

Hello — and thanks for taking a look at my work!

My name is Rich Kurz and I am an experienced graphics design professional. My philosophy has grown simpler through the years. Good design is not about me, but about us. I want to do good work that serves the needs of my client and that I am proud to put in my portfolio. This pdf shows some of my capabilities.

**Note that all concepts and initial drawings are owned by Firewall Forward. The images in this document are my own and are under copyright to Rich Kurz.**

The private aircraft engine overhaul business by its nature serves a limited, high-end market. Maintenance is federally mandated at certain hours of usage, and is not cheap due both to high safety standards and limited volume. Even so, there are low-end and high-end overhaulers. Firewall Forward does not go the low-end route. Its calling card is its quality and experience, and the two are related. In addition, they also research, experiment, and produce specialized parts to address specific mechanical problems they have observed.

Their years of overhaul experience pinpointed a particular problem with certain engines. They developed a special camshaft that greatly eliminated the problem resulting in improved engine reliability. I created the one-page sales flyer for them. The front page photo was a Photoshop composite that began as a photo of a parked aircraft. The clouds and pilot were added elements.

Deliverables: camera-ready art to size, 4-color, 8-1/2"x11"  
produced in QuarkExpress & Photoshop

I am available to discuss your design, illustration, marketing, and advertising needs. Let's talk!



Rich Kurz

**FAA APPROVED**

# **CENTRI-LUBE™ CAMSHAFT MODIFICATION**

**for Beechcraft Dukes**

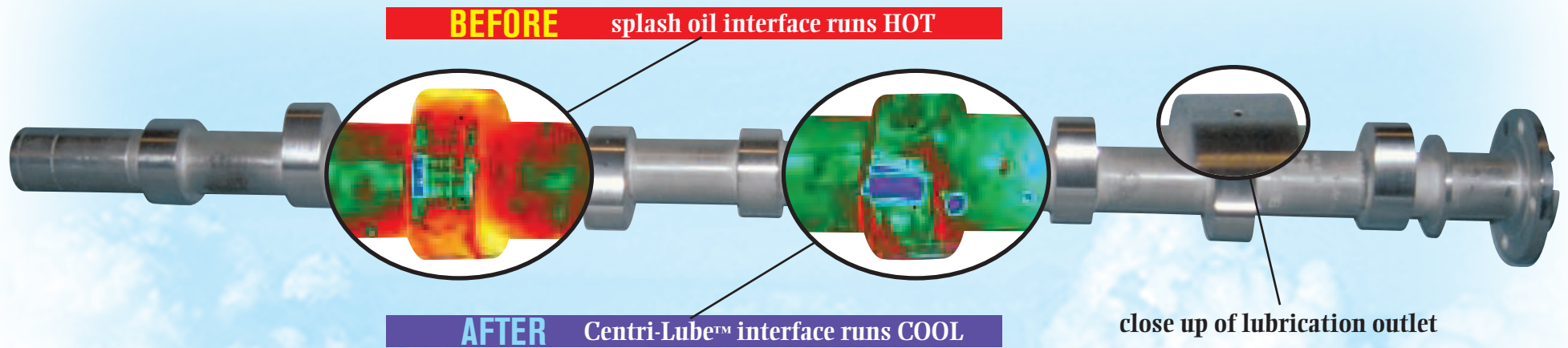
- *Eliminate premature camshaft & lifter wear*
- *Eliminate costly repairs with excessive downtime*
- *Restore equity value of the Beechcraft Duke*
- *Restore engine reliability to TBO*
- *Increased Safety and Reliability*

**FIREWALL  
FORWARD**



***Performance through technology and innovation***

## THE CENTRI-LUBE™ CAMSHAFT MODIFICATION



### The Research

During the past five years, Firewall Forward has investigated, analyzed, and implemented a remedy for the unsatisfactory camshaft and lifter performance of the TIO-541 series engine. Using forensic metallurgists, aerospace heat treating specialists, and state of the art thermal imaging equipment, FWF has determined the “common denominator” of the camshaft/lifter failures.

### The Problem

With the advent of low lead fuel, the extreme pressure (EP) interface areas of the cam & lifter face were deprived of this lead by-product which previously collected in the oil through the combustion process. This reduction of lead in the oil caused a significant loss of EP protection. Without this lead acting as an anti scuff agent the splash method of distributing oil has become largely ineffective in EP environments. This was confirmed by the thermal imaging data provided by digital thermal mapping of the camshaft & lifters during test operation in a live 541 engine. During slow motion/freeze frame analysis it was discovered that the splash oil temperatures at the interface area were well above maximum operating oil limitations thus allowing excessive friction and temperature on the cam lobe & lifter face.

### The Solution

By introducing a continuous flow of oil between the cam lobe and lifter face, hydrodynamic planing between the sliding surfaces was restored and interface temperatures were dramatically decreased due to a loss in friction, allowing the oil to perform its intended function for maximum life cycle protection.

Through extensive test and evaluation supervised by FAA designated engineers, the modified camshaft was put through grueling tests far beyond that to which the normal Duke engine would be subjected. In each case the modified camshaft proved itself able to withstand the extreme pressures and temperatures imposed upon it. Camshaft lobe and lifter face wear was reduced to a fraction of a “stock” camshaft. The modified **CENTRI-LUBE™** camshaft provides positive lubrication at each lobe within 10 seconds of engine start up.

### The Warranty

The Firewall Forward warranty for camshaft and lifter wear is now an unprecedented **4 year/100%** warranty coverage (unlimited flight hours).

**FIREWALL  
FORWARD**

**“Premium Engine” Overhauls**

*Performance through technology and innovation*