

USER MANUAL

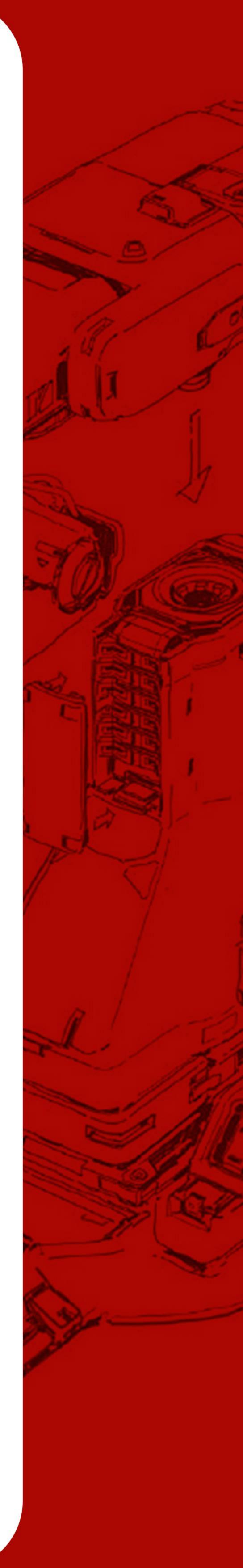
SINGLE-PHASE PAD-MOUNTED TRANSFORMER



SINCE 1993

YAWEI TRANSFORMER

For yawei transformer series distribution transformer product information call 86-18651392209





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Safety for life



Yawei Transformer series products meet or exceed all applicable industry standards relating to product safety. We actively promote safe practices in the use and maintenance of our products through our service literature, instructional training programs, and the continuous efforts of all Eaton employees involved in product design, manufacture, marketing, and service.

We strongly urge that you always follow all locally approved safety procedures and safety instructions when working around high voltage lines and equipment, and support our "Safety For Life" mission.

Safety information

The instructions in this manual are not intended as a substitute for proper training or adequate experience in the safe operation of the equipment described. Only competent technicians who are familiar with this equipment should install, operate, and service it.

A competent technician has these qualifications:

- Is thoroughly familiar with these instructions.
- Is trained in industry-accepted high and low-voltage safe operating practices and procedures.
- Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.
- Is trained in the care and use of protective equipment such as arc flash clothing, safety glasses, face shield, hard hat, rubber gloves, clampstick, hotstick, etc.

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Hazard Statement Definitions

This manual may contain four types of hazard statements:



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

A

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in equipment damage only.

Safety instructions

Following are general caution and warning statements that apply to this equipment. Additional statements, related to specific tasks and procedures, are located throughout the manual.



DANGER

Hazardous voltage. Contact with hazardous voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high-and low-voltage lines and equipment.

G103.3



WARNING

Before installing, operating, maintaining, or testing this equipment, carefully read and understand the contents of this manual. Improper operation, handling or maintenance can result in death, severe personal injury, and equipment damage.



WARNING

This equipment is not intended to protect human life. Follow all locally approved procedures and safety practices when installing or operating this equipment. Failure to comply can result in death, severe personal injury and equipment damage.



WARNING

Power distribution and transmission equipment must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures. Failure to properly select, install or maintain power distribution and transmission equipment can result in death, severe personal injury, and equipment damage.



Introduction

Yawei Transformer provides installation and maintenance instructions for its SINGLE-PHASE PAD-MOUNTED TRANSFORMER series transformers. These transformers are designed for installation on single-phase underground systems. All units are constructed for weather-exposed mounting on a concrete pad with high- and low-voltage cable entering the operating compartments through an opening in the pad.

Read this manual first

Read and understand the contents of this manual and follow all locally approved procedures and safety practices before installing or operating this equipment.

Additional information

These instructions are not intended to cover all details or variations in the equipment, procedures, or process described, nor to provide directions for meeting every possible contingency during installation, operation, or maintenance. For additional information, contact your Larson Electronics' representative.

Acceptance and initial inspection

Receiving Inspection

It is important that a thorough inspection of the transformer be made before it is unloaded from the carrier.

- 1. Ensure that *all* parts listed on the bill of lading are present.
- Before unloading the transformer, inspect for signs of damage or mishandling. Locate accessory parts that may have been shipped separately.
- 3. If damage is detected or shortages are noticed, write a brief description on the freight bill. Normally, the transformer is shipped FOB point of manufacture, and it is the customer's responsibility to file a claim against the carrier. If the transformer was shipped FOB destination, notify your Larson Electronics' representative. He or she will, with the inspector's report, take the necessary steps to file a claim against

the carrier.

WARNING

Heavy Equipment. Improper handling can cause severe injury, death, or damage to transformer. Before moving the transformer, read the handling instructions provided in this manual.

Handling

Special procedures must be followed when handling transformer in ambient temperatures below -20 °C. Contact your Larson Electronics' representative for further instructions. Failure to follow special handling procedures may cause premature failure of transformer and its components.

Transformer weight

The transformer weight is shown on the transformer nameplate. Most of the weight in a pad-mounted transformer assembly is in the main tank that holds the core and coil assembly and the insulating liquid.

Moving transformers shipped on pallets

Transformers shipped on pallets may be lifted or moved by forklift trucks of proper capacity. When using a forklift, lift with the transformer tank closest to the mast of the forklift since most of the transformer weight is in the tank. Pallet-mounted equipment may also be moved by crane or hoist.

Lifting transformers by crane or hoist

Check the weight of the transformer and the capacity and condition of all hoisting or lifting equipment. Do not use worn, frayed or damaged cables or slings. Do not use hoisting machinery with load capacity less than the weight of the transformer. Improper use of hoist or jack could seriously damage the transformer or its attachments or cause serious personal injury.

For unloading, lifting lugs are provided near the top of the transformer tank. Lifting chain or cable angles should not be over 30° from vertical. Otherwise, spreaders should be used to hold the lifting cables apart to avoid any bending of the structure or lifting lugs.

Do not attempt to lift the transformer by placing a continuous loop of chain or cable around the unit or lifting lugs. This can damage the transformer and can cause accidents resulting in serious personal injury.

If the transformer cannot be lifted by crane, it may be skidded or moved by rollers.

Using jacks

Place jacks under the tank base on the open ends of the transformer tank. Jacking pads are provided for transformers with bases greater than 6". Do not place jacks under radiators or terminal compartment frames.

When jacking a transformer for insertion of rollers underneath it, ensure that four jacks are used and that two adjacent corners are raised simultaneously and evenly to avoid warping the base. When using rollers, use as many as necessary to distribute the weight uniformly.

Do not attach pulling lines to moldings or other sheet metal parts of the transformer.



Storage

Transformers that will not be placed in service immediately should be stored with terminal compartment doors closed and sealed to prevent damage to bushings or other attachments.

Safety requirements

Before you start work

Check your supplies and equipment

Check your tools and supplies before beginning work. Make sure all needed equipment is in good working order; make sure all necessary materials are available.

While you are working

Protect yourself

Observe all safe practices and procedure regulations established by your employer. Wear all protective gear and clothing (boots, helmets, gloves, masks, goggles, safety glasses) supplied by your employer or required for safety on the job.

Follow manufacturer's instructions when installing or using any apparatus or attachments. Observe all precautions recommended in manufacturer's literature.

Handle all electrical equipment with respect. Make sure you know circuit and load current conditions before operating or servicing a system connected transformer.

Lift and move transformer with care

Before moving the transformer, check the total weight of the equipment (see nameplate) and check the condition and capacity of all lifting and hoisting equipment. When lifting the unit from above, use lifting lugs only. Do not use radiators or cooling fins for lifting. Do not use worn, frayed or damaged hooks, cables, or slings. Do not use fork lifts or cranes with load capacity less than the weight of the transformer. Do not drop the transformer from the truck.

Mount transformer securely

The transformer must be securely fastened to the mounting pad. When the transformer is bolted in place, there should be no gaps between the pad and the transformer tank base or operating compartment underframe.

When you make the system connection

Make sure multiple voltage switches and tap-changers

are in the proper position.

Make sure the tank is grounded before doing any other work

Ground the tank before making any other system connection. The transformer tank ground must be connected to a permanent, low-impedance ground.

Clean all bushings and terminals before making system connections

Clean bushings, terminal lugs, and all connection points before making connections. Remove all dirt, grease, or foreign material.

Complete the neutral connections before making other system connections

Connect all available transformer neutrals to system neutrals before completing other system connections.

Keep unused leads isolated from system wiring

Insulate all unused leads from ground and from all other leads and connections.

Observe manufacturer's instructions when installing attachments

Follow manufacturer's instructions for installing accessories or attachments. Make sure all connectors are correctly rated for the application.

Check insulating fluid level before energizing the transformer

Make sure the insulating fluid is at the proper level before the transformer is energized.

Close and lock unattended transformers

When leaving a transformer unattended, close the compartment door, secure the locking bolt and padlock the unit.

During operation

De-energize the transformer before operating non-loadbreak accessories.

Tap-changers

The transformer must be de-energized before tap-changer settings are adjusted.

Multiple voltage switches

The transformer must be de-energized before multi-voltage switch settings are changed. (Check the transformer nameplate for the correct voltage before re-energizing the unit.) Check tap-changer position before energizing a transformer with a multi-voltage switch.

WARNING

When multiple voltages switches are set to connect transformer windings in parallel, tap-changers must be in the position shown on the transformer nameplate. Tap-changers usually cannot be used to adjust voltage ratings when transformer windings are connected in parallel. Before re-energizing transformer after resetting multiple voltage switches, check tap-changer settings against nameplate information for correct voltages. Failure to have tap switch in correct position could result in equipment failure or personal injury after unit is energized.



Dry-well non-loadbreak fuseholders

A

WARNING

Failure to ground the unit prior to energizing could result in equipment failure or personal injury.

The transformer must be de-energized before a fuseholder cap is removed or installed. (Check the fuseholder before reinstallation; do not exceed the fuseholder rating.)

Internal fuses

The transformer must be de-energized before it can be opened to service internal fuses. Do not attempt to open an energized transformer.



WARNING

Do not attempt to open an energized transformer. Opening an energized unit could result in personal injury or death.



WARNING

Operate all loadbreak equipment with caution-make sure you are aware of circuit conditions; make sure you understand the purpose and function of all equipment's accessories. Wear any protective clothing or equipment required.

Bay-O-Net fuses

Read the manufacturer's instructions carefully and vent the transformer before operating a Bay-O-Net fuse holder.



WARNING

Bay-O-Net fuses are hotstick operable devices. Do not attempt insertion or removal without insulated hotstick.

Internal loadbreak switches

Internal loadbreak switches are designed to interrupt rated current only; they are not designed to interrupt fault currents. Do not exceed switch ratings.

Do not exceed transformer ratings

Transformers should be operated only at the ratings specified on the transformer nameplate. Prolonged overload operation will measurably shorten the projected service life of a mineral oil-filled transformer. Yawei Transformer series SINGLE-PHASE PAD-MOUNTED TRANSFORMER have extended life and can be operated at overload conditions while still exceeding ANSI® standard insulation life.

HANDLING AND INSTALLATION

(Caution: Do not lift double-stacked transformers by the lifting provision. A forklift truck must be used for handling by means of bottom transformer pallet.)

Transformers should be lifted by the lifting provisions only. The bolts used for banding the unit to the pallet may be used for lifting. Do not use longer bolts for lifting. The transformers must never be moved or lifted by means other than the lifting provisions provided for that purpose.

When moving a transformer on a pallet with a forklift, the forklift should be of proper capacity. Forks should be of sufficient length to extend completely through the shipping pallet. Transformers should be lifted with the tank (the compartment that contains the core/coil assembly and transformer insulating fluid) facing toward the forklift truck. It is not recommended to lift transformers with the door or the hood facing the forklift truck as it is not safe and may cause the transformer to tip and fall. Lifting an un-palletized transformer with a forklift truck may cause damage to the finish of the unit.

Do not use jacks or tackles under radiator panels if supplied. The units may be skidded in both directions. With the sill and door in place, the unit may be rolled in both directions using rolling bars. The sill of the cable compartment may be unbolted and removed. The compartment door may be removed after first bending the spring-action hinge stop. For best operation and assurance of proper electrical insulation to ground, the transformer should always be installed and maintained on a flat, level surface while energized. The transformer pad interface should not have gaps that could defeat the tamper resistance of the transformer.

Ensure that all hardware removed during installation is securely replaced in order to eliminate any openings into the cabinet or any other potentially energized area of the transformer. Check to make sure that any protective barriers are securely in place, the cabinet is completely closed, and locking provisions are installed before leaving the transformer site unattended. Maddox takes no responsibility for damages due to improper installation. The customer is solely responsible for completing all installation work in a good workmanship manner and within industry standards.

OIL

Transformers are thoroughly dried at the factory and filled with mineral oil having the minimum dielectric strength of 30 kV at 60 Hz when tested per ASTM D-877. This Mineral oil contains <2 ppm of PCBs at the time of manufacture. The transformer should never be energized unless it is filled with oil. If it should be found necessary to add to or replace the oil in the transformer, use only clean, dry oil having a minimum dielectric strength of 30 kV and <2 ppm PCBs. Before opening the transformer, sufficient time should be allowed for the transformer to come to temperature equilibrium with the air in the room to eliminate the possibility of moisture condensation from the air. The natural rubber hose should not be used in the transfer of oil.

CONNECTIONS

Refer to the transformer nameplate for the kVA rating and the permissible connections. No connections other than those shown on the nameplate should be made. None of the connections should be changed while voltage is applied to the transformer.

For three-wire low-voltage connections, the loads between the line terminals and neutral should be as nearly equal as possible. More than one-half of the rated kVA should not be applied between any one-line terminal and neutral.

Provisions are made for grounding the tank by means of tapped pads and ground connectors.



GROUNDED-WYE TRANSFORMERS

Padmount transformers normally have one end of the high-voltage winding brought out through insulated bushings and the other end of the winding connected internally to the tank. A substantial and thoroughly reliable ground connection should be made between the tank and low resistance ground through a conductor of adequate cross section. One or more external grounding pads are provided in the tank at the front of the unit. It is imperative that both the tank and the low voltage neutral be solidly and permanently grounded to the common neutral of the system before the transformer is energized. If this is not done, a high voltage may be impressed between the low voltage circuit and ground constituting a hazard to life and property. The safest procedure is to first make the ground connections, then the low voltage lines, and finally the high voltage connections. When the transformer is removed from service, all high-voltage connections (including those to protective devices) should be opened first.

PRIMARY TERMINATIONS

Primary terminations are made with shielded separable insulated cable elbow connectors, used with externally clamped bushing wells. Loadbreak or non-loadbreak bushing inserts should be used with the wells unless integrated bushings are furnished.

Bushings are provided with tabs to accept a bail, used as a positive hold down for elbows. The bail prevents accidental removal of elbow connectors under energized conditions.

When removing cables from the bushings, they may be easily transferred to an adjacent parking stand. The parking stands will accept open plug-type accessories available for loop feed, grounding or insulating the terminators during troubleshooting, sectionalizing, or maintenance. On transformers equipped with bushing wells, the bushing inserts may be changed or replaced at the installation site.

Changing inserts does not affect the transformer seal.

SECONDARY TERMINATIONS

Stud-type externally clamped bushings are used as standard. Spade terminations are available upon request. The neutral terminal consists of an insulated bushing with a ground strap connecting the bushing to ground. To avoid damaging the bushing when blade types spades are added, replaced or interchanged, first hand tighten the jam nut on the stud. Second, install the spade and back the jam nut against the spade with a wrench, locking the nut and spade together on the stud.

Quality standards

ISO 9001 certified quality management system

Pre-service inspection (exterior)

New transformers, or transformers which are being activated after a period of storage, should be thoroughly inspected before being connected to the power distribution system to identify damage which may have occurred during storage.

- The transformer exterior should be inspected for nicks, dents, and scratches. Repair damage to weatherresistant finishes promptly.
- 2. The tank cover and manhole/handhole cover seals and all gaskets or seals at bushings, gauges, fuses, operating devices, etc., should be inspected for evidence of insulating liquid seepage. Repair leaking or improperly tightened gaskets and seals before the transformer is placed in service.
- 3. Under normal conditions, the transformer leaves the factory with a slight positive pressure in the tank over the oil. However, due to changes in atmospheric conditions, the unit may arrive under vacuum (negative pressure). This is itself is not cause for concern, however continued absence of either negative or positive pressure may indicate a leak at a gasket seal or tank seam, and require further investigation. To leak test transformer, remove the pressure relief valve (see Figure 1) and pressurize the headspace to ensure that there are no leaks. The test pressure should not exceed 7 psig. The established pressure should be maintained for at least four hours to ensure that all the seals are proper.

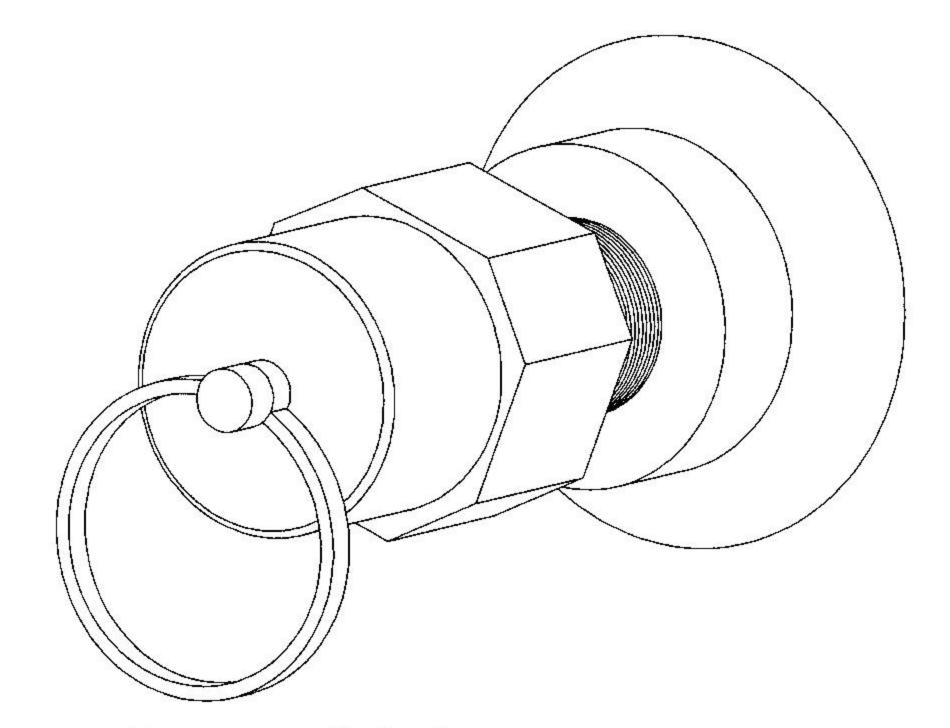


Figure 1. Pressure relief valve.



CAUTION

Elevated Pressure. Can cause severe personal injury. Do not remove liquid level plug (see Figure 2) before venting transformer to zero pressure. Pull ring on pressure relief valve to relieve pressure.

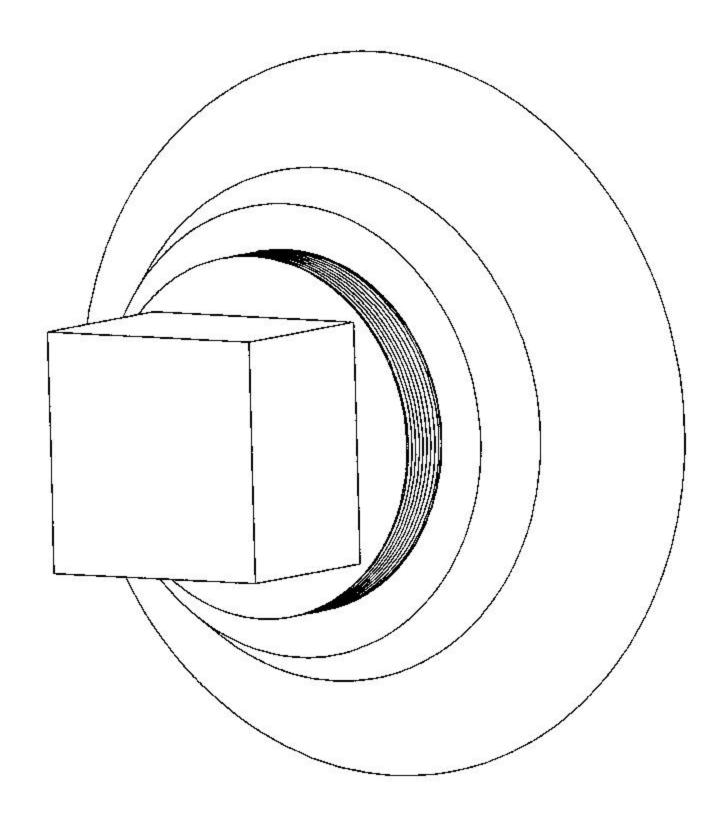


Figure 2. Liquid level plug.

4. The liquid level inside the tank must be checked (see Insulating Liquid Maintenance section of this manual). On transformers equipped with a liquid level gauge, the liquid level may be read directly from the gauge. On transformers that are not gauge equipped, the tank liquid level must be determined by removing the liquid level plug (see Figure 2). At 25 °C liquid temperature, the liquid level should be at the bottom edge of the liquid level plug hole.

If the tank temperature is greater than ambient air temperature, the transformer tank must be vented to zero pressure before the liquid level plug is removed. Failure to do so may cause hot oil to be sprayed from the plug hole and may result in severe personal injury.

WARNING

Fire Hazard. Energizing transformer in ambient temperatures below -20 °C can result in fire and cause severe personal injury or death. Contact your Larson Electronics' representative for further instructions on energizing transformer in ambient temperatures below -20 °C.

5. Special procedures must be followed when energizing a transformer in ambient temperatures below -20 °C. Contact your Larson Electronics' representative for further instructions. Failure to follow special start-up procedures may cause premature failure of the transformer and its components. Also, note warning and caution statements in **Switches and Protective Devices**

section of this manual for further precautions

when operating under-oil loadbreak accessories in insulating liquid temperatures below 0 °C.

Pre-service inspection (interior)

Pre-service interior inspection may not be required if exterior inspection reveals no evidence of damage.

CAUTION

Before opening the transformer tank for Pre-Service Inspection, read the Insulating Liquid Maintenance section in this manual. This section explains safety precautions that should be taken and gives instructions on how to prevent insulating liquid contamination.

If interior inspection is required, the transformer must be opened by removing the manhole/handhole or tank cover. See the **Tank Cover Removal and Installation** section of this manual.

Pre-service interior inspections should be restricted to noting defects or damage that may prevent proper operation of the transformer.

Inspect for:

- Moisture on underside of the tank cover or man-hole cover.
- 2. Loose, shifted, or damaged parts (bushings, fuse holders, etc.).
- Broken or loose connections.
- Contaminated insulating liquid (sediment or foreign objects on the tank bottom, dirt or air bubbles suspended in the liquid).

Internal damage

If concealed internal damage is suspected, it may be necessary to lower the insulting liquid level to complete the inspection. Refer to the **Insulating Liquid Maintenance** section of this manual.

Contaminated insulating liquid

If moisture is found inside the tank, or there is evidence that the insulating liquid may be otherwise contaminated, a liquid sample should be taken for analysis. Samples should be drawn from the bottom of the tank. For instruction on sampling the insulating liquid please see the **Insulating Liquid Maintenance** section of this manual.

If moisture is present in the liquid, the transformer must be dried out. Contact your Yawei Transformer representative for special instructions on dry-out or other decontamination processes.



External connections

WARNING

Hazardous voltage. Can cause severe injury, death, or damage to equipment. Ground transformer following industry-accepted safe grounding practices before making other electrical connections. De-energize power distribution wires that will be connected to transformer. Verify that wires are de-energized at the transformer before connecting to transformer.

Transformers that require no internal inspection or repair may be connected to the system. Transformers must be connected and operated as indicated by the transformer nameplate. Clean bushings and terminals before making connections. Remove dirt, grease or foreign material. Contamination can cause failure of the bushings.

Cables connected to the transformer terminals are to have sufficient flex to allow normal pad movement due to ground freeze/thaw and settling. Insufficient cable flex may cause premature failure of the bushings.

Ground connections

The transformer tank must be connected to a permanent, low-resistance ground. If the tank is not solidly grounded and the transformer is connected to the power distribution system, then the tank should be regarded as energized. An energized tank is extremely dangerous. Contact with an energized tank can shock, burn, or cause death.

Single-phase pad-mounted transformers are equipped with two grounding pads for making the ground connection. The pads (see Figure 3) are located on the faceplate of the transformer behind the terminal compartment doors. One pad is in the primary compartment and the other in the secondary compartment.

Grounded wye-grounded wye transformer connections

Grounded wye-grounded wye winding connection transformers are designed for power distribution systems that have a grounded neutral connector. All windings designed for grounded neutral operation must be permanently and solidly grounded to the system neutral without electrical resistance.

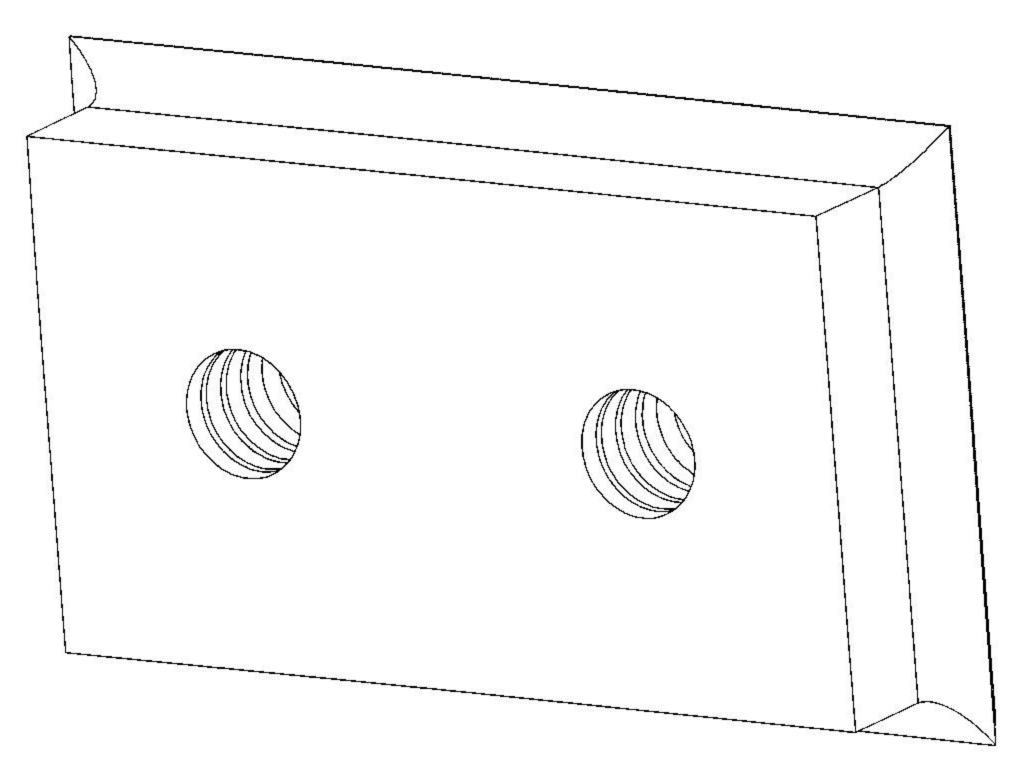


Figure 3. Grounding pad.

High voltage connections

Make connections as shown in the diagrams and information on the transformer nameplate. Transformer neutrals must be connected to system neutrals. Leads and connections that are not used must be insulated from ground and all other leads.

Livefront transformer connections

Externally clamped porcelain bushings are normally provided for high voltage connection to single-phase padmounted livefront transformers. The bushings have tinplated eyebolt terminals suitable for both copper and aluminum conductors. The bushings are positioned to allow vertical takeoff of primary cables entering from below.

Deadfront transformer connections

Deadfront single-phase pad-mounted transformers are equipped with universal bushing wells, one-piece bushings, or bushing wells with factory-installed inserts. Universal bushing wells must be field equipped with bushing well inserts before loadbreak cable connections can be made. Bushing well inserts must be compatible with the universal bushing well. Use of improperly rated inserts can cause premature failure of the transformer or its components. Read the manufacturer's instructions furnished with the inserts before installing to determine if they are compatible.

Low voltage connections

Spade terminals are the standard low voltage connectors used for single-phase pad-mounted transformers. The low voltage bushings are externally clamped to the transformer tank wall.



Maintenance

Disconnection

WARNING

The transformer MUST be de-energized before any service is performed. Working on an energized transformer is extremely dangerous—do not attempt to open or service energized equipment. Opening or servicing an energized unit could result in personal injury or death.

Exterior maintenance

Periodically inspect all exposed surfaces for evidence of tampering, battered metal, etc. Dents or deformities should be repaired at once. Scratched or weathered paint or protective coatings should be touched up promptly. Keep the area around the transformer clean. Do not store tools, materials or equipment on or against the transformer.

Inspect plugs and switches. Look for evidence of insulating fluid seepage around tank-wall gaskets, seals, etc.

Bushing removal and replacement

- 1. Disconnect all external cables and leads.
- 2. Thoroughly clean around the bushing. Remove all dirt, grease, and moisture.
- 3. Tip the transformer on its back.
- Operate the pressure relief valve to vent possible builtup internal transformer pressure.
- 5. Remove external nuts, washers, etc.
- 6. Pull the bushing away from the faceplate until the internal lead connection is exposed, then disconnect the lead.
- Install a new bushing and gasket, then reconnect the lead. The original gasket may be reused unless pinched or cut.
- 8. Center the bushing and gasket to obtain an effective seal.
- 9. Install the bushing clamp and clamp nuts, then tighten the nuts.
- 10. Tip the transformer upright and check for leaks.

CAUTION

The life of any transformer depends on the absence of moisture in the insulation. Therefore, if a transformer seal is broken for any reason, it is imperative that the transformer be kept free of moisture and resealed carefully. Excess moisture in the transformer fluid leads to accelerated breakdown of insulation and may result in equipment failure.

Handling insulating fluid

Mineral oil-filled transformers-non-PCB (<1 ppm) insulating fluid

Refer to IEEE Std C57.106[™]-1977 standard, Guide for Acceptance and Maintenance of Insulating Oil in Equipment, for additional guidelines when testing or handling insulating oil.

Envirotemp™ FR3™ fluid-filled transformers-high firepoint, non-PCB (<1 ppm) insulating fluid

For information on Envirotemp™ FR3™ fluid, refer to factory.

Contaminated insulating fluid

If moisture is found inside the tank, or there is evidence that the insulating fluid may be otherwise contaminated, a fluid sample should be taken for analysis. Samples should be drawn from the bottom of the tank through the oil fill hole on the face place. If moisture is present in the fluid, the transformer must be dried out. Contact your Eaton representative for special instructions on dry-out or other decontamination processes.

Note: Fluid samples should be taken when the unit is warmer than the surrounding air to avoid condensation of the moisture on the fluid. Samples must be drawn from the bottom of the transformer tank.

A clean and dry bottle is required. Rinse the bottle three (3) times with the fluid being sampled. Make sure fluid being sampled is representative of the fluid in the unit.

Test samples should be taken only after the fluid has settled for some time, varying from several hours to several days for a large transformer. Cold insulating fluid is much slower in settling.

Insulating fluid level

The transformer tank should be filled to the oil plug with insulating fluid. If additional fluid is needed, the following procedure should be followed:

- Use pumps and hoses that have not been contaminated by contact with dissimilar fluids. Use a metal or non-rubber hose as oil dissolves the sulfur found in rubber and will prove harmful to the conductor material.
- 2. Place the pump output line in the transformer tank through the oil fill plug hole. Be sure the hose is submerged in the tank oil to prevent aeration.



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- Use pumps and hoses that have not been contaminated by contact with dissimilar fluids. Use a metal or non-rubber hose as oil dissolves the sulfur found in rubber and will prove harmful to the conductor material.
- 2. Place the pump output line in the transformer tank through the oil fill plug hole. Be sure the hose is submerged in the tank oil to prevent aeration.

- 3. Pump from near the bottom of the storage tank. Do not permit the intake line to suck air.
- 4. Pump slowly-fill the transformer tank to the plug level. Remove the hose and insert the fill plug.
- 5. Sufficient time should be allowed between refilling and energizing of the transformer to be sure that any gas bubbles created during the process have dissipated.

Disposal

When disposing of a transformer or transformer insulating oil, follow all applicable state and federal regulations regarding the disposal of oil-filled electrical equipment.

Testing

Surge arresters

Surge arresters must be disconnected before tests are run on the transformer and should be reconnected immediately after tests are completed.



CAUTION

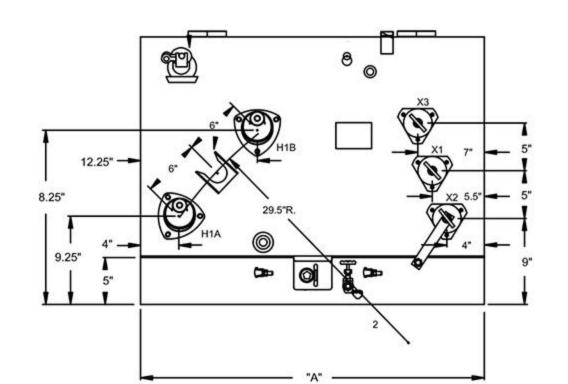
Failure to disconnect arresters during dielectric test may result in failure of the transformer upon energizing.

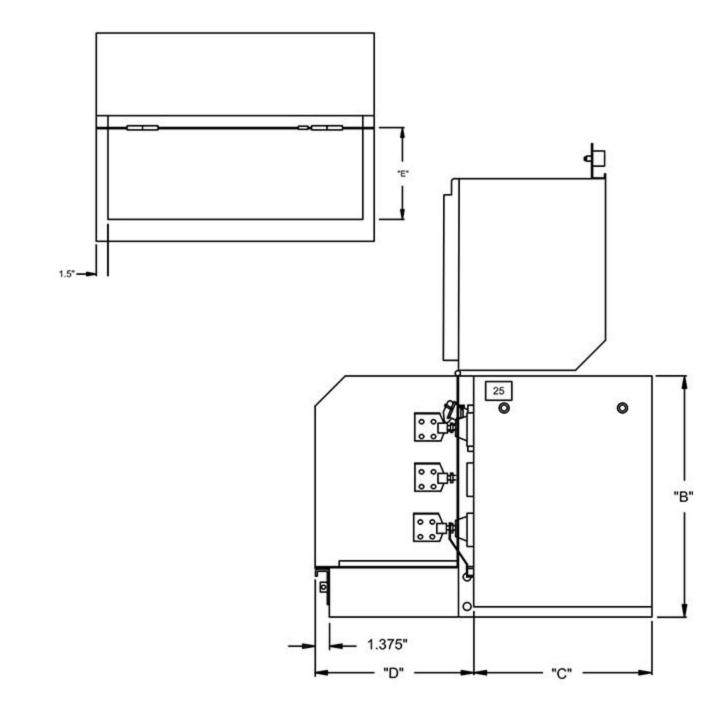
REPLACEMENT PARTS

Replacement parts are available from Maddox. While ordering parts, give a complete description of the part. Also, give the kVA, voltage, and serial number of the transformer, all of which may be found on the nameplate.

ADDITIONAL INFORMATION

Complete information on details of construction, installation, operation and maintenance can be obtained from Maddox.





USER MANUAL

SINGLE-PHASE PAD-MOUNTED TRANSFORMER



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