BIHAR STATE POWER TRANSMISSION COMPANY LTD., PATNA
A subsidiary company of Bihar State Power (Holding) Company Ltd., Patna
CIN – U74110BR2012SGC018889
[SAVE ENERGY FOR BENEFIT OF SELF AND NATION]
Head Office, Vidyut Bhawan, Bailey Road, Patna – 800021
E-mail address – ceplanningengg@gmail.com , engg.dept@bsptcl.bihar.gov.in
Website - www.bsptcl.in

Letter No. C.E. (P&E) 172/2023 698 / BSPTCL, Patna Dated 19/12/23

From,

Kumar Prasant
Chief Engineer (P&E)

To,

JV of M/s ABN Tower & Transmission Pvt. Ltd.(Lead partner)
and M/s BinodConstruction(JV partner)
Godrej Genesis Building,Unit No.609,Plot No.XI,
6th Floor,Block EP & GP,Sector-V,Salt Lake
Kolkata-700091

Emai:- info@abntower.com

Sub.:- Adoption of GTP and Drawing of 50MVA 132/33 KV three phase Power Transformer of make M/s Atlanta Electricals Pvt. Ltd, Anand-Gujrat with all accessories along with Transformer oil and mandatory spares of Transformer for Construction of 2x50MVA, 132/33KV GSS Bhorey (Dist.Gopalganj) including residential quarter with construction of associated 02 nos. 132KV Line bays at GSS Hathua & Construction of its associated 132KV D/C Bhorey-Hathua Tr. Line with ACSR Panther Conductor (Line length-60RKM) on turnkey basis under state plan against NIT-10/PR/BSPTCL/2023 .

Ref.:- 1. NIT No.- 10/PR/BSPTCL/2023.
2. NOA No.- 13(service),dated-01.09.23 & 12(supply),dated-01.09.23
3. Your Letter no.- ABN/23-24/10/BSPTCL/RL-1079, Dated-07.11.23
4. CE(P&E),BSPTCL Letter no.-149, Dated 16.03.2023

Sir,

With reference to subject mentioned above, your request for adoption of GTP and Drawing of 50MVA 132/33 KV three phase Power Transformer of make M/s Atlanta Electricals Pvt. Ltd, Anand-Gujrat with all accessories along with Transformer oil and mandatory spares of Transformer from NIT-40/PR/BSPTCL/2022 is hereby considered **with correction** against NIT-10/PR/BSPTCL/2023 on the risk and responsibility of M/s ABN Tower & Transmission Pvt. Ltd.(Lead partner) JV with M/s Binod Construction(JV partner).Details of adopted documents are being annexed separately. **This approval is however subject to following conditions:**

- **Successful type tests on quoted losses as per NIT, except short circuit test, to be conducted on 1st unit of transformer in presence of BSPTCL representative in the NABL accredited Lab of M/s Atlanta electricals Pvt. Ltd.**
- **Vendor selection for mounting accessories shall be strictly from the vendors mentioned in the clause 10.0 of technical specification of the instant NIT.**
- **Core material should be directly procured either from the manufacturer or through their accredited marketing organization of high repute (BSPTCL approved) and not through any agent.**
- **The imported packed slit coils of CRGO materials shall be opened in the presence of the BSPTCL Inspector. Only after the inspection and approval from Tendering authority, the core material will be cut in-house or sent to external agency for cutting individual laminations. In case the core is sent to external agency for cutting, the BSPTCL Inspector will have full access to visit such agency for the inspection of the cutting of core.**
- **Type test reports of Transformer accessories required as per clause 6.4 of Technical specification and type test reports & routine test certificates issued by manufacturer of maintenance free breather shall be submitted before raising inspection call.**

- **Tank MS plates of thickness >12 mm should undergo Ultrasonic Test(UT) to check lamination defect, internal impurities in line with ASTM 435 & ASTM 577.**
- **MQP shall be follow as mentioned in Technical specification.**
- **All information regarding procurement of core material with associated cutting facility are to be intimated prior in advance to BSPTCL.**
- **5 years of warranty after TOC shall be provided.**

Please note that this approval and issue of this letter does not absolve you from any contractual responsibility in terms of quality and correctness of the material and should be strictly in accordance with the tender specifications/ISS/IEC. If at any time, any abnormality is observed, BSPTCL reserves the right to withdraw this approval with immediate effect without any pre-intimation.

Encl: As above.

Yours faithfully,

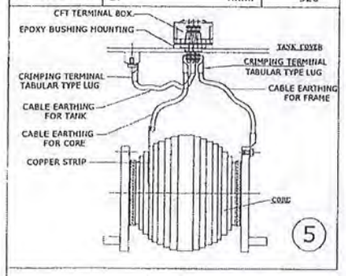
15/12/23

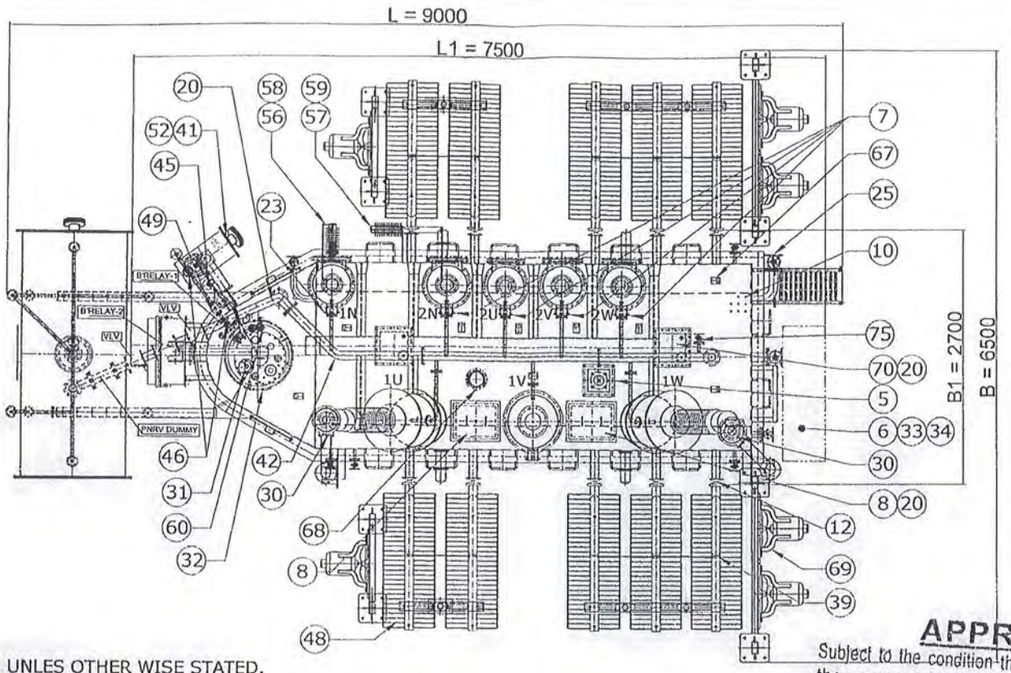
(Kumar Prasant)
Chief Engineer(P&E)

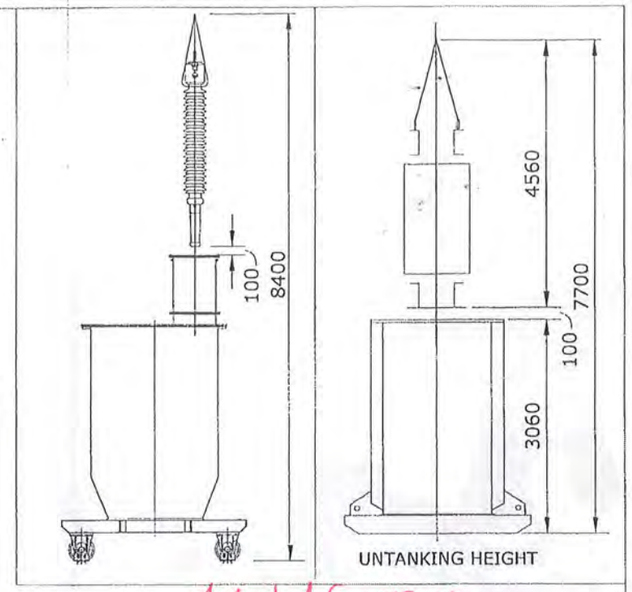
Annexure of Drawings of 50MVA 132/33 KV three phase Power Transformer

Sl. No	Description	Document No.	No. of sheets
	50MVA 132/33 KV three phase Power Transformer		
1	GTP of 50MVA 132/33 KV three phase Power Transformer	-	
2	Vendor selection for mounting accessories		
3	General arrangement for 30/50 MVA, 132/33KV Power transformer	AT09/1987 Q	02
4	Core details for 30/50 MVA, 132/33KV Power transformer	AT04/5524 Q	01
5	Rating & Diagram plate	AT05/2248 Q	01
6	Oil filling instruction plate	AT05/2249 Q	01
7	Valve schedule plate	AT05/2250 Q	01
8	LV PH. & LV N Bushing Assy. 36KV-2000A for 30/50 MVA, 132/33KV Power transformer	AT10/1759 Q	01
9	BI Metallic rigid stud type universal terminal connector	AT10/1759 Q	01
10	Foundation detail for 30/50 MVA, 132/33KV Power transformer	MISC/3006 Q	01
11	Radiator details for 30/50 MVA, 132/33KV Power transformer	AT09/3007 Q	01
12	Transport outline details for 30/50 MVA, 132/33KV Power transformer	MISC/3008 Q	01
13	Details of oil flow for 30/50 MVA, 132/33KV Power transformer	MISC/3013 Q	01
14	General arrangement of Marshalling box	AT13/2818 Q	02
15	Schematic diagram of M.Box with cooler control cubicle	AT13/2819 Q	07
16	General arrangement of Remote tap changer control cubical	AT13/2820 Q	02
17	Annunciations on RTCC	AT13/2821 Q	01
18	Schematic diagram for OLTC & RTCC	AT13/2822 Q	01
19	Terminal block & interconnection details for OLTC RTCC.M/Box with cooler control cubicle	AT13/2823 Q	01
20	General assy. of on load tap changer(bell type)	IT 3420 A3 02	01
21	Details of schematic diagram with run through switch(IMA7B)	IT 16163 A3 00	02
22	Details of motor drive mechanism box IMA7B for in tank on load tap changer	IT 13606 A3 00	01
23	FX8000A Front view-32 binary	PD/TMS/01(REV D)	01
24	FX8000A Back view-32 bi,28BO,10AI	PD/TMS/01.1(REV A)	01
25	FX8000A Front view	PD/TMS/01(REV D)	01
26	FX8000A Dimension details	PD/TMS/01.0(REV D)	01
27	Power supply & main supply of FX8000A	PD/TMS/02(REV D)	01
28	Binary output relay card 1	PD/TMS/03(REV E)	01
29	Binary output relay card 2	PD/TMS/03.1(REV D)	01
30	Binary input relay card 1	PD/TMS/04(REV C)	01
31	Binary input relay card 2	PD/TMS/04(REV C)	01
32	Analog input card 1	PD/TMS/05(REV B)	01
33	Analog output card	PD/TMS/06(REV B)	01
34	TCS TMS Communication block diagram	PD/TMS/07(REV E)	01

OVER ALL DIMENSIONS ARE IN mm.	L	m.m.	9000
	B	m.m.	6500
	H	m.m.	6900
TRANSPORT DIMENSIONS ARE IN mm.	L1	m.m.	7500
	B1	m.m.	2700
	H1	m.m.	4000
WEIGHT	CORE & WINDING.	KGS.	48000
	TANK & FITTING	KGS.	20000
	OIL IN	KGS.	24000
	TOTAL WEIGHT	KGS.	92000
	OIL IN	LITRES	27000
	TRANSPORT WT WITH OIL FILLED.	KGS.	80000
PLATE THICKNESS	SIDE	m.m.	8
	TOP	m.m.	16
	BOTTOM	m.m.	16
CLEARANCE PH. TO PH.	HV	m.m.	1430
	LV	m.m.	350
CLEARANCE PH. TO EARTH	HV	m.m.	1270
	LV	m.m.	320







NOTES:-

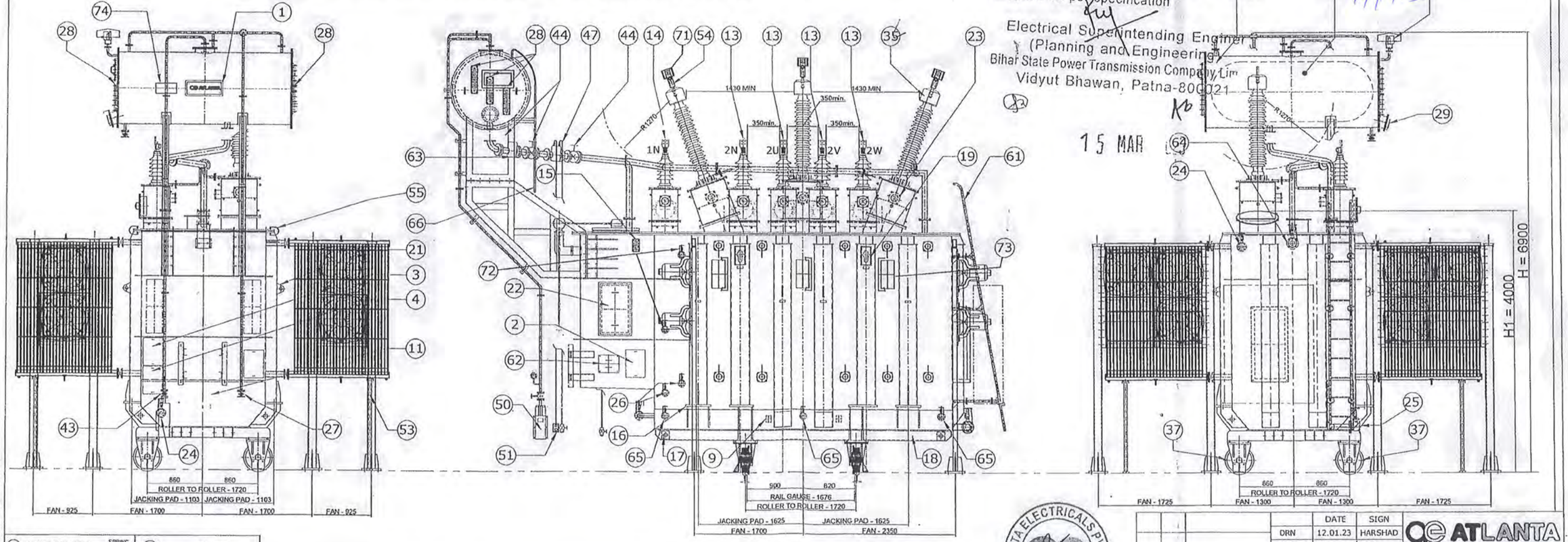
1. ALL DIMENSION ARE IN mm. UNLES OTHER WISE STATED.
2. GENERAL ARRANGEMENT PART DETAIL SEE DRG.:- AT09/1987 Q (SHEET 2 OF 2)

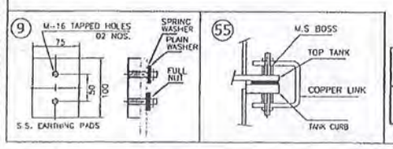
Adopted for NITNO - -10/PR/BSPTCL/2023

APPROVED
Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

15 MAR





CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	12.01.23	HARSHAD
CHD.		ULK
APPD.		M.B.

GENERAL ARRANGEMENT FOR 30/50 MVA, 132/33 kV POWER TRANSFORMER

ATLANTA
V.U. NAGAR - 388121

SCALE

REF. NO. SHEET 01 OF 02

W.O. NO. AET- 1662

DRG. NO:-AT09/1987 Q

IF IN DOUBT PLEASE ASK

SR. NO.	DESCRIPTION	QTY.
1	MONOGRAM PLATE	1
2	RATING AND DIAGRAMPLATE	1
3	VALVE SCHEDULE PLATE	1
4	OIL FILLING INSTRUCTION MAIN TANK AND AIR CELL TYPE CONSERVATOR	1
5	CORE CLAMP,CORE & TANK EARTHING ARRANGEMENT	1
6	MARSHALLING BOX	1
7	LV PHASE & LV NEUTRAL CT TERMINALS BOX	3+1
8	INSPECTION COVERS ON COVER	2
9	EARTHING PADS - (M16 BOLT WITH PLAIN WASHER & SPRING WASHER)	2
10	POCKETS FOR O.T.I., W.T.I., & THERMOMETER.	6
11	DRIVE MECANISUM FOR OLTC	1
12	BUTTERFLY VALVE FOR RADIATORS (Ø80)	20
13	LV PHASE & LV NEUTRAL BUSHING (36 KV / 2000 Amp.)	3+1
14	HV NEUTRAL BUSHING (36 KV / 2000 Amp.)	1
15	TRANSPORT OIL LEVEL GAUGE	1
16	JACKING PADS	4
17	PULLING EYES (HAULAGE LUGS.)	4
18	BASE PLATE WITH SKIDS	1
19	LIFTING BOLLARDS FOR COMPLETE TRANSFORMER	4
20	AIR RELEASE PLUG	5
21	LESHING LUGS	8
22	INSPECTION COVERS FOR OLTC CONNECTION	3
23	HV PHASE & HV NEUTRAL CT TERMINALS BOX	3+1
24	FILTER VALVE WITH BLANKIMNG PLATE WITH ADAPTORS (G.M. GATE TYPE 50 NB, TOP & BOTTOM)	1+1
25	DRAIN VALVE WITH BLANKING PLATE (80Ø NB) AND PROTECTION COVER	1
26	SAMPLING VALVE (25Ø NB) (TOP & BOTTOM)	1+1
27	AIR RELEASE PIPE FOR MAIN CONSERVATOR WITH VALVE (25Ø NB)	1
28	PRISMATIC OIL LEVEL GAUGE	3
29	MAGNETIC OIL LEVEL GAUGE WITH LOW LEVEL ALRAM CONTACTS.	1
30	150 m.m PRESSURE RELIEF VALVE WITH TRIP CONTACT ALONG WITH DRAIN PIPE ARRANAGEMENT	1
31	PRESSURE RELIEF VALVE FOR OLTC WITH TRIP CONTACT. (TYPE- T3)	1
32	ON LOAD TAP CHANGER (3 X IM1) WITH RTCC	1
33	OIL TEMPERATURE INDICATOR	1
34	WINDING TEMPERATURE INDICATOR	1+1

SR.NO.	DESCRIPTION	QTY.
35	H.V.RIP CONDENSER TYPE BUSHINGS (145 KV/1250 Amp.)	3
36	AIR CELL RUPTURE RELAY	1
37	BI - DIRECTIONAL FLANGED TYPE ROLLERS WITH LOCKING ARRANGEMENT.	4
38	CONSERVATOR WITH OIL FILLING PIPE AND FLANGE WITH DRAIN VALVE (25NB) WITH BLANKING PLATE	1
39	RADIATOR TIE BARS	4
40	FLAXIBLE DIAPHRAM (AIRCELL)	1
41	OLTC CONSERVATOR WITH OIL FILLING PIPE AND FLANGE WITH DRAIN VALVE (25NB) AND M.O.G.	1
42	EQUILISER PIPE CONNECTION	1
43	AIRCELL BREATHER PIPE	1
44	SHUT OFF VALVE FOR BUCHHOLZ RELAY (80 NB)	3
45	SUCTION VALVE FOR O L T C (25 NB)	1
46	SHUT OFF VALVE FOR SURGE RELAY (25 NB)	2
47	DOUBLE FLOAT BUCHHOLZ RELAY WITH 'A'&'T' CONTACTS. (G.O.R -3)WITH CANOPY	1
48	COOLING RADIATORS WITH AIR RELEASE & DRIAN PLUGS WITH LIFTING LUGS	10
49	OIL SURGE RELAY WITH TRIP CONTACT FOR O.L.T.C	1
50	ON LINE BREATHER FOR MAIN CONSERVATOR WITH ISOLATING VALVES (25 NB)	1
51	GAS COLLECTING DEVICE FOR ONE BUCHHOLZ RELAY & PET COCK (1 + 1 NO.) VALVE FOR BOTH	1
52	COBALT FREE SILICA GEL BREATHER FOR O.L.T.C. (2.0 Kg.) WITH OIL SEAL → Maintenance free breather.	1
53	RADIATOR GROUND SUPPORT .	2+2 Set
54	HV TERMINAL CONNECTORS	3
55	COPPER EARTH BRIDGE (2 X 2 X 50 Cu. STRIP)	6
56	HV NEUTRAL G.I. FLAT 2 IN // (75 X 6 THK) FOR SOLID EARTHING WITH COPPER FLEXIBLE JUMPER (70 X 0.5 THK. X 24 NOS.)	1
57	LV NEUTRAL G.I. FLAT 2 IN // (75 X 6 THK) FOR SOLID EARTHING WITH COPPER FLEXIBLE JUMPER (70 X 0.5 THK.X 24 NOS.)	1
58	33 KV EPOXY INSULATOR FOR HV NEUTRAL GROUNDING BAR	1+1
59	33 KV EPOXY INSULATOR FOR LV NEUTRAL GROUNDING BAR	1+1
60	OLTC EQUALIZING PIPE WITH VALVE 15 NB	1
61	TANK LADDER	1
62	SIGNAL BOX FOR PNT FIRE SYSTEM.	1
63	PNRV (ONLY FITMENT PROVISION) DUMMY PIECE FOR N2 FIRE FIGHTING SYSTEM	1
64	DRAIN VALVE WITH BLANKING PLATE (80 Ø B.S.F) DIRECT OPENING FOR NITROGEN INJECTION ON TRANSFORMER OF PNT FIRE SYSTEM	1
65	NITROGEN INJECTION SYSTEM FOR PROTECTION AGAINST FIRE & EXPLOSION (25Ø BSF GM GATE VALVES WITH PIPE FITTINGS)	3+3
66	LADDER FOR CONSERVATOR	1
67	FIRE DETECTORS LOCATION AND FIXING BRACKET OF PNT FIRE SYSTEM	9
68	FIBER OPTIC SENSOR PROVISION.	1
69	FAN	8+2
70	JOB LOCKING POCKETS	2
72	VALVE PROVISION FOR DGA	2
73	INSPECTION COVER ON HV & LV SIDE TANK WALL	4+3
74	AIR CELL PLATE ON CONSERVATOR	1
75	VALVE FOR VACUUM APPLICATION (25 Ø NB)	1

* One set of potential free contacts (with plug & socket type arrangement) per device shall be provided for tripping.

NOTES:-

1. ALL DIMENSION ARE IN mm. UNLES OTHER WISE STATED.
2. PAINT :- REFER PAINTING PROCEDURE (WI/PAINT/AET-1662)
3. ALL VALVES MATERIAL IS GUN METAL EXCEPT RADIATOR VALVE.
4. TRANSFORMER CONFORMING TO I.S. 2026 (LATEST EDITION).
5. MILD STEEL OF TANK CONFORMING TO I.S. 2062.
6. OIL FOR TRANSFORMER CONFORMING TO I.E.C. 60296 (EDITION)
7. GENERAL ARRANGEMENT SEE DRG.:- AT09/1987 Q (SHEET 1 OF 2)
8. TOLERANCE ±10%.

(As corrected)
APPROVED
Subject to the condition that you are not abso
the responsibility for correctness of the ma
supplied as per specification
Electrical Superintending Eng
(Planning and Engineering
Bihar State Power Transmission Compan
Patna-800

15 MAR 2023

Adopted for NFTNO-10/PIR/BSPTCL/2023.
19/12/23

CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	12.01.23	HARSHAD
CHD.		ULK
APPD.		M.B.

ATLANTA
V.U. NAGAR - 388121

GENERAL ARRANGEMENT FOR 30/50 MVA, 132/33 kV POWER TRANSFORMER

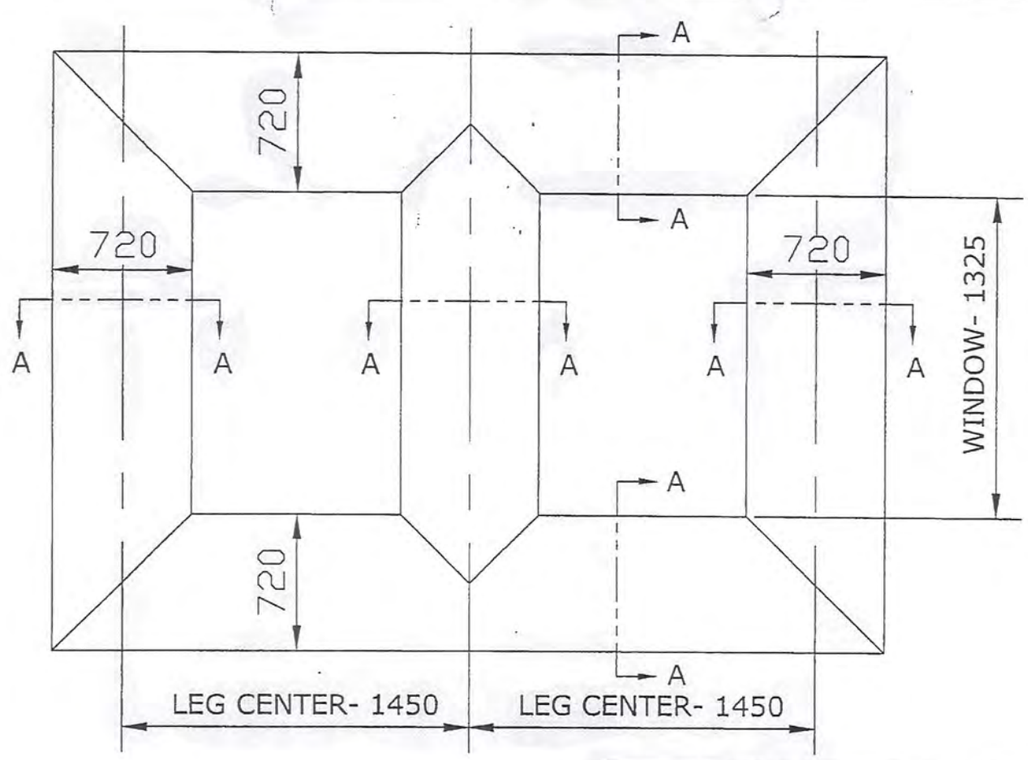
SCALE

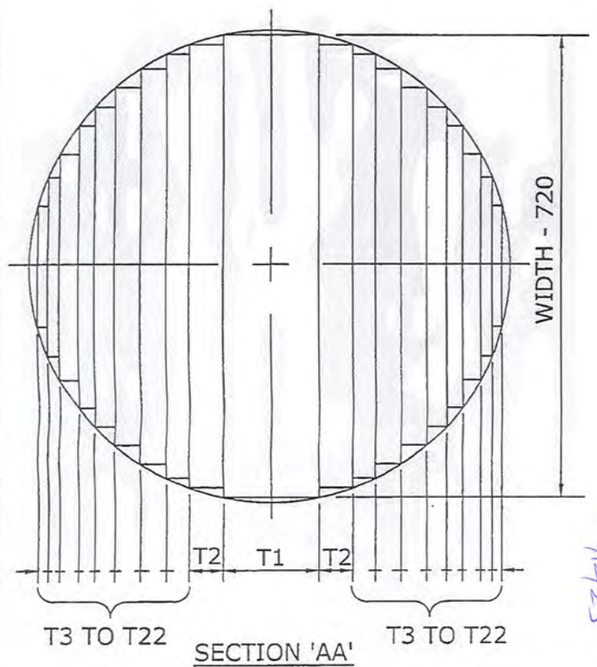
REF. NO. SHEET 02 OF 02

W.O. NO. AET- 1662

DRG. NO:-AT09/1987 Q

IF IN DOUBT PLEASE ASK.





SECTION 'AA'

EFFECTIVE CORE AREA:- = 3949.45 X 0.97
= 3830.97 Cm^2

FLUX DENSITY Wb/SQ. m.m - 1.6 TESLA

S.R.NO.	BLADE WIDTH	STACK THK.		TOTAL STACK THK.
1	720	114.00	X 1	820.80
2	710	25.50	X 2	362.10
3	700	19.50	X 2	273.00
4	690	10.50	X 2	144.90
5	680	14.00	X 2	190.40
6	670	12.00	X 2	160.80
7	660	11.50	X 2	151.80
8	650	10.00	X 2	130.00
9	640	9.50	X 2	121.60
10	620	17.00	X 2	210.80
11	600	15.50	X 2	186.00
12	580	14.00	X 2	162.40
13	560	12.50	X 2	140.00
14	540	11.50	X 2	124.20
15	520	10.50	X 2	109.20
16	500	10.00	X 2	100.00
17	480	9.00	X 2	86.4
18	460	8.50	X 2	78.2
19	440	7.50	X 2	66.0
20	420	7.50	X 2	63.0
21	390	10.00	X 2	78.0
22	360	9.00	X 2	64.8
23	330	8.00	X 2	52.8
24	300	7.00	X 2	42.0
25	275	5.50	X 2	30.25
		TOTAL AREA =		3949.45

Adopted for NIT NO - 10/PR/BSP rd/2023. @ 19/1/23

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

15 MAR 2023

15 MAR 2023

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

NOTE :- ALL DIMENSIONS ARE IN m.m UNLESS OTHERWISE STATED.

IF IN DOUBT PLEASE ASK

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	12.01.23	DVJ
CHD.		J.P
APPD.		ULK

ATLANTA
V.U. NAGAR – 388121

CORE DETAILS FOR
30/50 MVA, 132/33 KV
TRANSFORMER

SCALE NTS

REF. NO. -

W.O. NO. AET-1662

DRG. NO :- AT04/5524 Q

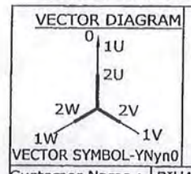
ATLANTA

(AN ISO 9001 : 2015 COMPANY)
(ISO 14001 : 2015 COMPANY)
(ISO 45001 : 2018 COMPANY)

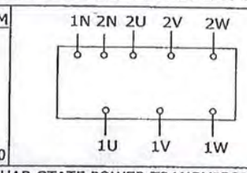
POWER TRANSFORMER
V.U. NAGAR - 388121 (GUJARAT)

TRANSFORMER MADE AS PER SPEC. I.S.2026 (LATEST EDITION)

VECTOR DIAGRAM



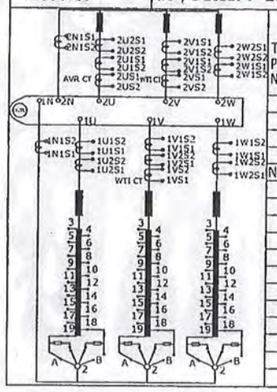
VECTOR SYMBOL-YNyn0



INSULATION LEVEL		
SYS.VOL.	kVp	kV rms
HV	650	275
LV	170	70
HV(N)	95	38
LV(N)	170	70

Customer Name :- BIHAR STATE POWER TRANSMISSION COMPANY LIMITED , PATANA.

P.O. NO. - ~~13 , Dated. :- 26.12.2022~~ Shall correspond to instant NIT



TAP POSITION NUMBER	SELECTOR SWITCH CONN.	HIGH VOLTAGE ACROSS 1U 1V 1W	HV Amps. 50 MVA	HV Amps. 30 MVA	LOW VOLTAGE ACROSS 2U 2V 2W	LV Amps. 50 MVA	LV Amps. 30 MVA
1	2-19	138600	208.28	124.97	33000		
2	2-18	136950	210.79	126.47	33000		
3	2-17	135300	213.36	128.02	33000		
4	2-16	133650	215.99	129.60	33000		
N.T.5	2-15	132000	218.69	131.22	33000	874.77	524.86
6	2-14	130350	221.46	132.88	33000		
7	2-13	128700	224.30	134.58	33000		
8	2-12	127050	227.21	136.33	33000		
9	2-11	125400	230.20	138.12	33000		
10	2-10	123750	233.27	139.96	33000		
11	2- 9	122100	236.43	141.86	33000		
12	2- 8	120450	239.66	143.80	33000		
13	2- 7	118800	242.99	145.80	33000		
14	2- 6	117150	246.42	147.85	33000		
15	2- 5	115500	249.94	149.96	33000		
16	2- 4	113850	253.56	152.13	33000		
17	2- 3	112200	257.29	154.37	33000		

RATED POWER IN	MVA	30/50
RATED VOLTS AT	KV HV	132
NO LOAD	LV	33
RATED LINE CURRENT	HV	131.22/218.69
IN AMPERES	LV	524.86/874.77
PHASE HV/LV		3/3
FREQUENCY	Hz	50
TRANSFORMER SR.NO.		
YEAR OF MANUFACTURE		202

TYPE OF COOLING: ONAN/ONAF

% IMPEDANCE VOLTAGE B/W HV - LV	GUARANTEED	MEASURED
TAP NO 1(MAX.)	13.2% (IEC TOL)	
TAP NO 5(NOR.)	12.5 %(IEC TOL)	
TAP NO 17(MIN.)	11.8 %(IEC TOL)	

UNTANKING MASS (CORE & WINDING)	Kg	48000
MASS/VOLUME OF OIL	kg/lit	24000/27000
TANK & FITTINGS	Kg	20000
TOTAL MASS	Kg	92000
TRANSPORT MASS WITH OIL	Kg	80000

GUARANTEED MAXIMUM OIL/WINDING TEMPERATURE RISE OVER MAX AMBIENT OF 50°C: 45/50 °C

PROPERTY OF:- BIHAR STATE POWER TRANSMISSION COMPANY LTD.

CT DESCRIPTION	CORE	CT RATIO	BURDEN (VA)	CLASS	Vk ≥	RCT≤	Imag ≤	QTY
HV PHASE CT	CORE 1	400/1	-	PS	Vk ≥ 800 V	Rct ≤ 1.5Ω	100 mA at vK/2	3
HV PHASE CT	CORE 2	300/1	30 VA	0.2s	-	-	-	3
HV NEUTRAL CT	CORE 1	400/1	-	PS	Vk ≥ 800 V	Rct ≤ 1.5Ω	100 mA at vK/2	1
LV PHASE CT	CORE 1	1000/1	-	PS	Vk ≥ 1000 V	Rct ≤ 1.5Ω	100 mA at vK/2	3
LV PHASE CT	CORE 2	1000/1	30 VA	0.2s	-	-	-	3
LV NEUTRAL CT	CORE 1	1000/1	-	PS	Vk ≥ 1000 V	Rct ≤ 1.5Ω	100 mA at vK/2	1
HV WTI	CORE 1	260/1.5 A	10 VA	5	-	-	-	1
LV WTI	CORE 1	875/1.5 A	10 VA	5	-	-	-	1
LV AVR	CORE 1	875/1 A	10 VA	5	-	-	-	1

"MAIN CONSERVATOR IS FITTED WITH AN AIR CELL".
VACUUM WITH STAND CAPACITY OF TANK 760 MM Hg

5 Ø HOLES 6 OFF

IF IN DOUBT PLEASE ASK

(As corrected)
Adopted for NIT No.
-10/PD2/BSPTCL/2023.

19/12/23

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

15 MAR 2023

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

NOTES:-

1) ALL DIMENSIONS ARE IN m.m. UNLESS OTHERWISE STATED.
2) THE LETTER & SURFACE INDICATED IN WHITE TO BE EMBOSSED WITH WHITE COLOUR & BACK GROUND TO BE PAINTED BLACK.
3) ALL FIGURES ARE TO BE EMBOSSED & ANODISED HIGHT OF EMBOSSING IS 0.2 mm MINIMUM.
4) MATERIAL :- 1.0 mm STAINLESS STEEL.
5) ALL BLANK WILL BE PUNCHED AFTER TESTING AND INSPECTION.

ATLANTA ELECTRICALS PVT. LTD. • V.U. NAGAR •

REVI NO	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	12.01.23	DVJ
CHD		JP
APPD		ASD

RATING & DIAGRAM PLATE

ATLANTA
V.U. NAGAR – 388121

SCALE

REF. NO:

W.O.NO: AET-1662

DRG. NO:- AT05/2248 Q

NOTES:-
1) ALL DIMENSIONS ARE IN m.m.UNLESS OTHERWISE STATED.
2) THE LETTER & SURFACE INDICATED IN BLACK TO BE ANODISED WITH BLACK COLOUR AND BACK GROUND SHALL BE BUFF FINESHED IN ORIGINAL METAL.
3) ALL FIGURES ARE ETCHED & ANODISED DEPTH OF EATCHING IS 0.2 mm MINIMUM.
4) MATERIAL :- 2 mm STAINLESS STEEL.

Adopted for NIT No. - 10/PA/BSPTCL/2023.

APPROVED
Subject to the condition that you are not the responsibility for correctness of t supplied as per specification
Electrical Superintending Engineer Planning & Engineering Power Transmission Co Bihar, Shawan, Patna-

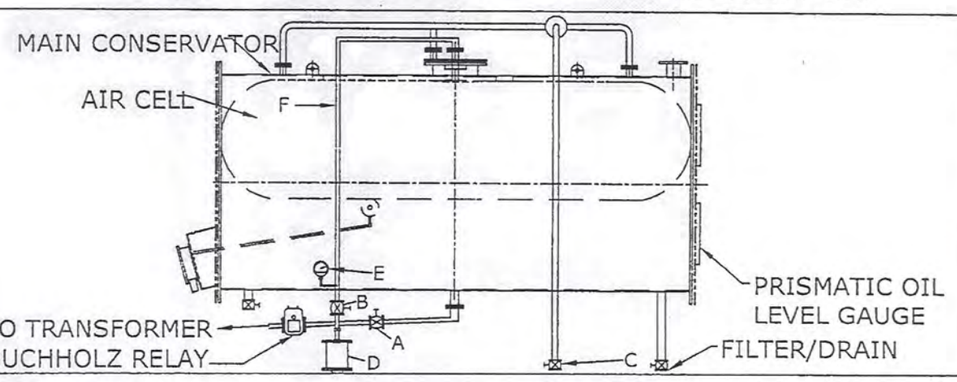
15 MAR 2023

(AN ISO 9001 : 2015 COMPANY)
(ISO 14001 : 2015 COMPANY)
(ISO 45001 : 2018 COMPANY)

ATLANTA

POWER TRANSFORMER
V.U. NAGAR - 388121 (GUJARAT)

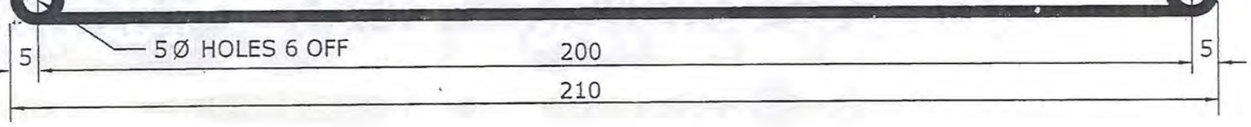
OIL FILLING INSTRUCTION
MAIN TANK & AIRCELL TYPE CONSERVATOR



1). Close and blank the valve (A) to isolate the conservator from main tank,fill the oil in transformer under vacuum up to tank flange through bottom filter valve.
2). After filling the oil in transformer break the vacuum through sllica gel breather (D) by connecting it to 25 NB valve provided on cover.
3). Remove the inspection cover provided on the side of the conservator and check the air cell ensuring that it is inflated. The air cell must remain in fully inflated, condition during oil filling operation. If the air cell is found deflated, fit the inspection cover and inflated the air cell with dry air/nitrogen gas to 0.07kg/cm^2 max. through connection A Gauge it. 'E' is be put by Removing plug at the top. After Acheiving the pressure wait for 24 hrs. To check leakage in air cell by monitoring the air pressure.
4). Remove air release plug (c) provied on top of the conservator and open valve (A).
5). Slowly pump the oil through the Main Transformer, temporarily stop filling opration when oil starts coming out from openings (C). After ensuring that no air bubbles come out through these air relase holes , fit the two air release plugs (C).
6). Continous oil filling till oil starts comming out from opening (c).Stop oil filling after ensuring that no air bubbles coming out , fit the plug (c).
7). Now release the air pressure held in the air cell by opening and continue oil filing until Magnetic oil level gauges indicates oil level.
8). Remove the breather (D) and its connecting pipe by closing 25 NB valve and refit breather (D) in to connecting pipe (F)
9). Finally remove pressure gauge (E) & blank the opening with plug.

PRECAUTIONS:-

1). Oil filling in the conservator and also draining whenever required must be done very slowly, during oil filling, pressure in the cell should not exceed 0.07 kg/cm.^{2}
2). If a pressure or vacuum is ever applied to the main transformer tank the conservator must be disconnected and a blanking plate fitted on shut of valve.(A)
3). Do Not carry out any welding operation on conservator to avid any damage to Aircell.
4). Once all the air has been driven out during oil filling in the conservator, do not remove air release plugs (C)
5). After connecting breather (D) valve (B) to be kept in open position.



CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022

REV NO.	DATE SIGN	BRIEF RECORD

	DRN	DATE	SIGN
APPD.			
CHD.	ULK	12.01.2023	HARSHAD
	MB		

OIL FILLING INSTRUCTION PLATE

QE ATLANTA V.U. NAGAR - 388121

DRG. NO.	REF. NO.	W.O. NO.	SCALE
AT05/2249 Q		AET-1662	NTS

IF IN DOUBT PLEASE ASK

NOTES:-

1. ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE STATED
2) THE LETTER & SURFACE INDICATED IN BLACK TO BE ANODISED WITH BLACK COLOUR AND BACK GROUND SHALL BE BUFF FINESHED IN ORIGINAL METAL.
3. ALL FIGURES ARE ETCHES AND ANODISED ETCHING DEPTH IS 0.2mm. MINIMUM.
4. MATERIAL:- 1.0 mm.Thk STAINLESS STEEL

10
215
450
5ø, 06 NOS.
10
10
510
530

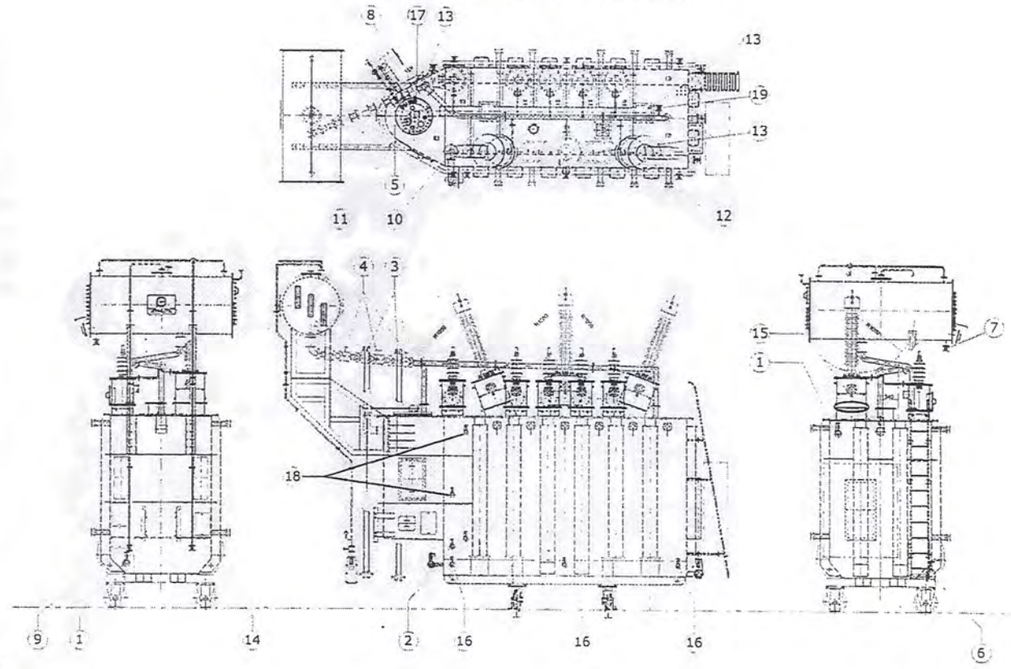
Adopted for NIT No. -10/PR/BSPTCL/2023.

Electrical Engineer
(Planning & Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

ATLANTA

POWER TRANSFORMER
V.U. NAGAR - 388121 (GUJARAT)



CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2023

SR. NO.	G.A. SR.NO.	DESCRIPTION	SIZE Ø	QTY.	MAT.	TYPE OF VALVE	REFERANCE STANDARD	POSTION NOR. OPERATION
1	24	FILTER VALVE (TOP & BOTTOM)	50 mm B S F	1+1	G.M.	GATE VALVE	I.S - 778	CLOSED
2	26	SAMPLING VALVE (TOP & BOTTOM)	25 mm B S F	1+1	G.M.	-	I.S - 778	CLOSED
3	47	BUCHHOLZ RELAY FOR MAIN TANK	GOR-3	1+1	-	-	-	OPEN
4	44	SHUT OFF VALVES FOR BUCHHOLZ RELAY & PNRV	80 mm B S F	4	G.M.	GATE VALVE	I.S - 778	OPEN
5	46	SHUT OFF VALVE FOR SURGE RELAY	25 mm B S F	1+1	G.M.	GATE VALVE	I.S - 778	OPEN
6	25	DRAIN VALVE	80 mm B S F	1	G.M.	GATE VALVE	I.S - 778	CLOSED
7	38	MAIN CONSERVATOR DRAIN VALVE	25 mm B S F	1	G.M.	GATE VALVE	I.S - 778	CLOSED
8	41	OLTC CONSERVATOR BOTTOM DRAIN VALVE	25 mm B S F	1	G.M.	GATE VALVE	I.S - 778	CLOSED
9	43	MAIN CONSERVATOR BREATHER ISOLATING VALVE	25 mm B S F	1	G.M.	GATE VALVE	I.S - 778	OPEN
10	30	PRESSURE RELIFE VALVE ON MAIN TANK	150 mm.	1	-	-	-	SEE CAUTION
11	31	PRESSURE RELIFE VALVE ON OLTC	75 mm.	1	-	-	-	SEE CAUTION
12	12	RADIATOR VALVES	80 mm.	20	C.I.	BUTTERFLY	-	OPEN
13	20	AIR RELEASE PLUG	1/2" B.S.P.	AS REQ.	M.S.	-	-	CLOSED
14	27	VALVE FOR MAIN CONSERVATOR AIR VENT PIPE	25 mm B S F	1	G.M.	GATE VALVE	I.S - 778	CLOSED
15	64	QUICK OIL DISCHARGE N2 VALVE	80 mm B S F	1	G.M.	GATE VALVE	I.S - 778	CLOSED
16	65	VALVE FOR NITRO. INJECTION FIRE PREVENTION SYSTEM(BOTTOM)	25 mm B S F	3 + 3	G.M.	GATE VALVE	I.S - 778	CLOSED
17	60	TANK TO OLTC VACUUM EQUALING VALVE	15 mm B S F	1	G.M.	GATE VALVE	I.S - 778	CLOSED
18	72	VALVE FOR DGA	25 mm B S F	2	G.M.	GATE VALVE	I.S - 778	CLOSED
19	75	VALVE FOR VACUUM APPLICATION	25 mm B S F	1	G.M.	GATE VALVE	I.S - 778	CLOSED

30/50 MVA, 132 / 33 kV POWER TRANSFORMER

ATLANTA ELECTRICALS PVT. LTD.

REV. NO.	DATE SIGN	BRIEF RECORD

VALVE SCHEDULE PLATE

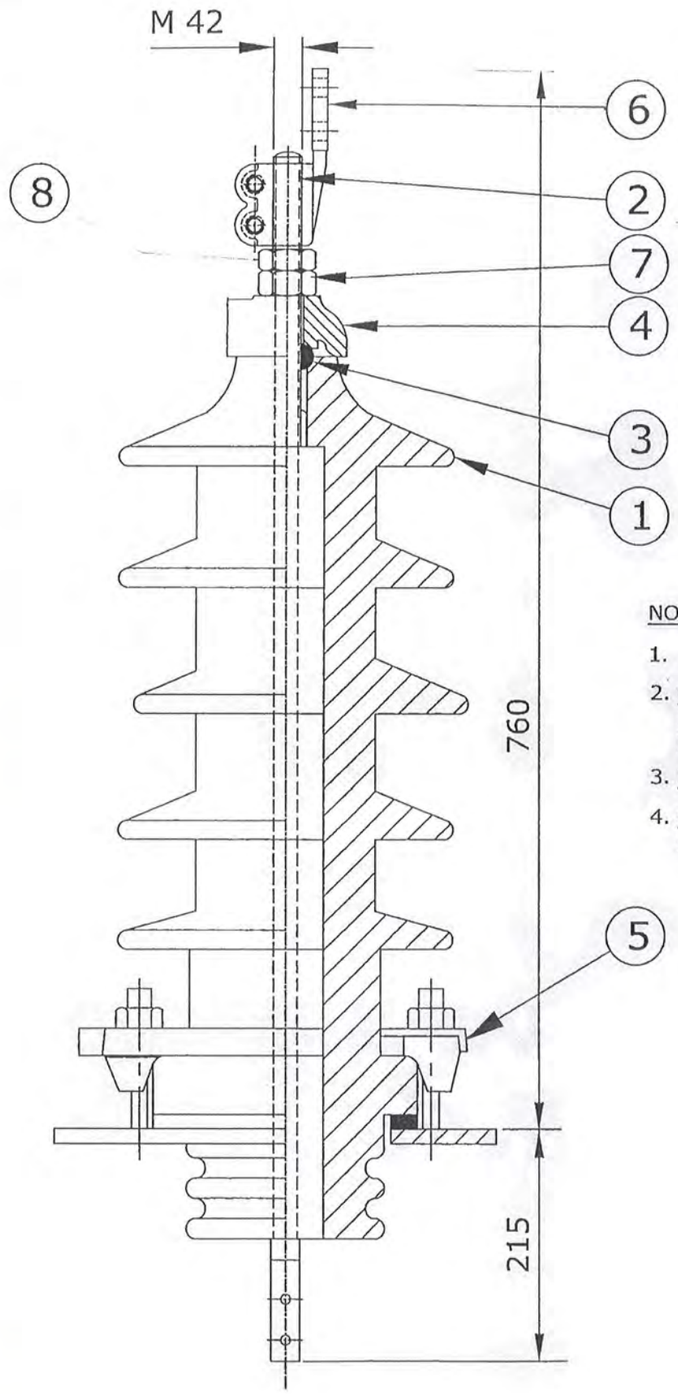
	DATE	SIGN
DRN	11.01.23	HARSHAD
CHD.		ULK
APPD.		MB

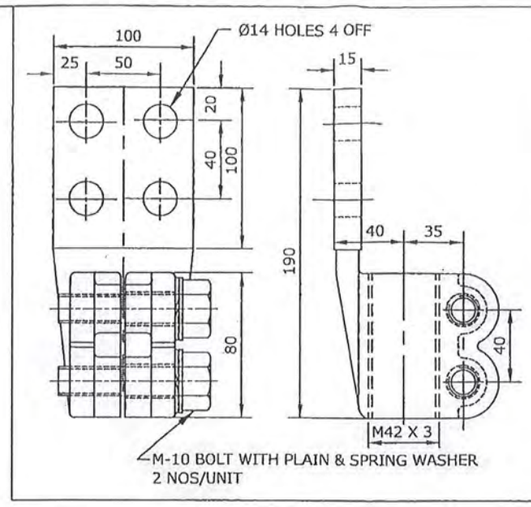
ATLANTA V.U. NAGAR - 388121

REF. NO. -
W.O. NO. AET- 1662
SCALE

DRG. NO:- AT05/2250 Q

CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022





NOTES:

1. ALL DIMENSIONS ARE IN mm.
2. DURING FILLING OF OIL IN TANK, VENT SCREW ITEM NO. 11 & 12 TO BE REMOVED FOR AIR TO ESCAPE AND FITTED IN POSITION AGAIN.
3. MAKE OF INSULATOR:- REFER (SHEET - 3).
4. STANDARD APPLICABLE IS:8603 (PART-III), IS:2099 & IS:3347 (PART-V, SEC.-2)

Adopted for NIT No. - 10/PR/BSPTCL/2023.

APPROVED
Subject to the condition that you are not a
the responsibility for correctness of the
supplied as per specification
Electrical Superintending E
(Planning and Engineeri
Bihar State Power Transmission Comp
V yut Bhawan, Patna-80

15 MAR 2023

TABLE OF FITTINGS

IT NO.	DESCRIPTION	MATERIAL
1	INSULATOR 36KV/2000 Amps	PORCELAIN
2	LONG STEM M-42	COPPER
3	SEALING WASHER FOR STEM	NITRILE RUBBER
4	CAP	BRASS
5	CLAMPING ARRANGEMENT	ALUMINIUM ALLOY
6	CONNECTING LUG	BRASS
7	NUT FOR STEM (M-42)	BRASS
8	CHECK NUT FOR STEM (M-42)	BRASS

TECHNICAL PARTICULARS		
1	RATED VOLTAGE	36 KV
2	RATED CURRENT	2000 Amps
3	IMPULSE VOLTAGE	170 kVp
4	1-MIN WET & DRY POWER FREQUENCY WITHSTAND VOLTAGE	70 kV rms
5	MINIMUM CREEPAGE DISTANCE	1116 mm
6	APPROX. OIL QTY.	3 LTRS
7	APPROX. WEIGHT	30 KG
8	SHORT TIME CURRENT RATING	AS PER IEC
9	CANTILEVER WITHSTAND LOAD	1250 N

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	11.01.23	HARSHAD
CHD.		ULK
APPD.		MB

LV PH. & LV N BUSHING ASSY.
36 KV - 2000 Amp.
30/50 MVA, 132/33 KV
TRANSFORMER

ATLANTA
V.U. NAGAR – 388121

SCALE

REF. NO. -

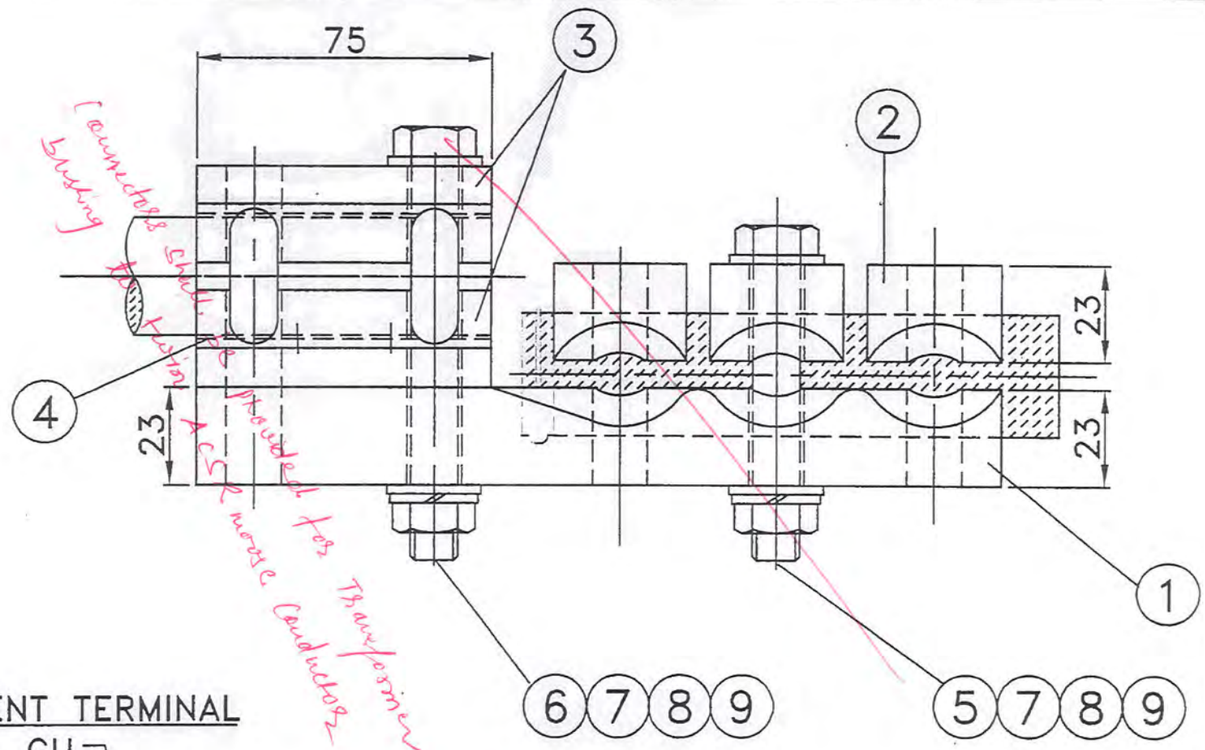
W.O. NO. AET-1662

DRG. NO :- AT10/1759 Q

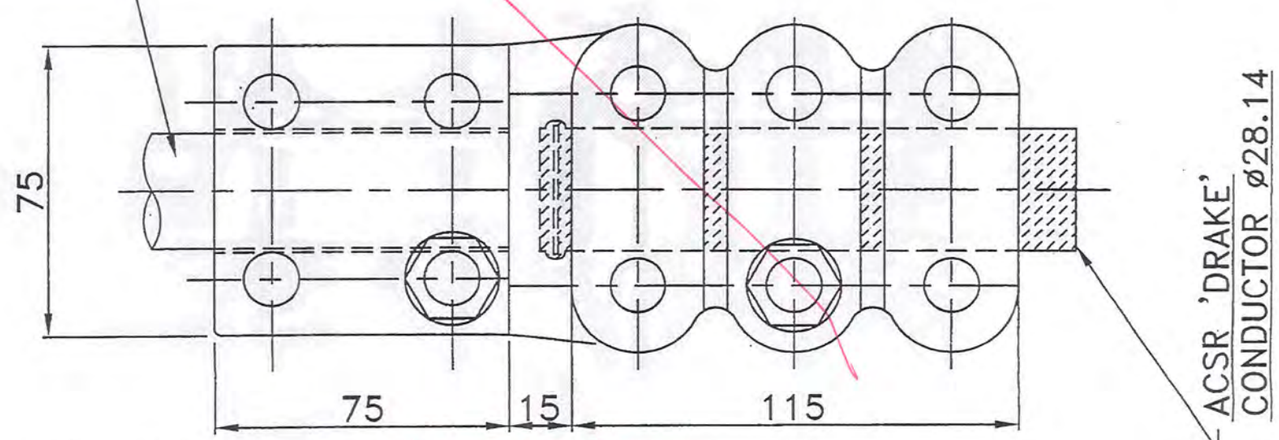
IF IN DOUBT PLEASE ASK.

WO No.

NEI-SCT-64-3
NEI-TRT-032



EQUIPMENT TERMINAL
ø30mm. CU.

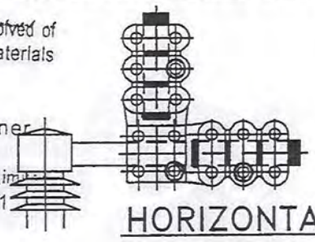


Adopted for AIS No. -10/R1/BSPTCL/2023.

15 MAR 2023

(As corrected)
APPROVED
Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification
Electrical Superintending Engineer (Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

VERTICAL TAKE OFF



HORIZONTAL TAKE OFF

(11) TIGHTENING TOQUE :
M12 –33 Nm.
(10) MECHANICAL STRENGTH 110kgs.
(9) TEMP. RISE 45°C OVER AN AMBIENT TEMP. OF 35°C.
(8) NO PARTS SHALL BE LESS THEN 10mm.
(7) SHORT TIME CURRENT RATING 40KA FOR 3 Sec.
(6) ~~FOR EQUIP HV BUSHING.~~
(5) RATED VOLTAGE 145 KV
(4) RATED CURRENT 800 AMPS
(3) POWER CONNECTOR IS AS PER IS:5561–1970
(2) ALL SHARP CORNERS WILL BE ROUNDED OFF
(1) ALL DIMNS ARE IN mm

TOLE:
(i) Up to 50 mm ±5%
(ii) From 51 to 100 mm ±4%
(iii) From 101 to 300 mm ±3%
(iv) Above 300 mm ±2%

Sr.No.	PART NAME	No. REQD.	MATERIAL	SIZE	SPECIFICATION
9	SPRING WASHER	10	SP.STEEL	M12 IS:3063	ELECTRO GALV
8	PLAIN WASHER	20	M.S.	M12 IS:2016	HOT–DIP GALV
7	HEX. NUT	10	M.S.	M12 IS:1363	HOT–DIP GALV
6	HEX. BOLT	4	M.S.	M12 IS:1363	HOT–DIP GALV
5	HEX. BOLT	6	M.S.	M12 IS:1363	HOT–DIP GALV
4	BI–METALIC SLEEVE → Shall be cast integrally with Al body	1	AL. CU.	2mm THK.	–
3	SADDLE	2	AL.ALLOY	4600(A6)	IS 617
2	GRIPPER	3	AL.ALLOY	4600(A6)	IS 617
1	SUPPORTING BASE	1	AL.ALLOY	4600(A6)	IS 617

BI METALIC RIGID STUD TYPE
UNIVERSAL TERMINAL CONNECTOR

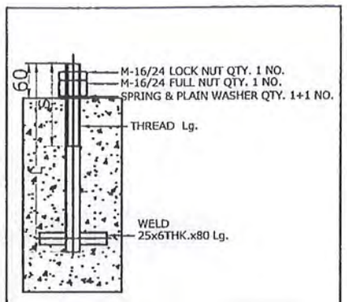
APPD.		28.09.21
CHD.		
DRN.		

NOOTAN ENGINEERING INDUSTRIES
131–132–133, G.I.D.C. ESTATE,
MAKARPURA ROAD, VADODARA–10

ATLANTA–KPTCL

3RRU030–028

Sr.No.	DATE	SIGN	REVISION



FOUNDATION BOLT DETAILS

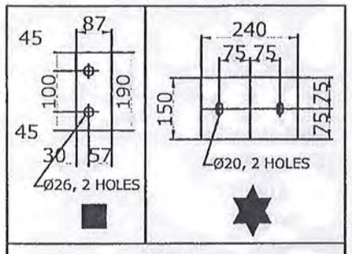
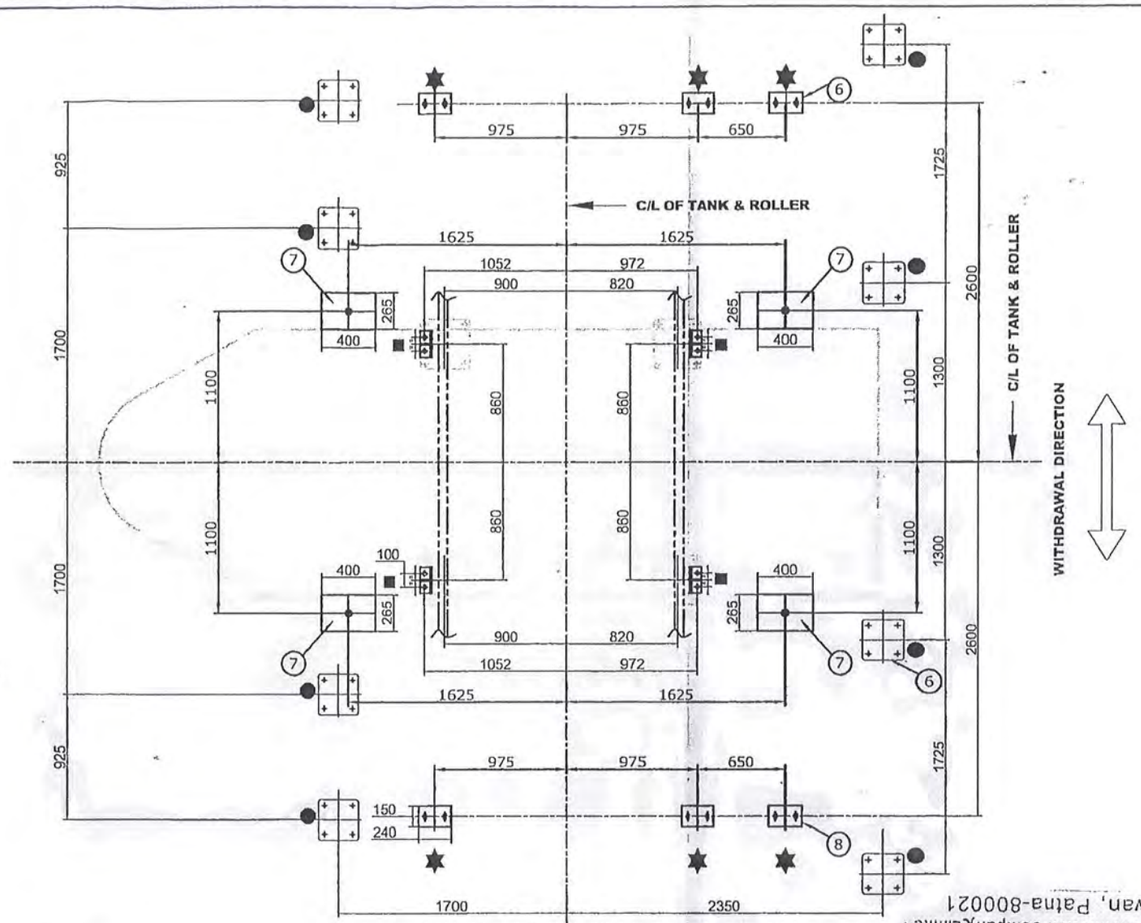


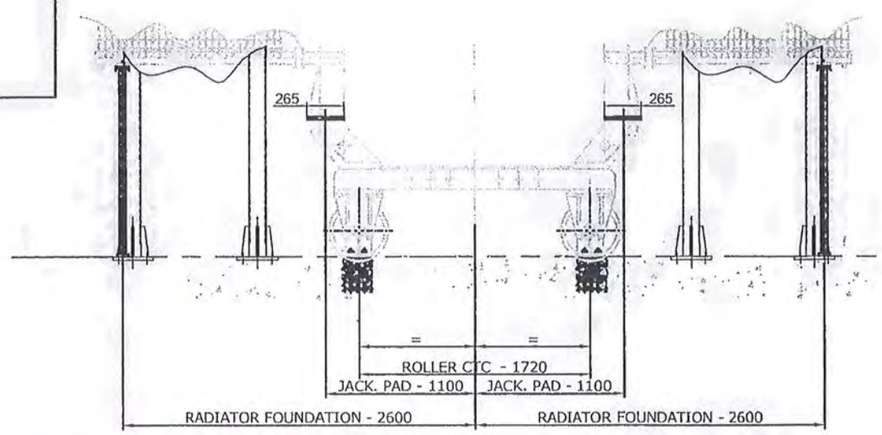
TABLE OF DIMENSIONS FORFOUNDATION BOLTS					
SR.No.	DESCRIPTION	M	L	S	QTY.
1 ■	ROLLER LOCKING BRACKET	M24	300	150	08NOS
2 ★	RADIATOR GROUND SUPPORT	M16	300	150	12NOS
3 ●	FAN GROUND SUPPORT	M20	300	150	32NOS

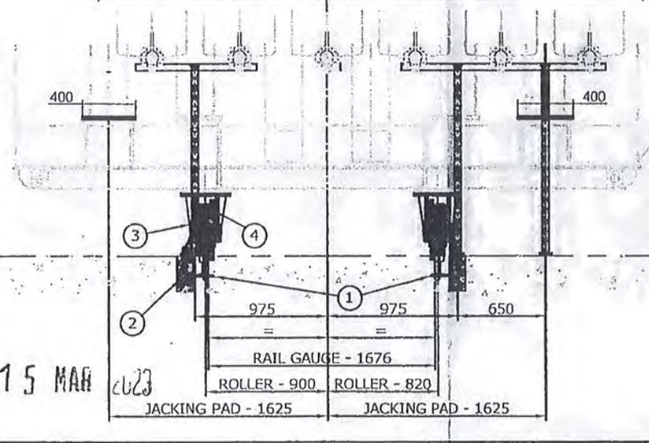
8	FOUNDATION BOLTS M16 X 300 Lg.	12
7	JACKING PADS	4
6	FOUNDATION BOLTS M20 X 300 Lg.	32
5	FOUNDATION BOLTS M24 X 300 Lg.	8
4	BI- DIRECTIONAL FLANGE TYPE ROLLER (380 Ø)	4
3	ROLLER CARRIERS	4
2	FOUNDATION CLAMP FIXING BOLTS FOR ROLLER	4
1	RAIL TRACK	2
ITEM	DESCRIPTION	QTY.

NOTES:-

1. ALL DIMENSIONS ARE IN mm. UNLESS OTHER WISE STATED
2. FOUNDATION BOLTS ARE NOT IN AEPL SCOPE OF SUPPLY.
3. JACKING PAD LOAD ON INDIVIDUAL PAD - 23000 Kgs.
4. ROLLER LOADING CAPACITY:- 30500 KgS./ROLLER
5. ITEM - 1 RAIL TRACK NOT IN AEPL SCOPE OF SUPPLY.







Adopted for NIT No. -10/PR/BSPTCL/2023.

APPROVE
Subject to the condition that you a
the esponsibility for correctnes
supplied as per specificatior
Electrical Superintend
Planning and Engi
Bihar State Power Transmission
Vidyut Bhawan, Pat

15 MAR 2023

APPROVED
Subject to the condition that you are not absolved of
the responsibility for correctness of the materials
supplied as per specification
Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

ATLANTA ELECTRICALS PVT. LTD. • V.U. NAGAR •

				DATE	SIGN
			DRN	11.01.23	HARSHAD
			CHD.		ULK
			APPD.		M.B.
REVI NO	DATE SIGN	BRIEF RECORD			

ATLANTA
V.U. NAGAR – 388121

FOUNDATION DETAIL
FOR 30/50 MVA POWER
132/33 kV TRANSFORMER

SCALE

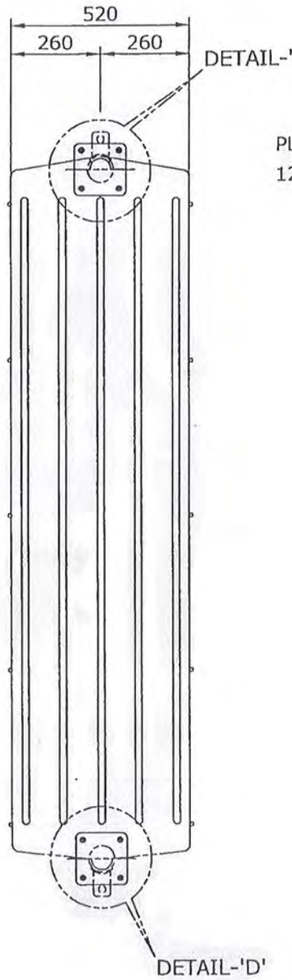
REF. NO. -

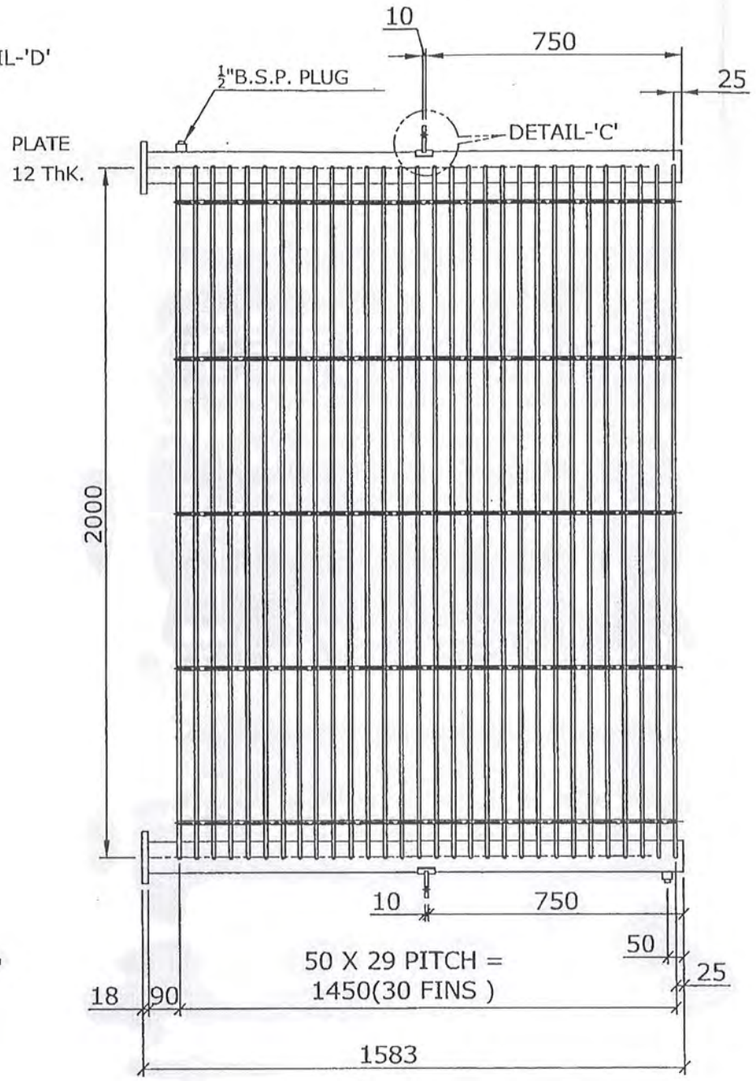
W.O. NO. AET-1662

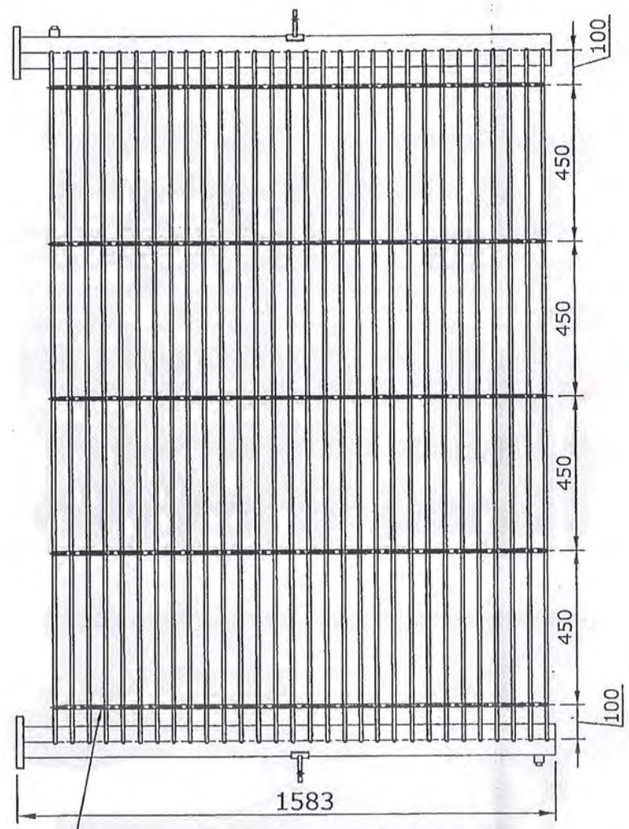
DRG. NO. MISC/3006 Q

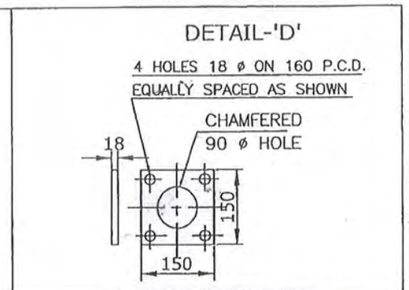
CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022

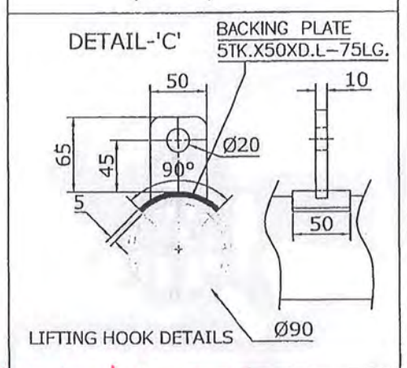
IF IN DOUBT PLEASE ASK











Adopted for NIT No. - 10 PIR/BS PTCL/2023.

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

IF IN DOUBT PLEASE ASK.

NOTES:-

1. ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE STATED
2. Qty.:- 10 Nos, RADIATORS REQUIRED FOR ONE TRANSFORMER
3. MATERIAL: 1.2 THK. C.R.C.A. SHEET
4. REFERENCE:- AS PER IEEMA SPECIFICATION
5. MAKE :- REFER MAKE OF COMPONENT SHEET
6. FINS :- 30 Nos.(2000 X 30 Nos.)
7. PAINT : REFER PAINTING PROCEDURE - WI/PAINT/AET-1662

CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	11.01.23	HARSHAD
CHD.		ULK
APPD.		MB

RADIATOR DETAILS FOR 30/50 MVA (132/33KV) TRANSFORMER

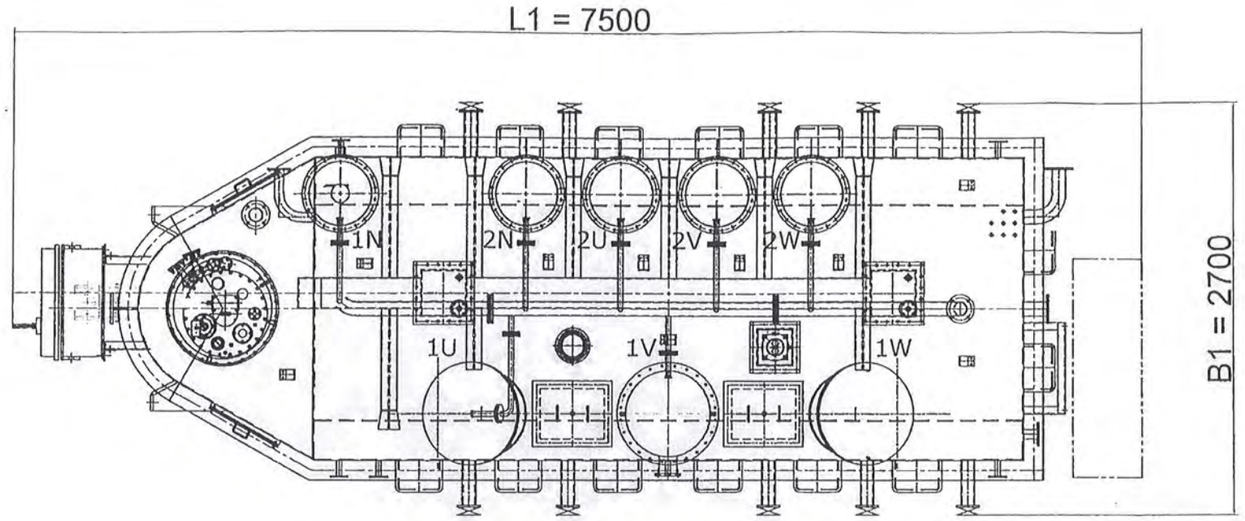
ATLANTA
V.U. NAGAR - 388121

SCALE

REF. NO.

W.O. NO. AET-1662

DRG. NO :- AT09/3007 Q

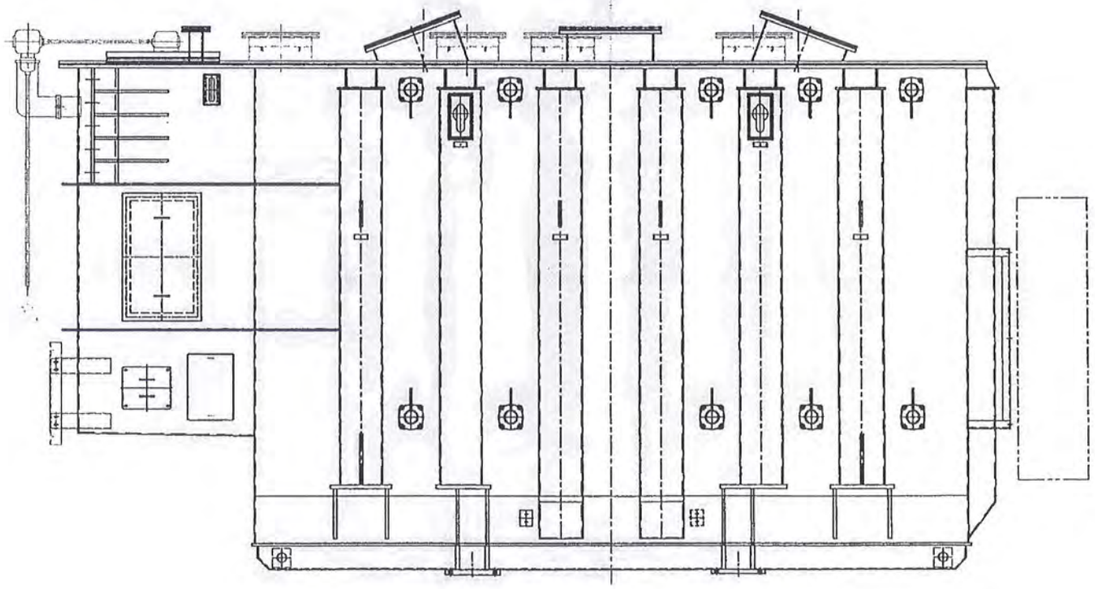


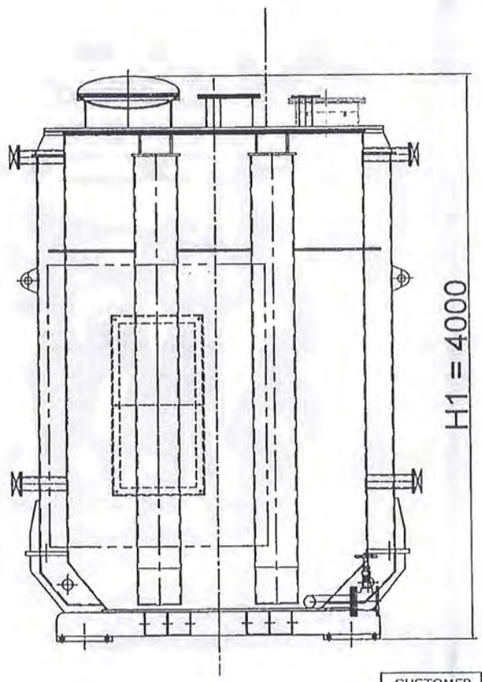
NOTES :-

MODE OF TRANSPORT : OIL FILLED.

TRANSPORT WEIGHT (OIL FILLED) - 80000 KGS

TRANSPORT DIMENSION - L1/B1/H1





Adopted for NIT No. -10/PR/BSPTCL/2023.

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

CUSTOMER	BIHAR STATE POWER TRANSMISSION COMPANY LIMITED., PATANA.
P.O. NO.	13, Dated.:- 26.12.2022

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	11.01.23	HARSHAD
CHD.		ULK
APPD.		M.B.

TRANSPORT OUTLINE DETAIL
FOR 30/50 MVA POWER
132/33 kV TRANSFORMER

ATLANTA
V.U. NAGAR – 388121

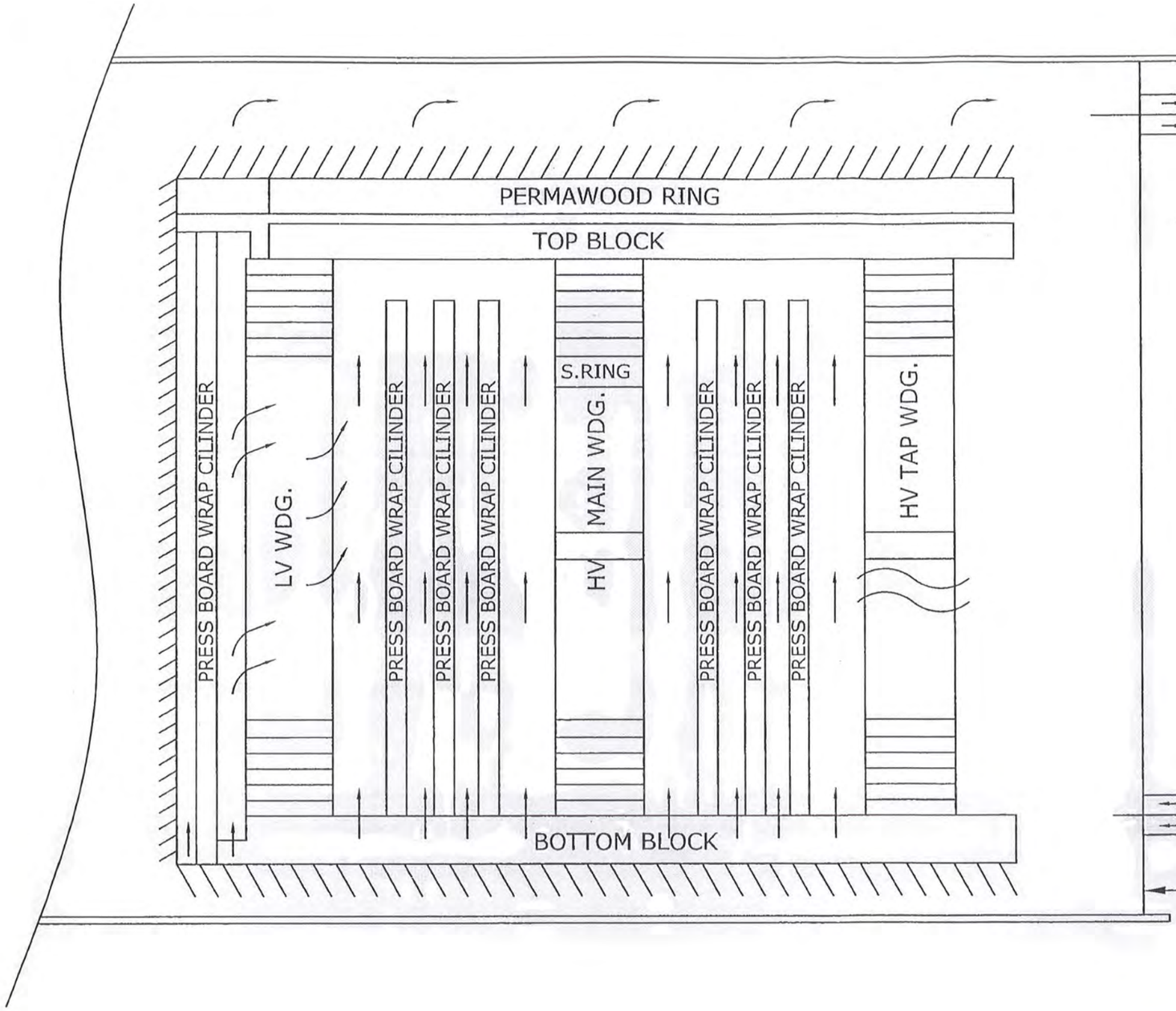
SCALE

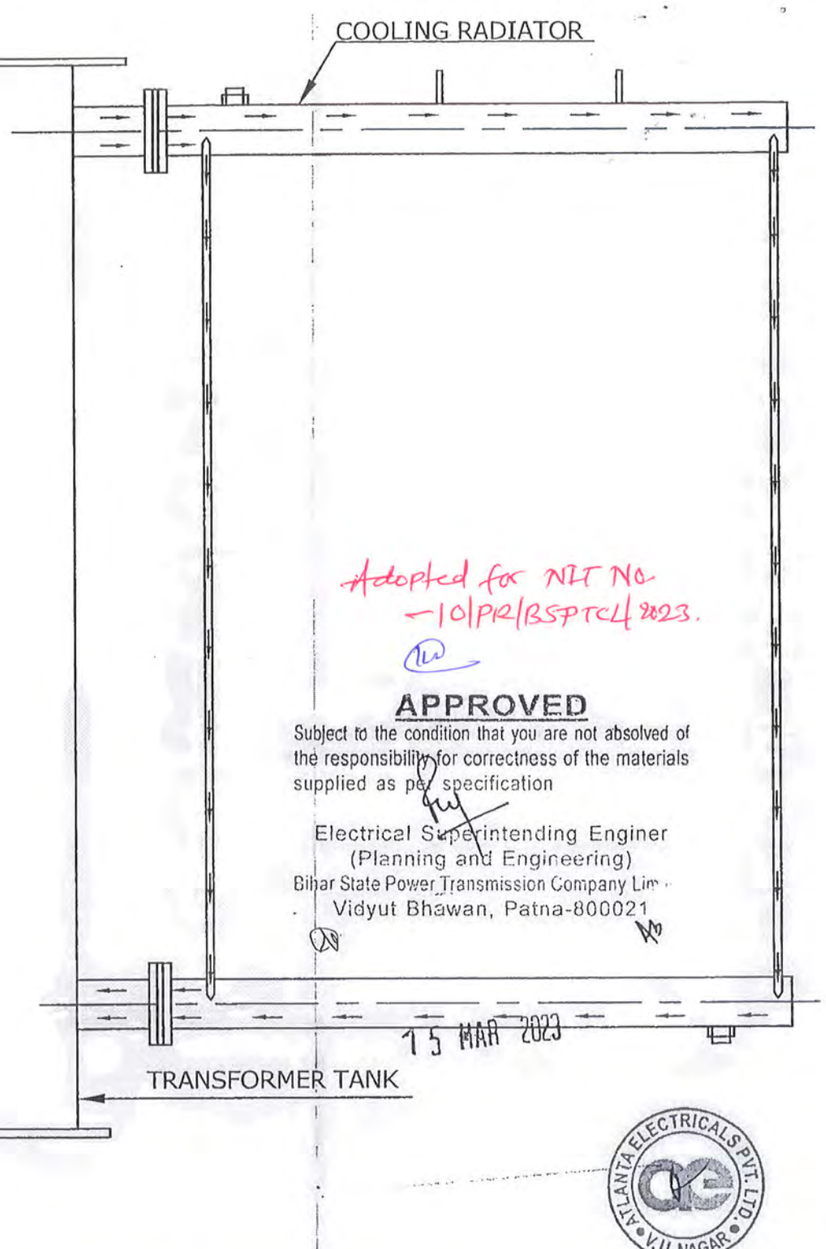
REF. NO.

W.O. NO. AET- 1662

DRG. NO:-MISC/3008 Q

IF IN DOUBT PLEASE ASK





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(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

15 MAR 2023

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NOTE :-

1) ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	12.01.23	DVJ
CHD.		ULK
APPD.		ULK

DETAILS OF OIL FLOW FOR 30/50 MVA,132/33 KV TRANSFORMER

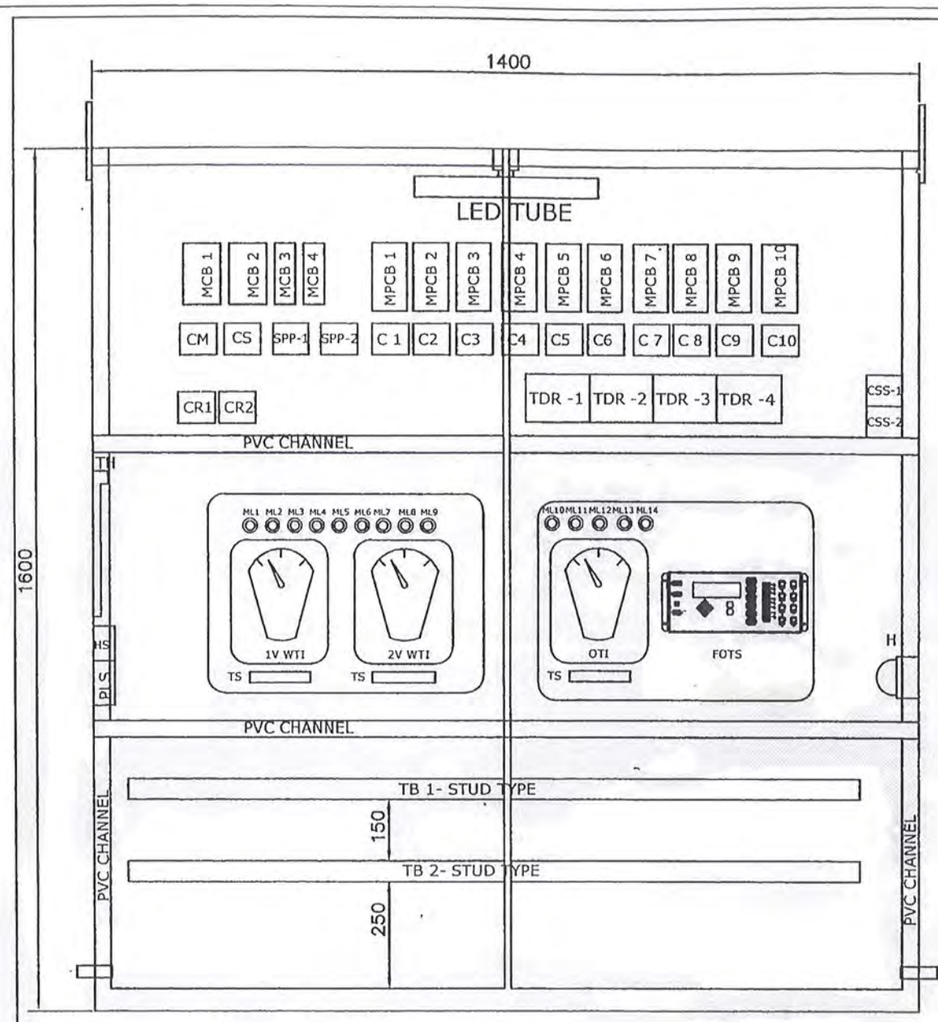
ATLANTA
V.U. NAGAR – 388121

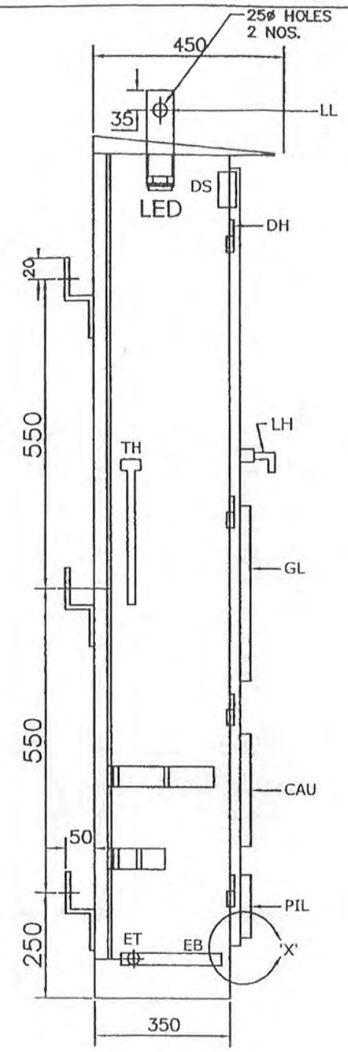
SCALE NTS

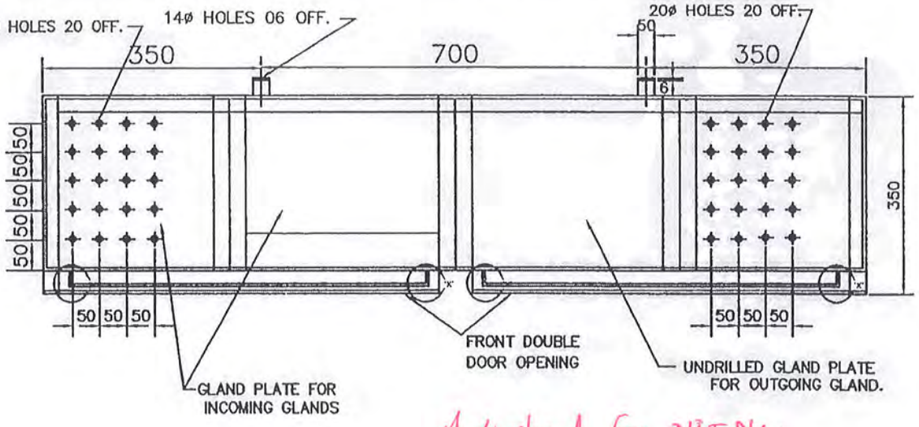
REF. NO. –

W.O. NO. AET–1662

DRG. NO. MISC/3013 Q







'X'- DETAILS OF GASKET

NOTES:-

1. ALL DIMENSION ARE IN mm. UNLES OTHER WISE STATED.
2. BILL OF MATERIAL REFER DRG. NO.:- AT13/2818 Q (SHEET 2 OF 2)
3. ALL GLAND PLATE SHALL BE OF SAME SIZE.

15	ET=EARTHING TERMINALS M12	02 NOS.
14	INSTRUMENTS ACCESSORIES MOUNTING PLATE	1.6 mm THK.
13	M.BOX MOUNTING CLAMP WITH ISMC	50 X 6 THK.
12	EB=EARTHING BAR	25 X 6 THK. COPPER FLAT
11	DEGREE OF PROTECTION	- IP 55
10	LL - LIFTING LUGS	- 2 NOS.
	LH - LOCKABLE HANDLE	- 1 NO.
	GL - TOUGHENED GLASS (5 mm. THK.)	- 2 NOS.
	CAU - CAUTION	- 1 NO.
	PIL - PANEL INDENTITY LABLE	- 1 NO.
9	⌀ = M.BOX TERMINALS ⌀ = RTCC TERMINALS	
8	ALL AUXILIARY CIRCUITS SHALL BE TESTED AT 2KV. FOR ONE MINUTE.	

7	RECOMMENDED MAX. SETTING :-	WTI	OTI
	ALARM	100°C	95°C
	TRIP	105°C	100°C
	FANS START/OFF	75°C/65°C	-

6 (A)	PVC FLEXIBLE COPPER CONDUCTOR :- (I) CONTROL CIRCUIT :- SIZE 2.5 SQ.mm. (II) POWER CIRCUIT & CT CIRCUIT :- SIZE 4.0 SQ.mm. COLOUR :- RED, YELLOW, BLUE :- POWER CIRCUIT. BLACK :- CONTROL CIRCUIT GREEN :- EARTH WIRE. GRAY :- DC CIRCUIT.	
6 (B)	ALL ACCESERIES CABLES UP TO M.BOX SHALL BE PVC STRANDED ARMOURED COPPER CABLE.	
5	WIRE END SHALL HAVE PRINTED FERRULES AND CRIMPED TERMINAL. ALL ITEMS SHALL BE LAMINATED LABELLED.	
4	LOCATION OF FITTINGS ARE SUBJECT TO MINOR CHANGE DURING MANUFACTURING.	
3	PAINT:- NOT REQUIRE	
2	MATERIAL : M.BOX	:- 1.6 mm. SS 304
1	MARSHALLING BOX SHALL BE VERMIN AND WEATHER PROOF.	
SR.NO.	DESCRIPTION	

15 MAR 2023

APPROVED

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan Patna-800021

Adopted for NIT No. - 10/PR/BSPTCL/2023.

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	06/01/23	PRIYANK
CHD.		
APPD.		

ATLANTA
V.U. NAGAR – 388121

GENERAL ARRANGEMENT OF MARSHALLING BOX

SCALE

SHEET NO 1 OF 2

W.O. NO. AET-1662

DRG. NO. AT13/2818 Q

IF IN DOUBT PLEASE ASK

EQUIPMENTS MOUNTED ON TRANSFORMER

LEGEND	QTY	DESCRIPTION	TYPE & RATING	MAKE
M1 TO M10	8+2	FANS MOTOR SET (8 WORKING + 2 STANDBY)	610Ø, 400/440 V AC, 3 PHASE, 7900 M3/HR	PLEASE REFER MAKE LIST OF POWER TRANSFORMER
B' RELAY	1	GAS OPERATED RELAY WITH ALARM & TRIP CONTACTS	DOUBLE FLOAT,2 A,250 V AC/DC	
TANK MOG	1	MAGNETIC OIL LEVEL VALVE WITH LLA CONTACT	5/0.5 A, 240 V AC/DC	
OLTC MOG	1	MAGNETIC OIL LEVEL VALVE WITH LLA CONTACT	5/0.5 A, 240 V AC/DC	
TANK PRV	2	PRESSURE RELIEF VALVE WITH TRIP CONTACT FOR MAIN TANK	10/0.4 A, 240 V AC/DC OR 5/1 A, 250/230 V AC/DC	
OLTC PRV	1	PRESSURE RELIEF VALVE WITH TRIP CONTACT FOR OLTC		
OSR	1	OIL SURGE RELAY WITH TRIP CONTACT	2 A,250 V AC/DC	
ACPR	1	AIR CELL PUNCTURE RELAY WITH TRIP CONTACT	0.3 A,250V DC/5 A,250 V AC	
LV WTI CT	1	WINDING TEMPERATURE INDICATOR CURRENT TRANSFORMER FOR LV PHASE (2V)	PLEASE REFER R & D PLATE	
HV WTI CT	1	WINDING TEMPERATURE INDICATOR CURRENT TRANSFORMER FOR HV PHASE (1V)		
HV PH & N CT	6+1	CURRENT TRANSFORMER FOR HV PHASE & NEUTRAL (1U1,1U2,1V1,1V2,1W1,1W2,1N1)		
LV PH & N CT	6+1	CURRENT TRANSFORMER FOR LV PHASE (2U1,2U2,2V1,2V2,2W1,2W2,2N1)		
LV AVR CT	1	CURRENT TRANSFORMER FOR LV AVR (2U)		
EQUIPMENTS MOUNTED IN MARSHLLING BOX				
MCB 1,2	2	MINIATURE CIRCUIT BREAKER, 4 POLE WITH NEUTRAL	32 A , 415 V AC, 3Ø	MDS/L&T / SIEMENS / BCH / LAKSHMI / ABB/C&S/MITSUBISHI/HPL/SCHNIEDER/ SELEC/SALZER/INDOKOPP/KAYCEE
MCB 3,4	2	MINIATURE CIRCUIT BREAKER, 2 POLE FOR FANS CONTROL SINGLE PHASE SUPPLY CIRCUIT	6 A/10 A 230 V AC	
MPCB 1 TO 10	10	MOTOR PROTECTION CIRCUIT BREAKER, 3 POLE FOR FANS	0.63 - 1.0 A, 415 AC	
CM ,CS	1+1	CONTACTOR WITH 3 NO MAIN WITH ADD-ON BLOCK	32 A , 415 V AC,COIL VOL.- 230 V	
C1 TO C10	10	CONTACTOR WITH 3 NO MAIN WITH ADD-ON BLOCK	9 A, 415 V AC, COIL VOL.-230 V	
CR1 TO 2	2	AUXILIARY CONTACTOR/RELAY WITH 2 NO + 2 NC AUX. CONTACTS.	9 A , 415 V AC,COIL VOLTAGE - 230 V, 50 Hz.	
CSS 1	1	CONTROL SELECTOR SWITCH FOR L/R/OFF OPERATION,2 POLE, 2 WAY FOR FANS MOTORS		KAYCEE/RECOM/SALZER/SWITRON/SCI/SG/ SELECT/C&S/ANCHOR/ESSEN/SURAJ/HPL
CSS 2	1	CONTROL SELECTOR SWITCH FOR A/M/OFF OPERATION,2 POLE, 2 WAY FOR FANS MOTORS	10/12 A,440 V AC	
HS	1	HEATER SWITCH (OFF/ON) (1 POLE,1 WAY WITH OFF)	6 A,230 V AC	
DS	1	LAMP SWITCH (DOOR SWITCH)	2 A,230 V AC	
TH	1	THERMOSTAT	7 A , 230 V AC(0-70°,C)	SPHERHOT/VERTEX/VALCO/VALICO/ GIRISH/C&S/TEMPRO/TTE
H	1	SPACE HEATER WITH GUARD	60/80 W , 230 V AC	
SPP	2	SINGLE PHASING PREVENTOR	415 V AC, 50 Hz.	MINILEC/SELEC/EAPL/EQV.
PLS	1	THREE PIN PLUG SOCKET WITH SWITCH	6 A , 250 V AC	SURYA/ORPAT/EXCEL/C&S/HAVELLS/HP
LED TUBE	1	LED TUBE	12 W , 240 V AC	BAJAJ/PHILIPS/HMT/HI-FI/ANCHOR/EQV.
WTI (HV + LV)	1+1	WTI WITH A&T CONTACTS, CCU, WTI SIMULATOR, POTENTIOMETER AND FAN COOLER CONTACTS. FOR RWTI (DIGITAL TYPE) WITH 4-20mA OUTPUT	NO CONTACT,15 A, 220 V AC/0.25 A, 220 V DC 1/2" BSP MALE UNION 0° TO 150°C	PRECIMEASURE/SHAKTI/Perfect Control/ SCIENTIFIC CONTROL (INDIA)/ PRADEEP SALES
OTI	1	OTI WITH A&T CONTACTS, CCU, WTI SIMULATOR, POTENTIOMETER FOR ROTI (DIGITAL TYPE) WITH 4-20mA OUTPUT		
FOTS	1	13 CHANNEL FIBRE OPTIC SENSOR (Placement of probe channel to be done as per TS)	85-260 V AC/100-270 V DC	RUGGED
TB	AS REQD.	TERMINAL BLOCKS STUD TYPE WITH NUT & TRANSPARENT GUARD	CAT M3 + CT SHORTING LINK-CATD M4 OR EQV.	ELMEX/CONNECT WELL/WAGO/PHOENIX
CAU	1	CAUTION PLATE DANGER 415/440 V SUPPLY STD. ENGRAVED ALU. PLATE WITH LETTERS IN RED POLISHED BACK GROUND	SIZE : 100 X 100 mm.	REPUTED Make Shall be mentioned
ET	2	EARTHING TERMINALS WITH NUT BOLT & PLAIN WASEHERS	M 12 X 1.75 PITCH, MAT : M.S.	
TDR 1 TO 4	4	TIME DELAY RELAY WITH 2 NO + 2 NC (POTENTIAL FREE CONTACTS.) (BCH)	5 A , 110/230V AC (0 TO 60 SEC.)	BCH
EB	1	EARTHING BAR	25 X 6 THK. MAT. :- COPPER	REPUTED Make Shall be mentioned
SIBG (IN+OUT)	20+20	CABLE GLANDS	SIBG 1612/1616/1619	
ML 1 TO 14	14	CONTROL PANEL SIGNAL LAMPS - LED TYPE (8 GREEN + 6 RED)	230 V AC LED TYPE	PRECIFINE/TEKNIC/SCI/VAISHNO/EQV.
EQUIPMENTS MOUNTED IN RTCC PANEL (digital RTCC to be provided)				
SL 1 TO 14	14	CONTROL PANEL SIGNAL LAMPS - LED TYPE (8 GREEN + 6 RED)	230 V AC LED TYPE	PRECIFINE/TEKNIC/SCI/VAISHNO/EQV.
TPI	1	TAP POSITION INDICATOR (TYPE DIGITAL) MODEL NO:- EE 610E - EMCO	110 V AC,1K OHMS/STEP ,17 POS.	NEUTRONICS/PRADEEP/EMCO/ PRECIMEASURE/RISHABH/ PRADEEP SALES
HV + LV RWTI	1+1	REMOTE WINDING TEMPERATURE INDICATOR, RANGE :- 0°C TO 150°C (TYPE DIGITAL)	90-260 V AC / 24 V, 110 V, 220 V DC	
ROTI	1	REMOTE OIL TEMPERATURE INDICATOR, RANGE :- 0°C TO 150°C (TYPE DIGITAL)	90-260 V AC / 24 V, 110 V, 220 V DC	

(as corrected)
Adopted for NIT NO.
-10/PR/BSPTCL/2023.
(DW)
19/12/23

(As corrected)
APPROVED
Subject to the condition that you are not absolv the responsibility for correctness of the mat supplied as per specification

Electrical Superintending Engir
(Planning and Engineering)
Bihar State Power Transmission Company
Vidyut Bhawan, Patna-8000

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

IF IN DOUBT PLEASE ASK

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	DATE	SIGN
DRN	06/01/23	PRIYANK
CHD.		
APPD.		

ATLANTA
V.U. NAGAR – 388121

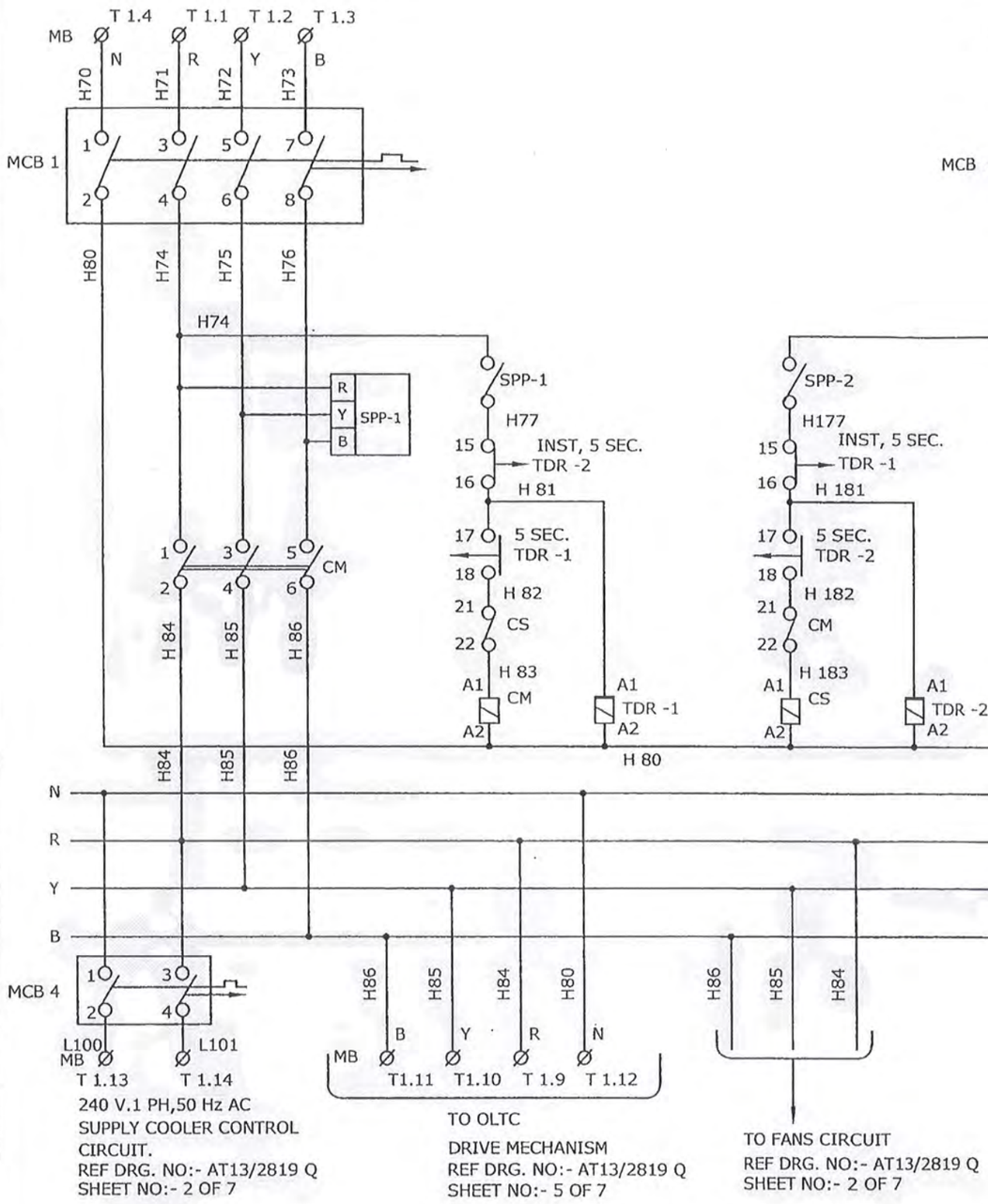
MARSHALLING BOX
BILL OF MATERIALS

SCALE

SHEET NO 2 OF 2 | W.O. NO. AET-1662

DRG. NO. AT13/2818 Q

MAIN 415 V,3 Ph. 4 WIRE SUPPLY



MAIN & STANDBY SUPPLY CIRCUIT

IF IN DOUBT PLEASE ASK

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd
Vidyut Bhawan, Patna-800021

15 MAR 2023

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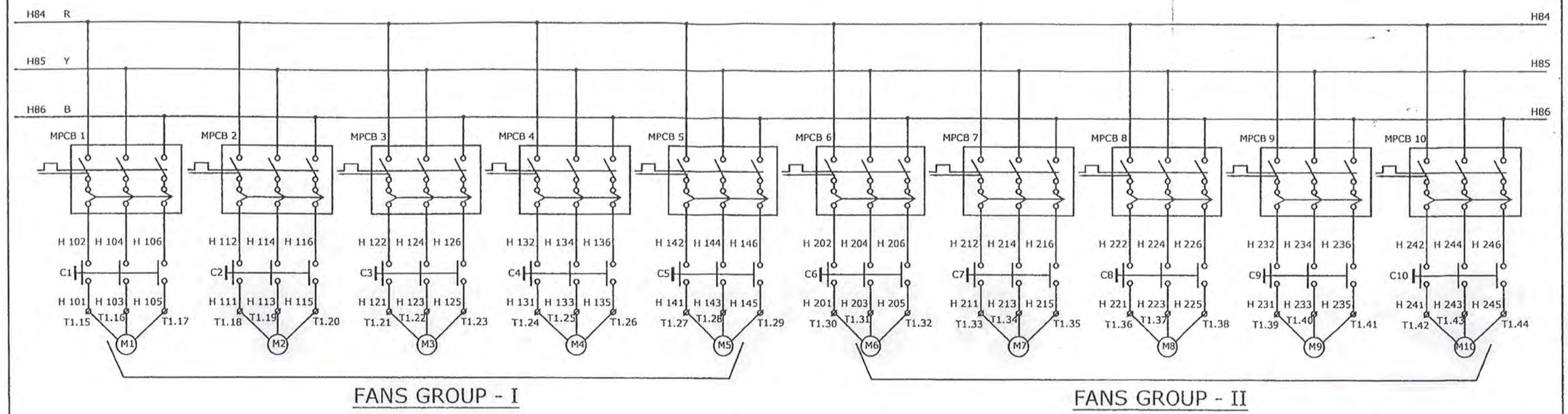
SCHEMATIC DIAGRAM OF
M.BOX WITH COOLER
CONTROL CUBICLE

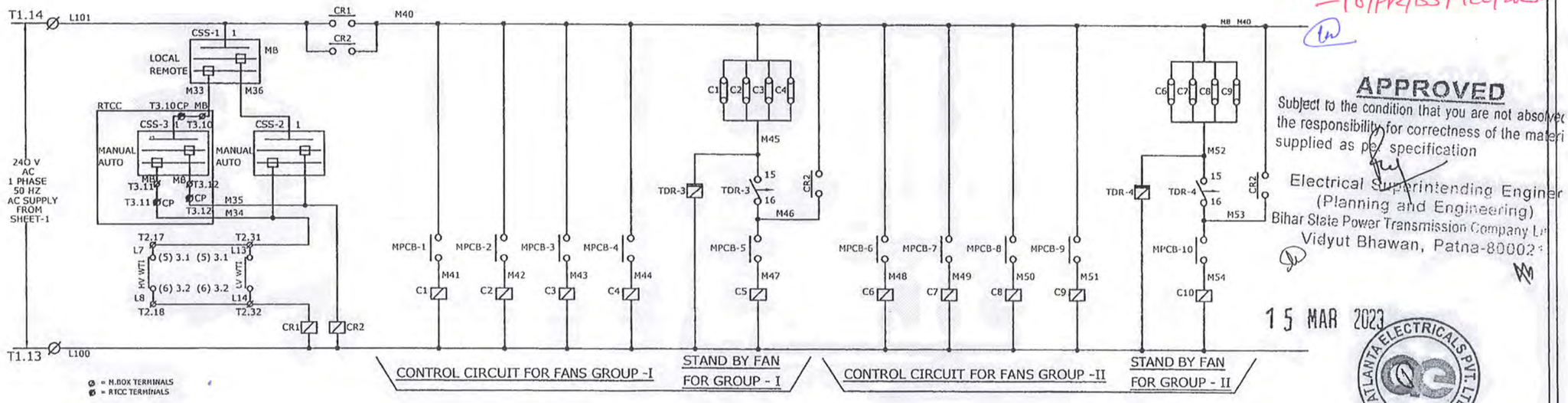
ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET NO. 1 OF 7 | W.O. NO. AET-1662

DRG. NO. AT13/2819 Q





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APPROVED

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Lt
Vidyut Bhawan, Patna-800021

15 MAR 2023

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	DATE	SIGN
DRN	06/01/23	PRIYANK
CHD.		
APPD.		

SCHEMATIC DIAGRAM OF M.BOX WITH COOLER CONTROL CUBICLE

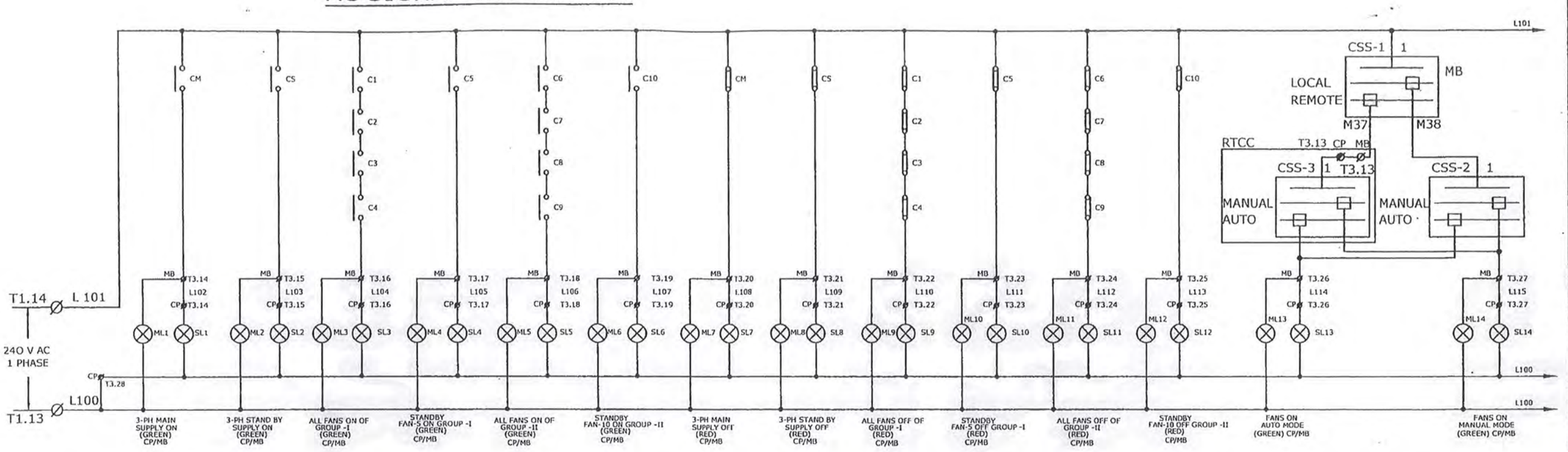
ATLANTA
V.U. NAGAR – 388121

SCALE

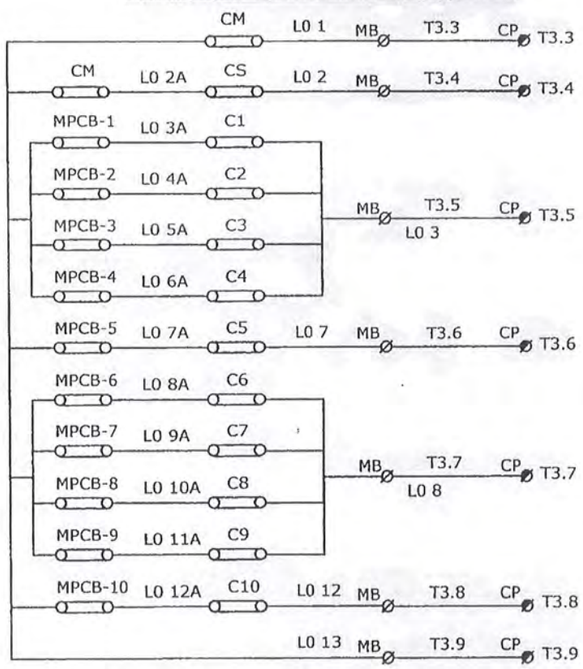
SHEET NO. 2 OF 7 | W.O. NO. AET-1662

DRG. NO. AT13/2819 Q

AC SIGNALLING CIRCUIT



ANNUNCIATION ON RTCC



> digital RTCC to be provided.

(as corrected)

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9/12/23

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd
Vidyut Bhawan, Patna-800021

15 MAR

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	DATE	SIGN
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SCHEMATIC DIAGRAM OF M.BOX WITH COOLER CONTROL CUBICLE

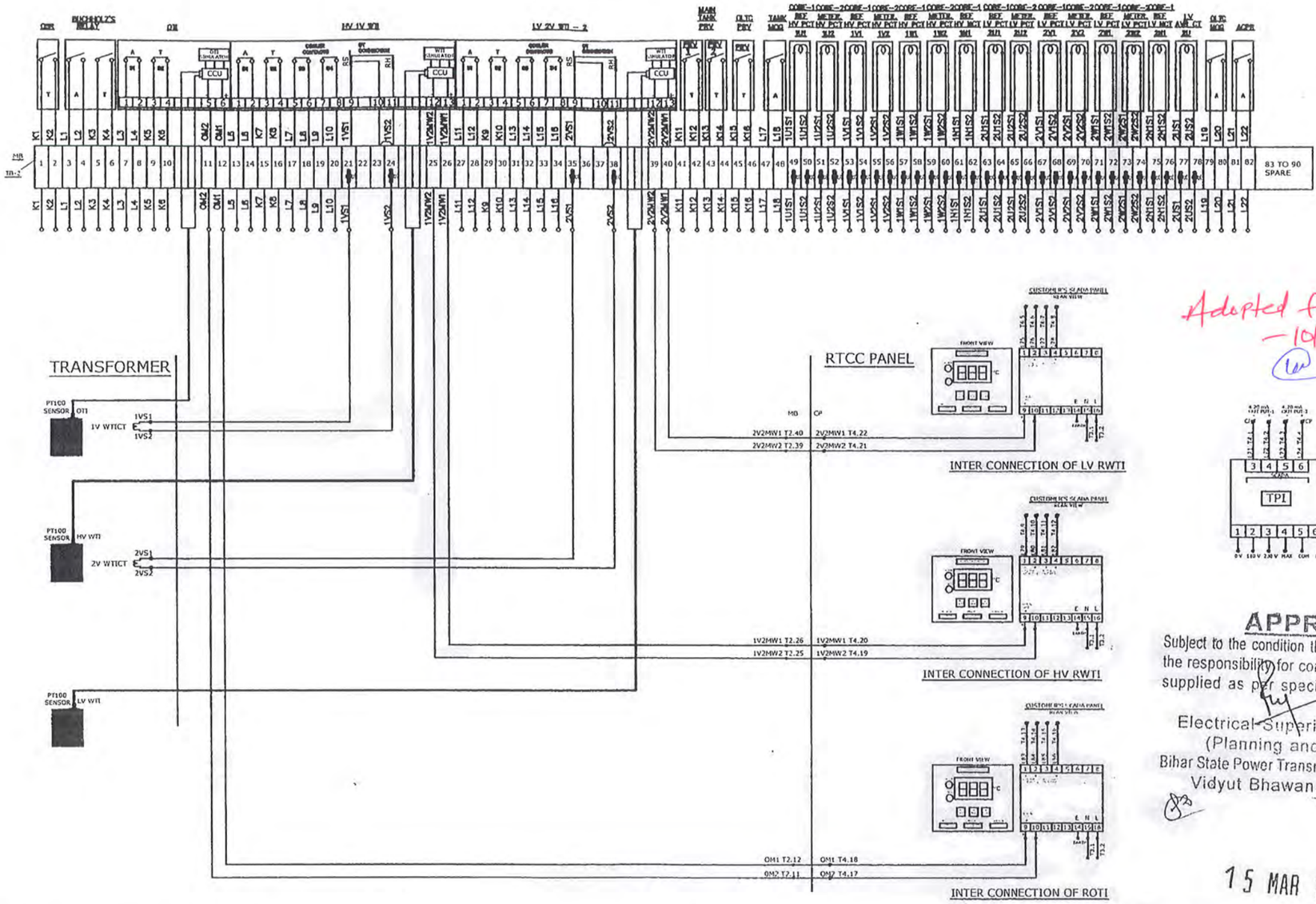
ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET NO. 3 OF 7 | W.O. NO. AET-1662

DRG. NO. AT13/2819 Q

MARSHALLING BOX



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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

15 MAR 2023

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NOTES:-

1. * CT SHORTING LINK CATD M4 - 22 NOS. TB NO:- 21,24,35,38 AND 49 TO 66.
   O=OPEN,C=CLOSE. SL

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SCHEMATIC DIAGRAM OF M.BOX WITH COOLER CONTROL CUBICLE

ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET NO. 4 OF 7 | W.O. NO. AET-1662

DRG. NO.:- AT13/2819 Q

WIRE LOOPS	DESTINATION INTERNAL WIRES	TERMINAL NUMBERS TB–1	DESTINATION EXTERNAL WIRES	CABLE SPECIF. I–INCOMING 0–OUTGOING
	H71	1	MAIN SUPPLY 415 V, 3PH,4W 50 HZ, A/ C	4 C X 4 Sq.mm = 1 NO. (I)
	H72	2		
	H73	3		
	H70	4		
	H171	5	STAND BY SUPPLY 415 V, 3PH,4W 50 HZ, A/ C	4 C X 4 Sq.mm = 1 NO. (I)
	H172	6		
	H173	7		
	H170	8		
	H84	9	415 V, 3PH 4 WIRE ,50 HZ AC TO OLTC D M.	4 C X 4 Sq.mm = 1 NO. (O)
	H85	10		
	H86	11		
	H80	12		
	L100	13	230 V,1 PH 2 WIRE, 50 HZ	
	L101	14		
	H101	15	GROUP-I FAN MOTOR - 1	3 C X 2.5 Sq.mm = 1 NO. (O)
	H103	16		
	H105	17		
	H111	18	GROUP-I FAN MOTOR - 2	3 C X 2.5 Sq.mm = 1 NO. (O)
	H113	19		
	H115	20		
	H121	21	GROUP-I FAN MOTOR - 3	3 C X 2.5 Sq.mm = 1 NO. (O)
	H123	22		
	H125	23		
	H131	24	GROUP-I FAN MOTOR - 4	3 C X 2.5 Sq.mm = 1 NO. (O)
	H133	25		
	H135	26		
	H141	27	GROUP-I STAND BY FAN MOTOR - 5	3 C X 2.5 Sq.mm = 1 NO. (O)
	H143	28		
	H145	29		
	H201	30	GROUP-II FAN MOTOR - 6	3 C X 2.5 Sq.mm = 1 NO. (O)
	H203	31		
	H205	32		
	H211	33	GROUP-II FAN MOTOR - 7	3 C X 2.5 Sq.mm = 1 NO. (O)
	H213	34		
	H215	35		
	H221	36	GROUP-II FAN MOTOR - 8	3 C X 2.5 Sq.mm = 1 NO. (O)
	H223	37		
	H225	38		
	H231	39	GROUP-II FAN MOTOR - 9	3 C X 2.5 Sq.mm = 1 NO. (O)
	H233	40		
	H235	41		
	H241	42	GROUP-II STAND BY FAN MOTOR - 10	3 C X 2.5 Sq.mm = 1 NO. (O)
	H243	43		
	H245	44		
		45 - 55	SPARE	

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Lim
Vidyut Bhawan, Patna-800021

15 MAR 2023

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	DATE	SIGN
DRN	06/01/23	PRIYANK
CHD.		
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SCHEMATIC DIAGRAM OF M.BOX WITH COOLER CONTROL CUBICLE

ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET NO. 5 OF 7 | W.O. NO. AET-1662

DRG. NO. AT13/2819 Q

WIRE LOOPS	DESTINATION INTERNAL WIRES	TERMINAL NUMBERS TB–2(MB)	DESTINATION EXTERNAL WIRES	CABLE SPECIF. I–INCOMING O–OUTGOING
2 C X 2.5 Sq.mm =1 NO. (I)	K1	1	OLTC OSR TRIP	
4 C X 2.5 Sq.mm =1 NO. (I)	K2	2		
	L1	3	BUCHHOLZ RELAY-1 ALARM	
	L2	4		
	K3	5	BUCHHOLZ RELAY-1 TRIP	
	K4	6		
	L3	7	OTI ALARM	
	L4	8		
	K5	9	OTI TRIP	
	K6	10		
	OM2	11	FOR ROTI ON RTCC	2 C X 2.5 Sq.mm = 1 NO. (O)
	OM1	12		
	L5	13	HV 1V WTI ALARM	
	L6	14		
	K7	15	HV 1V WTI TRIP	
	K8	16		
	L7	17	3-1,3-2 HV 1V WTI COOLER CONTACT FOR FANS	
	L8	18		
	L9	19	3-1,3-2 HV 1V WTI COOLER CONTACT FOR FANS	
	L10	20		
2 C X 4 Sq.mm =1 NO. (I)	1VS1	21	HV 1V WTI CT	
	-	22		
	-	23		
	1VS2	24		2 C X 2.5 Sq.mm = 1 NO. (O)
	1V2MW2	25	FOR HV 1V RWTI ON RTCC	
	1V2MW1	26		
	L11	27	LV 2V WTI ALARM	
	L12	28		
	K9	29	LV 2V WTI TRIP	
	K10	30		
	L13	31	3-1,3-2 LV 2V WTI COOLER CONTACT FOR FANS	
	L14	32		
	L15	33	3-1,3-2 LV 2V WTI COOLER CONTACT FOR FANS	
	L16	34		
2 C X 4 Sq.mm =1 NO. (I)	2VS1	35	LV 2V WTI CT	
	-	36		
	-	37		
	2VS2	38		2 C X 2.5 Sq.mm = 1 NO. (O)
	2V2MW2	39	FOR LV 2V RWTI ON RTCC	
	2V2MW1	40		
2 C X 2.5 Sq.mm =1 NO. (I)	K11	41	MAIN TANK PRV-1 TRIP	
2 C X 2.5 Sq.mm =1 NO. (I)	K12	42		
	K13	43	MAIN TANK PRV-2 TRIP	
2 C X 2.5 Sq.mm =1 NO. (I)	K14	44		
	K15	45	OLTC PRV TRIP	
2 C X 2.5 Sq.mm =1 NO. (I)	K16	46		
	L17	47	TANK MOG ALARM	
2 C X 4 Sq.mm =1 NO. (I)	L18	48		
	1U1S1	49	HV 1U1 PHASE CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	1U1S2	50		
	1U2S1	51	HV 1U2 PHASE CT METERING CORE-2	
2 C X 4 Sq.mm =1 NO. (I)	1U2S2	52		
	1V1S1	53	HV 1V1 PHASE CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	1V1S2	54		
	1V2S1	55	HV 1V2 PHASE CT METERING CORE-2	
2 C X 4 Sq.mm =1 NO. (I)	1V2S2	56		
	1W1S1	57	HV 1W1 PHASE CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	1W1S2	58		
	1W2S1	59	HV 1W2 PHASE CT METERING CORE-2	
2 C X 4 Sq.mm =1 NO. (I)	1W2S2	60		
	1N1S1	61	HV 1N1 NEUTRAL CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	1N1S2	62		
	2U1S1	63	LV 2U1 PHASE CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	2U1S2	64		
	2U2S1	65	LV 2U2 PHASE CT METERING CORE-2	
2 C X 4 Sq.mm =1 NO. (I)	2U2S2	66		
	2V1S1	67	LV 2V1 PHASE CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	2V1S2	68		
	2V2S1	69	LV 2V2 PHASE CT METERING CORE-2	
2 C X 4 Sq.mm =1 NO. (I)	2V2S2	70		
	2W1S1	71	LV 2W1 PHASE CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	2W1S2	72		
	2W2S1	73	LV 2W2 PHASE CT METERING CORE-2	
2 C X 4 Sq.mm =1 NO. (I)	2W2S2	74		
	2N1S1	75	LV 2N1 NEUTRAL CT REF CORE-1	
2 C X 4 Sq.mm =1 NO. (I)	2N1S2	76		
	2US1	77	LV 2U AVR CT	
2 C X 4 Sq.mm =1 NO. (I)	2US2	78		
	L19	79	OLTC MOG ALARM	
2 C X 4 Sq.mm =1 NO. (I)	L20	80		
	L21	81	AIRCELL PUNCTURE RELAY ALARM	
2 C X 4 Sq.mm =1 NO. (I)	L22	82		
		83 - 90	SPARES	

WIRE LOOPS	DESTINATION INTERNAL WIRES	TERMINAL NUMBERS TB–3(MB)	DESTINATION EXTERNAL WIRES	CABLE SPECIF. I–INCOMING O–OUTGOING
	SPARE	1		
	SPARE	2		
	L0 1	3	ANNUNCIATION ON RTCC	7 C (O)
	L0 2	4		
	L0 3	5		
	L0 7	6		
	L0 8	7		
	L0 12	8		
	L0 13	9		
	M33	10	TO RTCC CSS-3	4 C (O)
	M34	11		
	M35	12		
	M37	13		
	L102	14	SIGNALLING ON RTCC	14 C (O)
	L103	15		
	L104	16		
	L105	17		
	L106	18		
	L107	19		
	L108	20		
	L109	21		
	L110	22		
	L111	23		
	L112	24		
	L113	25		
	L114	26		
	L115	27		
	SPARES	28 - 30		

Adopted for NIT NO. – 10/PIR/BSPTCL/2023.

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. • V.U. NAGAR •

IF IN DOUBT PLEASE ASK

REVI NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	06/01/23	PRIYANK
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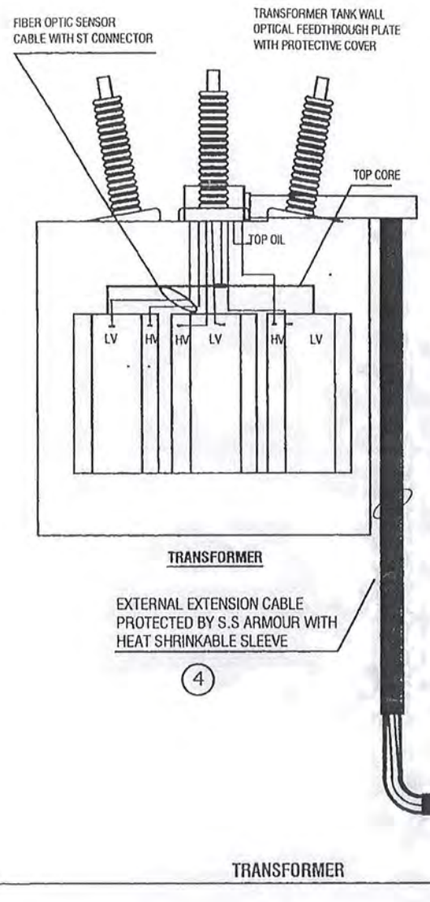
SCHEMATIC DIAGRAM OF M.BOX WITH COOLER CONTROL CUBICLE

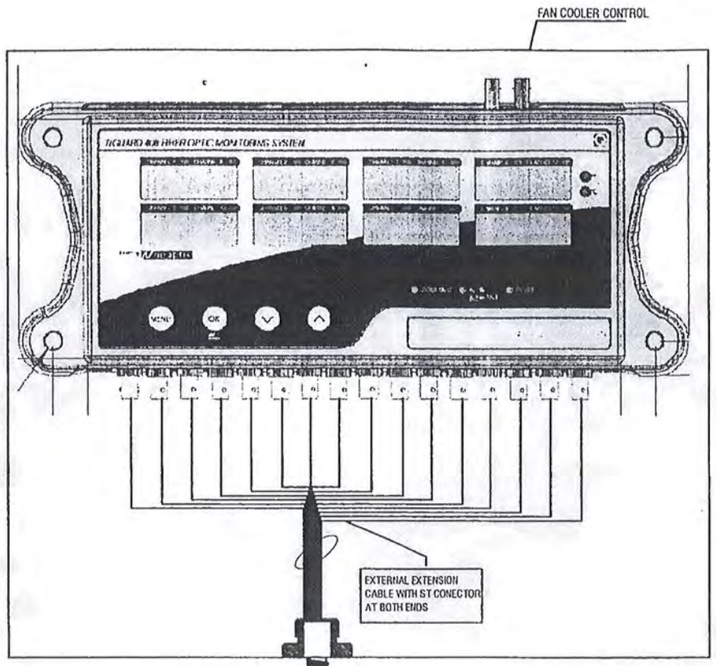
ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET NO. 6 OF 7 | W.O. NO. AET-1662

DRG. NO.:- AT13/2819 Q

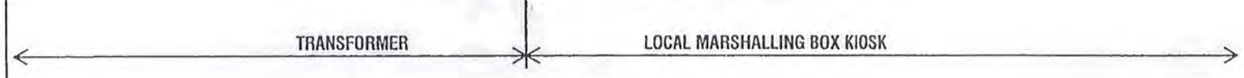




WIRE LOOPS	DESTINATION INTERNAL WIRES	TERMINAL NUMBERS TB-4	DESTINATION EXTERNAL WIRES	CABLE SPECIF.	I-INCOMING O-OUTGOING
1	P	1	85-260 V AC/100-270 V DC 50/60 Hz INPUT SUPPLY FOR ADAPTOR AC TO DC CONVERTOR		
	N	2			
	E	3			
	B+	4	SERIAL PORT RS - 422/ RS - 485 CONNECTION		
	A-	5			
	B'+	6			
	A'-	7			
	E	8			
	A1-	9	4-20mA OUTPUT -1 FOR SCADA		
	A1+	10			
	A2-	11	4-20mA OUTPUT -2 FOR SCADA		
	A2+	12			
	A3-	13	4-20mA OUTPUT -3 FOR SCADA		
	A3+	14			
	A4-	15	4-20mA OUTPUT -4 FOR SCADA		
	A4+	16			
	A5-	17	4-20mA OUTPUT -5 FOR SCADA		
	A5+	18			
	A6-	19	4-20mA OUTPUT -6 FOR SCADA		
	A6+	20			
	A7-	21	4-20mA OUTPUT -7 FOR SCADA		
	A7+	22			
	A8-	23	4-20mA OUTPUT -8 FOR SCADA		
	A8+	24			
	-	25 TO 30	SPARES		

NOTES:-

1. EXTERNAL EXTENSION CABLE FROM TRANSFORMER UP TO MARSHALLING BOX ARE IN AEPL SCOPE OF SUPPLY ONLY.
2. CHANNEL INDENTIFICATIONS OF FIBER OPTIC BASED TEMPERATURE SENSOR :-
   CHANNEL - 1 FOR TOP OIL TEMP., CHANNEL - 2 FOR BOTTOM OIL.,
   CHANNEL - 3 FOR HV 1U WINDING TEMP., CHANNEL - 4 FOR LV 2U WINDING TEMP.,
   CHANNEL - 5 FOR HV 1V WINDING TEMP., CHANNEL - 6 FOR LV 2V WINDING TEMP.,
   CHANNEL - 7 FOR HV 1W WINDING TEMP., CHANNEL - 8 FOR LV 2W WINDING TEMP.,
   CHANNEL - 9 FOR HV 1V WINDING TEMP., CHANNEL - 10 FOR LV 2V WINDING TEMP.,
   CHANNEL - 11,12,13 FOR CORE TEMPERATURE.
3. P - PHASE, N - NEUTRAL, E - EARTH.
4. OTHER FIELD CABLES ARE NOT IN AEPL SCOPE OF SUPPLY TO CUSTOMER PANEL OR RTCC.



NOTE:-
VIEW OF FOTS ARE SUBJECT TO CHANGE AS PER MANUFACTURER

Adopted for NIT No. -10/PR/BSPTCL/2023

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd
Vidyut Bhawan, Patna-800021
15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

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DRN	06/01/23	PRIYANK
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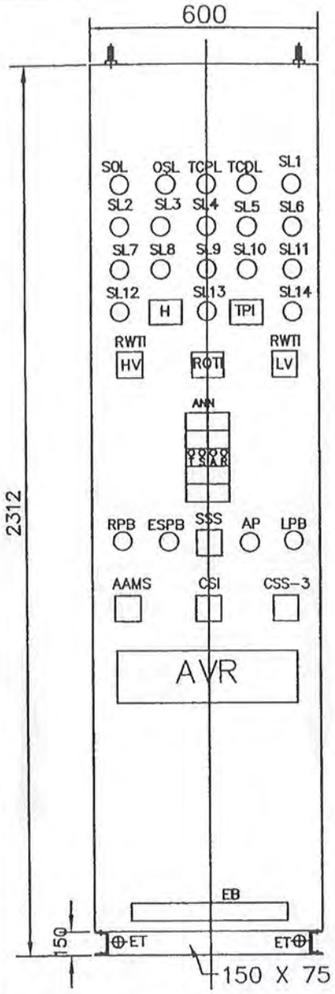
SCHEMATIC DIAGRAM OF MARSHALLING BOX

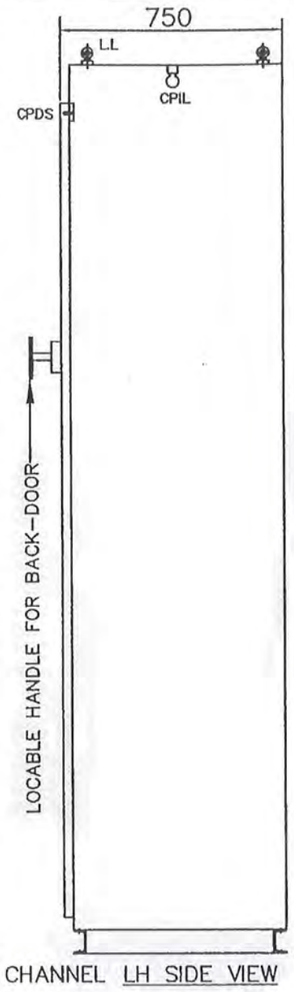
ATLANTA
V.U. NAGAR – 388121

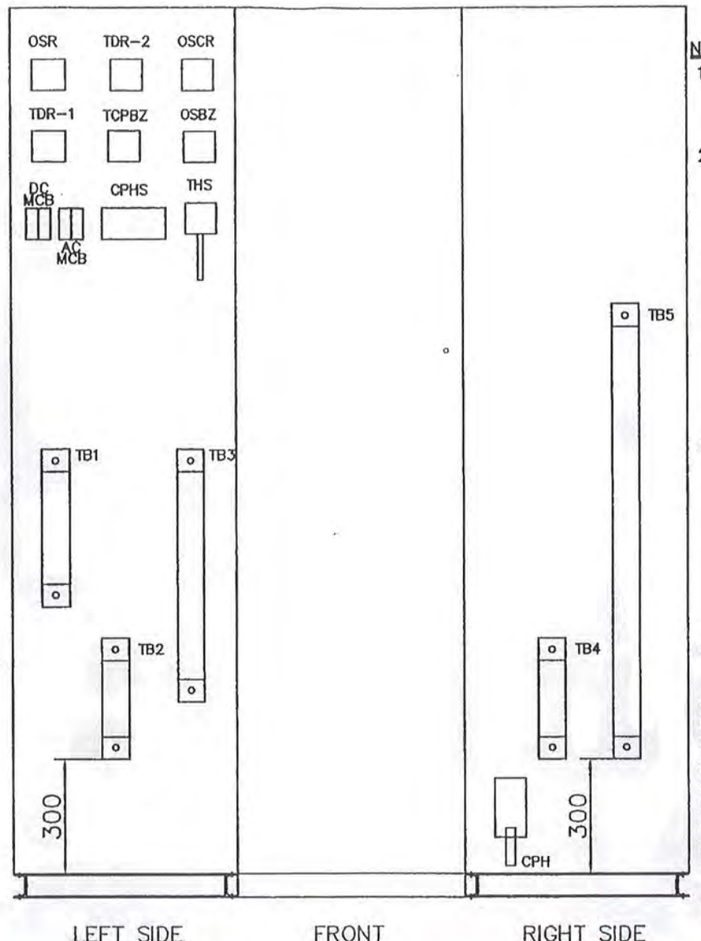
SCALE

SHEET NO. 7 OF 7 | W.O. NO. AET-1662

DRG. NO.:– AT13/2819 Q

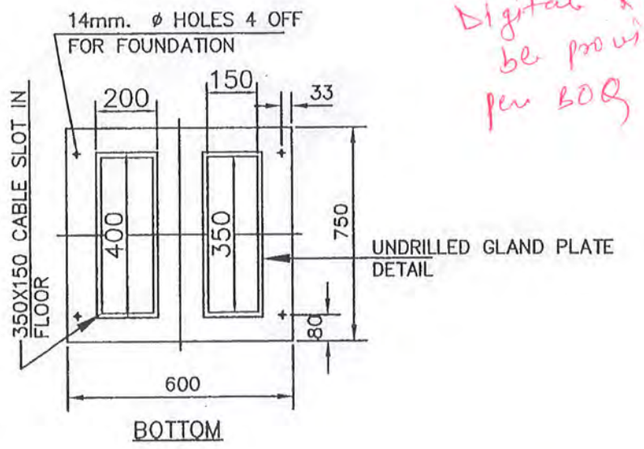






NOTES:–

1. AUXILLIARY SUPPLY:–
   a) 1 ø 240 V AC SUPPPLY FOR HEATER AND LAMP CIRCUIT.
   b) 220 V DC SUPPLY FOR DC CIRCUIT.
2. PAINT SHADE: A) EXTERIOR:–
   (a) ALL SURFACES SHALL BE THROUGHTY BLAST CLEANED WITH SHOT (SA – 2.5) IN ACCORDANCE WITH ISO 8501 PART 1 TO a MINIMUM STANDARD OF SA – 2.5 TO MAKE TO SURFACE FREE FROM VISIBLE OIL , GREASE , DIRT,MILL,RUST,PAINT & FOREIGN MATTER.
   (b) PRIAMER COAT :– TWO COAT EPOXY BASE ZINC PRIAMER (40 MICRONS)
   (c) FINESH COAT AFTER (b) :–
   TWO COATS OF EPOXY SHADE NO. 631 OF IS:5 (40 MICRONS)
   (d) TOTAL DFT (b+c) MINIMUM (80 MICRONS) FOR TRANSFORMER, O.L.T.C. & ALL ACCESSORIES.
   B) INTERIOR EPOXY WHITE GLOSSY FINISH (40 MICRONS)
   C) BASE FRAME :– GLOSSY BLACK.
3. 1.1KV GRADE PVC MULTI STRANDED COPPER CABLE.
   a) POWER & CONTROL CIRCUIT:– SIZE – 2.5 SQ. m.m
   b) CT CIRCUIT:– SIZE – 4 SQ. m.m
   C) COLOUR:–
   POWER CIRCUIT – RED, YELLOW, BLUE
   CONTROL CIRCUIT – BLACK
   D.C. CIRCUIT – GRAY
   EARTH WIRE – GREEN
4. INSULATION:– THE CONDUCTOR IS INSULATED WITH TYPE– 1 PVC. COMPOUND OF I.S 5831–1970
5. ALL DIMENSIONS ARE IN mm. UNLESS OTHER WISE STATED.
6. DEGREE OF PROTECTION:– IP–42
7. MATERIAL:– 2 m.m THK. C.R.C.A. SHEET
8. THIS RTCC IS SUITABLE FOR CTR MAKE OLTC
9. ALL ITEMS SHALL BE LABELED.
10. TOLERANCE:– ±2 mm
11. GASKET MATERIAL:–NEOPRENE/EPDM
12. DOOR WILL BE HINGED TYPE.
13. PVC ARMOURED COPPER CABLE UP TO RTCC FROM M. BOX & OLTC DM UNIT ARE NOT IN AEPL SCOPE OF SUPPLY.
14. LOCATION OF FITTINGS ARE SUBJECT TO MINOR CHANGE DURING MANUFACTURING.



Digital RTCC to be provided as per BOQ

Adopted for NIT NO. –10/PR/BSPTCL/2023. (Tab corrected)

15 MAR 2023

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

ATLANTA ELECTRICALS PVT. LTD. • V.U. NAGAR •

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REVI NO.	DATE SIGN	BRIEF RECORD

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CHD.		
APPD.		

GENERAL ARRANGEMENT OF REMOTE TAP CHANGER CONTROL CUBICAL

ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET. NO. 1 OF 2

W.O. NO. AET–1662

DRG. NO.:– AT13/2820 Q

LEGEND	QTY	DESCRIPTION	TYPE & RATING	MAKE
SOL (SL1)	1	'SUPPLY ON LAMP'. / 'OLTC CONTROL SUPPLY ON LAMP' (LED TYPE)	110V AC (GREEN)	PRECIFINE / TEKNIC / SCI / SG/VAISHNO/C&S/EQV.
OSL (SL2)	1	'OUT OF STEP' LAMP. (LED TYPE)	110V AC (RED)	
TCPL(SL3)	1	'TAPCHANGE INPROGRESS' LAMP (LED TYPE)	110V AC (AMBER)	
TCDL(SL4)	1	'TAPCHANGE DELAY' LAMP (LED TYPE)	110V AC (RED)	
SL1	1	MAIN SUPPLY ON LAMP (LED TYPE)	230 V AC (GREEN)	
SL2	1	STAND BY SUPPLY ON LAMP (LED TYPE)		
SL3	1	ALL FANS 'ON' GROUP–I LAMP (LED TYPE)		
SL4	1	STAND BY FAN –5 'ON' GROUP–I LAMP (LED TYPE)		
SL5	1	ALL FANS 'ON' GROUP–II LAMP (LED TYPE)		
SL6	1	STAND BY FAN –10 'ON' GROUP –II LAMP (LED TYPE)		
SL7	1	MAIN SUPPLY OFF LAMP (LED TYPE)	230 V AC (RED)	
SL8	1	STAND BY SUPPLY OFF LAMP (LED TYPE)		
SL9	1	ALL FANS 'OFF' GROUP–I LAMP (LED TYPE)		
SL10	1	STAND BY FAN –5 'OFF' GROUP–I LAMP (LED TYPE)		
SL11	1	ALL FANS 'OFF' GROUP–II LAMP (LED TYPE)		
SL12	1	STAND BY FAN –10 'OFF' GROUP –II LAMP (LED TYPE)		
SL13	1	FANS 'ON' AUTO MODE – LAMP (LED TYPE)	230 V AC (GREEN)	
SL4	1	FANS 'ON' MANUAL MODE – LAMP (LED TYPE)		
TPI	1	'TAP POSITION INDICATOR' – DIGITAL TYPE	110V AC,1 K. OHMS/STEP	NEUTRONICS/PRADEEP/EMCO/PRECIMEASURE/RISHABH/MACPOWER
ANN	1	'ANNUNCIATOR' (6 WINDOWS) MICRO PROCESSOR BASE WITH T,S,A,R PUSH BOTTONS.	220 V DC	MINILEC/PRADEEP/DIGICONT/PROTON/C&S/EAPL/RISHABH
SSS	1	'SEQUENCE SELECTOR SWITCH (IND./OFF/FOLL./MAST.)	16A , 415V AC	KAYCEE/RECOM/SWITRON/SCI/SG/SELECT/C&S/ANCHOR/ESSEN/SURAJ/HPL/SALZER
RPB (S3)	1	'REMOTE PUSH BUTTON FOR RAISE' (RED)	2A,110V AC	PRECIFINE / TEKNIC / SCI / SG/VAISHNO/C&S/EQV.
LPB (S4)	1	'REMOTE PUSH BUTTON OR LOWER' (GREEN)		
ESPB	1	'EMERGENCY STOP PUSH BUTTON' (STAY–PUT–TYPE) (RED)		
OSCPB(AP)	1	'OUT – OF – STEP CANCELLATION PUSH BUTTON' (RED)		
ET	2	'EARTHING TERMINALS WITH NUT ,BOLT & PLAIN WASHERS (WELD AT THE CORNER OF BACK SIDE)	M12 x 1.75 PITCH,MAT. : M.S	~~REPUTED~~ Make shall be mentioned
CPIL(CIL)	1	'CONTROL PANEL ILLUMINATING' LAMP WITH HOLDER (TYPE:– LED)	10W , 250V AC	BAJAJ/PHILIPS/HMT/HI-FI/ANCHOR/SURYA/ORPAT/EXCEL/C&S/HAVELLS/HPL
CPDS(DS)	1	CONTROL PANEL DOOR SWITCH'	2 A ,230 V AC	KAYCEE/RECOM/SWITRON/SCI/SG/SELECT/C&S/ANCHOR/ESSEN/SURAJ/HPL/SALZER
CPHS	1	'CONTROL PANEL HEATER SWITCH'	6A , 250V AC	
CPH	1	'CONTROL PANEL HEATER' WITH GUARD	60/80 W , 230 V – AC	SPHERHOT/VERTEX/VALCO/VALICO/GIRISH/C&S/TEMPRO/TTE
THS	1	'THERMOSTAT'	15A , 230V AC (30–120°C)	
TDR–2(TCI)	1	'TIME–DELAY–RELAY FOR TAPCHANGE INCOMPLETE' (2NO + 2NC CONTACTS) (POTENTIAL FREE CONTACT.)	5 A , 110V AC (0 TO 60 SEC.)	MDS/L&T / SIEMENS / BCH / LAKSHMI / ABB/C&S/MITSUBISHI/HPL/SCHNIEDER/SELEC/ SINTEX/INDOKOPP/KAYCEE/SALZER
TDR–1(OST)	1	'TIME–DELAY–RELAY FOR OUT–OF–STEP' (2NO + 2NC CONTACTS) (POTENTIAL FREE CONTACT.)	5 A , 110V AC (0 TO 60 SEC.)	
OSR	1	'OUT–OF–STEP RELAY WITH 2 NO + 2 NC (AUX. CONTACTOR)	4 A, COIL VOL.–110 V AC	
OSCR	1	'OUT–OF–STEP CANCELLATION RELAY WITH 2 NO + 2 NC (AUX. CONTACTOR)	4 A, COIL VOL.–110 V AC	
DCMCB	1	'MINIATURE CIR. BREAKER FOR DC SUPPLY',1 POLE WITH NEUTRAL	6/10A , 220 V DC	
ACMCB	1	'MINIATURE CIR. BREAKER FOR AC SUPPLY',1 POLE WITH NEUTRAL	6/10A , 230 V AC	
H	1	HOOTER FOR ANNUNCIATION	220 V DC	MINILEC/PRADEEP/DIGICONT/PROTON/C&S/EAPL/EQV.
TCPBZ	1	'TAP CHANGE IN PROGRESS IN BUZZAR'	110V AC	VAISHNO / CONDS/C&S/TECHNOMONT/ME/EQV.
OSBZ	1	OUT OF STEP BUZZER	110V AC	
TB1,TB2,TB3,TB4	AS REQ.	TERMINAL BLOCKS 1kV GRADE STUD TYPE WITH NUT & TRANSPARENT GUARD	CAT M3	ELMEX / CONNECT WELL / WAGO / PHOENIX
EB	1	EARTHING BUSBAR	25 X 6 THK. MAT.:– COPPER	~~REPUTED~~ make shall be mentioned
BASE ISMC	1	BASE CHANNEL	150 X 75 ISMC	
LL	4	LIFTING LUGS	M10ø M.S. EYE BOLT	
CSI	1	CONTROL SWITCH ISOLATOR (ON/OFF)	10A,440 AC 1P,1WAY	KAYCEE/RECOM/SWITRON/SCI/SG/SELECT/C&S/ANCHOR/ESSEN/SURAJ/HPL/SALZER
CSS–3	1	CONTROL SELECTOR SWITCH FOR A/M OPERATION, 2 POLE, 2 WAY FOR FANS MOTORS	10A , 230V AC	
AAMS	1	CONTROL SELECTOR SWITCH FOR AVR/RTCC OPERATION,1 POLE, 2 WAY FOR AVR	10A , 230V AC	
AVR	1	'AUTOMATIC VOLTAGE REGULATING RELAY (Pradeep Model – fx–8000A)	110/220V AC/DC	PRADEEP SALES & SERVICES/EMCO/EQV.
LH	1	LOCABLE HANDLE	–	~~REPUTED~~ Make shall be mentioned
RWTI (HV+LV)	1+1	REMOTE WINDING TEMPERATURE INDICATOR, RANGE :– 0°C TO 150°C (TYPE DIGITAL)	90–260 V AC / DC	NEUTRONICS/PRADEEP/EMCO/PRECIMEASURE/RISHABH/PRADEEP SALES/EQV.
ROTI	1	REMOTE OIL TEMPERATURE INDICATOR, RANGE :– 0°C TO 150°C (TYPE DIGITAL)	90–260 V AC / DC	
UGP	1+1	UNDRILLED GLAND PLATE	400 mm x 200 mm x 3 m.m THK. C.R.C.A. SHEET	~~REPUTED~~ Make shall be mentioned

To be as per digital RTCC

(All corrected)
Adopted for NIT No - 10/PR/BSPTCL/23

APPROVED
Subject to the condition that you are not absolved of the responsibility for correctness of the material supplied as per specification

Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

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	DATE	SIGN
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CHD.		
APPD.		

ATLANTA
V.U. NAGAR – 388121

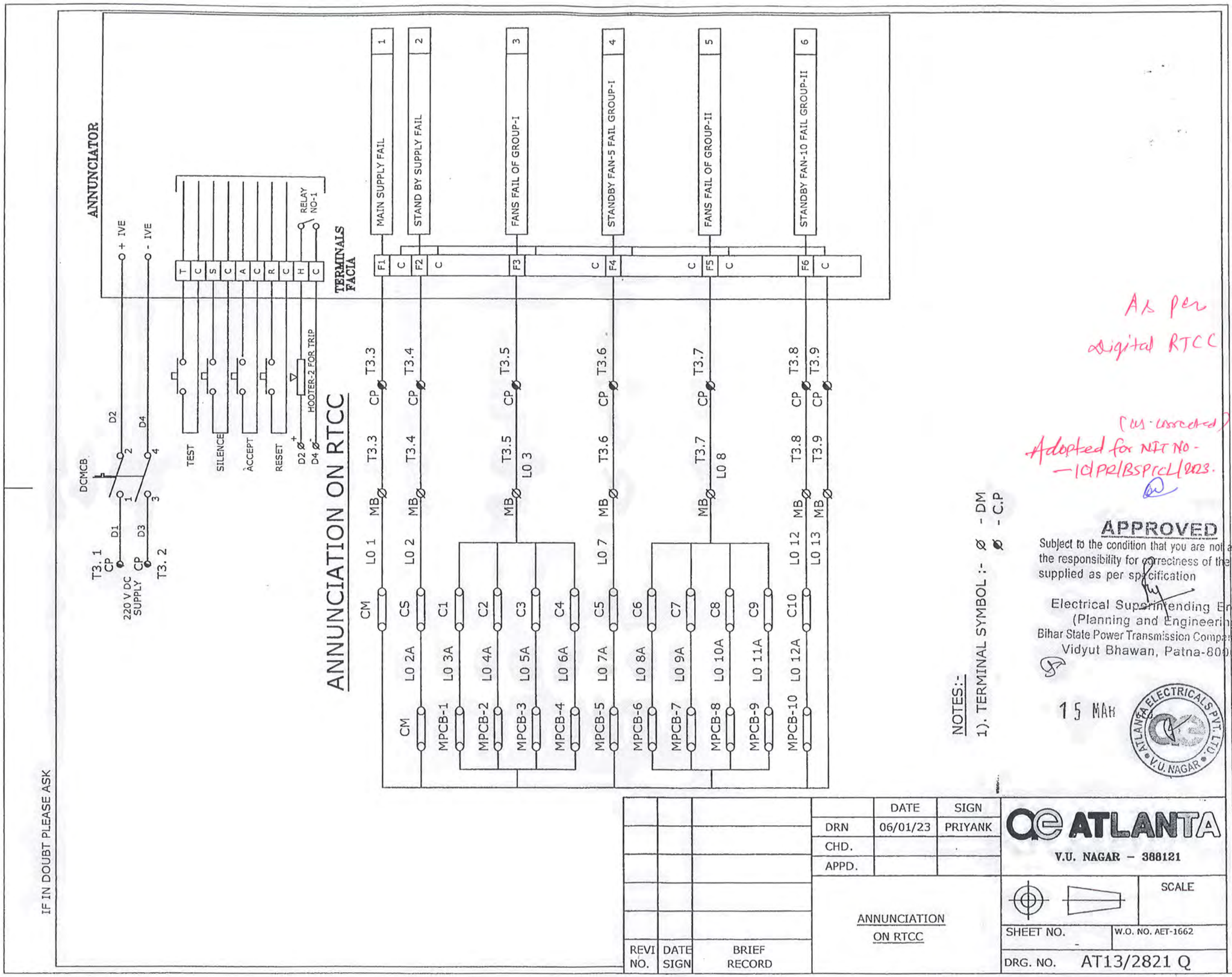
PARTS LIST OF REMOTE TAP CHANGER CONTROL CUBICAL

SCALE

SHEET. NO. 2 OF 2

W.O. NO. AET–1662

DRG. NO.:– AT13/2820 Q



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CHD.		
APPD.		

ANNUNCIATION ON RTCC

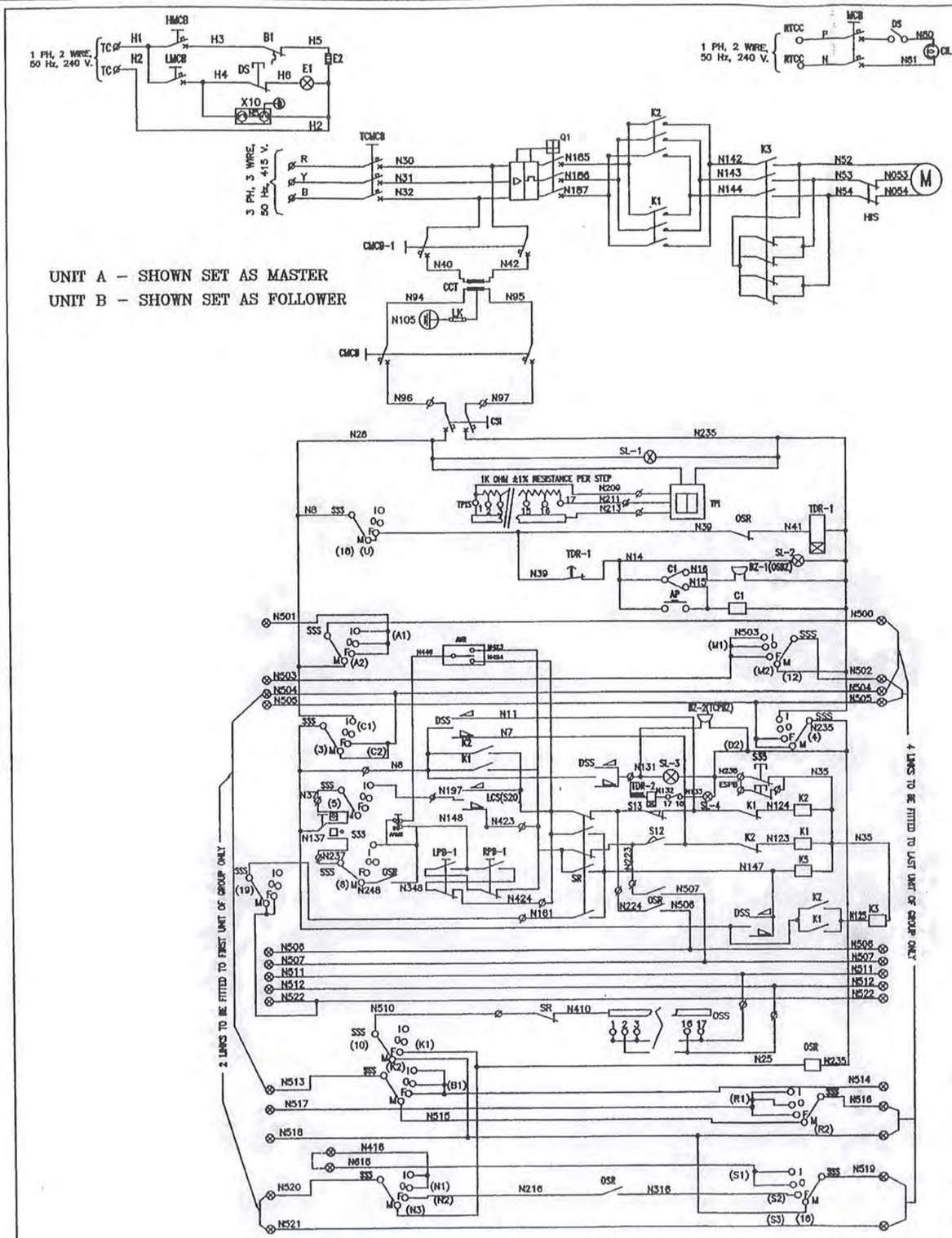
ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET NO. -

W.O. NO. AET-1662

DRG. NO. AT13/2821 Q



NOTES

1. RAISE AND LOWER REFERS TO TAP NUMBERS.
2. ALL EQUIPEMENT IS IN NORMAL CONDITION, TAP CHANGERS SHOWN AT TAP NO.1 & UNIT IS READY FOR ACTUATING A TAP CHANGE MANUALLY OR ELECTRICALLY.
3. THE TAPCHANGERS MUST BE IN THE SAME TAP POSITION BEFORE PARALLELING.
4. CORRECT PHASE SEQUENCE R–Y–B IS ESSENTIAL FOR CONNECTING SUPPLY TERMINALS INSIDE O.L.T.C UNIT.
5. TO ISOLATE RTCC SELECT 'SSS' TO 'OFF' POSITION. FOR COMPLETE ISOLATION OF TAPCHANGER EQUIPMENT SET TCMCB TO 'OFF' POSITION. WHEN ISOLATOR OF A UNIT IS IN 'OFF' POSITION. THE 'SSS' OF THAT UNIT ALSO BE SELECTED TO 'OFF' POSITION IN ORDER TO ISOLATE ITS TAPCHANGE CIRCUIT FROM OTHER UNIT.
6. FOR CHECKING LOCAL ELECTRICAL OPERATION OF TAPCHANGER WHEN RTCC IS NOT AVAILABLE LOOP FOLLOWING WIRES (a) N96 & N8 (b) N9 & N197 (c) N97 & N235.
7. N521 IS A DUMMY WIRE USED FOR CONNECTING N519 OF 2nd UNIT TO N520 OF 1st UNIT.
8. LOOP N416 & N616 WHEN MORE THAN TWO RTCC'S ARE CONNECTED IN PARALLEL.
9. * BEFORE PARALLELING OF TRANSFORMERS CONNECTED WITH OLTC's BRING BOTH THE TAPCHANGER ON SAME TAP NUMBER IN THE SAME DIRECTION IN INDEPENDANT MODE.

* INDICATES CRUCIAL CHARACTERISTICS.

Ø INDICATES INTER–CONNECTION BETWEEN O.L.T.C & R.T.C.C

⊗ INDICATES INTER–CONNECTION BETWEEN TWO R.T.C.C 's

Adopted for NIT No. – 10/PRI/BSPTCL/2023.

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Enginer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. • V.U. NAGAR •

REV NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	06/01/23	PRIYANK
CHD.		
APPD.		

SCHEMATIC DIAGRAM FOR OLTC & RTCC

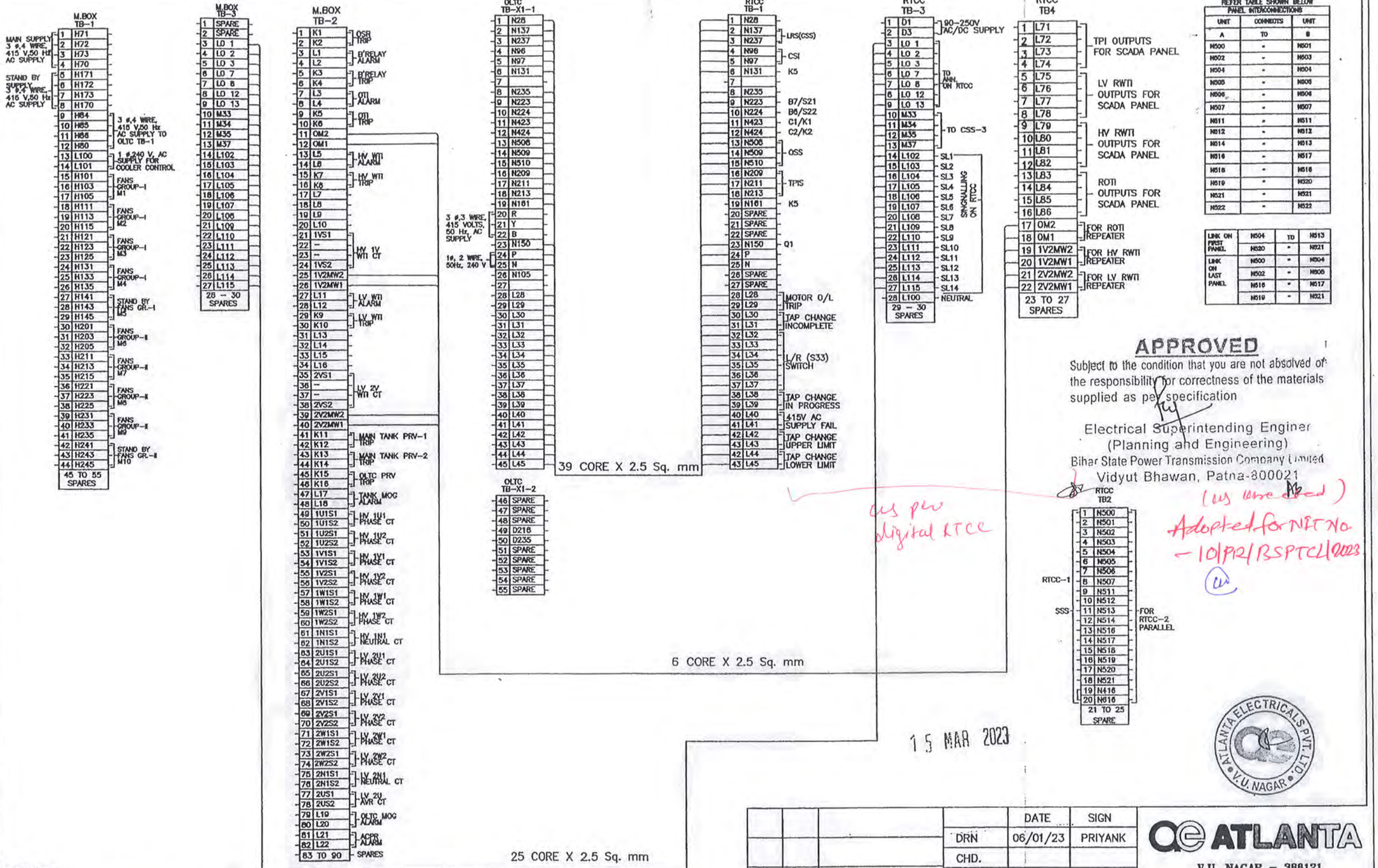
ATLANTA
V.U. NAGAR – 388121

SCALE

SHEET. NO.

W.O. NO. AET–1662

DRG. NO.:– AT13/2822 Q



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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

15 MAR 2023

(as per digital RTCC)

(as amended) Adopted for NIT No – 10/PR/BSPTCL/2023

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IF IN DOUBT PLEASE ASK

NOTES:–

1) REFER DETAILS OF SCHEMATIC DIAGRAM FOR OLTC & RTCC DRG. NO.:–AT13/2822 Q
2) REFER SCHEMATIC DIAGRAM OF FANS COOLER CONTROL AT13/2819 Q (NO. OF SHEETS 6)
3) REFER GA OF RTCC DRG. NO.:–AT13/2820 Q (NO. OF SHEETS 2)
4) REFER ANNUNCIATION ON RTCC DRG. NO.:–AT13/2821 Q
5) REFER G.A OF MARSHALING BOX WITH FCC DRG. NO.:–AT13/2818 Q (NO. OF SHEETS 2)
6) PVC ARMOURED COPPER CABLE UP TO RTCC FROM M. BOX & OLTC DM UNIT ARE NOT IN AEPL SCOPE OF SUPPLY.

REV NO.	DATE SIGN	BRIEF RECORD

	DATE	SIGN
DRN	06/01/23	PRIYANK
CHD.		
APPD.		

ATLANTA
V.U. NAGAR – 388121

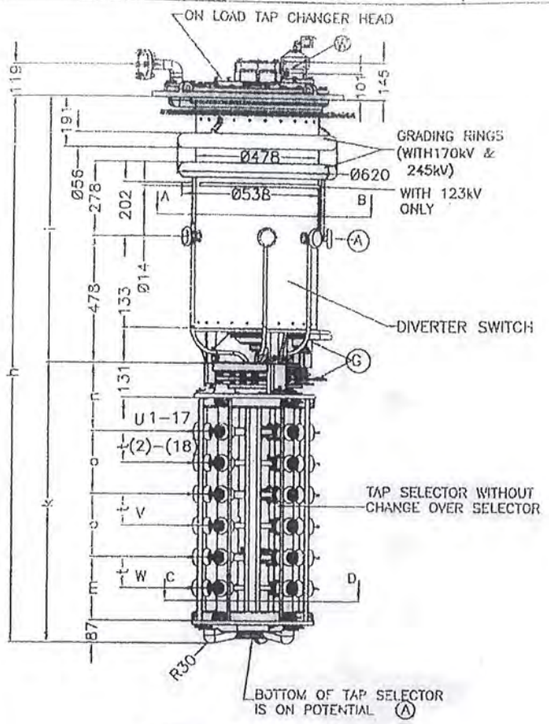
TERMINAL BLOCK & INTERCONNECTION DETAILS FOR OLTC RTCC.M/BOX WITH COOLER CONTROL CUBICLE

SCALE

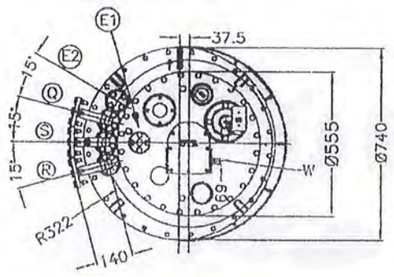
SHEET. NO. | W.O. NO. AET–1662

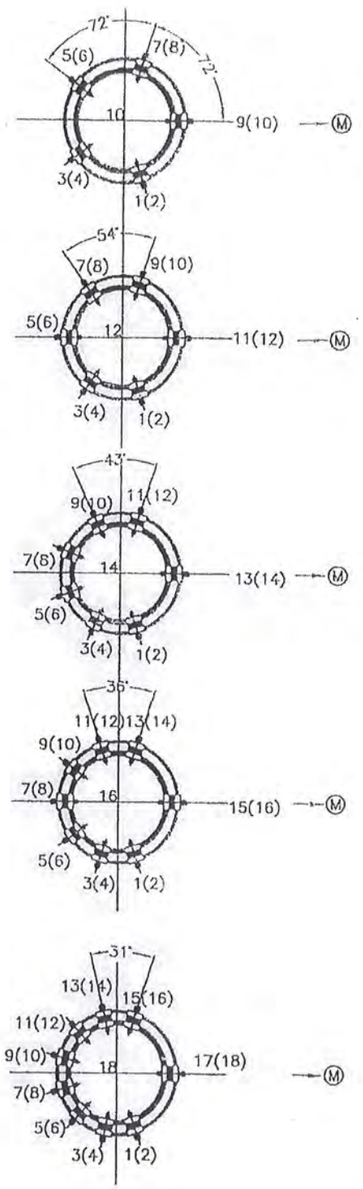
DRG. NO.:– AT13/2823 Q

DO NOT SCALE THE DRAWING — IF IN DOUBT, ASK

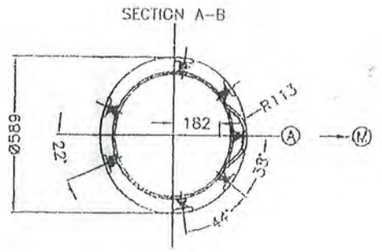


ON LOAD TAPCHANGER HEAD





SECTION A–B



Adopted for NIT No, — 10/P12/BSPTCL/2023.

APPROVED

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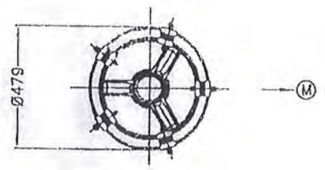
Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

SECTION C–D



NOTE: FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ONLOAD TAPCHANGER

15 MAR

TAP SELECTOR SIZE		a				c				D/DE			
U_M IN kV		72.5	123	170	245	72.5	123	170	245	72.5	123	170	245
DIMENSIONS IN MM	h	1893	2023	2153	2253	2066	2198	2326	2428	2523	2653	2783	2883
	i	996	1126	1256	1356	996	1126	1256	1356	996	1126	1256	1356
	k	897				1072				1527			
	n	233				258				323			
	o	190				240				370			
	t	95				120				185			
	m	197				247				377			
OIL VOLUME DM³ (Approx.)		130	150	170	190	130	150	170	190	130	150	170	190
DISPLACEMENT DM³ (Approx.)		194	219	244	259	195	220	244	260	198	223	248	263
WEIGHT kg.(Approx.)		260				265				305			

APPD:	
CHECK:	
DRAWN:	
SELECTOR A REMOVED SELECTOR D MERGED WITH DE SECTION A–B& CD DIMN 589&479 WAS 585&475	
DATE: 17.3.21	
REV: 02	
APPD:	
CHECK:	
DRAWN:	
1.ODD, EVEN POSITION CHANGED	
DATE: 27.04.19	
REV: 01	

A : ON LOAD TAP CHANGER CURRENT TAKE OFF TERMINAL (NEUTRAL)
E1 : AIR RELEASE OF ONLOAD TAPCHANGER HEAD
E2 : AIR RELEASE OF TRANSFORMER TANK
G : TAP SELECTOR GEAR (ON POTENTIAL A)
Q : CONNECTING FLANGE FOR OIL RETURN (WITH FILTER UNIT ONLY)
R : CONNECTING FLANGE FOR PROTECTIVE RELAY
S : CONNECTING FLANGE FOR SUCTION PIPE
W : DRIVE SHAFT
M : DRIVE SIDE OF TAP SELECTOR

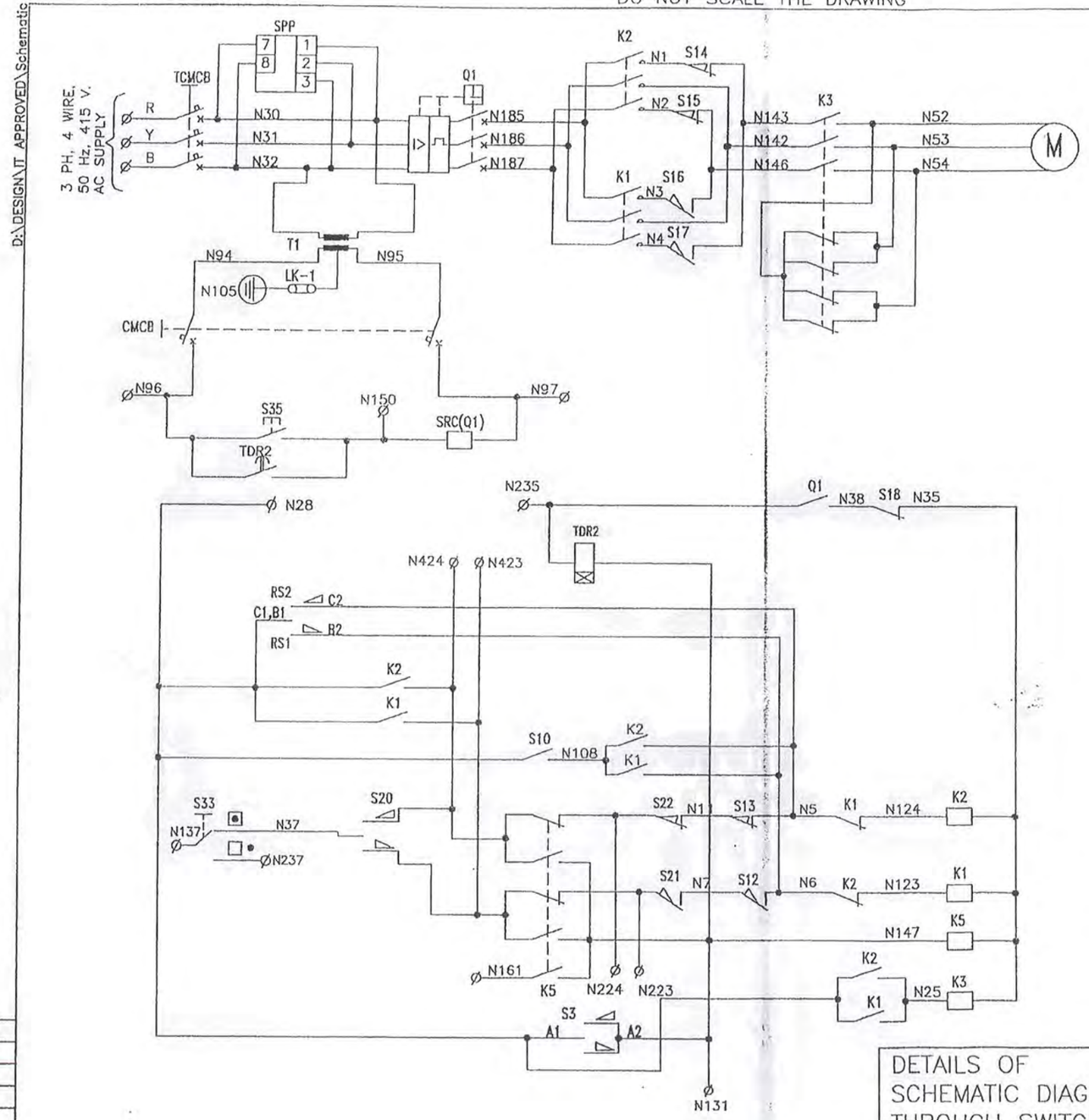
GENERAL ASSEMBELY OF
ON LOAD TAPCHANGER(BELL TYPE)
IM III/350/500/600 Y/O

GTR MANUFACTURING INDUSTRIES LTD.
INTANK TAPCHANGER DIVISION, PUNE 411014

A3	DRAWN	SBB	09.06.15
SCALE NTS	TRACED		
	CHKD	ADA	12.06.15
	APPD	BDR	19.07.15
ALL DIMENSIONS ARE IN MM			
DRG. Nr.	IT 3420 A3 02		

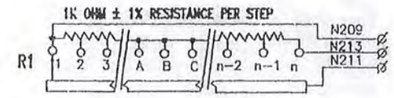
DO NOT SCALE THE DRAWING — IF IN DOUBT, ASK

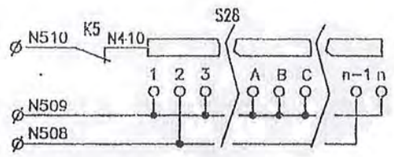
D:\DESIGN\IT APPROVED\Schematic

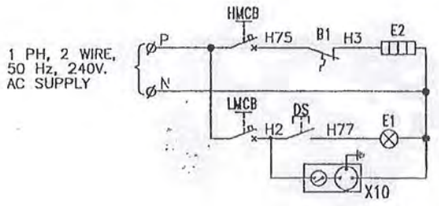


NOTES

1. RAISE AND LOWER REFERS TO TAP NUMBERS.
2. CORRECT PHASE SEQUENCE R-Y-B IS ESSENTIAL.
3. FOR CHECKING LOCAL ELECTRICAL OPERATION OF TAPCHANGER LOOP FOLLOWING WIRES :
   (a) N96 & N28 & N137 (b) N97 & N235
4. TAPCHANGER SHOWN IN LOWER LIMIT POSITION. i.e. TAP NR. 1
5. N161 OF ALL TAPCHANGERS IN PARALLEL TO BE SHORTED THROUGH A CONTACT OF SEQUENCE SELECTOR CLOSING IN MASTER AND FOLLOWER MODES. NORMALLY THIS WIRE IS NUMBERED N522.







Adopted for NIT No- 10/P24/BSPTCL/2023.

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. • V.U. NAGAR •

- ⌀ INDICATES WIRE BROUGHT TO OLTC TERMINAL STATION.
- ✳ CRUCIAL CHARACTERISTICS.
- ◿ RAISE OPERATION
- ◺ LOWER OPERATION
- □● REMOTE CONTROL
- ◉ LOCAL CONTROL

DETAILS OF SCHEMATIC DIAGRAM WITH RUN THROUGH SWITCH (IMA7B)	A3	DRAWN		29.7.22
	SCALE NTS	TRACED		
		CHKD		29.7.22
		APPD	AHK	29.7.22
		ALL DIMENSIONS ARE IN MM		
CTR MANUFACTURING INDUSTRIES PVT LTD. INTANK TAPCHANGER DIVISION, POONA 411014.	DRG. Nr.	IT 16163 A3 00 SHEET 1 OF 2		

IT1598700

1 2 3 4 5 6 7 8 — A B C D E F

DO NOT SCALE THE DRAWING

IF IN DOUBT, ASK

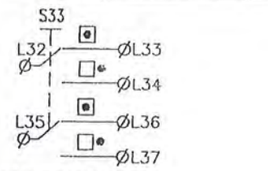
D:\DESIGN\IT APPROVED\Schematic

X1-1	
1	N28
2	N137
3	N237
4	N96
5	N97
6	N131
7	
8	N235
9	N223
10	N224
11	N423
12	N424
13	N508
14	N509
15	N510
16	N209
17	N211
18	N213
19	N161
20	R
21	Y
22	B
23	N150
24	P
25	N
26	N105
27	
28	L28
29	L29
30	L30
31	L31
32	L32
33	L33
34	L34
35	L35
36	L36
37	L37
38	L38
39	L39
40	L40
41	L41
42	L42
43	L43
44	L44
45	L45

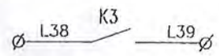
X1-2	
46	SPARE
47	SPARE
48	SPARE
49	D218
50	D235
51	SPARE
52	SPARE
53	SPARE
54	SPARE
55	SPARE

X3	
1	N700
2	N701
3	N702
4	N703
5	N704
6	N705
7	N706
8	N707
9	N708
10	N709
11	N710
12	N711
13	N712
14	N713
15	N714
16	N715
17	N716
18	N717
19	SPARE
20	SPARE
21	SPARE
22	SPARE

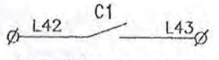
X2	
1	N600
2	N601
3	N602
4	N603
5	N604
6	N605
7	N606
8	N607
9	N608
10	N609
11	N610
12	N611
13	N612
14	N613
15	N614
16	N615
17	N616
18	N617
19	SPARE
20	SPARE
21	SPARE
22	SPARE



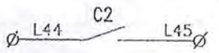
LOCAL/REMOTE SWITCH



TAP CHANGE IN PROGRESS

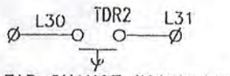


TAP CHANGE UPPER LIMIT

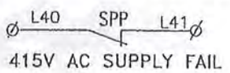


TAP CHANGE LOWER LIMIT

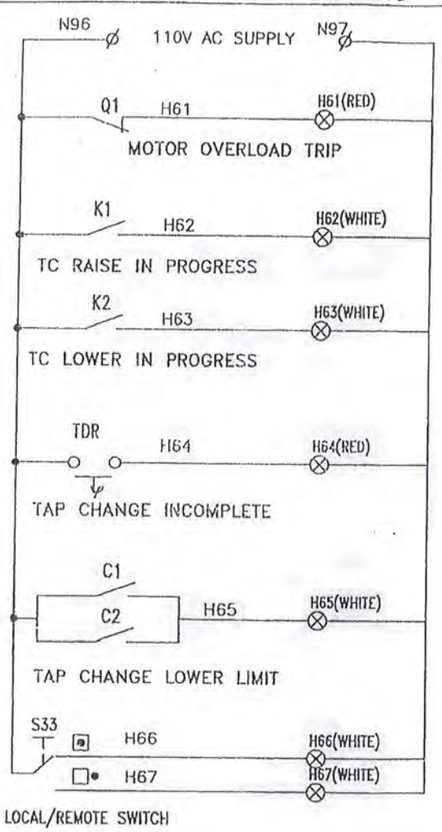
MOTOR OVERLOAD TRIP

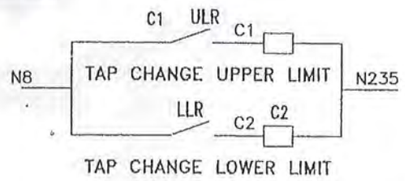


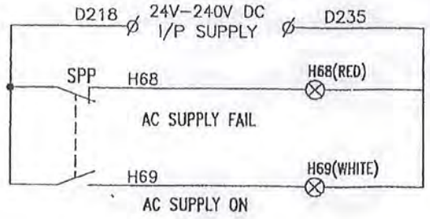
TAP CHANGE INCOMPLETE

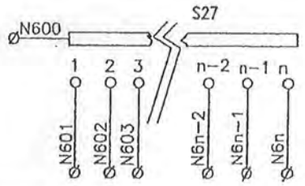


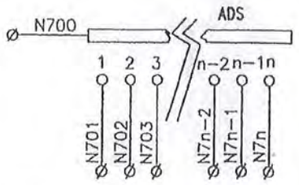
415V AC SUPPLY FAIL











KEY TO DIAGRAM

LOCATION - D.M. - DRIVE MECHANISM

REF	DESCRIPTION
ADS	ADDITIONAL DIAL SWITCH WITH 1000 OHM PER STEP
B1	THERMOSTAT.
C1	AUXILIARY CONTACTOR TO MULTIPLY ULR CONTACTOR
C2	AUXILIARY CONTACTOR TO MULTIPLY LLR CONTACTOR
CMCB	CONTROL MINIATURE CIRCUIT BREAKER.
DS	DOOR SWITCH
E1	TAPCHANGER ILLUMINATION LAMP.
E2	HEATER.
H61-H67	LED INDICATING LAMP 110V AC
H68-H69	LED INDICATING LAMP 24V-240V DC
HMCB	HEATER MINIATURE CIRCUIT BREAKER.
K1	MOTOR REVERSING CONTACTOR 'LOWER'.
K2	MOTOR REVERSING CONTACTOR 'RAISE'.
K3	MOTOR BRAKE CONTACTOR.
K5	STEPPING RELAY.
K8	CONTROL SUPPLY FAIL CONTACTOR.
LK-1	EARTHING LINK
LMCB	LAMP MINIATURE CIRCUIT BREAKER. 6AMP
M	DRIVING MOTOR 415V, 3PH, 50HZ
Q1	MOTOR PROTECTION RELAY WITH SHUNT TRIP COIL
R1	TAP POSITION INDICATOR SWITCH 1000 OHMS/STEP.
RS1,RS2	DIRECTION DEPENDENT SWITCH.
S3	CONTACT FOR AUXILIARY CONTACTOR.
S10	DEAD STEP TRANSFER SWITCH THROUGH TPI
S12	'LOWER' LIMIT SWITCH.
S13	'RAISE' LIMIT SWITCH.
S14, S15, S16, S17	POWER CUT OFF CONTACTS.
S18	HANDLE INTERLOCK SWITCH.
S20	SPRING RETURN RAISE/LOWER SWITCH.
S21,S22	CONTROL CUT-OFF CONTACTS THROUGH TPI SWITCH.
S27	ADDITIONAL DIAL SWITCH.
S28	OUT OF STEP SWITCH. (ODD/EVEN)
S33	CONTROL SELECTOR SWITCH. L-LOCAL ; R-REMOTE.
S35	EMERGENCY PUSH BUTTON.
SPP	SINGLE PHASE PREVENTOR.
T1	CONTROL CIRCUIT TRANSFORMER(415V/55-0-55V)
TCMCB	MAINS MINIATURE CIRCUIT BREAKER.
TDR2	TIME DELAY RELAY
ULR/LLR	UPPER AND LOWER LIMIT REACHED SWITCH THROUGH TPI
X10	THREE PIN PLUG WITH SOCKET
X1-1,2, X2,X3	TERMINAL STATION

Adopted for NIT No.-10/PR/BSPTCL/2023.

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

IT1598700

DETAILS OF SCHEMATIC DIAGRAM WITH RUN THROUGH SWITCH (IMA7B)

A3		DRAWN		29.7.22
SCALE NTS		TRACED		
		CHKD		29.7.22
		APPD		29.7.22
ALL DIMENSIONS ARE IN MM				

GTR MANUFACTURING INDUSTRIES PVT LTD.
INTANK TAPCHANGER DIVISION, POONA 411014.

DRG. Nr. IT 16163 A3 00

SHEET 2 OF 2

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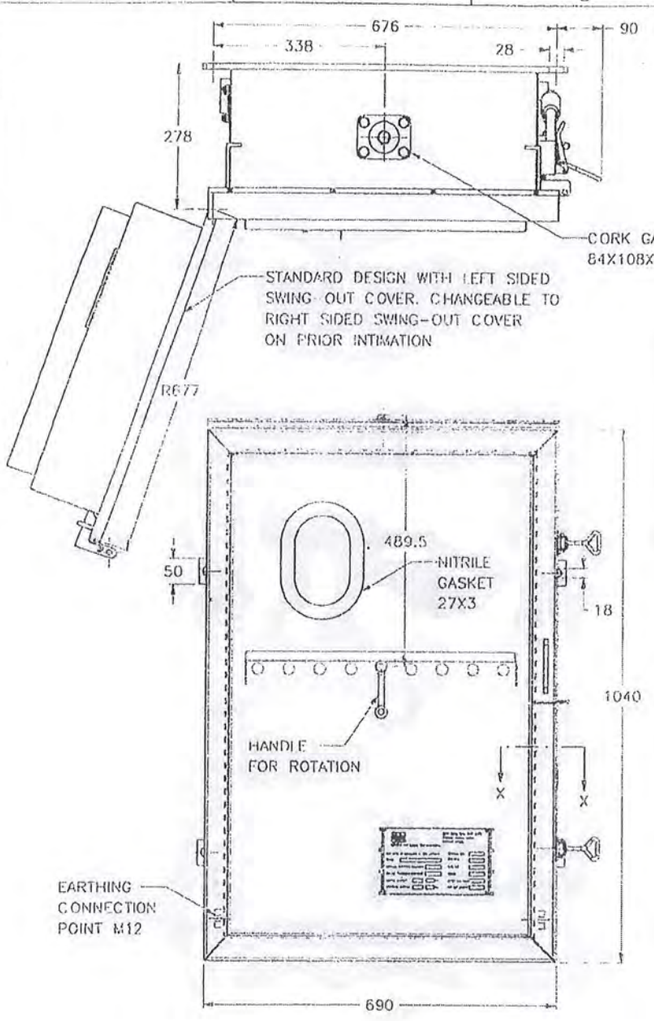
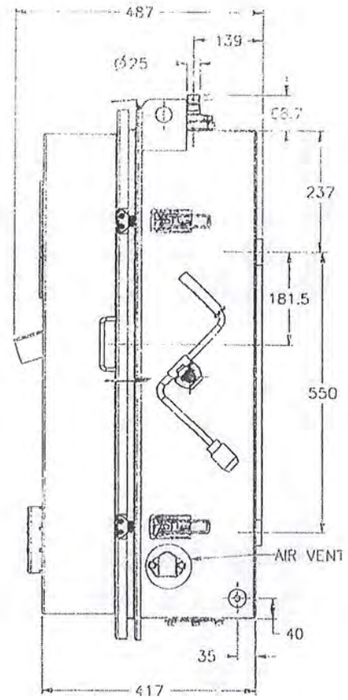
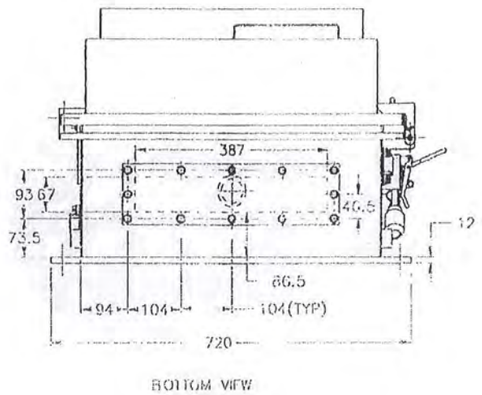
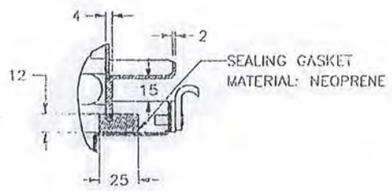


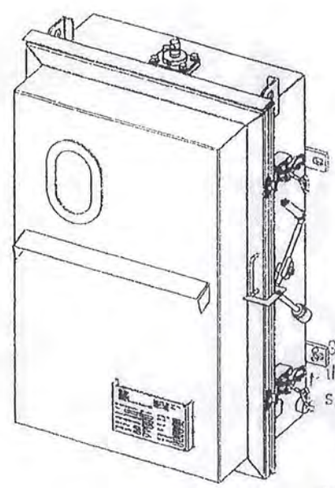




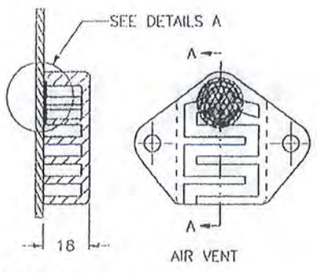
BOTTOM VIEW



SECTION X-X

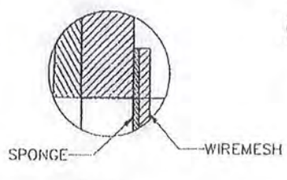


NOTE:
IMA7B MOTOR DRIVE MECHANISM FOR INTANK TAPCHANGER WITHOUT ANY MODIFICATION IS SUITABLE FOR USE IN IM, IS AND IVT TYPE ONLOAD TAPCHANGER
MATERIAL- MS
SHEET THICKNESS- 2mm
ASSEMBLY WEIGHT APPROX: 150 Kg

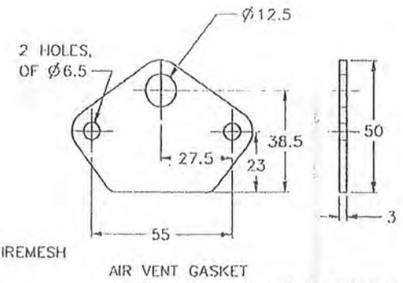


SECTION A-A

AIR VENT



DETAIL A



AIR VENT GASKET
MATERIAL: ACRYLIC NITRILE RUBBER

Adopted for NIT No. -Id Pkl/RSPTCl/2023.

APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

Electrical Superintending Enginer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

15 MAR 2023

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

TOLERANCES FOR OPEN DIMENSIONS REFER DRAWING No.IT 1901 A4 00 FINE/ MEDIUM/ ~~COARSE~~

DETAILS OF MOTOR DRIVE MECHANISM BOX IMA7B FOR INTANK ONLOAD TAPCHANGER	A3	DRAWN		3.9.22
	SCALE NTS	TRACED		
		CHKD		
		APPD		3/9/22
		ALL DIMENSIONS ARE IN MM		
CTR MANUFACTURING INDUSTRIES PRIVATE LTD. INTANK TAPCHANGER DIVISION, PUNE-411014	DRG. Nr.	IT 13606 A3 00		

Fx
8000A Tap Changer Control & Transformer Monitoring System

ON	TCP	T	>I	<U	>U	R	L	CF	H	CM-F	M/T

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16

P1 ⇦ ⇨ AUTO

P2 INC SHF MANUAL

P3 RAISE LOWER LOCAL

P4 RESET MENU REMOTE

- WTI RL 7
- WTI RL 8
- WTI RL 9
- WTI RL 10
- WTI RL 11
- READY FOR TAP CHANGE
- OUT OF STEP RL 12
- MASTER
- FOLLOWER
- OFF

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F17	F18	F19	F20	F21	F22	F23	F24	F25	F26	F27	F28	F29	F30	F31	F32

COM 1

Adopted for NIT No - 10/AE/BSPTCL/2023.

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(Planning and Engineering)
Bihar State Power Transmission Company Ltd
Vidyut Bhawan, Patna-800021

15 MAR

ATLANTA ELECTRICALS PVT. LTD. V.U. NAGAR

Pradeep sales Service Pvt Ltd

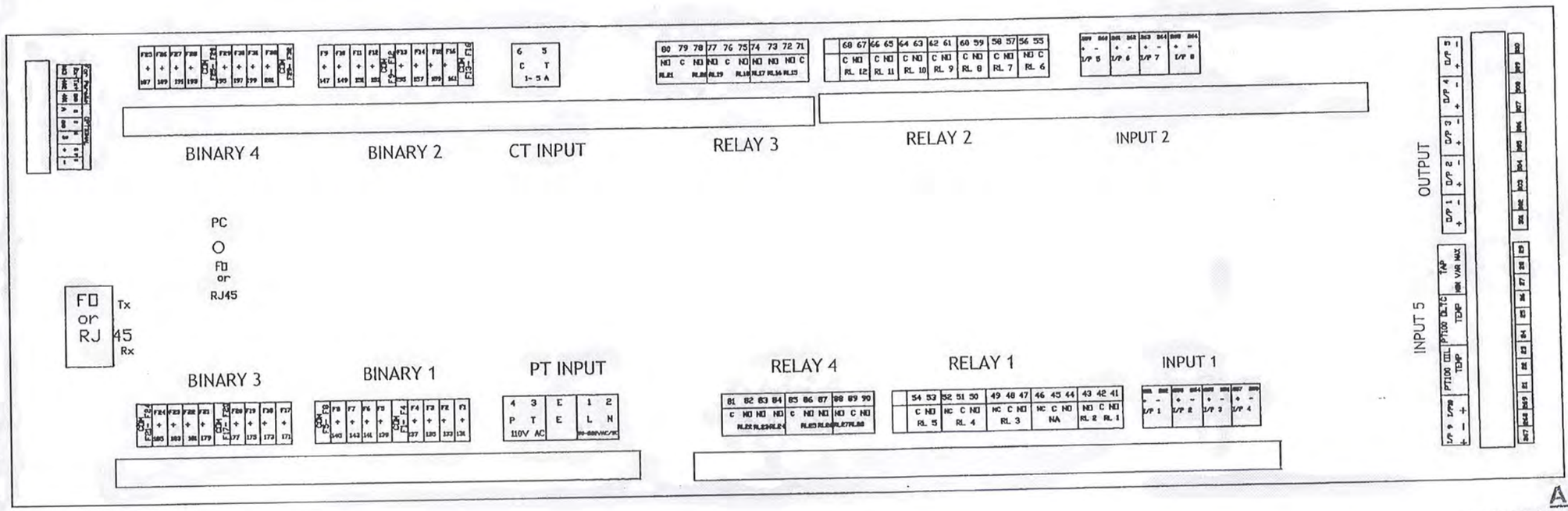
REV	BRIF DETAILS	DATE	APPVD.BY
D	FORTH ISSUE	10.03.2020	S.K.G
C	THIRD ISSUE	30.01.2016	S.K.G
B	SECOND ISSUE	30.08.2011	S.K.G
	FIRST ISSUE	21.07.2010	S.K.G

	DATE	SIGN
Approved	10.03.2020	S.K.G
Checked	10.03.2020	A.K.G
Drawn	10.03.2020	N.G

Description

FX8000A Front View-32 BINARY

DRAWING No: PD/TMS/01 REV:D



NOTE : INPUT 9 & 10 HAVE COMMON (-) TERMINAL

Adopted for NIT No, – 10PR/BSPTCL/2023.

APPROVED

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Electrical Superintending Enginer
(Planning and Engineering)
Bihar State Power Transmission Company Ltd.
Vidyut Bhawan, Patna-800021

15 MAR 2023

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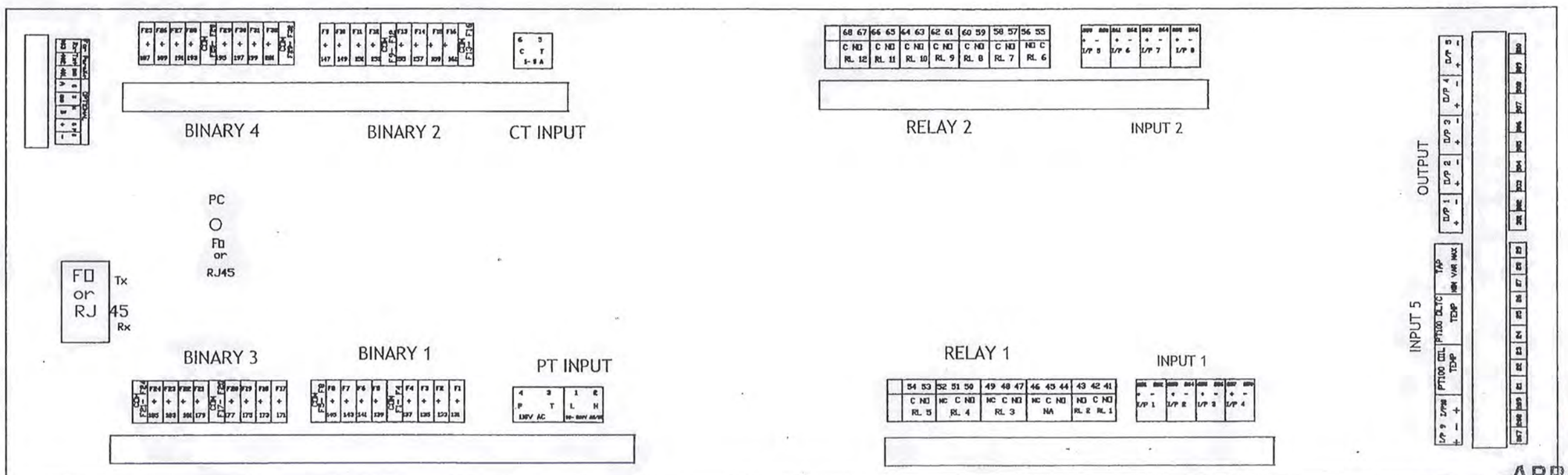
REV	BRIF DETAILS	DATE	APPVD.BY		DATE	SIGN
A	FRIST ISSUE	13.01.2021	S.K.G	Approved	13.01.2021	S.K.G
			S.K.G	Checked	13.01.2021	A.K.G
			S.K.G	Drawn	13.01.2021	N.G

Description

FX8000ABACKView 32BI,28BO,10AI

DRAWING No: PD/TMS/01.1 REV:A



Adopted for NIT No. -10/PR/BSPTCL/2023

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NOTE : INPUT 9 & 10 HAVE COMMON (-) TERMINAL

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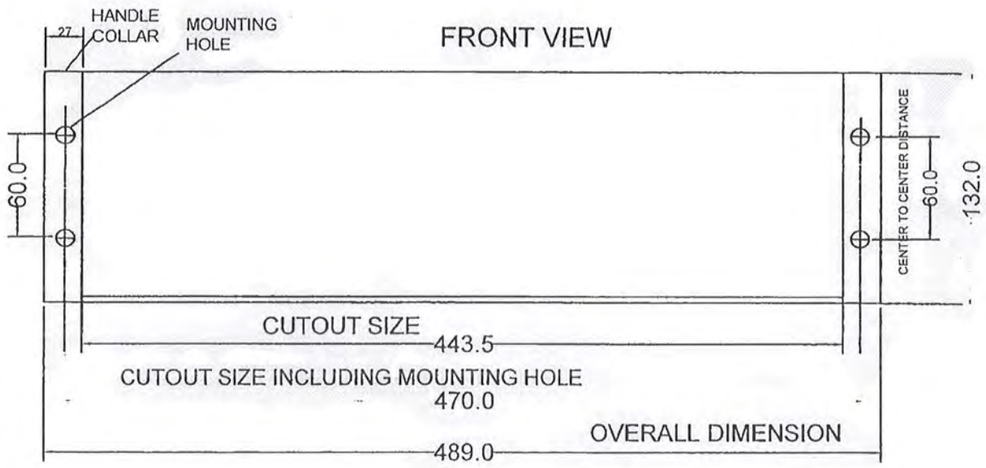
REV	BRIF DETAILS	DATE	APPVD.BY		APPVD.BY	DATE	SIGN
D	FORTH ISSUE	8-10-2018					
C	THIRD ISSUE	30.01.2016	S.K.G	APPROVED		8-10-2018	S.K.G
B	SECOND ISSUE	30.08.2011	S.K.G	Checked		8-10-2018	A.K.G
A	FRIST ISSUE	21.07.2010	S.K.G	Drawn		8-10-2018	N.G

Description

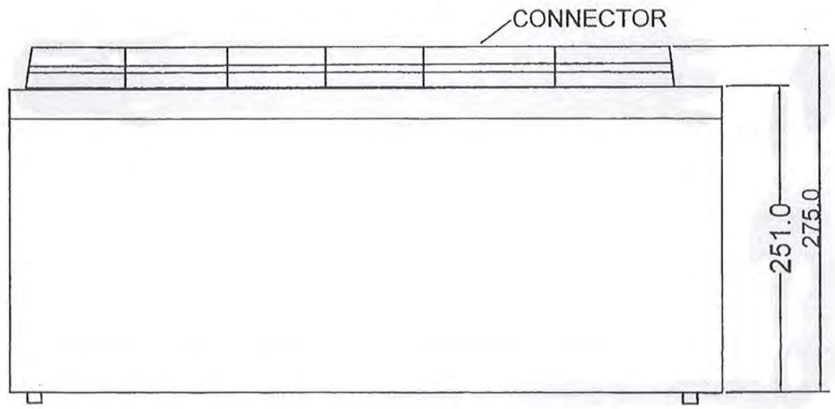
FX8000A Front View

DRAWING No: PD/TMS/01 REV:D

FRONT VIEW



TOP VIEW



Adopted for NIT No. 10/PR/BSPTC/2023.

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Vidyut Bhawan, Patna
15 MAR 2023

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REV	BRIEF DETAILS	DATE	APPVD.BY
D	FORTH ISSUE	05.09.2019	S.K.G
C	THIRD ISSUE	02.05.2015	S.K.G
B	SECOND ISSUE	30.08.2011	S.K.G
A	FIRST ISSUE	21.07.2010	S.K.G

	DATE	SIGN
APPROVED	05.09.2019	S.K.G
Checked	05.09.2019	A.K.G
Drawn	05.09.2019	N.G

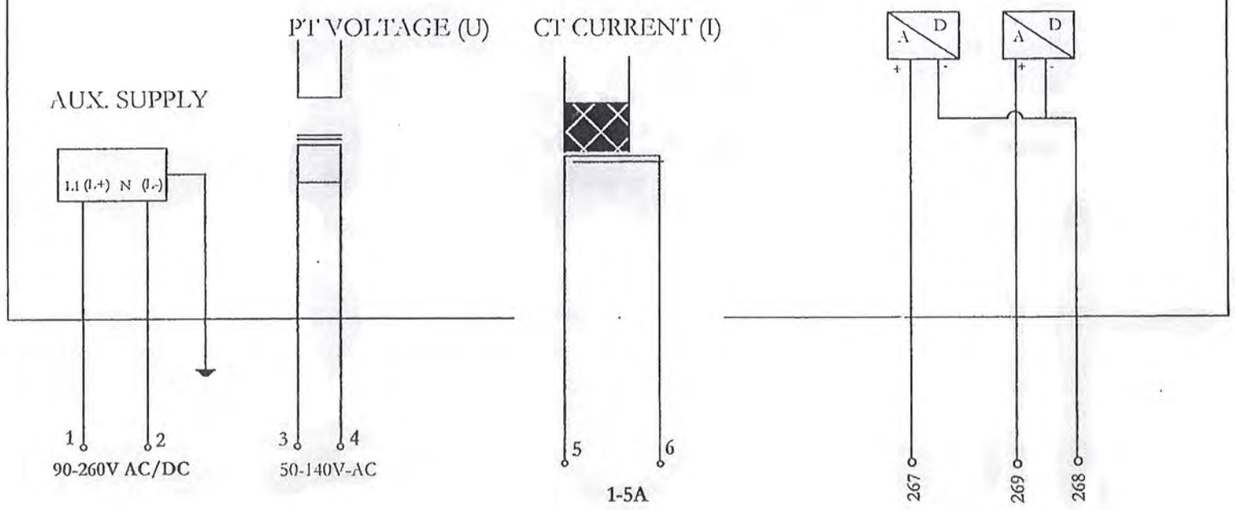
Description

FX8000A Dimension Details

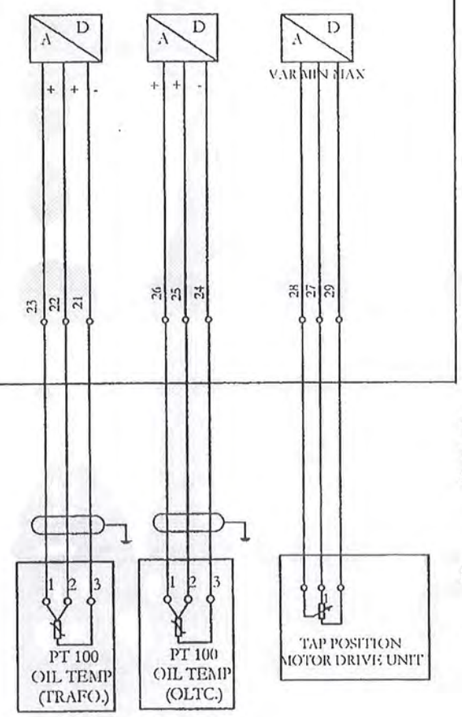
DRAWING No: PD/TMS/01.C

REV:D

POWER CARD



MAIN CARD



Adopted for NIT No.
-10/PR/BSPTCL/2023.

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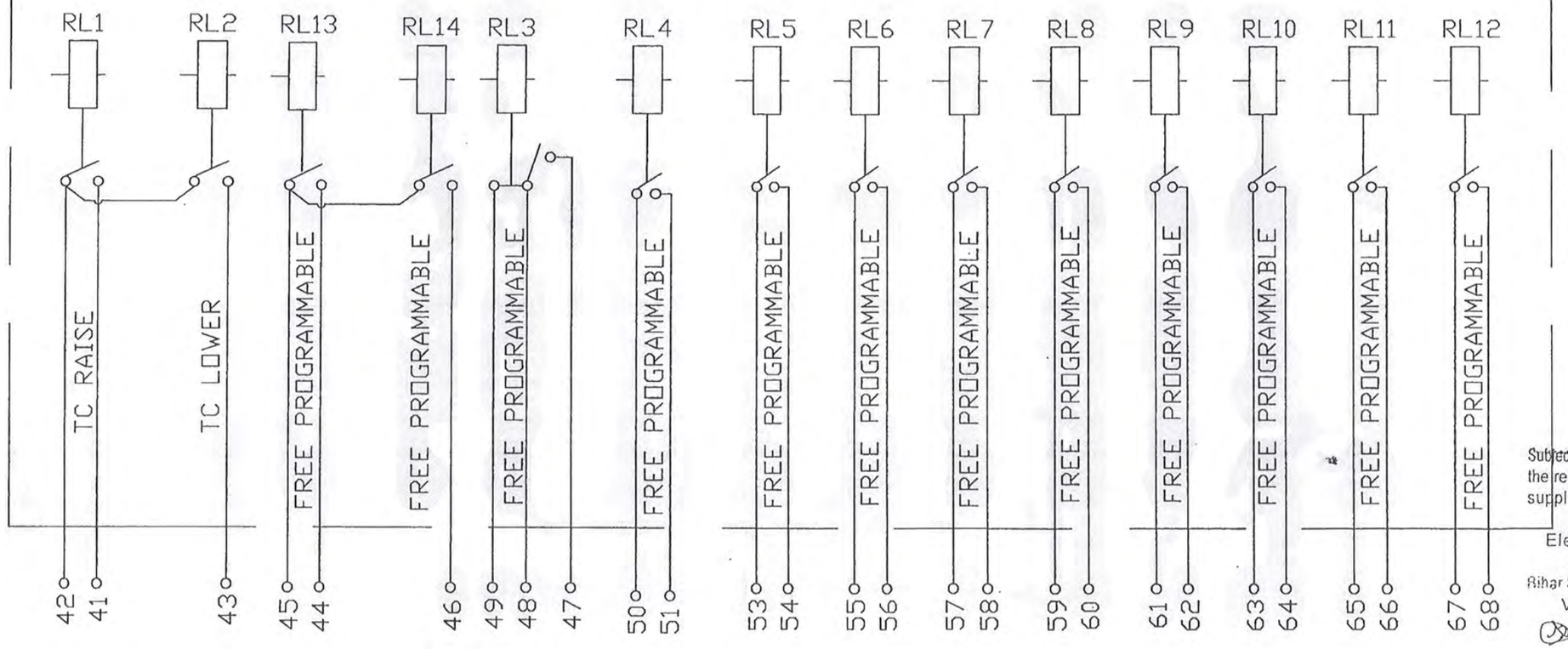
REV	BRIF DETAILS	DATE	APPVD.BY		DATE	SIGN
D	FORTH ISSUE	22.05.2019				
C	THIRD ISSUE	02.05.2016	S.K.G	APPROVED	22.05.2019	S.K.G
B	SECOND ISSUE	30.08.2011	S.K.G	Checked	22.05.2019	A.K.G
A	FRIST ISSUE	21.07.2010	S.K.G	Drown	22.05.2019	N.G

Description

Power Supply & Main Supply of FX8000A

DRAWING No: PD/TMS/02 REV:D

Binary Output Relay Card



Note : Relay 13 & 14 is optional as per requirement

Adopted for NIT No. - 1d/PR/BSPTCL/03.23.

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17 MAR 2023

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REV	BRIEF DETAILS	DATE	APPVD.BY
E	FIFTH ISSUE	02-01-2021	
D	FORTH ISSUE	6.12.2019	S.K.G
C	THIRD ISSUE	2.05.2015	S.K.G
B	SECOND ISSUE	1.03.2014	S.K.G
A	FRIST ISSUE	21.07.2010	S.K.G

	DATE	SIGN
Approved	02-01-2021	S.K.G
Checked	02-01-2021	A.K.G
Drawn	02-01-2021	N.G

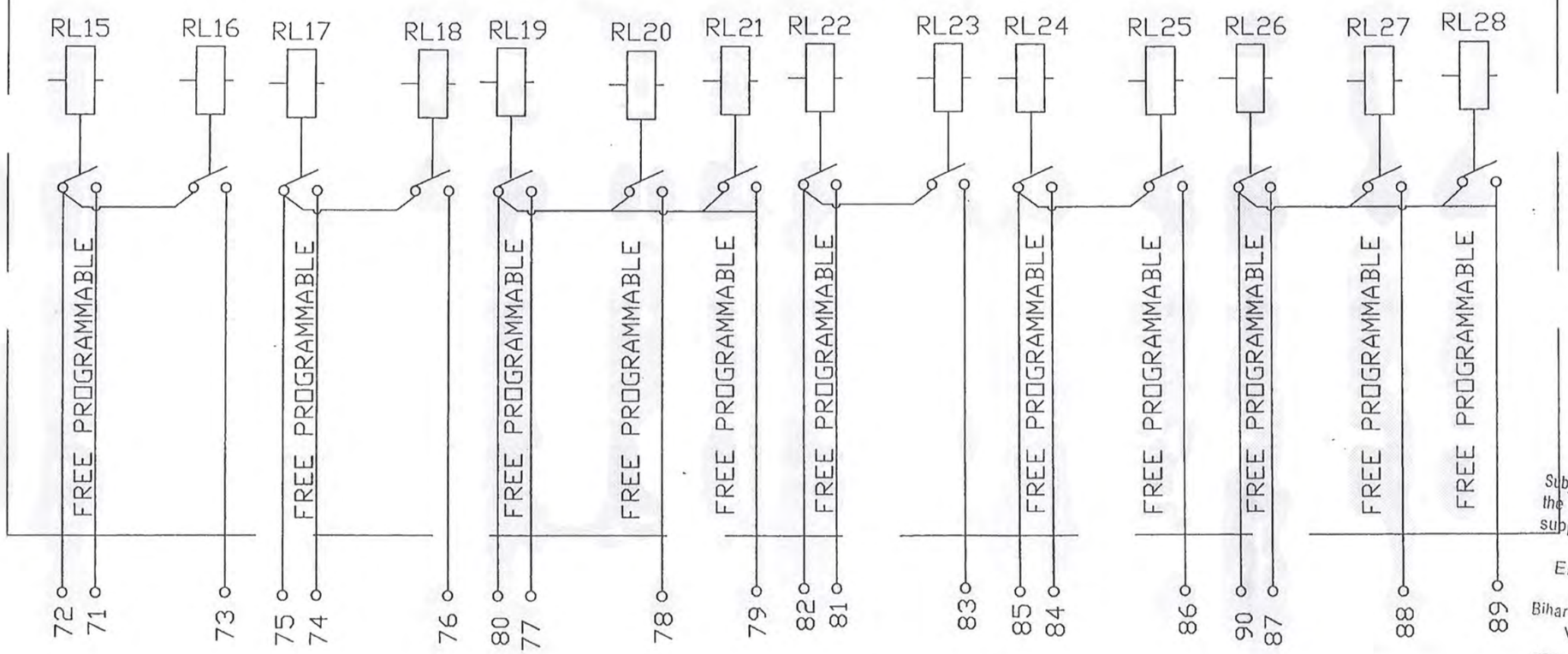
Description

Binary Output Relay Card 1

DRAWING No: PD/TMS/03

REV: E

Binary Output Relay Card 2



Adopted for NIT No. -14/PR/BSPTCL/2023.

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Vidyut Bhawan, Patna-800021

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REV	BRIEF DETAILS	DATE	APPVD.BY
A	FRIST ISSUE	13-01-21	S.K.G

Approved	13-01-21	S.K.G
Checked	13-01-21	A.K.G
Drawn	13-01-21	N.G
	DATE	SIGN

Description

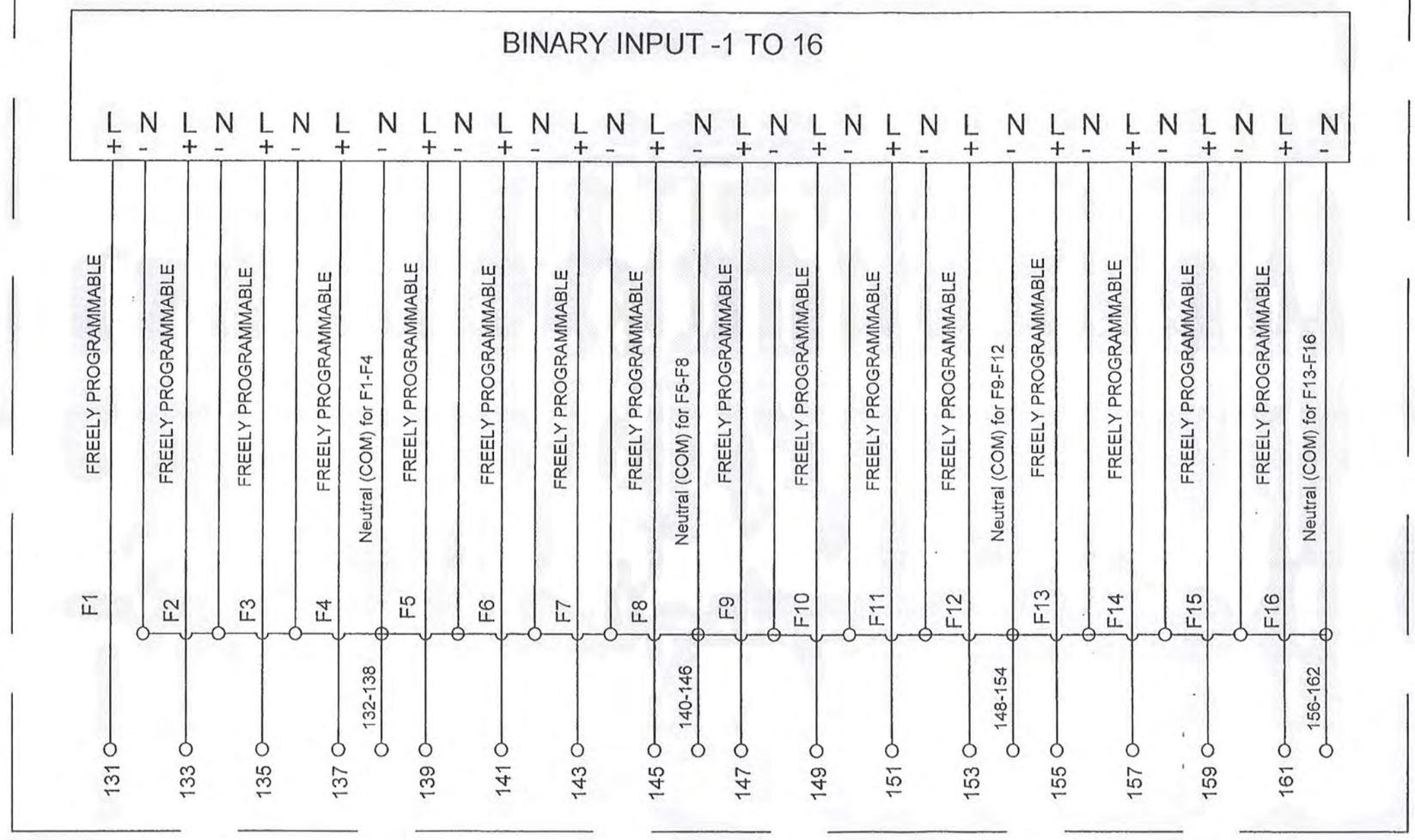
Binary Output Relay Card 2

DRAWING No: PD/TMS/03.1

REV: D

SHEET 1

Binary Input Card -1



Adopted for NIT No. -10/PR/BSPTCL/2023.

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REV	BRIF DETAILS	DATE	APPVD.BY		DATE	SIGN
C	THIRD ISSUE	2.05.2015	S.K.G	APPROVED	2.05.2015	S.K.G
B	SECOND ISSUE	30.08.2011	S.K.G	Checked	2.05.2015	A.K.G
A	FRIST ISSUE	21.07.2010	S.K.G	Drawn	2.05.2015	N.G

Description

BINARY INPUT CARD 1

DRAWING No: PD/TMS/04

REV:C

SHEET -2

Binary Input Card -2

BINARY INPUT -17 TO 32

L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -	L +	N -
FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		Neutral (COM) for F17-F20		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		Neutral (COM) for F21-F24		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		Neutral (COM) for F25-F28		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		FREELY PROGRAMMABLE		Neutral (COM) for F29-F32	
F17		F18		F19		F20				F21		F22		F23		F24				F25		F26		F27		F28				F29		F30		F31		F32			
171		173		175		177		172-178		179		181		183		185		180-186		187		189		191		193		188-194		195		197		199		201		196-20 2	

Adopted for NFT NO. -10/PR/BSPTCL/2023.

E

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(Planning and Engineering)
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Vidyut Bhawan, Patna-800021

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REV	BRIEF DETAILS	DATE	APPVD.BY		DATE	SIGN
C	THIRD ISSUE	2.05.2015	S.K.G	APPROVED	2.05.2015	S.K.G
B	SECOND ISSUE	30.08.2011	S.K.G	Checked	2.05.2015	A.K.G
A	FRIST ISSUE	21.07.2010	S.K.G	Drawn	2.05.2015	N.G

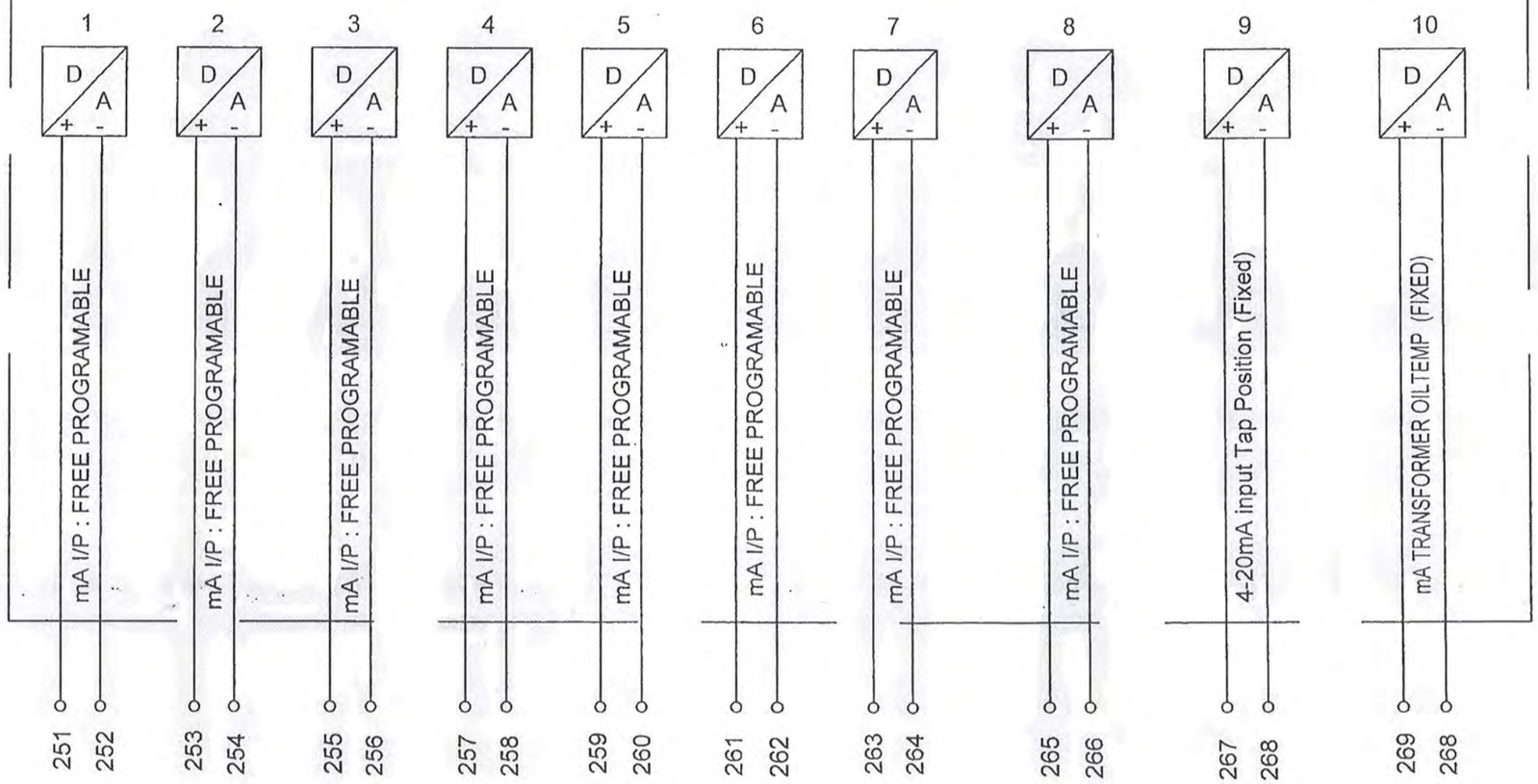
Description

BINARY INPUT CARD 2

DRAWING No: PD/TMS/04

REV:C

Analog Input Card 1



NOTE: : (1) AI 9 Fixed for TAP POSITION INDICATOR. (2) AI 10 Fixed for TR OIL TEMP.

Adopted for NIT No. -10/PR/BSPTCL/2023.

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Vidyut Bhawan, Patna-800021

15 MAR 2023

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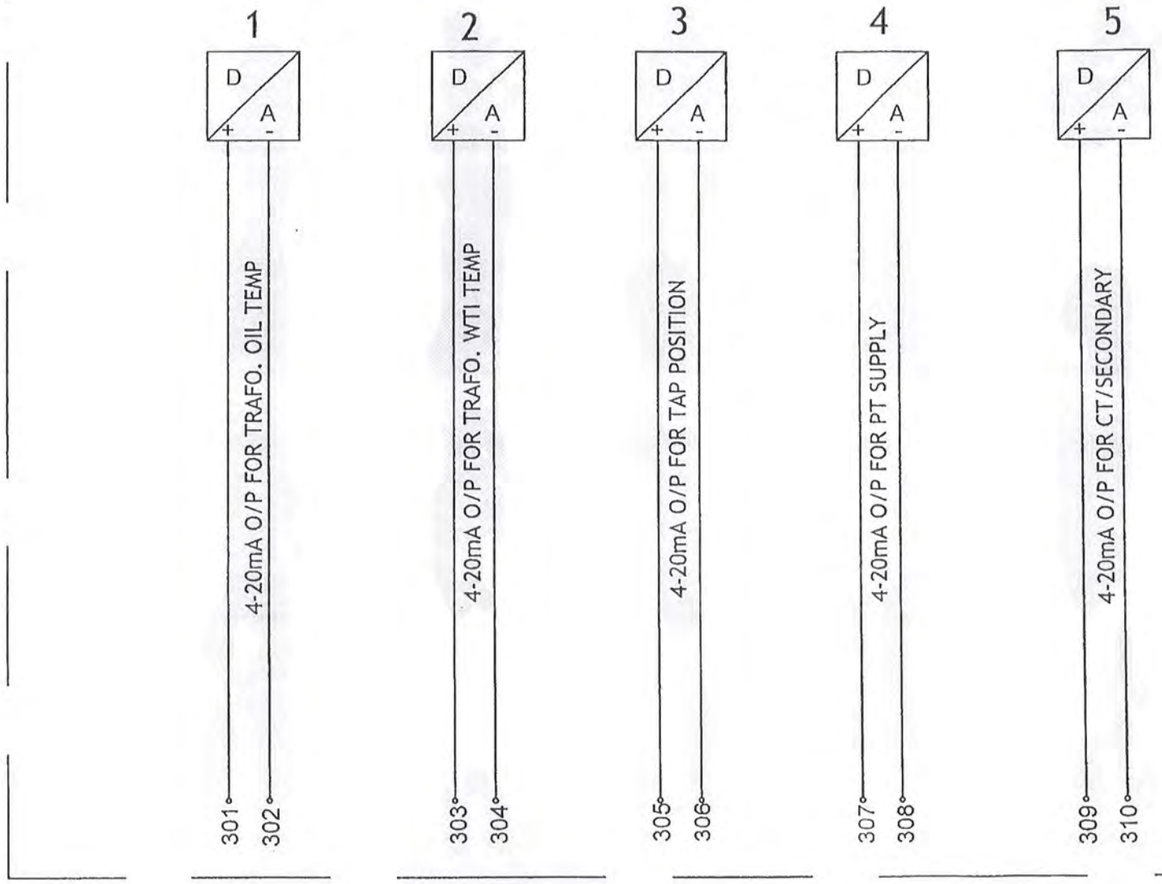
REV	BRIF DETAILS	DATE	APPVD.BY		DATE	SIGN
B	SECOND ISSUE	01.04.2019		APPROVED	01.04.2019	S.K.G
A	FIRST ISSUE	21.07.2010	S.K.G	Checked	01.04.2019	A.K.G
				Drawn	01.04.2019	N.G

Description

ANALOG INPUT CARD-1

DRAWING No: PD/TMS/05 REV:B

ANALOG OUTPUT CARD



Adopted for NFT No
—IdPR/BSPTCL/2023

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REV	BRIF DETAILS	DATE	APPVD.BY		DATE	SIGN
B	SECOND ISSUE	2.05.2015	S.K.G	APPROVED	2.05.2015	S.K.G
A	FIRST ISSUE	21.07.2010	S.K.G	Checked	2.05.2015	A.K.G
				Drawn	2.05.2015	N.G

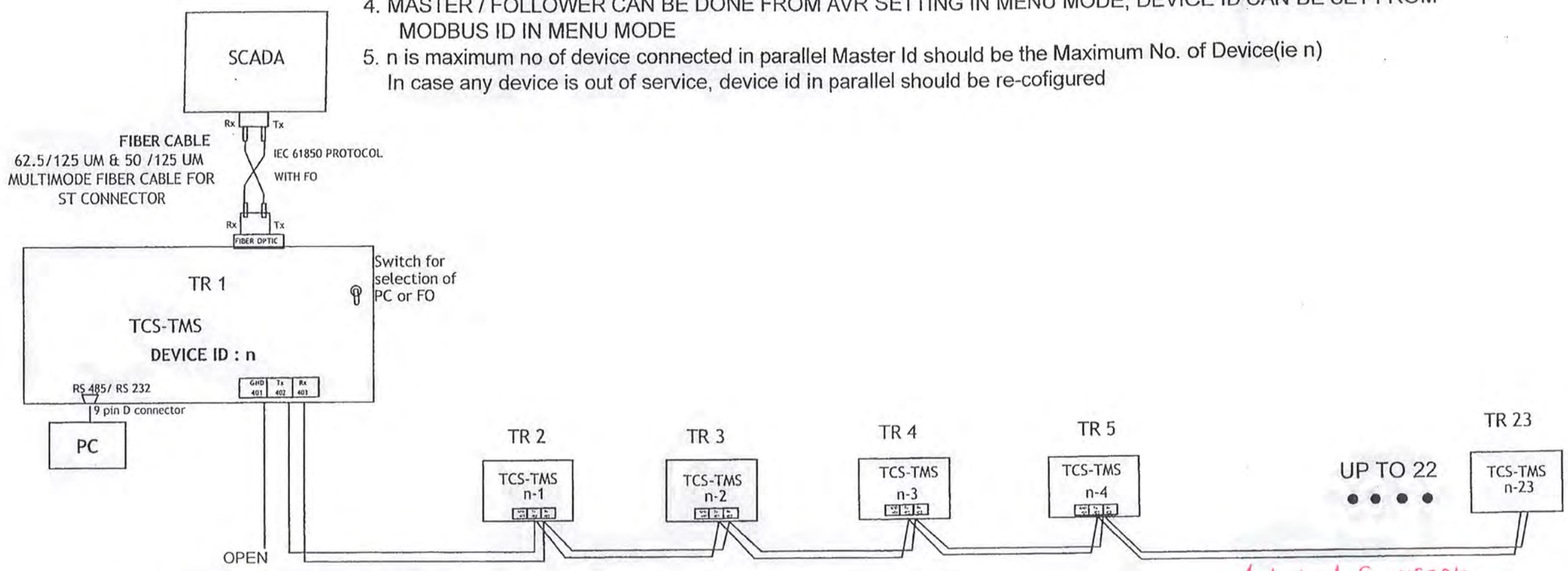
Description

ANALOG OUTPUT CARD

DRAWING No: PD/TMS/06 REV: B

MASTER FOLLOWER INSTRUCTIONS1.

1. IF ANY WIRE IS LOOSE OR DISCONNECTED FROM DEVICE, COMMUNICATION FAIL (CM-F) LED WILL GLOW
2. IF MASTER IS IN MANUAL MODE, ALL FOLLOWER DEVICES SHOULD BE IN MANUAL MODE,
3. IF MASTER IS IN AUTO MODE, ALL FOLLOWERS SHOULD BE PUT IN AUTO MODE INDIVIDUALLY
4. MASTER / FOLLOWER CAN BE DONE FROM AVR SETTING IN MENU MODE, DEVICE ID CAN BE SET FROM MODBUS ID IN MENU MODE
5. n is maximum no of device connected in parallel Master Id should be the Maximum No. of Device(ie n)
   In case any device is out of service, device id in parallel should be re-cofigured



FOR PARALLEL COMMUNICATION
USE 2.5SQ mm SHIELDED CABLE

Adopted for NFT No.
-10/PRI/BSPTCL/2023

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(Planning and Engineering)
Bihar State Power Transmission Company
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NOTE: n is the maximum no of device connected in parallel
Master Id should be the maximum no of device connected in parallel.(ie. n)

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REV	BRIEF DETAILS	DATE	APPVD.BY		DATE	SIGN
E	FIVETH ISSUE	01.04.2019				
D	FORTH ISSUE	4.3.2017				
C	THIRD ISSUE	12.1.2015	S.K.G	APPROVED	01.04.2019	S.K.G
B	SECOND ISSUE	1.12.2012	S.K.G	Checked	01.04.2019	A.K.G
A	FIRST ISSUE	21.07.2010	S.K.G	Drawn	01.04.2019	N.G

Description

TCS TMS COMMUNICATION BLOCK DIAGRAM

DRAWING NO.: PD/TMS/07

REV: E