

Early Detection of Fretting Fatigue Cracks in Ti-6Al-4V by Ultrasonic Techniques

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sponsored by AFRL/DAGSI



OBJECTIVE

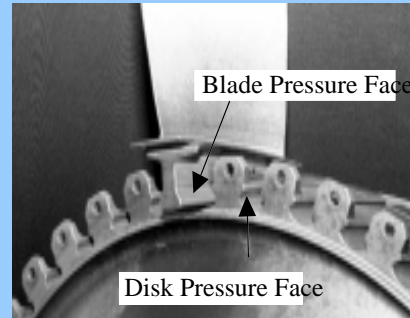
Detect fatigue cracks on gas turbine engine components as early as possible shortly after crack nucleation.

TECHNICAL CHALLENGE

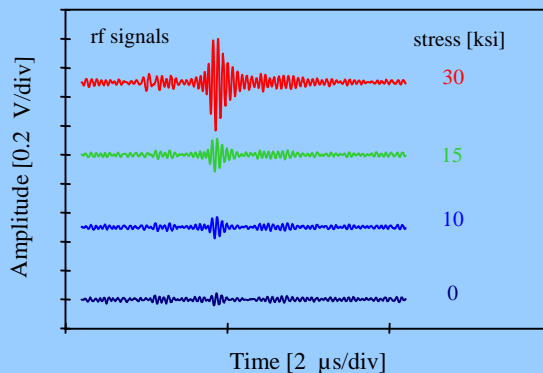
Fretting not only produces fatigue cracks, but also hides them via fretting wear.

BENEFITS

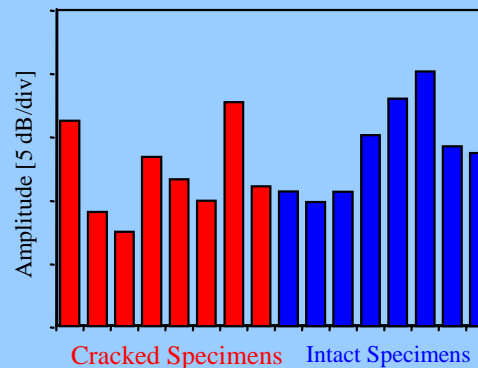
New NDE techniques capable of finding small cracks on fretting damaged components could save the US Air Force up to \$2.5M worth of discarded parts each year.



Crack Closure Modulation



Conventional Amplitude-Based



Thermo-Optical Modulation

