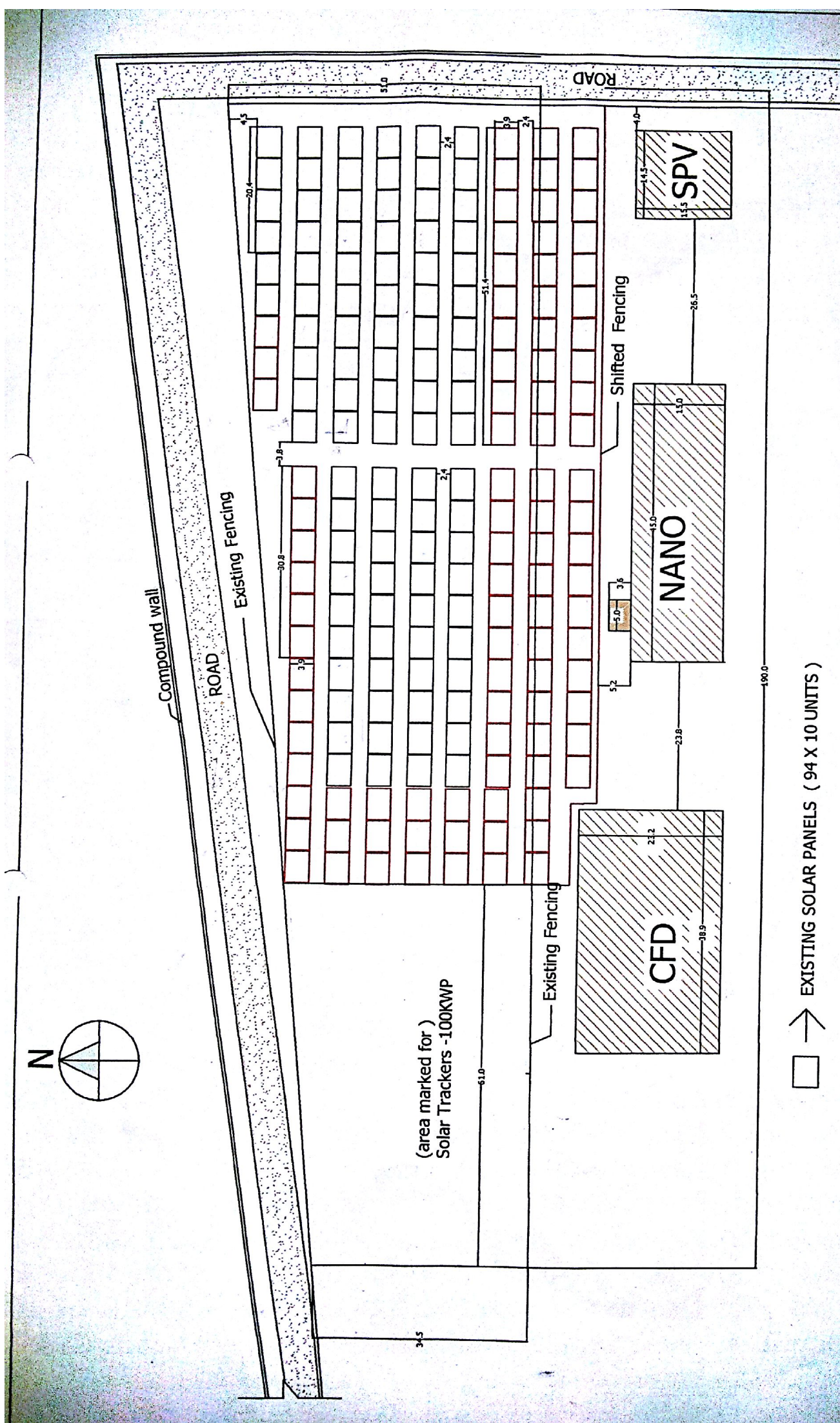


ANNEXURE 1: LAYOUT FOR INSTALLATION OF PROPOSED SOLAR PANELS

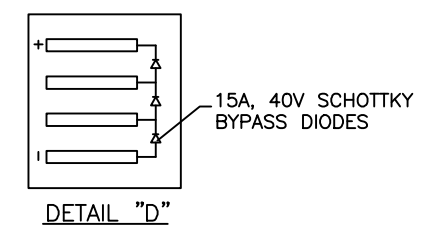
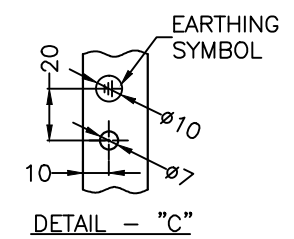
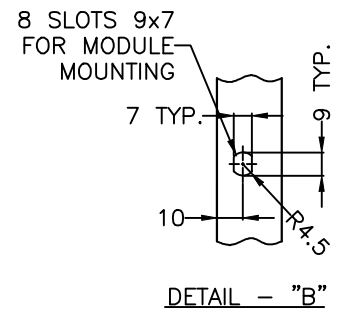
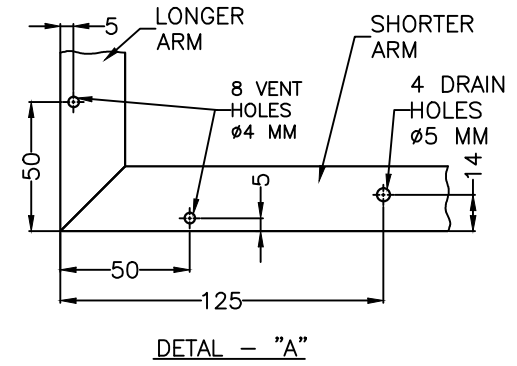
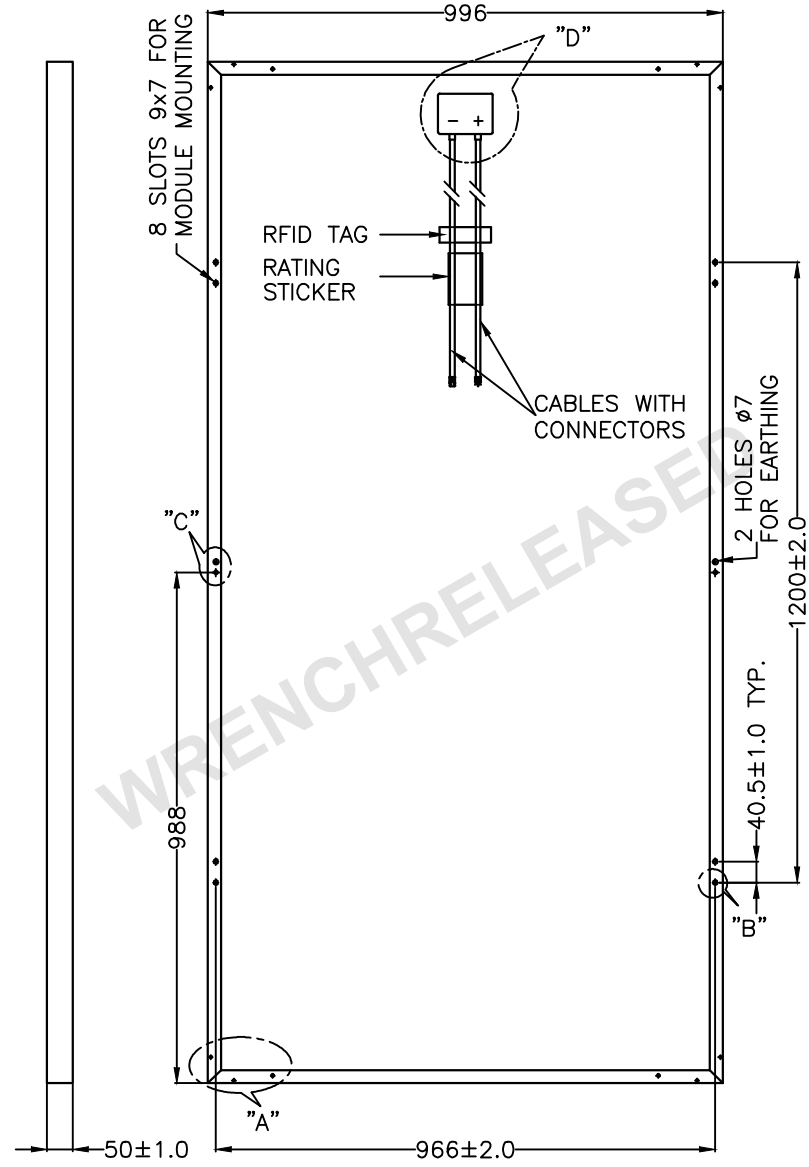
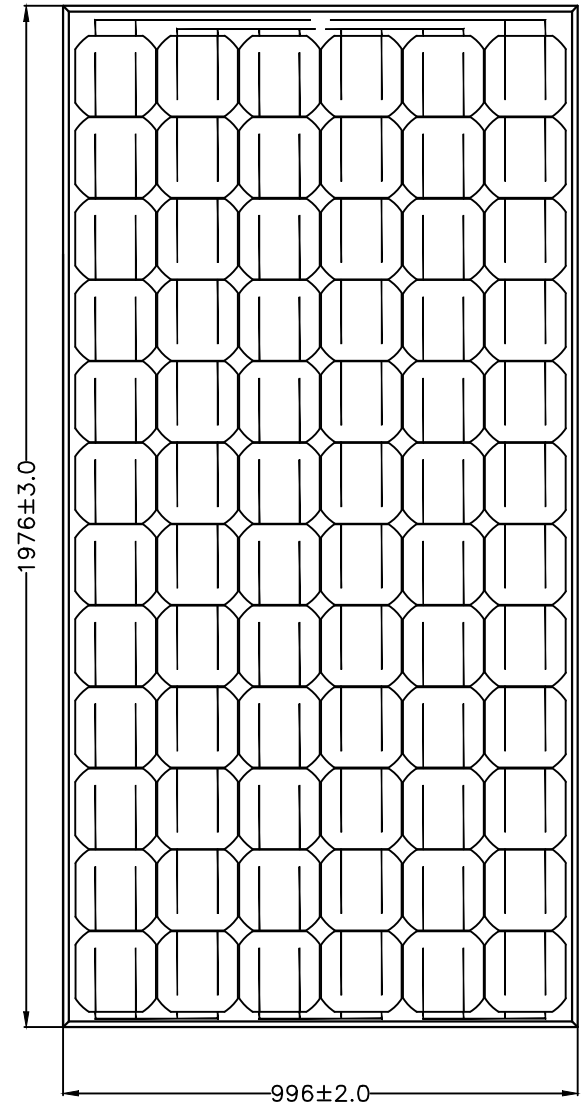


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SIGN. & DATE REF. DRG. No.

INVENTORY No.

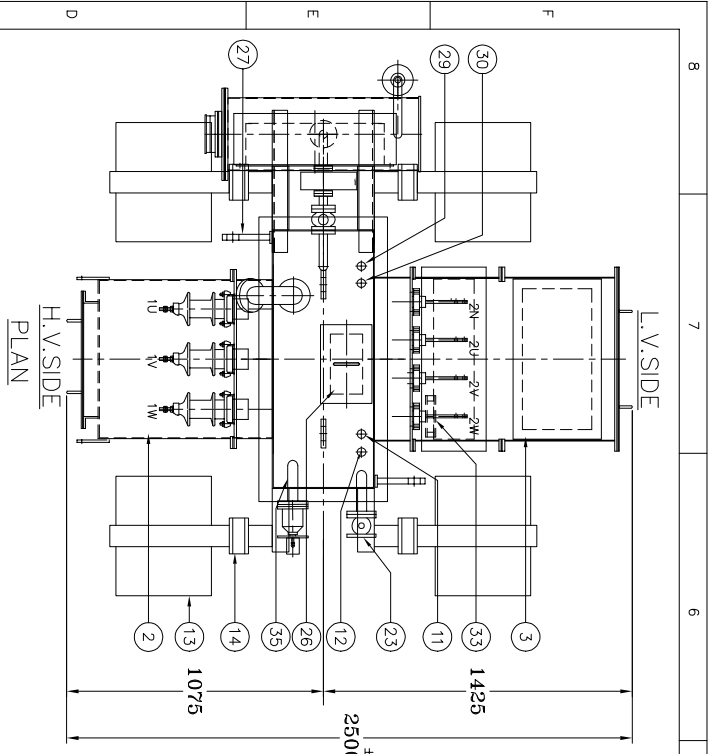


Annexure 2

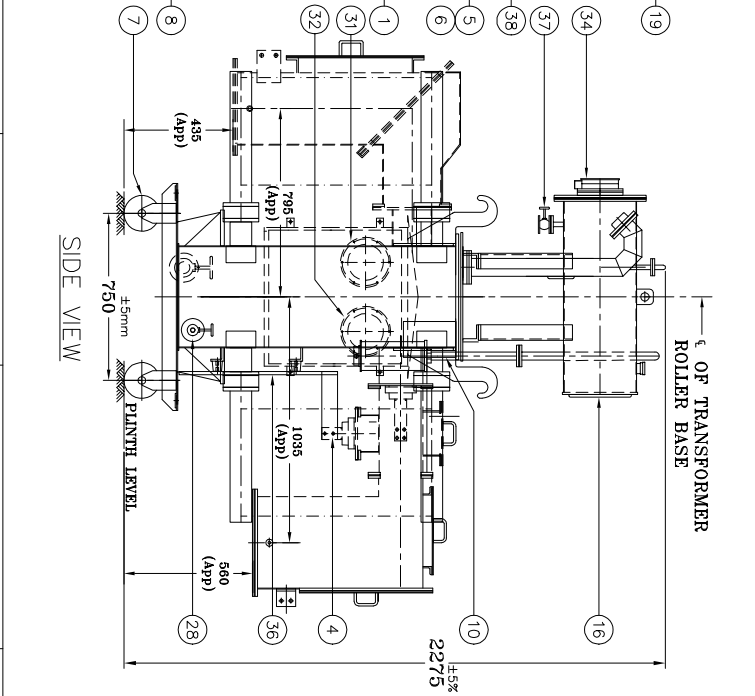
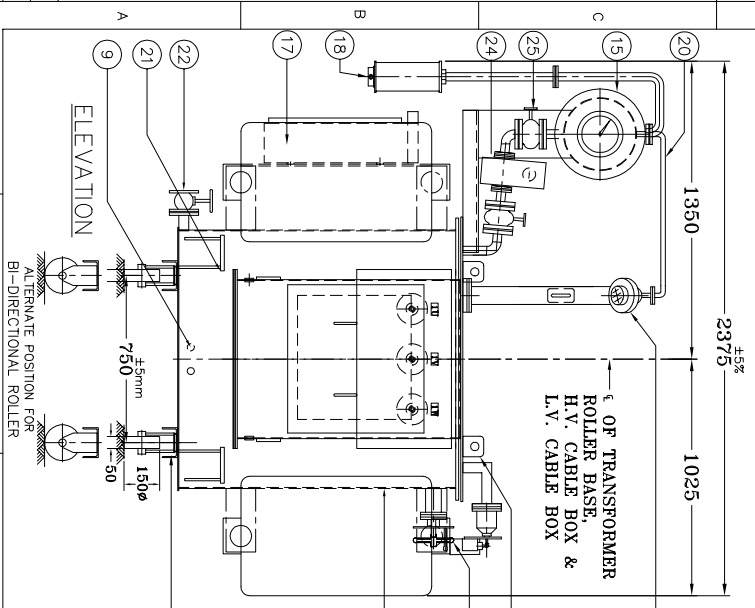
REV. 01	DATE 071012	ALTERED CHECKED APPROVED	SAN SR SR	REV. 00	DATE	ALTERED CHECKED APPROVED		NAME	SIGN	DATE		
DIM 50±1.0 WAS 50±0.1			FIRST ISSUE			DRAWN	SAN	Sd/-	020911	DEPT.		CODE
						CHECKED	NAR	Sd/-	020911	SCPV		439
						APPROVED	SR	Sd/-	020911			

BHARAT HEAVY ELECTRICALS LIMITED.		CARD CODE
ELECTRONICS DIVISION, BANGALORE		
TITLE: PHOTOVOLTAIC MODULE - L24270 156 mm MONO SOLAR CELLS (Corner Block Type)		No. OF SHTS 01
M.O. No.		SHT No. 01
DRG. No. 3 679 02 00352		REV 01

ANNEXURE 8



APPROXIMATE WT.	
CORE & COIL	1210 KG
OIL WT.	636 KG
OIL QUANTITY	715 Ltrs
TOTAL WT.	2926 KG
MIN. ELECT. CLEARANCES	
PH TO PH	PH TO ER
H.V.	130
L.V.	25
TRANSPORT WT.	2485 KG
TRANSPORT DIMENSION	
L - 2100	
B - 1800	
H - 2100	



CUSTOMER	M/S. BHARAT HEAVY ELECTRICALS LIMITED.
P.O. NO.	53130437-1-01 DT: 22.01.2014.
PROJECT	500KW SOLAR PROJECT AT BHEL, VIKASNAGAR, HYDRABAD.
TR. DETAILS	KVA:-650, KV:-6.6/0.320, ONAN, Dyn11, QTY:-01 NO.

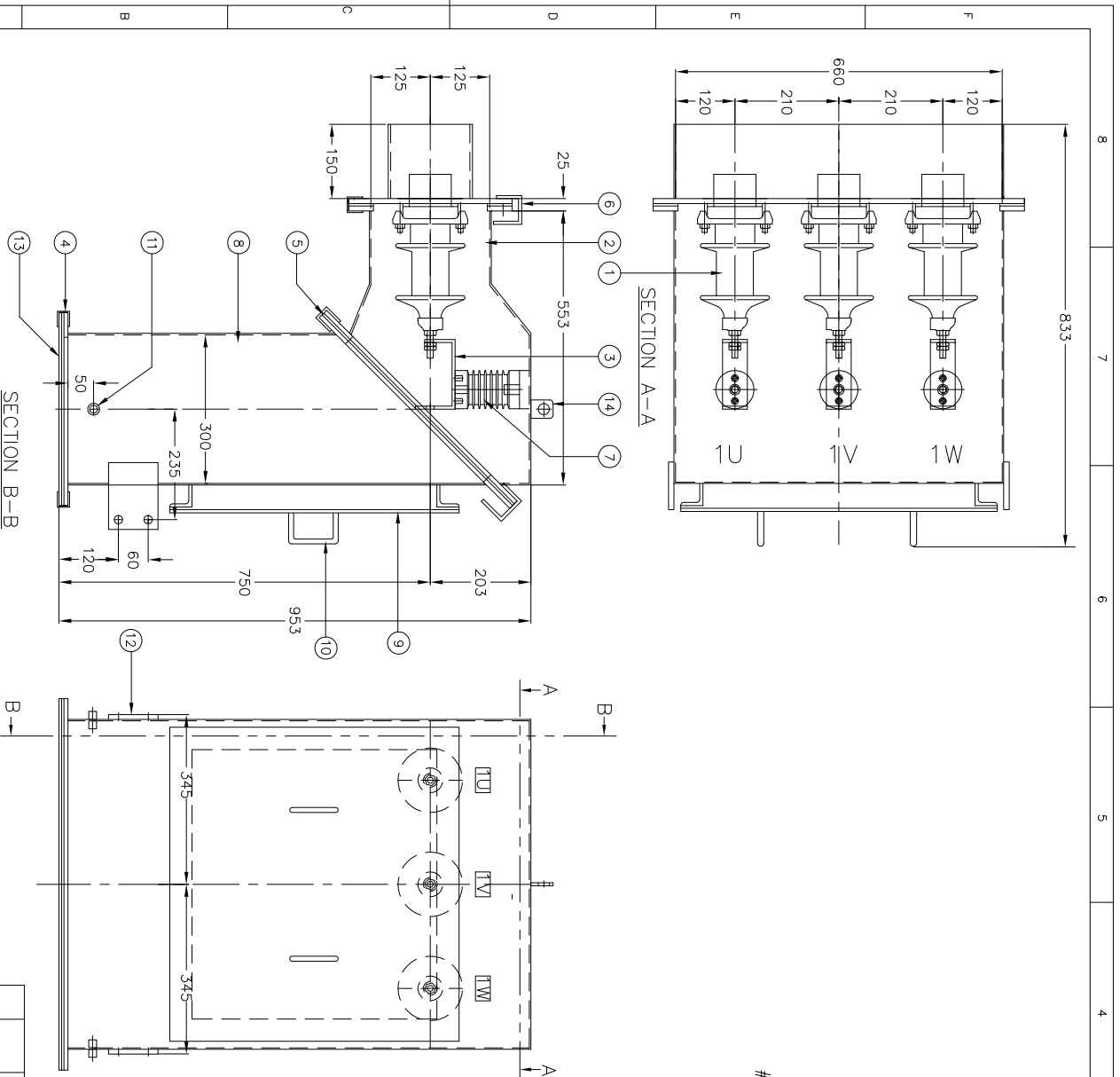
- NOTES:-
- 1 ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED
 - 2 HEIGHT OF BREATHER SHALL NOT BE MORE THAN 1500 mm FROM PLINTH LEVEL
 - 3 TAPPINGS ON HV FOR HV VARIATION OF +5% TO -5% IN STEPS OF 2.5% BY OFF CKT
 - 4 PAINT : EPOXY : LIGHT GREY : SHADE NO. 631 OF I.S. 5.
 - 5 POSITION OF FITTINGS SHOWN ARE APPROXIMATE.
 - 6 * THUS MARKED ITEMS ARE TO BE DISMANTLED AT TIME OF DESPATCH.
 - 7 MATERIAL OF HV & LV WINDING ARE COPPER.
 - 8 LTR. EXTRA TR. PAINT SHALL BE SUPPLIED TO TOUCH UP AT SITE.
 - 9 10% EXTRA TRANSFORMER OIL SHALL BE SUPPLIED IN NON RETURNABLE SEALED CONTAINERS.

37	CONSERVATOR DRAIN VALVE(15mmø DSF) WITH BLANKING PLATE	1
36	EARTHING BAR WITH PIN TYPE EPOXY INSULATOR SUPP.(50x6THK G.I.FLAT)	1
35	PRESSURE RELIEF VALVE (70ø PORT OPENING) WITH TRIP CONTACT	1
34	100mmø DIAL TYPE MAGNETIC OIL LEVEL GAUGE WITH LOW LEVEL ALARM CONTACT	1
33	WT. C.T	1
32	DIAL TYPE W.T.I. WITH M.R.P. R.S.D. AND ALARM AND TRIP CONTACTS	1
31	DIAL TYPE O.T.I. WITH M.R.P. R.S.D. AND ALARM AND TRIP CONTACTS	1
30	POCKET FOR W.T.I.	1
29	POCKET FOR O.T.I.	1
28	BOTTOM OIL SAMPLING VALVE (15mmø DSF) WITH BLANKING PLATE	1
27	LIFTING LUGS FOR COMPLETE TRANSFORMER	2
26	INSPECTION COVER	1
25	SHUT OFF VALVE (25mmø DSF) G.M.GATE VALVE	2
24	DOUBLE FLOAT BUCHHOLZ RELAY WITH ALARM & TRIP CONTACTS	1
23	TOP OIL FILTER VALVE (32mmø DSF) WITH BLANKING PLATE	1
22	BOTTOM DRAIN CUM FILTER VALVE (32mmø DSF) WITH BLANKING PLATE	1
21	JACKING PADS	4
20	PRESSURE EQUALIZER PIPE.	1
19	EXPLOSION VENT WITH OIL SIGHT GLASS AND DOUBLE DIAPHRAGM.	1
18	SILICA GEL BREATHER WITH OIL SEAL	1
17	MARSHALLING BOX	1
16	PRISMATIC OIL LEVEL GAUGE	1
15	CONSERVATOR WITH LIFTING LUGS, OIL FILLING CAP & DRAIN PLUG	1
14	RADIATOR VALVES (BUTTERFLY TYPE)	8
13	P.S. RADIATORS WITH AIR RELEASE PLUG, LIFTING LUG & DRAIN PLUG	4
12	THERMOMETER POCKET FOR MERCURY IN GLASS BULB THERMOMETER	1
11	AIR RELEASE PLUG	1
10	RATING AND DIAGRAM PLATE	1
9	EARTHING TERMINALS (M16 X 2mm TAP HOLE)	2
8	BASE CHANNEL WITH HAULING HOLE	2
7	FLAT ROLLERS (BI-DIRECTIONAL)	4
6	WARNING PLATE FOR TAP SWITCH	2
5	TAPPING SWITCH HANDLE WITH POSITION INDICATOR & LOCKING DEVICE	1
4	LV ADDITIONAL NEUTRAL BUSHING	1
3	L.V. CABLE BOX WITH DISCONNECTING CHAMBER	1
2	H.V. CABLE BOX WITH DISCONNECTING CHAMBER	1
1	TRANSFORMER TANK	1

SRNO	DESCRIPTION	QTY
	DRN. DHAYAL 30.01.2014	
	CHD. APPRD.	
GENERAL ARRANGEMENT		
OP TRANSFORMER		
REF. JN. - 43577		
DRG. NO. 3GA. - 43577/0		
VOLTAMP TRANSFORMERS LIMITED VADODARA		
SCALE	NTS	

CUSTOMER	M/S. BHARAT HEAVY ELECTRICALS LIMITED.
P.O.NO.	33130437-1-01 DT: 22.01.2014.
CONSULTANT	---
PROJECT	500KW SOLAR PROJECT AT BHEL, VIKASNAGAR, HYDERABAD.
TR.DETAILS	KVA: -650, KV:-6.6/0.320, ONAN, DYN11, QTY:-01 NO.

- NOTES:-**
1. ALL DIMENSIONS ARE IN mm
 2. OVERALL DIMENSIONS ARE SUBJECT TO ±5% TOLERANCE.
 3. CABLE BOX IS SUITABLE FOR R.X C X Sqmm. XLPE CABLE
 4. ELECTRICAL CLEARANCE IN H.V.CABLE BOX (AS PER C.B.I.P.)
CLEARANCES:- PHASE TO PHASE 130 mm. MINIMUM
PHASE TO EARTH 80 mm. MINIMUM
 5. BUSBAR & GLAND PLATE SHALL BE UNDRILLED.
 6. CABLE LUGS & GLANDS ARE NOT IN VTL'S SCOPE OF SUPPLY
- # CLIENT TO EXPEDITE COMPLETE CABLE DETAIL.



SR.NO.	DESCRIPTION	QTY.
14	LIFTING LUG	1
13	GLAND PLATE (DETACHABLE TYPE)	1
12	CABLE BOX SUPPORTING FLAT	2
11	EARTHING TERMINAL (M16x2 TAP)	2+2
10	HANDLE	2
9	INSPECTION COVER FOR CABLE END BOX	1
8	CABLE END BOX	1
7	EPOXY INSULATOR.	3
6	GASKET PROTECTION COVER	2
5	GASKET	4
4	EARTHING BRIDGE (SIZE: -25x1mm Thk.)	2/CURB
3	BUSBAR (MAT.-COPPER STRIP) (SIZE:-500 Sqmm.)	3
2	DISCONNECTING CHAMBER	1
1	PORCELAIN BUSHING (17.5 KV/630 Amps) TO I.S.3347	3

DRN:	DHAVAL 30.01.2014
CHD.	
APPRD.	

GENERAL ARRANGEMENT

OF H.V. CABLE BOX



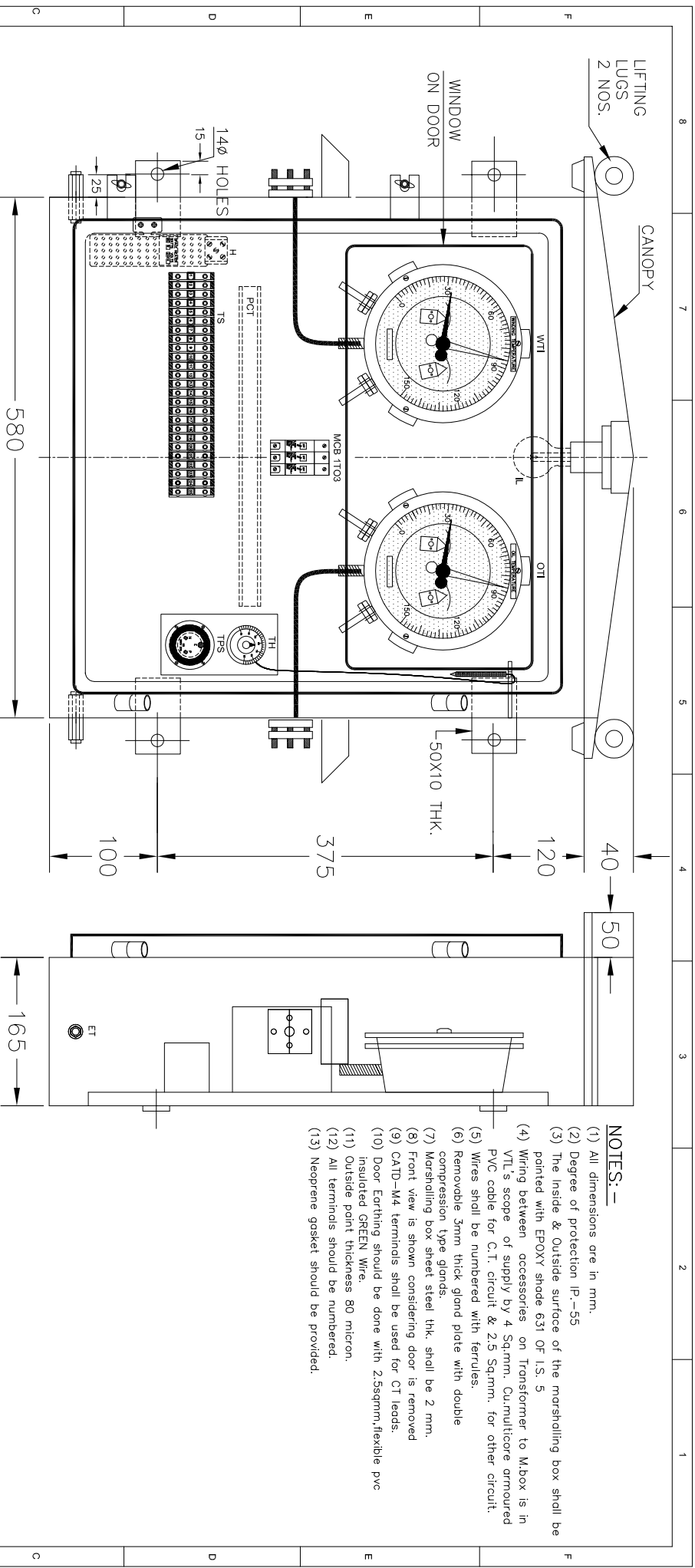
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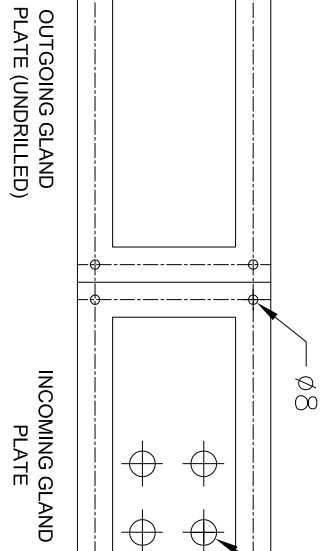
REF. JN-43577

DRG. NO. 3HC-43577/0

REV. NO. & SIGN	DATE	BRIEF RECORD

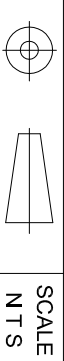


- NOTES:-**
- (1) All dimensions are in mm.
 - (2) Degree of protection IP-55
 - (3) The inside & Outside surface of the marshalling box shall be painted with EPOXY shade 631 OF I.S. 5
 - (4) Wiring between accessories on Transformer to Mbox is in VLT's scope of supply by 4 Sqmm. Cu multicores armoured PVC cable for C.T. circuit & 2.5 Sqmm. for other circuit.
 - (5) Wires shall be numbered with ferrules.
 - (6) Removable 3mm thick gland plate with double compression type glands.
 - (7) Marshalling box sheet steel thk. shall be 2 mm.
 - (8) Front view is shown considering door is removed
 - (9) CATD-M4 terminals shall be used for CT leads.
 - (10) Door Earthing should be done with 2.5sqmm flexible pvc insulated GREEN Wire.
 - (11) Outside point thickness 80 micron.
 - (12) All terminals should be numbered.
 - (13) Neoprene gasket should be provided.



CUSTOMER	M/S. BHARAT HEAVY ELECTRICALS LIMITED.
P.O.NO.	33130437-1-01 DT: 22.01.2014.
CONSULTANT	---
PROJECT	500KW SOLAR PROJECT AT BHEL, WIKASNAGAR, HYDERABAD.
TR:DETAILS	KVA:-650, kV:-6.6/0.320, ONAN, Dyn11, QTY:-01 NO.

DRN.	DHAVAL 30.01.2014
CHD.	
APPRD.	

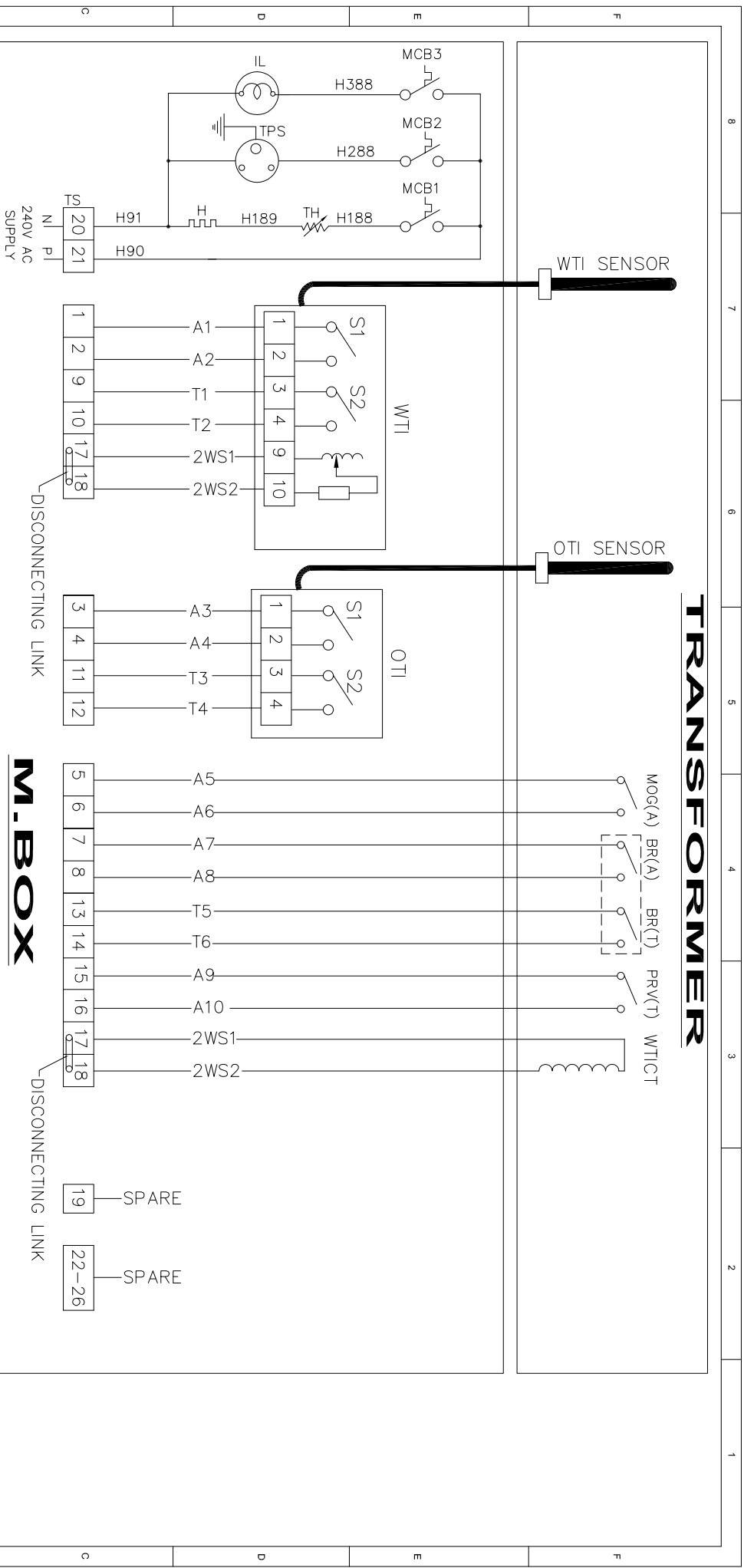


Rev No.	Date & Sign.	Brief Record

G.A. OF
MARSHALLING BOX

REF. JN:-43577
DRG. NO. 3MB-43577/0

TRANSFORMER



CABLE DETAILS
 2C x 2.5 SQ mm - 2 No. FOR MOG & PRV
 4C x 2.5 SQ mm - 1 No. FOR BR RELAY
 2C x 4.0 SQ mm - 1 NO. FOR W.T.I.C.T.
 TOTAL NO. OF HOLES FOR GLAND = 4

NOTE: - (1) BR RELAY, OTI, WTI, MOG & PRV have ungrounded potential free contacts.
 (2) WIRING OF M/BOX SHALL BE DONE BY 2.5 Sq.mm. Cu. PVC STRANDED PANEL WIRES.

M.BOX

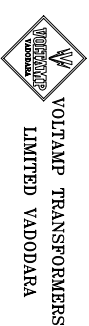
ABBN.	DESCRIPTION	RATING & TYPE	MAKE /MODEL NO.	QTY	Rev No.	Date & Sign.	Brief Record
WTI	WINDING TEMPERATURE INDICATOR	0-150°C WITH ACCURACY ±3.3°C. WITH 2 NOS. OF MICRO SWITCHES (SWITCH RATING: 10A/5A AT 250V AC OR 0.25A/0.5A AT 250V DC)	PERFECT CONTROL/PRECIMEASURE MODEL : PC-414/1031	1			
OTI	OIL TEMPERATURE INDICATOR	0-150°C WITH ACCURACY ±3.3°C. WITH 2 NOS. OF MICRO SWITCHES (SWITCH RATING: 10A/5A AT 250V AC OR 0.25A/0.5A AT 250V DC)	PERFECT CONTROL/PRECIMEASURE MODEL : PC-414/1031	1			
TS	TERMINAL STRIP WITH 'Z' TYPE CLAMP	M6 STUD	ELIMEX/CONNECTWELL	26			
ET	EARTHING TERMINALS BUSH TYPE	STUD TYPE	--				
TH	THERMOSTAT KNOB TYPE	30°C - 85°C	SIEMENS/L&T/HAGER	3			
MCB1 TO 3	MCB FOR LAMP/HEATER/THREE PIN SOCKET	6amps, 240V AC		1			
H	SFACE HEATER	240V A.C., 60W	GIRISH	1			
TBS	THREE PIN SOCKET	10amps, INDUSTRIAL TYPE	SCHNEIDER ELECTRIC	1			
IL	LAMP	25W, 240V AC, INCANDESCENT TYPE	PHILIPS/ORPAT	1			
PCT	PVC CABLE TRAY (WITH COVER)	25x45mm	--	1			

CUSTOMER	M/S. BHARAT HEAVY ELECTRICALS LIMITED.
P.O.NO.	33130437-1-01 DT: 22.01.2014.
CONSULTANT	---
PROJECT	500KW SOLAR PROJECT AT BHEL, VIKASNAGAR, HYDERABAD.
TR:DETAILS	KVA:-650, KV:-6.6/0.320, ONAN, Dyn11, QTY:-01 NO.
DRN.	DHAVAL, 30.01.2014
CHD.	
APPRD	

SCALE	N.T.S.
REF. JN: -	43577
DRG. NO.3WD: -	43577/0

WIRING DIAGRAM

MARSHALLING BOX

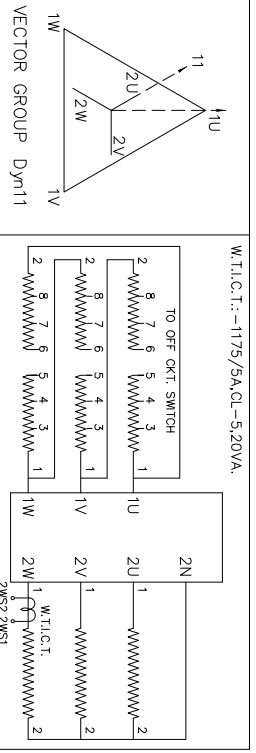


VOLTAMP TRANSFORMERS LIMITED VADODARA

CUSTOMER	M/S. BHARAT HEAVY ELECTRICALS LIMITED.
P.O.NO.	33130437-1-01 DT: 22.01.2014.
CONSULTANT	---
PROJECT	500KW SOLAR PROJECT AT BHEL, VIKASNAGAR, HYDERABAD.
TR.DETAILS	KVA:-650, KV:-6.6/0.320, ONAN, Dyn11, QTY:-01 NO.



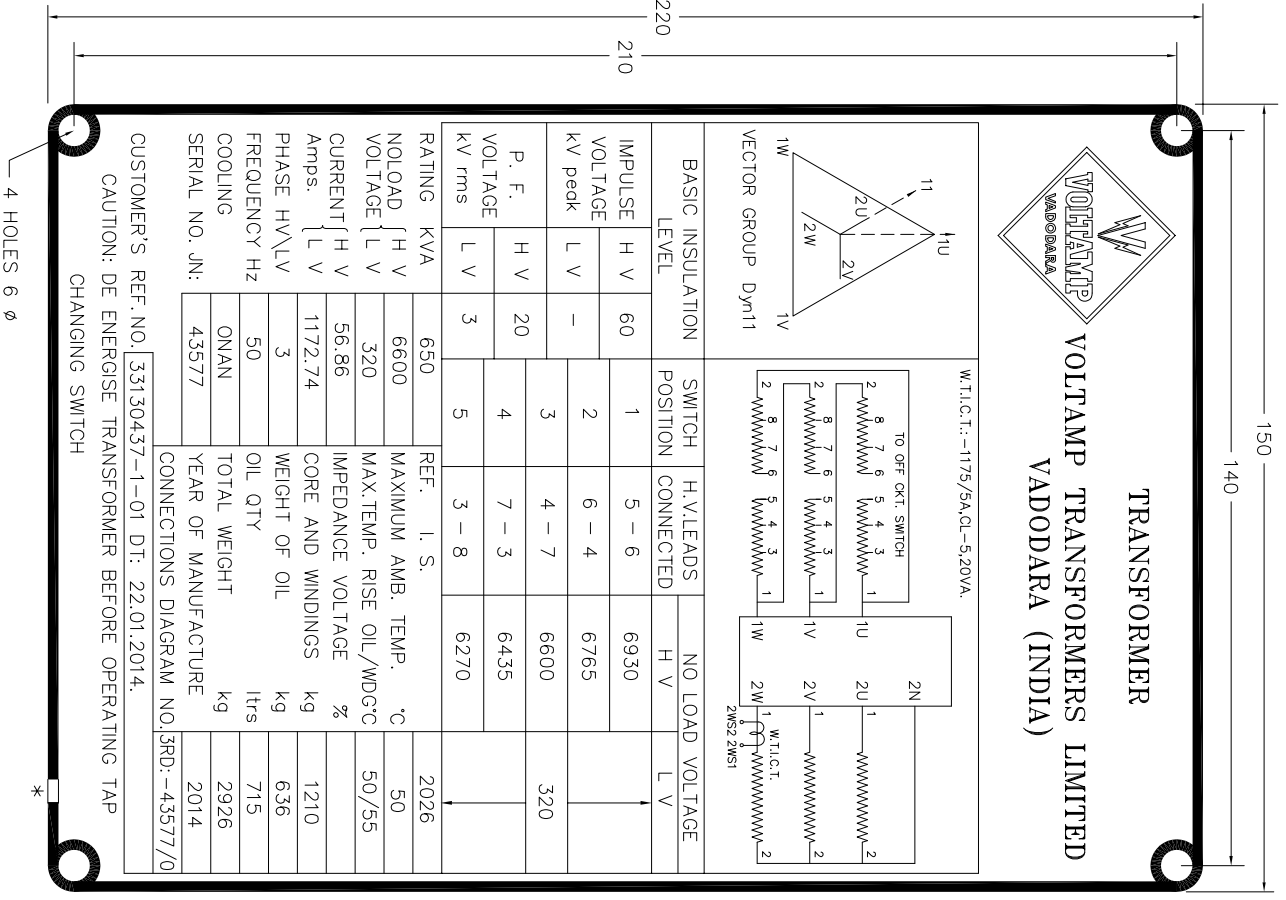
TRANSFORMER
VOLTAMP TRANSFORMERS LIMITED
VADODARA (INDIA)



BASIC INSULATION LEVEL	SWITCH POSITION	H.V. LEADS CONNECTED	NO. LOAD VOLTAGE	
			H V	L V
IMPULSE VOLTAGE H V	1	5 - 6	6930	
VOLTAGE KV peak L V	2	6 - 4	6765	
P. F. VOLTAGE KV rms L V	3	4 - 7	6600	320
	4	7 - 3	6435	
	5	3 - 8	6270	

RATING KVA	650	REF. I. S.	2026
N.OLOAD H V	6600	MAXIMUM AMB. TEMP. °C	50
VOLTAGE L V	320	MAX. TEMP. RISE OIL/WDG°C	50/55
CURRENT H V	56.86	IMPEDANCE VOLTAGE %	
Amps. L V	1172.74	CORE AND WINDINGS kg	1210
PHASE HV\L V	3	WEIGHT OF OIL kg	636
FREQUENCY Hz	50	OIL QTY ltrs	715
COOLING	ONAN	TOTAL WEIGHT kg	2926
SERIAL NO. JN:	43577	YEAR OF MANUFACTURE	2014

CUSTOMER'S REF. NO. 33130437-1-01 DT: 22.01.2014.
 CAUTION: DE ENERGISE TRANSFORMER BEFORE OPERATING TAP CHANGING SWITCH



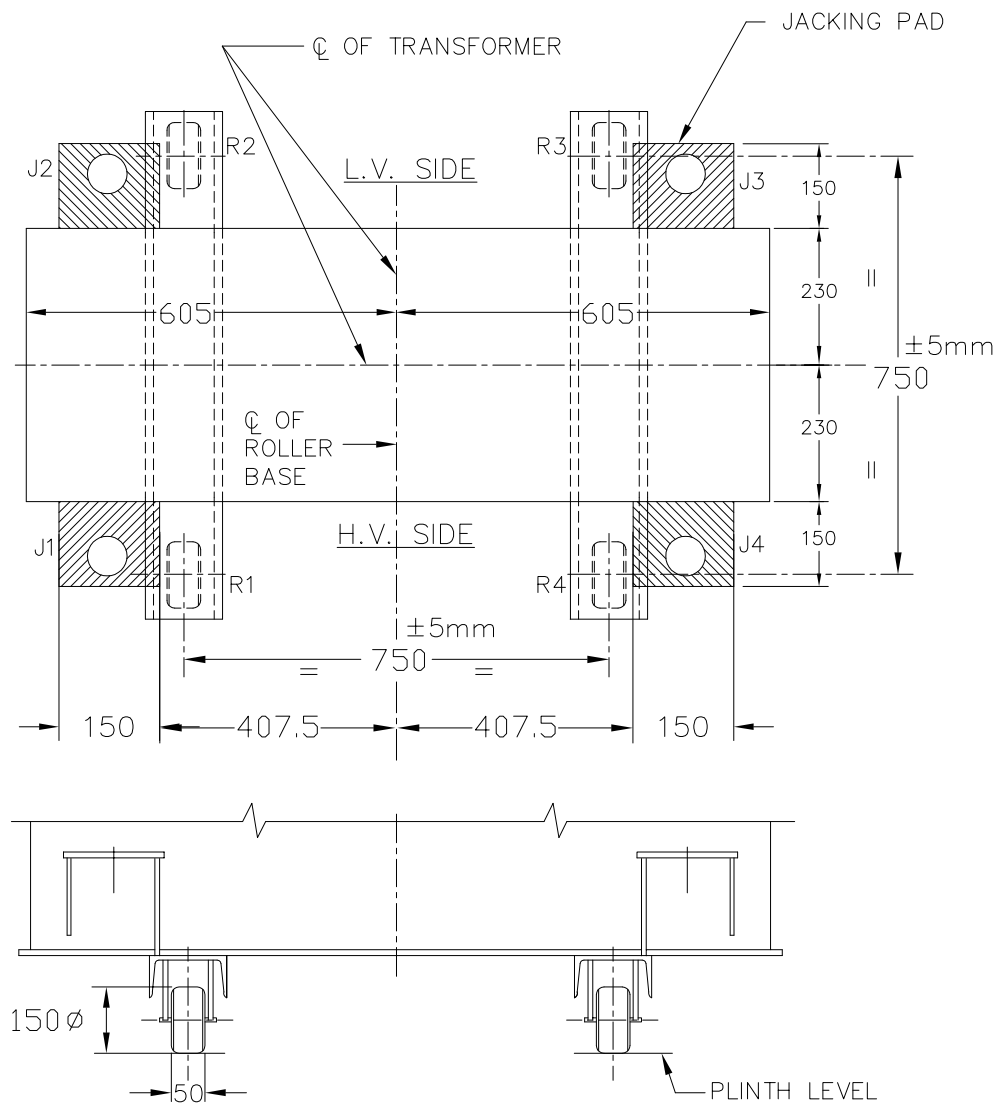
- NOTES:-
- (1) ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
 - (2) R & D PLATE SUPPLIER'S SYMBOL SHOULD APPEAR AT BOTTOM RIGHT CORNER FOR V.T.L'S REFERENCE ONLY.
 - (3) RATING AND DIAGRAM PLATE REQUIRED IN ORIGINAL METAL FINISHED BACK GROUND WITH LETTERS AND FIGURE ETCHED AND PAINTED BLACK.
 - (4) MATERIAL:-22 SWG ALUMINIUM.(ANODISED & ETCHED)
 - (5) THE VALUE OF % IMPEDANCE VOLTAGE WILL BE INCORPORATED AFTER TRANSFORMER TESTING.
 (GUARANTEED % Z=5.0 % SUBJECT TO I.S.TOLERANCE)

REV. DATE	BRIEF RECORD	DRN	DHAVAL	30.01.2014
NO & SIGN		CHD		
		APPRD		

RATING AND
 DIAGRAM PLATE

VOLTAMP TRANSFORMERS
 LIMITED VADODARA

DESP.
 PURCH.
 SALES



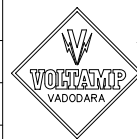
NOTES: - (1) ALL DIMENSIONS ARE IN mm.
 (2) TOLERANCE ON DIMENSIONS ±5mm.

LOAD ON JACKING PAD & ROLLER

R1J1 - 1100 KG.(MAX) R2J2 - 1100 KG.(MAX)
 R3J3 - 1100 KG.(MAX) R4J4 - 1100 KG.(MAX)

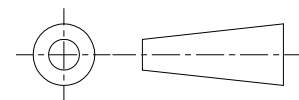
CUSTOMER	M/S. BHARAT HEAVY ELECTRICALS LIMITED.
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TR.DETAILS	kVA: -650, kV: -6.6/0.320, ONAN, Dyn11, QTY: -01 NO.

DRN	DHAVAL	30.01.2014
CHD		
APPRD		



**VOLTAMP TRANSFORMERS
 LIMITED VADODARA**

TRANSFORMER
 FOUNDATION PLAN



SCALE
 N T S

REF. JN: - 43577

DRG.NO. 4FD-43577/0

REV NO	DATE & SIGN	BRIEF RECORD
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DESP.
 Q.C.
 SALES
 COPY TO