

Kalitta Air Eliminates False Failures with GelSight Mobile™

GelSight's full digital mobile metrology solution enables \$350K in end-customer savings

KALITTA AIR is an American cargo airline headquartered at Willow Run Airport in Ypsilanti Township, Michigan. As a leading provider of air cargo transportation, they run a fleet of over 350 Boeing freighters to provide scheduled or on-demand charter service for customers in the United States and around the world.

Kalitta Maintenance Power Plant Division, a division of Kalitta Air, is a world-class full-service MRO that offers a complete range of maintenance services for General Electric CF6-80C2, CFM56-3, and CFM56-7 engines, as well as Pratt & Whitney PW4000 engines and 901A APUs.

THE CHALLENGES

Before engaging with GelSight, Kalitta Maintenance relied on a variety of measuring tools including micrometers, calipers, optical micrometers, etc., to perform heavy checks and major overhauls/repairs. A lot of time was spent measuring and then re-measuring parts costing thousands of dollars and man-hours per year.

Kalitta Maintenance needed a solution to measure scratches, gouges, nicks, pitting, and various surface defects on blades, TRFs, and other miscellaneous engine and APU parts. Some parts have radii and angles where Kalitta Maintenance could not get quality, repeatable measurements which has resulted in long test set-up time, false failures, unnecessary scrap or rework, and higher costs.

For a CFM56-7B C-1 fan blade, the Kalitta Maintenance team faced extreme difficulty when using their existing tools to accurately measure the part to its 0.004" (0.1 mm) go/no-go tolerance since it has a compound, reflective, and curved surface. Seven of these blades were showing wear on the shank area due to contact with the platform seals and were ready to be scrapped due to being out of tolerance. Replacement blades are roughly \$50K each, so Kalitta Maintenance was faced with billing their end customer \$350,000 if the damage was truly out of tolerance.

THE SOLUTION

Knowing that their end customer would not be happy with a \$350K bill for replacement blades, Kalitta Maintenance looked for a more accurate, repeatable alternative to their existing suite of surface inspection tools and identified GelSight as a leading candidate for consideration.

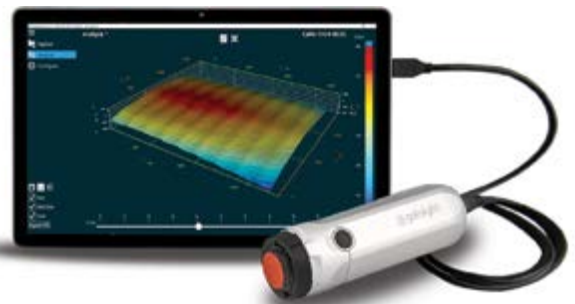
Kalitta Maintenance quickly found that GelSight was able to repeatedly measure the gouges on the CFM56-7B C-1

fan blades to well within the 0.004" (0.1 mm) tolerance. This enabled the team to put the blades back into service and pass the cost savings on to their end customer.

GelSight's ISO-17025, NIST-traceable accuracy to approximately 0.0002" (5 microns) provided more than enough spec headroom for these measurements. In addition, its fast measurement time, simple user interface, and high-resolution 3D display increase productivity when viewing the surface under test. The system's built-in software also instantly creates a PDF report with pictures, graphs, and data that Kalitta maintenance shares with their customers, who appreciate seeing the details for themselves. In summary, GelSight's surface inspection solution enables Kalitta Maintenance to make rapid and well-documented quality assurance decisions with confidence.

THE SUMMARY

By partnering with GelSight, Kalitta Maintenance now has a platform to provide a detailed, accurate surface inspection process that can generate significant gains in productivity in a variety of their MRO applications, while also reducing the costs associated with many manual or tool-based inspection techniques. The system is a great asset to their arsenal of measuring tools and speeds up their inspection process on certain parts they are examining. For one customer, Kalitta Maintenance was able to re-inspect damage on seven individual C-1 blades for a CFM engine and reposition them into active inventory, saving the customer \$350,000 in replacement parts using GelSight's technology. ●



GelSight Mobile™ is a handheld instrument that precisely visualizes and measures the 3D topography of any surface, revealing microscopic structures that are difficult to detect using traditional inspection techniques.