

TECHNICAL SPECIFICATIONS

OIL FILLED PADMOUNTED THREE PHASE DELTA-WYE TRANSFORMERS

I. GENERAL

This specification covers three phase wye-wye padmounted transformers and is used in conjunction with the Specifications for Distribution Transformers-General.

II. COMPONENTS

All components shall be installed in accordance with component manufacturers' instructions.

III. BUSHINGS, TERMINALS AND ACCESSORIES

- III.1. A dial indicator oil level gauge will be supplied and installed in the secondary compartment of each transformer.
- III.2. Six high voltage epoxy or nylon bushing wells with removable studs (Components 701-9185-720, GE 9U03-BRB001, Cooper B4956B94H01) suitable for receiving load break inserts to permit use on a loop feed system and eight parking brackets shall be supplied per Exhibit III All 4 kV transformers shall be equipped with 25 kV components except fuses and isolation links, as shown below.
- III.3. Six 26kV bushing inserts with drain lug including dust covers shall be supplied and installed. JEA ITEM ID "BUSWI001" as approved in the JEA Master Mater Catalog, Electric is the only units acceptable. The inserts are to be bonded to ground using a method approved by the bushing insert manufacturer. URL = <http://legacy.jea.com/bld/MaterialsCatalog/jeaecat1.pdf>.
- III.4. The Neutral low voltage bushing shall be supplied with a 6 hole NEMA spade for 500 KVA and below, the other three low voltage bushings shall be supplied with four hole NEMA spades for 500 KVA and below and 750 KVA and above units shall be supplied with 8 hole NEMA spades.
- III.5. The Neutral low voltage Bushing shall be grounded using a stranded cable or other method that does not interfere with installation of the JEA connector system using all but the last two bolt holes of the Neutral Spade.
- III.6. The three low voltage bushings shall be supplied with four hole NEMA spades for 500 KVA and below and 8 hole spades for 750 KVA and above.
- III.7. Two tank ground lugs shall be supplied and installed (Anderson GTCS-34A, Dossert TGC8-50M, ITT Blackburn TTC2, Maclean Power Systems BVC-207 or Penn-Union HGSE-020). One ground lug shall be installed in the primary compartment and one ground lug shall be installed in the secondary compartment about 17 inches below the primary bushings and about 10 inches from the compartments divider.
- III.8. The tank top shall have a 2.5 square foot removable plate for access to the bushings and fuse connections allowing entry of the upper torso inside the tank.
- III.9. Oil-drip shields shall be provided beneath the bayonet fuses to prevent oil from dripping on primary bushings. Each shield shall be constructed so that it will not interfere with the fusing operation of the transformer.. 750 KVA and larger transformers shall have a steel drip trays welded to the tank wall angling down and toward the right, close to the center divider so oil will run down the divider.
- III.10. Under-oil arrestors (GE or Cooper) with disconnect switch shall be furnished in all 4 kV padmounted transformers.
- III.11. Secondary stud supports shall be provided for all spades with 8 or more holes. The low voltage spade supports must be flush or inside the sides of the spades so as not to interfere with the mounting of the connectors used by JEA.
- III.12. A temperature gage with well and temperature sweep hand to record highest temperature reached since reset will be included (Qualitrol 150-101-01).

- III.13. Transformers shall be equipped with oil-immersed bayonet overload sensing fuse holders with RTE series or ERMCO bayonet fuses. In addition, the transformers shall also be equipped with internal oil-immersed isolation links to protect against internal transformer faults. Isolation links shall be RTE. Fuse and isolation link are to be sized in accordance with JEA Underground Distribution Standards at the following URL: <http://www.jea.com/business/services/contractor/standards.asp> by selecting "Electric Distribution Standards"; then, "Underground Electric Distribution Standards"; then, "3. 1. Fuse Coordination and Transformer Fusing" under "IV. Equipment" sub section "3. System Protection". Tables 6 through 9. Alternate suppliers to the above listed components will be evaluated for use.
- III.14. Alternate suppliers to the above listed components will be evaluated for use.
- III.15. One Load Break Switch shall be installed inside the transformer cabinet on the Primary side before the fuse (example location can be seen in EXHIBIT II).

IV. ADDITIONAL REQUIREMENTS

- IV.1. Transformers shall be labeled with the JEA ITEM ID on the outside of the transformer. The label shall be placed on the back of the transformer cabinet on the top right so as to be visually viable to our fork lift operators (primary side of the transformer). This labeling shall have a black background with yellow reflective characters and are to be made with 3M Scotchlite Sheetings (Series 3200) and 3M Ink and Toners. Individual characters or a single label may be used. Labels are to be 1" tall with 3/4" characters. Other labeling to accomplish this purchase must be approved by the Design, Construction and Material Standards department of JEA before implementation.
- IV.2. All three phase compartment doors shall be designed with a three point latch so the secondary terminals are accessible without opening the primary compartment, i.e. a deliberate action is necessary to gain access to the primary terminations.
- IV.3. JEA normal practice is to use bayonet fuses to energize and de energize Padmount Transformers when only secondary connection work is required. The removal and replacement of the bayonet fuses must be able to be accomplished with the Hot Stick in a horizontal position. Cabinet design and door height must allow for this function. This can be a problem on smaller KVA units and may require the cabinet top to be higher than it might be for other users.
- IV.4. Three 5/16" Dia. holes shall be Drilled or Punched into the Skirt of the enclosure in order to accommodate three FCI (Purchased Separately). These holes are to be capped during shipment to prevent any water leakage. The holes shall be located on the Transformer's Primary side at the top of the Skirt even with the center line of the door. (see EXHIBIT I for example location).
- IV.5. The lid of the compartment shall be a lift door that can only be opened once both front doors are in the open position. It must come with a method to keep the Lid in an open position.
- IV.6. The Compartment side panels shall not be doors, part of the front doors, or swing extension for the front doors.
- IV.7. The Spade Support Braces shall be easy to remove for maintenance. Design must be checked off by JEA Standards.

V. IMPEDANCE

Unless otherwise noted, Impedance Voltage, as measured on the rated voltage tap or connection shall be 5.75% on all classifications on KVA sizes 750 and larger. Tolerances of impedance voltage shall be + 7.5% of specified value.

VI. MOUNTING

- VI.1. Transformers shall be compatible with JEA standard concrete mounting pads. (See Exhibit IV).
- VI.2. The base of the assembly shall be provided with a suitable flange as shown on Exhibit III, to permit anchoring the unit on the pad from within the cable terminating compartments.

- VI.3. Two stainless steel hold down cleats shall be provided for bolting each transformer into place. The cleats shall be supplied for anchoring the front sill to the pad. The cleats shall be attached to the grounding lug to prevent loss during shipping.

VII. SAFETY LABELS

Bilingual Warning and Danger labels shall be in accordance with NEMA Standards Publication No. 260-1982, and shall be placed as follows:

- VII.1. A warning label shall be mounted on the outside of the latched door as close as possible to and directly above the door handle.
- VII.2. A danger label shall be mounted inside and centered on the face of the transformer directly below the primary and secondary bushings, which allows it to be viewed when the door is in the open position.

VIII. SHRUB LABEL

A Shrub Label (Almetek Industries, Inc. Catalog #7799 or Electromark Catalog #JEA021-X-SX-I13) shall be supplied and installed above the door locking handle on either the secondary or primary door next to center edge of either door.

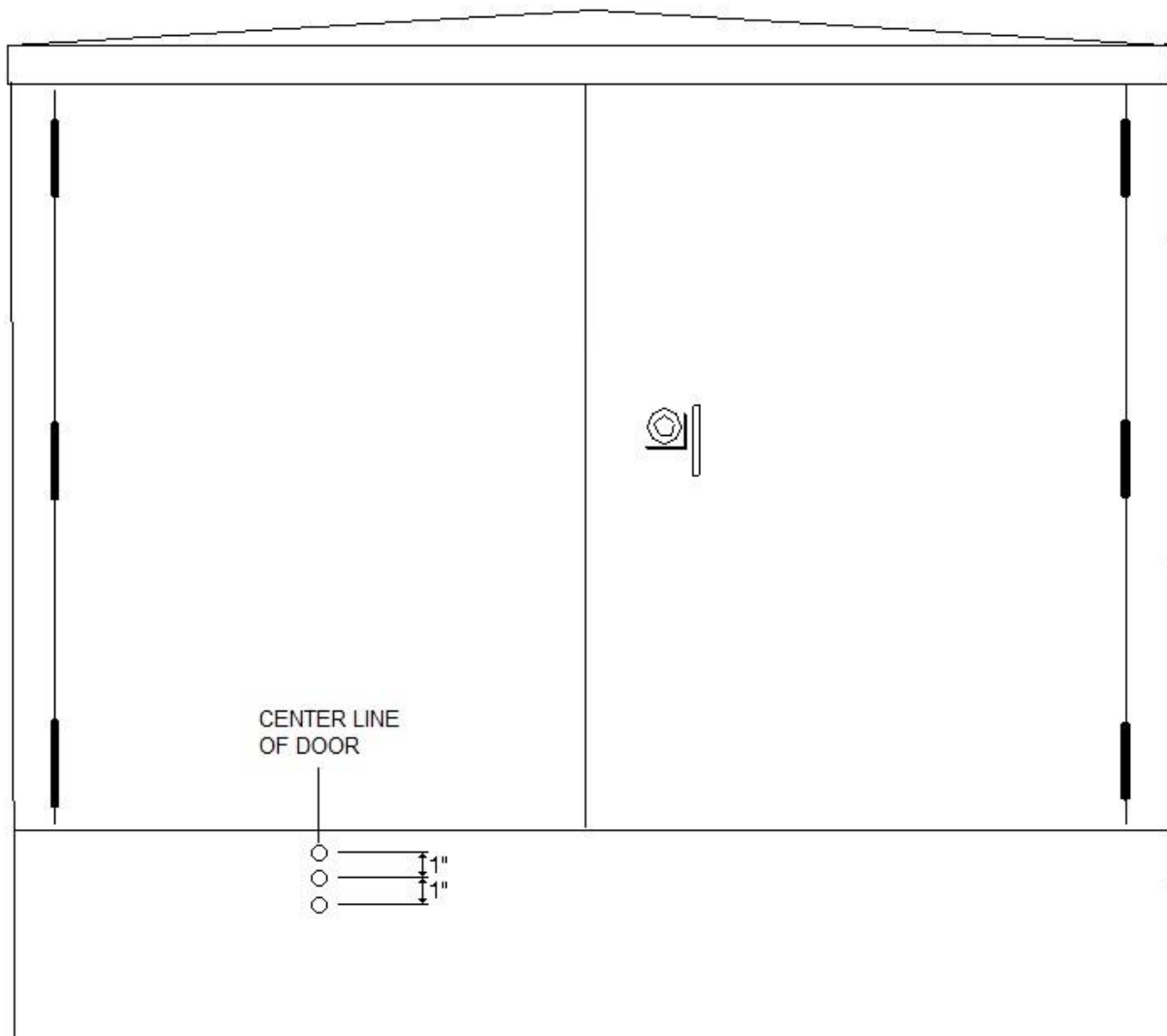
IX. RATING

The following is the "Transformer Ratings" table for primary and secondary voltages, BIL and KVA ratings of those transformers being bid:

TRANSFORMER RATINGS				
ITEM ID	KVA SIZES	PRIMARY VOLTAGE	SECONDARY VOLTAGE	BIL (KV)
TRAPA019	300	4160 Delta	480Y/277	60
TRAPC027	1000	4160 Delta	480Y/277	60 **
TRAPC030	500	13200 Delta	480Y/277	95
TRAPC026	750	13200 Delta	480Y/277	95
TRAPC031	1500	13200 Delta	480Y/277	95
TRAPC032	2500	13200 Delta	480Y/277	95 *

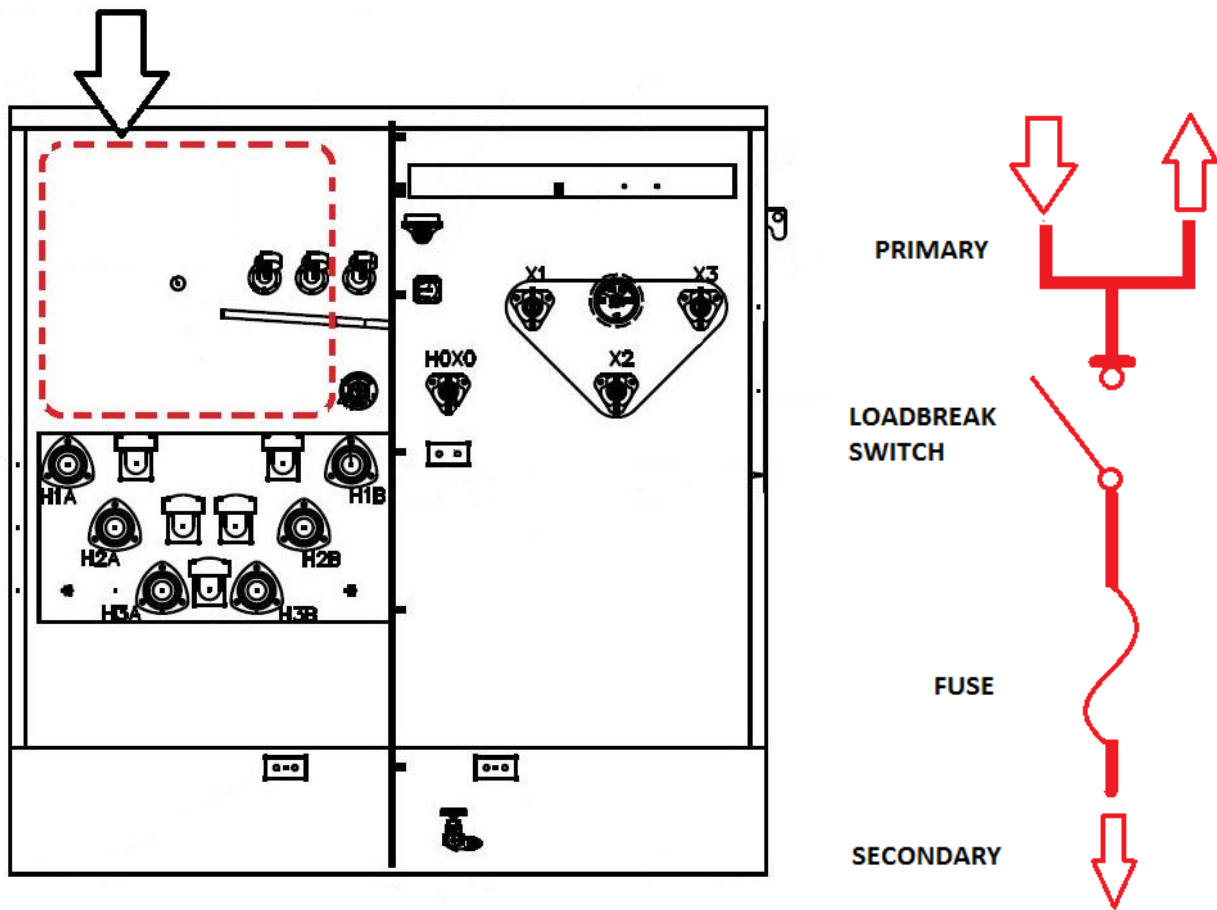
* Due to unit weight, delivery must be scheduled with the receiving location 72 hours in advance of arrival.

** The tank and cabinet will be all 304L stainless steel and the tank will be welded.



EXAMPLE LOCATION OF THE THREE 5/16" DIA. HOLES ON
THREE PHASE PADMOUNT TRANSFORMER

EXHIBIT I



EXAMPLE LOCATION OF THE LOAD BREAK SWITCH ON
A THREE PHASE PADMOUNT TRANSFORMER

EXHIBIT II

Adjustments

Date	Change	Author
7/20/17	Changed the Picture of the three 5/16" dia. hole locations on page 4	PARKTA
7/20/17	Adjusted the Hole location description in IV.4 on page 2	PARKTA
6/1/20	Added Requirement IV.5 to have Lift lids for compartment of Tx, page 2	PARKTA
6/1/20	Added Requirement IV.6 to not allow side panel swing doors, page 2	PARKTA
6/1/20	Added Requirement IV.7 Spade Brace must be JEA Standard approved page 2	PARKTA
10/26/20	Added New Section XIII. Asset Management Data	PARKTA
10/26/20	In XII and XIII Added Emails for Test and Asset Data to be sent to	PARKTA
10/29/20	Section III. Removed Reference to "Approval prior to bid opening is required"	PARKTA