

Mech

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One Job at a Time

Fire-Bottle Follies

Why I Blew It



THE NAVY & MARINE CORPS AVIATION MAINTENANCE SAFETY MAGAZINE

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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: Sailors assigned to the "Checkmates" of VFA-211 perform scheduled maintenance on the MA161A2 20mm machine gun weapon system on an FA-18F Super Hornet in the hangar bay aboard the nuclear-powered aircraft carrier USS Enterprise (CVN-65). Navy photo by PH2 Milosz Reterski.



Sailors Helping Sailors, Marines Helping Marines

This issue of *Mech* is a good example of why maintainers need to pay attention and help each other. Dropped drop-tanks, unintentional activation of flares or chaff, and inadvertent firing of CADs, all can spell trouble.

You may have heard of our Sailor-to-Sailor Safety program. We taped testimonials about DUIs, off-duty incidents, and on-duty mishaps; and I was horrified to listen to a maintainer tell the story of a flare mishap aboard a carrier last year.

In that incident, a shipmate was burned terribly. That mishap still is under investigation, so we can't discuss specifics or even share the video that we taped. However, it fits the theme of this current issue.

When maintainers don't pay attention, are tired, or don't use the book, bad things happen. Heed the

warnings found in each of these stories. Challenge your fellow maintainers to follow written instructions, adhere to good maintenance practices, and use all safety and protective equipment.

It never ceases to amaze me, when we have a preventable mishap, that no one stepped up to the plate to prevent it, despite obvious opportunity to do so. Sailor to Sailor, Marine to Marine...let's work together and stop these senseless errors and mishaps. One person can make a difference when you commit yourself to not allowing shoddy maintenance to occur at your command.

RADM A. J. Johnson

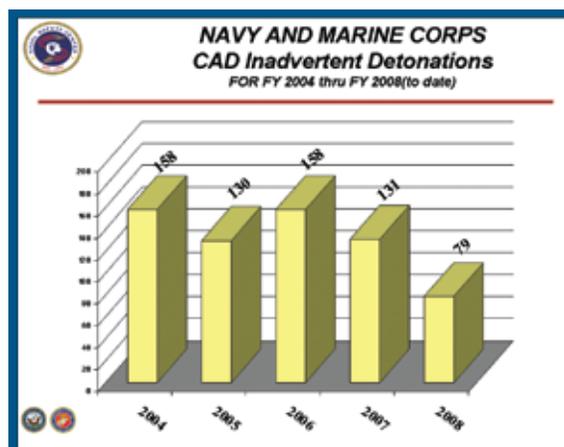
A Final Goodbye

By Dan Steber

This issue is about a problem we face from time to time: inadvertent activation of CADs, flares, and chaff. I threw in a few examples of dropped drop tanks, too, because we also have had a few of them.

The CAD numbers are clear, and I've included some for you to review. You can see that the numbers fluctuate, but they are excessive.

The admiral pointed out how bad it can get in his intro. I had the pleasure of filming those Sailor-to-Sailor spots and also suffered the pain of hearing some of those stories. The move to video has come to the Naval Safety Center, and I now will be involved with it on a day to day basis.



We hope to do some interesting things and already are introducing a podcast and vod-cast site. We have been shooting celebrity public service announcements, victim testimonials, and informational spots.

I hope to do some maintenance-related videos in the near future and do things of interest that also will be educational. That includes a series of spots on maintenance programs that will show what makes some

good and others bad.

It's been a joy for the past eight years to have been the editor. I'm moving into the video world, but maintainers will still be part of my work.

I am truly honored to have been the editor of *Mech* and incredibly proud of the hundreds of maintainers who wrote e-mails and told leaders that the magazine was an integral part of your day-to-day safety efforts. You told us how you used *Mech* in shop training and safety lectures and the critical role it played in maintenance and safety efforts.

Mech is your magazine. I simply was the lucky guy to assemble it each quarter and bring useful stories to light.

LCDR John Ruane will take over. John was a plane captain in E-2s and a maintainer in P-3s before becoming an officer. I'm sure he'll do a great job. I'm not going far and will stay involved at some level. Thanks. Dan. ✈

Maintenance and ORM

By Cdr. Bert Ortiz

I mentioned in my last story that I have been fortunate to visit and work with many O- and I-level Navy and Marine Corps aviation units around the world. In addition to the safety surveys and culture workshops that give you a unique perspective on both positive and negative trends, we also provide a good look at how ORM is being implemented in the fleet.



In this and every issue of *Mech*, you will read stories of woe from the maintenance world. I believe most of these incidents could have been mitigated through proactive use of ORM. Whether the long, deliberate five-step process or on the fly, time-critical type, maintainers must identify the hazards being faced, assess the risk, make risk decisions, implement controls, and supervise, supervise, supervise.

This issue, in particular, has several stories about a long-time problem that spikes from time to time: inadvertent activation or ejection of CADs, flares and chaff, along with dropped drop tanks. It seems we face this problem every couple of years. We put a lot of attention on the issue. It stays in check for a few years but then comes back to bite us in the butt. I have a few thoughts about ORM, how it applies in maintenance situations and fits this issue, and about recurring maintenance problems.

We all are tasked with incorporating ORM into everything we do, and to be frank, what we have seen is that the only thing that happens in this area is the yearly training "check in the block." I don't see ORM added to maintenance-training plans. I don't see tangible ORM practices being identified in the safety-council meetings or actively used in shops. I have yet to find an organi-

zation with a true, "model" maintenance-ORM program that I can point at and show you a way to incorporate ORM principles practically. Sure, we see the principles generally applied in maintenance meetings, pre-aircraft wash or move briefs, work-center meetings and passdowns, but these things have not changed in the 30 years I've been in the Navy.

So how do we truly incorporate ORM and have it improve our business in a tangible way? I always recommend each unit do a deliberate review on major maintenance evolutions (engine or stab changes) or even a minor one (aircraft move or wash). Do it during your training day or during the safety-council meeting. Look it up on TRACS, which is the online, total risk-assessment-and-control system. It already may have been done, and you can save time and effort! When you do this deliberate review and identify, assess and mitigate all the risks associated with that evolution, you'll end up with a pretty decent briefing guide for the task.

One additional thing you can do is to ask this question on the bottom of the deliberate review: "What's changed or different today?" This one simple step will make the review valid for the time you use it, and do use it each time you brief a task. Post it on TRACS for others to use as well! It truly can be a great tool to get a fresh look at things each time and really apply all that training in ORM. Go ahead...stir it up!

Next time I'm around your unit, show me what you've done to inculcate ORM in maintenance. Give me the location I can point to as the model program! ✈

Cdr. Ortiz is the maintenance officer at the Naval Safety Center.

Chaff, Flares and CADs Can Kill

By George Alston

The ALE-39 and ALE-47 countermeasures dispensers have saved many lives and aircraft. This same system can be deadly when maintenance technicians fail to follow safety procedures found in the maintenance manuals.

We've had too many reports of maintenance error and inadvertent ejection of chaff, flares and cartridges. The attached excerpts taken from one of many recent reports—this one an ALE-47 explosive event report (EER)—show the affects in one case. Unfortunately, we've had a rash of cases, and everyone who handles these items needs to be aware of the dangers faced every day with these small but powerful items.

Navy photo by MC1 Eric Benson



AO3 Cary Buel installs a MJU-49/B Decoy Flare bucket into the ALE-47 Counter Measure Dispensing system on a P-3C Orion assigned to VP-9. The Counter Measure Dispensing system is vital to the survivability of the P-3C by enabling the crew to dispense chaff and flares in defense of enemy fire.

1. CHAIN OF EVENTS: A CH-53E AIRCRAFT CONFIGURED WITH 30 MJU-32 AND 30 MJU-49 RETURNED FROM AN ARMED MISSION WITH AN ALE-47 DISCREPANCY. THE AIRCREW PROPERLY DE-ARMED THE ALEPODS AND CONDUCTED A NORMAL SHUTDOWN. THE ORDNANCE DIVISION WAS TASKED BY MAINTENANCE CONTROL TO REMOVE THE DISPENSER MAGAZINES AS SOON AS POSSIBLE. THE HELICOPTER AIRCRAFT COMMANDER(HAC) DEBRIEFED THE SENIOR T/M/S AVIONICS TECHNICIAN THAT, ALTHOUGH THE ALE-47 CIRCUIT BREAKERS WERE PULLED OUT AND THE CONTROL PANEL WAS ON STANDBY, THE ALE CONDUCTED AN IN-FLIGHT UNCOMMANDED DISPENSING OF FLARES. THIS AIRCRAFT WAS NEEDED THE NEXT DAY FOR A COMBAT MISSION, SO MAINTENANCE CONTROL REQUESTED THAT THE ORDNANCE DIVISION ASSIST THE AVIONICS DIVISION WITH THE ALE-47 DISCREPANCY. AVIONICS SENT THREE TECHNICIANS TO THE AIRCRAFT TO INVESTIGATE THE PROBLEM. THE ALM-290 TEST SET WAS NOT READILY AVAILABLE, SO THE ORDNANCE TECHNICIAN ASSIGNED TO ASSIST AVIONICS LEFT THE EXPLOSIVE EVENT AIRCRAFT TO RETRIEVE THE TEST SET FROM A CONCURRENT AH/UH DOWNLOADING EVOLUTION IN ANOTHER LOCATION ON THE AIRFIELD. TECHNICIAN #1 WRONGLY ASSUMED ALL EXPENDABLES HAD BEEN REMOVED AND PROCEEDED DIRECTLY INTO THE AIRCRAFT WITHOUT INSPECTING THE MATERIAL CONDITION OF THE ALE PODS.

HE DISCONNECTED THE APPROPRIATE CIRCUIT BREAKERS AND THEN APPLIED POWER TO THE AIRCRAFT IN ORDER TO METER THE APPROPRIATE ALE COMPONENTS. TECHNICIAN #1'S TROUBLESHOOTING REVEALED THAT THERE WAS NO POWER GETTING TO THE SYSTEM. TECHNICIAN #1 THEN PUSHED IN THE CIRCUIT BREAKERS, WHICH ENERGIZED THE SYSTEM WITH 28 VOLTS AT THE CIRCUIT BREAKER. TECHNICIAN #1 EXAMINED THE FIRING SWITCHES IN THE CABIN AND REALIZED NONE OF THE COUNTERMEASURE DISPENSING SWITCHES HAD ILLUMINATED. HE THEN ASKED TECHNICIAN #2 TO ARM BOTH ALE-47 PODS, WHICH STILL HAD NOT BEEN DOWNLOADED BY THE ORDNANCE DIVISION.

TECHNICIAN #2 ASSUMED THAT EVERYONE WAS AWARE THAT THE PODS WERE STILL LOADED AND WITHOUT HESITATION ARMED THE PODS. TECHNICIAN #1, WHO WAS SITTING ON THE JUMPSEAT NEAR THE COCKPIT, REQUESTED TECHNICIAN #3 TO PLACE THE ALE-47 GROUND OVERRIDE SWITCH INTO THE ON POSITION. TECHNICIAN #1 PRESSED THE ALE FIRING SWITCH IN THE CABIN, WHICH RESULTED IN ONE FLARE BEING JETTISONED FROM EACH ALE POD. TECHNICIAN #1 INSTANTLY RECOGNIZED THAT COUNTERMEAS-

SURES ORDNANCE HAD BEEN EXPENDED AND SHUT THE AIRCRAFT AUXILIARY POWER PLANT OFF AND REPORTED THE INCIDENT TO THE CHAIN OF COMMAND.

1. CAUSE OF MISHAP OR DEFICIENCY: HUMAN ERROR, CAUSE DESCRIPTION:

MAINTENANCE LEADERSHIP DID NOT COMMUNICATE PRIORITIES TO WORKCENTERS. THERE WAS A LACK OF SITUATIONAL AWARENESS BY THE AVIONICS TECHNICIANS. JUNIOR AVIONICS TECHNICIANS DISPLAYED A LACK OF ASSERTIVENESS. THERE WAS A FAILURE TO ADHERE TO ESTABLISHED PROCEDURES AND APPLICABLE MIMS BY MAINTENANCE PERSONNEL. THERE WAS A FAILURE OF MAINTENANCE PROCESS AND CONTROL OF WORK.

2. PERSONNEL FAILED TO FOLLOW PROPER PROCEDURE, OR FOLLOW APPLICABLE MIMS

3. PERSONNEL WERE ATTEMPTING TO EXPEDITE MAINTENANCE ACTION FOR FOLLOW-ON MISSIONS.

C. THE SUPERVISOR WAS PRESENT, QUALIFICATIONS OR CERTIFICATIONS:

NOT REQUIRED, THE INDIVIDUAL WAS TRAINED IN THE TASK.

GOLF: RECOMMEND THAT REFRESHER COURSES BE CONDUCTED FOR ALL PERSONNEL PRIOR TO ANY INITIAL AVIATION ORDNANCE EVOLUTIONS EMPHASIZING ORDNANCE SAFETY AND AWARENESS. RECOMMEND THAT THE SENIOR TECHNICIAN INVOLVED IN THE EXPLOSIVE EVENT CONDUCT AFTER-ACTION BRIEFS FOR ALL MAINTENANCE DEPARTMENT PERSONNEL WITH AN EMPHASIS ON ORDNANCE SAFETY, AWARENESS, AND THE IMPORTANCE OF FOLLOWING PROPER MAINTENANCE PROCEDURES. LESSONS LEARNED ARE AS FOLLOWS: 1) CONDUCT A MAINTENANCE COORDINATION MEETING IMMEDIATELY FOLLOWING ORDNANCE EVOLUTIONS IN ORDER TO ESTABLISH PRIORITIES AND MAINTENANCE GUIDANCE FOR ALL WORKCENTERS. 2) MAINTENANCE TECHNICIANS ASSIGNED TO CONDUCT MAINTENANCE/TROUBLESHOOTING ON ORDNANCE EVOLUTION AIRCRAFT MUST CONDUCT A THOROUGH LOOK-INSPECTION, PAYING PARTICULAR ATTENTION TO AIRCRAFT WEAPONS STATIONS. ENSURE THE TECHNICIANS THEN DISCUSS THE UPCOMING MAINTENANCE EVOLUTION. 3) ENSURE DOCUMENTATION HAS BEEN COMPLETED AND THAT EACH AIRCRAFT IS IDENTIFIED AS HAVING ORDNANCE ABOARD. 4) ALWAYS UTILIZE CHECKLISTS AND APPLICABLE MAINTENANCE MANUALS. IN CONCLUSION, REFRAIN FROM BEING IN SUCH A RUSH THAT YOUR ACTIONS COMPROMISE SAFETY. ASK QUESTIONS IF YOU HAVE DOUBTS. COMPLACENCY KILLS.



This message pointed out a few things that can and should take place. However, another step that might help prevent problems that maintenance technicians cause would be to have them sign a statement on the MAF before going out to the aircraft. The statement would say: I will check each dispenser on the aircraft for magazines. I will not do maintenance on an aircraft with magazines installed in a dispenser. This one simple statement may make them more aware and less likely to have a problem.

Aircraft with PODs (helos) would have an additional sentence: While performing maintenance on the aircraft, I will not place the POD arm/safety handle in the arm position if a magazine is installed in the dispenser.

Anyone dealing with chaff, flares or CADs needs to heed the warnings pointed out in this story and in the supplied message. If not, the next story may be about the death or serious injury to a maintainer. ✈

Mr. Alston works with the EW Fleet Support Team, NAVAIR ISSC (AIR 4.5.4.1), Jacksonville, Fla.



The new **Tire and Wheel** safety poster is in and can be ordered online at www.safetycenter.navy.mil, under media and safety posters.

One Job at a Time

By AE2 Andrew Peterson

Everyone tried to tell me about the vast differences between the “small boys” and a carrier, in terms of size, speed, and scope of operations. No big deal, I thought. I understood that my role as a maintainer boiled down to two primary functions: to fix and maintain the helos in the hangar bay, and to launch and recover the helos on the flight deck. Well I learned a new lesson one day when I rushed from the hangar bay to the flight deck between jobs.

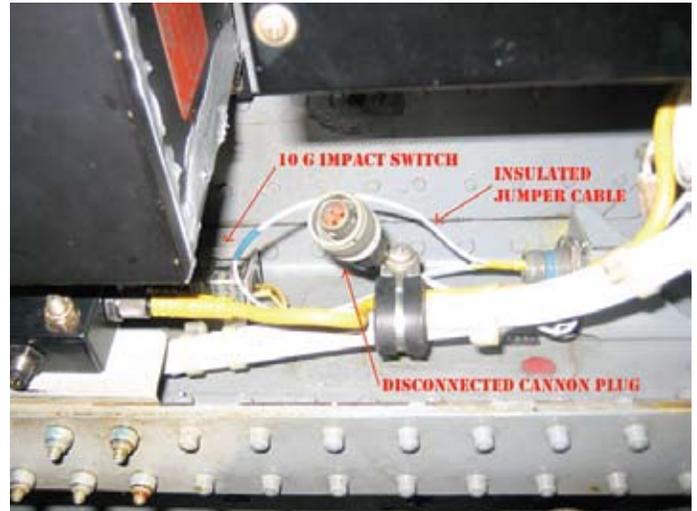
The incident occurred on my first carrier cruise aboard USS *Kitty Hawk* as an SH-60B maintainer for HSL-51 Det. 3. All my previous deployments with the squadron for nearly four years had been on guided-missile cruisers as part of a one-aircraft detachment. I really didn't think this ship would be any different. Boy was I wrong!

Warlord 703 was well into scheduled phase maintenance and fully de-paneled in the hangar bay. I was doing a standard fire-bottle op-check and going step-by-step on the IETMS laptop. The fire bottles and the CADS had been removed from the aircraft, and the voltmeter verified no stray voltage existed. To test the 10g impact-switch circuit, I disconnected the cannon plug and ran an insulated jumper cable across the leads. This simulates the impact of a 10g crash landing when the fire-extinguisher circuit breaker is closed, which then would discharge both fire bottles simultaneously. The fire bottles were removed at this point.

All checks were good! I was in the process of finishing up the last few steps, when I got called to the flight deck to recover Warlord 710. No sweat, I thought, the phase would be over in record time. As I was climbing the ladder to the flight deck, all I could think about was the rapid progress on 703. The fact that I had left the insulated jumper cable attached to the impact-switch leads must have slipped my mind.

We recovered 710 and finished the normal routine of engine wash, fold and stuff in the helo hole. Everyone on night check, including myself, spent the remainder of the evening on inspections and gripes written after 710's flight.

The following day, the AOs began hooking up the CADS and fire bottles on 703. As it so happened,



Knowing the system and how to prevent problems is the key to success.

another maintainer closed the fire-extinguisher circuit breaker during the course of the phase. The inevitable result was the discharge of the No. 2 fire bottle into the No. 2 engine. Fortunately, the No. 1 fire bottle had not been connected yet, or it would have fired, too.

When I got the word, I was in utter disbelief. How could I make such a simple mistake? Needless to say, my senior chief was in utter disbelief as well! I can't repeat some of the words he had for me.

These CADS can injure people. I can't imagine how I would have felt had I been responsible for a shipmate losing his finger, hand, sight, or even his life. Thankfully, no one was hurt because of my carelessness. Despite being the lead AE on my detachment, I put another person at risk because I forgot to remove a 4-inch piece of wire. I forever will be reminded of this incident each time I CDI a discrepancy.

I have heard the words, “In this job, distractions can be deadly,” but they mean much more to me now. I learned an important lesson: Maintainers must do every job, no matter how big or small, from start to finish. And do one job at a time. 🙏🙏

Petty Officer Peterson works in the AE shop at HSL-51.

Fire-Bottle Follies

By AE2(AW/SW) Stephanie Teixeira

One evening during deployment, pilots were manning up for the first night launch. As a troubleshooter with VFA-136, I was making my way to the back of the jet to check hydraulic gauge No. 1 on the left side of the aircraft, while one of our pilots climbed into the cockpit. The night was ready to heat up.

As I was writing down the numbers on the launch card, the pilot started the APU. Normally, when the APU starts at night, you can see some orange flames coming from the exhaust. However, this time, the flames kept growing bigger and wider. They started hitting the deck and flowing out the sides of the aircraft. I was worried because the flames were larger than I ever had seen before, so I gave the PC the fire signal with my wand. The PC was confused at first but eventually gave the pilot the shutdown signal. The APU spooled down, and the fire went out.

I had been watching the PC and knew that he did not pass the correct signal for an APU fire. So, to clarify

the situation, I ran up to the starboard side of the jet and yelled to the pilot, “You had an APU fire.” In the meantime, our flight-deck chief and another troubleshooter already had started to pump up the APU. To make sure we didn’t have any mixed signals, I crossed to the port side of the FA-18C, climbed up the ladder, and told the pilot what had happened. I could have just plugged into the aircraft to pass that information; however, that would have taken too long. I told him to wait for us to pump up the APU, so we could try the start again. He acknowledged what I told him by saying “OK,” so I climbed down from the LEX to help the other troubleshooter with the APU.

Once we were ready to start again, we gave the PC the signal to start the APU, and the pilot started the jet without incident. After final checks, the flight-deck crew broke down the jet and taxied it toward the catapults. A few minutes later, the pilot called himself down and taxied back for shutdown. What the heck had happened now?

Navy photo by PH1(AW) Brien Aho





thought of checking the fire bottle or asking the pilot if he had blown the extinguisher. Had the troubleshooters checked the MMP codes before the chocks and chains had been removed for taxi, we would have seen a 988 code, indicating that the fire bottle had been discharged. We instantly would have known that the jet was down.

When I talked to the pilot after I climbed up the ladder, he did not mention the extinguisher because he thought I already knew. Thinking that we needed the jet turning to troubleshoot, he restarted it. Only later, as he taxied toward the catapult, did the

It turned out the jet was down before it was started the second time. The pilot noticed during the first start that his jet was getting a lot of attention on the flight deck. He looked at his PC, who was a new trainee, giving him a signal with the light wands. The pilot became confused because the signal appeared to be a cross between the start and shut-down-engine signals. In the background, the pilot thought he saw the PC instructor standing behind the PC trainee give a fire signal without wands. Based on the conflicting signals and confusion, the pilot decided it was best to shut off the APU. The pilot was anxious because he did not understand what was going on. When he saw me mouth the word “fire” from the right side of the jet, he decided to execute the first steps of the APU fire-emergency procedure, which was to blow the fire-extinguisher bottle. However, since things seemed to have calmed down around his aircraft, he never completed the procedure, which called for him to exit the aircraft. No one on the deck and around the aircraft knew that the pilot’s emergency procedures were to blow the fire bottle. Had we known, or had the pilot climbed out of the jet, we would have suspected that the jet was down.

The pilot assumed we knew that he had fired the extinguisher, but we had no idea. In fact, the troubleshooter in the wheel well pumping up the APU noticed a hissing sound and had mist spray into his face, but he didn’t think it was the fire-extinguishing agent from the bottle. Since no one had heard the CADS fire, no one

CATCC representative confirm he was down.

In the end, we learned many lessons from this experience. Everyone must play an active role and communicate clearly and concisely with each other. A PC trainee must have better supervision with a new pilot. PC instructors need to take charge and pass proper signals if their trainee doesn’t handle a situation correctly. They also should have their own set of wands. PC trainees must know their emergency signals. It’s important that all maintainers know emergency procedures. In our case, only maintainers with a low-power turn qual knew the pilots’ APU fire procedures. Implementing training like this will keep the ground crew from trying to restart the APU after a fire-bottle discharge.

Regardless of what is going on, procedures must be followed. Because of the fire, the ground crew got behind and felt rushed trying to launch the jet before the catapults were secured. As a result, we forgot to check the MMPs. Had we stopped for a second and reviewed our procedures, this situation wouldn’t have happened.

Even though each of us thought we knew what was going on, none of us knew all that had happened until well after the incident. Fortunately, the extinguishing agent did not harm the troubleshooter, and the jet did not go flying in a down status. We shouldn’t depend on luck, but we were lucky that this incident cost us only a sortie. 🙏🙏

Petty Officer Teixeira is a troubleshooter with VFA-136.

Assuming Is a Bad Thing

By AO2(AW) Jason Binney and AO3(AW) Briggs

To say things had become routine during the last few weeks of a six-month combat cruise is an understatement. The constant repetition of certain maintenance procedures led team members to make assumptions that ended in a memorable incident.

We were on our last hour of night check. We needed to arm the jets for the morning flight schedule and to do an air-refueling store (ARS) guillotine check. We had done these procedures countless times on cruise. As the CDI, I thought that Fast Eagle 106 required these

for the guillotine check, using the AWM-102 tester to complete this function. Typically it works great; however, this time it was acting up. I had to spend some extra time with the tester before using it. Back in the cockpit, AO3 Briggs removed the safety controls on the ARS control panel and was ready to test the system.

Normally, the CADs are removed from the aircraft during testing, so they do not actually fire when the system is tested. The test is done to make sure the firing process works from the cockpit, in case aircrew



checks, so my team member and I signed out our tools, went to the roof, found the jet, and went to work. We did not put our job into “work” in NALCOMIS before we left maintenance control. We found 106 and assumed the jet was not armed; we implicitly trusted our ship-mates to leave the jet unarmed before the tests.

Upon reaching the jet, AO3 Briggs climbed into the cockpit and prepped the necessary switches for the test. I stayed underneath the jet and prepared the ARS pod

have to sever the refueling hose in flight. Since we trusted that the CADs had been removed, we did not verify whether they actually were installed in the ARS pod.

Since the AO3 knew how long the prep work took, she had a built-in timer for this test. After waiting the normal amount of time, she engaged the firing switch in the cockpit. As it turns out, the CADs were installed, so they blew. The hose was cut, and the refueling basket



Working on a “buddy store” requires attention from the blades to the basket.

Navy photo by PH3 Shannon Renfroe

fell to the flight deck. Fortunately, no one was injured when this happened.

After realizing what had happened, we notified maintenance control. They asked us why we had tested 106 when we were supposed to check 113. This is where all the pieces of the puzzle came together. We had confused the side number needing the checks, and we likely would have realized our mistake had we used NALCOMIS.

In addition to the side number mix-up, we also chose to do this test with two people, instead of three. A third person is essential to this test because the person in the cockpit cannot communicate directly with the person underneath the jet. Had that middleman been there to relay communications between the two of us, we could have avoided firing the cad, cutting the hose, and damaging the ARS pod.

The biggest mistake we made was assuming the CADS had been removed. Assuming anything as a maintainer, particularly for an ordnanceman, is fraught

with danger. The jets we maintain are weapons, and we always should treat them as “loaded guns,” no matter what the circumstances. Verifying that the jet is dearmed takes about as long as it takes to say it. We had no excuse for not having verified the jet was dearmed or for not using a checklist.

While no one was injured by this incident, we did nearly \$15,000 worth of damage to the ARS pod and disabled a valuable air-wing asset. Furthermore, we tarnished our squadron’s stellar reputation as the air wing’s “Golden Wrench” unit. We went to captain’s mast for this error and subsequently lost our qualifications. We are now team members working to regain them.

We would like to be able to go back and change what happened, but we can’t. We were a bit fatigued and get-home-itis had set in. But when the routine becomes too routine, it’s time to be extra careful. 🌿

Petty Officers Binney and Briggs work in the ordnance shop at VFA-41.

Good

Well-organized safety boards with information, posters or magazine excerpts improve safety awareness.



Bad

Spray painting requires the right gear, right place, and right amount of cleanliness.



Ugly

The note on the ready-service locker is clear, but the smoking pit clearly is too close for comfort.



Why I Blew It

By Lt. Adrian Dawson

I was doing an interior aircraft cleaning of one of our squadron birds along with the rest of my crew. It was only the second time I ever had done it, and the job was simple. You wipe down certain areas, vacuum and mop the floors, and then call it a day. But, like everything else in the Navy, we have a checklist for this menial task. Had I used it, that simple document would have prevented my unfortunate incident.

Like any desert, the conditions are notoriously dusty at our forward-deployed location. So as a pilot, I started my portion of the aircraft cleaning in the place I feel most at home: the flight station. I started with the horizontal surfaces that had collected dust. And there was a lot of it. As my flight engineer was walking out to the aircraft with the checklist in his hand, I began to clean around the emergency-shutdown handles.

On P-3 aircraft, protected behind the e-handles, are the fire bottle (HRD: high-rate discharge) buttons, which release an extinguishing agent into the engine nacelles in the event of a fire. You probably can see where this is going.

I successfully cleaned around the No.s 4, 3 and 2 e-handles without any problems. However, while cleaning around the No. 1 handle, I heard the distinct click every upgrading pilot can recognize. It happened when my index finger hit something, which turned out to be the HRD button. With a sick feeling in my stomach, I looked to the right, so I could scan the forward load center, which contains various circuit-breaker panels.

Confirming what I already suspected, I saw that the circuit breakers for normal fire extinguishing were set. Holding on to a sliver of hope, I put on my hearing pro-

tection and walked outside to check the HRD pressure gauge for the No. 1 engine.

Seeing that the needle was pegged at 0, I knew the final nail was in my coffin. I slowly dragged myself back onto the aircraft and into the flight station, only to see my flight engineer dutifully running the aircraft-clean checklist. By the way, step 1, sub-step h, is “Pull primary HRD C/B’s.” RTFC! Which in this case stands for “Run The Freaking Checklist.”

In aviation, we use terms like situational awareness, which essentially means how close your perception of what’s going on mirrors reality. It is a term that should not be reserved for missions or flights. Where was my SA as I was cleaning around those e-handles? Did I know whether the breakers were in or out? Unfortunately, not until it was too late.

The worst part is that I’m a former ground-safety officer for our squadron. No one is more aware than I am about “mid-deployment complacency”, “focusing on the task at hand”, “everyone is a safety officer”, and “procedures are there for a reason.” My job was to organize safety stand-downs, make sure people know their safety chain of command, and even write articles for the monthly safety newsletter.

I think the takeaway here is to approach every event with the same intensity and attention to detail. Treat a simple aircraft cleaning as if it were an overland combat mission to support ground troops. Treat that ready preflight as if it were a search-and-rescue mission for a downed comrade. Bottom line: No one is immune to complacency or procedures, not even a qualified aircraft commander and former GSO. ✈

Lt. Dawson is a pilot at VP-47.



Navy photo by PH2 Jennifer Bailey

How To Lose Your **QUALS**



By AME1(AW) John Shorb

I had 32 days left until I checked out of the command and headed from Washington D.C. to Point Mugu, Calif. I was the only qualified QAR working, and all of the shops needed me to CDI their MAFs. But I was seasoned to this work tempo, and being an AME1 and full-systems QAR meant I practically could do it all. I had been working in QA longer than anyone else in the command and had seen it all, so I thought.

Our first priority was to remove and replace three of five, M-193 fire-extinguishing CADs for high time. As the QA/SO for the task, I was ready to go. Our ordnance board just had qualified two third class petty officers as ordnance handlers, and this was to be their first “live” ordnance evolution. We prepared for our task, placed the MAFs in work, set HERO condition,

and roped off the aircraft. We carried our tools and parts out to the aircraft and set up to work.

We removed the right engine and APU fire bottles. The right bottle has two CADs, and the APU has only one. The left engine CADs had been replaced three months before, so they were good and didn’t need to be removed. Once the bottles were out, we removed the old CADs, installed the new ones, and prepared to do our firing-circuitry test.

We decided to take a break. I made a head call and checked with the other shops to check progress on the gripes with our other aircraft. When we came back, we were ready to hook up electrical power to the aircraft and do the test.

The first note in the book about the test says, “This test will discharge the fire bottles.” No kidding,



so we removed them. The second step of the test says to remove the positive leads of all the CADs. Well, if the bottles are out, the leads are off. We then checked the voltage at the leads to make sure there was 28 volts to fire the CADs. I asked one of the workers to go to the cockpit and pull-and-turn the fire handles, while I stayed with the second maintainer in the tail to check the voltage. We hooked up to the right bottle leads and turned the right-hand fire handle to shot No. 1: 28 volts, checks good. We turned the right-hand fire handle to shot No. 2: BOOM!! 28 volts went to the left bottle, the CAD exploded and sent the extinguishing agent into the right engine nacelle. The fire-extinguishing system worked as advertised.

My first thought was that I had killed the worker in the tail compartment reading the volts. I asked him if he was OK, and he said, "Yeah, just a little hard of hearing after that explosion that went off." As we climbed out of the tail compartment and could see the white smoke coming out of the engine nacelle, it hit me...I was an idiot.

The second maintainer came out of the cockpit and asked if we were all OK? We answered yes, but we were just a little shaken up. The CAD went off less than three feet from us. We gathered all our tools,

locked up everything, and went to maintenance to give them the news.

Maintenance control's first reaction was, "Yeah right, so you're done? Can we secure from HERO condition and get some work done?" To convince them, it took about 10 minutes of discussion and a visit to the aircraft. Why didn't they believe me? I guess because I'm the ordnance program manager, and guys like me don't make mistakes...until now.

In my case, I lost my ordnance certification, which in turn makes me ineligible as a full-system QAR for workcenter 13B. As an ordnance board member and program manager, I also am required to be ordnance-certified, so there went those positions. But none of that matters to me at the moment. I almost had killed a shipmate. That is the part that I cannot fully grasp. He has a wife and baby, and a mother and father could have lost a son. Speaking of family, my wife just had our first child 17 days ago. I could have widowed my wife and could have left a newborn baby without a father.

Naval aviation can be dangerous, but it's not until something like this happens that you realize just how dangerous. No one was hurt, and no damage was done. This was my freebie, but I'll have to work at my new command to back my quals. Most people will forget this event ever happened, but I will live with the memory for the rest of my life. 🙏🙏

Petty Officer Shorb worked in the AME shop at VR-48 when he wrote this story.

the LINErats



by J. HOBATH 2008

Jeff Hobrath is a retired PR chief who has volunteered to help MECH with this comic series. We take some liberty with the Rats for the price of a message through humor. For more info on Jeff Hobrath, simply do a search for Jeff Hobrath on the internet.



Joint Discrepancy Reporting System (JDRS) Being Developed

By Jeff Hobrath

In August 2006, the Joint Aeronautical Logistics Commanders (JALC) sponsored the Navy, Marine Corps, Army, Air Force, Coast Guard, and Defense Contract Management Agency (DCMA) to develop a Joint Deficiency Reporting System (JDRS), based on NAVAIR's NAMDRP program.

JDRS provides a common, seamless solution to report, track and resolve technical deficiencies that the fleet identify across the Aeronautical Enterprise. JDRS is a cross-service, web-enabled, automated tracking system designed to initiate, process and track deficiency reports from the fleet through the full investigation process.





NAVAIR's NAMDRP/JDRS development team consists of senior programmers, functional requirement experts, application testers, and various program-support personnel at NAS Patuxent River, Md.

Working alongside the JDRS development team are support teams from the Navy, Marine Corps, Army, Air Force, Coast Guard and DCMA.

Currently, NAMDRP serves more than 9,400 users, averaging 225 transactions per day and 4.5 million hits per year. With the addition of Air Force, Army, Coast Guard, DCMA, and other agencies, JDRS will support more than 20,000 users processing 50,000-plus deficiency reports annually, making it one of the most robust joint-service web applications ever developed.

The benefits of JDRS are significant, and they include:

- Improved quality of material and readiness
- Enhanced visibility of deficiency reports across all services
- Increased visibility of critical safety items throughout the aeronautical enterprise
- Reduced total ownership cost and cycle time
- Partnered efforts between government and industry
- Improved exhibit inventory management and management metrics
- Automated routing of deficiency reports and ease of use

The various JDRS deficiency reports includes: product quality deficiency reports (PQDRs); engineering investigations (EIs); material deficiency reports (MDRs); acceptance inspection deficiency reports (AIDRs); and hazardous material reports (HMRs). Technical publication deficiency reports (TPDRs) will be added in the near future.

JDRS is scheduled to launch in spring 2008. 

Mr. Hobrath works for NAWCAD, Code 7.2.2, NAMDRP/JDRS Program Office, NAS Patuxent River, Md.

Flight, Flight-Related, and Ground Class A and B Mishaps 12/17/2007 to 02/26/2008

Class A Mishaps

| Date | Type Aircraft | Command |
|--|---------------|---------|
| 01/07/2008 | FA-18E | VFA-105 |
| Two Hornets were lost at sea after a mid-air collision. Aircrew survived. | | |
| 01/16/2008 | MH-53E | HM-15 |
| Helicopter struck terrain during night flight. Injury unknown. | | |
| 01/21/2008 | EA-6B | VAQ-136 |
| Prowler had an engine-bay fire while undergoing a high-power turn. | | |
| 02/12/2008 | EA-6B | VAQ-136 |
| Aircraft lost over water during large-force exercise. Aircrew recovered. | | |
| 02/13/2008 | AV-8B | HMM-365 |
| During RTB pilot unsuccessfully attempted air start. Pilot ejected safely. | | |

Class B Mishaps

| Date | Type Aircraft | Command |
|---|---------------|---------------------|
| 01/17/2008 | MH-60S | HSC-3 |
| Helicopter experienced hard landing at NOLF. | | |
| 01/17/2008 | SH-60B | HSL-40 |
| No. 2 engine fire on ground. | | |
| 01/19/2008 | AH-1W | HMT-303 |
| Helicopter rolled after contacting ground during simulated fixed-pitch. | | |
| 01/30/2008 | EA-6B | VAQ-129 |
| During night CQ, underside of rudder struck landing area following waveoff. | | |
| 2/04/2008 | FA-18D | VFA-125 |
| Aircraft engines foddred during in-flight refueling. | | |
| 02/07/2008 | FA-18C | VFA-83 |
| Left engine FOD from bird strike in landing pattern. No injury. | | |
| 02/11/2008 | FA-18F | COMSTRKFIGHTWINGPAC |
| Service member injured by spoiler during ground maintenance turn. | | |
| 02/11/2008 | KC-130T | VMGR-452 |
| Aircraft damaged when immersed in fire-suppression foam. | | |
| 02/20/2008 | P-3C | VP-10 |
| Starboard wingtip area collided with crash rescue vehicle. No injuries. | | |



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Cdr. Ed Hobbs

For questions or comments, call Dan Steber
(757) 444-3520 Ext. 7247 (DSN 564)



Maintainers *in the* Trenches



A maintenance crew works on an FA-18C Hornet assigned to the Stingers of Strike Fighter Squadron (VFA-113), during flight operations aboard Nimitz-Class aircraft carrier USS *Ronald Reagan* (CVN-76). Navy photo by MC2 John Curtis



Cpls. William Thornton (left) and Jeffers Page, along with other Marines, roll an engine out from an F/A-18 Hornet at Al Asad, Iraq. The Marines are with the phase maintenance section of Marine All-Weather Fighter Attack Squadron 533, Marine Aircraft Group 16 (Reinforced), 3rd Marine Wing. Photo by Cpl. Jonathan Teslevich



AMAN Miranda Long makes repairs to a P-3C Orion engine housing at Fleet Readiness Center (FRC) Northwest aboard Naval Air Station Whidbey Island (NASWI). Navy photo by MC2 Jon Rasmussen



AO3 Joseph Little moves Bols chaff loaders across the flight deck aboard USS *George Washington* (CVN-73). Navy photo by PHAN Jessica Davis



Washing Eyes With Soap

By AN Derick Jaramillo

My story is about another simple job gone wrong. We just were washing an airplane; what could go wrong? Yes, I have heard the stories of turco and other people, but this job is easy. I didn't believe anything could happen to me. I'm smarter than that, and I always wear eye protection...well, almost always.

One evening, my shipmates and I were washing one of our E-2Cs. Everything was going smoothly, and the job was getting done rather quickly.

When we finished, I removed my PPE and started to clean up the area. I was moving a bucket of wash soap out of the way when some of it splashed into my eyes. I immediately ran to the eyewash station to rinse out the soap. I rinsed several times, but the burning did not stop. My vision began to blur badly and my eyes began to swell.

I told my supervisor about my problem, and he told the maintenance-control chief. I was rushed to medical,

and they flushed out my eyes several more times before sending me to a hospital off base. When I arrived at the emergency room, I barely could see anything at all. I was admitted and stayed there over night with a saline solution hooked up to my eyes—a very painful process.

In the morning, I went to see a specialist to see if any permanent damage had occurred. Luckily, the diagnosis was favorable, and I wasn't going to have any long-term side effects. I did, however, receive a prescription medicine to help with the healing. On top of having to take medication for two weeks, my vision was affected for the whole period. It took a while to return to normal. The biggest lesson I learned from the entire experience is that we use PPE for a reason, and it should be worn anytime hazmat is handled. Unfortunately, I had to learn the hard way. ✈

Airman Jaramillo works in the line division at VAW-116.

HAND TACO TUESDAY



Navy photo by PH3 Jonathan Chandler

By AN Justin Henderson

I woke up that Tuesday evening, expecting a normal night at work. A few hours later, I had a safety incident that almost crushed my right hand.

When I got to the shop, I began my typical airman duties: Pre-op some SE gear, carry some toolboxes, hold the flashlight...you know...nothing out of the ordinary. My PO3 then received a phone call from the AOs. They needed some help dropping a 480-gallon tank for inspection. “No big deal,” I thought. “I’ve dropped plenty of tanks.” I didn’t realize at the time how terrible those words sound, even though other maintainers have said them in the past with bad results.

We arrived at the jet in hangar bay No. 2 and found four ordies already there. We had everything needed for the job: a speed-handle, the proper 7/16-inch socket to unlock the BRU, four people—including me—to assist

lowering the tank, and an AO1 CDI to drop the tank. We were all set, or so it appeared.

An empty external drop-tank dolly sat on the other side of the jet, between a pallet-jack and some other equipment. Two tractors blocked direct access to the dolly, so we couldn’t get to it as quickly as we would have liked. And it was required for this job.

The tank was dry-hung, meaning it was connected to the wing, but the fuel line was not attached or feeding fuel into the tank. The inspection was a quick job for the AOs, and we had the resources and time to move the gear to get that dolly. However, everyone wanted to get the job done, so we decided to do a manual drop. That means two people carry the forward end of the tank, and two people carry the aft end. One person then unlocks and drops the tank.

Although these photos show an EA-6B, the dip test is valid for all drop-tanks.



“Thump tests” don’t work, and you can’t always believe gauges. Dip the tank before you try to drop it.



After dipping the tank to make sure it’s empty, be sure the people at both ends of the tank are ready before you release it.



If the man releasing the tank from the bomb rack doesn’t dip the tank first, the Sailors at both ends are going to be holding roughly 2,000 pounds of thump-tested grief.

We took up our positions, and I asked the AD3, “Hey, is there any fuel in this tank?” He in turn asked the AOs. After a couple of headshakes, we were ready to drop the tank. It was at that point when I seriously should have considered the gravity (pun intended) of the whole situation and applied some ORM.

AO1 called, “Ready in the back, ready in the front, here comes the weight!” I next heard the telltale click that I’ll never forget. The tank became solid, dead weight. We all lost our grip, and the tank fell to the ground with a wet thud. The tank still had about 200 pounds of fuel inside. We had another problem...my right hand was sandwiched between the non-skid and the bottom of the tank.

At that point, everyone in the hangar bay knew it, too, because I let out a long, horrifying howl. Panicked and in pain, I jerked my hand free of the sandwich that just had turned my hand into a taco. My hand already was swelling, and sharp, knife-like pains tore through my arm. I could feel my bones burning white-hot. As the people around me came to help, I literally was seeing stars.

We all shook off the mistake, secured the tank, and went back to the shop. My hand still was throbbing, though, and I no longer was able to make a fist. The supervisor sent me to medical for an exam.

This simple mistake caused two fractures and a broken piece of bone in my wrist. I now am on light and limited-duty for four to six weeks, with possible surgery in my future. To make matters worse, I increased the workload on my shipmates because our shop now is down a man.

Situations like this happen too often, and it almost always is because of perceived pressure that makes us work to get a job done too quickly. In this case, we really had the time but pushed anyway. Maintainers always have two options: the right way and the wrong way. In this case, we should have asked an ABH to move the tractors for five minutes so we could have gotten the dolly and dropped the tank correctly. It was that simple.

We had the tools and the resources, but we didn’t have the required patience. We also didn’t practice good ORM. At times like this, someone needs to step up and say, “This situation isn’t right” or “Maybe we should try something else” or simply, “This isn’t safe, I’m not doing it.” Nobody is going to think any lesser of you for doing a job the right way. ✚

Airman Henderson works in the mech shop at VFA-27.

A couple other things would have helped: the book, checklist and more importantly, not doing a thump test. Mech has said it 237 times since 1961, the first year Mech came out, a thump test doesn’t work...period. Pop the cap, do a dip check, and stop injuring maintainers.—Ed.

Just a Scrape

By AM2(AW) John Franklin

I think everyone has heard what happens when you assume anything. As the saying goes, “You make an ass out of you and me.” It’s a clever saying and is easy to remember. Never did I believe it would apply to me, but one day, it did.

I had been an airframe CDI for a year and never fully understood the responsibility that comes with that position, until my mistake. When a maintainer becomes

a CDI, their responsibility increases, as does the trust of everyone in the squadron—officer and enlisted. As a CDI, I am responsible for the quality of work done on the jet, making sure it is safe for the pilots who will fly it and capable of achieving its assigned missions. A good general description of a CDI’s responsibilities is that we are an extended arm of QA division.

My story is simple, and my mistake almost cost me the trust of the pilots and maintenance department when I assumed, rather than inspected.

I’m a troubleshooter in my squadron and work nights. We were within a week of deploying, and that time can be very hectic at any squadron. Pilots fly a lot of hours and do field carrier-landing practices. Maintainers work hard to give ops enough jets to get all the crews carrier-qualified before we deploy. This week was routine for the troubleshooters, but airframes had an unusually heavy workload.

With our flight schedule over and being an airframer, I decided to help them with their workload. They had an aircraft on jacks to service the struts and to comply with a recent technical directive (TD). While helping with the struts and the TD, we found more work. All the tires and brakes were worn. They were within limits, but, this close to deployment, we decided to take advantage of the aircraft being on jacks and change them. I began to feel the burden of all the maintenance done that evening, both with airframes and troubleshooters.

I don’t mean to say I couldn’t handle both jobs, but somewhere during the night, I failed to stay aware of all the work.

The worn tires and brakes had been pulled off and turned in, and we were waiting for the new ones to arrive. Once they came in, I took them to the aircraft.



Navy photo by PHAN Geoffrey Lewis



Gouge on the leading edge of the stab. Notice the bare metal, length and depth of the gouge.



Bottom and leading edge of the stab. Notice the paint damage in the center of the picture.

At that same time, one of our PCs came to me and told me of a gripe on the aircraft. He said the aircraft had a scratch on the horizontal stab. Of course, a scratch can mean many things, from chipped paint to a gouge or just a mark on the jet. Hornets often have paint damage on the stabs, and this is what I thought the PC was referring to.

Using what turned out to be terrible judgment, I told the PC not to worry about the scratch and continued to work on the jacked aircraft.

The scratch turned out to be a gouge in the aluminum section on the leading edge of the stab. Once the damage was inspected, we found it was not within limits, meaning the stab should have been repaired or replaced. This type of damage has very small limitations (< .0030-inch on the leading edge). A quick visual inspection wouldn't have told me that the damage wasn't within limits, but it would have forced me to question the damage and look up the limitations in the structural-repair manual. Damage to the leading edge of the stab, a primary flight-control surface, could lead to abnormal

flight conditions, thus compromising the safety of the pilot.

I consider myself a hard-working and competent airframer. PCs come to me when they find something wrong with the jets. Almost always—99.9 percent of the time—I investigate the problem and determine what to do. This time, I didn't, and the experience taught me that every situation that comes up is unique. Just because a scratch sometimes turns out to be nothing doesn't mean it always will be that way. I should have told the PC to write a MAF, and then I or another qualified airframer would have looked at it before the next flight. This one step would have prevented us from flying a down aircraft.

I also could have asked how the stab was "scratched." As it turns out, the stab was damaged when the aft section of the FLIR pod dislodged in flight and hit the leading edge of the stab. Had I investigated the report of a scratch and examined the surrounding area, I would have noticed this section missing and realized where the damage had come from.

The Naval Safety Center gives maintainers a good analogy to explain how mishaps occur; they call it the "Swiss Cheese" model or theory. This approach states that, for a mishap to occur, all the holes in the Swiss cheese have to line up. I had an opportunity to block one of those holes but missed my chance. Luckily, no mishap occurred.

The holes lined up this time when I assumed the damage was negligible and when the damage was missed during the FLIR daily walk around of the jets the following morning, and pre-flight inspection. After the aircraft went flying and returned safely, the squadron was fortunate that the holes finally were blocked after a post-flight inspection.

This simple mistake endangered the safety of a jet and life of a pilot, and it nearly caused my co-workers and management to lose faith in my abilities. Had I taken just five minutes to grab a flashlight and examine the stab, I would have noticed the damage and would have realized it wasn't normal.

The stab was removed and repaired after only one flight. It's unfortunate that it took an incident like this one to open my eyes, but it shows how one person not taking each situation seriously could lead to an aircraft mishap. I have learned a great deal from this event. I now investigate the problem 100 percent of the time and determine what to do. I also have rebuilt the confidence of leadership in my abilities. 🦋

Petty Officer Franklin was a troubleshooter with VFA-34 when he wrote this story.

Rushed Tool Check

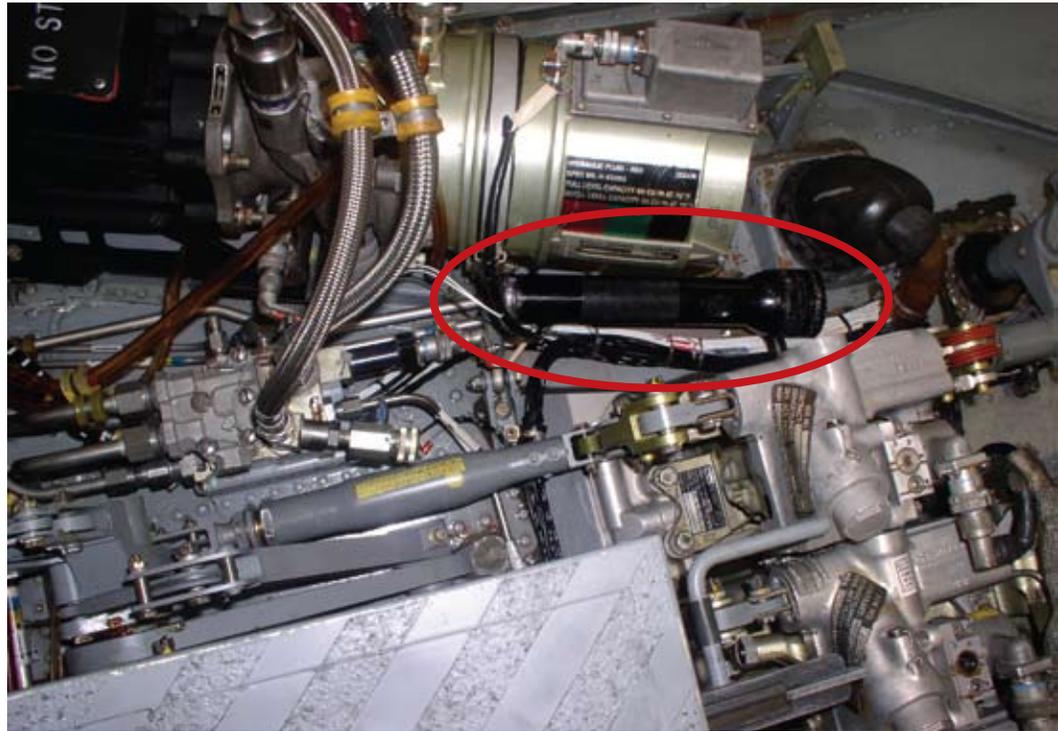
By Lt. Dave Bigay

Tool-control procedures have proven effective and are in place for a reason. However, the program's effectiveness is contingent on whether the procedures are followed to the letter, every time, and without fail. Follow them, and pilots need not worry. Neglect the procedures, even for a moment, and the results have the potential to be disastrous.

While performing a daily inspection on the flight line at night, on one of the squadron's SH-60B aircraft, a plane captain found a discrepancy that required repair before an aircraft could launch on its functional check flight (FCF) the next morning. After checking out tools from the tool room, the detachment's lead AD and two junior ADs did the required maintenance. When sufficient flashlights were not available in the on-hand toolboxes, an additional flashlight was brought from a toolbox in the hangar. When the team finished the job, they hastily packed up their tools, did a tool inventory on the toolboxes at the aircraft, and went their separate ways.

The following morning, more detachment personnel did a tool inventory before breaking for lunch and discovered that a flashlight was missing from one of the toolboxes. After they unsuccessfully searched for the missing flashlight, QA was notified of the missing tool, and all aircraft were recalled.

The flashlight was found in the hydraulics bay of the FCF aircraft that had been repaired the previous night. The hydraulics bay on the H-60 is located directly over the cockpit and cabin of the helicopter and provides the transfer of all of the pilot's control inputs to the rotor hub. This compartment contains dozens of servos, rods and linkages, where a tool could jam, render the flight controls useless, and result in an aircraft crash. Although



The flashlight was found in the hydraulics bay of an H-60.

the det thought all the tools had been accounted for, it later was discovered that a flashlight from another toolbox somehow had made its way into the missing flashlight's toolbox. A simple error had led to nearly disastrous results.

If you ask most maintainers, post-maintenance FCFs are like a trip to the dentist: The sooner it's over, the better. While the motivation behind this attitude is purely a desire to get the aircraft back to work supporting the mission as soon as possible, it's easy to see where this attitude can be a recipe for disaster.

This is a good reminder for supervisors that maintenance never should be rushed. Whether it's in the quality of the maintenance being done, tool control, or the paperwork to back it all up, the chance something was missed increases exponentially when we rush a job, or in this case, during post-maintenance cleanup. ✦

Lt. Bigay is a pilot with HSL-46.

Sailors and Marines Preventing Mishaps **BRAVO Zulu**

Send BZs to: SAFE-Mech@navy.

BZ
of the
Quarter



AMAA Ryan Marshall HS-7

While doing a turnaround inspection on aircraft 617, airman apprentice Marshall determined one of the tail-rotor blades felt loose, compared to the others. He did a “teeter test,” which checks for spar integrity and a delaminating tail rotor. He then found a few cracks near the blade cuff and notified QA. After removing the outboard retention plate, a QAR found the composite fiber layers of the blade spar had started to separate from each other, causing the tail rotor spar to crack along the retention plate. Had the delamination and cracks gone unnoticed, the tail-rotor blade likely would have failed during the next flight.





**Cpl. Sophia Reiser
HMM-365**

On a safe-for-flight inspection on a CH-46E, Cpl. Reiser noticed the lord mounts on the synchronization shaft were pushed too far forward. A closer look revealed the inner race for one of the synchronizing drive-shaft bearings was missing. She immediately notified a CDI and QA, who verified the inner race was missing.

An analyst at the Naval Safety Center said the missing inner race might have caused catastrophic failure of the synchronization shaft in flight, resulting in the loss of the aircraft and the lives of the crew.



**AMT2 Michael
Gustaveson
CGAS Kodiak, Alaska**

During a recent search-and-rescue (SAR) case to Adak, Alaska, Petty Officer Gustaveson was doing a thru-flight inspection on a U.S. Coast Guard MH-60J helicopter CGNR 6035. He suddenly noticed the yellow main-rotor-blade damper was installed incorrectly.

Petty Officer Gustaveson's attention to detail prevented a premature failure of a dynamic component and prevented a potential aircraft mishap.



**AM2 Dustin Maxey
HSL-42**

Following a night of flying aboard USS *Vicksburg* (CG-69), Petty Officer Maxey found a cracked piston on the YAW boost-servo assembly of Proud Warrior 431. After discovering the problem on an early morning daily-and-turnaround inspection, he immediately notified his supervisor and maintenance control.

Petty Officer Maxey's keen attention to detail, quick action, and thorough knowledge of plane-captain procedures prevented a potentially catastrophic chain of events.



**AM2 Mark Thomas
HSL-44**

During a routine inspection of Magnum 446, Petty Officer Thomas noticed the sealant deteriorating on the No. 1 input module's mounting face to the main transmission. A closer look revealed that the input module was corroded severely at critical mounting points.

Had Petty Officer Thomas not found this problem, a catastrophic main-transmission failure would have been likely.



**AE2 Daniel Coffey
HSL-42 Det. 1**

During a routine weekly aircraft wash aboard USS *Klaking* (FFG-42), Petty Officer Coffey found a crack in one of the main-rotor blades of his detachment's only SH-60B. Ultimately, the cracked rotor blade was not safe for flight and could have resulted in catastrophic failure had it gone undetected.

Petty Officer Coffey's critical eye led to a timely repair, returning their sole aircraft to full mission-capable status.



**AT2 Tyler Vidas
HSL-42**

On a routine FOD inspection on Proud Warrior 431, Petty Officer Vidas found a disconnected wire for the directional-control valve, which is used to position the fire bottles in the SH60-B's fire-extinguishing system. Had the aircraft been flown in this condition, the main and reserve fire bottles for all engines would have been inoperable in case of an emergency. His quick actions prevented further problems, and the gripe was fixed.



**AM3 Trevor Shivdayal
HSL-37 Det. 2**

Working on an SH-60B aboard USS *Chosin* (CG 65), Petty Officer Shivdayal located a pinhole leak in a hydraulic-pressure line for the No. 1 tail-rotor servo. Due to the awkward location and size of the hole, the leak would have gone unnoticed until the aircraft returned to flight.

Petty Officer Shivdayal's keen attention-to-detail and meticulous troubleshooting technique prevented a partial hydraulic-system failure and in-flight emergency.



**AN Chad Helstrom
HSL-51**

While doing corrosion work on an SH-60B, Airman Helstrom found the hydraulic unions for the first- and second-stage tail-rotor servos were not seated fully. This vital assembly in the SH-60B controls the aircraft's heading through the tail rotor. Further inspection revealed that the jam nuts on the backside of the pylon had backed off. His good troubleshooting effort during a mundane task prevented a serious risk to flight safety.



**A02 Alex Ramosruano
HSL-37**

During a plane captain preflight inspection of the engine compartment of an SH-60B, Petty Officer Ramosruano noticed a missing torque stripe on the B-nut for the load-demand-spindle (LDS) cable. A closer look at the B-nut showed the LDS cable was not secured correctly to the hydro-mechanical control unit (HMU).

Petty Officer Ramosruano immediately notified maintenance control and wrote a downing discrepancy. His ability to recognize and defuse a potentially dangerous situation prevented an in-flight emergency.



**AM2 Phillip Boykin
VAW-117**

Petty Officer Boykin was doing a high-power turn of aircraft 603 in the aft hummer hole aboard the USS *Nimitz* (CVN-68). During the start of the port engine, he felt the aircraft shift in an unexpected manner. The aircraft's wings had begun to spread unexpectedly. He quickly cycled the wing-spread lever from folded to spread and back to folded while taking the condition lever to ground stop. This action stopped the wings and caused them to re-fold, preventing damage to 603 and the surrounding aircraft and equipment.



**AM2(AW) Philip Sadler
HSL-37 Det. 2**

During a 7/56-day inspection on an SH-60B aboard USS *Reuben James* (FFG-57), Petty Officer Sadler prevented a possible mishap when he noticed serious exfoliation corrosion on the hinge bracket of the APU door. Had it gone unnoticed, the hinge likely would have failed, causing the APU door to depart the aircraft. He immediately downed the aircraft and corrected the problem, returning the aircraft to flight status.



**AD3 Brian Reynolds
HSL-51**

Petty Officer Reynolds assisted on a 7/28-day special inspection on Walord 701. He found a 4-inch crack on the shear decking below the No. 2 engine intake and immediately reported it to a QA. The crack turned out to be a P&E repair. His keen eye and quick action prevented a possible flight mishap.

**AD2 Chris Davis and
AD3 Marvin Freshwater
VFA-102**

AD2 Chris Davis and AD3 Marvin Freshwater had been troubleshooting an over-fueling gripe on Diamondback 100 for days. After removing and replacing the wing high- and low-level pilot valves, fuel continued spilling out the vents. Undeterred, they suspected a failure of the high-level pilot valve in the No. 1 tank. When they opened that tank, they found the top of the fuel cell had collapsed. A closer look at the bladder cell showed several rub marks and damage beyond usable limits to the nylon barrier. They ultimately found a problem with the lacing was the culprit behind the collapse, revealing a flaw in the fuel cell and saving hundreds of man-hours in future troubleshooting.



**AD1 Joshua Sullivan
VPU-2**

Petty Officer Sullivan was standing starboard wing observer for a P-3 on the tarmac. After the No. 4 engine was started, AD1 Sullivan noticed the No. 4 propeller's servicing door was not secured. Recognizing an unsafe situation and using sound principles of ground-resource management, he signaled the lineman to instruct the aircrew to shut down engines. Upon closer inspection, he discovered the door was beyond repair and worked quickly to replace the top after-body. The aircraft then was able to safely execute a successful combat mission.



**AM1 Matthew Allen
VPU-2**

While doing a routine daily inspection on a P-3 aircraft, Petty Officer Allen noticed what appeared to be a small crack on the forward skin of the starboard aileron's trim tab. After a closer look, he found that the attaching hardware for the connecting rod to the inboard trim tab was missing, and the remaining hardware in the outboard connecting rod was worn. The missing hardware had caused the rod to rub through the trim-tab skin. The associated linkages were damaged beyond repair.

Petty Officer Allen's critical safety eye discovered a discrepancy that was not easily seen and could have caused a flight-control failure, leading to the loss of aircraft and crew.



**AE2(AW) James Beach
VR-56**

On a look-phase inspection on a C-9B, Petty Officer Beach noticed the port and starboard wingtip-lighting assemblies looked like they had melted. From experience, he knew this problem might be the result of a lightning hit. During the subsequent conditional inspection, he also found a large, burned-out hole on the elevator control tab, confirming a lightning strike.

Petty Officer Beach's quick action allowed both strobe assemblies and the elevator control tab to be replaced, quickly returning the aircraft to service.

Safety Surveys

Safety Survey Teams Aid Squadrons

By Dan Steber

A dedicated team of maintenance and safety professionals gathered several days before a short trip to North Carolina. The maintainers and “topside” members met to discuss the logistics for the survey trip and commands being looked at. It was the first step in a well-choreographed trip that would affect two squadrons: VMM-162 and VMAQ-2. They would be just two of more than 150 squadrons the safety center team looks at each year.

Shortly after arrival in Havelock, NC, the maintenance team mustered for one final brief before the first survey, which actually took place at MCAS New River in Jacksonville—a 45-minute drive away. The team leader, Capt. Chris Foley and Master Chief Johnnie Simmons briefed the upcoming schedule, the forecasted weather, and team conduct.

The next morning, an early team left the hotel before sunrise. They headed out early to look at the maintenance meeting and FOD walkdown. These are two critical events that start the day off at commands around the fleet. VMM-162 would be no different. “We simply are looking at how they conduct business,” said ADCS Mike Tate. “A lot happens early in the morning.”

The rest of the team arrived about 30-minutes later and mustered in the Gold Eagles Ready Room. It was clear, looking around the room, that this squadron takes safety seriously. CNO Safety “S” plaques ran down one complete wall: 1956, 71, 83, 90, 96, 98, 99, 2000, 01, 02, and 03.

LtCol. Karsten Heckl, VMM-162, briefed his people about the visit and introduced the team’s senior officer, LtCol. Jon McCartney. He addressed the past successes the command faced during group and ADMAT inspections, saying, “We’ve been adamant about doing things the right way. The staff

NCOs across the command are good, and they are known across the community.”

LtCol. McCartney introduced the topside folks and told the CO and the command, “We’ll give you a good honest look. And when we walk away...we leave with nothing, the results stay with you.”

That point has been a highlight of the Naval Safety Center surveys. Some of the team calls it the “white hat” approach, meaning no punitive results come from the survey. The team looks for, finds and reports problem areas, but it then is up to the command to take action to fix any discrepancies. The problem areas are not reported to the group, wing or type commander.

After Capt. Foley and Master Chief Simmons introduced and matched up maintenance counterparts, the team and work center supervisors headed to the shops to begin the survey.

In airframes, Cpl. Mike Green of Atlanta, GA., worked with AMC(AW) James Litviak on some corrosion control items. They looked at respirator fit tests and discussed ways to avoid problems, including a recommendation for 100% fit test. They looked at training records, passdown logs, tool control, and many other maintenance programs.

In another maintenance space, ADCS(AW/SW) Chris Smith worked with Sgt. Ed Bukowski of Ripon, WI. They went through the command’s tool room with a fine-tooth comb. When asked about any surprises, the Sgt. said, “Hearing stickers on the etchers. I thought the sound was well under decibels. It showed why we must keep up with programs. We never can take our jobs lightly.”

The level of detail that the team looks at surprises people. Sgt. Wesley Sweeny of Atlanta, GA was working with AEC(AW) James Esslinger and



repeated a often-heard comment during the two-day trip: "I thought the team just was going to look at safety items like electrical plugs, extinguishers, hazmat, and similar items." The Sgt. did say that the team, "Gave us ideas seen in other squadrons they've looked at around the world and will make it [programs] easier and better." He went on to describe that the survey "definitely was different" than inspections he'd been through.

When asked what was different, he explained the team's process of asking a question, showing what they had, and then moving into "the training mode." He added, "It was one of the best looks I've had. The chief never made it feel like a reprimand. We discussed things. He broke out the reference, and we talked about what the book says and how we do things. The chief gave me things to look at and people to call should I get stuck."

GySgt. Jason Kanakis, a 20-year Marine, plankowner, QA chief from Detroit, Mi., said, "You end up learning something new."

Cpl. Carlos Santiago of Wilmington, Del., an admin clerk, said "I picked up some info that's in the manual, stuff that's in black and white. We had

a nice 'give and take' training session. This survey helped polish my experience, gave me a broader outlook on my role in the squadron. We covered areas so I could learn and make sure safety procedures are being followed."

SSgt. Yancy Genoa, paraloft shop supervisor, said, "I enjoyed the visit. It was more 'calming' than other inspections. The way PRC Brian Westcott went through the programs and showed us how to do things more effectively and efficiently was great."

The team ended day one with a debrief, and all supervisors were invited back to the ready room. The maintenance team members already had briefed their counterparts in the work centers, but this gathering was a chance for them to hear an overall, generalized ranking and comparison with other squadrons. That session also went over positive things found throughout the command. The Golden Eagles were slightly better than average.

The next day, the team visited VMAQ-2, and the day went very much the same.

The skipper, LtCol. Robert Sherrill, had a pre-brief in his office with the Naval Safety Center's topside team and Capt. Foley. "We appreciate you

coming down to look at us,” Sherrill said. “I think you’ll find a good group of professionals.”

LtCol. McCartney echoed his earlier statement about leaving with nothing, but he added, “...but trends and best practices that your command may want to share with us.”

That one sentence summed up an important value of the survey process. A squadron gets a “free” look, but the Navy and Marine Corps win because of the sharing of ideas, programs and effective efforts than may work at other commands in the fleet.

LtCol. McCartney has a favorite saying, “Open the kimonos, show us what you’ve got, and let us help you with any issues that you might have.”

No squadron is perfect. Some are a little better than others, but every maintainer and aviator is doing their best to make things safe.

AFCM(AW) Johnnie Simmons told the maintainers at VMAQ-2, “My guys love going around and finding issues, but they then shift to the training mode to help you out.” And once again, the team did just that with their one-day, snapshot look at maintenance.

Sgt. Joe Medrano of San Antonio, Texas, said, “Chief Westcott was a good inspector and did things differently. He actually sat here and went through the programs. We discussed things and I got a lot of good training from him.”

Those comments were consistent and similar with everyone.

GySgt. Scott King, QA Chief, said the survey was more than he had expected. “I like the idea of someone coming in, taking a look, and telling us how we’re doing. And then we quickly can get back to business. It’s not a long, drawn-out process. I also like the fact the team followed a specific checklist. The program-tracking database Senior Chief Tate recommended was a great idea. It will help me follow-up on all programs and audit discrepancies.”

LtCol. Sherrill summed it all up with one simple statement, “Your look gives us a good rudder steer on where we have to go.”

For more information on the survey teams and to get their published schedule, visit the Naval Safety Center website at www.safetycenter.navy.mil/aviation/checklists/default.htm and www.safetycenter.navy.mil/aviation/surveys.htm.

Airframes

Fixing Airframe-Related Problems — Part II

By AMCS(AW) Robert Chenard

Hazardous Material – CNAF 4790.2A, CH 10, Par. 10.19.3.4(Q) states the “HMC&M Supervisor shall maintain a HAZMAT log to identify material issued, used, retained for reuse, and disposed of as HAZWASTE.” Finding unaccounted for HAZMAT in shop spaces is a common problem, so don’t let co-workers put you in a bind. You also want to show that you track and follow-up on daily use materials. A “best practice” I’ve seen is to require a tool tag for HM, and then carry that material over to the next day if it really is required to be held over night.

MSDS and unique identifiers go hand in hand. CNAF 4790.2A, CH 10, Par. 10.19.3.4(C), requires the HMC&M supervisor to “maintain an up-to-date library of MSDS,” and OPNAVINST 5100.23G, para. 0702g(5) is the requirement for the unique identifier.

A “Right to Know Station” is where MSDS binders should be kept. The best place for this is where it can be reached in an emergency. It should not be locked up, or kept in a work center that is not open when personnel are working.

A unique identifier is a numbering system to quickly identify the material in case of an emergency. The identifier should be kept as simple as possible and be located on the chemical label, MSDS, AUL, and inventory sheets. You can use letters, numbers, the MSDS number, or any combination. The key is quick identification and retrieval.

Finally, HAZMAT needs to be in an approved container and have a label. Secondary labeling is required for all containers when HM has been transferred from original containers. A “best practice”

I've seen is printing and laminating the small label (DD 2521) and then safety wiring it to the secondary container, for example, a grease gun.

Best Practice: Our grading scale compares your command against what we are seeing in the rest of the Navy and Marine Corps. "Below Average" lets you know more effort is necessary with programs. "Above Average" says you abide with the references, and you are doing more than other commands, but you still have room for improvement. Here is a sampling of recent visits where commands have had good programs:

VFA-87: Six above average programs, none below average.

FRC NW: Five above average programs, none below average.

VMR-1: Two above average programs, none below average.

HSC-22, HSC-25, HSL-37, MALS-31, VAQ-133,

VMFA-312, and VMM-263: One above average program, none below average.

Your command can be on this list with just a few simple steps.

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

Survey Schedule

| | |
|----------------|--------------------------------|
| May 2008 | Cherry Point New River |
| June 2008 | PAX River Brunswick Maine |
| August 2008 | NAS Whidbey Island |
| September 2008 | Camp Pendleton North Island |

Class C Mishap Summary

By ADCS(AW) Michael S. Tate

From December 18, 2007 to March 13, 2008, the Navy and Marine Corps had 12 Class C Mishaps involving 12 aircraft.

Once again this quarter, we had a lot more TFOAs. We must get better at this area because it costs us time and money, and it has the potential to injure people on the ground. QA needs to do trend analysis to prevent the recurrence of TFOAs.

We had a few other incidents, including a Sailor who suffered a severe thumb injury while working on landing gear, and there were more aircraft crunches. These events are very similar to last quarter.

One new item was equipment shorting out during maintenance. We need to look a little closer at this problem.

The most common cause of shorted equipment is multiple maintenance actions being done simultaneously on aircraft. No one is saying you can't do multiple actions. In fact, it is necessary to keep our aircraft on the flight schedule. However, we often lack awareness of other maintenance actions being performed on the aircraft. It's very easy to go from one maintenance action to another, but unfortunately, that approach creates tunnel

vision. For example, we troubleshoot a maintenance action on one aircraft and order parts, and then troubleshoot another aircraft, while waiting for the parts. The down side occurs when we get the parts a few hours later, run back out to the aircraft, and fail to repeat the set-up checks. We forget to make sure the breakers are set where we left them, verify power isn't applied, or check with maintenance control to see if other maintenance has been or is being done on the aircraft. Our haste to get the job done often can lead to more work, damaged parts, and an injury.

Never is maintenance pressure so high that we can't get the job done using the book. That pressure is real, and we know your supervisor and maintenance want the gripe fixed now, along with the other 10 items you need to complete today. Only you can decide how you react to these pressures. But remember, pressure is not an excuse to take shortcuts. Take the prep time to do the job right. It's time well spent and ultimately will allow us to have more aircraft ready for the flight schedule.

Senior Chief Tate is a maintenance analyst at the Naval Safety Center and coordinator of the Cross-feed 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 December-March.

Safety Surveys

| | | | |
|----------|----------|---------|------------|
| VT-21 | VMFA-242 | HT-8 | VT-86 |
| VT-22 | VRC-30 | HT-18 | VAW-113 |
| HM-15 | HSL-49 | HT-28 | VAW-116 |
| VT-28 | VMM-162 | VT-2 | VAW-112 |
| VT-27 | VMAQ-1 | VFA-102 | VR-55 |
| VT-31 | HSC-84 | HS-14 | HMMT-164 |
| VT-35 | HM-14 | VT-3 | HMLA/T-303 |
| VMFT-401 | VFA-195 | VT-6 | HMLA-267 |
| VMA-311 | VFA-27 | VAW-115 | VR-56 |
| VMA-211 | VFA-102 | VT-4 | VAW-123 |
| HS-10 | VAQ-136 | VT-10 | |



MRMs

| | |
|------------------|-----------------|
| VFA-34 | VAW-124 |
| VX-23 | AIMD Atsugi |
| AMO School | CVW-5 Squadrons |
| HCS-26 | RESTAC SUPWING |
| FRC MID Atlantic | |

Culture Workshops

| | | | |
|----------|---------|---------|--------|
| VMAQ-3 | HSL-48 | HSM-71 | VFA-14 |
| VMMT-204 | VAW-123 | VAQ-129 | VFA-22 |
| HM-14 | VAW-125 | VAQ-137 | VR-48 |
| HS-11 | VP-16 | VAQ-138 | VR-58 |
| HS-15 | VP-5 | VAQ-141 | VT-6 |
| HSC-22 | VQ-3 | VAW-112 | |
| HSC-28 | VQ-4 | VFA-115 | |
| HSL-42 | HSL-47 | VFA-122 | |



For more information or to get on the schedule, please contact: Safety Surveys: Capt. Chris Foley, USMC at 757-444-3520 Ext. 7223, MRM: AEC Matthew Cooper at 757-444-3520 Ext. 7275, Culture Workshop: Cdr. John Morrison at 757-444-3520 Ext. 7213.

ARE YOU READY FOR THE CRITICAL DAYS OF SUMMER?



Tools and resources available at: www.safetycenter.navy.mil