FLEET READINESS CENTER SOUTHWEST
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FRCSW ALMANAC

Volume 8 - Issue 2

FRCSW Servicing UAVs

Skipper's Corner:

Diversity and FRCSW

Capt. Timothy Pfannenstein

Diversity is highly touted as a universal means to achieve greater success within an organization. Its root word, diverse, means "different, assorted, dissimilar and not alike" which is the exact opposite of words like "togetherness, similar or unified." How then, does Diversity contribute to an organization's greatness? Simply put, diversity is not at all about being different; it is about leveraging our differences to give us added strength. It allows us to better utilize our individual talents, skills and knowledge in a group environment. Talents, skills and knowledge that were developed in our communities, passed to us by our families and the many generations before them. Given to us by generations who instilled the willingness to learn, the capacity to endure challenge, the desire to be the best they could be, and the strength to demand excellence in every endeavor pursued.

Diversity does in fact mean we are different, but coming together to utilize these differences to our advantage will make our organization stronger. I am reminded of the variety of building materials used to make a house. A house of wood is strong and very suitable, but fortify it with something completely different like bricks, mud and stone and it becomes stronger, use concrete and rebar and it becomes even stronger still. Separately these materials are strong and capable but together they build a structure that can withstand the strongest forces of nature. The same is true in our organization, leveraging the best from each of us improves the whole!

FRCSW and our NAVAIR counterparts have many affinity groups that celebrate their heritage throughout the year. Each community I have been lucky enough to visit has piqued my interest. I am particularly fascinated by the histories of these groups. I revel in learning the trials and tribulations each has endured as it has evolved. However, what is most awesome, is that no matter which group you study, each overcame their individual trials and tribulations by using their talents, skills and knowledge. They did not sit around idly and wait to be helped, they helped themselves. The manner in which each group was able to rise up and accomplish all they have tells a fascinating story with a warm and rich history all their own. Those stories, have become our own stories, and are now a part of our cultural DNA. They make us who we are and teach us how to learn, what to learn, how to endure challenges and most importantly how to overcome them to become the best we can be.

Regardless of race, ethnicity, religious preference or life orientation our diversity and heritage give us certain strengths. Throughout the year we celebrate these strengths with a variety of cultural events. Those celebrations are not simply fun and games, they also allow us an opportunity to leverage our diversity and to make ourselves and our organization stronger. I invite you to join us. Trust me when I say that you will be touched emotionally as you watch our brothers and sisters endure and overcome hardship far beyond anything we could ever imagine.

Living in Southern California puts us in a unique position in that we have the ability to draw from so many different cultures, beliefs and lifestyles. We are incredibly lucky to have had generations before us blaze the trail and overcome life's challenges. In that, we should celebrate their achievements and their efforts, because it is who they are and who they were that has truly made each and every one of us who we are today.

Let's celebrate our differences, and then join together in our strengths. In doing so, you, I and all of us can make our community and FRCSW even better.

In Your Service,

Timothy H. Pfannenstein

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FRCSW Mission, Vision & Values

Mission
Deliver responsive maintenance, repair and overhaul products and services in support of Naval Aviation and National Defense objectives.

Vision
Be the provider of choice for aviation maintenance, committed to customers, partners, workforce and community.

Values
Honor, Courage, Commitment.

FRCSW ALMANAC

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Ricardo Lim, Center Barrel Assembly Supervisor, front, and Jeff Ayers, Sheet Metal Examiner and Evaluator, inspect a left hand aft leading edge extension (LEX) on an F/A-18. They are determining the extent of repair needed on the LEX due to a defective gang channel. *Photo by Mike Furlano*

About the Cover
Aircraft electrician Kevin Fishel and avionics electrician Scott McClure, foreground, install antennae cable in an MQ-8B *Fire Scout* VTUAV in the Helicopter Sea Combat Squadron (HSC) 23 hangar aboard Naval Air Station North Island. *Photo by Jim Markle*

Features

FRCSW Servicing Unmanned Air Vehicles

An MQ-8B *Fire Scout* unmanned aircraft system from Helicopter Maritime Strike Squadron (HSM) 35 performs ground turns aboard the littoral combat ship USS *Fort Worth* (LCS 3). *Photo by MC2 Conor Minto*

Some people envision them as the future of naval aviation. Others consider them deadly by-products of a developing technology to fight and win the global war on terror. But most people just call them "drones."

An MQ-8B *Fire Scout* VTUAV in the HSC-23 hangar aboard Naval Air Station North Island.
Photo by Jim Markle

Aircraft electrician Kevin Fishel, center, is joined by avionics electrician Scott McClure, left, and FRC East fleet support team avionics Darryl McQueary as they prepare to install antenna cable in an MQ-8B *Fire Scout* VTUAV in the HSC-23 hangar aboard Naval Air Station North Island. *Photo by Jim Markle*

At Fleet Readiness Center Southwest (FRCSW) they are called unmanned air vehicles (UAV). And they are part of the command's increasing workload to service the weapons and tools of an industry that is now in its infancy.

In April Naval Air Systems Command (NAVAIR) designated FRCSW as the airframe component source of repair for the MQ-8B Fire Scout, a UAV helicopter primarily used by the Navy for reconnaissance purposes.

The MQ-8B is deployable from any naval vessel with aircraft-launching abilities. It was first deployed in 2009 and by the end of 2013, logged more than 10,000 flight hours including missions in Afghanistan.

Manufactured by Northrop Grumman, the Fire Scout is operated by a fixed control system for shipboard use, or a portable system for ground forces use. It can operate for five continuous hours.

FRCSW's initial workload on the Fire Scout entails modifications and corrosion prohibiting improvements to a UAV assigned to Helicopter Sea Combat Squadron 23 (HSC-23), which was inducted at the HSC-23 hangar shortly after the NAVAIR designation.

Fleet Support Team avionics leader Darryl McQueary said that artisans are installing a warfighter capability upgrade to the 31-foot UAV that will provide a full motion video for use under special operations.

Unmanned Air Vehicles

Aircraft electrician Kevin Fishel said that the modification will substantially improve the line of sight for surveillance teams.

"Under the corrosion modification, all of the antennas get new gaskets and we inspect and remove any corrosion of the aircraft's frame, and all of the aircraft gets covered with Skyflex Tape®, which is a sealer tape between the panel and the airframe to seal the panels in place to eliminate any water intrusion," said Pete Fuentes, In-Service Repair/ Crash Damage supervisor.

"Leakage points were noticed inside of the aircraft where moisture can get in which corrodes the airframe causing de-laminations," Fishel said. "So we're installing these materials to form a better seal."

Fuentes added that a radar modification is tentatively scheduled as part of the command's future workload on the UAV.

"Northrop Grumman owns all of the drawings for that, and we're trying to figure out the logistics as far as getting parts down the line," he said.

For now, FRCSW has eight artisans assigned to the Fire Scout: four electricians, three sheet metal mechanics and one mechanic for the re-assembly phase. Artisans completed one week of training at FRC East, where Fire Scout services are also performed, and two weeks of Northrup Grumman training in the HSC-23 hangar.

"We're in the verification and validation process right now," Fuentes said.

"We're trying to figure out how to best do the actual work. We have an engineer (McQueary) on-hand who watches us and provides any guidance. We're also qualifying our personnel on the MQ8. And we have one mechanic in a five-week school right now through Commander, Naval Air Forces (CNAF) who will learn everything about the aircraft down to its nuts and bolts."

FRCSW is scheduled to expand its services to the Fire Scout next year by including Aircraft Condition Inspections (ACI) of the UAV.

Aircraft electrician Kevin Fishel installs an antenna cable in an MQ-8B *Fire Scout* VTUAV.
Photo by Jim Markle

"The ACI is like a planned maintenance interval (PMI) event: We will have the specifications to go through every zone and check what we're instructed to look for. We'll do the disassembly, repairs and reassembly. The exact processes for the event are still being established," Fuentes said.

He said that FRCSW will tentatively handle Fire Scout ACI workload for the aircraft located on the West Coast.

Unmanned Air Systems logistics management specialist Jaime Riddle said that the command will conduct up to four ACI Fire Scout events beginning next year.

"I believe there are 22 or 26 Fire Scouts at (Naval Base Ventura County) Point Mugu and we'll be starting with those. These are deployed for about six or seven months at the detachments and when they're finished, they'll come to an ACI event," Fuentes said.

FRCSW will return the Fire Scouts to the squadrons after completing ACI services. Squadrons will perform ground checks, and return the aircraft to Northrop Grumman who will complete a functional flight check prior to reassignment to Point Mugu squadrons for deployment.

"This is a brand new venture for us and we're looking forward to starting it and expanding the program. We're just now getting a lot of the support equipment like the stands and trailers and tow bars," Fuentes said.

"The next helicopter will be done in-house. We're not sure when the next one will be in as it is intermittent, but I think the future work will be done in Building 325 (P-880)," he said.

The Navy plans to buy more than 90 MQ-8B and C model Fire Scouts. The MQ-8C is a larger UAV, with a longer operating capacity.

Automated Aerial Refueling:

The Future is Now!

By Steve McLaughlin, Michael Grice and Farhad Choudhury

Since 2002, members of the PMA-201Aerial Refueling (AR) team have been working to further the state of the art in Automated Aerial refueling (AAR).

This effort was inked in a memorandum of agreement (MOA) between NASA and NAVAIR to start the drogue mapping effort.

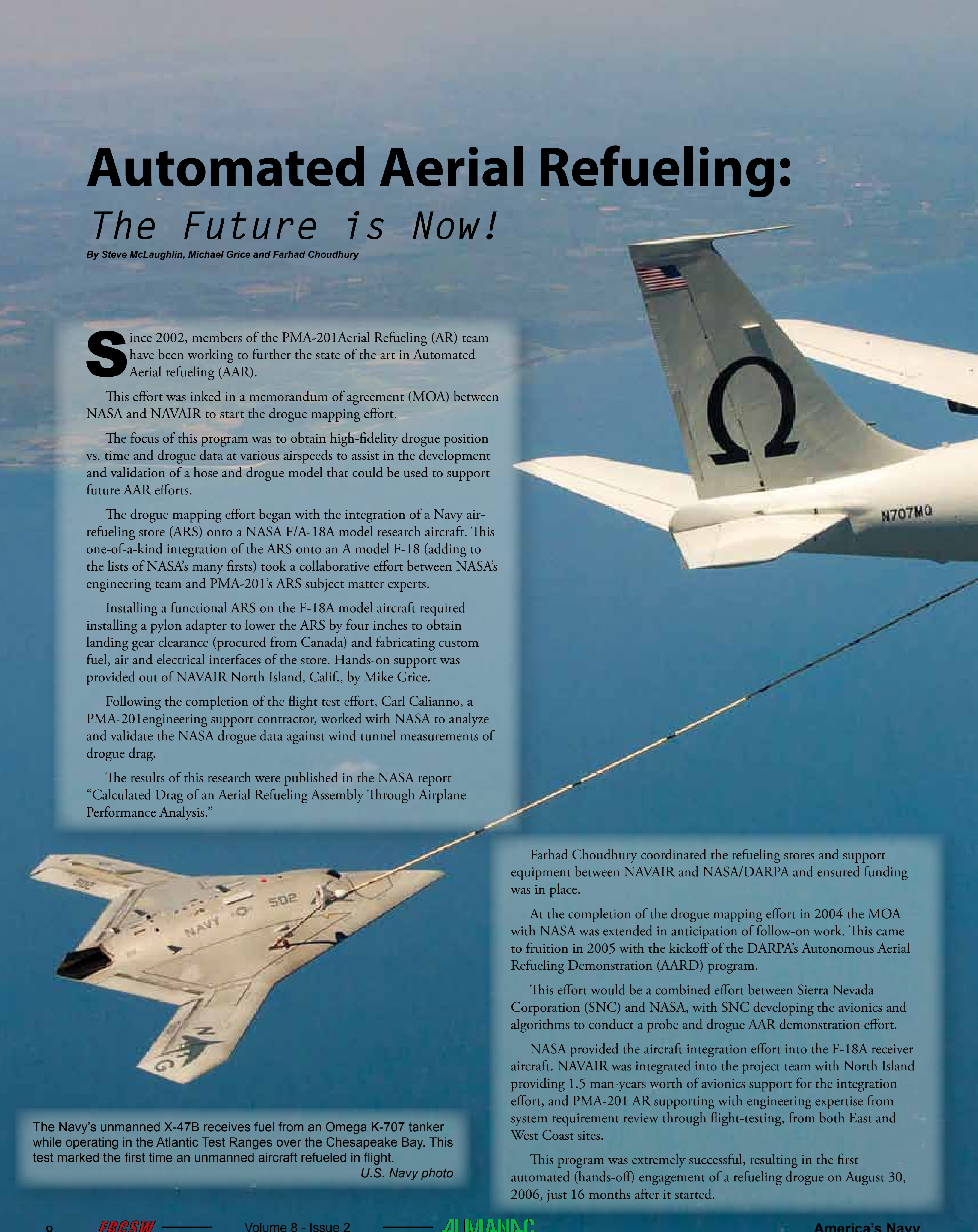
The focus of this program was to obtain high-fidelity drogue position vs. time and drogue data at various airspeeds to assist in the development and validation of a hose and drogue model that could be used to support future AAR efforts.

The drogue mapping effort began with the integration of a Navy air-refueling store (ARS) onto a NASA F/A-18A model research aircraft. This one-of-a-kind integration of the ARS onto an A model F-18 (adding to the lists of NASA's many firsts) took a collaborative effort between NASA's engineering team and PMA-201's ARS subject matter experts.

Installing a functional ARS on the F-18A model aircraft required installing a pylon adapter to lower the ARS by four inches to obtain landing gear clearance (procured from Canada) and fabricating custom fuel, air and electrical interfaces of the store. Hands-on support was provided out of NAVAIR North Island, Calif., by Mike Grice.

Following the completion of the flight test effort, Carl Calianno, a PMA-201engineering support contractor, worked with NASA to analyze and validate the NASA drogue data against wind tunnel measurements of drogue drag.

The results of this research were published in the NASA report "Calculated Drag of an Aerial Refueling Assembly Through Airplane Performance Analysis."



The Navy's unmanned X-47B receives fuel from an Omega K-707 tanker while operating in the Atlantic Test Ranges over the Chesapeake Bay. This test marked the first time an unmanned aircraft refueled in flight.
U.S. Navy photo

Farhad Choudhury coordinated the refueling stores and support equipment between NAVAIR and NASA/DARPA and ensured funding was in place.

At the completion of the drogue mapping effort in 2004 the MOA with NASA was extended in anticipation of follow-on work. This came to fruition in 2005 with the kickoff of the DARPA's Autonomous Aerial Refueling Demonstration (AARD) program.

This effort would be a combined effort between Sierra Nevada Corporation (SNC) and NASA, with SNC developing the avionics and algorithms to conduct a probe and drogue AAR demonstration effort.

NASA provided the aircraft integration effort into the F-18A receiver aircraft. NAVAIR was integrated into the project team with North Island providing 1.5 man-years worth of avionics support for the integration effort, and PMA-201 AR supporting with engineering expertise from system requirement review through flight-testing, from both East and West Coast sites.

This program was extremely successful, resulting in the first automated (hands-off) engagement of a refueling drogue on August 30, 2006, just 16 months after it started.

Flight-testing continued with additional flights after the initial success to demonstrate the robustness of the system from October 2007 to May 2007. In the end configuration, they demonstrated a 65 percent engagement rate over 45 attempts (two flights) using commercial off-the-shelf hardware.

The program boasts of a 100 percent plug probability for peak-to-peak drogue motion up >2.5 feet, with no observed false misses.

Following completion of the AARD program in 2007, PMA-201 AR engineers continued their support of AAR by stepping up to support the U.S. Air Force Research Lab's (AFRL) Automated Aerial Refueling Program. This program began approximately in 2003 and ran through 2011 and was focused on demonstrating the technologies, hardware, and CONOPS required to conduct station keeping for automated aerial refueling.

Station keeping is the primary exercise conducted in boom/receptacle (USAF refueling) and is a stepping-stone for completion of the probe and drogue engagement sequence. The Precision Global Positioning System (PGPS) and CONOPS developed under this program serve as the foundation for the X-47B automated aerial refueling effort.

In 2010, with the NASA/NAVAIR MOA fully expired, and all NAVAIR equipment accounted for, DARPA once again kicked off an AAR program, this time focused on high-altitude, low-speed refueling of two Global Hawk aircraft, designated as the KQ-X program.

And because it had to be "DARPA hard," this effort would reverse the traditional roles, putting the probe on the tanker, and the hose reel on the receiver. This program was a 24-month effort, and involved integrating a USN ARS hose reel into the belly of a Global Hawk, while installing a retractable probe on the receiving aircraft.

PMA-201 AR engineering would once again lend technical support to the hose reel and probe integration efforts from kickoff, through preliminary design review/critical design review and flight testing.

Mike Grice and Ed Padilla from North Island supported all of the flight-testing on site in Palmdale, Calif., which saw the program get up to close astern position, but due to time constraints (and a mix of internal/external factors), never got to engagement.

These aircraft needed to be returned to their primary research missions, which saw them flying over significant storm systems off our shores.

The Gouge note: For the past eight years, NAVAIR has been on the leading edge of technological innovation, developing the ability to operate tactical-jet sized unmanned combat air systems from carriers operating in the Pacific theater.

The next disruptive capability for both manned and unmanned battlespace persistence is to field autonomous aerial refueling capability in our fleet platforms.

Turning unmanned aircraft systems into tankers would massively extend the range of mission.

Editor's note: This article originally appeared in Feb-Mar 2015 edition of the PMA 201 monthly newsletter, "The Gouge".

FRCSW Voyage Repair Team:

Keeping Carrier Flight Decks Fleet Ready

In addition to repairing and maintaining the aircraft assigned to the fleet's aircraft carriers, Fleet Readiness Center Southwest (FRCSW) is also responsible for servicing the carriers' flight decks.

To handle this work load, FRCSW looks to its Voyage Repair Team (VRT) operating out of Buildings 249 and 65.

The VRT will typically service a carrier's four steam catapults and corresponding arresting gear, and inspect and replace the visual landing aids found throughout the flight deck.

Pneumatic mechanic Philip Samaniego cleans the parts of a power pack used to raise the safety officer platform on an aircraft carrier flight deck.
Photo by Jim Markle

VRT artisans typically work in tight, often greasy confined spaces. Gaining entry into some work spaces requires they maneuver through openings no larger than 24-inches in diameter, often on their backs, while dragging tools, welding equipment or whatever else may be needed to complete the job. The equipment they move weighs from 800-13,000 pounds.

VRT deputy program manager Wade Wendell said that the program employs 36 artisans that include aircraft launching and arresting devices (ALAD) mechanics, electricians, welders, pipefitters and riggers, and seven contractors.

VRT artisans remove the aircraft carrier's water brakes cylinders and pistons, and machine and overhaul them in the shop, then reinstall them into the catapult system. The procedure takes approximately 650 man hours per catapult.

The catapults are designed to propel the ship's aircraft down the flight deck at 160 miles per hour in less than three seconds. When landing the arresting gear bring the aircraft to a complete stop in approximately 340 feet.

"The water brakes and pistons are overhauled prior to each deployment on an as-needed basis depending on the number of launches and the ships tempo," Wendell said.

The VRT recently completed catapult alignments procedures to the USS *Ronald Reagan* (CVN 76). The alignment decreases the wear and tear on the internal catapult components and extends the catapult's longevity and performance.

The alignment was completed in seven months, requiring 14,084 man-hours. Working six days per week and 10 hours per day, artisans were able to complete the alignment of two catapults on time and on budget.

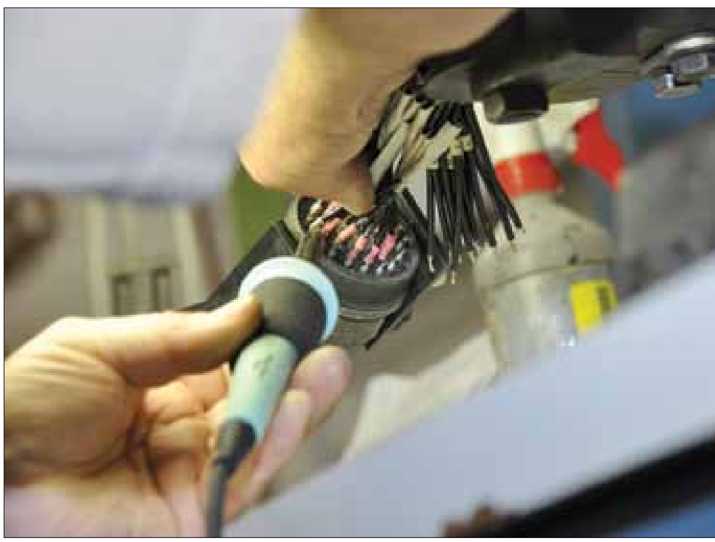
"Completing the alignments within the prescribed time frame was crucial to meet the needs of the air, reactor and engineering department," Wendell noted.

"One of the biggest successes to come out of the alignment was the amount of experience and training our artisans received," Wendell said.

Voyage Repair Team

Welder Ken Dewell mills an angle iron to the safety cage of a sheave damper from the arresting gear damper room of the USS *Nimitz* (CVN 68). Dewell is one of three welders assigned to the VRT section in Building 65. *Photo by Jim Markle*

Journeyman electrician Mark Brown solders a P-6 cable to a capacity selector valve, a major component to the firing mechanism of an aircraft carrier's catapult. *Photo by Jim Markle*



"The overall success of the alignments will be evident when the Reagan is home ported in Japan and operating aircraft from the flight deck with fewer failures of the catapult systems."

"The new system arresting gear system is the advanced recovery system and it is on the USS *Gerald R. Ford* (CVN 78). It's the only carrier that has it for now. It's still in development. The way the contract is set now, once the Navy accepts it, it still has a five-year contract on it for the OEM to maintain it. So, we're looking at least another six or seven years until we have to deal with it."

In addition to the aircraft carrier catapults and arresting gear, the VRT staff also maintains the lighting from the "island" (the ship's super structure that towers above the flight deck and is the ships main control center) to the flight deck.

More than 100 landing lights may be used to illuminate the flight deck.

Wendell said that during available periods, the ship's lighting components and Visual Landing Aids (VLA), which assist the pilot's recovery and landing onboard the carrier, are removed for service in the VRT's shop and then reinstalled aboard the ship.

FRCSW is the sole MRO site on the West Coast for the Improved Fresnel Lens Optical Landing System (IFLOLS), the Landing Signal Officer Display System (LSODS) and the Long Range Line-up System (LRLS) – the systems that comprise the VLA.

Not all of the VRT's workload is confined to the aircraft carriers sent to or home ported at its North Island hub. Team members are often deployed to service other aircraft carriers based on the West Coast.

From left, aircraft launch and arresting devices mechanics Roberto Payte, Henry Arreola and John Ponce disassemble the arms of a jet blast deflector (JBD) in Building 65. The deflector, which belongs to the USS *Nimitz* (CVN 68), rises behind a departing aircraft on the flight deck as part of the launching sequence. *Photo by Jim Markle*

"We usually send crews to Bremerton or Everett, Wash., for a month at a time. We recently had a crew of seven there to work on the USS *Nimitz* (CVN 68)," Wendell said. "We have several more trips to the Bremerton area scheduled this year as we support the USS *Nimitz* (CVN 68) and USS *John C. Stennis* (CVN 74)."

As the VRT looks forward to its next assignment aboard the USS *Carl Vinson* (CVN 70) in July, Wendell said that the shop remains occupied overhauling Jet Blast Deflectors (JBD), Nose Gear Launching (NGL) and the Control Runout Valve (CRO) assemblies along with new workload that was added about 18 months ago.

"Our new work is the submarine launch tubes for countermeasures from Naval Base Pt Loma. A lot of them come in corroded; so we refurbish, de-bur, clean and paint them," he said. "We also refurbish the containers that the tubes come in. This year we will refurbish 84 of the launch tubes and 32 containers."

An F-35C *Lightning II* carrier variant joint strike fighter conducts the first catapult launches aboard the aircraft carrier USS *Nimitz* (CVN 68). The JBD can be seen behind the aircraft in the raised position.
U.S. Navy photo courtesy of Lockheed Martin

New AWA Gives E-2C Avionics a Boost

A majority of the maintenance and repairs made to the E-2C *Hawkeye* airborne early warning aircraft at Fleet Readiness Center Southwest (FRCSW) target the structural integrity of the airframe: searching for cracks or signs of corrosion.

But in addition to the airframes integrity, FRCSW artisans must also ensure that the aircrafts electronics operate at the highest possible performance.

Using an automated wiring analyzer (AWA), artisans can test and measure the throughput variables of the aircrafts avionics and supporting electrical systems.

AWAs typically test resistors, relays, diodes, capacitors, and switch and circuit breakers.

FRCSW recently replaced its AWA in Building 460 with a new custom-made unit manufactured by Drive-In Theater Manufacturing Company (DIT-MCO).

"The new AWA is specifically designed to test the E-2C, all of the avionics program tests in the aircraft, and is also compatable with the previous test programs we had before," said engineering technician Martha Hoffman.

The E-2C avionics platform requires about 60 test program files. The new AWA software is designed to automatically develop and maintain engineering changes to current E-2C test program sets.

The old unit was also made by DIT-MCO and had been in service for more than 20 years. Hoffman said its cables and connectors were failing, and that a new operating system was needed to update the AWA software.

"The new configurations within the E-2C required cables we didn't have and after we saw how much they cost individually, it was a lot more expensive than buying a new system," she said.

"It took about four years to get this new unit in. We have new cables, new modules, a new tablet, and a new computer with the latest operating system. There's a tremendous amount of storage that we didn't have before, and the interfaces run much better."

The new system is a mobile, racked modular design of three major sections: switching modules, the computer testing system with a digital display, and test program sets.

Approximately 250 cable assemblies are used during the operation of the AWA. In total, there are about 1,200 to 1,600 connectors to various avionics components within the E-2C.

To access the aircraft's connection hubs, the AWA uses four mobile test stands that contain the switching modules: a left and right-side crew escape hatch stand, and a main entry and aft hatch stand.

Overall, the AWA must handle more than 31,000 switching points that are accessed via the switching modules. Eventually, the system will need to expand to handle 60,000 points to accommodate the electronic requirements of the E-2D model.

"The E-2D is a completely new project and we will need to develop new boxes and cables and some of the programming," Hoffman said. "But the AWA we have now will `talk' to the E-2D and can be used. We will just put new modules in and cables to test both models of the aircraft."

"All of the artisans who work on the equipment worked directly with DIT-MCO and our engineers during the initial hook-up phase. DIT-MCO started running the programs for testing and debugging, so the training period was ongoing. That took about five to six weeks," Hoffman said.

She said that the command's engineers will add another week of training that will be devoted to the system's software. The purpose is to learn troubleshooting techniques and how to modify the program, if required.

"We are the only ones to test at this level. There is testing going on with DIT-MCO at FRC East, but it is not at the level that we test. Our testing is more depot specific, with the capacity to repair in addition to analyze," Hoffman said. ▼

FRCSW Introduces New Testing System for Rotodome Radar

At Fleet Readiness Center Southwest (FRCSW) we have come a long way since the term RADAR was coined in 1940 by the U.S. Navy as an acronym for "Radio Detection and Ranging." Since then we constantly push our capabilities to better serve the fleet's radar antenna needs into the 21st century.

As radar technology evolves, so does our antenna test ranges. Test ranges have advanced from an Outdoor Far-Field Range to an Indoor Far-Field Chamber, with our quest to design the most modern radar test systems for the E-2C Hawkeye's rotodome and beyond.

To that end, FRCSW is adapting near-field technology to build the first Indoor Spherical Near-Field Antenna Measurement System (SNAMS) for the Navy, capable of testing the E-2C rotodome and any radar antenna up to 24-feet in diameter, weighing up to 12,000 pounds, over a frequency range of 400 megahertz to 18.0 gigahertz.

SNAMS is designed for rapid measurement of the E-2C rotodome. It is capable of future range reconfiguration to characterize a wide variety of modern antenna systems; and was specifically customized to support the measurement and calibration of future advanced aerospace and naval systems for radar, communications and electronic warfare applications.

SNAMS provides a number of advantages over previous rotodome testing procedures.

Before, the rotodome testing area required more than one acre of space due to the effects and dangers of high-power radar testing. With SNAMS, the testing area is harmless to the operator, and is reduced to a 40-foot by 40-foot area, with minimal interference from weather and other surrounding factors.

Rotodome setup and testing time is also reduced under SNAMS from one week to less than four hours.

SNAMS is fully automatic and does not require operator actions during data collection.

Manufactured by Nearfield Systems, Inc., (NSI) it operates using the NSI 2000 software program, a Windows®-based suite that maybe reconfigured for future radar testing capabilities.

The test is initiated by simply pressing the "Acquire" button on the NSI2000 Scan setup window. After the data is collected, the operator can plot converted far-field data in polar, rectangular and 3D coordinates to check pattern symmetry, side-lobe levels, directivity, and other parameters.

SNAMS is used in conjunction with an anechoic chamber. The chamber provides a secured, controlled environment for accurate measurement of antenna patterns and radar performance verification.

RF-shielded and lined with high performance 48-inch broadband pyramidal microwave absorbers, the modular anechoic chamber is also equipped with fire detection/protection systems for safety and environmental stability. ▼

FRCSW Shop Tackles Hornet Fuel Tanks

Pneudraulic mechanic Rogelio Sandoval attaches an F/A-18 Hornet fuel tank modular valve to a pressure tank for testing in Building 443.
Photo by Jim Markle

Of the many components removed from F/A-18 *Hornet* fighter aircraft during induction for maintenance or repair services at Fleet Readiness Center Southwest (FRCSW), one of the largest parts is the aircraft's external fuel tanks.

Golden Wrench Award

The FRCSW Golden Wrench Award is solely presented to military and civilian teammates who demonstrate outstanding contributions in support of the command's mission while in the performance of their duties.

Recent recipients of the Golden Wrench Award include:

Marissa Marmolejo	Charles Cox
Manuel S. Jotie	Dan Newell
YN2(AW/SW) Janet Paredes	Joseph Bailey
Elizabeth Isyasa	Chris Gugerty
	Brianna Timothy

And just like the airplane's landing gear and wings, its fuel tanks require analysis, repair and testing to make sure they are safe and operating as designed before being reattached to the aircraft.

Pneudraulic mechanic Rogelio Sandoval and work leader Albert Robles handle the FRCSW Hornet fuel tank workload in Building 443 and, so far this year, process about 10 tanks per quarter.

"We perform inspections and evaluations on the legacy and Super Hornet fuel tanks by looking for punctures, de-laminations or fire damage," Sandoval said. "We'll pressure check the tanks, change any parts, and before we forward these for painting we make sure everything works the way it is supposed to before it leaves the shop."

When back from the paint shop, the fuel tanks are reviewed by Quality Assurance (QA) and returned to the squadron.

The fuel tanks are made of fiberglass and any fiberglass repairs are made in Building 250, Sandoval noted.

"If the damages are too extensive, we'll scrap the fuel tank. But we'll get a Request for Engineering Instructions (REI) before that so the engineers decide how we will make the repair or if we will scrap it," he said.

In addition, the fuel tank's modular valve is also removed from the aircraft during induction and is evaluated, as well. The valve serves to transfer the fuel from the tank. Any repair parts are ordered and installed as required.

Sandoval said that a new fuel tank costs about $200,000 and a new modular valve more than $45,000.

"When we get new fuel tanks and modular valves from the factory, we do preservation on them. Then we send them to the paint shop and after the paint shop, they're sent back to us. And then we sell them to QA. Lastly, the contractors crate them and they are RFI," he said.

With minimal onboard equipment, the F/A-18 *Hornet* can carry additional fuel tanks, enabling it to travel more than 2,000 miles per mission. ▼

Aviation Structural Mechanic Airman (AMAN) Dominick Trias, foreground, and AM2 Philip Stoltz remove protective wrapping from an H-60 *Seahawk* helicopter that was given a “retro” paint scheme at the FRCSW paint facility in Building 466. Trias and Stoltz are both assigned to Helicopter Maritime Strike Squadron (HSM) 78 at Naval Base Coronado. *Photo by Jim Markle*