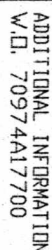


DRAWING NO. 34566251091 REV. 01



BHARAT HEAVY ELECT
JHANSI

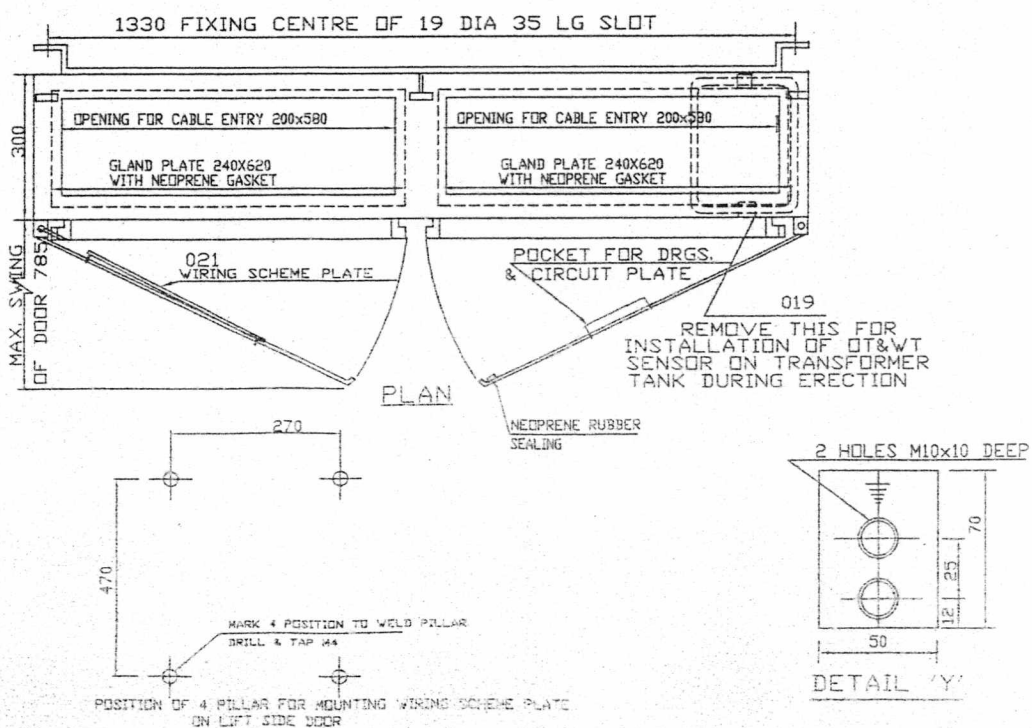
PRICALS LTD.

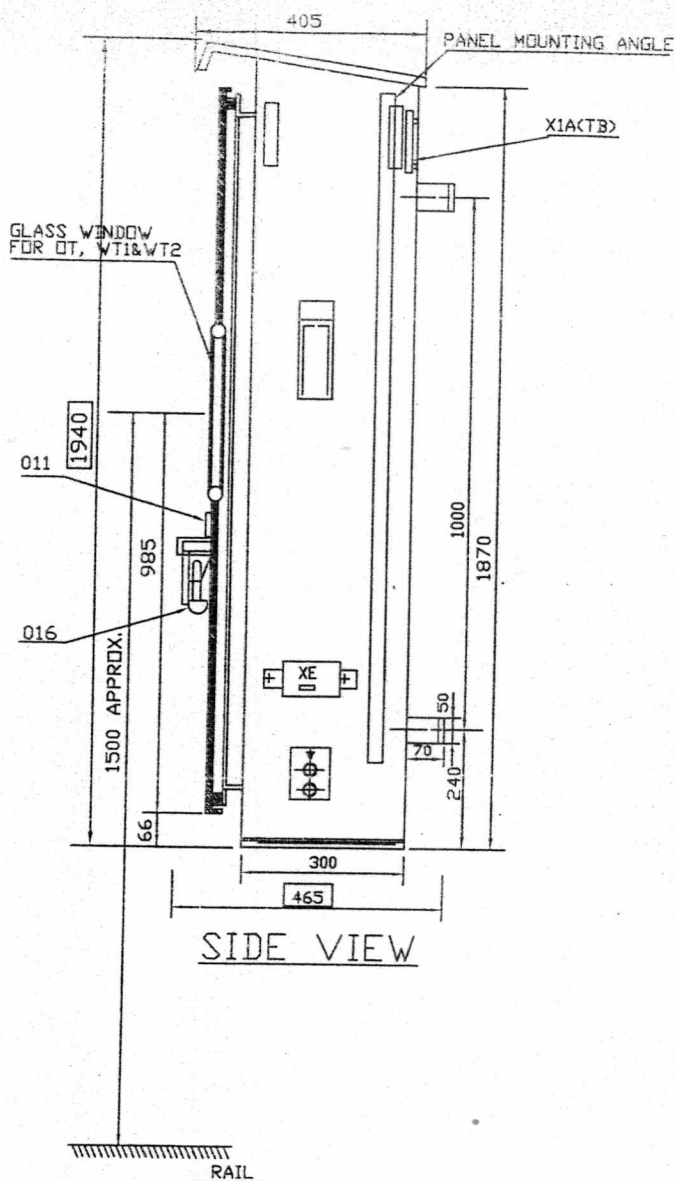
NAME	SIGN	DATE	INITIAL
RON	BDS1	19/03/2016	NR
CHR	BDS1	19/03/2016	VAR

DEF-RE	UN. TH. DIM. C/M/F		SCALE	WEIGHT 3500 APPROX.
CODE-406			NTS	

TITLE
G.A. DF OF COOLER CONTROL CABINET
(FRONT & PLAN OF M.BOX)

REF. TO ASSY. NO.	ITEM NO.	NO. OF ITEMS N/A
N/A		
DRAWING NO.		
34566251091		
REV.		01
CHG. NO.	02	NO. OF CHG.
		03





ADDITIONAL INFORMATION
W.D. 70974A17700



BHARAT HEAVY ELECTRICALS LTD.
JHANSI

REV	DATE	ALTERED	CHECKED	APPROVED
01	18/04/2006	BDST	BDST	DPRI
REVISION IN SHEET 01.				

REV	DATE	ALTERED	CHECKED	APPROVED
01	18/04/2006	BDST	BDST	DPRI
REVISION IN SHEET 01.				

NAME	SIGN	DATE
BDST		19/03/2006
BDST		19/03/2006
DPRI		18/04/2006

TITLE
G.A.
OF OF CODLER CONTROL CABINET
(SIDE VIEW OF M.BOX)

DRAWING NO.	REV.
34566251091	01

SIT NO.	DESCRIPTION	REVISION NO.
02	AUX. SUPPLY, HEATING & LIGHTING CIRCUIT	01
03	MOTOR CIRCUIT	01
04	CONTROL CIRCUIT	01
05	SIGNALLING CIRCUIT	01
06	ALARM & TRIP CIRCUIT	01
07	CT CKT. & INDICATOR DIAGRAM	01
08	TERMINAL BLOCKS	01
09	TERMINAL BLOCKS	01
10	LIST OF PARTS	01

NOTES:

1. WHERE POSSIBLE ALL GEAR SHOWN IN OPEN OR DE-ENERGISED POSITION.
2. THE COLOUR OF THE CABLE TO BE USED FOR EACH CONNECTION IS INDICATED BY ANY OF THE LETTERS MARKED AS FOLLOWS R-RED,Y-YELLOW,B-BLUE, N-BLACK,G-GREY,E-GREEN (FOR R,Y,B PHASE, DC SUPPLY, CONTROL SUPPLY AND EARTHING) SEPARATED FROM THE REMAINING WIRING.
3. CONNECTION WITH GREY AND GREEN WIRES SHOULD BE KEPT PHYSICALLY SEPARATED FROM THE REMAINING WIRING.
4. CABLES TO BE USED FOR WIRING R,Y,B MARKED THUS * 1NO. 10SQ.MM. REMAINING R,Y,B,N,G & E ARE 2.5 SQ.MM SIZE PVC INSULATED 100 VOLTS GRADE STRANDED COPPER CABLE.
5. LEADS MARKED FOR TRIP CIRCUITS ARE TO BE PREFIXED WITH P.V.C. SLEEVING MARKED TRIP IN RED.
6. OVERLOAD RELAY SETTING FOR FAN 0.35 AMPS.
7. WIRE MARKING SHALL BE DONE WITH ENGRAVED INTERLOCKING TYPE FERRULES.
8. MAKE OF EQUIPMENTS AS PER NTPC APPROVED VENDORS.
9. ALL T.B. SHALL BE STUD TYPE WITH RING TYPE LUGS FOR CABLE.
10. ALL CT CABLES SHALL BE 4 SQ.MM.
11. CT NOT IN USED SHALL BE KEPT SHORTED.

ADDITIONAL INFORMATION
W.D. 70974A17700
STATUS OF DRAWING 'U'

DISTRIBUTION OF PRINTS

REV	DATE	ALTERED	DATE	ALTERED
01	18/04/2016	CHECKED	01	APPROVED

REVISION

REV	DATE	ALTERED	DATE	ALTERED
01	18/04/2016	CHECKED	01	APPROVED

OWNER:
NTPC

PROJECT : NTPC BHEL POWER PROJECT LTD UNCHAHAR
(1 X 500MW)

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
50MVA, 21/11.5KV, 3PH, 50HZ, DNAME/UNAN
M/S NTPC UNCHAHAR 2X800 MW TPP

BHARAT HEAVY ELECTRICALS LTD.
JHANSI

SCALE

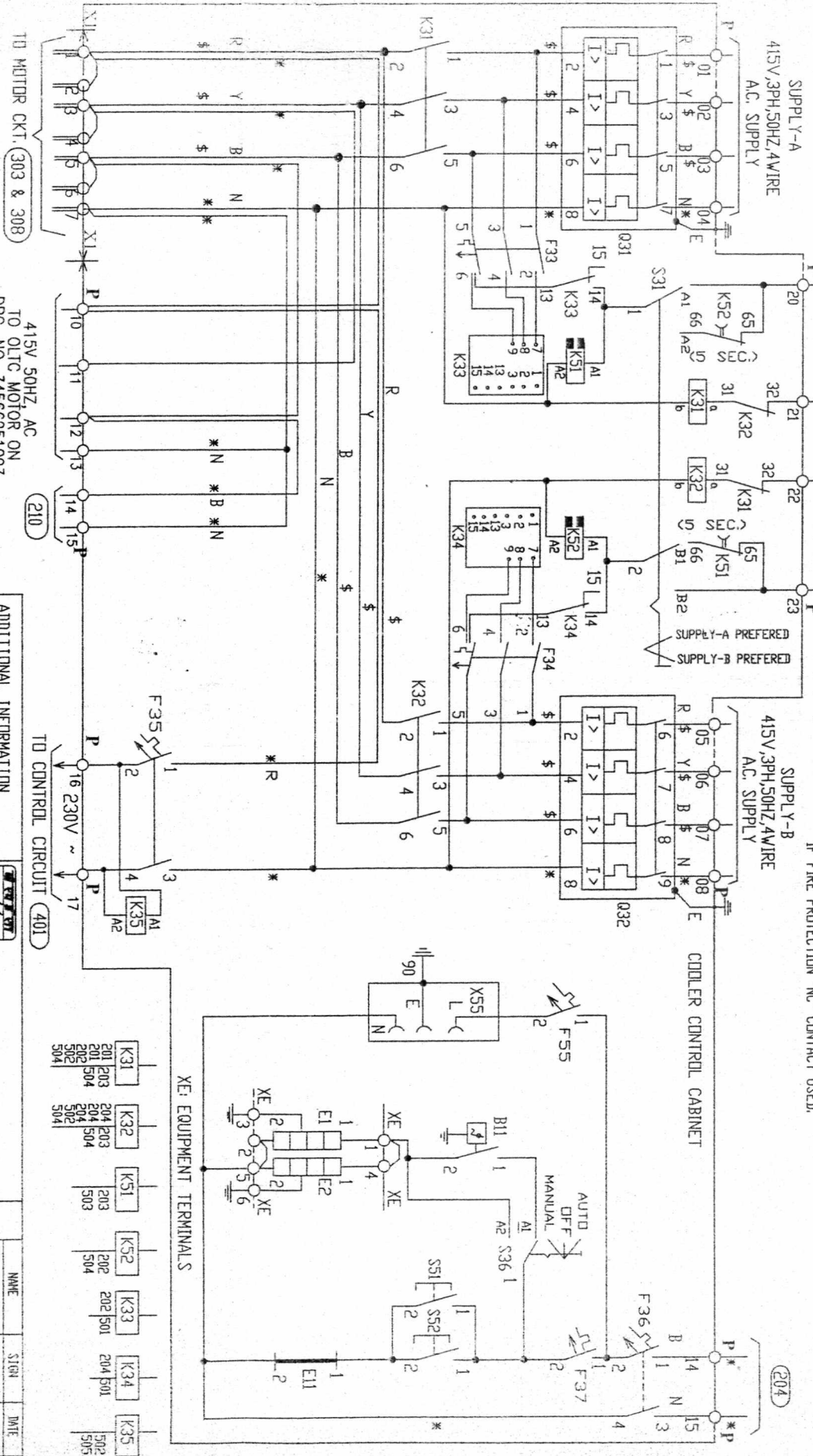
WEIGHT (KG) REF. TO ASSY. NO.

DATE

DRAWING NO.
34566251092

REV.
01

REMOVE SHORTING AT TB P-20 & 21 & P-22 & 23.
IF FIRE PROTECTION 'NC' CONTACT USED.



415V 50Hz AC
TO OLC MOTOR ON
DRG. NO. 34566251093
(502)

ADDITIONAL INFORMATION
W.D. 70974A17700



BHARAT HEAVY ELECTRICALS LTD.
JHANSI

REV	DATE	ALTERED
01	18/04/2016	CHECKED BPSI APPROVED DPRE

REV	DATE	ALTERED
01	18/04/2016	CHECKED BPSI APPROVED DPRE

REV	DATE	ALTERED
01	18/04/2016	CHECKED BPSI APPROVED DPRE

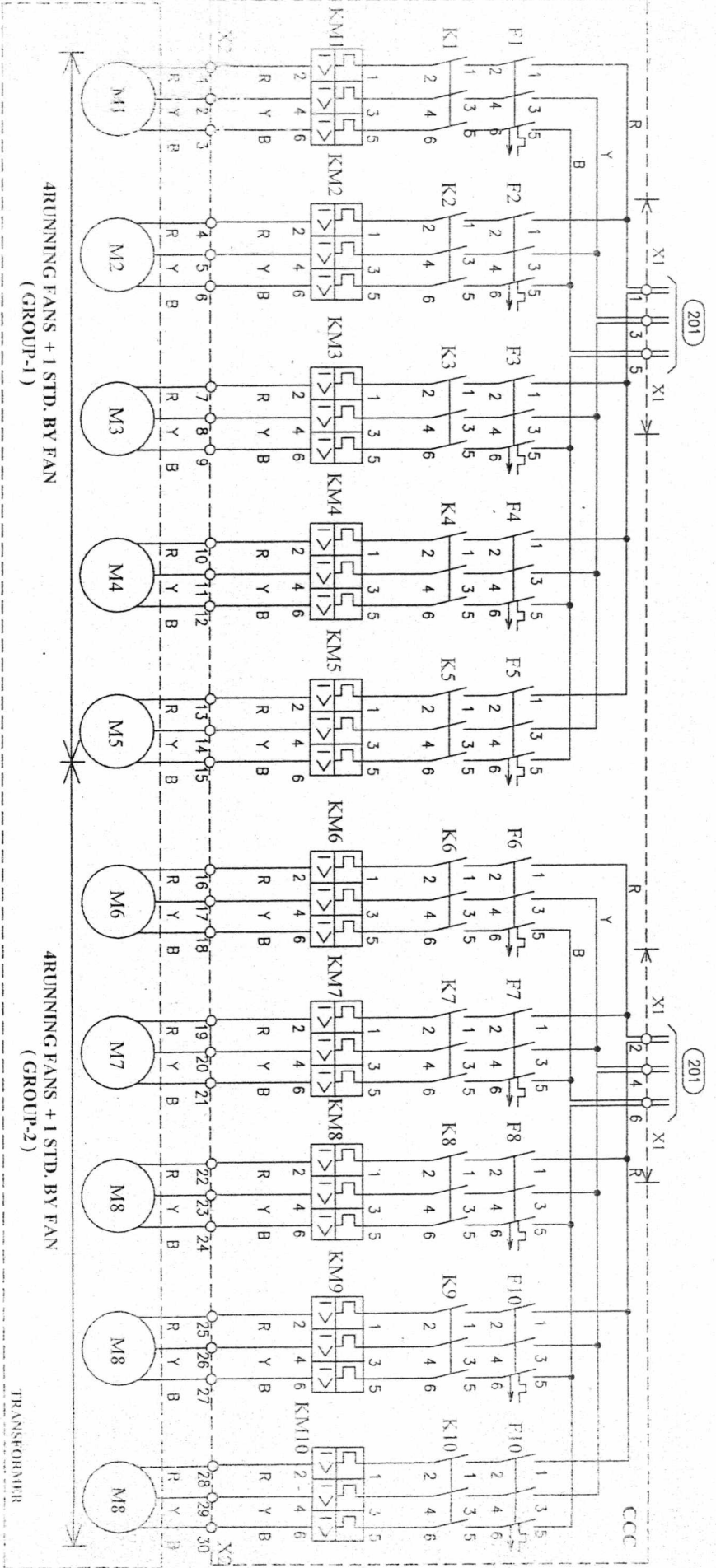
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CODE-406	DN. C/M/F	N.A.	N.A.	N.A.	19/02/2016

NAME	SIGN	DATE
BPSI		19/02/2016
DPRE		19/02/2016

TITLE
DIAGRAM OF COOLER CONTROL GEAR
(AUXILIARY SUPPLY, HEATING
& LIGHTING CIRCUIT)

DRAWING NO.	REV.
34566251092	01

SIGNATURE NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING. SIZE A3



ADDITIONAL INFORMATION
W.D. 70974A17700



BHARAT HEAVY ELECTRICALS LTD.
JHANSI

REV	DATE	ALTERED
01	18/04/2016	CHECKED BOSTI APPROVED DIPRI

DEPT-IRE	UN. TD.	SCALE	WEIGHT (KG)	REF. TO ASSY. NO.
CODE-406	JH. C/M/F	N.A.	N.A.	N.A.

TITLE
DIAGRAM OF COOLER CONTROL GEAR
(MOTOR CIRCUIT)

DRAWING NO.
34566251092 01

NAME	SIGN	DATE
BOSTI		18/04/2016
DIPRI		18/04/2016

SHT NO 03

NO OF SHT 10

REV

DATE

BY

DATE

BY

DATE

BY

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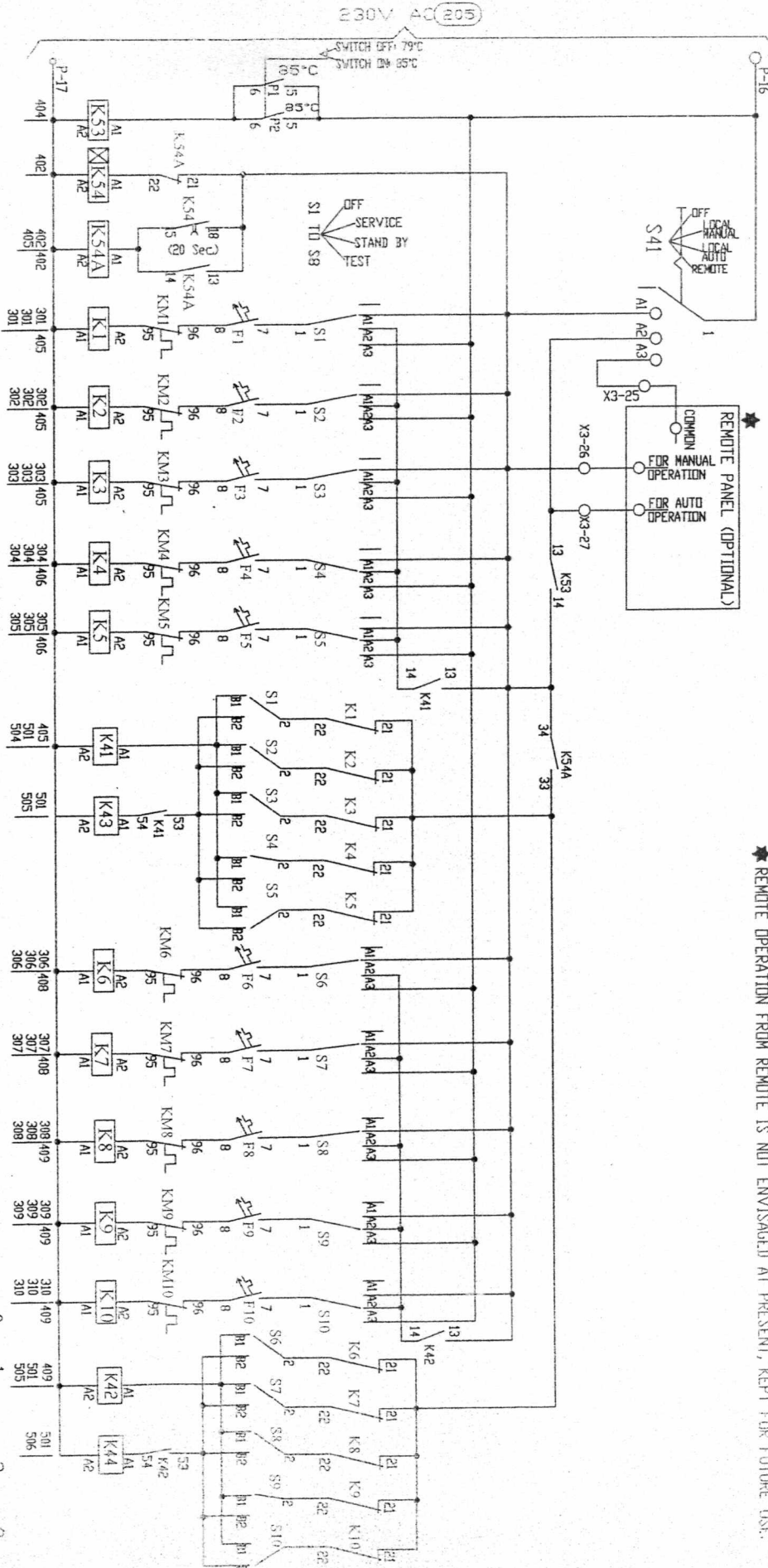
407

408

409

410

★ REMOTE OPERATION FROM REMOTE IS NOT ENVISAGED AT PRESENT, KEPT FOR FUTURE USE.



S41 3 0 1 2

OFF 1 2 3
MANUAL LOCAL AUTO REMOTE

ADDITIONAL INFORMATION
W.D. 70974A17700



BHARAT HEAVY ELECTRICALS LTD.
JHANSI

NAME	SIGN	DATE
DRS1		19/03/2016
BDS1		18/03/2016
DRP1		13/04/2016

REV	DATE	ALTERED	CHECKED	APPROVED
0				
1				
2				

REV	DATE	ALTERED	CHECKED	APPROVED
01	18/04/2016			

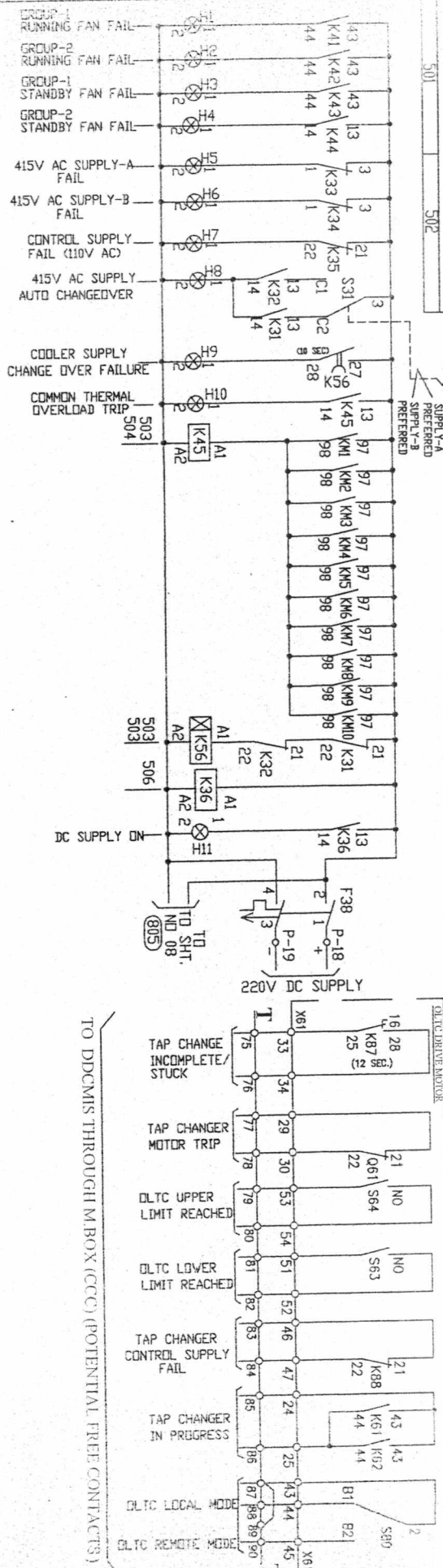
DEPT-THE	IN.TOL	SCALE	WEIGHT	ITEM NO.
DIH	C/M/F	N.A.	N.A.	N.A.

SHR NO.	04	HR OF SHR	10
34566251092			

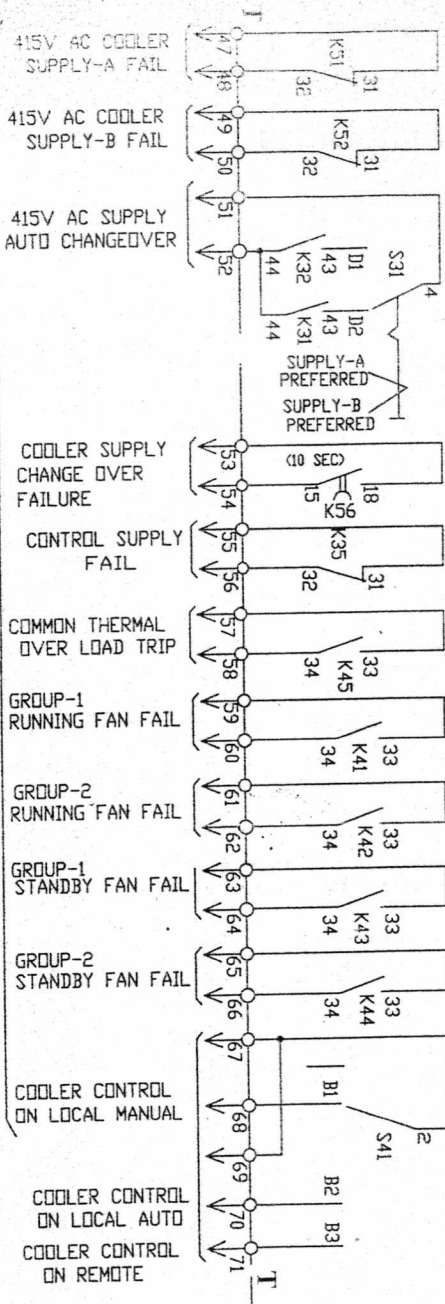
TITLE
DIAGRAM OF COOLER CONTROL GEAR
(CONTROL CIRCUIT)

DRAWING NO.
34566251092
REV. 01

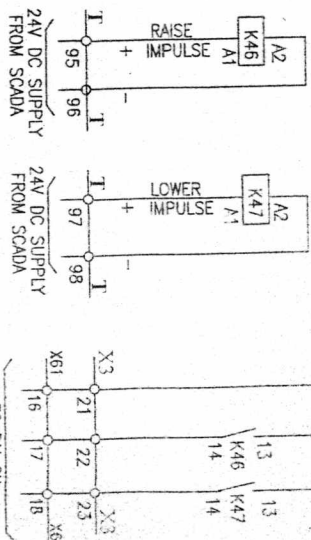
SIGNATURE NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING. SIZE A3



TO DDCMIS THROUGH M.BOX (CCC) (POTENTIAL FREE CONTACTS)



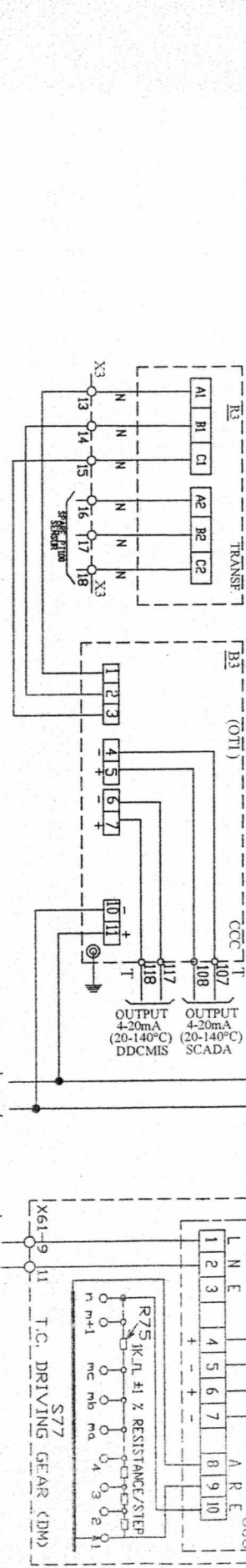
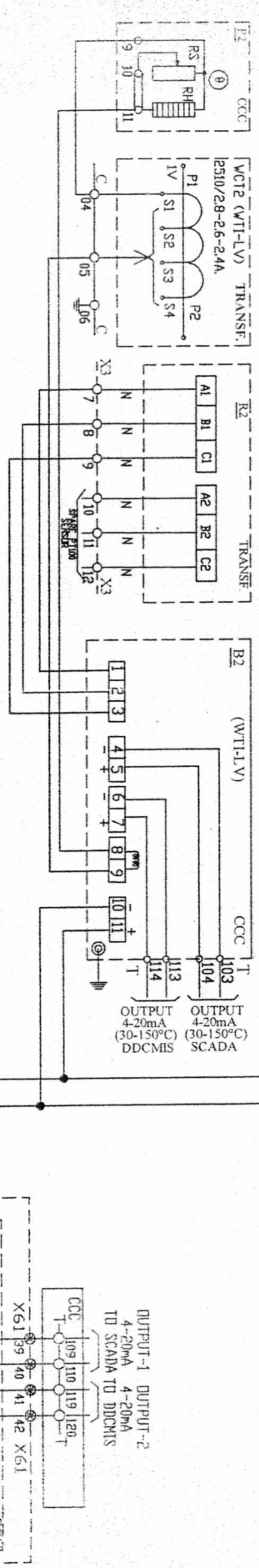
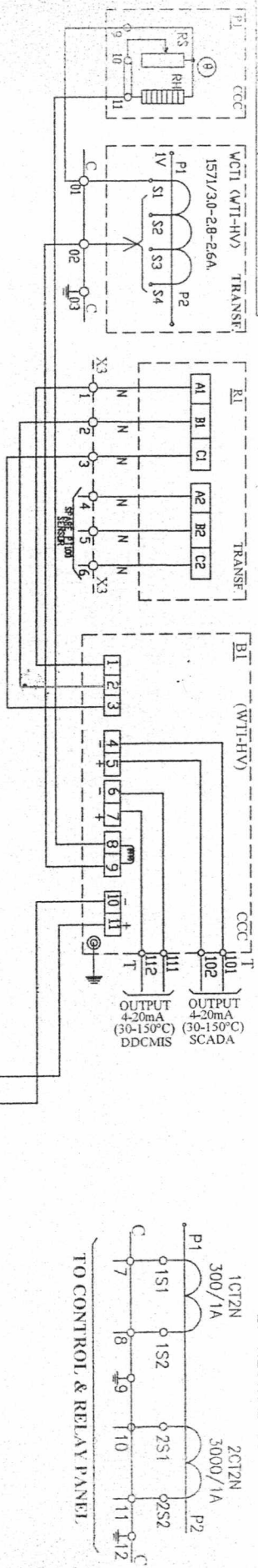
REMOTE ANNUNCIATIONS AS REQUIRED ON DDCMIS (POTENTIAL FREE CONTACTS)



DRG.NO. 34566251052
601

INVENTORY NO.										SIGN AND DATE									

SIGNATURE NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING. **SIZE A.**



NOTE:- 1. FOR CT PARAMETER REFER RATING & DIAGRAM PLATE

ADDITIONAL INFORMATION
W.D. 70974417700



BHARAT HEAVY ELECTRICALS LTD.
JHANSI

REV	DATE	ALTERED
01	18/04/2016	CHECKED BPSI APPROVED DPREI

REV	DATE	ALTERED
01	18/04/2016	CHECKED BPSI APPROVED DPREI

REV	DATE	ALTERED
01	18/04/2016	CHECKED BPSI APPROVED DPREI

REV	DATE	ALTERED
01	18/04/2016	CHECKED BPSI APPROVED DPREI

TITLE
DIAGRAM OF COOLER CONTROL GEAR
(CT CKT. & INDICATOR DIAGRAM)

DRAWING NO.
34566251092
SHT NO. 07

SIGNATURE NOT REQUIRED AS IT IS SYSTEM GENERATED DRAWING. SIZE A3

INVENTORY NO.

SIGN AND DATE

REF. DRG. NO.

NOTES:-

1. TERMINAL DETAILS AS SHOWN IN SHEETS 8 & 9 SHALL BE ENGRAVED IN A PLATE AND SAME SHALL BE FIXED AT INSIDE DOOR OF COOLER CONTROL CABINET.

2. ALL TBS SHALL BE SUITABLE FOR RING TYPE LUGS & ALL INCOMING/ OUTGOING CABLE SHALL BE TERMINATED WITH RING TYPE LUGS.

3. C1 TBS SHALL BE PROVIDED WITH EARTHING LINK & SHORTING FACILITY.

REV	DATE	ALTERED CHECKED APPROVED	REV	DATE	ALTERED CHECKED APPROVED	ADDITIONAL INFORMATION W.D. 70974A17700	BHARATI HEAVY ELECTRICALS LTD. JHANSI	REV	DATE	ALTERED CHECKED APPROVED	TITLE DIAGRAM OF COOLER CONTROL GEAR (TERMINAL BLOCKS)
ZONE			ZONE								

REV	DATE	ALTERED CHECKED APPROVED	REV	DATE	ALTERED CHECKED APPROVED	DEPT-TYPE UN. TO DIN. C/M/F		SCALE N.A.	WEIGHT (KGS) N.A.	REF. TO ASSY. NO. N.A.	ITER NO. N.A.
01	18/04/2016	CHECKED APPROVED									

REV	DATE	ALTERED CHECKED APPROVED	REV	DATE	ALTERED CHECKED APPROVED	DEPT-TYPE UN. TO DIN. C/M/F		SCALE N.A.	WEIGHT (KGS) N.A.	REF. TO ASSY. NO. N.A.	ITER NO. N.A.
01	18/04/2016	CHECKED APPROVED									

REV	DATE	ALTERED CHECKED APPROVED	REV	DATE	ALTERED CHECKED APPROVED	DEPT-TYPE UN. TO DIN. C/M/F		SCALE N.A.	WEIGHT (KGS) N.A.	REF. TO ASSY. NO. N.A.	ITER NO. N.A.
01	18/04/2016	CHECKED APPROVED									

REV	DATE	ALTERED CHECKED APPROVED	REV	DATE	ALTERED CHECKED APPROVED
-----	------	--------------------------------	-----	------	--------------------------------

4C
TO

C&R PANEL

P1-9
X3-5
EARTHING LINK

P1-9
X3-1
EARTHING LINK

LV WTI CT

LV WTI CT

LV NEUTRAL (REF)

EARTHING LINK

LV NEUTRAL (BU E/F)

EARTHING LINK

DRAWING NO.
34566251092

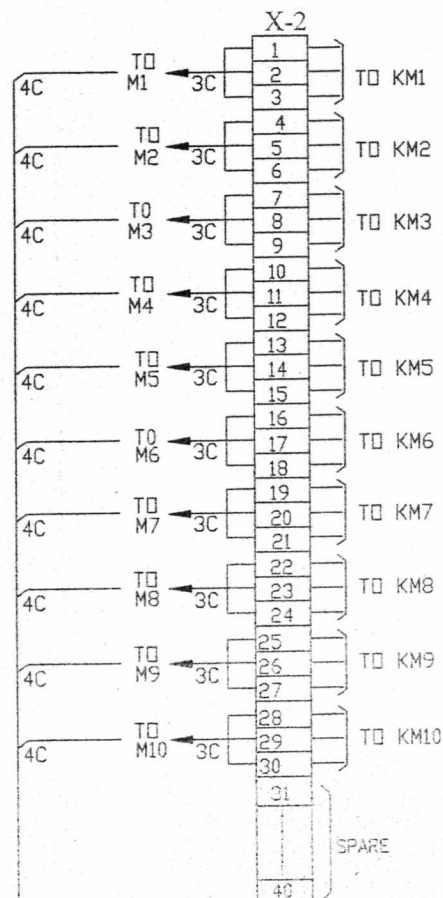
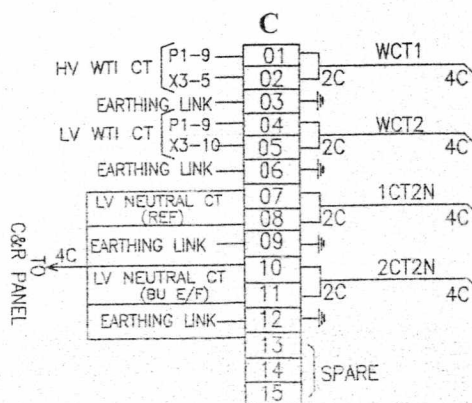
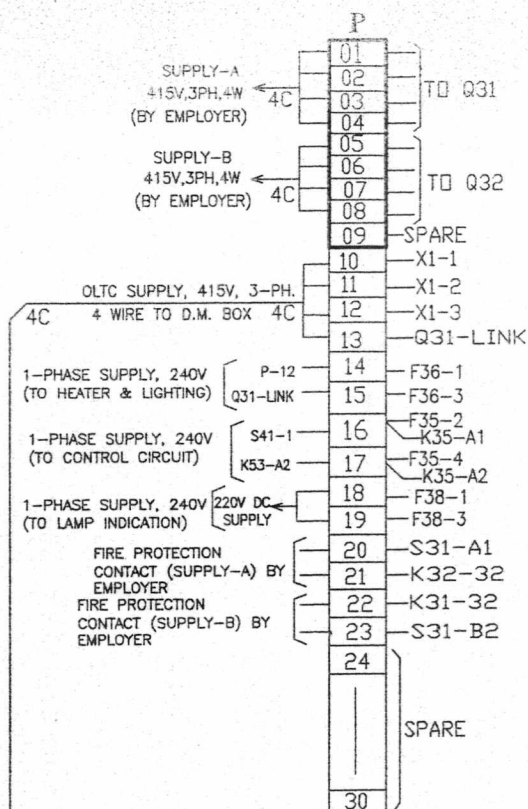
SHT NO 09

NO OF SHT 10

REV

01

TO TB



TO TRANSFORMER $\Leftarrow$

26015299543C.00.N5RD

LOCATION	ITEM NO.	QTY.	DEVICE	DESCRIPTION	TYPE	MAKE
L.BOX	01	002	Q31 & Q32	MCCB (40A), 36KA, 4 POLE 415V AC	MCB-400 11-200	L&T/SIEMENS
L.BOX	02	002	K31 & K32	AIR BREAK CONTACTOR 415V, COIL 240V, 43A	MAK-70- ST19000	L&T/SIEMENS
L.BOX	03	002	K33 & K34	ASYMMETRY RELAY 415V AC UNDER VOLTAGE OPERATION AT 75% AUTO RESET	DHLSI	MINULEC
L.BOX	04	002	K31 & K32	CONTACTORS, 240V AC, 2ND+2NC WITH ADD ON TIMED BLOCK OFF DELAY TYPE J-30 SEC.(ON+INC)	DISC922K+ C3207P1	BCH
L.BOX	05	001	F36	HEATER CKT. BREAKER 2P, 16A, 240V, AC	BB20160C	L&T/SIEMENS
L.BOX	06	001	K35	AUX. CONTACTOR, 4A, 240V, 2ND+2NC	MX022E- C594020	L&T/SIEMENS
L.BOX	07	001	F35	CONTROL CKT. BREAKER 2P, 6A, 240V, AC	BB20060D	L&T/SIEMENS
L.BOX	08	001	S36	ROTARY SWITCH 2WAY WITH DFF, 6A, 440V	S6- 61025-B13	SAZEE/ KAYCEE
L.BOX	09	001	B11	THERMOSTAT SWITCH 30-85°C	STEM	GIRISH/VIKAS
L.BOX	10	002	E1 & E2	HEATERS, 75/80W, 240V	ASHOKA/EE/ EQUV.	ASHOKA/EE/ EQUV.
L.BOX	11	002	S31 & S32	DOOR SWITCH 0.25A, 240V	901	IEC/P/L/ ESSN
L.BOX	12	001	E11	FLUORESCENT TUBE, 18W, 240V, WITH COVER	AP10-AS10	SCHNIER/ ANCHOR/BAC
L.BOX	13	001	X35	PLUG AND SOCKET, 3PIN, 10A, 240V, AC, 2P+E	S10- 61040-B13	SAZEE/ KAYCEE
L.BOX	14	001	S31	SUPPLY SELECTOR, 2WAY-ND-OFF, 10A, 4P 440V	BB40060C	L&T/SIEMENS
L.BOX	15	010	F1 TO F10	FAN CIRCUIT BREAKER, 4P, 6A, 415V	SSVS2067RC	SIEMENS/L&T
L.BOX	16	001	F33	SUPPLY CIRCUIT BREAKER, 6A, 2P, 220V DC	BB30020C	L&T/SIEMENS
L.BOX	17	002	F33 & F34	CIRCUIT BREAKER, 2A, 3P, 415V AC	BB10020C	L&T/SIEMENS
L.BOX	18	001	F37	CIRCUIT BREAKER, 2A, 1P, 240V AC	S10-61100 -B13	SAZEE/ KAYCEE
L.BOX	19	001	S41	COOLER CONTROL SELECTOR, 10A, 4P, 440V	MX004E- C594042	L&T/SIEMENS
L.BOX	20	002	K41 & K42	AUX. CONTACTOR, 230V, AC AND	S10- 61100-B13	KAYCEE
L.BOX	21	010	S1 & S10	ROTARY CAM SWITCH 3WAY, 3P WITH DFF 10A, 440V	MX012E- C594109	L&T/SIEMENS
L.BOX	22	010	K1 TO K10	FAN MOTOR CONTACTORS, 230V AC, 12A, 415V	2A5015	SAZEE/ KAYCEE
L.BOX	23	001	K54	TIME DELAY RELAY 230V, AC 0.1s-10h	2A5015	SAZEE/ KAYCEE
L.BOX	24	004	K43, K44, K53 & K54	2-CHARGE OVER CONTACTORS	MX031E- C594019	L&T/SIEMENS

LOCATION	ITEM NO.	QTY.	DEVICE	DESCRIPTION	TYPE	MAKE
M.BOX	25	001	P10	OIL TEMP. INDICATOR		PRECIL/ PERFECT
M.BOX	26	001	P1 & P2	WINDING TEMP. INDICATOR FOR HV & LV		PRECIL/ PERFECT
M.BOX	27	004	X2, X3, P.T	TERMINAL BLOCKS (P.T1009-JPBB120) REMAINING DATA WITH COVER		PRECIL/ PERFECT
M.BOX	28	001	XE	TERMINAL BLOCKS (1 TO 6)	DATA6	PRECIL/ PERFECT
M.BOX	29	001	X1	PHASE BAR TERMINAL BLOCK (1 TO 7)	JPBB39	PRECIL/ PERFECT
M.BOX	30	001	C	TERMINAL BLOCKS (C-01 TO 85--OATG/CDTS/EXCEPT C-03,06,09,12,15,18,21,33,36,60 & 69-ET6)		PRECIL/ PERFECT
M.BOX	31	002	B1 & B2	CURRENT CONVERTER UNIT FOR R1 & R2	ST605451	PRECIL/ PERFECT
M.BOX	32	001	B3	CURRENT CONVERTER UNIT FOR R3	ST605730	PRECIL/ PERFECT
M.BOX	33					
M.BOX	34	011	H1 TO H11	SIGNAL LAMP RED FOR INDICATION SUITABLE FOR 220V DC.	ELR220D	SIEMENS BOH/L&T
M.BOX	35	010	KH1 TO KH10	FAN MOTOR THERMAL O/L RELAY (0.3-0.5A)	MM2-SS9414 10050	L&T/SIEMENS
M.BOX	36	002	K36 & K45	AUX. CONTACTOR, COIL 220V DC, 2ND+2NC	MX022E- C594029	L&T/SIEMENS
M.BOX	37	001	K36	TIME DELAY RELAY 220V, DC 0.1s-10h	2A5015	SAZEE/ KAYCEE
M.BOX	38	001	F55	CIRCUIT BREAKER, 10A, 1P, 240V AC	BB10100C	L&T/SIEMENS
M.BOX	39	002	K46 & K47	AUX. CONTACTOR, COIL 24V DC, 3ND+1NC	MX031E- C594028	L&T/SIEMENS
M.BOX	40	002	ET	ENGRAVED TERMINAL DETAIL PLATE		
M.BOX	41	001	F51	BUCHHOLZ DEVICE		
M.BOX	42	001	P5	LOW OIL LEVEL INDICATOR		
M.BOX	43	002	F55 & F56	PRESSURE RELIEF VALVE		
M.BOX	44	002	R1 & R2	DUPLEX PT 100 SENSOR UNITS FOR RV1		PRECIL/ PERFECT
M.BOX	45	001	R3	DUPLEX PT 100 SENSOR UNITS FOR R01		PRECIL/ PERFECT
M.BOX	46	010	M1 TO M10	FAN WITH MOTOR 0.135KW, 3PH, 50HZ, 415V AC		
M.BOX	47	001	TIN	CURRENT TRANSFORMER ON LV NEUTRAL END		
M.BOX	48	002	WT1 & WT2	WTI CURRENT TRANSFORMER ON HV & LV		
M.BOX	49	003	F52/F53/F54	DLTC OIL SURGE RELAY		

SALZER MAKE MARKETING BY L&T

ADDITIONAL INFORMATION
W.O. 70974A17700

BHARAT HEAVY ELECTRICALS LTD.
JHANSI

DATE: 19/03/2005
BY: VAR

REV. DATE. ALTERED
CHECKED
APPROVED

REV. DATE. ALTERED
CHECKED
APPROVED

DEPT-TRE. IN. TD.
DIN. C/M/F

DRAWING NO.
34566251092

TITLE
DIAGRAM OF COOLER CONTROL GEAR
(LIST OF PARTS)

REV. NO.
01