



**FRC SW**

# ALMANAC

Volume 6 - Issue 1



## Jig, Fixture and Toolmaker Shop

# Skipper's Corner:

## Taking Care of Our Teammates



**Capt. John Smajdek**

The safety and well being of our teammates should be the concern of everyone in the command.

While our ongoing PPE program targets on-the-job safety issues, our automated external defibrillators (AED) program strategically places these cardiac-related tools in our most populated workcenters.

As many of you know, heart attack and cardiovascular disease can strike at any age and the older a person is, the higher their risk. I encourage each of you to locate the AED nearest your work center, find out how it works, and learn the signs of heart attack and stroke. You just may save a teammate's life.

Though much has been written about the role that stress plays in heart and cardiovascular health, it may also be a contributing factor in suicide.

For many, the daily stress of personal and professional life may become an overwhelming obstacle that they believe cannot be resolved. Individuals with feelings of hopelessness, which can lead to suicidal thoughts, often provide clues about their thought process through words or actions, such as substance abuse.

Recent media reports have highlighted Post Traumatic Stress Disorder that is affecting some of our warfighters returning from the conflicts in Iraq and Afghanistan. Last year, the DOD allocated \$40 million toward the prevention, treatment, and counseling of battle-related stress and trauma so this is an important topic across the entire Navy.

All FRCSW teammates are an immediate resource as first responders to depression and cardio-related emergencies. In the event of an emergency, call 9-911.

Information on heart attack and stroke is available through the FRCSW Safety Office at 545-3329.

The National Suicide Prevention Hotline at 1-800-273-8255 provides information and emergency services including counseling and referrals.

I urge you to use these sources when and if necessary to help a teammate or even yourself. After all, we're all in this together.

**JOHN SMAJDEK**  
Captain, U.S. Navy  
Commanding Officer



## Fleet Readiness Center Southwest



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**MISSION**  
DELIVER RESPONSIVE MAINTENANCE, REPAIR AND OVERHAUL  
PRODUCTS AND SERVICES IN SUPPORT OF FLEET READINESS AND  
NATIONAL DEFENSE OBJECTIVES.

**VISION**  
BE THE PREFERRED PROVIDER OF INNOVATIVE AVIATION  
MAINTENANCE SOLUTIONS, COMMITTED TO CUSTOMERS,  
PARTNERS, WORKFORCE, AND COMMUNITY.

**VALUES**  
INTEGRITY (HONESTY, ACCOUNTABILITY,  
PERSONAL RESPONSIBILITY),  
TEAMWORK (OPEN COMMUNICATIONS, TRANSPARENCY,  
INFORMATION SHARING), MUTUAL RESPECT,  
AND WORKPLACE DIVERSITY.

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**America's Navy – A Global Force for Good**



**FRCSW**

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## Features

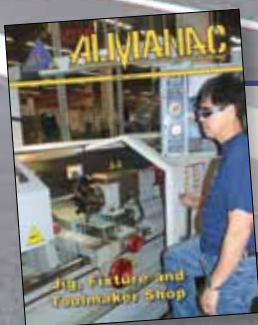
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The view from the flight deck of the USS *Carl Vinson* (CVN 70) while berthed at NAS North Island; the San Diego - Coronado Bridge can be seen in the background.

*Photo by Mike Furlano*




### *About the Cover*

Jig and fixture builder Dan Ngo manufactures the main drive shaft to the lock pin of an SH-60 Seahawk helicopter using a computer numerical controlled lathe in the jig and fixture and toolmaker shop in Building 379.

*Photo by Jim Markle*

# *Fleet Services Bolstered by Jig, Fixture and Toolmaker Shop*

Story and Photos by Jim Markle

A man wearing safety glasses and a dark shirt is working in a workshop. He is holding a handheld electronic device with a red button. In the background, there is a large industrial machine, possibly a lathe or mill, with a workpiece mounted on it. The workshop has a clean, organized appearance with various tools and equipment visible.

**F**rom crafting specialty tools to building and ensuring the integrity of the fixtures that are used to support aircraft components during maintenance and repairs, the jig and fixture and toolmaker shop in Building 379 plays an integral role in Fleet Readiness Center Southwest (FRCSW) providing mission-ready aircraft to the fleet.





Toolmaker Arturo Go operates a computer numerical controlled milling machine to create parts to a lock pin of an SH-60 Seahawk helicopter. The milling machine has 32 different tools attached, providing great versatility in the size and variety of parts which may be manufactured.

The shop primarily supports the production teams of the helicopter lines, as well as the F/A-18 Hornet fighter and the E-2 Hawkeye surveillance and C-2 Greyhound transport programs.

“We fabricate and repair jig and fixtures, and calibrate and certify fixtures. We manufacture fixtures and special tooling for the plating shop, the F/A-18 center barrel and intake, E-2/C-2, helicopter programs and various machine shops throughout the command,” said jig and fixture builder Luis Quiambao.

Like the airframes they support, many of the fixtures also require preventive maintenance (PM). The shop performs PM on approximately 200 fixtures annually, including those used on the AH-1 Super Cobra helicopters at FRCSW Site Camp Pendleton.

“When setting the PM schedules, we have to coordinate with the maintenance sections that have the use of the fixtures. We don’t want to interrupt their work flow while these are calibrated,” engineering services supervisor David Gaipa said.

He said that the fixtures in the F/A-18 Hornet center barrel program in Building 378 are calibrated and checked every two years, while PM inspections are performed on 26 and 52-week intervals.

“Every two years we go through these stands to make sure all aspects of them are normal. If we see any discrepancies we make the repairs back to specifications, and then perform a re-calibration and certification to put the fixture back to the production line,” said jig and fixture builder Brian Rice.

To calibrate fixtures, the shop uses a portable laser tracker system. The measuring system uses a handheld reflector that is placed on the fixture, which the laser beam locks on to for measuring distance and angles. Some fixtures, such as an F/A-18 engine mount fixture, has a holder for the reflector to target a specific point.

“We track specific points on the fixture. There are three lines – the X, Y and Z axis – and where these three planes intersect, is the point that we track to

# Jig, Fixture and Toolmaker Shop

verify that the fixture is within tolerance,” explained Rice.

Some fixtures, such as those used for drilling wings, must be calibrated within five thousandths of an inch, he said.

Fixtures that service F/A-18 Hornet and Super Hornet canopies in Building 250 are also designed for drilling purposes. A single canopy has more than 200 fastener holes that require drilling and then countersinking.

“When the hole is drilled to remove a fastener,” said jig and fixture builder David Wolfe, “we have to make sure that the fixture is such that it does not add undue stress that might interfere with the stability of the other canopy fasteners.”

“All of the holes on the fixture need to be based on the blueprint, so when we verify it, we make sure that the locations and dimension are within specifications. Once we complete that, we perform the calibration,” Quiambao stated.

In addition to PM and corrective maintenance on the fixtures, Gaipa noted that the nine-member shop also manufactures fixtures and support equipment tooling like pin pullers for F/A-18 canopies; tool pushers for generator assembly anode holders for the plating shop; and torque tube drill fixtures for landing gear.

“We can make tooling from steel, copper, aluminum, titanium or brass,” Rice said. “We make tools for repairs that typically are not going





to be standard practice in the civilian sector – a mechanic would normally just send something out to a specialized machinist for repair or just buy a replacement part.”

To improve the efficiency in the removal of corrosion from the tail boom fold section of an SH-60 Seahawk, the shop is making a “spot facing” tool.

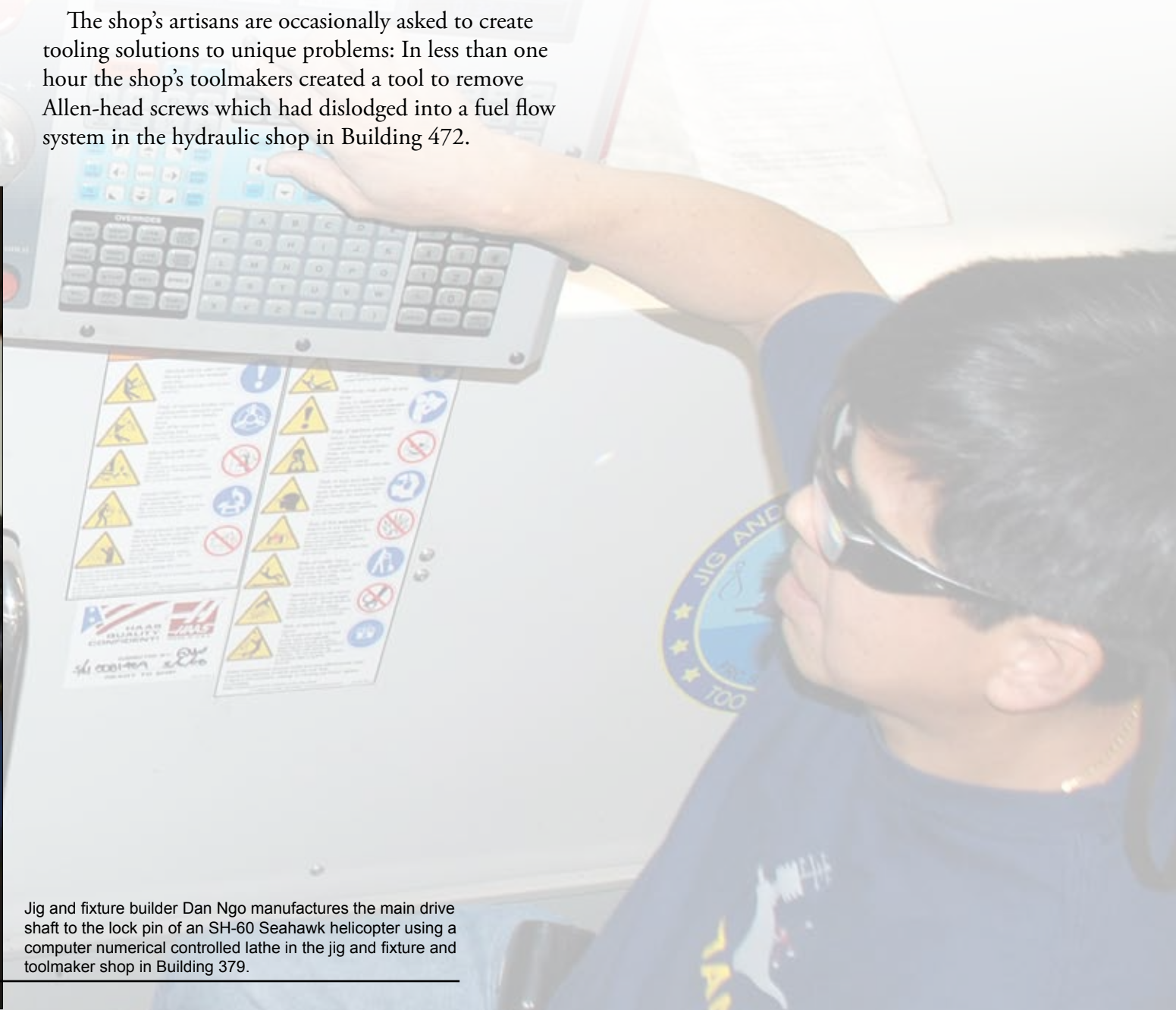
“The spot facing tool we’re making requires about 40 pieces to machine. We make it from square one. The customer designed it, and we’ll manufacture it,” stated Rudy Sebastian, shop lead toolmaker.

The shop’s artisans are occasionally asked to create tooling solutions to unique problems: In less than one hour the shop’s toolmakers created a tool to remove Allen-head screws which had dislodged into a fuel flow system in the hydraulic shop in Building 472.

“Normally, the artisan would have to take the fuel flow out of the test stand and send it back to the mechanic to disassemble to get the screw out. We made him the tool, and he saved 16 hours using our tool rather than having the mechanic disassemble the unit,” Rice said.

The shop creates about 20 fixtures and more than 100 tools annually.

“We’re giving the platforms the capability to do what they need to do to keep the aircraft available to the fleet,” Wolfe said. ▲



Jig and fixture builder Dan Ngo manufactures the main drive shaft to the lock pin of an SH-60 Seahawk helicopter using a computer numerical controlled lathe in the jig and fixture and toolmaker shop in Building 379.

# NEW ENGINEERING SOFTWARE TARGETS COMPOSITE REPAIR PROCESS

**A** new way to view, assess, and ensure more accurate repairs to aircraft composite components has been developed by a group of Naval Air Systems Command (NAVAIR) engineers and Etegent Technologies Ltd., a research and development company based in Ohio.

The NAVAIR engineers began working with the company two years ago to adapt its NLign™ software program for use in the composite repair process on F/A-18 legacy and Super Hornet fighter aircraft at Fleet Readiness Center Southwest (FRCSW).



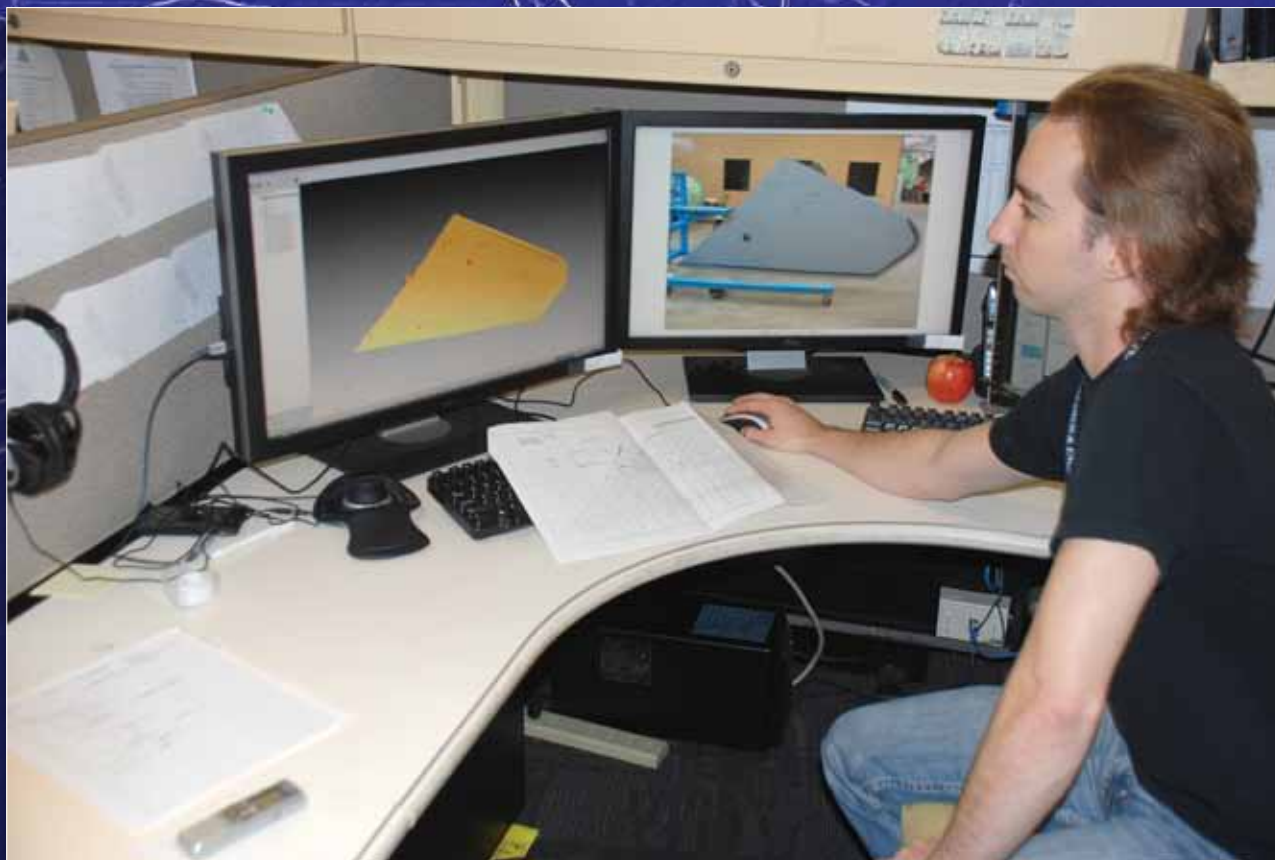
The software is used in conjunction with images taken of damaged composite components using a digital camera. The program collects maintenance and inspection data, aligns it to 3-D models, and stores the information in a database for analysis.

“The engineer combines the digital picture in the software against a 3-D model. The software takes that digital picture and scales it to fit and wraps like a vinyl sticker onto the 3-D model. This lets the engineer know exactly in 3-D space where the damage is located,” explained Gabe Draguicevich, engineering technologist at FRCSW’s NAVAIR Advanced Measurement Systems and Reverse Engineering Lab.

Aerospace engineer Shane Paredes said that the software also determines the position of the camera in 3-D space when the picture was taken, and aligns the model accordingly.

“So by pinpointing the damages that are located on the picture, and using the known position of the camera at the time of the picture, the software will project them onto the model,” he said.

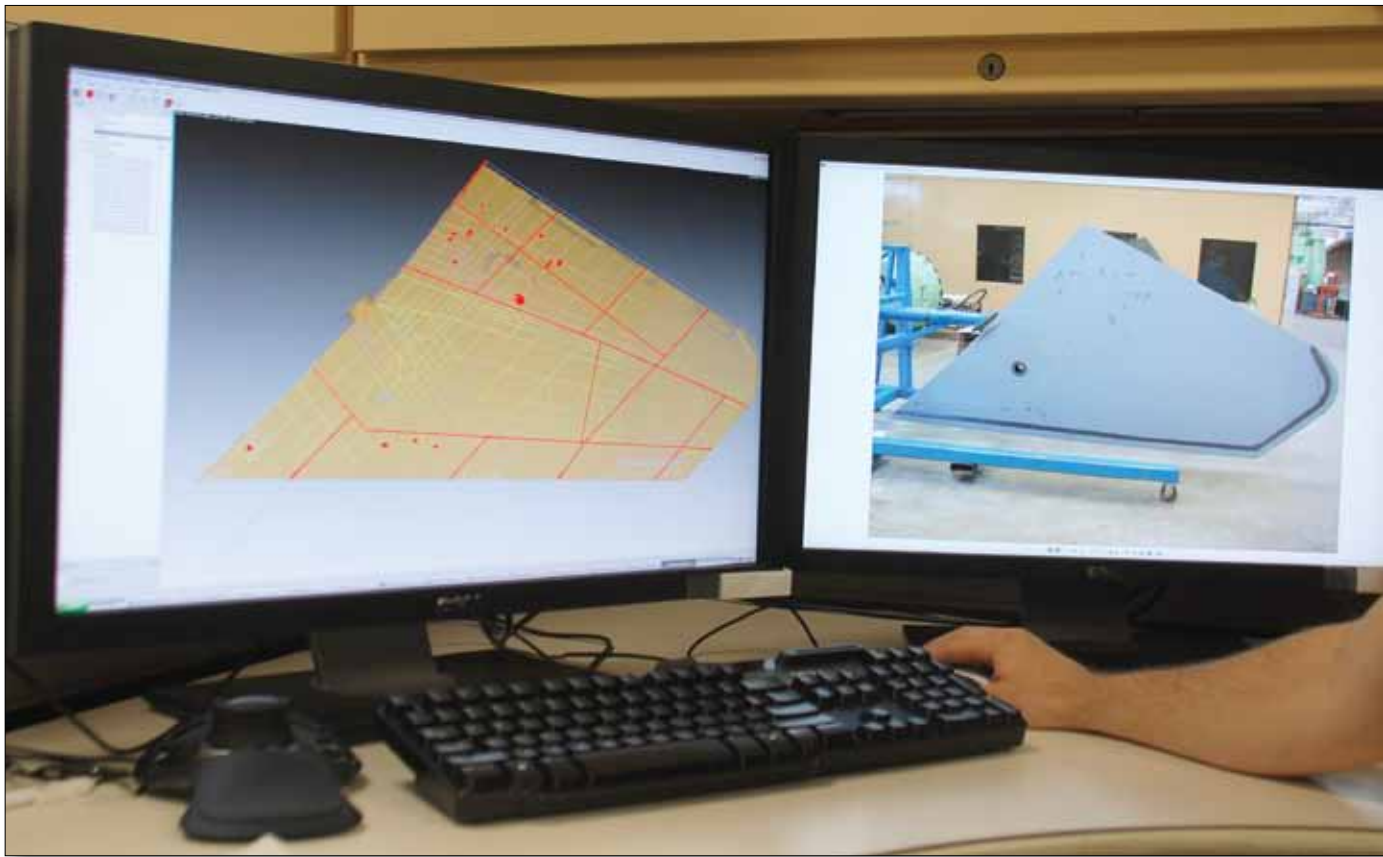
Previously, fleet maintainers traced full-size damages onto a gridded Mylar™ sheet taped to the component. These damage tracings were then converted to “x,y coordinates” and sent via email or fax to engineers in a tabular form who would recreate the Mylar™ locally to position on a similar component at the depot facility. The procedure took about eight to 10 hours before engineers could begin to analyze damage extent and repair options. Now, fleet maintainers will be able to simply take a digital picture of the damages and send them directly to the engineers who can begin working on the repair analysis.



Aerospace engineer Shane Paredes maps the damage profile of a horizontal stabilizer using a new 3-D imaging software application being explored by the FRCSW Advanced Aircraft Technology Team.

*Photo by Jim Markle*





Funded through the NAVAIR Small Business Innovative Research (SBIR) Program Office, more than \$900,000 has been invested during the first two phases of the development to prove the initial concept of damage mapping from digital pictures and to create a working prototype of the software.

Currently, the software is only applicable to the first stage of the engineering process – locating damage on a model. Three other engineering phases must be completed on a component before an artisan is assigned the repair: researching previous repairs for potential reference; analyzing if and how the repair may be made; and creating the repair and documentation for the artisan.

Expanding the software's development to integrate data used to complete the other engineering repair phases is a goal of advanced aircraft technology team lead Chris Root.

"Our engineers figured that if it's possible to take a photo and map it on to a 3-D model, then we should be able to take blueprint details, loads information from finite element analysis models, non-destructive inspection data, and map it all to the 3-D model in layered form," Root said. "This will significantly streamline our engineering process by eliminating many time-consuming tasks."

Working closely with the F/A-18 composite repair team, FRCSW leadership and PMA 265, Root was instrumental in obtaining Navy SBIR funding for a Phase II.5 Accelerated Transition (AT) contract to further develop the software as recommended by FRCSW engineers. This follow-on effort began in July 2012.

Root said that features of a related Etegent project funded by the Air Force SBIR program automates the collection and organization of damage and inspection data, and will be added to the final version of the software delivered to the Navy. This will be valuable for tracking and trending of inspection bulletin results and repair dispositions.

"Damage and repair details will be model-based now, and all this data will be saved in a 3-D environment as opposed to papers, files and PDFs. It will make us more efficient," stated Root.

"The culmination of the different data sets into one graphic image will literally give us layers of damages, inspections, and analysis to look at," Dragucevich noted. "You could see it all at one time and get a comprehensive understanding of what your repair might impact, or what the damage impacted and get a better, more complete repair."



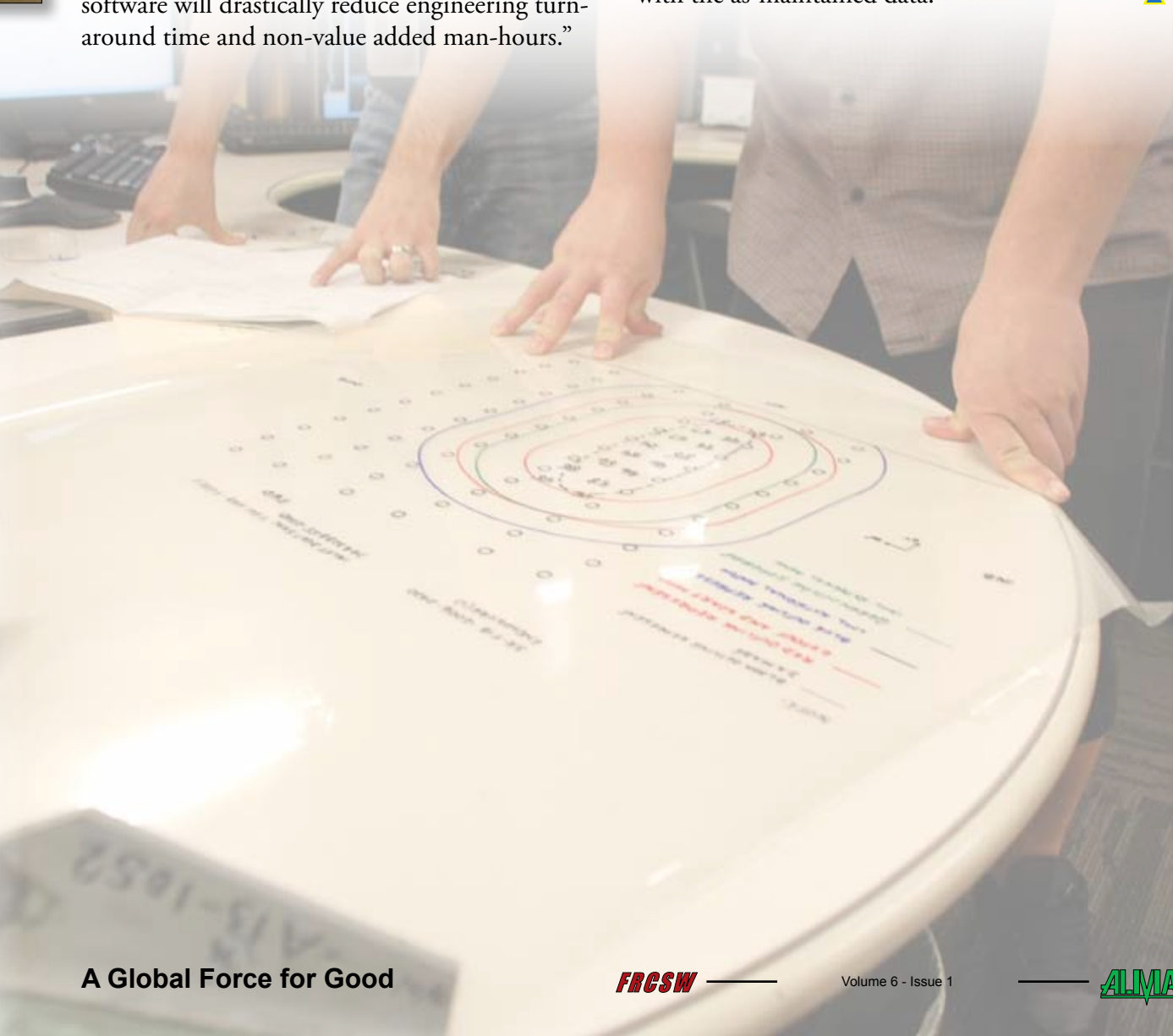
According to the data generated in support of the SBIR Phase II.5 AT proposal, the software will generate an estimated annual savings of \$325,000 to more than \$700,000 within the F/A-18 composite repair program alone, and saving between 2,700 and 6,100 hours in engineering labor.

“Our job is to try and develop repairs to save these parts. We have to analyze these repairs based upon the precise location of the damage, which can take days,” Root said.

“This software will map those areas very quickly and very accurately so we spend less time manually mapping and correlating data and instead developing and analyzing the repair so the shop can get that part back in service. This software will drastically reduce engineering turn-around time and non-value added man-hours.”

“After software validation testing at FRCSW, we anticipate Etegent’s NLign™ software will be used across the NAVAIR enterprise and DOD. It’s a good deal too, since it was developed under Navy SBIR funding. Navy users are exempt from paying for software license fees, and instead only need to cover the annual software maintenance costs based on the number of licenses used,” Root stated.

“We are excited about this opportunity,” said Tom Sharp, from Etegent Technologies. “NLign is currently being used in aerospace composite manufacturing operations. Expanding the application to in-service maintenance and repair gets us closer to our vision of providing a complete digital thread of the composite structure’s life by linking the as-manufactured with the as-maintained data.”



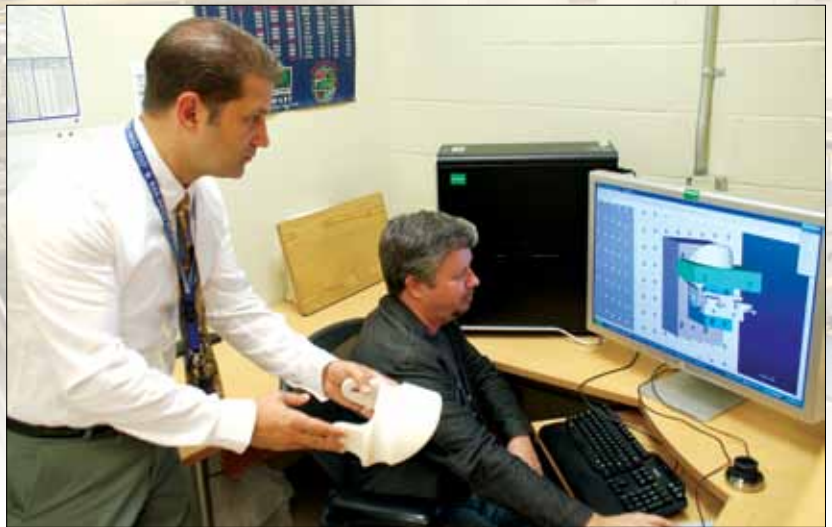
# FRCSW INNOVATION SOLVES NAVY UAV PROBLEM

Story and Photos by Mike Furlano



The X-47B is a tailless, strike fighter-sized unmanned aircraft currently under development by Northrop Grumman as part of the U.S. Navy's Unmanned Combat Air System Carrier Demonstration (UCAS-D) program.

*Courtesy Photo, © Northrop Grumman Corp.*



Fleet Readiness Center Southwest (FRCSW) Manufacturing Deputy Program Manager Gabe Draguicevich and Logistics Management Specialist Eric Kozakiewicz use the 3-D printed model created at FRCSW to develop a manufacturing program for the X-47B hook point.

*Photo by Mike Furlano*

**D**eveloping a new part, material or process that solves a Navy problem has created a culture of innovation at Fleet Readiness Center Southwest (FRCSW) that is second to none. This culture has been present throughout the command's 90-plus-year history and is something the Navy has come to rely upon.

An example of this spirit occurred in 1943 when a dearth of tail hooks, and the inability of the American industrial base to produce them, spurred FRCSW (then known as Overhaul and Repair) to develop a way to forge and manufacture 150 hook throats in 30 days in support of the Battle of Midway.

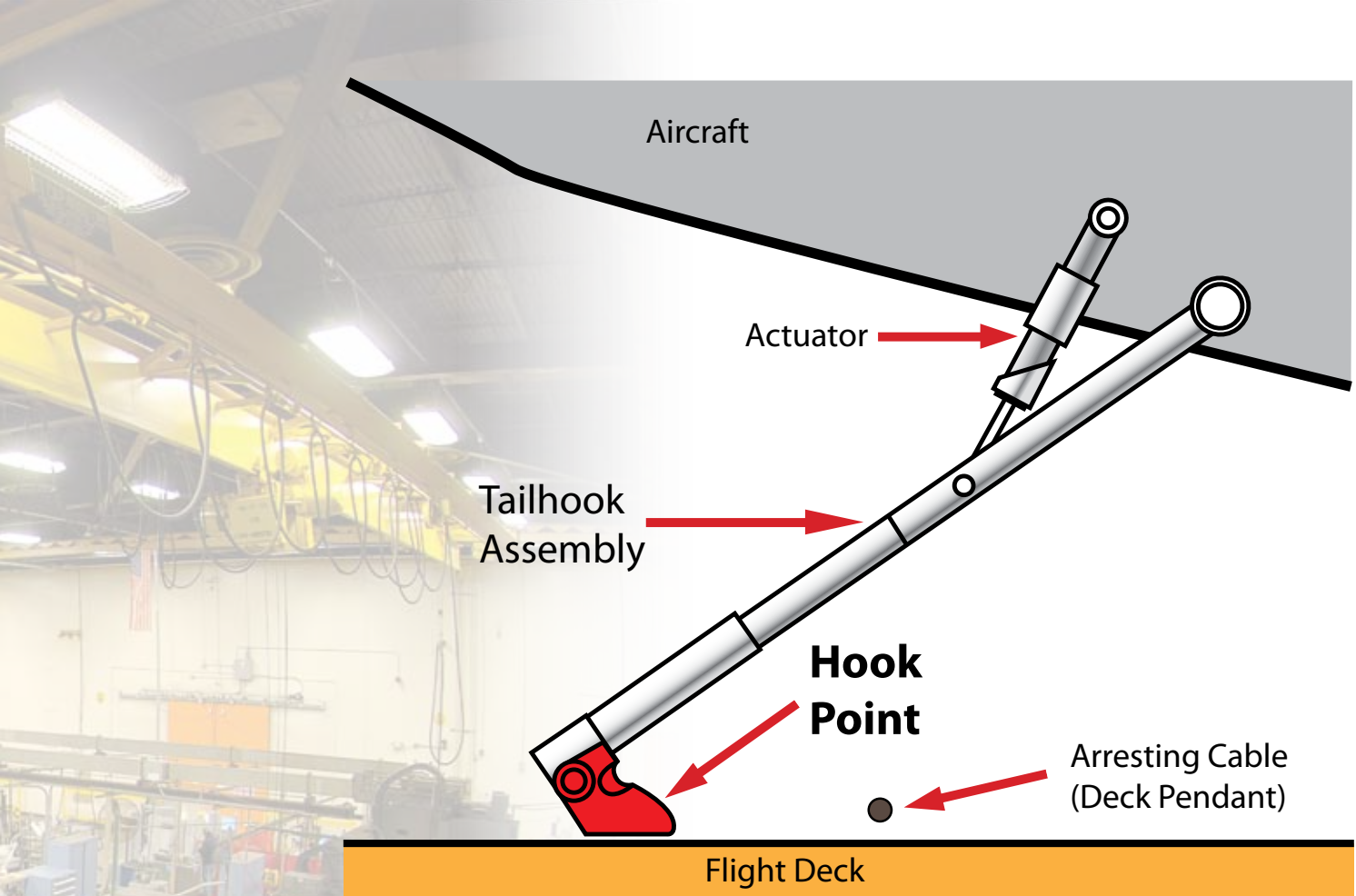
Recently the command was presented with a similar problem. This time it was a tail hook point for the X-47B Unmanned Combat Air System (UCAS). The X-47B is an unmanned fixed winged carrier based aircraft that is

the precursor to the production variant of UCAS aircraft. The goal of the program is to produce a UCAS that can accomplish anything an F/A-18 can, from catapult takeoffs and arrested landings to mid-air refueling.

As the X-47B was approaching the date for arrested landing tests, the hook point had to be redesigned and then manufactured in an expedited manner in order to avoid costly delays. Once the redesign was completed, PMA-268 (the Navy's UCAS Aircraft Carrier Demonstration Program) needed to find someone who could complete the manufacturing process quickly while still ensuring quality.

"The hook point is a fracture critical safety item so you've got to do the job right. You have to create them correctly," stated Mike Grice, FRCSW Systems Engineering Department Head.





The hook point is the portion of the tailhook assembly that contacts the arresting cables (deck pendants) stretched across the flight deck of an aircraft carrier. These cables bring an aircraft traveling at 150 mph to a safe stop in less than 400 feet.  
Illustration by Chuck Arnold

The best available delivery date for commercially sourced hook points was October 1, 2012; however, in order to keep the testing program moving forward, two hook points were required no later than the first week of August. PMA-268 reached out to FRCSW and thus the problem they faced became an opportunity for FRCSW to once again create a solution to a Navy issue.

FRCSW received the redesigned hook point information and completed four steps prior to manufacturing the item. Generation of a plastic copy using a recently acquired piece of equipment called a Stereo Lithography Apparatus (SLA) was the first step. This piece was then shipped to Patuxent River, Md., for a fit check on an X-47B aircraft. The second step was creating an aluminum prove-out part on a 5-axis milling machine that also underwent a fit test. Thirdly, a Coordinate Measuring Machine

(CMM) was used to dimensionally confirm the finished part was within appropriate tolerance levels. Finally, FRCSW's Advanced Measurements Systems/Reverse Engineering Lab performed a full surface laser scan of the part. Together these four steps are called "proving out the model" and they were completed concurrently in order to reduce process time.

The final version of the hook point was made of heat treated high strength steel so that it could withstand the stresses placed on it when attempting to stop an aircraft traveling at more than 150 mph. "This is no problem for FRCSW as the command has been working with this kind of material for five years," said Grice. The steel was then machined into a hook point on the 5-axis milling unit in Building 472 by FRCSW artisans Philip Marquez, Ray Manalili and Chris Atienza who worked around the clock to get the item completed.

The first operational hook point for the X-47B was successfully manufactured on August 2, 2012, and shipped on August 3, (a second was shipped on August 8), allowing PMA-268 to avoid costly delays and move forward with the testing schedule for the aircraft. Going forward, FRCSW is expecting to complete upwards of 30 more units for the Navy.

Achieving success in this project required the coordination of multiple departments at FRCSW. Everyone involved went above and beyond in order to ensure the success of the project. It is that kind of "can do" spirit coupled with the desire to help the Navy reach its goals that drive the innovative spirit at FRCSW.

*Editors Note: The command would like to thank everyone involved in this project, especially Don Bair, Eric Kozakiewicz, Filipe Mesquita, Gary Adams, Philip Marquez, Ray Manalili, and Chris Atienza.*

# Working Together: FRCSW Labor Management Forums

Story by Mike Furlano

**A**ny relationship requires a concerted effort to insure success. Despite the fact that the employee-management relationship at Fleet Readiness Center Southwest (FRCSW) has always been based on open communications, the Labor Management Forum (LMF), created pursuant to Executive Order (EO) 13522, should help to keep this relationship running smoothly.

EO 13522 was signed on December 9, 2009, and reaffirmed in 2011. Its expressed purpose is “to establish a cooperative and productive form of labor-management relations throughout the United States Government.” This order resulted in the creation of labor management forums that are now currently established across NAVAIR.

A forum consists of both union representatives and management personnel of the command, and is intended to allow employees and their union representatives to have pre-decisional involvement in workplace matters to the fullest extent practicable. It also allows for the unions to raise issues in the workplace that affect multiple bargaining units. The goal of FRCSW’s LMF is to meet the intent of the executive order and to improve the delivery of government services by creating mutually agreeable solutions in a quick and effective manner.

FRCSW currently has two labor management forums. One includes the International Association of Machinists and Aerospace Workers, Local 726 (IAM&AW), the International Federation of Professional and Technical Engineers Local 16 (IFPTE), and the National Association of Aeronautical Examiners, Local 5 (NAAE). The other forum includes the International Federation of professional and Technical Engineers Local 77 Professional Engineers and Scientist Organization (PESO) and the National Association of Government Inspectors (NAGI).

The LMF is co-chaired on a rotating basis by a representative from each side. The labor co-chair is chosen by union representatives that are members of the forum. The management co-chair is FRCSW Commanding Officer Capt. John Smajdek. Currently the labor co-chairs are Mr. Jeff Stevenson (IAM&AW), and Mr. John Stanley (PESO).

LMF meetings began in January 2012 and have taken place every 4-6 weeks since. Meetings center on issues affecting personnel throughout the plant such as safety initiatives or environmental concerns. All decisions made by the forum are on a consensus basis vice a formal vote. Should the committee fail to reach a consensus, the topic simply reverts back to its appropriate place in the labor management relationship (bargaining).

The artisans that deal with the issues brought before the LMF are often the most informed personnel at the command. Listening and fully understanding the issues brought up by this group is imperative to the long term success of FRCSW. The average employee at FRCSW has more than 20 years experience and possesses a great wealth of knowledge; with the command’s highly diverse workforce, FRCSW is in the enviable position of being able to draw upon a multitude of perspectives to achieve a more efficient and successful operation.

The NAVAIR Labor Management Partnership Team monitors the progress of the LMF forums. While the NAVAIR team addresses enterprise-wide issues, FRCW forums are established to address local issues and interests. The labor management forums have full commitment from NAVAIR senior management and, despite only being in their infancy, are already showing benefits. The command is confident that a major product of the forums will be a better working environment for FRCSW employees. ▲



# FRCSW Gains ARC-243 Radio Work

Photos and story by Jim Markle



Electronic integrated systems mechanic Michael Howard prepares to test the controller component of an ARC-243 radio in Building 463. The digital ARC-243 will be used in two of the Navy's anti-submarine and surveillance aircraft, the P-8A Poseidon and the P-3 Orion.

**F**leet Readiness Center Southwest (FRCSW) is establishing capability to maintain and service the ARC-243 digital radio used in the Navy's multi-mission P-3 Orion and P-8A Poseidon aircraft.

"For now we are performing the systems test and check on the ARC-243, and from there, we plan to establish capabilities to repair. We figure to reach that capability target by this fall," said electronic integrated systems mechanic shop supervisor Michael Talton.

The radio is used for voice communications and data transmissions, and is serviced by electronic integrated systems technicians Mike Howard and Steve Wheeler who are assigned to the avionics division in Building 463.

The ARC-243 is comprised of five primary components that will be tested: the controller, receiver-transmitter, the power amplifier, the antennae coupler and the digital to analogue modem.

"In addition to the five major components, there are six subassemblies that are also tested," Howard said. "In all, there are 39 different tests performed on the receiver-transmitter alone."

He said that the radio's manufacturer, Rockwell Collins, installed the test bench and that the electronic

artisans underwent about two weeks of procedural training.

Each P-3 and P-8A aircraft contains two complete ARC-243 systems.

The P-8A Poseidon is a modified Boeing 737 that is designed to eventually replace the P-3 Orion as the Navy's top long-range maritime patrol aircraft. It is currently scheduled to enter fleet service next year.

The P-3 Orion aircraft were previously equipped with an older analogue radio – the ARC-161 – which was solely maintained by FRCSW for more than 10 years. Converting the Orion aircraft to the ARC-243 is almost complete, according to Howard.

"The FRCSW Industrial Business Office knew that the (ARC) 243 was going to replace the (ARC) 161 in the P-3 Orion, and so, contacted Rockwell Collins to see if any of that workload could be sent here," Talton noted.

FRCSW is the only naval facility providing maintenance services to the ARC-243 radio.

The annual workload on the radio has yet to be projected, and won't be known until the command achieves capability, Talton said.

# Awards

## Applause

### Retirements

Ricardo Barron  
Ronald Boone  
Eron Bullock  
Joseph Caoile  
Mill Chrisman-Robershaw  
Gil Deleon  
Cameron Dollick  
Richard Emms  
Linda Falcone  
Bruce Gilbert  
Gabriel Gomez  
Ronald Hale  
James Hill  
Linda Hirschman  
Vanessa Jackson  
Frank Kielbasa  
Robert Kim  
William McBride  
Anthony Motte  
Elizabeth Muna  
Douglas Nuttall  
Paul Pelanek  
Cynthia Piekarski  
Robert Rollins  
Joaquin Romero  
Duane Sesma  
William Simmons  
Richard Smith  
Melchor Trajano  
Ruben Valdez  
William Walker  
Gerald Westphalen  
Robert Zullo

### Promotions

Rodney Abad  
David Adams  
Rick Anderson  
Terry Anderson  
Justin Andrews  
Paulo Arandia  
John Atlas  
Mario Avilez  
Jeffrey Ayers  
Guilbert Babcock  
Joey Baesas  
Rodiardo Bagtas  
Alberto Balaguer  
Jesse Ballesteros  
Robert Barrett  
Ronald Batty  
William Baughman  
Victor Bayani  
Thomas Bedania  
Jeffrey Bennett  
Michael Bethea  
Joseph Biederman  
Gregory Binde  
Tinea Binion  
Rick Bitterling

Michael Bolt  
Howard Brenner  
Brandon Bush  
Louis Burns  
James Cady  
Arnel Canja  
Brian Carr  
Nickson Cayetano  
Geraldo Chacon  
Colan Chandler  
Nicole Ciekiewicz  
Thomas Considine  
Cynthia Craig  
Dwayne Crooks  
Andrew Crump  
Jeremy Crusen  
Apostol Benito Cruz  
Tuoc Dao  
James Davis  
Rene Decastro  
Thomas Degrood  
Allan Diaz  
Khamla Dipraseuth  
Michael Dixon  
Robert Dominguez  
Jorge Duran  
Stephen Early  
William Elsner  
Daniel Escalera  
Joseph Espinoza  
David Ferguson  
Timothy Fertig  
Lionel Fields  
Kenneth Freeman  
David Fulbright  
Michael Galaz  
Steven Galvin  
Joseph Garcia  
Leonel Garcia  
Vincent Gargiulo  
Karen Garipey  
Dave Geilenkirchen  
Christopher Gibson  
John Goelze  
Norman Gomes  
Michael Gomez  
Julie Gordon  
Jessica Gore  
Jakob Grant  
Nestor Guzman  
Kristopher Helsing  
Daniel Hernandez  
Emmanuel Hernandez  
Leandro Hernandez  
Mitsuko Hew  
James Hickey  
Eric Hildebrand  
Martha Hoffman  
David Hutchinson  
William Icban  
Michael Isyasa  
Robert Jackson

Thomas Jarvis  
Ajai Johnson  
Michael Johnson  
Vincent Kaparic  
Ryan Kane  
Robert Keim  
Jason Kern  
Nalani Keopuhiwa  
Leslie Kinsey  
Jerry Kittrell  
Kevin Koo  
Eric Kozakiewicz  
Kathryne Lacy  
Frank Lafalce  
Johnny Lam  
Todd Lamoureux  
Jennifer Lattuca  
Kenny Le  
Brittney Levalley  
Seong Lim  
Amanda Loftus  
Gerardo Lorenzo  
Simon Lozano  
Michael Magee  
Vincent Mahn  
Gregory Mann  
Michele Marien  
Maryann Marques  
Joaquin Mason  
Chauncey Mathews  
Gregory McCalester  
John McCormick  
Christine McLean  
Marcelino Medina  
Mike Mejia  
Richard Messier  
Alexander Mladenov  
Dominique Montes  
Wilford Moore  
John Morris  
Kirkland Myles  
George Nacker  
Ruben Naranjo  
Richard Nelson  
Constancio Neri  
Duc Nguyen  
Hai Nguyen  
Jeffrey Norton  
Matthew Obregon  
Salvador Olbes  
Michael Plank  
Roanld Pangilinan  
Francisco Pasallo  
Robert Paul  
Larry Payoyo  
Matthew Pendleton  
Hien Pham  
Marcelino Phee  
Virasak Phommachanh  
Ramir Pimentel  
Christopher Pinson  
Richard Pledger

Ian Poole  
Alden Porcadas  
David Powers  
Gaston Prophete  
Jonathan Ramba  
Walter Reed  
Brian Reinlasoder  
Francisco Reyes  
Jamie Riddle  
Michael Rigney  
Jefferson Riley  
Joshua Rivera  
Stephen Roberts  
Melony Robertson  
Eduardo Rodriguez  
Moises Rodriguez  
Richard Rojas  
Alberto Ruvalcaba  
Angel Sabino  
Ricardo Sabio  
Jerry Sanchez  
John Santos  
Kurt Saunders  
Richard Schnereger  
Michael Schultze  
Rodolfo Sebastian  
Stephen Short  
David Shrigley  
David Smith  
James Smith  
Khamphoune Soimany  
Peter Solari  
Edwin Soriano  
Joseph Sorrells  
Aaron Soto  
Clifford Starkey  
Chrys Starr  
Christopher Sturm  
John Swindell  
Jacqueline Tanner  
William Thayer  
Steven Thomas  
Brianna Timothy  
Kimberly Tomasino  
Mitchell Tracy  
Susan Tran  
Brian Trout  
Tran Truce  
Ya-Ting Tsai  
Daniel Turner  
Paul Tyler  
Richard Valentino  
Charles Valenzuela  
Jose Villafuerte  
Celestino Villalpando  
William Villanueva  
Sheri Villena  
David Walker  
Joe Weides  
John Weitz  
Patrick Wells  
Matthew Williams

Shawn Willis  
Seth Winkelman  
Jung Yang  
Antonio Zelaya  
Laurie Zuniga

### Years of Service

#### 5 Years

Rodney Abad  
Nathan Budde  
Heidi Carney  
Ryan Coats  
Richard Daoedsjah  
Rickey Farmer  
Jarvis Gaspar  
Terry Gonzales  
James Hickey  
Charles Miller  
Richard Nelson  
Jay Noblin  
Andrew Palik  
Robert Picklesimon  
Edward Quinteros  
Eric Zanutto

#### 10 Years

Alfredo Agredano  
Arsenio Arce  
Anthony Baumeister  
Louis Burns  
Jemy Caalamán  
Ruben Cadua  
Archivald Clemente  
Reynaldo Dominguez  
Gholam Ghanimati  
Mario Guigayoma  
Wifredo Ibay  
Joseph Kroupa  
Gordon Lyon  
Daniel Newell  
Erleen Paus  
William Penn  
Pedro Ramos  
James Richards  
Merlyn Richards  
Joseph Rodr  
Rogelio Sandoval  
Ronald Senesac  
Edward Shenault  
Kimberly Tomasino  
Nicasio Villanueva  
Sheri Villena  
Colter Wasson  
Wade Wendell

#### 15 Years

Ronald Avera  
Chester Banaga  
Sheila Considine



# Awards

## Applause

Joel Dealba  
Robert Dishong  
Duane Domingo  
Joshua Duryea  
Linda Falcone  
Robin Famador  
Carol Flanagan  
Andrew Funke  
Jason Gilmore  
Jeffery Glover  
Nestor Guzman  
Mireya Hawkins  
William Hines  
Tracie Huguley  
Paul Johnson  
Harvey Jones  
Luke Laroya  
Gavin Mackenzie  
William Melton  
Steven Miller  
Carl Moraleja  
Jesus Padilla  
Indar Rai  
Pacífico Ramirez  
Remigio Ravalo  
Kenneth Sanzotera  
Chrys Starr  
John Swindell  
Brian Trout  
Joe Weides  
Peter Weintraub  
Matthew Williams

### 20 Years

Crispin Atienza  
Jeffrey Ayers  
Martha Breuer  
Luc Doan  
Albert Means  
Ignacio Mendoza  
Daniel Pale  
Howard Rodgers  
Debra Ann Rodr  
Jennifer Salamat  
Nory Samatra  
Betty Tong  
Christopher Walker

### 25 Years

Frederick Abano  
Eugene Array  
John Cardenas  
Angelito Defensor  
Erik Doepeke  
Meichuen Ewalt  
Steven Lawrence  
Stuart Lolly  
Lucas Low  
Timothy Maloney  
David McClellan  
Ian Okada  
Griselda Santamaria

Jaime Truong  
Dennis Turner  
Mark Vezzani

### 30 Years

Michael Albert  
Jorge Andrade  
John Crouch  
evetta Davis  
Samuel Delrio  
John Donohue  
Stephen English  
Robert Espinosa  
Alexander Fernandes  
John Garcia  
Marie Guadarrama  
Craig Lentz  
Danny Macahilas  
John Mowery  
Curtis Price  
Dennis Reeves  
Anthony Richardson  
Fredelita Soriano  
Juan Tavarez  
David Triglia  
Charles White

### 35 Years

Ramon Alba  
Emmanuel Caandoy  
Henry Castrence  
Tamara Copp  
Edwin Davis  
Enrique Dejesus  
Miguel Delrosal  
Jose Esteban  
Corregidor Games  
Charles Greer  
Terrance Kenney  
Daniel Learned  
Vincent Mahn  
Michael Martin  
Kevin Okerman  
Abraham Poniente  
Frank Ramirez  
Zain Rashada  
Policarpio Sierra  
James Todd  
Querubin Verdeflor  
Dennis Weddle  
Alice Wesely  
Russell Wong

### 40 Years

Dennis Echavarry  
Henry Ellis  
Thomas Isenagle  
Alvin Koehler  
Robert Locke  
Louis Medina  
Oscar Ramos  
Robert Sena

Ruben Valdez

### 45 Years

Rex Ellis

## On the Spot

Robert Brinkmeier  
Colan Chandler  
David Chavez  
Enrique De Jesus  
Jose Del Real  
Gil Duenas  
Dave Fajardo  
Joseph Garcia  
Daniel Hernandez  
David Johnson  
Manuel Jotie  
James Kosmas  
Amanda Loftus  
Rafael Magayanes  
Keyon Marshall  
Carol Martinez  
Richard Messier  
Devonie Morrow  
Ricardo Narag  
John Peairs  
Matthew Pendleton  
John Powanda  
Jason Price  
Mark Rasp  
Efren Ray  
Carlos Sais  
Matthew Stanley  
Stephen Swall  
Gary Thompson  
Linda Urich  
Deborah Warburton  
Alice Wesley  
Sammie Williams  
Damon Willson  
Jung Yang  
Michael Young  
Jeffrey Zeller

## Time-Off Award

Melinda Bullwinkel  
Encarnacion Cirignano  
Robert Crawford  
Jeremy Crusen  
Meichuen Ewalt  
Jesse Martinez  
Devonie Morrow  
Lilibeth Quijencio  
John Roberts  
Shujen Walker  
Beneficial Suggestion  
Arsenio Arce  
Amor Delrosario  
Evan Jimenez

Mario Monzon  
Benjamin Noble

## Productivity Recognition

Roque Albano  
Joseph Bailey  
Jesse Ballesteros  
Victor Bibbs  
Jonathan Black  
David Blais  
Donald Booth  
Eron Bullock  
Emiterio Bumbasi  
Jemy Caalaman  
Colan Chandler  
Keith Clemente  
Joseph Collins  
Mark Corbilla  
Jeremy Crusen  
Joseph Cruz  
Daniel Cunniff  
Tuoc Dao  
Alvaro Diaz  
Johnny Diaz  
Jeffrey Dubin  
Daisy Duong  
Thanh Duong  
Rafael Duquez  
Stephen Earner  
Carson Fanning  
Randolf Foz  
James Goble  
Daniel Gogue  
John Goldsworthy  
Charles Greer  
Joseph Guillory  
Duane Halfman  
James Helpingstine  
Marty Hernandez  
Richard Howard  
Michael Howell  
Richard Huot  
David Ige  
Valerie Isales  
Darylle Jackson  
Jay Janabajal  
Romero Jimenez  
Oliver Johnson  
Chau Ke  
Nalani Keopuhiwa  
Jason Kern  
Morrell King  
Joseph Krasko  
Stephen Krolik  
Larry Lacaden  
Hung Le  
Daniel Learned  
Craig Lentz  
Christopher Lozano  
Gordon Lyon

Bill Mah  
Timothy Maloney  
Edwin Manansala  
Mike Mejia  
William Melton  
Cary Mocuano  
Stefan Mussen  
Duc Nguyen  
June Nollado  
Jared Orton  
Charles Parker  
Erleen Paus  
Richard Pfeiffer  
Henry Pickens  
John Powanda  
Michael Prochnow  
Tony Ramos  
Kenneth Redman  
Robert Reyes  
Jesse Ritua  
David Robbins  
John Rodrigues  
Edgar Romero  
Leo Romero  
Romeo Rosano  
Alfredo Santiago  
Jerry Schultz  
John Sheppard  
Jeffrey Suazo  
Juan Tavarez  
Henry Thai  
Paul Toledo  
Michael Tomas  
Nicasio Villanueva  
Phillip Vu  
Damon Willson  
Mark Yarrow  
John Young

## Sick Leave is Money

Salvador Adona  
Michael Albert  
Joshua Alfasy  
Mark Archuleta  
Jeffrey Ayers  
Joseph Bailey  
Robert Barrett  
Bernardino Bolanos  
Michael Bolt  
Joseph Bonilla  
Donald Brown  
Janette Burris  
Joseph Caoile  
Robert Carrasco  
Peter Chan  
Curtis Chin  
James Chudy  
Keith Clemente  
Thomas Clutter  
Selma Cozart

# Awards

## Applause

Edwin Davis  
James Davis  
Lee Davison  
Jonathan Dell  
Albert Delmar  
Duane Domingo  
Paul Donahue  
Nestor Dominguez  
Thomas Drake  
Harvey Everett  
Carson Fanning  
Daniel Fischer  
Derek Foster  
John Goelze  
Tod Grever  
Michael Grice  
Gayle Grover  
Tedskip Guinto  
Edward Harris  
Michael Harrison  
Richard Heinrich  
Michelle Hoeschen  
Timothy Hoffmann  
Rodney Hogue  
Robert Izumihara  
Thomas Jarvis  
Raymond Kwan  
Ben Lee  
James Lee  
William Ly  
Kay Ma  
John Maloney  
Carol Martinez  
Gauntlett McBean  
Shawn McSweeney  
Tommy Moore  
Wilford Moore  
Michael Morasco  
Kirkland Myles  
Rowena Naidl  
Thanh Nguyen  
Kevin Okerman  
Edward Padilla  
Kenneth Passerelli  
Peter Perez  
Frank Petruzzi  
Karen Polk  
Stephen Probert  
Edmundo Ramirez  
Walter Reed  
David Robbins  
Albert Robles  
Richard Rojas  
Christopher Root  
Edward Salanski  
Edward Smith  
William Smith  
John Suchy  
Alexander Sykes  
Brien Thompson  
Lenard Thronburg

Hoa Tran  
David Triglia  
James Trowsdell  
Tim Truong  
Todd Uzzell  
Thea Vargas  
Wade Wendell  
Roberta White  
Michael Williams  
Brandt Wirstrom  
James Yaeger

### Special Act

Jose Acasio  
Charles Adair  
Drew Adams  
Joan Agustin  
Michael Albert  
Harris Aldridge  
Vance Allen  
Timothy Amerine  
Alisha Anderson  
Rick Anderson  
Alejandro Andrade  
Justin Andrews  
Neil Anstedt  
Lloyd Apgar  
Dennis Apodaca  
Carl Aquino  
Matthew Araiza  
Pedro Aragon  
Mark Archuleta  
Eugene Array  
Leonel Asis  
Mark Atanasoff  
Crispin Atienza  
Amado Aviles  
Malaquias Baca  
Joey Baesas  
Victor Baez  
William Baez  
John Bailey  
Gail Baker  
Thanh Banh  
Tomas Barber  
Ashley Barnard  
Brent Barnes  
Daniel Barrett  
Ruben Basuel  
Ronald Batty  
Nelson Baylon  
Thomas Bedania  
Jake Bedon  
David Belger  
Pepito Benitez  
Renato Benitez  
Matthew Benson  
Angela Bentley  
Ro-Anne Bermio  
Shanna Berry  
Robert Bersamira

Mark Beuster  
Dion Blount  
Travis Boecker  
Keith Borror  
Victor Brambila  
Alejandro Briseno  
Charles Brown  
Douglas Brown  
Richard Brown  
Michelle Bruce  
Melinda Bullwinkel  
Ruben Cadua  
Jeff Calalay  
Kenneth Caliver  
Jose Campa  
Joseph Caoile  
Charles Carrasco  
Ricardo Casalme  
Gregory Champagne  
Gerald Childers  
Kristen Childers  
Encarnacion Cirignano  
Lyn Coffey  
Steve Coffey  
Jeffrey Cohen  
Daniel Collins  
Luis Colon  
Gregory Crabb  
Cynthia Craig  
James Craig  
Robert Crawford  
Martin Crespo  
Arlene Critchlow  
Dwayne Crooks  
Harlan Crowe  
Joseph Cruz  
Daniel Cunniff  
Joshua Danielson  
David Dao  
Donald Deandrade  
Christopher Davis  
Jorge Dearmas  
Rick Defend  
Richard Delgadillo  
Jonathan Dell  
Megan Denton  
Carmelita Devera  
Christina Diaz  
Valerie Dobrowolski  
Paul Donahue  
Jeffrey Dubin  
Leo Duran  
Pedro Duran  
Stephen Duryea  
Amy Eang  
Tim Eang  
Matthew Egan  
Mercha Elago  
James Ellington  
Eugene Ellis  
Rex Ellis

David English  
James English  
Lydia Ensor  
Javier Escobales  
Jimmy Estrada  
David Ferguson  
Robert Ferrell  
Robert Fierro  
Bobby Fitzsimmons  
Robert Frasier  
Russell Friday  
David Fulbright  
Andrew Funke  
Dennis Gahuman  
Linda Galley  
Steven Galvin  
Stephen Gamberale  
Claudia Garcia  
Darwin Garcia  
Jarvis Gaspar  
Eric Geilenkerchen  
Gregory Gemlo  
James Gilbert  
Jeffery Glover  
Arturo Go  
John Goelze  
Linda Goelze  
Scott Goldberg  
Louis Gonzales  
Frank Gordon  
Jessica Gore  
Connor Goulding  
Craig Graham  
Jakob Grant  
Mark Greenfield  
William Greer  
Linda Guerra  
Joseph Guillory  
Tedskip Guinto  
Ernest Gumataotao  
Khanh Ha  
Scott Ha  
Mark Hagedorn  
Ronald Hale  
Peter Hampton  
Aaron Hansen  
Clarence Hanson  
William Hardie  
Devin Harmon  
Esther Harrel  
Michael Harrison  
Robert Haupt  
David Heck  
David Heinauer  
Shawanda Henderson  
Anthony Hernandez  
Elizabeth Hernandez  
James Hickey  
Joshua Hill  
Lori Hughes  
Tan Huynh

Donald Icaman  
William Icban  
Dennis Ingram  
Luther Jackson  
Gail Jacobsen  
David Jarvis  
Garrett Jarvis  
Donald Jenkins  
Paul Johnson  
Matthew Jones  
Joanne Jordan  
Reynaldo Julian  
Frank Kaparic  
David Kelly  
Richard Kennedy  
Jason Kern  
Gregory Kohlbrand  
Michael Korpall  
George Kozlik  
Joseph Krasko  
Richard Krick  
Joseph Kroupa  
Raymond Kwan  
Thanh Lai  
Johnny Lam  
Fergeline Lane  
Geoffrey Langford  
Luke Laroya  
Michale Larsen  
Tina Lassiter  
Jennifer Lattuca  
Melina Lavullis  
Yoland Laws  
Anthony Lewis  
Larry Lewis  
Xu Li-Jones  
Ricardo Lim  
Edmund Lima  
Aleksandar Lipovic  
Amanda Loftus  
German Lopez  
Jesus Lopez  
Ricky Lopez  
Steven Lopez  
Gordon Ludden  
Than Luu  
Michael Lyons  
Kay Ma  
Conrad Macy  
Robert Madara  
Philip Magahis  
Vincent Mahn  
Joshua Malish  
Michael Malley  
Reynaldo Manalili  
Lamberto Mangat  
Lerabel Maninang  
John Manry  
Jose Maravilla  
Penny Margetta  
Richard Marinez



# Awards

## Applause

Dwayne Martin  
Jesse Martinez  
Jorge Martinez  
David Martucci  
Maryann Marques  
Joaquin Mason  
Justin Massey  
Jaime Mata  
Chauncey Mathews  
Raymond May  
David Mcadams  
Timothy Mcelhinney  
Scott Meacham  
Manuel Mesina  
Oscar Milla  
John Millar  
Richard Mills  
Antonio Mino  
Sassan Mojtahedi  
William Moore  
Carl Moraleja  
Pamela Mua  
Jeff Mullin  
James Murphy  
George Nacker  
Alexander Natchev  
Teresa Neal  
Cheryl Nelson  
Phillip Nelson  
William Nelson  
Florante Nepomuceno  
Daniel Newell  
Guy Newton  
Anthony Ngo  
Daniel Ngo  
Daniel Nguyen  
Thanhlan Nguyen  
Laura Nolan  
Mark Ohler  
David Okano  
Kevin Okerman  
Patrick Orcales  
John Orlowski  
Edward Padilla  
Jose Padilla  
Dennis Paige  
Andrew Palek  
Shane Paredes  
Francis Park  
Kenneth Passerelli  
Gail Patacsil  
Reynaldo Patricio  
Raymond Paulson  
Erleen Paus  
Reynaldo Pena  
Jeri Perez  
Pete Perez  
Charles Peterson  
Derrick Pettit  
Michael Plank  
Geoffrey Pre

Luis Quiambao  
Jose Ramirez  
Ramon Ramirez  
Zain Rashada  
Sergio Rayle  
Titus Reed  
Jeffrey Reiman  
Clarence Resendez  
Lorie Reyes  
Sonny Reyes  
Alejandro Reyna  
Robert Reynolds  
Brian Rice  
Alcide Richards  
Ruth Richardson  
Carmen Rico-Schlegel  
Jamie Riddle  
Michael Rigney  
Francisco Rios  
Joshua Rivera  
Ed Roberson  
Kenneth Robertson  
William Robinette  
Albert Robles  
Jesse Robles  
Joann Rodgers  
Debra Rodr  
Ronald Rolka  
Robert Rollins  
Requina Rommel  
David Rosales  
Michael Rude  
Jeremy Ruiz  
John Ruiz  
Ruby Ruiz  
Ricardo Sabio  
Thomas Sablan  
Michael Salas  
Hector Saldivar  
Janet Sanchez-Roberts  
Richard Sanders  
Guillermo Sandoval  
Rogelio Sandoval  
Griselda Santa Maria  
John Santos  
Thomas Sapien  
Anthony Sardina  
Hilarie Schmalz  
Richard Schnereger  
Elijah Scott  
Nancy Scott  
Rodolfo Sebastian  
Maziar Sefidan  
Travis Sellers  
Louis Sena  
Ronald Senesac  
Klara Sesztak  
Arlene Sexton  
Michael Shank  
Kristin Shott  
Peter Sickinger

Vladimir Sinaniz  
Michael Sledge  
Robin Sluder  
Edward Smith  
Roger Smith  
William Smith  
John Sohl  
Peter Solari  
Lisa St. Mary  
David Starkey  
Chrys Starr  
Stephen Swall  
Alexander Sykes  
Stanley Szybowski  
Melanie Taitano  
Tran Tan  
Arnaldo Taya  
Albert Teruel  
Mark Thaidigsman  
William Thibedeau  
James Thomas  
Steven Thomas  
Walter Thomas  
Nancy Thompson  
Arthur Toledo  
Jorge Torres  
Alexander Tortoles  
Nathan Trepal  
Mark Trevino  
David Triglia  
Brian Trout  
Tim Truong

Ya-Ting Tsai  
Alberto Tungcab  
Dennis Turner  
Derek Urch  
Todd Uzzell  
Tanya Valenzuela  
Patrick Vaughn  
Christopher Venable  
Pedrito Vicencio  
Hector Victa  
Cuthbert Vigilant  
Sheri Villena  
Ismael Viramontes  
Jodi Visosky  
Phillip Vu  
Katherine Wagschal  
Christopher Walker  
William Walker  
Chris Walls  
Michael Ward  
Michael Warren  
Joe Weides  
Jacob Weintraub  
Mark Weir  
Alice Wesely  
Linda Wickers  
Brian Wiemen  
Cornelius Wiley  
Philip Wilkins  
Joseph Willard  
Allan Williams  
Gary Williams

Michael Williams  
Sammie Williams  
Shawn Willis  
Roberta White  
David Wolfe  
Scott Wong  
David Yee  
Richard York  
Cassandra Young  
John Young  
Robert Zullo  
Christopher Zampielo  
Eric Zanutto  
Greg Zulim  
Fernando Zuniga  
Laurie Zuniga



Ms. Caroline Winn (left), Vice President of Customer Service for San Diego Gas and Electric presents a rebate check to Fleet Readiness Center Southwest Commanding Officer Capt. John Smajdek (center), and Mr. Matthew Schreck, FRCSW Energy Conservation Manager. The command earned the \$605,077 rebate check by improving energy efficiency throughout the plant.

Photo by Joe Feliciano



The X-47B demonstrator's first flight in cruise configuration provided an important measure of its maturity and readiness to begin the next phase of flight testing. See related story on page 12. Courtesy Photo, © Northrop Grumman Corp.