DESCRIPTION • INSTALLATION • MAINTENANCE

INSTRUCTIONS

SEALEDAIRE TRANSFORMERS AND EQUIPMENT

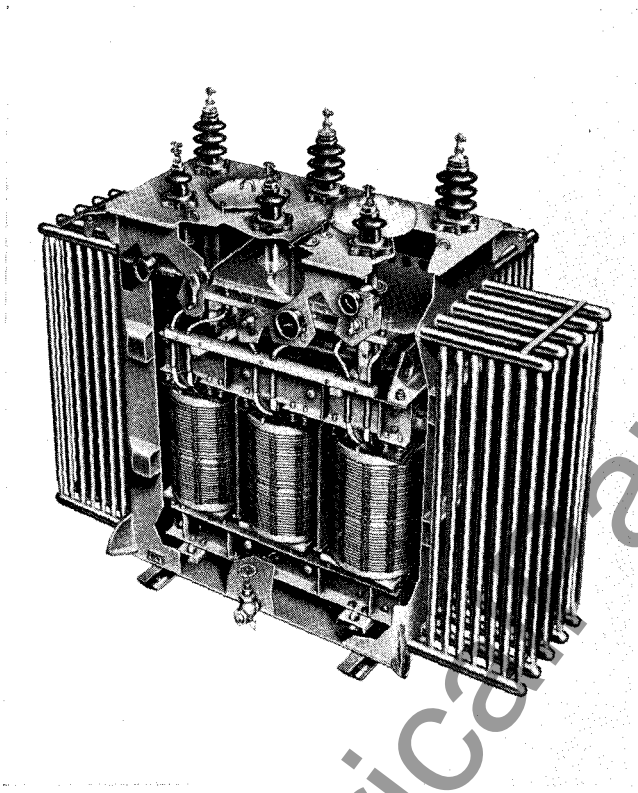

FIG. 1. Cutaway View of a Sealedaire Transformer.

SEALEDAIRE TRANSFORMERS are provided with means for preventing the deterioration of oil and insulation by the exclusion of oxygen and moisture.

These transformers have the gas space above the oil sealed to prevent breathing under normal operating conditions. All ratings are supplied with a Sealedaire relief valve assembly which is factory-set to keep the internal pressure within the limits of 6.5 or 8 pounds per square inch pressure or vacuum and a mechanical relief device which will relieve abnormal pressures.

A high degree of protection is provided against the entrance of moisture because breathing is eliminated. Sufficient gas space is provided above the liquid to allow for its expansion and contraction with temperature changes.

High acidity of the oil is prevented. Sludge, which under certain conditions is easily formed at operating temperatures when there is a continued supply of oxygen, will not be formed in Sealedaire transformers.

Hot spots in the winding are avoided since no sludge is formed to impede oil circulation in the cooling ducts.

The length of time between periodic filtering can be greatly increased with a Sealedaire transformer that has been given reasonable care and maintenance.

CONSTRUCTION

The tanks and covers used with Sealedaire transformers are designed to withstand the internal operating pressures without leaking oil or gas. The covers are either welded or bolted onto the tank and careful attention is given to the gasketing of bushings, manhole, etc., so that the transformer will remain tight in operation.

The Sealedaire relief valve assembly (Fig. 2) consists of:

1. A pressure limiting valve set at +6.5 or 8 psi and a vacuum limiting valve set at —6.5 or 8 psi.

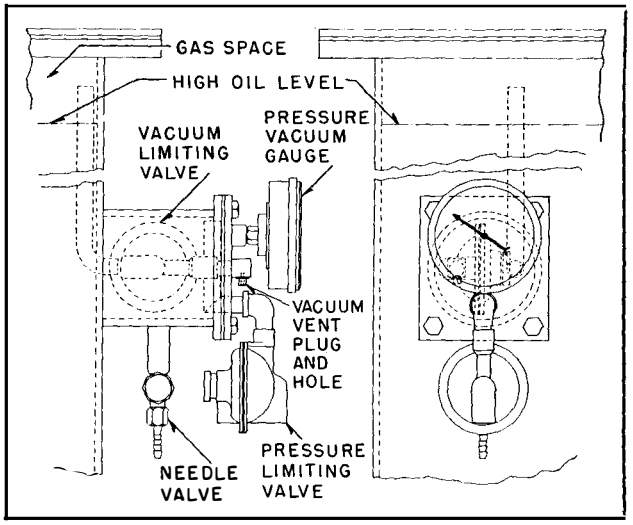

FIG. 2. Sealedaire Relief Valve Assembly.

(The exact relief setting appears on the valve as indicated in Fig. 3).

2. A needle valve which can be used to drain the oil from the Sealedaire sump after shipment and also to obtain gas samples for analysis.

3. A pressure-vacuum gauge to indicate the pressure in the gas space above the oil. The scale is calibrated in pounds-per-square-inch pressure or vacuum.

Caution: Do not paint over screen or vent and drainage hole of relief valve. See (Fig. 3) or hole in vacuum vent plug. (See Fig. 2).

The Instruction Leaflet "Mechanical Relief Device" explains the construction and operation of the mechanical relief device which is provided to relieve rapidly increasing abnormal pressures.

INSTALLATION

If the transformer arrives at the point of installation completely equipped with bushings in place so that the gas space need not be opened, it will have been prepared for operation at the factory, and, except to check the oil level, no other action is required. See Instruction Leaflet "Liquid Level Indicators".

If the transformer is opened for any reason, extreme care should be taken when closing. All openings should be properly gasketed. See Instruction Leaflet "Gaskets" for the proper method of replacing gaskets. The transformer, after checking the oil level, is then ready for operation.

Caution: If a manhole cover or a handhole cover of a Sealedaire transformer is removed, do not enter the transformer until the gas space has been opened to the atmosphere for several minutes, as the gas will not contain sufficient oxygen to sustain life.

Where facilities are available, the transformer may be sealed with any pressure above atmospheric up to the pressure limited by the pressure limiting valve.

If it is the customer's practice to purge transformers to obtain initial increased protection to the transformer, he should refer to I.L. 46-710-9 "Preparing Transformers for Operation with Nitrogen Gas" for the proper procedure.

If the gas space is not initially purged with nitrogen, it will require a short time after the initial sealing of the gas space for the gas to become inert. This time will depend upon the oil temperature. (75°C. oil temperature, about 5 days; 50°C. oil temperature, several months.)

For additional information, see the Instruction Leaflet "Installation of Transformers."

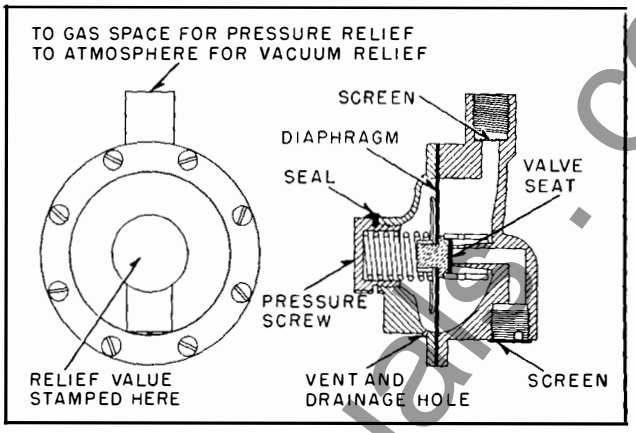

FIG. 3. Pressure-Vacuum Relief Valve.

MAINTENANCE

The Sealedaire transformer is completely tested for leaks before it leaves the factory and should require very little maintenance.

Should it be necessary to open the transformer after it has been in service, care should be exercised in its reclosing so that no leakage results. All gaskets which are damaged should be replaced according to the information given in the Instruction Leaflet "Gaskets".

Periodic readings of the pressure-vacuum gauge should be made to see that there are no gas leaks. Leaks are indicated if the pressure-vacuum gauge remains at or near zero pressure when the liquid temperature appreciably increases or decreases.

If leaks are indicated, the following method should be used to locate them.

Attach a source of dry nitrogen to the needle valve on the Sealedaire relief valve assembly (See Fig. 2). Apply nitrogen gas until the pressure on the pressure-vacuum gauge reads +6.5 or 8 psi (the test pressure should be limited by the regulating valve on the nitrogen cylinder). Coat all joints above the liquid level with a water-soap solution, and all joints below the liquid level should be wiped clean of all liquid dielectric.

If the above does not disclose any leaks, and if the pressure does not drop more than one pound in a period of six hours with the gas cylinder shut off, it can be considered that there are no leaks.

Occasionally, the needle valve, Fig. 2, should be opened when the pressure in the gas space is zero or positive to drain any oil vapor condensate which may accumulate in the Sealedaire equipment.

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