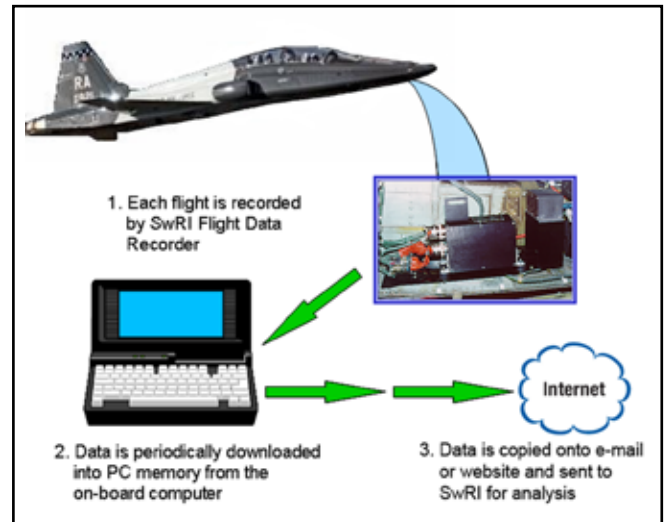


Aircraft Usage Assessment and Spectra Development

Southwest Research Institute® (SwRI®) provides capabilities and expertise to precisely capture, analyze and report critical flight parameters for in-service aircraft, for typical training usage or specialized flight test situations. This information can provide significant input to:

- Analysis and testing programs for determination of in-flight loads
- Fatigue and damage tolerance evaluations
- Inspection requirements
- Analysis of proposed structural modifications
- Development of realistic load events for laboratory simulation



Data downloading and processing

Capabilities

SwRI has 25 years of experience with aircraft instrumentation for measurement of in-flight loads and stresses as well as critical maneuver parameters. Staff members have performed usage assessment programs for USAF primary and advanced jet trainers as well as fighter aircraft for allied foreign governments. SwRI has also developed software for routine processing and development of spectra for analysis and testing.



T-37 and T-39 aircraft

Experience

- Installation of flight data recorders
 - T-37 and T-38 at 12 USAF training bases
 - T-39 for training USAF and US Navy weapons systems officers
 - F-5 and T-37 for updating inspection intervals in five foreign countries
- Quarterly fatigue analysis and reporting (over 15 years) for T-39 training of US Navy weapons systems officers
- Software development to process and analyze flight recorded data
 - Conversion of raw data to engineering units
 - Graphical verification and validation
 - Maneuver spectra database development
 - Stress sequence development
 - Automation
- Installation of sensors to monitor aircraft responses
 - Strain gages
 - Potentiometers
 - Accelerometers
 - Load cells
 - Gyroscopes
- Qualification of aircraft recording equipment and sensors to satisfy vibration and electromagnetic interference military standards



Recorder installed in T-39



Typical strain gage installation

KEYWORDS

Usage Assessment

Flight Data Recording

Strain Gage Applications

Strain Gage Instrumentation

Aircraft Instrumentation

Recorder Development

Data Collection and Processing

Software Development

Spectra Development

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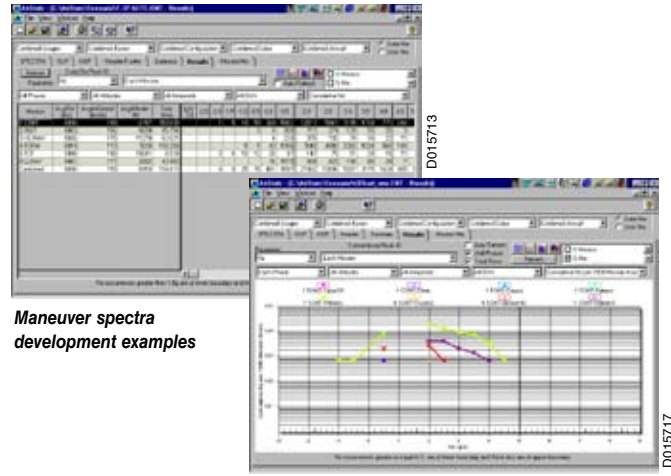
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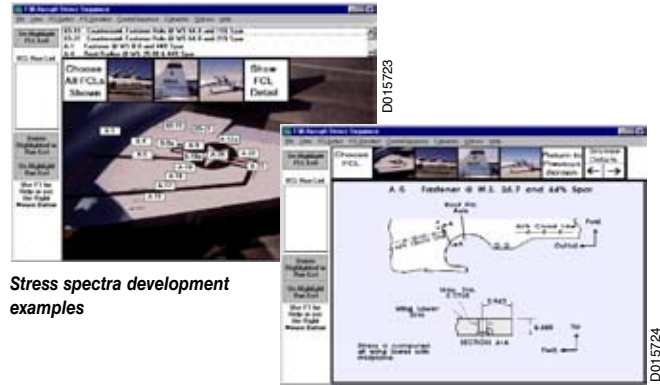
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Resources

- Data acquisition systems
 - Rugged and modular for installation flexibility
 - Custom designed using off-the-shelf components (up to 16 channels)
 - SoMat® eDAQ® and eDAQ-lite® systems (up to 64 channels)
- Software development for spectra development and data processing
 - Windows-based for local desktop computers
 - Java-based applications for multiple platforms and databases



Maneuver spectra development examples



Stress spectra development examples



Benefiting government, industry and the public through innovative science and technology



Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops and offices for more than 3,000 employees who perform contract work for industry and government clients.

We welcome your inquiries.

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