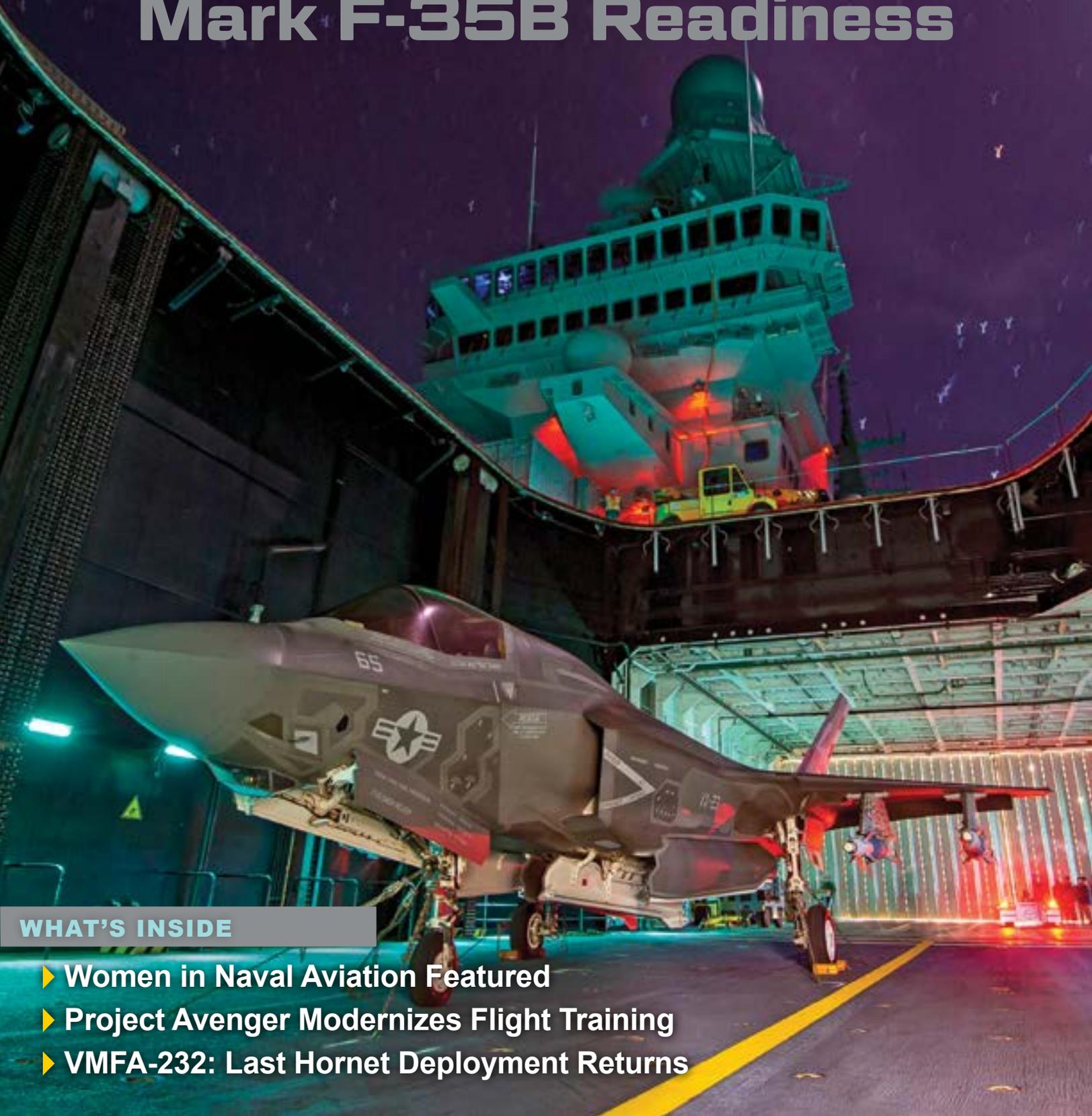


NAVAL AVIATION NEWS

THE FLAGSHIP PUBLICATION OF NAVAL AVIATION SINCE 1917

SPRING 2021

Italian Carrier Sea Trials Mark F-35B Readiness



WHAT'S INSIDE

- ▶ Women in Naval Aviation Featured
- ▶ Project Avenger Modernizes Flight Training
- ▶ VMFA-232: Last Hornet Deployment Returns



Aircraft carrier USS Dwight D. Eisenhower (CVN 69) approaches the Peace Bridge in the Suez Canal on April 2.

U.S. Navy photo by MCSN Orion K. Shotton

NAVAL AVIATION NEWS

SPRING 2021

VOLUME 103, No. 2

DEPARTMENTS

- 4 Airscoop
- 13 Grampaw Pettibone

FEATURES

- 14 Navy Conducts First At-Sea Power Module Replenishment for F-35C
- 18 Ford Qualifies Naval Aviators Using Precision Landing Mode
- 20 'Ghost Wolves' Demonstrate UAS Resupply in Pioneering Test Flights
- 22 Italian Carrier Sea Trials Mark F-35B Readiness
- 28 Project Avenger: Modernized Flight Training

SPECIAL SECTION

30 WOMEN IN NAVAL AVIATION

This special section celebrates the contributions women vanguards in Naval Aviation have historically made and continue to make toward mission success.

- 40 Augmented Reality Suite Aims to Revolutionize Maintenance, Repair
- 42 'Death Rattlers' Return from Last F/A-18 Hornet Deployment
- 44 Test Pilot School Instructors' Research Pushes Boundaries
- 48 Navy Reserve: Second Chance to Serve
- 50 NAWCWD Supports Mars Rover Mission
- 52 FRCSW Evaluates E-2D Process Improvements
- 53 FRCSW Prepares Legacy Hornet for CNAF Display
- 54 FRCE V-22 Line Sets Record Turnaround Time
- 55 Read Well to Lead Well

ALSO IN THIS ISSUE

- 56 Professional Reading
- Inside Back Cover Squadron Spotlight

ON THE COVER



On the cover: A U.S. F-35B Lightning II sits on the forward elevator during logistics testing aboard Italian aircraft carrier ITS Cavour (CVH 550) in the Atlantic Ocean March 20. (U.S. Navy photo by Dane Wiedmann)

In celebration of Women's History Month, we feature a special section beginning on page 30 highlighting recent achievements by women in the field of Naval Aviation, as well as recognizing a few of the many pioneers who broke through barriers to make their mark not only in the skies, but in the march toward equality and human innovation. Despite many challenges caused by the COVID-19 global pandemic, the Navy continues to develop evolving technology and innovative ways to prepare the next generation of warfighters. On page 28, the first Project Avenger flight training class completed its streamlined syllabus with the aid of virtual reality, while engineers and maintainers are using similar technology to perform repairs around the world on page 40. Catch a glimpse of the future of at-sea resupply with the first test of an unmanned aircraft system delivery from shore to USS Gerald R. Ford (CVN 78) on page 20.

On the back cover: Operations Specialist 2nd Class Daniela Mireles, left, and OS2 Haley Fuentes, assigned to Amphibious Squadron 6, stand a global command control system maritime watch in the combat information center aboard Wasp-class amphibious assault ship USS Kearsarge (LHD 3). (U.S. Navy photo by MCSA Gwyneth Vandevender)

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

Director, Air Warfare

Rear Adm. Gregory N. Harris, USN

Editor in Chief

Andrea Watters, Naval Air Systems Command

Editorial Board

Rita Boland, Naval Aviation Enterprise

FORCM Christopher Chelberg, USN, Naval Air Force Atlantic

Stan Coerr, Headquarters, Marine Corps

Cmdr. Zachary Harrell, USN, Naval Air Forces

Marcia Hart, Naval Air Systems Command

Richard Holcomb, Air Warfare N98

Naval Aviation News Staff

Fred Ferlage, Art Director, Naval Air Systems Command

Rob Perry, Staff Writer/Editor, Naval Air Systems Command

Contributing Editors

Emily Funderburk, Naval Air Systems Command

Melissa A. Johnson, Naval Air Systems Command

Paul Lagasse, Naval Air Warfare Center Aircraft Division

Columnists

Cmdr. Peter Mersky, USNR (Ret.), Book Review Editor

Cmdr. Bryan Dickerson, USN (Ret.), Contributing Editor

Submission Guidelines

Commands may send news and announcements such as awards, rescues, milestones and other achievements to nannews@navy.mil. 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 nannews@navy.mil.

Personal Subscriptions and Address Changes

A one-year subscription (four issues) is \$23.00 domestic, \$32.00 overseas. For online orders go to bookstore.gpo.gov. For mail orders, cite *Naval Aviation News* and send check, money order, or credit card information to U.S. Government Printing Office Orders, P.O. Box 979050, St. Louis, MO 63197-9000. For fax orders, call 202-512-2104. For phone orders, call 202-512-1800, Mon-Fri, 0700-1830. For email orders, send to contactcenter@gpo.gov. For changes of address, also send to contactcenter@gpo.gov; include full name and both old and new addresses.

Official Subscriptions and Address Changes

Subscriptions to military and government agencies are provided free of charge through the Naval Aviation News office. Email nannews@navy.mil, send mail to *Naval Aviation News*, NAVAIR Public Affairs Office, 47123 Buse Road, Building 2272, Suite 547, Patuxent River, MD 20670.

Naval Aviation News (USPS 323-310; ISSN 0028-1417) is published quarterly for the Chief of Naval Operations by the Naval Air Systems Command. Periodicals postage is paid at Washington, D.C., and additional mailing offices.

The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law. The use of a name of any specific manufacturer, commercial product, commodity or service in this publication does not imply endorsement by the Navy. Any opinions herein are those of the authors, and do not necessarily represent the views of *Naval Aviation News*, the Department of the Navy or the Department of Defense.

Approved for public release: SPR No. 2021-305

Postmaster: Send address changes to *Naval Aviation News*, NAVAIR Public Affairs Office, 47123 Buse Road, Building 2272, Suite 547, Patuxent River, MD 20670.

NAVAL AVIATION NEWS IS ONLINE AT
<http://navalaviationnews.navy.mil>

SEND YOUR FEEDBACK TO: nannews@navy.mil

Airscoop

Compiled by Andrea Watters and Rob Perry

Nimitz Carrier Strike Group Returns from Deployment



Sailors man the rails on the flight deck of aircraft carrier USS Nimitz (CVN 68).

SAN DIEGO, Calif.—More than 5,000 Sailors and Marines assigned to the Nimitz Carrier Strike Group (NIMCSG) returned Feb. 26 to San Diego, California, after nearly 11 months deployed in the U.S. 5th and 7th Fleet areas of operation (AOR).

Secretary of Defense Lloyd J. Austin III flew out to USS Nimitz (CVN 78) while the ship was off the coast of California to thank the crew for a record-setting deployment.

“You’ve just demonstrated incredible professionalism, resilience and focus,” Austin told the crew over the shipwide public address system. “It’s been very impressive.”

NIMCSG was the first carrier strike group to embark on a deployment for the Navy after the onset of the COVID-19 pandemic. The strike group was comprised of Carrier Strike Group (CSG) 11, aircraft carrier USS Nimitz (CVN 68), embarked Carrier Air Wing (CVW) 17, Destroyer Squadron 9, Ticonderoga-class guided-missile cruiser USS Princeton (CG 59) and Arleigh Burke-class guided-missile destroyer USS Sterett (DDG 104).

“The Sailors and Marines of Nimitz Strike Group and their families have given it their all for almost a year. They successfully kept COVID out of the strike group beginning in April 2020 and stayed healthy throughout our time standing the watch for our nation,” said Rear Adm. Jim Kirk, commander, CSG-11. “These young men and women worked tirelessly to incorporate mitigations that ensured the health, safety and readiness of the crews. They made important contributions to the security and stability in the Middle East, Africa and Western Pacific during a period of tension and transitions. I am immensely proud of this team and all that they accomplished during this unprecedented deployment.”

The NIMCSG had the longest deployment since the Vietnam War. It was lengthened by COVID-19 protocols that called for a quarantine before departing and the elimination of port calls during the deployment. The

Navy aims for deployments to be roughly six months.

“I don’t want deployments this long to be the norm,” Austin said. “And so, we need to take a hard look at that, but you handled it very, very well. You led. You took care of each other in the midst of a pandemic, and you were a team.”

While deployed, the strike group completed five dual-carrier operations in the U.S. 7th Fleet AOR with the Ronald Reagan and Theodore Roosevelt Carrier Strike Groups and participated in the India-hosted multinational exercise Malabar 2020 with the Japan Maritime Self-Defense Force and the Australian Navy in the Bay of Bengal.

In the 5th Fleet AOR, NIMCSG supported Operation Freedom’s Sentinel as part of the NATO-led Resolute Support mission in Afghanistan, and Operation Inherent Resolve with close air support

and defensive counter-air missions against the Islamic State in Iraq and Syria.

The strike group provided associated and direct support to the 33-nation coalition Combined Maritime Forces and the eight-nation coalition International Maritime Security Construct to ensure the free flow of commerce and maritime security in three critical waterways. NIMCSG also operated off the coast of Somalia in December to support Joint Task Force–Quartz and Operation Octave Quartz during repositioning of U.S. forces within East Africa.

“It’s hard to express in words the overwhelming sense of accomplishment and pride felt by all hands aboard Nimitz as this long deployment comes to a close,” said Capt. Max Clark, Nimitz’s Commanding Officer. “I am so very proud of this crew, and the grit and teamwork they demonstrated day in and day out to

complete all missions assigned. They and their families have my deepest respect and gratitude.”

Overall, the carrier strike group steamed more than 87,300 nautical miles during its deployment. The carrier launched 10,185 sorties totaling 23,410 flight hours logged.

After disembarking CVW-17, Nimitz will return to its homeport at Naval Base Kitsap-Bremerton.

CVW-17 consists of Strike Fighter Squadron (VFA) 137, VFA-94, VFA-22, Marine Fighter Attack Squadron (VMFA) 323, Electronic Attack Squadron (VAQ) 139, Airborne Command & Control Squadron (VAW) 116, Helicopter Sea Combat Squadron (HSC) 6, Helicopter Maritime Strike Squadron (HSM) 73 and Fleet Logistics Support Squadron (VRC) 30.

From Commander, U.S. 3rd Fleet Public Affairs. 🇺🇸



U.S. Navy photo by MC1 David Mora Jr.

Nimitz arrives at Naval Air Station North Island, Calif., Feb. 26 after a more than 10-month deployment to U.S. 5th Fleet and 7th Fleet areas of operations.

Lightning Strikes Again Onboard USS America

PHILIPPINE SEA—USS America (LHA 6), the Navy’s only forward-deployed amphibious assault ship, was at sea February operating with F-35B Lightning II fighter aircraft from Marine Fighter Attack Squadron (VMFA) 121.

“Operating the F-35B from our most advanced ship in the America Strike Group brings an extraordinary capability to the Navy and Marine Corps team as we operate forward in the Indo-Pacific,” said Rear Adm.

Fred Kacher, commander, Expeditionary Strike Group (ESG) 7. “The USS America-31st Marine Expeditionary Unit (MEU) team truly embodies what the Chief of Naval Operations terms integrated American naval power, and these Sailors and Marines are already making a difference as we sail, fly and operate in the most critical maritime arena in the world today.”

Sailors and Marines aboard America conducted flight operations in support of 31st MEU missions, ensuring

this next-generation strike weapons system is ready to deliver as part of the integrated Navy-Marine Corps team.

“The joint strike fighter is unmatched in theater—nothing even comes close,” said Capt. Richard LeBron, commodore, Amphibious Squadron (PHIBRON) 11. “There is no better aviation platform to support 7th Fleet’s mission to ensure the United States can freely operate wherever and whenever it must, in alignment with international norms, standards, rules and laws.”

The forward-deployed USS America ESG, which comprises the ships of PHIBRON 11 coupled with the air and ground combat elements of the 31st MEU, as well as landing craft and personnel from Naval Beach Unit 7, relies on F-35B’s enhanced battle vision for optimal command-and-control of multiple mission platforms throughout the Indo-Pacific.

“The F-35B is one of the many innovative warfighting tools our lethal professionals of the 31st MEU bring to the America team, and once again I am eager to work with them as we innovate and operate across the 7th Fleet area of operations,” said Capt. Ken Ward, Commanding Officer, USS America. “Over land or over water, the fusion of speed, agility, stealth and sensors are unlike any other fighter in history—it provides the warfare commander an unparalleled advantage in the battlespace.”

Col. Michael Nakonieczny, Commanding Officer, 31st MEU, reiterated this revolutionary aircraft will have positive and revolutionary impacts on the joint force and regional allies.

“Our air combat element, reconnaissance teams and rifle squads, imbued with our warfighting ethos and enabled by the combat power and combat logistical support of the ESG, are a dominating and decisive force on any battlefield against any adversary,” Nakonieczny said.

Written by Lt. John Stevens, USS America (LHA). 🇺🇸



Aviation Boatswain's Mate (Handling) (ABH) 2nd Class Cosme Zamora, assigned to USS America (LHA 6), conducts flight operations with an F-35B Lightning II assigned to the 31st Marine Expeditionary Unit.

U.S. Navy photos by MC3 Jonathan D. Berfler

ABH 2nd Class Devin Call launches an F-35B.



An F-35B flies over the flight deck of America.



U.S. Air Force photo by Airman 1st Class Dwane R. Young

A U.S. Navy E-2D Advanced Hawkeye aircraft takes-off during a U.S. Air Force Weapons School (USAFWS) Integration exercise at Nellis Air Force Base, Nevada.

E-2D Achieves Mission-Capable Goal Five Months Early

PATUXENT RIVER, Md.—The E-2D community reached its mission-capable aircraft goal five months ahead of schedule as a result of collaboration across the Naval Aviation Enterprise (NAE).

The E-2/C-2 Airborne Command & Control Systems Program Office and the Airborne Command & Control Logistics Wing, along with the Naval Supply Systems Command Weapon Systems Support (NAVSUP WSS) E-2/C-2 Integrated Weapon Support Team (IWST), launched Naval Sustainment System-Aviation (NSS-A) efforts in 2020 to improve E-2D Advanced Hawkeye aircraft readiness with a goal to sustain 28 mission-capable (MC) and 22 fully mission-capable (FMC) aircraft.

On Feb. 3, Rear Adm. John F. Meier, Commander, Naval Air Force Atlantic (CNAL), announced the first objective of 28 MC E-2D aircraft was met five months ahead of the targeted completion date of July 1.

“As I’ve listened to the Maintenance Operation Center (MOC) lead calls, I have seen and heard the energy and passion by all hands to not only pursue this target, but to deliver on closing the fully mission-capable gap as well,” Meier said. “I would tell you that at the outset, nobody, but us, would have thought this possible, this fast.”

To meet this goal, the NAE built on its success of achieving mission-capable F/A-18E/F Super Hornets in 2019.

“The F/A-18 and EA-18G have been a major focus of the Navy to significantly increase mission capability in the last several years. Now it’s time for the E-2D to step into the spotlight and take lessons learned from these other successful programs and the NSS-A and integrate them into our own mission capable aircraft campaign,” said Capt. Pete Arrobio, E-2D program manager.

“This is an all-hands-on-deck effort across our community to reach, sustain and surpass 28 MC while, at the same time, getting after FMC,” Arrobio said.

The mission-capable effort is structured around the six pillars

of the NSS-A, which applies an integrated approach to a data-informed and analytic-driven framework leveraging best practices from industry to increase spare parts, enhance capability and maintain aircraft to support the warfighter.

The pillars involved in the reform include the Maintenance Operation Center (MOC) Aircraft on Ground (AOG), Fleet Readiness Center (FRC) reform, Operational-level reform, Supply Chain reform, Engineering and Maintenance reform, and establishing a single point of accountability for governance and accountability.

On the supply side, the E-2/C-2 IWST worked with each commercial vendor to ensure key components were prioritized and delivered and relied on the NSS-A Heads Up Display stakeholder and NSS-Supply End-to-End Velocity meetings, according to Lt Cmdr. James Conklin, E2/C2 IWST director.

During February and March, 28 MC E-2Ds were available on average, which represents a significant accomplishment, Arrobio said, adding that they are moving toward sustaining and having sufficient numbers of spares on shelf to meet the fleet’s need.

“The Navy invested in the E-2D because of the unique and critical warfighting capabilities it brings to the Navy and the Joint Force,” said Capt. Mike France, Airborne Command & Control and Logistics Wing commander. “Persistently maintaining 28 MC is an important milestone but achieving 22 FMC E-2Ds sets the stage for us to win against adversaries. This is the critical number that supports deployed squadrons and high-end training.”

Arrobio and France said the program office and the wing have already made significant progress toward this objective by consolidating parts across prioritized aircraft, working with NAVSUP WSS and industry to accelerate spares and repairs and improve reliability to systematically attack FMC readiness degraders.

Compiled from releases by the E-2/C-2 Airborne Command & Control Systems Program Office and Naval Supply Systems Command Weapon Systems Support. 🐦

FRC Aviation Support Equipment Det. North Island Meets Urgent Fleet Request

NORTH ISLAND, Calif.—Responding to an urgent Commander, Naval Air Force Atlantic request, Fleet Readiness Center Aviation Support Equipment (FRCASE) Det. North Island recently completed an extensive overhaul of a

crash and salvage crane for USS Ronald Reagan (CVN-76).

Normally a process that can take up to 15 months and includes the complete tear-down and rebuild, the FRCASE team was able to complete it in nine.

Ralph E. Gough Jr., director, COMFRC Aviation Support Equipment, lauded the efforts.

“Not only was this an urgent request that North Island accomplished quickly but the logistical coordination for delivery was monumental. This team overcame a lot of obstacles to ensure our Sailors and Marines have the equipment they need to support flight operations around the world.”

FRCASE provides agile, relevant, quality support equipment maintenance, repair and overhaul (MRO) services to meet Naval Aviation Enterprise entitlements and Optimized Fleet Response Plan requirements in an efficient and cost effective manner. FRCASE’s services provide seamless integrated MRO services to reduce the cycle time and improve the availability of ready for use aviation support equipment assets for Navy and Marine Corps activities.

Affectionately named “Tilly,” the crane is vital for U.S. aircraft carriers to conduct flight operations since it supports the ship’s crash and salvage team in the event of an aircraft or flight deck mechanical failure. Without a crash and salvage crane, aircraft cannot embark or conduct flight operations, severely hindering readiness.

Typically these cranes are overhauled by FRCASE every 10 years. The depot also conducts annual load test/certifications and provides assistance with depot-level emergent repairs exceeding fleet capability.

On Feb. 16, “Tilly” set sail to her new home in Japan where she will be placed aboard Ronald Reagan. Designated crane experts loaded her onboard the U.S. Army Corps of Engineers shipping carrier, Ocean Grande, to make her overseas voyage.

This is the first time FRCASE shipped equipment via commercial shipping vessel to an overseas location.

From Commander, Fleet Readiness Centers Public Affairs. 🇺🇸



U.S. Navy photo

Crash and salvage crane “Tilly” returns home to the flight deck of USS Ronald Reagan (CVN 76) in April.



U.S. Marine Corps photo by Lance Cpl. Camille Polete

Maj. Gary Windt, a KC-130 aircraft commander, assigned to Marine Aerial Refueler Transport Squadron (VMGR) 452, operates a KC-130T during a heavy-lift exercise, marking its final tasking before being transferred to the U.S. Navy.

KC-130T Undergoes Final Tasking

YUMA, Ariz.—A KC-130T from Marine Aerial Refueler Transport Squadron (VMGR) 452 conducted final tasking March 31 while participating in Weapons and Tactics Instructor (WTI) course 2-21 at Marine Corps Air Station Yuma.

The WTI course is a seven-week training event hosted by Marine Aviation Weapons and Tactics Squadron (MAWTS) 1, providing standardized advanced tactical training and certification of unit instructor qualifications to support Marine Aviation training and readiness, and assists in developing and employing aviation weapons and tactics.

In the early 2000s, the Marine Corps began its transition to the KC-130J, which is more technologically advanced than the KC-130T in aspects of performance, speed, efficiency and range. Out of the five KC-130 squadrons, VGMR-452, located in Newburgh, New York, is the last squadron to transition.

While similar, the KC-130J holds many significant capabilities that the KC-130T does not possess. It adds an advanced digital cockpit, heads-up display (HUD), color

moving map display, improved flight automation, improved radio detection and ranging, and upgradeable software.

The latest KC-130 model provides aerial refueling to fixed- and rotary-wing and tiltrotor aircraft while supporting troops and cargo transportation.

“I feel lucky to have had the opportunity to experience her legacy, and proud to see her go out while she’s still at the top of her game,” said Maj. Gary Windt, a KC-130 aircraft commander with VGMR-452, 4th Marine Aircraft Wing. “In my experience, her reliability, especially while operating autonomously, is unmatched.”

This marks the final KC-130T to depart VMGR-452. It departed in April from MCAS Yuma to the Navy Fleet Logistics Support Squadron at Naval Air Station Point Mugu, California. The Marine Corps KC-130 community will continue to accept KC-130Js and allocate among squadrons as necessary.

Written by Lance Cpl. Camille Polete, Marine Aviation Weapons and Tactics Squadron (MAWTS) 1. 🐦



A CMV-22B Osprey, from the "Titans" of Fleet Logistics Multi-Mission Squadron (VRM) 30, lands on the flight deck of Nimitz-class nuclear aircraft carrier USS Carl Vinson (CVN 70). This evolution marked the first time the Navy's CMV-22B Ospreys have landed on a carrier.

V-22 Surpasses 600K Flight Hours

PATUXENT RIVER, Md.—The V-22 Osprey surpassed the 600,000 flight-hour milestone in February, a count beginning with first flight in 1989.

The milestone is attributed to the Air Force Special Operations Forces, Marine Corps and Navy squadrons flying and maintaining an inventory of more than 400 aircraft in fleet operations, training and flight test around the world.

"Each V-22 flight hour is the product of a team effort," said Col. Matthew Kelly, V-22 Joint Program Office program manager. "Enabled by pilots, maintainers, testers, engineers, the program workforce and our industry partners who, together, ensure safe and effective V-22 operation."

Readiness continues to be a key priority in the program office, with several efforts underway to ensure the platform remains ready, relevant and flying through at least 2050.

The Marine Corps' Common Configuration-Readiness and Modernization (CC-RAM) program continues to make progress, delivering three aircraft to date. The CC-RAM program reduces the number of configurations in the MV-22 fleet to a handful, streamlining maintenance times, improving readiness and enhancing capabilities and reliability.

For the Air Force, Naval Air Systems Command recently awarded Bell Boeing an \$81 million contract to develop, design

and install nacelle modification kits and install conversion area harnesses on the CV-22. The program refines the design of the nacelles and wiring harnesses for better maintainability, ultimately reducing repair time and improving readiness.

Finally, the Navy continues flight test of the CMV-22B, the newest V-22 variant designed to take on the carrier onboard delivery (COD) mission, replacing the venerable C-2A Greyhound. The CMV-22B will be capable of transporting up to 6,000 pounds of cargo/personnel to a 1,150 nautical mile range. The V-22's ability to take off and land vertically, as well as short-takeoff-and-land, makes it more versatile than the stalwart C-2A, further allowing the Osprey the flexibility to serve any shore or sea base as well as aircraft carriers and amphibious ships.

The V-22 program is also focused on expanding the capabilities of the platform including digital interoperability upgrades and systems designed to improve pilot handling in degraded visual environments.

"I see the Osprey flying well into the future, lending its unique and versatile capabilities to our Sailors, Marines and Airmen for countless flight hours to come," Kelly said.

The V-22 family of aircraft are designed to fly for the next 30 years and remain the only tiltrotor in production.

From V-22 Program Office Public Affairs. 🦅

CH-53K Heading for Operational Test and Evaluation

PATUXENT RIVER, Md.—Marine Corps pilots are flying the CH-53K King Stallion at Marine Corps Air Station (MCAS) New River, North Carolina, in preparation for entering Operational Test and Evaluation (IOT&E) this summer.

The Naval Air Systems Command Heavy Lift Helicopter program office is working with Marine Operational Test and Evaluation Squadron (VMX) 1 to prepare pilots and ground crew for the next stage of the aircraft's development.

"This is historic for a couple of reasons," said Lt. Col. David Bachta, CH-53K lead operational test director at MCAS New River. "It's the first of its type."

It's also a continuation of a legacy, he said.

"It's a privilege to be a part of that (legacy)," he said. "I was here as part of the program when we selected that name. It's definitely fitting. It's the biggest and best helicopter in the free world."

VMX-1 must complete a minimum of 255 flight hours of training on the CH-53K to move into IOT&E. The Marines have three aircraft for test at this time. The first CH-53K was delivered in October 2020, with final certification and flight tests beginning the following December. Two more aircraft arrived at MCAS New River in March.

For the test pilots that are used to flying the CH-53E Super Stallion, the differences in the two aircraft are dramatic.

"The biggest improvement that I've observed in the Kilo over the Echo is probably the flight control system," said Lt. Col. Lucas Frank, VMX-1 CH-53E/K detachment officer in charge.

According to Frank, the ease of operating the CH-53K, with its fly-by-wire capability, enables pilots to do things they would have worked hard to achieve and monitor in the CH-53E.

"(The computers) augment you and enable you to do things like landing in reduced visibility with very little effort that you would not be able to do in the Echo," he said.

That ease of flight is one of the reasons the Israeli government made the decision to purchase the CH-53K as their new heavy lift helicopter. The King Stallion will replace the modified CH-53D Yasur helicopters, which the Israelis have been flying for more than 50 years.

With IOT&E scheduled to begin this summer, the program office is planning to move toward Initial Operating Capability by the end of the year, with the aircraft available for delivery to the fleet in fiscal 2022. The CH-53K is scheduled for its first operational deployment in 2024.

Written by Victoria Falcon, Strategic Communications, H-53 Heavy Lift Helicopters Program Office. 🦅



A CH-53K King Stallion prepares to land at Marine Corps Outlying Field Camp Davis, N.C., March 17.

U.S. Marine Corps photo by Lance Cpl. Yuritzy Gomez

Marines Get First Look at Tactical Resupply UAS

PATUXENT RIVER, Md.—The Marine Corps successfully completed a Tactical Resupply Unmanned Aircraft System (TRUAS) Field User Capability Assessment (FUCA) in March at U.S. Army Yuma Proving Ground, Arizona, of two prototype systems identified by a successful prize challenge last year.

Anticipated future end users were given the opportunity to work with both prototype systems—SURVICE Engineering’s TRV-150 and Chartis Federal’s MK4-RX—to assess their capabilities in relation to final requirements.

“I was extremely impressed to see lance corporals and privates first class training, assembling and then operating both systems,” said Col. Vic Argobright, Navy and Marine Corps Small Tactical Unmanned Aircraft Systems program manager, who oversees the TRUAS program. “That is exactly what we were hoping to see, and I believe there will be a lot of good input from the Marines. The test team from Marine Corps Operational Test and Evaluation

Activity did an excellent job coordinating the event to ensure that we gathered the needed data and feedback.”

The prototypes were designed to meet the Marines initial requirements to seek an autonomous unmanned system that can transport at least 60 pounds of cargo in various configurations commonly found in Marine company/platoon/squad resupply operations (ex: 5-gallon water can, ammo can/case, Meals-Ready-to-Eat case) through a 10-kilometer radius.

“The initial prize challenge in 2020 gave us a great starting point to further gauge this technology,” said Christina Petrow, TRUAS team lead. “We learned a lot about the capability that already exists as well as where it can take us in the future.”

During the assessment, two groups of Marines replicated a full day resupply of an infantry squadron after the original equipment manufacturers (OEMs) provided three days of system training and a day of pilot evaluation. The process

was repeated so that all field users had the opportunity to evaluate both platforms independently.

This capability is relatively new to the Marine Corps, and the event was designed to allow Marines to employ the systems as they would in the field and provide feedback. This type of feedback is typically not provided until the end of the acquisition cycle, giving the Marines participating in this event a loud voice to help shape the way unmanned logistics resupply is implemented for the fleet.

“Early involvement of the Marines has afforded invaluable insight into how the end users will actually interact with these systems, including ways in which the OEMs never considered,” Petrow said. “Learning this information early in the acquisition cycle ensures the requirements are properly captured and the fielded system works with and for the Marine Corps.”

From Program Executive Office (Unmanned & Weapons) Public Affairs. ✈



U.S. Marine Corps photos

Sgt. Hernandez (right) and Cpl. Sandoval (left) prepare a typical resupply load to be mounted on one of the two systems being tested during the Field User Capability Assessment held in March at Yuma Proving Ground in Arizona.



Marine Corps field users spent three weeks in March training to assemble, load and fly each of the two systems being evaluated during the Field User Capability Assessment.

Grampaw Pettibone

Gramps from Yesteryear: March-April 2001

Illustration by *Ted Wilbur*



LT. RICK O'SHAY MAKES A BIG MISTAKE...

Bad Bounce

The wingman in a flight of two F/A-18 Hornets which had just completed a 15-degree practice dive bombing attack executed a 3.5 to 4.5 G pull-up. After establishing a positive rate of climb he began a left turn toward the prebriefed egress heading. In the turn he thought he had spotted the flight leader. He became fixated on acquiring visual contact in order to establish the briefed formation for departure from the target area.

While in the turn he was looking over his shoulder to the right. Unknowingly, he increased the Hornet's angle of bank to more than 90 degrees left wing down and tightened the turn, pulling nearly 6 Gs. He continued this way for 6 seconds. The aircraft descended rapidly because of the over-bank situation.

Noticing that the wingman was nearing the ground, the flight leader transmitted three times, "Get your nose up!" The wingman responded by looking forward, rolling wings level and pulling the control stick aft into his lap to prevent impacting the earth. His aircraft was actually in a 23-degree angle of descent at just under 500 feet when he initiated dive recovery.

The aircraft struck the ground with a relatively low rate of descent and pancaked into the air. The radome, radar antenna, centerline tank and multiple ejector rack were torn off the aircraft. Both generators dropped offline and the aft section of the Hornet became engulfed in flames.

"Eject, eject, eject," directed the flight leader, and the wing-

man ejected at 230 feet above ground level at 271 knots. He survived the emergency egress but sustained minor abrasions to his left hand because he was not wearing flight gloves. He also received a facial laceration, likely caused by wind blast during the ejection catching a 1.5 square foot cloth attached to the parachute D-ring—an improper modification to aviation life support equipment—and pulling the ring up into the pilot's face. The aircraft was destroyed when it crashed. 🐦

Grampaw Pettibone says ...

Oh, woe is me! We're still doin' it after all these years. We're still forgettin' that above all else, especially in today's high-speed tactical environment, the pilot's first priority is flyin' the bird. The wingman in this case was more concerned about joinin' on the leader than safely clearing the terrain. He let the Hornet get away from him, so to speak. Also, it mighta helped if he exercised better "cockpit-to-cockpit" communication by callin' the leader and lettin' him know he didn't have visual contact. Corrections coulda been made to avoid the bad bounce. 🐦



Navy Conducts First At-Sea Power Module Replenishment for F-35C

From USS Carl Vinson Public Affairs

The “Titans” of Fleet Logistics Multi-Mission Squadron (VRM) 30 and members of Carrier Air Wing (CVW) 2 successfully delivered an F-35C Lightning II power module aboard USS Carl Vinson (CVN 70) in the Navy’s first at-sea replenishment for this component.

This success follows a November 2020 milestone during which VRM-30, CVW-2 and Vinson conducted the Navy’s first landings, take-offs and refueling of a CMV-22B Osprey from an aircraft carrier.

The at-sea power module replenishment evolution consisted of loading, transporting and unloading the F135 power module from a shore-based location to the carrier by way of a CMV-22B. The power module is an engine component used by all three F-35 variants.

The CMV-22B is the Navy version of the V-22 Osprey, a multi-engine, dual-piloted, self-deployable, medium lift, vertical takeoff and landing (VTOL) tilt-rotor aircraft. The CMV-22B can transport cargo and passengers as far as 1,150 nautical miles; provides enhanced survivability and beyond-line-of-sight communications; and has the required cargo capacity and fast cargo loading/unloading. Coupled with its ability to transport the F-35 power module inside its cargo bay, CMV-22B is the ideal choice to provide required carrier on-board delivery capabilities for F-35C operations at sea.

The delivery marks a milestone in the integration of CMV-22B to the carrier air wing, validates the F135 modular maintenance concept at sea, and most importantly supports future carrier air wing deployments with next-generation platforms.

“The CMV-22B is a great addition to the carrier air



U.S. Navy photos by MCS Jeffrey Kempton

Sailors assigned to the “Argonauts” of Strike Fighter Squadron (VFA) 147 load an F-35C Lightning II power module onto a CMV-22B Osprey assigned to the “Titans” of Fleet Logistics Multi-Mission Squadron (VRM) 30 on the flight deck of aircraft carrier USS Carl Vinson (CVN 70).





Sailors observe as the ramp is lowered on a CMV-22B assigned to VRM-30.



wing,” said Capt. Matt Thrasher, commander, CVW-2. “The Osprey is a robust logistical platform that not only supports the F-35C but also gives the entire air wing increased range and transport capacity. Its addition to our team ensures that CVW-2 remains ready to perform as advertised while on deployment.”

CVW-2 is currently embarked aboard Vinson under the command of Carrier Strike Group (CSG) 1.

CVW-2 is leading the charge in introducing and integrating the next generation of aircraft and capabilities in the fleet as the Navy’s first carrier air wing to deploy with the F-35C and the CMV-22B. The Navy’s next iteration of the carrier air wing will be more lethal and survivable through the integration of organic fourth-generation kinematics and fifth-generation information and survivability and increased command and control and airborne electronic attack capacity all sustained with a reliable logistical support platform.

“With the addition of the newest fifth-generation aircraft, the Navy has delivered the world’s most capable, lethal and ready air wing to our strike group,” said Rear Adm. Timothy J. Kott, commander, CSG-1. “Delivering the right balance of presence and power, including airpower supremacy, strike groups continue to be one of our nation’s primary on-call assets in times of need. By maintaining a lethal, ready strike group, manned by the world’s most skilled Sailors and outfitted with the best equipment, fifth-generation aircraft will help America maintain our advantage at sea and protect our nation for years to come.”

Capable of embarking both the F-35C and the CMV-22B, Vinson is the first aircraft carrier equipped to support fifth-generation aircraft. With its recent modifications, no other weapons system has the responsiveness, endurance, multi-dimensional might, inherent battlespace awareness or command and control capabilities of the Vinson and CVW-2.

Upgrades to the Vinson included enhanced jet blast deflectors able to take the increased heat generated by the F-35C and the Autonomic Logistics Information System, the new computer network that supports the unique maintenance and tactical operations functions of the advanced aircraft.

“Our crews and staffs have done a fantastic job during integrated operations with the new aircraft and associated upgrades,” said Capt. P. Scott Miller, Vinson’s Commanding Officer. “We are truly a team. The successful replenishment of the power module is another testament to that team and our Sailors, who are the most dedicated, best trained and well educated in the world.”

Vinson is currently completing a series of “work ups” and certifications in preparation for future operational tasking. 🛩️



U.S. Navy photos by MCS Jeffrey Kempton

Sailors finish loading an F-35C power module into the CMV-22B.





U.S. Navy photo by MCS Mason Congleton

A Marine Corps CH-53E Super Stallion, with Marine Heavy Helicopter Squadron (HMH) 466, transports a mock F135 engine power module.

Proof-of-Concept Vertical Replenishment

The Navy took another critical step forward in the future of the F-35C Lightning II on March 6 when USS Carl Vinson (CVN 70) conducted a vertical replenishment at sea, simulating the ability to transfer an F135 jet engine from a supply ship to the aircraft carrier using helicopters.

During the event, two helicopters transported a load simulator, measured to match the weight of an F135 engine power module, from the dry-cargo ammunition ship USNS Richard E. Byrd (T-AKE 4) to Vinson's flight deck. This was significant because it provided proof-of-concept that the Navy's deployed aircraft carriers will be able to receive critical parts to successfully maintain the F-35C at sea.

"This exercise confirms the Navy's ability to maintain maritime operations in a new generation of jet fighter aircraft," said Capt. P. Scott Miller, Vinson's Commanding Officer. "What we've accomplished here ensures that our fleet will be capable of utilizing the latest in cutting-edge, warfighting technology in future joint strike fighter deployments. With every success, we improve our readiness and maintain our capability to defend our nation and allies against any adversary."

In a vertical replenishment, aircraft use underbelly slings to transport loads from Military Sealift Command (MSC) replenishment ships to Navy vessels. In this evolution, a Eurocopter AS332 Super Puma from Byrd and a Marine Corps CH-53E Super Stallion from Marine Heavy Helicopter Squadron (HMH) 466 tested their ability to vertically transport the simulated load.

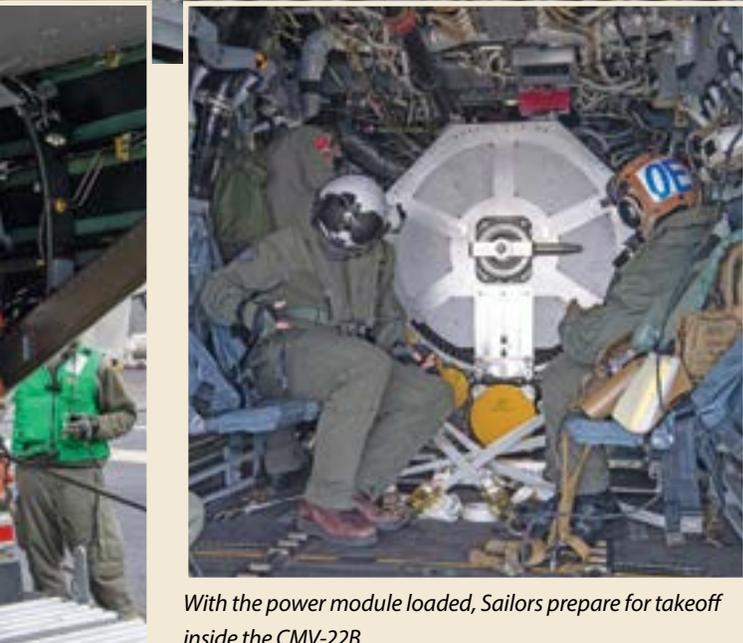
"Being able to deliver the F135 module is one more thing the T-AKE platform can handily accomplish to support the fleet," said Capt. Lee Apsley, Byrd's civil service master. "This operation is another MSC first on Byrd."

Capable of embarking both the F-35C and the CMV-22B Osprey, Vinson is the first aircraft carrier equipped to support fifth-generation aircraft. The vertical replenishment exercise follows more than six months of successful integrated operations between the carrier and air wing in support of the unique maintenance and tactical operations functions.

"We have been planning, preparing, and training for this event for months," said Cmdr. Melissa Williams, Vinson's supply officer. "That careful planning paid off today and I'm proud of how our teams came together for a safe and successful evolution."

"Using the Osprey, and now a vertical replenishment from a supply ship, ensures we are prepared to quickly and easily deliver these parts to our ships in the fleet, giving us one more tool in our tool box in support of a high operations tempo," said Cmdr. William Gray, Vinson's maintenance officer.

—Seaman Jeffrey Kempton, USS Carl Vinson. 🇺🇸



With the power module loaded, Sailors prepare for takeoff inside the CMV-22B.

Ford Qualifies Naval Aviators Using Precision Landing Mode

By *Cmdr. Jennifer Cragg*

Naval aviators, assigned to the “Gladiators” of fleet replacement squadron (FRS) Strike Fighter Squadron (VFA) 106, qualified Feb. 8 onboard USS Gerald R. Ford (CVN 78) using the Precision Landing Mode (PLM).

PLM is a new flight control technology designed for F/A-18 Super Hornets to improve safety, efficiency and success rates in recovering fixed-wing aircraft on-board aircraft carriers while easing pilot workload. It promises to increase overall boarding rates, create the potential to reduce tanker requirements and improves Naval Aviation’s effectiveness.

Carrier strike groups have been using PLM since 2017, when Carrier Air Wing (CVW) 2 was the first to conduct Composite Unit Training Exercise (COMPTUEX) aboard USS Carl Vinson (CVN 70) with PLM.

“The pilots still have to fly the landing pattern around the ship and control the line-up, but with PLM, the glide slope control is smoother, and deviation is much smaller, making for a much safer landing qualification,” said Rear Adm. John Meier, commander, Naval Air Forces Atlantic. “The improved wave-off characteristics make PLM inherently safer for the aircraft carrier.”

PLM increases the safety of the most challenging evolution pilots and flight deck crews face on a daily basis. PLM will also increase training efficiency, pilot proficiency and enable aircrew to make better use of flight time to train for the diverse and ever-expanding array of tactical and strategic missions the Super Hornet and Naval Aviation are responsible for executing.



Rear Adm. John Meier, commander, Naval Air Forces Atlantic, and Capt. J. J. Cummings, USS Gerald R. Ford’s (CVN 78) Commanding Officer at the time, observe flight operations from the ship’s landing signal officer platform on Feb. 7.

Meier communicates with pilots assigned to Strike Fighter Squadron (VFA) 106.

U.S. Navy photos by MC3 Zack Guth

“The pilots still have to fly the landing pattern around the ship and control the line-up, but with PLM, the glide slope control is smoother, and deviation is much smaller, making for a much safer landing qualification.”

—Rear Adm. John Meier



PLM was originally developed by engineers at the Naval Air Warfare Center Aircraft Division (NAWCAD) as part of the Maritime Augmented Guidance with Integrated Controls for Carrier Approach and Recovery Precision Enabling Technologies (MAGIC CARPET) program. The technology was first tested in the Super Hornet at sea in April 2015, when Air Test and Evaluation Squadron (VX) 23 pilots and NAWCAD aeromechanics division engineers from Naval Air Station (NAS) Patuxent River, Maryland, demonstrated the software aboard USS George H.W. Bush (CVN 77).

Capt. J.J. Cummings, then-Commanding Officer of Ford, has used PLM to land F/A-18Fs on CVN-78 and was impressed with the technology and ease with which it allows naval aviators to gain their confidence while landing aircraft at sea.

“I first heard about PLM seven years ago and to be quite honest, it sounded too good to be true,” Cummings said. “I now have about 20 traps on Ford using PLM, and it is as good as advertised. In fact, it is straight up amazing. I was fortunate to get eight traps this underway and found that using PLM really stabilized the jet and significantly reduced the amount of corrections I was making during the approach.”

Cmdr. Jennifer Cragg was the Public Affairs Officer for Commander, Naval Air Force Atlantic. 🇺🇸



Cummings communicates with pilots while overseeing the landing of an F/A-18F Super Hornet attached to VFA-106.

AVFA-106 F/A-18F lands on Ford's flight deck using the Precision Landing Mode.

'Ghost Wolves' Demonstrate UAS Resupply in Pioneering Test Flights

By Paul Lagasse

The Navy got a sneak preview of the future of at-sea resupply in late February when a team from Air Test and Evaluation Squadron (UX) 24 at Naval Air Station (NAS) Patuxent River, Maryland, conducted the first demonstration flights of the Navy's new Blue Water Unmanned Aircraft System (UAS) at Naval Station Norfolk, Virginia.

On Feb. 21, the UX-24 team executed two simulated logistical resupply flights from shore to the deck of USS Gerald R. Ford (CVN 78), flying a cargo of lightweight logistical equipment provided by the Mid-Atlantic Regional Maintenance Center (MARMC) approximately 6 miles from the Ford, where two more UX-24 personnel guided it to a safe landing. After being unloaded, the UAS returned to MAMRC, where the shore crew took over for a successful landing.

The test flights of the Blue Water UAS, a modified Skyways V2.5 autonomous hybrid-electric drone that has a 500-mile range and can carry up to 30 pounds of cargo, were the Navy's first practical demonstration of the potential for ship-to-ship and ship-to-shore cargo transport by UAS. The tests were a joint effort involving UX-24, MAMRC, the Naval Air Warfare Center Aircraft Division (NAWCAD) Rapid Prototyping, Experimentation and Demonstration (RPED) team and NAWC Webster Outlying Field (WOLF).

"This is why UAS projects come to UX-24," said Kyle Matthew, the squadron's Small UAS (SUAS) team lead. "We exist to

take technologies like this and bring them to the fleet safely and effectively, to demonstrate that this is a technology that's worth having and worth investing in."

Located at WOLF in St. Inigoes, Maryland, UX-24 is the Navy's only dedicated UAS test unit. Nicknamed the "Ghost Wolves," UX-24 provides research, development, test and evaluation services for Groups 1-5 UAS, including fielded platforms such as RQ-20B Puma, RQ-21 Blackjack and MQ-8 Fire Scout.

Chief of Naval Operations Adm. Mike Gilday's Navigation Plan, unveiled in January, identifies unmanned platforms as a vital component of a larger, hybrid fleet that more effectively meets the strategic and operational demands of the present and future.

"Successfully integrating unmanned platforms—under, on and above the sea—gives our commanders better options to fight and win in contested spaces," the Navigation Plan states.

"They will expand our intelligence, surveillance and reconnaissance advantage, add depth to our missile magazines and provide additional means to keep our distributed force provisioned."



U.S. Navy photo by Chief RJ Stratchko

Late last year, UX-24 took possession of the Skyways V2.5 from the RPED team and were given two months to develop the Ford cargo delivery demonstration program.

"Two months is a very quick turnaround for a typical test project, but that's what our Unmanned, Autonomy, Robotics and Technology team specializes in," said Lt. Matthew Abeling, UX-24's SUAS project officer. "We were a good team to have on this quick-turn event."

A month before the flight, members of the team traveled to Norfolk to perform a site survey from the takeoff area—the MAMRC parking lot—and to conduct an electromagnetic compatibility test with the ground control station aboard the Ford. Back at WOLF, the team conducted extensive simulator flights to finalize planning and rehearse for the demonstration.

The night before the test flights were scheduled to begin, the UX-24 team, which in addition to Matthew and Abeling included pilots Terry Hahn, Frank Paulus and Todd Stubblebine, and project engineer Mark Richardella, arrived in Norfolk with their UAS. High winds all weekend

A logistics unmanned air system (UAS) prototype, called Blue Water UAS, approaches to deliver cargo on the flight deck of USS Gerald R. Ford (CVN 78) during the resupply demonstration.



U.S. Navy photo by Chris Wyatt



U.S. Navy photo by Chief RJ Stratchko

During the test, the team delivers a package to Ford from the Mid-Atlantic Regional Maintenance Center on Naval Station Norfolk, Virginia.

Pilots with Air Test and Evaluation Squadron (UX) 24 service the Blue Water UAS logistics prototype on Ford's flight deck during the demonstration.

threatened to scrub the test, but conditions improved on Sunday afternoon.

“When we took off and then made the first landing on the Ford, I felt like all this work that we’ve put in over the last few months finally paid off,” Abeling said. “When you’re standing there on the deck of the Ford watching this new logistics UAV deliver its cargo for the first time, it’s a pretty cool feeling.”

Stubblebine said that he missed seeing the landing because his eyes were glued to

the status display screen the whole flight.

“But hearing the excitement of the VIPs when it landed successfully was worth it,” he said.

The second flight was just as memorable for the UX-24 team, but for a more personal reason.

“The Ford crew radioed us and said, ‘Hey, we’re going to send back some cookies, is that OK with you?’” Richardella recalled with a laugh.

The cookies were accompanied by

patches and challenge coins for the UX-24 team, a gesture the UAS pilots and engineers appreciated, and a fitting way to mark the successful accomplishment of the milestone flights.

“It was just a phenomenal crew to work with,” Stubblebine said. “We’re ready, and the aircraft is ready. I’m really looking forward to seeing what comes next.”

Paul Lagasse is a Naval Air Warfare Center Aircraft Division Communications specialist. ✈️





A U.S. F-35B Lightning II sits on the forward elevator during logistics testing aboard Italian aircraft carrier ITS Cavour (CVH 550).

U.S. Navy photo by Dane Wiedmann

Italian Carrier Sea Trials Mark F-35B Readiness

By F-35 Joint Program Office Public Affairs

After five weeks of sea trials, the F-35 Joint Program Office delivered a flight clearance recommendation to the Italian Navy for the safe operation of fifth-generation F-35B Lightning II fighter aircraft on the upgraded Italian Navy flagship ITS Cavour (CVH 550).

The F-35B is the short take-off and vertical landing variant of the F-35.

An embarked team from the F-35 Patuxent River Integrated Test Force (Pax River ITF) and Cavour's crew conducted five weeks of at-sea flight tests evaluating how the short takeoff and vertical landing (STOVL) variant of the F-35 performed onboard and around the ship, and how well the F-35 air system is integrated with the carrier.

The Cavour Sea Trials comprised more than 115 ski-jump short takeoffs and 120 vertical landings plus two vertical takeoffs. These activities were followed by countless hours of data analysis, which yielded information that tells the U.S. Marine Corps and Italian Navy how to safely conduct F-35B flight operations on Cavour.

"The [shipboard operating bulletin] is done. We provided the data and recommendations for a limited envelope, or sail home envelope, that will allow Marine Corps and Italian F-35B pilots to fly training workups aboard the ship," said Ron Hess, F-35 Pax River ITF Basing and Ship Suitability team lead aboard Cavour.

Describing the accomplishment as "huge," Hess said later this spring, flight clearance and airworthiness documents "should be in place" for a safe launch and recovery envelope. The limited sail home envelope will be followed up with a full envelope recommendation once all sea trial test data has been evaluated.

Safe and effective flight test, and a successful detachment, required close coordination, partnering and hard work.

"It's amazing how ITS Cavour crew and the ITF team have reached, so rapidly, this level of synergy and integration with great professionalism and a strong common will to achieve the ambitious goal," said Italian Navy Capt. Giancarlo Ciappina, Commanding Officer, ITS Cavour.

"In this sense, I am very proud for the success of ITS Cavour's 'Ready for Operations' campaign: our allies will soon perceive the

Italian Navy and the Italian Armed Forces as a whole, as enhanced cooperative partners thanks to the strategic enabler that the fifth-generation aircraft carrier capability represents in either specific maritime or wider joint operations,” Ciappina said.

Norfolk Arrival

Cavour arrived at Naval Station Norfolk, Virginia, Feb. 13 as part of the Italian navy’s campaign to certify the recently upgraded ship’s compatibility with

F-35B aircraft and prepare to operate the fifth-generation fighter as its key weapons system.

This carrier-based flight test and other exercises with U.S. 2nd Fleet ships and aircraft improve interoperability and strengthen the relationship between two NATO allies.

“Operating in the Western Atlantic with our NATO

allies presents a mutually beneficial opportunity to enhance both of our navies’ capabilities,” said Vice Adm. Andrew Lewis, Commander, U.S. 2nd Fleet. “Supporting our Italian allies in certification of their aircraft carrier increases our collective experience in safety and combat abilities. We are stronger together.”

“Supporting our Italian allies in certification of their aircraft carrier increases our collective experience in safety and combat abilities. We are stronger together.”

— Vice Adm. Andrew Lewis,
Commander, U.S. 2nd Fleet



U.S. Navy photo by Dane Wiedmann



U.S. Navy photo by Dane Wiedmann

A U.S. F-35B takes off from the ski-jump on Cavour on March 15.



F-35B test pilots, U.S. Marine Maj. Dylan Nicholas and British Royal Navy Lt. Cmdr. Barry Pilkington, perform day envelope expansion test flights.

While crossing the Atlantic from Italy, ITS Cavour was met by the Arleigh-Burke-class guided-missile destroyer USS Stout (DDG 55) and conducted a three-day interoperability exercise with support from Carrier Air Wing (CVW) 7 and Patrol and Reconnaissance Wing (CPRW) 11.

Upon arriving in Norfolk, Cavour was hosted by USS John. C. Stennis (CVN 74), which coordinated all pier services required by Cavour, to include refueling, diving operations, equipment and personnel on load, security and contingency medical functions.

Cavour set sail Feb. 28 from Norfolk. Two specially instrumented developmental flight test F-35Bs from Air Test and Evaluation Squadron (VX) 23, based at Naval Air Station (NAS) Patuxent River, Maryland, performed vertical landings starting March 1. Test pilots flew the specially instrumented U.S. F-35Bs from Patuxent River to Cavour, joining a test team of approximately 180 personnel from the NAS Pax River-based ITF for sea trials.

Test Logistics

A container marked “PAX Flight Deck Gear CAVOUR DET 2021,” tri-wall boxes for the work centers, shipping containers with massive aircraft air and power units, engine trailers and other aircraft support equipment were craned aboard, forklifted through the hangar and positioned aboard ITS Cavour (CVH 550) the last week of February.

Before the arrival of the specially instrumented U.S. test jets, the special tools, parts and support equipment had to be in place. This undertaking is all in a (couple of) days’ work for F-35 Patuxent River Integrated Test Force (PAX ITF) logistics lead Pat DeLeon and his team, as well as the many who support the mission.

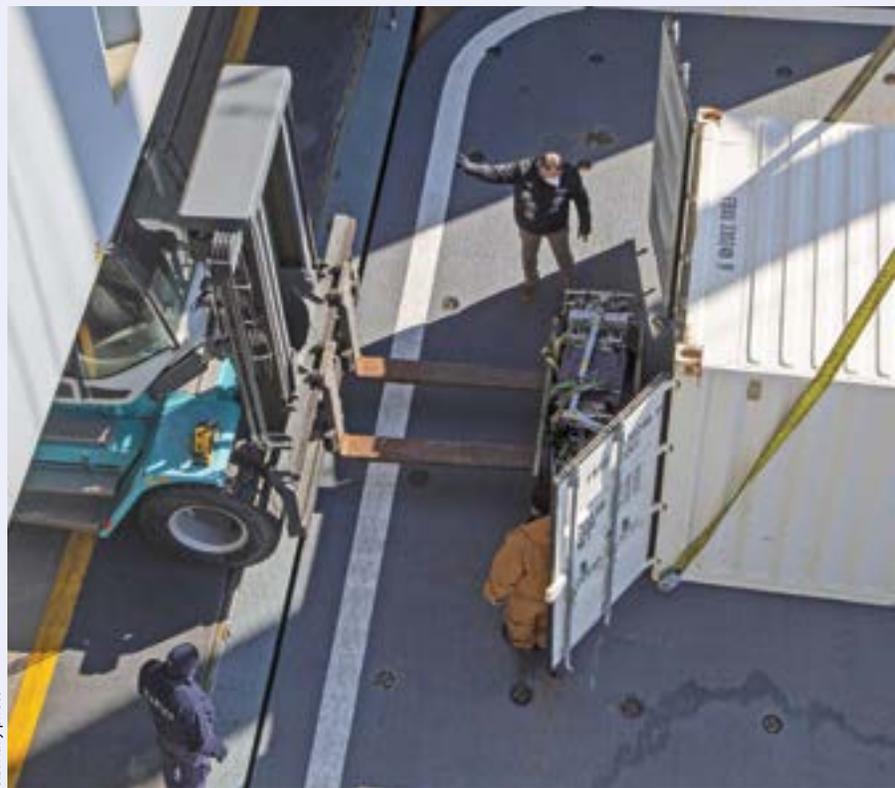
“I love the challenge,” DeLeon said. A day earlier he was driving a forklift on the flight deck, and, in the future, he’ll be wherever he’s needed.

In the relative quiet there is a hum of languages, foreign and familiar, in the hangar. A look around makes it clear this is a coalition mission: “For Entry Contact . . .” and “NO SMOKING” on containers and boxes are backdropped by the ship’s “In Caso Di Necessita” and In Questo Locale Vietato Fumare signage. This is a partnership, one DeLeon says has gone well.

“(The Cavour ship’s company) bent over backwards to help,” DeLeon said. Flexibility is a necessary characteristic of the relationship, he added.

“At first glance, seeing so many people and so much material to get on this ship seemed an arduous and complex undertaking,” said Italian Navy Master Chief Petty Officer Silvio Cusano. “As the days went by and everyone collaborated, what seemed extremely complicated has materialized into an organizational success that made everyone aware of being able to overcome the most difficult obstacles.”

— F-35 Joint Program Office Public Affairs. 🐦



U.S. Navy photo

F-35 Patuxent River Integrated Test Force logistics team members unpack equipment from a container they brought to Cavour for testing.

“Watching the teamwork that Italians and Americans are doing on the deck is truly rewarding and honorable. I am proud of the excellent results achieved in just one week of work.”

— Capt. Giancarlo Ciappina
Commanding Officer, ITS Cavour

“All of our hard work planning and training will ensure a successful sea trial and ultimately lead to Italy achieving the milestone of initial operating capability,” Leeman said.

International Teamwork

The flight deck is visible evidence of the growing working relationships.

“Watching the teamwork that Italians and

“Our team has trained extensively to prepare for this day, and I was honored to land one of the first two jets aboard Cavour,” said F-35B test pilot Marine Maj. Brad Leeman, the ITF test team project officer.

Leeman and two other pilots attached to VX-23 flew the jets during the flight test.

Americans are doing on the deck is truly rewarding and honorable. I am proud of the excellent results achieved in just one week of work,” Ciappina said. “The cooperation between the American ITF and the Cavour ship crew represents, today, the emblem of the historic link between Italy and the USA.”

The ship’s rhythmic rise and fall—the horizon visible one moment, gone the next—and the sometimes “angry” sea with its white caps, are the backdrop for Cavour’s ponte di volo, or flight deck.

“Watching the teamwork on the deck is exciting. There is an exchange of knowledge between the professionals, and we are working to the best of our abilities and skills for the success of the Ready for Operations campaign of the aircraft carrier Cavour, milestone of the Italian Navy,” said Italian Navy Cmdr. Mario Massacci.

Cavour departed Norfolk Apr. 16 after Joint Force operations with U.S. military forces in the Atlantic Ocean.

From F-35 Joint Program Office Public Affairs. 🇺🇸

NAWCAD Prepares for Sea Trials *By Bob Kaper*

The successful F-35B tests on ITS Cavour (CVH 550) capped years of behind-the-scenes prep work by Naval Air Warfare Center Aircraft Division (NAWCAD) engineers and technicians.

From takeoff and landing practice in the Manned Flight Simulator (MFS), to installing instrumentation on the aircraft, to providing onboard video, data and communications support during the sea trials, NAWCAD engineers and technicians did their best to make the operation a success for the F-35 Patuxent River Integrated Task Force (ITF) and Italy’s Marina Militare.

NAWCAD began preparing for the sea trials in 2018 when a team from the Atlantic Test Ranges (ATR) visited the Cavour in dry dock at Taranto, Italy. A second trip followed in 2019, where modifications were made to the ship at the request of the ITF. Ship personnel cut pass-through openings in walls for cables, added a table in the flight control center for laptops and monitors and cleared space in the hangar bay for a pair of ATR mobile control rooms.

One of the biggest preparatory tasks was installing the cabling that carried data, video and control signals throughout the ship.

“We installed 3,000 feet of fiber-optic cable,” said Nate Combs, ATR team co-lead. “We pulled it around the ship and through the ship, and our communications team made all the terminations. And then we had to uninstall it when the tests were over.”

An ATR survey group recorded the exact dimensions of the deck approach and ski-jump ramp where the F-35Bs would conduct their exercises. They used a laser scanner to create lifelike ship imagery for the MFS and an optical transit to align the GPS antennas.

“We scanned the deck and ramp to record the position in space of hundreds of millions of points,” said Warren Kerr, survey lead. “Then we recreated the image in a computer from that cloud of points. It’s like the French pointillism painting technique, an image made of countless tiny dots.”

The survey team had the original computer-aided design (CAD) files for the ship. But the scanner and transit measurements provided the actual ship dimensions with near-literal pinpoint accuracy.

The data Kerr’s team brought back had two main functions: as precise measure-

ments of the antenna locations for the GPS trackers ATR operated during flight testing and as input for the startlingly realistic digital ship models that MFS engineers built for pilot and crew training.

As pilots and crew underwent training in the simulator, test engineers in one of ATR’s mission control rooms could communicate with them and receive data from the virtual aircraft and ship.

The first simulation session was takeoff and landing training for the ITF test pilots. “We created every sort of testing point such as taking off with different weight, center of gravity, weapons load, asymmetrical loading and wind angle and speed,” said Robert Parlett, F-35 simulation engineer/operator.

The simulator also created replicas of the forces acting on the virtual aircraft along with data from virtual measuring instruments installed on it. As an example, the upward curvature of the ramp produces more force on the nose landing gear than the main landing gear, creating an upward pitching force.

The second phase of the simulator training involved the landing signal officer and



U.S. Navy photo by Dane Wiedmann

A U.S. F-35B performs an aft-facing vertical landing aboard Cavour.

air boss in the flight control station. The third simulation phase was training for Cavour crew members.

“Cadence includes how they say things, but also the pace and phrasing,” he said. “The timing between ‘ready’ and ‘clear for takeoff’ on an airfield and on the ship can be totally different because it may take much longer to get ready on the ship.”

During the sea trials, the telemetry data streaming into the control rooms came from the aircraft’s own instruments, plus additional instrumentation installed by manufacturer Lockheed Martin Corporation and NAWCAD’s Prototyping, Instrumentation and Experimentation (PIE) Department.

PIE installed instrumented landing gear for the trials, said Marco Paz, F-35 instrumentation lead.

During one transfer from the hangar bay, the nose gear instrumentation was damaged. But the onboard PIE team was able to repair it quickly, despite extremely high winds on deck.

ATR’s optical team meanwhile tracked the aircraft through video cameras placed around the ship and monitored wind condi-



U.S. Navy photo by Kyra Helwick

In preparation for a vertical landing aboard Cavour, Marine Corps pilot Maj. Brad Leeman performs a hover alongside the ship in the Manned Flight Simulator.

tions. To check for clean air behind the bow wake, the team installed two 38-foot-high, pole-mounted anemometers on deck—one at the bow and one at the stern. They also placed a laser-based anemometer called a lidar at the bow to measure winds at 65 feet.

“All in all, it was a pretty good team effort,” Combs said. “We got an ‘attaboy’ from the ITF. They said ‘best TM (telemetry) on a ship yet’.”

— Bob Kaper is a senior technical writer for Atlantic Ranges & Targets. 🇺🇸

PROJECT AVENGER: MODERNIZED FLIGHT TRAINING

By Anne Owens

The first class of 19 student naval aviators completed Naval Aviation Training Next-Project Avenger at Training Air Wing (TW) 4, Naval Air Station (NAS) Corpus Christi, Texas, April 1.

Naval Aviation Training Next-Project Avenger Officer-in-Charge Lt. Cmdr. Josh Calhoun briefs the first class of students on their syllabus.

Project Avenger is a prototype primary flight training syllabus designed to develop a more capable, self-sufficient aviator, proficient in a dynamic and fluid environment, and to do it more efficiently than the current training program to increase fleet naval aviator readiness.

“Project Avenger is revolutionizing Naval Aviation undergraduate primary flight training,” said Chief of Naval Air Training Rear Adm. Robert Westendorff. “Our innovative team developed, refined and implemented the program and this first class of primary completers is a testament to the entire team’s hard work and dedication.”

Challenged with addressing a shortage of strike fighter pilots in the fleet, CNATRA examined the primary flight-training curriculum, which had not seen significant changes in more than 50 years. Project Avenger leverages modern technology to optimize training and uses a student-centric model that tailors timelines to skill development unique to each student.

Students enrolled in the traditional primary syllabus take an average of 29 weeks to complete. Project Avenger aims to increase students’ information retention, lower attrition rates and increase skill level, while also reducing time to train. Project Avenger Class 1 began Sept. 14, however, record-breaking cold weather in South Texas and the global COVID-19 pandemic became challenges that contributed to an increase in projected time to completion.

Replacing the towering stack of books, publications and checklists normally issued, students get a digital tablet with on-demand, 24-hour access to aviation-specific apps and pre-loaded course content. Students also use the tablets for flight planning, briefing and in-flight navigation. Virtual reality (VR) and



U.S. Navy photo by Anne Owens

Lt. Cmdr. Kerry Bistline gives instruction on how to use virtual reality (VR) training devices.



U.S. Navy photo by Anne Owens



U.S. Navy photo by Lt. Michelle Tucker

Marine 2nd Lt. Rachel Hardinger plans a virtual training flight on a tablet during ground school at Naval Air Station Corpus Christi, Texas.



U.S. Navy photo by Lt. Michelle Tucker

Student naval aviators Marine 1st Lt. Andre Demarinis, back right, and Navy Ensign Chris Nance, front right, conduct a flight brief with their instructor pilot Navy Lt. Paula Register before executing a VR trainer flight.

mixed reality trainers along with 360-degree videos allow students to witness real-world flight training events. Pairing these VR trainer devices with realistic flight controls increases aircraft procedural familiarity before a student ever steps into the cockpit of the primary trainer aircraft—the T-6B Texan II.

In a significant paradigm shift, students had access to a pool of seven dedicated instructors. The traditional syllabus does not allocate specific instructors to students thus, for Project Avenger students, this allowed the student-instructor relationship to develop early in training and led to greater instructor mentorship and involvement.

Ens. Andrew Harding is a member of the first class of Project Avenger and said he benefited greatly from the modified approach.

“Project Avenger had a classroom where all of the instructors and students worked,” Harding said. “This atmosphere allowed for a continuous learning experience where students were constantly asking questions and building a firm foundation.”

While the traditional primary syllabus is linear in nature, Project Avenger uses deep repetitions allowing students to achieve mastery of a skill and progress through the syllabus at their own pace, benefiting their learning experience. If a student is struggling, their instructor can remediate and provide additional support as necessary.

Marine 1st Lt. Rachel Hardinger also completed Project Avenger and will continue to Helicopter Training Squadron (HT) 28 in Milton, Florida. Upon earning her Wings of Gold, she is slated to fly the MV-22 Osprey.

“My biggest takeaway from Project Avenger is that being a naval aviator requires a great deal more than being technically accurate,” Hardinger said. “We had to use critical thinking throughout our training to determine the best course of action while also taking a wingman into consideration. This phase of training was very difficult, but I believe it gave us a small taste of what we will deal with in advanced training and ultimately in the fleet.”

The second class is slated to begin in May and will include some slight curriculum adjustments.

Anne Owens is a public affairs specialist with Chief of Naval Air Training. 🦅

U.S. Navy photo by Lt. Michelle Tucker



Ensign Chris Nance reviews his flight plan before a virtual training flight.

Register oversees student naval aviators as they conduct VR trainer flights.



U.S. Navy photo by Lt. Michelle Tucker

U.S. Navy photo by Lt. Michelle Tucker



Instructor Pilot Marine Capt. Terrance Davis, left, and student naval aviator Navy Ensign Lawson Stancil check an aircraft flight log before Stancil's first flight in a T-6B Texan II aircraft.

Stancil, left, and Davis conduct preflight checks on a T-6B Texan II aircraft before Stancil's first flight.



U.S. Navy photo by Lt. Michelle Tucker



U.S. Navy photo by Lt. Michelle Tucker

Stancil, front, and Davis depart for Stancil's first flight.

WOMEN IN NAVAL AVIATION

Making Waves: Women in the U.S. Navy

By Petty Officer 2nd Class Tristan Lotz

Women in today's U.S. Navy proudly serve alongside their male counterparts, with great opportunity ahead of them and a wake of history and perseverance behind them.

Women's naval history officially starts in 1908 with the establishment of the Navy Nurse Corps. A contract nurse from the Spanish-American War named Esther Voorhees Hasson was appointed superintendent. Hasson was joined by 19 other women who together formed the "Sacred Twenty." These women were the first to officially serve in the U.S. Navy.

The 20th century saw women make great strides in naval service. Manning issues in both World Wars compelled the Navy to open enlistment to women. The most famous example of this was the Women Appointed for Voluntary Emergency Services (WAVES), authorized by President Franklin D. Roosevelt with Public Law 689. The goal of the WAVES was to have women serving in shore positions to free up male service members for deployment in Europe or the Pacific.

Many women, however, would ultimately serve on the front during the war. Some were even held as prisoners of war in the Pacific theater and honored for their heroism. It would be these deeds that began to change the views of the brass regarding women in uniform.

The post-war years saw barriers to women in the military fall one by one like dominoes. Women began to serve aboard ships and became command leaders in their own right. Chief of Naval Operations Adm. Elmo Zumwalt, beloved by the ranks for his populist reforms to the fleet and commended by President

Bill Clinton as the "conscience of the Navy," issued Z-Gram 116 on Aug. 7, 1972, to further expand opportunities for women. The 1970s and '80s would see women enter the aviation field and begin serving in regular capacities aboard auxiliary ships such as oilers and tenders. Gulf War fighter pilot Capt. Rosemary Mariner would say of gender in combat: "A machine gun is a great equalizer."

As the 21st century progresses, so does technology and warfighting. Gender has become less of an issue as the ability to operate complex equipment has become even more important. In 2010, the Navy announced that women would be authorized to serve aboard submarines. Ballistic-missile (SSBN) and guided-missile (SSGN) class submarines were the first to have female Sailors among their crews. In 2016, Secretary of the Navy Ash Carter opened all combat jobs to women.

Now, women serve in virtually all ratings and capacities, bringing more talent and ability to America's Navy; and today, serving daughters look to their veteran mothers' achievements with awe and inspiration.

From 20 nurses on a repurposed steamboat to yeomen handling important documents in Washington, D.C., to pilots and submariners, women in America's Navy continue to make positive waves for the service and the nation.

Written by Petty Officer 2nd Class Tristan Lotz, Subase New London. ✈️

Editor's Note: This special section celebrates the contributions women vanguards in Naval Aviation have historically made and continue to make toward mission success. Naval Aviation News is proud to feature a small sample of these warfighters and is always looking for profiles of exceptional men and women serving in the U.S. Navy.

‘You’re Only as Good as Your Last Flight:’ Marine Fighter Pilot Shares Her Story

By 1st Lt. Fredrick Walker

If one had asked a teenage Meleah Martin what she wanted to do after high school, her answer probably would have included earning a scholarship to play lacrosse at the collegiate level and a nice career outside of the military. Little did she know that just over seven years later she would be a graduate of the U.S. Naval Academy (USNA) and piloting a Marine Corps F/A-18 Hornet.

“I was born and raised in Walkersville, Maryland, and lived on the same street my entire life through high school,” said Martin, now a captain and pilot with Marine Fighter Attack Squadron (VMFA) 323. “We never moved around and I’m not from a military family.”

The only child of insurance professionals, Martin had no intentions of joining the military, let alone the Marine Corps. But, her parents instilled in her the belief that she could be anything she wanted to be. That ethic proved to be invaluable as she began the rigorous journey to earning the “wings of gold” that identify a select group of Marine officers as naval aviators.

“I didn’t know where the Naval Academy was or what it was,” she said, reflecting on her path to USNA. “But when they recruited me during my junior year as a club lacrosse athlete with the Frederick Stars, I found out more about it and realized that it was the school I wanted to attend. In fact, it was the only school I applied to and I was fortunate enough to get in. My parents supported me through all of that.”

After graduating from Walkersville High School the following year, she matriculated at the academy where she later earned her bachelor’s of science degree. When it came to her attention that only 200 to 250 of the approximately 1,000 midshipmen who would graduate as part of her class could commission as Marine officers and only around 90 of them would become pilots, Midshipman Martin knew she had found her next challenge.

“Just being a competitive person, I didn’t know why I wanted to be a Marine yet. As I learned more about the Corps, I fell in love with the idea, and I fought for it. Being a pilot sounded really fun, so I fought for that, too,” she said.

After graduating from the academy in May 2013, 2nd Lt. Martin began six months of basic officer training and then spent nearly two years learning the fundamentals of flight and how to operate aircraft safely and effectively. After earning her wings in October 2016, then-1st Lt. Martin moved on to F/A-18 Hornet-specific training with VMFA-101 at Marine Corps



U.S. Marine Corps photo by 1st Lt. Fredrick Walker

Marine Corps Capt. Meleah Martin, a pilot with Marine Fighter Attack Squadron (VMFA) 323, looks up from her preflight check in an F/A-18C Hornet at Marine Corps Air Station Miramar, Calif.

Air Station (MCAS) Miramar, California. There, she further honed her aviator skills and leadership abilities.

“As soon as I started flying, I knew 100 percent that’s where I wanted to be. When I was flying fixed wing in the T-6 trainer, all I could think about was going faster and still flying in formation. Out of Kingsville, I got my first choice, which was flying jets out of Miramar. I’ve been here ever since.”

Just 6 months after checking into her first Fleet Marine Force squadron—VMFA (All-Weather) 225—Capt. Martin found herself heading to MCAS Iwakuni, Japan, for a six-month deployment as part of the Marine Corps’ Unit Deployment Program. During that time, she flew the F/A-18D in support of 1st Marine Aircraft Wing operations.

After her arrival back to California, Martin knew she wanted to return to the sea to conduct aircraft carrier operations in the jet she fought so hard to fly: the F/A-18C Hornet.

“My dream since becoming a pilot has been to take the Hornet ‘to the boat’ as we say. I started talking with my command about wanting to go to a squadron where that could become a reality. Just as my package was approved to try out for the All Marine Rugby Team, my commanding officer approached me about the possibility of transferring to VMFA-323. Now, here I am.”

As the January 2020 “sundown” of VMFA(AW)-225 drew

near in preparation for the squadron's transition to the F-35B Lightning II, she got her opportunity. Since August 2019, she has been with VMFA-323, a Miramar-based F/A-18C squadron.

Known around the squadron by her "Stranger Things"-inspired call-sign "Eleven," Martin now serves as both a section lead and the S-1 officer-in-charge for VMFA-323.

Reflecting on her long, rigorous journey to where she is today, Martin said, "The Naval Academy and Marine Corps taught me how to fail in a positive way. After learning how to follow, I learned how to lead. I have learned to fail and thrive in every single area: academically, socially and professionally. I've learned to adapt to my surroundings.

"Aviation can beat you up day in and day out," she said. "But you still keep coming back for more because you love it. It's one

of the most mentally taxing and physically challenging things that I've ever done in my life. That's why I love it."

As she looks to the future, Martin is preparing to make history as part of the Corps' final aircraft carrier-based deployment of the Hornet as the service transitions completely to the F-35 Lightning II. This deployment will mark the end of one aircraft's legacy and the beginning of a new one.

In light of all her accomplishments, she has no intentions of leaving the Corps just yet.

"I don't see myself getting out because I'm enjoying it too much. I would like to transition from the F/A-18 and fly the F-35C. We'll see where it goes from there."

1st Lt. Fredrick Walker supports Marine Corps Air Station Miramar. 🗨️

Navy's Only Female Commissioned Flying Warrant Officer Retires

By Seaman Caitlin Flynn



U.S. Navy photo by MC3 Elliot Schaudt

Aircraft shooter Lt. Amy Blades-Langjahr test fires a catapult in the bow bubble on the flight deck aboard aircraft carrier USS Nimitz (CVN 68).

Lt. Amy Blades-Langjahr was launched from USS Nimitz (CVN 68) on a C-2A Greyhound for her last flight in the fleet last summer.

The only female Flying Chief Warrant Officer (CWO) commissioned in the U.S. Navy, Blades-Langjahr rose through the ranks before retiring at the end of her "Shooter" tour, a career that spanned the entire Global War on Terrorism.

"I was on USS John F. Kennedy (CV 67) and we were pulling out for [Composite Training Unit Exercise], Sept. 11, 2001," Blades-Langjahr said. "We were in the harbor being turned around by the tugs. The second plane hit when we were in the jetties. We had port calls in St. Thomas lined up. We had a Mediterranean deployment; not even going to 5th Fleet."

After spending close to two months at sea, Blades-Langjahr returned to port and found that the world had changed in the wake of the attacks on the World Trade Center. This was also a difficult time for the crew of Kennedy, who had recently failed a congressionally mandated inspection.

The crew was tasked to accomplish the repairs and maintenance needed to get out to sea again, forgoing Christmas leave.

Her deadline to re-enlist was Feb. 2, or she would be out of the Navy.

"Jan. 31, my chief sits me down, and he said to me, 'Why are you getting out? How big do you think the Navy is?'"

Her chief prompted her to think about different ships, potential duty stations and different opportunities the Navy could provide.

"So, I walked down to the career counselors' office and I put my re-enlistment papers in, three days before my [end of active obligated service] date," Blades-Langjahr said.

Her drive to see the next thing and push forward led her to a career highlighted with firsts.

As an Aviation Boatswain's Mate 3rd Class, she secured herself a backseat ride in an EA-6B Prowler, despite being in a rate that had no business in that aircraft.

When asked why she pressed for the ride, Blades-Langjahr said, "Because people told me I couldn't."



U.S. Navy photo by MC3 Sarah Christoph

Lt. Blades-Langjahr monitors the landing area on the flight deck of aircraft carrier USS Nimitz (CVN 68).

This motivated her to take leave to complete the required survival swimming and aviation physiology courses on her own time. The request had to be approved by the Chief of Naval Operations.

Blades-Langjahr shattered the normal again when she was accepted into the Flying Chief Warrant Officer (FCWO) program. This program, which ran from 2006 to 2014, sought highly qualified, motivated Sailors between the pay grades of E-5 and E-7 to commission as CWOs and become naval aviators and naval flight officers (NFO).

She submitted her application in 2006 but was not selected. She applied again the following year and would go on to commission in April 2008. Out of 49 candidates, she was the only female selected for a program that lasted about seven years.

“Yeah, I’m the only female, but I’m still a flying warrant,” she said. “I still have to perform with my fellow flying warrants. I still have to work in the same capacity, and not be viewed as different.”

She attended a month of CWO indoctrination, followed by Initial Flight Screening, and then Aviation Preflight Indoctrination before going to Training Squadron (VT) 4 in Pensacola, Florida, and then Patrol Squadron (VP) 30, based in Jacksonville, Florida, where she earned her wings as an NFO.

Her first fleet squadron was Fleet Air Reconnaissance Squadron (VQ) 2 at Naval Air Station Whidbey Island, Washington, where she stayed until VQ-2 was decommissioned and absorbed by VQ-1 in 2012. Six months later, now a CWO3, Blades-Langjahr moved on to the Aviation Survival Training Center (ASTC) at Whidbey Island, where she would spend three years as an instructor and eventually as the first winged NFO to serve as a department head at the ASTC.

AVIATION VANGUARDS



1973: In 1973, **Lt. Cmdr. Barbara Allen Rainey** reported to NAS Pensacola as one of seven women in a test program to train female aviators. In 1974, she became the first designated female naval aviator. In 1981, she qualified as a flight instructor flying the T-34C Mentor. In July 1982,

Rainey and a student were killed after crashing in a T-34C while avoiding another aircraft during touch-and-go landings.

1974: Capt. Rosemary

Mariner was the first woman to graduate from Purdue University’s aeronautical program in 1972 at age 19. She joined the Navy in 1973, completed officer candidate school and was part of the first class of women for flight training. She was one of six female aviators to earn their Wings of Gold in 1974 and became one of the first



female Navy jet pilots, flying the A-4C and the A-7E Corsair II. She was the first woman to command an operational Naval Aviation squadron, VAQ-34, during Operation Desert Storm. She retired from the Navy as a captain in 1997 with more than 3,500 flight hours in 15 types of aircraft.



1974: The first female naval aviator to pass the carrier landing test, **Lt. Lynn Spruill** was part of the second group of eight female naval officers who earned their wings at NAS Pensacola in 1974. In 1979, Spruill landed

a C-1A Trader aboard USS Independence, becoming the first woman naval aviator to land on an aircraft carrier.

WOMEN IN NAVAL AVIATION

When the FCWO program was terminated in 2014, Blades-Langjahr decided to transition into the officer career track as a lieutenant.

Upon attaining the rank of lieutenant, Blades-Langjahr said that she was told she needed a bachelor's degree to continue her career. She began working on her fire, arson and explosion degree. At this time, she was assigned to USS Gerald R Ford (CVN 78). After eight months aboard Ford, she became pregnant with her first daughter. She then transferred to Fleet Forces in Norfolk, Virginia, and stayed for about three years. During this time, she

had her second daughter and completed her degree.

From there, she came to Nimitz, where she retired with 22 years of service.

When asked about her favorite roles, Blades-Langjahr gave two answers. The first was the role of "yellow shirt" aircraft director. The yellow shirt, she said, is the only authority aboard an aircraft carrier who can move an aircraft, which, for junior enlisted, is an unheard-of amount of responsibility.

The second has been as a "shooter," or catapult officer, who "shoot" aircraft off the flight deck.

Navy's First Black Female TACAIR Pilot Earns Wings of Gold

By Lt. Michelle Tucker



Lt. j.g. Madeline "Maddy" Swegle poses in front of a U.S. Navy T-45 Goshawk training aircraft during undergraduate Tactical Air (Strike) pilot training syllabus at Naval Air Station Kingsville, Texas.

U.S. Navy photo by Austin Rooney

The Navy's first Black female tactical air (TACAIR) pilot received her Wings of Gold July 31, marking a significant milestone for Naval Aviation.

Virginia native Lt. j.g. Madeline G. Swegle was designated a naval aviator and received her Wings of Gold with 25 classmates during a small ceremony at Naval Air Station (NAS) Kingsville, Texas.

Amidst the Navy's response to the global pandemic, instructors and students adjusted to COVID-19 spread mitigation measures including sterilizing surfaces, wearing masks and social distancing when practical. Despite these challenges, this is the largest graduating class of strike aviators in almost a decade.

Chief of Naval Air Training Rear Adm. Robert Westendorff oversees all undergraduate flight training from the command headquarters at NAS Corpus Christi, Texas.

"We are all incredibly proud of Lt. j.g Swegle and the entire

class," Westendorff said. "This is a wonderful personal achievement but also a testament to their dedication and drive to succeed in the tactical air training pipeline."

A 2017 U.S. Naval Academy graduate, Swegle reported to Naval Aviation Schools Command at NAS Pensacola, Florida, where she completed Initial Flight Screening and Aviation Preflight Indoctrination. She completed primary flight training with the "Boomers" of Training Squadron (VT) 27 at NAS Corpus Christi, and after selecting the TACAIR, or strike, pipeline, Swegle progressed to Intermediate and Advanced training with VT-21.

Swegle is part of a new generation of TACAIR pilots to qualify on state-of-the-art Aircraft Launch and Recovery Equipment (ALRE) unique to aircraft carrier USS Gerald R. Ford (CVN 78)—the Electromagnetic Aircraft Launch System (EMALS) and Advanced Arresting Gear (AAG). She completed carrier qualifications in the Atlantic Ocean in May 2020.

AVIATION VANGUARDS

After 22 years of service, Blades-Langjahr offered advice for the next generation: “Never find yourself without a [personnel qualification standard] in hand. Even if you’re fully qualified for your particular job, keep going.”

Blades-Langjahr’s second piece of advice is to never accept “no” as the first answer, unless it can be backed up in writing. Opportunities are there, even if the person being asking doesn’t know about them. “So don’t stop asking questions.”

Seaman Caitlin Flynn supports USS Nimitz Public Affairs. ✨



Swegle reported to the “Vikings” of Electronic Attack Squadron (VAQ) 129 at NAS Whidbey Island, Washington.

U.S. Navy photo by Lt. Michelle Tucker

“I’m excited to have this opportunity to work harder and fly high-performance jet aircraft in the fleet,” Swegle said. “It would’ve been nice to see someone who looked like me in this role; I never intended to be the first. I hope it’s encouraging to other people.”

Swegle and her classmates advanced to graduate-level flight training at their respective fleet replacement squadrons. Swegle reported to the “Vikings” of Electronic Attack Squadron (VAQ) 129 at NAS Whidbey Island in Washington to begin training as an EA-18G Growler pilot.

Swegle follows in the footsteps of Brenda E. Robinson, the Navy’s first black female naval aviator. Robinson earned her Wings of Gold June 6, 1980, becoming the 42nd woman designated as a naval aviator.

Lt. Michelle Tucker is the public affairs officer for Chief of Naval Air Training. ✨

1977: Lt. Cmdr. Brenda E. Robinson was one of 10 women to attend Aviation Officer Candidate School (AOCS) in 1977. She earned her wings in June 1980 and became the first black woman to graduate from AOCS and the 42nd woman to earn her wings. She then became the first black woman certified for C-1A Trader carrier onboard delivery landings in 1981. She amassed 115 traps and 3,800 flight hours. In 1992, Robinson transitioned to the Navy Reserve and became an American Airlines pilot.



1983: Lt. Colleen Nevius was the first female naval aviator to graduate from United States Naval Test Pilot School (USNTPS) and be designated a Navy test pilot. She began her career in 1977 and retired as a captain.

1990s: Matice Wright-Springer was the first black woman naval flight officer (NFO) and logged thousands of flight hours in both the EC-130 and the E-6 aircraft. After serving in the Navy, she was appointed as a White House Fellow in 1997; she also served as a member of the Senior Executive Service at DoD. A U.S. Naval Academy graduate, she now serves on the USNA Board of Visitors.



1992: Capt. Wendy Lawrence, a 1981 USNA graduate, began astronaut training at the Johnson Space Center in 1992. The former helicopter pilot was also the first woman USNA graduate to fly in space, logging more than 1,200 hours in orbit.

1994: Capt. Kathryn P. Hire, a 1981 graduate of USNA, served as an NFO and was the first woman assigned to a combat aircrew. Selected for astronaut training in 1994, she flew aboard two space shuttle missions. She served in the Navy for 35 years and achieved the rank of captain. Hire logged more than 3,400 flight hours in various aircraft, and more than 711 hours in space.



U.S. Navy photo by MC2 Krystina Coffey



Italian navy Ensign Erika Raballo stands in front of a T-45C Goshawk jet trainer aircraft at Naval Air Station Meridian, Miss., after completing her last graded flight with the “Tigers” of Training Squadron (VT) 9 qualifying her as a naval aviator on March 10.

First Female Italian Navy Strike Fighter Pilot Earns Wings of Gold

By Lt. Michelle Tucker

The Italian navy’s first female strike fighter pilot received her Wings of Gold on March 11 after completing undergraduate flight training with the “Tigers” of Training Squadron (VT) 9 at Naval Air Station (NAS) Meridian, Mississippi.

Italian navy Ensign Erika Raballo was designated a naval aviator during a small winging ceremony at the base chapel with five classmates, marking a significant milestone in Italian and U.S. Naval Aviation history and further strengthening the partnership between the two nations.

“We are all incredibly proud of Ensign Raballo,” said VT-9 Commanding Officer Cmdr. Meghan Angermann. “She has proven she is a capable, competent warfighter ready to take her strike aviation training to the next level. She and her classmates worked hard to get to



Italian navy Ensign Erika Raballo.

this point and what they can and will accomplish in the future is limitless.”

Raballo conducted her final graded curriculum event March 10 in a T-45C Goshawk jet trainer aircraft. She returned to her squadron mates waiting on the Training Air Wing 1 flight line for a traditional “soft winging” ceremony during which Angermann presented Raballo with a fabric patch emblazoned with the Wings of Gold.

“Being the first female Italian navy jet pilot is an amazing feeling,” Raballo said. “My desire is to be the first one of many and I hope I’ll be an inspiration for many other women

in all lines of work, not because I’m special, but for the exact opposite; I came from a small town, with no military background whatsoever and with willingness and hard work I was able to make my dream come true.”

U.S. Navy photo

AVIATION VANGUARDS



1998: Capt. Sunita Williams graduated from USNA in 1987 and was designated a naval aviator in 1989. After deploying in support of Desert Shield and Operation Provide Comfort, she was selected for USNTPS, graduating in 1993. She returned as an instructor in 1995 before being selected as an astronaut in 1998. Williams worked in

Moscow with the Russian Space Agency on their contribution to the space station. Williams has spent a total of 322 days in space on two missions; she ranks second on the all-time U.S. endurance list for women. With 50 hours and 40 minutes, she is second for total spacewalk time by a woman astronaut.

2007: Rear Adm. Sara “Clutch”

Joyner graduated from USNA in 1989 and earned her wings in 1991. In 2007, she was the first woman to command a strike fighter squadron, VFA-105, while aboard aircraft carrier USS Harry S. Truman (CVN 75). Additional operational command tours include commanding a carrier air wing, CVW-3, and Carrier Strike Group, CSG-2. She made several extended deployments in support of Operations Southern Watch, Enduring Freedom and Iraqi Freedom. Joyner pinned on her second star April 1, 2021, and currently serves as Chief of Legislative Affairs.



2010: In 2010, **Rear Adm. Nora Tyson** became the first woman to take command of a carrier strike group, CSG-2, leading 80 combat aircraft and 13 ships, including her flagship, USS George H.W. Bush (CVN 77), on its maiden deployment in support of operations in 6th and 5th Fleets. Tyson had many firsts throughout her career: the



first female NFO to assume duties as executive officer of an operational squadron, VQ-4; the first woman to command the forward-deployed Singapore-based Task Force 73; the first woman to command a battle fleet and the first woman to serve as Commander, 3rd Fleet. Tyson retired from naval service at the rank of vice admiral in 2017.

U.S. Navy photo by MC2 Krystina Coffey



VT-9 Commanding Officer Cmdr. Meghan Angermann, right, pins naval aviator Wings of Gold on Raballo during a ceremony on March 11.

Raballo is from Alba in the commune of Piedmont in north-west Italy. Aside from her father and uncles' compulsory one year of service, Raballo is the first in her family to dedicate her career to military service.

“I decided I wanted to be a pilot when I was 16 after visiting a joint naval and air force base,” Raballo said. “I was stunned by the words of the pilots and so fascinated by the introductory flight that we did on a navy helicopter that the following day I watched ‘Top Gun’ for the first time, and I was all in.”

Each year, the Italian navy sends approximately 10 officers to the U.S. to begin pilot training under Chief of Naval Air Training. Italian navy Lt. Cmdr. Simone Pitto is a country liaison officer and oversees all Italian students in undergraduate flight training.

“In 2000, the Italian parliament approved the opening of the armed forces to women,” Pitto said. “After 20 years they [women] are fully integrated in all operational domains of the navy where they operate on surface ships, submarines, amphibious platoons, special forces and helicopter squadrons. It is with great pride that now we see a woman also complete jet training and qualify as a STOVL [short take-off vertical landing] pilot. Ensign Raballo’s achievement is a testament to her intellect, skill and determination to succeed.”

She completed T-45C carrier qualifications Feb. 5 on aircraft carrier USS Gerald R. Ford (CVN 78) in the Atlantic Ocean, which she said was her favorite part of the training.

“Landing on the aircraft carrier for the first time was mind-blowing,” Raballo said.

Raballo will continue on to postgraduate training at one of two U.S. Marine Corps fleet replacement squadrons to learn to operate either the F-35 Lightning II or the AV-8B Harrier.

Written by Lt. Michelle Tucker, Chief of Naval Air Training Public Affairs. 🦅

Navy Combat Veteran Reflects on Overcoming Barriers

By Emily Funderburk

Jennifer Foxworthy is F.I.T. That is, she's focused, intentional and thriving. Foxworthy, a Navy combat veteran turned public speaker, author and domestic violence advocate, shared the secrets behind her inspiring story with Naval Air Systems Command employees at a national virtual Women's History Month event March 24, with a theme of "I Can! I Will! I Did! Succeeding as an African-American Woman in the Military."

Foxworthy served in three wars—Kosovo, Afghanistan and Iraq—logged more than 3,700 flight hours and received four Air Medals, all while overcoming challenges and barriers unique to a Black aircrewman.

"When you recognize your unique qualities, you will always stand out, even when you're trying to blend in," Foxworthy said. "As you walk boldly in your purpose and passion, you will encounter people who will want to dim your light so they can feel comfortable. When we are diverse and inclusive, it allows for a collective strength. It's teambuilding at its greatest, its finest."

Growing up in poverty in York, Pennsylvania, Foxworthy set her sights higher than the inner city. She joined the Navy as part of the delayed entry program after high school.

"When you understand your potential, you may have to switch environments in order for you to grow and expand your wings," she said. "I'm not just going to settle for what I see in front of me. My vision is further than my current reality."

Her instructor at Naval Air Crew Candidate School in Pensacola, Florida, said Foxworthy's physique as a black woman would prevent

her from swimming the mile in the required 70-minute timeframe.

"I'm not one to care about skin color, but I knew I was the odd person in the group," she said. "I used it [the feedback] as fuel. I practiced." In the end, she swam the mile in 68 minutes



Jennifer Foxworthy retired as a Chief Petty Officer, Naval Air Crewman, Avionics, after logging more than 3,700 flight hours in the E-6A Mercury, EP-3 Aries and a specially equipped P-3 Orion.

Photos courtesy of Jennifer Foxworthy

AVIATION VANGUARDS

and became the first black woman to graduate from that school in the 10 years prior.

For Foxworthy, it's all about having an equal playing field.

"Respect is earned, and it's given, but I just want to be treated like a human being," she said. "It's about moving forward, making a difference, proving that you belong. I proved I belonged, that I wasn't willing to be shoved into a small box of stereotypes."

In addition to workplace bullying, Foxworthy also found herself in an abusive relationship, where she said she was fighting a war on three fronts.

"I was facing a personal war of someone who professed they loved me but mistreated me, a professional war of trying to fit in when I clearly stood out, and then I was flying combat missions with my crew in three different wars," she said. "I was better prepared to be a prisoner of war than to deal with domestic violence."

She channeled her experiences to thrive—not just survive—and help others do the same through her work as a substance abuse counselor at Naval Health Clinic Patuxent River, Maryland, before retiring from the Navy.

"When you go through adversity, recognize it, restore yourself and forgive," she said. "It's about moving forward, not having resentment. I was paving the way for other African-Americans and other women who were coming behind me, and maybe everything I went through, they will have it just a little bit better."

Emily Funderburk is a public affairs specialist with Naval Air Systems Command Communications. ✨



Then-Petty Officer 2nd class Foxworthy and CT11 (AW/SW/NAC) Dottie Meyer are pictured before a flight circa 2002.

2011: Cmdr. Sara Stires who, as a Lt. j.g., became the first and only woman in the Navy to be awarded the Distinguished Flying Cross for her actions during Operation Enduring Freedom. After nine years as a naval aviator, she is now a Navy Oral Surgeon at USNA and is the 1st Dental Officer in school history to run Brigade Medical.



2020: Cmdr. Kim DaCosta-Azar was the third skipper and first woman to be the CO of the Navy's only unmanned squadron, VUP-19. She won the Joy Bright Hancock award in 2020 for leadership and her initiatives to retain aviators throughout pregnancy and parenthood. She created a program to ensure women remain competitive in their careers while balancing family. She also helped establish instructions to allow pregnant women to continue flying (unmanned) into their third trimester.

2021: When **Capt. Amy Bauernschmidt** assumes command of USS Abraham Lincoln (CVN 72) this summer, she will be the first woman to lead the crew of one of the Navy's 11 nuclear-powered aircraft carriers. She is also the first woman to serve as the executive officer aboard an aircraft carrier.

Bauernschmidt graduated from USNA in May 1994, the first graduating class in which women were allowed to serve aboard combatant ships and aircraft. She was designated as a naval aviator in 1996 and served with several helicopter squadrons.





AUGMENTED REALITY SUITE AIMS TO REVOLUTIONIZE MAINTENANCE, REPAIR

By Brittany Dickerson

Engineers from the Naval Air Warfare Center Aircraft Division (NAWCAD) are developing augmented reality (AR) headset applications to connect engineers with maintainers across the globe to troubleshoot and repair Navy aircraft and systems.

The Augmented Reality Remote Maintenance Support Service (ARRMSS) intends to reduce significant aircraft downtime, and received the Department of Defense’s Maintenance Innovation Challenge Award for 2020.

“We’re working to an aggressive developmental schedule—ARRMSS went from proof of concept to working prototype in less than two years, and we’re ready to start beta-testing the product worldwide,” said Aristides Staikos, AR Research and Development Engineering lead at NAWCAD Lakehurst, New Jersey. “Our ultimate goal is a reduction in aircraft downtime and faster assistance to those who need it.”

The portable system audibly and visually connects two users from anywhere in the world via an AR headset. The system will enable fleet maintainers to troubleshoot maintenance and repair issues in real-time with distant engineers as if they were in the same room.

Engineers can communicate verbally, and use holograms that appear in a maintainer’s view superimposed on the equipment a maintainer is troubleshooting. Users are also able to share photos, documentation and other content—ultimately enabling artisans to expedite repairs to aircraft and support equipment.

ARRMSS has potential to save the DOD significant travel funds and equipment downtime as engineers today travel to Fleet maintainers in and out of the country for issues that require assistance not supported through phone calls or manuals. Evolving ship schedules often complicate service trips, too.

“I am incredibly proud of the innovation and mission focus of our engineers in bringing this ARRMSS technology to life,” said NAWCAD Commander, Rear Adm. John Lemmon. “This level of agility and service to the



U.S. Navy photo



Petty Officer 2nd Class Aaron Pippen, Aviation Boatswain-Mate Equipment Launch and Recovery NAWCAD Lakehurst Test Division, troubleshoots wiring connections on the Hydraulic Power Supply at Joint Base McGuire-Dix-Lakehurst, N. J.

U.S. Navy photo by Russ Meseroll



U.S. Navy photo

NAWCAD Lakehurst CREATIVE Lab team member Michael Confessore captures footage of Lt. Col. Roberts using ARRMSS to perform a maintenance action on the Static Frequency Converter with the help of a remote expert.

Fleet will ensure our Navy maintains the readiness and lethality needed by our fighting forces.”

The system has gone through successful live testing on the East Coast and is being prepared for next steps.

Though the headsets are commercially available, the system—a kit that includes the headset, a tablet and a remote network wireless access point—is unlike anything currently available, as ARRMSS will operate on low-bandwidth networks.

“We purposely designed the tech with the Navy in mind to conserve bandwidth, especially at sea and in other remote environments,” Staikos said. “And just as importantly, we leveraged commercial off-the-shelf hardware with cost-savings in mind.”

With application both in and out of the DOD, the technology continues to generate interest from the Marine Corps, Air Force and Army for several potential uses including explosive ordnance investigation.

“Early cross service alignment is critical if the DOD wants to implement ARRMSS on a wider scale,” said Ryan Bowersock, NAWCAD Lakehurst’s lab director for Collaborative, Research, Engineering, Analysis and Training in Immersive Virtual Environments (CREATIVE) Lab. “Ultimately, it will take multiple



U.S. Navy photo

Petty Officer Hailey Wilmoth is using ARRMSS to communicate with a remote expert and capture a photo during Static Frequency Converter troubleshooting at Naval Air Station Patuxent River to send to the expert.

test cases with beta users, visibility, aggressive planning and funding to help us get this into the hands of all maintainers worldwide in the next three to five years.”

ARRMSS is expected to be ready for production in 2023.

Written by Brittany Dickerson, Public Affairs Specialist, NAWCAD. 🦋

The ARRMSS team invites artisan maintainers across Naval Aviation to contact LKHRCreativeLab.fct@navy.mil with interest in testing early adopter kits to provide user feedback that will fine-tune the technology.

'Death Rattlers' Return from Last F/A-18 Hornet Deployment

By Cpl. Leilani Cervantes

The "Death Rattlers" of Marine Fighter Attack Squadron (VMFA) 323 returned in February from a 10-month deployment, making history as the last F/A-18 Hornet carrier deployment in the U.S. Marine Corps.

VMFA-323 now prepares to fly the F-35B Lightning II.

In line with the Marine Corps Force Design 2030, transitioning to the F-35 increases the lethality of 3rd Marine Aircraft Wing (MAW), as both F-35 variants provide unprecedented stealth capabilities and flexibility due to their ability to operate from conventional aircraft carriers and land bases. Furthermore, the F-35 will provide the Marine Air-Ground Task Force strategic agility, operational flexibility and tactical supremacy in a high-end conflict.

The Death Rattlers' final F/A-18 carrier deployment supported Carrier Air Wing (CVW) 17 on USS Nimitz (CVN 68), where they conducted operations alongside U.S. 5th and 7th Fleets. VMFA-323 contributed to more than 35,000 flight hours, 14,000 missions supporting tactical recovery of aircraft and personnel and landings, and employment of nearly 250,000 rounds of ammunition while part of the Nimitz Carrier Strike Group.

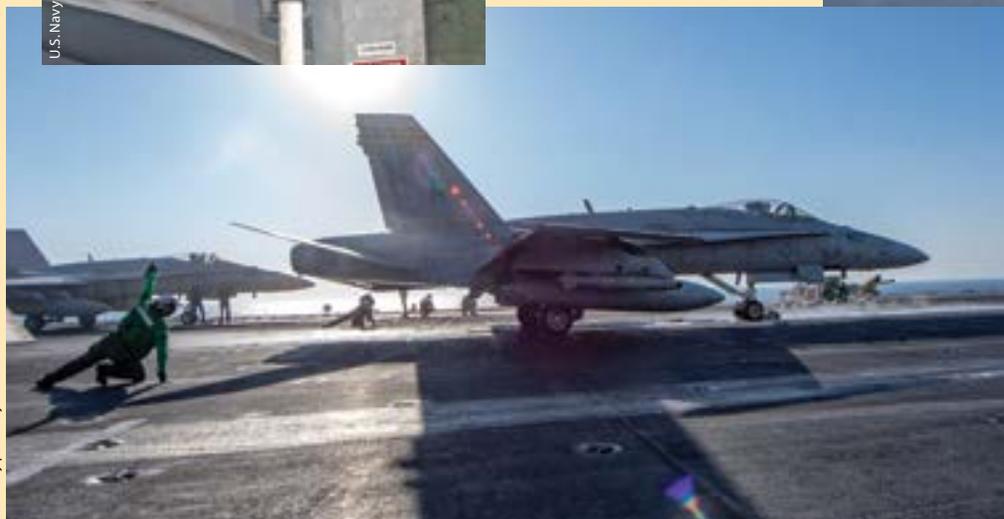
The historical deployment culminated in one last F/A-18 carrier fly-off for the Death Rattlers, after their arrival Feb. 25 at Marine Corps Air Station Miramar, California.

Third MAW assets have experience



U.S. Navy photo by MC3 Dalton Reichhead

Lance Cpl. Warren Martineaulii, assigned to VMFA-323, sands nonskid off of an F/A-18C Hornet in the hangar bay aboard Nimitz.



U.S. Navy photo by MC3 Elliot Schaudt

During VMFA-323's final deployment with the Hornet, an F/A-18C launches off the flight deck of Nimitz.



An F/A-18C Hornet, with the "Death Rattlers" of Marine Fighter Attack Squadron (VMFA) 323, launches off the flight deck of aircraft carrier USS Nimitz (CVN 68).

U.S. Navy photo by MC3 Cheyenne Geletka



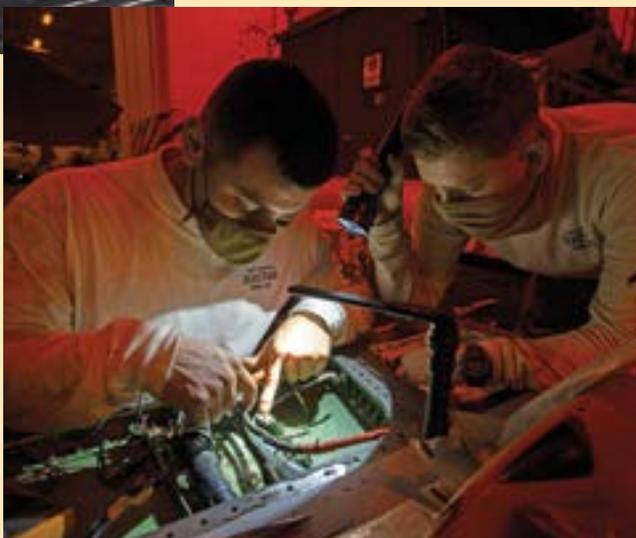
U.S. Navy photo by MCS Bryant Lang

An F/A-18C Hornet's afterburners are visible as the aircraft launches off Nimitz.



U.S. Navy photo by MC3 Elliot Schaudt

On the flight deck, Staff Sgt. James Stafford observes the launch of an F/A-18C Hornet from Nimitz.



U.S. Navy photo by MC3 Elliot Schaudt

Sgt. Alex Portillo, left, and Lance Cpl. Durango Bowen install an outer wing harness on one of the Death Rattlers' F/A-18C Hornets in the hangar bay.

aboard L-class amphibious ships with F-35Bs supporting combat operations in 5th Fleet, including Operation Inherent Resolve in 2018. Additionally, 3rd MAW aircraft will serve aboard partner nation carriers such as HMS Queen Elizabeth supporting the United Kingdom's Carrier Strike Group (CSG) 21 mission this summer. Commitment to aviation modernization will continue when the F-35s of VMFA-314 deploy with CVW-9 aboard USS Abraham Lincoln (CVN 72).

VMFA-323 has an illustrious history and a storied legacy of integrating with the Navy and its aircraft carriers. In 1944, the Death Rattlers made their first deployment in the F4U-1D Corsair to the South Pacific, where they supported Operation Iceberg from Kadena Airfield in Okinawa, Japan, under the command of Adm. Chester Nimitz. In 1946, VMFA-323 began their first of many preparations for aircraft carrier operations, and during the Korean War, supported the 1st Marine Division engaged at the fabled Chosin Reservoir during their first carrier deployment with the F4U-4B Corsair from the flight deck of USS Badoeng Strait (CVE 116).

Throughout the following decades, VMFA-323 integrated with Navy carrier air wings and operated from the flight decks of aircraft carriers in every model of aircraft they operated. In September 1982, VMFA-323 retired its last F-4 Phantom and officially began the transition to the world's foremost strike fighter, the McDonnell Douglas F/A-18A Hornet. In November 1985, the Death Rattlers deployed on USS Coral Sea (CV 43) while assigned to CVW-13, which was the first carrier air wing to deploy with Marine F/A-18s. Nearly 35 years after their first carrier deployment in the Hornet, VMFA-323 made history once again while deployed with CVW-17 as the last legacy Hornet squadron to integrate with a carrier air wing.

Written by Cpl. Leilani Cervantes, 3rd Marine Aircraft Wing. 🦅

Test Pilot School Instructors'

By Paul Lagasse

Instructors at the U.S. Naval Test Pilot School (USNTPS) at Naval Air Station (NAS) Patuxent River, Maryland, are dedicated to ensuring the next generation of developmental test pilots, naval flight officers and engineers gain the skills necessary for testing the aircraft and systems of tomorrow. Less widely known is their dedication to conducting original research that broadens aerospace knowledge and improves flight test safety and practice.

A good example is a recent flight test program conducted by USNTPS rotary-wing instructors John "JT" Tritschler and John "Noddy" Holder to evaluate the hover performance of helicopters near obstacles and inside confined areas to better understand how helicopters behave when landing on and taking off from ships at sea, rooftop platforms and other complex environments.

Helicopter rotors generate lift in part by accelerating air downward—a phenomenon called downwash. Nearby obstacles such as buildings,

hangars and ship superstructures can bounce some of that downwash back toward the helicopter, which is called recirculation. Excessive recirculation can force a pilot to use more engine power to stay in a hover, and in some extreme instances it can even result in a loss of control. It's a situation that pilots learn to deal with through experience, but Tritschler and Holder sought to gain a more systematic understanding of downwash recirculation so that pilots could train better to deal with it.

"We have been conducting flight test research programs for several years at USNTPS," said



A helicopter's-eye view of the partially disassembled Elevated Fixed Platform (EFP), a test platform originally constructed on a disused taxiway at Naval Air Station Patuxent River, Md., for testing recirculation effects on the V-22 Osprey.

U.S. Navy photo by John Holder



Research Pushes Boundaries

Tritschler, the research director of the USNTPS research cell, which was created several years ago to centralize the school's research projects. "This particular project came about organically from a previous project that Noddy and I conducted to assess the effect of sloping terrain on helicopter downwash."

Holder and Tritschler took advantage of a unique opportunity: a temporary structure built on a disused taxiway at NAS Patuxent River. Constructed from more than 100 shipping containers stacked to form a 38-foot-tall box and capped with steel plates, the Elevated Fixed Platform (EFP) was built to test recirculation effects on the V-22 Osprey using dozens of anemometers affixed to the sides of the EFP to measure airflow variations. In the planning phase for the V-22 test, the test team identified the opportunity for additional testing with USNTPS aircraft before the EFP was disassembled.

"I saw the EFP as a target of opportunity for USNTPS," Tritschler said. "I argued that it would

have been irresponsible of us as a learning institution not to take advantage of this great opportunity to create a dataset that would be useful not just for the engineering community, but also for the operational community."

With the approval of USNTPS Commanding Officer Lt. Col. Rory Feely, Holder and Tritschler developed and implemented a series of test flights with three USNTPS helicopters—a UH-72A Lakota, a UH-60L Black Hawk and an OH-58C Kiowa—to study how recirculation affected the helicopters' performance when hovering at various predetermined locations and altitudes above and alongside the EFP's roof, walls and corners.

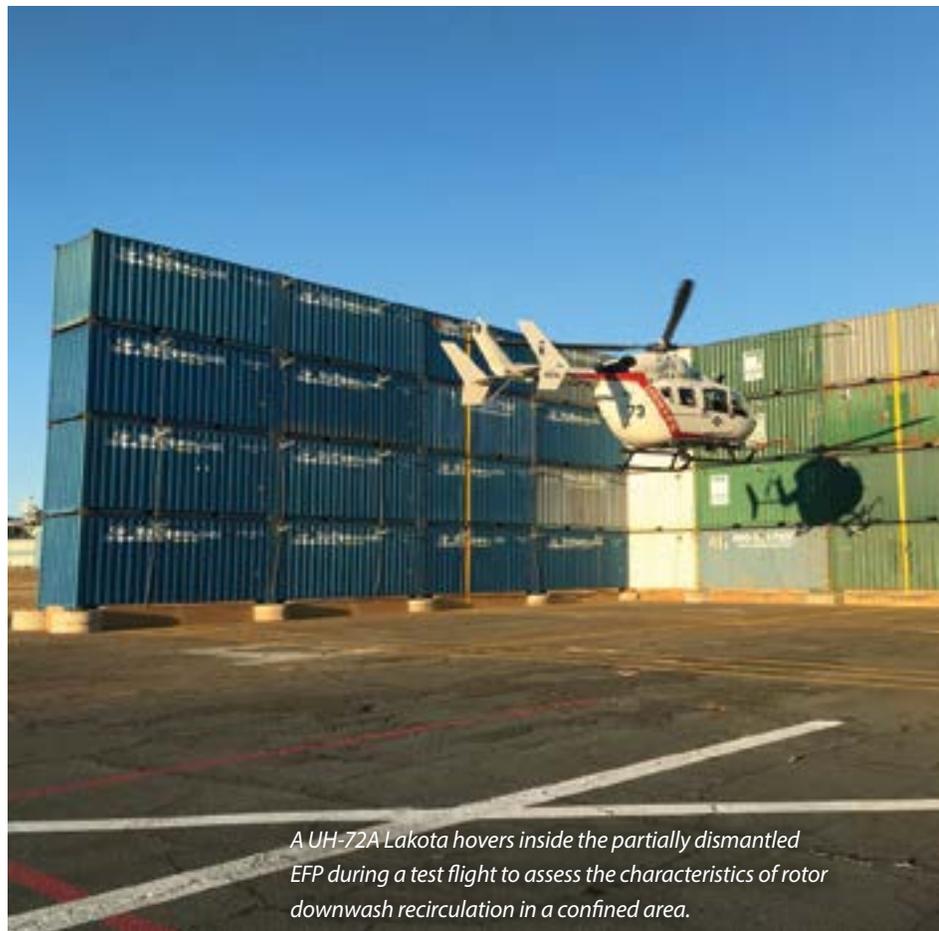
Once the roof and one wall were removed as part

"Holder and Tritschler took advantage of a unique opportunity: a temporary structure built on a disused taxiway at NAS Patuxent River."



A U.S. Naval Test Pilot School (USNTPS) UH-72A Lakota hovers near the EFP as part of a test program developed by two rotary-wing instructors to evaluate the hover performance of helicopters near obstacles.

U.S. Navy photo by Mark Silva



A UH-72A Lakota hovers inside the partially dismantled EFP during a test flight to assess the characteristics of rotor downwash recirculation in a confined area.

U.S. Navy photo by Mark Silva



U.S. Navy photo by Mark Silva

USNTPS test pilots guide one of the school's UH-60L Black Hawk helicopters through a series of hovering maneuvers within the confines of the partially dismantled EFP to collect data.

of the dismantling process, the two pilots returned to fly a similar series of tests inside the box itself. Holder and Tritschler invited several USNTPS instructors to participate in the research flights along with them, enabling them to participate in an active flight test and gain first-hand experience for designing their own test projects.

During the tests, the pilots varied the helicopters' rotor speeds and gross weight. "In doing so, you get a wide range of thrust conditions, and you can explore whether there are any sensitivities that effect those conditions," Tritschler said. "We wanted to make sure that we collected data across the widest range possible because it is inappropriate to draw conclusions on vehicle performance on the basis of extrapolated data."

The series of nearly 20 test flights, totaling over 40 hours of flight time, was completed at the end of February and the two instructors are currently analyzing the data. "We're going to let the data indicate to us just how well the phenomena we observed can be generalized for helicopters with a single main rotor," Tritschler said. "Then, hopefully we can make broader statements to a wide range of operational communities about how much additional power margin they will need in a given operational

scenario. But at this point, it's an open question just how much the results will generalize across aircraft."

The test program involved close coordination and teamwork. Aerodynamicists from the Applied Aerodynamics Branch conducted flow field measurements during each of the sorties. Engineers from Atlantic Targets and Marine Operations designed, constructed and disassembled the EFP in timed phases to facilitate the testing.

In addition to gaining operational guidance, Naval Air Warfare Center Aircraft Division (NAWCAD) engineers will also use the data to validate the computational fluid dynamics models they are developing as part of the Dynamic Interface Virtual Environment (DIVE) program. Led by NAWCAD engineers and funded by the Office of Naval Research, the DIVE program seeks to develop simulations that will enable designers and operators to reduce the amount of shipboard testing required to establish launch and recovery envelopes for rotary-wing aircraft.

Although the instructors are still compiling the data, Tritschler said some interesting preliminary results have already begun to shake out with regard to aircraft behavior in ground effect, which is the reduction of drag and increase in lift that happens to wings and rotors near flat surfaces like the ground—or a stack of shipping containers. They observed that the power required to hover in ground effect at certain heights within the partially dismantled EFP exceeded the power required to hover out of ground effect—the opposite of what is seen in regular operations in ground effect. The test pilots observed that effect with all three of the aircraft they tested, an important quantitative confirmation of anecdotal performance planning guidelines followed by communities that operate in such confined areas.

The research has also paid at least one other dividend so far. Shortly after the test flights were completed, Holder learned that he had earned the Maj. Michael J. Ripley Award as the USNTPS 2020 Instructor of the Year, in part for designing and executing the flight test series in and around the EFP.

Feely said that original research like Holder's and Tritschler's helps keep the school in the forefront of aeronautical research through partnerships with agencies like NASA and the Federal Aviation Administration, as well as supports the Navy's other research efforts in aircraft shipboard landing characteristics.

Paul Lagasse is a public affairs specialist with U.S. Naval Test Pilot School Communications. 🇺🇸

The U.S. Naval Test Pilot School educates the **WORLD'S FINEST** developmental test pilots, flight officers, and engineers in the design, risk management, execution, and communication of aircraft and systems testing.

**APPLY TODAY!
SEATS ARE LIMITED**

REACHING
HIGHER



UNITED STATES NAVAL TEST PILOT SCHOOL

USNTPS

USNTPS OFFERS CURRICULA IN:

- Fixed Wing
- Rotary Wing
- Airborne/Unmanned Systems (NFO)

HOW TO APPLY

SUBMIT YOUR APPLICATION:

Navy Personnel Command
www.public.navy.mil/bupers-npc
Click on Boards - Administrative - Test Pilot

Mark These Dates on Your 2021 Calendar

June Selection Board for January Class

- Application announcement Issued: March/April
- Applications accepted: Up to mid-May
- Board convenes: Mid June
- Results posted: Early July

Expected arrival dates for pre-arrival training:

- Fixed Wing: August 1
- Rotary Wing: November 1
- Systems: December 1

Dates subject to change

For more information on the U.S. Naval Test Pilot School visit: www.navair.navy.mil/nawcad/usntps



NAVY RESERVE: SECOND CHANCE TO SERVE

By Ensign Gulianna Dunn

When it comes to choosing a military career, a call to serve drives many people to join. Others choose it as part of their family's legacy and heritage. For one Sailor, the choice was made early on, but the decision to stay Navy seemed untenable—until he was given a second chance.

Navy Reserve Officer Lt. Cmdr. Brian “Band Camp” Abbott was born and raised in Fabius, New York. “It’s a tiny little farm town with more cows than people,” Abbott said with a laugh. “There is probably a 6-1 ratio of cows to people, and it is nowhere near anything having to do with the Navy whatsoever.”

While his grandfather served as an enlisted Sailor in the Navy during World War II and his father was an Army sergeant during Vietnam, Abbott first felt inspired to join the Navy while reading a book.

“There was a book at my high school library about all of the Navy ships and planes that really fascinated me,” Abbott said. “My first real exposure to the Navy was when they would send some of their smaller warships through the St. Lawrence Seaway into the Great Lakes every summer, and I got to go onboard an Oliver Hazard Perry-class frigate. Eventually, I decided I wanted to join the Navy and found myself at Fort Schuyler for ROTC. In retrospect, it was the best thing that ever happened to me.”

After spending four years at the State University of New York Maritime College, where he learned about Merchant Marine ship handling and navigation, Abbott elected to go into

Naval Aviation and commissioned as an active-duty officer in May 2003.

“When I started out, I was all set to go [fly] Super Hornets. I wanted to go fast and blow stuff up,” Abbott said. “After spending time in flight school, I started to learn more about Naval Aviation, different aircraft and the fleet. As a naval flight officer (NFO), I wanted to be in a community where I felt I could truly impact the mission. I had a chance to tour one of the Hawkeyes from a visiting squadron, and I fell in love with that aircraft on day one.”

Like many junior officers, Abbott was overwhelmed and excited about all of the opportunities afforded to him as a Sailor.

“As a junior NFO, I was controlling a simulated air strike out in [Naval Air Station] Fallon, Nevada, as part of a strike fighter advanced readiness program,” Abbott said. “When the strike lead thanked me for doing a great job and helping them all through the event—as a junior Hawkeye guy, that was a huge thing because I was earning the respect of the guys for the event I was controlling.”

Abbott spent time at a variety of squadrons, ships and commands throughout his active-duty career. However, in 2014, his



Photo courtesy of Lt. Cmdr. Brian Abbott

Lt. Cmdr. Brian Abbott served as a naval flight officer in the E-2 Hawkeye. Abbott spent 12 years on active duty before transitioning to the Navy Reserve in 2015. This image, which shows Abbott (left) launching a Hawkeye, was taken during his deployment on USS Dwight D. Eisenhower (CVN 69).



Photo courtesy of Lt. Cmdr. Brian Abbott

Lt. Cmdr. Brian Abbott joined the Navy in May 2003. He transitioned to the Navy Reserve in February 2015. This image was taken during his first operational tour in the Navy.

career hit a road block when he was passed over for promotion to lieutenant commander.

“Those were some tough years for aviation officer promotions, and I was essentially handed a pink slip and told to prepare myself for separation from active duty,” Abbott said. “I thought my career was definitively over.”

After separating from active duty, Abbott transitioned to the Navy Reserve in February 2015.

“When you roll into the Reserve, you essentially get a fresh start. I thought I would have to wait a year before getting another look at for promotion, but I was selected for lieutenant commander in July 2015,” Abbott said. “When I missed my second look on active duty, I thought that was game over, and it was the end of my time in the Navy.”

Even though Abbott has only been in the Reserve for five years, he has had many memorable experiences including providing support as a subject matter expert for the MQ-25A Stingray program.

“It was my first real experience in the Reserve, and I was able to work closely with the engineers in the Stingray program office,” he said. “Being able to share my experience and advice on how to integrate this aircraft into the carrier flight environment and see



U.S. Navy photo by Ensign Gulianna Dunn

Navy Reserve Lt. Cmdr. Brian Abbott poses in front of the Air Test and Evaluation Squadron (VX) 20 hangar. Abbott currently works as a civilian Aviation Safety Officer for the unit.

how this all came together operationally was a hugely rewarding experience.”

Abbott is a member of the Naval Air Systems Command (NAVAIR) Reserve program and has spent the last several months helping to develop a public-facing website for the command.

“We finally went live with our website,” Abbott said. “We’ve never had that before. A place to advertise our command, talk about our mission and provide information for other aviators looking to transition to the Reserve.

“I thought the Reserve was going to be a miserable experience and that I would have to just ride out my time until I could retire but I could not have been more wrong. My time in the Reserves has been absolutely incredible. A large part of that has been my civilian job. The leadership and my co-workers have been extremely supportive of my Reserve career, and I’m truly grateful for it.”

Given his second chance, Abbott has continued working and promoting his love of Naval Aviation. He was selected for commander in June 2020 and is slated to promote this summer.

Abbott is currently the deputy Chief of Staff for Operations for the NAVAIR Reserve Program and works as the civilian Aviation Safety Officer at Air Test and Evaluation Squadron (VX) 20, both at Naval Air Station Patuxent River, Maryland.

For more information about the NAVAIR Reserve Program, visit www.navair.navy.mil/NAVAIR-Reserve.

Ensign Gulianna Dunn is a Reservist and a civilian Public Affairs Specialist for the F/A-18 and E/A-18 Program Office. 🦅

NAWCWD Supports Mars

By Kimberly Brown

On Feb. 18, NASA landed their latest rover, Perseverance, on the surface of Mars. The landing, filmed in its entirety for the first time, had everyone holding their breath at NASA's Jet Propulsion Laboratory (JPL) as they waited to learn whether the rover—a product of decades of work by hundreds if not thousands of people—would touch down safely after its 300-million-mile trip.

Video of the landing included a clear view of Perseverance's parachute inflating dramatically, slowing the rover's descent to the red planet. Naval Air Warfare Center Weapons Division's (NAWCWD) David Aguilar and Michael Petersen watched the coverage with fingers crossed, knowing the rover's safe landing depended on that parachute—which they helped test, evaluate and demonstrate at China Lake, California.

"I was so ecstatic to see it land," Petersen said. "NAWCWD has a long history of supporting JPL testing. Each one has been an amazing experience."

In 2012, NASA and the JPL began a program to demonstrate new entry, descent and landing capabilities, with the goal of being able to land heavier rovers more accu-

rately and from higher altitude locations on Mars. Two major efforts were the Supersonic Inflatable Aerodynamics Decelerator (SIAD) and Parachute Design Verification (PDV) tests. JPL selected the Supersonic Naval Ordnance Research Tracks (SNORT) and the crew systems group to conduct the tests. Of the two, the parachute made its way onto Perseverance.

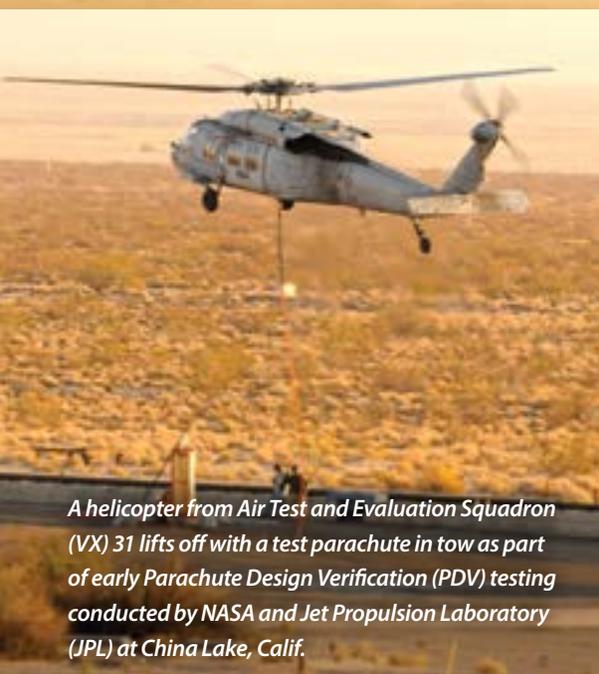
Of course, Petersen and Aguilar were two members of a broad, cross-functional NAWCWD team that supported JPL's testing efforts at China Lake. SNORT, Ranges, the Egress, Deceleration & Parachute Branch, test engineers, safety personnel and members of Air Test and Evaluation Squadron (VX) 31, just to name a few, poured their time—and expertise—into the program.

"As I sat in my family room watching

the JPL coverage of Perseverance landing, a kaleidoscope of faces and memories flashed across my mind's eye," Aguilar said. "I could see myself in late 2012 reviewing JPL's PowerPoint concept for Mars 2020 PDV test set-up for the first time and saying aloud, 'What the heck' in maybe more colorful language."

After some discussions, brainstorming, redesigns and red-tape cutting, the PDV tests ultimately consisted of seven sled runs between fiscal 2013 and 2015, using the longest, heaviest sled ever used at SNORT. The SIAD sled also broke records, measuring 35 feet, making it the world's tallest rocket sled. For the PDV tests, a helicopter from VX-31 lifted the parachute up 4,000 feet, connected by a towrope and through a pulley to the rocket sled. When fired, the rocket sled produced 90,000 pounds of pull-down force, mimicking the stress the parachute would experience on the red planet.

"Watching Rob Manning and the JPL test manager enter entry, descent and landing phase, I had to reflect on our small but critical aspect of the mission," Aguilar said. "The thousands of hours of planning and



A helicopter from Air Test and Evaluation Squadron (VX) 31 lifts off with a test parachute in tow as part of early Parachute Design Verification (PDV) testing conducted by NASA and Jet Propulsion Laboratory (JPL) at China Lake, Calif.



U.S. Navy photos

A photo composite from PDV testing conducted at China Lake.

Rover Mission

detail, of fabricating the test tripod and rocket sleds and the design I put into the parachute release mechanism. Our collaboration, arguments, emotions and humanity went to successfully execute PDV testing. Then realize the scope of all the other teams that contributed to actually landing Perseverance on Mars; it is inspiring what humans can do with a common goal and aspiration.”

Petersen, who says his wife’s students cheered watching the landing, is excited to see what’s next for Perseverance.

“After a rough year, it’s wonderful to have a common source of inspiration,” he said. “There is so much more to learn, and the mission has just started!”

Kimberly Brown is a public affairs specialist with Naval Air Warfare Center Weapons Division. ✈️

Visit NASA’s YouTube channel for footage of the landing, including the parachute deployment at <https://www.youtube.com/watch?v=4czjS9h4Fpg>. You can learn more about the Perseverance’s mission at <https://mars.nasa.gov/mars2020/>.



Perseverance’s parachute deploys during its Feb. 18 landing on Mars.

Photo courtesy NASA/JPL

NAWCWD Supports JPL Landing Tech Update

Beginning in 2012, NASA and the Jet Propulsion Laboratory (JPL) began a test program to demonstrate new Entry Descent and Landing (EDL) technologies for landing on Mars. The goal is to be able to land heavier rovers more accurately and at higher altitude locations on Mars.

The two major efforts were the Supersonic Inflatable Aerodynamic Decelerator (SIAD) and the Parachute Design Verification (PDV) tests. JPL selected China Lake’s Supersonic Naval Ordnance Research Tracks (SNORT) and the Crew Systems Group to conduct their tests.

SIAD was part of the overall Low Density Supersonic Decelerator project for Mars lander aerodynamic decelerator technology development.

The goal of the SIAD design verification tests was to demonstrate an inflatable decelerator at same dynamic pressure as would occur at Mach 2 at high altitude on Mars (roughly 250 mph on Earth). The test required the world’s tallest rocket sled—35 feet to the top of the capsule—that weighed in at 50,000 pounds and was powered by six Nike rocket motors as it barreled down the SNORT.

Two types of Kevlar inflatables were tested in nine sled runs between fiscal 2012 and 2015. The SIAD-R used a doughnut-shaped inflatable around a heat shield; SIAD-E was shaped more like a shuttlecock. Its design required adding an extension to the front of the sled to accommodate the larger size. Both inflated as it traveled down the track using helium tanks inside the capsule, although SIAD-E also had air scoops on the front face to assist with inflation. —*Kimberly Brown*



U.S. Navy photo by Mark McCoy

The SIAD design verification tests required a sled powered by six Nike rocket motors, seen here in April 2014.



U.S. Navy photo

The shuttlecock-shaped SIAD rockets down NAWCWD’s Supersonic Naval Ordnance Track during a 2015 test.

U.S. Navy photo illustration by Fred Flerlage; photographic image courtesy NASA/JPL



U.S. Navy photo

The first E-2D Advanced Hawkeye to complete PMI-2 at Fleet Readiness Center Southwest prepares for its return to Airborne Command & Control Squadron (VAW) 120 on Jan. 22.

FRCSW Evaluates E-2D Process Improvements

By Jim Markle

To increase readiness and availability of the airframe to the fleet, Commander, Naval Air Forces (CNAF) recently directed a review of the E-2D Periodic Maintenance Interval (PMI) process.

Originally developed in the mid-1960s, the E-2D Advanced Hawkeye is the fourth variant manufactured by Northrop Grumman. It is technologically superior to its predecessors with state-of-the-art electronic and mechanical scanning radar, an integrated glass cockpit and advanced tactical workstations and mission computer.

Less than two years ago, Fleet Readiness Center Southwest (FRCSW) was instrumental in meeting the Secretary of the Navy's (SECNAV) directive to increase the number of mission-ready F/A-18 Super Hornets. Results included an FRCSW reduction in the number of Super Hornet Issue Priority Group 1 (IPG1) aircraft—aircraft down for a component—from 107 to 34 in just seven months.

As it did during the Super Hornet initiative, FRCSW will conduct the E-2D PMI review under the Naval Sustainment System-Aviation (NSS-A) in collaboration with industry and Naval Aviation Enterprise partners.

“The E-2D program took an active role embracing NSS-A,” said Joey Baesas, E2/C2 Production deputy program manager.

“As soon as [our industry partner] implemented NSS-A at Naval Air Station Lemoore, program leadership started implementing lessons learned from there. We will identify our constraints and inefficiencies and target those specific discrep-

ancies to either streamline our processes or resolve those issues, and possibly reduce the PMI cycle time of the E-2D,” he said.

The Fleet Support Team and the E-2/C-2 Airborne Command & Control Systems Program Office will join FRCSW managers, industry partners and artisans in analyzing tasks.

“Artisan contributions are a big part of the process. The knowledge and skill of the floor is where it starts,” Baesas said. “We have an immediate goal to reduce the PMI turnaround time (TAT) to 220 calendar days with additional reductions in the future, depending on tasks reductions in the specification.”

On the logistics and supply end, Baesas noted that the participation of Naval Supply Systems Command (NAVSUP), Defense Logistics Agency (DLA) and Maintenance, Repair and Operations (MRO) Logistics will significantly influence PMI TAT.

FRCSW performs two levels of scheduled maintenance on the airframe: a light periodic maintenance interval one (PMI-1) at FRCSW Site Point Mugu and FRC Mid-Atlantic, and PMI-2 at Naval Air Station North Island, California.

PMI is currently based upon a 96-month cycle with PMI-1 completed every 48 months, and PMI-2 completed 48 months later.

PMI-1 targets specific areas of the airframe (primarily the



tail) where artisans inspect for corrosion, cracks, mechanical and electrical issues.

Though not a complete overhaul, PMI-2 is a major disassembly of the aircraft to the fuselage. Artisans remove the wings, engines, landing gear and tail. The aircraft's corrosion preventive paint is removed and an in-depth metal assessment is performed targeting cracks, corrosion, exfoliation and other surface anomalies.

FRCSW is the Navy's sole provider of PMI-2 events on the E-2 airframe and operates a 154-member staff.

"Even though our capacity will increase, it may not coincide with increased aircraft inductions," Baesas said. "There are a limited number of E2-D in the naval inventory, and PMIs are specific to a calendar cycle and are only needed when the aircraft reaches

that cycle. However, we expect inductions to increase up to seven to nine per year. This future increase of inductions is part of the catalyst for decreasing TAT."

In the course of PMI-2 inspections, artisans often discover damage beyond the scope of the PMI specification. Repairs authorized by the customer are called in-service repairs (ISR) and often are completed during the PMI event.

"It is the nature of the beast of overhaul and repair when you tear down and build up any aircraft you will always find surprises. Sometimes ISRs are pre-planned with the PMI because the customer is comfortable with our capability in resolving those problems at our level," Baesas said.

Jim Markle is a public affairs specialist at Fleet Readiness Center Southwest. ✈️

FRCSW Prepares Legacy Hornet for CNAF Display

By Jim Markle

An F/A-18C Hornet that once belonged to the U.S. Navy Flight Demonstration Squadron found a new permanent home in April.

The legacy Hornet will serve as a pedestaled display in the courtyard of Commander, Naval Air Forces (CNAF) on Naval Air Station (NAS) North Island.

For more than 30 years, the Blue Angels have flown F/A-18A-D Hornets. This year they transitioned to the F/A-18E/F Super Hornet variants as they begin their 75th season highlighting the precise aerial maneuvers made possible by extensive naval training and teamwork.

The Hornet at CNAF was activated in 1988 and transferred to the Blue Angels in 2017 from Naval Aviation Warfighting Development Center (NAWDC) at NAS Fallon, Nevada. NAWDC is the Navy's hub for Naval Aviation training and tactics development.

In November 2020, it arrived at Fleet Readiness Center Southwest (FRCSW) for demilitarization from NAS Pensacola, Florida, where the Blue Angels are stationed.

"We have demilitarized aircraft numerous times to varying degrees. For a Hornet, it's mostly engine removals as

well as all explosive ordnance, fuel and hydraulic fluid," said Ehren Terbeek, FRCSW F/A-18 Legacy & E/F Program Manager.

The Hornet demilitarization procedure takes approximately one week and requires about six artisans from various trades including ordnance and mechanics. Overall,

the project will take about 300 hours to complete.

In January, FRCSW demilitarized another Blue Angels Legacy Hornet for transportation to the Pearl Harbor Aviation Museum in Hawaii.

Jim Markle is a public affairs specialist at Fleet Readiness Center Southwest. ✈️



A former Blue Angels Legacy F/A-18C Hornet is towed to the Fleet Readiness Center Southwest test line where its hydraulic fuel will be drained as part of the demilitarization process in preparation for its conversion to a pedestaled display in the courtyard of Commander, Naval Air Forces.



FRCE V-22 Line Sets Record Turnaround Time



U.S. Navy photo

A V-22 Osprey undergoes final inspections on the Fleet Readiness Center East (FRCE) flight line on Jan. 15. This aircraft's 297-day turnaround time set a new milestone for the V-22 production line at FRCE.

By Heather Wilburn

Every field of effort has a standard to beat. Track and field had the 4-minute mile. For baseball, the bar is 762 career home runs. For the V-22 Osprey production line at Fleet Readiness Center East (FRCE), there was the 300-day turnaround time for returning the aircraft to their fleet customers.

On Jan. 15, the V-22 line broke that elusive 300-day mark when the team returned its most recently completed aircraft in 297 days, well below the negotiated standard of 420 days.

Production supervisors have credited much of the decreased overhaul time to the line's recent adoption of a team concept. Under this new way of doing business, one airframes work leader is responsible for each aircraft, with the assistance of subject matter experts in the sheet metal and electrician trades. Together, these three experts make daily decisions on scheduling, parts and staffing needs.

"What it did was give us a driving force, a person who really knows what needs to be done on the aircraft and what is required to complete that task," said Don McLean, V-22 first-line supervisor. "At our daily morning briefings, the work leader shares the information with the team, and we assign artisans to work based on that day's needs. It keeps us laser focused on the line's priorities."

Parts are getting the same attention as personnel. The team maintains a spreadsheet detailing required parts and when they

will be needed in the process.

Supervisors say this long-view approach helps the team overcome potential obstacles before they become work stoppages.

"We're identifying long lead-time parts, and as we achieve our milestones on the aircraft, we can look ahead and say, 'We need this, when can we get it? And if we can't get it, how can we overcome that obstacle?'" said Matt Sinsel, V-22 production control coordinator. "We may have to find an engineering solution, locally manufacture a part or take the part from another aircraft. We work through our obstacles to keep aircraft on track."

Program leaders have predicted that turnaround times of less than 300 days will become more common on the V-22 line in the near future, due to improved parts availability and increased staffing

of aviation professionals. The line's ultimate goal is to meet the fleet's demands for aircraft in 250 days.

Andrew Rock, FRCE V-22 branch head, said that goal is attainable by working with the Defense Logistics Agency and the Naval Supply Systems Command, as well as applying more aviation maintenance professionals to each aircraft.

"Our negotiated turnaround time with Naval Air Systems Command is 420 days, but our target turnaround time to meet fleet demand is 250 days. There's a huge difference in what the negotiated demand is and what we are now being asked to do," Rock said. "Obviously, in order to do that, material must be available when it is needed and you have to apply more manpower, so we are currently in a ramp up to get the manpower on board, to get them trained, and then, regardless of the material condition of the aircraft, I think 250 days is attainable for most aircraft."

Supervisors said the new team concept and the success it has produced has energized employees, and they predict the team will shatter other milestones in the future.

"This achievement tells me the entire V-22 team has bought in," said Rock, crediting the artisans, estimators and evaluators, quality assurance, production controllers and local manufacturing with contributing to the program's success. "The entire team takes pride in what they do. Everyone is determined to meet all the goals this command throws at them, and so far they have done it."

Heather Wilburn is a public affairs specialist with Fleet Readiness Center East. 🦅

Read Well to Lead Well

Chief of Naval Operations (CNO) Adm. Mike Gilday released an update to the CNO Professional Reading Program on Feb. 23. The goal of the program is to help Sailors extend their personal and professional development beyond that of their primary designator and ratings.

“It is critically important for our Navy to be a learning organization,” Gilday said. “One of the very best ways to do that is to foster an environment where every Sailor deepens their level of understanding, learning and leadership skills. That’s why this book list is so important.”

With a motto of “Read well to lead well,” this updated reading list aims to accomplish the following:

- Enhance professionalism and improve critical thinking skills
- Foster a deep appreciation for naval and military history and heritage
- Increase knowledge of joint warfighting and strengthen Sailors’ ability to make sound judgments
- Develop a greater appreciation of the views of others and a better understanding of our changing world
- Encourage discussion about the maritime profession and the ever-evolving role of seapower in today’s day and age

“Make no mistake, to outthink our competitors today, we must study and apply lessons we’ve learned from our past,” Gilday said.

This CNO-Professional Reading Program includes 53 titles organized into four key lines of effort: Readiness, Capabilities, Capacity and Sailors. Additionally, they are subdivided into tiers of foundational, advanced and capstone, indicating which books are appropriate during various stages of a Sailor’s career.

Master Chief Petty Officer of the Navy (MCPON) Russell Smith also identified 21 additional books as suggested reading.

“Reading is a fundamental staple in the growth and development of any leader,” Smith said. “For this list, the titles included were methodically chosen in order to provide a specific focus on targeted areas for reinforcement, a focus that will provide

enlisted Sailors the greatest benefit given our role in the organization.

“A focus on team dynamics, on seeking innovative solutions, on leveraging the incredible strengths inherent in the diversity of our enlisted force, and the virtues of altruistic service to a cause greater than ourselves—these are the things that enable the enlisted force to execute the vision of our commanders, leading to unit success and our Navy prevailing in combat when called upon.”

Both CNO’s and MCPON’s lists provide a mix of writing genres including fiction, non-fiction, military, strategy, management and technology, among others. Most of the 74 books are available at no cost to Sailors in both E-book or digital audio format from the Navy MWR digital library collection.

From Chief of Naval Operations. ✨

“Make no mistake, to outthink our competitors today, we must study and apply lessons we’ve learned from our past.”

Directions on how to sign up for an account and access these books are available at the CNO Reading Program website:

<http://www.navy.mil/CNO-Professional-Reading-Program>

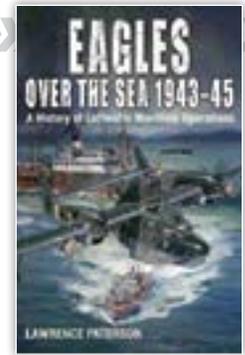
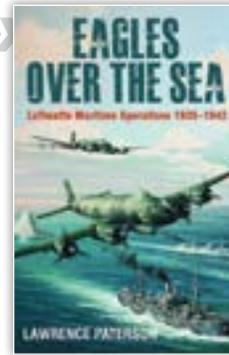
Eligible patrons can download the books through: <https://www.navymwr.digitallibrary.org>

Professional Reading

By Cmdr. Peter Mersky, USNR (Ret.)

Eagles Over the Sea, 1935-42, A History of Luftwaffe Maritime Operations and Eagles Over the Sea, 1943-45, A History of Luftwaffe Maritime Operations.

By Lawrence Paterson, Seaforth Publishing, Barnsley, U.K.,
and U.S. Naval Institute, Annapolis, Md., 2019 and 2020.



This is an epic two-volume set that required years of meticulous and dedicated research that, so far as I know, has no rival. With facts, figures and personal accounts and opinions by participants both German and Allied, the books establish the author as one of the post-war's researchers and writers on a level with Gordon Prange and Walter Lord whose several works on Pearl Harbor and Midway have set their own level of expertise for many years.

While seekers of knowledge and expertise about German aerial operations and their related aircraft have gained oft-repeated stories about the Bf 109, He 111, Fw 190 and various Dornier and Heinkel bombers and water-borne aircraft, their understanding of these aircraft, their flight crews and related operations in the Atlantic and Mediterranean theaters has

been sadly lacking. The closely-woven relationships of the Nazi navy, both surface and sub-surface with these more familiar aircraft and crews has also been missing in large part and only mentioned in magazine articles and occasional brief monograph treatments. But that gaping hole of coverage has been filled by a very capable writer and the enthusiast for such information may look no further.

The first book begins with initial developments in World War I. The armistice of WWI prohibited German military aviation from reappearing until the rise of Hitler and the Nazi regime who ignored the Treaty of Versailles and announced the rebirth of a German defense force, all watched by a sleepy, unbelieving world dealing with the effects of the Great Depression.

A selection of period documents and

photos from German magazines and archives is good, but I wish some of the photos of the little-known aircraft could have been a bit larger. The jacket paintings are both very good and show the Fw 200 and Bv 138 in action that certainly support the highly-detailed text they support.

The author goes to some lengths to explain the complex nomenclature of German designation and rank structure, as well as the many Luftwaffe groups and squadrons and their different types of aircraft and missions, which is understandable as these subjects can be hard for a layman to comprehend no matter how often he has read any book or article on how the Germans arranged things. But Mr. Paterson does a very fine job of bringing it all together, and any reader should gain an excellent education of how the German forces operated.



An SC250 fragmentation bomb load being prepared for an Fw 200 Condor of KG 40.



A torpedo-carrying Heinkel He 111H-18 with FuG 200 'Hohentwiel' ship-search radar.



An He 60 escorts Nationalist flying boats. Editor's note: During the Spanish Civil War (1936-1939), Germany supported the Nationalist rebels against the Republicans of the existing government. The Nationalists won and established a new government that remained relatively neutral during the war.



An Arado 196A-5 two-seat ship-board reconnaissance and coastal patrol floatplane missing its rudder, originally stationed aboard the cruiser Prinz Eugen but taken by the U.S. Navy after the war and shown here on outdoor display at Naval Air Station Willow Grove, Pennsylvania, in April 1972, where this reviewer saw it while on reserve duty. The aircraft was later restored and is now on display at the Nordholz German Maritime Aviation Museum 220 miles west of Berlin. Note the F7U Cutlass on the right.



The close confines of a Ju 88 cockpit in action. At right is the pilot, left the observer/bombardier, at the back is the wireless operator/rear gunner. The photograph was probably taken by the fourth crewman, the flight engineer/lower gunner.



An Ar 196 being recovered from the sea.

What I find both amazing and satisfying is how much and how well the author brings together all the several lesser-known types of aircraft and highlights their careers. There is very little Bf 109 material, no aces, but there is a lot about the big He 59 biplane floatplanes and the role they played, not only in their probably most famous use as search-and-rescue aircraft in the Battle of Britain, but also in the seldom-described campaigns in the northern Atlantic along the truly cold, barren coasts of the European continent that escaped coverage in the war.

Then, there is surprising role of the famous He 111 horizontal bomber as a torpedo bomber that enjoyed some success against British and occasionally Ameri-

can shipping. The highly publicized Fw 200 Condor—the scourge of the hard-pressed convoys on the run to the UK and Murmansk to supply the besieged British and Soviet Union forces—played perhaps a larger role farther to the north that never received the publicity that “Eagles Over the Sea” gives the one-time- airliner-turned maritime patrol bomber.

Likewise, the two floatplane scouts, the Heinkel He 60 and the Arado Ar 196, which enjoyed fairly successful careers also receive in-depth coverage that shows their important roles in the Luftwaffe’s and Nazi navy’s war at sea. And the larger seaplanes, the Dornier 18 and Heinkel 115 floatplane, also receive major coverage.

The activity of Royal Air Force (RAF) fighters, especially the legendary Spitfire against the busy German units, has seldom been described and shows a little-known aspect of the early European war over the water.

I am always amazed at how strong was the initial German campaign against Allied forces throughout Europe from Poland and even after the D-Day landings in June 1944. The war might have been turned to Berlin’s advantage to the point of seeking a negotiated settlement with Washington and London, if not Moscow, by the simple use of weapons such as the V-1 and V-2, not to mention the Me 262, had not Hitler and his remaining generals been more attuned to fighting the war to a



A Blohm und Voss Bv 138 is prepared with depth charges for an anti-submarine mission over the Black Sea. The tender at left was locally commandeered for Luftwaffe service.



The rather bizarre 'Mistel' ship-killer concept that made its debut at Normandy to little effect. Editor's note: The controller Bf 109 atop a Ju 88 filled with bombs and fuel.

stalemate and pushing the production of these new instruments of war, even as the increased use of strategic bombing by the USAAF and RAF was razing cities to the ground.

Indeed, it wasn't until infantry and armored forces had pushed past the French hedgerows and into the heart of Europe toward the German borders had the war's outcome become uncertain from the Nazi point of view. Yet, the war at sea continued even as the German Navy, especially its once formidable submarine fleet, was beginning to founder in the depths of the Atlantic.

The Norwegian campaign of April 1940 is described in detail with fighting between British and German units, a see-saw battle with British Forces stretched to their limit. The little Ar 196 floatplane saw lots of action including anti-submarine patrols that resulted in the capture of a Royal Navy submarine that eventually sank after its crew had been captured and removed from the sub.

The author highlights the problems with coordinating Luftwaffe interaction with U-boats. Generalfeldmarschall Hugo Sperrle, commanding Luftflotte 3 in France, was a hindrance throughout the war, threatening to take back control of the Fw 200 Condor from Grossadm. Karl Donitz, commanding the U-boat force (who was to succeed Hitler as head of the Third Reich in May 1945, after Hitler committed suicide), which often ended up with missed kills of Allied ships.

Volume 2 describes the late-war period 1943-45, featuring the U.S. involvement in the European war, especially the Atlantic war at sea. At this time, Germany increased its aerial involvement and spread out into the Atlantic, actively helping to coordinate U-boat attacks against the increasing number of convoys bringing much-needed supplies to Britain and the Soviet Union. Replacements for the obsolescent Fw 200 Condor were under development, especially the trouble-plagued Heinkel 177 Grief. The Grief was Germany's attempt at creating a heavy bomber that carried four engines, two linked together in huge wing nacelles that inhibited the big aircraft as it entered limited service. The situation brought down the wrath of Herman Goering, head of the Luftwaffe, responsible only to Hitler, against the head and namesake of the Heinkel company.

The author borrows from documents and quotes from many personalities, flight crews, leaders and officials to give his text color and depth as he details the continued use of outmoded but still useful types like the He 59 biplane floatplane and the He 111 bomber's use as a torpedo bomber.

The detail on the operations in northern Europe is unique and new to me, such as the Nazi Navy's role is also new and fills gaps in the coverage of that period. The involvement of American carriers such as the Ranger (CV-4) with details of British Mosquitos are also included in a context not often shown,

especially to American readers, which is new coverage especially welcome in this excellent history. The use of Bv 138 flying boats is also somewhat new.

Part of the text deals with the lack of trust and cooperation between Goering, Hitler and individual branches, which doomed long-range plans and perhaps that's what really lost the war for Germany.

The last chapters of Vol. 2 deal with the increasing loss of power and territory as the Luftwaffe and Navy forces struggled against the increasing Allied presence over the sea lanes. New aircraft but new untried crews and tactics could not keep the Germans' hold and domination on all they had conquered in the early years of the war. The introduction of new missiles like the Hs 293 glider bomb which, while promising, were just not enough in numbers to launch in daily operations in late 1944 and early 1945 or were the numbers of modified launch platforms like Dornier Do 217 bombers that were still in service, sufficient numbers of which were never enough even in their original roles of the mid-war years.

Throughout these two volumes of outstanding work by Paterson, detailed descriptions of various Luftwaffe aircraft are the best I have seen in many previous efforts, and shows what workhorses these little-known aircraft truly were flown by their dedicated crews who might have felt hampered by the bureaucracies of their high-ranking leaders so far removed in Berlin. 🐦

Squadron Spotlight

Fleet Logistics Multi-Mission Squadron (VRM) 30

Established: Oct. 1, 2018

Based: Naval Air Station North Island, San Diego, California

Commanding Officer:

Cmdr. Steve “Sparky” Parente

Mission: Conduct high-priority cargo and passenger transport services, surface air rescue and airdrop delivery in support of carrier strike groups (CSGs) and naval task forces.

Brief History: Representing the future of Naval Aviation logistics, the “Titans” of VRM-30, the Navy’s first V-22 squadron, is one of few Naval Aviation Enterprise units to build a community from the ground up. The squadron’s hand-selected team coalesced from a wide variety of backgrounds to prepare for delivery of the fleet’s first CMV-22 Osprey aircraft and subsequent operational tasking. Founded one year ahead of the VRM Type Wing, it also shaped the VRM culture and its values. Drawing on the diverse experiences of his Sailors, inaugural Skipper, Cmdr. Trevor “PeeWee” Hermann, prepared the Titans to provide logistical support to the CSGs at sea, inheriting the carrier onboard delivery (COD) mission from the venerable C-2A Greyhound.

Over the next 18 months, VRM-30 personnel integrated across eight Marine Corps MV-22 squadrons to learn critical maintenance skills and gain aircrew experience. Integration with Marine Corps squadrons included deployed operations to Ahmad al-Jaber Air Base, Kuwait, where three separate VRM-30 detachments served in support of their host squadrons and Operation Inherent Resolve.

In June 2020, VRM-30 received its first aircraft from the Bell-Boeing team, with five more to follow in quick succession. With its



newly acquired assets, VRM-30 began exercising and honing its skills, earning its Safe-for-Flight certification in September 2020.

On Oct. 8, 2020, Cmdr. Steven “Sparky” Parente relieved Hermann as Commanding Officer at VRM-30’s first change of command. Hermann’s philosophy was to “Crawl-Walk-Run” toward fleet integration. Parente was tasked with leading the squadron into the “Run” phase—employing the CMV-22 operationally and conducting the COD mission.

Aircraft Flown: CMV-22

Number of People in Unit: 228 military, 26 contractors

Significant Accomplishments: VRM-30 achieved day and night air-to-air refueling qualifications with a KC-130 Hercules, flew multiple cross-country flights and conducted initial carrier qualifications aboard multiple aircraft carriers. VRM-30 also executed paratroops with both the U.S. Navy Parachute Team and the Leap Frogs and facilitated the transit of six MH-60S aircraft to NAS Fallon, Nevada, serving as an organic ground refueling platform in a remote location.

Titan pilots and crew chiefs trained and operated with the aircraft carrier for the first time while supporting Tailored Ship’s Training Availability (TSTA) for USS Carl Vinson (CVN 70). Ashore, the maintenance team worked tirelessly to ensure aircraft readiness for the logistics missions assigned. During TSTA, the Titans completed myriad operational test evolutions, including the first at-sea delivery of an F-35C Power Module to a carrier, and conducted Aviation Delivered Ground Refueling to a variety of airwing aircraft. VRM-30 assumed full responsibility for providing at-sea logistics for the for CSG-1, flawlessly executing 100 percent of its missions on time, delivering 23,000 pounds of high-priority cargo and 140 passengers.

This summer, VRM-30 is expected to deploy its first detachment of three aircraft in support of CSG-1.



U.S. Navy photo

WE ARE NAVAL AVIATION

Operations Specialist 2nd Class Daniela Mireles, left,
and OS2 Haley Fuentes, LHD-3



NAVAL AVIATION NEWS

NAVAIR Public Affairs Office ■ 47123 Buse Road, Building 2272, Suite 346 ■ Patuxent River, MD 20670 ■ navalaviationnews.navylive.dodlive.mil