

# NASA Facts



National Aeronautics and  
Space Administration

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**EXPOTECH**

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## New NASA Langley Device Keeps the Skies Safe

NASA Langley Research Center, located in Hampton, Va., has developed an innovative electromagnetic probe technology in an effort to improve the airworthiness of America's aging commercial airline fleet and enhance U.S. airline competitiveness.

Research in nondestructive evaluation methods has resulted in the development of the Rotating Self-Nulling Eddy Current Probe. This instrument has been used to detect small cracks hidden under rivet heads. Test results proved that the probe is capable of tracing the crack tip location in realtime during fatigue load cycles.

### Benefits

This probe is a versatile instrument that can be used with little operator training. It is also comprised of low-cost components. Probes based on this technology have been used to detect cracks in welded joints and to detect wall thinning in steel tubes.

### About the Technology

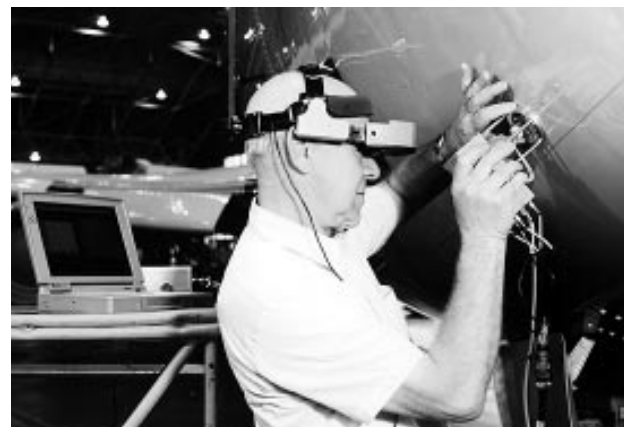
When the probe is rotated around the rivet heads of an aircraft's lap joints, fatigue cracks can be detected with a high degree of accuracy. Due to the simplicity in design of the probe and the associated electronics, an array of probes can be installed in inaccessible locations for periodic monitoring of crack growth of critical infrastructures.

### Options for Commercialization

This technology is part of the NASA Technology Transfer Program a program that seeks to stimulate development of commercial applications from NASA-developed technology. A patent application has been submitted for this technology and Langley is seeking licensees. Suitability of this technology to specific needs can be investigated at Langley.



*The hand-held probe (seen right) is used to acquire measurements with minimal operator training. The computer screen indicates an irregularity in the metal being inspected.*



*This researcher uses the new Rotating Self-Nulling Eddy Current Probe to inspect this NASA aircraft for fatigue cracks.*