TEMPERATURE INFORMATION

Colbert
Infrared Services

1. TEMPERATURE INFORMATION:

This contains the actual temperature of the component in question along with the temperature of the reference component and the temperature rise.
Also provided is the ambient temperature, but it is not used to determine the severity of the problem.
The use of ambient room temperature as a reference to measure the temperature rise is extremely inaccurate. The severity of each potential problem is determined by its temperature rise over a similar reference component under the same load. This is the only way to accurately determine the temperature rise of a potential problem. Also provided is the Past Problem number and information, if the same equipment also had the same problem at the time of the last inspection.

RECOMMENDED ELECTRICAL REPAIR PRIORITY TABLE MEASURED TEMP. RISE PHASE TO PHASE REPAIR PRIORITY

2. MAINTENANCE SCHEDULING CRITERIA:

This criteria has been used to determine the suggested repair priority of the data contained within this report. The repair priorities are based on the measured temperature rise of the component in question against a similar component with the same load. The final decision as to the criticality of the repair priority for each problem and the scheduling of maintenance and repair rests solely with the client. The above table is only a guide to help you determine the order to schedule your electrical repairs. You must keep in mind what the equipment operates and the loads that the equipment will be subjected to when determining the priorities and scheduling of your repairs.
With each documented item in your report (where applicable) information is provided on the tested load and also on the measured temperature rise at the time of the inspection. This information is offered so that you may better evaluate your electric repair priorities based on their temperatures and anticipated loads. There are no rules for the assessment of excess temperatures that are measured on indirectly overheated surfaces. Indirect overheating can be caused by hidden faults, e.g., cracks inside a breaker where the temperature is measured from the outside. For every problem, always inspect for physical damage to determine repair or replacement of the particular component identified. An infrared inspection should also be made after a problem has been fixed to ensure that it has been corrected properly.
It is important to understand that a piece of equipment may fail at any stage, not just at the critical level. In the particular case of electrical inspections, a temperature rise is measured from the hot phase to a normal phase with a similar load to accurately determine the severity of the potential problem. Ambient air temperature is not used as a baseline for a reference, because this does not accurately represent the correct measurement of the temperature rise of the component.

Ideally, thermographic electrical inspections should be carried out under normal or full load. To allow you to assess projected/normalized temperature rises, a modified Joule's Law is used for the recalculation to 50% and 100 % load conditions. Also this allows you to project a worst-case scenario if the measured temperature rise load is less than 50% and likely to increase. As you double the load on a problem, you must consider that the measured temperature rise will be quadrupled. The magnitude of the problem may be seriously understated if the piece of equipment is minimally loaded, and the load is going to increases later on. This provides the best way to correct the severity classifications of the potential problems. It should be noted, however, that the measured and projected/normalized temperature rises and severity classification must be viewed along with the type of equipment and the process that the machine operates under to assess the severity of the problem truly.