



## Groundwork readies MV-22 TMS for peak aircraft delivery

By the MV-22 TMS Team/Marine Aircraft Group 26

The MV-22 Type/Model/Series (TMS) Team has remained active and engaged during the previous year with the aim toward continued upward trend in overall readiness. Efforts across the Naval Aviation Enterprise have been instrumental in ensuring continued success with operational deployments and the transition and maturations of new tilt-rotor squadrons.

As directed by the current Aviation Plan (AVPLAN), 23 squadrons will be operationally capable by Fiscal Year (FY) 2019. As of February 2011, nine squadrons have successfully transitioned. On the East Coast, 2d Marine Aircraft Wing (MAW) has completed the transition of all seven tilt-rotor squadrons. On the West Coast, 3d Marine Aircraft Wing has pro-

[MV-22 continued on Page 2](#)

## INSURV: Aircraft carriers meeting the challenge

By Mr. David L. Klein, CNAF N434 Force Engineering Program Manager

The recently conducted 2010 Board of Inspection and Survey (INSURV) Annual Report presented by President of INSURV Rear Adm. John Christenson to Adm. John Harvey, Commander U.S. Fleet Forces Command, and a host of senior Navy leaders including Commander, Naval Air Forces (CNAF), Vice Adm. Al Myers, highlighted ongoing ship material issues the board is seeing across the nuclear aircraft carrier (CVN) fleet.

2010 was a unique year for the CVN force as four Material Inspections were conducted aboard *USS Abraham Lincoln* (CVN 72), *USS Ronald Reagan* (CVN 76), *USS Nimitz* (CVN 68), and *USS Carl Vinson* (CVN 70), as well as a Special Trial on *USS George H.W. Bush* (CVN 77). *USS John C. Stennis* (CVN74) completed its inspection in early 2011. CVN performance was, overall,

[Insurv continued on Page 10](#)

### In this issue:

1. [Groundwork readies MV-22 TMS for peak aircraft delivery](#)  
Read about the initiatives within the growing community. Page 1
2. [INSURV – Aircraft carriers meeting the challenge](#)  
Schedule of event rehearsal proves key to performance. Page 1
3. [ADCS at the wings: Another strategy to abate corrosion](#)  
IMA software migrates to the squadron level. Page 1
4. [Pacific area IMAs sweep Site of the Year Award recognitions](#)  
CPI used to reduce man-hours, overcome language barrier. Page 3
5. [Master Sgt. Zorina Wilson: Trust is imperative to black belts' success](#)  
MALS-31 Marine recognized for solutions brought forward. Page 4
6. [CPI gives Marine an unmatched vantage point](#)  
Sergeant shares solution with squadrons to improve readiness. Page 5
7. [NAE Master Schedule](#) (CAC-enabled link)
8. [Links of Interest](#) Page 12

## ADCS at the wings: Another strategy to abate corrosion

By the Maintenance and Supply Chain Management Team

Sailors and Marines train to fight foes on land or at sea. However, maintainers are constantly engaged in a battle that does not involve a corporeal enemy but a chemical one – corrosion. Since 2007, the Naval Avia-

tion Enterprise (NAE) Corrosion Prevention Team has been working on a multi-faceted approach to abate corrosion. The article below, the second in a series, details how im-

[Abate continued on Page 9](#)

MV-22 continued from Page 1

gressed with three newly-flagged squadrons. Second Marine Aircraft Wing, while supporting the initial operating staff requirements for transitioning 3d MAW squadrons, has successfully met II Marine Expeditionary Force deployment requirements supporting Iraqi Freedom, Enduring Freedom, Unified Response (Haiti relief), several Marine expeditionary unit deployments, and numerous other assigned missions. The MV-22's capabilities have been well-demonstrated in combat, meeting and exceeding Marine Air Ground Task Force Commanders' expectations. The aircraft has quickly become a viable platform with proven effectiveness and survivability on the battlefield.

Efforts continue to improve critical component reliability and supply material readiness aimed at increasing ready basic aircraft (RBA) / ready for tasking (RFT) percentages. The collective efforts of the TMS Team during Fiscal Year 2010 resulted in a RBA/RFT gap reduction of 8.5 percent (from 30.6 percent to 21.9 percent) as the flight line requirement grew from 49.5 to 73.5 planes. This resulted in an overall increase in the number of aircraft available to train and operate.

This readiness increase stemmed, in part, from the efforts to reduce the number of high priority off-station material demands and growing repair capability at Marine Aviation Logistics Squadron (MALS) 26 and MALS-16 with assistance from Commander, Fleet Readiness Center (COMFRC) teams through the Beyond Capable Maintenance and Aviation Rapid Action initiatives.

Additional increase sortie generation was needed to meet growing demands of a maturing community. The team initiated a training improvement effort to leverage use of the state-of-the-art simulators at both Marine Corps Air Station New River and Camp Pendleton. The MV-22 Training

and Readiness Manual (T&R) was reviewed to determine which training requirements should transition from the aircraft to the simulator. This effort was led by the Fleet Replacement Squadron (FRS), Marine Medium Vertical Tiltrotor Training Squadron (VMMT) 204, resulting in increases in training readiness levels. As a result of these changes, the simulator is used in 64 percent of required training events at the FRS. Fleet pilots conduct approximately 41 percent of their

annual training requirements, T&R requirements, and proficiency needs in the simulator. This largely enabled the fleet to realize a growth of more qualified units ready to meet the challenge.

Several training improvement efforts were also focused on the professional development of our maintenance personnel. These efforts significantly enhanced 2d MAW's capacity to not only source deploying squadrons, but also to meet staffing de-

mands associated with the transition of the fleet. MV-22 fly-by-wire technology, flight computers and mission computers have increased the need for avionics personnel. Previous time-to-train avionics Marines exceeded 24 months from initial school training to becoming a collateral duty inspector. Under the guidance of the senior enlisted leadership, the fleet and the TMS team were able to reduce training time to approximately 15 to 18 months. Other critical skill areas such as airframes and flight line technicians realized similar training improvements reducing time-to-train by eight months. This resulted in an increase from one to five

*MV-22 continued on Page 6*



Sgt. Daniel Howington, assigned to Medium Tiltrotor Squadron (VMM) 266 (Reinforced), 26th Marine Expeditionary Unit, inspects an MV-22B Osprey before flight operations aboard the amphibious assault ship *USS Kearsarge* (LHD 3) in this photo dated November 2010. (Photo by Mass Communication Specialist 3rd Class Joshua Mann/ Navy.mil)

## Lauding excellence in the fleet

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

2010 marked the fourth year that the Maintenance and Supply Integration Performance Improvement Branch (MSIPB) has recognized a site and a junior Sailor/Marine for excellence in continuous process improvement (CPI) and the second year it has recognized a Sailor/Marine in pay grades E-7 through O-3 was for his/her CPI leadership. Readers can learn more about how the winners applied CPI methodologies to improved readiness in the fleet on Pages 3 through 5.

## Pacific area IMAs sweep Site of the Year Award recognitions

Three Pacific Rim intermediate maintenance activities were recently named as the first, second and third place winners for the 2010 Enterprise AIRSpeed Site of the Year award.

Fleet Readiness Center (FRC) Northwest was named the 2010 Enterprise AIRSpeed Site of the Year and Commander, Fleet Air Forward Aircraft Intermediate Detachment (CFAF DET AIMD) Atsugi, Japan, and FRC Western Pacific Support Equipment Rework Facility (SERF) took second and third place, respectively.

The award is presented annually by the Maintenance & Supply Integration Performance Improvement Branch to the site that excels at fostering a culture of continuous process improvement (CPI) through improving customer satisfaction, furthering integration between maintenance and supply, applying the AIRSpeed concepts, executing the AIRSpeed enablers, and deploying CPI sustainment initiatives.

### Highlights of accomplishments

FRCNW provided an additional seven ready-for-tasking aircraft used for aircrew training during the award period. The command also realized \$19 million in annual cost avoidance which was 32 percent of all cost avoidances generated by the six FRC area commands.

The most significant CPI event in the command was the work conducted on the CRU-103 Oxygen Regulator. The intermediate maintenance activity (IMA) increased throughput by buffering the component, scheduling a troubleshooting day on the last day of the work week, increasing communication with Aviation Life Support Systems Division and determining the demand for the component. This reduced the required number of ready-for-issue assets from 30 a day to six a day. The change cost avoided more than \$45,800, freed up two additional oxygen test sets for use on other critical aviation life support system gear, and eliminated the need for a night shift that was specifically put in place to repair the CRU-103. Repair iterations on the component were reduced from 514 to



Fleet Readiness Center Northwest Sailors maintaining an engine.

346 during the reporting period.

FRCNW hosted "Boots-on-the-Ground" last June. To read more about its successes, go to: <https://www.public.portal.navy.mil/airfor/nae/Current%20ReadinessEnterprise%20AIRSpeed%20Newsletters/Volume%208,%20Issue%207%20-%20Posted%20September%202010.pdf>.

CFAF DET AIMD increased the time on wing (TOW) of the SH-60 B/F aircraft sound proofing panels, an obso-

SOY continued on Page 7

## Master Sgt. Zorina Wilson:

# Trust is imperative to black belts' success

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

**5S** has always been a part of Master Sgt. Zorina Wilson's life – even before she knew the proper name for it.

"I have always liked order, schedules and structure," said the Marine Aviation Logistics Squadron (MALS) 31 AIRSpeed Department chief. "In my home, everything has a place. I am constantly trying to clean out old stuff, organize areas and streamline the way we do things. Even my pantry and closets reflect my organizational style," she said.

But it wasn't until 2008 that she began to "connect the dots" between her everyday activities and continuous process improvement (CPI) methodologies. "My first encounter with CPI was in 2007," she said. "While I was a work center staff non-commissioned officer in charge (SNCOIC) at MALS-12, I was directed to take a two-day class on the Theory of Constraints, Lean and Six Sigma which covered buffer management."

Several months later she attended a green belt class and had the opportunity to apply CPI tactics and methodologies to her work center.

"Using what I learned during the events captured me hook, line and sinker," said Wilson.

"Everyone thinks that CPI is common sense, but how often is common sense common? We do things daily because that is what the publication or order says. Or it's how we were taught. But CPI teaches you to ask why, challenge the way it has always been done," she added.

Wilson brought her enthusiasm for CPI to MALS-31 where her ability to bring solutions forward, to generate enthusiasm in the command and improve service to the customer recently netted her the 2010 Enterprise AIRSpeed Leadership Award.

## FIRST THINGS FIRST

Realizing the need for all decision makers to understand basic CPI methodologies, Wilson designed and implemented a green belt training plan for all department heads, department chiefs and divisional leadership

scheduled to be delivered every two hours.

At the same time, Wilson was the mentor for a rapid improvement event (RIE) in the Remote Supply Unit (RSU) which had been established before she arrived. "The issue of



***"Everyone thinks that CPI is common sense, but how often is common sense common? We do things daily because that is what the publication or order says. Or it's how we were taught. But CPI teaches you to ask why, challenge the way it has always been done."***

~ Master Sgt. Zorina Wilson

soon after checking-in to MALS-31. She then took on the goal of improving the intermediate maintenance activity's supply delivery time to the flight line.

Supply touches all customers of MALS-31, she said. Looking at on-station documents for aircraft components, she learned that the process' time to reliably replenish (TRR) was in excess of four hours. The first solution to address this was the introduction of a bus route that enabled customers to project when their deliveries would arrive at their command. It also fostered better decision making by the customer.

The second solution was a change in policy that required intermediate-level customers to pick up high-priority consumables. This reduced the number of bus route stops to seven. Low-priority parts were then

parts was not expedited because RSU did not always carry items required by the work centers," she said. Wilson and her team reviewed the RSU inventory, created pre-expended bins of consumable items for Airframe and Avionics divisions service replaceable assemblies, and authored a standard operating procedure.

## WHY WAIT?

Not all of the improvements Wilson had a hand in implementing were as complex as the RIEs. A just-do-it project also had a significant impact on cost and morale.

The Marines, said Wilson, were frustrated. Avionics and Airframes divisions were experiencing power outages due to unknown causes requiring rescheduling of workloads and prioritizations, wasting 235 man-hours

*Wilson continued on Page 8*

# CPI gives Marine an unmatched vantage point

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

## What do Six Sigma and calibration have in common? Data and tolerances, according to Sgt. Jeffrey Mangin.

"We deal with variation daily," said the precision measuring equipment technician. "[Calibration] directly relates to Six Sigma in that calibration reduces the variation of avionics equipment to consistently produce the desired results. Also, troubleshooting a piece of equipment down to the component level is very much like determining the root cause of problems within a process. By doing so, you discover the actual cause for failure rather than just treating the symptoms of the problem."

That relationship was one reason why Mangin chose to analyze the high failure rate of the velocity transducers for his black belt project. Identifying the root cause for the failures extended the vibration transducers' life cycle and resulted in cost avoidances of \$530,000 in maintenance and \$40,000 in man-hour costs. Mangin, continuous process improvement (CPI) operations manager at Marine Aviation Logistics Squadron (MALS) 39, was named the 2010 Master Gunnery Sergeant John S. Evancho Innovator of the Year for his efforts and involvement in other initiatives that improved warfighter readiness.

Vibration transducers are devices that transform vibrations from the environment into a form of energy used by test cells to monitor the performance of components. When they were inducted for calibration, MALS-39 maintainers found they had an unusually high failure rate.

The high failure rate was caused by the loss in the integrity of the transducers' internal components. Mangin's team discovered that when the four cap screws on top used to secure the lid to the base are loose, the transducers shake excessively.

"We found transducers that were both brand new and those used by the customers had cap screws with mounting torques not within manufacturer specifications. These four screws were trimmed down in order to meet specification. After they were trimmed, the torque was not correct on the screws. We found that applying the correct torque of four to six inches per pound to each screw decreased the failure rate by more than 42 per-

cent. The lower failure rate requires fewer man-hours spent on rework and less money spent on replacement transducers," he said.

A rapid improvement event (RIE) on rod end bearings is another project Mangin coached that impacted aircraft downtime.

Rod end bearings were incurring high Subsystem Capability Impact Reporting (SCIR) hours associated with aircraft servos in the CH-46E (a servo is a motor that pushes a rod end bearing). Mangin and his team discovered servos supplied by a new vendor were working too hard and its time on wing was only one-third of the original part. This resulted in downtime for aircraft that occurred between phase maintenance. The analysis made the case to obtain servos from the previous manufacturer, resulting in a cost avoidance of more than \$152,000 and reduced the time spent between phase maintenance intervals by 2,800 hours.

High SCIR hours also led Mangin and his team to identify height indicators for the AH-1W *Super Cobra* as a readiness degrader. "In a year's time, this component had accumulated almost 1,800 SCIR hours, was sent out for depot-level repair 35 times and inducted into maintenance as an expeditious repair (EXREP) 15 times,"

said Mangin.

While the command had the equipment to repair the component, MALS-39 lacked the authorization to repair the height indicator and was required to send it to MALS-16 for maintenance. Based on the team's analysis, MALS-39 obtained authorization and plans to send maintainers to the 25-day repair course at Center for Naval Aviation Technical Training Unit at Miramar.

Mangin's successes and talents did not go unnoticed by his command. MALS-39 Commanding Officer Lt. Col. Andre Harrell asked him to design a software application that would reduce, if not eliminate, EXREPs in the intermediate maintenance activity (IMA). Mangin created the Expeditor Database, an Access program which pulls from several maintenance and data sources, including the Defense Logistics Agency, Naval Inventory Control Point, Naval Aviation Logistics Command Operation Management Information System and Relational Supply.

*Mangin continued on Page 11*



Sgt. Jeffrey Mangin



An MV-22 *Osprey* assigned to Marine Medium Tiltrotor Squadron (VMM) 166 approaches the amphibious assault ship *USS Makin Island* (LHD 8) in this photo dated March 2011. This marked the first time an *Osprey* has conducted flight operations on a West Coast amphibious assault ship since being introduced to the fleet. (U.S. Navy photo by Chief Mass Communication Specialist John Lill/ Navy.mil)

*MV-22 continued from Page 2*

dual-shift capable units.

In addition to the increase in RBA/RFT, Aircrew Core Competencies (ACC), and Maintenance Core Capabilities (MCC), significant cost reductions have also been realized. The combined efforts of supporting agencies have led to a reduction in cost-per-flight hour from \$16,500 to \$11,000 over FY10. A number of drivers caused this improvement. Building repair capability at the intermediate maintenance activities (mentioned earlier) not only increased RBA/RFT, it also reduced costs by repairing components on-site. Many squadrons, while working together with the Fleet Support Team, also realized that engine time-on-wing could be improved by increasing the frequency of engine washes with improved wash procedures.

This practice is now shared by all units. Type commander-led flight line modifications have also been a factor in cost reductions. Several aircraft that received these modifications



Sgt. Paul Arnold, (left) and Lance Cpl. Carl Rowan (center), both assigned to Marine Medium Tiltrotor Squadron (VMM) 266 (Reinforced), 26th Marine Expeditionary Unit, and Aviation Machinist's Mate Airman Charles Cutshall (right) tighten the tension straps on an MV-22B *Osprey* engine aboard the amphibious assault ship *USS Kearsarge* (LHD 3) in this photo dated February 2011. (U.S. Navy photo by Mass Communication Specialist 3rd Class Scott Pittman/Navy.mil)

have increased reliability on selected systems, driving down non-mission capable time. These improvement efforts have paved the way for more flight hours to be generated, reducing cost.

While the MV-22 TMS Team has met many challenges over the past fiscal year, the need to sustain momentum is paramount. Alignment of activities across the enterprise has resulted in these improvements. Recognizing the need to capture and formalize this alignment approach, the TMS Team leveraged use of the Leadership Strategy Process (LSP).

This formalized approach brings together NAE stakeholders to actively participate in a number of workshops aimed at producing an overall strategy. It also captures the actions that are needed to achieve the strategy.

This next year will be challenging for the MV-22 TMS Team. Scheduled aircraft delivery will be at its highest level since the program's inception.

The logistics system's capability will need to be closely monitored to ensure all requirements are met. The strategic roadmap produced from the LSP will also prove instrumental for NAE stakeholders to meet the overall strategy; a roadmap that makes the aircraft affordable and ready, while ensuring its continued survivability and effectiveness on the battlefield.

In January, we surpassed the 100,000 flight hour milestone for the V-22. The MV-22 TMS team's active engagement has had a profound and positive impact on the V-22 community at home and abroad. Their support has enabled the warfighter to focus on training and fleet operations through increased aircraft readiness and safety. Their dedication and efforts to discover better ways of training our Marines and maintaining the fleet will continue to lower costs ensuring the best support on the battlefield for years to come. ■



The Team SERF workforce

*SOY continued from Page 3*

lete component unavailable from the supply system. The AIMD combined Airframes and Support Equipment work centers which optimized manpower. As a result, maintainers repaired nine sound proofing panels valued at \$59,000 and increased its TOW from 20 to 100 hours.

The most significant event at CFAF DET AIMD was the Hybrid Test Station (HTS) value stream analysis (VSA). This event was held to determine why 70 percent of items it received from the Consolidated Automated Support System Bench Weapons Repairable Assemblies and the Avionics Test Set /Integrated Avionics Test Set work centers had already exceeded their times to reliably replenish. The VSA revealed excessive costs and man-hours associated with maintaining the aging HTS – 3,259 man-hours were expended on the test cell, and 298 maintenance action forms were submitted for the repair of the HTS at a cost of more than \$1.4 million during the period analyzed. Based on the data, AIMD Atsugi requested and received permission to discontinue the use of the HTS seven months ahead of schedule.

**SERF's** turnaround time decreased by 49.8 percent during the award period, resulting in a 32 percent increase in on-time deliveries. One challenge the command faced was the language barrier between SERF management and

its labor force – the majority of SERF workers are local nationals who are not proficient in English. To ensure a properly-trained workforce, SERF translated several source documents and tool packages into Japanese, held hundreds of hours of classroom instruction and on-the-job training and included the local nationals in Kaizen events.

Reorganization of its warehouse was one of the most significant process improvement events that occurred during the award period. Before the event, the inventory of unused parts and parts from used kits were stored in the facility. Not only were the components increasingly becoming more difficult to manage, personnel found the layout of the SERF warehouse difficult to navigate. In addition, *USS George Washington* (CVN-73) did not have a designated space to stow tools used by the beach detachment. As a result of the new arrangement and improved inventory practices, support to the production line improved and several repairable components have been identified and returned to the supply system for credit to the command and use in the fleet.

Efforts are underway to post guidelines for the 2011 Site of the Year Award and will be posted on the website during the summer of 2011. ■

Wilson continued from Page 4

and damaging test cells. While MALS-31 was awaiting technical assistance to investigate and fix the power outages, Wilson surveyed the mobile facilities and discovered its power distribution points were thermal sensitive.

With the approval of the avionics officer, she and her team placed thermometers near points located in the shade and in direct sunlight. This analysis revealed that the points servicing the areas with frequent power outages were 10 to 18 degrees warmer than the other areas.

To cool the power distribution points, some of the mobile facilities were moved and camouflage netting was placed over the power distribution points located in the sun. The number of outages and surges were almost eliminated. "This was exciting. We came up with a solution that was quickly implemented and had support from all ranks," she said.

Wilson only takes partial credit for the fix. "Other units have put up netting to reduce heat at or near the pop-up boxes. Now MALS-31 has documented why and how the power outages were mitigated. This serves as a record and can be replicated by other commands," she said.

## SIX SIGMA AT WORK

But the project to improve accessibility to the Buffer Management Tool (BMT) had the most impact on Wilson and her unit.

"The struggle to train personnel on an application they did not like nor wanted was problematic. In addition, the majority of work centers were unable to access it in less than two hours which compounded their resistance. BMT took up more than 60 percent of my time each day because they would come to me and I would have to run the reports individually," said Wilson.

The AIRSpeed Office collected data and began to eliminate possible



Pop-up boxes

causes. Each morning, users documented who used BMT, how long it took to get in, the asset number of the computer they were using, where they were using the computer, the time of day they were using it, and other variables.

One of their first discoveries was that BMT creates large file sizes when it is shut down improperly, causing access problems. Large files, however, were not the primary cause. "We put the data into Minitab and found a correlation between the computer's model number and connectivity. BMT worked on one model but not the other," said Wilson.

To find out if it was a connectivity problem, the team switched the computers without the users' knowledge and re-documented their use. "The computers that ran well before the swap still ran well and those that could not access BMT still had the problem. So we knew that it wasn't the application, the users or the connectivity but the type of computer being used. Based on that data, the command put out a policy that BMT was to be accessed using only a certain computer model," she said.

The improvements made the application available within three minutes in all work centers, aligned MALS-31 with the Naval Aviation Mainte-

nance Program's requirement of BMT usage; allowed personnel to properly prioritize their workload based on the first-in, first-out queuing process; encouraged communication between supply and maintenance; and defined cost analysis more clearly.

## STRENGTH IN NUMBERS

Wilson was frequently on temporary duty during her tour at MALS-31 and relied on AIRSpeed office personnel, especially Staff Sgt. Allen Backscheider, AIRSpeed Department staff NCOIC. "One of the most influencing things I learned during the RIEs was that a black belt has to depend on his or her team members, trust them to do the tasks assigned and to follow-up on their progress," she said.

"The black belt's responsibility is to ensure all who are involved are properly trained and knowledgeable about the intent and process of measuring. For a black belt to do all the work is overwhelming and could raise a concern about bias," she said.

"Without Staff Sgt. Backscheider, the goals would not have been met," said Wilson.

Wilson is scheduled to transfer to MALS-40 and plans to take what she has learned about CPI and apply it to her new billet as avionics chief. A sincere believer in its value, she also would like to work as a CPI expert when she retires.

Wilson said she hopes her contributions have impressed upon MALS-31 Marines that understanding, applying and taking ownership of CPI methodologies enhance their abilities to meet and even exceed mission expectations.

"Every evolution is a learning experience," she said. "Not all tools are right for all evolutions. Change is not a one-size-fits-all environment. Many ideas must be revisited and revised to ensure success...that's why it's called continuous right?" ■

*Abate continued from Page 1*

*proved data collection at the wings will support that effort. (To see the first article, go to: <http://www.public.navy.mil/airfor/nae/Current%20ReadinessEnterprise%20AIRSpeed%20Newsletters/Volume%208,%20Issue%202%20-%20Posted%20March%202010.pdf>.) Future articles will explore other abatement initiatives currently underway.*

Prior to the establishment of the Naval Aviation Enterprise (NAE), aviation culture was subdivided in many ways: West Coast, East Coast; fixed wing, rotary wing; tactical aircraft, non-tactical aircraft. The NAE introduced us to a new world of collaboration and transparency. Over time, we learned that collaboration makes our lives easier and more efficient, not just for the staff but for the flight line as well.

One example of this increasing collaboration is the recent implementation of a pilot project at Naval Air Station (NAS) Lemoore and NAS Oceana. An existing fleet maintenance process is being automated and leveraged to feed valuable corrosion data back to the Fleet Support Team (FST) for timely data collection and life cycle support decision making. This approach shows the Enterprise turning to the fleet for inputs, and the fleet collaborating between the commands on each coast and with the FST to make minor modifications of their processes toward the goal of improving readiness and reducing cost. The centerpiece of the pilot study is a corrosion abatement initiative.

After learning that corrosion was consuming over 1 million maintenance man-hours annually and was the third highest readiness degrader in all of Naval Aviation, NAE leadership turned to the Fleet Integration Executive Panel for support. The panel had contract support services available to assist it with its technical analysis and logistic staffing functions. Maintenance and Supply Chain Management (M&SCM) Team leadership decided to charter a cross-functional team that included members from across the Fleet Readiness Enterprise (now the Fleet Integration

Readiness Panel), including the fleet and FST, to form a Corrosion Prevention Team (CPT).

Analyses performed by the CPT revealed that a significant part of the corrosion issue stemmed from the lack of detailed, reliable data vital to making sound decisions relating to maintaining proper material condition of our aircraft. The CPT also determined the length of time between integrated maintenance concept (IMC)/planned maintenance interval events was too long to collect the necessary data to make decisions in a timely manner.

The CPT succeeded in acquiring modest investment funding to install the Fleet Readiness Center's (FRC) Automated Data Collection System (ADCS) software at the wings to facilitate consistent data collection and standardize inspections.

Used by the Fleet Readiness Centers to document discrepancy data since 1996, ADCS will capture the same information during the wings' Material Condition Inspections (MCI), giving the Enterprise visibility into corrosion discrepancies documented during the intrusive portions of the MCI.

Aviation Maintenance Management Team (AMMT) inspectors will then have the ability to capture detailed information relative to discrepancies noted during their MCI. The format of that information will be similar to the data captured from aircraft that have undergone Fleet Readiness Center scheduled maintenance events.

Implementation should take about 30 days per site. The obvious benefit is that engineers and logisticians get a lot more timely data to make Reliability-Centered Maintenance (RCM) decisions. This data will be used to zero in

The Maintenance and Supply Chain Management (M&SCM) team is an NAE effort within the overall Fleet Integration Executive Panel, with executive leadership being provided by Navy Inventory Control Point (00) and Naval Air System Command Logistics and Industrial Operations.

RCM is an analytical process to determine appropriate failure management strategies, including program manager requirements and other actions that are warranted to ensure safe operations and cost-wise readiness.

*Abate continued on Page 12*

*INSURV continued from Page 1*

slightly above fleet average and in keeping with historical carrier trends.

INSURV is a periodic material inspection mandated by public law and typically scheduled every three to five years. The inspection covers specific 18 material areas: aviation, auxiliaries, communication, damage control, deck, electrical, environmental protection, habitability, information systems, main propulsion, medical/dental, navigation, Navy occupational safety and health, operations, preservation, supply, ventilation, and weapons. The board also conducts seven underway demonstrations: full power, quick reversal astern, quick reversal ahead, detect-to-engage, anchoring, steering, and water production.

Following Lincoln's inspection in February 2010 and after reviewing 2009 INSURV results compiled during *USS Harry S. Truman* (CVN

75) and Bush acceptance trials, CNAF implemented an effort to augment the type commander (TYCOM) review process with subject matter experts (SME) in selected inspection areas. Additional team members were added to the CNAF INSURV Preparation Team that assists CVN crews in INSURV preparations.

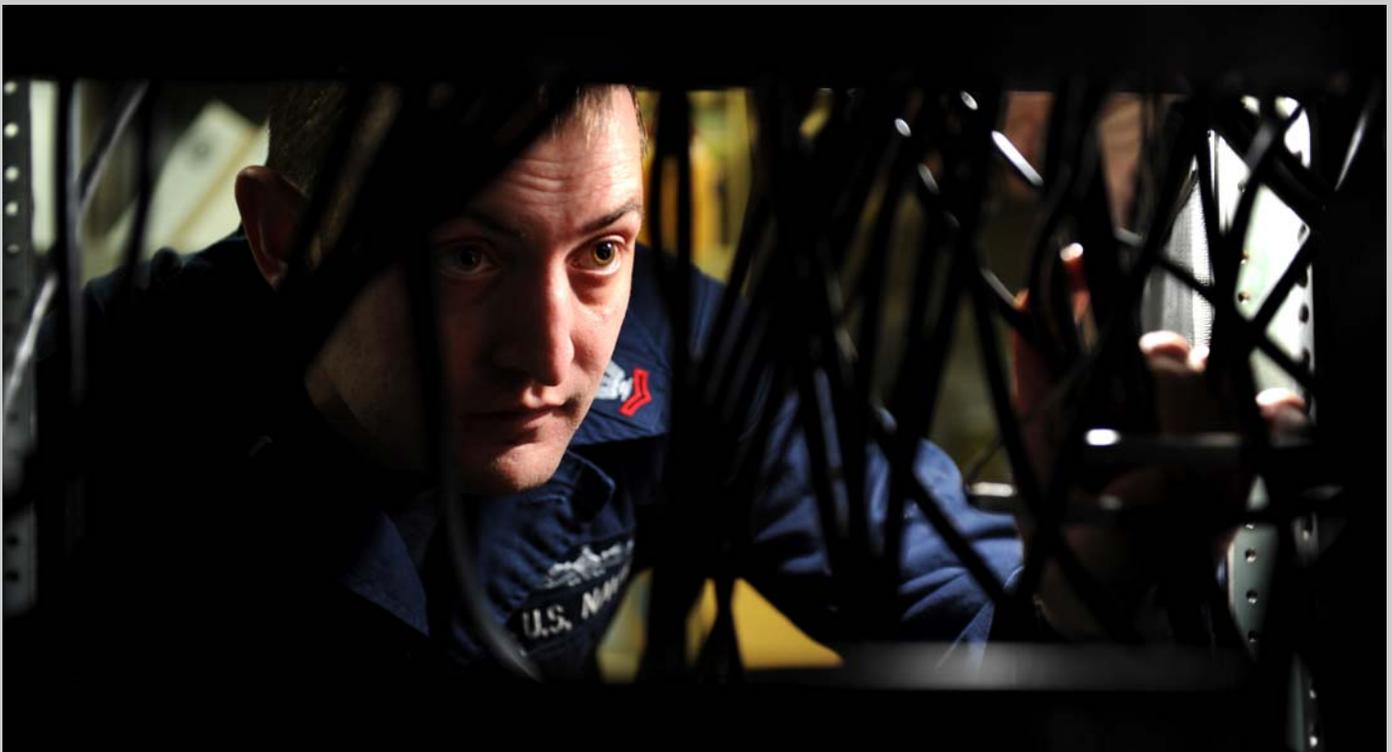
The current INSURV Preparation Team is comprised of active duty and retired chief warrant officers, limited duty officers, and chief petty officers with extensive experience in deck (DK), damage control, combat systems (covering communication (CC), information systems (IS), and operations), environmental protection (EP), auxiliaries (AX), and electrical. Resources were drawn from existing CNAF staff, augmented by support contractors.

The INSURV Preparation Team conducts visits in port and underway, providing a continuum of engagement

between each visit. A three-phased visit to each ship was established to assess the ship's progress and increase engagement at all levels of the ship from the commanding officer to the deck plates. The team subsequently added a Phase IV visit which compares casualty reports, Current Ship's Maintenance Project (CSMP) and eight o'clock reports (daily equipment status reports given to the commanding officer by the executive officer each evening) to actual ship conditions; assesses any potential repair before operate (RBO) deficiencies; and evaluates the ship's preparedness for underway demonstrations. The INSURV Preparation Team also coordinates with other aircraft carriers to ensure applicable lessons are shared.

*The 2010 INSURV Annual Report* followed "hot on the heels" of

*INSURV continued on Page 11*



Information Systems Technician 2nd Class Christopher Stough inspects cables on satellite receivers in the television control room aboard the Nimitz-class aircraft carrier *USS John C. Stennis* (CVN 74) in this photo dated April 2011. *John C. Stennis* recently completed its INSURV inspection. (Photo by Mass Communication Specialist 3rd Class Kenneth Abbate/Navy.mil)

*Mangin continued from Page 5*

“The Expeditor Database shows what repairable components each work center works on and breaks it down by every piece used to fix that item,” said Mangin.

“Now the Supply Department has more knowledge of what it needs to stock to support our Maintenance Department. The database is a link between maintenance and supply that has potential to bridge communication gaps, increasing aircraft readiness and availability.”

But the Expeditor Database use didn’t just benefit MALS-39’s maintenance and supply personnel. Realizing the information would enhance squadron expeditors’ visibility into the logistics chain, Mangin introduced it to the organizational level. “They can now see what parts are needed, quantities on-hand, average monthly demand, stock quantities due, prices, and repair capabilities. They see the system’s repair constraints and negative supply chain trends,” said Mangin.

The result, said Harrell, is the alignment of organizational- and intermediate-level processes with CPI.

Since his first Lean Six Sigma event at MALS-36 in Okinawa, Japan, in 2006, Mangin said that CPI has challenged him and afforded him unparalleled opportunities. “After that event in the engine shop, it became clear how powerful and effective the tools of Lean Six Sigma can be when properly applied,” he said.

“It is very satisfying to identify all of the interdependencies within our unit and have the ability to improve our processes to keep our aircraft flying in the most efficient way possible,” he said. “I have been given the rare opportunity to view our squadron from every aspect and angle. Being able to understand how every department works together to achieve a common goal is invaluable information.” ■

*INSURV continued from Page 10*

the CNAF INSURV Bottom-Up Review (BUR) presented to Vice Adm. Myers. The large number of inspections in 2010 provided an opportunity to review the preparation process and dig into areas that have historically proven to be a challenge. This review was a three month-long collaboration between the CNAF staff; Program Executive Officer, Program for Aircraft Carriers; Naval Systems Engineering Directorate, and other system and warfare centers.

Vice Adm. Myers directed the BUR to follow the last of the 2010 CVN INSURV inspections with a focus on 2009/2010 results, items identified in the INSURV annual reports from 2007-2009, and actions being tracked by the Fleet Maintenance Board of Directors (FMBOD). This review organized the deficiencies by system into an initial list of 44 issues covering over 4,000 deficiencies. These were then categorized and narrowed down to 18 areas on which the INSURV BUR team conducted its detailed review. The team identified

root causes, characterized solutions (design, ownership, material, and training), and divided these into TYCOM and program office actions.

The group identified areas where concrete improvements can be made - both in INSURV performance as well as overall material readiness. The areas strongly correlate to the challenges seen over the past two years’ inspections. The effort also noted results of increasing SMEs on the CNAF INSURV Preparation Team as reflected in improving DK, EP, CC, and AX area scores.

A major lesson in conducting CVN demonstrations for INSURV points to ship preparation, specifically schedule of event (SOE) rehearsal, as a major contributor to performance results. Significant improvements were particularly seen in the anchoring demonstrations. The staff will continue to emphasize importance of SOE rehearsals when working with the ship and Carrier Strike Group.

One of the more important findings in the 2010 INSURV Annual Report is the audit of each platform’s

Class Maintenance Plan.

Aircraft carriers are leading the way with the four ships inspected in 2010 having over 96 percent of their scheduled tasks completed within periodicity. And if one factors in tasks that were technically adjudicated, carriers had a completion rate of more than 99 percent. This is a great story and indicative of collaborative enterprise behavior between the TYCOM, Carrier Planning Activity, and technical support from Naval Sea Systems Command as a catalyst towards ensuring our aircraft carriers meet their 50-year design service life.

As we move out with the recommended actions to both improve INSURV performance and improve material readiness, other related correspondence is forthcoming in the way of lessons learned and program improvements. The carrier force will continue to meet the INSURV challenge with the upcoming inspection on *USS Dwight D. Eisenhower* (CVN 69) scheduled in August. ■

*Abate continued from Page 9*

on corrosion prone areas referred to as Focus Area items so Naval Air Systems Command can modify processes, procedures, materials, training, etc. to prevent corrosion from maturing into costly depot level repairs or readiness debilitating In Service Repairs (ISR).

The not-so-obvious benefit to the fleet is the automation of the MCI process. ADCS uses interactive three-dimensional object drawings of the aircraft and touch screen hardware technology to drill down to a specific area/component on an aircraft, followed by a simple series of pull-down menus to document the discrepancy. The software populates all the form fields based on the graphical selections and menu choices. No more looking up work unit codes or malfunction codes!

RCM engineers and logisticians will then analyze the data to make decisions about a platform maintenance plan:

Whether to increase the frequency of inspections, use a different corrosion preventative compound, include or remove specific repairs in the IMC workload specifications, and so forth. This analysis will then feed into the Maintenance Requirement Cards (MRC) and MCI, enabling the fleet and platform managers to gauge the health of each platform and the effectiveness of the local efforts to combat corrosion.

Ya gotta love it when a plan comes together to make life better for the Enterprise without “loading up the packs” borne by its junior members. The M&SCM team is dedicated to implementing process improvements that make our flight line lives better, while yielding increased readiness to ensure a brighter future for Navy/Marine Corps aviation. ■

## Links of interest

1. **Aircraft Investment Plan<sup>#</sup>**  
Below is the link to the 30-year aviation plan submitted annually by the Pentagon to Congress. This document also includes plans for the Air Force.  
[https://www.portal.navy.mil/comnavairfor/Naval\\_Aviation\\_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/General%20documents/30-Year\\_Naval\\_Aviation\\_Investment\\_Plan.pdf](https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/General%20documents/30-Year_Naval_Aviation_Investment_Plan.pdf)
2. **Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY 2011<sup>#</sup>**  
This year's report reflects the naval capabilities projected to meet the challenges the nation faces over the next three decades of the 21st Century.  
[https://www.portal.navy.mil/comnavairfor/Naval\\_Aviation\\_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/General%20documents/Report\\_to\\_Congress\\_on\\_Annual\\_Long-Range\\_Plan\\_for\\_Construction\\_of\\_Naval\\_Vessels\\_for\\_FY\\_2011.pdf](https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/General%20documents/Report_to_Congress_on_Annual_Long-Range_Plan_for_Construction_of_Naval_Vessels_for_FY_2011.pdf)
3. **Reducing total ownership costs is focus for SPAWAR San Diego leadership**  
More than 300 decision makers met to discuss the rapid fielding of cyber/information technology capabilities and reducing costs of systems throughout their life cycles.  
[http://www.navy.mil/search/display.asp?story\\_id=59388](http://www.navy.mil/search/display.asp?story_id=59388)
4. **Naval Aviation News Winter Edition**  
Naval Aviation News is devoting six to eight pages to the Centennial of Naval Aviation in its 2011 issues. This edition features years 1936 to 1961.  
<http://www.history.navy.mil/nan/currentissue/currentissue.htm>
5. **Navy reaps multiple savings from radio frequency identification**  
Efficient Radio Frequency Identification (RFID) technology is scheduled to be demonstrated by June.  
[http://www.navy.mil/search/display.asp?story\\_id=59390](http://www.navy.mil/search/display.asp?story_id=59390)

*Links continued on Page 13*

*#- Site is CAC-enabled. Some readers may not be able to access the link.*

Links continued from Page 13

6. **KC-130J *Harvest Hawk*: Marine Corps teaches old plane new tricks in Afghanistan**  
A unique variant of its KC-130J was recently created by outfitting an existing plane with what has been dubbed the *Harvest Hawk* weapons system.  
<http://www.marines.mil/unit/mcascherrypoint/Pages/KC130JHarvestHawk20110401.aspx>
  
7. **DoN CPI Gram<sup>#</sup>**  
**March:**  
Find out about the integration of Managers' Internal Control Program and CPI. Also included in this issue is information on the Education, Training, Tools and Template Working Group's work to define master black belt certification qualifications and training schedules.  
[https://www.portal.navy.mil/comnavairfor/Naval\\_Aviation\\_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/CPI%20News/DON\\_CPI\\_Gram-March\\_2011.final.pdf](https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/CPI%20News/DON_CPI_Gram-March_2011.final.pdf)  
**April:**  
Read about how the DoN workforce can be empowered to become a "nest of tinkers." CPI practitioners can also learn about the training opportunities being offered at the DoD/DoN Performance Symposium and Workshop and how to register for the event.  
[https://www.portal.navy.mil/comnavairfor/Naval\\_Aviation\\_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/CPI%20News/DON\\_CPI\\_Gram-April\\_2011%20Final.pdf](https://www.portal.navy.mil/comnavairfor/Naval_Aviation_Enterprise/AirSpeed%20Newsletters/Newsletter%20repository/CPI%20News/DON_CPI_Gram-April_2011%20Final.pdf)
  
8. **Fire Scout prepares for CENTCOM deployment**  
The air vehicle will provide hundreds of hours of Full Motion Video in theater supporting U.S. Army and coalition forces.  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4553](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4553)
  
9. **FRCSE establishes first prototype for F/A-18 *Super Hornet* maintenance**  
The first *Super Hornet* to undergo planned maintenance and minor repairs in a modified maintenance hangar designated to handle excess maintenance workload was delivered to a strike fighter training squadron in Virginia recently.  
<http://www.navair.navy.mil/newsreleases/index.cfm?fuseaction=home.view&id=4546>
  
10. **UH-1 Yankee trainer relocated to MCAS New River**  
The dual-seat pilot trainer simulates multiple training and readiness events to include vertical take-off and landing, weapon systems simulation, avionics, reconnaissance and aircraft procedures for mission preparedness and proficiency.  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4535](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4535)
  
11. **Shipyard workers complete at-sea maintenance onboard USS George Washington**  
This marked the first completion of a shipyard period at sea  
<http://www.navsea.navy.mil/NewsWire2011/28APR11-01.aspx>



The Fire Scout air vehicle undergoes a final inspection after being loaded onto the C-17. (U.S. Navy photo by Steve Kays/NAVAIR)

Links continued on Page 14

<sup>#</sup>- Site is CAC-enabled. Some readers may not be able to access the link.

Links continued from Page 13

12. **First EA-6B rudder assembly made at FRCSE keeps Prowler fleet flying**  
This capability is one of the first steps in easing supply shortages threatening to ground the Prowler fleet.  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4537](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4537)
13. **New screening process saves Navy millions in night vision systems**  
Using new test equipment and techniques, 70 percent of night vision goggle tubes previously rejected by intermediate maintenance activities were found to be within specifications and available for reissue to the fleet.  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4541](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4541)
14. **Commanding officer spells out course change**  
Commanding Officer Col. Scott Loch announced three separate initiatives to introduce a new production management system at Fleet Readiness Center East.  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4567](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4567)
15. **Direct Attack Moving Target Capability tests successfully**  
The new targeting capability will provide tactical flexibility for use on all F/A-18 *Hornet*, *Super Hornet* and AV-8B aircraft.  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4571](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4571)
16. **JSOW C-1 variant successfully tested**  
This variant provides upgraded capability to strike moving maritime targets.  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4570](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4570)
17. **Marine Corps makes aviation history with intercontinental Osprey flight**  
The mission may have validated a capability that could ultimately become routine.  
<http://www.marines.mil/unit/mcascherrypoint/Pages/MarineCorpsmakesaviationhistorywithintercontinentalOspreyflight.aspx>
18. **Belle Chasse Marines retire UC-12B after 30 years of service**  
The UC-12 B *Huron* m318 was “sundowned” after logging nearly 25,000 flight hours.  
<http://www.marines.mil/unit/marforres/Pages/2011/2011.04/BelleChasseMarinesretireUC-12Bafter30yearsofservice.aspx>
19. **Photo Releases**  
F-35B test aircraft accomplish formation test  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4536](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4536)  
CF-1 hooked to test catapult for the first time  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4539](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4539)  
Third F-35B aircraft completes STOVL mode flight  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4552](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4552)  
Third F-35B test aircraft completes milestone flight  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4558](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4558)  
F-35B prepares for rough seas  
[http://www.navair.navy.mil/press\\_releases/index.cfm?fuseaction=home.view&id=4564](http://www.navair.navy.mil/press_releases/index.cfm?fuseaction=home.view&id=4564)

#- Site is CAC-enabled. Some readers may not be able to access the link.

Content in this publication has been cleared for release.