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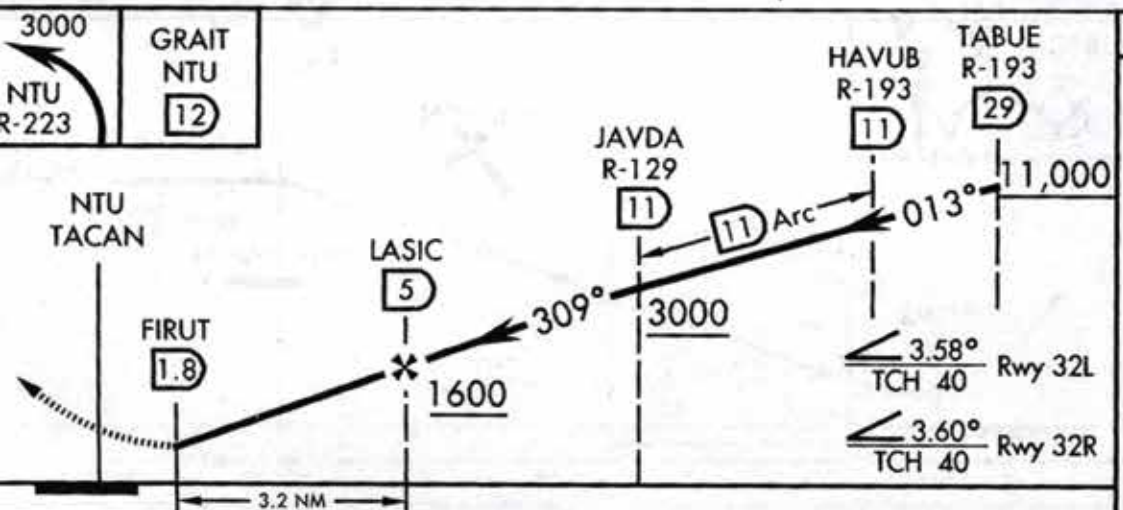
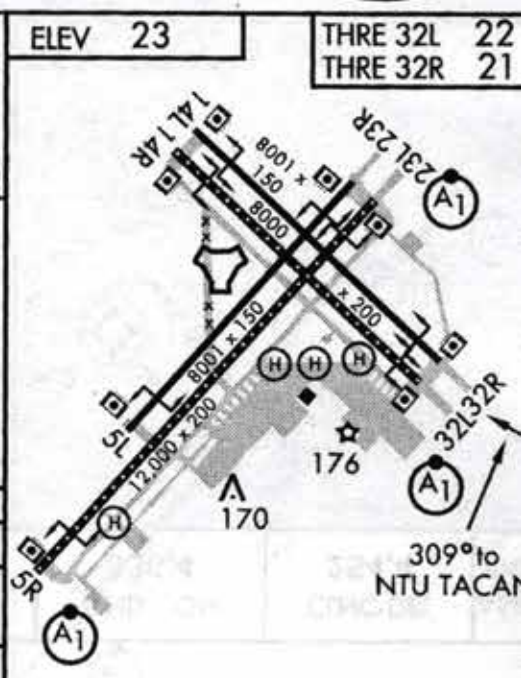
Approach

Focus: Runway Environment





CATEGORY	A	B	C	D	E
S-32L *	480-½	458 (500-½)	480-⅞	458 (500-⅞)	
S-32R *	460-¾	438 (500-¾)	480-¾	458 (500-¾)	

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Mishaps cost time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This magazine's goal is to help make sure that personnel can devote their time and energy to the mission. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous; the time to learn to do a job right is before combat starts.

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Focus on the Runway Environment

How do the risks associated with takeoffs and landings at sea compare to that ashore? Our Director of Aviation Safety Programs discusses the data in our Initial Approach Fix in this issue. The results may surprise you. We're featuring several articles to highlight the risks.

March-April Thanks

Thanks for helping with this issue…
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LCdr. Damon Loveless, VFA-115
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Where the Road Ends

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Departments

Weather

Here's two weather-related stories that emphasize the importance of CRM and ORM principles.

Back cover: EA-18G Growler from VAQ-129, based at NAS Whidbey Island, does touch-and-go landing at NAS Jacksonville. U. S. Navy photo by Clark Pierce.

Admiral's Corner

Let's be frank, we are beginning to operate in challenging times. When I assumed command of the Naval Safety Center in January, it was apparent to me that the uncertainty of unprecedented budget constraints would magnify the need for risk management as our Navy and Marine Corps face significant operational challenges. Therefore it is paramount that we continuously assess the risks as we operate — in the air, at sea, ashore, and perhaps just as importantly, during our off-duty hours.

From what I can tell, in the near-future, we will undoubtedly be asked to do with less. Therefore, we must focus on safety in deference to our strong "can-do" ethos that pervades our Naval Aviation culture. As we look for cost-saving efficiencies, we must never compromise safety, because to do so would put our Sailors, Marines and Airmen in a position where they are executing missions beyond their ability, this puts them in harm's way. And though we must aim to ensure we're mission ready when called, we can never compromise a risk-management approach to operations … keeping a keen eye focused on safe mission execution.

So take an opportunity to read this issue of *Approach* magazine. This issue's major focus is on operations in the ashore runway/hover transition environments, where mishap statistics over the past two years indicate we are incurring more aviation losses in these regimes of flight than in any other flight regime. Our analysts here at the Safety Center are looking very closely at the human-factors errors and CRM breakdowns that contributed to these mostly preventable mishaps. As you read this issue, consider how ORM, CRM and good old basic airmanship could have influenced the outcomes and prevented the preventable.

I also ask you to take advantage of all the pertinent information that passes before you in the course of your duties. As with our safety analysts here at NSC, a review of ASAP inputs, hazreps, Class B and C mishaps and Culture Workshop results may identify trends or behaviors we need to fix. Let's never let manageable problems become causal factors in Class A mishaps. Look at safety with a macro overview, take in all the data and find executable solutions to identified problems. A systems approach to safety will yield positive results. Just as we do with the articles in *Approach*, please share your experiences and knowledge to the Naval Aviation Enterprise to ensure we don't repeat our mistakes.

Now, more than at any other time in my nearly 32 year Naval Aviation career, protecting our people and our assets is JOB ONE!

RDML Kenneth "K.J." Norton
Commander, Naval Safety Center

The Runway Environment

The Analysis

Takeoffs and landings at sea have risks, but when we look at the data, the mishap rates for operating ashore indicate even higher risks. Here's a closer look at the stats.

During FY12, Navy and Marine Aviation had 15 Class A flight mishaps (9 USN) (6 USMC). In comparison to historic data, the FY12 mishap rate was slightly below the 10-year average rate, so that is not a bad thing, right? Well, not really. These mishaps resulted in the loss of 19 Sailors and Marines, and 16 aircraft were destroyed. Entirely too costly in my opinion!

We decided to dig a little deeper to see if we could find common threads in mishaps over the past five years. We tried to characterize these mishaps according to their primary causal factor. Primary causal factor? Wait, they didn't teach us that at ASO school. Yes, I know we don't weigh causal factors or characterize any one in a mishap as "primary," but we wanted to lump the mishaps into general categories. So, we used our best judgment to put them into one of two categories: human-factors aircrew related or maintenance/material failure related.

We found that 75 percent of all Class A mishaps from FY08 to FY12 could be characterized as "aircrew human factors" mishaps. Peeling back the onion a bit more, we found that 63 percent of the human-factors mishaps over just the past two years occurred in the landing/takeoff/hovering environment ashore.

The Greater Risk

Isn't landing the most dangerous thing that we do in Naval Aviation? In the unforgiving afloat environment, where margins of mere inches and seconds can mean the difference between success and failure, one would think that our risk is greater.

It may be an inherently more dangerous and unforgiving environment, but extremely strong controls are in place that have proven very effective. Also, risk exposure ashore is much greater simply because of the number of flight hours flown. We average almost ten times as many flight hours ashore compared to hours flown afloat. Statistically, that means greater risk exposure.

— Capt. Chris Saindon, Director, Aviation Safety Programs, Naval Safety Center.

Questions we should ask ourselves:

- Do we have sufficient risk controls in place for ashore ops?
- Are challenging runway environment/decision-making emergency scenarios practiced often enough in the SIM or in the aircraft?
- Does our focus on basic airmanship and NATOPS suffer due to necessary emphasis on tactics and weapons employment?
- Are we becoming complacent in the at-home "safer" environment?
- Are both currency and proficiency considered and what risk controls are we using when we are "current," but short on proficiency hours?

Simo Run on 23R

BY LT. GEOFFREY BAUCHMAN

Do you find yourself making most of your mistakes during the most routine phases of flight? Our "A game" is too often exclusively reserved for the tactical phase of flight. The variety and complexity of our strike-fighter missions require an incredible amount of focus. Undoubtedly, our tactical performance deserves our best effort. However, we cannot "drop the pack" during the administrative phase of flight. As we discovered on this day, a few simple mistakes in the terminal environment can quickly result in a mishap.

After completing a routine, division bomb flight in the Navy Dare Bombing Range, I began leading our division of FA-18s back to NAS Oceana. I received a FLAPS SCHED caution during the transit. In accordance with NATOPS, I prepared for a straight-in approach to runway 23R. We split our division into two sections, NFRNO 31/32 (mine) and NFRNO 33/34 to accommodate my straight-in approach. My section took separation at 10 miles from the field. NFRNO 32 continued for the overhead approach, and I prepared for the straight-in.

As I approached two miles from the field, NFRNO 33 was abeam runway 23L. Tower's plan was for the straight-in traffic to land on 23R while overhead traffic landed on 23L. At two miles, I was issued and acknowledged landing clearance for 23R. Simultaneously, NFRNO 33 erroneously acknowledged my landing clearance on 23R. Tower only heard NFRNO 33's acknowledgement, but failed to correct the situation. Because we stepped on each other's calls, I missed NFRNO 33's acknowledgement of my landing clearance. We both prepared to land on 23R. I could see NFRNO 33 but assumed he was simply overshooting his approach turn to 23L. It was not until he rolled out directly in front of me that I realized he was preparing to land on the incorrect runway.

I IMMEDIATELY EXECUTED A WAVEOFF. Ultimately, all members of the division waved off because of the uncertainty with landing clearances. Within a few minutes, tower regained SA and issued new landing clearances. All flight members landed uneventfully.

Two very simple mistakes created an unsafe situation.

1. NFRNO 33 acknowledged NFRNO 31's landing clearance.

2. Tower failed to recognize the error.

The following incidents have occurred in NAS Oceana's Class D airspace within the last six months.

T-34 pilot executed "line up and wait" when told to "hold short."

FA-18 pilot descended to 2,500 feet when told to maintain 3,000 feet until the initial approach fix (IAF). An altitude restriction was issued because of PAR traffic at 2,000 feet.

FA-18 pilot breaking into the 1,000-foot pattern was alarmed to find rotary-wing traffic just below the pattern at 800 feet. No traffic advisory given.

FA-18 pilot was cleared to land on runway 23R while an aircraft that had just landed was taxiing across 23L departure end. That pilot had landed on 23L instead of 23R as instructed. ATC directed the taxiing aircraft to "hold short, landing traffic on wrong runway." The original Hornet pilot landed without further incident.

Although the administrative phase of flight should be routine, it is no excuse for complacency. As we saw in my incident, the simplest of mistakes can quickly lead to unsafe conditions. Aircrew and air-traffic controllers must work together in the terminal environment. It is only through this cooperative relationship that we establish consistent safe operations.

LT. BAUCHMAN FLIES WITH VFA-81.

Uncomfortably Close

BY LT. THOMAS POWERS

We were RTB from the Catalina missile ranges to NAS Point Mugu following a range-clearance exercise in support of air-to-ground SFARP (Strike Fighter Aviation Readiness Program). After this six-day, good deal in Mugu, we would go to NAS Fallon and join the remainder of our Hawkeye squadron. This was my second detachment within a month of joining the Bluetails as a fresh 3P from the FRS.

It had been a good experience, building hours aloft doing surface-search coordination (SSC) in conjunction with the VX-30 Bloodhounds. We cleared the whiskey areas for shore-based, ground-launched target drones and weapon launches by our CVW-7 sister squadrons, who flew out of NAS Lemoore. As the Hawkeye squadron, we stayed aboard Point Mugu. We could depend on maintenance support from a detachment of our own maintainers, with help from the VAW-117 Wallbangers. Beautiful Pacific Coast weather and delicious Camarillo tri-tip sandwiches were added bonuses.

The plan was to cover five hours of range clearance for the final HARM and AMRAAM shoots before our quick hot-pit refueling. Once the mission was complete, we would return to Mugu, refuel on deck, and switch seats up front. We would activate our second flight-plan leg and fly off to join the rest of the squadron in Fallon.

The first part of the plan went without a hitch. But, on the return leg, we were vectored into the GCA pattern for a PAR to runway 21 because of the target drone shoots from the launch site to the west of the airfield. As we turned from a right base leg to final over the Camarillo Airport, we got a traffic call from the controller.

"Griffin 02, traffic is a VFR Coast Guard helicopter at one mile."

"Griffin 02, in sight."

"Griffin 02, with traffic in sight, switch final controller."

As we turned final, it became obvious the HH-60 Jayhawk was on a VFR approach to land at Pt. Mugu. In a controlled set-up for a landing at the base of Mugu tower, their pilot was on a three-degree glideslope paralleling our course to runway 21. As we turned final, already configured for landing, we closed within 400 yards of the helo on his right quarter. In our position, we were out of view of their pilots and aircrew. Under positive control on an IFR flight plan, we gave our approach controller an advisory call, asking if someone was in comms with the Jayhawk. The PAR controller was not talking to him. We directed our NFOs to switch a backup radio to tower frequency and try to establish comms.

Meanwhile, up front, we were maneuvering to avoid the helicopter, while also following our controller's PAR directions to a safe degree. The Hummer is a slow airplane, but I didn't realize how slow we were until we were at 20 degrees of flaps and flying some great unintentional, unbriefed, and incredibly dissimilar cruise form with a helicopter. Twenty flaps buys us an approach speed of about 114 to 118 knots at on-speed AOA. The carrier aircraft plane commander (CAPC), or "the guy who signs for the plane," directed me to slow in an effort to build separation. As he approached the airfield, the Coastie pilot began to slow in preparation for landing. So, our seven-knot speed change was perfectly matched by the helo, who we still couldn't contact.

"Take it down to full flaps," directed our CAPC.

"Griffin 02, two miles, on glideslope, slightly right of course."

As we dropped full flaps, we slowed to 110 knots, still being matched almost perfectly by the slowing Jayhawk. Eventually, once we closed within half a mile of the airfield, he side-stepped the course and landed at the tower. We recorrected to centerline, landed, and taxied back to Hawkeye Country for the hot pit. As I ran inside to activate our second leg, grab some box lunches, and check the weather between Mugu and Fallon, the CAPC made a call over ground frequency in an effort to finally establish communication with the HH-60J.

The pilot of the helo apologized profusely once he was raised. He was unaware we were on approach, partly because he was working VHF frequencies on his approach to deconflict with the busy civilian traffic in the vicinity of the Camarillo Airport. Our standard with a Navy airfield is to work the UHF frequencies, and no one had thought

to contact him on the victor side. We finished our fueling, took off, and completed our leg to Fallon, rounding out an almost seven-hour evolution from takeoff that morning to landing late afternoon at NAS Fallon.

Comm issues aside, this was an easy fix. There was no need to play "how-slow-can-you-go" with a rotary-wing aircraft. We were under positive IFR control, we had the other aircraft squarely in sight, and we could have used our situational awareness (SA) to defuse the situation.

The Hawkeye is a command and control aircraft, with three UHF/VHF capable radios and three more UHF radios. At the front end, we could have definitely used this capability, along with the three other heads behind us, to attempt contact on all frequencies associated with Pt. Mugu. As a last-ditch effort, we could have broadcast on guard to get the attention of the Coastie pilots. However, back-end radio lineup and setup in the Hawkeye is a tricky CRM drill involving a lot of front-to-back ICS comms. Our SA buckets were filling up fast as we flew the approach and avoided the helo.

From a CRM perspective, we had lapsed in our flexibility. Our sights were set on landing as soon as possible and taking off in short order. We wanted to avoid unnecessary delays between our current situation and our end goal of landing at Fallon. Our get-there-itis got the better of us as we tried to maintain visual contact on an IFR approach, adding to an already task-saturated cockpit. The smart move was to request a right 360-degree turn away from the helicopter, building separation between the two aircraft while remaining under positive approach control.

The weather was VMC. The marine layer had come and gone earlier that morning, and we could have even broken off the PAR for short hook back onto the final approach course. Our persistence on landing while maintaining visual contact was, in retrospect, a dangerous decision. We had already compromised our maneuverability by slowing to a speed that would put us well behind the power curve if we had to avoid any erratic maneuvers by the Jayhawk.

As a junior pilot, I took away from this experience a better understanding of multi-crew cockpit CRM and time-critical risk management (TCRM). CRM in the Hawkeye is a dynamic job, involving front-to-back communication as well as inter-cockpit decision-making. TCRM sometimes needs to be formulated and enacted by a single person in our five-man crew and given a quick sanity check by the crewmembers before execution. Our crew agreed to maintain visual separation with uncomfortably close VFR traffic.

Now, with the experience built over a year with the Bluetails, it would be easier to be an assertive copilot and suggest we remove ourselves from an increasingly dangerous situation. At the time, as a very junior pilot, I was still running on FRS rules, looking to a more experienced aviator to make a smart, safe decision in an unfamiliar situation.

Our story ended well, but that doesn't rule out the possibility that anyone else in our crew could have made a call to have better mitigated some of the risks. As junior aircrew, never be afraid to speak up about a situation you find unfamiliar and threatening. Your aircraft commander or flight lead may have seen this sort of thing 1,000 times before or his bucket could be filling just as fast as yours. Communication is one of the seven facets of CRM for a reason. If you can communicate your intentions quickly and effectively, you can avoid being a drain on the overall situational awareness of your crew.

LT. POWERS FLIES WITH VAW-121.

HIGH-SPEED ABORTS

BY LCDR. RAY BIEZE

Hot brakes and brake fires continue to be a problem in the FA-18EF community. Several incidents resulted in severe aircraft damage and Class A mishaps. Brake fires have broken out long after aircraft shutdown; these fires didn't injure maintenance personnel or cause major damage, but they are still cause for alarm.

As I investigated a hot-brake incident in our squadron, I learned several things that either I had known at one point and forgotten or was completely unaware of. Before I wow you with my insightfulness, let me review the Hornet wheel-brake system.

The system is not particularly complex. Hydraulic pressure is transmitted to the wheel brakes via the HYD-2A circuit. With the help of the anti-skid control box, the aircraft stops in a relatively short distance. There is little worry of blowing a tire or running off the end of the runway. At least that's how it works on 99 percent of field landings when you are at a normal landing weight and not faced with the added stress of an emergency.

What about the one percent of situations where you are forced to come to a stop at a heavy gross weight? NATOPS has a section on heavy gross-weight braking technique, which I didn't know existed until after our incident. In a nutshell, NATOPS (page III-7-42) says that whenever aircraft gross weight is more than 46,000 pounds (for Super Hornets), wait until the aircraft decelerates below 115 knots until applying brakes. NATOPS also says that hot brakes and melted wheel-assembly fuse plugs can be expected after a maximum braking effort at heavy gross weight (I-2-54). According to Boeing, heat sufficient to melt the fuse plug is also hot enough to damage the wheel.

There are two times when a pilot can face a heavy gross-weight braking scenario. The first is an emergency landing immediately following takeoff. In most cases involving an immediate landing, there's enough time to dump fuel to reduce gross weight.

The second scenario is when there is enough runway length to use aero braking until less than 115 knots. Upon landing, pilots are trained to be acutely aware of remaining runway length, runway condition and airspeed. With few exceptions, Hornet pilots have handled this situation without incident.

The far more dangerous scenario is a high-speed abort. During every takeoff (unless light loaded for FCLPs) you will find yourself in a heavy gross-weight braking scenario when executing a high-speed abort. With the stage set, here's what I learned in the course of my investigation.

During an abort the jet continues to accelerate for a few seconds after reducing the throttles to idle. In our incident, the aircraft accelerated from 128 to 146 knots in the three seconds after the pilot selected idle. The engines cannot go from full afterburner (AB) to idle instantaneously, and acceleration (and therefore velocity) cannot go immediately from positive to negative without breaking some fundamental laws of physics.

Strike Fighter Wing recommends several reasons to execute a high-speed abort. Every pilot has their specific high-speed abort criteria that we mentally (or verbally for D and F models) recite as we cross the holdshort. The list is not long but includes anything that might make it more dangerous (or impossible) to go flying instead of staying on the ground.

During the takeoff roll, everyone is trained to focus on the HUD and monitor airspeed for rotation numbers. We monitor the HUD until something draws our attention away from it, like a FIRE light. The last airspeed seen before initiating the abort is likely the last one we remember, and that is the speed we reference when deciding what braking technique to use. As I mentioned, you may be off by almost 20 knots. This makes a big difference when considering the amount of energy absorbed (and therefore heat generated) by the brakes during an abort.

We often execute our abort procedures too quickly. Yes, abort procedures are bold face, but it is not necessary to execute all of them simultaneously. It is possible to bring the throttles to idle, extend the speed brakes, apply the brakes, and bring the stick to your lap in a concert of united motions that would make the most hardcore simulator instructor shed a tear of joy. I'm here to tell you that might not be the right move.

Pull the throttles back to idle immediately. Immediately put out the speed brakes. Then determine runway remaining, condition, aircraft gross weight and airspeed — do it quickly. Most runways we operate from are long enough that jamming on the brakes immediately is not necessary. In fact, you can move on to step 4 of the abort procedure and get the longitudinal stick in your lap prior to applying the brakes. The stabilators provide tremendous drag and will slow the aircraft down in short order without use of the brakes, especially at higher speeds.

Pilots tend to have incomplete high-speed-abort plans. Knowing what criteria to use for a high-speed abort is only one-third of the picture. The other two-thirds are braking technique and what to do once clear of the runway. With so few reasons to execute a high-speed abort, there really is no reason not to have a complete and thorough plan for each scenario. Even then, the workload can be reduced by grouping those aborts into two categories:

1. The "I need to get this jet stopped now" category.

2. The "I can probably roll out to the end of the runway" category.

Getting the jet stopped at the first possible moment is required only when you have an engine fire, maybe a

... our NATOPS checks and semi-annual emergency-procedure (EP) simulators often don't highlight aborts as well as they should.

bleed-air leak, or if runway length is a factor. In the first case the risk to the aircraft from fire damage is likely much greater than from slamming on the brakes. When considering runway length, running off the runway is obviously more serious than hot brakes. In virtually every other case (failure to make line speed, INVALID on the FCS display, multiple channel failures in the FCS, triple circuit hydraulic failures, or tower told you to) immediate braking is likely not required. You can afford to slow the aircraft by other means before applying the brakes.

The final piece of the high-speed abort plan is braking technique after you clear the runway. The worst possible thing to do is set the parking brake. However, if you are about to jump out of the jet because it is on fire, that's a different story. A brake fire should be the least of your concerns at that time.

In many cases you won't have to stop immediately. Setting the parking brake puts extraordinarily hot (sometimes above 2,000 degrees F) brake shoes in contact with a metal brake disk, and creates a physical conduction path for the heat to transfer. It also ports hydraulic pressure to the brakes. Typical brake fires occur when the hydraulic seals fail (either due to wear or heat) and misting fluid sprays onto a hot brake. As long as there is no hydraulic pressure at the brakes, there shouldn't be a fire.

Aside from not setting the parking brake, make every attempt to continue to taxi and minimize brake usage. Airflow over the brakes can significantly speed up cooling. If you still have hot brakes, maintenance personnel should take you to the hot-brake area, set up the fans and chock the aircraft.

It is up to the pilot to make sure these things happen. Have a complete plan and be assertive with ground control and the crash crew. Your responsibility for the aircraft doesn't end until it is shut down and you get out.

The last lesson learned is that our NATOPS checks and semi-annual emergency-procedure (EP) simulators often don't highlight aborts as well as they should. As a NATOPS checker, I have given countless high-speed abort scenarios to aircrew. I am as guilty as many others in not briefing or debriefing exactly what I've talked about in the above paragraphs. In all the high-speed aborts I have witnessed in the simulator, they are executed in an identical manner, exactly in accordance with NATOPS. Pilots stop the aircraft in the minimum distance they can and do not consider modulating braking technique based on available runway remaining.

We train to stop the aircraft as soon as possible during a high-speed abort in the simulator and those habit patterns have transferred to the aircraft. The simulator does not get hot brakes and does not care if you jam on them at 150 knots and weigh 66,000 pounds; it will just go through its deceleration model and bring you to a halt. I implore all NATOPS checkers to anchor down on the high-speed abort. It is not a routine or standard event and should be briefed in such a way that makes that clear.

EVERY SITUATION IS DIFFERENT, and there are many variables to consider. There is no magic-bullet solution. Get specific abort and takeoff numbers before every flight. Chances are they will be the same on most occasions, but your habit pattern will be set. You then won't have an unfamiliar configuration at an unfamiliar field and have to check abort numbers at the holdshort.

When you talk about emergencies in your next brief, don't just say, "Aborts in accordance with NATOPS, sympathetic aborts apply." Spend some time and discuss abort recognition, braking technique, and what to do when you clear the runway. Jump back into NATOPS and read the section on heavy gross-weight braking technique. We can't afford to ruin an aircraft because we failed to plan accordingly or didn't learn from other events in our community.

LCDR. BIEZE FLIES WITH VFA-86.

Hey, I Think He Aborted!

BY LT. BRIAN SMITH AND LT. NICK CHARNAS

We were two months into deployment as our light division of Growlers prepared for a night, suppression-of-enemy-air-defenses (SEAD) training flight from Misawa, Japan.

The takeoff was briefed to be a 10-second afterburner go. The brief covered the standard emergency briefing items, including division abort specifics. We taxied out of the glow of the hangar lights into a dark and hazy evening.

Lead and Dash 2 took the runway, with Dash 3 set in the holdshort. Lead started the takeoff roll, with Dash 2 following 10 seconds later, followed by Dash 3 taking the runway. Shortly after Dash 3 started his roll, he noticed Dash 2's afterburners had destaged at what seemed to be sooner than normal. Dash 3's initial reaction was that Dash 2 was climbing away, so they continued their takeoff roll.

Dash 3 took an offset to the right side of the runway as they passed overhead Dash 2 at 400 feet.

Dash 2 had actually aborted their takeoff for what felt like a surging or failing engine. They first noticed something was wrong around 50 knots when the airspeed was erratic. The velocity vector also was jumping abnormally — this would have been the ideal time to abort. Within a few seconds the jet passed through the high-speed cutoff of 100 knots. As the takeoff roll continued, so did the engine surges. By the time the aircrew decided to abort, they were at 140 knots. The engine anomaly did not meet the threshold for high-speed-abort criteria per the SOP. Dash 2 called out their abort over the radio and engaged the long-field arresting gear.

As Dash 3 approached 75 knots when they realized something was wrong. Dash 3's EWO asked his pilot if he could tell if Dash 2 was airborne. The pilot responded that he thought so, but wasn't sure.

Around 120 knots, the Dash 3 EWO said, "Hey, I think they aborted." The pilot had just realized the same thing. By the time everyone figured out what had happened, Dash 3 was at 145 knots and elected to continue their takeoff. Dash 3 took an offset to the right side of the runway as they passed overhead Dash 2 at 400 feet.

Dash 2's abort call had been made on tower frequency, so it was not heard by the rest of the division, who were on the departure frequency. Dash 2 had not switched the primary radio to departure as instructed by tower after takeoff clearance. No abort call had been passed over the flight tactical frequency on the second radio. Dash 2 engaged the long-field arresting gear. A dual, high-speed abort situation could have occurred had Dash 3 executed the standard sympathetic-abort procedures after late recognition of Dash 2's abort. Dash 3 could not have stopped prior to Dash 2 had they elected to abort.

A high-speed abort in a 60,000 pound EA-18G stresses the aircraft's brakes to the limit. Even after the long-field arrestment, the aircraft's wheel-brake assembly had been damaged from overheating.

Many factors contributed to the evening's events: weather, communication, and as always, situational awareness. However, the one factor that caught everyone's attention was complacency. Takeoffs and landings tend to become "standard" when really they are the most likely place for things to quickly become "non-standard." Our light division on that dark Misawa night found this out first hand.

LT. SMITH AND LT. CHARNAS FLY WITH VAQ-132.

Traffic in the Break?

BY LT. MATT MORGAN

I found myself on the flight schedule for a short, multiple practice approach, low-stress flight in the local area the day before a long weekend. I can think of worse ways to spend a Friday afternoon.

I thought few things could surprise me after spending the past two years flying out of Chambers Field at Naval Station Norfolk. However, after cleaning-up from our last approach at a local airport only a few minutes away, I was about to find out I was wrong.

We entered the ground controlled approach (GCA) pattern for one last precision approach (PAR) upon arriving back at Chambers. As is common at any airfield with a GCA pattern, we were not the only aircraft in the pattern. Today, we were sharing it with a helo. With a desire to break the monotony of straight and level flying, we opted to end our flight with a depart and reenter. After completing our uneventful PAR, we entered the tower pattern.

Once in the pattern, we put the depart and reenter on request. After receiving approval, we cleaned-up and climbed to 1,500 feet to start a quick transit back to the initial for runway 10. At the initial, tower cleared us to break at the approach numbers.

The cockpit started to liven up as the excitement of the break quickly approached. Prior to the numbers, I scanned the downwind area and didn't see any traffic. About 90 degrees through the break, I spotted an SH-60 in an apparent hover and coaltitude with us.

My carrier aircraft plane commander (CAPC) calling out "Traffic, I've got him," in the cockpit. Seeing an aircraft coaltitude that close was not something either of us expected, so it took us a second to process our next action.

We quickly put a little more G on the plane to tighten up the break. It was apparent a collision was not going to happen. The helo passed close behind us by less than 1,000 feet. We quickly shook off what had happened and put the aircraft on deck.

During our crew debrief we discussed what went wrong and how we found ourselves in the pattern coaltitude with another aircraft. We had no traffic calls from tower, nor did we hear tower in comms with another aircraft. The reason I had difficulty spotting the SH-60 was due to ground clutter and their apparent hover.

Never assume the airspace is clear. It is arguably more important to make a good traffic scan when the radio is quiet and there is no other apparent traffic around you. I am not admitting to us "sandbagging" in the cockpit, but with tower clearing us to break at the numbers and no situational awareness given to any traffic, we were definitely caught off guard by the helo.

Our lookout responsibility falls on the pilots. ATC and tower own traffic separation; however, as pilots, we are responsible for a good and safe VFR scan.

LT. MORGAN FLIES WITH VAW-126.

PHOTOGRAPHS BY LTJG JUSTIN CHURCH

Where the Road Ends

BY LCDR. BRIAN HENRY, USCG

The evening featured a perfect, fog-free July sunset on the Oregon coast. I was standing duty at Air Facility Newport and settling in on my first helping of ice cream when the SAR phone rang. Three juveniles were stranded on a rock near Road's End State Park 20 miles to the north. I knew where the park was, realized that we were running out of daylight, and did not request additional information. In an effort to get these hoists done before sunset, we pushed ahead toward a launch. We could clear up other details during the 10-minute transit and took off for Road's End. I was the pilot in command (PIC).

Once we arrived on-scene, our rescue swimmer reported four small specks on a vertical surface, barely visual in the faint ambient light. Two people were on the western side of what appeared to be about a 150-foot vertical surface, about 75 feet above a sandy beach. Two others were more east and about 60 feet above the beach. We made multiple recon passes to survey the scene but did not report the on-scene conditions or the nature of the rescue to our Operations Center (OpCen) in North Bend, Oregon.

Although external communication is critical for rescues, hazardous attitudes prevailed: "I have to get these kids off the cliff" and "I can't waste time and fuel to talk on the radio any longer." The OpCen and operations officer were left to assume the situation was a simple case of survivors stranded by the tide on a rock, and not a night vertical-surface rescue we had never trained for.

After being told that a ground-rescue party hadn't been able to reach the juveniles from the top or bottom of the cliff, we planned to rescue each survivor from a position more than 200 feet above the beach. We needed to maintain clearance from the upper ridge of the vertical surface. We also had to consider the fact that we only had 25 feet of clearance from a group of dead trees to the west of the survivors, and 25 feet of clearance from a 400-foot headland up and to the east of the survivors. It was critical to minimize downwash and blowing dirt.

As a crew, we agreed the mission was extremely high risk, but that there was high gain. I had never performed a night vertical-surface hoist, but we had excellent NVG conditions. I was confident we could maintain a steady platform for my flight mechanic to hoist 120 feet above the climbers.

We never conveyed to local responders the potential problems of downwash and blowing debris on the juveniles. We also didn't mention that none of us had

conducted a rescue of this nature at night. Instead, I assumed that by asking the ground rescuers multiple times if our services would be required, they would infer that we were worried about the high risk of a helicopter rescue.

We battled as a crew to fight through darkness, downdrafts, and blowing debris to take two of the four juveniles off the cliff and deposit them on the beach. Our rescue swimmer made contact with each one and applied a quick strop. The hoists of the rescue swimmer and survivors resulted in violent swings away from the cliff, with subsequent swings and brutal contact with the cliff face. As I maneuvered the aircraft aft and away from the cliff, dust clouds billowed up forward of the aircraft and obscured the 40-degree NVG field of view on my NVGs. I found it difficult to maintain hover references.

The rescue swimmer was brought aboard the aircraft. He announced that he didn't think that there was any way to recover either the third or fourth survivors without knocking someone off the cliff. Low on fuel, we departed scene and again questioned the local responders to see if there was any other way to get to the survivors off the cliff, or if the pair could make it through the night on the cliff. They replied that a helicopter rescue would be required.

We recovered at Newport, refueled, and I spoke briefly to my operations officer, who did not know that the case involved a night, vertical-surface rescue. I told him that the previous two hoists were the hardest I'd ever done and we were "in the red" for risk. What I didn't tell him was that I didn't want to continue with the mission. He suggested I increase my hover altitude to minimize the circulating dust that obscured visibility. I told him that an increase in hover altitude would make it more difficult for the flight mechanic to see the rescue swimmer and precisely place him on the

cliff face. Without hearing from me that I didn't feel the mission could continue safely, the operations officer endorsed continuing the mission.

During the refueling, we didn't debrief what had happened. We each perceived the need to get back out to Road's End as quickly as possible. No one felt good about continuing the mission, but no one spoke up. During the first rescue, the rescue swimmer had to physically grip the child as the child began to let go. He and the survivor were dragged 10 feet up the cliff. After attaching to the survivor with the rescue strop, the hoist cable wrapped around his leg, and he was pulled up the cliff with the survivor in an inverted position before snapping upright. We did not discuss this while on deck.

We clearly had an internal communication breakdown in crew resource management (CRM). Flight discipline and leadership require that crew members employ an aircraft within common-sense guidelines. I equate common-sense guidelines with knowing and respecting the limits of your crew and yourself. I was leading my crew beyond prudent limits because of our emotional commitment to saving the lives of the juveniles. I didn't have the objectivity and presence of mind to say that we shouldn't finish the mission.

We departed Newport for Road's End. I established a hover in the same place as before. I noticed the wind direction appeared to have shifted easterly and that blowing debris was not moving aft of the aircraft. As soon as the flight mechanic reported the rescue swimmer had positive contact, dust began to completely obscure my view with the NVGs.

I lost all visual cues, and told the flight mechanic to, "Get the swimmer up now!"

An experienced pilot once told me that 80-percent torque and nose on the horizon during inadvertent IMC saved his bacon, and for some reason it was as if he was sitting next to me telling me just that. It felt like 10 or more seconds that I couldn't see the cliff or the rapidly rising headland 25 feet to my right. My copilot couldn't see the dead trees to his left, but I remember him once again blocking any left movement of the cyclic.

We emerged from the dust cloud with the headland inside of a rotor-disk distance to my right and well-forward of our original position. The rescue swimmer had rocketed off the crest of the cliff and had come nearly eye-level with my copilot on a forward swing. The hoist cable then wrapped around the nosewheel, with the rescue swimmer dangling helplessly below the aircraft. We managed to make a slow, climbing left turn away from the headland to the right. Offshore rocks and crashing waves briefly got my attention through the chin bubble. I turned my attention from the instruments to acquire visual references under the NVGs.

The flight mechanic came over the ICS and exclaimed that the "hoist cable was wrapped around the nosewheel," and added, "the cable may need to be sheared off." I checked the radalt, noted that we were climbing through 450 feet, and shouted, "Don't shear the swimmer!"

After attaching to the survivor with the rescue strop, the hoist cable wrapped around his leg, and he was pulled up the cliff with the survivor in an inverted position before snapping upright.

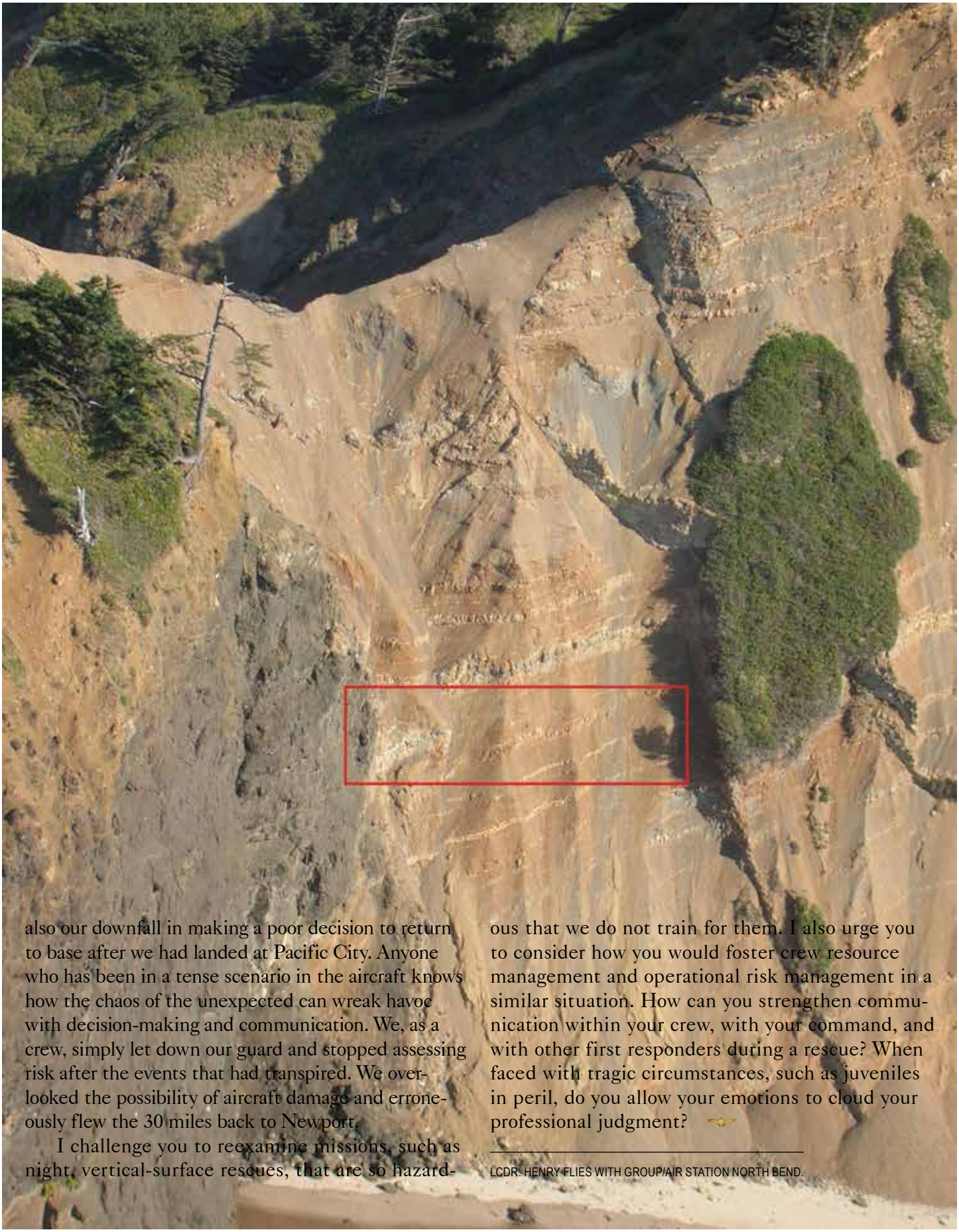
To compound the chaos, my copilot and I couldn't pick up any visual cues through the windscreen. The problem was a lack of a visible horizon over the Pacific, combined with excessive glare in the cockpit because of the reflected cabin light off the dusty windscreen.

Almost immediately after telling the flight mechanic not to shear, the rescue swimmer came over his handheld radio and excitedly asked, "Why are we so high?"

He was seeing the lights of the ground-rescue folks below the cliff getting smaller. He had made several previous radio calls that were unintelligible because of static and rotor noise.

I noticed my airspeed indicator was fluttering between 10 and 20 knots. I immediately realized I needed to increase airspeed and get down low over the surface in case the hoist cable parted, dropping the rescue swimmer. We initiated a descent, and the copilot came on the collective to help me arrest the aircraft's descent at 26 feet.

We air-taxied at 50 feet to the approach end of the runway at Pacific City, lowered down to a 10-foot hover, and the rescue swimmer released from the hoist hook and ran out of the rotor arc. Situational awareness during this final stage of the flight saved our crew, but it was



also our downfall in making a poor decision to return to base after we had landed at Pacific City. Anyone who has been in a tense scenario in the aircraft knows how the chaos of the unexpected can wreak havoc with decision-making and communication. We, as a crew, simply let down our guard and stopped assessing risk after the events that had transpired. We overlooked the possibility of aircraft damage and erroneously flew the 30 miles back to Newport.

I challenge you to reexamine missions, such as night, vertical-surface rescues, that are so hazardous that we do not train for them. I also urge you to consider how you would foster crew resource management and operational risk management in a similar situation. How can you strengthen communication within your crew, with your command, and with other first responders during a rescue? When faced with tragic circumstances, such as juveniles in peril, do you allow your emotions to cloud your professional judgment?

LCDR. HENRY FLIES WITH GROUP/AIR STATION NORTH BEND.

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Weather

Simple Made COMPLICATED

BY CDR. TIMOTHY SLENTZ

I didn't anticipate that one of the most difficult ORM decisions I would make as a commanding officer would come during a simple fly-on to the carrier to start our nine-month deployment. Air-wing carrier qualifications for the Hornets and Prowlers had started on Wednesday, the day USS Dwight D. Eisenhower (CVN 69) pulled out of NS Norfolk. Our E-2s were set to come out on Thursday for day CQ, return to Norfolk, fuel, fly back out for night CQ, and then RTB for the night. Friday would be wrap-up CQ. We would fly aboard permanently on Friday night. Saturday was set as a back-up CQ day for fallouts because of weather.

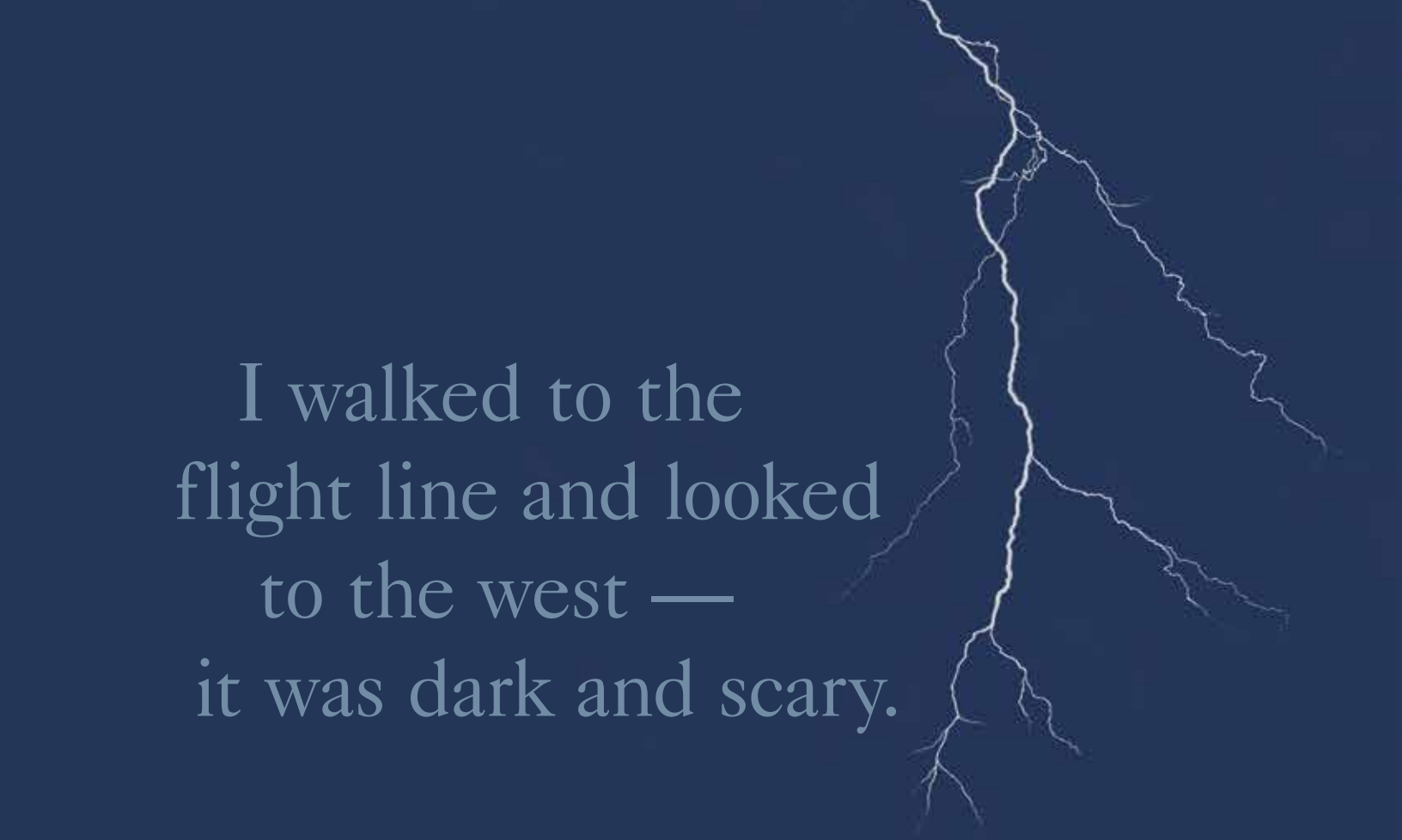
Though no one aboard would likely be sympathetic, it's very difficult emotionally to do CQ in this manner. The intent is to get the "big wings" off the deck for as much of the carrier quals as possible. However, as all carrier aviators know, you can't plan on always making it back to the beach for the night. You have to say all of your goodbyes with the family just in case. In our case, all the planes that went out to CQ made it back to Norfolk late Thursday night. Friday evening was our scheduled fly-on.

Staying at home all day Friday was a blessing and a curse. It was a blessing to be with family just a little bit longer before leaving on a long deployment, and it was a curse because the dread of the pending goodbye seemed to increase with each stroke of the clock. Nonetheless, we made the best of hanging out and trying to relax. The brief for the flight out wasn't scheduled until 2000. The Norfolk area had brief periods of rain, and the typical afternoon summer thunderstorms were forecast.

Around 1600, the phone rang. It was the SDO from our ready room aboard the Ike. He said that CAG needed us to get to the boat "as soon as possible," and that we were to consider it "operational necessity." Wow. When I think operational necessity, I think someone has decided the mission is so important that risk of life is approved. In my mind, a fly-on for deployment did not fit that definition. I called the beach SDO and told him to get all the remaining aircrew in to the squadron to brief by 1730.

The sudden switch back to the goodbye plan was traumatic for the family and me. As with any Navy family facing an extended deployment, it's those final moments that are so brutal. As I drove away in the pouring rain, my wife and three kids were standing in the front yard waving goodbye. I choked back a few tears and pressed on to the base.

The weather situation was not a typical afternoon thunderstorm: A huge line of convection moving to the northeast had just skirted us, but it included large portions of Norfolk. Because of its line of travel, the weather at NAS Oceana did not seem to be as ominous. Naval Station Norfolk was in thunderstorm condition 1. This



I walked to the flight line and looked to the west — it was dark and scary.

meant thunderstorms were within five miles of the base and flight-line operations usually are restricted for safety. Because all of our maintainers already were embarked on Ike, a sister squadron was handling our flight-line operations and duties.

As we were discussing the weather, my XO called. He had just talked with CAG, who had been at dinner with the Admiral. CAG passed that the Admiral reiterated that he wanted us out on the boat that night. About 15 minutes later, the ship's air-ops officer called and asked me when we would be arriving. I told him about the weather situation. He said it was important to get us aboard because the ship needed to begin its translant the next morning.

I walked to the flight line and looked to the west — it was dark and scary. To the south and east, it was dark but less scary. Frequent lightning could be seen all around. I went inside and checked the weather radar. There seemed to be a small break coming within the next hour. As we discussed a plan, the phone rang again. This time it was the CAG ops officer. He also wanted to know when we would be arriving, but stressed that CAG did not want us to "do anything stupid." We discussed the weather. He said it was our call on when to depart, but that the weather was good out at the ship.

The line between stupid, calculated and confident started to seem very blurry to me, as I continued to hope for a break in the weather. Another thought went through my mind: These were not my Sailors that would be going outside to launch us. I immediately went to our sister squadron to get the CO's phone number and call him. I was unable to reach him, but I did reach the XO. I explained the situation and told him I did not feel comfortable asking his people to go out in these conditions without his permission. He lives about two miles from the base, and as we were talking a huge bolt of lightning and crack of thunder burst nearby.

"Holy cow!" he yelled into the phone, "that was close."

I assured him that the weather radar showed a short break in the cells within the hour, and that I would not risk going out to the planes unless that was the case.

The opinion about the break in the weather was mine only. No forecaster was going to say the storm was "not progressing as forecast." In fact, it was supposed to go on for hours. I had never used my special instrument

rating. I was always told that if the weather was bad enough for you to consider using your special rating, you shouldn't take off.

Not only was I going to have to use it, but I was asking my other aircraft commanders to do the same. In any other circumstance, given the conditions at the field, I would never even think about taking off in weather like that. Once again, we huddled together in the ready room, studied the radar animations on the computer and talked about options. If we were going to go, I really wanted to take off before it got dark. At least, if it's still daylight, we could pick our way around the cells and proceed out to the boat in relative VMC. Also, the E-2 community had recently invested in Garmin 696 portable GPS navigation units and, wisely, purchased the XM weather subscriptions. We had used the units in our aircraft for about 10 months. The XM weather capability is phenomenal.

With my assessed short break in the weather directly around NS Norfolk on hand, and armed with the 696s, I recommended to the crews that we walk to the planes and get airborne within the hour. We did one last group ORM discussion. I encouraged honesty and dissenting opinions; now or never was the prevailing thought. As we walked to the aircraft in the pouring rain, it was about 2030, and the long summertime day was quickly fading to night.

It was important to be the first one airborne. Not because of some sense of bravado, but I was asking other people to take on a big risk. I had to be the first one to assume that risk. We took off on runway 28, facing right into the oncoming storms. It was now dark, and we couldn't see the clouds, only the lightning. Fortunately, the departure controller rather quickly gave us a turnout to the east. I needed no encouragement to point aircraft 600 toward the Chesapeake Bay Bridge Tunnel.

My rightseater, a junior pilot, had the 696 up and running, but he wasn't offering a lot of information. As we finished the remaining climb checklist items, I asked how it looked on the XM radar page.

"Not good," I think he said.

"Let me see," I responded.

He was right, it wasn't that good, but I could at least see that we needed to take a 20-degree turn to the left to avoid a cell. We were "in the goo" by 1,500 feet. I couldn't see anything except the occasional flashes of lightning. This was definitely not how I had envisioned my last fly-off from Norfolk.

The three other aircraft were airborne within about 10 minutes. As they checked-in on our squadron TAC frequency, I gave weather observations. It was dark, raining and very bumpy. On the approach-control frequency, I heard one of our air wing Hornet pilots say he was "on top" at FL190, coming out of Oceana.

I decided to go over the weather in front of us and passed this info to my other pilots. At 17,000 feet we still were not on-top, with no sign of it getting any better. I checked the outside-air-temperature gauge — we were close to freezing. The rain continued. I looked out the window, and saw ice forming on the spinner of the propeller and leading edge of the wing — not good. We needed to descend to an altitude well above freezing. My

copilot pointed out cells in front of us, and we weaved our way out to sea. The other aircraft all stayed low, also picking their way out to the ship.

Finally, around 60 miles out to sea, we made it through the weather and into real VMC. I passed this info to the other crews, and, one by one, they reported clear of the weather. It was a huge relief. All we had to do now was get aboard. The ship's TACAN was bent, as it had been for all of CQ, so we needed vectors to marshal. No worries, I thought, we'll probably just get vectored for a quick recovery.

When we checked in with marshal, though, we were given holding instructions, with no push time.

"That's strange," I thought.

There was such a sense of urgency to get us aboard, surely we are not going to get the "Hummer dance" after all of the weather drama. The Hummer dance is when the E-2 holds, and holds, and holds while the rest of the air wing finishes CQ. The handler does not want us on deck. I asked the marshal controller for an estimated push time. Silence.

Then, he came back and said, "Take max conserve."

I came back with, "600 needs to talk to a rep."

CAG answered, "You're coming down last." It was 2215.

"Copy that, sir. Should we expect 2300"?

"Not that late," he replied.

As it passed 2245, 2300, 2330, my agitation grew. I had taken four phone calls from various individuals aboard the Ike telling me how important it was to get aboard that night. I asked another squadron's personnel to man the flight line and start up our aircraft in thunderstorm condition 1. I took four aircraft flying into absolutely awful weather, and yet there seemed to be no hint of urgency upon our arrival, and no understanding of the weather situation back in Norfolk. Finally, around 2340, we pushed for recovery. At 2350, we landed aboard. Poetically, I was the last of our four E-2s to trap.

WE USED ONE OF THE NEXT FEW DAYS of our translant for our annual CRM training. I brought up the fly-on situation for discussion. I was interested to hear that my squadron folks had an almost completely different version of the communications aboard the Ike that day. The at-sea SDO from the fly-off did not remember using the words "operational necessity" on the phone with me, and he definitely did not remember CAG ever saying them. He thought he may have said, "You need to do what is operationally necessary," but I stick by what I heard. Those who had conveyed messages between air ops, the CAG staff, and those back on the beach did not intend to convey the impression of immediacy that we interpreted. Out of curiosity, I asked for a vote on if it had been up to them, who would have launched, and who would not have. It was about 60 to 40 for no launch.

My biggest lesson learned is that I should have talked with CAG directly, explained the weather situation, and asked for a "no later than" time for our arrival. There was a ton of perceived pressure from the boat, the stress of saying goodbye to family, concern for the weather, and for the safety of not only my aircrew and aircraft, but also for the personnel from VAW-125 on the flight line.

I do not know if the operational benefits outweighed the risks assumed. I had asked a lot of people to assume risk. Though it wasn't the worst weather I have ever flown in, it would have been little comfort had something gone wrong. I was incredibly concerned until I heard the last plane break out of the weather, and I didn't feel fully relieved until all four planes were on deck.

I never would have expected that a simple fly-on could become so complicated.

CDR. SLENTZ IS THE COMMANDING OFFICER OF VAW-121.

Analyst note:

While the Garmin 696 is a great addition to an aircraft that lacks weather radar, it does have limitations that need to be understood and briefed.

The National Transportation Safety Board (NTSB) issued a safety alert to warn pilots using in-cockpit, satellite weather-display systems that the NEXRAD "age indicator" can be misleading. The actual NEXRAD data can be as much as 20 minutes older than the age indication on the display in the cockpit. If misinterpreted, this difference in time can present potentially serious safety hazards to aircraft operating in the vicinity of fast-moving and quickly developing weather systems.

The NTSB has cited two fatal weather-related aircraft accidents in which NEXRAD images were displayed to the pilot that were presented as one-minute old on the age indicator, but contained information that was up to five to eight minutes behind the real time conditions.

In addition to raising pilot awareness on this issue, the safety alert also reminds pilots of the importance of obtaining a thorough preflight weather briefing. — LCdr. Shawn Frazier, E-2C analyst, Naval Safety Center.

ORM corner

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Weather

NOWHERE TO TURN

BY LT. JIM BATES, USCG

I remember being told during the final months of flight school how perishable some of my knowledge would become once I hit the fleet. New fleet copilots, though ultra-inexperienced in the aircraft, are often a squadron's subject-matter experts regarding the FAR/AIM (Federal Aviation Regulations/Aircraft Information Manual), 3710 and general instrument flying. This concept of knowledge and experience was certainly the case for us in our first few months out of the RAG. We were at an MCAS New River Phrog squadron, working through the earliest stages of the syllabus. However, not only would our book knowledge be challenged, but our guts to stand by that knowledge would be as well.

To our CO's credit, he was highly interested in the development of the new copilots and flew on many of our H-46 syllabus flights, especially the night-vision goggle (NVG) flights. One flight was scheduled to be a division, high-light level (HLL), NVG navigation and confined-area-landings (CALs) mission. The aircraft commanders were the CO, a squadron WTI (weapons training instructor), and our squadron ASO (aviation safety officer). The three copilots were the MAG XO, a first lieutenant peer and me. Another peer was working the ODO (operations duty officer) desk that night.

The weather conditions raised definite concerns. We were under a convective SIGMET (significant meteorological advisory), with conditions not expected to change through the night. These conditions were verified with our base weather office and the flight service station (FSS). I found it interesting that the area immediately surrounding our airfield looked fine. Because of our favorable observations of the local weather, I called one of the forecasters to ask her if the "weather was not progressing as forecast," which is the key term from the 3710 needed to launch. She said it absolutely was progressing as forecast, and there were weather conditions within the boundaries of the convective SIGMET as serious as she'd seen in 25 years of forecasting.

Our mission brief was complete, and the CO was waiting to hear what the forecaster said. My buddy and I reported to his office, thinking this was going to be a no-brainer cancellation. The other three pilots also were waiting in his office. I explained to the CO the boundaries of the SIGMET, the conditions expected (severe), and how the weather was progressing as forecast.

He looked out his window, confirming the still favorable conditions in our immediate area and said, "You should have asked her if the forecast weather was in our operating area."

Those are absolutely not the key words you needed from a forecaster to launch into a convective SIGMET. However, I didn't expect my CO to know the 3710 as intimately as a recent flight-school grad. He was a lieutenant colonel who'd been out of Pensacola for about 16 years.

I confidently explained to him that what we needed to hear was, "Not progressing as forecast."

He disagreed. The silence of everyone else in his office, except for my fellow first lieutenant (who supported my interpretation), suggested they either agreed with the CO or were afraid to take my side.

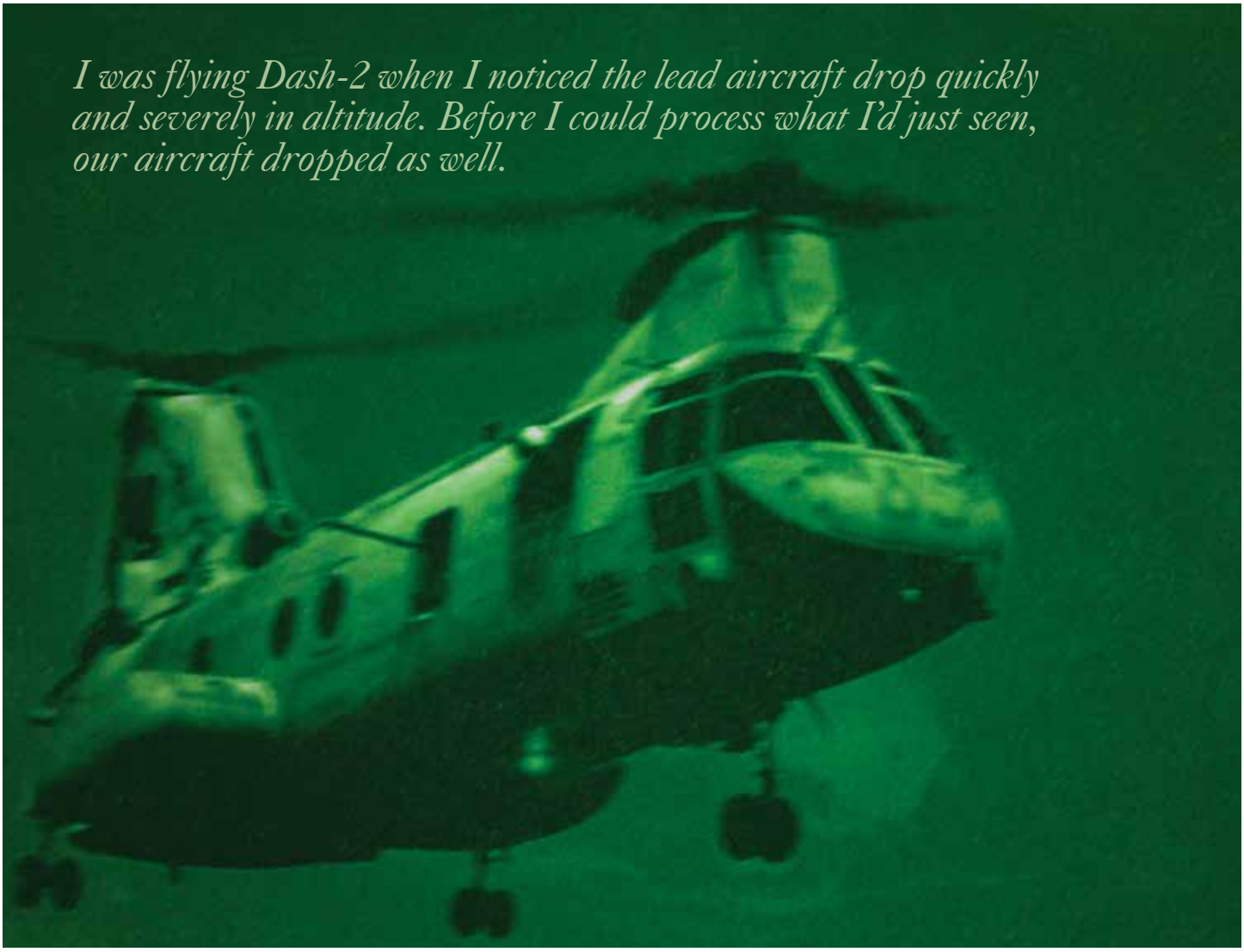
The CO told me to call the forecaster (in front of everybody) from his phone and ask her if the forecast weather was in our operating area. It was the same lady

I'd talked to earlier, and I could tell she was confused as to why I still seemed unclear about the weather situation. She didn't realize I had two O-5s, an O-4, and an O-3 staring at me while I tried to get some convoluted, nonregulation blessing to fly on a night we shouldn't be flying. After getting her to admit that the conditions of the SIGMET were not currently present in our area, the CO decided we would launch but stay close to the airfield. He also received a resounding "thumbs-up" from the MAG XO, ASO, and WTI. We first lieutenants were less than enthused.

MY BUDDIES AND I CONFERRED PRIVATELY, and we agreed that we shouldn't launch per the 3710. Clearly the CO thought the "not progressing as forecast" judgment was for him to make, not the forecaster. Perhaps he wasn't familiar with the term. Either way, he was determined to make this launch happen before the HLL window closed for the month. We weren't all-out ordered to fly, but there was significant pressure. We went against our knowledge and judgment, and then walked to the aircraft with our aircraft commanders (ACs). Our fellow copilot, who was the ODO that night, was not happy with the situation. He did, however, seem relieved that he would be flying a desk for the next couple hours instead of a helo.

Before we made it out of the hangar, the squadron WTI scolded us for challenging the CO on the weather issue. He said that right or wrong, we should not have put the CO in that situation. The situation we put the CO in did not compare to what could happen to us if we got airborne.

We took off but never made it to the navigation route because of low ceilings and lightning. Returning to the Camp Lejeune area, we accomplished a few CALs before one of the aircraft suggested we RTB



because of the increasing rain around us. We set up to land in formation at MCAS New River at the 90-degree position of the pattern. I was flying Dash-2 when I noticed the lead aircraft drop quickly and severely in altitude. Before I could process what I'd just seen, our aircraft dropped as well. I suppose that was one of the microbursts the forecaster had warned us about. After that quick scare, the division landed and taxied to the line without incident.

The debrief focused solely on the flight and the crazy conditions we all experienced on our final landing. The actual decision to launch was not mentioned, and my buddy and I didn't push the issue. We were happy to be back on deck. Only privately did we discuss with the rest of our cadre of CPs how the 3710 guidance regarding convective SIGMETs validated itself that night. I did overhear the ASO the next morning tell another pilot, "Man, we should have never launched last night." Hearing that, I immediately remembered how the ASO didn't make a peep in the CO's office the night before. I considered that extremely weak.

I often think back about our command climate and overall safety posture that night: excessive pressure to get an X, excessive professional courtesy toward a CO, a weak ASO, no ORM program (none formally existed then), and a lack of fundamental knowledge of basic regulations. Though I was in a tough spot, I also faulted myself. If I had refused to fly, there would have been no division, and the flight would not have had any reason to launch. Or, perhaps I would have been replaced by the ODO, a smart and talented officer. Later that year he would turn in his wings after his threshold for weathering the poor command climate was finally breached. The squadron as a whole had a directed, external safety review because of a few other red flags which surfaced later that year.

Naval and Coast Guard aviation culture is in a better place now with accepted and effective tools to help overcome cultural barriers. Our study and use of crew resource management (CRM) helps prevent rank from getting in the way of sound decision-making. Our operational risk management (ORM) tools help give us a clearer picture of events where risks outweigh the benefits and help us make better decisions. Anonymous reporting tools like aviation safety awareness program (ASAP) now exist to raise awareness of hazardous experiences. The question must be raised: Are ASOs and WTIs still challenged by members of their command who attempt to cut corners, reinterpret rules, or simply forget the rules? Possibly, but they also have tools that empower them to assertively voice their opinions and cut through the rank gradients.

This flight was not nearly as extreme as some others that have been published in *Approach*. The biggest tragedy here was that two young copilots felt they had nowhere to turn. Whether endeavoring to serve as FSOs/ASOs, instructor pilots, or commanding officers, we must remember the good as well as the bad examples we've had in our careers. We must strive to be better than those who've gone before us.

What did I learn that day? Never accept a flight against your better judgment, up to the limits of disobedience of a lawful order. Leaders must always enable aircrew to provide a dissenting opinion and consider those opinions. Dissent is not mutiny, it is the mark of a professional. Finally, speaking as an ASO, ensure your pilots and enlisted aircrew have somewhere to go when the traditional lines of communication are found to be blocked.

LT. BATES IS THE COAST GUARD INSTRUCTOR AT THE NAVY SCHOOL OF AVIATION SAFETY.

Mishap-Free Milestones

VP-4	254,000 hours	40 years
HSM-41	170,000 hours	30 years

Roaming the Desert

BY LT. RYAN SOLOMON

"… makes me look for those little things I might have missed."
— VP-46 maintainer

Aviation squadrons implement a wide variety of programs to ensure a safe working environment and to guarantee mission success. Programs range from anonymous reports to squadron newsletters to quarterly safety briefs. During our 2012 Fifth Fleet Deployment, VP-46 implemented a "Safety Rover Program," which strengthened the safety awareness throughout the squadron, proving that sometimes the simplest ideas produce the most meaningful results.

During daily flight operations, an officer is designated on that day's flight schedule to be the rover. He or she roams the flight line and squadron spaces to observe aircraft launches and recoveries. The rover also evaluates the squadron's work environment. This program stems from knowing that complacency in the air or on the flight line poses the greatest hazard to our Sailors and aircraft. Anyone who settles into the routine of deployment can easily become complacent. "I've done this a thousand times" is the mantra, especially once flight operations hit full stride.

When asked about the Safety Rover Program, one maintainer commented, "Even though they don't know the finer points of my job, their presence makes me look for those little things I might have missed." He

added that he asks himself, "Am I really doing things by the book?"

The presence of an observer combats the human tendency to cut corners. Take the example of a Sailor using a bucket to substitute for a ladder. In a time crunch, why waste time searching for a ladder? The correct choice is easy from the observer's point-of-view, but when we become "scope-locked" on a particular task, the right choice might not seem as obvious. The safety rover does not need to know the finer points of every duty performed on the flight line or in the shop, but instead needs to make an honest, unbiased assessment concerning safety. The program centers on the fact that an untrained eye sometimes catches the most overlooked hazards.

Grey Knight safety rovers have been invaluable in correcting discrepancies and unsafe practices throughout the command. Their daily reports identified trends that might have otherwise gone unnoticed. On one patrol, the safety rover identified a problem with desert sediment accumulating in the eye-washing stations. This problem, which affected seldom-used hardware, might have escaped notice. The eye-washing stations were moved indoors, removing them from the harsh environment and eliminating the problem.

reminding us that we all have an important role to play in mission execution. The program fosters a knowledgeable work environment, promoting cohesion and understanding throughout the ranks.

Our commanding officer, Cdr. C.A. Kijek explains, "Our safety rover program was initially an experiment into ways to improve our overall safety climate. Since its inception it has surpassed all our expectations for success. Our climate has been trending upwards based on our surveys, and we have received more safety suggestions than ever before." Skipper Kijek goes on to say,

"The trend reports that we generate each month have helped us identify and fix numerous discrepancies that would have otherwise gone unnoticed. This is a program that I would highly recommend to any skipper in the fleet."

Safety is not the squadron's mission — the mission is the mission. The rover's presence is a constant reminder that we must perform our duties with safety in mind, regardless of the task. Complacency has no place in anything we do, the consequence of letting down our guard could cause damage to equipment or, worse, loss of life.

LT. SOLOMON FLIES WITH VP-46.

"The trend reports that we generate each month have helped us identify and fix numerous discrepancies that would have otherwise gone unnoticed. This is a program that I would highly recommend to any skipper in the fleet."

While safety rovers provide valuable information and support numerous adjustments to the business of deployment, their greatest benefit comes from reminding people to keep safety in mind. Their white vests symbolize our commitment to safe operations and the spread of a positive safety culture throughout the squadron. Their presence creates dialog about safe practices and provides our Sailors a simple and reliable way to report problems. This program also affords the opportunity for our junior officers and Sailors to learn more about each other's jobs,

Adopting some sort of "safety rover" or "safety pro" program should be considered a best practice and can strengthen any unit's safety management system. The mere presence of that "green cross" out on the deckplates during critical, or even routine, operations is a time-tested technique that might be the thing that breaks the links in a chain leading up to a mishap. — Editor.

We were current by NATOPS criteria to conduct the bombing mission, but there is a big difference between "current" and "proficient."

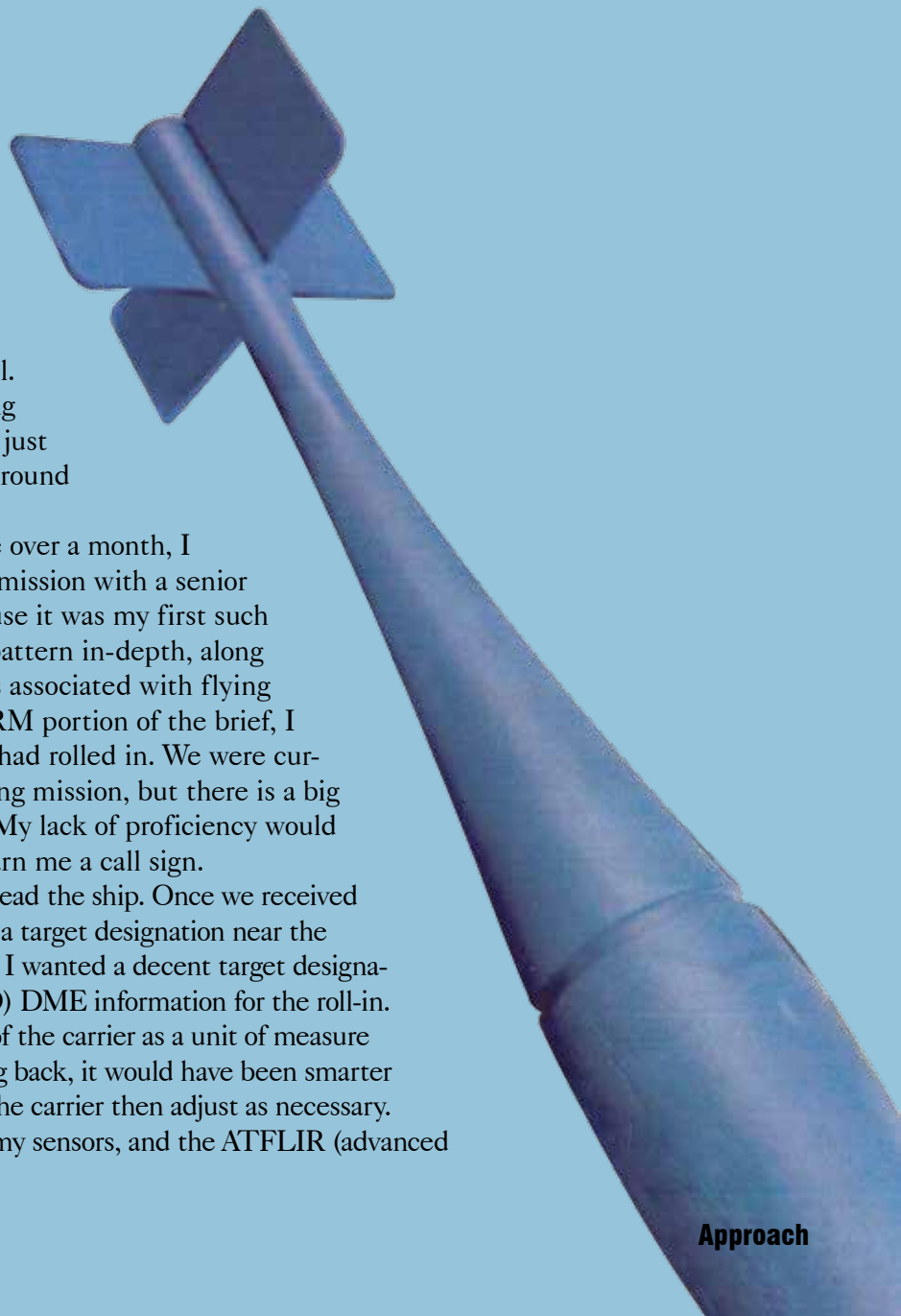
Bombing the Wake (Not the Carrier)
Scratch One Flat Top

BY LT. JAMESON FINCHER

As a new guy in the fleet, all you want to do is make a good first impression, demonstrate solid airmanship, work hard and be a good squadronmate. When I was that new guy, I joined my squadron on deployment. I quickly realized that the learning curve is nearly vertical. I quickly went from enjoying the pace of training at the FRS to drinking from the fleet fire hose, just trying to survive night traps and incorporate a ground job into my scan.

When I had been in the squadron for a little over a month, I was scheduled for a good-deal, bomb-the-wake mission with a senior department head. He was the flight lead. Because it was my first such hop, we discussed ORM and the CV bombing pattern in-depth, along with the mandatory admin and tac-admin items associated with flying from the ship. However, during the personal ORM portion of the brief, I failed to point out how long it had been since I had rolled in. We were current by NATOPS criteria to conduct the bombing mission, but there is a big difference between "current" and "proficient." My lack of proficiency would quickly become a major factor and ultimately earn me a call sign.

After the cat shot, I joined with my lead overhead the ship. Once we received clearance from tower to enter the pattern, I made a target designation near the back of the ship. We extended for the spacer pass. I wanted a decent target designation in order to have good heads-up display (HUD) DME information for the roll-in. Once in the pattern, I planned to use the length of the carrier as a unit of measure to adjust my designation to 1,000 feet aft. Looking back, it would have been smarter to place my designation roughly 1,000 feet aft of the carrier then adjust as necessary. However, I prioritized flying form over operating my sensors, and the ATFLIR (advanced



My lack of proficiency would quickly become a major factor and ultimately earn me a call sign.

targeting forward looking infrared) dropped from my scan. I started to get behind the jet.

As I broke into the pattern, my priorities were to maintain a visual of my lead and to get the jet established on the roll-in parameters. A thin layer of wispy clouds near our release altitude made it hard to keep sight of my lead. It also slowed my normal habit patterns as I worked through the air-to-ground checklist. Although I could still see my lead and the ship, the weather at the roll-in also made it difficult to simultaneously keep track of both. I kept falling behind the jet and fixating on the symbology in my HUD to glean roll-in DME information. After rolling in, I spent all my tracking time establishing my parameters without confirming the most important one: the designation.

I was even further behind the jet, fixated on nailing the parameters and not looking at the most critical part of dropping a bomb: determining where it's going to hit. During the dive, I was confident the designation was well aft of the ship, but I didn't verify how far aft. I fell back on my habit patterns, which I had used dozens of times in training. I placed my thumb on the pickle button and flew through the release cue. As I climbed away, I looked down to see two Mk-76 practice bombs fall about 300 feet aft of the carrier, well inside of the 1,000-foot no-drop area.

I was surprised, but I immediately realized my mistake. I was thankful that the bombs missed the stern of the carrier. But, the result easily could have been to "Scratch one flat top." After coming to grips with what just happened, I made the rest of my deliveries dry.

Causal factors for this incident included lack of currency and experience, and a breakdown in scan. But most significant was my strong desire to perform. I wanted to do well and make a good impression with my new command. I succeeded in making an impression, just not the one I wanted. In retrospect, I should have done a better job evaluating my personal ORM and balancing our prebriefed tactic with my proficiency level.

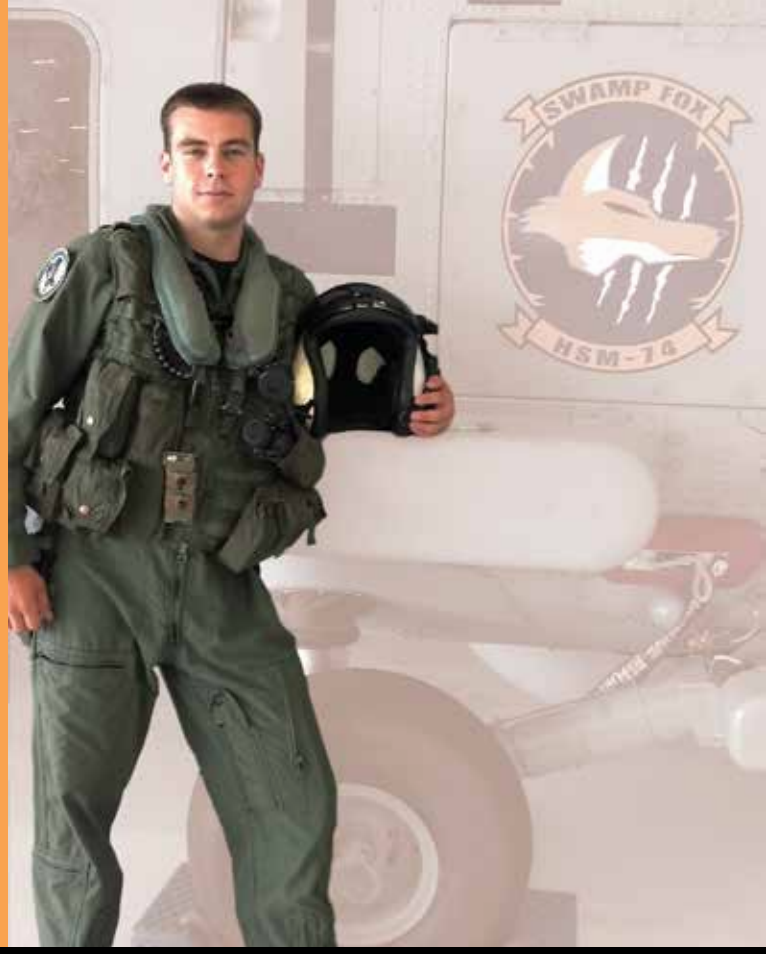
"Bombs on target, on time, first pass" is a valid goal. However, you should never feel pressured to get a bomb off unless everything is suitcased. Procedures and checklists exist for a reason, and at the end of the day, the pilot who signs for the jet is responsible for ensuring his ordnance goes where it's intended.

Before I release, I ask myself three questions. Is the jet set up appropriately? Do I have the correct target? Am I cleared to deliver this ordnance? If the answer to any of those questions is no, then my thumb stays off the pickle. I've learned to never force a bad situation, and to listen to my "gut" when I start feeling behind the jet.

The safety of those on the ground depends on me.

LT. FINCHER FLIES WITH VFA-115.

Editors note: Author's call sign is S.O.F.T. (scratch one flat top).



BRAVO Zulu

HSM-74

After their helicopter rolled into the pits for a hot refuel, AWR2 Ryan Quinn disembarked to monitor the refueling. The plane captain was having difficulty hooking-up the hose and could not get the helicopter to refuel. Petty Officer Quinn assisted by reconnecting the hose and then repressurized it. The aircraft took on about 1,000 pounds of fuel before AWR2 Quinn called to stop fueling because the hose was leaking steadily at the neck before the coupling.

The fuel hose was disconnected and the helicopter taxied back to the flight line without incident. Petty Oficer Quinn's experienced eye and quick reaction to the unexpected leak prevented a major fuel spill and a possible further rupturing of the leaking hose.

VP-5

After the completion of ground-maintenance turns and while refueling, the P-3C air-multiplier unit had a catastrophic failure and caught fire. AWF2(NAC) James Williams quickly boarded the aircraft and secured ground air conditioning. This action secured power to the air-multiplier unit. He told AWO2(NAC) Travis Hamilton of the fire, and he secured power to the aircraft by turning off the auxiliary power unit (APU).

Petty Oficer Williams quickly exited the aircraft, disconnected the fueling hose, and directed the fuel-truck driver to clear the scene. He then discharged a fire bottle into the air-multiplier unit, which extinguished the fire.

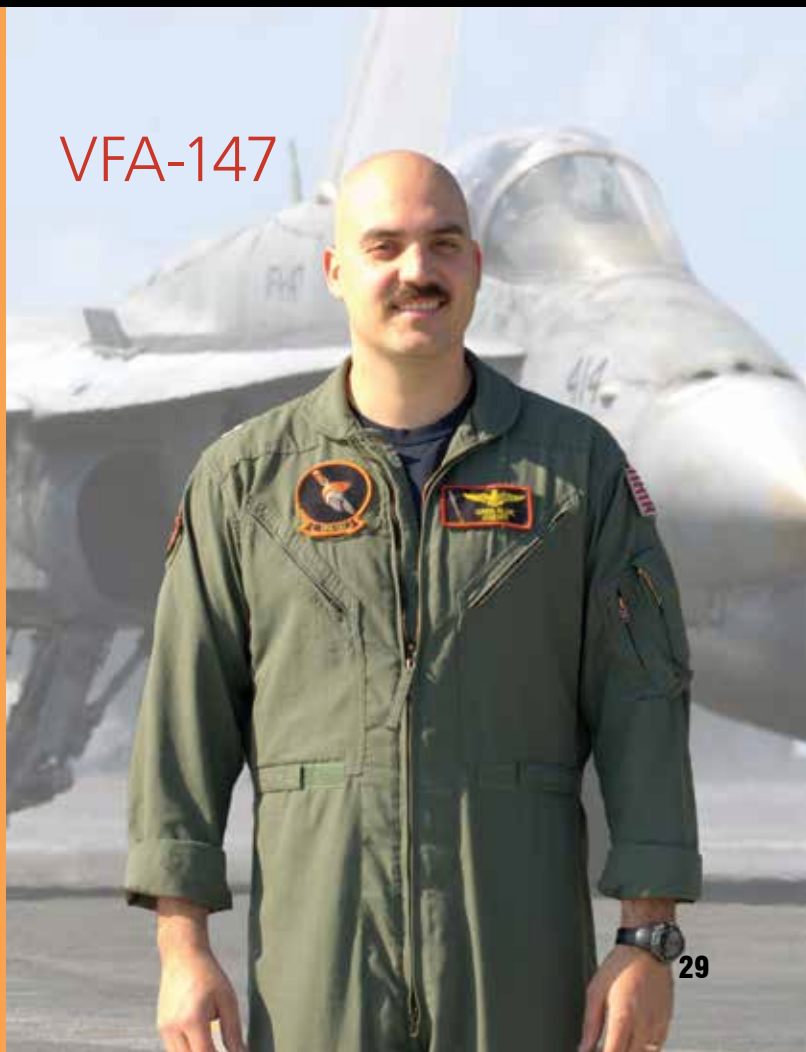
Their quick thinking and decisive actions minimized damage to the aircraft and likely prevented a fuselage fire.

Left to right: AWF2(NAC) James Williams, AWO2(NAC/AW) Travis Hamilton.

VP-9

AWF2 Christopher Pottage was performing his P-3C interior postflight when he saw the fuel truck roll forward and stop. With the truck on the starboard side of the aircraft, AWF2 Pottage noticed the hose was not stowed and was spilling fuel. Because the truck had not been secured, the fueling hose had ripped from the aircraft's fueling-port adapter. He immediately shut down the auxiliary power unit (APU) and ran into the hangar to notify maintenance control. He then grabbed the spill kit to contain the fuel, helped by the ground-maintenance crew.

VFA-147



Lt. Greg Blok and his flight lead were on a night, large force exercise training mission from USS Nimitz (CVN 68). His lead experienced a series of rapid cabin decompressions, which resulted in decompression sickness (DCS). They completed the emergency procedures and discussed the situation with the squadron representative on the ship. The decision was made to divert to MCAS Miramar. Because of the debilitating nature of his flight lead's symptoms, including vertigo, inner ear pain, nausea and neurological effects, Lt. Blok coordinated and lead the divert.

With his wingman's cognitive skills quickly deteriorating, Lt. Blok lead him to Miramar while keeping him actively engaged through intra-flight checks and conversation. At the end of the night, his wingman recovered, in no small part due to Lt. Blok's flight leadership and sound judgment.

Dual Bleeds Over the Pacific

BY CAPT. NATHAN WEINBERG

Our FA-18D squadron was relocating from Kaneohe Bay, Hawaii, to Iwakuni, Japan. It was my first transpac flight and I was Dash 4 in a division. Our tanker was a KC-10A, and we expected a relatively stress-free leg from Hawaii to Wake Island.

We made it through the first two aerial-refueling (AR) points without any issues and were getting into a rhythm. As we arrived at the third AR, we encountered clouds, but they were thin and the flight remained smooth. As Dash 4, we were last to fuel. We slid back to the basket and plugged. A few minutes later, I heard a sound that was quite familiar. I've heard it many times; however, this was the first time I had heard it when not holding the fire-test switch.

"Bleed air left, bleed air left, bleed air right, bleed air right."

I looked down and saw both BLEED warning lights illuminated. I paused, then slowly slid out of the basket to collect my thoughts. Then the warning lights went out and were replaced by "L and R Bleed Off" cautions. The bleed-air-leak-detection (BALD) system had commanded the bleed-air valves to close, which shut off the bleed air leaking into the engine compartment. My weapon systems officer (WSO) and I quickly discussed what had happened. We executed the bold-face emergency procedures, including pulling the emergency-oxygen green ring.

The tanker asked if we were satisfied, wondering why we had taken less fuel than expected. I let everyone know what had happened and that we needed to land as soon as possible. I slid over to my lead in anticipation of separating from the tanker. As I slid the clouds grew thicker.

Everyone struggled to keep sight, and we quickly discussed the nearest divert. We were in the middle of

the Pacific and the nearest divert, Midway Atoll, was 500 miles away. We knew the field had no instrument approaches, but the delivery control officer (DCO) had briefed us that the weather would be VFR. As the clouds grew thicker, and as my lead momentarily lost sight of the tanker, the book readers in the KC-10 crunched the numbers. They determined we could easily fly to Midway with our fuel load of 14,400 pounds. Relieved, my section split from the tanker, started a descent below 10,000 feet per the emergency procedures, and turned north toward Midway. We reset the emergency oxygen and verified our fuel load. The flight performance advisory system (FPAS) indicated we would have 6,400 pounds of fuel when we reached Midway.

Once we were headed in the right direction, my WSO and I double-checked where we were on the emergency procedures. We then went through the remainder of the steps. As we got to step 11, "Ext Tank Switch – Stop," it finally dawned on me that because the bleeds had been secured to prevent a fire, all the fuel in the external tanks could not be transferred. We had 4,800 pounds in the three external tanks, so the 6,400 pounds FPAS said we would have at Midway was actually only 1,600 pounds of usable fuel.

Without pause, I transmitted over the auxiliary radio, "I can't use any of my external fuel."

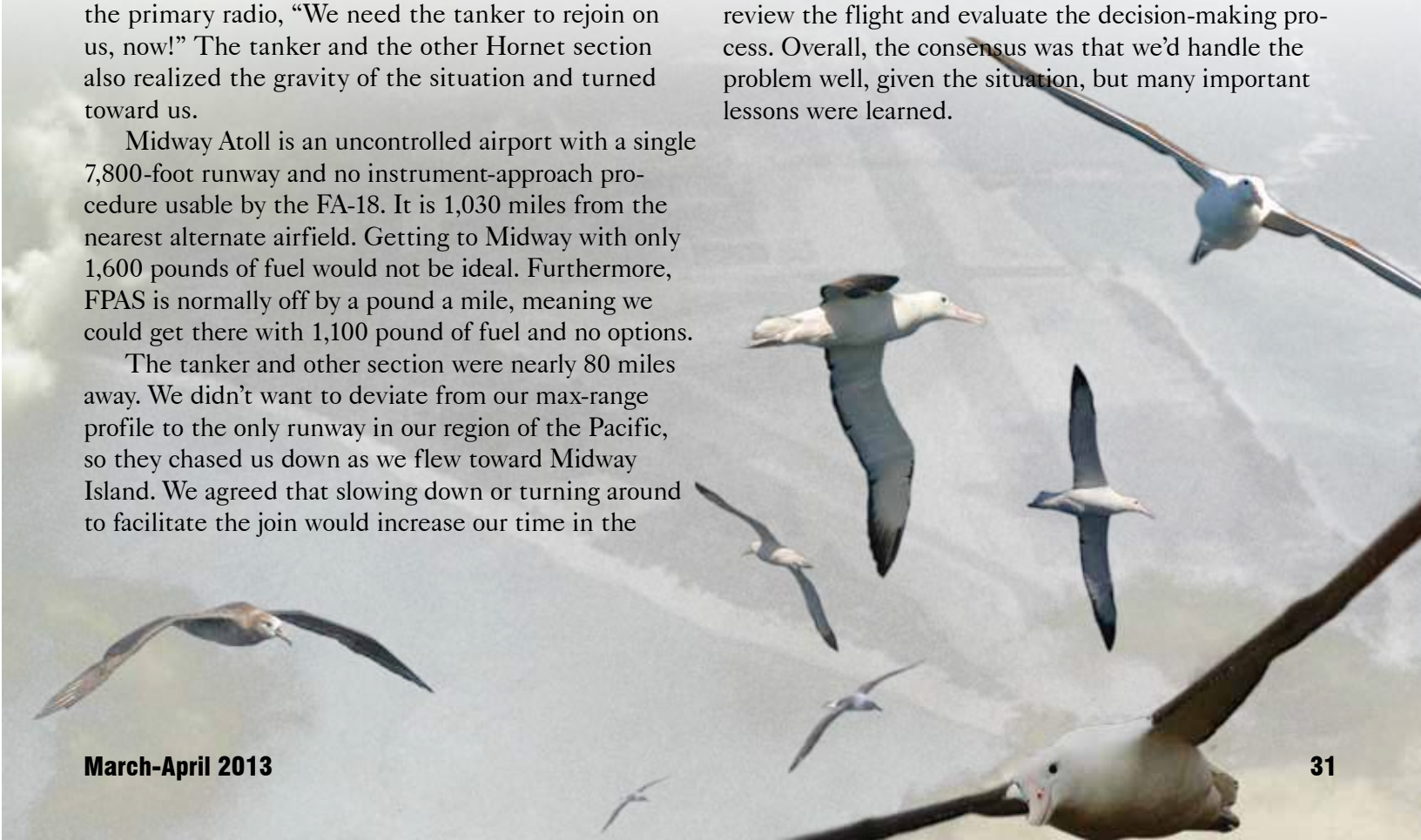
Lead immediately understood and responded on the primary radio, "We need the tanker to rejoin on us, now!" The tanker and the other Hornet section also realized the gravity of the situation and turned toward us.

Midway Atoll is an uncontrolled airport with a single 7,800-foot runway and no instrument-approach procedure usable by the FA-18. It is 1,030 miles from the nearest alternate airfield. Getting to Midway with only 1,600 pounds of fuel would not be ideal. Furthermore, FPAS is normally off by a pound a mile, meaning we could get there with 1,100 pound of fuel and no options.

The tanker and other section were nearly 80 miles away. We didn't want to deviate from our max-range profile to the only runway in our region of the Pacific, so they chased us down as we flew toward Midway Island. We agreed that slowing down or turning around to facilitate the join would increase our time in the air and might prevent us from reaching a runway if we couldn't take gas. We then discussed whether to jettison the external fuel tanks or to cycle the bleeds. Fortunately, the tanker caught up to us before any irreversible decisions had to be made.

I quickly plugged and got a few thousand pounds of fuel, then continued to that beautiful runway in the middle of the Pacific Ocean. With the airfield in site, I dropped the landing gear and commenced the approach. We were half a mile from the approach end when my view of the runway was obstructed by hundreds of large albatrosses. With little hesitation, I waved off and brought it around for another attempt. As we climbed away from the birds we got an AV AIR HOT caution; we needed to get on the ground. I told my WSO that we had to land on the next pass. On our second attempt the flock of birds had shifted. We weaved through the dozen that remained and landed without incident. Lead landed shortly after we did. With both aircraft on deck, the tanker continued on to Wake with the other section.

My WSO, the other two aircrew, and I, spent the next 11 days on Midway Atoll. We were on a wildlife refuge inhabited only by a few dozen people and up to 1.6 million birds. We were the first Hornet crews to land on the island in more than four years, so we were received with considerable fanfare. As we waited for the maintenance detachment, we had plenty of time to review the flight and evaluate the decision-making process. Overall, the consensus was that we'd handle the problem well, given the situation, but many important lessons were learned.



First, a bleed-air problem over the Pacific is a much more significant emergency than the same issue would be over the continental United States. All of the fuel planning for diverts assumes fuel in the externals is usable, and that the aircraft is able to cruise at a fuel efficient altitude. Those assumptions were not valid in this situation. There was certainly enough fuel to reach Midway, but no one in the flight had adequately prepared for this contingency, and the book-readers in the tanker were not spring-loaded to execute the required fuel analysis.

Second, FPAS is only a tool and can lie to you if you let it, especially if you have trapped fuel. I knew our descent to 10,000 feet would significantly reduce our fuel-remaining at Midway, but once we leveled off and saw 6,400 pounds of fuel, I trusted that we had enough. Unfortunately, we had not accounted for the fuel trapped in the externals, and FPAS had not either. FPAS does factor in altitude, airspeed, winds aloft and drag. It is more accurate than the calculations aircrew make inflight. However, aircrew cannot rely on FPAS calculations if there is fuel trapped in any tank.

Third, crew resource management (CRM) is more effective when the entire situation is communicated to everyone. My WSO and I told the flight what had happened, but we did not adequately communicate how far through the emergency procedures we had progressed. Weather was definitely an issue, forcing the pilots to focus on keeping sight. Geography kept the WSOs focused on the best divert. If we had shed tasks and directed the tanker riders to read the notes, warnings, and cautions associated with dual bleed warning lights, the flight may have collectively identified the trapped fuel sooner.

Conversely, once everyone was on the same page, the CRM process prevented the emergency from turning into a disaster. As soon as the trapped fuel was identified, a single phrase from our cockpit was all it took to rectify the situation and have the rest of the flight instantly change course. My flight lead and I agreed that we would not deviate from our max-range profile. The other section used radar to steer the tanker for the rejoin. The tanker riders crunched the numbers to see if they would have enough fuel for us and to drag the other section to the more suitable runway on Wake Island. Once the weather cleared and the nerves settled, communication flowed. Our ability to forecast — rather than just react to — the situation prevented any additional errors.

The night we landed on Midway Atoll, a maintenance crew flew in and identified that the bleed-air leak had been caused by a manufacturing error in the environmental control systems (ECS) turbine. This allowed bleed air to leak into the keel engine compartment. We spent 10 more nights on that remote island before joining a tanker en route from Hawaii to Wake and finally to Japan.

It was the first time I had seen a warning light illuminate while airborne and the first time I had pulled the emergency oxygen green ring. It was the last time I would ever take the bleed-air system for granted.

CAPT. WEINBERG FLIES WITH VMFA(AW)-225.

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TAKEOFFS AND LANDINGS TEND TO BECOME "STANDARD" WHEN REALLY THEY ARE THE MOST LIKELY PLACE FOR THINGS TO QUICKLY BECOME "NON-STANDARD."

Lt. Brian Smith and Lt. Nick Charnas, VAQ-132