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AEDC is 'a key testing resource' for GE Aviation

By Deidre Ortiz
AEDC Public Affairs

Altitude performance and operability testing of the General Electric Passport 20 engine, used in the Bombardier Global 7000 and 8000 business jets, was recently completed in an engine test cell at AEDC.

"GE needs AEDC's altitude cell capability to perform various simulated tests to validate our designs and ultimately meet our customer requirements," said Ben Frisby, Passport 20 evaluation and test program leader for GE Aviation. "AEDC delivers a controlled testing environment for extreme engine operation scenarios that would otherwise require flight testing. There is no other facility with the capability we needed to complete the required testing for Passport 20."

According to Frisby, the testing was successful and "helped drive improvements into the engine."

Melissa Tate, AEDC test manager with the Aeropropulsion Ground Test Branch, said she and her test team were thankful for the opportunity to help meet the testing needs of GE Aviation.

"We appreciate the efforts of everyone involved in this test to ensure a successful outcome," she said.

Frisby commented that it's anticipated that GE Aviation will partner with AEDC again for future testing.

"GE will continue to use AEDC based on engine application and development needs," he said. "It is a key testing resource for our engine development."

He added that GE engine is designed to operate durably and efficiently across a wide range of altitudes that only AEDC test cells can provide.

The Passport 20 was also tested previously at AEDC during the winter of 2013 to 2014.

Neil Aukeman, AEDC outside machinist, prepares the General Electric Passport 20 engine, which powers the Bombardier Global 7000 and 8000 business jets, for testing in an engine test cell at AEDC. *(U.S. Air Force photo/Rick Goodfriend)*

New partners, new missions

By AEDC Public Affairs

Editorial Note: This is a series of articles to provide information about the 704th TG, the Squadrons and the missions under the Air Force Test Center realignment for AEDC.

The 846th Test Squadron

The 846th Test Squadron, part of the 704th Test Group at Holloman AFB, New Mexico, is a unit of AEDC.

The 846th Test Squadron operates the Holloman High Speed Test Track (HHSTT), which simulates selected portions of the flight environment under accurately programmed and instrumented conditions.

This capability fills the gap between laboratory investigations and full scale flight tests. The squadron is also the Department of Defense "Center of Expertise" for all ejection seat testing and the lead facility for all supersonic tracks.

The squadron upgraded its capability under the Hypersonic Upgrade Program and set a world record on April 30, 2003. The program provides increased velocity capabilities as well as a four-fold improvement in the dynamic environment of sled tests. This improvement not only allows faster test velocities, but also provides a higher fidelity payload capability.

The 846th Test Squadron has also developed a magnetic levitation capability which will significantly reduce vibrations. This allows for taking larger payloads to higher speeds. The technology required for this magnetic levitation capability has potential commercial application for both land and space transportation. Additionally, the 846th Test Squadron has also been designated as the test organization for Theater Missile Defense hypersonic warhead lethality validation.

See **NEW PARTNERS**, page 2

A sled, once used in tests on the Holloman High Speed Test Track, is displayed at the 846th Test Squadron Sled Park. The 846th Test Squadron, part of the 704th Test Group at Holloman AFB, New Mexico, is a unit of the Arnold Engineering Development Complex. The 846thTest Squadron operates the Holloman High Speed Test Track, which simulates selected portions of the flight environment under accurately programmed and instrumented conditions. *(U.S. Air Force photo/Senior Airman Sondra Escutia)*

2016 YEAR IN REVIEW

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HIGH MACH

Arnold Engineering Development Complex
An Air Force Test Center
Test Complex

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Core Values

- *Integrity first*
- *Service before self*
- *Excellence in all we do*

Vision

"NAS will be integral to the success of AEDC, the U. S. Air Force's premier aerospace testing facilities, while applying the highest standards of ethics, innovation, safety, security, and quality to daily operations."

Values

- Ethics. We are uncompromising in our integrity, honesty, and fairness.
- Safety & Health. We are relentless in keeping people safe from harm, and we provide a safe and healthy work environment.
- Excellence. We thrive on challenge, accomplishment, and mission success.
- Quality. We are passionate about doing our work right the first time.
- People. We have a mission-focused, inclusive workforce who have a diverse skill set, are committed to success, demonstrate innovation and have a can do attitude.
- Culture. Our team is proud of our diversity, inclusiveness, and collaborative work environment. We are proud of what we do and how we do it.
- Relationships. We build positive, long-term business relationships through trust, respect, and collaboration.
- Innovation. We overcome challenges through creativity, perseverance, technology, and flexibility. We actively seek to continually improve.
- Sustainability. We plan and act for the long term benefit of our communities and our environment.

NEW PARTNERS *from page 1*

The squadron's capabilities are unique in subsonic through hypersonic velocities. Payloads up to full-scale aircraft can be tested at realistic flight velocities. The squadron is fully staffed for test management, test design, engineering, analysis, hardware fabrication, test buildup and support.

Operated by the 846th TS, the HHSTT is the world's premier rocket sled test track. The mission of the 846th TS is to plan and execute world-class rocket sled tests enabling critical weapon system development in support of the warfighter using world-class people, technical excellence, cost-effectiveness and agility.

At 59,971 feet, the HHSTT is the longest facility of its type in the world. Each of the three rails that form the track is continuously welded, in tension at temperatures below 120 degrees Fahrenheit, and aligned to within 0.04 inches of intended position in the operational region of the track. The HHSTT serves as a critical link between laboratory-type investigations and full-scale flight tests by simulating selected portions of the flight environment under accurately programmed and instrumented conditions, often before flightworthy hardware is available.

Test vehicles (sleds) are accelerated to mission velocities by means of solid rocket motors, frequently in multi-stage operation. Sled speeds in excess of 9,400 feet per second have been demonstrated in the past and the 846th TS is pursuing an on-going improvement program to achieve speeds in excess of 10,000 feet per second in support of future customer requirements. Sleds weighing up to 60,000 pounds have been used and heavier sleds can be operated if required. Depending on payload size, instantaneous accelerations of more than 200 g-forces have been demonstrated. For a wide range of test problems, the HHSTT provides an efficient, safe and cost-effective ground test alternative to the more expensive developmental flight tests.

Complementing the Test Track itself, the overall HHSTT complex encompasses ancillary facilities for artificial rain simulation, an accurately surveyed ejection test area, captive and free-flight blast test sites, impact test sites and a horizontal rocket test stand. Support facilities include buildings for electronic and photo-optical instrumentation, a telemetry ground station and engineering and shop facilities for design and fabrication of test hardware.

704th Test Group Operating Location-AA

The 704th TG conducts directed energy and high energy laser testing at a geographically separated facility known as Operating Location (OL)-AA.

Located at Kirtland Air Force Base, New Mexico, OL-AA is the test and evaluation liaison to the Air Force Research Laboratory Directed Energy Directorate.

The DED develops and transitions technologies in four core technical competencies: lasers systems, high power electromagnetics, weapons modeling and simulation, and directed energy and electro-optics for space superiority.

AFRL pioneered the first and only megawatt class airborne laser and is a world leader in ground-based space imaging using adaptive optics with a 3.5-meter telescope in New Mexico and a 3.6-meter telescope in Hawaii.

The Directorate is transitioning game-changing counter-electronics weapon technologies through programs such as CHAMP, or Counter-electronics High-powered Advanced Missile Project, which can disable electronic systems with minimum collateral damage.

704th Test Group Operating Location-AC

The 704th TG also operates an additional geographical located test facility known as Operating Location (OL)-AC.

The facility is located at Wright-Patterson Air Force Base, Ohio, where they perform landing-gear and aircraft survivability tests on a majority of the Air Force aircraft inventory.

The Aerospace Vehicle Survivability Facility at OL-AC tests safe takeoff and safe landing after combat. The facility simulates damage on U.S. Air Force aircraft that may be caused by warhead-function characterization of foreign munitions and lasers.

The Landing Gear Test Facility at OL-AC uses 13 test machines with some X-ray capability which supports the entire Department of Defense aircraft. The LGTF also conduct tests for commercial tire, wheel and brake manufacturers. The commercial testing accounts for half of the business conducted at the facility. They also provide testing for the Federal Aviation Administration and NASA.

The LGTF supports Air Force program offices for redesign and modifications of landing gear system components to increase safety of flight for aircraft that have an extended lifespan such as the B-52 Stratofortress.

Editorial note: Some information compiled from the article "World-class testing capabilities exist right here at Wright-Patterson Air Force Base," written by Sandy Simison.

Air Force Research Laboratory's 3.6-meter, 75-ton Advanced Electro-Optical System (AEOS) telescope under laser illumination at its Directed Energy Directorate's (DED) Air Force Maui Optical and Surveillance Site, Maui, Hawaii. The illumination resulted from the multi-wave length laser propagation experiments that were completed at over 10,000 feet and over a 90-mile path between Mauna Loa on the island of Hawaii and the Air Force site atop the extinct volcano, Haleakala, on Maui. The DED is a mission of AEDC. *(U.S. Air Force Photo by Rob Ratkowski)*

Jacob Wiggins, 704th Test Group Operating Location (OL)-AC test technician, observes control room monitors during a test at the Aerospace Survivability and Safety Office. The OL-AC, a mission of AEDC, is located at Wright-Patterson AFB, Ohio. *(U.S. Air Force photo/Sandy Simison)*

Detachment 2 - National Radar Cross Section Test Facility

The National Radar Cross Section (RCS) Test Facility (NRTF), the premier Department of Defense facility for RCS testing located near Holloman AFB on White Sands Missile Range, New Mexico, is now part of the 704th Test Group and was aligned under AEDC Dec. 1.

Formerly known as Radar Target Scatter (RATSCAT), which began measuring radar scattering in 1963, it is comprised of two complementary sites, Mainsite and RATSCAT Advanced Measurement System (RAMS).

NRTF specializes in the RCS characterization of full-scale, aerodynamic vehicles and antenna radiation pattern development. Due to its remote, secure environment, it can also accommodate customers requiring specialized testing of developmental electronics systems. NRTF products directly support weapon system development programs, vulnerability assessment studies, and mission planning efforts throughout the DOD.

Mainsite has a ground plane RCS range with monostatic and bistatic capabilities to support a variety of targets. Both fixed and portable equipment can be set up in a wide variety of configurations for special tests. Mainsite is divided into two main ranges: The North Range, comprised of Pits 3, 5, and 6, and Pit 2 in the West Range. In addition, portable equipment can be set up in a wide variety of configurations for special tests. Test targets at Mainsite can be mounted on polystyrene foam columns of various height on rotating tables. The rotating tables accept a wide variety of targets ranging from small missiles and reentry vehicles to full-size aircraft and ground vehicles weighing up to 60,000 pounds. Measurements at Mainsite can be made at any frequency from 120 MHz to 18 GHz and at frequencies of 34 to 36 GHz and 94 GHz. Both monostatic and bistatic RCS, as well as antenna patterns, can be measured, and special measurements such as near-field, glint and Doppler are available upon request. Additionally, a tailored data package, full test reports, including analysis and interpretation of data, and special data processing are provided to range users according to their requirements. In addition to these capabilities, Mainsite has the resources to accomplish the design and construction of model targets.

Modeling standards are based on customer requirements, radar scattering principles, and fabrication techniques. Linear model dimensions of ± 0.2 percent are routinely achieved with angle accuracy of 0.05 degrees. Models have been built up to 58 feet in length with extensive detailing to provide items such as inlet and exhaust ducts, rotating turbine and compressor blades and moveable control surfaces. These columns are then attached to the appropriate sized turntable. Cranes, manlifts, forklifts and other heavy equipment are available on site for mounting of large and small targets. Typically, small, lightweight targets can be mounted to an accuracy of ±0.2 degrees in roll and pitch. Large, heavy targets can be mounted with an accuracy of ±0.5 to 1.0 degree in roll and pitch.

RAMS is a self-contained, secure test complex consisting of the Target Support facility, an 8,900-foot paved shadow plane range, the Central Facility and an office complex, situated at the base of the San Andres Mountains 35 miles northwest of the NRTF Mainsite.

Smoking Policy

1. The following revised Arnold AFB smoking policy is effective immediately and applies to all individuals on Arnold AFB.
2. Traditional Tobacco products (e.g. cigars and cigarettes):
   a. Smoking is permitted solely in Designated Tobacco Areas (DTAs) identified by designated signage. If no signage exists, smoking is not permitted in that area. It is the responsibility of all smokers to keep DTAs clean of cigarette butts.
   b. Tobacco use on the Arnold AFB Golf Course is permitted, but discouraged based on the health hazards of tobacco use and secondhand smoke. No smoking is permitted within 50 feet of golf course buildings except in the approved DTA.
   c. Smoking in government-owned/leased vehicles is strictly prohibited. Personnel are allowed to smoke in their personal vehicles at any time; however, at no time will personnel discard cigarette butts outside their vehicle.
   d. For government employees, the fact that a person smokes has no bearing on the number of breaks they may take. Breaks should be taken in accordance with the current supervisory and personnel policies that afford all employees the same break opportunities consistent with good work practices and accomplishment of the mission.
3. Smokeless Tobacco products (e.g. snuff and dip):
   Smokeless tobacco products are not to be restricted to DTAs. Smokeless tobacco use will be permitted in all workplace areas (inside and out) subject to reasonable safety and sanitary conditions. Specifically, containers of tobacco waste product, including sealed containers, must not be left unattended or disposed of in trash receptacles. Users of smokeless tobacco must flush tobacco waste down the toilet.
4. Electronic Cigarettes (also known as "e-cigs"):
   Pursuant to Air Force Instruction (AFI) 40-102, Tobacco Free Living, e-cigs are considered to be equivalent to tobacco products; however, e-cigs are not restricted to DTAs and are allowed to be used outdoors at a minimum distance of 25 feet from building entry/egress points. (This policy is dated July 27, 2016)

Action Line

Team AEDC

I believe in free and open communications with our Team AEDC employees, and that's why we have the Action Line available. People can use the Action Line to clear up rumors, ask questions, suggest ideas on improvements, enter complaints or get other issues off their chests. They can access the Action Line via the AEDC intranet home page and by calling 454-6000.

Although the Action Line is always available, the best and fastest way to get things resolved is by using your chain of command or by contacting the organization directly involved. I encourage everyone to go that route first, then if the situation isn't made right, give us a chance.

Col. Rodney Todaro
AEDC Commander

NAS focusing on safety in the New Year
Safety Condition Campaign kick-off for 2017

By Deidre Ortiz
AEDC Public Affairs

Returning back to work after the holidays, NAS leadership wants to remind its employees the importance of safety in all that we do as we carry out the AEDC mission.

Safety Refresher sessions for all NAS employees were held base wide on Jan. 3. The items covered included being prepared and taking necessary precautions during winter weather, knowing hazards and controls and ensuring that we take into account safety before and while completing work tasks.

It was also announced that the NAS Safety Condition Campaign for 2017 has kicked off, with each month having a central safety focus, January's being Fall Protection.

According to Dick Nugent, NAS Safety, Health and Environmental (SHE) manager, the goal of this effort is to empower and engage NAS employees in order to provide a safer workplace.

"The purpose of the Safety Condition Campaign is to methodically identify and correct conditions that present a compliance challenge with safety-related requirements," he said.

Nugent explained that at the beginning of each month, for 12 months, SHE will provide a bulletin indicating the safety condition and the key things to look for. Each organization will form a team, or teams, within the work group to assess the safety condition in their area.

"The teams will then identify issues in their assigned work area related to the specific safety condition and report the findings to the area supervisor so that they can take the steps necessary to alleviate any issues," he said.

NAS Deputy General Manager Doug Pearson mentioned another reason for the focus on safety is because safety is a core value of NAS.

"Safety, in its broadest sense, is a key and fundamental part of our normal disciplined approach to problem solving and accomplishing work," he said. "We are using the first work day of the New Year as a means of setting expectations and emphasizing the importance of integrating safety into all that we do on the job, commuting, at home and at leisure. Safety includes having the backs of our coworkers, protecting our customers test articles, and taking care of our facilities, equipment and tools."

Pearson added that the campaign will last a year as safety is a team sport and is not a one day event.

"The NAS leadership team will continue to emphasize the importance of knowing and understanding safety standards, application of established processes and continually improving our performance," he said. "Stay tuned for more information about our monthly Safety Condition Campaign on varying important topics to keep us focused on safety. Safety is good business, produces a positive work environment, and most importantly sustains a healthy work force. Seek to learn more from one other and contribute what you know every day."

Monthly NAS Safety Condition Campaign Topics

- **January – Fall Protection**
- **February – Barricades and Signs**
- **March – Hazardous Energy Control, Lockout**
- **April – Confined Space Entry**
- **May – Electrical Hot Work**
- **June – Lifting and Rigging**
- **July – Excavation and Trenching**
- **August – Scaffolding**
- **September – Elevated Work Platforms**
- **October – Hazardous Chemicals**
- **November – Explosives Safety**
- **December – Defeating Safety Devices**

Southern Middle Tennessee Branch of PMI names Marilyn Graves 2016 Project Manager of the Year

By Deidre Ortiz
AEDC Public Affairs

Marilyn Graves, a Capital Improvements project manager for the AEDC Aeropropulsion Combined Test Force, was named 2016 Project Manager of the Year by the Southern Middle Tennessee Branch of the Project Management Institute Chattanooga Chapter.

Graves said she is truly honored to receive this recognition.

"There are over 80 members in the Southern Middle Tennessee Branch of the PMI Chattanooga Chapter who all have distinguished careers in Project Management," she said. "To be selected among these esteemed colleges for my contribution to this field is very humbling. Just to be nominated for this award is an honor because you know that someone took the time to recognize the hard work that you put forth to manage the projects assigned to you. I am very grateful to my supervisor, Bob Schwer, for nominating me."

According to the nomination criteria, a Project Manager of the Year demonstrates project management excellence through the effective management of the three constraints—resources, schedule and scope—to deliver a quality project, as well as utilize the principals of Project Management Body of Knowledge. This individual also shows skills in managing, motivating, informing and enabling a project team to achieve customer satisfaction.

Robert Schwer, manager of Capital Improvement Projects for the Aeropropulsion Combined Test Force and Graves' supervisor, said he chose to nominate Graves because she consistently oversees her projects with excellent attention to detail and delivers results.

"She digs in and determines what is needed to ensure her project and customers are successful," he said. "Her work and customer-first focus helped her effectively develop and deliver detailed and complete contract documents allowing the Next Generation Turbine Engine Test Capability program to get off to a successful start."

Schwer added that Graves' planning strengths are developed from years of project management experience and she effectively utilizes planning to ensure she has the right team and team skills.

"She provides detailed resource planning on her projects and identifies gaps in critical skills required for project success," he said. "Recently she worked tenaciously to ensure a skill gap was satisfied and although not permanently resolved, was satisfied in the short term to meet the immediate needs of her project. Thanks to her persistence and her understanding of the business, she led the way to a better understanding of process for other project managers requiring resources not available within their direct organizations. Additionally, Marilyn's detailed planning and scheduling has proven useful in successfully meeting project milestones and delivering work executions within limited outage windows."

Graves started at AEDC in June of 1982 and first worked as an electrical engineer in the Controls Branch. She then moved to the Instrumentation and Controls Branch, where she later migrated into project management after received her master's degree in engineering management from the University of Tennessee Space Institute.

In 1993, she left AEDC to pursue other opportunities, but returned in 2005 as a project manager and now serves as Capital Improvement Project Manager with NAS.

Graves joined PMI in 2011 and has been an active member in the Southern Middle Tennessee Branch since it was established.

Marilyn Graves, PMI Chattanooga 2016 Project Manager of the Year *(AEDC photo)*

NAS Tunnel 9 and NFAC team members donate to United Way

National Aerospace Solutions employees Steve Taylor, left, and Carol Paschall, right, at the Hypervelocity Wind Tunnel 9 in White Oak, Maryland, present a check for $2,000 from NAS to the United Way of the National Capitol Area representative Levina Kim Dec. 13. NAS conducted the United Way employee campaign at its three operating locations in Tennessee, California and Maryland. *(U.S. Air Force photo/A.J. Spicer)*

National Aerospace Solutions employees Steve Taylor, left, and Carol Paschall, right, at the National Full-Scale Aerodynamic Complex, Ames Research Center, present a check for $2,000 from NAS to the United Way of the National Capitol Area representative Levina Kim. *(NAS photo by Adam Tupis)*

AEDC 2016 Year in Review

TESTS AND SUPPORT…

Dan Haden, lead outside machinist at AEDC, helps prep the Rolls-Royce Trent 7000 engine for testing in the C-2 engine test cell. The engine will be used in the new Airbuss A33neo. Jit Sahota, engine management engineer for Rolls-Royce Trent 1000 and 7000 projects, said testing at AEDC was conducted to affirm the combined capabilities that Roll-Royce was striving for in this engine and it was achieved. *(U.S. Air Force Photo/Jacqueline Cowan)*

An F-35 Lightning II assigned to the 61st Fighter Squadron at Luke Air Force Base, Ariz., takes off as the sun sets. Corrosion testing of the F135 engine, the afterburning turbofan developed for the F-35 Lighting II, was conducted at AEDC to see how it performs in the corrosive sea-air environment. *(U.S. Air Force photo/Staff Sgt. Staci Miller)*

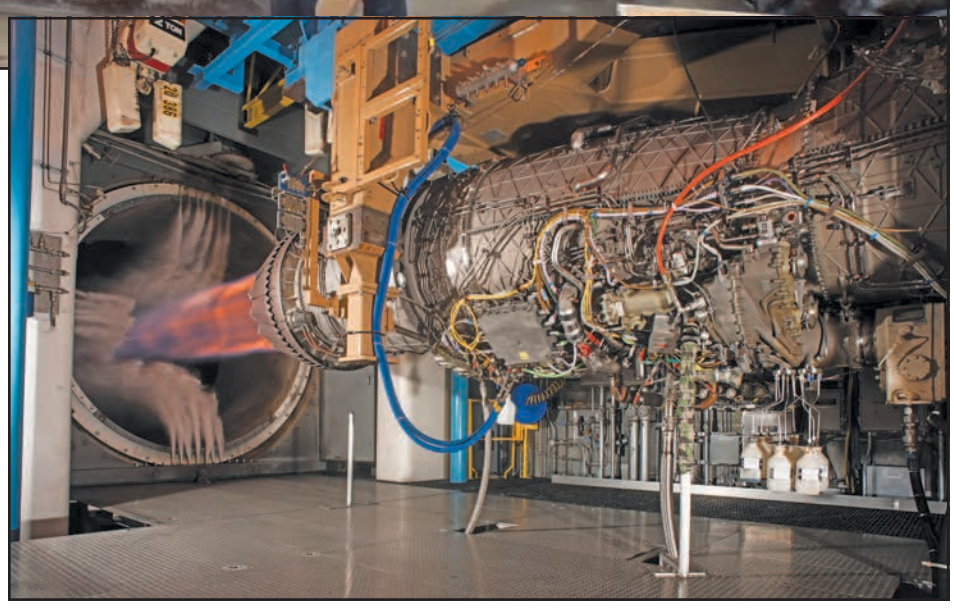
The AEDC arc heater undergoes significant upgrades in support of advanced hypersonic systems. This photo depicts upgrades conducted for the H2 test cell. In addition to the heater upgrade and other improvements, a new coat of paint was applied to the test cell. *(AEDC photos)*

The AEDC Propulsion Wind Tunnel facility received new enclosures to house the updated data acquisition and control systems. The updates allowed for increased reliability and improved data rates as well as system controls. Pictured are Barry McCann, ATA Test Article Control System engineer, and Dale Schultz, ATA instrument technician, checking out the Cart Test Article Controls for the High Angle Automated System. *(U.S. Air Force photo/Jaqueline Cowan)*

AEDC 2016 Year in Review

TESTS AND SUPPORT…

As part of an improvement project for the AEDC Propulsion Wind Tunnel, a new M4 motor stator was installed in the main drive. The function of the stator is to rotate the main compressors for the PWT 16-foot transonic and 16-foot supersonic wind tunnels. Pictured here are AEDC Propulsion Wind Tunnel craftsmen working to thread the stator. *(AEDC photo)*



The AEDC Aeropropulsion Ground Test team, who performed engine tests on the Pratt & Whitney F135 engine, like the engine shown here, received an Air Force Materiel Command Test and Evaluation Award. The award recognizes a team for superior test and evaluation achievements and contributions within AFMC. The engine is shown in the Engine Test Facility Sea Level test cell in 2014. *(U.S. Air Force photo/Rick Goodfriend)*

AEDC electrical engineers Tony Acklen and Howard Frederick review the Mid-Pressure Arc Heater project plans for adding electrical loads to an existing Plenum Evacuation System substation transformer at AEDC. Their study during the Mid-Pressure Arc Heater (MPAH) upgrade project led to a cost savings of approximately $3 million for AEDC. The MPAH project is a Central Test and Evaluation Investment effort to upgrade the materials test capability of the H2 Arc Heater Altitude Test Cell at the Complex. *(U.S. Air Force Photo/Rick Goodfriend)*

A group of AEDC software engineers, pictured here, assisted in improving the Computer Assisted Dynamic Data Monitoring and Analysis System and Propulsion Data Processing and Analysis System to benefit operations of future turbine test projects. Some of the engineers involved in this effort were, left to right, Stephen Powell, Michael Walker, Nathan Harrison, Rusty Zarecor and Phil Voyles. The changes will benefit aeropropulsion test cells at the Complex by increasing the speed in which the Air Force and AEDC test customers receive dynamic data. *(U.S. Air Force photo/Jacqueline Cowan)*

AEDC Fitness Trail closed weekends for hunting through January 15

AEDC 2016 Year in Review

TESTS AND SUPPORT…

Mike Smith, AEDC optical diagnostic physicist, verifies the Coherent Anti-Stokes Raman Spectroscopy system is functioning properly prior to conducting tests in support of risk reduction for a new test capability that will increase Mach number of AEDC Hypervelocity Wind Tunnel 9 at White Oak, Md. The capability involves increasing the Mach number from Mach 14 to Mach 18. *(U.S. Air Force photo/A.J. Spicer)*

AEDC instrumentation engineer Dan Pruyn works on the Tiltrotor Test Rig in preparation for a test in the 40-foot by-80-foot wind tunnel at the National Full-Scale Aerodynamics Complex, the AEDC wind tunnel testing site located in California. The test of the TTR was a project sponsored by the National Aeronautics and Space Administration. TTR is a horizontal axis rig and rotates on the test section turntable to face the rotor into the wind at high speed, or fly edge-wise at low speed (100 knots), or at any angle in between. It is designed to accommodate a variety of rotors. *(U.S. Air Force photo/Jeffrey Johnson)*

The TF33 Pratt & Whitney engine underwent testing in an AEDC sea level test cell, to verify and validate newly redesigned components of the engine. The TF33 has powered several different military airframes, including the Boeing KC-135 Stratotanker, E-3 Sentry Airborne Warning and Control System and the E-8 Joint Surveillance Target Attack Radar System. *(U.S. Air Force photo/Rick Goodfriend)*

The Air Force approved an Organizational Change Request to realign selected Air Force Test Center operations and facilities from several separate locations under one commander at AEDC. This change consolidated the current capabilities of the AEDC; the Hypersonic Combined Test Force, which was part of the 412th Test Wing at Edwards AFB, California; and all the previous capabilities of the 96th Test Group, headquartered at Holloman AFB, New Mexico, renamed the 704th Test Group; and the McKinley Climatic Laboratory at Eglin AFB, Florida. The F-35 shown in this photo endures freezing temperatures in the AEDC McKinley Climatic Laboratory Jan. 27, 2015. The joint strike fighter has underwent four months of climate testing in the lab to certify the fleet to deploy to any corner of the world. *(U.S. Air Force photo/Samuel King Jr.)*

AEDC 2016 Year in Review

SPECIAL EVENTS…

Morgan Murphree (right), with U.S. Army Corps of Engineers at Redstone Arsenal, AEDC Commander Col. Rodney Todaro (center) and Kurt Gates, with CAPE Environmental Management, Inc., broke ground Feb. 18 for the construction of a new Ground Vehicle Fueling Facility at AEDC. The facility is located adjacent to the bulk fuel farm. *(U.S. Air Force photo/Holly Fowler)*

Maj. Gen. David Harris, commander of the Air Force Test Center (left), presents the Air Force Organization Excellence Award for 2015 for the exceptionally meritorious service performed at AEDC from June 1, 2013, to May 31, 2015, to AEDC Commander Col. Rodney Todaro. *(U.S. Air Force Photo/Holly Fowler)*

Students Colleen Wainright, Brooke Sanders and Kinsey York watch as the AEDC Science, Technology, Engineering and Mathematics Center 3D printer works to create an object layer by layer at Westwood Middle School, Manchester, Jan. 12. The printer, initially obtained through an Innovation Grant for a project at AEDC, was donated to the AEDC STEM Program. *(U.S. Air Force photo/Jere Matty)*

OBXtek, Inc. Program Manager Theresa Cates (right) and ATA General Manager Steve Pearson signed the ATA/OBXtek, Inc. Associate Contractor Agreement on Jan. 29, at AEDC. The agreement outlined how ATA and OBXtek will coordinate work activities. OBXtek was awarded the Base Communications and Information Technology Services (BCITS) contract for Arnold Air Force Base June 19. OBXtek began contracting operations on Feb. 1 which include performing base communication and information technology services at Arnold Air Force Base and its two geographically separated units in Maryland and California. *(U.S. Air Force photo/Jacqueline Cowan)*

AEDC White Oak Site Director Dan Marren talks about Hypervelocity Wind Tunnel 9 and AEDC with stakeholders from the American Institute of Aeronautics and Astronautics Ground Test Technical Committee during a site visit. GTTC guests, in town for the Aviation 2016 Forum in Washington, D.C., were invited to tour the AEDC White Oak Maryland site. *(U.S. Air Force photo/Robert W. Mitchell)*

AEDC 2016 Year in Review

SPECIAL EVENTS…

AEDC Commander Col. Rodney Todaro, center, observes while Col. Andrew L. Allen, (fourth from right), the 704th Test Group commander reveals the 704th Test Group guidon during a re-designation ceremony Dec. 6 at Holloman Air Force Base, New Mexico. The Test Group was previously the 96th Test Group under the 96th Test Wing, Eglin AFB, Florida. Also pictured left to right is flag bearer Master Sgt. Marc Berger, 96th Test Wing Commander Brig. Gen. Christopher Azzano and flag bearer Senior Master Sgt. Ian Hall. *(U.S. Air Force photo/Tech. Sgt. Dejaye Herrera)*

Col. Rodney Todaro, AEDC commander, announced four past and present personnel as AEDC Fellows, recognizing their accomplishments to the Complex. Tom Best and Dr. Rob McAmis were inducted as AEDC Fellows, and Robert Lindeman and Claude Morse were inducted as AEDC Lifetime Achievement Fellows. They were recognized at the annual AEDC Fellows Banquet at the Arnold Lakeside Center on June 24. *(AEDC photos)*

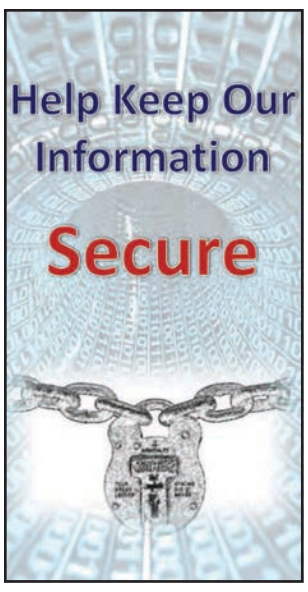
Tom Best
AEDC Fellow

Dr. Rob McAmis
AEDC Fellow

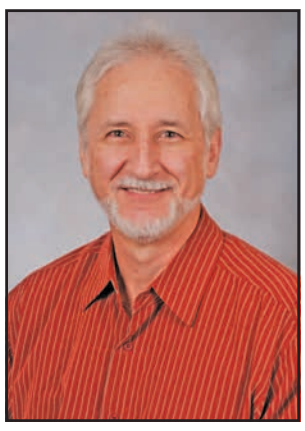
Robert Lindeman
AEDC Lifetime
Achievement Fellow

Claude Morse
AEDC Lifetime
Achievement Fellow

National Aerospace Solutions, LLC, was selected as the new contractor to oversee the Test Operations and Sustainment (TOS) contract that began July 1 at Arnold Engineering Development Complex. Pictured left to right is Mike Lugo, National Aerospace Solutions Business Services director; Doug Pearson, NAS deputy general manager; Jeff McBride, NAS Base Operations and Support director; Cynthia Rivera, NAS general manager; Tom Currie, NAS Mission Execution director; Woodrow Whitlow, NAS technical director; and Ben Souther, NAS Integrated Resources director. *(Courtesy photo/Bob Pullen)*



AEDC Milestones



Paul Chadwick
45 Years, NAS

Kelly Hollowell
35 Years, NAS

45 YEARS
Paul Chadwick, NAS

35 YEARS
Kelly Hollowell, NAS

30 YEARS
Linda Cizunas, NAS
Sherry Ramanathan, NAS
Steven Taylor, NAS

25 YEARS
Don Metcalf, NAS
Michael Rainey, NAS
Susan Rymer, NAS

20 YEARS
Richard Goodwin, NAS
Mike Whitmore, ASO

15 YEARS
Them Bui, NAS
David Eisentraut, NAS
John Richardson, NAS

10 YEARS
Phillip Brown, NAS
James Bryan, NAS
Steve Cowan, NAS
Daniel Henley, NAS
William Horton, NAS
Danny Kelly, ASO
Jonathan Parks, NAS
James Ring, NAS
Richard Schleicher, AF
Donald Wilt, NAS

RETIREMENTS
Ted Boswell, NAS
Harry Buckner, NAS
William Jennings, NAS
Joel Mansfield, NAS
Denis Nisbett, NAS
James Osborne, NAS
Terry Riddle, NAS
Patricia Winters, NAS

NEW HIRES
Jory Boudreaux, AF
Jackson Chandler, NAS
Terry Clark, NAS
Mitchell Howard, NAS
Adam Foret, AF
Misty Lane, AF

CERTIFICATES
Darrell Day, AF received a Master of Divinity degree with a concentration in Church Renewal

Bryce Hoefer, ASO received a Certificate for Mobile Crane and Basic Rigging Inspector Training

Toys for Tots ready for delivery

From left, Master Sgt. Jason Kanipe and Senior Master Sgt. Charles Hoyt, members of the Air Force Sergeants Association at AEDC, prepare Toys for Tots donations for transport to the Tullahoma Fire Department Dec. 15, 2016. The toys were donated by team members at AEDC. Donations are provided to youth in the Tullahoma area. *(U.S. Air Force photo/Jacqueline Cowan)*

Local students participate in *FIRST*® LEGO® League Regional Qualifier Tournament

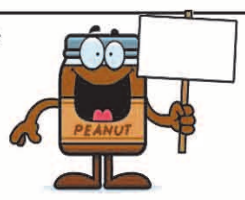
Sean O'Gorman and Jamison Norton (left to right at table), on the LegoTronics team from East Middle School, Tullahoma, prepare their team's robot to complete a *FIRST*® LEGO® League (FLL) mission. Twenty-seven teams gathered at Tullahoma High School Dec. 17 to compete in the FLL Regional Qualifier Tournament. The tournament was sponsored in part by the AEDC STEM Center. *(U.S. Air Force photo/Holly Peterson)*

January 2017

Friday's at Arnold Lakeside Center...

Grab an entry in all Services facilities by showing your current club card! Must be present to win! One entry per Club Card per facility per day.

LIKE US
Arnold AFB Services

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Happy New Year!!!	2	3	4	5 ***ALC Closed***	6	7
8 	9 **Friends and family coming to town?** ***Wingo Inn welcomes both military and civilians, friends and family to be our guests! 454-3051***	10	11	12  Café 100 National Chicken Day Special $7 Sand Combo, $5.50 Sand Finding Dory PG 6:30 PM @ALC  Free Family Movie Night!	13 ***Dine at the ALC! 5-9pm***	14
15	16 Martin Luther King Jr. Day Barber Shop & Café 100 *Closed* Fitness Center open 8am-4pm	17	18	19 Storks PG 6:30 PM @ALC  Free Family Movie Night! **Brushes & Bottles** Arnold Lakeside Center 6 PM Register by Jan. 13 Call 931-454-3350 $25 per person 	20 ***Dine at the ALC! 5-9pm***	21 **Winter Hiking Series** $8 1-5pm Stone Door Trail Easy 2 mi trail Ages 7+ **Call 931-454-6084 to register!** 
22	23	24  Café 100 Celebrates National PB Day! Get a free cookie with lunch combo!	25	26  ALC 5:30-8:30 pm Free to play board games, food for purchase. Prizes for winners. Call 454-3350 for info.	27 **6 pm @ ALC** **TRIVIA NIGHT** ***Dine at the ALC! 5-9pm***	28 ICE SKATING WITH ODR 1pm $15 *Nashville, TN Transportation Provided, Ages 10+* 931-454-6084 
29	30 Cafe 100 Celebrates National Corn Chip Day- Get a Frito Chili Pie for only $2 ***Includes limited toppings***	31				

Do you have New Year's fitness goals?

Call the Fitness Center to make your appointment for your free custom fitness orientation. Our certified staff will work with you to design a plan to help you reach your goals and answer any of your fitness questions.

Let's get started on your path to resiliency with physical wellness!

Arnold AFB SERVICES
Combat Support & Community Service

Information subject to change. Please call to verify.

ALC – Arnold Lakeside Center, 454-3350
Café – Café 100, A&E, 454-5885
ODR/ITT – Outdoor Recreation, 454-6084
RRRP – Recycling, 454-6068
Marketing/Sponsorship – 454-3128
Barber Shop – 454-6987

GC – Arnold Golf Course, 454-GOLF
MG – Mulligan's Grill, GC, 454-FOOD
FC – Fitness Center, 454-6440
WI – Wingo Inn, lodging, 454-3051
Resource Management – 454-7425
Admin – 454-7779