PREDICTIVE SERVICE®

Keeping Their Electrical Systems Rolling

Nationwide infrared predictive maintenance program keeps safety, reliability and energy savings a priority at a major tire retailer.

For one major automotive service and tire retail chain, proactively maintaining electrical systems at the company's roughly 1,600 retail locations was a challenge that had to be met. With locations ranging in age from a few months old to 75-years old, meant the age and types of electrical components varied greatly.

"With so many stores and such a variety of components, it became increasingly difficult to deploy the resources needed to keep our electrical systems in top shape," said the Facilities Asset Manager. "We wanted to implement a more proactive program to be sure we could spot electrical issues before there could be a problem."

Determined it needed to upgrade to an infrared predictive maintenance inspection program, they began searching for a single infrared services provider with the capabilities to implement a nationwide program. What they found was only a small number of companies that offered true nationwide service from a single point of contact.

After narrowing the field to two companies, the decision was made to utilize Predictive Service, a Cleveland-based company. Following a successful pilot, they expanded to include all store locations Based on the success of the infrared program they introduced more testing, including visual grounding inspections and exercising of existing electrical breakers. The added services helped the program expand beyond finding thermal anomalies while proactively assessing the overall condition of each asset.

Predictive Service worked with the client's team to identify a number of objectives for the program, including:

- Continuous enhancement of a safe working environment
- Identify obsolete and/or equipment requiring replacement
- Reduce electrical service calls
- Reduce energy consumption
- Improve reliability

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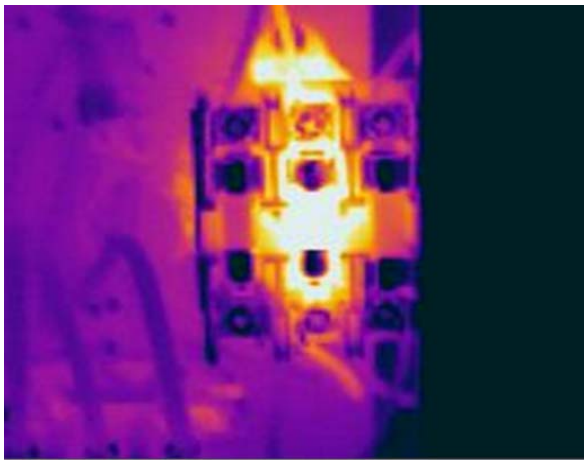
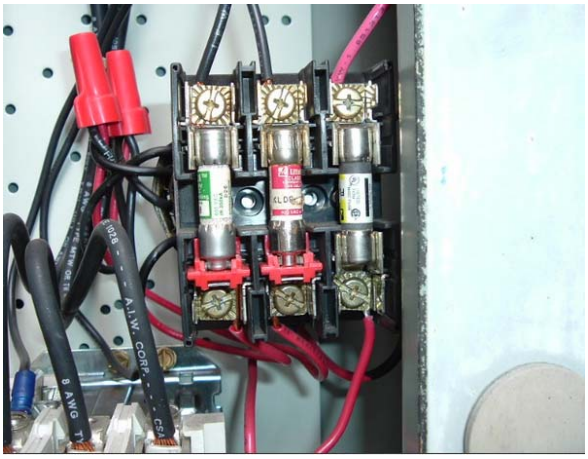
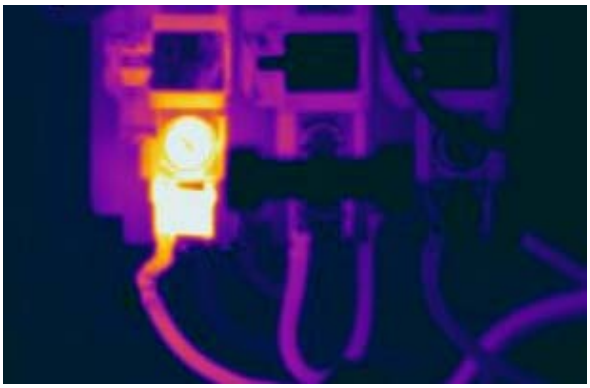
The Predictive Maintenance Process

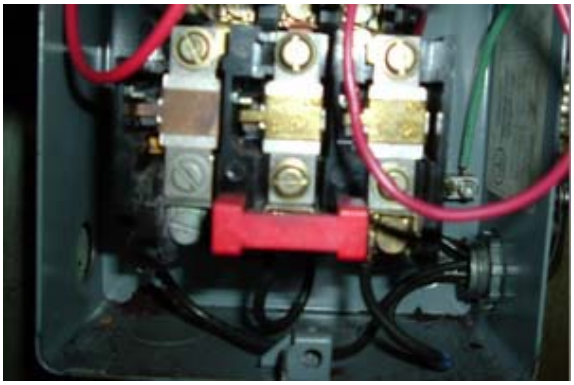
Predictive Service inspected nearly 44,000 pieces of electrical equipment throughout the initial phase of the program. The program revealed issues that had previously been difficult to proactively detect. In many locations, the infrared inspection revealed issues so severe that immediate repairs needed to take place in order to keep the facilities operating safely. See examples below:





Example One – 206° F on the B Phase (15 Amp fuses drawing 1 Amp)
Projected Temperature at full load in excess of 1000°F





Example Two – 362° F on the A Phase (13 Amp on a 30 Amp circuit)
Projected Temperature at full load - 719°F

The primary thermal problem identified by the infrared inspections were poor connections as example two shows. The inspections also revealed internal flaws and, in some cases, overloaded equipment. Leading the client to say the infrared inspection was critical to implementing a more proactive predictive maintenance program. “Physical inspections could not have found many of the issues that the infrared and inspection service found,” said a client spokesperson.

Performing the additional services helped ensure the whole health of its electrical systems. Conducting breaker exercising and visual surveys, revealed issues that had been difficult to detect without this comprehensive program in place.

There were some surprising findings. “Our oldest stores didn’t necessarily have the most issues. We found that even our newer stores had issues that probably would have gone uncovered,” according to their spokesperson.

Data and pictures from each inspection were captured and stored in Predictive Service's ViewPoint databases as each location was completed. The site and regional managers could then access the results online through Web-enabled, interactive software. Once inspections were complete, Predictive Service compiled the results and ran trending analyses to identify areas that could be problematic in the future. Further analysis was made available for reliability ranking and comparing equipment performance by manufacturer.

After Predictive Service identified issues at their locations, they were asked to oversee the repair process. Predictive Service acted as an independent testing company, coordinating with its maintenance solution group to perform any needed repairs.

The Results

With the repairs complete, the client projected a 100% return on its investment in a little more than three years based on energy savings alone. More importantly, improved electrical systems mean safer, more serviceable equipment and better reliability. Better reliability means less repair costs and a reduced risk of stores shutting down because of electrical problems.

Predictive Service is credited for coordinating and implementing such a large project. "Without the personnel to implement such a comprehensive inspection program on our own, we relied on Predictive Service to provide their turnkey inspection and management services," said the client's spokesperson. "We now have a top-notch predictive maintenance program in place."

Once all data was gathered from each location into a centralized database, Predictive Service analyzed the data to identify equipment performance by manufacturer. The findings by manufacturer revealed some interesting results. One manufacturer's equipment had a 60% greater likelihood to have problems. Another manufacturer's equipment had nearly a 16% greater likelihood than the mean average. That has led to a better understanding of equipment lifecycles and which manufacturer to use when replacing equipment.

Predictive Service's online reporting and archiving capabilities played a big part in our decision on which provider to use. "We don't have the room to store more than 1,600 report binders. Plus it's much easier and faster to find the exact information we need with it online," said a company manager. Our regional managers can also view summary data for each location or an aggregated overview for all locations. "It's easy to see the big picture or drill down into the detail," he adds.

Based on the success of the initial program, a decision was made to make infrared and the additional testing solutions a continuing part of the company's predictive maintenance practices.

"Predictive Service did an excellent job in seamlessly implementing and running our predictive maintenance inspection program," said the spokesperson. "The results speak for themselves."

Why Infrared Thermography?

Infrared thermography is a vital tool when performing predictive maintenance inspections on electrical equipment. The infrared information helps identify what items require maintenance or minor adjustments before their next scheduled servicing. Used properly, it can identify problems before they cause unplanned downtime or safety hazards. Early identification saves substantial money and minimizes risk. In fact, a ten-year study by Hartford Steam Boiler Insurance Company determined that a proper infrared predictive maintenance program produces a 400% ROI. There are an average of 115 electrical fires in the U.S. every day, many of which could be prevented with the proper predictive maintenance program.

The Company

Predictive Service offers an unparalleled approach to enterprise asset management, specializing in infrared, managed PdM programs and a full array of reliability and engineering consulting services. We are an innovative, technology driven provider changing the paradigm for service companies. Our award winning PdM software and newly developed mobile platform are bringing leading-edge solutions to the marketplace.

Our highly-skilled, team of professionals provide clients with an integrated approach to services designed to optimizing the entire facility, ensuring reliable and sustainable operations. Headquartered in Cleveland Ohio, we offer services globally with offices in North America, South America, Europe and Asia. Predictive Service is one of America's Fastest Growing Companies for the eighth consecutive year as rated by Inc. 5000.