

TRANSFORMER DATA SHEET

DATE : 05/01/2003  
 CUSTOMER : HVES  
 CIRCUIT/LOCATION : HVES 19  
 MANUFACTURER : Alstom  
 TRANSFORMER TYPE : Pad Mount CLASS : OA  
 S/N : PID-0297

THREE PHASE  SINGLE PHASE  : 60 HERTZ

VOLTAGE RATING: 2400X4160 Delta - 480Y/277

KVA RATING: 1000 Continuous, Self Cooled  
 Continuous, Forced Air

LV WINDING: ALUMINUM

HV WINDING: ALUMINUM

LV: 65°C rise, BIL: 30kV

HV: 65°C rise, BIL: 60kV

NAMEPLATE DATA

Core & Coils	2653
Case & Fittings	2471
Oil in Gallons	269/1986
Weight in Pounds	7110

Fluid Type : Mineral Oil

Impedance volts : 5.82 % at rated volts at : 1000 KVA

MEGGER TEST RESULTS

**TRANSFORMER TEST DATA**

	1 Minute			POLARIZATION INDEX	CAPACITANCE	
High-> Ground	29.2k	M-Ohms, @	5	kV DC	2.10	0.01 micro-farad
Low -> Ground	19.1k	M-Ohms, @	1	kV DC	2.94	0.01 micro-farad
High-> Low	20.0k	M-Ohms, @	1	kV DC	2.38	0.01 micro-farad

TRANSFORMER TTR TESTS

TAP (V)	CALC. TTR	PHASE 1	PHASE 2	PHASE 3
4368	15.769	15.757	15.761	15.755
4264	15.394	15.403	15.408	15.403
4160	15.018	14.992	14.996	14.992
4056	14.643	14.640	14.643	14.639
3952	14.267	14.640	14.643	14.227
2400	8.664	8.648	8.644	8.642

COMMENTS

Tag 10736  
 Date of manufacture: 4/2003  
 Stored at Dave's Yard

10 Minute Megger Test  
 H-G: 61.0k M-ohms  
 L-G: 56.0k M-Ohms  
 H-L: 47.6k M-ohms

5.50

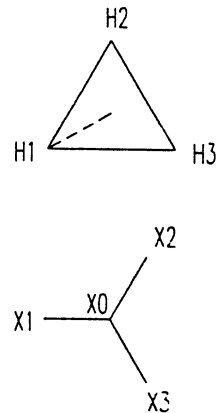
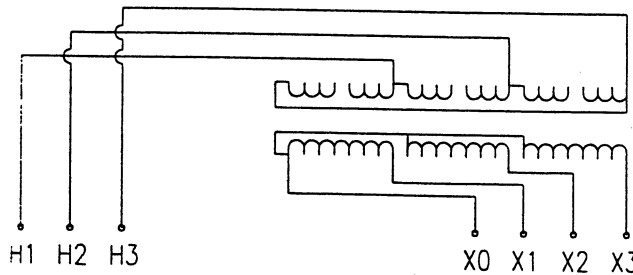
# ALSTOM

KVA  OA   °C RISE  
 HV  BIL  KV  
 LV  BIL  KV  
 PHASE  HZ TRANSFORMER,  % IZ AT BASE KVA RATING  
 HV  LV COND. ELEMENT  LBS. TOTAL WEIGHT  LBS.  
 GAL  AT  LBS. LEVEL CHANGES  INCH PER. 10°C.  
 FLUID LEVEL  INCHES FROM TOP OF HAND HOLE AT 25°C.  
 MAX TANK PRESS. POS  NEG  PSI  
 SERIAL #  DATE OF MFG:

INSTRUCT ON REFERENCE MANUAL 1B9.210

TAPS	A	B	C	D	E		
<input type="text" value="4160"/> VOLTS	<input type="text" value="4368"/>	<input type="text" value="4264"/>	<input type="text" value="4160"/>	<input type="text" value="4056"/>	<input type="text" value="3952"/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value="2400"/> VOLTS	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value="2400"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

TAPCHANGER MUST BE IN 'C' POSITION FOR 2400 VOLTS



NON-PCB  
 10486351-18635

300 WEST ANTELOPE ROAD, MEDFORD OREGON 97503-1089 USA

8.00

5/32 DIA

MATERIAL (.025) STAINLESS STEEL

REVISIONS

## ALSTOM

300 WEST ANTELOPE ROAD  
 MEDFORD, OREGON 97503-1089 USA

NAMEPLATE PART # 52-637-0022-07-00

DRAWN BY: R.M.J. GABB

REVISION

APPROVED BY: *[Signature]*

DATE: 4-2-3

SCALE: 1" = 1"

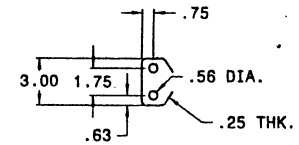
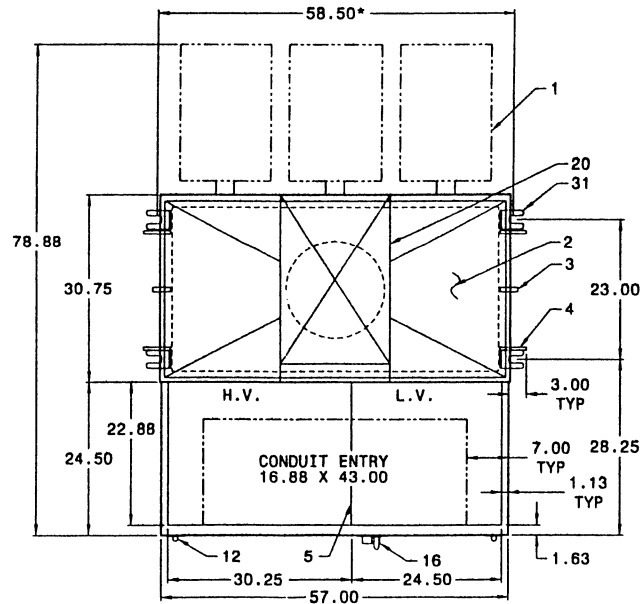
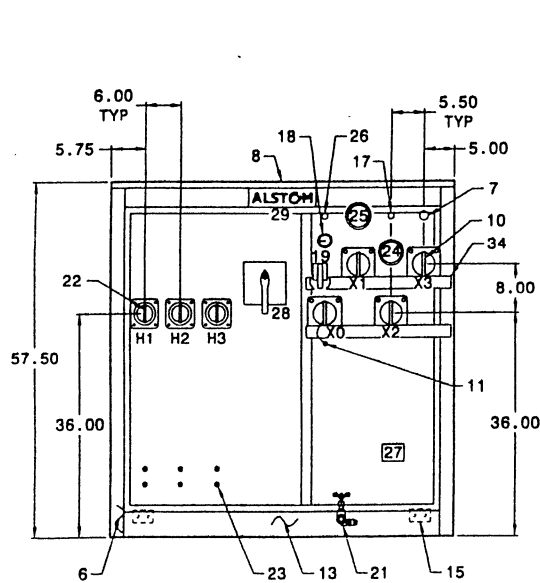
- 1 COOLING PANELS (FLAT PANELS IN A COMMON HEADER)
- 2 TRANSFORMER TANK WITH WELDED COVER DOWED TO SHED WATER
- 3 JACK LUGS
- 4 LIFT LUGS FOR LIFTING TRANSFORMER COMPLETE WITH LIQUID
- 5 DIVIDER BETWEEN H.V. & L.V. COMPARTMENTS
- 6 H.V. & L.V. COMPARTMENT INTERNALLY BOLTED TO TANK FLANGE
- 7 H.V. DOOR IS SECURED BY BOLTS ACCESSIBLE AFTER L.V. DOOR IS OPENED
- 8 1 IN. FILL PLUG & UPPER FILTER PRESS CONNECTION
- 9 REMOVABLE COMPARTMENT COVER
- 10 STAINLESS STEEL NAMEPLATE & CONNECTION DIAGRAM ON L.V. DOOR
- 11 L.V. BUSHING WITH SPADE TERMINAL (SEE DETAIL)
- 12 1/2-13 TAPPED GROUND PAD WITH REMOVABLE GROUND STRAP
- 13 LIFT-OFF TYPE STAINLESS STEEL HINGES WITH 3/8 PINS
- 14 REMOVABLE FRONT SILL TO PERMIT SLIDING COMP'T OVER ENTRANCE CONDUIT
- 15 ADJUSTABLE MOUNTING PLATE WITH .81 x 3.00 SLOTS (NOT SHOWN)
- 16 NEMA GROUND PADS WITH (2) 1/2-13 TAPPED HOLES
- 17 PADLOCKABLE DOOR HANDLE WITH 3-POINT LATCH AND CAPTIVE LOCKBOLT
- 18 PRESSURE RELIEF VALVE
- 19 LIQUID LEVEL GAUGE

- 19 DE-ENERGIZED TAPCHANGER
- 20 TAMPER PROOF HANDHOLE (16.00 DIA.)
- 21 1 IN. DRAIN VALVE & SAMPLER
- 22 H.V. BUSHING WITH G-SPADE CONNECTOR
- 23 PROVISIONS FOR ARRESTER MOUNTING TAPPED 1/2-13
- 24 DIAL TYPE THERMOMETER
- 25 PRESSURE VACUUM GAUGE
- 26 GAS SAMPLE VALVE (SCHRADER)
- 27 NON-PCB LABEL
- 28 DUAL VOLTAGE SWITCH
- 29 ALSTOM ID PLATE
- 30
- 31 BOLT DOWN PROVISIONS (1.25 x 2.50 OPEN END SLOT)
- 32
- 33
- 34 LV BUSHING SUPPORT

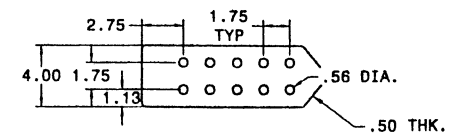
CUSTOMER: HIGH VOLTAGE ELECTRIC SERVICE, INC.  
 P.O. : 032403GM  
 P.N. : I0486351-I8635  
 KVA : 1000  
 H.V. : 2400 X 4160 DELTA (60 KV BIL)  
 L.V. : 480Y/277 (30 KV BIL)  
 TAPS : 2-2 1/2% FCAN & BN ON 4160V ONLY  
 LIQUID TYPE : OIL  
 LIQUID VOL : 269 GALS.  
 TOTAL WEIGHT : 7110 LBS.  
 COLOR : PADMOUNT GREEN  
 TEMP : 65°C OA

\* BOLT DOWN PROVISION DIMENSIONS

-TAPCHANGER MUST BE IN 'C' POSITION FOR 2400 VOLT OPERATION



H.V. BUSHING SPADE DETAIL



10-HOLE L.V. BUSHING DETAIL

REVISIONS

86351

DPTN <b>R.M.J. GABB</b>	
APP'D <i>[Signature]</i>	DATE 4.2.3
DWN'D <b>I86351-O</b>	
REVISION 0	QWS SIZE B
SCALE 5/8"=1'	TOLERANCE ±0.06

**ALSTOM**

300 WEST ANTELOPE ROAD  
 MEDFORD, OREGON USA 97503-1089

TITLE 1000 KVA PADMOUNT OUTLINE

SHEET 1 OF 1

Path: U:\86351\I86351-O.dwg, Layer: E, Color: 255,0,255,11,0,0,0

ALSTOM

**UNIT 19 NON PCB**  
**1000KVA Z=5.75%**  
**HV 4160x2400 LV 480Y/277**  
**WT=7500 LBS**  
**TAPS: 4368 / 4264 / 4160**  
**4056 / 3952 / 2400**  
**FULL LOAD AMPS=138 AT 4160V**  
**FULL LOAD AMPS=240 AT 2400V**



TRANSFORMER OIL DATA SHEET  
Dissolved Gas-in-Oil Analysis As Per ASTM D-3612A

DATE : 09/30/2021 Sample Date : 09/25/2021  
 CUSTOMER : HVES  
 CIRCUIT/LOCATION : HVES #19  
 MANUFACTURER : Alstom  
 KVA/TYPE or M/N : 1000  
 S/N : PID-0297  
 FLUID TYPE : Mineral Oil

<u>TEST</u>	<u>IN-SERVICE NORMS*</u>	<u>RESULTS</u>
HYDROGEN (H2)	240 ppm	: 0 ppm
METHANE (CH4)	160 ppm	: 1 ppm
ETHANE (C2H6)	115 ppm	: 4 ppm
ETHYLENE (C2H4)	190 ppm	: 0 ppm
ACETYLENE (C2H2)	11 ppm	: 0 ppm
CARBON MONOXIDE (CO)	580 ppm	: 60 ppm
CARBON DIOXIDE (CO2)	n/a	: 787 ppm
NITROGEN (N2)	n/a	: 72079 ppm
OXYGEN (O2)	n/a	: 10624 ppm
TOTAL GAS	n/a	: 83555 ppm
TOTAL COMBUSTIBLES	n/a	: 65 ppm
ESTIMATED TCG	n/a	: 0.06 %
CO2/CO RATIO		: 13.12

ANALYSIS:

All gases are within accepted limits.  
 CO2/CO ratio indicates higher than normal temperature in insulation.

RECOMMENDATION:

Resample in 1 year.

\*In-service Norms as follows:

	<u>GENERATING</u>	<u>TRANSMISSION</u>
HYDROGEN (H2)	240 ppm	100 ppm
METHANE (CH4)	160 ppm	120 ppm
ETHANE (C2H6)	115 ppm	65 ppm
ETHYLENE (C2H4)	190 ppm	30 ppm
ACETYLENE (C2H2)	11 ppm	35 ppm
CARBON MONOXIDE (CO)	580 ppm	350 ppm

COMMENTS:

TRANSFORMER OIL DATA SHEET  
Standard Oil Analysis

DATE : 09/30/2021 Sample Date : 09/25/2021  
CUSTOMER : HVES  
CIRCUIT/LOCATION : HVES #19  
MANUFACTURER : Alstom  
KVA/TYPE or M/N : 1000  
S/N : PID-0297  
FLUID TYPE : Mineral Oil

<u>TEST</u>	<u>ASTM</u>	<u>LIMITS*</u>	<u>RESULTS</u>
WATER CONTENT	D1533	20 Max	: 13 ppm
INTER-FACIAL TENSION	D971	32 Min	: 35.7 Dynes/ppm
NEUTRALITY	D974	0.10 Max	: <0.02 mg KOH/g
COLOR	D1500	3.5 Max	: <0.5
VISUAL EXAMINATION	D1524	N/A	: Clear & bright
DIELECTRIC	D877	26 Min	: 56 kV
SPECIFIC GRAVITY	D1298	0.91 Max	: 0.887

\*NETA Table 100.4.1 and ANSI/IEEE C57.106-2002 "Guide for Acceptance and Maintenance of Insulating Oil in Equipment," Table 7.

COMMENTS: