

## For immediate release

November 26, 2018

H&L Instruments announced today that the Model 900 Edge Profile Comparator has been upgraded with an LED backlit LCD display and with screen capture capability that is now standard in the instrument. Screen capture of a fan blade edge-profile image is activated with a built in footswitch that connects via a standard USB port to a PC.

The Model 900 was invented in 1985 in collaboration with the United Airlines Engineering Test Center in San Francisco CA. Soon thereafter, GE specified the instrument in their CFM56 engine maintenance handbook and then purchased several instruments for their facility in Evendale OH. Prior to invention of the Model 900, the process for inspecting, re-contouring, and blending fan blade edge profiles was inefficient and tedious. The Model 900C/CE is in use today for inspection and rework by OEMs, operators, and MROs around the world.

The Model 900 is a portable instrument that is used for fan blade inspection on the flight line, at the engine during overhaul, and for both fan blade and vane inspection at the workbench during rework. On the flight line, routine inspections examine blade edge integrity. During overhaul, blades are inspected so that only those requiring rework need be removed from the engine. At the workbench, the instrument is used during the blending process and for final inspection before returning blades to service. The instrument incorporates a video camera for live viewing with optics for 20X or 40X magnification. Blade edge profiles can be compared to ideal CAD generated profiles by using transparent film overlaying the instrument display.

Studies show that regular inspection and repair of the airfoils on gas turbine engines enhance their performance<sup>1</sup>. The Model 900 is used around the clock at facilities that include GE, United Airlines, Air Canada, Delta, U.S. Air Force, Rolls Royce, KLM, and numerous others. Engines serviced using the Model 900C/CE include CFM56, CF6, TF39, PW4000, TF41, V2500, and the Rolls Royce Trent 1000 and 7000 engines among numerous others. Both craft persons and inspectors use the instrument to detect whether fan blade rework is required, to monitor progress during rework, and to perform final inspection.

If minor edge defects are observed on the flight line, they can sometimes be repaired without removing the blade from the engine. The ability to inspect and repair minor edge defects without removing blades from the engine can contribute significantly to service efficiencies by avoiding unnecessary engine teardowns. Due to the instrument's portability and ease of use both on the flight line and on the bench, faulty profiles can be detected early before they are either irreversible, or they are reversible only by costly welding.

It is determined that blade rework time can be reduced by as much as 50% by incorporating the upgraded Model 900 in the turbine engine fan blade repair and service process. The Model 900 affords flexibility for inspection and repair, it reduces engine downtime by streamlining inspection and repair, and it offers considerable benefits for maintaining engine performance.

<sup>1</sup> "Gas Turbine Engine: Airfoil Shape – Performance Enhancement Through Airfoil Contour Control", David S. Model, Gas Turbine Engine Overhaul & Repair Conference, October 30, 1996.

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