By Michael Braukus

Public Affairs Specialized NASA

Boeing and the National Aeronautics and Space Administration have completed wind tunnel testing of a full-scale 757 vertical tail model equipped with active flow control technology. A major objective of the tests is to determine that active flow control can enhance the performance of a vertical tail enough to enable future designers to scale the size of the structure for a whole family of airplanes. That could reduce the penalties that the tail area currently pays in drag and weight.

The testing, which began in early September and concluded on Nov. 4, 2013, took place at the Arnold Engineering Development Complex’s 40x80 foot total wind tunnel at the National Full-Scale Aerodynamics Complex at NASA Ames Research Center in Moffett Field, Calif. The test entry lasted roughly four and a half months with nearly 800 test occupancy hours, and over 100 hours were spent operating the wind tunnel. The test was conducted in 480 external balance system for aerodynamic force and moment measurements and the high pressure air system to power the active flow control components. As an added benefit, the flow on the vertical tail model could be separated at some of the higher angles. Eliminating separation on the tail could improve performance.

Additionally, the small-scale wind tunnel testing on representative vertical tail models about four years ago at Rensselaer Polytechnic Institute (RPI) in Troy, N.Y. Following that, NASA and Boeing extended the research to a larger scale wind tunnel model, in collaboration with engineers from the California Institute of Technology in Pasadena, Calif. and the University of Arizona in Tucson, Ariz. These same engineers and researchers were key contributors to the full-scale test.

The wind tunnel tests have enabled the Boeing-NASA team to observe “a wide array of flow control configurations across the small-scale wind tunnel model,” said Ed Whalen, Boeing Environmentally Responsible Aerospace Technologies project manager for the test setup. "As DOD budgets shrink, the need for our expertise in addition to our AEDC’s economic impact $612 million in 2013

By Kathy Gatto

AEDC test workload increases 50 percent, technology up 25 percent in 2014

AEDC plays a critical role in the nation’s defense and aerospace industry.

AEDC economic impact – which includes AEDC and its remote operations locations the Hypersonic Tunnel 9 at White Oak in Silver Spring, Md., and the National Full-Scale Aerodynamics Complex at Moffett Field Calif. – was $612.4 million in Fiscal Year 2013. Each location impacted the local economy through direct, indirect and induced spending. The two locations provided a $231 million direct economic impact to the local economy, $142 million in indirect economic impact and approximately $231 million in induced economic impact.
The third income tax season has arrived and the Army’s Air/Space Testing Complex (AEDC) is offering four Volunteer Income Tax Assistance (VITA) sites for eligible personnel.


Dr. Rob McAmis agrees. He says ATA is excited about the opportunity to think differently and be a strong partner with AEDC. “I think that this is a great now, ATA General Manager Raquel March said. “This will open up the possibilities of what we can do and enable the avenues that we need to go down.”


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For general information about High Mach, call (931) 454-5655 or visit www.highmach.com.

To schedule an appointment for tax assistance, call 454-7814.

To contact the IRS for assistance programs, the IRS National Free Tax Return Call Center is available at 1-800-829-1040.

For more information, call the legal office at 454-7514.

For a tax appointment in Tullahoma, please call 409-3602 or you may call 967-3602 to make an appointment in Winchester.

If you live outside the Tullahoma or Winchester areas and wish to locate your nearest VITA site, call the IRS at 1-800-829-1040.

If you prefer to file your taxes through the Federal eFile site, One Source has a free federal tax program available to military personnel. Visit www.irs.gov to find out more information, or call the federal legal office at 454-7514.

If you are interested in volunteering as a tax preparer, please contact the AEDC Volunteer Services Office at 454-7052.

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If you are interested in volunteering as a tax preparer, please contact the AEDC Volunteer Services Office at 454-7052.
By Raquel March
AEDC Public Affairs

January is National Blood Donor Month and AEDC employees will have an opportunity to donate blood with the American Red Cross. A blood drive Jan. 22 and Jan. 24, 11 a.m. – 3 p.m.

Red Cross provides a convenient method for denoting blood using a mobile blood collection van. The bloodmobile will move to a different location each day while sta-
tioned at AEDC.

The January blood mobile drive will be conducted on Jan. 22 at the AEDC Engineering Building and on Jan. 24 at the Main Auditorium. Employees may donate at the two dates with hours from approval from their supervisors. During this blood drive, donors will receive free T-shirts.

Some common strag-
gles this time of the year to receive donations are holiday schedules, inci-
dent weather and win-
ter illnesses. To be eligible to do-
ate, you must be at least 17 years old (16 years old for parental consent), weigh at least 110 pounds and be in good health. The process usually takes about 30 minutes and in-
cludes a complimentary snack and a shirt. Donors are asked to drink plenty of fluids – avoiding caf-
ifeine - and eat a meal that is rich in iron prior to donating. Bring ident-
tification in the form of a donor card or driver’s license.

The Red Cross Ten-
nessee Valley Blood Ser-
sions Region serves near-
ly 160 hospitals in Terms-
ses, Western Kentucky, Southern Illinois and parts of Missouri. They must have approximately 600 people donate blood or platelets each week to meet the needs of hos-
pital patients.

To donate blood at any ol-
locations see www.
redcrossblood.org/make-
donation.

For more AEDC Blood donation guidelines and information, call 454-
5387.

AEDC Fellow Memoir: NASA Space Shuttle External Tank Unsteady Buffeting Problem

By Dr. John C. Adams Jr.

In the early-to mid-
1970s, the von Karman Gas Dynamics Facility (VKD) was closely involved in configuration development testing of the NASA space shuttle, both orbiter and launch vehicles (external tank and solid rocket boosters). The external tank went through aerodynamic force and moment testing in VKD’s Tunnel B with a range of Mach and Reynolds numbers with a core flow around the tank. Harry referred to the blunt-nosed cover on the very front of the tank. Harry referred to this blunt-nosed cover as the “fire hydrant” and indeed it did resemble a fire hydrant attached to the front of the tank. Harry and I suggested that the “fire hydrant” be replaced with a sharp bi-
cone nose cone, which Harry was agreeable to. Using computer-based fluid dynamics (CFD), we designed an appropriate bicone nose cone, gave a sketch of it to the VKD machine shop for modifi-
cation of the external tank model and were ready to test that night. In our next morning meeting, Harry was ecstatic over how well this bicone fit had solved the buffeting problem. Marissa Marietta refined and implemented this bi-
cone in the production external tank and the fire hydrant attached to the flight program utilized this configuration.

Just another example of how AEDC has helped to locate and solve prob-
lems using ground testing.

By Dr. John C. Adams Jr.

January 13, 2014 • 3
ATA machinist Larry Phipps installs a Naval Surface Warfare Center thermal protection material wedge test article in the AEDC High-Enthalpy Arc-heated facility H3 test cell prior to a test run at AEDC. (Photo by Rick Goodfriend)

Aviation Week & Space Technology magazine bestowed an Aeronautics/Propulsion award to a Speed Agile team that included employees of AEDC’s National Full Scale Aerodynamics Complex (NFAC), Mountain View, Calif. From left, then AFMC commander Gen. Donald Hoffman and AEDC’s National Full-scale Aerodynamic Complex (NFAC) Test Director Patrick Goulding II get a close look at a 23-percent scale model of the Speed Agile technology demonstrator that recently underwent aerodynamic testing in the world’s largest wind tunnel at NFAC in Mountain View, Calif. (Photo provided)

ATA team members received a National Aeronautics and Space Administration (NASA) Group Achievement Award for their involvement in the second Alternative Aviation Fuel Experiment (AAFEXII) program. The team supported the emissions measurements testing during NASA’s alternative fuels tests using a DC-8 aircraft and GE CFM-56 engines shown here at the Dryden facility in Palmdale, Calif. They were recognized for outstanding achievement in establishing the impact of hydro-treated renewable jet fuels on commercial aircraft engine performance and pollutant emissions utilizing a rake positioned behind the inboard engine. (Photo provided)

The Pratt & Whitney Canada PT6A-68 turboprop engine that underwent testing at AEDC powers the Texan II which is used by the U.S. Air Force for basic pilot training and the U.S. Navy for primary and intermediate joint Naval Flight Officer and Air Force combat systems officer training. The engine is shown here installed in AEDC’s SL-1 engine test cell and includes a special shroud to provide a simulated flight environment for the propeller. Without the shroud the propeller would create a pulse every time the blade passes at the closest point to the bottom of the test cell. (Photo by Rick Goodfriend)

An Alliant Techsystems, Inc. (ATK) CASTOR® 30XL developmental rocket motor underwent testing in AEDC’s J-6 Large Rocket Motor Testing Facility. “AEDC is the only place to test this motor, due to their unique capability of being able to simulate upper atmospheric conditions,” said Jeff Winter, ATK program manager for CASTOR® 30XL. The J-6 Test Unit Support System was upgraded with state-of-the-art software and hardware for its new Facility Control System. (Photo by Rick Goodfriend)
Keith Gipson, an ATA outside machinist, installs newly designed and fabricated nozzle actuators in the Propulsion Wind Tunnel's four foot transonic wind tunnel, 4T at AEDC. The actuators are electromechanically driven ball-screw jacks which move the flexible top and bottom plates in the 4T tunnel closer together providing variable Mach numbers or wind speeds. This new installation is one portion of an ongoing upgrade in 4T improving functionality for customers and synergy between wind tunnel control rooms. (Photo by Rick Goodfriend)

Prior to a static performance test at the University of Tennessee Space Institute (UTSI) Propulsion Research Facility, Brad Besheres, an outside machinist in the ATA Technology Branch's instrumentation and diagnostics group, is inspecting AEDC's upgraded J85 Augmentor rig coupled to GE's developmental augmentor assembly, all of which is mounted on the facility’s T-6 thrust frame. The test has two phases, with the first to characterize and evaluate the augmentor's durability and mission performance. The second phase focuses on instrumentation and diagnostics project activities. These focus on various measurement techniques (optical tail pipe camera stereoscopic imaging and gas sampling techniques) that can be applied to gas turbine engines. (Photo by Rick Goodfriend)

During the American Institute of Aeronautics and Astronautics (AIAA) Tennessee Section annual awards program on May 29, an AEDC test team was recognized for their outstanding contributions to the C-5M Super Galaxy winglet upgrade test. Pictured here is the C-5M Super Galaxy model in Arnold Engineering Development Complex's (AEDC) 16-foot Transonic Wind Tunnel. The model is a pink color as a result of AEDC’s application of Pressure Sensitive Paint (PSP) to it before the test was conducted. (Photo by Rick Goodfriend)

A team comprised of engineers, outside machinists, schedulers and other specialists at AEDC focused their ideas, energy and time over the past four years on completing the first major modernization program on the 1950s-era von Kármán Gas Dynamics Facility (VKF). In addition to the advanced test capabilities this effort brought to AEDC, the team of employees who worked on this project during the period beginning with fiscal year 2011 and continuing through the first quarter of fiscal year 2013 earned the prestigious Jacobs Engineering Zero Accident Award for calendar year 2012. To earn this award, team members worked over 250,000 consecutive hours without an injury. Joe Syler, an Aerospace Testing Alliance outside machinist, is shown in this picture making an adjustment to the Ares I first stage booster model in the VKF Tunnel B prior to the resumption of heat transfer testing. (AEDC photo)

The Tiltrotor Test Rig (TTR) Team, including the AEDC National Full-Scale Aerodynamic Complex, received the Group Achievement Award at the NASA Ames Research Center NASA Agency Honor Award ceremony. The TTR is shown here on the calibration stand. (NASA photo)

AEDC Year in Review

TESTS AND SUPPORT.......

Information Protection (IP) office team members received the AFMC 2012 Information Protection Team of the Year Award. Team members shown in this photo left to right are: Loraine McElroy, ATA; Tamalena Breiding, ATA; Holly Petty, AEDC Test Support Division (TSD)-IP; Kathy Saine, ATA; Keena Cornelius, ATA; Jeannie Bowden, ATA; David Madison, TSD-IP; Angela Garrard, ATA; Nichol Northcutt, ATA; Vivian Seals, ATA; and Elise Sherrell, ATA. Team members not shown are Jack Glasser, TSD-IP; Lindsay Haig, Test Operations Division (TST) – Tunnel 9; and Charles Ingalls, TST – WFAC. (Photo by Rick Goodfriend)

AEDC implemented Global Harmonization, a global agreement developed by the United Nations and adopted by over 65 countries. It standardizes information found on chemical material safety data sheets and product labels between countries. Larry Parks, in ATA Mission Support Department, applies the proper label to a drum. The new United Nations Global Harmonization System (GHS) requires all nations to follow the same labeling standards. (Photo by Jacqueline Cowan)

AEDC police began using the new Defense Biometric Identification System (DBIDS) to assist employees and visitors in gaining entry to the base. Office Jim Taylor operates the new DBIDS as ATA employee Mary Beth Barkoe enters the AEDC main gate. The DBIDS scans an individual’s Common Access Card (CAC) or similar DOD credentials when they enter the base security gates. (Photo by Jacqueline Cowan)

The Tiltrotor Test Rig (TTR) Team, including the AEDC National Full-Scale Aerodynamic Complex, received the Group Achievement Award at the NASA Ames Research Center NASA Agency Honor Award ceremony. The TTR is shown here on the calibration stand. (NASA photo)
SPECIAL EVENTS

This Bird in Space sculpture was the inspiration for a student Erin Hedlund wind tunnel model tested in AEDC’s Hypervelocity Wind Tunnel 9. The test article was based on L’Oiseau dans l’espace (Bird in Space), a series of sculptures by Constantin Brancusi, a Romanian artist. Artist Iñigo Manglano-Ovalle takes photographs of the Bird in Space student wind tunnel model. Manglano-Ovalle suggested creating a sculpture inspired from the wind tunnel to be displayed in new construction at the Federal Research Center at White Oak - the property that Tunnel 9 occupies with the Food and Drug Administration. (Photo by Arnold Collier)

Former astronaut Dr. Jan Davis was the keynote speaker for the Engineers Week banquet. The Techno Warriors, East Coffee Elementary School’s Lego Team, demonstrated their robotics at the National Engineers Week Banquet, Feb. 21. The team met and talked with former astronaut Dr. Jan Davis and AEDC Commander Col. Raymond Toth. Pictured from left are Kyle Duke, 4th grade, Tyler Barretta, 5th grade, Sarah Leedy, 5th grade, Dr. Davis, Col. Toth, Braxen Fletcher, 4th grade, Ian Prater, 5th grade, and Grey Landrum, 7th grade. (Photo provided)

AEDC leadership inducted new AEDC Fellows David Beale and Marvin Sellers and AEDC Lifetime Achievement Fellows Ron Pote and retired Maj. Gen. Michael Wiedemer at the annual AEDC Fellows Banquet June 25. (Photo by Rick Goodfriend)

The Arnold Community Council (ACC), a group who supports and promotes AEDC, made their annual trip to Capitol Hill for meetings with elected officials and key staffers at the Pentagon. They also collaborated with support councils from Edwards and Eglin Air Force Bases. One of the ACC’s primary objectives was to encourage membership in the newly formed ‘testing center’ caucus. Shown in this picture (l-r) are former ACC President Steve Cope and Tullahoma Area Chamber of Commerce Executive Director Diane Bryant speaking with Congressman Diane Black about the caucus she recently formed. (Photo by Kathy Gattis)

Almost 150 job seekers and 20 exhibitors participated in a job fair sponsored by Arnold Community Council (ACC) and Tennessee Senator Janice Bowling. A representative from Bridgestone is seen in this photo talking with a potential employee during the job fair. The event was open to ATA employees who were reduced in force, Air Force Civilians who were furloughed and the community. (Photo by Jacqueline Cowan)

AEDC STEM Center coordinator conducted a job shadow day July 11 for the children of AEDC employees. (Photo by Jacqueline Cowan)

The Arnold Community Council (ACC) members and AEDC leadership gathered to hear U.S. Air Force retired Lt. Gen. David Deptula at the ACC annual dinner Oct. 16. More than 200 people attended the event where there were 40 sponsors. The ACC, an independent organization of community leaders, area businesses and elected officials, was formed to support and promote AEDC. Outgoing ACC President Steve Cope (right) hands the gavel over to incoming President Ben Craig at the ACC dinner. (Photos by Rick Goodfriend)
What are your New Year Resolutions?

Gary Johnson  
Post Office Manager  
Looking forward to starting a new chapter in my life. I know I will miss my friends.

(Raw Text)

Rhindon Gray  
AEDC Protocol Chief  
Air Force Public Affairs  
20 years of service

“I have started the New Year by taking control of my health and joined the Kiwanis club, a great organization that helps our Franklin County community most important 2014 wish is I pray the New Year brings good health and happiness to all my family and friends.”

(Raw Text)

Vickie May  
AEDC Protocol Chief  
Air Force Public Affairs  
30 years of service

“My resolutions are to volunteer more in the community and find a hobby that REALLY interests me.”

(Raw Text)

Donald York  
Craft Test lead  
AEDC Integrated Test and Evaluation  
25 years of service

“I am retiring this month, the 24th of January will be my last day. I am looking forward to starting a new chapter in my life. I know I will miss my friends.”

(Photos by Jacqueline Cowan and Rick Goodfriend)

What is your most memorable AEDC moment during your years of service?  
Jeffrey Foster – AEDC Performance Management, Section Manager

“There are two. First, in April 1984, when I met my wife. She worked for Ragsdale Sales Company, a vendor in Cincinnati, Ohio that we purchased computer equipment from. I called checking on some past due purchase orders we had been working five months later. Second, in July 1999, when AEDC converted from the AIMS system to Synergy. It was a drastic change and was painful – as it was expected when you convert to a new computer system.”

(Raw Text)

Thomas Hartvigsen  
AEDC Integrated Test and Evaluation, Engineer/Scientist

What is your most memorable AEDC moment during your years of service?  
“Back when they [AEDC] were still running the 16S [wind] tunnel. I was invited to look at the structure inside the 16S compressor tailcone. They had been running the tunnel and had shut down. Of course, 16S gets pretty hot when it runs and it takes quite a while to cool down. They called me up and said, ‘The compressor is down to 150 degrees now so we can go inside.’ I said, ‘That sounds like it is still too hot to me.’ I went over and went inside of the 150 degree compressor tailcone. It was not as bad as I thought, but you don’t want to stay there for long. I have had many opportunities to do some very interesting work during my career at AEDC.”

(Raw Text)

Christopher Broadnax  
AEDC Test Assets and Support, Planner/Scheduler

What is your most memorable AEDC moment during your years of service?  
“There have been many and to pick one would be very hard to do. Having been blessed to work here for 30 years is a big one and all the great people I have worked with/for is probably the best. The friendships that have developed with that a lifetime and to me that is the most memorable.”

(Raw Text)

Edward Dorman  
AEDC Information Technology and Systems, Senior Engineer

What is your most memorable AEDC moment during your years of service?  
“On July 2-4, 2004, I was privileged to be part of a that literally gutted and replaced the AU Net infrastructure over a weekend. This effort was the culmination of more than six months of planning and preparation. There were 10 members of the core network engineering team that led the way, about the same number of computer network technicians, and another 25-30 personnel involved in various support roles. The objective was to provide a seamless octopus so that when AEDC employees arrived at work on Monday July 5, they would not be aware of any issues. In addition we worked very hard to coordinate with critical weekend staff, like emergency services and the AEDC Operations Center, to minimize that outage time. There were several significant challenges but the team persevered and made it happen successfully. The effort is documented in more detail in the August 12, 2004 edition of High Mach. This is my most memorable moment during my 30 years at AEDC and certainly my most rewarding effort.”

(Raw Text)

Debbie Barnes  
Post Office Manager

What is your most memorable AEDC moment during your years of service?  
“My most memorable AEDC moment was probably the most rewarding fun that ever got paid for!”

(Raw Text)

Marcos Moro  
AEDC Integrated Test and Evaluation, Project Manager

What is your most memorable AEDC moment during your years of service?  
“Many hours (and years) of late night testing during the F119 test program in ASEP (Propulsion Systems Test Facility).”

(Raw Text)

Robert Truesdale  
AEDC Integrated Test and Evaluation, Engineer

What is your most memorable AEDC moment during your years of service?  
“There are two: the first is any one of the many rocket tests that I was able to be the test conductor for; either in the 1C- or 12-cell test cell in support of major rocket launch development programs. To be in charge of a rocket test – that is every second is the second the 353rd project was an exciting one for the Ropes team building the AEDC rocket test facility probably the most rewarding fun that ever got paid for.”

(Raw Text)
By Staff Sgt. Rachelle Blake
325th Fighter Wing Public Affairs

TYNDALL AIR FORCE BASE, Fla. (AFNS) – Tyndall Air Force Base received the first block-of-24 F-22 Raptors scheduled to transfer from Holloman Air Force Base, N.M., Jan. 6 as part of their new combat mission.

The aircraft are now part of the 95th Fighter Squadron, which was reactivated in October 2013. “We have been talk- ing about the arrival of this mission for a few years,” said Lt. Col. Erick Gilbert, the 95th FS com- mander. “Unfortunately, we had a delay of a year, but today we were able to successfully bring in the first wave of aircraft. The next six will arrive in February, with six more in March and the final wave in April.”

The squadron’s mis- sion is to project uninvited combat power in support of national military ob- jectives and combatant commander requirements through strategic applica- tion of 5th generation air dominance fighter aircraft and personnel.

“The 95th Fighter Squadron showing up represents a new era in the capability at Tyndall,” said Col. David Grffl, the 325th Fighter Wing commander. “No combat aviation unit has ever de- ployed out of Tyndall Air Force Base. Now, we will have the largest collection of F-22s in the world and will stand ready to project air power and defend our nation’s freedom.”

Base officials ex- pressed the importance of this as the next step towards the new combat mission, responsible for deploying a large num- ber of Airmen and air- craft at any given time.

The new mission adds to Tyndall AFB’s cur- rent role as the home of F-22 pilot training. In to- tal, more than 50 of the world’s most advanced aircraft will call Tyndall home, making it the largest single-base con- trol of F-22s in exis- tence. More than 1,100 positions are associated with the new mission.

“We are bringing in close to 1,100 uniformed members to Tyndall plus their families, which will bring us back to a lively state like we had a few years ago,” Gilbert said. “The transfer of the planes and people does not come without its challenges, but base leaders say they are con- fident the 95th FS will come out on top, thanks to the help from the Air- men and civilians at Tynd- all and the local com- munity.

“Bay County has not let us down in the 72 years we have been here and I know our partner- ship will continue to grow and prosper ... to- day is a great day,” Graff said. “The sound of freedom just got a little loud- er over the world’s most beautiful beaches.”

Cadet research seeks to end costly bird-strikes on aircraft

By Amy Gillentine
U.S. Air Force Academy

The world’s most advanced combat power in support of national military objectives and combatant commander requirements through strategic application of 5th generation air dominance fighter aircraft and personnel.

“A group of cadets at the U.S. Air Force Academ- ey, Colo., are working on ways to scare birds away from the aircraft, particu- larly during take-offs and从 the airplanes – even at faster speeds.

“Both pilot training and aircraft – putting both lives tary and commercial air-planes – putting both lives in danger.”

The 95th Fighter Squadron is to project unrivaled combat power in support of national military ob- jectives and combatant commander requirements through strategic applica- tion of 5th generation air dominance fighter aircraft and personnel.

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The squadron’s mis- sion is to project uninvited combat power in support of national military ob- jectives and combatant commander requirements through strategic applica- tion of 5th generation air dominance fighter aircraft and personnel.

“We are seeing if we can incorporate the type of speakers that are already in use on faster aircraft without damaging the airplanes,” said Cadet 1st Class Nathan Armes, who designed the wind tunnel experiment. “They really are designed for slower speeds, but there are some points when it can still be heard.”

“We’re pushing the speaker higher levels and at stron- ger wind speeds.”

Armes said. “So far, we know the speaker can be heard at 2,000 hertz. We’re pushing the speaker beyond its production lim- its. What we found is that we’re losing decibels at faster speeds, but there are some points where it can still be heard.”

“We are seeing if we can incorporate the type of speakers that are already designed for flight,” said Cadet 1st Class Nathan Armes, who designed the wind tunnel experiment. “They really are designed for slower speeds, but we’re seeing if they can withstand faster flight.”

“Helicopters gener- ally travel about 150 mph while planes average about 200 mph. At faster speeds, volume tends to decline,” the researchers are attempting to discover if the volume remains at the desired levels neces- sary for birds to hear the noise and be scared away from the airplanes – even at faster speeds.

“Our goal is to find a hearing between 1,000 hertz and 4,000 hertz,” Armes said. “So far, we know the speaker can be heard at 2,000 hertz. We’re pushing the speaker beyond its production lim- its. What we found is that we’re losing decibels at faster speeds, but there are some points where it can still be heard.”

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“Helicopters gener- ally travel about 150 mph while planes average about 200 mph. At faster speeds, volume tends to decline,” Armes said. “We’re still more effort into the in this. Cadet Blake Abrecht is in charge of research into how pilots react to flashing lights and noise – and how will another pilot re- spond?”

With about 75 per cent of the data collected, Abrecht says they’ve shown that pilots perform slightly better with the flashing lights and noise. “Maybe it just helps them concentrate more,” he said.

Cadets will finish gath- ering data this semester, and begin to analyze their results during the spring semester.

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ATA recently donated $509.55 to the Cowan Elementary School toward the purchase of LEGO Techno Pads, a Science, Technology, Engineering and Mathematics (STEM) related learning tool for building simple machines. Shown in this photo (front row, l-r) are Cowan Elementary School students Reagan Sherrill, Sora Okawa, Lucy Barnes, Trenton Boswell, Carmen Guess and Peyton Garner; (back row, l-r) Ted Boswell, representative from the ATA Employee and Community Activity Committee, and Debra Skotte, Cowan Elementary School teacher. (Photo provided)

Pelham Elementary School received a $1500 STEM donation from ATA toward the purchase of a Promethean Board. The board features interactive lesson instruction that includes manipulatives, modeling and math vocabulary online. Pelham Elementary School teacher Amy Houk (left) and Principal Willie Childers (center) are shown here receiving the donation from Tony Medley, from the ATA Flight System Plant Assets Branch Engineering and Planning. (Photo provided)

AEDC sponsored FIRST® LEGO® League teams win awards at 2013 East Tennessee Championship

Electrons, Liberty School and Bedford County – Project Award, 1st Place

Storming Stangs, McFadden School of Excellence, Murfreesboro – Project Award, 3rd Place

Mustachios, East Middle School, Tullahoma – Presentation Award, 3rd Place

Eagles, Westwood Elementary School, Manchester – Inspiration Award, 2nd Place

Eye of the Storm, Jacobs – Teamwork Award, 3rd Place

ATA makes STEM donations to local schools

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ATA makes STEM donations to local schools
Check us out on Facebook! Arnold AFB Services Arnold Lakeside Center (ALC) 454-3350

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**Valentine’s Day Date Night Dinner for Two at the ALC**

Arnold Lakeside Center will host an adults only Valentine’s Day Date Night Dinner for Two, Feb. 14 from 6-9 p.m. The candlelight dinner for two includes 8 oz. prime rib (cooked medium rare), baked potato, salad, and velvet cake, and your choice of tea, water, or soft drink. Cost is $16 per couple for members and $17 per couple for non-members. Reservations are due Feb. 7. Call 454-3350 for reservations or more information.

**‘Twice the Fun’ of Brushes and Bottles in Feb.**

**First Friday Jam Night Feb. 7 at Arnold Lakeside Center**

First Friday Jam will be held at 6 p.m. on Feb. 7. Come to play, listen, dance and enjoy. Join in with the band to play an instrument or sing or take over and do your own performance. First Friday Jam is a very informal, stress-free, kid friendly environment. If you would like to sing or play an instrument, please contact Jim “JJ” Bolliffe, jjbolliffe@gmail.com to get on the schedule, or simply show up with your instrument and/or singing voice. Room will be made for anyone wishing to perform. Dinner is available at the ALC from 5-8 p.m.

Arnold Lakeside Center welcomes back Books Are Fun for a book fair from 9:30 a.m. – 1 p.m. Feb. 4 in the A&E building’s Café 100. Discounted selections include paperbacks, best sellers, educational, reference, cookbooks, children’s items, gift selections and more. Save up to 70 percent off retail prices.

**‘Books Are Fun’ returns to Café 100 Feb. 4**

March 5th Free Ticket entitles 1 guest admission to one theme park per day. Ticket is valid for any 3 calendar days during a 14 consecutive calendar day period which includes the first day any portion of the ticket is used. This ticket also includes 14 consecutive calendar days of admission to the paid entertainment venues of Universal City Walk which commences and includes the first day any portion of the ticket is used. First use of this ticket must be on or before May 9 to receive full benefit of the ticket entitlements. All ticket usage must be completed on or before May 22 when the ticket will expire in full. For complete details and to order tickets, call ITT at 454-4003.

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**‘Twice the Fun’ of Brushes and Bottles in Feb.**

Brushes and Bottles will be held 6-8 p.m. at the GLC Feb. 15, and again 6-8 p.m. at the GLC Feb. 27. Bring your favorite beverage and quote to customize this month’s paint and get ready to get creative as an instructor will lead you through a canvas painting work of art step-by-step. By the end of the evening you will have your own masterpiece to take home. These painting parties are for all skill levels ages 21 and over with a cost of only $25 per person. All paint, brushes, aprons, canvases and other necessary materials will be provided. All you have to bring is your beverage of choice. Light snacks will be provided and other beverages will be available for purchase. Deadline to sign up for this event is Feb. 7 and Feb. 21, respectively. Class size is a maximum of 15. Call 454-3350 to sign up or for more information. The participants artwork reflects their personal beliefs and personality. Bring your favorite quote to personalize this month’s design.

**Daily $6 specials at Café 100**

Every Monday is Lasagna served with salad, garlic bread and drink. Every Wednesday is Fried Chicken served with slaw, choice of chips or potato salad and drink. Every Thursday is Chicken Noodle Soup of the Day served with slaw, choice of chips or potato salad and drink.

**Hot dogs available in the Pro Shop Monday through Friday. Three hot dogs are placed on the roller in the Pro Shop for your convenience. The hot dogs are $1 each.**

**Arnold Golf Course (GC)**

454-GOLF, 454-FOOD

**3 Day Free Ticket special offer for Universal Orlando brought to you by ITT (Information, Tickets and Travel) at Arnold Lakeside Center. The 2 Day Base with 3 Day Free Ticket entitlement is 1 per admission to one theme park per day. Ticket is valid for any 3 calendar days during a 14 consecutive calendar day period which includes the first day any portion of the ticket is used. This ticket also includes 14 consecutive calendar days of admission to the paid entertainment venues of Universal City Walk which commences and includes the first day any portion of the ticket is used. First use of this ticket must be on or before May 9 to receive full benefit of the ticket entitlements. All ticket usage must be completed on or before May 22 when the ticket will expire in full. For complete details and to order tickets, call ITT at 454-4003.**

**National Kite Flying Day free event at the Arnold Lakeside Center Feb. 8 at 10 a.m. Join the ALC staff on the back patio to see how high you can make your kite soar. Attendees are welcome to bring their own kites or kites will be provided to those who sign up the Feb. 3 deadline. Five participants are required for the event to take place. Call 454-3350 for more information or to reserve your spot.**

**Introduction to Hula Hooping at the ALC Feb. 8 at 10 a.m. All ages and skill levels are invited to spend their Saturday morning with instructor Christy Adams in the ALC ballroom for single and double hula hooping demonstrations. Bring your own hula hoop or use one provided by the ALC.**

**Barber Shop is located in the A&E Building in room A107 and is open Monday, Tuesday, Thursday and Friday from 8 a.m. to 4 p.m. Haircuts are Monday, Tuesday, Thursday and Friday from 8 a.m. to 4 p.m. Haircuts are by appointment. Call 454-6987.**

**Valentine’s Day Date Night Dinner for Two at the ALC**

Arnold Lakeside Center will host an adults only Valentine’s Day Date Night Dinner for Two, Feb. 14 from 6-9 p.m. The candlelight dinner for two includes 8 oz. prime rib (cooked medium rare), baked potato, salad, and velvet cake, and your choice of tea, water, or soft drink. Cost is $16 per couple for members and $17 per couple for non-members. Reservations are due Feb. 7. Call 454-3350 for reservations or more information.
**February 2014**

**GC Winter Green Fee Special continues through Feb. 28- $10 green fee for unlimited golf, cart fee not included.**

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**Hours of operation**

Arnold Lakeside Center: Catering/Management offices by appointment. *(Information, Tickets & Travel)* 454-3051, *(Membership Information)* 454-3350, *(Catering)* 454-3300, *(Membership Services)* 454-6987, *(Café 100 Boba Coffee)* 454-5575, *(Barber Shop)* 454-4062, *(Marketing & Sponsorship)* 454-4062. September through June: Monday through Friday 7:30 a.m.-4 p.m. Saturday 8 a.m.-1 p.m. Sunday closed.

**AECT**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**AECF**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Human Resources**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Operations Clerk**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Ingvil’s Grill**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Barber Shop**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Crockett Cove & Dogwood Ridge**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Hair Salon**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Coffee Bar**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Sapulpa**

Café 100 Lasa- tray is $6. March 20, 2013. at (931) 454-5921.

**Blood Pressure**

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Group Class Schedule (for eligible users only)

Cycling: Tuesday and Thursday 11 a.m.-12 p.m.

Interval/Circuit Training: Monday, Wednesday and Friday 6-7 a.m.; Tuesday and Thursday 3:30-4:30 p.m.

If you want more options for classes, then it’s the time to register. Check us out on Facebook! Arnold AFB Services Gossick Leadership Center.

Blood Pressure Checks and scheduling.

Ask about kiosk orientation and testing during regular hours. The kiosk provides virtual physical fitness certifications. FOR can accommodate individuals or groups and is available any time during regular hours. Ask about orientation and scheduling.

Reservation Policy:

- Camp, Crockett Cove and Dogwood Ridge reservations may be made 45 days in advance for active duty and reserve military, 40 days for retired military, and 30 days for all other qualified personnel. Boot reservations may be made 10 days in advance for active duty and 10 days for active duty eligible individuals. All reservations are available through the Outdoor Recreation Office by calling 454-6084.

- Outdoor Rec (O'DR) reservations are available through the Outside Food and Beverages Office. Check us out on Facebook! Arnold AFB Services Wingo Inn.

If you have family and friends visiting and need extra space then call Wingo Inn. Reservations for Wingo Inn can be made 120 days in advance and room rates start at $56 per night. Call 454-3051 for reservations and more information.

Don’t miss out on Fun: Gossick Leadership Center.

- The Gossick Leadership Center (GLC) can be used for events such as meetings, conferences, luncheons, dinners, etc., and is booked through the Services Conference Center Manager (CCM) up to one year in advance. Requests must be made in writing by email to arnold.glc@arnold.af.mil. All event coordinators are required to sign an agreement form. All outside food and beverages must be approved by the CCM at 454-4003.

- AEDC Woman’s Club

Come and join the AEDC Woman’s Club Fashion Show, hosted by Peabody of Tennessee. This meeting will be on Feb. 4. Make sure you’re in attendance to get a sneak peak of the new fashions for spring. Also, the cosmoptologists from Estee Lauder at Peabody will be doing makeovers.

- The Social Hour of the meeting starts at 9 a.m. at the Arnold Lakeside Center, with the business meeting and program at 10 a.m. We hope to see you there! Reservations and cancellations for the Feb. 4 meeting must be made no later than noon on Jan. 28. Make reservations or cancellations by contacting Lori Jillicut at 931-393-2552 or jillicutf@gmail.com; or June Ricci at 931-636-4152 or dickanjaun@gmail.com. Disclaimer: This is a private organization which is not a part of the Department of Defense or any of its components and has no governmental status.

- February Movie Schedule

Movies are shown at the Arnold Lakeside Center.

February Movie Schedule

Feb. 6 – “Captain Phillips,” rated R-13 (2 hr. 24 min.) starring Tom Hanks, Barkhad Abdi and Barkhad Abdirahman. The true story of Captain Richard Phillips and the 2009 hijacking by Somali pirates of the US-flagged MV Maersk Alabama, the first American cargo ship to be hijacked in two hundred years.

Feb. 13 – “Free Birds,” rated PG (1 hr. 31 min.) starring Woody Harrelson, Owen Wilson and Dan Fogler. Two turkeys from opposite sides of the tracks must put aside their differences and team up to travel back in time to change the course of history — and get turkey off the holiday menu for good.

Feb. 20 – “Ender’s Game,” rated PG-13 (1 hr. 34 min.) starring Harrison Ford, Asa Butterfield and Hailee Steinfeld. Young Ender Wiggin is recruited by the International Military to lead the fight against the Formics, a genocidal alien race which nearly annihilated the human race in a previous invasion.

Feb. 27 – “Gravity,” rated PG-13 (1 hr. 31 min.) starring Sandra Bullock, George Clooney and Ed Harris. A medical engineer and an astronaut work together to survive after an accident leaves them adrift in space.