

Reducing Mishaps—Saving Lives—Improving Readiness

Winter 2004-05

Mech

The Naval Safety Center's Aviation Maintenance Magazine



Do you see anything wrong with this picture?

Mech

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RADM Dick Brooks, Commander, Naval Safety Center
 Col. Alan Lewis, Deputy Commander
 John Mahoney, Head, Communications and Marketing Department
Naval Safety Center (757) 444-3520 (DSN 564)
Dial the following extensions any time during the greeting

You can e-mail any staff member by using their first name.last name@navy.mil, except as noted.

With the recent transfer of Dan Steber to the Shore Safety Department within the Naval Safety Center, Ken Testorff (editor of *Sea & Shore*) and Jack Stewart (editor of *Approach*) will be assuming the role of co-editors for *Mech*. LCdr. Saling is joining the staff of *Mech* as an associate editor. Dan Steber will maintain his association with *Mech* as a contributing editor.

Mech Staff

Ken Testorff and Jack Stewart, Editors	7247
LCdr. Mike Saling, Associate Editor	7220
michael.saling@navy.mil	
Dan Steber, Contributing Editor	7137
Patricia Eaton, Graphic Artist	7254
Virginia Rives, Distribution	7256
Publication FAX	(757) 444-6791

Aircraft Maintenance & Material Division

Cdr. Allen Stephens, Division Head	7265
Capt. Chris Foley, USMC, Assistant Division Head	7223
PRCM(AW) Ted Prince, Maintenance/ALSS Analyst	7288
AVCM(AW) Dave Kennon, Maintenance Analyst	7206
leonard.kennon@navy.mil	

Airframe/Powerplant Branch

CW02 John Kukahiko, Branch Head	7293
ADCS(AW/SW) Gary Dennis, Maintenance Analyst	7292
AMC(AW) Michael Malley, Maintenance Analyst	7287
AMCS(AW/SW) Cheryl Poirier, Maintenance Analyst	7221
AMCS(AW/SW) Mark Davis, Maintenance Analyst	7219
ADC(AW/SW) Gary Eldridge, Maintenance Analyst	7218
AMC(AW) Paul Hofstad, Maintenance Analyst	7224

Support Equipment

ASCS(AW) Phil Lecroy, Maintenance Analyst	7291
lyman.lecroy@navy.mil	

Avionics/ALSS/Analyst Branch

CW04 Donald Borkoski, Branch Head	7278
AMEC(AW) Edgar Cintron, Egress and Environmental Systems	7269
ATCS(AW/SW) Denis Komornik, Maintenance Analyst	7280
AECS(AW) Todd Thompson, Maintenance Analyst	7275

Ordnance

GySgt. Loriento Garner	7140
AOCS(AW) Fred Christian	7142

Analysts

AZCS(AW) Steve Miller, Logs and Records	7244
SSgt. Vanderbilt Jones	7074

Mishaps waste our time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This command's goal is to help make sure that personnel can devote their time and energy to the mission, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is dangerous and demanding enough. The time to learn to do a job right is before combat starts.

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On the Cover:

Flight-deck personnel push back an FA-18B Hornet assigned to the Sunliners of VFA-81 aboard the conventionally powered aircraft carrier USS *John F. Kennedy* (CV-67). Photo by PHAN Tommy Gilligan

Flight-deck safety observers should resist the temptation to lend a helping hand. They are more valuable monitoring the actions of others and staying aware of the surrounding activity to ensure a safe evolution.

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IBC Class C Mishap Summaries

Flight-Deck Awareness Guide Reader Update

By Lt. Chris Hewlett

Danger areas around aircraft must be adhered to at all times. With the growing number of Sikorsky H-60 helicopters in the fleet, many personnel are not fully aware of the particular dangers of working around this airframe on the flight deck.

H-60s (all variants) are essentially the same airframe with a built in three-degree forward tilt in the main rotor system. The warning associated with the rotor system with regards to flight-deck safety, reads as follows:

WARNING: When AFCS computer power is cycled, trim is disengaged and an unguarded cyclic will allow the rotor arc to dip as low as four feet above the deck, prior to full control deflection, without pounding the droop stops.

For this reason, chock and chain runners for all variants of the H-60 (including Army) **SHALL** not enter the rotor arc from the 12 o'clock position relative to the nose of the aircraft. They are required to enter from the 3 and 9 o'clock positions relative to the aircraft.

Lives have already been lost due to personnel being inside the danger area at the 12 o'clock position of a H-60, don't let the next injury or death occur to yourself or a shipmate!

Lt. Hewlett is a pilot at HSL-44 in Mayport, Fla.

If there is a hazard that you think has been overlooked by Mech, please e-mail your concerns to SAFE-Mech@navy.mil.—Ed.

Photo by PH3 David K. Simmons





Admiral's Corner
From Commander, Naval Safety Center



Taking the “O” out of ORM

We have spent the past 10 years working to incorporate Operational Risk Management (ORM) into every aspect of our military lives in an effort to protect and better utilize our nation’s most precious assets—you and the equipment you work on. Our efforts have been rewarded with an overall decline in mishap rates, but we still have a long road ahead of us.

A safety-oriented cultural change of this magnitude takes time, but, as always, a single needless loss of life is one too many. As we continue to work toward our 50-percent mishap-reduction goal this fiscal year, it is time that we not only truly institutionalize ORM at work, but also take ORM off-duty. Risk management must be integrated throughout our entire life—not just in the work place.

Today, the greatest threat to our Sailors and Marines comes not from a terrorist bomb but the decisions they make while off-duty. Aside from war, traffic accidents are the No. 1 killer of enlisted Sailors and Marines, followed closely by suicide and off-duty recreation/home-related mishaps.

Of 1,071 safety-related deaths from FY00-04, 582 (54 percent) were PMV and 149 (14 percent) were off-duty recreation/home-related mishaps. So far in FY05, 26 (60 percent) PMV and 7 (16 percent) off-duty recreation/home-related mishaps have occurred as of Dec. 20, 2004.

A Sailor or Marine’s chain of command must become involved in the off-duty lives of their personnel. An excellent mentoring program designed to involve mid-level enlisted leadership in the lives of their junior enlisted personnel was briefed at the recent flag-level safety council meeting. The 2nd MAW program shows the commitment we all must make to protect our personnel during their off-duty hours. The “Osama” poster on the next page has the link to the 2nd MAW presentation available on the Naval Safety Center website.

Whether we are taking a road trip, enjoying recreational sports, or relaxing with family and friends, we cannot afford to ignore the basic principles of risk management. We routinely should be asking ourselves, and our subordinate personnel, the following questions:

Are you well rested? Or, are you trying to make a long road trip by yourself, after a full day of work and through the night when your body is most likely to fall asleep?

Are you trained properly? Or, are you riding your friend’s motorcycle/ATV without the proper safety equipment and knowledge needed to operate the vehicle safely?

Are you in good shape? Or, are you planning on making the PRT the next time you run 1.5 miles?

The challenge is for all of us to consider the consequences of our actions before we act, ask for help when needed, and make risk management a part of our daily lives and not just our “operational” military life.

During a recent senior enlisted safety conference, hosted by the Naval Safety Center, 28 Navy and Marine Corps leaders discussed ways to mitigate traffic and off-duty recreation/home-related mishaps. In an effort to “get back to the basics” with intrusive and proactive leadership, the following top-priority recommendations were developed:

- Identify high-risk personnel and routinely evaluate their status. Closely monitor their activities and provide specific counseling and guidance. Implement liberty-risk hours as necessary.

- Standardize out-of-bounds travel limitations for all personnel within the command during liberty time. Require leave chits if personnel are traveling beyond liberty limits. Change departure and return times on leave chits to allow personnel to depart at 1200 (vice 1600) and return at 1200 (vice 0730). This will facilitate personnel traveling during daylight hours when they are less likely to fall asleep at the wheel.

- Develop partnership with local police departments to facilitate notification of commands when personnel are ticketed for major traffic violations (speeding, reckless driving, and DUI/DWI), which require their participation in an AAA Driver Improvement Safety Course IAW OPNAVINST 5100.12G.

Whether it’s personal pride in a job well done or simple self-preservation (protecting yourself from harm)—incorporating risk management into our on- and off-duty lives is beneficial to all of us, as well as to our commands. Stay safe!

RADM Dick Brooks

OSAMA SAYS, "THANKS..."



A KILL IS A KILL!"

Do your part in the war on terrorism and protect your fellow Sailor or Marine while off-duty the same way you would want them to cover your back while on the job!

To learn more about how one unit is taking ORM off-duty, check out the 2nd MAW Mentoring Program that is summarized on the Naval Safety Center website at the following link:

<http://www.safetycenter.navy.mil/presentations/osh/safetycouncil/sept04/sourcefile/2ndMAW.ppt>

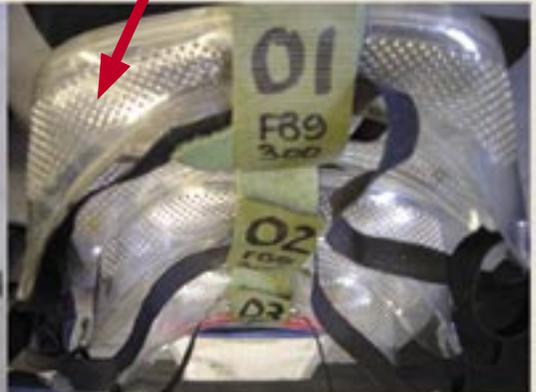
Good

A well-organized and clean toolbox is a great thing to find. Not only are the tools clearly identified, but no FOD can migrate to the line or flight deck.



Bad

This well-organized set of goggles is for fuel sampling.



Unfortunately, the goggles are not splash proof (e.g. non-ventilated). (see arrow)

Ugly

Unwrapping an aircraft tire is a routine job that can become ugly when someone uses a utility knife and cuts through the bubble wrap and into the rubber.



How to Break the Error Chain!

By AVCM(AW) David Kennon

One of the most challenging aspects of leadership in any maintenance department pertains not just to getting the job done and meeting mission requirements, but also ensuring that our most precious resources—our personnel—are performing each and every function safely and by the book, no shortcuts.

An innovative method to help mitigate safety violations by one Marine Corps squadron incorporated the use of a “Safety Violation Logbook” for documenting safety infractions. An example of typical logbook entries follows:

Within this squadron, anyone can document a safety violation, but QA personnel, CDIs, or other staff NCOs find most discrepancies as they walk around the hangar or on the flight line. The offender is required to report to QA and receive counseling regarding his safety violation. Afterward, he signs the logbook, indicating he has received the corrective training.

The logbook allows the command to track those personnel who routinely violate safety regulations and increase the level of training on specific areas of concern throughout the command. This helps to identify

Violator's Name	Shop	Offense #	Date	Safety Violation	Violator's Signature	QA
Price	ORD	1	29Jul04	NC-10 not chocked		LD
Jones	AVI	1	01AUG04	Working on acft w/o maintenance manual		10
Smith	AF	1	01AUG04	Standing on chocks (using as a maint stand)		
Russel	P/L	1	04AUG04	On engine stand without cranial		
Smith	AF	2	18AUG04	Used cruise box as a maint stand		
Price	ORD	2	24AUG04	Climbed into cockpit w/o cranial		
Malley	ORD	1	29AUG04	No wing-walkers while towing acft		
Smith	AF	3	30AUG04	On acft w/o cranial strapped		
Prince	P/L	1	01SEP04	Goggles not down for launch		
Garner	ORD	1	28SEP04	Towing acft too fast		
Brooks	A/F	1	01OCT04	Sending Marines to work on acft w/o ATAF		
Brooks	A/F	2	15OCT04	No safety glasses		

Within three months of implementing this program, QA observed a significant decrease in infractions, from about 17 per month to three per month (an 82 percent decrease).

likely mishap causes early, allowing command personnel to break the error chain before a major mishap occurs. More serious offenses and repeat offenders are addressed directly through disciplinary action as required. The following chart illustrates the corrective actions required for repeat offenders. 

SIGNATURES	CORRECTIVE ACTION
1ST & 2ND	WARNING/TRAINING
3RD	SAFETY CLASS WITHIN INDIVIDUAL'S SHOP
4TH & 5TH	WARNING/MORE TRAINING
6TH	SAFETY CLASS FOR THE MAINTENANCE DEPARTMENT
7TH	PUT ON REPORT (NJP)

AVCM(AW) David Kennon is a maintenance analyst at the Naval Safety Center.

Why Bother?

It Won't Happen to Me

By LCdr. Mike Saling

Shortly after I arrived at the Naval Safety Center, I saw an editorial a teacher had written for the local newspaper. She was commenting about the fallout created when 12th-grade students who had failed Virginia's Standards of Learning (SOL) exam weren't allowed to graduate from high school.

The teacher was rebutting an earlier editorial that tried to hold high-school administrators and teachers accountable for the failures. She suggested that parents and especially students were equally responsible. Teachers and school administrators made tremendous

efforts to provide after-school tutoring, as well as in-school tutoring, in place of elective courses to help those students identified as in danger of not passing their SOL. However, many students apparently refused to attend either option. When questioned, parents indicated they could not make their children attend the tutorials.

That editorial made me think about our efforts here at the Naval Safety Center.

After finishing up a two-year tour as the safety officer on a large-deck amphib, I am intimately familiar with the difficulty in trying to educate naval

Now that I am working at the Naval Safety Center, I have been able to see for myself the tremendous resources that are working for the fleet.



Navy photo by PHAN Jennifer Nichols

Whether it's teaching pipe-patching techniques during damage-control training...



showing how to do CPR...

Navy photo by PHA3 Ramon Preciado

personnel about safety. The proverbial “you can lead a horse to water, but you can’t make him drink” comes to mind.

I have heard the full gamut of excuses for why someone had failed to adhere to safety regulations. Excuses such as “It’s uncomfortable,” “It’s hot,” and “I did not know” quickly come to mind. The blank stare also was all too common. More often than not, the Sailors knew the regulations but chose to ignore them. During those times, I always tried to explain why safety was important in an easy-to-understand, common-sense manner.

Here are a few examples of my reasoning. On the importance of hearing conservation: “I look forward to hearing my 2-year-old daughter Amelia say, ‘I love you, Daddy’ for many years to come.” Hearing protection is a quick and easy way to ensure I won’t miss those important words. On the importance of sight conservation: “I look forward to seeing my daughter grow up, graduate and get married.” Eye protection can be the

difference between getting to enjoy it for myself or having to hear someone else describe it to me—unless, of course, I have lost my hearing, too. Deaf and blind is not the way I want to live my life.

Safety regulations protect shipmates and us from potential injury or death. It obviously is in our personal best interest to follow the rules. Unfortunately, I have encountered many shipmates who believe that adhering to safety practices and conducting safety training is an inconvenient hindrance in their daily lives. That false sense of security is created when personnel “get away with it” and avoid injury. However, statistics have proven that, in time, other personnel will be exposed to the same hazards. The only thing between them and injury will be whether they are following the proper procedures or using the correct personal protective equipment (PPE).

Now that I am working at the Naval Safety Center, I have been able to see for myself the tremendous resources that are working for the fleet. These resources are similar to the teachers and administrators mentioned at the beginning of this article. Like them, many people have gone to great lengths to provide safety information for the fleet to better prepare each of you for potentially the most

Navy photo by PH1 Ario Abrahamson



briefing a dive team before starting dive operations...

important test of your life. What test? Whether you can avoid or survive a serious mishap through the proper application of risk management, safety regulations, and PPE.

I have known some Sailors with an “if it’s my time, then there is nothing I can do” attitude. They ignore safety procedures and don’t encourage safe working habits in the workplace or while off-duty. We

Navy photo by Deris Jeannette



or leading a class in motorcycle-rider training, many people go to great lengths to prepare fleet Sailors to live safely.

never will be able to avoid random chance or plain old bad luck in our daily lives; however, we should be able to achieve a zero mishap rate among those who actually follow the rules. With proper training and enforcement throughout the chain of command, we shouldn’t lose a single Sailor or Marine because he or she decided to drink and drive, failed to fasten his seat belt, didn’t wear PPE, or made any of the other numerous mistakes mentioned as causes in mishap reports.

Ultimately, the individual Sailor or Marine is responsible for following the rules and will suffer the consequences if he or she doesn’t. During a safety survey, the team leader delivered a set of “fatal vision” goggles to my command. This device allows personnel to experience a simulated level of intoxication ranging from a few beers to an all-out binge.

I personally held safety training with several divisions in the command, using these goggles. The Sailors who participated were attentive and seemed to enjoy the change in how the message against drinking and driving was being delivered. Similar to the students who were given every opportunity to succeed, Sailors on my ship had been shown safety videos, had received direct training from their chain of command, and were issued wallet-sized information cards for the command’s Safe Ride program. Specific traffic-safety training had been conducted four times in the previous six months.

Despite all these efforts, a PO3 decided he could make it to the bowling alley with his friends after consuming four to six beers at a barbecue. The short trip to the bowling alley turned into a two-day stint in the city jail; the petty officer was arrested for drinking and driving with a BAC over the legal limit of 0.08. He had participated in the fatal-vision goggles demonstration only three weeks earlier. His court date still was pending when I left the command, and the petty officer was uncertain what his fate would be.

The active-duty military and DoD civilians who work every day at the Naval Safety Center to help protect you from harm are doing everything they can to educate you—the fleet—on the dangers that exist both on and off duty. The fleet includes the parents (the chain of command) and students (the individual Sailors and Marines) who must take responsibility for their own safety and take advantage of the tutorials readily available from the command, Navy schools, and the Naval Safety Center.

We can lead you to the information that may protect you from harm, but we can’t make you learn the material and adopt it as part of your daily life. Just as the horse surely will die of thirst if he refuses to drink the water to which he’s led, you, too, put yourself at risk if you refuse to incorporate safety into all that you do. As for me, I think I’ll have another glass of water. 

Lessons Learned From Aviation Culture Workshops

Analysis by Naval Safety Center—Code 10

In-rate training and GMT are implemented poorly throughout the fleet. Operational commitments often result in maintenance training being conducted as OJT, or simply cancelled completely. This deficiency leads to decreased morale and directly impacts both professional development and enlisted advancements. Squadrons must establish dedicated training time for personnel to maintain task proficiency and competency. —*Training should not be the first thing cancelled when workload conflicts arise.*

Read the following articles in this issue to learn how important training can be when faced with an emergency: “Equipment Failure Can Occur When You Least Expect It!” and “Save The Day! And A Million Bucks...”

Intrusive Leadership—The most respected commanding officers are those who get out of their offices and into the workcenters. The good news is that many commanding officers are doing this; however, many junior officers are not interacting daily with their Sailors. Junior-officer mission and tactical-training requirements have caused them to lose focus on the people that they are leading. Sailors are saying they seldom see members of the wardroom in the workcenters; and commanding officers are shifting the branch and division-officer responsibilities to the CPOs, which further exacerbates the situation. A caste system is being created, which negatively affects the morale of the junior enlisted personnel. Additionally, the information-technology environment has substantially reduced the amount of human interaction at all levels. This environment could be creating a cadre of future leadership that is much less people-oriented. —*Leadership by e-mail never will replace “leadership by example.” Intrusive leadership is nothing more than being personally involved in your Sailors’ daily lives (morning meetings, presence in the workcenter, shift-change turnover, tool inventories, etc.).*

Read the following article to realize the positive impact intrusive leadership has within some fleet commands: “Maintenance ORM—It Works!”

Squadron operating procedures (SOPs) need to be

Navy photo by Matthew J. Thomas



An AT1 teaches a class how to perform a safety check.

documents that the squadrons live by. If the squadron is not following any part of the SOP, the remainder of the document becomes ineffective. Some squadrons are assigned real-world tasking commitments that require SOPs to be violated routinely. This method of doing business creates the perception among aircrew that SOPs only are followed until they “get in the way.” SOPs must be a living document that all members of the squadron adhere to in meeting all mission requirements. —*Are all members of your command familiar with, and adhering to, applicable SOPs?*

Read the following articles for further insight on following the rules all the time: “‘Can Do’ Meets Reality” and “Blown Away by the Effectiveness of PPE.”

Maintenance goals—Squadrons should be careful when tying maintenance goals with “secure time,” because Sailors will be more apt to take shortcuts to meet these goals. Sailors often comment that they are not given adequate time to meet proper maintenance procedures because of operational commitments.

Read the following article to see how Christmas vacation and pre-deployment leave can cause a good maintainer to make a bad mistake: “The Flying Wrench.” ✂

Equipment Failure

Can Occur When You Least Expect It!

By AD2 Jonathan Ujvary

It was the start of the second month of cruise and a typical day at sea. Since this was my second deployment and things were going as scheduled, I thought today would be another routine day. After my normal 0500 wakeup and morning regimen, I went to the morning meeting, checked out my tools, and headed for the flight deck to perform foreign object damage (FOD) checks on the squadron HH-60H helicopter that was scheduled for the morning launch.

I climbed up to the rotor head and began inspecting my area of responsibility. Things were off to a typical start until chaos broke out in the hummer hole. I noticed a big flash of light on the flight deck below. The AE's from the embarked VAW squadron had connected an electrical power cord and an extension cable to the E-2C Hawkeye to perform system checks before the call for starts. As their line division LPO applied power at the bulkhead, the cable junction ignited.

To my surprise, I was the only one who noticed the rapidly growing inferno. The three technicians inside the E-2C aircraft had no idea of the danger occurring outside and around their aircraft. The plane captains were busy preparing the aircraft for the launch. Because of the distance to the switch, the line LPO could not see it, either. I knew I had to act immediately to help my shipmates.

I had seen my flight-deck coordinator on my way to the flight deck, so I knew he was nearby. Luckily, when I looked down, he was standing at the tail of our aircraft. I yelled to him, "Fire ...it's on fire," and I pointed at the cable. I then quickly climbed down from the helicopter. The flight-deck coordinator instructed me to "kill the power" as he quickly ran behind the



island and grabbed a CO₂ bottle. I ran over to the line LPO, who was puzzled by my frantic approach. He still was unaware of the flaming cable. I reached past him and quickly secured the power.

Once the power was secured, the blue dragon was reduced to a simple Class A fire. The flight-deck coordinator extinguished the burning rubber, and I ran back

to notify the technicians inside the aircraft. Everyone exited the aircraft safely, and we reported the incident to flight-deck control. Afterward, we all gathered to inspect the cables and to ponder the cause of the fire.

All applicable precautions had been followed. So, why did this mishap occur? Was it preventable? What went wrong? Equipment failure! The technician properly had inspected both electrical cables before connecting them, but they still were inadequate for the job. The cables were connected properly, and no contaminants were present.

Through training and teamwork, we were able to prevent this small electrical fire from becoming a major flight-deck catastrophe. By acting quickly and decisively, we prevented possible damage to the ship, the loss of an aircraft, and possibly saved the lives of the three shipmates inside.

Equipment failure can occur when you least expect it. Training, teamwork and attention to detail are the tools for success during emergencies. These types of mishaps only are prevented by vigilant performance of periodic maintenance, pre-op inspection, and replacement of defective equipment. ✂

AD2 Jonathan Ujvary was assigned to HS-5 "NIGHTDIPPERS" on detachment aboard USS *George Washington* (CVN-73). Senior Chief Wagner was the flight-deck coordinator and also was a member of HS-5.

Situational awareness should always involve more than just your immediate area of responsibility.—Ed.

Maintenance ORM—It Works!

By CWO3 John Salgado

You've probably heard the expression, "All it takes is one 'idiot' to ruin a perfect maintenance record." Our command recently seemed to have a rash of "idiots." In a three-week period, we almost managed to spread the wings of one aircraft into the port engine of another; one of our line personnel drove off with a hydraulic "jenny," to re-fuel it, while it still was attached to the aircraft, and we damaged a set of flaps while troubleshooting.

Needless to say, the skipper did not have his happy face on when he called the maintenance-department leadership to his office. In a nutshell, the CO wanted us to immediately take a more aggressive approach toward implementing the ORM principles into everything we did as a maintenance department.

Our senior leadership re-wrote our maintenance Standard Operating Procedures (SOP) to include a more aggressive approach to ORM. The maintenance-safety improvements increased maintenance-khaki presence during these major maintenance evolutions and flight-line operations:

- ✓ Any binding or stuck flight-control discrepancy
- ✓ Installing and operating any flight-control surface
- ✓ Rigging flight controls
- ✓ Drop-checks, to include jacking procedures
- ✓ Removing and installing engines
- ✓ Removing and installing propellers
- ✓ Fuel-cell maintenance
- ✓ Wing spread or fold evolution
- ✓ Removing and replacing landing-gear strut
- ✓ Moving or re-spotting aircraft
- ✓ Engine turn-ups
- ✓ Any non-routine task determined necessary by maintenance control

We now assign responsibility for major maintenance evolutions and provide written standardization to follow. We implemented a major maintenance task pre-evolution brief that is reviewed by all personnel involved with the task and given by maintenance-control CPOs. This brief includes a checklist and ORM considerations for each specific task. Every major evo-



lution also is backed-up with a QA safety brief prior to commencing.

To improve flight-line safety, we incorporated a plane-captain checklist for engine turn-ups, aircraft pre-launches, aircraft moves, and brake riding. We also incorporated an aircraft release form (A-sheet) for maintenance-turn personnel to review and sign prior to manning up, to ensure they review the ADB thoroughly and take responsibility for the conduct of the turn.

The change to our safety posture was immediate and significant. I attended several pre-evolution briefs and felt comfortable that everyone knew his job assignment and was properly briefed on all safety precautions. Ignorance breeds "idiots." Getting everyone on the same page by reviewing the tasks being performed, aggressively implementing ORM, and getting leadership involved goes a long way to reduce the number of "idiots" in any given evolution. 

CWO3 John Salgado is the maintenance material-control officer at VAW-124.

Here is a perfect example of the immediate impact intrusive leadership can have within a command. However, the hard part is maintaining this process on a daily basis. Don't let down your guard, and keep up the great work!—Ed.

Save the Day!

And a Million Bucks...

By AM1(AW) David German

On the evening of Sept. 16, 2003, night-check was working a nice and easy normal shift when things took a turn for the worst without any warning. I would learn this evening that developing effective crew coordination and understanding how to use time-critical maintenance risk management can save the day at the least expected moment.

About 9:30 p.m., I was sitting in the quality-assurance office finishing my dinner, when I was startled by the sound of fire alarms going off. I knew a drill wasn't scheduled and decided to take a quick look into the hangar. We share a large hangar with HSL-41 and HSL-45. HSL-41 occupies the left side of the building, and HSL-45 resides in the right side, with us in between. I didn't see anything happening in the hangar that would cause the alarms to go off and figured it must be a false alarm, which we'd had a few times in the past.

A second after that thought crossed my mind, I noticed large amounts of water and foam flowing from the AFFF cannon dispensers in HSL-41's hangar, but, for some reason, it wasn't flowing from ours or HSL-45's, yet.

At that time, we had four aircraft in our hangar. I immediately knew we had to get as many of them out as we could, in case our AFFF dispensers activated as well. Without realizing it at the moment, the wheels of time-critical maintenance risk management had started turning in my head. It was time to identify the hazards, assess the hazards, make a risk decision, and quickly implement control measures to save these aircraft.

I ran out of the hangar and flagged down our move crew that just had finished moving an aircraft from the flight line to the wash rack. When they looked toward the hangar and saw what was going on, everyone hurried toward me. I quickly explained that we needed to get our aircraft out of the hangar as fast and safely as possible.

We hooked BattleCat 27 to the tow tractor and moved it out to the flight line. Then "it" happened. All of a sudden, the AFFF cannon dispensers started shooting foam at a high rate into our side of the hangar. We were able to move one more aircraft before it got soaked, but the AFFF rapidly was filling the hangar, and we couldn't save the other two aircraft. BattleCat 24 and 31 almost were completely broken down for phase inspections. Both aircraft had

the majority of their panels uninstalled and had their doors removed. The AFFF guns were pointed directly at the two aircraft and completely filled one of them.

With AFFF flooding the cabin, cockpit and covering all the avionics. I decided that we needed to move the last two aircraft out of the hangar, take them to the wash rack, and begin the emergency reclamation (EREC) process. I then gathered everyone for a meeting to explain exactly what we needed to do next.

We moved everything out of the hangar, inventoried the EREC kits, assigned a plane captain to each aircraft, appointed team leaders and recorders, and began the long night's work. The aircraft were washed, and the priority removal list was followed exactly. Parts were removed, bagged and tagged, and turned into AIMD. Everyone worked as a team. Every person involved in this phenomenal effort demonstrated an outstanding coordinated response to an emergency situation. We saved the U.S. Navy millions of dollars in repair and replacement costs.

This incident was a perfect example of the positive impact that effective maintenance crew coordination, developed through training and drills, and the application of time-critical maintenance risk management can have in an emergency situation. I couldn't have been prouder of my fellow BattleCats and their unbelievable efforts. 

AM1(AW) David German was assigned to HSL 43, NAS North Island, Calif., at the time of this incident.



AFFF may be great at extinguishing a fire, but it is not friendly to exposed aircraft and equipment.

Are you prepared for the unexpected? Now is the time to discuss nightmare scenarios and develop a plan of action. Remember, once you have a plan, ensure that everyone knows the details.—Ed.

“Can Do” Meets Reality



We all look for the “can do” spirit, but it must be tempered with common sense and solid ORM practices.

By ABCM(AW/SW) Wynn Young

This story is about getting the job done, despite the risks. It’s a warning that a mishap is around the corner; it’s just a matter of when it will happen, not if it will happen. This story is about senior leadership assuming that things normally unacceptable have become acceptable in the effort to complete the mission. We all look for the “can do” spirit, but it must be tempered with common sense and solid ORM practices.

This story or something very similar is happening today as I write this. It happened yesterday, and it will happen tomorrow. When will we recognize that we can do better?

It’s a cool morning, around 0145, on an amphibious assault ship (AAS) conducting flight operations off the coast of Kuwait in support of Operation Iraqi Freedom. The ship is darkened to conduct night-vision-goggle (NVG) flight operations, and the first launch

will commence shortly. The SAR helicopter already is turning. Engine starts are underway for the first wave, and everything looks normal. The sight of the whole flight-deck team working together is awe-inspiring.

As a flight-deck supervisor with numerous years of experience, I just have overlooked a serious safety hazard. I will yell at you if you have your sleeves rolled up or your float coat isn’t fastened properly, but I have neglected to ask questions when I knew that something was not right. I accepted the risk and allowed flight-deck personnel to operate without all of their personal protective equipment (PPE). We have got to make this launch because all the aircraft are going to support our Marines in Iraq.

Do you know what I am talking about? The LSE has his NVGs on and his flight-deck safety goggles off. When was the last time you participated in NVG operations? Have you ever noticed that the ballistic flight-deck goggles do not fit with the NVGs in place? Did you notice the vision problems you get from trying to wear the approved flight-deck goggles with your NVGs?



mounting platform for the goggles and is mighty uncomfortable for the person wearing it. The fleet is using multiple configurations. Some are better than others, but there is no standard.

How can we correct the unsafe condition we now face? First, we must recognize that we will continue to operate in a dangerous environment that becomes more dangerous when the mission requires strict light discipline. More importantly, supervisors need to readdress what risks we are willing to take with our personnel. It is important to wear some form of eye protection while operating in the NVG environment. We need to obtain and distribute a standard piece of equipment to avert disaster.

These problems can contribute to a number of unsafe conditions, ranging from flight-deck personnel using safety glasses or parachute goggles, to the even more dangerous practice of not wearing safety goggles at all under the NVGs. This practice can create an eye hazard, as well as a FOD hazard (from the unsecured safety glasses).

Compounding this problem is a flight-deck cranial helmet (HGU-24/P) that wasn't designed to accommodate a pair of AN/AVS-6 night-vision goggles or the battery pack. The cranial does not provide a stable

In the short term, help is on the way. The Navy Protective Clothing Board has looked at a goggle used by special forces personnel to bridge the gap, but it still needs testing. Discussions with the Surface Warfare Night-Vision Electro-Optics Program Office (SWNVEO) have increased awareness of the need for a better cranial configuration with regards to NVG mounting.

The long-term solution should include development of a new flight-deck cranial helmet. Aircrew helmets are designed as a system. Using the aircrew system as a model, the flight-deck crew's helmets should be ergonomically correct, NVG compatible, and provide proper sight, hearing, and impact protection. Comfort should be a major goal, considering the amount of time a cranial is worn.

So where does that leave us now? We have to make our decisions and carry out our assigned mission. Do what is right for your Sailors. Make "can do" meet reality. 

ABCM(AW/SW) Wynn Young was stationed aboard USS *Bonhomme Richard* (LHD-6), January 2002-August 2003, as the air department LCPO.

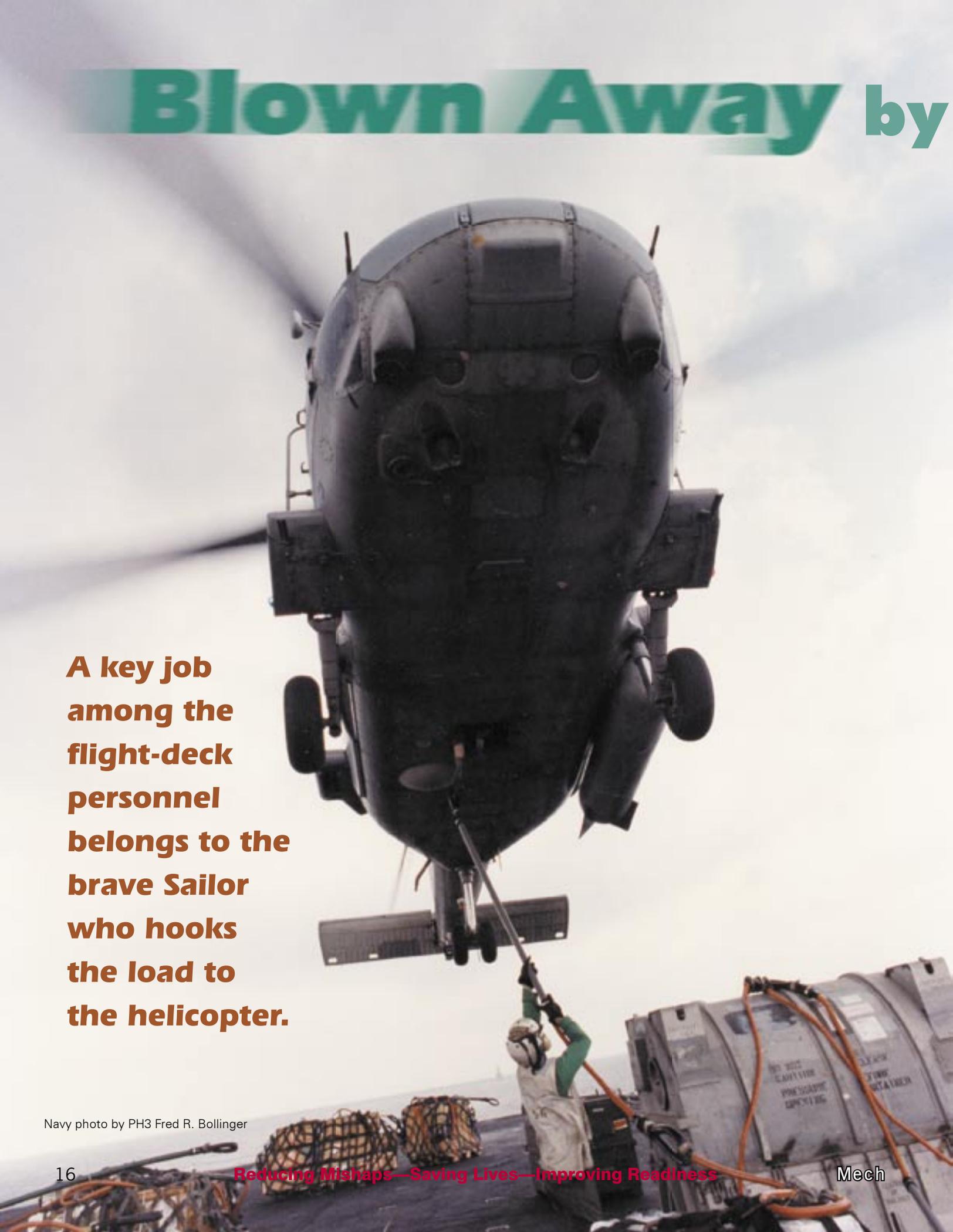
Hazard Reports are the best tools for identifying safety discrepancies in the fleet. Don't let a mishap report be the way attention is drawn to a known area of concern.—Ed.



Blown Away by

A key job among the flight-deck personnel belongs to the brave Sailor who hooks the load to the helicopter.

Navy photo by PH3 Fred R. Bollinger



the Effectiveness of PPE

By Lt. C. Pearson

We all have heard it a million times. “Wear your PPE; it will save your life.” We hear it so much that we tune it out.

In general, flight-deck PPE consists of an appropriate cranial impact helmet, steel-toed flight-deck safety boots, sound suppressors, safety goggles, long-sleeve jerseys/shirts, and a saltwater-activated float coat. Dragging PPE out onto the flight line, or donning a tight, hot cranial may seem like a waste of time to some, but it isn’t. Just ask our hook-up man.

It all started on a fine Navy day when our MH-60S Knight Hawk was performing a run-of-the-mill vertical-replenishment mission to a carrier. The aircraft were settled into their standard coordinated dance of one aircraft picking up a load, while the second aircraft delivered one. With our replenishment ship and the carrier steaming side-by-side, this pattern meant less than 30 seconds between picks. Proper coordination throughout this evolution is pivotal in keeping an efficient flow of goods from the supply ship to the customer.

One of the main factors in this helicopter orchestra is the smooth movement of all the flight-deck personnel. A key job among the flight-deck personnel belongs to the brave Sailor who hooks the load to the helicopter. This Sailor is called the “hook-up man.”

His fast-moving, dangerous duty requires him to move to the load; grab the pendant with its 6-foot, plastic, reach tube; and hold the pole steady while the helicopter flies the hook to the eyelet at its end. He’s looking up at an approximately 20,000-pound helicopter that is creating 70-plus knots of downdraft right in his face. This downdraft easily can blow a Sailor off his feet. Clearly, this environment is one in which flight-deck protection is required.

This evolution was going as well as any other. Routine can breed complacency, even in the high-tempo and hazardous job of vertical replenishment. This time, one of the two helicopters was sliding in to pick up a non-standard load. It was relatively light by aircraft standards; however, at 500-pounds, it was

heavy by human standards. This load was an awkwardly crated FA-18 Hornet flap. The crate measured about 12 to 14 feet long, stood 7 to 8 feet high, and was about 4 feet wide. These dimensions created a lot of sail area that, as we found, caused a tipping hazard when hit by the downdraft of the helicopter.

To make a long story short, when the helo came in for the pick, the load instantly tipped over on top of the hook-up man. When the pilot saw what had happened, he waved off and asked where the hook-up man had gone. The response from the aircrewman was, “Sir, he is under the load!” The entire crew of the helicopter thought they had caused a fatality on the flight deck.

The flight-deck crew quickly removed the load from the pinned Sailor, and he limped away. The hook-up man was bruised and had a few pulled muscles, but he returned to work the next day with the standard Navy prescription: “Take it easy for a couple days; here’s some Motrin....”

It turns out that the only thing that saved his legs was the steel toes of his flight-deck boots which created a fulcrum on which the crate rotated, thereby preventing it from flattening our 125-pound airman’s legs, pelvis and chest. You should be, as we are, convinced that his correctly worn PPE saved him from serious, permanent injury.

We understand some gear can be uncomfortable to wear. We know people modify it to provide a better fit, but these actions degrade the intended degree of protection. When this incident happened, we were operating in the Pacific at the equator, where PPE sometimes is uncomfortable anyway. In the hook-up man’s mind, though, the few hours of mild discomfort was nothing, compared to the possibility of having an injury that could last a lifetime. PPE works! 

Lt. C. Pearson wrote this article while deployed with HC-5 Det 4 aboard the USNS *Niagara Falls* (T-AFS-3).

You never know when PPE will save your life. Remember, if you are not wearing steel-toed boots—you should not be working on the flight deck!—Ed.

THE FLYING

By AD2(AW) Nicholas Onofrio

On the afternoon shift, Christmas Eve 2003, I was assigned to troubleshoot a P-3C Orion that just had returned from a flight with a discrepancy of the engine-driven compressor (EDC) on the No. 2 engine. I determined that a sheared shaft was the culprit.

As the shift supervisor/collateral-duty inspector, I assigned two technicians to fix the shaft. I inventoried the toolbox for my crew and logged it out in the tool log in accordance with the NAMP, then sent the technicians to work. I checked on them periodically during the afternoon, but, by 1600, the job still was not completed. All I could think about was “secure time.” I really wanted to go home to my family and enjoy the holiday weekend.

I approached my maintenance chief and proposed that a worker and I would come in early the following Monday morning to complete the job. Monday also was the day I would be checking out on pre-deployment leave. I couldn’t wait for Monday! The maintenance chief reluctantly agreed with my request since the aircraft was not scheduled to fly until early Monday afternoon.

At 0600 Monday morning, my technician continued where he left off

the previous Thursday. I inventoried the toolbox and logged it out in the tool log as before. Together, we went to the aircraft, and I inventoried the box one more time before starting the task. My technician finished the maintenance, and I inspected his work. Satisfied with the results, I then re-inventoried and locked the toolbox.

Returning to the shop with leave on my mind, I made a regrettable decision: I did not sign in my toolbox, and I kept the key in my pocket. I figured no one else would need the toolbox, and I could use it on another task.

The aircraft we had repaired required an engine ground turn, and it was decided that the scheduled flight crew would perform the operational check before takeoff (which we sometimes are authorized to do when the command is at 50/50 holiday manning). The aircraft was turned, and the maintenance was signed off. The P-3 then was released as safe-for-flight.

A few hours later, I had to do a maintenance task on a different aircraft. I still had the toolbox key in my pocket, and no one else had used it. I decided to take the same toolbox out with me to perform the maintenance, but I did not complete the tool inventory or



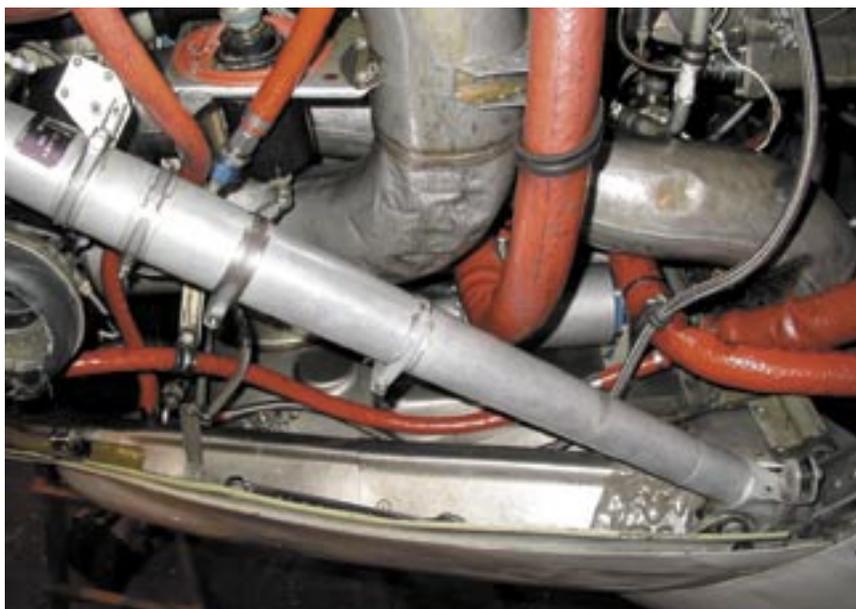
WRENCH

annotate the tools log. After all, the key had been in my pocket, and I knew no one else had used the toolbox.

Upon completing my assigned task, I inventoried the toolbox and noticed a wrench missing. Oh the butterflies... I immediately knew where it was, and my heart sank. The wrench still was lying in the belly pan of the aircraft that had been released earlier.

I ran to maintenance control to inform them of the situation. The aircraft was recalled from its mission, and, upon landing, a member of QA and I recovered the wrench from the No. 2 engine. The wrench was right where I had left it. Operating an aircraft with this tool in the engine could have caused loss of life or aircraft, effectively snapping our squadron's unparalleled Class-A mishap-free flight-hour record.

The bottom line is, I was complacent—nearly negligent. The situation would not have arisen if I had followed proper tool-control procedures. All maintenance-department personnel can learn from my experience and mistakes. To ensure my “head was in



The wrench was right where I had left it.

the game,” my qualification was suspended for two months, and I was tasked to conduct a GMT tool-control lecture. This lesson won't soon be forgotten.

Tool control is serious business and should not be taken lightly. No matter what your experience level or qualifications, failure to abide by the published procedures significantly raises the level of risk and can have disastrous results. There were many rules in place that I elected not to follow. My command and that aircrew were lucky to get away unscathed. 

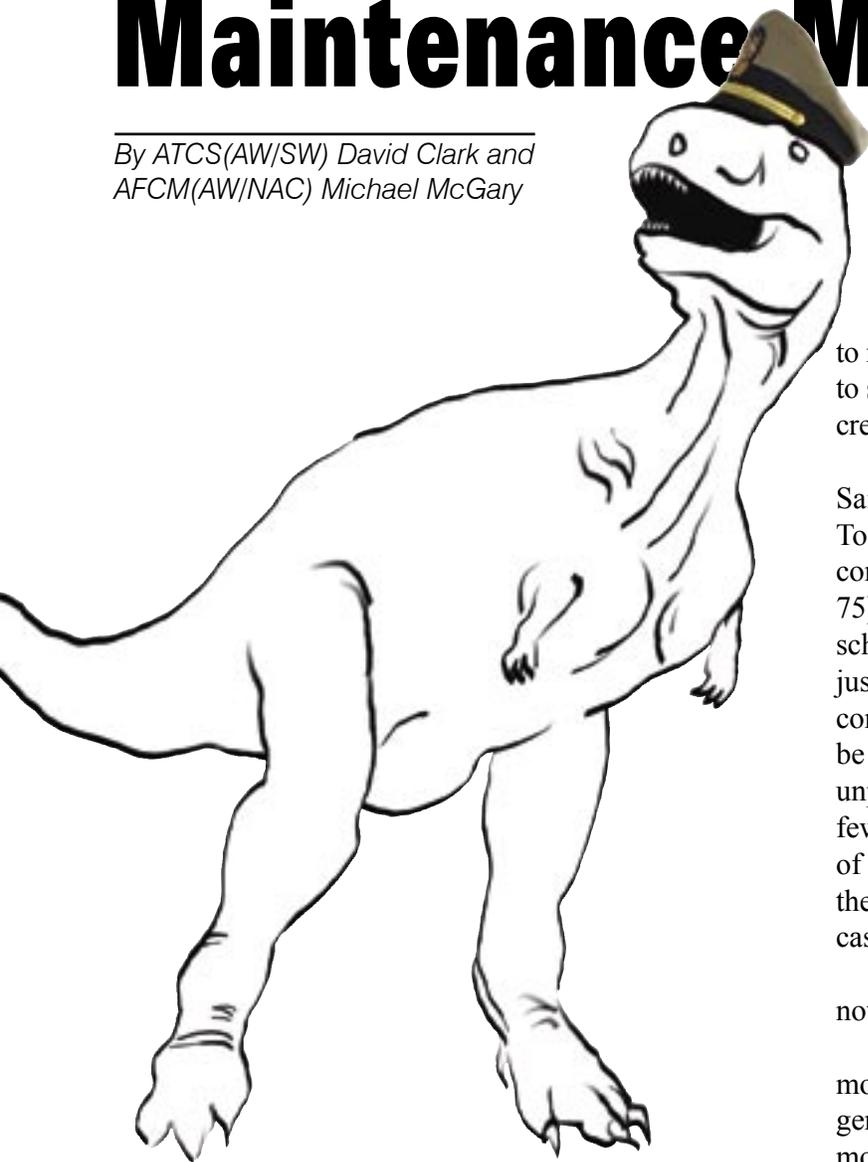
AD2(AW) Nicholas Onofrio was assigned to VP-26 at the time of this incident.

Following all the rules may seem time consuming for routine tasks, but all the work entailed in dealing with the results of a preventable mishap is truly a waste of time and resources! Fortunately, this individual displayed courage by quickly reporting his mistake, which helped to reduce the risk to the flight crew. A valuable lesson was learned in this incident without having to pay a high price. —Ed.



Maintenance Minutes: **Dinosaur**

By ATCS(AW/SW) David Clark and
AFCM(AW/NAC) Michael McGary



Ok, we will admit it. We are dinosaurs. We have done it the same way for so many years that it works for us and has become part of who we are in the Navy. One statement holds true for most Sailors: We are reluctant to change. So, when the new Fleet Response or Readiness Plan was introduced, we were, to say the least, a bit reluctant to take it on board. Its high-tempo pace is an aggressive and energetic collaboration to prepare the strike group for any contingency operation or fleet requirement. These dinosaur bones shook with both fear of the unknown and concern that the normal or routine business structure was being shattered.

One of our biggest concerns was the immediate ramping up right out of the yards. We didn't have an opportunity to learn to walk before we were being asked

to run. And after being asked to run, we were expected to sprint. This pace was extremely fast in training a new crew, so safety was foremost on our minds.

Why the big push to change it all and possibly put Sailors at risk of injury or create a mishap on board? To paraphrase RDML Michael Groothusen, former commanding officer of USS *Harry S. Truman* (CVN-75), "...terrorists love predictability, and those past schedules of the battle group and carrier fleet provided just that. They knew when we were going to the yards, coming out for sea trials, and when we were going to be on cruise. The war on terror has to be a new and unpredictable plan." The events on 9-11 taught us a few lessons in sitting flat-footed and the slow response of getting a carrier to a vital spot on the other side of the world, let alone just up the East Coast, as was the case on that fateful day.

Being predictable and doing it the same way was not going to work anymore.

Gone were the days of TSTA I and II and the months of advanced phase and refresher training, with general-quarters drills until we couldn't take it any more. Gone were the rigid schedules of when ships would be in port or out to sea. Some of the schedule appeared to have been made up along the way. This off-the-cuff or secretive schedule planning was grating on these dinosaur nerves. The greatest concern came from doing exercises and drills only once or twice.

Our safety and comfort factor again was being disrupted and shaken. How can we justify doing an evolution or exercise only once, twice or three times? Is that sufficient practice for junior Sailors to ensure they safely and adequately can perform the tasks during real-world situations such as general-quarters or flight-deck operations?

The answer is yes. But, we had to step back and analyze our methods of training and problem drill sets and get away from the repetitive format of old. We had to make the training realistic and incorporate all facets

urs, Fleet Readiness, And You

of real-world scenarios; we had to make them outlandish and far-reaching. We had to lean out the ship's schedule to incorporate as much training and practice as possible during underway and in-port periods. Why? Because the new threat does not play by the old rules; they don't have rules.

While reluctant to change, we are becoming believers that change can be good. With the world changing, we have to change our ways or be left behind. We will be the first to admit that our initial fears were unfounded. We had to learn to think outside of our comfort box and come up with innovative ways to succeed. With that change has come a greater need to use every tool in our leadership toolbox: Operational Risk Management (ORM), Ground-Crew Coordination (GCC), the milestones program, and all safety-related instructions and directives.

The unknowns of the new operational commitments were many, and ORM assisted us in minimizing or eliminating the hazards. ORM was incorporated into the day-to-day planning and execution of virtually every evolution. Planning meetings and brainstorming sessions by all parties in the chain of command produced the best results. All parties knew the risks and chances of failure at every stage of an evolution. Using maximum communication, we eliminated the "I wasn't aware" factor. Program managers, supervisors, CDIs, QARs and CPOs were a dominant necessity throughout.

The ship's chief engineer instituted a work-coordination package so all departments could provide inputs that impact the ship's operation or another department's evolution. The package was built to prevent overlapping operations from affecting or delaying another. These evolutions include on-loads, test-bench and equipment installs, power-distribution inspections, technical-representative training and qualification programs, reactor testing, food-and-perishable on-loads, test-cell operations, and even our full safety survey by

the Naval Safety Center. That program, along with the others mentioned, is still in place and being utilized. It's a change that works.

Terrorists don't like it when we know more than they do and are prepared for anything.

How did we fare? During the yard period, initial work-ups, and Summer Pulse 2004 exercise, we had 489 mishaps or injuries, compared to 541 mishaps, or about a 10 percent decrease in overall mishaps since the previous work-up cycle. Although the FRP at-sea time is shorter, the pace definitely is faster, making us prone to a safety-related incident.

So, why, were we safer during the new FRP? We believe our increased awareness and implementation of guiding ORM principles and other tools made the difference. Our focus is on safety and making the ship and its crew battle-ready. We know we may go into a hostile situation, but all the advance homework and preparation is going to make it a smooth and safer situation. We are ready, trained and prepared to do what is necessary.

The FRP schedule doesn't allow for looking in the rearview mirror—only peering into, and preparing for, the unknown future. With cruise just around the corner, the ship and crew are ready and are better prepared than under the old, redundant training and work-up cycle. The use of ORM, GCC, milestones program, and good leadership has gotten us here. The dinosaurs are convinced! Be safe! 

AFCM McGary is the maintenance master chief of AIMD, USS *Harry S. Truman* (CVN-75), and ATCS Clark is the production-control LCPO of AIMD, USS *Harry S. Truman* (CVN-75).

Simply put, the Navy is currently undergoing a "paradigm shift," and you no longer can rely upon "the way we have always done it" to get the job done. New threats and a new focus requires everyone to be flexible and willing to adapt, but, without visible leadership support of new policies and procedures, we will not achieve our goals.—Ed.

One AME's Brush With a Hose

By AMEAN Alejandro Amezcua

It was a cold, hazy morning on the line at NAF El Centro, Calif. AMEAN Augustin Garcia was troubleshooting aircraft 574 on the Viking transient line, while on detachment from Whidbey Island, Wash. He was tired because it was 7 a.m., and he had gotten only three hours' sleep. That feeling should have served as a warning, but it didn't.

Airman Garcia went about his usual troubleshooter tasks, and things were going smoothly. He seemed OK, although the drone and roar of the Prowler's twin Pratt & Whitney J52-P408 engines reverberated through his Mickey-Mouse ears. Another shipmate, AME3 Greg Segura, was working on the starboard side. AMEAN Garcia went through the motions that we all have gone through hundreds of times.

The day was starting off well, until we started to pull the strut pins for the main landing gear. Petty Officer Segura handed the starboard-side pin to Airman Garcia, who was pulling the nose pin. Suddenly, we heard a thunderous "Boom!" A concussive blast followed that horrible sound, and it momentarily left the airman paralyzed. Standing there frozen, he caught a glimpse of something moving rapidly toward him. It was moving too fast for him to react. The object struck him twice in the face, a few times in the chest, and once in the left knee.

After hitting the deck hard, he was stunned, and everything went dark for a moment. He came around but felt dizzy; however, he was able to see shipmates staring at him. They thought he had been injured seriously or killed. The huffer hose from an NCPP-105 had separated from the locking collar, causing a wild-hose situation. When the hose hit him in the face, his goggles took the full brunt of the collision, splitting straight down the middle.



The lens looks bad, but it protected a Sailor's face.

"I was lucky to have been wearing them... because if I hadn't, my face probably would look like a smashed soda can just waiting to be recycled," said Airman Garcia after the incident. "I am here and able to talk with you because I wore the proper PPE in a highly hazardous environment and at the right time. The goggles saved my good looks and possibly even my life."

This experience left AMEAN Garcia with a black eye and a three-day headache, but things could have been a lot worse. It's not every day that a huffer causes such a problem, and it could have been avoided. We should have taken proper steps to make sure the hose was in serviceable condition.

Everyone in the squadron learned that we always should wear our protective equipment and do so the right way. We also must make sure that support equipment is in good condition and that we operate it safely. This day is one that Airman Garcia and I will remember forever. 

AMEAN Amezcua wrote this story while assigned to VAQ-129 on a detachment to NAF El Centro.

Making Intake Covers Safer and Better

By AN Timothy Hill

My squadron just learned about a mishap that occurred when an intake cover was ingested into the intake of an E-2C. Although poor judgment and carelessness caused this mishap, the Bluetail family began to think of ways to prevent such a mishap from occurring to our Hawkeyes.

During the day, the intake covers are hard to miss. The bright red covers stand out. At night, however, yellow lights flood the flight deck, and colors tend to run together, making it difficult to see the difference between a plugged or open intake.

To remedy this situation, we applied red reflective tape over the entire front of the cover, being careful not to cover the handle or IMRL tag. We then added four white strips of reflective tape in several places: one-half-inch wide in its center and around the handle, forming a square. This pattern varies the color and increases the cover's visibility; it now is easy to tell when it is installed in an intake.

The reflective tape is cheap and doesn't compare with the cost of a Class C or worse mishap. It took us only one hour on a no-fly day, compared to a two- or three-day job to repair or replace an engine.

During the day, the visibility also is good because the sun glistens off the reflective tape. At night, the yellow lights around the island provide enough light to reflect off the cover, making it easy to tell whether it's installed.

The taped cover does not relieve a maintainer or aircrew of their responsibility to do a good preflight or walkaround, but it makes that job easier. Although this

modified product doesn't reduce the need for training, it does make the process safer and will help to reduce the chance of a mishap. After all, we are charged with finding ways to lower our mishap rates. This idea might help.

Airman Hill works in the line division at VAW-121.

Great idea! I do have questions about the FOD hazard from chipped or peeled tape, and I also know a modification to aircraft or support equipment must be forwarded through the chain of command (one mod is allowed without prior approval). I'm sure you've taken that step, but, if not, please submit your idea because it seems to apply to all aircraft. Your TYCOM or NAVAIR might like the suggestion, could approve the design for the entire fleet, or might offer changes to reduce the FOD aspects.—Ed.



Use the right fluid, in the right aircraft, at the right time!

All six engines and all six IDGs (integrated drive generators) were contaminated.

By ATC(AW) Charles Moore

The excitement of the holidays had faded, and the “Lone Star Express” maintainers of VR-59 had settled back into their normal routine. The past year had been a challenging one for the first squadron to fly the new C-40A Clipper, which was replacing the aging C-9B Skytrain II. I believe we settled too much into that routine.

Even though we had pioneered the transition to a new aircraft, we still completed 24 overseas detachments and hundreds of CONUS and OCONUS airlifts, accumulating more than 5,400 mishap-free flight hours, while hauling 16,288 passengers and 1,830,436 pounds of cargo. To place the crown on this year of model performance, the squadron received the James M. Holcombe Award for maintenance excellence and the Congressman Bill Chappell Award for operational excellence. These awards didn’t keep us from making a serious mistake.

It now was a new year, and 2003 was history. Addressing the night shift at our maintenance-control meeting on a Monday afternoon, I broke the news

of our busy evening. One aircraft was in for phased maintenance, and the other two were scheduled for syllabus-training flights for the squadron’s pilots. In addition, we had a few minor gripes to be worked on after those flights. I was reciting the recovery and launch times, along with fuel loads, to our line division LPO, when one of our young and motivated PCs, AMAN Nathan Farley, sheepishly approached him and whispered something in his ear. Being a maintenance chief, I hate secrets, so I asked what was so important that it couldn’t wait. After a little prodding, I was told a PON-6, oil-servicing unit, which is used to service each of our six-million-dollar CFM-56 turbofan engines, had something in it other than Mobil Jet II, synthetic motor oil. During his preflight inspection, Airman Farley had noticed the fluid was red, instead of the usual orange tint he was used to seeing.

This new development quickly changed the atmosphere in my maintenance department. An aggressive query quickly began to find the source of the bright red MIL-H-83282 hydraulic fluid that mysteriously

ixed Up

had been used to service the PON-6. We urgently were trying to find the person responsible for this mix-up to see if any aircraft had been serviced, rather than to issue a good, old-fashioned neck choking. The bright red hydraulic fluid could be eating away at the butyl rubber seals on our engines.

Time accelerated as our next launch time approached. The next flight was cancelled because we still had no level of certainty on when the mix-up had occurred or if the wrong fluid had been used. All of our evening flights soon were cancelled, and all three squadron aircraft were now in a down status.

Our only safe course of action was to do corrective maintenance under the worst-case scenario: All six engines and all six IDGs were contaminated.

The maintenance procedures for fluid contamination required us to drain completely all the IDGs and engine-oil tanks, change the filters, and turn the engines for 30 minutes. We then had to repeat the entire process, check the metallic chip indicators, do a leak check, and safety wire everything, again.

We spent 107.4 man-hours doing these tasks and canceled four flights. It took two 55-gallon drums to hold the hazardous waste generated, and the supply system has 12 fewer engine-filter kits, 12 fewer IDG-filter kits, and two fewer barrels of Mobil Jet II to support global-airlift operations.

Days passed slowly, and the source of the hydraulic fluid remained a mystery. The hazmat manager analyzed his program to remove any ambiguity about hazmat storage, identification and issue practices. Maintainers were called to a meeting to brainstorm measures to prevent recurrence. AMAN Farley was recognized as the “Lone Star Safety Pro” for his conscientious preflight that discovered the mix-up and for doing the right thing by notifying maintenance control ASAP.

The person who actually had serviced the PON-6 with hydraulic fluid finally was identified four days after the discovery. One of our selected reservists,

when contacted by phone, readily took responsibility for the problem. He was not aware he had used the wrong fluid. When he went to the hazmat locker to refill the PON-6, the barrel was empty. Right behind it was another can, which was tapped and ready to go. Unfortunately, that barrel contained the MIL-H-83282 hydraulic fluid. The barrels were different colors, but they were in the same locker. He was an experienced PC, who had serviced this unit and many aircraft in the past.

Nailing down the time when the mix-up occurred allowed us to solve the puzzle. We determined only one aircraft had been serviced with the wrong fluid. Luckily, it was the aircraft in for phased maintenance, and those engines had not been run with the hydraulic fluid. Had we not caught this problem, we might have had an engine that could have failed over water, faced premature engine overhaul, or experienced an in-flight fire. I shudder to think how bad it could have been.

Our hazardous materials now are marked conspicuously, and only qualified line-division people are allowed to service our SE. Of course, we found it’s easy for experienced personnel to become complacent doing repetitive and simple maintenance tasks. It’s hard to examine your own actions to prevent errors, but we must try. Our aircraft, maintainers and passengers depend on it. 

Chief Moore is a maintenance-control CPO at VR-59. The “Lone Star Express” operates from NAS JRB Fort Worth, Texas.

I continue to be amazed at the number of mixed up, oil- and hydraulic-servicing incidents. Read “PON-6 Confusion” in the fall 2003 issue, “Hydraulic Fluid Runs Red” in the winter 2001 issue, and “How Not to Service an Engine” in the Jul-Sep 2001 issue, for a few examples of similar cases. The winter 2001 issue was named, “When Mechs Cause Mishaps.” It included the crash of a helo because the wrong fluid was used. If leaders don’t review procedures, insist on accuracy, and supervise, this problem will happen again, and the outcome could be catastrophic.—Ed.

Sailors and Marines reducing mishaps

BRAVGO Zulu



Send BZs to: SAFE-Mech@navy.mil



Airman Brandon Howard
HS-3

While assigned as the plane captain for Troubleshooter 610 and during the pilots' preflight, Airman Howard noticed the oil level on the No. 2 engine had decreased significantly since he had serviced it an hour earlier. He immediately told the pilots and maintenance control about the problem.

A closer inspection showed the carbon seal was damaged, causing oil to leak into the "A" sump. The pilots hadn't noticed the problem and would not have without Airman Howard's assistance. They could have launched with a degraded and damaged engine, which could have malfunctioned in flight.

AD3 James Henneman
USS Vella Gulf (CG-72)

After engine shutdown, following a routine flight, Petty Officer Henneman discovered an excessive amount of grease on the inside of the No. 5 tail-drive-shaft cowling. After further investigation, he found the disconnect seal was broken. If left undiscovered, the disconnect jaw and tail-rotor drive could have failed in flight.



AM3(NAC) Bradley Johnson
HM-15

While doing a daily inspection on an MH-53E, Petty Officer Johnson discovered severe scoring on the drive shaft for the accessory gearbox from an improperly routed hydraulic line. He immediately notified maintenance control and QA to investigate the damage.

Petty Officer Johnson's sudden find enabled the aircraft to be inspected and returned to the flight schedule in time to meet the next day's event. It also prevented the catastrophic failure of the shaft.





AM3(AW) Steven W. Pamplin
HS-3

On New Year's Eve, Petty Officer Pamplin was assigned as the plane captain for an SH-60F undergoing an FCF after sustaining damage to its trim tabs. After an unsuccessful afternoon of performing track and balance evolutions, the aircraft was shut down for the day, and Petty Officer Pamplin was assigned to complete the daily and turnaround inspections.

Demonstrating exceptional attention to detail, he discovered and reported that the lower centering sockets were loose on two blade spindles. This discrepancy was discovered, despite the fact that the lower centering sockets are not an inspection item for the maintenance being performed.

His discovery enabled the aircraft to receive critical maintenance and minimized delay to the FCF. His efforts helped prevent potentially catastrophic damage to the main rotor-head spindle and the loss of aircraft and crew.

AMC(AW) Charles Riese
VAQ-139

Chief Riese was the flight-deck coordinator during Operation Northern Edge in the Gulf of Alaska. He was making sure everything was set to launch Warcat 503. As the Prowler taxied forward to the waist catapults, a Hornet in the landing area swung its exhaust toward a group of flight-deck workers, blowing down several people.

Chief Riese saw a blueshirt swept off his feet. The Sailor was rolling uncontrollably toward the turning Prowler. The chief immediately dove onto the airman, pinning him to the flight deck less than five feet from the aircraft's intake.



AA Andrei Nijnic
VAQ-134

While deployed with the 'Garudas' of VAQ-134 at Bagram Air Base, Afghanistan, Airman Apprentice Nijnic was doing his preflight inspection on aircraft 541. He was preparing the Prowler for a critical mission in support of Operation Enduring Freedom. Always thorough, he discovered a crack on the port side of the aircraft in the uplock hook for the main landing gear. This component is not examined routinely during daily and turnaround inspections.

Recognizing the hazard, he immediately advised the aircrew to man the spare, averting a likely airborne, landing-gear emergency. His attention to detail ensured the safety of the aircrew and support for ground forces.





AE2 Jimmy Schmidt
VFA-86

Petty Officer Schmidt discovered a broken bracket and chafed hydraulic line while troubleshooting a separate strobe-light discrepancy. After removing the strobe light's power supply, he thoroughly inspected the access area, finding the bad bracket. It was in an area that easily could have been overlooked, causing a catastrophic failure.



AD2 Faulkner
VP-8

While installing an engine fuel control, Petty Officer Faulkner noticed that an engine mount was not connected to the engine nacelle. He took it upon himself to investigate the problem further and even got QA involved. They found that the engine mount was, in fact, not connected and needed repair.

On Sept. 22, 2003, VP-8 celebrated 25 years and more than 157,000 hours of mishap-free flying (last class "A" mishap was in Poland Spring, Maine in 1978). The cause of that mishap was a defective engine mount. Twenty-five years later, when faced with a similar situation, AD2 Faulkner's attention to detail may have saved a repeat of the Poland Spring incident.

AM1 Eddie Walker
VFA-37

During the morning FOD walkdown, Petty Officer Walker noticed the main-landing-gear assembly on aircraft 303 didn't look right. Being curious, he took a closer look and found the top of a bolt had sheared off from one of the Hornet's planing links.

The remainder of the bolt might have stayed in place long enough for the next pilot to get airborne without any clue of failure. However, the landing would have ended with a loss of directional control and possible loss of the aircraft.



AO2 Christina Hosler
VR-52

Petty Officer Hosler is a transport safety specialist (TSS) with VR-52, and she was doing a routine preflight inspection of the tail-cone area of aircraft 160049. She discovered the port side's lower support pin for the diverter flapper on the ram-air duct had fallen out and was lying on the deck of the tail cone. Although this item was not on her checklist, she did an immediate FOD search, finding all the hardware and eliminating a potential hazard.

**AMC(AW/SW) Curtis Marcantel,
AMC(AW/SW) Laura McCammon,
and AM1(AW) Richard Bunton
VAW-121**

These three Bluetails saved a shipmate's life during a night launch of Bluetail 600 in support of Operation Iraqi Freedom. A weight-board trainee and his instructor had become distracted and turned their backs to an approaching Hawkeye and its deadly propellers.

As Bluetail 600 taxied toward the catapult, Chief McCammon and Petty Officer Bunton noticed the Sailors were unaware the starboard propeller that was turning at 1,100 rpm. The prop was about to hit them, but Chief McCammon and Petty Officer Bunton lunged for the two Sailors and pulled one of them to safety. Chief Marcantel ran and grabbed the other weight-board operator a mere two feet from certain death.



From (L-R): AMC (AW/SW) McCammon, AM1 (AW) Bunton, and AMC (AW/SW) Marcantel



**AE1(AW) Price
VAQ-139**

During the launch of Warcat 501, Petty Officer Price, who is assigned to QA, noticed a small crease in the nose radome of the EA-6B assigned to the Cougars of VAQ-139. After a closer inspection of the Prowler and a conference with the airframe troubleshooter, they determined the crease actually was a large delaminated spot in the nose radome. Petty Officer Price's keen attention to detail saved the day.



**AMEAN Allen Sturm
VS-30**

While doing routine maintenance, Airman Sturm heard an unusual noise coming from the lox compartment of aircraft 703. Taking a closer look, he found a bulge on the bottom of the lox bottle. Acting with a sense of urgency, he cleared the surrounding area, ran to his workcenter to get an emergency-drain tool, and quickly drained the bottle.

AIMD's routine inspection showed that the inner cylinder of the lox bottle had ruptured violently. Airman Sturm's meticulous attention to detail and quick reaction clearly saved lives.

CROSSFEED

Maintenance Officer

Cdr. Al Stephens
allen.stephens@navy.mil

Editorial Coordinator

ADCS(AW/SW) Gary Dennis
gary.dennis@navy.mil

Battery Safety

Lithium Batteries Are Explosive!

By ATCS (AW/SW) Denis Komornik

Are you the command battery-safety program manager? If so, did you know that you are responsible for ALL batteries used in your command? An alarming trend has developed in the battery-safety program that was discovered during recent safety surveys. The program managers that I surveyed were unaware that they are responsible for lithium batteries used in the ALSS and COMSEC workcenters. All program managers understood the responsibility for aircraft installed batteries with respect to replacement, training, and emergencies; but they had little idea about the lithium batteries used in the PRC-149 survival radio/COMSEC equipment and the explosive danger they pose (see attached photo).



As a battery-safety program manager, you are responsible for ensuring that personnel involved with handling and using all batteries receive quarterly training IAW the NAVOSH program. Program managers generally have conducted proper training for avionics-workcenter personnel, with regards

to lead acid and NICAD batteries, but have failed to train ALSS and COMSEC personnel in proper handling of lithium batteries.

What we have seen from the fleet is an accident waiting to happen. Commands have stored new and used lithium batteries with alkaline batteries, have stored batteries unsealed, or have stored them in the workcenter in units not installed in an aircraft or in flight equipment.

Following is an overview for proper storage and disposal of lithium batteries:

New and used lithium batteries will be stored in their original shipping containers and must be individually sealed in a plastic bag or wrapped in electrical insulating material while being stored in a cool, ventilated shelter.

Isolate the storage area from other hazardous and consumable material and use only for storage of used/unused lithium batteries.

Do not pierce, crush, burn, drop, cannibalize, dismantle, modify, or otherwise carelessly handle, nor short circuit, charge or reuse.

Effective and prompt disposal is required; do not store more than 30 pounds or for longer than 30 days.

These are only the highlights of the program. For more information, refer to NAVSEA S9310-AQ-SAF-010. The reference must be used when handling, storing, and disposing of lithium batteries.

Senior Chief Komornik is a maintenance analyst at the Naval Safety Center.

Support Equipment

Are Your S/E Pre-Ops Proper?

By AMC(AW) Paul Hofstad

While doing surveys at various locations, I have discovered a training deficiency in support equipment pre-operational inspections conducted by maintenance personnel. Specifically, my concern is with pre-operational inspections performed on the A/M26U-4 nitrogen-servicing unit (NSU).

It is a commonly used piece of support equipment in an organizational activity's daily maintenance effort. Yet, when I task a young Sailor, who is licensed to operate the nitrogen cart, to perform a pre-operational inspection for me, every inspection results in an unsatisfactory process evaluation. The reason is always the same: Not one individual knows where to find the calibration date. Licensed personnel are completely unaware and believe the tamper seal on the manifold gauge is the calibration sticker.

To become licensed for the A/M26U-4 NSU, personnel first must attend Phase I training at AIMD. During that training, they are shown where the calibration date is. Then, to complete Phase II training, they must perform a series of three "on the job" training requirements. Finally, they must pass a written, open-book test before becoming

licensed for the nitrogen cart. Once certified by the maintenance officer, they are required to follow procedures laid out by the Pre-Operational Inspection Card before operating the NSU.

The answer is simple. Follow the steps in the AG-750AO-MRC-000 A/M26U-4 Nitrogen-Servicing Unit Pre-Operational Inspection Card. Step 10 states, "Check gauges for obvious damage and a current calibration date." To reduce down time for the unit and to reduce stickers falling off of the gauges, AIMD personnel started placing the calibration stickers inside the door of the storage compartment. The funny thing is that personnel open this door when performing their pre-operational inspections but do not see the calibration sticker right in front of them.

Supervisors must ensure that their personnel are correctly performing inspections, properly training junior personnel, and positively protecting themselves against injury. This unit's gauges are calibrated for a reason. It is because 3,000 psi absolutely will kill a person without hesitation. It is imperative that our personnel are trained to prevent injury to themselves.

Chief Hofstad is a maintenance analyst at the Naval Safety Center.

Tool Control

The Words We Hate to Hear

By AMCS(AW/SW) Cheryl Poirier

It is the end of a 12-hour day; you are hot, tired, and ready to go home and have a cold, refreshing beverage. As you check your tools once, twice, and then a third time, a sick feeling in the pit of your stomach begins to grow. Thoughts race through your head: "Where was I last?" "Did I use it there?" "Where did I leave it?" "What plane did I just come from?" "I am in so much trouble; the chief is going to kill me." Your stomach is churning,

your head is about to blow, and, succumbing to the inevitable bout of cranial flatulence, you are at a loss for what to do next. Been there, done that, and have the gray hairs to prove it.

The five words everyone hates to hear: "We have a missing tool." When I survey quality assurance (QA), I perform lost-tool process evaluations and try to find the least experienced airman in the squadron/AIMD. My leadoff question is, "So, you

are checking your tools and find a screwdriver with a chunk missing out of it—you can't find the missing piece. Do you have a broken tool or a missing tool?" Inevitably, the answer I get is "a broken tool." The first sentence in the missing-tool section of NAMP, Vol. 5, Chapter 13, states: NOTE: Treat a broken tool with missing pieces as a missing tool. The procedures in the NAMP concerning missing tools are clear and do not leave room for interpretation.

I also review broken/worn/missing tool reports. Some of the discrepancies that I find repeated throughout squadrons and AIMDs are:

- No documentation of notification of the required personnel by maintenance control, and/or no MCN/JCN indicated for aircraft inspections during the missing-tool investigation

- No quality assurance officer recommendation and signature
- No maintenance officer "release safe for flight" signature
- Missing-tool reports that have been changed without the change being reflected in the QA BTR Logbook.

QA must stay on top of a missing-tool report until the issue is resolved completely, and a "release safe for flight" is obtained. Supervisors, before you equip your Sailors with the tools to do the job, equip them with the information needed to understand the importance of tool control and the procedures to follow in the event of a missing tool.

Senior Chief Poirier is a maintenance analyst at the Naval Safety Center.

Power Plants

"Gas-Free Safety, It's Still There..."

By AMC(AW) Paul Hofstad

During recent safety surveys, while reviewing QA functions, I have been inundated with questions concerning aviation gas-free engineering. Our AD analyst, as well as the Aviation Maintenance Management Team (AMMT), helped me sort out a response.

The questions centered on the NA-01-1A-35: Aircraft Fuel Cells and Tanks. The main source of confusion was the definition of Hands/Arms/Tool-In Maintenance procedures and the need for a gas-free certification.

Very simply, because of small access areas to fuel cells, such as those found on some aircraft where a person cannot enter the cell with the exception of his or her arms and hands, only lower explosive limit (LEL) checks are required in accordance with NA-01-35. However, if a person's head enters a cell, a gas-free certification is required, also in accordance with NA-01-35 and guidance from regional industrial hygienist. This, in itself sounds easy to understand, so why the confusion?

In the past, every time a cell was opened, a gas-free certification was issued, allowing technicians to begin maintenance in that particular cell. The certification was a way to document LEL checks for safe entry; and, together with visual



information display—maintenance action forms (VIDS MAFS), commands maintained a historical look into recent maintenance actions that required opening a fuel cell. However, with the advent of NALCOMIS, safer designs in fuel-cell maintenance, changes in maintenance manuals, and higher tempos in flight operation, gas-free certifications have become utilized less.

With change comes confusion, which is where we are now. Maintenance personnel must under-

stand that disaster is just a spark or zero oxygen breath away when working in open fuel cells. If LEL checks are performed without a gas-free certification, they should be logged on a MAF or in the workcenter's passdown log. In reality, type aircraft wings should ensure that all squadrons under their cognizance are performing and documenting LEL checks in the same manner. The best way to accomplish this task is through wing-directed local command procedures, using the NA-01-1A-35, and following recommendations issued by an industrial hygienist.

If personnel don't use good judgment and follow guidelines, they can die from inhaling gas fumes or in an explosion or fire caused by a tiny spark. Five personnel lost their lives in an explosion while performing fuel-cell maintenance on an E-2C. They did not perform LEL checks, and a simple spark from an unauthorized maintenance light killed them in an instant. We need to protect our folks to prevent the same action from occurring again. To be safe, then, why not issue a gas-free certification? The danger still exists, arms in or head in; you're just as dead by breathing toxic fumes as you are from an explosion.

Chief Hofstad is a maintenance analyst at the Naval Safety Center.

Class C Mishap Summary

By ADCS(AW/SW) Gary Dennis

From Aug. 04, 2004, to Nov. 30, 2004, the Navy had 37 Class C's that involved 39 aircraft. The damage total was \$1,772,133.

- Following flight operations, an EA-6B Prowler was spotted on the fantail and later was moved to a position aft of the No. 4 wire. The nose of the EA-6B was facing aft, with the station one pod adjacent to the "junkyard" on the starboard side of the ship. Between the hours of 2300 and 0700, maintenance was performed on the No. 4 wire. This maintenance included using two A/S32A-31A (stubby tow tractors). During the maintenance evolution, a squadron maintainer observed a stubby tractor drive between the aircraft station one pod and the "junkyard," going toward the bow.

Prior to flight ops the next morning, the aircraft was to be moved to the No. 2 elevator. As the aircraft was being moved, a maintainer noticed damage along the lower outboard side of the station one pod radome. Personnel visually inspected the area around the damage and found multiple pieces of paint chips and composite material. Damage to the radome was measured at 40.5 inches from the flight deck to the impact area.

Further investigation was conducted on various pieces of SE on the flight deck. Inspection of SE tractors showed that the aft portion of the top deck of one tractor measured at 40.5 inches. Further inspection of the SE found two stubby tractors parked nose to tail in the "junkyard." The outboard stubby tow tractor, closest to the landing area, had a significant rub mark and pieces of composite material in a small cubbyhole on the aft port side.

Failure to properly supervise the arresting gear maintenance crew led to this mishap, at a cost of \$23,464.

- A crew chief fell from a UH-1 while descending from a hover to a confined-area landing (CAL). The crew

chief sustained extensive injuries, resulting in more than five lost workdays. Two crew chiefs under instruction (CCUI) were on the flight that day. A five-man bench seat was part of the aircraft's installed equipment at that time and was inspected IAW daily card 1.9 before flight.

The helicopter took off for NVG CAL work at CAL site No. 5. CAL site No. 5 is a published site, with a very large, relatively flat, unprepared surface and negligible obstructions on three sides. During the fifth CAL evolution, landing checks were performed, and the crew chief and both CCUIs replied, "Set in back." A normal final approach profile was flown, and, while restrained in lap belts, both CCUIs performed clearing calls on each side of the aircraft at both 50 feet AGL and 25 feet AGL. At 15 feet AGL, the pilot shallowed out his final approach, and more clearing calls were made by both CCUIs. While making clearance calls, in a 15-foot-AGL, near-zero airspeed hover, one of the CCUIs fell from the right side of the aircraft and hit the ground. The pilot landed the aircraft, and the crew chief was recovered, then was flown three miles to the base-hospital landing pad.

Investigation results revealed the current lap-belt anchor latches possess a movable arm that is constructed of thin, folded metal around a spring that keeps the movable latch arm in the closed position. This thin, folded metal arm is easily pinched and deformed in such a manner that it renders the spring useless, and the movable arm no longer is held in the closed position. Testing shows that nearly all of the lap belts in this squadron can have one or both of the anchor-latch springs defeated in this manner with thumb pressure on the movable arms.

The cause of this mishap was equipment failure at a cost of only \$2,330, but a shipmate was injured seriously.

Senior Chief Dennis is a maintenance analyst at the Naval Safety Center.

THE GOOD TIMES GUIDE

1

You need a reason for a 2nd mortgage.

(A typical DUI runs from \$5,000 to \$20,000)

2

You like donating to your defense attorney's holiday fund.

(Defense attorney fees start at \$1,500)

3

You've got an extra \$5,000 to "give" to your car insurance company.

(High risk insurance runs up to \$1,000 per month — if you don't get cancelled)

10

Handcuffs are a cool fashion accessory.

(Handcuffs are required when transporting arrested passengers in patrol cars)

9

You miss going to class.

(\$375 tuition to attend 10-week class at Va. Alcohol Safety Action Program — ASAP)

8

A mug shot looks better than your drivers license photo.

(Finger printing & photo are required for every DUI arrest)

7

Being seen riding in the back of a police car is cool.

(Police officers can arrest without a warrant for DUI)

6

It looks good on a job application.

(DUI will be revealed during an employer's background check)

4

Jail time is a cheap, unpaid vacation.

(Jail time could be up to 1 year)

5

You want to take a break from driving.

(Mandatory 7-day administrative license revocation for 1st DUI)

Top 10 Reasons To Get A DUI



Always use a designated driver or call a cab.

Brought to you by the Naval Safety Center and our partner, DRIVE SAFE HAMPTON ROADS.