THE NAVY AND MARINE CORPS AVIATION SAFETY MAGAZINE

Approach

VOL. 68, NO. 2
Summer 2026

SECONDS FROM DISASTER

ROUTINE TURNS INTO RISK

101 CRITICAL DAYS OF SUMMER

OFF-DUTY ACCIDENT PREVENTION

+ MORE

Aviation Safety Team

Approach magazine

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Virginia Beach, VA
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Stay Connected

Commander, Naval Safety Command

Fellow Aviators,

The pace of naval aviation operations remains high. Across the fleet, our OPTEMPO continues to rise, and with it, the demands placed on every aviator, maintainer and leader. Your efforts—day in and day out—remain relevant and absolutely critical to preserving combat readiness. In the past few weeks, we have experienced several flight mishaps, stark reminders that our margin for error is thin and our commitment to risk management must never waver. Your diligence, professionalism and attention to detail are what keep our Sailors and Marines in the fight.

This edition of Approach reinforces that message through the voices and experiences of our community. From the Physiological Episodes Action Team's analysis of neurologic and mental-health trends in TACAIR aviators, to the firsthand account of a routine HSC-9 logistics flight that rapidly evolved into a ground resonance emergency, these stories highlight the realities of our operating environment — and the lifesaving value of sound judgment, procedural compliance and crew resource management.

Let us also take time to recognize excellence. Congratulations to this year's Grampaw Pettibone Award recipients. Their willingness to share lessons learned, identify hazards and elevate safety awareness across the force exemplifies what right looks like. Their contributions strengthen naval aviation and help ensure that others do not repeat the same mistakes.

As you read through this issue, I encourage you to reflect on the common thread woven through every article: risk is inherent in what we do, but preventable mishaps are not inevitable. Whether you are launching from the flight deck, briefing a cross-country mission or conducting a functional check flight, your decisions matter. Your voice matters. Your vigilance and situational awareness matter.

Thank you for everything you do to keep our Navy and Marine Corps team safe, ready, and lethal. Stay focused, stay disciplined and stay committed to the fundamentals that protect our people and preserve our combat power.

Take off checks complete,

Rear Admiral Dan "Dino" Martin, USN
CO, NAVAL SAFETY COMMAND

GRAMPAW PETTIBONE *Awards*

Steeped in Naval tradition, the annual Grampaw Pettibone Awards recognize the organization and individual who contributed the most to overall aviation safety awareness through development and submission of publications and media resources. By retelling the stories of mishaps our Sailors and Marines encountered during their missions, we highlight the key details of each incident to help prevent similar events from happening to others in the future.

Individual Award: Lt. Cmdr. Ryan "Grinder" Govoni, Helicopter Maritime Strike Squadron (HSM) 70
Govoni has made a significant impact on naval aviation safety through his personal experience and strong leadership. During his previous tour as a Station Search and Rescue (SAR) pilot in Fallon, Nevada, Govoni survived a Class A mishap. Instead of putting the incident behind him, he closely analyzed what went wrong and shared those critical lessons with the fleet. In his candid article, "Should We Keep Going?" Govoni pointed out latent errors, a lack of supervisory oversight and the intense pressure that SAR teams face. By being completely open and reflective, he turned a critical mishap into a powerful learning experience that helps the entire aviation community stay safe.

Individual Award Runner Up: Chief Aircrew Survival Equipmentman Shane Grove, Fleet Logistics Multi-Mission Squadron (VRM) 50
Grove is recognized for highlighting a life-threatening problem found by one of his shipmates. In his article, "BZ PR1: A Life Saver," Grove explained how they discovered, reported, and resolved a major safety flaw in the LPU-37A/P life preserver. This dangerous issue affected thousands of life vests across 17 different types of aircraft. His article reminds everyone how vital it is to follow safety protocols, report hazards immediately, and remain vigilant when lives are on the line.

Organization Award (written): Helicopter Maritime Strike Squadron (HSM) 70
The "Spartans" of HSM-70 key contributions include published lessons learned, where pilots detailed experiences with mishaps and emergencies to foster a culture of ownership and improved decision-making. Additionally, during their 2025 deployment, HSM-70 implemented several proactive safety initiatives, such as weekly hot wash debriefs, a Safety Pro recognition program to reward proactive hazard identification, and milestone patches for challenging landings. These efforts have enhanced safety awareness, improved risk management, and cultivated a culture of continuous learning within the squadron and the naval aviation community.

Grampaw Pettibone Award ALSAFE message

Admiral James A. Flatley Memorial Award ALSAFE message

NAVSAFECOM safety awards and criteria

Presented annually by the U.S. Navy in recognition of outstanding achievements in mishap prevention during flight operations. Awarded to one nuclear-powered aircraft carrier (CVN) and its associated carrier air wing (CVW) and one amphibious assault ship (LHA/LHD) and its associated Marine Expeditionary Unit (MEU).

ADMIRAL JAMES H. FLATLEY
MEMORIAL AWARD FOR NAVAL AVIATION SAFETY
USS GERALD R FORD (CVN 78) & CVW-8
USS IWO JIMA (LHD 7) & 22ND MEU

These teams were selected based on high-velocity outcomes and an exceptional safety program and record. The ships and embarked air wings set the highest standard of safety through operational readiness.

CRAWLING THROUGH THE CLOUDS

By Lt. Dave "COOP(R)" Sauer

HELICOPTER MARITIME STRIKE SQUADRON (HSM) 71
RAPTORS

After firing two Hellfire missiles, known as "rifles off" in the community, a helicopter team's experience getting home again pushed things to the limit.

If you're looking for a story about teamwork, close calls in degraded weather, the pressures of deploy-sustain-deploy operations and operations at Naval Landing Field San Clemente Island, California, all under the banner of the Helicopter Maritime Strike Squadron (HSM-71) Raptors, then this is it.

The mission was straightforward on paper: employ two AGM-114 Hellfires at towed targets during the Helicopter Advanced Readiness Program (HARP) flight phase. HSM-71 was only days from completing this phase and heading back home from the island. At 6 a.m., we briefed, already eyeing the forecast with suspicion. The sky promised trouble, but hope lingered that the clouds would break as they had before. Hours passed. Crews stayed sharp, holding launch until noon when at last, a thin window of clearing appeared.

Flight lead was our HARP squadron Executive Officer (XO), Cmdr. Jess Phenning — steady, sharp, unshaken. Across the line, I was the helicopter aircraft commander (HAC) for Switchblade 12, shouldering the other half of the section. Together, we carried the burden of multiple pressures: our first time operating from San Clemente's combat aircraft loading area (CALA) VC-3, Tactical Air Control Squadron (TACRON) 12 supporting landing zone operations and the base commander himself watching. Add to that the administrative weight of an operational cycle jam-packed with inspections, evaluations and deadlines. This shoot wasn't just a sortie; it was a line in the sand.

The section launched wings clean, staging at VC-3 just outside the airspace. Updates trickled in through what we jokingly called "Gunner-REPs," pictures from our gunner, snapping shots of the sky clearing above the 700-foot-elevation pad. The landing zone was tight, with brush and cacti covering the edges and it was clear the ground hadn't felt the downwash of an MH-60R in a long time. TACRON-12 marked out landing spots with orange sandbags and the ordnance team flowed like clockwork, loading each aircraft with two Hellfires apiece. With hot-seat turns planned, we wouldn't need a full shutdown for the next crew now. With this being our first time off VC-3, every crew scanned for references and obstacles and made critical mental notes for the return.

Two rifles off, clean shots. Return to base. Eight hours from our first brief, fatigue was masked by adrenaline as crews buzzed about shot placement and bragging rights. We rejoined with me as section lead, pushing in from the windward side. That's when the weather revealed its hand. Ceilings sagged low against the ridgeline, clouds pressing into the island like a slow tide. Anyone who's flown SoCal knows how this marine layer could stick around, if not get worse, on the windward side of San Clemente.

Course of action one: cleared direct to VC-3 over the ridge. Legal, but the clouds hunted us, swallowing familiar features until only windmills and half-hidden buildings peeked through the gray. When the fog reached for us, lead called for a "SPLIT!" two aircraft pulling apart just short of inadvertent instrument meteorological conditions. The section regrouped, shaken but intact.

Course of action two: swing wide through KNUC's airspace, approach from the leeward side. The Automatic Terminal Information Service was down, so the tower gave us a casual Special Visual Flight Rules clearance with reported ceilings OVC007, the same altitude as VC-3. Shame if you must, but it was either push in or divert to North Island due to the unexpended ordnance for the next crew.

We orbited, talking through options. The call was made: single-ship approaches. XO would go first. With her at the controls, the crew crept in, reference by reference, Tactical Navigation needle assisting in each turn. Each scan weighed fog against power lines, escape routes against fuel. Just as a wave off seemed inevitable, the copilot broke in: "CALA in sight, two o'clock!" XO wasted no breath, snapped into a tight overhead approach and dropped in.

Now it was our turn. Orbiting alone, the XO making comms in the blind that didn't make it to us, we had to decide. With fog thickening and time running out, we leaned into every tool: sectional charts, a road for reference, map mode, Forward Looking Infrared Radar. Hearing one, "Safe on deck VC-3," accelerated one last push. We pushed inbound, using each reference point from before, and now at least spotting our flight lead on deck confirming the right area. Clouds clawed at the ridge, but with a hard turn and sharp eyes, we forced our way onto the deck. Just in time.

As the rotors wound down and the section sat safe on the pad, hearts finally slowed with them. The weather had beaten the day, canceling the rest of the shots, but we'd clawed back the win of survival and safe recovery. Relief settled in, but so did the questions: Did we make the right calls? Did we miss something? Could the risk have been avoided? The thrill of the flight gave way to a quiet guilt that lingered longer than adrenaline.

The lessons? Lead by example in risk management (RM), be honest about what you bring into the cockpit that day. In an unforgiving cycle where inspections and evaluations hit like buckshot, fatigue and pressure stack up fast. To codify lessons learned, the XO will push new weather minimums for San Clemente's CALA at the standardization board.

Remember RM and NATOPS are frameworks, not finish lines. A simple HAC mantra still rings true: Can you do it? Should you do it? Will you do it? This flight was proof sometimes the greatest lessons don't come from a perfect shot or flawless brief, but from crawling through the clouds, making the hard calls and bringing those lessons back to the ready room.

An MH-60R Sea Hawk helicopter attached to the Raptors of Helicopter Maritime Strike Squadron (HSM) 71 fires an AGM-114 Hellfire missile during a training exercise over the Pacific Ocean, Oct. 14, 2015. (U.S. Navy photo by Mass Communication Specialist 1st Class Emiline L. M. Senn)

PE CORNER

By Navy Capt. G. Merrill Rice, D.O., MPH & Navy Capt. Jonathan D. Erpenbach, M.D.

PHYSIOLOGICAL EPISODES ACTION TEAM *(PEAT)*

A LOOK AT THE SCIENCE: DO OUR TACAIR AVIATORS HAVE HIGHER RATES OF NEUROLOGIC & MENTAL HEALTH ILLNESS?

Recent negative media attention has heightened concerns the tactical air community's accelerative environments may be associated with an elevated risk of certain cognitive and mental health disorders. A recent scientific study, performed by Naval Safety Command and the Defense Health Agency, looked for a link between flying high-performance aircraft and an increase in brain or mental health problems.

THE BIG QUESTION

Researchers wanted to know if naval aviators flying tactical aircraft (like the F/A-18) are more likely to have neurologic (brain-related) or mental health disorders compared to aviators flying helicopters or other large aircraft. The concern is extreme acceleration and g-forces unique to tactical aircraft may pose a risk.

UNDERSTANDING THE FORCES: A CRITICAL DIFFERENCE

To understand the study's results, it helps to look at the different types of g-forces. Tactical pilots experience sustained g-forces, which last for several seconds and pull blood away from the brain. In contrast, athletes in contact sports experience brief, sudden peak g-forces, which can cause the brain to collide with the inside of the skull.

Lt. Cmdr. Joseph Anderson waits for launch in an F-35C Lightning II, assigned to the "Warhawks" of Strike Fighter Squadron (VFA) 97, on the flight deck of USS Carl Vinson (CVN 70), in the South China Sea, Jan. 10, 2025. (U.S. Navy photo by Mass Communication Specialist 3rd Class Nate Jordan)

The study presented a chart to compare these forces across different activities (Figure 1). As you can see, the peak forces from head impacts in sports are dramatically higher than even the most extreme sustained forces in aviation.

HOW THEY CONDUCTED THE STUDY

The research team performed a large-scale study by looking at the anonymized electronic health records of 8,598 active-duty U.S. naval aviators over a 24-year period (2000-2024). This is known as a "retrospective study," meaning they were looking back at data that was already collected.

They divided the aviators into three groups to compare:

1. Tactical Aviators: F/A-18, F-35
2. Helicopter Aviators: H-60, H-1
3. Reconnaissance/Logistics Aviators: E-2, C-2

THE SURPRISING RESULTS

Contrary to associations reported recently in the media, the study found tactical aviators did not have a higher rate of diagnosed brain or mental health conditions.

In fact, the study revealed helicopter and reconnaissance/logistics aviators had slightly higher odds of being diagnosed with certain conditions like adjustment disorders, PTSD and behavioral health disorders in general when compared to tactical aviators. There was no significant difference between the groups for other conditions like migraines or mild traumatic brain injuries.

Naval aviators in general had significantly lower rates of cognitive and mental health illness compared to their non-aviation naval counterparts.

WHAT DOES THIS ALL MEAN?

This study is the largest of its kind and suggests the unique g-forces experienced by tactical aviators are not linked to a higher rate of diagnosed neurologic or mental health issues compared to their peers. The findings suggest other factors, such as closer proximity to direct combat environments for helicopter crews, might play a more significant role in mental health outcomes.

It is also important to remember a key limitation mentioned by the authors: aviators may be hesitant to report health problems for fear of being disqualified from flying. The true number of aviators with these conditions is likely much higher across all groups.

The study concludes future research should follow aviators throughout their careers and into retirement to truly understand long-term risks, using new technologies like advanced brain imaging and biomarkers.

Activity / Event	Sustained g-force (approx.)	Peak g-force (approx.)
Roller Coaster	1.0 g	5.0 g
Navy Carrier Launch	N/A	4.0 g
Astronaut Launch & Re-entry	4.0 g	7.4 g
Centrifuge (Fighter Pilot Training)	7.0 g	8.0 g
Ejection Seat	N/A	16.0 g
Soccer/Rugby (Head Impact)	N/A	20.0 g
American Football (Head Impact)	25.0 g	100.0+ g

Figure 1. Peak g-force and sustained g-force comparison across different activities.

SLAM STICK BZ

Top performing Navy and Marine Corps squadrons for Slam Stick matching from recent months. The ongoing use of Slam Sticks is key for enabling a healthy aircraft and aviator. **Bravo Zulu to the winners.**

May: 1) VAQ-131: 100%
1) VAQ-144: 100%
1) VAQ-134: 100%
1) LEMOORE: 100%
1) OCEANA: 100%

Apr: 1) VAQ-132: 100%
1) VAQ-131: 100%
2) VFA-32: 96.67%

Mar: 1) VAQ-132: 98.58%
2) VAQ-131: 98.53%
3) VFA-32: 96.45%

Feb: 1) VAQ-131: 100%
1) VAQ-132: 100%
1) LEMOORE: 100%

Jan: 1) VAQ-131: 100%
1) TPS: 100%
2) VAQ-132: 98.81%

Dec: 1) OCEANA: 100%
2) VAQ-132: 98.68%
3) VAQ-142: 97.50%

For More Information:

The full, unabridged scientific article, "Prevalence of Neurologic & Mental Health Illness in U.S. Naval Aviators: A Retrospective Cohort Study," can be found in the Aerospace Medicine and Human Performance Journal (Vol. 97, No. 4, April 2026) or on the Naval Safety Command website.

THE ROUTINE FLIGHT THAT WASN'T

By Naval Aircrewman Helicopter 3rd Class Haevinn Kahala

HELICOPTER SEA COMBAT SQUADRON (HSC) 9
TRIDENTS

Our crew was scheduled for a daytime plane guard and logistics flight on August 21, 2025. The mission included a passenger transfer: flying the commanding officer of HSM-70 to the USS Winston Churchill (DDG 81). This "routine" mission — one of my first operational flights since qualifying as a crew chief — would soon become a serious lesson in real-time risk management.

Our crew conducted a thorough NATOPS brief, fully discussing the mission with a specific emphasis on, "What's different today?" We took extra time to review the landing procedures for the DDG, ensuring everyone was on the same page. The takeoff and en-route portions of the flight were uneventful. I manned the port-side gunner's position, tasked with scanning the flight deck as we made our approach as well as backing up the other crewman at the starboard station. Inside the cabin, the HSM-70 CO was seated in the troop seat directly in front of the port cabin door.

As we neared our designated landing time, we requested a green deck. After confirming the winds, pitch and roll were within limits, we commenced our approach. It seemed like any other shipboard landing — uneventful and smooth.

We touched down, and within seconds, the situation deteriorated.

Before authorization could be given, line handlers rushed under the rotor arc to chock and chain. Almost immediately, I felt an abnormal vibration. At first, it was subtle, but it quickly escalated into a violent, side-to-side oscillation that grew uncontrollably. The aircraft shuddered aggressively, making sounds I had never heard before. The main rotor blades appeared to behave erratically as the entire airframe rocked from side to side. From the cockpit to the cabin, we all recognized it for what it was: ground resonance. We had to act fast. I knew from training that ground resonance could lead to dynamic rollover.

The pilots shouted over the intercom, "Clear the rotor arc! We have to get airborne!" The other crewman immediately began clearing the starboard side as I moved to do the same on port. Looking out, I saw a line handler still inside the rotor arc, seemingly oblivious as he attached the chains.

I waved and yelled, but he gave no response. I reached through the gunner's window and tapped him on the back of the head, urgently gesturing for him to get out, but he didn't move.

"Port side is chocked and chained!" I reported to the pilots. "Line handler is still in the arc!"

My first instinct was to pull him into the aircraft, but I realized at that exact moment it was impossible. The CO was seated directly in front of the port cabin door, blocking any path to move the Sailor through the space quick enough.

The vibrations intensified until the cabin dome light cover broke free and fell to the floor.

A dynamic rollover felt imminent. With the aircraft still chained to the deck and the resonance intensifying, lifting off was no longer an option. There was no time to reposition the line handler and no room for hesitation. As a crew, we came to the only possible conclusion: we had to shut the aircraft down on deck, immediately.

The pilots pulled the power control levers to idle and initiated the emergency shutdown. As the rotor brake engaged, smoking under the strain, we watched a droop-stop spring launch from the rotor head. It was a stark visual confirmation of how far the resonance had progressed — and how little time we had left.

Thankfully, the rest of the shutdown proceeded smoothly and no one was injured. After a thorough inspection, maintenance found no significant damage to the aircraft.

This experience taught me more than any lecture ever could. I knew my emergency procedures and had even trained on the recent NATOPS addition for ground resonance, but on that day, I felt it. I learned the true importance of Crew Resource Management (CRM) in a way no simulator or lecture could replicate.

From the moment the vibrations started, our training kicked in. The other crewman responded instantly to clear his side. The pilots, feeling the violent oscillations, correctly identified the ground resonance and made the initial call to get airborne — the first step in the emergency procedures. However, the next step in the CRM chain saved us. My report from the cabin, "Port side is chocked and chained! Line handler is still in the arc!" provided the critical piece of information they were missing.

That single, clear communication completely changed the equation. It prevented any attempt to lift off with one side of the helicopter still tied to the deck, an action that undoubtedly would have led to dynamic rollover and potential fatalities. Armed with full situational awareness, we collectively pivoted from a "lift-off" solution to the only safe option remaining: an immediate shutdown on deck. No one panicked. We trusted our procedures, and more importantly, we trusted the information coming from every member of the crew.

This wasn't supposed to be a dramatic mission; it was a simple passenger transfer. It served as a visceral reminder that there is no such thing as a "routine" flight. We didn't get lucky that day. We used CRM to its fullest extent. We communicated clearly, adapted to new information in real-time and acted decisively as a unified crew. That is why we all walked away without a scratch. ✈

An MH-60S Sea Hawk, attached to Helicopter Sea Combat Squadron 9, flies by USS Gerald R. Ford (CVN 78) in the North Sea, Sept. 24, 2025. (U.S. Navy photo by Mass Communication Specialist 3rd Class Gladjimi Balisage)

HEARING PROTECTION, OR LOSS?

By Lt. Bram Valure

PATROL SQUADRON (VP) 45
PELICANS

Time spent in military aviation, whether for a singular contract or for an entire career, exposes aviators to loud noises and the ever-present potential for hearing damage or even irreversible hearing loss.

Tinnitus is at the top spot for disability claims with hearing loss ranking number three, according to an update from May 2025 to the Top 20 Veterans Affairs Disability Claims. Veterans Benefits Administration Compensation Report for fiscal year 2020 noted over 2.3 million veterans were compensated for tinnitus, and over 1.3 million veterans were compensated for hearing loss (VA Research, 2023).

The importance of hearing protection cannot be overstated, especially in a job environment where dangerous noise levels are so commonplace. The relatively low cost of hearing protection measures — compared to the present and future health benefits they yield — should make it a top priority for everyone, no matter their rank or job title.

It is important to establish a baseline before diving into specific hearing loss statistics and protection measures. A pilot safety brochure by the Federal Aviation Administration (FAA) titled "Hearing and Noise in Aviation" (FAA, 2025) highlights three distinct variables of sound: frequency, intensity and duration. Unprotected exposure to loud noise (higher than 90 decibels (dB), the unit of measuring sound intensity) can expedite hearing impairment and cause permanent hearing damage. Additionally, with respect to sound intensity, the normal hearing sensitivity of the human ear is between 10 to 25 dB. A person unable to detect sound at or below 25 dB within the aforementioned frequencies is already experiencing a negative impact to their hearing. Figure 1 outlines the dB level of commonly occurring sources of sound.

The duration of sound can contribute to hearing loss as well, depending on the decibel level. Sound is divided into two categories of exposure — steady and impulse/blast — with damage dependent on intensity and duration. An impulse/blast of less than a second, exceeding 140 dB, can cause just as much damage as steady exposure to 90 dB or more over an eight-hour period. Ninety dB is generally seen as the threshold when hearing impairment can start to occur. Referring to Figure 1, noise level on the flight deck puts the pilot in an environment of potential hearing impairment.

SOURCES	LEVEL (dB)
Whispered Voice	20-30
Urban Home, Average Office	40-60
Average Male Conversation	60-65
Noisy Office, Low Traffic Street	60-80
Jet Transports (Cabin)	60-88
Small Single Plane (Cockpit)	70-90
Public Address (PA) Systems	90-100
Busy City Street	80-100
Single Rotor Helicopter (Cockpit)	80-102
Power Lawn Mower, Chain Saw	100-110
Snowmobile, Thunder	110-120
Rock Concert	115-120
Jet Engine (Proximity)	130-160

Figure 1. Decibel (dB) level comparison across different sources.

Figure 2 notes the rapid decline in acceptable noise exposure time as noise intensity increases. Over short periods, this impairment may be temporary, but repeated or prolonged exposure to noise levels like this (or higher) can lead to ear pain, eardrum rupture and permanent hearing damage.

NOISE INTENSITY (dB)	EXPOSURE LIMIT (hrs:min:sec)
85	16:00:00
90	8:00:00
95	4:00:00
100	2:00:00
105	1:00:00
110	0:30:00
115	0:15:00
120	0:07:30
125	0:03:45
130	0:01:53
135	0:00:56
140	0:00:28
145	0:00:14
150	0:00:07
155	0:00:03
160	0:00:01

Figure 2. Exposure limit based on dB.

Despite the anxiety these statistics may bring, there are several practical and cost effective methods to combat hearing impairment and loss. Generally, if it is not necessary to be around loud noise, simply exiting the area protects your hearing. Similarly, knowing the dB output levels of equipment, vehicles or environmental factors will determine how long it is safe to be in that area.

Finding the right individual hearing protection is paramount. Earplugs or earmuffs reduce high levels of noise while allowing speech to remain unimpeded. Double hearing protection offers additional shielding over the single use of earplugs or earmuffs.

While conducting operations aboard an aircraft, communication headsets play a similar role as earmuffs. If active noise-canceling exists in the headsets, it further protects against low-frequency noise, especially when combined with earplugs (FAA, 2025).

Recently, the Naval Air Warfare Center Aircraft Division (NAWCAD), led by resident audiologist Lt. Cmdr. Kyle Shepard, has been forging an alternative path for improving custom hearing protection available to aircrew members in naval aviation. Conventionally, custom hearing protection has been accomplished by taking a silicone mold of a person's ear canal, sending it off for fabrication and waiting weeks or months to receive the final product. Drawbacks to this method include an uncomfortable molding process, the requirement for certified audiologists (often only available at larger hospitals and installations) to perform the fittings, and ultimately the devices may not even fit correctly in the Sailor's or Marine's ear, causing pain or providing little to no hearing protection.

Shepard and his team have pursued a different avenue: scanning ear canals digitally and printing custom 3D hearing protection. Instead of a physical mold, this option provides a faster, non-invasive method of creating a custom fit, while significantly reducing turnaround time to get the final product in-hand, potentially even same-day. Feedback for this alternative has been extremely positive, and the NAWCAD team is offering custom hearing protection production services, assistance and training to commands interested in them.

Working in military aviation carries the risk of perpetual exposure to extremely loud noises and the ongoing potential for hearing impairment or hearing loss. Damage can occur from quick, intense exposures, as well as longer, steady exposure above approximately a 90 dB intensity level of noise. Avoiding loud areas (when not necessary to be around them), earplugs, earmuffs and noise-canceling headsets, all serve to reduce dangerous levels of noise and prolong normal hearing levels. It's not only imperative to identify and assess the hazards of noise but it's equally important to take measures to reduce and eliminate the risk of damage.

Left top: Naval Aircrewman (Helicopter) 2nd Class Carter Goetzke, assigned to Helicopter Sea Combat Squadron 9, secures his helmet aboard USS Gerald R. Ford (CVN 78) in the U.S. 6th Fleet area of operations, July 19, 2025. (U.S. Navy photo by Mass Communication Specialist 2nd Class Jacob Mattingly) Left bottom: Lt. Destiny Attewell, left, creates a digital file of Lt. Cmdr. James Halliwell's ear canal for custom-made hearing protection on Naval Air Station (NAS) Corpus Christi, Texas, April 24, 2026. (U.S. Navy photo by Fire Controlman Aegis 1st Class Jaclyn Chavez) Right top: A Naval Flight Officer assigned to Patrol Squadron (VP) 5 conducts preflight procedures aboard a P-8A Poseidon aircraft at Naval Air Station Sigonella, Italy, September 10, 2025. (U.S. Navy photo by Mass Communication Specialist 2nd Class Sang Kim) Right bottom: Lt. Garrett Standard, assigned to Electronic Attack Squadron (VAQ) 140, smiles on the flight deck of USS George Washington (CVN 73) in the Philippine Sea, June 12, 2024. (U.S. Navy photo by Mass Communication Specialist 2nd Class August Clawson)

SECONDS FROM DISASTER

By Senior Chief Aviation Electronics Technician Christopher Riley

SPECIAL PROJECTS PATROL SQUADRON (VPU) 2
WIZARDS

The crew had just recovered a P-8A after a routine nighttime flight that was about to become anything but routine. The aircraft taxied in without incident, but as they got set on deck, the auxiliary power unit wouldn't start. While not ideal, the situation was not uncommon. The call came down from the flight station to hook up a -6 ground power unit to keep things moving.

To safely bring in the power cart, the aircrew shut down the No. 2 engine and kept No. 1 online.

That's where things started to drift. The plane captain (PC) was standing by, waiting for the -6 to be positioned. Engine 2 secured as briefed, but engine 1 remained running with anti-collision lights flashing and the intake pulling air like it always does. Nothing unusual there, until it was.

Out of nowhere, a fuel truck rolled into the safety diamond.

Not creeping. Not gradual. Just driving toward another aircraft on the adjacent spot. Except now, it was well inside the safety diamond and within the hazard zone of a live engine.

The truck came within feet of the PC and the trainee standing nearby. Close enough that instinct kicked in before thought. Close enough to force a split-second mental calculation of the intake distance, debris and worst-case scenarios.

From the duty office security cameras, the duty officer witnessed the event from a different angle. From their position, they had already heard the comms traffic discussing engine 2 secured and engine 1 staying online due to the APU issue. Anti-collision lights remained on. A clear indicator, at least to anyone paying attention, that the aircraft wasn't cold.

Yet the fuel truck kept moving. There were no signals, no pauses to reassess and no apparent recognition of the hazard. Fortunately, nothing got ingested, no one was injured and no equipment was damaged. The truck eventually maneuvered clear, and the evolution continued. But it easily could have gone the other way.

On paper, this was a simple evolution: One engine secured, one engine intentionally left running, ground power inbound and adjacent aircraft scheduled for fueling. In reality, it became a classic breakdown in situational awareness and procedural discipline.

The investigation pointed to a primary issue: The fuel truck operator failed to maintain awareness of a live engine, entered the safety zone without verifying conditions and was unfamiliar with the rules and procedures of this airfield.

There were contributing factors:

- A non-standard configuration (one engine running during ground ops)
- Multiple moving pieces happening simultaneously (power cart, fueling ops, recovery)
- Reliance on assumptions instead of positive verification

Most importantly, the procedure requiring verification that engines are secured before approaching was not strictly followed by the driver. Running engines don't care about assumptions. A spinning intake doesn't pause because someone thought it was safe. On a platform like the P-8A, the margin for error is razor thin.

This wasn't just a close call; it was a reminder of how quickly routine turns into risk when:

- Visual cues (like anti-collision lights) are ignored
- Communication isn't cross-checked at the deck level
- Personnel operate on expectation instead of confirmation

There were four major lessons learned.

1. Verify, don't assume. If you're approaching an aircraft, physically confirm engine status. Lights, sound, airflow — use all of it. If there is any doubt, stop.
2. Non-standard = high risk, anytime the aircraft isn't in a "normal" configuration, your risk baseline just changed. Treat it that way.
3. Everyone owns safety. This wasn't just on one operator. Deck awareness is a team sport; plane captains, drivers, watch standers and aircrew all play a role.
4. Procedures exist for a reason. "Verify engines are off before approach" isn't a suggestion; it's written in blood, experience and mishap reports.

Nobody plans to be the "There I Was" story, but each story usually start the same way: a normal day, a routine evolution and one small assumption that slips through the cracks. This time, we got lucky. Next time, luck might not be on deck. ✈

A P-8A Poseidon aircraft taxis on the runway. (U.S. Navy illustration by Ani Pendergast)

Do You Know Your Bucket Airspeed?

by Lt. Cmdr. "JTT" Tyler Thomas & Lt. Col. R.E. "Buck" Joslin

In the November 1996 edition of Approach magazine, Lt. Col. R.E. Joslin, the Operations Officer at the Naval Test Pilot School, wrote a similarly named article stressing the importance of bucket airspeed. Although aircraft types have changed, understanding your aircraft's bucket airspeed is as important today as it was three decades ago.

A UH-1Y impacted the ground less than 500 meters from the runway, 15 minutes after the transmission gearbox failed and transmission oil pressure dropped to zero.

Despite overflying multiple safe landing sites, the crew remained at 2,200 feet AGL and 125 knots following their initial indications of a transmission malfunction, instead of transiting at an airspeed that would require the lowest power and least amount of mechanical load.

Since suitable landing sites are not always available to naval aviators, understanding how to minimize stress on the powertrain is critical. Looking at Figure 1, a typical power required curve has a dip or "bucket," delineating the lowest power requirement (lowest total drag) with an associated torque and airspeed. This bucket shows the optimal parameters if you suspect a transmission problem. NATOPS for different aircraft may change the orientation, axes and labeling on their respective charts, but the concept remains the same.

Table 1 shows estimated bucket airspeeds extracted from NATOPS for various helicopters and weights at sea level. This bucket airspeed also offers favorable performance characteristics for engine-related emergencies and may help you minimize your descent rate or maximize your climb performance to clear an obstacle. After all, the lowest point on the power-required curve generally corresponds to the biggest delta from power available to facilitate maneuvering.

Power (torque) required is directly proportional to fuel flow; therefore, the bucket corresponds to the point of minimum fuel flow (or maximum endurance) when loitering on station or awaiting landing clearance. While these airspeeds are a great starting point, the most accurate, real-time indicator of power required and fuel flow for your specific weight, aircraft configuration and environmental conditions is your torque gauge. Time permitting, the best way to find the bucket in level flight is to trim the aircraft where the chart tells you and then adjust and stabilize your airspeed one knot at a time until the torquemeter reaches its lowest point.

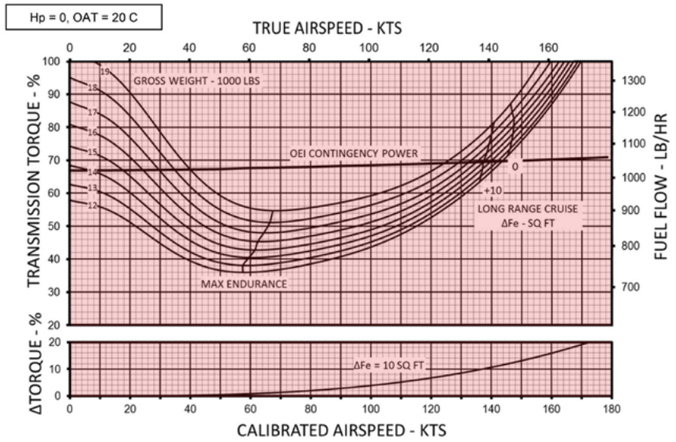
Once indications of an imminent failure occur, the prudent action is a controlled ditch or immediate landing. Until then, consider flying the bucket to delay gearbox failure enroute to the first available safe landing site if you find yourself with a transmission problem. ◀

Col Robert E. Joslin (Ret), Ph.D., is currently an Associate Professor at Embry-Riddle University. Information reviewed and updated by Lt. Cmdr. Tyler Thomas, the MH-60 Analyst at the Naval Safety Command.

Table 1. Bucket Airspeeds for various T/M/S, sea level.

T/M/S	Gross Weight (x1,000 lbs.)	Minimum Power Required (Bucket) Airspeed
AH-1Z	12-18.5	58-67
UH-1Y	12-18.5	58-68
CH/MH-53E	40-70	58-76
CH-53K	50-74	72-84
MH-60R/S	14-23.5	63-74
TH-73A	4-6	51-70

Figure 1. Power/Fuel Flow versus Airspeed (Constant Gross Weight and Altitude).



USN
Norfolk, VA
E-2D Hawkeye
Airborne Mission Coordinator (AMC)
15,0000 ft

ROUTINE TURNED RESCUE

By Lt. Nicholas "Cornfed" Edinger

AIRBORNE COMMAND & CONTROL SQUADRON (VAW) 123
SCREWTOPS

USCG
Elizabeth City, NC
C-130 Hercules
Communication Relay and Sensor Support for the USCG Jayhawk
3,500 ft

USN
Virginia Beach, VA
F/A-18 Super Hornet
On-Scene Commander (OSC)
1,500 ft

"Screwtop 31, Norfolk Approach. We have an F/A-18 pilot that has ejected northeast of your position. Are you able to assist?"

The call cut through the hum of the E-2D Hawkeye's propellers on a hot August morning, just 30 minutes into what was supposed to be a routine proficiency flight. In the cockpit of our E-2D Hawkeye, the mood shifted instantly. Our copilot answered without hesitation: "Norfolk Approach, Screwtop 31. We are able to assist."

Ten minutes prior to that ATC call, two F/A-18s were flying a training mission off the coast of Virginia when one of them suffered an emergency, resulting in an ejection. The pilot ejected over open water, and his wingman, the initial search and rescue (SAR) On-Scene Commander (OSC), circled overhead. Alone, low on fuel and balancing search and coordination duties, he requested another fixed-wing aircraft. That request made its way through Norfolk Approach and landed with us.

Inside the Hawkeye, our crew of five junior officers snapped into action immediately. The copilot worked with Giant Killer, the controlling agency for the warning areas off the coast of Virginia and Maryland. The radar officer plotted the coordinates of the expected crash site, keeping a running log of every update. Our air control officer (ACO) pulled out the SAR checklist and became the primary controller. As the mission commander, I kept information flowing to our squadron duty officer (SDO), who alerted the downed pilot's squadron at Naval Air Station (NAS) Oceana. What began as a routine training flight had quickly turned into a race to save a fellow aviator. An expeditious recovery was critical with Hurricane Erin approaching. Higher-than-normal sea states were already a factor, and incoming weather could make the rescue even more challenging if there was any delay.

Screwtop turned east and flew toward the downed aviator. En route, we checked in with the wingman who was overhead, confirming the best news possible: the wingman believed the downed aviator was alive and in their life raft. Giant Killer then came up on the radio to inform us the Coast Guard recovery assets had launched from Elizabeth City: an MH-60 Jayhawk with a rescue swimmer and medical gear, escorted by a C-130 Hercules providing sensors and communications coverage for the helicopter.

Soon, we were managing three different aircraft for this rescue. The major issue we faced was that the Coast Guard Jayhawk was too low to reach us directly via line-of-sight communications, so the Hercules acted as a communications relay. The F/A-18 Rhino overhead was getting low on fuel, but two more F/A-18s arrived to relieve him as the OSC.

USCG
Elizabeth City, NC
MH-60 Jayhawk
Primary Rescue Vehicle (RV)
50 ft

Before departing, the wingman, who had been circling overhead since the ejection, turned over OSC duties and returned to NAS Oceana. The relief spotted a sea-dye marker spreading bright green around the raft, providing a positive sign that the survivor was alive. That report was immediately relayed to the VAW-123 SDO, who then passed to the downed aviator's squadron, providing them with some positive news about their downed aircrew during this time of uncertainty.

Then came the hazard that defined the day. A Navy MH-60S launched from Naval Station Norfolk to join the rescue efforts, causing five aircraft to converge onto the same piece of sky: two F/A-18 Rhinos circling above the crash site, the Coast Guard C-130 Hercules and MH-60 Jayhawk, and now a Navy MH-60S helicopter. Both helicopters raced toward the survivor at a low altitude over the water, unable to hear each other despite being on the same frequency.

From our orbit at 15,000 feet, the collision risk was unmistakable. This was where our crew faced its greatest challenge. Without decisive action, two helicopters, unable to communicate with each other, could potentially arrive at the same spot over open water. The potential for a second mishap was real unless immediate action was taken. Thankfully, this is where our E-2D Hawkeye crew stepped in to act.

First, we gained communication with all the assets. Second, we stacked the airspace to establish vertical separation: the Jayhawk at 300 feet, the Sierra at 500 feet, the section of Rhinos at 1,500 feet, the Hercules at 3,500 feet and our Hawkeye high above. Next, our ACO became the human relay, shuttling instructions between the two helicopters until it was confirmed the Coast Guard Jayhawk, already closest and equipped with a rescue swimmer, would perform the rescue of the downed aviator. With clear roles and deconflicted altitudes, the immediate danger of a mid-air collision was mitigated.

Minutes later, the Jayhawk dropped its rescue swimmer into the Atlantic Ocean. The radio went quiet for what seemed like an eternity. Each aircraft waited patiently, until the call came. The downed aviator was loaded into the helicopter, conscious and giving a thumbs-up. The Jayhawk immediately turned west toward the coast and was en route to the trauma center. The remaining aircraft checked off station and headed back to their respective home bases. Ninety minutes after pulling the ejection handle, the downed aviator was safely receiving medical care at the hospital.

That afternoon underscored the truth every aviator knows but rarely experiences in crisis: hazards compound quickly. Emergency situations, fuel states, multiple aircraft and fractured communications were each a link in a potential chain of failure, and the "Swiss Cheese" holes were aligning. By breaking that chain early through altitude deconfliction, disciplined communications and clear assignments, our crew helped ensure the day ended with a rescue and not another mishap.

USN
Virginia Beach, VA
F/A-18 Super Hornet
On-Scene Commander (OSC)
1,500 ft

USN
Virginia Beach, VA
MH-60 Seahawk
Secondary Rescue Vehicle (RV)
500 ft

Approximate positions of the six aircraft rescue team. (U.S. Navy illustration by Ani Pendergast)

HIGH HEAT IN FLIGHT

By Lt. Kyuwon J. "Mystery" Lee

PATROL SQUADRON (VP) 10
RED LANCERS

Every aircrew member plays a crucial role in fostering an environment where being vocal and proactive about safety is not just encouraged, but vital. This commitment to safety safeguards not only our personnel but also the integrity of the aircraft. An example of this principle in action occurred during a routine intelligence, surveillance and reconnaissance (ISR) training flight July 8, where the challenges we faced reinforced our dedication to a vigilant safety culture.

On that day, we encountered some harsh weather conditions. The heat and humidity were higher than usual and thunderstorm conditions only made things more challenging. Being the fourth in line for fuel added to an already stressful situation. As temperatures rose, everyone onboard began to feel quite uncomfortable, and let's be honest, the head smells even worse on hot days.

In this scenario, Navy Lt. Alexander Bussler demonstrated outstanding proactive behavior by checking the thermometer in the flight deck and found it displaying a concerning 99 degrees. He promptly reached out to the Mission Commander and Tactical Coordinator to share this detail. His quick thinking was pivotal in addressing a potential risk before it could escalate.

What happened next was a great demonstration of teamwork and proactive problem-solving. After Bussler raised the alarm, the aircrew quickly worked with the maintenance team, who promptly provided cool air through the single-shot launchers, using maintenance resources to improve the situation. This collaborative effort underscored the fact every individual on the crew plays a crucial role in maintaining safety and operational effectiveness.

The crew didn't stop there. They took further steps to combat the heat by using the secondary power distribution system to shut down non-essential systems. Turning off the mission crew workstation screens was another wise move to enhance safety. While measuring the effectiveness of these actions can be tricky, there's no doubt the combination of cool air and turning off non-essential systems played a key role in alleviating the sweltering heat. In aviation safety, it's crucial to recognize the importance of being proactive.

Adopting a mindset of, "waiting for someone else to step in," can be risky in aviation operations. It can lead to serious consequences, such as aircraft damage, but most importantly, it poses risks to personnel. Each crew member must take ownership, recognizing their actions (or inactions) can have a profound impact on the outcome. A culture of safety should thrive within the aviation community, empowering every aircrew member to voice their concerns and take action. This open environment fosters transparent communication and creates a sense of shared responsibility for safety, enhancing overall operational effectiveness.

To strengthen this safety culture, it's vital to incorporate regular training highlighting the importance of proactive measures into our aircrew programs. This way, everyone understands just how critical their role is in keeping both the aircraft and their fellow crew members safe.

The proactive actions taken during this ISR training flight illustrates how essential it is for every crew member to take a vocal stance on safety and act decisively in the face of potential risks. As aircrew, prioritizing safety means actively engaging with one another, addressing concerns and implementing practical solutions without hesitation. With proactive safety culture, we not only ensure our well-being but also enhance the effectiveness of our missions and the integrity of our aircraft. It's never too much to prioritize our personnel's safety. After all, it's this commitment that ultimately preserves lives and upholds the excellence of our operations. Let's continue to champion safety together, ensuring we are always ready to fly confidently and securely! ✈

A U.S. Navy P-8A Poseidon departs from Naval Air Station Jacksonville, Fla. March 20, 2026. (U.S. Navy Photo by Mass Communication Specialist 2nd Class William Bennett IV)

FATIGUE

By Lt. Dennis Whaley

PATROL SQUADRON (VP) 45
PELICANS

How often do you find yourself lacking energy, struggling to stay on task, irritable, or waking up not refreshed? All of these can be indicators of fatigue. Lack of sleep or even poor sleep resulting in a sleep deficit are leading causal factors of fatigue.

The National Sleep Foundation reported adults between the ages of 18-65 need seven to nine hours of sleep. While one night of poor sleep can lead to fatigue, the problems associated with missed recovery time often compound and continue to grow until you have the opportunity to let your body recover.

An hour of sleep debt can take up to four days to recover from; a significant deficit can require up to nine or more days of recovery time. While sleeping in later seems like a good strategy, it may not be helpful in addressing your sleep debt and the physiological consequences.

Fatigue was reported to be a causal factor in 12% of the Navy's Class A (most severe) mishaps and in 25% of the Air Force's night tactical fighter Class A mishaps according to a 2017 Marcus and Rosekind study. Naval Safety Command data from 1997 to 2002 listed fatigue as the second most prevalent aeromedical factor cited in mishaps and HAZREPS.

We know sleep is vital to safety, so how do we solve problems and mitigate risk? On an individual level, try to follow a routine sleep schedule when you can. While I understand strict sleep schedules are not always possible, when your body tells you it's tired, listen. If you need a nap, take one. Create a healthy sleep environment and practice good sleep hygiene. Some examples include using black-out curtains, keeping your bedroom clean and not scrolling on your phone while in bed. One personal technique I use is going to bed when I am tired and getting out of bed when I wake up. My brain then associates the bedroom with sleep and not watching TV or playing on my phone. This simple change has decreased the amount of time it takes to fall asleep and wake up.

For scheduling departments, just because someone meets the minimum amount of crew rest requirements per instruction, doesn't mean they are in the optimal condition to schedule them to fly. Schedulers should look to maximize efficiency of schedule writing while keeping in mind the respective recovery times mentioned above. A natural circadian rhythm may be impossible to follow but keeping aircrew members on the same schedule throughout a week will allow acclimation time to normalize a sleep schedule. When this doesn't work, slowly shifting the schedule throughout the week is another option.

It's important to take care of your body. When it tells you that you are fatigued, listen. Eat a balanced diet, stay hydrated and maintain a routine of physical activity. If you feel tired, tell someone. Fatigue is a major factor in general safety and is crucial to mitigate risk in aviation. If you are unsafe to fly, don't fly. ✈

Lt. Gunnar Klinker, left, and Naval Aircrewman Tactical Helicopter 2nd Class Diego Chavez, right, walk away from an MH-60R assigned to Helicopter Maritime Strike Squadron (HSM) 49 det. 4 the "High Rollers" as it sits on the flight deck of USS Ralph Johnson (DDG 114) in the South China Sea, March 21, 2025. (U.S. Navy photo by Mass Communication Specialist 1st Class Hannah Fry)

RISK AVERSE TRAINING

Senior Chief Naval Air Crewman (Helicopter) Joel James

HELICOPTER SEA COMBAT SQUADRON (HSC) 25
ISLAND KNIGHTS

As leaders within the Helicopter Sea Combat (HSC) community, we are entrusted with fulfilling a critical mandate: "The United States Navy Helicopter Sea Combat mission is to provide combat-ready aircraft and aircrew to execute a versatile range of maritime and overland operations, primarily using the MH-60S Seahawk helicopter."

Our core mission areas are expansive and unforgiving, encompassing Anti-Surface Warfare, Combat Search and Rescue / Personnel Recovery, Combat Logistics, Special Operations Forces Support, and Airborne Mine Countermeasures. Given the gravity of these missions, we must ask ourselves a hard question: Are we truly preparing our crews for the realities of war? When we examine our community through the lens of command leadership and risk management, a concerning disparity emerges between how we train and how we expect to fight.

The most critical vulnerability in our current paradigm is the illusion that training risk mitigations eliminates risk. In reality, they merely transfer it to the operational environment. We are operating under a dangerous paradox. The exact same environmental and tactical conditions we rapidly reject as "unacceptable" or "too risky" for a training evolution are the very conditions we fully expect — and accept — our crews to enter when a real-world mission drops.

Consider the stark reality of our open-water rescue capabilities. As a training risk mitigation, our peacetime risk matrices typically cap live-training evolutions at a maximum of a 5-foot wave height. If a training flight faces 6-foot or greater seas, the evolution is deemed too dangerous and canceled without hesitation. Yet, the operational expectation — explicitly codified in the capability statement of a U.S. Navy rescue swimmer — is that our rescue swimmers must be capable of operating in 20-foot wave heights or greater for 30 minutes or more. When the Search and Rescue (SAR) alarm rings, those conditions previously deemed as "too dangerous" are suddenly accepted as the operational reality.

This 15-foot gap in sea state does not only affect the rescue swimmer in the water. It fundamentally alters the physics, spatial disorientation risks and crew coordination required of the aircraft. For the pilots, maintaining a stable, sustained hover over massive, shifting swells requires immense concentration, different instrument scan techniques and a fight against extreme fatigue. For the hoist operator, managing cable tension, the pendulum effect and the safety of a swimmer dynamically rising and falling with massive wave crests is a complex skill that simply cannot be simulated over a 5-foot swell.

This disparity between what we accept in peacetime and what we demand in war extends far beyond the SAR environment; it infects every high-end tactical mission we execute. Tactically, we frequently rely on sanitized ranges, scripted scenarios and administrative pauses for safety, despite the expectation these crews must operate in fluid, highly contested environments against peer adversaries. Similarly, our equipment use in peacetime often defaults to conservative employment to minimize wear-and-tear and avoid administrative grounding. Maintenance often pushes back against aircraft configuration changes to preserve components and man-hours. While avoiding these changes may provide a short-term administrative win, it creates a severe operational vulnerability. In a combat environment, rapid configuration changes may be mandatory. When logistics chains are contested and parts are scarce, our maintainers will be forced to adapt without the necessary repetitions. This short-term gain in asset preservation guarantees a long-term loss in combat capability.

Another glaring administrative mitigation is the current restriction on carrying individual service weapons. At most commands, training fights only allow training shapes. A shape may be a better substitute than nothing but it fails to replicate the true weight, friction and physical micro-movements of carrying real weapons in the aircraft. This introduces a dangerous flaw: training creates muscle memory and artificially constrained training creates "training scars." When an operator builds their reflexive muscle memory around the feel of a simulated weapon or the expectation of an administrative time-out, that training scar will betray them under the adrenaline of a real-world threat. It also fails to train our ordnance teams in their duties of preparing, issuing and checking these weapon systems. Furthermore, our paraloft is robbed of the repetitions required to properly configure flight gear with holsters. This restriction doesn't just affect our flyers; it degrades the readiness of our entire enterprise.

In combat, however, we expect these same systems to be pushed to their structural, thermal and tactical limits to ensure mission success. We cannot expect an aircrew to execute an open-ocean rescue or a complex over-the-horizon tactical employment in devastating conditions if our peacetime risk mitigations structurally prohibit them from training beyond benign, highly controlled environments. By prioritizing administrative safety over realistic combat preparation, we are actively denying our operators the repetitions required to survive, and worse, we are ingraining habits that will fail them when the threat is real. When we evaluate readiness and make risk decisions, we must recognize sanitizing our training environments degrades tactical expertise. Our aircrews are the subject matter experts for their aircraft and weapon systems; however, if we do not allow them to push this equipment to its limits in training, they cannot build the necessary confidence and proficiency.

Building true proficiency inherently carries risk, and in high-end training, friction and mishaps will inevitably occur. The true test of our community's leadership is how we respond when evolutions do not go as planned. Too often, our default reaction to human error or a failure in following procedures is to institute sweeping administrative restrictions or to restrict that type of training evolution entirely. We penalize the entire community to prevent a recurrence rather than holding the specific individual or crew accountable or fixing the root cause and reason for the failure. This fundamentally breaks our risk calculus.

While administrative intervention is occasionally warranted, it must not become our default operational response. Instead of shying away from risk following a mishap, we must investigate, enforce accountability and continue training harder to become better. A glaring example of this institutional avoidance is the cancellation of non-rescue swimmers performing survivor duties. This was incredibly valuable training for our rescue swimmer force, yet we administratively eliminated this training across both coasts due to unfortunate actions during an isolated event. We chose total capability avoidance over individual accountability. Pausing for safety to look at how we conduct our training is valid, but permanent cancellation is not a fix; it is an amputation. We must fix the system, hold the individuals accountable and then immediately return to the training to restore the capability.

We are failing to properly weigh the scales of risk. We see this same institutional avoidance with one- and two-wheel landings. While explicitly detailed in our NATOPS manual as an operational capability, we are largely prohibited from practicing them in training as stated in our Wing Standard Operating Procedures. By stripping aircrews of the ability to train to our documented capabilities, we are transferring that deferred training risk directly into the real-world operational environment, where the cost of failure is infinitely higher. We treat a training mishap as an unacceptable risk, while implicitly accepting the catastrophic risk of sending an unpracticed crew into combat.

Holding the standard is a core leadership function, but our current risk aversion undermines the very standards we claim to uphold. To reclaim this, we must mandate a fundamental shift in focus: a relentless dedication to the basics. We often look to execute complex, high-end tactics but we cannot succeed in those arenas without first possessing an absolute, reflexive mastery of foundational skills. What we truly require is advanced basic knowledge — the ability to execute fundamental procedures flawlessly, even when subjected to extreme environments and immense operational friction. Advanced operations are, at their core, just the basics executed masterfully under extreme stress. You cannot build advanced tactical employment on a fragile foundation. We have to build these reps and sets under the appropriate level of risk.

More importantly, as the leaders appointed over these crews, our risk decisions dictate their operational reality. If we want to execute advanced operations, we must evaluate the risk required to train our fundamentals to an advanced standard. As the saying goes, we do not rise to the occasion; we fall to our level of training. We have made vital progress in recent years — pushing overland hoist limits and deploying rescue swimmers into the open ocean. We must not allow institutional risk aversion to roll back these gains or distract us from the brilliant execution of the basics.

Achieving true operational readiness in the HSC community requires a cultural shift driven by senior leadership. Some may read this and assume it is an argument to abandon risk management or remove all controls from our training. That is not the intent. As an operator, I do not write the policy; I execute the policy that is handed down. However, it is my duty to highlight the latent, operational aftereffects of our current risk mitigations. I am not advocating for recklessness, but I will continue to relentlessly push for us to train hard and not shy away from necessary risk.

Our ultimate goal must be to better weigh the risk between the training environment and the real world. This shift demands moving away from uncompromising risk avoidance and toward rigorous, realistic combat preparation. The rules written in blood from past peacetime mishaps must be weighed against the future blood that will be spilled if we send unpracticed crews into a modern, high-end fight against a peer adversary. Every risk we refuse to mitigate in training is a risk we force our crews to accept in combat. We must underwrite the risk of training in the extremes today so our entire crew — pilots, hoist operators and rescue swimmers — does not pay the ultimate price in the extremes of tomorrow.

The environment we operate in is unforgiving and our operational success is directly tied to the rigorous standards we enforce and the challenging environments we authorize. Our job is to fly helicopters — machines that beat the wind into submission — which means inherent risk will always be a factor. Let us take a hard look at our flight schedules, our risk matrices and our command climates. We must be the catalyst for this change across the community, ensuring when our crews are called to the fight, their capability and capacity to operate in the absolute extremes are unquestioned.

The opinions expressed in this article do not imply endorsement of the Naval Safety Command. This content is published to encourage ready room discussion.

JUST ASKING FOR A FRIEND

By Lt. Cmdr. Sarah "Sunshine" Melick

TRAINING AIR WING 6, CHIEF NAVAL AIR TRAINING (CNATRA)

Most naval aviators have at one time or another approached a flight surgeon asking something "for a friend." I know I have. In late 2024, I was approached about my interest in serving as the team scientist for a new Human Performance (HP) effort within the Naval Air Training Command (NATRACOM). It had the intrigue of a completely new project and the opportunity to influence something that had great potential. I did not know exactly what the job would entail, but I knew I needed to be a part of it, curious if this idea might be able to reduce the amount of "just asking for a friend" we do between naval aviation and the Navy medicine community.

Human performance programs are not new to the Navy, but the concept is relatively new to naval aviation. The NATRACOM HP team, manned at Training Air Wing SIX in August 2025, is the first all-uniformed group of its kind and is staffed with Navy medicine specialists with one mission: to keep aviators healthy and in the sky. This might seem like two missions, but in reality, it is one. Failure of one aspect or the other is not partial mission success; it is mission failure. The realities of the mission are daunting as we are creating something from nothing, doing this in an environment where it has never been done before, and with some of the most medically reclusive creatures in the history of mankind: naval aviators. I spent substantial time thinking about how we would go about our project. I kept coming back to one question with two completely different motivations: will it work?

I wear two different hats, usually complementary, but occasionally competing - naval aviator and naval aerospace experimental psychologist. I thought about the question of viability from both perspectives. My aviator-self wants to know if there is any hope for my spine, which I can feel turning to sawdust with every flight hour (unless you're one of my two outstanding flight surgeons, in which case, I'm fine), and if we can prevent similar issues in future generations of naval aviators. My scientist self wants to successfully address the issues of distrust of Navy medicine and medical hesitancy within naval aviation.

A study by researcher Weipert and their colleagues in 2024 showed that 57% of naval aviators do not disclose health concerns in general and this reluctance to disclose increases to 83% when the concern is related to mental health. Aviators have historically continued to fly even when our bodies and minds are telling us we are long overdue for maintenance (see above statement about being fine). Is there reason to believe the embedded, human performance model of Navy medicine can successfully address this? Yes; however, we must be mindful of execution.

What is unique to the NATRACOM HP team is everyone is uniformed, and there are reasons service members may be preferred over contracted or government civilians. Shared experience and common ground provide heightened cultural awareness to their approaches and decision making. Also, their ability to be deployed and stationed anywhere makes them a more consistent and viable option. Additionally, uniformed service members have better understanding of other uniformed professionals. Our team has a great working relationship with our fantastic flight surgeons; we understand their skills and those of our staff aerospace and operational physiologist, better known to most aviators as the friendly neighborhood aeromedical safety officer, or AMSO. Finally, military accession policy ensures uniformed service members consistently meet the highest standards of professional qualifications.

The NATRACOM HP team consists of a fellowship trained, board-certified physical therapist with two doctorates, three prior human performance tours under his belt, and certification in Strength and Conditioning Coaching; a dual board-certified physician in Primary Care Sports Medicine and Family Medicine with experience delivering specialized performance services to professional sports teams and elite individual athletes and is also a Certified Strength and Conditioning Coach; a dual board-certified Clinical and Police and Public Safety Psychologist with a doctorate in clinical psychology, a neuropsychology postdoctoral fellowship, a trained cognitive performance and executive coach; and the aforementioned, aerospace experimental psychologist, an aeromedical dual-designated naval aviator with a doctorate in industrial and organizational psychology, who is also a trained performance coach; with one corpsman to rule them all. All told, there is a combined 70 years of naval service, eight advanced degrees with seven warfare devices.

But, even given the credentials and shared experience, it is reasonable to question if the services provided can accomplish the ambitious goal of keeping aviators both healthy and in the sky. A recent study suggests the answer is "yes."

In an examination of 501 cases of aviation personnel requesting waivers for mental health, researchers Kennedy and Westerberg in 2025 found that when the care operationalized in this study was preformed by a mental health provider, who had completed the aeromedical officer course at the Naval Aerospace Medical Institute, resulted in quicker, more favorable and more correct waiver outcomes for naval aviation personnel. Specifically, they found personnel cared for by aeromedical officers (AMO) were properly assessed and dispositioned 96% of the time compared to 72% of the time with non-AMO providers. They found aviation personnel cared for by AMOs were less likely to have their careers and waiver opportunities impacted negatively (e.g., incorrect diagnosis, off-label use of medications not allowed by the waiver guide, improper documentation requiring further assessment, missed deployment, lengthier wait time for waivers) than those cared for by non-AMOs. Finally, they found aviation personnel cared for by AMOs were more than twice as likely to be granted waivers as those cared for by non-AMOs.

A medical professional who is also a member of the command has additional capacity and incentive to strongly advocate for their aviators. An embedded provider has an additional layer of familiarity with the command mission, airframe and knowledge of the specific individuals, making risk decisions more informed.

We are far from declaring victory for the Navy medicine option for embedded services and human performance programming within naval aviation beyond the flight surgeon. Despite the many advantages of uniformed professionals in this space, there are simply not enough at present to outfit all or even most aviation units with a uniformed team. Furthermore, certain key positions within an ideal human performance team do not have uniformed equivalents (e.g., strength coach, athletic trainer, chiropractor, massage therapist, etc.). And, of course, there is substantial distrust between naval aviation and Navy medicine, earned in both directions, that will need repair. Navy medicine is skeptical of naval aviation because aviators are known to hide medical conditions to continue flying. Naval aviation is skeptical of Navy medicine because of lengthy down times, bureaucracy and perceived extreme risk aversion in making medical decisions to return aviators to flight status. Even so, embedded teams with a specific focus on human performance and the goal of health and flying may be the asset required to keep aviators on the prevention side of injury, to keep them in the fight with minor injuries as they work back to optimal health, to expedite them back to the fight in the event of more major injury, and to develop, foster and maintain a stronger sense of trust between Navy medicine and naval aviation to reduce the prevelance of "just asking for a friend." ✈

Pilots attached to the "Blacklions" of Strike Fighter Squadron (VFA) 213 sit ready in an F/A-18F Super Hornet on the flight deck of USS Gerald R. Ford (CVN 78), April 14, 2025. (U.S. Navy photo by Mass Communication Specialist 2nd Class Maxwell Orlosky)

SAFETY FIRST, MISSION ALWAYS

By Lt. Ilenia "KEVN" Armstrong

PATROL SQUADRON (VP) 10
RED LANCERS

COMPACFLT Adm. Stephen Koehler's January 2025 fleet order emphasized the critical importance of safety in all U.S. Pacific Fleet operations. It's not just about following regulations but ingraining safety into every aspect of the fleet's professionalism and operational readiness.

This order outlines clear expectations for all personnel, from Sailors and Marines to civilians, reinforcing safety as an essential element for both daily operations and overall mission success. It highlights that a proactive, ingrained approach to safety is key to maintaining the fleet's operational effectiveness.

Safety is integral to the fleet's ability to carry out its mission, from routine equipment maintenance to complex operational maneuvers. The fleet reduces risk, prevents accidents and ensures effective execution of tasks without unnecessary distractions or setbacks by prioritizing safety. Focusing on safety also preserves valuable resources and protects the fleet's most important asset, its Sailors. Without safety, operations can be jeopardized, compromising both mission readiness and personal well-being.

Safety isn't only about preventing incidents; it's also about how the fleet responds when they occur. Koehler stressed resilience is crucial in these situations and learning from past mishaps helps minimize their impact. The fleet's professionalism and diligence in responding effectively to more than 200 reported fires has significantly reduced the severity of these incidents. By applying lessons learned, the fleet continues to adapt and enhance its readiness to meet unforeseen challenges.

Safety requires everyone in the fleets' active involvement, not just one department or a few individuals. It is a shared responsibility beginning with each Sailor, Marine and civilian. Identifying and correcting hazards swiftly is essential to preventing potential disasters. Continuous improvement is also critical to the fleet's safety culture. While fatalities have decreased, off-duty accidents, including vehicle and motorcycle mishaps, continue to claim lives unnecessarily. The fleet must learn from these losses and improve on- and off-duty safety practices. Ongoing training ensures personnel are equipped to handle risks effectively in and out of operational environments.

Leadership must actively promote and model safe behaviors, setting the tone for the entire fleet. Admirals, commanders and officers must reinforce safety in everyday actions, creating an environment where safety is a top priority. Regular training and open communication about hazards are vital for maintaining this culture. Leaders must also encourage personnel to report concerns and identify potential hazards early. Safety must be proactive, not reactive. The fleet's operational effectiveness integrates safe practices into every action. By making safety a priority, the fleet ensures readiness, protects personnel and maintains the capability to face any challenge.

Safety is not just an add-on to the U.S. Pacific Fleet's mission readiness, it is a vital part of it. By building a culture of professionalism, continuous improvement and proactive safety, the fleet ensures its strength, resilience and ability to meet any challenge. Safety commitment is not just about minimizing risk, but committing to success. Keeping safety at the forefront guarantees the fleet remains operationally ready, preserving both personnel and resources for future missions. ✈

MSGID/
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ALPACFLT 001/25//

Sailors fight a simulated fire during a general quarters drill aboard the aircraft carrier USS Nimitz (CVN 68) in the Pacific Ocean, Oct. 17, 2024. (U.S. Navy photo by Mass Communication Specialist 2nd Class Hannah Kantner)

ANY GIVEN WEDNESDAY

By Lt. Nick "Lil Doodie" Forti

HELICOPTER MARITIME STRIKE SQUADRON (HSM) 49
SCORPIONS

Taco Tuesday. Sunday brunch. These meals are frequent reminders that help differentiate days of the week during extended operations at sea. We often find ourselves instinctively repeating words in a NATOPS brief or walking to another four-hour ship-to-shore connector flight for a fifth day in a row. Consistency, competence and routine can be catalysts for success.

However, asking yourself what is different about today's flight events can prevent the next mishap or HAZREP.

Today is not just another day. In fact, a multitude of ever-changing variables exist and our job as professional aviators is to identify them and implement the controls necessary to continue operating safely in a challenging environment.

Deployed with Carrier Air Wing 17 and the Nimitz Carrier Strike Group, personnel within Helicopter Maritime Strike Squadron (HSM) 49's Det. 5 found themselves routinely adapting to change. In a particular instance, a missed observation and the ensuing HAZREP may have been avoided if the operator or the safety observers had asked the question, "What is different about today?"

A broken electrical cable in the hangar bay of USS Nimitz (CVN 68) in the Pacific Ocean, April 4, 2025. (Courtesy photo by Lt. Cmdr. Ravi Patel)

"Chocks, chains, brakes off! Aft slow to maintenance line!" A preflight traversing (moving) evolution was conducted aboard USS Lenah Sutcliffe Higbee (DDG 123) by a very experienced and senior crew. The landing signal officer (LSO) traversing checklist was executed properly and the required personnel were all present, but nobody noticed the excess gear in the forward section of the hangar, well clear of the aircraft. Step 4E of the checklist, "Hangar and flight deck gear — stowed," seemed sufficiently complete, just like every other day.

The difference today was gear that was placed against the cable guard for the Recovery, Assist, Secure and Traverse (RAST) system electrical cable, an area that normally does not receive much attention. During the evolution, equipment straps used to secure tools for sea became entangled with the exposed cable, resulting in damage. The aircraft had been moved past the hangar bay door to the maintenance line when the electrical cable attached to the RAST assembly detached.

The malfunction limited the crew's ability to safely open and close the beams and move the helicopter back into the hangar. With the combined efforts of the Higbee's aviation, deck and engineering departments, the system was repaired to a degraded but functional state. The cable was trimmed and reattached to the recovery securing device, which shortened its overall length and limiting its ability to move back to the full aft position within the track.

Regardless of the situational awareness shortcoming our crew experienced, their response and the controls implemented were paramount to the detachment's ongoing operational success. A "Departure from Specification" was approved and as an additional control, a safety observer was stationed by the electrical cable reel for these evolutions anytime the tail wheel was moved to the "Y" or full aft position. The ability to adapt and overcome was critical to the detachment's readiness, proving necessary to continue operating in a challenging and demanding environment.

This HAZREP detailed an evolution that could have been avoided. However, it was also an opportunity for the detachment to refocus, learn from their mistakes and truly develop a culture of asking, "What is different about today?" This became evident during ensuing RAST traversing evolutions as more issues arose. For example, the latch light on the LSO console would consistently indicate incorrectly, requiring additional crew resource management between the aircrew and the LSO to verify beam positions prior to takeoff and recovery. Furthermore, during post-flight straightening evolutions, if the tail probe did not enter the track slot, a Tilly bar was used instead of a full traversal aft, to avoid strain on the shortened RAST cable. Actions like these may seem mundane; however, safe operations should occur when differences are identified and properly accounted for.

While the detachment continues to operate in challenging areas of responsibility with persistent tasking requirements, it is paramount for all in naval aviation to stop and ask, "What is different about today?" Your NATOPS brief may sound very similar to the one you gave yesterday. Your burrito may have the same toppings as it did last Tuesday. However, something might be different about today than any given Wednesday.

Whether it's the aircraft, the environment or the tasking, it's our job to recognize what could be the causal factor in the next mishap. It's not just another day; you can make a difference and keep our community safe. ✈

Find a hole in your safety net?

Report ASAP

Report all hazards, near misses, dangerous conditions, errors and high-risk activities that could cause mishaps.

SAFEREP

Download to your mobie device or scan QR code for saferep.safety.af.mil/

The SAFEREP and All-hands Safety Action Program (ASAP) are web and app reporting tools that identify hazards before they contribute to a mishap.

Reporting your near miss, hazards and dangerous conditions can increase awareness, provide leadership valuable feedback and inform future investment decisions for a safer workplace.

BRIDGE THE R&C GAP

By Lt. Anna "Crush" Cilenti

PATROL SQUADRON (VP) 10
RED LANCERS

A critical function of any aviation squadron is the ability to safely perform and standardize ground maintenance procedures. These procedures bridge the gap between aircrew NATOPS and maintenance publications. This principle became especially evident to me during my first release and control (R&C) check – a procedure maintenance personnel were very familiar with, but one I was performing for the first time.

As with every turn event, the evolution began with a brief in maintenance control with all personnel involved. It was clear the team had executed this check many times before and was comfortable with the process. Still, I was determined to approach it methodically and avoid complacency.

Once on the aircraft, I quickly noticed several differences compared to a standard preflight. Circuit breakers were pulled, panels normally closed were open and lights and messages were illuminated, all things I was not accustomed to seeing. My first step when encountering these differences was to consult with the plane captain and the aviation ordnancemen who were leading the evolution. While they had explanations for these conditions, I realized these differences were not consistently documented in their maintenance publications and certainly not in NATOPS.

The inconsistent documentation stood out to me. As a pilot, nearly all procedures and checklists specify whether a light should be illuminated or not, and provide guidance on corrective action if the condition is abnormal. That level of detail was missing in this case. To gain clarity, I reached out to peers who had performed the R&C check before. Their real-world experience was extremely valuable but I also recognized, that our community discourages reliance on unofficial “gouge” as a source of information.

This raises a broader point: aircrew cannot reasonably be expected to memorize the nuances of maintenance procedures they rarely encounter. A better approach would be to align maintenance publications more closely with NATOPS or at least to include details on the expected configuration of the aircraft during procedures like R&C checks. This includes, for example, identifying which lights or messages should be illuminated and why.

Checklists remain the backbone of aviation safety, allowing us to verify completed actions, catch omissions and identify abnormal conditions. Extending this philosophy to maintenance ground procedures would improve standardization and reduce confusion. Including expected lights and messages in the publications and during the turn-brief would provide aircrew with a clearer picture of what to expect and strengthening the connection between aircrew and maintenance practices. ✈

A U.S. Navy P-8A Poseidon assigned to Patrol Squadron 10 flies over the Pacific Ocean, Feb. 2, 2023. (U.S. Air Force photo by Staff Sgt. Tylir Meyer)

GEAR CHECK

Naval Aircrewman (Helicopter) 2nd Class David McIntosh assigned to Air Test and Evaluation Squadron (VX) 1, checks the aircrew survival equipment at Naval Air Station Patuxent River, Md., October 16, 2025. (U.S. Navy photo by Mass Communication Specialist 2nd Class John T. Jarrett)

By Lt. Owen "Partyboy" Platt

PATROL SQUADRON (VP) 10
RED LANCERS

As naval aviators, we have a responsibility to stay proficient in all aspects of our jobs, even when parts of our daily grind start to feel routine. Whether it is diligently planning flights for accurate fuel, carefully reading through weather briefs to ensure we will can carry out the flight or working closely with the tactical coordinator to observe all stand off distances and territorial boundaries, every aspect of the process is essential for mission success. However, with all the steps necessary to successfully complete a flight, it is not unheard of for complacency to creep in and become a problem, especially during a home-port cycle. I have personally experienced this creep in a very real way.

As aircrews are aware, we are required to sign out our flight gear before each sortie, taking care to ensure the gear has been preflighted properly and all pertinent equipment is serviceable and secured in our vests. Although this process includes multiple pieces of equipment, some containing batteries that must be checked, it really isn’t complicated when done diligently every time you fly. The check takes approximatley two to three minutes and ensures the gear is functional in the event an emergency occurs and we must use it. Failing to perform these checks may result in you taking survival equipment on the plane that isn’t truly ready to assist in an emergency.

While I remember learning about all the gear in detail at flight school during our initial survival swimming certification, it had been quite a while since I focused on that training. I remember being very careful while in flight school to inspect everything on my vest. At some point, maybe at a unit where I didn’t have assigned gear and we used "horse-collars" for most flights, I fell out of practice. For instance, I trusted our aircrew survival equipmentmen and their inspections figuring, “I haven’t touched anything, so it’s probably good to go.” Only when I realized other people had regularly signed out my gear for flights did I take a step back and choose to pay special attention to the presentations during my survival swimming recertification last month. This refresher training helped me refine my preflight gear flow and ensured that I checked all key aspects of my survival equipment.

Although I used to spot-check my gear before each flight, I now incorporate a much more diligent and in-depth preflight of everything I carry on my vest. This is the proper procedure and I would hate to take unserviceable equipment into a situation where I might desperatly need to use it. Furthermore, as naval aviators, we are setting the example for everyone on the aircraft; cutting corners before even getting to the plane is not a good way to start. Mission success starts with the small details. Ensuring we execute them ultimately leads to the aircraft and crew coming home safely every day. ✈

By Lt. Garrett "Rosa" Hamilton

PATROL SQUADRON (VP) 45
PELICANS

Popular conspiracy theories may lead you to believe that 5G is dangerous. While completely unfounded, there is a case to be made when it comes to aviation. In the United States, telecommunications companies began offering 5G services to limited markets in January 2022. 5G wireless broadband signals specifically occupy the 3.7 to 3.98 GHz range as authorized by the Federal Communications Commission (FCC).

Since 2015, the Federal Aviation Administration (FAA), along with the international aviation industry, recognized possible concerns with the use of the 3.7 to 3.98 GHz frequency range. Technical reports detailed, "5G operations in the 3.7–3.98 GHz band may create harmful interference to radar altimeters that would significantly degrade or completely interrupt their operation during critical phases of flight." It was noted the use of any radio frequency near the 4.2 to 4.4 GHz band may interfere with and impact the reliability of aircraft radio altimeter systems.

Radar/radio altimeter (RADALT) provide extremely accurate altitude data to the pilot and are integrated in various aircraft systems such as terrain warning and ground proximity systems, Traffic Alert and Collision Avoidance Systems (TCAS), windshear detection, auto-flight and guidance systems, autothrottle and aural warning and alerting systems. RADALT interference calls into question the ability of these systems to operate properly, which can threaten aircraft safety.

To mitigate risk, the FAA released Airworthiness Directive (AD) 2021-23-12 for transport and commuter category aircraft and AD 2021-23-13 for helicopters, ordering the incorporation of "limitations prohibiting certain operations requiring radar altimeter data when in the presence of 5G C-Band interference as identified by Notice to Airmen (NOTAMs)." The FAA would go on to publish NOTAMs at specific airports to inform pilots that 5G signals may render RADALTs unreliable in the area.

Fixed wing aircraft were prohibited from conducting ILS SA CAT I, SA CAT II, CAT II and CAT III approaches; required navigation performance (RNP) procedures with authorization required (AR); Autoland operations; manual flight control guidance system operations to landing/head-up display to touchdown operation; and the use of Enhanced Flight Vision Systems to touchdown under 14 CFR 91.176(a). For helicopters, in the presence of a 5G NOTAM, prohibited operations included the use of RADALT minimums for an approach, engaging hover autopilot modes requiring RADALT data, engaging search and rescue autopilot modes requiring RADALT data or performing takeoffs and landings in accordance with any procedure requiring RADALT data.

With AD 2023-10-02 and 2023-11-07 superseding AD 2021-23-12 and 2021-23-13, the FAA instructed aircraft upgrade to a 5G tolerant RADALT or install a radio frequency filter to negate the effects of 5G interference. For aircraft with an upgraded RADALT, the previous prohibited operations were able to be removed from their aircraft flight manual. However, non-upgraded fixed wing aircraft are still prohibited from the operations previously listed with the exception of RNP AR approaches, while helicopters maintained the previous restrictions.

As the FAA and commercial partners worked to mitigate the risk of 5G interference, 5G services continued to roll out across the United States. Consequently, the FAA determined "NOTAMs identifying the 5G environment are no longer practical because the environment is expected to cover most of the contiguous U.S." Due to this determination, the FAA stopped publishing 5G NOTAMs after June 30, 2023, and the prohibited operations for non-RADALT tolerant aircraft were expanded from defined areas of 5G C-Band wireless broadband interference to the contiguous U.S. airspace. Shortly after, the U.S. commercial airline fleet completed upgrades to affected RADALT systems in September 2023.

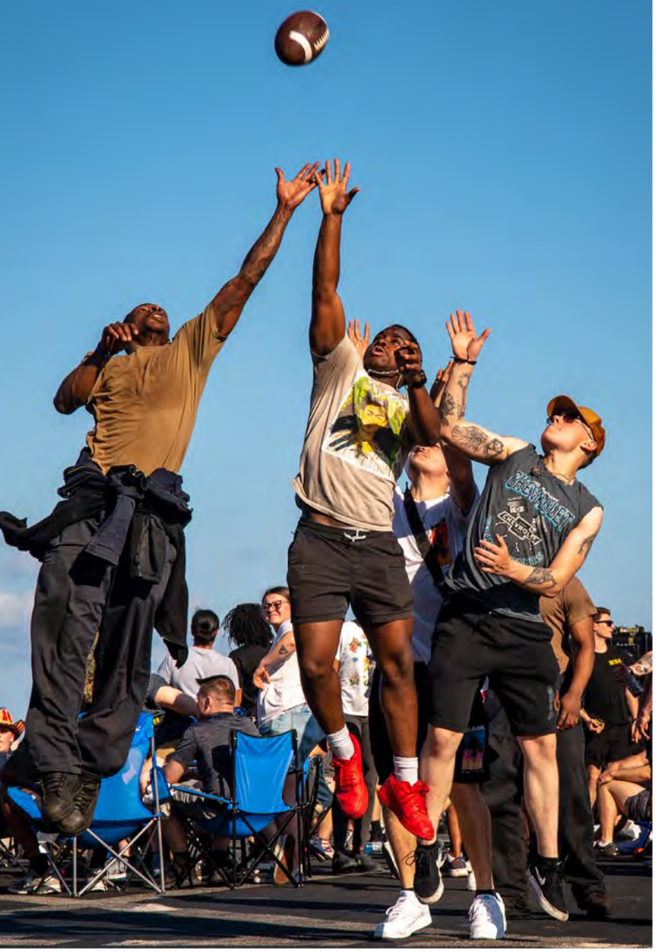
Few, if any, aircraft manufacturers were spared from 5G interference to their provided RADALT to include Boeing, the producer of 737s and, consequently, the P-8A Poseidon. Additional manufacturers include Airbus, Lockheed Martin, Bell Textron, Leonardo and Sikorsky. The FAA released an AD on Feb. 16, 2022, specifically for 737 models from the 737-100 to 737-900ER detailing an impact to the Autopilot Flight Director System, Autothrottle system, flight controls, flight instruments, TCAS, Ground Proximity Warning System, and configuration warnings. The AD also mentioned "simultaneous flight deck effects associated with the 5G C-Band interference could increase pilot workload."

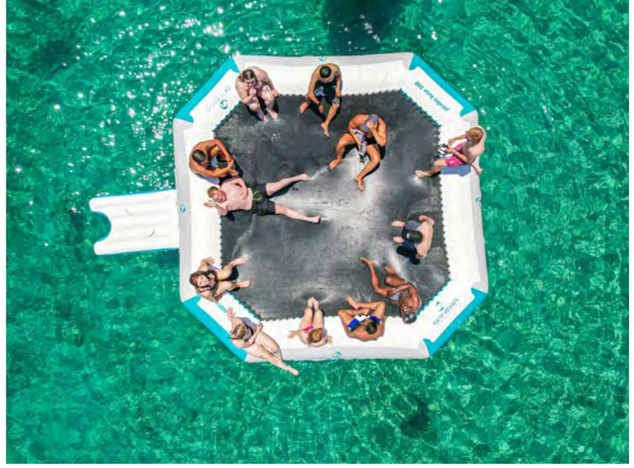
While not specifically naming 5G broadband signals as the source of RADALT interference, the P-8A NATOPS discusses the possible impacts related to a malfunctioning, inoperative or erroneous RADALT. RADALT data may not be presented to the pilots without indications of a failure, failure flags may appear or erroneous data is presented to both the pilots and aircraft's systems. A specific warning calls out that anomalies undetected by the automation or pilot and those occurring close to the ground could lead to loss of situational awareness. What may initially seem like an innocuous effect on the RADALT actually may have a wide-ranging impact on aircraft systems and safety of flight. Any one of the possible impacts listed above could lead to a loss of situational awareness during a critical phase of flight and, at best, confusion in the flight deck or at worst, a serious mishap to include loss of an aircraft and crew.

In the P-8A community, the specific aircraft containing susceptible RADALT have been identified. These aircraft are expressly prohibited from conducting SA CAT I and CAT II ILS approaches while in the presence of 5G. The remaining prohibited operations for non-tolerant RADALT equipped aircraft are either not available on the P-8A or are already prohibited by NATOPs. Through interim flight clearances and NATOPS, the P-8A and its operators are effectively adhering to AD 2023-10-02 for non-tolerant aircraft in the contiguous United States. While not expressly stated, it can also be assumed that other countries have also rolled out 5G broadband services and similar impacts can be expected when operating outside of the United States.

The FAA no longer publishes 5G interference NOTAMS for airports or airspace as it can be assumed that it is present and encountered everywhere in the United States. Wireless broadband 5G service operating in the 3.7 to 3.98 GHz frequency range interferes with RADALT that have not been upgraded, to include those on most P-8As. For other fleet aircraft, it is best to reference any applicable publications to determine if their RADALT may also be susceptible. This interference not only impacts the RADALT output to the pilot but all other systems that rely on the RADALT. According to the FAA, "[pilots] should be aware of the potential degradation of the RA (RADALT) capabilities and the potential degradation to the capabilities of safety systems and other equipment dependent upon the RA." This interference can manifest in ways that may lead to a loss of situational awareness, especially during critical phases of flight. An upgrade path, if not already in progress, should be brought forward to ensure that all aircraft in the fleet have a tolerant RADALT. In the meantime, a better knowledge of the possible impacts of 5G on our aircraft already improves our situational awareness while we operate in this evolving environment.

U.S. Marine Corps Capt. Rachel Purl, a pilot with Marine Light Attack Helicopter Squadron 367 (HMLA-367), Marine Aircraft Group 39, 3rd Marine Aircraft Wing, uses the muti-function display within the cockpit during a live-fire training exercise on Marine Corps Base Camp Pendleton, Calif., March 18, 2026. (U.S. Marine Corps photo by Lance Cpl. Anamile Arce)





101 CRITICAL DAYS OF SUMMER

27 Sailors and Marines died last summer in off duty mishaps while many more were injured.

Accidents and mishaps are preventable if we manage risks and comply with laws and best practices.

Be risk aware to prevent common summertime injuries due to motor vehicles, motorcycles, high heat, swimming, boating, alcohol, fireworks, firearms, sports, home projects and more.

This summer, understand risk and prevent accidents.

Left: Sailors and Marines catch a football during a steel beach picnic aboard USS New York (LPD 21) in the Mediterranean Sea, July 4, 2024. (U.S. Navy photo by Petty Officer 2nd Class Jesse Turner) Right top: Sailors attended a Morale, Welfare and Recreation beach party, at Naval Support Activity Souda Bay, June 6, 2025, (U.S. Navy photo by Nick Fragos) Right bottom: Operations Specialist 1st Class Nautica Peden, assigned to USS John C. Stennis (CVN 74) slides down a water slide during an MWR event in Newport News, Va., June 27, 2025. (U.S. Navy photo by Mass Communication Specialist Seaman Apprentice Oliver McCain Vieira)

YOUR SAFETY IS CRITICAL

By Naval Safety Command

Memorial Day weekend through Labor Day weekend marks the "101 Critical Days of Summer," a period during which many off-duty accidents occur. While most personnel enjoy the weather with friends and family and participate in recreational activities, risk management remains essential. To manage risk in any activity, you should identify potential threats, find tactics to decrease harm, and make informed choices.

Complacency is a common root cause of off-duty mishaps every summer. Maintain situational awareness with these safety strategies:

Self-Assess and Self-Correct - Recreational mishaps are avoidable. You should frequently self-assess and self-correct your off-duty activities. Assess the risks, remember established procedures, understand your limits and comply with all laws.

Teach Others to Reinforce Knowledge - Enlist help in any activity by choosing an "assistant skipper" or mentoring an inexperienced friend. Ensure more than one person is familiar with the plan of the day, understands how to use gear properly, and knows the activity "from A to Z." Training others on best practices helps you remember operations and safety strategies for emergencies.

Maximize Your Needs - Stay hydrated and ensure plenty of water is available. Fully charge your phone and bring an extra charger. Pack spare gear, wear sunscreen and stay in the shade when possible. Dress in bright colors during the day or reflective gear in the evening. Remember to stretch and warm up; stay prepared to anticipate possible problems.

Motorcycle Safety is the Most Critical - Approximately 1 in 10 Sailors and Marines own a motorcycle. Motorcyclists suffer higher rates of serious injuries and fatalities than other drivers. If you are one of the estimated 52,000 riders, you must complete recommended safety courses and wear Department of Transportation-approved helmets, long sleeves, long pants, full-finger gloves and boots that cover the ankle. Additional armor can be lifesaving.

Drive with Vigilance - Look both ways twice. Check blind spots twice. Any distraction is not multitasking; it is distracted driving. Keep plenty of distance between your vehicle and the one in front of you. Remember to reduce speed; arriving alive is more important than arriving early. Follow the rules of the road—never drink and drive or operate a vehicle while sleep-deprived.

Suspect and Inspect - Perform a detailed inspection of summertime gear as you unpack it. Inspect and clean grills, dive gear, motorcycles and sports equipment before use, as they may have been damaged during storage. Check the fit of all shoes and wearable gear. Purchase new equipment if anything is unsatisfactory. A deep clean and a double-check can safeguard against potential risks.

Renew Your Research - New resources, training, laws and standards emerge every year. Check your planned routes for changes and review owner's manuals or take refresher courses to stay current.

Reported Statistics - Don't become a statistic! Last summer more than 300 incidents were reported during the 101 Critical Days of Summer. Nearly all off-duty summer mishaps stemmed from a lapse in judgment, a lack of situational awareness or complacency. To eliminate these missteps, we must make risk management a natural part of how we plan and execute every activity. Risk management isn't just a program or a checklist—it is a mindset.

The 101 Critical Days of Summer is about more than force preservation; it is a reminder that staying safe reduces stress and prevents harm to you and your family. Take a moment to think it through this summer. The life you save may be your own.

Share your story in *Approach* magazine!

SUBMISSION GUIDELINES

When submitting articles and photos, please include:

Title: Proposed headline, though it is subject to change

Author info: Rank, first and last name, as well as unit or organization

Article: Authors should fact-check and ensure statements are backed by references or sourced data. Spell out acronyms on first reference. Spell out all organizations and units, as well as city, state or country. Articles that have been generated or modified by AI shall be cited as such and labeled in accordance with DoDI 5400.19 Paragraphs 3.1.e.(4)(a) through 3.1.e.(4)(c). Authors must have a peer and/or subject matter expert review the article before submitting. NAVSAFECOM may make changes for clarity and style during the review process. Article length should be 450-2500 words. Bravo Zulu inputs should be 90-150 words and include a photo.

Photos: All submissions must be sent as separate files and approved for public release. Images should adhere to established safety and security policies. Images should be the original with minimum 1 MB file size. Include the photographer's rank, full name, unit and full description of the image, location and date taken.

Send to: navsafecom_approach@us.navy.mil

Stay Connected

Front cover: Lt. Robert Currie, attached to Electronic Attack Squadron (VAQ) 140, prepares to start up an E/A-18G Growler on the flight deck of USS George Washington (CVN 73) in the Atlantic Ocean, Feb. 28, 2024. (U.S. Navy photo by Mass Communication Specialist 2nd Class August Clawson)

Back cover: A U.S. Marine Corps MV-22B Osprey aircraft, assigned to Marine Medium Tiltrotor Squadron (VMM) 261, participates in a flyover demonstration along the Delaware River in celebration of the Navy's 250th birthday in Philadelphia, Pa., October 9, 2025. (U.S. Navy Photo by Chief Mass Communication Specialist Chad M. Butler)

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Approach cover features a hidden raven. Can you find it?

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