

PROFESSIONAL REVIEW

Legendary A.J. Foyt Racing team takes Fluke thermal imager for a spin

Name: Buddy Blackburn,
Performance Engineer

Company: A.J. Foyt Racing

Tools: Fluke Ti450
Infrared Camera

A.J. Foyt Racing, which carries on the tradition of the legendary driver, is a two-driver, four-car racing team that competes on the INDYCAR circuit, an international series of events that run March through mid-September each year.

Like all successful endeavors, it's a team effort to keep the cars performing at their peak level on the track. A close-knit group of mechanics and engineers all work together to keep the cars in top condition in order to maintain a competitive edge. Recently the team began using the Fluke Ti450 Infrared Camera to help fine tune the car because of the criticality of a robust braking system as drivers navigate at high speeds through traffic and around curves in the track.

While the Indianapolis 500 oval track is the most famous course in the series, in fact many of the tracks are European-style, with snaking routes through city streets. That means a lot of braking.

"For drivers, the Grand Prix tracks are where the braking systems becomes even more vital," says Buddy Blackburn, the Performance Engineer for A.J. Foyt Racing. A graduate of the University of Nebraska who spent years in the pits before becoming an engineer, Blackburn is continually looking for the competitive edge to get the car to perform better.

"Managing the temperatures on braking systems is incredibly important in terms of both performance and reliability to extend the time between needed service," says Blackburn. The Foyt team recently began using the thermal imager to inspect the cars during races. While RTD sensors are in place at specific points of the system that monitor the temperature in real time, the thermal image from the Ti450 provides a more detail. The infrared camera includes a special focusing feature called Multisharp™ Focus that allows you to get clear, accurate focus on targets throughout the focal range, near and far.



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"With the thermal camera, we are able to point it at caliper when we change tires in the pits and if the temps are too high we can make some adjustments to the cooling system of the brakes. We can also check the inlet and airflow paths," Blackburn says. "The goal is to stay below 200 °C, which is the limit for the seals on the calipers themselves."

The thermal imager is also being used throughout the race to determine track temperatures. "The temperature of the track is important. There's a strong correlation between tire performance and track temperature," Blackburn says. "We monitor those temps and if needed make adjustments to the car setup depending on what track conditions we see."

Throughout the spring and summer, the Foyt crew is busy keeping the race cars competitive, but when the INDYCAR season ends in mid-September the work doesn't stop. The team continues into a more research and development mode, where test racing and refinements on the cars are made. The Fluke thermal imager then will be put to use for frequent inspections of more cars systems during winter R&D.

"We see a lot of potential to use it more as monitoring device on several systems, including the high-energy parts of the car and especially the drive line," Blackburn says.

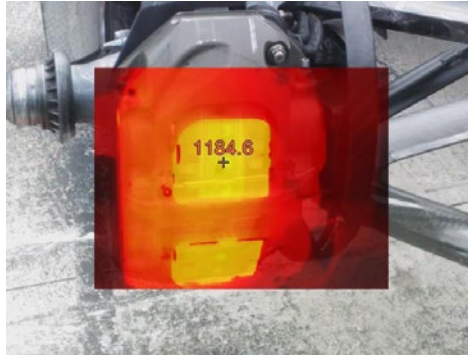


Figure 1: Front left rotor and caliper brake assembly



Figure 2: Front right carbon rotor, disk bell, and hub assembly