

# Thermal Techniques

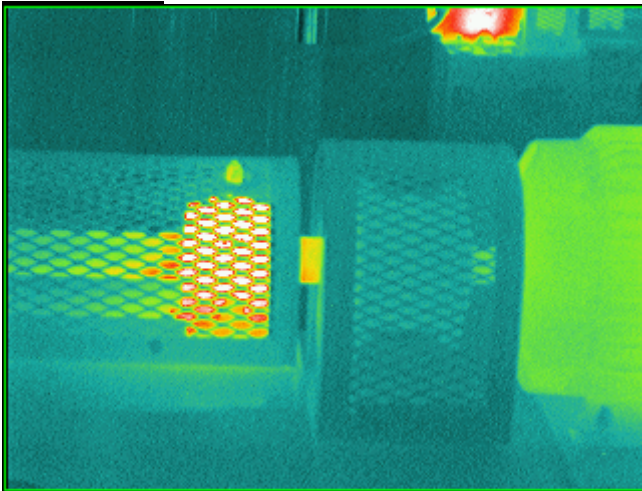
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## **Cost and Savings With an Infrared Program**

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### **BEARINGS:**

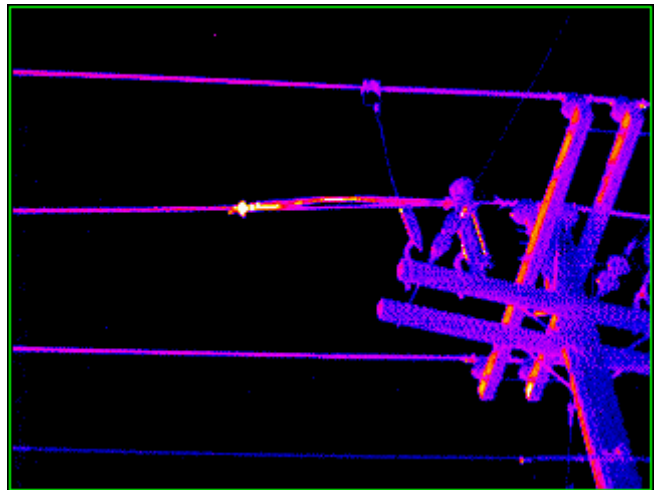


This bearing is much warmer than the motor (on right of image). Note that the bearing guard did not have to be removed for quick and easy access by the thermal imaging team. If this had gone undetected this bearing would have ultimately failed. Failure would result in process interruption and force the emergency repair team into action. Failure could also cause shaft and fan damage, and necessitate new equipment having to be shipped in at a higher cost for a replacement unit. Thermal imaging allowed scheduled

downtime and easy repair to avoid catastrophic failure and dollar savings estimated at \$3000.00.

### **POWER LINE TO PLANT**

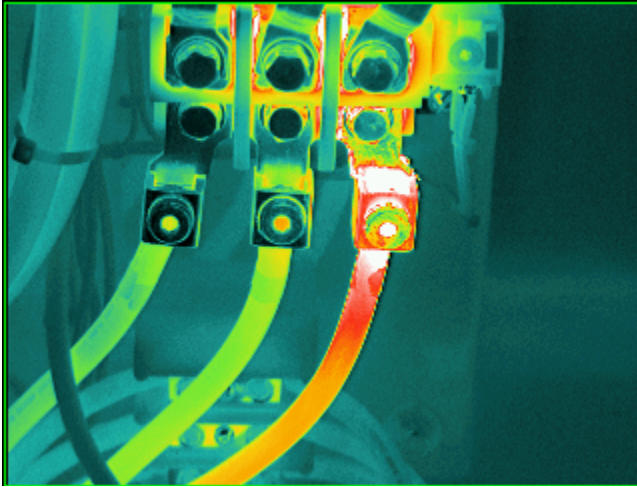
This image shows a power pole and a main transmission line to a plant site. The plant had experienced several voltage dips causing running equipment to loose power and shut down. The computer center at the site was affected the most as documents and data were lost during the voltage sags. Power company officials advised the loss of power was not on the grid and was probably inside the plant. Thermal imaging was employed on all transmissions lines to the site back to the substation serving the plant. This was a splice joint that had been installed due to downed lines from an ice storm several years earlier. The Thermal Imager was successfully used to locate the faulty wire splice. Power company officials



worked with the plant site staff to have a controlled outage so that the repair could be

made. At least 4 hours of plant shut down was avoided and cost savings were estimated to be in excess of \$25,000.00

### **CONTACTOR – MOTOR STARTER:**

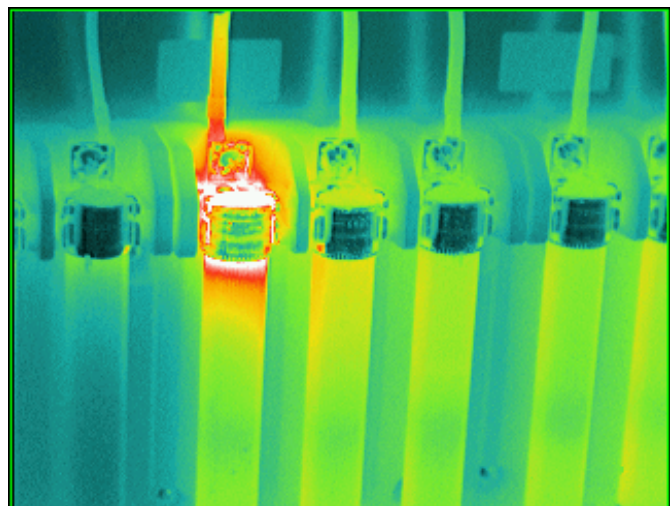


Motor contactors-motor starters are subjected to high inrush amps and it is critical that infrared inspections are used to find the numerous problems that can be found on these items. The above image clearly shows a faulty/loose connection at the bottom right lug connection. This contactor is used in an injection molding machine and the cost of down time is estimated at over \$800.00 per hour. Undetected failure could result in a loss of production in excess of 2 hours. In this instance thermal imaging informed plant personnel

that the wire on the right phase was probably damaged since the temperature exceeded 210F. In this manner a new wire was pulled from the motor to the contactor, and the offending wire was removed. All of this was scheduled during a mold change so no loss of production resulted. By replacing the wire, thermal imaging was able to assist in complete corrective action the first time as opposed to patching the problem during a production period and having to do additional repairs at a later date. Early detection also is credited with saving the contactor-starter from future damage. Estimated savings were \$2500.00.

### **FUSES**

Quick and early detection of an electrical fault, such as this fuse clip, can help prevent overloading or a potential unbalance in a 3-phase load. This fuse, located in an oven control panel, controlled one of the heating sections within the oven. The curing process is one of time and temperature. If the heat is not correct for the proper time duration the quality of the product is adversely affected. This results in product rejects and production losses. Faulty fuse clips can cause early and premature fuse failure. Without the use of thermal imaging, Maintenance Personnel end up replacing the fuse on a continuing basis and never suspect that the root cause of the continued failure is the fuse clip and not the fuse or some other item in the electric circuit.



**For more information and a free demonstration call:  
Thermal Techniques, (704) 343-0888**