

APPLICATION GUIDE

F-22 RAPTOR

Real-time, in-flight damage detection. Designed for the F-22 Raptor's F119 Engine, the MetalSCAN online oil debris sensor is integrated into the engine lubrication system.

Application

MetalSCAN MS1000 is the proven industry-leading, real-time, online bearing and gear condition indication for aircraft propulsion systems. First applied to USAF F-22 Raptor fifth generation stealth tactical, MetalSCAN has become the preferred solution for Prognostics and Health Monitoring (PHM) for military aircraft engines and gearboxes, including the F-22 Raptor, F-35 Lightning II and Eurofighter Typhoon multirole fighter. In each case MetalSCAN is a key technology for enabling the application of effective in-flight protection and Condition Based Maintenance (CBM) for critical propulsion and drive-train components.

The F-22 Raptor is fitted with twin F119 engines produced by Pratt & Whitney. Each engine is fitted with a MetalSCAN oil debris sensor to monitor the entire suite of bearings and gears within the engine. The MetalSCAN MS1319 sensor mounts directly to the outlet of the oil pump. Signal conditioning, including ferromagnetic particle counting, limit exceedance warning and trend monitoring are performed by the engine mounted Comprehensive Engine Diagnostic Unit (CEDU).

