**11.17.3.2**

The handling of liquid nitrogen, argon, and other liquefied gases with their inherent hazards is a disadvantage of some infrared testing equipment.

**11.17.4** Desirable Operational Features.

The equipment display should be large and provide good resolution of hot spots. The equipment should provide color or black-and-white photographs to identify the exact location of the hot spot. The unit should be portable, easy to adjust, and approved for use in the atmosphere in which it is to be used. It should also have a cone of vision that gives enough detail to accurately identify the hot spot.

**11.17.4.1**

The unit should be designed so that the operator knows the degree of accuracy in the display. There should be easily operated checks to verify the accuracy of the display.

**11.17.5** Inspection Frequency and Procedures.

Routine infrared inspections of energized electrical systems should be performed annually prior to shutdown. More frequent infrared inspections, for example, quarterly or semiannually, should be performed where warranted by loss experience, installation of new electrical equipment, or changes in environmental, operational, or load conditions.

**11.17.5.1**

All critical electrical equipment as determined by Section 6.3 should be included in the infrared inspection.

**11.17.5.2**

Infrared surveys should be performed during periods of maximum possible loading but not less than 40 percent of rated load of the electrical equipment being inspected. The circuit-loading characteristics should be included as part of the documentation provided in 11.17.5.4.

**11.17.5.3**

Equipment enclosures should be opened for a direct view of components whenever possible. When opening the enclosure is impossible, such as in some busway systems, internal temperatures can be higher than the surface temperatures. Plastic and glass covers in electrical enclosures are not transparent to infrared radiation.

**11.17.5.4**

Infrared surveys should be documented as outlined in 6.5.2 and Section 11.8.

**11.17.5.5**

The electrical supervisor should be immediately notified of critical, impending faults so that corrective action can be taken before a failure occurs. Priorities should be established to correct other deficiencies.

**11.17.5.6**

Section 9 and Table 10.18 of the ANSI/NETA MTS, *Standard for Maintenance Testing Specifications for Electrical Power Distribution Equipment and Systems* suggest temperature benchmarks similar to those in the following list. The temperature differences in this list denote differences from the normal referenced temperature. The normal referenced temperature is determined by a qualified technician.

(1) Temperature differences of 1°C to 3°C indicate possible deficiency and warrant investigation.

(2) Temperature differences of 4°C to 15°C indicate deficiency; repairs should be made as time permits.

(3) Temperature differences of 16°C and above indicate major deficiency; repairs should be made immediately.