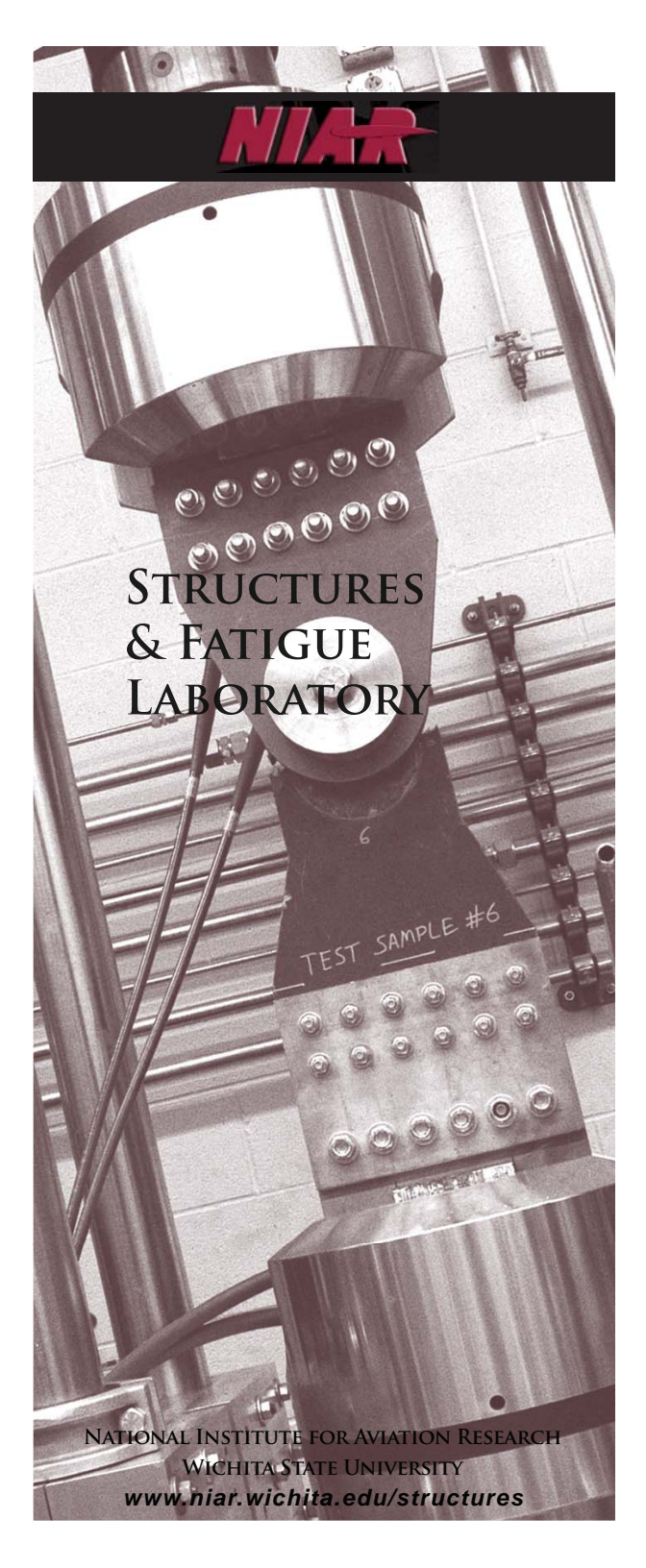


The logo for the National Institute for Aviation Research (NIAR) is displayed in a stylized, bold, red font with a black outline. The letters are slightly slanted and have a metallic sheen.

NIAR

The background of the entire page is a photograph of a complex structural test rig. It features a central vertical column with a large, cylindrical upper section and a lower section with a circular opening. The rig is surrounded by various pipes, cables, and mechanical components. The text "STRUCTURES & FATIGUE LABORATORY" is overlaid in a black, serif font. Below the text, the number "6" is visible on the rig, and a label "TEST SAMPLE #6" is written on a lower section. The rig is set against a light-colored, textured wall.

**STRUCTURES
& FATIGUE
LABORATORY**

NATIONAL INSTITUTE FOR AVIATION RESEARCH
WICHITA STATE UNIVERSITY
www.niar.wichita.edu/structures

The Structures & Fatigue Laboratory provides the highest standards in static and fatigue testing to generate material strength allowables and evaluate the endurance of materials subjected to cyclic loading. The laboratory supports both metal and composite testing with research funded by the aviation industry and government-related research projects.



EQUIPMENT & CAPABILITIES

- A total of 32 load frames: 5.5, 22, 55, 110 and 220-kip load frames with environmental testing chambers
- Slow cycle fatigue machines
- MTS TestStar II test controllers and MTS Flextest GT test controllers with multi-channel data acquisition capabilities
- 35-50 -kip structural actuators
- Impact drop tower
- Laser extensometers
- MTS clip-on displacement gages
- MTS high temperature chambers (up to 2500° F) and high-temperature uniaxial extensometers
- Strain Smart (multichannel strain indicating software)
- Strain calibrators
- Istra (a highly sensitive, non-contact 3D electronic speckle pattern interferometry device to measure thermal expansion and full-field strains)
- 60,000 in-lb torsion test fixture
- 2x4 foot compression test fixture
- Fractomat channels, clip gages and stereoscopes to monitor fatigue crack growth
- Uniaxial and biaxial extensometers
- ARAMIS photogrammetry system, a non-contact optical 3D deformation measuring system to characterize displacements and strains in components
- Environmental chambers to conduct static and fatigue testing in temperatures ranging from -200F to 600 F
- Wide range of fixtures to conduct testing per ASTM/ Boeing/SACMA standards
- Ability to design and fabricate non-standard test fixtures and perform non-standard tests
- On-site equipment calibration lab



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