The Navy & Marine Corps Aviation Maintenance Safety Magazine

Mech

Summer 2014
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Bravo Zulu

Risk Management Checklist Pullout

The Navy & Marine Corps
Aviation Maintenance Safety Magazine
Summer 2014, Volume 52 No. 1

Mishaps cost 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 magazine's goal is to help make sure that personnel can devote their time and energy to the mission. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous; the time to learn to do a job right is before combat starts.

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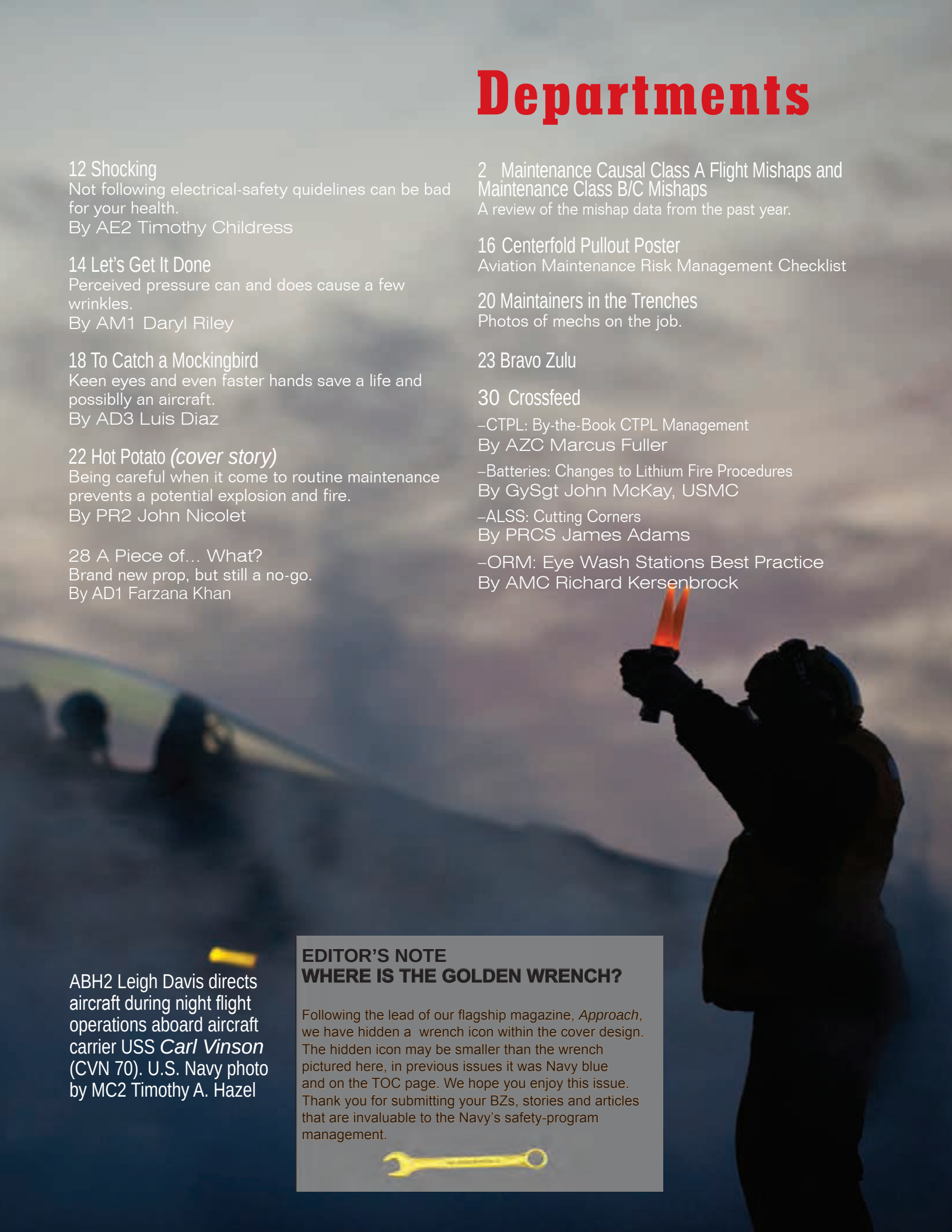


ABH2 Leigh Davis directs aircraft during night flight operations aboard aircraft carrier USS *Carl Vinson* (CVN 70). U.S. Navy photo by MC2 Timothy A. Hazel

EDITOR'S NOTE
WHERE IS THE GOLDEN WRENCH?

Following the lead of our flagship magazine, *Approach*, we have hidden a wrench icon within the cover design. The hidden icon may be smaller than the wrench pictured here, in previous issues it was Navy blue and on the TOC page. We hope you enjoy this issue. Thank you for submitting your BZs, stories and articles that are invaluable to the Navy's safety-program management.

MO's Comments

LCDR Richard Thousand, Aviation Maintenance Officer, Naval Safety Center

I'm not very good at candy-coating things, so I won't even try. The best way to get your point across is to tell it like it is. So here it goes. This could end up being one of the worst years in recent history for maintenance-related Class Alphas. As I write this piece, we are currently at 15 Class A mishaps with one quarter remaining in FY14. Of the 15, two are definitely maintenance-related, with the possibility of four more. We'll know more as the investigations progress. This is not the direction we need to be going in. I would like to think that this year is just a fluke and that there are better days ahead.

Please take a look at the mishap stats printed in this edition. The numbers may have changed, but the causal factors remain the same. Failure to follow publications and lack of supervision continue to be our top contributing factor in all maintenance-related mishaps. They account for more of the mishaps than all the other factors added together. In fact, they account for over 70 percent of the maintenance mishaps this year. Now, ask yourself this question: "With proper supervision, would failure to follow publications even be a factor?"

I know we will never be perfect. But, if you don't strive for perfection, you'll never even come close.

Thanks for all the inputs from the fleet. Enjoy this issue of your *Mech* magazine.

Very Respectfully

Maintenance Causal Class A Flight Mishaps

Human Factors: Maintenance personnel failed to properly install inboard retention plate causing the tail rotor to depart. Aircraft destroyed.

Human Factors: Maintenance personnel did not apply correct torque to the linkage retaining nuts, allowing the throttle control rod to disconnect from the fuel control in flight. Aircraft destroyed.

Maintenance Trends from FY14
Class B and C Mishaps

Trends from the 37 Class B and C mishaps where maintenance was an accepted causal factor. While this doesn't go into the specifics of each event, some broad generalizations are included in areas with multiple occurrences.

Failure to follow pubs/supervision (26)

- 3 Class B ($3M)
- 23 Class C ($3.95M with 3 pending)

Common Factors: improper completion of special/conditional inspections, lack of QA/CDI/SUP involvement/supervision, not heeding Notes/Cautions/Warnings lack of knowledge/experience, improper daily/pre-flight inspections, poor communication/pass down, complacency.

Low power/high power turn up (3)

- 3 Class C ($804,000)
- Common Factor: FOD.

Towing evolutions (4)

- 4 Class C ($424,000 with 3 pending)
- Common Factors: rushing to complete task, failing to ensure proper clearance around obstacles.

Maintainer slipping/falling (4)

- 4 Class C (fractured wrist; fractured orbital, fractured right maxillary, right frontal epidural hemorrhage, right distal fracture; fractured feet; fractured wrist, concussion)
- Common Factors: lack of QA/CDI/SUP involvement/ supervision, not heeding Notes/Cautions/Warnings, lack of knowledge/experience, not performing effective ORM, complacency.

Total cost = $8.2 million
Total injuries = 4

Total by Platforms

FA-18A-F	**18**	**F-35**	**1**
H-60	**4**	**H-53**	**1**
MV-22	**3**	**KC-130**	**1**
AV-8B	**2**	**P-3C**	**1**
UH-1Y	**2**	**T-44C**	**1**
C-9	**1**	**T-45C**	**1**
EA-6B/EA-18G	**1**		

THE DEVIL N

Part 1

By AO1 (AW) Jeffery Brown

My squadron had just transitioned from the FA-18C to the FA-18E and was ramping up for a Conventional Weapons Technical Proficiency Inspection (CWTPI). I was the first collateral duty inspector (CDI) qualified in the command and had received praises from my gunner, division officer and quality assurance supervisor (QAS). Things were going great.

Maintenance Control tasked us to reinstall a centerline pylon and a bomb rack that had been removed from aircraft 300 to facilitate follow-on maintenance. I did my normal routine: check out the tool box, maintenance instruction manual, and necessary support equipment. My team of four workers and I installed a pylon and bomb rack on station six. Once the maintenance was completed, the Interactive Electronic

EVER TAKES A BREAK

Technical Manual (IETM) instructs you to apply ground power and run-up the newly installed gear to ensure proper operation.

This is where I made my first mistake. I didn't apply ground power and run-up the equipment to ensure that it operated. I decided not to do this step because another task requiring release checks was scheduled to be performed later in the day. I expected this step to be done later.

A few days later, power plants installed an external fuel tank and tried to do a transfer check during a low power turn. With both engines online, they tried to transfer fuel into the tank but couldn't get it to transfer. The centerline station displayed "unlocked" on the stores page. The turn operator shut down the port engine and signaled the crew to verify that the bomb rack was locked. They verified that it was. They then opened the access panel where the pylon mates to the aircraft and found that the pylon was not electrically connected to the aircraft. Not only was it not connected, it still had electrostatic-discharge (ESD) tape over the cannon plugs.

What would have happened if power plants had failed to do their checks and this discrepancy had slipped through the cracks? What if the turn operator didn't notice the discrepancy on the aircraft stores page? What if the maintenance control chief released the aircraft safe-for-flight? I cannot begin to imagine what would have happened. I have been a collateral duty inspector for eight years and never once have I missed a step or neglected to follow a procedure.

Every step is in place for a reason, regardless of whether or not it seems redundant. Did I think it was redundant to apply ground power and check for operation even though integrated weapons team (IWT) was going to come out and check it? Yes I did. This is where I made my biggest mistake. Had I followed the maintenance procedure and run-up the equipment to verify proper operation, I would have learned that I missed the step of electrically connecting the pylon to the aircraft. It just so happened that the IWT missed that station during their release-and-control check as well.

No matter how good you may think you are or the number of times you have installed that same piece of gear, you are never too experienced to follow your maintenance instructions step by step.

AO1 (AW) Brown is with VFA-151

Part 2

By AO2(AW) Leonla Jones

We were transitioning to new FA-18E aircraft and were preparing for a crucial inspection called Conventional Weapons Technical Proficiency Inspection (CWTPI). We had been preparing for this inspection by going to the Strike Fighter Weapons School Pacific (SFWSP) and treating every day as if it were the actual inspection day.

We were in our hangar bay doing maintenance on one of four jets that had been accepted. Maintenance control called for a release and control (R&C) check for aircraft 300. As the collateral duty inspector (CDI), I gathered my team and briefed the task. My main concern was the support equipment required to complete the inspection. To an experienced person, the task was not very difficult, but to us it seemed like a

lot because we had only done a handful of R&C checks on the Super Hornet. I decided to set a slow tempo for my team, taking it one step at a time. My team was instructed to check out the gear and proceed to the jet after accounting for all of the tools.

It was my first time not under instruction inspecting and signing off a basic R&C check on a Super Hornet — I was nervous. However, I wasn't worried, because I knew the checklist would be used step-by-step.

We started the R&C and everything was going smoothly. We had the required gear on every weapon station except station six. As we proceeded, we encountered some difficulties with certain stations failing the checks. The squadron was about to have an all-hands quarters, so we found ourselves beginning to rush. After an hour and a half of troubleshooting, I got the thumbs up from the cockpit that all stations checked good, so I ordered for the aircraft to be shut down.

Fast forward a few days to the intended first flight of this aircraft. The Power Plant shop was turning the jet in order to transfer fuel out of a centerline fuel tank now installed on station six. A check of station six revealed that the station was not electrically connected. How did this happen?

The last person to install something on station six was my work-center supervisor. The last person to perform an R&C check was me. Yet, we both signed off on our maintenance actions that station six was "good to go." Worse yet, I even signed a separate maintenance action form (MAF) specifying that station six had been checked and was good.

After all stations (except six) checked good on the aircraft, I forgot to continue and do the additional check on station six. Our recent training at SFWSP had involved checking every station at once, and then shutting down the jet. The big difference was that over there, every station had gear installed. During our basic R&C check at our squadron, station six didn't have a test set installed. This meant that I was supposed to complete the step of checking station six with the test set after the other stations had checked good. This step slipped my mind. I lost my CDI Team Leader qualifications for R&C, and I was awarded Extra Military Instruction (EMI) for 14 days. Adding insult to injury, I also wasn't allowed to participate in CWTPI after weeks of training with my team.

AO2(AW) Jones is with VFA-151.

Freaky Friday

By AD1 Travis Wierenga

It was a late Friday night and the squadron had already broken down to a skeleton crew. While waiting for the fuel skid operator to arrive, one of the team members found a large metal object resting on the ground in the fueling pit. Having no idea what it was or where it might have come from, he reported it to the Leading Petty Officer (LPO). The LPO took the object to Quality Assurance (QA) for it to be investigated Monday morning.

When the squadron was back at work on Monday, a second class Quality Assurance Representative (QAR) in charge of analyzing the daily FOD was extremely puzzled about the metal piece. He noticed a part number etched on the top of the object and cross-referenced the numbers against the Support Equipment (SE) publications that the squadron used. He determined that the object was not from any of the SE. It bothered him that he was unable to identify the part, so he decided to try web-searching the part number. Bingo! He got a hit. A company that makes truck suspensions came up as the manufacturer of the part. His thorough investigation discovered that the fueling trucks fit the profile for the specifications provided on the website. Realizing the potential for a catastrophe, he immediately notified the fuel farm and cautioned them to thoroughly inspect their truck suspensions. Inspection of the fleet of trucks uncovered the culprit which was immediately removed from service for repair.

A fully loaded fuel truck travelling at 50 mph having a suspension failure would be nothing short of disastrous. With ingenuity, persistence and genuine concern, a second class petty officer helped to prevent a mishap, ensuring the safety of personnel and equipment.

AD1 Wierenga is with VFA-151

The Go That Went

By AE2(AW) Jeremy Carder

The day started out like most days on deployment. We prepped the "go" aircraft and launched them out. We recovered a few aircraft with no problems.

However, the last aircraft to recover for the cycle had a wingfold problem when it rolled out of the dearm area. The starboard wing wouldn't fold. I saw this discrepancy when the yellowshirts were spotting in the corral. I rushed over and tried the normal troubleshooting procedure of inserting a Phillips screwdriver in the wingfold safety pin area; this process will cycle the wing-fold inhibit switch if it is sticking. No dice. Another AE was close to me on the deck, so I had him check the wingfold circuit breakers. He found a popped circuit breaker for one phase of the three-phase motor for the right wingfold actuator.

The flight-deck coordinator (FDC)told me I had one hour to give him a definite up or down status on the aircraft. Another AE2 in my shop had come up to help. I knew we were going to have to read wires from the circuit-breaker panel to the wingfold actuator, so I sent the other AE2 to check out the required schematics and get a multimeter. Meanwhile, I removed the access panel to get to the actuator.

By the time my counterpart had come back with the publication, I had already removed the access panel and knew that we were not going to be reading wires after all. As soon as I opened the panel I could smell the residue of an electrical fire. I inspected all of the wire harness in the panel and found no evidence of chafing or arcing. This meant that the electric motor in the actuator had burned up. I let the FDC know that I was going to need a new actuator. We were going to have to cannibalize it

U.S. Navy photo by MC3 Billy Ho

feoma hard-down bird in the hangar. The other AE2 who was working with me hurried to the hangar to rob the required part, while I removed the bad part from the "go" aircraft.

I had the other AE2 get a power cord and get the aircraft ready for rigging the wingfold actuator. While he was getting a power cord, I electrically connected the actuator to rig it. He headed up the boarding ladder to the cockpit, and I met him by the cockpit to clarify the procedure (he hadn't done it before).

The procedure entails electrically connecting the actuator and leaving the torque shaft out of it, so it can't drive the wingfold transmission. Folding and spreading the wings several times matches the electric-motor position with the wingfold position.

My "clarification" with the other AE2 went something like this: "When I give you the signal to fold the wings, put the switch in fold. When I give you the signal for spread, put the switch to spread. Got it?"

The AE2 replied, "Got it."

I proceeded to the wing to watch the motor turn and to give him the signals. As soon as we started the procedure, my LPO came up the ladder and motioned me to come over. I dropped what I was doing and went to the left leading edge extension (LEX) to see what he needed.

My LPO came up to tell me to slow down, because maintenance control was not putting this aircraft on the next event. The FDC hadn't got this message and still thought that the aircraft had to be expedited to an up status. The ordnance team was standing around waiting for me to finish using power, so they could upload ordnance. I left the LEX to go back to the wing and finish the actuator installation. By this time there was an aircraft on cat 1.

A QAR told me to get off the aircraft. I tried to explain that I had a tool pouch and an unsecured panel on the wing that I had to get. I had multiple people telling me to get down. I hunkered down on the port side of the canopy until the aircraft had launched. Before I could go to the wing where I had been working, the same QAR handed me my tool pouch – it had fallen off the aircraft. I checked to make sure all the tools were still in it.

I rushed to the wing were I had been working, and to my dismay the access panel was nowhere to be found. We searched the catwalk and area surrounding the jet. It had gone over the side.

We've read stories about perceived pressure leading to tunnel vision and lapses in judgment. I never for a minute thought I was immune to any of that, but I didn't realize how fast a normal situation could spiral out of control before your eyes.

Lack of communication and inexperienced personnel certainly played a large role, but the largest contributing factor was me. I was too focused on getting the aircraft back in an "up" status to check my surroundings and identify the potential hazards. I violated a strict squadron policy regarding access panels being all the way on or all the way off the aircraft. This oversight led to the loss of a $28,000 panel and tarnished my reputation in the squadron.

Looking back, there are a lot of things I could have done differently. I should have told the FDC that one hour might not be enough time, secured the panel in a nearby squadron workcenter, kept physical control of my tools, and took the time to brief the evolution before starting the job.

In the end, we received a new panel from the supply system and the aircraft was returned to an up status. I am thankful that the panel flew overboard – it could have landed on the deck and hurt a Sailor or Marine.

AE2(AW) Carder is with FA-105.

Change That Engine

By LT Justin Lewis, USCG

The operations the Coast Guard performs as part of OPBAT (Operations Bahamas and Turks and Caicos Islands) are critical to halting drug- and migrant-smuggling activity. When something unexpected happens, the crew must pull together to remedy any situation that comes their way. This is exactly what Coast Guard Air Station Clearwater crewmembers did when their MH-60T Jayhawk, CG6021, was forced to perform a precautionary landing on the southern shore of Mayaguana Island, Bahamas, just three feet from the water's edge.

During a law enforcement patrol, the crew had to make a precautionary landing after they heard an unfamiliar, high-pitched, grinding sound emanating from the forward section of the No. 2 engine.

"When a helicopter crew makes a precautionary landing, it is always for the safety of the crew," said Chief Warrant Officer Matthew Kellison, the OPBAT maintenance officer at the air station. "The noise they heard was serious enough for the pilot to decide to land immediately in the best interest of all aboard."

Just hours later, a deployed Clearwater maintenance crew from Great Inagua arrived on-scene, coordinated a security watch due to the desolate area, and completed a thorough borescope inspection of the engine. After the assessment, it was reported that the No.2 engine had ingested FOD and would require replacement.

Without delay, deployed crews from Great Inagua and Air Station Clearwater began coordinating the transport of a replacement engine, additional tools, equipment and personnel, via a Clearwater-based HC-130 Hercules, to Great Inagua.

With flawless coordination among all crews and departments, they got the replacement engine and all of the necessary equipment and personnel on a plane and to the site the very next morning.

The next day, air crew aboard the Hercules arrived in Matthew Town, Great Inagua, with the essential cargo load. Coast Guard personnel off-loaded the cargo and began to plan the logistics of transporting all personnel, tools, equipment, including the 700-pound replacement engine, to the rocky shoreline of Mayaguana Island.

The following day, two deployed Jayhawk crews from Great Inagua (one from Coast Guard Air Station Elizabeth City, N.C., and the other from Air Station Clearwater) began ferrying maintenance personnel,

Damaged Compressor Blade

AMT1 Danny Hoffmeier prepares the portable crane for use

AMT1 Gary Spurgeon replaces an MH-60T engine

tools and equipment 90 miles northeast to Mayaguana. On the last flight, the external load capabilities of the Jayhawk were used to sling loaded the replacement engine 90 miles to Mayaguana Island's rocky shoreline.

As the replacement engine made its way to Mayaguana, riding 70 feet below a Jayhawk helicopter, maintenance crews quickly constructed a level working area around the Jayhawk.

"Building a level and sturdy platform to support the portable crane was a challenge," said AMT1 Gary Spurgeon. "We had to use three-quarter-inch plywood and sandbags to create a level surface solid enough to support the base of the crane."

Shortly thereafter, the replacement engine arrived and crews worked together to place the engine inches away from the damaged helicopter

With a level platform and all equipment in reach, maintenance personnel removed the damaged engine and began installing the new engine. As daylight drew to a close, the site was cleaned up, tools were inventoried, and the maintenance crew was transported back to Matthew Town for the night.

A 24-hour security watch was maintained throughout the night by two Coast Guard members, with assistance from partnering agents of the Drug Enforcement Agency and Bahamian Drug Enforcement Unit. They took shifts ensuring the safety and security of the personal and aircraft at an unsecured site in the middle of nowhere.

Maintenance and repairs were completed, and a thorough preflight was conducted. The repaired Jayhawk was flown back to Great Inagua by sunset with all crew aboard.

"This is one of those once-in-a-decade challenges that come with operations in remote parts of the Caribbean. I couldn't be any more proud of my folks for such an amazing repair under such demanding conditions. They really pulled together as a team to recover that aircraft," said Capt. Richard Lorenzen, Commanding Officer, Coast Guard Air Statio Clearwater.

LT Lewis flies with Coast Guard Air Station Clearwater, Florida.

SHOCKING

As soon as I touched the ratchet to the contactor and gave it one turn, I experienced a jolt of pain in my thumb and saw a surprising flash of light.

By AE2 (AW) Timothy Childress

The flight schedule had ended for the night, and the AE shop had a few discrepancies to work on. An AE3 and I went down to the hangar bay to begin work on Canyon 403. He climbed into the cockpit to work on corrosion prevention and some light-intrusion problems on the cockpit panels.

The AE3 asked me to grab a power cable so he could apply power for cockpit panel lighting. Only reset power was applied, which is quiet and not obnoxiously loud like full power. Reset power means that the aircraft has the power load applied, but the power is held at the contactors waiting to be distributed throughout the various systems. Many AEs use reset power for a multitude of reasons: charging the battery, testing lights and reading voltage.

While the AE3 was in the cockpit working, I had a few discrepancies of my own to work on. A contactor in the left avionics-bay door and another in the right door needed to be sealed. I started on the one in the left door. I could seal all the terminals without removing anything.

After sealing the first contactor, I moved to the other side of the aircraft to seal the other one. There were many harnesses in the way, so I decided to disconnect them to have more room to work. I also had to take off the contactor cover because this contactor was in a much smaller area than the first one. I removed the top cover with a flathead screwdriver. To reach the bottom terminals, I had to take off a second cover. I grabbed a ratchet, extension, and 3/8-inch socket to remove the second cover.

As soon as I touched the ratchet to the contactor and gave it one turn, I experienced a jolt of pain in my thumb and saw a surprising flash of light. The bottom of the ratchet had grounded out on a door latch, which allowed electricity to flow from the contactor through my tools and me.

I was escorted to medical, where I received an EKG test of my heart and provided a urine sample for testing. The medical doctor gave me thumbs up to return to work after reviewing the results of my tests.

The Navy has instructions, manuals, and publications in place to prevent mishaps like this. I had read the proper publications before starting the job but lost focus of what I was working on. Even the simplest task can turn into a mishap if you fail to remain aware of your surroundings.

Petty Officer Childress wrote this story while assigned to VFA-105.

Let's Get It Done

By AM1 Daryl Riley

It was another busy Monday morning at VAW-120. We had a 13-event flight schedule. We were busily preparing for an upcoming CQ detachment and trying to ensure we would have enough full mission capable (FMC) aircraft.

Airframes was just short of being overwhelmed with maintenance when a plane captain entered the shop and explained that during his walk-around on aircraft 632, a C-2A Greyhound, he discovered an uninstalled panel lying on the cargo ramp. He said that aircraft was to be manned-up for a morning flight, which meant that the panel needed to be installed without delay.

I headed to the flight line with him to identify which panel was missing, and I tried to recall the last maintenance action performed on the aircraft, because it did not make sense that the panel was not installed. A collateral duty inspector (CDI) had signed off on the maintenance action. I remembered that our night shift from Friday had been tasked with performing a pre-carrier inspection and high-time, truss-bolt removal and replacement. The two high-time truss bolts meant that mechs had to remove the ramp panel. The original maintenance action form (MAF) for the bolts had been signed off the previous Friday.

"They forgot to re-install the panel," I thought.

I didn't want to lose the event. I went back to the shop, grabbed an airman, and tasked him to find the screws for the floorboard, while I checked out a speed handle to perform the panel install. I figured the task wouldn't take more than a few minutes.

Because the cargo ramp was in the up-and-closed position, we couldn't install the floorboard panel. The installation required about 1/5 inches of clearance between the ramp and the fuselage. After a short discussion, we decided to manually pump the ramp open. We felt familiar with the procedure, but we did not have our maintenance pubs in front of us. What we didn't know was that pumping the ramp closed was no big deal, but pumping the ramp open had some cautions associated with it. The procedure was in our pubs, but the cautions were not. The cautions, well known amongst the aircrew, were only contained in the NATOPS. To paraphrase, the caution states that the cargo doors and ramp system should only be operated with the hand pump when combined-system-hydraulic power and electrical power are not available.

Well, combined-system-hydraulic power and electrical power could have been available, but we did not take the time to ask. That was strike one. NATOPS continues, "When operating the cargo doors and ramp system with hand pump, it is possible for the ramp to get out of sequence and this may cause structural damage." We were unaware that structural damage could result from manual operation using the hand pump – strike two.

NATOPS continues, "When lowering the ramp by means of the hand pump, ensure that both sides unlock completely and come down evenly. If not, recycle ramp to the closed position before reopening the ramp." Again, we were ill-informed – strike three.

When the center door opens and stabilizes, a mech has to hold the butterfly doors closed until enough pressure has built up to forcibly open both doors at the same time. If both butterfly doors don't open, the ramp is out of sequence and must be recycled to the closed position before continuing. If both butterfly doors open, you can stop pumping.

We pumped the handle three or four times and nothing happened. I told the airman to stop, and I went back to the work center to discuss what was going on with a CDI. I needed to know why the ramp wasn't

opening. Imagine my shock when I returned to the aircraft with the CDI in tow to see the skin of the ramp buckled and warped.

I now know that I should have gone to maintenance control once I verified the ramp panel was not installed. I should have told them I wanted to pump the ramp open to install the panel. Had I done that, they would have told me that even though the MIMs say I can do it, it's a procedure that shouldn't be done because of the associated risk.

What my readers may not know is that C-2A ramps are not in abundance these days. In fact, they do not exist in the supply system. The only way to get a new ramp is to take it from another aircraft while the broken one is being repaired by depot-level maintenance. I was not present as the airman pumped the ramp, but I take full responsibility of the incident. I was the senior person, and the airman was looking to me for leadership. I provided that leadership in the form of "let's get it done," and he followed suit.

Take your time and think things through. I do not know the cost of the damage, but I do know that we lost the asset and the event for the day. When a quick solution seems like a viable option, this should give you pause.

I now realize how little I knew about the operation of this system. Our standard operating procedures state that we were supposed to notify maintenance control for approval to use the manual method, and that maintenance control was to ensure adequate supervision was in place prior to the start of the evolution. We now have a control be in place to prevent a recurrence, and the MIMs will be revised by a pending Technical Publications Discrepancy Report.

AM1 Riley is with VAW-120

I didn't want to lose the event. I went back to the shop, grabbed an airman, and tasked him to find the screws for the floorboard, while I checked out a speed handle to perform the panel install.

Aviation Maintenance Risk Management Checklist

MAINTAINER

BEFORE THE TASK

1. Am I qualified, authorized, and confident to undertake the task?
2. Do I have people to assist, mentor, and supervise me?
3. Have I been thoroughly briefed on the task by my supervisor?
4. Have I told my supervisor of any physical or mental limitations that may impact my performance?
5. Have hazards been identified, reported, controlled, and documented?
6. Do I have a clear understanding of my responsibilities?
7. Has sufficient time been allocated to undertake the task?
8. Do I have the necessary authorized publications, procedures, and instructions?
9. Do I have the serviceable, authorized support equipment, and tools required?

DURING THE TASK

1. Am I working IAW authorized policy, processes, and procedures?
2. Am I ensuring all in-process and mandatory inspections are being conducted?
3. Am I receiving adequate supervision for my level of experience?
4. Am I informing my supervisor of task execution and any concerns?
5. Am I monitoring and reporting hazards as work progresses?

STOP

Any 'No' answer increases the risk. This risk must be accepted by a person with the appropriate level of responsibility.

AFTER THE TASK

1. Was the job done IAW authorized policy, processes, and procedures?
2. Were all in-processes and mandatory inspections conducted?
3. Did the work completed satisfy initial task requirements?
4. Have I accounted for/returned all tools and support equipment?
5. Is proper documentation (NALCOMIS/OOMA) complete?
6. Have I certified all work I have completed?
7. Do procedures exist for uncompleted and follow-on maintenance?
8. Have I debriefed the task to my supervisor?
9. Have all supporting maintenance tasks been documented?
10. Did I debrief issues/concerns to improve the task or process to my supervisor?

SUPERVISOR

BEFORE THE TASK

1. Am I qualified, authorized, and confident to undertake maintainer supervision?
2. Do I understand who I am supervising and what is being supervised?
3. Have I briefed those directly responsible for conducting the task?
4. Have I told my supervisor of any physical or mental limitations that may have an impact on myself or the maintainer performance?
5. Have all hazards been identified, reported, controlled, and documented?
6. Do I understand my responsibilities with respect to the task and supervision?
7. Has sufficient time been allocated to undertake the task?

DURING THE TASK

1. Am I supervising IAW authorized policy, processes, and procedures?
2. Am I ensuring all in-process and mandatory inspections are done?
3. Am I giving/receiving adequate feedback from/to personnel?
4. Am I informing my supervisor of task execution and any concerns?
5. Am I monitoring and reporting hazards as the work progresses?

STOP

Any 'No' answer increases the risk. This risk must be accepted by a person with the appropriate level of responsibility.

AFTER THE TASK

1. Was maintenance done IAW authorized policy, processes, and procedures?
2. Did I ensure that all in-process and mandatory inspections were completed?
3. Did the work completed satisfy initial task requirements?
4. Did I provide the appropriate level of supervision throughout the task?
5. Have I debriefed the task with the maintainer?
6. Have I documented all the inspections I was responsible for/or I conducted?
7. Have I confirmed that conditions exist for any follow-on maintenance?
8. Have all supporting maintenance tasks been documented?

SUPERVISOR

8. Does my team have the authorized publications, procedures, and instructions required?
9. Does my team have the required tools and serviceable support equipment required?

SUPERVISOR

SUPERVISOR

9. Have I articulated task turnover info via maintenance docs, logs, and verbal brief?
10. Have I briefed maintenance control on task revision details and the maintenance status of further task requirements?

BEFORE THE TASK

MAINTENANCE CONTROL

1. Am I and my workforce qualified and authorized to do maintenance?
2. Has sufficient personnel/time been allocated to the tasks?
3. Have hazards been identified, discussed, controlled, and documented?
4. Do I understand my responsibilities with respect to maintenance management?
5. Do I have the authorized data, procedures, and instructions required?
6. Have I communicated task requirements clearly and documented?
7. Does the unit have the necessary serviceable support equipment and authorized tools?
8. Have I clearly communicated and documented task requirements?
9. Are there any factors that may have an impact on the physical or mental performance of personnel?
10. Have I been briefed on all maintenance to be conducted?

DURING THE TASK

MAINTENANCE CONTROL

1. Am I supervising IAW authorized policy, processes, and procedures?
2. Are all in-process and mandatory inspections being conducted?
3. Am I giving/receiving adequate feedback to/from personnel on task?
4. Am I informing my supervisor of the maintenance status and any concerns?
5. Am I managing risk(s) as the work progresses?
6. Am I monitoring personnel performance and reporting any concerns?

STOP

Any 'No' answer increases the risk. This risk must be accepted by a person with the appropriate level of responsibility.

AFTER THE TASK

MAINTENANCE CONTROL

1. Is maintenance certified IAW authorized policy, processes, and procedures?
2. Are in-process and mandatory inspections completed and documented?
3. Have I documented the inspections I performed and/or was responsible for accomplishing?
4. Have I confirmed corrective actions satisfy initial task requirements?
5. Have I debriefed the task with the supervisor?
6. Are maintenance actions documented for follow-up actions, if required?
7. Were all supporting tasks documented and certified?
8. Is task info (maintenance docs, logs, briefs) clear and concise?
9. Has the Commanding Officer been briefed on task revision details and the status of further task requirements?
10. Have I conducted my responsibilities with due diligence?

NAVAL SAFETY CENTER
EST. 1951

U.S. Navy photo by MC3Heather Roe

To Catch a

By AD3(AW) Luis Diaz

It was a day like any other in the North Arabian Sea: hot, hazy, bright and humid. We had reached the second month of our cruise and were settling into a routine. I'm part of the E-2C squadron on board. We fly up to four or five launches and recoveries per day in support of Operation Enduring Freedom. Because of the similarities between our two airframes, we also provide support for our sister squadron, VRC-40 "Rawhides," who operate the C-2A Greyhound.

We had just recovered Rawhide 54 and needed to do a quick turnaround for its flyoff and return to Bahrain. Passengers and mail were loaded for the return trip, and checks were complete. We broke down the aircraft, then returned it to the bow for launch.

The mighty COD followed the director and got into position for launch. I placed myself on the port side to perform my final checks during the run-up. As Rawhide 54 was placed into tension and came up on power, the starboard final checker and I scanned the aircraft from back to front, looking for leaks or other things amiss that might prevent the aircraft from safely taking off.

I scanned forward. With the COD at full power, tearing the air behind it, I spotted movement out of the corner of my eye: a bird was heading right for the port motor. In the blink of an eye, the now exceptionally confused mourning dove was snatched up in the prop wash of the mighty Rolls Royce T56-425 engine and hurled down to the deck and straight back–right toward the maws of several Hornets waiting behind the JBDs.

The only thing between the hapless dove and certain death– and a probable-FOD incident – was me. Instinctively, like a short-stop stabbing for a hot line drive, I reached out and felt the satisfying "thud" in my hand. I quickly tucked it into my float coat.

There was no need to further delay the launch, so I gave a proud thumbs up signaling my readiness to release the bird – I mean, the COD. The trouble-shooter on the starboard side, though surprised at what I had just done, con-

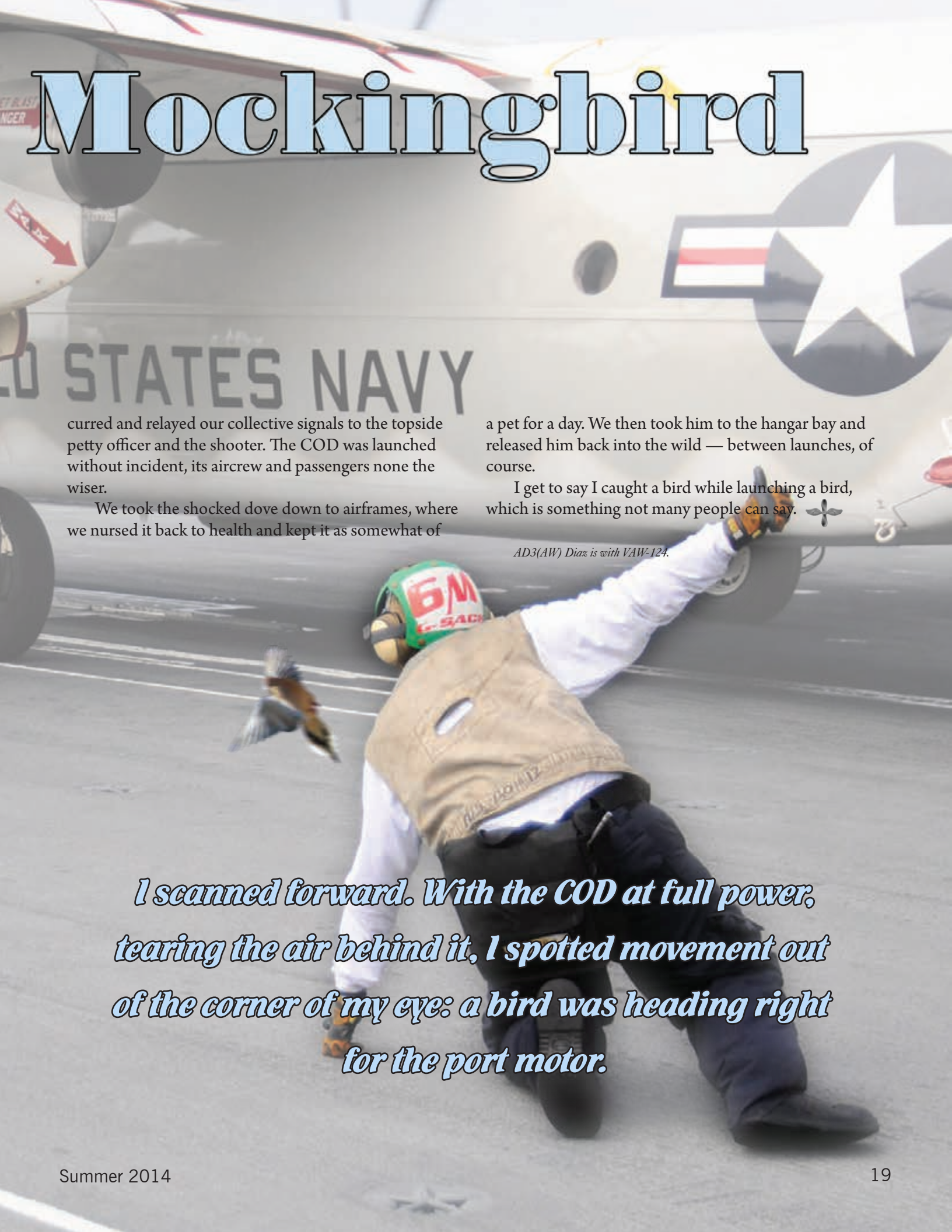
Mockingbird

curred and relayed our collective signals to the topside petty officer and the shooter. The COD was launched without incident, its aircrew and passengers none the wiser.

We took the shocked dove down to airframes, where we nursed it back to health and kept it as somewhat of a pet for a day. We then took him to the hangar bay and released him back into the wild — between launches, of course.

I get to say I caught a bird while launching a bird, which is something not many people can say.

AD3(AW) Diaz is with VAW-124.



I scanned forward. With the COD at full power, tearing the air behind it, I spotted movement out of the corner of my eye: a bird was heading right for the port motor.

Maintainers in

LSSN Vinicio Montes attaches cargo pendants to crates on the flight deck of the USS *Carl Vinson* (CVN 70) during a replenishment at sea with the USNS *Yukon* (T-AO 202). U.S. Navy photo by MC2 John Philip Wagner

ABH3 Bryan Labrador, front, and ABH3 Ralph Swan direct an aircraft onto a catapult aboard the USS *Nimitz* (CVN 68). U.S. Navy photo by MC3 Siobhana R. McEwen

AO3 Jeremy Babbs, assigned to VFA-37, tightens fasteners on the gun door of an F/A-18C Hornet in the hangar bay of the USS *Harry S. Truman* (CVN 75). U.S. Navy photo by MC3 Dion Dawson

GSMFN Fireman Trenton Grant, shows a naval aircrewman assigned to HSC-26 a sample of fuel aboard USS *Arleigh Burke* (DDG 51). U.S. Navy photo by MC2 Carlos M. Vazquez

the Trenches

Ordnancemen with Marine Aviation Logistic Squadron 12 and Marine Fighter Attack Squadron 122 detach unused ordnance from an F/A-18. U.S. Marine Corps photo by LCpl Luis Ramirez

AM3 Lucky Baun, assigned to VFA-94, carries tie-down chains across the flight deck of the USS *Carl Vinson* (CVN 70). U.S. Navy photo by MC2 John Philip Wagner

AD1 Kia Hokanson and AD2 Yaroslad Pashchuk, assigned to Fleet Readiness Center, Mid-Atlantic, install a T56 engine sling after an engine test run in preparation for the high power turn up of the T64-GE-419 engine. FRCMA is an intermediate level of maintenance for T700A-GE-401C, and T56-A-425 engines. U.S. Navy photo by AD2 Stacey Thomas

ABHAN Benjamin Ekwedike, assigned to the USS *Bonhomme Richard* (LHD 6), moves a AV-8B Harrier jet onto an aircraft elevator in the hanger bay. U.S. Navy photo by MC3 Michael Achterling

Hot Potato

By PR2 John Nicolet

The parachute rigger (PR) shop for a Hawkeye squadron is one the few shops where you're trained to work with things that could explode.

We are also in charge of the survival equipment for more than 25 aircrew. We work with flares, survival kits and radios.

My shop was beginning final preparations for a nine-month deployment, and we were checking all the aircrewmen's vests to make sure that they were ready. Part of the routine maintenance requirements included cycling our collection of PRQ-7 Combat Survivor/Evader Locator (CSEL) survival radios through Fleet Readiness Center (FRC) for testing.

After FRC completed the test, the radios were returned to our custody to be returned into the survival vests. Before that step, we ensured that all the batteries were fully recharged and ready. These lithium-ion batteries are fairly reliable, but they have been known to fail in a variety of ways. Sometimes they won't hold a charge, or the battery cracks. They have also been known to produce an occasional thermal runaway, in which case they can catch fire and explode.

I went about my work carefully reinstalling the batteries and placing the radios back in the appropriate aircrewmen's gear. As I started on the fifth radio, I inserted the battery and folded the antenna to its stowed position, which is around the outside of the radio. As I brought my hands near the bottom of the radio, where the battery is attached, I instantly felt this battery become very hot. It also began to emit a peculiar smell.

Suspecting a thermal runaway, and without a moment to lose, I quickly carried the radio outside to a safe spot in the hangar, away from the aircraft and other personnel. I alerted Maintenance Control. I donned the PPE, filled a container with water, and submerged the battery (water quickly slows a thermal runaway and limits the chances of an explosion or fire). Maintenance Control called the base bomb-disposal unit to our hangar. They arrived within minutes to assess the situation and to continue with the proper disposal of the battery.

PRQ-7 lithium-ion radio batteries are reliable and easy to work with. Cases of thermal runaway are rare. As PRs, we work with many different items that would readily grab your attention as hazards, such as flares. However, when working with something as simple as a battery, always have your guard up, follow your training, and be prepared for anything.

PR2 Nicolet is with VAW-124.

BRAVO Zulu

Sailors and Marines Preventing Mishaps

PR2 John M. Nicollet
VAW-124 E-2C

While handling an aircrew survival radio battery, PR2 John Nicollet noticed that the battery was hot to the touch and emitting an odor. Recognizing the signs of an impending thermal runaway, he immediately ran with the battery to a save place in the hangar and submerged it in water. PR2's quick reaction prevented a potential explosion and fire in a space containing live ordnance, preventing harm to personnel and damage to the work space.

BRAVO Zulu

Sailors and Marines Preventing Mishaps

AWR2 Michael Barboa
HSL-49

AWR2 Michael Barboa was the crew chief during an HSL-49 summer flight. While conducting direct-deployment evolutions with a rescue swimmer on the hoist, the helo had multiple altitude-hold failures in a coupled hover. This caused an automatic switch from radalt- to baralt-hold. Each resulting switch caused significant altitude loss and lateral displacement, drastically increasing the risk of hoist-cable entanglement with the rescue swimmer.

Immediately recognizing the gravity of the hazard, AWR2 Barboa sheared the rescue hoist cable, which avoided entanglement of the rescue swimmer. His exceptional focus on safety allowed him to avert serious injury or loss of life to the rescue swimmer.

AD1 (AW) Derek W. Barton
VAW-124

A C-2A Greyhound was on the catapult of the USS *George H. W. Bush* (CVN 77) at full power. They got a thumbs-up indication from both final checkers and was preparing for takeoff. AD1 Derek Barton noticed that the aircraft was about to launch toward a flock of seagulls approaching the bow.

He immediately signaled to the shooter to suspend and abort the launch because of unsafe conditions. The shooter immediately suspended the launch without question. After the danger was averted, the aircraft was then cleared, reset and launched. Thanks to AD1's quick thinking and action, he stopped what could have evolved into a catastrophic event.

AD3 Alex Bolivar
VAW-12

While performing a daily inspection, AD3 Alex Bolivar saw that the starboard engine tailpipe on a C-2A was sagging. He promptly notified a power plants collateral duty inspector. After further investigation, it was determined that the engine's lower mount had collapsed. Had this not been detected, engine vibrations would have increased, causing significant fatigue to the airframe and engine components, which may have resulted in engine failure.

AD2 Luis Chonggarcia
VAW-120

While doing a special inspection on a E-2D, AD2 Luis Chonggarcia discovered a crack on the starboard, outboard bleed-air collector. He notified maintenance control and the power plants work-center supervisor of the discrepancy.

The bleed-air collector permits hot bleed air to directly escape and unload the compressor during engine starts. A crack in the collector would allow hot bleed air to blow directly on the compressor discharge temperature probe leading to improper fuel management. Because of the close proximity of the bleed-air connector to other critical engine components, such as a fire-warning element and scavenge oil tube, a bleed-air leak may have led to a erroneous, cockpit fire-warning indication or an engine fire.

AWS2(NAC/AW) Nicholas Kontodiakos
HSC-7

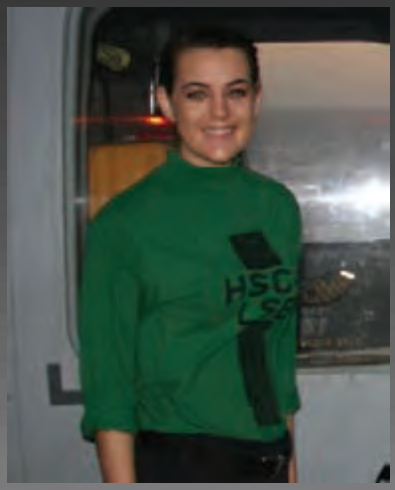
While on deck during a NATOPS check, aircraft 610 shut down to retorque the tail-rotor driveshaft. AWS2(NAC/AW) Nicholas Kontodiakos saw a small drop of red fluid on the floor of the cabin. He climbed on top of the aircraft to inspect a possible hydraulic leak or damper failure. He instantly noticed that a damper had failed. AWS2 Kontodiakos' attention to detail and system's knowledge enabled him to diagnose the problem and get it fixed. His actions allowed the alert-30 aircraft to meet its plane-guard coverage in support of Operation Enduring Freedom.

AO3 Shannon I. Fried
HSC-7

During a hot-pit crew-swap, AO3 Shannon Fried noticed that the aviation boatswain mates were entering the rotor arc from unsafe and potentially dangerous areas of a dynamic helicopter. She requested permission from the plane captain to enter the rotor arc and corrected the unsafe situation. Petty Officer Fried's diligence, keen attention to detail, and professionalism while performing her duties prevented the possible injury of a shipmate.

AO3 Reynaldo Lopez
HSC 7

During a routine post-fire inspection on the ML 97 fixed forward firing weapon system, AO3 Reynaldo Lopez noticed a 3-inch crack on the blast shield. He notified the chain of command, and the weapon system was downed until it could be replaced. If the blast shield were to shear off in flight, it could hit the aircraft. Petty Officer Lopez's actions allowed the event to launch as scheduled, qualifying a pilot on this weapon system.



Joanna Ward
HSC-7

HSC-7 was doing a hot-seat of aircraft Dusty 613. AE3 Joanna Ward noticed that a latch used for securing the hydraulics bay door had become unlatched during the previous flight. She notified the crew and ground personnel to the issue, and had the helicopter shut down to secure the hydraulics bay door. The door was secured and the helicopter restarted to complete the on-time launch. Petty Officer Ward's actions prevented a possible mishap.

AM2 Jacob Schmid
VAW-120

During a night launch evolution, AM2 Jacob Schmid performed a walk-around inspection on a C-2A and saw that the port gap-closure-door spring was not adjusted. He immediately notified the flight line coordinator and assembled a team of airframe technicians to correct the discrepancy. The aircraft was returned to full mission-capable status in minimal time. If this discrepancy had gone unnoticed, operation of the wing-fold system would cause binding and subsequent structural damage to the aircraft.

AMEAN Marquan Carter
VAW-120

During a low-power, engine-turn precheck on an E-2D, AMEAN Marquan Carter discovered that the radar pressurization and cooling system lines were not installed. He promptly notified maintenance control, who initiated a foreign object damage (FOD) search for the missing components. After the missing parts were located, AN Carter installed the cooling lines, and maintenance crews continued with the low-power engine turn. Had this discrepancy not been identified, there would have been no means to cool the radar system.

A Piece of ...What?

By AD1 Farzana Khan

After having a long and successful run with the venerable four-bladed propeller, it was time for another C-2A aircraft to begin a new chapter with the new NP2000, eight-bladed propeller system. The aircraft arrived at NS Norfolk, after a cross-country flight from NAS San Diego. After three months of modifications, the propeller-system installation was complete. The only thing left to do was to paint our squadron's logo and new markings on the side. Following a few days in our corrosion-control work center, it emerged a shiny new member of the VAW-120 Greyhawk family as aircraft 635.

It was scheduled to have its first, low-power engine turn with the eight-bladed propellers on a Tuesday morning. We held a maintenance-turn brief in maintenance control. AWF1 David Pangia, AD3 Sean McMahon and I headed out to the flight line to perform two separate preflight inspections. We went through the engine bay and verified all parts were installed; everything seemed to be in order. The prop spun freely by hand, fasteners were safety wired, cannon plugs were installed and tight, and there was no visible FOD in the engine bay or its surroundings — or so we thought.

AWF1 Pangia and I were excited about being the first qualified ground-pounders to perform a low-power engine turn after a modification. Now came the moment of truth: as I placed the condition lever to "Run," and toggled the switch to start the starboard engine, we received a starter-control indication, right bleed air advisory light, fuel flow and light off, but no rpm indication.

We immediately aborted the starboard engine start in accordance with the NATOPS. We decided to start the port engine first, and the engine started normally. Next, we tried to cross-bleed start the starboard engine, but it wouldn't start. Realizing that we were still not receiving a positive rpm indication, we shut down the port engine and turned the plane over to power plants for further troubleshooting.

The first step was to verify the electrical wiring to the engine. Then the starboard tachometer was removed and replaced. The final step was to again turn the engine and see if the fruit of our labors would pay off. However, it was late afternoon and time to turn the aircraft over to night check.

As maintainers, it is our duty to provide pilots and aircrew a safe aircraft to fly. We take pride in delivering a platform in which they can return to their families day-after-day.

The night-check supervisor briefed the crew on the status of the aircraft. They performed the low-power turn brief, preflight inspection, and prestart checklist before commencing the engine turn. This time everyone was confident that changing the generator tachometer had fixed the discrepancy. But again, the starboard engine had normal, initial start indications, but no rotation and no rpm.

The operator quickly aborted the turn because something was definitely not right. This time we tried to rotate the prop by hand, but it didn't move. Disappointed, we headed back to the shop to continue troubleshooting. With the MIMs in hand, we continued to the next step, which was to check the propeller brake. This brake prevents the propeller from rotating in the event of an airborne shutdown. The troubleshooters removed the starter, hooked up a torque wrench, and applied torque to release the prop brake, but it didn't budge.

"Did you hear that?" AD3 McMahon asked.

A grinding sound was coming from the compressor section of the engine. Something was seriously wrong. The power-plant mechs opened up the 5th and 10th stage bleed-air valves to inspect the compressor, and their worst fears were realized. Metal shavings were found inside the compressor case.

Where did these shavings come from? We inserted a boroscope, and after extensively searching for about an hour, AD2 Jonathon Butler froze for a moment. There was a six-inch piece of safety wire tangled between the blades in the 4th stage compressor.

As maintainers, it is our duty to provide pilots and aircrew a safe aircraft to fly. We take pride in delivering a platform in which they can return to their families day after day. Greyhawk power plants proved once again that they will do everything it takes to achieve this goal. By putting their training to work and troubleshooting step-by-step in accordance with the MIMs, they potentially avoided a catastrophic mishap.

The starboard engine of 635 was removed and turned into FRC for further investigation. The engine was eventually replaced, engine turns were completed, and the aircraft was returned for flight.

By AD1 Farzana Khan

U.S. Navy photo AD2 Jonathan Butler and AD1 Farzana Khan

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CTPL

By-the-Book CTPL Management

By AZC Marcus Fuller

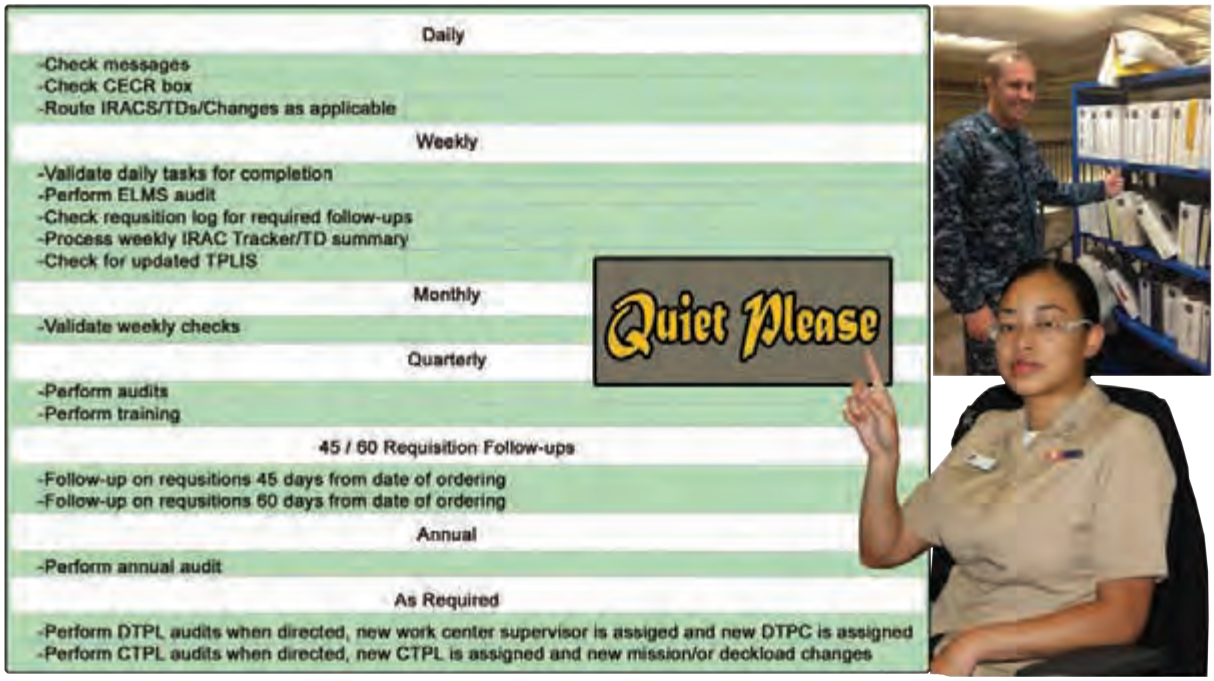
During command safety surveys we have discovered that a majority Central Technical Publication Librarians (CTPL) do not understand their basic responsibilities. It is the responsibility of the CTPL to control and provide current aeronautical reference material to their respective commands. To meet this responsibility, CTPL must manage and control the inventory and distribution of technical publications for all aircraft and aeronautical equipment in the organization's physical custody with respect to the command's specific maintenance level. The NAVAIR 00-25-100 lists detailed and necessary information on CTPL establishment and maintenance. It also describes the requirements, functions, and responsibilities of personnel assigned to maintain aeronautical technical publications. CTPL must be given oversight by the Quality Assurance CTPL program monitors and more experienced AZs within the commands to ensure their duties are being performed. Below are basic CTPL responsibilities as stated in the NAVAIR 00-25-100 Work Package 020 00 section 20-1. Attached is a CTPL best practice daily, weekly, monthly, quarterly and annual tickler file.

Management of the technical library is a function assigned to the Quality Assurance (QA) division of Navy and Marine Corps aviation units and to an appropriate department at the depots.

The technical library's responsibilities include functions and tasks as follows:

(1) Maintain a CTPL, which is adequate to complete the assigned functions of the activity.

Retention of master copies of publications within the CTPL is optional.



(2) Requisition, receive, screen, review, route, distribute, as necessary, and file all incoming technical publications.

(3) Establish dispersed libraries and necessary control functions.

(4) Establish and maintain a training program for assigned library personnel, including dispersed librarians.

(5) Develop an automatic verifica-

tion program using the guidance provided in WP 021 00.

(6) Establish and maintain a program to distribute data to dispersed libraries.

(7) Develop and maintain a program for classified technical data receipt, stowage, distribution, inventory, and disposition.

(8) Establish and maintain a program to audit the CTPL annually (WP 021 00) and dispersed libraries quarterly (WP 022 00), as a minimum.

(9) Develop an effective checklist so that discrepancies identified during audits can be identified and corrective action noted. Refer to COMNAVAIRFORINST 4790.2, Computerized Self Evaluation Checklist (CSEC).

(10) Upon receipt of JTDI CD updates, deliver to ADP for immediate loading onto the JTDI Server.

Of critical importance is the need to ensure that assigned personnel have the necessary supervision and support required to ensure all facets of library management are correctly functioning. Outdated manuals, wrong type and quantity of manuals on-hand, lack of use and lack of command attention are caused primarily by a limited knowledge of the Technical Publications Library (TPL) system. Often, because of the operational tempo and lack of personnel, TPL assignments are given to inexperienced and junior personnel. Because this frequently occurs, senior personnel must be capable of providing the much needed management guidance to the assigned TPL clerk technical publication libraries.

Batteries

Changes to Lithium Fire Procedures

By GySgt John McKay

A recent spike in thermal runaways involving lithium batteries has resulted in an ongoing review of emergency procedures at the Naval Ordnance Safety and Security Activity (NOSSA), which manages the Navy's lithium battery program for Naval Sea Systems Command (NAVSEA). Results were not what most of us would have expected.

For years we all have been told that water coming in contact with lithium batteries would result in an explosive situation. The fact is, confirmed by the testing at NOSSA, water is the preferred method for cooling a thermal runaway and fighting a fire containing lithium batteries. The procedures for an electrolyte spill are still baking soda (sodium bicarbonate), but the changes in battery construction and composition have required a change in thermal runaway and firefighting procedures. The FAA and the International Air Travel Association both have in their procedures to use halon or water to extinguish lithium-based fire, then to cool the remaining cells by immersing in water. The goal is to cool the lithium cells as quickly as possible, as the lithium compound in batteries burn extremely hot. The testing at NOSSA shows that fires will immediately reignite if there is not a constant stream of halon applied. The other factor is that halon is becoming rarer due to none being manufactured since 1994.

NAVSEA S9310-AQ-SAF-010 will be updated to reflect the results of these tests. Links to the FAA and IATA documents are below. Any unit wanting to see the results of the testing at NOSSA can contact the avionics analysts at the Naval Safety Center, or the NOSSA help desk.

Naval Ordnance Safety and Security Activity:
http://www.navsea.navy.mil/organization/NOSSA.aspx
The FAA document can be seen at:
http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2009/SAFO09013.pdf
The IATA document can be seen at:
http://www.iata.org/whatwedo/safety/Documents/Guidance-on-Handling-Dangerous-Goods-Incidents-and-Lithium-Battery-Fires-in-the-Passenger-Cabin.pdf

Cutting Corners

By PRCS James Adams

In my year at the Naval Safety Center I have surveyed nearly every type, model series, and (T/M/S) of aircraft in the Navy and Marine Corps inventory, and that's an extensive list, encompassing everything from the P-3 Orion that took its first flight in 1959 to the Joint Strike Fighter that is in its service-life infancy.

The PRs and Marine 6048s, "Flight Es", are working their tails off keeping up with maintenance requirements on the Aviation Life Support System (ALSS) equipment while facing a multitude of challenges to completing their tasks. It seems that each geographic region and T/M/S has unique issues when it comes to flight equipment and its related maintenance. Whether those challenges are in the form of MALS and FRC turnaround time and availability, fielding new platforms and experiencing the growing pains that come with new gear or fighting the uphill battle to change established community mentalities, the toll on the affected work centers is the same: Corners are being cut.

The severity and scope of the corner cutting has run the gamut from not properly performing the pre-operational inspection on a sewing machine to having crews in the air with down ALSS. The work centers have commented that causal factors for these shortfalls range from lack of manning to being pushed too hard to meet planned schedules. While these topics may be valid points of concern the first step of resolution is for the leadership in the work centers to assess the situations causing the problems, and do their best to balance their work loads, time constraints, manning, and training. The supervisors must communicate these road blocks to their shop chief, maintenance control, QA, and the maintenance officer. Once the situation is assessed, resources balanced, and needs communicated, it is time to do the tasks at hand. Debrief the outcome of their efforts and re-engage as needed to continue to improve processes in the work centers.

While the PRs and 6048s are on point the vast majority of the time when it comes to doing business by the book, I have found that aircrews, officer and enlisted, need to buckle down and get back into the habit of performing pre-and post-flight inspections of their personally issued flight equipment. The 3710.7 General NATOPS refers to the NA 13-1-6 (Series) manuals for specific guidance on performing the pre-and-post flight inspections. Many Navy and Marine Corps ALSS work centers have developed locally generated desktop procedures that pull information from and reference the NA 13-1-6 (Series) and NAVAIR 00-80T-123 to aid aircrews in the completion of the inspections. Also it is highly recommended to have a senior PR or 6048 attend quarterly or semi-annual aircrew training to run through the pre-and-post flight requirements and to have hands on training that encompasses NA 13-1-6 (Series)and NAVAIR 00-80T-123 requirements; where the individual survival items are located, how they operate, configuration, and how to stow the items. The lack of pre-and-post flight inspections leads to unaccounted for FOD in aircraft, unreported maintenance requirements for the ALSS and a lack of familiarity with the gear, which could lead to the loss of aircrew and aircraft.

Eye Wash Stations Best Practice

By AMC(AW) Richard Kersenbrock

There are times while on survey that we can take a best practice from the fleet. One such example is that of emergency eye wash stations. Everyone has their own way of documenting periodic inspections and not one way is universal in the fleet. The problem that comes from not being universal is that of documenting solution change-out cycles for the portable eye wash stations. This is something that needs to happen to ensure that organic growth does not start to contaminate an eye wash station that we need to rely upon for an emergency. The problem we see in most cases while on survey is that there is no documentation showing that the solution is being changed out IAW the manufacturer's recommendations or that the water is being changed out monthly.

EMERGENCY SHOWER & EYE WASH TEST RECORD

INSPECT THIS UNIT CAREFULLY BEFORE SIGNING INSPECTION. RECORD WEEKLY 15 SECOND TESTING OF UNIT TO ENSURE PROPER OPERATION AND FLUSH LINES. INSPECT FOR CLEANLINESS

Week 1		Week 12		Week 23		Week 34		Week 45	
Week 2		Week 13		Week 24		Week 35		Week 46	
Week 3		Week 14		Week 25		Week 36		Week 47	
Week 4		Week 15		Week 26		Week 37		Week 48	
Week 5		Week 16		Week 27		Week 38		Week 49	
Week 6		Week 17		Week 28		Week 39		Week 50	
Week 7		Week 18		Week 29		Week 40		Week 51	
Week 8		Week 19		Week 30		Week 41		Week 52	
Week 9		Week 20		Week 31		Week 42			
Week 10		Week 21		Week 32		Week 43			
Week 11		Week 22		Week 33		Week 44			
Week 11		Week 22		Week 33		Week 44			

Econ Hydrosep solution used, water must be changed prior to every 60 days on weeks indicated in red

Here is an example we have taken from VMFA-533. The QA/Ground Safety representative for the unit made up a card that looks similar to a 4790/52 card and included simple instructions for weekly inspections or operations of the eyewash stations (these can also be from the eye wash station's manufacturer's recommendations). Also included on the card is the solution recommended change-out cycle. The weeks that the solution needs to be changed are highlighted in red. This is a very good example of how thinking outside the box can become a best practice and cover all bases that need to be documented. This example can be manipulated to fit your specific needs.

U.S. Navy photo by AD2 Stacey Thomas

Maintenance Myth:

There's never time to do it right, but there's always time to do it over.

Maintenance Truth:

Doing it right means proper maintenance techniques, positive tool control inventories, and thorough FOD checks when the job is complete.

U.S. Navy photo by MC3 Bradley Glee