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In This Issue:
Support Equipment

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RADM Arthur Johnson **Commander, Naval Safety Center**
Col. Mark W. Vanous, USMC **Deputy Commander**
John Mahoney **Head, Communications and Marketing**
Naval Safety Center (757) 444-3520 (DSN 564) Dial the following extensions any time during the greeting
Publications Fax (757) 444-6791

Mech Staff

LCdr. John Ruane **Editor**
john.ruane@navy.mil Ext. 7220
Dan Steber **Associate Editor**
danny.steber@navy.mil Ext. 7247
Patricia Eaton **Graphic Artist**
patricia.eaton@navy.mil Ext. 7254

Analysts

Cdr. Bert Ortiz **Aircraft Maintenance and Material Division Head**
bert.ortiz@navy.mil Ext. 7265
Maj. Anthony Frost **Asst. Division Head**
anthony.frost@navy.mil Ext. 7223
AFCM Johnnie Simmons **Maintenance Master Chief**
johnnie.l.simmons@navy.mil Ext. 7269
CWO4 Jim Stewart **Aircraft Maintenance Branch Head**
lawerence.stewart@navy.mil Ext. 7258
GySgt. Edward Rivera **Airframes/Hydraulic**
edward.rivera2@navy.mil Ext. 7285
AMCS Robert Chenard **Airframes/Hydraulic**
robert.chenard@navy.mil Ext. 7221
AMCS Jim Litviak **Airframes/Hydraulic**
james.n.litviak@navy.mil Ext. 7276
ADCS Mike Tate **Power Plants**
michael.s.tate@navy.mil Ext. 7290
ADCS Chris Smith **Power Plants**
christopher.a.smith8@navy.mil Ext. 7218
GySgt. John Hess **Power Plants**
john.hess3@navy.mil Ext. 7190
ASCS Reggie Evans **Support Equipment**
reginald.evans@navy.mil Ext. 7293
ASCS Mark Tangney **Support Equipment**
mark.tangney@navy.mil Ext. 7239
CWO5 Ron Stebbins **Avionics/ALSS/Analyst Branch Head**
ronald.stebbins@navy.mil Ext. 7278
SSgt. David Jenkins-Jackson **Logs and Records/TD/CTPL**
david.jenkinsjackson@navy.mil Ext. 7074
ATC Danny Williams **Avionics**
danny.c.williams@navy.mil Ext. 7280
MSgt. Michael Austin **Avionics**
michael.z.austin@navy.mil Ext. 7256
GySgt. Todd McCreight **Avionics**
todd.mccreight@navy.mil Ext. 7222
AME Eric Wickham **Egress/Environmental**
eric.wickham@navy.mil Ext. 7292
PRCS Rich Young **ALSS/Aircrew Equipment**
richard.a.young1@navy.mil Ext. 7219
AEC James Esslinger **Electrical Systems**
james.esslinger@navy.mil Ext. 7291
GySgt. John Higgins **Ordnance**
john.p.higgins@navy.mil Ext. 7140
AOCS Craig Trute **Ordnance**
craig.trute@navy.mil Ext. 7171

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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Front cover: Photo submitted by AM1(AW/SW) David Karlson, VAW-124 Safety Petty Officer

Support Equipment Gone Wild!

Navy photo by MC1 Robert Keilman

I hadn't even touched the foot-control pedal. "Why was this thing moving?" I wondered.

By AS3 Christopher Hawley

After a successful and relaxing port of call in Malta, the first of three in the Mediterranean, our ship made her way back into deep water. Flight ops were scheduled to begin later that morning, and it was my task to get the support equipment back where it belonged, before the first launch of the day. Having done this thousands of times, I thought, "What can go wrong?"

Support equipment had been moved from the hangar bay and was parked behind the island, in the bomb farm, to make room for a reception the ship had hosted while in port. I walked behind the island to survey the equipment and to formulate a plan. Two A/S37A-3 shipboard mobile electric power plants (MEPPs) were parked side-by-side and needed to be moved one at a time. I should have moved the T-5 Jenny behind the outboard MEPP, but decided not to make any more moves than necessary to get the job done. There was a clear path behind the inboard MEPP, so I moved that one first.

I completed the pre-op inspection, using NA 19-600-300-6-1, and removed the tie-down chains and wheel chocks. Since the equipment was near an AH-1 helicopter, I had two yellowshirt safety observers assist me. I squeezed between the two MEPPs, sat in the operator's compartment, and turned the wheels to the right to have a little more clearance between both units. After starting the unit and achieving a stable idle speed,

I flipped the switch to propulsion. My foot held the service brake, as I slid the gear selector to reverse and removed my foot from the brake pedal. The MEPP lurched backward.

My mind moved at warp speed, as I pondered the situation. I hadn't even touched the foot-control pedal. "Why was this thing moving?" I wondered. Before I could react, the MEPP hit the island, then an X20J box cover and a scupper drain line. Fortunately, the safety observers were far enough away, so they didn't get run over. After the MEPP stopped, I reached down and manually lifted the foot-control pedal, placed the gear selector in neutral, and turned off the engine. I tried to figure out why this unit had taken off like it was possessed.

After I caught my breath, I surveyed the damage to the island. The MEPP also had been dented and scratched, and the cable-storage compartment had been pushed out of alignment. I humbly walked to my division and told my chief what just had happened. The safety department and quality-assurance division immediately investigated the mishap.

They determined that the cause was right there in the engine compartment. The hydraulically propelled unit has a cable running from the foot-control pedal to an inching valve, which couples a servo to the swash plate and varies the displacement of the pump. The harder you press the foot control, the greater the flow of fluid from the pump to the drive axle. The foot-control cable had hung up in the full-open position.

Even though I had done a complete pre-op, according to the correct checklist, I didn't catch this discrepancy. Checking for proper pedal movement and free operation is not one of the static checks. I learned that pre-op checklists are not always all-inclusive. Prior to operation, I now check all controls during my static inspection of self-propelled equipment. USS *Keasarge* AIMD initiated an HMR/EI on the MEPP and TPDRs on the MRC and pre-op card.

Navy photo by JOC Dave Nagle

Petty Officer Hawley works in AIMD IM4 Division onboard USS *Kearsarge* (LHD-3).

Analyst comment: *Occasionally, we will find errors in publications. Operators and technicians need to identify and correct these problems. It seems like all the proper steps were made here. The key to success is to find these errors prior to an incident, and don't get complacent.*

Senior Chief Mark Tangney is the SE maintenance analyst at the Naval Safety Center.

Maintainers *in the* Trenches

AT3 Chris Mooney performs maintenance on a video cable in the 2M/Cable Repair shop aboard the nuclear-powered aircraft carrier USS *Nimitz* (CVN-68). Navy photo by John Wagner

Sailors perform routine maintenance on an SH-60B helicopter assigned to the Saberhawks of HSL-47 on the flight deck of the *Nimitz*-class aircraft carrier USS *Abraham Lincoln* (CVN-72). Navy photo by MC3 Geoffrey Lewis

AO2 David Mathews installs a set screw after replacing a nose plug on a laser guided bomb unit (GBU) 32 bomb aboard the *Nimitz*-class nuclear-powered aircraft carrier USS *Ronald Reagan* (CVN-76). Navy photo by MC3 Gary Prill

Marine Corps Flight Equipment Technician Cpl. Ceasar Hernandez, assigned to the Red Devils of VMFA-232, performs maintenance on a torso harness during a nine-day inspection aboard the nuclear-powered aircraft carrier USS *Nimitz* (CVN-68). Navy photo by MCSN John Wagner

Nothing Is Routine

By AD2 Anthony Foster

We arrived in Fallon for SFARP in October. The new eight-blade propeller on the Hawkeye is susceptible to erosion-related damage, and we found one damaged blade on our aircraft that was scheduled to fly the next day. After quickly unpacking, night check was tasked to replace the blade on Eagle 602. We were confident we could handle this typically routine job. However, we'd later learn we should have taken a few moments to discuss the pitch-dark night, the unfamiliar field, the lower-than-normal lighting, and the procedures for operating the equipment.

Despite our experience with the equipment and our knowledge of the warning, we failed to follow the correct procedures; we removed the main-mast pin first. This left the weight of the boom completely supported by the mast cables, which quickly parted. The boom crashed down onto the starboard propeller, gouging a blade and cracking the hub. Two safety cables and the main hoist cable on the crane also were destroyed.

In all, the mishap cost the squadron just under three thousand dollars. The aircraft could have been damaged much more severely had we not backed out the crane.

Damaged propeller from the boom crashing down on it

Cables were also destroyed.

Night check had the new blade on Eagle 602 by 1900, and we were ready to put the crane away. For this job, we used an A/S32A-44 utility crane, and before checking it out, we inspected it in accordance with pre-op card 19-600-302-6-1. We backed the crane a few feet away from the nacelle and began lowering and folding it. A series of pins had to be removed in the proper sequence to prevent the support cables from bearing more weight than they are designed to hold. The main-mast pin had to be pulled last, after the load was removed. Without this pin, the mast cables would break under the strain of the boom. A warning placard on the crane described the procedure.

Someone could have been killed too, had we not cleared the area under and around the crane.

We came out of this experience with some costly aircraft damage, and some valuable lessons learned. The damage to the aircraft could have been completely avoided had we backed the crane clear of the aircraft. If we had reviewed our procedures for stowing the crane before doing the maintenance, we would have been reminded of the warning about the main-mast pin. We also learned that nothing is routine when operating in dark and unfamiliar places. A few moments of ORM, thinking about what could go wrong in a different environment, might have saved us from this costly mistake.

Petty Officer Foster works in the power plants shop at VAW-113.

Risk Management *for the* Maintainer

By LCdr. George Austin

"Today we need to get the rotor head off aircraft 105 to assist the PMI crew. Are you all set to get the work done?"

"Yes, Chief." That short, deceptively clear conversation has occurred in helicopter squadrons all over the world. For HSL-49's maintenance department, however, it resulted in a destroyed utility crane, a damaged helicopter, and some personnel who never will forget the day when they nearly were crippled or killed. This incident demonstrated the stark reality: while we had been examining our flight operations for ways to minimize and control hazards, we were not doing enough to train our maintainers on risk management.

This tool has become the cornerstone of the Navy's war on the "Blue Threat" (self-induced mishaps). Originally introduced as a tool to prevent operational mishaps, it has gained recognition as something that can be applied to every aspect of a service member's life. When properly applied, risk management can help reduce the loss of lives and equipment from mishaps, whether they occur during combat operations or while driving home after work. Visibility on this topic has remained extremely high, with guidance available at every level. You find it everywhere: from OPNAVINST 3500.39B to the risk-management training, examples and tools on the Naval Safety Center website to the posters found in every workshop in the Navy.

The greatest hurdle to effective risk management has been the ability to properly assess risk and implement controls before mishaps occur. Generating a simple tool to assist this process has been problematic because of the complexity of daily life. Attempting to

define risks for every situation, as well as every possible contingency, is impossible, so organizations attempt to define high-risk operations in advance and use in-depth or deliberate risk management to provide guidance and combat the situation with education and training.

However, mishaps most often are the result of poorly executed time-critical risk management. By far the most often encountered and least rigid of the three levels, time-critical risk management is highly dependent on experience and communication, and it's the hardest to train and reinforce.

The reason is two-fold. First, the military culture generally does not lend itself to junior personnel giving a significant amount of negative feedback to senior personnel. Commendations and positive recognition abound for the Sailors who take their tasking and report back upon successful completion.

Second, the high level of interpersonal trust that is an essential element to unit success can be a pitfall when it causes a situation where no one questions the decisions being made, even when they have doubts. Personnel unintentionally encounter hazardous situations because they believe their supervisor knew all the factors, both intrinsic and external, that could be encountered when they assigned the job. The most important training tool to give personnel, particularly junior personnel, is awareness of the level at which the command expects risk decisions to be made.

HSL-49 generated a risk-decision matrix to make personnel aware of where the command expects them to go to resolve questions and who needs notification when problems arise. There is no intention to hinder personnel from proactively executing a plan to overcome difficulties, but it makes them aware there is an expectation to review and communicate a risk-mitigation plan. It also provides an awareness and ability for concerns to be pushed upward to a higher level of command visibility to make sure we are making appropriate decisions at the right level in work tasking. Our matrix, included below as an example, is accompanied by extensive training and small-group discussion on how to implement it in the workplace.

1. An "X" denotes divisions/personnel needing notification of problems in that area and can be used in the decision process.

2. A "D" denotes the level of visibility that a decision holds and indicates the lowest level at which risk decisions should be made.

Effective risk management will continue to remain part science and part art, but tailoring this type of matrix to fit the needs of an individual unit may help personnel to make risk decisions at the appropriate level. It also ensures that hazards are communicated throughout the command, so that they can be avoided in the future.

HSL-49 Risk Management Decision Matrix

Problem/Concern	Job Leader	LPO/LCPO	Maintenance Control	QA	MO	CO
PPE	D	D		X		
Training	X	X	D	X		
Safety	X	X	X	D	D	D
Procedure	X	X	X	X	D	D
Support Equipment	X	X	X	D	D	D
Tools	D	D		X		

LCdr. Austin is the quality assurance officer at HSL-49.

Analyst comment: *This was the third accident in less than a year involving the A/S32A-44 aircraft utility crane, also referred to as "seat crane or hangar-deck crane." All of these accidents involved improper operation because of unfamiliarity with support equipment (e.g., pulling the wrong pit pin at the wrong time), even though warning placards were attached at each pit-pin location. Two articles involving this crane were printed in this edition, and the third was published in the winter 2007 edition of* Mech.

The NA 00-80T-96, WP 00600, pg. 9, paras. 37 thru 68, discuss the hazards associated with this crane and is highly recommended for review before operating since most operators seldom use the crane.

One more footnote: This same type of accident happened in my maintenance department in 2001. The result was a damaged crane and two E-2C propellers.

CWO4 Jim Stewart is the aircraft maintenance branch head and analyst at the Naval Safety Center.

You Can Do Wrong By Helping Out

By AD1(AW) Jeff Blades

While on a training mission at Naval Station Norfolk, I learned just how costly it can be to cut corners and ignore procedures. In this case, the result was damaged equipment and embarrassment for a Sailor and his command.

We had flown to Norfolk to meet our ship and were getting our two SH-60B aircraft ready for C2X/JTFX. HSC-2 had been hosting our detachment as we prepared to go to sea.

We arrived early at the squadron that July morning to do daily and turnaround inspections on our helicopters. We needed to get the aircraft ready because they were scheduled to fly to the ship the next day. After we arrived, I directed my airmen and second class petty officers to start working on the inspections.

My problems began when one of the airmen told me that he needed an NC-10 (power cart) to hook up to the aircraft to check the aircraft lighting. As I gave him the go ahead, I saw a power cart outside the hangar. It already was hooked up to a tow tractor. I knew that the 4790 (NAMP) states that the tractor only shall be operated by a licensed driver, but at the time, getting the job done seemed more important than following procedures.

This is the damaged tire, which was the property of the squadron next door.

I had eight years of experience driving a similar vehicle at my previous command, but I did not have a current license to operate that tractor. I still needed to take the test and route the phase sheet through my chain of command before I'd be qualified to operate the tow tractor or the NC-10. However, I rationalized that I should be the one to drive it because I had more experience than my airman.

I climbed into the tractor, started the engine, and pulled away. I remember thinking to myself that the new tow tractor had more power than the model I was familiar with, though the setup was exactly the same. I continued to tow the NC-10 to the helicopter when I saw someone running and trying to wave me down. A second class petty officer from another detachment caught up to me. After catching his breath, he told me that I was dragging one of the tires on the NC-10.

I immediately got out of the tractor to look at the tire and saw a bald spot where it had dragged on the pavement. A black mark, approximately 75 yards long, led all the way back to the squadron hangar. At this point, I realized that I had forgotten to release the parking brake on the NC-10. I walked into Maintenance Control and told the duty chief what happened. Next, I went to quality assurance to write a statement concerning my mistake.

It turns out that the tractor and NC-10 I had used did not even belong to HSC-2, our host squadron. Instead, it was the property of a squadron next door, which shares the same hangar. I used and damaged another squadron's equipment without even having the required license to operate the vehicle. I learned the hard way that cutting corners, in order to get the job done quickly, actually can be much more time-consuming and costly.

Petty Officer Blades is the LPO for HSL-48 Det. 4.

Analyst comment: *I am seeing a trend in the fleet on equipment "in tow." Operators that are moving these units need familiarization with the SE that is being transported. Bottom line: If you are not licensed for that specific SE, don't operate it!*

Senior Chief Mark Tangney is the SE maintenance analyst at the Naval Safety Center.

Joint Service Maintenance Photo

Navy photo by MC2 Charles White

Aviation Airman 1st Class (AIC) Gilbert Hardy, assigned to the Air Force 18th Civil Engineer Squadron, uses a vacuum to remove a swarm of Japanese honey bees from a Patrol Squadron (VP) 16 P-3C Orion. It is speculated that the bees sheltered on the aircraft from the heat and wind while in transit to a new hive site. VP-16 and Consolidated Maintenance Organization (CMO) 11 Det. BRAVO are deployed in support of Commander, U.S. Navy 7th Fleet.

Good

Flight-deck personnel conduct aircraft-salvage training with the emergency heavy lift crane, nicknamed "Tilly," while underway in the Persian Gulf.

Navy photo by PHAN Gregory Pierot

Bad

Someone forgot to use chocks on this unattended Jenny.

Ugly

Any questions?

Spinning My Wheels

By AEAN Shawn Myers

The day started like any other day working in the line shack (Workcenter 310). Our LPO entered the shop for pass down, and he told us that we had two flights for the day. It didn't seem like anything would be different about today's operations. That soon would change.

I jumped into a tow tractor (MRTT 45) and started to take out the support equipment for the first man-up of the day. On this occasion, there was a FOD problem inside the aircraft, so the airframers removed panels from the port side to investigate.

I was sitting in the driver's seat of the tow tractor when an airframer asked me for a ride to his shop to get some tools for buttoning up the panels. I had one of our fellow trainees from the line shack unhook the huffer from the tractor but not before I looked back to make sure it was ready to disconnect. I then drove off without another thought, took the airframer to his shop, and returned to the aircraft. I rehooked the huffer and was ready for the launch.

The aircrew walked to the aircraft to do their pre-flight, and one of the plane-captain trainees stretched the huffer hose toward the aircraft in preparation for engine starts. The panels were secured on the aircraft, while the crew did their pre-flight. After 10 minutes, the same airframer asked for another ride back to his shop. The trainee again hopped out, and the airframer jumped in for the ride.

Instead of looking back to see if someone was there to unhook the tractor, I just drove away...with the huffer still attached. Unfortunately, the chocks still were in place, and the emergency brake still was set on the huffer. To make things worse, the hose had been left out, and it was dragging behind the huffer.

I didn't even notice the problem until I was about 20 yards away and could hear a faint yelling from outside the tractor. I couldn't believe what I just had just done. A million thoughts raced through my head when I saw what had happened. The primary thought was, "What if I had hurt or killed anyone?"

Fortunately, no one was injured, and there was no damage to the aircraft or support equipment. Too bad I couldn't say the same thing about my pride. I knew that I had messed up. By the time I got back to the hangar, two chiefs were waiting for me. I was so shaken by this incident that someone else from my shop had to finish the launch, while I faced my LPO, chief and division officer.

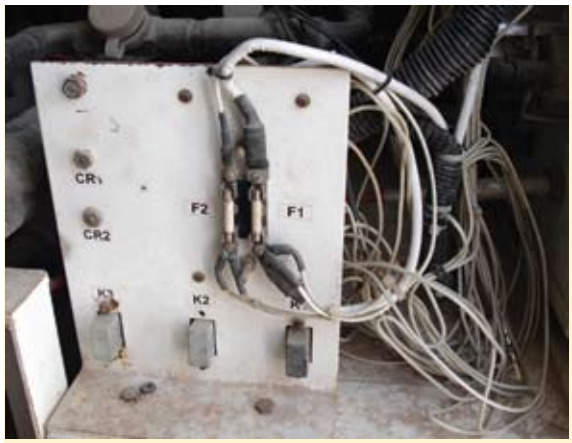
After this incident, my SE license was revoked for all of the tractors I had been qualified to drive, and I had to go back to class for the MRTT 45 to get re-qualified. I learned that when tasks seem to become routine, you become complacent, and that's when things go wrong. I should have paid a lot more attention to what was going on around me—not how fast I was able to complete a task.

Airman Myers works in the line division at VAW-123.

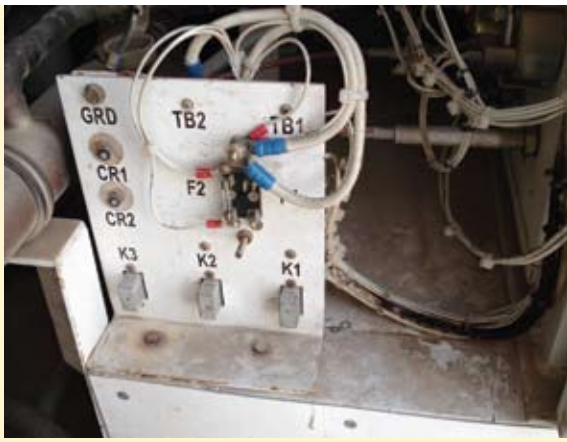
It's Not Running Right

By Ltjg. Raymond Gambel

It was another scorching day in the desert. In what had become a necessity, two members of the line division hooked a trailer-mounted air-conditioning unit (A/M32C-17) to a P-3 in preparation for preflight. This additional responsibility to our daily routine kept both crew and equipment cool during preflight in the oppressive heat.



Proper fuse layout



VP-8 bypassed fuse panel

Driving down our line, I saw two junior maintainers connecting the air cart with befuddled looks on their faces. I stopped and asked if I could help. As I approached the cart, I heard its compressor surging and its engine struggling to make power. Because of this sound and the sight of the air hose connected to the aircraft lying flat on the concrete, I could tell that the cart was not putting out any air. The whole unit was bogged down.

I questioned the maintainers about the problem. Our AOAN, who was training the other maintainer on the air-conditioning cart, said, "I don't know what's wrong with it. It's not running right." After a quick once-over, I saw that she had left the door to the air duct closed, which would explain the chugging noise. The cart was gasping for incoming air to push through the cooling unit to the aircraft. I opened the door to remedy the situation, but the engine that drove the compressor continued its noisy protest. I turned off the unit so I could inspect the engine compartment.

I smelled electrical burning, and I saw dark, black smoke pouring from the air duct. I opened an access panel to find the source of the fire, but this action only increased the amount of smoke. I saw a burnt-wiring bundle on the interior side of the cart, with some wires that still were on fire. I immediately reached inside and disconnected the battery to kill the source of the fire. Once it was out, the smoke slowly dissipated.

I called our flight-deck coordinator to survey the damage. What we found was astounding. The wiring panel, which normally holds two fuses wired in parallel, wasn't only missing a fuse; it had been re-routed to bypass the second fuse assembly altogether. Without a fuse to protect the electrical components from power surges, unrestricted voltage had coursed through the wiring and started an electrical fire.

It was fortunate that I had stopped to help my fellow "Tigers" check the unit that day. Had the air-conditioning cart been put on the aircraft and left running, it could have endangered both the aircraft and the aircrew on board. The first indications to the flight crew would have been thick black smoke as it was discharged through the aircraft's air-conditioning system.

This incident made me think about the numerous times throughout my career where someone had mentioned "attention to detail." I'm glad I was maintaining my situational awareness that day and could recognize when something was not quite right.

Ltjg. Gambel flies with VP-8.

Analyst comment: *The fuse was bypassed? Where was QA? Was special authorization given to jump this fuse? Was there a MAF for the repair? These parts are not hard to replace, and I question the thought process here regarding the maintenance on the SE.*

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

Tow at Your Own Risk

By PR2(AW) George Williams

It was another hot day in Bahrain, and we were a few weeks into a 45-day detachment in the Persian Gulf. Operations had gone smoothly, and our Herc was getting the "beans and bullets" to where they needed to go around the AOR.

Because our plane was down with a discrepancy in the overheat-detection system, and because Bahrain was hosting the F-1 race that week, we had been parked out of sight and out of mind on the west ramp. We were coming in that day just to tow our plane across the airfield to its normal spot on the north ramp.

We arrived at the airfield and anticipated a quick move, followed by some time off at the pool. Everyone assigned to the move had done this a hundred times before. "What could be easier?" I thought.

We decided to skip the pre-move brief and positioned each person for the move. We had completed the same evolution from the north ramp to the west ramp a few days before, so we agreed to take the same positions. The only difference was that I wanted to ride brakes, instead of pumping up the brake system. An AE2 was stuck with that task. An AT2 again was behind the wheel of the tug, or "Buddha," and an AM3 was our plane captain for the move.

The confusion began when the follow-me truck arrived to guide us across the active runway. The truck driver said I needed to radio tower during the move. However, the follow-me truck had assumed this duty during previous tow evolutions. I was relatively new to the C-130 and was not familiar with its radios. Our solution was to have the AE2 ensure the hydraulic system was fully pressurized and then join me in the cockpit to assume comms with tower.

I'll breeze over another oversight here—as thankfully it didn't directly contribute to this mishap—no wing walkers. We assembled a move team for the long tow on the spacious parallel taxiway, not for the confined spaces of the west ramp.

On top of our numerous other mistakes in this evolution, we added the final straw to this camel's back: excessive speed. Even in sixth gear, we struggled to keep up with the follow-me truck. Although we had heard "never tow faster than a man can walk," not even in the open, we ignored this procedure.

As we cleared the runway and radioed tower that we were entering the north ramp, the tug lost its momentum on the slight incline. Our Buddha driver downshifted to fifth gear in an effort to get more torque. And then it happened! All I felt was a little jolt from the pilot seat. Unfortunately, that little jolt was the transmission causing the tug to lurch and the tow bar to break free from the nose-landing gear. By the time I had applied the brakes, we already were on top of the tug.

Both the AE2 and I had applied the brakes at the same time and stopped the plane. But as fast as we reacted, it still was too late. Our excessive speed carried the aircraft right up onto the tow tractor. The aft end of the tractor pierced the nose radome and the radar dish inside. It also ruined the nose-landing gear tires, landing-gear-uplock assembly, and tow-fitting assembly. Thank God, it didn't hurt or kill my fellow maintainers in the tractor itself.

Many things were done wrong that day because we were in a hurry to get the job done: no pre-move brief, inadequate manning, and excessive speed while towing the aircraft. The odds were against us, and it was only a matter of time before a mishap occurred. We learned that cutting corners and doing "det maintenance" may not always lead to an accident, but it'll put you that much closer to one. We were lucky that no one was killed.

Petty Officer Williams works in the PR shop at VR-62.

SHOCK AND OW

By AT2 David Merriam

The timing of this injury mishap could not have been worse. My squadron had completed its packout a few hours earlier in preparation for a COMPTUEX/JTFEX aboard USS *Ronald Reagan* (CVN-76). Everything was going smoothly, and I was looking forward to the final stage of our work-ups when, suddenly, things went very wrong.

One of the last maintenance requirements my command had in preparation for the impending detachment was to hang an ATFLIR pod on Sting 311. The system had to be run to complete the job. A fellow AT climbed up the ladder and sat in the cockpit, while I connected the external-power cable from the power cart (NC-108) to the receptacle. I thought, "What could possibly go wrong on this sunny Lemoore afternoon?"

I turned on the power cart, allowing power to flow to the receptacle. Unfortunately, when the cockpit AT tried to apply power to the electrical bus, nothing happened—just silence. I suspected the main reason for this was a partly-seated power cord in the receptacle. When I walked up to the power head and pushed it in a little more, an extremely large, hot flash of fire arced from the receptacle. My hands and face were severely burned.

The investigation revealed an obstruction between the power cord and the receptacle. Unknown to me at that time was the possibility that the door's bonding wire could have worked its way in front of the receptacle's conduit. When I tried to further seat the power cord, I actually had caused the simultaneous contact of the power cord, metal bonding wire, and the external-power receptacle.

Black soot from the burnt power cord covered more than half my body. Under the soot were first-, second-, and third-degree burns on my hands and face. The electrical current missed hitting me directly by only a few inches. I immediately was

Navy photo by MC2 (AW/SW) Aaron Burden

rushed to a burn center, where specialists treated me. I count my blessings that I was able to walk away from this with just a few weeks of light and limited duty. The worst part about the timeliness of my injuries was that I had to miss ship's movement while I healed. The rest of my shop embarked *Reagan* and left me behind.

My actions were somewhat commonplace across aviation maintenance. I didn't secure power on the cart before moving the power head for a more secure fit. Regardless of what is commonly practiced in the fleet, there is no excuse for deviating from established maintenance practices.

The investigation also revealed some major discrepancies in how long the door's bonding-wire strap should be. As the straps get worn, slightly longer and more dangerous straps are replacing them. Furthermore, the strap connect points seem to be different on each aircraft on the line. Some are mounted inside the receptacle's wall, while others are connected on the hinge. This situation can mean that even though the strap is the right size, it is "effectively" too long because it is mounted an inch or so away from where the manufacturer intended.

Receptacle (above) and power cord (below)

We submitted a TPDR addressing the inconsistencies in the length of bonding straps. I suspect other squadrons may have similarly configured aircraft. A simple walk down the line might reveal a number of such hazards.

- Don't take ground-power cord operations lightly. Respect hazards associated with electrical power.
- Follow all steps and procedures to the letter. They are written for a reason, and we are not at liberty to deviate.
- Be sure to secure the source of the electrical power before you do anything to the power cable itself.
- Be sure you have a clear path between the power cable and receptacle. If the cable will not seat properly, there probably is a good reason for it.

Petty Officer Merriam works in the AT shop at VFA-113.

New Hearing Protection

By Valerie Bjorn and Jim Wilt

After surveying more than 1,000 flight-deck personnel, NAVAIR took away some important lessons for developing new hearing protection.

The goals for new hearing protection are:

- **Motivate (not just dictate) earplug use.**

-Provide individual custom design, improved comfort.

- **Ensure earplugs are worn correctly.**

-Customize earplugs so they fit like puzzle pieces.

-Notify user if an acoustic leak is present and needs to be fixed.

-Track personal noise exposure more closely.

-Improve hearing-conservation training.

-Increase supervisor involvement and accountability through the chain of command.

- **Provide hearing-protection alternatives that are logistically smart (a good value, easy to buy, use and maintain).**

-Not everyone works in the worst-case scenario (150 dB jet noise).

-Not everyone needs the most costly and capable hearing protection.

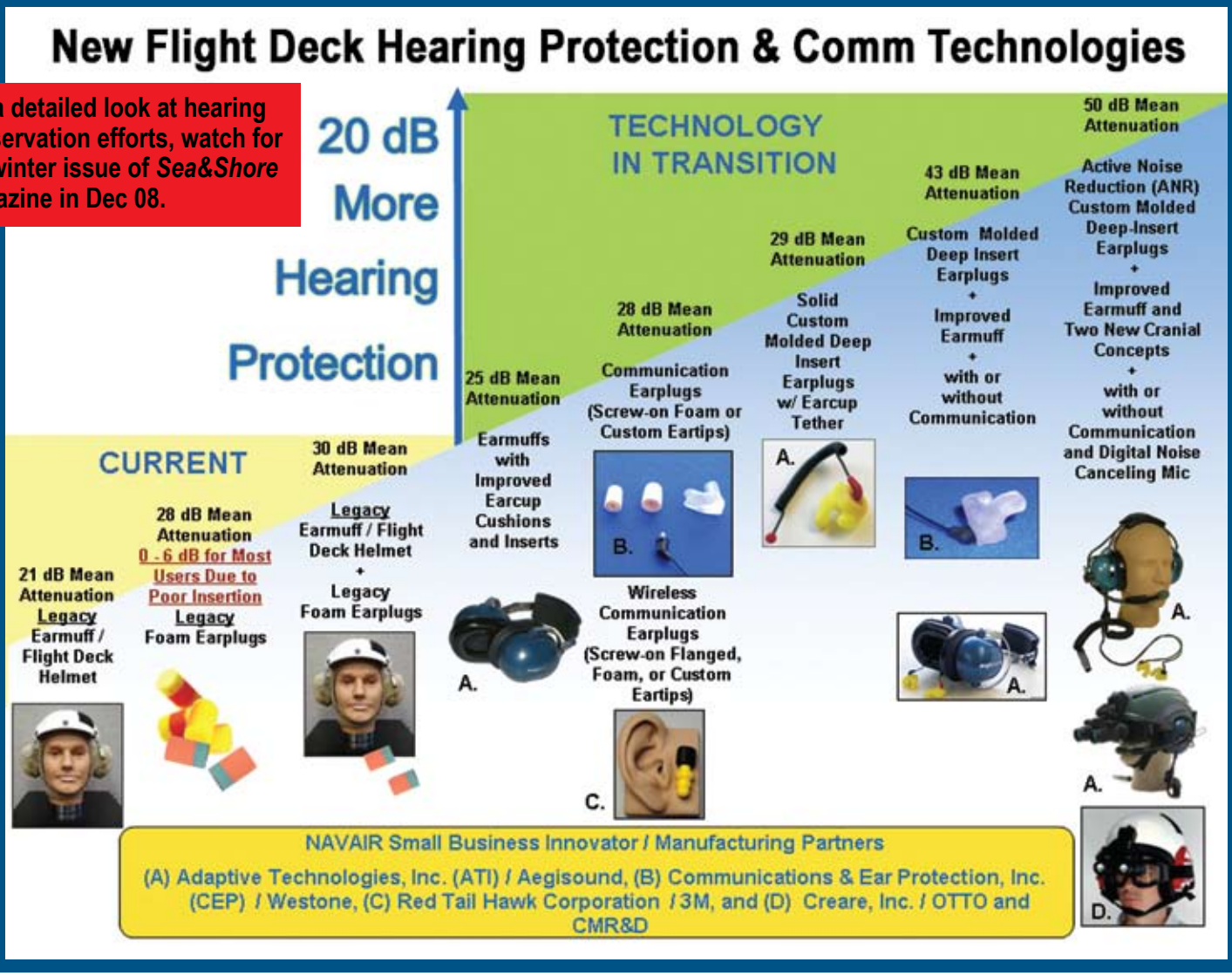
- **Offer hearing protection alternatives.**

-No single product is good for everyone.

-These alternatives and any related advancements should be plug-and-play compatible.

- **Provide non-radio deck crew the ability to speak to each other while protecting their hearing level and allowing them to maintain situational awareness.**

Through the small-business innovation-research



(SBIR) program, NAVAIR is working with four companies to develop a suite of hearing protection and communication technologies to meet these goals. Hearing protection and communication options will allow users to tailor their selection to their work-noise environment. As shown in the figure, there is a progression of capability, starting from what has been used on the flight deck for decades up through active noise reduction (ANR), deep-insert, custom communication earplugs worn under improved earmuffs and used with a digital noise-canceling microphone.

By using deep-insert custom earplugs, the user can achieve a more assured earplug fit, compared to foam and flanged earplugs, and thereby achieve a good, consistent hearing-protection level. It is this assured fit by deep-insert custom earplugs that allows ANR to cancel noise in the small trapped space between the earplug inner tip and the eardrum. By canceling noise here, instead of in a headset for example, the ANR electronics benefit from all the combined passive attenuation of the earmuff and custom earplugs, which leaves a much lower noise level for the ANR to reduce.

Future endeavors funded by the Office of Naval Research and the SBIR program include two new NAVAIR projects. One is developing a way to improve how ear-canal shape is captured to make custom earplugs. Another effort is to develop in-ear noise measuring for flight-deck use. This dosimetry capability will allow users the ability to ensure their hearing protection is worn correctly by detecting and notifying them of acoustic leaks, and it will track their daily noise exposures more accurately—a critical element to NMCPHC and BUMED's hearing-conservation program. Another NAVAIR SBIR effort is developing the capability for flight-deck crews in non-radio jobs to talk to each other through their hearing protection, while also receiving safe levels of sound cueing.

All of these hearing-protection and communication technologies are being designed to integrate with both the legacy and the new flight-deck cranial.

Ms. Bjorn works at NAVAIR with Human Systems, Code 4.6, and Mr. Wilt is with the Personal Protection Branch, Code 4.6.7.3

Dangerous Move

By AMEAN Javier Guzman

Just after sunset, Petty Officer Ryan Bivens and I helped Petty Officer Marsh, an AME troubleshooter, with daily and turnaround inspections on the flight deck of USS *Ronald Reagan* (CVN-76). We had to complete the inspections on several inbound jets. After aircraft 500 landed, Petty Officer Bivens and I dropped the birdcage to pull the empty LOX bottles. He told me that he could handle it, so I waited for 503 to recover.

After chocks and chains were on the Prowler, I dropped the birdcage, climbed in, and pulled two LOX bottles. I then carried them to the LOX farm for servicing. Our fight-deck chief stopped by and asked for an update. I told him that the two bottles from 500 already were done, and when I finished servicing and installing the two I had in 503, it would be done, as well.

I carried the bottles back to 503, but the birdcage was up because the flight-deck crew had to move the aircraft. Petty Officer Marsh and I grabbed the bottles and followed the aircraft to the fantail, where the blueshirts chocked the wheels. It seemed odd to me that they did not chain down the bird.

Petty Officer Marsh confirmed that we were cleared to install the bottles, so I went to the nosewheel well and dropped the birdcage. After the AME2 and I had installed the LOX bottles, I returned to the nosewheel well and manually pumped up the birdcage with the auxiliary handle. I tried to reinstall the pump handle, but I could not see the insertion hole for the pin. To get a better view, I put one foot on top of the wheel and pushed myself up into the wheel well.

Just before I installed the pin, I felt the wheel rotate and saw my boot wedged between the nose strut and the wheel itself. As the tow tractor continued to pull the aircraft, I dislodged my foot and scrambled out of the nosewheel well as fast as I could. I then found our flight-deck QA representative and told him what had happened. He already had been told and was going to let Maintenance Control know. When he asked me if

I was OK, I told him I was surprised but not hurt. With the aircraft secured, I returned to the nosewheel well and installed the pin on the pump handle.

I briefed my shop supervisor and our safety petty officer about the incident, and we discussed the mistakes that were made. Although Petty Officer Marsh had been in constant contact with one yellowshirt while we dropped the birdcage and installed the LOX bottles, another yellowshirt had assumed control of the aircraft without knowing where I was. A quick response by Petty Officer Marsh and the aircraft handler stopped the aircraft and prevented me from getting run over.

I learned some valuable lessons from this dangerous move. I should have waited until the aircraft was chained down before doing maintenance. I also should have told the aircraft handlers before I went into the nose-wheel well. Now, I pay more attention to my surroundings and keep everyone informed of what I'm doing.

Airman Guzman works in the AME shop at VAQ-139.

Flight, Flight-Related, and Ground Class A and B Mishaps 6/10/2008 to 09/11/2008

Class A Mishaps

Date	Type Aircraft	Command
06/13/2008	FA-18C F-5F	VFA-15 VFC-13

Midair collision. Both aircraft destroyed. Two aircrew rescued safely. 1 fatal.

07/01/2008	CH-46E	HMM-365

Aircraft had hard landing because of loss of engine power while on short final. No fatalities.

07/14/2008	AV-8B	VMA-542

Main wheels locked. Gear up landing. No fatalities.

07/22/2008	P-3C	VP-1

Aircraft overstressed and departed controlled flight. Injuries but no fatalities.

Class B Mishaps

Date	Type Aircraft	Command
06/13/2008	CH-53E	HMH-462

Aircrew dragged by right main landing gear while taxiing.

06/13/2008	E-6B	VQ-4 SEA

Maintainer severely cut fingers during maintenance.

06/17/2008	F-18C	VFA-131

Aircraft midair collision at sea. No injuries. Aircraft recovered uneventfully.

06/20/2008	FA-18A	NAVSTKAIRWARCEN

During FCF, pilot reported dual-bleed warning and initiated emergency procedures.

06/21/2008	FA-18C	VFAT-101

During landing rollout, aircraft departed runway. No injuries.

06/26/2008	P-3C	VP-4

During takeoff, prop boot separated and struck fuselage. No injuries.

07/01/2008	FA-18F	VFA-106

Engine flame out during takeoff roll at NAS. No injuries.

07/02/2008	FA-18A	NAVFLIGHTDEMRON

Starboard engine sustained FOD damage during takeoff.

07/11/2008	FA-18C	VFA-86

Port engine ingested bird. Pilot landed uneventfully.

07/21/2008	CH-46E	HMM-268

Helo had violent vibration after landing. Aircrew did emergency shutdown.

08/07/2008	T-6A	VT-4

Aircraft on formation low-level route struck bird on starboard wing.

08/15/2008	UH-1N	HMLA-167

During night paraops, aircraft had hard landing in brown-out condition.

08/28/2008	FA-18C	VMFA-251

Right engine FODed resulting in engine flameout on short final.

08/29/2008	FA-18C	VFA-131

Starboard engine FOD found during post flight. No injuries.

09/02/2008	FA-18C	NAVSTKAIRWARCEN

Bird strike on landing FODed engine.

09/04/2008	FA-18F	VFA-41

Forward section of ATFLIR fell off aircraft in flight. No injuries.

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Naval Safety Center Data
Cdr. Paul Bunnell
For questions or comments, call LCdr. John Ruane
(757) 444-3520 Ext. 7220 (DSN 564)

Oops, I Did It Again

By AN Austin Cockran

During a cold, winter afternoon aboard NAS Fallon, my supervisor told me to take a tractor and tow a mobile electric-power plant (NC-10) from the hangar to Eagle 603 on the flight line. I parked both the tractor and the NC-10 parallel to the aircraft because the power-plant mechanics needed to do a 7-day inspection. The NC-10 remained hooked up to the tractor since the inspection wasn't supposed to take long. I secured the tractor, applied its parking brake, and chocked the rear tire. I then told the mechs that I would be in the hangar and would return the support equipment (SE) later.

After the inspection, I received a phone call to retrieve the SE because the mechs were done. Arriving at Eagle 603, I found the tractor and the NC-10 exactly where I had left them. I removed the chocks, released the brakes, and drove off. Halfway to the line shack, one of the mechs stopped me and pointed at the long skid mark behind me.

A quick inspection revealed a flat spot on one of NC-10 tires. The brakes were on! Apparently, someone had applied the brakes on the NC-10 while it was parked and hooked up to the tractor. I had assumed it was in the same status as when I left it earlier. After QA conducted an investigation and determined there was no intentional abuse of the SE, I trained all the shops to prevent the same mistake from happening again.

Two days later, during an even colder night-check period, more than 2 inches of snow had accumulated on the ground. While studying for the upcoming advancement exam, I got a call to take the NC-10 from Eagle 600 to 602. After doing a pre-operational inspection on the tractor, I proceeded to Eagle 600 to hook up the NC-10. As I pulled up, I asked a nearby airframes technician to assist. After he hooked the NC-10 to the tractor, he gave me the "thumbs up."

I arrived at 602, and the plane captain said he no longer needed the NC-10. I then returned the SE to the staging area. As I was about to unhook the NC-10, I smelled a burning odor, and saw that it was leaning on the right side. I noticed that the right rear tire was flat. Further inspection revealed that the brake still was engaged! Not again…

QA immediately started an investigation. Although I had provided training to all shops, I had neglected to train the night-check personnel. They weren't even aware of my previous incident. The training was supposed to ensure that everyone in the maintenance department would learn from my mistake, but instead, we repeated it.

The weather was also a factor. We normally operate in the warm weather of NAS Point Mugu, Calif. The desire to get out of the cold as fast as possible caused us to rush, neglecting our responsibilities. In these circumstances, it is easy to start making simple mistakes. We were lucky this time; it was only a blown tire. We could have damaged an aircraft, or worse, someone could have been injured.

Airman Cockran works in the line division at VAW-113.

Forklift Follies

By AS3 Gustavo Baptista

It was another hot Friday in sunny Sigonella. Support-equipment division was preparing a barbeque lunch, and the aroma from the grill was heavy on my mind. The weather was nice, and I was looking forward to the weekend. Everything seemed perfect, until a moment of inattention almost caused a tragedy on the flight line.

Just before lunch, I was tasked with what I hoped would be the last job of the day. I had to transport three pallets, loaded with MMF jacks, to the shipping area for transfer. The job seemed routine, except for one minor detail: The jacks were not secured to the pallet. When

I asked why the jacks had not been secured, I was told that we did not have any more straps, and supply would take care of it. A red light went off in my head, but I decided to go ahead with the task—I just would be extra careful and drive slowly.

After completing the first two trips uneventfully, I picked up the final pallet. Without any cars, aircraft or maintainers in sight, I thought everyone already had secured for the weekend. At this point, it seemed impossible that anything could go wrong, especially since there wasn't a soul in sight.

I drove my mighty Hyster forklift, keeping it at idle speed, down the flight-line maintenance-service road. As I approached the air-terminal ramp, near the end of the SE ramp space, I took my eyes off the road for a split second to check the jacks.

"Bam!" My forklift collided with a security unit, more specifically, a Dodge Stratus patrol car! We both stopped immediately. "How is this possible?" I wondered. I just had looked down the flight line a second ago, and nobody was in sight. And now the right-front side of the security vehicle was pinned under the forks of my forklift.

The car had pulled out from behind some parked shuttle buses. I had no idea anything was behind those buses, let alone something that might stop in front of me. Fortunately, because of the low speed of the forklift, position of the forks, and angle of the collision, no one was injured. However, there was some minor property damage.

Had the angle of the collision been different, or the speed of the vehicles greater, this moment of inattention could have been much more serious.

I now understand why we always hear "Keep your head on a swivel." We always must be aware of our surroundings, where we are going, and what we are doing. No appropriate rationalization exists for not doing tasks by the book, even though our thoughts may be elsewhere. Had the jacks been secured properly, I wouldn't have taken my eyes off the road, and this mishap could have been avoided. This event was my reality check, and I am grateful to have a second chance.

Petty Officer Baptista works in the support-equipment division at AIMD, Signonella, Italy.

Understand the Process

By Ted Wirginis

A year ago the Naval Safety Center published a magazine called *ORM, the Essentials.* In it we outlined where we want ORM to be in our Navy culture. We stated, "We want everyone to understand risk management. We want them to know how to apply the principles and the process at the right level in their specific tasks and activities, on and off duty. We need every Sailor and Marine to understand every death on the highway robs us of a vital part of our team, every bit as much as a loss in combat." Since then we have not progressed very far in teaching and training to the application and integration of organizational and individual risk management.

To get where we want to be, we need to understand how ORM fits into our daily lives. This article will help you get a better understanding of ORM and how it applies to you, and will concentrate on the three levels of ORM.

A review of the attached figure shows the three levels of ORM are defined by time.

- If you have no time to plan and you are in the execution phase of the event or task, you are at the **time-critical level** of ORM.
- If you have plenty of time to plan, to get the right answer, you are in the **in-depth level** of ORM.
- The **deliberate level** lies between the two other levels, when we don't have unlimited time, yet we need to get the best answer.

We depict those levels in the shaded gradient because there are no definitive lines between the levels. You flow from one level to another as you approach the task or event. However, most of the time we are in the doing or execution phase which is at the time-critical level.

Why is it important to understand the three levels of ORM? Because each level plays a role in improving your chance of a successful mission. It's important to know we have resources to tap into to accomplish our job or mission during its execution. These resources make it easier to do our job, and help us catch errors that have consequences detrimental to task or mission success.

The resources are broadly categorized into the following:

Policies, procedures, and routines, such as general orders, SOPs and guides. These resources speed up decision-making and increase predictability through standardized operations.

Checklists and job aids such as instructions and MIMs. These resources decrease potential for error and improve coordination.

Automation, such as alarms, warning lights, auto door locks, autopilots and seat-belt warning provide another opportunity to reduce risk by providing faster interpretation of information, process of information, provide warnings and distribute the workload.

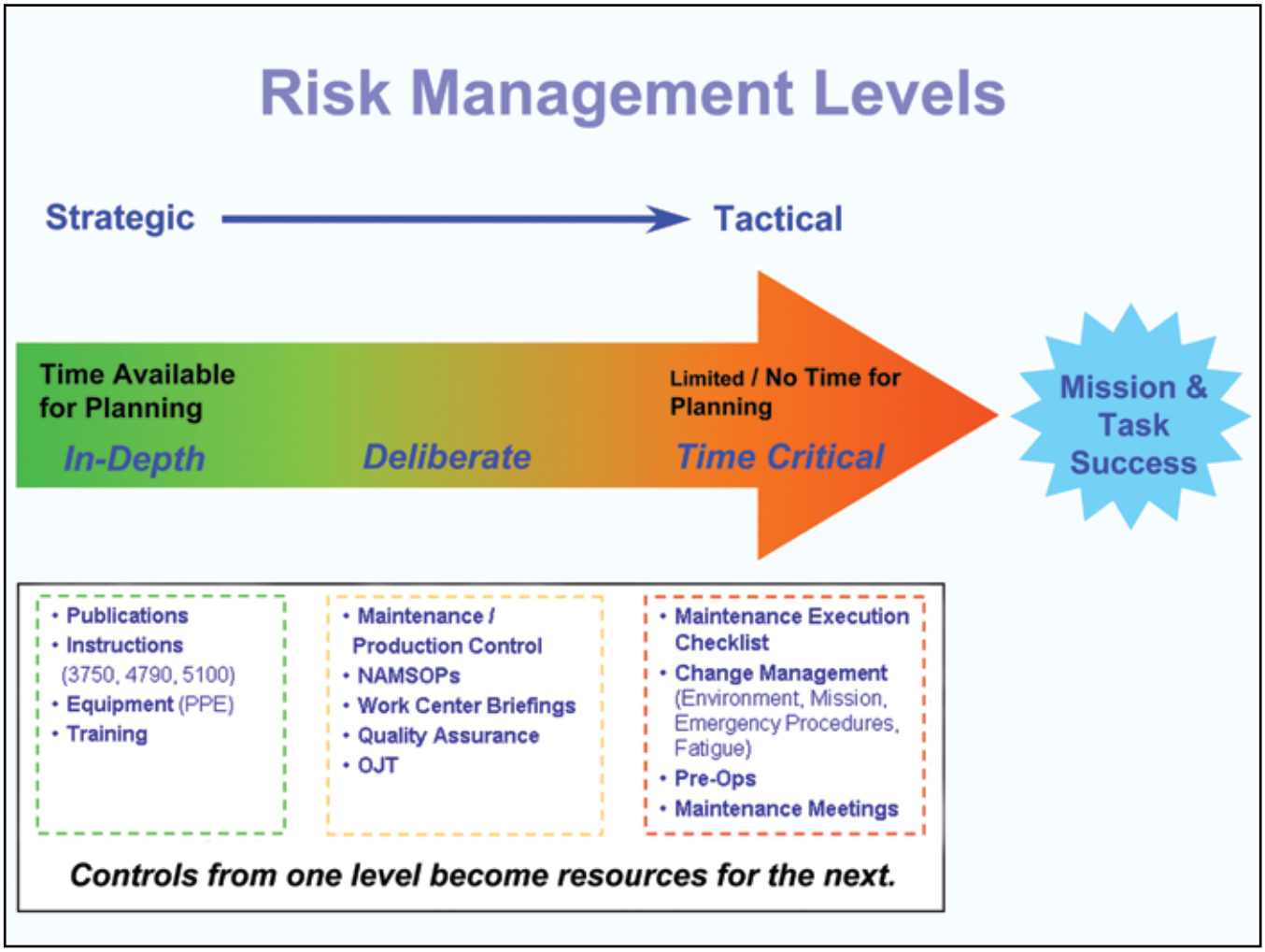
Briefings and external resources transfer situational awareness from a supervisor, shipmate, briefer or crewmember. These resources increases predictability and create expectations.

Knowledge, skills and techniques, such as training, practice and drills. These resources are brought by the individual to the task or mission. In addition to helping us do a particular task, knowledge and skills improve situational awareness.

The attached figure includes additional resources that are familiar to you.

You can draw on the resources created by you or others in the in-depth and deliberate levels as you exe-

Please send your questions, comments or recommendations to: Cdr. Allen McCoy, Code 16
Naval Safety Center
375 A St., Norfolk, VA 23411-4399
(757) 444-3520, ext. 7266 (DSN-564)
E-mail: allen.mccoy@navy.mil



cute the task or mission. Resources help us to be more effective and successful.

A leader makes sure the doers have the resources to do their jobs. Integrating ORM into your organization requires a full review of those resources and their current applicability. If we expect our skills to catch errors and complete the task or mission, we need to make sure it is current, effective and relevant.

If you think of risk management as a tactic that enhances mission accomplishment, you can see that we use it daily, normally without giving it much thought. This behavior, unfortunately, has not guaranteed our success. Why? Do we have a problem with managing risk? No. Over the years we have developed these types of resources on the job to improve mission effectiveness and reduce risk. The simple truth is, these resources work equally well when applied to daily life. This is an important realization when we consider the magnitude of injury and death that occurs off duty. Our goal is to give you a better understanding of ORM, its applicability, and use in our daily lives; both on duty and off duty.

Mr. Wirginis is the ORM manager with the Naval Safety Center.

What I Learned at Mast

By AT3 Jacqueline Bufkin

I recently had checked into the squadron and was looking forward to proving my skills to my new command. However, barely two months into my tour, I incurred an Article 92 violation of the UCMJ. I damaged an aircraft nose-landing-gear door, while operating a tow tractor (A/S32A-42) without a valid support equipment (SE) license. My only thought at the time was, "Where did I go wrong?"

A series of errors, starting in my previous command, had led to this situation. SE licenses are valid for three years, but the program requires all operators of self-propelled support equipment to possess a state driver's license. My previous command had limited the expiration date on my tow-tractor license, based on the expiration of my state driver's license. When I renewed my state license, I got preoccupied with back-to-back detachments and my impending transfer, and I never requalified for my support-equipment license.

I completed FRS training and was sent to TPU because my new command was deployed. TPU sent me back TAD to my original command, but when I tried to renew my SE license, the AMO told me I couldn't because I no longer was permanently assigned.

I transferred to my fleet squadron a month later and asked the beach-det supervisor about renewing my support-equipment qualifications. He said that the transfer of my quals would be easy, and my SE license still was valid because I had arrived from another VFA command. I didn't point out that, even though my Phase II paperwork indicated I had a valid qualification, my SE license actually had expired, as indicated on my yellow tow-tractor license. When my squadron returned stateside, my LPO said my quals would be transferred after the post-deployment leave period.

During that leave period, a petty officer filling in for my LPO tasked me to move an A/M32A-108 power cart next to aircraft 410 in the hangar. I wanted to get the job done and never thought about the consequences of driving with an expired SE license. Using a spotter, I towed the power cart next to the aircraft, within the safety diamond. My spotter detached the tow bar, but there was not enough room to turn the tractor around. He pushed the power cart back, while I tried to drive the tractor between the nose of the aircraft and the power cart. Suddenly, I heard a cracking sound, and my spotter yelled, "Stop!"

NLG and tractor (above), NLG close up (below)

It was too late. I had hit the bottom inch of the nose-landing-gear door. I shut off the tractor and notified my supervisor and QA. The landing-gear door had to be repaired, and the tow tractor was damaged slightly.

Everyone initially thought my license was current, including the QAR from GSE. They mistakenly had assumed I had a current license after reviewing my Phase II paperwork and my current state driver's license. However, I went to CO's mast.

Had I taken a proficiency exam, as required by the command to renew my qualifications, I would have learned several things. First, a chief is required to oversee any towing operations within the hangar bay or in close proximity to an aircraft. I also would have learned that power carts are pushed by hand inside the hangar, not towed close to the aircraft. If I had renewed my SE license, had received proper supervision, and had practiced ORM, this incident could have been avoided.

Petty Officer Bufkin works in the AT shop at VFA-131.

Send BZs to: SAFE-Mech@navy.mil

BZ of the Quarter

AD2 Eric Bagho
VFA-15

During a low-power turn, pre-operational inspection, Petty Officer Bagho noticed the starboard engine on an FA-18C was not seated on the airframe. He saw what looked like an abnormal gap between the variable exhaust nozzle and the exhaust-fairing assembly, or turkey feathers. Further investigation revealed the engine's outboard thrust mount, one of the three attachment points that affix each engine to the airframe, had failed. This problem likely would have resulted in catastrophic engine failure. Petty Officer Bagho's actions exemplify the importance of doing thorough visual inspections.

As much as we use computers and digitized sensors to diagnose problems with our aircraft, a sharp pair of eyeballs is often the best tool. Later the same day, Petty Officer Bagho was spot-awarded the Navy Achievement Medal by VFA-15's commanding officer.

Cpl. J.T. Gamblin and Sgt. T.H. Thiesen
VMAQ-4

While directing the night launch of an EA-6B, Cpl. Gamblin saw fuel leaking from the starboard-engine bay door. He found that the source of the leak was the fuel-control bleed line. He quickly alerted the pilot and had him secure the engine. The aircrew then manned up the back-up jet and successfully launched on a combat mission. Meanwhile, plane captain Gamblin and Sgt. Thiesen, a CDQAR for power plants, determined that the fuel line had been lying on the combustion chamber, causing the inner tube of the line to melt.

Further investigation revealed that, after installation of the bearing chip collector, the bleed line had been rerouted from its original position in order to reach the fuel control. Gamblin and Thiesen downed the aircraft, fixed the discrepancy, and prevented a recurrence by training their mechs.

AM3 Robert Shultz
HSL-37 Det. 2

During a crew swap of ER-50 aboard USS *Reuben James* (FFG-57), Petty Officer Shultz noticed a large amount of hydraulic fluid under the tail pylon. He immediately removed a panel from the starboard side of the pylon and found a pinhole leak on the pressure line for the No.1 tail-rotor servo. This leak would have caused an in-flight emergency.

AN Zachary Juarez
VAQ-131

During a turnaround inspection on Skybolt 500, Airman Juarez found that the retract actuator for the nose-landing gear was disconnected. As a result, the nose-landing gear could not have been retracted once airborne. If the aircrew had taken off, the landing gear would have stayed in a trail position throughout the flight. The aircrew wouldn't have been able to get a safe, down-and-locked indication when it was time to land, and the nose of the aircraft could have hit the runway upon landing.

Airman Juarez immediately reported the discrepancy to the maintenance-control supervisor. For his attention to detail, Airman Juarez was awarded the Navy and Marine Corps Achievement Medal. He also was named Lancer Safety Pro of the Month.

AZ2 Neeley Hunkler
VP-26

Even though they work "behind the scenes" in the maintenance department, aviation maintenance administrationmen (AZs) sometimes save the day and prevent mishaps. Petty Officer Hunkler of Patrol Squadron 26 showed good attention to detail and persistence on three occasions during an ISIS inspection for P-3 aircraft BUNO 161412. First, she found the No. 3 generator serial number did not match the ISIS paperwork. The component had been replaced more than 12 months earlier, but the necessary paperwork hadn't made it into the logbook. Also, during 161412's combined acceptance/ISIS inspection, she found the No. 4 prop serial number had been documented incorrectly in the aeronautical equipment-service record (AESR) for the past five years. Finally, the No. 3 turbine rotor's serial number was incorrect.

Apparently, two turbine rotors were built up and installed on two different engines at the same time. Hunkler contacted the repository for carded items, which showed that the component on aircraft 161412 was in Whidbey Island. The repository contacted that squadron for a serial-number check of their aircraft. The serial number for VP-26's turbine was found on the Whidbey Island squadron's aircraft.

The initiative demonstrated by Petty Officer Hunkler prevented three critical, time-consuming component changes.

AM2 Kevin Gaboy
VP-30

Petty Officer Gaboy was "diving" the No. 3 fuel tank of LL513 as a final QA check before signing off the MAF and closing the fuel cell. He expanded on the "18-inch rule" and inspected the entire fuel cell. Petty Officer Gaboy found an acid brush immediately forward of the No. 3 surge box, near the low-point drain (approximately six feet from the work area). If he only had followed procedures to the letter of the law, the fuel cell would've been closed up with the acid brush still inside. The worst-case scenario could have resulted in the acid brush eventually lodging within the booster feed line for the No. 3 engine, possibly causing an engine flame out.

AM2 Jota Molina
HSL-45

While troubleshooting the aircraft track-and-balancing system on a main rotor head, Petty Officer Molina noticed that the "Z" bracket appeared to be installed wrong. He realized that the nuts securing the bolts to the "Z" bracket were missing. His meticulous scrutiny and subsequent actions corrected this potentially serious problem.

AM2 Justin Lucas
HSL-45 Det. 2

While securing aircraft 52 after a functional-check flight, Petty Officer Lucas spotted a small amount of hydraulic-fluid residue on the port side of the SH-60B. Further investigation revealed a pinhole on the APU-accumulator return line. This discrepancy could have resulted in catastrophic failure of the No. 3 hydraulic system. Petty Officer Lucas notified QA personnel and downed the aircraft.

AD1 Robert Davis
HS-6

Petty Officer Davis, a CDQAR, was overseeing the servicing of the intermediate gearbox on Indian 610. He noticed the oil from the servicing unit was discolored. He immediately stopped the servicing and discovered the servicing unit was contaminated with water from a recent storm. After notifying the maintenance-control chief of the situation, he drained and flushed the gearbox and downed the servicing unit. His action prompted an inspection of all command servicing units; it also prompted wingwide notification.

AW2 Kevin McIsaac
HSL-45

During a routine hot-seat shutdown to fix a popped corner-fastener, Petty Officer McIsaac found a subtle imperfection on the underside of one main rotor blade. Further inspection revealed that an object had hit the blade, causing significant damage and calling into question its flight worthiness. Petty Officer McIsaac downed the aircraft.

AD2 Weng Chau
HSL-45 Det. 2

During a routine aircraft refueling, Petty Officer Chau noticed a fuel hose beginning to swell near the fuel nozzle. He immediately secured refueling procedures. Further inspection revealed a degraded hose that no longer was serviceable.

Petty Officer Chau notified the appropriate quality-assurance personnel, and immediate action was taken to avert a potential fuel leak and possible fire on board USS *Vandegrift* (FFG-48).

AD2 Sehn Phu
HSL-43

During a daily inspection on Battlecat 30, Petty Officer Phu discovered a bushing on the forward-bridge-retaining zee bracket was not seated fully and had begun to work loose. Inspection showed the loose bushing had created a hairline crack in the zee bracket. If left undetected, the loose bushing and crack could have created an extremely hazardous situation, affecting the helicopter's flight-control system. Petty Officer Phu assisted with the successful repair of the bridge assembly.

NAVAIR: Maintainer of the year awards

The ninth annual fleet maintainers' conference was held in April 2008. PMA202 (aircrew systems) recognized Navy and Marine Corps maintainers in the fields of aviation life support, egress, oxygen, and night-vision systems.

The Douglas L. Scott Memorial Maintainer of the Year Award (AME maintainer) recognizes superior performance and support in the field of egress systems and aircraft-mounted oxygen systems. The award winner was AME1(AW) Christopher E. Green, VFA-41. The other two finalists were AME1(AW) Richard D. Brickey, VFA-2; and AME1(AW/SW) Jeremy A. Moncier, VAQ-133.

The Robert J. Hudson Maintainer of the Year Award (PR/FE maintainer) recognizes superior performance and support in the field of aviation life-support systems. The award winner was Sgt. Frances O. White, MALS-31. The other two finalists were PR1(AW) Jamison J. Krein, HSL-49; and PR1(AW) Anthony V. Slavas, VR-54.

The Richard P. James Memorial Maintainer of the Year Award (NVS maintainer) recognizes superior performance and support in the field of night-vision systems. The award winner was Cpl. Kenneth A. Griewahn, MALS-39. The other two finalists were AE2 Nathan W. Ducharme, FRC MA Oceana; and PR3 Tamara L. Whitmer, HS-6.

Congratulations to all nominees and award winners!

Sgt. Frances White, MALS-31

Cpl. Kenneth Griewahn, MALS-39

CROSSFEED

Maintenance Officer
Cdr. Bert Ortiz
bert.ortiz@navy.mil

Editorial Coordinator
ADCS(AW) Michael Tate
michael.tate@navy.mil

I'll Meet You Over There

By AMCS(AW) James Litviak

It started out as a typical cold, rainy and foggy February morning. Our squadron was scheduled to transfer Bear Ace 603 to PMI-1, which was located in a hangar on the opposite side of the runway. The aircraft had been gutted, including the removal of most panels and both engines, and we were scheduled to deliver it no later than noon. Its delivery date already had slid one day because of a modification that had been done the day before. All we had to do was physically transfer the aircraft.

Besides supervising the desk that morning, I had been put in charge of getting the aircraft to PMI-1. I recognized the job required crossing the runway, and a transient-line escort was required to coordinate with the tower. At 0845, I called the transient line and requested a follow-me truck for a 1000 escort to cross the runway. Their response was, "Chief, we can't do it at 1000 because we have another job at 0930, but we can do it right now."

I thought for a few seconds, and said "It's a bit earlier then expected, and I still have to wrap up some loose ends. But OK, I'll get the move crew together in a hurry, give them a quick brief, and we'll get it done."

Moving aircraft is a daily evolution for a squadron, so this job would take no time at all. We towed the aircraft out of the hangar, and as expected, the follow-me truck was waiting for us outside. I knew the T-line had a deadline too, so my brief was short. I pointed at the hangar across the runway and barked to the plane captain and wing walkers, "Follow this driver over to that hangar, and I'll meet you over there."

Off they went. Recognizing it would be a while

Photo submitted by: AM1 (AW/SW David Karlson, VAW-124 Safety Petty Officer

before they arrived at the PMI-1 hangar, and that I surely would beat them there, I went to tie up the loose ends associated with transferring the aircraft. Here's where my plan began to unravel. As I entered maintenance control, a barrage of questions came in my direction. An aircrew inquired, "Is 602 ready to fly?" An airman asked, "Chief, how do I get a GSE class?" My quick five minutes of tying up loose ends turned into 10 to 15 minutes. Realizing the time, I finished what I was doing, grabbed the logbooks, hopped in my car, and drove down the perimeter road to the PMI hangar.

As soon as I got there, the PMI manager met me with a handful of my crew. I scanned the area and immediately recognized I was missing one or two people. I asked the plane captain, "Where's the tractor driver?" He nonchalantly replied that he had sent him back because he didn't need him anymore. Immediately, I flipped open my cellphone and called our maintenance control. An AZ answered. "Put the maintenance master chief on the phone right now," I yelled. The MMCPO requested the immediate return of the T-line follow-me truck. However, I thought it might be too late. I just prayed that nothing catastrophic had occurred.

Navy photo by MC3 Kristopher Wilson

I had a nightmarish image of a COD taking off en route to a CVN off the coast, or worse, a "graceful" C-5 Galaxy taking off for, or landing after, a long, direct flight from Iraq, while my tractor driver was motoring across the runway. To make things worse, I knew the tractor driver would have his cranial on and goggles down, which might prevent him from hearing an aircraft as it rumbled down the runway toward him.

I was thankful none of the above scenarios occurred. However, as sure as the sun rises, the airman drove the tractor straight across the runway, with no follow-me truck in sight. Luckily, no aircraft were landing or taking off. When we notified the T-line about the runway incursion, they told us that the tower had not called them regarding the incident and probably had not even noticed.

I stood there with my plane captain in front of me, and I gave him that "do you have any last words" look. I emphatically demanded to know, "What part of 'I'll meet you guys over there' did you not understand?" He gave me a shoulder shrug and replied that he didn't know why, but he just wanted to get the tractor back as soon as possible. He thought the follow-me truck was required only when an aircraft was under tow.

With the knowledge that everybody was safe, I momentarily pondered his answer, and I began to kick myself. First and foremost, I was responsible for the safe execution of the move. While I had had the best of intentions, I had rushed the evolution because of the new time constraints. I had conducted a verbal brief on the move over to the PMI-1 hangar but had assumed they would not depart without my approval. I had only told them, "I'll meet you over there," because I had planned to address the return trip when we were all together in front of the PMI-1 hangar. I also had assumed the tow-tractor driver and the plane captain both understood the requirement for the follow-me truck.

With the best of intentions, I unwittingly had overlooked two of the principles of ORM. First, I had not anticipated and managed risk through planning. Second, I inadvertently had accepted unnecessary risk. ORM principles and processes help us preserve our Sailors and our assets. The repercussions of ignoring them could have been catastrophic.

With this in mind, I had options available to me that could have prevented what occurred. I could have emphasized that no one was to leave the PMI hangar until I had arrived. I also could have advised the T-Line that we weren't prepared to move the aircraft earlier than originally scheduled. This would have allowed me to reschedule the move in the afternoon when they were available. Also, this would have allowed me to coordinate with the PMI-1 hangar for a later delivery time, and I would have had more time to fully brief the evolution and make sure that the move crew had no questions.

Before any major maintenance evolution, our squadron uses a major-maintenance-evolution checklist that incorporates ORM. We do not, however, use this checklist for daily tasks, such as moving aircraft. Instead, we rely on verbal briefs. As maintenance professionals, we should apply a form of our maintenance checklist to jobs that may seem routine. Minor differences introduce the possibility of uncertainty and potentially increase risk.

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

Hazmat

Hazardous Material's Unique Identifier

By AMCS(AW) James Litviak

Problem: Is your hazardous material uniquely identified for reference and retrieval? OPNAVINST 5100.23G states that your command is responsible for having a quick reference for retrieval.

My travels with the Naval Safety Center survey teams have shown that 90 percent of the commands didn't have a quick reference incorporated with their hazmat program. Most commands had their MSDS in numerical order, as their AUL lists them. However, that's only two-thirds of the way toward completing the unique identifier in this situation.

Solution: The hazardous material must have the same numbering system as the actual container. For example, if your AUL lists MIL-PRF-83282 hydraulic fluid as the first item, your MSDS must have a number "1" written on it. Additionally, it must be the first MSDS in your MSDS binder. The next step is to place a

number "1" on each container of hydraulic fluid.

Ask a shipmate if he or she can retrieve an MSDS for the hazmat you currently have checked out, and see how long it takes him or her to find it—if at all. Next, incorporate the unique identifier, and again ask that shipmate to get the MSDS for you. He or she will find it in 30 seconds or less.

Best Practicing commands: VAW-124, VRC-40, HSC-8.

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

Logs and Records

NALCOMIS Errors Can Lead to a Mishap

By SSgt. David Jenkins-Jackson

Problem: Over the past year, I have noticed a common trend across the fleet with the Technical Directive/Logs and Records portion of the NALCOMIS OMA/OOMA database. Statistical information in NALCOMIS does not always match the information in the aircraft logbook.

What happens, quite often, is that once an aircraft is received from a transferring organization, statistical errors are generated by a problem within NALCOMIS, or someone erroneously enters data from the logbook in the system. The knowledge of these errors is 1 of 3 factors that ultimately can lead to a mishap.

This issue continues to surface because of a lack of attention to detail in screening SRC data. The data include critical-fatigue-time for many aircraft components, and information about technical-directive compliance. The data should be verified before being uploaded into the system. Logs and Records/Maintenance Control must understand that time-sensitive items that are not properly tracked can lead to a mishap.

Solution: COMNAVFORINST 4790.2A, Chap 5, para. 5.2.1.2.1 and 5.2.1.2.11, shows that improper documentation, lack of communication, and inaccurate maintenance are the three, stand-alone causal factors in maintenance-related aviation mishaps. Logs and Records/Maintenance Control must pay close attention in screening documentation in order to verify, record, and maintain all maintenance information in the NALCOMIS database, as well as the logbook.

Overall, good communication and strict attention to detail are keys to mitigate NALCOMIS problems. Communication is the most essential tool for proper inventory, accurate maintenance practices, and accurate documentation.

Best Practice: VMX-22, from MCAS New River, has an excellent Logs and Records/TD program. They enforce a strict policy of verifying all safe-for-flight information, which includes the base-line of all component fatigue time, TD routing/compliance procedures, and documentation of active and historical data for all aeronautical equipment maintained in the NALCOMIS database as well as in the logbook.

Staff Sergeant Jenkins-Jackson is a maintenance analyst at the Naval Safety Center.

Quality Assurance

Those Follow-Up QA Audits

By AMCS(AW) Robert Chenard

Problem: Half of the squadrons surveyed in fiscal year 2008 had a weak audit follow-up process. This issue also was briefed by CNAF AMMT as one of their top 10 discrepancies. Squadrons didn't follow up, let too much time pass, or took inadequate corrective actions.

Solution: CNAF 4790.2A, para. 10.7.3.2.c, states that the MO shall: "Ensure corrective action and QA follow-up on discrepant areas are performed within a reasonable time frame (normally 10 working days) and that the corrective action is adequate."

Best Practice: The best practice is to treat QA audits like a MAF—with a discrepancy, a sign-off, and a QA in-process. Each discrepancy needs to be understood clearly. The corrective action (sign-off) should not only address the issue but the root cause of the problem, so it can be avoided in the future. The QA follow-up (in-process) should clearly state the condition found; "verified", "corrected", and other one-word answers are not adequate responses.

Commands already doing this include: VAW-112, VMFA(AW)-242, VMFT-401, VR-55, VAQ-140 and VRC-30.

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

Class C Mishap Summary

By ADCS(AW) Michael Tate

From June 9, 2008, to September 19, 2008, the Navy and Marine Corps had 22 Class C mishaps involving 22 aircraft.

During this quarter, a single incident caught my eye. It involved the accepted practice of using any available plastic to cap lines, or to seal openings on components to protect them from FOD. The mishap resulted from an uncontrolled consumable ending up where it did not belong: in a helicopter's main transmission.

Night check, anticipating weekend liberty, had removed an input module from a gear box and sealed the opening with a plastic bag. The new module was installed later that night. Somewhere in the chain of events, the bag was sealed inside the gearbox. After the engines were shut down on an attempted FCF, a huge trouble-shooting event was initiated to fix an oil-pressure discrepancy.

After maintainers changed the oil-pressure switch and the aircrew returned to the bird, another engine turn was attempted. The problem remained, and further troubleshooting included changing the same pressure switch again, a drain and flush on the oil system, and replacement of two scavenge pumps. Ground turn number four was unsuccessful but also added a popped oil-pressure-differential indicator (PDI) to the equation. This indicated an oil problem in the gearbox and led to removal of the originally installed input module. Large amounts of plastic were found inside the gearbox, clogging the ports.

Adhering to NAMP tool-control procedures, which include accounting for all consumables, would have prevented this chain of events. These mechanics and technicians are true professionals, but it's human nature to make mistakes sometimes. We always must enforce our procedures and review lessons learned to prevent mishaps. In many respects, the concept and everyday merging of ORM into our environments will help to eliminate this type of discrepancy. No one was injured in this incident, but many unnecessary parts were replaced, and a lot of man-hours were spent because of a plastic bag.

NAMP specifies to cover holes on the main gearbox if the input-module assembly does not need to be replaced immediately, but it does not specify a method to cover the holes. The NAVAIR Level I preservation guidelines direct the transmission and gearboxes to be sealed and all associated openings covered with a specific type and class of barrier paper and tape. However, a lot of maintenance personnel seem to be unfamiliar with the correct process for sealing the main-transmission gearbox after removing a transmission-module assembly.

Senior Chief Tate is a maintenance analyst at the Naval Safety Center and coordinator of the Crossfeed section of Mech.

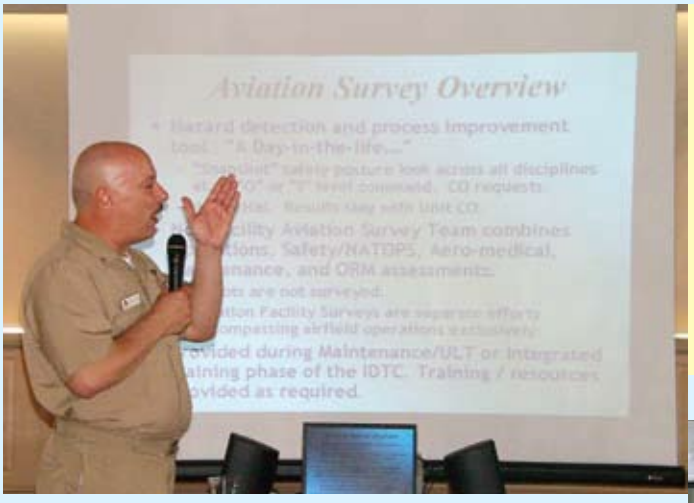
Helping Sailors and Marines Help Themselves

Sierra Hotel

Commander, Naval Safety Center would like to recognize the following aviation commands for their recent participation in safety surveys, culture workshops, and maintenance malpractice resource management (MRM) presentations for the months of June-September.

Safety Surveys

VX-23	CMO-10	HSC-8	VP-40
VX-20	VAQ-129	VX-1	VAQ-135
TPS	VQ-1	HX-21	VQ-2
VP-8	FRCW Fallon SFDW	VPU-1	VFA-136
VR-62	VFA-37	VFA-106	VMFA-314
VFA-211	MALS-39	VP-10	MALS-11
VAW-124	VMFAT-101	VRC-40	HSC-3
VAQ-140	HSC-21	VAQ-130	HS-6



MRMs

FRC: NAS Corpus Christi, TX
MALS-12 and VMFA-212: MCAS Iwakuni, Japan
AMO Course: NAS Pensacola, FL
HSC-84: NS Norfolk, VA
VR-56: NAS Oceana, VA
VQ-3, VQ-4, VQ-7, and COMSTRATCOMWING ONE: Tinker AFB, OK
VX-30 and VR-55: NAS Point Mugu, CA

Culture Workshops

HMLA-775	VFA-32	VFA-41
HMLA-267	VFA-86	VFA-204
VMFA(AW)-121	HSL-51	VT-21
HS-7	VFA-147	VT-22
VFA-105	VAQ-135	

Navy photo by MC1 Michael Kennedy

For more information or to get on the schedule, please contact: Safety Surveys: Maj. Anthony Frost, USMC at 757-444-3520 Ext. 7223, MRM: AMCS(AW) Robert Chenard at 757-444-3520 Ext. 7221, Culture Workshop: Cdr. Duke Dietz at 757-444-3520 Ext. 7212.

ORM

can prevent crushing loads

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Navy photo by AOAN Matthew Buffington