

## Sound Solutions

### *Industry*

Power Distribution

### *Application*

Leak Detection: Transformer

### *System*

Transformer

### *Component*

Valves, Fittings, Weld Seams, Etc.



### *Current Procedures*

All transformers are to be checked for leaks during installation, prior to filling with oil. The gas space in the unit is pressurized to 5 psi with dry Nitrogen. The gas pressure is monitored for a period of 24 hours. If there is a significant drop in pressure ( $> 1$  psi relative to change in ambient temperature), the tank must be checked for leaks.

To check for leaks, the tank is re-pressurized to 5 psi. Leaks are located by brushing a soapy solution across all weld and threaded joints, gasket flanges, and all hand hold cover gaskets. Leaks are apparent by the forming of soap bubbles. The leaks are repaired. The transformer is wiped clean of all soap, re-pressurized, and the procedure is followed again to ensure repairs are complete.

### *UL101 Test Procedures*

The UL101 Ultrasound Receiver and UT2000 Transmitter are used to locate leaks faster and with greater success. The UT2000 Transmitter is turned on and placed on the inside of the transformer. The transformer is then sealed and pressurized to 5psi. Leaks are located by quickly scanning across all areas where the soapy solution would have been applied. A leak is detected by hearing the transmitted ultrasound and escaping gas through the headset.

The leaks are repaired. The UL101 is used to confirm the repairs. Once repairs are complete, the transformer is re-tested. If the gas pressure does not indicate a significant drop in pressure, the UT2000 is removed from the transformer.

### *Benefit*

The UL101 is much faster and more effective at locating leaks in transformers during installation. Any leaks can be located, repaired, and repair confirmed by using the ultrasound method. In addition to external leaks, the UL101 can be used to quickly test each of the valves for internal by-pass leaks around the gaskets. Following the new procedures saves time and money by minimizing the amount of time a crew is deployed for installation. Additionally, proper diagnosis saves time and money by preventing parts swapping, potential damage, and trouble-shooting efforts.

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