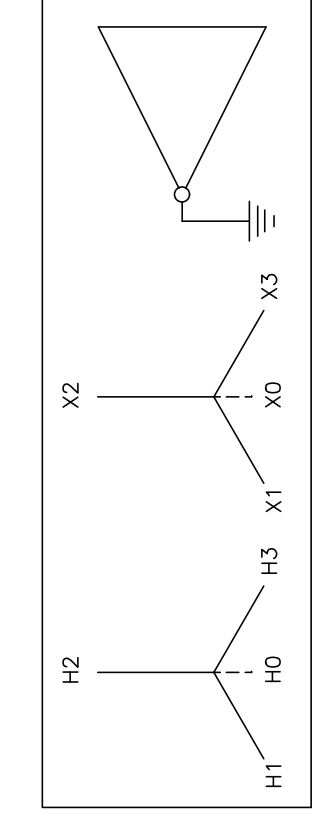




LOAD TAP CHANGING POWER TRANSFORMER

P.O. BOX 268 GOLDSBORO, NC 27533

CLASS ONAN/ONAF/ONAF 3-PHASE 60 HZ SER. NO. 55° C
 MVA 12.00/16.00/20.00 CONT. TEMP. RISE 65° C
 MVA 13.44/17.92/22.40 CONT. TEMP. RISE 65° C
 HV 67000 Y VOLTS BIL 350 KV
 HV NEUTRAL 13800 Y/7970 VOLTS BIL 110 KV
 LV NEUTRAL 7200 DELTA VOLTS STABILIZING WINDING BIL 110 KV
 TV 7200 DELTA VOLTS STABILIZING WINDING BIL 110 KV
 IMPEDANCE % AT 67000-13800 VOLTS AND 12.00 MVA



BUSHING CURRENT TRANSFORMER MULTI-RATIO RELAYING C400 ACCURACY CLASS CT:A,B,C,D,E,F

CURRENT RATIO	TAP	CURRENT RATIO	TAP
50:5	X2-X3	300:5	X2-X4
100:5	X1-X2	400:5	X1-X4
150:5	X1-X3	450:5	X3-X5
200:5	X4-X5	500:5	X2-X5
250:5	X3-X4	600:5	X1-X5

BUSHING CURRENT TRANSFORMER MULTI-RATIO RELAYING C400 ACCURACY CLASS CT:G,H,J,K,L,M,N

CURRENT RATIO	TAP	CURRENT RATIO	TAP
100:5	X2-X3	600:5	X2-X4
300:5	X1-X2	800:5	X1-X4
400:5	X4-X5	1000:5	X2-X5
500:5	X3-X4	1200:5	X1-X5

BUSHING CURRENT TRANSFORMER SINGLE RATIO RELAYING C100 ACCURACY CLASS CT:W1 FOR WINDING TEMP. EQUIP. 400:5 RATIO

BUSHING CURRENT TRANSFORMER SINGLE RATIO RELAYING C100 ACCURACY CLASS CT:U FOR LTC CONTROL 1200:5 RATIO

BUSHING CURRENT TRANSFORMER SINGLE RATIO RELAYING C100 ACCURACY CLASS CT:W2 FOR WINDING TEMP. EQUIP. 1200:5 RATIO

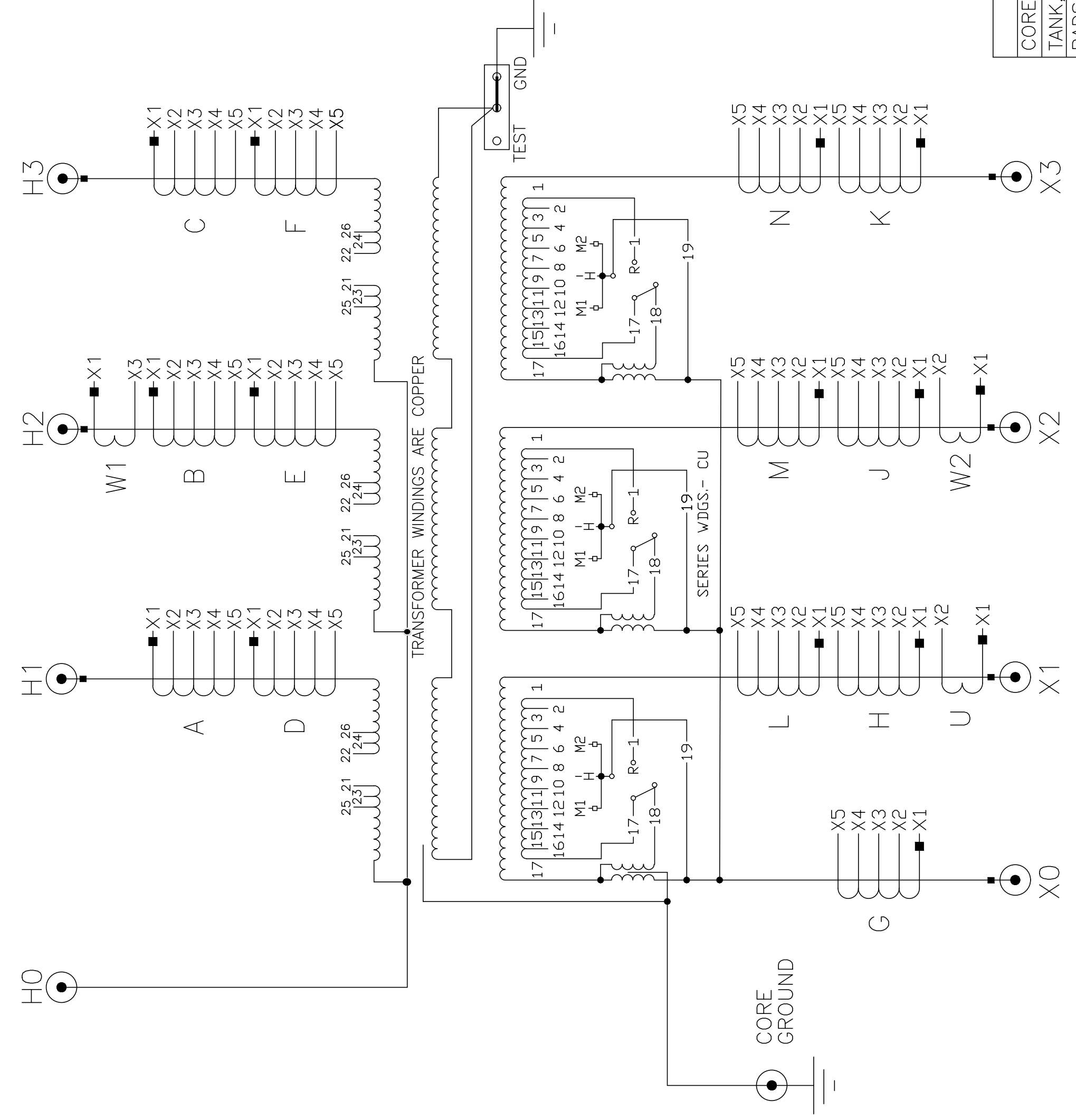
HIGH VOLTAGE TAPCHANGER DE-ENERGIZED OPERATION

VOLTS L-L	AMPS AT 22.40 MVA	POS	CONNECTS
70350	184	1	21-22
68675	188	2	22-23
67000	193	3	23-24
65325	198	4	24-25
63650	203	5	25-26

APPROXIMATE WEIGHTS

ITEM	UNITS	WEIGHT
CORE & COIL (UNTANKING WEIGHT)	LBS.	46140
TANK, FITTINGS, & RADIATORS	LBS.	40210
RADS. (BOLT ON)	LBS.	9232
OIL-MAIN TANK	GALS.	4043
OIL-TAPCHANGER COMPARTMENT	GALS.	100
OIL-RADIATORS	GALS.	277
OIL-TOTAL*	GALS.	4420
TOTAL WEIGHT	LBS.	119500

*OIL MEETS ASTM D3487 TYPE II - INHIBITED
 OIL LEVEL BELOW TOP SURFACE OF THE HIGHEST POINT OF THE HIGHEST MANHOLE FLANGE AT 25°C IS 14.5 INCHES.
 CONTAINS NO DETECTABLE LEVEL OF PCB (LESS THAN 2 PPM) AT TIME OF MANUFACTURE.
 OIL LEVEL CHANGES 0.69 INCHES PER 10°C CHANGE IN OIL TEMPERATURE
 OPERATING PRESSURE OF OIL PRESERVATION SYSTEM IS 5.0 LBF/IN² POSITIVE TO 0.5 LBF/IN² POSITIVE.
 TANK DESIGNED FOR 10 LBF/IN² POSITIVE AND FULL VACUUM FILLING.
 ALTITUDE 3300 FEET ABOVE SEA LEVEL.
 INSTRUCTION BOOK NO.: V 2.2
 A517237390 REV. (2)



VOLTS L-L	TYPE UZD LOAD TAP CHANGER 600 AMP RATING		VOLTS L-L	AMPS AT 22.40 MVA	TYPE UZD LOAD TAP CHANGER 600 AMP RATING			
	R CONNECTS AT DIRECTION				R CONNECTS AT DIRECTION			
	RAISE	LOWER			RAISE	LOWER		
15180	16R	18-1	13800	937	N	18-17	18-1	18-19
15094	15R	18-1	13800		LN	18-17	18-17	17-19
15008	14R	18-1	13714		1L	18-17	18-17	16-19
14921	13R	18-1	13628		2L	18-17	18-17	15-19
14835	12R	18-1	13541		3L	18-17	18-17	14-19
14749	11R	18-1	13455		4L	18-17	18-17	13-19
14663	10R	18-1	13369		5L	18-17	18-17	12-19
14576	9R	18-1	13283		6L	18-17	18-17	11-19
14490	8R	18-1	13196		7L	18-17	18-17	10-19
14404	7R	18-1	13110		8L	18-17	18-17	9-19
14318	6R	18-1	13024		9L	18-17	18-17	8-19
14231	5R	18-1	12938		10L	18-17	18-17	7-19
14145	4R	18-1	12851		11L	18-17	18-17	6-19
14059	3R	18-1	12765		12L	18-17	18-17	5-19
13973	2R	18-1	12679		13L	18-17	18-17	4-19
13886	1R	18-1	12593		14L	18-17	18-17	3-19
13800	937	18-1	12506	15L	18-17	18-17	2-19	
13800	937	N	12420	16L	18-17	18-17	1-19	

FOR STEP DOWN OPERATION DESIGN NO. 5172373100 DATE OF MANUFACTURE: -- / -- / --

0.31

21.50

10.75

0.31

16.50

0.15625 DIA

NOTE: THE DESIGN IMPEDANCE IS: 8.61% @ 12.00 MVA
 THE SERIAL NUMBER, DATE OF MANUFACTURE, AND MEASURED IMPEDANCE OF EACH UNIT OF WILL BE STAMPED ON ITS NAMEPLATE PRIOR TO SHIPMENT.

MATERIAL-STAINLESS STEEL USS. STD. GA. NO. 22 (.0299)
 LETTERING AND NUMERALS SUNKEN BLACK ON A POLISHED STAINLESS STEEL BACKGROUND
 PAINT: SPRAYED BLACK ENAMEL
 PADS: ALL RAISED PADS ARE 7/32 WIDE AND LENGTH SHOWN

TRAVERSE CITY LGT & PWR DEPT.
 PO.NO. CONTRACT
 PARSON ROAD SUBSTATION
 SERIAL/MFG.NO. GM053114
 "APPROVAL DRAWINGS"

ENG.	RAS		
DR	RAS		
CK	PKM	3/10/2006	RECORD DRAWINGS
APP	PKM	4-1-2005	BIDS AND CONSTRUCTION
		3-15-2005	95% OWNER REVIEW
DATE			ISSUED FOR

GRP ENGINEERING INC.
 GRAND RAPIDS, MICHIGAN, 616-942-7183
 PETOSKEY, MICHIGAN, 231-439-9683

TRAVERSE CITY LIGHT AND POWER
 PARSONS SUBSTATION - PHASE I & II
 TRAVERSE CITY, MICHIGAN
 NAMEPLATE DIAGRAM - TRANSFORMER NO.2

PROJECT NUMBER	DRAWING NUMBER
04-0044.01 04-0045.01	860