

Approach

The Navy and Marine Corps Aviation and Aviation Maintenance Safety Magazine

Bird Strikes Minimizing an Unpreventable Risk

Surviving Broken Nose Landing Gear



**Congratulations VMR-1 on Reaching
250K Mishap-Free Flight Hours**

MECH p. 17

Approach- MECH

The Navy & Marine Corps Aviation and Maintenance Safety Magazine

2016 Volume 61, No. 2

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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. *Approach* (ISSN 1094-0405) is published bimonthly by Commander, Naval Safety Center, 375 A Street Norfolk, VA 23511-4399, and is an authorized publication for members of the Department of Defense. Contents are not necessarily the official views of, or endorsed by, the U.S. Government, the Department of Defense, or the U.S. Navy. Photos and artwork are representative and do not necessarily show the people or equipment discussed. We reserve the right to edit all manuscripts. Reference to commercial products does not imply Navy endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission; please credit the magazine and author. *Approach* is available for sale by the Superintendent of Documents, P.O. Box 979050, St Louis, MO 63197-9000, or online at: bookstore.gpo.gov. Telephone credit card orders can be made 8 a.m. to 4 p.m. Eastern time at (866) 512-1800. Periodicals postage paid at Norfolk, Va., and additional mailing offices.

Postmaster: Send address changes to *Approach*-MECH, Code 70C, Naval Safety Center, 375 A Street Norfolk, VA 23511-4399

Send article submissions, distribution requests, comments or questions to the address above or email to: SAFE-Approach@navy.mil and SAFE-Mech@navy.mil

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Sailors signal the launch of an E-2C Hawkeye, assigned to the "Wallbangers" of Carrier Airborne Early Warning Squadron (VAW) 117, from the flight deck of aircraft carrier USS HARRY S. TRUMAN (CVN 75). (Photo by Mass Communication Specialist 2nd Class Ethan T. Miller)

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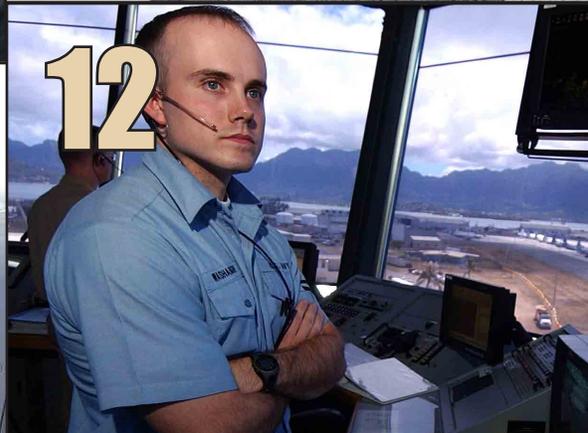
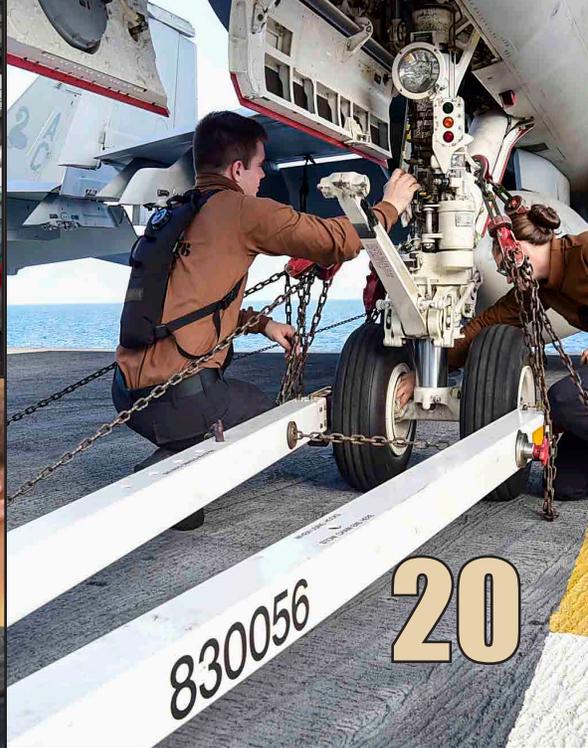
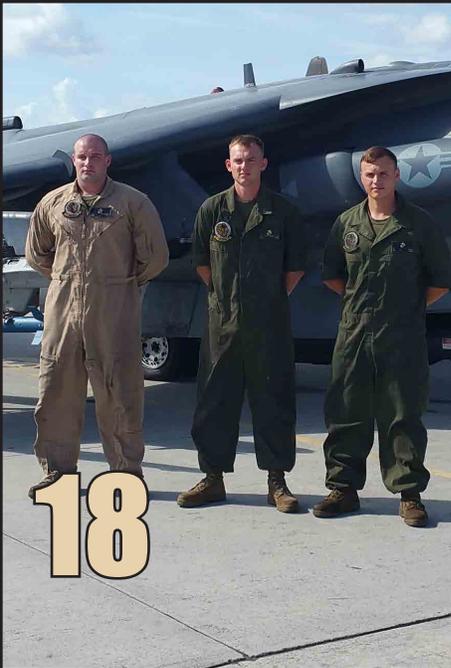
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On the cover:

Sailors prepare MV-22B Ospreys to take off from the USS NEW ORLEANS. (Photo by Sgt Tyler C. Gregory)

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In this issue of Approach we congratulate two units. The “Sunliners” VFA-81 won the 2015 Commander, Naval Air Force Atlantic F/A-18E/F Battle Efficiency (“E”) award following a record setting year. Also the “Roadrunners” of VRM-1, reached a 250,000 mishap-free flight hours milestone. These two units have worked hard for their achievement and we are happy to recognize them in Approach-MECH.

The great thing about this magazine is we get so many submissions that we will always have quality content for our readers. However, I have begun to notice a trend that I felt might need to be addressed.

Lately a lot of articles have begun to surpass the 10-page mark. It’s great information, but in terms of layout and design in the magazine that’s equivalent to four full pages of text without images or headlines. The average reader might be overwhelmed by that much text and turn the page without reading the article. As much as I’m sure the article may contain valuable content, I need you to be brief. In order to fit enough articles in any particular issue, it needs to be less than 6 pages in a Word document and 800 words or less. Let’s work together to ensure there’s enough room for everyone who submits an article to have their story told. The best way to do that is by writing the most important parts of your story first and ensuring the lesson in it is easy to find. Check out the ad below for further details on our article submission guidelines.

In the last issue we posted guidelines on how to submit Bravo Zulus. We received so many submissions that we ran out of room in this issue. But don’t worry, my goal is to ensure every one of them goes into the magazine. So if you don’t see your BZ this time, it’ll

likely be in the next issue. Please keep them coming.

A while back LCDR Gabriel Gizaw paid me a visit and explained that there had been a trend in pilots in their 40s being diagnosed with high blood pressure. His article on the importance of visiting your flight doctor is on the next page. Check it out and if you’re feeling out of sorts go get checked out, it could save your life.

LCDR Mike Willis submitted an article about bird strikes. However, it’s not your typical bird strike article. He explains that bird strikes are unpreventable but you can minimize the risk with the tools he suggests using. He listed those tools in detail and explains how they work in specific areas.

If you’ve never been injured you probably couldn’t imagine what it might feel like to have your foot crushed under the weight of an aircraft landing wheel. That’s exactly what happened to LCpl Joshua Cole after some miscommunication and a simple case of being in the wrong place at the wrong time. Spoiler alert: be prepared to see a bit of blood.

John Williams our visual information specialist here has been drawing aircraft for more than 20 years. In the last issue we explained that we’d be featuring his work as collectibles. The second illustration is of a T-2C Buckeye. Look out for upcoming issues to collect all six.

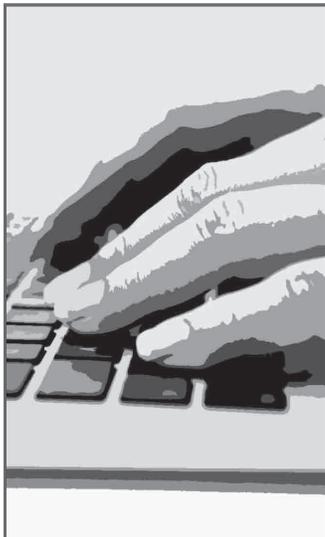
Last, U.S. Navy retired LCDR Thom Moriarty paid a visit to Joint Expeditionary Base Little Creek-Fort Story, Va. where he got the opportunity to see a new state-of-the-art tower simulator which will allow students conduct realistic training in control tower operations and procedures without having to rely on live traffic. Needless to say, he was wowed, and after reading his article you might be wowed too!

I hope you enjoy this issue and as always your submissions are appreciated.



Nika Glover

Editor, Approach and Mech
Naval Safety Center



WRITERS WANTED

Interested in writing for Approach-MECH? Please use the following guidelines when submitting articles.

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

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FONT SIZE: 11 points

NECESSARY INFO: Include a proposed headline, the full byline of the author (rank, first, and last name), and the unit the author is with.

3. When you email your article, please use the author’s name as the filename. Give us the author’s full name and a mailing address so we can send a certificate of appreciation and a copy of the issue that the article will appear in.

Our surveys consistently show that readers like articles written by their peers, and they like to read about true-life events and experiences. Your effort keeps others from having to learn the hard way. Therefore we want your letters, feedback, and comments.

We want honest appraisals and realistic solutions. Our staff is always open to new ideas, so don’t be afraid to try something different. We also want your input. Send your letters, opinions, viewpoints, and comments to safe-mediafdbk@navy.mil.



BY LCDR GABRIEL GIZAW, VXS-1

A Flight Doctor's Perspective

When I was learning how to fly a helicopter, I understood the level of difficulty required to hover, but was fascinated by the complexity, quick thinking and continuous inputs of several controls and corrections by the pilot needed to stabilize the aircraft in a steady position. As a physician, my mind was making a connection between the concept of a stable hover and one's stable health.



LT Patrick Burbano, a flight surgeon, checks the heartbeat of LT Scot Peterson during a routine physical. A flight surgeon's job is to keep pilots flying. (U.S. Navy photo by Jacob Sippel)

Stable health has to be learned like the hover concept adopted during the early stages of an aviator's career through operational risk management (ORM). Stable health is defined as the ability to harmonize and self-manage physical, emotional, social and spiritual difficulties to achieve their highest potential.

As we are progressing through life's journey, stable health may be derailed by circumstances beyond our control and may require self-management or assistance from several control inputs such as trusted family members, spouse, colleagues, mentors and the chain of command. If the concerns continue to escalate or are medical in nature, guidance from a flight surgeon is provided. If spiritual is the concern, consult with a chaplain. Each individual is unique and may have complex situations in their lives. A young aviator's quick thinking and ability to come up with an action plan using their resources early on will speed their health to a steady state.

For example, an aviator is having a back pain and may need to see his flight surgeon. The flight surgeon may recommend he sees a physical therapist or chiropractor for realignment or education of core strengthening and conditioning. The earlier you're in tune with your body's needs, the better potential we have for identifying any health concerns that interfere with achieving your highest career potential. To do this you must take quick action by using the resources available to you to manage your health. If your medical concern is a social factor, you should speak with someone in your chain of command or a counselor.

The reason why hovering is one of the most challenging

initial phases for a student pilot learning to fly a helicopter is due to gyroscopic precision and torque effect on the airframe causing instability. It requires constant control inputs by the pilot to fight the numerous forces opposing each other.

The continuous quick thinking and timely corrections made by the pilot to overcome the aerodynamic and physical effects from the rotor system is vital to the concept of hovering. The time delay of those small constant control input changes or the over-correction of the inputs after recognizing the altitude changes can cause the helicopter to become out of control. To prevent this from happening, the pilot must make some major corrections in order to stabilize the aircraft back to its desired position.

Many new aviators withhold medical concerns despite knowing something is wrong because they don't want to disrupt their training to be evaluated. However a medical issue should not be a showstopper. I understand there's a myth that you could be put on medical hold while you're dealing with a medical issue, but this shouldn't keep you from seeking help. My top priority and duty as a flight surgeon is to keep you flying safely. The core concept in ORM is to keep yourself and your team safe. Delaying your health concerns may have a significant impact on your health and career or the team's mission.

Only after several flying hours and constant mental training can a pilot master hovering technique. Similarly, awareness of one's own health is critically important. You have the ability to be in tune with your own health and act quickly to adjust it. You are the pilot in command of your own health.

Making small changes early is vital to your health. Consider your flight surgeon and other resources for making those small changes on your health if needed. Don't wait until things have gotten worse before making corrections or your pilot induced oscillations can cause your own health to get out of control.

BIRD STRIKE: Minimizing an Unpreventable Risk

Most mishaps are obvious – blown tires, engine fires, airframe crunches, and planning link failures all have telltale signs of when and where they occurred and what caused them. However, some mishaps are not discovered until after the aircraft is chocked, chained, and inspected. Strike Fighter Squadron (VFA) 195 experienced such a mishap during an air-to-surface detachment to Andersen Air Force Base (AFB), Guam, in March 2016.

Andersen AFB is a regular stop on the pre-cruise workup cycle for Japan-based Super Hornet squadrons. Local regulations prohibit Carrier Air Wing Five squadrons from carrying releasable ordnance over our host country. Therefore, once a year, we migrate to one of three locations for air-to-surface training – Fallon, Australia, or Guam. This year VFA-195 went to Guam. Situated in the middle of the Pacific Ocean roughly 1,200 miles south of Japan, Guam offers nearly unlimited air and sea space for training in both the air-to-surface and air-to-air environment. The only bombing range, Farallon de Medinilla (FDM), is a small, isolated and unmanned island roughly 200 miles north of Guam. FDM's only inhabitants are several species of birds and the occasional joint terminal attack controllers (JTAC) working with squadrons to provide realistic close air support (CAS) training.

The mishap flight occurred during a planned night CAS mission in which the JTAC was supporting our CAS training. For two days and nights he sat on the active minefield of unexploded ordnance that is FDM, calling in attack after attack upon the piles of rubble that once resembled



A pilot inspects his aircraft after discovering he struck a bird during flight. (Photo courtesy Wikimedia)

tactical targets. The mishap pilot thoroughly planned, briefed, and executed the event. Upon returning to base, the pilot taxied back to the line, shutdown, and executed a standard post-flight inspection noting nothing abnormal. The plane captain conducted his post-flight inspection and discovered blood streaks and feathers on the first stage compressor section of the right engine. A preliminary inspection suggested the engine suffered Class B mishap damage and a more in-depth inspection confirmed it.

The pilot did not break any rules, press the limits of good judgment, or receive any indications in flight of a malfunction or damage of any kind. He did not see birds at any point during the flight; although, it was a night sortie. He had every reason to feel good about his efforts and performance. So how did he end up in a Class B mishap? The answer, as unsatisfying as it might sound to a community constantly striving to drive its mishap rate to zero, is that it just was not his night. Guam's bird population has been decimated by the invasive brown tree snake, but my squadron somehow managed to hit one of the few remaining birds living around the island.

In fact, between FY09 and FY15, Andersen AFB recorded only five bird strikes in the month of March – less

than one per month over the seven-year period. It is also possible the bird strike occurred over FDM, even though the pilot never descended below 1,200 feet; or, during transit while flying at FL200 and higher. The fact is that naval aviation has many inherent risks, some more manageable than others, and the risk of bird strikes has existed since Eugene Ely's historic flight more than 100 years ago.

According to CNICINST 3700, "The Navy's first loss of life due to a bird strike occurred in 1914, coincidentally the same year it obtained its first aircraft". In the 30 years between 1981 and 2011, naval aviators reported more than 16,000 bird strikes resulting in \$372 million of damage. Between 1990 and 2013, the FAA received 138,394 reports of bird strikes. These incidents cost an average of \$650 million annually and the risk is only expected to increase over the next decade as the number of airplanes increases.

There is no way to completely eliminate the risk of bird/animal aircraft strike hazard (BASH) events. However, many things are actively done to minimize the BASH risk including the use of peregrine falcons to discourage other species of birds from taking flight and manipulating habitats in and around airfields, making them less desirable to nuisance species.

Most of these efforts occur behind the scenes at the airfield management level and are rarely noticed by aircrew. Many aviators simply rely on the "see and avoid" method to prevent bird strikes and most of us spend only a few seconds talking about the BASH threat during the brief. Generally, the little time we do spend on the subject is focused on how we will react if a bird strike occurs and any applicable emergency procedures we might need to execute afterwards. However, there are resources available to help aviators incorporate bird strike avoidance into the planning and briefing phases of the flight

The Air Force's avian hazard advisory system (AHAS), available at www.usahas.com, is the most sophisticated and easy-to-use resource available to aircrew for bird strike avoidance planning. AHAS utilizes three different sources to provide aviators with information they can use – the bird avoidance model (BAM), the migratory bird and soaring bird forecast models (displayed as "SOAR" on the website), and filtered NEXRAD weather radar. Combined, these tools provide aircrew with long-range prediction models and near real-time updates to bird activity

AHAS forecasts are available for specific airfields, military operating areas, restricted areas, IR and VR routes, and military range complexes.

As a flight-planning tool, AHAS can be extremely useful. However, much like the weather, the most accurate observation is the one you look at right before you walk. However, in order to avoid confusion, the AHAS forecast report very clearly indicates whether the risk level displayed is generated from BAM, SOAR, or NEXRAD.

Further increasing its usefulness as a planning and briefing tool, AHAS incorporates Google Maps and Google Earth into its forecasting products. These functions can be customized, allowing users to overlay airspace boundaries, route structures, and AHAS forecast levels onto Google Maps and Google Earth displays. All of these features make AHAS an incredibly useful and easy-to-use

planning tool for bird strike avoidance. Unfortunately, AHAS is currently not available to units operating overseas.

Overseas units must rely on local BASH programs and sound judgment to minimize their risks. While there may not be a one-stop shop website for BASH avoidance planning, a quick call to base operations (Navy) or aviation safety (Air Force) should provide aircrew with the current BASH condition and historical data for the airfield. Additionally, the FAA tracks BASH incidents for individual ICAOs and uploads the data to the FAA website, www.wildlife.faa.gov. The output can be exported to a Microsoft Excel spreadsheet to sort and filter – not as pilot friendly as AHAS, but it can give aviators a sense of when an increased BASH risk at a particular field can be expected.

Even with modern planning tools and prevention techniques at our disposal, we will likely never eliminate bird strikes from the catalog of threats to aviation. When an aircraft strikes a bird or any other animal, it is necessary to report the BASH incident via the proper channels. At a minimum, base operations should be notified and any required forms should be filled out as soon as practical. The squadron safety department should be notified so the required report can be filed with the Naval Safety Center. Additionally, if any wildlife remains are discovered post-flight, the base air operations officer should be notified.

As long as birds and planes share the sky, collisions will remain likely from time to time. However, we can use the tools at our disposal to minimize one of the oldest and most persistent risks to aviation. Ultimately, BASH prevention tools will give pilots the ability to start looking at bird strikes and bird strike prevention as something that can be forecast, briefed and avoided.

Bird Strike Avoidance Resources

Avian Hazard Advisory System (AHAS) www.usahas.com - uses the following three sources to provide aviators with information they can use.

1. Bird Avoidance Model (BAM)- tells us where birds should be by using historical data to predict where birds will exist in high concentrations for any two week period.
2. Migratory Bird and Soaring Bird Forecast Model (SOAR) - tells us where conditions are favorable for birds to be airborne and at what altitudes. The data is used to map areas where conditions may be favorable for hazardous bird activity and to generate accurate risk forecasts for periods within the next 24 hours.
3. NEXRAD Weather Radar- shows in near-real time how many birds are actually airborne in a given area. It's incorporated with AHAS to provide near real-time updates of where birds are actually flying.



BY LT TYLER SALMON, VP-45

From Stall to Squall

As the flight officer for a newly transitioned P-8A Poseidon squadron, one of my collateral duties included hurricane evacuation coordinating officer (HECO). Coordinating aircraft movements before tropical cyclones became my bread and butter while deployed to Kadena Air Base, Japan. When I assumed the job, I never imagined I would be the one executing my plan. The plan required a reposition flight from Guam to Kadena and back as Typhoon Goni spun across the Pacific.

Our squadron was in its last month of a seven-month deployment to the Seventh Fleet. Our aircrews were positioned to Guam, flying out of Anderson Air Force Base in support of GUAMEX, a multi-national anti-submarine warfare (ASW) exercise with the Japanese Maritime Self Defense Force and the Royal New Zealand Air Force.

Week one in Guam had gone smoothly, however our operations department was tracking a tropical cyclone moving west toward the island. By Saturday morning, as outer bands of rain and wind approached, we decided to reposition our aircraft back to Kadena. Following a long day coordinating logistics,

we executed the four and a half hour repo and landed at 2100L. The following night, we were slated to return to Guam on a tactical reposition (TACREPO), flying the first event of the ASW exercise. After our mission, we would terminate in Guam.

We prepared for the TACREPO by first checking the weather for our return to Guam. Our route of flight would take our crew into the backside of the tropical cyclone that crossed over Guam as we departed for Kadena the previous day. After conducting a deliberate operational risk management assessment and speaking with our operations officer, I decided to proceed with the mission. One control would be to prosecute our submerged target while remaining clear of the heavier weather. Otherwise, we planned to orbit and wait for a break in the weather to continue the ASW prosecution. When we reached go-home fuel, we would proceed toward Anderson. With the operating area less than 100nm from Anderson, I felt confident with the risk management controls in place.

We took off late in the evening and completed our three-hour transit to Guam, successfully circumventing the bulk of the storm. On station, we found a clearing in the weather and descended to 1,500 feet AGL. Our sensor operators were able to find our target and begin prosecution. We continued to track the target, and after a couple of hours of successful prosecution, we planned to pass “hot contact” to the New Zealand P-3 crew.

I was in the left seat as pilot monitoring while my 2P was in the right seat as the pilot flying. We had experienced a relatively rough 48 hours, dealing with the evacuation from Guam followed by turning around and flying our mission that night.

Our tactical coordinator (TACCO) had just sent us a series of fly-to-points, and the 2P elected to deselect the autopilot

Two P-8A Poseidon aircraft undergo flight checks before a mission. (U.S. Navy photo by Chief Mass Communication Specialist Keith DeVinney)



“engaged” and enter control wheel steering mode in order to wrap up the turn to hit the first point.

Normally, we leave the autopilot engaged, allowing it to maintain our altitude and control our lateral navigation. This function is one of the many “automation” perks of flying the P-8A. The TACCO sends us the points from their station and we set up our flight management computer to accept these points while the autopilot flies the aircraft, requiring only supervisory inputs from the pilots.

At times, though, the points that are sent will exceed the turning performance of the autopilot system, requiring the pilot flying to either allow autopilot to do a few extra loops to set itself up for the point or to kick the autopilot off and manually fly the plane to the point. When the plane is in the roll mode of control wheel steering (CWS), the autopilot will hold the altitude while the pilot manually rolls the aircraft. This feature is great, but often the elevator trim (which is electronic and trims automatically with autopilot engaged) cannot maintain the aircraft in trim at high angles of bank. We were flying at maximum endurance speed plus 10 KIAS, putting us roughly 30 KIAS above initial buffet speed. In order to fly over a point that was positioned exceptionally close to the aircraft, the 2P entered CWS-Roll mode and banked to 40 degrees. We noticed we were descending through 1,420 feet over the open ocean and I calmly called out “altitude.”

In an effort to arrest the descent, my 2P pulled back on the controls while maintaining 40 degrees angle of bank, and our red band, or “zipper,” which indicates our minimum maneuver speed on the airspeed indicator, shot up to our indicated airspeed. The control column immediately went into “stick

shaker,” warning of an impending stall. I took the controls while saying multiple times “I’ve got the controls, I’ve got the controls...we are okay.” I rolled wings level while relaxing back stick pressure and simultaneously advancing the thrust levers while directing the 2P to set our altitude to 5,000 feet. We climbed up and away from the water.

After executing the approach to stall recovery, I informed the crew about what had occurred. During the recovery, we lost approximately 100-200 feet. We had a couple of hours left on station, but at this point I decided to abort the mission. The long crew day combined with the two previous day’s flights and the approach to stall placed us out of our comfort zone. The biggest take-away from this is systematic crew resource management (CRM). It is imperative of everyone on the crew to have the situational awareness to look beyond how they are feeling and notice how everyone around them is doing.

We train to roll wings level when we lose altitude at high angles of bank to avoid situations such as this. In hindsight, we should have flown at a higher airspeed to provide a higher margin to stick shaker or initial buffet. Additionally, we could have discussed the utilization of flaps on station to provide a safer margin to stick shaker or initial buffet.

Staying calm with your crew members and keeping their mental state in mind will go a long way in actively managing your crew. While I did have the 3P in the seat for the landing, I kept the 2P engaged in the flight deck. This event reinforced the value of CRM training.



VFA-81 Sunliners Win the Battle “E”

The Sunliners of Carrier Air Wing Seventeen (CVW-17) were recently awarded the prestigious 2015 Commander, Naval Air Force Atlantic F/A-18E/F Battle Efficiency (“E”) Award following a record setting year where the squadron completed an arduous 10 month combat deployment in support of Operation Inherent Resolve; the longest such planned deployment since the Vietnam War.

During the six months the Sunliners conducted sustained combat operations in the Persian Gulf, they employed nearly 300 precision guided munitions over the course of 471 combat sorties and 2,720 combat hours while achieving an impressive 105 percent combat sortie completion rate.

The unified efforts of the officers, chief petty officers, and Sailors that constitute the Sunliners team supported national objectives in the state



of Iraq and al-Sham (ISIS) forces and enabled Iraqi security forces and Peshmerga fighters to regain strategically vital territory in Iraq and Syria.

While maintaining a stalwart focus on combat operations, the Sunliners team also earned accolades as the 2015 Commander, Strike Fighter Wing Atlantic (CSFWL) Golden Wrench recipients, CVW-17 “Top Hook” Squadron, fiscal year 2015 Retention Excellence award, Enlisted Aviation Warfare Specialist Silver Pendant, Blue “M” award for medical readiness, and two quarterly safety “S” awards.

These numerous achievements are a testament to the dedication and hard work of every exemplary professional that makes up the Sunliners team.

The squadron proudly continues this tradition of excellence as they look ahead to the next work up cycle and privilege of deploying, “Anytime, Anyplace”, in defense of the United States.



VMR-1 Reaches 250,000 Mishap-Free Flight Hours

Marine Corps Air Station Cherry Point's flying squadron Marine Transport Squadron 1 has attained an amazing milestone of 250,000 mishap-free flight hours, as they moved into fiscal year FY 2016.

VMR-1 was presented with a certificate in recognition of the attainment of another consecutive 10,000 hours of mishap-free flight time and the unit award for 250,000 mishap free flight time. This aviation safety milestone was achieved on Oct. 29, 2015. The Roadrunners were able to maximize their consistent mission readiness, safety-first mindset and operational excellence while safely managing the operation of three vastly different aircraft types during FY 2015. VMR-1 was the only Marine Corps squadron to bring Marines, Sailors and civilians together to operate medium and light jet aircraft that deployed worldwide, as well as rotary wing aircraft that conducted search and rescue (SAR) missions.

The three type/model/series that VMR-1 flew during FY15 included: the C-9B Skytrain, which was used to transport aircrew and support numerous missions within and outside the continental United States, including support to the Black Sea Rotational Force and the Marine



Air-Ground Task Force – Crisis Response; the UC-35D Citation, which executed mission essential operations overseas and with Marine Forces abroad while ensuring the safe and timely transport of high-priority passengers; and the HH-46E Sea Knight search and rescue helicopter, which conducted range sweeps, lifesaving operations, patient transfers, firefighting missions and static demonstrations.

"We integrate the safety mindset into our mission planning and operations," explained LtCol Bedell, the commanding officer of VMR-1. "It is a proactive way of doing business that has resulted in mastering the complexities of maintaining some of the oldest platforms in the Fleet Marine Forces. With all the platforms exceeding their quarterly goals for the fiscal year flight program, we were able to significantly increase support, aircraft availability and training progression." VMR-1 moved into FY2016 with a significant change to its mission. The Cherry Point search and rescue helicopters conducted their final flight on Sept. 25 with the sundown of the Marine Corps' SAR mission in eastern North Carolina. The squadron marked the end of an era that day when it retired the Department of Defense's last serving H-46 helicopters.



Approach Bravo Zulu

**Sailors and Marines
Preventing Mishaps**

LT MATTHEW GORE; ENS REYMIN LLUVERES, VT-10

LT Matthew E. Gore, a flight instructor with Training Squadron TEN at Naval Air Station Pensacola and ENS Reymin Lluveres, a flight student also with VT-10, demonstrated outstanding situational awareness and exceptional crew resource management while executing a T-6A day training flight. On their first flight, LT Gore and ENS Lluveres experienced conflicting engine indications on their perfectly running engine. They expertly executed immediate actions to turn and climb toward the nearest suitable airfield, Hattiesburg Bobby Chain Airport. The crew then calmly assessed the power management unit failure and status lights, blank engine and torque indications, and oil pressure warning and caution lights. They troubleshot the cascading system malfunction in accordance with emergency procedures while setting up for a precautionary emergency landing. The crew attempted a power management unit reset to no avail. LT Gore flew a flawless precautionary emergency landing and landed safely. Post-flight maintenance revealed a failure of the engine data manager.



CAPT DAVID GONZALES, VT-31

Capt David J. Gonzalez, USMC, a flight instructor with VT-31 at Naval Air Station Corpus Christi, Texas, demonstrated outstanding situational awareness, superior airmanship and exceptional crew resource management while executing a T-44C day training flight. While Capt Gonzalez's student was executing stall recovery procedures immediately following an approach-to-stall maneuver, the aircrew heard a loud bang from the left engine. The student in the left seat visually noted sparks exiting from the left inboard exhaust stack. With a nose high attitude, maximum power set on both engines and a slim margin above minimum controllable airspeed,

Capt Gonzalez took control of the aircraft and completed the stall recovery procedures. The aircrew scanned the engine instruments noting turbine revolutions per minute at zero percent and the inter-turbine temperature decreasing on the left engine. CAPT Gonzalez re-verified all engine indications and executed the emergency engine shutdown procedure in accordance with NATOPS. The crew subsequently declared an emergency with air traffic control and Capt Gonzalez flawlessly completed a single-engine visual approach and landing at Naval Air Station Corpus Christi. Post-flight maintenance revealed the engine had catastrophically failed and had completely seized.





LT JOSE VACIO, 1ST LT DEREK SMITH, VT-35

LT Jose A. Vacio, a flight instructor with VT-35 at Naval Air Station Corpus Christi and 1st Lt Derek W. Smith a flight student also with VT-35, demonstrated exceptional airmanship and crew resource management while executing a TC-12B day instrument training flight. LT Vacio and 1st Lt Smith had just departed the airfield and were conducting the climb checklist when 1st Lt Smith student noticed an unusual wobble in the left propeller spinner. LT Vacio took the controls and verified the unusual indications. Due to the severity of the wobble, they elected to secure the engine and completed the emergency

shutdown checklist. This action greatly reduced the likelihood of the propeller spinner departing the aircraft. LT Vacio declared an emergency with air traffic control and expertly landed the aircraft single engine at Naval Air Station Corpus Christi. On post-flight, nine of the 15 screws holding the spinner to the propeller dome were no longer attached. Their hardwork and decision making prevented further damage to the aircraft.

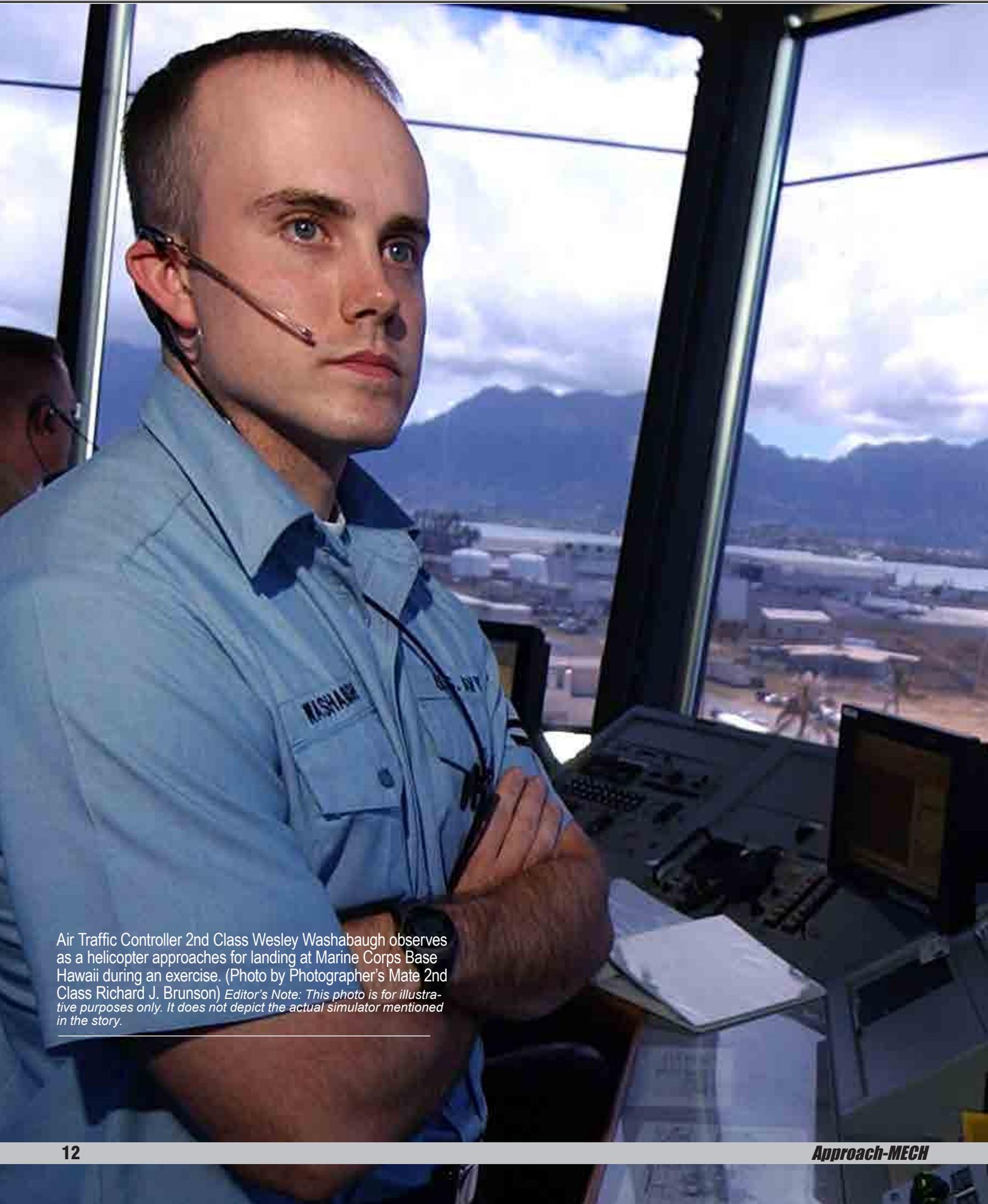
LCDR DANNY COOK, LTJG JOHN OJARD, VT-22

LCDR Danny M. Cook, a flight instructor with VT-22 at Naval Air Station Kingsville, Texas and LTJG John H. Ojard a flight student also with VT-22, demonstrated outstanding situational awareness and exceptional crew resource management while executing a T-45C day training flight. The crew had just returned to Naval Auxiliary Landing Field Orange Grove for a practice overhead break maneuver. Just prior to the maneuver at 310 knots with LTJG Ojard at the controls, both aircrew observed a turkey vulture pass down the right side of the aircraft and heard a loud bang as the bird impacted the wing. LCDR Cook immediately took the controls and initiated a climb to intercept the precautionary approach profile while both aircrew monitored engine health. Due to the potential for leading edge slat damage in an area out the aircrew's view, the crew opted for emergency flaps to keep the slats in the retracted position. With no controllability issues and back up from LTJG Ojard, LCDR Cook flew a flawless precautionary approach and landed safely. Post-flight examination revealed significant damage to the slat and wing leading edge. The crew's headwork and decision making prevented further damage to the aircraft.





BY LCDR THOM MORIARTY, US NAVY RETIRED



Air Traffic Controller 2nd Class Wesley Washabaugh observes as a helicopter approaches for landing at Marine Corps Base Hawaii during an exercise. (Photo by Photographer's Mate 2nd Class Richard J. Brunson) *Editor's Note: This photo is for illustrative purposes only. It does not depict the actual simulator mentioned in the story.*

GAME CHANGER

ATC Simulator Takes Training to a New Level

Navy air traffic controllers now have a state-of-the-art tower simulator which will allow them to conduct realistic training in control tower operations and procedures without having to rely on live traffic.

The computer simulation takes care of all of it, including the voices of the responding pilots – male and female – that execute the instructions provided by the controllers.

This particular simulation system supports training for the Navy's two east coast tactical air control squadrons – TACRON 21 and TACRON 22 – located at Joint Expeditionary Base Little Creek-Fort Story, Va. Part of the mission for the Navy's tactical air control squadron is to the ability to support expeditionary airfield operations. The Navy plans to have these simulators available to support training for air traffic controllers at all of its Navy and Marine Corps air stations.

In 1974, at the Naval Air Technical Training Center in Glynco, Ga., where the "A" School for Navy ACs was, students would use dowels with airplanes attached to them as trainees in the mock tower cab would issue voice instructions to the aircraft.

The students holding the airplanes would respond and carry out the directions that they were given and it worked. Now, 42 years later, the Navy has considerably improved system that gives the trainees a high-fidelity presentation that is close to the actual view you would expect from a real control tower.

The simulator has the capability to model day, night, and all types of weather conditions to include falling precipitation. It was developed and installed by UFA, Inc., a company out of Burlington, Mass. At each facility with a tower simulator, there will be a core group of senior qualified air traffic controllers that have been trained to design, develop, and present training scenarios to trainees.

Training scenarios typically require a one or two-week period for design, development and testing before they are ready for presentation to trainees. Each scenario is designed to address specific learning/training objectives. The scenarios are designed to follow a progression that takes trainees from basic to intermediate to advanced levels using the crawl, walk, run approach. Each scenario is designed to last for about 45 minutes and they will normally involve all of the operational positions in a typical control tower; however, they could also be used to provide training for a single position. The training scenarios allow for instructor evaluation of trainee performance with respect to proper phraseology, employment of proper control procedures, and the trainee's ability to make sound decisions and provide appropriate and timely instructions that allow for the safe, orderly and expeditious flow of air traffic operating on the ground and in the air under tower control. Instructor controllers debrief trainees after each scenario to point out areas where they performed well and also address any areas for improvement. This feedback is critical to the trainee's development and for their progress toward qualification.

The controller trainees all praised the tower simulator for providing them with a real opportunity to get much needed training without relying solely on the availability of live traffic while assigned temporarily to an active control



The Navy's new air traffic control tower simulator is shown here along with all of the equipment that Sailors normally use when controlling aircraft in any Navy tower. This tower simulator provides a high-fidelity, low cost means for training Sailors at their assigned base. The tower simulator has full day-night and all-weather capability. The simulator provides a sample of the varying weather and visibility conditions that air traffic controllers might encounter when working in the tower. The radar display assists controllers in having better situational awareness of the traffic operating around the airfield, especially during periods of low visibility. (Photo by Thom Moriarty)

tower in the area. The simulator allows them to train and gain the necessary experience so that they can progress in their rating and toward qualification in each of the controller positions in the tower.

Having the tower simulator located right in the building where both squadrons are based means that they have consistent access to the trainer and they are able to schedule and share its use. They don't have to leave the building to train nor do they have to send people to other facilities to receive this training which makes it convenient and more likely to be utilized. The trainer also saves a lot of money in that it does not rely on actual aircraft flying actual flight hours. Even when squadron controllers do find themselves assigned to active towers, there is competition to actually get on position and get training with actual live traffic and often the controllers actually assigned to the facility have priority. That is not a problem using the tower simulator as the simulated traffic levels can be specifically designed to the trainee's ability level from light, to moderate, too heavy to ensure a positive training experience throughout without the cost of actual flight hours. And the scenarios can be repeated as many times as necessary.

A Sailor who had just received orders and the airfield at the naval air facility where he received orders to is modeled in the tower simulator so he has been able to begin training using all of the procedures that he will use in the control tower at his new duty station. When he arrives and is assigned to the control tower, he will already have a significant advantage because of the training he has been able to complete at his current duty station. He is very excited about being able to show up already familiar with the airfield, the tower, and all of its associated procedures. He anticipates being able to qualify quickly. This is a real benefit to the Navy, to the receiving command, to the naval aircrew who will fly from that naval air station, and to the individual Sailor – the air traffic controller – who will be executing those orders.

As my visit to observe the tower simulator came to a conclusion, I couldn't help but think back to 1974 when I was undergoing training to become an (air controlman) AC in Glynco, Ga. Compared to the "simulator" I trained on this is a major advancement. I left feeling very happy to see the investment and commitment that the Navy has made to ensure that this generation of Navy air traffic controllers have the best equipment available to do their jobs.



BY MAJ CP CRAIG, USMC RETIRED

Old Dinosaur, New Wheel

Recently I had the privilege of attending an Osprey squadron's family day event which included a chance to pilot the MV-22 simulator. I could not refuse that one. I had been in the Osprey simulator many years ago before the Marine Corps even had its first Osprey on the flight line at MCAS New River, N.C.

As the young lieutenant that was my escort pointed out to me: It was an easy aircraft to fly but a difficult aircraft to fly well. He was correct. The cockpit was all glass. An oddity to this dinosaur as when I retired, we had steam gauges. But after a bit of scanning, the information started to stand out and was actually easier to read and comprehend than the old steam gauges. The controls were smooth and the aircraft equally as smooth (at least until I tried to land it).

Of course, I found myself behind the aircraft quite a number of times in the landing configuration. What stood out here was that the aircraft did not really fly like a fixed wing airplane or like a helicopter in any given mode of flight. The Osprey is uniquely different.

An issue for me was that as an old pilot with the vast major-

ity of my time in helicopters, when behind, I instinctively (good Navy/Marine Corps training) responded as a helicopter pilot would. That got me into trouble. I am sure that the fixed pilots would react as if flying an airplane. Again, not a good solution. The only pilots that would react in a "tilt rotor" instinctive manner would be those that have spent the majority of their time in the Osprey. Given the relative "newness" of the aircraft in the Fleet; the senior leadership of any squadron or detachment will come by virtue of rank from either the rotor wing or fixed wing communities.

That places the Osprey community of the Marine Corps, Air Force and soon Navy in a rather unique situation over all other communities. The very experience of the senior pilots is both an advantage and a disadvantage to the crew. An advantage for maturity, situational understanding and judgment and a disadvantage as old instinctive reactions can be very wrong and deadly in their consequences.

The Osprey acts as neither as a helicopter nor an airplane in certain critical flight profiles. It acts as an Osprey; uniquely different.

A quick casual check of recent Osprey mishaps would appear to confirm this observation. Now we (Navy and Marines) are in a period of reduced flying due to fiscal constraints, this may very well be a significant safety issue from a historical precedent, one that has been seen before. During the late 1970's and early 1980's the F4 Phantom community was experiencing a rather high mishap rate with senior pilots (between 1,000 and 2,500 military flight hours). It's a situation similar to the one currently facing the Osprey community. Extensive use of simulators for training and refreshing of crew, command supervision, and proper flight planning helped to bring the situation under control. This should work again.

SAFETY NEWS BRIEFS

AIM Launches Online Human Factors Safety Course

The Aviation Institute of Maintenance (AIM) launched a non-cost online course in aviation safety for aviation professionals, students, and enthusiasts around the globe. Understanding that 80 percent of all aviation-related incidents and injury occur because of human error, oversight, fatigue, and other human-related factors, AIM intends to combat such incidents by offering widespread instruction and guidance on minimizing risk. The school encourages students, professionals, and volunteers to enroll in this non-cost continuing education course by visiting <http://www.Aviation.edu>.

Pilots Reporting Fewer Drone Sightings

A new report suggests that drone pilots are now flying more responsibly amid heightened public concerns over the dangers of the unmanned aerial vehicles. The Academy of Model Aeronautics analyzed FAA data and found that even as drone sales surge, drone sightings by airplane pilots have declined. Aviation safety experts have long warned that a drone sucked into an airplane engine could be devastating, hence restrictions that require drones

to stay far from helicopters and airplanes.

"It looks like we're getting the message out there," said Rich Hanson, the academy's government and regulatory affairs representative. Hanson acknowledged there's no hard proof that educational efforts spurred the change, but said the organization, which has advocated for model aircraft pilots for decades, has seen similar examples before.

Business Aviation Safety Summit 2016

Loss of control in flight, unstable approaches and fitness for duty were among the issues addressed at the recent Business Aviation Safety Summit (BASS). Organized and hosted by the Flight Safety Foundation (FSF) in partnership with NBAA, the event drew 225 pilots, aviation safety experts, medical specialists and support providers to Austin, Texas. The 17 presentations delivered over the two days illustrated how far the art and science of safety have advanced, and how much more complex the safety challenges facing business aviation have become in the 70 years since the FSF was founded.

T-2C Buckeye

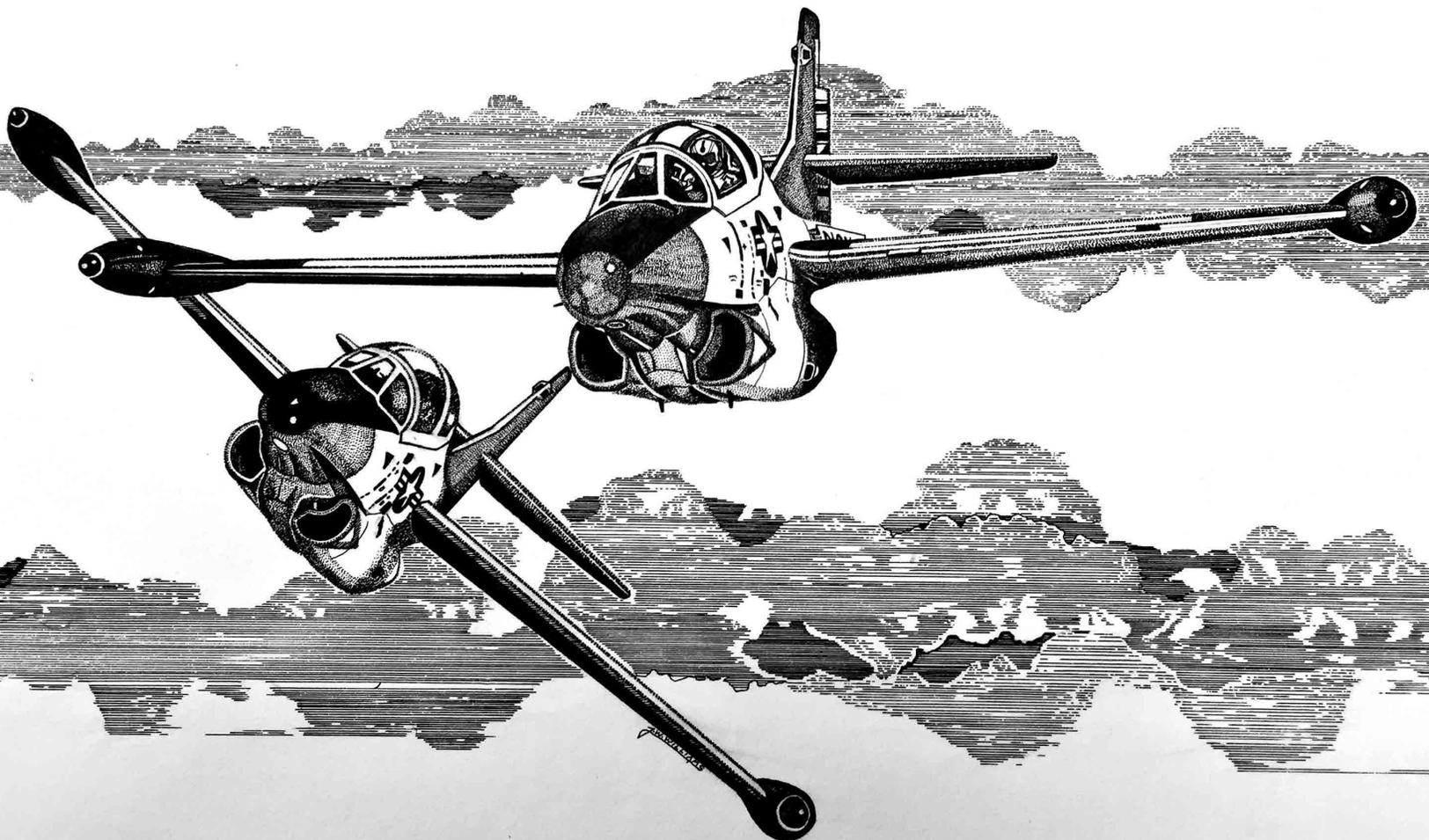


Illustration by John Williams, Naval Safety Center

T-2 Buckeye was the United States Navy's intermediate training aircraft, intended to introduce U.S. Navy and U.S. Marine Corps student naval aviators and student naval flight officers to jets.

It served the Navy for 56 years as the service's intermediate jet trainer. Many pilots made their first carrier landings in the jet.

The Buckeye's straight wing was similar to that used in the original North American FJ-1 Fury and its cockpit controls were similar to the T-28C Trojan trainer.

The T-2's performance was between that of the U.S. Air Force's Cessna T-37 Tweet, and the U.S. Navy's TA-4J Skyhawk. While it had no built-in armament, the T-2 had two underwing hardpoints for .50-inch gun pods, 100 pound practice bombs or 2.75-inch rockets.

All T-2 Buckeyes were manufactured by North American at Air Force Plant 85, located just south of Port Columbus Airport in Columbus, Ohio. It wasn't designed to be the sleekest thing in the

sky. Instead the company made it simple, reliable and extremely tough so that it could handle students trying to figure out their way around an aircraft carrier in a jet. Around 529 in total, were constructed at Air Force Plant 85 near Columbus, Ohio. The name Buckeye refers to the state tree of Ohio, as well as the mascot (Brutus Buckeye) of The Ohio State University.

For the last 20 years of its career, the T-2 served alongside the T-34C Turbo Mentor and the TA-4J Skyhawk, and later the T-45 Goshawk, when it came to training naval aviators and naval flight officers that found themselves in the strike fighter training pipeline.

On Sept. 25, 2015 the Buckeye was flown for a final operational flight with the Navy. The air and test evaluation squadron VX-20, which has operated a trio of Buckeyes in recent years, flew the last sortie. The aircraft was replaced by C-38 Courier business jets.

MECH



Sailors prepare MV-22B Ospreys to take off from the USS NEW ORLEANS. (Photo by Sgt Tyler C. Gregory)



BY SGT CODY BROUSSARD, VMA-542

RIGHT FOOT WRONG PLACE



From left, Sgt Cody Broussard, LCpl Joshua Cole and Cpl Dustin Zakar, all members of VMA-542 learned a lesson about ineffective communication and complacency during an accident that left LCpl Cole with a severely injured foot.

On what seemed to be the start of a normal day as an AV-8B airframes mechanic on DFT to MCAS Yuma, Ariz., my crew and I arrived to work and performed accountability of all of our tools in preparation for the morning maintenance meeting, FOD walk, and the day's workload. Ordnance needed assistance moving one of our aircraft into a safe location to load rounds in the GAU-12 25mm gun. Those of us in the airframes division were more than willing to assist the ordnance division by moving the aircraft for them.

I dispatched two Marines to get the required equipment needed for the tow evolution while another Marine assembled the required crew and headed out to the aircraft. Once the aircraft and tractor were attached to the tow bar, I ensured all the down lock safety devices were installed correctly. I finished my walk around the aircraft just as the remainder of the tow crew arrived with the required equipment. One Marine climbed into the cockpit to check the brake pressure and act as brake rider for the tow movement while another Marine started pumping up the brakes with the half inch breaker bar.

One of the more senior airframes Marines, Cpl Dustin Zakar, initiated a safety walk around of the aircraft upon which I promptly assigned that Marine to be the tow director of this evolution.

Before the movement, I met with the ordnance Marines and my tow director at the front of the aircraft while we waited for the brakes to be pumped to the safe towing pressure. Once that task was completed, the Marines involved in the tow evolution accounted for their tools and moved into their proper position for the moving of the aircraft. My tow director gave the hand signal for the brakes and chocks to be removed, along with the loud verbal command for each. The Marines in position did as the director instructed. Cpl Zakar then gave me the signal to move the aircraft, at which point I started to back the aircraft up.

The Harrier had moved only a couple of inches before he shouted "Stop!". "Pull forward!" yelled Cpl Zakar. I did as instructed, becoming very concerned about what just went wrong. As I pulled the tractor and aircraft forward back to its original position, I heard a loud scream from behind me. I put the tractor in park and set the emergency brake. By the time I had exited the tractor I saw Cpl Zakar sprinting to maintenance control and another Marine, LCpl Cole from avionics (who was not involved in my tow crew), lying on the ground in obvious pain. I rushed over to see what had happened and was informed that LCpl Cole's right foot had been run over by the main landing gear tires.

Marines from quality assurance arrived to assess the situation and quickly called 911. Emergency responders arrived at the scene within minutes. The emergency crew swiftly took control, initiated first responder procedures for LCpl Cole, and transported him to Yuma Regional Medical Center for further medical treatment.

My Marines and I looked at the blood on the deck, gathered our equipment, and headed back to the hangar, thoroughly horrified with what just happened. How had this occurred with none of us seeing the Marine who had just been injured prior to movement of the aircraft?

There were three issues that allowed such an event to happen: the rushing of a maintenance event, the lack of communication and complacency.

LCpl Cole, on his very first DFT, had been sent out to load the IFF codes on the aircraft needed for the flight schedule that day. LCpl Cole was going from aircraft to aircraft and loading the codes with no issues.

Once he arrived to the aircraft that we had prepared for the tow evolution, he just ran under the aircraft while the tow crew was gathered at the front of the aircraft, climbed into the main landing gear area, and started loading codes. LCpl Cole later stated that he saw us around the aircraft preparing to tow it, but thought he could beat us before we were fully ready to move the aircraft.

This brings me to my first point rushing any maintenance action performed on an aircraft. The flight line is a dangerous area to work on and rushing to do any form of maintenance can increase these dangers greatly, ultimately causing possible danger to yourself or to the aircraft.

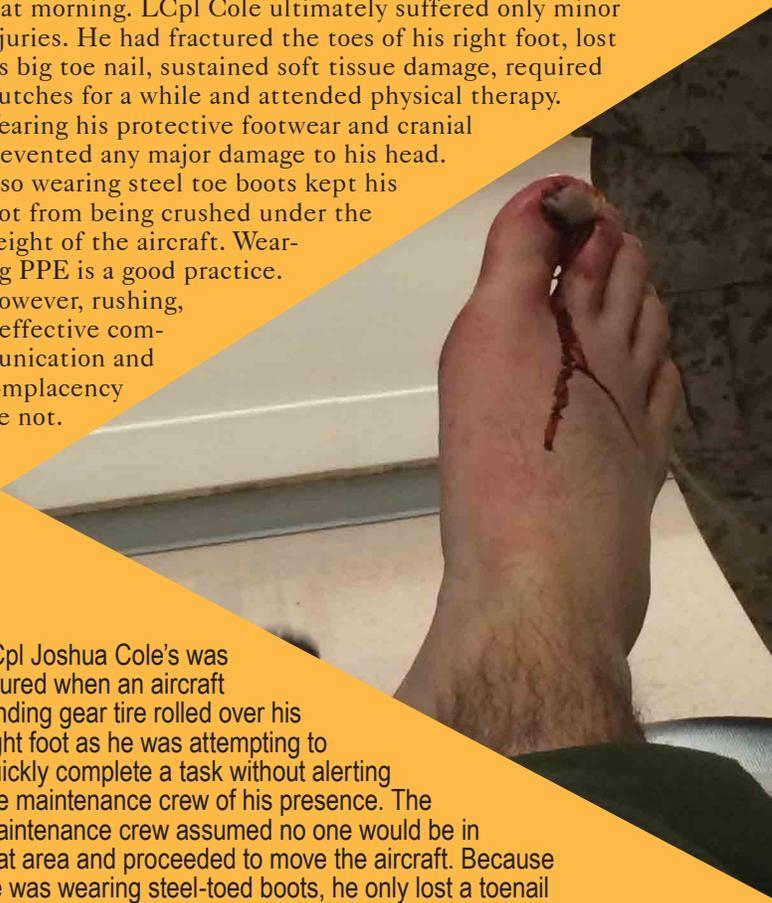
If LCpl Cole did not try to rush the task he was trying to accomplish and waited the brief amount of time it would have

taken for us to move the aircraft into a proper loading position, this mishap could have been avoided. The Marine also could have communicated with the crew performing the tow evolution about the task he was directed to perform, which brings me to my second issue.

Communication is something that is used every day by everyone, but not always when it should be. In this case, it contributed to LCpl Cole getting his foot run over. By simply informing any of the Marines on the tow crew that he needed to perform maintenance on the aircraft, we could have prevented the mishap. A simple standard to follow is if you're not the first one to the aircraft; communicate with whoever is already there to see if your maintenance action will be safe to perform while they are performing theirs.

The last issue is that complacency could have led to such a mishap. Once the tow crew was done preparing the aircraft to tow, the tow director is the one in charge and is supposed to make sure all movements are safe. Before the brakes and chocks were removed and the "go ahead" to move was given, the tow director should have ensured the movement was safe and no obstructions or personnel were in the way of the soon-to-be moving aircraft or tractor. The director had become complacent during the towing of aircraft simply because it had become such a daily, routine task for him.

We all used up a significant portion of our luck bucket that morning. LCpl Cole ultimately suffered only minor injuries. He had fractured the toes of his right foot, lost his big toe nail, sustained soft tissue damage, required crutches for a while and attended physical therapy. Wearing his protective footwear and cranial prevented any major damage to his head. Also wearing steel toe boots kept his foot from being crushed under the weight of the aircraft. Wearing PPE is a good practice. However, rushing, ineffective communication and complacency are not.

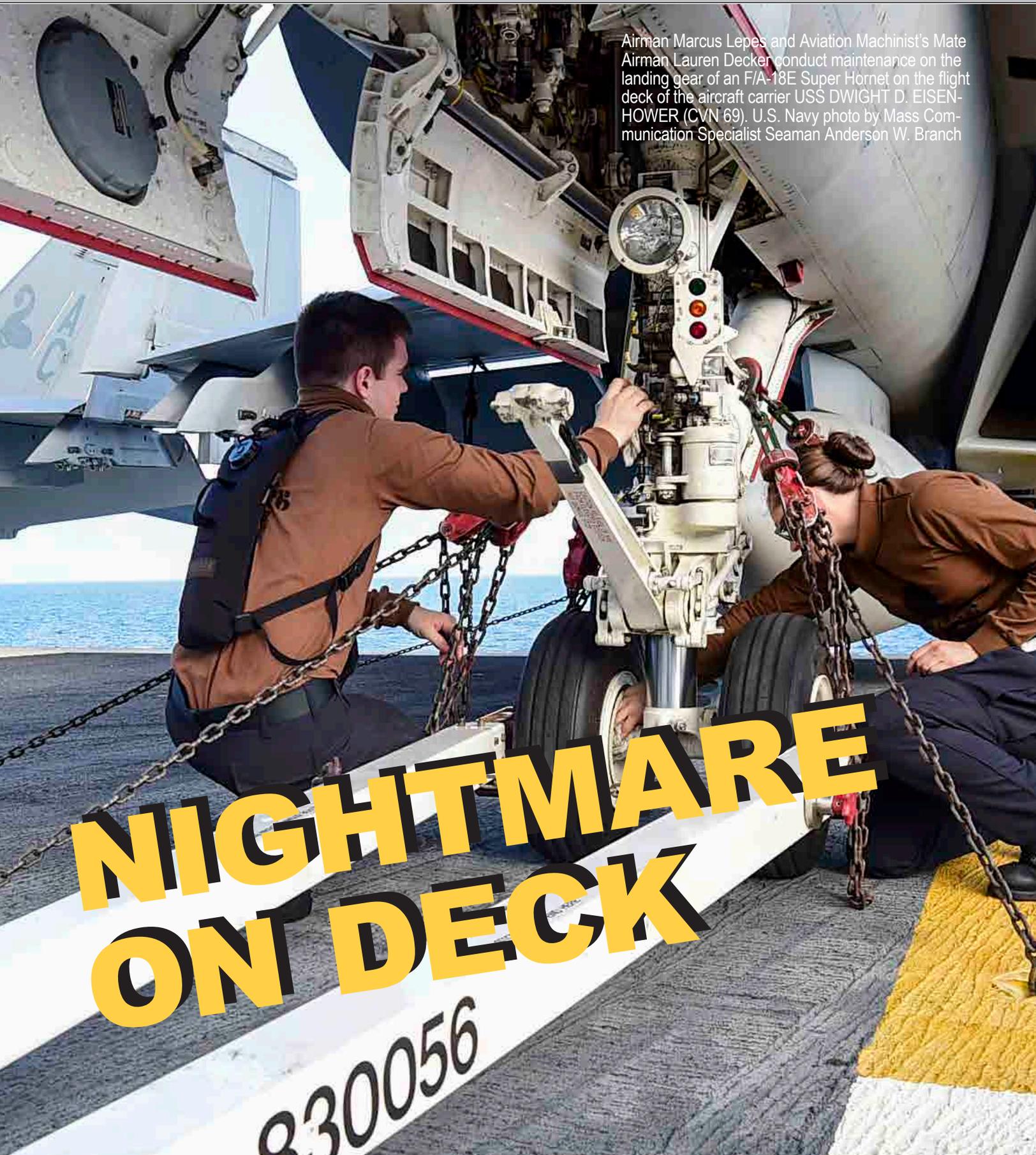


LCpl Joshua Cole's was injured when an aircraft landing gear tire rolled over his right foot as he was attempting to quickly complete a task without alerting the maintenance crew of his presence. The maintenance crew assumed no one would be in that area and proceeded to move the aircraft. Because he was wearing steel-toed boots, he only lost a toenail and sustained soft-tissue damage. He was in crutches for several weeks but made a full recovery.



BY AM1 JUSTIN ASPRER

Airman Marcus Lepes and Aviation Machinist's Mate Airman Lauren Decker conduct maintenance on the landing gear of an F/A-18E Super Hornet on the flight deck of the aircraft carrier USS DWIGHT D. EISENHOWER (CVN 69). U.S. Navy photo by Mass Communication Specialist Seaman Anderson W. Branch



NIGHTMARE ON DECK



One of many nightmares for an air framer onboard the aircraft carrier is to hear that a jet is returning for landing gear issues immediately following a catapult shot.

After Maintenance Control passed the word of the aircraft's early return to the troubleshooters on the flight deck, they waited anxiously to see the nature of the emergency.

We watched the landing on the ship's closed circuit network to make sure everyone was safe before we inspected the landing gear. The troubleshooters discovered the nose gear lower torque arm was bent at almost a 90 degree angle. My first thought was, "It's supposed to be straight, right?" Tons of questions then ran through my head. There seemed to be countless things that could have caused this incident, but regardless of what those were, the damaged part had to be replaced. While going through the procedures to swap out the mangled piece of what was once a lower torque arm, we confirmed visually that all surrounding parts were strangely still intact. Both gauges that are attached to the nose landing gear were reading exactly what the maintenance manual said they should.

All surrounding doors were untouched and the drag brace and its associated fairing looked stellar. There were no leaks, dents, rubs, tears, scratches, cuts or delamination that would even come close to raising a question. We racked our brains to figure out what actually caused this damage. Was it the cat stroke? Was it the arrested landing? Still no clue, until performing troubleshooting and repair using our portable electronic maintenance aid (PEMA), we discovered that hydraulic fluid was seeping from the strut that was so dark it resembled grape juice.

I knew that dark purple hydraulic fluid meant the hydraulic fluid was contaminated, and it raised the question as to what caused the contamination. We determined that the correct hydraulic fluid was used, and there was supposed to be a good amount of hydraulic fluid that is able to be recycled, but not in this case. There was definitely not enough hydraulic fluid coming out of the nose landing gear strut, and my 13 years of aircraft maintenance experience told me there was a problem. I immediately started to look for any foreign

debris coming out of the fluid, but found no metal flakes, gunk, or rubber contaminants at all. However, there was a ton of air. In order to clean the strut chamber, five to seven gallons of hydraulic fluid was required rather than the normal three to four gallons.

After the mangled part was changed and countless tests and man-hours exhausted through troubleshooting, we discovered that under servicing of the nose landing gear resulted in the lower torque arm being bent 90 degrees during the catapult stroke.

We were very fortunate this did not result in a flight mishap. The nose landing gear could have collapsed or buckled on the arrested carrier landing that could have resulted in major damage to the aircraft, placing the pilot's life in danger.

Servicing struts with the correct combination of hydraulic fluid and nitrogen can be tricky and sometimes confusing, not to mention dangerous.

We all need to remember to slow down and take that extra look at the high and low pressure valves where the hydraulic fluid enters and exits. In response to this incident, all Super Hornet squadrons incorporated an additional card in the maintenance requirements card 200 deck to check for warping of the lower torque arm to help identify improper servicing and impending failure of the lower torque arm.

Should you find yourself in a similar situation, make sure you service with the correct fluid combinations and pressure from IETMS. Doing by-the-book maintenance is the best way to minimize and help prevent landing gear issues.



The nose landing gear lower torque arm of an FA-18E Super Hornet mentioned in the article was bent at an angle. The aircraft landed safely but left maintenance crews with many questions about how it was damaged. Photo by AM1 Justin Asper

A photograph of a P-8A Poseidon patrol aircraft on a runway at night. The aircraft is illuminated by ground lights, and its shadow is cast on the tarmac. The word "NAVY" is visible on the fuselage. The background shows a dark sky and some airport buildings.

FELINE FOD

It was about 2200 in Okinawa, Japan. The Kadena Air Force Base airfield was only lightly lit and no moon was out. The nightshift maintenance crew left the hangar on foot to conduct routine work on one of our P-8A Poseidon patrol aircraft. While on the walk, one of maintainers noticed a shadow moving around one of the P-8s.

The group decided to investigate. As they moved in towards the shape they noticed that the shadow was a cat. The cat was skittish, bobbing in and out of the shadows around the aircraft landing gear. The crew closed in and the cat bolted for the next aircraft.

Fearing that the feral cat would enter one of the aircraft, one of the maintainers sprinted towards the cat trying to catch it. He grabbed it around the mid-section. Just as he was about to raise the cat in celebration of his victory, the cat whipped around and bit his right index finger. The cat

was quickly calmed down with gentle stroking and presented no more violence to the maintainer. The subdued cat was immediately turned over to airfield security.

The maintainer presented to the hangar medical department six hours after the injury. He reported the above history of the event. After being bitten he washed out the wound and noticed that the cat's tooth punctured all the way through his finger. The finger was notably swollen, red and had blood slowly oozing out of the two openings. The finger had normal sensation, movement, pulse, and strength. His pain was treated appropriately with Motrin.

Feral cats are not an unusual site around airfields. In a deployed setting it is also not unusual for military personnel to adopt these animals as mascots or the barracks' pet. There are many problems with these actions. First, every base and command restricts adopting wild animals as a mascot or pet – and if they don't, I am sure they will as soon as they are asked. This is not a case in which "it is better to ask for forgiveness rather than permission" because these are wild and nasty animals.

Many people have at least heard of the plasmodium in cat feces called *Toxoplasmosis gondii* that can cause serious problems in pregnancy but in fact there are many more harmful agents within these animals. A cat's mouth is a disgusting playground of bacteria that include *Streptococcal* species, *Staphylococcal* species, *Moraxella catarrhalis*, *Pasturella multocida*, and *Bartonella henslae*. Probably the only thing nastier than a cat's mouth is a human's. A couple of particularly nasty additional risks that cats have over humans are that they can carry the bacteria that cause tetanus and rabies. Rabies risks in general are



grouped into two categories, provoked or unprovoked attacks. In this case the maintainer went after the cat and the cat defended itself – it was a provoked attack and is low risk for rabies. Thankfully rabies is essentially non-existent in Okinawa. As a conclusion to this risk assessment no rabies shots were needed for this young man. Lastly is tetanus, a nearly 100 percent fatal infection if not caught early. Let us all thank military medicine for ensuring that we get regular check-ups to include scheduled tetanus vaccines. Despite all of the protections described, up to 80 percent of cat bites result in infection and therefore this sailor needed to take heavy hitting antibiotics to stave off infection.

During the Sailor's evaluation I asked the young man why he pursued the cat. His answer was that he didn't want the cat to get into the aircraft. "Cat FOD?" I asked. "Yes sir, cat FOD". This led me to wonder, do cats and other animals pose threats to parked aircraft? Was the risk of getting attacked by an animal, feline assault if you will, worth the benefit of having it not get near the aircraft?

A fairly extensive review of the Naval Safety Center's Web Enabled Safety System (WESS) yielded some interesting findings. Many service members have been bitten by animals. Among the reported bites, overwhelmingly they involve dogs and more often than not the animal is domesticated (not wild). A smaller proportion of the victims were bitten by cats, snakes, spiders and even a bird. The victim of the animal bite was always the one who pursued the animal and either tried to pick it up or move the animal in some way; this is why the bites are almost always on the hands or arms.

Another interesting finding that is applicable to this case is

that not a single bite case occurred on an airfield. Several cases existed regarding birds roosting in aircraft but I was unable to find a case where a cat, dog or other four legged animal was found in an aircraft. The only four-legged animals that caused a mishap on an airfield were deer or coyote that were hit upon landing or take off.

Considering all of this information about the prevalence of four-legged animals making a home in an aircraft or getting hit and weighing the consequences and likelihood of getting bitten by an animal, the risk seems to not outweigh the benefits. Now one must ask: What do you do if you come across a feral or domestic animal on the airfield? The course of action is simple: The first thing is not to touch it. Next notify your duty office and airfield operations. Most airfields have an animal control program that handles these events. If needed you can also contact base or airfield security and let them handle it.

Safely identifying the type of animal, its location and characteristics of its behavior will be useful information for animal control. If at some point it becomes absolutely necessary to remove the animal before the proper authorities arrive then don the correct personal protective equipment. Items that you may consider wearing include full leather gloves, long sleeved jackets, facemask, helmet, ballistic grade eye glasses, double hearing protection, long thick pants and steel toed boots. However, the list can go on and on.

I think it would just make more sense to get the proper authorities to handle any animal on or near aircraft. The intent of all of these actions is to safely remove the animal and return to normal flight operations.



The P-8A Poseidon is the Navy's newest aircraft designed by Boeing for the patrol and reconnaissance force. Boeing has also composed an electronic publication manual, referred to as a PEMA, which is said to be "easy enough to follow, the newest person would be able to navigate through with ease and be able to troubleshoot any gripe with success."

What a relief this was for me as I had just come from intermediate level command never having been in a squadron or even come within 10 feet of a naval aircraft.

I realized shortly after joining my current squadron that the anthem of "by the book maintenance" is the only way to do business. This means following our electronic publication without deviation or borrowing from the unconventional methods used on other aircraft. The P-8A is to be treated and maintained like a high performance machine, carefully handled, with only the use of Boeing authorized equipment, and following our believed to be "fail proof" PEMA.

One of our birds had a fault code. Another second class and I dropped the P-5 panel and proceeded to troubleshoot it. The P-5 panel is just above the heads of the pilot and copilot which "drops" or swings down by releasing two screws and unhinging the bottom section via a latch. Having dropped this panel only once before, I couldn't remember where the latch was so I began to look over the fault isolation manual (FIM) task, a chapter that gives step by step guidance on how to troubleshoot when given a fault code.

There was neither an indication of where the latch was nor any illustrations showing its location. Both my counterpart and I thoroughly looked over the FIM task for any indication of where this elusive latch would be but there was nothing. We examined the P-5 panel for anything labeled as such and still nothing. So I had an idea.

IN A STATE OF SHOCK

After loosening the correct screws, the P-5 panel dropped approximately two inches and I wondered if the latch would be on the underside of the panel, like the hood of one's car. Maybe that's where it was and then it would release in the same way. So I proceeded to gently feel for said latch on the underside of the panel with no luck. So, with no further guidance and only the two of us to figure this out, I tried again hoping to find it this time.

Suddenly I felt something. Imagine for a moment what smacking your funny bone feels like and combine that with the pain you feel when stepping on your foot when it has fallen asleep. That's what I felt run through my fingers down to my elbow. Surprised, stunned, and shocked (pun intended) I let out a shriek as my colleague in the copilot's seat reeled back against the flight station window.

"What happened?" she asked through rapid breathing and concern.

"I think I just got shocked." I said as I rubbed my hand and forearm.

"Are you alright?" she said.

"Yeah, I think so" and then I proceeded on a rant which lightened the mood and was further confirmation to my co-worker that I was OK.

She stayed with me as I was assessed by medical. I received an EKG and was declared fit for full duty. I was irritated because I didn't want this type of interruption but now officially an aviation electrician, everyone was relieved that I was alright, received a good laugh, and was quick to share stories of their own about how they've been zapped before.

An investigation and safety report followed the incident. Our quality assurance (QA) team discovered that there was in fact, nothing in the FIM task indicating where the latch

was. However, QA discovered its location was listed in a completely different section and chapter of the PEMA.

"How would I have known to look there? I thought these were written to enable the newest person to troubleshoot anything with success? Shouldn't the steps be written so there is no guessing where something is or misinterpreting what is being said?"

"All very good points," QA said.

After more investigating, Boeing confirmed that the PEMAs are written at a level for A and P licensed mechanics. This means that the rundown we are given in "C" school on how to navigate the PEMAs although helpful, isn't enough to cover the extensive knowledge that these mechanics have.

Inevitably, there are going to be many more lessons as we get through the learning curve of a new platform. My situation illustrates the importance of submitting technical publication deficiency reports to inform the rest of the P-8A community of the lessons learned so that we may prevent greater mishaps in the future. At least we now know that certain tasks may require navigating through multiple chapters of the PEMA. This is particularly noteworthy because many publications for different platforms don't require such navigation aside from referring to schematics.

Could this have been prevented? Yes. It could have been prevented if I would have just stopped until I knew with 100 percent certainty where the latch was. Maybe I would have found it in another chapter if I would have thought to look elsewhere (that obviously didn't make any sense to me at the time). I could have used a mirror to look for the latch where I thought it was instead of just feeling around for one that may or may not be there because one does not simply touch the back of the P-5 panel without getting shocked!



↑ Lance Cpl Robert Tipton directs an TAV-8B Harrier pilot prior to take off at Marine Corps Air Station Cherry Point, N.C. (Photo by Cpl N.W. Huertas)

← Aviation Structural Mechanic Airman Apprentice Man Xu, assigned to the “Golden Eagles” of Patrol Squadron (VP) 9, washes a P-3C Orion maritime patrol aircraft as part of a corrosion preventative maintenance plan at Naval Air Station Sigonella, Sicily (Photo by Mass Communication Specialist 3rd Class Amber Porter)

Maintainers in the Trenches



↑ Marines assigned to Marine Medium Tilt Rotor Squadron (VMM) 264 inspect a rotor air intake of an MV-22 Osprey parked on the flight deck aboard the amphibious assault ship USS WASP (LHD 1). (Photo by Mass Communication Specialist 2nd Class Nathan Wilkes)

↓ Cpl Nicholas Stone performs maintenance on a AV-8B Harrier inside the Marine Attack Training Squadron 203 hangar at Marine Corps Air Station Cherry Point, N.C. (Photo by Cpl Neysa Huertas Quinones)



↑ Sailors conduct maintenance on a jet engine in the hangar bay of the aircraft carrier USS DWIGHT D. EISENHOWER (CVN 69). (Photo by Mass Communication Specialist Seaman Casey S. Trietsch)





↑ Aviation Structural Mechanic 2nd Class D. Lopez, performs maintenance on an E-2C Hawkeye in the hangar bay of the aircraft carrier USS HARRY S. TRUMAN (CVN 75). (Photo by Mass Communication Specialist 3rd Class Justin R. Pacheco)



← Aviation Ordnanceman Airman Jeremy Hagdorn cleans a EA-18G Growler on the flight deck of aircraft carrier USS HARRY S. TRUMAN (CVN 75). (Photo by Mass Communication Specialist 3rd Class Justin R. Pacheco)

↓ Aviation Boatswain's Mate (Handling) 3rd Class Matthew Fitzgerald directs Aviation Boatswain's Mate (Handling) Airman Willie-Earl Reed while towing an F/A-18E Super Hornet aboard the USS JOHN C. STENNIS (CVN 74) flight deck. (Photo by Mass Communication Specialist 3rd Class Kenneth Rodriguez Santiago)



MECH Bravo Zulu

**Sailors and Marines
Preventing Mishaps**

AD2 KINKTON

AD2 Kinkton was inspecting his work spaces when he found MAF bag containing a damaged bolt from a P8-A Poseidon engine. The bolt had sheered during engine maintenance and replaced with new parts. After the maintenance, the aircraft was brought to an “up status.” AD2 noticed that a washer remained on the damaged bolt and had a gut feeling to verify the installation of the new bolt. During examination of the engine spinner, he discovered the new bolt was installed without the required washer. He immediately notified his chain of command and maintenance control. AD2 Kinkton recognized the importance of turbine balancing and how the slightest uneven distribution of weight could lead to a possible imbalance, producing engine vibrations of unknown intensity.



AM3 ETHAN P. HENNEK, VAW-115

Petty Officer Hennek prevented a potential mishap during the conclusion of flight operations. He was walking from catapult No. 2 toward the hummer hole when he noticed that aircraft 601's starboard wing jury strut locking mechanism was disengaged from the wing lock probe and drooping toward an F/A-18. The F/A-18 had a missile installed on the port wing tip which increased the potential hazard. He alerted line division personnel and maintenance control who then assisted him in stowing the wing back in the locked position. His actions prevented a potential mishap to both aircraft, surrounding equipment and aircraft, and possible injury to flight deck personnel.



AT2 OMAR LINDSAY,

During the man-up of “Sun King 602” in preparation for carrier qualifications AT2 Omar Lindsay identified a loose segment on the high frequency fixed-wire antenna. Recognizing the potential danger that a broken fixed-wire antenna posed during carrier operations, he immediately notified maintenance control who directed the subsequent removal of the antenna. His meticulous attention to detail and quick, decisive action prevented the inadvertent loss of the antenna and the potential for injury to flight deck personnel.



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“Making small changes early is vital to your health. Consider your flight surgeon and other resources for making those small changes on your health if needed. Don’t wait until things have gotten worse before making corrections or your pilot induced oscillations can cause your own health to get out of control..”

— LCDR Gabriel Gizaw, VXS-1