

Aircraft Engine Nozzle Health Prediction Software



*Near real-time fault isolation
& early warning of system failure.*

Impact Technologies has developed a modular prognostic health management system for in-situ or off-line health assessment of aircraft engine nozzles and related hydro-mechanical actuation systems. The software uses system modeling and information fusion techniques to provide near real-time fault isolation and early warning of system failure. Built-in validation and verification methods determine data integrity to enable accurate fault tracking and minimize false alarms.

Features:

- Provides near real-time autonomous health assessment
- Enables incipient fault detection and isolation without false alarms
- "Plug and Play" software architecture permits addition of new modules or selective implementation of existing modules
- Multiple algorithms within each module provide improved confidence in diagnosis and prognosis
- Computationally low cost versions available for on-board implementation
- Easily integrates with commercially available DAQ equipment from National Instruments (Custom interfaces also available)



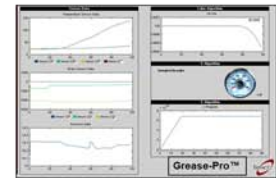
GearMod™
Gear PHM



M-CAHM™
Actuator PHM



D-CAHM™
Bearing PHM



GreasPro™
Grease PHM

impact-tek.com

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**Headquarters
New York Office**

200 Canal View Boulevard
Rochester, NY 14623
Phone: 585.424.1990
Fax: 585.424.1177

Pennsylvania Office

270 Walker Drive, Suite 200W
State College, PA 16801
Phone: 814.867.5122
Fax: 814.867.7550

Georgia Office

75 Fifth Street NW, Suite 312
Atlanta, GA 30308
Phone: 404.526.6188
Fax: 404.526.6189

Benefits:

- Provides more sensitive incipient fault detection
- Minimizes false alarm penalties
- Increases component availability and improves mission readiness
- Reduces overall life cycle costs
- Improves operational safety

“The software uses system modeling and information fusion techniques to provide near real-time fault isolation and early warning of system failure.”

Software Modules:

GearMod™ - Combines proven synchronous averaging vibration feature analysis techniques, physics-based failure models, and operational data to detect tooth bending, web fatigue, and multiple surface fatigue wear modes in gears.

GreasePro™ - Monitors the amount and the contamination of critical lubricants and recommends lubricant replenishment.

M-CAHM™ - Utilizes control system information and sensor measurements to predict the health of electro-hydraulic actuation system components.

D-CAHM™ - Merges operational data and damage models to provide health assessments of slow bearings.

