

NAVAL AVIATION NEWS

THE FLAGSHIP PUBLICATION OF NAVAL AVIATION SINCE 1917

WINTER 2019

First Operational F-35C Squadron **READY to WIN**



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- ▶ Flightline: Air Boss on Readiness Reform
- ▶ Blue Angels Transition to Super Hornets
- ▶ HMS Queen Elizabeth Eclipses Aspirations



An EA-18G Growler, assigned to the "Rooks" of Electronic Attack Squadron (VAQ) 137, prepares to launch from aircraft carrier USS Harry S. Truman (CVN 75).

U.S. Navy photo by MC Joseph A.D. Phillips

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ON THE COVER



On the cover: Two F-35C Lightning IIs, attached to the "Argonauts" of Strike Fighter Squadron (VFA) 147, fly in formation. VFA-147 is the Navy's first operational F-35C squadron and is based out of Naval Air Station Lemoore, Calif. (U.S. Navy photo by Chief MC Shannon E. Renfroe)

Readiness is the focus of this issue. The first F-35C Lightning II squadron, the "Argonauts" of Strike Fighter Squadron (VFA) 147, has obtained their safe-for-flight certification and the Navy expects to declare initial operating capability later in February, page 18. In Flightline, page 4, Vice Adm. Dewolfe Miller, commander, Naval Air Forces, elaborates on Naval Aviation's initiatives that take advantage of every opportunity to accelerate, improve and sustain readiness recovery. Several articles highlight recent readiness accomplishments such as the improvements at the Hydraulics Shop at Fleet Readiness Center Southwest, page 31, and the contributions Navy Reserve Sailors are making at FRCs across the country.

On the back cover: Cpl. Jonathan Lukachinsky inspects the rotor of a CH-53E Super Stallion helicopter on the flight deck of Wasp-class amphibious assault ship USS Kearsarge (LHD 3). (U.S. Navy photo by MC2 Ryre Arciaga)

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Flightline

Air Boss on Readiness Reform

Editor's note: The following is a summary of the recent *Naval Aviation Enterprise (NAE)* podcast by Vice Adm. DeWolfe H. Miller, III, Commander, Naval Air Forces (CNAF).

When I think about Naval Aviation, I reflect on our history, our recent deployments and our bright future. We continue to excel and make a difference in the world.

We are experiencing dynamic force employment and continue to increase the lethality of our weapon systems. Aircraft transitions play a big part of that and continue to progress nicely. These include moving from the P-3C Orion into the P-8A Poseidon and from the E-2C Hawkeye into the E-2D Advanced Hawkeye. Additionally, our first F-35C Lightning II squadron, Strike Fighter Squadron (VFA) 147, was declared safe for flight and is preparing for its first deployment, we recently commissioned our first CMV-22 squadron and we awarded the contract for the MQ-25 carrier-based unmanned tanker.

The quality of the people that make up Naval Aviation continues to impress me; they are the lifeblood of our force. The mission of CNAF—to man, train and equip deployable, combat-ready Naval Aviation forces that win in combat—requires that we provide our warfighters and everyone supporting them with the best training and equipment possible. We need to dedicate ourselves to do that with a sense of urgency.

As I look back on my first year as Air Boss, I characterize it as a year of discovery and alignment. Now that we are in year two, the actions we have taken are gaining traction and will enable us to rapidly improve and sustain much higher levels of readiness. I look at this year, 2019, as the year of results.

While I feel good about the state of Naval Aviation and its future, readiness is not where it needs to be for today's combat environment. Improving readiness remains our main focus across the entire NAE—from leaders, to Sailors and Marines, to our civilian engineers and artisans, to our industry partners. To use a sports analogy, I see myself as the head coach. During the past year, I saw team members doing their jobs well but not necessarily with the understanding of how their work contributes to the overall effort of the team.

We've spent a lot of time aligning all of our activities so every person in the NAE understands how what they do on a daily basis contributes toward achieving our goals across every aircraft series we fly. The most pressing focus is building 341 mission-capable, lethal Super Hornet aircraft that can fight and win tonight, but it is only one aircraft across Naval Aviation and there are goals for everyone. Our metrics are aligned enterprise-wide, and we have clear expectations that we communicate through regular drumbeat briefings, Air Plans, podcasts and Naval Aviation News.

I am also listening to the fleet voice—on the flight line and in the aviation

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depots, as barriers are elevated to leadership so that we can resolve them. This is all part of effective communication. I've heard a number of times during Boots-on-the-Ground events that if the Sailors, Marines or artisans just had this one tool or this one piece of gear, their jobs would be easier, and they'd be more effective. The first step to taking action on these challenges is hearing about them and understanding what is required. Clear communication and expectations give us all the same goals and allow us to work as a team. To that end, I want to elaborate on two initiatives underway: Performance to Plan (P2P) and the Naval Sustainment Systems (NSS).

Performance to Plan

NAE leaders are using a P2P approach to recover readiness levels. It has changed the way everyone approaches their jobs because they know they're being measured, and their performance is being briefed up the chain of command.

As the supported commander, I am the single person accountable for the readiness of Naval Aviation. P2P aligns all stakeholders, including Naval Supply Systems Command (NAVSUP) supply experts and Naval Air Systems Command (NAVAIR) engineering, logistics and artisan experts, and our Type Wing and squadron Sailors and Marines so we are all working toward the same goals. As the head coach, I am responsible for the performance of the team.

We have set ourselves up for success by including and adopting data analytics to help underpin the decisions we make. Since we expect some efforts to be more fruitful than others, we want to make sure we're pulling the right levers with the proper focus to get the maximum gain from our investment of time and dollars.

Having a plan, then regularly checking our performance against it is the best way to get us to where we need to be. We have regular drumbeat briefings that look at what we're doing at our squadrons, in



Vice Adm. DeWolfe Miller, commander, Naval Air Forces, speaks over the 1MC on the bridge of forward-deployed aircraft carrier USS Ronald Reagan (CVN 76) in August.

supply and at our Fleet Readiness Centers (FRCs). Leaders and champions of the various enterprise pillars get a chance to brief and say, "Here's my organization's plan. Here's how we're performing to that plan. Here's what we're learning, and here's where we need your help."

Naval Sustainment Systems

In conjunction with P2P, the NSS initiative is leveraging best practices from commercial industry to help us reform aspects of our FRCs, organizational-level maintenance, supply chain, engineering and maintenance organizations, and our governance processes.

We've hired industry leaders to help us with this holistic reform effort that involves people, parts, processes and governance across the NAE. The NSS initiative helps ensure we are aligned and also more transparent and more aware of what every other contributing stakeholder is doing and how each of their roles contributes to readiness.

The NSS is concentrating on getting the Navy Super Hornet fleet healthy again. We are focusing on the Super Hornet fleet first for two reasons: one, they have operated at a higher operational tempo than most other aircraft over the last 17 years; and

two, this platform is critical for executing the high-end fight and supporting our troops on the ground.

But it's not just Super Hornets. In November, the Secretary of Defense directed all the services with fighter and strike fighter aircraft—the Air Force, Navy and Marine Corps—to achieve an 80-percent mission-capable rate across their warfighting squadrons. While we had already started on that initiative, this directive acknowledges the importance of every aircraft and the need to apply all learning from this initial work in applying the NSS to every Navy and Marine Corps aircraft.

We have already seen success with NSS. We reformed how select work flows through the depot production lines and have implemented a more visual way to track that flow. These changes mean that at any time, you can walk into the hydraulic workshop at FRC Southwest (FRCSW) and see a diagram of their work in progress. The diagram shows current status of every part and where the shop has encountered an issue and whether it is a supply or engineering issue. This allows managers to easily see and address issues immediately. We swarm that problem, we fix it, and the work continues to flow.

When you visit the landing gear shop at FRCSW, you see the same visual workflow and are able to identify the barrier or impediment there as well. Again, we can swarm, fix and improve.

We've already seen a 50-percent reduction in turnaround time in the two shops, and that translates to meeting the needs on the flight lines.

We are employing the same process at Naval Air Station Lemoore, Calif., at the FRC West (FRCW). I visited FRCW in December, and within 15 seconds of entering the production control center, I saw a stack of papers in one area of the work flow depiction and I knew immediately that was where the problem existed. I said, "Okay, we have a problem there. What is it?" That instant awareness helps everyone know where to focus their efforts.

They said, "Here's our problem. We don't have enough engineers, and that's why we have a backlog in engineering." I said, "Okay, what do you need?" They responded, "Well sir, we need three stress engineers full-time so we can work off

this backlog." NAVAIR quickly responded, and we have three stress engineers in FRCW today making a difference.

It's exciting to learn that we are currently exceeding our predicted gains. As we learn, we are raising the bar even

higher. This gives me great hope as I look at our P2P metrics and reform our practices under the NSS. All of it is contributing to greater readiness across Naval Aviation. We are winning today, and we will win well into the future. 🦅

Naval Sustainment System

The NSS plan is organized into six foundational pillars:

1. A surge/aircraft-on-ground (AOG) cell brings together experts from all lines of support to quickly fix constraints of short-term down aircraft. The concept has already proven successful in the commercial realm, and promises four major benefits: reducing turnaround time, fostering strategic partnerships, increasing predictability and encouraging a more productive organization.
2. Fleet Readiness Center (FRC) reform is intended to create elite-level, organic facilities that will adopt proven commercial practices to maximize quality and cost efficiency while minimizing cycle times.
3. Organizational-level reform is designed to balance demand with maximized maintenance performance close to the flight line while improving safety.
4. Supply chain reform integrates various stakeholders into a single accountable entity responsible for the end-to-end material process. This change will provide the right parts to the right place at the right time.
5. Engineering and maintenance reform will develop an engineering-driven reliability process that improves how systems are sustained.
6. Governance, accountability and organization are combined and designed as a single point of accountability for sustainment with the infrastructure to better support fundamental changes.

Vice Adm. DeWolfe Miller III grew up in York, Pennsylvania, and graduated from the U.S. Naval Academy in 1981. He holds a Master of Science from the National Defense University and is a Syracuse University national security management fellow and graduate of the Navy's Nuclear Power Program.

His operational assignments include Training Squadron (VT) 19 in Meridian, Mississippi; Attack Squadron (VA) 56 aboard USS Midway (CV 41); Strike Fighter Squadron (VFA) 25 on USS Constellation (CV 64); VFA-131 and VFA-34 aboard USS Dwight D. Eisenhower (CVN 69); executive officer of USS Carl Vinson (CVN 70); Commanding Officer of USS Nashville (LPD 13); Commanding Officer of USS George H.W. Bush (CVN 77); and, as a flag officer, commander of Carrier Strike Group (CSG) 2, where he participated in combat Operations Enduring Freedom and Inherent Resolve.

Miller's shore tours include Air Test and Evaluation Squadron (VX) 5; aviation programs analyst Office of the Chief of Naval Operations (OPNAV N80); Strike Fighter Weapons School Atlantic; deputy director of naval operations at the Combined Air Operations Center during Operation Allied Force; Office of Legislative Affairs for the Secretary of Defense; aircraft carrier requirements officer for Commander, Naval Air Forces; and flag officer tours in OPNAV as director for Intelligence, Surveillance and Reconnaissance (N2N6F2); assistant deputy chief of naval operations for Warfare Systems (N9B); and most recently as director, Air Warfare (N98).

Miller became Naval Aviation's 8th "Air Boss" in January 2018.

He has earned the Defense Superior Service Medal, Legion of Merit, Bronze Star, Meritorious Service Medal, Air Medal and other personal, unit and service awards. 🦅



U.S. Navy photo by Gulianna Dunn

Grampaw Pettibone

In Memorium Ted Wilbur

Edward "Ted" Wilbur, who served 35 years in the Navy and became known to our readers as the longtime illustrator of Grampaw Pettibone, died Nov. 14. He was 89.

Wilbur joined the Navy as part of the Flying Midshipmen program and attended Villanova University for two years before reporting to flight training in Pensacola, Florida. He earned his wings in 1950 and went on to serve as an aviator, recording more than 5,000 flight hours and 600 landings aboard 36 aircraft carriers.

Among his accomplishments, Wilbur served as the carrier-onboard-delivery detachment officer supporting the nation's first manned space flight May 5, 1961, flying astronaut Alan Shepard from USS Lake Champlain (CVS-39) to the Bahamas.

After his flying days were over, Wilbur left his mark as an artist, writer and editor. He was the founding staff artist for Approach, the Navy and Marine Corps' aviation safety magazine. He later covered the Navy's Vanguard and Polaris missile programs as a combat artist, and also painted nuclear submarines.

In 1967, Wilbur arrived in Washington, D.C., as the editor of Naval Aviation News. During construction of the National Air and Space Museum, he served as the Navy's project officer for the museum's Sea-Air Hall.

Wilbur retired from the Navy in 1981 as head of Naval Aviation News and the Naval Aviation Periodicals and History office. He returned to the magazine's pages in 1994 as the illustrator for its safety sage, Grampaw Pettibone, inheriting the character from creator Robert Osborn.

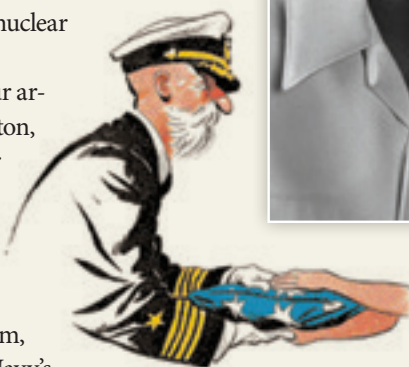
Wilbur's paintings have been exhibited internationally as well as at the National Air and Space Museum and the National Museum of Naval Aviation in Pensacola.

Wilbur's military honors include the Navy Occupation Medal (Europe), National Defense Service Medal, Armed Forces Reserve Medal, World War II Victory Medal, Navy Commendation Medal and the Legion of Merit.

Written by Jeff Newman, staff writer for Naval Aviation News. 🐦



Photo courtesy Ted Wilbur family





U.S. Navy photo

Navy Conducts Unprecedented Flyover for Former President George H.W. Bush

Naval aviators from various commands under Commander, Strike Fighter Wing Atlantic, and Commander, Naval Air Force Atlantic, operating out of Naval Air Station Oceana, Va., fly a 21-jet missing man formation over the George Bush Library and Museum at the interment ceremony for the late President George H.W. Bush.

COLLEGE STATION, Texas—A ceremonial flyover may be nothing new for naval aviators, but the flyover Dec. 6 was a first for the Navy.

At approximately 4:15 p.m. (CST), aviators from various squadrons assigned to Commander, Strike Fighter Wing Atlantic (CSFWL) and Commander, Naval Air Force Atlantic (CNAL) flew an unprecedented 21-jet flyover at the George H.W. Bush Presidential Library to honor the former naval aviator and president at his interment in College Station.

After six days of national mourning, the ceremony served as the third and final stage of a state funeral for former President George H.W. Bush, who was laid to rest alongside his wife of 72 years, former first lady Barbara Bush, and their late daughter, Robin.

Planning a state funeral typically begins around the time of a president's inauguration; however, executing that plan may not happen for decades.

The CNAL operations team, led by Capt. Peter Hagge, was responsible for the 21-jet flyover planned for Bush's funeral service.

"Before I even checked in to [CNAL] a year and a half ago, this plan was in place," Hagge said.

After the former first lady's passing April 17, 2018, Hagge and the CNAL team coordi-

nated with CSFWL to start preparing for the former president's funeral. On Nov. 30, both teams snapped to action, working with Joint Reserve Base (JRB) Fort Worth and the commanding officer, executive officer and operations officer to ensure there was ramp space and hangar maintenance facilities.

"Cutting orders for the aircrew and all 50 maintainers and the other administrative details was the easy part," Hagge said. "The tactical level detail was a lot more complex."

All told, 30 jets made the trip to JRB Fort Worth, in addition to the ground team on station at the presidential library. The extra nine jets served as backups: five airborne spares, with four more ready on the ground.

Cmdr. Justin Rubino, assigned to CNAL, served as the forward air controller on the ground. He remained in radio contact with the aircraft to match the flyover's timing with the funeral events on the ground.

"I like the responsibility and feel like I had the most direct role in ensuring success—other than the aircraft, of course," Rubino said. "I like being the 'point person,' communicating what's happening on the ground, relaying that information and directing when the flyover occurs."

Rubino coordinates all of CNAL's flyovers, but this one was unique.

Participating Squadrons

The following Strike Fighter Squadrons (VFA) participated in the 21-jet flyover:

- VFA-103, the "Jolly Rogers"
- VFA-143, the "Pukin' Dogs"
- VFA-32, the "Swordsmen"
- VFA-83, the "Rampagers"
- VFA-131, the "Wildcats"
- VFA-105, the "Gunslingers"
- VFA-31, the "Tomcatters"
- VFA-87, the "Golden Warriors"

"It's special, because not only was he the 41st president, but he was also a naval aviator," Rubino said. "He flew off aircraft carriers just like we do today, and that's a bond all of us share. He's one of us. Sure, he was the president of the United States, yes, but he was also a naval aviator."

Coordinating a nationally televised, 21-jet flyover for a state funeral is no small task, but Hagge remains humble, giving much of the credit to the Joint Task Force National Capitol Region, which was responsible for the overall planning.

"As far as the complexity goes, for us, we are a really small portion of an incredibly complex machine," Hagge explained.

The "small portion" included executing the Navy's first 21-jet formation that originated from a preexisting Air Force formation.

"We pretty much took the Air Force plan and put a little Navy spin on it," Rubino said.

That spin included changing the distance between the aircraft and altering the formation to a diamond shape for the first four jets. The last formation used the standard "fingertip formation" to do the missing-man pull.

Hagge and his team were honored to support.

"A funeral is a family's darkest hour, and a flyover—an opportunity where we can support them in a time of mourning—means the world to them," Hagge said. "But this one, I think, means the world to our nation."

Written by Mass Communication Specialist 1st Class Christopher Lindahl, Commander, Naval Air Force Atlantic Public Affairs. 🌿



An F/A-18 Super Hornet, assigned to the "Tomcatters" of Strike Fighter Squadron (VFA) 31, departs from Naval Air Station Fort Worth Joint Reserve Base, Texas, to participate in the 21-aircraft flyover.

Prior to President, a Hero

Forty-six years before he was elected the 41st President of the United States, George H.W. Bush celebrated his 18th birthday by graduating from high school and immediately enlisting in the Navy.

Inspired to serve by the attack on Pearl Harbor six months prior, Bush aspired to be an aviator. He completed a 10-month



Photo courtesy of Naval History and Heritage Command

Navy Pilot George H.W. Bush

preflight training course and was commissioned as an ensign in the U.S. Naval Reserve on June 9, 1943, three days before his 19th birthday.

That September, following flight training, Bush was assigned to Torpedo Squadron (VT) 51 as a photographic officer. Flying off USS San Jacinto beginning

in the spring of 1944, Bush participated in operations against Marcus and Wake Islands, the Marianas and the Bonin Islands.

On Sept. 2, 1944, Bush piloted one of four TBM Avenger torpedo bombers that attacked Japanese targets on Chi Chi Jima. At the beginning of the raid, Bush's bomber was hit and his engine caught fire. He completed the attack anyway, dropping his bombs on target before flying several miles away from the island, where he bailed from the aircraft. Another crew member fell to his death after his chute failed to open.

After four hours spent in an inflatable raft, Bush was rescued by the lifeguard submarine USS Finback, where he remained for a month helping to rescue other pilots.

Bush returned to San Jacinto that November and flew in operations against the Philippines. When the ship returned to Guam, VT-51, which had suffered a 50-percent casualty rate among its pilots, was replaced and sent back to the U.S.

In total, Bush flew 58 combat missions in 1944, for which he received the Distinguished Flying Cross, three Air Medals and the Presidential Unit Citation awarded to San Jacinto.

Bush was reassigned to a training wing for new torpedo pilots in Norfolk, Virginia, and ultimately as a pilot to VT-153 in March 1945 before being honorably discharged in the weeks following Japan's surrender on Sept. 2, 1945. He then enrolled at Yale University, a lifetime of service still ahead of him.

Source: Naval History and Heritage Command. 🌿

HSC-3 Achieves 300,000 Mishap-Free Flight Hours

SAN DIEGO, Calif.—The “Merlins” of Helicopter Sea Combat Squadron (HSC) 3 achieved a major milestone Oct. 25 when they crossed the threshold of 300,000 flight hours without a Class-A mishap. The squadron has maintained continuous flight operations since it last recorded a Class-A mishap in July 1974.

Four pilots and five aircrew members flying two helicopters achieved the milestone during a dual-ship nighttime low-level formation flight.

“I’m proud and excited to be part of a squadron that has hit such an amazing milestone,” said Lt. Kristin Bowen, a helicopter aircraft commander. “It’s saying a lot about how hard our instructors and maintainers work on a daily basis.”

Based at Naval Air Station North Island, California, the Merlins have distinguished themselves throughout their history by providing mission readiness with an unparalleled safety record, most recently being awarded the 2016 Chief of Naval Operations (CNO) Aviation Safety Award, also known as the Safety “S.”

“I couldn’t be more proud of the Merlin team in accomplishing 300,000 Class A mishap-free flight hours. This accomplishment is truly a testament of the outstanding teamwork and contribution of every Merlin and would not

have been possible without a complete all-hands dedicated effort,” HSC-3 Commanding Officer Capt. Sean Rocheleau said. “From all rates and paygrades, our culture of safety first and by-the-book procedures was vital to the success of the HSC-3 team and there is not one Merlin who was not a contributor to this milestone.”

The Navy’s premier helicopter training squadron, HSC-3 provides pilots and aircrew members to units deployed worldwide, including 136 fleet replacement pilots, 85 fleet replacement aircrew members and 32 air vehicle operators in fiscal 2018. These pilots and aircrew train to become tactically proficient in a broad range of missions including anti-surface warfare, personnel recovery, special operations force support and search and rescue. The squadron is also developing and expanding aerial mine countermeasure capabilities and tactics, adding a new dimension of warfighting capability to the MH-60S Seahawk.

A Class-A mishap is defined as one in which the total cost of property damage is \$1 million or greater, an aircraft is destroyed or missing, or any fatality or permanent total disability occurs with direct involvement of naval aircraft.

Written by Lt. David Murphy, HSC-3 Public Affairs Officer. 🦅

Maintainers, aircrew and pilots assigned to the “Merlins” of Helicopter Sea Combat Squadron (HSC) 3 celebrate after landing from the flight that surpassed 300,000 hours without a Class-A mishap.



U.S. Navy photo



U.S. Navy photo by Greg Kuntz

Marine Corps Col. John Neville, program manager of the small tactical unmanned aircraft systems program office at Naval Air Systems Command, speaks about his program during a Dec. 4 panel discussion at the Patuxent River Naval Air Museum. Also seated, from left, are Col. Matthew Kelly, Col. David Walsh and Col. Jack Perrin.

Colonels Discuss State of Marine Aviation

PATUXENT RIVER, Md.—The colonels leading the four main Marine Corps aircraft programs at Naval Air Systems Command (NAVAIR) gathered at the Patuxent River Naval Air Museum on Dec. 4 for a panel discussion on the state of Marine Aviation.

Before an audience of mostly industry representatives and fellow Marines, the program managers—Col. Matthew Kelly (V-22 Osprey), Col. David Walsh (H-1 helicopters), Col. John Neville (small tactical unmanned aircraft systems (UAS)) and Col. Jack Perrin (H-53 helicopters)—each detailed the work currently underway inside their programs.

Kelly gave an update on the MV-22B's Common Configuration-Readiness and Modernization (CC-RAM) program, which is upgrading 129 older MV-22Bs to the current standard coming off the production line. The goal is not only to improve those Ospreys, but also increase readiness by significantly reducing the 70-plus distinct configurations in the MV-22B's fleet of more than 300 aircraft.

The first two MV-22Bs have been inducted into CC-RAM and a third is scheduled to do so in January.

Kelly's office is also working on improvements that will make it easier to maintain the V-22's engine nacelles, which

he called "one of the harshest environments in Naval Aviation."

"It's basically an engine and wiring that gets rain and dust and mud and everything else thrown into it on a daily basis," he said. "We've learned a lot over the last 15-to-20 years trying to maintain that nacelle and make sure it has the right ventilation and airflow."

With the last UH-1Y Venom delivered to the fleet in April and the AH-1W Super Cobra set to be fully replaced by the AH-1Z Viper by 2021, Walsh said his program office is beginning to focus less on transitioning to the new H-1 platforms and more on sustaining them.

To that end, Walsh's team is working to reduce maintenance man-hours and increase the reliability of parts, two factors that an independent review identified as crucial to improving H-1 readiness, he said.

Neville said the chief challenge faced by his program office is keeping pace with the rapid development of technology in the field of small UAS.

"How do you develop a program to keep up with that technological advancement, as rapid as it is, especially with what we see in retail stores?" he asked.

"How can I do that across conventional forces that need training and logistical

support and everything that goes along with that?"

One solution being explored is a "common controller" with which Marines could operate various UAVs, Neville said.

Perrin said readiness has improved for the CH-53E Super Stallion thanks largely to a "reset" program that thus far has rebuilt 21 aircraft at considerable cost-per-flight-hour savings and increases in executable flight hours.

Afterwards, the panel members took questions from familiar sources such as NAVAIR Commander Vice. Adm. Dean Peters, Operational Test and Evaluation Force Commander Rear. Adm. Paul Sohl and Brig. Gen. Greg Masiello, program executive officer for Air Anti-Submarine Warfare, Assault and Special Mission Programs (PEO(A)).

Sohl—who later said he felt like a "proud dad" watching Kelly, Walsh and Neville, whom he had as students during his stint as executive officer and then commanding officer of the U.S. Naval Test Pilot School—asked how Marine Aviation programs would avoid a recurrence of the readiness shortfall that followed the 2013 federal budget sequestration.

Perrin said his office was working on buying new motor cores for the CH-53E, while his focus for the in-development CH-53K King Stallion remains on ensuring proper funding for the aircraft's logistics support.

"We hold those [costs] to be sacred," he said. "I tell everybody in industry, when you come into my office, the new improvements and the new radios, it's all really good stuff. I'm a test pilot, I love new widgets and gadgets, but the most important thing anybody can have is ... availability. Unless that aircraft is up, you cannot do anything."

Meanwhile, the H-1 program office is investing in fuel cells and skid gear while federal funding is at an all-time high so that "when time gets rough and money gets short, we have the basics to keep the aircraft flying," Walsh said.

Written by Jeff Newman, staff writer for Naval Aviation News. 🦅

FRCNW Forward Deploys in Support of Readiness

5TH FLEET AOR—A detachment from FRCNW is moving resources from the flight line to the frontline to assist in readiness recovery.

Last September, VAN Operational Detachment (VOD) 1, a VAN Operational Detachment (VANOPDET) from FRCNW stationed at Naval Air Station Whidbey Island, Washington, deployed to the 5th Fleet area of responsibility (AOR) in support of an EA-18G Growler expeditionary squadron.

This is the first time a VANOPDET deployed to 5th Fleet in more than 10 years, said FRCNW Commanding Officer Cmdr. Al Palmer.

VANOPDETs work out of VANs, also known as Mobile Maintenance Facilities. About half the size of a standard tractor-trailer, the VANs contain tools, equipment, parts and other items that support maintenance operations. They are adjacent to a variety of maintenance

shops and supply support spaces and production control facilities required to sustain tactical aircraft and systems during combat operations.

Since deployed, the detachment has moved 3.4 million pounds of gear, mobile maintenance facilities, personnel and support equipment from Whidbey Island to the 5th Fleet AOR. But they could not have done it without help from the Army, Air Force and Marine Corps, along with Naval Supply Systems Command and Commander, Electronic Attack Wing, Pacific, which assisted Qatar Customs with the complicated move of equipment from transcontinental ports and providing vital details of the maintenance mobile facilities. This enabled the VANOPDET to be fully operational two days ahead of schedule in support of Operation Freedom's Sentinel and Operation Inherent Resolve.

The VANOPDET deployed with 34 aviation maintenance Sailors. Taking a page out of Chief of Naval Operations Adm. John Richardson's strategy, "A Design for Maintaining Maritime Superiority: Achieve High Velocity Learning at Every Level," the detachment qualified Sailors in different work centers to ensure a highly qualified workforce with a small footprint. For example, aviation support equipment personnel are now able to work alongside aviation structural and hydraulic mechanics, and aviation ordnance personnel can work on aviation support equipment.

Since this was the first time in over a decade that such a deployment occurred, the command practiced before they deployed, running through multiple scenarios while still having the support of the home guard.

"Once away, it is not like I can just go down the flight line and ask the Air Force, Army or Marines how they conduct maintenance. We are the only entity in the AOR providing one-on-one intermediate-level (I-level) support and we had to become the experts," said Lt. Joe Tullis, VANOPDET officer in charge.

The VANOPDET is integrated with the squadron and attends all squadron maintenance meetings to better understand the maintenance requirements of the aircraft. This open and constant communication allows the VANOPDET to provide real-time support, availability and reliability.

"We're bringing readiness to the front lines by bringing the I-level maintenance concept to forward-deployed squadrons," Tullis said. "Our FRC Northwest Sailors are motivated to 'bring the fight forward,' which happens to be VOD-1's slogan."

Written by Lt. Joe Tullis, VAN Operational Detachment officer in charge and Julie Lemmon, public affairs specialist with Commander, Fleet Readiness Centers. 🦅



U.S. Navy photo

VAN Operational Detachment (VOD) 1 applies high-velocity learning concepts to support an EA-18G Growler squadron. The implementation has proven crucial to the detachment's success.



U.S. Navy photo



U.S. Navy photo by Erik Hildebrandt

VX-1 Pilots Complete First E-2D Aerial Refueling Training

PATUXENT RIVER, Md.—Air Test and Evaluation Squadron (VX) 1's E-2D Hawkeye Operation Test Team completed aerial refueling (AR) training on Dec. 3, becoming the first fleet aviators to be AR qualified on the E-2D.

The training consisted of daytime and nighttime “plugs” with a KC-707 tanker. VX-1's E-2D is equipped with a fuel probe plumbing at the front of the aircraft, which works to locate and plug into a drogue on the fueling aircraft to secure the fuel connection. The training also consisted of operating in night-time formation with another E-2D Hawkeye.

“This marks the beginning of a new capability for the Hawkeye community,” said Lt. Cmdr. John Dues, a VX-1 Hawkeye pilot who completed the training. “Aerial refueling in this type of aircraft will extend the range of the E-2D as well as increase the time that can be spent on station by the nation's best airborne early warning platform.”

Recent changes made to the E-2D have been implemented to accommodate in-flight refueling, to include the fixed-fuel probe and associated plumbing, formation lighting, long-endurance seats, as well as flight control software

and hardware changes. This new capability could double the current time the E-2D can be on station and provide for better battlespace coverage in support of the warfighter's mission.

Testing of new capabilities will continue.

“We're looking forward to fully testing the game-changing combined capabilities of the new radar and the E-2D aerial refueling in early 2019 as well,” said Capt. Gregory Sleppy, VX-1 Commanding Officer.

From Air Test and Evaluation Squadron (VX) 1 Public Affairs Office. 🇺🇸

Navy Establishes First CMV-22B Squadron

SAN DIEGO—The Navy held a ceremony Dec. 14 at Naval Base Coronado to commemorate the establishment of Fleet Logistics Multi-Mission Squadron (VRM) 30, the Navy's first CMV-22B squadron.

VRM-30 was established to begin the Navy's transition from the C-2A Greyhound, which has provided logistics support to aircraft carriers for four decades, to the CMV-22B, which has an increased operational range, greater cargo capacity, faster cargo loading/unloading, increased survivability and enhanced beyond-line-of-sight communications compared to the C-2A.

“Where no instructions existed, no patch existed, no ‘here's how we are going to perform our duties everyday’ existed, this team will define that. And it's exciting because we can establish right off the bat those best practices,” said Vice Adm. DeWolfe H. Miller III, commander, Naval Air Forces. “This platform is our future and when you look at the nature of the future fight, we need that versatility, that flexibility that's going to be provided in every subsequent squadron that transitions.”

The first CMV-22B aircraft are scheduled to be delivered to the squadron in fiscal 2020. While VRM-30 awaits the arrival of the CMV-22B, Navy pilots and maintainers will train with the



U.S. Navy photo

Squadron plank owners reveal the new logo for Fleet Logistics Multi-Mission Squadron (VRM) 30 at the establishment ceremony as Cmdr. Trevor F. Hermann, Commanding Officer, VRM-30, looks on.

Marine Corps, which has flown the MV-22 since 2007. As the C-2A squadrons stand down, their pilots and aircrew will transition to the CMV-22B. The final C-2A squadron is scheduled to stand down in fiscal 2024.

From Commander, Naval Air Forces Public Affairs. 🇺🇸

Additive Manufacturing Supply Solution for H-53 Rotor Blades

CHERRY POINT, N.C.—In what is believed to be the first time polymer additive manufacturing has been used to produce a flight-critical repair solution for Navy aircraft, Fleet Readiness Center East (FRCE) engineers recently utilized 3-D printers to produce replacement blade inspection method (BIM) vents for the main rotor blades of the CH-53E Super Stallion.

The engineers, with FRCE's research and engineering group, built the vents using an additive manufacturing method known as fused deposition modeling, in which a 3-D printer builds an object in layers using a heated nozzle that melts and extrudes polymer which hardens on contact with the building surface.

"I believe this is the first time a polymer AM process has been used to build a flight-critical repair component in (Naval Air Systems Command)," said Douglas Greenwood, AM lead for FRCE's advanced technology integrated product team. "We don't usually, if ever, see 'poly-

mer AM' and 'flight critical' in the same sentence."

Artisans in Blade Shop 94304 identified integral damage in the parts while repairing them in 2016, said Joshua Peedin, senior engineer for H-53 rotor systems. It was a discovery of cracks in the foam beneath the root fairing that pointed to the damage in the vents.

The BIM vents work as part of the indication system to alert pilots to pressure loss in the blades. The BIM vents are critical application items, which means they have a critical function for a major component, not that they are critical in terms of safety of flight.

Unavailable parts led Peedin in the direction of the solution.

"I contacted our logisticians and [the original equipment manufacturer (OEM)] to see if we could buy any replacements," he said. "Neither had any available, so I checked the technical drawings to see if we could manufacture our own replacements."

Peedin said making composite molded replacements was considered, but the composite material was too rigid to meet the required specifications.

Materials engineers Rob Thompson and Andrea Boxell, from the polymers and composites branch, pointed out FRCE's capability of 3-D printing the part using a material that is chemically similar to the original material—a high-performance, thermoplastic polyetherimide. Peedin also got the help of FRCE digital data center members—and AM subject matter experts—Justin Reynolds and Todd Spurgeon to redesign the BIM vents to ensure design compatibility with FRCE's 3-D printers.

"We had many meetings throughout the process to ensure everyone was in agreement to move forward," Peedin said.

The prototype repair parts were tested under pressure and heat to ensure the repair could withstand in-service conditions and future blade repairs. The



Todd Bridgers, an aircraft mechanical parts repairer applies a gel viscosity instant adhesive to a blade inspection method (BIM) vent—produced at Fleet Readiness Center East—before applying it to an H-53 blade.



Bridgers keeps a firm press on an additively manufactured BIM vent to ensure it adheres to the spar of an H-53 blade.

local engineers developed, documented, reviewed and approved the repair procedure through NAVAIR's Air Vehicle Engineering Department. The repair was first successfully demonstrated on a scrap main rotor blade. The most recent BIM vent repair was the second performed on a production main rotor blade using the AM parts.

Greenwood said the accomplishment is also noteworthy for demonstrating the flexibility of AM processes. He said FRCE primarily uses the AM printers to make sheet metal form blocks, prototype parts, visual aids, support equipment and many

other kinds of parts to support production.

"All of those parts are built using materials different from the BIM vent parts, and none of them are intended for use in flight," Greenwood said. "Nevertheless, we are using the same printers with a different material to make the BIM vent repair parts.

"This is an even bigger achievement for FRCE, using our printers to make polymer AM repair parts on H-53E main rotor blades that will enter the supply system and be used by the fleet."

The accomplishment offers benefits in the way of cost avoidance, production

and aircraft readiness. Paying the OEM to overhaul the main rotor blade would have cost about \$210,000 per blade, Peedin said. Meanwhile, the estimated cost of the AM repair is about \$15,000 per blade, a near 93-percent savings.

In addition, FRCE is now able to keep a steady flow of main rotor blade repair work in the blade shop, Peedin said.

"This will lead to a reduction of back-ordered repairs and ultimately contribute to improvements in the H-53 readiness posture," he said.

From Fleet Readiness Center East Public Affairs Office. 🇺🇸

3-D Printing Brings Savings, Capability to UAS

PATUXENT RIVER, Md.—Avionics' component size, weight and power needs are typical watch items for any aircraft, but make the requirements even smaller for unmanned systems, and the associated challenges become a priority worthy of a small business solution.

The Air Combat Electronics Program Office's Air Position, Navigation and Timing (AIR PNT) team is supporting a small business innovation and research (SBIR) project aimed at equipping unmanned aerial systems (UAS) with enhancements that include modernized GPS and anti-jam capabilities.

"Manned platforms have increasing choices in capabilities to mitigate threats to GPS signals when carrying out their missions," said Capt. Chris McDowell, air combat electronics program manager. "However, the smaller UAS community does not have an equal offering of choices in small size, weight and power (SWaP) anti-jam solutions for their platforms yet. Our goal is to develop those additional options as quickly as we can."

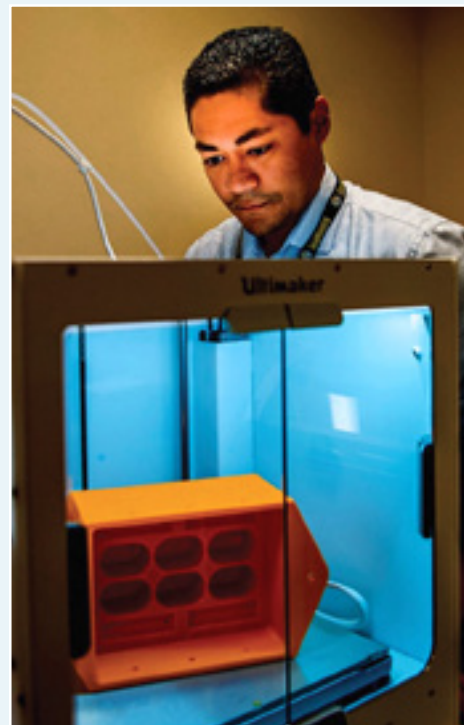
Initiated by the program's communications and GPS navigation office, the SBIR project calls for development and testing of three configurations of a GPS anti-jam system using the RQ-21A Blackjack as a model. The first configuration, a proof-of-concept prototype, should characterize the radio frequency performance of a small antenna system, while subsequent configurations should integrate antenna and electronics solutions with GPS receivers.

"We're using the 3-D printing capabilities at the Naval Air Warfare Center Aircraft Division-sponsored Innovation Hub to create a model," said Jorge Otero, the air navigation warfare engineer leading the project and a 3-D printing class instructor. "These models are an invaluable asset in technical discussions concerning SWaP requirements, and they'll be used as mockups for platform fit checks in the future."

Using organic computer-aided design and in-house 3-D printers also saves time and money, he said.

"This project will allow small UAS to receive the same capabilities as their larger counterparts," said Richard Bozovich, the AIR PNT integrated project team lead. "I'm excited to see this being developed. Ultimately, it will provide Group-3 UAS platforms a path to receive a more resilient form of GPS."

From Program Management Competency Public Affairs. 🇺🇸



Engineer and project lead Jorge Otero supervises the creation of a 3-D printed model at the Naval Air Warfare Center Aircraft Division's Innovation Hub.

U.S. Navy photo



An F/A-18F Super Hornet, attached to the “Red Rippers” of Strike Fighter Squadron (VFA) 11, completes intercept training Dec. 10 with a P-8A Poseidon attached to the “Tridents” of Patrol Squadron (VP) 26.

VP-26 Closes Out Harry S. Truman CSG Deployment

ROTA, Spain—Twenty-one Sailors assigned to the “Tridents” of Patrol Squadron (VP) 26, operating out of Naval Station Rota, participated in early-December training exercises with the Harry S. Truman Carrier Strike Group (CSG) and Arleigh Burke-class guided-missile destroyers USS Ross (DDG-71) and USS Porter (DDG-78).

This marked the conclusion of operations for the Harry S. Truman CSG in the 6th Fleet area of operations.

“It has been an absolute honor to

support the Harry S. Truman Strike Group as well as some of our other surface assets,” said Lt. Cmdr. Graham Gill, officer-in-charge of the VP-26 Det. “We are a small piece of the puzzle and anytime we can contribute to the readiness of the strike group, it is a great opportunity.”

The week-long Det. focused on coordinated operations between the P-8A Poseidon and U.S. surface assets. The Tridents supported testing and training of shipboard defense systems during their

four missions, two with the CSG and one with each of the destroyers. Several of the Tridents also provided an aircraft tour to Ross Sailors.

“The team has performed exceptionally,” said Lt. James Dawson, who flew his first tactical missions as an aircraft commander while on the Det. “From the maintenance of the aircraft, to the on-station excellence, I am very proud of the efforts from the Det. team.”

Written by Lt. j.g. Sean Hickey, Patrol Squadron (VP) 26 Public Affairs. 🇺🇸



Lt. Cmdr. Graham Gill, assigned to the “Tridents” of Patrol Squadron (VP) 26, provides Sailors assigned to Arleigh Burke-class guided-missile destroyer USS Ross (DDG-71) a tour of a P-8A Poseidon Dec. 10.



Full-Time Support Aviation Command Retention Bonus Announced

MILLINGTON, Tenn.—The Navy announced the fiscal 2019 full-time support (FTS) aviation command retention bonus (ACRB) in NAVADMIN 296/18, Dec. 10.

The FTS aviation bonus (AvB) program, consisting of the aviation department head retention bonus (ADHRB) and ACRB, is designed as an incentive for highly talented, hard-working, career-minded naval aviators and naval flight officers to choose to remain for a post-command commander tour. The FTS ADHRB will be released in a future NAVADMIN.

The goal of the FTS ACRB is to retain officers with the capabilities and command experience in primary warfighting

missions that are critical for the future of Naval Aviation. The cadre of commander commanding officers (CO) lead the Naval Aviation Enterprise today and they will serve as the major commanders and flag officers of tomorrow.

ACRB applicants must have screened on the fiscal 2019 aviation command screen board as CO of an eligible operational, operational training or special mission commander command in order to apply.

All fiscal 2019 ACRB contracts will be worth \$100,000. Eligible officers will receive an initial payment of \$34,000 and two anniversary payments of \$33,000. Participation in the Fiscal 2019 ACRB obligates officers to three years of obligated service to include full completion of a post-command commander tour, which may last between 24 and 36 months, depending on assignment.

For more information regarding eligibility, visit <http://www.public.navy.mil/bupers-npc/officer/Detailing/aviation/OCM/Pages/ACCP.aspx> or read NAVADMIN 296/18 at www.npc.navy.mil

From Navy Personnel Command Public Affairs. 🇺🇸

SECNAV Experiences High-Velocity Learning

CORPUS CHRISTI, Texas—Secretary of the Navy Richard V. Spencer got a first-hand look at how the Navy trains aviators during visits to Naval Air Stations Corpus Christi and Kingsville, Texas, on Jan. 9 and 10.

Spencer toured the bases and met with Chief of Naval Air Training (CNATRA) staff, student naval aviators and instructor pilots at both sites during his visits.

CNATRA is responsible for training all Navy, Marine Corps and Coast Guard aviators, naval flight officers, and naval aircrew across five air wings located in Texas, Florida and Mississippi.

Instructor pilots and students showed Spencer CNATRA's iconic orange-and-white, twin-engine T-44 Pegasus and single-engine turboprop T-6B Texan aircraft of Training Air Wing 4 at NAS Corpus Christi and the T-45 Goshawk training jet of Training Air Wing 2 at NAS Kingsville.

"Thank you for the vital role you play in preparing our Navy and Marine Corps team to fight and win tonight," Spencer said. "The training conducted at NAS Corpus Christi and NAS Kingsville is central to our migration to a continual learning enterprise, directly improving the readiness and lethality of our combat forces. Your record of performance demonstrates why Training Squadron 10 was rightly recognized in the fiscal 2017 Safety Excellence Awards and I am confident you will continue building on that record of achievement with a sense of urgency."

Spencer presented awards to the Junior Sailors of the Year and



U.S. Navy photo

Secretary of the Navy Richard V. Spencer visits with 2nd Lt. Jayne Cottrell and 2nd Lt. Delaney Shields, flight students at Training Squadron (VT) 28, at Naval Air Station Corpus Christi, Texas.

Bluejackets of the Year at both bases. Students also demonstrated the T-44 simulator at NAS Corpus Christi, just one of several simulators across CNATRA.

"Our students are innovative and can learn at an incredible rate," said CNATRA Rear Adm. Greg Harris. "In addition to a well-developed curriculum, we are incorporating new technologies such as virtual- and mixed-reality simulators to enhance skills on the ground before students execute procedures inflight, thus increasing safety and efficiency. I am immensely proud of the work our entire team does every day."

Written by Lt. Michelle Tucker, Chief of Naval Air Training Public Affairs Officer. 🇺🇸



First Operational F-35C Squadron **READY to WIN**

By Lt. Cmdr. Lydia E. Bock

The “Argonauts” of Strike Fighter Squadron (VFA) 147, the Navy’s first operational F-35C Lightning II squadron, completed carrier qualifications Dec. 12 aboard USS Carl Vinson (CVN 70), meeting the final requirement to obtain their safe-for-flight-operations certification.

The final milestone in VFA-147’s transition from the F/A-18E Super Hornet and a major step toward the Navy declaring initial operating capability (IOC) for its F-35 variant by the end of February, the certification ensures a squadron has qualified personnel to implement maintenance and safety programs in support of fleet operations. All transitioning squadrons must complete the certification before conducting flight operations independently.

“The Argonauts’ safe-for-flight-operations certification was earned through the herculean effort of squadron Sailors and is an acknowledgement that they have developed the skills to safely maintain and operate the F-35C Lightning II,” said Commander, Joint Strike Fighter Wing (CJSFW) Capt. Max McCoy. “We eagerly look forward to declaring IOC and integrating the F-35C into the carrier strike group. This aircraft is a key component to maintaining the U.S. Navy’s dominance anywhere in the world.”

When introducing a new aircraft to the fleet, the associated fleet replacement squadron (FRS) oversees the transitioning unit. The VFA-125 “Rough Raiders” were reactivated in January 2017 as the F-35’s FRS. Since completing their combat deployment last winter, VFA-147 has been working with the Rough Raiders to achieve their safe-for-flight-operations certification. Having received their certification, the Argonauts will be able to operate independently from the Rough Raiders.

“Since we returned from deployment last December, our team has been driving toward fully bringing this platform online for the Navy,” VFA-147 Commanding Officer Cmdr.



Sailors direct an F-35C Lightning II, assigned to the "Argonauts" of Strike Fighter Squadron (VFA) 147, on the flight deck of aircraft carrier USS Carl Vinson (CVN 70).

U.S. Navy photo by MC3 Ethan J. Soto

Patrick Corrigan said. "As the Argonauts close out 2018 and the final stages of our safe-for-flight certification, we continue to exhibit the relentless drive required to meet transition goals and milestones. With this certification, we are announcing that we have the right skills, training and people to take this mission and execute it to its fullest potential."

The certification encompasses areas such as equipment, personnel and programs, including the requirement for the squadron to have physical custody of at least 30 percent of its assigned aircraft. Other requirements include installing and operating management information systems such as the Autonomic Logistics Information System and its accompanying support networks. There is also a requirement for operational F-35C squadrons to maintain robust, on-track maintenance programs, as well as complete various inspections ranging from weapons to safety. Aircrew complete a transition flight syllabus and maintain certain proficiencies in accordance with Naval Air Training and Operating Procedures and Standardization.

"VFA-147 continues to accomplish

significant milestones, advancing this program closer to its ultimate goal of integrating the F-35C into the fleet," McCoy said. "The exceptional performance of the squadron throughout the entire transition process is a testament to the hard-working Sailors who make the U.S. Navy F-35C program a reality. We will succeed, because the professionals in this program will not let it fail. It is evident in all that they do. It is who we are as a Navy."

Headquartered at Naval Air Station Lemoore, California, CJSFW ensures each F-35C squadron is fully combat ready to conduct carrier-based, all-weather, attack, fighter and support missions for Commander, Naval Air Forces. With its stealth technology, advanced sensors, weapons capacity and range, the F-35C will be the first fifth-generation aircraft operated from an aircraft carrier.

Lt. Cmdr. Lydia Bock is the public affairs officer for Commander, Joint Strike Fighter Wing. 🦅

"The exceptional performance of the squadron throughout the entire transition process is a testament to the hard-working Sailors who make the U.S. Navy F-35C program a reality."

Pax River F-35 ITF Leaves HMS Queen Elizabeth After 'ECLIPSING ASPIRATIONS'

By Jeff Newman and Connie Hempel



Royal Navy Cmdr. Nathan Gray, an F-35 Patuxent River Integrated Test Force (ITF) test pilot, continues first-of-class flight trials (fixed wing) developmental test flights aboard Royal Navy aircraft carrier HMS Queen Elizabeth (R08).

The F-35 Integrated Test Force team from Naval Air Station Patuxent River, Maryland, departed HMS Queen Elizabeth (R08) Nov. 19, following successful completion of the fifth-generation strike fighter's first set of fixed-wing flight trials aboard the new U.K. aircraft carrier.

The trials—dubbed First of Class Flight Trials (Fixed Wing), or FOCFT(FW)—marked “a significant milestone on the Royal Navy’s journey back to big deck carrier operations,” said Royal Navy Capt. Nick Cooke Priest, HMS Queen Elizabeth’s Commanding Officer.

The eight-week evolution provided the green light for the ship to carry out F-35B operational trials later this year.

“The schedule has been busy and challenging and the results have eclipsed the aspiration,” Cooke Priest said. “This success is largely due to the exceptional relationship that exists between the ship and her embarked staff, and the scientists, engineers and pilots of the F-35 Integrated Test Force (ITF), all of whom have shown exceptional professionalism, dedication and drive.

“This deployment has, however, delivered far more than the initial integration of fixed-wing aircraft with the ship. It has re-introduced the true value that carrier capabilities bring to the U.K. and her allies. It has deepened our relationship with our closest ally, demonstrated our nation’s engineering prowess and cemented our commitment to the future as a global navy.”

Two F-35B jets, four test pilots and nearly 175 personnel with the F-35 ITF spent eight weeks on the 65,000-ton warship, performing 202 short take-offs, 187 vertical landings and 15 shipborne rolling vertical landings, the latter a tactic unique to the U.K. that allows the jet to return to the ship with a heavier payload.

ITF engineers recorded masses of data from the ship and the jets that will determine the limits (weather, humidity, pitch-and-roll of the ship, aircraft weight) at which F-35Bs can safely launch from and land back on HMS Queen Elizabeth and her sister, the future HMS Prince of Wales (R09).

“This has been one of the most comprehensive flight trials at sea ever conducted,” said Royal Air Force Squadron Leader Andy Edgell, FOCFT(FW) lead test pilot with the F-35 Pax River ITF. “I am very proud to have professionally executed every aspect of this trial and deliver for the U.K. a capability that can be exploited for years to come.”

The testing included the dropping of 54 dummy bombs in the Atlantic Ocean. Weapons experts loaded various configurations of the inert bombs onto the F-35Bs.

“This is only the beginning as we are starting a 50-year

Photo courtesy of Lockheed Martin by Dane Wiedmann

program with this aircraft carrier,” said Cmdr. James Blackmore, Commander Air aboard HMS Queen Elizabeth. “F-35B is at the start, but who knows what we’ll be flying from the deck in a few decades to come. What we do know for certain is that two-and-a-half years from now we will be ready to deliver HMS Queen Elizabeth and her Air Wing, including F-35B Lightning II aircraft, on operations at a time and a place of our choosing, fielding an awesome capability. The U.K. is truly back in the super-carrier league.”

“I am proud to have delivered this future and enduring operational capability,” said ITF test pilot Royal Navy Cmdr. Nathan Gray, who was the first person to land an F-35B jet on HMS Queen Elizabeth, adding that the success of the high-profile flight trials is a credit to the skills of the designers of both the F-35 and the ship herself.

“It is beyond question that without the vision of the Royal Navy and the unfailing support of the ship’s company, we would not have achieved what we have done,” he said.

“It goes without saying that this was a phenomenally successful shipboard detachment,” said Andrew Maack, F-35 Pax River ITF chief test engineer and site director. “I could not be more proud of the collective team effort between the ITF and the HMS Queen Elizabeth crew to make this happen.”

Britain’s carrier strike capability was put on an eight-year hiatus when the last fast jet, Harrier GR9, launched from HMS Ark Royal in 2010 with Blackmore in the pilot’s seat. Fast forward to the 2018 FOCFT(FW), and the pilot who closed one era held a key role in opening a new one for the U.K.

“That day was tinged with mixed emotions,” Blackmore recalled about the day he piloted the last-ever Harrier off a U.K. aircraft carrier. “It was a privilege to fly the last launch, but I also felt a sense of sadness that the U.K. was stepping into a capability gap for carrier strike that would last eight years. Being part of the team to re-start fixed-wing operations in the Queen Elizabeth-class carrier has filled me with a degree of immense pride. It continues to be a privilege.”

After a week in Norfolk, Virginia, offloading the ITF team and equipment, the ship arrived back to its home-port in Portsmouth, U.K., in early December.

“This is a positive time to be a Royal Navy Sailor, a positive time to be Royal Navy aircrew and a positive time for the U.K.-U.S. partnership in providing a greater depth of security across the globe,” said U.K. Carrier Strike Group Commander Commodore Michael Utley.

Jeff Newman is a staff writer for Naval Aviation News. Connie Hempel is the public affairs officer for the F-35 Pax River Integrated Test Force. 🦅



Royal Navy photo

An F-35B from the Patuxent River ITF approaches for landing aboard HMS Queen Elizabeth.

“The schedule has been busy and challenging and the results have eclipsed the aspiration; this success is largely due to the exceptional relationship that exists between the ship and her embarked staff, and the scientists, engineers and pilots of the F-35 Integrated Test Force, all of whom have shown exceptional professionalism, dedication and drive.”



Royal Navy photo by JPhot Kyle Heller

HMS Queen Elizabeth’s air weapons party members prepare a Paveway II bomb.

P-8A Aircrew Inspire Students in United Kingdom

By Denver Beaulieu-Hains

During the July 2018 Royal International Air Tattoo airshow in England, aircrew with Patrol Squadron (VP) 30 from Jacksonville, Florida, introduced the P-8A Poseidon maritime patrol and reconnaissance aircraft to youth from around the world.



Navy Lt. Cmdr. Larry Malone briefs Air Cadets Kendall Bret and Rhys Davies of New Zealand during a P-8A Poseidon tour at the 2018 Royal International Air Tattoo airshow in England.

Having cadets aboard the P-8A made sense as an investment since several countries are procuring the aircraft as a maritime patrol and reconnaissance solution. Besides the U.S. and Australia, Norway and the United Kingdom are set to also receive the aircraft soon. Other countries have also expressed interest.

“I think if we talk to enough kids [at this airshow or others], hopefully we’ve planted seeds and we’ll enjoy the benefits of those folks 10 years from now,” said Lt. Garrison Erwin, a P-8A pilot with the VP-30 “Pro’s Nest.” Erwin used to pilot the P-3 Orion.

Each year, the Royal Air Force’s (RAF) Air Cadet program participates in exchanges with approximately 17 countries, with about 100 cadets annually, said Gordan McElroy, the program’s squadron leader.

This year, cadets attended the airshow—which celebrated the RAF’s 100th anniversary—from Australia, Hong Kong, New Zealand, Ukraine, Sweden and the U.S. Among the cadets who toured the P-8A was Rhys Davies of New Zealand, who plans to join the New Zealand Defence Force when he graduates.

“Some Air Cadets are defense-minded and aviation-focused,” said Keith Treece, master aircrew member with the Royal Air Force. “These are the kind of people we need to recruit as my replacement in the future.”

Treece is stationed in the U.S. with VP-30 as part of the UK/U.S. Seedcorn personnel exchange program. Located at Jacksonville, Florida, and Naval Air Station Patuxent River, Maryland, the Seedcorn staff maintain their aviation proficiency on the P-8A Poseidon while training U.S. Navy personnel.

With thousands of flight hours under his belt, Treece sees the possibilities of a long, successful military career for young people.

“When I was a youngster, that’s where the real Seedcorn started for me,” Treece

U.S. Navy photo by Denver Beaulieu-Hains

said. “The way the P-8A is developed, the kids will love it. This is the computer generation. We can attract them by showing them the airplane, explaining what it’s all about, but it’s not just about the aircraft.”

It’s a complete lifestyle to be in the military and to be in the RAF, with a good wage and opportunities to travel the world and get involved in loads of sporting activities, he said.

Naval Flight Officer Lt. Marc Wallis left the U.S. Navy and returned to the service after graduating from the University of California, Berkley.

“I originally got out because I wanted to go to college,” he said. “But, it all goes back to legacy. Every time I’d go back to see my grandfather before he died, he didn’t talk about his jobs; instead, he talked about being in the Navy and in [World War] II.”

Wallis began to wonder about his own legacy and the things he wanted to pass on to his own grandkids. His desire to give back helped him to make the decision to return to the military.

“Working with these guys or other countries operationally is really exciting,” he said. “We’re talking to all kinds of people of different ages and different schools are asking us, what do we do?”

The Air Cadets, where Trecee got his start, is a great organization for youth interested in aviation and the military, he said.

“During selections, they had a glut of pilots,” he said. “But, what they desperately needed was people to work in the maritime role ... antisubmarine warfare (ASW) and anti-surface warfare (ASuW), and so I trained to be an acoustics operator.”

That was almost three decades ago, but ASW and ASuW professionals are still in high demand today, he noted.

“Clearly, what we need to do now is to begin to attract the next generation of operators,” Trecee said. “Not everyone can be a pilot, and there are other opportunities to consider.”

Denver Beaulieu-Hains is the public affairs officer for the P-8A Poseidon Program Office. 🦋



U.S. Navy photo

The first fleet P-8A Poseidon aircraft to undergo a full set of maintenance inspections returns to service.

VP-16 Retrieves First Fleet P-8 from Depot

JACKSONVILLE, Fla.—In another historic first, Patrol Squadron (VP) 16 reintegrated a P-8A Poseidon aircraft from high-level maintenance (depot) in early September. The aircraft, numbered 428, was the first fleet P-8A sent to a repair depot to undergo a full set of maintenance inspections before returning to service.

This was not the first time that VP-16 accomplished a maritime first. In 2012, the squadron was the first to transition from the P-3 Orion to the Poseidon, and in 2013 became the first squadron to take the P-8A on operational deployment.

Since 2012, the Navy has been transitioning the maritime patrol squadrons from the legacy P-3C to the P-8A. Since its integration into the fleet, the Poseidon has seen deployments and missions all over the world. During its deployments, the P-8A has engaged in a number of operations, from anti-submarine and anti-surface warfare to intelligence, surveillance and reconnaissance and search-and-rescue. While the P-8A has performed its mission sets extremely well in diverse environments, the aircraft, like any machine, needs high-level maintenance to keep it performing and to extend its service life.

Aircraft 428 underwent six months of depot-level maintenance which involves an in-depth, full inspection of aircraft structure and component integrity. The aircraft was stripped down, cleaned and inspected for any corrosion or failures that may have occurred in the five years since it was introduced to the fleet.

Once inspected and refit to fly, it received a new paint job and was ready to undergo flight tests. Due to the extensive amount of maintenance and countless man hours of work this inspection required, the Navy awarded Delta Tech Ops the opportunity to complete the job.

“The resounding success of this evolution is due in large part to the overwhelming support we received from Delta Tech Ops and the representatives from Defense Contract Management Agency,” said Lt. Cmdr. Joe Dugan, detachment officer-in-charge for VP-16. “Their expertise and assistance allowed VP-16 Sailors to navigate around potential pitfalls as we accepted the first of many P-8As to undergo depot-level maintenance in this manner.”

Being the first maritime squadron to retrieve a P-8A from depot maintenance, VP-16 had no precedent for how to properly bring 428 back to service. This meant all aspects—from sending a crew to Atlanta Hartsfield International Airport, to working with the contractor to acquire the plane, test the aircraft, and bring it home to Naval Air Station Jacksonville—had to be prepared and briefed.

Ultimately, VP-16’s crew was able to efficiently return 428 to service despite the threat of approaching Hurricane Florence, once again setting a new first in the maritime community. All future P-8A squadrons that undertake the same task will use the foundation and experience that VP-16 gained.

Written by Lt. j.g. Branden Thomas, Patrol Squadron (VP) 16 Public Affairs Officer. 🦋

SUPER BLUES!

Transitioning from Hornets to Super Hornets

By Andrea Watters



Depicted are the Blue Angels conducting a signature move super imposed behind a low rate initial production F/A-18E Super Hornet belonging to Air Test and Evaluation Squadron (VX) 23 at Naval Air Station Patuxent River, Md.

Early-production F/A-18E/F Super Hornets have a new mission—help the Blue Angels inspire greatness and service in others—as the next flight demonstration aircraft for the U.S. Navy Flight Demonstration Squadron.

In the next few years, the Blue Angels will transition from the F/A-18 Hornet to the Super Hornet as 18 low-rate initial production (LRIP) F/A-18E/F Super Hornets are modified and then painted in the iconic blue.

“While the team is preparing for a safe and dynamic Super Hornet show in 2021, execution depends on the material condition of the allotted aircraft and modifications remaining on schedule,” said Chief of Naval Air Training (CNATRA) Rear Adm. Gregory Harris. “Enterprise-wide effort will ensure fleet readiness priorities are met throughout the transition.”

In the meantime, the flight profile for the Super Hornet aerial demonstration is being developed by former Blue Angels pilots at the Naval Air Warfare Center Aircraft Division’s Manned Flight Simulator at Naval Air Station Patuxent River, Maryland.

“The Hornet is a great airplane for the Navy and Marine Corps and is very well suited to the Blue

Angels mission. But it is also important to plan for the future,” said Capt. Ryan Bernacchi, former Blue Angels Commanding Officer and flight leader, and director of CNATRA’s Blue Angels Transition Team during 2018. “That future will eventually be with the Navy’s premier fighter, the Super Hornet.”

Bernacchi said the bigger and more advanced Super Hornet will generate even greater interest in the Navy and Marine Corps.

“The public will be able to get up close and see the same aircraft the Navy operates from our aircraft carriers all around the world today,” he said

The Super Hornet is expected to improve safety margins, reduce aircraft fatigue and require less maintenance. Plus, the Super Hornet’s mission software will be customized to display tailored information to Blue Angels pilots as they execute their precision maneuvers. This information will reduce the cockpit task load, Bernacchi said.



Capt. Ryan Bernacchi, former Blue Angels Commanding Officer and flight leader, and director of CNATRA’s Blue Angels Transition Team, and Cmdr. Frank Weissner, opposing and lead solo pilot during the 2009-2010 seasons and lead solo again in the 2016-2017 seasons, discuss F/A-18 Super Hornet maneuvers at the Manned Flight Simulator at NAS Patuxent River.

“While the program office manages the aircraft inventory and modifications, CNATRA’s transition team is completing phase one: developing the Super Hornet flight profile.”

Since 2015, the Navy has been analyzing how to upgrade the Blue Angels to the Super Hornet while balancing fleet readiness.

“To ensure the fleet is equipped with mission capable aircraft, the Navy has pursued giving the demo squadron early production lot aircraft which haven’t flown in years or are obsolete from a warfighting or fleet training perspective,” said Capt. Jason Denney, deputy program manager for the Super Hornet in the F/A-18 & EA-18G Program Office.

Transition Team

While the program office manages the aircraft inventory and modifications, CNATRA’s transition team is completing phase one: developing the Super Hornet

flight profile. Phase two will begin with delivery of the first two modified Super Hornets, which will be flown by Air Test and Evaluation Squadron (VX) 23 test pilots and former Blue Angels pilots to validate maneuvers, Bernacchi said.

Based on the lessons learned from the squadron’s transition from the A-4F Skyhawk II to the F/A-18A/B Hornet in 1986, former Air Boss, Vice Adm. Mike Shoemaker, and Rear Adm. James Bynum, CNATRA at the time, authorized an in-depth study beginning in December 2017 to ensure a safe transition from the Hornet to Super Hornet.

At the same time, both Bernacchi, who served as the “Boss” during the 2016 and 2017 seasons, and Cmdr. Frank Weisser,



Cmdr. Weisser practices solo pilot maneuvers currently performed by the Blue Angels in F/A-18 Hornets in the F/A-18 Super Hornet simulator to understand the differences in how the two aircraft handle. The pilots control the variables in the simulator and then scrutinize the results.



Blue Angels pilot Lt. Damon Kroes speaks with students about the keys to success, establishing long-term goals and not fearing failure.

Blue Angels Mission: Recruit and Inspire

Since its inception in 1946, the Blue Angels have flown for more than 450 million spectators worldwide and inspired many to serve their country.

The mission of the U.S. Navy Flight Demonstration Squadron is to showcase the pride and professionalism of the Navy and Marine Corps by inspiring a culture of excellence and service to country through flight demonstrations and community outreach.

“The mission is powerful—the Blue Angels represent the Navy and Marine Corps warfighters, the Sailors and Marines in harm’s way, and inspire people to do something great with their life, to reach for challenging goals or dreams,” said Capt. Ryan Bernacchi, former Blue Angels Commanding Officer and flight leader and director of Chief of Naval Air Training’s Blue Angels Transition Team.

“When the Blues come to town, they provide a tangible experience where the public can connect with the people and the planes, seeing what their Navy and Marine Corps

U.S. Navy photo by MC Nolan Pennington



U.S. Navy photos by Adam Skoczylas



is all about, see the teamwork, discipline, pride and skill of the whole squadron. Meeting so many people all across the country was one of the great privileges of serving with the Blue Angels," he said.

Bernacchi was one of those kids who wanted to fly an airplane with Navy painted on it, he said.

Across the country, the team serves as ambassadors of goodwill by bringing Naval Aviation to men, women and children. At each air show city, the Blue Angels visit hospitals, schools and community functions. The team takes time to interact with students and share their experiences serving in the Navy or Marine Corps and their enthusiasm—a great way to inspire others to pursue their dreams.

While it's difficult to measure the impact the Blue Angels have, the team performs in front of an estimated 11 million spectators per year and reaches more people through social media. In a 2017 survey of Delayed Entry Program Sailors, 26 percent of respondents said seeing the Blue Angels positively impacted their decision to seek a career in the Navy. —Andrea Watters 🦅

U.S. Navy photo by Petty Officer Third Class Justin R. Pacheco



Blue Angels pilot Marine Corps Capt. Corrie Mays interacts with the public during Air Show Baltimore.

Blue Angels AIRCRAFT 1946-Present



F9F-2 Panther
1949-1950



F6F Hellcat
1946



F9F-5 Panther
1951-1955



F11F-1 Tiger
1957-1968



F-4J Phantom II
1969-1974



F8F Bearcat
1946-1949



F9F-8 Cougar
1955-1957

opposing and lead solo pilot during the 2009-2010 seasons and lead solo again in the 2016-2017 seasons, were available to get right to work.

They conducted an extensive study of aircraft systems and flight characteristics while creating a new demonstration tailored to the F/A-18E/F and embarked on a comprehensive risk and airframe fatigue reduction effort.

"We have developed vital knowledge here at Pax River to address the meat of the transition," Weisser said. "We are figuring out how the Super Hornet performs the current show's maneuvers as well as how to change the show in a meaningful way."

Flight Profile Analysis

Bernacchi and Weisser spent several days each month in 2018 flying the Super Hornet simulator at Pax River as they thoroughly evaluated aspects of the flight profile such as airspeed, altitude, Gs and throttle settings.

"We control the variables in the simulator and then scrutinize them," Bernacchi said.

One of the advantages of flying the simulator at Pax River is its proximity to Naval Air Systems Command (NAVAIR) flight and airframe engineers and

program experts who are able to answer their questions on the spot.

"The resident expertise here at Pax has provided a watershed of information, which has shaped our understanding of how the Super Hornet performs in the low-altitude precision aerobatics and formation arena. The collaboration has been exceptional and is the key enabler to reducing overall risk and airframe fatigue for the Blue Angels' Super Hornet era," Bernacchi said.

During flight analysis, they have experienced several "aha moments," related to how the Super Hornet flies differently than the Hornet.

"While the differences may not impact the way the fleet employs the aircraft, the differences are important when it comes to designing a demonstration that's, first and foremost, safe, but also exciting," Bernacchi said.

"The big takeaway is that every aircraft is different," Weisser said.

Those differences include the lift and drag, thrust-to-weight ratios and roll rates.

"Some areas are more restrictive. For

example, the Hornet can fly up to 60 seconds inverted while the Super Hornet has been cleared to fly 40 seconds thus far. Using the Manned Flight Simulator, we have figured out how to reduce the inverted durations for the show while preserving the quality of the maneuvers," Bernacchi said.

In many other ways, the Super Hornet offers improved performance—it has more thrust available, especially at low altitudes, enabling tighter turns and faster acceleration for some maneuvers, and better vertical and looping performance, Weisser said.

In addition, the Super Hornet will significantly improve reliability and efficiency as the squadron travels throughout the country—historically to about 33 cities per year. These attributes make international venues beyond North America viable as well.

Reducing Airframe Fatigue

While it's too early to reveal how the flight demonstration will change, the show itself will likely be shortened a few minutes, which helps reduce airframe fatigue and aligns with a request from the air show industry, Bernacchi said. On a clear day, a typical show runs about 42 minutes and the version flown with lower cloud ceilings lasts about 30 minutes.



“The Blues are embracing the request and the Super Hornet show is expected to be more efficient, reduce aircraft and pilot fatigue and have more polished maneuvers,” he said.

Reducing aircraft fatigue is the key to getting the maximum utility out of each airframe converted to the Blue Angels configuration, Bernacchi said.

A multi-month collaborative study with NAVAIR engineers has allowed the transition team to understand where the current demonstration puts the most strain on the airframes and has helped them develop ways to reduce the strain while preserving the visual appeal of specific maneuvers.

The net effect has been dramatic reduction in overall “stress” put on the airframes in the six pilot positions and is expected to allow the Navy to fly each airframe up to or possibly even beyond the 6,000 flight-hour design specification, Bernacchi said.

“All of this is designed to create a safe, sustainable, efficient Super Hornet era. We expect the Super Hornet will be an incredible platform for the Blue Angels. It is going to be exciting to watch, and I expect it to significantly magnify the Blues’ mission impact all across the country and internationally as well,” Bernacchi said.

Standard Operating Procedures

To allow time for the pilots and maintainers to train and qualify on the upgraded platform, the Navy plans to shorten the end of the 2020 show season and delay the start of the 2021 season. This extra time is allotted for the squadron to complete the standard “safe-for-flight”

process and inspections that all fleet squadrons undergo. The Blue Angels will conduct their normal training winter cycle in Pensacola, Florida, and El Centro, California, in preparation for the 2021 season. Safety, as always, is the number one priority.

After determining the flight profile, Bernacchi and Weisser are documenting



U.S. Navy photo by Adam Skoczylas

Capt. Bernacchi discusses the transition team’s goals during an interview at NAS Patuxent River.

“While it will take the first team that trains and flies a full season in the Super Hornet to fine-tune the Super Hornet demonstration, we want to position that team for success by arming them with the knowledge of how the airplanes perform differently.”

the demonstration standardization manual in great detail for the Blue Angels.

The manual consists of integrated standard operating procedures (SOPs), which are essential for safety, turnover, training and the precision execution of Blue Angels flight demonstrations. The SOPs contain years of experience and knowledge that is passed down to members assuming their respective positions, internalized and referenced continuously throughout each season, Bernacchi said.

Blue Angels 1 through 4, known as the Diamond, each have positional SOPs

in the manual. The Solos, Blue Angels 5 and 6, have a combined Solo SOP, and the support officers who encompass the ground safety and narration elements have their own specific SOP sections within the manual.

The updated Super Hornet manual will include an overall “differences chapter” contrasting the Hornet and Super Hornet handling throughout the demonstration flight envelope, and a differences discussion specific to every maneuver.

The manual will also provide detailed information on all failures modes in the

demonstration context, and the background on how profiles were adjusted to mitigate risk, Bernacchi said.

“For example, the Super Hornet’s GE F414 motors produce more thrust per engine, which gives it different single-engine flight characteristics at low air-speeds or high angles of attack,” he said.

Thorough exploration has yielded different procedures and parameters to ensure the aircraft are always flown within safe margins during normal show conditions and addresses contingencies such as an engine failure.

“While it will take the first team that trains and flies a full season in the Super Hornet to fine-tune the Super Hornet demonstration, we want to position that team for success by arming them with the knowledge of how the airplanes perform differently in the demo environment and provide them with a fully vetted and risk-mitigated game plan they can take to the cockpit to safely fly each maneuver,” Bernacchi said.

Andrea Watters is editor in chief of Naval Aviation News. 🦅



U.S. Navy photo by Victor Pitts

Current Blue Angels F/A-18 Hornets undergo maintenance at Fleet Readiness Center Southeast’s F/A-18 production line at Naval Air Station Jacksonville, Fla.

Aircraft Inventory

The Blue Angels currently fly the oldest Hornets in the Navy’s inventory, and the service life of several will expire during the 2021 show season. The Navy cannot replace these aircraft with other Hornets without taking warfighting assets from the Marine Corps, Navy Reserve or the Naval Aviation Warfighting Development Center (NAWDC), according to Chief of Naval Air Training (CNATRA).

After an extensive airframe review of every Hornet in its inventory, the Navy identified 18 low-rate initial production (LRIP) F/A-18E/F Super Hornets as the most optimal to sustain the Blue Angels’ mission. These 18 were primarily used as trainers and test aircraft and were not intended or equipped for conflict and have not been deployed.

The cost associated with the Blue Angels’ transition to the Super Hornet can be broken down into non-recurring engineering (NRE) work to design and incorporate a “kit” of all the necessary components such as the smoke system into the aircraft (\$24 million), kit procurement (\$17 million) and the cost to modify the aircraft through the kit installation and paint (\$2.7 million per aircraft).

Transitioning from the Hornet to the 18 LRIP Super Hornets will take an estimated five years. The Navy began the transition in 2016 and has already completed the NRE portion of the process. Kits were purchased in fall 2018.

With the Blue Angels’ Hornets nearing their life limits, it is expected that most will be preserved and on display around the country. The specific plan for each airframe will be determined over the next two seasons. —*Andrea Watters* 🦅

IMPROVING READINESS

FRCSW Hydraulics Shop Improves Speed to Fleet

By Jim Markle

Naval Aviation Enterprise readiness initiatives are reaping results already.

Thanks to its artisans and members of the Boston Consulting Group (BCG), Fleet Readiness Center Southwest's (FRCSW) hydraulics shop recently improved its turnaround time by approximately 40 percent.

The shop services more than 100 different components and processes about 500 components quarterly. Work includes refurbishing flight control components to F/A-18A-D Hornets, the E-2/C-2 airframe and CH-53 and H-60 helicopters.

Throughout the FRC domain, artisans are working to meet the Commander, Naval Air Forces (CNAF) initiative to achieve 341 mission-ready F/A-18 Super Hornets by 2020.

"Hornet E and F rudders, trailing edge flaps, horizontal stabilizers and ailerons are the most common components that we work on," said Logan Black, pneudraulics work leader. Pneudraulics refers to military aircraft systems that use either or some combination of hydraulics and pneumatics.

Manned by 55 artisans and 12 contractor personnel operating in two shifts, the shop focuses on Issue Priority Group 1 (IPG1) aircraft—aircraft that are down for a component. The shop maintains a priority chart that is based on the top 10 IPG1s, Black said.

Inducted components undergo an electrical check prior to a diagnostic check to locate any failures within the unit. Parts are replaced as required.

"If something like an attachment is broken and we can't get it through the supply system, then we send it through our evaluator and estimator to the material engineering disposition program, who would deem it as scrap," Black said.

Many flight control components, like rudders and nose-wheel landing gear, are equipped with electro hydraulic service valves (EHSV) which the shop also repairs. The EHSV sends the hydraulic signal to the flight-control actuator, which determines aircraft movement.

"Once we final test the component and after our last quality assurance (QA) check, the unit is sent back to the squadron," Black said.

BCG arrived at FRCSW in early October to analyze the shop's processes and devise improved procedures to increase production efficiency.

The reduction in turnaround time was primarily achieved through a focus on procuring and preparing parts, and the



U.S. Navy photo

Brett Lee, a pneudraulics systems mechanic at Fleet Readiness Center Southwest, disassembles a hydraulic servo system actuator assembly used on a Super Hornet aileron.

development of a color-coded system to alert artisans and supervisors to areas in need of immediate attention, Black said.

"They made our work much more visual than just seeing it in a spreadsheet," he said. "When they colored the issues red to bring attention to them, people started seeing and focusing on the problem."

"We've been able to address issues with getting parts. And making it a visual indication allowed us to see what the problems were and what the hold-ups were. We had meetings with people from other departments to get the components to move. This got everyone on the same page with us receiving the parts and getting them into the shop to be worked."

A board for artisans to voice their ideas and concerns was setup in the shop. One suggestion resulted in an improved approach to kitting parts for the components.

"There was a lot of confusion as to identifying the parts for the kitting," said Brett Lee, a pneudraulics systems mechanic. "Typically, there's more than 50 parts per component kit, and these include the kits for rudders, ailerons, leading edge stabilizers and trailing edge flaps."

"The artisans were willing to work with production control to cross kit the components so we could work them. With BCG highlighting the material problems, the artisans were willing to work with them and fix a lot of the problems we were having," Black said.

"I know BCG is still working on a lot of process improvements," he said. "I don't think they are leaving anytime soon, and at least one person will stay and shadow to make sure things are running smoothly."

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

Reserve Sailors Help Improve Aviation Readiness

By COMFRC Public Affairs Office

By tapping into the expertise of the Naval Reserve, Fleet Readiness Centers (FRCs) are improving aviation readiness.

A seven-member team of Reserve Sailors recently proved its mettle, increasing throughput at FRCNW by more than 10 percent over a two-week period last summer.

“We were able to insert the Reservists into our current schedule,” said Tommy Moore, FRCNW depot team lead. “They were extremely eager and effective with the tasks assigned to them for aircraft planned maintenance inspection (PMI) intake. This allowed my team to move artisans to other projects, complete additional work and accelerate the return of aircraft back to the fleet.”

The Sailors are part of the Naval Air Systems Command (NAVAIR) Reserve Program FRC Reserve unit and were supporting a readiness initiative called Induction to Return-to-Fly, or I2Fly. The initiative takes advantage of the Reserve’s surge capacity and its maintainers’ experience in the areas of aviation machining, aviation structural mechanics, aviation structural mechanics-safety equipment and aviation electronics to support planned

maintenance activities and increase the speed of aircraft repair throughput. As a result, FRCs have improved turnaround times as well as minimized impact to the flight line.

At FRCNW, the Reservists provided maintenance support from Aug. 27 until Sept. 8, cleaning aircraft surfaces and removing ailerons, aircraft panels and sealants.

“During this time, with the assistance of the Reservists, we completed nine in-service repairs and three modifications while staying on or ahead of schedule for the completion of the PMI events,” Moore said. “By my calculations, we had an increase throughput of depot-level maintenance by 11 percent, which would not have been possible without the additional maintainers.”

Capt. Shawn Denihan, commander, FRC Reserve, said the Reserve Sailors come ready to work.

“They have the skills and experience and are eager to get to work,” he said.

Another team of nine Reservists reported to FRCNW on Oct. 28 and provided assistance through Nov. 17.

“Every item an FRC Reserve Sailor can help us repair and return to the fleet makes us more capable of performing our mission.”



U.S. Navy photo

Naval Reserve members remove wing panels on an EA-18 Growler for inspection during a planned maintenance interval at Fleet Readiness Center Northwest (FRCNW). During this process, the team is inspecting for cracks and performing corrosion prevention on the panels and associated hardware.



U.S. Navy photo

Petty Officer David Lupercio, an aviation structural mechanic, removes sealant from a EA-18 Growler wing panel. Lupercio is a Naval Reserve Sailor supporting FRCNW as part of his two weeks of annual training to increase aviation readiness.

FRC Mid-Atlantic (FRCMA) has also benefited from Reserve support in the past year.

Two FRC Reserve Sailors provided more than 25 working days to FRCMA Site Norfolk, Virginia, resulting in the increased availability of more than 1,000 articles of gear for the fleet and helped process in excess of 350 work orders.

At FRCMA Site Oceana, Virginia, one Reserve Sailor completed the breakdown, inspection and build-up of 110 MH-53 Sea Dragon, MH-60 Seahawk, E-2 Hawkeye/C-2 Greyhound and V-22 Osprey tire and wheel assemblies.

“Every item an FRC Reserve Sailor can help us repair and return to the fleet makes us more capable of performing our mission,” said Commander, Fleet Readiness Centers Rear Adm. Mike Zarkowski.

“Sometimes it’s that one-more-item that determines if a weapon system is mission capable.”

During fiscal 2018, FRC Reserve Sailors executed more than 2,600 man-days of direct operational support to COMFRC, NAVAIR and other fleet customers.

Written by COMFRC Public Affairs. 🦅

Fleet Readiness Centers to Debut Artisan Apprentice Program

By COMFRC Public Affairs Office

With a tight job market, recruiting and retaining aviation maintainers can be a difficult proposition. To meet that demand, four Fleet Readiness Centers (FRCs) are starting a four-year apprenticeship program to help build a steady pipeline of trained and qualified artisans to increase production and improve Naval Aviation readiness.

“**A**rtisan training and development is critically important to accomplish current and future depot workload supporting the Naval Aviation fleet mission,” said Martin Ahmad, FRC deputy commander and industrial operations director for Naval Air Systems Command Logistics and Industrial Operations.

“We are implementing the Commander, FRC (COMFRC) National Apprenticeship Program to meet our training needs in a holistic manner. The program will establish a formal and consistent process for entry-level wage grade employees to obtain the skills and proficiency necessary to perform their best,” Ahmad said.

Working in partnership with local community colleges, the Department of Labor-approved program will recruit and train apprentices in up to 12 aviation maintenance trades. These include aircraft electrician, aircraft engine mechanic, aircraft mechanic, aircraft painter, aircraft sheet metal mechanic, composite worker, electrician, electronics mechanic, machinist, welder and more.



U.S. Navy Photo by Tolette Jackson

An aircraft mechanic cleans out the weapons door of an F/A-18F Super Hornet for inspection.

FRC Southwest, Naval Air Station (NAS) North Island, California; FRC Southeast, NAS Jacksonville, Florida; and FRC East, Marine Corps Air Station Cherry Point, North Carolina, are due to announce their classes in the coming weeks. FRC Mid-Atlantic, NAS Oceana, Virginia, has already hired its class for the year.

All expect to have their class on board by June 2019, with more than 500 apprentices expected to be hired over the next four years.

Apprentices will receive federal pay and benefits while in the program.

Depending on experience, apprentices will start working alongside artisans shortly after beginning the program and will be productive by their third year.

While no experience is required, an entrance exam is required to qualify. Instruction includes classroom and on-the-job training.

“When the program is completed, apprentices earn not only a certificate of graduation, they also earn college-level credits in math, technical drawing and manufacturing processes,” Ahmad said. “We had a program like this in the past

and I’m looking forward to bringing it back.”

Traditional and cutting-edge training systems will be used to train the apprentices.

“Skills labs and virtual training systems will be used to provide hands-on training and proficiency validation,” Ahmad said. “Established systems at the FRCs include sheet metals skills labs, virtual paint trainers and machinist skills labs.”

Written by COMFRC Public Affairs Office. 🦅

U.S. Naval Test Pilot School Bolsters UAS Curriculum

By Jeff Newman

As unmanned aircraft systems (UAS) become an increasingly key factor in military operations, the U.S. Naval Test Pilot School (USNTPS) is preparing for that future by revamping its current UAS instruction while adding a two-week advanced course for new graduates slated to be unmanned test pilots.

Beginning with Class 155 in July, the school expanded its introductory UAS topics taught in the classroom and restructured its intermediate teachings—wherein students apply what they’ve learned in the classroom to actual unmanned flights—to take further advantage of the convenience and flexibility of an onsite flight simulator, USNTPS Commanding Officer Cmdr. Glenn Rioux said.

Previously, students would head to Naval Outlying Field Webster in St. Inigoes, Maryland—roughly a 15-mile drive from the school’s location at Naval Air Station Patuxent River, Maryland—to fly two UAS events. Now one of those

events is conducted using the simulator, which reduces both time spent transiting to Webster Field and flight cancellations due to weather, Rioux said.

“Using the UAS simulator also lets our aircrews operate the air vehicles to the full limits of the hardware. We have many more limitations placed on the operators when flying out of Webster Field,” he said. Next summer, after Class 155 graduates, the school will begin offering a two-week, post-graduate course focused on personnel headed to a UAS developmental test program or Air Test and Evaluation Squadron (UX) 24, which commissioned Oct. 18 as the Navy’s first dedicated UAS test squadron.

The school currently offers three distinct 11-month curricula—fixed-wing, rotary-wing and systems—with its introductory and intermediate UAS teachings incorporated at the same level across those three tracks. Because all USNTPS students to date have been pilots and naval flight officers trained to operate traditional manned aircraft, creating a dedicated UAS curriculum could come with undesirable consequences.

“If we sent someone whose job it is to fly manned aircraft through that 11-month time period without flying manned aircraft, then that skill set would atrophy and require significant time and resources to regain qualification,” Rioux said.

Plus, because operating UAS often requires incorporating them into the airspace alongside manned aircraft, a background in manned aircraft and



U.S. Naval Test Pilot School (USNTPS) students fly unmanned aircraft systems (UAS) like the one pictured above as part of the school’s intermediate UAS course.

understanding of how they operate is considered key for UAS test pilots.

"In offering that focused, post-graduate unmanned short course, we can take someone with the baseline knowledge of a TPS graduate, whom we taught the mindset, risk management and communication that goes along with the whole flight test business, and have them apply it to this focused area of unmanned systems," Rioux said. "So everyone will get the introductory topics, everyone will get the intermediate topics, but those who are going specifically to test unmanned systems will get these advanced topics. And that's never been done before at TPS, or any of the other test pilot schools."

There is no plan within the next two years to create a dedicated UAS track at the school, but if the Navy decides to create a distinct career track for UAS pilots, as the Marine Corps and Air Force already have, "where pilots' whole jobs are flying unmanned systems and they never earn a manned aircraft qualification, that's probably the point where we should have established a separate unmanned systems curriculum," Rioux said.

Another sign of the steady shift to UAS aviation occurred at USNTPS in January, when the school enrolled its first UAS-exclusive pilot, a Marine, in a full 11-month course, said Lt. Col. Rory Feely, the school's executive officer.

"Now that UAS have reached such a significant momentum within our DoD space, I think all the professionals in the building here would say we need to increase our UAS curriculum content," Feely said. "Both academic background and applied flight test, if we're actually going to grow these systems to deliver the capability the fleet needs, TPS is the right place, with the right staff and right resources, to prepare UAS developmental testers."

Jeff Newman is a staff writer for Naval Aviation News. ✈️



U.S. Navy photo by Adam Skoczylas

Senior instructor Dr. Vernon Gordon leads an Oct. 3 class at USNTPS at Naval Air Station Patuxent River, Md.



U.S. Navy photo by Adam Skoczylas

Cmdr. Glenn Rioux (left) poses next to a Polish-built MiG-15 while safety pilot David Macaluso (right) briefs a student on the 1950s-era jet fighter as part of the school's qualitative evaluation program.



U.S. Navy photo

An TA-4J Skyhawk attack aircraft sits in front of USNTPS, which has recently expanded its UAS teachings in step with the growing prevalence of UAS in Navy operations.



U.S. Navy photo by Gerard Wallies

The iHub gives the workforce an environment where they can quickly generate innovative solutions to operational challenges. Its collaboration spaces are designed to be used as one main room or four separate ones.

THE IHUB STORY: How survey feedback, a tech incubator in a former tattoo parlor and determination led to NAWCAD's new innovation space.

By Denise Krumenacker

Start with feedback from the Naval Air Warfare Center Aircraft Division's (NAWCAD) most recent Command Climate Survey that the workplace lacked innovation, add visits to tech incubators in government and industry, infuse tenacity, determination and plain, old elbow grease, and there you have it—the iHub.

Short for "Innovation Hub," NAWCAD's iHub opened for business at Naval Air Station Patuxent River, Maryland, last August after taking a little more than 18 months from concept to ribbon cutting.

"The iHub serves as a visual symbol that leadership heard the workforce from the Command Climate Survey," said Denise Cifone, NAWCAD's director of strategic operations and initiatives. "It also says we are not the same old bureaucratic organization of yesterday."

With a command mandate to improve innovation, Cifone formed a team that

called itself 'NAWCmADe' and hit the road to learn more from other government agencies using creative and unique ways to innovate.

"We visited various innovation cells in the Washington, D.C., area and around other warfare centers," Cifone said. "The biggest inspiration came from SOFWERX in Tampa, Florida, which was the vision of Mr. James 'Hondo' Geurts. He wanted a venue where industry and other partners could collaborate and deliver capabilities to the fleet quickly. This vision was instrumental in the development of our strategy."

Now Assistant Secretary of the Navy for Research, Development and Acquisition (ASN (RD&A)), Geurts launched SOFWERX when he was an acquisition executive for U.S. Special Operations Command (USSOCOM). Housed in a former tattoo parlor, SOFWERX is a tech incubator and rapid prototyping facility where the

government can utilize the faster cycle times of industry to better respond to the shrinking technology gap between the U.S. and its adversaries.

It's this shrinking gap that led NAWCAD to launch not only the iHub, but several other facilities and initiatives such as huddle rooms, maker spaces, an Innovation Garage at Naval Outlying Field Webster in St. Inigoes, Maryland, and its mobile digital fabrication laboratory, or FabLab. There are mentoring pulses, innovation sprints and an innovation challenge-like program for non-developmental employees.

"Our hope is to change the way the workforce approaches a problem and even change some of the command processes that could benefit from an agile work environment, ultimately lessening the need for NAWCAD to outsource," Cifone said.

Tony Schmidt, NAWCAD's director

of rapid prototyping, experimentation and demonstration (RPED), emphasized the iHub's effectiveness.

"We can walk out with something completed," he said. "The iHub gave us the chance to get out of the environment we were used to, and innovative thinking opened up. We brought people together from different homerooms, competencies and locations. It was 'controlled chaos,' which was good, because you see a different energy as opposed to a conference room. People have the ability to move around, go off into smaller groups and then come back as one team. While you still need conference rooms, the iHub is more of a workshop space. It has a 'no need to wait, let's go' atmosphere. Some of the team had arrived early, and they got right to work."

The iHub's maker spaces have been humming with small but significant projects. For example, Austin Brouillard, an engineer with the turboprop and turboshaft design branch in NAWCAD's Propulsion and Power Department, created a tool that saved more than 60 hours on a project that will help redefine pass/fail criteria for damage on T56 engine compressor blades and determine which ones will make ideal test subjects during engine frequency testing.

Prior to Brouillard's innovation, inspecting the blades for corrosion, pitting along the edges, foreign object damage and other signs of wear required holding them under a microscope using a small lump of clay that needed to be remolded and positioned for roughly 19 test points per blade, a process Brouillard estimated took about 30 minutes.

With 132 total blades to inspect—33 for each of the four engines under review—the time spent reshaping clay added up fast.

So Brouillard, after taking a 3-D printing class, designed and printed an interlocking holder and stand for the compressor blade that easily fits under a microscope. All-in-all, it took about two weeks from conception to finished product, and now instead of spending 30 minutes per blade on set-up and positioning, Brouillard estimates he spends a few seconds. Add up the savings across 132 inspected blades, and Brouillard's ingenuity saved at least 60 hours.

Best of all, Brouillard's tool can be used across the fleet. The blades he was inspecting came from E-2C Hawkeyes, but several other platforms use the T56 engine. In addition, because the blade holder is removable and can be swapped out from the base of its stand, Brouillard's design can easily be adapted for blades from different compressor stages or even other engines.

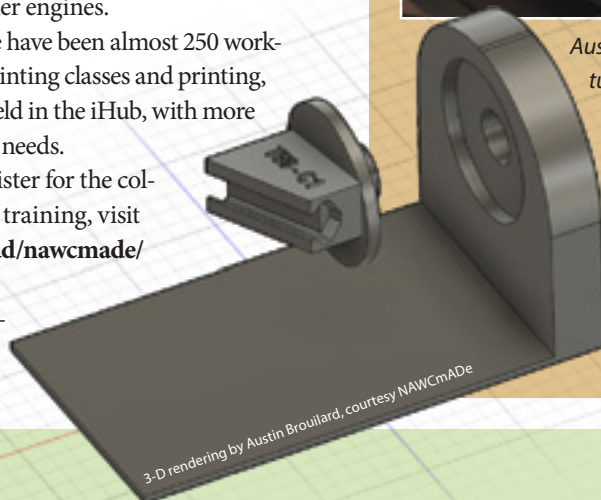
Since it's opening in August, there have been almost 250 workshops, technical interchanges, 3-D printing classes and printing, brainstorming or training sessions held in the iHub, with more than 90 projects printed to meet fleet needs.

For more information and to register for the collaboration spaces or 3-D classes and training, visit <https://myteam2.navair.navy.mil/ad/nawcmade/Pages/homepage.aspx>.

Denise Krumenacker is a communication specialist with NAWCAD Communications. ✈



Austin Brouillard, an engineer with the turboprop and turboshaft design branch in NAWCAD's Propulsion and Power Department, used clay to prop up and hold compressor blades under a microscope. Now, he uses a stand he designed (actual CAD drawing to the left) and printed in the iHub. He estimates that the device has saved him more than 60 hours.



3-D rendering by Austin Brouillard, courtesy NAWCmADe

U.S. Navy photos by Denise Krumenacker

Virtual Training for Aircraft Carrier Flight Deck Crews *By Bobby Cummings*

One of the most dangerous environments in the Navy is the deck of an aircraft carrier. High winds, furious engines, whipping propellers and catapult systems that can remove limbs create a hectic environment.

The driving force behind all of these activities is helping a pilot land an aircraft on a short slab of pitching steel in the middle of the ocean.

Although pilots are the stars of the show, they could not accomplish their missions without the support of flight deck crews, who are responsible for safely launching and recovering aircraft.

Previously, flight deck crews only could train while on the job. But thanks to a collaborative effort between the Office of Naval Research (ONR) Global's TechSolutions program and Naval Air Warfare Center Training Systems Division (NAWCTSD), a new technology called Flight Deck Crew Refresher Training Expan-



Lt. Cmdr. Kristin Acton, a former catapult officer, or shooter, aboard aircraft carrier USS Gerald R. Ford (CVN 78), takes part in a final demonstration of the flight deck crew refresher training expansion packs (TEP).

sion Packs (TEPs) will deliver cutting-edge training to Sailors and Marines.

The system is an expandable framework of game-based immersive 3-D technologies that allows for individual, team or multi-team training events.

"Having a simulator that allows us to tie the full flight deck team with all the key decision-makers, supervisors, catapult crew and watch stations together—and train in a virtual

Augmented Reality Connects Engineers with Aircraft Maintainers *By Allison Murawski*

Using augmented reality, a team from Naval Air Warfare Center Aircraft Division (NAWCAD) Lakehurst, is helping aircraft and support equipment (SE) maintainers in the fleet save time and money.

Team Collaborative Augmented Reality Maintenance Assistant (CARMA), comprised of five engineers and a logistician, conducted research, development and testing as part of a six-month NAWCAD Innovation Challenge to create a working prototype that would allow subject matter experts to help maintainers troubleshoot equipment virtually.

"Using augmented reality tools, we can place a SME right with the maintainer doing repairs or whatever a maintainer needs help with fleet side, base side, wherever they need it," said Connor Hagerty, CARMA team lead. "The expert will be able to see everything the maintainer sees and mark it up with drawings, with pictures, whatever they need to do to help the maintainer make the repair."

This virtual interaction reduces the costs of SMEs traveling to maintainers' locations to assist with complicated repairs and speeds up repair time, said Michael Confessore, CARMA's system architecture and graphical user interface designer.

"Even beyond that cost and time savings, a lot of times, if systems go down, they have to wait for the SME to get there, so there's a cascading effect where you can't use this piece of equipment, so you can't repair this engine, so now that plane can't fly. So getting these repairs done much quicker brings speed to the fleet," Confessore said.

Over the course of the challenge, the team worked to bridge communication between an augmented reality headset

—which the maintainer would wear—and a tablet or similar device the SME could use to see what the maintainer sees.

"CARMA is completely agnostic of system. It has a very universal appeal that, regardless of what you're using, if you need subject matter input from anybody, they can be there instantly," Hagerty said.

Feedback from maintainers was an important part of the development process, said Ric-Rey Vergara, CARMA's data transfer and networking lead.

"Through brainstorming with maintainers, we got a better idea of how they would use it day-to-day on maintenance operations," said Robert Samuel, augmented reality developer for CARMA. "For the maintainers' feedback so far, it's all been positive."

In a first for the Innovation Challenge, Team CARMA incorporated logistics into the development process from the start, including supply support, training and technical data elements. This included creating a logistics analysis report, operational user's manual and



U.S. Navy photos by John F. Williams

Cmdr. Jason Cassisi, air boss aboard aircraft carrier USS George H.W. Bush (CVN 77), participates in a final prototype demonstration of the TEP.

environment—is just fantastic,” said Cmdr. Mehdi Akacem, air boss aboard the Navy’s newest aircraft carrier, USS Gerald R. Ford (CVN 78).

The first three TEPs will help a carrier’s primary flight control team; the landing signal officer (LSO) team; and the catapult launch team.

The idea for the refresher training came from an LSO instructor at Naval Air Station Oceana, Virginia. TechSolutions—ONR

Global’s rapid-response, science-and-technology initiative to develop prototype technologies addressing problems voiced by Sailors and Marines, usually within 12 months—listened to the idea and found the right people to make it happen.

Courtney McNamara, a computer scientist and the advanced gaming interactive learning environment (AGILE) team lead at NAWCTSD, helped develop the technology.

“All of the ship systems, characters, flight deck crew characters and team members can be both driven synthetically or by live players,” McNamara said.

The training stations simulate real-life with the aid of virtual environments. Even the flight patterns that occur during the simulations are based on real flight patterns conducted by pilots. The training can simulate normal operations and emergency conditions, exposing deck crews to a wide array of real-world scenarios.

“This is really the first example I’ve seen of extending the value of a simulation environment to such an essential, tangible thing as a carrier flight deck,” Akacem said. “It’s really a need we’ve had for years, one we’ve been able to get by without because of the grit and will of our Sailors and Marines.”

Bobby Cummings supports ONR Corporate Strategic Communications. 🌟

software documents, said Lauren Rowek, logistics lead for CARMA.

“Planning for logistics support early on in CARMA’s development enhanced insight to future sustainment and supportability processes that will be applied to CARMA,” Rowek said. “Logistics plays an important role in the lifecycle support of a system, as logistics planning provides a better look ahead to what elements CARMA will require once it reaches the acquisition phases.”

The team worked together, with guidance from teammate Didier Lessage at Naval Air Warfare Center Training Systems Division in Orlando, Florida, to establish a CARMA working prototype.

The prototype was demoed successfully with Air Force maintainers at Joint Base McGuire-Dix-Lakehurst, New Jersey.

“Initiatives like the Innovation Challenge allow our personnel the freedom to find new ways to support our Sailors and Marines,” said Kathleen P. Donnelly, director of the support equipment and aircraft launch and recovery equipment department at Naval Air Systems Com-



Team Collaborative Augmented Reality Maintenance Assistant (CARMA) lead Connor Hagerty shows a Joint Base McGuire-Dix-Lakehurst, N.J., airman how to use CARMA.

mand. “I commend Team CARMA for a job well done and am excited to see what comes next with this innovative use of digital tools to bring speed to the fleet.”

The team plans to continue developing CARMA through a Naval Innovation Science and Engineering Program proposal and pursue other adaptations of augmented and virtual reality, said



CARMA team member Bobby Samuel is guided through a repair action using a demo board representative of support equipment a maintainer might interact with in the field.

Michael Donovan, virtual reality developer for CARMA.

“I really enjoyed the team atmosphere, being able to work on something that’s innovative and new to the Navy, and showing that it’s got merit and a place to help the fleet,” Donovan said.

Allison Murawski is the NAWCAD Lakehurst public affairs officer. 🌟



FRC East Celebrates 75th Anniversary

By Chrystal Smith

The annals of a golden era of maintenance, repair and overhaul are now in the books for the aviation depot at Marine Corps Air Station (MCAS) Cherry Point, North Carolina.

A female Marine torques bolts on an aircraft. The organization's workforce was made up of more than 60-percent Marines during the early years.



Trainees in the apprentice training program learn about maintenance on an aircraft engine during the 1950s.



U.S. Navy photos

Fleet Readiness Center East (FRCE) celebrated its 75th Anniversary Dec. 14 with a formal ceremony for about 400 employees and guests.

The organization marks Dec. 16, 1943, as its official start when it opened as the Assembly and Repair Department with more than 500,000 square feet and 33 civilians and three military members. Initial production lines included the Mitchell B-25 and Marauder B-26 bombers and F-4U Corsairs fighters.

The department expanded during the 1950s, adding hangar and shop space and clean rooms to meet the increasing demand of aviation logistic support.

By the mid-1960s, the department was a vital supporter of fleet operations worldwide. It was renamed and redesignated twice and restructured as a separate tenant unit under Navy management on MCAS Cherry Point. The organization embraced the mission focus of "service to the fleet" while also growing its workforce, workload and maintenance capability.

Expansion continued through the 1970s as the facility went through significant upgrades and modernization. The period was also an era that drew workforce acclaim through its recognition for excellence in productivity and the highest degree of customer satisfaction for its cost reduction efforts. The facility was noted for its unique capabilities of aerodynamically balancing helicopter blades and overhauling and processing pneumatic components. It acquired next-generation programs of the AV-8 Harrier and Pegasus F402 engine. The depot also expanded its realm of readiness delivery in the deployment of two field teams to Antarctica to support the National Science Foundation with the repair of two downed LC-130 Hercules aircraft.

The growth during the 1970s was a prelude to the improvements of the 1980s, as the organization embraced automation in the Automated Storage, Kitting and Retrieval System that brought the warehouse to the worker, tracking logistical details of aircraft components throughout the facility.



Aircraft mechanics perform Class-C maintenance on a Martin Baker seat in 1962.



Artisans work on and around AV-8 Harriers during the 1970s. It was one of the newest programs entrusted to the depot.



A view of Hangar 1 during the mid-1980s shows work in-progress on four different airframes—the F-4 Phantom, OV-10 Bronco, AV-8 Harrier and H-46 Sea Knight.

During the 1990s, the organization experienced a resurgence of wartime efforts supporting warfighters

during Operation Desert Storm/Shield with the deployment of several field teams overseas to repair and overhaul engines, components and aircraft. The organization's footprint increased with numerous construction projects to match the expanding workload, evolving capabilities and technological advancements. The threat of Base Realignment and Closure Act (BRAC) studies ignited an impassioned plea from the workforce to the BRAC commissioners, which resulted in the decision to not only keep the organization open, but created new work supporting the H-53 program. Cherry Point benefited from the BRAC realignment acquiring employees from the closure of Navy depots in Pensacola, Florida, Norfolk, Virginia, and Alameda, California.

As the depot approached the turn of the century, it began to realize its identity as a major industrial entity in the DoD, Navy, North Carolina and aviation. It was the first in DoD to become registered with the International Organization for Standardization. It was certified by the British Ministry of Defense as an alternate test and repair site for Royal Air Force Harrier engines. It was the Navy's sole site for depot-level helicopter blade repair. It garnered state-level commendations for environmental and labor practices. It began to strike public-private partnerships with big industry companies while the workforce accomplished the manufacturing, repair and overhaul in support of AV-8, H-46 and H-53 aircraft production.

More than a decade into the new century, the organization continued its progress as it employed new concepts and procedures to improve production and quality. It recorded a marked bump in production of aircraft, engines and manufactured components. However, governmental sequestration in 2013 delivered a blow to its production progress, and though it caused a stutter-step in productivity, the workforce managed to meet mission and production commitments the following year.

Today, FRCE is North Carolina's largest industrial and technical services employer east of Interstate 95. It comprises 119 buildings covering 2.1 million square feet and spanning more than 107 acres, with a facility replacement estimated value of \$1.3 billion. It has detachments at Beaufort, South Carolina, MCAS New River, North Carolina, and Joint Reserve Base Dix-Lakehurst, New Jersey.

Chrystal Smith is a public affairs specialist at Fleet Readiness Center East. ✪



H-46 maintenance was a large part of the workload in the 1990s.



FRCE's AV-8 program members (crash, damage, recovery team) stand with two aircraft in celebration of earning the 2008 Shingo Silver Medallion, awarded for operational excellence.



FRCE Marines from the flight check office stand near an H-1 Cobra. Marines perform functional tests before aircraft are returned to the fleet.



The first F-35 to be inducted at FRCE in 2013 sits on the flight line at Marine Corps Air Station Cherry Point, N.C.

NAE Visits MCAS New River

Story and Photography By Gulianna Dunn

Naval Aviation Enterprise (NAE) senior leadership visited Marine Aircraft Group (MAG) 26 and Marine Aviation Logistics Squadron (MALS) 26 aboard Marine Corps Air Station (MCAS) New River as part of the Boots-on-the-Ground (BoG) program Dec. 12.



Vice Adm. Dean Peters, commander, Naval Air Systems Command (center), talks with Vice Adm. DeWolfe Miller III, commander, Naval Air Forces (right), about a component of the MV-22B Osprey that was listed as one of the head hurters during the Boots-on-the-Ground (BoG) event at Marine Corps Air Station New River, N.C. Lt. Gen. Stephen Rudder, deputy commandant of aviation (left), also attended the BoG.

Cpl. Joshua Villareal conducts a demonstration of the E-Drill System during the BoG. The tool helped maintainers save an estimated 120 man-hours per repair of the Osprey's aft nacelle section.



This event focused on the readiness of MAG-26's MV-22B Ospreys while highlighting the challenges and best practices of the commands visited.

Those in attendance included Deputy Commandant of Aviation Lt. Gen. Stephen Rudder; Commander, Naval Air Forces Vice Adm. DeWolfe Miller; and Commander, Naval Air Systems Command Vice Adm. Dean Peters.

"We're down here hopefully getting dirty with you, to look at the challenges, put money against it, put man power against it, put contracts against it, whatever it takes to get the job done," Rudder said during his opening remarks.

At the beginning of the day, NAE leaders and industry partners were briefed on readiness degraders related

to corrosion and engineering product turnaround time.

“Today we’re going to show you what we do well and we’re going to show you what we do not do so well,” said Marine Col. Chris Boniface, MAG-26 Commanding Officer. “We’re going to show our initiatives, and we’re going to show you where we need some help. The areas that we’re focused on, I’ll tell you right now ... corrosion is killing me.”

An issue that requires extensive engineering and repair work, corrosion has impacted readiness of the Osprey by taking aircraft out of reporting. The MAG/MALS-26 team has been focusing efforts to prevent corrosion by conducting inspections and training Marines on how to identify and treat the issue.

One of the main objectives of a BoG is to identify “head-hurters” and capture actions items that will optimize readiness, but the event also provides NAE leaders the opportunity to see first-hand how maintenance and supply activities have incorporated better business practices.

Marine Cpl. Timothy Martin, an aviation hydraulic mechanic from



Rudder discusses a component of the MV-22B with Mark Watson (left), who provided a brief related to corrosion and engineering product turnaround time to NAE leadership.



Marine Cpl. Robert Boudreaux explains to Miller how 3-D printing has helped to create many functional parts in his work center.

MALS-26, briefed leaders on a tool he developed to assist with the removal of screws from the brake keys of the Osprey's main landing gear wheels.

"Our Marines who work in our tire shop were having a hard time removing brake key screws because the screws would often get stripped while attempting to remove them," Martin said. "I was working in our machine shop at the time and realized that there must be a better way to remove the screws.

"I made a plastic body and a metal screw and nut to fill the space in between the sides of the wheel half. This allows the application of adequate pressure to the heads of the screws. I measured its success in the amount of screws that were removed without the need for the machine shop to get involved."

This solution, like many others, has allowed the MAG/MALS-26 team to save the Marine Corps both time and



Rudder explains the value of a tool created by Cpl. Timothy Martin—and thus dubbed "The Martin"—which allows for easier removal of brake screw keys of the MV-22B's main landing gear wheel, saving both time and money.

money—something that NAE leaders will be able to endorse and promote across Naval Aviation.

The NAE is a cooperative partnership of Naval Aviation stakeholders focused on sustaining required current readiness and advancing future warfighting capabilities at best possible

cost. It is comprised of Sailors, Marines, civilians and contractors from across service branches and organizations, working together to identify and resolve readiness barriers and warfighting degraders.

Gulianna Dunn is a communications specialist with NAE public affairs. 🇺🇸

Martin Earns NAE Award

By Gulianna Dunn

It's not every day that a simple fix to a problem can save thousands of dollars, but for one Marine, his innovative solution did just that for Naval Aviation. His efforts were rewarded at a Boots-on-the-Ground event aboard Marine Corps

Air Station (MCAS) New River, N.C., Dec. 12.

Marine Cpl. Timothy Martin, an aviation hydraulic mechanic with Marine Aviation Logistics Squadron (MALS) 26, was awarded the Naval Aviation Enterprise (NAE) Excellence Award for creating a tool to assist with the removal of screws from the brake keys of the MV-22 Osprey's main landing gear wheels. The

award recognizes one or more Sailors, Marines and civilian employees for their contributions to Naval Aviation and for serving as positive examples of enterprise behavior.

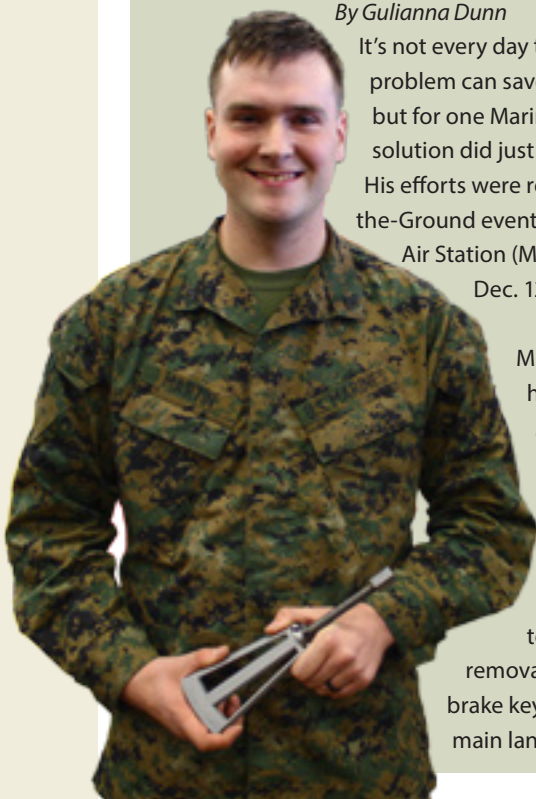
Martin figured out a way to remove the screws by making a plastic body and a metal screw and nut to fill the space in between the sides of the wheel half, which allowed adequate pressure to be applied to the heads of the screws.

"I measured its success in the amount of screws that were removed without the need for the machine shop to get involved," Martin said.

Serving his first enlistment, Martin said he joined the Marine Corps because "I always felt a calling to do something in the military service. I wasn't sure exactly what, but I knew that it was something that I was supposed to do."

Martin was presented the award by Deputy Commandant of Aviation Lt. Gen. Stephen Rudder. "When they were talking about this before, I couldn't visualize it, so we just had to come down here and see it. It was such a simple fix, but it is definitely special," Rudder said.

Dubbed "The Martin" by Rudder, the tool has led to the expedient repair of 17 wheel assemblies and helped save 320 man hours and more than \$229,000 in material costs. 🇺🇸



Professional Reading

By Cmdr. Peter Mersky, USNR (Ret.)

Fly Girls: How Five Daring Women Defied All Odds and Made Aviation History

By Keith O'Brien, Eamon Dolan, Boston, 2018. 338 pp.

As the years pass, separating us from the realities of people and events, we tend to forget women's rights were not always a given. The right to vote for women in the U.S. was not granted until 1920, for example, and came only after years of suffragettes parading and campaigning for their cause.

Nearly 90 years after they streaked across the skies of America's heartland—sometimes pushing 300 mph—the collective story of female aviators has been told in the form of *Fly Girls*.

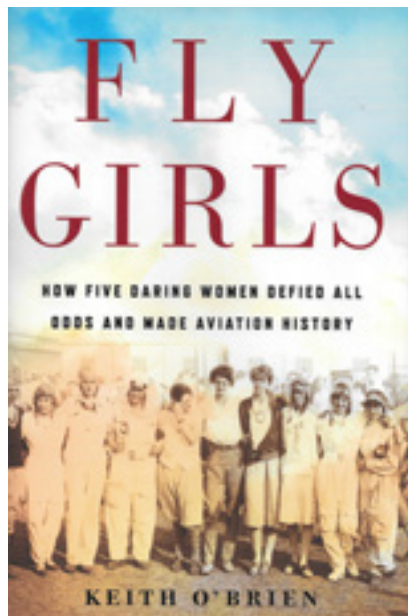
Even during World War II, the U.S., as well as other countries—with the important exception of the Soviet Union with its historic use of female aviators and flight crews in combat—did not allow women to fly in any Air Force or Navy unit. Women could only earn their private licenses and fly light planes. The only notable exception, albeit not recognized as an official Air Force unit or as war veterans until fairly recently, were the Women Airforce Service Pilots, or WASPs, organized by highly successful and respected aviator Jackie Cochran.

In the beginning, the book is largely about several young women who are unhappy with their station in life during the 1920s and 1930s. Some of them had earned their private pilot licenses but had not accumulated enough hours to qualify embarking on such demanding endeavors as trans-Atlantic flights.

The book, unfortunately, has several flaws, including the author's style, which plainly shows he set out to write a somewhat confrontational account describing the problems female aviators of the time encountered. To us today, their complaints may sound dated and even unresolved. After all, all military services of most countries include women in the cockpits, in all specialties, such as carrier aviators and combat crews.

I wish their story had been told better, with more accurate terminology and with a much better, selective folio of photos. The photo selection is weighted toward one individual, with one-third of the 35 pictures devoted to Louise Thaden, certainly not one of the more well-known female pilots today. Some captions don't even list the names of the other women shown in lineups with more famous female aviators.

The author also sometimes strays from his subtitle and discusses the male aviators, and in Amelia Earhart's strangely tragic



case, the manipulations and otherwise driven aspirations of her husband, publisher George Putnam. Would she have attained her exalted status today if it weren't for Putnam? Indeed, did she really want to be put on the pedestal that has maintained her mystery and left unsolved her disappearance in July 1937? We'll never truly know; all the players are gone. No confirmed trace of her, her plane or her navigator, Fred Noonan, has ever been found in the vast reaches of the Pacific. In this respect, *Fly Girls* is disappointing because it offers no new information on the Earhart story.

There are areas where the author gives us synopses of the popular activity of air racing. Similar to what is arguably now the most popular of spectator sports, NASCAR

racing, air racing paired sleek, sometimes improbable machines, with huge, powerful engines. A single pilot flew around meandering courses laid out around pylons.

While men were the center of racing, with names like Jimmy Doolittle and Roscoe Turner at the center of newspaper accounts of the latest races, women were beginning to enter these highly dangerous and demanding competitions. The author struggles to describe these female aviators' push to be recognized as skilled practitioners of their trade. Frankly, in the 21st century, some 90 years since these races were front-page news, the only name most people recognize is Amelia Earhart.

There is an oddly presented large section of 265 "notes" at the end of the book. I've never seen such a large portion shown almost as an afterthought, without any proper link to the preceding text. There is no easy way to connect any specific sentence or phrase to a corresponding note number without searching the chapter, which is backward from accepted form, as well as being time-consuming for readers.

Fly Girls is at its best when it brings out the difficulties women experienced getting into aviation in the two decades between the world wars. The book is a fairly good-but-flawed effort, with many minor-but-annoying errors in style and knowledge that affect the overall reading enjoyment of the author's in-depth research and intent. The author presents the case that, as we move into the 21st century, we are beginning to take female flight crews more seriously, but there is still a long way to go. 🐦

Grumman F-14 Tomcat Owners' Workshop Manual, All Models 1970-2006.

By Tony Holmes, Haynes Publishing, Somerset, UK; Newbury Park, CA. 2018. 188 pp. Ill.



No other writer-editor could have put this unusually conceived book together better than Tony Holmes, Osprey's premiere senior aviation editor.

Tony is responsible for several highly successful series covering aircraft of the aces and combat aircraft, which have sold thousands of copies internationally. Admittedly, Tony had assistance writing this book from notable F-14 alumni, such as Cmdr. Dave

Baranek, an author and expert photographer himself, in addition to being a radar intercept officer (RIO) and fleet squadron commanding officer, and Lt. Cmdr. Dave Parsons, well known for his efforts in publicizing Naval Aviation, as well as his expertise as an F-14 RIO. However, the coordination and writing skills required to produce this volume that tells the entire Tomcat story between two covers has to be applauded as the best such effort.

At first glance, this nicely printed and designed tome might appear to be just another book on the Tomcat, but such is not the case. Great photos, tables and authoritative essays, often from veteran pilots and RIOs, form a well-rounded account of the fighter's development and service in a decently priced single volume.

One such account comes from John "Squire" Seddon, whom I got reacquainted with in April 1982, when I was serving two weeks Reserve intelligence duty at Naval Air Station Oceana in Virginia Beach, Virginia. An Aviation Officer Candidate

School (AOCS) classmate, originally an F-4 RIO, Seddon was among the first cadre of fleet Tomcat RIOs. After some prodding, he got us up onto one of his squadron's F-14As to give me the nickel tour of the Navy's newest fleet fighter. Seddon had done well in AOCS, whereas I had struggled, but it was obvious he would have a good career. (Eventually, he took command of Fighter Squadron (VF) 41 before making captain.)

The book also mentions Dave Baranek, who was a fleet-experienced RIO by the time our paths crossed. In fact, he had recently retired from commanding VF-211 and was working on the first of his trilogy of fine memoirs of his time at TOPGUN. His tour included flying in several climactic scenes in the "bad guy" black F-5Fs of the iconic Tom Cruise movie.

There are many more names in Holmes' list of acknowledgements, and while all of them did give him great support, this book is, after all, Holmes' fitting paean to the Navy's premier post-Vietnam fighter. 🇺🇸

Sikorsky HR2S-1/CH-37C Deuce, H-37A/CH-37B Mojave, Heavy-Lift Helicopter.

By Gunther Winkle, Steve Ginter Publishing, Simi Valley, CA. 2018. 137 pp. Ill.

Arguably one of the more forgotten helicopters of the late 1950s and early 1960s, the H-37 nevertheless served in the Army, Navy and Marine Corps for several years when it was undeniably needed, especially in the first years of the Vietnam War.

No. 107 in Gunter's well-established "Naval Fighters" series, albeit incongruously placed as a "fighter," the "Deuce" hauled out hulks of shot-down Hueys and Frogs that might have otherwise remained where they landed for many years. Before Vietnam, the HR2S (as it was designated before October 1962) also supplied outposts and far-flung settlements not easily reached by regular wheeled transportation. American Indian reservations certainly benefitted from the Marine Deuces making regular runs to supply their needs.

The helicopter's unique design is featured on the book's front cover: the two prominently placed engines and their nacelles are depicted as bloodshot eyeballs, while Halloween mouths find ready places on the lower main fuselage forward area. The series' regular last pages discuss the few scale model kits of the Deuce, most of which require more than a neophyte's skill.

Color and black-and-white photos, as well as the usual fact-filled text and captions, complete the package—a surprising biography of this second-generation helicopter that perhaps deserves a little more exposure and fame than it has received. 🇺🇸

Squadron Spotlight

Helicopter Maritime Strike Squadron (HSM) 74

"Swamp Foxes"

Established: Aug. 21, 1986

Based: Naval Air Station Jacksonville, Florida

Current Commanding Officer: Cmdr. Thomas "Junior" Eisenstatt

Mission(s): Anti-submarine warfare (ASW), anti-surface warfare (SUW) and electronic warfare (EW)

Brief History: Established as Helicopter Antisubmarine Squadron (Light) (HSL) 44, the world-famous "Swamp Foxes" received their name from the Revolutionary War hero, Gen.

Francis Marion, whom enemies dubbed the Swamp Fox for his use of ambush tactics in the swamps of South Carolina.

Flying the SH-60B Seahawk out of Naval Station Mayport, Florida, HSL-44 was at the forefront of the Light Airborne Multipurpose System (LAMPS) III community, becoming the first operational squadron to fire a Hellfire missile, carry a Mk-54 Mod-0 lightweight torpedo and drop the Mk-54 Mod-1 torpedo. The Swamp Foxes were also the first East Coast squadron to fire the Penguin missile.

HSL-44 deployed for Operations Desert Shield and Desert Storm with six detachments, Operation Allied Force off the coast of Yugoslavia in support of NATO missions in the



Balkans, and Operations Enduring Freedom and Iraqi Freedom. Additionally, the Swamp has rescued hundreds of mariners and aviators and participated in counter-drug interdiction, significantly reducing the flow of narcotics into the U.S.

On June 9, 2011, the Swamp Foxes were redesignated Helicopter Maritime Strike Squadron (HSM) 74, moving their operations to Naval Air Station Jacksonville to fly the MH-60R.

The Swamp is currently attached to Carrier Air Wing 3 and operates aboard USS Dwight D. Eisenhower (CVN 69), as well as cruisers and destroyers in three combat elements.

Aircraft Flown: MH-60R Seahawk

Number of People in Unit: 285 military personnel

Significant Accomplishments:

- 2018 Blue "M" Award for Medical Readiness
- 2018 Medical "H" Navy Surgeon General's Health Promotion and Wellness Award
- 2017 Battle Effectiveness Award
- 2016 Aviation Safety Award





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