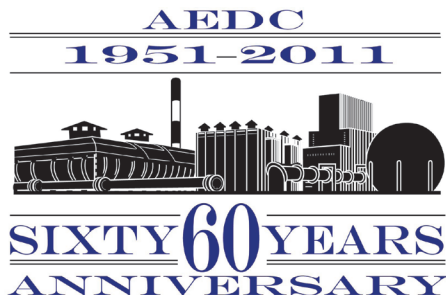


# AEDC Technical Library's special celebration showcases 60 years of pioneering work



By Philip Lorenz III  
Aerospace Testing Alliance

Sixty years and more than 10,950 technical reports later, Arnold Engineering Development Center's Technical Library staff did their part to celebrate the center's 60th anniversary in June with a special display.

It features highlights from AEDC's engineers who have written pioneering technical reports over the years that set the standards nationally and internationally in their respective areas of expertise.

This work of documenting what was cutting-edge research and ground testing of aerospace weapon systems and space assets began as AEDC was conceived, dedicated and evolved into the world's largest aerospace ground testing complex.

One example is a technical report written by AEDC Fellow James Sivells (1978), titled, "A computer Program for the Aerodynamic Design of Axisymmetric and Planar Nozzles for Supersonic and Hypersonic Wind Tunnels."

Wayne Hawkins, aerospace engineer with more than 30 years at AEDC, said, "This is the basis of supersonic and hypersonic wind tunnel design today."

Another example is a technical report written by AEDC Fellow Dr. Wheeler McGregor in 1976, titled



**A 2001 wind tunnel test in VKF used a 6-percent scale model of Boeing's X-37 to investigate the aerodynamic forces. (AEDC file photo)**

"Assessment of Intelligent Content of Plume Spectral Radiation from Rocket Plumes."

AEDC Fellow and Chief Technologist Dr. Ed Kraft, said, "It lays the physical approaches to understanding rocket plume signatures ... basically instigated the whole plume signature measurements and modeling approaches we use today."

Fred Rascoe, the lead at AEDC's technical library, said, "We've been trying to find a way for the library to acknowledge the 60th is coming up and that we have a huge collection of the testing work that has been done here in the form of technical reports and technical memorandums.

"For the 60th we wanted to get inputs from AEDC Fellows, the ATA technical fellows and some engineers who've worked at AEDC over the years," he said. "I just put out a call and said, 'What technical works have been published at



**In 2007, a NASA hypersonic boundary layer transition (HyBoLT) rocket model underwent testing in Arnold Engineering Development Center's von Karman Gas Dynamics Facility's Tunnel B. (Photo by David Housch)**

AEDC, or [are] important or have had some sort of lasting effect or been notable in some way?”

Rascoe said he got responses from people like Dr. Kraft, Bill Lawrence, Mike Mills and Stan Powell.

The display measures 10-by-10 feet and use graphics to provide highlights of representative technical reports and include the reasons why those documents were chosen for the 60th celebration.

Rascoe acknowledged he’s learned a lot more about the history of AEDC in the process. He said the display, which debuts at the library in the A&E Building in June, will serve as a testimonial on how significant AEDC has been to the country over the years.

“It’s kind of a reminder of how AEDC is vital now,” he said. “The technical work being done now is going to impact things decades down the road, just like the past 60 years have impacted the way things are being done now.”

Rascoe pointed out that many of the technical reports authored by AEDC engineers are still used as references for current testing and research work at the center and elsewhere.

“AEDC Technical Report (TR) 73-5 is called ‘Handbook, Uncertainty in Gas Turbine Measurements,’ he said. “That report is still referenced by current TR’s that are published,” he said. “It’s a widely used standard for uncertainty measurements in turbines. That’s one example, but it’s important to remind folks why AEDC is here and this is some of the work that’s been done and that will continue in the future.”

Rascoe pointed out that the dis-



**Joe Syler, Tunnel B operations crew member, looks on as a model of the NASA Hypersonic Boundary Layer Transition (HyBoLT) rocket is prepared for testing in 2007 at Mach numbers of 6 and 8 in the von Karman Gas Dynamics Facility’s Tunnel B. (Photo by David Housch)**



**Flight simulation testing was conducted on the Navy Standard Missile in VKF Tunnel A in 1994 at AEDC. (AEDC file photo)**

play is only a sampling of technical reports authored by AEDC’s engineers.

“This display will include some of the important ones,” he said. “Besides the reports we will highlight

in our display, there are a lot more in our collection for those unfamiliar with AEDC’s history to discover. Many more reports are available for future displays and discussions.”