

A	B	C	D	E	F	7	8
LIST OF STANDARD DRAWINGS 245kV SF6 CIRCUIT BREAKER TYPE LTB245E1							
SR. NO.	REFERENCE DOCUMENT	DESCRIPTION	A	B	C	D	E
1	1HYB990148-0001	GENERAL ARRANGEMENT	B	C	D	E	F
2	1HYB990148-0003	SCHEMATIC DIAGRAM	B	C	D	E	F
3	1HYB990148-0013	ELECTRICAL LAYOUT (OPERATING MECHANISM)	B	C	D	E	F
4	1HYB990148-0005	ELECTRICAL LAYOUT (MARSHALLING BOX)	B	C	D	E	F
5	1HYB990148-0009	RATING PLATE	B	C	D	E	F
6	1HYB990148-0006	OPERATING MECHANISM CABINET	B	C	D	E	F
7	1HYB990148-0015	SUPPORT STRUCTURE	B	C	D	E	F
8	1HYB990148-0204	SCHEMATIC DIAGRAM PLATE	B	C	D	E	F
		Drawing approval subject to valid vendor registration	B	C	D	E	F
END CUSTOMER	APTRANSO.		B	C	D	E	F
CLIENT	AS APPLICABLE		B	C	D	E	F
P.O.NO.	AS APPLICABLE		B	C	D	E	F
CONTROL VOLTAGE CLOSE/TRIP	220 VDC.		B	C	D	E	F
SPRING DRIVE MOTOR VOLTAGE	240 VAC.		B	C	D	E	F
HEATER VOLTAGE	240 VAC.		B	C	D	E	F
ABB.S.O.NO.	AS APPLICABLE		B	C	D	E	F
LINE ITEM	AS APPLICABLE		B	C	D	E	F
QTY.	AS APPLICABLE		B	C	D	E	F
GENERAL COMMENTS	1. Plug-in type relays of any make (Ex: PLA, IE Connectivity) are not allowed. 2. All wiring from mechanism box to the marshaling box must be completed at mechanism box end duly providing necessary length of cable with ferrules, lugs and glands terminated at the other so that only marshaling box end wiring is to be done at site. 3. Marshaling box/ Common control cubicle must be provided separately. 4. SFG Pressure Gauge should have both Green and Red Zones. 5. Provide Hand Railing for both Ladder and Platform. 6. NRV to be provided as per APTRANSO Specification.		B	C	D	E	F
Revision Details:	Revision	Revision	B	C	D	E	F
A	20180927	END CUSTOMER : APTRANSO	B	C	D	E	F
DRAWN: MB	CHECKED: TT	APPRD. UP	B	C	D	E	F
ABB India Limited	ABB India Limited	ABB India Limited	B	C	D	E	F
1HYB990148-0100	1HYB990148-0100	1HYB990148-0100	B	C	D	E	F
TOTAL SH.	1	1	B	C	D	E	F
245 kV CB	245 kV CB	245 kV CB	B	C	D	E	F

COMPUTER ORIGINAL

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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.

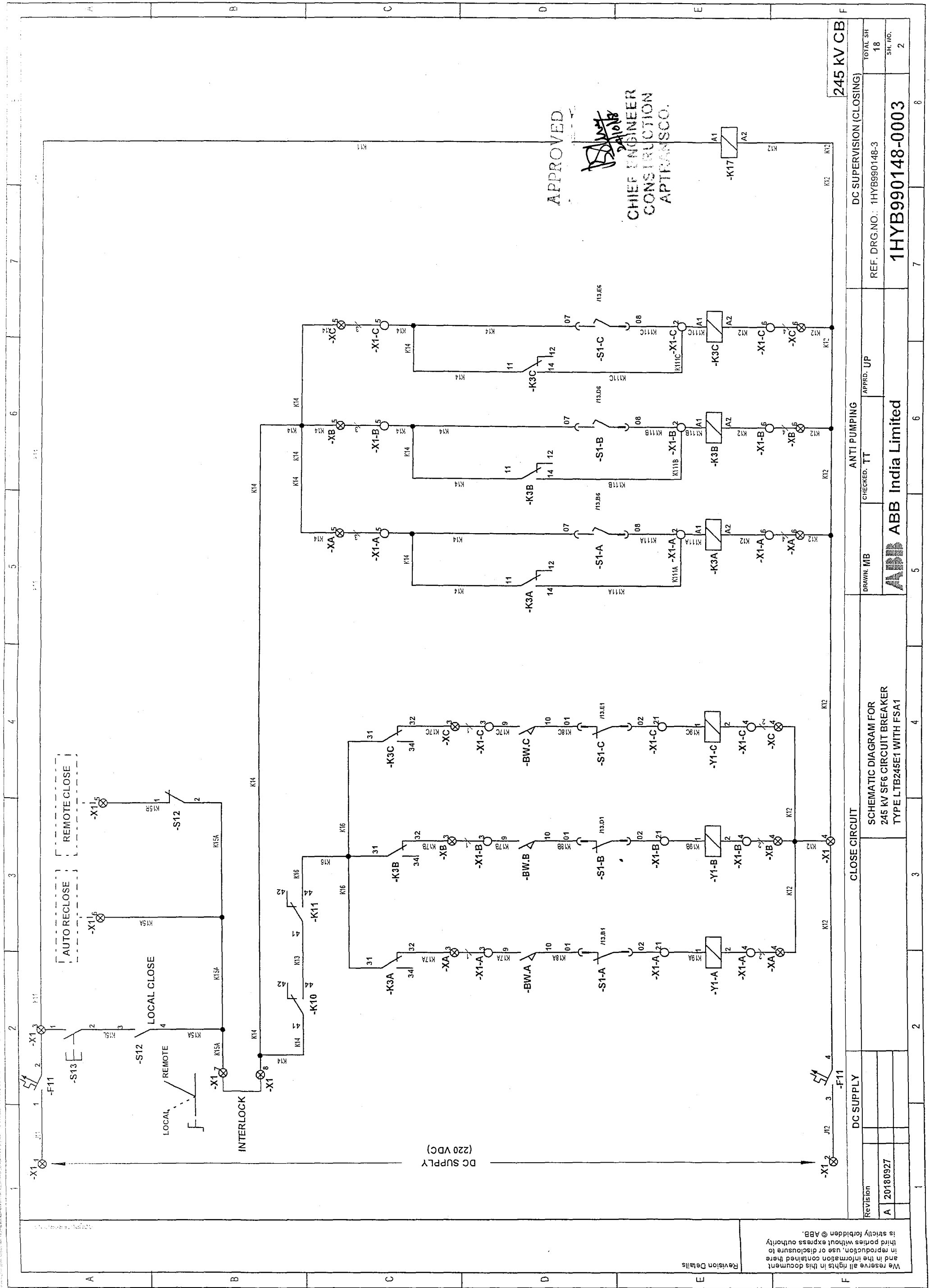
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**CUSTOMER CONNECTIONS ARE WITH TERMINAL BLOCK CONNECTWELL MAKE TYPE STH4.
INTERNAL MECHANISM CONNECTIONS ARE WITH TERMINAL BLOCK CONNECTWELL MAKE TYPE STH3.**

Revision		DRAWN, MB	CHECKED, TT	APPRD, UP	REF. DRG.NO: 1HYB990148-3	245 KV CB
A	20180927	ABB India Limited			1HYB990148-0003	TOTAL SH 18
						SH. NO. 1

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245 kV CB

DC SUPERVISION (CLOSING)	REF. DRG. NO.: 1HYB990148-3	TOTAL SH
ANTI PUMPING	APPRD. UP	18
DC SUPPLY	1HYB990148-0003	SH. NO.
		2

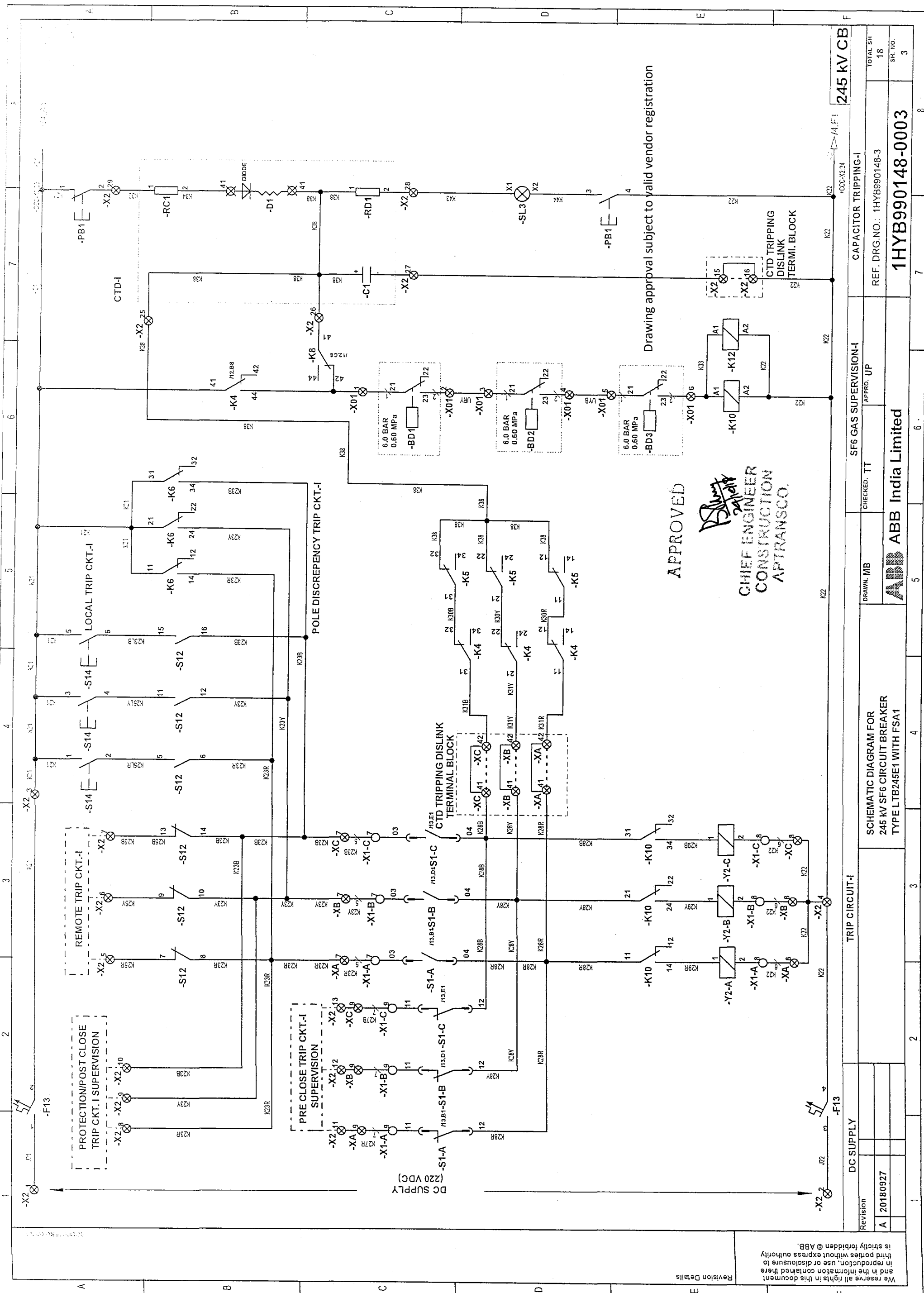
DC SUPPLY	ANTI PUMPING	DC SUPERVISION (CLOSING)
Revision	CHECKED. TT	REF. DRG. NO.: 1HYB990148-3
A 20180927	APPRD. UP	TOTAL SH
		18
		SH. NO.
		2

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

Revision	DC SUPPLY	CLOSE CIRCUIT
A 20180927	ANTI PUMPING	DC SUPERVISION (CLOSING)
	APPRD. UP	REF. DRG. NO.: 1HYB990148-3
		TOTAL SH
		18
		SH. NO.
		2

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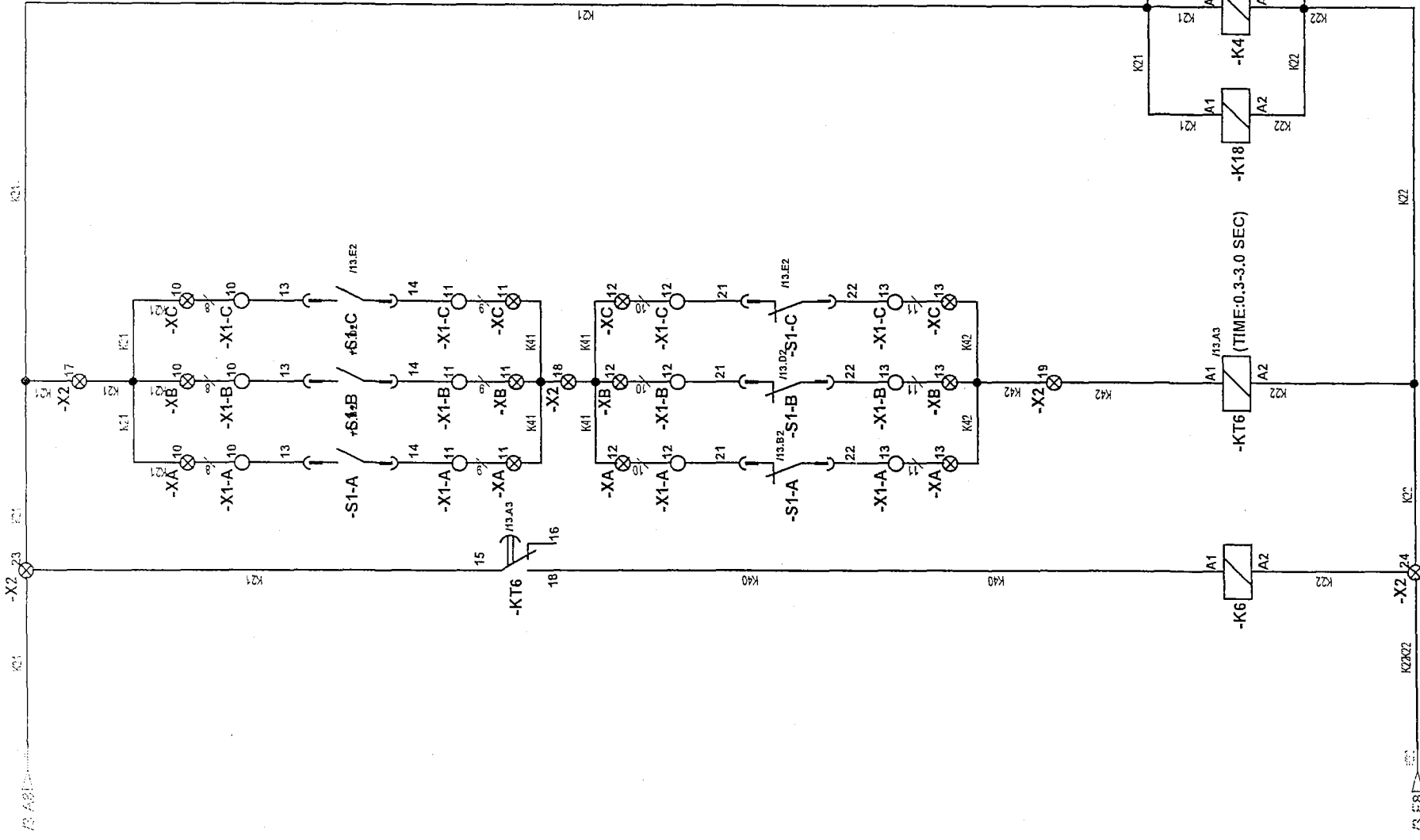
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Revision		DC SUPPLY		TRIP CIRCUIT-I		SF6 GAS SUPERVISION-I		CAPACITOR TRIPPING-I		245 kV CB	
A	20180927					DRAWN: MB		CHECKED: TT		REF. DRG. NO.: 1HYB990148-3	
				SCHEMATIC DIAGRAM FOR 245 kV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1				APPROD. UP			
				ABB India Limited				1HYB990148-0003			
				5				6			
				3				7			
				2				8			
				1				TOTAL SH 18			
								SH. NO. 3			

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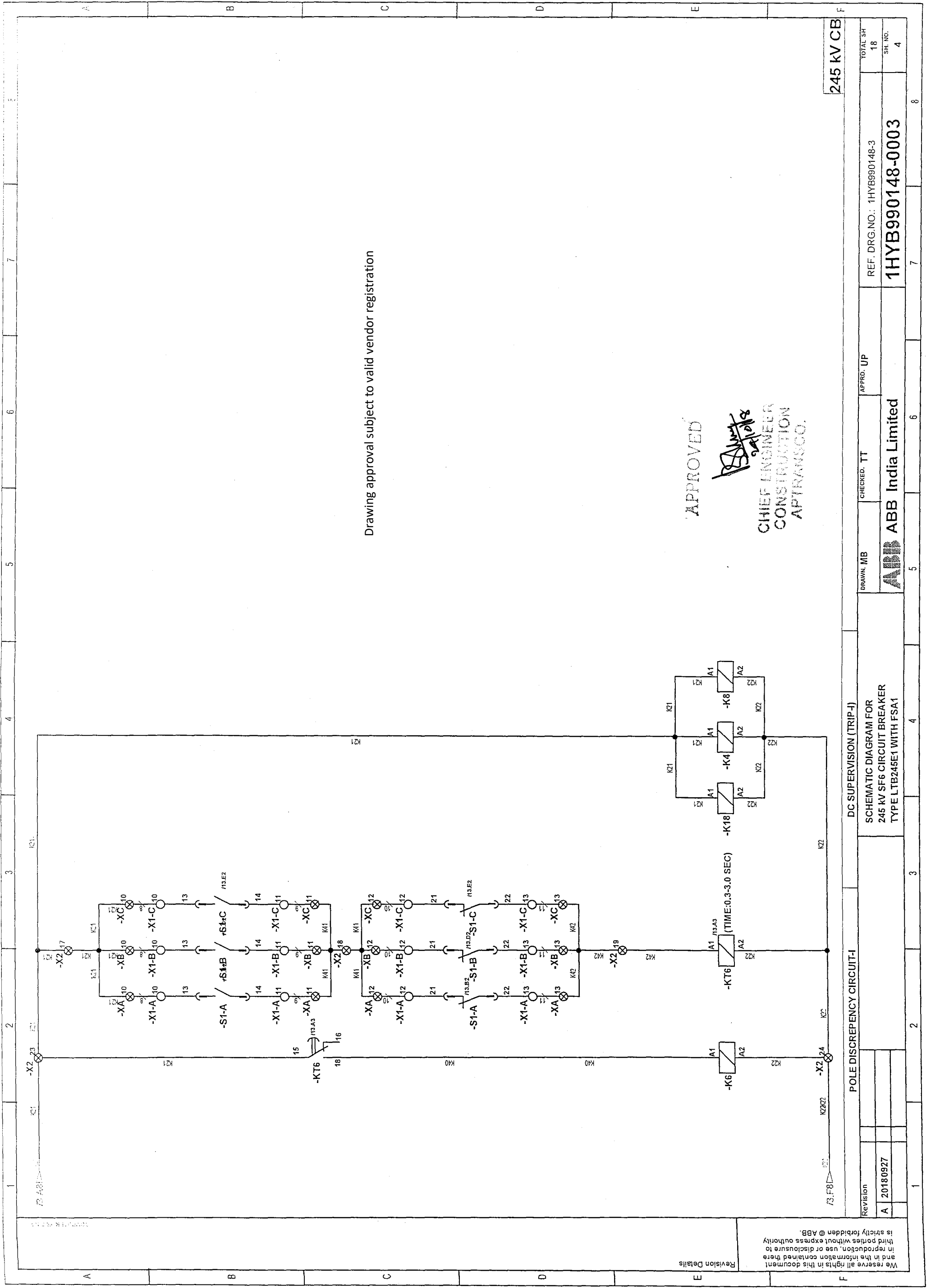


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Revision		DC SUPERVISION (TRIP-1)		DRAWN: MB		CHECKED: TT		APPRD.: UP		REF. DRG. NO.: 1HYB990148-3		TOTAL SH	
A 20180927		SCHEMATIC DIAGRAM FOR 245 KV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1		ABB India Limited		1HYB990148-0003						18	
												SH. NO. 4	
1		2		3		4		5		6		7	
8		9		10		11		12		13		14	

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245 kV CB



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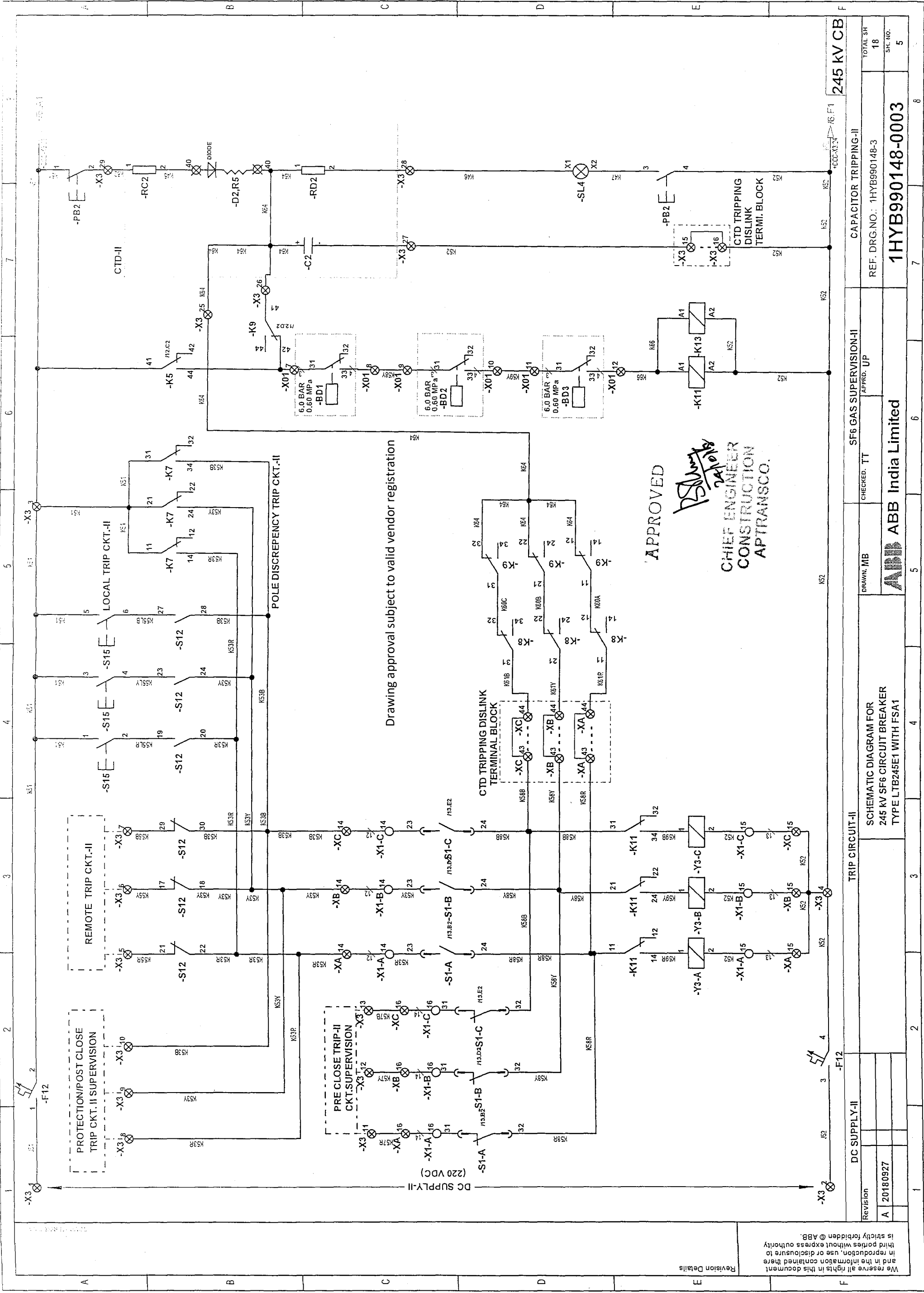
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Revision Details

Revision	
A	20180927

Revision		DC SUPERVISION (TRIP-I)		POLE DISCREPANCY CIRCUIT-I		DC SUPERVISION (TRIP-I)		DRAWN: MB		CHECKED: TT		APPROD. UP		REF. DRG. NO.: 1HYB990148-3		TOTAL SH	
A								ABB		ABB India Limited				1HYB990148-0003		18	
																SH. NO. 4	
																245 KV CB	

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

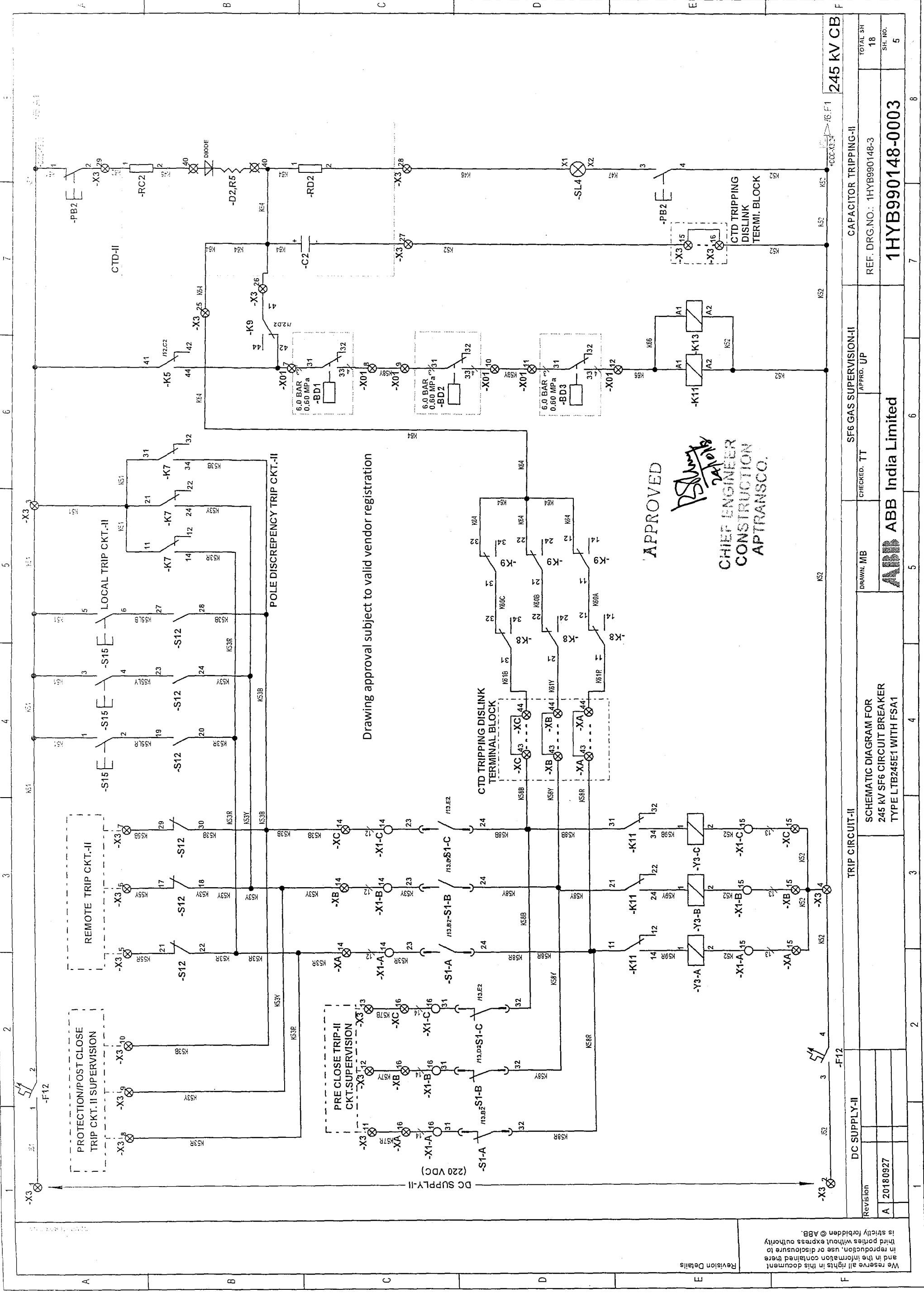


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Revision		DC SUPPLY-II		TRIP CIRCUIT-II		SF6 GAS SUPERVISION-II		CAPACITOR TRIPPING-II		245 kV CB	
A 20180927						CHECKED: TT		APPRD. UP		REF. DRG. NO.: 1HYB990148-3	
						DRAWN: MB				TOTAL SH 18	
						ABB India Limited				SH. NO. 5	
									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

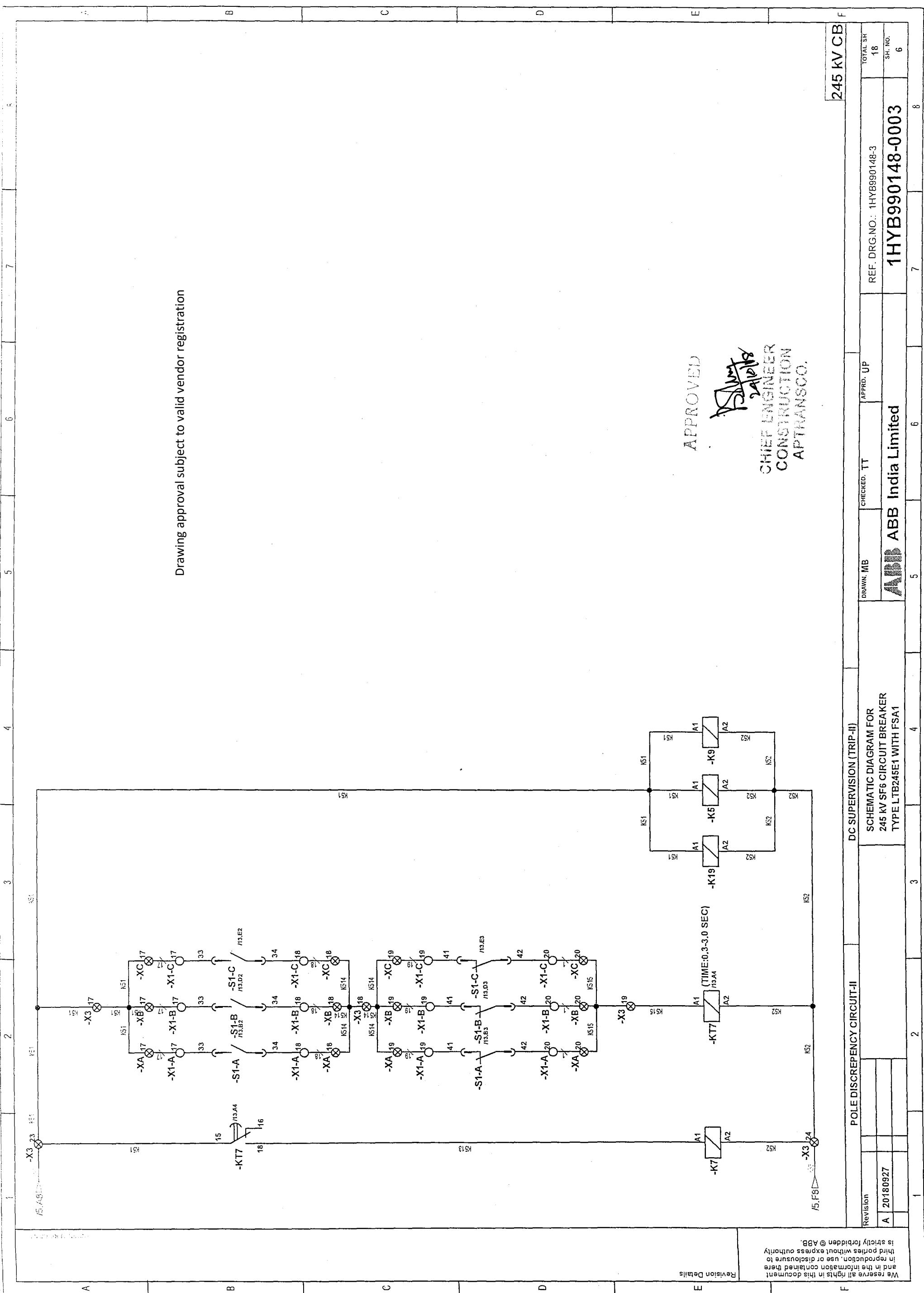


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Revision Details

Revision		DC SUPPLY-II		TRIP CIRCUIT-II		SF6 GAS SUPERVISION-II		CAPACITOR TRIPPING-II		245 kV CB	
A 2018 0927						CHECKED: TT		APPRD. UP		TOTAL SH 18	
						DRAWN: MB		REF. DRG. NO.: 1HYB990148-3		SH. NO. 5	
						ABB India Limited		1HYB990148-0003		8	
										5	

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



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Revision
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POLE DISCREPANCY CIRCUIT-II

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

245 KV CB

REF. DRG. NO.: 1HYB990148-3

1HYB990148-0003

ABB India Limited

APPROD. UP

CHECKED. TT

DRAWN. MB

TOTAL SH

18

SH. NO.

6

7

6

5

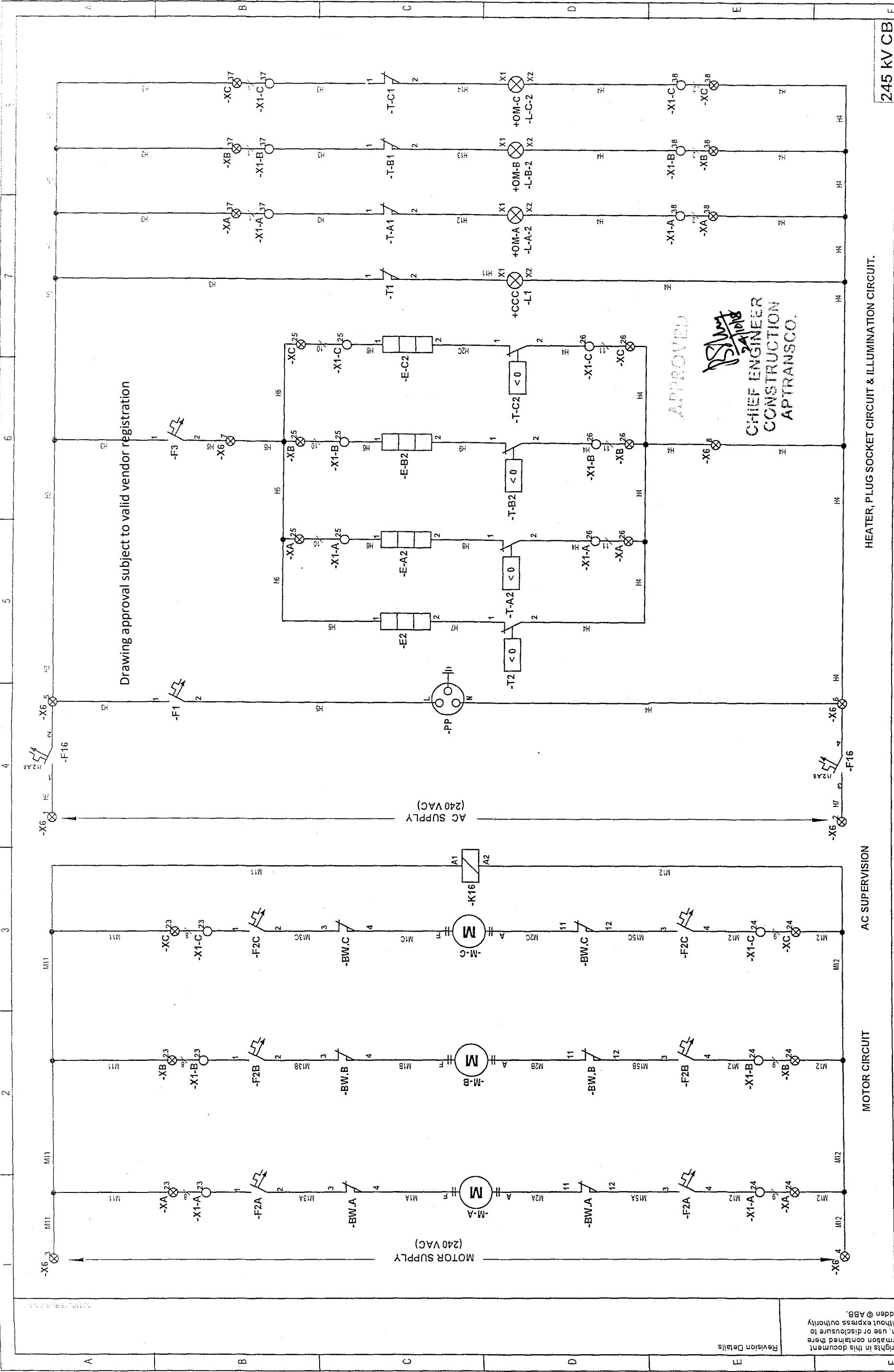
4

3

2

1

8



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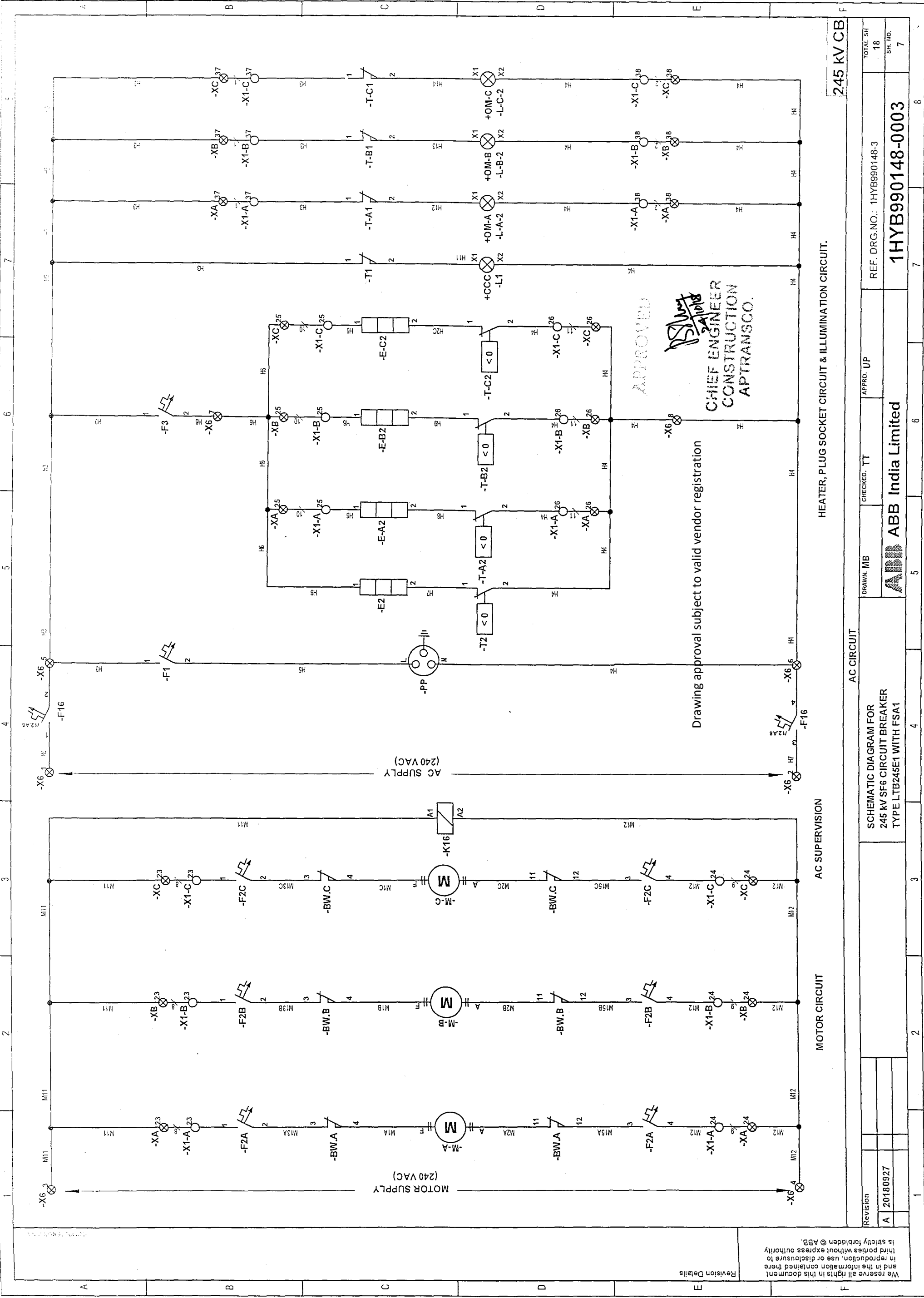
HEATER, PLUG SOCKET CIRCUIT & ILLUMINATION CIRCUIT.

245 kV CB

Revision		APPROD. UP	REF. DRG.NO.: 1HYB990148-3	TOTAL SH
A	20180927	CHECKED. TT	1HYB990148-0003	18
DRAWN. MB			ABB India Limited	SH. NO.
AC CIRCUIT			5	7
MOTOR CIRCUIT			2	8
AC SUPERVISION			3	
SCHEMATIC DIAGRAM FOR 245 KV SF6 CIRCUIT BREAKER TYPE L TB245E1 WITH FSA1			4	

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

AC CIRCUIT

MOTOR CIRCUIT AC SUPERVISION

HEATER, PLUG SOCKET CIRCUIT & ILLUMINATION CIRCUIT.

245 KV CB

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DRAWN: MB

CHECKED: TT

APPROD. UP

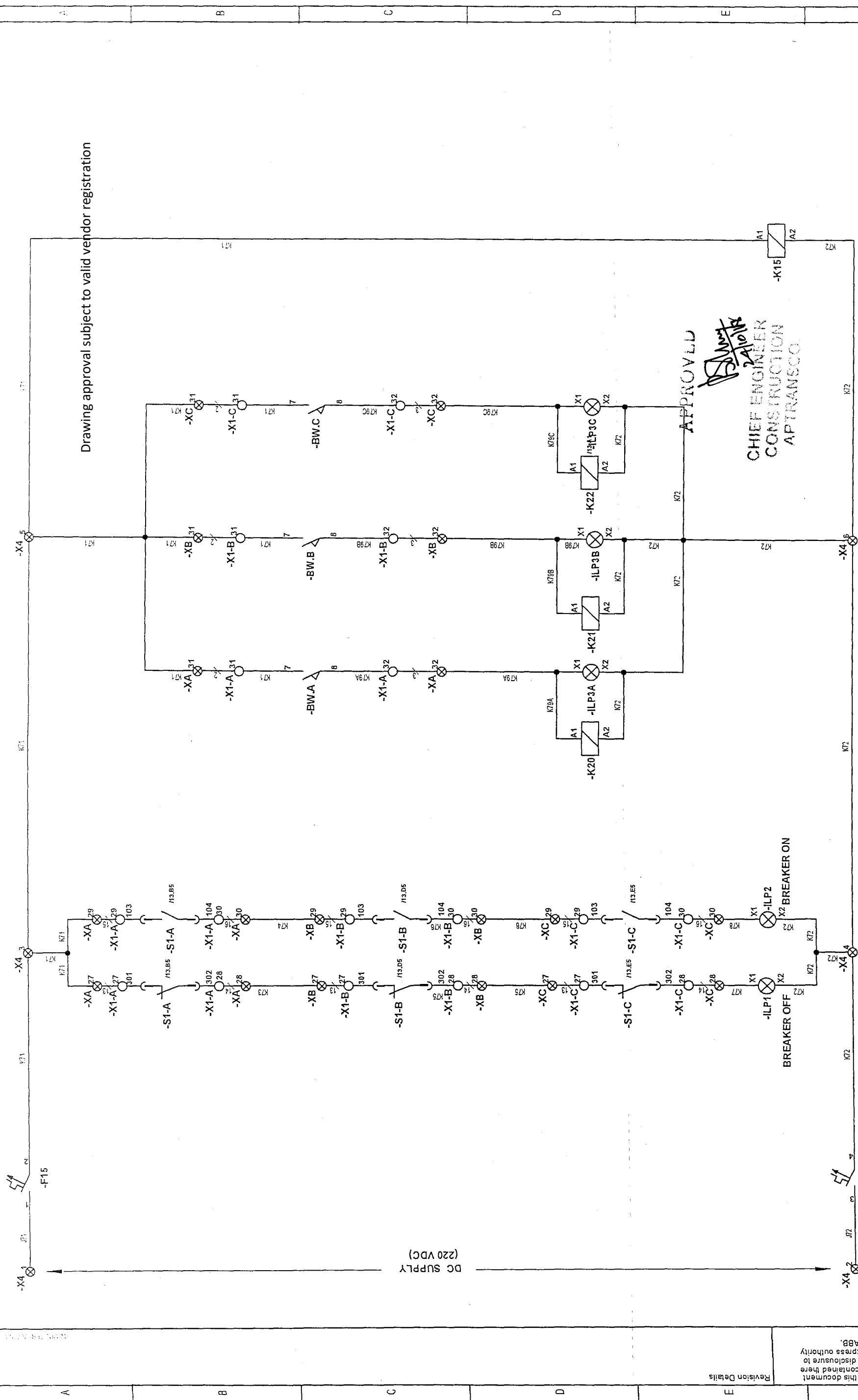
REF. DRG.NO.: 1HYB990148-3

1HYB990148-0003

TOTAL SH
18

SH. NO.
7

1	2	3	4	5	6	7	8
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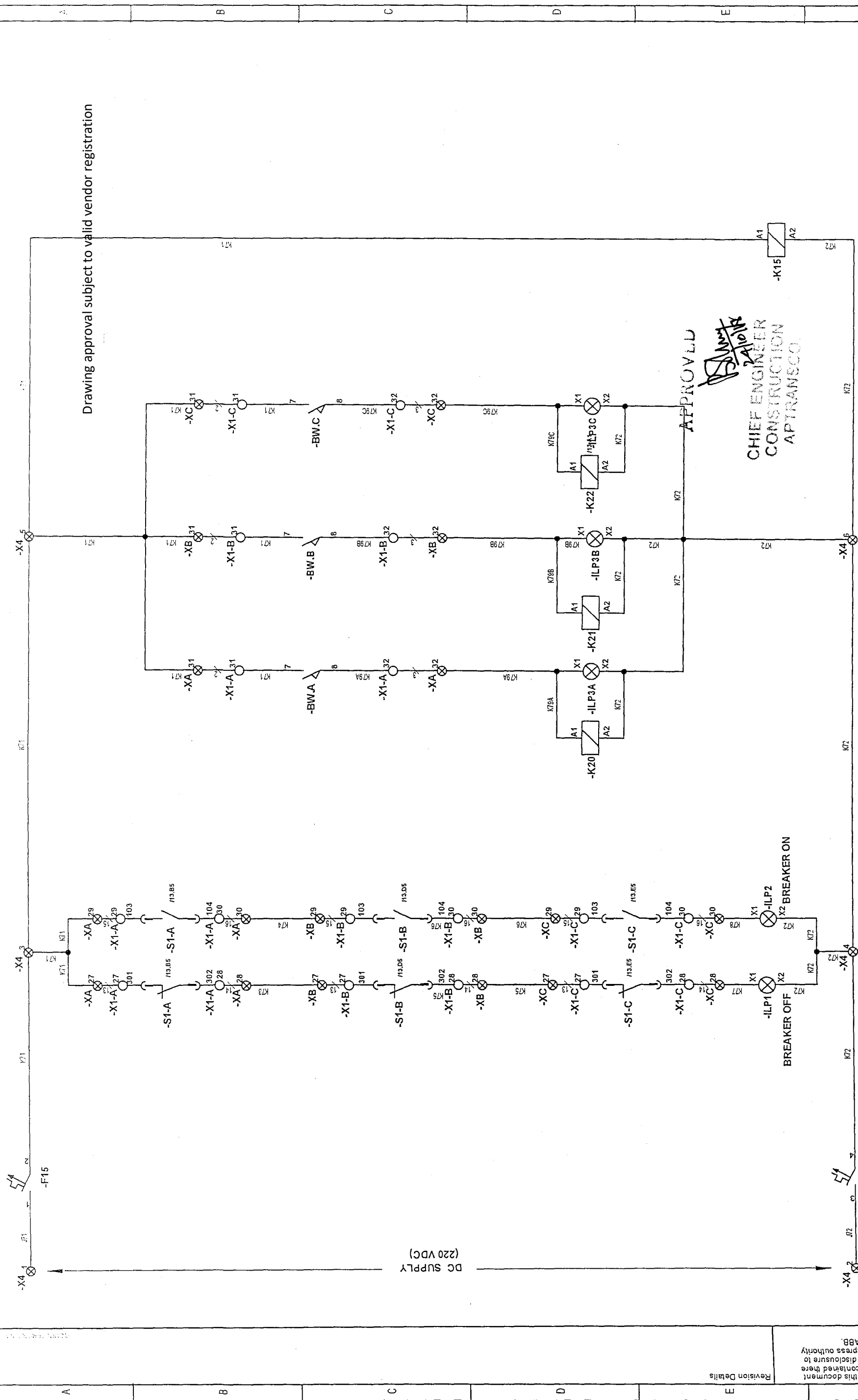
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Revision Details		Revision	
A	20180927		

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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		DRAWN: MB		REF. DRG. NO.: 1HYB990148-3	
				CHECKED: TT		1HYB990148-003	
				APPRD: UP		TOTAL SH: 18	
				ABB ABB India Limited		SH. NO.: 8	
						245 KV CB	



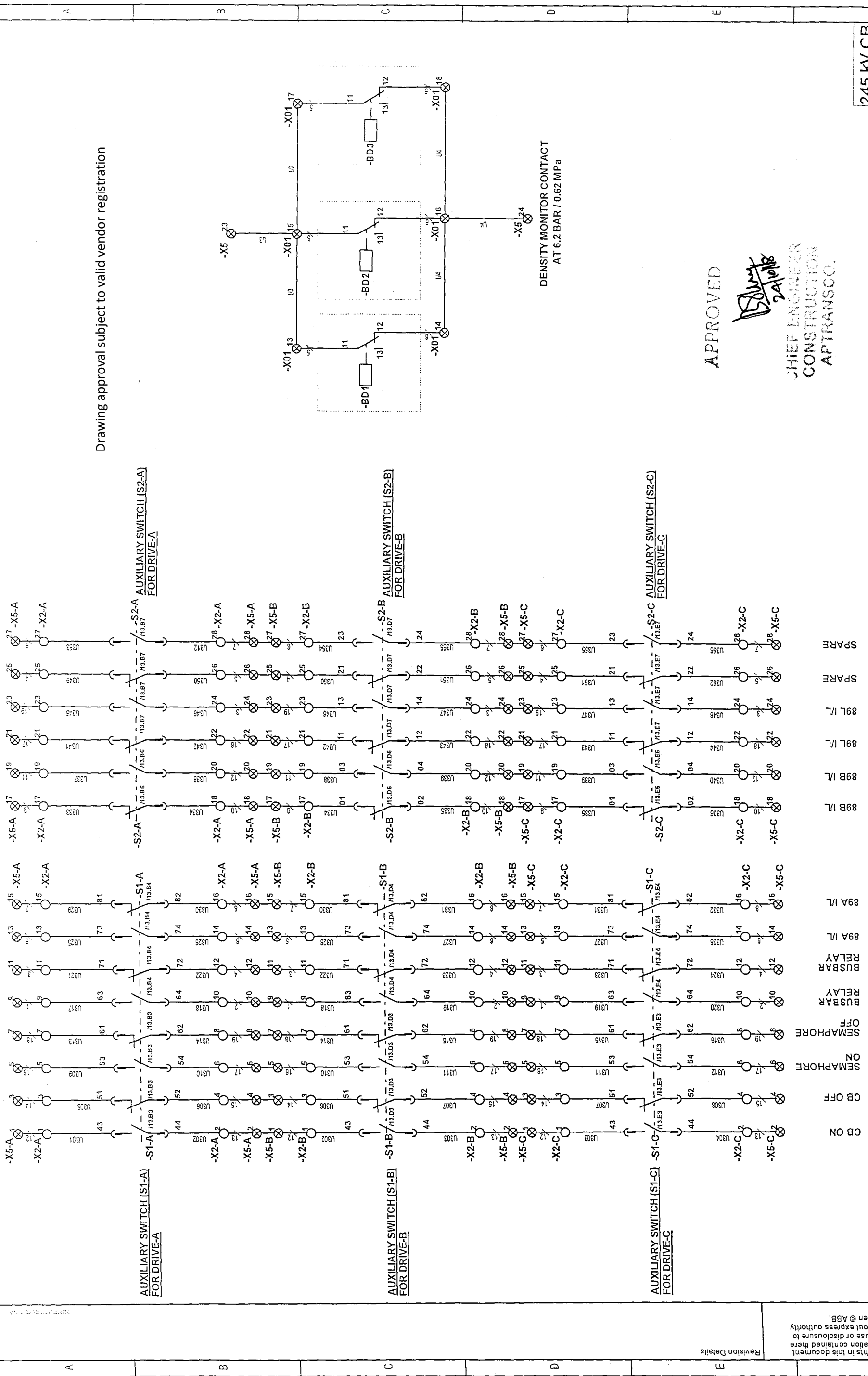
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Revision		DC SUPPLY		BREAKER ON / OFF INDICATION		SPRING CHARGED INDICATION		DC SUPERVISION (INDICATION CKT)		245 kV CB	
A 20180927				SCHEMATIC DIAGRAM FOR 245 KV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1		DRAWN: MB CHECKED: TT APPROD: UP		REF. DRG. NO.: 1HYB990148-3		TOTAL SH 18 SH. NO. 8	
				ABB ABB India Limited				1HYB990148-003			
1		2		3		4		5		6	
7		8		9		10		11		12	

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245 KV CB

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DENSITY MONITOR CONTACT
 AT 6.2 BAR / 0.62 MPa

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

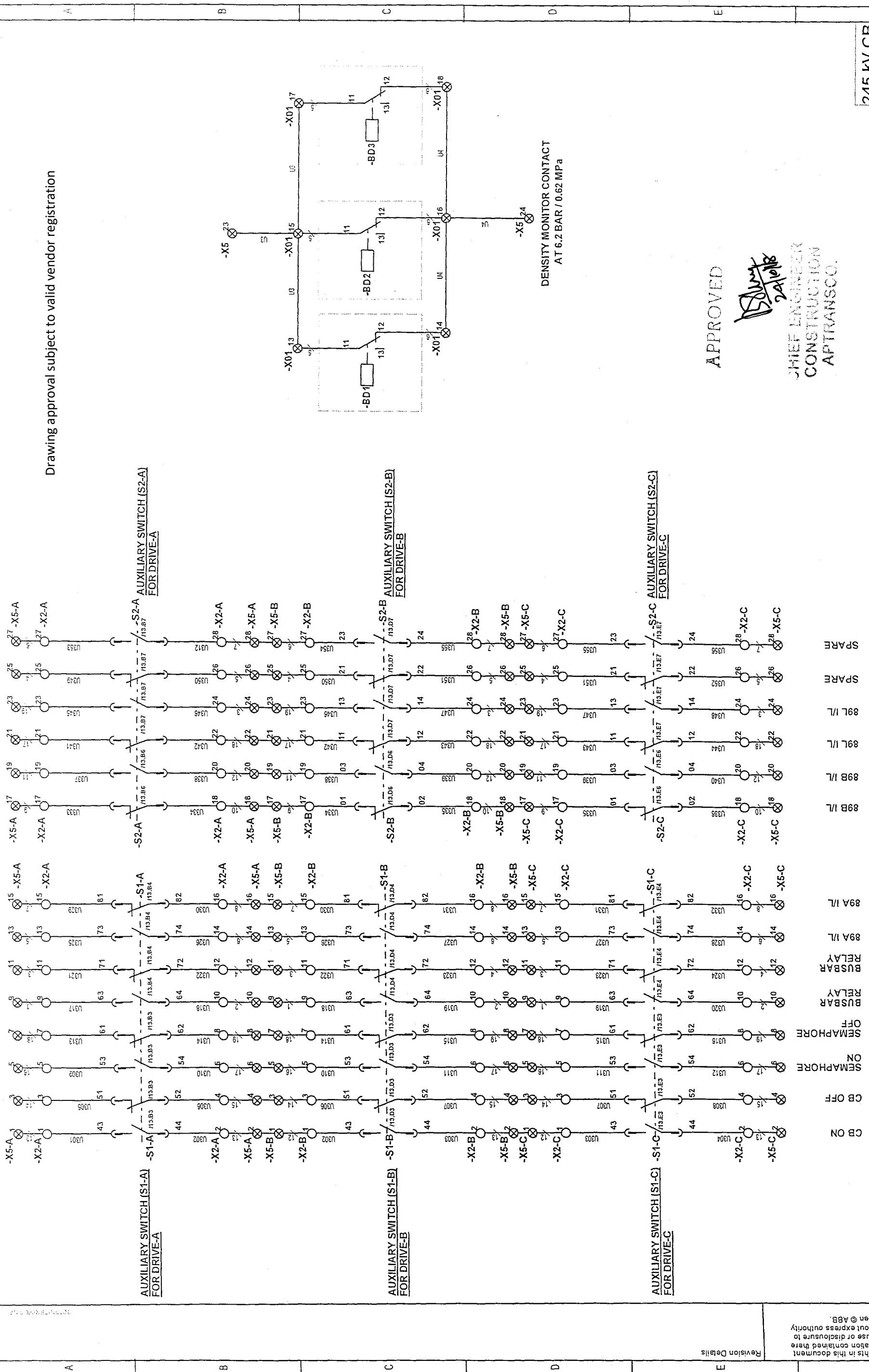
SPARE AUXILIARY SWITCH CONTACTS (4 NO + 4 NC) + (3 NO + 3 NC) + (07 NO + 07 NC)

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

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DENSITY MONITOR CONTACT
AT 6.2 BAR / 0.62 MPa

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

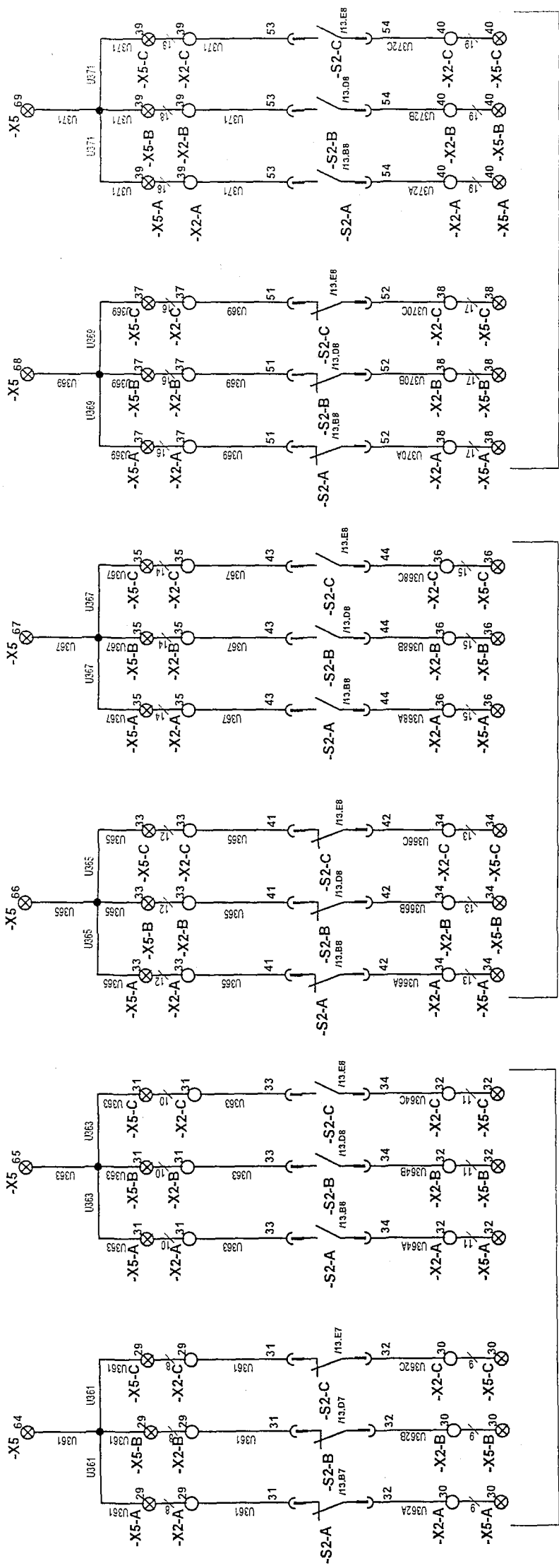
SPARE AUXILIARY SWITCH CONTACTS (4 NO + 4 NC) + (3 NO + 3 NC) + (07 NO + 07 NC)

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

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To BCU

To Main-2 / Back up Relay

To Main-1 / Differential Relay

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

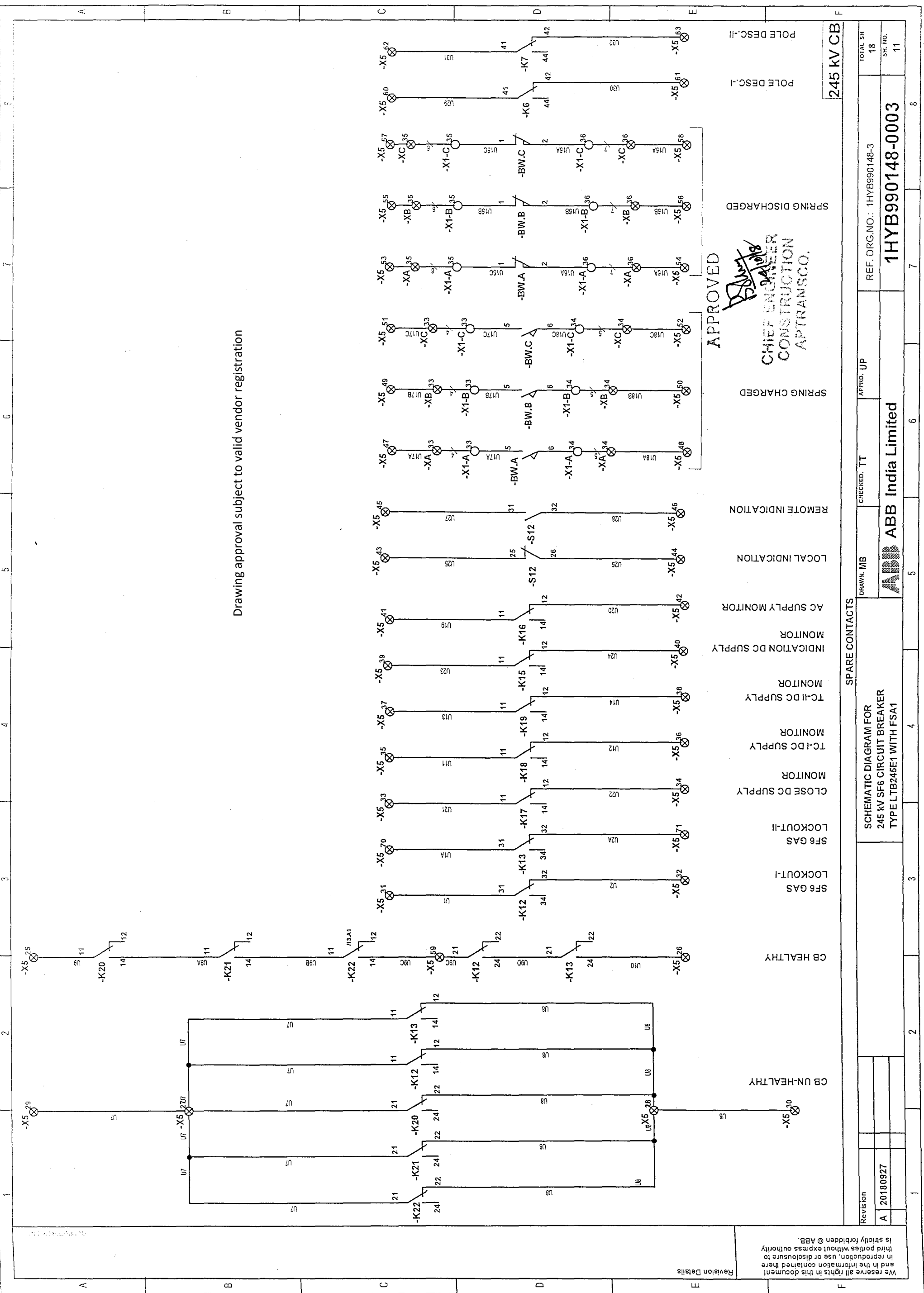
245 kV CB

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Revision	APPRD. UP	TOTAL SH	18
A 20180927	CHECKED. TT	REF. DRG. NO.:	1HYB990148-3
	DRAWN. MB		
	SCHEMATIC DIAGRAM FOR 245 KV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1		
	ABB India Limited		
			SH. NO. 10

SPARE AUXILIARY SWITCH CONTACTS (7 NO + 3 NC) + (3 NO + 3 NC) + (10 NO + 10 NC)

1 2 3 4 5 6 7 8



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POLE DESC.-I	245 kV CB
POLE DESC.-II	245 kV CB

REF. DRG. NO.:	1HYB990148-3
TOTAL SH	18
SH. NO.	11

APPRD. UP	CHECKED. TT	DRAWN. MB
SPRING CHARGED	SPRING DISCHARGED	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-I	LOCKOUT-II	CB HEALTHY
LOCKOUT-I	LOCKOUT-II	CB UN-HEALTHY

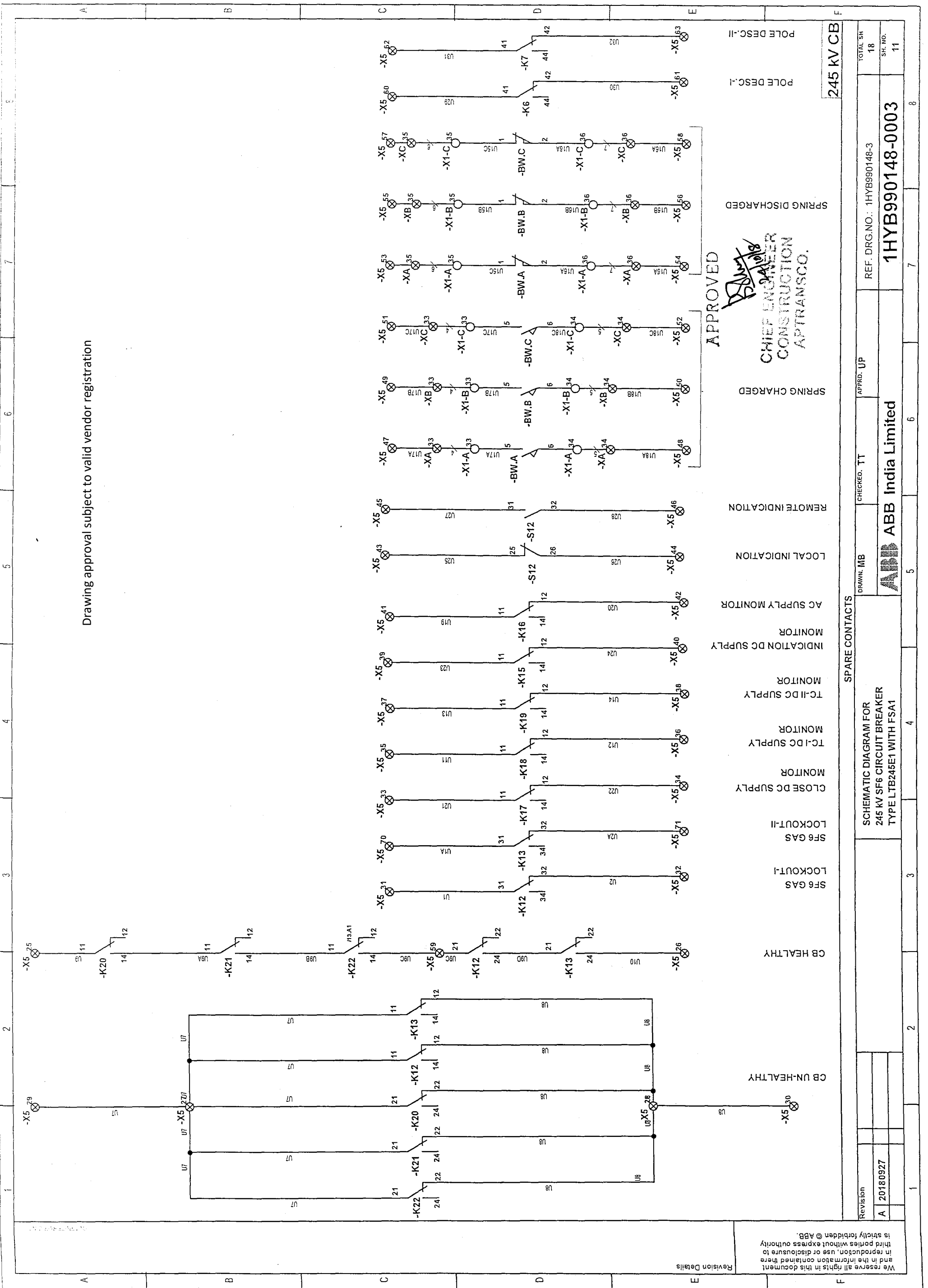
SPARE CONTACTS	ABB India Limited
SCHEMATIC DIAGRAM FOR	245 kV SF6 CIRCUIT BREAKER
TYPE LTB245E1 WITH FSA1	

Revision	A	20180927
Revision		
Revision		

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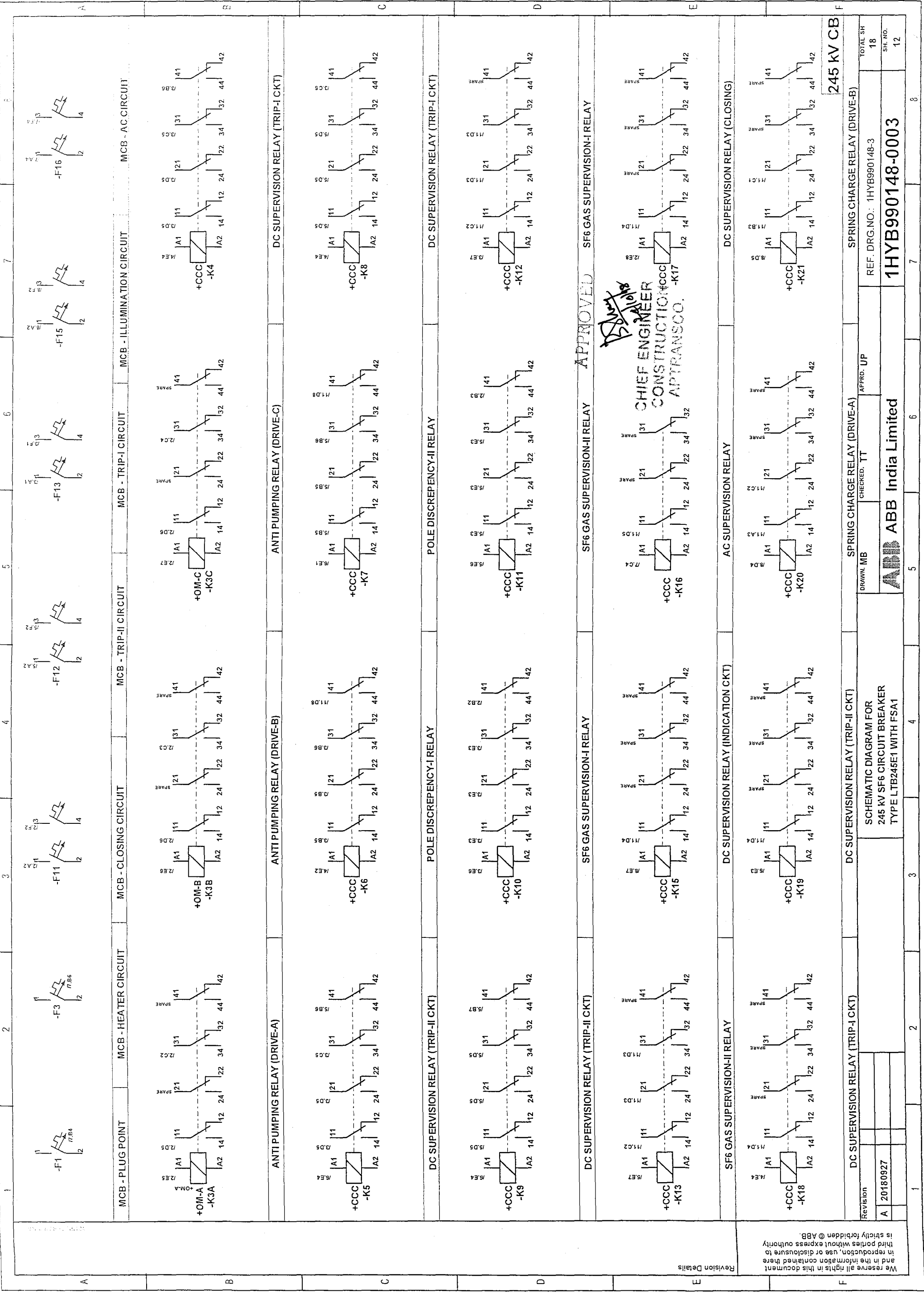
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Revision		DRAWN: MB		CHECKED: TT		APPRD. UP		REF. DRG. NO.: 1HYB990148-3		TOTAL SH	
A 20180927		ABB India Limited		1HYB990148-0003		18		11		SH. NO.	
1		5		6		7		8		11	

245 kV CB

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

- CB UN-HEALTHY
- CB HEALTHY
- LOCKOUT-I
- LOCKOUT-II
- MONITOR
- TC-I DC SUPPLY
- MONITOR
- TC-II DC SUPPLY
- MONITOR
- INDICATION DC SUPPLY
- MONITOR
- AC SUPPLY MONITOR
- LOCAL INDICATION
- REMOTE INDICATION
- SPRING CHARGED
- SPRING DISCHARGED
- POLE DESC.-I
- POLE DESC.-II

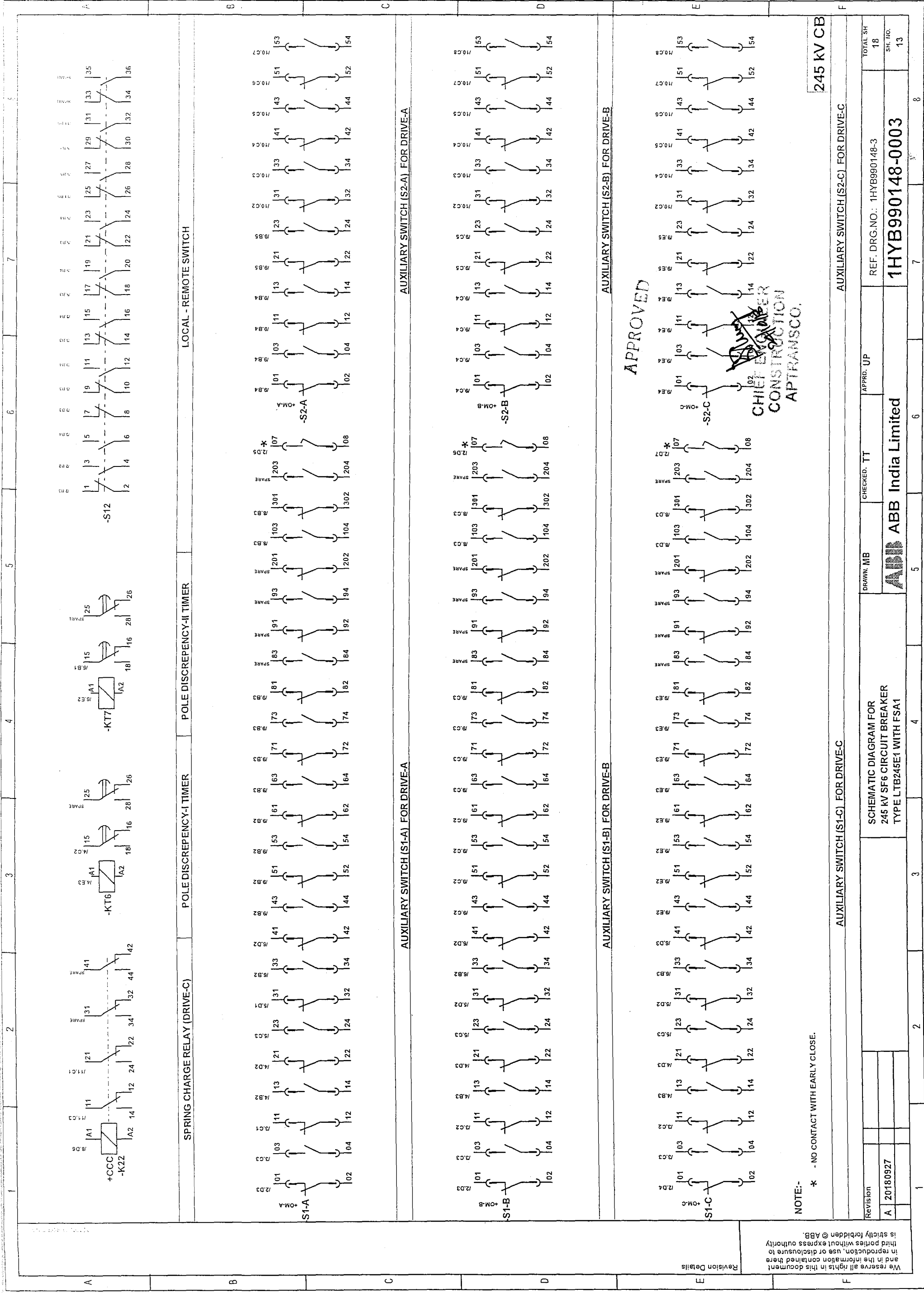


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245 kV CB
TOTAL SH 18
SH. NO. 12

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Revision	DC SUPERVISION RELAY (TRIP-I CKT)	SPRING CHARGE RELAY (DRIVE-A)	DC SUPERVISION RELAY (DRIVE-B)
A 20180927		CHECKED: TT	APPROD. UP
	DRAWN: MB		REF. DRG. NO.: 1HYB990148-3
	ABB India Limited		1HYB990148-0003
	2	3	4
	5	6	7
	8		



NOTE:- * - NO CONTACT WITH EARLY CLOSE.

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245 KV CB

Revision		Revision	Checked	Approved	Ref. No.	Total Sh.
A	20180927	ABB India Limited	TT	UP	1HYB990148-0003	18
					1HYB990148-0003	13

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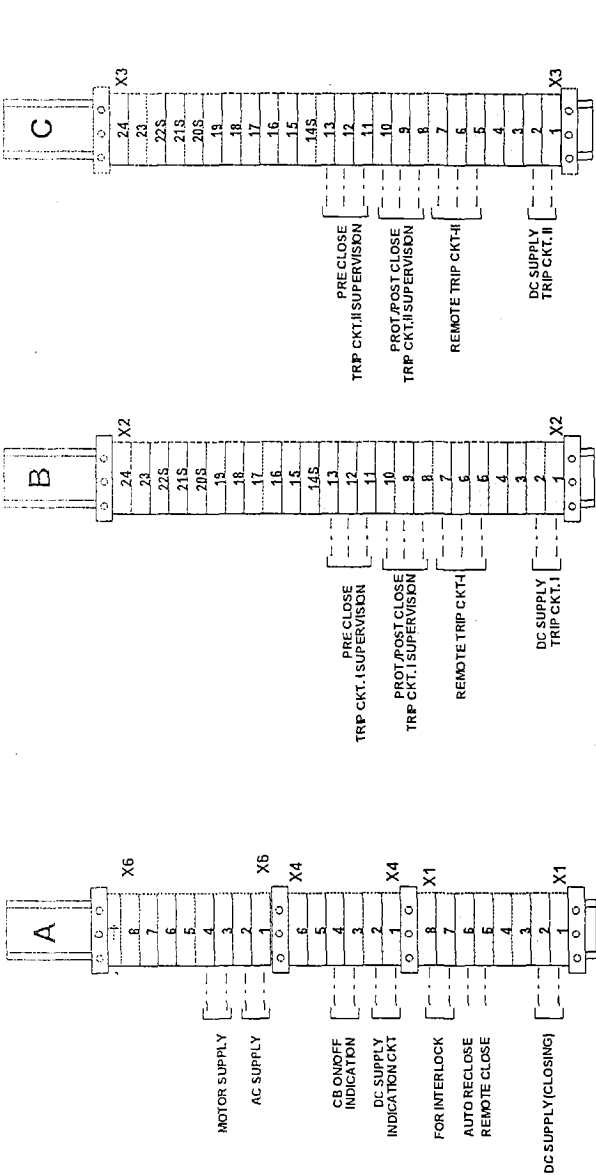
Revision	
A	20180927

NOTE :-
 X1 :- CLOSING CIRCUIT CONNECTION TERMINALS.
 X2 :- TRIP CIRCUIT-I CONNECTION TERMINALS.
 X3 :- TRIP CIRCUIT-II CONNECTION TERMINALS.
 X4 :- INDICATION CIRCUIT CONNECTION TERMINALS.
 X5 :- SPARE CIRCUIT CONNECTION TERMINALS.
 X6 :- AC CIRCUIT CONNECTION TERMINALS.
 S :- FOR SPARE TERMINAL.

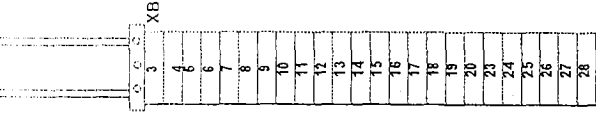
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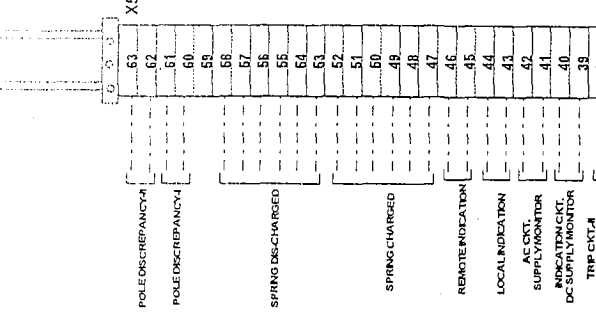
TERMINAL ARRANGMENT FOR COMMON CONTROL CUBICLE



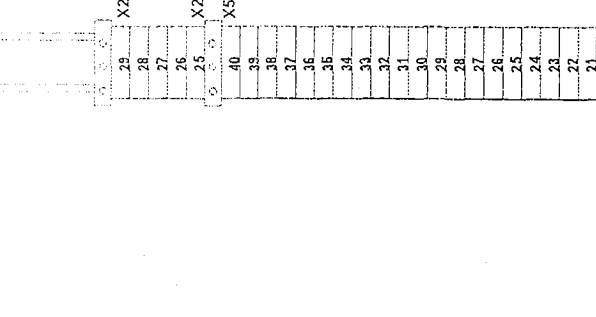
TYPE : STH4 MAKE : CONNECTWELL



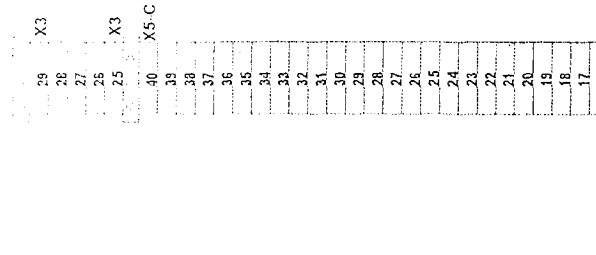
TYPE : STH4 MAKE : CONNECTWELL



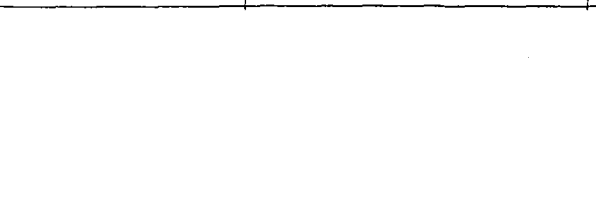
TYPE : STH4 MAKE : CONNECTWELL



TYPE : STH4 MAKE : CONNECTWELL



TYPE : STH4 MAKE : CONNECTWELL



TYPE : STH4 MAKE : CONNECTWELL

Revision	
A	20180927

DRAWN MB

CHECKED TT

APPROD. UP

REF. DRG.NO.: 1HYB990148-3

1HYB990148-0003

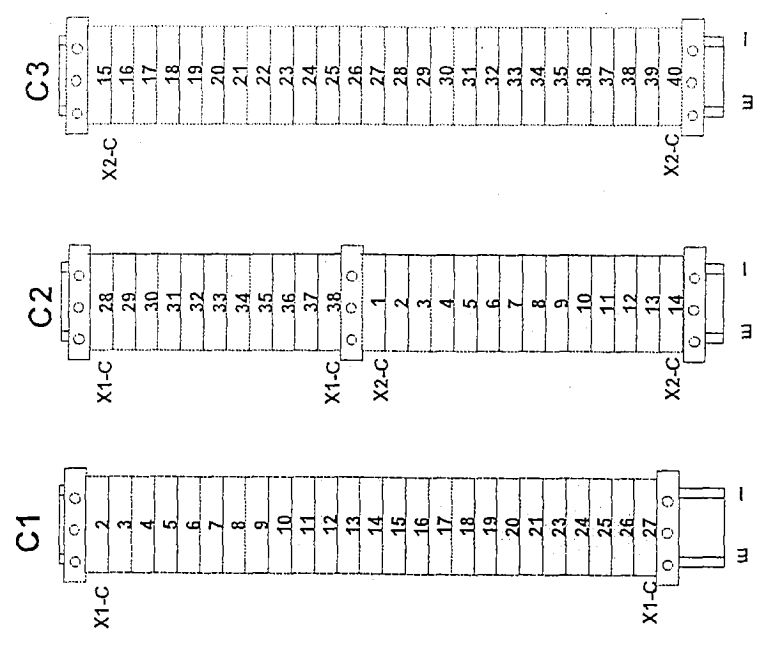
ABB India Limited

TOTAL SH 18

SH. NO. 14

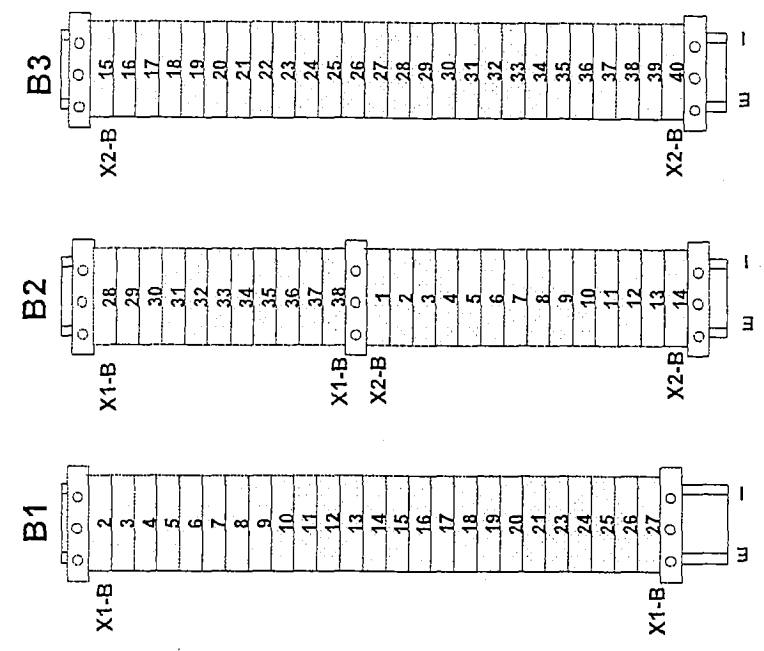
245 KV CB

Drawing approval subject to valid vendor registration



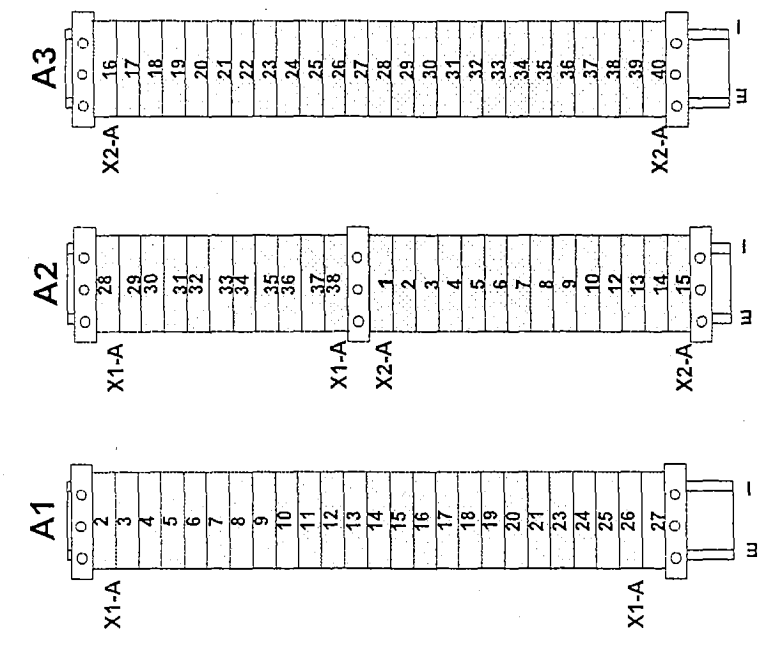
TYPE : STH3
MAKE : CONNECTWELL

TERMINAL ARRANGEMENT FOR DRIVE -C



TYPE : STH3
MAKE : CONNECTWELL

TERMINAL ARRANGEMENT FOR DRIVE -B



TYPE : STH3
MAKE : CONNECTWELL

TERMINAL ARRANGEMENT FOR DRIVE -A

APPROVED

[Signature]
20/10/18

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NOTE:-
S:- FOR SPARE TERMINAL BLOCK

Revision		20180927	A		1	
Revision					2	
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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	CHECKED. TT	APPRD. UP	245 kv CB	TOTAL SH
A 20180927		ABB India Limited		1HYB990148-0003	18
				1HYB990148-0003	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

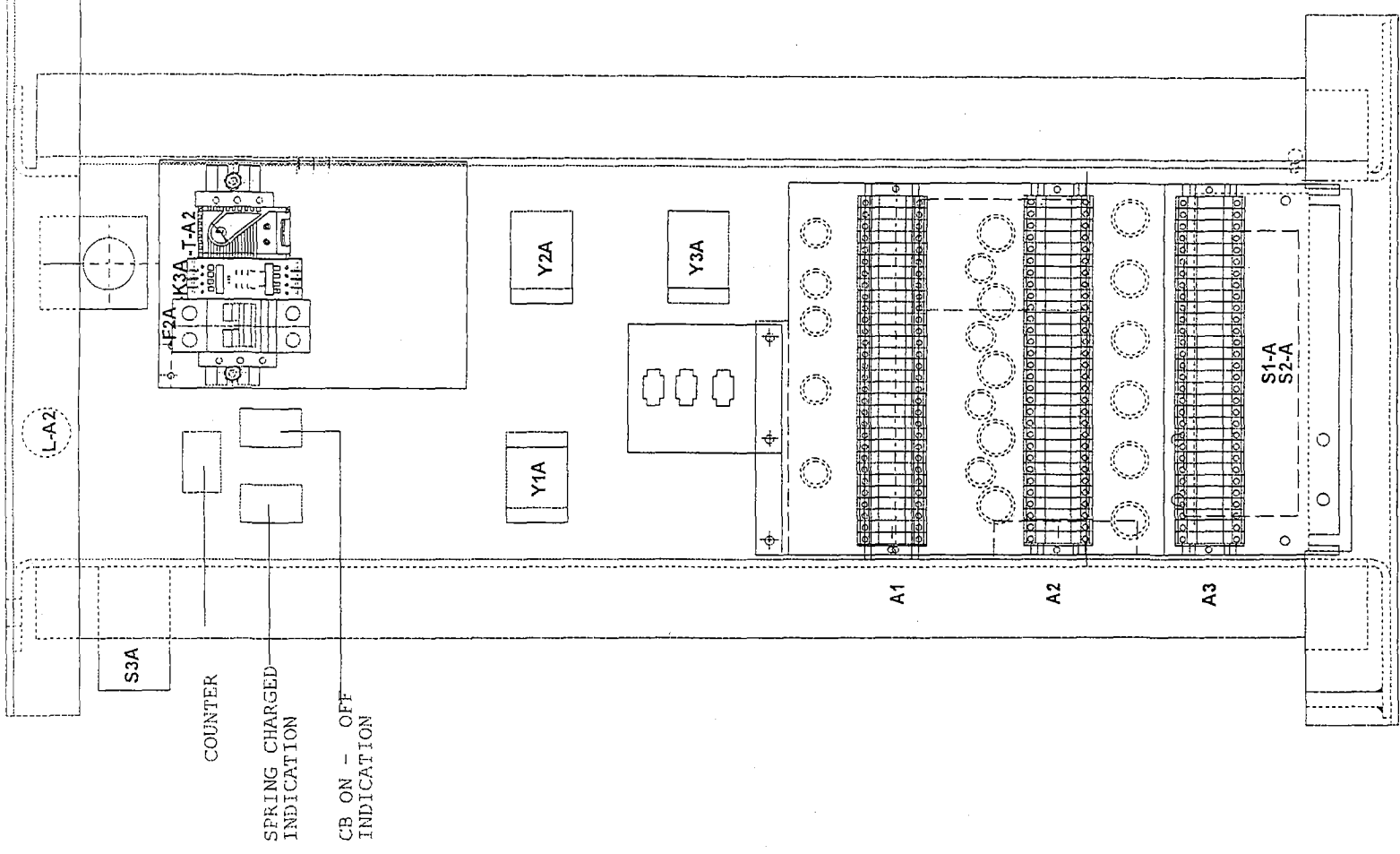
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 CHIEF ENGINEER
 CONSTRUCTION
 APTRANSCO.

Revision	APPARATUS LIST FOR 245 KV SF6 CIRCUIT BREAKER TYPE LTB245E1 WITH FSA1	DRAWN: MB	CHECKED: TT	APPRD: UP	245 KV CB
A 20180927		ABB	ABB India Limited	REF.DRG.NO. 1HYB990148-0003	TOTAL SH 18
				1HYB990148-0003	SH. NO. 18
1	2	3	4	5	6
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B. Sanyal
24/10/14
CHIEF ENGINEER
CONSTRUCTION
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.

245 KV CB
TOTAL SH 1
SH. NO. 1

REF. DRG. NO.: 1HYB990148-0003
1HYB990148-0013

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

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

END CUSTOMER : APTRANSCO

Revision
A 20180921

Revision Details

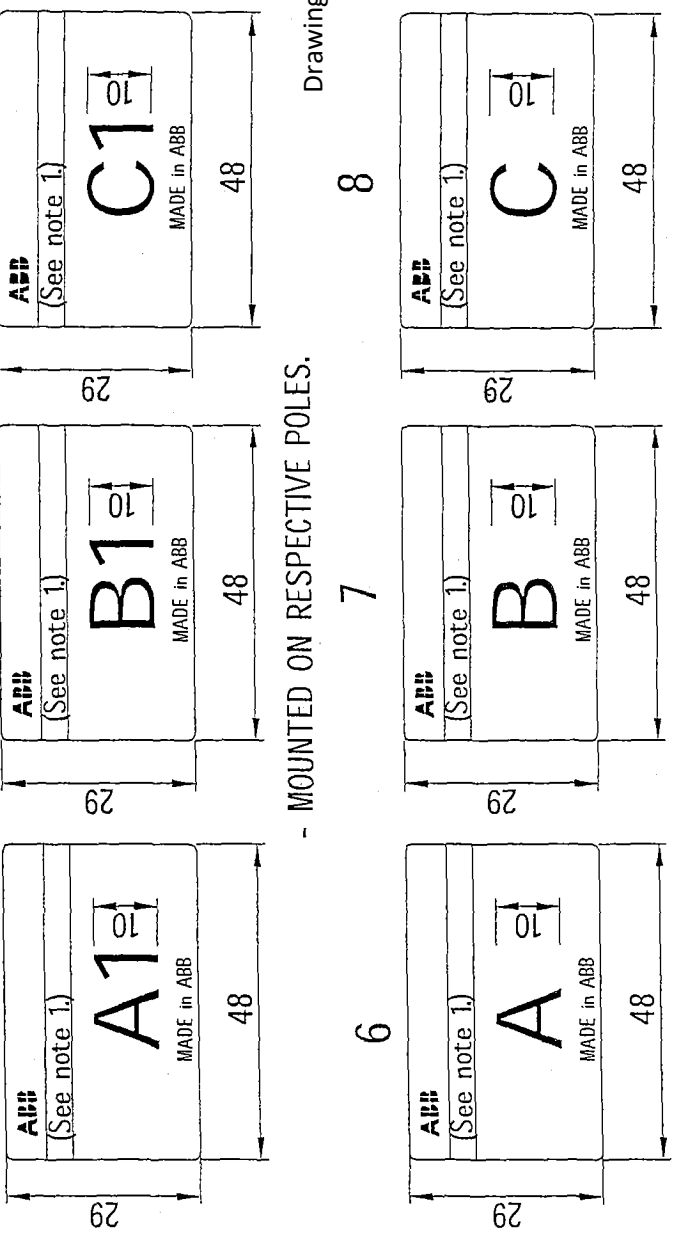
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COMPUTER ORIGINAL

ABB MADE in ABB	
Circuit-breaker type	LTB245E1
Operating device type	FSA1
No. (See note 1.)	No. (See note 2.)
Order	AS APPLICABLE
Voltage	245 kV
Insulation level	AS APPLICABLE
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 L
(L=litre, Signal = SF6 Gas low, Blocking = Lockout)	
END CUSTOMER : APTRANSCO	SCHMATIC DRAWING NO.1HYB990148-0003
PO NO. : AS APPLICABLE	

ABB MADE in ABB	
Operating mechanism Type FSA1	No. (See note 2.)
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:-
- CIRCUIT BREAKER SERIAL NO. NOTED IN THIS SPACE.
 - 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



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[Signature]
24/10/18

CHIEF ENGINEER
CONSTRUCTION
APTTRANSCO.

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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
			Sheet 1

- MOUNTED ON RESPECTIVE DRIVES.

- MOUNTED ON MARSHALLING BOX.

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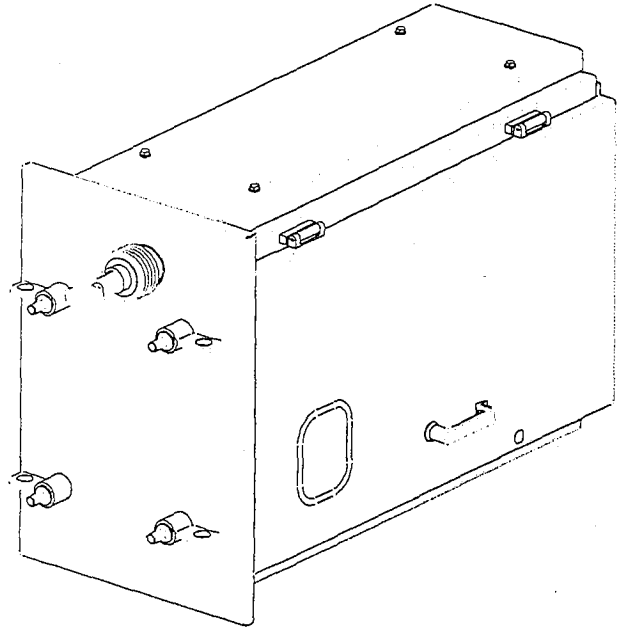
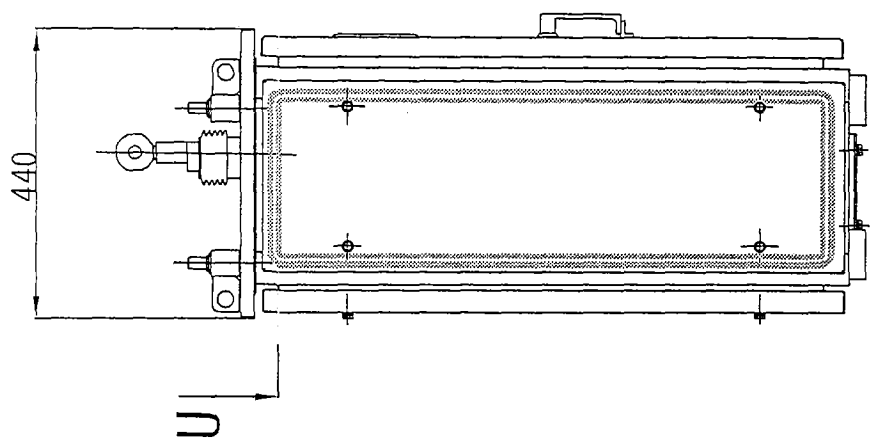
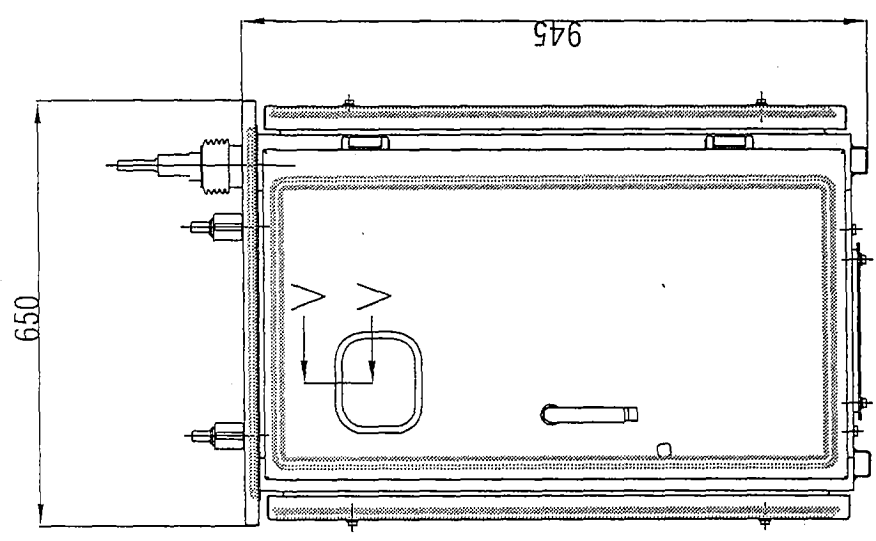
Revision Details:

COMPUTER ORIGINAL

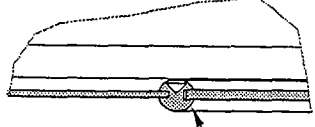
Revision:--
 (A) New document prepared.

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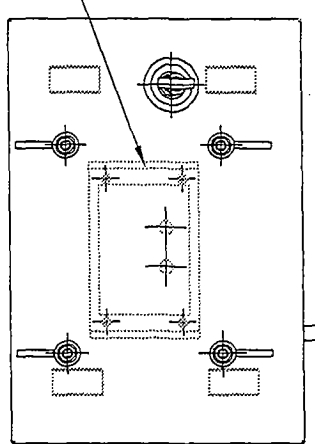
Note:
 -General tolerance as per ISO 2768-cL



V-V
1:2

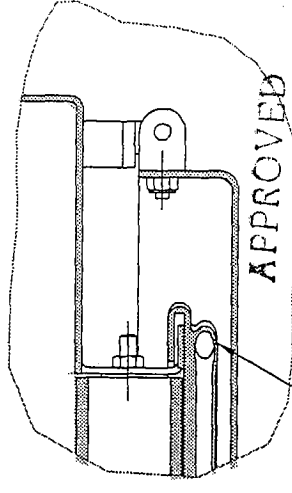


Door glass gasket
 Material: EPDM



Flat gasket 25x8 mm
 for gland plate
 Material: EPDM

U-U
1:2



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

Material : Steel 2 mm
 Colour : 631 IS:5

APPROVED
P. Subramanian
 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
ABB India Limited.			Lang: E	Total Sh. 1
1HYB990148-0006			Sheet	1

245 KV CB

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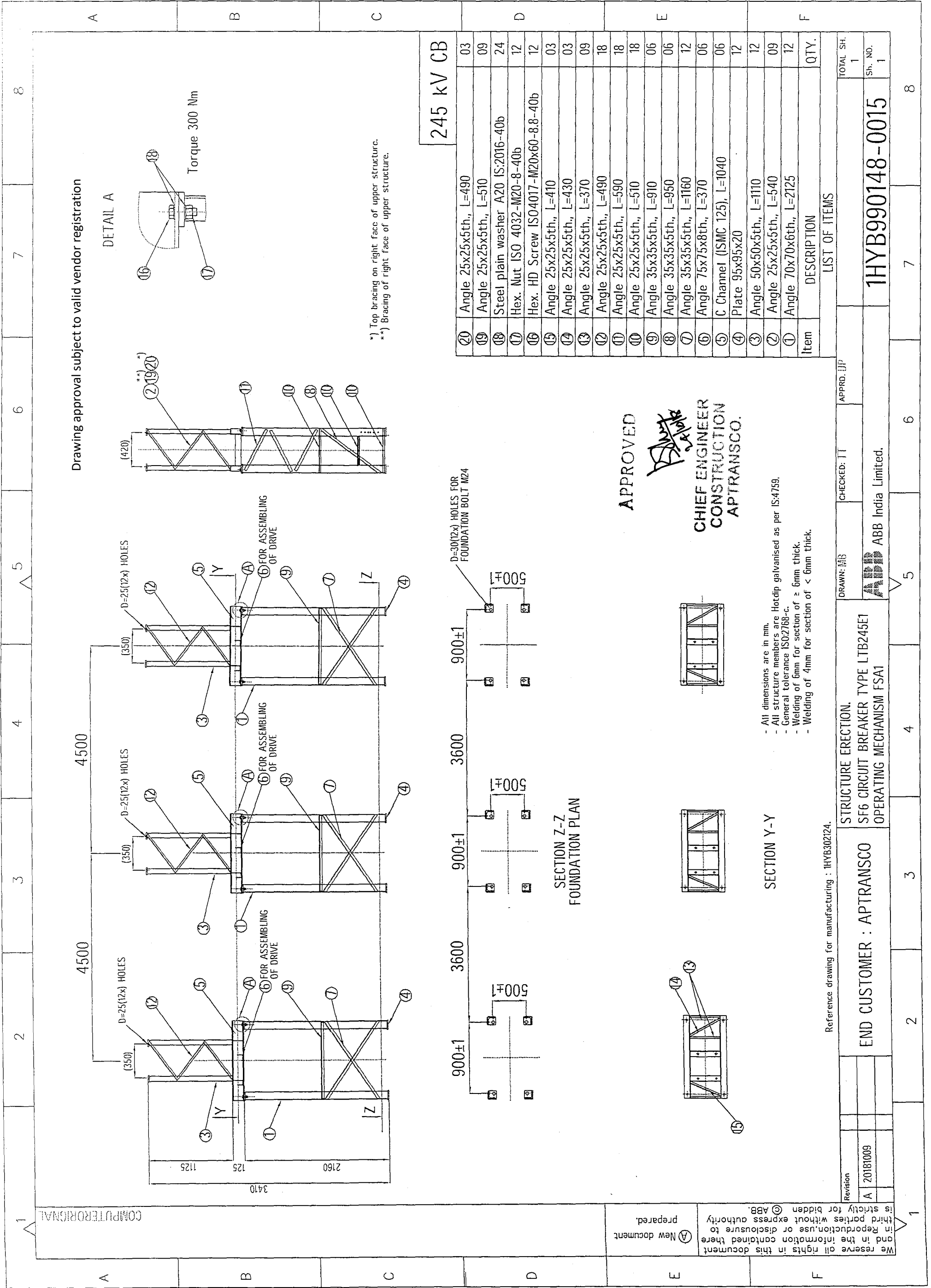
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DETAIL A

Torque 300 Nm

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

245 kV CB

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

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 CONSTRUCTION
 APTRANSCO.

- 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.

SECTION Z-Z
 FOUNDATION PLAN

SECTION Y-Y

Reference drawing for manufacturing : 1HYB302124.

STRUCTURE ERECTION.
 SF6 CIRCUIT BREAKER TYPE LTB245E1
 OPERATING MECHANISM FSA1

END CUSTOMER : APTRANSCO

1HYB990148-0015

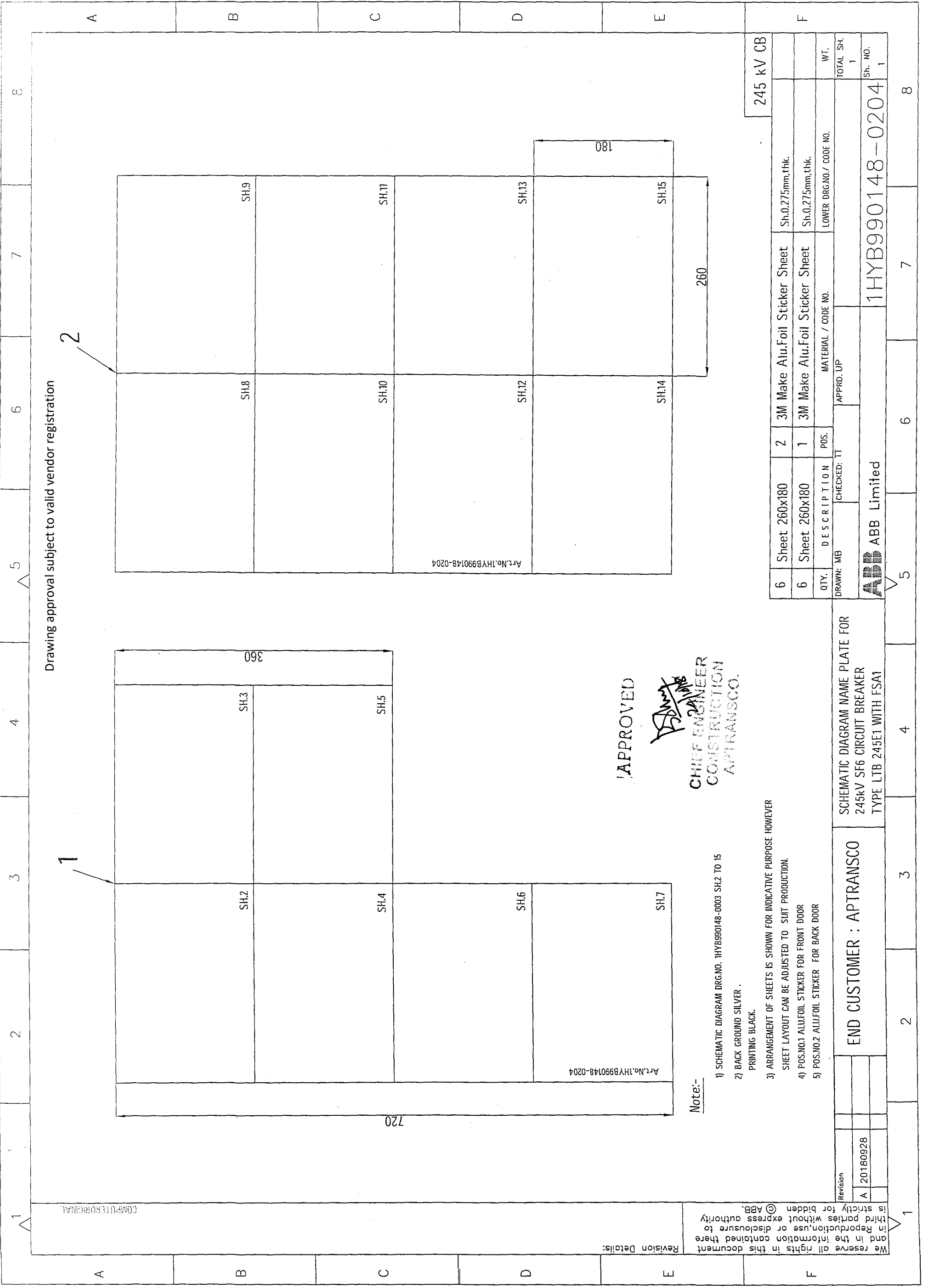
TOTAL SH. 1
 Sh. NO. 1

Revision
A 20181009

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(A) New document prepared.

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 CHIEF ENGINEER
 CONSTRUCTION
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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

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

END CUSTOMER : APTRANSCO

ABB
 ABB Limited

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
1HYB990148-0204					

Revision	
A	20180928

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Revision Details:

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