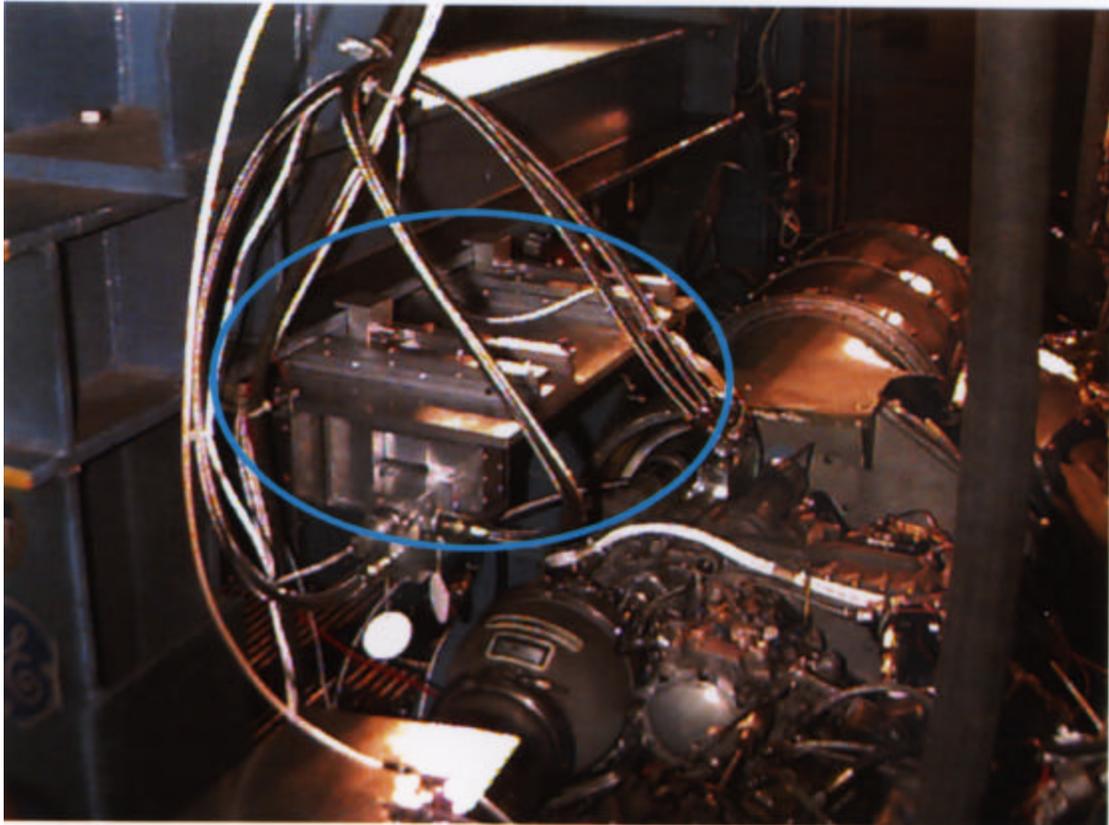


LASERNET OPTICAL OIL DEBRIS SENSOR



NRL has developed a real-time, in-line optical sensor called LASERNET for detecting and classifying suspended particles in lubricating oil flow systems. The LASERNET monitor examines all of the oil flow, not just a sample, and detects and classifies particles according to specific mechanical faults. The system incorporates laser diode illumination of the oil, high-speed optical imaging, real-time image processing, and neural net classification of the particles. A LASERNET monitor has been tested at a Naval Air Warfare Center Aircraft Division helicopter power train facility.

Features and advantages include:

- ❖ Visualizes all particles with high-speed imaging (1000 frames/sec)
- ❖ Detects metallic and non-metallic particles
- ❖ Able to monitor changes in particle size, shape or abundance
- ❖ Correlates particles with specific mechanical wear or faults
- ❖ Real-time analysis gives rapid results and reduces analytical costs

Applications in helicopters, fixed-wing aircraft, and other oil-lubricated rotating machinery include:

- ❖ Continuous health monitoring of engines and gearboxes
- ❖ Notification of need for routine engine maintenance
- ❖ Alarm warning of potential catastrophic failure

Licenses are available to companies with commercial interest.

Points of Contact

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