# Naval Aviation News

The Flagship Publication of Naval Aviation

- F-35C Lightning Traps aboard *Nimitz*
- History of the Atlantic Test Range
- Meeting Challenges at the Fleet Readiness Centers

Fall–Winter 2014

# NAVAL AVIATION NEWS

Volume 96, No. 4, Fall–Winter 2014

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## Features



## Departments



*This page: USS* Theodore Roosevelt *(CVN 71) leads a formation of Carrier Strike Group 12 ships during a maneuvering exercise 23 September. (Photo by MC2 Katie Lash)*

*Back cover: Diamond pilots from the U.S. Navy Flight Demonstration Squadron, the Blue Angels, perform the Low Break Cross maneuver during a practice demonstration at the NAS Oceana, Va., Air Show 19 September. (Photo by MC2 Andrea Perez)*



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*Front cover: An F-35C prepares to trap aboard USS* Nimitz *(CVN 68) 3 November off the coast of San Diego, Calif. For more information on this historic event, please read "F-35C Hits a Milestone" on page 10. (Photo courtesy of Lockheed Martin, composite by Dave Bradford)*

# Flightline

## Wielding the Lightning for Naval Aviation's Future

*By Vice Adm. David H. Buss, Commander, Naval Air Forces; Commander, Naval Air Force, U.S. Pacific Fleet*

In early November, I was able to witness a milestone in the development of the carrier air wing's next fighter aircraft–the first arrested landing and catapult launch of the F-35C Lightning II Joint Strike Fighter (JSF) aboard USS *Nimitz* (CVN 68).

I am extremely proud of what our Naval Aviators are doing at home and abroad to execute important missions. There is an undeniable truth we see reinforced on the global stage nearly every day: the strategic deterrent value–as well as the immediate relevant power our aircraft carriers and their embarked air wings bring to bear–continue to make them essential assets sought in times of crisis by our nation's leadership. Test events aboard *Nimitz* will ensure this undeniable truth endures well into the future.

Today, Naval Aviators are flying the world's most capable aircraft. We must continue delivering credible combat power to potential trouble spots around the globe, and in order to do so, we must remain committed to advancing our technology and capabilities to meet the rising threats of tomorrow. The F-35C Lightning II carrier variant JSF–along with the mix-and-match of other aircraft we are already flying today or will procure in the near future–will provide carrier-based Naval Aviation the ability to meet our global commitments, to deter and defeat any potential adversary for the foreseeable future.

Important milestones, like the ones witnessed on the flight deck of *Nimitz*, will take us one step closer to outfitting our future carrier air wings with this stealthy, high-performance fighter. The F-35C combines radar-evading stealth, supersonic speed and incredible agility with the most powerful and comprehensive integrated sensor package of any fighter aircraft in history to provide unprecedented lethality and survivability. As with all initial testing of new aircraft, we hope to learn that the F-35C is as easy to launch and recover aboard an aircraft carrier as our simulations and shore-based testing indicate.

We further expect a thorough assessment of how well the F-35C will operate with all the systems aboard an aircraft carrier. We will then use what we learn in this testing to make any adjustments necessary to ensure that when we deliver this aircraft to the fleet it is fully capable and ready to dominate in combat. This test-learn-adapt-test again philosophy has served us well in the past.

I have no doubt that the F-35C program is the right fit for the future of Naval Aviation. More than 70 years of carrier-based fighter evolution culminates with our introduction of the F-35C to our aircraft carrier air wings of tomorrow.

I hope you are as proud as I am of Naval Aviation's remarkable, innovative and evolutionary journey in underpinning this nation's security. The future is bright indeed.

***Fly! Fight! Win!***

*Vice Adm. Buss is a native of Lancaster, Pa., and graduated with distinction from the United States Naval Academy in 1978. He was designated a Naval Flight Officer and completed initial training in the venerable A-6 Intruder in 1979.*

*Buss' early flying assignments include carrier-based squadron tours aboard USS* Dwight D. Eisenhower *(CVN 69), USS* Nimitz *(CVN 68) and USS* Theodore Roosevelt *(CVN 71). He commanded the Attack Squadron 34 Blue Blasters embarked aboard USS* George Washington *(CVN 73) from 1995 to 1996. The Blasters were one of the Navy's last A-6 squadrons. Following squadron command, Buss completed Naval Nuclear Propulsion training and served as executive officer aboard* Nimitz.

*He commanded USS* Sacramento *(AOE 1) during the opening stages of Operation Enduring Freedom following the 9/11 terrorist attacks. Buss then commanded USS* John C. Stennis *(CVN 74) from 2003 through 2006.*

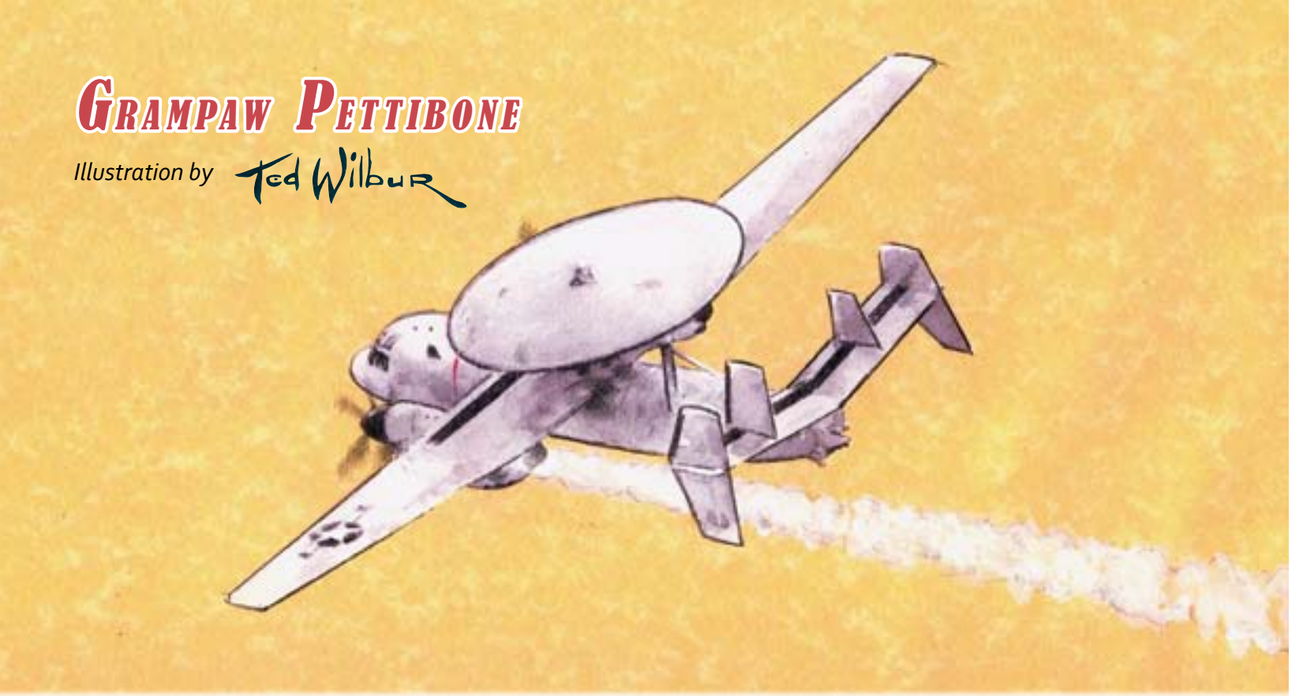
*As a flag officer, Buss has twice served on the CNO's staff, as well as serving 14 months in Baghdad, Iraq, as director, Strategy/Plans/Assessments (J-5). He commanded CSG-12, the* Enterprise *CSG, and commanded Task Force 20 while also serving as deputy commander, U.S. Fleet Forces Command in Norfolk, Va.*

*Buss has been privileged to serve with teams that excelled in combat operations and he wears the Distinguished Service Medal, Legion of Merit (five awards), Distinguished Flying Cross (with Combat V), Bronze Star Medal, and Air Medal (five individual, four strike/flight awards) as representative of those teams.*

*Buss became Naval Aviation's 6th Air Boss in October 2012.*

# Grampaw Pettibone

*Illustration by* Ted Wilbur



## Fire-Roasted Hawkeye

An E-2 Hawkeye crew was conducting field carrier landing practice at an outlying field (OLF). At the abeam position, they called for a full stop to make a crew change. As they were passing through the "90" position, the landing signal officer (LSO) noticed what appeared to be white smoke emanating from the aircraft. The LSO called on the radio, "At the 90, check your dumps," but then immediately called, "You are on fire." The pilots noticed the "oil low" light followed by a fire light on the port engine. The pilot in the left seat began the "engine fire" in the flight memory items. He secured the engine and at the memory procedure "landing gear–as required," opted to raise the gear and initiate a waveoff. Both the crew and the LSO began coordinating with the tower for the aircraft to return to the nearby naval air station (NAS).

Noting that the engine was still on fire, the aircraft commander–sitting in the right seat–decided to land at the OLF. The crew executed a teardrop maneuver to set up landing on the downwind runway, lowering the gear and hook (there was no arresting gear at the OLF). The aircraft touched down and it was immediately apparent to the pilots that the nose wheel steering and normal brakes were inoperative. The crew tried both the auxiliary brakes and the emergency brake with no affect.

The aircraft then travelled the length of the runway, and noting they were still travelling at considerable speed, the crew shut down the starboard engine as they departed the runway. The aircraft came to a stop in the soft sand, the crew egressed and the fire was extinguished by the OLF crash and salvage crew.

The post-flight inspection revealed the regulator solenoid in the air turbine start control valve backed out of its housing, allowing uncontained bleed-air to enter the start assembly. This caused the starter to engage, overspeed and fail. The bleed-air continued to flow into the engine nacelle undetected by the fire detection system and caused the oil pump housing to fail. This released pressurized oil into the nacelle, which was ignited by the bleed-air, causing an uncontained fire that burned through hydraulic lines and electrical wires, including the wiring for the fire suppression system. The fire eventually burned holes in the nacelle and began to melt away the landing gear doors.

The OLF arresting gear had been permanently disestablished in an effort to save money.

**Grampaw Pettibone says:**

**Well, that went from routine to ugly in the blink of an eye! Kids, these guys had a lot of snakes show up in the cockpit in a short period of time, and I don't like to play Monday morning quarterback, but you know ol' Gramps' job is to take these events apart and see what we could have done better. Now, there is always a period where the boys and girls in the game don't have all of the info and have to rely on training and instinct, but this one got so squirrelly so fast, it seems to this old timer like the best course of action would have been to get that flying machine on terra firma and sort out everything else with the steed tied down and an adult beverage in hand.**

**Seems to me that both the pilots and the skivvie-waving LSOs had a bit of "let's get the machine back to the maintainers" attitude. Don't get me wrong–that is often a great call and better for the squadron. When you are already set up for a full stop, however, and the fire lights are on and engines are shutting themselves down, I'm gonna go out on a limb and say, let's land that gnarly beast! If you landed and you didn't need to, well shoot, you can take right back off, right? In this case, it may be that an immediate landing without raising and lowering the gear would have left some pressure for brakes.**

**So gather 'round kids and let's make sure we get this lesson: If the airworthiness of your machine is in question, your priority needs to be your own skin. It's good to think of the organization and the troops, but don't let getting the bird fixed take precedence over looking after your own self.**

**And as an aside, I got a burr under my saddle that our leaders made the decision to remove arresting gear for budgetary reasons. The whole purpose for an outlying field is to be a mini full-up NAS. We got crash crews (thank the almighty!) and in this geezer's opinion, we should have had some spaghetti on that runway when it was needed. This event cost over a million dollars of mama Navy's money! How much did we save pulling the gear out of that OLF?**

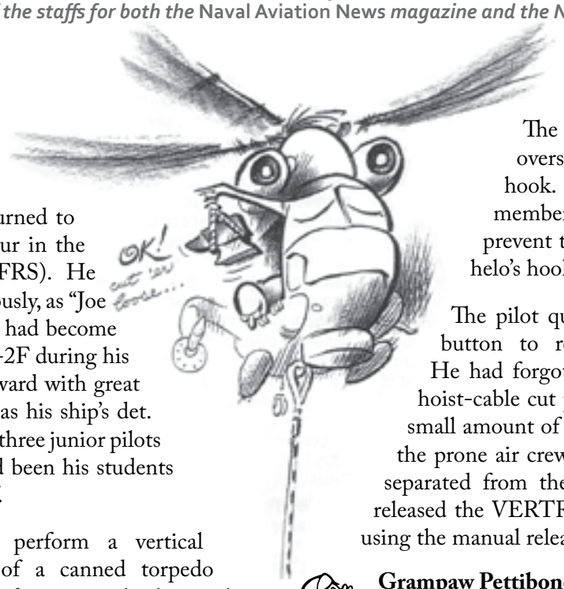
**Now you kids get on back to work, Gramps is gonna go take a spin around the patch in my own flyin' machine.**

# *Gramps from Yesteryear*

Naval Aviation News *October 1994*

*In this 1994 issue, Capt. Ted Wilbur, USNR (Ret.), took over as the illustrator of Grampaw Pettibone, carrying on the heritage of the character's creator, Robert Osborne. Wilbur served more than 30 years as a naval aviator, combat artist, editor and writer. He retired in 1981 as head of the staffs for both the* Naval Aviation News *magazine and the Naval Aviation History Office.*

## Hot Stick, Hot Switch




An SH-2F Seasprite pilot returned to sea duty after an instructor tour in the Fleet Readiness Squadron (FRS). He described himself, albeit facetiously, as "Joe Hot-Stick Aviator" because he had become extremely proficient in the SH-2F during his instructor tour. He looked forward with great confidence to his assignments as his ship's det. officer in charge. Moreover, his three junior pilots and two air crew members had been his students at the FRS. He felt bulletproof.

At sea, he was tasked to perform a vertical replenishment (VERTREP) of a canned torpedo from a supply ship without a landing area to his home plate. Although he had not executed a VERTREP in two years, he had no reservations nonetheless.

Approaching the ship, the air crew conducted the Hoist/Helicopter-In-Flight Refueling (HIFR)/VERTREP checklist, emphasizing hoisting. The hoist-cable cut switch was set in the armed position. The hoist was then lowered to deliver the cargo pendant for the torpedo can. The supply ship crew had attached an H-46 helicopter pendant to the load, which was too large for the SH-2F's cargo hook, but the evolution began nonetheless.

The air crew member in the Seasprite lay flat on his stomach with his head out the door to observe the cargo hookup. The deck crew tried to jam the oversized pendant onto the small hook. Observing this, the air crew member called for "load release" to prevent the pendant from jamming the helo's hook.

The pilot quickly punched the sling-drop button to release the VERTREP load. He had forgotten that he had left it in the hoist-cable cut position. The hoist hook and a small amount of cable narrowly missed striking the prone air crew member on the head as they separated from the hoist boom. The pilot then released the VERTREP load from the cargo hook using the manual release.

**Grampaw Pettibone says:**

**Another near miss!**

**This "ace" pilot failed to complete the Hoist/HIFR/VERTREP checklist the second time after completing the first evolution: hoisting. Prior to VERTREP–the second evolution–he failed to change the position of the cable cut/sling-drop power switch.**

**Had the hook and cable whacked the air crew member on the noggin, they mighta had a very serious customer in the nearest sick bay. Or worse. Checklists are the roots to success for Naval Aviation. They can also be the roots of disaster if you don't use 'em properly.**

*(Lt Cmdr. Ken Taylor contributed this article.)*

# Airscoop

*Edited by Josh Phillips*

*Ships from the* George Washington *and* Carl Vinson *Carrier Strike Groups, as well as Air Force and Marine Corps units, operate in formation at the 23 September conclusion of the 2014 Valiant Shield exercise. (Photo by MC1 Trevor Welsh)*

## 2014 Valiant Shield Exercise Concludes

The *George Washington* and *Carl Vinson* Carrier Strike Groups (CSGs), as well as land-based aircraft from MAG-12 and the U.S. Air Force 36th Operations Group, joined together in the Pacific near Guam for the 2014 Valiant Shield exercise from 16-23 September.

"[War-at-sea exercises] are conducted by naval assets around the world and in their most basic form they are the execution of … an air-launched attack against simulated adversary surface ships played by U.S. surface combatants," said Rear. Adm. Mark Montgomery, Commander, Battle Force 7th Fleet.

Valiant Shield brought together more than 18,000 service members, 200 aircraft and 19 surface vessels to function as a joint force during a war-at-sea exercise. The exercise provides training that will allow the joint forces to ready at the outset of a contingency, without delays for buildups or extensive mission rehearsal.

"[These exercises] allow us to practice targeting and attacking simulated threat task groups and opposing sea targets," said Cmdr. Ernest Winston, commanding officer of the VAQ-141 Shadowhawks. "As adversaries become more advanced, it requires us to adjust our tactics accordingly. This exercise gives us a chance to incorporate new tactics and perfect old ones."

## Triton Touches Down

The MQ-4C Triton unmanned aircraft system arrived at NAS Patuxent River, Md., 18 September following its inaugural cross-country ferry flight. The milestone marked the transition from initial flight test to testing that will demonstrate the aircraft's ability to perform operational missions in the maritime domain.

"Today we brought Triton home to the center of research, development, test and evaluation for Naval Aviation," said Rear Adm. Mat Winter, Program Executive Officer for Unmanned Aviation and Strike Weapons at Naval Air Systems Command (NAVAIR). "The testing performed here over the next few years is critical to delivering a capability that will provide our warfighter an unparalleled awareness of the maritime environment in locations across the globe."

The Triton flew approximately 3,290 nautical miles at altitudes in excess of 50,000 feet along the southern U.S. border via an approved instrument route. Operators then navigated the aircraft up the Atlantic Coast and over the Chesapeake Bay before arriving at NAS Patuxent River.

## Magic Carpet Rides at Tailhook

Attendees of the 2014 Tailhook Reunion in Reno, Nev., received a hands-on demonstration of the Magic Carpet: an aircraft technology that will make life (and landing) a bit simpler for pilots trapping aboard carriers.

The Magic Carpet software is designed to aid aircraft landing aboard carrier decks in heaving, unstable seas. The technology was presented to pilots and engineers by way of a NAVAIR-built flight simulator that allowed test pilots from the VX-23 Salty Dogs carrier suitability department to collect feedback from more than 500 fellow aviators.


*A VAW-116 Sun King E-2C Hawkeye traps aboard USS* Carl Vinson *(CVN 70) on 16 September during the 2014 Valiant Shield exercise. (Photo by MC2 John Philip Wagner, Jr.)*

"The overall response from the fleet was exceptionally positive," said Lt. Cmdr. Patrick Bookey, the VX-23 carrier suitability department lead. "I thought most fleet aviators were very receptive, even enthusiastic, about [the Magic Carpet's] potential impact on the carrier landing task. Most people were asking, 'when are we getting this?'"

Carrier landings are inherently dangerous because of the large number of inputs pilots must simultaneously absorb, understand and react to in order to adjust their aircraft to meet the conditions of the carrier. The Magic Carpet software alleviates much of the pilot's burden by automatically adjusting some of the aircraft's flight controls in accordance with the carrier's speed to maintain the right rate of descent. This allows the pilot to focus on keeping the aircraft centered and maintaining the right angle for the tailhook to catch the carrier's arresting wire.

Magic Carpet is scheduled to make its first test in a live, at-sea environment on the F/A-18 platform in 2015.

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In order to keep current with our seasonal schedule, *Naval Aviation News* published this edition as Fall/Winter 2014. The next edition of the magazine will be Spring 2015 with an estimated publication date in mid-March. Thank you for continuing to read *Naval Aviation News.*

# F-35C Lightning Hits the Mark

**By Lt. j.g. Clinton Ramsden III**
*(Photo courtesy of Lockheed Martin)*

The F-35C Lightning II Joint Strike Fighter (JSF), the Navy's newest strike fighter, completed initial carrier developmental testing (DT-I) 14 November aboard USS *Nimitz* (CVN 68) in San Diego, Calif.

During DT-I, F-35C test pilots and engineers tested both the suitability and integration of the aircraft with carrier air and deck operations in an at-sea environment. A series of tests designed to gradually expand the aircraft's operating environment enabled the F-35 Lightning II Integrated Test Force (ITF) from the VX-23 Salty Dogs–based at NAS Patuxent River, Md.–to conduct operations in preparation for the aircraft's initial operational capability in 2018.

> **"The control schemes of the F-35C provide a tool for the below-average ball flyer to compete for top hook."**
> *Cmdr. Tony Wilson*

The F-35C demonstrated exceptional performance both in the air and on the flight deck, accelerating the team's progress through the DT-I schedule and achieving 100 percent of the threshold test points three days ahead of schedule. Test pilots and engineers credited the F-35C's Delta Flight Path technology with significantly reducing pilot workload during the approach to the carrier, increasing safety margins during carrier approaches, and reducing touchdown dispersion.

"The engineers responsible for the aircraft's control laws did a phenomenal job designing this aircraft from the pilot's perspective," said Cmdr. Tony Wilson, the DT-I team lead at VX-23. "The control schemes of the F-35C provide a tool for the below-average ball flyer to compete for top hook."

Other test pilots involved in the testing described the F-35C as easy to operate in the carrier environment. One former F/A-18 Super Hornet pilot described landing an F/A-18 as being "fun and challenging," while landing an F-35C as "just plain fun."

"My major take away was that the F-35C is very good at flying behind the ship," said Lt. Cmdr. Ted Dyckman, a VX-23 test pilot. "Any deviation that someone gets themselves into, they can correct fairly quickly and accurately."

"In fact, it's a three-wire machine," he added, referring to the optimal arresting wire aboard an aircraft carrier.

By alleviating the need for pilots to make power corrections, F-35C pilots are able to focus on the line-up to the carrier deck during traps. This capability allowed for 124 arrested landings with zero unintentional hook-down missed attempts to catch an arresting wire on the flight deck, otherwise known as "bolters." (Two hook-down intentional bolters were conducted as part of the DT-I test plan.)

"The flight control system is precise, stable and responsive and provides carefree handling in all flight regimes," said Cmdr. Christian Sewell, the VX-23 F-35 operational test liaison officer/ITF operations officer. "We've tested right up to the edge of the envelope and the aircraft handles amazingly. In general, the pilot workload required to fly the F-35 is less when compared to legacy aircraft, which allows the pilot to focus their efforts on the operational mission."

According to Capt. A.C. Lynch, the deputy director of the NAVAIR Air Vehicle Engineering Department, the three-wire landings during DT-I demonstrated the successful re-design of the F-35C's tailhook and supporting structural interfaces. The joint contractor and government team consisted of engineers with NAVAIR's Systems Engineering; Air Vehicle Engineering; Support Equipment and Aircraft Launch and Recovery Equipment departments; the Atlantic Test Range and Patuxent River

*Cmdr. Tony Wilson*
*(Photo courtesy of Lockheed Martin)*

*An F-35C Lightning II makes an arrested landing aboard USS* Nimitz *(CVN 68) on 6 November.*
*(Photo courtesy of Lockheed Martin)*

*An F-35C Lightning II approaches USS* Nimitz *(CVN 68) for an arresting landing 3 November.*
*(Photo courtesy of Lockheed Martin)*

ITF; Lockheed Martin Aero; Northrop Grumman; and Fokker Landing Gear.

The tailhook re-design effort, like the flight control system, is an example of the power of collaboration between government and industry engineers. "In both cases, industry was able to leverage NAVAIR's decades of experience in carrier-based aircraft design to build an outstanding product for the warfighter," said Lynch.

"Since beginning shore-based carrier suitability testing in January 2014 with the redesigned hook system, test results have been positive with the ultimate proof coming in the success of DT-I," said Bryan Racine, F-35 ship suitability team lead.

*Cmdr. Christian Sewell*
*(Photo courtesy of Lockheed Martin)*

"This det. was very successful," said Dyckman. "We flew it here and saw that it could trap with no bolters. The only true bolter was a power call on the landing signal officer and the aircraft touching down long."

"We had stricter weather requirements when we were here. As we got into [testing], the weather started coming down," he said. "We had such confidence in how the plane was flying that we lowered the weather minimums to what the fleet is actually using, knowing that when I lower my hook and come into the groove I'm going to trap."

Dykman added that the test team's confidence level in the aircraft was so high, they were ready to evaluate the aircraft for night operations during the first det.

"It flew very well behind the ship, even on the darkest night," he said. "Two hook-down passes and two traps: that says it all right there. It's unheard of to conduct night ops on the first det."

During DT-I, F-35C maintenance and ground operations integrated well with standard Navy carrier procedures aboard *Nimitz*.

"All of the flight deck crew members involved in DT-I were assigned to *Nimitz*, some of whom went to NAS Patuxent River in mid-October for training," said Wilson. "They returned to the ship and prepared the remainder of their crew for the arrival of the F-35C. The initial ship trials of the F-35C would not have been possible without the cooperation of *Nimitz*."

After all test points are collected, analyzed and assessed, the DT-I data will be used to advise the Navy of any adjustments necessary to ensure the fifth-generation fighter is fully capable and ready to deploy to the fleet in 2018.

"Our main testing points were to verify that the approach handling qualities were satisfactory across a variety of wind conditions, to determine the launch characteristic and performance from the ship's catapults across a variety of wind conditions, to look at the integration of the aircraft with the ship both on the flight deck and in the hangar bay, and to test the ability of the F-35C to use other ship's flight systems to perform inertial alignments, instrument approaches and basic navigation to and from the ship," said Cmdr. Shawn Kern, the director of test and evaluation for F-35 naval variants. "We also performed some aircraft functions in and around the shipboard environment including use of various sensors and fuel dump testing."

**"In general, the pilot workload required to fly the F-35 is less when compared to legacy aircraft, which allows the pilot to focus their efforts on the operational mission."**

*-Cmdr. Christian Sewell*

By 2025, the Navy will integrate the F-35C into the carrier air wing where it will bring advanced stealth technology to the carrier environment, enhanced interoperability capabilities to other air wing platforms, and an upgraded network to ensure the precision of the commanders' perception of the operating area. Future carrier air wings will consist of a mix of F-35C Lightning IIs; F/A-18 E/F Super Hornets; EA-18G Growlers; E-2D Hawkeyes; unmanned carrier launched airborne surveillance and strike air vehicles; MH-60R/S helicopters; and Carrier Onboard Delivery logistics aircraft.

*Lt. j.g. Ramsden is an assistant public affairs officer with Commander, Naval Air Forces, U.S. Pacific Fleet.*

*Two F-35Cs fly over USS* Nimitz *during DT-I testing in early November.*
*(Photo courtesy of Lockheed Martin)*

# Open-Air Flight Testing Evolves at the Atlantic Test Ranges

*By Theresa Hopkins*

Modern naval aircraft and weapons systems require state-of-the-art technology and instrumentation for test and evaluation (T&E). These assessments start years in advance of an aircraft's delivery to the fleet and often require technological innovation.

The Atlantic Test Ranges (ATR) at NAS Patuxent River, Md., offers T&E capabilities and open-air range assets to provide decision-quality data for naval aircraft acquisition programs. ATR is one of three Naval Air Systems Command (NAVAIR) open-air ranges–along with the Sea Range and the China Lake Ranges on the West Coast–which enable NAVAIR to deliver capable, affordable and sustainable warfighting capabilities to Sailors and Marines.

"Today's flight testing monitors a wide range of parameters to gather accurate engineering data for flight test teams to make informed decisions," said Rob Vargo, ATR director. "Not only are the aircraft we test today more sophisticated than those tested in the early days of naval flight testing, but the range assets used to test those systems have also evolved to meet the T&E needs of current Naval Aviation programs."

While today's aircraft and the tools for testing them have all undergone change over the years, the exceptional support that the NAS Patuxent River range professionals have provided to the Navy is unwavering.

In November 1942, Navy officials designated NAS Patuxent River as the site for testing experimental aircraft, equipment and material. The station would also become the East Coast base for the Naval Air Transport Service (NATS).

During the 1 April 1943 commissioning ceremony, Rear Adm. John S. McCain–then chief of the Navy's Bureau of Aeronautics–called Patuxent River "the most needed station in the Navy."

From June through August 1943, flight test and development squadrons from NAS Anacostia, Washington, D.C., and the Aircraft Armament Unit from Norfolk, Va., transferred operations to Patuxent River. This consolidation initiated the station's role as an aircraft test organization.

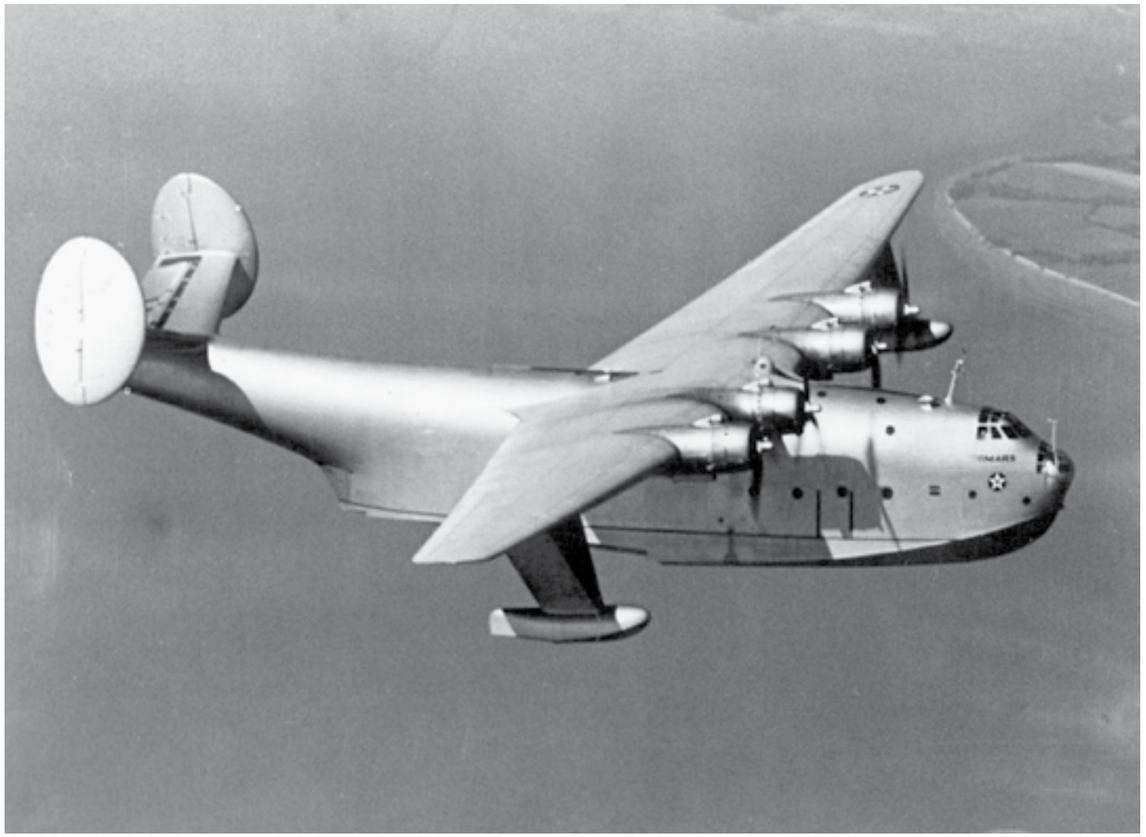
In July 1943, the Navy's first air transport squadron, VQ-4, arrived at its new home at Patuxent River from Norfolk. Naval Air Transport Squadron (VR) 8 was originally established at NAS Patuxent River in October 1943. By June 1944, VR-9 was formed to function as the headquarters and maintenance squadron for NATS Atlantic. Radio, armament, catapult and arresting gear testing, as well as tactical equipment and service testing, were being conducted by this time.

On 16 June 1945, the Navy established the Naval Air Test Center (NATC) at Patuxent River. The NATC was responsible for the functional areas of flying qualities and performance, service suitability, and electronics and armament testing. The center was split into five branches: Flight Test, Tactical Test, Armament Test, Electronic Test and Service Test. Flight testing duties fell under the Armament Test Division.

The development of jet aircraft and improvements to conventional weapons took place at NATC began in the 1950s. From the 1950s through the 1970s a number of patrol squadrons including VP-8, VP-44, VP-49, VP-24, VP-30 and VP-68 operated from Patuxent River. By August 1955, Aviation Airborne Early Warning Squadron (VW) 11, the first of three such squadrons, was commissioned at NAS Patuxent River. VW-13 and VW-15 were commissioned by October 1955.

A 1967 reorganization combined elements from the Flight Test, Service Test and Weapons System Test branches to form the Technical Support Division: the genesis of the current ATR. The Magnetic Tape and Telemetry Branch was created as part of the NATC Technical Support Division to provide telemetry to Navy flight test customers. Telemetry, the invisible link between aircraft and ground station, transfers results from complex measuring instruments on test aircraft to a team of flight test engineers on the ground.

Prior to 1970, options were limited for flight test engineers to monitor aircraft under test. Engineers could communicate



*The first Martin JRM Mars four-engine cargo transport seaplane, or "flying boat," is delivered to Naval Air Transport Squadron 8 at NAS Patuxent River, Md., 27 November 1943 for crew training.*

with the pilot via ultra-high frequency radio while the range provided aircraft location information. Aircraft data could be transmitted to a ground station, but only the raw data could be displayed on a strip chart. An engineer would then manually convert the data to engineering units.

Technological advancements improved the collection and analysis of test data with the development of the Real-

*Strip charts were the test engineer's primary tool in the early 1960s during flight testing at the Naval Air Test Center at NAS Patuxent River, Md.*

Time Telemetry Processing System (RTPS) in March 1973. Patuxent River, using RTPS, was the first DoD site that could support processed telemetry data from the test platform, which was sent to displays monitored by flight test engineers in project engineer stations on the ground. While these basic concepts are still used today, the system relies on newer and faster hardware and software.

Larry Hill, head of the ATR special projects office and a 40-year range employee, recalled how important the advent of computers was to developing today's range infrastructure.

"The original computer system at ATR took up an entire room and contained a massive amount of computer equipment," said Hill. "But now, with a significant change in technology, I carry around more computing power in my cellphone than that room ever held."

NAVAIR established an assistant commander for test and evaluation March 1975. The position was assigned the management of T&E assets and facilities, which were subsequently divided into the Computer Sciences, Systems Engineering Test, and Technical Support directorates. Range functions resided in the latter. Flight Test, Service Test and Weapons Systems Test divisions were disestablished and Strike Aircraft, Anti-submarine Aircraft and Rotary Wing Aircraft test directorates were formed to evaluate aircraft by type and mission.

By 1977, the demand for test data increased and the necessity for a more sophisticated flight test telemetry system became apparent. RTPS was upgraded to RTPS II, giving flight test engineers the ability to test four flights simultaneously. A major upgrade of test facilities in the late 1970s brought about some of the largest construction appropriations in the history of the air station.

*The ground-level ejection seat is demonstrated at the Naval Air Test Center at NAS Patuxent River, Md., 28 August 1956. A successful ejection was made by Lt. Sydney Hughes, British Royal Air Force, from an F9F-8T Cougar flying just above the ground at 120 mph.*



In the early 1980s, the Patuxent River test area was extended to provide range and telemetry data from the NASA Wallops Flight Facility on Wallops Island, Va., allowing for larger over-ocean test access with real-time coverage. The partnership continues today and provides the scheduling of assets between the two organizations and support of missions at Wallops.

The Technical Support Directorate's Missile Programs Office was designated as the lead field activity for the Tomahawk missile's East Coast operational test launch program in 1982. One of the early mobile range assets–a converted Convair 880 aircraft outfitted with telemetry equipment–flew alongside the missile to collect, process and provide data to the test team. The Chesapeake Test Range

*Naval Air Test Center engineers at work in the control room in 1988.*


*Lt. Gordon L. Gray, a Naval Air Test Center test pilot, travels to Edwards Air Force Base, Calif., 15 October 1955 to fly the first preliminary evaluations on the Douglas A-4 Skyhawk. Gray set the world 500 kilometer, closed-course speed record of 695.163 mph. The first YA-4D was delivered to NAS Patuxent River, Md., in mid-1955 for further evaluation.*
*(Photo courtesy of Douglas Aircraft)*

(CTR) supported more than 80 Tomahawk missile test flights at various ranges on the East Coast, Puerto Rico and Alaska until 30 June 1996.

Mark Swierczek, a NAVAIR flight test engineer, was part of the test team that evaluated cold weather Tomahawk engine operations in the late 1980s. To meet weather requirements, the project flew out of Elmendorf Air Force Base, in Anchorage, Alaska.

"The 880 was a unique asset that allowed us to complete testing in Alaska," said Swierczek. "It had a full suite of test monitoring equipment, including strip charts, digital displays and radio communications so we could monitor the test flight in real-time."

Swierczek added that the Convair 880 was not the only mobile range asset that test engineers had access to.

"RTPS outfitted everything from airplanes to school busses in order for us to complete tests that took place away from Patuxent River," he said. "We also had strip charts in school busses that we drove up to [Naval Engineering Station Lakehurst]–another form of RTPS for offsite testing."

By the 1980s, a high-bandwidth coaxial cable system linked all range data processing and simulation labs at Patuxent River. An instrumentation radar system was installed 20 miles south of Patuxent River at Point Lookout, Md., and was integrated with the CTR facility via a microwave link. The system obtains continuous and accurate position of items under test and provides time, space and position information for T&E events and fleet training exercises.

The Technical Support Directorate, which included the Magnetic Tape and Telemetry Branch, was renamed the Range Directorate in 1985. In 1988, RTPS was upgraded to RTPS III enabling up to 8.5 million operations per second. With six RTPS III project engineer station rooms, the test range could now handle six simultaneous flights.

After a military construction project added approximately 13,000 square feet to the CTR facility at Cedar Point, Md., the Telemetry Data Systems Branch moved from Building 1591 in 1989. As missions began occurring off the Atlantic coast, the range complex received its current designation as the Atlantic Test Ranges.

Two more reorganizations would occur: in 1997, when the Range Directorate became the Atlantic Ranges and Facilities (AR&F), and in 2004, when AR&F transitioned to the national NAVAIR Range Department.

In 2009, RTPS was upgraded a fourth time to accommodate the F-35 Lightning II Joint Strike Fighter (JSF) program. Project Engineer Station rooms were upgraded with the Interactive Analysis Display System and expanded to support up to 40 flight test engineers in preparation for JSF test teams. Each workstation provides real-time analysis, display and data recall capability so engineers can independently review data and perform inter-maneuver analysis.

The addition of a secure annex in 2010 allows for top-secret Project Engineer Station rooms and an electronic warfare (EW) workstation, which centrally controls ATR's ground-based threat radar simulators that support EW test and training requirements for use by T&E and training programs.

In 2013, ATR began an update to the core video routing infrastructure and video display systems in the ATR control room and Kineto tracking mounts to support the new digital high-definition video and high resolution PC graphics formats. Driven by unmanned aircraft systems requirements and the F-35 program, optical coverage has evolved from just providing video of an aircraft or store in the airspace to providing real-time imagery of specific details on the aircraft or store, such as control surfaces, doors and hatches.

"Obviously, the technology has changed a lot from the days when we were in a room with just strip charts and primitive video displays," said Swierczek. "Back then we thought the technology had significantly increased when we went from four strip chart machines, to eight, then to a dozen. Now, even the strip chart is becoming obsolete as everything has gone digital."

ATR's testing capabilities will continue to evolve as Naval Aviation continues to evaluate the next generation of aircraft and weapon systems.

"We will continue to turn to our most valuable resource, our employees, and use their intellectual capital and know-how to provide the remarkable technologies and facilities that will support future testing of aircraft systems that allow the warfighter to fight and win," said Vargo.

*An X-47B unmanned combat air system-demonstrator completes the first unmanned aircraft arrested landing at sea on the flight deck of USS* George H.W. Bush *(CVN 77) on 10 July 2013.*
*(Photo by MC3 Kevin J. Steinberg)*

# FRCs Address Legacy Hornet Readiness Challenges

*By Andrea Watters*


*An F/A-18C Hornet assigned to the VFA-113 Stingers flies over southern Afghanistan in 2009 during Operation Enduring Freedom.*
*(Photo by Cmdr. Erik Etz)*


*CNO Adm. Jonathan Greenert, left, speaks to Cmdr. John Mawhinney, right, about the center barrel replacement of an F/A-18 Hornet at Fleet Readiness Center Southwest in 2008.*
*(U.S. Navy photo by Scott Janes)*

***From his NAS Patuxent River, Md., office, Rear Adm. Paul Sohl, Commander, Fleet Readiness Centers (COMFRC), shared the Naval Aviation Enterprise's (NAE) collaborative effort to address the aging Hornet fleet maintenance and repairs.***

If you ask COMFRC about the aging legacy Hornet fleet, he will tell you about his production line, his talented artisans and the collaboration across the NAE to increase the number of F/A-18A-Ds returning to the flight line. He will also explain how the number of "out of reporting (OOR)" legacy Hornets accumulated over several years.

"The design life for a legacy Hornet was originally 6,000 flight hours," said Sohl. "Those aircraft are being extended past 8,000 flight hours, with some being extended to 10,000 flight hours. The engineering, material and production efforts required to achieve such life extensions on a tactical aircraft are unprecedented."

As of 1 December, there were 616 legacy Hornets in the Navy/Marine Corps fleet with 541–88 percent–operating above 6,000 flight hours, according to the F/A-18 and EA-18G Program Office's (PMA-265) monthly flight hour and inventory report. Of the 541 aircraft above 6,000 flight hours, 158 are between 6,000 and 7,000 hours; 293 are between 7,000 and 8,000 hours; 89 are between 8,000 and 9,000 hours; and one aircraft is operating above 9,000 hours and on its way to the service life extension goal of 10,000 flight hours.

According to PMA-265, 114 aircraft have completed inspections and are designated for service life extensions beyond 8,000 flight hours, with an additional 102 aircraft undergoing high-flight-hour inspections at Fleet Readiness Center (FRC) Southeast and FRC Southwest facilities, in addition to other field sites as of 26 November.

"One of the big challenges we face is the more the fleet flies them, the faster they're coming to the FRCs," said Sohl. "In addition, the sequestration-related hiring freeze and furloughs during fiscal year 2013 slowed down the FRCs' 12 million man-hour-a-year production machine. It is taking time to reverse that trend."

"The six furlough days and overtime restrictions equated to six weeks of reduced work hours. In addition, attrition and the inability to hire replacements slowed us down even more," he said. "We made progress hiring engineers, logisticians and artisans during fiscal year 2014 and are continuing that trend in 2015. The FRC workforce is returning to pre-sequester numbers."

Sohl added that the fleet will see an increase in Hornet deliveries during fiscal years 2015 and 2016 as the FRC F/A-18 production lines continue to ramp up. Engineering analysis and instructions, parts and materials and trained artisans also had to be put in place.

"Meanwhile, the inductions do not stop," said Sohl. "Aircraft keep coming into the FRCs, particularly at the 8,000-hour mark when additional depot-level maintenance is required. What excites me is that it is now time for the FRCs to step up and produce. It is a challenge I absolutely know the FRCs are ready to undertake."

## Recovery Plan

The NAE is working toward a comprehensive recovery plan, which includes a service life extension program (SLEP), a collaborative inspection process, and a list of fleet priorities from Commander, Naval Air Forces (CNAF) based on the DoN's deployment requirements.

One aspect of the recovery plan is led by PMA-265, which created a team of stakeholders to track integration efforts. This undertaking is managed by Marine Corps Lt. Col. David Smay, the PMA-265 F/A-18 OOR integrated product team lead.

The OOR Drumbeat is an integration effort between the FRCs; Naval Air Systems Command (NAVAIR); Naval Supply Systems Command; Headquarters, Marine Corps; Deputy Assistant Secretary of the Navy for Air Programs; the original equipment manufacturers (Boeing and Northrop Grumman); the Defense Logistics Agency; and CNAF.

Sohl compares the process of extending the service life of a legacy Hornet to keeping a high-mileage car on the road. There are standard work procedures at the FRCs similar to changing the oil in a car, which is a standard service for mechanics with a set price. And then there are high-flight-hour aircraft arriving at an FRC for major structural repairs.

"It is similar to a car needing major bodywork," said Sohl. "At the body shop, the car is examined by an insurance adjuster, an estimator determines which parts to order and a body mechanic performs the work."

"The similarity stops there because parts are available for your car, but that is not the case for some of our legacy Hornets," he said. "Historically, the system was not able to absorb that new requirement."

## Aircraft Inspections

"FRC artisans extensively inspect each aircraft, often disassembling it down to the fuselage bulkheads and formers

*Lonnie Conditt, left, and Narom Orr, right, both machinists at Fleet Readiness Center Southeast in Jacksonville, Fla., measure holes to ensure alignment of an F/A-18 Hornet part on the production line. (U.S. Navy photo by Victor Pitts)*

while scrutinizing parts based on the 'hot spots' described in associated inspection bulletins," said Smay. "The panels are removed, the engines are removed, the cockpit is dismantled; each step is taken to ensure the aircraft will be safe to fly upon return to the fleet."

In addition to the routine findings that require repair or replacement of an affected part, aircraft are often found to have corrosion or damage in adjacent areas not immediately covered by the inspection protocol. These unexpected findings are becoming increasingly prevalent as the aircraft continue to age and require the procurement or manufacture of a part that has rarely–if ever–been previously procured.

"The drumbeat facilitates an open line of communication between the subject matter experts doing the work," said Smay. "The artisans, engineers and supply specialists, each working for various entities, all come together to address each complex case as a unit."

## Engineering

When the artisans find unexpected damage or corrosion, they look to NAVAIR engineering for a solution.

"NAVAIR's Air Vehicle Engineering Department has developed several 'engineering levers' to streamline the requisite engineering analysis–requests for engineering instructions (REIs)–at the FRCs," said Tom Rudowsky, the department head for NAVAIR's Air Vehicle Engineering Department.

Rudowsky compared the engineering role at the FRCs to a carrier backstop to ensure aircraft return to service. "When standard work and repair manuals are exhausted and there is unusual or unexpected damage, we get the 911 call in the form of REIs," he said.

One initiative improving the speed it takes to triage an aircraft is the building of a closer relationship between production artisans and engineers, resulting in higher quality and first-pass yields of REIs.

"About 15 percent more engineering capacity was made available by shifting the fleet's in-service repair work from NAVAIR engineers to Boeing engineers in August," said Rudowsky. In-service repairs have the highest priority because they are needed to return flight line assets to service.

COMFRC's implementation of the Theory of Constraints Critical Chain Project Management across the F/A-18 FRC enterprise is also playing a major role by helping prioritize REIs. Another FRC priority is to continually develop its engineering workforce talent.

"We are continuing to grow our engineering talent with a structured skills-development program and active recruitment," said Rudowsky. "We have the most capable engineering workforce the Navy has ever known. We can save just about any jet given time and money, but that's not our task. Our task is to return mission capable aircraft back to our warfighters as quickly as possible."

"From the engineers to the artisans, we rely on skilled people," Sohl said.

While visiting FRC East, Sohl was impressed with an artisan who applied best practices from his time working on F-4 Phantom structural repairs. By adapting aspects of the Phantom structural wing modification process to the F-35 Lightning II, processing time was reduced from seven days to two days.

"That to me epitomizes the talent we have in the FRCs," Sohl said. "Those kinds of people are worth their weight in gold."

## Additive Manufacturing

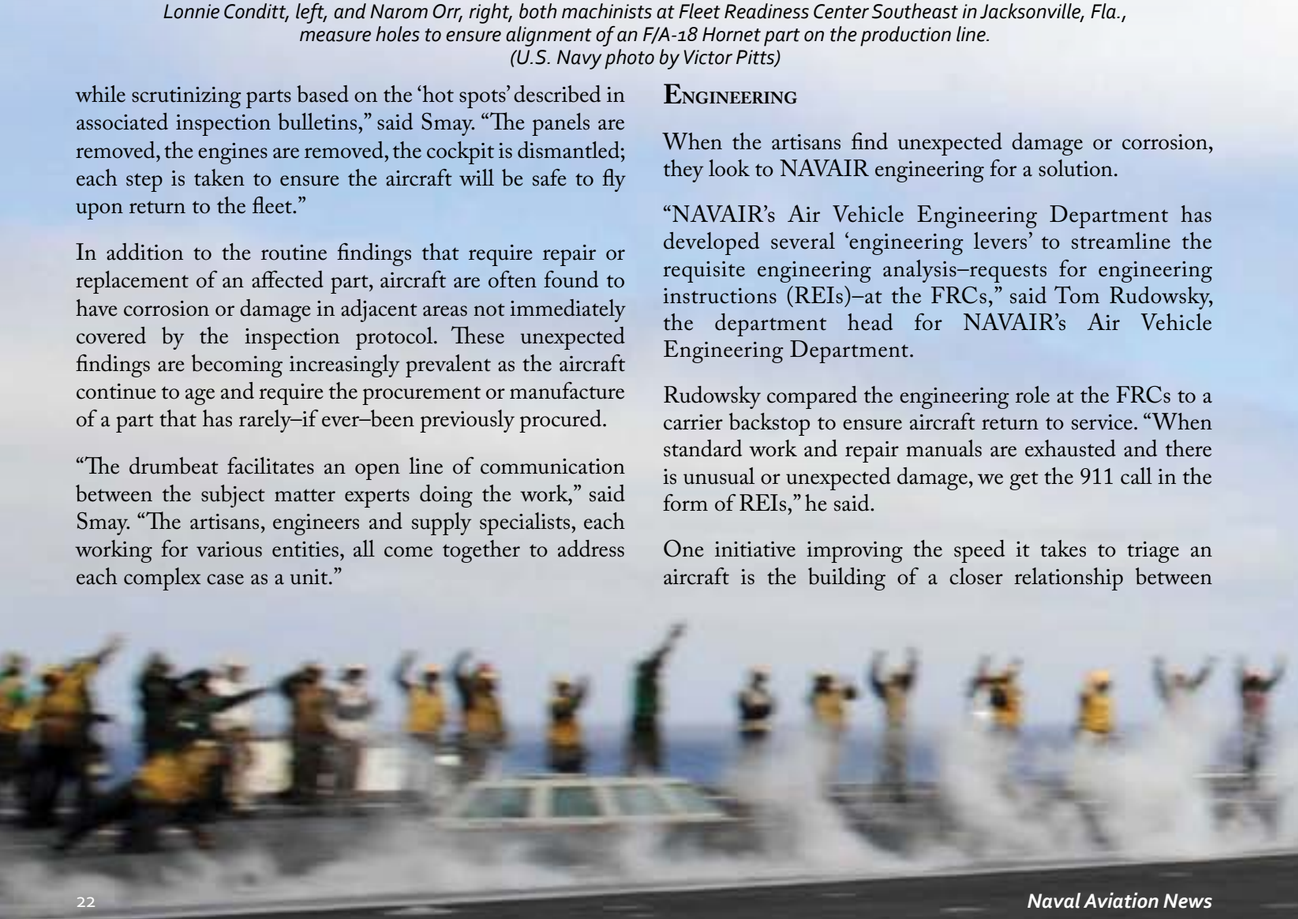
The FRCs also employ additive manufacturing–cutting-edge technology using 3-D modeling to create prototypes that are "printed" from digital files–to improve quality and accelerate production of aircraft and components. NAVAIR has applied additive manufacturing technology in its prototyping facilities since the early 1990s and the capabilities continue to expand across NAVAIR's warfare centers and the FRCs.

"All of our FRCs use polymer-based additive manufacturing systems to rapidly produce form blocks and tooling for sheet metal parts, validate 3-D models and fit check parts, produce work aids, and directly manufacture plastic ducting for aircraft systems," said Sohl. "In the future, the FRCs will be producing additively-manufactured metal parts for our aircraft."

## Looking Ahead

The Navy is now evaluating the opportunities to extend the service life design limits of the F/A-18E/F Super Hornet, according to the program office. Upon determination that the F/A-18E/F service life can be extended beyond the original 6,000 flight hour design limit, a SLEP will be implemented to increase the service life to 9,000 flight hours.

*Andrea Watters is a public affairs specialist for the NAVAIR Corporate Communication Department and* Naval Aviation News *editor in chief.*



*Sailors cheer as an F/A-18C Hornet attached to the VFA-192 Golden Dragons launches from USS* John C. Stennis *(CVN 74) in 2013. (Photo by MCSN Marco Villasana)*

# Reagan Sailor Recognized for Improvement Efforts

*By Jacquelyn Millham*

AO1 Timothy Lopez was awarded the Naval Aviation Enterprise (NAE) Site Visit Excellence Award during a 23 September boots-on-the-deck (BoD) event hosted by USS *Ronald Reagan* (CVN 76) while in port at NAS North Island, Calif. The award recognizes an individual who – through the use of continuous process improvement (CPI) methodologies and principles–has improved command readiness. Commander, Naval Air Forces/Commander, Naval Air Force, U.S. Pacific Fleet Vice Adm. David Buss presented the honor to Lopez.

Lopez, *Ronald Reagan*'s CPI lead petty officer, first encountered CPI while assigned to Fleet Readiness Center (FRC) Mid-Atlantic at NAS Patuxent River, Md. Since 2006, he has participated in more than 20 projects at three duty stations.

"I was most involved in CPI while working at NAS Whidbey Island, Wash.," he said. "We spent the majority of our time implementing 5S concepts–sort, straighten, shine, standardize and sustain–and other lean principles which led to improvements in all production efforts. Revamping the marine aviation logistics squadron parts accountability process and establishing storage for large components was one of the major projects that really helped me develop my CPI skill set."

Lopez brought that expertise and enthusiasm for CPI to his current assignment by providing his shipmates with CPI training and project mentorship. Lopez served as a team member on six of the ship's eight projects in 2014. He said that projects that reduced the time and effort Sailors spend on tasks–such as a rapid improvement event (RIE) conducted in the calibration shop and on the ship's Hazardous Materials (HAZMAT) Issuing Center Station (HICS)–were especially impactful.

Naval Air Systems Command (NAVAIR) Instruction 13640.1B requires the calibration shop to have a 90 percent completion rate for their assigned inspections. An analysis of seven months' worth of records revealed the shop was averaging completion rates between 81 to 89 percent.

"[The shop] was having trouble with the accountability of items being turned in for periodic inspections, induction notification and inspection notification processes," said Lopez. He added that there was also a lack of awareness concerning program requirements causing Sailors to spend much of their time filling out and tracking down too many reports.

"We conducted just-in-time training with the chain of command which bridged the gaps among all activities involved in routing paperwork," said Lopez. "We applied 5S to the work center and improved its layout. An electronic notification process was created which improved the accountability of divisional calibration petty officers and increased the number of Sailors involved in inspection reports."

These improvements reduced the work in progress from 126 items to 26 items and improved turnaround time for the calibration laboratory's inventory reports from three days to one day.

Lopez added that the HAZMAT RIE had a profound impact on the work life of Sailors. Before the event, HICS –the central location for issuing and receiving of ship's HAZMAT–could take more than one hour to process or accept returned materials. To decrease Sailors' wait time, *Ronald Reagan* established department satellite HAZMAT lockers for fast-moving items, cross-trained and authorized Sailors in other departments to handle HAZMAT, and wrote standard operating procedures (SOP). Request forms are now sent electronically in advance to avoid long queues. As a result, both the HAZMAT issue and return processes were reduced from an average 52 minutes to 10 minutes.

Lopez was also recognized for his work on developing *Ronald Reagan*'s self-sustaining green belt/yellow belt curriculum.

"Yellow and green belt training was scheduled through the Plan of the Day and continuously offered to every level of leadership on the ship," he said. "We also made the training available off ship to appeal to all hands. Our training regiments were changing the ship's command culture."

Lopez said that in addition to training, he is especially proud of the improvements made in his bailiwick: the ship's ordnance division.

The Airborne Armament Equipment work center is required to maintain an 85 percent ready-for-issue (RFI) pool for wing operations while embarked aboard *Ronald Reagan*. Before the event, the work center only had 41 of 240 required RFI items in the pool.

Lopez and the division's Sailors teamed to improve their gear verification process, improve supply effectiveness, and increase the work center's throughput. As a result, they established SOPs for ordnance division work centers, developed on-the-job training schedules, refined job qualification requirements, applied 5S and created a spreadsheet to inventory "K" pool assets by stanchion and shelf.

The team also acquired a second tool box and created a 210-day pre-expenditure kit for Bomb Rack Unit (BRU) 32 to be accessible at the point of use, and installed another 400 hertz outlet in the work center. As a result of these improvements, the BRU-32 induction and verification process time was reduced by 69 percent and the shop's ready-for-issue rate increased to 86 percent.

CPI also played a role in Lopez's personal development. Not only did it sharpen his problem-solving skills and challenge his creativity, but it also honed his team-building skills.

"Training all the stakeholders involved in the actual process was frustrating at times," said Lopez. "But the experiences always strengthened my tenacity and resolve to see positive changes." His future plans include earning a black belt in CPI and pursing a master's degree in business administration.

Looking back on his eight-year career transforming maintenance processes, Lopez said that the complexities of generating readiness demand changes comes gradually, even with a proven toolset such as CPI. Changes should be implemented with great thought and deliberation.

"Don't expect to eat an elephant in one bite," he said.

*AOAN Evan Feist prepares to load ordnance on a weapons elevator aboard USS* Ronald Reagan *(CVN 76) 29 March. (Photo by MC3 Jacob Estes)*

*Sailors practice firefighting techniques during a fire drill aboard USS* Ronald Reagan *(CVN 76) 16 January.*
*(Photo by MCSN Jonathan A. Nelson)*

*AO1 Timothy Lopez speaks in the jet shop of USS* Ronald Reagan *(CVN 76) during the ship's 23 September boots-on-deck exercise.*
*(Photo by MC3 Timothy Schumaker)*



# *Leadership from the Ground Up:* Reagan *Crew Shares Efficiencies*

By Jacquelyn Millham and Joelle Zarcone

*It is not often that a three-star admiral takes tasking from a petty officer, but that is what happened 23 September during a boots-on-the-deck (BoD) event aboard USS* Ronald Reagan *(CVN 76).* Ronald Reagan *is homeported in San Diego, Calif., and undergoing a planned incremental availability maintenance period at NB Coronado, Calif.*

*"You have inspired me and tasked me to see how we're doing things across the carriers," said Vice Adm. David Buss, Commander Naval Air Forces / Commander, U.S. Naval Air Force Pacific Fleet. "The best ideas don't come from the top; they come from the people on the flight line and in the work centers."*

*Accompanying Buss on the visit were Commander, Naval Air Systems Command, Vice Adm. David Dunaway; Commander, Fleet Readiness Centers, Rear Adm. Paul. Sohl; Commander, Naval Supply - Weapon Systems Support, Rear Adm. David Pimpo; and Assistant Deputy Commandant for Marine Aviation (Sustainment), Russell Howard.*

*The BoD allowed the senior Naval Aviation Enterprise (NAE) leaders to meet with junior Sailors and Marines and learn about their efforts to close readiness gaps, and understand how leadership can better support the fleet.*

*AS3 Christina Bexley piqued the admirals' interest after explaining the ship's ongoing work to expedite broad arrow reports, which are submitted when support equipment is inoperable and that inoperability causes an intermediate maintenance activity to lose its capability to support or repair aeronautical components.*

*By using continuous process improvement best practices, broad arrow reports are now routed to the appropriate signatories in less than two hours instead of the two days it used to take. Similarly,* Ronald Reagan *Sailors reduced the turnaround time for calibration laboratory inventory reports from three days to one.*

*Sailors also voiced some of the challenges they are working to overcome, such as obtaining required hazardous materials while deployed and the foreseeable impacts of increased numbers of Professional Apprenticeship Career Track Sailors assigned to the ship.*

*Representatives from across the Navy took these actions items back to their commands for review and possible resolution.*

*"How we do things is not as agile as it could be," said Sohl. "The briefs presented by Sailors provided background information on some of the challenges they faced, but it was the sharing of their personal experiences that allowed me and my fellow NAE leaders to gain a better appreciation for their circumstances. We need these good ideas."*

Ms. Millham and Ms. Zarcone are communication specialists supporting the NAE public affairs office.


*CWO2 Michael Cowlishaw leads the raising of an anchor of USS* Ronald Reagan *(CVN 76) on 1 October after performing incremental maintenance on it and its chain.*
*(Photo by MC3 Timothy Schumaker)*


*MC3 Dustin Good records video of flight deck operations aboard USS George H.W. Bush (CVN 77) on 11 February 2012. (Photo by MC3 Kasey Krall)*

Aviation Enlisted Ratings Series

# MASS COMMUNICATION SPECIALIST: THE REST OF THE STORY

*By MC1 Ernest R. Scott*

From the flight deck to the flight line, from high seas to desert sands, they stand ready to conduct humanitarian efforts, provide wartime support and address public concerns. Yet despite their dedicated service, their story largely goes untold. They are the ones behind the cameras, capturing the Navy's story and sharing it with the world.

Mass Communication Specialists (MCs) are Sailors who perform public affairs and visual information duties. The rating was established 1 July 2006 when the Navy combined four ratings: Photographer's Mate (PH), Journalist (JO), Draftsman (DM) and Lithographer (LI). The Sailors of the MC community do far more than photographing your command awards ceremony: they are a group with responsibilities and experience as diverse as the history of the rate.

*Lt. Walter Leroy Richardson*

Walter Leroy Richardson was the Navy's official photographer, and joined the Navy in 1911 as a cook aboard USS *Mississippi* (BB 23). Richardson had a passion for photography and spent his off-duty time taking photos for the *Mississippi* and its crew. When the ship dropped anchor in 1914 at the former Naval Shipyard Pensacola, Fla., Richardson was recruited to survey the land for a future naval aeronautical station. Recognizing the need for a photographer, the Navy later transferred Richardson to a shore command where he spent more time employing his talent.

Today's MCs possess the same creativity and curiosity displayed by Richardson; however, MCs should not be dismissed as "just photographers." As the eyes and the ears of the fleet, MCs deliver photos, video, audio, graphics and written communications to the public from around the globe. As a photographer aboard an aircraft carrier, an MC takes and reviews aerial photos, scans and edits digital video images, performs digital editing, and operates various types of still and video equipment. MCs are relied upon to gather facts, write speeches and articles, edit, and produce radio and TV news programs and training films.

MCs also fill a vital public affairs role by supporting in-port carrier tours and underway embarkations for civilians, media correspondents, the DoD, and national and international government officials. Because MCs are often viewed by their guests as the face of their command, and by extension, the face of the Navy, MCs must relate to people in a creative and professional manner. They need exceptional writing and speaking skills and a genuine interest in people, ideas and information. Other traits of a successful MC include a good memory, maturity, creativity, exemplary military bearing and good personal appearance.

The life of most MCs begins at the Defense Information School at Fort Meade, Md., where they enter "A" School. In this joint-forces environment, members from all branches of the U.S. military, DoD civilians and international military personnel train in public affairs, print journalism, photojournalism, photography, television and radio broadcasting, lithography, equipment maintenance and various forms of multimedia. After completing this 25-week course, many of the Navy's newest MCs continue on to "C" School for advanced technical training while others join the fleet.

Assignments for MCs vary greatly and a news media career with the Navy goes far beyond the scope of similar jobs in the civilian sector. MCs may work aboard aircraft carrier flight decks during a frigid Virginia winter, in the sweltering deserts of Djibouti with combat construction teams, or in climate-controlled broadcast stations. Work may include using precision computer graphics equipment in an office or work throughout a ship or station. Regardless of the task, MCs are responsible for creating a product that tells the Navy's story to local, national and international audiences.

During times of crisis, the first question leaders ask is: "Where are the carriers?" MCs are quick to provide a reassuring response with daily coverage of maritime security operations, strike operations and theater security cooperation efforts. For those unfamiliar with the process, flight operations aboard an aircraft carrier can appear as a flurry of Sailors in their colored jerseys and helmets, launching and recovering aircraft. It is the duty of the MC to show the well-choreographed process aboard the flight deck and highlight the highly trained and dedicated Sailors serving aboard the centerpiece of the Navy's forward-operating forces.

MCs are also at the forefront of social media and digital communications. Whether taking the first images of airstrikes against the Islamic State group from the flight deck of USS *George H.W. Bush* (CVN 77) or recording hometown "shout-outs" from the ship's crew, a single moment captured by an MC can have a profound impact at home. Exclusive imagery of a forward-deployed carrier can be used by media outlets globally, while a video of a deployed Sailor reading to their child can help ease the stress of having a loved one far away from home.

MCs are not only masters of their craft; they have an overall understanding of the Navy and the importance of the individual. Through their documentation, MCs are afforded the unique opportunity to experience various rates within the Navy and different commands across DoD. MCs possess a strong sense of pride in their country, Navy and service of their fellow shipmates. Few professions can rival the dedication to duty, mission and tradition found in the MC community.

*MC1 Scott joined the Navy in 2007. He is stationed at Naval Air Force Atlantic in Norfolk, Va.*

*Photo by MC2 Kenneth Abbate*

MCSN Nicolas C. Lopez

MC3 Travis K. Mendoza

MC2 James R. Evans

MC3 Aaron Holt

MCSA Matthew A. Lawson

MCSA Veronica Mammina

MC2 Greg Johnson

MCSA Ignacio D. Perez

MC3 Lorenzo J. Burleson

MC3 Will Tyndall

MC2 Walter M. Wayman

MC2 Kenan O'Connor

*MC3 Josue L. Escobosa*

*MC2 Jason Graham*

*MC3 Karl Anderson*

*MCSN Kole E. Carpenter*

*MC2 John Wagner*

*MCSA Edward Guttierrez III*

*MCSN Emily M. Blair*

*MC3 Paolo Bayas*

*MC2 Jacob Estes*

*MC2 Alan Gragg*

*MC2 Heidi J. Giacalone*

*MC1 Josh Huebner*

# Professional Reading

By Cmdr. Peter Mersky, USNR (Ret.)

An F4U-1D Corsair belonging to the VMF-214 Black Sheep taxis on the runaway at an island base in 1943.
(Photo courtesy of the Tailhook Association)

F4F-3 Wildcats belonging to the VMF-111 Devil Dogs take part in a 1941 pre-war exercise.
(Photo courtesy of the Peter B. Mersky Collection)

## *U.S. Marine Corps Fighter Squadrons in World War II*

*Tillman, Barrett. Osprey Publishing, Oxford, UK and New York, NY. 2014. 272 pp. Ill. $25.95.*

Barrett Tillman is one of the best and most seasoned aviation historians in the business. As much as I have written about U.S. Marine Corps aviation, I can always learn something from Tillman and this new book is no exception. Starting off with a very attractive book jacket, the reader is given a quick introduction on the lineage of leatherneck aircraft and aviation history. Tillman then gets right to the specifics regarding individual aviator biographies and unit histories. No matter how often you have read about this subject, Tillman delivers new information or perhaps a different, highly entertaining presentation of standard facts and dates.

This book is a welcome companion to Tillman's *U.S. Navy Fighter Squadrons in World War II* (Specialty Press, North Branch, Minn., 1997), which I use as a reference on the subject. This new book on Marine Corps squadrons includes tables, photos and "aceology" facts and figures in 24 appendixes that will satisfy any enthusiast and historian. There is also a wartime interview with Marine Corps ace Joe Foss that includes valuable contemporary references and opinions on tactics, enemy equipment and general conduct of the war in the Pacific. Tillman even sounds off in his inimitable style about the ongoing debate as to who is the top Marine Corps ace–Joe Foss or Greg "Pappy" Boyington.

With 160 photos showing aircraft and personalities, this new entry into the ever-expanding collection of Marine Corps aviation history is sure to please on many levels.

## *Black Knights Rule! (BKR): A Pictorial History of VBF-718/VF-68A/VF-837/VF-154/VFA-154, 1946-2013*

*Romano, Angelo. Ginter Books, Simi Valley, Calif. 2014. 137 pp. Ill. $49.95.*

While Ginter Books is well known to most Naval Aviation literature enthusiasts, this book is the first in a new series titled *U.S. Navy Squadron Histories*. Written and financed by the author, with major contributions by Robert L. Lawson, *Black Knights Rule* shows the lineage of one of the Navy's most popular fighter squadrons. Informative color profiles of select aircraft also complement the graphic layout. From F4U Corsairs, F9F Panthers and FJ-3 Furys to F-8 Crusaders and F-4 Phantom IIs, F-14 Tomcats and F/A-18 Hornets, the Fighter Squadron (VF) 154 Black Knights reigned long as U.S. Naval Aviation's legendary tip of the spear. Flying at the height of the Korean War, Vietnam and the short but intense actions in Southwest Asia, the Black Knights racked up an impressive number of missions. The squadron was also forward-deployed and home based in Japan for years.

The photographs, most of which are in color, are a trove of Naval Aviation scenes featuring our greatest fighter aircraft from immediately after World War II through Korea and the remainder of the 20th century. Modelers will find a wealth of worthy color schemes and markings to satisfy their research and skills, while historians will likewise be served.

## *F6F Hellcat Aces of VF-9*

*Young, Edward M. Osprey Publishing, New York, NY. 2014. 96 pp. Ill. $22.95.*

No. 119 in Osprey's successful *Aircraft of the Aces* series, this new offering describes the wartime history of one of the Navy's highest scoring squadrons. The Hellcat Aces accounted for approximately 257 aerial kills in three deployments from 1942 to 1945, while equipped with the F4F Wildcat and F6F Hellcat. (The vast majority of victories were claimed by Hellcat pilots.) Twenty VF-9 pilots achieved ace status, with Lt. Eugene Valencia and Lt. Cecil Harris leading the way with 23 confirmed kills. Cmdr. David McCampbell of VF-15 led all aces with 34 confirmed kills.

While this new book follows the well-established series format–informative text, a well-chosen folio of photos and unique artwork–it has certainly come a long way since the first books about Wildcat and Hellcat aces. These books had profile collections that, while certainly great, were not as smooth as their successors.

Beginning its wartime record during Operation Torch–the invasion of North Africa in November 1942–VF-9 quickly progressed to action in the Pacific, transitioning from Wildcats to early F6F-3 Hellcats. The Japanese navy and army air forces were still a handful and not to be dismissed in the late stages of World War II, but the young aviators of VF-9 could still take the measure of the opponents in A6M Zero and Ki-61 Tony fighter aircraft, as well as the D3A Val and D4Y Judy bombers that constantly harassed the fleet on the long road to Tokyo.

Throughout the narrative, the reader cannot help but be impressed with how young the new Hellcat pilots were and what they endured. Naturally, their rugged Grumman fighters offered the best protection, offensive firepower and performance, but it was still not easy as they launched daily against the still-redoubtable enemy.

I should point out that two other books on the F6F Hellcat have recently appeared: Steve Ginter's large-formatted *Naval Fighters Number Ninety-Two* and *Warpaint No. 84* by Charles Stafrace; both are excellent works with individual points of appeal. The Hellcat is one of those aircraft that has never stopped authors from finding new ways to describe their colorful histories.

# People—Places—Planes

*Edited by Josh Phillips*

*Shooters stand by as Sailors direct an F/A-18F Super Hornet from the VFA 213 Blacklions on the flight deck of USS* George H.W. Bush *(CVN 77) on 14 November. (Photo by MC3 Brian Stephens)*

## On the Move

USS *America* (LHA 6) arrived at its homeport of San Diego, Calif., for the first time 15 September after completing its two-month maiden transit from Pascagoula, Miss. *America* was commissioned 11 October in San Francisco, Calif.

USS *Wayne E. Meyer* and the HSM-78 Blue Hawks returned to San Diego, Calif., 20 September following a seven-month deployment to the Western Pacific.

The *Carl Vinson* Carrier Strike Group (CSG) relieved the *George H.W. Bush* CSG of their duties in the U.S. 5th Fleet area of responsibility (AOR) 18 October.

The *Bataan* Amphibious Ready Group (ARG) and 22nd Marine Expeditionary Unit (MEU) returned to NS Norfolk, Va., 31 October after completing a nine-month deployment to the 6th Fleet AOR.

USS *Kearsarge* (LHD 3) returned to NS Norfolk, 10 November following completion of the 2014 Bold Alligator exercise. Bold Alligator was a two-week, multinational exercise hosted by the U.S. Navy and U.S. Marine Corps to strengthen core competencies in the areas of amphibious operations and bilateral command and control.

After completing a nine-month deployment in the U.S. 5th and 6th Fleet AORs, the ships and squadrons of the *George H.W. Bush* CSG returned to their homeports in Norfolk, Whidbey Island, Wash., and Mayport, Fla., 15 November.

USS *Fort Worth* (LCS 3) departed San Diego 17 November for a 16-month rotational deployment to Singapore in support of the Navy's strategic rebalance to the Pacific. *Fort Worth* deployed with an MC-QB Firescout and an MH-60R Seahawk helicopter attached to the HSM-35 Magicians, marking the first time an LCS has deployed with both a manned and unmanned platform.

## Milestones

After more than 40 years of service, the Marine Corps retired the last UH-1N Huey helicopter 28 August at NAS Joint Reserve Base, New Orleans, La. The UH-1N platform, flown by the HMLA-773 Red Dogs, was replaced by the UH-1Y Venom.

Cmdr. Michael Strobach, attached to the VR-53 Capital Express at NAF Washington, D.C., surpassed 6,000 hours of flight time in a Navy aircraft 7 September. Strobach attained this milestone aboard a C-130T aircraft during logistics mission from Andersen AFB, Guam to the Marshall Islands.



The Navy's E-2D Advanced Hawkeye reached initial operational capability at NS Norfolk 9 October following flight operations with the VAW-125 Tigertails.

VFA-22 Fighting Redcocks pilots Lt. Sean Stuart and Lt. Josh Raymond trapped aboard USS *Carl Vinson* (CVN 70) on 23 October for the carrier's historic 230,000th arrested landing.

The VFA-101 Grim Reapers, the Navy's first F-35C Lightning II carrier variant squadron, surpassed 1,000 mishap-free flight hours in the F-35C in November.

## Change of Command

Cmdr. Jason Stumpf relieved Cmdr. Marc Christino as commanding officer of the VT-28 Rangers 5 September aboard the decommissioned USS *Lexington* (CV 16) at Corpus Christi, Texas.

Cmdr. Michael D. France relieved Cmdr. Cynthia A. Dieterly as commanding officer of the VAW-115 Liberty Bells 12 September aboard USS *George Washington* (CVN 73).

Cmdr. Martin L. Weyeberg relieved Cmdr. Edward S. Smith as commanding officer of the VFA-34 Blue Blasters 12 September at NAS Oceana, Va.

Capt. Heidi A. Fleming assumed command of NAS Patuxent River, Md., from Capt. Benjamin A. Shevchuk 18 September at the U.S. Naval Test Pilot School.

Lt. Col. Bryan T. Horvath relieved Lt. Col. Jeffrey M. Bolduc as commanding officer of the MALS-14 Dragons at MCAS Cherry Point, N.C., 18 September.

Cmdr. James G. Zoulias relieved Cmdr. Joseph T. Kemp as commanding officer of TACRON-22 on 1 October at Virginia Beach, Va.

Cmdr. Jason Young relieved Cmdr. Jeffrey Holzer as commanding officer of the HSC-12 Golden Falcons 21 October aboard *George Washington*.

*The now decommissioned USS* Saratoga *(CV 60)–shown here underway during Operation Desert Storm in 1991–was towed to Brownsville, Texas for dismantling 25 August. (USAF photo)*

*ABEAN Adrian Osorio signals Sailors during an emergency barricade drill on the flight deck of USS* George Washington *(CVN 73) on 6 September. (Photo by MCSN Everett Allen)*

Cmdr. Timothy Burke relieved Lt. Col. John Neville as commanding officer of HX-21 on 23 October at NAS Patuxent River.

Capt. Paul Young assumed command of the newly formed Commander, Littoral Combat Ship Squadron 2 at NS Mayport, Fla., 7 November.

Cmdr. Adrian Siebenhaar relieved Cmdr. Wayne Oetinger as commanding officer of the VFC-12 Fighting Saints at NAS Fallon, Nev., 20 November.

Cmdr. Doug Peterson relieved Cmdr. Colin Day of the VFA-97 Warhawks at NAS Lemoore, Calif., 21 November.

Lt. Col. William P. Donnelly relieved Cmdr. John D. Tutwiler as commanding officer of the VT-86 Rangers at NAS Pensacola 5 December.

## Scan Pattern

USS *Ingraham* (FFG 61) with HSL-49 Det. 2 and U.S. Coast Guard Law Enforcement Detachment personnel intercepted 680 kilograms of cocaine 21 August in the 4th Fleet AOR. *Ingraham* returned from its final deployment 30 October to Everett, Wash., and was decommissioned 12 November.

USS *Dwight D. Eisenhower* (CVN 69) moved from Dry Dock 8 to pier 42/43 at Norfolk Naval Shipyard in Portsmouth, Va., 26 August.

An MH-60R Seahawk belonging to the HSM-46 Grandmasters rescued a USS *New York* (LPD 21) Sailor who was swept overboard 11 September in the Atlantic Ocean.

The last U.S. Coast Guard HU-25 Guardian was retired 23 September at Coast Guard Air Station Corpus Christi, Texas. The HU-25 fleet has been replaced by the HC-144A Ocean Sentry twin-turboprop maritime patrol aircraft.

*Sailors conduct flight operations aboard USS* George H.W. Bush *(CVN 77) on 15 September. (Photo by MC3 Brian Stephens)*

Marine Operational and Evaluation Squadron 22 received its first F-35B aircraft for operational testing at Edwards AFB, Calif., 9 October.

A U.S. Coast Guard crew aboard an MH-65 helicopter assigned to Coast Guard Air Station Corpus Christi rescued four people near the Arroyo Colorado River 11 November.

Sailors from the USS *Gerald R. Ford* (CVN 78) became the first in the fleet officially trained to operate the Electromagnetic Aircraft Launch System in late October. The Sailors engaged in classroom instruction and live simulations of launching aircraft, under normal and abnormal scenarios at contractor General Atomics' Ship Set Control Lab in San Diego, Calif.

*Sailors give the signal to raise the integrated catapult control system on the flight deck of USS* George Washington *(CVN 73) on 10 November. (Photo by MCSN Bryan Mai)*

## Mishaps

A CH-53E Super Stallion helicopter assigned to the 22nd MEU crashed in the Gulf of Aden 1 September while en route to USS *Mesa Verde*. All 25 Marine and Navy personnel aboard the aircraft were safely recovered.

An MH-60S Knighthawk helicopter assigned to the HSC-6 Indians based at NAS North Island, Calif., rolled on its side while landing near NAS Fallon 2 September. All five crew members aboard were treated for minor injuries.

Two F/A-18C Hornet jet aircraft assigned to the VFA-94 Mighty Shrikes crashed 12 September while operating aboard USS *Carl Vinson* in the western Pacific Ocean. Pilot Lt. Nathan Poloski was not recovered and presumed dead. The pilot of the other aircraft was located and returned to *Carl Vinson* for medical attention.

A Marine assigned to the VMM-163 Ridge Runners was lost at sea and presumed dead following his evacuation from an MV-22 Osprey in the 5th Fleet AOR 1 October. Cpl. Jordan L. Spears evacuated the Osprey when it appeared to lose power and descended to the surface of the ocean shortly after takeoff from USS *Makin Island* (LHD 8). Another air crewman who exited the aircraft at the same time was safely recovered.

A single-seat Hawker Hunter MK-58 jet on a military training exercise crashed into an agricultural field near Port Hueneme, Calif. 29 October, killing the pilot.



## Squadron Spotlight

**SQUADRON NAME:** *Strike Fighter Squadron (VFA) 97 Warhawks*

**DATE FOUNDED:** *1 June 1967 as Attack Squadron (VA) 97; Redesignated as VFA-97 on 24 January 1991*

**BASED:** *NAS Lemoore, Calif.*

**CURRENT COMMANDING OFFICER:** *Cmdr. Doug Peterson*

**MISSION:** *To employ the F/A-18E Super Hornet with timely, accurate and precise effects to defend the United States and its interests.*

**BRIEF HISTORY:** *The VA-97 Warhawks were commissioned 1 June 1967 and assigned to CVW-14. The Warhawks departed San Diego aboard USS* Constellation *(CV 64) on 28 May 1968 for the squadron's first combat deployment. From June 1968 through 1970, Warhawk pilots flying the A-7A Corsair II saw action in Vietnam.*

*After transitioning to the A-7E, the Warhawks deployed four times aboard USS* Enterprise *(CVN 65). In 1977, VA-97 became the first A-7E squadron in Naval Aviation history to complete five years and 25,000 hours of mishap-free flight. After reassignment to CVW-15, they embarked aboard the Navy's newest aircraft carrier, USS* Carl Vinson *(CVN 70) in October 1984 for the squadron's 11th deployment. The Warhawks would complete another four deployments with CVW-15 aboard* Carl Vinson*, returning from their final deployment with the A-7E in July 1990.*

*VA-97 was redesignated as VFA-97 on 24 January 1991 and transitioned to the F/A-18A Hornet. From April 1991 to December 1994, the Warhawks deployed three times with CVW-15 aboard USS* Kitty Hawk *(CV 63). After CVW-15 disestablished, the Warhawks joined CVW-11 and completed one deployment aboard* Kitty Hawk *and one deployment aboard* Carl Vinson *between October 1996 and May 1999. The Warhawks' second deployment aboard* Carl Vinson *began July 2001, with plans to support Operation Southern Watch until the 9/11 terrorist attacks. Within three weeks of 9/11, the Warhawks flew in the first wave of strikes against targets in Afghanistan in support of Operation Enduring Freedom (OEF). The Warhawks embarked with CVW-11 in March 2003 aboard USS* Nimitz *(CVN 68) in support of Operation Iraqi Freedom, marking the final time the F/A-18A Hornet was employed in combat.*

*After returning from their 22nd deployment, the Warhawks transitioned to the F/A-18C and were assigned to MAG-12 as the first Navy squadron to take part in the unit deployment program (UDP). The Warhawks completed three UDP deployments before rejoining CVW-11 aboard* Nimitz *in 2009. The Warhawks completed the transition to the F/A-18E Super Hornet in March 2014.*

**AIRCRAFT FLOWN:** *A-7A/E Corsair II, F/A-18A/C Hornet and F/A-18E Super Hornet*

**NUMBER OF PEOPLE IN UNIT:** *202 Sailors*

**SIGNIFICANT MOMENTS/ACCOMPLISHMENTS:**

- *Awarded the Wade McClusky, Battle "E" (eight total) and Safety "S" (three total) awards in 1976, thus achieving the Naval Aviation Triple Crown. The Triple Crown is reached when a squadron receives the McClusky Award or the Michael J. Estocin Award, the Battle "E" and the Safety "S" in the same year.*
- *Awarded the Michael J. Estocin, Battle "E" and Safety "S" awards in 2001, achieving the Triple Crown for the second time in squadron history.*
- *Transitioned to the F/A-18C Hornet in 2004.*
- *Returned from its second deployment in two years aboard* John C. Stennis *in April 2013. Executed 248 combat sorties in support of OEF.*
- *Officially issued a Safe-for-Flight certification in 2014 from Strike Fighter Wing Pacific, marking the completion of VFA-97's transition from the F/A-18C Hornet to the F/A-18E Super Hornet.*


*(Photo by IS1 Carlos Bonnett-Castillo)*

*If you are interested in being featured in an upcoming* Squadron Spotlight*, please contact us at nannews@navy.mil.*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