Dehydrating Breather
INSTRUCTIONS

GENERAL:

The Westinghouse Dehydrating Breather is a device which removes moisture from the air breathed into a transformer. Observation windows on the side of the case permits viewing the dehydrating substance and determining by its color when it should be replaced with dry dehydrating material.

CONSTRUCTION AND OPERATION:

The device consists of a rectangular steel container with glass observation windows near the top and bottom, a connection pipe at the top and a breather regulator at the bottom.

The container is filled with a quantity of dehydrating material which is blue in color when in the dry state. As it absorbs moisture the color changes to a whitish pink. The breather regulator consists of a modified "U" tube partially filled with Prestone. Breathing occurs only when the difference in pressure between the inside and outside of the tank exceeds approximately one pound per square inch.

The breathing regulator thus eliminates breathing for small changes in pressure and also isolates the dehydrating material from the humid atmosphere when the transformer is not breathing.

During "in breathing" of the transformer, air passes in through the air intake near the top of the breather; down through the outer leg of the regulator and up through the inner leg into the dehydrating chamber. The air then passes up through the dehydrating material which absorbs all the moisture, allowing only dry air to pass into the transformer. As the dehydrating material becomes saturated with moisture, its color changes to a whitish pink, the color change working up from the bottom.

SHIPMENT OF BREATHER:

The breather may be shipped completely installed on the tank or shipped detail. If shipped detail, the Prestone and dehydrating material is removed for shipment.

INSTALLATION:

The device is connected in the breather circuit so that any air which enters the transformer case must pass through the dehydrating material.

The breather is mounted in a vertical position on the side of the transformer tank on pads provided for that purpose and connected by a pipe to the top of the case.

To mount the device, when shipped detail, remove the breathing regulator and bolt dehydrating chamber to pads provided on tank wall. Connect pipe between top of the breather to top of transformer case. The screw joints in the pipe connections must be air tight. Unscrew the ⅛ inch pipe plug near middle of breathing regulator and pour Prestone into breather regulator until it comes out ⅛ inch pipe tap. Screw in ⅛ inch pipe plug and then screw regulater into bottom of the dehydrating chamber.

Remove 1 inch pipe plug in top of dehydrating chamber and fill chamber with dry dehydrating material. Use a high temperature grease on the screw joints to prevent rust and permit the parts to be readily removed when necessary.

MAINTENANCE:

The quantity of dehydrating material in the breather is sufficient to last from six months to a year before drying is required. This time depends upon the size of the transformer, the load cycle of the transformer and the atmospheric conditions. It is recommended that the color of the material behind the lower window be checked frequently at first to determine the approximate length of time that the breather will operate on the particular transformer.

When the whitish pink color begins to appear in the lower part of the top observation window, it is an indication that the dehydrating material should be changed or dried out in the near future.

A recommended method is to have a second charge of dry dehydrating material kept on hand in a sealed container. Then it is only necessary to remove the damp material and replace it with dry material. The damp material removed can be dried out and stored for the next change.

To replace the charge, remove the lower observation window and catch the material as it flows out of the window opening. Replace the window and pour the dry charge in through the 1 pipe tap at the top of the container.

The damp material should be placed in an open pan and dried at a temperature of between 150°C and 200°C for about 2 hours. When dry the material is blue in color. The initial change in color should not be considered as complete reactivation. Since the particles dry from the outside toward the center, the outer surface changes color first. During reactivation the temperature of the material is nearly constant at a value less than the temperature of the oven. As the reactivation approaches completion the temperature of the material rises rapidly toward final temperature.

Two dehydrating materials are available for use in these devices. They are cobalt chloride impregnated silica gel 4 to 8 mesh obtained from the Davison Chemical Corporation, Baltimore, Maryland and activated alumina "grade E", 4 to 8 mesh, obtained from Aluminum Company of America.

RENEWAL PARTS

Renewal parts should be ordered from the nearest Westinghouse Electric and Mfg. Co. office or directly from the Sharon, Pa., Works, giving serial and stock order number as stamped on the transformer nameplate.

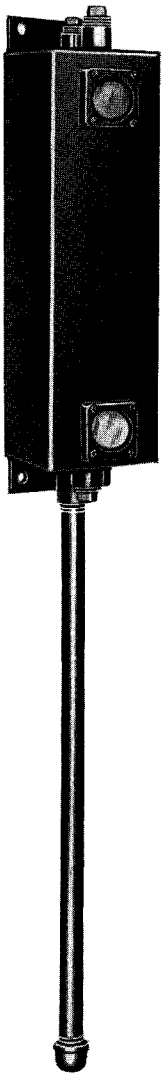

FIG. 1—BREATHER COMPLETELY ASSEMBLED

DEHYDRATING BREATHER—Continued

INSTRUCTIONS—Continued

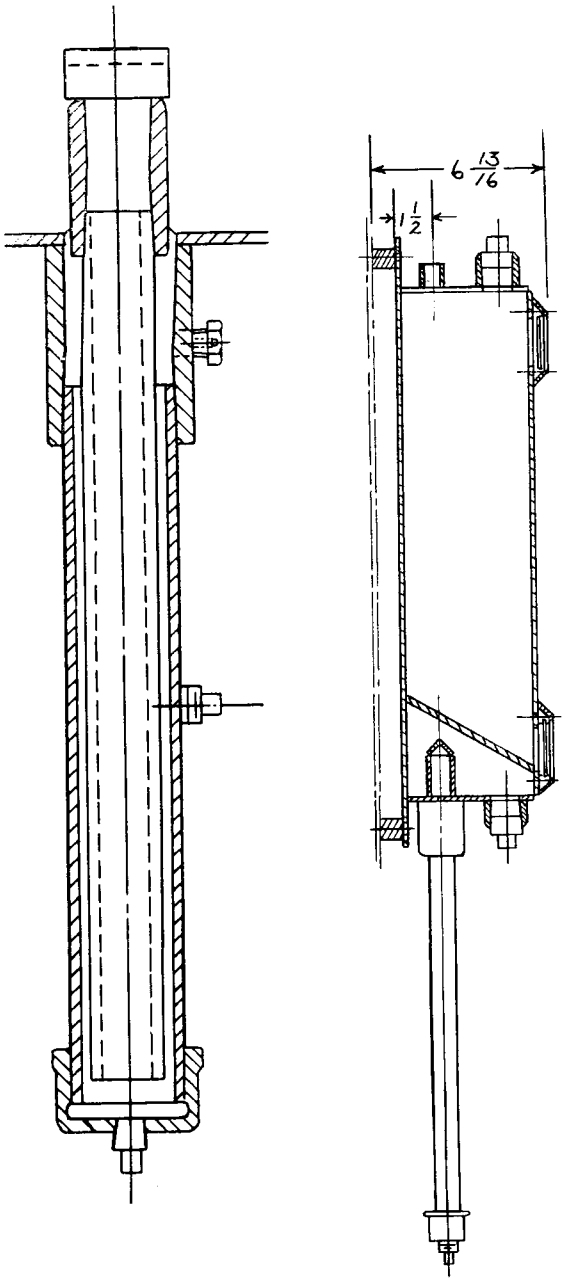

FIG. 2—SECTIONS THROUGH BREATHING AND DEHYDRATING CHAMBER

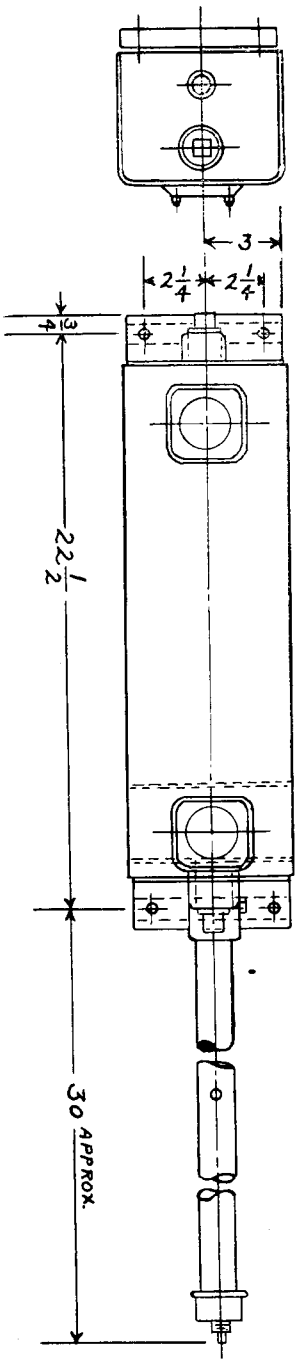

FIG. 3—OUTLINE OF BREATHER COMPLETELY ASSEMBLED

Westinghouse Electric & Manufacturing Company
Sharon, Pa.

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