



FOR IMMEDIATE RELEASE
December 5, 2018
Pictures available on request.

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Lambda Technologies Awarded Military Aerospace Contract Lambda Tasked with Eliminating the Risk of Fretting Fatigue Failure in Aircraft Engine Blade Dovetails

Cincinnati, OH – Lambda Technologies has been awarded a military contract to mitigate fretting fatigue in aircraft engine blade dovetails. The new contract will improve fleet readiness and safety by applying designed residual compression with low plasticity burnishing (LPB[®]). This is the fifteenth component that Lambda has secured contracts for in the military aerospace sector and the third that applies to mitigating dovetail fretting.

Lambda Technologies first developed an LPB solution to extend fatigue life and improve damage tolerance of compressor blades over a decade ago. This solution has since been applied to many commercial and military engines. The current program will be a similar application. Using low plasticity burnishing (LPB[®]), Lambda engineers design a deep, stable layer of residual compression to the dovetail region of the blades. The compressive stress field is designed for the specific component geometry to optimize fatigue life and damage tolerance. By putting the edge of contact region in compression much deeper than the shallow shear cracks formed by fretting, fatigue cracks cannot propagate through the compression and the chance of fracture is eliminated. When applied to a blade with existing fretting fatigue damage, LPB provides better than 10x life improvement over that of even a brand new blade.

Designed compression has been proven to successfully improve component life and performance and is already in production on many aircraft applications, including blades, vanes, disks, bladed disks, landing gear, and structural components. Because LPB doesn't require any changes to the material or existing design of the part, LPB applications are FAA sanctioned alterations of original components, and do not fall under the Parts Manufacturing Authority (PMA). "The time and money that can be saved by implementing LPB is astounding. It's encouraging to see additional overhaul applications, but it's even more exciting that a number of OEMs have started including LPB in the initial design phase of components. With LPB, planes are in the air longer and cost less to maintain," says John Cassidy, Quality Assurance Engineer at Lambda Technologies.

Lambda Technologies is an innovative company incorporating a premier materials research laboratory with a world-class engineering and production enterprise dedicated to the development and optimization of surface treatments to improve component performance. For additional information on Lambda Technologies or the LPB process, contact Julie Prev y at (513) 561-0883 or visit www.lambdatechs.com.