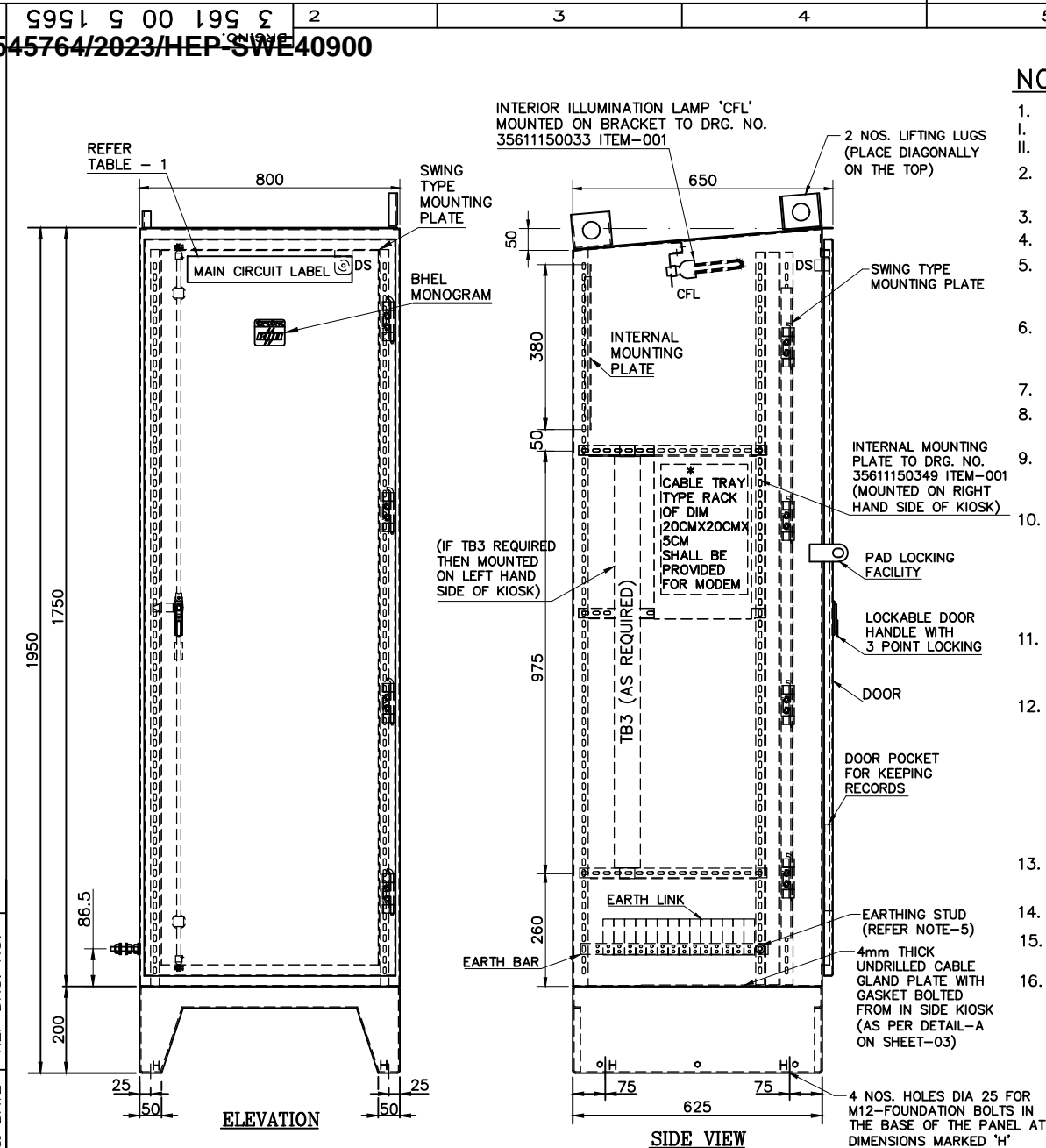


1545764/2023/HEP-SWE40900

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INVENTORY NO. | SIGN & DATE | REF DRG. NO.



NOTES :-

1. FINISH :- POWDER COATING, PLAIN FINISH
1. EXTERIOR :- RAL-7032
- II. INTERIOR :- RAL-7032
2. ALL INSTRUMENTS, METERS & RELAYS ETC. MOUNTED ON SWING PLATE ARE FLUSH MOUNTING TYPE .
3. FUSES, LINKS, E'LINKS, NO. OF T.Bs. WIRING ETC. AS PER WIRING TABLE.
4. KIOSK IS SUITABLE FOR IP:55 DEGREE OF PROTECTION TO IS:13947.
5. 3 x 25MM TIN PLATED COPPER EARTHBAR IS PROVIDED AT THE BOTTOM OF THE KIOSK ACROSS THE DEPTH OF THE CUBICLE ON L.H. SIDE SHEET WITH ONE NUMBER M8 EARTHING STUD.
6. THE KIOSK'S SWING TYPE INTERNAL MOUNTING PLATE IS MANUFACTURED FROM 3 THK C. R. S. SHEET, CABLE GLAND PLATE IS 4 THK C. R. S. SHEET & REST OF THE KIOSK IS FABRICATED FROM 2 THK C. R. S. SHEET.
7. EXPOSED TERMINALS OF ALL FUSES, LINKS, TERMINAL BLOCKS ARE SHROUDED.
8. SWING PLATE & DOOR IS CONNECTED TO EARTHBAR WITH 2RUNS OF 2.5SQMM GREEN PVC FLEXIBLE WIRE.
9. MAIN CIRCUIT LABEL & DEVICE LABELS ARE 1100V GARDE BLACK ANODISED ALUMINIUM WITH NATURAL WHITE ENGRAVING, PROVIDED ON FRONT & REAR OF THE DEVICE, LABELS FIXED TO THE PANEL WITH SCREWS AND NUTS, ENGRAVINGS AS PER THIS DRAWING.
10. TERMINAL BLOCKS ARE CLIP-ON TO CHANNEL, SCREW DRIVER OPERATED STUD TYPE, DISCONNECTING TYPE FOR CT & PT CIRCUITS, NON-DISCONNECTING TYPE FOR REST OF THE CIRCUITS. DISCONNECTING TERMINAL BLOCKS SUITABLE FOR TAKING TWO LUGGED WIRES WITH CONDUCTOR CROSS SECTION OF UP TO 6 SQUARE MM SIZE. NON-DISCONNECTING TERMINAL BLOCKS SUITABLE FOR TAKING TWO LUGGED WIRES WITH CONDUCTOR CROSS SECTION OF UP TO 4 SQUARE MM SIZE.
11. PANEL WIRING :- PVC INSULATED, 1100V GRADE STRANDED COPPER CONDUCTOR WIRE WITH CONDUCTOR CROSS SECTION 2.5 SQUARE MM FOR ALL THE CIRCUITS. WIRE TERMINATIONS :- USING SOLDERLESS CRIMPING LUGS.
12. COLOUR OF WIRES :-

1 PHASE AC CIRCUIT (PHASE & NEUTRAL)	: BLACK
DC CIRCUITS (POSITIVE & NEGATIVE)	: GREY
EARTH	: GREEN
3 PHASE CT & PT CIRCUITS :	
A PHASE :	RED
B PHASE :	YELLOW
C PHASE :	BLUE
NEUTRAL :	BLACK
13. FOR IDENTIFICATION OF WIRES NUMBERED FERRULES WITH BLACK LETTER/DIGIT OVER WHITE SURFACE AT BOTH ENDS OF WIRE ARE PROVIDED.
14. MCBs PROVIDED WILL BE OF STANDARD GREYISH / WHITE COLOUR.
15. NUMERICAL RELAY SHALL BE PROVIDED WITH ONE FRONT ETHERNET & ONE REAR RS422/485 COMMUNICATION PORT.
16. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.

* a) SUPPLY OF MODEM IS IN CUSTOMER'S SCOPE, ONLY PROVISION FOR MOUNTING SHALL BE MADE.

b) MAKES, CUTOUTS AND LOCATIONS OF THE ITEMS SHOWN ARE TENTATIVE AND MAY CHANGE AS PER FINAL ORDERING. EXACT MAKES SHALL BE REFLECTED IN AS BUILT DRAWING.

CUSTOMER

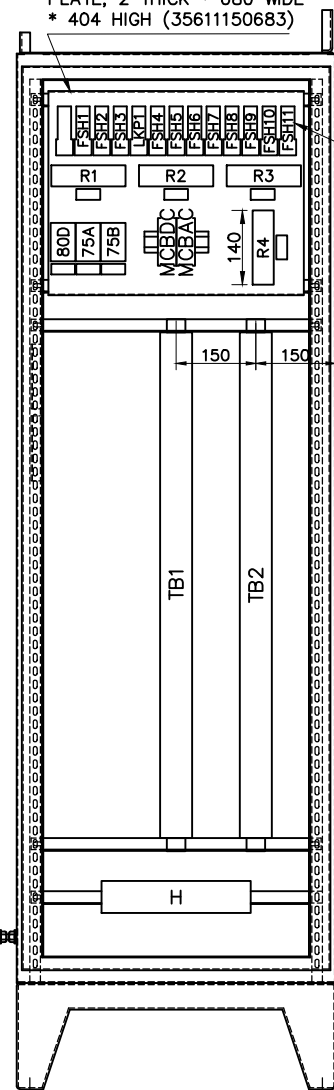
A. P. E. P. D. C. L.

VISHAKHAPATNAM

BHEL

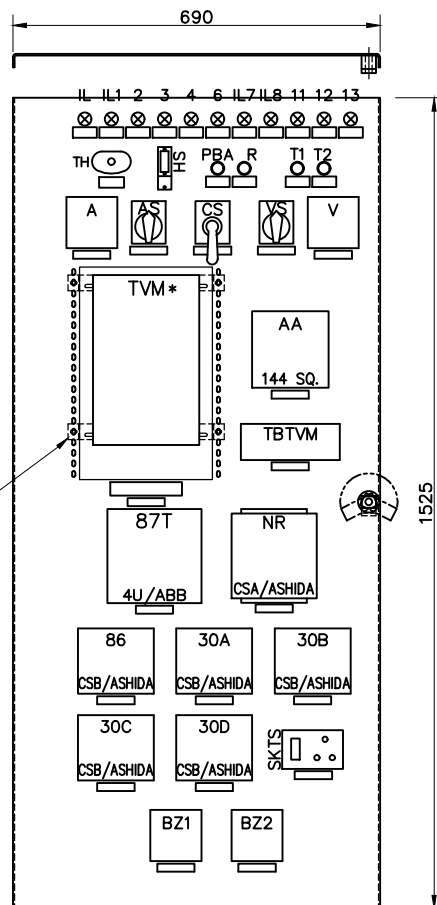
BHARAT HEAVY ELECTRICALS LIMITED
BHOPALCARD
CODE
--
NO.
00TITLE
OUTLINE & GENERAL ARRANGEMENT OF
OUTDOOR CONTROL & RELAY PANELS
FOR 11 KV HV VCBNO.OF
SHEETS
06
SHEET
NO.
02DEPT. CODE
SWE 409SCALE WEIGHT UNTOL. DIMS. GR. W.O.NO.
N.T.S. - REFER CG 06503
TABLE 2.5-1
DRG. NO. 3 561 00 5 1565

REV	DATE	ALTD.	REV	DATE	ALTD.	REV	DATE	ALTD.	DRAWN	NAME	SIGN.	DATE
		CKD.			CKD.			CKD.				
		APPD.			APPD.			APPD.				
ZONE			ZONE			ZONE			APPD	MAK	sd/-	01/11/18
SIGNATURES NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING												
DISTRIBUTION OF PRINTS												
O.COPY 2 NOS. DIAGRAM 1 NO.												
SWM 6 NOS. ENGINEER 1 NO.												
TCX (SWM) 1 NO. CUSTOMER 6 NOS.												

9951 5 00 195 2
1545764/2023/HEP-SWE40900FUSE & MCB MOUNTING
PLATE, 2 THICK * 680 WIDE
* 404 HIGH (35611150683)FRONT
CONNECTED
FUSE & LINK

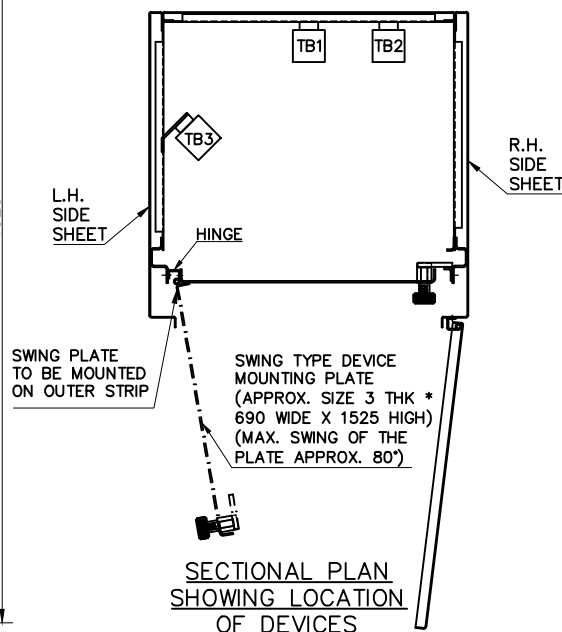
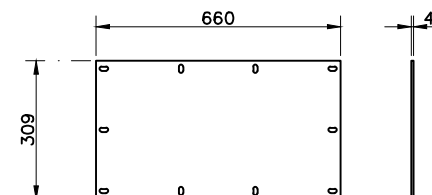
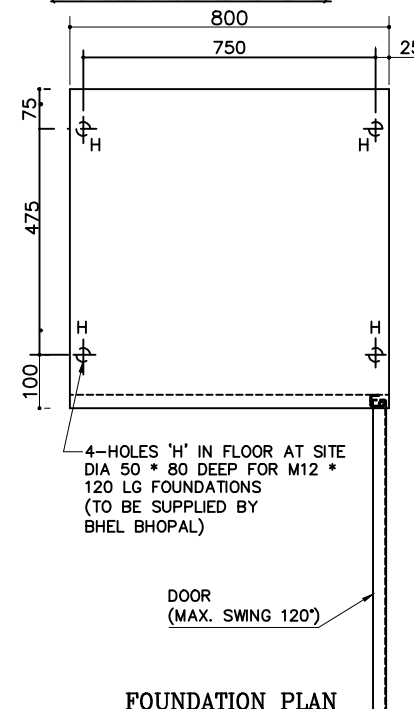
ELEVATION

DOOR & SWING PANEL REMOVED

SWING TYPE DEVICE MOUNTING PLATE
TO DRG. NO. 35641150025, VAR-00, REV-04

NOTE :-

* SUPPLY OF TVM IS IN
APEPDCL'S SCOPE, ONLY
CUTOUT ON SWING PLATE
FOR MOUNTING & WIRING
TO BE PROVIDED.
(MAKE OF TVM IS ER300P
OF L&T SHALL BE MADE).

SECTIONAL PLAN
SHOWING LOCATION
OF DEVICESDETAIL-A
(UNDRILLED CABLE GLAND PLATE)

FOUNDATION PLAN

TABLE – 1 MAIN CIRCUIT LABEL (MCL)							
SIZE OF LABEL 50 * 380		DRG. NO. 35611150417	IT. NO. 001	MAT. CODE BP9009447222	QTY. OF LABEL PER CUBICLE-001	TOTAL QTY. OF LABELS – 23 NOS.	
MCL REF.	PANEL SL. NO.	L A B E L I N S C R I P T I O N			LINE NO.	LETTER HEIGHT	WIRING TABLE NO.
MCL	REFER TABLE-1	REFER TABLE-1			I LINE	15 mm	—
					II LINE	8 mm	
					III LINE	6 mm	
					IV LINE	6 mm	

CUSTOMER

A. P. E. P. D. C. L.
VISHAKHAPATNAMBHARAT HEAVY ELECTRICALS LIMITED
BHOPALCARD
CODE
--REV.
NO.
00TITLE
OUTLINE & GENERAL ARRANGEMENT OF
OUTDOOR CONTROL & RELAY PANELS
FOR 11 KV HV VCBNO. OF
SHEETS
06
SHEET
NO.
03DEPT. CODE
SWE 409SCALE WEIGHT
N.T.S. -UNTOL. DIMS. GR. W.O. NO.
REFER CG 06503
TABLE 2.5-1

REFER TABLE-1

DRG. NO. 3 561 00 5 1565

REV	DATE	ALTD.	REV	DATE	ALTD.	REV	DATE	ALTD.
		CKD.			CKD.			CKD.
		APPD.			APPD.			APPD.

ZONE	ZONE	ZONE

SIGNATURES NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING
DISTRIBUTION OF PRINTS
O.COPY 2 NOS. DIAGRAM 1 NO.
SWM 6 NOS. ENGINEER 1 NO.
TCX (SWM) 1 NO. CUSTOMER 6 NOS.

9991 9 00 199 2
1545764/2023/HEP-SWE40900

SCHEDULE OF APPARATUS & LABEL DETAILS

DEVICE REFERENCE	DESCRIPTION	TYPE / MAKE	INSCRIPTION ON LABEL IN FRONT OF DEVICE			INSCRIPTION ON LABELS AT THE REAR OF DEVICE	QTY. OF LABELS/PANEL (FOR TOTAL QTY OF PANELS REFER TABLE 1)		BLANK LABEL REF.
			I LINE	II LINE	III LINE		FRONT	REAR	
IL	LED TYPE INDICATING LAMP, AMBER	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	FAULT	ALARM	IL	IL	1	1	L4
IL1	LED TYPE INDICATING LAMP, RED	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	CIRCUIT BREAKER	CLOSED	IL1	IL1	1	1	L4
IL2	LED TYPE INDICATING LAMP, GREEN	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	CIRCUIT BREAKER	OPEN	IL2	IL2	1	1	L4
IL3	LED TYPE INDICATING LAMP, WHITE	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	SPRING	CHARGED	IL3	IL3	1	1	L4
IL4	LED TYPE INDICATING LAMP, AMBER	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	AUTO TRIP	IL4	-	IL4	1	1	L4
IL6	LED TYPE INDICATING LAMP, BLUE	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	CONTROL SUPPLY	HEALTHY	IL6	IL6	1	1	L4
IL7	LED TYPE INDICATING LAMP, AMBER	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	CB TC-1	HEALTHY	IL7	IL7	1	1	L4
IL8	LED TYPE INDICATING LAMP, AMBER	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	CB TC-2	HEALTHY	IL8	IL8	1	1	L4
IL11	LED TYPE INDICATING LAMP, RED, 63.5V AC	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	PT R-PHASE	HEALTHY	IL11	IL11	1	1	L4
IL12	LED TYPE INDICATING LAMP, YELLOW, 63.5V AC	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	PT Y-PHASE	HEALTHY	IL12	IL12	1	1	L4
IL13	LED TYPE INDICATING LAMP, BLUE, 63.5V AC	-/BCH, SIEMENS, ESSEN DEINKI, L&T, ESBEE, VAISHNO, KAYCEE OR TEKNIC	PT B-PHASE	HEALTHY	IL13	IL13	1	1	L4
PBA	PUSH BUTTON SWITCH WITH BLACK ACTUATOR	-/BCH, SIEMENS, ESSEN DEINKI, L&T, SALZER, KAYCEE OR TEKNIC	ALARM	ACCEPT	PBA	PBA	1	1	L4
PBR	PUSH BUTTON SWITCH WITH BLACK ACTUATOR	-/BCH, SIEMENS, ESSEN DEINKI, L&T, SALZER, KAYCEE OR TEKNIC	ALARM	RESET	PBR	PBR	1	1	L4
PBT1	PUSH BUTTON SWITCH WITH BLACK ACTUATOR	-/BCH, SIEMENS, ESSEN DEINKI, L&T, SALZER, KAYCEE OR TEKNIC	TRIP CIRCUIT-1	CHECK	PBT1	PBT1	1	1	L4
PBT2	PUSH BUTTON SWITCH WITH BLACK ACTUATOR	-/BCH, SIEMENS, ESSEN DEINKI, L&T, SALZER, KAYCEE OR TEKNIC	TRIP CIRCUIT-2	CHECK	PBT2	PBT2	1	1	L4
CS	CONTROL SELECTOR SWITCH	-/KAYCEE, L&T, SALZER, RECOM, SWITRON OR SETON	CONTROL	SELECTOR SWITCH	CS	CS	1	1	L7
AS	AMMETER SELECTOR SWITCH	-/KAYCEE, RECOM OR SWITRON	AMMETER	SELECTOR SWITCH	AS	AS	1	1	L7
VS	VOLTMETER SELECTOR SWITCH	-/KAYCEE, RECOM OR SWITRON	VOLTMETER	SELECTOR SWITCH	VS	VS	1	1	L7
TVM	ENERGY METER, (SUPPLY IN CUSTOMER'S SCOPE)	-	TRIVECTOR METER	TVM	-	TVM	1	1	L7
BZ1	BUZZER	-/CANDS, JVS, VESTAL ELECTRONICS, KAYCEE OR MATHURA	PROTECTION ALARM	BUZZER	BZ1	BZ1	1	1	L7
BZ2	BUZZER	-/CANDS, JVS, VESTAL ELECTRONICS, KAYCEE OR MATHURA	TRIP / NON TRIP	PROTECTION BUZZER	BZ2	BZ2	1	1	L7
A	DIGITAL AMMETER, ACCU. CLASS 0.5	-/AE, RISHABH, MECO, SELEC OR PYROTECH	AMMETER	A	-	A	1	1	L7
V	DIGITAL VOLTMETER, ACCU. CLASS 0.5	-/AE, RISHABH, MECO, SELEC OR PYROTECH	VOLTMETER	V	-	V	1	1	L7
AA	6 WAY ALARM ANNUNCIATOR	- / JVS	ALARM	ANNUNCIATOR	AA	AA	1	1	L7

REV	DATE	ALTD.	REV	DATE	ALTD.	REV	DATE	ALTD.	DRAWN	NAME	SIGN.	DATE	CUSTOMER A. P. E. P. D. C. L. VISHAKHAPATNAM		CARD CODE	REV. NO.				
		CKD.			CKD.			CKD.	CKD	M.H.	sd/-	01/11/18	BHARAT HEAVY ELECTRICALS LIMITED BHOPAL		--	00				
ZONE		APPD.	ZONE		APPD.	ZONE		APPD.	APPD	MAK	sd/-	01/11/18	TITLE OUTLINE & GENERAL ARRANGEMENT OF OUTDOOR CONTROL & RELAY PANELS FOR 11 KV HV VCB		NO.OF SHEETS	06				
SIGNATURES NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING DISTRIBUTION OF PRINTS O.COPY 2 NOS. DIAGRAM 1 NO. SWM 6 NOS. ENGINEER 1 NO. TCX (SWM) 1 NO. CUSTOMER 6 NOS.													DEPT.	CODE	SCALE	WEIGHT	UNTOL. DIMS. GR. REFER CG 06503 TABLE 2.5-1	W.O.NO. REFER TABLE-1	DRG. NO.	3 561 00 5 1565
													SWE	409	N.T.S.	-				

9991 9 00 199 2

2

3

4

5

6

7

8

1545764/2023/HEP-SWE40900

SCHEDULE OF APPARATUS & LABEL DETAILS

DEVICE REFERENCE	DESCRIPTION	TYPE / MAKE	INSCRIPTION ON LABEL IN FRONT OF DEVICE			INSCRIPTION ON LABELS AT THE REAR OF DEVICE	QTY. OF LABELS/PANEL (FOR TOTAL QTY. OF PANELS REFER TABLE 1)		BLANK LABEL REF.
			I LINE	II LINE	III LINE		FRONT	REAR	
NR	NUMERICAL OVER CURRENT & EARTH FAULT RELAY	241 / ASHIDA	OVER CURRENT &	EARTH FAULT RELAY	NR	NR	1	1	L7
87T	NUMERICAL TRANSFORMER DIFFERENTIAL PROTECTION RELAY	RET615 / ABB	TRANSF. DIFF.	PROTN. RELAY	87T	87T	1	1	L7
86	MASTER TRIP RELAY	AVJh / ASHIDA	MASTER	TRIP RELAY	86	86	1	1	L7
30A	TWO ELEMENT AUXILIARY RELAY	AVA21 / ASHIDA	AUXILIARY RELAY	FOR WDG. TEMP.	30A	30A	1	1	L7
30B	TWO ELEMENT AUXILIARY RELAY	AVA21 / ASHIDA	AUXILIARY RELAY	FOR OIL TEMP.	30B	30B	1	1	L7
30C	TWO ELEMENT AUXILIARY RELAY	AVA21 / ASHIDA	AUXILIARY RELAY	FOR BUCHHOLZ	30C	30C	1	1	L7
30D	TWO ELEMENT AUXILIARY RELAY	AVA21 / ASHIDA	AUXILIARY RELAY	FOR PRV TRIP	30D	30D	1	1	L7
TBTVM	TEST LINK BLOCK	- / ENNKAY / L&T / SECURE / JVS / DAV	TEST BLOCK	FOR TVM	TBTVM	TBTVM	1	1	L7
75A	AUXILIARY CONTACTOR / PLUG IN RELAY	- / SCHNEIDER, ABB, BCH, SIEMENS, L&T, C&S, JYOTI OR GUARDIAN	ALARM CANCELLATION	CONTACTOR-A	75A	-	1	-	L4
75B	AUXILIARY CONTACTOR / PLUG IN RELAY	- / SCHNEIDER, ABB, BCH, SIEMENS, L&T, C&S, JYOTI OR GUARDIAN	ALARM CANCELLATION	CONTACTOR-B	75B	-	1	-	L4
80D	AUXILIARY CONTACTOR	- / SCHNEIDER, ABB, BCH, SIEMENS, L&T OR C&S	DC SUPPLY SUPVN.	CONTACTOR	80D	-	1	-	L4
R1	VARIABLE RESISTOR, 0.300 OHMS	- / BHEL APPROVED	RESISTOR	R1	-	-	1	-	L4
R2	VARIABLE RESISTOR, 0.300 OHMS	- / BHEL APPROVED	RESISTOR	R2	-	-	1	-	L4
R3	VARIABLE RESISTOR, 0.300 OHMS	- / BHEL APPROVED	RESISTOR	R3	-	-	1	-	L4
R4	VARIABLE RESISTOR, 0.300 OHMS	- / BHEL APPROVED	RESISTOR	R4	-	-	1	-	L4
H	SPACE HEATER	- / BHEL APPROVED	HEATER	H	-	-	1	-	L4
HS	PIANO TYPE HEATER ON/OFF SWITCH	- / BHEL APPROVED	HEATER	SWITCH	HS	-	1	-	LP
TH	THERMOSTAT FOR HEATER	- / BHEL APPROVED	THERMOSTAT	FOR HEATER	TH	-	1	-	L4
SKTS	3 PIN 5/15 AMPS DOMESTIC SOCKET WITH SWITCH	- / BHEL APPROVED	240V AC SUPPLY	OUTLET	SKTS	-	1	-	L7
CFL	COMPACT FLUORESCENT LAMP	- / BHEL APPROVED	-	-	-	-	-	-	-
DS	DOOR OPERATED SWITCH FOR CFL ON/OFF	- / BHEL APPROVED	-	-	-	-	-	-	-
MCBAC	MINIATURE CIRCUIT BREAKER, 16 AMPS	- / SCHNEIDER, LEGRAND, L&T, C&S OR INDOASIAN	AC	SUPPLY	FROM ACDB	MCBAC	1	-	LP
MCBDC	MINIATURE CIRCUIT BREAKER, 16 AMPS	- / SCHNEIDER, LEGRAND, L&T, C&S OR INDOASIAN	DC	SUPPLY	FROM DCDB	MCBDC	1	-	LP

REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

REV	DATE	ALTD.	REV	DATE	ALTD.	REV	DATE	ALTD.
		CKD.			CKD.			CKD.
		APPD.			APPD.			APPD.
ZONE			ZONE			ZONE		


DRAWN	NAME N.M.	SIGN. sd/-	DATE 01/11/18
CKD	M.H.	sd/-	01/11/18
APPD	MAK	sd/-	01/11/18
SIGNATURES NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING			
DISTRIBUTION OF PRINTS			
O.COPY 2 NOS. DIAGRAM 1 NO.			
SWM 6 NOS. ENGINEER 1 NO.			
TCX (SWM) 1 NO. CUSTOMER 6 NOS.			

CUSTOMER				A. P. E. P. D. C. L. VISHAKHAPATNAM			
Bharat Heavy Electricals Limited				BOPAL			
TITLE				OUTLINE & GENERAL ARRANGEMENT OF OUTDOOR CONTROL & RELAY PANELS FOR 11 KV HV VCB			
DEPT. CODE				SCALE WEIGHT UNTOL. DIMS. GR. W.O.NO. REFER CG 06503 TABLE 2.5-1			
SWE 409				DRG. NO. 3 561 00 5 1565			
CARD CODE				NO. OF SHEETS			
--				06			
REV. NO.				SHEET NO.			
00				05			

INSCRIPTION ON LABELS AT THE REAR OF DEVICE	QTY. OF LABELS/PANEL (FOR TOTAL QTY OF PANELS REFER TABLE 1)		BLANK LABEL REF.
	FRONT	REAR	

11111

TOTAL QTY. OF LABEL PER PANEL	BLANK LABEL REF.	DRAWING REFERENCE	ITEM NO.	SIZE OF LABEL (HxW)	MATERIAL CODE	LETTER HEIGHT OF ENGRAVED LABEL IN MM
	L4	3 561 11 5 0417	013	20*45	--	3
	L7	3 561 11 5 0417	005	15*70	BP 9029447265	3
001	LP	4 561 11 5 3021	001	25*70	BP 9029094672	3
		PRINT AS PER FIGURE-1 FOR TOP FIXING LABEL				

CUSTOMER			A. P. E. P. D. C. L. VISHAKHAPATNAM									
		BHARAT HEAVY ELECTRICALS LIMITED BHOPAL								CARD CODE	REV. NO.	
TITLE		OUTLINE & GENERAL ARRANGEMENT OF OUTDOOR CONTROL & RELAY PANELS FOR 11 KV HV VCB								NO.OF SHEETS	06	
DEPT.	CODE									SHEET NO.	06	
SWE	409	SCALE N.T.S.	WEIGHT —	UNTOL. DIMS. GR. REFER CG 06503 TABLE 2.5-1.	W.O.NO. REFER TABLE-1	DRG. NO. 3 561 00 5 1565						

4890 5 11 195 3 2 3 4 5 6 7 8 27/55

1545764/2023/HEP-SW540900

1545764/2023/HEP-SW540900

APCPDCL

GUARANTEE PERIOD - 5 YEARS

ITEM-005

APSPDCL

GUARANTEE PERIOD - 5 YEARS

ITEM-006

6 HOLES DIA 4

200

95

95

5

10

12

10

8

10

40

50

5

2

200

95

95

5

10

12

10

8

10

40

50

5

2

NOTES:-

1. LABELS SHOULD BE PERFECT RECTANGULAR & FLAT, DEBURRED & SLIGHTLY BEVELLED ALONG ALL THE EDGES.

2. NO BORDER OR MARGIN SHOULD BE PROVIDED ON THE EDGE OF LABELS.

		006	CUSTOMER NAME PLATE 2 TK * 50 W * 200 LG BLACK ANODISED ALUMINIUM	3	-	-	BP 085 14 95	A	NO.	0.054 KG	-	-
		005	CUSTOMER NAME PLATE 2 TK * 50 W * 200 LG BLACK ANODISED ALUMINIUM	3	-	-	BP 085 14 95	A	NO.	0.054 KG	-	-
REMARKS	VAR. NO.	ITEM NO	DESCRIPTION	STD	DRAWING NO.	IT.NO VAR	MATL. CODE MATL. SPECN.	A C	UNIT QTY.	UNIT WT. G/S	ZONE	

REV

DATE

ALTD.

CKD.

APPD.

REV

DATE

ALTD.

CKD.

APPD.

REV

DATE

ALTD.

CKD.

APPD.

DRAWN

NAME

SIGN.

DATE

CKD

VD

20MAR17

APPD

MAK/PKU

20MAR17

DISTRIBUTION OF PRINTS

O.COPY 2 NOS.

DIAGRAM 1 NO.

SWM 6 NOS.

ENGINEER 1 NO.

TCX (SWM) 1 NO.

CUSTOMER 6 NOS.

DEPT.

CODE

SWE

409

SCALE

1 : 10

(IN PC)

WEIGHT

-

UNTOL. DIMS. GR.

REFER AA0230208

TABLE-1 (C/V)

W.O.NO.

96035 -A-475-01

DRG. NO.

3 561 11 5 0684

TYPE OF PRODUCT OR NAME OF PROJECT

A. P. E. P. D. C. L.

भारत हैवी इलेक्ट्रिकल्स लिमिटेड, भोपाल

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL

CUSTOMER'S NAME PLATE & LABELS

CARD CODE

REV. NO.

00

NO. OF SHEETS

03

SHEET NO.

03

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1545764/2023/HEP-SWE40900

35620061775

DRAWING NO.

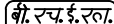
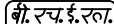
2	3	4	5	6	7	8
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SCHEME OF OUTDOOR CONTROL AND RELAY PANELS FOR 11KV LV VCB WITH DIFFERENTIAL PROTECTION OF APEPDCL VISHAKHAPATNAM

TABLE-1

WO	CUSTOMER PO.NO.	VCB Unit sl. Nos.	QTY	CT DETAILS	GOVT. SCHEME
97050A47601	CGM/P&MM/EPDCL/P4/VSP/CEMPT/-50/17-18/PM-4970/17, DT: 23.12.2017	8217228 to 8217276	49	11 kV O/D LV CT RATIO 600-300/1-1-0.5775 A ,CORE-I:15VA,5P10,CORE-II:5VA, 0.2S CORE-III: CL-PS,VK>=40I(RCT+RL), IM<=30MA at Vk/4	-
97056A47601	CGM/P&MM/EPDCL/P4/VSP/CEMPT/-50/17-18/EXTN.PM(1)-4970/17, DT: 22.01.2018	8217390 to 8217394	5	11 kV O/D LV CT RATIO 600-300/1-1-0.5775 A ,CORE-I:15VA,5P10,CORE-II:5VA, 0.2S CORE-III: CL-PS,VK>=40I(RCT+RL), IM<=30MA at Vk/4	IPDS

WO_NO : REFER TABLE-1

REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED		DEPT. SWE		BHARAT HEAVY ELECTRICALS LTD.	BHOPAL	OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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1545764/2023/HEP-SWE40900

35620061775

DRAWING NO.

2

3

4

5

6

7

8

A

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C

D

A

B

C

D

SHEET NO.	TITLE
1	TITLE SHEET
2	CONTENTS
3	3-LINE DIAGRAM-CT CONNECTIONS & AC SCHEME-NR RELAY
4	3-LINE DIAGRAM-CT CONNECTIONS
5	3-LINE DIAGRAM-CT CONNECTIONS
6	METERING CIRCUIT
7	240V AC SUPPLY DISTRIBUTION
8	24V DC SUPPLY DISTRIBUTION
9	TRIP CONDITIONS (86) & DC SCHEME-NR
10	PROTECTION CIRCUIT
11	LED INDICATIONS
12	CB CONTROL-CLOSE & TRIP COIL
13	CB CONTROL-CLOSE & TRIP COIL
14	ALARM CANCELLATION SCHEME
15	ALARM ANNUNCIATOR
16	CONTACT DISTRIBUTION & SWITCH DETAIL

NOTE : 1. CONTACTS OF MAIN NUMERICAL RELAY & TRIP RELAY IS REPRESENTATIVE ONLY , AVAILABLE CONTACTS FROM THE RESPECTIVE MANUFACTURER WILL BE UPDATED IN THE AS BUILT DRAWINGS.
2. TERMINAL NOS. MAY CHANGE AFTER FINALIZING OF MAKE OF EACH ITEM AND WILL BE REFLECTED IN AS BUILT DAWINGS.

INVENTORY NO.

REV.

DATE

ALTERED

REV.

DATE

ALTERED


REV.

DATE

ALTERED

DEPT. SWE

CODE 409

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

OUTDOOR CRP FOR 11KV VCB
APEPDCL VISHAKHAPATNAM

ZONE

ZONE

ZONE

DRN.

NAME NM

SIGN SD/-

DATE 16/02/18

NO. OF VAR

TITLE

OUTDOOR CONTROL & RELAY PANEL
CONTENTS

DRAWING NO.
35620061775

REV
00

SHT. NO. 02

NO OF SHEETS

16

1545764/2023/HEP-SWE40900

92719006998

DRAWING NO.

REMOTE SIDE

R
Y
B

1

2

3

VCB
1250A

4

5

6

P1

1S1

1S2

1S3

1S1

1S2

1S3

1S1

1S2

1S3

1S1R

1S1Y

1S1B

1S2R

1S2Y

1S2B

1S3R

1S3Y

1S3B

TB1

1

2

3

4

5

6

7

8

9

10

ELCT1

C90

B

T

ET

C111

C131

C151

C171

NR
03/A7

A1

1A

A5

1A

A9

1A

A14

1A

A3

5A

A7

5A

A11

5A

A15

5A

A2

A6

A10

A13

A4

A8

A12

A16

ADR241A

NR

	CT		
C1	PSU	C3	03/B4
B2		B4	09/C2
B3		B5	12/B3
B6		B8	13/B3
B7		B9	SPARE
	2CROC		SPARE
	2CROC		SPARE
C6		C8	14/A2
C9		C11	09/B3
C10		C12	16/A3 TO SPARE
C13		C15	16/A3 TO SPARE
C14		C16	16/A4 TO SPARE
B10		B11	16/A5 TO SPARE
B12			

CT CORE-1

TO SHT - 04

NOTE:-

CT CONNECTIONS ARE SHOWN FOR HIGHER TAB

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	DEPT. SWE	<div>बी.एस.ई.एल. BHEL</div>	BHARAT HEAVY ELECTRICALS LTD. BHOPAL	OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM								
		CHECKED			CHECKED			CODE 409												
		APPROVED			APPROVED															
ZONE				ZONE				ZONE				DRN.	NAME NM	SIGN SD/-	DATE 16/02/18	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL 3-LINE DIAGRAM-CT CONNECTIONS & AC SCHEME-NR RELAY	DRAWING NO. 35620061775		REV 00
									SHT. NO. 03 NO OF SHEETS 16											

1545764/2023/HEP-SWE40900

35620061775

DRAWING NO.

REMOTE SIDE

FROM SHT- 03


CT CORE-2

FOR METERING

TO SHT - 05

NOTE:-

CT CONNECTIONS ARE SHOWN FOR HIGHER TAB

REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED		DEPT. SWE		BHARAT HEAVY ELECTRICALS LTD. BHOPAL	OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM					
		CHECKED				CHECKED				CODE 409										
		APPROVED				APPROVED														
ZONE				ZONE				ZONE				DRN.	NAME NM	SIGN SD/-	DATE 16/02/18	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL 3-LINE DIAGRAM-CT CONNECTIONS	DRAWING NO. 35620061775		REV 00
												CKD.	MHN	SD/-	16/02/18			SHT. NO. 04	NO OF SHEETS	16
												APPD.	MAK	SD/-	16/02/18					

1545764/2023/HEP-SWE40900

92219002958

DRAWING NO.

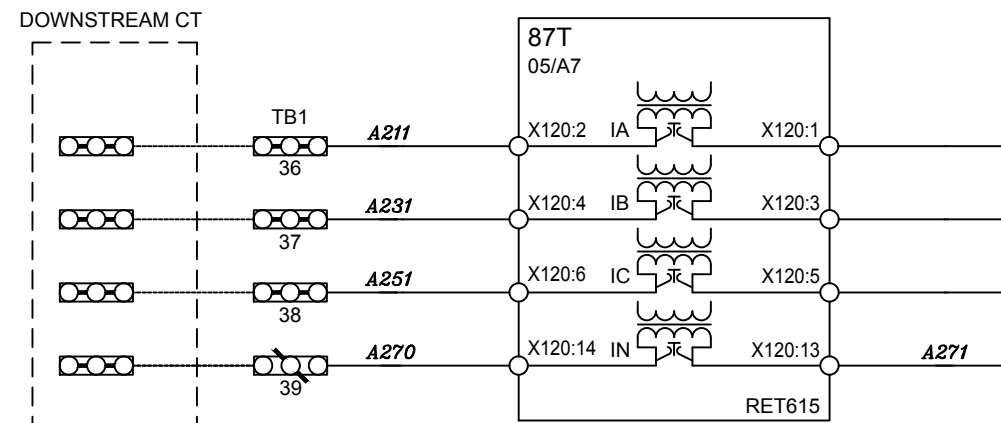
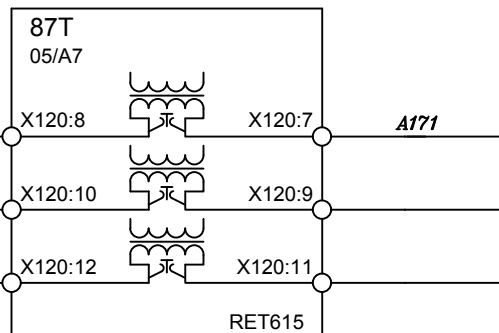
REMOTE SIDE

FROM SHT- 04

CT CORE-3

P2

FROM 33KV TRANSFORMER



NOTE:-

CT CONNECTIONS ARE SHOWN FOR HIGHER TAB

X120:1	CT	X120:2	
X120:3		X120:4	05/B4
X120:5		X120:6	
	CT-2		05/D6
X100:1	PSU	X100:2	09/C2
X110:1		X110:2	09/C5
X110:3		X110:4	09/C5
	2_1OPT0025		09/C6
	2_1OPT0025		09/C6
	2_1OPT0025		09/C7
X100:5		X100:3	16/C1 TO SPARE
X100:6		X100:7	16/C2 TO SPARE
X100:8		X100:9	16/C2 TO SPARE
	2CCBBM		SPARE
X100:13		X100:14	09/B3
	2CROR		SPARE
	2CROR		SPARE
	2CCBBM		SPARE
	2CCBBM		SPARE
X110:21		X110:20	16/C4 TO SPARE
X110:22		X110:24	16/C3 TO SPARE

REV.	DATE	ALTERED		REV.	DATE	ALTERED	
		CHECKED				CHECKED	
		APPROVED				APPROVED	

ZONE		ZONE		ZONE	

REV.	DATE	ALTERED	
		CHECKED	
		APPROVED	

ZONE		ZONE	

DEPT.	SWE
	409



BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

DRN.	NAME	SIGN	DATE	NO. OF	TITLE
	NM	SD/-	16/02/18	VAR	
CKD.	MHN	SD/-	16/02/18		
APPD.	MAK	SD/-	16/02/18		

OUTDOOR CONTROL & RELAY PANEL
3-LINE DIAGRAM-CT CONNECTIONS

DRAWING NO.	REV
35620061775	00
SHT. NO. 05	NO OF SHEETS 16

OUTDOOR CRP FOR 11KV VCB
APEPDCL VISHAKHAPATNAM

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REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

1545764/2023/HEP-SWE40900

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REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

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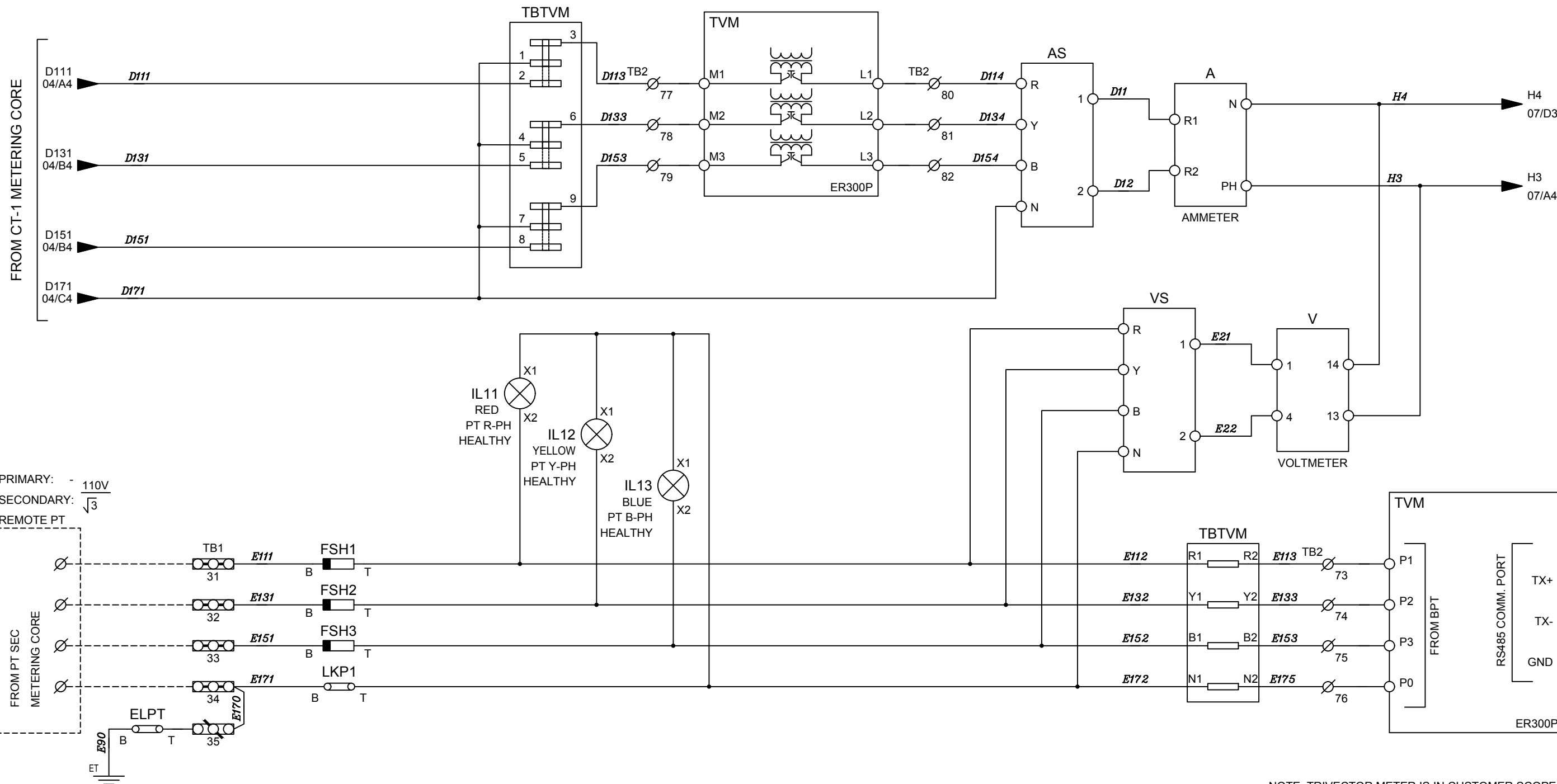
E

A

B

C

D



NOTE: TRIVECTOR METER IS IN CUSTOMER SCOPE.

REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED	
		CHECKED				CHECKED				CHECKED	
		APPROVED				APPROVED				APPROVED	

ZONE		ZONE		ZONE	
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DEPT.	SWE
CODE	409



BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

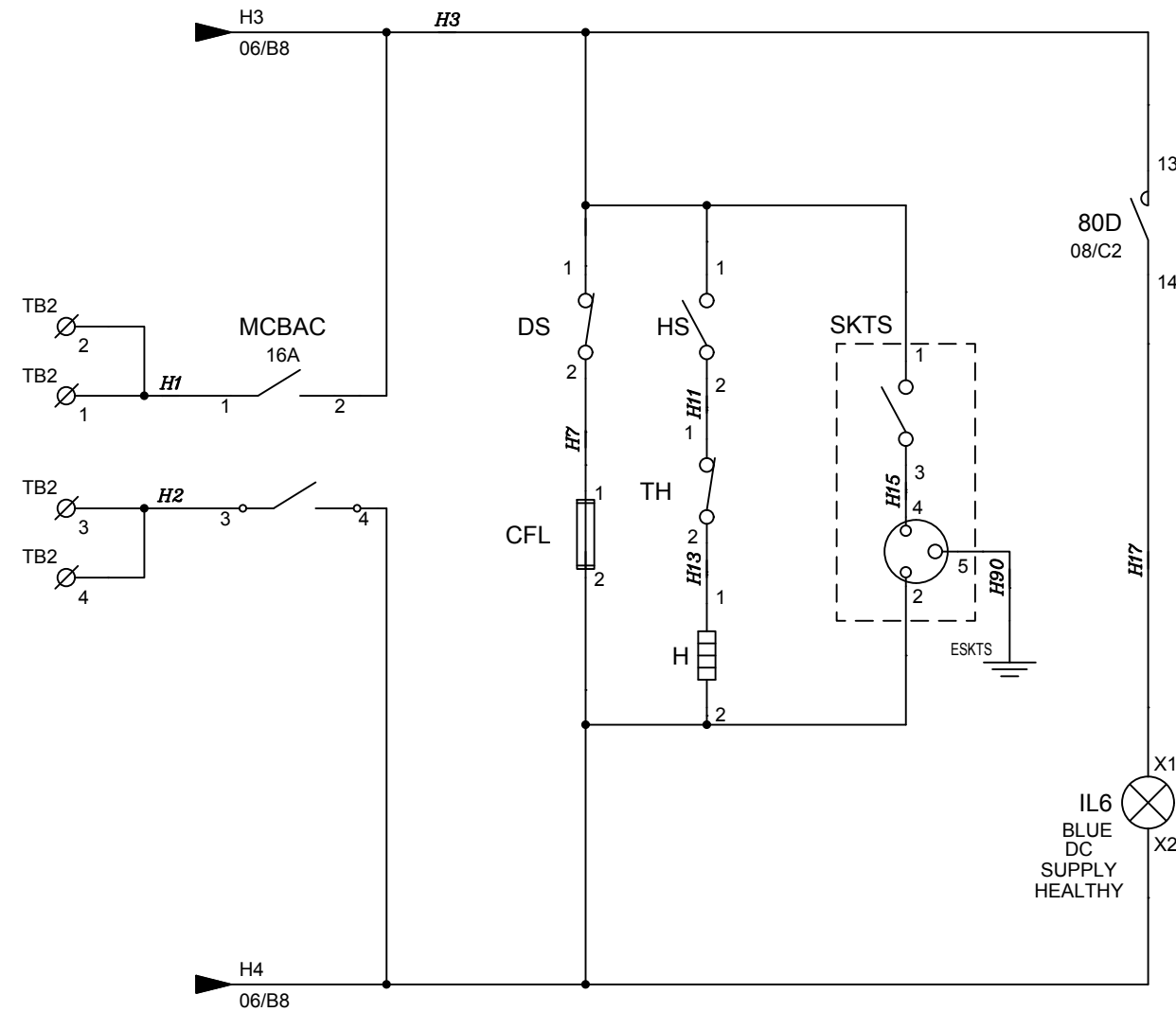
OUTDOOR CRP FOR 11KV VCB
APEPDCL VISHAKHAPATNAM

DRN.	NAME	SIGN	DATE	NO. OF VAR	TITLE
CKD.	MHN	SD/-	16/02/18		
APPD.	MAK	SD/-	16/02/18		

OUTDOOR CONTROL & RELAY PANEL
METERING CIRCUIT

DRAWING NO.		P
35620061775		(
SHT. NO. 06	NO OF SHEETS	16

← SINGLE PH. 240V AC SUPPLY FROM ACDB →



OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM			
CONTROL & RELAY PANEL SUPPLY DISTRIBUTION	DRAWING NO. 35620061775		REV 00
	SHT. NO. 07	NO OF SHEETS	16

1545764/2023/HEP-SWE40900

35620061775

DRAWING NO.

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REF. DRG. NO.

SIGN & DATE

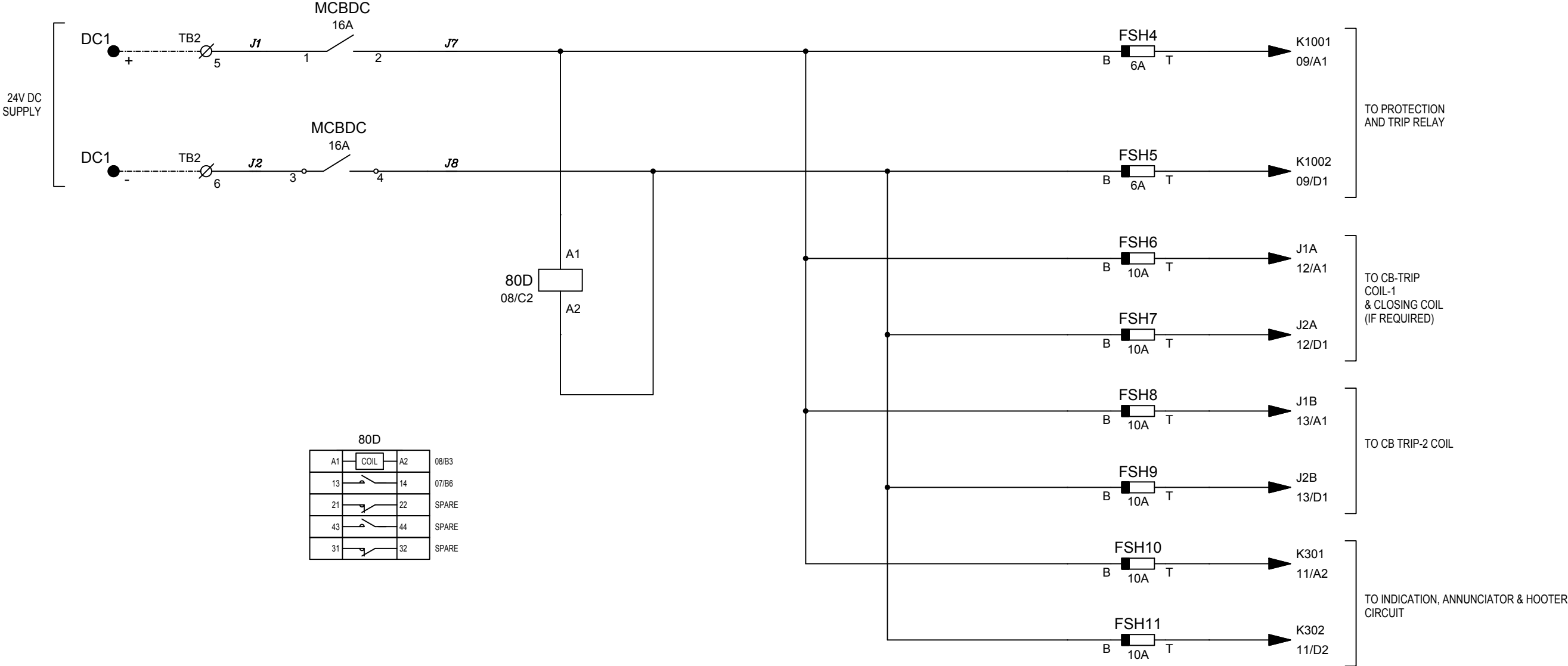
INVENTORY NO.

REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED	
		CHECKED				CHECKED				CHECKED	
		APPROVED				APPROVED				APPROVED	

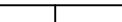
ZONE		ZONE		ZONE		DRN.	NAME NM	SIGN SD/-	DATE 16/02/18	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL 24V DC SUPPLY DISTRIBUTION	DRAWING NO. 35620061775		REV 00
						CKD.	MHN	SD/-	16/02/18			SHT. NO. 08		NO OF SHEETS 16
						APPD.	MAK	SD/-	16/02/18					

DEPT. SWE			BHARAT HEAVY ELECTRICALS LTD. BHOPAL
CODE 409			

OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM														



80D			
A1	COIL	A2	08/B3
13		14	07/B6
21		22	SPARE
43		44	SPARE
31		32	SPARE

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	DEPT. SWE	<div><div><div>बी.एच.ई.एल.</div><div></div></div><div>BHARAT HEAVY ELECTRICALS LTD. BHOPAL</div></div>				OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM			
		CHECKED			CHECKED			CODE 409									
		APPROVED			APPROVED												
ZONE			ZONE			ZONE			DRN.	NAME NM	SIGN SD/-	DATE 16/02/18	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL TRIP CONDITIONS (86) & DC SCHEME-NR	DRAWING NO. 35620061775		REV 00
									CKD.	MHN	SD/-	16/02/18			SHT. NO. 09	NO OF SHEETS	16
									APPD.	MAK	SD/-	16/02/18					

1545764/2023/HEP-SWE40900

35620061775

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REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

REV.	DATE	ALTERED	
		CHECKED	
		APPROVED	

ZONE

REV.	DATE	ALTERED	
		CHECKED	
		APPROVED	

ZONE

REV.	DATE	ALTERED	
		CHECKED	
		APPROVED	

ZONE

DEPT.
SWE
CODE
409BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

DRN.	NAME NM	SIGN SD/-	DATE 16/02/18	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL PROTECTION CIRCUIT
CKD.	MHN	SD/-	16/02/18		
APPD.	MAK	SD/-	16/02/18		

OUTDOOR CRP FOR 11KV VCB
APEPDCL VISHAKHAPATNAM

DRAWING NO.

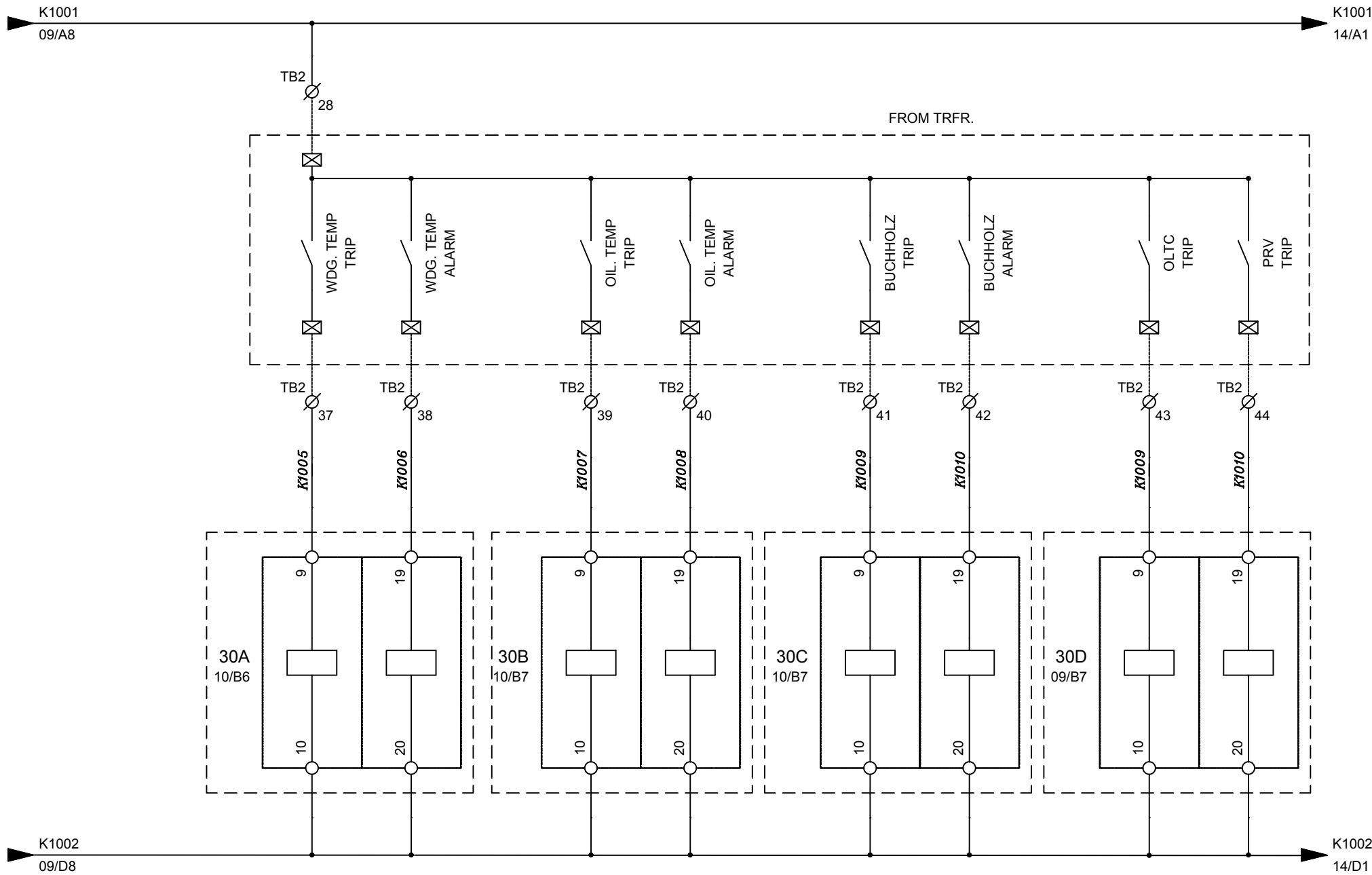
35620061775

SHT. NO. 10

NO OF SHEETS

REV
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16



30B			
9	COIL	10	10/C3
19	COIL	20	10/C4
1		2	SPARE
3		4	SPARE
5		6	09/B4
7		8	SPARE
11		12	SPARE
13		14	SPARE
15		16	15/C2
17		18	SPARE

30C			
9	COIL	10	10/C4
19	COIL	20	10/C5
1		2	SPARE
3		4	SPARE
5		6	09/B4
7		8	SPARE
11		12	SPARE
13		14	SPARE
15		16	15/C2
17		18	SPARE

30A			
9	COIL	10	10/C2
19	COIL	20	10/C3
1		2	SPARE
3		4	SPARE
5		6	09/B4
7		8	SPARE
11		12	SPARE
13		14	SPARE
15		16	15/B2
17		18	SPARE

30D			
9	COIL	10	10/C4
19	COIL	20	10/C5
1		2	SPARE
3		4	SPARE
5		6	09/B4
7		8	SPARE
11		12	SPARE
13		14	SPARE
15		16	08/B4
17		18	SPARE

1545764/2023/HEP-SWE40900

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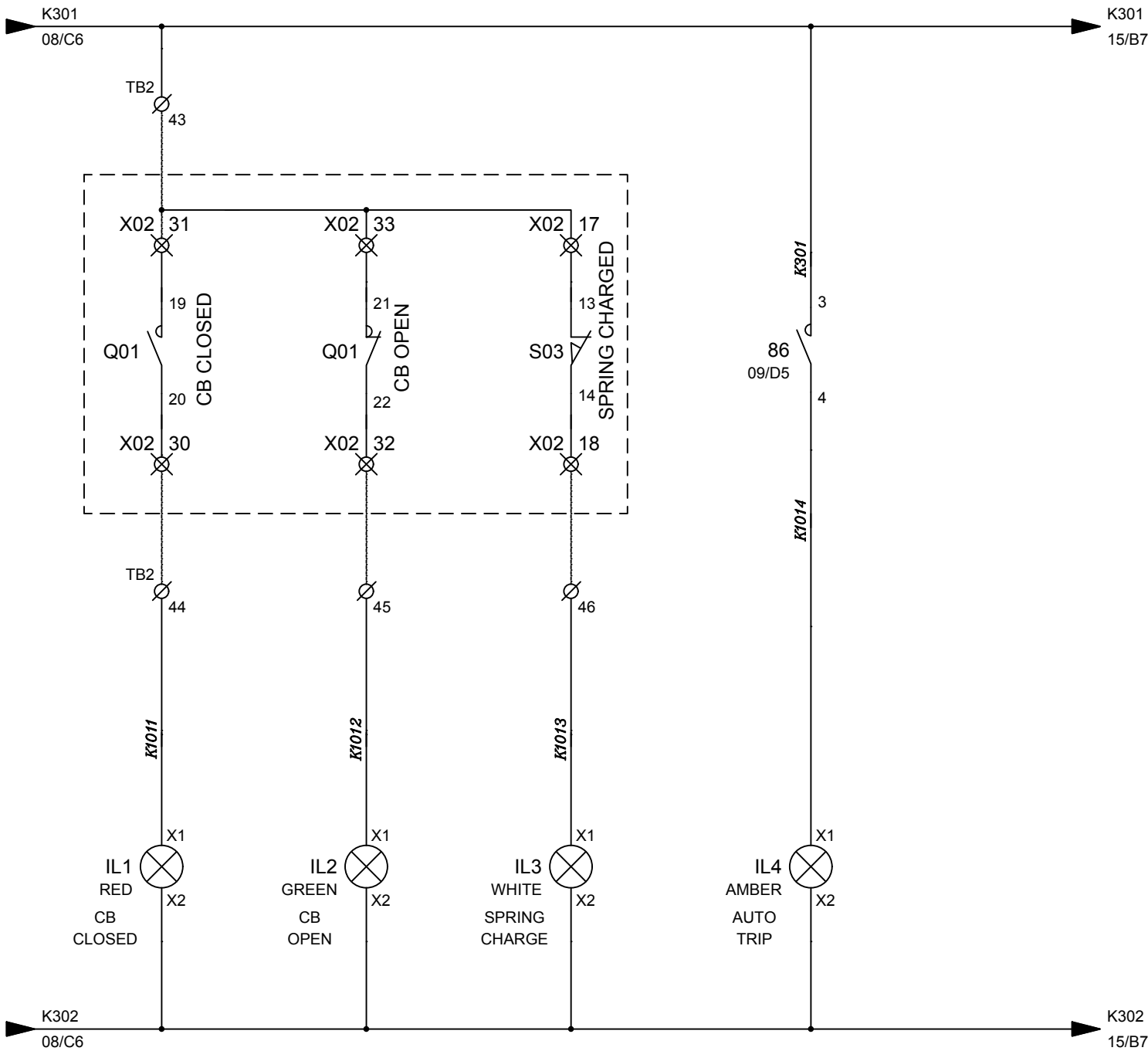
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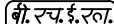
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REF. DRG. NO.

SIGN & DATE

INVENTORY NO.



REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED		DEPT. SWE		BHARAT HEAVY ELECTRICALS LTD.	BHOPAL	OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM					
		CHECKED				CHECKED				CODE											
		APPROVED				APPROVED				409											
ZONE				ZONE				ZONE				DRN.	NAME	SIGN	DATE	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL LED INDICATIONS	DRAWING NO.		REV	
													NM	SD/-	16/02/18			35620061775			00
												CKD.	MHN	SD/-	16/02/18						
												APPD.	MAK	SD/-	16/02/18			SHT. NO. 11	NO OF SHEETS 16		

1545764/2023/HEP-SWE40900

35620061775

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REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

J1A
08/B6CS
CLOSE
NEUTRAL
TRIP
B
2
CS
CLOSE
NEUTRAL
TRIP
A
186
09/D5
11 12

K14

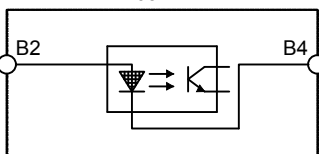
K5

86
09/D5
1 2

K3

NR

03/A7

TRIP CKT CHECK
1-3 1-4
PBT1(0-300 OHM)
R1
1 2
3IL7
X1 X2
AMBER
TRIP CKT-1 HEALTHY(0-300 OHM)
R2
1 2
3

K31

J2A
08/B6TB2
7TB2
9TB2
10TB2
11TB2
12TB2
13TB2
8

=F+VCB

(X02-01)

(+24V DC)

(X02-11)

REMOTE CLOSE

(X02-10)

REMOTE TRIP-1

(MANUAL)

(X02-9)

PROTN. TRIP

(X02-7)

POST CLOSE
SUPERVISION

(X02-12)

PRE CLOSE
SUPERVISION

(X02-02)

(-24V DC)

REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED	
		CHECKED				CHECKED				CHECKED	
		APPROVED				APPROVED				APPROVED	

ZONE		ZONE		ZONE	

DEPT.	SWE
CODE	409

BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

DRN.	NAME	SIGN	DATE	NO. OF
CKD.	MHN	SD/-	16/02/18	VAR
APPD.	MAK	SD/-	16/02/18	

OUTDOOR CONTROL & RELAY PANEL
CB CONTROL-CLOSE & TRIP COILOUTDOOR CRP FOR 33KV VCB
APEPDCL VISHAKHAPATNAM

DRAWING NO.

35620061775

SHT. NO. 12

NO OF SHEETS

16

REV
00

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REF. DRG. NO.

SIGN & DATE

INVENTORY NO.

REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED	
		CHECKED				CHECKED				CHECKED	
		APPROVED				APPROVED				APPROVED	
ZONE				ZONE				ZONE			

DEPT.	SWE
CODE	409
DRN.	
CKD.	
APPD.	



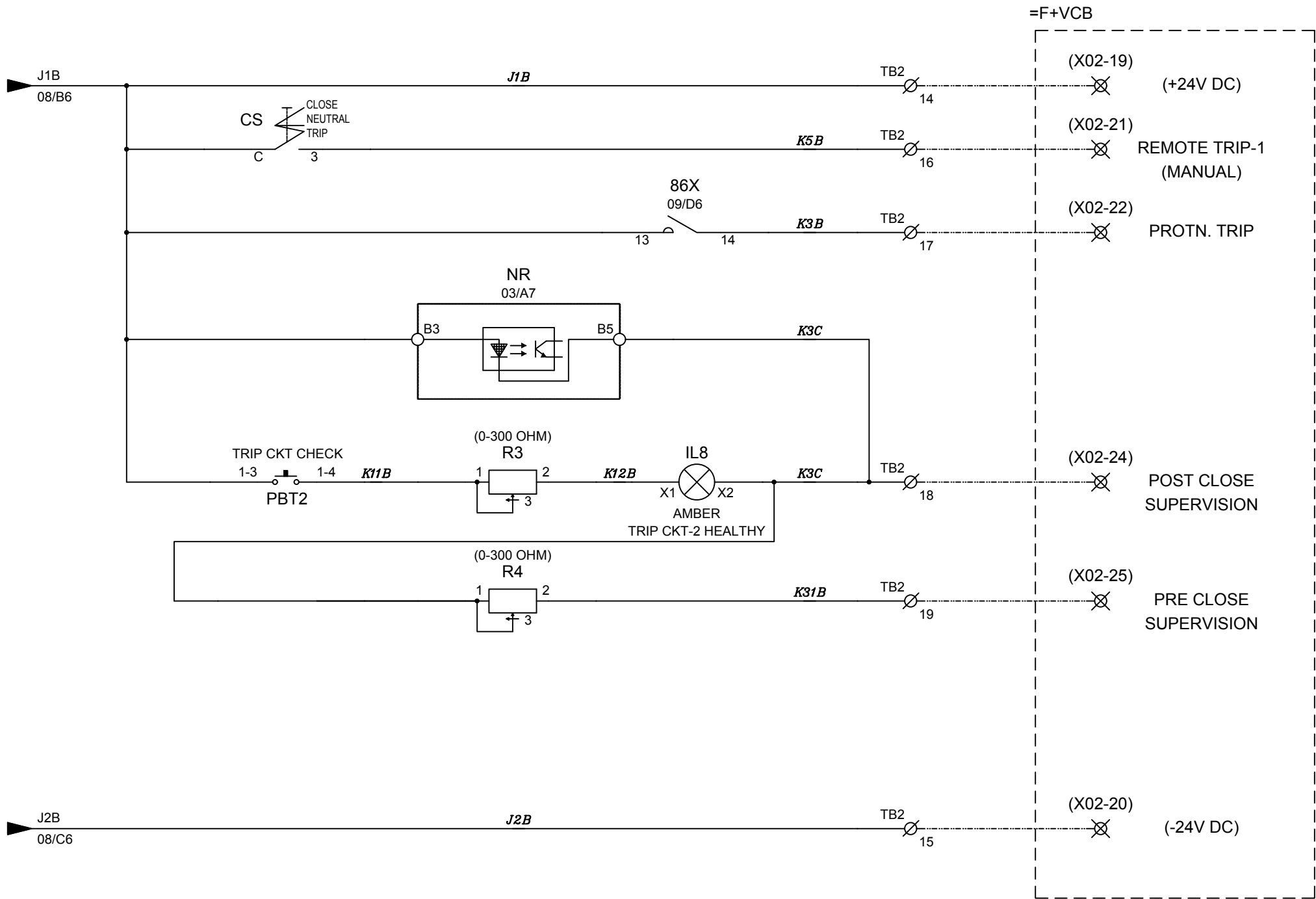
BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

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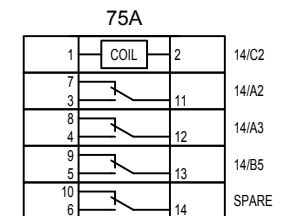
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CB CONTROL-CLOSE & TRIP COIL

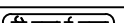
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SHT. NO. 13	NO OF SHEETS	16

OUTDOOR CRP FOR 11KV VCB
APEPDCL VISHAKHAPATNAM



INVENTORY NO.



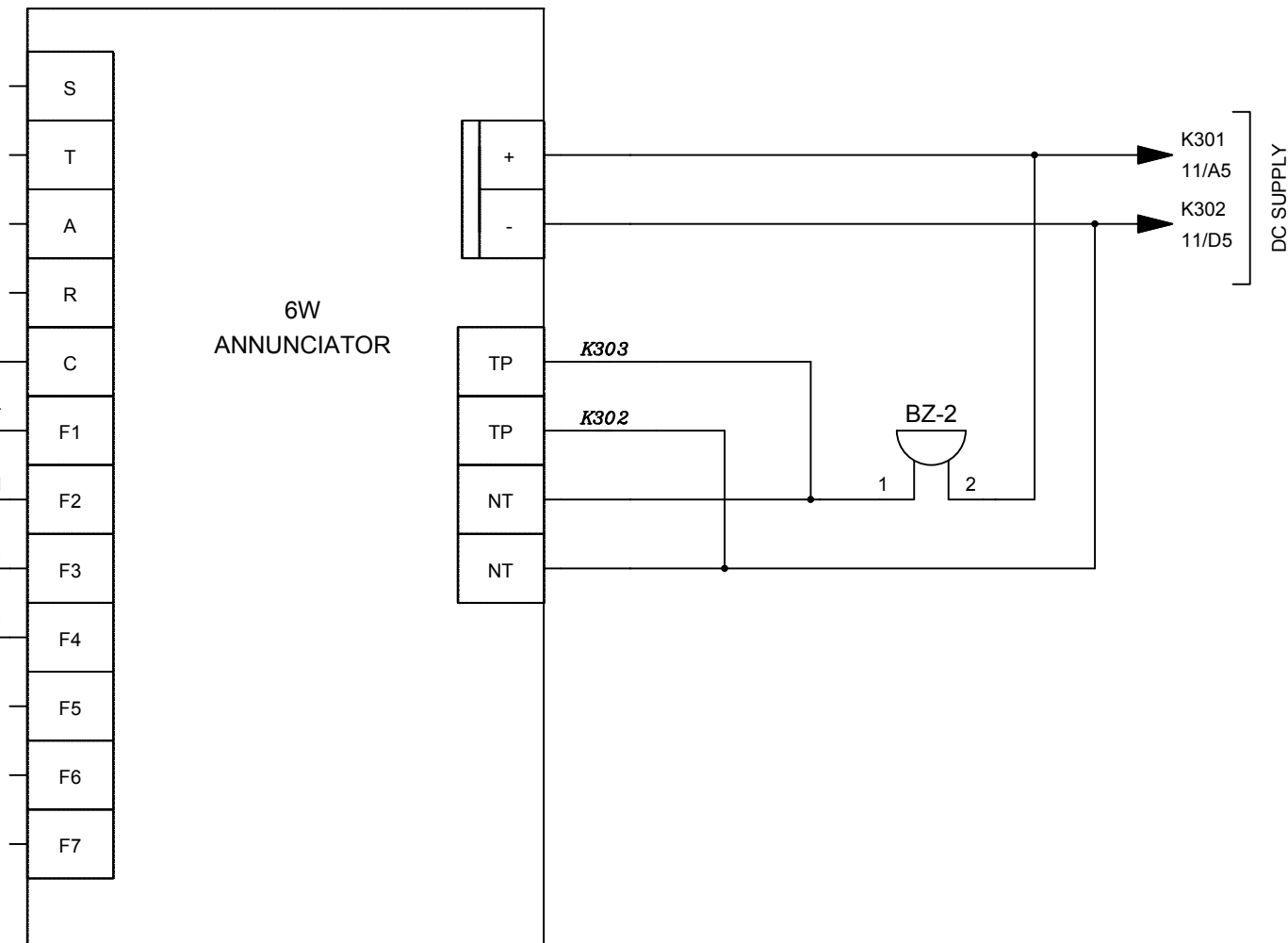
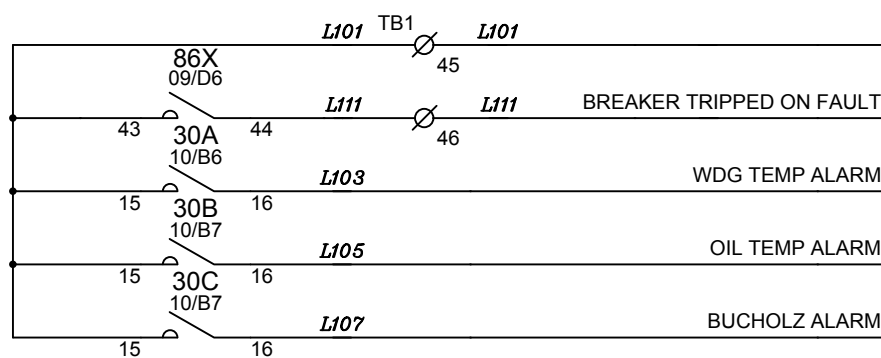
REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	DEPT. SWE		BHARAT HEAVY ELECTRICALS LTD.	OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM									
		CHECKED			CHECKED			CODE													
		APPROVED			APPROVED			409													
ZONE			ZONE			ZONE			DRN.	NAME	SIGN	DATE	NO. OF VAR	TITLE	OUTDOOR CONTROL & RELAY PANEL ALARM CANCELLATION SCHEME				DRAWING NO.		REV
									CKD.	MHN	SD/-	16/02/18							35620061775		00
									APPD.	MAK	SD/-	16/02/18							SHT. NO. 14	NO OF SHEETS 16	

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REF. DRG. NO.


SIGN & DATE

INVENTORY NO.

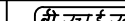


ANNUNCIATOR WINDOW DETAILS

F1 BREAKER TRIPPED ON FAULT	T	F5 SPARE
F2 WDG TEMP ALARM	NT	F6 SPARE
F3 OIL TEMP ALARM	NT	F7 SPARE
F4 BUCHOLZ ALARM	NT	

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	DEPT. SWE	<div><div>बी.एच.ई.एल.</div><div></div><div>BHARAT HEAVY ELECTRICALS LTD. BHOPAL</div></div>					OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM				
		CHECKED			CHECKED			CODE 409											
		APPROVED			APPROVED														
ZONE			ZONE			ZONE			DRN.	NAME NM	SIGN SD/-	DATE 16/02/18	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL ALARM ANNUNCIATOR		DRAWING NO.		REV 00	
									35620061775										
									CKD.	MHN	SD/-	16/02/18							
									APPD.	MAK	SD/-	16/02/18							
												SHT. NO. 15		NO OF SHEETS 16					



E	REV.	DATE	ALTERED		REV.	DATE	ALTERED		REV.	DATE	ALTERED		DEPT.	<div><div>बी.एच.ई.एल.</div><div></div></div> <div>BHARAT HEAVY ELECTRICALS LTD.</div> <div>BHOPAL</div>					OUTDOOR CRP FOR 11KV VCB APEPDCL VISHAKHAPATNAM				
			CHECKED				CHECKED				CHECKED		SWE										
			APPROVED				APPROVED				APPROVED		CODE 409										
	ZONE				ZONE				ZONE				DRN.	NAME NM	SIGN SD/-	DATE 16/02/18	NO. OF VAR	TITLE OUTDOOR CONTROL & RELAY PANEL CONTACT DISTRIBUTION & SWITCH DETAIL	DRAWING NO. 35620061775		REVISION 0		
												CKD.	MHN	SD/-	16/02/18								
												APPD.	MAK	SD/-	16/02/18	SHT. NO. 16			NO OF SHEETS 16				