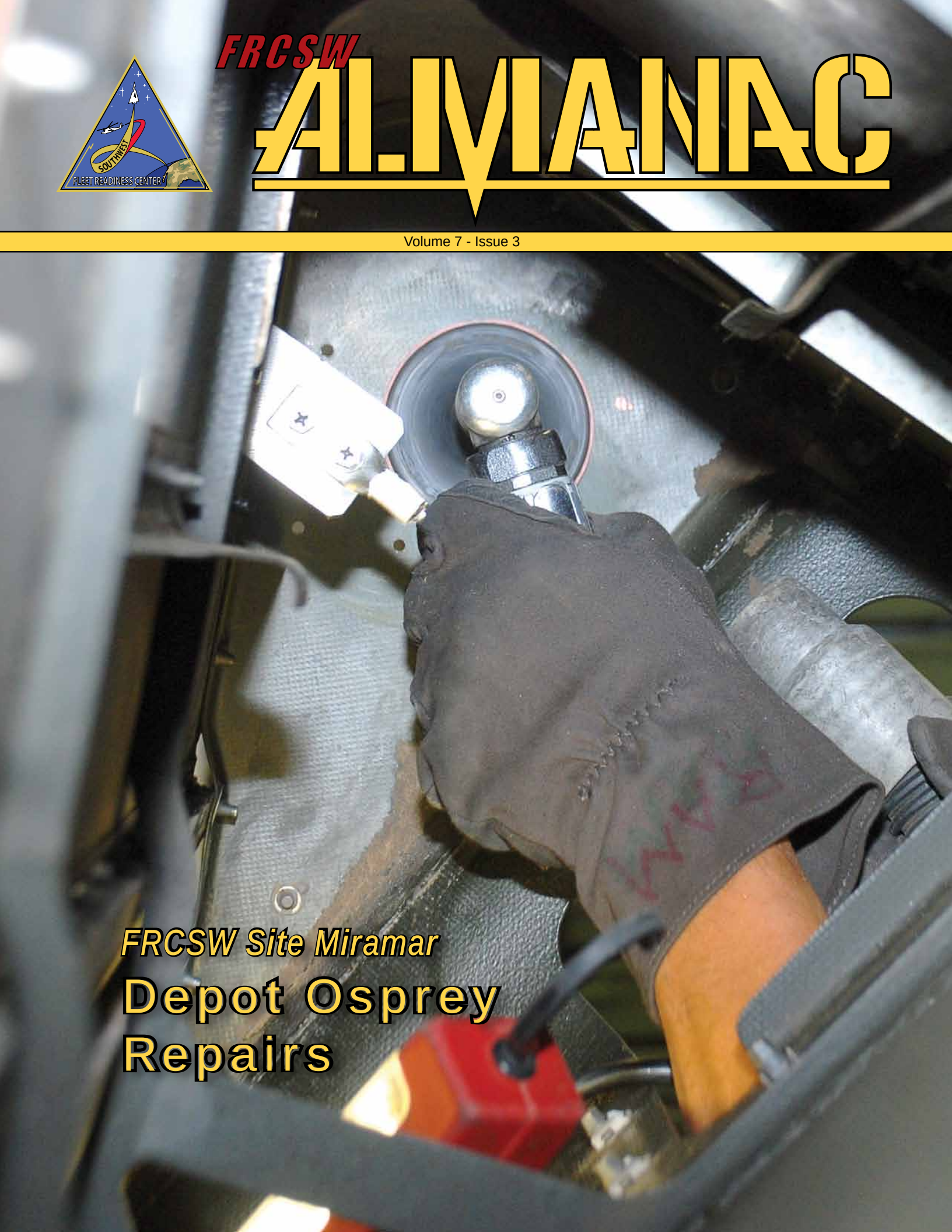

Volume 7 - Issue 3

FRCSW Site Miramar

Depot Osprey Repairs

Skipper's Corner:

PPE and Fall Protection

Capt. Don B. Simmons, III

It's been almost one year since I became your Commanding Officer. My message then is still the same today; we are and will remain focused on Compliance and Delivery to Promise. Compliance includes adherence to all Personal Protective Equipment (PPE) and Fall Protection policies.

Our safety stand-down on December 6th primarily focused on Compliance, the importance and availability of PPE. The message delivered was clear and simple: The wearing of PPE within industrial work space facilities aboard FRCSW is not an option. It is a requirement; a requirement that will be enforced throughout the plant.

For those artisans whose jobs require they climb and work atop aircraft, perhaps the most valuable PPE is the fall protection harness.

About five years ago, a COMFRC directive addressed an Occupational Safety Health Administration (OSHA) standard that required the installation of safety harnesses to minimize the risk of injury to artisans who work atop aircraft.

The OSHA requirement specifically states that fall protection is required for workers when they are at a height of more than four feet above the ground.

According to the U.S. Department of Labor, more than 665 American workers lost their lives in work-related falls in 2012. One in four of fatal falls occurred at a height of 10 feet or less.

Fall protection harnesses are installed in most of our facilities. The areas without harnesses have stands and other fall protection equipment available. They are there for your safety, and like all PPE, their use is a requirement.

Retractable and rope safety harnesses are inspected every six months by the FRCSW Safety Office.

Furthermore, artisans whose jobs require the use of safety harnesses should have received training in procedure and harness inspection prior to use. If you did not, contact your supervisor or call the safety office at (619) 545-3693.

The quality of our workforce is unsurpassed within the naval aviation enterprise. It is your skills, training, and creativity that separate FRCSW from similar MRO facilities.

My focus on Compliance includes maximizing your safety by providing the best PPE within the industry and by ensuring its proper use. We must ensure our employees are safe so we can Deliver to Promise. The Navy and Marine Corps count on us to deliver quality products on time to the warfighters.

DON B. SIMMONS, III
Captain, U.S. Navy
Commanding Officer

Fleet Readiness Center Southwest

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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.

America's Navy – A Global Force for Good

FRCSW ALMANAC

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FRCSW ALMANAC

Volume 7 - Issue 3 - February 2014

Features

FRCSW Voyage Repair Team electrician Leo Romero performs an operational check on the Improved Fresnel Lens Optical Landing System (IFLOLS), which helps guide pilots to a safe landing aboard an aircraft carrier. The IFLOLS can be seen by a pilot at a distance of 1 ½ nautical miles. *Photo by Joe Feliciano*

About the Cover
Sheet metal mechanic and composite fabricator Ramon Marquez uses a handheld sander on the interior of a V-22 Osprey in-fared suppressor panel prior to making a patch repair to the damaged area. *Photo by Jim Markle*

FRCSW Site Miramar Keeps Ospreys Mission Ready

An MV-22B Osprey with Marine Medium Tiltrotor Squadron 161 "Greyhawks" flies over the Pacific Ocean near San Clemente Island, Calif. *Photo by LCpl. Christopher Johns*

The V-22 Osprey aircraft assigned to squadrons of Marine Corps Air Station (MCAS) Miramar typically return from missions well-tested, often requiring external depot-level repairs to the body and rotor blades.

Marine Aviation Logistics Squadron 16 (MALS 16) supports the MCAS Miramar flight line, and depends on the three artisans assigned to Fleet Readiness Center Southwest (FRCSW) Site Miramar to handle the Osprey's depot-level repairs.

FRCSW composite fabricators (from left) Ramon Marquez, David Sanchez and James Russell III are pictured with Lance Cpl. Cayden Malpasuto in the FRCSW Site Miramar work center in Building 7550 onboard MCAS Miramar. The artisans provide depot-level composite repairs to components of the V-22 Osprey and the CH-53 Super Stallion helicopter, and provide training to Marines assigned within their work center.

Photo by Jim Markle.

The FRCSW artisans repair exterior exhaust-related panels of the aircraft: the infrared (IR) suppressor panels, which are the side engine panels for the exhaust section of the V-22; the center body panel, which is an exhaust infusion that bleeds in cool air with the hot exhaust air that exits through the IR; and the airplane's transition ducts, which attach to the exhaust section of the engine and flow into the center body section.

Developed by Boeing and Bell Helicopter, the tilt-rotor Osprey operates as a helicopter during take-offs and landings. It is used by the U.S. Navy, Marine Corps, Army, and the Special Operations Command, and can transport up to 24 troops or 6,000 pounds of cargo within 430 nautical miles. Full-scale production began in 2005.

"The aircraft gets a lot of wear and cracking due to vibration and heat. They (engineers) are in the process of redesigning the IR panels, but in the interim, it's easier for us to do the temporary fixes right now," stated composite fabricator David Sanchez.

Sheet metal mechanic and composite fabricator Ramon Marquez noted that some portions of the airframe, including the center body panel, are exposed to temperatures close to 1,000 degrees.

"The repairs are like putting band aides on things," composite fabricator James Russell, III said. "We make repairs to areas where the carbon fibers of the aircraft panels have been gouged. We'll rivet titanium patches that are used as sacrificial pieces that get destroyed before the actual panels."

Miramar Ospreys

FRCSW Site Miramar Osprey work began approximately two years ago and is assigned by MALS 16 who determines the scope of work. If a repair is depot level, an "assist request" is processed directing the repair to the FRCSW staff. When finished, the part is returned to a Marine Corps work center for painting and ready-for-issue of the part.

The FRCSW artisans do not perform complete overhauls on the components they service. Instead, their role is to provide Beyond Capable Maintenance Interdictions (BCMI).

The BCMI concept emerged following the 2005 Base Realignment and Closure decision. It places depot-level artisans at certain naval and Marine Corps facilities for the repair and service of components that cannot be repaired at the intermediate level.

The interdiction program increases efficiency by eliminating the need and expense of transporting components to depot-level facilities for repair, and then back again for installation.

The first component to undergo BCMI applications at FRCSW Site Miramar was the CH-53 Super Stallion helicopter engine air particle separator (EAPS) in 2007.

The EAPS is a large air filtration system that is attached to the front of the engine cowling on the helicopter. There are three units per aircraft, and six years later, the FRCSW artisans continue to perform sheet metal and other repairs to the component.

In addition to the Super Stallion EAPS the FRCSW artisans also repair the helicopter's rotor blades, and more recently, the blades of the Osprey, as well.

"We learned the process for the Osprey blades about three months ago (July 2013), and we've returned three blades to service, so far. The training lasted one week in order for us to become certified, and was provided by Cherry Point engineering (FRC East)," Sanchez said.

Lance Cpl. Cayden Malpasuto lends composite fabricator David Sanchez a hand in removing the enclosure panel from a V-22 Osprey in-fared suppressor panel. *Photo by Jim Markle*

Composite fabricator James Russell III removes the rivets to the center body panel of a V-22 Osprey. The panel was damaged due to vibrations and excessive heat from exposure to the aircraft's diffuser.

Photo by Jim Markle

The FRCSW artisans were taught to lube and replace the leading edge nickel cap on the V-22 blade. The bonding and capping blade procedure takes three to four days, Sanchez said.

"The nickel cap is a sacrificial leading edge cap that will erode and wear down before the blade does. Depending on the environment the aircraft operates in, it could last a while or go quickly. In a sandy environment, for example, it will go faster," he said.

"There are two test coupons that have to be prepared in addition to the nickel cap that's bonded on," he said. "Those coupons simulate the materials that we're bonding together on the blade. They are sent to the material engineering lab at North Island for full testing to make sure they meet a certain standard. If the test coupon fails, then what we would have performed on the blade would fail."

FRCSW Site Miramar is the only facility on the West Coast that provides blade restoration work to the Osprey and Super Stallion.

To help facilitate an increasing workload, MALS 16 began the assignment of three Marines last summer to work under the cognizance of the FRCSW artisans. The Marines are made available through letters of agreement between Commander, Fleet Readiness Centers and the Marine Corps.

"We train the Marines who work with us to do work similar to what we do; they work right alongside with us and it's going very well," Russell said. "They are hard workers, motivated and mechanically inclined. And they help us get things done faster."

"We do our own logistics here; our examining and ordering of the parts. So the Marines are able to pick up a lot of the 'non-production work' to let us focus on the actual disassembly and depot-level work," said Sanchez.

"Right now our production control officer has us focused on repairing IR panels, and nothing else. Our work comes in bunches. Especially when the V-22 squadrons return, because they bring with them a lot of worn out parts to turn in," he said.

An F/A-18C *Hornet* assigned to Strike Fighter Squadron (VFA) 113 launches from the bow catapults on the flight deck of the Nimitz-class aircraft carrier USS *Carl Vinson* (CVN 70). *Photo by MC2 James R. Evans.*


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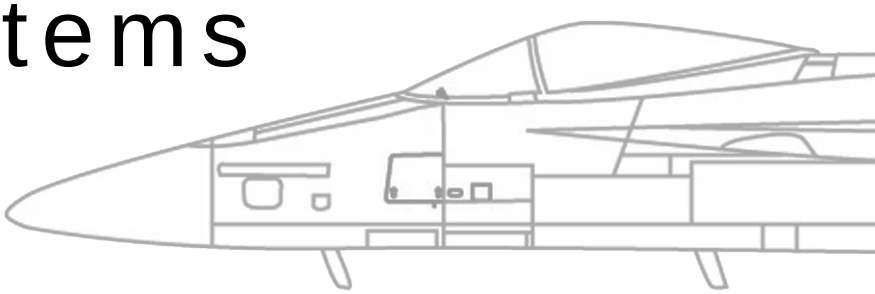
FRCSW Tackles Super Hornet Flight Control Systems



FRCSW machinists Mario Morales-Beraza and Al Hatten adjust a fixture while installing a bearing on F/A-18 *Super Hornet* Horizontal Stabilator.

Courtesy photo.

Fleet Readiness Center Southwest's (FRCSW) role in maintaining the Navy's fleet of F/A-18E/F *Super Hornet* fighters is expanding to include the aircraft's flight control systems.

The command began work on the airframe's flight control system last June when the first repair disposition was issued for the horizontal stabilator, a key flight control component.

Located at the rear of the fuselage, aft of the wings and below the rudders, the horizontal stabilators affect the aircraft's stability and pitch. Other flight control components and surfaces include the leading edge inboard and outboard flaps, the trailing edge flaps, ailerons and rudders.

"The horizontal stabilators were determined to be core components, meaning they were to be stood up at the organic depot level," said Joann Rodgers, logistics management specialist for the FRCSW Industrial Business Office.

She said that FRCSW was also "…working on establishing capability on the trailing edge flap of the E and F."

Manufactured by Boeing, both the single-seat E and tandem F Super Hornets joined the Navy's arsenal in 1999.

Rodgers said that the aircraft's flight control systems were originally maintained by Boeing, and that FRCSW capability was gained through the F/A-18E/F Integrated Readiness Support Teaming (FIRST) partnership that was established in 2001 with the aircraft manufacturer.

The FIRST contract is a Performance Based Logistics program, designed to improve the combat readiness of the E/F Super Hornet and to operate within a cost-conscious environment.

Though FRCSW has established maintenance capability, the Super Hornet stabilators are also currently serviced by Boeing's Structural Repair Facility in Cecil Field, Fla.

In the meantime, FRCSW received two stabilators from Boeing and completed repairs to both.

"We started in June 2013 and went to December 2013 inspecting the horizontal stabs, analyzing the damages, figuring out a repair solution, and performing the repair," said aerospace engineer Scott Wong.

FRCSW artisans identified honeycomb core defects and composite damages to the skins including disbands, de-laminations and fluid saturations, and missing plies.

"We've seen these defects and damages before on other (legacy and Super Hornet) horizontal stabs," Wong said. "They're usually caused by a combination of loading, environmental, and maintenance conditions."

The primary differences between the legacy (A-D) Hornets and Super Hornet airframes are the size, shape and structure. Though both airframe horizontal stabilators have composite skins and an aluminum honeycomb core within the structure, material systems and stresses can vary.

FRCSW artisans also inspected the tolerance of the sleeve bushings inside of the horizontal stabilator that rotate the component on the spindle, he said. Out of tolerance sleeve bushings were replaced. The bushings and bearings help actuation of the horizontal stabilator twist up and down smoothly on the spindle.

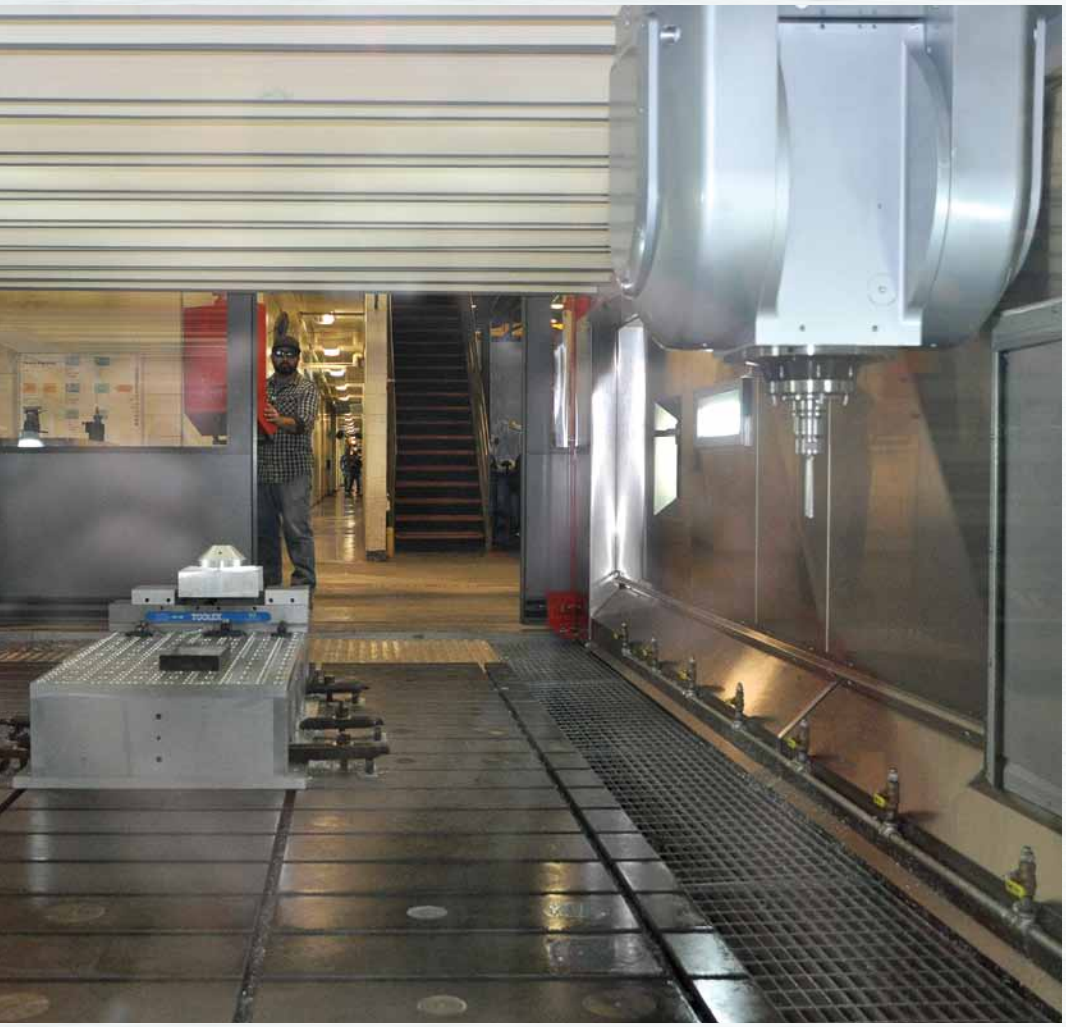
The timeline to transition all stabilators to the depot is being determined by the F/A-18 and EA-18G Program Office (PMA-265) and the Strategic Business Team, Rodgers said.

"Seeing the great teamwork that took place, not only within FRCSW, but also with Boeing and our Fleet Support Team, showed the can-do spirit of collaboration that enabled this output," she said.

Machinists Al Hatten and Mario Morales-Beraza move the aligning fixture into place to install a spindle bearing on a horizontal stabilator.

Courtesy photo.

New 5 Axis CNC Tool Improves FRCSW Service to Fleet



To increase efficiency and to ensure that the best possible products are delivered to the fleet, Fleet Readiness Center Southwest (FRCSW) has expanded its use of multi-axis computer numerically controlled (CNC) tooling.

CNC tooling was developed in the early 1950s.

FRCSW has used CNC tooling in its manufacturing processes for years. Examples include lasers used to cut and form patterns from minimally thick pieces of steel and aluminum; the waterjet which uses high pressure water and an 80-grit garnet abrasive to cut through steel, titanium, and other materials; and electrical discharge machining that creates an electric arc to erode metals such as titanium.

Multi-axis machining uses CNC tools that rotate around one or more axes to manufacture metallic parts and components. The number of axes varies from four to nine.

FRCSW uses 5 axis machining. A 5 axis machine can mill material on a plane of two coordinates (x and y or back and forth, and left and right), as well as space, or top to bottom (z). The other two axes, a and b, apply to the rotation and tilting of the part, respectively.

Located in Building 472, the command's newest, and largest, 5 axis CNC machine made its first test run part – a door louver – in late February.

"We have five other 5 axis machines, but they are limited in capability and size and can only machine aluminum," said machinist Phillip Marquez.

"This machine has two types of heads: a low-torque and a high-torque head where you can machine aluminum all the way up to titanium. We'll also be machining stainless steel with this."

Manufactured by Gruppo Parpas, located in Italy, the $3.5 million machine also has the capability to mill carbon fibers, a primary ingredient of aircraft skins. The unit contains a vacuum system with an external pump to collect excess material.

"There are additional tables and stands needed to work with the fibers and once those are ordered and received, carbon fiber work can begin. The software that came with the machine will be able to handle that," Marquez said.

Machinist Phillip Marquez operates the computer numerically controlled 5 axis machine in Building 472. With both low torque and high torque heads, the new tool will be used to machine components made of aluminum, stainless steel and titanium. *Photos by Jim Markle*

The table inside of the machine where parts will be manufactured is roughly 20 feet wide and 40 feet in length. FRCSW will build formers, longerons and other components that were previously manufactured by outside vendors.

"On other machines the table will move back and forth. That will be your x and y axis, and up and down will be the a, c, and z. This machine does everything in one path; it can make a perfect ball by moving its head around," Marquez noted.

"Another great thing about this machine is that you can set up vectors of your work area. You can have the table laid out so that one part is machining, and then at night, setup another vector to machine the other side or a completely different part. You can machine as many parts as you can fit on the table so long as the (pivoting) tool head doesn't knock into any of them. So, theoretically, I can setup about six longerons."

A significant feature of the Parpas over other 5 axis machines is its ability to measure, Marquez said. The Parpas software uses a probe to verify the dimensions of the part either during or after the manufacturing process. Afterward, a printout of the dimensions is provided to the operator.

"With this, we machine one side and verify that it's good as we machine it; flip it over and machine it, check it, know that it's good, and sell it. This saves hundreds of manhours. Checking a former, for example, is probably a couple of hundred of manhours," Marquez noted.

Marquez and four other machinists completed two weeks of training provided by Parpas.

Unlike the other CNC machines used on the command, the Parpas machine uses a Siemens control instead of "Fanuc" software. Because Marquez is the most familiar with the Siemens software, he is currently the only active operator of the Parpas machine.

"Fanuc developed the 'GM' codes for the machining. When you write it out you don't tell the machine which side of the part to work on, you give the machine vectors of x, y, z and a and b. And you give it dimensions. You'd move on vector x 10 inches in a positive way, for example. That technically is a line of code. When you write 'G0' that tells the machine to move in a rapid movement to these vectors. 'N03' means turn the spindle on clockwise, for example. This is the machine's language," Marquez said.

In addition to its different language, the Parpas machine uses a tilted plane or angle variation which is an uncommon feature to 5 axis CNC tools.

Ordinarily, when a part is to be machined, it must be perfectly square to the machine. With the Parpas, parts need not be square to it because the machine will pick up the part's corners and compensate for any tilt. The feature saves time on setup procedures.

Preventive maintenance on the machine is handled by FRCSW staff.

"There is a 900 gallon bullet tank that has to be emptied by material handlers, there are programmers, and we have an artisan who checks the oil every day. It takes one person to operate this, but a team of people to maintain it," Marquez said.

For FRCSW and COMFRC related videos, visit:

https://www.facebook.com/COMFRC/videos

Out and About FRCSW

FRCSW Earns Second Consecutive Retention Honor Roll

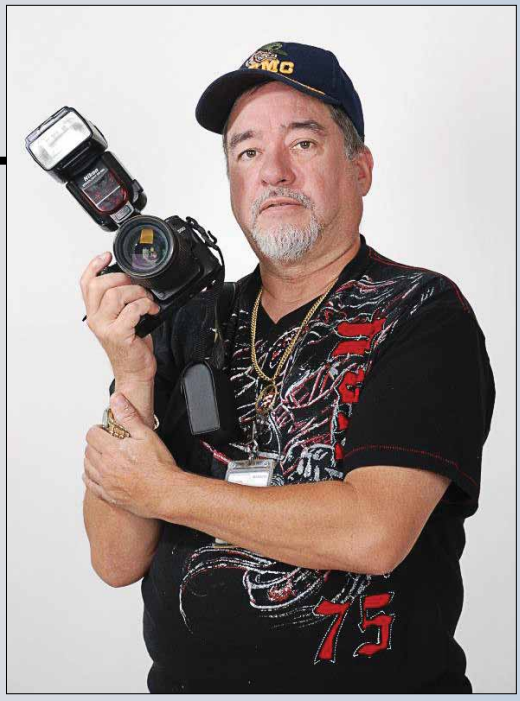
Fleet Readiness Center Southwest (FRCSW) Commanding Officer Capt. Donald B. Simmons, III (center foreground) is joined by FRCSW Executive Officer Capt. Tim Pfannenstein, Level II Officer in Charge Cmdr. Brett Ingle and Command Master Chief Pablo Cintron, as NC1 Alfredo Delagarza and NC1 Vincent Benavides prepare to raise the Retention Honor Roll Pennant for the second consecutive year.

Photo by Leandro Hernandez

Fair Winds and Following Seas, Joe!

Fleet Readiness Center Southwest (FRCSW) Public Affairs would like to extend a fond farewell to our friend and teammate, Fernando “Joe” Feliciano on his retirement from civil service. He began his career in the Marine Corps with four years active duty, and then entered into civil service with the Naval Air Rework Facility in 1980, working in the warehouse in Building 661, and moving through various positions, eventually becoming the well-known photographer of FRCSW. He spent 18 years documenting many of the special events here at North Island and for the command, and shooting photos for the *DepoTalk* newsletter and *Almanac* magazine. We wish Joe all the best in his latest endeavors and thank him for his 39 years of service to the Fleet and FRCSW.

Photo by Scott Janes



FRCSW Sailor Chosen COMFRC 2013 Shore Sailor of the Year

COMFRC Shore Sailor of the Year AT1 Jason Lechowicz, third from left, gives AT1 Aaron Gabel, right, a hand in checking in new FRCSW Sailors CS2 Anthony Katimbang and AOAN Ashley Carter to production control in Building 463. *Photo by Jim Markle*

Commander, Fleet Readiness Centers (COMFRC) selected Aviation Electronics Technician 1st Class Jason Lechowicz as its 2013 Shore Sailor of the Year.

Currently assigned to production control in Building 463 aboard Fleet Readiness Center Southwest (FRCSW), Lechowicz is also this command's 2013 Senior Shore Sailor of the Year, and was one of four finalists to compete in the Naval Air Forces, U.S. Pacific Fleet, Shore Sailor of the Year category.

"I wasn't at all surprised that AT1 was selected as the COMFRC Shore Sailor of the Year. He leads all of the first classes (petty officers). And not only is he the maintenance go-to-guy, but he's a multi-faceted Sailor who's very active, very involved," said ATC Bryan McGaughey, Lechowicz's supervisor.

Before reporting to FRCSW in April 2011, the 28-year-old Lechowicz served as the production leading petty officer and a workcenter supervisor aboard the aircraft carrier USS Carl Vinson (CVN 70).

When the ship had undergone a reactor overhaul and restructuring of its workcenters and facilities, Lechowicz oversaw the setup of four different shops which included the COMNAV branch and three Consolidated Automated Support System (CASS) workcenters. CASS is used to pinpoint and resolve avionics component problems.

"Once setup, we also tested all of the equipment. That was done using a minimal crew because once the ship enters the yards, the crew is cut in half," Lechowicz noted.

Afterward Lechowicz was appointed the COMNAV workcenter production supervisor.

"I was an E-5 at the time just basically running production and overseeing all of the equipment and the day-to-day production efforts. I made (petty officer) first class a few months before I left and took over the last four months as the leading petty officer," he said.

When he arrived at FRCSW Lechowicz remained in the forefront of intermediate-level (I) production efforts: managing the production control of divisions handling engines, avionics and support equipment; and the more than 400 Sailors/technicians who are assigned within the I-level divisions.

"Every division has a satellite production control, so we have controllers who just work for their respective divisions like avionics and airframes," Lechowicz said. "I ensure that the division's priorities are in tune with the command's priorities, and we set the daily 'marching orders' that the controllers use to manage their divisions. Overall, we're responsible for everything that goes on within their divisions."

In addition to his assigned duties and pursuing a degree in electronics from Excelsior University, Lechowicz oversees the FRCSW mentorship program and serves as the assistant command fitness leader.

"Because of his work with the command's mentorship program, the second class petty officers go to him for virtually anything they have questions or need help with," McGaughey noted.

"You can't underemphasize hard work and knowing your job," Lechowicz said. "A lot of times people get a bit misguided, and forget what we get paid for. Our mission here is maintenance, to fix aircraft first and foremost. School and collateral duties are important. But if you know your job and are the best at it, then realistically, you will be the best," Lechowicz said.

A native of New Britain, Conn., Lechowicz enlisted in the Navy in 2003 following high school graduation. Last September, he reenlisted for six more years.

He will depart FRCSW in March to his next assignment aboard the amphibious assault ship USS America (LHA 6).

FRCSW Public Affairs Specialist Jim Markle is reflected in the observation window as machinist Phillip Marquez operates the computer numerically controlled 5 axis machine in Building 472. With both low torque and high torque heads, the new tool will be used to machine components made of aluminum, stainless steel and titanium. See story on page 12. *Photo by Jim Markle*