



Copies to : 1-Engg. 2-Transfr. Wdg. 1-Test. 1-TRP. 1-TRM 1-D. O. 1-CQX. 1-EX.

TRANSFORMER WINDING SPECIFICATION ES SHEET 1 OF 5

KVA	83	Phase	1	Frequency	50 Hz	Voltage	373.5/74030	Frame	142/39-B/66
Reference	Winding Section		COIL TREATMENT - NONE						
Drawing	HV	G6015006	ES-SHEET 225				FOR ASSY. REFER DRG		
	LV	G6015005	2				G6015007 FIG C & SHT. 3		

Coil No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Wind	2	Legs
HV or LV	L	H	H	H	H	H	H	H	H										Turns/phase		HV 2x8127
Insulation in 30 mm. Unit				4	4	4	4	4	4										In Series		LV 2x41

Coil No	Section No.	Copper Size (m.m.)	Insul. Rad (m.m.)	Length-Metres	Wt. Bare kg.	Wt. Cored kg.	P.S. No.
1		5/33x101	0.25	5-48	70	71.5	AA20125
2-8		1.00 DIA	THICK ENAMEL COVERING	7-2215	108.3	112.5	IS:4800
		Over all Dia = 1.123 min	(0.0615)	(POLYSTER BASE)			PART V TYPE I
TOTAL						184	

Coil No	Section No.	H. or L.	Type of Coil	Mould Diam	Turns per Coil	Layers	Turns per Layers Section	Edge Blocks Top	Edge Blocks Bottom	Finishing CD	Dimens LD	Shrunk OD
1		L	SPL	158	41	1 OF 5	41 FLAT	63	53	585*	20	198

* INCLUDES EDGE BLOCKS.

COIL TO BE WOUND ON PBD CYL OF 146 I/D x 1500/D WITH 4 THK. PBD SPACERS

COIL TO BE PUT ON LEGS A & B

NOTE:- EARTH SHIELD TO BE WOUND ON COIL 1

2-8	H	DRO	268	1161	24	46%	39	56.5	34	336		
							C.D. OVER COILS 2-8 =	463				

Coil No	Section No.	Between Turns Sections	Seal No.	Between Layers
1	20-21	16THK. PBD. EDGE ROLLED STRIPS (COIL ENDS TO BE LEFT 350 FROM COIL FACE)		500 VOLTS MEGGER TEST BETWEEN // WIRES. 2 MEGA OHMS APPROXIMATE ACCEPTABLE.
2-8		COIL ENDS TO BE 1 STRAND OF CONDUCTOR (COIL ENDS TO BE LEFT 200 mm FROM COIL FACE)		SINGLE SLEEVE 0.09 mm WATER WASHED KRAFT PAPER.

appings	HV Inside	HV Outside	LV	Cross-overs
Coil No				Coil No 1 2-8
Section No				Turn No @ NONE
Turn No				
Lead No				
Turns Between				

Height of Column of Shrunk Blocks		Number of Units		Radial	@ AS PER DRG. TR 10192W FIG. 5(2) WITH MID POINT AT 20% TURN.
		HV	LV		
Top	HV 69	3.0mm	1.5mm	Clearances	
In Coil	70	25	SOLID BLKS.	Core-LV 8	
Bottom	53		SOLID BLKS.	LV Cyl } SEE ES	
Total		25		Cylinder } SHEET 3	THIS ES IS AN EXACT DUPLICATE OF ES 625497 EXCEPT RATING.
				Cyl -HV }	
				Total H-L 35	
				Bel Phases Legs 59	

WO 95 KV/800 MA	Calc. Date	7/6/05	Checked Date	15-6-05	Appd Date	15-6-05	Elec. Spec. No	625569A
HVR (M)								

THE003A

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TRANSFORMER DETAIL SPECIFICATION

HVR FOR EP 95 KV/800 mA D.C.



Type	ONAN	Rating	95 KV/800 mA	Special	24	Hour Temp. Rise	50°C Oil/55°C Resin	Altitude	Sea level	Mtr.
ASS. HV. TRANSFORMER-RECTIFIER				Frame	SCD 14-2/335/66	Windings	Paper	Wt. Kgms	PS	
KVA	83			Butt Interleaved	Mitred	Tie Bolts	Copper size	Rad	Gross	AA
Phase	1			Steel Perma Wood		Top	5/133x10	0.25	71.5	28/25
Frequency	50			Thickness	20					TS
Volts Ratio NL	373.5	74030		Steel P.S.	Thickness	Weight	Xgm	1.0 DIA.	0.065	112.5
Normal Amps	222.22	1.12		AA10905	0.28	248				4800
Connections	H.V. TO BE CONNECTED			Sheet	TAPED	Core				PART V
Vector Symbol	TO RECTIFIERS			Blank	142	Diam				THICK ENAMEL
Circulating	Ltrs. min	Headmm	Air	Opening	395	Centre				
Oil			Cu m min	Tongue	660	Tag			Total Weight	184 Kgms
Water			Headmm	Length					Oil absorbed by winding	25 Litres

H.V. Tapping				L.V. Tapping				TANK				INDOOR/OUTDOOR			
Volts	Amps	Switch	Joint	Volts	Amps	Internal	Plain	Dimensions	Tubular	Reactor Banked					
		Pos							Rel Round	Number of					
NOTE :- RECTIFIERS HE CHOKE, H.V. RESISTOR BOARD, AC REACTOR ARE HOUSED IN A COMMON TANK ALONG WITH TRANSFORMER.								L 1055 Base	6	No. of					
								B 770 Sides	3.2	Tubes	Row				
								H 1005 Cover	6	4	1				
								Surface	Sq M						
								TANK FITTINGS:							
								Conservator	✓	Thermometer Pocket	✓				
O.G.A. Drg. No.								OTL	P.C.						
Rating & Drag Plate Drg. No.								Breather	✓	Marshalling Box	✓				
TERMINAL				LV MEASURE				Relief Vent				Buchholz			
GEAR	No	Amps	No	Amps	No	Amps	No	Amps	Terminal Connectors						
Leads to Oil level	2	0.8 DC	2	222.2	1				H.V. BUSHING DUCT						
Leads out	2	0.8 DC	2	222.2	1				PRISMATIC						
Leads Through	SIDE	COVER	SIDE		SIDE				Oil Gauge						
Tapping Leads									Oil Valves						
LEADS TO OIL LEVEL	1		2						Estimated Weights						
Type	LEADS OUT	1		2					Transformer + RECTIFIER						
LEADS THROUGH	SIDE								AC REACTOR						
									Tank + FITTINGS						
									Radiation CONSR., P.W., R.V.						
BUSHINGS	HV		LV						Kgms						
Type HV-VE	1-52KV, 75 A	1	1						Oil Litres						
	BUSHING WITH ANTIPOD CASING								565						
Class HV+VE	1-20A EPOXY MOULD BUSHING								35						
Tap SHUNT	2- " " " " " "								40						
Cable HV Res	1- " " " " " "								Tap Changer						
Boxes LV	2-660V, 250A PORCELAIN								Oil (MINERAL)						
LV MEAR	1- " " " " " "								Total						
									617						
									1880						
									725						
									1.88						

TEST DATA				Pressure				Process Spec No.			
Temp °C	Guarantee	Calculation	Test	HV 10 KV 1 min							
Iron Loss		260		LV 3 KV 1 min							
Copper Loss		825		Overpot 1.5 X Normal V/min							
(except AC)				BH SPARK TEST							
				HV							
				LV							
Impedance % (HVR)		6.31		Special Tests							
(TOTAL)		33									
Resis HV		413.3		DC Rating (OUT PUT)							
Resis LV		0.00588		Volts 95 (PEAK)							
Zo-phase				m.Amps 800 (AVG.)							
overheats											
ACR											
mH		1.3		ES-625362							

95 KV/800 mA HVR (M)		Cal	CR	Appo	Eig. spec
Date	7/6/08	Date	15.6.05	Date	15.6.05
				625569 A	



BHARAT HEAVY ELECTRICALS LIMITED JHANSI
TRANSFORMER ENGINEERING DEPARTMENT

Copies to: 1-Engg. File; 3-Trfr. Wdg; 1-P.E.; 1-TRM; 1-DO; 1-QAX; 1-IE,
1-TEST

TRANSFORMER ELEC. SPEC. No. 625569A

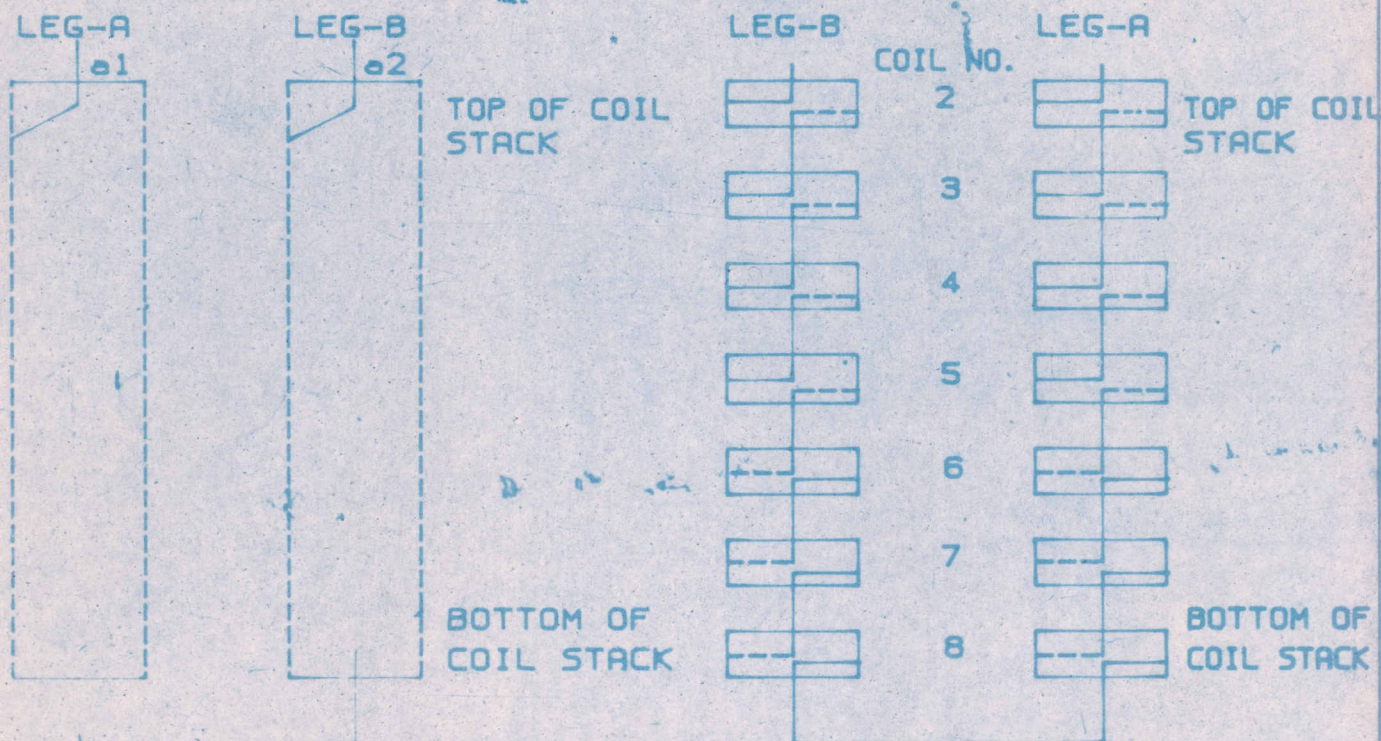
SHEET No. 2 OF 5

KVA 83 PHASE 1 FREQ. 50Hz. VOLTAGE 373.5/74030 FRAME SC0 142/335/66

D.C. OUTPUT 95kV PEAK 800 mA HVR

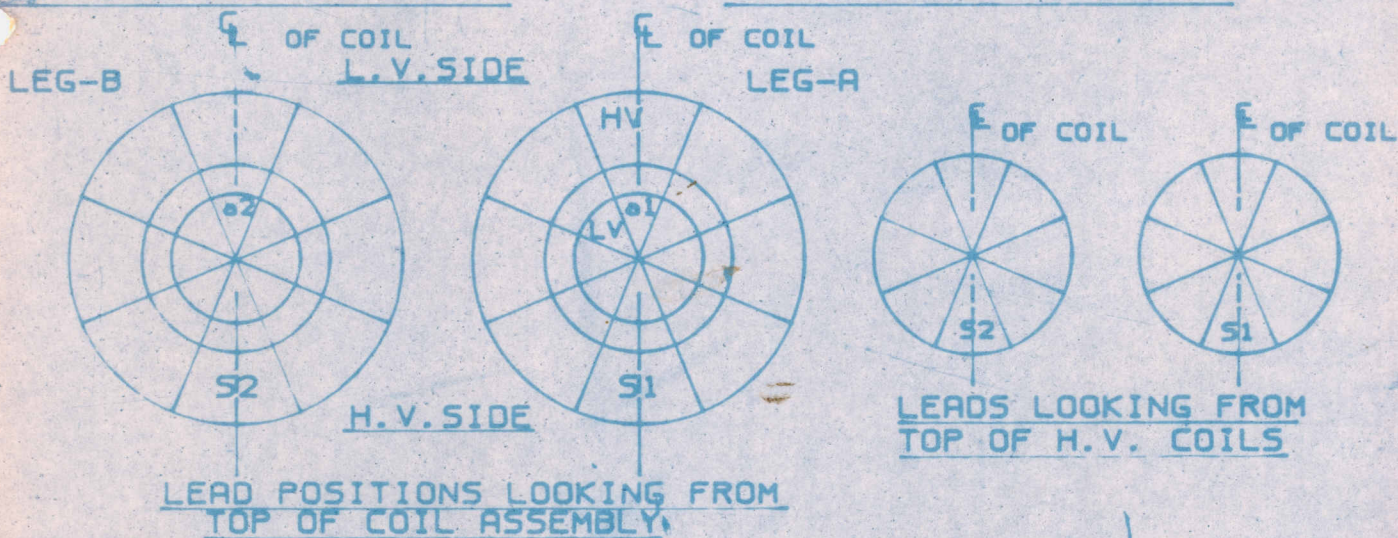
L.V. COIL-1

H.V. COIL-2 to 8



LOOKING FROM L.V. SIDE

LOOKING FROM H.V. SIDE



HVR. 95KV/800mA(M)

CALCULATED. Parul DATE 7/6/05

ELEC. SPEC. NO. 625569A

CHECKED B. N. Singh DATE 15-6-05

SPT40810.DP



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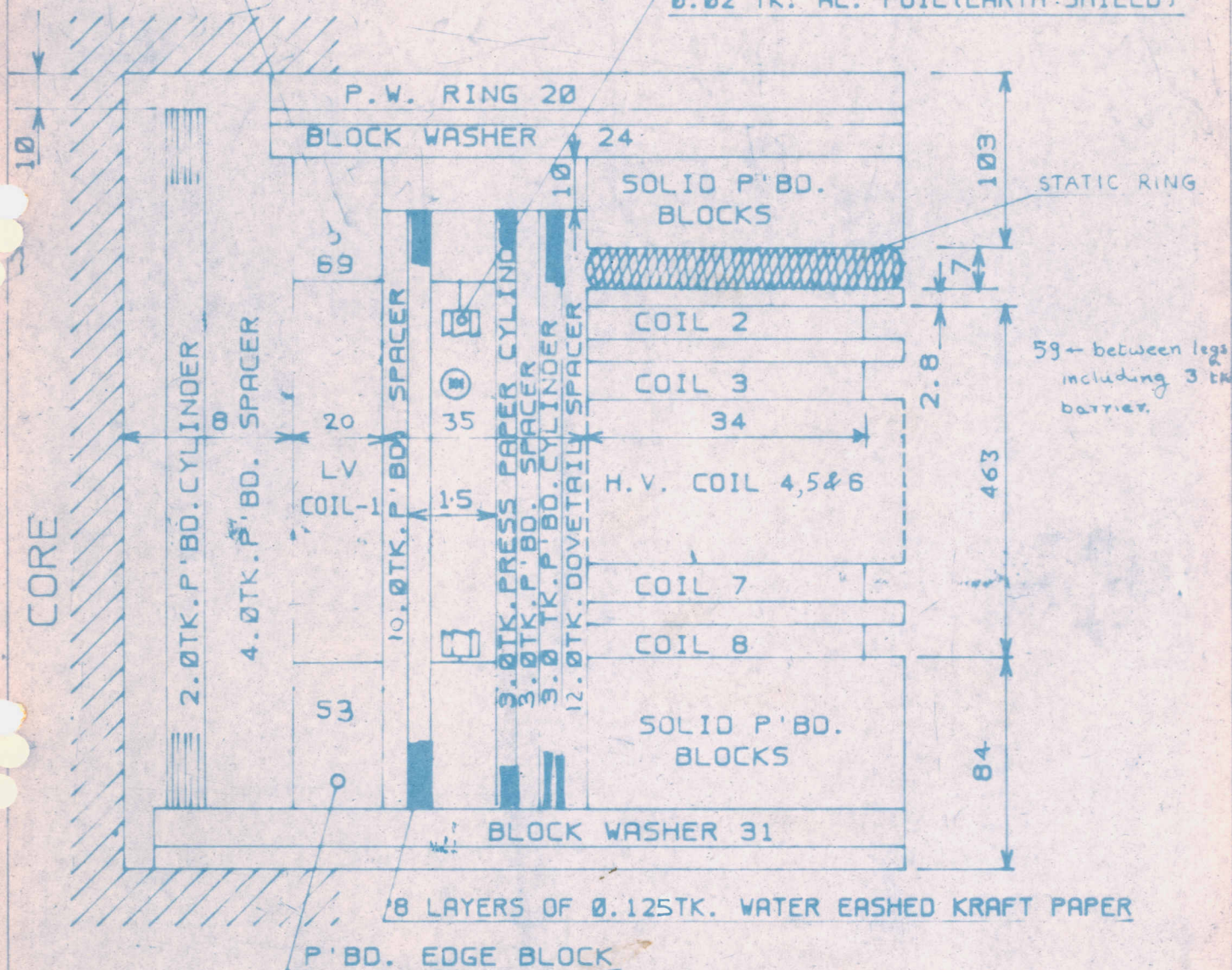
SHEET No. 3 OF 5

KVA 83 PHASE 1 FREQ. 50Hz. VOLTAGE 373.5/74030 FRAME SCO 142/39.5/66

95 KV., 800mA HVR

P. 'BD. EDGE BLOCK

ALUMINISED KRAFT PAPER WITH
0.02 TK. AL. FOIL (EARTH SHIELD)



BLOCK/CIRCLE: H.V. = 8x38 WIDE

L.V. = INSIDE 8x13 WIDE STRIPS (4TK.)

OUTSIDE 8x20 WIDE STRIPS (10TK.)

⊙ DIM INCLUDES 2.5 mm. ALLOWANCE

HVR. 95 KV/ 800mA (M)

CALCULATED *Paul* DATE 7/6/05

ELEC. SPEC. NO. 625569A

CHECKED *Brook* DATE 15.6.05



BHARAT HEAVY ELECTRICALS LIMITED JHANSI
TRANSFORMER ENGINEERING DEPARTMENT

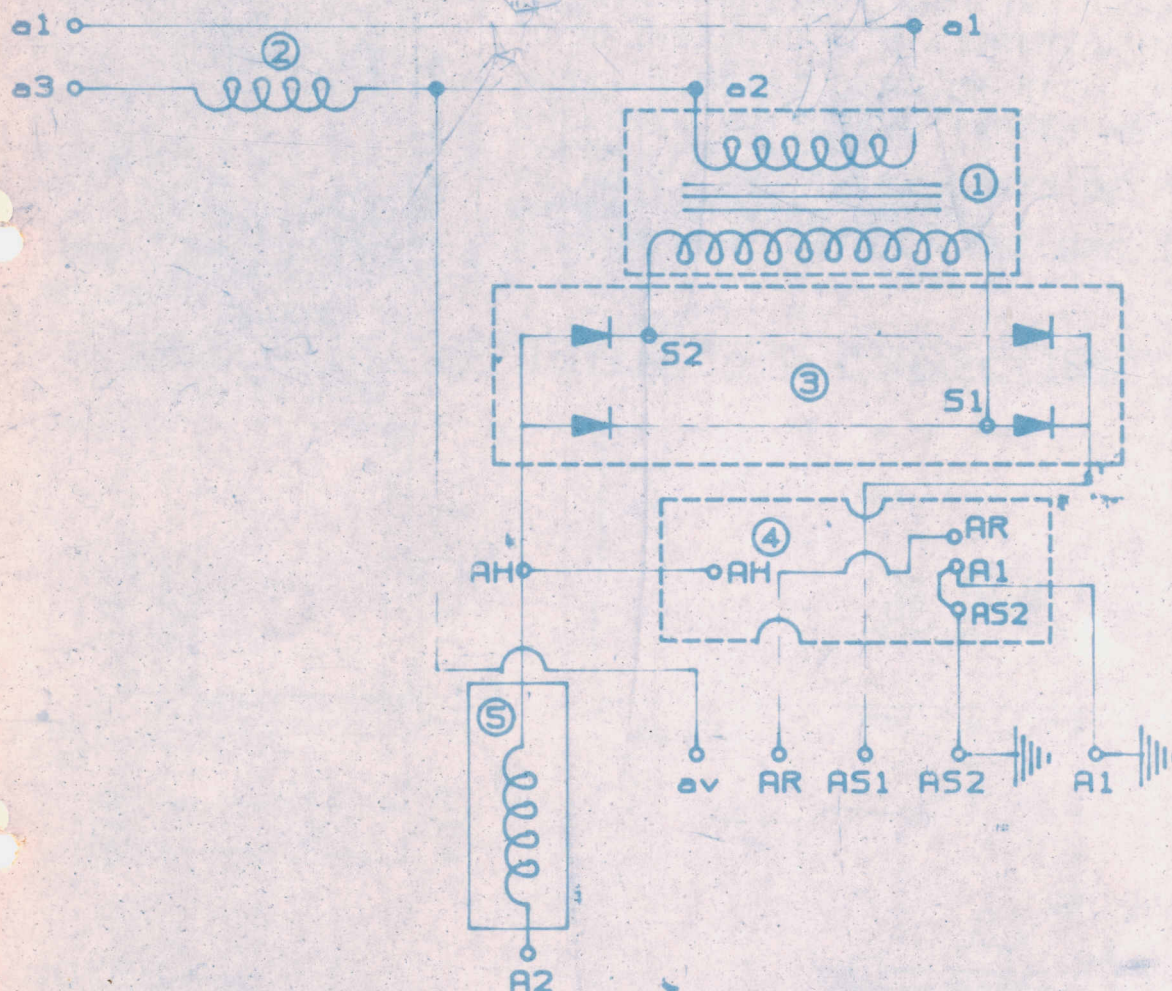
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L.R. ELEC. SPEC. No. 625569A

SHEET No. 4 OF 5

KVA 83 PHASE 1 FREQ. 50 Hz. VOLTAGE 373.5/74030 FRAME SCO 14 2/39.5/66

INTER CONNECTION OF HVR WITH RECTIFIER STACK, AC REACTOR
H.F. CHOKE & H.V. RESISTOR BOARD



NOTES:-

1. H.V. TRANSFORMER RECTIFIER
2. A.C. REACTOR
3. RECTIFIER STACK
4. H.V. RESISTOR BOARD
5. H.F. CHOKE

HVR.
95KV/ 800mA(M)

CALCULATED

DATE 7/6/05

ELEC. SPEC. NO. 625569A

CHECKED

B. N. S. A.

DATE 15.6.05



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TRANSFORMER ENGINEERING DEPARTMENT

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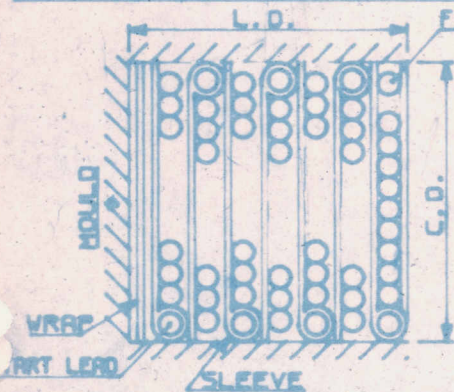
H.V.R. ELEC. SPEC. No. 625569A

SHEET No. 5 OF 5

KVA 83 PHASE 1 FREQ. 50 Hz. VOLTAGE 373.5/74030 FRAME SCO 142/39.5/66

WINDING OF COIL (D.R.O. TYPE)

METHOD OF KEEPING SINGLE SLEEVE IN BETWEEN LAYERS OF WIRES



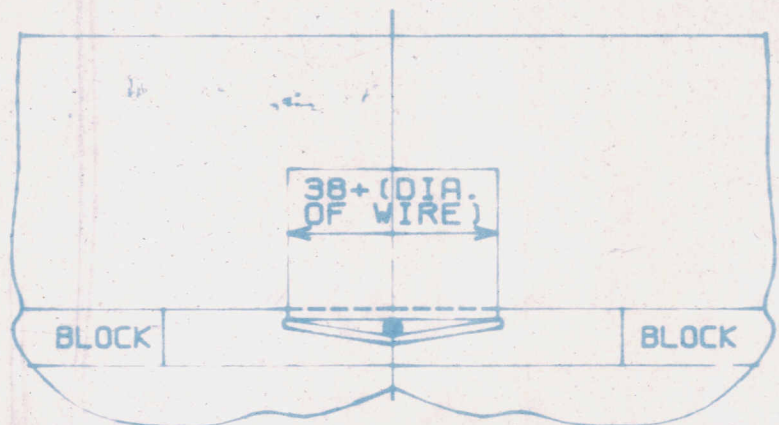
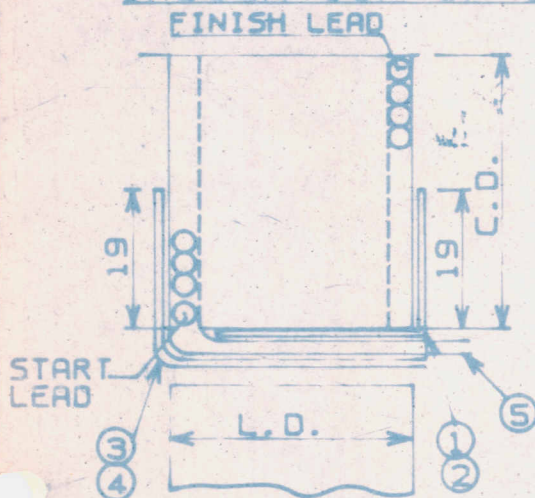
IMPORTANT NOTE: - THE LAST TWO TURNS OF COIL ARE TO BE INSULATED WITH 2 LAYERS OF KRAFT PAPER.

NOTE: - 1. START LEAD OF EACH LAYER TO BE ENCLOSED BY SLEEVE (WATER WASH CRAFT PAPER) AS SHOWN.

PL. NOTE: TWO THICKNESSES OF PAPER APPEAR BETWEEN LAYERS.

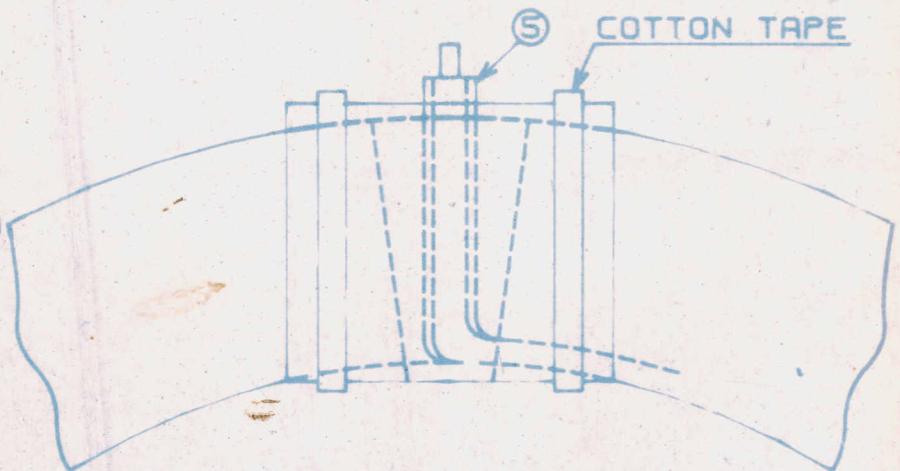
2. * FOR MORE DETAILS REF. ORG. G-6015006.

INSULATION OF INTER COIL CONNECTING LEADS



NOTES: -

1. ITEMS 1 to 4 ARE PRESS PAPER SHIELD AND THEY SHALL BE SECURED WITH COTTON TAPE. (THICKNESS OF SHIELD=0.2) ITEMS 1 & 2 TO BE KEPT BELOW LEAD AND 3 & 4 TO BE KEPT ABOVE LEAD AS SHOWN.
2. ITEM 5 IS TERRYLENE SLEEVE & TO BE USED OVER COILS ENDS.
3. FOR MORE DETAILS REFER ORG. G-6015007.



HVR.
95 KV/ 800mA (M)

CALCULATED *GL*

DATE 7/6/05

ELEC. SPEC. NO. 625569A

CHECKED *Brah*

DATE 15-6-05