

**IB-11.1.7-51**

ISSUE A

UNIT SUBSTATION TRANSFORMERS

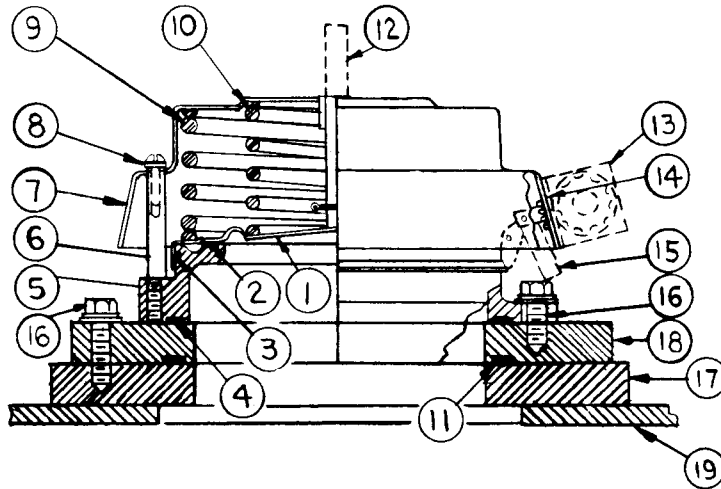
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**INSTRUCTIONS**

PRESSURE RELIEF VALVE

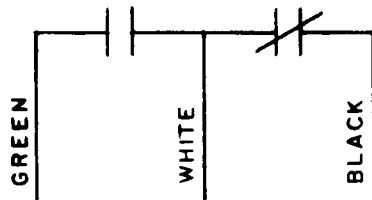


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- |                      |                                 |
|----------------------|---------------------------------|
| 1 DIAPHRAGM          | 11 ADAPTER PLATE GASKET         |
| 2 INSIDE GASKET      | 12 INDICATOR — TRIPPED POSITION |
| 3 OUTSIDE GASKET     | 13 ALARM SWITCH (OPTIONAL)      |
| 4 MOUNTING GASKET    | 14 PLUG FOR SWITCH MOUNTING     |
| 5 BASE               | 15 SWITCH RESET LEVER           |
| 6 COVER SUPPORT STUD | 16 MOUNTING BOLT                |
| 7 COVER              | 17 MOUNTING FLANGE              |
| 8 COVER BOLT         | 18 ADAPTER PLATE                |
| 9 LARGE SPRING       | 19 TANK COVER                   |
| 10 SMALL SPRING      |                                 |

Fig. 1—Cross Section of Pressure Relief Valve



VOLTAGE	AMPERES
125, 250, 480 AC	15
125 DC	.5
250 DC	.25

Fig. 2



## INSTRUCTIONS FOR PRESSURE RELIEF VALVE

### GENERAL

Pressure relief valves are furnished as standard equipment on most liquid filled transformers. The valve is a safety device that prevents the tank walls from rupturing if excessive internal pressure develops. This is accomplished by the valve's opening at a pre-determined pressure.

### OPERATION

The valve is set to operate at a pressure of 10 PSI  $\pm$  1 PSI. When this pressure is reached, the spring force acting on the diaphragm is overcome and the diaphragm is raised to the open position, allowing the excess gas to escape. This moves the indicator rod to the exposed, tripped position.

After completing its operation, the valve will reseal at normal tank pressure, and will require no manual resetting nor replacement of parts for future operations. However, the indicator rod does require manual resetting.

It is not necessary to remove the pressure relief valve from the transformer during vacuum treatment, as this device will withstand full vacuum treatment.

### PRESSURE RELIEF ALARM

All pressure relief valves have a colored indicator rod (RED for askarel filled transformers and YELLOW for oil filled transformers). An auxiliary alarm switch is also supplied, if requested. In the loaded position, the indicator rod is recessed in the valve cover and the lever for the alarm switch rests against the edge of the diaphragm. When the valve operates, the upward movement of the diaphragm forces the indicator rod to the exposed position and simultaneously releases the lever for the alarm switch. The indicator rod and alarm switch are reset by pushing them back to their normally recessed position.

Figure 2 shows the rating of the switch and a diagram of the contacts in their normal position. The values given for the contacts are maximum and should not be exceeded under any circumstances.

### RECEIVING AND INSTALLATION

Pressure relief valves are normally shipped installed and ready for operation. Rough handling in transit sometimes forces the indicator rod and alarm switch to the tripped position. To make the valve ready for operation, reset the indicator rod and the alarm switch lever.

When the valve is shipped separately, a handhole cover is placed over the mounting flange. To install the valve, remove the handhole cover, and bolt the valve assembly to the mounting flange. Use the same gasket that is beneath the handhole cover.

### CAUTION

DO NOT INTERCHANGE PRESSURE RELIEF VALVES WITH THOSE OF OTHER TRANSFORMERS UNLESS THE TRANSFORMERS CONCERNED HAVE THE SAME TYPE INSULATING LIQUID AND THE SAME KVA RATING.

### MAINTENANCE

The only maintenance required is resetting the indicator rod and auxiliary contacts after the valve operates. Should the pressure relief valve prove defective, other than a gasket leak, it is advisable to replace the entire valve rather than component parts.

### REPLACEMENTS

All orders for replacement valves should be directed to the nearest I-T-E office. The order should include the specification number of the transformer, the KVA rating, and type of insulating liquid in the transformer.



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