



NASA-Ames Unitary Plan Wind Tunnel

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Ames Research Center

ATOM Presolicitation Conference

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Outline

- **Overview of NASA-Ames and Facilities**
- **Ames Unitary Plan Wind Tunnel Overview**
 - **Mission**
 - **Organizational Structure**
 - **Branch Functions/Needs**



Ames Research Center



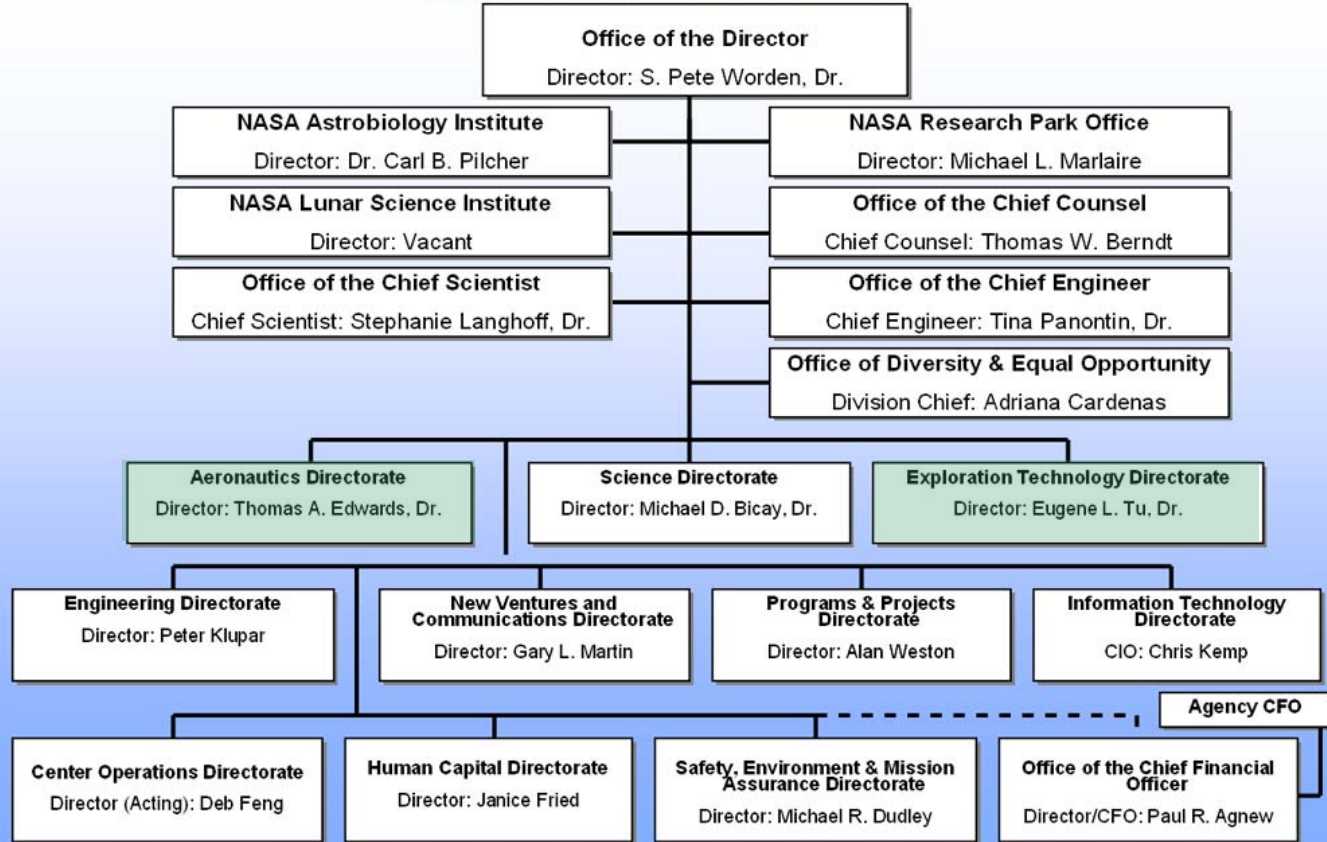


Ames Organizational Structure



Ames: Science and Technology Systems for Exploration

NASA Ames Research Center



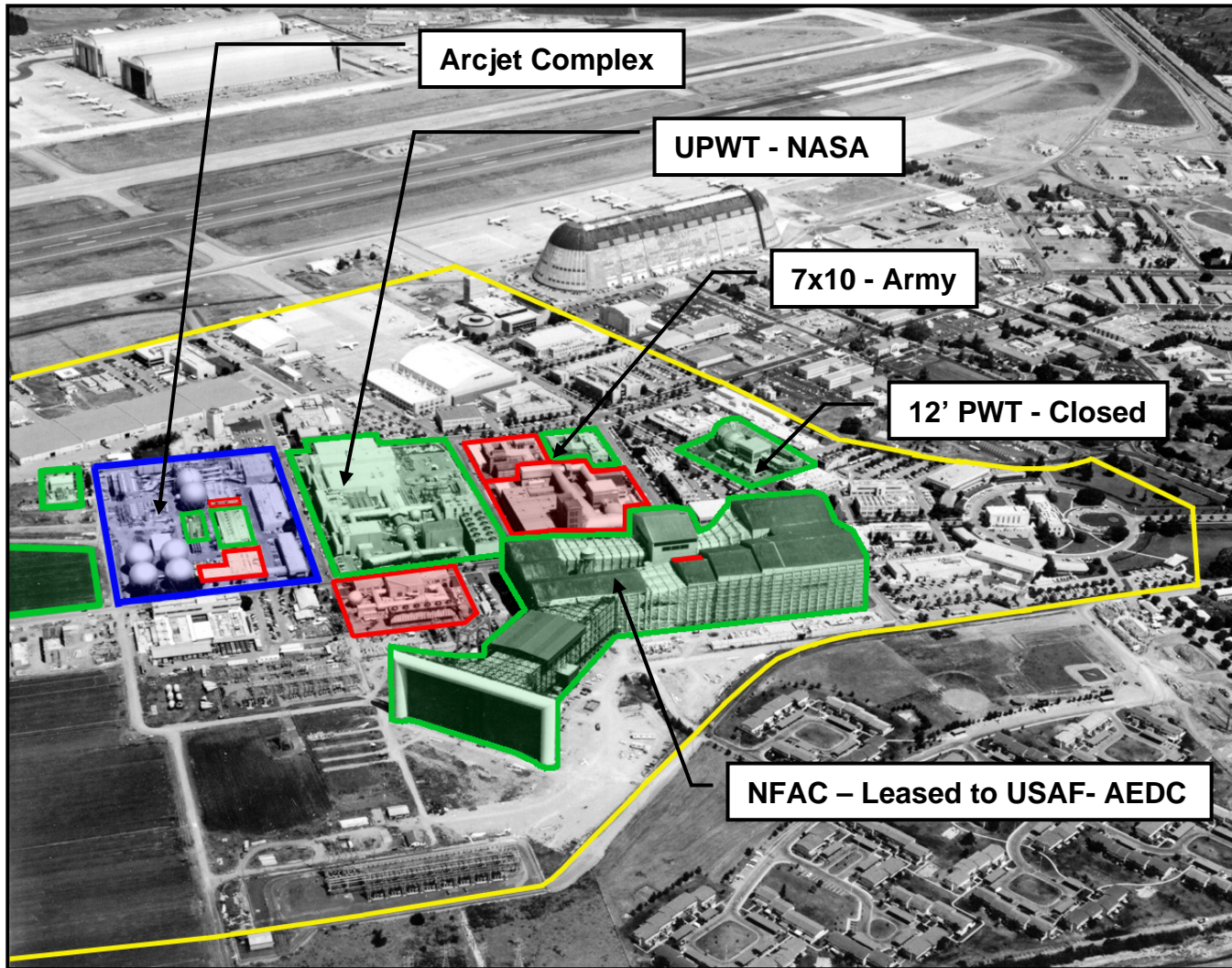


Wind Tunnel Division Organization

- Wind Tunnel Division, Code AO
 - Don Nickison, Chief
- Wind Tunnel Operations Branch, Code AOO
 - Frank Kmak, Chief
- Wind Tunnel Systems Branch, Code AOI
 - Jon Bader, Chief
- Experimental Aero-Physics Branch, Code AOX
 - Rabi Mehta, Chief



Ames Ground Testing Facilities





ARC Unitary Plan Wind Tunnel



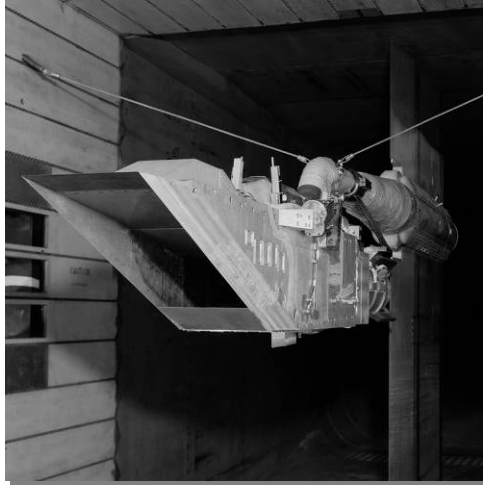
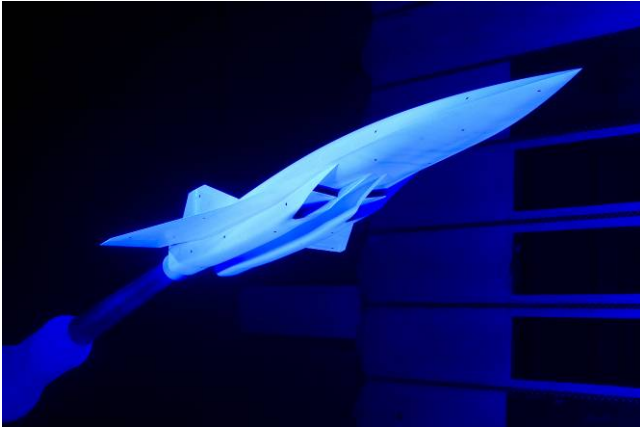


Ames' Wind Tunnel Mission

- Meet Customer Testing Needs
- Safely Operate and Maintain the Tunnels and Support Systems
- Maximize Use of Facilities
 - Improve Testing Capability
 - Test Techniques
 - Facility Enhancements
 - Surpass Customer Expectations (Costs/Capabilities)
 - Expand Customer Breadth
 - Improve Cost Competitiveness

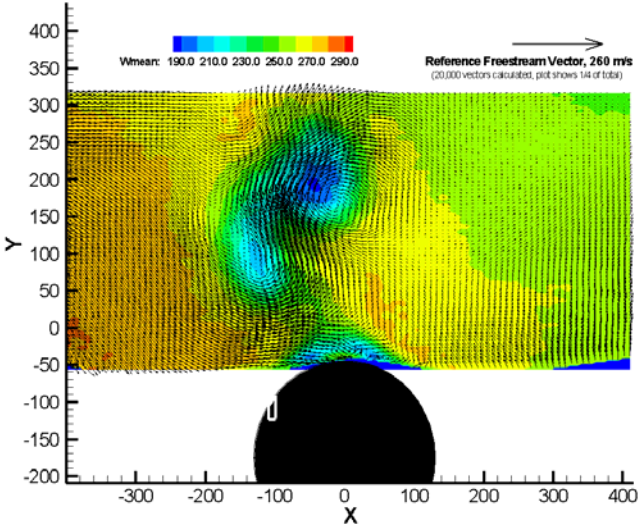
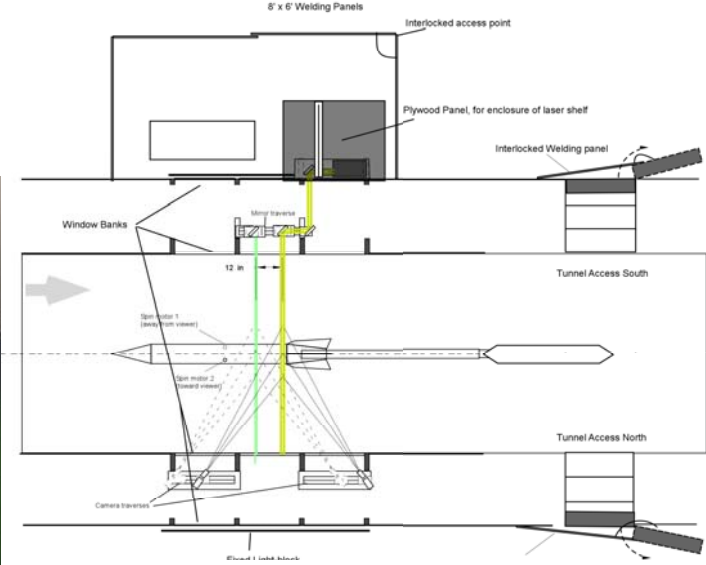


Ames Unitary Wind Tunnel Testing





PIV in the 11' x 11' Transonic Test Section



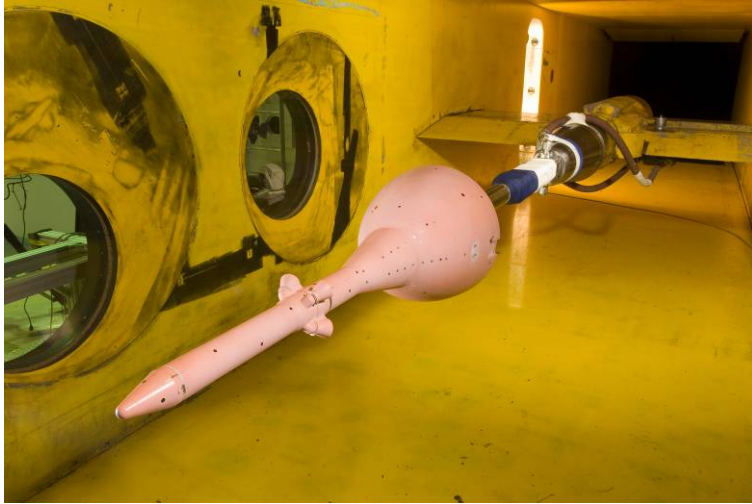


Wind Tunnel Testing at Ames





Unitary Wind Tunnel Testing





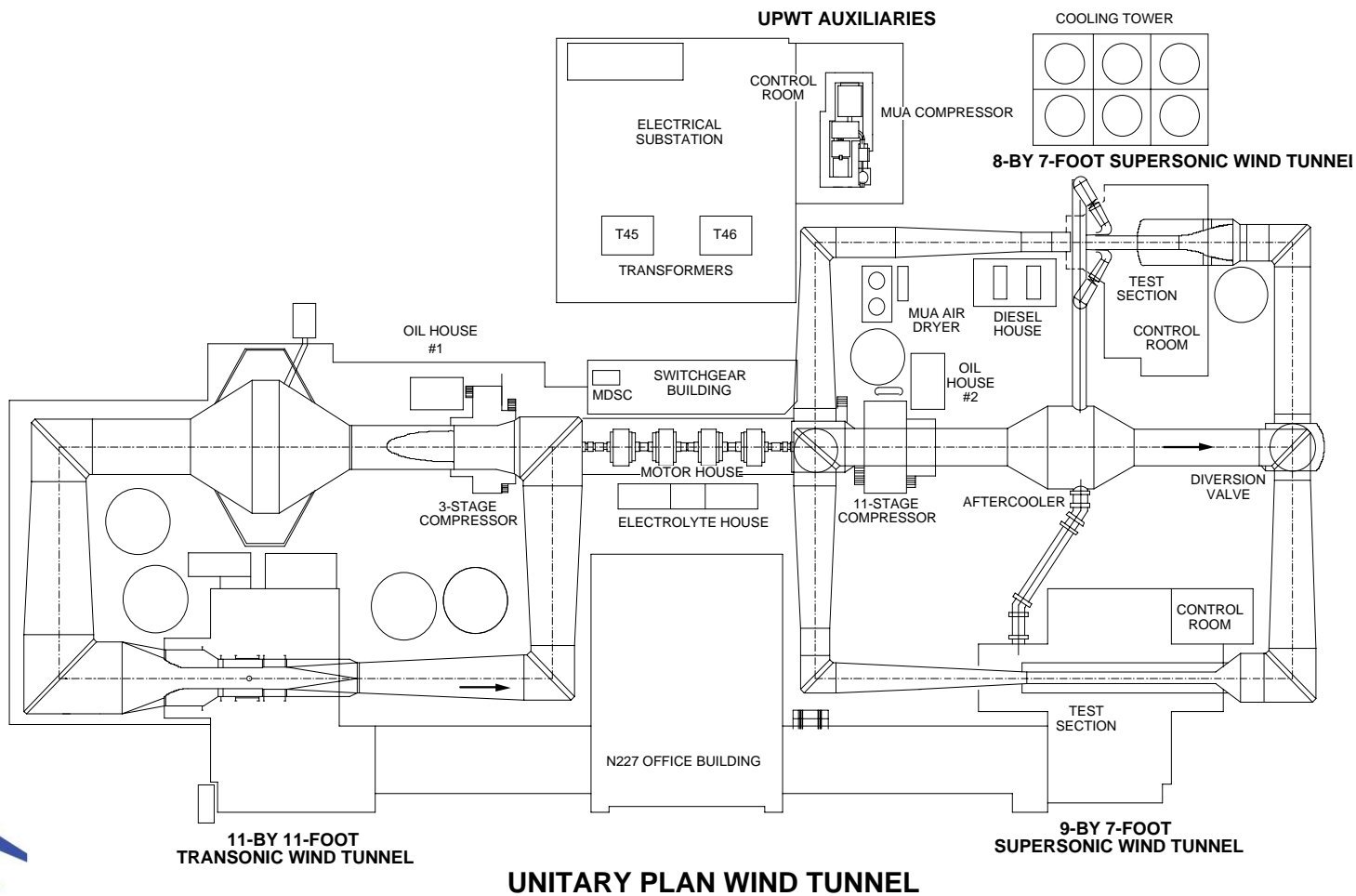
Unitary WT Major Stakeholders

- **Wind Tunnel Users**
 - **NASA Programs/Missions such as Constellation, Fundamental Aeronautics**
 - **Department of Defense**
 - **Commercial**
- ***NASA's Aeronautics Test Program (ATP)***





Unitary Plan Wind Tunnel





AOO Branch Mission

Plan, Direct, Lead, & Operate

- Plan, Coordinate, and lead all test activities from test justification through data transmittal
- Ensure that data quality meets customer requirements
- Oversee day-to-day operation of all wind tunnels
- Operate the tunnel and model control systems
- Responsible for model integrity, system safety, and safe operating procedures
- Develop and maintain test crew assignments
- Develop advanced test techniques and procedures
- Calibrate wind tunnel facilities
- Develop test process and test planning guidelines





AOO Branch Mission (Cont.)

Plan, Direct, Lead, & Operate

- Develop safety guidelines and procedures
- Develop facility maintenance procedures and schedules
- Manage the MAXIMO maintenance productivity software tool
- Maintain wind tunnel facilities at a high state of readiness and productivity through active maintenance
- Propose, develop, and coordinate major Construction of Facilities projects
- Provide Configuration Management services to manage the change of documents, drawings, and software
- Provide engineering support for development and repair of wind tunnel facilities





AOO Skill Categories

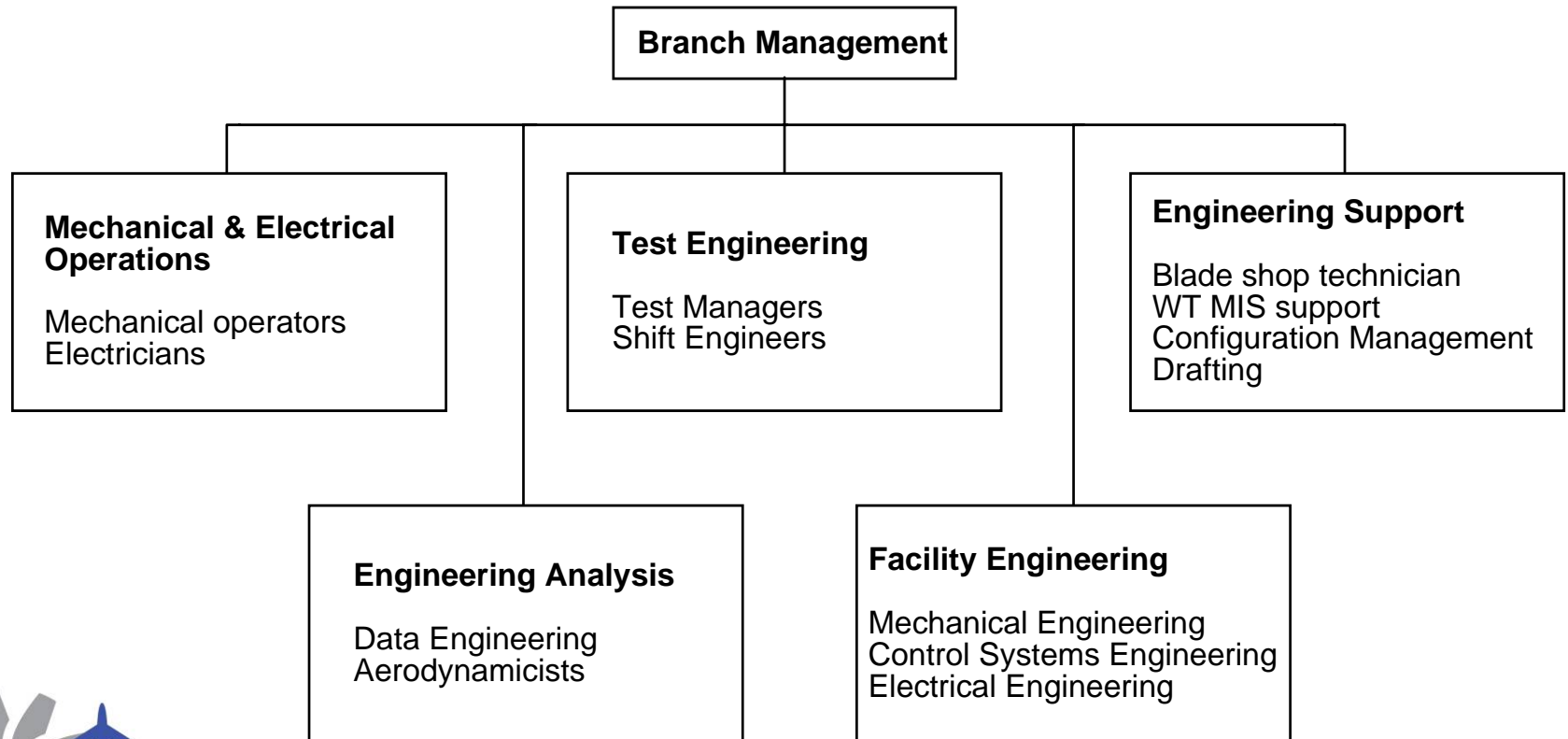
- Wind Tunnel Test Engineers
 - Test Managers
 - Shift Engineers
- Tunnel System Operators and Technicians
 - Tunnel and Model Support Operators
 - Auxiliaries Facility and HPA System Operators
- High Voltage Electricians
- Wind Tunnel Model Stress Analysts
- Mechanical & Electrical Engineers
- Control System Engineers
- Aerodynamics Research Analysts
- Configuration Management Specialists
 - Drafting
 - Technical Writing – MIS Support





AOO Branch Structure

WIND TUNNEL OPERATIONS BRANCH ORGANIZATION CHART



AOI Branch Mission



- **Collect Data!!!**

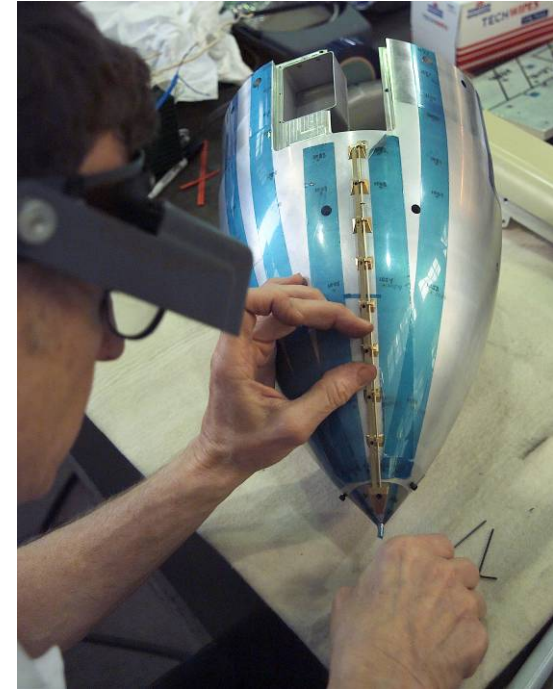
- Provide, configure, operate, and support (1) sensors, (2) instrumentation, (3) data systems and (4) related systems used to gather test data for customers
- Develop hardware, software, and processes to enhance and improve the quality of the data and the efficiency of the data gathering process
- Assist the customers and the AOO test team members in viewing/reviewing the data during and after a wind tunnel test





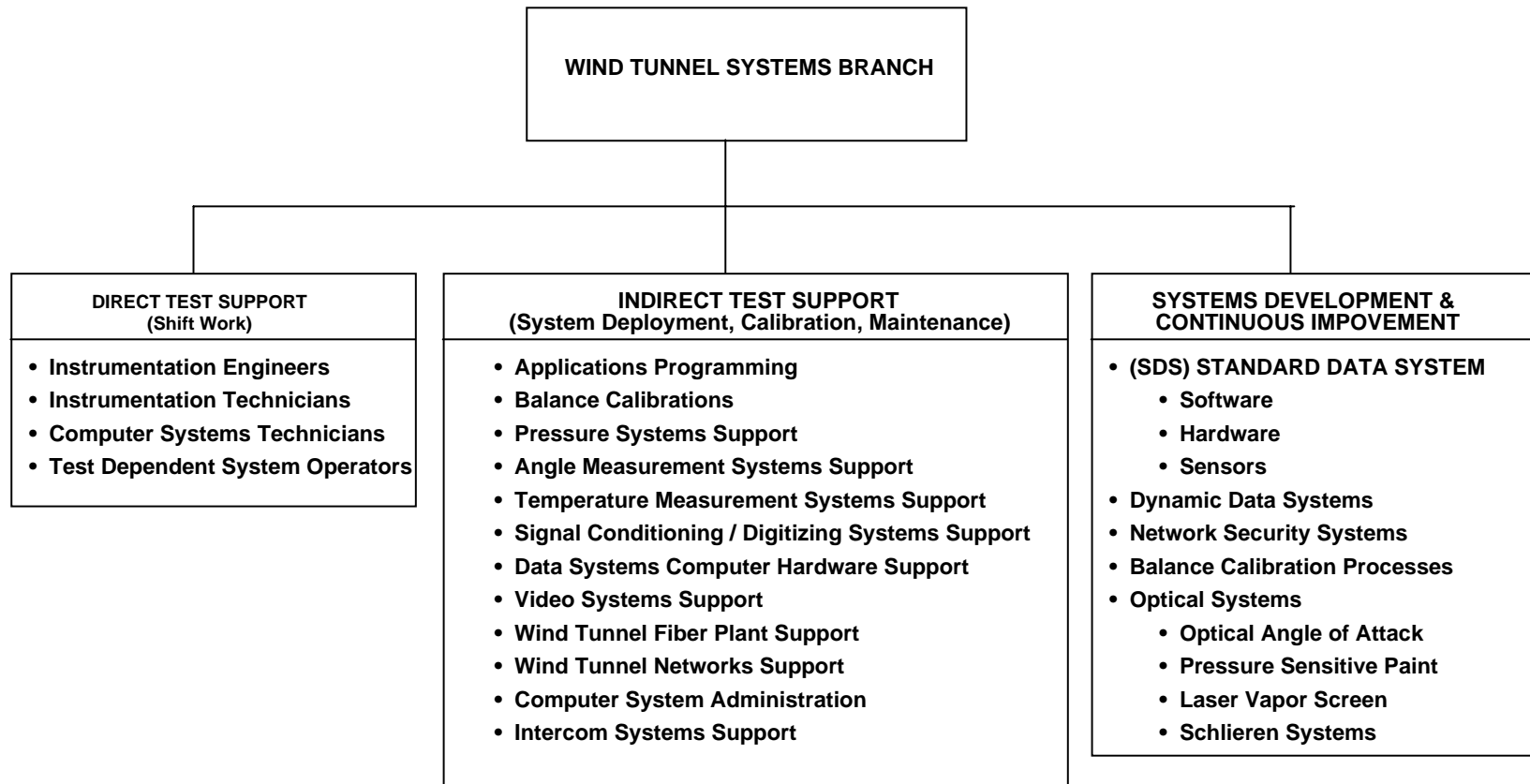
AOI Job Classifications

- Instrumentation Engineers
- Instrumentation Technicians
- Applications Programmers
- Computer Systems Technicians
- Systems Administrators
- Systems Engineers
- Instrumentation Development Engineers
- Software Development Programmers





AOI Branch Structure





Ames' Wind Tunnel Direction

- Past
 - High Demand for Wind Tunnel Testing
- Present
 - Good Diversity of Testing
 - Viewed as a National Asset
- Future
 - Remains Unclear
 - NASA's role/mission in Aeronautics and Space Exploration
 - Very Competitive Wind Tunnel Industry
 - Valid Business Model Must Be Maintained





Partnership

- NASA and Contractor Must Partner to Succeed
 - Equally Share in Wind Tunnel Mission/Vision
 - Management
 - Business Model Stakeholder
 - Expanding Customer Base
 - Workforce
 - Watch Out for Each Other and Customers
 - » Improve Safety, Productivity and Overall Customer Experience
 - Part of the Ames Community

