**MECHANICAL TEST LAB**

The Mechanical Test Laboratory provides the highest standards in static and fatigue testing for composites and metals to generate material strength allowables and evaluate material properties.

**CAPABILITIES**
- Static and cyclic testing (ASTM and non-standard)
- Impact drop testing
- Slow-cycle fatigue testing
- High temperature testing to 2500°F
- ASTM/Boeing/SACMA standard testing
- Ability to design and fabricate non-standard test fixtures and perform non-standard tests
- Aging studies
- Damage tolerance of sandwich panels
- Specimen conditioning
- Environmental testing (-200°F to +600°F)
- Full-scale structural testing
- Specimen machining (ASTM and non-standard)
- Strain gauging and specimen QC

**FACILITIES & EQUIPMENT**
- 5-kip to 220-kip load frames with environmental testing chambers
- Slow-cycle fatigue machines
- Impact drop tower
- Laser extensometer
- Multiple MTS displacement instruments (uni-axial and biaxial)
- MTS high-temperature chamber (up to 2552°F) and high-temperature uniaxial extensometer
- Strain Smart (multichannel strain indicating software)
- Strain calibrators
- ARAMIS (offers non-contact 3D optical deformation and strain analysis)
- 60,000 in-lb torsion test frame
- Wide variety of ASTM test fixtures
- High-rate load frame (600 in/sec)

**PROJECTS**
- Off-axis core shear properties of honeycomb core
- Compression after impact testing to determine environmental knockdown effects (NIAR-Industry-State)
- Fatigue and static testing of titanium and stainless steel materials
- ARAMIS photogrammetry on friction stir welded panels
- ARAMIS photogrammetry on patella inserts for alternate ACL human knee repair

**CLIENTS**
- Beechcraft
- Sikorsky Aircraft
- NAVAIR
- Learjet
- Cessna
- Spirit AeroSystems

Located on the Wichita State University campus, in a city recognized as the Air Capital of the World, The National Institute for Aviation Research (NIAR) is a prestigious state-of-the-art aerospace research and development laboratory with global reach and expertise. NIAR integrates university, government and industry in cooperative efforts to advance technologies.

The Institute’s clientele include many of the world’s aerospace manufacturers, NASA and the FAA. It is the largest aviation R&D academic institution in the United States, with 135,000 square feet and more than a dozen laboratories. NIAR is recognized internationally as a high-tech research and development, design, testing, certification and learning center.

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