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CH-53D: Ensuring readiness until sundown

By the CH-53D TMS Team

The CH-53 was ordered in the early 1960s to satisfy a Marine Corps requirement for a heavy lift helicopter. The CH-53D had its first flight in 1969 and it went into service in Vietnam alongside the CH-53A.

In addition to serving in the late years of Vietnam, the CH-53D has supported numerous operations including: Operation Urgent Fury in Grenada, Desert Storm, Desert Shield, Iraqi Freedom and will end its service life providing assault support transport of combat troops, supplies and equipment in support of Operation Enduring

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Staff Sgt. Christopher Pischl, a crew chief with Marine Heavy Helicopter Squadron 362, 3rd Marine Aircraft Wing (Forward) (right), ensures all Afghan National Army (ANA) and coalition forces board a CH-53D Sea Stallion safely and quickly in this photo dated Oct. 17. In support of Operation Stargey, HMH-362 transported ANA and coalition forces to a village between Now Zad and Musa Quelah to set up snap vehicle check points in an effort to disrupt insurgent operations in the area. Using helicopters to insert the troops allows for surprise, flexibility and a multi-prong approach to the operation. (Photo by Sgt. Deanne Hurla, 3rd Marine Aircraft Wing (FWD)/Marines.mil)

Read about the accomplishments of the 2010 nominees for the AIR*Speed* Innovator of the Year and Leadership awards at:

www.public.navy.mil/airfor/nae/Pages/AIRSpeed.aspx

Early industrial depot maintenance solution planning - A key to reduced total ownership costs

By Bruce Wilhelm, Director
NAVAIR Industrial Business Operations

In recent months, various reports, articles and guidance documents have emphasized acquisition reform. In a memorandum to acquisition professionals, Dr. Ashton Carter, undersecretary of Defense for Acquisition, Technology, and Logistics, stated: “We must therefore strive to achieve what economists call productivity growth: in simple terms, to DO MORE WITHOUT MORE.” (*Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity Defense Spending*, September 14, 2010).

Industrial depot maintenance is and continues to be a large contributor of acquisition program support costs and therefore will routinely be subjected to intense review. To assist acquisition programs in making cost-wise sustainment decisions within Naval Aviation, Naval Air

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In this issue:

Vice Adm. Myers:
Naval Aviation relies on junior enlisted contributions

Article and photos by Jacquelyn Millham, NAE Current Readiness CFT/Enterprise AIRSpeed Public Affairs

Squadron facilities, personnel and parts availability were the main topics discussed during "Boots-on-the-Ground" (BoG) hosted by Fleet Readiness Center West (FRC-W) Nov. 8.

This was the first time Commander Naval Air Forces and Co-lead of the Naval Aviation Enterprise (NAE) Vice Adm. Al Myers attended a site visit since taking command in July 2010. Myers said the BoGs and similar events enable leaders to learn first-hand what is going on, to find out what needs attention and hear about commands' "headhurters" and challenges.

That information, he said, is powerful.

"Using CPI [continuous process improvement] and Lean Six Sigma (LSS) has made [Naval Aviation] more efficient. With this information, we are able to defend against budget efficiency reviews and show direct costs.

"We know what our costs are, can better project when expenses increase and better manage them," he said.

Myers also said that leadership must impress upon junior Sailors and Marines the value of their contributions to Naval Aviation's readiness. "I am an absolute believer in the NAE," he said.

Navy Capt. Greg Munning, director, Engineering and Product Support Directorate Code 07, Naval Inventory Control Point (left), and Lt. Col. Dale Short, deputy director of Operations Fleet Readiness Center East, look at compressor blades of a 414 engine in the Module Interface Control Unit shop.

Myers and more than 60 representatives from provider commands, such as Naval Air System Command; Defense Logistics Agency; Naval Inventory Control Point; Fleet Readiness Center Northwest; Headquarters, Marine Corps Aviation Logistics Support Branch; Center For Naval Aviation Technical Training Unit Lemoore; Commander, Fleet Readiness Centers; Naval Air Technical Data and Engineering Service Command, and contractor support were briefed on the command's success, including its strategic planning initiative that focuses on the areas of training, accountability, support and alignment. "We are top-level driven and take a bottom-up approach," said John Senior, FRC-W CPI manager. "Our alignment is not just to Commander, Fleet Readiness Center and to our customers, but to what the Sailors need to do their job as well."

FRC-W also spotlighted its pilot program geared to determine the root cause of why repairs were exceeding their established time limits. "We found that the rules of engagement were not clear," said AMC William Blaschke, FRC-W AIR*Speed* officer. "Items in the [Buffer Management Tool] were classified as 'black' whenever there was a chance to do so. Black had no meaning."

So the command developed a flow chart to determine the maximum allowable time to reliably replenish (TRR) which would help maintainers define when items could be classified as being in the black. "It linked the designation to shelf stock and created a process to expedite repairs. It gave the designator a definite meaning," said Blaschke.

Commander Strike Fighter Wing, U.S. Pacific Fleet Capt. Mark Hubbard spoke on the successful move of Strike Fighter Squadron (VFA) 125 to Naval Air Station Lemoore and its consolidation with VFA-122. He said the move, which was completed on Oct. 1, allowed pilots to be dually trained in both F/A-18 type/model/series (TMS) and provided additional time for maintainers to fix and groom aircraft. Not only did this mark the first time that a single maintenance department was created for all variants of a TMS, but the consolidation created the largest squadron in the world. Capt. Dell Bull, VFA-122 commanding officer, credited the successful merger to integrated teams that captured and applied best practices and efficiencies.

FRC-W and Aviation Support Division (ASD) also showcased their other successes:

- Exceeding a projected Fleet Capability Alignment Program performance by more than $20 million in FY 2010. FRC-W also recorded a type 3 avoidance of $1.2 million from 2006 to 2010.
- Realizing a $40 million cost avoidance on more than 2,200 repair and return items – almost $5 million for forward deployed units and more than $35 million for its distance support customers. FRC-W repaired 90 percent of inductions from forward deployed units and 80 percent of inductions from other customers.

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AT2 Slone: Training for success

By Jacquelyn Millham, NAE Current Readiness CFT/Enterprise AIRSpeed Public Affairs

AT2 Brian Slone is just one example of how powerful mentorship can be.

The Fleet Readiness Center West (FRC-W) Core Team member's work to create and implement training plans enabled his command to realize savings of $89 million in Fiscal Year (FY) 2009 and $15 million in FY 10. He was recognized for his efforts with the Naval Aviation Enterprise Site Visit Excellence Award during "Boots-on-the-Ground" at Naval Air Station Lemoore Nov. 8.


AT2 Brian Slone

Once a spectator, now a champion

Slone's first exposure to continuous process improvement (CPI) in the Navy was during *USS John C. Stennis'* (CVN-74) initiative in 2006 to improve its F/A-18 phase maintenance inspections. While he understood the purpose of the event, the organizational-level maintainer saw the Theory of Constraints (TOC) and Lean Six Sigma applied only from a distance.

But that changed when he arrived at FRC-W in 2007 and attended a yellow belt course. "I only got to see some of the improvements being made on the ship, but after I was trained I got how CPI could improve maintainers' processes," he said.

And he was instantly hooked.

Slone also credits his enthusiasm to AZ1 Aron Davis. Davis, who at the time was the FRC-W Site Core Team leading petty officer, was his mentor. "He had a love for CPI," said Slone. "When he taught it, he sold it." (Davis was the winner of the 2009 Master Gunnery Sergeant John Evancho Innovator of the Year Award and is now assigned to the Maintenance and Supply Integration Process Improvement Branch, also known as the Enterprise AIR*Speed* office.)

CPI, said Slone, also created a culture that enabled him to make a difference in his command. "With these toolsets, I can make changes in my work environment. I like having my opinions heard and having leadership endorse my ideas," said Slone.

Paying it forward

In 2009, Slone noticed a problem in FRC-W "We were doing a lot of events, but not effectively. We needed to go back and make sure that everyone attended yellow belt training.

"Also, we found that while the lieutenants and division chiefs knew about the CPI tools, they didn't know how to use them properly," he said.

To address this gap, Slone held one-hour classes every Tuesday and Wednesday to show them how to use the Continuous Process Improvement Management System, the Buffer Management, Job Status, the National Identification Item Number Analysis tools, and the Fleet Readiness Center Capabilities Analysis Program. "I conducted classes and even over-the-shoulder training whenever they could schedule it, including nights," he said. "Now they have the skills to see where their headaches are and how the data backs up the projects."

Slone also said the lieutenants and division chiefs also have the full picture of how each program complements each other.

As a result of his efforts, 94 percent of the command's personnel is yellow belt certified and the dynamics of FRC-W has been changed – leadership is becoming more proactive in applying CPI in their areas. "As a result, the core team is taking on more of a support role," he said.

Leadership has been central to Slone's success. "The commanding officer, executive officer, production division officer and site leads communicate with us and let us and know what's going on. They trust us, even allowing us to conduct training outside of the command," Slone said.

Becoming a CPI practitioner has enriched a relationship in his personal life as well. Slone and his mother, who is also involved in CPI, share best practices. "Talking with her, I learned that the Navy uses a lot of the same tools that private industry does," he said.

Looking toward the future

Slone is scheduled to leave the Navy shortly and plans to work for a local cheese making factory applying CPI to their processes. He plans to apply what he has learned in the Navy to the private sector. "They stated

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Systems Command (NAVAIR) Industrial Business Operations Division (AIR-6.7.7) has developed (under the cognizance of the Industrial & Logistics Maintenance Planning/ Sustainment (AIR-6.7) department, under the Logistics and Industrial Operations (AIR-6.0) group) an overarching document focused on incorporating industrial depot maintenance solution planning early in the acquisition process. *The Strategic Planning Imperatives for Industrial Depot Maintenance, 2010-2017* (*SPI for IDM*) addresses a specific set of activities that will help deliver unique value to the acquisition programs and thereby increase potential to reduce total ownership costs while achieving planned readiness levels when accomplished early in the acquisition process.

The *SPI for IDM* aligns the industrial depot maintenance planning activities with the AIR-6.0 *2011 Logistics and Industrial Operations Strategic Plan* and the *Naval Aviation Enterprise 2010-2017 Strategic Plan* goals and objectives. The *SPI for IDM* document summarizes how early planning supports each of the Naval Aviation Enterprise (NAE) objectives: Enterprise Culture and Communications, Readiness, People, and Future Readiness.

The *SPI for IDM* ties industrial depot maintenance to the enterprise culture and communication objective through awareness and emphasis on the benefits of collaboration, accountability and transparency in depot maintenance planning. The *SPI for IDM* supports:

- eliminating organizational barriers in decision making for sustainment solutions;
- using depot cost management to create incentives for influencing behaviors that lead to minimizing the duplication of depot maintenance capability to the NAE.

Alignment to the readiness objective is accomplished by:

- engaging stakeholders and their organizations in driving depot maintenance planning activities to include identifying roles, responsibilities and processes;
- analyzing operations and maintenance costs of depot maintenance strategy options for risk-balanced decisions;
- driving improved processes for the identification and elimination of gaps in depot maintenance capability;
- planning for depot maintenance support of the transition from legacy to new weapon systems while supporting the legacy systems until they are replaced.

Depot floors at Fleet Readiness Centers Jacksonville (above) and Cherry Point. Photos from NAVAIR Public Affairs.

The SPI for IDM aligns to the people objective by placing emphasis on:

- recruiting, training, and maintaining the workforce in depot planning disciplines to enhance and expand workforce skills and capabilities for achieving cost-wise readiness;
- using accurate and consistent maintenance planning processes;
- driving to develop effective and efficient industrial depot maintenance processes, and perform continuous process improvement in support of readiness objectives.

Alignment of the last objective, future readiness, is supported by maintaining the required performance and readiness levels with lower levels of Total Obligation Authority (TOA). This is achieved through:

- enlisting stakeholders to implement industrial depot maintenance solutions directed at optimizing costs while providing required levels of future readiness;
- performing early depot maintenance planning to identify and form collaborative cross-functional relationships;
- embracing System Engineering Technical Review (SETR) processes and milestone reviews to include realistic considerations for solution planning;
- leveraging existing SETR process data early in the acquisition life cycle to positively affect Operations and Support costs;
- ensuring support and sustainment requirements are developed and included in the acquisition program's requirements documents;
- leveraging Science and Technology, and Research, Development, Test and Evaluation trends for long-term depot repair and technology sustainment solutions.

A NAVAIR industrial assessment, which consists of performing a core logistics analysis and source of repair analysis prior to Acquisition Lifecycle Milestone B (as addressed in DoD Instruction 5000.02 - Operation of the Defense Acquisition System), is an initial enabler of early industrial depot maintenance planning. Successfully completing the NAVAIR industrial assessment provides the formal early entry into the Industrial Source of Repair process which is documented

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that they need to reduce how much cheese is wasted in the manufacturing process and wanted to apply Lean principles first. My plan is to initiate a yellow belt course, starting with leadership in the beginning. Then we'll apply Lean principles to the 'low-hanging fruit' in the process. Once a culture of CPI is established in the company, I'll incorporate the Theory of Constraints," he said.

Slone is also working on his bachelor's degree in human resources with a minor in project management from Columbia University through the Navy College Program. He is scheduled to complete his studies in two years.

He is also grooming Sailors to sustain CPI in FRC-W after he leaves and advises them to be effective communicators. "If you are going to be a change agent, you have to listen to the Sailors in the work centers and learn how to tactfully convey your message to senior leadership," Slone said. "Take the same approach with both groups. Show them what's in it for them." ■

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Freedom. Presently the Ugly Angels of Marine Heavy Helicopter Squadron (HMH) 362 are forward deployed in Afghanistan. The Sea Stallion has an illustrious history that began in combat and will end in combat.

Most of the CH-53Ds in the Marine Corps inventory have been replaced in the heavy lift mission by the CH-53E Super Stallion, leaving the remaining units assigned to Marine Aircraft Group 24 (MAG-24), Marine Corps Base Hawaii, Kaneohe Bay. The CH-53D was the first type/model/series (TMS) to enter the Naval Aviation Enterprise (NAE) and is guided by Col. Richard Caputo, the third TMS lead for the CH-53D.

The TMS team has successfully removed barriers and opened lines of communication with supporting agencies. Past successes include increasing the number of individual Readiness Material List sets, converting the Mission Essential Subsystem Matrix to a ready-for-tasking- based matrix, improving strategic airlift processes when moving aircraft in support of training and combat operations, and sustaining the capabilities of one of the oldest aircraft in the inventory.

One of the great successes was upgrading the engines to T64-GE-416s. The engine is common to the CH-53E, which supports logistics at the front, and provides the CH-53D with the ability to carry its maximum payload at higher altitudes and temperatures. The "Super D" has already proven it capability in Afghanistan.

Significant changes are in store for the D with the publishing of the 2011 Marine Aviation Plan (AVPLAN). The 2010 AVPLAN saw the CH-53D continuing its service until 2018 and then transitioning to the CH-53K. Under the 2011 plan the CH-53D is schedule to sundown by FY13. Presently the last three units: HMH-363 – "The Lucky Red Lions". HMH-362 – "The Ugly Angels," HMH-463 – "Pegasus", are slated for replacement by the MV-22, CH-53K and CH-53E respectively. The first squadron to transition, HMH-463, will begin this year. The other two units will cadre until their transition date. The lines of communication already in place as a result of the Current Readiness construct, provides an efficient framework and team as MAG-24 transitions out of the CH-53D business while maintaining a ready and relevant platform for the final years of service and combat deployments.

Actions In Progress include monitoring the status of consumables and repairable to sustain the D through sundown and developing a sundown plan that maintains aircrew and aircraft readiness with properly manned squadrons.

By embracing the theories, practices, process improvement and the NAE culture down to the work center, MAG-24 and the CH-53D will continue providing world class assault support to the Marine Air-Ground Task Force. ■

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in NAVAIR Instruction 4790.14. The end result of supporting the *SPI for IDM* recommendations is a depot source of repair decision that ensures there is no duplication of depot capability and capacity. It will also help in improving collaboration, communication, accountability and transparency within the industrial depot maintenance planning community.

Program managers and maintenance planners will continue to encounter challenges in delivering effective industrial depot maintenance solutions which balance diminishing resources and statutory compliance while also striving to meet warfighter readiness requirements. By supporting and applying the recommendations in the *Strategic Planning Imperatives for Industrial Depot Maintenance 2010-2017*, including successfully performing the NAVAIR Industrial Assessment as early as possible, program managers will gain greater leverage for performing planning which will help maximize depot maintenance effectiveness and optimize investments.

To read *Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity Defense Spending, September 14, 2010*, go to: https://acc.dau.mil/adl/en-US/395003/file/53863/Memo%20for%20Acquisition%20Professionals.pdf. For more information on the *SPI for IDM* and *Industrial Depot Maintenance Strategic Planning*, contact NAVAIR Public Affairs at (301) 757-1487. The *SPI for IDM* document can be accessed directly at http://www.navair.navy.mil/logistics/library/SPI.pdf. ■

(Lemoore continued from Page 3)

- Decreasing FRC-W Depot Maintenance, Repair and Overhaul turnaround time (TAT) by more than 40 percent. The 15- to 17-day TAT was achieved by adding a second shift without increasing funding.
- Decreasing the length of time to turn in an item to ASD after it has been taken off wing by 50 percent thanks to a regional Lean event. Transportation time decreased by 50 percent as well.
- Decreasing the Composite Repair Shop's TAT by 50 percent. The work center TAT was reduced from 20 days to 10 days through standardization of damaged engineering dispositions preparation standard operating procedures and training the work centers' maintainers.
- Improving the flight line Consumable Store's effectiveness rate to 97 percent and improving its time off wing by 85 percent since 2006.
- Reducing the number of repaired items that were rejected after issue from 1,500 in 2005 to 255 in 2010.
- Realizing a $4.7 million cost avoidance in their support of global requirements and a 90 percent repair rate in its return and repair capabilities.
- Cost avoiding more than $35 million and achieving an 80 percent repair rate supporting its distance customers.
- Increasing the number of ready for issue 414 engines from 246 and 269 in FY 2008 and 2009, respectively, to 321 in FY 2010.

Corrosion of aircraft assemblies, generator control unit circuit cards; parts availability for the BRU-32 bomb rack; the work schedules of civilian plane captains; cannibalizations; response times for engineering dispositions; how to inform other commands about the lessons learned on Optimized Organizational Maintenance Activity (a maintenance management system that supports aircraft maintenance and material management at the aviation squadron) and F-18 Automated Maintenance Environment (the F-18 smart aircraft application); and facilities for new airframes were also discussed. Representatives from provider agencies brought back these and other concerns to their commands for further discussions and possible resolution.

Boots-on-the-Ground attendees tour Strike Fighter Squadron (VFA) 122. The squadron recently merged with VFA-125, creating the largest squadron in the world and marking the first time a single maintenance department was created for all variants of a TMS.

In his closing remarks to FRC, ASD and BoG attendees, Myers said the ingenuity of the enlisted Sailors and Marines, the most junior to the most experienced, is what will take Naval Aviation into the next decades and that leadership must foster their involvement in Naval Aviation readiness.

"We need them to identify and flag leadership when problems arise," he said. "They are motivated because they know you are interested in efficiencies. We need to reinforce that across the board and let them know that we are interested in their contributions. We rely on their contributions." ■

Lt. Cmdr. Frank Bennett, VFA-122 maintenance officer (right) and Vice Adm. Al Myers, Commander, Naval Air Forces and co-lead of the Naval Aviation Enterprise, point to the squadron's digital aircraft location board. The board tracks more than 100 aircraft across two hangars and multiple flight line locations.

Links of interest

1. **Military Logistics Forum** (#)
   Check out the interview with Rear Adm. Timothy Matthews (Naval Air Systems Command Assistant Commander for Logistics and Industrial Operations, Fleet Readiness Centers Commander and Naval Aviation Enterprise (NAE) Maintenance and Supply Chain Management Team co-lead) on Base Realignment and Closure law and the way-forward for Fleet Readiness Centers. (Re-published with permission)
   https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeeA%20Newsletters/Newsletter%20repository/General%20documents/MLF_4-10_WhosWho.pdf

2. **Fleet Readiness Center Southwest *Almanac*** (#)
   Read about the life of FRCSW teammate Robie Meeks, a World War II and Korean War veteran and how the wing repair shop increased its repair capacity.
   https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/FRCSW%20Almanac/FRCSW_Almanac_Volume_4-Issue_3.pdf

3. **FRCSE partnership enhances avionics repair capability**
   Fleet Readiness Center Southeast (FRCSE) and Raytheon partnered to establish the first fully automated test station for navigation systems with FRCSE artisans providing the hands-on labor and Raytheon providing the training and equipment. The facility was completed three months ahead of schedule.
   http://www.navair.navy.mil/newsreleases/index.cfm?fuseaction=home.view&id=4460

4. **Navy Launches First Aircraft Using Electromagnetic System**
   The Navy made history Dec. 18 when it launched the first aircraft from the Naval Air Systems Command, Lakehurst, N.J., test site using the Electromagnetic Aircraft Launch System, or EMALS, technology. The system's technology allows for a smooth acceleration at both high and low speeds, increasing the carrier's ability to launch aircraft in support of the warfighter.
   http://www.navy.mil/search/display.asp?story_id=57837
   To view a video on the event, go to: http://www.navy.mil/swf/mmu/mmplyr.asp?id=15309

5. **DoN December *CPI-Gram*** (#)
   Inside this edition, learn more about the SECNAV FY11 High Priority Objectives.
   https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/CPI%20News/DON_CPI_Gram-December-final.pdf

6. **SECDEF advisor visits FRCSE, reviews industry partnerships**
   Read about the Deputy Assistant Secretary of Defense for Logistics and Materiel Readiness visit to Fleet Readiness Center Southeast (FRCSE) Dec. 17 to review private-sector partnerships and learn how they bring value to the warfighter.
   http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4474

7. **Carrier Analysis Lab Plots Jet Engine Change on L-Class Ships**
   Navy and Marine Corps engineers and operational experts convened at Joint Base McGuire-Dix-Lakehurst in Lakehurst, N.J., at the Naval Air Systems Command Carrier Analysis Lab to identify the impacts of and begin developing processes to change an engine on an F-35B Joint Strike Fighter aircraft while aboard an Amphibious Assault (L-Class) Ship.
   http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4478

8. **Upgrades make P-3 Orion more efficient, more effective for the Fleet**
   Naval Air Systems Command recently delivered to the Fleet 10 newly-configured *Orions* installed with an upgraded acoustic system, called the Acoustic Receiver Technology Refresh (ARTR). Acoustic systems with

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ARTR are a vital component of the P-3C mission systems, enhancing the ability to receive and analyze sonobuoy data - a primary function of the P-3C mission.
http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4475

9. **Photo releases on the F-35**
   First Vertical Landing For BF-2
   Check out these photos of the F-35B test aircraft BF-2's first vertical landing in short takeoff/vertical landing (STOVL) mode.
   http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4477
   Marine Corps Commandant Visits F-35 Test Facility
   Commandant of the Marine Corps Gen. James Amos takes a seat in the new airframe.
   http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4479

10. **FRCSE receives first Super Hornet to prototype maintenance**
    The arrival of an F/A-18F *Super Hornet* at FRCSE is part of the way-forward to prototyping a six-year Planned Maintenance Interval (PMI) site for *Super Hornet* aircraft in a modified maintenance hangar designated as an overflow facility for Naval Air Station Oceana, Va.
    http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4480

11. ***Rhumb Lines*** [(#)]
    Naval Logistics Integration – An Operational Imperative
    This issue gives an overview of the Naval Logistics Integration (NLI) Strategic Plan for 2011-2015 and provides a link to the document that serves as a road map to cohesively guide Navy current and future initiatives. NLI is now the principal forum to coordinate development and maintenance of policies and standards needed to support interoperability and integration of naval logistics.
    https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/Rhumb%20Lines/Naval_Logistics_Integration_An_Operational_Imperative_21_Dec_10.pdf

    Littoral Combat Ship
    This issue supplements December 2010's LCS contract announcement for a dual-block buy from two shipbuilding teams, which increases near-term ship procurement at significant cost savings, sustains stable production of both designs, and still maintains options for future competition. The Navy remains committed to the LCS program and the requirement for these fast, agile, mission-focused ships.
    https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/Rhumb%20Lines/Littoral_Combat_Ship_LCS_30_DEC_10.pdf

12. **Improving depot maintenance a breakthrough performance area**
    The 76th Maintenance Wing at Tinker Air Force Base announced its fiscal 2011 goals in November which includes a 25 percent improvement in quality and 25 percent reduction in flow days. Over the next five years, the goals are 50 percent improvement in quality and 40 percent reduction in flow days.
    http://www.tinker.af.mil/news/story.asp?id=123232135

13. **Air Force flight control improvements may result from flying insect research**
    The Air Force Office of Scientific Research, in Arlington, Va., is investigating sensory-motor feedback mechanisms in the insect brain that could inspire new approaches to flight stabilization and navigation in future insect-sized vehicles for the military.
    http://www.wpafb.af.mil/news/story.asp?id=123233530

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