

Drawing approval subject to valid vendor registration

ITEM ABBREVIATIONS :-

- CCC - COMMON CONTROL CUBICLE.
- DM - DENSITY MONITOR.
- OM-A - OPERATING MECHANISM.FOR POLE A.
- OM-B - OPERATING MECHANISM.FOR POLE B
- OM-C - OPERATING MECHANISM.FOR POLE C

DIAGRAM BASED ON IEC 617-83.

- LOCAL REMOTE SWITCH IN REMOTE POSITION.
- CIRCUIT BREAKER IN " OFF " POSITION.
- AUXILIARY CIRCUIT " OFF " .
- DRAWN WITHOUT GAS PRESSURE.
- SPRING DISCHARGED.

**NOTE :- WIRING TO BE DONE WITH CU WIRE (GREY FOR DC CKT.
BLACK FOR AC CKT. , GREEN + YELLOW FOR EARTHING.)**

- 1:- 2.5 SQ. MM. FOR CONTROL CKT.
- 2:- 2.5 SQ. MM. FOR MOTOR CKT.
- 3:- 4.0 SQ. MM. FOR DOOR & PANEL EARTHING .

- TERMINALS IN OPERATING MECHANISM (B).
- TERMINALS IN OPERATING MECHANISM (A&C).
- SUPPLY TERMINALS.

**CUSTOMER CONNECTIONS ARE WITH TERMINAL BLOCK CONNECTWELL MAKE TYPE STH4.
INTERNAL MECHANISM CONNECTIONS ARE WITH TERMINAL BLOCK CONNECTWELL MAKE TYPE STH3.**

Revision	
A	20180927

END CUSTOMER : APTRANSCO

SCHMATIC DIAGRAM FOR
245 KV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

DRAWN, MB

CHECKED, TT

APPRD, UP

REF. DRG.NO: 1HYB990148-3

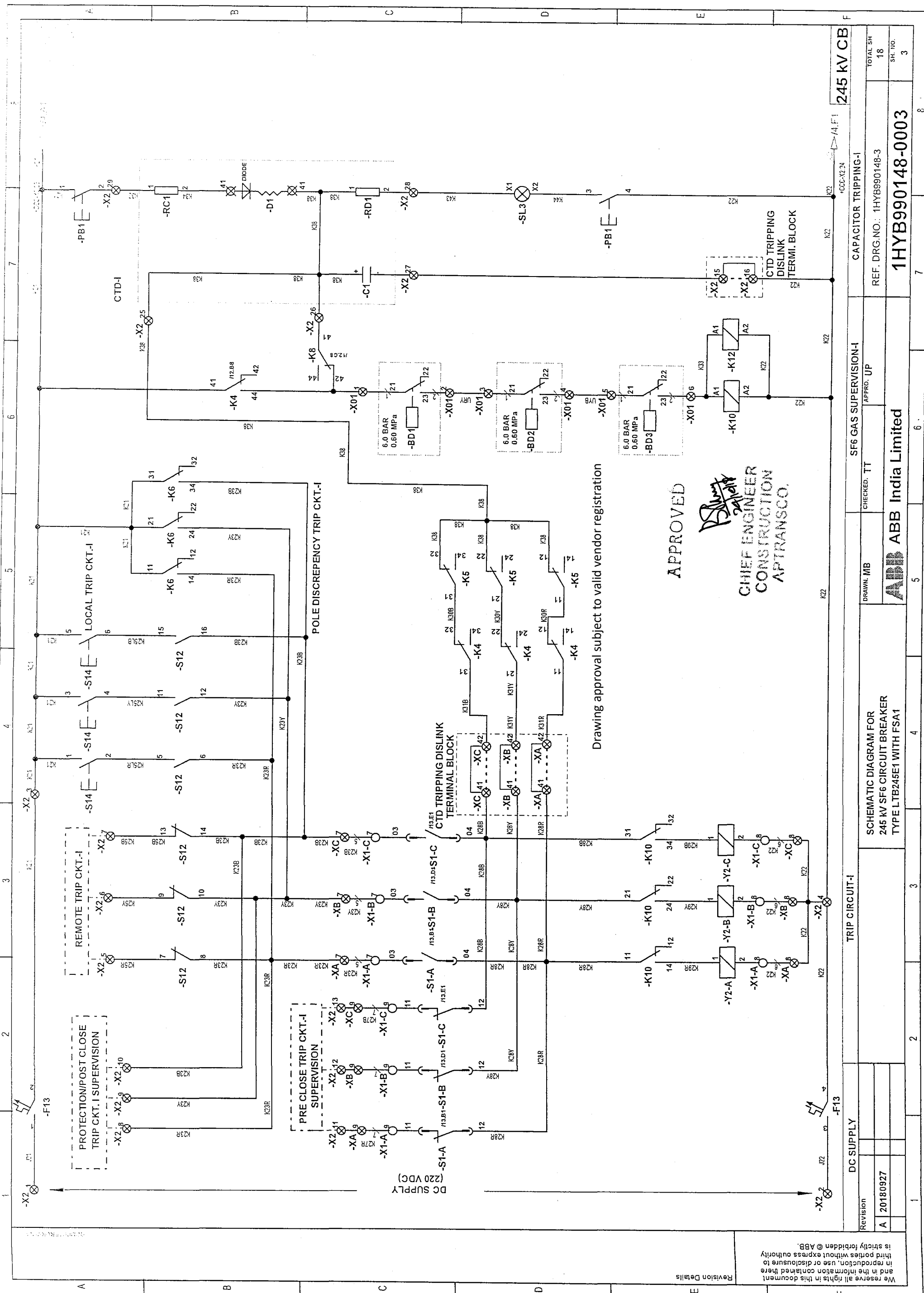
ABB ABB India Limited

245 KV CB
TOTAL SH 18
SH. NO. 1

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Revision Details





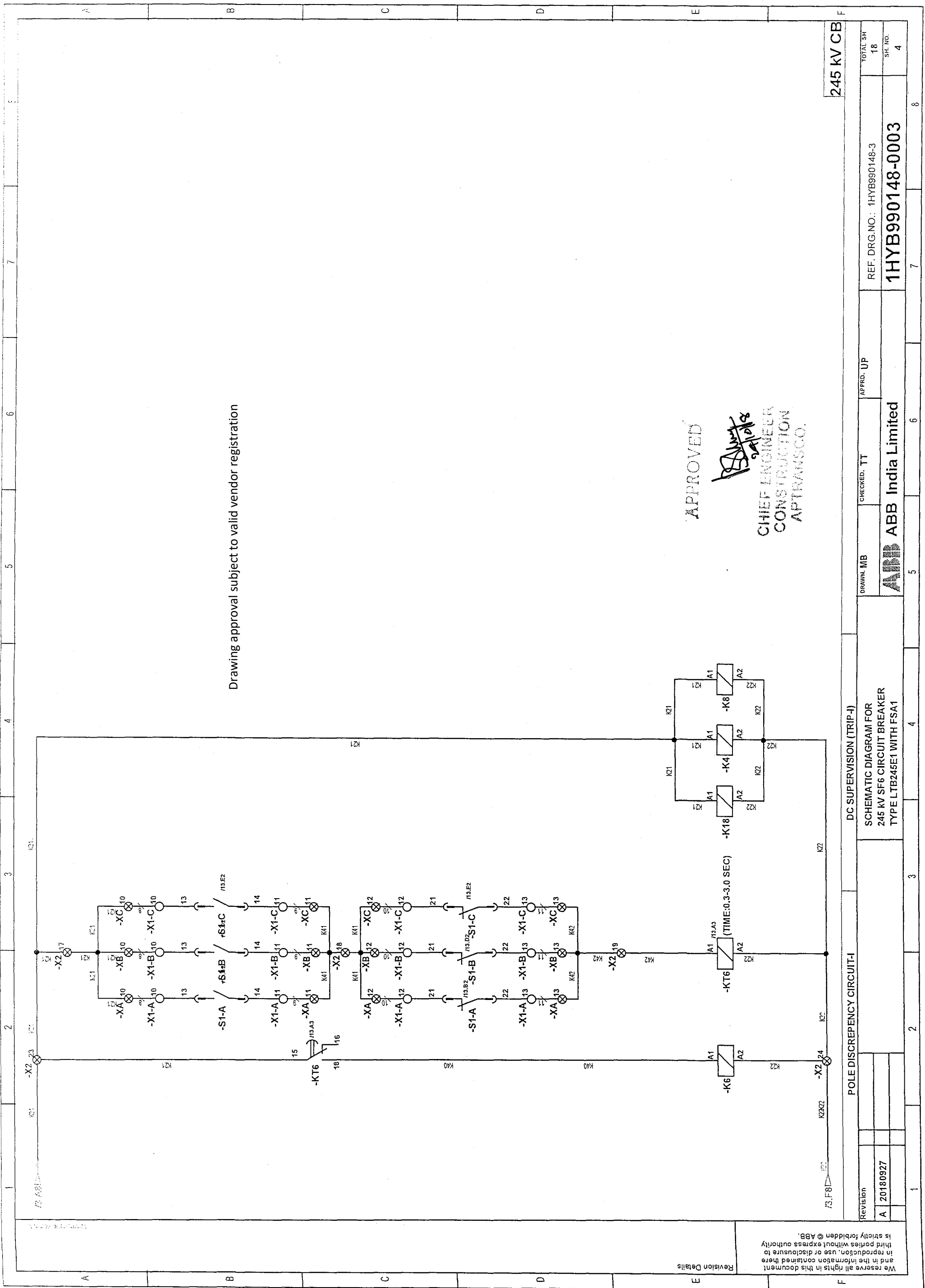
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Revision		DC SUPPLY		TRIP CIRCUIT-I		SF6 GAS SUPERVISION-I		CAPACITOR TRIPPING-I		245 kV CB	
A	20180927										
DRAWN: MB		CHECKED: TT		APPROD. UP		REF. DRG. NO.: 1HYB990148-3		TOTAL SH		18	
ABB India Limited		ABB India Limited		1HYB990148-0003		SH. NO.		3		8	



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245 kV CB

REF. DRG. NO.: 1HYB990148-3
1HYB990148-0003

APPRD. UP
 DRAWN. MB
ABB ABB India Limited

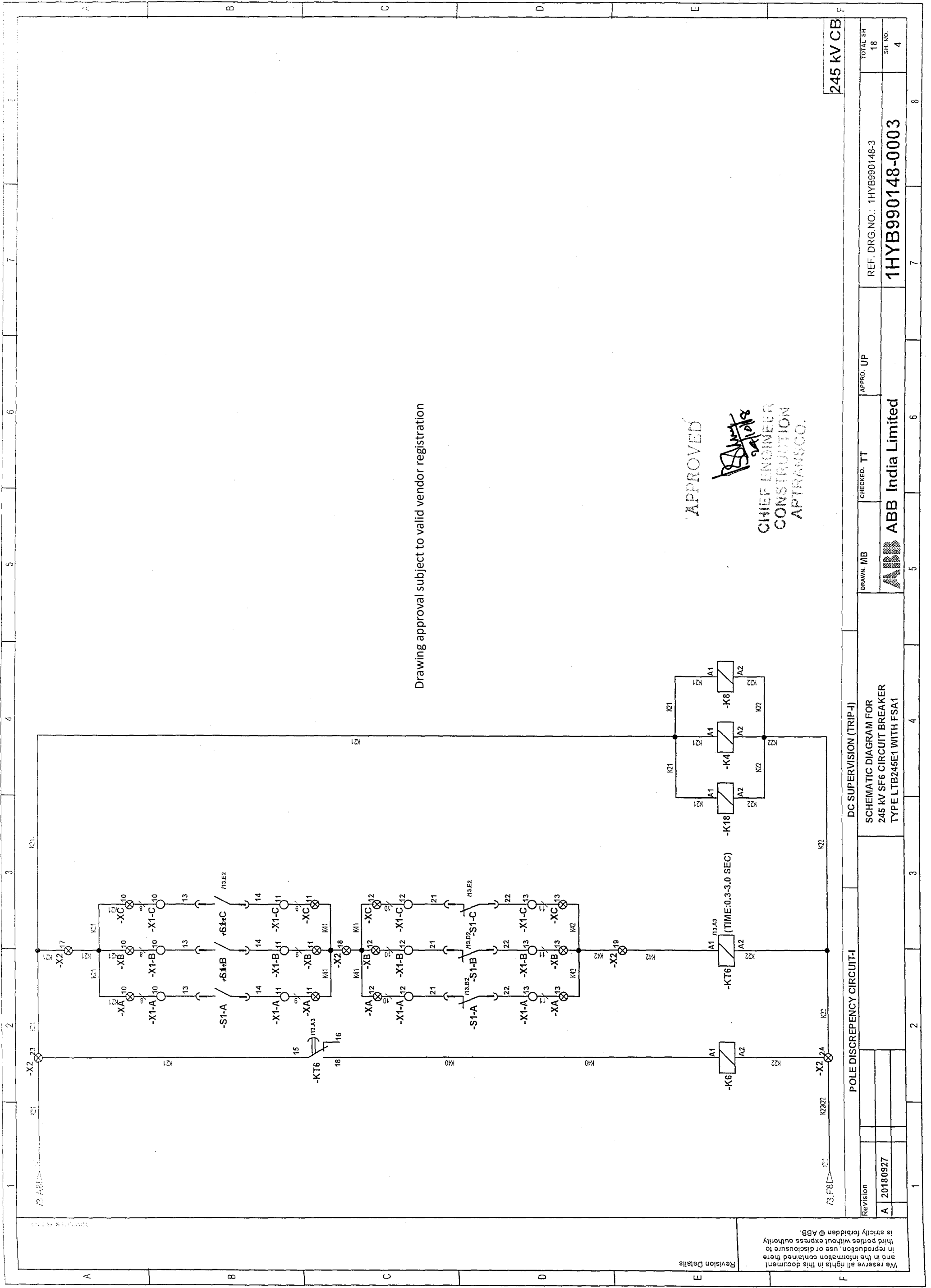
DC SUPERVISION (TRIP-1)
 SCHEMATIC DIAGRAM FOR
 245 KV SF6 CIRCUIT BREAKER
 TYPE LTB245E1 WITH FSA1

POLE DISCREPANCY CIRCUITRY-1

Revision	Checked. TT	APPRD. UP	TOTAL SH
A 20180927			18
			4

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Revision Details

Revision	
A	20180927

POLE DISCREPANCY CIRCUIT-I

DC SUPERVISION (TRIP-I)

SCHEMATIC DIAGRAM FOR
 245 KV SF6 CIRCUIT BREAKER
 TYPE LTB245E1 WITH FSA1

DRAWN: MB

CHECKED: TT

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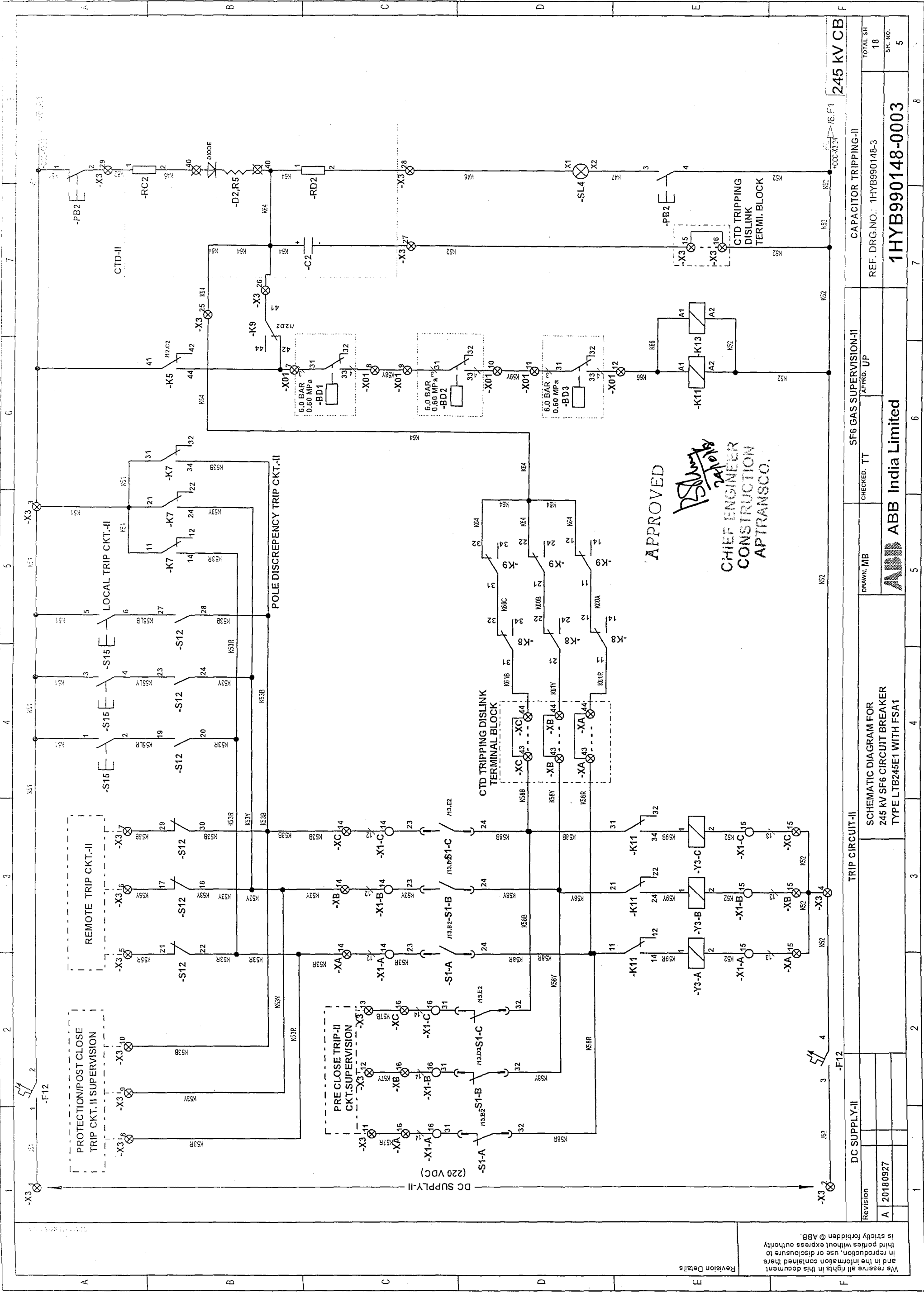
REF. DRG.NO.: 1HYB990148-3

1HYB990148-0003

245 KV CB

TOTAL SH	18
SH. NO.	4

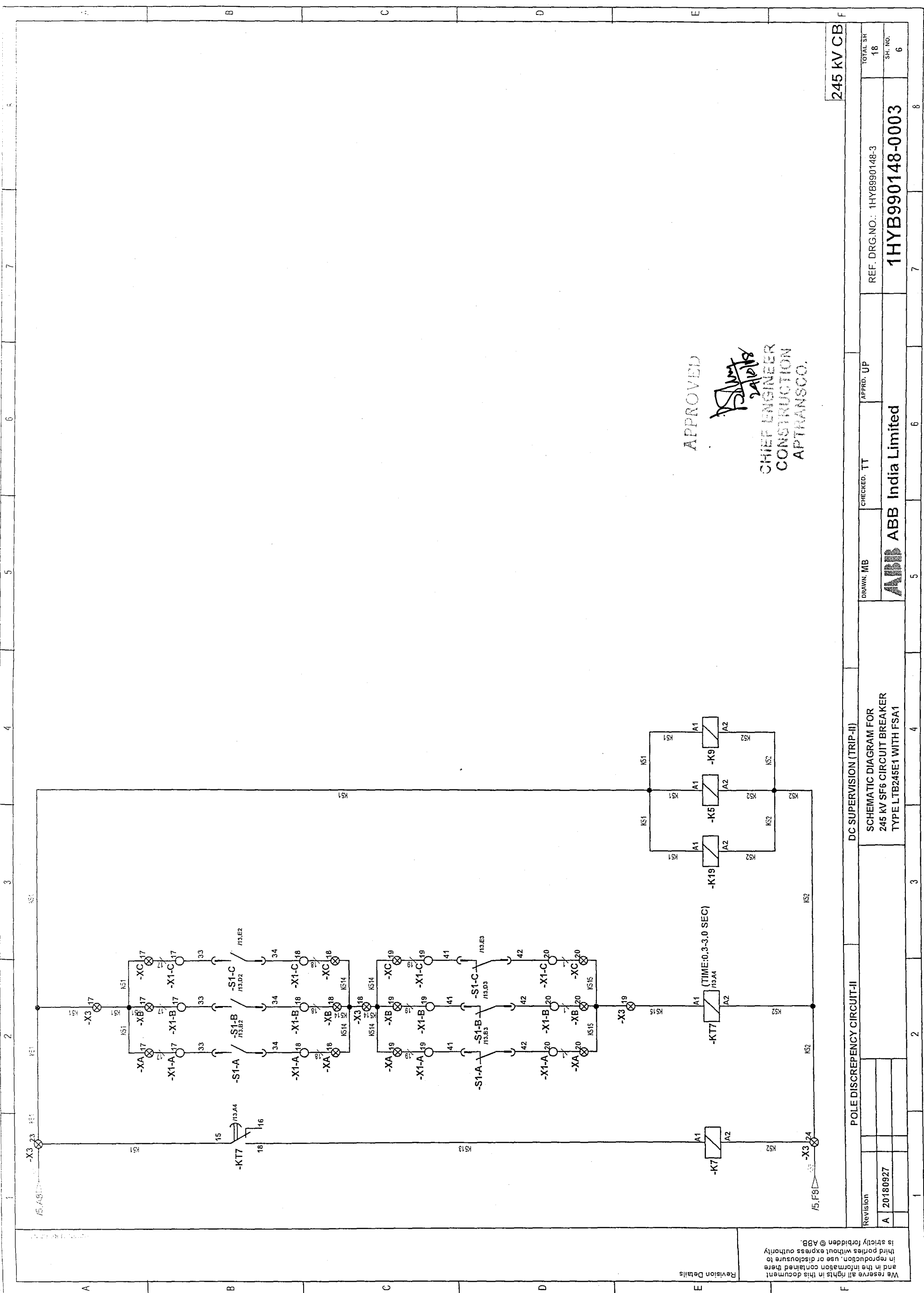
1 2 3 4 5 6 7 8



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Revision		DC SUPPLY-II		TRIP CIRCUIT-II		CAPACITOR TRIPPING-II		245 kV CB	
A	20180927					SF6 GAS SUPERVISION-II		REF. DRG. NO.: 1HYB990148-3	
						CHECKED: TT		TOTAL SH 18	
						DRAWN: MB		SK. NO. 5	
						APPRD. UP		1HYB990148-0003	
						ABB India Limited		7	
								8	



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245 kV CB
 TOTAL SH 18
 SH. NO. 6

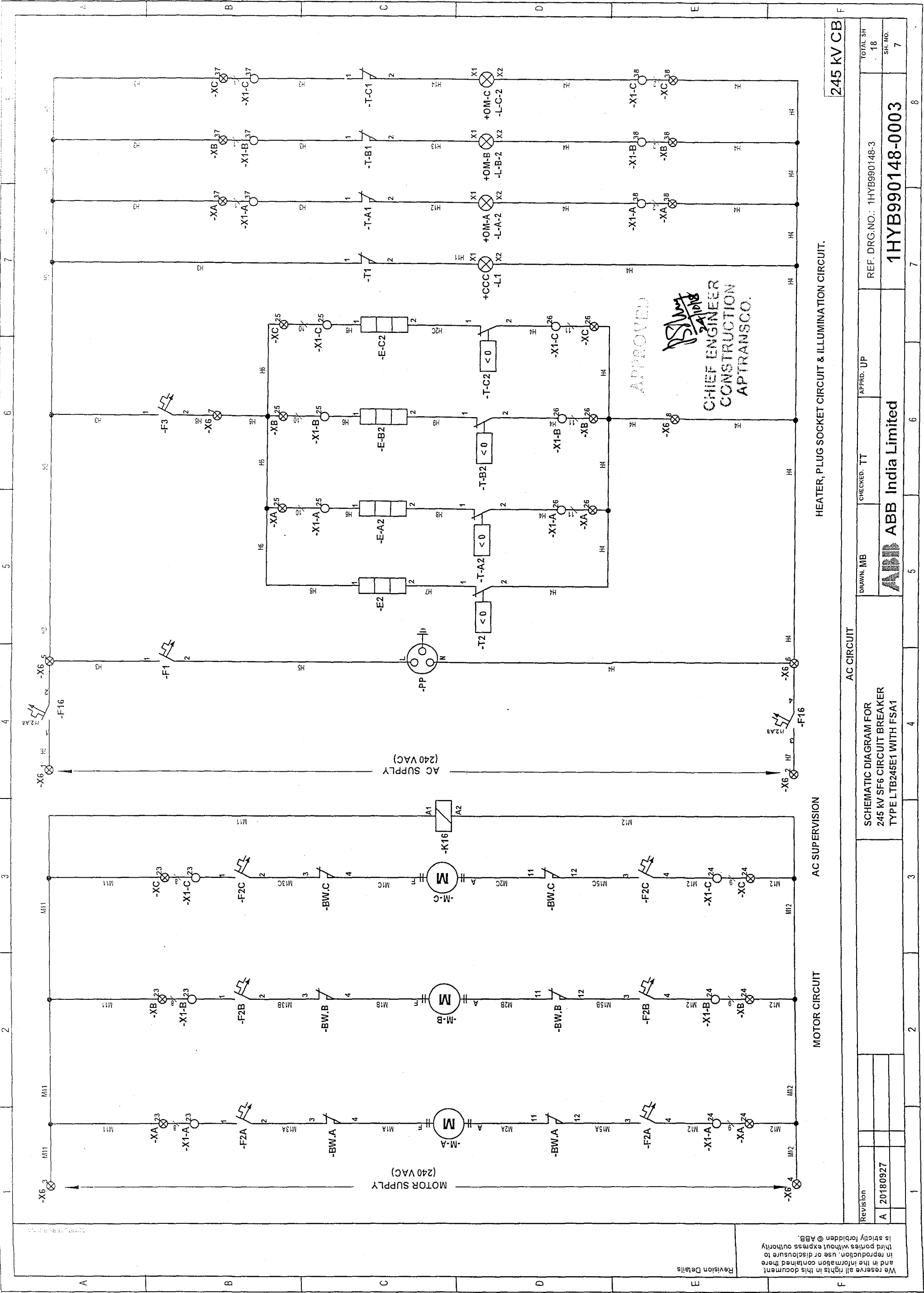
REF. DRG. NO.: 1HYB990148-3
ABB India Limited
 DRAWN: MB
 CHECKED: TT
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DC SUPERVISION (TRIP-II)
 SCHEMATIC DIAGRAM FOR
 245 KV SF6 CIRCUIT BREAKER
 TYPE LTB245E1 WITH FSA1

Revision	1	2	3	4	5	6	7	8
A	20180927							

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Revision Details

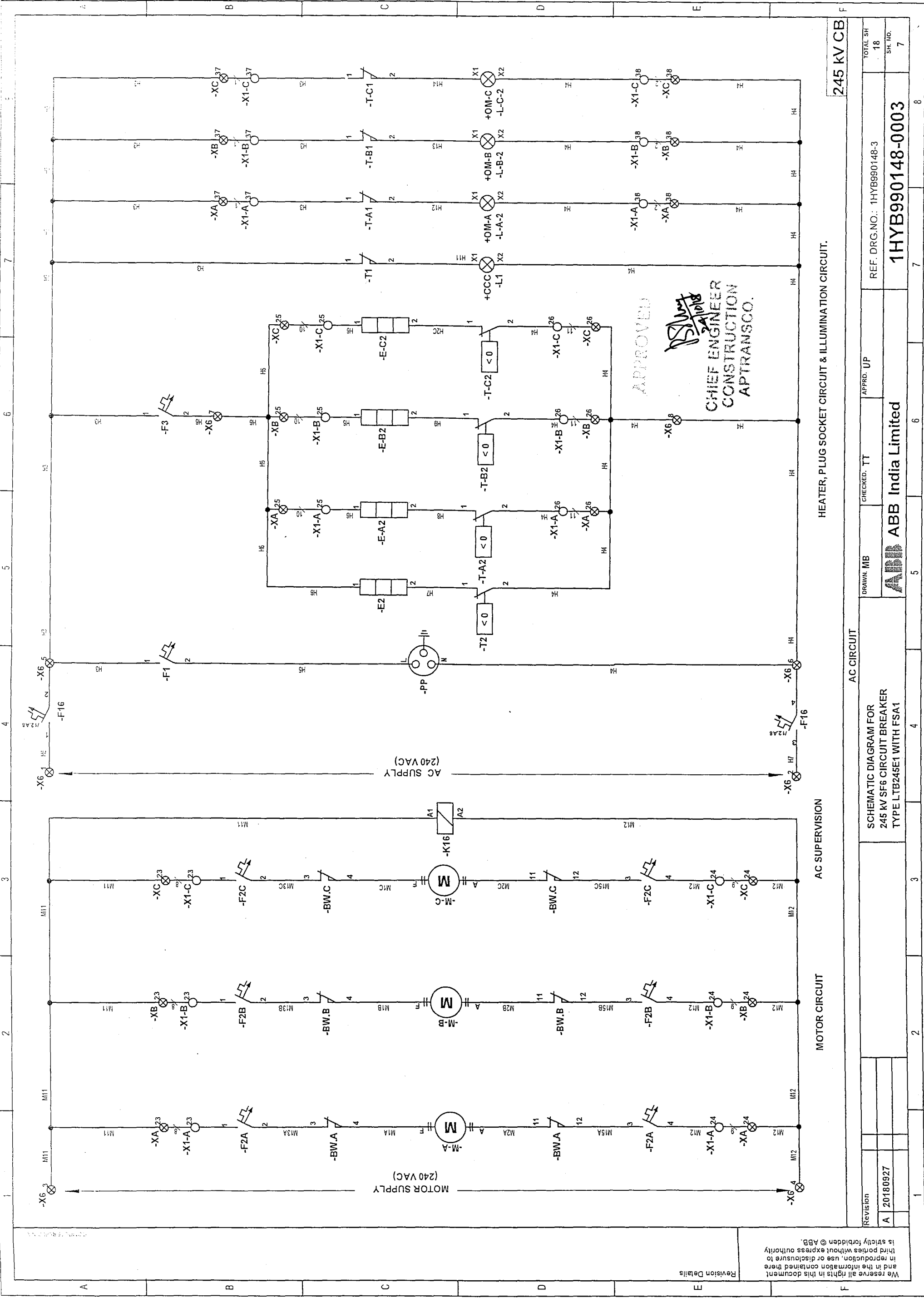


HEATER, PLUG SOCKET CIRCUIT & ILLUMINATION CIRCUIT.

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Revision		Revision Details	DRAWN: MB		CHECKED: TT	APPRD. UP	REF. DRG. NO.: 1HYB990148-3	TOTAL SH
A	20180927		ABB		ABB India Limited		1HYB990148-0003	18
								SH. NO.
								7

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A	20180927

SCHEMATIC DIAGRAM FOR
245 KV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

AC CIRCUIT

HEATER, PLUG SOCKET CIRCUIT & ILLUMINATION CIRCUIT.

245 KV CB

DRAWN: MB

CHECKED: TT

APPRD. UP

REF. DRG. NO.: 1HYB990148-3

1HYB990148-0003

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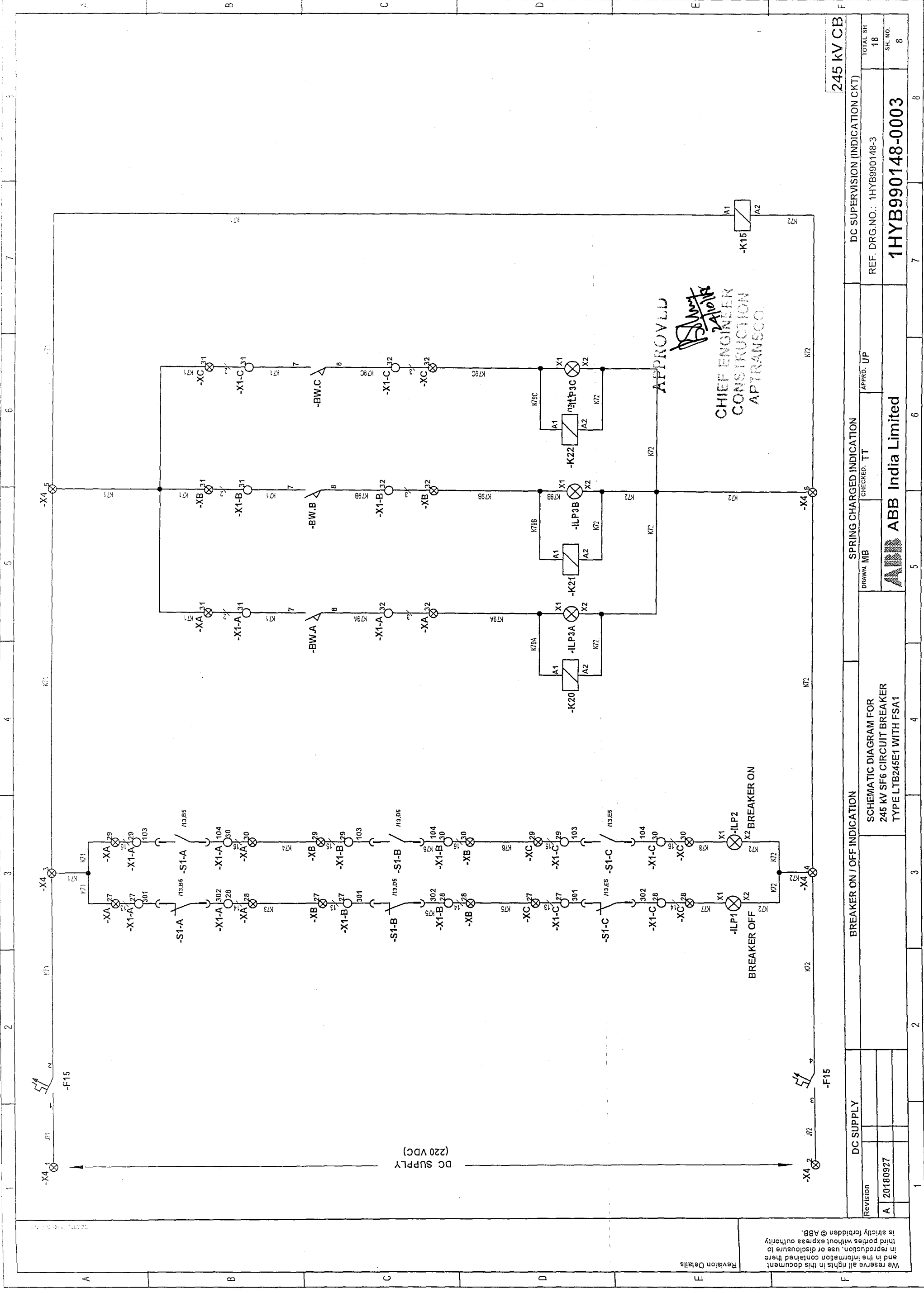
TOTAL SH

18

SH. NO.

7

1 2 3 4 5 6 7 8



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Revision Details

Revision	Description
A	20180927

DC SUPPLY	
BREAKER ON / OFF INDICATION	
SPRING CHARGED INDICATION	
DC SUPERVISION (INDICATION CKT)	

SCHMATIC DIAGRAM FOR
245 KV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

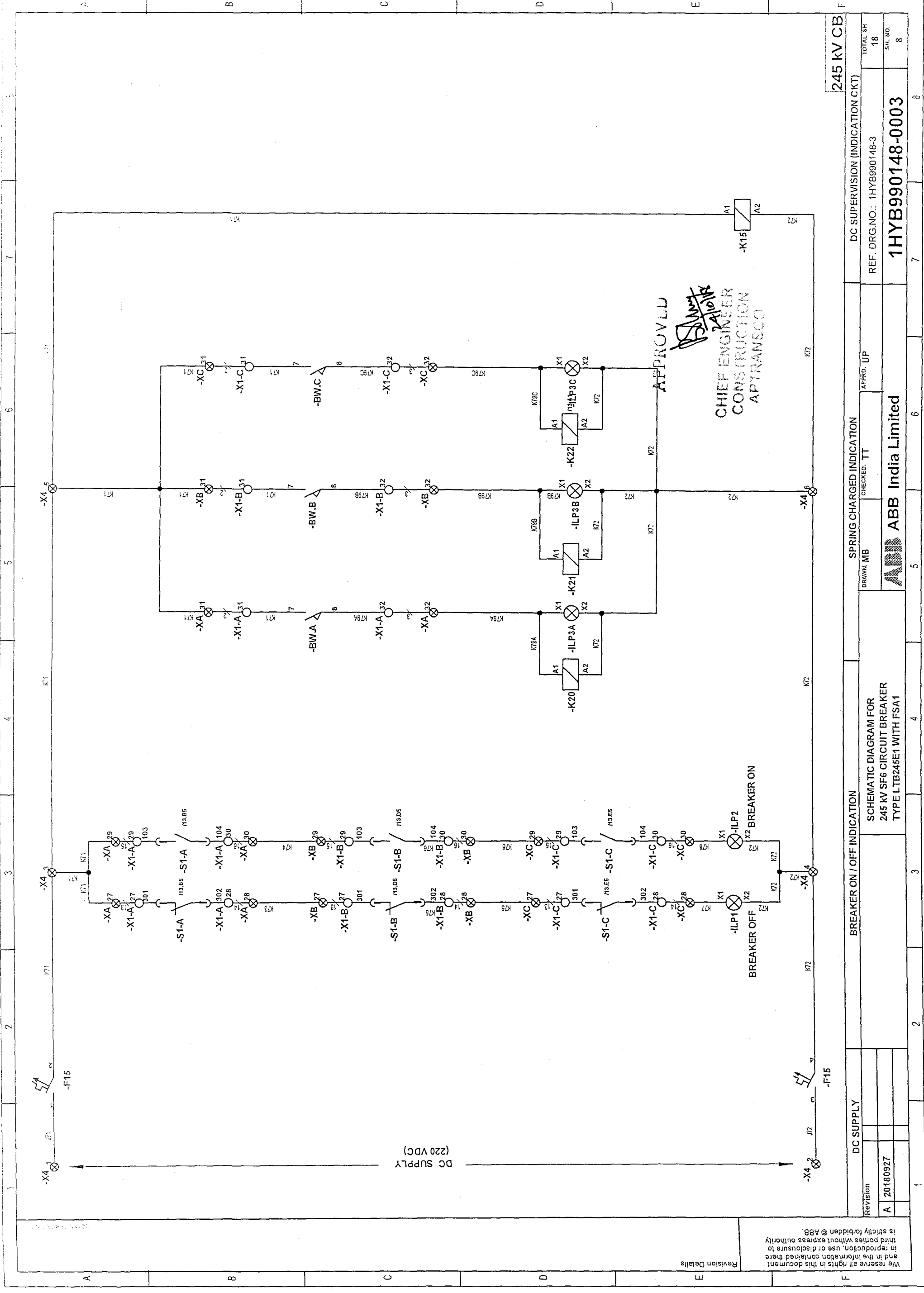
DRAWN: MB
CHECKED: TT
APPROV: UP

REF. DRG. NO.: 1HYB990148-3

1HYB990148-003
TOTAL SH: 18
SH. NO.: 8

245 KV CB

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DC SUPPLY	
BREAKER ON / OFF INDICATION	
SPRING CHARGED INDICATION	
DC SUPERVISION (INDICATION CKT)	

SCHEMATIC DIAGRAM FOR
245 KV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

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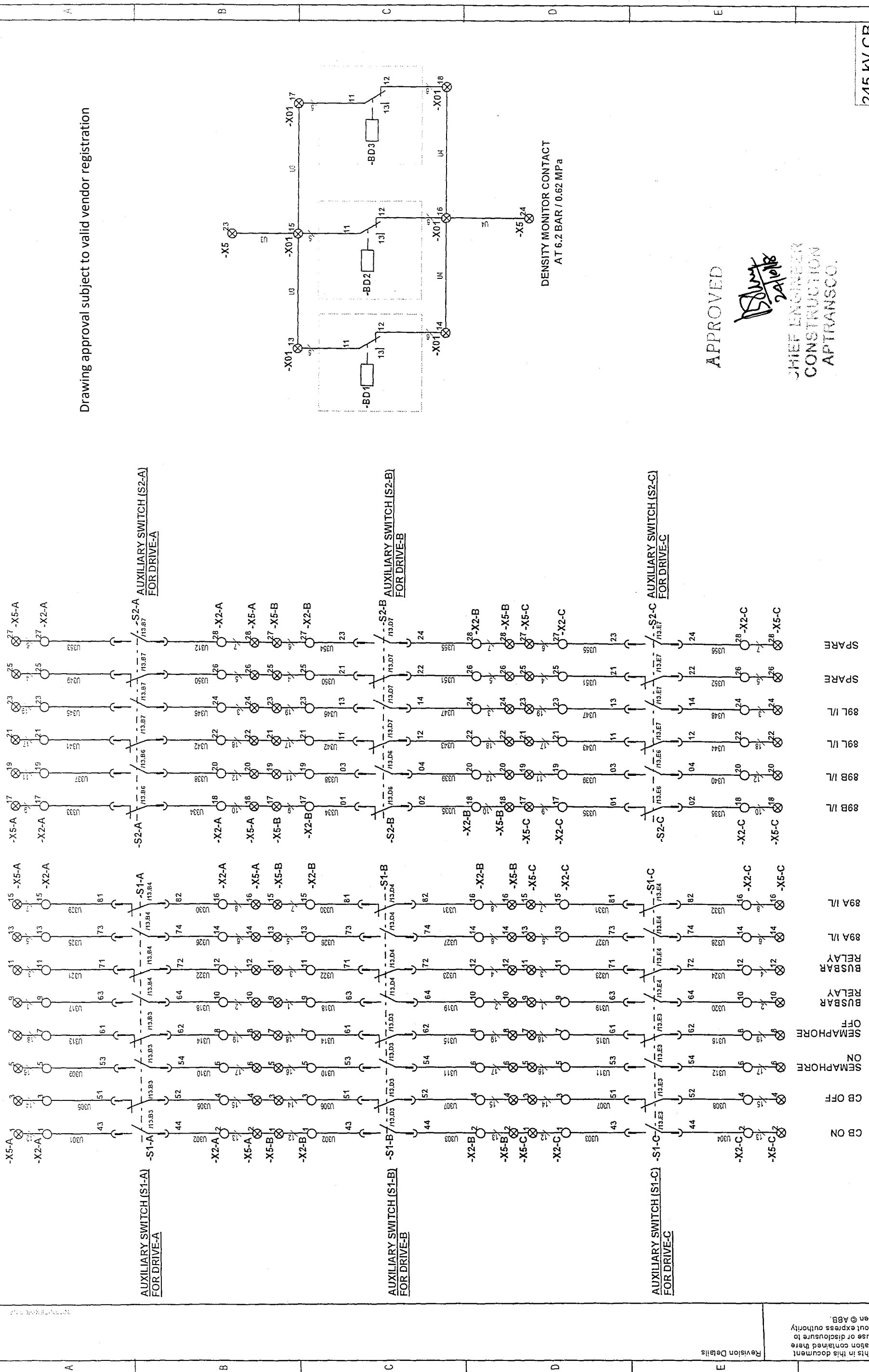
APPROVED UP
DRAWN: MB
CHECKED: TT
ABB India Limited

REF. DRG. NO.: 1HYB990148-3
1HYB990148-003

TOTAL SH 18
SH. NO. 8

245 KV CB

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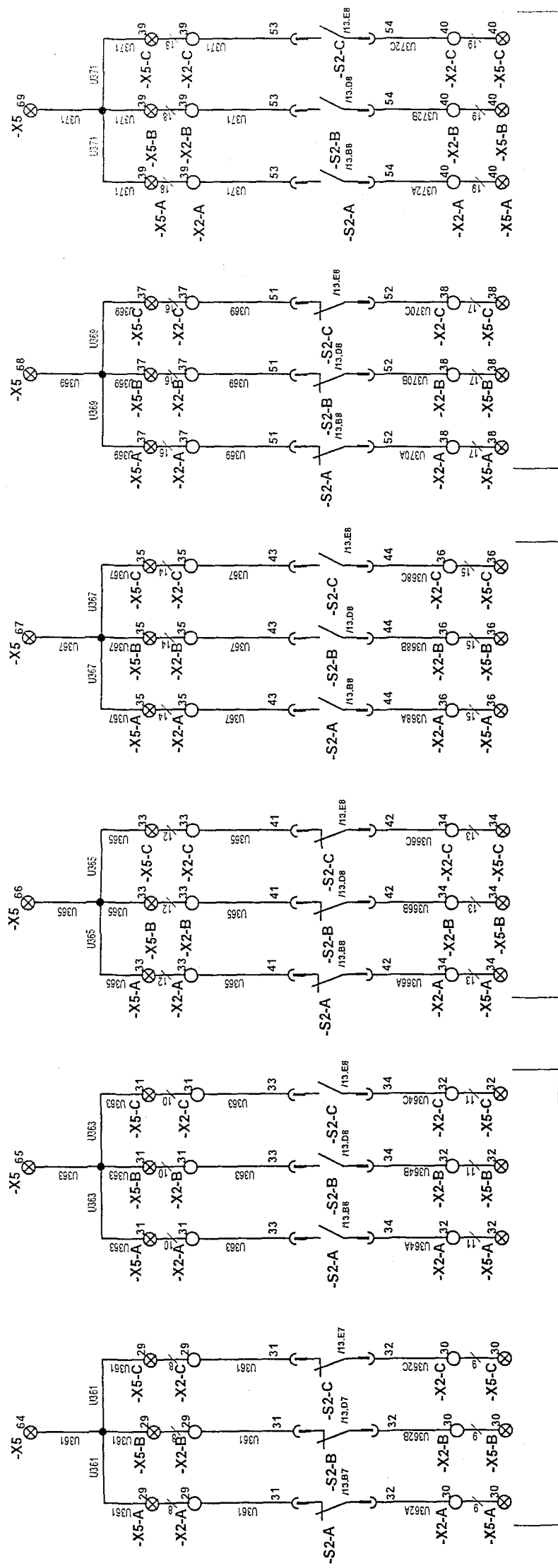
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Revision		DRAWN: MB		CHECKED: TT		APPROD. UP		DENSITY MONITOR CONTACTS		TOTAL SH	
A 20180927		ABB India Limited		1HYB990148-3		1HYB990148-0003		245 kV CB		18	
										SH. NO.	
										9	

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Revision Details

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To Main-1 / Differential Relay

To Main-2 / Back up Relay

To BCU

- S2-A -- AUXILIARY SWITCH - DRIVE-A
- S2-B -- AUXILIARY SWITCH - DRIVE-B
- S2-C -- AUXILIARY SWITCH - DRIVE-C

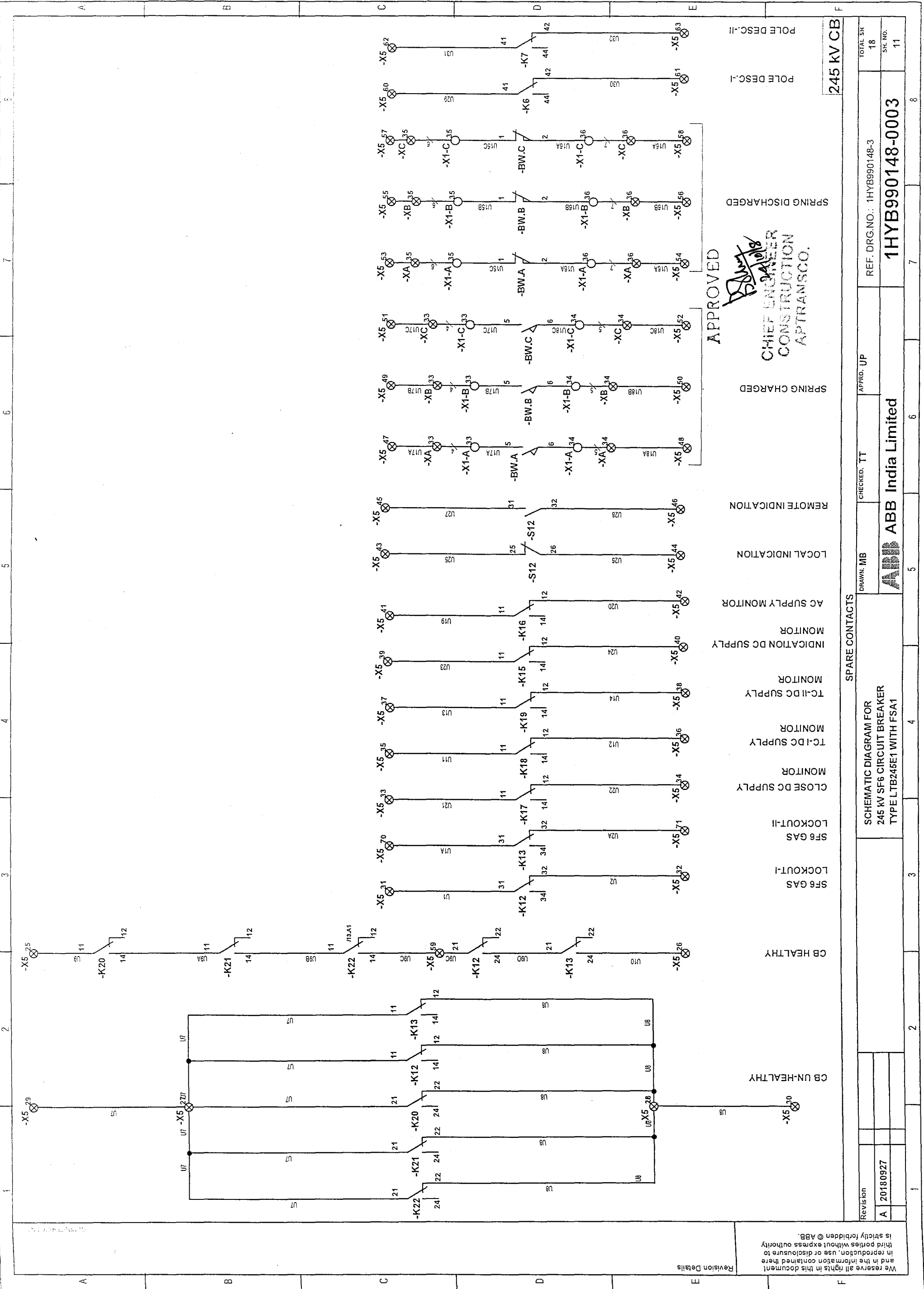
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Revision		DRAWING MB		APPRD. UP		TOTAL SH	
A 20180927		CHECKED. TT		REF. DRG. NO.: 1HYB990148-3		18	
SPARE AUXILIARY SWITCH CONTACTS (7 NO + 3 NC) + (3 NO + 3 NC) = (10 NO + 10 NC)				245 kV CB			
SCHEMATIC DIAGRAM FOR 245 KV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1				1HYB990148-0003			
ABB India Limited				SH. NO. 10			

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Revision	
A	20180927

SPARE CONTACTS	
DRAWN: MB	CHECKED: TT
APPRD: UP	REF. DRG.NO.: 1HYB990148-3

SCHEMATIC DIAGRAM FOR
245 kV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

ABB ABB India Limited

TOTAL SH	18
SH. NO.	11

245 kV CB

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POLE DESC.-I
POLE DESC.-II

SPRING DISCHARGED

SPRING CHARGED

REMOTE INDICATION

LOCAL INDICATION

AC SUPPLY MONITOR

INDICATION DC SUPPLY MONITOR

TC-II-DC SUPPLY MONITOR

TC-I-DC SUPPLY MONITOR

CLOSE DC SUPPLY MONITOR

LOCKOUT-II

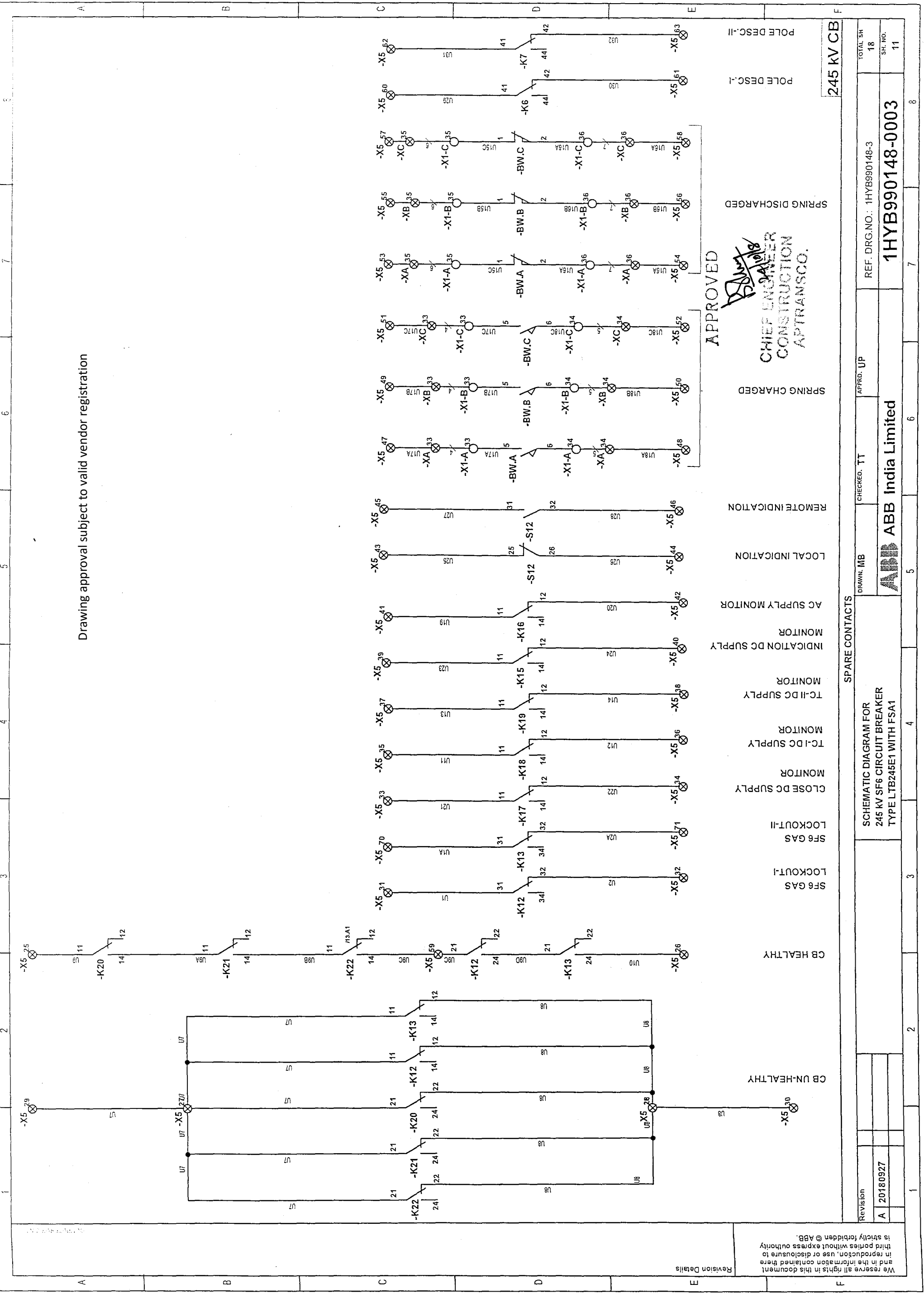
SF6 GAS LOCKOUT-I

SF6 GAS LOCKOUT-II

CB HEALTHY

CB UN-HEALTHY

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DRWNL MB	CHECKED TT	APPRD UP
ABB India Limited		

SPARE CONTACTS

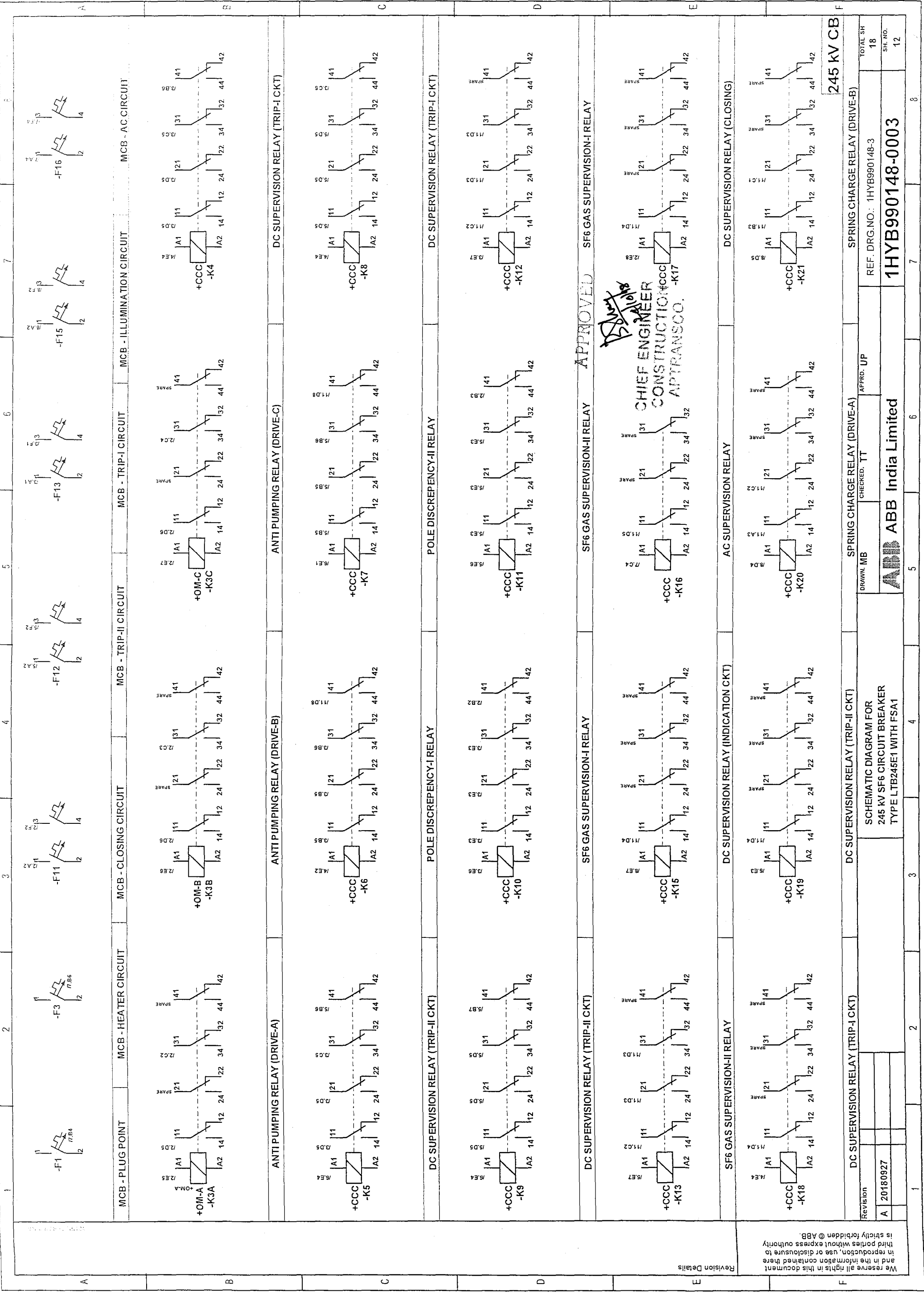
SCHEMATIC DIAGRAM FOR
245 KV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

REF. DRG.NO.: 1HYB990148-3

1HYB990148-0003

TOTAL SH 18
SH. NO. 11

245 KV CB



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245 kV CB
TOTAL SH 18
SH. NO. 12

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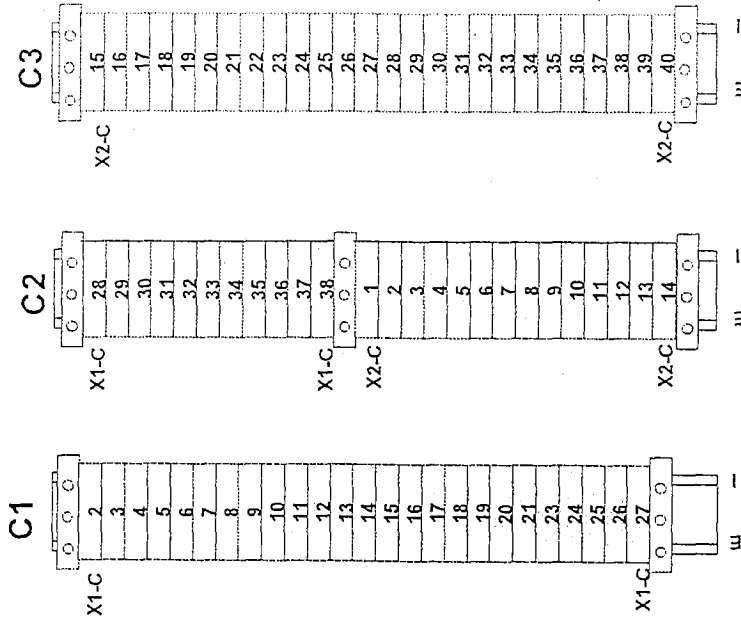
REF. DRG. NO.: 1HYB990148-3
1HYB990148-0003

ABB India Limited

Revision	DC SUPERVISION RELAY (TRIP-I CKT)	SPRING CHARGE RELAY (DRIVE-A)	SPRING CHARGE RELAY (DRIVE-B)
A	20180927	CHECKED: TT	APPROD. UP
		DRAWN: MB	

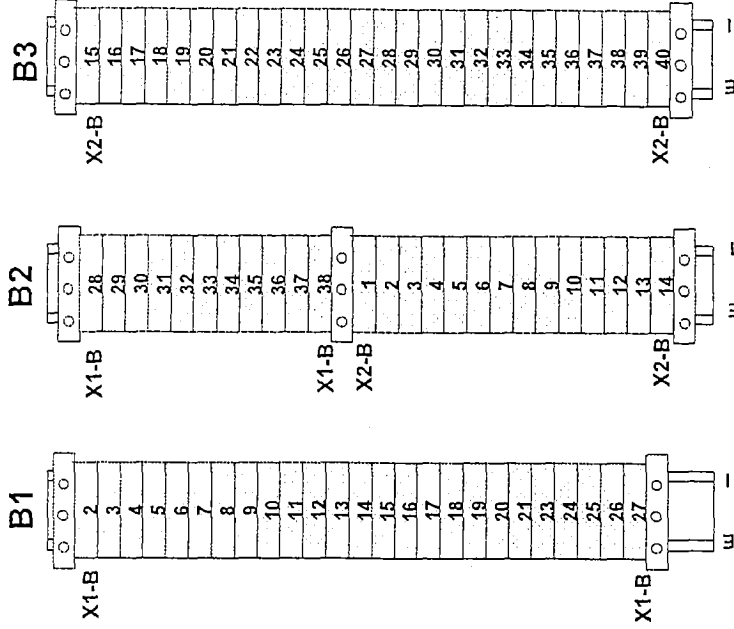
SCHMATIC DIAGRAM FOR
245 KV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

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TYPE : STH3
MAKE : CONNECTWELL

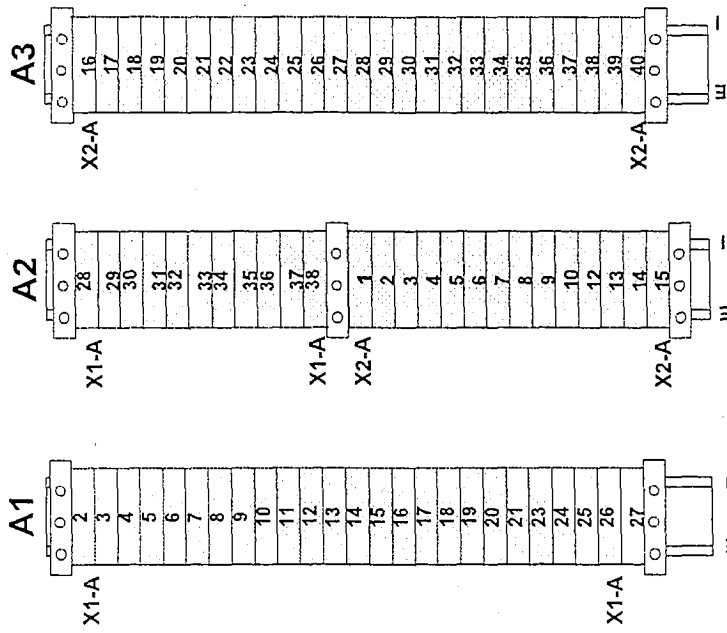
TERMINAL ARRANGEMENT FOR DRIVE -C



TYPE : STH3
MAKE : CONNECTWELL

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TERMINAL ARRANGEMENT FOR DRIVE -B



TYPE : STH3
MAKE : CONNECTWELL

TERMINAL ARRANGEMENT FOR DRIVE -A

NOTE:-
S:- FOR SPARE TERMINAL BLOCK

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DRAWN: MB

CHECKED: TT

APPROD. UP

REF. DRG.NO.: 1HYB990148-3

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SCHEMATIC DIAGRAM FOR
245 KV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1

Revision	NO.
A	20180927

245 KV CB	TOTAL SH
	18
	SH. NO.
	15

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1	2	3	4	5	6	7	8
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Bill of Material

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SL.	ITEM DESIGNATION	DESCRIPTION	MAKE	RATING/TYPE
1	+CCC-CTD-I	CAPACITOR TRIPPING DEVICE-I	--	--
2	+CCC-CTD-II	CAPACITOR TRIPPING DEVICE-II	--	--
3	+CCC-E2	HEATER	RVM/KYOSH	240 V AC, 50 W
4	+CCC-F1	SINGLE POLE MCB - PLUG POINT	ABB/SIEMENS	6 A, 110-250 VAC
5	+CCC-F3	SINGLE POLE MCB - HEATER	ABB/SIEMENS	6 A, 110-250 VAC
6	+CCC-F11	DOUBLE POLE-MCB - CLOSING	ABB/SIEMENS	10A, 220-250 VDC
7	+CCC-F12	DOUBLE POLE-MCB - TRIP CKT-I	ABB/SIEMENS	10A, 220-250 VDC
8	+CCC-F13	DOUBLE POLE-MCB - TRIP CKT-II	ABB/SIEMENS	10A, 220-250 VDC
9	+CCC-F15	DOUBLE POLE-MCB - INDIACTION	ABB/SIEMENS	10A, 220-250 VDC
10	+CCC-F16	DOUBLE POLE-MCB - AC CIRCUIT (HEATER & PP CKT.)	ABB/SIEMENS	10A, 220-250 VDC
11	+CCC-ILP1	LAMP GREEN-BREAKER OFF	ABB/TEKNIK/SIEMENS	220 V DC
12	+CCC-ILP2	LAMP RED-BREAKER ON	ABB/TEKNIK/SIEMENS	220 V DC
13	+CCC-ILP3A	LAMP BLUE-SPRING CHARGE	ABB/TEKNIK/SIEMENS	220 V DC
14	+CCC-ILP3B	LAMP BLUE-SPRING CHARGE	ABB/TEKNIK/SIEMENS	220 V DC
15	+CCC-ILP3C	LAMP BLUE-SPRING CHARGE	ABB/TEKNIK/SIEMENS	220 V DC
16	+CCC-K4	DC SUPERVISION RELAY (TRIP-I)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
17	+CCC-K5	DC SUPERVISION RELAY (TRIP-II)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
18	+CCC-K6	POLE DISCREPENCY RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
19	+CCC-K7	POLE DISCREPENCY RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
20	+CCC-K8	DC SUPERVISION RELAY (TRIP-I)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
21	+CCC-K9	DC SUPERVISION RELAY (TRIP-II)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
22	+CCC-K10	SF6 GAS SUPERVISION-I RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
23	+CCC-K11	SF6 GAS SUPERVISION-II RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
24	+CCC-K12	SF6 GAS SUPERVISION-I RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
25	+CCC-K13	SF6 GAS SUPERVISION-II RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
26	+CCC-K15	DC SUPERVISION RELAY (INDICATION CKT.)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
27	+CCC-K16	AC FAILURE RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 240VAC
28	+CCC-K17	DC SUPERVISION RELAY-CLOSING	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
29	+CCC-K18	DC SUPERVISION RELAY (TRIP-I)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
30	+CCC-K19	DC SUPERVISION RELAY (TRIP-II)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
31	+CCC-K20	SPRING CHARGE INDI. RELAY (DRIVE-A)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
32	+CCC-K21	SPRING CHARGE INDI. RELAY (DRIVE-B)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
33	+CCC-K22	SPRING CHARGE INDI. RELAY (DRIVE-C)	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
34	+CCC-KT6	TIMER-POLE DISCREPENCY-I	EAPL/ABB	24-220V AC/DC
35	+CCC-KT7	TIMER-POLE DISCREPENCY-II	EAPL/ABB	24-220V AC/DC
36	+CCC-L1	LAMP	BAJAJ/PHILIPS/CGL/GELECO	230 V AC, 5 / 11 W
37	+CCC-PB1	PUSH BUTTON	ABB/TEKNIK/SIEMENS	UPTO 250 V
38	+CCC-PB2	PUSH BUTTON	ABB/TEKNIK/SIEMENS	UPTO 250 V
39	+CCC-PP	PLUG AND SOCKET	CGL(SCHNEIDER)/C&S/ABB	10 A, 240 V AC

Revision	20180927	APPARATUS LIST FOR 245 KV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1	DRAWN: MB	CHECKED: TT	APPRD: UP	REF. DRG. NO. 1HYB990148-0003	1HYB990148-0003	245 KV CB
			ABB India Limited				TOTAL SH 18	
							SH. NO. 16	

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Bill of Material

SL.	ITEM DESIGNATION	DESCRIPTION	MAKE	RATING/TYPE
40	+CCC-S12	LOCAL REMOTE SELECTOR SW	SALZER/SIRKE	12A,UPTO 220V
41	+CCC-S13	PUSH BUTTON RED	TEKNIC OR EQUI	UPTO 250 V
42	+CCC-S14	PUSH BUTTON GREEN (TRIP-I)	ABB/TEKNIC/SIEMENS	UPTO 250 V
43	+CCC-S15	PUSH BUTTON GREEN (TRIP-II)	ABB/TEKNIC/SIEMENS	UPTO 250 V
44	+CCC-SL3	LED LAMP WHITE-CTD CHARGE	ABB/TEKNIC/SIEMENS	220 V DC
45	+CCC-SL4	LED LAMP WHITE-CTD CHARGE	ABB/TEKNIC/SIEMENS	220 V DC
46	+CCC-T1	DOOR LIMIT SWITCH(SHROUDED)	KAYCEE/BOHMEN/ELMEX	5A,250VAC
47	+CCC-T2	THERMOSTAT	APT CONTROLS	0-60 DEGREE CENTIGRADE
48	+CCC-X1	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
49	+CCC-X2	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
50	+CCC-X3	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
51	+CCC-X4	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
52	+CCC-X5-A	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
53	+CCC-X5-B	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
54	+CCC-X5-C	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
55	+CCC-X5	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
56	+CCC-X6	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
57	+CCC-X01	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/1.2Nm ,TYPE-STH4
58	+CCC-XA	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/0.5Nm ,TYPE-STH3
59	+CCC-XB	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/0.5Nm ,TYPE-STH3
60	+CCC-XC	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/0.5Nm ,TYPE-STH3
61	+DM-A-BD1	SF6 GAS DENSITY MONITOR	SANGHAI ROYE ELECTRIC/TRAFAG	10A,UP TO 250VDC
62	+DM-B-BD2	SF6 GAS DENSITY MONITOR	SANGHAI ROYE ELECTRIC/TRAFAG	10A,UP TO 250VDC
63	+DM-C-BD3	SF6 GAS DENSITY MONITOR	SANGHAI ROYE ELECTRIC/TRAFAG	10A,UP TO 250VDC
64	+OM-A-BW.A	MOTOR LIMIT SWITCH	ELMEX / SALZER	10A,250VDC
65	+OM-A-E-A2	HEATER	RVMIKIYOSH	240 V AC,50 W
66	+OM-A-F2A	DOUBLE POLE MCB-MOTOR	ABB/SIEMENS	6 A,110-250 V AC
67	+OM-A-K3A	ANTI PUMPING RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O,220VDC
68	+OM-A-L-A2	ILLUMINATION LAMP (DRIVE-A)	BAJAJ/PHILIPS/CGJ/GELECO	230 V AC,5 / 11 W
69	+OM-A-M-A	SPRING CHARGING MOTOR	AGANI/SAHAT	880 W, 240 V
70	+OM-A-S1-A	AUXILIARY SWITCH -I	ELMEX OR EQUI.	220V-2A
71	+OM-A-S2-A	AUXILIARY SWITCH -II	ELMEX OR EQUI.	220V-2A
72	+OM-A-T-A1	DOOR LIMIT SWITCH (SHROUDED)	KAYCEE/BOHMEN/ELMEX	5A,250VAC
73	+OM-A-T-A2	THERMOSTAT	APT CONTROLS	0-60 DEGREE CENTIGRADE
74	+OM-A-X1-A	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/0.5Nm ,TYPE-STH3
75	+OM-A-X2-A	TERMINAL BLOCK	CONNECTWELL	41A, 1000V,6 SQ MM/0.5Nm ,TYPE-STH3
76	+OM-A-Y1-A	CLOSE COIL	ABB / SALZER / ECS	500W
77	+OM-A-Y2-A	TRIP-I COIL	ABB / SALZER / ECS	500W
78	+OM-A-Y3-A	TRIP-II COIL	ABB / SALZER / ECS	500W


REVISION	APPARATUS LIST FOR 245 KV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1	DRAWN MB	CHECKED. TT	APPRD. UP	REF.DRG.NO.1HYB990148-0003	245 kv CB
A 20180927						TOTAL SH 18
						SH. NO. 17

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Revision Details

Bill of Material

SL.	ITEM DESIGNATION	DESCRIPTION	MAKE	RATING/TYPE
79	+OM-B-BW-B	MOTOR LIMIT SWITCH	ELMEX / SALZER	10A, 250VDC
80	+OM-B-E-B2	HEATER	RVM / KIYOSH	240 V AC, 50 W
81	+OM-B-F2B	DOUBLE POLE MCB-MOTOR	ABB/SIEMENS	6 A, 110-250 V AC
82	+OM-B-K3B	ANTI PUMPING RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
83	+OM-B-L-B2	ILLUMINATION LAMP (DRIVE-B)	BAJAJ/PHILIPS/CGI/GELECO	230 V AC, 5 / 11 W
84	+OM-B-M-B	SPRING CHARGING MOTOR	AGANI/SAHAT	880 W, 240 V
85	+OM-B-S1-B	AUXILIARY SWITCH-I	ELMEX OR EQUI.	220V-2A
86	+OM-B-S2-B	AUXILIARY SWITCH-II	ELMEX OR EQUI.	220V-2A
87	+OM-B-T-B1	DOOR LIMIT SWITCH (SHROUDED)	KAYCEE/BOHMEN/ELMEX	5A, 250VAC
88	+OM-B-T-B2	THERMOSTAT	APT CONTROLS	0-60 DEGREE CENTIGRADE
89	+OM-B-X1-B	TERMINAL BLOCK	CONNECTWELL	41A, 1000V, 6 SQ MM/0.5Nm, TYPE-STH3
90	+OM-B-X2-B	TERMINAL BLOCK	CONNECTWELL	41A, 1000V, 6 SQ MM/0.5Nm, TYPE-STH3
91	+OM-B-Y1-B	CLOSE COIL	ABB / SALZER / ECS	500W
92	+OM-B-Y2-B	TRIP-I COIL	ABB / SALZER / ECS	500W
93	+OM-B-Y3-B	TRIP-II COIL	ABB / SALZER / ECS	500W
94	+OM-C-BW-C	MOTOR LIMIT SWITCH	ELMEX / SALZER	10A, 250VDC
95	+OM-C-E-C2	HEATER	RVM OR EQUI	240 V AC, 50 W
96	+OM-C-F2C	DOUBLE POLE MCB-MOTOR	ABB/SIEMENS	6 A, 110-250 V AC
97	+OM-C-K3C	ANTI PUMPING RELAY	ABB/C&S/SIEMENS/SCHNIEDER	4C/O, 220VDC
98	+OM-C-L-C2	ILLUMINATION LAMP (DRIVE-C)	BAJAJ/PHILIPS/CGI/GELECO	230 V AC, 5 / 11 W
99	+OM-C-M-C	SPRING CHARGING MOTOR	AGANI/SAHAT	880 W, 240 V
100	+OM-C-S1-C	AUXILIARY SWITCH-I	ELMEX OR EQUI.	220V-2A
101	+OM-C-S2-C	AUXILIARY SWITCH-II	ELMEX OR EQUI.	220V-2A
102	+OM-C-T-C1	DOOR LIMIT SWITCH (SHROUDED)	KAYCEE/BOHMEN/ELMEX	5A, 250VAC
103	+OM-C-T-C2	THERMOSTAT	APT CONTROLS	0-60 DEGREE CENTIGRADE
104	+OM-C-X1-C	TERMINAL BLOCK	CONNECTWELL	41A, 1000V, 6 SQ MM/0.5Nm, TYPE-STH3
105	+OM-C-X2-C	TERMINAL BLOCK	CONNECTWELL	41A, 1000V, 6 SQ MM/0.5Nm, TYPE-STH3
106	+OM-C-Y1-C	CLOSE COIL	ABB / SALZER / ECS	500W
107	+OM-C-Y2-C	TRIP-I COIL	ABB / SALZER / ECS	500W
108	+OM-C-Y3-C	TRIP-II COIL	ABB / SALZER / ECS	500W

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 CHIEF ENGINEER
 CONSTRUCTION
 APTRANSCO.

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Revision	Checked. TT	Apprd. UP
A 20180927		

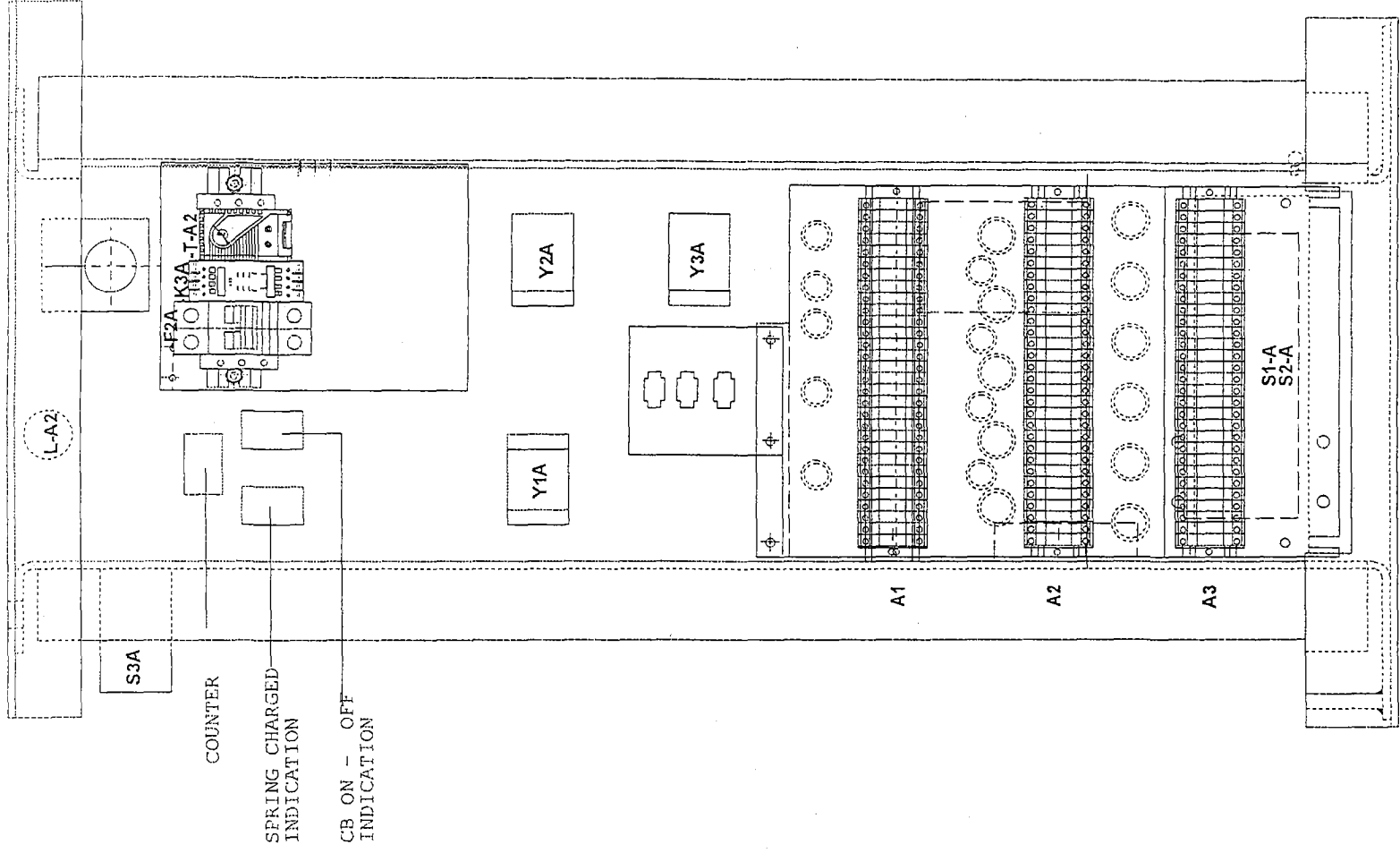
APPARATUS LIST FOR
 245 KV SF6 CIRCUIT BREAKER
 TYPE LTB245E1 WITH FSA1

DRAWN: MB
 CHECKED: TT
 APPRD: UP
ABB ABB India Limited

REF.DRG.NO. 1HYB990148-0003
1HYB990148-0003
 TOTAL SH 18
 SH. NO. 18

245 KV CB

Drawing approval subject to valid vendor registration



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[Signature]
 24/10/14
 CHIEF ENGINEER
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 APTRANSCO.

NOTE:-

- 1) LAYOUT OF POLE A / B / C.
- 2) COMPONENT LAYOUT IS FOR INDICATING PURPOSE,
MAY CHANGED DURING SUPPLY IF REQUIRED DURING ACTUAL MOUNTING.

Revision Details

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Revision

A 20180921

END CUSTOMER : APTRANSCO

LAYOUT ELECTRIC COMP.(POLE -A / B / C)
 FOR 245KV SF6 CIRCUIT BREAKER
 TYPE LTB245E1/B WITH FSA1.

DRAWN MB

CHECKED: TT

APPRD. UP

ABB ABB India Limited

REF. DRG.NO.: 1HYB990148-0003

1HYB990148-0013

245 kV CB

TOTAL SH

1

SH. NO.

1

1

2

3

4

5

6

7

8

COMPUTER ORIGINAL

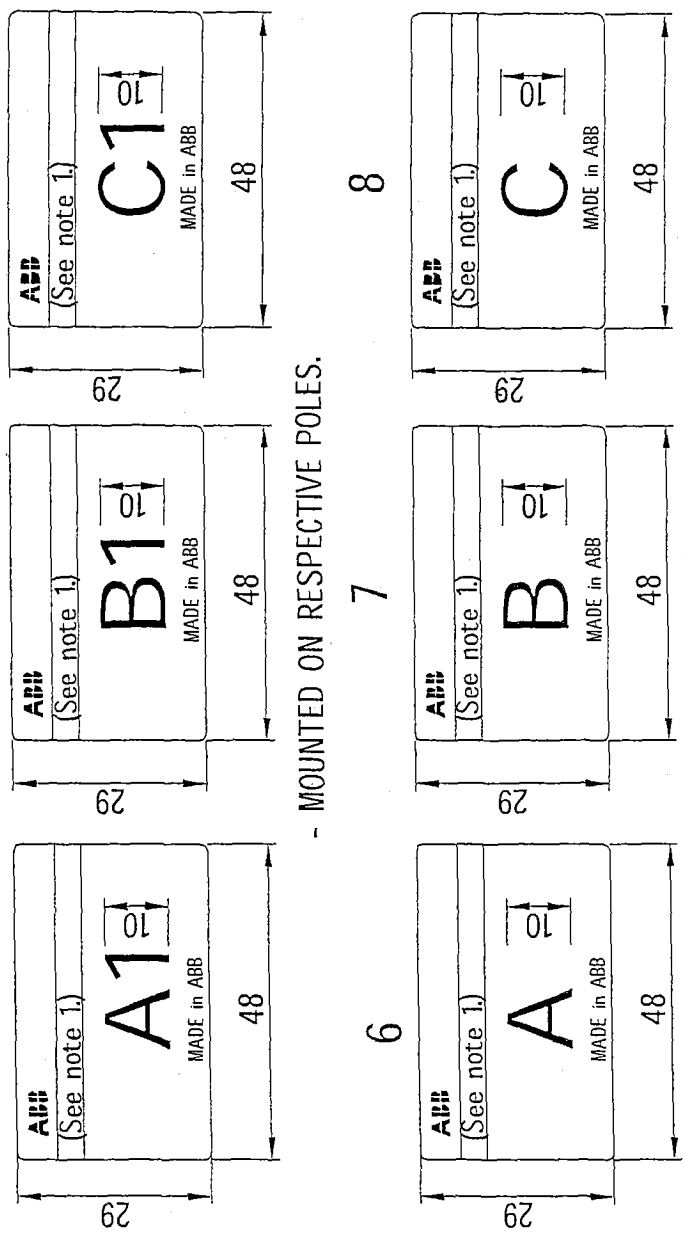
ABB MADE in ABB	
Circuit-breaker type	LTB245E1
Operating device type	FSA1
No. (See note 1.)	AS APPLICABLE
Order	AS APPLICABLE
Voltage	245 kV
Insulation level	49 %
lightning imp.with.voltage	1050 kV
switching imp.with.voltage	-kV
power frequency with.voltage	460 kV
Frequency	50 Hz
Normal current	3150 A
Gas pressure SF6	abs (+20°C)
Max working pressure	0.9 MPa
Filling	0.7 MPa
Signal	0.62 MPa
Blocking	0.6 MPa
Volume per pole	155 Litre
(L=litre, Signal = SF6 Gas low, Blocking = Lockout)	
END CUSTOMER : APTRANSCO	SCHEMATIC DRAWING NO.1HYB990148-0003
PO NO. : AS APPLICABLE	

ABB MADE in ABB	
Operating mechanism Type FSA1	
Mass	200 kg
Rated voltage	245kV
Coils	220 VDC
Motor	240 VAC
Heater	240 VAC
	50W

- MOUNTED ON RESPECTIVE DRIVES
- Letter height 2 & line 0.3 thk.
- Blank text is to be engraved at ABB.
- Text to be filled with Sun-proof black ink.
- Language English

NOTE:-

1. CIRCUIT BREAKER SERIAL NO. NOTED IN THIS SPACE.
 2. OPERATING MECHANISM SERIAL NO. NOTED IN THIS SPACE.
- FOR ITEM NO. 1
- Engraved on natural background.
 - Letter height 3.5 & line 0.3 thk.
 - Blank text is to be engraved at ABB.
 - General tolerance as per ISO 2768-c:89.
 - Stainless steel plate
 - Text to be filled with Sun-proof black ink.
 - Language English



192
- MOUNTED ON MARSHALLING BOX.

- MOUNTED ON RESPECTIVE POLES.

- MOUNTED ON RESPECTIVE DRIVES.

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[Signature]
24/10/18

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CONSTRUCTION
APTTRANSCO.

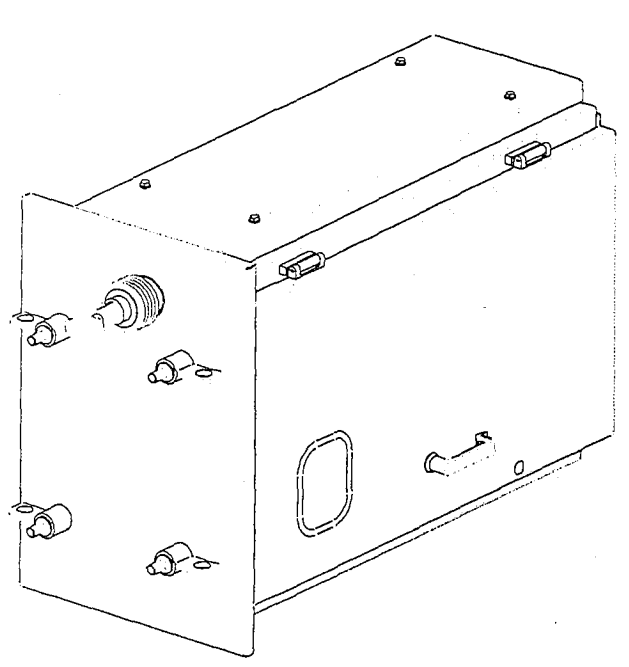
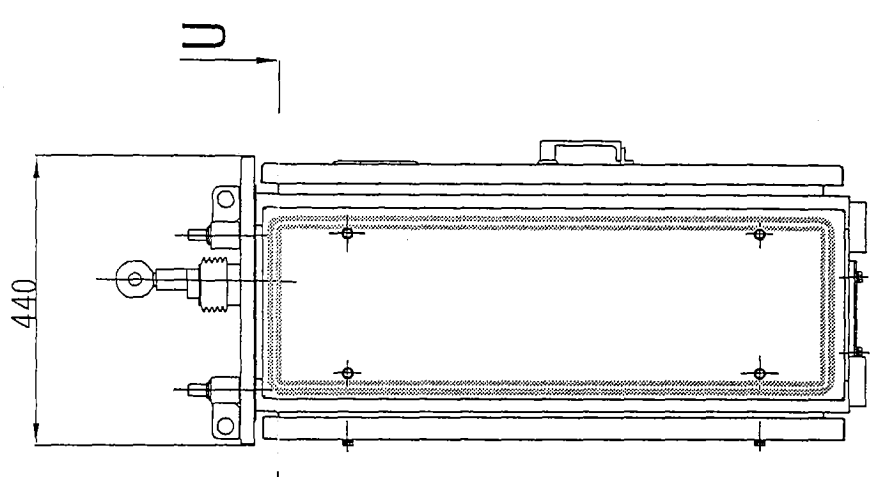
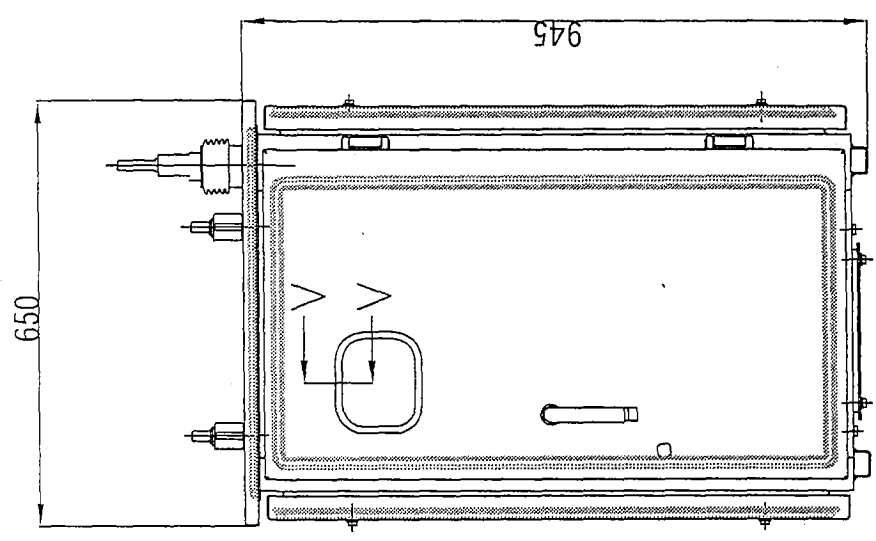
Drawing approval subject to valid vendor registration

Prepared: MB	Checked: TT	Approved: UP	Material:- S.S. 07Cr18Ni9 IS:6911-'92
Without Sep.PL <input checked="" type="checkbox"/>	Sep.PL Some No: <input type="checkbox"/>	Sep.PL Other No: <input type="checkbox"/>	Title
Derived from:	Supersedes:	Superseded by:	RATING PLATES FOR 245kV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1
Revision: A 20180927			Scale -
ABB India Limited			Lang. E
1HYB990148-0009			Total Sh. 1
5			Sheet 1

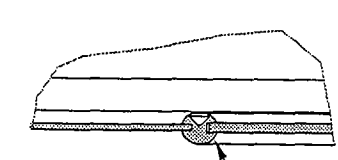
245 kV CB

COMPUTER ORIGINAL

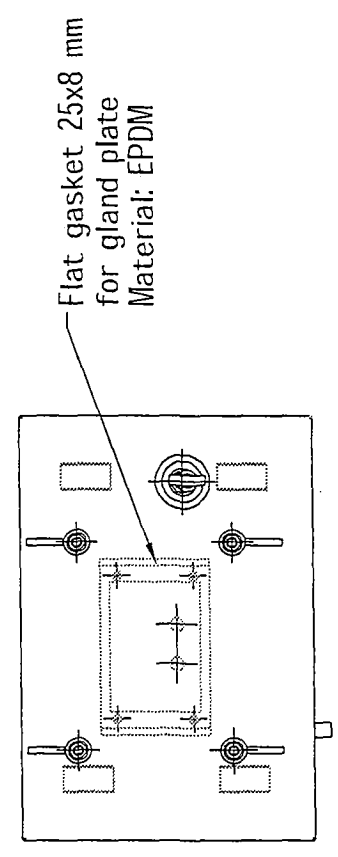
Revision: -
 (A) New document prepared.
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V-V
1:2

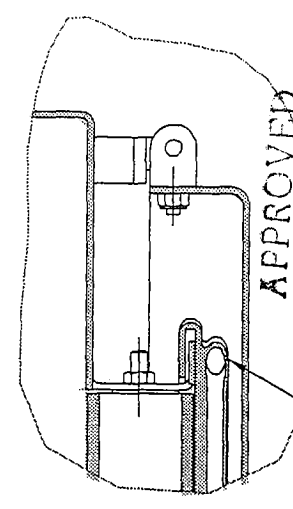


Door glass gasket
Material: EPDM



Flat gasket 25x8 mm
for gland plate
Material: EPDM

U-U
1:2



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Material : Steel 2 mm
Colour : 631 IS:5

Bubble type gasket used in front, top, back and side cover
Material: EPDM

APPROVED
 PS Murthy
 CHIEF ENGINEER
 CONSTRUCTION
 APTRANSOCO.

Prepared: MB	Checked: TT	Approved: JJP	Title	
Without Sep.PL <input checked="" type="checkbox"/>	Sep.PL Same No. <input type="checkbox"/>	Sep.PL Other No. <input type="checkbox"/>	GENERAL ARRANGEMENT	
Derived from: 2GHV020013 Rev.A	Supersedes:	Superseded by:	CONTROL CABINET (SLAVE) WITH OPERATING MECHANISM FSA1 FOR 245KV SF6 CIRCUIT BREAKER LTB245E1	
Revision: A 2018-10-11			Scale	1
		245 KV CB		Lang: E
				Total Sh. 1
				Sheet 1
ABB India Limited.		1HYB990148-0006		6

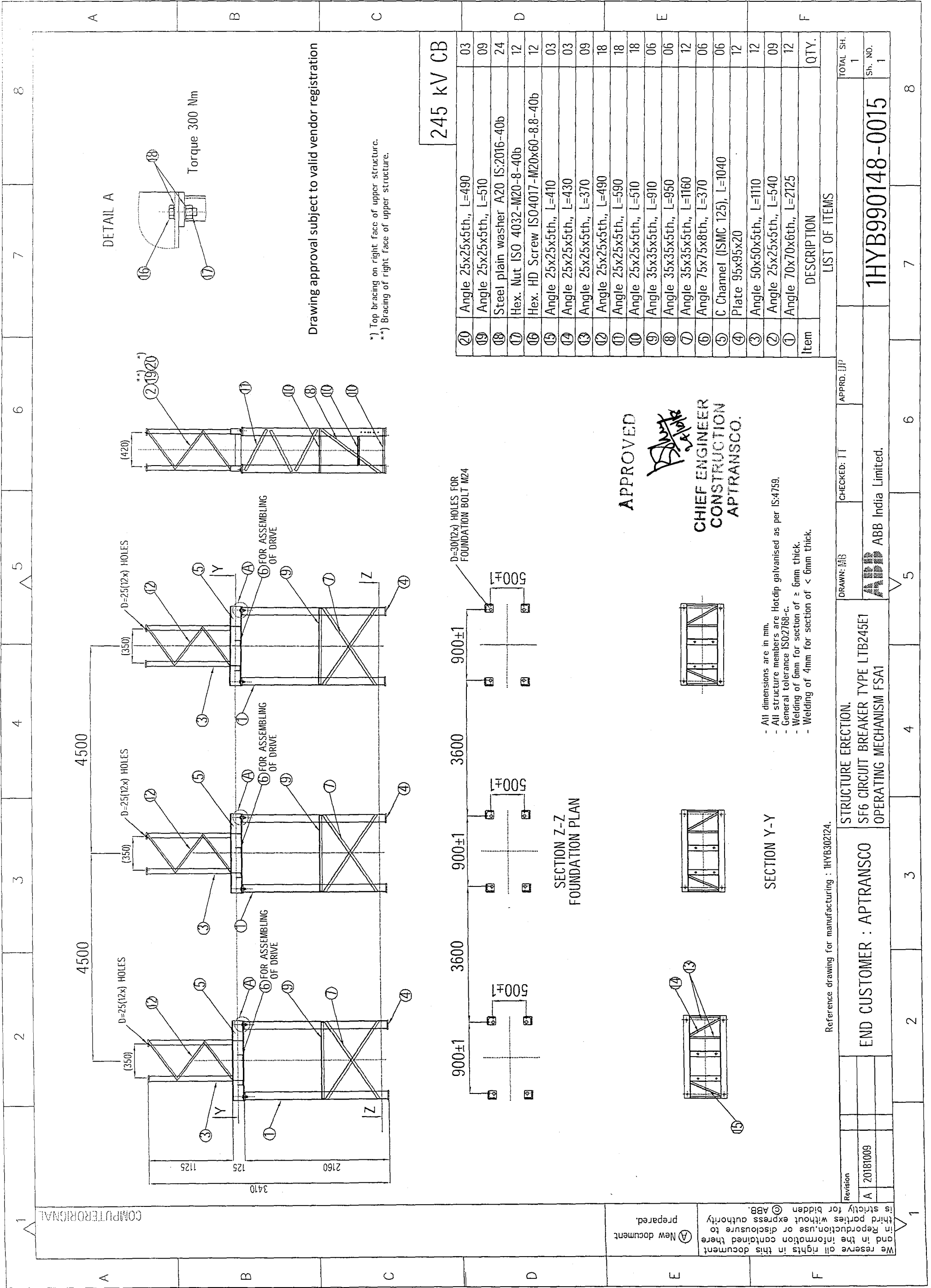
Note:
 -General tolerance as per ISO 2768-cL

50 30 0 30 50

4

5

6



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*) Top bracing on right face of upper structure.
 **) Bracing of right face of upper structure.

Item	DESCRIPTION	QTY.
20	Angle 25x25x5th., L=490	03
19	Angle 25x25x5th., L=510	09
18	Steel plain washer A20 IS:2016-40b	24
17	Hex. Nut ISO 4032-M20-8-40b	12
16	Hex. HD Screw ISO4017-M20x60-8.8-40b	12
15	Angle 25x25x5th., L=410	03
14	Angle 25x25x5th., L=430	03
13	Angle 25x25x5th., L=370	09
12	Angle 25x25x5th., L=490	18
11	Angle 25x25x5th., L=590	18
10	Angle 25x25x5th., L=510	18
9	Angle 35x35x5th., L=910	06
8	Angle 35x35x5th., L=950	06
7	Angle 35x35x5th., L=1160	12
6	Angle 75x75x8th., L=370	06
5	C Channel (ISMC 125), L=1040	06
4	Plate 95x95x20	12
3	Angle 50x50x5th., L=1110	12
2	Angle 25x25x5th., L=540	09
1	Angle 70x70x6th., L=2125	12

LIST OF ITEMS		TOTAL SH.
		1
1HYB990148-0015		Sh. NO. 1

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- All dimensions are in mm.
- All structure members are Hotdip galvanized as per IS:4759.
- General tolerance IS:2768-c.
- Welding of 6mm for section of ≥ 6 mm thick.
- Welding of 4mm for section of < 6 mm thick.

Revision	20181009	APPROD. IIT	CHECKED: JIT	APPROD. IIT
END CUSTOMER : APTRANSCO		DRAWN: ABB		
STRUCTURE ERECTION.		APPROD. IIT		
SF6 CIRCUIT BREAKER TYPE LTB245E1		APPROD. IIT		
OPERATING MECHANISM FSA1		APPROD. IIT		

Revision	20181009	APPROD. IIT	CHECKED: JIT	APPROD. IIT
END CUSTOMER : APTRANSCO		DRAWN: ABB		
STRUCTURE ERECTION.		APPROD. IIT		
SF6 CIRCUIT BREAKER TYPE LTB245E1		APPROD. IIT		
OPERATING MECHANISM FSA1		APPROD. IIT		

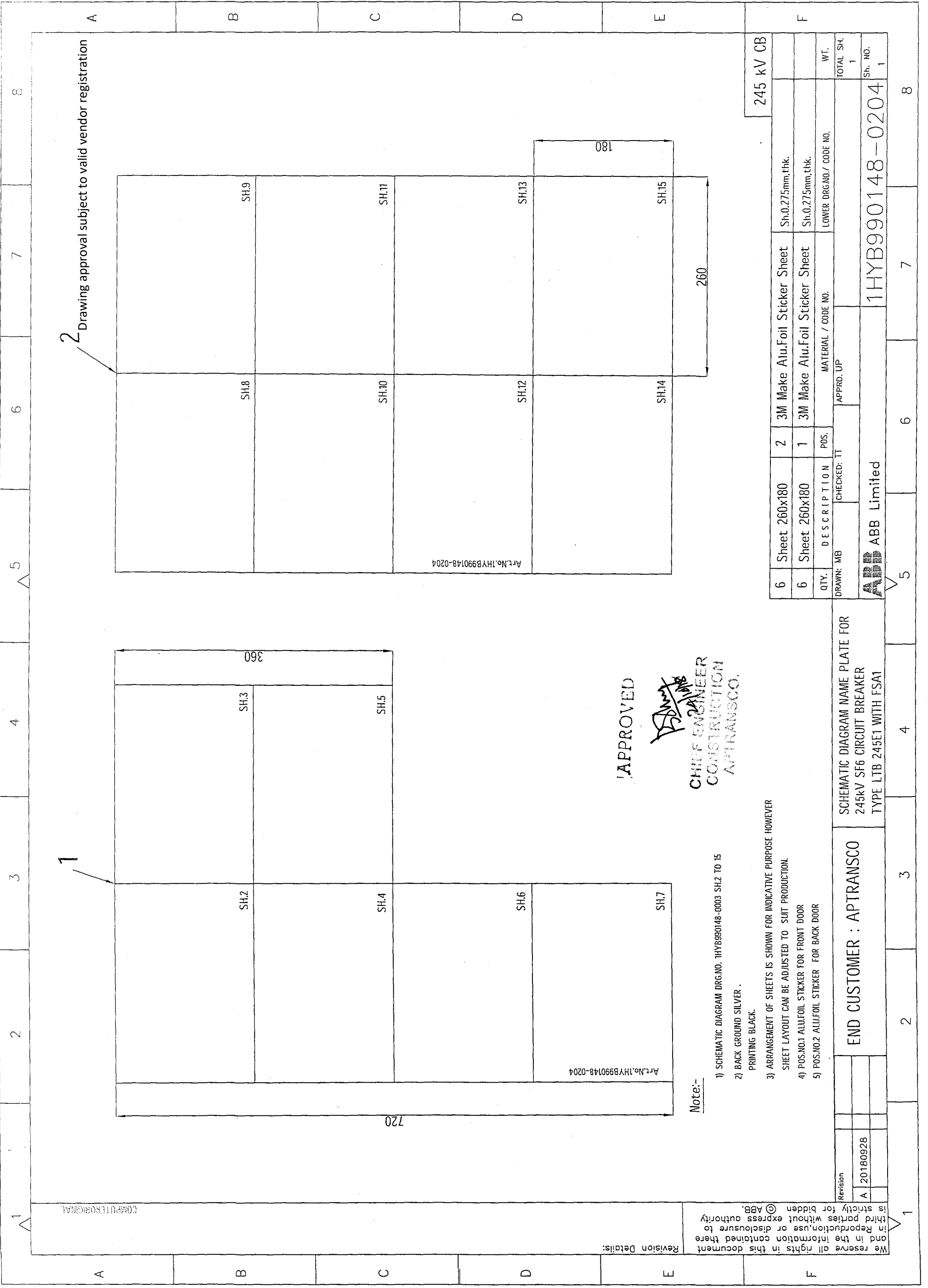
Revision	20181009	APPROD. IIT	CHECKED: JIT	APPROD. IIT
END CUSTOMER : APTRANSCO		DRAWN: ABB		
STRUCTURE ERECTION.		APPROD. IIT		
SF6 CIRCUIT BREAKER TYPE LTB245E1		APPROD. IIT		
OPERATING MECHANISM FSA1		APPROD. IIT		

Revision	20181009	APPROD. IIT	CHECKED: JIT	APPROD. IIT
END CUSTOMER : APTRANSCO		DRAWN: ABB		
STRUCTURE ERECTION.		APPROD. IIT		
SF6 CIRCUIT BREAKER TYPE LTB245E1		APPROD. IIT		
OPERATING MECHANISM FSA1		APPROD. IIT		

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Ⓐ New document prepared.

1



1

2 Drawing approval subject to valid vendor registration

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 APTRANSCO.

Note:-

- 1) SCHEMATIC DIAGRAM DRG.NO. 1HYB990148-0003 SH.2 TO 15
- 2) BACK GROUND SILVER . PRINTING BLACK.
- 3) ARRANGEMENT OF SHEETS IS SHOWN FOR INDICATIVE PURPOSE HOWEVER SHEET LAYOUT CAN BE ADJUSTED TO SUIT PRODUCTION.
- 4) POS.NO.1 ALU.FOIL STICKER FOR FRONT DOOR
- 5) POS.NO.2 ALU.FOIL STICKER FOR BACK DOOR

Revision	Date
A	20180928

END CUSTOMER : APTRANSCO

SCHEMATIC DIAGRAM NAME PLATE FOR
 245kV SF6 CIRCUIT BREAKER
 TYPE LTB 245E1 WITH FSA1

6	Sheet 260x180	2	3M Make Alu.Foil Sticker Sheet	Sh.0.275mm,thk.	245 kV CB
6	Sheet 260x180	1	3M Make Alu.Foil Sticker Sheet	Sh.0.275mm,thk.	
QTY.	DESCRIPTION	POS.	MATERIAL / CODE NO.	WT.	TOTAL SH.
					1
DRAWN: MB				APPROD. UP	Sh. NO.
CHECKED: TT					1
ABB Limited					1HYB990148-0204

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Revision Details:

1