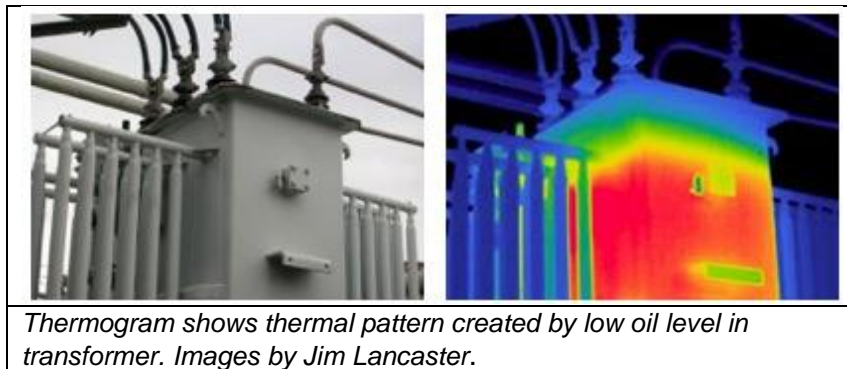


IR Inspection of Liquid-filled Transformers

A thorough infrared inspection of an electrical transformer can point out symptoms of loose connections as well as other possible problems. When performing an infrared inspection of a liquid-filled transformer, be certain to include not only the primary and secondary connections but also the following items as well:

- Inspect neutral and grounding connections for hot spots
- For transformers with separate tanks for each phase, compare phase tanks to each other. Transformers with balanced loads should exhibit similar temperatures between tanks.
- Qualitatively inspect radiator sections. Radiator tubes should be uniform in temperature and, in most cases, should operate above ambient temperature.



Thermogram shows thermal pattern created by low oil level in transformer. Images by Jim Lancaster.

- Compare transformer operating temperature to nameplate rating. For long term service, transformers should not operate above their maximum rated temperature.
- Compare tap changer tank to main body of transformer. For properly operating tap changers, tap changer tank should not appear warmer than main body of transformer.

In conjunction with the infrared inspection, cooling fans and/or pumps should be checked for proper settings and operation. Finally, transformers require proper air circulation for cooling. To help ensure maximum airflow, transformer radiators should be unobstructed and free from dirt and debris.

Infrared inspections of electrical distribution systems is one of the many topics covered in the [Level I Infraspection Institute Certified Infrared Thermographer®](#) training course. For information on thermographer training or to obtain a copy of the [Standard for Infrared Inspection of Electrical Systems & Rotating Equipment](#), visit us online at www.infraspection.com or call us at 609-239-4788.