

August 2004

Leading Edge

Air Force Materiel Command

Behind the Scenes:

Getting to the bottom
of aircrew fatigue

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LEADING EDGE

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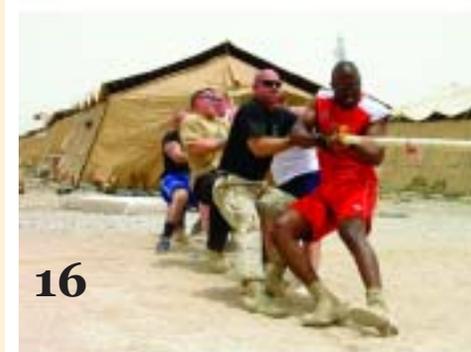
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F-16 tests pod for Joint Strike Fighter



EDWARDS AIR FORCE BASE, Calif. — An F-16 from the 445th Flight Test Squadron, piloted by Maj. Chris Hamilton, Joint Strike Fighter Integrated Test Force test pilot, flies at Edwards equipped with three sensors during a Joint Strike Fighter Integrated Test Force test mission. Data collected from the mission will determine if the Air Force Seek Eagle Office at Eglin AFB, Fla., will certify the ERR pod as safe for the F-16 to carry, and the ERR pod will eventually be carried by an F-35 Joint Strike Fighter. (AF photo by Tom Reynolds)

WIRELESS NETWORK DEFENSE

ROME, N.Y. — Technology to defend wireless computer systems from attacks has been developed and successfully tested by engineers assigned to the Air Force Research Laboratory Information Directorate.

Scientists and engineers successfully demonstrated the Wireless Intrusion Detection System at Westover Air Reserve Base, Mass., in April as part of a week-long Military Utility Assessment conducted by Detachment 1 of the Air Force Operational Test & Evaluation Center.

With funding from the Air Force Information Warfare Battlelab and host base support from Westover's 439th Communication Squadron, a directorate government-contractor team installed a network of 22 WIDS sensors across the Massachusetts base between January and April 2004.

The Air Force Information Warfare Center's 92nd Information Warfare Aggressor Squadron supported the assessment with "Red Team" activities designed to exercise each of the new system's detection mechanisms.

During testing, WIDS was able to detect attackers, geo-locate attackers, and interface with standard network management tools — all with minimal impact on the operational performance of the network.

— AFRL Public Affairs

NO MORE MIDDLE MAN

HANSCOM AIR FORCE BASE, Mass. — Communications systems that operate on different aircraft can now share information quickly and seamlessly thanks to a software translator Electronic Systems Center experts here recently developed.

Working with Mitre, ESC developed the Cursor on Target capability, which uses an Extensible Markup Language translator to share information, said Col. Mike Therrien, Command Interoperability Program Office director.

Previously, a combat controller in the field would "call in" target coordinates to a forward command center, which, in turn, would relay them to the Air Operations Center, Colonel Therrien said. The data would then be voiced to an AWACS crew and finally, again by voice, relayed to the F-15E pilot who needed them. The colonel said this process took a lot of valuable time and had the potential for human error.

In engineering a solution, software designers focused on the most critical information, specifically what, where and when. Using XML allows existing systems to receive the data digitally and intuitively know exactly what it means.

Rather than waiting for someone to run down the hall and type the data from one system into another, everything flows through without human intervention, Colonel Therrien said. If the data is a request from the forward area seeking air support, command center workers can put the cursor over the target and click to approve. All the necessary information and tasking orders flow to the aircraft as needed.

Special operations forces are already using Cursor on Target in the field. Efforts are now underway to bring a capability, which identifies the location of friendly ground forces, into the cockpit.

— ESC Public Affairs

Taking a closer look



ARNOLD AIR FORCE BASE, Tenn. — Test engineer Philip Kopfinger and engineering intern Katie Carr examine a section of foam paneling of the type used on the space shuttle's main exterior fuel tank during liftoff. The two, who are from the NASA Marshall Space Flight Center's Michoud Assembly Facility near New Orleans, La., are working at Arnold Engineering Development Center, Arnold AFB, Tenn., to perform tests on the panels as part of NASA's Return-to-Flight program. The foam panel was exposed to temperatures above 1,400 degrees Fahrenheit at Mach 4 in AEDC's Tunnel C. (AF photo by David Housch)

Around the command

☆☆☆☆ Gen. Gregory S. Martin



OPERATION: EXPEDITIONARY MINDSET

For many, August seems like the last month of summer — a time when we complete vacations, prepare for schools to re-open, and resume our work schedules with fewer “extracurricular” activities. For the men and women of the Air Force Materiel Command, and indeed the Air Force, this month also signifies the end of the 90 day Air and Space Expeditionary Force deployments. As directed by Air Force Chief of Staff General John P. Jumper, beginning in AEF Cycle 5 in September, the AEF baseline deployment period will increase from 90 to 120 days. As a result of the tour length change, the overall AEF will change from a 15-month to a 20-month rotational cycle.

The Chief made these permanent changes in deployment length in response to combatant commanders requirement to provide greater continuity in the AOR. This allows expeditionary commanders to have a cohesive team in place for at least four months. Keep in mind, about 20% of our deployed people are already serving 179-day tours to support joint requirements. These stressed career fields are the Security Forces, Civil Engineers, Transportation and several others.

Improving the manning in our stressed career fields has become a top priority for our Secretary of the Air Force, Dr. James Roche and for our Chief of Staff. To quote General Jumper: “If you are wearing the uniform of the United States Air Force, you are part of the AEF.” This means increasing the number of deployable Airmen from the current level of about 272,000. What does this mean for AFMC?

Currently, we are over 90% postured in the AEF, we need to

try to increase this number to as close to 100% as we can. We are doing what it takes to ensure every person wearing a uniform is assigned to a Unit Type Code and aligned with the appropriate AEF. Aligning Airmen with an AEF allows for individuals and families to plan their personal lives and meet the needs of the Air Force.

Everyone should be carrying an AEF ID card now so they know when they can be called upon. It also provides supervisors at all levels visibility to the anticipated absences in and around the workplace so we can continue to deliver war-winning expeditionary technology, acquisition support, and sustainment capabilities to the warfighter. Because of your professionalism and dedication I have seen and experienced, I know you will rise up and excel in fulfilling this new requirement.

All AFMC Airmen need to realize that when we deploy, we are going to be deployed for at least four months at a time and in some cases up to 179 days. Currently, AFMC has 700 men and women deployed in support of the AEF cycle.

I continue to ask that you stay informed and prepare yourselves as the AEF evolves to meet the needs of the combatant commanders. Finally, be prepared to deploy! When you're in your vulnerability window, do not be surprised when the phone rings. Have your bags packed and all your personal affairs in order.

I'm very proud to serve with you and I'm in awe of what you do every day in achieving our shared vision: To be a valued team member ... of the world's most respected air and space force.

And when you deploy, the rest of the Air Force realizes that the men and women of AFMC are not only on the team, they are valued team members!

Senior Airman Kathy Manley, 379th Expeditionary Logistics Readiness Squadron, maintains a vehicle at an undisclosed location in Southwest Asia. Airman Manley is assigned to the vehicle operations section and is deployed from the 96th Logistics Readiness Squadron at Eglin AFB, Fla. More than 100 AFMC loggies are deployed, providing a variety of base operating support capabilities to the warfighter — from vehicle maintenance to ensuring availability of aircraft parts. (AF photo by Tech. Sgt. Demetrius Lester)



Senior Airman Joshua Raheem, 407th Expeditionary Security Forces Squadron, talks to a local national as he enters one of the check points at Tallil Air Base, Iraq. Airman Raheem, recently chosen as the base's "Warrior of the Week," was praised by leaders for his assistance in processing more than 7,000 local and third country nationals, and his role in detecting and confiscating illegal weapons and contraband, ensuring the continued protection of all base coalition forces. When his deployment is complete, Airman Raheem will return to his home unit at Hill AFB, Utah. (AF photo by Master Sgt. Debbie Aragon)



Readiness ... from a legal perspective

Having an expeditionary mindset means being ready when the call comes to deploy. One form of readiness is "personal legal readiness" and it begins with estate planning.

Prepare your will and keep it up to date. Your last will and testament is a legal document that states who you want to receive your personal belongings upon your death. This document outlines who will be the guardian of your children, if you have any, who will be the beneficiaries of your estate, and who will administer your estate. The administrator of your estate inventories your personal possessions, pays your creditors and your taxes, and then distributes the rest of your property to your beneficiaries.

If you do not have a will, your property will be distributed according to your state's intestate succession laws. These laws govern the distribution of property when a person dies without a will. Intestate succession laws differ from state to state. Figuring out what state you are a resident of, who will administer your estate and who will receive your property should be *your* decision — not the state court's decision.

Update your family care plan. This is especially important for single parents and dual military couples. You need to have a trusted friend or family member nominated to take care of your children in the event you are not able to do.

Make sure your emergency data card is correct. Your Servicemember's Group Life Insurance form should reflect who you want to receive the insurance proceeds. Naming a specific beneficiary is advisable rather than having the proceeds distributed "by law" or "as my last will and testament states."

Get your bills in order. You must make sure you pay your debts as they come due. If you get deployed, you would not want to get into trouble for not paying your debts. To avoid any potential problems, set your bills up to be paid by automatic draft.

Resolve your court disputes. If you have any ongoing court matters, such as landlord-tenant disputes, divorce questions or child support issues, try to resolve them quickly.

Protect your property. Have a trusted friend or family member check your house every week and receive your mail while you're deployed.

Consider getting a special power of attorney. If you have a specific task that you need someone to do for you, visit your legal office for a special POA. This document allows a person you appoint to legally act on your behalf. For example, a special POA will allow for a step-parent or friend to handle child care issues on your behalf. There are numerous types of special POAs for situations where a general POA does not work. Each individual circumstance is different, and you should plan accordingly to meet your needs.

Being legally ready to deploy is just common sense. Get your estate planning done, take care of your loved ones left behind during your deployment, and protect your property from damage and deterioration while you're deployed. Don't wait until the day you are tasked to deploy to visit your legal office. Do it now.

— Capt. Cinnamon M. Howard
88th Air Base Wing Legal Office

Pinpointing pressure points

Larine Barr
AFRL Public Affairs

For many aircrew members across the Air Force, discomfort due to sitting down during extended missions is just part of the job.

Col. Kerry E. Keithcart, who flies KC-135 Stratotankers for the 434th Air Refueling Wing at Grissom Air Reserve Base, Ind., said he and his crew do what they can to make those longer missions more bearable.

“Some of us try to stretch and that's of some value. We also drink a lot of water to stay hydrated,” said Colonel Keithcart. “But when you're sitting in one position for as many as thirteen hours at a time, you're going to experience different aches and pains. Not using your muscles just gets to you after a while.”

Colonel Keithcart and many others in the aircrew population have experienced specific physiological problems associated with sitting on seat cushions in current Air Force aircraft ranging from muscle soreness to overall fatigue. To address those problems, scientists at

the Air Force Research Laboratory Human Effectiveness directorate, Wright-Patterson Air Force Base, Ohio, have been studying the effects of different seat cushion materials and designs.

According to project manager Joseph Pelletiere, test subjects were photographed while sitting on the seat cushions for various periods of time.

“These photographs reveal dangerous pressure points that can develop when people sit for long periods of time,” said Mr. Pelletiere.

These aren't your ordinary photographs. They are collected from a device called Xsensor™ which is made up of 900 sensors that respond to pressure.

“The device works on capacitance technology and as the space inside the sensors changes, an output voltage is recorded by a computer and displayed on a computer screen,” said Mr. Pelletiere. “This pressure mat is only fractions of an inch thick and very pliable. As such, it conforms quite well to a variety of seat cushions and the

human anatomy to give a reading on how much pressure is being exerted and where the 'hot spots' are located for different people on different cushions.”

The obvious question is: Why does it matter what the pressure distribution is

A volunteer test subject at the AFRL Human Effectiveness directorate, Wright-Patterson AFB, Ohio, sits in a mock-up ejection seat that is fitted with Xsensor™. Photographs taken by the Xsensor™ demonstrate how much pressure is being exerted on the seat cushion and where the “hot spots” are located. Those “hot spots” can cause a reduction in blood flow, which can lead to blood clots and other physiological problems. (AF photo by Joseph Pelletiere)



for a crewmember on a cushion? The answer lies in preventing deep vein thrombosis and trying to prevent sore spots that cause people to squirm, explained Mr. Pellettiere.

“The risk of DVT has been shown to increase with the amount of time that the tissues in the body are compressed and leg muscle activity is reduced. This occurs because the deepest part of the calf muscles partially relies on muscle activity to promote good blood flow.

“Furthermore, with increased periods of pressure applied to the body's tissues, the capillaries begin to close off, thus reducing the amount of blood flow and causing a numbing sensation. Because of this reduced blood flow, it is possible to develop a clot that can be dislodged and travel to other areas of the body where it can be a big problem.”

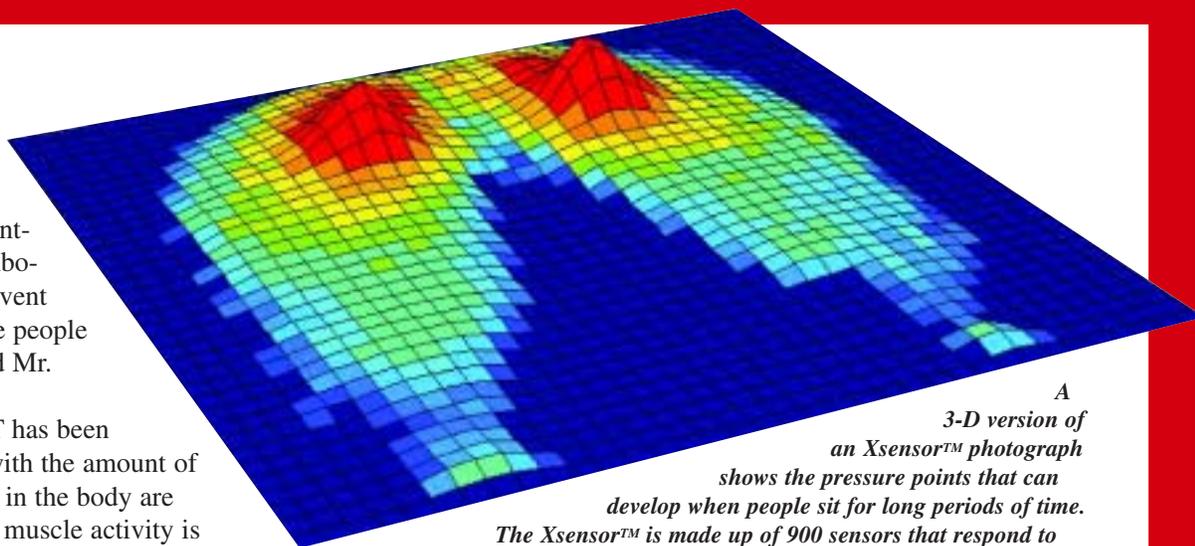
According to Mr. Pellettiere, while the risk of developing DVT is low, the other adverse effects are quite common, such as tingling and numbness in the extremities, leg and back pain, and overall fatigue.

For commercial long-haul flights, passengers can generally get up out of their seats and move around if need be. However, most crewmembers are not afforded this same luxury.

“It's not uncommon for some flight missions to last from eight to forty-four hours of seat time,” explained Mr. Pellettiere. “While there are some techniques — such as stretching exercises — that can alleviate some of the tension, the search has been on to develop new passive technologies that can improve comfort and reduce fatigue with the goal of improving the overall performance and well-being of the crewmember.”

Scientists at AFRL have worked closely with volunteer test subjects to measure pressure distribution and how different people interface with different types of cushion materials.

“During tests, a subject puts on a flight suit and settles into a mock-up ejection seat that is fitted with Xsensor™,” said Mr. Pellettiere. “After about ten minutes, which is the time it takes for the cushion to warm up and conform to the body surface, a snapshot of how that subject is sitting on the cushion is collected. The test subject then sits on that cushion for an extended period of time while performing some cognitive tasks to measure performance and filling out some surveys to rate his overall comfort or discomfort.”



A 3-D version of an Xsensor™ photograph shows the pressure points that can develop when people sit for long periods of time. The Xsensor™ is made up of 900 sensors that respond to pressure. Scientists at the AFRL Human Effectiveness Directorate, Wright-Patterson AFB, Ohio, are studying different types of seat cushions, hoping to design one that will be more comfortable for aircrew members who currently experience different aches and pains associated with sitting for extended flying missions. (AF graphic by 1st Lt. John Stubbs)

As part of the study, scientists have tested candidate seats for the Fixed Aircrew Seat Standardization program, which is developing crew and mission seats for C-135 Stratolifter, C-130 Hercules and E-3 Sentry aircraft. A contract is also in place to develop a generic seat cushion specification for both fixed and ejection seats.

“We have enough challenges in the aircrew world ... and anything the Air Force Research Lab can do to make our mission more reasonable is time and money well spent.”

**— Col. Kerry E. Keithcart
KC-135 Stratotanker pilot**

“Our data is feeding directly into those programs,” said Mr. Pellettiere. “All the data will be gathered to develop cushion guidelines that seat developers can apply to new seat cushion designs to ensure the continued success of our crewmembers.”

And that's good news to Colonel Keithcart and his KC-135 crew.

“I think the concept is great. We have enough challenges in the aircrew world like sleep cycles and long days, and anything the Air Force Research Lab can do to make our mission more reasonable is time and money well spent.”

(2nd Lt. Christy Stravolo, AFMC Public Affairs, contributed to this story.)

AFMC'S ROBOT

Scientists around the world are fascinated with robots. They are working on models that promise to be your new best friend, become your worst chess enemy, or merrily clean your house. Scientists in Air Force Materiel Command are adding robotic warriors to the mix. Air Force Research Laboratory projects like the Robo-Trencher, SCOUT, MDARS, and Matilda, use their artificial intelligence to make human troops safer. While the Robo-Trencher, developed at Wright-Patterson Air Force Base, Ohio, can easily accomplish dangerous excavation missions in forward locations, the other three robots, from Eglin AFB, Fla., form a synergistic perimeter defense team. Together, with our remotely piloted vehicles, this new robot technology will bring the future to the forces.

Talented Trio

Tammie D. Erazo
AAC Public Affairs



Troops stand back as the SCOUT robotic vehicle fires pepper spray during a practice run at Eglin AFB, Fla. The robot is also armed with an M16A2 rifle which is controlled from a remote location. (AF photo by Gary Emery)

Military members from the Pentagon and other distinguished guests were recently treated to a demonstration of the remote detection challenge and response, or REDCAR.

REDCAR uses unmanned robotic platforms to provide perimeter defense of Air Force bases and forward-deployed units.

“With REDCAR we can integrate a family of robots to secure an airfield and take the warfighter out of the initial line of attack,” said Capt. Adolfo Meana, Force Protection Battlelab chief of concepts division, Lackland Air Force Base, Texas. “The forces are kept in reserve to tactically move against the enemy. We put the robots in danger first and save troops’ lives.”

Operators control the robots from a safe location, such as an armored vehicle, using a laptop computer. They are able to control many robots at the same time and can even pass control between operators.

The Force Protection Battlelab and the Air Force Research Laboratory developed the REDCAR family of robotic vehicles.

The proof of concept demonstration included three robotic vehicles. The first was SCOUT, a rough terrain capable vehicle that travels at up to 20 mph using preprogrammed waypoint navigation and autonomous obstacle avoidance. The SCOUT controller can issue commands to individuals it encounters through a device known as the Phraselator.

“SCOUT has up to 57 pre-programmed languages and can

issue such police phrases as ‘halt, drop your weapon,’ etcetera,” Captain Meana said. “However, we hope controllers will be able to speak directly through the Phraselator in the future.”

The second robotic vehicle, Mobile Detection and Response System, or MDARS, provides area surveillance duties autonomously. MDARS has more of a detection role, with SCOUT acting as an interceptor.

The third robotic vehicle, called Matilda, is a small-scale, tracked vehicle that can be carried on MDARS. Matilda provides reconnaissance in limited-access areas, including under vehicles and aircraft as well as inside buildings.

“The challenge is getting all the robots to work together,” said Walt Waltz, Air Force Research Laboratory chief of robotics research, Tyndall AFB, Fla. “Communication between the robots is key.”

During the proof of concept demonstrations at Eglin AFB, all three robots were demonstrated in several scenarios. In one scenario, SCOUT detected and confronted a “foreign national” trying to gain unauthorized access to the flight line to perform an act of sabotage. After the individual refused to obey commands issued by the SCOUT controller, he was disabled with a pepper spray system mounted on SCOUT. Another scenario featured SCOUT and MDARS detecting and defending against a guerrilla force attempting to attack the base. During the attack, SCOUT used a precision-targeted M16A2 rifle controlled from a remote location. Towards the end of the attack, Matilda was released from MDARS to search for attackers hiding in culverts.

Staff Sgt. Miguel Jimenez, 325th Security Forces Squadron operator at Hurlburt Field, is excited about the new technology.

“It will help out a lot having the robotic platforms alerting us to possible hostilities. It will provide an immediate visual assessment before we get there and we can use the weapon if necessary,” Sergeant Jimenez said.

NIC WARRIORS

Dynamic Digger

Timothy R. Anderl
AFRL Public Affairs



The Robo-Trencher is a remotely operated trenching tractor designed to dig in dangerous locations. (AF photo)

Engineers at Wright-Patterson AFB, Ohio, are designing, building, testing and plan to soon deliver a second, more advanced, robotic trenching tractor so combat engineers can perform cable trenching and excavation missions in dangerous locations.

Air Force Research Laboratory Materials and Manufacturing Directorate engineers are integrating robotic components onto a modified Ditch Witch 7610 trenching tractor that were originally developed for the group's All Purpose Remote Transport System, a technology used for force protection and active range clearance activities.

The robotic conversion package known as Robo-Trencher enables operators to remotely control all tractor functions including: engine start and stop, propulsion, lights and tool operation, according to Maj. Timothy Schulteis, AFRL materiel and manufacturing directorate technical director for the robotics research and development group.

The 738th officials inquired about robotic technologies because their members encountered two separate incidents with unexploded ordnance during manual trenching operations in Afghanistan, the major said. To meet the squadron's deployment schedule, engineers from AFRL's airbase technologies division robotics research group began developing a solution, using the squadron's existing hardware.

The result is a trenching tractor that includes fixed, panable video cameras and digital radios that transmit command signals from the operator control unit to the vehicle, he said.

Additionally, an independent transmitter-receiver pair communicates audio and video information from the vehicle to the operator control station.

The standard operator control station includes the operator console, with command-input device — joysticks and switches — and video monitor, control station data encoder and transmitter, data and video receivers, antennas and video and audio recorder, according to Major Schulteis. In addition, the operator

control station is also equipped with situational awareness and GPS tracking and location capabilities.

The Ditch Witch 7610 is designed for a full range of underground construction work, including installing power and communications cable. This system has a rugged one-piece frame, heavy-duty digging booms, and chains and teeth for tough

digging conditions, including rocky soils and frost.

Engineers developed this second Robo-Trencher based on feedback from 738th Engineering Installation Squadron members who said the first one has already established its value during Operation Iraqi Freedom, according to Lt. Col. Phillip Baca, 738th EIS commander.

As the only remaining active-duty engineering installation squadron in the Air Force, 738th EIS members often deploy in less than 48 hours from when requested. They install and maintain fixed and deployable command and control, computer and intelligence systems.

Capt. Chris Miller, squadron rapid response flight commander and Robo-Trencher project officer, said the first completed system was operational in late June 2003 and was delivered to the squadron in mid-July 2003. Following two weeks of "home testing," experts airlifted the system from Keesler AFB, Miss., to Iraq to support communication cable installation and base infrastructure requirements.

"The second version of the system includes features to make it an even more user friendly and intuitive system," Capt. Miller added. The anticipated delivery date is this month.

"When faced with potentially treacherous or dangerous situations, our engineers now have the option of using the robotic capabilities of the system, which will keep them safe and allow them to accomplish their mission," Capt. Miller said.

The AFRL team "began work on our first tractor a week after our original request and were able to turn the technology around in less than 90 days," he added. "This top-notch, customer-service oriented, warfighter-minded team is among the best I've worked with during my career with the Air Force."

In addition, engineers created a remote kit, which allows squadron members to retrofit all of the trenching tractors in their inventory. Robotics research group experts are also working to transition this technology to a system program office and private industry for future procurement and support activities.

Setting Singapore up for success

Jeanne Grimes
OC-ALC Public Affairs

Workers at Tinker Air Force Base, Okla., recently completed programmed depot maintenance on two Republic of Singapore air force KC-135 Stratotankers and are now poised to set the Asian nation up to perform its own PDM on two remaining aircraft.

Singapore air force officials, which bought the four-plane tanker fleet from the United States in 1998, sent two tankers here for PDM under a contract agreement through Foreign Military Sales. The first aircraft, flown by a Singapore air force crew, came to Tinker AFB from McConnell AFB, Kan., in early 2003. The second arrived directly from Singapore last fall and rolled out in May.

Now that the PDM is finished on the first two, Tinker AFB experts are working to provide parts, tooling, technical data and other related equipment and information so the Singapore maintainers can meet their Oct. 1 deadline for having their own, in-country PDM facility operational. There, with Tinker experts' help, Singapore maintainers will perform PDM on their final two aircraft.

"We'll be providing training on some of the tooling and have a team going to Singapore in mid-November; they've got a lot of work to do on their own before we get there," said Lon Crouch, program manager overseeing the Singapore PDM at Tinker AFB.

Additionally, he said base experts will inspect their facilities to make sure they're suitable.

"The Singapore people want to be self sustained," Mr. Crouch said. Having their own PDM facility will make things "easier for them to control, plus they're getting a learning curve by having us help them do their PDM on their final two aircraft."

Singapore's liaison at Tinker AFB was Warrant Officer Tan Mong Hem, who expressed his country's gratitude for the work done at Tinker AFB.

"We are very pleased with ... our recent KC-135 PDM, especially the great support for the aircraft production," he said. "Our first aircraft took 218 flow days and our recent aircraft — which had more extensive repairs carried out on it — took only 201 flow days."

Mr. Crouch explained how the 201-day turnaround was actually a miracle in the making.

"At one time, they were one month behind on PDM on this second plane because of unpredictable major repairs as the process was underway," he said. "With the team effort and lot of dedication, they got it out on time. Our maintenance people did it on their own ... to step up the work to meet the customer's needs."

Buddy Perry, logistics manager for both the Singapore aircraft, said RSAF officials were aware of a possible delay with the second tanker.



Sheet metal mechanic Duane Sudduth, one member of the team assigned to bring four Republic of Singapore KC-135s through the maintenance program at Tinker AFB, Okla. (AF photo by Margo Wright)

"They were very happy when it was done on time," he added.

Debi Kirkpatrick, chief of the KC-135 Weapon System Support Center, helped put together a PDM crew dedicated solely to the Singapore aircraft. Both Mr. Crouch and Mr. Perry agreed it was that dedicated crew that spelled the difference between success and failure in getting the aircraft out on time.

At Singapore's request, Air Force crews from McConnell AFB flew the second tanker back to Singapore. Because of restrictions on the number of hours a crew can fly, it took two crews to make the junket.

With U.S. fliers at the controls and to comply with international law, the aircraft painters had to paint temporary USAF decals on the tanker.

"We didn't know what was going to happen each day," Mr. Perry said.

"Like working with the paint shop on the emblems. The whole thing was different — not your basic Air Force PDM. There were a different set of obstacles every day ... maintenance made it happen because they stepped up to the work.

"Getting the aircraft out on time was the most rewarding thing because that country has so few aircraft. It is very important for their operations to not have aircraft sitting around waiting for maintenance. They need it for operational reasons. To them, that extra 30 days that might have been required for maintenance would have been a tremendous amount of time."

Bioenvironmental flight catches unseen hazards

Tammie D. Erazo
AAC Public Affairs

The folks at the 96th Aerospace Medicine Squadron's bioenvironmental engineering flight are dedicated to protecting the health of Eglin Air Force Base, Fla., employees as well as the general public.

Though they work with the hospital, engineers do not see patients. Rather, it is their job to evaluate and correct potential health hazards before people get sick.

To that end, bioenvironmental engineers evaluate more than 25 programs including respiratory protection, water quality sampling and quantitative fit testing for gas masks.

Most people know the squadron as the place where gas masks are fit-tested before deployment.

Deployed bioenvironmental engineers identify nuclear, biological and chemical threats in a field environment.

"We report our findings to the commander who then makes a risk-based decision on how to proceed," said Maj. Becky Sobel, Aerospace Medical Squadron officer in charge of radiation, environmental, readiness and test support.

At Eglin AFB, bioenvironmental engineers perform activities in industrial hygiene, occupational health, radiological health and environmental health protection to ensure healthy working conditions are maintained and the environment is not adversely affected by Air Force operations.

"We see the people before they become patients," Major Sobel said. "All of our officers are engineers as opposed to doctors. This is important because it is our job to 'engineer out' the hazard. We figure out a way to remove a dangerous chemical and rely on the process to protect the people."

Major Sobel explained that it is better to remove a hazard from the environment than to rely on people to take protective measures.

"A lot of people don't like to wear ear plugs, for example," he said. "For those that work around aircraft or machinery, the damage won't be evident until years later, then it's too late."

Bioenvironmental engineers are responsible for complying with the Occupational Safety and Health Administration,

Environmental Protection Agency and Nuclear Regulatory Commission health aspects.

Technicians who work in bioenvironmental engineering must complete courses in physics, chemistry and biology, as well as English composition. They perform thorough industrial hygiene and environmental surveys to include collecting various samples of air, water, noise, waste, radiation, illumination, ventilation and ergonomics to assess the degree of hazard and worker exposure.

Though they work with base shops to identify potential health hazards, the engineers are quick to point out that they are

not the bad guys.

"It's important that we maintain a good relationship with each shop," said Staff Sgt. Marlin Anderson, 96th AMDS element readiness manager. "We are there to learn the process of the shop and analyze any potential health hazards. We are not inspectors, we're more like the middle-man."

Staff Sgt. Susan Cordova, 96th Aerospace Medical Squadron non-commissioned officer in charge of ionizing radiation, agreed adding, "We let people know that we're here to help them, and we work hard to earn their respect."

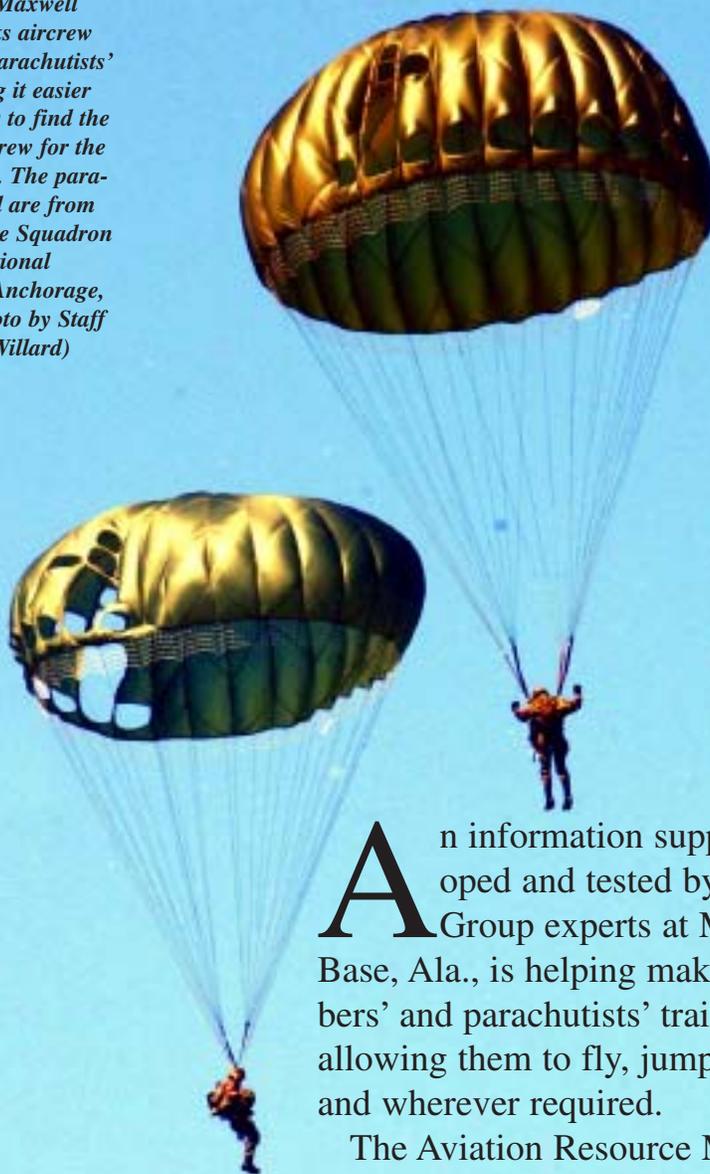
Airman 1st Class John Simpson, 96th Aerospace Medical Squadron, Eglin AFB, Fla., adjusts a gas mask while demonstrating how masks are fit-tested. Everyone who deploys from Eglin AFB and is issued a gas mask must be fit-tested on that mask. (AF photo by Tammie Erazo)



Keeping Airmen out

Chief Master Sgt. Tim Brown
ARMS Lead Functional Analyst

Aviation Resource Management System, recently developed at Gunter Annex, Maxwell AFB, Ala., tracks aircrew members' and parachutists' training, making it easier for commanders to find the most qualified crew for the mission at hand. The parachutists pictured are from the 210th Rescue Squadron at Kules Air National Guard Base in Anchorage, Alaska. (AF photo by Staff Sgt. Rhiannon Willard)



An information support system developed and tested by Standard Systems Group experts at Maxwell Air Force Base, Ala., is helping make sure aircrew members' and parachutists' training is current, allowing them to fly, jump and fight whenever and wherever required.

The Aviation Resource Management System provides critical information that tracks an aircrew member's aviation service and training, jumps a parachutist performs, and when and where sonic booms occur, said Master Sgt. Clay Long, ARMS functional analyst at Maxwell AFB. The system also tracks aircrew information for individuals that operate Unmanned Aerospace Vehicles such as Global Hawk and Predator.

of ARMS way



A pilot with the 917th Wing's 47th Fighter Squadron adjusts his night vision goggles. The new AFMC Aviation Resource Management System tracks an aircrew member's aviation service and training. It gives commanders, as well as pilots, easy access to records including whether they have completed night vision training. (AF photo by Jessica D'Aurizio)

The system uses pull down menus that provide quick, easy access to information and system options. Sergeant Long said users can customize or use pre-generated reports to identify and flag when required training is approaching to help aircrews and parachutists stay current.

"ARMS tracks aircrew flying hours, survival and life support training, incentive and hazardous duty pay, and other data commanders need to determine the readiness and status of the aircrews and parachutists," said Chris Tackett, a second ARMS functional analyst.

The system also generates aeronautical orders and logs the issuance of those orders.

According to Mr. Tackett, ARMS paints a comprehensive picture of aircrew and parachutist experience to help managers and schedulers determine the best qualified crews to perform missions, such as air-to-air or airlift or airdrop missions.

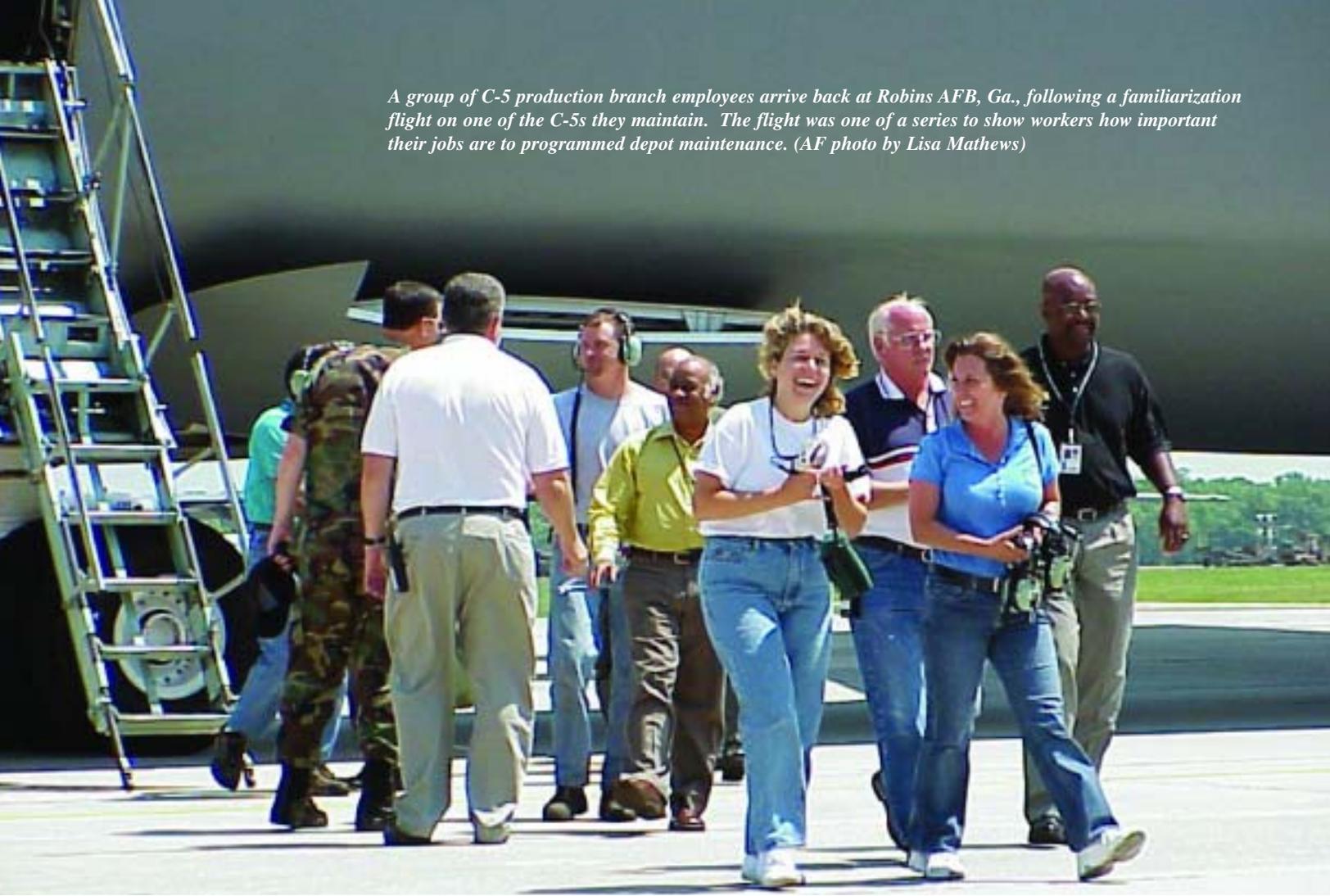
The system also provides commanders of special tactics squadrons with experience data for operations requiring jump team deployments.

ARMS interfaces with the Military Personnel Data System for sharing flying hour and career aviation data instrumental in assignments and promotions, he said. Commanders and personnel specialists use ARMS interface data to place the right mix of people in assignments.

To best serve customer demand, ARMS uses the Air Force Portal's secure browser to allow members access to their individual flight and training information from a personal computer.

Mr. Tackett said future enhancements will grant commanders and supervisors access to individual aircrew information such as flying hours and qualifications. This real-time information will be available at the click of a mouse, via the Air Force Portal, 24 hours a day.

A group of C-5 production branch employees arrive back at Robins AFB, Ga., following a familiarization flight on one of the C-5s they maintain. The flight was one of a series to show workers how important their jobs are to programmed depot maintenance. (AF photo by Lisa Mathews)



C-5 workers take to the skies

Lisa Mathews
WR-ALC Public Affairs

A group of C-5 production branch workers at Warner Robins Air Logistics Center, Robins Air Force Base, Ga., recently took to the skies to become more familiar with the huge aircraft they work on every day.

The flight was the first of a series of familiarization flights the maintenance directorate has scheduled to show workers how important their jobs are to programmed depot maintenance.

"The organization feels that familiarization flights will motivate and increase each individual's understanding of the Air Force mission," said David Mann, C-5 production section chief.

"Familiarization flights will continue on a regular basis in the future in hopes that all C-5 team members get an opportunity to participate."

The first group to fly was comprised of winners from the branch's monthly award

program. A random drawing process will be used to choose future passengers.

After the aircraft received its airworthy certificate, the 339th Flight Test Squadron agreed to take the C-5 workers on the first-ever familiarization flight for the C-5 PDM program.

Master Sgt. Louis Rigney, a flight engineer with the 339th FTS, was the host and tour guide for the group.

"Everybody has a small piece of the puzzle," he said. "With the flight they can see how it fits together."

Passengers on the inaugural flight in this new program were excited about their chance to fly in the huge aircraft.

Sheriann Tilly, a management assistant, was all smiles when she departed the plane.

"C-5 makes it happen. We don't get to see this side of it," she said, referring to the performance of the plane in flight.

"It was a good deal to get to see what the final product can do; we got to see how it all fits together," said Michael Cranford, a hydraulic mechanic.

Reginald Baldwin, who works flight control systems, agreed with his co-workers.

"It was great," Mr. Baldwin said. "It was good to see our hard work pay off in the air."

Col. George Ireland, chief of the branch, and Steve Tomblin, deputy chief, were on hand to greet the smiling passengers of the flight on their return to Robins AFB.

"The men and women who work on the C-5 have done an outstanding job of producing quality aircraft on or ahead of schedule so that our warfighters can do their mission," Mr. Tomblin said.

"This is one way of saying 'thank you for a great job maintaining our C-5s.'"

Worth its weight in chrome

Jeanne Grimes
OC-ALC Public Affairs

A powdered blend of tungsten carbide and cobalt proposed to replace cancer-causing chrome for coating military jet engine parts and new thermal spray technology to apply it is getting a hard look at Tinker Air Force Base, Okla.

Since chrome is an Environmental Protection Agency-banned substance, Air Force, Army and Navy experts came up with the Propulsion Environmental Working Group to find an environmentally-friendly alternative that would at least match chrome in durability. Johnny Tsiao, Oklahoma City Air Logistics Center Propulsion Directorate aerospace engineer, is Tinker AFB's representative.

"Chrome repair has been around for 60 years," he said. "It works great. It's cheap."

But it's also a proven carcinogen.

It turns out, Mr. Tsiao said, that tungsten carbide and cobalt applied with high velocity oxygen fuel actually fares far better than chrome.

"HVOF is a superior coating," he explained, emphasizing that endurance tests conducted to-date show the coating lasts as long as chrome.

"We are confident it will last twice as long," Mr. Tsiao added. "We would like to test it to see if it can be three times as long."

Working with Pratt & Whitney, working group members selected a TF33 engine as a test subject. Engineers identified seven engine parts for testing application and endurance. Group members also acquired congressional funding, earmarked for technology transition, to design and equip specialized booths to apply the coating here.

"They cost about \$1 million per booth and we got two of them," Mr. Tsiao said. "This is brand new and they're the industry leaders in HVOF."

Jeff Marnix, plasma shop team leader, said a third booth is under construction. Unlike other plasma spray booths, these have 12-foot ceilings because a shaft selected as one of the seven engine test

James Genzler adjusts a high velocity oxygen fuel thermal spray gun used to coat aircraft engine parts in the plasma spray shop at Tinker AFB, Okla. (AF photo by Eddie Edge)

parts measures 5 feet long and engineers wanted to spray it upright.

Otto Perez, a technical engineer, has been helping with some of the processes since December.

"The spray is very dense, very high tensile strength," he said.

A seven-axis robot applies the spray at Mach 2.5. Because the high velocity generates so much heat, an infrared pyrometer monitors the temperature, he said.

The process specifications call for keeping the part's temperature below 400 degrees Fahrenheit, Mr. Marnix continued. Cooling jets blow air on the part. Other equipment in the booth includes a powder feeder and dust collector.

The high velocity also generates noise levels to rival a jet engine, so the booths are soundproofed.

"The gun produces 130 decibels. It's not an environment where you'd want to have an operator, even with ear protection," Mr. Marnix said.

Five to 10 pounds of powder is needed to coat one part. The mixture is 17 percent cobalt to 83 percent tungsten carbide.

With hefty upfront costs for the booths, HVOF's cost-savings aren't immediately apparent, Mr. Tsiao said. But over time, he believes the Air Force will recoup the investment in two ways.

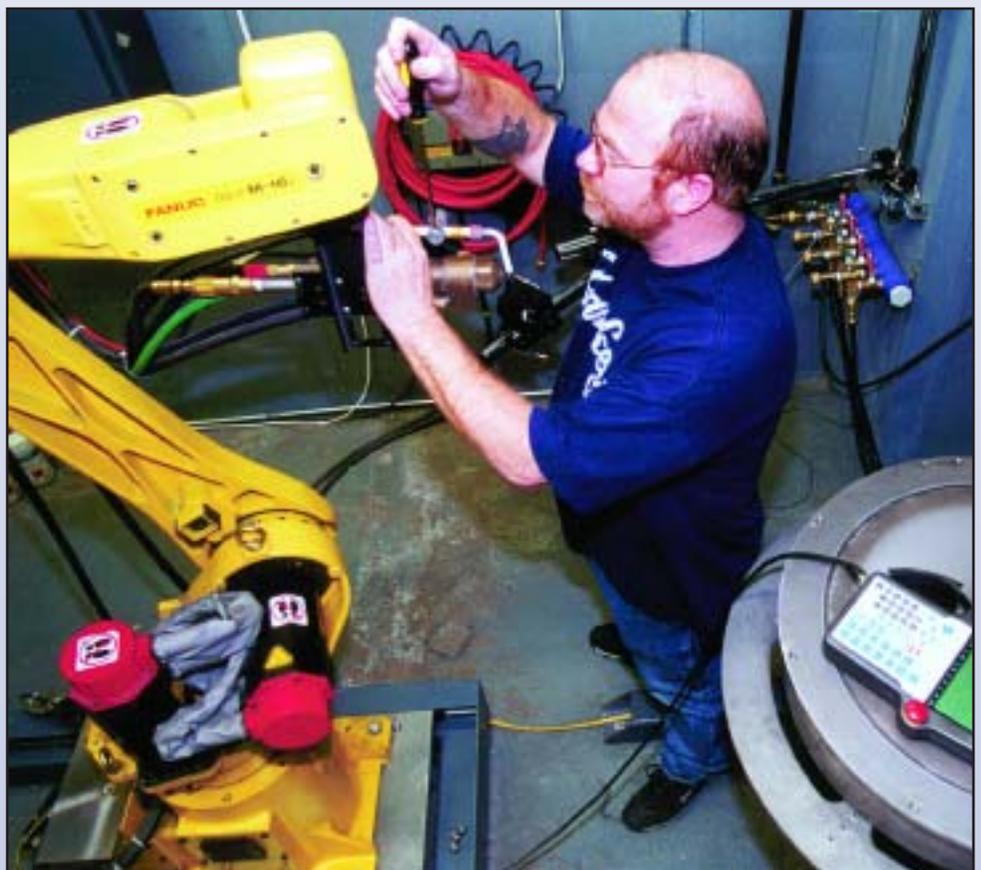
First, there are increasing restrictions on using chrome. And with a more durable coating, engine parts won't have to be recoated as often.

Mr. Tsiao believes the Air Force's payback won't come in dollars, but in mission capability.

"The engine division folks will tell you chrome restrictions are so tight it's economically unfeasible to continue using it and meet EPA requirements," Mr. Tsiao said.

Still, the chemical isn't likely to disappear from Tinker AFB anytime soon. The one downside to HVOF is that it is "a line-of-sight" application only. What that means is some engine parts that are out of HVOF's reach will continue to require chrome — at least until the group can tackle that problem with new technologies.

"It's the logical next step."



AFMC Warfighter



SOUTHWEST ASIA — Senior Airman Willie Myers, 379th Expeditionary Operation Group, receives an ear examination from Lt. Col. Blake Lollis, squadron medical element leader, at flight medicine in Ops Town. Airman Myers is deployed from Robins AFB, Ga. Colonel Lollis is deployed from Fairchild AFB, Wash. (AF photo by Airman Alexis Lloyd)

Maintaining the maintainers

Airman Alexis Lloyd
379th AEW Public Affairs

Keeping aircrew healthy and providing care for ill or injured pilots, maintainers, aircrew, air traffic controllers and anyone on the personnel reliability program is the primary mission of the 379th Expeditionary Medical Group flight medicine element.

Flight medicine is part of “Team Aerospace,” which also includes bioenvironmental engineering and public health. The team makes sure people who fly are safe going back in the air after being sick, said Capt. Brit Lovvorn, flight medicine chief who is deployed from Robins Air Force Base, Ga.

Office experts, located in Ops Town, prescribe and give medication without a trip to the medical group in Coalition City. Flight medicine experts can also give shots to keep people up to date in their records.

The flight medicine office is comprised of seven flight surgeons and 10 medical technicians. When flying squadrons deploy here, they bring their own flight sur-

geons and medical technicians.

On average, the flight surgeons see about 35 patients a day.

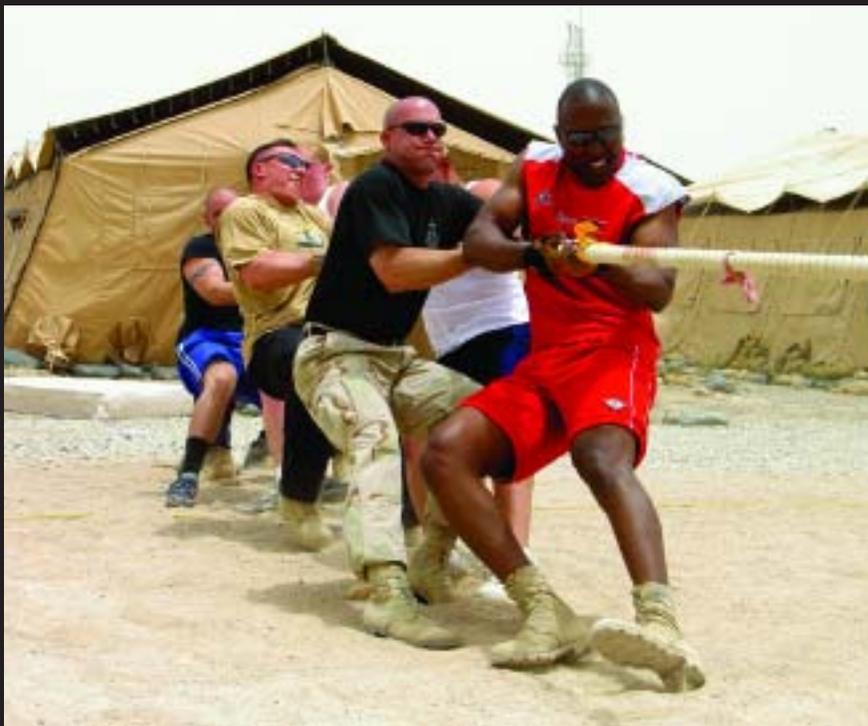
Flight medicine is also the first responder from the medical group for in-flight and flight line ground emergencies.

“We’re doing the job we’ve been trained to do,” said Lt. Col. Dana Windhorst, previous flight medicine chief who is deployed from Laughlin AFB, Texas. “Our focus is on keeping the number of landings the same as take-offs.”

“We are one of the many components of a successful Air Force mission,” Dr. Lovvorn said.

“We keep these people ready to fight for our missions,” said Tech. Sgt. Danny Bernal, flight medicine NCOIC who is deployed from Dyess AFB, Texas.

“I love my job and love deploying. This is what we came in for.”



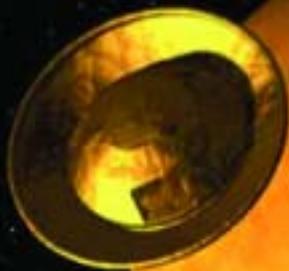
TALLIL AIR BASE, Iraq — (From right) Senior Master Sgt. Daniel M. Dixon and Senior Airman Jonathan D. Samf pulls from the front for their team from the 407th Expeditionary Security Forces Squadron during the unit sports days tug of war competition at Tallil AB, Iraq. The security forces team finished second in the overall competition. Senior Master Sergeant Dixon is deployed from Ramstein AB, Germany, to support Operation Iraqi Freedom. Airman Samf is deployed from Hill AFB, Utah. (AF photo by Tech. Sgt. David Miles)



TALLIL AIR BASE, Iraq — Jeff Malhereck (left) and Derek Sibert face off in the men's arm wrestling finals during Unit Sports Day. Malhereck, a master sergeant deployed here with the 407th Expeditionary Civil Engineer Squadron, won the match. Sibert, a senior airman deployed with the 407th Expeditionary Security Forces Squadron, is deployed from Hill AFB, Utah. Sergeant Malherecki is deployed from Misawa Air Base, Japan. (AF photo by Staff Sgt. Joanne Mitchell)

Cassini Update

This artist's rendition depicts the Huygens Probe, after deploying from the Cassini Orbiter, en route into the murky atmosphere of Saturn's largest moon, Titan. (Courtesy graphic by European Space Agency)



Kirtland AFB, N.M.—
The Cassini-Huygens spacecraft is running right on schedule thanks to a sophisticated radiation-resistant computer developed by the Air Force Research Laboratory's Space Vehicles directorate, Kirtland AFB, N.M. Mission control specialists at the European Space Agency said the spacecraft, which was launched in 1997 and entered Saturn's orbit July 1, is in "perfect health" despite crossing through the planet's rings twice — a delicate and risky maneuver.
— AFRL Public Affairs

Patented depaint process in demand

ROBINS AIR FORCE BASE, Ga. — Warner Robins Air Logistics Center experts received a patent on a barrier coating and selective coating removal process used to fight corrosion on aircraft and weapons systems, a feat experts said is rare for maintenance facilities.

Officials at Robins said the patented process is good for the environment, good for the center and good for the Air Force because it seals chromated primer. Chromates are considered carcinogens and removing primer creates large volumes of hazardous waste, which causes concern for the safety of those working the paint and depaint process.

The new system removes only the topcoat, and the barrier layer doesn't contain hazardous material like that found in the chromated primer. An added bonus of the process is that stripping the paint only to the barrier coating reduces damage to the aircraft and prolongs the integrity of the frame. Repeatedly removing paint down to the metal of an aircraft eventually reduces the material strength.

There is already a great deal of non-military interest in the process including requests for information from private industry aircraft companies and from companies interested in removing graffiti from buildings.

— WR-ALC Public Affairs

Wind tunnel upgrades



ARNOLD AIR FORCE BASE, Tenn. — Arnold Engineering Development Center's 4-foot transonic wind tunnel tests flight systems like the Unmanned Combat Air Vehicle. In this photo a 1/10-scale model of the UCAV is being prepared for a test in 2000. Recent upgrades to 4T included replacing data acquisition systems and the test article control system in the wind tunnel as well as upgrading the 4T control room. (AF photo)

first flight

Making history in the skies over Edwards

Capt. Catie Hague
95th ABW Public Affairs

The land — all 301,000 acres of it — diminished to the size of a silver dollar, as clouds over the Los Angeles basin transformed to a sea of snow.

That was the view described by the first privately-funded civilian astronaut when he crossed the edge of space at 62 miles above Mojave, Calif., June 21, broadening the world's "view" on the future of commercial space travel.

Mike Melvill, civilian test pilot and now astronaut, took off from Mojave Airport at 6:45 a.m. carried underneath the White Knight mothership. This carrier aircraft climbed for about an hour to 50,000 feet, at which point it released SpaceShipOne into a glide. Mr. Melvill then ignited the space ship's hybrid rocket motor at 47,000 feet and proceeded to climb out of the Earth's atmosphere — a climb that took approximately 80 seconds, at Mach 3 (more than 1,980 mph).

SpaceShipOne returned to the Mojave runway around 8:15 a.m. after gliding back to earth for close to 20 minutes. The White Knight followed, landing a few minutes later.

"(The) first flight of SpaceShipOne was tremendously inspiring and most exciting," said Maj. Gen. Doug Pearson, Air Force Flight Test Center commander. "It reminds us that anything is possible when a determined group of people have clear objectives and a supportive environment. I hope this adventure is the

beginning of a new era of flight that includes routine suborbital operations. America should be proud of this accomplishment, and I am hopeful this flight and the many others to follow will stimulate and inspire a new generation of explorers and entrepreneurs."

Many employees from Edwards AFB turned out for the event "to witness history in the making," said Dennis O'Keefe, information technology directorate technical director.

"This is an inspiration to us all — kids, adults, the military, the Air Force," added Kevin Montoya, Airborne Laser project manager. "It will hopefully re-energize space exploration."

SpaceShipOne was designed by Burt Rutan, chief of Scaled Composites; a California-based aerospace company, and financially backed by Paul Allen, Microsoft co-founder and sole sponsor of the SpaceShipOne program.

There have been 57 flights in support of Melvill's demonstration, with "a series of 14 piloted captive-carry, free-flight and four engine-powered missions," according to Scaled Composites officials. Now, SpaceShipOne is gearing up to compete for the \$10-million Ansari X Prize, an international competition to create a reusable aircraft that can launch three passengers into sub-orbital space, return them safely home, then repeat the launch within two weeks with the same vehicle.

Although the flight carried only Mr. Melvill, SpaceShipOne has three seats — one for the pilot and two for passengers. The projected price per passenger seat is currently about \$98,000. But Mr. Rutan said, "Without the entrepreneur approach, space access would continue to be out of reach for ordinary civilians."

General Pearson congratulated the SpaceShipOne team, stating, "I commend Burt Rutan and the Scaled Composites team, Kern County and the Mojave Spaceport, Paul Allen and all others for supporting this great endeavor ... building a transportation system capable of safely flying out of the atmosphere and returning to its point of origin."

Thousands of spectators, including Edwards AFB members, were on hand to witness the take-off of the first privately-funded civilian astronaut to cross the edge of space inside SpaceShipOne at 62 miles above Mojave, Calif. It took SpaceShipOne approximately 80 seconds at Mach 3 to climb out of the Earth's atmosphere once reaching 47,000 feet in altitude. (AF photo by Capt. Catie Hague)



Razor Blade



Exit Viewer

Weapon Detection

AFMC technology makes the nation's schools safer

Francis L. Crumb
AFRL Public Affairs

Students trying to get into New York City schools with concealed weapons should be sweating bullets as they walk under a new detector designed by Air Force Materiel Command scientists. The SecureScan 2000 magnetometer, which can pinpoint concealed ferrous material and display its location on a computer screen, is being field tested in New York City high schools.

Small razor blade devices, wielded as part of gang-related activities, surfaced as a major security problem in schools several years ago. New York City Police Department School Safety Division experts could fine-tune existing metal detectors to identify the threats; but increased sensitivity would trigger alarms from every minuscule metallic object the thousands of students scanned each morning wore.



The answer to effectively and efficiently screening students came from 250 miles north of the city and a cooperative initiative of the Air Force Research Laboratory Information Directorate and the National Institute of Justice's National Law Enforcement and Corrections Technology Center Northeast.

Scientists demonstrated the new detection technology at Taft High School in the Bronx with the help of the Idaho National Engineering and Environmental Laboratory's View Systems Concealed Weapons Detection Portal.

A student at Taft High School in New York City is detected attempting to bring a razor blade into the school. The SecureScan 2000 magnometer detected the razor blade concealed near the student's left knee. (Courtesy graphic)

In February 2001, a passive magnometer was installed at Washington Irving High School on Manhattan's Lower East Side.

The test involved installing and using the concealed weapons detection equipment when in-processing each day's nearly 3,000 students. Personnel from the New York City Police Department helped with the first test.

"We deployed a second-generation SecureScan 2000 magnometer and the testing went exceptionally well," said Christopher McAleavey, a project manager for National Law Enforcement and Corrections Technology Center Northeast. The organization is co-located with the Air Force laboratory at the Griffiss Business & Technology Park.

"New York City was selected to test this technology because of a serious problem with razor blades involved with gang initiation slashings," said Mr. McAleavey.

"Conventional metal detectors have been used in the city's schools for about 10 years and can detect razorblades, but they have to be calibrated with such sensitivity that belt buckles and body jewelry set off alarms."

With traditional detectors set at high sensitivity, nuisance objects such as zip-pers, coins and body jewelry were setting off alarms on nearly half of the 3,000 Taft students during the 90-minute arrival period each day. Security officials had to make split-second decisions on whether to hand-search each specific student.

"A magnometer is not a metal detector," said Mr. McAleavey. "It identifies all ferrous metal objects — but only ferrous metal objects. About 40 percent of the students were setting off alarms when we got to the Taft high school in April. Hand-searching 1,200 students was a very labor-intensive effort for the four male and four female security officers involved. We got the false alarm rate down to 10 percent. They can handle 300 students in 90 minutes and do a very thorough job."

Working with the NYPD School Safety Division, the technology was tested in the late winter of 2001 at Washington Irving High School to determine if daily monitoring could be accelerated. With students

passing through the SecureScan 2000, only ferrous objects triggered alarms.

A second unique advantage of the system was its ability to pinpoint the location of the alarmed object, helping security personnel to quickly identify the suspect item.

The system had two components. Students walked through a portal similar to a traditional metal detector; however, cables carried sensor data to a nearby computer that displayed a photo image on a monitor and pinpointed suspect objects. Observations and comments from school and police personnel were integrated into system requirements for the second-generation version of the SecureScan 2000 used in this year's demonstration.

"Authorities in the original testing identified and seized razor blades, as well as other articles not allowed in the classrooms — such as cell phones and pagers," said Mr. McAleavey. "But, one of the most interesting aspects of the testing was the reaction of students. They loved it. They saw this as the next level of technology that provides for a safer school environment. It was a very positive reaction."

The passive magnometer is one of several technologies identified for potential law enforcement and corrections applications under the Air Force's Concealed Weapons Detection program, managed by Bernie Clarke of the directorate's information and intelligence exploitation division.

"This is a true transition of military technology to the benefit of law enforcement and school safety," said Mr. Clarke. "School security personnel identified both good and bad features of the system during the original testing and those observations were incorporated into the second-generation device."

National Law Enforcement and Corrections Technology Center Northeast is a program of the National Institute of Justice for assisting the criminal justice practitioners in developing, implementing and evaluating modern technology. The organization's goal is to leverage AFRL technology to benefit the criminal justice practitioner.

National Institute of Justice is the research and development agency of the U.S. Department of Justice. National Institute of Justice provides objective, independent, non-partisan, evidence-based knowledge and tools to meet the challenges of crime and justice, particularly at the state and local levels.

Joint labor management training



Rocky Tasse, AFGE Local 1942 president (left), Brig. Gen. David M. Edgington, Air Armament Center vice commander and Dan Landrum, AFGE Local 1897 president, review a recent labor agreement. (Courtesy photo)

Sarah Anne Carter
AAC Public Affairs

A few years ago, the meeting that took place at Eglin Air Force Base, Fla., the morning of June 23 would not have been possible.

A renewed commitment between the local labor unions and the base's work force effectiveness branch brought representatives from all three groups to one table for joint labor management training.

"We are experiencing a historic moment. This has been a dream for many years," said Douglas Johnson, chief of Eglin's work force effectiveness branch. "This is a new century and a different era in labor relations. We're commencing an era of sharing."

Newly appointed union stewards from both the American Federation of Government Employees local 1897 and 1942 and civilian personnel staff who work employee and labor relations matters attended the session which provided training on the Alternate Work Schedule, dues withholding, request for information, and grievance procedures.

"General Chedister and I both believe in training our people to do their job," said Brig. Gen. David M. Edgington, Air Armament Center vice commander.

"We are on the same team — not should be — are. We're all working the same goal." Maj. Gen. Robert W. Chedister is the Weapons Program Executive Officer and Air Armament Center commander.

Both presidents of the local AFGE unions said it has taken a lot of years and work to get the union and management relationship to the point where this joint training could take place.

"Together, in the past year and a half, we've torn down barriers," said Dan Landrum, president of AFGE local 1897. "We've unclenched our fists and extended an open hand to one another. Today marks the beginning of a new relationship where we share knowledge, skills and training with one another."

The training was held in an informal setting so the different parties could converse more easily and discuss topics as they came up.

"We're not always going to agree," said Rocky Tasse, president of AFGE local 1942.

"But, if we sit at the same table, resolution will work itself out. We have a common goal. We are all part of the same team, so we must strive to share resources for continued training and both the Air Force and the workforce will benefit."

More joint training sessions are planned for the future to continue the spirit of working on the same team.

"This training effort could not have taken place without the full support of both labor and management, and their willingness to move towards change," said Lula Coleman, Eglin AFB work force effectiveness branch labor relations officer.

"This forum provided an excellent opportunity for both labor and management to communicate openly about their processes and procedures and frankly discuss areas where mutual benefits could be achieved."

Hitting the million-mile mark

Jackie Robertson
95th ABW Public Affairs

A “one-in-a-million” opportunity has taken the Edwards Air Force Base, Calif., Air Force Flight Test Center's, chief historian more than a million miles away from home.

To take part in his “opportunity,” Dr. Jim Young first made the 180-mile journey from his Burbank, Calif., home to Edwards AFB in 1981. And he's been driving the same stretch of highway ever since, racking up more than 1 million highway miles in the past two decades.

“I tell people, jokingly, that I chose civilization over convenience,” Dr. Young said of his decision to rack up 250,000 miles on each of five cars, “but initially I didn't know if I would stay here.

“We were also happy with our neighborhood and our kids' schools and peer group. So, my wife and I made the decision not to move closer until the kids were out of school, but by that time we were rooted,” he said. “So, I'm still driving three to three-and-a-half hours every day.”

But despite leaving at roughly 5 a.m. and not getting home until nearly 8 p.m. every day, Dr. Young said braving the traffic is still worth it because Edwards AFB is “the place to be.

“It's a unique opportunity for someone in my profession to get to land here,” he said. “Over the past 60 years the major milestones in flight have happened on this base.

“I didn't realize how lucky I was to work with the exceptional people who have made, and continue to make, it happen and to witness history being made. And the subject matter continues to be fascinating and extraordinary because year after year Edwards continues to gather the best and the brightest.”

During his tenure here, Dr. Young has worked vigorously to preserve and promote the aviation legacies Edwards AFB builds. In addition to responding to nearly 2,000 inquiries a year, he has completed the official AFFTC annual histories, produced 23 full-length documentaries and

has co-produced more than 250 shorter video briefings.

Dr. Young has also authored numerous articles and book reviews, and has served as a technical advisor for several documentarians and as an American Institute of Aeronautics and Astronautics' lecturer.

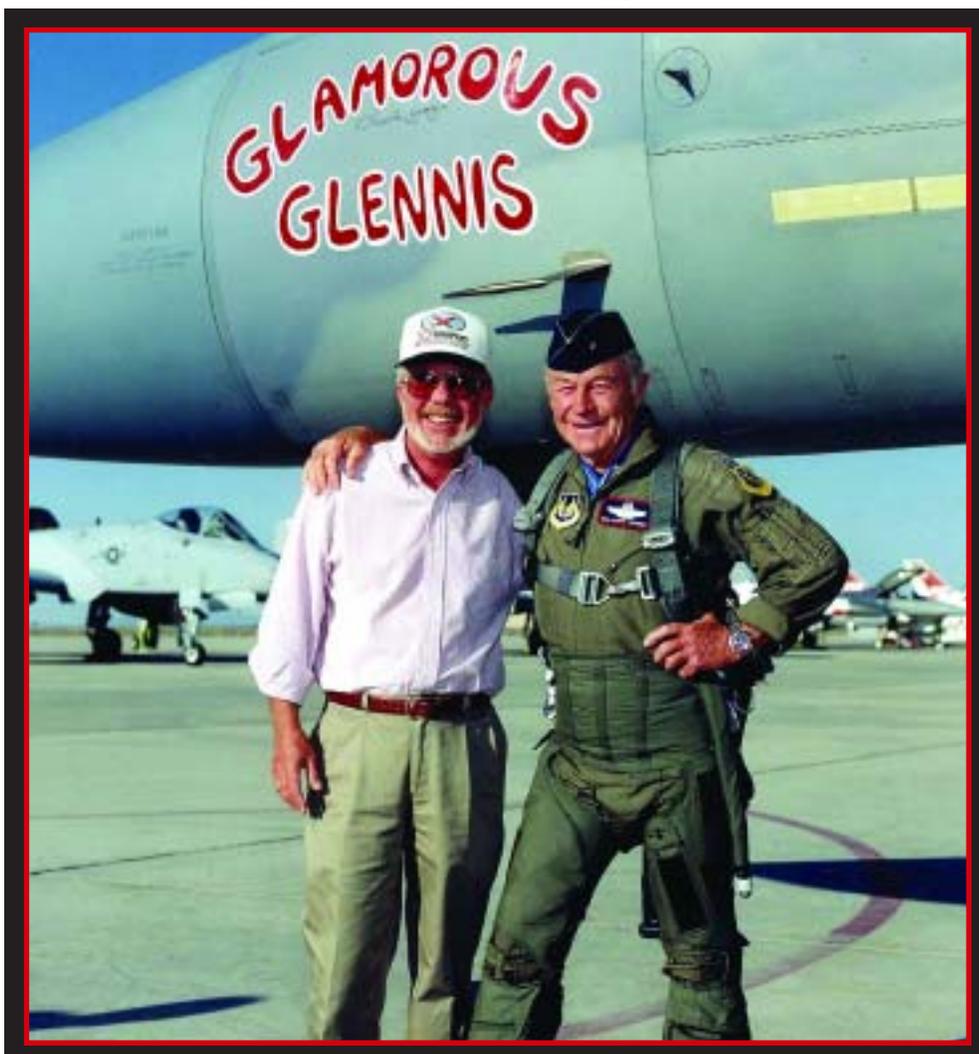
Additionally, under Dr. Young's direction, the AFFTC History Office has been recognized for its excellence with several awards, including being named Best in the Air Force, the “Program of Excellence” within the Air Force Materiel Command and garnering U.S. Air Force Heritage Awards two years straight.

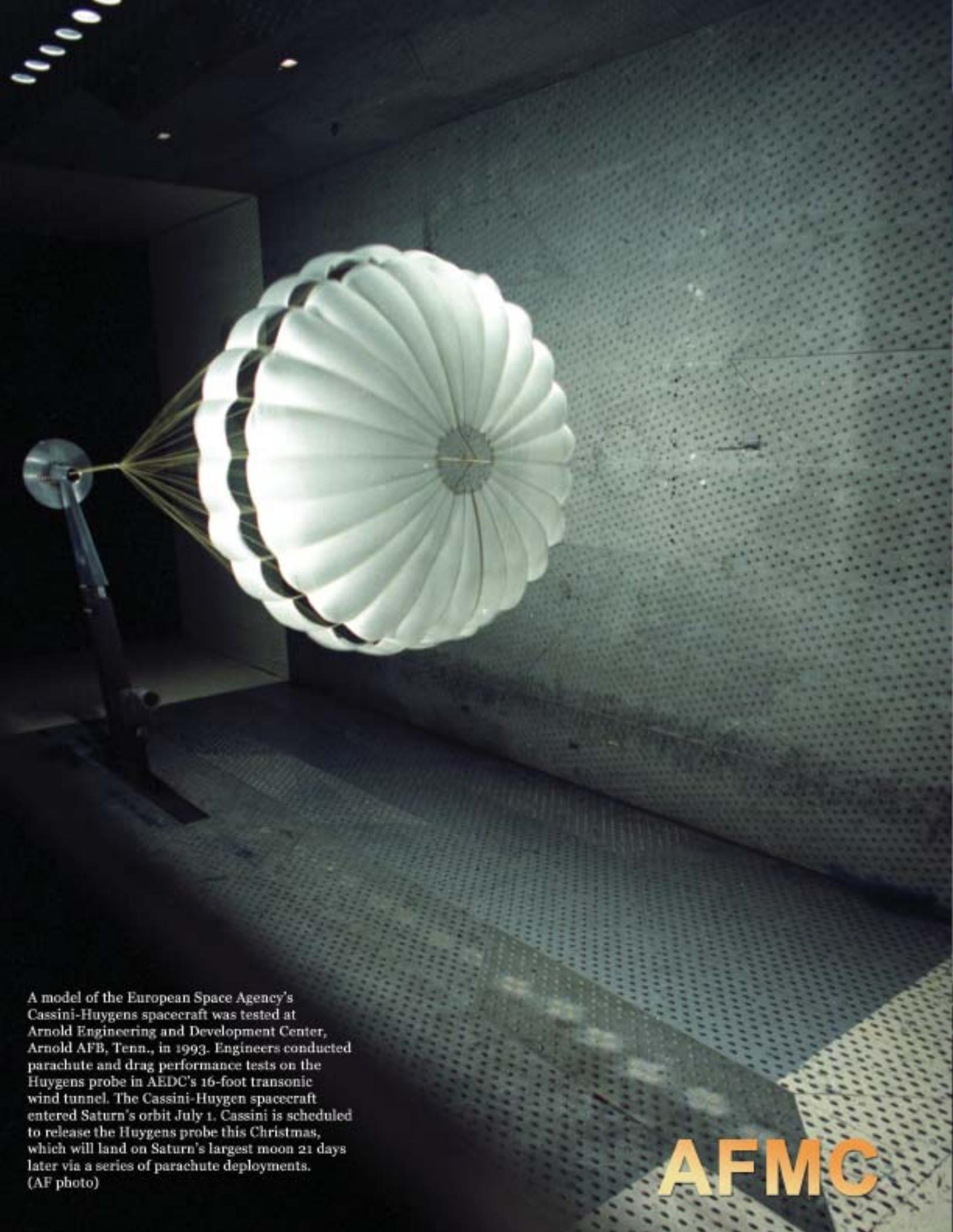
Dr. Young said his work during the past two decades not only piques his curiosity

and creativity, but has also found a diverse and extensive following.

“At Edwards you've got interesting subject matter, and, by golly, you've got an audience, and that's extremely important for a writer and a historian,” he said. “People are still just fascinated by this place — both the myth and the reality. That's why I continue to come out here to do my job.”

Base historian Dr. James Young stands with retired Brig. Gen. Chuck Yeager in front the F-15 named Glamorous Glennis in honor of General Yeager's historic flight in a Bell X-1. Dr. Young commutes almost three hours each day to work at Edwards AFB, Calif. (Courtesy photo)





A model of the European Space Agency's Cassini-Huygens spacecraft was tested at Arnold Engineering and Development Center, Arnold AFB, Tenn., in 1993. Engineers conducted parachute and drag performance tests on the Huygens probe in AEDC's 16-foot transonic wind tunnel. The Cassini-Huygen spacecraft entered Saturn's orbit July 1. Cassini is scheduled to release the Huygens probe this Christmas, which will land on Saturn's largest moon 21 days later via a series of parachute deployments. (AF photo)

AFMC