



# HIGH MACH

Serving the World's Premier Flight Simulation Test Complex



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## AEDC lab creates and installs sensors for aerothermal measurement during tests



Temperature sensors and transducers are fabricated and installed on test models in the Aero-thermal Measurements Lab (ATML) at AEDC. ATML staff Randall Moon, Annette Painter and Stuart Coulter, pictured left to right, view heat flux sensors and model hardware through microscopes used in the lab. (Photo by Rick Goodfriend)

By Deidre Ortiz  
ATA Public Affairs

The AEDC Aero-thermal Measurements Lab (ATML), known as the Heat Lab, is tasked with fabricating and installing temperature-related sensors and small transducers on test models.

The lab supports AEDC test facilities by providing methods of measuring the heat flux or heat transfer per unit area, per unit time. It benefits testing of thermal protection systems, material sample abla-

tion, boundary layer transition and roughness effects, and protuberance heating.

Heat transfer testing is not a new concept, and was widely used in the 1970s and 1980s for testing the space shuttle and the shuttle's external tank foam material, performing boundary layer transition studies and other programs. There is a renewed interest in heat transfer measurements with the development of new hypersonic vehicles.

According to Stuart Coulter, ATA lab engineer, the lab was first formed at

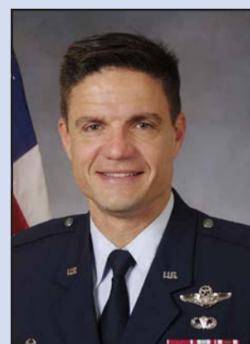
AEDC in the 1970s to serve the von Kármán Gas Dynamic Facility by supporting aerothermal measurements.

"We do heat flux sensor design and development and support the tests as needed," Coulter said.

"We also assist in model planning and choice of sensor, the sensor fabrication and then installation in the wind tunnel model," he added. "Many times we come up with custom configurations of sensors

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## Revolutionary Change: Col. Todaro announces updates to FSS contract award



Col. Rodney Todaro, AEDC Commander

AEDC Commander, Col. Rodney Todaro provided an update on AEDC's Source Selection efforts to the entire workforce via email on July 22. Additionally, messages and other information can be found online at [www.arnold.af.mil/transition](http://www.arnold.af.mil/transition).

Team AEDC,

We were notified this past Thursday that the Small Business Administration denied the pre-award protest on our Facility Support Services (FSS) effort allowing us to begin Congressional notifications that same day.

So, today, the FSS effort was awarded to Akima Support Operations, LLC, <http://www.akimasupportops.com>, (ASO), a small business located in Herndon, Va. This award will be a hybrid firm-fixed price and cost-reimbursement contract valued at \$87.5 million. ASO

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## 16T project team determines more efficient process for disconnect panel fabrication

By Deidre Ortiz  
ATA Public Affairs

The team leading the Improve Transonic Test Capability (IMTTC) Improvement and Modernization program at AEDC has found a better, more cost-effective way of fabricating disconnect panels for the 16-foot Transonic Wind Tunnel (16T).

The disconnect panels, which are part of the 16T Test Article Control System (TACS) and Data Acquisition System (DAS), are used to provide a clean interface between system input/output hardware and field devices. These panels are typically 19 inch wide, 1/8 inch thick aluminum panels that contain connectors, terminal blocks and servo amplifiers, among other components.

Fabricating these panels has been done in-house at a cost approximately \$1,300 per panel.

According to Elijah Minter, Air Force acquisition program manager for the Flight Sustainment Branch, the old process for fabricating was

See 16T, page 4



Terry Rayfield, ATA Senior Controls Engineer, at right, and Dale Shultz, instrument technician, work on putting terminal strips into one of the new disconnect panels for the Propulsion Wind Tunnel facility 16-foot transonic wind tunnel (16T). The disconnect panels, which are part of the 16T Test Article Control System (TACS) and Data Acquisition System (DAS), are used to provide a clean interface between system input/output hardware and field devices. (Photo provided)

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## HIGH MACH

**Arnold Engineering Development Complex**  
An Air Force Materiel Command Test Complex

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**The complex's vision:** Be the nation's best value ground test and analysis source for aerospace and defense systems.



### Core Values

- The trust and confidence of those we serve
- Leading edge Airmen empowered to be agile and innovative
- Diversity and inclusion
- Resource stewardship ... making every dollar and minute count
- Continuous process improvement
- Safe and secure environment
- Enterprise focus ... our Air Force



### Vision

"ATA will be a trusted partner in delivering best value warfighter support and assert stewardship to AEDC"

### Core Values

- Be accountable for our own actions
- Ensure the safety of individuals and equipment
- Demonstrate the highest integrity and ethical standards
- Communicate clearly and openly
- Deliver professional and technical excellence
- Nurture, enable and treat people fairly
- Align with customer goals and objectives
- Use disciplined and innovative processes
- Continually improve in all that we do

# AEDC Commander Col. Todaro looking forward to serving with Team AEDC

**By Col. Rodney Todaro**  
Commander, Arnold Engineering Development Complex

Team AEDC,

I can't begin to thank everyone for the warm welcome you have given to my family and me. For the last several weeks since taking command I have been learning about the breadth and depth of your knowledge and mission focus, and I'm humbled.

The work you do every day here at Arnold Air Force Base directly supports our national defense and is vital to our freedom.

The Air Force has five high-level priorities, here's how I align your daily contributions:

- Continue to strengthen the nuclear enterprise – You and your teammates test various subsystems of our strategic arsenal.
- Partner with the joint and coalition team to win

today's fight - You routinely work with multi-service and international customers to ensure we dominate the sky and you deploy to various areas of responsibility to help win today's fight.

- Develop and care for Airmen and their families - You have cultivated a culture of family and teamwork which supports all of our Airmen – uniformed, civilian and contractor – like few places I've been.

- Modernize our air and space inventories, organizations, and training - You are at the leading edge of modernizing our fleets – both legacy and future systems - often years before the technologies are proven in flight.

- Recapture acquisition excellence – Your expertise allows the program offices and leaders throughout our Defense Department to make informed deci-



**Col. Rodney Todaro,**  
AEDC Commander

sions on aerospace acquisitions.

The Air Force Materiel Command's new vision statement reads: "Delivering the world's greatest Air Force ... the most trusted and agile provider of innovative and cost-effective war-winning capabilities."

Your reputation throughout the Air Force Test Center, Air Force Materiel Command and really the entire Air Force is unmatched. You are the nation's leading aerospace ground test problem

solvers, and the way we are restructuring makes us more agile, able to explore innovation, and provide airpower to our nation. The restructure also allows the Air Force to own the technical baseline of our systems.

Finally, the Air Force Test Center priorities under Maj. Gen. Harris are to be agile, to be ready and to be right.

As I said before, you are becoming more agile. Your devotion to the leading edge technologies ensures our Air Force is ready for our enemies. And I know you are constantly looking at how to provide the right information to decision makers.

That information must be what is necessary for data-driven decisions. To be good stewards of our nations trust and treasure, we must optimize our processes to get the best data from our tests in the least amount of time.

I know that the last couple of years have been turbulent, and I am proud of

how well you have retained your mission focus during the changes to the Combined Test Force management structure and as we transition to a multi-contractor environment.

There are still challenges ahead but together we will prepare our nation to fly, fight and win.

As Gen. Curtis LeMay, the fifth chief of staff of the U.S. Air Force, stated, "Our preparedness for war must be the measure of our desire for peace."

That is why we're here folks. We are here to make American airpower the best in the world. You are part of the greatest air force the world has ever known, and the work you do here keeps it that way.

Never forget that. You are a major reason why our United States Air Force is great. I am excited to be a part of Team AEDC and look forward to serving beside you.

## Pay attention to your surroundings

**By AEDC Safety, Health and Environmental**

Situational awareness is paying attention to what is going on around you, and it's a key not only to working safely, but also to staying safe in most aspects of our lives.

It's a mindset and skill that requires taking the information about those around you and about your surroundings, interpreting that information, and acting accordingly – all while concentrating on the task at hand. And it takes discipline.

The first step is teaching yourself to recognize that hazards exist. The second step is understanding the need to take responsibility for your own safety and that of others on the worksite and respond when hazards are recognized.

We typically operate on one of five levels of aware-

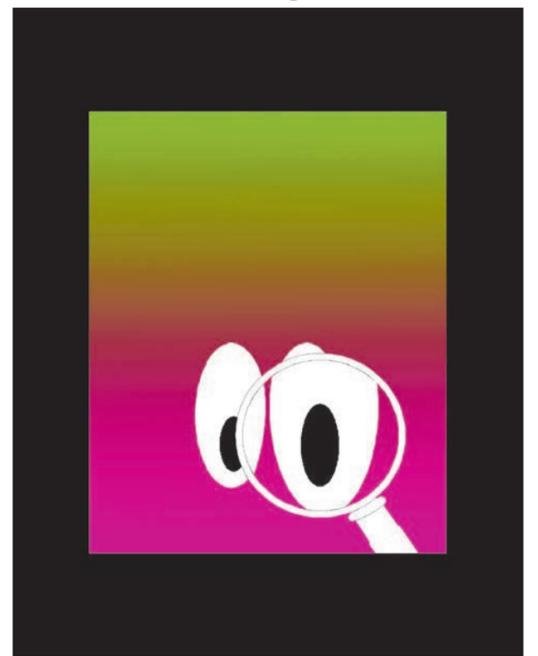
ness, illustrated in these examples:

1. Tuned out – when you are driving and have no idea when you passed certain landmarks.
2. Relaxed awareness – when you are driving relaxed, but conscious of potential hazards such as an approaching car from a side road.
3. Focused awareness – when you are driving in intense fog or on icy roads – worrying about what might be coming up; it's stressful and tiring.
4. High alert – when a deer runs in front of you but you manage to safely avoid hitting it.
5. Senseless – when you are either unable to react or are in a deep sleep; your brain has stopped processing information necessary to react to a hazard.

Relaxed awareness is the most optimal for "ordinary" situations. You can work normally and quickly escalate to focused awareness if something out of the ordinary occurs. You can then take steps to avoid injury or damage or escalate to high alert if the situation warrants. If the hazard presents no risk, you can go back to relaxed awareness.

Certain tasks pose higher risks necessitating working at focused alert. As before, you can escalate to a higher level if necessary or return to relaxed awareness when the task is complete.

Situational awareness requires discipline and a conscious effort to pay attention to your surroundings and gut feelings to surrounding events even while you are busy and distracted – because when you are distracted even obvious eminent dangers or hazards can



go unnoticed.

Make it a habit to scan above, below, behind and inside before beginning a job. Pay attention to anything that just doesn't look

right. If we are not deliberate in what we choose to see, our eyes and mind will see what they want to, which may not be the whole picture.

## Don't underestimate the importance of sacrifices

**By Chief Master Sgt. Matthew Lussou**  
6<sup>th</sup> Air Mobility Wing command chief

**MACDILL AIR FORCE BASE, Fla.** (AFNS) – As I was reviewing some enlisted performance reports and decorations today, I started contemplating a huge event in my life that occurred almost 20 years ago.

In April of 1995, I asked my then girlfriend Tiffani, a fellow Airman at the time, to be my wife, for better or worse. We were married later that year and along our journey these past 20 years, we have seen many places,

derful children and made many friends.

What really got me thinking though, were the numerous sacrifices that my wife and two children have made.

Throughout the journey, my kids have been asked to change schools six times, each time giving up old friends to make new ones. Some of those transitions were easy, but some have been difficult.

The resiliency they have shown each and every time though, inspires me. In some instances, they have actually been the ones itching to move, long before I ever was. My wife has been asked to give up two

different jobs along the way as well, not really ever getting the opportunity to start a career. Additionally, my family has had to deal with me missing many birthdays, anniversaries, etc. due to my temporary duties and deployments.

We, as service members, raise our right hand and solemnly swear to defend the United States, against all enemies foreign and domestic. We signed on the dotted line vowing to give our lives in its defense, if needed, but nowhere on that contract does it say that our families should do the same.

Whether you have a wife, husband, partner, children or simply family back

in your home town, we all have someone, somewhere along the journey with us that didn't sign that contract. They endure the ups and downs, the uncertainties of deployments and the joy of reuniting with one another after those separations.

My family has sacrificed so much over these years to allow me to do what I love, which is taking care of our Airmen! I cannot say "thank you" enough or rewind time to make up for those missed birthdays and anniversaries. I don't think any of us would change a thing, but I simply wanted to let them know how much they are loved and appreciated and that I understand the sacri-

fices they have made.

Two things I ask: First, don't ever underestimate how much the support and sacrifice of our families means to our success. Second, please ensure you go home tonight and thank those that you love, give them a call if they are not here with you, or give them a big hug if they are.

I can think of no greater thing than serving in the world's greatest Air Force alongside the world's greatest Airmen, but without my family and their support and sacrifices, none of it would have been possible. We all look forward to seeing where the journey continues to take us.

## 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. Rodney Todaro**  
AEDC Commander

# New Tunnel 4T Captive Trajectory Support System expands test envelope



Above, Randy Vinke, an ATA electrician with the Propulsion Wind Tunnel (PWT) Facility Test Operations group, installs wires for the interface panels that are used to connect the test model instrumentation to a data system. The installation occurs in the PWT four-foot transonic wind tunnel (4T) Captive Trajectory Support (CTS) system, which contains a newly designed and fabricated mechanism that enables a test model to have six degrees of motion: pitch, roll, yaw, axial, horizontal and vertical. The CTS is used to conduct staging and store separation testing. (Photo by Rick Goodfriend)

Right, Pictured during installation is the mechanism in the Propulsion Wind Tunnel Facility four-foot transonic wind tunnel (4T) Captive Trajectory Support (CTS) system. The newly designed and fabricated mechanism controls the movement of the test model during a store separation test. (Photo by Rick Goodfriend)



# New AFMC mission, vision statements emphasize agility

By Air Force Materiel Command Public Affairs

**WRIGHT-PATTERSON AFB, OHIO** – New mission and vision statements are the foundation of a new command strategy designed to push Air Force Materiel Command to be more agile as it delivers war-winning support to the warfighter.

The command's new mission statement is succinct but declarative: "deliver and support agile war-winning capabilities." The mission statement encompasses the entire spectrum of AFMC's role as a provider of agile combat support. Agility is reinforced by a new vision statement designed to push the command to optimum performance. The vision statement is "Delivering the world's greatest Air Force ... the most trusted and agile provider of innovative and cost-effective war-winning capabilities."

Gen. Ellen Pawlikowski, AFMC commander, led the command's senior leaders through a day-and-a-half session in early July to develop the statements and begin work on an updated AFMC strategic plan.

"In the current world environment, the Air Force and the other services are being forced to react more quickly and put greater emphasis on agility," Pawlikowski said. "The Air Force's ability to be agile comes from AFMC."

AFMC's six centers will deliver that agility through a revised list of core mission areas: the Air Force Research Laboratory discovers and develops new



## MISSION

Deliver and support agile war-winning capabilities

## VISION

Delivering the world's greatest Air Force ... the most trusted and agile provider of innovative and cost-effective war-winning capabilities

war-winning capabilities; the Air Force Test Center ensures our weapon systems perform as promised; the Air Force Life Cycle Management Center fields and supports all our weapon systems from cradle to grave; the Air Force Sustainment Center sustains and supplies our war-winning capabilities; the Air Force Installation and Mission Support Center provides war-winning mission support to Air Force commanders worldwide; and the Air Force Nuclear Weapons Center delivers and supports our nuclear deterrence capabilities.

The command's nuclear mission was added to emphasize the unique nature of AFMC's role in the nuclear enterprise. Installation and mission support was also added in recognition of AFMC's newest role of providing mission support to Air Force installations worldwide through its Air Force Installation and Mission Support

Center.

In preparation for revising the strategic plan, leaders developed a list of the things the command values in providing agile combat support to the Air Force. These are:

- The trust and confidence of those we serve
- Leading edge Airmen empowered to be agile and innovative
- Diversity and inclusion
- Resource stewardship ... making every dollar and minute count
- Continuous process improvement
- Safe and secure environment
- Enterprise focus ... our Air Force

"What we value defines what is important to us," said Pawlikowski. "They illustrate how

**CORE MISSION AREAS**

- Discovery and Development
- Test and Evaluation
- Life Cycle Management
- Sustainment and Logistics
- Installation & Mission Support
- Nuclear Systems Management

we want to be viewed by those we support, how we respect our people and their well-being, and how we embrace our stewardship for the resources used to deliver war-winning capabilities."

Command leaders will deliver an updated AFMC strategic plan in January 2016. The plan will include revised objectives and measurements linked to the vision and mission statement.

## CHANGE from page 1

will perform fire and emergency services; protective services; industrial security, test security, and security management support; operations center and command and control (C2) element functions; environmental management; safety; occupa-

tional and environmental health (OEH) (industrial hygiene) for Government employees; base supply; freight services; vehicle maintenance and operations; grounds maintenance; solid waste management; and custodial services at Arnold Air

Force Base.

ASO is subcontracting with Protection Strategies, Inc., <http://www.protectionsi.com/>, Oak Ridge, Tenn., and URS Federal Services <http://www.urs.com/>, San Francisco, Calif. The period of performance is four

years - one base year and three one-year option periods in addition to a 90-day phase-in period.

We are discussing if ASO can complete phase-in and begin performance on Oct. 1. With the recent challenges with security clearance processing this

may be impossible.

In addition, a post-award protest could also delay the start of the phase-in and subsequent start of performance. Either of these situations may necessitate an extension of the ATA contract past Oct. 1 to ensure mis-

sion continuity.

As we move forward, your leadership team will keep you informed of new developments as they impact timelines and milestones.

Respectfully,  
Col. Todaro

# Tri-City Tournament winners



Championship Flight winners, left to right: Runner-up Jonathan Liggett, 2015 Tri-City Champion Byron Cooke and 2<sup>nd</sup> Runner-up John Parigger. (Photos provided)

**Championship "A" Flight**

1st - Byron Cooke - 77 76 = 153  
 2nd - Jonathan Liggett - 75 79 = 154  
 3rd - John Parigger - 75 82 = 157

**"AAA" Flight**

1st - Terry Petty - 85 77 = 162  
 2nd - Ed Beavers - 82 82 = 164  
 3rd - Lloyd Carden - 82 83 = 165

**"AA" Flight**

1st - Dustin Nash - 80 74 = 154  
 2nd - Mark Hill - 80 76 = 156  
 3rd - John Cooke - 81 76 = 157

**"AAAA" Flight**

1st - Eddie Moore - 85 85 = 170  
 2nd - Johnny Hester - 89 86 = 175  
 3rd - Donnie Claxton - 87 89 = 176

**LAB from page 1**

and instrument the model and cable it."

The ATML staff at AEDC is a small team, consisting of instrument technicians Brian Anderson, Randall Moon and Annette Painter and engineers Stuart Coulter and David Woods.

"Annette, Randall and Brian do a great job assembling the tiny components into sensors using wire as small as 0.001 inches in diameter and sensor parts no larger than the letter i in this article," Coulter said. "A steady hand, tiny tweezers, and a microscope are required."

Once a test has started, the ATML folks are sometimes needed to help with troubleshooting and other tasks.

The testing in VKF keeps the lab busy, but most facilities on base benefit from the capabilities.

For example, it serves Tunnel 9 by building sen-

sors and installing them. In the AEDC arc heater facility, sensors are placed in the nose cones for testing to measure arc jet enthalpy. Probes and other specialty thermocouples are built up for use in the Aerodynamic and Propulsion Test Unit (APTU) and Propulsion Research Facility. ATML personnel measure emissivity, an efficiency in which a surface emits thermal energy. Emissivity measurements are needed by the Heatlab staff and by the space chamber staff.

As for the Propulsion Wind Tunnel, ATML team members have in the past installed dynamic pressure transducers, with sensors that can be 1/16 an inch or smaller.

"We also have performed special calibrations for various customers, to help answer data anomalies," Coulter said.

Some of the national

programs the ATML has assisted with include the Space Shuttle Return to Flight, NASA Ares Launch Vehicles, the Japanese Hope, Navy Standard Missile, various tests under the Conventional Prompt Global Strike (CPGS) program and Boundary Layer Transition tests.

In the past, work was done on hot-wire anemometry, which uses microscopic wires positioned in boundary layers to measure mass flux, to aid the development of boundary layer theory.

Coulter notes that Joe Donaldson, Frank Kafka and Charles Nelson were AEDC pioneers of this type of work for Wright Patterson sponsored tests.

"Two AEDC fellows, Carl Kidd and William Scott, also came out of the lab [and were recognized] for their heat flux sensor innovations" he said.



AA Flight winner Dustin Nash in action.

**16T from page 1**

also very time-consuming.

"You have to take into account the scheduling availability of multiple skills and shops for machining and painting, in addition to external fabrication support to develop the silkscreen for each panel," he said. "The process takes several weeks to get a panel from raw material to finalized product."

It was Terry Rayfield, ATA senior controls engineer, who made the suggestion to research how to obtain disconnect panels at less cost. Rayfield received an ATA monetary reward for his idea.

By using an off-base company that has an assembly-line manufacturing shop and specializes in making electronic panels and enclosures, the panels are fabricated in two weeks' time or less at a fifth of the cost.

"As opposed to more than \$1,300 a panel, we are now able to get panels at \$300 apiece," Keith Holt, ATA project manager, said. "This cut costs tremendously, and because this company's services can be used all over base, it will potentially save AEDC millions of dollars in the long run."

Replacing the panels for the 16T TACS and DAS alone is projected to have a net savings of \$338,207.

## This day in espionage history

By AEDC Industrial Security

**Aug. 7, 1986 – Bruce Damian Ott** sentenced to 25 years in prison

- ❖ Airman First Class assigned as admin clerk at Beale Air Force Base
- ❖ Attempted to sell classified information to undercover agents posing as Soviet representatives
- ❖ No classified information was actually compromised during this incident
- ❖ Ott was financially motivated
- ❖ Aug. 7, 1986, found guilty and sentenced to 25 years

**Aug. 9, 1985 – Arthur James Walker** found guilty of seven counts of espionage, sentenced to life imprisonment

**Aug. 14, 1987 – Michael Hahn Allen** sentenced to 8 years in prison



# Wright-Patt hosts rapid improvement event for civilian hiring initiative



Tammy Lyons, Chief of AFMC's Personnel Support Division captures the ideas of the group brainstorming for ways to improve the civilian hiring process during a meeting between members of Headquarters Air Force Materiel Command, Headquarters Air Force Personnel Center, installation civilian personnel offices, and Directorate of Personnel employees within AFMC, July 22 in Dayton, Ohio. They also discussed and identified inefficiencies and duplications of the current process which should be addressed. (U.S. Air Force photo by Wesley Farnsworth)

## Marking 20 years of GPS



Maj. Benjamin Calhoon, the chief of the Positioning, Navigation and Timing Branch within the Space Operations Division of Headquarters Air Force, gives a GPS lecture at the Smithsonian's National Air and Space Museum in Washington D.C., July 17. The GPS was invented by the Department of Defense; it's a constellation of orbiting satellites that provides navigation data to military and civilian users all over the world. (U.S. Air force photo/Staff Sgt. Whitney Stanfield)

By Staff Sgt. Whitney Stanfield

Secretary of the Air Force Public Affairs Command Information

**WASHINGTON (AFNS)** – The Air Force celebrated the Global Positioning System 20th anniversary during a ceremony at the Smithsonian's National Air and Space Museum in Washington D.C., July 17.

GPS was originally invented to aid the military with operations and intelligences. It's a constellation of orbiting satellites that provides global coverage of navigation to military and civilians worldwide.

"There are 39 satellites up there right now," said Maj. Benjamin Calhoon, the chief of the Positioning, Navigation and Timing Branch within the Space Operations Division of Headquarters Air Force. "To provide global coverage, only 24 satellites (are) needed."

At minimum, the system consists of 24 satellites orbiting in space in six regions. In each region there are four satellites that move semisynchronous. The system provides location, velocity and precise time by using this formula for accurate location: distance = rate x time.

"In a preliminary U.S. economic benefits study, results show GPS contributes \$68.7 billion annually," Calhoon said.

By AFMC Personnel Programs Branch

**WRIGHT-PATTERSON AIR FORCE BASE, Ohio** – Key personnel across the Air Force are working together to analyze the current civilian hiring process. Participants in this initiative include Headquarters Air Force Materiel Command, Headquarters Air Force Personnel Center, installation civilian personnel offices, and Directorate of Personnel employees within AFMC.

This partnership is working to analyze each stage of the hiring process to identify inefficiencies and duplications, and develop a future process that eliminates barriers and streamlines processes wherever possible.

Last week, Wright-Patterson hosted the ninth rapid improvement event that examined the roles and responsibilities of the manpower office in the hiring process. This is part of a series of RIEs which have been ongoing since February of this year at multiple locations.

"We are looking at every avenue to improve the civilian hiring process not just in AFMC but across the Air Force -- even when it appears

the initiative may be difficult to implement," said Tammy Lyons, chief of AFMC's Personnel Support Division and co-leader of this most recent RIE. "In addition, both the stakeholders and owners of the process must to be open to changing roles and responsibilities. Improving timeliness in the hiring process ultimately

results in our ability to support the AFMC and Air Force missions. Our goal to have positions filled within 80 days (i.e., from vacant to employee in seat) is achievable if we are proactive and responsive to the hiring process."

During this most recent event, the group

conducted significant re-engineering of current procedures, resulting in identification of a more efficient process. The initiatives identified through this RIE will be incorporated into a pilot program.

Participating organizations in the pilot program are the Air Force Life Cycle Management Center here, the Oklahoma City Air Logistics Complex at Tinker Air Force Base, Oklahoma, and the 502nd Air Base Wing at Joint Base San Antonio, Texas. The organizations in the pilot will be tracking the initiatives, measuring timeliness of the actions and providing feedback to continually refine and improve the hiring process.

The next two RIEs will be held at JBSA-Randolph and explore reengineering such hiring stages as the announcement process, issuance of referral certificates, candidate selection, making a job offer and setting the entry on duty date.

"We recognize that in order to remain competitive with the private sector and other Federal agencies, we need to expeditiously recruit and hire the best and brightest candidates to help carry out our mission," Lyons said. "The successful completion of this project will promote a more proficient hiring process for both management and applicants."

# Local VFWs kick-off youth essay competitions

By Veterans of Foreign Wars, Post 10904

**MANCHESTER, Tenn.** — Manchester's Post 10904 Commander Tom Hewell and Tullahoma's Post 4188 Commander Godfrey Matthews announce the kick-off of this year's Voice of Democracy and Patriot's Pen essay competitions.

The Voice of Democracy competition, in its 69<sup>th</sup> year, gives high school students in grades nine through 12 the opportunity to compete for thousands of dollars in scholarships and a trip to Washington, D.C. Students must write and record a three to five minute essay on the theme "My Vision for America" on an audio CD or a flash

drive and present their recording, typed essay and entry form to their local VFW post by Nov. 1.

Post winners advance to District and District winners advance to a state-wide competition. All state winners receive an all-expense paid trip to Washington, D.C., Feb. 27 – March 2 to tour the city, be honored, and receive

a portion of \$152,000 in national awards with first place being a \$30,000 college scholarship.

For details visit <http://www.vfw.org/Youth/Voice-of-Democracy>.

The Patriot's Pen competition gives middle school students in grades six through eight the opportunity to win thousands of dollars.

Students must write a 300-400 word essay on the theme "What Freedom Means to Me" and present their essay and entry form to the local post by Nov. 1.

Entrants compete for monetary prizes at the post, district, state and national levels. National winners will receive at least \$500 with the first place national award be-

ing \$5,000 plus an all-expense paid trip to Washington, D.C. for the winner and a parent or guardian.

For details visit <http://www.vfw.org/Youth/Patriot-s-Pen>.

Call Manchester Post 10904 at 728-7708 or Tullahoma Post 4188 at 581-2430 for a brochure or more information.

# Ground testing for F-35 gun conducted

By Rebecca Amber  
412<sup>th</sup> Test Wing

**EDWARDS AIR FORCE BASE, Calif. (AFNS)** — The F-35 Joint Strike Fighter Integrated Test Force is in the process of testing the F-35A Lightning II's newest munitions asset, a four-barrel Gatling gun that fires 25 mm rounds known as the GAU-22/A.

Unlike the Marine Corps and Navy variants, the GAU-22/A is integrated internally to the F-35A. In the other variants, the gun is mounted to the outside as a pod. A similar weapon, GAU-12, has been used on the AV-8B Harrier.

The first phase of testing started June 9, when the first shots were fired on the ground at the Edwards Gun Harmonizing Range. The test team hopes to finish ground testing sometime during August and start the airborne phase in late September. An operational gun capability will be added with a future block of software, which is



**An F-35A Lightning II, tail number AF-2, fires a burst of rounds down range at the Edwards Gun Harmonizing Range July 17 at Edwards Air Force Base, Calif. The F-35 Joint Strike Fighter Integrated Test Force is in the process of testing the F-35A Lightning II's newest munitions asset; a four-barrel Gatling gun that fires 25 mm rounds, known as the GAU-22/A. (Courtesy photo/Darin Russell)**

in the beginning stages of testing at Edwards AFB.

The tests are done using a target practice round, the PGU-23/U, which fires from the gun but does not explode on impact.

The tricky part about this test phase is that the gun will never operationally fire on the ground. To conduct the test, they have

to use software to bypass interlocks to make the aircraft think it's in the air.

"As an Air Force pilot, it's going to be one more thing that I can select to either strafe air-to-ground targets or shoot as an air-to-air weapon," said Maj. Andrew Rollins, the 461st Flight Test Squadron assistant director of operations

and the test pilot on the project.

While deployed, Rollins said he "used a gun often." He also said it's particularly useful in an air-to-ground role when enemy targets are in a close proximity to friendlies and dropping a bomb is not prudent.

"The GAU-22/A uses a 25 mm shell, which is significantly more powerful than what I've been used to in legacy aircraft, (like the F-16 (Fighting Falcon), F-15E (Strike Eagle) (and) F-15C (Eagle)-- all those aircraft use a 20 mm shell," Rollins said.

Integrating a weapon into the aircraft is not in it-

self unique, but what does make this project special is that it's being integrated into a stealth platform. In legacy aircraft, the gun fires through a hole in the outer molding. In this case, to keep the jet hidden from radar signatures, the gun will be kept behind closed doors until the trigger is engaged.

The ground tests are designed to answer questions like: does the gun door open correctly? Does the gun spin up and down correctly? Does the air flow through the vent, and is it adequate to clear the flammable gasses?

Prior to testing the integration of the GAU-

22/A into the F-35A, the gun itself was tested as a standalone. It was also flown during test points without firing to ensure that the flight envelope would not overstress the gun mounts. Preparing for the ground gun fire tests in the aircraft took roughly six months.

The testing airframe, tail number AF-2, is a highly modified flight sciences aircraft, and underwent four months of instrumentation modifications and had a line production gun installed for this project.

Tiffany Krogstad, the Lockheed Martin AF-2 flight test engineer, said that the AF-2 is normally a "scientist aircraft" executing loads and buffet testing.

"(AF-2) is the only aircraft in the world that can get us this data," Rollins said. "It's been highly instrumented in order to get us the information we need to proceed to the next test point and ultimately to get the gun to its full envelope."

As the test conductor, Krogstad and her team are monitoring the gun's performance and ensuring all the systems work as designed. She is especially concerned with making sure the jet can withstand the loads of a firing gun, and that the gun operates as expected.

"When we hand (the gun) off to the next aircraft to test full integration with the full avionics and mission systems capabilities, we'll rest easy knowing that we did what we could to make sure that their test won't have those issues," Krogstad said.

Rollins on the other hand is looking at it from a test pilot's perspective, evaluating the gun's effects on the aircraft's handling qualities.

"By the time we get airborne, we're hoping that our extensive preparation during planning, ground tests and airborne tests will eliminate every variable except for those associated with flight, since flying will be the most demanding phase of this testing," Rollins said. "While we'll be targeting very specific objectives, the pilot will also be observing more qualitative effects such as muzzle flash, human factors and flying qualities."

During the airborne tests, they will watch for the potential effects of having the gun mounted internally, like vibrations, acoustics and airflow.

To evaluate the gun's performance, the test team is made up of personnel from the Air Force, Lockheed Martin, Pratt & Whitney and Northrop Grumman.



# Munitions systems specialists arm the 'ultimate battle plane'



Rounds move through the 25mm processor at Hurlburt Field, Fla., June 23. The processor inserts the rounds into linked carrier tubes to be transported to the flightline. (U.S. Air Force photo/Senior Airman Jeff Parkinson)

By Senior Airman  
**Jeff Parkinson**  
*1st Special Operations  
 Wing Public Affairs*

**HURLBURT FIELD, Fla. (AFNS)** – Without the munitions systems specialists of the 1st Special Operations Equipment Maintenance Squadron, the AC-130U Spooky would have difficulty completing its close air support mission, to include supporting troops in contact, convoy escort and single point air defense.

Airmen of the 1st SOEMS munitions flight are responsible for every step in between shipping and receiving, to testing and assembling guided and unguided non-nuclear

munitions for the Spooky payload. They are also responsible for issue and delivery, storing, maintaining, and reconditioning these munitions to support the 1st Special Operations Wing, Air Force Special Operations Command and Air Force mission.

“I’d say we process an average of 30,000 rounds per week,” said Senior Airman Alexander Bien, a 1st SOEMS conventional maintenance crew chief. “Every 25mm load is a thousand pounds, and that’s not accounting for the 40mm or the 105mm.”

It all starts with the 1st SOEMS munitions controllers, the liaisons between the organizations requesting the ammo and

the Airmen within the munitions storage areas that maintain it.

Munitions controllers work with about 100 people daily, generating all munitions requests on base.

“As a munitions controller, we coordinate, direct and control all munitions activities to and from the flightline, within the MSA and anywhere on base,” said Staff Sgt. Landon Mace, a 1st SOEMS munitions controller. “We have a handful of organizations that we deal with on a daily basis, and we coordinate anything with munitions through the control office.”

After receiving the requests, the munitions con-

trollers will forward them to a conventional maintenance dispatcher.

When Senior Airman Micheal Mehren, a 1st SOEMS dispatcher, receives requests, he schedules work orders and determines the manning and equipment needed to complete the mission.

“Daily, I schedule all the work for the following week to support the flying schedule,” Mehren said. “I set up jobs for crew chiefs to complete and make sure the tools they need are in usable condition.”

Once the schedule is made, the conventional maintenance crew chiefs get to work by inspecting the rounds and preparing them for transport.



Senior Airman Alexander Bien, a 1st Special Operations Equipment Maintenance Squadron conventional maintenance crew chief, loads the 25mm processor at Hurlburt Field, Fla., June 23. The 25mm processor loads the ammunition into linked tube carriers for transport to the flightline. (U.S. Air Force photo/Senior Airman Jeff Parkinson)

Senior Airman Alexander Bien, a conventional maintenance crew chief, loads thousands of 105mm, 40mm and 25mm rounds by hand.

The 25mm is the largest of the three. Each container can hold more than 1,000 rounds weighing a pound each, and the team can load up to five containers per day.

More than 70 Airmen assigned to the munitions

flight work around the clock to ensure the Spooky’s continued success and distinguished combat history.

“When something real-world happens these Airmen are reactive,” said Master Sgt. David Veliquette, the 1st SOEMS conventional maintenance element chief. “They’re ready at all times to help provide combat-ready forces.”





# AEDC quarterly award winners announced



**Capt. Chance Johnson**  
Company Grade Officer  
of the Quarter



**Master Sgt. James Key**  
Senior Non-Commissioned  
Officer of the Quarter



**Tech. Sgt. Shara Jackson**  
Non-Commissioned Of-  
ficer of the Quarter



**2nd Lt. Christopher Handy**  
Honor Guard  
of the Quarter



**Lee Smith**  
Civilian of the Quarter  
Administrative



**Barry Bennett**  
Civilian of the Quarter  
Scientist/Engineer

## McConnell Reservists keep Thunderbirds flying



Maj. Curtis Dougherty, a slot pilot for the Thunderbirds, banks right over the Rocky Mountains after being refueled in flight by a KC-135 Stratotanker from McConnell Air Force Base, Kan., May 2. The KC-135 was one of two McConnell tankers providing cross-country air refueling support for the Thunderbirds. (U.S. Air Force photo/Capt. Zach Anderson)



**Saturday, August 15<sup>th</sup>**  
**10 a.m. – 4 p.m.**

## Fun Fly

**\$5.00 Landing Fee for Pilots**

Demonstrations: Helicopters, 3D flying, IMAC, FPV, Giant Scale

**Public invited**

**Fun for all**

Learn to fly Radio Control Aircraft

**Free Flight Lessons**

**Concessions**  
**Raffle**



Event Location, Coffee Airfoilers Club Field

[www.coffeeairfoilers.com](http://www.coffeeairfoilers.com)

Wattendorf Highway-Next to Arnold Golf Course

**Proceeds to support Wounded Warrior Project**



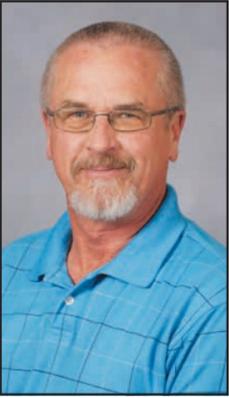
## AS AN AIR FORCE CIVILIAN, WHERE CAN I FIND HELP?

*We all face challenges, but we don't have to face them alone.*

IF YOU NEED HELP WITH... TRY THESE AGENCIES & THEIR RESOURCES

<b>ALL EMPLOYEES</b>		
Suicide prevention	National Suicide Prevention Lifeline	(800) 273-8255
Mental health & substance abuse	American Association of Poison Control Centers	(800) 222-1222
Unplanned pregnancy	Centerstone	(931) 461-1300
Health and Safety Education	Crisis Pregnancy Assistance Center	(931) 728-6440
	American Red Cross	(615) 893-4272
<b>MILITARY</b>		
Virtual extension of installation services	Military One Source	<a href="http://www.militaryonesource.com">www.militaryonesource.com</a>
Health & wellness planning	AFMC Wellness Support Center	<a href="http://www.afmcwellness.com">www.afmcwellness.com</a>
	Health and Wellness Center	(931) 454-6440
Sexual assault & victim advocacy	Sexual Assault Response Coordinator	(931) 581-7494
Finances & work-life balance	Airman and Family Readiness Center	(931) 454-4574
<b>DOD CIVILIAN</b>		
Health & wellness planning	AFMC Wellness Support Center	<a href="http://www.afmcwellness.com">www.afmcwellness.com</a>
	Civilian Health Promotion Services	(931) 454-6440
Work, personal or family issues	Employee Assistance Program	(800) 222-0364
		<a href="http://www.fob4you.com">www.fob4you.com</a>
Sexual assault & victim advocacy	Sexual Assault Response Coordinator	(931) 581-7494
Crime victim advocacy	Victim Witness Assistance Program	(931) 454-4567
<b>ATA EMPLOYEES</b>		
Work, personal or family issues	Employee Assistance Program	(866) 828-6049

# Milestones



**35 YEARS**  
Timothy White, ATA

**30 YEARS**  
Angela Young, ATA

**20 YEARS**  
Mickey West, ATA

**15 YEARS**  
Robert Hickey, ATA

**10 YEARS**  
James Potter Jr., ATA  
James Presswood, ATA

**5 YEARS**  
Colin Loudermilk, ATA  
**RETIREMENTS**  
James Brooks Jr., ATA  
Terry Flagg, ATA  
Stephen Lawton, ATA  
Senior Master Sgt. Patrick Lazarus, AF  
Michael Price, ATA

**INBOUND MILITARY**  
Lt. Col. Mark Oreilly, AF

**OUTBOUND MILITARY**  
Capt. Samuel Stephens, AF

**NEW HIRES**  
Daniel Crowley, AF  
Justin Harrell, AF  
Hilina Johnson, NAF  
Adam Moon, AF  
Robert Mosley, AF  
Joel Nalin, AF  
Vaughn Pangelinan, AF  
Jeanna Pattillo, NAF  
Kimberly Pfender, AF  
Ben Smith, AF  
Albert Velazquez, AF

## Explore inside world's only remaining XB-70 and President Truman's aircraft on museum app, virtual tour

By National Museum of the United States Air Force

**DAYTON, Ohio** – Visitors to the National Museum of the U.S. Air Force often ask if it's possible to get inside the aircraft on display. With the help of technology, online visitors have the chance to see the interiors of many historical icons.

Among the most recent additions to the free ACI Cockpit360° app, available from the museum and AeroCapture Images, are the world's only remaining XB-70 Valkyrie and President Truman's VC-118 *The Independence*.

The XB-70 has long been a popular exhibit at the museum, and now virtual visitors can take

a 360-degree tour of the pilot station, copilot station and electronic equipment compartment inside this exotic aircraft, which could fly three times the speed of sound and was used to study aerodynamics, propulsion and other subjects.

Conservation work was recently completed on the interior of *The Independence*, the aircraft that carried President Truman to Wake Island in October 1950 to discuss the Korean situation with Gen. Douglas MacArthur. Nine interior views, such as the presidential galley and VIP dressing room, show online visitors how presidential airlift has changed over the years.

Interior views of 12 other aircraft – the P-26A, Hawker Hurricane,

Mosquito, B-26G, P-61C, C-124, A-7D, B-57B, KC-97L, B-58A, C-133A and F-104C – were added as well, which means the free app now features high-definition panoramic photos of the interiors of 43 aircraft on display at the museum. The app is currently available for free download from the Apple and Google Play stores.

The interior photos also are available on the museum's interactive 360-degree virtual tour, which allows users to explore the museum at their leisure through factsheets, supplemental information and educational tools based on the museum's collection. The tour is available at [www.nmusafvirtualtour.com](http://www.nmusafvirtualtour.com). A list of links to all

interior images is available at [www.nationalmuseum.af.mil/Visit/VirtualTour/Cockpit360.aspx](http://www.nationalmuseum.af.mil/Visit/VirtualTour/Cockpit360.aspx).

The museum plans to feature additional cockpit photos as time and resources allow.

The National Museum of the U.S. Air Force, located at Wright-Patterson Air Force Base near Dayton, Ohio, is the world's largest military aviation museum. With free admission and parking, the museum features more than 360 aerospace vehicles and missiles and thousands of artifacts amid more than 17 acres of indoor exhibit space. Each year about one million visitors from around the world come to the museum. For more information, visit [www.nationalmuseum.af.mil](http://www.nationalmuseum.af.mil).

