



NIAR

**AERODYNAMICS
LABORATORY**

The National Institute for Aviation Research at Wichita State University is equipped to handle a wide variety of aerodynamic testing needs. The Institute offers services in model design and production, flow visualization, subsonic and supersonic wind tunnel testing.

**NATIONAL INSTITUTE FOR AVIATION RESEARCH
WICHITA STATE UNIVERSITY
www.aero-labs.org**



WALTER H. BEECH WIND TUNNEL

- Test section 7'H x 10'W x 12'L
- 2,500 HP fan
- Active heat exchanger
- Speeds of more than 240 mph
- Accurate and precise internal and external balances
- Real-time data reduction and display
- Aerotech ATE external balance with several model mounting arrangements
- Triumph and Aerotech ATE internal balances and c-strut sting system
- PSI 8400 pressure measurement system with more than 280 channels available
- Flow visualization with multi-camera video recording system
- Engineering technical services available from WSU aerospace engineering faculty including computational fluid dynamics modeling, analysis and wind tunnel model structural analysis.



RESEARCH MACHINE SHOP

- Complete wind tunnel model fabrication services
- CATIA V5 & Mastercam versions 9.1 and X software
- HAAS VF-2 vertical machining center 30" x 16" x 20" travel
- HAAS VF-4, four axis vertical machining center 50" x 20" x 25" travel
- FADAL 8030 vertical machining center 80" x 30" x 30" travel



FLOW VISUALIZATION LAB

- 2'W x 3'H x 6'L Flow visualization water tunnel
- Flow velocities between zero and one feet per second
- Models can be moved either in yaw or pitch
- Flow visualization using dye streams or hydrogen bubbles
- Laser and high-intensity lighting systems
- High-resolution digital camera
- Digital video cameras
- Submersible video camera
- DVD and digital video capture



SUPERSONIC WIND TUNNEL

The Aerodynamics Laboratory also has access to the WSU aerospace engineering department's supersonic wind tunnel. The nine by nine inch supersonic tunnel can simulate wind speeds from Mach .9 to Mach 4 for 30-second intervals with a 40-minute preparation time.

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