AEROTECHNEWS
JOURNAL OF AEROSPACE, DEFENSE INDUSTRY AND VETERANS NEWS
"Serving the Aerospace, Military and Veteran Community of the Desert Southwest"

AFRL researchers pave the way to lighter, faster additively manufactured rocket engines

Air Force photograph

The Air Force Research Laboratory, or AFRL, Rocket Propulsion Division, recently designed, printed, built and hot fired a first-ever, single-block rocket-engine thrust chamber additively manufactured using a process called laser powder directed energy deposition, or DED. DED is an additive manufacturing process in which the device injects metal powder into focused beams of high-power laser in highly controlled atmospheric conditions. The Hotfire of the thrust chamber is shown in the Experimental Cell 1 (EC-1) at the AFRL Rocket Lab.

Air Force photograph

Edgar Felix, Lead Investigator, front and Isaiah Jaramillo, Mechanical Specialist, work on the first-ever, single-block rocket-engine thrust chamber additively manufactured using a process called laser powder directed energy deposition, or DED. DED is an additive manufacturing process in which the device injects metal powder into focused beams of high-power laser in highly controlled atmospheric conditions.

by Joy Alich
Edwards AFB, Calif.

The Air Force Research Laboratory, or AFRL, Rocket Propulsion Division, recently designed, printed, built and hot fired a first-ever, single-block rocket-engine thrust chamber additively manufactured using a process called laser powder directed energy deposition, or DED.

"AFRL's investments in early advanced manufacturing techniques enable us to exploit corners of the design space for rocket engines and enable faster design turnover cycles from a concept in a whiteboard to test & evaluation in the field," said Dr. Javier Urzay, chief Combustion Devices Branch.

DED is an additive manufacturing process in which the device injects metal powder into focused beams of high-power laser in highly controlled atmospheric conditions. "It provides the largest build box volume for thruster hardware to date, capable of printing seven-foot-tall parts. This build box volume is much larger than that obtainable with techniques like the laser powder bed fusion, or LPBF, process. In addition, DED enables an order of magnitude less investment in powder and less material waste. Engineers can also realize alloy blending and transitions in real time for multi-alloy builds to exploit the strength, weight and performance gains of next-generation superalloys," said Urzay.

"These unique capabilities allow us to tackle complex engine designs requiring fewer iterations and leveraging shape optimization, lightweight materials, advanced metal alloys and composites, and rapid manufacturing," Urzay said.

The AFRL Rocket Propulsion Division, a component of the Aerospace Systems Directorate, is working alongside the U.S. space industry to embed these advanced additive manufacturing processes into robust digital engineering environments.

Additive manufacturing works closely with the transition from traditional ways of manufacturing rocket engine hardware to automated manufacturing processes fed by digital environments involving artificial intelligence, machine learning, digital twins, 3D volumetric scanners and computer aided design, or CAD.

The multifaceted nature of the digital environment is necessary to manage the printers that produce lightweight thrust chambers, manifolds, injectors, pressure vessels, valves and turbomachinery blades with 3D shapes and internal features that are not easily achievable using traditional methods.

"While additive manufacturing offers many opportunities for accelerated production at lower costs, several

See **AFRL**, on Page 2

Col. Doug Wickert selected for promotion to brigadier general

by 412th TW Public Affairs
Edwards AFB, Calif.

President Joe Biden on April 15 nominated Col. Douglas Wickert, commander of the 412th Test Wing at Edwards Air Force Base, Calif., and Air Force Operating Location Plant 42 for promotion to brigadier general.

Wickert leads a wing of nearly 10,000 airmen, Air Force civilians and contractors in testing and evaluating advanced aerospace systems that represent the nation's near-future air warfare capabilities, including the new B-21 stealth bomber, Joint Simulation Environment and an array of other sophisticated combat and support aircraft. He is also responsible for the infrastructure and security supporting more than 27,500 defense workers and family members at Edwards and Plant 42.

Wickert took command of Edwards in August 2023 after serving as the aeronautics department head and a permanent professor at the Air Force Academy. He received his Air Force commission from the Academy as a distinguished graduate in 1995 and during the last 29 years has held several commands and served in a variety of technology development and program management assignments. He is a combat veteran with more than 2,000 flight hours in more than 40 different aircraft.

A distinguished graduate of the Naval Test Pilot School, Wickert also holds advanced engineering degrees from MIT and the Air Force Institute of Technology.

Air Force photograph by Adam Bowles

RIGHT: Col. Douglas Wickert, 412th Test Wing commander, and his wife Jody Wickert, prepare to greet Team Edwards following the wing's Aug. 18, 2023, change of command ceremony during which Wickert assumed command of the wing. On April 15, 2024, President Joe Biden announced the nomination of Wickert for promotion to brigadier general.

Black Paratroopers of WWII's 'Triple Nickle' jumped into fire

by Dennis Anderson
special to Aerotech News

PENDLETON, Ore. — The C-47 aircraft we jumped from, "Betsy's Biscuit Bomber," was built during World War II, and it was roaring along at 100 mph, 1,500 feet above ground level on final approach to the drop zone.

Within a minute, I was dropping with paratroopers into farmland north of Pendleton Airport in rural, eastern Oregon. We were jumping in 2024 to honor a unit of black servicemen of World War II less known to history than the famed "Tuskegee Airmen." The men of the "Triple Nickle" pioneered firefighting by parachute.

My landing, with a jolt, was hard enough. But I landed softer than the "Triple Nickle" paratroopers who jumped into trees and canyons to battle a desperate effort by Japan to set the West Coast on fire at the end of World War II.

Dozens of paratroopers in our aircraft on a fine, spring day were jumping to commemorate the historic 555th Parachute Infantry Battalion. They were the unheralded heroes of Operation Firefly, a secret mission near the end of the war in which the enemies were Japanese incendiary bombs, wildfires, and racism.

Nearly 80 years after the end of history's biggest war, our World War II vintage aircraft carried parachutists on current active duty with the 82nd Airborne Division. Lined up in the aircraft with them were veterans of a broad spectrum of race and gender, some of them "Smoke Jumpers" of the National Forest Service joined by paratroopers from Europe and Canada.

Standing at the aircraft door, the Jumpmaster shouted the final command, "Go!"

Parachutists handed their yellow static lines that would yank their chutes open to the jumpmaster. Their canopies billowed into the C-47's prop blast at one-second intervals, the jumpers descending the same way Allied Airborne troops did on D-Day into Normandy.

Watching from the ground below us were hundreds of people, some of them descendants and family of "Triple Nickle" paratroopers.

The "Greatest Generation" troopers of the "Triple Nickle" boarded similar aircraft in 1945 at the same airfield for their mission in the original Operation Firefly.

"We were happy you honored us," said Garrett Godfrey, a career Army veteran and member of the "Triple Nickle" 555th Parachute Infantry Association, a nonprofit group that celebrates the unit's legacy. "It was beautiful."

Soldiers of the "Triple Nickle" were trailblazing black paratroopers who jumped into the fire of World War II conflict without ever leaving the United States.

The "Triple Nickle" paratroopers probably rank as the bravest soldiers who never waged war overseas. As Robert Bartlett, a scholar of their unit put it, "They jumped into the fire of war, and jumped into the fire of civil society.

"Their service involved service, sacrifice, patriotism, and they faced blatant racism," Bartlett, a sociology professor at Gonzaga University, said.

— See **PARATROOPERS**, on Page 6

AFRL, from Page 1 ——————

challenges remain in the way of making this technology widely adopted by the rocket-propulsion industry and government laboratories," said Edgar Felix, aerospace engineer at the Combustion Devices Branch.

AFRL is addressing the unique challenges of producing materials that can withstand the harsh environments in which rocket engines must perform.

AFRL experts combine decades of rocket combustion chamber experience with insights into the challenges and opportunities of these new manufacturing techniques and maintain close collaborations with several external organizations that bring unique skills to the table.

"This latest breakthrough in additive manufacturing for rocket engines in our branch is one in a series that has been made possible only by forging long-lasting relationships across multiple industrial partners and government organizations, including the AFRL Materials and Manufacturing Directorate and NASA Marshall Space Flight Center," Urzay said. "Their work is extremely valuable for the nation, and together we are an unstoppable team."

The AFRL Rocket Propulsion Division continues to work on novel techniques for additive manufacturing with the goal of surging capacity in both liquid rocket engines and solid rocket motors.

AEROTECHNEWS
JOURNAL OF AEROSPACE, DEFENSE INDUSTRY AND VETERANS NEWS

Aerotech News and Review is published the first Friday of the month, serving the aerospace, military and defense communities in the Desert Southwest.

News and ad copy deadline is noon on the Tuesday prior to publication. The publisher assumes no responsibility for error in ads other than space used. Your comments are welcomed and encouraged.

- Publisher .....Paul Kinison
- Business Manager ..... Lisa Kinison
- Editor .....Stuart Ibberson
- Design & Layout ..... Tinna Selile
- National Advertising Manager .....Paul Kinison

Access the Aerotech News and Review web site at **www.aerotechnews.com**.

Submissions for upcoming events, air shows and museums should be emailed to **editor@aerotechnews.com**.

For questions concerning the web site, contact the webmaster at **webmaster@aerotechnews.com.**

Where you can get *Aerotech News and Review*
For information on Aerotech distribution, call **661-945-5634** or visit **www.aerotechnews.com/distribution**.

How to contact Aerotech News and Review
Email: editor@aerotechnews.com
Phone: 661-945-5634

Fax: 661-723-7757
Website: www.aerotechnews.com
Advertising Corporate Headquarters:
877-247-9288
Email: sbueltel@aerotechnews.com

Subscriber Services
Subscriptions to Aerotech News and Review are $59 for six months or $89 for one year.

For more information, contact the subscription department at: 661-945-5634.

TPS, DARPA announce breakthrough in aerospace machine learning

by Chase Kohler
Edwards AFB, Calif.

The Defense Advanced Research Projects Agency were finalists for the 2023 Robert J. Collier Trophy, a formal acknowledgement of recent breakthroughs that have launched the machine-learning era within the aerospace industry.

The teams worked together to test breakthrough executions in artificial intelligence algorithms using the X-62A VISTA aircraft as part of DARPA's Air Combat Evolution (ACE) program.

"The potential for autonomous air-to-air combat has been imaginable for decades, but the reality has remained a distant dream up until now. In 2023, the X-62A broke one of the most significant barriers in combat aviation. This is a transformational moment, all made possible by breakthrough accomplishments of the X-62A ACE team," said Secretary of the Air Force Frank Kendall. Secretary Kendall will soon take flight in the X-62A VISTA to personally witness AI in a simulated combat environment during a forthcoming test flight at Edwards Air Force Base, Calif.

In less than a calendar year the teams went from the initial installation of live AI agents into the X-62A's systems, to demonstrating the first AI versus human within-visual-range engagements, otherwise known as a dogfight. In total, the team made over 100,000 lines of flight-critical software changes across 21 test flights.

Dogfighting is a highly complex scenario that the X-62A utilized to successfully prove using non-deterministic artificial intelligence safely is possible within aerospace. The AI dogfights paired the X-62A VISTA against manned F-16 aircraft in the skies above Edwards. Initial flight safety was built up first using defensive maneuvers, before switching to offensive high-aspect nose-to-nose engagements where the dogfighting aircraft got as close as 2,000 feet at 1,200 miles per hour.

Air Force photograph by Giancarlo Casem

William Gray, Chief Test Pilot, Air Force Test Pilot School, and other engineers conduct software updates to the X-62 Variable Stability In-Flight Simulator Test Aircraft at Edwards Air Force Base, Calif., Aug. 3, 2022.

The first-ever use of machine-learning-based autonomy in flight-critical systems will serve as a foundation for future aerospace AI advances that are both safer and more reliable in both commercial and defense applications.

"The X-62A is an incredible platform, not just for research and advancing the state of tests, but also for preparing the next generation of test leaders. When ensuring the capability in front of them is safe, efficient, effective and responsible, industry can look to the results of what the X-62A ACE team has done as a paradigm shift. We've fundamentally changed the conversation by showing this can be executed safely and responsibly," said Col. James Valpiani, commandant of the Test Pilot School.

While traditional autonomy has been executed for decades, machine learning has been historically prohibited due to high risk and lack of independent control. The X-62A is flown with safety pilots onboard with the independent ability to disengage the AI. However, test pilots did not have to activate the safety switch at any point during the dogfights over Edwards. "We have to be able to trust these algorithms to use them in a real-world setting," said Lt. Col. Ryan Hefron, ACE program manager for DARPA.

Air Force photograph by Kyle Brasier

The X-62 Variable In-Flight Simulator Test Aircraft (VISTA) flies in the skies over Edwards Air Force Base, Calif., Aug. 26, 2022.

Air Force photograph by Kyle Brasier

The U.S. Air Force Test Pilot School and the Defense Advanced Research Projects Agency were finalists for the 2023 Robert J. Collier Trophy, a formal acknowledgement of recent breakthroughs that have launched the machine-learning era within the aerospace industry. The teams worked together to test breakthrough executions in artificial intelligence algorithms using the X-62A VISTA aircraft as part of DARPA's Air Combat Evolution (ACE) program.

While dogfighting was the primary testing scenario, it was not the end goal.

"It's very easy to look at the X-62A ACE program and see it as under autonomous control, it can dogfight, but that misses the point. Dogfighting was the problem to solve so we could start testing autonomous artificial intelligence systems in the air. Every lesson we're learning applies to every task you could give to an autonomous system," said Bill Gray, the school's chief test pilot.

The breakthrough in machine learning will continue as teams from both the Test Pilot School and DARPA look to advance lessons learned onto future programs of record. The X-62A VISTA will continue to serve a variety of customers for research, while providing key academic lessons for the next generation of test leaders.

The ACE program is a result of robust collaborations between academia, government, and private industry. Government partners include the Air Force Test Center, Air Force Research Laboratory, DARPA and the Air Force Test Pilot School. Academic partners include Johns Hopkins University and MIT's Computer Science and Artificial Intelligence Laboratory. Industry partners on ACE include Calspan Corporation, Cubic Corporation, EpiSci, Lockheed Martin Skunk Works and Shield AI.

First C-17 came to Mojave Airport 29 years ago

by Cathy Hansen
special to Aerotech News

At the April 2024 Plane Crazy Saturday, Capt. Rachel Sallee, U.S. Air Force C-17 instructor pilot gave a great presentation about this fantastic cargo aircraft.

"The C-17 is very responsive and flies like a fighter," Sallee said. She told the standing room only crowd that the Globemaster III has a stick, like a fighter, not a yoke like most large aircraft. "Fun and easy to fly" was Sallee's description of flying the C-17.

According to the Air Force website, the C-17 Globemaster III is the most flexible cargo aircraft to enter the airlift force. The C-17 is capable of rapid strategic delivery of troops and all types of cargo to main operating bases or directly to forward bases in the deployment area. The aircraft can perform tactical airlift and airdrop missions and can transport litters and ambulatory patients during aeromedical evacuations. The inherent flexibility and performance of the C-17 force improve the ability of the total airlift system to fulfill the worldwide air mobility requirements of the United States.

NASA photograph
Pamela Melroy, deputy administrator of NASA.

I remember seeing the first C-17 Globemaster III landing at Mojave Airport 29 years ago.

My brother, Larry (Gale) Hellwig, was a Weight and Balance Engineer with McDonnell Douglas in Long Beach, Calif., at the time and I could hardly wait to call him with the news.

I drove out on Highway 58, nearly under the flight path and clicked off about three rolls of film. My, how times have changed. I use a digital camera now and have the results instantly. Back then I had no idea if the pictures would turn out or not!

I even drove down to White's Shell station to buy another roll of film and repositioned my location near the end of Runway 30. I was just overwhelmed at the size of this airplane! Unfortunately, my photos were not great quality.

Early in 1980, the Department of Defense issued the request for proposals for a new Cargo Experimental Program. Boeing, Lockheed, and McDonnell Douglas submitted variants of civil transports, with derivatives of the prototype YC-14 and YC-15 aircraft, and a completely new aircraft in response to the proposal request.

Douglas Aircraft Company, a component of McDonnell Douglas Corporation, was announced as winner of the competition in August 1981. This winning design had many features used on the YC-15. The YC-15 was a McDonnell Douglas aircraft developed and flight tested in the 1970s.

This aircraft was called the C-17 and as the Cargo-Experi-

See **C-17**, on Page 5

Photograph by Cathy Hansen

Photogrpah by Jim Wilhelm
Capt. Rachel Sallee and Cathy Hansen at Plane Crazy Saturday presentation. Wilhelm was a FAA Tower Controller at Long Beach, Calif., for the first flight of the C-17.

LEFT: Then Lt. Col. Pam Melroy, U.S. Air Force test pilot assigned to the C-17 Combined Test Force, practices crosswind landings at Mojave Airport, Feb. 11, 1995.

C-17, from Page 4

mental or C-X evolved into the C-17. The military wanted the C-17 to be capable of direct delivery, or putting troops into the forward portion of the combat zone without a stop at an intermediate staging base.

Isn't it ironic that one of the corporations competing for this contract swallowed up McDonnell Douglas Corporation? This aircraft is now the Boeing C-17 Globemaster III.

Later, I learned that the C-17 was here at Mojave Airport practicing crosswind landings because the dry lakebed was full of water! We had unusual amounts of rain and the water stayed on the lakebed for weeks in 1995.

I was just elated when I was told that the pilot was an outstanding U.S. Air Force female test pilot. Lt. Col. Pam Melroy, veteran of Operation Just Cause, and Operations Desert Shield/Desert Storm, with more than 200 combat and combat support hours and friend of Wen and JoAnn Painter was flying that huge airplane.

I learned that Pam attended the Air Force Test Pilot School at Edwards Air Force Base in 1991 and when she graduated, she was assigned to the C-17 Combined Test Force. She served as a test pilot until her selection for the astronaut program in December 1994, and just two months after she had been doing touch and go's at Mojave, she reported to the Johnson Space Center, March 1995. She had logged over 5,000 hour's flight time in over 45 different aircraft.

She actually participated in the design of the C-17 seat and was the model for the shortest pilot configuration. I can relate to being vertically challenged, since I'm five-foot-two and need a pillow behind my back so I can reach the rudder pedals of our airplanes.

Air Force photograph

The C-17 Globemaster III.

Pam was a member of the Antelope Valley Ninety-Nines and was the third female space shuttle pilot in history, following in the footsteps of Eileen Collins and Susan Kilrain. She piloted STS-92 Discovery Oct. 11-24, 2000, NASA's 100th space launch, which was launched from the Kennedy Space Center, Fla., and returned to land at Edwards Air Force Base.

My husband, Al and I were in Florida for the launch, but because of weather delays we missed it, but we were at Edwards for the landing.

Her second trip into space as pilot, was aboard STS-112 Atlantis, Oct. 7-18, 2002. Atlantis launched from and returned to the Kennedy Space Center.

Here are some ideas and inspiration for all of the young people reading this article, Pam has a Bachelor of Science degree in physics and astronomy, a Master of Science degree in earth and planetary sciences from MIT, and was commissioned through the Air Force ROTC Program in 1983. Wow! I heard her say to a sister Ninety-Nine, "I'm just an ordinary person with an extraordinary job."

Well, she has another extraordinary job today! She is now serving as deputy administrator of NASA. She was confirmed by the Senate on June 17, 2021, and sworn in on June 21, 2021. This position is the second highest ranking official of the National Air & Space Administration.

Sallee is an experimental test pilot and C-17 instructor pilot in the 418 Flight Test Squadron, Edwards AFB.

With more than 3,000 flight hours in more than 40 aircraft types, she is primarily responsible for conducting C-17 and KC-46 flight test.

As a former flight test engineer with a DOD contractor, she transitioned her engineering experience into a military pilot career by joining the Air Force Reserves in 2016.

Rachel's Reserve career was spent in its entirety with the 728th Airlift Squadron at Joint Base Lewis-McChord, Wash., where she became an instructor aircraft commander and flew over 2,000 hours in the C-17, including 175 combat and 135 combat support hours.

She graduated from USAF Test Pilot School Class 22B before transitioning to Active Duty Air Force.

She holds a Bachelor of Science in Mechanical Engineering from Purdue University, a Master of Aerospace Engineering in Composite Structures from the University of Washington, and a Master of Science in Flight Test Engineering from the USAF Test Pilot School.

PARATROOPERS, from Page 2 ——

With preparations for D-Day under way, the Army organized the unit only after President Franklin D. Roosevelt visited Airborne training at Ft. Benning, Ga., and pointedly asked "Where are your Negro paratroopers?"

Because of ties by Army heritage to black "Buffalo Soldiers," of the 92nd Infantry Division, and because of the 555th unit designation, the group adopted "Buffalo" nickel coins as their talisman. Bartlett noted the unit was given little support, and had to recruit unit members from the segregated ranks "by finding only the best."

"President Roosevelt's Negro Advisory Group told him, 'Our men want to serve in combat, not patching holes and serving in the cook house,'" Bartlett said.

The weekend of honors, including parachute drops over Pendleton Airport, was organized by the All Airborne Battalion, a historical non-profit. The three-day event included recognition ceremonies and history presentations.

Seeing the Triple Nickle group's legacy honored became a passion project that was months in preparation, according to event organizer Jordan Bednarz, a member of the All Airborne Battalion's commemorative jump team.

"We did this to honor the legacy of this group of these brave Americans whose story is still largely unknown," said Bednarz, an Army paratrooper veteran. "The honor was long overdue."

During a public ceremony, Darren Miguel Cinatl, president of the All Airborne Battalion nonprofit, joined with Bednarz and Triple Nickle family descendants to dedicate the land surrounding Pendleton Airport as the Malvin Brown Drop Zone.

"This is truly hallowed ground, said Cinatl, who served as a captain with the 82nd Airborne Division in Afghanistan. "We are honored to join with you in this recognition of these true American heroes."

The 555th battalion's mission included more than 1,200 wartime drops into the mountainous forests of the Pacific Northwest. The "balloon bomb" offensive became Japan's last effort to bring the war home to American shores.

Malvin Brown, a private first class medic, was the only soldier killed in action, falling to his death, exhausted after landing in a tree too tall to climb down.

The 555th paratroopers believed they were headed to war in the Pacific, but got no further than Oregon. Secret orders directed the unit to suppress Japanese incendiary bombs, floated by the thousands, toward the West Coast. Army records indicate several hundred made landfall, but only a few succeeded in sparking blazes. Secrecy was maintained to prevent civilian panic.

Neither trained or equipped to fight wildfires or deactivate bombs, the 555th paratroopers exchanged infantry weapons for shovels, and were trained by conscientious objectors drafted as firefighters into the U.S. Forest Service.

Photo courtesy of Dennis Anderson

"Betsy's Biscuit Bomber" was the C-47 Skytrain WWII troop carrier flown by The Gooney Bird Group for Operation Firefly. C-47 Troop Carrier "Betsy's Biscuit Bomber" on jump run at Operation Firefly.

BELOW: Members of the 555th Parachute Infantry Association, the historic heritage nonprofit of the World War II unit gather for group photo.

Photo courtesy of Jonathan Vann

Capt. Jonathan Vann, 82nd Airborne Division, goes through parachute equipment inspection by Army Staff Sgt. Jordan Whittington.

Photo courtesy of Dennis Anderson

"To be a smoke jumper takes six weeks of training," Bartlett recounted. "The Triple Nickle paratroopers had only nine days."

In the multitude of wartime losses, paratrooper Brown fell to his death on the same day the atomic bomb fell on Hiroshima, Bartlett noted. Other troops sustained injuries in jumps to their backs, legs, and pelvis.

"These men were volunteers, who wanted to fight … trained by conscientious objectors who did not want to fight in a war. There is an irony," Bartlett said.

"The bets were on that they would fail, bets from white jumpers and cadre, that they were not brave enough, not smart enough," Bartlett said. "The bet was that they wouldn't make it. … Of course, they made it."

Like most black troops in World War II, they faced entrenched racism, Bartlett noted in a presentation to the groups that gathered at Pendleton the weekend of April 12-14. Standing by a table of vintage firefighting gear he collected, Bartlett shared the story of the pioneering "smoke jumpers."

The work was exhausting. On the day Brown was killed, his brother paratroopers carried his body 14 miles on a litter.

Free time offered little respite. "They would be refused at restaurants and bars," Bartlett said. "They could not get a room at a hotel."

On April 13, at ceremonies to dedicate the Malvin Brown Drop Zone, family members and descendants of the 555th paratroopers turned out, joined by hundreds of people from the community of Pendleton.

"When I was young, I did not know our history, just that I wanted to be a paratrooper," said Clarence E. Scott. "When I retired, I wanted to learn all about the history. I founded a chapter of the 555th Parachute Infantry Association."

On a stage at the airfield, the Pendleton Chamber of Commerce welcomed family members of one of the last surviving members of the unit, Joe Harris. Harris's grandson, Antonio Harris, held up a mobile phone on FaceTime so the crowd could cheer Harris from bed in his Compton, Calif., home.

"We call our grandfather 'Daddy Joe,'" Antonio Harris said, holding the phone up for the cheering crowd. "We are looking forward to his 108th birthday."

Antonio Harris was joined on stage by Harris's granddaughters, Michaun Harris and LaTanya Pittman.

Among current active-duty paratroopers jumping to honor the World War II paratroopers was Capt. Jonathan Vann, an 82nd Airborne Division officer.

"As an African American officer, I make it a point to know our history," Vann said. "The Triple Nickles always were significant. Primarily because I spent years as paratrooper and jumpmaster in the 82nd Airborne Division.

"The men who served in the Triple Nickle embodied resilience and determination. Even though they faced extreme racism, they still chose to defend the nation," Vann said. "That is a true patriot."

As Vann strapped his gear on, he was the first paratrooper out the door of the C-47 in one of its passes over the newly dedicated Malvin Brown Drop Zone.

"I am forever grateful to participate in this illustrious event," Vann said.

In his book, "The Triple Nickles," the late Bradley Biggs, one of the 555th's leaders during World War II told a white officer that he wanted to be a paratrooper, "not to prove that a Negro can jump out of airplanes, but to prove it should have been this way all along."

In one bright moment of America's military moving on from a segregated force, Maj. Gen. James "Jumping Jim" Gavin, hero of D-Day, welcomed the 555th paratroopers into the 82nd Airborne Division, nicknamed the "All Americans."

Gavin, Bartlett said, marched the unit in a World War II victory parade, and made them part of the division more than a year ahead of President Harry Truman's order to integrate the armed forces.

"He loved those guys," Bartlett said. "They were the best. They knew they had to be. They knew the stakes. Failure was not an option for them."

Editor's note: Dennis Anderson is an Army paratrooper veteran who made commemorative jumps at Normandy on D-Day drop zones, also at Toccoa, Georgia, where the "Band of Brothers" of the 101st Airborne Division trained, and Pendleton, Ore., where the 555th Parachute Infantry was based during World War II.

We see courage

For all you give, it’s time we give back.

You represent the best of our community, and we want to show our gratitude for making our lives better. As a special thank you from the KB family to yours, we’re offering **1% off the base price of a new KB home to eligible active-duty military personnel in the Lancaster area.**

Call 213-340-1706 to schedule your visit.

Ironwood in Lancaster
From the low $500s (Plus Cost of Solar*)

Now Selling

- 1,538–2,370 sq. ft., 3–5 bdrms., 2 baths
- Close to major employers, including Lockheed Martin Skunk Works® and Northrop Grumman

6218 Pondera St., Lancaster, CA 93536

Primrose in Lancaster
From the low $600s (Plus Cost of Solar*)

Interest List Now Forming

- 1,728–2,758 sq. ft., 3–4 bdrms., 2-2.5 baths
- Single-story, single-family homes on large homesites

5550 Balmont St., Lancaster, CA 93536

Sonora in Lancaster
From the low $500s (Plus Cost of Solar*)

Now Selling

- 1,538–2,370 sq. ft., 3–5 bdrms., 2 baths
- Only a 10-minute drive to Milestones of Flight Air Museum

44332 32nd St. E., Lancaster, CA 93535

888-KB-HOMES | kbhome.com

*Consistent with California energy regulations, new homes must be equipped with solar panels. These are not included in the posted price, but may be leased for a monthly payment, or purchased for an additional cost that may be eligible for mortgage financing. The required size of the solar system depends on several factors, including home size and climate zone. The installed solar system may reduce your monthly local electric utility company bill. For more information, see kbhome.com/solar.

kb HOME

Built on Relationships®

AFRL-developed physiological monitoring system undergoes flight tests

by Whitney Wetsig
Wright-Patterson AFB, Ohio

An Air Force Research Laboratory-developed physiological monitoring system for pilots completed a series of F-16 flight tests March 4-17, 2024, at the U.S. Air Force Test Pilot School at Edwards Air Force Base, Calif.

The 422nd Test and Evaluation Squadron also completed flight tests on the system in January and February 2024 at Nellis Air Force Base, Nev.

Six TPS student test pilots and engineers used the Integrated Cockpit Sensing, or ICS, system inside the F-16 to collect data for their capstone test management project. The ICS system, developed by AFRL's 711th Human Performance Wing, Human Effectiveness Directorate, fuses sensors that collect physiologic markers from pilots during flight.

"It aggregates measures of oxygen being provided to the brain, heart rate, respiration rate [and] skin temperature, basically a bunch of markers that provide context and help us understand how the pilot is responding to what he or she is asked to do," said Chris Dooley, lead ICS engineer, AFRL Human Effectiveness Directorate. "This data helps us look at risks such as hypoxia and cabin depressurization as well as stress responses to different phases of flight."

Air Force photograph by Wei Lee

Air Force Research Laboratory, or AFRL, scientists and engineers along with U.S. Air Force Test Pilot School students prepare for the Integrated Cockpit Sensing, or ICS, system to be flight tested on an F-16 at Edwards Air Force Base, Calif., March 12, 2024. An AFRL team developed the ICS system to provide an airworthy platform for comprehensive physiological, life-support and environmental monitoring to improve pilot safety and performance. The system has helmet-based, base layer and life-support sensors, ensuring holistic information on the pilot and operating environment during flight.

The TPS students partnered with the ICS team to translate customer requirements into test objectives, ultimately developing and executing a comprehensive flight test project.

"We wanted to be able to help the ICS team accelerate their technology through flight tests," said Wei "Fug" Lee, TPS director of research and the lead adviser for this project. "The goal is to demonstrate the ICS's ability to measure physio and environmental data and assess its utility in recognizing physiological insults. The team broke the plan into several specific test objectives to characterize the system's accuracy in measuring aircraft state data."

The tests also examined the relationship between physiological parameters, cognitive performance and flying performance.

ICS is a valuable tool for research since it measures physiological and environmental parameters during flight operations and identifies normal measures versus problematic ones, said Capt. Tyler Morris, student flight test engineer and project lead.

"Initial testing has shown that the ICS has the ability to detect certain oxygen system malfunctions and the planned development of integrating an alerting system may prove to be critical

See **AFRL**, on Page 13

Astronaut's tale: from Snoopy dog to outer space

by Dennis Anderson
Special to Aerotech News & Review

LANCASTER. Calif. — It's hard not to believe in the power of dreams seeing a family photo of a kid in an Easter bunny costume altered to be an astronaut flight suit, holding a Snoopy plush toy standing in for Buzz Aldrin.

"I dreamed of being an astronaut," NASA veteran Mike Massimino told a captivated audience of hundreds at the Antelope Valley EDGE business conference. "I knew that's what I wanted to do."

During his 1970s childhood on Long Island, N.Y., his mom worked seamstress magic to transform the bunny costume into a flight suit, and the cute kid photo shows Massimino clutching Snoopy. The idea was that Mike was Neil Armstrong, and Snoopy was the second man on the moon.

At age 61, Massimino never tires of sharing his experiences in space, and the road he traveled to realize that dream of becoming an astronaut. Trained as a civilian engineer and researcher working on NASA projects, he applied to be an astronaut, and was turned down.

He was turned down a second time and turned down a third time. And NASA informed him the last time that he had an eyesight condition that would exclude him from the astronaut program.

Massimino enrolled himself in a brain training program to improve his eyesight.

"They told me, 'This is really a program for children, for people young enough that their eyes are still developing.'"

Never give up on the power of dreams — dreams propelled by passion. After completing the brain-eye training program, he was deemed to have visual acuity adequate for space flight.

"I was accepted into the 1996 astronaut training program," he said.

That's the kind of life story that is followed by applause. But there was more.

From all the engineering research and design he had participated in, earning a PhD from Massachusetts Institute of Technology, teaching at Georgia Tech, he seemed to be heading toward a destiny.

Eventually, he would secure the record for longest duration spacewalks outside the space shuttle while orbiting the Earth. He sorted into being the astronaut who would, with his partner, effect repairs on the Hubble Telescope.

But before that, after undergoing his training, and all the hurdles of being selected as mission specialist to board space shuttle Columbia, on the night before launch, he gazed up at the rockets with the fuel pulsing through them.

"It seemed like an angry beast. It seemed like it was alive," he said.

And he suddenly wondered if "in all that time since he was a little boy that maybe this wasn't such a good idea." And he mused over "maybe there was a way to get out of this."

But that did not happen. Many things did happen.

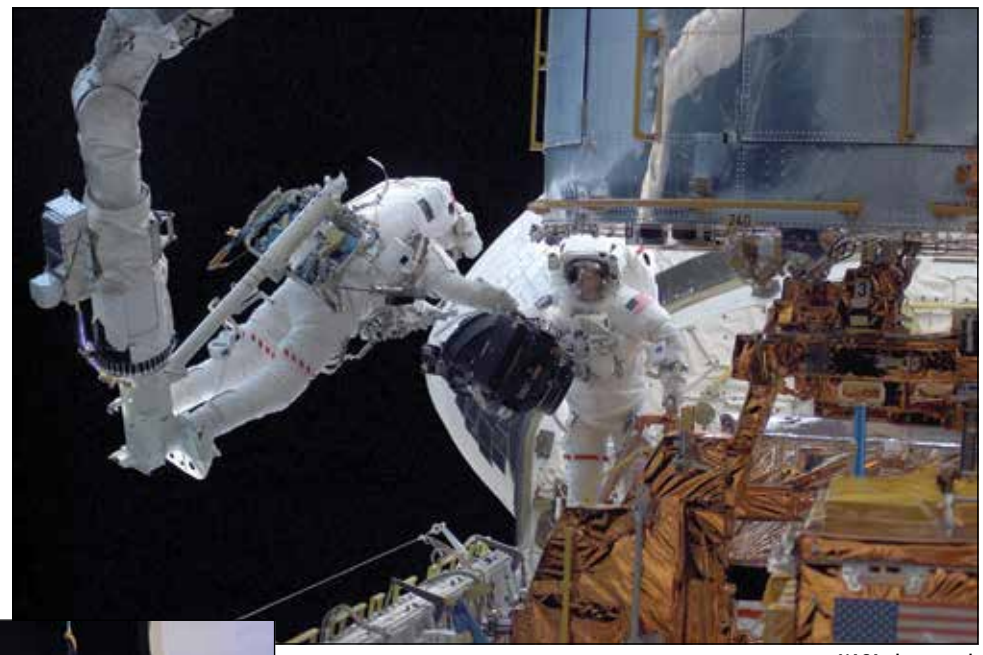
For one thing, he got to meet his original hero, Neil Armstrong, first man on the moon, in the NASA cafeteria. And he had to ask how Armstrong came up with that single sentence, "One small step for man … one giant leap for mankind."

And his hero told him, "This is a dangerous job … and you have so many things to take care of, you just can't be thinking about all these other things."

It was, a phrase, he came up with himself, having put his own mind to it.

When the time came for Massimino to communicate to a global audience he's credited with sending the first "Tweet" from space on the messaging platform formerly known as Twitter, during STS 125 aboard Atlantis in 2009.

"Awesome launch," was part of it, he said. And while not as memorable as the "One Small Step," it still is in the history. And he heeded his hero's advice, to keep his mind on the task at hand, but did manage to add in the tweet, "I am feeling great, working hard, and enjoying the magnificent views. The adventure of a lifetime begins."



NASA photograph

With his feet secured on a platform connected to the remote manipulator system (RMS) robotic arm of the Space Shuttle Columbia, astronaut Michael J. Massimino, mission specialist, hovers over the shuttle's cargo bay while working in tandem with astronaut James H. Newman, mission specialist, to replace the Reaction Wheel Assembly in the Hubble Space Telescope (HST) during the STS-109 mission's second day of extravehicular activity (EVA).

Photograph by Dennis Anderson

Retired NASA Astronaut Mike Massimino talks with Fran Sereseres, senior and disabled advocate, at AV EDGE business conference. Dennis Anderson photo.

BELOW: NASA Astronaut Mike Massimino shows photo of his space shuttle ride with his childhood astronaut partner, a plush Snoopy.

Photograph by Dennis Anderson

His first space flight, STS-109 Columbia, March 1-12, 2002, was the fourth Hubble Space Telescope servicing mission. The crew of STS-109 successfully upgraded the Hubble Space Telescope, leaving it with a new power unit, a new camera, and new solar arrays.

STS-109 set a record for spacewalk time with 35 hours and 55 minutes during five spacewalks. Massimino performed two spacewalks totaling 14 hours and 46 minutes. STS-109 orbited the Earth 165 times and covered 4.5 million statute miles in over 262 hours and 10 minutes, according to his personal biography, Michael Massimino, NASA Astronaut.

Success in space flight, he said, amounts to "Three Trusts."

"Trust your team," he said. "Trust your gear. Trust your training."

Also, "No matter how bad you mess up, you can always make it worse!" Advice from a mentor was to "allow yourself 30 seconds," to rant, to blame yourself, and then, put it behind you, and return to problem solving.

For Massimino there has been plenty of fun on Earth in addition to hard core engineering, teaching, research, and authoring several books.

He also notched a recurring role as himself on the "Big Bang Theory," helping young genius Howard Walowitz prepare for a space launch, and awarding him the nickname "Fruit Loops," because of the character's eating them for breakfast at home.

Responding to audience questions from the Antelope Valley business community, Massimino said he believes in the possibility of life beyond Earth.

"There's no credible evidence that we have been visited," he said. "But the universe is a big place. There are billions of galaxies out there. The chance that we are the only place where life exists is not plausible."

Of his space walking perspective, he said, "This is a view from heaven. It is beyond words. It gives you a whole different way of looking at everything."

And that plush Snoopy that subbed for Buzz Aldrin in his Easter bunny flight suit conversion photo? Snoopy flew with him aboard the space shuttle.

NASA photog honored for thrilling inverted in-flight shot

by Jay Levine
NASA Armstrong

Riding in the back seat of a car can be boring. Riding in the back of a NASA aircraft is exhilarating, especially

NASA photograph by Generao Vavuris

Jim Ross, photo lead at NASA's Armstrong Flight Research Center at Edwards, Calif., took a photo of an aerobatic maneuver from the back seat of a T-34C that was selected as first place in the NASA Photo of the Year 2023 Contest in the People category.

for photographers capturing NASA's story.

Jim Ross, photo lead at NASA's Armstrong Flight Research Center in Edwards, Calif., was awarded first place for an image he took while flying upside down in a two-seat T-34C research aircraft.

In the photo, which was announced as the NASA Photo of the Year 2023 in the People category on April 15, 2024, Ross captures NASA research pilot Nils Larson in full flight gear, while the aircraft is doing aerobatic maneuvers. Most of us would struggle to keep our bearings, let alone operate a camera and frame a perfectly balanced image. NASA Armstrong photographers do this every flight day.

"When we fly proficiency flights, my mind is always thinking about what kind of photo I can take that will share what I am experiencing in the aircraft," Ross said. "This photo was one that I feel is able to tell that story." It's telling the story that makes

NASA photograph by Jim Ross

NASA research pilot Nils Larson and photographer Jim Ross complete aerobatic maneuvers in a NASA Armstrong Flight Research Center at Edwards, Calif., owned T-34C aircraft during a proficiency flight.

Ross's work so important to NASA. Much of what NASA works on can only be witnessed by researchers and scientists, but having it capture in photo and video allows us to share the images with the world.

Ross began his aviation photography career in 1989 when he joined the photography staff at NASA's Armstrong (then Dryden) Flight Research Center, now known as NASA Armstrong. He became the photo lead in 1997, a title he retains. In his 30 years of flying, he has flown on more than 900 missions and has about 1,100 flight hours in aircraft including T-33, T-34, T-38, F-15, F-16, F-18, KC-10, KC-135, C-12, C-20A, Boeing 747SP, and helicopters.

NASA previously recognized Ross for his work with the agency's Public Service Medal and the Exceptional Public Achievement Medal. NASA also made a photo book of his work titled, "NASA Photo One," which highlights 100 photos of his career. He also won the Best of the Best award from the Aviation Week & Space Technology photo contest in 2001. His work has appeared in many publications, including Aviation Week & Space Technology, National Geographic, and Air & Space Smithsonian.

Pancho Barnes: A Trailblazer in Aviation

by Michael Doidge, PhD
AFTC Chief Historian

Florence Leontine Lowe, better known as Pancho Barnes, is best known for her pioneering spirit and larger-than-life persona. Born in 1901, she quickly overcame any challenges to become a legendary figure in American aviation.

Married at a young age, Barnes soon discovered her passion for flight. After her husband's death and her inheritance of a fortune, she embraced aviation, acquiring the Type R "Mystery Ship" and setting numerous speed records. Renowned for her daring feats, she even embarked on a wild adventure in Mexico, adopting the name Pancho Barnes.

By the late 1920s, Barnes dominated air races and air shows, outperforming notable aviators like Amelia Earhart. However, the Great Depression took its toll on her finances, leading her to purchase a ranch near what would later become Edwards Air Force Base in Southern California.

At her ranch, dubbed the "Happy Bottom Riding Club," Barnes provided amenities for test pilots and facilitated an environment of camaraderie and adventure. However, as Edwards became a vital testing ground for the U.S. Air Force, Barnes was at odds with the military's plans.

A legal battle ensued over the ownership of her ranch, culminating in its destruction by fire. Despite winning the dispute, Barnes' victory was bittersweet. Nevertheless, she remained a beloved figure at Edwards, earning titles like "the Mother of Edwards" and "the First Citizen of Edwards."

To understand Pancho's life at Edwards AFB, one must envision the transformation of a frontier Air Force base. During Pancho's time, Edwards was wild,

Courtesy photos

in as much as any military base can be considered remote, detached, or uncoupled. By the 1950s, at the end of her time there, the base became truly part of the U.S. Air Force establishment.

In 1964, Chuck Yeager dedicated a room and bar at the Edwards AFB Officers Club to her memory. Barnes continued to inspire as a guest speaker at aviation conventions until her passing in 1975.

Today, Pancho Barnes remains a legend. Her life is a testament to the pioneering spirit of women in aviation. Her legacy reminds us that boundaries are meant to be challenged and that the sky is never the limit.

ACC announces Outstanding Airmen of the Year

by Jasmine Braswell
Joint Base Langley-Eustis, Va.

Air Combat Command announced the recipients of the command's Outstanding Airmen of the Year Awards, First Sergeant of the Year Award, Officer of the Year Awards, and the Civilian of the Year Awards, at Joint Base Langley-Eustis, Va., April 15, 2024.

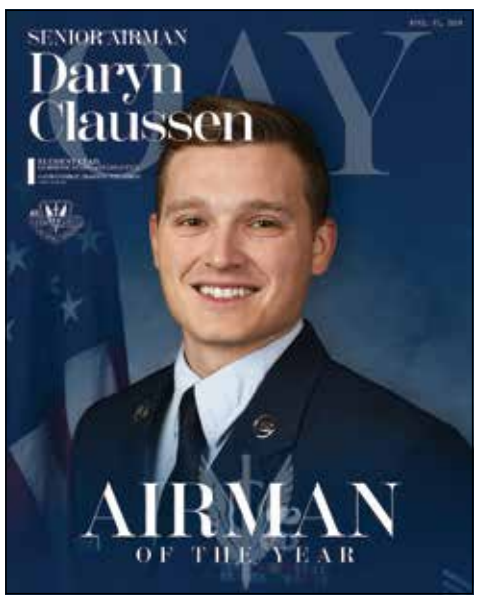
And two of the winners hail from Nellis Air Force Base, Nev.

Airmen were recognized for their outstanding achievements, performance and exceptional meritorious service.

"We are immensely thankful for your commitment to excellence," said Gen. Ken Wilsbach, commander of ACC. "You are remarkable representations of so many Airmen that are doing exceptional work every single day and we are very proud."

The annual event recognizes Airmen who exemplify excellence in their job, off-duty education, and volunteerism within their communities.

"We celebrate the achievements of the representatives of our best Airmen, civilians and company-grade officers that we have throughout the command," said Chief Master Sgt. David Wolfe, command chief of ACC. "When I look around at events like this, it strikes me that this is the lens that I get to look at America through, and I find that to be a huge blessing in my life."



Air Force photographs

LEFT: Air Combat Command Outstanding Airman of the Year is Senior Airmen Daryn Claussen, 414th Combat Training Squadron, Nellis AFB, Nev. Airmen were recognized for their outstanding achievements, performance and exceptional meritorious service.

RIGHT: Air Combat Command First Sergeant of the Year is Master Sgt. Samantha Padilla, 99th Medical Group, Nellis AFB, Nev.

The ACC Outstanding Airmen of the Year Award winners are:

Airman: Senior Airmen Daryn Claussen, 414th Combat Training Squadron, Nellis AFB, Nev.

Noncommissioned Officer: Tech. Sgt. Joseph Mazure, 609th Air Operations Center, Al Udeid Air Base, Qatar

Senior Noncommissioned Officer: Master Sgt. Kaythi Rasay, 4th Force Support Squadron, Seymour Johnson AFB, N.C.

First Sergeant: Master Sgt. Samantha Padilla, 99th Medical Group, Nellis AFB, Nev.

The ACC Officer of the Year Award winners are:

Company Grade Officer: Capt. Sawyer Guard, 386th Expeditionary Security Forces Squadron, Ali Al Salem AB, Kuwait

Field Grade Officer: Maj. Austin Davis, 480th Intelligence, Surveillance and Reconnaissance Wing, Joint Base Langley-Eustis, Va.

The ACC Civilian of the Year Award winners are:

Civilian of the Year (Category I): Nicholas Waller, 319th Security Forces Squadron, Grand Forks AFB, N.D.

Civilian of the Year (Category II): Raymond Pelletier, 325th Fighter Wing, Tyndall AFB, Fla.

Civilian of the Year (Category III): William Miller, 33rd Cyberspace Operations Squadron, JBSA-Lackland, Texas

Congratulations to all the ACC Winners!

AFRL, from Page 8

in keeping aircrew safe," Morris said.

In one test, the students intentionally swapped to an oxygen mask with a faulty inhalation valve, increasing exhalation resistance, while in another, they temporarily disconnected the oxygen supply while a copilot had control of the aircraft. ICS detected the issue in both instances.

Dooley, who traveled to California to assist with the flight tests, said ICS's journey from idea to prototype to flight test took roughly four years. Recent successes include the system receiving approval from Air Combat Command to fly on the F-16 and the military flight release for testing from the F-16 System Program Office, or SPO.

The idea for ICS came from the need for an in-flight platform that would merge sensors and data in real time and provide that feedback to pilots. Prior to ICS, investigators merged existing data from sensors after incidents to determine what went wrong.

"We needed the ability to really investigate and then interrogate it on the back end to understand how we can improve safety for pilots as well as enhance mission effectiveness," Dooley said.

In 2019, AFRL analyzed available commercial sensors and then identified the ones most suitable for the flight environment. Afterward, the team assembled those sensors, built the processes and designed the actual system.

AFRL scientists and engineers worked with BAE Systems (formerly Ball Aerospace) contractors on building software and hardware, as well as resolving data access issues. The team also addressed design features to make the system more acceptable to pilots.

What the team ultimately created is a system with helmet-based, base layer and life-support sensing that provides physiological data in a single package, ensuring holistic information on the pilot and operating environment during flight, Dooley said.

With the initial prototype ready in 2022, AFRL traveled to various SPOs to get the approval to fly the ICS. The team completed airworthiness tests including explosive decompression, rapid decompression, wind blast, manned and unmanned testing in the centrifuge and altitude chambers as well as electromagnetic interference and susceptibility tests, all ensuring the system would be safe and effective for pilots to use on aircraft.

In 2023, the F-16 SPO issued ICS its military flight release, agreeing that the system was safe and effective to fly on the F-16. Next, the team went to AFRL's

See **AFRL**, on Page 14

432nd Wing wins 2023
James H. "Jimmy" Doolittle Award

Air Force photograph by Airman 1st Class Victoria Nuzzi

U.S. Air Force Staff Sgt. Meghan Sylvia, 11th Attack Squadron, shows Jonna Doolittle Hoppes, Executive Director of the Doolittle Foundation, how to perform the duties of a sensor operator while piloting an MQ-9 Reaper remotely piloted aircraft at Creech Air Force Base, Nev., March 22, 2024. Hoppes was learning about different aspects of the 432nd Wing/432nd Air Expeditionary Wing before the presentation of the James H. "Jimmy" Doolittle Award to the 432nd Wing/432nd Air Expeditionary Wing.

Nevada Guard welcomes soldiers from partners Fiji, Tonga

by Spec. Adrianne Lopez
Las Vegas, Nev.

Soldiers from the Nevada National Guard's State Partnership Program welcomed soldiers from the Republic of Fiji Military Forces and His Majesty's Armed Forces with a traditional haka dance at the airport.

"It's a traditional war dance that's used to welcome people," Staff Sgt. Keahi Granstrom said. "We made sure to pay our respects to both Fiji and Tonga and give them kukui beads, which are from Hawaii because Vegas is considered the Ninth Island. So we just wanted to make sure to address them properly and make them feel comfortable."

Soldiers from Fiji and Tonga are in Nevada to compete in the state's Best Warrior Competition over the next few weeks. Among them are four competitors from Fiji and four from Tonga, all victors in their respective countries' competitions.

The Nevada National Guard and Tonga and Fiji have been partners in the State Partnership Program since 2014 and 2018, respectively. Nevada has also partnered with Samoa since 2023.

The Department of Defense National Guard Bureau State Partnership Program has been successfully building relations for over 30 years. It now includes 88 partnerships with 100 nations around the globe.

Soldiers from the Republic of Fiji Military Forces and His Majesty's Armed Forces pose for a photo with Soldiers from the Nevada National Guard State Partnership Program in Las Vegas March 30, 2024. The Soldiers from the RFMF and HMAF are participating in Nevada's Best Warrior Competition.

National Guard photograph by Spc. Adrianne Lopez

Air Force photograph by Senior Airman Miguel T. Tamondong

Chief Master Sergeant recognition ceremony

Current and newest chief master sergeants from both Nellis and Creech Air Force Bases pose for a group photo during the chief master sergeant recognition ceremony at Nellis Air Force Base, Nev., April 20, 2024. The rank of chief master sergeant is the ninth and highest enlisted rank in the U.S. Air Force.

AFRL, from Page 13

Technical Board and Safety Review Board to rceive the approvals to proceed to flight tests.

After communications with the commander of the 59th Test and Evaluation Squadron, the 422nd TES became the first unit to flight test the ICS. Four F-16 pilots completed a series of flight tests in Nevada in early 2024.

"The ICS test is a product of the relationship between AFRL's 711th Human Performance Wing, the 59th and 422nd Test and Evaluation Squadrons to be the operational test arm for human performance programs before they go to the Combat Air Forces, same as we do for jet systems and weapons," said Lt. Col. Robert "SWAG" Russell, squadron commander, 422nd TES. "It's a relationship we've been building with the Aerospace Medical Association and AFRL for years."

He noted that the flight test community has been involved with the ICS program since 2020 following a recommendation made by the National Commission on Military Aviation Safety to proactively monitor aircrew physiology.

"This recommendation was borne out of a rash of fatal mishaps where pilots likely lost consciousness while flying, possibly due to oxygen starvation," Russell said. "There are a lot of qualifiers like 'likely' and 'possibly' because while we collect millions of data points on the airplanes we fly, we monitor and collect zero data on pilots."

The data collected by ICS aims to protect pilots by issuing a warning if certain measures like blood oxygen levels are problematic. Therefore, gaining pilots' acceptance of the system is important, Russell said, an assertion echoed by engineers.

"Aircrew flight equipment shops have been invaluable sources of information for getting everything up in the air and flying and figuring out how we can modify it, so it best integrates into pilots' equipment," Dooley said. "Even down to the ergonomics of how this is going to plug into this without interfering with the jet and with the pilot's ability of doing his or her job."

Following the tests at Nellis and Edwards, Dooley said AFRL will compile the feedback received from pilots, take those lessons learned and apply them to the system. Ultimately, AFRL plans to work with other SPOs and program offices and wants to test ICS on additional platforms. The team also hopes to eventually connect ICS to the aircraft itself to enable proactive safety measures in the case of incapacitated pilots.

"Our team's work is about ensuring the cockpit environment they're operating in is safe so pilots can complete the mission and come home safely," Dooley said. "There's a lot of possibility with this system. ICS produces a very rich data set that doesn't exist anywhere else in the world."

Teammates from AFRL and TPS said both organizations and the Department of the Air Force benefitted from this experience.

"TPS gets a cool project and our partners in this case, the ICS team, get an accelerated flight test," Lee said. "It's just a mutually beneficial, win-win situation."

A FULL SERVICE FIRM

DEMPSEY, ROBERTS & SMITH, LTD.

Security Clearance Issues, Personal Injury, Probate, Family Law, Wrongful Death and more

Call to schedule an appointment

Dempsey, Roberts & Smith, Ltd.

Attorneys at Law

702-388-1216

1130 Wigwam Parkway • Henderson, Nevada 89074

www.drsltd.com

LUXURY LIVING

AIR FORCE EXCLUSIVE PERKS!

Nellis and Creech Air Force personnel and veterans

5% OFF RENT

for all military and veterans

Plus security deposit OAC

BROWNSTONE APARTMENTS

ENJOY LIFE IN BALANCE.

Smart, cozy living begins with an inviting new apartment home near centennial hills.

FOR LEASING INFOMATION

brownstonevegas.com ▪ (702) 425-7321

For the ones who gave all,

WE REMEMBER.

The poppy is a symbol of remembrance for all who made the ultimate sacrifice in military service to our nation.

On Memorial Day, we join you in honoring each individual this red flower represents.

USAA®

usaa.com/memorialday

Alaska Army Guard, Marine Corps enhance aviation tactics

National Guard photographs by Balinda O'Neal

Alaska Army National Guard Staff Sgt. Sara Becker, a UH-60L Black Hawk helicopter crew chief assigned to 207th Aviation Troop Command, scans the area while waiting for passengers during the Weapons and Tactics Instructor Course 2-24 at a forward arming and refueling point near Marine Corps Air Station Yuma, Ariz., April 8, 2024. The training iteration marked the first time that conventional U.S. Army UH-60 Black Hawk aircrews participated in the highly competitive and rigorous joint training course that integrates all Marine aviation assets, ground forces, command and control systems, logistics and air defense.

by Balinda O'Neal
Alaska National Guard

MARINE CORPS AIR STATION YUMA, Ariz. — Aviators from the Alaska Army National Guard graduated from the Marine Corps Weapons and Tactics Instructor course April 22, 2024, marking a significant moment in the evolution of Army-wide aviation readiness.

The Alaska Guard's participation marks the first time a conventional (not special forces) Army Black Hawk unit has taken the highly competitive course.

During the rigorous, seven-week course at Marine Corps Air Station Yuma, Ariz., a 14-Soldier team from the 207th Aviation Troop Command stationed at Joint Base Elmendorf-Richardson, Alaska, flew two UH-60L Black Hawk helicopters for more than 144 hours over 16 progressively challenging simulated combat missions with a variety of fixed-wing and rotary aircraft.

Aside from having two WTI-qualified instructors assigned to the AKARNG, the 207th Aviation Troop Command will contribute to rapidly evolving Army-wide aviation doctrine necessitated by global security challenges.

The U.S. Army Aviation Center of Excellence at Fort Novosel, Ala., is leading the tactical transformation mainly driven by the revised Army Field Manual 3-0: Operations. The new doctrine shifts from emphasizing counterinsurgency, the predominant approach for more than 20 years, to preparing the force to fight against a near-peer competitor in a large-scale combat environment.

U.S. Army Chief Warrant Officer 5 Dave Currier, a seasoned UH-60 Black Hawk helicopter pilot and Weapons and Tactics Instructor assigned to USAACE, highlighted ongoing curriculum revisions for the Army's Instructor Pilot Course. These revisions prioritize tactical instruction and incorporate a broader range of helicopter types into training scenarios. The initiatives also seek to optimize joint asset integration in training programs.

This collaborative endeavor includes the Marine Corps WTI, a meticulously designed program that equips Marine Aviation units with instructors skilled in preparing squadrons for multifaceted combat scenarios.

"When we go to war, it's going to be a joint fight," said Col. Eric D. Purcell, commanding officer of Marine Aviation Weapons and Tactics Squadron One at MCAS Yuma. He emphasized the course's mission is to provide advanced tactical training and certify unit instructor qualifications.

Purcell elaborated on the longstanding relationship between MAWTS-1 and exchange pilots from the U.S. Army's 160th Special Operations Aviation Regiment (Airborne). Currier, previously assigned to the 160th SOAR, has participated in nine iterations of WTI.

The partnership grew in 2022 when AH-64E Apache Attack Helicopter pilots from the South Carolina ARNG's 1-151st Attack Reconnaissance Battalion participated in the WTI course.

Purcell emphasized the benefits of integrating Army and Marine Corps aviators. Capt. Cody McKinney, an AKARNG UH-60 Black Hawk helicopter pilot and recent WTI graduate, echoed this sentiment, underscoring the synergy between Army and Marine aviation core competencies.

During the first training phase, the AKARNG UH-60s integrated into the "heavy metal "shop — the Marines' nickname for their heavy-lift CH-53 Super Stallion helicopter.

During the next phase, the AKARNG aviators began integrating with the Marine UH-1Y Venom [Super Huey] helicopter, a light utility asset. Purcell said this arrangement benefits the Army

———See **TACTICS**, on Page 17

162nd Wing recruiting team recognized

Air National Guard photograph by Senior Airman Guadalupe Beltran

U.S. Air National Guard production recruiters with the 162nd Wing pose for a photo at Morris Air National Guard Base, Ariz., April 7, 2024. The recruiting office outperformed the national, regional, and state average with double digit production accessions.

by Senior Airman Guadalupe Beltran
Morris ANGB, Tucson, Ariz.

The production recruiting team at the 162nd Wing was recognized for their hard work and dedication In Tucson, Ariz., April 6, 2024.

The seven-member team has delivered double-digit accessions; the most since fiscal year 2020. Their performance far exceeds the national, regional, and state average comparison for the last six months.

Production recruiters serve as the first impression of the organization. They provide information concerning service, basic training, technical school, and benefits overview to individuals interested in becoming a member.

"We don't just sell the idea of the Guard to candidates," said flight chief Master Sergeant Matthew Garcia. "We provide them with information on some of the benefits available; like enlistment bonuses, healthcare, educational benefits and full-time opportunities."

Providing valuable information to interested individuals requires organization, time management, and the cost of all-day availability.

"It is important to recognize the team because they invest a lot of effort and time into each recruit," said Garcia. "They often sacrifice time away from family traveling the state to meet with candidates, work weekends, and events outside of the duty day."

The 162nd Wing's production recruiting team is committed to attracting the highest quality candidates assuring the ongoing success of the Morris Air National Guard, an essential component of a world-class fighting force.

Individuals looking for more information about serving in the Arizona Air National Guard are encouraged to contact recruiters at 520-295-7000.

1st Dental Care LLC

EMERGENCIES ACCEPTED

NEW PATIENTS WELCOME

RESTORATIVE
- Crowns/Bridges
- Dentures/Repairs
- Root Canals
- Oral Surgery (Extraction)
- Implants

COSMETIC
- Bleaching
- Bondings
- Porcelain Veneers
- Tooth Colored Filings

PREVENTATIVE
- Sealants
- Cleanings
- Exams

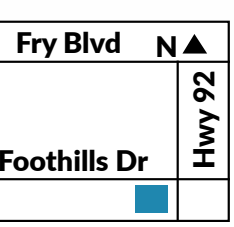
Most Insurance Accepted
Including Delta Dental & Military Insurance

Conscious Sedation Available

General Reconstructive & Cosmetic Dentistry
L. Bui, D.D.S • D. Danivas, D.D.S

459-5166

www.1stdentalcareaz.net



Se Habla Español
Saturday Appointments Available

1150 S Hwy 92, Ste A
Sierra Vista, AZ
Services Provided By An Arizona Licensed General Dentist

HAPPY MOTHER'S DAY & CONGRATS GRADUATES!

Sign Language Interpreter Provided

Rising Star Baptist Church

Is a Local Church With a Global Reach
Where Everyone is Welcome

Youth Church Every 1st & 4th Sunday | Childcare Provided

2800 E. 36th St., Tucson, AZ 85713
(520) 791-3068
www.risingstarbaptist.org

Sundays at 10 AM
IN PERSON & ONLINE

LIVE

@RISINGSTARTUCSON

For the ones who gave all,

WE REMEMBER.

The poppy is a symbol of remembrance for all who made the ultimate sacrifice in military service to our nation.

On Memorial Day, we join you in honoring each individual this red flower represents.

USAA®

usaa.com/memorialday

Rescue Squadrons train together, compete at Rescue Rodeo

by Airman 1st Class Leonid Soubbotine
Moody AFB, Ga.

For the first time, all active duty Air National Guard and training fixed-wing rescue squadrons flying the HC-130J Combat King II joined together to compete at the Rescue Rodeo in Salina, Kansas, March 25-29, 2024.

The 71st Rescue Squadron, Moody Air Force Base, Ga., organized the Rescue Rodeo to share best practices, train the new generation of rescue Airmen and build camaraderie across the small, geographically separated community.

"Rescue Rodeo is an annual competition that we are starting this year," said Maj. Joe Nunley, 71st RQS assistant director of operations.

"In the Air Force, rescue is the best of the best around the world. We get together here to determine who, right now, is the king of the hill. It helps to foster unit cohesion; communication; sharing of tactics, techniques, and procedures; as well as morale among the rescue community."

Airmen from all over the nation who fly the HC-130J Combat King II participated in the event. Competing for the top spot were the rescue professionals from the 79th Rescue Squadron, Davis-Monthan AFB, Arizona; 71st RQS, Moody AFB, Georgia; Air National Guard's 211th Rescue Squadron, Joint Base Elmendorf-Richardson, Alaska; 102nd Rescue Squadron, Francis S. Gabreski Air National Guard Base, New York; 130th Rescue Squadron, Moffett Federal Airfield, California; and the Air Force Reserve's 39th Rescue Squadron, Patrick Space Force Base, Florida.

U.S. Air Force Airmen assigned to various rescue squadrons pose for a group photo at Salina Regional Airport, Kansas, March 28, 2024. After several days and multiple training scenarios, the 102nd Rescue Squadron claimed first place in the Rescue Rodeo, an event pitting active duty, Air National Guard, and Reserve rescue units against each other.

LEFT: Airman 1st Class Erick Fuentes, 71st Rescue Squadron loadmaster, watches cargo descend to the ground from an HC-130J Combat King II over Salina Regional Airport, Kansas, March 27, 2024. The aerial cargo drop was part of the Rescue Rodeo, a rescue training event and competition. Airmen had to account for plane speed, winds, and altitude when performing the precision drops.

"The HC-130J Combat King II is basically the Swiss Army knife of airplanes, it does literally everything that an airplane can do," Nunley said. "We came out here and tested our skills in all those different operating areas, and it helped us see where our weaknesses and strengths are to improve across the community.

"The skillsets we practiced here at the rodeo are things we have and will continue to execute in the real world, both downrange and during our support of civilian activities, whether it's a downed service member behind enemy lines or supporting astronaut search and rescue. You call, we haul, and it's just bread and butter for us."

Throughout the course, Airmen practiced precision drops, touch-and-go landings, and rescues, which simulated a downed pilot dressed as a famous search-and-find book character.

"It gives us a chance to operate in an environment outside of Moody," said Lt. Col. Brian Ayers, 71st RQS chief combat systems officer. "It is always good, because it takes us outside of our backyard and lets us work somewhere different, which is valuable for deployments and exercises."

After three days of competition in a close race between rescue Airmen, the 102nd RQS edged out by a single point over the 211th RQS, securing the trophy sword and bragging rights.

"We were proud to attend and represent all of the 102nd Rescue Squadron," said Capt. Chaz Smith, 102nd RQS pilot. "We showed who the real kings of rescue are!"

Air Force photographs by Airman 1st Class Leonid Soubbotine

A U.S. Air Force rescue Airman assigned provides ground support for an aerial cargo drop at Smoky Hill Air National Guard Range, Kansas, March 26, 2024. The cargo drop was part of the Rescue Rodeo, a rescue training event and competition. Each team earned points in the competition based on how close the cargo landed to the ground target.

TACTICS, from Page 16

aviators and offers flexibility in their training approach.

"There are some missions where the Hueys by themselves may not have a large enough class. Throw in a couple 60s and now you get a really great training environment," said Purcell. "Other missions where CH-53s are doing a lot of heavy lift, major troop inserts, having a couple 60s that can go out and do CASEVAC missions, go out and do smaller [Tactical Air Control Party] inserts, some recon inserts, and integrate into that larger mission provides a huge value."

McKinney appreciated flying with a variety of aircraft from different components while training on core war-fighting functions.

"The experience gained here allows us to focus our efforts on increasing our lethality for our federal mission, but at the same time, it also makes us more effective for our state mission to help the people that rely on us back home," said McKinney. "With Alaska's unique strategic positioning, it's imperative to understand the evolving threat landscape and hone our skills to effectively counter dynamic and complex future conflicts."

McKinney said the planning to attend the course took more than two years. The Alaska Air National Guard transported both UH-60 helicopters via a 176th Wing C-17 Globemaster III aircraft from JBER to Yuma. The Utah ARNG's 2-211th General Support Aviation Battalion provided a spare helicopter and government vehicle.

"All of these different organizations gave up the best people that they had, their equipment and their time to be able to try to make Army aviation better as a whole," said McKinney. "We knew that this was the apex of what rotary wing aviation has in the United States."

To accommodate the demanding schedule with more than 30 instruction periods, six days a week, 12 hours a day in the Sonoran desert, the team assembled a dedicated group of UH-60 Black Hawk mechanics.

"With all of the training flights that they've been doing here, they run those helicopters through the ringers," said Spc. Hannah Kinder, a UH-60 Black Hawk mechanic with 207th Aviation Troop Command. "When they get back to the flight line, they're covered in sand and dust. We wipe them down and make sure that they run smooth for the next day."

Kinder, who graduated from Advanced Individual Training only one year ago, said supporting WTI was a great learning experience.

"Having senior mechanics and that knowledge around me all the time has helped me learn different things about the helicopter and learn about different maintenance tasks that I haven't done at home yet," said Kinder.

Purcell said the course is intended to integrate all Marine aviation, including ground support, command and control, crew chiefs, and other officers and enlisted personnel. WTI graduates emerge as subject matter experts, equipped to lead and instruct and advise commanders on navigating operational risks and threats.

"They have to know how to balance risk, the red threat and the blue threat, that's out there so that when we go into combat, we know exactly the threats that we're accepting and what we're not going to accept in order to achieve mission success," said Purcell.

American®
Furniture Warehouse

Create Your American Dream

Bedroom • Dining Room • Living Room • Mattresses • Outdoor Furniture • Office • Entertainment • Children's Furniture

BEST SELECTION, BEST PRICES!

IN STOCK

TAKE HOME TODAY!

Nationwide Delivery!

AFW.com

VETERAN OWNED COMPANY

Fate is the Hunter

by Bob Alvis
special to Aerotech News

Many years ago, a movie called *Fate Is the Hunter* followed the disastrous flight of an aircraft with several issues that caused the plane's demise.

When all was said and done, a series of unforeseen mishaps that the pilot had no control over, took down the plane and cost many lives.

Lockheed test pilot Henry C. Bosserman woke up on the morning of Feb. 6, 1958, at his house in Littlerock, Calif., and got ready for another day of Lockheed flight testing at Palmdale's Plant 42 facility. He was doing acceptance checks of the new Lockheed F-104 Starfighter.

As the morning would playout, fate would indeed be the hunter. As most all test pilots know, no matter how many times you fly a plane, there is no such thing as a routine flight. Especially in a new cutting-edge fighter plane with a radical new design fresh off the production line.

Bosserman rose to the rank of major, and had a stellar career flying combat in World War II in Europe, and then as a pilot in the air defense command stateside at the beginning of the Cold War. He had hours of flight experience, and it carried over to his post-military career when he became a test pilot for Lockheed.

But as fate would have it, he didn't know what was waiting off the west end of the Plant 42 runway. When he lit the afterburner and started his roll towards his test hop that morning, what should have been just another check-out of a new jet became much more.

It was eight o'clock as the school kids gathered at the local bus stop over on M-8 and 27th street west. They were expecting just another school day, like those who lived in the area, but as minutes passed, they came closer to a moment that they will carry with them for the rest of their lives.

Bosserman, at full afterburner, made the crossing of what we now call BJ's Corner at Sierra Highway and Avenue N in Palmdale, Calif., and began his climb to altitude. When the gremlins that can follow a pilot in a new plane showed up, the seasoned pilot suddenly faced warning lights and alarms in his cockpit.

Bosserman's sleek fighter suffered a flame-out with a loud bang, and gave the pilot just seconds to evaluate his craft and make hard decisions.

Witnesses gave many different accounts of what they saw or heard when the roar of the engine suddenly gave a loud bang, and a ball of fire had them thinking that the plane had blown up. But with all the speed, the intact airframe came out of the smoke and it was a hurtling jet clawing at the sky to still fly.

Back at the bus stop, those kids, and the small community back then that were in what we now call White Fence Farms — a rural setting of ranches and farms — had the silence of the morning erupt into a calamity that today we would have a hard time imagining.

Air Force photograph
Maj Henry Bosserman, Lockheed test pilot.

As pilot Bosserman crossed over 10th Street West, the open field below him and the last second of flight had him pull the levers and ejected from the stricken aircraft. Near what would be about 16th West and Avenue N-4, which is just desert today, the newspapers reported that he was seen hitting the ground at a high rate of speed. His parachute not having time to deploy, killed him when he hit the desert, and fate caught up with him when the conditions were too difficult and too swift to overcome.

As the kids at the bus stop doing what kids do, suddenly the daily routine of going to school became secondary as an unknown object came hurtling out of the sky. Fate would intervene again as the out-of-control jet aircraft, less its pilot, managed to punch a hole in the ground in the neighborhood and miraculously not injure one person. Several people told of hearing materials hit their houses, and one woman managed to witness the last moment of the plane out of her living room window.

Over at the bus stop, traumatized kids had no idea what had just happened in front of them. The event happened so fast, that few had any clue it was an airplane that had just barely missed them. As people ran outside and parents rushed to the site and bus stop, it became apparent with hugs and shouts of "Oh my god; you're safe," what could have happened if fate had waivered a bit one way or another.

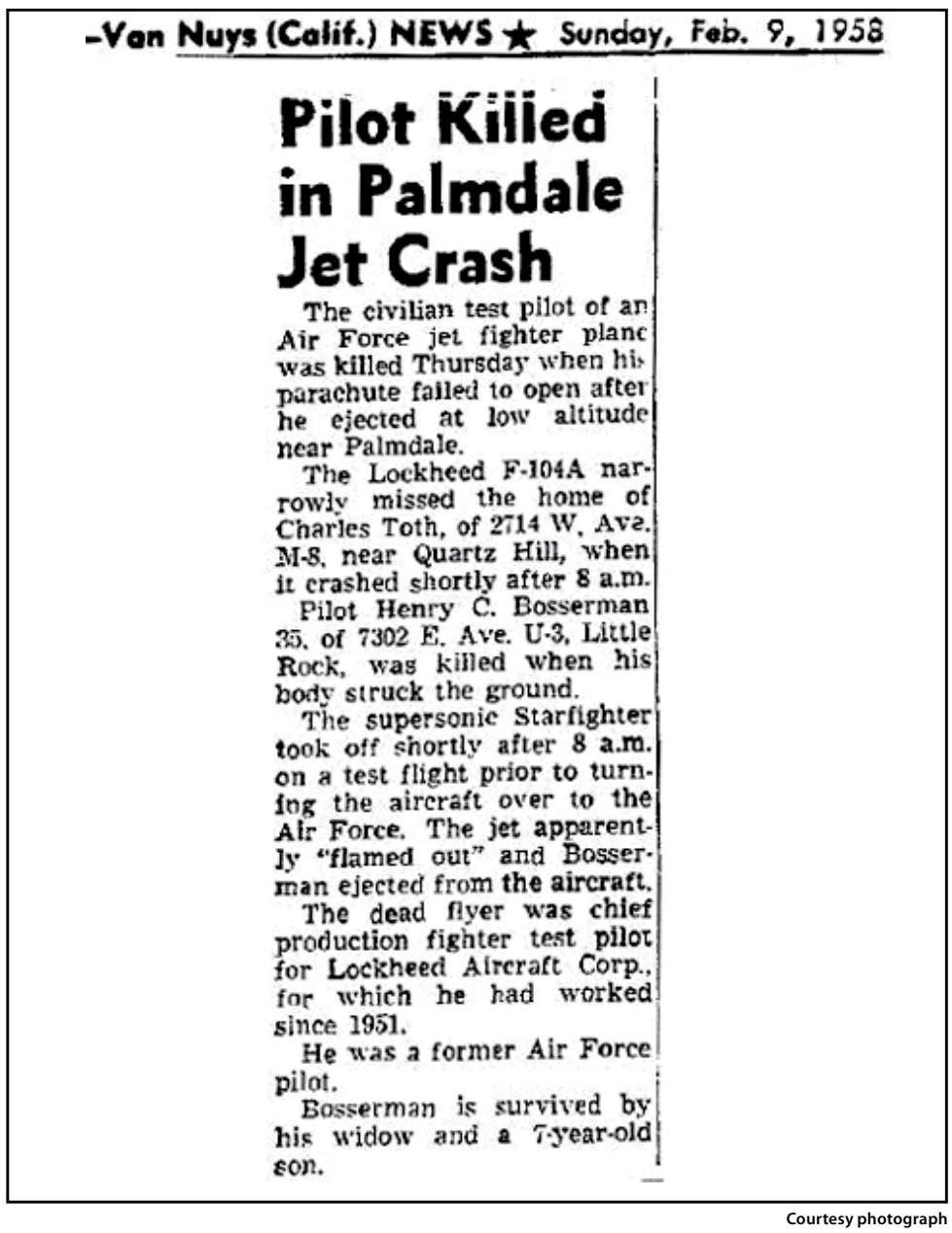
The crash had just become an event that would be shared with future family members and friends as the story of when the plane fell from the sky and by some miracle, nobody was killed.

Air Force photograph
The Lockheed F-104, tail number, 56-0772.

Henry Bosserman's wife and young son would suffer the notification, and what was just another February day, became a day they would carry in their hearts for the rest of their lives. Many times over Europe in World War II, Bosserman tempted fate as a combat pilot flying dangerous missions that at any time could have ended in catastrophe, but fate would put all that off till one day on an early morning in a peaceful Palmdale, the hunter found its way into the cockpit of that brand-new Starfighter and rolled the dice that came up snake eyes stunning a community, and all who worked with him and called him husband father and friend.

Lest we forget those we have lost, and may we never forget them, we should understand better than anyone that the hunter is and always will be looking over our shoulders in every aspect of our lives.

Until next time, Bob out …



-Van Nuys (Calif.) NEWS ★ Sunday, Feb. 9, 1958

Pilot Killed in Palmdale Jet Crash

The civilian test pilot of an Air Force jet fighter plane was killed Thursday when his parachute failed to open after he ejected at low altitude near Palmdale.

The Lockheed F-104A narrowly missed the home of Charles Toth, of 2714 W. Ave. M-8, near Quartz Hill, when it crashed shortly after 8 a.m.

Pilot Henry C. Bosserman 35, of 7302 E. Ave. U-3, Little Rock, was killed when his body struck the ground.

The supersonic Starfighter took off shortly after 8 a.m. on a test flight prior to turning the aircraft over to the Air Force. The jet apparently "flamed out" and Bosserman ejected from the aircraft.

The dead flyer was chief production fighter test pilot for Lockheed Aircraft Corp., for which he had worked since 1951.

He was a former Air Force pilot.

Bosserman is survived by his widow and a 7-year-old son.

Courtesy photograph
The crash of the F-104 that killed Henry Bosserman was reported in newspapers across the country.

DESERT DIAMOND ENTERTAINMENT

LIVE IN THE DIAMOND CENTER

GET TICKETS AT ETIX.COM

MAY 31
SHOW 8PM

JULY 26
SHOW 8PM

AUG. 10
SHOW 8PM

AUG. 23
SHOW 8PM

SEPT. 21
SHOW 8PM

READERS' CHOICE 2022 FAVORITE Arizona Daily Star

DESERT DIAMOND CASINO
SAHUARITA
LIVE THE DIAMOND LIFE

An Enterprise of the Tohono O'odham Nation. Must be 21 to enter casino.
Entertainment subject to change or cancellation without prior notice.

NOW ENROLLING 2024-25

LA PALOMA ACADEMY
ACADEMY
LAKESIDE CAMPUS
Since 2002

LA PALOMA ACADEMY LAKESIDE

K-8

PREPARING OUR FUTURE

- FREE BEFORE- AND AFTER-SCHOOL PROGRAM
- FREE FULL-DAY KINDERGARTEN
- AWESOME ACTIVITIES
- EXCELLENCE IN ACADEMICS

RESERVE A SPOT FOR YOUR CHILD NOW!

ONLY 4 MILES FROM BASE!
8140 E. GOLF LINKS RD.

LPATUCSON.ORG

Terra Sol II in Rosamond

Now Selling Phase 2

Terra Sol II

ASK ABOUT OUR HEROES PROGRAM!

OUR HOMES FEATURE

- 1,812 - 2,535 Square Feet
- 3-5 Bedrooms
- 2-3 Baths
- 3-Car Tandem Garage (2,535 PLAN)
- Flexible Living Spaces
- Stainless Steel Kitchen Appliances
- Granite Kitchen Countertops
- White Cabinetry
- Priced From the High $400's

LEGACY HOMES

www.legacyhomesusa.com

MARYHELEN MOLINA #01521829
661.256.2234
2056 WESTPARK DRIVE
ROSAMOND, CA 93560

CELEBRATE MOM! *Mother's Day Weekend Special*
Short Stack with Fresh Strawberries and Whipped Cream for $7.99

LUNCH SPECIALS $8.99*
Ask your server about today's special
*M-F only, not valid on holidays

We have you covered for your breakfast and lunch needs every day of the year, even holidays
Dine-in • To-Go • DoorDash

Breakfast Specials*
1 egg, 2 bacon or 2 sausage links or a slice of ham, hash browns, or home fries and wheat or white toast. $4.49
French toast, 1 egg and 2 bacon strips or sausage links $5.49
2 pancakes, 1 egg and 1 bacon strip or 1 sausage link $4.99
*M-F only, not valid on holidays

2018 2019 2020

Joe's Pancake House
FAMILY RESTAURANT
Serving Tucson 39 Years
2532 S. Kolb Rd. • 747-7536 • Open Mon-Sat: 6am-2pm, Sun: 7am-2pm

---

SHISH KEBAB HOUSE
Follow us

The Finest Middle Eastern and Mediterranean Food
Shish Kebabs • Shawarma
Hummus • Falafel • Gyros
Dine-in • Take-out
Now accepting reservations
15% OFF FOR MILITARY
when you mention this ad
5855 E. Broadway Blvd., Ste. 118 • Tucson
520-745-5308
shishkebabhouseoftucson.com

CRAIG RANCH VILLAS

370 Casa Norte Dr, North Las Vegas, NV
2 & 3 Bedroom Apartment Homes • 642-0140

- Only 6 miles from Gate
- Fireplaces
- Non-Smoking Units*
- Pet Friendly
- Washer & Dryers
- Reduced Rates for Military

Swimming Pool, Spa, Fitness Center, Club House, Covered Parking, Tot Lot, Vaulted Ceilings, Quiet Residential Neighborhoods

---

Families never receive a bill from St. Jude for treatment, travel, housing or food – because all a family should worry about is helping their child live.

Treatments invented at St. Jude have helped push the overall childhood cancer survival rate from 20 percent to more than 80 percent since we opened 50 years ago. And we won't stop until no child dies from cancer.

St. Jude Children's Research Hospital®
Finding cures. Saving children.

Call **800-822-6344** or visit **stjude.org/cfc** to learn more.

A CFC Participant. Provided as a public service.

TWO GREAT LOCATIONS TO SERVE YOU

LANCASTER
825 W Ave L12
(661) 535-1246
Tue-Sat 10am - 5pm
Sun-Mon Closed

PALMDALE
3305 E Palmdale Blvd
(661) 797-8034
Mon-Fri 10am - 6pm
Sat-Sun 10am - 5pm

Safe • Clean • Well-Lit • Secure

BEST SELF-STORAGE IN THE AV

NOVA STORAGE

Individual Unit
Alarms/Security
Extended Access
Drive-up Convenience

NovaStorage.com

We Are Buying

Watches, Jewelry, Diamonds
Coins & Paper Money
Gold, Platinum and Silver

We buy all things sterling silver.
This includes flatware, tea and coffee sets, serving trays and candlesticks.

We buy all luxury brands and specialize in Rolex, Patek Philippe, Cartier and Omega.

Craig Evan Small
Craig has been on TV's "Antiques Roadshow" for 23 seasons and has been in the jewelry trade for 35 years.

Two of our appraisers are on TV's "Antiques Roadshow"

Sports Cards & Memorabilia
Broken Jewelry
Dental Gold
Luxury Handbags
Bullion
Gold, Silver & Platinum
Rare Documents
Autographed Items

FIVE DAYS ONLY!
Tues., May 21 to Sat., May 25
9:00 am to 6:00 pm
Call for your appointment today!
661-729-5500

Todd Tyra
Todd has been on TV's "Antique Roadshow" for five years and ran the largest jewelry buying event company in America for 25 years.

Platinum Jewelry 44617 Sierra Hwy Lancaster CA 93534

California Department of Justice License # 1900-0865

Inspiring a new generation of aerospace leaders today.

The Future is Calling! Don’t miss this STEM Special Edition!

Aerotech News will publish a special edition on August 23, 2024, dedicated to STEM and the fields driving progress and shaping the future.

This special edition will offer:

Profiles of STEM trailblazers • Engaging STEM Activities
Career Insights • Cutting-Edge Research and Development

This STEM Special Edition is an invaluable resource for:

Educators who want to integrate stimulating and informative content into their curriculum.

Students to help spark intellectual curiosity and explore potential career paths.

Professionals that want to stay informed about industry trends and the evolution of STEM fields.

And anyone who wants to expand their knowledge and appreciate the impact of STEM on our everyday lives.

SIZE	RATE
Business card • 3.325” x 2”	$111.54
1/8 page • 3.325” x 5”	$226.60
1/4 page • 5” x 6.5”	$418.28
1/2 page• 10.25” x 6.5”	$821.53
Full page • 10.25” x 13”	$1587.30

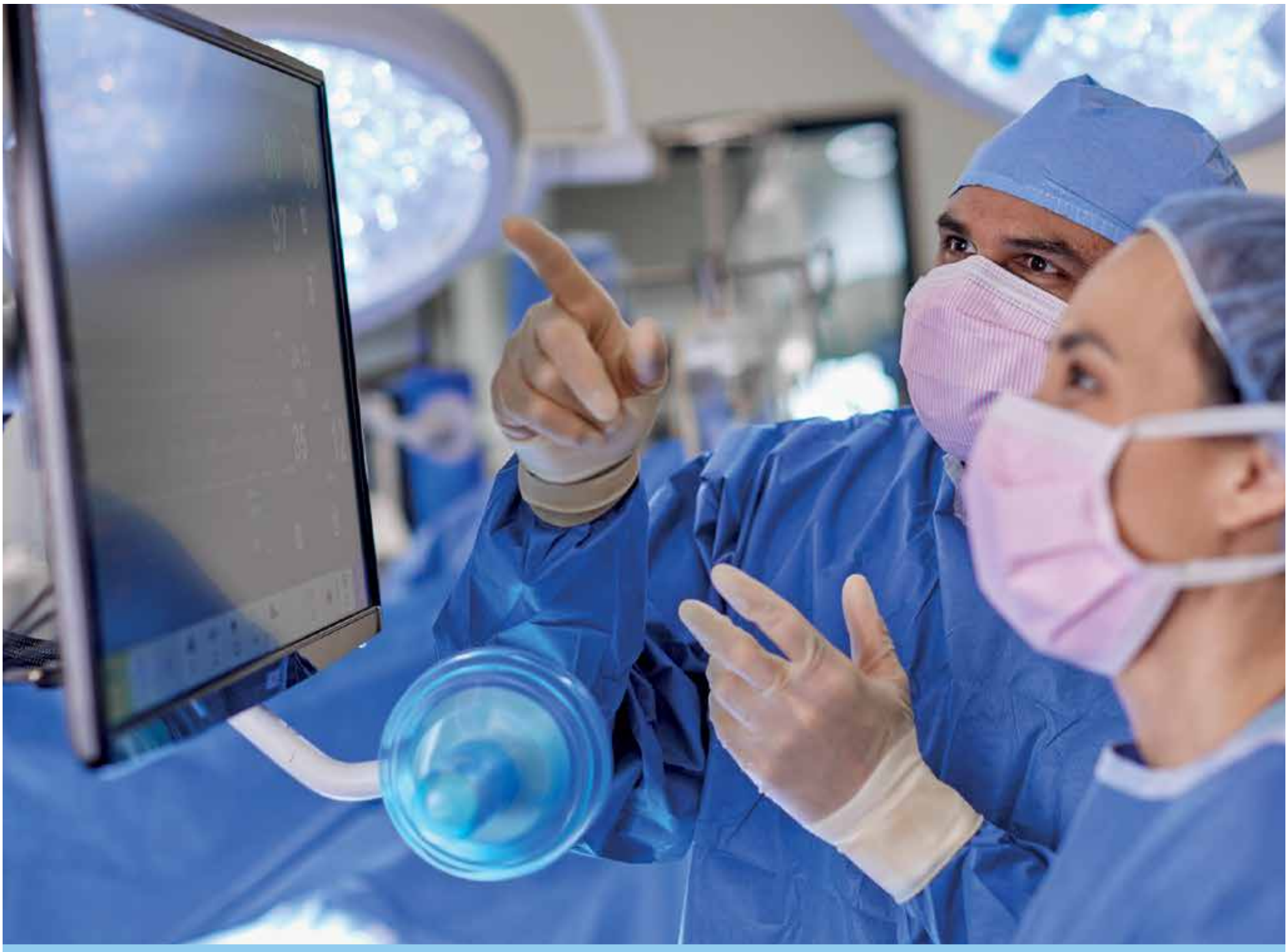
Advertising Reservation Deadline: August 12, 2024 • Advertising Material Deadline: August 15, 2024

AEROTECHNEWS

Serving the Aerospace, Military and Veteran Community of the Desert Southwest.

Marketing & Advertising
Call toll free: 877-247-9288
Email: Sandi Bueltel at sbueltel@aerotechnews.com

www.aerotechnews.com



Here for you when you need us most.

Kaiser Permanente Antelope Valley Surgery Center coming soon, providing high-quality care close to home.

Our specialists are highly skilled, deeply compassionate, and dedicated to your health. Learn more at **kp.org/antelopevalley**.

For all that is Antelope Valley. For all that is you.

KAISER PERMANENTE®