



Grid Solutions

A GE and Alstom joint venture

220kV/132kV GIS SUBSTATION GHAZI ROAD , LAHORE

220kV LINE CONTROL PANEL (=D08+C4)

SCHEMATIC DRAWINGS

REFERENCE DRAWINGS

SR. NO.	DRAWING TITLE	DOCUMENT NO.
1.	220kV / 132kV Metering & Protection SLD	P60194-E-SLMP-001
2.	220kV GIS LCC Schematic Drawings	P60194-E-GISS-001

REVISION HISTORY					
REV	DATE	DRW. BY	CHK. BY	APR. BY	REVISION DESCRIPTION
0	22.11.2018	ASJ	MFT	NAH	AS BUILT

Scale	NOT-TO-SCALE	Sheet size	A3
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Client	 NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)
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Contractor	 Grid Solutions A GE and Alstom joint venture	Manufacturer	 EPESOL 71-B Garden Block, New Garden Town, Lahore Pakistan
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Project	220kV / 132kV GIS SUBSTATION GHAZI ROAD , LAHORE
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Title	220kV LINE CONTROL PANEL (=D08+C4) SCHEMATIC DRAWINGS
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Order no	Document no
P-60194	P60194-E-RLC-SC-003

Sheet type	Total sheets	Sheet no
A	40	1

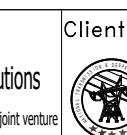
	PAGE NO.	SHEET NAME	SHEET DESCRIPTION	ISSUE / REVISION											
				A	B	C	D	E	F	01	02	03	04	05	
A All information contained in this document is the exclusive property of GE GRID SOLUTIONS and shall not be used, copied or communicated to third parties without its prior authorization.	01	A	Cover Sheet		X	X									
	02	AA1	List Of Contents		X	X									
	03	AA2	List Of Contents		X	X									
	04	AB	Symbols and Legends			X									
	05	AC1	Component List			X									
	06, 06a	AC2, AC2.1	Component List			X									
	07, 07a	AD, AD1	Panel View			X									
	08	AE	Bay Concept & Metering Logics			X									
	09	D	AC Supply Distribution Circuit			X									
	10	E	DC Supply Distribution Circuit			X									
	11	F	AC/DC Supply Failure Circuits			X									
	12	H1	CT/VT Metering Circuit			X									
	13	H2	CT/VT Metering Circuit			X									
	14	I1	Power Equipment input Circuit			X									
	15	I2	Power Equipment input Circuit			X									
	16	I3	Power Equipment input Circuit			X									
	17	I4	Power Equipment input Circuit			X									
	18	I5	Power Equipment input Circuit			X									
	19	J1	Circuit Breaker Opening/Closing Circuit			X									
	20	J2	Circuit Breaker Opening/Closing Circuit			X									
	21	J3	Circuit Breaker Opening/Closing Circuit			X									
	22	J4	Circuit Breaker Opening/Closing Circuit			X									
	23	J5	Isolator/Earthing SW. Opening/Closing Circuit			X									
	24	J6	Isolator/Earthing SW. Opening/Closing Circuit			X									
	25	MA1	Synch Circuits			X									
	26	MA2	Synch Circuits			X									
	27	MA3	Control Circuit			X									
	28	MA4	Discrepancy Check Circuit			X									
	29	MA5	Discrepancy Check Circuit			X									
	30	MA6	Discrepancy Check Circuit			X									
	31	RA1	AC Annunciations Circuit			X									
	32	RA2	Protection Trips Circuit			X									
0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTRPL PANEL (=D08+C4) LIST OF CONTENTS	Drawing no. P60194-E-RLC-SC-003						
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type AA1	Sheet no. 02				

	1	2	3	4	5	6	7	8					
	PAGE NO.	SHEET NAME	SHEET DESCRIPTION			ISSUE / REVISION							
						A	B	C	D	E	F	01	
A	33	RA3	Annunciation Alarms Circuit			X	X	X					
	34	RA4	Annunciation Alarms Circuit			X	X	X					
	35	RA5	Annunciation Alarms Circuit			X	X	X					
	36	RA6	Annunciation Alarms Circuit			X	X	X					
	37	RA6-1	Annunciation Alarms Circuit			X	X	X					
B	38	RA7	Event & Fault Recorder Circuit			X	X	X					
	39	RA8	Annunciation Circuit			X	X	X					
	40	Z1	Component Diagram			X	X	X					
C													
D													
E													
F													
	0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTRPL PANEL (=D08+C4) LIST OF CONTENTS	Drawing no. P60194-E-RLC-SC-003			
	REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type AA2	Sheet no. 03	

	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A		CIRCUIT BREAKER		MINIATURE CIRCUIT BREAKER		AUXILIARY CONTACTOR NO+NC	21	DISTANCE
B		SWITCH/ISOLATOR		KEY OPERATED SELECTOR SWITCH		AMMETER	24	OVEREXCITATION
C		EARTHING		LIMITED SWITCH		VOLTMETER	25	SYNCHROCHECK
D		SF6 TO AIR BUSHING		HUMIDITY & TEMPERATURE CONTROLLER		POWER FACTOR METER	49	THERMAL OVERLOAD
E		LINE TRAP		PANEL HEATER		DIGITAL PANEL METER	50/51	PHASE INST./OVERCURRENT
F		SURGE ARRESTOR		THREE PIN SOCKET		ACTIVE POWER METER	50N/51N	EARTH INST./OVERCURRENT
G		CURRENT TRANSFORMER		INDICATION LIGHT		REACTIVE POWER METER	50BF	CIRCUIT BREAKER FAILURE
H		COUPLING CAPACITOR VOLTAGE TRANSFORMER		PUSH BUTTON		ENERGY METER	64	RESTRICTED EARTH FAULT
I		POWER TRANSFORMER		AUXILIARY CONTACTOR COIL			67N	DIRECTIONAL EARTH FAULT
J		AUTO TRANSFORMER		POWER SUPPLY AC/DC			68	POWER SWING BLOCKING
K				TERMINAL			78	OUT OF STEP
L				OPTO CONTACTS			79	AUTO-RECLOSING
M				RELAY CONTACTS			85	COMMUNICATION FAILURE
N				HOOTER			87T	TRAFO DIFFERENTIAL
O				AC BELL			87C	DIFFERENTIAL CONNECTION
P							87BB	DIFFERENTIAL BUSBAR

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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTRPL PANEL (=D08+C4) SYMBOLA AND LEGENDS	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type AB
									Sheet no. 04

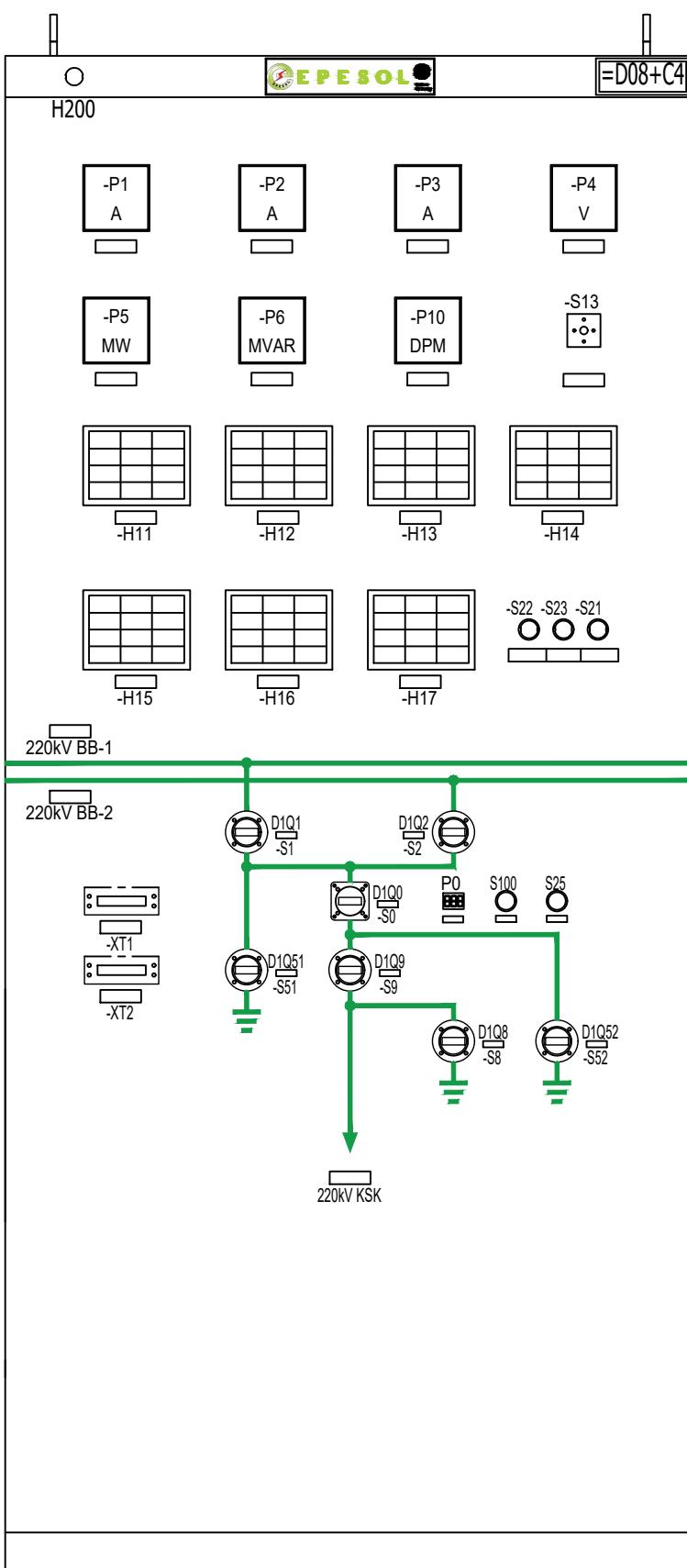
	1	2	3	4	5	6	7	8		
	QTY.	DEVICE DESCRIPTION	DEVICE SPECIFICATIONS DEVICE TYPE ; TECHNICAL DATA / SPECIFICATIONS			DEVICE DESIGNITION	MANUFACTURER			
A	01	DIGITAL POWER METER	ENERIUM-150, Accuracy: 0.5S, IP Class: IP52, COM Port: RS485, Size: 96x96 Sq.mm. Supply: 110-375VDC, NOMINAL INPUT: 1/5A, 110VAC(L-L)			-P10	ENERDIS			
	02	ANALOG AMMETER	Type: A96MMA, In: 0...20/30mA, Deflection: 240°, Class: 1, Size: 96x96 Sq.mm, Scale-1: 0...600/900A, Scale-2: 0...1200/1800A, Scale-3: 0...2400/3600A			-P1,-P3	FRER			
B	01	DIGITAL AMMETER	Type: D96MMA, In: 0...20/30mA DC, Class: 1, Supply: 220VDC, Size: 96x96 Sq.mm.			-P2	FRER			
	01	ANALOG VOLTMETER	Type: A96MMV, In: 0...20/30mA DC, Deflection: 240°, Class: 1, Size: 96x96 Sq.mm. Scale: 0...220/330kV, Marked Red at 220kV			-P4	FRER			
C	01	ANALOG REAL POWER (MW) METER	Type: A96MMA, In: -12.5/10...0...+10/12.5mA DC, Deflection: 240° with CENTER ZERO,			-P5	FRER			
	Application: 3PH+4W Balanced System		Size: 96x96 Sq.mm., Class: 1, Scale-1: 450/300...0...300/450 MW (229 MW at 20mA) Scale-2: 625/500...0...500/625 MW (457 MW at 20mA), Scale-3: 1250/1000...0...1000/1250 MW (915 MW at 20mA)							
D	01	ANALOG REACTIVE POWER (MVAR) METER	Type: A96MMA, In: -12.5/10...0...+10/12.5mA DC, Deflection: 240° with CENTER ZERO,			-P6	FRER			
	Application: 3PH+4W Balanced System		Size: 96x96 Sq.mm., Class: 1, Scale-1: 450/300...0...300/450 MVAR (229 MVAR at 20mA) Scale-2: 625/500...0...500/625 MVAR (457 MVAR at 20mA), Scale-3: 1250/1000...0...1000/1250 MVAR (915 MVAR at 20mA)							
E	04	CURRENT TRANSDUCER	Type: MCOEAQ, Accuracy Class: 1, Input: 1/1.5A, Output: 0...20/30mA - 1 O/P, Frequency: 50Hz, Supply: 220VDC, CT Ratio: 600:1200:2400 / 1A			-U1,-U2, -U2.1, -U3	FRER			
	01	VOLTAGE TRANSDUCER	Type: MCOEVQ, Accuracy Class: 1, Input: 0...110/165VAC(L-L), Output: 0...20/30mA - 1 O/P Frequency: 50Hz, Supply: 220VDC, PT Ratio: 220/0.11 kV(L-L)			-U4	FRER			
F	01	PROGRAMMABLE UNIVERSAL TRANSDUCER	Type: MCUP4, 3-Phase 4 Wire Balanced Load Input Voltage: 110/137.5 VAC (L-L), Input Current: 1/1.25 A, Auxiliary Voltage: 220 VDC 4x Programmable DC mA O/P, Accuracy Class: 1, Output: -12.5/10...0...10/12.5 mA PT Ratio: 220/0.11 kV (L-L), CT Ratio: 600:1200:2400 / 1A.			-U5	FRER			
	01	DISCREPANCY SWITCH - CIRCUIT BREAKER	Type: YS-IC-4456-S4(49)-PM-K-G-D22-GM, Standard-type (Push & Turn 90° after 2-position) Square Type, Rating: 220VDC			-S0	YONGSUNG			
G	06	DISCREPANCY SWITCH - ISOLATOR / EARTHING SWITCHES	Type: YS-IC-4456-R4(49)-PM-K-G-D22-GM, Standard-type (Push & Turn 90° after 2-position) Round Type, Rating: 220VDC			-S1,-S51,-S2,-S9,-S52,-S8	YONGSUNG			
	01	SELECTOR SWITCH - VOLTMETER	Type: PO-160023R001, 7 Position (L1-L2,L2-L3,L3-L1,OFF,L1-N,L2-N,L3-N)			-S13	GIOVENZANA			
H	01	SELECTOR SWITCH - OPERATION (LOCAL-OFF-SCADA)	Type: YS-AK-2-3-44-D, 2 Position with OFF, 4-Pole, Ratings: 12A, 220VDC, Keytype			-S100	YONGSUNG			
	01	SELECTOR SWITCH - SYNCHRONIZATION (ON-BYPASS)	Type: YS-AK-2-2-44-D, 2 Position, 4-Pole, Ratings: 12A, 220VDC, Keytype			-S25	YONGSUNG			
I	0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GAZI ROAD, LAHORE	Title 220kV LINE CONTRPL PANEL (=D08+C4) COMPONENT LIST	Drawing no. P60194-E-RLC-SC-003
	REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type AC1

	1	2	3	4	5	6	7	8		
	QTY.	DEVICE DESCRIPTION	DEVICE SPECIFICATIONS DEVICE TYPE ; TECHNICAL DATA / SPECIFICATIONS			DEVICE DESIGNITION	MANUFACTURER			
A	04	TERMINAL BLOCKS - AC SUPPLY DIST.	Screw-type, Feed Through Terminal, CBD-4			-XAC	CABUR			
	08	TERMINAL BLOCKS - DC SUPPLY DIST.	Screw-type, Feed Through Terminal, CBD-4			-XDC	CABUR			
	16	TERMINAL BLOCKS - CT METERING CIRCUIT	Screw-type, Feed Through Terminal, SCB-6			-X4	CABUR			
	28	TERMINAL BLOCKS - VT METERING CIRCUIT	Screw-type, Feed Through Terminal, SCB-6			-X5	CABUR			
	20	TERMINAL BLOCKS - POWER EQUIP. INPUT	Screw-type, Feed Through Terminal, CBD-4			-X6	CABUR			
	27	TERMINAL BLOCKS - POWER EQUIP. INPUT	Screw-type, Feed Through Terminal, CBD-4			-X7	CABUR			
	27	TERMINAL BLOCKS - CB OPENING/CLOSING CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X8	CABUR			
	20	TERMINAL BLOCKS - CB OPENING/CLOSING CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X9	CABUR			
B	20	TERMINAL BLOCKS - CB OPENING/CLOSING CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X10	CABUR			
	31	TERMINAL BLOCKS - ISO./ESW OPENING/CLOSING CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X11	CABUR			
	20	TERMINAL BLOCKS - SYNC. CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X12	CABUR			
	14	TERMINAL BLOCKS - SYNC. CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X13	CABUR			
	05	TERMINAL BLOCKS - CONTROL CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X14	CABUR			
	16	TERMINAL BLOCKS - DISCREPANCY CHECK CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X15	CABUR			
	07	TERMINAL BLOCKS - DISCREPANCY CHECK CIRCUIT	Screw-type, Feed Through Diode Terminal, DAS.4/6			-XD	CABUR			
	87	TERMINAL BLOCKS - ANNUNCIATION CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-XAN	CABUR			
C	28	TERMINAL BLOCKS - ER/FR CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-XEV	CABUR			
	16	TERMINAL BLOCKS - SCADA SIGNALS	Screw-type, Feed Through Terminal, CBD-4			-XSC	CABUR			
	06	TERMINAL BLOCKS - SCADA METERING SIGNALS	Screw-type, Feed Through Terminal, CBD-4			-XSA	CABUR			
	06	TERMINAL BLOCKS - CONTROL CIRCUIT	Screw-type, Feed Through Terminal, CBD-4			-X30	CABUR			
D										
E										
F										
G	0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTRPL PANEL (=D08+C4) COMPONENT LIST	Drawing no. P60194-E-RLC-SC-003
									Project no. P-60194	
									Sheet type AC2.1	
									Sheet no. 06a	
	REV.	DESCRIPTION	DATE	DRAWER						

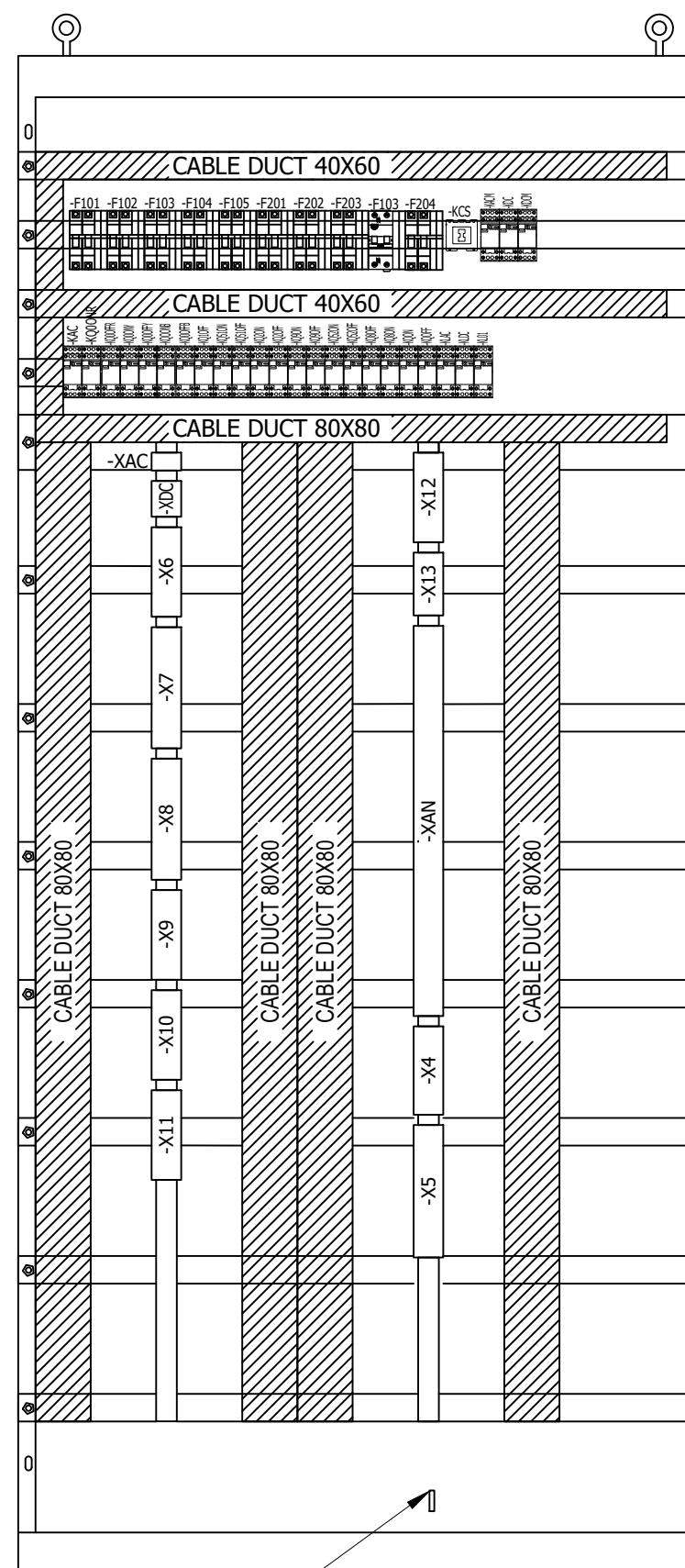
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A	01	PUSH BUTTON - ACKNOWLEDGE	Type: Switch (A Type), Color : BLACK , Supply : 220VDC, Ord: YS-AP1-2-31-B-D-W			-S21	YONGSUNG			
	01	PUSH BUTTON - LAMP TEST	Type: Switch (A Type), Color : RED , Supply : 220VDC, Ord: YS-AP1-2-31-R-D-W			-S22	YONGSUNG			
	01	PUSH BUTTON - RESET	Type: Switch (A Type), Color : GREEN , Supply : 220VDC, Ord: YS-AP1-2-31-G-D-W			-S23	YONGSUNG			
B	03	MCB - AC	2-Pole, Ratings: 2A, 240VAC, 10kA @ 240VAC, 2 C/O Contacts, Ord: G62C02+CAH(2)			-F101, -F102, -F104	GE			
	01	MCB - ELCB	2-Pole, Ratings: 16A, 30mA, 240VAC, 1P+N, 2 C/O Contacts, Ord: DM100C16/030+CAH(2)			-F103	GE			
	04	MCB - DC	2-Pole, Ratings: 4A, 250VDC, 10kA @ 250VDC, 2 C/O Contacts, Ord: EP102UCC04+CAH(2)			-F201, -F202, -F203, -F204	GE			
	01	MCB - VT	4-Pole, Ratings: 4A, 110VAC, 10kA @ 110VAC, Ord: G64C02			-F105	GE			
C	01	INDICATION LAMP - DC SUPPLY FAILURE	Type: Integrated LED, Color : RED , Supply : 230VAC @ 50Hz, Ord: YS-PL-2-AL-22-R-W			-H200	YONGSUNG			
	01	ANNUNCIATION MODULE	12-Window, Supply: 220 VAC			-H11	E-LABS			
	06	ANNUNCIATION MODULE	12-Window, Supply: 220 VDC			-H12,-H13,-H14,-H15,-H16,H17	E-LABS			
D	02	CONTACTOR RELAY	Coil Voltage: 230VAC @ 50/60 Hz, 6A, 4 C/O Contacts, Ord: PRC4M40ANL			-KACM, -KDC	GE			
	01	AUXILIARY CONTACTOR - SUPPLY CHANGEOVER	Coil Voltage: 220VDC, 16A, 3 NO + 3 NC Contacts, Ord: MCRC022ATWN+MARN211AT			-KCS	GE			
	65	CONTACTOR RELAY	Coil Voltage: 220VDC, DIODE, 4 C/O Contacts, Ord: PRC4M40DCML			-KDCM, -KAC, -KQ0.ONR, -KQ0.OFR, -KQ0.ONY, -KQ0.OFY	GE			
						-KQ0.ONB, -KQ0.OFB, -KQ1.ON, -KQ1.OF, -KQ51.ON, -KQ51.OF				
						-KQ2.ON, -KQ2.OF, -KQ9.ON, -KQ9.OF, -KQ52.ON, -KQ52.OF				
						-KQ8.ON, -KQ8.OF, -KQ.ON, -KQ.OFF, -KLAC, -KLDC, -KLO1				
						-KLO2, -KLO3, -KLO4, -KLO4.1, -KLO5, -KLO5.1, -KLO6, -KLO7, -KLO8				
						-KLO9, -KG0A, -KG1A, -KG2A, -KG4A, -KG5A, -KG9A, -KGB				
						-KGW, -KVTM, -KVTP, -KVTPX, -KBVT1, -KBVT2, -KDC2				
						-KSY1, -KOE1, -KO A, -KV TB, -KDC1				
E						-KTX, -KD				
						-K0D, -K1D, -K51D, -K2D, -K9D, -K52D, -K8D, -KS21, -KDC3				
	01	NO VOLT RELAY FOR VT	Rated Supply: 110 VAC @ 50 Hz			-KQ8.D	E-LABS			
F	01	FLASHER RELAY	Rated Supply: 220 VDC			-KFL	E-LABS			
	01	OPERATION COUNTER	Rated Supply: 220 VDC			-P0	E-LABS			
	01	PANEL LIGHT	230VAC @ 50Hz, 05W, Ord: YS-T8-30-5W			-H100	YONGSUNG			
G	01	DOOR SWITCH	230VAC @ 50Hz, 1 NO Contact, Ord: YS P3315GW-B + YS MS-C			-DS	YONGSUNG			
	01	THREE PIN SOCKET	1N+PE, 16A, 230VAC @ 50Hz			-X100	LOCAL			
	01	PANEL HEATER	230VAC @ 50Hz, 60W			-R100	E-LABS			
H	01	HUMIDITY & TEMPERATURE CONTROLLER	40-90%RH, 25-50 deg.C, 230VAC @ 50Hz			-B100	E-LABS			
	01	TEST BLOCK - CT	YS-CTT-04S			-XT1	YONGSUNG			
	01	TEST BLOCK - VT	YS-PTT-04S			-XT2	YONGSUNG			
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								Sheet no. 06		

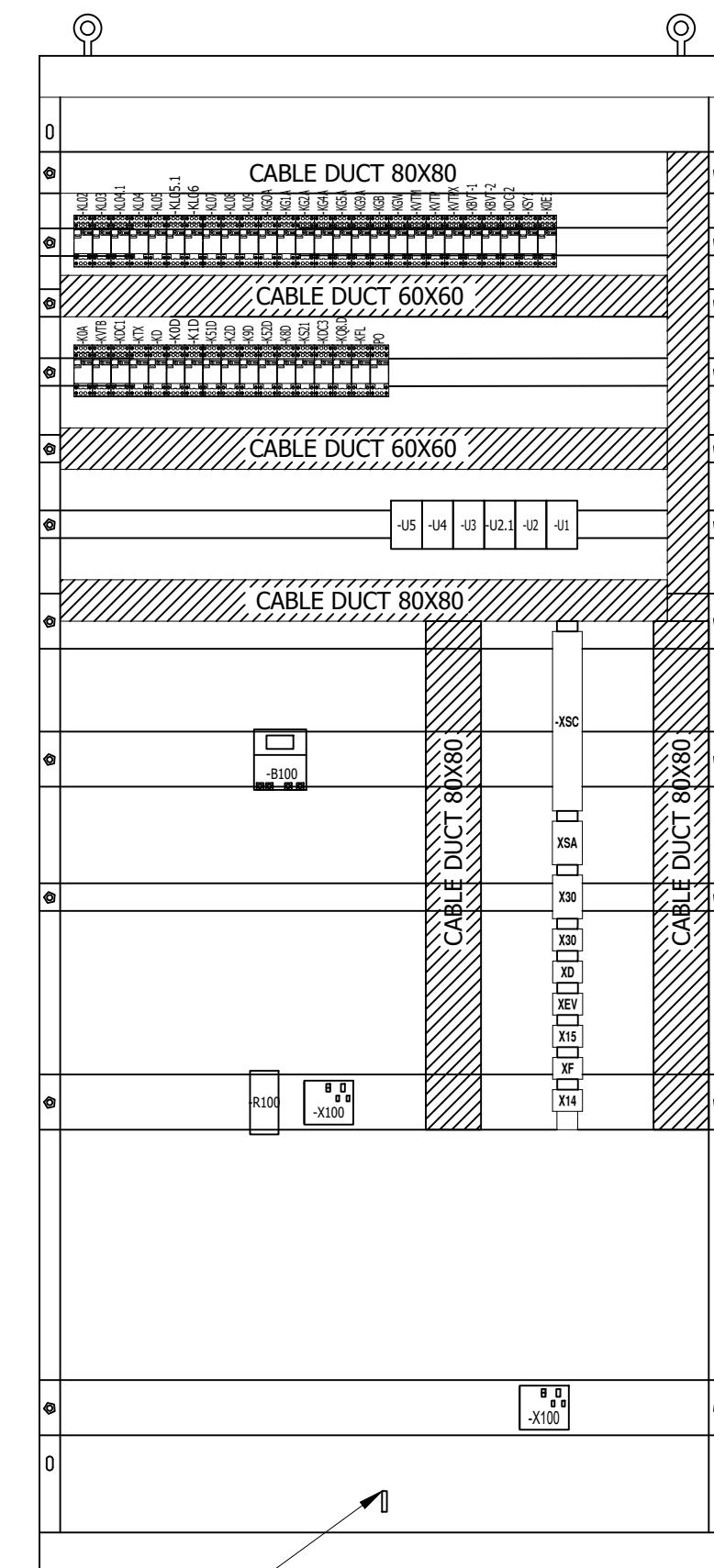
FRONT VIEW



LEFT SIDE VIEW



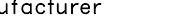
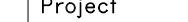
RIGHT SIDE VIEW

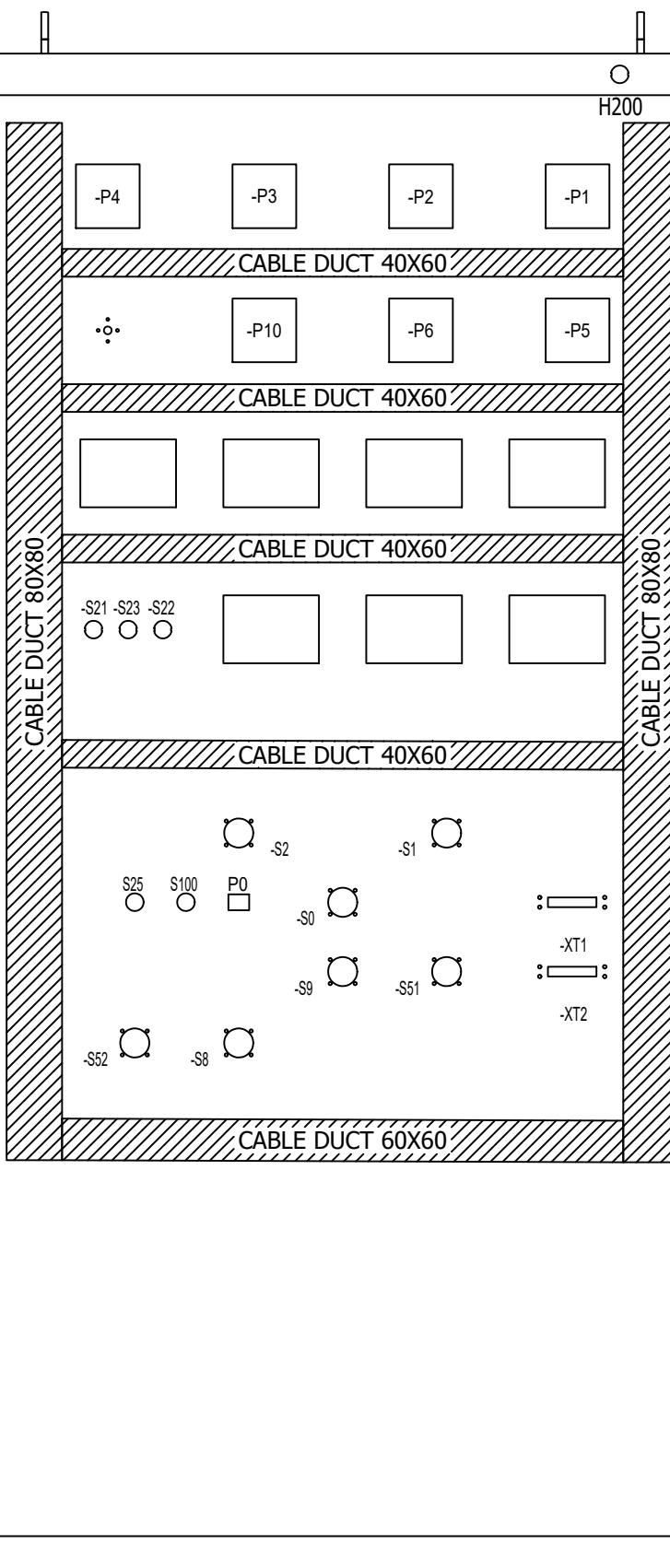
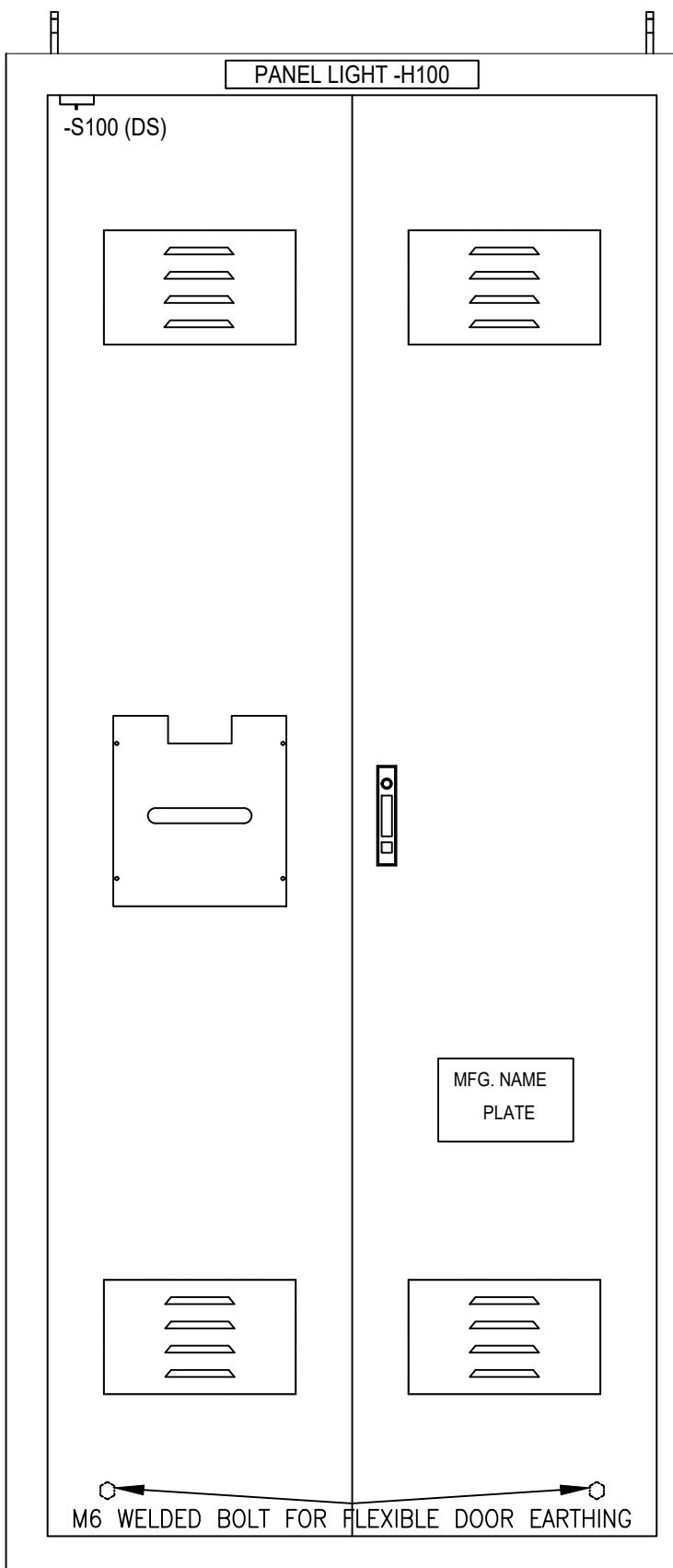
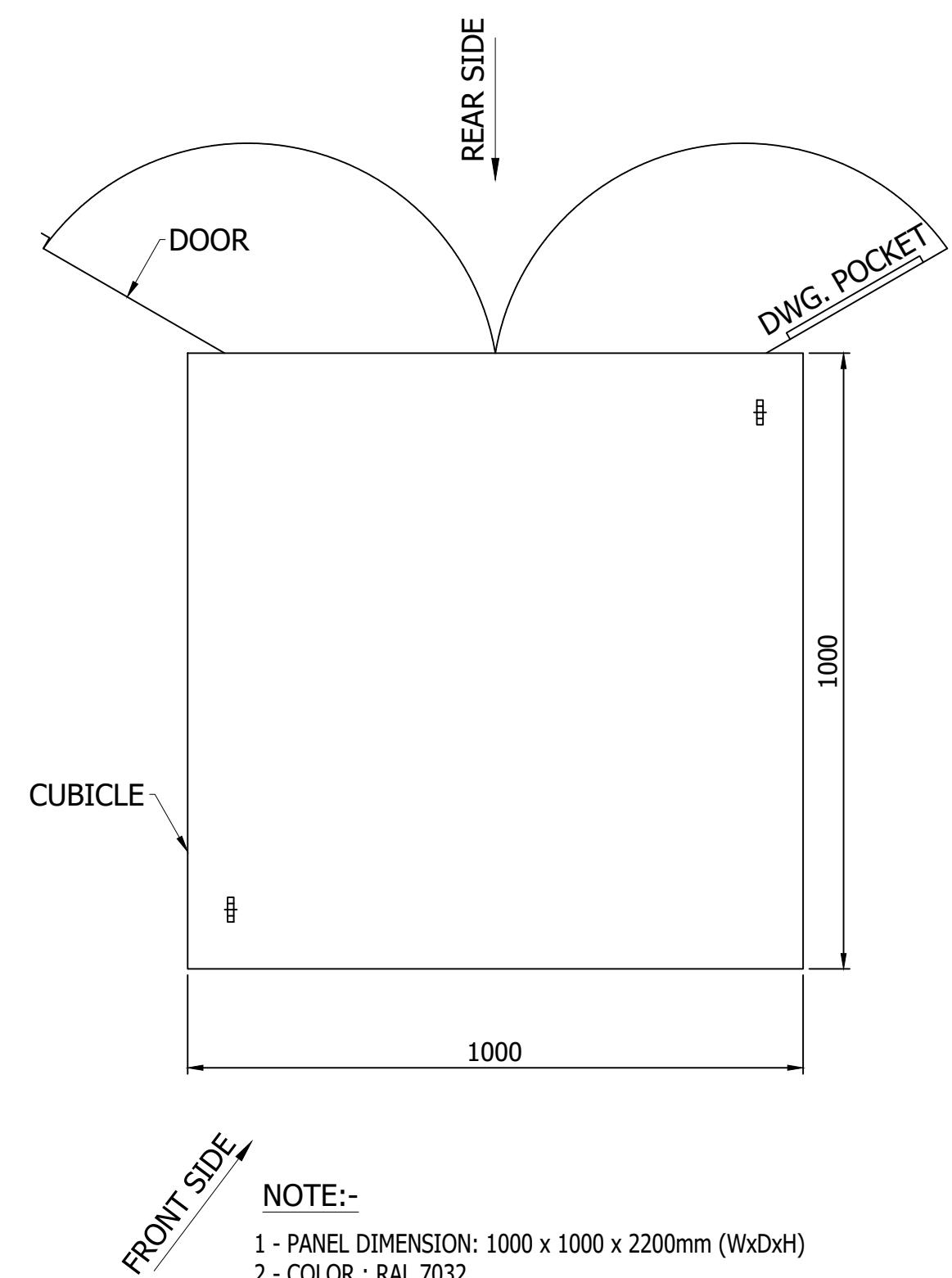


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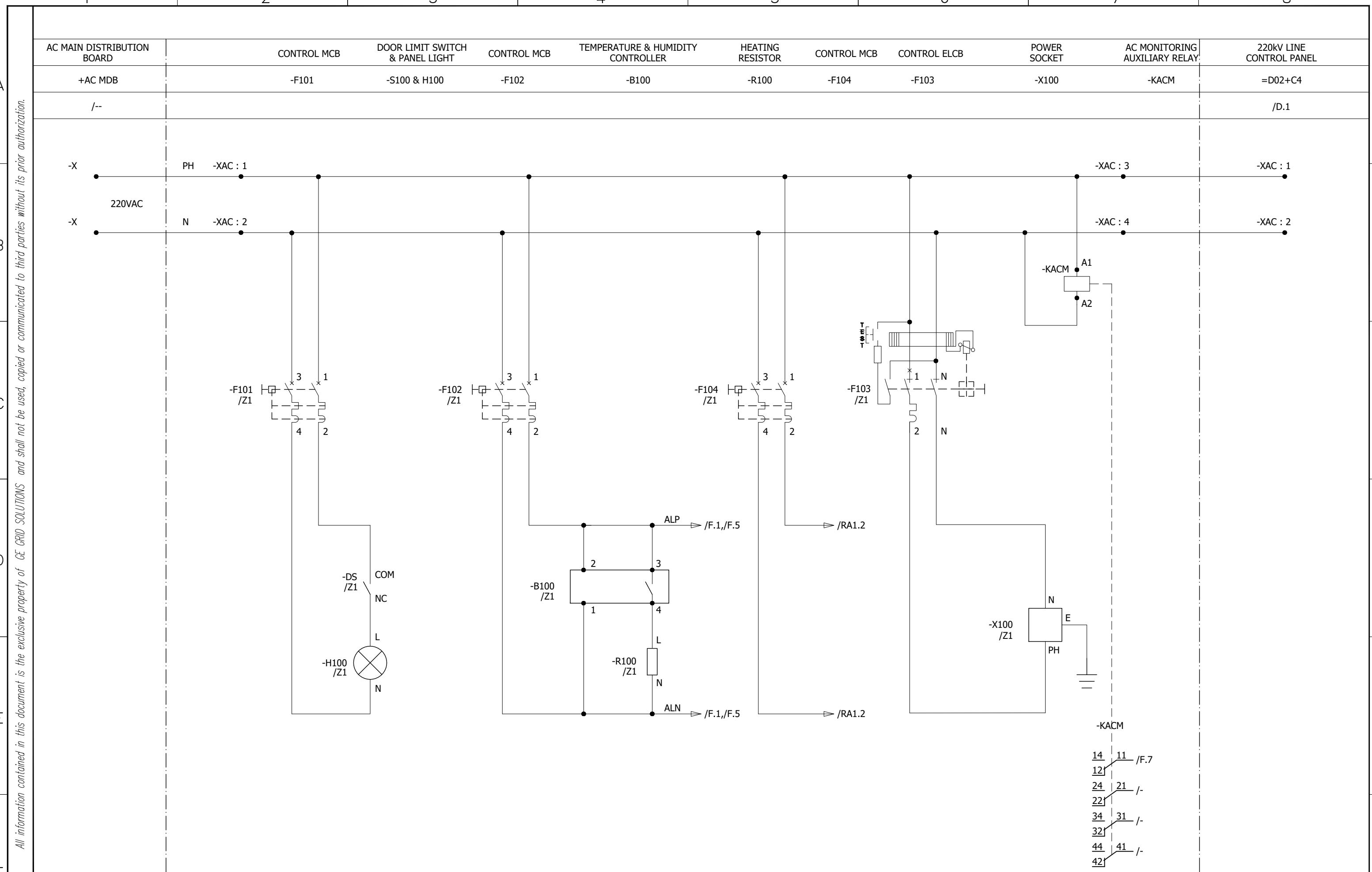
1. MIMIC COLOR: GREEN FOR 220kV

0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220kV LINE CONTROL PANEL (=D08+C4) PANEL VIEW	Drawing no. P60194-E-RLC-SC-003		
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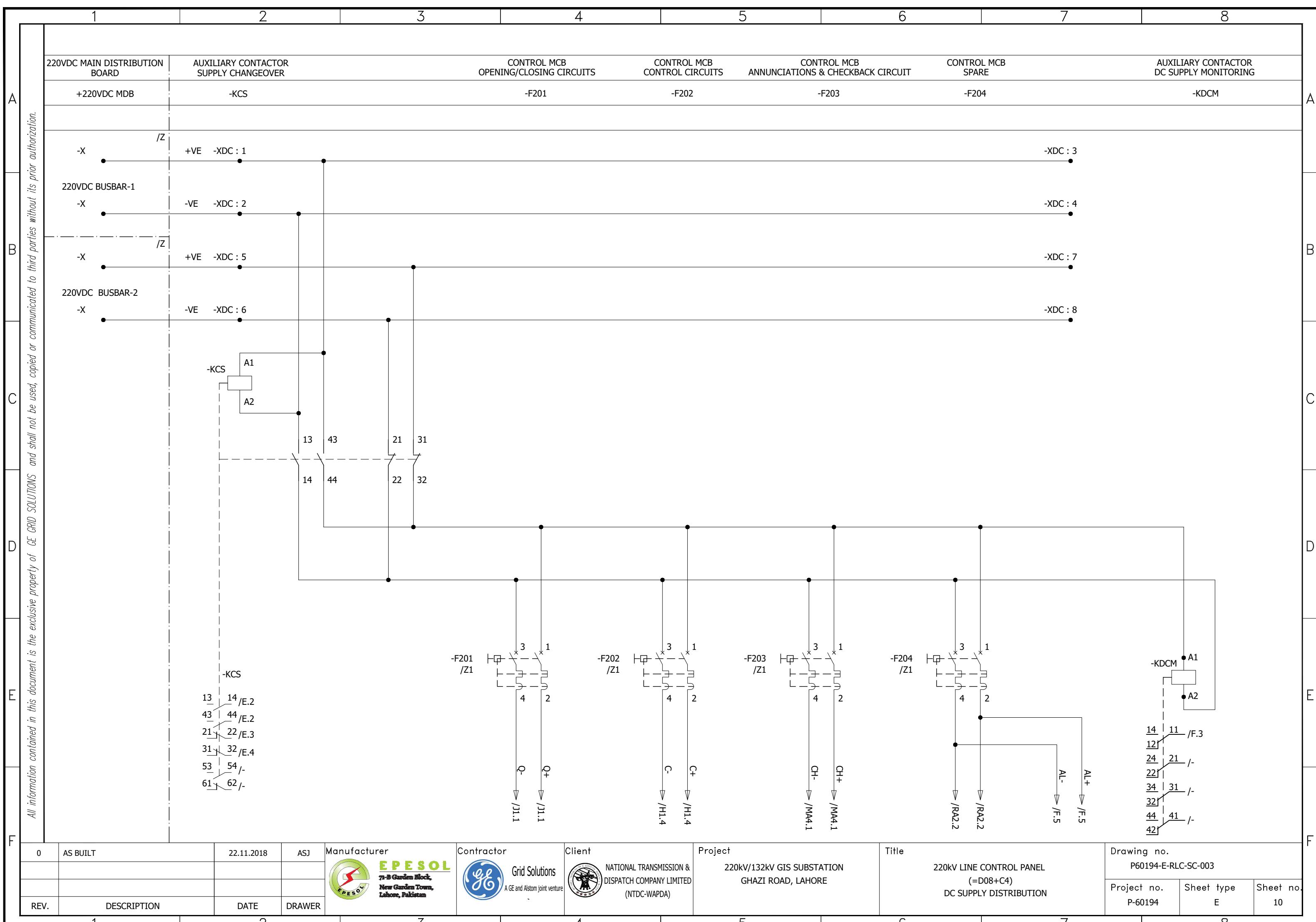
BACK VIEW WITHOUT DOORBACK VIEW WITH DOORTOP VIEW**NOTE:-**

- 1 - PANEL DIMENSION: 1000 x 1000 x 2200mm (WxDxH)
- 2 - COLOR : RAL 7032
- 3 - SHEET THICKNESS : 2-2.5 mm
- 4 - PROTECTION CLASS : IP-51 (INDOOR TYPE)
- 5 - ALL DOOR FITTED WITH 16mm EARTH STRAP & INSULATED WITH GREEN-YELLOW COLOUR.

0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NTDC-WAPDA NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) PANEL VIEW	Drawing no. P60194-E-RLC-SC-003		
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type AD1	Sheet no. 07a



0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) AC SUPPLY DISTRIBUTION	Drawing no. P60194-E-RLC-SC-003			
REV.	DESCRIPTION	DATE	DRAWER							Project no. P-60194	Sheet type D	Sheet no. 09
1	2	3	4	5	6	7	8					



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220V DC CIRCUIT FAULTY

220V DC CIRCUIT FAULTY INDICATION

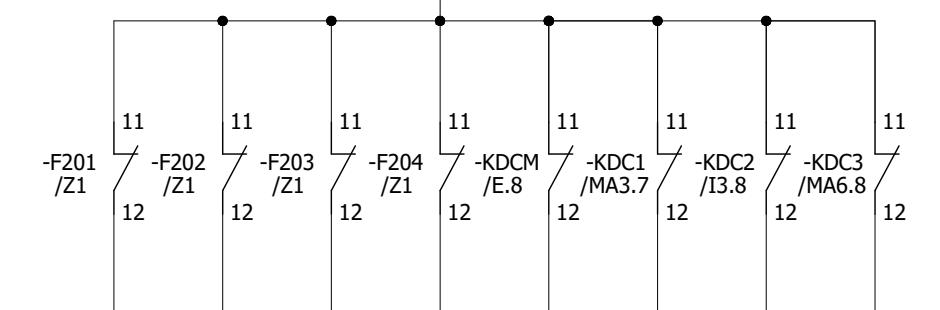
220V AC CIRCUIT FAULTY

-KDC

-H200

-KAC

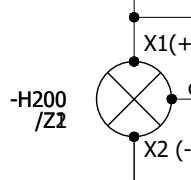
/D.5 ➔ ALP



-KDC /F.3

21

24



-H200 /Z2

/D.5 ➔ ALN

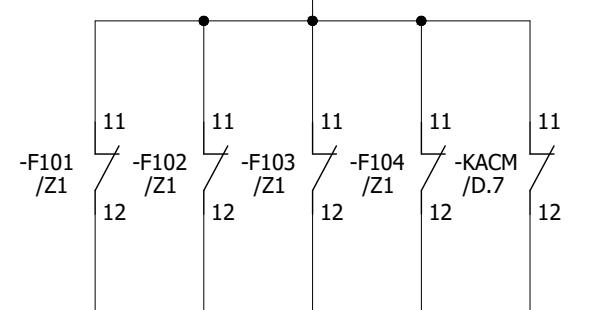
-KDC

A1

A2

14 11 RA7.8
121 21 /F.4
24 21 -
221 31 RA1.4
34 31 /RA3.5
321 41 -
44 41 -
421 11 /RA7.7
121 21 -
24 21 -
221 31 /RA3.5
34 31 /RA3.5
321 41 -
44 41 -
421 11 /RA7.7

/E.5 ➔ AL+



-KAC

A1

A2

/E.5 ➔ AL-

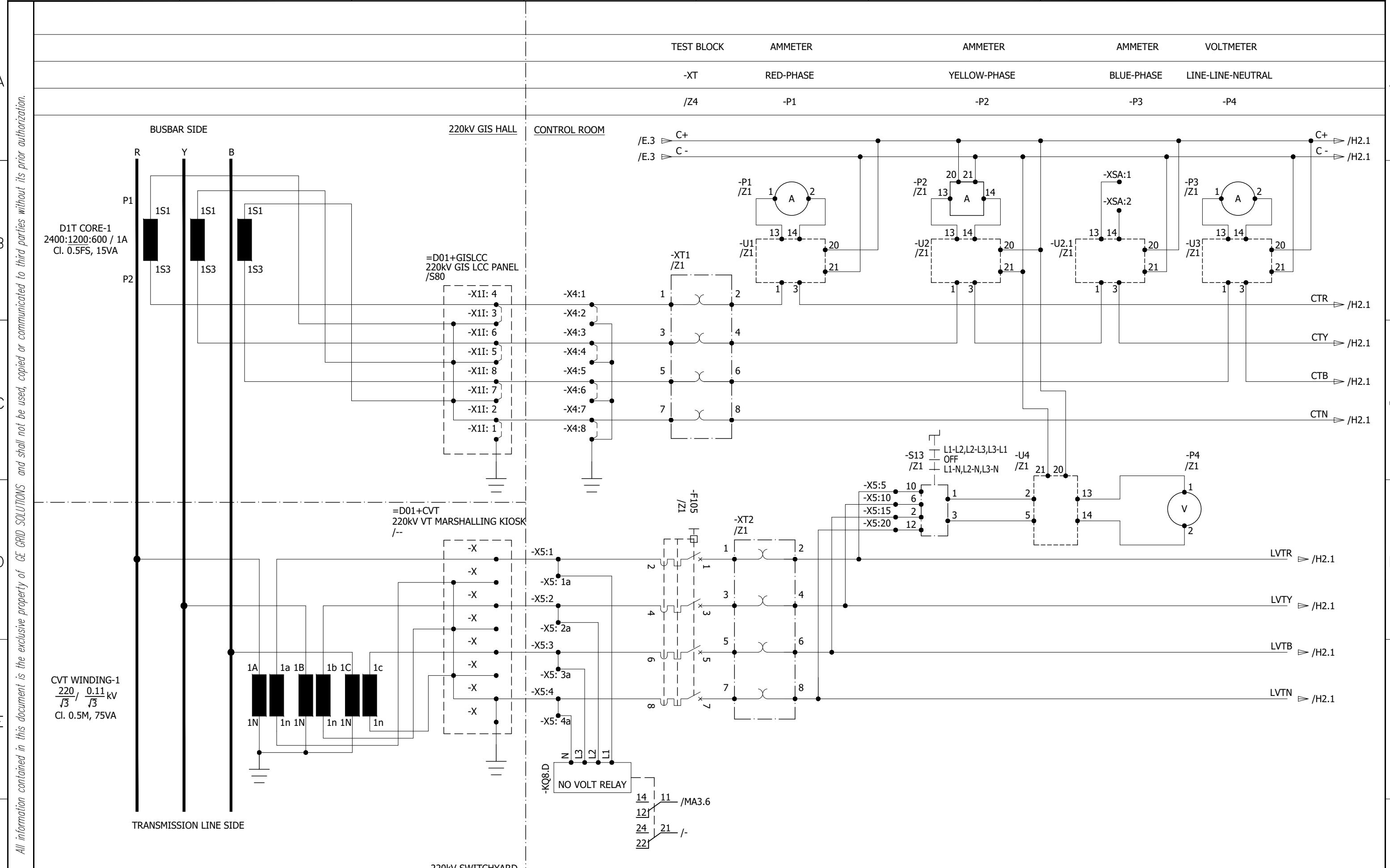
14 11 /RA7.7
121 21 -
24 21 -
221 31 /RA3.5
34 31 /RA3.5
321 41 -
44 41 -
421 11 /RA7.7
121 21 -
24 21 -
221 31 /RA3.5
34 31 /RA3.5
321 41 -
44 41 -
421 11 /RA7.7

A
B
C
D
E
F

A
B
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D
E
F

0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) AC/DC SUPPLY FAILURE CIRCUIT	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type F
									Sheet no. 11

1 2 3 4 5 6 7 8



1 2 3 4 5 6 7 8

REAL POWER METERING

REACTIVE POWER METER

DIGITAL POWER METER

220kV SYNCH CONTROL PANEL

LINE METERING PANEL

METER

SCADA

METER

SCADA

=D00+C6

=D00+EM

-P5

-P6

-P10

/--

/--

/H1.8 → C+
/H1.8 → C-
/H1.8 →

-P5

/Z1

MW

1

2

-XSA:3

4

40

39

-U5

/Z1

13

14

-XSA:4

20

21

-XSA:5

6

42

41

-XSA:6

43

44

-XSA:7

2

-XSA:8

12

13

-XSA:9

11

-XSA:10

10

-XSA:11

9

-XSA:12

8

-XSA:13

7

-XSA:14

6

-XSA:15

5

-XSA:16

4

-XSA:17

3

-XSA:18

2

-XSA:19

1

-P6

/Z1

MVAR

1

2

-XSA:5

6

42

41

-XSA:6

20

21

-XSA:7

12

13

-XSA:8

2

-XSA:9

12

13

-XSA:10

11

-XSA:11

10

-XSA:12

9

-XSA:13

8

-XSA:14

7

-XSA:15

6

-XSA:16

5

-XSA:17

4

-XSA:18

3

-XSA:19

2

-XSA:20

1

-P10

/Z1

DIGITAL POWER METER

6

5

7

8

4

9

10

3

11

2

-XSA:10

12

13

-XSA:11

14

-XSA:12

15

-XSA:13

16

-XSA:17

18

-XSA:19

19

-XSA:20

20

-XSA:21

21

-XSA:22

22

-XSA:23

23

-XSA:24

-P10

/Z1

C+

C-

I/I.1

-I/I.1

-X

-U5

/Z1

1

3

4

6

7

9

11

2

5

8

10

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14

15

16

17

18

19

20

21

22

23

24

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-X5: 9

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-X5: 12

-X5: 13

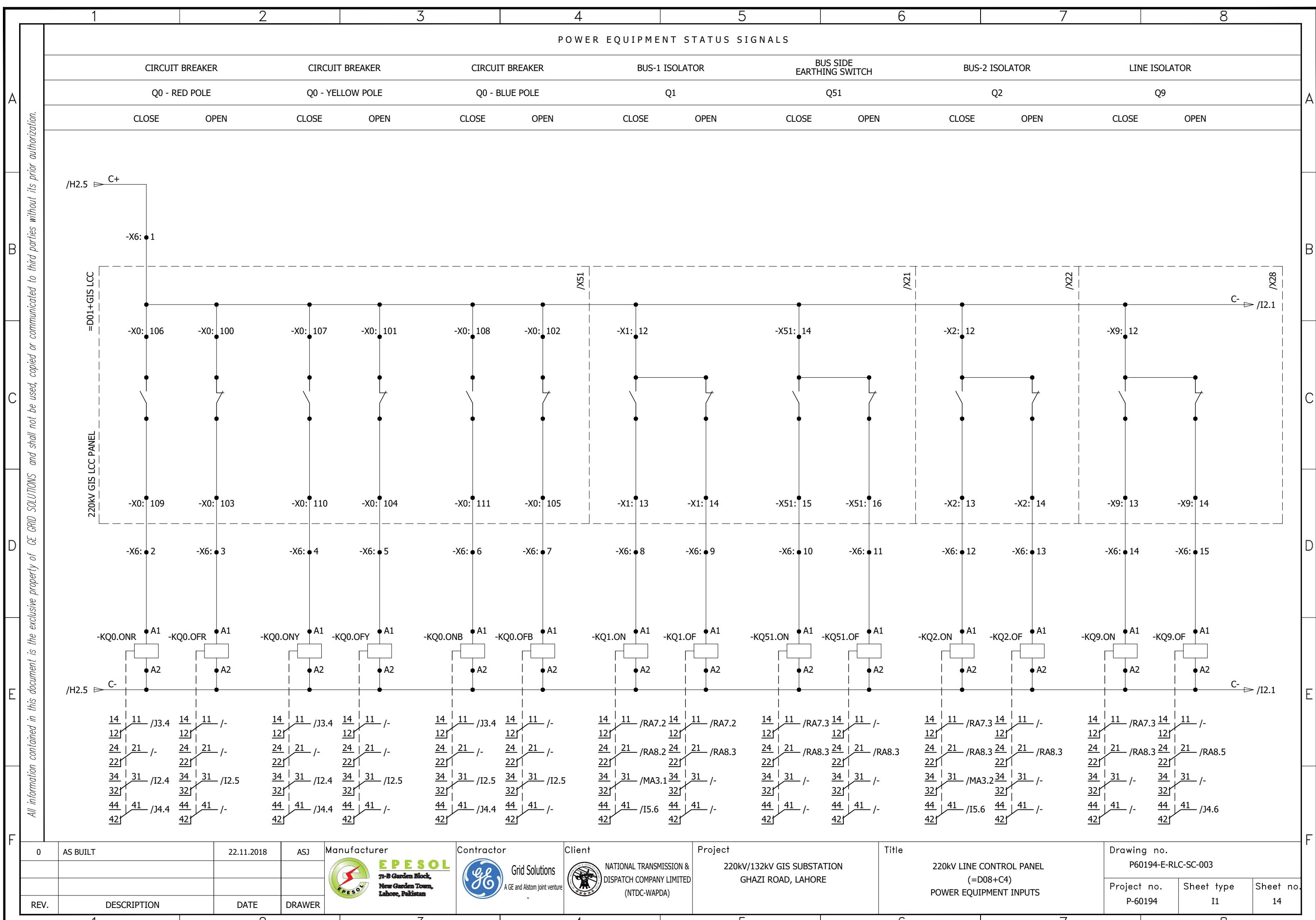
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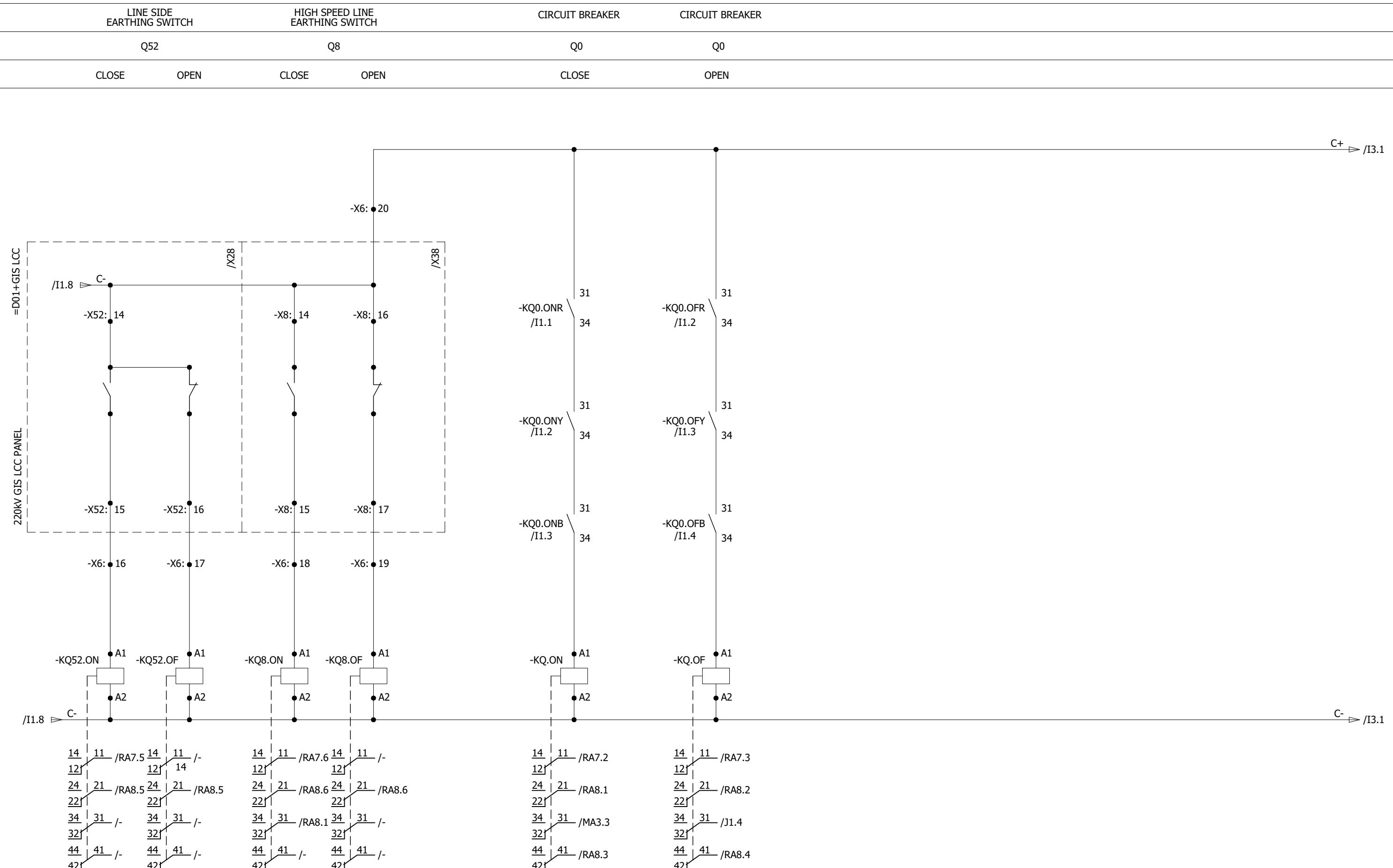
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-X5: 17

-X5: 18

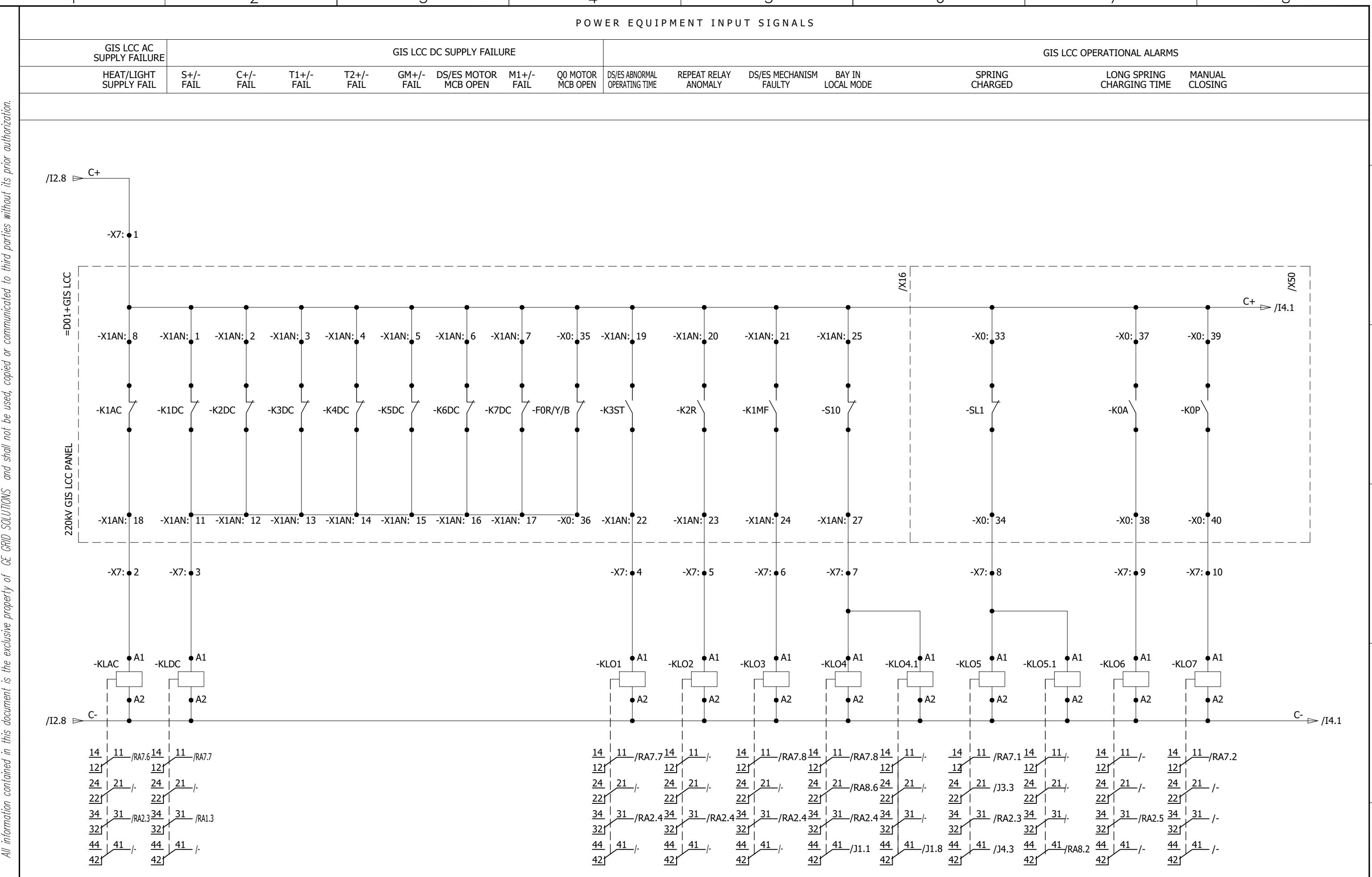


POWER EQUIPMENT STATUS SIGNALS



0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) POWER EQUIPMENT INPUTS	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type I2
									Sheet no. 15

POWER EQUIPMENT INPUT SIGNALS



0	AS BUILT		22.11.2018	ASJ	Manufacturer  71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) POWER EQUIPMENT INPUTS	Drawing no. P60194-E-RLC-SC-003		
REV.	DESCRIPTION		DATE	DRAWER						Project no. P-60194	Sheet type I3	Sheet no. 16
1	2	3	4	5	6	7	8					

POWER EQUIPMENT INPUT SIGNALS

GIS LCC OPERATIONAL ALARMS

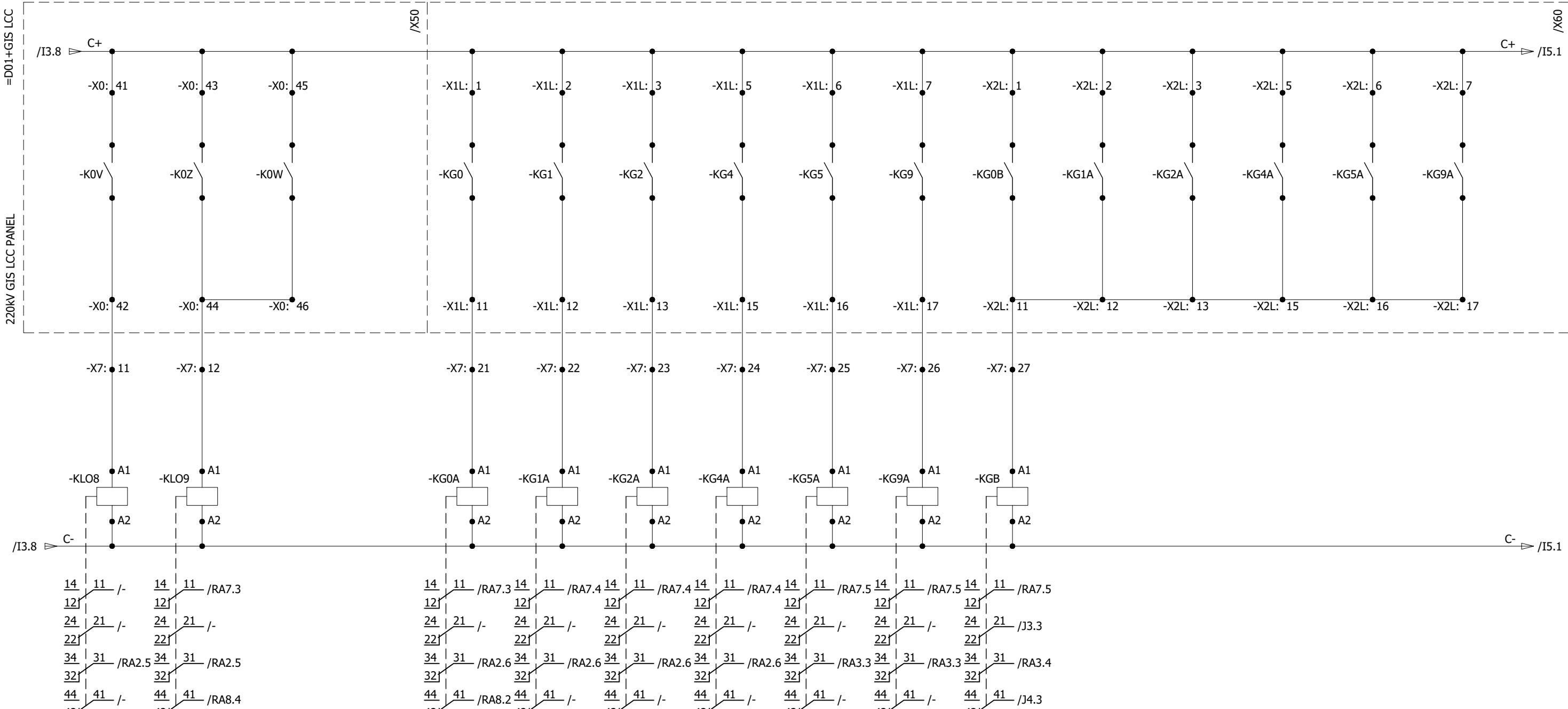
GIS LCC GAS COMPARTMENT ALARMS

MANUAL TRIPPING	PHASE DISCREPANCY	PHASE DISCREPANCY
-----------------	-------------------	-------------------

TRIP-1	TRIP-2
--------	--------

G0 LEVEL-1	G1 LEVEL-1	G2 LEVEL-1	G4 LEVEL-1	G5 LEVEL-1	G9 LEVEL-1	G0 LEVEL-2	G1 LEVEL-2	G2 LEVEL-2	G4 LEVEL-2	G5 LEVEL-2	G9 LEVEL-2
ALARM	ALARM	ALARM	ALARM	ALARM	ALARM	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK

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A

A

B

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C

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F

0	AS BUILT	22.11.2018	ASJ	Manufacturer EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) POWER EQUIPMENT INPUTS	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type I4
									Sheet no. 17

POWER EQUIPMENT INPUT SIGNALS

GIS LCC GAS COMPARTMENT ALARMS

LINE VT ALARMS

BUS VT SIGNAL FOR SYNCH.

DC CIRCUIT C+/C- MONITORING

G0 SELF WIRING G1 SELF WIRING G2 SELF WIRING G4 SELF WIRING G5 SELF WIRING G9 SELF WIRING

METERING WINDING PROTECTION WINDING

BUS VT-1 BUS VT-2

-KDC2

CHECK

CHECK

CHECK

CHECK

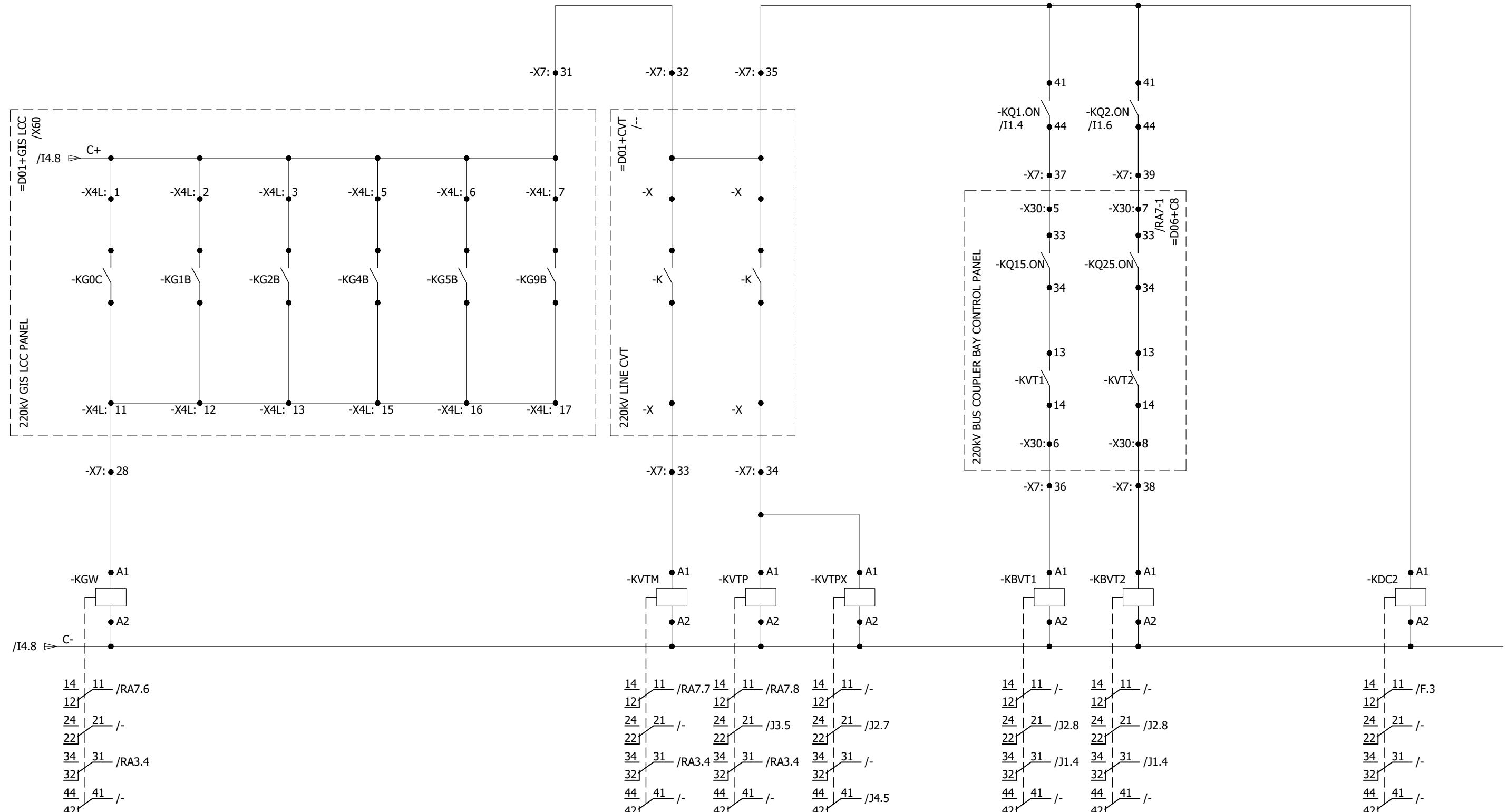
CHECK

CHECK

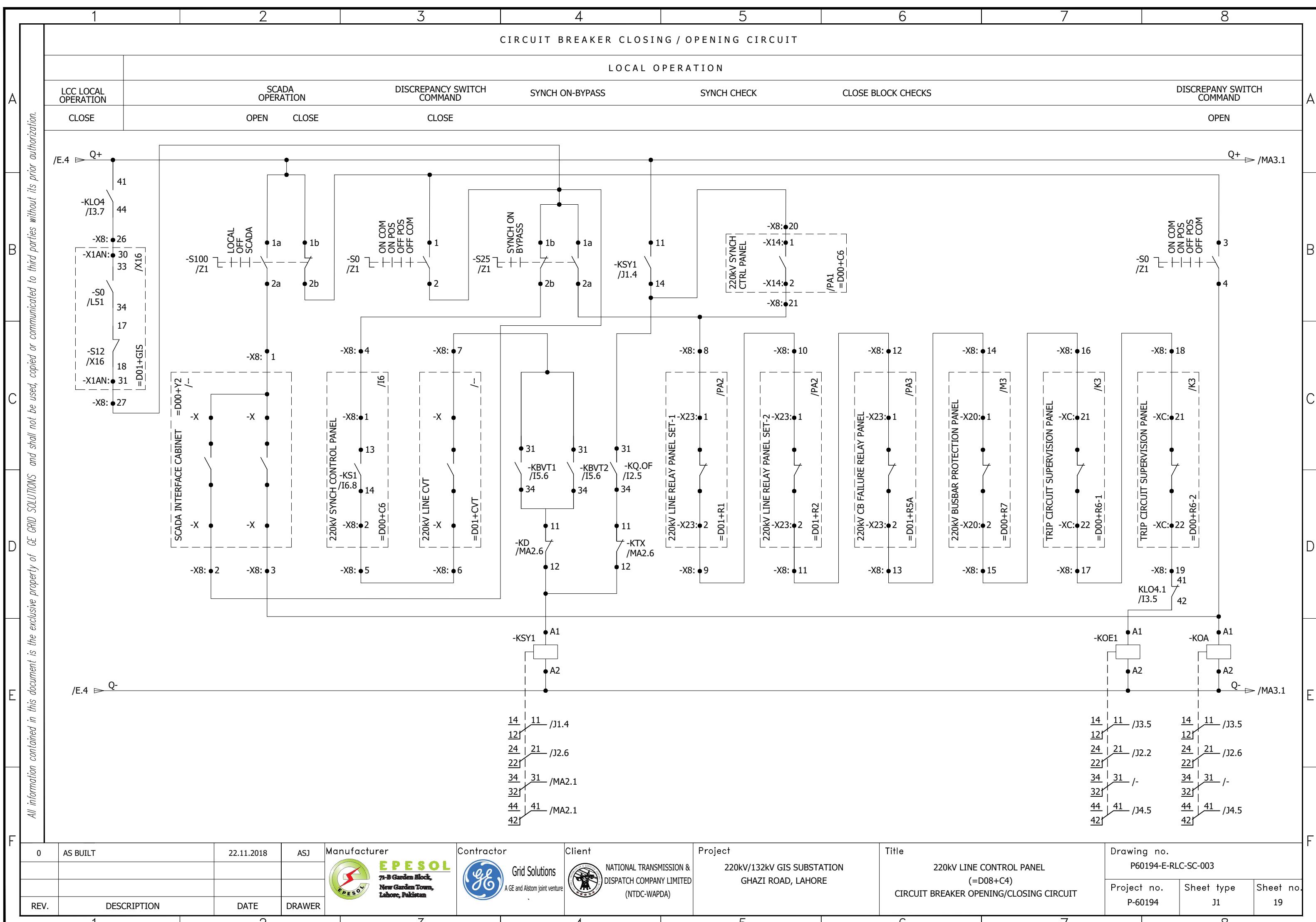
MCB TRIPPED MCB TRIPPED

MCB HEALTHY MCB HEALTHY

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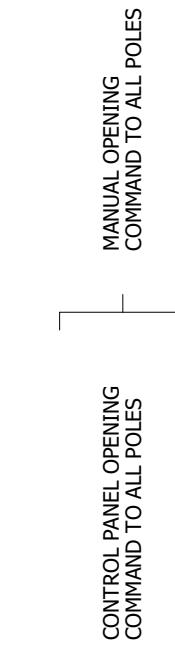
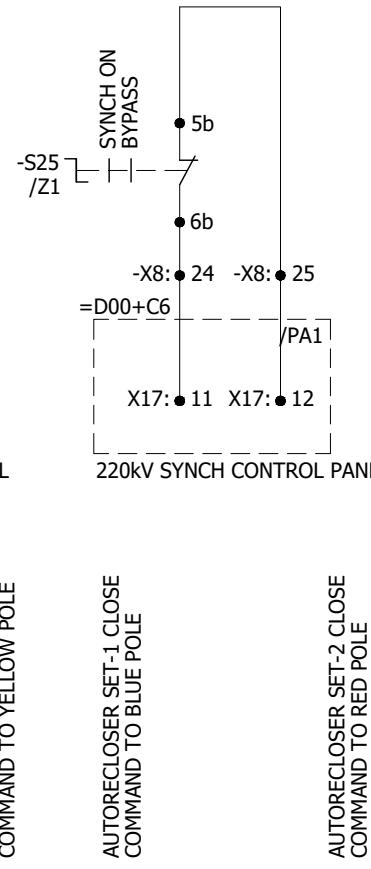
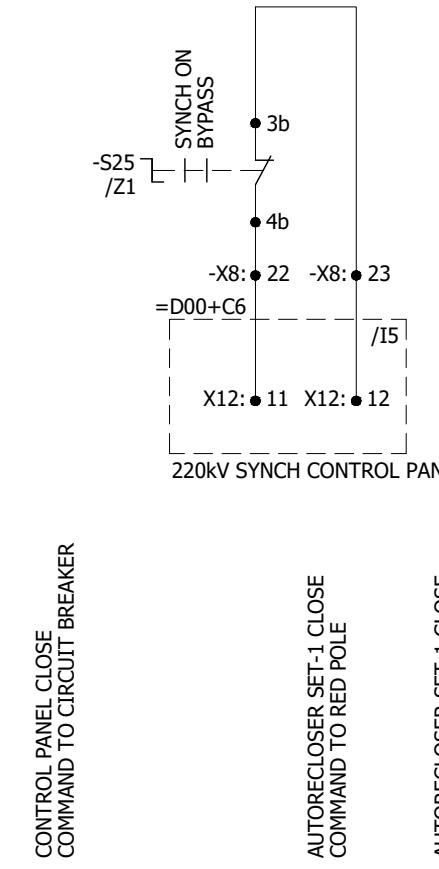
0	AS BUILT	22.11.2018	ASJ	Manufacturer	Contractor	Client	Project	Title	Drawing no.
				 71-B Garden Block, New Garden Town, Lahore, Pakistan	 A GE and Alstom joint venture	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	220KV LINE CONTROL PANEL (=D08+C4) POWER EQUIPMENT INPUTS	P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194 Sheet type I5 Sheet no. 18



CIRCUIT BREAKER CLOSING / OPENING COMMANDS TO GIS LCC

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A

MANUAL OPENING
COMMAND TO ALL POLESCONTROL PANEL OPENING
COMMAND TO ALL POLES

SYNCH INITIATION

LINE VT MCB HEALTHY

SYNCH COMMAND TO
220kV SYNCH CONTROL PANELBUS VT-1
CIRCUIT HEALTHYBUS VT-2
CIRCUIT HEALTHY

B

C

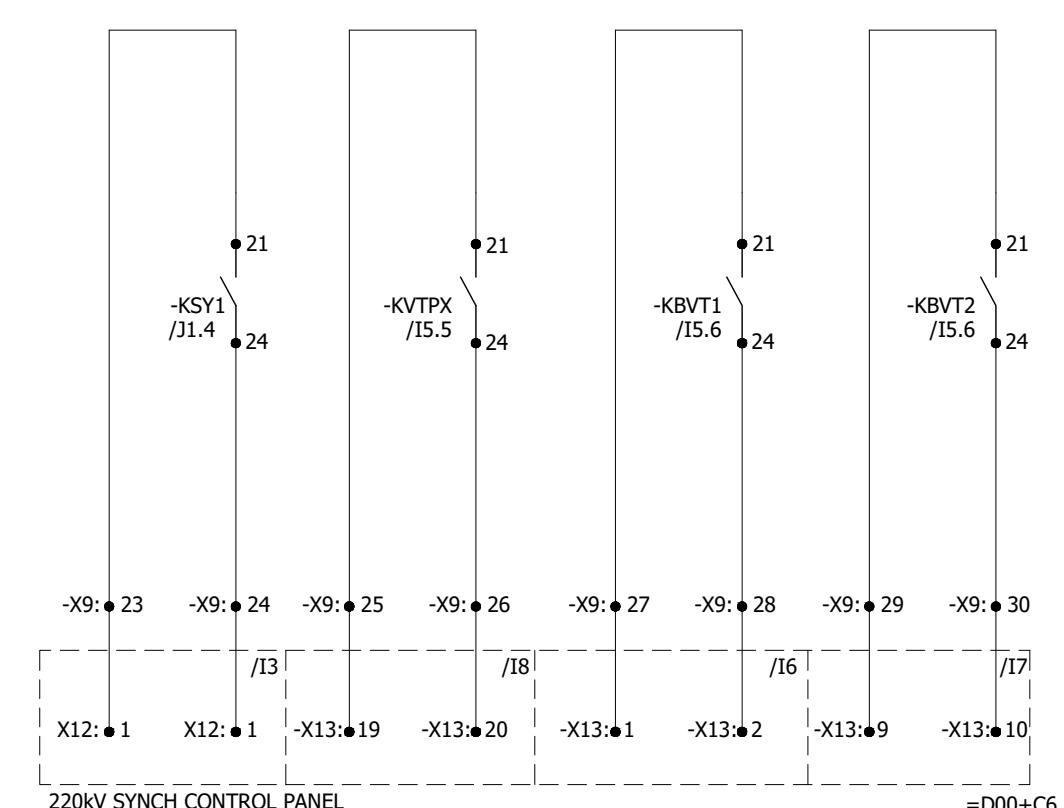
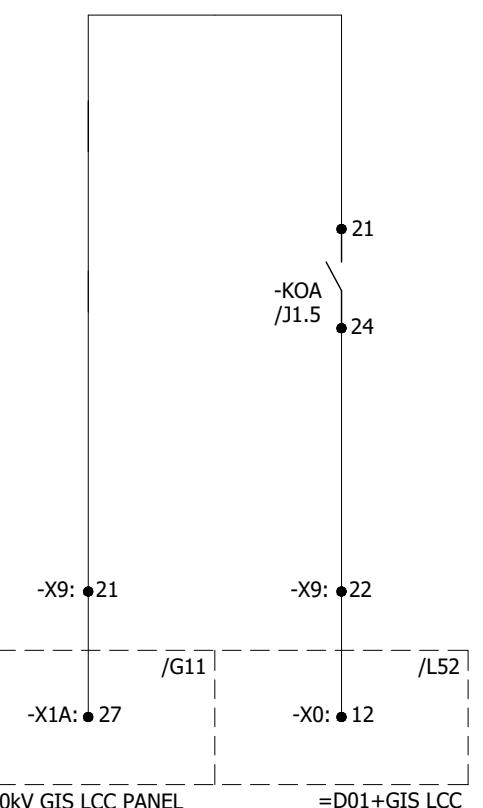
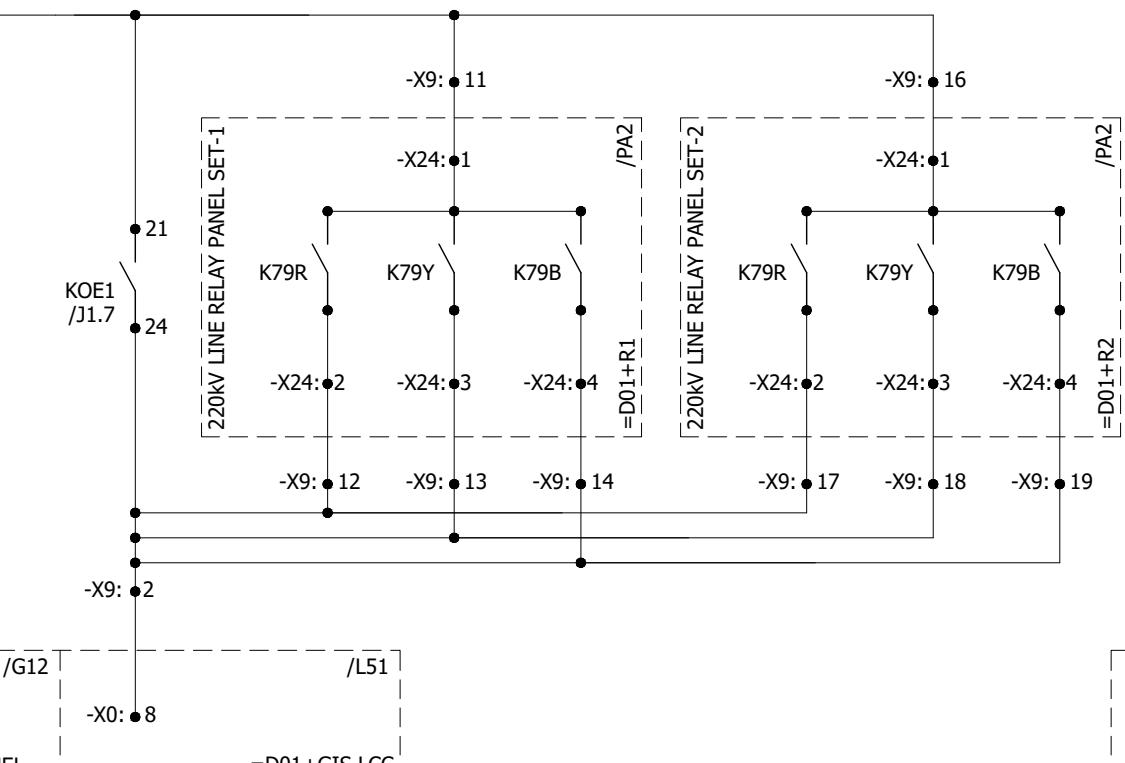
D

E

F

G

H



0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 7-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220kV LINE CONTROL PANEL (=D08+C4) CIRCUIT BREAKER OPENING/CLOSING CIRCUIT	Drawing no. P60194-E-RLC-SC-003	
REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type J2	Sheet no. 20

CIRCUIT BREAKER CLOSING / OPENING INTER-CIRCUITS

All information contained in this document is the exclusive property of GE GRID SOLUTIONS and shall not be used, copied or communicated to third parties without its prior authorization.

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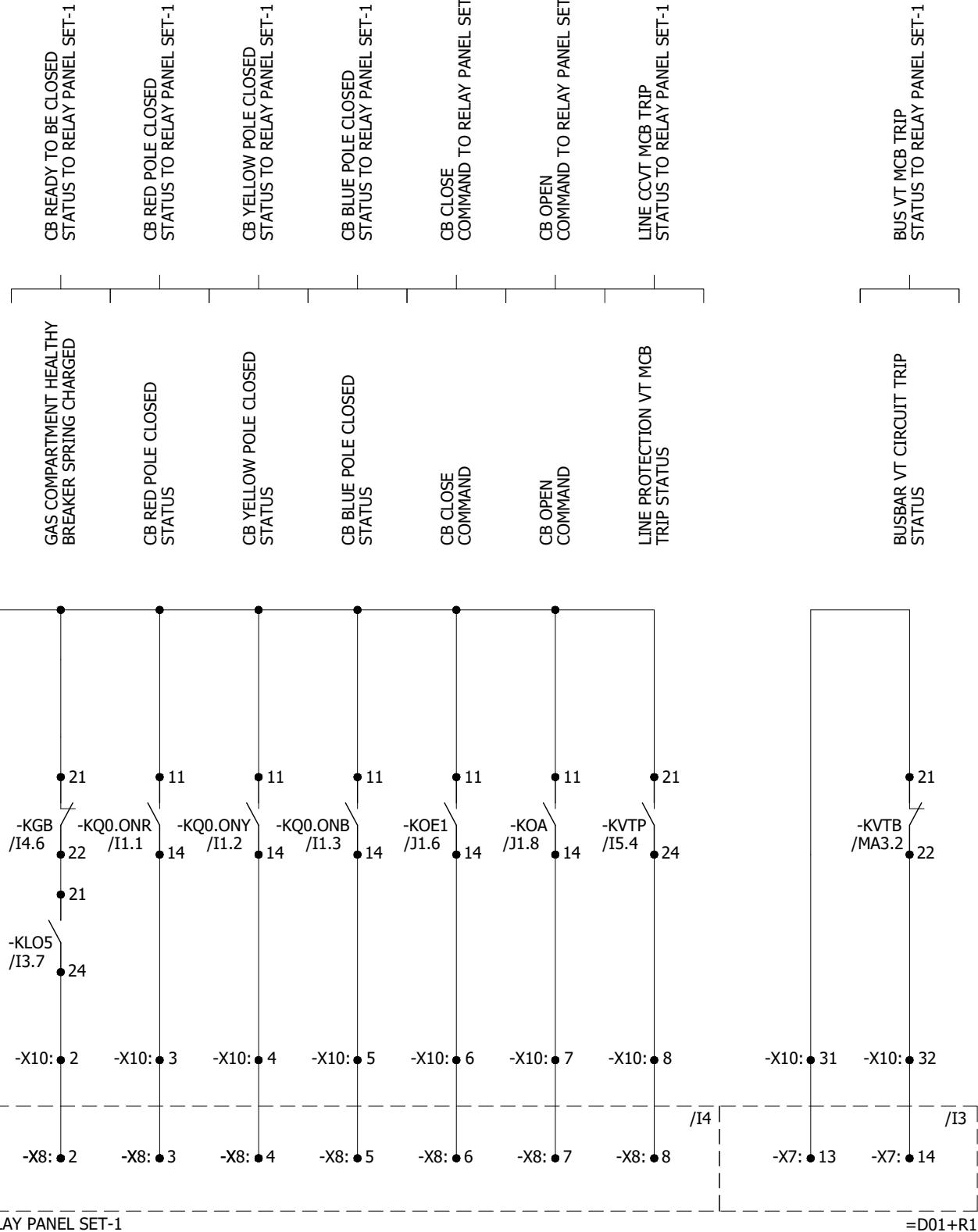
B

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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPEPSOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220kV LINE CONTROL PANEL (=D08+C4) CIRCUIT BREAKER OPENING/CLOSING CIRCUIT	Drawing no. P60194-E-RLC-SC-003	
REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type J3	Sheet no. 21

CIRCUIT BREAKER CLOSING / OPENING INTER-CIRCUITS

All information contained in this document is the exclusive property of GE GRID SOLUTIONS and shall not be used, copied or communicated to third parties without its prior authorization.

A

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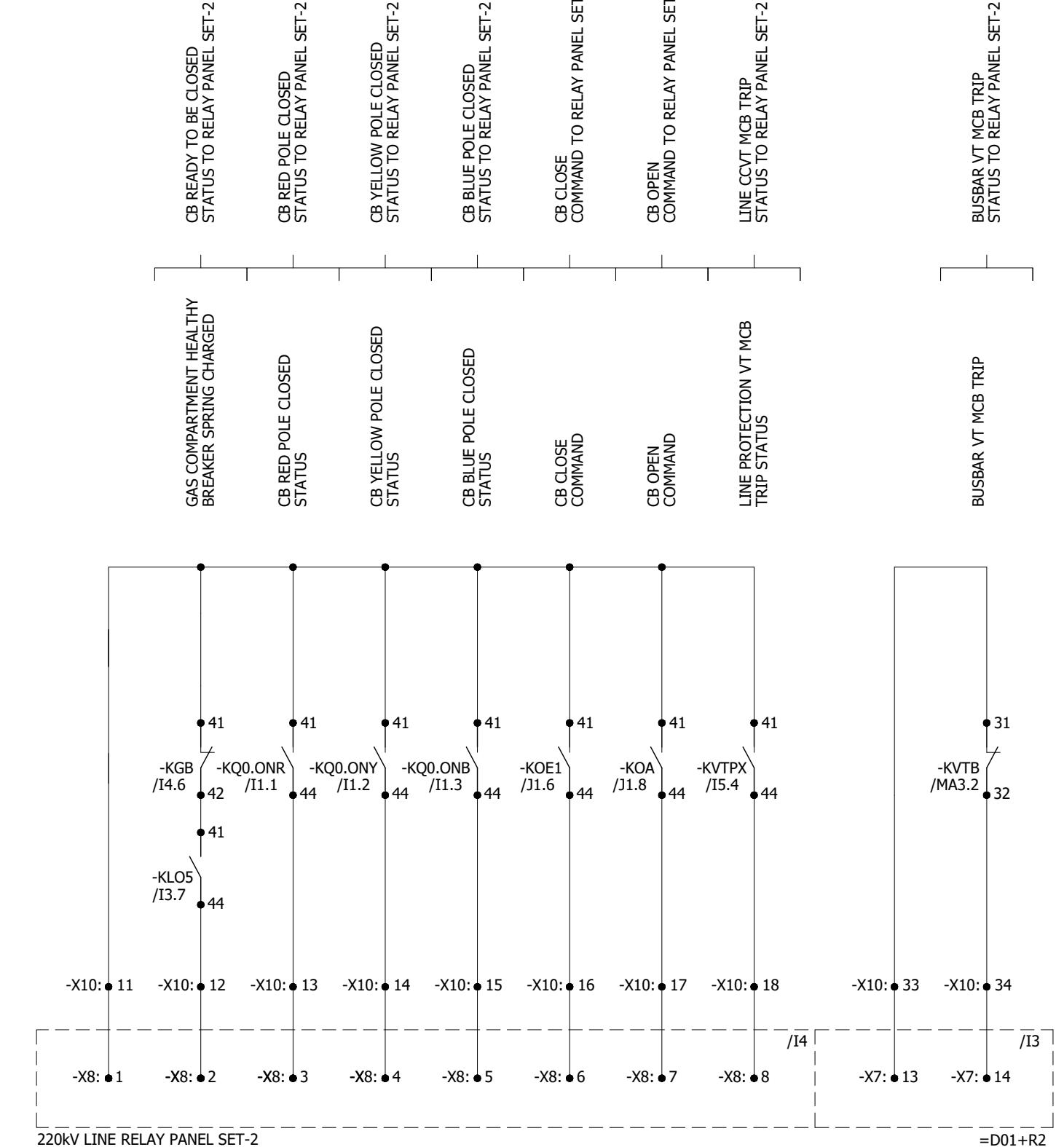
B

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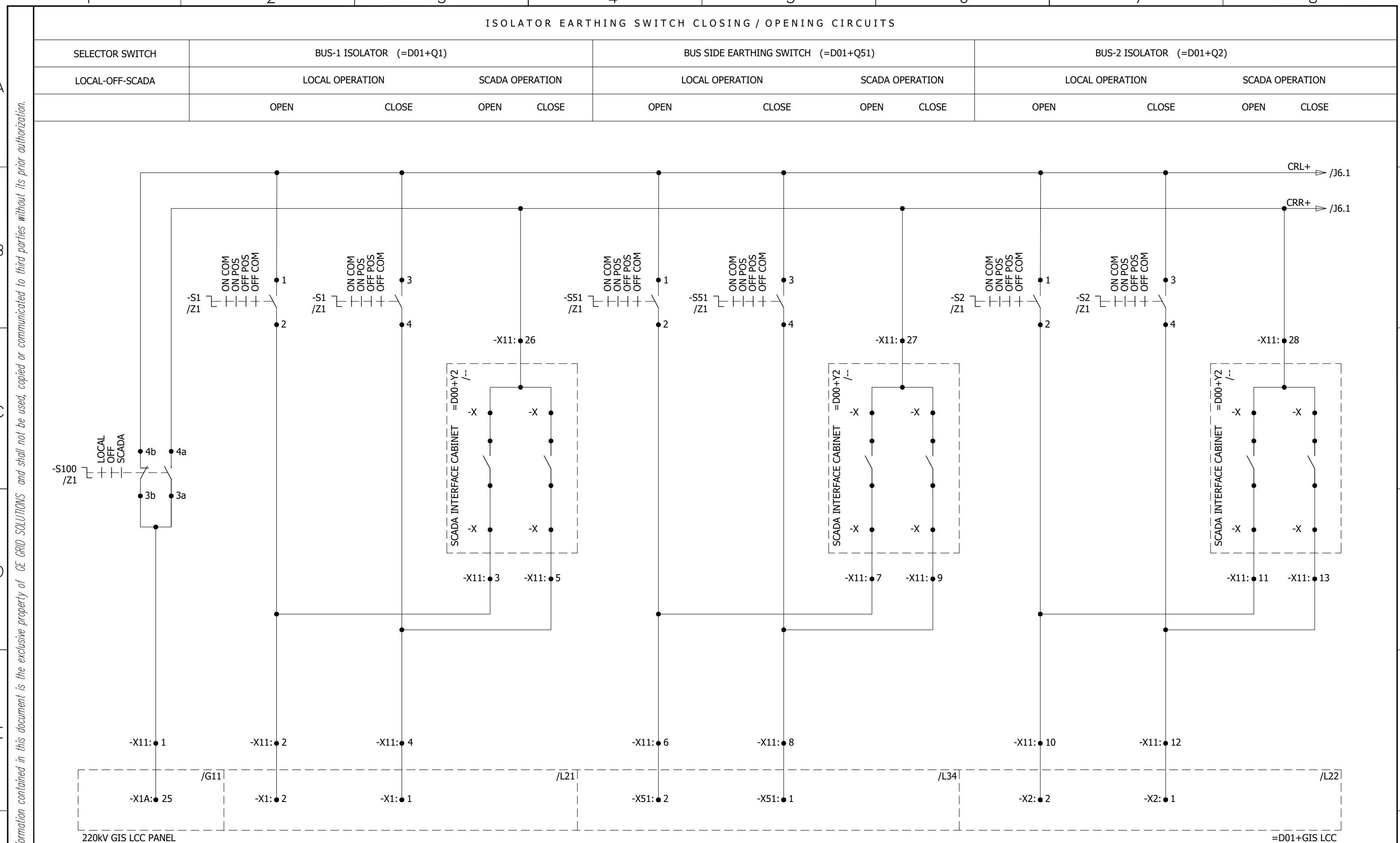
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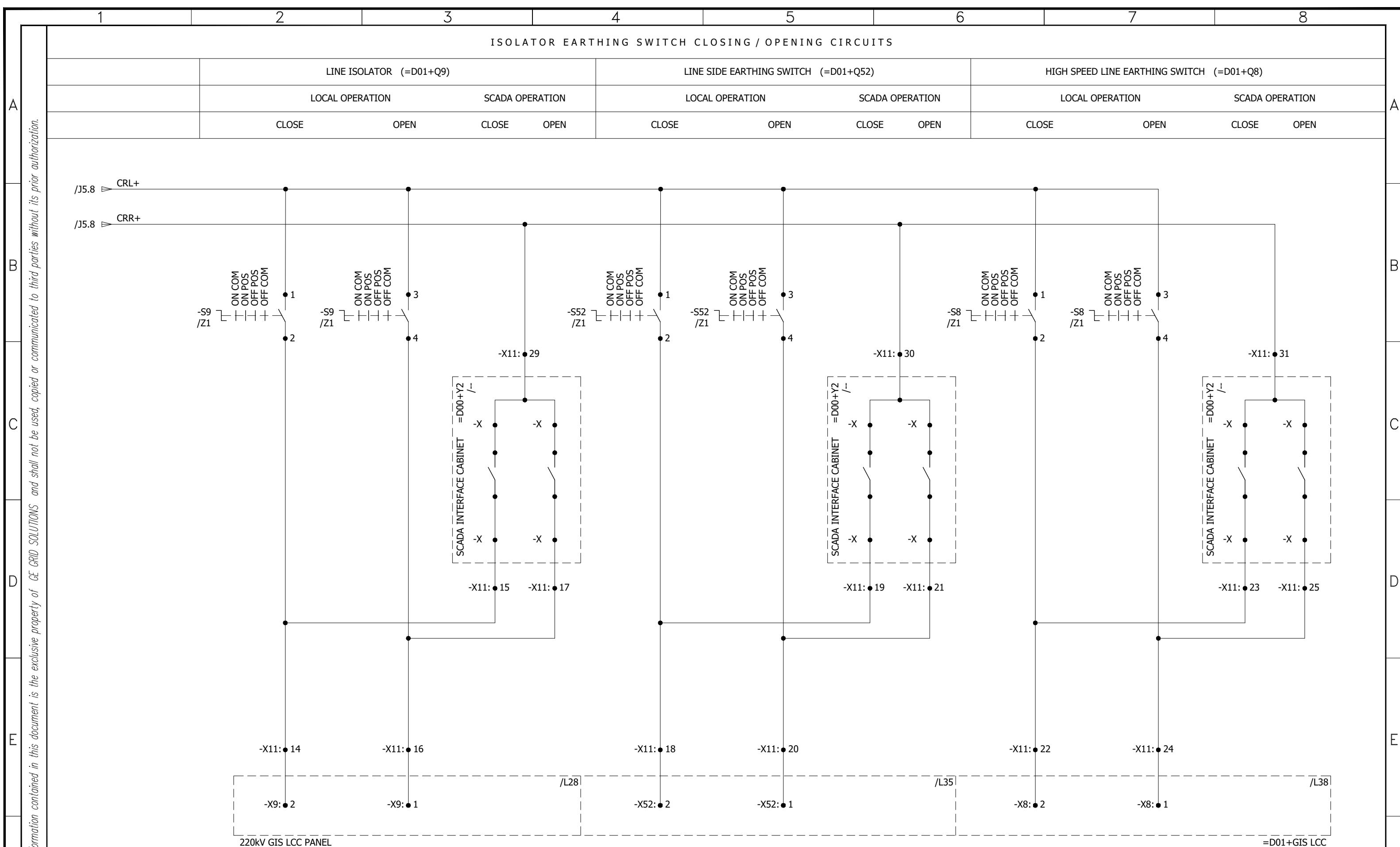
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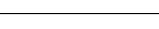
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REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type J4	Sheet no. 22

ISOLATOR EARTHING SWITCH CLOSING / OPENING CIRCUITS



0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) ISOLATOR/EARTHING SW. OPENING/CLOSING CIRCUIT	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type J5
									Sheet no. 23



0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 7-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220kV LINE CONTROL PANEL (=D08+C4) ISOLATOR/EARTHING SW. OPENING/CLOSING CIRCUIT'	Drawing no. P60194-E-RLC-SC-003	
REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type J6	Sheet no. 24
1	2	3	4	5	6	7	8			

VOLTAGE SELECTION CIRCUIT FOR SYNCHRONIZATION

220KV SHALAMAR LINE
CONTROL PANEL

BUS-1 VOLTAGES SELECTION

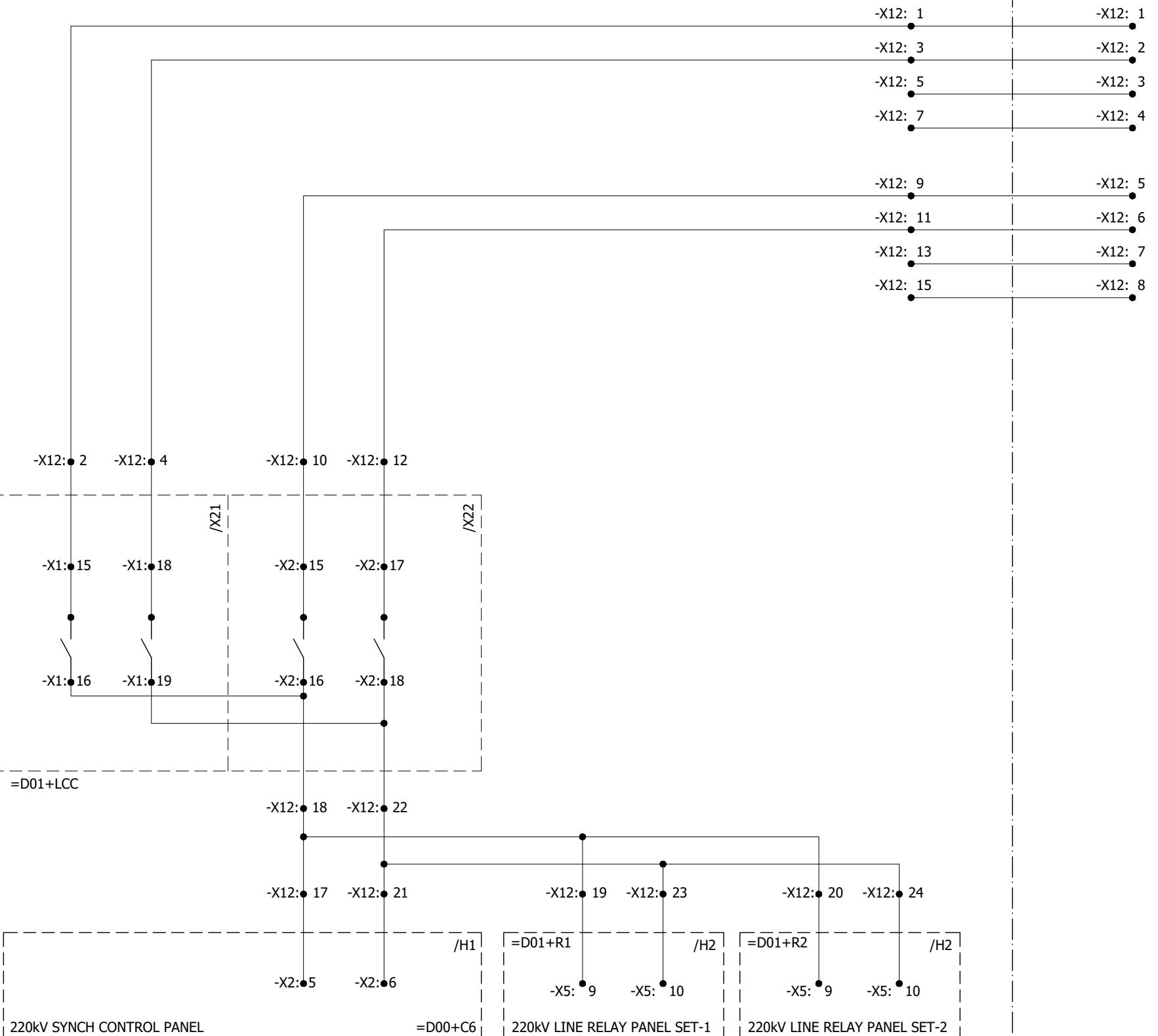
BUS-2 VOLTAGES SELECTION

VOLTAGES TO
RELAY PANEL SET-1VOLTAGES TO
RELAY PANEL SET-2

=D02+C4

/MA1

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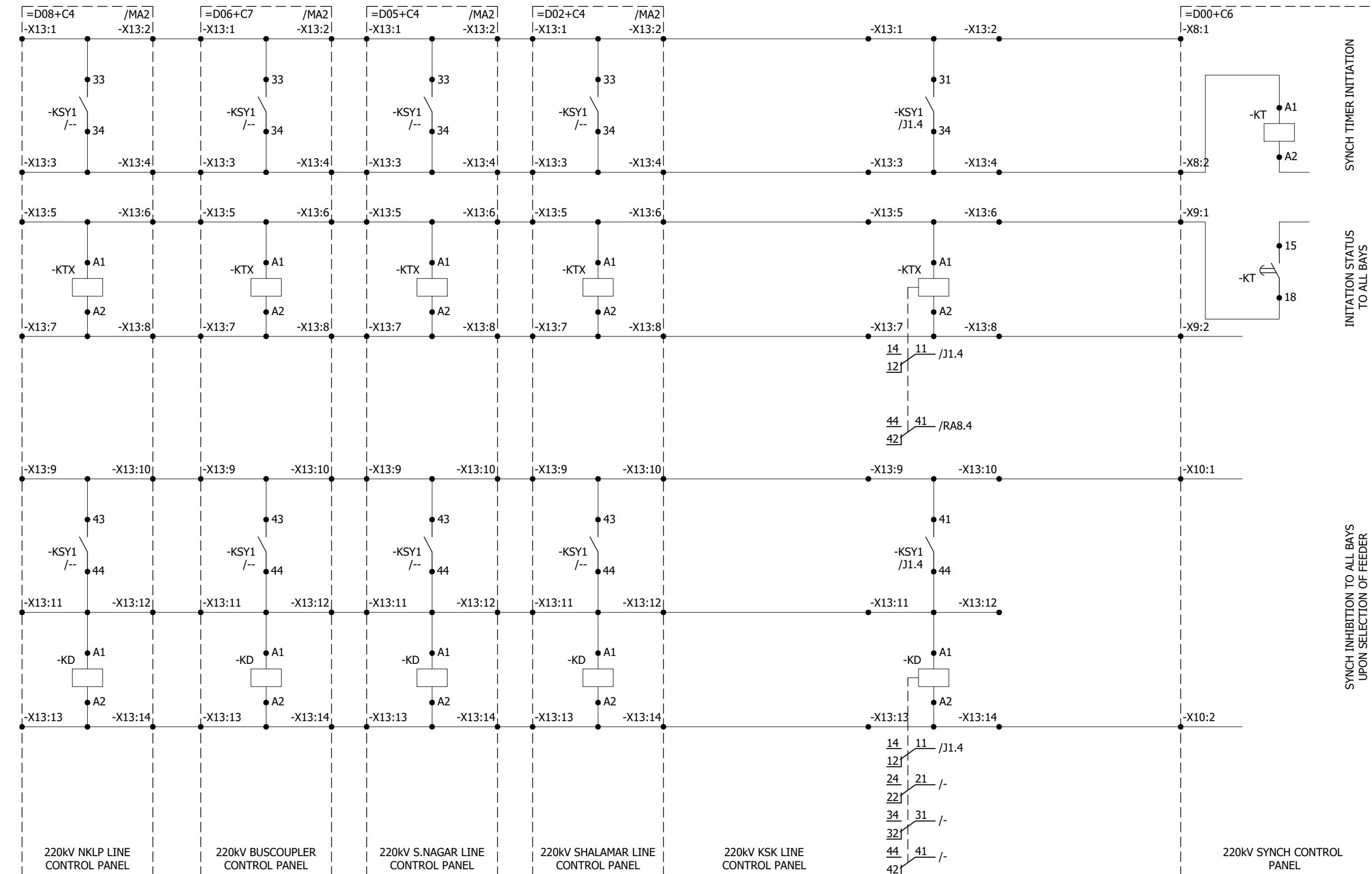


0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NTDC-WAPDA NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) SYNCH CIRCUIT	Drawing no. P60194-E-RLC-SC-003
									Project no. P-60194
REV.	DESCRIPTION	DATE	DRAWER						Sheet type MA1

SYNCHRONIZATION INITIATION & INHIBITION CIRCUIT

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0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) SYNCH CIRCUIT	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type MA2
									Sheet no. 26



CONTROL CIRCUIT

BUSBAR-1 VT
PROTECTION WINDINGBUSBAR-2 VT
PROTECTION WINDINGCIRCUIT BREAKER
OPERATION COUNTERINTERLOCK FOR
LINE EARTHING SWITCHDC CIRCUIT Q+/Q-
MONITORING

TRIP STATUS

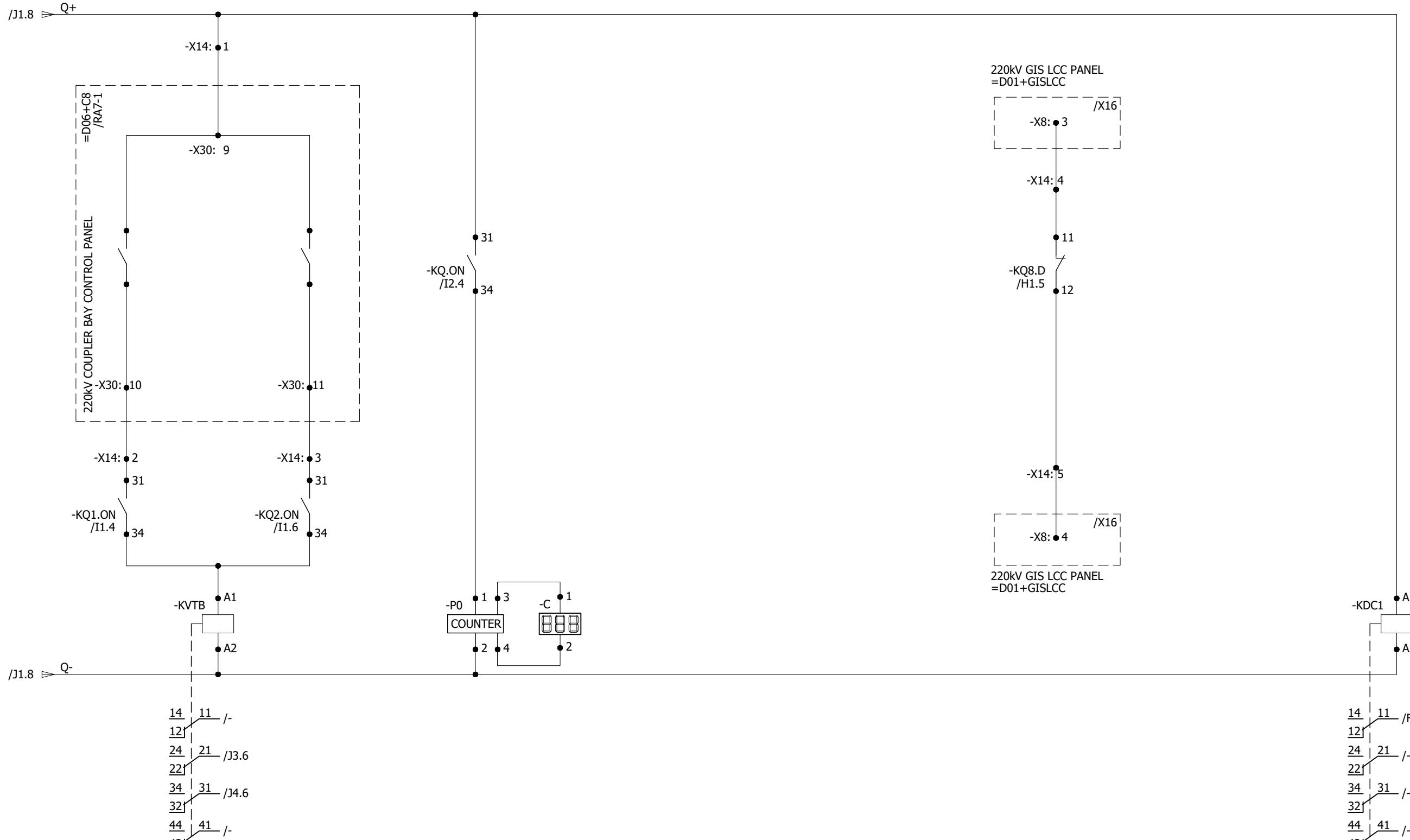
TRIP STATUS

-P0

-KDC1

=D00+C6

=D00+C6



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0	AS BUILT	22.11.2018	ASJ	Manufacturer	Contractor	Client	Project	Title	Drawing no.		
				EPEPSOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Grid Solutions A GE and Alstom joint venture	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	220KV LINE CONTROL PANEL (=D08+C4) CONTROL CIRCUIT	P-60194-E-RLC-SC-003		
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type MA3	Sheet no. 27

DISCREPANCY CHECK CIRCUIT

CIRCUIT BREAKER

BUS-1 ISOLATOR

BUS SIDE EARTHING SWITCH

BUS-2 ISOLATOR

LINE ISOLATOR

-Q0

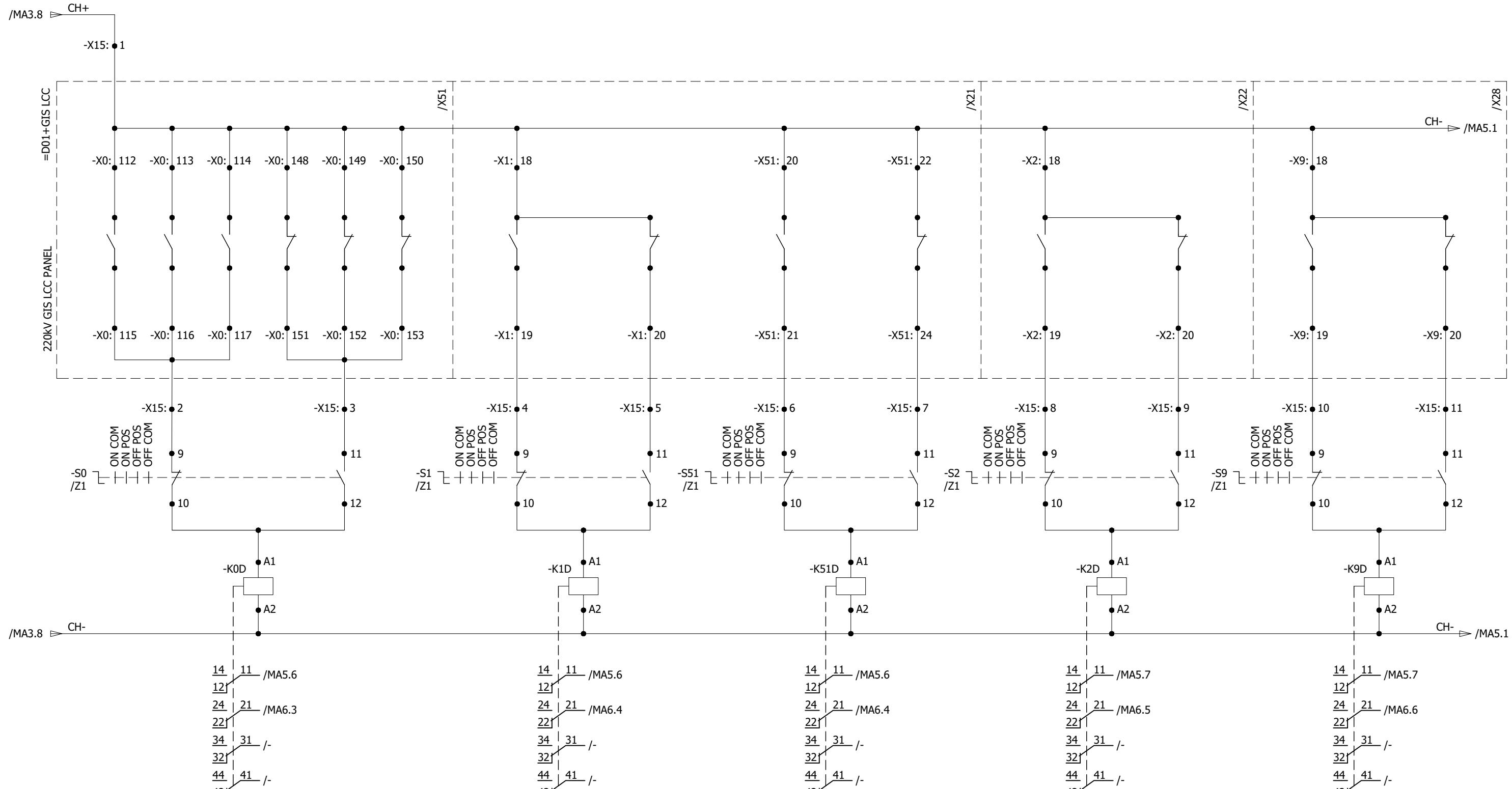
-Q1

-Q51

-Q2

-Q9

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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) DISCREPANCY CHECK CIRCUIT	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type MA4
									Sheet no. 28

DISCREPANCY CHECK CIRCUIT

LINE SIDE EARTHING SWITCH

HIGH SPEED EARTHING SWITCH

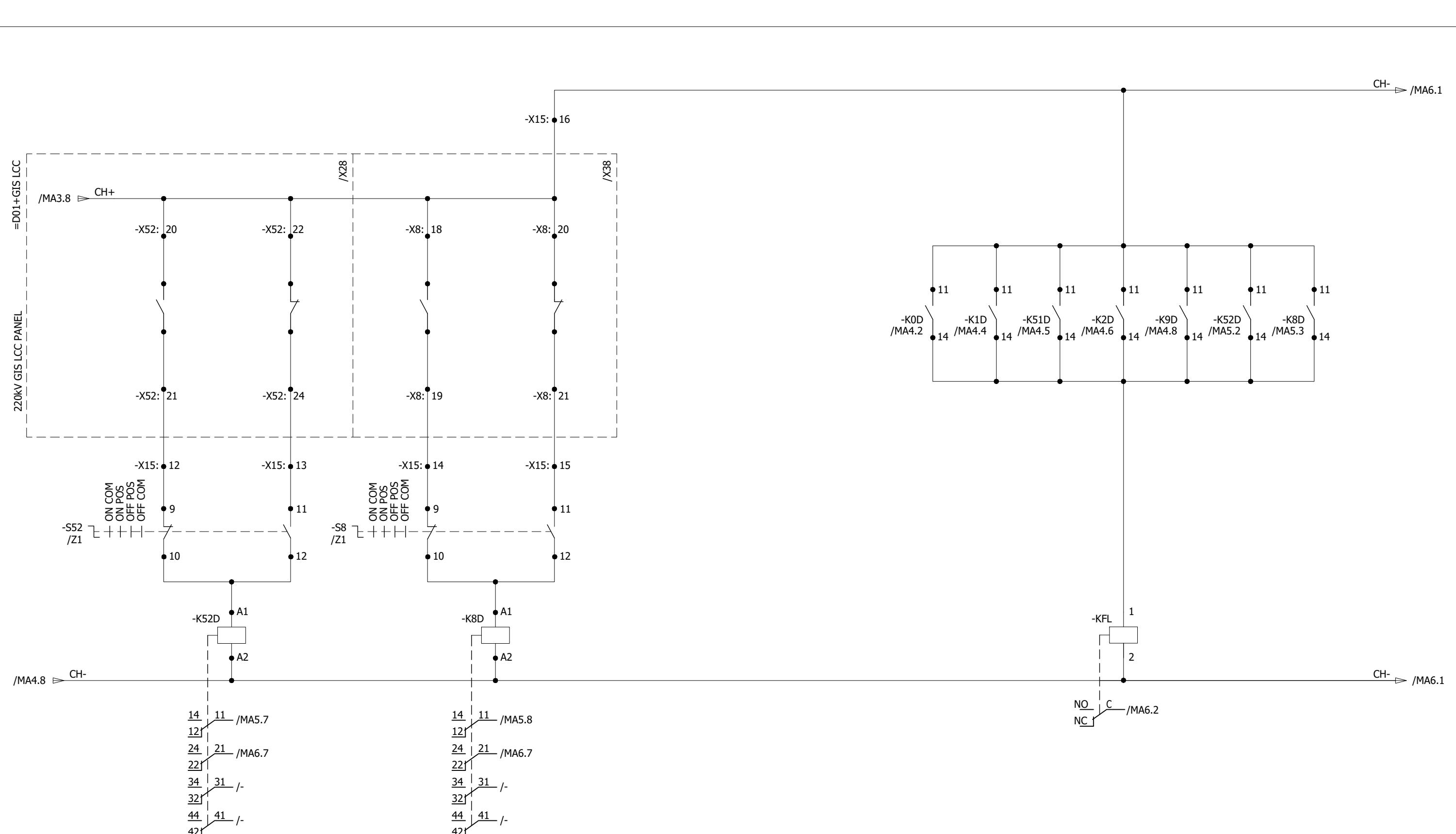
FLASHER RELAY
INITIATION

-Q52

-Q8

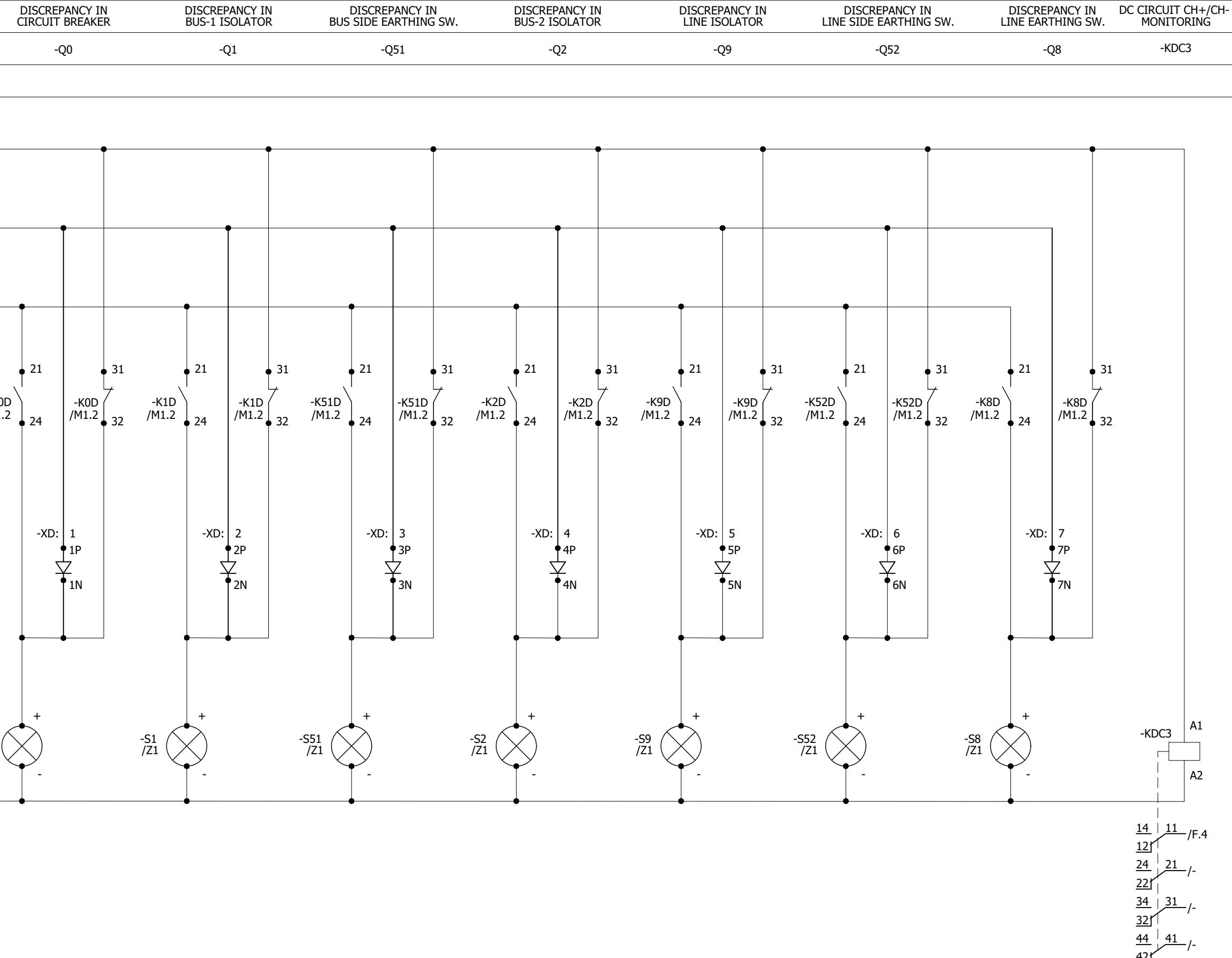
-KFL

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0	AS BUILT	22.11.2018	ASJ	Manufacturer	Contractor	Client	Project	Title	Drawing no.		
				EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Grid Solutions A GE and Alstom joint venture	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	220KV LINE CONTROL PANEL (=D08+C4) DISCREPANCY CHECK CIRCUIT	P60194-E-RLC-SC-003		
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type MA5	Sheet no. 29

DISCREPANCY CHECK CIRCUIT



A

A

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B

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C

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D

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E

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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) DISCREPANCY CHECK CIRCUIT	Drawing no. P60194-E-RLC-SC-003
01									Project no. P-60194
									Sheet type MA6

REV.

DESCRIPTION

DATE

DRAWER

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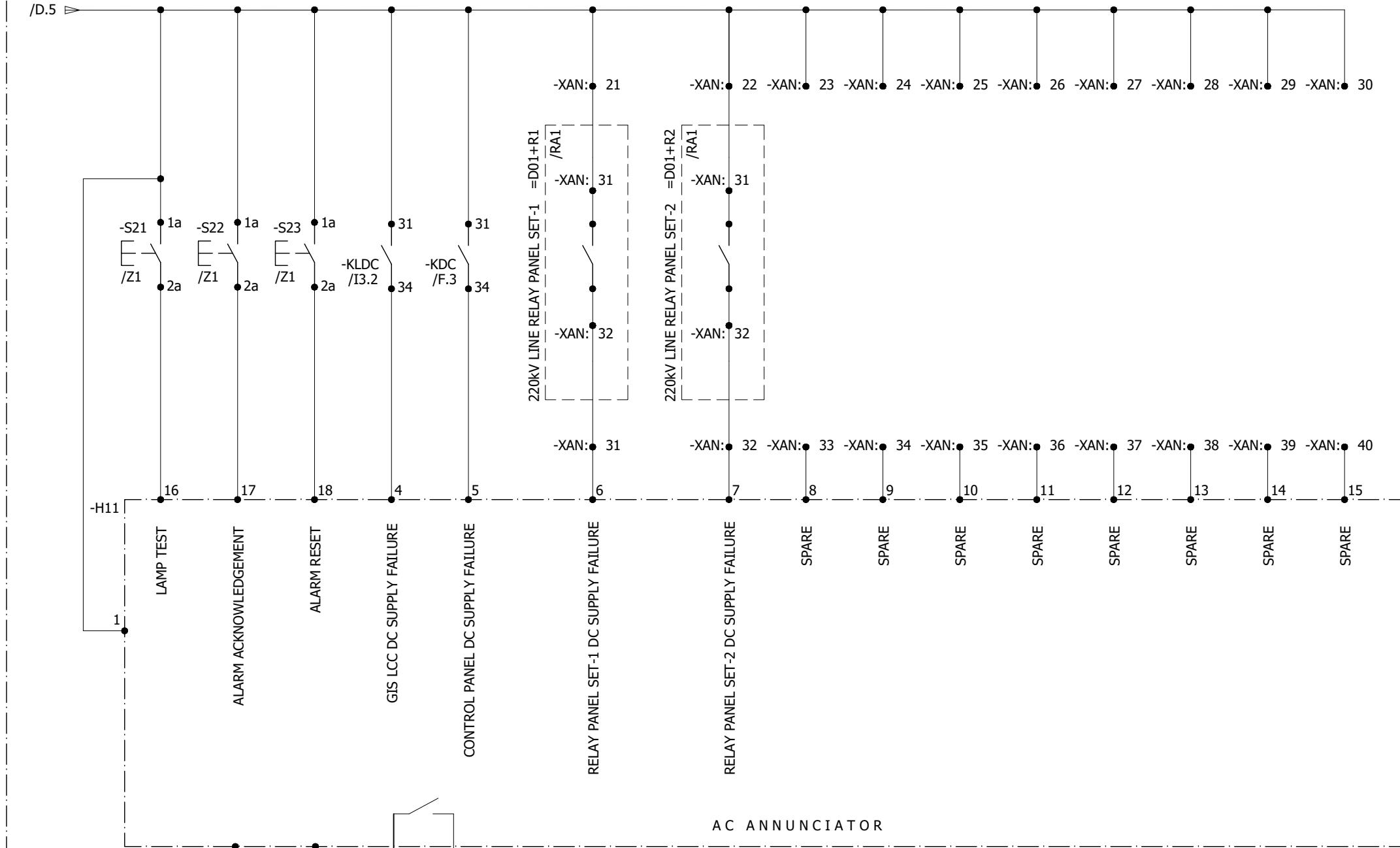
8

30

ANNUNCIATION CIRCUIT

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220KV SYNCH CONTROL
PANEL
=D00+C6
/RA3



-XF: 6 -XF: 5 0 VAC /RA2.1
-XF: 8 -XF: 7 DC HOOTER CIRCUIT /RA2.1
-XF: 2 -XF: 1 AC FAULT SUPPLY /RA2.1
-XF: 4 -XF: 3 DC FAULT SUPPLY /RA2.1

0	AS BUILT	22.11.2018	ASJ	Manufacturer	Contractor	Client	Project	Title	Drawing no.
REV.	DESCRIPTION	DATE	DRAWER	EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Grid Solutions A GE and Alstom joint venture	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	220KV LINE CONTROL PANEL (=D08+C4) AC ANNUNCIATIONS	P60194-E-RLC-SC-003
									Project no. P-60194 Sheet type RA1 Sheet no. 31

ANNUNCIATION CIRCUIT

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A

A

B

B

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C

D

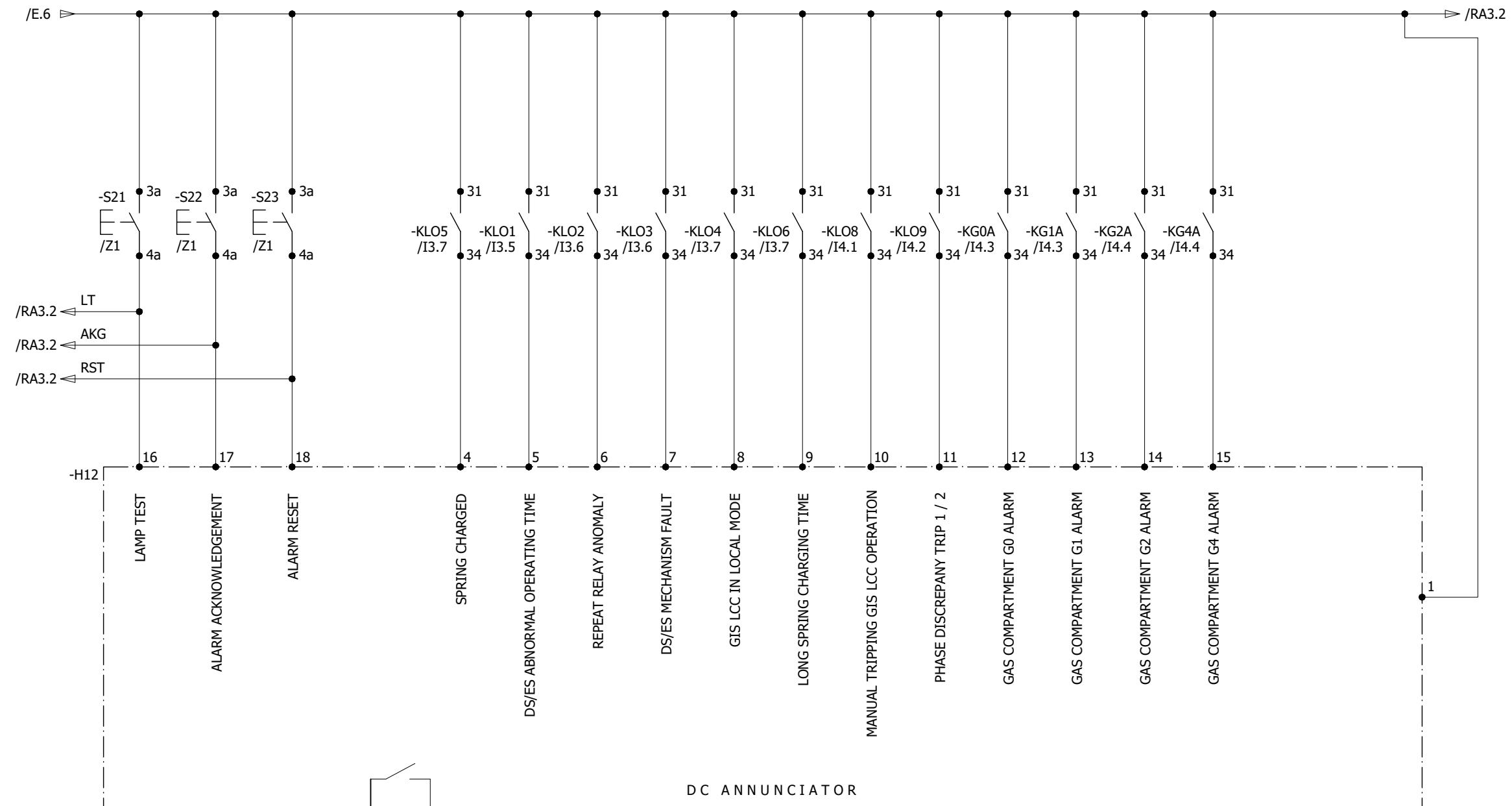
D

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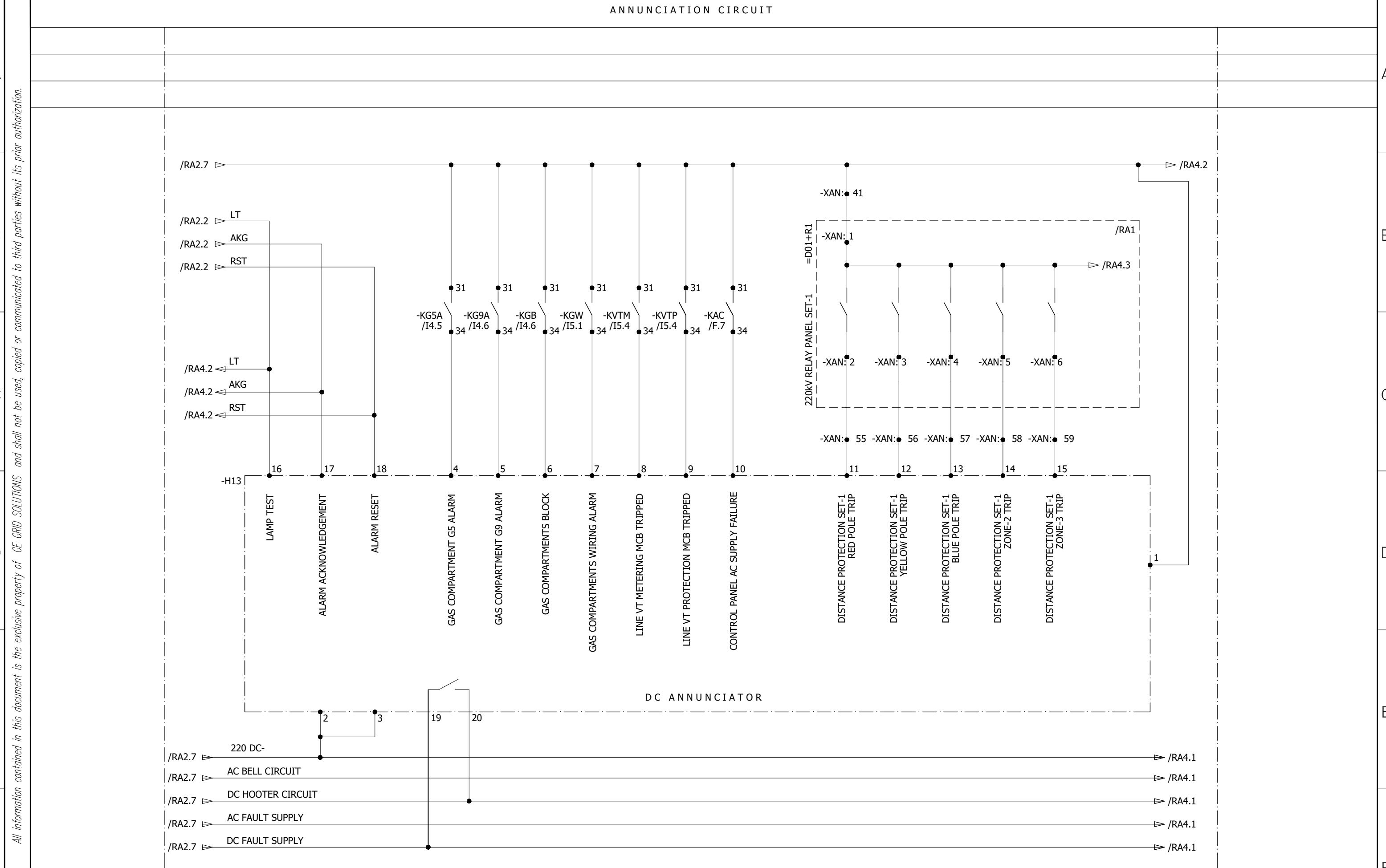


DC ANNUNCIATOR

0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) PROTECTION TRIPS	Drawing no. P60194-E-RLC-SC-003		
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type RA2	Sheet no. 32

ANNUNCIATION CIRCUIT

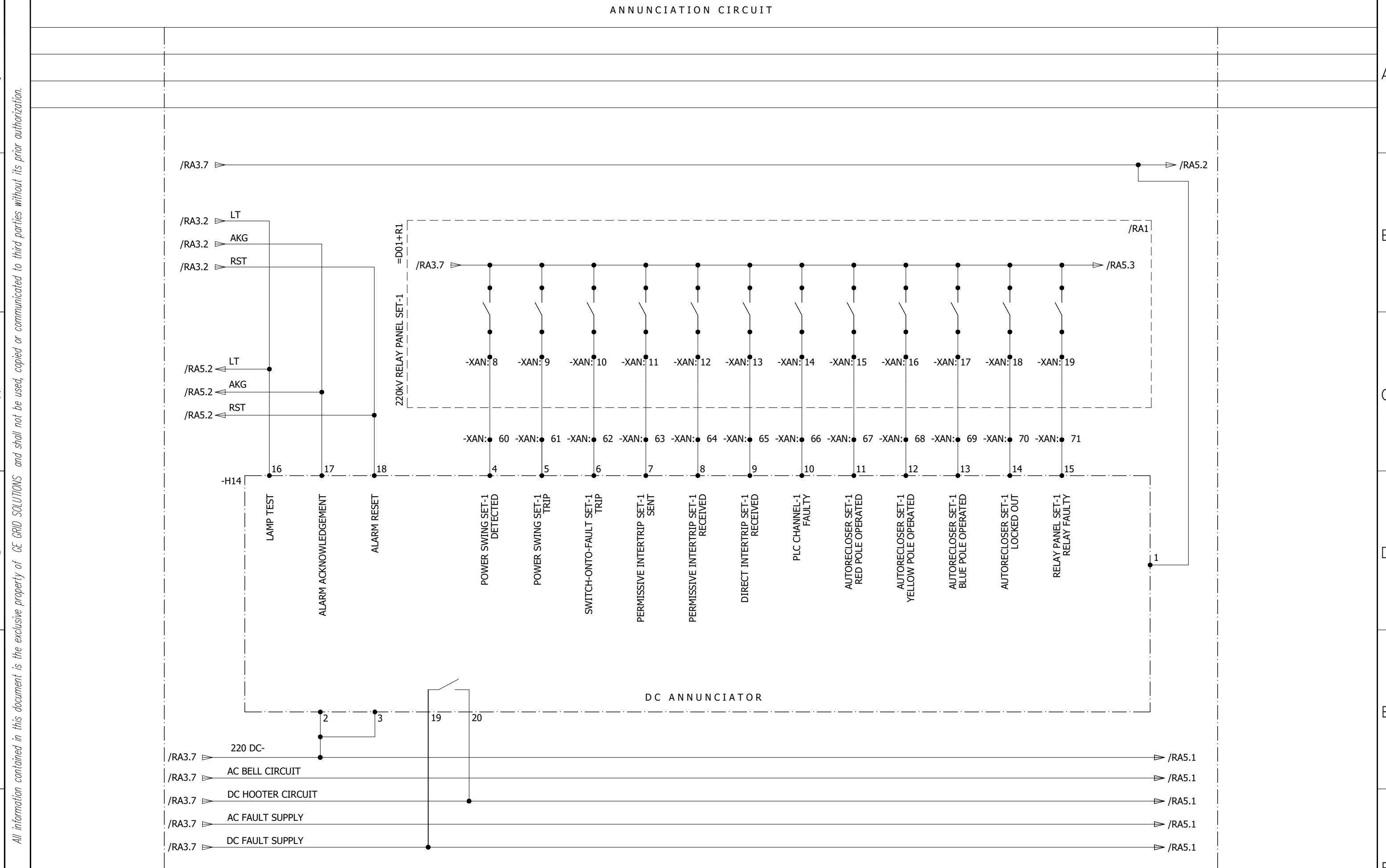
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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) ANNUNCIATOR ALARMS	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194

ANNUNCIATION CIRCUIT

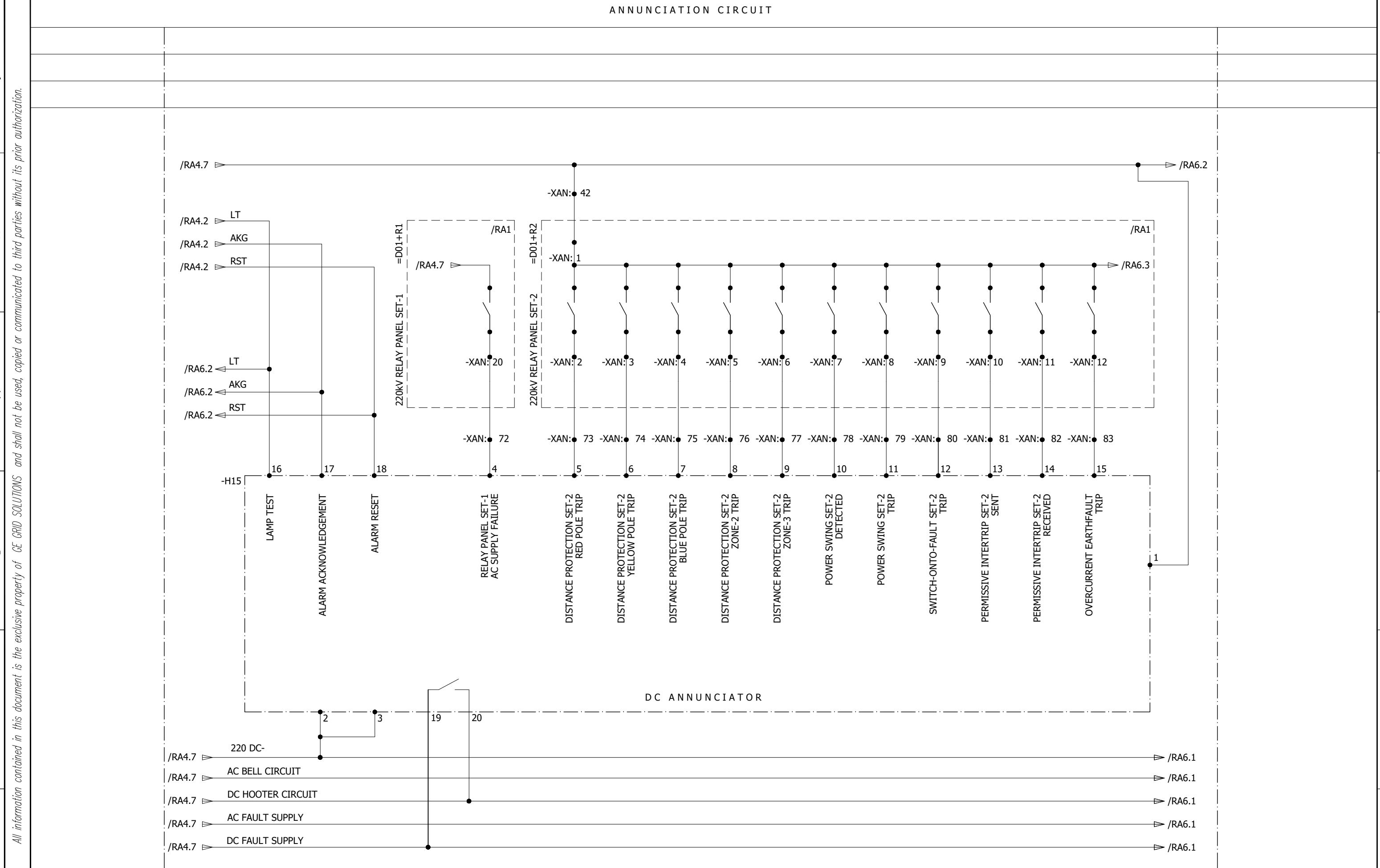
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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) ANNUNCIATOR ALARMS	Drawing no. P60194-E-RLC-SC-003
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194

ANNUNCIATION CIRCUIT

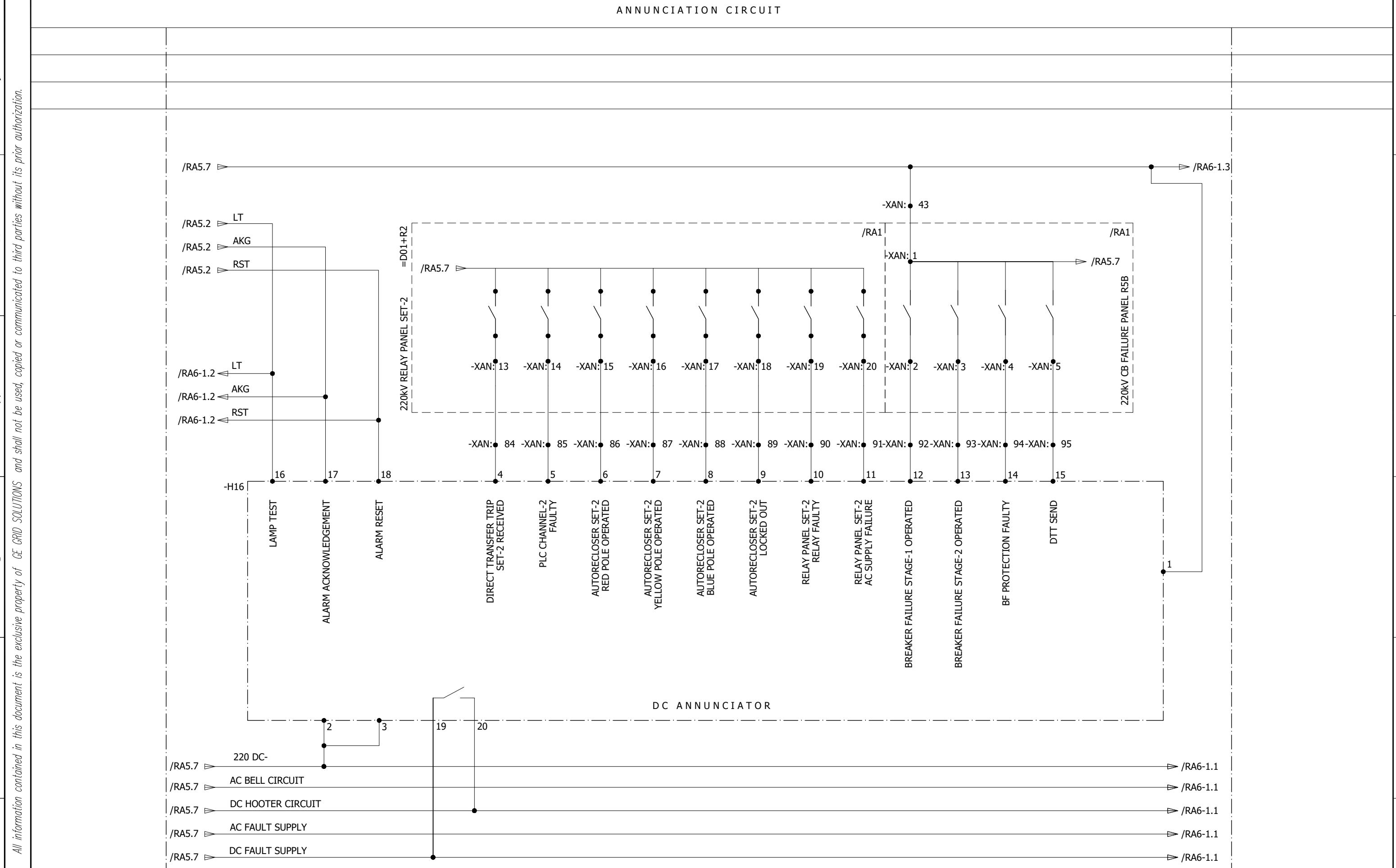
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0	AS BUILT	22.11.2018	ASJ	Manufacturer  EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220kV LINE CONTROL PANEL (=D08+C4) ANNUNCIATOR ALARMS	Drawing no. P60194-E-RLC-SC-003		
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type RA5	Sheet no. 35
1	2	3	4	5	6	7	8				

ANNUNCIATION CIRCUIT

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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTROL PANEL (=D08+C4) ANNUNCIATOR ALARMS	Drawing no. P60194-E-RLC-SC-003		
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type RA6	Sheet no. 36

ANNUNCIATION CIRCUIT

220KV LINE CONTROL PANEL

=D02+C4

/RA1

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A

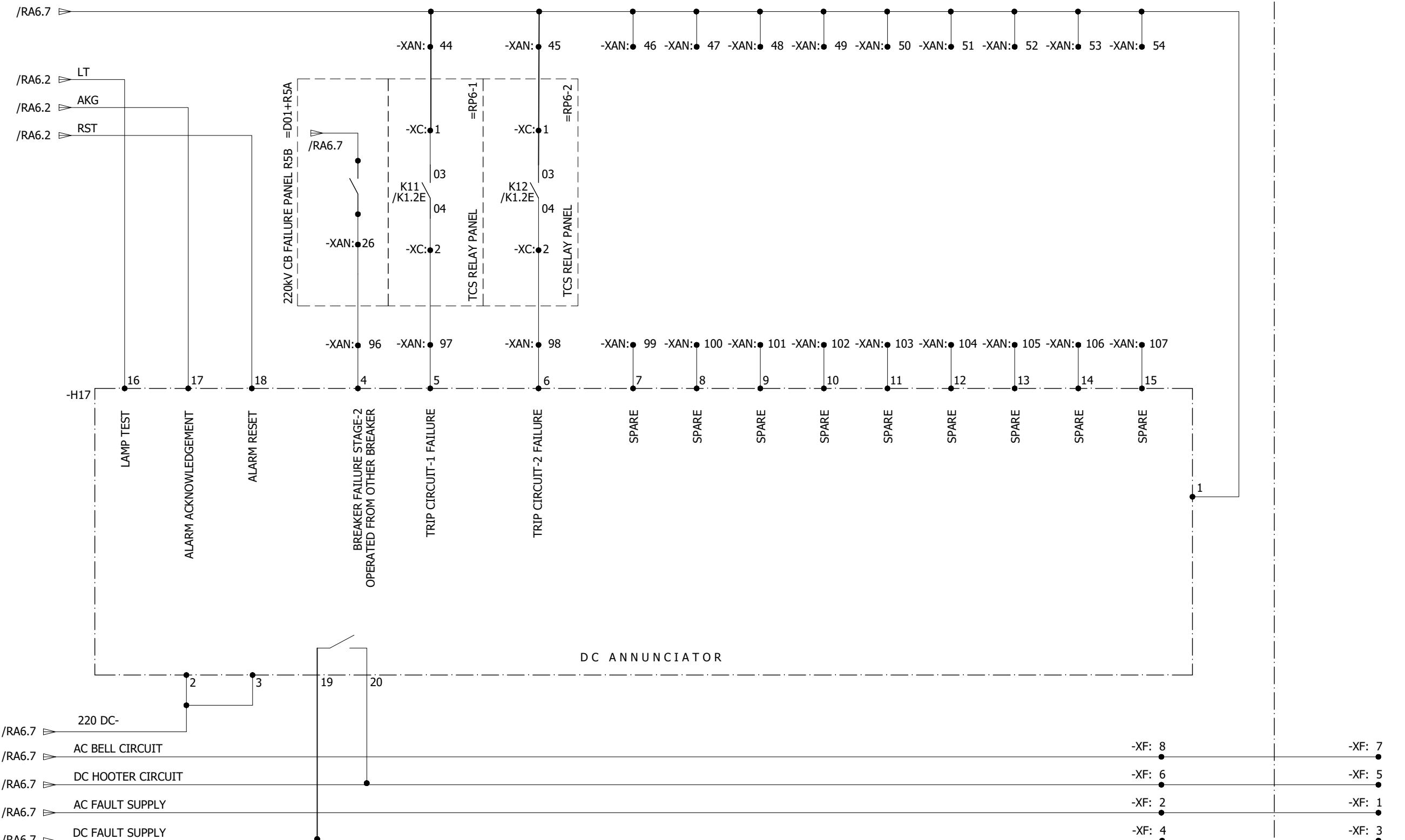
B

C

D

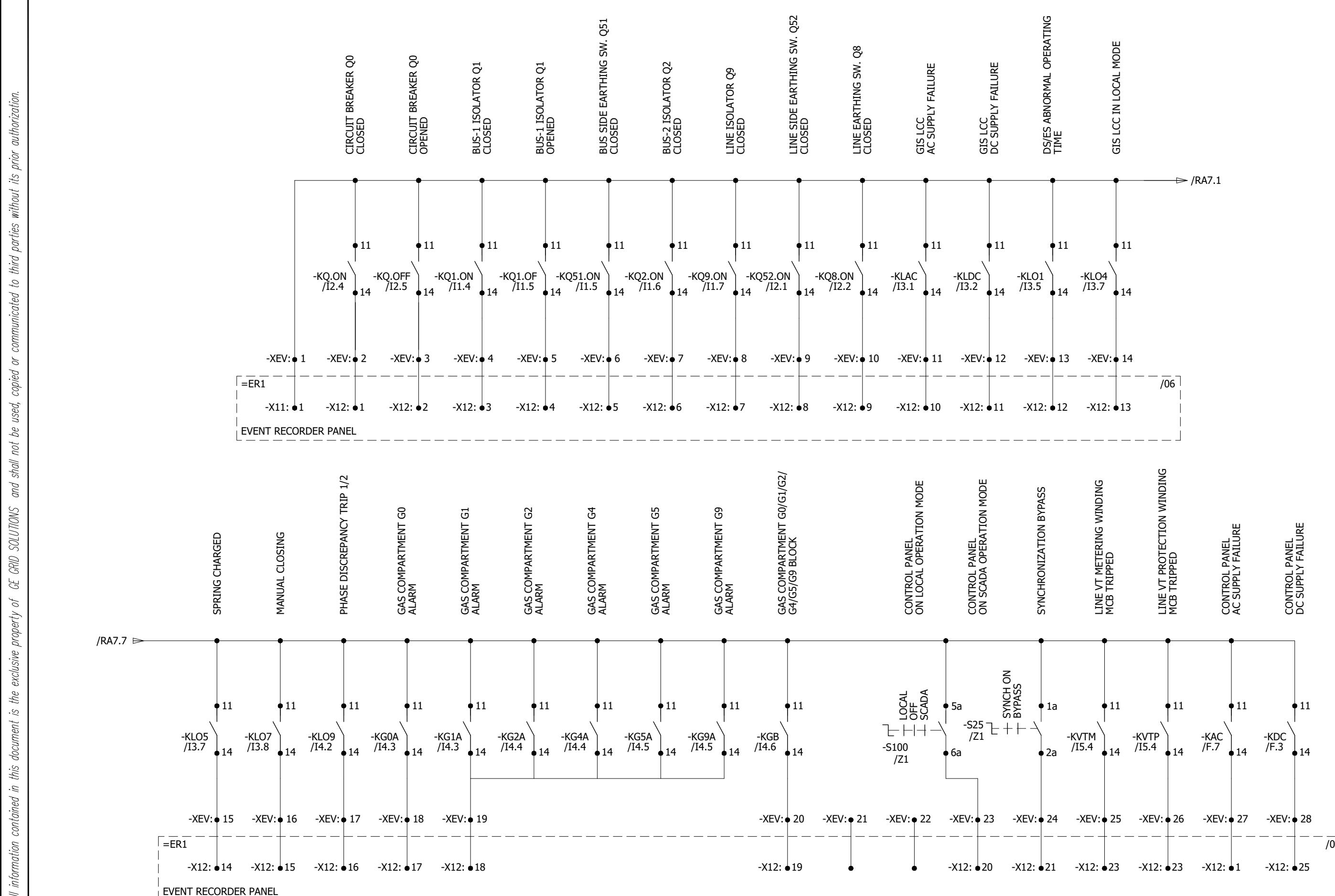
E

F



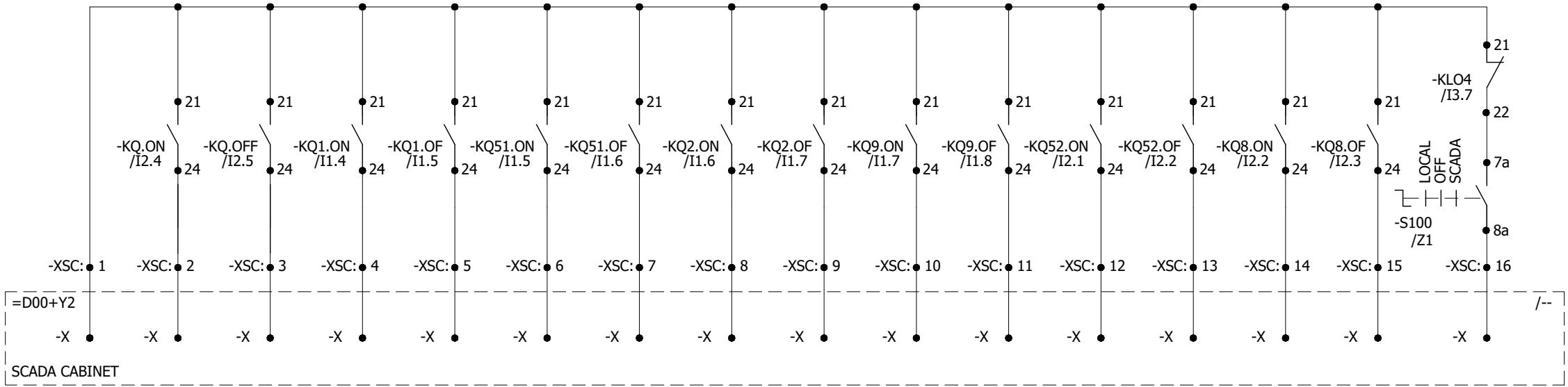
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REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type RA6-1	Sheet no. 37

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0	AS BUILT	22.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 220KV LINE CONTRPL PANEL (=D08+C4) EVENT & FAULT RECORDER CIRCUITS	Drawing no. P60194-E-RLC-SC-003		
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194	Sheet type RA7	Sheet no. 38
1	2	3	4	5	6	7	8				

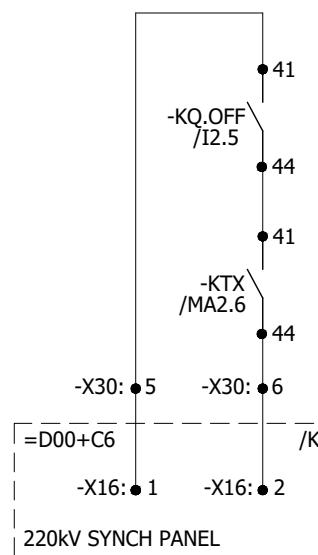
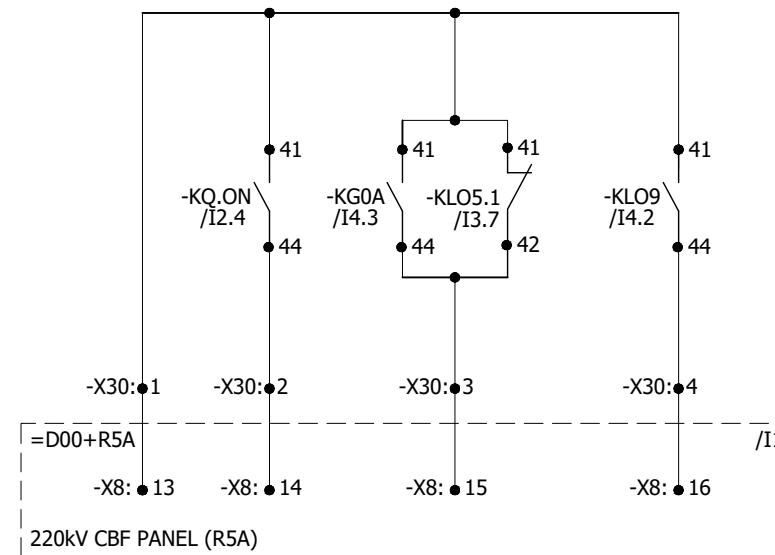
1	2	3	4	5	6	7	8
CIRCUIT BREAKER Q0 CLOSED	CIRCUIT BREAKER Q0 OPENED	BUS-1 ISOLATOR Q1 CLOSED	BUS-1 ISOLATOR Q1 OPENED	BUS SIDE EARTHING SW. Q51 CLOSED	BUS SIDE EARTHING SW. Q51 OPENED	BUS-SIDE ISOLATOR Q2 CLOSED	BUS-SIDE ISOLATOR Q2 OPENED
LINE ISOLATOR Q9 CLOSED	LINE ISOLATOR Q9 OPENED	LINE SIDE EARTHING SW. Q52 CLOSED	LINE SIDE EARTHING SW. Q52 OPENED	LINE SIDE EARTHING SW. Q8 CLOSED	LINE SIDE EARTHING SW. Q8 OPENED	LINE EARTHING SW. Q8 CLOSED	LINE EARTHING SW. Q8 OPENED
CB ON REMOTE (SCADA)							



CIRCUIT BREAKER Q0
CLOSED

CIRCUIT BREAKER
ABNORMAL CONDITION

POLE DISCREPANCY
(=D01+C4)



0	AS BUILT	22.11.2018	ASJ	Manufacturer	Contractor	Client	Project	Title	Drawing no.		
REV.	DESCRIPTION	DATE	DRAWER	EPEPSOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Grid Solutions A GE and Alstom joint venture	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	220KV LINE CONTRPL PANEL (=D08+C4) SCADA CIRCUIT	P-60194-E-RLC-SC-003		
									Project no. P-60194	Sheet type RA8	Sheet no. 39

