

# Demolition to Begin on Historic Altitude Wind Tunnel

BY S. JENISE VERIS

Once the centerpiece for Glenn's world-renown engine research, the Altitude Wind Tunnel (AWT) is scheduled for demolition this fall. Abandoned since 1979, the AWT and Propulsion Systems Labs 1 and 2 are among many aging facilities which are being eliminated as part of a special agency program for unused or obsolete structures.

## The AWT: A Look Back

The National Advisory Committee on Aeronautics (NACA) began operating the AWT in 1944 with the goal of improving existing piston engines of military aircraft during World War II. In particular, the B-29 bomber powered by the Wright R-3350 engine was plagued by several problems including overheating and fuel-efficiency issues. Ironically, a turbojet engine, not a piston engine, was the first test run in the AWT. The Bell YP-59A, which used the first turbojet engine in the United States, the GE I-16, was tested in February prior to the tunnel's official opening in May when the R-3350 tests began. The AWT was the nation's first known full-scale engine test facility capable of simulating altitude conditions.

A series of modifications implemented after WWII prevented the AWT from becoming obsolete and transformed the facility to accommodate jet propulsion testing. In 1946, two small supersonic tunnels, which shared the AWT's exhaust system, were built for ramjet testing. The facility was also used for Mercury Program-related training in the late 1950s. Then, in 1962, a vacuum pump system was installed and large bulkheads were inserted into the tunnel to create a space power chamber for testing of a mock Centaur rocket.

## Preserving a National Landmark

With its rich history, the AWT has potential to become a national landmark. AWT Demolition Project Manager Robert Houk, Project Management Branch, is consulting with Glenn's Historic Preservation Officer Les Main, Facilities Division, on National Advisory Council Historical Preservation guidelines and regulations. The project scope calls for demolish-

*Inactive since 1979, the AWT, with its winding tunnel loops, is one of NASA's aging facilities slated to be demolished.*



ing the AWT shell and supporting foundations outside of the Microwave Systems Laboratory building, which also houses Educational Programs Office personnel. The test section, however, is being preserved for consideration as a tour site to display historical artifacts.

"We expect to finalize our preservation efforts soon," Houk said. "This would enable us to award the contract by the end of FY06 and take advantage of the current higher price of scrap metal to offset costs. The first phase of activities involves removing and rerouting active utilities. We then will isolate the area between the Visitor Center and the Refrigeration Building to remove any lead paint or traces of asbestos material before the demolition work begins."

## Demolition Timeline

Starting in October, the AWT demolition project will affect traffic flow on Ames Road. Houk noted that parking for the nearby area will be prohibited during the demolition period. The most hazardous activities will be scheduled after hours and on weekends, whenever necessary. Stay tuned to *Today@Glenn* for project updates, as the demolition is expected to continue throughout the winter and early spring.

To learn more about this project and updates on all center construction projects, visit the Facilities Division Web site at <http://fd.grc.nasa.gov/activeprojects.cfm>.

## Glenn Expertise Plays Role in STS-115

With the launch of the *Atlantis* STS-115 mission, NASA resumes construction on the International Space Station by installing a girder-like structure, known as the P3/P4 truss segment, that will double the station's power capability. Much of the technology necessary for the P3/P4 is comprised mainly of solar cell arrays, batteries and power conditioning equipment developed with expertise provided by Glenn.

In partnership with Johnson Space Center, Glenn's Electric Power System Management Team continues its responsibility for end-to-end technical oversight of station's power capability.

"The P3/P4 provides station the capability to collect, store, generate, distribute and

regulate power," said Thomas Kerslake, Power and Communication Systems Analysis Office.

Glenn was also directly involved in the following crucial portions of the STS-115 mission: flight certification analysis of station's power system to determine readiness to support STS-115; development of special procedures for boost charging and rebalancing batteries; and sequential shunt units, battery charge-discharge units, circuit isolation devices and radiators, all essential parts of P3/P4.

Currently on station, and essential to its power system, the plasma contactor cathode, or grounding rod for the system, was also developed under Glenn management. ♦