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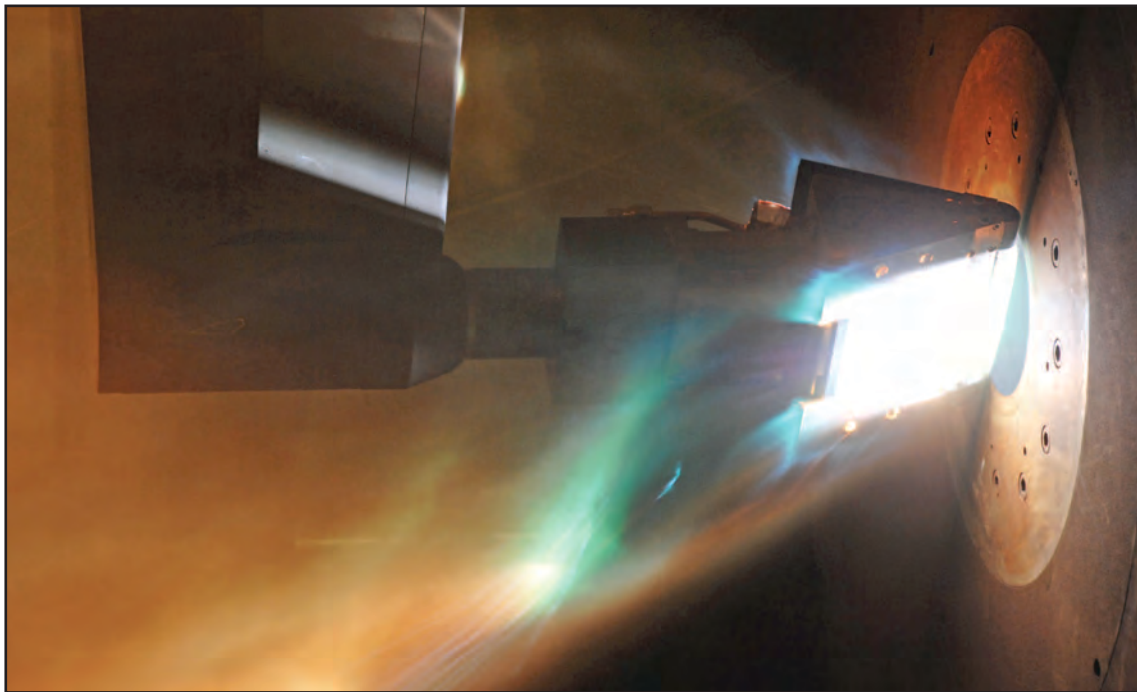
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November 21, 2022

AEDC conducts tests for Orion ahead of Artemis launch



An Orion Crew Exploration Vehicle heat shield material sample undergoes preproduction aerothermal testing in the Arnold Engineering Development Complex H2 arc jet test facility at Arnold Air Force Base. (U.S. Air Force photo)

By Deidre Moon

AEDC Public Affairs

After several years in the making, NASA launched Artemis 1, an unmanned maiden flight of the integrated Space Launch System rocket and Orion spacecraft from the Kennedy Space Center in Cape Canaveral, Florida, as part of its Artemis space program.

Since the early flight missions to the moon, teams of Arnold Engineering Development Complex engineers and researchers have assisted in ground testing capabilities and equipment, such as aerodynamic tests on a scale model of a proposed Saturn launch configuration and engine tests for the Apollo program launch system.

Though not as extensive as the testing for the Apollo moon missions, AEDC engineers played a part in the Artemis launch by ensuring the Orion Multi-Purpose Crew Vehicle, or MPCV, can withstand reentry conditions.

According to Frank Wonder, section chief of the high-enthalpy, arc-heated facilities at Arnold Air Force Base, headquarters of AEDC, the Space Test Branch tested the MPCV thermal protection system in the H2 arc jet test cell in 2016.

Wonder mentioned that assisting in space program advancements is among many highlights of his job in the AEDC Space Test Branch.

See ARTEMIS, page 4

Technicians replacing computers base wide

By Deidre Moon

AEDC Public Affairs

All HP 705 G3 desktop and HP 640 G3 laptop computers at Arnold Air Force Base are being upgraded with newer models that have more memory, speed and solid-state drives.

According to Randy Wroten, a contracting officer at Arnold, as computer quantities allow, the next level of computers will be upgraded as well.

"This will position Arnold Engineering Development Complex in an extremely good spot, in terms of our IT [information technology]," he said.

The total number of computers replaced with newer models during this surge will be around 2,000.

This effort, led by a group of 11 computer network technicians, or CNTs, began the last week of July and is currently several weeks ahead of schedule.



Jonathan Poe, a computer network technician IV, works in the computer staging area to prepare computers for deployment to users Oct. 5 at Arnold Air Force Base. (U.S. Air Force photo by Jill Pickett)

See TECHNICIANS, page 3

Wingo Inn converting to recreational lodging, to be overseen by Outdoor Recreation staff

By Deidre Moon

AEDC Public Affairs

The Wingo Inn, located at Arnold Air Force Base, will be transitioned to recreational lodging.

One of nine lodging facilities selected for divestiture by the Department of the Air Force, a decision was made by Arnold Engineering Development Complex senior leaders in August to transfer a portion of the building over to Outdoor Recreation at Arnold.

Of the 29 rooms, ODR staff will now manage and maintain 20 of those – 12 exterior entrance rooms, two Americans with Disabilities Act-compliant rooms and six suites.

Lodging employees have been retained based on positions available and positions required to continue operations. Room rates, which were previously set by the Air Force Services Center, may be set locally and may include seasonal rates.

Other useful remaining property will be used by ODR, with the remaining property expected to be sold.



The Wingo Inn, pictured, is located at Arnold Air Force Base. One of nine lodging facilities selected for divestiture by the Department of the Air Force, a decision was made by Arnold Engineering Development Complex senior leaders in August to transfer a portion of the building over to Outdoor Recreation at Arnold. (U.S. Air Force photo)

In This Issue....

Deadline now extended for AEDC Spark Tank 2023 submissions

2022 AEDC Gift Sponsor drive now underway

...Page 2

...Page 2



Navy amphibious craft undergoes climate testing

An amphibious Navy Landing Craft Air Cushion is showered with freezing rain in -10-degree temperatures in the McKinley Climatic Lab Oct. 6 at Eglin Air Force Base, Florida. The LCAC, from Naval Surface Warfare Center Panama City, underwent climate testing in the Lab's large chamber. (U.S. Air Force photo by Samuel King Jr.)

DOD offering additional assistance in finding employment for military spouses

By AEDC Public Affairs

The well-being and readiness of service members is a top priority for the Defense Department, and in September, Secretary of Defense Lloyd J. Austin III announced an action plan offering them and their families additional support. One of these includes providing assistance in finding employment for military spouses. According to the Secretary of Defense's memo, the DOD is committed to enhancing military spouse employment and facilitating the portability of occupational licenses for military spouses as they make permanent change of station from state to state. The department has assisted professions in drafting "interstate compacts" for those licensed occupations in which the majority of military spouses work. Compacts generally allow military spouses to PCS from state to state without having to relicense in their chosen professions or submit paperwork, pay fees for applications or test. The compacts, which include teaching, social work, dentistry/dental hy-

giene, massage therapy, and cosmetology or barbering, are nearing completion for states to consider in 2023. Groups representing the professions are also drafting compacts for dietetic nutrition and school psychology to be ready for the 2024 state legislative sessions. Nine licensure compacts currently exist, and the DOD is working with groups representing the impacted professions to obtain approval by additional states for the following: nurses, physicians, physical therapists, occupational therapists, audiologists/speech-language pathologists, emergency medical technicians, psychologists and licensed professional counselors. There are also plans to further use direct-hire authorities where applicable and expand telework and remote work opportunities for spouses. Noncompetitive hiring and direct-hire authorities allow DOD components to target their recruiting efforts toward eligible military spouses for DOD employment opportunities. These hiring routes will also enable DOD employers to quickly hire qualified military spouses. Telework and remote work programs

provide opportunities for military spouses to retain current employment within the DOD and continue to advance their careers in a manner consistent with the future of work and mobile work forces. The Secretary's "Taking Care of Our People" initiatives encourage the expansion and use of telework and remote work policies to assist military spouses to retain productive and continuous employment as they relocate throughout their spouse's military career. This also alleviates financial stress to military families by potentially avoiding a disruption in income. The DOD, partnering with the Department of State, has already begun promoting a broader use of telework/remote work for military spouses overseas. USAJOBS.com and DODCiviliancareers.com offer spouses a filtered view of job opportunities targeting military spouses. Another option for military spouses is a paid fellowship. Participation in a fellowship program provides career ready military spouses with job relevant skill building, enhances their professional network, and introduces them to employers with future employment opportunities.

Beginning in December this year, the DOD Military Spouse Corporate Fellows Program will begin taking applications from candidates, for placement in early 2023, in paid fellowships with employers from across industry who are looking for full-time staff. Fellowships will last from 6-12 weeks, depending on the needs of the employer. While follow-on employment is not a guarantee, the goal of the pilot program is to place military spouses with employers that are seeking to fill full-time employment openings. The DOD is also looking to increase employer partners in Military Spouse Employment Partnership, or MSEP. The MSEP consists of more than 540 employer partners that have committed to recruiting, hiring, promoting and retaining military spouses. The goal is to increase the number of MSEP partners by 10% to nearly 600 employers by the end of 2022 providing even more employment opportunities for military spouses in multiple industry sectors. Currently, MSEP employer partners have hired more than 220,000 military spouses across all industry sectors.

Department of Defense improves access to child care resources

By AEDC Public Affairs

Among the child development programs recently announced by the Department of Defense as part of the "Taking Care of Service Members and Families" initiative is one that improves access to off-site military child care fee assistance and expands access for in-home child care. The DOD child care fee assistance program, "Military Child Care in Your Neighborhood," provides service members and their families assistance in finding civilian child care off mili-

tary installations and helps offset the costs when installation-based care is either unavailable or not a viable option, such as in the instances of lengthy waitlists or when service members are geographically dispersed. Fee assistance for community-based child care is available for all active-duty service members, including National Guard and reserve on active duty, as well as DOD civilian employees in participating locations. Through the initiative, the DOD has additionally launched a pilot program to offer child care fee assistance to service

members who utilize in-home child care providers such as nannies or babysitters. This in-home child care pilot is currently available in limited locations, and Arnold Air Force Base is not yet on the list. It is currently available in Hawaii; National Capital Region; Norfolk, Virginia; San Antonio, Texas; and San Diego, California. It will be expanding to Colorado Springs, Colorado; Seattle/Tacoma, Washington; Jacksonville/Mayport and Fort Walton Beach, Florida; Fayetteville, North Carolina; and Las Vegas, Nevada.

Eligible military families for the pilot include single or dual active-duty members, active-duty members with a full-time working spouse, and active-duty members with a spouse enrolled in a postsecondary institution on a full-time basis. The goal of these programs is to provide military families with access to quality, affordable child development programs in the face of an increased demand for child care. For additional information on military child care programs, including fee assistance programs, visit <https://public.militarychildcare.csd.disa.mil/mcc-central/mcchome?>

For additional information on the in-home child care pilot, visit <https://public.militarychildcare.csd.disa.mil/mcc-central/mcchome/child-care-in-your-home?>. Information is also available on Military OneSource at <https://www.militaryonesource.mil/family-relationships/parenting-andchildren/childcare/in-home-child-care-fee-assistance-program/>. Authorized users can request child care through [Military-ChildCare.com](https://militarychildcare.com).

TECHNICIANS from page 1

"We should be finished with this project by Thanksgiving," said Cletus Pew, Client Services lead with the Base Communications and Information Technology Services II contractor. "As of the first of October, we have installed about 1,000 computers since we started the end of July." Pew added that the CNTs have worked many 12-hour days while working on this project. "We have an elite team of CNTs," he said. "We wouldn't have been able to do it without our team, software support, our storekeeper who delivers the computers and the support of the Air Force. We are also working with Brandon Beckwith, the communications focal point contracting officer representative, who has been a huge help." The new computers are a step

in an Air Force-wide effort to improve devices and networks, among other digital tools needed for mission success. "We have the best pilots in the world, we have incredible air platforms. But we haven't gotten to the level of discipline in the way that we provision services to say 'the network will be up 99.9999% of the time and you know it will be there and you know that this is who you're holding accountable for that,'" Lauren Knausenberger, the Air Force's chief information officer, said in an August interview with GovExec TV at the Department of the Air Force IT and Cyberpower conference. The CIO's recently released interim information-technology strategy can be viewed online: <https://www.safcn.af.mil/Portals/64/Documents/Strategy/>



Computer network technicians pose for a photo in the computer staging area at Arnold Air Force Base Oct. 5. They have been working to do a surge of computer replacements to upgrade equipment for Arnold Engineering Development Complex team members. (U.S. Air Force photo by Jill Pickett)

[INTERIM%20CIO%20Strategy.pdf?ver=3Wr9Bcz5ELC-vBJe9ztssA%3d%3d](#) Also, in June of this year, the Air Force Materiel Command released \$8 million in support of multiple innovations across

the enterprise. The funded projects support ongoing AFMC We Need efforts with an emphasis on technology, innovation, talent management and infrastructure across the mission. Of the funding, \$4.8 million

is to fund the purchase of more than 4,100 laptops and ensure that those Airmen across the command who are currently working with the oldest systems receive computers that meet IT compliance standards.

ARTEMIS from page 1

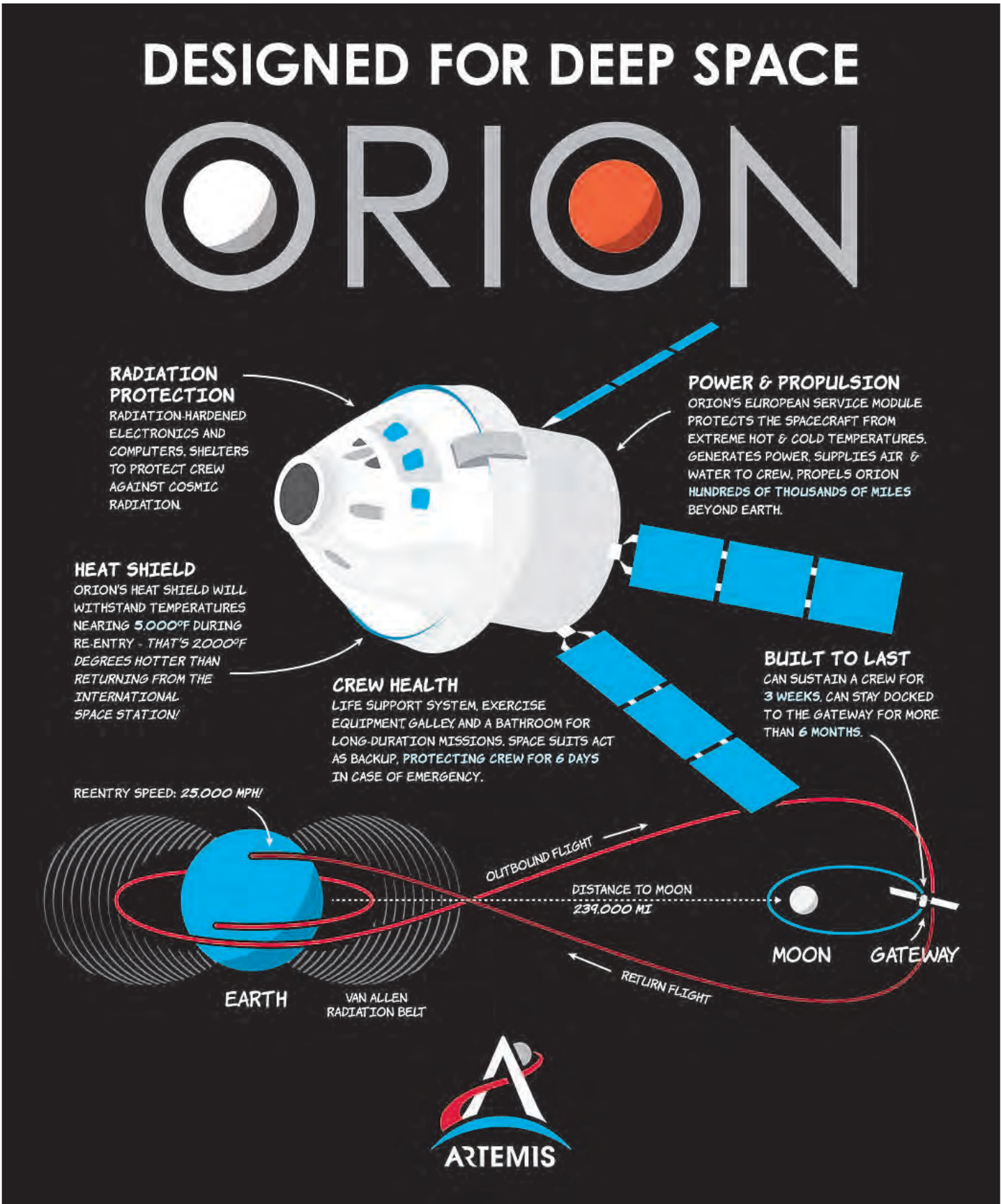
“Our test team takes great pride in the work we do supporting all of our customers,” he said. “In the moment, we are diligent to make sure that any test we’re working is done safely, efficiently and with technical rigor. However, it’s satisfying to learn after the fact how just ‘doing our jobs’ has positively influenced U.S. aeronautical history. In all cases, the data analyzed from arcs testing influences a program decision, either to continue on the present course, based on positive results, or make a needed change.”

Testing for the Orion in support of the NASA Exploration Flight Test-1 on Dec. 5, 2014, was conducted at Arnold in 2012. A 5.9-percent scale model of the Orion crew capsule mounted on the Delta IV booster was tested in the 16-foot transonic wind tunnel in preparation for the spacecraft’s initial flight. The AEDC team worked with United Launch Alliance to gather dynamic pressure and steady state pressure data from the model.

Additionally, the AEDC Hypervelocity Wind Tunnel 9 facility in White Oak, Md., was used in 2007 for a NASA-sponsored aerothermal test on a scale model of the Orion to obtain heating data over the model’s surface. That same year, NASA teamed up with AEDC for initial tests of possible materials for Orion’s heat shield at H2.

During the Orion flight in late 2014, the space vehicle orbited Earth twice and traveled a distance of 3,600 miles into space.

According to NASA’s website, the latest Orion MPCV is now equipped for missions 1,000 times farther than the International Space Station and must be able to sustain astronauts on its own for weeks at a time and be robust enough to reliably operate in the harsh space environment near the moon and beyond. The heat shield on Orion is able to withstand temperatures nearing 5,000 degrees Fahrenheit during reentry.



This NASA graphic shows the Orion capabilities for deep space enable crewed Artemis moon missions. For the first launch of Artemis, the Orion was unmanned. (Graphic courtesy of NASA)

AFMC Connect November focus: Recharge



The AFMC Connect focus for November is recharge, and individuals are encouraged to take a moment to think about their own life priorities to find that balance necessary to achieve success. (U.S. Air Force graphic)

By Air Force Materiel Command

WRIGHT-PATTERSON AIR FORCE BASE, Ohio – Everyone needs a break sometimes, and taking a step back to relax, reflect and take in life is key to being present.

The AFMC Connect focus for November is recharge, and individuals are encouraged to take a moment to think about their own life priorities to find that balance necessary to achieve success.

Challenges that arise from work or home life issues can sometimes cause a sense of burnout, fatigue and lack of motivation; understanding the warning signs of stress and how to address these before

they become overwhelming is key to resiliency and staying strong when things get hard.

Leaders can help individuals and teams better understand the importance of recharging by encouraging things such as rest, trusted communication and accessing support resources through helping agencies across the enterprise.

For additional information on this month’s topic and ways to facilitate discussion, visit <https://www.afmc.af.mil/Portals/13/AFMC%20Connect%20-%20RECHARGE%20%28Nov%202022%29.pdf>. Learn more about the AFMC Connect effort at <https://www.afmc.af.mil/Connect/>.

Around Arnold

Holiday home fire prevention

By AEDC Safety

Home fires are the most common type of emergency in the United States, and can cause deaths, injuries and property loss within minutes. Prepare now to protect yourself, your loved ones and your home.

Smoking is still the leading cause of home fire deaths. Use e-cigarettes with caution. In addition to the health concerns, serious fires and injuries can occur when e-cigarettes are being used, charged, or transported.

Here are some fire prevention tips from the National Fire Protection Association, or NFPA.

Smoke Alarms

Install smoke alarms in your home as your first line of defense, inside bedrooms and outside sleeping areas. Test smoke alarms every month. If they’re not working, change the batteries or replace the unit. NFPA recommends that smoke alarms are replaced at least every 10 years.

Cooking Fires

Cooking fires are a leading cause of home fires and home fire injuries. Keep flammable items away from the stove. For a stovetop fire smother the flames by putting a lid on it if you can do that safely. In the oven, turn off the heat and keep the oven door closed.

More than half of kitchen fires are caused by cooking with disruptions. It only takes a few seconds for

things in the kitchen to catch fire.

Never leave your cooking unattended. If you really need to leave the kitchen for some reason, the safest way is to turn off the stove and stop cooking, or you can ask another person to watch over the food until you get back.

If using a turkey fryer, do not fill the fryer all the way up with oil, make sure that the turkey is completely thawed out and use outside and away from any flammables, to include the house. Water from the turkey mixed with oil can cause the fryer to boil over.

Safety note: Underwriters Laboratories, or UL, the organization that certifies safe products, discourages the use of open-flame fryers because: Turkey fryers tip easily, spilling their contents and causing oil to ignite.

Heaters

Heating equipment is another top cause of fire in American homes. An annual professional checkup is necessary to keep it working safely and optimally. You can practice preventive maintenance like cleaning the air filters.

If you are using a space heater, position it at least 3 feet away from flammable objects. Make sure to use a UL or other safety organization approved space heater and ensure they are plugged directly into the wall.

Common hair products, cosmetics and household cleaners can be classified as flammable products that can combust when placed too close to a heat source. These include hairspray, shaving cream,

perfumes and the like. You should always check the label of items you purchase for proper storage and use.

Fireplace

Fireplaces can also be a source of a house fire if not maintained correctly. For instance, stray sparks can ignite your flooring. Always have a screen in front of the fireplace to block the sparks. When you have a fire going, stay in the room. The NFPA recommends getting your chimney cleaned and inspected once a year by a qualified professional.

Electrical

Do not overload plugs, extension cords or power strips, or ignore frayed or chewed cords. Cords get hot, so you want to avoid running them under a rug or between your wall and furniture.

Decorations/Candles

Thirty percent of home decoration fires occurred in December and January, and most were caused by candles. Trees, lights and other electrical items account for most incidents, however, heating, smoking and cooking all contribute to the holiday fire hazard.

Candles are commonly used around the holidays, but if you don’t use them carefully, they could cause fire and smoke damage. Always put the candles out when you leave a room. Blow them out before you fall asleep. Keep them away from flammable objects and pets. Replace flamed candles with battery powered ones when possible

Dryer

Dryer fires occur in 2,900 homes in the United States each year. This is because clogged vents or a filter buildup can cause a fire. Inspect your dryer at least annually. Always check that your lint trap is clean before putting in a new load.

Fire Extinguisher

Fire extinguishers can save lives, making them a worthwhile investment. Install and learn how to use a fire extinguisher. Check with your local fire department. Put them in the high-risk areas of the house, such as the kitchen and laundry room. Check that your extinguishers are not expired. They usually last an average of 5 to 15 years. A quick inspection of the pressure gauge is also needed. Just check if the gauge needle falls in the fire extinguisher’s green area, and you’re good to go.

Have an escape plan

Talk with all family members about a fire escape plan and practice the plan twice a year. Discuss how you will get out and plan where will you meet once you are outside. Make it a game and keep it lighthearted.

If you have any questions, you can always contact the AEDC Fire Prevention Section at 931-454-5569 or 931-454-5306.

If you have any question or doubt, just get out!

Take care of each other.

Cop Corner: Arnold Air Force Base small unmanned aircraft systems info

By Officer Joshua Brown

Department of the Air Force Law Enforcement Patrolman

For those who fly small, unmanned aircraft systems (sUAS), commonly known as drones, remember to obey the no-drone, no-fly zones at Arnold Air Force Base.

The use of small drones continues to grow with operators ranging from multi-aged, unskilled and skilled hobbyist to surveyors inspecting large scale projects. Unfortunately, the exponential growth of small drone usage poses a real risk to aviation safety and the physical security of Arnold Air Force Base and its resources.

We strongly encourage all sUAS operators to refer to www.faa.gov/uas for the rules and regulations of flying in national airspace. The interactive maps on the Federal Aviation Administration website and B4UFLY mobile app display the maximum altitudes legally allowed for flying a sUAS. In addition to the rules and regulations, some tips for flying safely include the following:

- FAA rules require that you register your drone if it’s over .55 lbs.
- Remain clear of and do not interfere with manned aircraft operations.
- Do not intentionally fly over unprotected persons or moving vehicles and remain away from individuals and government facilities.
- If recreational, fly your drone at or below 400 feet and within line-of-sight. Do not fly in controlled airspace without authorization.
- Do not fly near or over critical infrastructure or property such as power stations, dams, water treatment facilities or heavily traveled roadways.
- Do not conduct surveillance or photograph persons in areas where there is an expectation of privacy without the individual’s permission.
- Do not endanger persons or property on the ground.
- Arnold Air Force Base follows the rules and regulations provided by the



A drone hovers close to the ground. (U.S. Air Force photo)

FAA. One of the regulations restricts flying a UAS within 5 miles of an airfield. According to Officer Brown, if an operator wishes to fly an UAS within the 5-mile limit of Arnold’s airfield, permission must be coordinated through the Test Support Division, Security Forces Office.

We continue to encourage all sUAS operators to follow the law and know before you fly. Doing so fosters a strong civilian and military relationship, but more importantly ensures a safe flying environment.

Arnold Air Force Base Security Forces office utilizes the D.R.O.N.E protocol for Department of the Air Force police officers. This protocol can be used to some extent by base populace as well if a sUAS is spotted flying over the installation. The acronym D.R.O.N.E is described below:

D = Direct attention – outward and upward to attempt to locate individuals who are holding a controller or device that appears to be operating a sUAS. Look at windows or rooftops.

R = Report incident – report immediately via radio, telephone or voice and

request supervisor response. If the operator is located off-base, notify civilian law enforcement immediately.

O = Observe – Observe the sUAS and maintain visibility of the device, if safe to do so. Look for damage or injured individuals. Note that sUAS battery life is limited – typically 30-40 minutes.

N = Notice – Notice features of the sUAS. Type of device – fixed wing/multi rotor/tilt rotors, size, shape, color, payload, camera equipment; and activity of device – what did it do?

E = Execute – Execute appropriate action, if practicable locate the operator, identify and interview, if permissible and on-base/military property. Treat sUAS on the ground as a suspicious package.

Currently, the only areas on Arnold Air Force Base where drones are authorized to fly are the Coffee Airfoilers Radio Control Model Airplane Club, Arnold Village beach area, children’s playground, field adjacent to Outdoor Recreation across from the military family housing area, Crockett’s Cove and Dogwood Ridge. Any sUAS flying over the FamCamp area, Arnold Village living quarters or mission area is not au-

thorized. If you spot a sUAS flying over base property notify Base Defense Operations Center at 931-454-HELP (4357). The Security Forces office always encourages base populace to “See Something, Say Something.”

Quick References

B4UFLY: A free FAA-sponsored app for smartphones that assists in determining if it is safe to operate a drone based on current location. This is a must-have app for all operators, especially near high use airspace.

Register My Drone: All drones, even hobbyist drones, if they weigh more than 250 grams (0.55 lbs.) must be registered with the FAA before they can be legally operated. Additionally, the registration number must be visibly displayed on the drone.

FAA Drone Zone: A robust website that is a launching pad for many topics of interest for sUAS operators.

Please direct any questions or suggestions for future articles to our distribution group: AEDC.Arnold.Cop-Corner@us.af.mil.

F-15EX undergoes acoustic testing



Microphones record the sounds of the F-15EX Eagle II’s engines during a ground test Oct. 26 at Eglin Air Force Base, Florida. The aircraft underwent various ground and flight acoustic testing to create a baseline noise level for use by the Department of Defense. This was the first time this type of in-depth digital acoustic sound testing was done on any F-15 model. (U.S. Air Force photo)

By Samuel King Jr.
96th Test Wing Public Affairs

EGLIN AIR FORCE BASE, Fla. – On a quiet open space within the Eglin Air Force Base range, an F-15EX Eagle II crested a small hill at 500 feet with afterburners blazing. The Air Force’s newest fighter crossed over vertical and horizontal rows of microphones on the ground that captured every decibel of sound the aircraft made as it roared by and began to turn for another pass.

That’s just one of the many sound recordings that took place during the

F-15 acoustic testing that occurred here over the last two weeks.

This was the first such testing on the F-15 since the aircraft’s initial roll out in the early 1970s and the first ever on its GE-129 engines. The Department of Defense-initiated test was done exclusively on the F-15EX as it will be the new model in Air Force inventory.

The goal of the acoustic testing is to establish a baseline of sound data, so DOD can update predictions and models of the noise levels in locations where the new aircraft will fly and be stationed, according to James Potter,

Department of the Air Force community planner.

The tests consisted of ground testing at idle and with engines running as well as flight testing at various heights and aircraft configurations. Blue Ridge Research and Consulting, the contractor capturing the sound data, used more than 100 microphones strategically placed around the aircraft for the ground testing. Around 35 microphones were spread 4,000 feet laterally and 1000 feet horizontally to capture the sounds of the more than 70 Eagle II flyovers.

Eglin’s Operational Flight Program Combined Test Force, F-15 Section, was responsible for coordinating all the requirements to make the test happen as well as the management of all the moving pieces during the process.

“As the lead developmental test organization, the OFP CTF enabled DOD to meet their deadlines for the environmental impact study and we are now one step closer to getting this new aircraft into the hands of the warfighter,” said 1st Lt. Zachary Arns, OFP CTF deputy mission support section chief.

Fight the Flu – It starts with you!

By Greg Chadwick
Air Force Materiel Command
Health & Wellness Team

WRIGHT-PATTERSON AIR FORCE BASE, Ohio – Concerned about catching the flu? We are all at risk for getting and spreading the flu. Learn how to fight the flu – it starts with you!

What is the flu?

Influenza is a viral infection that attacks your respiratory system – your nose, throat, and lungs. Influenza is commonly called the flu, but it’s not the same as the stomach “flu” viruses that cause diarrhea and vomiting.

How does the flu spread?

Influenza viruses travel through the air in droplets when someone with the infection coughs, sneezes, or talks. You can inhale the droplets directly, or you can pick up the germs from an object- such as a door-knob or table - and then transfer the viruses to your eyes, nose, or mouth. Flu germs can linger on surfaces for up to 8 hours.

- What are symptoms of the flu?**
- Common signs and symptoms of the flu include:
- Fever
 - Body aches
 - Chills and sweats
 - Headache
 - Sore throat
 - Coughing
 - Runny or stuffy nose
 - Extreme fatigue
 - Eye pain

Most people who get the flu recover completely in one to two weeks, but some people develop serious and potentially life-threatening medical complications, such as pneumonia.

What’s the difference between a cold and flu?

The common cold and flu are both contagious viral infections of the respiratory tract. Although the symptoms can be similar, flu is much worse. Colds usually develop slowly, whereas the flu tends to come on suddenly. With the flu, you are likely to run a fever for several days and have body aches, fatigue, and exhaustion, symptoms that are rarely caused by simple colds.

Why should I get vaccinated against the flu?

The Centers for Disease Control and Prevention (CDC) recommends annual vaccination for everyone age 6 months or older as the best way to protect against the flu.


“A flu vaccine will not provide 100% protection from getting the flu but can reduce the amount of time you’re sick and the severity of your illness or the potential for hospitalizations,” said Lt. Col. Michael Renkas, AFMC Command Public Health Officer. “To be truly effective, it can take several days to a couple weeks for your body to elicit a more extensive immune response from a flu vaccine.”


Renkas advises individuals to get a flu vaccination well in advance of the upcoming Thanksgiving Holiday to protect themselves, their family and peers upon returning to the workplace.


Can flu shots cause the flu?


The flu shot is made from dead viruses and cannot “give” you the flu. However, the vac-

FIGHT THE FLU IT STARTS WITH YOU!

**GET VACCINATED**

**COVER YOUR COUGH OR SNEEZE**

**WASH YOUR HANDS**



Take steps to minimize the spread of the influenza virus this season. (Courtesy graphic)

- cine can trigger an immune response from your body, so you may have a few mild symptoms, like achy muscles or a low-grade fever.
- Where can I get a flu vaccine?**
- Influenza vaccinations for all military members are a mandatory requirement, and available through each installation’s Medical Group or at any participating TRICARE eligible pharmacies. TRICARE beneficiaries are also eligible for flu shots through immunization clinics on base, or at no cost at TRICARE eligible pharmacies. For the civilian workforce, all Federal Employee Health Benefit plans cover flu shots at no cost for members and are available at local retail pharmacies. You can find a flu vaccine location through [vaccines.gov](https://www.vaccines.gov).
- Go to: <https://www.vaccines.gov/>
- Select “Find Flu Vaccines” at the top of the page
 - Enter your 5-digit zip code
 - Check your “Vaccine Options”
 - Select “Search for Flu Vaccines” to find a preferred location [Click on the location for further details and contact information]
- What are everyday healthy habits to help protect against the flu?**
1. Wash your hands often with soap and water. If soap and water are not available, use an alcohol-based rub.
 2. Avoid touching your eyes, nose, or mouth. Germs can be spread when a person touches something that is contaminated with germs and touches his/her eyes, nose, or mouth.
 3. Cover your mouth and nose with a tissue when coughing or sneezing. It may prevent those around you from getting sick. Flu viruses spread mainly by droplets made when people with flu cough, sneeze, or talk.
 4. Avoid close contact with people who are sick. When you are sick, keep your distance from others to protect them from getting sick too.
 5. Clean and disinfect frequently touched surfaces and objects that may be contaminated with viruses that cause the flu at home and work.
 6. Avoid large crowds. If you’re able to limit contact with people during flu season, you can reduce your risk of getting an infection.
 7. Strengthen your immune system. A strong immune system helps your body fight off infections. To build your immunity, sleep at least 7-9 hours per night. Also, maintain a regular physical activity routine-at least 30 minutes, three times a week. In addition, follow a healthy, nutrient-rich eating plan. Limit sugar, junk foods, and fatty foods. Instead, eat a variety of fruits and vegetables, which are full of vitamins and antioxidants, to promote good health.
- For more information on preventing the flu, visit [USAF-wellness.com](https://www.usaf-wellness.com) or contact your local Civilian Health Promotion Services team. Comprehensive information on healthy habits to prevent the flu can be found at the Centers for Disease Control and Prevention website at [cdc.gov](https://www.cdc.gov).

Autonomous aircraft testing arrives

By Samuel King Jr.
96th Test Wing
Public Affairs

EGLIN AIR FORCE BASE, Fla. – The 96th Test Wing acquired its newest aircraft, and along with it, a leading-edge experimentation effort last month.

The 40th Flight Test Squadron took possession of the first of two government-owned Kratos XQ-58A Valkyrie aircraft. The Valkyrie is a low-cost, high-performance uncrewed air vehicle. It is rocket-launched off a rail system and is controlled from a ground station or airborne fighter. An on-board computer system is capable determining the best flight path and throttle settings to comply with commands.

The Autonomous Aircraft Experimentation team is using the 30-foot long XQ-58A and Eglin range for developmental ground and flight testing.

Because military ownership of the XQ-58A is new, much of the aircraft’s

infrastructure and logistics have to be created from the ground up and will be recorded, according to Maj. John Nygard, 40th FLTS AAx team lead.

“When you combine the XQ-58A with the Eglin Range infrastructure, you get an uncrewed aircraft that enables real, open-air test of flight autonomy software capabilities while also proving out the resource requirements that could be used for future combat collaborative aircraft,” Nygard said.

The AAx team will test autonomous aircraft in partnership with the Air Force Research Laboratory Strategic Development Planning and Experimentation office.

“The data generated during previous tests, along with feedback provided from our user community, show that in order to rapidly develop and mature tactical autonomy on an appropriate timeline, investment in, and utilization of, appropriate military range resources is required,” said Matthew Niemiec, AFRL autonomous aircraft experimen-



The 40th Flight Test Squadron took possession of the first of two government-owned Kratos XQ 58A Valkyrie aircraft. The Valkyrie is a low-cost, high-performance uncrewed air vehicle. It is rocket-launched off a rail system and is controlled from a ground station or airborne fighter. An onboard computer system is capable determining the best flight path and throttle settings to comply with commands. (Courtesy photo)

tation portfolio lead.

Military range resources are a major reason XQ-58A testing found a home at Eglin. The Eglin Range communications support infrastructure will allow engineers at the ground station in the Central Control Facility to monitor the vehicle’s performance during flight. Additionally, autonomous aircraft operations, airspace, and safety processes have been

developed to enable safe and effective flight testing for uncrewed air vehicles. The first flight is scheduled later this month.

Nygard described this new test as time-critical, with a lot to get done in a short amount of time.

“The goal by fall 2023 is to leverage this platform for experimentation with crewed-uncrewed teaming display solutions” said Nygard.

Additionally, the team

is building out a data-storage and simulation environment to capture operator feedback and integrate their inputs into the autonomy software development process. The XQ-58A could host a variety of flight autonomy software solutions that were first tested in the simulator, including those from the Skyborg Autonomy Control System and others provided by third-party government

and industry partners.

Niemiec said AFRL is working with multiple industry partners to integrate leading-edge autonomy capabilities onto the XQ-58A.

“The simulation investment enables us to focus flight test efforts of XQ-58A on developing the process to deliver autonomy software capable of accomplishing operator-defined missions to the warfighter,” he said.

DAF authorizes pass for COVID booster by Dec. 1

By Secretary of the Air Force
Public Affairs

Arlington, VA (AFNS) – As we enter cold and flu season, Airmen and Guardians are encouraged to get their COVID-19 vaccination booster as soon as possible

The virus continues to pose a risk to the health and welfare of service members, civilian employees and families.

Airmen and Guardians who receive the COVID-19 Bivalent Booster released in September are authorized a one-day special pass from their commander as long as the booster is administered by Dec. 1.

Department of the Air Force civilian employees who receive the current booster during the duty day through either DOD or private providers are authorized up to four-hours administrative leave. Additionally, civilian employees may be granted up to two days of administrative leave to recover from any adverse reaction to the vaccination.

For service members, timing of the one-day pass will be consistent with

mission needs, members must present documentation and commanders may award the special pass retroactively to those members who have already received a booster. The Office of Personnel Management authorizes federal civilian employees up to four hours of administrative leave to receive a vaccine booster shot, which is designed to cover “the time it takes to travel to the vaccination site, receive the vaccination dose, and return to work.”

If federal employees take less than four hours to receive their booster shot, they should be granted only that amount of time in administrative leave, and employees cannot receive leave or overtime if they get their booster shot outside of their normal work hours.

Federal employees are also authorized up to four hours of administrative leave to accompany their family members who are receiving any dose of a COVID-19 vaccination.

Federal employees should obtain advance approval from their supervisor before being permitted to use administrative leave for



U.S. Air Force Tech. Sgt. Allison Turner, 88th Healthcare Operations Squadron, fills a syringe with the COVID-19 vaccine Jan 8, 2021, in the Wright-Patterson Air Force Base, Ohio, Medical Center auditorium. Turner was preparing the syringes to vaccinate healthcare workers and other Phase 1 Airmen. (U.S. Air Force photo by R.J. Oriez)

COVID-19 vaccination purposes.

COVID-19 vaccinations include the initial one or two shot series as well as any subsequent booster shots.

For the latest information on DAF COVID policies, statistics, news and resources, visit the DAF COVID-19 website Air Force Medicine link.

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X-37B Orbital Test Vehicle concludes 6th successful mission

By Secretary of the Air Force
Public Affairs

KENNEDY SPACE CENTER, Fla. (AFNS) – The X-37B Orbital Test Vehicle-6, or OTV-6, the U.S. Space Force's unmanned, reusable spaceplane, successfully deorbited and landed at NASA's Kennedy Space Center Shuttle Landing Facility Nov. 12.

The OTV-6 was the first mission to introduce a service module – a ring attached to the rear of the vehicle expanding the number of experiments that can be hosted during a mission. “This mission highlights the Space Force's focus on collaboration in space exploration and expanding low-cost access to space for our partners, within and outside of the Department of the Air Force,” said Chief of Space Operations Gen. B. Chance Saltzman.

The service module successfully separated from the OTV before landing, which is a necessary activity due to the aerodynamic forces experienced by the X-37B vehicle upon re-entry. In the coming weeks, the service module will be disposed of in accordance with best practices. Secretary of the Air Force Frank Kendall said, “The deliberate manner in which we conduct on-orbit operations – to include the service module disposal – speaks to the United States' commitment to safe and responsible space practices, particularly as the issue of growing orbital debris threatens to impact global space operations.”

The OTV-6 mission also hosted the Naval Research Laboratory's Photovoltaic Radiofrequency Antenna Module. This experiment successfully harnessed solar rays outside of Earth's atmosphere and aimed to transmit power to the ground in the form of radio frequency microwave energy. Additionally, the U.S. Air Force Academy's FalconSat-8, developed in partnership with Air Force Research Laboratory, was successfully deployed in October 2021. FalconSat-8 remains in orbit, providing academy cadets unique hands-on experience as space operators prior to entering active duty.

Multiple NASA experiments were deployed on OTV-6. The Materials Exposure and Technology Innovation in Space, or METIS-2, included thermal control coatings, printed electronic ma-



The X-37B Orbital Test Vehicle-6 sits on the flightline at NASA's Kennedy Space Center, Florida, Nov. 12, after its sixth successful mission lasting 908 days. The mission hosted the Naval Research Laboratory's Photovoltaic Radiofrequency Antenna Module, a device that allowed for harnessing solar rays outside of Earth's atmosphere and aimed to transmit power to the ground in the form of radio frequency microwave energy. (U.S. Air Force photo by Staff Sgt. Adam Shank)

terials, and candidate radiation shielding materials. The METIS-1, which flew on OTV-5, consisted of similar sample plates mounted on the flight vehicle. NASA scientists will leverage data collected after the materials have spent 900-plus days in orbit and compare observed effects to ground simulations, validating and improving the precision of space environment models.

Another NASA experiment aimed to investigate the effect of long-duration space exposure on seeds. Scientists are interested in the seeds' resistance and susceptibility to space environment-unique stresses, notably radiation. The seeds experiment will inform space crop production for future interplanetary missions and the establishment of permanently inhabited bases in space.

“The X-37B continues to push the boundaries of experimentation, enabled by an elite government and industry team behind the scenes,” said Lt. Col. Joseph



The X-37B Orbital Test Vehicle-6 sits on the flightline at NASA's Kennedy Space Center, Florida, Nov. 12. The aircraft concluded its sixth successful mission that lasted 908 days. (U.S. Air Force photo by Staff Sgt. Adam Shank)

Fritschen, DAF Rapid Capabilities Office's X-37B program director. “The ability to conduct on-orbit experiments and bring them home safely for in-depth analysis on the ground has proven valuable for the Department of the Air Force

and scientific community. The addition of the service module on OTV-6 allowed us to host more experiments than ever before.”

The sixth mission conducted on-orbit experiments for 908 days.

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Joint Black Flag introduces new ACE Maintenance Operational Test component and advances C2 and EPAWSS tactics development



An F-35A Lightning II, assigned to the 422nd Test and Evaluation Squadron, Nellis Air Force Base, Nevada, takes off for a Black Flag 22-2 mission at Nellis AFB, Nevada, Sept. 20. This Black Flag assessed interoperability of near-future capabilities across the domains and services with a focus on tactical data link and consolidated F-35 cross service maintenance and logistics. (U.S. Air Force photo by William R. Lewis)

By 1st Lt. Lindsey Heflin
53rd Wing

EGLIN AIR FORCE BASE, Fla. – The 53rd Wing partnered with the U.S. Navy, Marine Corps, Nevada Air National Guard, U.S. Air Force Reserves, and others to conduct Exercise Black Flag 22-2, in September 2022. Nested under the Air Force’s test flag enterprise, Black Flag’s main objective is to integrate and test the suitability of capabilities and tactics in multi-domain, multi-service, operationally relevant scenarios. This Black Flag iteration included the newly developed Maintenance Operational Test Center of Excellence (MxOT). The MxOT concept, driven by a competitively selected maintenance team, focuses on tactics, techniques, and procedures (TTPs) development, integration of innovating technologies and concepts, and standardization of the Agile Combat Employment (ACE) playbook, specifically in the aircraft logistics and sustainment space. “Traditionally in Operational Test we’ve focused on the lethality and survivability of our weapons systems,” said Senior Master Sergeant Christopher Sipes, 59th Test and Evalua-

tion Squadron MxOT superintendent. “MxOT focuses on the reliability and maintainability of those weapons systems and the creation of a standardization that’s universal in a joint environment.” Black Flag involvement was one of the first steps towards developing MxOT requirements and quantifying potential risks involved in Joint Agile Combat Employment. The MxOT team will use the results of the exercise to build models for warfighter training and combat sortie generation in contested environments. Building off the work done in Black Flag 22-1, the 422d Test and Evaluation Squadron Command and Control (C2) Division scaled their Tactical C2 element and from one to three interconnected nodes. The C2 team conducted two simultaneous joint airlift missions and placed two Tactical C2 units on the Nevada Test and Training Range (NTTR), with one unit remaining on Nellis. All three nodes were able to share information with each other with two nodes fully mobile throughout the mission. The C2 team was able to connect with airborne platforms and bring in

radar feeds from both the NTTR and the 109th Air Control Squadron, Utah Air National Guard. “Black Flag provided an operationally-relevant environment with the freedom to experiment and iterate on concepts that break a 30-year-old paradigm and provide a rapid, tangible warfighter solution to a severe blind spot in the future of our warfighting capacity,” said Maj. Paden Allen, 422d TES C2 division commander. “Our work during this exercise demonstrated that future Tactical C2 platforms can and must be able to operate on the move against a peer threat, as well as integrate cohesively despite being disaggregated.”

Another objective of Black Flag 22-2 involved continued tactics development for Eagle Passive Active Warning Survivability System (EPAWSS) integration with the entire U.S. Air Force inventory. This Black Flag included EPAWSS-equipped F-15E Strike Eagle and F-15EX Eagle II aircraft from Eglin Air Force Base, allowing for expanded formations. These fighters worked alongside 5th-generation platforms to quantify how EPAWSS can alter the environment and enhance survivability. EPAWSS is still in developmental test, with Initial Operational Test and Evaluation (IOT&E) scheduled to begin in January 2023.



Staff Sgt. Keyli Pillaro-Estrada, 57 Aircraft Maintenance Squadron crew chief, talks with Marine Cpl. Jesse Mattics assigned to Marine Operational Test & Evaluation Squadron 1, Marine Corps Air Station Yuma, Arizona prior to a mission for Black Flag 22-2 at Nellis Air Force Base, Nevada, Sept. 21. Members of the Air Force, Navy and Marine Corps participated in consolidated F-35 Cross service maintenance and logistics training during Black Flag 22-2. (U.S. Air Force photo by William R. Lewis)

Missile wings conduct remote code change with ICU II



The missile wings of the 20th Air Force are changing their procedures on how nuclear code change operations are done, with each wing having switched one squadron's area of responsibility to the new Intercontinental Ballistic Missile Cryptography Upgrade program. (U. S. Air Force graphic by Glenn S. Robertson)

By Glenn S. Robertson
20th Air Force

F.E. WARREN AIR FORCE BASE, Wyo. (AFNS) – The missile wings of the 20th Air Force are changing their procedures on how nuclear code change operations are done, with each wing having switched one squadron's area of responsibility to the new Intercontinental Ballistic Missile Cryptography Upgrade program.

It is a change that promises to save the Air Force considerable resources in labor hours, cash, and the wear and tear on vehicles.

"Code change has typically included hundreds of defenders, maintainers and missileers working five or more 14-hour days, and that's just at one wing," said Maj. Gen. Michael Lutton, 20th AF commander. "With the new procedure for conducting code change, it now takes two missileers a single, eight-hour alert; saving each wing thousands of miles of road time, as well as the fuel and labor hours that go with that. This innovation will improve the quality of life of our Airmen while saving [the Air Force] millions of dollars."

Code change is an annual requirement that typically takes three weeks to complete for each wing, at about five days for each missile squadron's AOR. In those three weeks, missileers, maintainers and security forces drive thousands of miles and work thousands of hours to change the codes required for the launch of a wing's ICBMs on site at each launch facility. This manual process is now being changed to one that is conducted remotely from the launch control capsule

by a team of missileers. Before the remote code change can be conducted, launch facilities must all be properly configured to the new format, a considerable effort for the maintenance group, said Master Sgt. Adam Urban, 90th Missile Maintenance Squadron, noncommissioned officer in charge of Electromechanical Maintenance Team section.

"With an average of a three-person team, EMT expended a total of 1,965 man-hours and typically accomplished one or two sites every day, including many weekends, until the whole squadron of 50 launch facilities and five missile alert facilities was complete," Urban said. "Each day reconfiguring launch facilities was between 11 to 14 hours; with the days we were dispatched to the missile alert facilities taking about eight."

Urban said that though his teams worked long hours, it was only from the efforts of other units that they had the resources required to complete the job.

"EMTs efforts really came from a culmination of many other actions for the ICU II rollout, such as the electronic laboratory section of the 790th Maintenance Squadron logging many manhours handling procuring, storing, packing and shipping the old component drawer units," Urban said. "Additionally, the OSS [Operations Support Squadron] codes section coded KS-60 code components about every day to ensure the new drawer could communicate with the rest of the system."

The process of reconfiguring a missile squadron's AOR to ICU II consists of three phases, said Capt. Aaron McLarty, 320th Missile Squad-

ron director of training. The first phase, initial implementation, involves ensuring everyone involved understands what ICU II is, and what goes into a remote code change. The second phase is like a typical code change and is what prepares the site to be formatted for a remote code change.

"Phase two of the process was the largest movement of personnel and resources, involving the code shop, maintenance and security forces," McLarty said. "Codes dispatch the properly coded components to maintenance, then the maintainers and defenders go out to the launch facilities multiple times over the course of a couple of months, getting them into a state of configuration for the operator in the capsule to be able to conduct that remote code change."

The third phase is the culmination of all the previous efforts in conducting the remote code change, which required substantial training of the missileers in the new procedure.

"The third phase was a code change conducted remotely, which is one of the major capabilities of ICU II," said Capt. Dustin Maglinti, 90th OSS weapons and tactics instructor. "With its completion, it reduces the manpower required for code change, maintenance and security forces personnel, lessens the need for moving code components from base to the missile field and now we have this capability where we can do all of this remotely."

From the thousands of hours that went into a legacy code change, the manpower requirement of ICU II diminishes to one eight-hour shift for the missileers on duty that day.

A lot of our day-to-day experience is doing a lot more

with fewer people and less resources, and ICU helps a lot with that," McLarty said. "We're still accomplishing this code change, just like we normally would, but now we're cutting down tremendous numbers of personnel that no longer have to be involved in the physical maneuver of code change."

For all the benefit to the wings' missileers, ICU II will positively impact the Airmen of the maintenance and security forces groups of the three missile wings too.

In the case of the maintenance groups, leaving the traditional code change format will free up hundreds of maintenance personnel to devote resources to the important job of maintaining the venerable LGM-30G Minuteman III.

"An ICU II Code Change will free 163 personnel to continue their maintenance duties of maintaining and sustaining the launch facilities, missile alert facilities and ICBMs on alert here at F.E. Warren," Fasting said. "That sums up to 3,000 hours a year returned to the task of maintaining the 50-year-old Minuteman III."

In addition to the benefits of better allocated maintenance personnel, there are positive effects to other units and a direct benefit to the security of coded components.

"The second- and third-order effects of this are freed MAF space, the costs of and requirement for second chefs, the reduced cost of sundries and linens from not resting overnight and returning that time to our folks and their families," Fasting said. "Lastly, not carrying as many coded components to the field reduces the security risks from that material."

The 91st and 341st Maintenance

Groups are expected to see similar outcomes.

Like the maintainers, defenders will see their responsibilities specific to code change lessen, as the requirement to protect open sites decreases.

"The Defenders of the Mighty Ninety are always ready to ensure that launch facility sites are secure during code change operations," said Lt. Col. William Brokaw, 90th Missile Security Forces Squadron commander. "However, following the completion of ICU II, the dated approach to security response during those operations becomes much more limited, and that frees up personnel and resources for other aspects of the Big Missiles' mission."

Though the security forces response specific to ICU II code change is not as significant as during manual code change, the physical defense of the complex will not diminish with the change – in fact, it will increase.

"The ICU II upgrade, by nature of design, is more secure and allows security forces defenders the flexibility to focus on all areas of security more effectively and efficiently across the complex," Brokaw said. "ICU II allows more defenders to patrol the field than ever before and guarantees security and safety of our sites and assets."

While the process of converting the sites to ICU II is a significant process for personnel across the operations and maintenance specialties, the result is a more secure missile field with more resources returned to the wing. Though the process has not been finalized, all three wings are working toward converting all their sites to ICU II over 2023.



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