



HIGH MACH

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Orion parachute testing conducted at AEDC NFAC facility

By Deidre Ortiz
ATA Public Affairs

AEDC engineers at the National Full Scale Aerodynamics Complex (NFAC) assisted in recent testing of sub-scale parachutes for the next mission of the Orion spacecraft, Exploration Mission-1.

The testing, conducted in January in the 80-by 120-foot wind tunnel by a team of NASA, Jacobs Engineering, Airborne Systems and NFAC personnel, was to help improve the safety and reliability of Orion's landing.

The team tested 13 parachute configurations using a tether system to hold the parachute while

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On Feb. 2 in Eloy, Ariz., engineers performed air drop testing on sub-scale parachutes for the NASA Orion spacecraft. The test is meant to determine which parachute configuration will ensure the Orion lands safely after missions. (Photo credit: NASA)



AEDC engineers were part of a test team that performed wind tunnel testing on the parachutes for NASA Orion spacecraft in January. The test team also consisted of NASA, Airborne Systems, Jacobs Engineering and NFAC personnel. Pictured here is a parachute being tested in a NFAC wind tunnel. (AEDC photo)

Combined Test Force helping to streamline work at AEDC wind tunnel facilities



Wayne Hawkins, AEDC Propulsion Wind Tunnel Test Branch technical director

By Deidre Ortiz
ATA Public Affairs

A total of five Combined Test Forces (CTF) have been established to improve testing at AEDC.

The Flight CTF, which includes the Propulsion Wind Tunnel and von Kármán Gas Dynamics facilities, makes up one of these CTF groups.

The others include the Propulsion CTF and the Space and Missiles CTF, as well as the Tunnel 9 CTF in White Oak, Md., and the National Full Scale Aerodynamics Complex (NFAC) CTF at Moffett Field, Calif.

According to Wayne Hawkins, technical director of the AEDC Propulsion Wind Tunnel Test Branch, the wind tunnel facilities were operated under a similar structure years ago when they were operated as separate directorates.

"We're functionally structured now," he said. "All our assets are combined and we have everything needed to support the work we do."

According to Hawkins, the base had moved toward using matrix-type organizations because at that time the workload was lower.

Now that workload has significantly increased and many of the AEDC facilities are at or over capacity for testing through the next several years, Hawkins said the switch to CTF is a much more "integrated and streamlined" way of conducting business.

"Working as a CTF is more efficient and we will have the manpower to be able to do more productivity," he said. "It also gives us leeway to decide priorities on maintenance and operation and with fewer conflicts with the workforce on priorities."

Hawkins explained because there is more autonomy with a CTF, it makes wind tunnel operations "run much smoother."

Students victorious in local Engineers Week activities

By Raquel March
ATA Public Affairs

Engineers helped students reach new horizons in various activities and competitions during National Engineers Week, Feb. 22-28.

Local engineering societies joined in hosting a MathCounts® competition and a student design competition where students used their engineering skills to solve math problems and design problems. Student teams were awarded for their results and recognized at the Engineers Week Banquet which concluded the activities for the week.

"Involving students from the surrounding counties in activities of the week is a big part of promoting engineering," said Paul Ritter, the Engineers Week chairperson.

The Student Design Competition on Feb. 24 at the Tullahoma Hands on Science Center hosted 44 students from Moore County High School, The Webb School, Shelbyville Central High School,



First place winners of the Engineers Week Student Design Competition, Jacob Parnham and Sam West with Coffee County Central High School, accept their award Feb. 24 at the Hands on Science Center from Col. Timothy West, director of the AEDC Test Operations Division. (Photo provided)

Tullahoma High School, Coffee County Central High School and Cascade High School.

The challenge presented to the students at the competition as instructed in the project guidelines was, "An evil warlord has barricaded himself inside a high-walled

castle... With the limited resources you have available, you are tasked with developing a launcher to fire a projectile over the castle walls."

Given the parameters and provided materials, students built launchers that propelled them to victorious rankings in the compe-

tion.

Coffee County Central High School, with team members Jacob Parnham and Sam West, placed first. Second Place winners were team members Godwin Murillo

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HIGH MACH

Arnold Engineering Development Complex
An Air Force Materiel Command Test Complex

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- Demonstrate the highest integrity and ethical standards
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- Deliver professional and technical excellence
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- Align with customer goals and objectives
 - Use disciplined and innovative processes
- Continually improve in all that we do

Cybercrime: How it affects you

By Special Agent Monte Stephens
Air Force Office of Special Investigations Detachment 221

MOUNTAIN HOME AIR FORCE BASE, Idaho (AFNS) – Cybercrime is the fastest growing and most dynamic area of crime. Ever-increasing reliance on cyber technology is allowing criminals to operate with virtual impunity across a range of criminal activities and jurisdictions.

Although the types of crimes are not necessarily new (theft, fraud, extortion, drug proliferation and sex-based exploitation), the technology provides criminals an unprecedented range of targets, increased operational capabilities and

a reduced risk of capture and prosecution.

In 2013, cybercriminals defrauded the U.S. public to the tune of more than \$780 million through a variety of on-line scams ranging in a level of complexity from simple fraud schemes to complex hacking scams, according to the 2013 Internet Crime Report, FBI. In the past few years, there have been numerous online scams where criminals have either directly targeted military personnel or used actual and fictitious information about U.S. military members to defraud the public. These scams range in forms and all are designed to extort information or money from innocent victims by exploiting the public's trust in the U.S. military.

Online scammers use U.S. military members' information, whether real or fake, for three reasons: 1 – credibility; 2 – plausibility; and 3 – emotional appeal. Appearing attractive to a victim's emotional response the criminal generates trust and loyalty in order to increase credibility once the scam is suggested. The military ties also give criminals a credible reason to solicit money from victims that would normally make such a request seem suspicious. Two of the most common online scenarios are sale scams and the Nigerian Letter scams.

Online sale scams: The scam begins by offering online goods well below their market price, most frequently carried out on an online sale site. Most of such scams involve vehicle sales and generally take the following pattern: a scammer advertises a vehicle

for sale at a price almost too good to be true and describes the vehicle in broad terms. The potential victim answers the ad and is soon contacted by the scammer, claiming to be a member with a U.S. military unit that's being deployed abroad. The scammer uses this "deployment" to explain the devalued sales price of the vehicle and they will be unable to test drive it. Often, the scammer insists the transaction take place quickly and requests the potential victim wire the money or transfer funds via the purchase of a money card and then providing the code to the scammer.

Advance-fee online fraud scam or Nigerian Letter scams: Seeks to defraud potential victims by promising big profits in exchange for help moving large sums of money. Claiming to be a government official, business person or

the surviving spouse of a former government leader, the criminals offer to transfer millions of dollars into victim's bank account in exchange for a small fee. The scammer really wants the victim's bank account information in order to transfer money out of their account.

Air Force personnel appear to be at risk to online impersonation because of the perceived reputability and integrity of service members by the general public. Criminals looking to impersonate service members can find an abundance of personal information from official websites, news articles and social networking sites. Air Force members should be aware their personal information can be exploited by online imposters and must remain vigilant to protect and minimize their Internet footprint.

March marks Brain Injury Awareness Month

By Karen S. Guice, M.D., M.P.P.
Principal Deputy Assistant Secretary of Defense for Health Affairs

WASHINGTON (AFNS) – Often called one of the "invisible wounds of war," traumatic brain injury (TBI) is the result of a blow or jolt to the head that disrupts the normal function of the brain. Anyone can suffer a TBI, it can happen on the sports field, in your home, or on the job.

During March, the Military Health System (MHS) is focusing its talent and efforts on the issue of TBI. We will provide tools and resources to educate service members, their families, retirees and Defense Department civilians about the prevention and treatment of TBI, while highlighting ongoing MHS research and breakthroughs.

According to the Centers for Disease Control and Prevention, each year 1.7 million people are diagnosed with a brain injury. The most common form of TBI, even for the military, is mild TBI (also referred to as a concussion) and the vast majority occur at home. The Defense and Veterans Brain Injury Center reported that from 2000-2014 more than 313,000 service members were diagnosed with TBI, and most of these were mild.

MHS research has produced several breakthroughs that improve the lives of our patients, beneficiaries, and all

Americans who sustain TBIs. Our work is even taking us back to college to examine the impact of TBIs on athletes. The NCAA and the DOD are currently sponsoring the "Mind Matters Challenge," a landmark initiative to enhance the safety of student-athletes and service members. The partnership is the most comprehensive study of concussion and head impact exposure ever conducted.

For TBI patients, TRICARE covers rehabilitative services provided by physicians, psychologists, physical therapists, occupational therapists, and speech-language pathologists. The DOD offers a variety of products such as clinical recommendations, tool kits, and mobile applications to assist health care providers in the diagnosis, evaluation, and treatment of patients with mild TBI.

One of the most important steps in TBI treatment is rest, which allows the brain to physically and mentally recover, and removes the risk of suffering another concussion while the brain is healing. Early diagnosis of TBI, as well as evaluation, and treatment can shorten return-to-duty time and lead to the best possible outcome for those entrusted to our care.

Along with our partnerships and cutting-edge research, MHS is making great progress in improving and prolonging the quality of life for those living with TBI.

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Smoking Policy

1. The following revised AEDC smoking policy is effective immediately. Smoking is permitted solely in designated areas identified by a plastic "smoke genie." This receptacle is for the sole purpose of cigarette butt disposal. If there is no receptacle, smoking is not permitted in that area. It is the responsibility of all smokers to clean up the area surrounding the receptacles for any cigarette butts on the ground. Smoking in government-owned vehicles is strictly prohibited. Personnel are allowed to smoke in their personal vehicles at any time. Smoking areas will be held to the absolute minimum and will be located in low traffic, low visibility areas away from points of building ingress/egress and air intakes. A map of all authorized smoking areas is available on the Team AEDC SharePoint site. Smoking near a facility in an area not designated on the map is prohibited and any smoking receptacles located in areas not shown on the map will be removed. All "smoking permitted" and "no smoking" signs will be removed unless specifically required by OSHA.

The fact a person smokes has no bearing on the number of breaks they may take. Breaks should be taken in accordance with the company/agency personnel policies that apply to all employees.

Smoking, including the use of electronic cigarettes and smokeless tobacco, is prohibited in any area, at times when official business is being conducted with government clients, test customers, outside visitors and dignitaries, and where official business is being conducted including conference rooms, auditorium settings, business meetings, or in any other area where Air Force regulations specifically prohibit use. 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. Due to the nature, appearance, and safety concerns of electronic cigarettes (also known as "e-cigs"), the use of said products will abide by the same rules for tobacco products stated above and governed by AFI 40-102, *Tobacco Use in the Air Force*.

2. Supervisors at every level will ensure this policy is followed. Disciplinary action is appropriate for repeated violations.

3. Updates to this policy will be made in the future to further align with Air Force guidelines.
4. This policy remains effective until rescinded. (This policy is dated December 20, 2013)

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 in one of two ways: 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. Raymond Toth
AEDC Commander

Congressman Diane Black staff members visit AEDC



Col. Timothy West (far right), the AEDC Test Operations Division director, explains test operations in the Complex's Propulsion Wind Tunnel facility to a group of staff members from Congressman Diane Black's office, March 13. The group toured the base as part of a congressional staff orientation program. (Photo by Jacqueline Cowan)

Take care of your personal protective equipment

By AEDC Safety, Health and Environmental

Choosing the right personal protective equipment (PPE) is the first step toward ensuring your safety. Once you've assembled the right combination for your needs and your jobs, you are only halfway there.

The next step – looking after your PPE – is often overlooked. Caring for your PPE is just as essential as choosing the right PPE.

Head Protection

- Hardhats are designed to protect your head. Inspecting and caring for them is vital. Promptly replace any expired, damaged or defective hardhat.

- Are the inside (harness) straps working properly? Are they properly adjusted?
- Is the outer shell cracked or weakened with dents?
- Is your hardhat clean and free of any decals or stickers? Use a damp rag with mild soap and water to clean your hardhat periodically. Mold and mildew can grow on any surface damp with sweat. Clean approved hard hat liners in accordance with manufacturer's guidelines. Per AEDC Safety, Health and Environmental Standard F2 Personal Protective Equipment, Para. 4.5.5, only the factory-imprinted AEDC

shield and a single sticker with your name are allowed. No other stickers – including those documenting training such as Confined Space Safety – are permitted.

Eye Protection

- Does your eye protection fit? If not, talk to your supervisor and get eye protection that fits properly.
- Are the lenses clean? Again, using a solution of warm soapy water or an approved lens cleaner should do the trick. Clean them as many times a day as necessary.
- Are they cracked, scratched or broken? Duct tape or super glue is not a safe repair. If your glass-

es are broken, cracked or scratched, get a new pair.

Hearing Protection

- Reusable earplugs and ear muffs must be cleaned on a regular basis. Dirt and oil will reduce their fit and lessen their protective qualities. Clean with mild soap and water on a regular basis.

Hand Protection

- There are as many different types of gloves as there are jobs in the workplace. Use the right kind of glove that fits properly for the job you are performing.
- Always make sure your gloves are in good repair and do not have any rips

or tears.

Foot Protection

- Caring for your foot protection is a daily requirement.
 - Check the soles, laces and eyelets for wear. Also check the inside soles of your footwear. Any excess wear or damage will compromise their protective properties.
 - Make sure your footwear is free of contaminants such as oil or grease which will eliminate their ability to provide traction.
- If you are unsure which PPE you need for a specific task, ask your supervisor or contact your organization's ATA Safety, Health and Environmental consultant.

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Pictured here are the top scoring winners at the MathCounts® competition, on Feb. 28 at the University of Tennessee Space Institute, who combined to create the Tullahoma Team who will compete in the MathCounts state level competition. Shown left to right are team members Carol Zhou, Jessie Song and Clare Beckett, The Webb School, Coffee County; Brandon Perry, West Middle School, Tullahoma; Trace Baxter, East Middle School, Tullahoma; Ruth Ann Terry and Aimee Christopher, West Middle School; and teacher Lea Anne Windham, The Webb School. Members not shown are Noah Johnson, The Webb School; and alternates, Kelly Nguyen and Alyssa Williams, East Middle School. (Photos provided)

and Bryan Oudomsouk with Cascade High School. Third place winners were team members Jake Crabtree and Grant Rigney with Tullahoma High School.

The second event of the week was Engineer For a Day.

"The second event... was held at Arnold Engineering Development Complex," Ritter said. "This event provided students the opportunity to interact with younger engineers and experience what it might be like to work in an engineering test environment."

The MathCounts competition on Feb.

28 at the University of Tennessee Space Institute was a local event where the winners were combined into a team that will compete at the state level and possibly at the national level. Six schools, including 51 students in sixth, seventh and eighth grades, competed from Bedford, Coffee, Franklin and Lincoln counties.

The competition challenges mathletes to solve problems.

The Webb School from Bedford County placed first in the competition followed by second place team, West Middle School, Tullaho-

ma; and third place team, East Middle School, Tullahoma. The Webb School is joined by the top four scoring individuals not on the winning team to complete the Tullahoma team who will compete at the state level. The team members are Carol Zhou, Jessie Song, Clare Beckett and Noah Johnson from The Webb School; Brandon Perry, Ruth Ann Terry and Aimee Christopher from West Middle School; and Trace Baxter, as well as alternates, Kelly Nguyen and Alyssa Williams, from East Middle School.

The top three scor-

ing individuals in order of first to third place were Song, Brandon and Zhou.

Participating engineering societies included the Tullahoma Chapter of the Tennessee Society of Professional Engineers, the Highland Rim Chapter of the American Society of Mechanical Engineers, the Tennessee section of the American Institute of Aeronautics and Astronautics, the Society for Maintenance and Reliability Professionals, the Project Management Institute and the Arnold Association of Professional Societies.

AFMC promotes 'Spring Into Shape' physical activity challenge

By Air Force Materiel Command Wellness Support Center

WRIGHT-PATERSON AIR FORCE BASE, Ohio – During April and May, Air Force Materiel Command will promote its Spring Into Shape physical activity challenge. Spring Into Shape is a command-wide initiative designed to promote physical activity for the AFMC workforce. Participants will receive a free copy of the "Quick Start Walking" DVD at the official check-in. Civilian Health Promotion Services (CHPS) will conduct the challenge.

How to Participate in Spring Into Shape (SIS): Enroll online at www.AFMCwellness.com from March 12 to April 16 (appropriated fund DOD civilians need to have an up-to-date Health Risk Assessment to participate).

Print your SIS confirmation email to turn in at the initial check-in with CHPS staff between March 30 and April 16 to finalize enrollment. You will receive the free

"Quick Start Walking" DVD at this visit.

Perform physical activity and log your minutes on the www.AFMCwellness.com Activity Log from April 9 to May 20.

Attend the CHPS education class, "Exercise Across the Lifespan."

To be eligible for the completion award, you will need to:

- Attend both enrollment check-in and completion award check-out with CHPS
- Complete and log at least 600 total minutes (10 hours) of physical activity
- Attend "Exercise Across the Lifespan" class from CHPS staff

Participants that complete the Spring Into Shape challenge requirements will receive a free copy of the "Fitness That Works" book from CHPS. Contact your physician before beginning any physical activity program to be sure it is safe.

For more information, visit www.AFMCwellness.com or contact your local CHPS team.

Dobson receives award for outstanding support



D.J. Dobson, Superintendent of Arnold Golf Club at Arnold Air Force Base received the Employer Support of Guard and Reserve (ESGR) Patriot Award on Feb. 24. The ESGR, a Department of Defense Agency, recognizes employers that go beyond the requirements of the Uniformed Services Employment and Reemployment Rights Act (USERRA) which protects guard and reserve member jobs while training or during deployment. Pictured left to right is ESGR volunteer John Basinger, nominator Sgt. 1st Class Monica Oosting, honoree D.J. Dobson and nominator Staff Sgt. Erik Day. Monica is an Arnold AFB grounds keeper and Erik is a cook at the base golf course. Both are Tennessee Army National Guard members, Monica serving with the 30th Troop Command and Erik with the 278th Armored Cavalry Regiment. (Photo provided)

AF general shatters both gender, racial barriers

By Martha Lockwood
Air Force News Service

FORT GEORGE G. MEADE, Md. (AFNS) – Born about the time the Tuskegee Airmen were earning their reputation over the skies of North Africa and Italy, Marcelite Harris would go on to break a number of racial and gender barriers during an illustrious Air Force career.

Harris was born Jan. 16, 1943, in Houston and attended Spelman College in Atlanta, where she earned a bachelor's degree in speech and drama in

1964. She then attended Officer Training School at Lackland Air Force Base, Texas, where she was commissioned a second lieutenant in 1965.

During the early days of her career, Harris held assignments as an administrative officer in California and West Germany, before transitioning into the maintenance field by attending the aircraft maintenance officer's course at Chanute Air Force Base, Illinois, and graduating as the first female aircraft maintenance officer.

Her first assignment as a maintenance officer was

to support the Vietnam War as a maintenance supervisor with the 49th Tactical Fighter Squadron at Korat Royal Thai Air Base, Thailand. After stints back in California and Washington, D.C., Harris broke another barrier as one of the first women to be an air officer commanding at the U.S. Air Force Academy in Colorado Springs, Colorado.

After commanding an avionics maintenance squadron and a field maintenance squadron, both in Kansas, and a director of maintenance in Okinawa, Japan, Harris would make another first - this time as



(U.S. Air Force graphic/Maureen Stewart)

the first woman deputy commander for maintenance.

But her biggest accomplishment lay ahead, when in 1991, Harris became the first female African-American general, when she pinned on her first star as the vice commander of the Oklahoma Center Air Logistics Center.

Harris retired from the Air Force in early 1997, where she had been serving as the director of maintenance, deputy chief of staff for logistics, Headquarters Air Force. At that time,

she was the highest ranking female officer in the Air Force and the highest ranking African-American female within the Defense Department.

Harris continues to contribute to the Air Force even after her retirement. In 2010, President Barack Obama appointed her a member of the Board of Visitors for the U.S. Air Force Academy. As a board member, she inquires into the morale, discipline, curriculum and other matters deemed appropriate. The board submits

reports to the secretary of Defense and the Committees on Armed Services of the Senate and Congress via the secretary of the Air Force.

As she continues to serve the Air Force she serves her community.

She is a member of the National Association for the Advancement of Colored People and Delta Sigma Theta Sorority, Inc. For her works, in 2010 she was nationally recognized by the Black Girls Rock Foundation with the Trailblazer Award.

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measuring aerodynamic forces. The parachute was also allowed to fly freely in the tunnel, during which photogrammetry, measurement taken by photography, was

used to gather data on aerodynamic characteristics of the parachute.

In completing this test, parachutes were deployed last month in Eloy, Ariz.

Data from the air drop and wind tunnel tests will provide guidance as to which parachute configuration will be most reliable for future Orion missions.



2015 AEDC Security Area spring turkey hunting regulations



Persons authorized to hunt are limited to active duty military, DoD civilians, contractor employees (including temporary employees of the primary contractors) with permanently assigned pictured badges and their dependents.

Dependents must be accompanied by a sponsor. The sponsor must remain in a position to take immediate control of the hunting device at all times. If the dependent is 16 years or younger, the sponsor must be in a non-hunting capacity and cannot carry a weapon. All dependents 18 years or older must submit to a "wants & warrants" check at the Arnold Security HQ FP&C Building 251 before being allowed to hunt. A valid state issued driver's license will be needed.

All hunters, including dependents, must have a permit from



Services to participate in the hunts.

Permits can be purchased anytime from Outdoor Recreation, Bldg. 3055, for \$11 (\$10 permit fee + \$1 agent fee). You can also purchase permits via telephone with a credit card from Outdoor Recreation at extension 6084. Be sure to keep your Services receipt and bring it with you

to the mandatory hunt briefing.

Tennessee Wildlife Resources Agency (TWRA) Wildlife regulations apply to the Arnold AFB Security Area Turkey Hunting Program except where the following regulations are more restrictive. All hunters must have appropriate state hunting licenses and an Arnold AFB hunting permit. The Complex Commander

controls all hunting on Arnold AFB. The Security Area Turkey Hunting Program is administered by the Natural Resources Management Office (AEDC/TSDCI) in the A&E Building, 454-6653.

All hunters must attend a mandatory pre-season turkey hunt briefing to be eligible to hunt.

AEDC SECURITY AREA SPRING TURKEY HUNT DATES

Young Sportsman:
28-29 March

Turkey:
4-5 April
11-12 April
18-19 April
25-26 April
2-3 May
9-10 May
16-17 May

AF develops high-temperature, abrasion-resistant coating for fighter aircraft

By 88th Air Base Wing Office of Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio (AFNS) – The Air Force and a small business partner developed an innovative, high-temperature, abrasion-resistant coating product that could directly improve the reliability and maintainability of weapon systems across the Air Force, including the F-35 Lightning II.

With funding from the Air Force Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program, Texas Research Institute (TRI), in Austin, Texas, the Protectt high-temperature coating has demonstrated significant improvements in abrasion resistance at operational temperatures during laboratory testing.

"This is roughly a 2,000 percent improvement in the average time between coating failures and directly addresses a current F-35 need," said Maj. George Woodworth, the Air Force Research Laboratory SBIR project manager. "We anticipate that the new material will provide the program an estimated \$14 million in life-cycle cost savings."

Abrasion-resistant camouflage coatings are used to protect composite surfaces of aircraft. These coatings are thin and usually spray-applied. Existing products experience some degradation in performance and color over time, especially when exposed to high temperatures, and can cause extensive damage to the underlying composite material.

"When a coating wears prematurely, it also causes an unscheduled maintenance burden to repair or strip and recoat the area," Woodworth said. "If the degradation is not discovered in time, damage to the



An F-35 sits under a sun shade on the flightline at Nellis Air Force Base, Nevada. The Air Force Small Business Innovation Research/Small Business Technology Transfer program office and a small business partner have developed high-temperature, abrasion-resistant coating to improve reliability and maintainability. AEDC has conducted multiple weapons tests for the F-35 and tested the Pratt & Whitney F135 engine that powers the aircraft. (U.S. Air Force photo/Airman 1st Class Mikaley Towle)

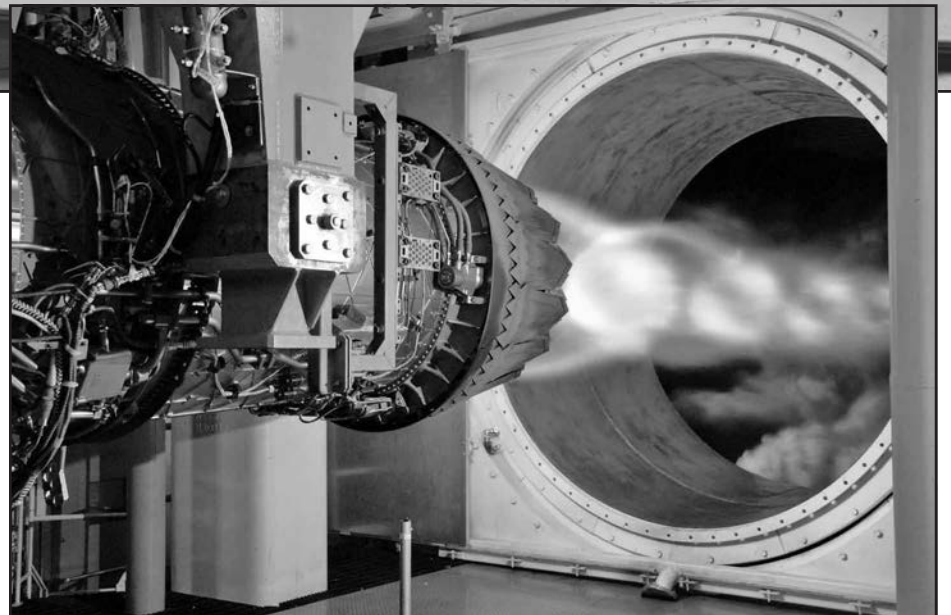
underlying aircraft section can occur."

Currently, the preferred abrasion-resistant camouflage coatings are filled polyurethane paints. These paints have moderate high-temperature resistance, but very poor long-term wear resistance at high temperatures and they degrade over time, resulting in the need for frequent repair and recoating.

However, the Air Force needs abrasion-resistant coatings that can withstand high temperatures for longer durations and

that match the existing camouflage paint schemes of aircraft parts. TRI evaluated a variety of raw materials, developed numerous coating formulations in conjunction with the experimental design development process and then identified the best formulations.

The new Protectt camouflage coating offers greatly improved high-temperature abrasion resistance for aerospace composite applications. The coating cures faster, is resistant to standard air-



A Pratt & Whitney F135 engine for the Conventional Take-Off and Landing version of the F-35 Lightning II Joint Strike Fighter undergoes proof testing, and augmentor characterization work, in AEDC's Sea Level 3 test cell. (Photo by Rick Goodfriend)

craft fluids, meets color and gloss requirements, and exhibits good adhesion, even after accelerated fluid exposures.

It can be applied using traditional procedures, including brush, roller and high-volume low-pressure

spray. Due to high interest in the product, the firm received a \$1.3 million Rapid Innovation Funding award to further advance the technology. TRI has an excellent record of SBIR transition success with a

commercialization portfolio of over \$30 million.

(Information courtesy of the Air Force Small Business Innovation Research/Small Business Technology Transfer program office, Air Force Research Laboratory)

'Special Program' emerges to combat cyber insider threats

By Justin Oakes

66th Air Base Group Public Affairs

HANSCOM AIR FORCE BASE, Mass. (AFNS) – It's not often that the public gets to hear about the Air Force's inner workings when pertaining to highly classified networks; however, a special programs team from Hanscom Air Force Base's Command, Control, Communications, Intelligence and Networks Directorate has recently emerged, making their presence known.

"We have developed an agile and efficient process for delivering solutions that protect against the cyber insider threat," said Lt. Col. Richard Howard, the Materiel Solutions Analysis (MSA) chief.

Unlike other teams within the Special Programs Division, the MSA is the only one that functions outside the classified realm.

The team's mission is to rapidly identify and test government and commercial off-the-shelf hardware and software, and if viable, transition it to the classified arena. However, combating the cyber insider threat on secure networks quickly became one of MSA's primary focuses.

In January 2014, the special programs unit stood up the MSA Lab, where the team tests and scrutinizes commercial and government technologies that could potentially function on a secure network, and at the same time, serve as a deterrent for insider attacks.

The MSA Lab consists of

three sections: Level 1, a robust unclassified area used to test incoming technologies; Level 2, which has the potential to perform classified tests; and Level 3, which is a virtual demonstration room.

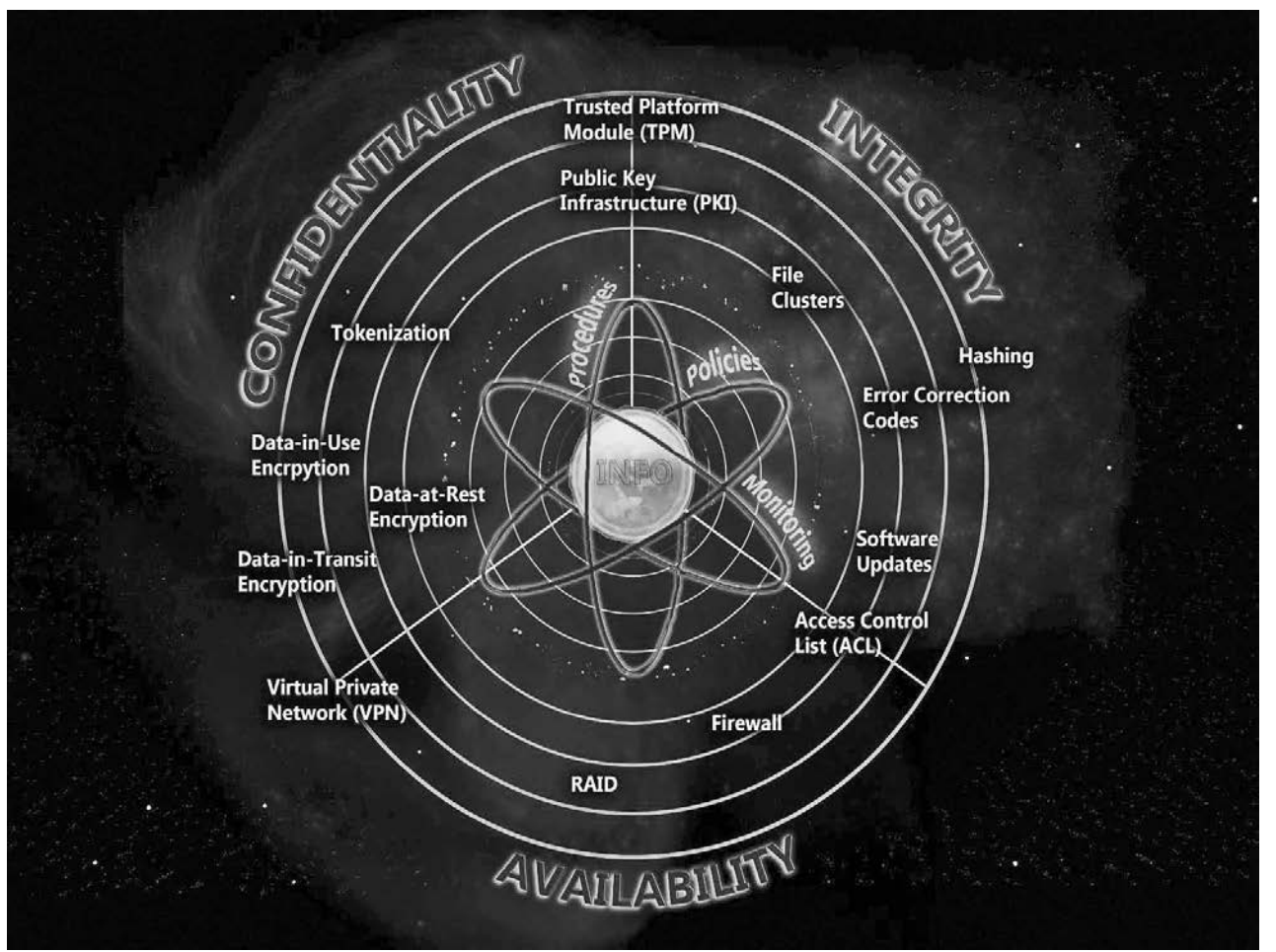
Since MSA's inception, they have fielded more than 100 proposals on insider threat mitigation technologies from commercial companies, both large and small.

"The MSA Lab is unique, and by design, highly specialized on the needs of a select classified community," said Paul Krueger, the MSA chief engineer. "Being co-located at Hanscom AFB with the Hanscom Collaboration and Innovation Center is important so that when necessary, we can take advantage of its infrastructure for massive joint and multi-nation coalition warfighting experiments and demonstrations."

Upon significant amounts of testing, the Air Force partnered with MIT Lincoln Laboratory and began to notice a common misconception within industry.

"We saw a disturbing trend emerging from companies -- that there is a single solution fix to insider attacks," Howard said. "The cyber insider threat is complex, and to believe a single technology exists that will prevent malicious insiders from stealing, altering or destroying sensitive information is inaccurate."

To better understand and depict the intricacies of this problem, MSA engineers devised a model known as the Insider



The Mission Solutions Analysis team from Hanscom Air Force Base, Mass., developed the Insider Threat Universe model used to describe how certain technologies protect, in part, the Air Force's secure networks. (Courtesy graphic)

Threat Universe (ITU).

The ITU concept is comprised of layers that convey how certain technologies protect in part – but not in all – the Air Force's secure networks.

Confidentiality, integrity and availability make up the basis of the ITU with information serving as the core. Procedures, policies and monitoring are other items that directly impact information concerns. Specific areas such as data-at-rest encryption and role-based access controls represent technology layers also used to protect information.

The MSA team realized the need to socialize the ITU concept and gen-

erate open communication among other Defense Department agencies also faced with growing insider threat problems.

Last month, the MSA office hosted the first Cyber Insider Threat Workshop.

More than 100 cyber security and acquisition professionals from more than 30 organizations attended. Representatives from the MSA office, Air Combat Command, Air Force Research Lab, 24th Air Force, Carnegie Mellon University, C3I Infrastructure Division, MIT Lincoln Laboratory and MITRE discussed current mitigation efforts and how they fit into the ITU model.

According to MSA officials, there were two main takeaways from the event.

"The cyber insider threat is complicated, difficult to define and a challenge to defend against," Krueger said. "The ITU model is a useful tool that can be used to help define these threats, but it is a

constantly evolving concept."

Krueger also called for more effective communication across the Air Force, government, and other agencies throughout the DOD.

"Communication is the only way synergy can be developed across the board," he said. "Making the community aware of currently used technologies, as well as equipment and software that's being tested and fielded by facilities like the MSA Lab, is critical to solving this problem."

Over the last year, the demand for MSA-vetted technologies has increased exponentially. In order to keep up with testing and analysis, the lab increased from two to seven engineers plus support from MIT Lincoln Laboratory, MITRE and various contractors.

Recently, Maj. Gen. Craig Olson, the C3I and Networks Directorate program executive officer, presented MSA's areas of interest to industry during

the annual 2015 New Horizons event in Newton, Massachusetts.

"Not only is this a great opportunity to bring our efforts to light outside of DOD agencies, but it will also allow us to gather valuable feedback on how our industry partners deal with insider cyber threats," Olson said.

Since the MSA team was created, they've stood up a testing lab, developed a threat model and organized a forum fostering dialogue among other DOD agencies -- all in the name of cyber security.

"In order for us to successfully mitigate the cyber insider threat problem, organizations across the DOD must work together; technological, physical and administrative solutions should be leveraged across the DOD IT enterprise," said Col. Jeffrey Kligman, the Special Programs Division senior materiel leader. "Communication and innovation are key to securing our computing environment."

AF leaders seek relief from sequestration-level funding

By Staff Sgt. Torri Ingalsbe

Secretary of the Air Force
Public Affairs

WASHINGTON (AFNS) – Secretary of the Air Force Deborah Lee James and Air Force Chief of Staff Gen. Mark A. Welsh III discussed the damaging effects of sequestration with members of the House of Representatives Committee on Appropriations' Defense Subcommittee Feb. 27.

"Your Air Force is working hard to meet the combatant commanders' most urgent needs," James said. "But a budget trajectory that results in sequestration simply will not allow us to sustain this pace. We will either break or we won't be able to execute the Defense Strategic Guidance. We cannot do it."

Sequestration-level funding will force the service to divest fleets of aircraft, to include the KC-10 Extender. Total force flying hours will be cut, as well as weapons systems sustainment, ranges, simulators and high-end training exercises like Red and Green Flags.

To avoid some of these cuts, the Air Force has proposed a fiscal year 2016 budget that is about \$10 billion more than current funding levels, which will allow the Air Force to meet combatant commander require-



Secretary of the Air Force Deborah Lee James and Air Force Chief of Staff Gen. Mark A. Welsh III testify before the House of Representatives Committee on Appropriations' Defense Subcommittee, Feb. 27, in Washington, D.C. The two leaders met with the House members to discuss the Air Force's Fiscal Year 2016 President's Budget Request. (U.S. Air Force photo/Scott M. Ash)

ments while investing in the service's top priorities.

"Even if we get that (additional funding), it doesn't solve every ill," James said. "There's a lot of good in our budget, but there's also hard choices."

Some of those hard choices include divesting the A-10 Thunderbolt II fleet, slowing the growth of compensation and requesting

another round of Defense Base Realignments and Closures.

"The most pressing issue of all (is) more than half of our combat Air Force is not sufficiently ready for a high-end fight," she said.

To balance the readiness of today with the modernization of tomorrow, the Air Force's proposed budget requests an increase in end strength to 492,000 active-

duty, guard and reserve Airmen. The extra dollars will also be invested in mission-critical infrastructure; intelligence, surveillance and reconnaissance; vital space programs; cyber teams; the nuclear enterprise; the KC-46 Pegasus, F-35 Lightning II and the Long-Range Strike Bomber.

"My pride in this Air Force and the Airmen who give it life hasn't changed,"

Welsh said. "My concern has. The capability gap that separates our Air Force from others is narrowing, and as it does the asymmetric advantage that airpower provides the United States military is shrinking."

The general explained modernization isn't an option – it must be done, and he and the secretary asked Congress to help by lifting sequestration.

"Our short-term readiness recovery will stall; our long-term infrastructure investment will remain a dream; we'll be forced to recommend dramatic fleet reductions, and modernization will be further delayed, allowing our adversaries to be able to further close that capability gap," he said. "You understand it's an ugly picture – we just want to make it clear."

The Air Force recognizes the financial strain on the U.S. government, and has cost savings throughout the proposed budget to alleviate the strain.

"We get it in the United States Air Force that we have to treat the American taxpayers' money as precious and we can't afford to waste a single dollar of it," James said. "We're working

hard to make every dollar count."

The Air Force is driving steadily toward auditability, and it's taken a 20 percent reduction in funding at headquarters levels. The Airmen Powered by Innovation initiative has also turned up savings, and the Air Force is still looking for the best ideas from Airmen who do the job every day.

"We understand that we must be part of the nation's solution to the debt problem and we're ready to do that," Welsh said. "We need your help in some areas -- so that we can be ready for today's fight and still be able to win in 2025 and beyond."

Both James and Welsh agree America's Airmen are what makes the Air Force what it is today, and they have been performing to the highest level, but they are being spread too thin. The operations tempo, coupled with decrease to critical infrastructure that gets Airmen and units combat ready, have taken their toll on Airmen and their families.

"If sequestration remains the law of the land, it will get worse," James said. "Sequestration needs to be lifted permanently for the whole of government."

AF research will improve camera for targeting munitions

By Timothy Anderl
Air Force Small Business
Innovation Research

WRIGHT-PATERSON AIR FORCE BASE, Ohio (AFNS) – In order for an imaging munition to find and make its mark, a variety of information is required, including high-resolution video imagery.

Future Air Force munitions will likely feature wide field-of-view (WFOV) imaging seekers that provide Air Force warfighters several advantages over using traditional imaging seekers, including improved capability and lower cost.

The Air Force Small Business Innovation Re-

search/Small Business Technology Transfer (SBIR/STTR) program office recently provided nearly \$100,000 of additional funding for a SBIR effort that will give the warfighter a WFOV technology system.

The objective of this SBIR Phase II follow-on contract is to address critical sub-system technologies in the WFOV system and its biologically inspired Artificial Compound Eye (ACE) optical technology. Spectral Imaging Laboratory, located in Pasadena, California, will use the additional funding to address the data acquisition hardware and software requirements needed for image

acquisition and processing, maturing the technology for the WFOV Seeker Program.

According to Dr. Nicholas Rummelt, an Air Force Research Laboratory researcher involved in the project, new ACE optical systems generate images from multiple sub-images that view different parts of the field-of-view, similar to the compound eye of an insect. Image processing is then required to seamlessly stitch together the sub-images and produce a smooth, easily read image. By implementing this processing within the camera system's data acquisition hardware, the video output quality im-

proves significantly.

"The WFOV seeker concept was originally inspired by insects such as bees which use the optic flow field to control their flight and navigate. So one of the advantages of having a WFOV seeker is the potential for GPS-denied navigation," Rummelt said.

This program leverages more than \$100,000 in additional AFRL project funds. These funds will help ensure the Phase II project graduates into a Phase III program that successfully transitions the technologies into military or private sectors.

The Air Force SBIR and STTR programs are

mission-oriented programs that integrate the needs and requirements of the Air Force through research and development topics that have military and commercial potential.

The SBIR program was established by Congress in 1982, to fund research and development (R&D) through small businesses of 500 or fewer employees. The STTR program was established in 1992, to fund cooperative R&D projects with small businesses and nonprofit U.S. research institutions, such as universities.

Since 2006, the Commercialization Readiness Program has directly

linked Air Force centers to AFRL technical points of contact to identify and evaluate Air Force needs and innovative solutions. Its primary objective is to accelerate the transition of SBIR/STTR-developed technologies into real-world military and commercial applications.

The Air Force SBIR and STTR programs provide more than \$300 million in funding for research and development activities by small businesses annually. With this budget, the Air Force funds research from the early stages of concept development until it transitions to military or commercial use.

Putting face on prevention training

By Tech. Sgt. Joshua Strang
Air Education and Training
Command Public Affairs

JOINT BASE SAN ANTONIO-RANDOLPH, Texas (AFNS) – The Air Force recently changed its annual suicide prevention training from a computer-based (CBT) course to face-to-face training.

The new, in-person training, which went into effect

Feb. 11, replaces the annual computer-based training for active-duty and Reserve Airmen, while civilians have the option to attend the face-to-face training or complete the CBT.

The goal is to have all Airmen attend face-to-face training by the end of 2015.

"The Air Force Community Action Information Board and the Air Force Learning Council directed this change in format to en-

hance the effectiveness of suicide prevention training," said Lt. Col. Mitzi Thomas-Lawson, the Air Education and Training Command Mental Health Branch chief. "The desired outcome is to provide Airmen an opportunity to discuss suicide prevention concepts."

In a message located in the Suicide Prevention Training Facilitator Manual, Lt. Col. Kathleen Crimmins, the Air Force Suicide Pre-

vention Program manager, explained the need for the change in training.

"Our previous computer-based training was a good way to standardize the information and make it readily available," wrote Crimmins. "But it missed an opportunity for leaders and their Airmen to address the problem on a personal level."

The new training, which is outlined in detail in the fa-

facilitator manual, is designed to provide for good discussion and give each member a chance to talk openly.

"The face-to-face training is an hour in length which includes a 24-minute vignette-based video," Thomas-Lawson said. "Discussion groups should have between eight and 20 members and should not exceed 30 participants."

Training facilitators are chosen within individual units and Crimmins' message states that commanders should choose their best mentor-leaders and supervisors to lead the small group discussions.

A recent training attendee here, Tech. Sgt. Katrina Rollins, a medical administrator for AETC Medical Services and Training, said the facilitator-led interaction was much more beneficial for her than the CBT. "With the CBT, you

kind of just sit there and click through some slides," Rollins said. "Being part of a group discussion, seeing how everyone perceives the issues and having the facilitator bring up more discussion really changes the training for the better."

Similar to the CBT, the face-to-face training will be an annual mandatory requirement and, according to Thomas-Lawson, the goal for AETC is to have 95 percent or more active-duty Airmen trained using the new format by May 26, 2015. Once complete, training will be documented by unit training managers in the Advanced Distributed Learning Service.

All training, to include the facilitator manual and training videos, can be accessed by going to the Wingman Online website at <http://wingmanonline.org/home>.

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Visit: MyDuty.mil

U.S. AIR FORCE

READINESS = RESPECT

PGA Family Tee Program comes to Arnold Golf Course



Two markers are shown here to indicate where to initiate play during a game in the Family Golf Tee Program. This program caters to players who are new to the game of golf. The program is new to the Arnold Golf Course and will be available in the spring. (Photo provided)

By Erica Sturkie
AEDC Services

Have you ever been interested in golf, but the game seems too intimidating? Confusing? Do you know the rules, or even how to swing the club?

Certified by the Professional Golfers' Association of America (PGA), a family course will be built into the already existing nine-holes at the Arnold Golf Course (AGC).

Known as the PGA Family Tee Program, this family course will create easier holes by reducing yardage and raising the

par of each hole, allowing for golfers of all ages and experience levels to play without the intimidation and expectation that the regular length holes may present. The cart paths will be marked with the location of closer tee boxes, and markers will be buried into the ground to signify their new locations creating an easy to spot, free-flowing golf experience.

Under new management, AGC is currently in the idea stage for many new and exciting projects to attract golfers of all experience levels. Whether

you've never picked up a club, only played a little, have no clubs to start, or need lessons to better your game, Arnold has it all.

"The PGA Family Tee program is a great way to introduce new or inexperienced players to the game without the intimidation of having to hit the ball like a tour professional," said Lyle Russell, manager of AGC. "It also doubles as a Par-3 course layout for seasoned players looking to try the course from a new vantage point."

For almost every other sport, an amateur version

is first presented to allow newcomers to attain a liking for the sport and learn the skills needed to play. Then as experience increases, so does the difficulty, expectations and stipulations of the game.

For example, soccer fields are shorter distances that eventually become longer as experience levels increase. In baseball, the bases start closer together and gradually are farther apart. Unfortunately for golf, an amateur version of the game is rarely an option for newcomers who have an interest in learning how to

play, until now.

AGC's newest program will arrive April 15.

If you don't have clubs, don't worry. AGC offers men's, women's, left-handed, right-handed and junior clubs for rent at a reasonable price to accommodate golfers of all types. Club repair and regripping services are also available on-site and can sometimes be done while you wait.

Some other amenities at AGC include rental pushcarts and riding carts, a driving range, personalized private lessons, Mulligan's Grill for a bite to

eat, and a pro shop full of personalized Arnold Golf Course merchandise. Even though the course is located on Arnold Air Force Base, the course is open to the base staff and to the general public.

"Supporting our military members and being able to offer our facility to the public is a win-win for every golfer in the community," Russell said.

For more information call 454-GOLF. If you plan to eat lunch at Mulligan's Grill, you may call ahead to place advance or to go orders at 454-FOOD.



ALC – Arnold Lakeside Center, 454-3350
Café – Café 100, A&E, 454-5885
ODR – 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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Spring Into Golf \$26 Special: 18 holes w/cart, hot dog, soda FC: 90-Day Weight Loss Challenge Apr 1-Jun 30 For eligible users. Top 2 with most weight lost wins prize. FC: The Group Class Big 3 Apr 1-30 Eligible users complete all 3 group classes and win prize			1	2	3	4
5	6	7	8	9	10	11
Happy Easter 		GC: Intramural League begins Tee off 4:30pm Sign up by Apr 2 Green fees apply		ALC: Book Fair in Café 100 9:30am-3pm Movie: Night at the Museum: Secret of the Tomb		Easter Egg Hunt Lunch Picnic on Patio Arnold Lakeside Center 10am-2pm \$7 mbr \$8 non \$5 age 5 and under EASTER BUNNY HERE! Sign up by Mar 27
12		14	15	16	17	25
Arnold Golf Course 1 st Annual Match the Major – The Masters Tee off 1 pm 18 holes \$25-\$30 +cart/green fees Includes buffet after Sign up by Apr 11			22 Administrative Professionals (AP) Day Specials ALC: Lunch at the Lake - Italian 11am-1pm \$7 mbr \$8 non Bring AP Get Theirs 1/2 Price Café: 6:30am-1pm Buy Combo Get One 1/2 Price Mulligan's Grill: 10:30am-1pm \$5.85 Members First Plus \$6.50 non AP Specials or Reg Menu ENTER TO WIN PRIZES	Movie: The Hobbit: Battle of Five Armies	24 ALC: Last Friday Trivia 6:30pm	ODR: Stand Up Paddleboard Class \$10 age 13+ Sign up by Apr 18 GC: Par 3 Shootout 4pm \$25 Sign up by Apr 23
19	20	21	28	30	6	3
Arnold Golf Course Customer Loyalty Program: Purchase annual green fee save 10% on other purchases April 2015 – March 2016				Movie: Unbroken	6 Arnold Golf Course 100 Mile Elite Challenge Apr 1 – Oct 16 \$5 Walk 100 miles while playing, receive logo shirt 2 Grand Prize V1 Sport Speed Cart Drawings 100 miles = 55 nine-hole rounds	3 100 Mile Elite
26				Movie: Interstellar	3 O P M	

AEDC Woman's Club recognizes scholarship recipients at April meeting



AEDC Woman's Club (AEDCWC) Scholarship Committee make plans for the April 7th meeting. Pictured left to right are AEDCWC members Gale Klingelhoets, Kate Canady, Suzette McCrorey (chairman), Theresa Toth (honorary president) and Cecelia Schlagheck. Committee member Julie Lanza isn't shown. (Photo provided)

By Barbara McGuire
AEDC Woman's Club

The AEDC Woman's Club (AEDCWC) will present the scholarship recipients from Coffee County Central High

School, Tullahoma High School, Franklin County High School and Huntland High School at their April 7 meeting at the Arnold Lakeside Center.

The speaker for the meeting is John Car-

ney, city editor of the Shelbyville Times-Gazette.

John will share information regarding the true story behind the horse Jim Key, who was said to have been able to read, write,

spell and do math.

It was recently announced that a movie starring Morgan Freeman is going to be filmed based on the book *Beautiful Jim Key: The Lost History of a Horse and a Man Who Changed the World* written by Mim Eichler Rivas.

Jim Key is buried in Bedford County.

The \$150 table donations at the March meeting were given to The United Way of Coffee and Moore Counties. The table dona-

tions for the April meeting will be given to The Blue Monarch.

The meeting is open to the public and provides the opportunity to meet the AEDCWC members and to become a member. You don't need to have military connections or be involved with Arnold Air Force Base to become a member. For more membership information call 455-3569.

The social hour of the April meeting starts at

9:30 a.m. with the business meeting and program beginning at 10 a.m.

Reservations and cancellations for the April 7 meeting must be made no later than noon, March 31. You may make reservations or cancellations by calling 393-2552 or 931-636-4152.

Disclaimer: This is a private organization which is not part of the Department of Defense or any of its components and has no governmental status.



