

Static and Fatigue Testing of Full-Scale Aircraft Structures

KEYWORDS

Aircraft Structural Testing

Static Structural Testing

Fatigue Structural Testing

Full-Scale Aircraft Structures Testing

Aircraft Components Structural Testing

Life-Assessment Testing

Strain Gage Applications

Strain Gage Instrumentation

For more than 20 years, Southwest Research Institute® (SwRI®) has conducted static and fatigue testing for full-scale aircraft structures and major components. Technical staff members use their extensive knowledge of aircraft structures and in-flight loading to produce cost-effective and timely test programs. These test programs use state-of-the-art equipment to provide hydraulic load and fuselage pressurization control combined with data acquisition hardware for high channel count monitoring and recording of loads, deflections, strain and crack growth.

Capabilities

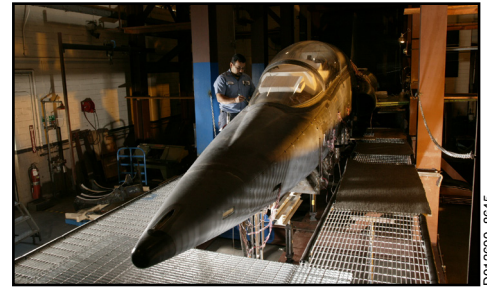
SwRI develops comprehensive aircraft structures test programs tailored to client needs that can include loads development, test procedures, test fixtures, load frame, test setup, instrumentation, test monitoring, nondestructive inspection (NDI), data analysis, tear-down and post-test documentation. The Institute routinely designs and fabricates the load frame, whiffle trees, and hydraulic load systems. Customized software and data processing are also developed to meet clients' unique monitoring and measurement reporting needs.

Experience

- T-37** ■ Full-scale fatigue testing
- T-38** ■ Full-scale fuselage fatigue testing
 - Wing fatigue testing
 - Flap testing
 - Horizontal tail testing
- T-39** ■ Wing fatigue testing
- C-130** ■ Skin panel fatigue testing
 - Landing gear attachment frame fatigue testing

Facilities

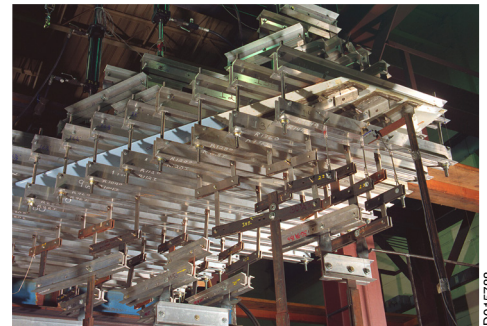
- Temperature and humidity controlled structures test building with 7,000 square feet of completely unencumbered test floor
- Total test floor coverage by 30-ton bridge crane with 30-ft hook height plus 10-ton independent secondary hook
- Hydraulic power supplies of up to 80 gpm at 3,000 psi
- Air pressurization system up to 375 cfm at 150 psi
- MTS AeroST hydraulic controller supported by customizable LabVIEW® data acquisition systems



Full-scale fuselage testing



Custom test rigs designed, fabricated and used by SwRI for structural testing



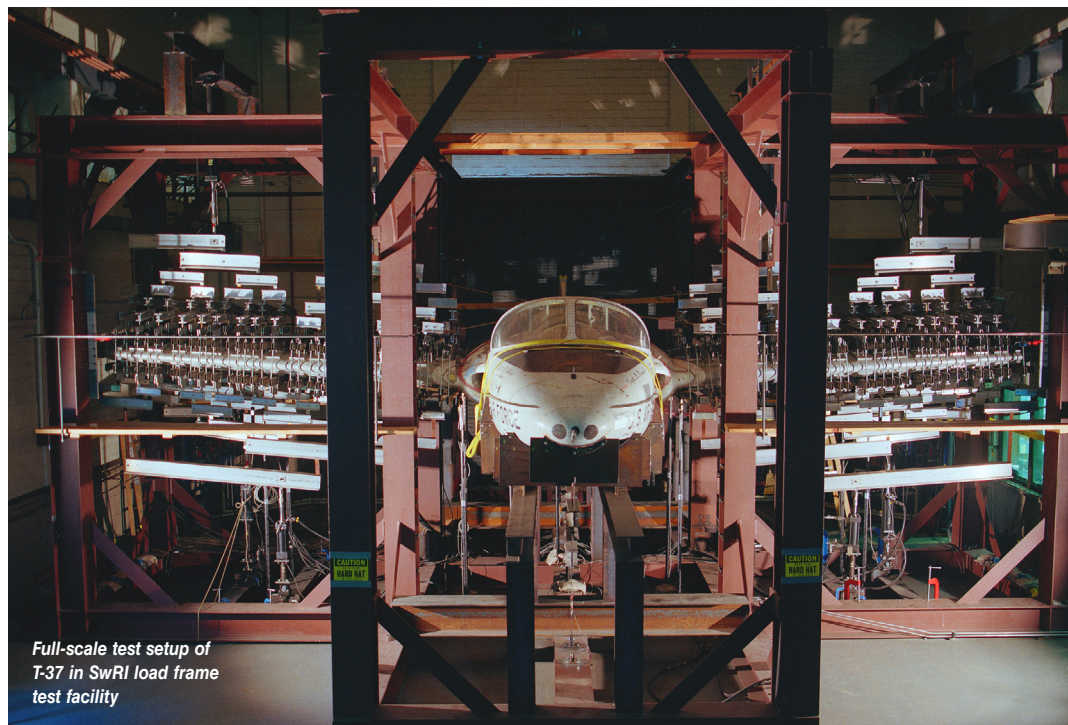
Example of a distributed wing load test



Wing section of T-39 trainer undergoing fatigue testing



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



Full-scale test setup of
T-37 in SwRI load frame
test facility

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your inquiries.**

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