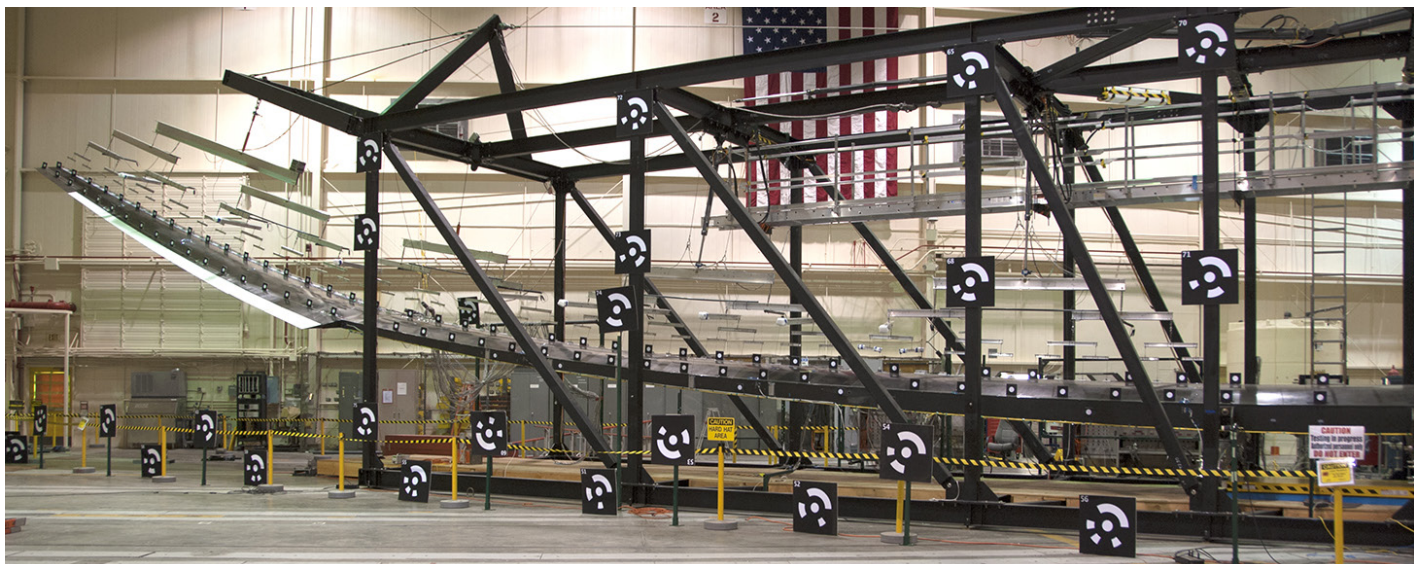


NASA Armstrong Flight Research Center Aerostructures Branch Aero/Structural Loads Group

The Aero/Structural Loads Group within the Aerostructures Branch at the NASA Armstrong Flight Research Center (AFRC) performs structural research, analysis, and testing to ensure structural airworthiness in order to safely achieve the mission success objectives of flight research projects at AFRC. The group achieves these objectives by providing flight- and ground-testing technical support throughout a project's lifecycle. This support includes structural design; stress and loads evaluation; test planning; test execution; and post-test data analysis and documentation. Expertise in aircraft structural and loads analyses combined with extensive experience in both commercial and military aircraft renders the Aero/Structural Loads Group well equipped to provide technical services in aircraft testing.

G-III Wing Loads Calibration Test



Global Observer Wing Loads Test

FLIGHT TEST SUPPORT CAPABILITIES

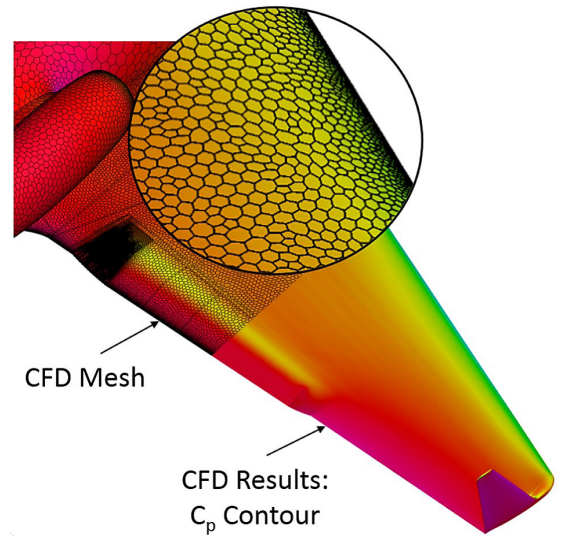
- Conduct pre-flight and post-flight analyses of flight loads and airframe stresses/deflections using state-of-the-art computational tools. Loads analyses includes both external air loads and internal structural loads. Structural evaluation includes both metallic and composite materials. Software being used are:

Software	Description
MSC NASTRAN & PATRAN	Finite Element Analyses and pre/post processing
PTC Creo	3D Modeling
CMARC, TRANAIR, FUN3D, CARD3d	Computation Fluid Dynamic analysis
EQDE	Regression analysis software to generate loads equations using applied loads and strain gage data (NASA AFRC)
BALFIT	Regression model optimization software to generate models of calibration data (NASA ARC)

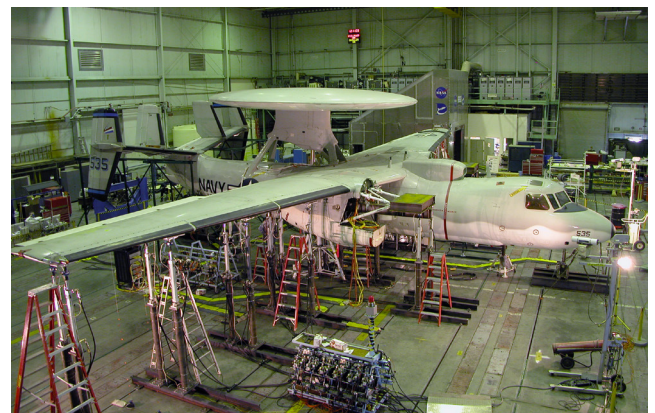
- Provide structural design review support for flight research projects
- Collect, analyze, and interpret flight test data, and correlate with pre-flight predictions
- Develop structural flight test techniques and supports control room operations associated with research flights

GROUND TEST SUPPORT CAPABILITIES

- Plan and execute ground tests on flight aircraft, ground-test articles, and aircraft components. Tests include:
 - Structural proof test
 - Stain gage calibration test
 - Structural deflection measurement
 - Mass properties measurement
 - Thermal testing
- Design structural ground-test fixtures and unique instrumentation solutions
- Structural ground tests are typically conducted in the NASA AFRC Flight Loads Laboratory (FLL)



Mission Control Room Support



E2-C Hawkeye Loads Calibration Test

Contact Information

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