

Job Number: BS00037  
Date: 5-24-23

| Study Drawing                                           | ID # |
|---------------------------------------------------------|------|
| Correct and operational material (compare to BOM)       | 355  |
| confirm cabinet part #                                  | ✓    |
| cabinet and hole locations                              | ✓    |
| standard & or special parts                             | ✓    |
| Panels painted white                                    | ✓    |
| GFR                                                     | NA   |
| heater                                                  | ✓    |
| light                                                   | ✓    |
| 63X                                                     | ✓    |
| 2 pos. switches                                         | ✓    |
| 3 pos. switches                                         | ✓    |
| 3 pos. switches (6 wire connection)                     | ✓    |
| Relay 120                                               | NA   |
| Relay 240                                               | NA   |
| 1 pole breaker                                          | ✓    |
| 2 pole breaker                                          | ✓    |
| 3 pole breaker                                          | NA   |
| standard or special drain plugs                         | ✓    |
| Layout of components per drawing (as close as possible) | ✓    |
| devices are tight                                       | ✓    |
| lock washers                                            | ✓    |
| Insulated or non Insulated terms.                       | ✓    |
| ground wires                                            | ✓    |
| ground wires to swing panels                            | ✓    |
| All frames are straight                                 | ✓    |
| Vacuum cabinet out                                      | ✓    |
| Pre-Inspection of inaccessible wiring                   | NA   |
| wire type and gauge                                     | ✓    |
| point to point                                          | ✓    |
| terminations/ <i>*crimp quality &amp; pull test*</i>    | ✓    |
| wire markers                                            | ✓    |
| bends and neatness                                      | ✓    |
| CPT or transformer                                      | NA   |
| Plexiglas (Does it cover all points?)                   | ✓    |

[illegible]

CT Test Sheet

CT Tests:

- a. CT's on proper Bashing of Line Lead (Check Nameplate) ☒
- b. CT's Type 600/5 1200/5 2000/5 3000/5 5485/5
- c. Equipment Number: 1811 ☒
- d. CT Checker Performance Check (see standard CT)

| e. Ratio |  | H1 | H2 | H3 | X1 | X2 | X3 | X0 |  |
|----------|--|----|----|----|----|----|----|----|--|
| Line     |  |    |    |    |    |    |    |    |  |
| Pol      |  |    |    |    |    |    |    |    |  |
| (<wdg)   |  |    |    |    |    |    |    |    |  |
| Pol      |  |    |    |    |    |    |    |    |  |
| (>wdg)   |  |    |    |    |    |    |    |    |  |

|                                                                                                 |     |   |     |   |   |   |      |   |   |
|-------------------------------------------------------------------------------------------------|-----|---|-----|---|---|---|------|---|---|
| (Note '< wdg' means CT polarity away from windings, '> wdg' means CT polarity towards winding.) |     |   |     |   |   |   |      |   |   |
| Measure Ratio                                                                                   |     |   |     |   |   |   |      |   |   |
| X1-X2                                                                                           | 40  | / | 40  | / | - | - | 71   | / | - |
| X1-X3                                                                                           | 60  | / | 60  | / | - | - | 78   | / | - |
| X1-X4                                                                                           | 160 | / | 160 | / | - | - | 934  | / | - |
| X1-X5                                                                                           | 240 | / | 240 | / | - | - | 1097 | / | - |

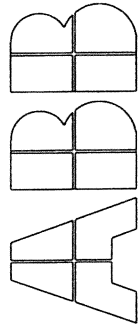
|        |   |   |   |   |    |    |    |    |  |
|--------|---|---|---|---|----|----|----|----|--|
| PF     | - | - | - | - | X1 | X2 | X3 | X0 |  |
| Line   |   |   |   |   |    |    |    |    |  |
| Pol    |   |   |   |   |    |    |    |    |  |
| (<wdg) |   |   |   |   |    |    |    |    |  |
| Pol    |   |   |   |   |    |    |    |    |  |
| (>wdg) |   |   |   |   |    |    |    |    |  |

(Note '< wdg' means CT polarity away from windings, '> wdg' means CT polarity towards winding.)

|               |   |   |   |   |   |   |   |   |   |
|---------------|---|---|---|---|---|---|---|---|---|
| Measure Ratio |   |   |   |   |   |   |   |   |   |
| X1-X2         | - | - | - | - | - | - | - | - | - |
| X1-X3         | - | - | - | - | - | - | - | - | - |
| X1-X4         | - | - | - | - | - | - | - | - | - |
| X1-X5         | - | - | - | - | - | - | - | - | - |

|               |   |   |   |   |    |    |    |    |   |
|---------------|---|---|---|---|----|----|----|----|---|
| PF            | - | - | - | - | X1 | X2 | X3 | X0 |   |
| Line          |   |   |   |   |    |    |    |    |   |
| Measure Ratio |   |   |   |   |    |    |    |    |   |
| X1-X2         | - | - | - | - | -  | -  | -  | -  | - |
| X1-X3         | - | - | - | - | -  | -  | -  | -  | - |
| X1-X4         | - | - | - | - | -  | -  | -  | -  | - |
| X1-X5         | - | - | - | - | -  | -  | -  | -  | - |

Tested By: Chris Cyleman Date: 9-19-23

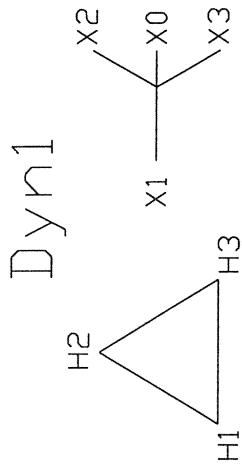


TRANSFORMERS  
SOUTH BOSTON, VA.

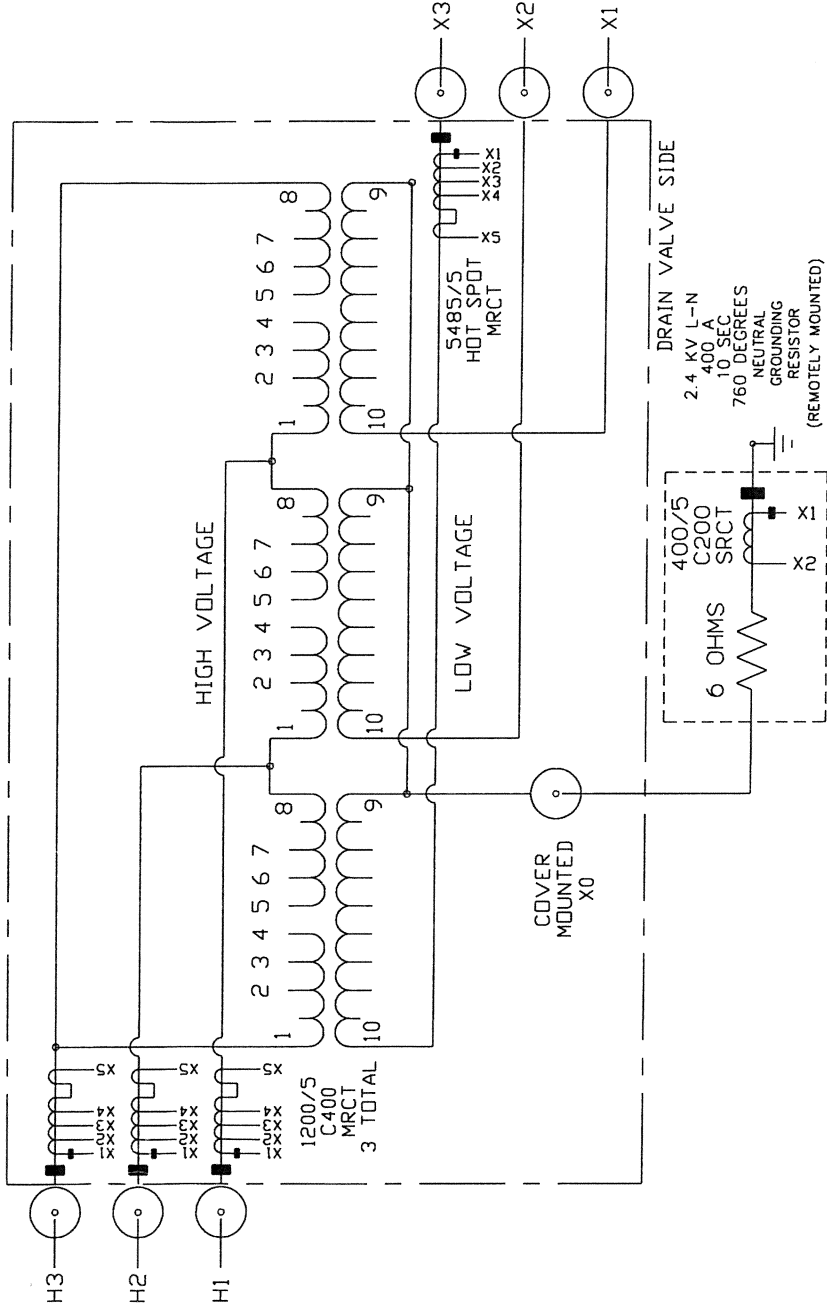


ABB is a registered trademark of ABB Asea Brown Boveri Ltd.  
Manufactured by/for a Hitachi Energy company

|                                                        |  |                                               |               |                     |       |
|--------------------------------------------------------|--|-----------------------------------------------|---------------|---------------------|-------|
| VOLTS                                                  |  | THREE PHASE                                   |               | FULL LOAD KVA       |       |
| HV 12470 V                                             |  | NATURAL ESTER FLUID                           |               | 15000/16800 KNAN    |       |
| LV 4160Y/2402 V                                        |  | INSULATED                                     |               | 20000/22400 KNAF    |       |
| 60 HERTZ                                               |  | UNIT SUBSTATION                               |               | 55/65 °C RISE       |       |
|                                                        |  | CLASS KNAN/KNAF                               |               | GALLONS LIQUID 2462 |       |
| INSTRUCTION BOOK                                       |  | MFR ID                                        | SERIAL        | MANUFACTURE DATE    | ##/## |
| PC-1002                                                |  | 1LUS                                          | BS00637 - ### |                     |       |
| FULL WAVE IMPULSE TEST LEVEL: H.V. 110 KV, L.V. 75 KV. |  |                                               |               |                     |       |
| IMPEDANCE                                              |  | IMP_VAL1 % AT 15000 KVA 12470 TO 4160Y VOLTS. |               |                     |       |
| ZERO SEQUENCE IMPEDANCE                                |  | IMP_VAL2 % AT 15000 KVA 12470 TO 4160Y VOLTS. |               |                     |       |
| APPROX. WEIGHT IN LBS. CORE AND COILS                  |  | CASE                                          | LIQUID        | TOTAL               |       |
| 32846                                                  |  | 17852                                         | 18708         | 69406               |       |
| MADE IN U.S.A. ABB INC. ILUSBS00637N1                  |  |                                               |               |                     |       |



| CONNECTIONS               |       |                   |                           |
|---------------------------|-------|-------------------|---------------------------|
| WINDING                   | VOLTS | 22400 KVA AMPERES | TAP CHANGER POS. CONNECTS |
| HIGH VOLTAGE DELTA COPPER | 13090 | 988.0             | 1 4 TO 5                  |
|                           | 12780 | 1011.9            | 2 3 TO 5                  |
|                           | 12470 | 1037.1            | 3 TO 6                    |
|                           | 12160 | 1063.5            | 4 2 TO 6                  |
| LOW VOLTAGE WYE COPPER    | 11850 | 1091.4            | 5 2 TO 7                  |
|                           | 4160  | 3108.8            |                           |



THE OPERATING PRESSURE IS LIMITED BY THE INERTAIRE FLUID PRESERVATION SYSTEM TO BE BETWEEN 6.5 PSI POSITIVE AND 0.5 PSI POSITIVE

THE TRANSFORMER TANK IS DESIGNED TO WITHSTAND A POSITIVE OR NEGATIVE PRESSURE OF 15 LBS. PER SQUARE INCH. THE 25°C LIQUID LEVEL IS 12.76 INCHES BELOW HIGHEST MANHOLE FLANGE.

LIQUID LEVEL CHANGES .75 INCH FOR EACH 10°C CHANGE IN AVERAGE LIQUID TEMPERATURE.

THE TRANSFORMER MUST NOT BE ENERGIZED FROM ANY VOLTAGE SOURCE WHEN TAP CHANGER IS OPERATED.

SUITABLE FOR OPERATION AT OR BELOW 3300 FEET ALTITUDE AT NAMEPLATE RATING.

AT THE TIME OF SHIPMENT THIS UNIT CONTAINED LESS THAN 1 PPM OF PCBs.

5/16 INCH HOLES FOR 190-32 X 3/16 SCREW  
SIZE 6.25 INCHES X 100 INCHES AREA 62.5 SQUARE INCHES  
DISTANCE BETWEEN CENTERS OF HOLES ON LONG EDGE 9 19/32 INCH ± 1/64 ON SHORT EDGE 5 27/32 INCH ± 1/64

|   |                    |            |                    |      |                    |
|---|--------------------|------------|--------------------|------|--------------------|
| 1 | NP DRAFT. ENGINEER | DATE       | NP DRAFT. ENGINEER | DATE | NP DRAFT. ENGINEER |
|   | P. Krawczyk        | 06/24/2022 |                    |      |                    |
|   | R. Ellington       | 06/24/2022 |                    |      |                    |

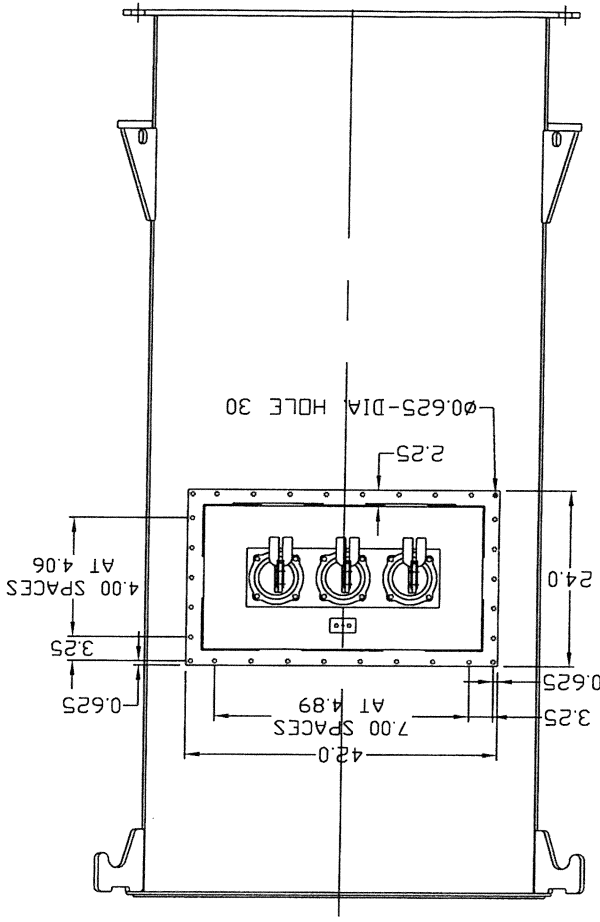
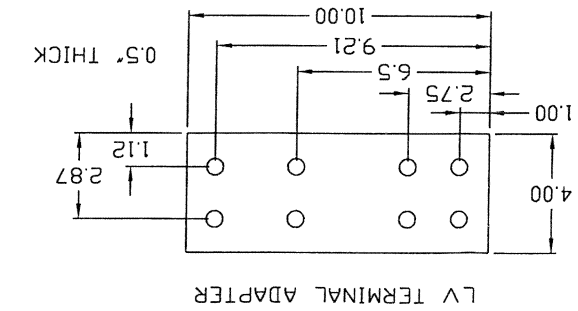
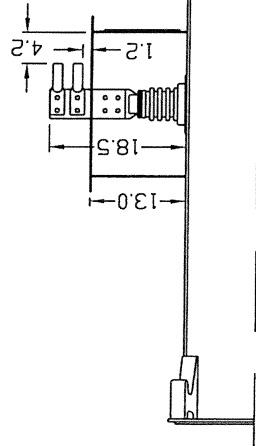
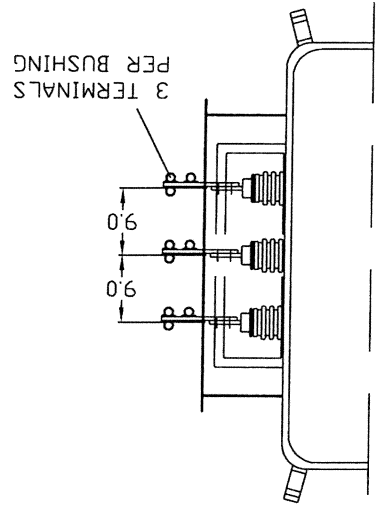
CUSTOMER NOTE: N.P. DWG. IS FOR YOUR INFO & REVIEW. THE IMPEDANCE, MANUFACTURE DATE, AND ABB SERIAL NUMBER ARE LEFT BLANK SINCE DRAWING IS SUBMITTED PRIOR TO MANUFACTURING. THE ACTUAL VALUES ARE ENGRAVED ON THE NAMEPLATE AT TIME OF SHIPMENT. THIS DRAWING IS NOT SUBSEQUENTLY REVISED TO ADD TESTED VALUES.

WORLD ENERGY RENEWABLES PROJECT  
12.47kV-4.16kV LIQUID FILLED POWER TRANSFORMER  
FLUOR PROJECT NO.: A8KM  
WORLD ENERGY, PARAMOUNT, CA

|                 |                |
|-----------------|----------------|
| BS00637001 TAG: | 18-EE-TR-1-05A |
| BS00637002 TAG: | 18-EE-TR-1-05B |
| MFR. ID         | SHOP ORDER     |
| 1LUS            | BS00637        |
| MFR. ID         | DRAWING #      |
| 1LUS            | BS00637N1      |

|                   |   |
|-------------------|---|
| CHANGE            |   |
| UPDATED DETAIL    | 1 |
| ADDED LV ADAPTER  |   |
| DETAIL            |   |
| PKRAWCZYK 8/11/23 |   |

WORLD ENERGY RENEWABLES PROJECT  
12.47KV-4.16KV  
LIQUID FILLED POWER TRANSFORMER  
FLUOR PROJECT NO: A8KM  
WORLD ENERGY, PARAMOUNT, CA  
TAG NUMBER:  
18-EE-TR-1-05A, 18-EE-TR-1-05B



THROAT HAS 27.50 X 7.82 HANDHOLE



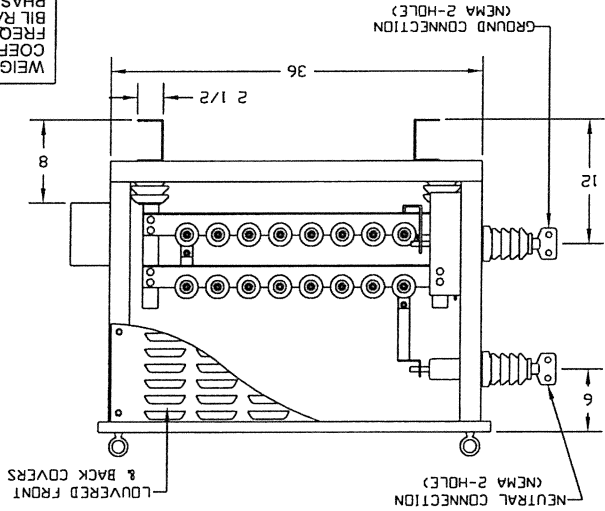
ABB INC.  
SOUTH BOSTON, VIRGINIA U.S.A.  
DETAIL NUMBER 02 - LV THROAT  
SHOP ORDER BS00637

DIMENSIONS IN INCHES - NTS

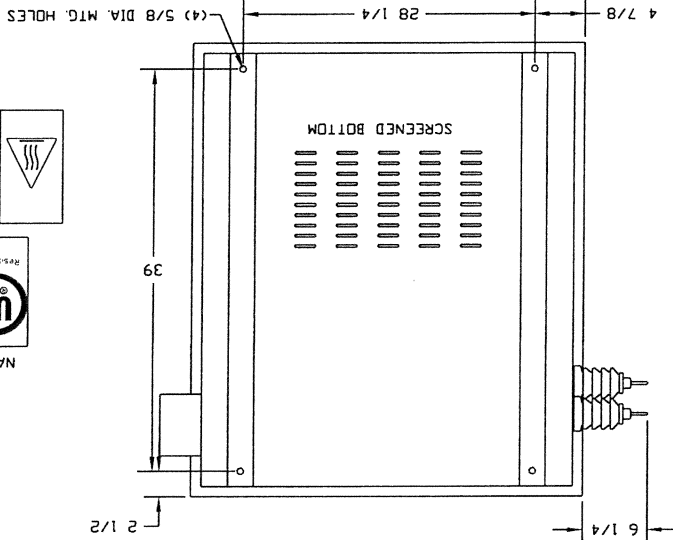
CHANGE

ABB INC.  
SOUTH BOSTON, VIRGINIA U.S.A.

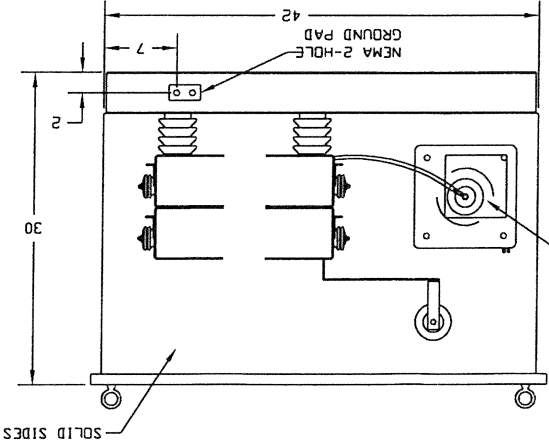
FRONT VIEW



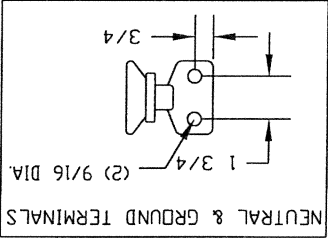
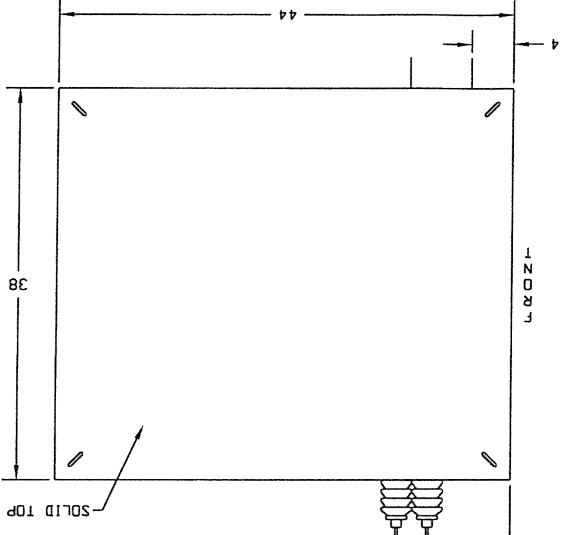
BOTTOM VIEW



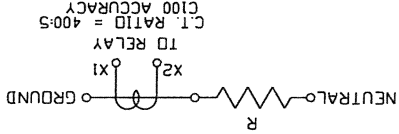
RIGHT SIDE VIEW



TOP VIEW



SCHEMATIC



APPLIED POTENTIAL TEST:  
7400 VOLTS FOR 60 SECONDS  
ON EACH SECTION

CAUTION: WHEN MOUNTING ON OR OVER A COMBUSTIBLE SURFACE,  
A FLOOD PLATE OF AT LEAST 1.43 mm GALVANIZED OR 1.6 mm  
UNCOATED STEEL EXTENDED AT LEAST 150 mm BEYOND THE  
EQUIPMENT ON ALL SIDES MUST BE INSTALLED.

DETAIL NUMBER 32  
SHOP ORDER BS00637

NEUTRAL GROUNDING RESISTOR  
SYSTEM VOLTAGE: 4160  
L-N VOLTAGE: 2400  
OHMS @ 30 $^{\circ}\text{C}$ : 6.0 +/-10%  
AMP RATING: 400  
MAX. TIME ON: 10 SEC.  
TEMP. RISE: 750 $^{\circ}\text{C}$

BILL OF MATERIAL  
ENCLOSURE KIT(1) HCP08060-1-S4  
HARDWARE KIT(1) HCP08060-1-S4  
RESISTOR(1) HCP19704-S4  
MAIN INSULATOR(4) HCP1926, 8.7KV  
BUS(3FT) HCP0314  
GROUND WIRE(3FT) HCP01153  
LUG(1) S18245, #6, S/16  
LUG(1) S18246, #6, 1/2  
BUSHING(2) HCP2265, 8.7KV  
CURRENT XFORMER(1) HCP15106, 400:5  
JUNCTION BOX(1) BN4060604CHSS  
BACK PLATE(1) HCP0310  
BUSHING(1) HCP2275  
WIRE(4FT) HCP01158  
TERMINAL BLOCK(1) HCP1317  
BANK-BANK JUMPER(1) HCP0025  
UL LABEL(1) HCP0324  
SUPPORT LABEL(1) HCP0328  
NAMEPLATE(1) HCP0828  
EQUIPMENT TAG(1) HCP0828 (BACK)

ENCLOSURE DETAIL  
304 STAINLESS STEEL  
LOUVERED COVERS  
(4) 3/8 EYEBOLTS  
NEMA 3R

WEIGHT: 450 LBS



NEUTRAL GROUNDING RESISTOR

|          |        |          |     |      |            |      |   |
|----------|--------|----------|-----|------|------------|------|---|
| DWG. NO. | P22766 | CHK'D BY | JRW | DATE | 07/06/2022 | SIZE | A |
| REV.     | 0      | REV.     |     |      |            |      |   |
| SHEET    | 1 of 1 |          |     |      |            |      |   |

GENERAL NOTES

1. ALL DIMENSIONS ARE IN INCHES.
2. UNLESS OTHERWISE NOTED:
3. SOLID TOP & SIDES, LOUVERED FRONT & BACK COVERS (REMOVABLE), SCREENED BOTTOM.
4. NEUTRAL & GROUND CONNECTIONS ARE FURNISHED WITH 1/2 INCH SS HARDWARE.

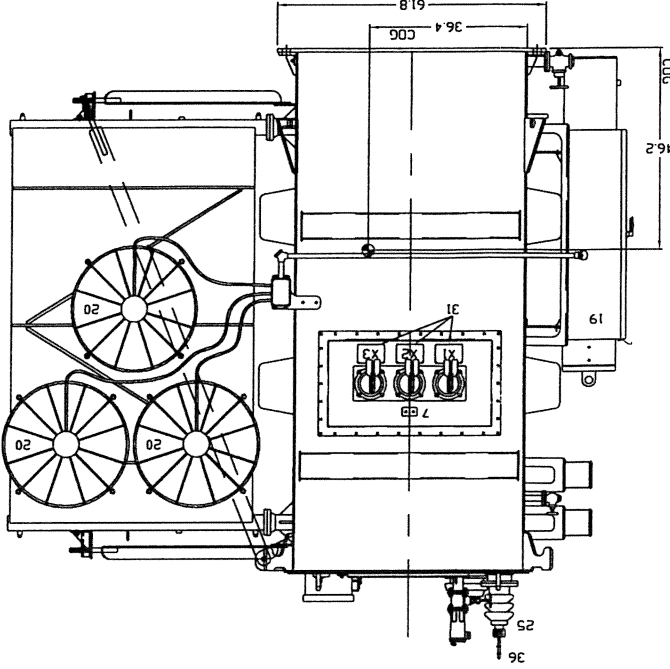
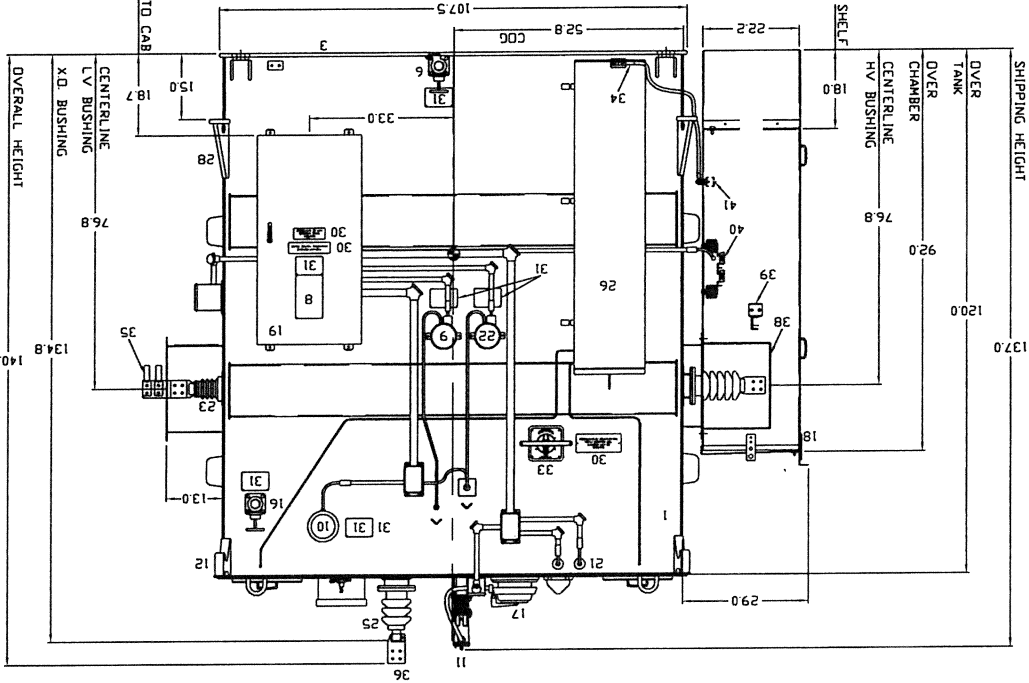
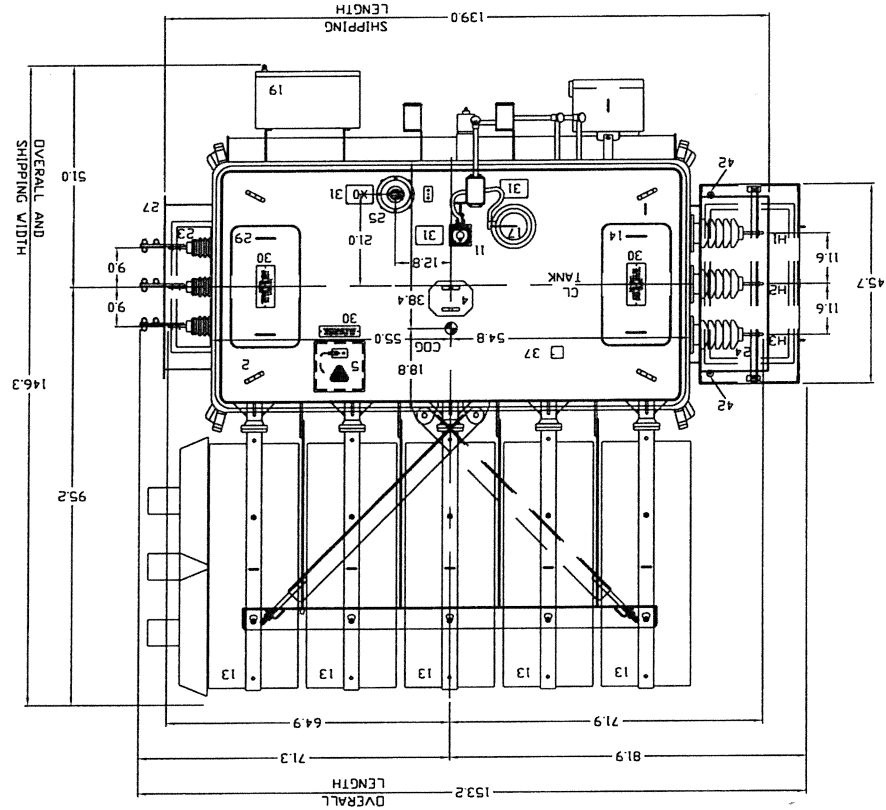
WORLD ENERGY RENEWABLES PROJECT  
LIQUID FILLED POWER TRANSFORMER  
FLUOR PROJECT NO: A8KM  
WORLD ENERGY, PARAMOUNT, CA  
TAG NUMBER:  
18-EE-TR-1-05A, 18-EE-TR-1-05B

EQUIPMENT TAG

18-EE-NGR-2-01A  
18-EE-NGR-2-01B

|                               |                    |             |                        |
|-------------------------------|--------------------|-------------|------------------------|
| NAME PLATE DATA               | DRAWING NO. P22766 | SERIAL NO.  |                        |
| SYSTEM VOLTAGE                | 4160               | L-N VOLTAGE | 2400                   |
| OHMS AT 30 $^{\circ}\text{C}$ | 6.0                | AMP         | 400                    |
| MAX TIME ON                   | 10 SEC.            | TEMP. RISE  | 760 $^{\circ}\text{C}$ |
| DATA LINE                     |                    |             |                        |

|                                        |        |    |
|----------------------------------------|--------|----|
| BS00637 1                              | CHANGE | 37 |
| UPDATED IMPACT REC.                    |        |    |
| ADDED CONDUIT FOR HVAC SPACE HEATER.   |        |    |
| ADDED NOTE FOR NGR                     |        |    |
| ADDED SPACE HEATER.                    |        |    |
| CHANGED LV BUSH                        | 2      | 35 |
| ADAPTERS PER CUSTOMER REQUEST          |        |    |
| ADDED DIMENSIONS FOR CENTER OF GRAVITY | 3      |    |
| CHANGED 4/5/2023                       |        |    |
| CHANGED RADIATOR BRACING TYPE          | 4      |    |
| ADDED BASE ANCHORING PADS/GUSSETS      |        |    |
| CHANGED LV BUSH                        | 5      | 3  |
| DESCRIPTION AND TAG INFO               |        |    |
| DELETED ITEM 15                        | 6      |    |
| MOVED TO MICARTA                       |        |    |
| TAP CHAMBER HANDLE                     |        |    |
| 9/12/2023                              |        |    |
| PKRACVZYK                              |        |    |



- NOTES:
- PAINT COLOR ANSI 70 SKY GRAY, MEETS IEEE C57.12.28
  - COVER PAINTED WITH NON-SKID SURFACE.
  - SPARE GUART CAN OF PAINT TO BE SHIPPED DETAIL.
  - UNDERCOTING OF THE TANK BASE PLUS 4" UP SIDE.
  - ALL EXTERNAL HARDWARE TO BE 316 STAINLESS STEEL
  - WITH SILICON BRONZE NUTS.
  - ALL WIRING TO BE RUN IN GALVANIZED STEEL RIGID CONDUIT
  - WITH SHORT RUNS OF FLEXIBLE CONDUIT MAX 18".
  - CENTER OF GRAVITY STENCILED.
  - STAINLESS STEEL CONDUIT BOXES REQUIRED.
  - NGR WILL BE MOUNTED REMOTELY.

|                                                                                 |  |
|---------------------------------------------------------------------------------|--|
| RENEWAL PARTS FOR OUTLINE                                                       |  |
| A SPARE SET OF ALL GASKETS AND 1 OF EACH STYLE BUSHING IS RECOMMENDED FOR STOCK |  |
| FOR PRICES CONTACT YOUR FIELD SALES OFFICE                                      |  |
| ORDER RENEWAL PARTS BY STYLE NUMBER AS FOLLOWS:                                 |  |
| STYLE NUMBER = OUTLINE NUMBER - ITEM NUMBER - QUANTITY.                         |  |
| EXAMPLE: BS0063701-24-1.                                                        |  |
| FOR GASKETS ONLY PLACE A 'G' IN FRONT OF OUTLINE NUMBER (NONE GASKET)           |  |
| EXAMPLE: GBS0063701-24-1.                                                       |  |
| EXAMPLE: GBS0063701 (ALL GASKETS)                                               |  |

WORLD ENERGY RENEWABLES PROJECT  
12.47KV-4.16KV LIQUID FILLED POWER TRANSFORMER  
FLUID PROJECT NO: A8KMM  
WORLD ENERGY, PARAMOUNT, CA  
TAG NUMBER: 18-EE-TR-1-05A, 18-EE-TR-1-05B

- ITEMS ARE REMOVED FOR SHIPMENT
- 42 GROUND BARS FOR ATC GROUND CONNECTION
  - 41 COPPER GROUND BAR FOR ATC GROUND CONNECTION
  - 40 SPACE HEATERS LOCATED INSIDE ATC, MOUNTED ON STANDOFF INSULATORS - 4 TOTAL.
  - 39 CHANNEL CABLE SUPPORT LOCATED INSIDE ATC.
  - 38 HV BUSHING SHIPPING GUARD.
  - 37 DIGITAL IMPACT RECORDER.
  - 36 X0 STUD TO SPARE ADAPTER.
  - 35 LV 750 MCM COMPRESSION TERMINALS MOUNTED ON ADAPTER, 3 PER BUSHING - 9 TOTAL.
  - 34 4/0 COMPRESSION TERMINAL FOR GROUND CONNECTIONS - 2 TOTAL.
  - 33 SPECIALTY SWITCH TAP CHANGERS 5-POSITION WITH WALL MOUNTED HANDLE.
  - 32 400A NEUTRAL GROUND RESISTOR PAD MOUNTED SEPARATELY - SEE DETAIL 32.
  - 31 316 STAINLESS STEEL ID TAGS. 18-EE-TR-1-05A, 18-EE-TR-1-05B.
  - 30 MICARTA IDENTIFICATION TAGS
  - 29 BOLTED MANHOLE - 24.00 X 12.00 OPENING, WITH NITRILE GASKET.
  - 28 JACKING PROVISIONS ON TANK FOR JACKING COMPLETE UNIT
  - 27 LV BUS DUCT THROAT DRILLED AND GASKETED - PER DETAIL 02.
  - 26 NITROGEN CYLINDER SHIPPED DETAIL.
  - 25 304 STAINLESS STEEL INERTIAL PRESERVATION SYSTEM WITH NITROGEN CYLINDER -
  - 24 HV BUSHING STYLE WABCO #41A5119-10, SEE DETAIL 25
  - 23 LV BUSHING STYLE 8012244H01, 11.60 CL TO CL - SEE DETAIL 24
  - 22 REMOTE HOT SPOT WINDING TEMPERATURE INDICATOR WITH ALARMS.
  - 21 CURRENT TRANSFORMER FEED THROUGH - 2 TOTAL.
  - 20 AIR BLAST FAN ENCLOSED IN SAFETY CAGE - 03 TOTAL.
  - 19 304 STAINLESS STEEL CONTROL CABINET NEMA 4X WITH DRIP SHIELD AND SS ENTRANCE PLATE.
  - 18 HV NEMA 3R BOTTOM ENTRANCE FREE STANDING AIR TERMINAL CHAMBER WITH PANEL HANDLES.
  - 17 RELIEF DEVICE WITH ALARMS AND SEMAPHORE, OVER A 6.50 HANDHOLE.
  - 16 20 VALVE FOR UPPER FILTER PRESS CONNECTION WITH CHAIN PLUG.
  - 14 BOLTED MANHOLE - 24.00 X 12.00 OPENING, WITH NITRILE GASKET.
  - 13 REMOVABLE NON-PAINTED GALVANIZED RADIATORS WITH SHUT-OFF VALVES - 5 TOTAL
  - 12 THE TRANSFORMER IS DESIGNED FOR LIFTING WITH 4 VERTICAL SLINGS. THIS MAY REQUIRE THE USE OF A SPREADER OR LIFTING BEAM.
  - 11 RAPID PRESSURE RISE RELAY WITH SEAL-IN-RELAY PANEL, MOUNTED ON GATE VALVE.
  - 10 MAGNETIC LIQUID LEVEL GAUGE WITH ALARM CONTACTS.
  - 9 LIQUID TEMPERATURE GAUGE WITH WARNING DECAL.
  - 8 316 STAINLESS STEEL NAMEPLATE AND WARNING DECAL.
  - 7 STAINLESS STEEL GROUND PADS - 2 HOLE NEMA DRILLING - 05 TOTAL.
  - 6 20 DRAIN VALVE/LOWER FILTER PRESS WITH .38 SAMPLE AND CHAIN PLUG.
  - 5 REMOVABLE EXTERNAL CORE GROUND LOCATED INSIDE ENCLOSURE.
  - 4 FALL ARREST MOUNTING BASE - FOR MANUFACTURING PURPOSES.
  - 3 BASE - DESIGNED FOR ROLLING PARALLEL TO CENTERLINE WITH (4) 1.81 DIAMETER WELDED COVER WITH LIFTING LOPS FOR LIFTING COVER ONLY.
  - 2 WELDED COVER WITH LIFTING LOPS FOR LIFTING COVER ONLY.
  - 1 SEALED TANK - BRACED FOR 15 PSI - COLOR ANSI 70.

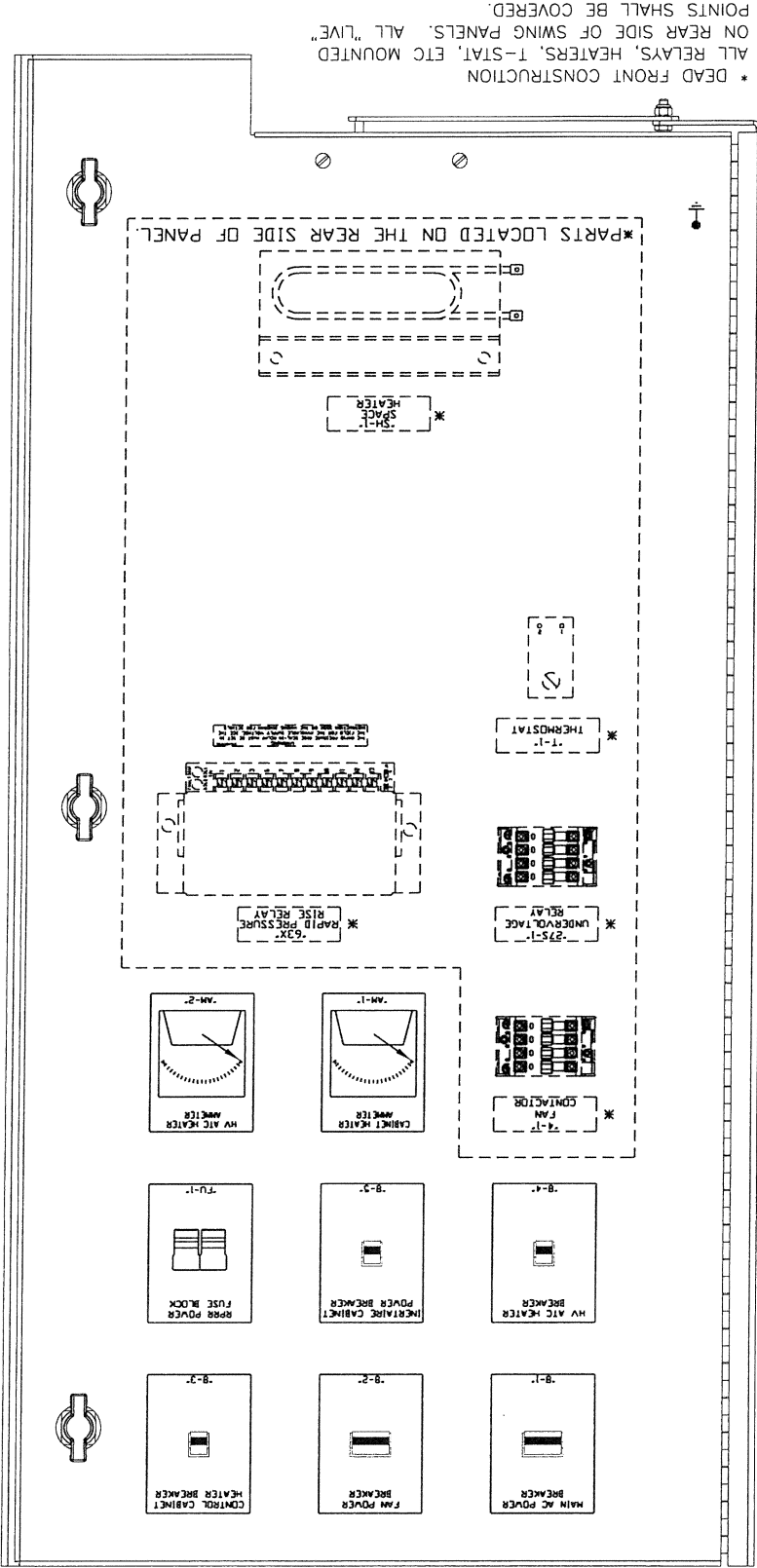
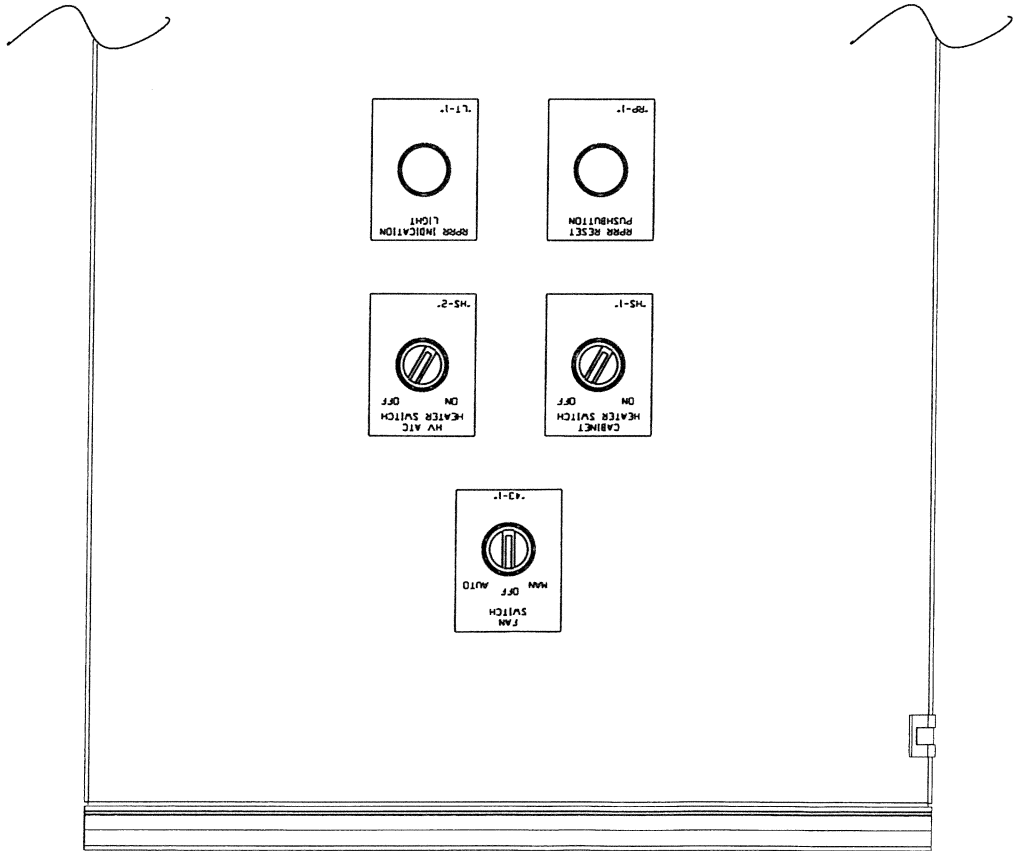
|                                                         |           |
|---------------------------------------------------------|-----------|
| APPROXIMATE NET WEIGHTS                                 |           |
| CORE AND COILS                                          | 22846 LBS |
| TANK AND FITTINGS                                       | 17852 LBS |
| LIQUID - NATURAL ESTER FLUID - 2462 GAL.                | 18708 LBS |
| TOTAL WEIGHT                                            | 69406 LBS |
| APPROXIMATE TRANSFORMER SHIPPING WEIGHT                 | 68846 LBS |
| COOLER LIQUID TOTAL                                     | 2538 LBS  |
| MAXIMUM COOLER ASSEMBLY WEIGHT EACH                     | 1821 LBS  |
| COOLER WEIGHTS ARE INCLUDED IN TANK AND FITTINGS WEIGHT |           |
| (COOLER LIQUID WEIGHT IS INCLUDED IN LIQUID WEIGHT)     |           |
| HV CHAMBER WEIGHT                                       | 560 LBS   |

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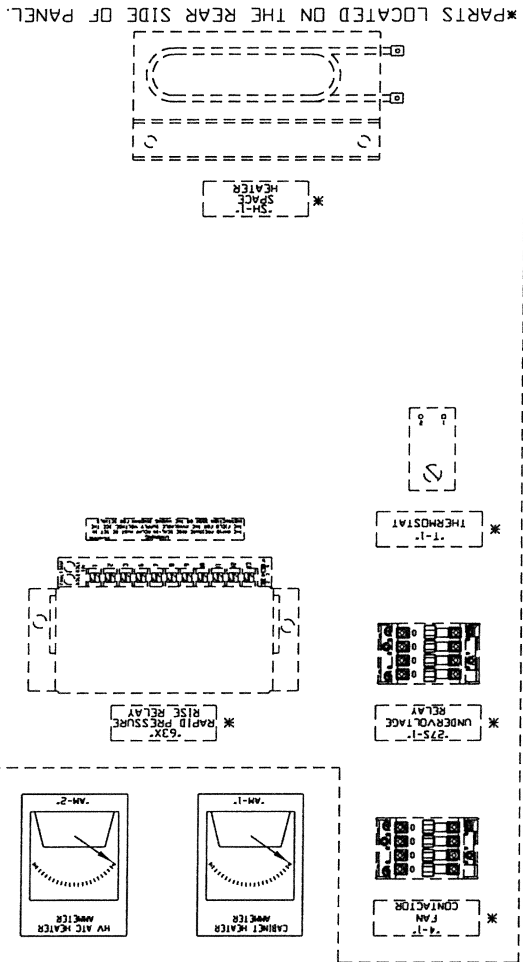
|                                                       |         |
|-------------------------------------------------------|---------|
| DESIGNATES CENTER OF GRAVITY COMPLETE                 |         |
| TEMP RISE                                             | 55° C   |
| 15000/20000                                           |         |
| 16800/22400                                           |         |
| DESIGN IMPEDANCE                                      | 6.500 % |
| HV 110 KV BIL                                         |         |
| LV 75 KV BIL                                          |         |
| APPARATUS UNIT SUBSTATION TRANSFORMER CLASS KNAM/KNAF |         |
| OUTDOOR                                               |         |
| 3 PH                                                  |         |
| 60 HERTZ                                              |         |
| 15000 KVA                                             |         |
| HV 12470-DELTA LV 4160V/2402                          |         |
| WORLD ENERGY RENEWABLES PROJECT                       |         |
| 12.47KV-4.16KV                                        |         |
| LIQUID FILLED POWER TRANSFORMER                       |         |
| FLUID PROJECT NO: A8KMM                               |         |
| WORLD ENERGY, PARAMOUNT, CA                           |         |
| TAG NUMBER: 18-EE-TR-1-05A, 18-EE-TR-1-05B            |         |
| APPD                                                  |         |
| CONSTRUCTION                                          |         |
| PC-1002                                               |         |
| ILLUS BS0063701                                       |         |
| DRAWING NUMBER                                        |         |
| 18-EE-TR-1-05A, 18-EE-TR-1-05B                        |         |

WIEGMANN CONTROL CABINET - 304L STAINLESS STEEL, RATED NEMA 4X  
48.0" H X 24.0" W X 12.0" D = OVERALL ENCLOSURE SIZE

CONTROL CABINET FRONT DOOR



\* DEAD FRONT CONSTRUCTION  
ALL RELAYS, HEATERS, T-STAT, ETC MOUNTED  
ON REAR SIDE OF SWING PANELS. ALL "LIVE"  
POINTS SHALL BE COVERED.

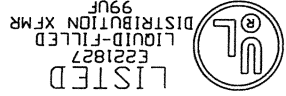


NOTE: THIS WIRING DIAGRAM MUST NOT BE USED TO DETERMINE THE EXACT  
LOCATION OF APPARATUS, WIRES OR CABLES. ALL ALARM CONTACTS SHOWN IN  
DE-ENERGIZED POSITION. ALL ALARM CONTACTS SHOWN IN NORMAL OPERATING  
CONDITION.  
THE MATERIAL SUPPLIED BY ABB INC. IS ACCORDING TO  
CONTRACT AND IS NOT MODIFIED BY ANYTHING SHOWN ON THIS DIAGRAM.

260 1 FAN CONTACT 60° C (NOT USED)  
2 FAN CONTACT 65° C (NOT USED)  
3 ALARM CONTACT 90° C  
4 TRIP CONTACT 105° C  
275-1 UNDERVOLTAGE RELAY  
FAN CONTACTOR  
4-1 FAN SWITCH  
DIAL HOT SPOT THERMOMETER  
1 FAN CONTACT 70° C  
2 AUXILIARY CONTACT 75° C (NOT USED)  
3 ALARM CONTACT 112° C  
4 TRIP CONTACT 117° C  
H HEATER  
RAPID PRESSURE RISE RELAY DEVICE  
PRESSURE RELIEF DEVICE (CONTACTS MUST BE MANUALLY RESET)  
63P  
63X-1 ALARM RELAY  
710 LIQUID LEVEL GAUGE  
1 ALARM CONTACT (LOW LEVEL)  
MAIN AC POWER BREAKER  
FAN POWER BREAKER  
CONTROL CABINET HEATER BREAKER  
HV ATC HEATER BREAKER  
INTERMEDIATE CABINET POWER BREAKER  
FAN MOTOR (WITH THERMOGUARD) 240 VAC ABSOLUTE, 1 PH, 60 HZ  
1/3 HP, FLA 16.5 A  
CABINET HEATER AMMETER  
AM-2 HV ATC HEATER AMMETER  
BREATHING/DRAIN - HOFFMAN TYPE (A/DRAIN)  
FU-1 FAN POWER FUSE BLOCK  
GRD GROUND BAR  
HS-1 CONTROL CABINET HEATER SWITCH  
HS-2 HV ATC HEATER SWITCH  
INTERMEDIATE  
E EMPTY CYLINDER ALARM CONTACT  
H HIGH PRESSURE ALARM CONTACT  
L LOW PRESSURE ALARM CONTACT  
RRR INDICATION LIGHT  
PB-1 POWER DISTRIBUTION BLOCK  
RP-1 RRR RESET PUSHBUTTON  
SH-1 SPACE HEATER - 250 WATTS (OPERATE AT 120 VAC)  
SH-2,3,4,5 SPACE HEATER - 250 WATTS (OPERATE AT 120 VAC)  
T-1 ADJUSTABLE THERMOSTAT - MOUNTED IN HV ATC  
T-2 ADJUSTABLE THERMOSTAT - MOUNTED IN HV ATC

THE EXACT NUMBER OF FANS IS 3  
CUSTOMER SUPPLY - 208/120 VAC, 3 WIRE, 1 PH, 60 HZ  
CUSTOMER SUPPLY - 125 VDC, 2 WIRE, UNGROUND  
CUSTOMER SUPPLY - SEE TABLE 3 - SHIPPED IN 125 VOLTS DC CONNECTION  
PLACE THE SHORING SCREWS IN THE FIRST AND LAST POINTS OF  
EACH SHORING BLOCK, GROUND THE LAST POINT OF EACH BLOCK FOR  
TEST AND SHIPMENT.  
FAN SHUTDOWN CONTACT - REMOVE JUMPER WHEN CONTACT IS APPLIED  
120 VAC TAKEN FROM (B) SUPPLY

\* MICARTA TAGS  
ALL DEVICES IN CONTROL CABINET MUST  
BE IDENTIFIED WITH MICARTA TAGS  
WHITE WITH 1/4" HIGH BLACK LETTERS



SHEET 1 OF 6

| CUSTOMER ID                                                                                                                            |  | EXPLANATION                                                                                                                                 |  | SCHEMATIC |  | DEVICE                                                                                                                                      |  | TRANSFORMER                                                                                                                                 |  |
|----------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------|--|-----------|--|---------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------|--|
| WORLD ENERGY RENEWABLES PROJECT<br>FLUOR PROJECT NO: A8KM<br>WORLD ENERGY, PARAMOUNT, CA<br>TAG NUMBER: 18-EE-TR-1-05A, 18-EE-TR-1-05B |  | WIRE CODE NO'S. CORRESPOND TO THOSE<br>APPEARING ON THE SCHEMATIC DIAGRAM<br>X- PLACED AT THE DEVICE TERMINAL<br>INDICATES UNUSED TERMINAL. |  |           |  | WIRE CODE NO'S. CORRESPOND TO THOSE<br>APPEARING ON THE SCHEMATIC DIAGRAM<br>X- PLACED AT THE DEVICE TERMINAL<br>INDICATES UNUSED TERMINAL. |  | WIRE CODE NO'S. CORRESPOND TO THOSE<br>APPEARING ON THE SCHEMATIC DIAGRAM<br>X- PLACED AT THE DEVICE TERMINAL<br>INDICATES UNUSED TERMINAL. |  |
| WORLD ENERGY RENEWABLES PROJECT<br>FLUOR PROJECT NO: A8KM<br>WORLD ENERGY, PARAMOUNT, CA<br>TAG NUMBER: 18-EE-TR-1-05A, 18-EE-TR-1-05B |  | WIRE CODE NO'S. CORRESPOND TO THOSE<br>APPEARING ON THE SCHEMATIC DIAGRAM<br>X- PLACED AT THE DEVICE TERMINAL<br>INDICATES UNUSED TERMINAL. |  |           |  | WIRE CODE NO'S. CORRESPOND TO THOSE<br>APPEARING ON THE SCHEMATIC DIAGRAM<br>X- PLACED AT THE DEVICE TERMINAL<br>INDICATES UNUSED TERMINAL. |  | WIRE CODE NO'S. CORRESPOND TO THOSE<br>APPEARING ON THE SCHEMATIC DIAGRAM<br>X- PLACED AT THE DEVICE TERMINAL<br>INDICATES UNUSED TERMINAL. |  |

|   |                                                         |
|---|---------------------------------------------------------|
| 1 | CHANGE                                                  |
| 2 | CHANGED CUSTOMER<br>POWER SUPPLY.<br>J. KNAAPP 2-2-2023 |
| 3 | CHANGED CUSTOMER<br>INFORMATION<br>J. KNAAPP 6-8-2023   |





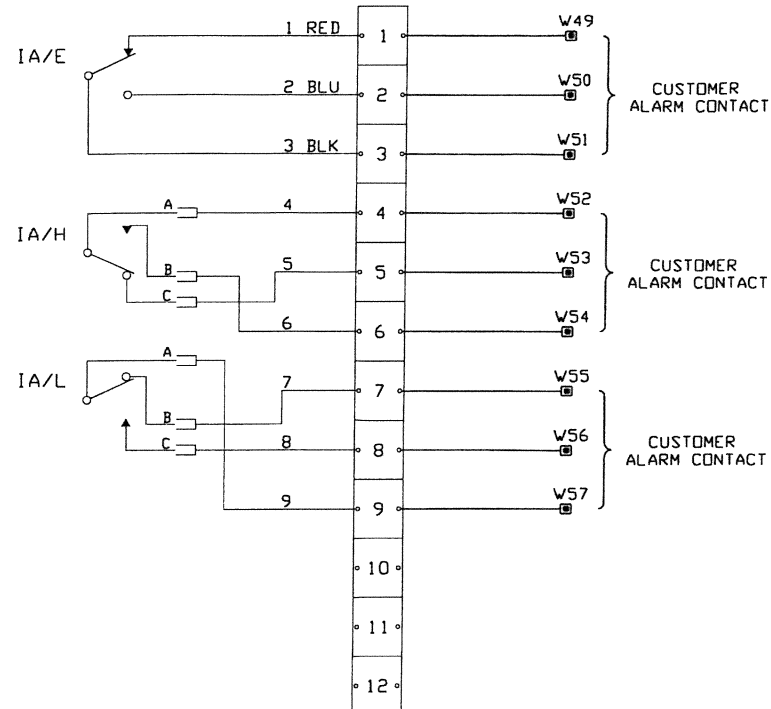


| WIRE CODE | DESTINATION |    |      |    | WIRE SIZE |
|-----------|-------------|----|------|----|-----------|
|           | FROM        | TO | FROM | TO |           |
| W49       | V           | 49 | IA   | 1  | 14        |
| W50       | V           | 50 | IA   | 2  | 14        |
| W51       | V           | 51 | IA   | 3  | 14        |
| W52       | V           | 52 | IA   | 4  | 14        |
| W53       | V           | 53 | IA   | 5  | 14        |
| W54       | V           | 54 | IA   | 6  | 14        |
| W55       | V           | 55 | IA   | 7  | 14        |
| W56       | V           | 56 | IA   | 8  | 14        |
| W57       | V           | 57 | IA   | 9  | 14        |
| TB21      | TB          | 21 | IA   | 14 | 12        |
| GRD       | GRD         |    | IA   | 15 | 12        |
| TB22      | TB          | 22 | IA   | 16 | 12        |

EMPTY CYLINDER ALARM  
<200 PSI  
SHOWN IN SETPOINT  
(NON-ALARM) STATE

HIGH PRESSURE ALARM  
>8.5 PSI  
SHOWN IN NORMAL  
(NON-ALARM) STATE

LOW PRESSURE ALARM  
<0.25 PSI  
SHOWN IN NORMAL  
(NON-ALARM) STATE



| WIRING ASSEMBLY INFORMATION FOR INERTIAIRE CABINET |      |     |          |                  |  |
|----------------------------------------------------|------|-----|----------|------------------|--|
| DEVICE NAME                                        | FROM | TO  | WIRE NO. | WIRE SIZE (AVG.) |  |
| IA/E                                               | NONE | IA  | 1        | 18-RED           |  |
| IA/E                                               | NONE | IA  | 2        | 18-BLU           |  |
| IA/E                                               | NONE | IA  | 3        | 18-BLK           |  |
| IA/H                                               | A    | IA  | 4        | 14               |  |
| IA/H                                               | C    | IA  | 5        | 14               |  |
| IA/H                                               | B    | IA  | 6        | 14               |  |
| IA/L                                               | B    | IA  | 7        | 14               |  |
| IA/L                                               | C    | IA  | 8        | 14               |  |
| IA/L                                               | A    | IA  | 9        | 14               |  |
| US                                                 | 1    | IA  | 10       | 10 14            |  |
| US                                                 | 3    | IA  | 11       | 11 14            |  |
| US                                                 | 2    | IA  | 12       | 12 14            |  |
| IA                                                 | 14   | IA  | 13       | JP               |  |
| IA                                                 | 17   | IA  | 16       | JP               |  |
| 23T                                                | BLU2 | 23T | BLK2     |                  |  |
| 23T                                                | BLU1 | IA  | 13       | 13 14            |  |
| GFR                                                | LNHT | IA  | 14       | 14 14            |  |
| GFR                                                | G    | IA  | 15       | 15 12            |  |
| GFR                                                | LNWT | IA  | 16       | 16 14            |  |
| HTR                                                | 2    | IA  | 17       | 17 14            |  |
| 23T                                                | BLK1 | HTR | 1        | 19 14            |  |
| LTS                                                | 1    | IA  | 13       | 20 14            |  |
| LT                                                 | S    | IA  | 16       | 21 14            |  |
| LT                                                 | B    | LTS | 2        | 22 14            |  |

| TABLE I<br>ALARM SWITCH RATINGS |                  |                                                   |           |
|---------------------------------|------------------|---------------------------------------------------|-----------|
| CONTACT VOLTAGE                 | MAKE (ALL LOADS) | BREAK TYPE OF LOAD FOR NO. AND NC CONTACTS (AMPS) |           |
|                                 |                  | RESISTANCE                                        | INDUCTIVE |
| 115 AC                          | 20               | 15.0                                              | 15.0      |
| 230 AC                          | 20               | 15.0                                              | 15.0      |
| 24 DC                           | 20               | 10.0                                              | 5.0       |
| 48 DC                           | 20               | 1.5                                               | 0.75      |
| 125 DC                          | 20               | 0.5                                               | 0.25      |
| 250 DC                          | 20               | 0.25                                              | 0.125     |

• L/R LESS THAN 0.026, WHERE  
L = INDUCTANCE IN HENRIES AND  
R = RESISTANCE IN OHMS

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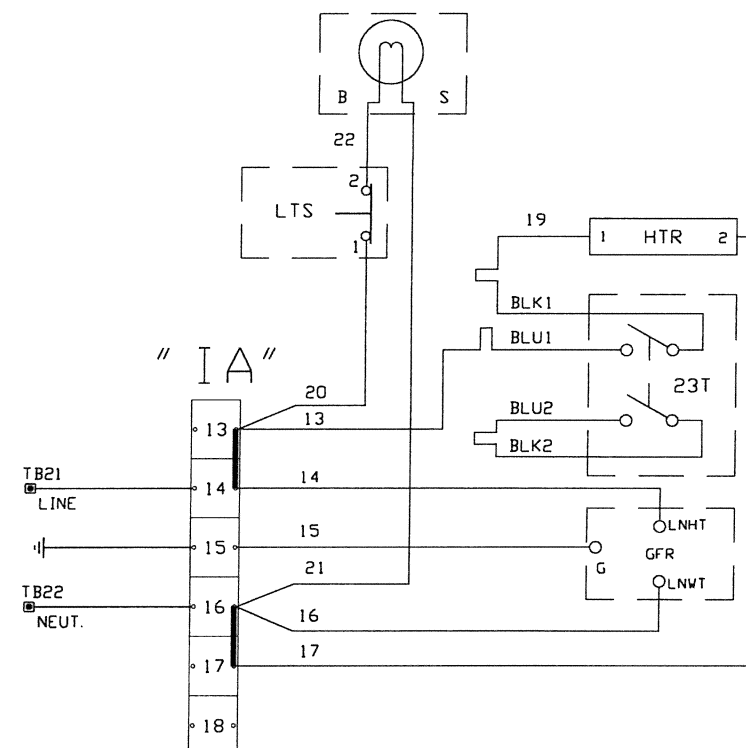
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STAY PUT  
SPRING RETURN  
NORMALLY OPEN  
NORMALLY CLOSED  
CIRCUIT BREAKER  
THERMAL ELEMENT

SWITCH CONTACT  
RELAY CONTACT  
OPERATING COIL  
DISCONNECT DEVICE  
OPERATING COIL  
CAPACITOR

TAKEN FROM  
CUSTOMER POWER SUPPLY  
120VAC, 2-WIRE  
SEE W3 DWG



SHEET 6 OF 6

1  
CHANGE

2  
CHANGED CUSTOMER  
INFORMATION:  
J. KNAPP 6-8-2023

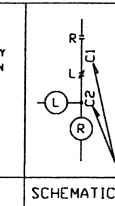
WORLD ENERGY RENEWABLES PROJECT  
12.47KV-4.16KV LIQUID FILLED POWER TRANSFORMER  
FLUOR PROJECT NO: A8KM  
WORLD ENERGY, PARAMOUNT, CA  
TAG NUMBER: 18-EE-TR-1-05A, 18-EE-TR-1-05B

CUSTOMER ID

CHARTS OF THE WIRE CONNECTIONS FOR THE PHYSICAL LAYOUT OF THE PANEL COMPARTMENT, OR GENERAL AREA TO WHICH THEIR LISTINGS APPLY ARE SHOWN EITHER ADJOINING THESE AREAS OR ON DWG. LISTED AT THE RIGHT OF THIS EXPLANATION.

WIRE CODE NO'S. CORRESPOND TO THOSE APPEARING ON THE SCHEMATIC DIAGRAM. "X" PLACED AT THE DEVICE TERMINAL INDICATES UNUSED TERMINAL.

EXPLANATION



SCHEMATIC

| WIRE CONN. ON PANEL C |      |    |      |
|-----------------------|------|----|------|
| WIRE CODE             | FROM | TO | FROM |
| 1                     | L    | S  | 4    |
| 2                     | L    | 6  | L    |
| 3                     | L    | 6  | L    |
| 4                     | L    | 6  | L    |
| 5                     | L    | 6  | L    |
| 6                     | L    | 6  | L    |
| 7                     | L    | 6  | L    |
| 8                     | L    | 6  | L    |
| 9                     | L    | 6  | L    |
| 10                    | L    | 6  | L    |
| 11                    | L    | 6  | L    |
| 12                    | L    | 6  | L    |
| 13                    | L    | 6  | L    |
| 14                    | L    | 6  | L    |
| 15                    | L    | 6  | L    |
| 16                    | L    | 6  | L    |
| 17                    | L    | 6  | L    |
| 18                    | L    | 6  | L    |

DEVICE TERM. NO.

| ABB INC. TRANSFORMER WIRING DIAGRAM |              |           |           |
|-------------------------------------|--------------|-----------|-----------|
| DATE                                | 8/10/2022    | MFR. ID   |           |
| CHKD                                |              | ILLUS     | BS00637W6 |
| APPD                                | R. Ellington | 8/10/2022 |           |
| TRANSFORMER                         |              |           |           |

