NAVAL AVIATION NEWS

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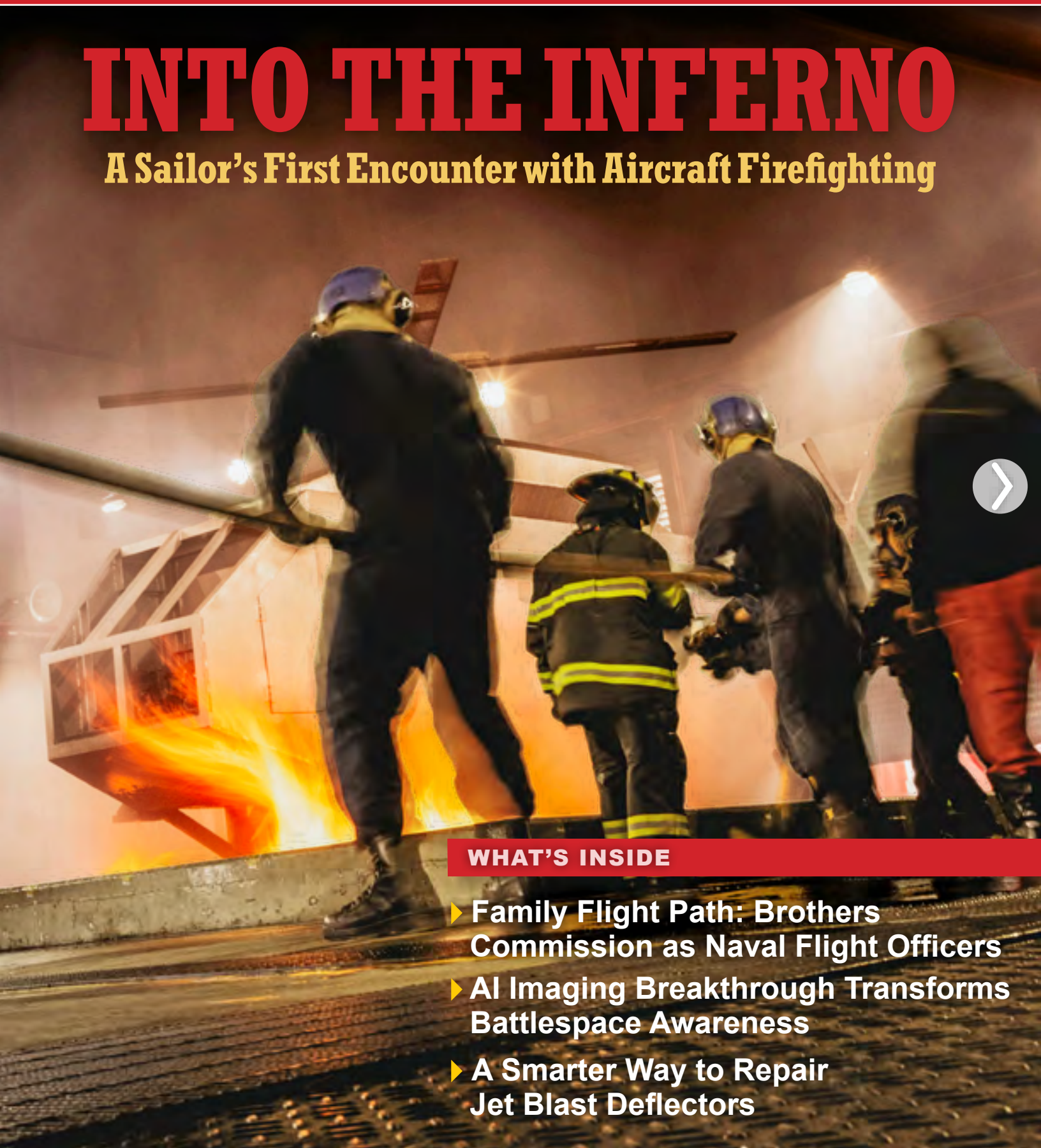
INTO THE INFERNO

A Sailor's First Encounter with Aircraft Firefighting



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ON THE COVER

On the Cover: *Sailors assigned to carrier USS George Washington (CVN 73) combat a fire during an aircraft firefighting class at Surface Warfare School Command (SWSC) on Commander, Fleet Activities Yokosuka, March 14, 2025. SWSC familiarizes Sailors with basic chemistry and classification of fires, firefighting, protective equipment, and procedures for shipboard firefighting using simulated emergency firefighting conditions afloat and ashore. (U.S. Navy photo by Mass Communication Specialist 2nd Class August Clawson)*

In this edition of Naval Aviation News*, we explore the challenges of fighting a roaring, jet-fueled fire aboard an aircraft carrier from the perspective of a sailor experiencing firefighter training for the first time. Read about her observations starting on page 24. Staying aboard aircraft carriers, on page 30, learn about a new tool being used to repair jet blast deflectors—a feature crucial to protecting the deck from jet engine firings. On page 34, read about two brothers who followed in their father's footsteps, joined the Navy and are now naval flight officers, having graduated together. And learn about how updated Automatic Terrain Awareness and Warning System (ATAWS) installed on F/A-18 Legacy Hornets are working to prevent crashes by taking over controls when impact with the ground could be imminent.*

On the back cover: *A U.S. Marine Corps F/A-18C Hornet aircraft with Marine Fighter Attack Squadron (VMFA) 312 flies loaded with six AIM-120D advanced medium-range air-to-air missile and two AIM-9X Sidewinder missiles over the Pacific Ocean Oct. 27, 2022. (U.S. Marine Corps courtesy photo by Capt. Ryan Fronczek).*

The U.S. Navy's Oldest Periodical, Established 1917

Submission Guidelines

Commands may send news and announcements such as awards, rescues, milestones and other achievements to **navy_nannews@navy.mil**. Approved photos of Naval Aviation-oriented activities are always welcome. For longer feature articles, contact the editor in advance. Military contributors should forward articles about their commands only after internal security review and with command approval. For more information, contact us at **navy_nannews@navy.mil**.

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New NAVAIR Commander Shares Priorities

Vice Adm. John E. Dougherty IV, who came aboard August 2025 as commander of Naval Air Systems Command, recently conducted a question and answer session with Naval Aviation News highlighting his goals.

What are your priorities for NAVAIR, and how are you implementing them?

We've set four clear priorities for NAVAIR: people first, deliver readiness, accelerate capability delivery and elevate our game. I want the workforce focused on what matters most, and these priorities will keep us aligned on the outcomes that truly move the needle.

Foremost, it's our people first. They are the key ingredient, our competitive advantage. Their technical expertise, their commitment to safety and airworthiness, their dedication to the mission—this is what allows us to deliver the capability and readiness the warfighter needs to deter, fight and win. I'd put our engineering and technical workforce up against anyone in the world. But being world class doesn't happen by accident. We have to invest in our people, listen

Photos courtesy of Vice Adm. John E. Dougherty IV

John E. Dougherty IV, right, celebrates with classmate Bubba Palazza at their 1995 U.S. Naval Academy graduation.

Dougherty serves in Kabul, Afghanistan, during a 2006 deployment supporting operations in the region.

Dougherty, fourth from left, stands with fellow "Argonauts" of Strike Fighter Squadron (VFA) 147 aboard USS John C. Stennis during support operations for Enduring Freedom in 2001.

to them, empower them. I believe the best ideas come from the heart of the organization, from the teams closest to the work, and that's why people will always be our top priority.

Second is deliver readiness. NAVAIR has done a fantastic job delivering readiness over the past several years, but we can't take our eye off that ball. At the end of the day, we need aircraft up, mission systems up, weapons ready, maintainers proficient, aviators proficient. We know the behaviors that drive readiness, and we're seeing the results; now we just have to sustain that focus so the fleet has what it needs every single day.

Third is accelerate capability delivery. This is where we have the most opportunity to elevate our game. Great power competition demands that we outpace our adversaries, and that means delivering capability with speed. We need to execute our programs of record and partner smartly across the industrial base to bring new technologies to the warfighter faster. This will require us to look hard at our processes and evolve them to meet the demand for speed.

And finally, we have to elevate our game. Every dollar that comes into this enterprise needs to be aligned to our most consequential outcomes and priorities. That means focusing on results, not just process for process's sake, and modernizing how we work as technology evolves. Our senior leaders have been clear: Act like we're at war today. That mindset—seeking every competitive advantage in how we operate—is essential to elevating our performance across NAVAIR.

What does success look like for NAVAIR, and what do you expect from the workforce as you pursue it?

Success for NAVAIR is simple: Our warfighters must always have the tactical advantage. We never want a fair fight. We want our Navy and Marine Corps aviation forces so capable, so ready and so lethal that our adversaries think twice before challenging us.

To get there, we need a workforce that stays focused on outcomes and keeps the warfighter at the center of every decision. I'm asking our people to bring curiosity to the table. Don't be afraid to ask why we do things a certain way or how we might do them better. Seek accountability. Look for opportunities to lead, regardless of your position. Those attributes will serve us well as we move forward.

Relationships matter, too. Trust, transparency and open communication across, down, in and out of the enterprise, are essential to how we operate. When we combine that mindset with our technical excellence, we will deliver for the fleet every time.

Given the current global landscape and the pace of the great power competition, how do you see NAVAIR's role evolving, and what do you need from the workforce to meet that challenge?

We're at a truly unique moment in our history. The pace of this great power competition is unlike anything we've seen, and our adversaries are moving fast, fielding capability and capacity

Dougherty and his wife, Michelle, at the 2017 change of command ceremony for the Precision Strike Weapons Program Office.

Photos courtesy of Vice Adm. John E. Dougherty IV

Surrounded by his family, Dougherty marks his promotion to rear admiral. From left: daughter Julia, wife Michelle, John IV and son John V.

U.S. Naval Academy Class of 1995 flag officers, including Dougherty, far right, gather at the Aviation Flag Officers Training Symposium at the National Naval Aviation Museum onboard Naval Air Station Pensacola, Florida, in May 2025.

at a rate that demands we raise our own standard. That's the challenge of our time, and I'm confident we're up to it.

What excites me about leading NAVAIR right now is that this organization has delivered, year after year, no matter what's been asked of it. Now the bar has been raised again, and we have both the top cover and the opportunity to take a hard look at how we do business. We need to listen to our people, because the best ideas for change come from the workforce, those who are closest to the work and closest to the problems we're trying to solve.

What I'm asking from our team is simple: Challenge the status quo. Don't just execute the process because that's how it's always been done. Get back to core principles. Ask why. Ask why not. That curious mindset is what will help us adapt our processes, move faster and deliver the capabilities the fleet needs.

This moment gives us a once-in-a-lifetime opportunity to drive meaningful change with support from the administration, Congress and our senior leaders. We're in a competition that requires us to evolve, and I want NAVAIR to lead that change. I know our workforce has the ideas and the talent to do exactly that.

How is NAVAIR transforming its work to meet future demands, and where do you see the greatest opportunities for advancement?

We're entering a period where new technologies are reshaping how we operate, and NAVAIR needs to be out front. Autonomy, unmanned systems, AI, big data analytics and advanced manufacturing are all areas where we must be world class, and I intend to invest the time and energy to get us there. These tools allow us to make faster, more informed decisions, understand root causes of performance and attack problems with precision.

That's the heart of NAVAIR Next, an initiative to manage the business of Naval Aviation. It's a call to action for our workforce to look critically at how we do business today and how modern tools can help us evolve our processes to deliver better outcomes. We're already a world-class organization with unmatched technical acumen and strong credibility across the Navy and with our stakeholders. I want to leverage that strength to push into new areas and lead the change our mission demands.

If you could tell the workforce and the fleet one thing, what would it be?

To our workforce, I'd say this: I'm incredibly proud to lead this organization. We're facing a unique and demanding challenge, and I have absolute confidence that we have the right people to meet it. We're in a competition, and we intend to win.

And to the fleet, my message is simple: We will deliver for you. We've proven that in recent conflicts. Our Navy and Marine Corps are engaged every day, and when you come to us with new needs, new ideas, new capabilities, this organization responds. In fact, I welcome even more of your requests, because I'm confident we can continue to deliver the capabilities you need to stay ahead.

U.S. Navy graphic

Vice Adm. John E. Dougherty IV is a native of Harrisburg, Pennsylvania. He is a 1995 graduate of the United States Naval Academy with merit. He holds a Master of Business Administration and a Master of Systems Engineering from the Naval Postgraduate School.

After earning his Wings of Gold and completing Fleet Replacement Squadron (FRS) training at Strike Fighter Squadron (VFA) 125, he joined VFA-147, where he flew combat strike missions in support of Operation Southern Watch and Operation Enduring Freedom aboard USS John Stennis (CVN 74). He was then assigned as an instructor pilot at VFA-125, where he served as the assistant operations officer and the out-of-control flight phase head. During these tours, he accumulated more than 1,200 flight hours in the F/A-18C Hornet and completed more than 300 carrier landings.

Before transitioning to the Aerospace Engineering Duty Officer community in 2006, Dougherty served as a strategic planner on the Combined Forces Command Afghanistan staff in Kabul, Afghanistan.

Dougherty's acquisition tours include Airborne Rockets and Pyrotechnics Integrated Product Team lead for the Direct and Time Sensitive Strike Weapons Program; F-35 Joint Strike Fighter Program Office deputy director of development; F/A-18EF and EA-18G Program Office weapon system integration and radar lead; and Unmanned Carrier Aviation Program Office class desk.

From 2017-2021, he served as program manager for the Precision Strike Weapons Program Office, which encompasses several major air-to-ground weapons programs for Naval Aviation, including the largest NAVAIR foreign military sales portfolio.

In 2021, Dougherty served as the first slated program manager for the Navy's Next Generation Air Dominance Program Office.

His previous flag officer tour was commander, Naval Air Warfare Center Aircraft Division and chief engineer, NAVAIR.

He assumed his current position as Commander, NAVAIR in August 2025.

Dougherty's personal decorations include the Legion of Merit, Defense Meritorious Service Medal (three awards), Meritorious Service Medal (two awards), Air Medal (two awards), Navy and Marine Corps Achievement Medal (two awards) and various other unit awards.

Grampaw Pettibone

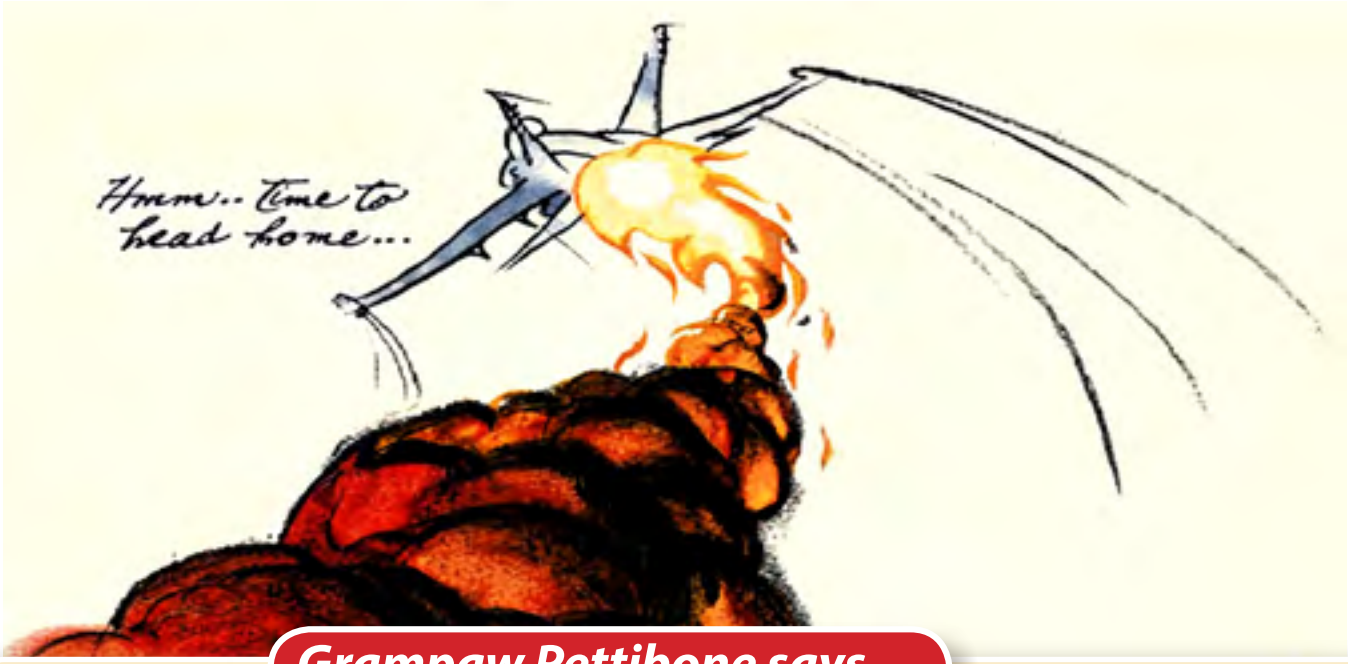
Gramps from Yesteryear: January-February 1997

Illustration by Ted Wilbur

Fire in the Hole

A division of four F/A-18Cs was en route to the air-to-ground working area when the second section leader's left engine fire light came on. The pilot informed the division leader, who saw a thin stream of smoke emanating from the Hornet but didn't advise the pilot. The pilot in trouble informed the leader he did not need assistance and that he and his wingman would return to base in section. As the F/A-18s turned toward home, the wingman saw trickles of smoke coming from the Hornet. The smoke increased and then flames streamed momentarily from the bottom of the aircraft near the auxiliary power unit. The pilot secured the left throttle and pushed the fire light in accordance with Naval Air Training and Operating Procedures Standardization (NATOPS). The light stayed on, confirming that a fire did exist. The pilot continued to look for other indications of the fire and noted the exhaust gas temperature spiked (at maximum) on his instruments. This occurred about one minute after the fire began. At this point, the pilot activated the left engine fire extinguisher. The situation did not worsen, and the flight continued to a safe recovery at home plate.

Post-flight examination revealed that the airframe-mounted accessory drive aft power transmission shaft had failed. The fire started as a result of the flailing of the broken shaft which, ruptured a fuel line, causing severe fire and heat damage to the engine compartment.



Grampaw Pettibone says...

Leapin' lizards! The division leader sees smoke comin' from a wingman's aircraft and doesn't tell him about it! Why not? He thought the pilot had already confirmed the fire. Believe Ole Gramps: 'tis better to be overly cautious than under informed.

Even more surprisin' is that the pilot in trouble goes through the boldface steps of his NATOPS checklist, gets a positive indication that the fire does exist, and yet continues to look for more signs of fire for another minute or so. Finally, he activates the fire extinguisher. Who knows how much damage could have been prevented with prompt actuation of the fire extinguisher? NATOPS sez: if fire indications exist after pushing the left or right fire light and the light continues, activate the fire extinguisher. Seconds count in any aircraft, especially the high-performance types. Thank the Lord, man and machine made it down OK.

Airscoop

Compiled by Rob Perry

U.S. Marine Corps photo by Lance Cpl. Ricardo Ramirez

October 2025 marked 10 years of CH-53K King Stallion first flight. The U.S. Marine Corps plans to procure 200 King Stallions.

CH-53K King Stallion Marks 10 Years Since First Flight

PATUXENT RIVER, Md.—The CH-53K King Stallion first took to the skies Oct. 27, 2015. More than a decade later, 20 CH-53Ks are now flying missions across four Navy and Marine Corps squadrons.

The CH-53K, set for its first deployment in fiscal year 2027, achieved Initial Operational Capability in April 2022 and entered full-rate production that November. As the U.S. military's only heavy-lift helicopter, the King Stallion can lift 36,000 pounds, refuel midair and provide ship-to-shore mobility and maneuverability for a wide range of assault support missions.

According to Col. Kate Fleeger, program manager for the H-53 Heavy Lift Helicopters Program Office, the aircraft will play a key role in sustaining forward operations, ensuring forces remain agile and supported and maintaining a forward presence on the battlefield.

"With its unique capability to lift all Marine Corps air-transportable equipment from ship-to-shore, the CH-53K will play a crucial role in rapidly and flexibly deploying forces and supplies, supporting expeditionary advanced base operations and distributed air operations concepts, and ultimately enabling the Marine Corps to project power and sustain its presence with greater speed and agility," she said.

The Marine Corps plans to procure 200 CH-53Ks, and the program office recently entered a five-year, multi-year contract with Sikorsky to purchase up to 99 additional helicopters.

"We will be equipping six active-duty squadrons, one reserve squadron, two test squadrons and a training squadron with the CH-53K as the Marine Corps transitions from the CH-53E Super Stallion," Fleeger said. "The full changeover is expected to be completed in FY32."

From the H-53 Heavy Lift Helicopters Program Office.

Navy UAS Surpass 1 Million Hours in ISR Operations

PATUXENT RIVER, Md.—The Navy and Marine Corps Small Tactical Unmanned Aircraft Systems (UAS) Program Office announced its Intelligence, Surveillance and Reconnaissance (ISR) Services UAS have surpassed 1 million flight hours supporting operations on land and at sea.

Sailors achieved the milestone during routine mission support in the U.S. 6th Fleet.

Since the program's inception in 2005, the program office has completed more than 50 UAS installations aboard Navy and Military Sealift Command (MSC) ships and operated from more than 50 land-based locations worldwide. The ISR Services team ensures ships across the 4th, 5th, 6th and 7th fleets, as well as land-based operations worldwide, are equipped to provide day-and-night ISR support to joint force and coalition partners.

"Every hour flown represents more than mission success—it reflects the resilience of our people, the trust of our partners and the impact we've had on history," said Gregg Skinner, program manager. "Together, we've supported operations in every corner of the globe, advanced unmanned systems into the fight and stood ready in times of uncertainty."

More than a dozen ships are currently equipped with ISR Services UAS, enabling naval vessels to launch and recover aircraft in support of missions. Sea- and land-based systems include the Boeing Insitu MQ-27 ScanEagle and the Textron MQ-19 Aerosonde, both providing day-and-night surveillance and around-the-clock mission support to the warfighter.

UAS installations are optimized to help transfer full-motion video and other sensor data to personnel in critical locations. The information gathered by these systems plays a vital role in tactical operational decision-making and long-term intelligence gathering, strengthening the Navy and Marine Corps' ability to maintain maritime domain awareness and operational readiness.

From the Navy and Marine Corps Small Tactical Unmanned Aircraft Systems Program Office.

U.S. Navy photo

A Textron MQ-19 Aerosonde Unmanned Aircraft System launches from the expeditionary sea base USS Hershel "Woody" Williams (ESB-4).

U.S. Navy graphic

An F-35 Lightning II is shown operating alongside Collaborative Combat Aircraft in a conceptual graphic illustrating their integration. The unmanned systems serve as wingmen, enhancing mission effectiveness by supporting manned aircraft pilots with critical tasks.

F-35 Pilots, Navy Collaborative Combat Aircraft Hone Tactics in Joint Simulation Environment

PATUXENT RIVER, Md.—The Naval Air Warfare Center Aircraft Division (NAWCAD) achieved a milestone in integrating the F-35 Lightning II with the Navy's emerging Collaborative Combat Aircraft (CCA) during a recent tactical demonstration inside its Joint Simulation Environment (JSE).

The event demonstrated how advanced modeling and simulation can accelerate the development of tactics and strategies for fifth-generation aircraft operating alongside uncrewed combat systems.

"Modern warfare is demanding more from our aviators," said NAWCAD Commander Rear Adm. Todd Evans. "This milestone shows the JSE's impact on equipping them with the advanced tactics they need to win future battles."

During the demonstration, F-35 pilots used touch-screen tablets to control multiple CCA during simulated missions. Using advanced operational communication systems and precision-guided missiles, pilots engaged complex threats in the JSE's highly realistic virtual environment.

The JSE is the Department of War's state-of-the-art digital test and training range, designed to replicate real-world combat scenarios in a controlled, virtual battlespace. Built by NAWCAD engineers, it combines cockpit simulators, advanced software and domed visual displays, allowing pilots to train and test systems safely and efficiently. The JSE helps pilots fly more sorties in a week than they can on open-air ranges in a year, significantly sharpening their skills and improving readiness.

The Navy's CCA are multi-role uncrewed combat vehicles that will operate alongside crewed fighters, enhancing mission effectiveness in highly contested environments. Central to the department's future strategy, these systems allow pilots to focus on high-level decision-making while expanding operational reach. The JSE plays a key role in developing tactics and operational concepts for integrating CCA with fifth-generation platforms like the F-35.

NAWCAD'S JSE continues to expand, with planned integration of the E-2D Advanced Hawkeye, F/A-18E/F Super Hornet and EA-18G Growler to support integrated test and training in fiscal year 2026.

NAWCAD hosts dozens of squadrons and hundreds of pilots annually, fostering joint and international collaboration in advanced air combat training. Additional Navy and Air Force JSE facilities are under development at Naval Air Station Fallon and Nellis Air Force Base in Nevada, and Edwards Air Force Base in California.

From the Naval Air Warfare Center Aircraft Division, Patuxent River, Maryland.

Secret Service Receives New Trainer Courtesy of Presidential Helicopters Program Office

LAUREL, Md.—The Presidential Helicopters Program Office delivered a retired and refurbished VH-3D helicopter to the United States Secret Service (USSS) in June 2025, providing the agency with a modernized training aircraft at the James J. Rowley Training Center (JJRTC) in Laurel, Maryland.

Industry and contract partners supported the seamless transfer, completing top-shelf inspection, maintenance, demilitarization installation and white-glove refurbishment to deliver the aircraft in quintessential showroom condition with all tactical features required for current presidential and vice presidential protection training.

The aircraft, bureau number 159351 (BUNO 351), will be used for threat reaction and other tactical procedural training, giving agents a safe, accurate platform that reflects the layout and skills they need for their important protective missions.

BUNO 351's journey began in 2022, when the USSS and Marine Corps began discussing upgrades to the agency's aging training asset. Earlier in 2025, the program office's maintenance department completed initial demilitarization at the Presidential Helicopter Support Facility before the aircraft underwent weeks of refurbishment and installation of USS-requested ground training features. It replaces an unserviceable, retired, decades-old training aircraft previously used at JJRTC.

The new aircraft also offers a proper seating configuration aligned with the VH-92A Patriot helicopter, the model currently flown by Marine Helicopter Squadron (HMX) 1 in support of the presidential lift mission.

"Our teams have collaborated diligently to make this transfer possible," said Col. Erica Mantz, program manager. "This

CNATTU Accepts Stricken MH-60S to Boost Training Capability

CORONADO, Calif.—The Center for Naval Aviation Technical Training Unit (CNATTU) North Island enhanced its hands-on training capability in January after accepting a stricken MH-60S Seahawk from Helicopter Sea Combat Wing at Naval Air Station North Island.

Declared permanently nonflyable, the aircraft will now serve as a full-scale instructional platform to support aviation maintenance training across multiple ratings and pipelines.

The move from the flight line to CNATTU North Island's main facility required careful coordination to ensure safety and efficiency. Aviation Structural Mechanic 1st Class (AM1) Christopher Massey, an MH-60 instructor, orchestrated the evolution, which was executed by Helicopter Sea Combat Squadron (HSC) 3 with assistance from base security to manage roadway safety during transport. Once positioned outside the hangar bay, Massey and fellow Instructor AM1 Irish Doblan adjusted the aircraft's tail struts to ensure proper clearance for entry.

After alignment, a team of CNATTU North Island H-60 instructors, led by Aviation Electrician's Mate 1st Class Uarian Langerston, pushed the aircraft into the hangar bay, completing the move without incident. The effort highlighted the coordination, teamwork and professionalism of all personnel involved.

"This new addition to our training systems demonstrates our ongoing commitment to excellence in aviation training and ensures that our sailors and Marines are equipped with the skills they need to perform at the highest level when they return to the fleet," said Cmdr. Robert Kersey, CNATTU North Island commanding officer.

Written by Chief Petty Officer Jack Waldo with the Center for Naval Aviation Technical Training.

U.S. Navy photo

Center for Naval Aviation Technical Training Unit (CNATTU) North Island staff receive a stricken MH-60S helicopter from the Helicopter Sea Combat Wing there in January to use for training purposes.

Photo courtesy of United States Secret Service.

VH-3D bureau number 159351 served HMX-1 shy of 50 years and flew nine United States presidents.

effort to deliver BUNO 351 has greatly strengthened our partnership with the U.S. Secret Service and contract support team."

The previous training helicopter, manufactured in 1963 and used by countless special agents and uniformed division officers to practice protective movements, has since been transported to Arizona for shredding and recycling.

"Not only is VH-3D BUNO 351 a significant improvement for our training requirements, [but] our visitors to JJRTC have the opportunity to view a Marine One on tours of the training facility," said Deputy Special Agent in Charge Troy Sarria. "The new helicopter draws even more attention as an officially retired and demilitarized VH-3D—once flying presidents and vice presidents."

The program office's logistics and sustainment teams oversaw the full demilitarization and transfer process, ensuring proper accounting for all government inventory and a seamless handoff to the USSS.

"We are grateful for the helicopter's capability and awed by the quality of the final product," Sarria said.

During the January dedication ceremony officially inducting the retired VH-3D as the USSS training asset, Mantz reflected on the aircraft's legacy. "This aircraft served nearly 50 years, supporting nine U.S. presidents throughout its distinguished history. Now, 351 will continue to serve our great nation in a different, but equally important, capacity."

The retired VH-3D now sits just feet away from "Air Force One Half," a partial mockup used for training at JJRTC. This placement is essential. Together, these two training assets create scenarios that mimic real-life events and lead to more effective and realistic training for protective operations.

BUNO 351 served HMX-1 shy of 50 years before reaching its end of service life. The aircraft entered service in July 1975 and was decommissioned in October 2024 after supporting presidents Gerald Ford, Jimmy Carter, Ronald Reagan, George H.W. Bush, Bill Clinton, George W. Bush, Barack Obama, Donald Trump and Joe Biden.

The program office provides safe, ready, high-performing and affordable aircraft, capabilities and support to HMX-1.

From the Presidential Helicopters Program Office.

'Black Knights' Fly Again: VMM-264 Reactivates After Five-Year Hiatus

JACKSONVILLE, N.C.—Marine Medium Tiltrotor Squadron (VMM) 264, 2nd Marine Aircraft Wing, was officially reactivated during a Dec. 11, 2025, ceremony at Marine Corps Air Station New River, North Carolina, marking the return of a storied unit after a five-year stand-down.

Known as "The Black Knights," VMM-264 was deactivated June 24, 2020, as part of Force Design initiatives. During the squadron's hiatus, the Marine Corps conducted a comprehensive force-management analysis to ensure operational commitments remained fully supported. That analysis identified the need for an additional East Coast VMM squadron to sustain II Marine Expeditionary Force's operational commitments, prompting the decision to bring VMM-264 back online. This move reflects incremental adjustments to Force Design to meet the service's operational demands.

During the reactivation ceremony, Col. Daniel Kaiser, commanding officer of Marine Aircraft Group 26 (MAG), highlighted the squadron's history and its early role in shaping MV-22 operations.

"VMM-264 carries a distinguished legacy, having been established in 1959 and providing decades of critical support to Marine Air-Ground Task Force operations around the globe," Kaiser said. "Upon transitioning to the MV-22 Osprey in 2009, the squadron played a pivotal role in developing and advancing the MV-22 as the Marine Corps' premier assault support platform.

"MAG-26 is proud to welcome this storied unit back into the fold and looks forward to the significant contributions the 'Black Knights' will bring in support of the 'Carolina MAGTF.'"

The squadron will resume operating the MV-22 Osprey, the Marine Corps' multi-role tiltrotor aircraft that combines helicopter-like vertical lift with the speed and range of a fixed-wing aircraft. Developed by Bell Helicopter and Boeing, the Osprey supports a wide array of missions, including troop transports, logistics and casualty evacuation, and its speed and range make it a crucial asset for rapid deployment and maneuverability in contested environments.

The ceremony also included an assumption of command, with Lt. Col. Paul Lancaster formally taking command of VMM-264.

"I'm proud to lead the reactivation of a legacy assault support unit," Lancaster said. "This reactivation brings the necessary balance and capacity to the MV-22 community and supports the continued evolution of Marine Corps aviation.

"Today's ceremony honors the Marines and sailors who worked tirelessly to build a world-class squadron, dedicated to operational excellence. It also honors the thousands of Marines and sailors who wore the 'Black Knights' patch previously."

VMM-264 is a subordinate unit of 2nd Marine Aircraft Wing, the aviation combat element of II Marine Expeditionary Force.

Written by Capt. Jacob Ballard with the 2nd Marine Aircraft Wing.

A U.S. Marine Corps MV-22B Osprey assigned to Marine Medium Tiltrotor Squadron (VMM) 264, Marine Aircraft Group 26, 2nd Marine Aircraft Wing, takes off at Marine Corps Air Station New River, North Carolina, Jan. 6, 2026.

U.S. Marine Corps photo by Lance Cpl. Jacsive Betancourt Nava

Poseidon Block 2, Minotaur Upgrades Enhance Maritime Patrol Picture

U.S. Navy photo

P-8A Poseidon Increment 3 Block 2 (I3B2) aircraft connected successfully to the Minotaur Family of Systems (MFoS) Labyrinth hub December 2025.

PATUXENT RIVER, Md.—The Maritime Patrol and Reconnaissance Aircraft Program Office achieved a major airborne connectivity milestone when the P-8A Poseidon Increment 3 Block 2 (I3B2) aircraft connected successfully to the Minotaur Family of Systems (MFoS) Labyrinth hub during a combined development and operational test event this December at Naval Air Systems Command (NAVAIR).

I3B2 represents a significant upgrade to the P-8A's airframe and avionics systems. The modification adds new airframe racks, radome, antennas, sensors and wiring, along with an enhanced combat systems suite featuring improved computer processing, higher-security architecture, wide-band satellite communications, anti-submarine warfare (ASW) signals intelligence capability, the Minotaur mission management system, and expanded communications and acoustics systems to strengthen search, detection and targeting capabilities.

The Minotaur mission management system is a government-owned, open-architecture software suite that combines data from various sensors to give aircrews a coherent operational picture. It offers networked information sharing across Minotaur-equipped aircraft and assets, enhancing intelligence, surveillance and reconnaissance (ISR) capabilities.

Labyrinth, a cloud-based Minotaur platform, adds robust scalable data handling and correlation, allowing external stakeholders to access shared information securely via a web-based interface. Its auto-scaling services ensure all Minotaur-equipped platforms can tap into the same vital information.

Further proving Labyrinth's expansive capabilities, during a recent test flight, Air Test and Evaluation Squadron (VX) 20 remained connected to Labyrinth for the entire mission, providing thousands of relevant tracks and demonstrating the system's capacity to handle large volumes of data.

Connecting the P-8A to Labyrinth marks a critical step forward in expanding tactical utility for both in-flight aircrews and worldwide stakeholders, revolutionizing real-time data sharing and improved maritime situational awareness.

"With P-8A connected to Labyrinth, our MPRA community is now able to exchange multi-domain, multi-sensor tracks between existing Minotaur-equipped platforms and the new I3B2 aircraft," said Capt. Erik Thomas, program manager. "This connection allows the P-8A and the watch floor to share critical operational data, ensuring that all stakeholders are synchronized to deliver a decision-advantage."

In response to evolving global threats, P-8A modifications continue through a sequence of rapid capability insertion efforts that build on the I3B2 baseline. In addition to Labyrinth, I3B2 adds top-secret architecture, the Minotaur mission system, Enhanced Multi-static Acoustics Capability, ASW signals intelligence systems, wide-band satellite communication and an application-based architecture.

"This milestone was the result of a collaborative effort between [the program office] and VX-20," Thomas said. "Advancing the strategic goals outlined by the program office and demonstrating a commitment to rapid capability development, we are directly supporting continuous development of a naval 'family of systems' for maritime surveillance."

The MPRA community, assisted by the program office, continues to prove the technical viability of integrating frontline warfighting aircraft with enterprise-level cloud services, paving the way for future fleet-wide implementation and a more connected, lethal force.

From the Maritime Patrol and Reconnaissance Aircraft Program Office.

VMUT-2 Graduates First Marine-Trained MQ-9A Reaper Pilots, Sensor Operators

U.S. Marine Corps photo by Lance Cpl. Jacsive Betancourt Nava

U.S. Marines with the Marine Unmanned Aerial Vehicle Training Squadron (VMUT) 2, Marine Aircraft Group 14, 2nd Marine Aircraft Wing, pose for a photo during the graduation ceremony of several Marines at Marine Corps Air Station, North Carolina, Nov. 3, 2025.

MARINE CORPS AIR STATION CHERRY POINT, N.C.—Marine Unmanned Aerial Vehicle Training Squadron (VMUT) 2, Marine Aircraft Group 14, 2nd Marine Aircraft Wing, graduated its first class of MQ-9A Reaper student pilots and sensor operators Nov. 7, 2025, marking the Marine Corps' first organically trained MQ-9A aircrew.

Since 2018, Marine Corps MQ-9A training has been conducted through an Air Force-led Inter-service Training Review Organization agreement. This year, the Marine Corps established its own training pipeline through the Air Vehicle Aircrew program at Naval Air Station Pensacola, Florida, and VMUT-2 at Cherry Point.

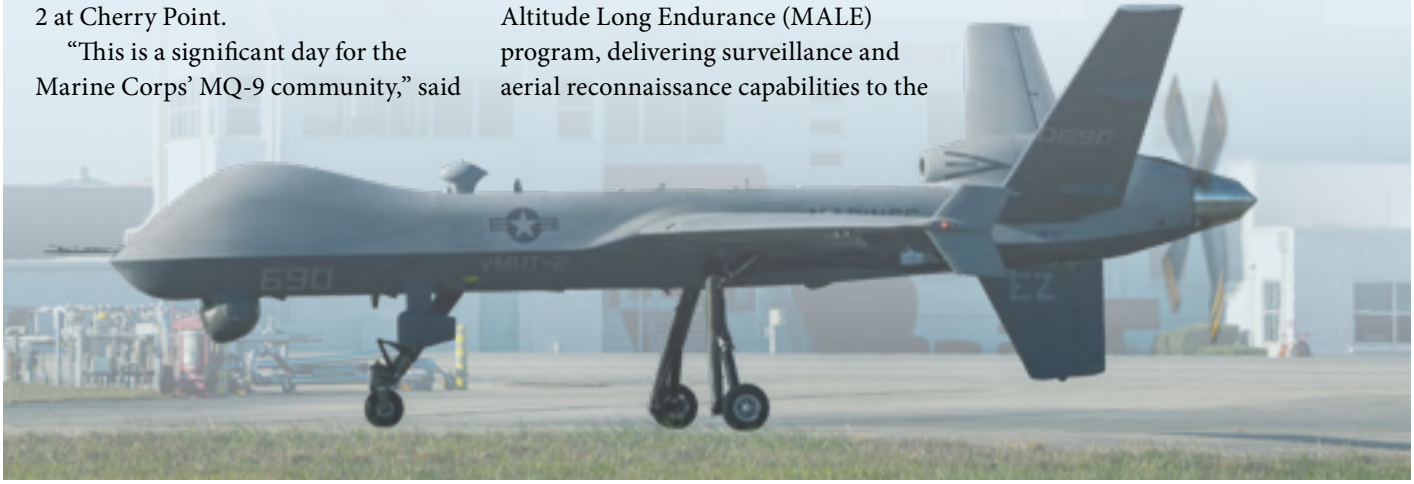
"This is a significant day for the Marine Corps' MQ-9 community," said Maj. David Hughes, VMUT-2 executive officer. "[The students'] months of hard work and dedication has culminated in them being officially welcomed into the Marine Corps' MQ-9A community."

The Marine Initial Qualification Training course, the Corps' only Group 5 MQ-9A graduate-level program for pilots and sensor operators, provides six months of instruction led by Marine and contract instructors experienced in fielding the Reaper system.

The MQ-9A, alongside its pilots, sensor operators and maintainers, form the crux of the Marine Corps' Marine Air-Ground Task Force Unmanned Aerial System Expeditionary (MUX) Medium Altitude Long Endurance (MALE) program, delivering surveillance and aerial reconnaissance capabilities to the MAGTF. VMUT-2 trains aircrew for assignment to the Fleet Marine Force at Marine Unmanned Aerial Vehicle Squadron (VMU) 1 at Marine Corps Air Station Yuma, Arizona, and VMU-3 at Marine Corps Base Hawaii.

The graduation marks a major milestone in the growth of the Marine Corps' MQ-9A Reaper community and the MUX MALE program. As the IQT course expands in fiscal year 2026, 2nd MAW will also support the standup of Unmanned Aerial System Maintenance Squadron 1, co-located with VMUT-2 at Cherry Point.

Written by 1st Lt. John Graham with the 2nd Marine Aircraft Wing.



Navy in Middle East Launches Attack Drone at Sea for First Time

ARABIAN GULF—U.S. Naval Forces Central Command/U.S. 5th Fleet (NAVCENT/C5F) launched a one-way attack drone from a ship at sea for the first time Dec. 16, marking a significant milestone in expanding unmanned capabilities in the region. The Independence-class littoral combat ship USS Santa Barbara (LCS 32) conducted the historic launch in the Arabian Gulf, employing a Low-cost Unmanned Combat Attack System (LUCAS).

"This first successful launch of LUCAS from a naval vessel marks a significant milestone in rapidly delivering affordable and effective unmanned capabilities to the warfighter," said Vice Adm. Curt Renshaw, commander of NAVCENT/C5F. "This achievement demonstrates the power of innovation and joint collaboration in this critical region."

Earlier in December, U.S. Central Command announced the deployment of the military's first one-way-attack drone squadron to the Middle East. The LUCAS platform launched from USS Santa Barbara's flight deck is part of Task Force Scorpion Strike, a squadron formed to equip U.S. forces with cutting-edge unmanned tools.

LUCAS drones operated by U.S. forces in the Middle East region have extended range and can be launched through multiple mechanisms, including catapults, rocket-assisted takeoff, and mobile ground and vehicle systems.

"This platform will undoubtedly enhance regional maritime security and deterrence," Renshaw said.

NAVCENT/C5F's unmanned and autonomous operations task force, Task Force 59, executed the launch.

NAVCENT/C5F serves as the maritime component of U.S. Central Command, overseeing approximately 2.5 million square miles of water across the Arabian Gulf, Red Sea, Gulf of Oman and parts of the Indian Ocean. This expanse includes 21 countries and three critical maritime chokepoints: the Strait of Hormuz, the Suez Canal and the Bab al-Mandeb Strait at the southern tip of Yemen.

From U.S. Naval Forces Central Command/U.S. 5th Fleet.

A Low-cost Unmanned Combat Attack System (LUCAS) launches successfully from the flight deck of the Independence-class littoral combat ship USS Santa Barbara (LCS 32) while operating in the Arabian Gulf, Dec. 16.

U.S. Army photo by Spc. Kayla Mc Guire

NAVAIR Additive Manufacturing Team Delivers Rapid Fix for Air Force F-15

PATUXENT RIVER, Md.—The Naval Air Systems Command (NAVAIR) Additive Manufacturing (AM) Team continues to expand forward-deployed readiness by providing AM training, engineering support and technical data to Navy and Marine Corps maintainers operating in contested logistics environments.

That AM expertise recently helped Marine Aircraft Logistics Squadron 36 (MALS-36) and the Air Force's 18th Maintenance Group (18 MXG) return an F-15 Eagle to the fight in a matter of hours—months ahead of its projected return-to-service date.

AM, which builds replacement parts by "printing" materials layer by layer at the point of need, is becoming a powerful force multiplier for the Air Force, said Depot Liaison Engineer Air Force Capt. Diego Carrillo.

U.S. Air Force photo by Senior Airman Jared Brewer

A U.S. Air Force F-15E Strike Eagle aircraft takes off from a base in the Middle East, Jan. 18, 2026.

"In applications where 3D-manufactured parts are a viable option and are non-procurable or have a long lead time, using this capability can offer cost and time savings," he said. "This capability is critical when items are not available from the supply chain or cannot be purchased from industry when needed."

That was the case when maintainers at Kadena Air Base, Okinawa, Japan, discovered a crack in an F-15's right-hand cockpit cooling duct after a flight. Initial estimates suggested the aircraft would be grounded for three to four months. After first attempting a traditional repair using as much of the original material as possible, maintainers consulted with a depot liaison engineer and turned to AM to print and replace the item.

18 MXG maintainers printed two prototypes but experienced technical difficulties before printing a part that met specifications. Knowing MALS-36 operated the same machine, they reached out for assistance. Within 12 hours, the Marines printed, delivered and fit checked two prototypes.

The collaboration yielded an unexpected benefit: After analyzing the Air Force's technical data package, the Marines brainstormed an improved design that reduced print time by two hours.

"We were skeptical of the first design provided by [the MALS] due to the significant shorter print time compared to our first prints," Carillo said. "Our techs learned that the duct's orientation affects the necessity for the support structures, which allowed the Marines to reduce the duct's print time without compromising its structural integrity."

"Here was a situation where a multi-million-dollar aircraft was going to be sidelined for months due to the lack of a part in the supply system," said NAVAIR AM Program Manager Theodore Gronda. "The Air Force's proactive, forward-leaning maintainers sought and obtained approval to repair the part using their onsite AM capability. 18 MXG was backstopped by MALS-36's AM capability, and they even got a better and quicker AM design out of the collaboration. This was truly a glowing example of a 'One Team, One Fight' effort."

Carrillo said the impact extends well beyond a single aircraft.

"The duct's new printing requirements are now part of the Air Force's AM technical publications and will be used for similar repairs across the F-15 community," he said. "Cooperative and joint exercises with sister services and other stakeholders can help cross-pollinate ideas and methodologies, strengthen partnerships and increase force effectiveness."

From the NAVAIR Additive Manufacturing Team.

3D-Printed Visor Enhances Aircrew Survival Training

U.S. Navy photo

Sailors are now equipped with cutting-edge 3D-printed Joint Helmet Mounted Cueing System visors that offer a hands-on experience for better fleet integration. Using additive manufacturing and cross-command collaboration, these innovative visors enhance naval aviation training efficiency, delivering faster solutions with significant in cost savings compared to traditional methods.

PATUXENT RIVER, Md.—A collaborative effort between Navy commands has yielded a breakthrough in aircrew safety: a cutting-edge, 3D-printed Joint Helmet Mounted Cueing System (JHMCS) visor.

The Naval Aviation Training Systems and Ranges Program Office, Naval Education and Training Command (NETC), Center for Naval Aviation Technical Training (CNATT), and Commander, Naval Air Forces training and readiness (CNAF N7), are pioneering additive manufacturing techniques to support aircrew survival equipmentman rating training requirements.

"This effort is a prime example of how collaboration and innovation across commands can deliver real results for the fleet," said Capt. Jonathan Schiffelbein, program office manager. "By leveraging additive manufacturing, our teams not only met critical training requirements, but also advanced readiness and cut lifecycle costs, directly supporting our sailors and the mission."

Aligned with strategic objectives to enhance readiness and reduce lifecycle costs, the partner commands and program office pursued an innovative path to deliver advanced technology that enhances pilot performance and survivability while contributing to a safer, more resilient fleet.

At a unit cost of $870 and multi-year procurement timelines, the legacy JHMCS visor posed delays to curriculum execution and fleet sustainment. With CNATT projecting a requirement of 40 visors annually, the existing supply model presented significant fiscal and operational challenges.

The team identified a path forward through additive manufacturing, developing an acrylonitrile butadiene styrene—a 3D-printed prototype visor that met essential design criteria, including dimensional accuracy, smooth helmet display unit integration and familiar trimming characteristics. The new visors can now be produced with a 65% cost savings and delivered in weeks instead of years. A supporting technical data package ensures replicability across fleet intermediate-level maintenance print sites, creating a scalable and sustainable supply solution.

"This initiative represents more than just a cost reduction," Schiffelbein said. "It is a proactive investment in agility, instructional fidelity and long-term readiness."

CNATT commander Capt. Michael Polito praised the team's collective performance and focus on delivering for the warfighter.

"This project is the epitome of what happens when we collaborate to provide aviation technical training solutions that will ultimately lead to positive outcomes in the fleet," Polito said.

From the Naval Aviation Training Systems and Ranges Program Office.

Joint P-8A Team Turns Training into Operational Success

PATUXENT RIVER, Md.—The Maritime Patrol and Reconnaissance Aircraft Program Office and the P-8A Poseidon program team recently planned and executed several Aircraft on Ground (AOG) events overseas, demonstrating the strength of U.S. Navy and Royal Australian Air Force (RAAF) partnerships and the effectiveness of the RAAF Surveillance and Response System Program Office's (SRSPO) contractual relationship with Boeing Defence Australia (BDA).

An AOG occurs when an aircraft sustains an incident beyond normal fleet repair capability. When a U.S. Navy P-8A incurred structural damage outside the continental U.S., the cooperative teams drew on their established relationships and prior simulated training experience to coordinate depot-level repairs with confidence.

In 2023, P-8A partners conducted a virtual, scripted and basic simulated AOG walk-through event. A more advanced simulation followed during the Australian-hosted Exercise Talisman Sabre in July 2025, where U.S. Navy aircrew, maintainers, RAAF personnel, BDA teams, Fleet Support Team members and program office staff worked through a more robust structural damage scenario. This event practiced the permissions, processes and logistics required to execute a U.S. Navy P-8A AOG within U.S. Indo-Pacific Command (USINDOPACOM).

The event addressed a more complex challenge than usual: How do we leverage our cooperative partner when a damaged INDOPACOM asset requires assessment and repair quickly? The team practiced issuing a task order, performing temporary repairs, ordering parts, securing an interim flight clearance, navigating security procedures, understanding cost recovery processes and, ultimately, issuing a simulated BDA certificate of conformance. Commander Task Force 72 provided operational insight into custody limitations and squadron expectations, while broader INDOPACOM regional sustainment efforts garnered additional support across the department.

Those lessons proved invaluable when a deployed squadron in Guam soon experienced real-world P-8A wingtip damage that required physical repair. With concurrence from Navy leadership, SRSPO and BDA, the program office activated the protocols they had refined from Exercise Talisman Sabre. Temporary repairs were made immediately to the P-8A, and the aircraft was then flown to RAAF Base Edinburgh, where BDA made permanent repairs. An enormous amount of coordination, parts ordering and workload planning ensued. Executing the first repair of its kind, BDA and U.S. company AAR Corp. repaired the P-8A in Australia and returned it to the fleet before Thanksgiving.

"The immense partnership that exists between RAAF and the U.S. Navy made the entire evolution possible," said Molly Boron, deputy program manager. "The joint team welcomed the challenge of repairing a forward-deployed U.S. aircraft in Australia and returning it to permanent airworthiness in the shortest amount of time possible."

The Australian Department of Defence, Boeing, AAR Corp. and the U.S. Navy worked seamlessly to deliver an essential warfighting outcome, an example of how cooperative partnerships strengthen readiness.

This accomplishment highlights the value of interoperability with allies and industry partners. The P-8A joint program continues to explore opportunities for Regional Support Centres across the INDOPACOM area of responsibility to enhance sustainment in contested logistics environments and support warfighter needs.

From the Maritime Patrol and Reconnaissance Aircraft Program Office.

U.S. Navy photo

P-8A Poseidon taxis out at RAAF Base Edinburgh heading to NAS Jacksonville after undergoing structural repair.

U.S. Navy photo by Ryan Smith

The Innovation Lab at Naval Air Warfare Center Weapons Division at China Lake, California, provides a collaborative space for active duty, civilians and industry partners. The lab focuses on accelerating the development and fielding of technology to meet fleet requirements.

Innovation Lab Turns Ideas into Warfighter Solutions in Days, Not Months

CHINA LAKE, Calif.—When contractors quoted mechanical engineer Vincent Malpaya $2,500 per unit to manufacture a switch matrix for rocket testing—and he needed 10—he turned to Naval Air Warfare Center Weapons Division's Innovation Lab instead. By building the part himself for just 20 cents per unit, he kept the project on schedule and saved tens of thousands of dollars.

For Malpaya and many others, solving problems fast is part of the mission. The Innovation Lab gives them the tools, space and flexibility to do exactly that.

"I'm working on this gimbal," Malpaya said during a recent visit, shaping his design on a computer screen.

Stories like his highlight how the Innovation Lab strengthens readiness across the command. By enabling employees to design, build and test ideas sooner, the lab helps deliver capability to the warfighter faster.

NAWCWD operates two Innovation Labs, one at China Lake and one at Point Mugu. Both California sites offer identical equipment and training, and employees can use either location. Shared access cuts wait times and keeps cross-installation projects moving without delay.

For some projects, speed is the only way to meet the mission.

Using rapid prototyping tools, such as 3D printers, laser cutters and computer numerical control (CNC) machines, the Innovation Lab helps teams build prototypes in days instead of months.

"We're just trying to cut down a lot of lead time," said Kevin Hughes, Innovation Lab manager at Point Mugu.

Drew Hines, an engineer working with Range Support Aircraft, experienced that pressure firsthand. His team needed to mount new equipment on a KC-130 Hercules for a scheduled test event in Australia, but the technical documentation was incomplete. Some dimensions were missing. Others were wrong.

Sending a flawed design to an outside machine shop would have cost thousands of dollars and weeks of delay. Instead, Hines and colleague Sam Newcomer used the lab to 3D scan the equipment, design a mounting plate and cut a prototype from plywood on the CNC machine. When the hole patterns did not line up, they corrected the design for pennies.

"The flexibility to make something new, adjust it, test it, find a mistake, fix it and still support the mission is what justifies having this place," Hines said.

From saving thousands on test equipment to solving problems under tight deadlines, the Innovation Lab helps NAWCWD deliver capability at the speed of relevance.

For Malpaya, the impact is already measurable; he can now print a gimbal mount for a weapons system he supports.

Hughes said the lab reflects what he values most about working in defense.

"I'm doing something for the service, for the warfighter," Hughes said, noting faster solutions keep test events on track and get capability to the fleet faster.

From the Naval Air Warfare Center Weapons Division, China Lake, California.

Test Squadrons Prove ATAWS

By Connie Briggs

A low-flying F/A-18 Hornet raced across the China Lake desert during a simulated terrain collision scenario. Seconds before impact, the Automatic Terrain Awareness and Warning System (ATAWS) took command, pulling the jet to safe altitude—demonstrating a life-saving capability now proven ready for the fleet. The recovery was part of a joint test program by the "Dust Devils" of Air Test and Evaluation Squadron (VX) 31 at Naval Air Warfare Center Weapons Division, in partnership with the "Salty Dogs" of VX-23 at Naval Air Station Patuxent River, Maryland.

Controlled flight into terrain (CFIT) has long been one of tactical aviation's most unforgiving hazards. It occurs when a fully-functional aircraft is flown unintentionally into the ground.

Between 2010 and 2016, the Navy and Marine Corps lost several F/A-18 Hornets in training and operational mishaps. Each loss reinforced the need for an automatic safeguard that could save aircrew and aircraft when human limits are reached.

The Marine Corps recognized that need after seeing the Air Force's Automatic Ground Collision Avoidance System save multiple F-16 pilots. Marine aviators and flight test teams pushed for a similar capability in the F/A-18A–D, launching development under the Navy's F/A-18 and EA-18G Program Office to protect pilots and extend the life of a platform no longer in production.

With the legacy Hornet nearing the end of its service life, ATAWS provides a critical safeguard that preserves aircraft availability and protects aviators.

"The Marine Corps F/A-18A–D legacy Hornet community was the driving force behind ATAWS," said Lt. Col. Timothy Burchett, commanding officer of VX-31. "Every Hornet saved means one more aircraft and aviator available for combat."

How ATAWS Works

ATAWS builds on the Hornet's existing Terrain Awareness Warning System. It continuously predicts the aircraft's flight path relative to the earth's surface, using terrain data, altitude, speed and attitude to calculate when a collision is certain without pilot action.

When a crash is nearly imminent, the system issues visual and audible warnings. If the pilot fails to respond, ATAWS levels the wings automatically. It then instructs a rapid pull-up to clear the terrain. Control is returned to the pilot once the aircraft is at a safe altitude.

Since legacy Hornets use manual throttles, ATAWS intervenes through flight control inputs only. The system engages only after a pilot has missed all visual and auditory cues, providing automatic recovery when human response time is exceeded.

"Any time a system is designed to intentionally take control of the aircraft away from the pilot, extreme diligence is required," Burchett said. "We had to be absolutely certain it would not interfere with a mission or take action when it shouldn't."

Testing the System at China Lake

From 2023 to 2025, VX-31 partnered with VX-23 to conduct a joint test campaign, ensuring ATAWS operated safely and predictably across diverse flight conditions.

The team campaign unfolded in three phases. VX-23 completed 32 flights evaluating system logic responses to different dives and recoveries. VX-31 flew 16 flights focused on nuisance testing over flat desert and mountainous terrain to make sure the system would not trigger false warnings or recoveries. The final phase combined both squadrons at China Lake for 16 full-performance flights over seven consecutive weeks.

"The team executed 177 test points that challenged and stressed the system," said David Pineda, a VX-31 flight test engineer. "Those test points validated that ATAWS met or exceeded the modeled performance."

Maj. Brian "Wedge" Walpole, VX-31 legacy Hornet department head, said the system's consistency between simulator and actual performance confirmed its readiness.

Ready for Legacy Hornet Fleet

A VX-31 "Dust Devils" EA-18G Growler flies over the Point Mugu Sea Range during a photo exercise. The squadron supports Naval Air Warfare Center Weapons Division in developing and testing capabilities that enhance warfighter survivability.

U.S. Navy photo by Katie Archibald

"Regardless of terrain or flight profiles, the system flew like the simulator, and we verified the model through flight test," Walpole said.

Throughout the campaign, pilots executed high-G maneuvers and low-angle strafing runs. Flight test engineers in the test bay watched telemetry. Meanwhile, chase plane crews provided visual backup to ensure safety and effectiveness. The team observed only minor anomalies, none requiring design changes.

The demanding test schedule required tight coordination between both squadrons, leading to one of the most integrated efforts in recent years.

Seamless Collaboration

The ATAWS test effort united VX-31's mission systems experts and VX-23's flight sciences team into a single integrated test unit. Two separate approaches merged into a shared plan built on trust and communication.

"This was the best test program I have ever been a part of," Burchett said. "The teams from Patuxent River and China Lake were so well integrated that you couldn't tell where each team member came from if you didn't already know the people involved."

Walpole called collaboration the foundation for success.

"We turned the challenge of two different test methods into an advantage by working face to face and keeping communication open," he said.

Direct Impact on Fleet Readiness

Following the program office's approval, ATAWS will begin fleet rollout this year. The benefits to the Marine Corps are immediate: fewer lost pilots and aircraft, higher readiness and greater combat availability.

"ATAWS directly advances warfighter capability by ensuring assets are available for forward-deployed power projection," Burchett said. "Every time an aircraft is lost to a mishap, it directly degrades the ability of the Marine Corps to forward project power."

For test pilots and fleet squadrons alike, ATAWS represents a readiness gain that enhances safety without altering established tactics or habit patterns.

Maj. Ken "Lloyd" Endicott, VX-9 operational test director, said the system "makes protection from CFIT far more robust, but it doesn't replace disciplined flight planning and conduct."

Looking Ahead

ATAWS sets the stage for future integration of the Automatic Ground Collision Avoidance System in the F/A-18E/F Super Hornet and EA-18G Growler. VX-31 and VX-23 will apply lessons learned from the legacy Hornet to these newer platforms, incorporating system improvements informed by legacy Hornet testing and taking advantage of additional functionality the newer platforms have available, such as potentially automating a throttle response in a way that was not possible in the older aircraft. Burchett said the same teamwork that drove ATAWS testing will carry forward into these next efforts.

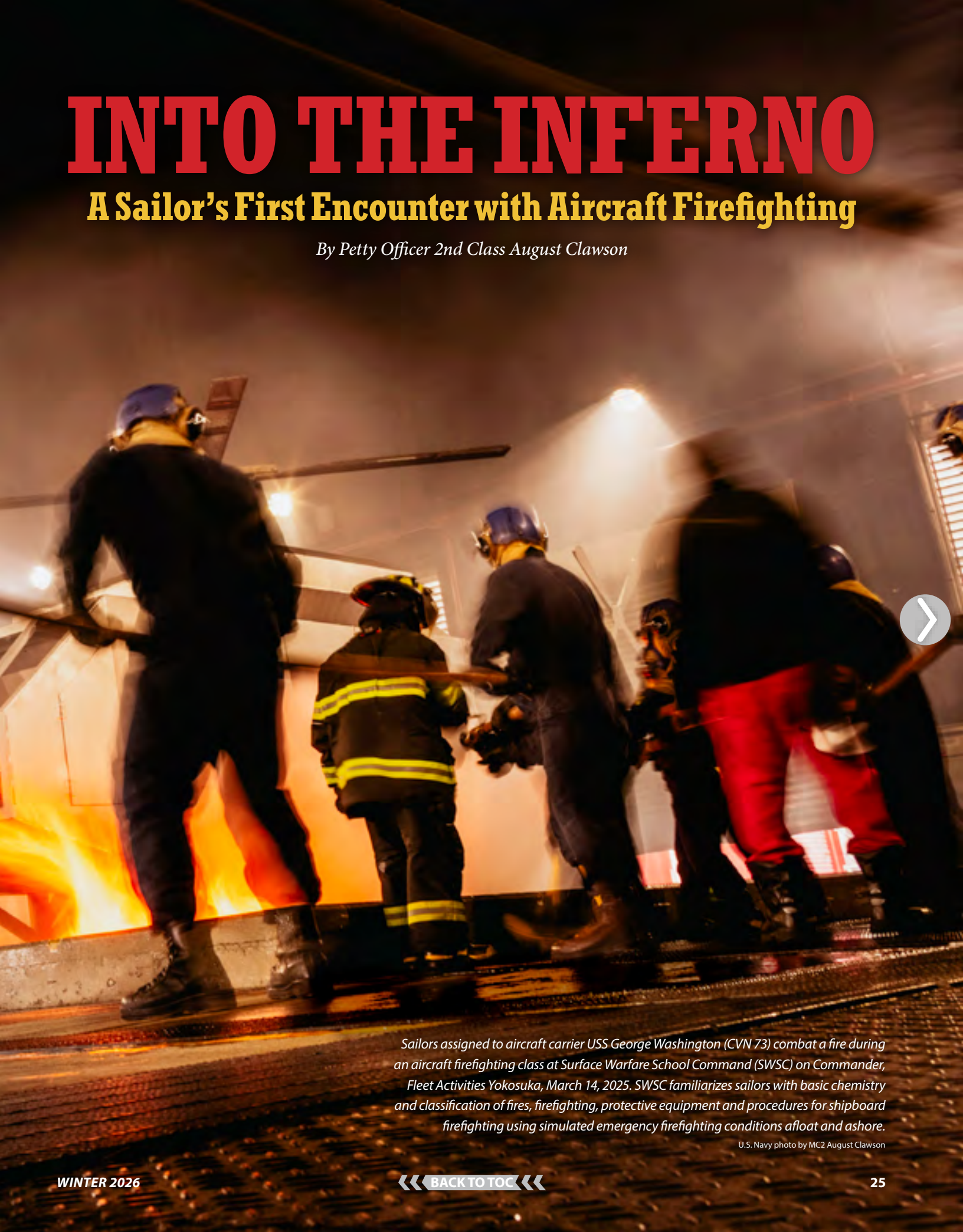
"The results of the test were incredibly successful, which is an absolute testament to the whole team of designers, engineers and test pilots who diligently worked the program for many years," he said. "ATAWS will save lives. There's no higher return on investment than that."

Connie Briggs is a public affairs officer with the F/A-18 and EA-18G Program Office.

INTO THE INFERNO

A Sailor's First Encounter with Aircraft Firefighting

By Petty Officer 2nd Class August Clawson



Sailors assigned to aircraft carrier USS George Washington (CVN 73) combat a fire during an aircraft firefighting class at Surface Warfare School Command (SWSC) on Commander, Fleet Activities Yokosuka, March 14, 2025. SWSC familiarizes sailors with basic chemistry and classification of fires, firefighting, protective equipment and procedures for shipboard firefighting using simulated emergency firefighting conditions afloat and ashore.

U.S. Navy photo by MC2 August Clawson

The flames crackled and hissed in front of Logistics Specialist 3rd Class Alex Tetrault, spitting sparks and radiating heat that pressed against her fire-retardant coveralls. Cool air flowed steadily through her mask as she traced the nozzle in a practiced "figure eight," feeling the hose surge with high-pressure water. It was a far cry from her usual routine aboard USS George Washington (CVN 73), where she spent her days reviewing order numbers and managing stock control in the supply department.

When she joined the Navy, Tetrault never imagined she would be responsible for extinguishing a fire on the flight deck. That changed a month earlier, when her supervisor had approached her about joining a team supporting vertical replenishments on the flight deck while at sea. She wasn't afraid of the work; she was afraid of the what-ifs. She'd never been close to a helicopter before, much less hooked supplies to the bottom of one. A helicopter crash, she thought, was unlikely—but not impossible. That possibility became real the moment she stepped into the Surface Warfare School Command (SWSC) classroom.

"During bootcamp, every single sailor in this room learned the basic fundamentals of shipboard firefighting techniques," said Aviation Boatswain's Mate 1st Class Marvin Etienne, a lead instructor at SWSC, during his classroom introduction. "I know that, for most of you, feeling the heat of a raging fire during a firefighting course was not in your cards for your time in the Navy."

Tetrault looked up. She had wondered the same thing. Why her? Why now?

Etienne answered that question with a single image: a freeze frame of an MH-60R Seahawk crashing onto the flight deck of USS Ronald Reagan (CVN 76) in 2018.

He recounted the incident with the gravity of someone who had lived it. Sailors were injured. Lives were at stake. Training mattered.

"The main assets of the Navy are you, the sailors," he said. "The main purpose of aircraft firefighting is to save lives. Without the sailors, there is no Navy."

Tetrault thought about Etienne's message and realized maybe she could justify the training to herself. She wanted to be able to save lives, and she could do that by giving her all in the training that could one day lead to her doing that very thing.

Sailors feeling the heat of a fire, encountering the kick of water running through a hose and experiencing realistic aircraft firefighting training is an effective way to protect naval

Sailors assigned to aircraft carrier USS George Washington (CVN 73) combat a fire during an aircraft firefighting class at Surface Warfare School Command (SWSC) on Commander, Fleet Activities Yokosuka, March 14, 2025.

U.S. Navy photo by MC2 August Clawson

assets and lives and preserve mission continuity. By enhancing damage control effectiveness in the face of potential fire hazards, These types of immersive scenarios sharpen damage-control skills in ways no classroom setting can match.

And with that, the class moved from theory to practice.

Inside the training complex at Commander, Fleet Activities Yokosuka, Etienne briefed the students as they formed a circle around him.

"You are about to actually feel the heat and see and smell the smoke of aircraft fuel," he said. "We are the only site in Japan that burns actual JP-8 jet fuel."

The circle of students broke into four groups; each group manned a hose with two instructors assigned to each team. Etienne positioned himself in the middle of all the teams and prepared to supervise the organized chaos that was about to unfold. He nodded at his fellow instructors in the windowed room overlooking the training

"I saw the flames grow from a fire to an inferno underneath the training aircraft, as the sailor in front of me tested the hose agent…It looked and felt like a scene out of a movie."

complex—a signal for them to sound the alarm.

Tetrault tightened her cranial—a head and hearing protection device—and felt a flicker of nerves. But strapping it on also felt like a commitment—she was ready to face whatever came next.

A piercing alarm cut through the room. Forty sailors activated their self-contained breathing apparatuses in unison, the hiss of air filling the space. Flames licked the underside of the training helicopter as the teams advanced.

"I saw the flames grow from a fire to an inferno underneath the training aircraft, as the sailor in front of me tested the hose agent," Tetrault said. "Surprisingly, even though our team had never worked together, we moved towards the fiery aircraft as a unified team."

Four streams of water hit the fire simultaneously, creating a cloud of steam and smoke that glowed orange in the reflected light.

"It looked and felt like a scene out of a movie," she said.

Then came the moment she had been both dreading and preparing for.

When the instructor called for a nozzleman relief, Tetrault stepped forward.

"As I got closer to the inferno, the less hesitant I became. Seeing the sailors in front of me handle the hose easily gave me plenty of confidence in the training I'd just received," she said.

Adrenaline helped too.

The heat hit her first—waves of it rolling off the flames. Sparks bounced off her coveralls. But when she moved the nozzle in that familiar "figure-eight" pattern, something shifted.

"I felt confident and in control," she said. "Watching the flames flicker when the water I was spraying hit them was extremely satisfying. We were controlling the inferno."

The teams cycled through until the fire finally died under the weight of the water. Just like that, the exercise was over.

"I definitely have a new respect for the importance of training in general and firefighting training on the flight deck," Tetrault said. "Etienne drove the point home during his training and actually battling the inferno reinforced it. We have to be able to take care of a fire on the flight deck, no matter what job we are doing up there, so that we can save lives and preserve the mission."

The next morning, she returned to her desk. It may have been the same workspace, but she had a new mindset.

Tetrault left SWSC with more than a certificate. She left with confidence, skills she never expected to need and a deeper understanding of her role in keeping her shipmates safe.

She knew she was ready for whatever the flight deck might bring.

Petty Officer 2nd Class August Clawson is a communications specialist with USS George Washington (CVN 73).

Sailors assigned to aircraft carrier USS George Washington (CVN 73) combat a fire during an aircraft firefighting class at Surface Warfare School Command (SWSC) on Commander, Fleet Activities Yokosuka, March 14, 2025.

U.S. Navy photo by MC2 August Clawson


BEWARE
OF JET BLAST
PROPELLERS
AND ROTORS
MOLE

U.S. sailors inspect jet blast deflectors aboard aircraft carrier USS Nimitz (CVN 68) in the Persian Gulf July 10, 2013.

U.S. Navy photo by MC3 Raul Moreno Jr.

EYE ON INNOVATION:

JET BLAST DEFLECTOR TOOL BRINGS MAJOR SAVINGS FOR AMERICA'S SHIPYARD AND NAVY

By Kristi R. Britt

On U.S. naval aircraft carriers, jet blast deflectors (JBD) protect sailors and equipment from the intense heat and high-speed exhaust produced as the jet engines rev up to lift off from the flight deck. Each JBD must withstand extreme forces and be raised and lowered repeatedly, work that requires regular maintenance from Norfolk Naval Shipyard (NNSY) mechanics.

But one part of that job consistently slowed the team down: removing and reinstalling the JBD's 2,000-pound shaft. Traditional tooling and processes required extensive rigging, setting up multiple "picks" along the intended removal path and even cutting out access points into the structure. The process took more than three days and required additional welding, painting, fabrication and inspections.

Shop 38 Aircraft Launch and Recovery Equipment (ALRE) Supervisor Benaiah Wade knew there had to be a better way.

"We wanted a rolling device that you could control the height, weight and motion of this object without it being destabilized or having it ram into something and causing damage," Wade said. "We had an idea—we just needed help making it a reality."

That help came from Code 100TO.32 Rapid Prototype Center (RPC), a division of NNSY's Rapid Innovation and a one-stop shop for turning deckplate ideas into working prototypes.

"Wade and his work leader walked through the door and shared with us the issue they were having and what they were looking for," said RPC Engineering Technician John Tate. "If they could just have a device that didn't fall into the major rigging requirements, something that could lift the shaft up the

little bit needed to get out of the fixture assembly and motivate it sideways safely and efficiently, it would save on a lot of time and effort for the mechanics. Together, we worked through some ideas we thought could work and once we had a vision in mind, we got to work."

With initial sketches in hand, Code 263 Waterfront Lead for Hydraulics and Machinery Jonathan Schwalm began calculating the specs needed to lift and support the load safely.

"When it comes to handling large amounts of weight, we have to have a factor of safety defined," Schwalm said. "This was a new design, and we didn't have a full vector figured out for Code 263 [Surface Ship Auxiliary/Hydraulics Branch] to accept the process. I took those preliminary sketches that were mocked up, built in all the data from the material, went through catalogues, and I was able to make a 3D model based on the materials specified to be used. We confirmed everything was good for the weight to be handled and balanced on the tool and, with that, we were able to have Code 263's blessing to proceed."

The RPC then teamed up with NNSY's Mechanical Group (Code 930) and the Inside Machine Shop (Shop 31) Toolmakers to build the prototype. Toolmaker Apprentice Nino Perkins tackled the first version, and within 30 days of the request, the Outside Machine Shop (Shop 38) had a working tool ready for shipboard testing aboard USS George H.W. Bush (CVN 77).

"When it went through ship check, the team was very excited to see it work so well. We took some feedback for ways to improve the design and were already on task to work on additional kits," said Code 100TO.32 RPC Program Analyst Kelly Carson. So far, four sets of six rollers have been completed and used on JBD repairs for both Bush and USS Dwight D. Eisenhower (CVN 69).

A job that once required three 12-hour days across various trades can now be done in a fraction of the time.

"We can move the shaft now from one spot to the other with the conveyor in 45 seconds," Wade said. "It's less stress on the mechanics as well as the boat itself."

"This has made a significant difference and it's a huge win for our shipyard. We would love to share this design with anyone who wants to utilize it," Carson said.

"This project has been a tremendous success, and we're looking at ways devices like these can be utilized across all our projects, including submarines, or if there are other ways the RPC can assist our mechanics on the waterfront," said Code 930 Process Manager Chris Conley. "With the RPC's help, seeing how efficient and knowledgeable they are making prototypes and being able to come up with something on the fly just from a conversation and have a piece of equipment in your hands that you can shipcheck within two weeks to 30 days is pretty insane. Seeing their skills firsthand, I can go to the boat now and doing surveillances, I can ask the mechanics, how can we help? How can we make this better for [them]? I know there are people behind me and around me that can do what we can to see improvement on the deckplate."

Photo by PO1 Christian Victor

Tate noted that the project succeeded because every group involved worked together. "Everyone stepped up to the plate to help make this a reality, and that's something great about our shipyard family—they are ready and willing to do their part to help their teammates," he said. "With this job, we were able to generate work for our toolmakers and apprentices, get them those added opportunities to hone their skills and develop something that could make a huge difference to our mechanics on the ship. We had Code 930 and Code 263 helping us test the product and getting it to where it needed to be so it was ready to be used shipboard. We also had our RPC teammates putting in the work to bring this idea to life and assembling it so it was ready to go."

He added that the RPC exists exactly for this reason.

"Lots of ideas are out there; people just sometimes feel that they don't have anywhere to go to share those ideas or that there are no resources in place to try it out and see how it goes," Tate said. "That's what the RPC is for. We hear your ideas and see what we can do to make it a reality. We're here to help and are always ready to listen and see what we can create for you to make your job easier."

Kristi R. Britt is a communications specialist with Norfolk Naval Shipyard, Virginia.

Photo by PO1 Christian Victor

U.S. Navy photo by Kristi R Britt

The Jet Blast Deflector Conveyor tool, pictured top left, was developed by the Rapid Prototype Center in partnership with the toolmakers, Code 930 and Code 263, to lift and rotate the shafts in the jet blast deflector operating gear, pictured left, to eliminate the need for extensive rigging requirements as well as remove the need to cut access points to remove the fixture.

U.S. Navy photo by Austen McClain

Petty Officer 1st Class Zach Melvin (right), a mass communication specialist assigned to Naval Education and Training Command (NETC), sits with his brother, Samuel Melvin, a civilian at the time, at NETC Headquarters in Pensacola, Fla.

Two Paths, One Commission

Brothers Graduate OCS Together, Enter Naval Aviation

By Austen McClain

Standing side by side at their Officer Candidate School (OCS) graduation, brothers Ensign Zachary Melvin and Ensign Samuel Melvin marked the culmination of two very different journeys, paths that ultimately converged as they commissioned together as Navy officers in the same class and earned their selection as naval flight officers.

For the Melvin brothers, the milestone represented more than the completion of OCS. It was the meeting point of family legacy, personal transformation and a shared commitment to service—witnessed firsthand by their father, Cmdr. Eric Melvin, a Navy chaplain serving as the command chaplain for USS Theodore Roosevelt (CVN 71), flagship to Carrier Strike Group 9.

From the Corporate World to the Quarterdeck

Samuel Melvin, a Pensacola, Florida, native, entered the Navy directly from civilian life after leaving a corporate career as a business analyst seeking a greater purpose. Though he initially set out to forge his own path, service ultimately called him back to familiar ground.

"I wanted to follow in my father's footsteps, which is why I joined the Navy," Samuel said. "I tried the corporate world, but I felt unfulfilled. I wanted something more meaningful—something challenging—and I wanted to serve my country like my family was doing."

The decision crystallized during an ordinary workday.

"I was sitting at my desk, staring at yet another spreadsheet and feeling completely unfulfilled. I called my brother and said, 'I cannot do this any-

more,'" Samuel said. "He gave me the recruiter's number, and I called on my lunch break."

Learning to Lead Under Pressure

Transitioning from civilian life into OCS proved to be an adjustment.

"The level of attention to detail we were taught really surprised me. I learned that big achievements start with careful attention to the small things," he said.

OCS, the Navy's commissioning pipeline, is designed to test candidates mentally, physically and emotionally. For Samuel, one of the most challenging moments came during officer personnel inspection, a high-pressure one-on-one evaluation with an instructor requiring precise uniform preparation and mastery of naval standards.

"It taught me that I can learn under pressure," Samuel said.

Having his older brother in the same class made the experience more manageable.

"We leaned on each other a lot," Samuel said. "He helped me with everything from uniform ribbons to encouragement on the hard days."

A Mustang's Road to Commissioning

Zachary Melvin's path to commissioning followed a different route. A prior-enlisted sailor and former mass communication specialist, Zachary served under Naval Education and Training Command (NETC) before being selected for OCS.

"I wanted more leadership opportunities," Zachary said. "A chief once told me it is important for enlisted sailors to become officers because it gives the enlisted a voice on the other side. That stayed with me."

Unlike his brother, Zachary viewed commissioning as a long-term goal from the beginning of his Navy career.

"I knew early on that I wanted to become a Mustang," he said, referring to prior-enlisted officers.

> **"I was sitting at my desk, staring at yet another spreadsheet and feeling completely unfulfilled. I called my brother and said, 'I cannot do this anymore. He gave me the recruiter's number, and I called on my lunch break."**
>
> **—Ensign Samuel Melvin**

From Sailor to Officer

While Zachary entered OCS with fleet experience, the transition still demanded growth.

U.S. Navy photo by Eugene Haynes

Cmdr. Eric Melvin, right, a U.S. Navy chaplain assigned to USS Theodore Roosevelt (CVN 71), administers the oath of office to his sons, Ensign Zachary Melvin and Ensign Samuel Melvin, during a commissioning ceremony at Officer Candidate School (OCS), in Newport, R.I. The Melvin brothers were commissioned together privately before the ceremony, with their father presiding over the oath.

"I already knew how to be a sailor. At OCS, I had to learn how to be an officer. That adjustment took time." — Ensign Zachary Melvin

U.S. Navy photo by Eugene Haynes

Ensign Samuel Melvin (second from left) and Ensign Zachary Melvin (second from right) pose for a photo with their wives after their commissioning ceremony.

"I already knew how to be a sailor," he said. "At OCS, I had to learn how to be an officer. That adjustment took time."

His enlisted background, however, became an asset.

"It gave me perspective," Zachary said. "I could help classmates understand the 'why' behind the training and how it was shaping us into warfighters."

Sharing OCS with his brother added a unique dynamic.

"It was fun," Zachary said. "We shared the humor and the adversity—the planned stress—and grew through it together."

A Father's Honor, A Family's Legacy

Their commissioning was made even more meaningful by the presence of the man who inspired their service.

Cmdr. Melvin administered the oath of office to both his sons in a private ceremony after graduation. Also present at the ceremony was Zachary and Samuel's brother, Nathaniel, a captain in the Marine Corps currently stationed at Marine Corps Base Quantico, Virginia.

"It was the honor of a lifetime," Cmdr. Melvin said.

U.S. Navy photo by Austen McClain

Ensign Zachary Melvin (left) and Ensign Samuel Melvin, brothers serving in the U.S. Navy, pose for a photo at Naval Aviation Schools Command onboard Naval Air Station Pensacola, Fla.

U.S. Navy photo by Eugene Haynes

Ensign Samuel Melvin (left), Cmdr. Eric Melvin, Ensign Zachary Melvin, and U.S. Marine Corps Capt. Nathanial Melvin gather together after a commissioning ceremony at Officer Candidate School (OCS), Newport, R. I.

"They wanted to be commissioned together, at the very same moment. Watching my oldest and youngest sons take that step was incredibly humbling."

The moment brought his own Navy journey full circle.

"I thought back to when I reported to boot camp in 1989 and, later, being commissioned into the Chaplain Corps," he said. "Now, all three of my sons are serving on active duty."

Cmdr. Melvin also delivered the invocation for OCS Class 03-26, a moment he described as deeply emotional.

"As a chaplain, I was reminding them to rely on faith and values beyond themselves," he said. "As a father, it was sobering, knowing my sons may one day be placed in harm's way."

For Zachary, the family connection deepened the meaning of the milestone.

"It means more because my family is part of it," he said. "You have your Navy family and your real family serving alongside you, which ultimately raises the stakes on how you perform."

Looking Ahead

Both brothers selected Naval Flight Officer, a competitive warfare specialty within Naval Aviation.

"I chose aviation because they are an elite fighting force that sets the standard for the best," Zachary said.

For Samuel, aviation represents a developing passion.

"I am still undecided on an airframe," he said. "Right now, my focus is working hard and doing the best I can."

Looking ahead, both brothers will report to flight school, where their paths will continue—possibly diverging again—but grounded in the same foundation.

"I want to be an officer my sailors can trust and rely on," Zachary said.

Samuel said this is a decisive turn toward purpose.

"This feels like closing the loop after all the hard work," he said. "It's just the beginning."

Following their commissioning, both brothers reported to Naval Aviation Schools Command (NASC) in Pensacola, Florida, where they will begin flight training as naval flight officers, continuing a family legacy of service while forging their own paths in naval aviation. NASC, a subordinate command of NETC, oversees aviation training pipelines that prepare officers for service across the fleet.

NETC oversees the Navy's training and education continuum, developing battle-ready sailors and officers from accession through advanced warfighting skills. Through more than 250 training commands and schoolhouses worldwide, NETC prepares the Navy's force to operate, fight and win across all domains, ensuring the fleet is ready to meet today's challenges and tomorrow's threats.

Austen McClain is a communications specialist with Naval Education and Training Command.

Naval Research Lab Sharpens Navy's Sensing with Domain-Centric AI Approach

By Nicholas E.M. Pasquini

The U.S. Naval Research Laboratory (NRL) recently completed a remote sensing experiment designed to advance artificial intelligence (AI) applications in hyperspectral imaging, technology that could transform how the Department of the Navy and the broader scientific community detects, identifies and understands objects in complex coastal environments.

Hyperspectral imaging, often described as capturing "the color of color," provides a unique spectral fingerprint for each pixel. Combined with AI, these fingerprints support powerful tools that can detect subtle material differences and observe environmental change.

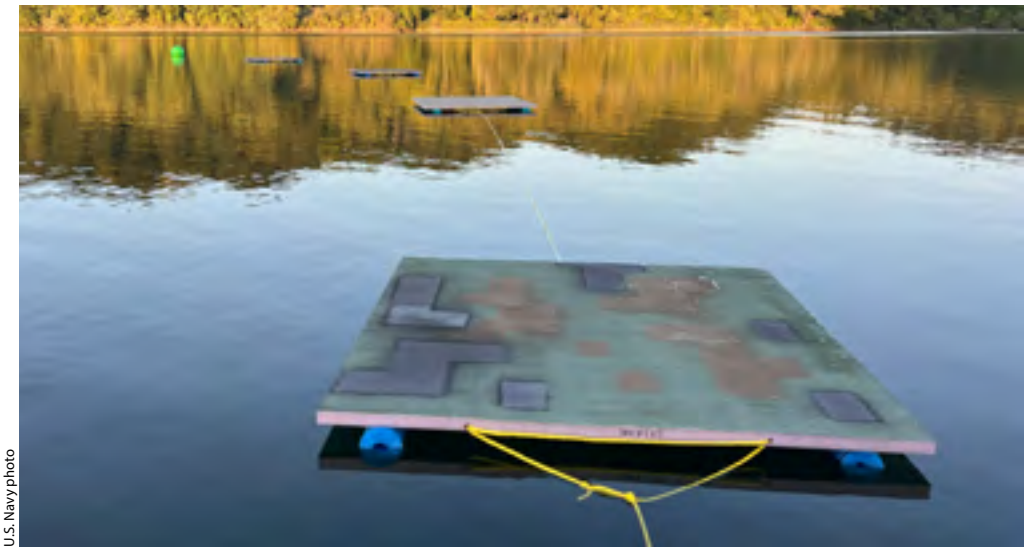
In coastal and aquatic environments, these AI tools could help identify hazardous materials, monitor infrastructure degradation and assess natural resources with unprecedented accuracy.

The initiative, known as the Coastal Hyperspectral Reflectance Object Material Analysis (CHROMA) experiment, ran Sept. 4–19, 2025, as part of the Rochester Institute of Technology's (RIT) Open Community eXperiment (ROCX).

"NRL was a key partner in the success of ROCX," said RIT Research Professor John Kerekes. "The variety of material deployments on water and land enriched the overall value of the experiment, and the professionalism of their staff was a great example for participating students and collaborators."

Led by Kerekes, the multi-agency effort brought together federal, academic and industry partners to collect detailed imaging data and match it with real-world measurements taken on the ground.

"The Navy has always depended on its ability to sense, interpret and respond to the environment," said NRL's Information Operations Branch Head Gautam Trivedi. "With CHROMA, we're building the foundation for the next generation of environmental intelligence, where AI and advanced sensing work hand in hand."



U.S. Navy photo

Camouflage-coated panels float on the water to simulate the appearances of ships and other objects of interest to the Navy. Data from these targets is crucial for developing technology to improve naval asset survivability.

The laboratory is leveraging multi-scale data collected from airborne platforms, unmanned aerial vehicles and satellites over engineered and natural targets at the Tait Preserve in Penfield, New York—an environment chosen for its coastal and aquatic-adjacent features.

"This experiment moves hyperspectral technology out of the lab and into a realistic operational setting," said NRL Information Technology Division Superintendent Joey Mathews. "It represents a critical step in elevating the technology readiness level of AI-enhanced sensing applications, moving us toward demonstrations that directly support naval missions."

A Multi-Platform, Domain-Centric Approach

The NRL team synchronized flights and different types of sensors to capture observations at nearly the same time. This approach ensures data from satellites, airplanes, drones and ground sensors can be accurately compared, offering researchers a richer dataset to build better AI.

CHROMA's design centers on generating detailed, multi-modal datasets of known material spectral responses. Researchers collected measurements from custom-fabricated metal panels with painted coatings, as well as from natural rock and mineral samples. These targets serve as known reference points—like the bullseye on a target—for improving AI algorithms that solve a longstanding remote sensing challenge called hyperspectral unmixing.

Hyperspectral unmixing is the process of separating mixed spectral signatures within a single pixel. When

unresolved, mixed pixels can obscure object detection and reduce identification accuracy—especially in complex, cluttered coastal environments.

"We are enhancing the efficacy of AI-driven approaches in resolving sub-pixel material compositions," said NRL CHROMA Project Lead Katarina Doctor. "By methodically changing the targets and viewing them with different sensors, we can learn how an object's signature changes based on its material, the weather and the type of sensor used to view it."

U.S. Navy photo

Katarina Doctor and Scott Ramsey deliver coated panels by boat for placement on the water. The hands-on effort was critical for positioning targets for airborne and satellite data collection.

Doctor emphasized the data's direct application to naval missions, stating it will significantly improve the Navy's ability to detect and identify objects in crowded littoral zones. She noted this improved hyperspectral detection is key to assessing threats, monitoring critical infrastructure and ensuring the Navy can maintain a clear operational advantage in any coastal environment.

Elevating Naval Survivability

The NRL Signature Technology Office contributed coated panels for the experiment, supporting research on how artificial surfaces appear in natural maritime settings.

"This project, enhanced by Doctor's work with advanced AI, uses the collected data to develop more effective camouflage coatings that will make naval platforms harder to detect by advanced surveillance systems," said Scott Ramsey, head of the NRL Signature Technology Office. "This research is key to improving naval asset survivability by making them harder to spot against natural backgrounds."

The resulting AI systems will be better able to distinguish between natural environments, such as an ocean surface, and coated, fabricated objects, such as a ship's hull. The approach provides reference points for evaluating how AI-based unmixing performs across varying environmental and spectral conditions.

U.S. Navy photo by Cécile Darviot

Katarina Doctor, left, and Scott Ramsey stand with ground targets used in the groundbreaking remote sensing experiment. The panels contain specific rock and mineral samples to act as known reference points for the sensors.

Data for the Global Research Community

Doctor said ROCX will produce comprehensive hyperspectral datasets, encompassing engineered surfaces, geological samples and a range of environmental conditions.

The dataset will be shared openly with the remote sensing community, supporting defense and civilian research in coastal resource management, environmental intelligence and infrastructure monitoring.

ROCX's multi-platform framework ensures experiment data is broadly applicable and scientifically rigorous. The combined dataset also enables researchers to study how material properties, the atmosphere and environmental factors can affect an object's spectral signature.

"The integration of diverse data types is what makes CHROMA unique," Mathews said. "It's not just about building better algorithms—it's about understanding how they perform in the complexity of the real world."

AI's Domain-Centric Future

CHROMA also reflects a shift in AI development from traditional, model-centric approaches toward what researchers call domain-centric AI. Domain-centric AI embeds scientific expertise and environmental understanding directly into model development, ensuring algorithms behave predictably in real-world naval settings and are thus more reliable.

"This paradigm addresses the 'why' behind the data. Real-world applicability and trustworthiness depend heavily on understanding the problem's context and leveraging specialized human expertise," Doctor said. "The ROCX experiment is a prime example of domain-centric AI. We are not just gathering raw information—we are creating a dataset informed by deep understanding of the target materials, their environment and the sensors collecting them, which makes the resulting AI models more effective."

Together, these advances position the Navy to operate with greater awareness, precision and survivability in the world's most challenging maritime environments.

Nicholas E. M. Pasquini is a member of the U.S. Naval Research Laboratory Corporate Communications department.

The Cool Science Behind Keeping Oxygen Systems Safe:

NAWCAD Lakehurst Enhances Cryogenic

By Adam Hochron

As the Cryogenics and Corrosion Control Support Equipment (SE) Integrated Product Team (IPT) lead at Naval Air Warfare Center Aircraft Division (NAWCAD) Lakehurst, New Jersey, Asif Yeahia knows many people may not understand fully the work his team does. But when one is working with substances at temperatures below negative 200 degrees, they end up with one of the "coolest" jobs at the Warfare Center—both literally and figuratively.

U.S. Navy photo by Adam Hochron

The cryogenics team specializes in servicing oxygen and nitrogen systems on aircraft, focusing on the storage and dispersal of liquid and gaseous nitrogen and oxygen.

"Whether it's supporting the warfighter or ensuring our naval aircraft are fully operational and mission ready, cryogenics plays a huge role," Yeahia said. "From inflating aircraft tires to servicing struts, to ensuring aviators' breathing oxygen meets cleanliness standards, cryogenics SE is involved in all of it."

To meet those demands, the team works closely with the Common Aviation Support Equipment Program Office, the cryogenics depot at Lakehurst's Depot Repair Point (DRP)-14 and industry partners to support the warfighter. While each team member is assigned specific equipment, they collaborate to troubleshoot issues quickly and effectively.

"It's a very collaborative process," Yeahia said. "Whether it's in-service items or designing something new, there's a lot of feedback and teamwork involved."

The team includes engineers and contractor support personnel, all united by a common purpose. Yeahia describes them as "scientists by nature," constantly experimenting and refining innovative ideas until they become practical, fleet-ready solutions.

"A lot of people aren't entirely familiar with how quickly a contaminated oxygen system can pose a safety risk to personnel and aircraft," Yeahia said. "Even something minuscule could potentially cause a catastrophic incident."

Because of those risks, safety remains a top priority. Earlier this year, the team organized a cryogenic system safety course, bringing in industry experts to train the Lakehurst team alongside

Support for Naval Aviation

The cryogenics team at Naval Air Warfare Center Aircraft Division Lakehurst specializes in servicing oxygen and nitrogen systems on aircraft, focusing on the storage and dispersal of liquid and gaseous nitrogen and oxygen.

depot artisans and technicians. The training focused on safe handling of cryogenic systems and maintaining strict oxygen cleanliness.

Dana Kaminsky, the team's supervisor, emphasized how critical that knowledge is, noting improper oxygen cleanliness levels can lead to catastrophic failures.

She also highlighted the team's close collaboration with the depot, which she said plays a vital role in their success, both on the Lakehurst campus and abroad.

"Those guys go above and beyond. They're involved in installs, troubleshooting and engineering support," Kaminsky said. "They're a great resource to have here, and they're a fantastic group of people."

Innovation is a constant theme for the cryogenics team. One of their recent accomplishments was developing a compact oxygen relief valve tester for ejection seats. The device tests emergency oxygen systems on seat survival kits, parachute bottles and relief valves, all critical components for aircrew safety.

Previously, maintainers relied on an obsolete piece of equipment, called a liquid oxygen converter test stand, to examine aircraft liquid oxygen converters and emergency oxygen systems. As modern aircraft introduced new requirements, however, the team developed a system that better meets current needs, is certified for shipboard use and is ruggedized for fleet operations.

"It feels like a huge accomplishment when you're presented with a challenge that's impacting the fleet and you can identify a path forward," Yeahia said. "Ultimately, we always ask ourselves, 'How is this going to help the fleet?' That level of accountability is critical to everything we work on."

Kaminsky said Lakehurst has been involved in cryogenics for decades, and the team is proud to continue that legacy. Their strong team dynamic is also a key part of their success.

"Everyone works together. I know there are a lot of teams here that collaborate, but even outside of work, we support each other on a personal level," Kaminsky said. "There's so much to be said for keeping morale high, having each other's backs and making sure everyone is excited about what they do."

Adam Hochron is a communications specialist with Naval Air Warfare Center Aircraft Division, Lakehurst, New Jersey.

FRCE Team Revives Auxiliary Power Unit (APU) Repairs for Navy's Last C2-A Squadron

A team at Fleet Readiness Center East (FRCE) stepped up to provide auxiliary power units to the U.S. Navy's last remaining C-2A Greyhound squadron when no other source could, ensuring the continuation of the vital carrier onboard delivery mission.

When evolving fleet needs extended the C-2A Greyhound's service life, the change created unexpected supply challenges. Many components for the legacy aircraft were no longer available through traditional channels, including the auxiliary power unit (APU).

To bridge the gap, FRCE reestablished a capability that had been inactive for several years in order to provide Navy Fleet Logistics Support Squadron (VRC) 40 with working APUs. The APU, a small engine used to start the aircraft's main engines and support ground maintenance, is essential in austere expeditionary environments where ground support equipment may be limited or unavailable.

"It's an honor for FRCE to be able to take action and support the Navy's vital carrier onboard delivery mission by providing working APUs for the C2-A Greyhound when the fleet needed them most," said FRCE Commanding Officer Capt. Randy J. Berti. "Our team's effort to reestablish this capability speaks to the ingenuity and drive of the depot's workforce and their desire to provide world-class support to the warfighter."

According to Erik Dumas, senior engineer with the Naval Air Systems Command Gas Turbine Compressor/Pneumatics Fleet Support Team at FRCE, the supply chain was prepared to support the Greyhound through its originally planned retirement in 2024. That changed when the aircraft's mission was extended through September 2026. The APU quickly emerged as one of the platform's top degraders, meaning its lack of availability had the potential to reduce mission capability significantly.

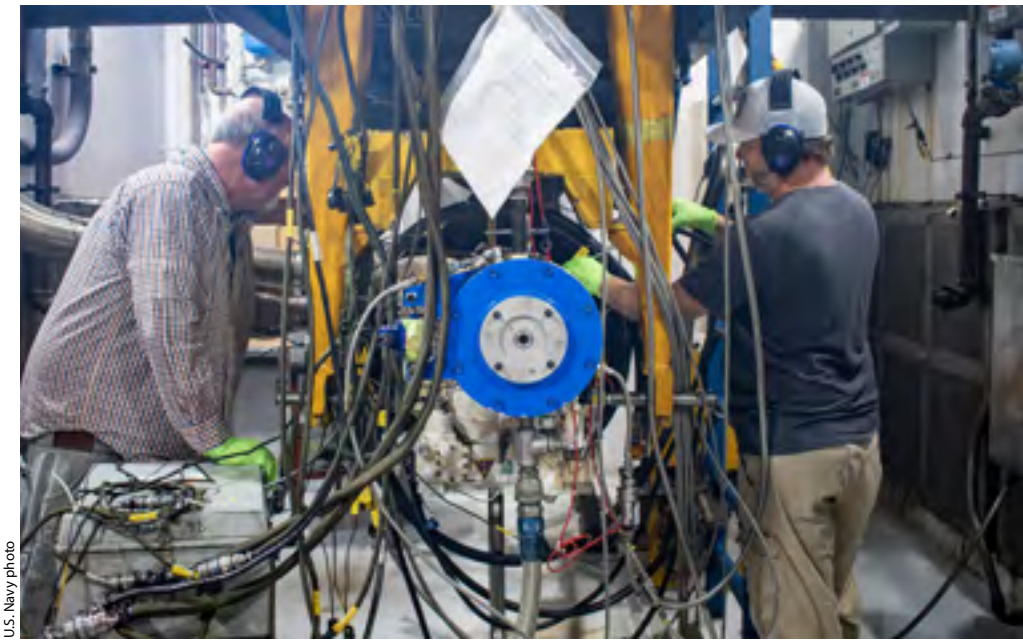
"When the C-2 squadrons were surged in order to meet fleet logistics needs, it became clear that we'd need a solution for providing more APUs," Dumas said. "These APUs are all 30-plus years old. An APU can last a year, or it could last a month—it really just depends on the conditions in which it's being used. In a forward-deployed environment, it lives a hard life. The request inevitably came to FRCE and the Fleet Support Team to see if it would be possible to repair or overhaul any C-2A APUs."

Thanks to a months-long, cross-disciplinary effort spanning several organizations, FRCE can now test, check and replace specific components on the APUs to restore them to working condition and meet the strict standards required by Naval Aviation. While the work is not as extensive as the full overhaul process once performed at the depot, the APUs produced at FRCE are meeting fleet needs.

In fact, Dumas said all C-2A Greyhound APUs currently "on the shelf" and available to the fleet through the supply chain system were produced at FRCE within the past year, clear evidence of the team's success.

Reaching this point required significant research, hands-on training and determination. Most FRCE artisans with direct knowledge and experience on this APU had retired over the years, leaving the team to rebuild the capability from the ground up.

The effort began with correlating the depot's test cells using a known working APU, borrowed from USS George H.W. Bush (CVN-77), to ensure accurate



U.S. Navy photo

Anthony Jones, left, and Grady Mayo, artisans in the Fleet Readiness Center East (FRCE) Engine Driven Compressor and Gas Turbine Compressor Shop, connect a C-2A Greyhound auxiliary power unit to a test stand to check the component's functionality.

U.S. Navy photos

A cross-disciplinary team at Fleet Readiness Center East (FRCE) worked to successfully reestablish capability for the C-2A Greyhound auxiliary power unit (pictured left) when evolving fleet needs resulted in service life extension for the aircraft, which supports the U.S. Navy's carrier onboard delivery mission. The team included, from left, Justin Rimmer, Engine Driven Compressor and Gas Turbine Compressor Shop supervisor; Edwin Agnes; Erik Dumas, senior engineer with the Naval Air Systems Command Gas Turbine Compressor/Pneumatics Fleet Support Team at FRCE; Anthony Jones; Grady Mayo; aircraft examiner Lawrence Murphy; and production controller Katia Councilman.

results. Once the team correlated the test cell successfully and developed new test instructions compatible with upgraded depot equipment, they began evaluating the available units.

The team initially worked through a supply of 40 APUs labeled "F" condition, meaning unserviceable but potentially repairable. From this batch, two were deemed ready for issue and returned to the supply chain.

Next, the team sought authorization to replace certain external components on the unserviceable APUs to bring them into working condition. Once approved, several more APUs were restored and returned to the fleet.

Justin Rimmer, supervisor of FRCE's Engine Driven Compressor and Gas Turbine Compressor Shop, said his team understood the Greyhound performs a no-fail mission, and that knowledge spurred them to work even harder.

"We knew the urgency of the fleet needing these units, so we pulled artisans from other projects to focus on this effort," he said. "It was pleasing to watch how all involved put together a plan, and the result was units for the fleet. It took a lot of man hours from multiple areas to make this happen."

Successfully reestablishing a limited C-2A repair capability required extensive teamwork among shop artisans, engineers, estimators and evaluators, production controllers and planners, Rimmer said.

Dumas agreed, noting external organizations also played a critical role.

"All throughout this process, we have worked with all of the stakeholders from Naval Supply Systems Command, FRCE, the E-2/C-2 Airborne Command and Control Systems Program Office, VRC-40, Defense Logistics Agency, the USS George H.W. Bush and the USS Nimitz, and the APU's original equipment manufacturer, Honeywell," he said. "Everyone working together made this happen.

"But the shop really stepped up to the plate to make this happen despite the hardships they faced, and this wouldn't have been possible without their support. No matter what I brought to them, we fixed it or worked around it—not once was I told no."

FRCE Components Division Director Meri Hancock said she is proud of the team's performance, though not surprised.

"I appreciate the shop stepping up every step of the way," she said. "No matter what challenge we throw at them, they overcome every obstacle they come across. They're outstanding performers who always accomplish the goal in support of the warfighter.

"The shop is known for their out-of-the-box thinking, and they're very good at it," she said. "This time, it was the C-2A Greyhound APU, but no matter what the mission is, they make it happen every day. They volunteer for every challenge, and they do an outstanding job."

Rimmer agreed that while this APU effort was high-profile, the team brings the same commitment to every task.

"It's an amazing feeling to know we came together as a team here at FRCE to produce these units for a fleet in need," he said. "It really says a lot about Eastern North Carolina and how much we do for not just our warfighters here, but around the world."

FRCE Expands Fleet Support with First CH-53K Engine Induction

By Samantha Morse

Fleet Readiness Center East (FRCE) continues to expand its support of Naval Aviation's heavy-lift mission with the recent induction of a CH-53K King Stallion engine, the first of its kind to undergo depot-level maintenance.

Following the first induction of a CH-53K helicopter for maintenance at FRCE in April, the facility inducted the platform's first T408-GE-400 turboshaft engine for depot-level work Sept. 9.

FRCE Engines Branch Head David Thorpe said this induction marks an important milestone in the depot's support of Naval Aviation.

"Our Maintenance, Repair and Overhaul Production Department and Centralized Coordination Department have been working with the Fleet Support Team, the original equipment manufacturer and other entities for the past few years, and their efforts are beginning to be realized," Thorpe said. "FRCE is now the only facility in the world that can perform depot-level maintenance on these engines. With this new capability, we can provide the fleet with restored and dependable T408 engine assets, which are much needed as the new CH-53K King Stallion helicopter program continues to grow."

The T408 turboshaft engine powers the Marine Corps' CH-53K King Stallion, the U.S. military's largest and most powerful helicopter. As the heavy-lift replacement for the CH-53E Super Stallion, the King Stallion will expand the fleet's ability to move more material rapidly throughout the area of responsibility. Powered by three T408 engines, the helicopter can carry 27,000 pounds at a mission radius of 110 nautical miles, nearly triple the baseline of its predecessor, and can lift up to 36,000 pounds externally.

CH-53K Capability Establishment Lead Jeff Warren said the H-53 Heavy Lift Helicopters Program Office has asked FRCE to follow a multi-phase plan to establish full repair capability on the engine. This approach allows FRCE to begin performing limited depot-level maintenance while continuing to develop the processes needed for more in-depth repairs. The current induction represents the first phase of that plan.

"Right now, we are doing what we can and what is needed to get engines back on the shelf for the fleet," Warren said. "The phased approach allows us to learn more about the engine and develop the repair criteria we need as we move toward conducting more in-depth maintenance on it. We are currently in the repair phase, which consists of inducting engines with specific repair needs. We can disassemble an engine, replace worn and damaged parts with new ones, reassemble and test it."

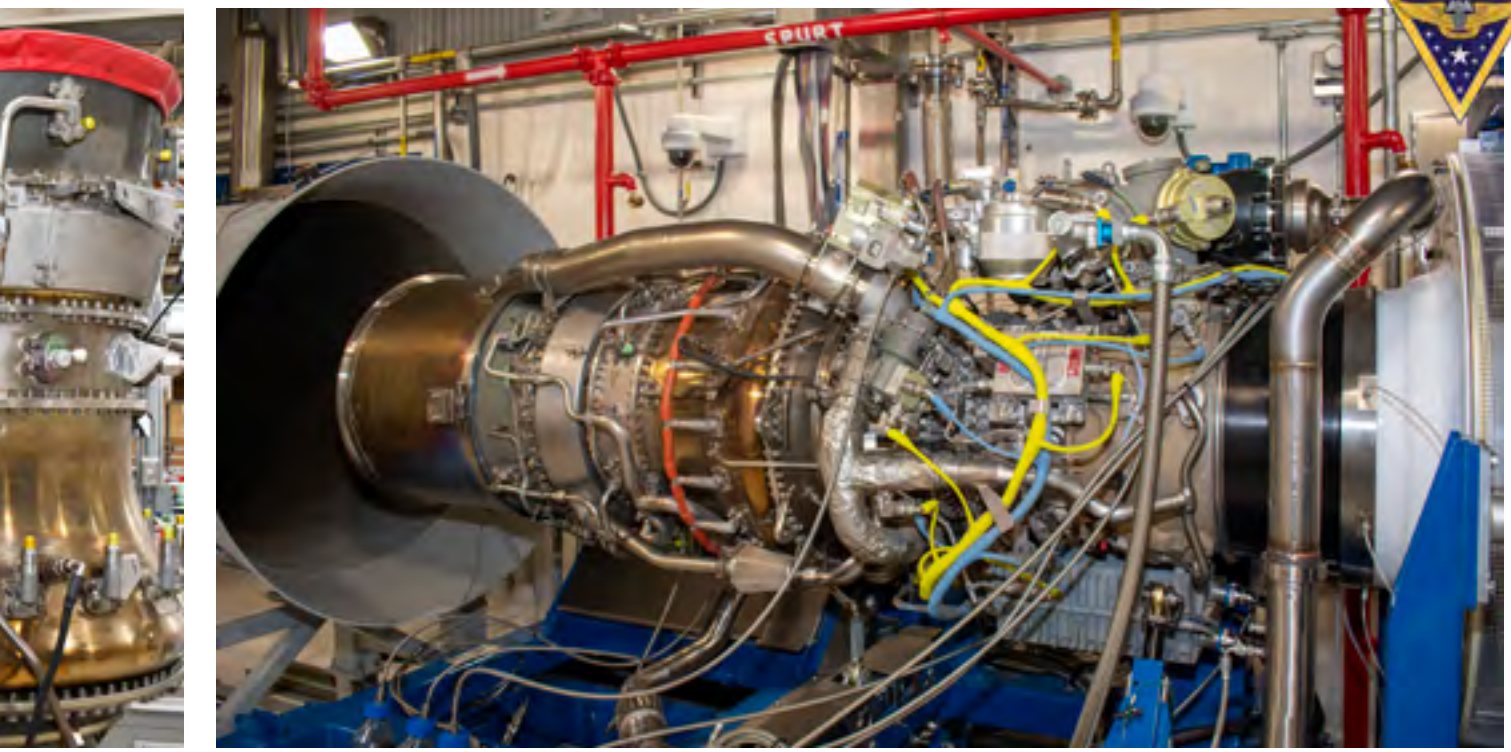
Fleet Readiness Center East (FRCE) engine mechanic Mark Schexnayder begins to disassemble the T408 engine in preparation for maintenance.

As FRCE gains experience and establishes additional repair capabilities, the depot will move into the second and third phases of the plan, Warren said. In those phases, FRCE will be able to overhaul the engine and its components completely.

"We are working to establish full repair capability on the T408," Warren said. "That includes breaking the engine all the way down, piece by piece, and routing every part of it through our back shops for repairs. We will have the ability to repair and refurbish the parts, rather than having to replace them with brand new ones like we are doing now. Then each part and component will come back to the engine assembly shop, where the engine will be rebuilt and tested."

To prepare for this induction, FRCE completed multiple pilot repairs on the T408 engine and its components over the past few years to develop and refine repair processes, techniques and materials. During these pilot repairs, FRCE artisans and engineers worked closely with representatives from the original equipment manufacturer and the program management office to learn how to disassemble, reassemble and maintain the engine properly.

Mark Schexnayder, an engine mechanic who participated in many of the pilot repairs, said he is excited to be working on the T408 and looks forward to learning more about the platform.



Fleet Readiness Center East (FRCE) inducted the first T408 turboshaft engine, which powers the Marine Corps CH-53K King Stallion, for maintenance Sept. 9.

"We are learning to maintain the new equipment that the military is using so we can continue to support them and their mission for years to come," Schexnayder said. "I love learning new things, especially when it means I can make more of an impact. Our support of the warfighter is very important, and I am proud to be there for them—from learning everything I can about this engine to now helping to maintain it."

Warren said FRCE has also been developing a T408 engine test cell that will allow artisans to test an engine's performance in a controlled environment before returning it to the fleet. Once certified, the test cell will play a critical role in ensuring the engine meets mission requirements and is safe for flight.

"We are the only depot source of repair for T408 engines in the world, which means we are the only site capable of repairing the engines, which also includes testing," Warren said. "This test cell will be another significant milestone for us. It will allow us to test the engines to make sure they are airworthy and able to support the mission."

In addition to post-maintenance testing, Warren said the test cell will also be used to assess engines before induction to verify diagnoses and identify any additional repairs needed.

Once FRCE establishes full repair capability, the T408 is expected to represent a significant portion of the depot's workload.

"Each King Stallion has three engines, which means we are eventually going to have a significant amount of these engines coming through here for depot-level rework," Warren said. "As of right now, FRCE is projected to eventually induct more than 100 T408 engines per year after we establish full capability. We only did 36 T64 engines in 2024 for the CH-53E Super Stallion because that platform is sundowning.

"FRCE has worked the T64 legacy engines for many years—with the T408 being the engine set to replace the T64, this workload will keep our engine line running well into the future," Warren said. "In doing this, we are set up to continue to support the warfighter for decades to come, knowing this engine is going to be the future for heavy-lift aircraft."

Thorpe said this induction is just the beginning of the depot's support for the CH-53K King Stallion. FRCE plans to establish capability on approximately 150 components and dynamic components for the platform.

"This is just the tip of the iceberg," Thorpe said. "We are still in the beginning stages of engine and component work for the T408, which will grow exponentially in the next few years. As the King Stallion continues to replace the CH-53E Super Stallion, we will see more and more of these engines and their components come through our shops and more King Stallion aircraft in our hangars. We are proud to be able to provide the fleet with these initial rework services now but are excited to grow and make an even larger impact on fleet readiness in the future."

Samantha Morse is a public affairs specialist with Fleet Readiness Center East, Cherry Point, North Carolina.

First Air Force T-38 Talon Arrives at FRCSE for Overhaul

The first Air Force T-38 Talon aircraft arrived at Fleet Readiness Center Southeast (FRCSE) Nov. 24 for overhaul and repair as part of the Talon Repair, Inspection and Maintenance program (TRIM).

The TRIM program is an Air Force repair initiative focused on inspecting and replacing key structural components across the T-38 fleet, with the goal of extending the aircraft's service life by five to 10 years.

Currently, most TRIM repairs are performed at the Air Force's aviation depot at Joint Base San Antonio-Randolph, Texas. In August 2024, representatives from the T-38 Program Office reached out to FRCSE to determine whether the readiness center could take on a portion of the workload.

"When the Air Force asked us if we could support working on their T-38s, our team took a hard look at it and agreed we could assist," said Capt. Mike Windom, FRCSE commanding officer. "Taking on this workload is another testament to our workforce's commitment to doing whatever it takes to support our nation's warfighters."

The T-38 Talon is a twin-engine, high-altitude, supersonic jet trainer used in a variety of roles. The Air Force uses the aircraft to prepare pilots to fly front-line fighter and bomber platforms.

"The Air Force has approximately 270 aircraft they need to perform the TRIM package on by 2030, with the goal being 50 inductions per year," said Paul Skinner, an FRCSE business management specialist. "FRCSE is going to take on a portion of those aircraft inductions to help them reach that goal."

Since August 2024, more than 160 process engineers, logisticians, components and manufacturing experts, production leaders and support personnel from FRCSE have worked with Air Force representatives to ensure the command had the necessary support equipment, technical data, software and qualifications to take on the new airframe. FRCSE personnel also visited Air Force and NASA T-38 repair sites to observe maintenance and repair operations firsthand.

"During the visit to El Paso to visit the NASA facility, their sheet metal

An Air Force T-38 Talon arrives at Fleet Readiness Center Southeast (FRCSE). This is FRCSE's first T-38, which will undergo overhaul and repair as part of the Talon Repair, Inspection and Maintenance program (TRIM).

U.S. Navy photos by Toiete Jackson

An Air Force T-38 Talon taxis to an aircraft shelter at Fleet Readiness Center Southeast (FRCSE). This is FRCSE's first T-38, which will undergo overhaul and repair as part of the Talon Repair, Inspection and Maintenance program (TRIM).

The arrival of FRCSE's first T-38 marks the start of the command's work supporting the Air Force's Talon Repair, Inspection and Maintenance program overhaul and repair effort.

mechanics were especially helpful," said Troy James, an FRCSE sheet metal mechanic. "They took the time to walk me through several areas of the aircraft, explain component layouts and share practical knowledge of their day-to-day work."

Most TRIM work at FRCSE will be performed by seasoned artisans with extensive experience on the similar F-5 Tiger II. While the two aircraft are not identical, they share enough characteristics that some tools and support equipment can be used on both airframes, giving F-5 artisans a head start as they transition to the T-38.

"We discovered that while the F-5 and T-38 share similarities, they can also differ significantly, which requires us to be cautious to avoid confusion," said Steve Clayton, FRCSE's F-5/T-38 ground check supervisor.

In October, Naval Air Systems Command designated FRCSE as a secondary Depot Source of Repair for the T-38, authorizing the command to perform the requested repair work.

"There's been a lot of work put into getting to this point," Skinner said. "We submitted over 180 pieces of support equipment to our manufacturing and plant services departments for them to make from scratch to ensure our artisans have the right equipment. This included things such as wiring harnesses, fixtures, and installation and removal tools."

The FRCSE T-38 capability establishment team has spent the past 15 months preparing for the aircraft's arrival, and the induction of the first T-38 marked a major milestone for the group.

FRCSE expects to induct a second aircraft later this year, with the production line ultimately growing to six inductions per year.

FRCSE Begins Corrosion-Mitigation Work on Royal Navy F-35

By Anthony Junco

The first Royal Navy (RN) F-35 Lightning II aircraft arrived at Fleet Readiness Center Southeast (FRCSE) Dec. 3, 2025, for Production Asset Inspection Requirement Tier II (PAIR II) corrosion-mitigation inspections.

Using the PAIR II process, artisans on FRCSE's F-35 corrosion speed line will inspect the aircraft's underlying structure and remove and repair any corrosion to prevent further damage.

PAIR II is a comprehensive process that includes detailed corrosion mapping, structural assessments, and component repairs or replacements. To minimize aircraft downtime, FRCSE artisans optimized the PAIR II workflow, reducing the standard turnaround time from 180 days to approximately 60 days, significantly improving the availability of F-35 aircraft for operational service.

To further reduce future corrosion and repair costs, FRCSE is also sharing F-35 corrosion-prevention best practices with Royal Navy maintenance teams for use both ashore and at sea.

The 60 artisans and support staff on FRCSE's F-35 team have undergone extensive training on the aircraft's advanced systems, including the Autonomic Logistics Information System (ALIS) and specialized surface coatings.

"The FRCSE speed line is recognized within the F-35 community for efficient and cost-effective corrosion mitigation," said Capt. Mike Windom, FRCSE commanding officer. "We are proud to extend our expertise to support our Royal Navy allies, ensuring their F-35 aircraft maintain peak mission readiness."

The F-35 is a fifth-generation fighter used by the Navy, Marine Corps, Air Force and 19 allied nations. Combining stealth, multi-mission capability, electronic warfare and advanced lethality, it plays a key role in global deterrence.

Anthony Junco is a public affairs officer with Fleet Readiness Center Southeast in Jacksonville, Florida.

U.S. Navy photos by Tolete Jackson

A Royal Navy (RN) F-35 Lightning II aircraft arrives Dec. 3 2025, at Fleet Readiness Center Southeast (FRCSE) for Production Asset Inspection Requirement Tier II (PAIR II) corrosion-mitigation inspections.

A Royal Navy (RN) F-35 Lightning II pilot debarks the aircraft after arriving at Fleet Readiness Center Southeast (FRCSE). The fifth-generation fighter is one of three aircraft from the RN that will undergo a Production Asset Inspection Requirement Tier II (PAIR II) corrosion-mitigation inspection at FRCSE.

Three Royal Navy (RN) F-35 Lightning II aircraft arrive at Fleet Readiness Center Southeast (FRCSE). The fifth-generation fighters will undergo a Production Asset Inspection Requirement Tier II (PAIR II) corrosion-mitigation inspection at FRCSE.

FRCSW Opens New V-22 Repair Facility at NAS North Island

U.S. Navy photos

At Fleet Readiness Center Southwest (FRCSW), a new purpose-built facility is set to elevate V-22 sustainment and repair for the next century.

Fleet Readiness Center Southwest (FRCSW) is poised to transform V-22 sustainment for decades to come with the opening of a new, purpose-built V-22 repair facility at Naval Air Station North Island (NASNI). The 65,000-square-foot modern hangar complex, building 418, is designed to enhance capacity, reduce turnaround time, increase safety and ensure Navy aircrews receive the mission-ready aircraft they rely on.

The facility represents one of the most significant infrastructure investments in FRCSW's history, an investment expected to support Naval Aviation for the next 75 to 100 years.

"This facility positions FRCSW as the premier V-22 repair depot on the West Coast, exactly what the Navy needs as these aircraft are increasingly vital to operations. Our artisans helped design this building, and it shows. Everything in here is about efficiency, safety and readiness," said John Goolsby, FRCSW V-22 program manager.

Designed from the ground up for V-22 maintenance, modifications and in-service repairs, the hangar includes 40,000 square feet of main bay space and 25,000 square feet of shops, storage and administrative areas. It can accommodate four V-22 aircraft at once, a 25% increase in bay capacity. This expansion allows FRCSW to maintain its program of four Planned Maintenance Interval (PMI) events per year, while adding room for critical modifications, special inspections and unplanned repairs.

The new building marks a major improvement over the previous converted facility, which lacked internal shops and had only a single overhead crane. In contrast, building 418 features:

- Two full-length 5-ton overhead bridge cranes
- Dedicated composite shops
- A sheet metal and machine shop
- Specialized tool/individual material readiness list storage
- An 8,294-square-foot kitting and storage complex
- Onsite hazmat issue center and hazardous waste collection site
- Underground fuel cell venting system
- Integrated fall-protection system
- Fully equipped training room

More than 80 FRCSW personnel—artisans, engineers, production controllers and logisticians—will work in the new facility daily, supported by advanced environmental, energy-efficiency and safety systems.

One of the most transformative improvements is the elimination of the constant "jockeying" that defined maintenance in the old hangar. Previously, aircraft, stands, tooling and personnel had to be rearranged frequently, and even a standard weight-and-balance check required towing the aircraft outside. In the new facility, every process can be performed inside the bay, with cranes, equipment, shops, storage and hazmat support located exactly where artisans need them. The integrated kitting area ensures every part, component and consumable is labeled, tracked and accessible, allowing leadership to assess progress at a glance.

"When you take away the need to constantly move aircraft, people and equipment, you get back efficiency. That translates into faster return-to-fleet times," said Deputy Program Manager Joe Weides.

FRCSW artisans were heavily involved in the facility's layout and workflow design. Goolsby, along with deputies Mike Dixon and Weides, solicited input from the teams who perform the work every day. Their recommendations shaped everything from shop placement to crane coverage to workstation design.

"That kind of collaboration is rare, but it's why this building will work well for the artisans," Weides said. "This isn't just a hangar. It's a tool, and the people who will use it helped craft it."

The result is a facility that supports safe, efficient, high-quality maintenance while giving artisans a workplace worthy of their expertise. Excitement among FRCSW employees is palpable.

"Our team has supported the V-22 since the program's inception. Working in a new, state-of-the-art facility brings a new sense of pride and momentum," Goolsby said.

The V-22 program is entering a period of significant growth. As the CMV-22B replaces the aging C-2A Greyhound for Carrier Onboard Delivery (COD) missions, demand for depot-level support continues to increase. COD aircraft are the lifeblood of the carrier air wing, transporting critical personnel, mail and supplies. FRCSW's ability to sustain the Navy variant on the West Coast is essential.

The new facility cost $56 million to complete, down from an early estimate of $67 million, despite unexpected underground utilities issues, network challenges, design changes and the scale of construction over a 25-month period.

"This is a 100-year building. For the cost of a single aircraft, the Navy has secured a century of V-22 sustainment capability," Goolsby said.

Partners in the effort included Naval Facilities Engineering Systems Command (NAVFAC), RQ Construction, Jacobs (design firm), the V22 Joint Program Office, Commander Fleet Readiness Centers and the FRCSW Facilities and Integrated Product Teams. Despite challenges, the project was delivered on schedule, under budget and built to last.

This building meets all federal high-performance and sustainable building requirements, including full documentation for GBCI Guiding Principles compliance, which assesses federal building sustainability.

With the opening of this state-of-the-art facility, FRCSW takes a decisive step toward its strategic goal: becoming the premier V-22 repair facility for the Navy and Marine Corps.

The improvements aren't just about saving time—they enhance safety, reduce lifecycle costs and ensure every aircraft returned to the fleet is ready for the most demanding missions.

More than 80 FRCSW artisans, engineers and support personnel will work in the new hangar daily, using a layout they helped design to maximize efficiency and safety.

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