Turbine Engine Fatigue Facility (TEFF)

Description:

The Turbine Engine Fatigue Facility (TEFF) is a unique research facility which performs structural and vibrational evaluation of turbine engine components. Through basic research and analysis, the TEFF provides direct support of the Versatile Affordable Advanced Turbine Engine (VAATE) capability areas and the Propulsion Safety and Affordable Readiness (P-SAR) program through structural characterization, vibrational response, life prediction, damage tolerance, and verification of analytical predictions.

Research and Development Capability:
Electrodynamic shakers
- 18000 lb Ling
- 6000 lb Unholtz-Dickie
- 700 lb Ling
- 100 lb MB Dynamics
- 50 lb MB Dynamics

High frequency (up to 20 kHz) piezoelectric shaker
Free-Free electrodynamic excitation system
Multiaxial servohydraulic load frame
Uniaxial servohydraulic load frame
Scanning laser vibrometers
Single point laser vibrometers
Travelling wave excitation system
Dynamic ping frequency analysis
High temperature capability up to 3000^{0}F

Purpose:

Perform structural and vibrational evaluations on turbine engine components. Demonstrate durability of advanced turbine engine components. Investigate vibrational problems of fielded systems. Characterize and develop vibrational damping treatments. Investigate life capability of components with FOD and surface treatments. Perform life predictions and analytical assessments.

Products:

Complete test data sets on advanced turbomachinery blades and vanes.

Availability:

Primarily in-house and related DoD contractor research. Other U.S. Government agency, DoD contractor and commercial customer programs upon request. Contact: 937-656-5530.