Everyone is a Safety Professional

As we head into 2020, we dedicate our first edition of MECH magazine to every Sailor, Marine and civilian who laces up their boots, rolls up their sleeves and gets to work maintaining our aircraft every day.

While Naval Aviation is inherently a dangerous business, it is a critical component of our nation’s ability to fight and win. To maintain a ready Navy and Marine Corps, we must continue to reinforce a culture of excellence. That culture of excellence starts with you!

When excellence is the standard, safety, attention to detail and professionalism are at the forefront of every task we perform. We must have a keen awareness that these lessons transcend time:

• Safety is a byproduct of professionalism
• Reducing mishaps improves readiness
• Cutting corners costs lives
• Every Sailor, Marine and civilian is a safety leader with permission to speak up!

Whether you are a senior maintenance officer or a new Airman or Lance Corporal in the line shack working on your initial plane captain qualification, I encourage you to continue to look for ways to conduct your daily business with a sense of urgency and a deliberate emphasis on procedural compliance, risk management, saving lives and preserving readiness.

Telling your story helps others learn and prevent repeating the same or similar events. The Naval Safety Center is your safety advocate and we look forward to hearing your story and sharing your lessons learned throughout the fleet.
We must be mindful of our mistakes in aviation history or we are condemned to repeat them.
- ComNavAvSafCen, 1961

In 1961, an annual magazine called Aircraft Accidents/Incidents Involving Maintenance and Servicing was renamed MECH.

MECH magazine has been published since 1961 as the aviation safety magazine for the Navy and Marine Corps. The content of the magazine remained stories, information, procedures and most of all, a venue to raise safety awareness among our aviation maintainers. The first was distributed in December 1961 and the magazines were published yearly until 1967. These issues were full of statistics, findings, analysis and recommendations. In 1961, 353 maintenance and servicing errors occurred, to include 20 aircraft that were taken out of service. The 1962 magazine showed similar numbers, but the maintenance mishap numbers declined slightly. One of 12 aircraft accidents were the cause of maintenance vice one of 10 in 1961. The 1963’s numbers were not much better with 347 combined aircraft accidents, incidents, flight hazards and ground accidents. During fiscal year 1963, 11 accidents with maintenance error causal factors resulted in a loss of more than $12.5 million. That is over $103 million today, almost enough to buy a stripped down version of the F-35. The 1966 edition was formatted differently than the previous editions. Although it still had all the stats of maintenance errors, which had risen to 72 that year, we were getting first person accounts of “things gone wrong”.

MECH readers were introduced to “Murphy’s Law,” which became a regular column reporting on parts that could be installed incorrectly. The editor included an occasional mishap report, but the focus on the magazine had shifted to reader experiences. MECH had become a magazine by maintainers for maintainers. In 1967, the Navy adopted the tool control program. This MECH magazine edition shed light on the newly adopted program. The Royal Navy air arm developed a system for controlling tools used in aircraft maintenance operations. The system not only reduced the number of accidents attributed to tools being left adrift in aircraft, but substantially reduced overall replacement of lost tools and associated cost. All phases of the change in tool control were to be completed by July 1968. VAW-124 was the first squadron to take part in the development and evaluation of the new tool control system. The next year, the magazine became quarterly and the staff was included on the front cover. MECH was now a magazine dependent on contributions from the readers. It wasn’t limited to articles about maintenance errors, although it continued to be a dominant theme. It also introduced informative articles about 3-M, specific ratings and new equipment. MECH continued to improve its content with better pictures, graphics and articles. It moved from black and white into full color, high definition photos. In the early `70s the “Chiefs Corner” was introduced. This was a forum for the khaki readers to discuss topics from their perspective. Also, during the `70s the “Bravo Zulu” section was introduced. This section highlighted Sailors that did something good or above the normal. In 1990, the magazine became sleeker with better graphics and photos. Technology was really picking up back in those days. The magazine continued to reflect the lessons learned by maintainers around the fleet. The hope was that maintainers would read an article about a misfortune of others and think twice before finding themselves in the same situation.

From the `90s until today, the magazine has had many trials and tribulations but has steadily made strides to become better. Mishaps and personal injury rates have declined significantly over the years due to a variety of safety measures and we know that MECH has contributed to this, at least in a small way. Our hope is to continue the traditions of reporting first-hand accounts of maintainer’s mistakes, recognizing new ideas, solutions and technology. But before we can look forward we must look at our past. With that in mind, see if any of the photos on the left look familiar. Yes, the photos are dated but you’ll see clearly that some mistakes were born in the past.
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THE RED RIPPERS

“Safety is a byproduct of professionalism”
Hello there! Let me introduce myself. My name is Catalina Magee, and I am the new editor of MECH Magazine. I am a Romanian-born American, “seasoned” in Italy, “cooked” in Germany, who recently served in Israel. Now, just to clarify, no, I am not a gypsi. I’m an Air Force spouse and a former magazine owner. This is why I moved around a lot. Traveling to different countries helped me learn a few languages and gain many friendships, which I am very grateful for. Now that I am here, I am so thrilled to start this journey, and I hope to meet as many of you as possible.

During my first week as an editor here, someone asked me: “how long have you been in aviation?” I couldn’t help but smile, and kindly answer: “three days.” Again, I got that surprised look, followed by: “Oh, OK….Welcome on board, then!” While I may be new to the aircraft maintenance industry, I am no stranger to the publishing world…so, I was not sure what to make of this at first, until I understood I am part of an actual united family. This is much better than I’ve ever even wished for! So far, I have noticed that although not many run into people that are so new to this lifestyle and industry, when they do, they are extremely helpful and welcoming.

This is only my third week here, but I plan to bring a fresh perspective to the table, lots of energy and new ideas. I hope to find productive ways that would benefit my team, and be part of the “next generation” that transforms the Naval Safety Center into a forward-leaning organization that promotes a culture of safety across the Department of the Navy. I am hoping you’ll support me through this (exciting) journey, and share our MECH issues, so you too can be part of the generation that will change up the game. The way you can show support is by contributing with any stories, advice or tips. Please check out: www.navalsafetycenter.navy.mil for guidelines. For more info, please e-mail us at: SAFE_MECH@navy.mil.

Thank you kindly,

Catalina Magee
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HOT FEATURES OF THIS ISSUE

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“As you read through this edition’s articles, you will notice an overarching theme that will undoubtedly be of no surprise to you, regardless of your rank or position. It seems that the lack of effective communication is the root of human errors and a rising trend in aviation maintenance mishaps.”

P.28 // MAINTENANCE RISK MANAGEMENT
Have you ever wondered what happens to the reports generated by the Safety Officer at your squadron?

P.22 // HOW MANY DISCREPANCIES?
Across the fleet, there are three major significant areas of concern that have been noted during assessments. Find out what those are on page 22.

P.11 // ASSESSMENTS OVER INSPECTIONS
A senior enlisted perspective from a “new join” to the Aviation Maintenance/Material Division within the Naval Safety Center
Aviation Life Support Systems (ALSS) are maintained in a multifaceted effort through proactivity and accountability, ensuring appropriate training at all levels of leadership involved. Across the fleet, there are three significant areas of concern that have been noted during assessments:

1) ALSS not screened ‘Safe-for-Flight’ correctly before releasing crew and aircraft resulting in down gear used for missions;
2) Aircrew not performing their required pre-flight and post-flight inspections correctly or at all to ensure their gear is ready for the mission and to correct discrepancies on their equipment between inspection cycles;
3) Squadrons do not have the proper manning required, (which contributes to not maintaining the ALSS program in a safe and efficient manner), inhibiting the ability to ensure maximum equipment available for the mission.

**Safety of flight issues for ALSS**

When screening aircrew Safe-for-Flight (SFF), the individual screening the aircraft discrepancy book (ADB) will receive the Bureau Numbers (BUNOs) for the equipment used by the crew from a parachute rigger (PR); sometimes they take the Sailor’s word for the material being ready-for-issue (RFI), or occasionally they check Optimized Organizational Maintenance Activity (OOMA). What I have never witnessed is SFF personnel checking the extra ALSS equipment. Does this flight require a night vision device?
Were those serial numbers passed to the SFF for screening? Were radios swapped around using proper documentation and radio serial numbers updated in the joint search and rescue satellite (SARSAT) Electronics Tracking System (JSETS), or just changed over in the shop to cover the event? Is there any other ALSS equipment being taken by the crew that the SFF wasn’t made aware of?

In the past year, while assessing 63 Navy and Marine Corps squadrons, 93 safety discrepancies were noted; of those, 29 were instances where gear or equipment was flown in a down status, non-ready-for-issue (NRFI).

One of the reasons found that triggered these occurrences was a lack of proper manning in the Paraloft. Often, the senior PR is a first or second-term second class petty officer and lacks the experience required to communicate effectively with higher ranking enlisted and officers. This creates an environment where the PR shop as a whole is not comfortable addressing or correcting the aircrew or effectively communicating with Maintenance Control and Operations section.

Proper manning in all rank areas are needed to provide adequate coverage for the amount of gear maintained to support the mission; without proper manning, defects, accurate tracking and aircrew training oversight slips through the cracks creating the potential for a catastrophic mishap. SFF qualified personnel are not trained to adequately determine what ALSS gear is needed for the mission and if all the equipment is in an RFI status; they don’t know the right questions to ask the PR maintainer so they simply take their word for it, trusting the Paraloft shop maintainer to determine the equipment; up or down status.

Two of the three instances described are easily avoidable through proper training and communication between Maintenance Control and the ALSS Work Center. Manning issues represent a much larger problem with the ALSS community as a whole.

In the latest incident involving the canopy system, a squadron work center performed maintenance on a work order generated from a Material Condition Inspection (MCI) to remove panels on a specific aircraft and reinstall them when notified by Maintenance Control. The aircraft panels to be removed included door 96, commonly known as the T-shirt panel that sits immediately behind the canopy on the turtleback. After removing the appropriate panels from the aircraft, the work center failed to document the door removal with the required in-process update in the work order. Weeks later, post MCI, the work center was directed by Maintenance Control to reinstall the panels, including door 96. Maintainers performed the work and informed Maintenance Control that they completed the task. The aircraft was subsequently moved out from the hangar bay to the flight line and the canopy was electronically operated without incident. As the maintainer performed a pre-turn walk around on the aircraft and actuated the electrical switch to open the canopy, a loud audible pop was heard. The investigation revealed a three-inch crack and a four-inch square-shaped broken piece missing from the fairing on the aft portion of the canopy and three fasteners for door 96 not fully seated.

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The work center Collateral Duty Inspector (CDI) improperly performed the CDI duties associated with this task, made decisions based on the assumption that panels were installed correctly without verifying panel integrity. The CDI did not document panel installation with the required in-process update.

Additionally, maintenance personnel did not reference Maintenance, Diagnostics and Repair Tool (MDART) instructions for door 96 before installation, nor did they bring a Personal Electronic Maintenance Aid (PEMA) to the aircraft for reference during the installation, resulting in damage to the canopy.

Due to human factors, the damage that occurred, resulted in costs of $264,614 and an aircraft that was not mission capable.

All these improper procedures, when lined up, are often referred to as the “Swiss cheese effect,” resulting in conditions that, when they simultaneously occur, often lead to an aviation mishap.

Such was the case in this scenario and it resulted in an aviation mishap due to lack of communication, not following the publication and complacency.

NEED FOR “BY-THE-BOOK” MAINTENANCE

This event highlights the need for by-the-book maintenance.

The end state with this mishap is that it was 100 percent preventable, but was allowed to occur because the required maintenance steps were not strictly adhered.

Although a task like installing a panel may seem like a simple procedure, failure to reference appropriate publications can have a severe consequence.

Additionally, it is a reminder of the vital responsibility that all qualified aircraft maintenance inspectors adhere to proper maintenance actions and understand the consequences that can result should they not do so.
A senior enlisted perspective from a “new join” to the Aviation Maintenance/Material Division within the Naval Safety Center

by Master Gunnery Sgt. Joshua M. Smith

As a new member of the assessment team, I have observed first-hand the Naval Safety Center’s (NA VSAFECEN) aviation maintenance division and the quality and type of information gathered when conducting an assessment vice an inspection. Until I observed it first-hand, I was not cognizant of the degree of difference between the two and want to share what I have learned.

While at organizational level units within the fleet, I was familiar with outside agencies coming to inspect our unit’s maintenance programs and practices. We would prepare for their scheduled visit well in advance, conduct walk through of all programs using the Computerized Self-Evaluation Checklist, go through countless shop spot checks, go over all the drills, and have outside courtesy inspections performed. This process would be repeated until we were satisfied we would do well, that the maintenance department would not embarrass the commanding officer with any critical lapses and that we would perform better than our “sister squadrons” on our evaluation. Most importantly though, there was always the underlying threat that if the maintenance department performed terribly it could be shut down and of course nobody wanted that. As such, it came down to how well we could prepare for a “test” and not necessarily how the unit was operating on a daily basis. Everyone involved was very vigilant to what was said, the answers given to the inspectors, that dedicated, experienced personnel were in place during the inspection, and everyone avoided anything that might paint the unit in a negative manner.

Recognizing the stigma associated with an inspection-like visit, the NAVSAFECEN has shifted away from checklist-driven inspections to process-driven safety assessments. Assessments are seen through the lens of safety, with the sole purpose to provide beneficial and relevant feedback to the command from an observation perspective of their daily operations and processes in a real-time environment. As such, these assessments are much less intrusive or disruptive than inspections, designed not to impede the command’s daily operations, and have the added benefit of a unit’s personnel being much more open and forthcoming with their concerns, “head-hurters,” and the climate within the command.

As an outside entity, the NAVSAFECEN has learned that it is more often able to notice things and get the general feel of the unit, its strengths, and areas for concern, than what can be garnered from an internal review.

Additionally, the assessment team is able to share best practices and lessons learned from the many Marine and Navy units across the fleet that have been previously seen. This sharing of what is working best out in the fleet and the ways to work “smarter not harder” often yields significant dividends when adopted by the units that we assess.

As a member of the NAVSAFECEN’s maintenance assessment team, I’ve observed that the deliverables provided to the commanding officer and the departments are effective feedback. The assessment gives visibility to the unit’s readiness and areas of concern with the mindset that “you can’t fix what you don’t know.” For every objective, there was a best means to accomplish it and I have observed that the assessment process reaps more benefits than an inspection. Be assured NAVSAFECEN always strives for deliverables that allow for a “continued climate of excellence.”
Always approach perpendicular to parked aircraft and never allow yourself to become complacent. The environment in which we operate is very unforgiving and I am extremely lucky that no one was injured due to my actions.
It was late afternoon in Kadena Air Base Okinawa, Japan and our squadron, Strike Fighter Squadron ONE NINE FIVE (VFA-195) were wrapping up a highly successful detachment. We spent the last three weeks dropping nearly 49,000 pounds of both explosive and inert ordnance and executing integrated fighter missions with United States Air Force F-15C and F-35A fighter squadrons. Maintenance Control had just let us know that we needed to prepare the planes for fly-off, back to Marine Corps Air Station Iwakuni the following day. I gathered a fellow ordnanceman, loaded an ordnance truck with several BRU-41 IMERs (Integrated Multiple Ejector Racks, used to carry several bombs on one station) and drove out to the flight line to prepare the jets. However, I took for granted the differences that this situation presented, compared to the numerous times I have uploaded BRU’s on the F/A-18E Super Hornet and I ended up making one of the most foolish mistakes of my career.

The area of the flight line where we were operating was different than any I had seen before. Instead of a single ramp area with all the aircraft in one place, our aircraft were spread out among several different “mini-mat” locations. Because of the distance between aircraft, we had been using trucks to drive pieces of gear between mat locations.

After driving around the flight line for the last three weeks of the detachment, I had become pretty comfortable with my surroundings; this would prove to be my first mistake.

Instead of parking my vehicle perpendicular to the front of the aircraft as I had been trained to do, I thought I could take a shortcut by driving around the starboard side of the aircraft to get a bit closer and offload the IMERs from the back; this would prove to be my second mistake.

I also failed to ask my fellow ordnanceman to keep an eye out as I approached the aircraft’s starboard side with the ordnance truck that I was driving. As one poor decision after another began to pile up without the use of proper risk management, I struck the starboard wingtip of the aircraft with the rear portion of the truck, entangling the wingtip in the aluminum truck bed fences. To make matters worse, instead of staying put, I placed the vehicle in reverse and backed up, which caused even more damage to the aircraft than the initial impact.

As soon as I realized what had happened, my career flashed before my eyes as the severity of my actions became obvious. I had just caused significant damage to a $70 million aircraft because of my complacency and lack of risk management. The incident got the immediate attention of my fellow shipmates, Maintenance Control and the commanding officer. I was escorted to medical for a full evaluation and then had to spend the rest of my day answering questions from my chief, safety officer, Kadena AB security and NCIS.

After the dust settled, it was discovered that I had caused a Class D ground mishap and I was told to expect a disciplinary review board once we returned to our home base. About a week later, after I went to the DRB, I found myself standing in front of my executive officer. I was honest with him about everything that happened and told him that there was no excuse for my complacency and poor judgment. He instructed me to brief each member of the command on the experience, so that they, along with the rest of Naval aviation had the chance to learn from my mistakes.

So, remember, never lose focus when driving around the aircraft and adhere to the instructions that dictate our standard operating procedures.

Always approach perpendicular to parked aircraft and never allow yourself to become complacent. The environment in which we operate is very unforgiving and I am extremely lucky that no one was injured due to my actions. Please learn from my mistakes!
ARE YOU PREPARED?

By AE2 Rickey O. Frazier

THIS TRAINING CAN VARY FROM ACADEMIC DISCUSSIONS TO HANDS-ON DRILLS

In Naval aviation we train to handle emergencies on a regular basis. This training can vary from academic discussions to hands-on drills, all designed to demonstrate understanding of procedures and safety precautions. Considering all of the training you had in the past, how confident are you that your work center can handle a time critical emergency when the seconds really do matter?

Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect.

— Captain A. G. Lamplugh, British Aviation Insurance Group

While acting as Leading Petty Officer of the Aviation Electrician shop at Electronic Attack Squadron (VAQ)-131, I was performing a Career Development Board (CDB) for a new check-in when I was interrupted and informed of a suspected battery thermal runaway on the flight line, while our aircrew was conducting a crew swap. I immediately left the CDB, grabbed my cranial and ran toward the flight line. The first thing I remember thinking, was: “Where is the spill kit?”

To my amazement, what follows is a true testament that regular training and drills actually affect real-world scenarios. You fight how you train, so your training must be practiced thoroughly and efficiently. As I ran to the line, I saw that most of my shop was already outside. The proper PPE had been donned, a checklist was being read and the scene had been made safe. As the only person in my work center that had ever encountered a thermal runaway, I was honestly surprised how well my Sailors handled the emergency without my oversight or input.

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PREPARATION

U.S. Navy photo by Ensign Cody A. Milam.
Lack of communication up and down the chain of command. This problem occurs at every level of leadership when priorities are not clearly stated at the maintenance meeting. This is one example seen while conducting aviation safety assessments (ASA). Often, shops become overwhelmed when every task is the priority. At the end of the shift, Sailors and Marines are left uncertain about the accomplishments of the day. Another example is when leadership fails to communicate long-term plans and goals or, more importantly, the “why?” in the plan. This often occurs in the shop pass downs. Leading Petty Officers and Non-Commissioned Officers send out daily tasking, but fail to mention other vital items, such as upcoming detachments, upcoming phases and specials, or additional pertinent notes from the maintenance meeting.

The lack of communication occurs in every type, model or series and at every level of leadership.

**Signs:**

The factors can be grouped into three categories:

1. Failure to prioritize tasks or plan adequately
2. Insufficient/lack of proper training
3. Overtasked

As seen in assessments, multiple factors are in play when communication breaks down.

Due to the quick and detailed actions taken, we potentially saved two of our aircrew and almost certainly prevented damage to a multi-million dollar aircraft. If the faint smell of sulphur had gone unnoticed, or if someone had not had the courage to step in and prevent the aircraft from flying, this could have been a much different article. However, the overwhelming fact remains: my workcenter flawlessly handled this emergency without ever experiencing it in a real-world scenario. I am extremely proud of the professionalism my workcenter displayed and it is truly an honor to serve with them.

The biggest takeaway from this event is that when there is training to be had, it should always be taken seriously. The senior person may not always be there to take control of the situation, so take each step of the checklist to heart because you never know when it’s going to be you or one of your junior Sailors on the line that has to perform an emergency procedure.

**Best Practice Fix and Solution(s) in order of priority:**

1. During the maintenance meeting, the desk chief recaps the priorities for each work center.
2. Real-time communication between a Flight Line Coordinator and the desk Chief via two-way radios.
3. Division Chiefs attend the maintenance meeting, reinforce and clarify information passed down during the maintenance meeting to the shop at their pass down.
4. Leadership publishes long-term planning and goals. This practice is most commonly seen as a large calendar displayed in a common space (Maintenance Control). Maintenance planning, upcoming detachments and command functions are included in this calendar for all personnel.
5. Proactive Squadron Duty Officer communicates changes to the flight schedule (departure times, ordnance loads, pilot changes) with Maintenance Control.
As you read through this edition’s articles, you will notice an overarching theme that will undoubtedly be of no surprise to you, regardless of your rank or position. It seems that the lack of effective communication is the root of human errors and a rising trend in aviation maintenance mishaps. What once was a shift turnover communication issue, is now a communication problem that can be found at three levels: department to department, supervisor to a technician and within teams or work centers. Assessors repeatedly identify the following issues, to name a few:

- Poorly written pass-down logs and Maintenance Action Forms;
- Continuous interruptions during critical tasks;
- Unclear instructions after maintenance meetings and shift turnovers.

These examples of imperfect forms of communication should not come as a surprise to you. But why is that? Why do we continue to see these discrepancies when verbal or written communication is the most basic forms of communication? I believe the reason is “change.” Or rather, our lack of ability to manage change and accurately communicate it.

BY CDR ROB BEATON

Someone once said, “I welcome change, as long as nothing is altered or different than before.” In my long tenure of Naval service, I have been part of many changes, some more positive than others and some I have handled better than others. However, change takes me out of my comfort zone. I like my comfort zone. It’s comfortable there. In aviation maintenance, things change long-term or last-minute, with plenty of notice or with little to no notice at all; some that make sense and some that make no sense. Change is hard, but there are ways to manage it and make it easier. The biggest challenge that any organization encounters when implementing change is getting the workforce on board. No longer does the phrase “because I said so” work. However, there may be times when it is needed and I believe that those who are on the receiving end of such an order, understand it. This isn’t a “Gen X”, “Millennial”, or “Gen Z” thing. It’s “a human”thing. I’m a Boomer. I know these things; just ask me. So how do we make change more comfortable for those of us who find it so disruptive?
This is where communication and engaged leadership come in. Communication in the Navy and Marine Corps comes in many forms. Depending on the situation, it can range from a well-structured meeting with all interested parties, to an incomprehensible, profanity-filled tirade with matching body language and flailing knife hands, that neither requires nor desires feedback or questions, only action. Not all forms are as effective as they need to be, but some are effective in a situation that requires them. As a maintenance manager, regardless of the scope of responsibility, you must have your team’s involvement in the decision process. Participation in the process works, because no matter the scenario, it is a human trait to want something to succeed when you have invested your time and energy into it.

Technicians make up the majority of our organizations. They perform the job day-in and day-out. They are at the highest risk of making human errors that impact safety and they are also the ones most likely to catch those errors. When an incident or mishap occurs, who would be the most capable person to identify why it happened? Who is the most qualified to offer realistic solutions to prevent it from happening again? Is it the supervisor who is removed from the day-to-day work, or the technician who does the job every day and knows it from start to finish? Well, that sounds easy. All we have to do is ensure everyone involved is part of the planning process. It just makes sense. If your first thought is that your team is already stretched thin and you can’t afford to spare any of their time to participate in planning activities, you are not alone.

This is a challenge shared by organizations, both large and small, across all platforms of the Naval Aviation Enterprise. Being undermanned has become a way of life. This is where engaged leadership enters the picture. Whether or not to include team members in decision making should not be the question; the only problem worth asking is how to include them. Any way an organization chooses to do it, the important thing is to get them involved, make their voices heard and take advantage of the invaluable resource sitting right in front of you. Listen to their ideas, heed their concerns and weigh their opinions with the highest priority.

Until now, many managers haven’t wanted to hear bad news and many technicians have feared repercussions. That has to change. Leaders must get and remain engaged in their subordinates’ daily tasks and listen and communicate their needs and concerns. Some of the best-managed squadrons in the fleet are the most heavily tasked. They all have one thing in common; they communicate. The E-1 knows what the Skipper knows at the level he or she should know and they feel like they are a critical part of the team. It’s as simple as that. That’s 34 years of Naval experience given to you for free. So it’s time to embrace change. Change is hard for some. As leaders, it is our charge and responsibility to ensure that those who are implementing it have a say in its success. This can only be accomplished through effective communication and team “buy in.” Reduced errors and costs will follow our mission. See you in the fleet!
What is wrong in this picture?

The guy up on the stand has no fall protection and is not even wearing a cranial.
Aircraft Maintenance Marines and Sailors spend a significant amount of time working at height on top of, or around the aircraft during maintenance. Military and civilian contractors must comply with federal rules. Educating our maintenance personnel should be one of the keys to keeping them safe. Our maintainers conduct scheduled and unscheduled maintenance atop helicopters and fixed-wing aircraft daily in many different environments. Protecting our Marines and Sailors should be a top priority for all aviation maintenance leaders. Without our people, maintenance will cease to be productive and the flight schedule will begin to drop sorties.

Fall protection must be provided to Navy civilians and military personnel exposed to fall hazards on any elevated walking, working surface with unprotected sides, edges, roofs or floor openings, from which there is a possibility of falling four feet or more (five feet for shipyard operations) to a lower level; or where there is a possibility of a fall from any height onto dangerous equipment, into a hazardous environment, or onto an impalement hazard. The mandatory regulations are outlined in the 29 CFR PART 1910. Cranials are not considered fall protection devices. Appropriate fall protection devices are: Guardrail Systems, Work Platforms, Safety Net Systems, Personal Fall Arrest System, Work Position System, Fall Restraint System, Ladder Climbing Safety Devices and Covers.

We are responsible as leaders to ensure that our personnel are protected from falls to the best of our ability. There are personal fall protection devices available, as well as fall prevention systems. However, as a community, we fail to use these tools regularly to protect our maintainers. Instead, we have adopted the common practice of ignoring the fall protection requirements in the name of mission accomplishment. This has placed many maintainers at risk unnecessarily. We should use Operational Risk Management in our daily maintenance routines and use fall prevention systems in every instance that they are applicable to prevent mishaps and save lives.

Cranials are not considered fall protection devices.
Good day to all of you professional maintainers and maintenance managers out there in the finest Navy and Marine Corps. This article is written after performing numerous unit assessments and reading hundreds of mishap reports throughout my three years here at the Naval Safety Center (NAVSAFECEN). I have seen effective mitigation controls in place by units with minimal resources. Unfortunately, there are many aircraft maintenance departments flying by the seat of their pants, and our future aviation maintenance force is being taught deviated norms and incorrect practices. The future success and readiness of our Navy and Marine aviation forces depends on the actions taken at fleet units. Remember, what I am saying here is from performing 90 to 100 assessments per year and reviewing numerous aviation maintenance-related mishaps day after day at NAVSAFECEN.

Having a well-performing squadron and maintenance team begins with maintenance managers who must apply due diligence to develop effective plans that must include efficient, effective and safely executed programs, with the known resource constraints that you have. As for maintenance leaders, we must be engaged and set the standard for the maintenance team by “walking the walk.”

The maintenance leadership team sets the culture of the unit through positive actions on planning maintenance. This includes quality training and taking care of our people. It is imperative to ensure quality training takes place and proper publications and instructions are followed. Work centers need to be properly staffed, especially with critical function areas, such as Quality Assurance (QA). We must set high standards for quality, productivity, training, efficiency and safety, and hold people accountable to those.

By CWO5 Brian Baker
Aviation Maintenance and Material Safety

Joined the Navy in December 1990 as an Aviation Structural Mechanic and advanced to the rank of chief petty officer, before being commissioned as an Aviation Maintenance Chief Warrant Officer in November of 2004. Currently serves as the Aircraft Maintenance, Material Analytics Branch Head.
I have been in several squadrons and on detachments where we were stretched to our limits more often than not. As a maintenance leader, we have to stand up at those times and ensure the unit’s leadership fully understands the strain and risks the group is under.

**Expectation Management**

We must provide leadership with exact issues that are exerting the excess pressures with supporting data (i.e., a maintenance plan that will affect negatively, work center staffing that can’t safely support the stretch, training that needs to get accomplished but has not or cannot be…). Not only do we have to provide them the heightened awareness, but we should also provide options and specific resources to take to their bosses to help alleviate some of the increased risks and strains.

To be credible to senior leadership and get them to listen, maintainers must have integrity and high standards that they live by, and prove that they have the unit’s and the leaders’ best interest at heart. The maintainers must have quantitative data to back up qualitative and vast years of experience and decisions.

**Quality Assurance**

Per the Naval Aviation Maintenance Program (NAMP) and by industry standards, it is QA’s responsibility to ensure quality maintenance, servicing and inspections are conducted following established guidelines to prevent the occurrence of defects. QA is so crucial that it gets its own chapter within the NAMP.

As the NAMP states, “QA is fundamentally the prevention of the occurrence of defects and is an integral part of every maintenance process from start to completion.” The number one objective of QA is to improve the safety of flight and ground operations. The last chapter states: “Eliminate unnecessary man-hours and material expenditures.” Between 2013 and 2018, maintainers almost tripled the number of maintenance-related mishaps. Some may say they were working harder than they were from 2003 up to 2013, but data does not support that perception.

The maintainers did experience a force reduction in 2013 and that is all the more reason to be more engaged. There has also been a decline in knowledge of the NAMP, how to properly plan maintenance, manage risks and a general care for the quality of work being performed. Just as any FAA licensed airframe and powerplant (A&P) mechanic, a Sailor or Marine should know, “QA is the responsibility of every individual involved with Naval Aviation maintenance. Although the QA Officer (QAO) is responsible for managing the overall quality assurance effort within the maintenance department, each division officer, division chief, work center supervisor and technician is equally responsible for maintenance quality” (COMNAVAIRFORINST 4790.2C, 15 Jan 2017, Chapter 7, par. 7.1.3 responsibilities).

**Examples**

The following are examples of what we do and do not see from the 90 plus assessments performed a year and verified in the mishap and hazard report (HAZREP) write-ups that repeatedly come through our reporting systems:

- Not using or following publications or checklists.
- Not wearing the personal protective equipment (PPE) for tasks to be performed.
- Not following the task to task sequence.
- Distracted by cell phones out on maintenance tasks.
- Not focused on what is going on, when performing tasks during which things could go very wrong (i.e., aircraft moves, aircraft washes, aircraft launches, aircraft turns, aircraft jacking and aircraft operational checks.)
- Chiefs, QA representatives and supervisors in shops working on college courses, looking at the next home or auto projects, or scrolling through social media.
- Few khaki subject matter experts involved in the actual training of our junior technicians.

**Training**

Aviation maintenance training in the civilian maintenance force is usually provided by some of the most senior technicians who have been there and performed maintenance many times. Assessors do not see abundant numbers of junior technicians excited and understanding the importance of their work and how their work is tied to the overall mission.

What I want to see more of is the glowing pride and professionalism in our aircraft maintenance profession displayed by the Chiefs and First Classes building that pride, professionalism and care into the junior personnel. What does this all equate to? Our trends. Maintainers ensure our aircrews have the world’s safest aircraft to fly, train, fight and win every day.

**Mission Critical**

The majority of maintainers are providing excellent weapon systems that are helping ensure our national security through deterrence and keeping the fight away from our shores. Your efforts provide deterrence so our fellow Marines, Sailors, Soldiers and Airmen, who are on the ground in some of the most dangerous places in the world, can do their missions knowing you have their backs. You help provide the deterrence to keep shipping lanes open and safe, promoting free trade around the world so your family members can enjoy the newest technology. Maintainers provide ready aircraft to perform humanitarian missions, hurricane rescues, move much-needed and precious cargo. The list can go on and on, so do not ever look at your job as just a job. It is a path to something bigger, better and more worthwhile. You are doing one of the greatest things you can be doing in your lifetime.

Naval and Marine Corps Aviation is very dangerous and unforgiving just in the basic operations! Let’s refocus on what we are supposed to do when we are at work. Maintainers need to complete tasks with the highest level of attention, professionalism and pride!

I look forward to seeing you out there on the flight lines, in the hangars and on the deckplates. I hope to find you doing the right thing all of the time every time. I hope to find each of you doing your part to prevent the occurrence of defects in every maintenance process from start to completion.
AVOID MISHAPS

Ordnance Assessments and Common Discrepancies

By AOCS(AW/SW/IW) Christopher Morris

It has been a while since the routine publication of MECH magazine was released and it is long overdue. As you can see, the magazine is back and it is just one of the tools we use to communicate common issues we find during our assessments throughout the Navy and Marine Corps ordnance community.

I have been with the Naval Safety Center for about two years and I have traveled the globe speaking with Sailors and Marines, while evaluating each command’s processes, procedures and addressing concerns in all platforms of Navy and Marine Corps aviation. This assignment allows me to speak with leaders, supervisors and professionals within our rating, to work together identifying shortfalls, trends, best practices and mishap-causal factors. The end goal is to ensure Sailors and Marines have everything they need to be able to keep planes in the air and have the ability to predict and prevent mishaps from occurring while preserving combat readiness and saving lives.

In this article, I will address a few of the more common discrepancies I have seen over the past two years in hopes of getting the word out to provide you with some things to look at that may have fallen off your radar or have been overlooked.

So, what does the Naval Safety Center look at during an assessment? This is a question I get often when I brief the students at Aviation Ordnance Managers Career Progression Level 1. The answer is, “I look at everything related to ordnance safety within your organization and I want to talk to your Sailors and Marines.” I explain that we are not there conducting an inspection and that we are there to assess the command’s programs, processes, procedures, manning and command climate.

The assessors determine if the maintainers have all of the tools, parts, materials, training and support they need to be able to do their jobs effectively, efficiently and, most importantly, safely. Additionally, we provide advice and training on how to do things better based on our experience and what we have seen around the fleet. The assessors offer guidance and training on what they believe works well, best practices, and what they have observed that does not work well.
For the evaluation process to be effective, the assessors try to reach out to all paygrades within the command. Every Sailor and Marine matters and different perspectives paint a picture of how the command works. Just keep in mind that the evaluators are not an inspection team and they are there to help. Sailors and Marines need to be honest with their answers to determine which areas of concern to focus the most attention on. Also, keep in mind that your “head-hurters” may be the same as another command or community have, so those issues need to be identified in order to make changes either locally or across the fleet.

Now that I have explained the objective of the assessments, I will identify three of the more common discrepancies I have observed across the fleet. These discrepancies are not all inclusive in order to keep this article within length constraints and attention spans. I have also included the references, if you wish to look into these issues further.

The first discrepancy is the most common I find and usually, the first thing I look at in the morning while I am walking the hangar bay and participating in foreign object debris (FOD) walk down. Aircraft grounding points are either expired, missing dates or they are not labeled at all. I have also seen aircraft, which were not grounded or connected to a point on the deck that is a certified ground (tiedown points). Ordnancemen are typically pretty good at remembering to use their own certified and tested grounding wires or reels while conducting ordnance evolutions, but the risks of static electricity still exists when the “Ordies” leave the aircraft. Ensure grounding points are checked for resistance and continuity every 48 months and grounding cables and reels are checked every year. It is also imperative to pre-op those cables and reels prior to each use, to ensure the cables are not frayed, worn or broken. Refer to NAVSEA OP 5, Volume 1, Chapter 6 and MIL-HDBK-274(AS) for more information on aircraft and ordnance grounding requirements.

Ready Service Lockers (RSLs) are another area of concern within the ordnance community. Material condition of the RSLs is a growing problem around the fleet and is being addressed through different channels, but I am also seeing many RSLs and Ready Service Areas (RSAs) that have either the wrong explosive hazard class and firefighting symbols, or none at all. Ensure storage areas are properly marked with the highest class level of explosives or ammunition stored in that locker or area and check to ensure the proper firefighting warning labels are affixed to protect personnel during an emergency and prevent an already bad situation from becoming worse. For more information on markings and requirements, refer to NAVSEA OP 5 Volume 1, Chapters 3, 4 and 7.

The last discrepancy I will touch on, is the excessive storage of Cartridge Actuated Devices and Propellant Actuated Devices (CAD/PAD) within RSLs and aircraft mechanic egress (AME) shops. This issue usually occurs when the squadron receives one or more airplanes that are not fully mission capable. The problem is, squadrons are receiving aircraft without the explosives installed and they are forced to make room for the CAD/PAD items, without having the correct packaging for turn in. This issue leads to work centers storing explosives over their authorized Net Explosive Weight (N.E.W.), or unnecessary clutter in the RSLs. If you are transferring aircraft to another squadron, package CAD/PAD items the way they are intended to be stored or turned in. No one wants to accept someone else’s mess and ultimately this creates unsafe storage conditions and a ton of wasted man hours for the receiving squadron and weapons departments or Naval Munitions Commands (NMCs). For more information on proper packaging and shipping requirements for CAD/PAD items, refer to NA 11-100-1.1. This list of discrepancies is not all inclusive and there will be more information to come in future editions of MECH, so we can work together as a Navy and Marine Corps ordnance team to increase safety awareness, preserve combat readiness and save lives.

If you have any questions, concerns, or anything you would like me to address that you think would help the Fleet in future editions, send me an email at: christopher.j.morri9@navy.mil.
The end-users of support equipment must understand the significance of completing a proper preoperational inspection, because not conducting an inspection could result in injury to personnel or damage to equipment. This article will discuss assessment findings, factors contributing to procedural noncompliance and means of mitigating noncompliance.

Findings from 15 command assessments have revealed a disturbing trend of incomplete preoperational inspections. On many occasions, maintainers have documented the inspection completion without visually inspecting the gear. There was even an instance at a command where an aircraft jack, which was months overdue for regular maintenance, was used to jack up an aircraft. Support equipment that is overdue for periodic maintenance is considered down and should never be used. Using down equipment exposes personnel and aircraft to needless hazards.

After reviewing all the data and reports from numerous assessments, all the factors point to the same contributors: a lack of leadership involvement, attentiveness and training; Sailors and Marines are going out to do inspections on support equipment without taking the proper maintenance requirement cards; some had no knowledge that equipment had maintenance requirement cards; and lastly, supervisors are not conducting follow-ups on their subordinates to ensure they are doing the inspections correctly.

Assessors have witnessed several individuals “gun decking” pre-op inspections, which is a problem and must be corrected immediately.

Now that I have shared some of the contributing factors, I will now share a few of the process improvement measures that commands have implemented. Another practice that seems to work is maintaining strict accounting of when and who conducts preoperational inspections. In this process, the inspector documents in the tool log, checks out the preoperational inspection card and the 52 card. After the inspection, the Leading Petty Officer (LPO) verifies the inspection was done and then signs the supervisor block on the 52 record. The LPO is the only person allowed to sign 52 records. I have also seen commands that have a dedicated support equipment representative. This representative has custody of all the support equipment and accompanies maintainers out to complete inspections.
"I will need to get back with you on that, Chief or Gunny." How many times have we heard this phrase during a maintenance meeting? Too many to count, but you can usually count on a verbal mentorship session to follow, if these words came out of your mouth. We call these Marines and Sailors different terms, depending on the community and service. Usually, we call them "desk sergeants" or "shift supervisors". However, the lack of knowledge about their workload is not entirely their fault. Most of the time during this scenario, there is a work center supervisor in the back letting it happen. This has become accepted behavior throughout the fleet, in order to push down responsibilities to the lowest level under the auspices of training. The work center supervisor (WCS) is ultimately the most important critical job in a maintenance department. In fact, Commander, Naval Air Forces (COMNAVAIRFORINST) 4790.2C, chapter six, states: "If successful accomplishment of assigned tasks could be attributed to any one group of personnel, it would be the WCS." The reference goes on to list several responsibilities of the WCS with the primary role being “responsive to the hour by hour maintenance situation. This requires constant communications between the work center and Maintenance Control or Production Control.” Other duties and responsibilities cover areas including work center procedures, maintenance action form (MAF) documentation, material requisitioning, the individual material readiness list, quality assurance in the work center and maintenance safety, to name a few.

From FY17 to FY19, there have been 1,714 aviation ground mishaps and hazards reported throughout the Navy and Marine Corps. Out of those reported mishaps and hazards, 894 Human Factors Analysis and Classification (HFAC) causes were associated with leadership or supervisory failure, as shown in figure 1. In today’s culture, it is common to see a significantly junior member run the day-to-day operations of a large work center. Realistically, a desk sergeant is a made-up billet and a shift supervisor has a few minor responsibilities to include conducting tool inventories, for example.

The delegation of responsibilities and duties by the WCS is authorized. However, the WCS is still accountable for those delegated duties. According to the COMNAVAIRFORINST 4790.2C, chapter six, “Work Center Supervisors (WCS), with the Division Officer’s approval, shall appoint collateral duty Petty Officers or Non-Commissioned Officers, (NCOs) to handle some of the more routine but time-consuming tasks assigned to the supervisor. This allows more time to devote to their primary duty of supervising personnel. This does not relieve them of the responsibility of ensuring the tasks are properly completed.” In short, the WCS is responsible for the entirety of the work center’s day-to-day operations, maintenance tasking, personnel and “anything that may affect the ability of the work center to maintain the systems assigned.” Of course, training must occur, but placing a junior member in a leadership position without supervision is not effective, sufficient training. Effective oversight from the work center supervisor ensures maximum efficiency from the work center and reduces the occurrence of mishaps.

![Supervisory HVAC Causes](https://example.com/supervisory-hvac-causes.png)

Figure 1, Supervisory HFAC Causes FY17-FY19
Recently, while performing research on practice bomb discrepancies in the All Weapons Integrated System (AWIS), I realized that there are a significant number of Conventional Ordnance Deficiency Reports (CODRs) involving Laser Guided Training Rounds (LGTRs).

Upon further inspection, I noted that over half of these CODRs generated are due to complacency or lack of supervision. LGTRs are received with a wing nut and a cotter pin installed that are not removed until the weapons are loaded.

The wing nut and cotter pin are then re-installed before downloading the weapon from the aircraft. These safeties are installed because they inhibit the thermal battery from igniting and burning out which in turn ruins the weapon. These instances can be avoided by receiving recurring training, having proper supervision and following procedures. Recurring training is already a requirement in accordance with the qualification and certification instructions. This training is only required annually which, in reality, is not enough. Additional on-the-job training (OJT) is required for training to be sufficient.

Proper supervision involves a qualified individual on-site to identify any hazards or ensure that junior individuals are following procedures to accomplish the task.

I believe, with a qualified senior individual on-site, that these mishaps could have been avoided, as that individual would have noticed that the safeties were not installed before the weapon download occurred.

Procedures are in place for a reason. We have technical publications, loading checklists and orders that give us instructions on how to correct a discrepancy or inspect and load a weapon. If these procedures are not followed, mishaps can and do happen.

I have heard throughout my career that: “These publications are written in blood.” This means that the publications were written because people were injured or died doing it a different way. Reinstalling these safeties on the LGTR, before downloading it, is a step in the download procedures. Complacency plays a significant role in compliance with procedures because the evolution has been performed so many times before.

The number of CODRs written on LGTRs is staggering. Over half of those CODRs were written because the proper procedures were not followed and this is worrisome.

Steps to alleviate this deficiency are to receive recurring training to augment required annual training, have proper supervision on-site to deter individuals from making bad decisions or missing steps in the checklists and to follow procedures that are there for your safety and others.
In recent assessments, the Hazardous Material (HAZMAT) program was identified as needing attention. From the checkout procedures to the disposal, here is a quick look into the program. If you walk down to your local HAZMAT checkout, you will likely find two or three large yellow binders, labeled SDS (Safety Data Sheets).

Open the binders and you are likely to find pages and pages of pristine paper fresh off the printer, with all the information you need for a safe and mishap free evolution from using to disposal of HAZMAT. Take the time to review the Safety Data Sheets for the proper Personal Protective Equipment you need to protect yourself from the material you need for the job. Ask yourself if the people you are working with know what to do in the event of an emergency.

Let’s face it, emergencies happen and if you get HAZMAT in your mouth, eyes or anywhere else, it can produce burning, itching and loss of breath, therefore, you will not be capable of telling anyone what you read in the binder that is now on the other side of the hangar. SDSs will also tell you if the material you are using will have a bad and adverse reaction with other different types of HAZMAT that your counterparts have sitting in the shop from another job. Lastly, do you remember what the disposal process is? Do you need to double-bag it, print out a label or write in the pass down log that it requires disposal on the next shift, or can you just take it back to the checkout point and turn it in?

SDSs are sometimes overlooked while we rush down to get what we need to finish the job, but they are really convenient when you have someone standing on the hangar deck yelling for help while they cannot see or tell you what to do to help them.

The phrase, “Safety is a byproduct of professionalism,” is one frequently heard around Red Ripper spaces. Through every single maintenance action and flight, members of the Red Rippers professionally adhere to their training, checklists and procedures resulting in a safe, efficient, lethal combat ready squadron. Each quarter the VFA-11 Safety Department organizes a squadron-wide Safety Stand-down. However, the Red Rippers have changed the setting from the all-hands/auditorium setting to a much smaller, CPO led work center setting. In this setting we share lessons learned, go over any concerns individuals might have and give training on new maintenance practices for the fleet. Since making the change to a smaller group setting, we have seen a major increase in interaction between Sailors and facilitators during our safety stand downs. Conducting a squadron wide safety stand-down in an auditorium setting is great for executing annual mandatory training efficiently, however audiences in these settings generally stop retaining information at around the 30-minute mark. In order to really understand the climate of the sailors and uncover their concerns, the Rippers found it necessary to provide a smaller and more comfortable environment where sailors were more likely to speak up and participate.

Adding to this, having their CPO lead the discussion allows the training to become more of a discussion as opposed to a regurgitation of PowerPoint slides. To facilitate these quarterly stand-downs, the squadron Safety Department holds a meeting with senior enlisted leadership to go over goals for that quarter’s training. In this meeting we cover required training for the Sailors, lessons learned from recent MISHAPs and HAZREPs, as well as what specific feedback we would like to get from the Sailors. Having this discussion with the maintenance leadership also allows us to develop topics and talking points for the stand down. Following this meeting, the Safety Department leadership generates discussion topics for each work center to begin discussions and the CPOs take it from there. One of the most effective components of this entire process is the ability to compile lessons learned. Division Officers are in attendance with their work centers and they are tasked to write a summary of the ideas, concerns and takeaways from the discussions that took place. The safety department then compiles and writes a document that is disseminated to the squadron leadership to provide an idea of where we stand and how we can better our safety environment in the future. Since changing the format of our safety stand-down, we have seen much greater participation and buy-in from all members of the squadron. It is clear that all officers and Sailors know they have a voice and the ability to speak up when they see an issue, no matter how small. Within this small group setting and professional atmosphere, safety becomes part of the routine, allowing The Red Rippers to focus on maintaining the highest levels of lethality and readiness on the flight deck.
Over the last three years, the leading causal factors have been: procedure non-compliance, inadequate real-time risk assessment and wrong choice of action during an operation. For each one of these factors, there are a sequence of actions and decisions made by the maintenance crew that leads to the AGMs; those actions are often referred to as the "Dirty Dozen" of aviation maintenance.

Here are some examples of the Dirty Dozen in Naval Aviation:

Inadequate technical and leadership expertise also referred to as Fit and Fill.

- We have squadrons in the fleet that are lacking Collateral Duty Inspectors / Quality Assurance Representatives (CDIs/QARs) in numbers and experience. This is compounded by the lack of adequate training at the A and C schools.
- The result of this deficit is junior personnel leading and executing maintenance that requires a depth of knowledge and experience they simply do not possess.
- Additionally, they may be unaware of proper procedures and may not recognize hazards, therefore making inappropriate risk decisions, or they choose to assume risks at an inappropriate level.
- Publications don’t cover every specific scenario; therefore, a certain level of thought and experience is required on each job.
The leadership was not present on the hangar deck and flight line

- Workcenter Supervisors and Chief Petty Officers are overwhelmed with the administrative requirements associated with leading and managing their work centers or divisions. These requirements inhibit their ability to supervise the maintenance effort on the hangar deck and flight line.
- Also, during maintenance on a single aircraft involving multiple work centers, the lack of experienced direct supervision often results in maintainers not fully grasping the impact of their actions on other aircraft systems.

Normalization of Deviation

- Expeditionary Maintenance Mindset or Rescue Detachments. The practices and actions acceptable in combat in support of 24-hour operations or the compromises made by the maintenance personnel during a rescue detachment in order to bring the aircraft and crew back becomes an acceptable practice at home.
- The current maintenance culture of some squadron supervisors does not reflect a clear understanding of who can authorize a deviation from procedures.

High number of aircraft transfers

- Many accepted aircraft are in a non-flyable status, deteriorated due to corrosion, parts shortages and administrative deficiencies such as component Technical Directives (TDs) not incorporated and log sets not matching the aircraft. These result in an increase workload adding pressure to the maintenance departments to produce aircraft and forcing wing commanders to shuffle the inventory among the deploying squadrons.
- Additionally, the assignment of aircraft in excess of the squadron’s Primary Aircraft Authorization (PAA) produces a similar maintenance burden.
- Manning and Aviation Maintenance Experience (AMEX) do not match maintenance requirements
- The Tables of Organization (T/Os), Staffing Goals and Squadron Manning Documents (SQMD) do not accurately reflect changes in maintenance requirements associated with the transition from legacy aircraft to new type model series (T/M/S).
- Expeditionary squadrons are tasked with new requirements or missions without increasing the maintenance footprint in regards to the work force and support equipment.

The results of these situations are low Ready Basic Aircraft (RBA) and quality of aircraft. The maintenance personnel develop a “get-er-done” mentality with an actual real urgency or perceived sense of urgency to complete tasks at any cost. The maintenance teams are doing what it takes by not following procedures (negligence and ignorance). They work beyond prescribed (or reasonable) workdays driving carelessness and fatigue.

With an increase in common everyday tasks, complacency is driven by the sense of “I’ve done this a hundred times,” which leads to cutting corners.

Not all is lost, supervisors; we need to take ownership, know your responsibilities and what it takes to do your job well. When planning major significant evolutions, use Ground Crew Coordination Tools (pre-briefs and post-briefs). All levels of maintenance supervisors need to know Maintenance Control goals and priorities. Use new challenges as an opportunity to train with a purpose. At the end of the day, the secret to managing risk is not a secret at all. What it takes is for each one of us to recognize our individual deficiencies and to work with our leadership to overcome said deficiencies.

Dirty Dozen

- Lack of Communication
- Distraction
- Lack of Resources
- Stress
- Complacency
- Lack of Teamwork
- Pressure
- Lack of Awareness
- Lack of Knowledge
- Fatigue
- Lack of Assertiveness
- Culture (Norm)
PROCEDURAL COMPLIANCE

By ADCS Skylar Buchanan

Many deficiencies were noticed throughout Navy and Marine Corps aviation units during recent safety assessments. The one that sticks out the most is lack of procedural compliance. Most Aviation Ground Mishaps (AGMs) could have been avoided if Sailors and Marines would have followed policies and procedures. Supervisors and Quality Assurance personnel should follow up and spot check their subordinates while they are performing maintenance. One example of this took place on board a ship. A drop tank was stored in the overhead of hangar bay two and while removing it, the tank slipped loose of its restraints on the forklift and fell to the deck, damaging the drop tank.

After the drop tank fell, squadron maintenance personnel noticed the tank weighed more than usual for a tank in preservation.

After further investigation, maintenance personnel discovered around 300 lbs. of jet fuel was still inside the tank. The slushing of fuel caused the tank’s Center of Gravity (CG) to shift, therefore causing the tank to fall free of its restraints.

The preservation Maintenance Action Form (MAF) task was completed and signed weeks before this incident occurred. Now how did this happen? In order to store a drop tank, the first step is to make sure the tank is empty.
The tank not being empty was the first mistake. The second step before storing an external fuel tank is to ensure the tank is “gas free,” which is performed by a qualified Gas Free Engineer. Not ensuring the tank was gas-free, was the second mistake, because a tank cannot pass the “sniffer” test with 300 lbs. of fuel still present. After all of these actions are completed, a MAF is then signed off, stating what was done and who performed all the inspections and tasks in accordance with the applicable Maintenance Instruction Manuals (MIMs).

MAINTENANCE LEADERSHIP SHOULD PROVIDE SUPERVISION

Maintenance leadership should provide supervision and oversight when conducting high-risk activities to include proper pass down between shifts.

Training should be conducted with aircraft maintainers, especially Collateral Duty Inspectors (CDIs), on the steps to remove drop tanks from aircraft for placement into storage and preservation. Although no one was injured during this incident, the potential was greatly magnified by the lack of compliance at several levels.
Bravo Zulu is a naval signal originally sent by semaphore flags and in English, simply means “Well done.”

AD2 Christopher Cuello

A hearty Bravo Zulu to AD2 Christopher Cuello of Strike Fighter Squadron Two Seven (VFA-27), with Carrier Air Wing FIVE (CVW-5) embarked aboard USS Ronald Reagan (CVN-76), for noticing a metal extension above an F/A-18E Super Hornet leading edge extension while the jet taxied to the catapult. AD2 took prompt action, suspending the launch and secured the handle. His attention to detail mitigated a potential airborne mishap, preventing injury and damage. Bravo Zulu, AD2 Cuello!

AM2 Matthew Norman

A Bravo Zulu to AM2 Matthew Norman of Strike Fighter Squadron Two Seven (VFA-27), attached to Carrier Air Wing Five (CVW-5) embarked aboard USS Ronald Reagan (CVN-76), for his quick recognition of a choking Sailor. He immediately began performing the Heimlich maneuver, clearing the Sailor’s airway. AM2’s rapid, deliberate action stopped an impending situation from becoming critical. BRAVO ZULU, AM2 Norman!
DID YOU KNOW?

The origins of “Bravo Zulu” are in the Allied Naval Signal Book, which for decades has been used by members of the North Atlantic Treaty Organization (NATO), established in 1949.

AN Brandon Boggs

AN Brandon Boggs, assigned to USS Ronald Reagan (CVN-76), was participating with Weapons Department, G-2 Division in a .50 caliber live-fire exercise from the ship’s fantail. During the live-fire event, a helicopter was heading inbound to the ship, directly aft of the fantail. AN Boggs immediately recognized that a ricocheted round, direct fire at the helo, or a runaway gun would pose a significant hazard to the helicopter. Knowing the extreme hazard to the helicopter and crew, AN Boggs called for an immediate cease fire. This questioning attitude, forceful back-up and professional knowledge is important at all ranks, but particularly impressive for a junior Sailor. AN Boggs’ keen awareness was critical to the helicopter landing safely on the flight deck. AN Boggs’ superb initiative and dedication have proven to be instrumental in keeping his shipmates safe.

AO3 Taylor Dee Hinds

During normal daily operations, AO3 Hinds, USS Ronald Reagan (CVN-76), noticed the scuttle leading down to 5-138 weapons magazine was missing a locking pin, which disabled the function of the scuttle to be set in the upright position. Not only was this a damage control discrepancy, it could have caused serious injury to personnel. She immediately took action and notified her chain of command in order to secure the scuttle with a high security lock and submitted a trouble call with G-4 maintenance division for the catch assembly to be replaced. Her attention to detail was crucial in identifying a potential major hazard. Petty Officer Hinds is truly a stellar Sailor who sets the example for her shipmates to emulate. AO3 Hinds’ superb initiative and dedication have proven to be instrumental in keeping her shipmate’s safety a number one priority.

SUBMISSION GUIDELINES

Please use the following guidelines when submitting articles.

1. If you have already written your article and are familiar with our magazines, simply email it to one of the email addresses below:

SAFE-MECH@navy.mil

Length

Short story: 800-1,500 words
Feature story: 2,500-3000 words
News briefs: 500 words.

Fact-checking

We ask that writers research reference materials (such as manuals and books) used in their articles. Please verify your sources before attributing quotes to them. If you need us to perform additional fact-checking, please make a note of it when submitting your article.

Photos

All photos must be high resolution (300 dpi) in JPEG or JPG format.

When you e-mail your article, use the author’s name as the filename.
Example: CatalinaMagee.doc.

We forward to receiving your great articles!

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PACIFIC OCEAN (Aug. 4, 2019) Aviation Machinist Mate 2nd Class Dalton Hester, right, from Sherrard, Arkansas, and Aviation Machinist’s Mate 3rd Class Roger Li, from San Diego, conduct an inspection on an M-60T Sea Hawk helicopter assigned to the Island Knights of Helicopter Sea Combat Squadron (HSC) 43 aboard the amphibious assault ship USS Boxer (LHD 4). U.S. Navy photo by Mass Communication Specialist 3rd Class Eric Schter/Specialist 3rd Class Benjamin Waddell/Released.

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PENSACOLA, Fla. (Oct. 15, 2019) Students in the aviation machinist’s maintenance course attend Naval Air Technical Training Center (NATTC) pre-ops to remove the power turbine and drive shaft of a helicopter engine. U.S. Navy photo by Ensign Cody A. Milam/Released.

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PENSACOLA, Fla. (Oct. 15, 2019) Aviation Machinist’s Mate Airman Recruit Gabriel Horak, left, and Aviation Machinist’s Mate Airman Apprentice Maggie Seibal, practice replacing the fuel line of a jet engine at Naval Air Technical Training Center (NATTC). U.S. Navy photo by Ensign Cody A. Milam/Released.

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SURFleet, Oct. (Oct. 16, 2019) Students in the aviation machinist’s maintenance course attend Naval Air Technical Training Center (NATTC) pre-ops to remove the power turbine and drive shaft of a helicopter engine. U.S. Navy photo by Ensign Cody A. Milam/Released.

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Aviation Electrician’s Mate 3rd Class Danielle Butler, assigned to the Seahawks of Carrier Airborne Early Warning Squadron (VAW) 116, performs maintenance on an E-2D Hawkeye in the hangar bay of the aircraft carrier USS Harry S. Truman (CVN 75). U.S. Navy photo by Mass Communication Specialist 3rd Class Adolfo Timan/Released.

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NOFOLK (July 7, 2019) Aviation Electrician’s Mate 3rd Class Angela Romero from Berryville, Arkansas, perform a pre-operational inspection aboard an F/A-18C Hornet on the flight deck of the aircraft carrier USS Harry S. Truman (CVN 75). U.S. Navy photo by Mass Communication Specialist 3rd Class Shane Bryan/Released.

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Tiltrotor Squadron 265 (Reinforced), 31st Marine Expeditionary Unit, load laser guided bombs onto an F-35B Lightning II fighter aircraft aboard the amphibious assault ship USS Boxer (LHD 4) on the Solomon Sea, U.S. Marine Corps photo by Lance Cpl. Kevan Dunlop/Released.

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PENSACOLA, Fla. (May 7, 2019) Aviation Maintenance Apprentice Airman Recruit Li Yin, from Los Angeles, and Airman Recruit Gabriel Romero from Bensville, Arkansas, perform a pre-operational inspection on the F/A-18 Super Hornet assigned to the “Rampage” of Strike Fighter Squadron (VFA) 83, on the flight line on Naval Air Station Oceana. U.S. Navy photo by Mass Communication Specialist 3rd Class Kaleb Sarten/Released.

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PENSACOLA, Fla. (May, 2019) Aviation Support Equipment Technician Airman Recruit Li Yin, from Los Angeles, and Airman Recruit Gabriel Romero from Bensville, Arkansas, perform a pre-operational inspection on the F/A-18C Hornet assigned to the “Rampage” of Strike Fighter Squadron (VFA) 83, on the flight line on Naval Air Station Oceana. U.S. Navy photo by Mass Communication Specialist 3rd Class Kaleb Sarten/Released.

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PACIFIC OCEAN (July 5, 2018) Aviation Electronics Technician 2nd Class Arabana Magoni, assigned to the “Proud Warrior” of Helicopter Maritime Strike Squadron (HSM) 77, performs a post-operational inspection of an equipment on an MH-60R Sea hawk helicopter aboard the Nimitz-class aircraft carrier USS Harry S. Truman (CVN 75). U.S. Navy photo by Mass Communication Specialist 3rd Class Michael Choo/Released.