Novel software raises standards of aero engine maintenance

August 4 2011

Aero engine overhaul Copyright : The Hong Kong Polytechnic University

In collaboration with Hong Kong Aero Engine Services Ltd (HAESL), engineers from PolyU's Industrial Centre (IC) have achieved a breakthrough in aero engine maintenance. By applying mathematics-based software developed by the UK's Metrology Software Products Ltd (MSP) to the multiple-axis machining of turbine blades, they have been able to greatly reduce the scrap rates in turbine blade repair.

Turbine blades are subjected to extreme temperatures in operating conditions, and some degree of deformation and distortion is inevitable over time. The components of these blades are expensive to replace. The new software involves the development of new five-axis probing techniques for machine tools, allowing automated part location to a very

high degree of accuracy.

After months of exploration, development and modification by the IC, HAESL and MSP, the first batch of turbine blades applying the new software successfully passed the repair test at the IC and has been approved by HAESL for further production. HAESL now plans to use this software application in its turbine blade repair cell.

PolyU has received a generous donation of more than HK$700,000 worth of software and systems for HAESL, and MSP has agreed to provide further support to the University, thus permitting the IC to further develop the multiple-axis machining of turbine blades for better aero engine maintenance. The software and the system is a powerful tool for developing advanced solutions to deal with the most difficult parts in a more accurate way and in shorter time than using traditional methods.

This article was first appeared on *PolyU Milestone*, June 2011 Edition.

Provided by ResearchSEA