
7	COL.G	LIGHT & INTERPHONE CIRCUIT	
6	COL.F	HALL DISPLAY & CALL CONTROL	SM-04
5	COL.E	CAR CONTROL CIRCUIT	SM-02,SM-03
4	COL.D,D1~D4	DOOR CONTROL CIRCUIT	DCB
3	COL.C,C1~C2	MAIN CONTROL CIRCUIT	AS.T029
2	COL.B1~B4	POWER & SAFETY CIRCUIT	POWER-V10
1	COL.A1~A3	ARD CONTROL CIRCUIT	ARD SUPPLY
	COL.A	TRACTION CIRCUIT	INVERTER
NO	COL.NO	DESCRIPTION	NOTE
Size	Document Number		Rev
Custom	EXPRESS-AS380		V11
Date:	Wednesday, January 27, 2021		Sheet 0 of 10



(주)익스프레스리프트

COL.A(비동기-MRL)

NO	NAME	DEFINITION
PM	AR	ARD OUTPUT-R
PM	AS	ARD OUTPUT-S
PM	AT	ARD OUTPUT-T
PM	N1	ARD OUTPUT-N
PM	U	MOTOR-U
PM	V	MOTOR-V
PM	W	MOTOR-W

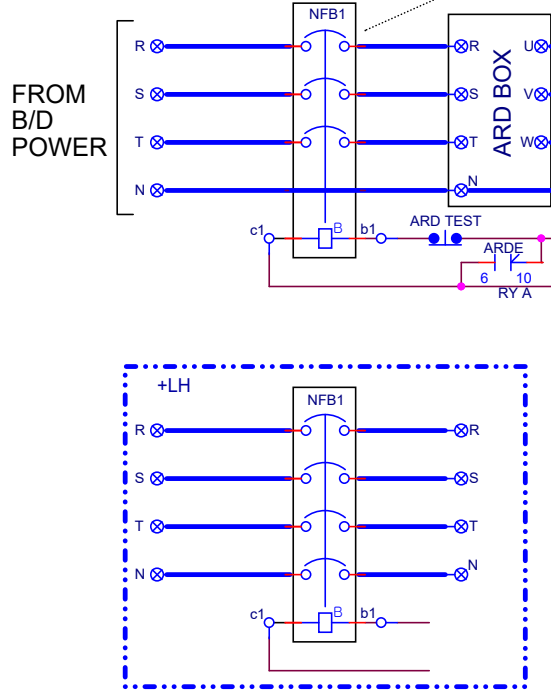


Kw	NFB1	NFB1(LH/SH)
5.5/7.5	ABS33-30A	ABS34-30A
9.5/11	ABN53-40A	ABN54-40A
13/15	ABN53-50A	ABN54-50A
18.5/22	ABN63-60A	ABN64-60A
30	ABN103-75A	ABN104-75A
37	ABN103-100A	ABN104-100A

Kw	Spec(N,F)	Spec(N,F)
5.5/7.5	FT310-25	AF380-4T018
11	FT310-30	AF380-4T027
15	FT310-40	AF380-4T034
18.5	FT310-50	AF380-4T041
22	FT310-60	AF380-4T048
30	FT310-80	AF380-4T065

Kw	Spec(CABLE)
5.5/7.5	6SQ
9.5/11	6SQ
13/15	10SQ
18.5	10SQ
22/30	16SQ

Kw	Spec (MC,MY)
5.5	MC-22 SC-4-0/G
7.5	MC-32 SC-5-1/G
9.5/11	MC-32 SC-N1/G
13/15	MC-50 SC-N2/G
18.5	MC-50 SC-N2S/G
22	MC-65 SC-N2S/G
30	MC-85 SC-N3/G



NOISE FILTER

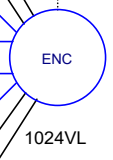
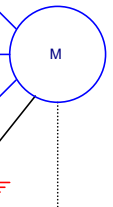
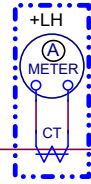
INVERTER
UFC
AS380

Kw	Current
5.5	13A
7.5	18A
11	27A
15	34A
18.5	41A
22	48A
30	65A

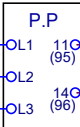
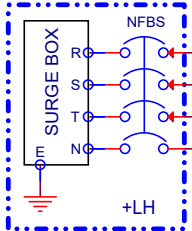


AS.T041

E80H-40-1024-VL								
1	2	3	4	5	6	7	8	S
A+	A-	B+	B-	Z+	Z-	5V	0V	PE
흑색		백색		등색	갈색	청색		실드



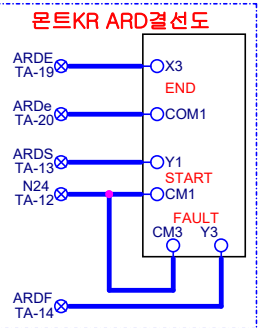
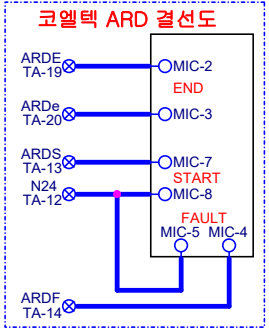
TO COL.B1



JP9-4(X13)
TO COL.C

DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	TRACTION CIRCUIT
Size	Document Number		Rev
Custom	EXPRESS-AS380	(주)익스프레스리프트	V11
Date	Wednesday, January 27, 2021	Sheet	1 of 10

COL.A(동기-MRL)



Kw	NFB1	NFB1(LH/SH)
5.5/7.5	ABS33-30A	ABS34-30A
9.5/11	ABN53-40A	ABN54-40A
13/15	ABN53-50A	ABN54-50A
18.5/22	ABN63-60A	ABN64-60A
30	ABN103-75A	ABN104-75A
37	ABN103-100A	ABN104-100A

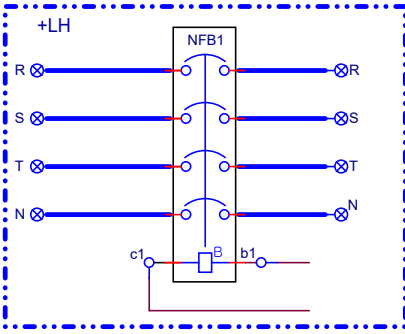
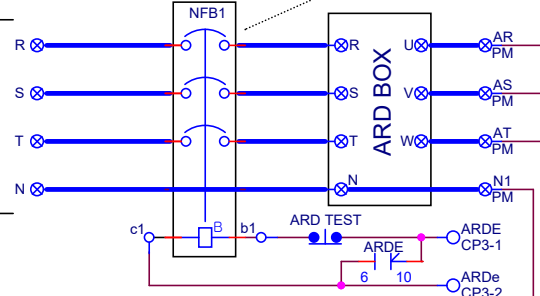
Kw	Spec(N,F)	Spec(N,F)
5.5/7.5	FT310-25	AF380-4T018
11	FT310-30	AF380-4T027
15	FT310-40	AF380-4T034
18.5	FT310-50	AF380-4T041
22	FT310-60	AF380-4T048
30	FT310-80	AF380-4T065

Kw	Spec(CABLE)
5.5/7.5	6SQ
9.5/11	6SQ
13/15	10SQ
18.5	10SQ
22/30	16SQ

Kw	Spec (MC,MY)	Spec (MC,MY)
5.5	MC-22	SC-4-0/G
7.5	MC-32	SC-5-1/G
9.5/11	MC-32	SC-N1/G
13/15	MC-50	SC-N2/G
18.5	MC-50	SC-N2S/G
22	MC-65	SC-N2S/G
30	MC-85	SC-N3/G

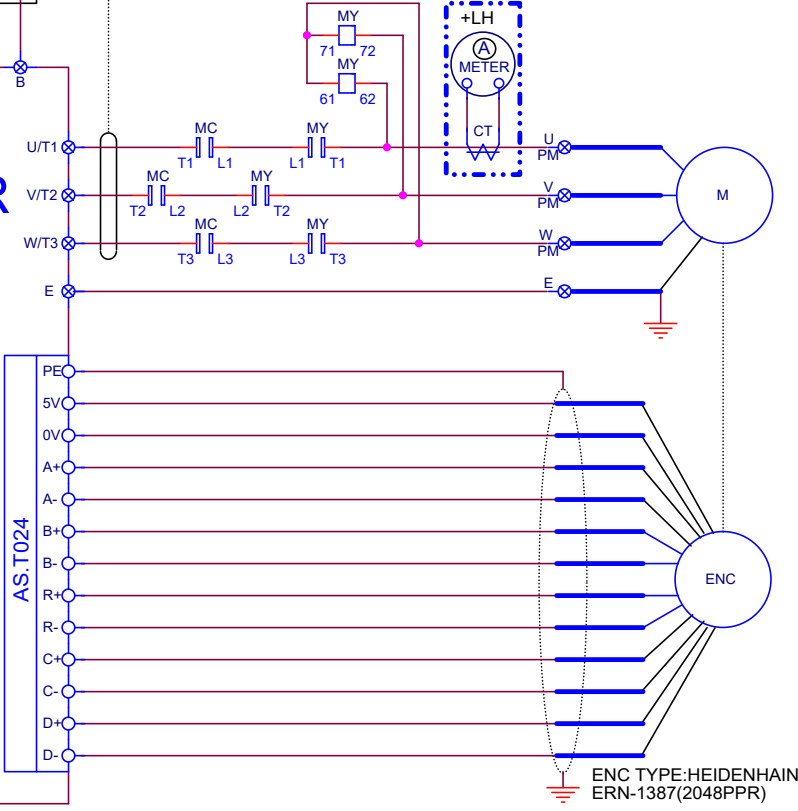
PM	NAME	DEFINITION
PM	AR	ARD OUTPUT-R
PM	AS	ARD OUTPUT-S
PM	AT	ARD OUTPUT-T
PM	N1	ARD OUTPUT-N
PM	U	MOTOR-U
PM	V	MOTOR-V
PM	W	MOTOR-W

FROM B/D POWER

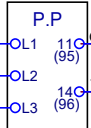
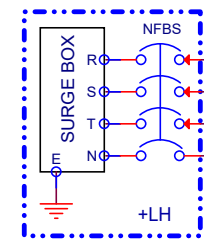


INVERTER
UFC AS380

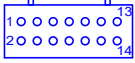
Kw	Current
5.5	13A
7.5	18A
11	27A
15	34A
18.5	41A
22	48A
30	65A



TO COL.B1

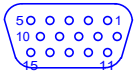


엔코더기판에 콘넥터를 꽂은상태에서의 PIN번호



AS.T024-JP2(엔코더 기판측)															
PIN No	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
SIGNAL	--	--	R-	R+	B-	B+	A-	A+	D-	D+	C-	C+	0V	5V	GND
COLOR	--	--	R-	R+	B-	B+	A-	A+	D-	D+	C-	C+	0V	5V	GND

엔코더기판측 콘넥터를 바라볼때(구멍만 보임)



COLOR	--	--	R-	R+	B-	B+	A-	A+	D-	D+	C-	C+	0V	5V	--
SIGNAL	--	--	P4	P3	P1	P8	P6	P5	P13	P12	P10	P11	P7	P9	--
PIN No	--	--	P4	P3	P1	P8	P6	P5	P13	P12	P10	P11	P7	P9	--

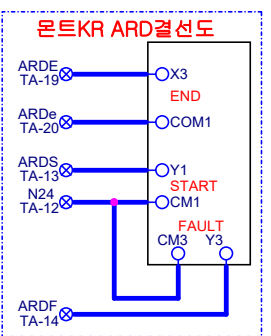
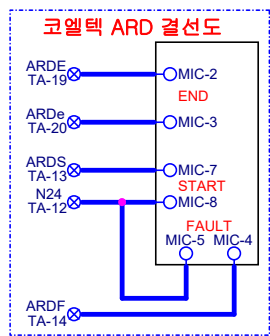
ERN-1387(HEIDENHAIN 엔코더 측)

DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD	TITLE		TRACTION CIRCUIT
Size	Document Number		Rev
Custom	EXPRESS-AS380		V11
Date	Wednesday, January 27, 2021	Sheet	1 of 10

(주)익스프레스리프트

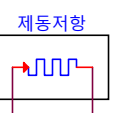
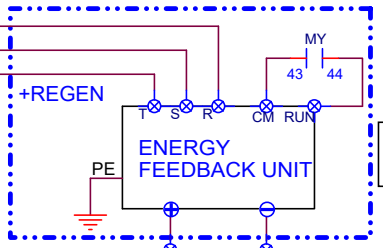
COL.A(비동기-MRL+REGEN)

PM단자대(동력단자대)		
NO	NAME	DEFINITION
PM	AR	ARD OUTPUT-R
PM	AS	ARD OUTPUT-S
PM	AT	ARD OUTPUT-T
PM	N1	ARD OUTPUT-N
PM	U	MOTOR-U
PM	V	MOTOR-V
PM	W	MOTOR-W



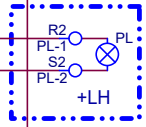
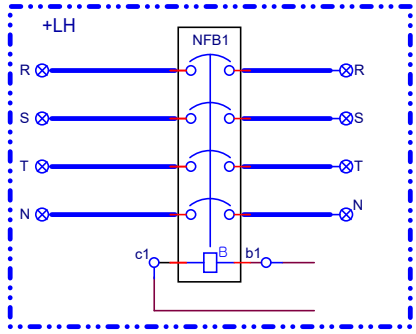
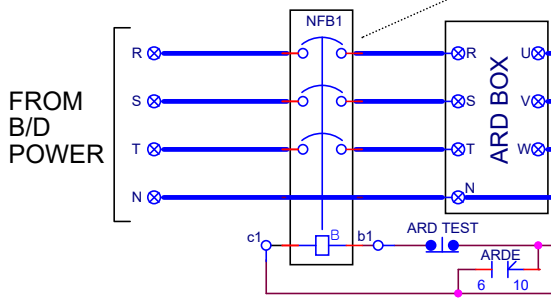
Kw	Spec(N,F)
5.5/7.5	AF380-4T018
11	AF380-4T027
15	AF380-4T034
18.5	AF380-4T041
22	AF380-4T048
30	AF380-4T065

Kw	NFB1(LH/SH)
5.5/7.5	ABS34-30A
9.5/11	ABN54-40A
13/15	ABN54-50A
18.5/22	ABN64-60A
30	ABN104-75A
37	ABN104-100A



Kw	Spec(CABLE)
5.5/7.5	6SQ
9.5/11	6SQ
13/15	10SQ
18.5	10SQ
22/30	16SQ

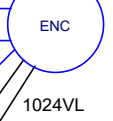
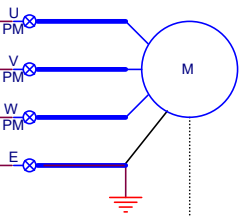
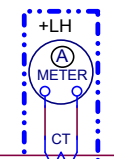
Kw	Spec	MC,MY
5.5	MC-22	SC-4-0/G
7.5	MC-32	SC-5-1/G
9.5/11	MC-32	SC-N1/G
13/15	MC-50	SC-N2/G
18.5	MC-50	SC-N2S/G
22	MC-65	SC-N2S/G
30	MC-85	SC-N3/G



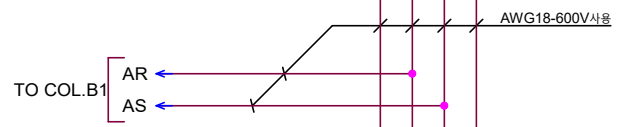
Kw	Current
5.5	13A
7.5	18A
11	27A
15	34A
18.5	41A
22	48A
30	65A

INVERTER
UFC
AS380

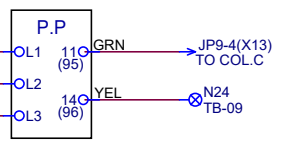
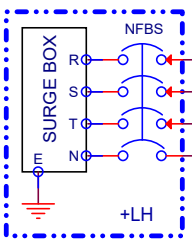
AS.T041



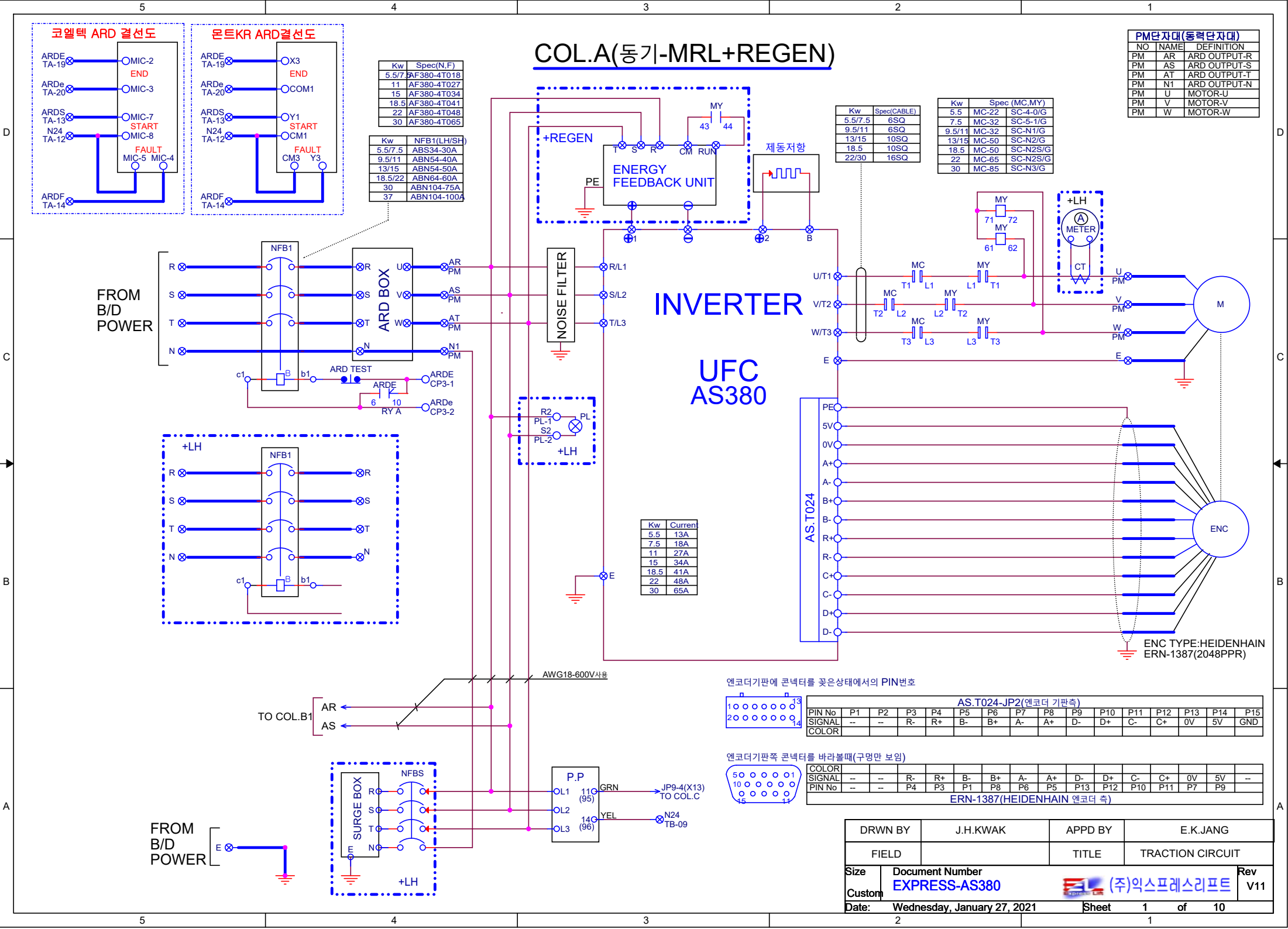
E80H-40-1024-VL							
1	2	3	4	5	6	7	8
A+	A-	B+	B-	Z+	Z-	5V	0V
흑색		백색		등색	갈색	청색	실드



FROM B/D POWER



DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	TRACTION CIRCUIT
Size	Document Number		Rev
Custom	EXPRESS-AS380	(주)익스프레스리프트	V11
Date:	Wednesday, January 27, 2021	Sheet	1 of 10



COL.A(동기-MRL+REGEN)

PM단자대(동력단자대)		
NO	NAME	DEFINITION
PM	AR	ARD OUTPUT-R
PM	AS	ARD OUTPUT-S
PM	AT	ARD OUTPUT-T
PM	N1	ARD OUTPUT-N
PM	U	MOTOR-U
PM	V	MOTOR-V
PM	W	MOTOR-W

Kw	Spec(N,F)
5.5/7.5	AF380-4T018
11	AF380-4T027
15	AF380-4T034
18.5	AF380-4T041
22	AF380-4T048
30	AF380-4T065

Kw	NFB1(LH/SH)
5.5/7.5	ABS34-30A
9.5/11	ABN54-40A
13/15	ABN54-50A
18.5/22	ABN64-60A
30	ABN104-75A
37	ABN104-100A

Kw	Spec(CABLE)
5.5/7.5	6SQ
9.5/11	6SQ
13/15	10SQ
18.5	10SQ
22/30	16SQ

Kw	Spec (MC,MY)
5.5	MC-22 SC-4-0/G
7.5	MC-32 SC-5-1/G
9.5/11	MC-32 SC-N1/G
13/15	MC-50 SC-N2/G
18.5	MC-50 SC-N2S/G
22	MC-65 SC-N2S/G
30	MC-85 SC-N3/G

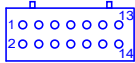
INVERTER
UFC
AS380

Kw	Current
5.5	13A
7.5	18A
11	27A
15	34A
18.5	41A
22	48A
30	65A

AS.T024

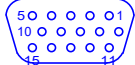
ENC TYPE:HEIDENHAIN
ERN-1387(2048PPR)

엔코더기판에 콘넥터를 꽂은상태에서의 PIN번호



AS.T024-JP2(엔코더 기판측)															
PIN No	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
SIGNAL	--	--	R-	R+	B-	B+	A-	A+	D-	D+	C-	C+	0V	5V	GND
COLOR															

엔코더기판쪽 콘넥터를 바라볼때(구멍만 보임)



COLOR	--	--	R-	R+	B-	B+	A-	A+	D-	D+	C-	C+	0V	5V	--
SIGNAL			P4	P3	P1	P8	P6	P5	P13	P12	P10	P11	P7	P9	
PIN No															

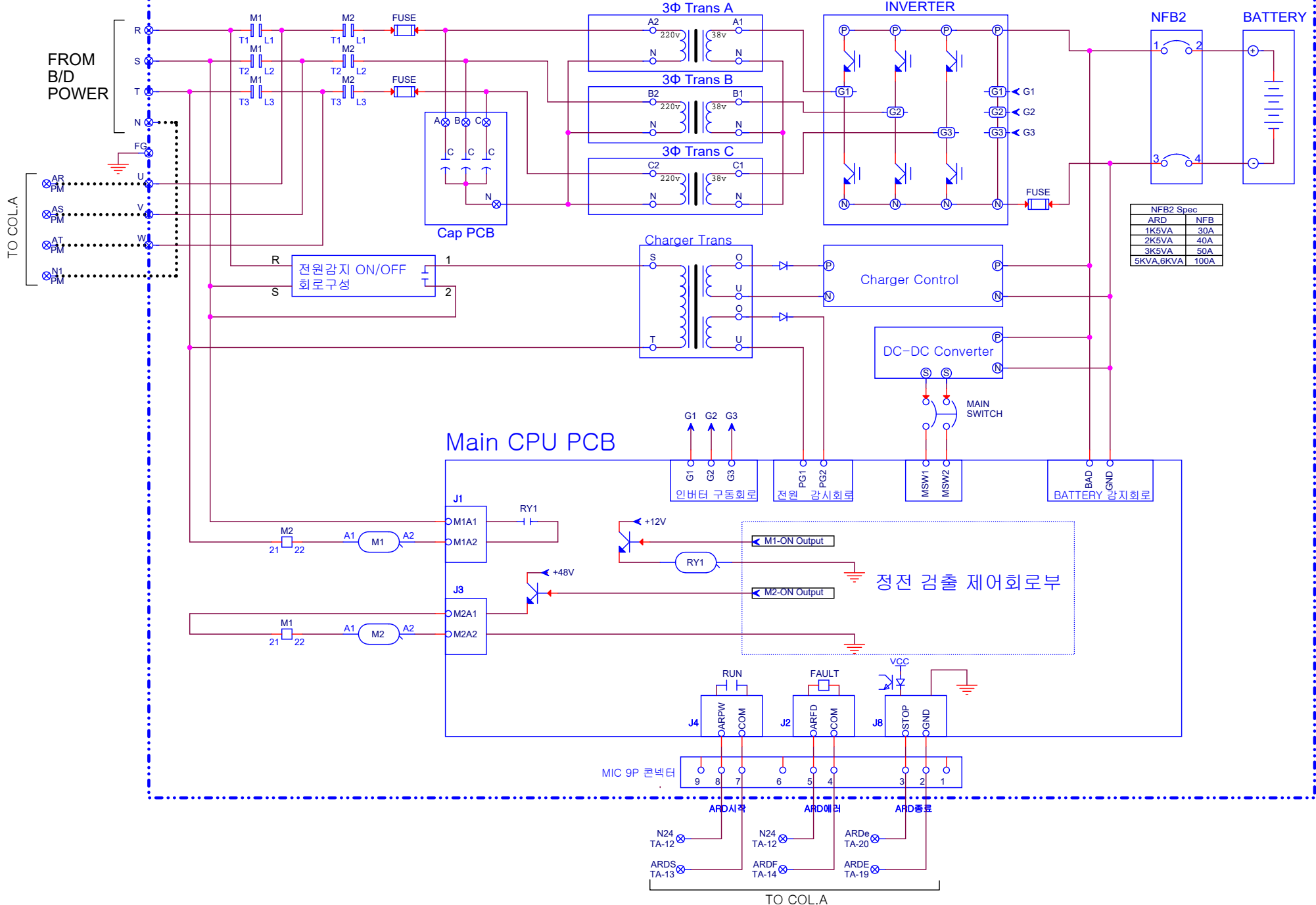
ERN-1387(HEIDENHAIN 엔코더 측)

DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	TRACTION CIRCUIT
Size	Document Number		Rev
Custom	EXPRESS-AS380		V11
Date	Wednesday, January 27, 2021	Sheet	1 of 10

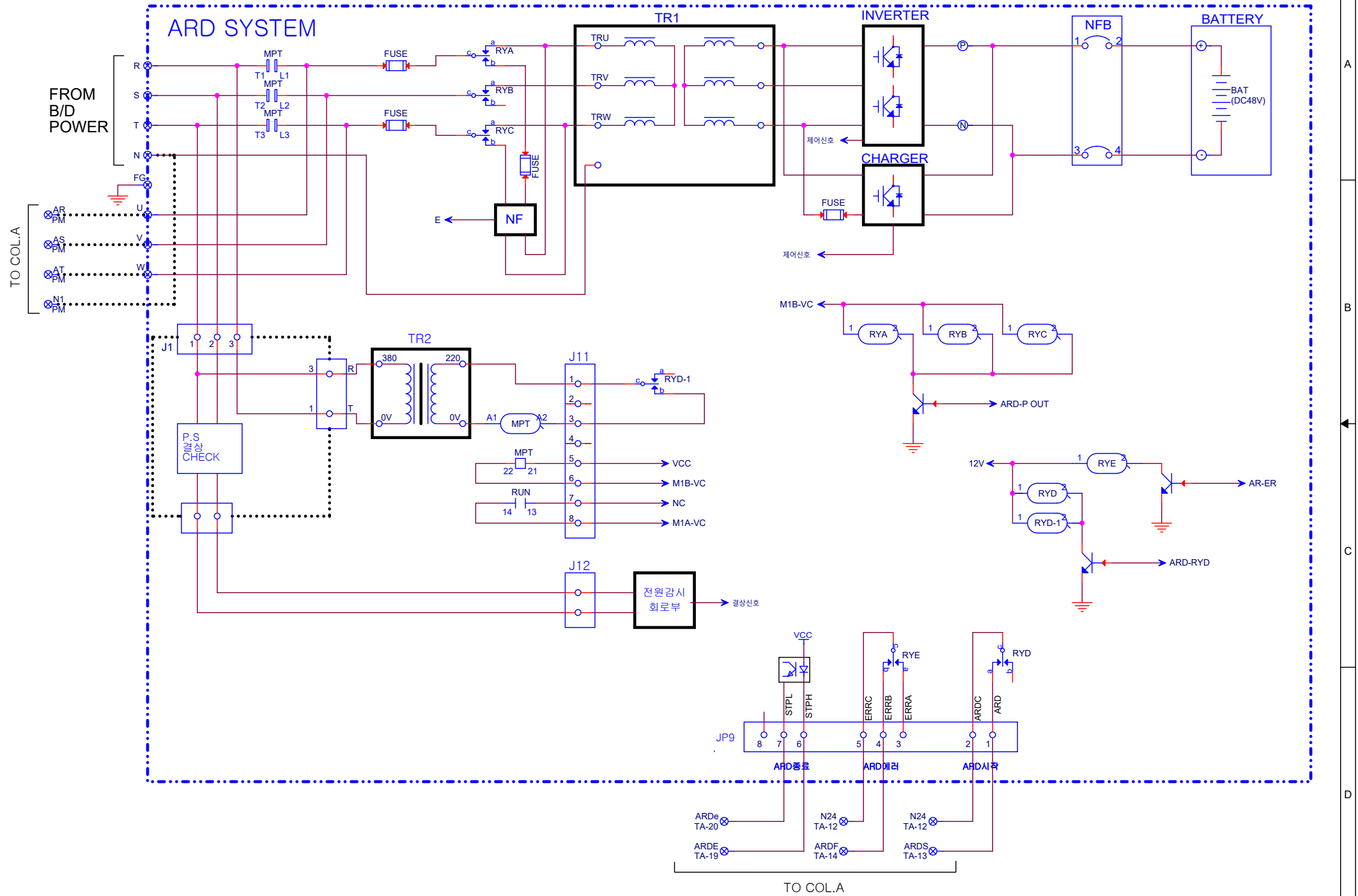


COL.A1(코엘텍ARD)

ARD.SYSTEM

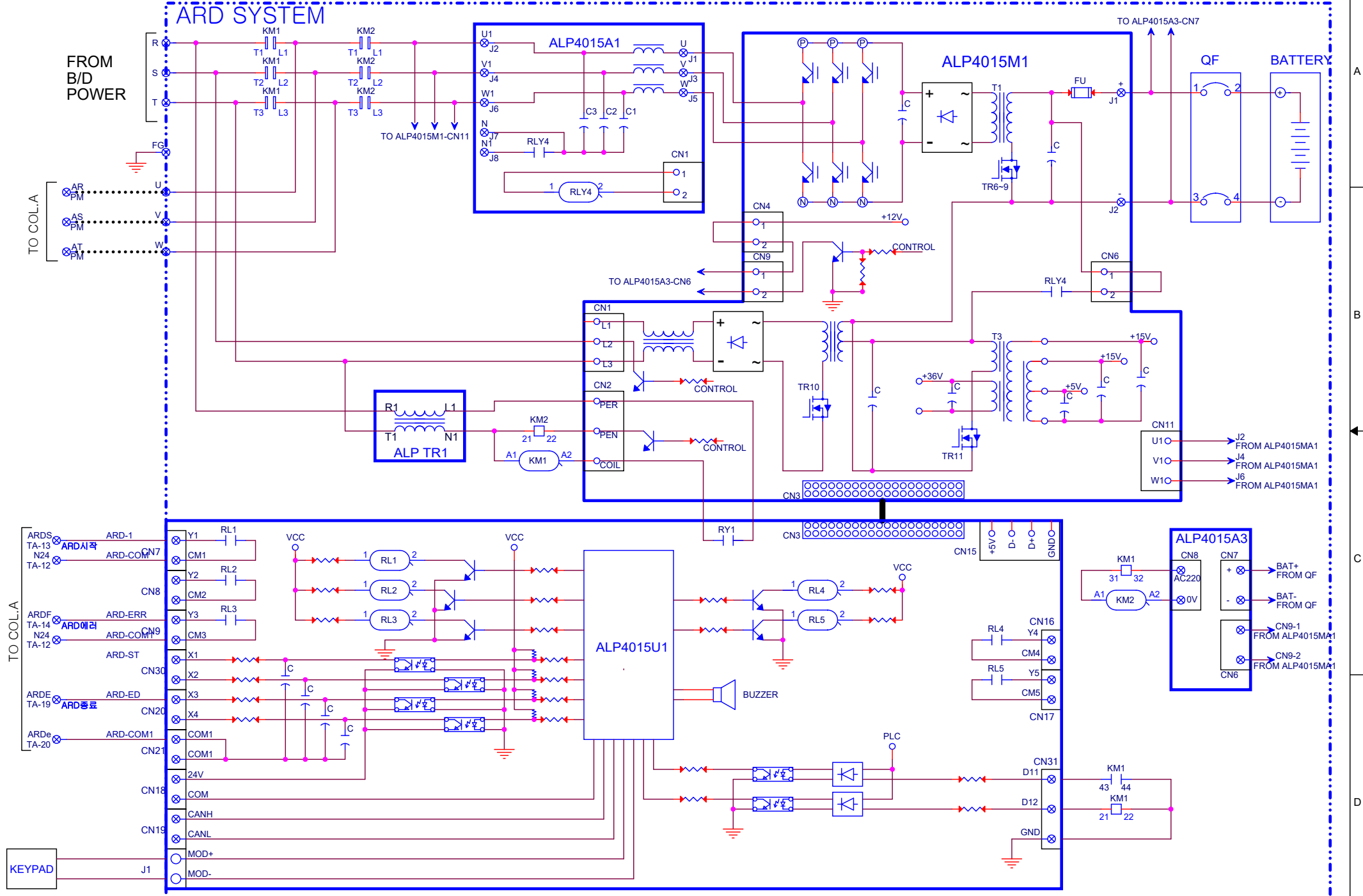


COL.A2(성암전기ARD)



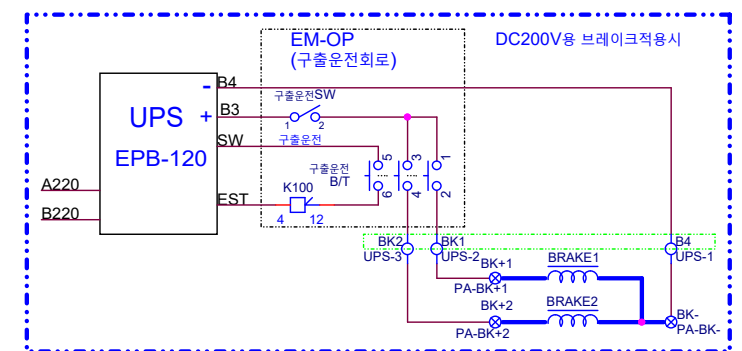
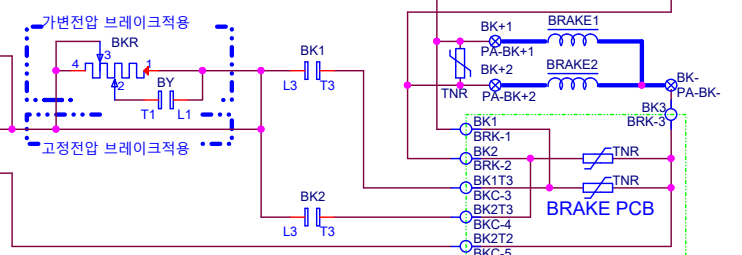
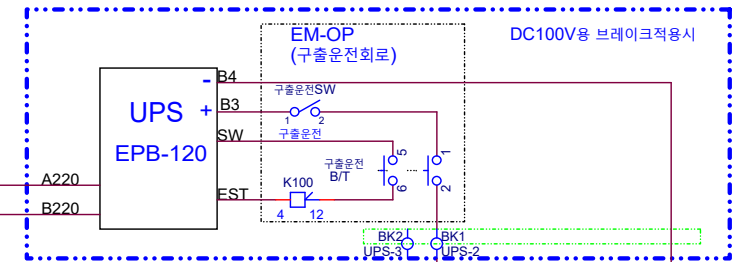
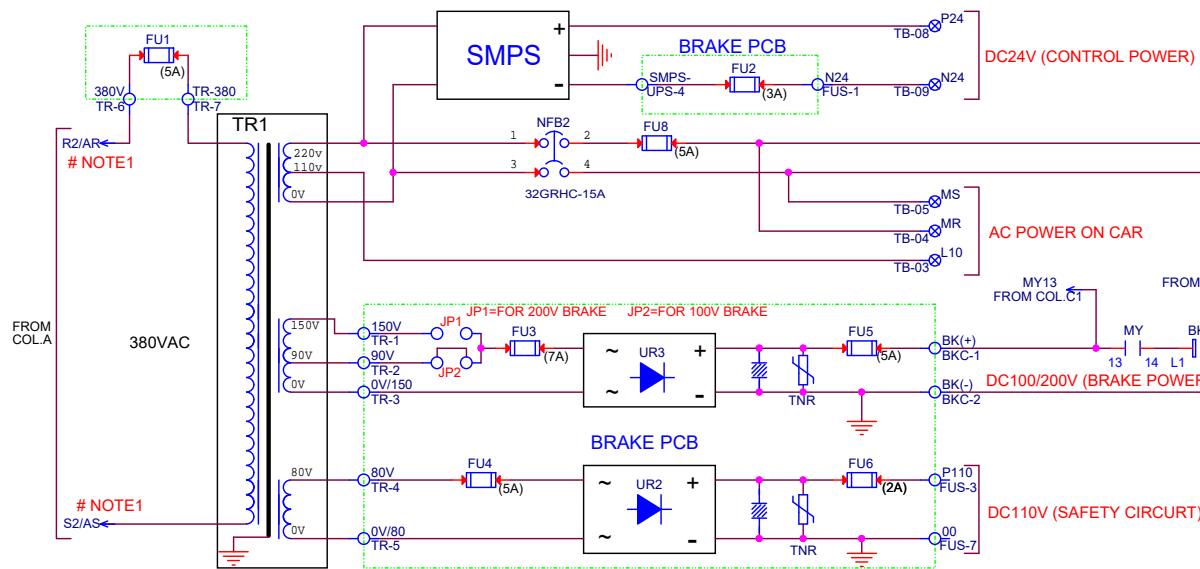
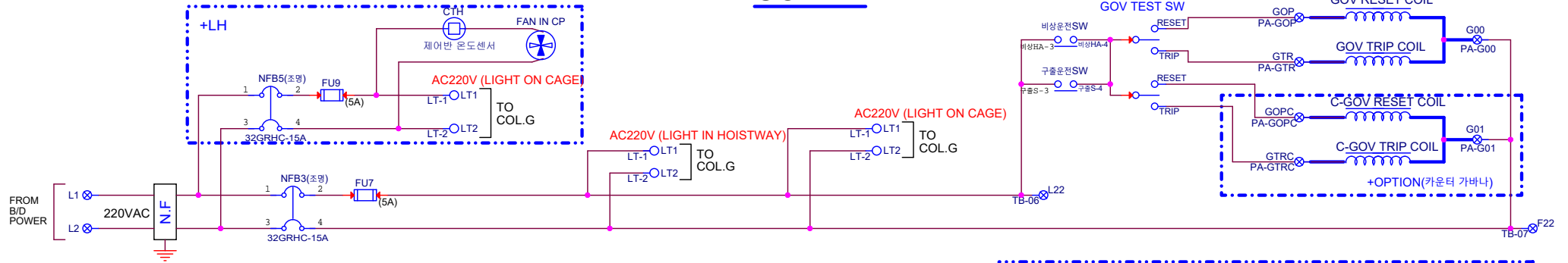
COL.A3(몬트KR-ARD)

ARD SYSTEM



NOTE1 : MR 일 경우 R2와 S2에 결선되며, MRL 일 경우 AR와 AS에 결선함.

COL.B1



PA	NAME	DEFINITION
PA BK1	BRAKE COIL1+	
PA BK2	BRAKE COIL2+	
PA BK3	BRAKE COIL -	
PA ER1	ERROR OUT1	
PA ER2	ERROR OUT2	
PA ER3	ERROR OUT3	
PA ER4	ERROR OUT4	
PA	전원	전원표시출력(감시방)
PA	전원	전원표시출력(감시방)
PA FN1	M/C ROOM FAN	
PA FN2	M/C ROOM FAN	
PA FN3	M/C ROOM FAN	
PA LT1	승강로 전원	
PA LT2	승강로 전원	
PA L1M	소방용 기계실 조명1	
PA L2M	소방용 기계실 조명2	
PA MS	AC220V-RBK	
PA KRB	ROPE BRAKE COIL	
PA N24	SIGNAL COM	
PA EQS	EQS INPUT	
PA EMP	EM-POWER INPUT	
PA G00	GOV TEST COM	
PA GOP	GOV RESET 전원	
PA GTR	GOV TRIP 전원	
PA G01	C-GOV TEST COM	
PA GOPC	CW-GOV RESET전원	
PA GTRC	CWT-GOV TRIP전원	

TA	NAME	DEFINITION
TA-01	P110	SAFETY CP
TA-02	P111	SAFETY-GOV
TA-03	BH1	BRAKE HANDLE CM
TA-04	BH2	BRAKE HANDLE SIG
TA-05	RBC	ROPE BK COM
TA-06	RBX	ROPE BK SIG
TA-07	BKS1	BRAKE1 개방확인
TA-08	N24	SIGNAL COM
TA-09	BKS2	BRAKE2 개방확인
TA-10	N24	SIGNAL COM
TA-11	FRS	FIRE RETURN SIG
TA-12	N24	SIGNAL COM
TA-13	ARDS	ARD START SIG
TA-14	ARDF	ARD FAULT SIG
TA-15	RGC	REGEN TH COM
TA-16	RGH	REGEN TH SIG
TA-17	MTC	MOTOR TH COM
TA-18	MTH	MOTOR TH SIG
TA-19	ARDE	ARD END COM
TA-20	ARDe	ARD END SIG

TB	NAME	DEFINITION
TB-01	00	DC110V/0V
TB-02	L10	AC110V CAGE
TB-03	MR	AC220V CAGE
TB-04	MS	AC110 220V/0V
TB-05	L22	AC220V-LIGHT
TB-06	F22	AC220V-LIGHT
TB-07	P24	DC24V+
TB-08	N24	DC24V-
TB-09	N24	DC24V-

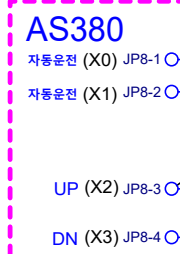
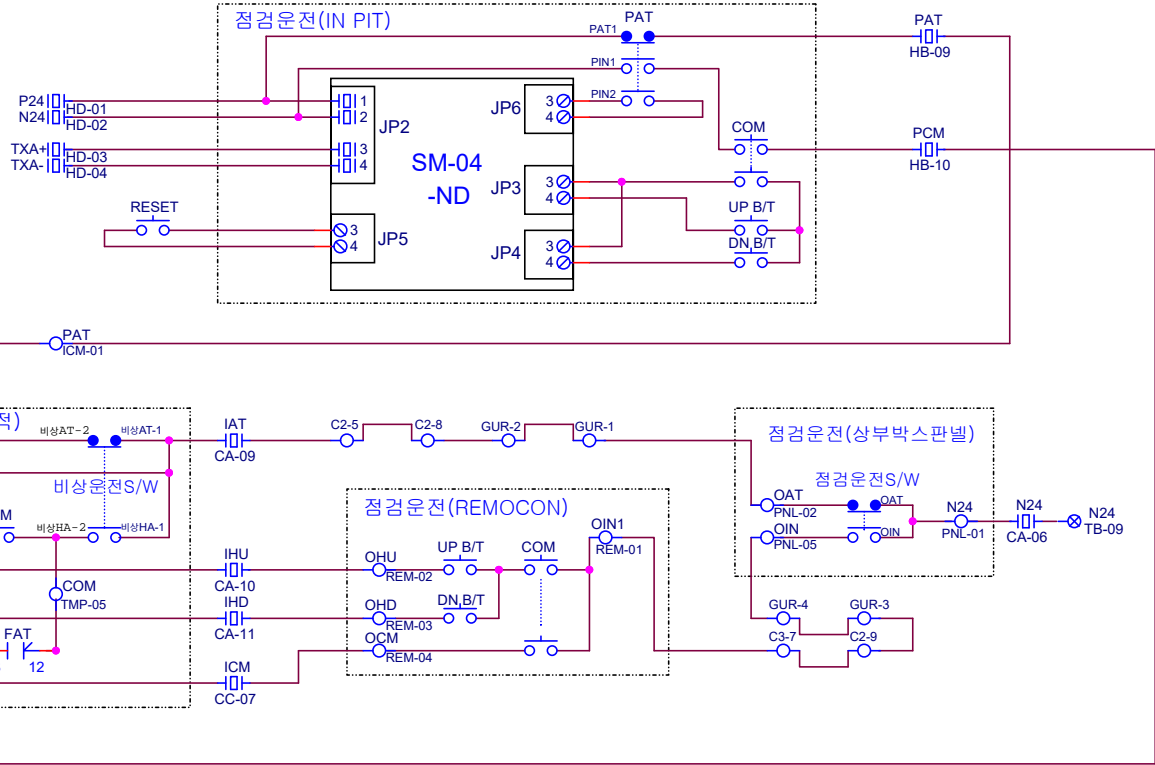
TC	NAME	DEFINITION
TC-01	BGM	국내방송스피커
TC-02	BGM	국내방송스피커

TD	NAME	DEFINITION
TD-01	EM1	CP E-STOP 1
TD-02	EM2	CP E-STOP 2
TD-03	UCM	UCM TEST POINT

DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	POWER SUPPLY & BRAKE CIRCUIT
Size	Document Number		
Custom	EXPRESS-AS380		
Date:	Wednesday, January 27, 2021	Sheet	2 of 10
			Rev V11

COL.B2

NO	NAME	DEFINITION
01	TXV+/P24	+24VDC
02	TXV-/N24	0VDC
03	TXA+	COMM
04	TXA-	COMM



PA	NAME	DEFINITION
PA	BK1	BRAKE COIL1+
PA	BK2	BRAKE COIL2+
PA	BK3	BRAKE COIL -
PA	ER1	ERROR OUT1
PA	ER2	ERROR OUT2
PA	ER3	ERROR OUT3
PA	ER4	ERROR OUT4
PA	전원	전원표시출력(감시반)
PA	전원	전원표시출력(감시반)
PA	FN1	M/C ROOM FAN
PA	FN2	M/C ROOM FAN
PA	FN3	M/C ROOM FAN
PA	LT1	승강로 전원
PA	LT2	승강로 전원
PA	L1M	소방용 기계실 조명1
PA	L2M	소방용 기계실 조명2
PA	MS	AC220V-RBK
PA	KRB	ROPE BRAKE COIL
PA	N24	SIGNAL COM
PA	EQS	EQS INPUT
PA	EMP	EM-POWER INPUT
PA	G00	GOV TEST COM
PA	G0P	GOV RESET 전원
PA	GTR	GOV TRIP 전원
PA	G01	C-GOV TEST COM
PA	G0PC	CW-GOV RESET 전원
PA	GTRC	CWT-GOV TRIP 전원

NO	NAME	DEFINITION
TA-01	P110	SAFETY CP
TA-02	P111	SAFETY-GOV
TA-03	BH1	BRAKE HANDLE CM
TA-04	BH2	BRAKE HANDLE SIG
TA-05	RBC	ROPE BK COM
TA-06	RBX	ROPE BK SIG
TA-07	BKS1	BRAKE1 개방확인
TA-08	N24	SIGNAL COM
TA-09	BKS2	BRAKE2 개방확인
TA-10	N24	SIGNAL COM
TA-11	FRS	FIRE RETURN SIG
TA-12	N24	SIGNAL COM
TA-13	ARDS	ARD START SIG
TA-14	ARDF	ARD FAULT SIG
TA-15	RGC	REGEN TH COM
TA-16	RGH	REGEN TH SIG
TA-17	MTC	MOTOR TH COM
TA-18	MTH	MOTOR TH SIG
TA-19	ARDE	ARD END COM
TA-20	ARDe	ARD END SIG

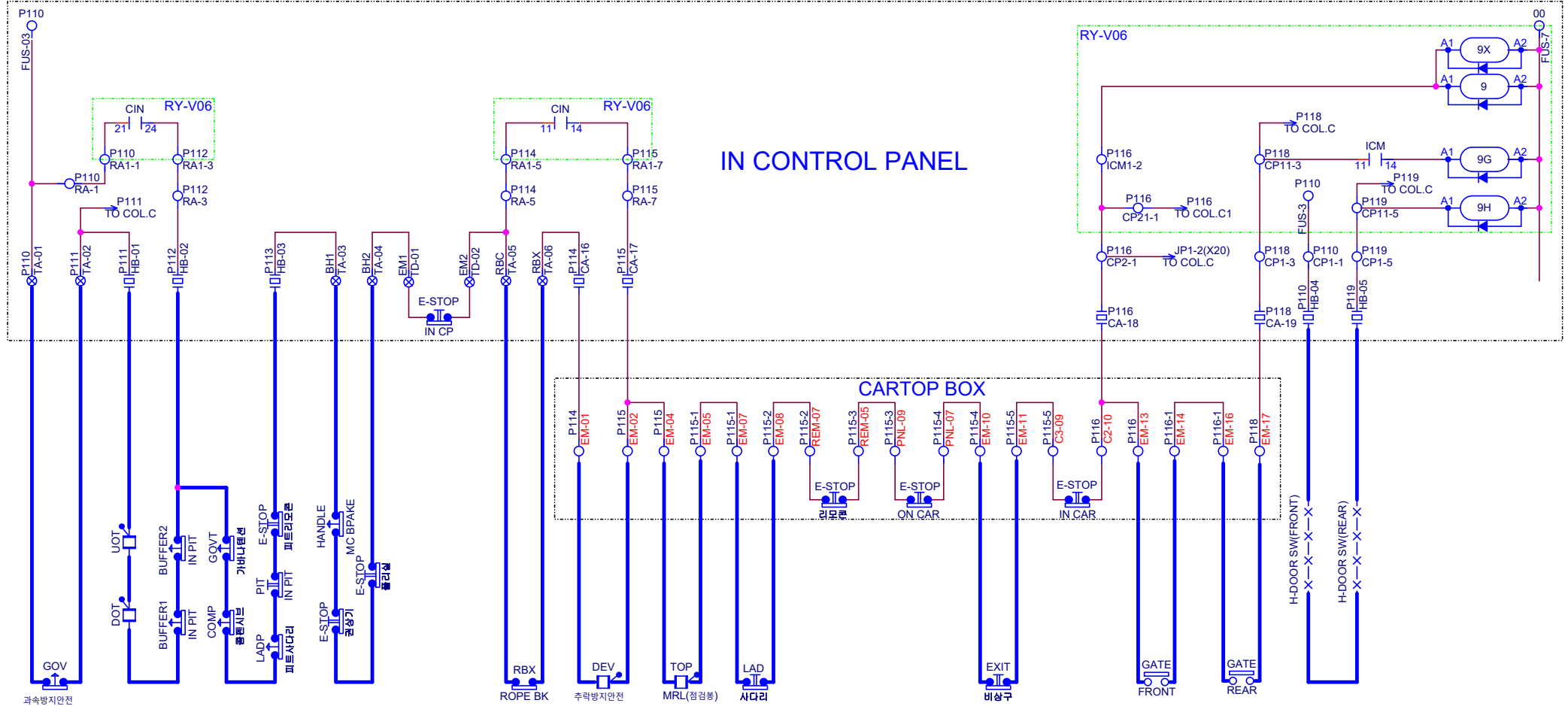
NO	NAME	DEFINITION
TB-01	PE	EARTH
TB-02	00	DC110V/0V
TB-03	L10	AC110V CAGE
TB-04	MR	AC220V CAGE
TB-05	MS	AC110,220V/0V
TB-06	L22	AC220V-LIGHT
TB-07	F22	AC220V-LIGHT
TB-08	P24	DC24V+
TB-09	N24	DC24V-

NO	NAME	DEFINITION
TC-01	BGM	구내방송스피커
TC-02	BGM	구내방송스피커

NO	NAME	DEFINITION
TD-01	EM1	ESTOP IN CP
TD-02	EM2	ESTOP IN CP
TD-03	UCM	UCM #24

DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	INSPECTION CIRCUIT
Size	Document Number		
Custom	EXPRESS-AS380		
Date:	Wednesday, January 27, 2021	Sheet	2 of 10
		Rev	V11

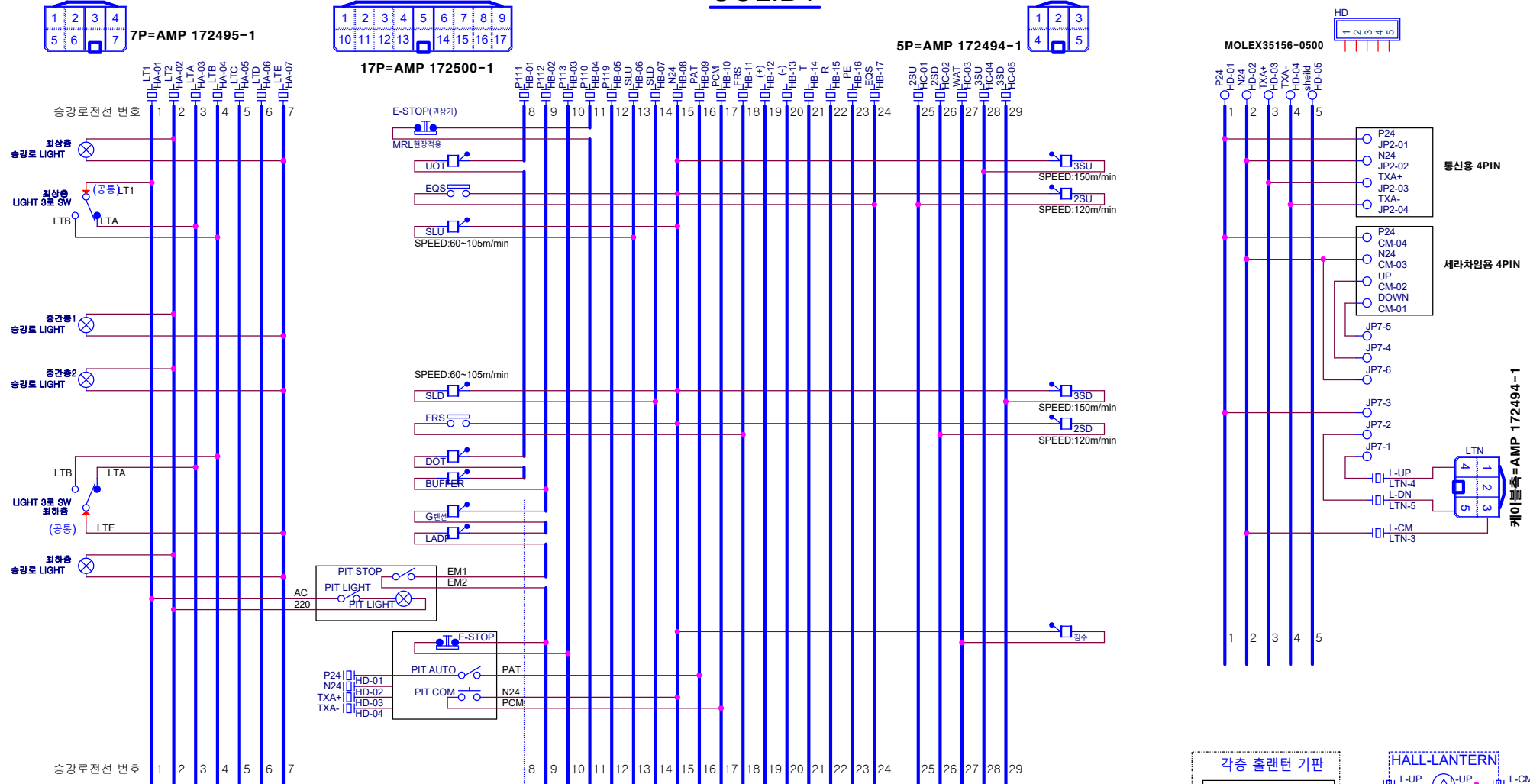
COL.B3



EM(안전회로)		
NO	NAME	DEFINITION
01	P114	DEVICE-1
02	P115	DEVICE-2
03	PE	EARTH
04	P115	MRL-GUARD-1
05	P115-1	MRL-GUARD-2
06	PE	EARTH
07	P115-1	사다리안전스위치-1
08	P115-2	사다리안전스위치-2
09	PE	EARTH
10	P115-4	비상구안전스위치-1
11	P115-5	비상구안전스위치-2
12	PE	EARTH
13	P116	전면카도어안전-1
14	P116-1	전면카도어안전-2
15	PE	EARTH
16	P116-1	후면카도어안전-1
17	P118	후면카도어안전-2

DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	SAFETY CIRCUIT
Size	Document Number	(주)익스프레스리프트	
Custom	EXPRESS-AS380		
Date:	Wednesday, January 27, 2021	Sheet	2 of 10
		Rev	V11

COL.B4



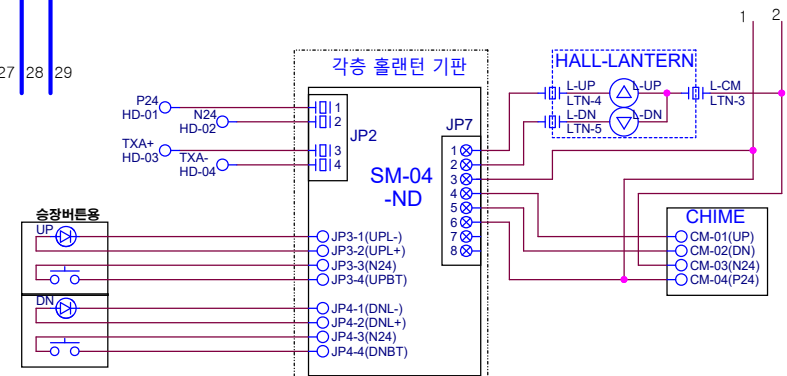
HA-7P		
NO	NAME	DEFINITION
01	LT1	AC220V IN PIT
02	LT2	AC220V IN PIT
03	LTA	LIGHT 3 WAY
04	LTB	LIGHT 3 WAY
05	LTC	LIGHT 3 WAY
06	LTD	LIGHT 4 WAY
07	LTE	LIGHT 4 WAY

HB-17P		
NO	NAME	DEFINITION
01	P111	Safety UOT
02	P112	Safety BUFF
03	P113	Safety PIT
04	P110	Safety START
05	P119	H DOOR-LOCK
06	SLU	Slow-down(up)
07	SLD	Slow-down(dn)
08	N24	0VDC
09	PAT	AUTO IN PIT
10	PCM	INS COM
11	FRS	FIRE RETURN
12	(+)	INTERPHONE+
13	(-)	INTERPHONE-
14	T	INTERPHONE
15	R	INTERPHONE
16	PE	EARTH
17	EQS	EQ SIGNAL

HC-5P		
NO	NAME	DEFINITION
01	2SU	Slow-down(up1)
02	2SD	Slow-down(dn1)
03	WAT	Water Level s/w
04	3SU	Slow-down(up2)
05	3SD	Slow-down(dn2)

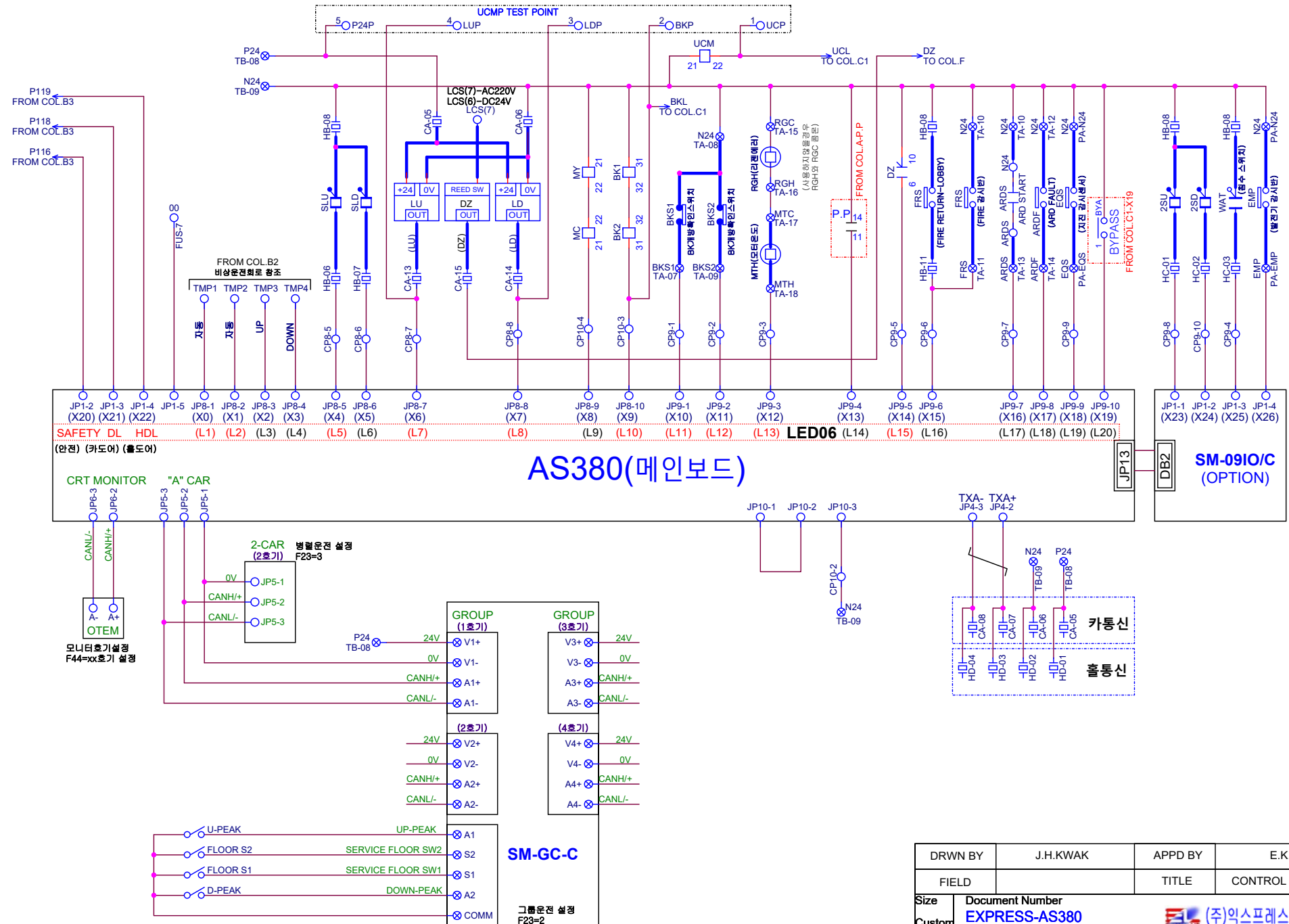
HD-4C(0.75TW)		
NO	NAME	DEFINITION
01	P24	+24VDC
02	N24	0VDC
03	TXA+	COMM
04	TXA-	COMM
05	sheild	EARTH

COMMH(승장통신케이블)
(4Cx0.75SQ)



DRWN BY		J.H.KWAK		APPD BY		E.K.JANG	
FIELD				TITLE		HOISTWAY WIRING	
Size	Document Number EXPRESS-AS380						Rev
Custom	 (주) 익스프레스소프트						V11
Date:	Wednesday, January 27, 2021			Sheet	2	of	10

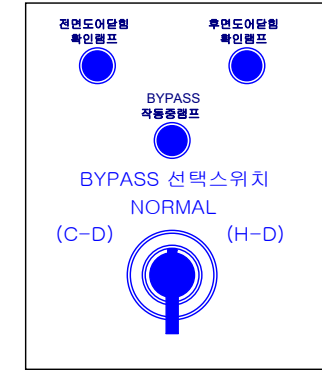
COL.C



DRWN BY		J.H.KWAK		APPD BY		E.K.JANG	
FIELD				TITLE		CONTROL CIRCUIT SM-01	
Size	Document Number						Rev
Custom	 EXPRESS-AS380  (주)익스프레스리프트						V11
Date:	Wednesday, January 27, 2021			Sheet	3	of	10

COL.C1

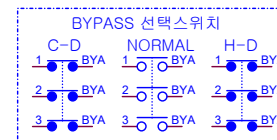
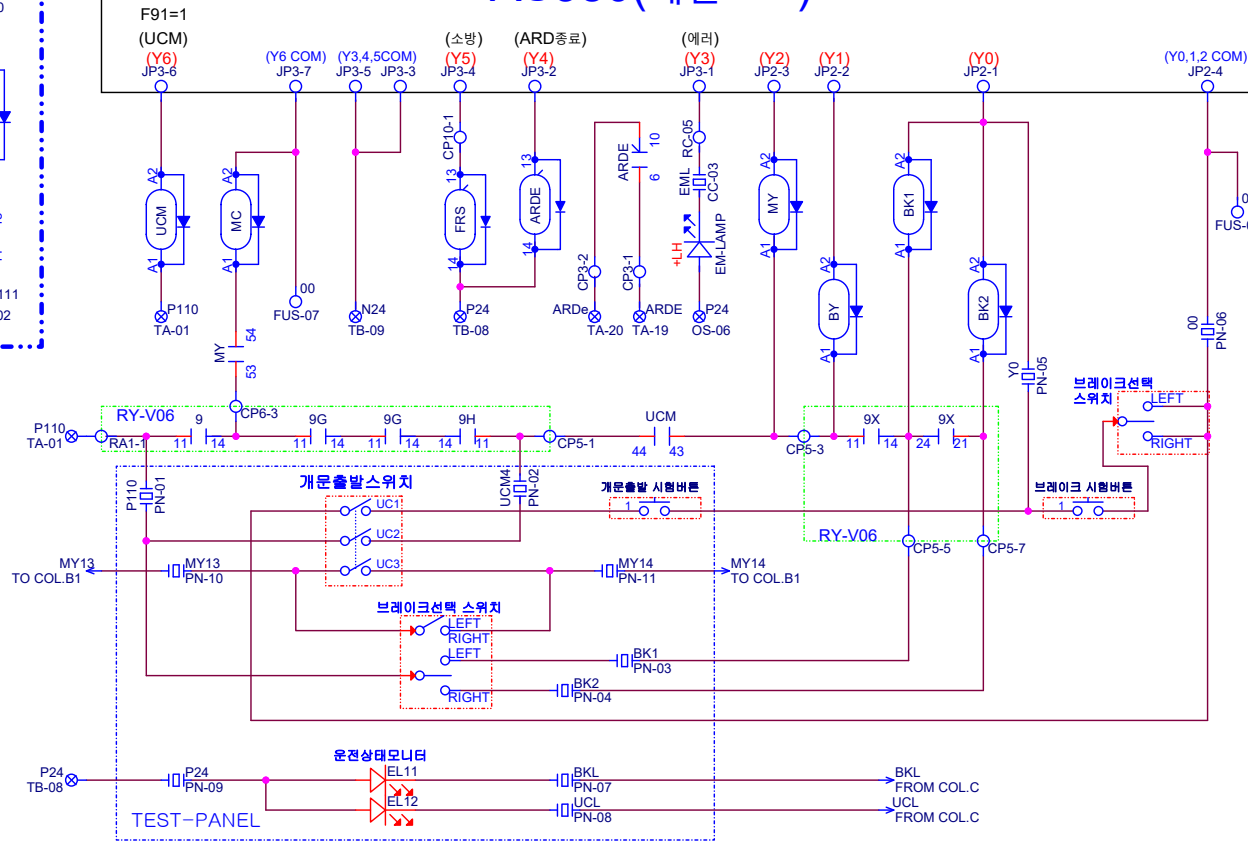
BYPASS PANEL



BRAKE & UCMP TEST PANEL



AS380(메인보드)



DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	CONTROL CIRCUIT SM-01
Size	Document Number		Rev
Custom	EXPRESS-AS380	(주)익스프레스리프트	V11
Date:	Wednesday, January 27, 2021	Sheet	3 of 10

COL.C2

BYPASS 및 TEST PANEL 사용설명서 (운전상태 모니터)

1. 도어 BYPASS 운전방법

- 1-1, 제어반의 비상운전스위치를 비상운전으로 선택합니다.
- 1-2, BYPASS 선택스위치를 (카도어 /홀도어) 방향으로 전환합니다
- 1-3, BYPASS 상부의(전면도어.후면도어 LED) 로 해당도어의 닫힘상태를 확인하고 수동운전을 시행합니다.
카도어 바이패스시 전면도어LED ON (후면도어LED ON)일때만 운전가능합니다
- 1-4, 정상운전시에는 BYPASS 선택스위치를 반드시 NORMAL위치에 두어야 합니다.

2. 개별 BRAKE TEST: 100%하중적재 후 정격속도 하강

* 카 정지상태에서 한개의 브레이크만 개방됨을 확인하는 방법

- 1, 제어반의 비상운전스위치를 비상운전으로 합니다.
- 2, E-STOP버튼을 작동시켜 안전회로를 차단합니다(주의:안전회로 ON상태에서 테스트버튼을 누르면 양쪽 브레이크가 모두 개방되어 위험하므로 반드시 안전회로를 차단한 상태에서 테스트합니다.
- 3, 브레이크 선택 스위치로 개방할 브레이크 (LEFT/RIGHT) 를 선택한후 브레이크 시험버튼을 누르면 선택된 브레이크만 개방됩니다.
- 4, 테스트 완료후 브레이크 선택스위치는 반드시 NORMAL위치에 두어야 합니다.

* 주행중 한개의 브레이크만 제동됨을 확인하는 방법

- 2-1, 브레이크 선택 스위치를 LEFT 위치로 합니다.
- 2-2, 100% 하중 적재 후 하강운전 합니다.
- 2-3, 카가 출발하면 브레이크 시험버튼을 테스트 완료시까지 누름상태로 유지 시킵니다.
- 2-4, 카가 정격속도에 도달하면 E-STOP 버튼을 작동 시킵니다(이때 선택된 방향의 브레이크는 계속 열려 있으며 반대편의 브레이크만 작동되어 카는 멈추게 됩니다)
- 2-5, 반대편 브레이크 테스트시 브레이크선택 스위치를 RIGHT 위치로 하고 상기 2-2~2-4 같이 실시합니다.
- 2-6, 테스트 완료후 브레이크 선택스위치는 반드시 NORMAL위치에 두어야 합니다.

3. UCMP(개문 출발 테스트)

- 3-1, 전용운전 또는 자동운전 상태로 카도어,홀도어를 모두 열어둡니다.
- 3-2, 개문출발 스위치를 TEST방향으로 전환합니다.
- 3-3, 개문출발 시험버튼을 ON시켜 브레이크를 강제 개방 시킵니다
- 3-4, 테스트 완료후 개문출발 스위치는 반드시 NORMAL위치에 두어야 합니다.

4. 완충기 충돌 테스트 100%하중115%속도 상태에서 정격속도하강

- 4-1, 적재하중 100% 적재후 최하층 레벨에서 약 3~5m 상부위치에 카 정지시킨다
(카 자중에 따른 속도 115%지점을 찾기위해 3~5m 거리확보가요구됨)
- 4-2, 개문출발 스위치를 TEST방향으로 전환합니다.
개문출발 시험버튼을 ON시켜 브레이크를 강제 개방 시킵니다
- 4-3, 테스트후 완충기 안전스위치를 복구합니다

5. 추락방지장치 테스트: (조속기,디바이스)100%하중 상태에서 정격속도하강

- 5-1, 카를 최상층에 위치합니다
- 5-2, 제어반의 구출운전 스위치를 구출운전 방향으로 전환합니다.
- 5-3, 정격속도 하강 운전중 제어반 내 조속기 토글S/W를 작동으로 선택하여 과속 조절기를 작동 시킵니다.
- 5-4, 과속 조절기가 작동 되면 추락 방지 장치가(디바이스)작동되고 카는 급정지 합니다.
- 5-5, 테스트 완료후 브레이크 선택스위치는 반드시 NORMAL위치에 두어야 합니다.

6. 추락방지장치 테스트: (조속기,디바이스) 자유낙하시험 100%하중

- 6-1, 카를 최상층에 위치합니다
- 6-2, 카도어,홀도어 닫힘 확인(비상운전으로전환)
- 6-3, 비상운전 상태에서 개문출발 S/W TEST로 전환
- 6-4, 개문출발시험버튼 누름시 자유낙하시작

7. ACOP(상승과속방지장치 테스트)

- 7-1, F206(전동기 정격회전수)을 정격회전수의 135%로 설정합니다.
 - 7-2, 카를 출발시키면 정격속도의 135%속도로 주행하게 되며 과속조절기에 의해 카는 정지합니다.
- * 테스트시 안전을 위하여 승강장 호출과 도어작동을 무효화 시키려면 F165=2로 설정하면 됩니다.
설정방법: bit 테이타이므로 F165에서 엔터 후 -*/-/-/-/-/-/으로 수정 후 엔터
- 속도135% 설정방법 : F206설정값. F206 X 1.35=XXX F206 에 XXX값 입력

8. ACOP(상승과속방지장치 테스트)자유상승시험 무부하

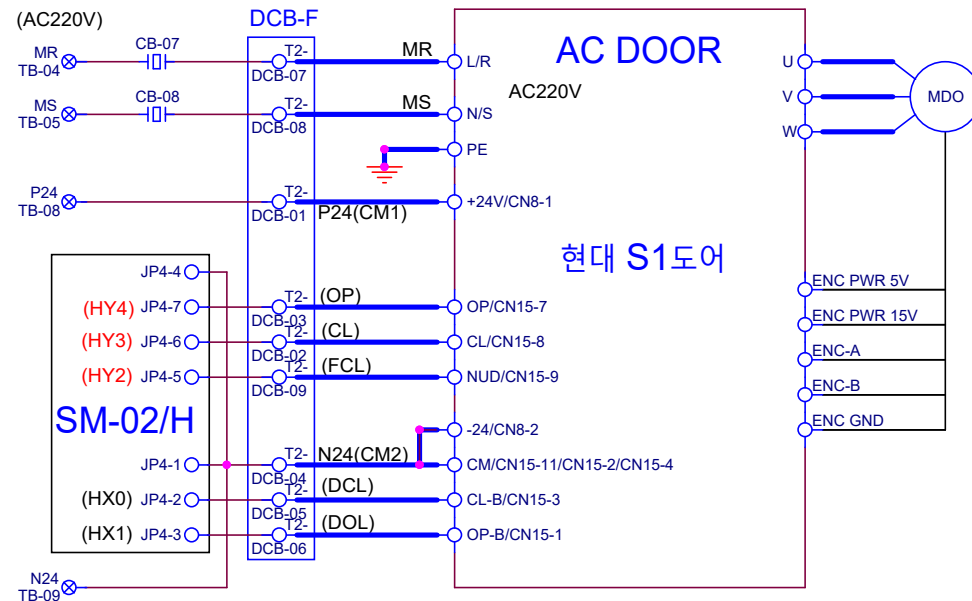
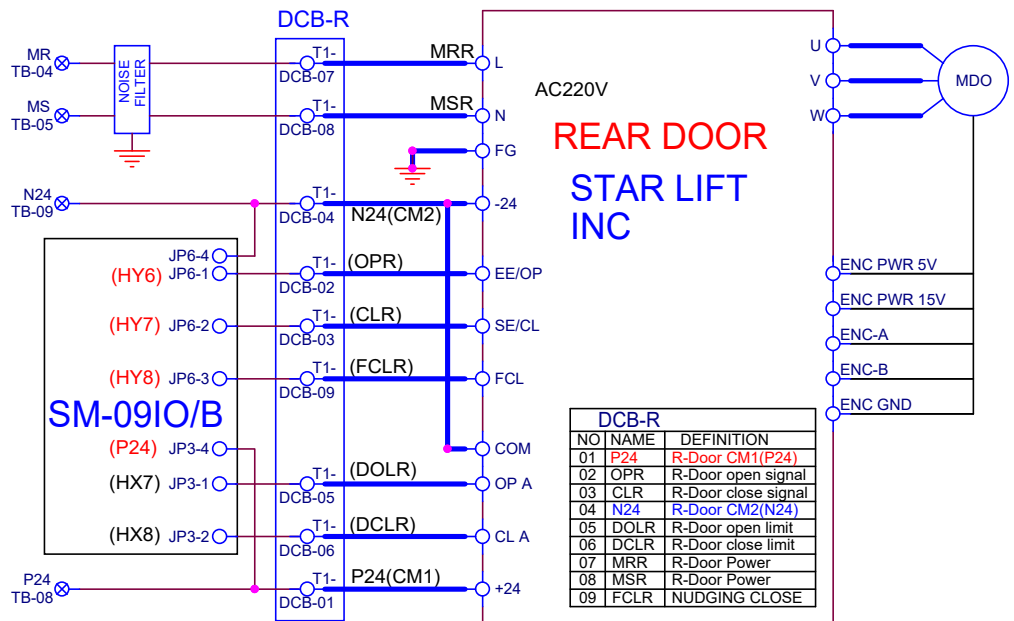
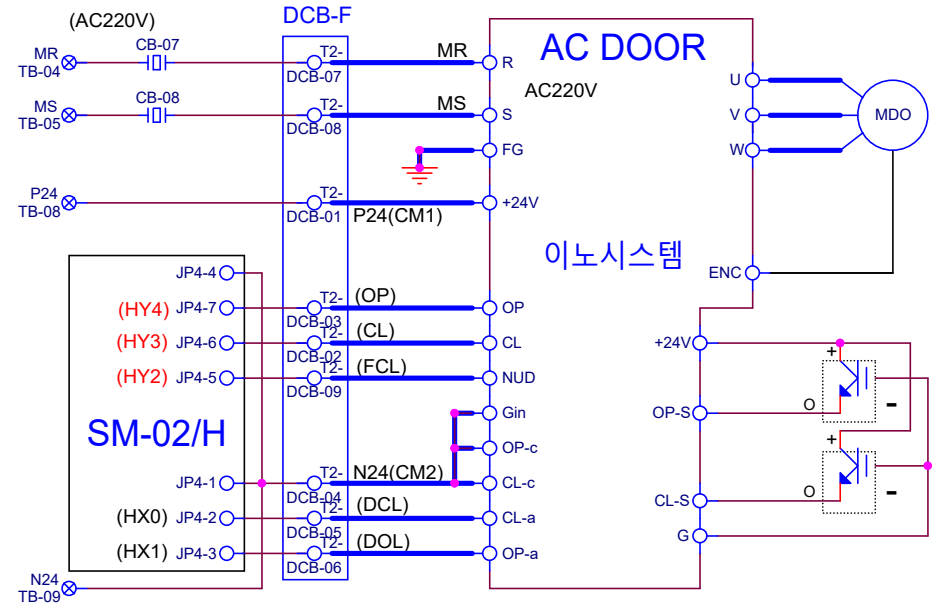
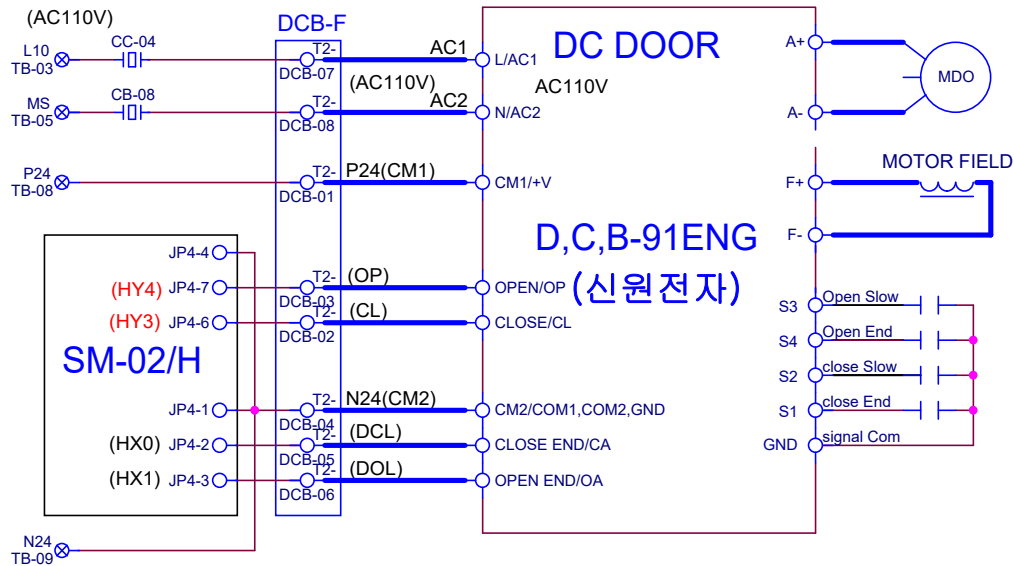
- 8-1, 카를 최하층에 위치합니다
- 8-2, 카도어,홀도어 닫힘 확인(비상운전으로전환)
- 8-3, 비상운전 상태에서 개문출발 S/W TEST로 전환
- 8-4, 개문출발시험버튼 누름시 자유상승시작

동기전동기의 경우 개문출발 테스트,자유낙하 테스트시 발전제동회로 제거합니다
(MY 접촉기 보조점점 61,71제거 단말처리 감전위험)

테스트판넬과 휴대용 결함 확인장치는 반드시 각 승강기 마다 비치되어 있어야 합니다

테스트가 완료되면 TEST PANEL 접속용 콘넥터는 반드시 뽑아 놓아야 합니다.

COL.D



DOL/DCL은 반드시 NOMAL CLOSE(B점점)으로 선택해주세요
(도어가 중간에 있을때 DOL/DCL신호가 ON되어야 합니다)

DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	DOOR CONTROL CIRCUIT
Size	Document Number		Rev
Custom	EXPRESS-AS380	(주)익스프레스리프트	V11
Date:	Wednesday, January 27, 2021	Sheet	4 of 10

CP-13P	
NO	SIGNAL
CP-01	P24
CP-02	N24
CP-03	TXA+
CP-04	TXA-
CP-05	BK2
CP-06	SIG3
CP-07	DZ5
CP-08	DZ9
CP-09	GPTC
CP-10	L0L

COL.D1(FRONT-UP)

FA,FB 콘넥터의
사용방법

STOP	FA	FB
2-5층	5P	5P
6-7층	7P	7P
8-9층	9P	9P

FA-00P	
NO	SIGNAL
FA-01	1F
FA-02	2F
FA-03	3F
FA-04	4F
FA-05	5F
FA-06	6F
FA-07	7F
FA-0T	TF

FB-00P	
NO	SIGNAL
FB-01	1FA
FB-02	2FA
FB-03	3FA
FB-04	4FA
FB-05	5FA
FB-0T	TFA

FC 콘넥터의
사용방법

STOP	FC
2층	7P
3층	9P
4-5층	13P
6-7층	17P
8-9층	21P

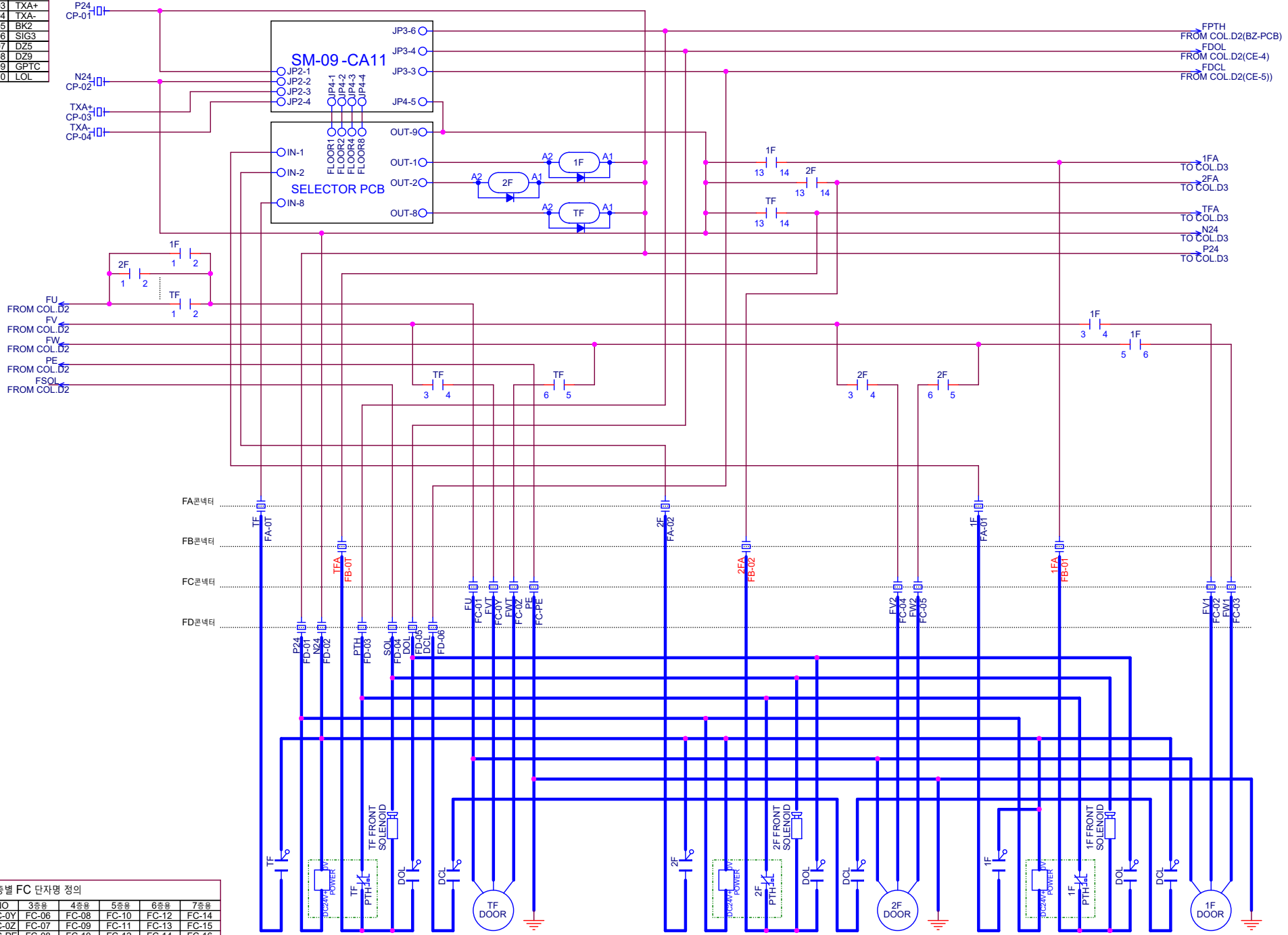
FC-00P	
NO	SIGNAL
FC-01	FU
FC-02	FV1
FC-03	FW1
FC-04	FV2
FC-05	FW2
FC-06	FV3
FC-07	FW3
FC-08	FV4
FC-09	FW4
FC-10	FV5
FC-11	FW5
FC-12	FV6
FC-13	FW6
FC-14	FV7
FC-15	FW7
FC-16	FV8
FC-17	FW8
FC-PE	PE

FD-07P	
NO	SIGNAL
FD-01	P24
FD-02	N24
FD-03	PTH
FD-04	SOL
FD-05	DOL
FD-06	DCL
FD-07	L0L

CE-13P	
NO	SIGNAL
CE-01	FSOL
CE-02	DZ5
CE-03	DZ9
CE-04	FDOL
CE-05	FDCL
CE-06	
CE-07	
CE-08	
CE-09	PE
CE-10	FU
CE-11	FV
CE-12	FW
CE-13	

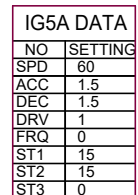
층별 FC 단자명 정의

NO	3층용	4층용	5층용	6층용	7층용
FC-0Y	FC-06	FC-08	FC-10	FC-12	FC-14
FC-0Z	FC-07	FC-09	FC-11	FC-13	FC-15
FC-PE	FC-08	FC-10	FC-12	FC-14	FC-16



ON CAR DOOR CONTROL BOX

F : FRONT HALL DOOR
R : REAR HALL DOOR

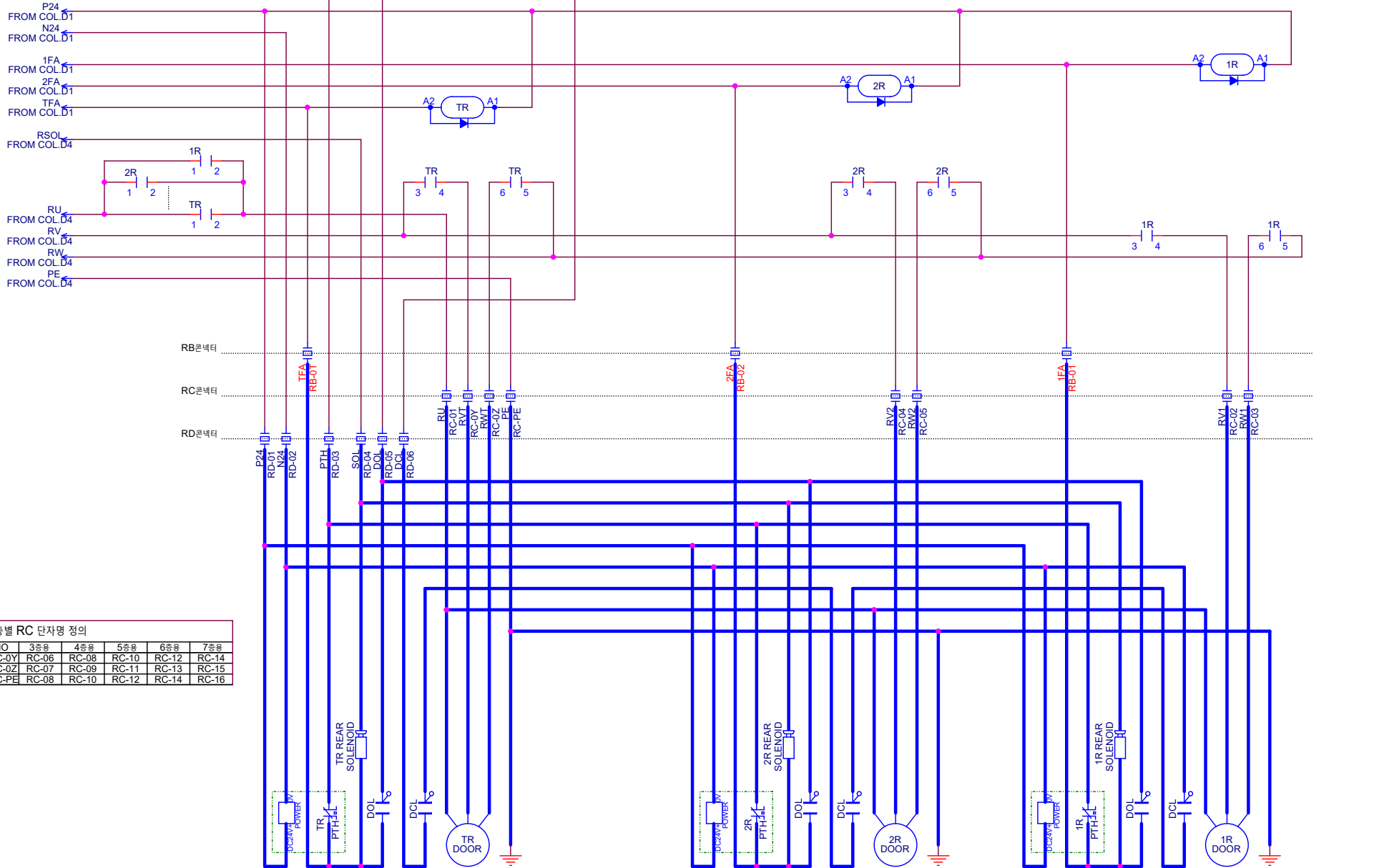


COL.D3(REAR-UP)

+REAR DOOR

SM-09-CA11

JP3-9
JP3-7
JP3-8



총별 RC 단자명 정의

NO	3층용	4층용	5층용	6층용	7층용
RC-0Y	RC-06	RC-08	RC-10	RC-12	RC-14
RC-0Z	RC-07	RC-09	RC-11	RC-13	RC-15
RC-PE	RC-08	RC-10	RC-12	RC-14	RC-16

RPTH
FROM COL.D2
RDOL
FROM COL.D4
RDCL
FROM COL.D4

RB 콘넥터의
사용방법

STOP	RB
2~5층	5P
6~7층	7P
8~9층	9P

RB-00P

NO	SIGNAL
RB-01	1FA
RB-02	2FA
RB-03	3FA
RB-04	4FA
RB-05	5FA
RB-06	6FA
RB-07	7FA
RB-0T	TFA

RC 콘넥터의
사용방법

STOP	RC
2층	7P
3층	9P
4~5층	13P
6~7층	17P
8~9층	21P

RC-00P

NO	SIGNAL
RC-01	RU
RC-02	RV1
RC-03	RW1
RC-04	RV2
RC-05	RW2
RC-06	RV3
RC-07	RW3
RC-08	RV4
RC-09	RW4
RC-10	RV5
RC-11	RW5
RC-12	RV6
RC-13	RW6
RC-14	RV7
RC-15	RW7
RC-16	RV8
RC-17	RW8
RC-PE	PE

RD-07P

NO	SIGNAL
RD-01	P24
RD-02	N24
RD-03	PTH
RD-04	SOL
RD-05	DOL
RD-06	DCL
RD-07	

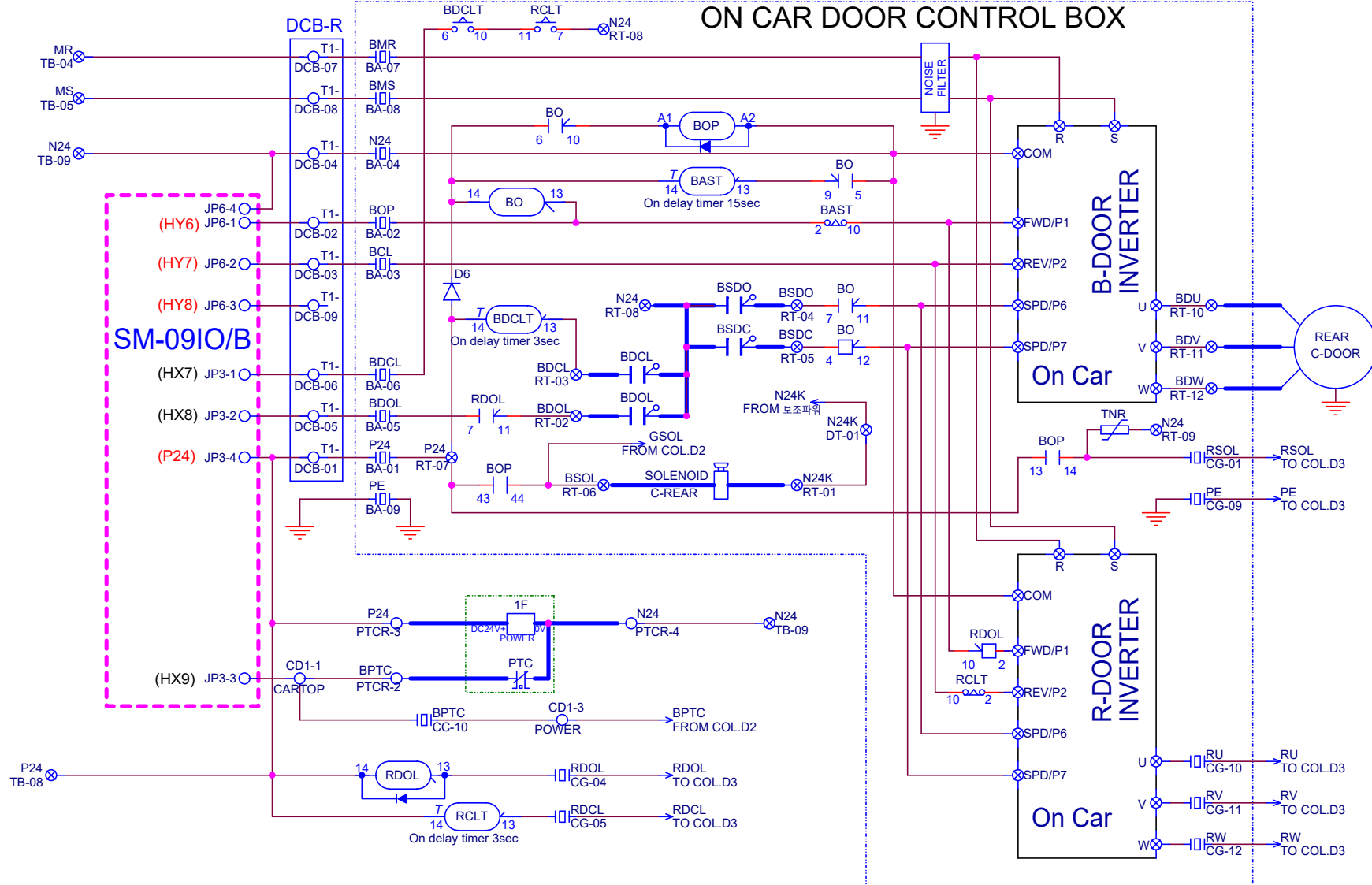
CG-13P

NO	SIGNAL
CG-01	RSOL
CG-02	
CG-03	
CG-04	RDOL
CG-05	RDCL
CG-06	
CG-07	
CG-08	
CG-09	PE
CG-10	RU
CG-11	RV
CG-12	RW
CG-13	

COL.D4(REAR-UP)

G : GATE FRONT DOOR
B : BACK GATE DOOR
F : FRONT HALL DOOR
R : REAR HALL DOOR

ON CAR DOOR CONTROL BOX



RT 단자대	
NO	SIGNAL
RT-01	N24K
RT-02	BDOL
RT-03	BDCL
RT-04	BSDO
RT-05	BSDC
RT-06	BSOL
RT-07	P24
RT-08	N24
RT-09	N24
RT-10	BDU
RT-11	BDV
RT-12	BDW

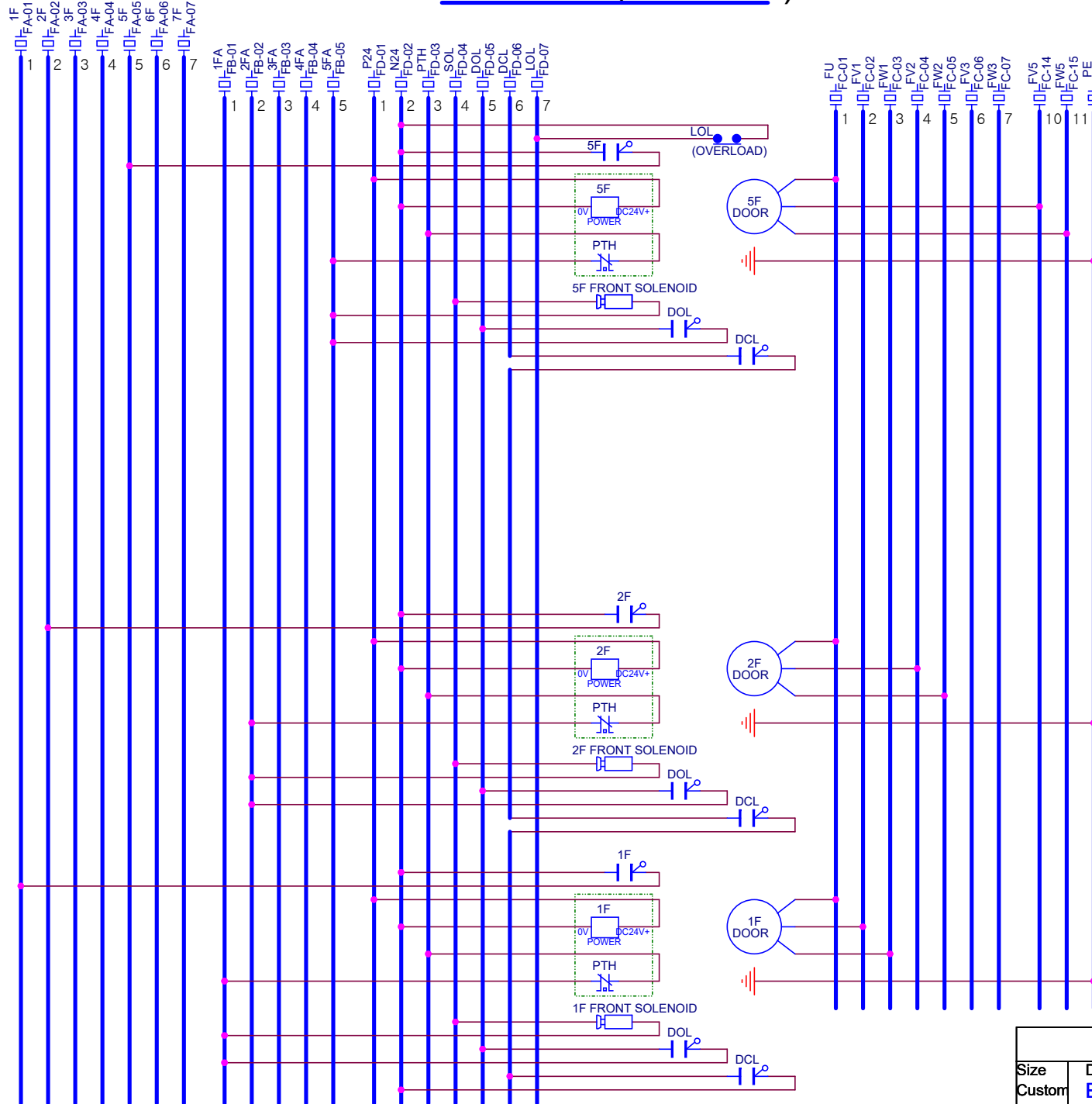
BA-09P	
NO	SIGNAL
BA-01	P24
BA-02	BOP
BA-03	BCL
BA-04	N24
BA-05	BDOL
BA-06	BDCL
BA-07	BMR
BA-08	BMS
BA-09	PE

CG-13P	
NO	SIGNAL
CG-01	RSOL
CG-02	
CG-03	
CG-04	RDOL
CG-05	RDCL
CG-06	
CG-07	
CG-08	
CG-09	PE
CG-10	RU
CG-11	RV
CG-12	RW
CG-13	

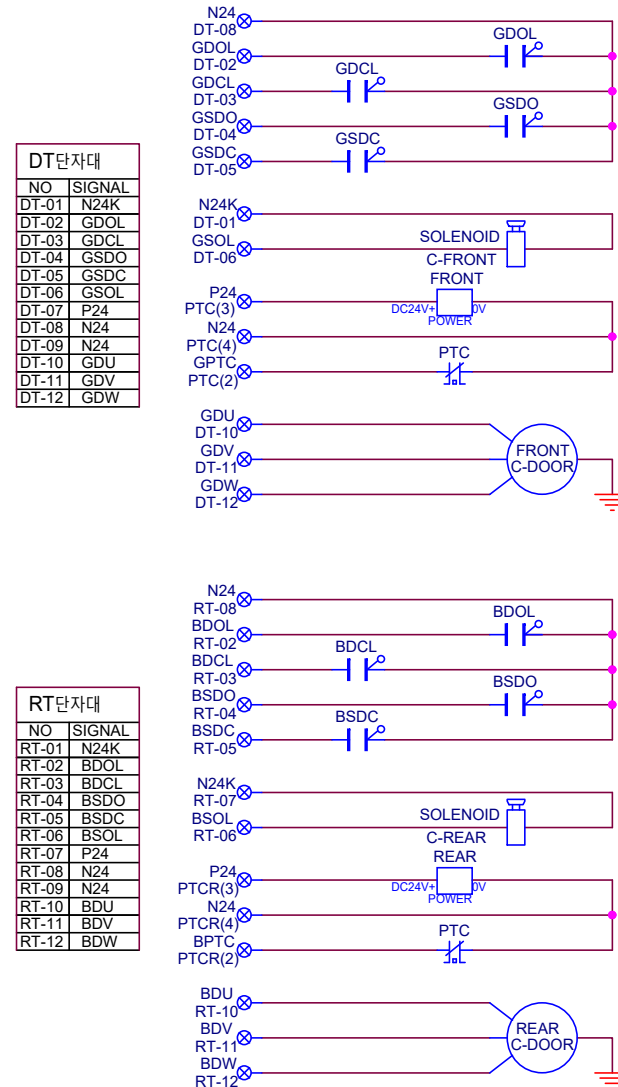
IG5A DATA	
NO	SETTING
SPD	60
ACC	1.5
DEC	1.5
DRV	1
FRQ	0
ST1	15
ST2	15
ST3	0

7P=AMP 172495-1

UP-DOOR(승장 결선도)



UP-DOOR(카도어 결선도)



NO	SIGNAL
DT-01	N24K
DT-02	GDOL
DT-03	GDCL
DT-04	GSDO
DT-05	GSDC
DT-06	GSOL
DT-07	P24
DT-08	N24
DT-09	N24
DT-10	GDV
DT-11	GDV
DT-12	GDW

NO	SIGNAL
RT-01	N24K
RT-02	BDOL
RT-03	BDCL
RT-04	BSDO
RT-05	BSDC
RT-06	BSOL
RT-07	P24
RT-08	N24
RT-09	N24
RT-10	BDV
RT-11	BDV
RT-12	BDW

Size
Custom

Document Number
EXPRESS-AS380

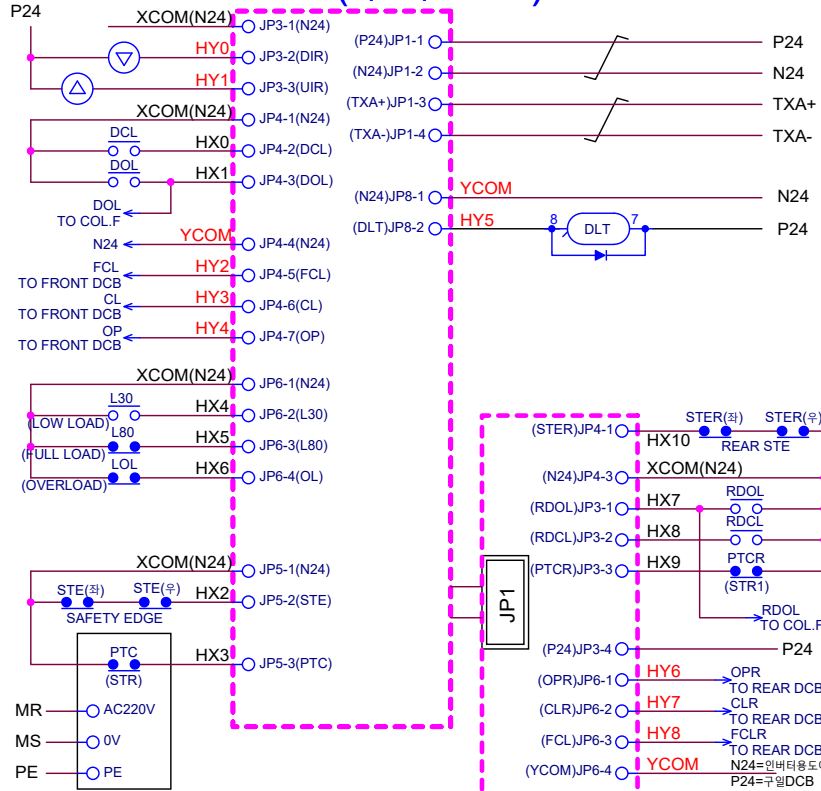
(주)익스프레스리프트

Rev
V11

Date: Wednesday, January 27, 2021

Sheet 4 of 10

ON CAR(카상부운전반)



NO	NAME	DEFINITION
01	P24	POWER IN+
02	N24	POWER IN-
03	TXA+	CANH
04	TXA-	CANL

NO	NAME	DEFINITION
01	YCOM	HY0,1의 COM
02	CMD	HY0-DOWN공
03	CMU	HY1-UP도착공
04	N24	POWER IN-
05	P24	POWER IN+

NO	NAME	DEFINITION
01	N24	HX0,1의 COM
02	DCL	HX0-CLOS END
03	DOL	HX1-OPEN END
04	YCOM	HY2,3의 COM
05	FCL	HY2-광재CLOSE
06	CL	HY3-CLOSE
07	OP	HY4-OPEN신호

NO	NAME	DEFINITION
01	N24	HX2,3의COM
02	STE	HX2-STE신호
03	PTC	HX3-PTC신호

NO	NAME	DEFINITION
01	N24	HX4,5,6의 공통
02	L30	HX4-L30%
03	L80	HX5-L80%
04	LOL	HX6-OVERLOAD

NO	NAME	DEFINITION
01	BIT0	VOICE D0
02	BIT1	VOICE D1
03	BIT2	VOICE D2
04	BIT3	VOICE D3
05	BIT4	VOICE D4
06	BIT5	VOICE D5
07	BIT6	VOICE D6
08	BIT7	VOICE D7
09	0V	POWER IN-
10	+24V	POWER IN+

NO	NAME	DEFINITION
01	N24	HY6의 COM
02	DLT	HY6-DLT출력

NO	NAME	DEFINITION
01	RDOL	HX7-R OP-END
02	RDCL	HX8-R CL-END
03	PTCR	HX9-R PTS
04	P24	HX7,8,9의 P24

NO	NAME	DEFINITION
01	RSTE	HX10-R STE
02	--	HX11--
03	N24	HX10,11의 공통

NO	NAME	DEFINITION
01	--	HX12--
02	N24	HX12의 공통

NO	NAME	DEFINITION
01	OPR	HY6-R OPEN
02	CLR	HY7-R CLOSE
03	NUD	HY8-R NUDGE
04	YCOM	HY6,7,8의 공통

NO	NAME	DEFINITION
01	--	HY9--
02	YCOM	HY9의 공통

NO	NAME	DEFINITION
01	--	HY10--
02	YCOM	HY10의 공통

NO	NAME	DEFINITION
01	--	HY11--
02	YCOM	HY11의 공통

COL.E

(COP) 카내부

SW1
중단저항
ON(주운전반)

SM-02/G

보조운전반
SW3
1 2 3 4 on

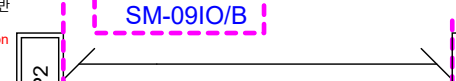
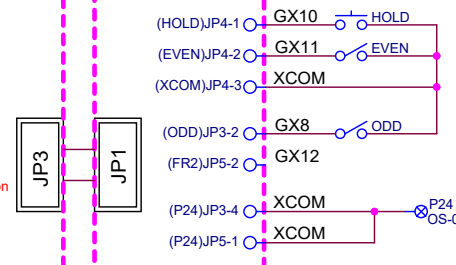
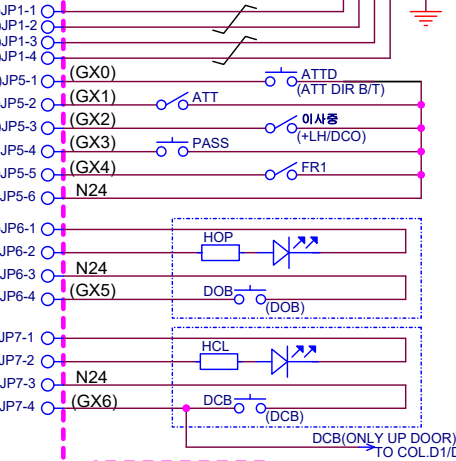
주운전반
SW3
1 2 3 4 on

NO	NAME	DEFINITION
01	P24	POWER IN+
02	N24	POWER IN-
03	TXA+	CANH
04	TXA-	CANL

NO	NAME	DEFINITION
01	ATD	GX0-ATT DIREC
02	ATT	GX1-ATT IN
03	IND	GX2-IND IN
04	PAS	GX3-ATT PASS
05	FR1	GX4-FIRE 1ST
06	N24	GX0-4의 공통

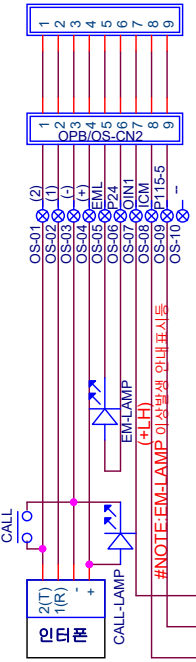
NO	NAME	DEFINITION
01	OP-	OPEN LAMP-
02	OP+	OPEN LAMP+
03	DOB	GX5-OPEN B/T
04	N24	OPEN B/T

NO	NAME	DEFINITION
01	CL-	CLOS LAMP-
02	CL+	CLOS LAMP+
03	DCB	GX6-CLOSE B/T
04	N24	CLOSE B/T



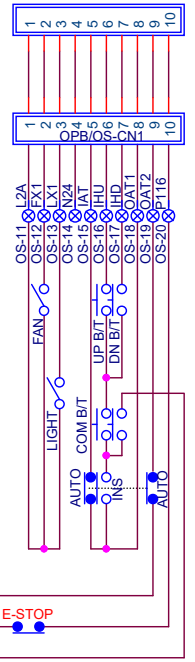
FROM CARTOP PCB

C3-CARTOP



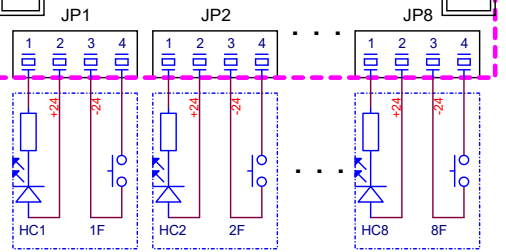
FROM CARTOP PCB

C2-CARTOP



(1-8층용 CAR CALL B/T)

SM-03



DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	CONTROL CIRCUIT SM-02
Size	Document Number		Rev
Custom	EXPRESS-AS380	(주)익스프레스리프트	V11
Date:	Wednesday, January 27, 2021	Sheet	5 of 10

NOTE 1

피트 점검운전 박스에서 통신용 종단저항 설정 되어 있으니
기타층 에서는 종단 설정하지 않습니다.

SM-04 PCB FLOOR ADDRESS 입력방법

S1 JUMPER PIN1,2번에 점퍼핀이 꽂힌 상태에서
외부버튼 UP/DOWN을 누르면 디지털에 숫자가
올라가고 내려갑니다. 최하층을 1로 기준하여
두번째층은 2 다음은 3,4..순서로 각층을
차례대로 층의 값을 넣고 S1 JUMPER PIN을 빼면
층 값이 입력됩니다.

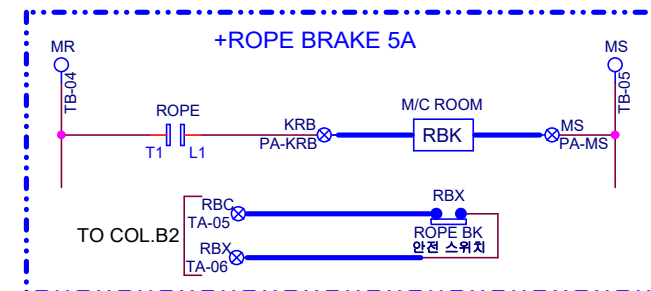
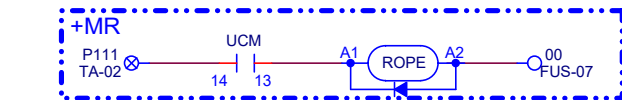
REAR(후면층) 최하층은 49를 기준하여
두번째층은 50 다음은 51,52..순서로 층의
값을 입력함.

SM-04-VSX콘넥터설명	
JP1	통신케이블연결용
JP2	UP B/T용
JP3	DOWN B/T용
JP4	PARKING SW용(P3,4)
S1	층세팅용 점퍼
SW2	종단저항점퍼용(DIP-SW)

SM-04-VSP콘넥터설명	
JP1	통신케이블연결용
JP2	UP B/T용
JP3	DOWN B/T용
JP4	PARKING SW용(P3,4)
JP5	
S1	층세팅용 점퍼
S2,S3	종단저항점퍼용(P1,2)

SM-04-VSD콘넥터설명	
JP2	통신케이블연결용
JP3	UP B/T용
JP4	DOWN B/T용
JP5	PARKING SW용(P3,4)
S1	층세팅용 점퍼
SW1	종단저항점퍼용(DIP-SW)

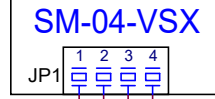
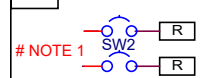
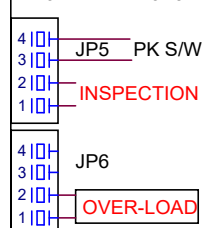
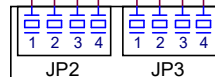
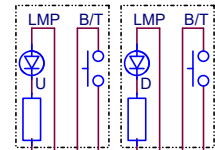
HD-4C(0.75TW)		
NO	NAME	DEFINITION
01	TXV+/P24	+24VDC
02	TXV-/N24	0VDC
03	TXA+	COMM
04	TXA-	COMM



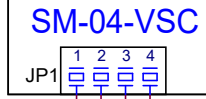
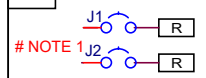
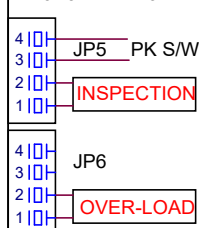
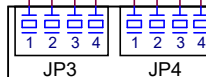
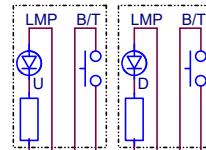
휴먼앤터 로프브레이크의 로프브레이크
안전스위치단자는 RD4,RD5입니다.

COL.F

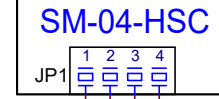
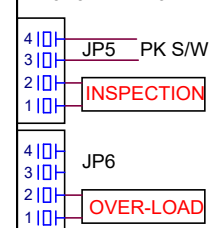
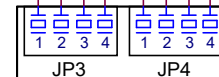
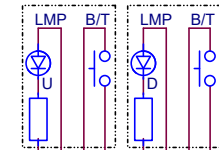
최상층



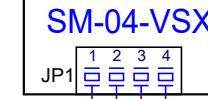
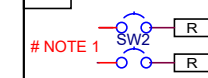
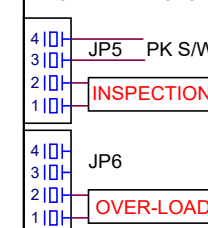
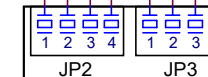
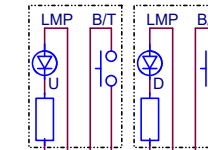
현장층표시기판이
SM-04-VSC일경우



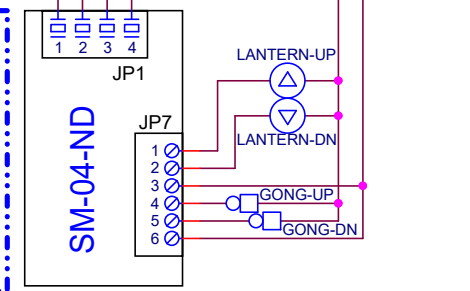
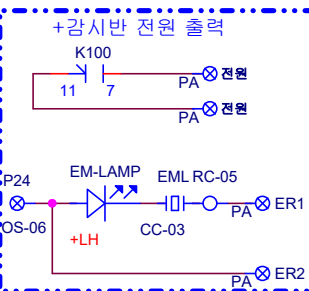
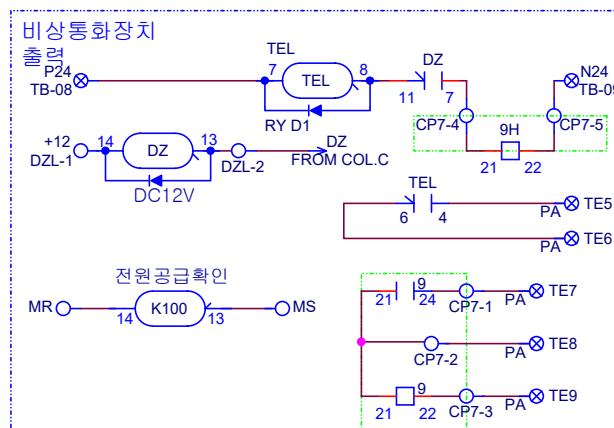
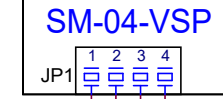
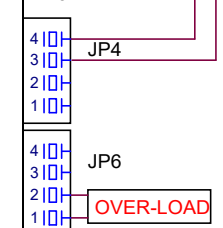
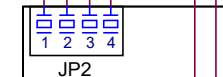
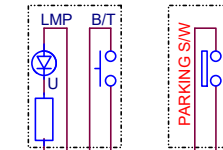
현장층표시기판이
SM-04-HSC일경우



현장층표시기판이
SM-04-VSX일경우

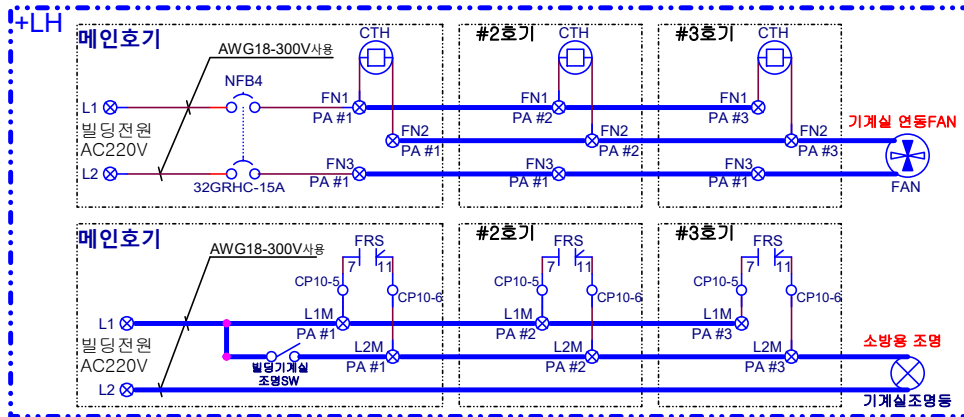
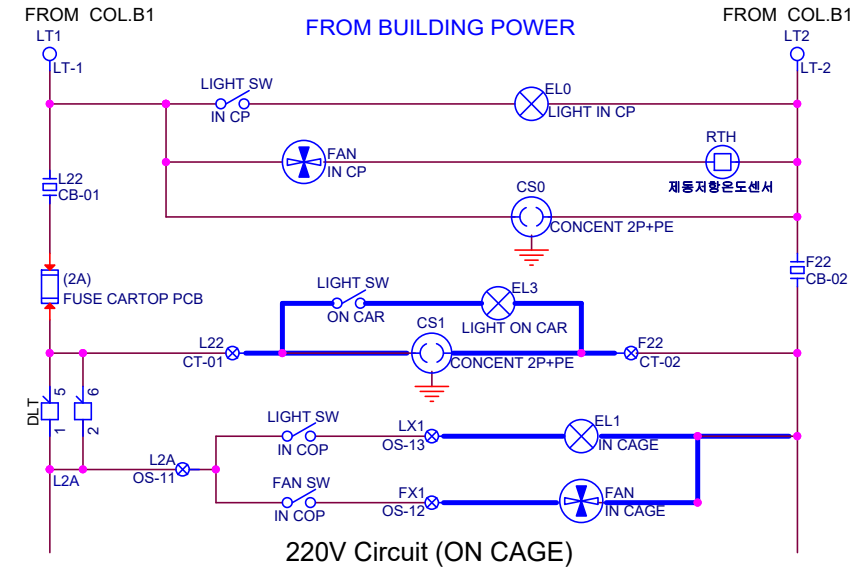
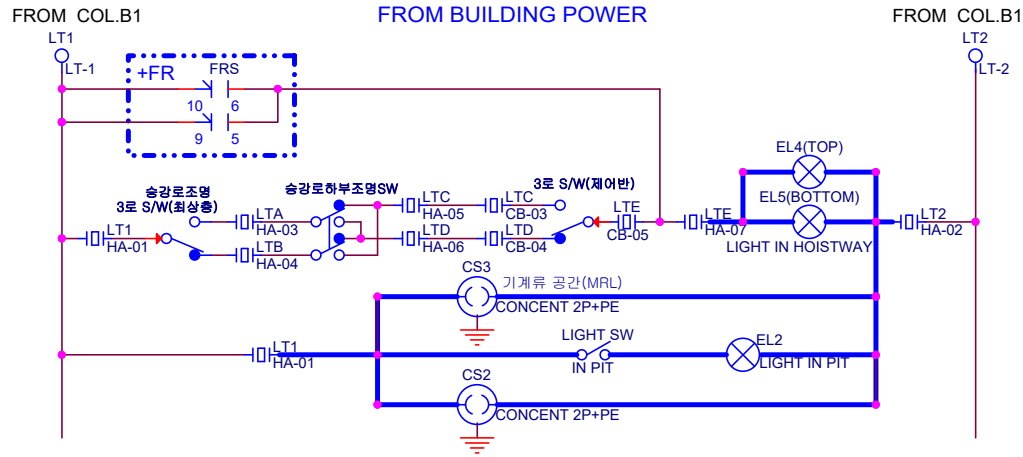
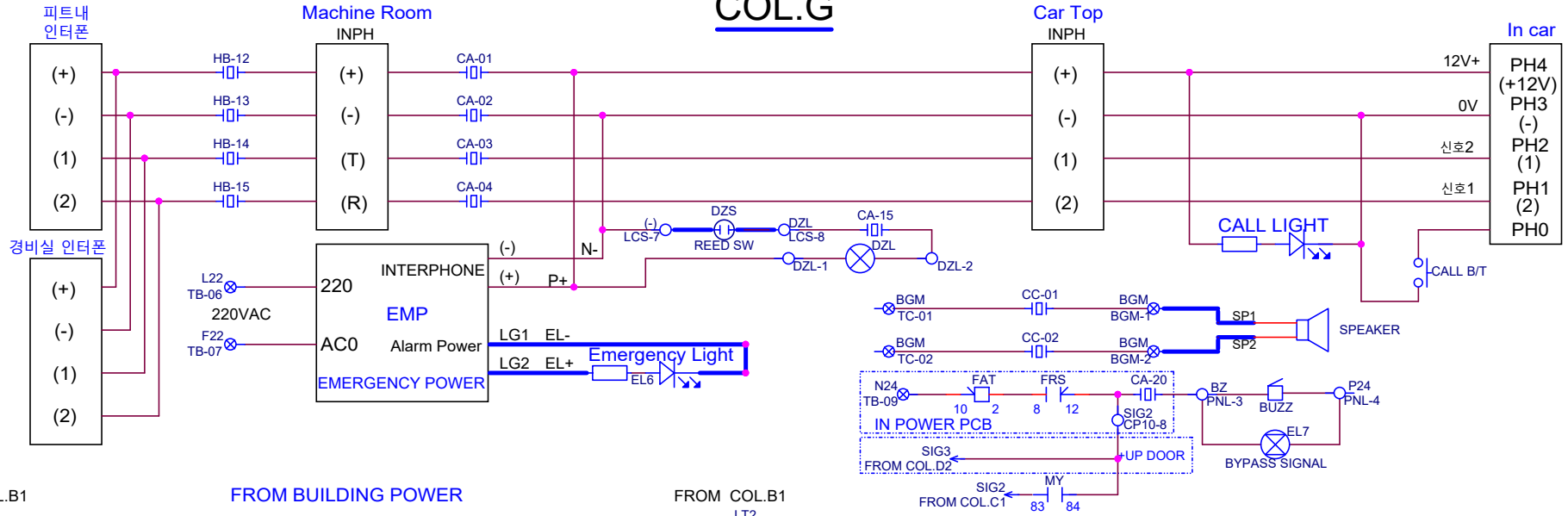


현장층표시기판이
SM-04-VSP일경우



DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	HALL CALL CIRCUIT SM-04
Size	Document Number		Rev
A4	EXPRESS-AS380		V11
Date:	Wednesday, January 27, 2021	Sheet	6 of 10

COL.G

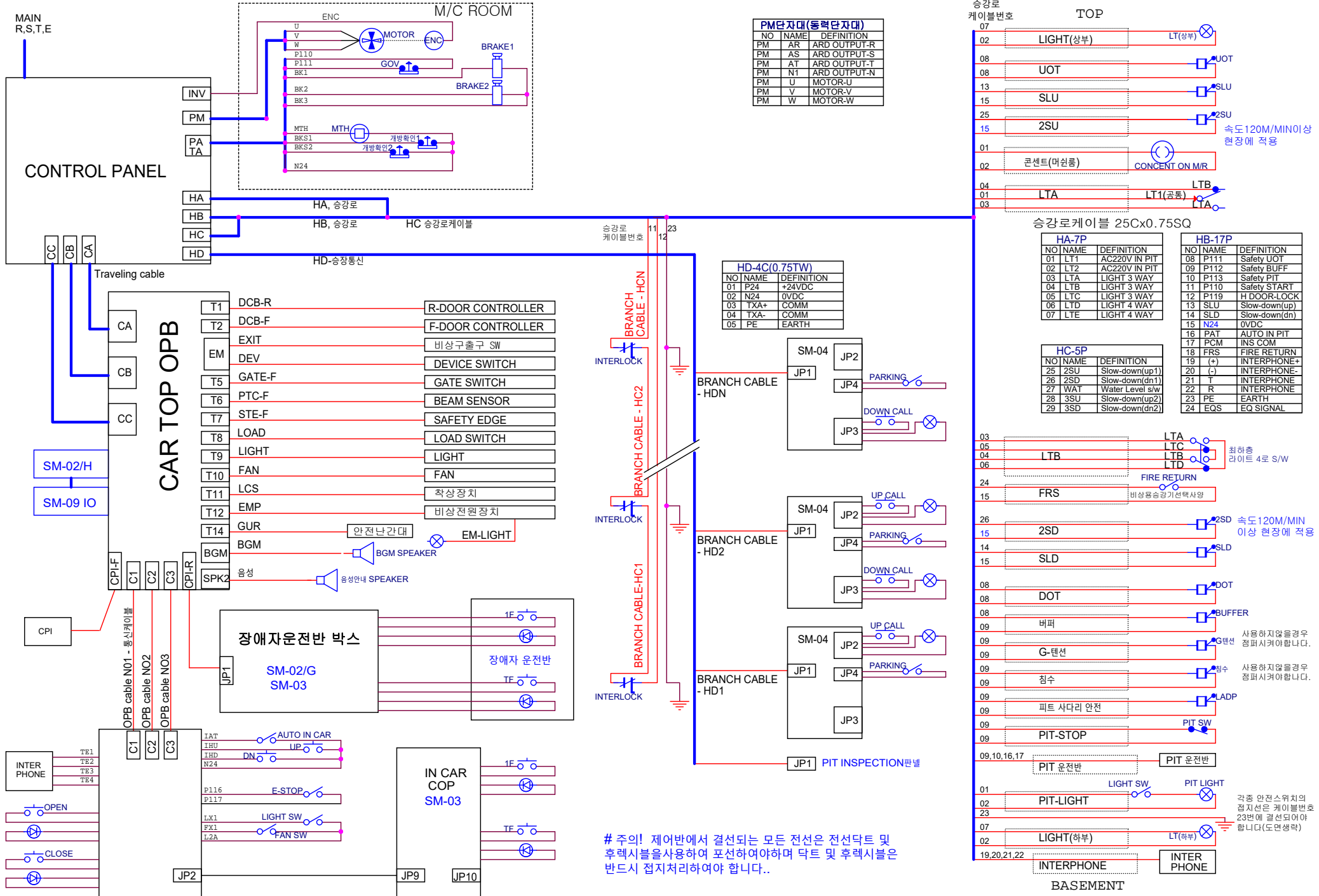


DRWN BY	J.H.KWAK	APPD BY	E.K.JANG
FIELD		TITLE	LIGHT CIRCUIT
Size	Document Number		Rev
Custom	EXPRESS-AS380		V11
Date:	Friday, February 05, 2021	Sheet	7 of 10

COL.H (결선도 요약)

케이블 사양

HA, HB, HC용 (승강로케이블 25C(27C)x0.75SQ)
HD (승강통신용 4Cx0.5SQ SHIELDED)



NO	LIMIT S/W 설정거리	60MM/MIN	90MM/MIN	105MM/MIN	120MM/MIN	150MM/MIN	180MM/MIN	210MM/MIN	240MM/MIN
A	UOT/DO	150MM	150MM	150MM	180MM	180MM	180MM	180MM	180MM
B	SLU/SLD	1200~2000MM	2200~2600MM	2400~2600MM	2600~2600MM	2600~2600MM	2600~2600MM	2600~2600MM	2600~2600MM
C	2SU/2SD				3400~4000MM	4900~5600MM	5600~5600MM	4900~5600MM	5600~5600MM
D	3SU/3SD					6800~7500MM	8800~8100MM	8800~8100MM	7000~7500MM
E	4SU/4SD							9500~11200~12000MM	

COL.I (기계실, 승강로 결선도)

PM	NAME	DEFINITION
PM	AR	ARD OUTPUT-R
PM	AS	ARD OUTPUT-S
PM	AT	ARD OUTPUT-T
PM	N1	ARD OUTPUT-N
PM	U	MOTOR-U
PM	V	MOTOR-V
PM	W	MOTOR-W

PA	NAME	DEFINITION
PA	BK1	BRAKE COIL-1
PA	BK2	BRAKE COIL-2
PA	BK3	BRAKE COIL -
PA	ER1	ERROR OUT1
PA	ER2	ERROR OUT2
PA	ER3	ERROR OUT3
PA	ER4	ERROR OUT4
PA	FN1	M/C ROOM FAN
PA	FN2	M/C ROOM FAN
PA	FN3	M/C ROOM FAN
PA	LT1	상강로 전원
PA	LT2	승강로 전원
PA	LTM	소방용 기계실 조명1
PA	L2M	소방용 기계실 조명2
PA	MS	AC220V-RBK
PA	KRB	ROPE BRAKE COIL
PA	N24	SIGNAL COM
PA	EQS	EQS INPUT
PA	EMP	EM-POWER INPUT
PA	G00	GOV TEST COM
PA	G0R	GOV RESET 전원
PA	GTR	GOV TRIP 3용
PA	G0T	C-GOV TEST COM
PA	G0PC	CW-GOV RESET 전원
PA	GTRC	CWT-GOV TRIP 전원

TA	NAME	DEFINITION
TA-01	P110	SAFETY CP
TA-02	P111	SAFETY-GOV
TA-03	BH1	BRAKE HANDLE CM
TA-04	BH2	BRAKE HANDLE SIG
TA-05	RBC	ROPE BK COM
TA-06	RBK	ROPE BK SIG
TA-07	BK1	BRAKE1 개방확인
TA-08	N24	SIGNAL COM
TA-09	BK2	BRAKE2 개방확인
TA-10	N24	SIGNAL COM
TA-11	FRS	FIRE RETURN SIG
TA-12	N24	SIGNAL COM
TA-13	ARDS	ARD START SIG
TA-14	ARDF	ARD FAULT SIG
TA-15	RGC	REGEN TH COM
TA-16	RGH	REGEN TH SIG
TA-17	IMTC	MOTOR TH COM
TA-18	IMTH	MOTOR TH SIG
TA-19	ARDE	ARD END COM
TA-20	ARDE	ARD END SIG

NO	NAME	DEFINITION
NO	00	DC110V/0V
NO	01	AC220V IN PIT
NO	02	AC220V IN PIT
NO	03	LTA LIGHT 3 WAY
NO	04	LTB LIGHT 3 WAY
NO	05	LTC LIGHT 3 WAY
NO	06	LTD LIGHT 4 WAY
NO	07	LTE LIGHT 4 WAY

NO	NAME	DEFINITION
NO	00	DC110V/0V
NO	01	AC220V IN PIT
NO	02	AC220V IN PIT
NO	03	LTA LIGHT 3 WAY
NO	04	LTB LIGHT 3 WAY
NO	05	LTC LIGHT 3 WAY
NO	06	LTD LIGHT 4 WAY
NO	07	LTE LIGHT 4 WAY

NO	NAME	DEFINITION
NO	00	DC110V/0V
NO	01	AC220V IN PIT
NO	02	AC220V IN PIT
NO	03	LTA LIGHT 3 WAY
NO	04	LTB LIGHT 3 WAY
NO	05	LTC LIGHT 3 WAY
NO	06	LTD LIGHT 4 WAY
NO	07	LTE LIGHT 4 WAY

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

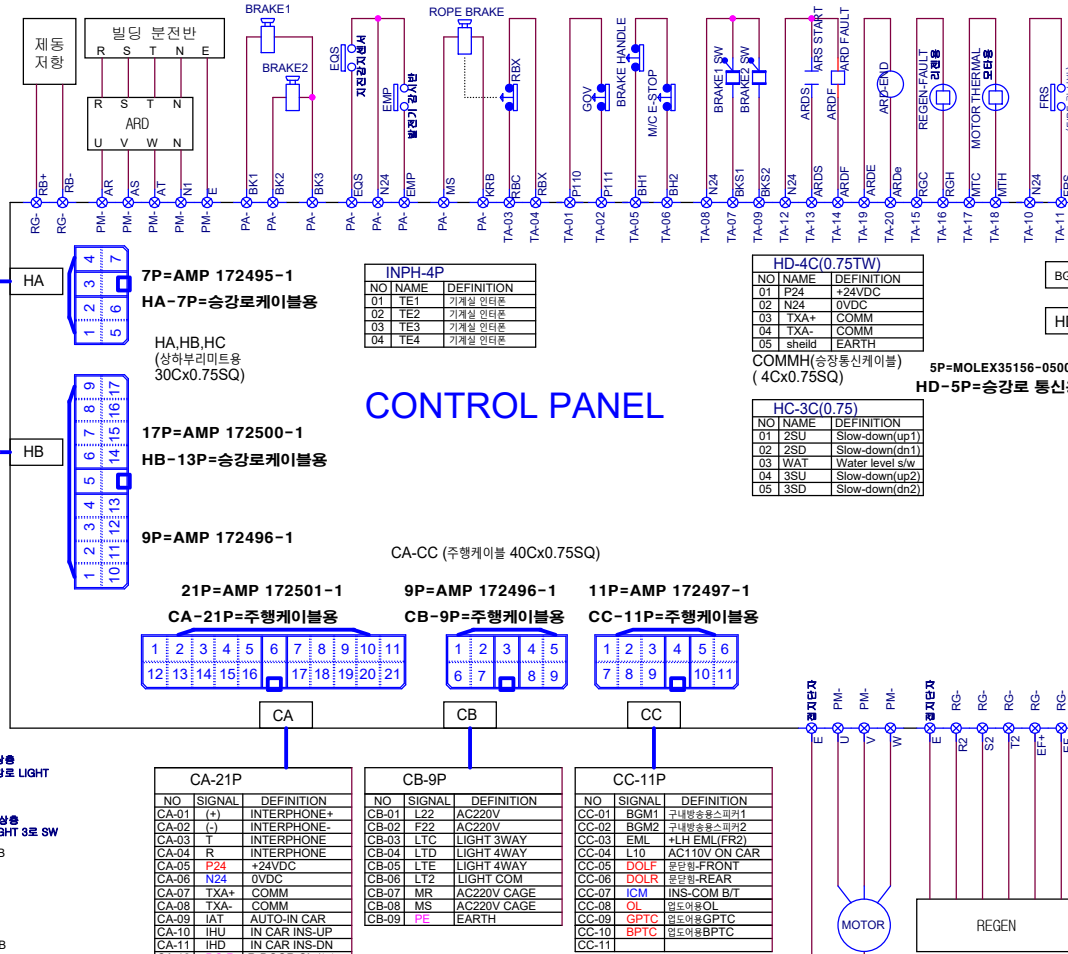
NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

NO	NAME	DEFINITION
NO	01	P111 Safety UOT
NO	02	P112 Safety BUFF
NO	03	P113 Safety PIT
NO	04	P110 Safety START
NO	05	P119 H DOOR LOCK
NO	06	SLU Slow-down(up)
NO	07	SLD Slow-down(dn)
NO	08	N24 0VDC
NO	09	PAT AUTO IN PIT
NO	10	PCM INS COM
NO	11	FRS FIRE RETURN
NO	12	(+) INTERPHONE+
NO	13	(-) INTERPHONE-
NO	14	T INTERPHONE
NO	15	R INTERPHONE
NO	16	PE EARTH
NO	17	EQS EQS SIGNAL

CONTROL PANEL



SYMBOL SPECIFIC

SYMBOL	DESCRIPTION
	WIRE IN CONTROL PANEL
	"A" CONTACT IN PCB
	"A" CONTACT MAGNETIC CONTACTOR
	"B" CONTACT MAGNETIC CONTACTOR
	"A" CONTACT MY-4 TYPE RELAY
	"B" CONTACT MY-4 TYPE RELAY
	"A" CONTACT LIMIT SWITCH
	"B" CONTACT LIMIT SWITCH
	"A" CONTACT CAM SWITCH
	"B" CONTACT CAM SWITCH
	HATCH DOOR INTERLOCK
	BLOWER MOTOR FAN MOTOR IN CAGE
	"A" CONTACT PUSH BUTTON
	EMERGENCY LIGHT
	BRAKE COIL
	MOTOR ARMATURE
	CONCENT

SYMBOL	DESCRIPTION
	JOINT POINT WIRE IN COTROL PANEL
	CONDENSER
	DIODE
	RESISTER
	FUSE
	TERMINAL IN PCB
	"A" CONTACTTOGGLE SWITCH
	"B" CONTACTTOGGLE SWITCH
	OCR
	MOTOR THERMAL SWITCH
	LAMP
	UP,DOWN DIRECTION LAMP
	"B" CONTACT PUSH BUTTON
	2WAY TOGGLE SWITCH
	EARTH
	COIL OF MY-4 TYPE RELAY
	BYPASS GATE & DOOR LOCK

SYMBOL	DESCRIPTION
	WIRE IN HOISTWAY(FIELD)
	JOINT POINT WIRE IN HOISTWAY
	TRANSFORMER
	RESISTER IN PCB
	MOTOR FIELD(DOOR MOTOR)
	HARNESS(P112=SIGNAL NAME, HA-06=NUMBER OF HARNESS PIN)
	"A" CONTACT MAGNETIC CONTACTOR
	SCREW TERMINAL IN CP & CARTOP
	2P NFB(NO FUSE BREAKER)
	1P NFB(NO FUSE BREAKER)
	GONGELECTRIC BUZZER
	BUZZER
	"B" CONTACTTHERMAL SWITCH
	SOLENOIDE
	COIL OFMAGNETIC CONTACTOR
	LEVELING INDUCTOR

CONTACT LOCATION & DECRIPTION OF SIGNAL

M/C NAME	LOCATION											DESCRIPTION
	COIL	L1/T1	L2/T2	L3/T3	13/14	43/44	53/54	61/62	71/72	31/32		
MY	C	A	A	A	B	A	C	A	A		MOTOR POWER MC	
BK1	C		B	B			C				BRAKE 1 MC	
BK2	C		B	B	F		C				BRAKE 2 MC	
BY	C	B									BRAKE COMMON MC	

M/C NAME	LOCATION										DESCRIPTION
	COIL	13/14	23/24	33/34	43/44	53/54	61/62	71/72	83/84		
UCM	C	B	C	F	C	F	F				PCB SAFETY MC
FDL	C	C		C			C				DOOR LOCK MC

Relay NAME	LOCATION SR2M						DESCRIPTION
	COIL	11/14	21/24	11/12	21/22		
9G	B2	C					CAR DOOR RELAY
9H	B2	C	F				HALL DOOR RELAY
CIN	B	B	B				INSPECTION IN CP
ICM	B	B					INSPECTION RELAY

Relay NAME	LOCATION MY-4									DESCRIPTION
	COIL	5/9	6/10	7/11	8/12	1/9	2/10	3/11	4/12	
g	B		B							SAFETY RELAY
ARD	A						C			ARD OPERATION RY
FAT	B						G	F		ON CAR AUTO RELAY
FRS	C	G	G		G					FIRE SERVICE RELAY
DLT	E					G	G			CAR LIGHT DELAY RY
K100	F	B		F						CONTROL POWER RY

NAME	DESCRIPTION
ENC	ROTARY ENCORDER
AS.T029	MAIN BOARD
AS.T024	ENCBOARD-동기용
AS.T041	ENCBOARD-비동기용
SM-02/H	카상부통신기판
SM-02/G	카내부통신기판
SM-09IO	옵션 기능기판
SM-03	카콜 입력기판
SM-04/VSD	승장통신 및 표시기-CPI
SM-04/HSC	승장통신 및 표시기-가로형
SM-04/VSC	승장통신 및 표시기-세로형
SM-04/VSP	승장통신 및 표시기-HPI
SM-04/VSX	승장통신 및 표시기-슬림형
AS.T030	제어반 내부 키보드 조작 기판
POWER-AS380	제어반 내 콘넥터기판
CARTOP-AS380	카상부 콘넥터기판

NAME	DESCRIPTION
HA	승강로 AC220V용 콘넥터
HB	승강로 신호용 하네스 콘넥터
HC	승강로 옵션용 하네스 콘넥터
HD	승강로 통신 하네스 콘넥터
CA	카상부 주행 케이블 콘넥터1
CB	카상부 주행 케이블 콘넥터2
CC	카상부 주행 케이블 콘넥터3
CD	카상부 주행 케이블 콘넥터4

SIGNAL	DESCRIPTION
00	SAFETY CIRCUIT 0V /DC110V
2SD	DOWN 2단 감속 신호
2SU	UP 2단 감속 신호
ATO	SAFETY회로-수동운전COMMON
BGM	구내방송스피커1
BGM	구내방송스피커2
BK1	BRAKE COIL 1+ (60~100VDC)
BK2	BRAKE COIL 2+ (60~100VDC)
BK3	BRAKE COIL 1,2의 COM(0V)
BKS1	BRAKE1 OPEN 확인신호
BKS2	BRAKE2 OPEN 확인신호
BZ1	BUZZER +
BZ2	BUZZER -
CL	DOOR CLOSE SIGNAL
CLR	REAR DOOR CLOSE SIGNAL
CM1	DOOR OP/CL의 공통단자(P24)
CM1R	REAR DOOR OP/CL의 공통단자
CM2	도어 리미트신호의 공통단자
CM2R	REAR도어 리미트신호의 공통
COM	제어신호의 공통단자(N24)
CT1	기계실 CONCENT용 전원단자대
CT2	기계실 CONCENT용 전원단자대
DCL	DOOR CLOSE LIMIT
DCLR	REAR DOOR CLOSE LIMIT
DL	DOWN LIMIT
DOL	DOOR OPEN LIMIT
DOLR	REAR DOOR OPEN LIMIT
EF-	REGEN-INPUT-
EF+	REGEN-INPUT+
ER1	ERROR출력 CM1단자/이상발생
ER2	ERROR출력 SG1단자/이상발생
ER3	ERROR출력 CM2단자/정상운전
ER4	ERROR출력 SG2단자/정상운전
F10	0V AC110V/카상부 AC110V공급용
F22	0V AC220V/카상부 AC220V공급용
FRS	FIRE RETURN SIGNAL
FX1	AC220V/카상부 FAN SW공급용
IAT	AUTO IN CAR SIGNAL
IHD	INSPECTION-DOWN SIGNAL
IHU	INSPECTION-UP SIGNAL

SIGNAL	DESCRIPTION
INS	INSPECTION ON CAR
IS1	SAFETY-REMOCON
ISO	SAFETY-INSPECTION CIRCUIT
KRB	ROPE BRAKE COIL
L1	220V From B/D
L10	AC110V ON CAR
L2	220V From B/D
L22	AC220V ON CAR
L30	30% LOAD SIGNAL
L80	80% LOAD SIGNAL
LD	LEVEL DOWN
LL1	ARD OUTPUT(AC220V)
LT1	승강로LIGHT / AC220V
LT2	승강로LIGHT / AC220V
LTA	승강로 3WAY / AC220V
LTB	승강로 3WAY / AC220V
LTC	승강로 3WAY / AC220V
LU	LEVEL UP
LX1	AC220V/카상부 LIGHT SW공급용
MR	AC220V-ON CAR(CP POWER)
MRR	AC220V-ON CAR(REAR DOOR)
MS	AC220V-ON CAR(CP POWER)
MSR	AC220V-ON CAR(REAR DOOR)
N	NEUTRAL
NN1	ARD OUTPUT
N24	COM(N24)-DC24V의 0V
OAT	AUTO ON CAR
OHD	INSPECTION-DOWN SIGNAL
OHU	INSPECTION-UP SIGNAL
OL	OVERLOAD SIGNAL
OP	DOOR OPEN SIGNAL
OPN	REAR DOOR-OPEN SIGNAL
P112	SAFETY MACHINE ROOM
P112-1	SAFETY UP-FINAL
P113	SAFETY DOT.BUF,G-TEN,WAT SW
P114	SAFETY PIT SWITCH
P115	SAFETY CAR-TOP DEVICE SW
P115-1	SAFETY CAR-TOP GUARD SW
P115-2	SAFETY E-STOP REMOCON
P115-3	SAFETY ON CAR E-STOP B/T

SIGNAL	DESCRIPTION
P116	SAFETY CAR-TOP EXIT SW
P117	SAFETY END
P118	SAFETY GATE SW
P119	SAFETY HALL-DOOR SW
P24	DC24V+
PAT	PIT AUTO SIGNAL
PCM	PIT INSPECTION COM SIGNAL
PIN	PIT INSPECTION SIGNAL
PE	EARTH
PTC	PHOTO CELL IN CAR
PTCR	REAR PHOTO CELL IN CAR
R	380V FROM B/D
R1	REGEN-R
RB-	REGEN-RB/제동저항-
RB+	REGEN-RB/제동저항+
RBX	ROPE BRAKE OPEN SIGNAL
S	380V FROM B/D
S1	REGEN-S
SLD	DOWN SLOW-DOWN SIGNAL
SLU	UP SLOW-DOWN SIGNAL
SP1	음성안내SPEAKER1
SP2	음성안내SPEAKER2
STE	SAFETY EDGE SIGNAL
STER	REAR-SAFETY EDGE SIGNAL
T	380V FROM B/D
T1	REGEN-T
TE1	INTERPHONE1
TE2	INTERPHONE2
TE3	인터폰전원-
TE4	인터폰전원+
MTH	MOTOR TH SIGNAL
TXA-	CAN-L / 통신케이블
TXA+	CAN-H / 통신케이블
U	MOTOR U
UL	UP LIMIT SIGNAL
V	MOTOR V
W	MOTOR W
--	--
--	--
--	--

	1	2	3	4	5	
	전기도면 약어 및 부품적용표					
	부품명	부품설명 및 용도	제조사	모델명	규격/적용	성적서 규정
A	ARD	AUTO RESCUE DEVICE	DINGU ELECTRIC	DL-EDP490T	OPTION	2004/108/CE
	EM-OP	구출운전 스위치	한영넥스	CR-253	ARE-4R	OPTION K 60947-5-1
	EMP	비상등 전원장치	정석전기	JEM-600	DC12V-2.9AH	제01-17-03-19호
	PMR-44	역결상계전기	Schneider	PMR-44-ON7	380V	OPTION
	REGEN	RE-GENERATION DEVICE	STEP ELECTRIC CO	AS RG/E 4011	11KW	OPTION
				AS RG/E 4015	15KW	OPTION
				AS RG/E 4018	18.5KW	OPTION
				AS RG/E 4022	22KW	OPTION
				AS RG/E 4030	30KW	OPTION
	SMPS	전원공급장치(DC24V)	MEAN WELL	ESP 150-24	DC24V 6A	
B	UR2	DC110V 정류기	SEMICONDUCTOR	KBP C3510	1000V . 30A	
	UR3	DC200V 정류기		KBP C3510	1000V . 31A	
	UPS	BRAKE 개방운전용 전원장치	정석전기	EPB-120	DC 100V	OPTION
	CS0	제어반 내 220V CONCENT	현대엘렉트릭	접지노출1구	AC220V 16A	
	CS1	카상부 운전반 220V CONCENT	현대엘렉트릭	접지노출2구	AC220V 16A	
	CS2	피트 내 220V CONCENT	현대엘렉트릭	접지노출1구	AC220V 16A	
	CS3	머신룸 220V CONCENT	현대엘렉트릭	접지노출2구	AC220V 16A	
	EL0	제어반 내 조명등	런전자	직부등	AC220V 17W	
	EL1	카내부 조명등			완성업체에서 공급	
	EL2	피트 내 조명등			완성업체에서 공급	
C	EL3	카상부 조명등			완성업체에서 공급	
	EL4	승강로 상부측 조명등			완성업체에서 공급	
	EL5	승강로 하부측 조명등			완성업체에서 공급	
	GOV	GOVERNOR 안전스위치			완성업체에서 공급	
	UOT	상부 주행 FINAL 안전스위치	동인산전	리미트스위치	B-CONTACT	K 60947-5-1
	DOT	하부 주행 FINAL 안전스위치	동인산전	리미트스위치	B-CONTACT	K 60947-5-1
	BUFFER	BUFFER 안전스위치			완성업체에서 공급	
	GOVT	GOV TENSION SHEAVE 안전스위치			완성업체에서 공급	
	WOT	피트 침수 안전스위치			완성업체에서 공급	
	PIT	PIT 안전스위치	한영넥스		ARE-4R	K 60947-5-1
D	DEV	SAFETY DEVICE 안전스위치			완성업체에서 공급	
	TOP	카상부 안전난간대 안전스위치			완성업체에서 공급	
	E-STOP	EMERGENCY STOP 안전스위치	한영넥스		ARE-4R	K 60947-5-1
	EXIT	비상구 출구 안전스위치			완성업체에서 공급	
	NFB1	주 개폐기. 모니터용량-5.5-7.5KW	ABN-33	30A		KS C 8321
		주 개폐기. 모니터용량-9.5-11KW	ABN-53	40A		KS C 8321
		주 개폐기. 모니터용량-13-15KW	ABN-53	50A		KS C 8321
		주 개폐기. 모니터용량-18.5KW	ABN-63	60A		KS C 8321
		주 개폐기. 모니터용량-22KW	ABN-63	75A		KS C 8321
		주 개폐기. 모니터용량-30KW	ABN-103	100A		KS C 8321
	NFB2, 3	조명 개폐기	LS 산전	32GRHC	15A	KS C 4613
	MC, MY	주 접촉기-모터용량: 5.5KW	LS 산전	MC-22	11KW/22A	K 60947-4-1
		주 접촉기-모터용량: 7.5KW		MC-32	15KW/32A	K 60947-4-1
		주 접촉기-모터용량: 9.5-11KW		MC-32	15KW/32A	K 60947-4-1
		주 접촉기-모터용량: 13-15KW		MC-50	22KW/50A	K 60947-4-1
		주 접촉기-모터용량: 18.5KW		MC-50	22KW/50A	K 60947-4-1
		주 접촉기-모터용량: 22KW		MC-65	30KW/65A	K 60947-4-1
		주 접촉기-모터용량: 30KW		MC-75	37KW/75A	K 60947-4-1
	UCM	안전회로 접촉기, UCM	후지전기	SH-4/G	120V. 6A	AC-15 K 60947-5-1
	FD L	안전회로 접촉기-DOOR LOCK		SH-4/G	120V. 6A	AC-15 K 60947-5-1
	ARD	안전회로 접촉기-ARD		SH-4/G	120V. 6A	AC-15 K 60947-5-1
	ROPE	안전회로 접촉기-ROPE BRAKE		SH-4/G	120V. 6A	AC-15 K 60947-5-1
	부품명	부품설명 및 용도	제조사	모델명	규격/적용	성적서 규정
A	9G,9H,I,IN, CIN,INS	안전회로 릴레이-DOOR SW	씨미트일렉트로닉스	SR2M	120V. 3A	AC-15 K 60947-5-1
	동력선	동력케이블-모터용량: 5.5-7.5KW	㈜케이디씨	KIV	65SQ	KS 60227-3
		동력케이블-모터용량: 9.5-11KW		KIV	10SQ	KS 60227-3
		동력케이블-모터용량: 13-15KW		KIV	10SQ	KS 60227-3
		동력케이블-모터용량: 18.5-22KW		KIV	16SQ	KS 60227-3
		동력케이블-모터용량: 30KW		KIV	25SQ	KS 60227-3
	승강로전선	승강로 하네스케이블(CP-PIT)	㈜케이디씨	VCTF	0.75SQ 20C	KS 60227-6
		각종도어스위치(H-DOOR LOCK)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강기 상부 리미트 (UOT)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강로 하부 리미트(DOT)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강로 상부 조명등(LTA)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강로 하부 조명등(LTB)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강로 강제감속 스위치(SLU)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강로 강제감속 스위치(SLU)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강로 상부 조명 3로 스위치용(LTA)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		승강로 상부 조명 3로 스위치용(LTA)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		로비 화재 리턴스위치(FRS)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		피트 안전스위치 및 조명용(PIT)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		피트 버튼 안전스위치(BUFFER)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		가바나 텐션시브안전스위치(GOVT)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		피트 침수확인안전스위치(WOT)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		인터폰 또는 비상통화장치	㈜케이디씨	VCTF	0.75SQ 4C	KS 60227-5
		승장 콜버튼케이블	동양전자	DATA CABLE	0.5SQ 8C	
		승강로 통신케이블(TWISTx2)	㈜케이디씨	DATA CABLE	0.5SQ 4C	SHEILD
	카주위케이블	카상부 조명등(LTC)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		세프티 디바이스 안전스위치(DEV)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		안전난간대스위치(TOP)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		비상구안전스위치(EXIT)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		카도어스위치(GATE)	㈜케이디씨	VCTF	0.75SQ 3C	KS 60227-5
		카하부 로드스위치(L30 L80 LOL)	㈜케이디씨	VCTF	0.75SQ 5C	KS 60227-6
		도어콘트롤러용 케이블 (DCB)	㈜케이디씨	VCTF	0.75SQ 10C	KS 60227-6
		착상장치용 케이블(LU LD)	㈜케이디씨	VCTF	0.75SQ 6C	KS 60227-6
C	가요성케이블	도어닫힘 안전장치(STE)	㈜케이디씨	DATA CABLE	0.75SQ 3C	KS 60227-5
		벨선서용 케이블(STR)	㈜케이디씨	DATA CABLE	0.75SQ 5C	KS 60227-6
	이동 케이블	주행거리45M 이상 표준사양	에스티전선	EVVF-H	0.75SQ 30C	TH=45M 이상 KS B 6948-2007
		주행거리46M 미만 표준사양		EVVF-L	0.75SQ 30C	TH=45M 미만 KS B 6948-2007
		주행거리47M 이상 선택사양		EVVF-H	0.75SQ 40C	TH=45M 이상 KS B 6948-2007
		주행거리48M 미만 선택사양		EVVF-L	0.75SQ 40C	TH=45M 미만 KS B 6948-2007
	노이즈필터	모터용량:5.5KW-7.5KW	㈜삼대전기	FT310-15	7.5KW	380V
		모터용량:9.5KW-11KW		FT310-25	11KW	380V
		모터용량:13KW-15KW		FT310-30	15KW	380V
		모터용량:18.5KW		FT310-40	18.5KW	380V
		모터용량:22KW		FT310-50	22KW	380V
		모터용량:30KW		FT310-60	30KW	380V
	SPD	SURGE BOX	프라임솔루션	SB+PS2-40S 3P	40G	380V KS C IEC 61643
D	UFC	인버터-5.5KW	STEP ELECTRIC CO	AS 380-T05P5	13A	380V 11-PEL-00017/03
		인버터-7.5KW		AS 380-T07P5	18A	380V 11-PEL-00017/03
		인버터-11KW		AS 380-T0011	27A	380V 11-PEL-00017/03
		인버터-15KW		AS 380-T0015	34A	380V 11-PEL-00017/03
		인버터-18.5KW		AS 380-T18P5	41A	380V 11-PEL-00017/03
		인버터-22KW		AS 380-T0022	48A	380V 11-PEL-00017/03
		인버터-30KW		AS 380-T0030	65A	380V 11-PEL-00017/03
	1	2	3	4	5	