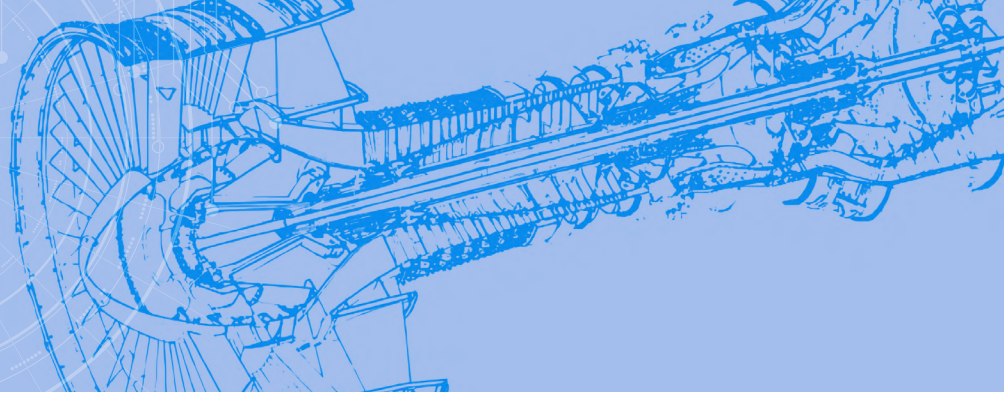




SOUTHWEST RESEARCH INSTITUTE



## Engine Health Management

Since 1989, Southwest Research Institute® (SwRI®) has provided jet engine health management solutions for the U.S. Air Force, Army, and original equipment manufacturers (OEM). SwRI is a recognized leader in developing innovative solutions and providing independent engineering assessments, including:

- Engine Health Management Plus (EHM+)
- Engine Trending and Diagnostics (ET&D)
- Technical manual development
- ET&D training

SwRI's success in EHM is based on a multidisciplinary systems engineering approach to problem solving. Comprehensive expertise in design, modeling and integration enables SwRI to address client needs.

SwRI has implemented an AS9100 Quality Management System for all design and manufacturing processes, including engineering analysis tasks and software development.

### Engine Health Management Plus (EHM+)

Working closely with the U.S. Air Force, SwRI supports EHM+ to reduce engine maintenance, repair and overhaul costs and engine downtime. ET&D uses historical engine performance and maintenance data to develop trends that are used to determine engine performance and identify potential engine failures before they occur. EHM+ uses ET&D and Reliability Centered Maintenance (RCM) concepts to improve performance. EHM+ data is warehoused and accessible over the Internet.

### Engine Technical Manuals

SwRI engineers use their operational understanding of engine control systems, sensors and signals, and engine trending software to develop engine performance analysis methodologies for the following engines:

- F100    • F110    • TF33
- F101    • F118    • TF34
- F108    • T56     • TF39

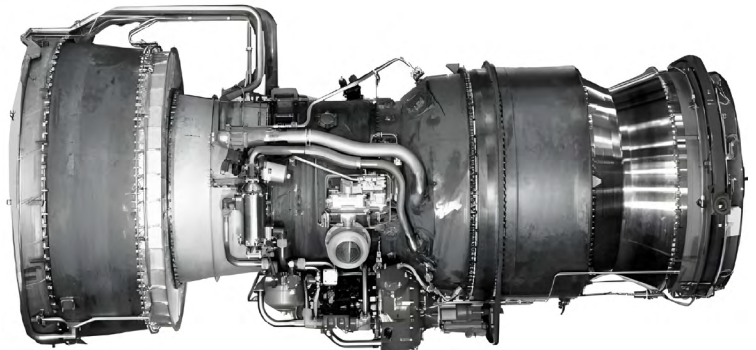
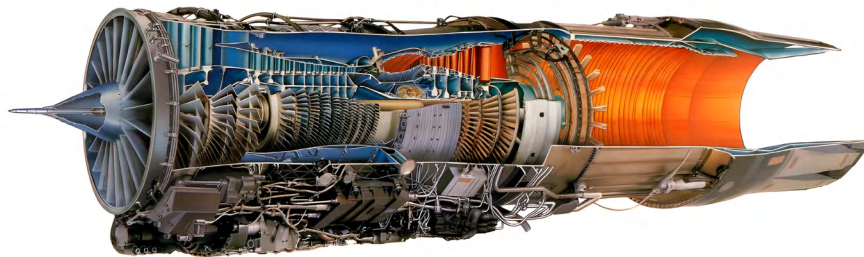
Development of the methodologies requires research of engine parameters and their correlations, and review of maintenance that affects engine performance trends. The methodologies are documented in Technical Orders that instruct USAF personnel on how to trend and analyze a specific type/model/series engine.

### Engine Trending and Diagnostics Training

SwRI has developed courses on EHM+ concepts for the following engines:

- F100    • F108    • TF33
- F101    • F110    • TF34

SwRI works closely with the USAF Air Education and Training Command (AETC), other MAJCOMs, USAF engineers and OEMs to develop the courses, following the Air Force Instructional System Design (ISD) process, and transfers the course material for AETC to continue providing the training after the first year of delivery by SwRI. Course content includes relationships of engine parameters, trending concepts and terminology, and use of available software tools to perform EHM+ related job duties.

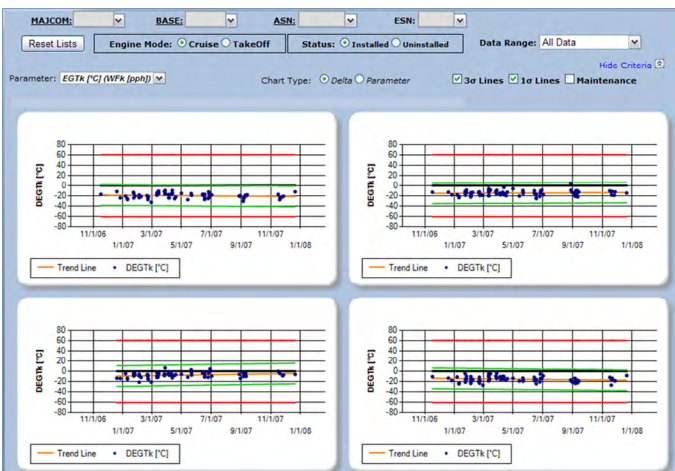


SwRI works closely with the U.S. Air Force to provide jet engine health management for various engine models including F110, TF33, F118, F100, TF39 and F108.



DO 168936

EHM+ tools provide users with the ability to quickly assess aircraft engine health.



DO 168937

EHM+ tools display performance parameter trends for a single engine.



DO 168935

SwRI develops and delivers ET&D training to USAF engine maintainers.

**We welcome your inquiries.  
For more information, please contact:**

**Kevin Marafoto**  
Program Manager  
210.522.4932  
[kevin.marafoto@swri.org](mailto:kevin.marafoto@swri.org)

Applied Physics Division  
Electromechanical & Optical Systems Department



## SOUTHWEST RESEARCH INSTITUTE®

Southwest Research Institute® is a premier independent, nonprofit research and development organization. With eleven technical divisions, we offer multidisciplinary services leveraging advanced science and applied technologies. Since 1947, we have provided solutions for some of the world's most challenging scientific and engineering problems.

An Equal Employment Opportunity/Affirmative Action Employer  
Race/Color/Religion/Sex/Sexual Orientation/Gender Identity/National Origin/Disabled/Veteran  
Committed to Diversity in the Workplace

Like. Share. Follow. Listen.

210.522.2122

[ask@swri.org](mailto:ask@swri.org)



©2024 Southwest Research Institute.  
All rights reserved.

Designed & printed by SwRI MPS 14 0724 272385 tp