Diaphragm Relief Device for Inerteen Transformers

INSTRUCTIONS

GENERAL

The Westinghouse diaphragm relief device for Inerteen Transformers consists of a sheet of glass mounted in a special manhole cover on top of the transformer case. The diaphragm ruptures at dangerous pressures, which are relieved by the blowing off of a spun aluminum hood which fits tightly over the exhaust opening or exhausting through a vent pipe. Except for replacing a ruptured diaphragm, it is only necessary to inspect the diaphragm occasionally by removing the hood or companion flange, whichever is supplied. See Fig. 1.

CONSTRUCTION

The relief device is of simple construction. It consists essentially of an annular cast alloy flange, the bottom surface of which is machined to act as a retainer for the upper diaphragm gasket and tapped to take the diaphragm clamping ring studs. The glass diaphragm, each side of which is gasketed, is held securely between the flange and clamping ring. The upper side of the main flange is machined to take either a spun aluminun hood which fits snugly over the edge or a companion flange and gasket for vent pipe connection.

The selection of a suitable material for the diaphragm is a matter of some importance. In order to be reliable it must have a uniform rupturing characteristic, under the conditions presented, in relieving abnormal pressures. It must, at the same time, be a material of sufficiently substantial nature to be handled easily without danger of accidental breakage.

Westinghouse glass diaphragms are rugged enough to be readily handled and installed without breakage if instructions are carefully followed. Glass is entirely free from aging, and the glass diaphragms are designed to break at from 12 to 18, and 16 to 22 pounds per square inch.

INSTALLATION

The relief device is shipped mounted on the transformer cover.

The diaphragm is located under the main relief device flange approximately 1¼" above the level of the transformer cover.

OPERATION

When the pressure in the tank rises above normal, the diaphragm bursts and either the hood is in turn blown off, or the gases are exhausted through a vent pipe when used, thereby relieving the pressure.

When the handhole opening is to be used for entrance into the transformer case, the outer row of bolts is removed and the complete assembly withdrawn, leaving a full-size opening in the cover.

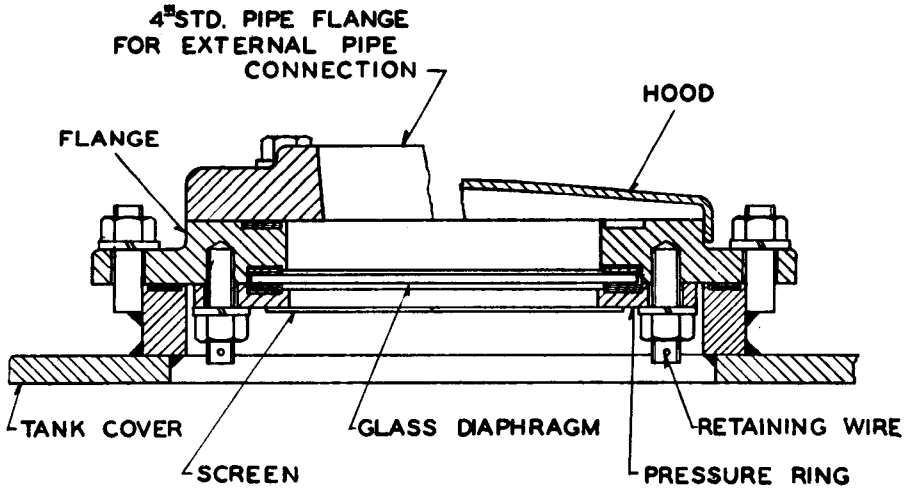
MAINTENANCE

The diaphragm may be inspected by removing the hood or companion flange. If, for any reason, the diaphragm ruptures it should be replaced at once.

In replacing a glass diaphragm, every precaution should be taken to mount it in such a way that it will be centrally located on its gaskets with uniform pressure around its edge. In order to accomplish this, the glass should be placed on the gasket next to the relief device body after the cement has become quite tacky and it should be carefully placed with maximum clearance to studs at all points. The gasket next to the relief device body should be coated on both sides and edges with red gasket cement S# 1150419 and let dry 15 minutes. Apply a second coat and assemble, wiping excess cement off the edges of the gasket. Excess cement should be kept off the diaphragms as it will affect their breaking strength. It is not necessary or desirable to use gasket cement on the gasket located between the glass and clamping ring. The studs should be tightened uniformly, turning each screw not more than ⅓ of a turn at a time until the gasket stop is reached. Thread 24 inches of # 14 soft steel wire through the lower ends of the studs and twist ends together.

RENEWAL PARTS

Spare diaphragms, gaskets, and cement should be kept on hand. A limited supply is furnished with the transformer. Gaskets should not be kept in stock more than two years. For additional parts, order from the nearest Sales Office or the Sharon Works, giving serial and stock order number of the complete transformer as stamped on the nameplate.



Nominal Diameter	Flange Gasket	Diaphragm	Thickness	Bursting Pressure	O.D.	Diaphragm Gasket
9 Inches	S# 1166385	S# 1013978	.165	12-18	6¾	S# 1064263
9 Inches	S# 1166385	S# 1075509	.185	16-22	6¾	S# 1064263

Hood S# 1165858

FIG. 1—WESTINGHOUSE PRESSURE RELIEF DEVICE SECTIONAL VIEW.

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