DESCRIPTION • SHIPMENT

INSTRUCTIONS

TEMPERATURE INDICATOR

Hottest Spot Dial Type

Non-Submersible **Remote Indicating**

DESCRIPTION

The **WESTINGHOUSE NON-SUBMERSIBLE TEMPERATURE INDICATOR IS A DIAL TYPE INSTRUMENT**: It consists of a bourdon gauge connected through a capillary tube to a thermometer bulb. The heating coil and thermometer bulb are located in a well of thin wall construction. The well bolts on to a flange on the tank wall, making an oil tight connection. The thermometer bulb or the heating coil can be removed from the well in the tank wall without the loss of liquid and without lowering the oil level. The portion of the capillary tube outside of the transformer from the gauge to where it enters the tank is protected by a flexible covering. The long flexible capillary tube of the distant type thermometer permits mounting the gauge on the side of the tank at eye level. This capillary tube should be installed so that long bends or spans are not free to vibrate and very sharp bends should be avoided. These conditions could cause failure of the tube.

Note: Do not fill the well with a solid or liquid before inserting the stem of the indicator since this may damage the instrument without appreciably helping in the transfer of heat from the heating coil to the sensitive element.

The dial is calibrated in degrees centigrade and is easily read because of the contrasting black face with yellow characters, graduations and indicating points.

A red maximum indicating pointer indicates the maximum temperature reached since it was last

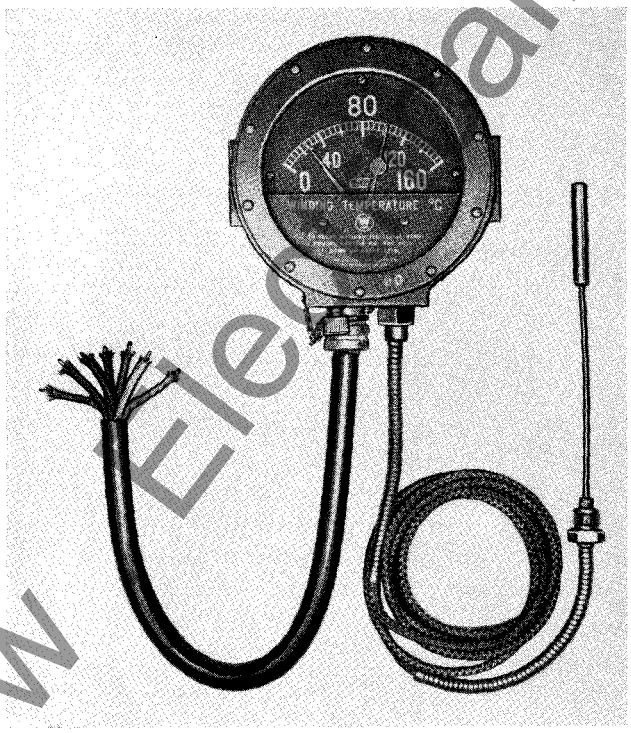

FIG. 1. Front View of Indicator with Flexible Tube for Distant Mounting

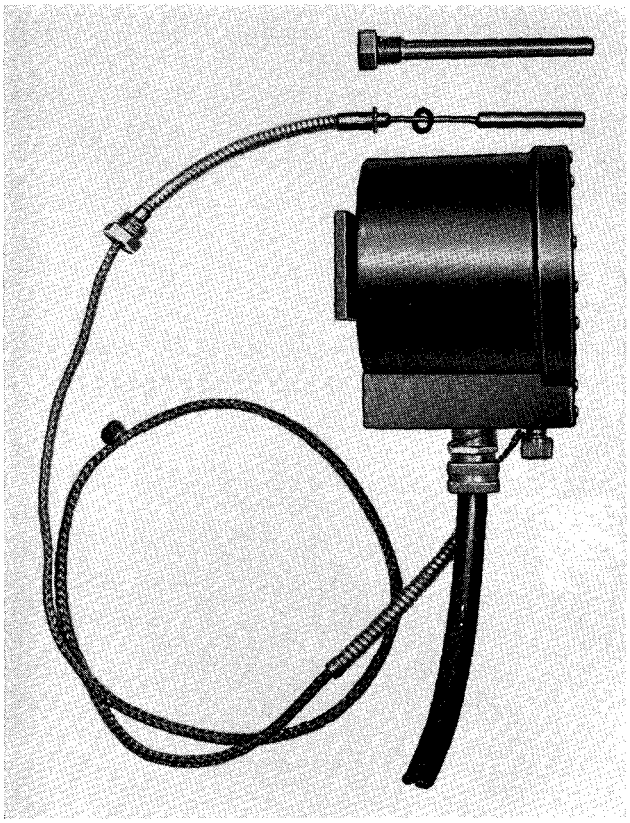

FIG. 2. Side View of Indicator with Flexible Tube for Distant Mounting

reset. This hand is easily reset by removing the screw at the bottom of the indicator and pulling down on the reset stem. The method of resetting the maximum indicating pointer is shown in Fig. 3.

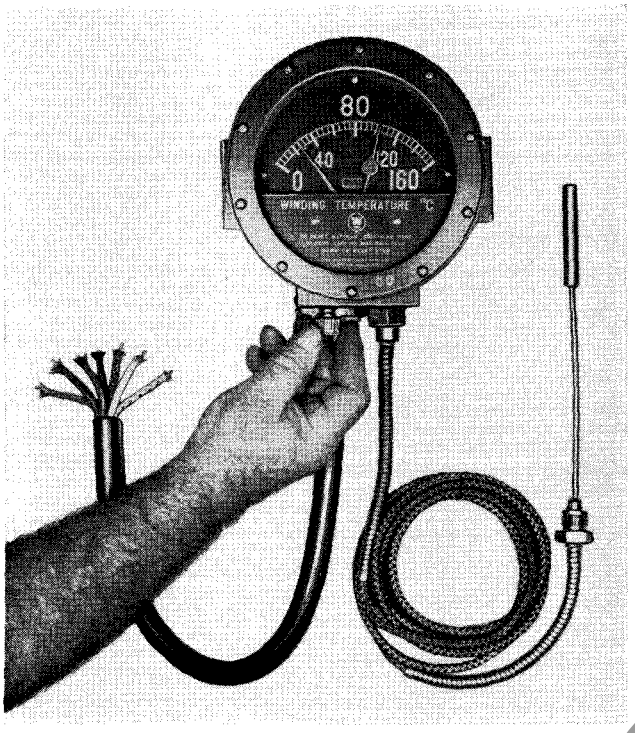

FIG. 3. Method of Resetting Maximum Indicating Pointer, Maximum Pointer Shown Reset

When the alarm and control circuits are used, external connections are made through the neoprene jacketed cable. A cable grip, which screws up into the case, serves to grip the lead cable and seals the gauge from the atmosphere. If the contacts are not to be connected into circuits, the external neoprene jacketed cable is coiled and taped in place for possible future use.

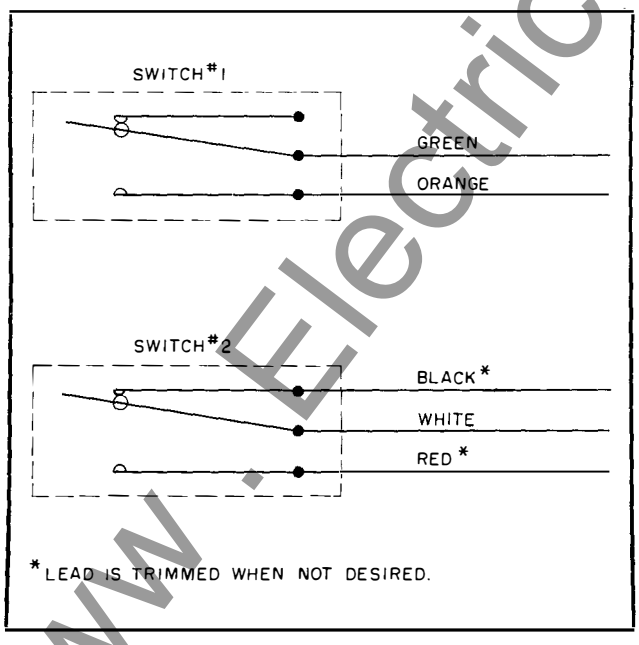

FIG. 4. Diagram of Connections

There are two micro-switches in this type of indicator. Switch №1 is set to close at 75°C for the fan circuit, and switch №2 is set to close at 105°C for the alarm circuit. These are nominal values and will be supplied unless otherwise ordered. The switches are adjustable over the entire range in relation to the above mentioned values. The method of adjustment is described in later paragraphs. The switches reset at approximately 10°C below the closing temperature. The ratings for the switches are given in Table No. 1 with the connection diagram shown in Fig. 4.

Table No. 1

VOLTAGE	NON-INDUCTANCE LOAD-AMPS	INDUCTIVE LOAD AMPS*
125 A-C	10	10
250 A-C	5	5
125 D-C	0.5	0.05
250 D-C	0.25	0.025

* L/R Less than 0.026
L = Inductance in henrys; R = Resistance in ohms

When checking circuits through this instrument it is necessary to follow Table №1. This means that a low voltage bell ringer cannot be used unless switched through a high impedance relay. An indicating-light type of device is generally recognized as best for checking circuits through instruments containing micro-switches of similar capacities.

INSTRUCTIONS FOR RESETTING THE ALARM SWITCH OPERATING TEMPERATURES ON TWO SWITCH AUTO-LITE MODEL RM THERMAL RELAYS

The bezel ring may be released by removing the screws in its face. Remove the bezel ring, outer "O" ring gasket, glass and inside "O" ring gasket. Remove the plate which covers the bottom portion of the dial.

At this point the cam adjusting locking screws near the bottom of the instrument are exposed (see Fig. 7). The number 1 switch adjustment locking screw is in the outer circular cam slot. The number 2 switch adjustment locking screw is in the second cam slot from the outside.

Connect small indicating lamps in the alarm circuits. Place the bulb of the thermal relay in agitated water or oil which is maintained at the

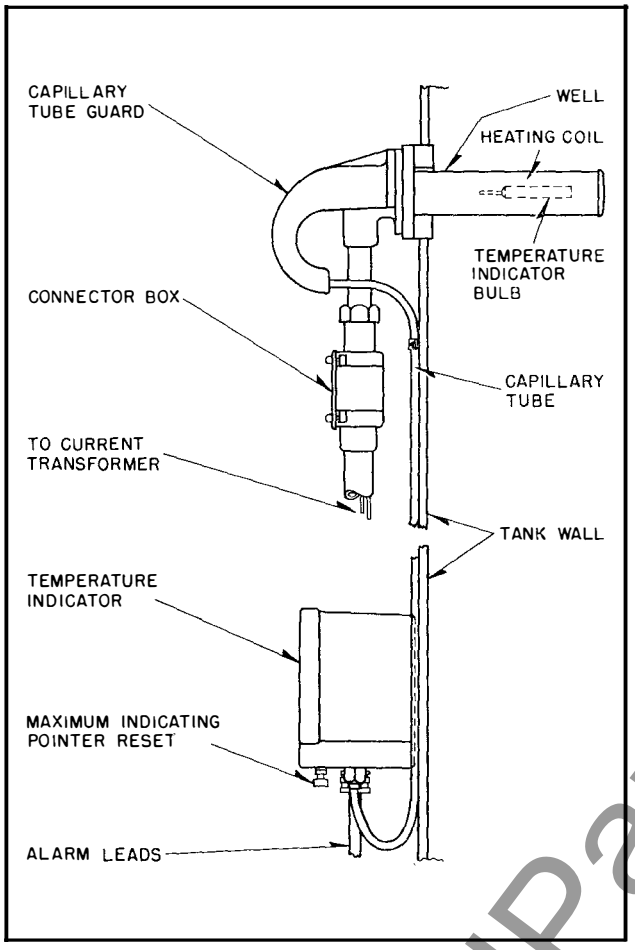

FIG. 5. Sectional View of Transformer Showing Mounting of Indicator with Flexible Tube

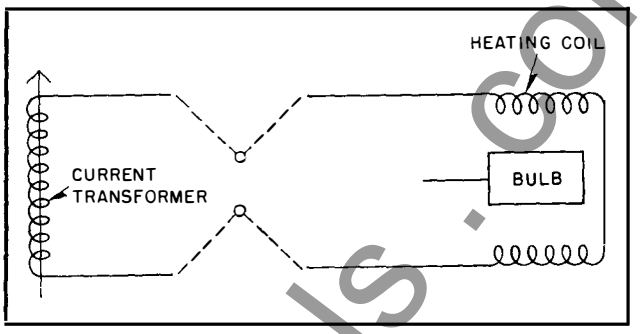

FIG. 6. Connection Diagram for Current-Transformer and Heating Coil

temperature at which the number 1 switch contacts are to close. Observe the temperature at which the number 1 switch closes. If it closes before the desired operating temperature is indicated, the cam must be retarded. This is accomplished by loosening the number 1 switch adjustment locking screw and moving the cam in a counterclockwise direction. If the number 1 switch fails to close when the desired operating temperature is indicated, the cam must be advanced. This is accomplished by loosening the number 1 switch adjustment locking screw and moving the cam in a clockwise direction.

When the number 1 cam has been reset, its adjustment locking screw should be securely retightened.

After the above adjustments have been made, the bulb should be removed from the hot liquid and allowed to cool until the indicator has dropped back

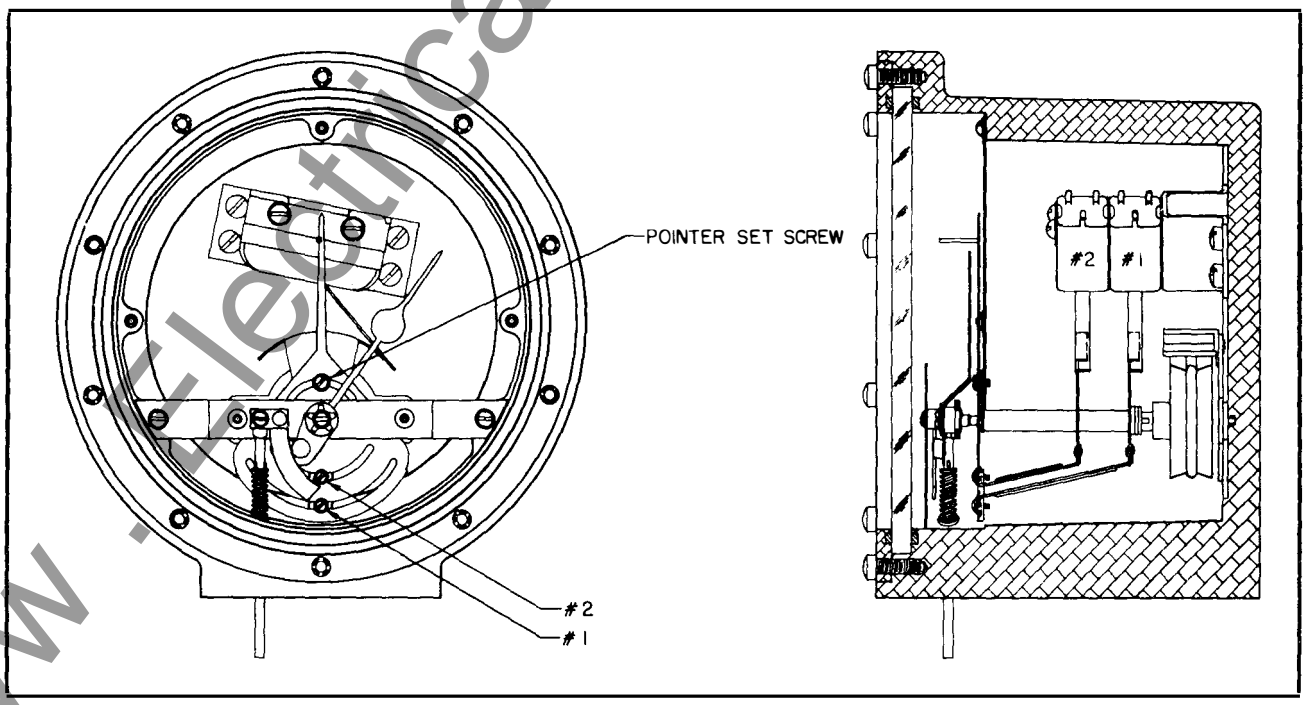

FIG. 7. Sectional View with Cam Adjusting Locking Screws Exposed

20 to 30 degrees. Re-immerse the bulb in the hot liquid and recheck the relay operation in the manner outlined above. Remove the bulb from the hot liquid and allow the indicator to drop back 20 to 30 degrees before proceeding with the adjustment of the number 2 switch.

After the above adjustments to the number 1 switch have been made and checked proceed with the adjustment of the number 2 switch in the manner outlined above except the hot liquid bath must now be maintained at the temperature at which the number 2 switch is to operate. As stated earlier the adjustment locking screw for the number 2 cam switch is in the second slot from the bottom of the indicator.

Replace the plate which covers the bottom portion of the dial, the inner "O" ring gasket, the glass, the outer "O" ring gasket, the bezel ring and the screw in the face of the bezel ring.

The thermal relay is now ready for installation.

SHIPMENT

The current transformer is generally shipped as part of the main transformer. It is usually of the through type which is slipped over the lower end of the bushing and mounted on the underside of the cover. In some cases it will be mounted on the top of the terminal board, bridges or end frames. In this case, a Micarta tube will probably be used to conduct the current transformer leads to a junction box. This tube will be installed in place on the current transformer.

The heating coil is located in the well of the temperature indicator.

The temperature indicator is shipped mounted on the tank wall, so that no installation is necessary.

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