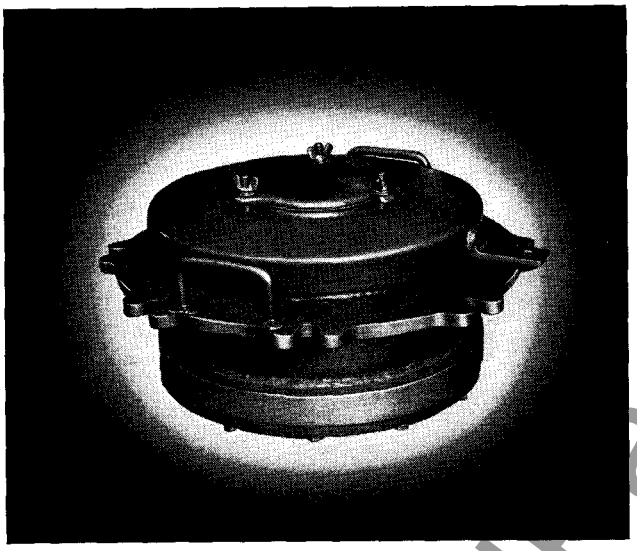
RECEIVING • OPERATION • MAINTENANCE

INSTRUCTIONS

DIAPHRAGM RELIEF DEVICE



DIAPHRAGM RELIEF DEVICES for Inertaire transformers are designed to relieve abnormal pressures which might be created by some fault under the oil which may rupture the tank unless relieved. The patented relief device consists of a sheet of glass or Micarta mounted in a special manhole cover on the top of the transformer case.

An auxiliary alarm mechanism can be provided when ordered to give a visual semaphore indication at the transformer and a distant alarm signal when the diaphragm ruptures. When the manhole cover is raised, a rod hooked in a lug on the cover is released. A spring causes the rod to project a semaphore over the edge of the cover and to close a set of alarm contacts. Refer to Instruction Leaflet on Alarm Mechanism for Diaphragm Relief Devices.

RECEIVING

The Diaphragm Relief Device is usually shipped in place on the transformer cover. Inspect the diaphragm when the entire device is removed to inspect the interior of the transformer or by removing the inspection plate on the device.

OPERATION

When gas pressure in the tank rises to an abnormal value, the diaphragm breaks and the manhole cover is raised to relieve the pressure. Guide studs welded to the underside of the cover and a spring assembly arrest the motion of the cover during this operation. (See Fig. 1). After the pressure is relieved, the spring tension and gravity return the cover to the closed position, preventing the entrance of dirt or rain. A screen below the diaphragm catches the pieces that do not blow out when rupture occurs.

The relief device is of the all welded construction. A weather-proof joint is provided between the frame and cover by means of a gasket cemented to the cover and bearing against an edge of an annular channel which is part of the frame. The gasket is protected from the weather by an overhanging rim on the cover. Holes in the bottom of the channel drain off any moisture that may accumulate.

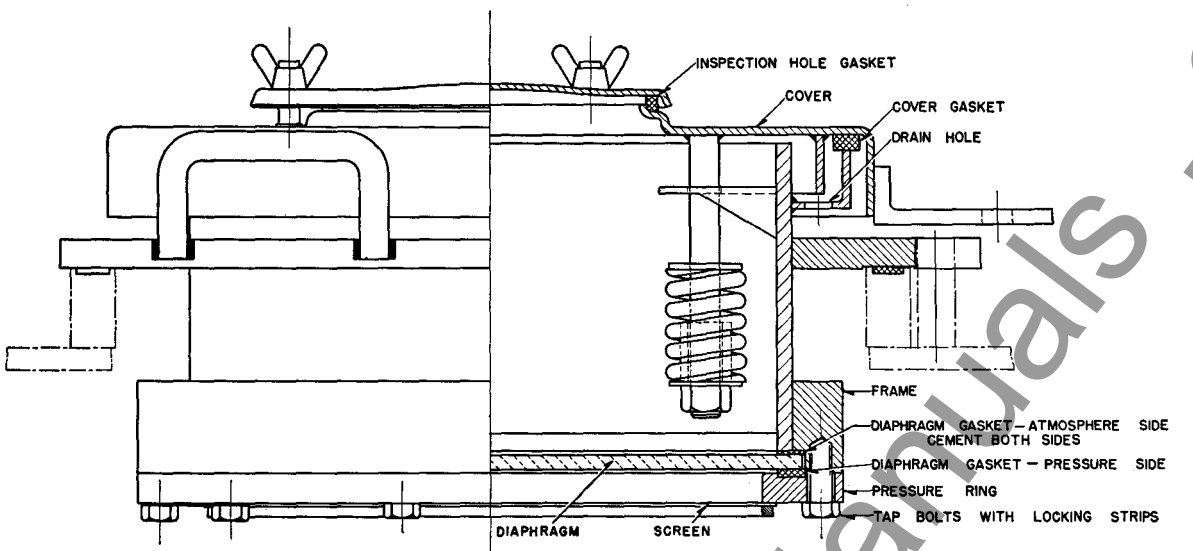
The selection of a suitable material for the diaphragm is a matter of some importance. In order to be reliable, it must have a uniform rupturing characteristic under the conditions presented in relieving abnormal pressures. It must, at the same time, be a material of sufficiently substantial nature to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

The diaphragms are rugged enough to be readily handled and installed without breaking, if instructions are carefully followed. They are designed to break at a pressure of 12 to 18 pounds per square inch.

MAINTENANCE

For inspecting the diaphragm without losing pressure in the transformer, remove the small plate on the device cover. After completing the inspection, be sure to replace the plate and tighten the wing nuts.

www.ElectricalArtManuals.com



RENEWAL PARTS

NOMINAL DIAMETER	COVER GASKET	INSPECTION GASKET	DIAPHRAGM GLASS	DIAPHRAGM MICARTA	O.D.	DIAPHRAGM GASKETS PRESSURE SIDE	DIAPHRAGM GASKETS ATMOSPHERE SIDE
9	S#1356331	S#1356332	S#1013978	S#824606	6 3/4	S#1356329	S#1356330
12 1/2	1356317	1356323	1023311	1484269	10 3/8	1356315	1356316
16	1356322	1356323	1013209	400485	13 7/8	1356324	1453511

FIG. 1 Sectional View of Diaphragm Relief Device.

To use the manhole opening for entrance into the transformer tank, remove the outer row of bolts and lift out the entire assembly.

To replace a broken diaphragm, remove the entire device from the transformer, closing the opening in the transformer cover with a plate laid on the gasket to prevent the entrance of rain or dirt. Remove the inspection plate from the device and turn it upside down on blocks or over a hole in a bench in order to reach through the inspection hole when lowering the diaphragm into place on the gasket. Release the pressure ring with screen attached and remove all pieces of broken diaphragm and old gaskets from the frame. Thoroughly clean the gasket seat before replacing the gasket.

Coat the gasket next to the relief device body on both sides and edges with red gasket cement # 7386 and allow to dry 15 minutes. Apply a second coat of cement, wipe off the excess from the edges, and put the gasket in place on the frame.

Put a diaphragm of the same material in place, locating it centrally in the frame. Keep cement off the diaphragm as it will affect the breaking strength.

Note: Scratched diaphragms have a reduced breaking strength and should not be used except in an emergency. If it is necessary to use a scratched diaphragm, install the scratched surface on the pressure side.

Clamp the diaphragm in place with the gasket indicated and the pressure ring. Do not use cement. Then tighten the tap bolts uniformly, turning each bolt not more than one-third of a turn at a time until the gasket stop is reached.

RENEWAL PARTS

Keep a supply of diaphragms, gaskets and cement on hand. A limited number is furnished with the transformer. Do not keep gaskets in stock more than two years. Order additional parts from the nearest Westinghouse Sales Office, giving serial and stock order number of the complete transformer as stamped on the name plate.

WESTINGHOUSE ELECTRIC CORPORATION
SHARON PLANT • TRANSFORMER DIVISION • SHARON, PA.
(Rep. 2-54) Printed in U.S.A.

www.ElectricalPartManuals.com