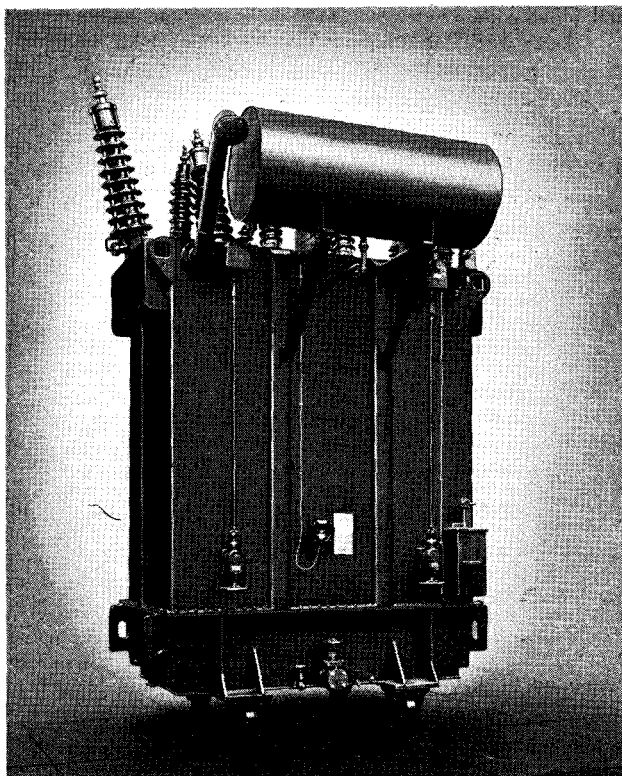




RECEIVING • INSTALLATION INSTRUCTIONS

EXPANSION TANK and ELBOW RELIEF DEVICE for Power Transformers



Expansion Tank. The expansion tank is a horizontal, cylindrical oil reservoir of steel, which, when mounted on a power transformer, allows the transformer tank to remain full of oil despite expansion or contraction of the oil with temperature changes. The expansion tank also reduces the rate of oxidation of the oil, partly because less oil surface is exposed to the air, and partly because of the reduced temperature of the oil which is exposed to air.

The expansion tank is usually installed on the low-voltage side of the transformer tank, above the level of the transformer cover on a supporting frame. The position of the installation is governed by voltage clearances to leads and bushings. A small pipe connection between the gas space in the expansion tank and the cover of the transformer tank permits the gas above the oil in the transformer to pass into the expansion tank, so that the transformer tank will be completely filled with oil.

The main connection between the transformer tank and the expansion tank is a flanged or threaded pipe. This pipe usually has a U-bend to form a trap which retards the oil circulation between the transformer tank and the expansion tank. This pipe also collects any condensate that may collect in the pipe. A drain plug at the lowest point of the U-bend permits the draining of the condensate. This pipe projects inside the expansion tank 1 to 2 inches above the bottom to reduce the circulation of oil between tanks and to prevent water condensation from flowing into the transformer tank.

At one end of the expansion tank is a sump with a sampling valve attached for draining condensation from the tank and at the other end of the tank is placed the upper filter press connection of the transformer tank. There is also a magnetic oil gauge to indicate the oil level in the expansion tank, a breather and a gasketed hand hole cover for inspection and cleaning.

The size of the expansion tank required is determined by the volume of oil in the transformer and the range of operating temperature. The normal range of temperature variation provided for is from -5°C to the maximum full load rise above a 40°C ambient. (At 25°C the expansion tank will be approximately one-third full).

Elbow Relief Device. An elbow relief device is also provided on transformers equipped with expansion tanks. This device consists of a large diameter steel pipe on the transformer cover or in the wall near the top; it is usually at an angle to the vertical, but may be vertical. The pipe, which has an elbow at its end, is of sufficient length so that the oil can rise in it to maximum level in the expansion tank without spilling over the elbow portion.

A thin glass relief diaphragm is placed at the top of the device, above the maximum oil level. This diaphragm will rupture to relieve the pressure in the tank whenever the pressure rises to the danger point. A protective hood extends past the diaphragm and prevents moisture from entering the expansion tank in case the diaphragm is accidentally ruptured.

EXPANSION TANK and ELBOW RELIEF DEVICE

RECEIVING

The expansion tank and elbow relief device are shipped assembled on the tank of smaller transformers, but are shipped separately for larger transformers.

When the expansion tank is shipped separately a blind flange or pipe cap is placed over the expansion tank pipe connection. The transformer tank is then usually filled with oil to a point a few inches below the cover.

The expansion tank, bushings and accessories are boxed or crated separately.

INSTALLATION

Before attempting to install the expansion tank, be sure to lower the oil below the level of the expansion tank connection. Then bolt the expansion tank supporting frame to the transformer tank. The

expansion tank should then be set in place and the feet bolted to the supporting frame. Figure 1 shows typical methods of supporting expansion tanks. Details of supporting frames may vary somewhat with the special requirements of different transformers.

Remove the blind flange or pipe cap over the expansion tank pipe connections and make pipe connections from the side of the expansion tank to cover of transformer, as well as from the bottom of the expansion tank to the transformer tank. The latter connection may be either a screwed connection or a flanged connection as shown in Figure 1. If it is a flanged connection, assemble the flange with necessary gasket and gasket cement; make sure the flange is tightened with uniform pressure. Use gasket cement Style Number 471880-E, which is supplied with the transformer, on gaskets and threads of all pipe connections.

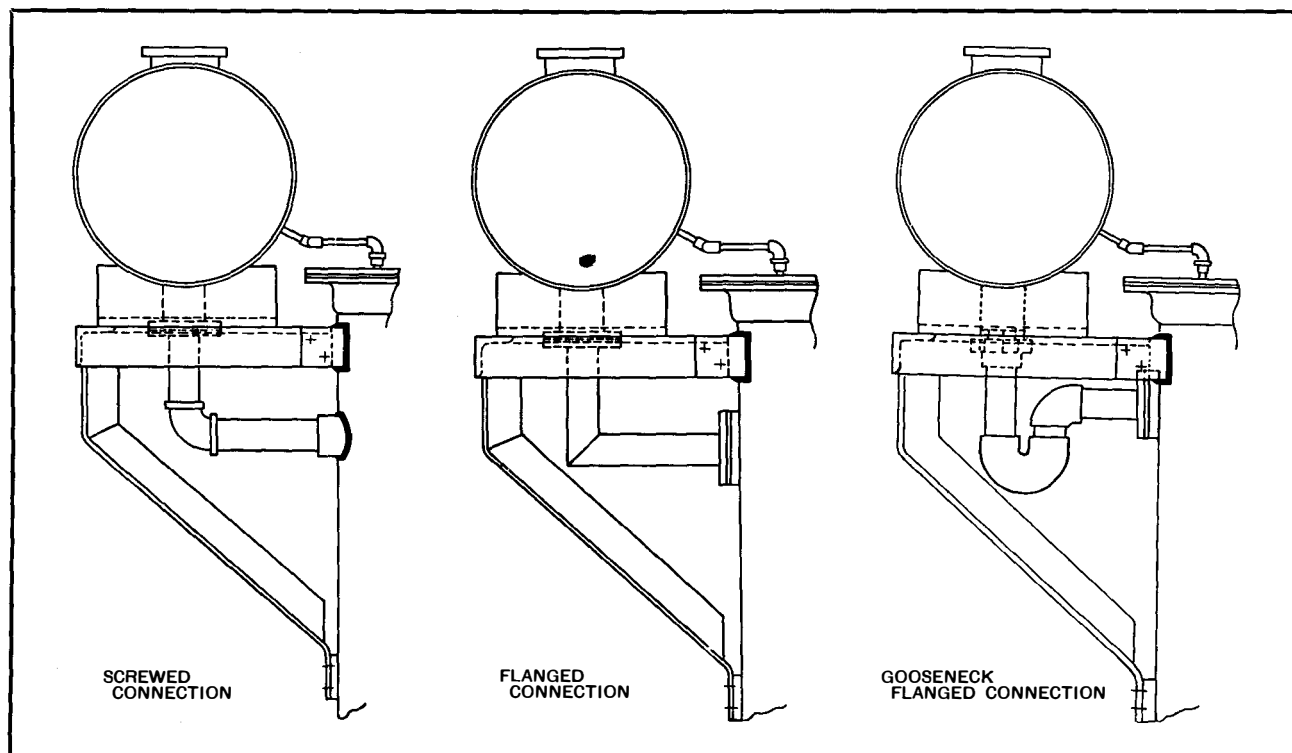


FIG. 1—Typical Expansion Tank Connections



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